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**Latitude 50° - 59°**  
Declination SAME name as Latitude



# **Sight-Reduction Tables for Latitude 50° - 59°**

**Declination SAME name as Latitude**

Revision V1.2 - Apr2017

Warning and Terms of Usage:

The following pages have been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data. The data in these Tables is believed to be accurate but no warranty is given for its correctness.

Use these Tables only for training and exercising!

Compiled by Erik De Man (mail2erik@siranah.de) on Tue Apr 11 09:22:20 2017



# Purpose and Scope

The following tables are designed to determine Altitude and Azimuth of a celestial object, given the position of the observer (Latitude - Longitude) and the coordinates of the celestial object (Declination - GHA). Using the Altitude-Intercept Method, the calculated Altitude  $H_c$  and Azimuth  $Z_c$  may be used to refine the observer's position by comparing the calculated Altitude  $H_c$  with the observed Altitude  $H_o$  obtained by means of a sextant measurement.

The tables on the following pages were calculated according to:

$$H_c = \text{asin} ( \sin(\text{Latitude}) * \sin(\text{Declination}) + \cos(\text{Latitude}) * \cos(\text{Declination}) * \cos(\text{LHA}) )$$
$$Z = \text{atan} ( \frac{\cos(\text{Declination}) * \sin(\text{LHA})}{\cos(\text{Latitude}) * \sin(\text{Declination}) - \sin(\text{Latitude}) * \cos(\text{Declination}) * \cos(\text{LHA})} )$$

The Local Hour Angle (LHA) is the angle measured westward from the observer's Meridian to the Hour Circle of the observed celestial object:  $LHA = GHA + Longitude$ .

The tables are organized with the Latitude value as primary parameter. The Latitude value is printed on the first line of each page. The particular values for Declination (Dec) and LHA are read from the vertical and horizontal labels of the tables respectively. Notice that each table entry is valid for two different values of LHA related by  $LHA_1 = 360^\circ - LHA_2$  (conjugate LHA angles).

The covered range of the Declination values is limited from  $0^\circ$  to  $29^\circ$ , which applies to the Declination of the Sun, the Moon and the planets used for celestial navigation. The LHA range is such that the resulting Altitude is positive (object above the local horizon).

For practical Sight Reduction this manual is used as follows:

1. select the correct part of the manual (Declination "SAME as" / "CONTRARY to" Latitude),
2. select the correct Latitude page,
3. select the correct LHA column from one of the sub-tables,
4. read the  $H$ ,  $dH$  and  $Z$  values from the correct Declination (integral value) line.

Further steps include interpolation for the specific (fractional) value of Declination and determination of the true Azimuth value  $Z_c$  according to the following rules:

Latitude NORTH	LHA > 180°: $Z_c = Z$
	LHA < 180°: $Z_c = 360^\circ - Z$
Latitude SOUTH	LHA > 180°: $Z_c = 180^\circ - Z$
	LHA < 180°: $Z_c = 180^\circ + Z$



Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	40 00.0 +60.0 180.0	39 59.6 +60.0 178.7	39 58.2 +60.0 177.4	39 56.0 +60.0 176.1	39 53.0 +59.9 174.8
1°	41 00.0 +60.0 180.0	40 59.6 +59.9 178.7	40 58.2 +60.0 177.4	40 56.0 +59.9 176.0	40 52.9 +59.9 174.7
2°	42 00.0 +60.0 180.0	41 59.5 +60.0 178.7	41 58.2 +60.0 177.3	41 55.9 +60.0 176.0	41 52.8 +59.9 174.6
3°	43 00.0 +60.0 180.0	42 59.5 +60.0 178.6	42 58.2 +59.9 177.3	42 55.9 +59.9 175.9	42 52.7 +59.8 174.5
4°	44 00.0 +60.0 180.0	43 59.5 +60.0 178.6	43 58.1 +60.0 177.2	43 55.8 +59.9 175.8	43 52.5 +59.9 174.5
5°	45 00.0 +60.0 180.0	44 59.5 +60.0 178.6	44 58.1 +60.0 177.2	44 55.7 +60.0 175.8	44 52.4 +59.9 174.4
6°	46 00.0 +60.0 180.0	45 59.5 +60.0 178.6	45 58.1 +59.9 177.1	45 55.7 +59.9 175.7	45 52.3 +59.9 174.3
7°	47 00.0 +60.0 180.0	46 59.5 +60.0 178.5	46 58.0 +60.0 177.1	46 55.6 +59.9 175.6	46 52.2 +59.8 174.2
8°	48 00.0 +60.0 180.0	47 59.5 +60.0 178.5	47 58.0 +60.0 177.0	47 55.5 +59.9 175.6	47 52.0 +59.9 174.1
9°	49 00.0 +60.0 180.0	48 59.5 +60.0 178.5	48 58.0 +59.9 177.0	48 55.4 +60.0 175.5	48 51.9 +59.9 174.0
10°	50 00.0 +60.0 180.0	49 59.5 +60.0 178.5	49 57.9 +60.0 176.9	49 55.4 +59.9 175.4	49 51.8 +59.8 173.9
11°	51 00.0 +60.0 180.0	50 59.5 +60.0 178.4	50 57.9 +60.0 176.9	50 55.3 +59.9 175.3	50 51.6 +59.9 173.8
12°	52 00.0 +60.0 180.0	51 59.5 +60.0 178.4	51 57.9 +59.9 176.8	51 55.2 +59.9 175.2	51 51.5 +59.8 173.7
13°	53 00.0 +60.0 180.0	52 59.5 +59.9 178.4	52 57.8 +60.0 176.8	52 55.1 +59.9 175.1	52 51.3 +59.8 173.5
14°	54 00.0 +60.0 180.0	53 59.4 +60.0 178.3	53 57.8 +59.9 176.7	53 55.0 +59.9 175.1	53 51.1 +59.9 173.4
15°	55 00.0 +60.0 180.0	54 59.4 +60.0 178.3	54 57.7 +60.0 176.6	54 54.9 +59.9 175.0	54 51.0 +59.8 173.3
16°	56 00.0 +60.0 180.0	55 59.4 +60.0 178.3	55 57.7 +59.9 176.6	55 54.8 +59.9 174.8	55 50.8 +59.8 173.1
17°	57 00.0 +60.0 180.0	56 59.4 +60.0 178.2	56 57.6 +60.0 176.5	56 54.7 +59.9 174.7	56 50.6 +59.8 173.0
18°	58 00.0 +60.0 180.0	57 59.4 +60.0 178.2	57 57.6 +59.9 176.4	57 54.6 +59.8 174.6	57 50.4 +59.7 172.8
19°	59 00.0 +60.0 180.0	58 59.4 +60.0 178.2	58 57.5 +60.0 176.3	58 54.4 +59.9 174.5	58 50.1 +59.8 172.7
20°	60 00.0 +60.0 180.0	59 59.4 +60.0 178.1	59 57.5 +59.9 176.2	59 54.3 +59.9 174.4	59 49.9 +59.8 172.5
21°	61 00.0 +60.0 180.0	60 59.4 +59.9 178.1	60 57.4 +59.9 176.2	60 54.2 +59.8 174.2	60 49.7 +59.7 172.3
22°	62 00.0 +60.0 180.0	61 59.3 +60.0 178.0	61 57.3 +60.0 176.1	61 54.0 +59.9 174.1	61 49.4 +59.7 172.1
23°	63 00.0 +60.0 180.0	62 59.3 +60.0 178.0	62 57.3 +59.9 175.9	62 53.9 +59.8 173.9	62 49.1 +59.7 171.9
24°	64 00.0 +60.0 180.0	63 59.3 +60.0 177.9	63 57.2 +59.9 175.8	63 53.7 +59.8 173.8	63 48.8 +59.7 171.7
25°	65 00.0 +60.0 180.0	64 59.3 +60.0 177.9	64 57.1 +59.9 175.7	64 53.5 +59.8 173.6	64 48.5 +59.7 171.5
26°	66 00.0 +60.0 180.0	65 59.3 +59.9 177.8	65 57.0 +59.9 175.6	65 53.3 +59.8 173.4	65 48.2 +59.6 171.2
27°	67 00.0 +60.0 180.0	66 59.2 +60.0 177.7	66 56.9 +59.9 175.4	66 53.1 +59.8 173.2	66 47.8 +59.6 170.9
28°	68 00.0 +60.0 180.0	67 59.2 +60.0 177.6	67 56.8 +59.9 175.3	67 52.9 +59.7 173.0	67 47.4 +59.5 170.6
29°	69 00.0 +60.0 180.0	68 59.2 +59.9 177.6	68 56.7 +59.9 175.1	68 52.6 +59.8 172.7	68 46.9 +59.5 170.3

Dec	LHA 005° / 355°	LHA 006° / 354°	LHA 007° / 353°	LHA 008° / 352°	LHA 009° / 351°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	39 49.0 +59.9 173.5	39 44.2 +59.8 172.2	39 38.6 +59.6 170.9	39 32.0 +59.6 169.6	39 24.6 +59.5 168.3
1°	40 48.9 +59.8 173.4	40 44.0 +59.8 172.1	40 38.2 +59.7 170.8	40 31.6 +59.6 169.5	40 24.1 +59.5 168.1
2°	41 48.7 +59.8 173.3	41 43.8 +59.7 172.0	41 37.9 +59.7 170.6	41 31.2 +59.6 169.3	41 23.6 +59.4 168.0
3°	42 48.5 +59.9 173.2	42 43.5 +59.8 171.8	42 37.6 +59.6 170.5	42 30.8 +59.5 169.1	42 23.0 +59.5 167.8
4°	43 48.4 +59.8 173.1	43 43.3 +59.7 171.7	43 37.2 +59.7 170.3	43 30.3 +59.5 169.0	43 22.5 +59.4 167.6
5°	44 48.2 +59.8 173.0	44 43.0 +59.7 171.6	44 36.9 +59.6 170.2	44 29.8 +59.6 168.8	44 21.9 +59.4 167.4
6°	45 48.0 +59.8 172.9	45 42.7 +59.7 171.4	45 36.5 +59.6 170.0	45 29.4 +59.5 168.6	45 21.3 +59.3 167.2
7°	46 47.8 +59.8 172.7	46 42.4 +59.7 171.3	46 36.1 +59.6 169.9	46 28.9 +59.4 168.4	46 20.6 +59.4 167.0
8°	47 47.6 +59.8 172.6	47 42.1 +59.7 171.2	47 35.7 +59.6 169.7	47 28.3 +59.5 168.2	47 20.0 +59.3 166.8
9°	48 47.4 +59.7 172.5	48 41.8 +59.7 171.0	48 35.3 +59.6 169.5	48 27.8 +59.4 168.0	48 19.3 +59.3 166.6
10°	49 47.1 +59.8 172.4	49 41.5 +59.7 170.8	49 34.9 +59.5 169.3	49 27.2 +59.5 167.8	49 18.6 +59.3 166.3
11°	50 46.9 +59.8 172.2	50 41.2 +59.6 170.7	50 34.4 +59.6 169.1	50 26.7 +59.3 167.6	50 17.9 +59.2 166.1
12°	51 46.7 +59.7 172.1	51 40.8 +59.7 170.5	51 34.0 +59.5 168.9	51 26.0 +59.4 167.4	51 17.1 +59.2 165.8
13°	52 46.4 +59.8 171.9	52 40.5 +59.6 170.3	52 33.5 +59.5 168.7	52 25.4 +59.3 167.2	52 16.3 +59.2 165.6
14°	53 46.2 +59.7 171.8	53 40.1 +59.6 170.1	53 33.0 +59.4 168.5	53 24.7 +59.4 166.9	53 15.5 +59.1 165.3
15°	54 45.9 +59.7 171.6	54 39.7 +59.6 169.9	54 32.4 +59.5 168.3	54 24.1 +59.2 166.6	54 14.6 +59.1 165.0
16°	55 45.6 +59.7 171.4	55 39.3 +59.5 169.7	55 31.9 +59.4 168.1	55 23.3 +59.3 166.4	55 13.7 +59.0 164.7
17°	56 45.3 +59.7 171.3	56 38.8 +59.6 169.5	56 31.3 +59.3 167.8	56 22.6 +59.1 166.1	56 12.7 +59.0 164.4
18°	57 45.0 +59.6 171.1	57 38.4 +59.5 169.3	57 30.6 +59.4 167.5	57 21.7 +59.2 165.8	57 11.7 +58.9 164.1
19°	58 44.6 +59.7 170.9	58 37.9 +59.5 169.1	58 30.0 +59.3 167.3	58 20.9 +59.1 165.5	58 10.6 +58.9 163.7
20°	59 44.3 +59.6 170.6	59 37.4 +59.4 168.8	59 29.3 +59.2 167.0	59 20.0 +59.0 165.1	59 09.5 +58.8 163.3
21°	60 43.9 +59.6 170.4	60 36.8 +59.4 168.5	60 28.5 +59.3 166.7	60 19.0 +59.0 164.8	60 08.3 +58.7 162.9
22°	61 43.5 +59.5 170.2	61 36.2 +59.4 168.2	61 27.8 +59.1 166.3	61 18.0 +58.9 164.4	61 07.0 +58.7 162.5
23°	62 43.0 +59.6 169.9	62 35.6 +59.4 167.9	62 26.9 +59.1 166.0	62 16.9 +58.9 164.0	62 05.7 +58.5 162.1
24°	63 42.6 +59.5 169.6	63 35.0 +59.2 167.6	63 26.0 +59.1 165.6	63 15.8 +58.7 163.6	63 04.2 +58.5 161.6
25°	64 42.1 +59.4 169.3	64 34.2 +59.3 167.3	64 25.1 +58.9 165.2	64 14.5 +58.7 163.1	64 02.7 +58.3 161.1
26°	65 41.5 +59.4 169.0	65 33.5 +59.2 166.9	65 24.0 +58.9 164.7	65 13.2 +58.6 162.6	65 01.0 +58.2 160.6
27°	66 40.9 +59.4 168.7	66 32.7 +59.1 166.5	66 22.9 +58.8 164.3	66 11.8 +58.4 162.1	66 00.5 +58.1 160.0
28°	67 40.3 +59.3 168.3	67 31.8 +59.0 166.0	67 21.7 +58.7 163.8	67 10.2 +58.3 161.5	66 57.3 +57.9 159.3
29°	68 39.6 +59.3 167.9	68 30.8 +58.9 165.5	68 20.4 +58.6 163.2	68 08.5 +58.2 160.9	67 55.2 +57.7 158.7

Dec	LHA 010° / 350°	LHA 011° / 349°	LHA 012° / 348°	LHA 013° / 347°	LHA 014° / 346°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	39 16.4 +59.4 167.0	39 07.3 +59.3 165.8	38 57.4 +59.1 164.5	38 46.7 +59.0 163.2	38 35.2 +58.8 162.0
1°	40 15.8 +59.3 166.8	40 06.6 +59.2 165.6	39 56.5 +59.1 164.3	39 45.7 +58.9 163.0	39 34.0 +58.7 161.7
2°	41 15.1 +59.3 166.7	41 05.8 +59.2 165.3	40 55.6 +59.0 164.0	40 44.6 +58.9 162.7	40 32.7 +58.7 161.4
3°	42 14.4 +59.3 166.5	42 05.0 +59.1 165.1	41 54.6 +59.0 163.8	41 43.5 +58.8 162.5	41 31.4 +58.7 161.2
4°	43 13.7 +59.3 166.2	43 04.1 +59.2 164.9	42 53.6 +59.0 163.6	42 42.3 +58.8 162.2	42 30.1 +58.6 160.9
5°	44 13.0 +59.3 166.0	44 03.3 +59.1 164.7	43 52.6 +59.0 163.3	43 41.1 +58.8 161.9	43 28.7 +58.6 160.6
6°	45 12.3 +59.2 165.8	45 02.4 +59.0 164.4	44 51.6 +58.9 163.0	44 39.9 +58.7 161.7	44 27.3 +58.5 160.3
7°	46 11.5 +59.2 165.6	46 01.4 +59.1 164.2	45 50.5 +58.8 162.8	45 38.6 +58.7 161.4	45 25.8 +58.5 160.0
8°	47 10.7 +59.2 165.3	47 00.5 +59.0 163.9	46 49.3 +58.9 162.5	46 37.3 +58.6 161.1	46 24.3 +58.5 159.7
9°	48 09.9 +59.1 165.1	47 59.5 +59.0 163.6	47 48.2 +58.7 162.2	47 35.9 +58.6 160.8	47 22.8 +58.3 159.3
10°	49 09.0 +59.1 164.8	48 58.5 +58.9 163.4	48 46.9 +58.8 161.9	48 34.5 +58.5 160.4	48 21.1 +58.3 159.0
11°	50 08.1 +59.1 164.6	49 57.4 +58.8 163.1	49 45.7 +58.6 161.6	49 33.0 +58.5 160.1	49 19.4 +58.2 158.6
12°	51 07.2 +59.0 164.3	50 56.2 +58.9 162.8	50 44.3 +58.7 161.3	50 31.5 +58.4 159.8	50 17.6 +58.2 158.3
13°	52 06.2 +59.0 164.0	51 55.1 +58.8 162.5	51 43.0 +58.5 160.9	51 29.9 +58.3 159.4	51 15.8 +58.1 157.9
14°	53 05.2 +58.9 163.7	52 53.9 +58.7 162.1	52 41.5 +58.5 160.6	52 28.2 +58.2 159.0	52 13.9 +58.0 157.5
15°	54 04.1 +58.9 163.4	53 52.6 +58.6 161.8	53 40.0 +58.4 160.2	53 26.4 +58.2 158.6	53 11.9 +57.9 157.0
16°	55 03.0 +58.8 163.1	54 51.2 +58.6 161.4	54 38.4 +58.4 159.8	54 24.6 +58.1 158.2	54 09.8 +57.8 156.6
17°	56 01.8 +58.8 162.7	55 49.8 +58.5 161.0	55 36.8 +58.2 159.4	55 22.7 +57.9 157.8	55 07.6 +57.6 156.1
18°	57 00.6 +58.7 162.3	56 48.3 +58.5 160.6	56 35.0 +58.2 159.0	56 20.6 +57.9 157.3	56 05.2 +57.6 155.6
19°	57 59.3 +58.6 162.0	57 46.8 +58.3 160.2	57 33.2 +58.0 158.5	57 18.5 +57.8 156.8	57 02.8 +57.4 155.1
20°	58 57.9 +58.5 161.5	58 45.1 +58.3 159.8	58 31.2 +58.0 158.0	58 16.3 +57.6 156.3	58 00.2 +57.3 154.6
21°	59 56.4 +58.5 161.1	59 43.4 +58.1 159.3	59 29.2 +57.8 157.5	59 13.9 +57.5 155.8	58 57.5 +57.1 154.0
22°	60 54.9 +58.3 160.7	60 41.5 +58.0 158.8	60 27.0 +57.7 157.0	60 11.4 +57.3 155.2	59 54.6 +57.0 153.4
23°	61 53.2 +58.2 160.2	61 39.5 +57.9 158.3	61 24.7 +57.5 156.4	61 08.7 +57.1 154.6	60 51.6 +56.7 152.8
24°	62 51.4 +58.1 159.7	62 37.4 +57.8 157.7	62 22.2 +57.4 155.8	62 05.8 +57.0 154.0	61 48.3 +56.6 152.1
25°	63 49.5 +58.0 159.1	63 35.2 +57.6 157.1	63 19.6 +57.2 155.2	63 02.8 +56.8 153.3	62 44.9 +56.3 151.4
26°	64 47.5 +57.8 158.5	64 32.8 +57.4 156.5	64 16.8 +56.9 154.5	63 59.6 +56.5 152.5	63 41.2 +56.1 150.6
27°	65 45.3 +57.7 157.9	65 30.2 +57.2 155.8	65 13.7 +56.8 153.8	64 56.1 +56.2 151.8	64 37.3 +55.7 149.8
28°	66 43.0 +57.5 157.2	66 27.4 +57.0 155.1	66 10.5 +56.5 153.0	65 52.3 +56.0 150.9	65 33.0 +55.5 148.9
29°	67 40.5 +57.2 156.4	67 24.4 +56.7 154.3	67 07.0 +56.2 152.1	66 48.3 +55.7 150.0	66 28.5 +55.0 148.0

Dec	LHA 015° / 345°	LHA 016° / 344°	LHA 017° / 343°	LHA 018° / 342°	LHA 019° / 341°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	38 22.8 +58.7 160.7	38 09.7 +58.5 159.5	37 55.8 +58.3 158.2	37 41.1 +58.1 157.0	37 25.7 +57.8 155.8
1°	39 21.5 +58.5 160.4	39 08.2 +58.3 159.2	38 54.1 +58.2 157.9	38 39.2 +58.0 156.7	38 23.5 +57.8 155.5
2°	40 20.0 +58.6 160.2	40 06.5 +58.4 158.9	39 52.3 +58.1 157.6	39 37.2 +57.9 156.4	39 21.3 +57.8 155.1
3°	41 18.6 +58.5 159.9	41 04.9 +58.3 158.6	40 50.4 +58.1 157.3	40 35.1 +57.9 156.0	40 19.1 +57.6 154.8
4°	42 17.1 +58.4 159.6	42 03.2 +58.2 158.3	41 48.5 +58.0 157.0	41 33.0 +57.8 155.7	41 16.7 +57.6 154.4
5°	43 15.5 +58.4 159.3	43 01.4 +58.2 157.9	42 46.5 +58.0 156.6	42 30.8 +57.8 155.3	42 14.3 +57.5 154.0
6°	44 13.9 +58.3 158.9	43 59.6 +58.1 157.6	43 44.5 +57.9 156.3	43 28.6 +57.6 154.9	43 11.8 +57.5 153.6
7°	45 12.2 +58.3 158.6	44 57.7 +58.1 157.3	44 42.4 +57.8 155.9	44 26.2 +57.6 154.6	44 09.3 +57.3 153.2
8°	46 10.5 +58.2 158.3	45 55.8 +58.0 156.9	45 40.2 +57.8 155.5	45 23.8 +57.5 154.2	45 06.6 +57.3 152.8
9°	47 08.7 +58.1 157.9	46 53.8 +57.9 156.5	46 38.0 +57.6 155.1	46 21.3 +57.4 153.8	46 03.9 +57.1 152.4
10°	48 06.8 +58.1 157.6	47 51.7 +57.8 156.1	47 35.6 +57.6 154.7	47 18.7 +57.4 153.3	47 01.0 +57.1 151.9
11°	49 04.9 +58.0 157.2	48 49.5 +57.7 155.7	48 33.2 +57.5 154.3	48 16.1 +57.2 152.9	47 58.1 +56.9 151.5
12°	50 02.9 +57.9 156.8	49 47.2 +57.7 155.3	49 30.7 +57.4 153.9	49 13.3 +57.1 152.4	48 55.0 +56.8 151.0
13°	51 00.8 +57.8 156.4	50 44.9 +57.5 154.9	50 28.1 +57.2 153.4	50 10.4 +57.0 152.0	49 51.8 +56.7 150.5
14°	51 58.6 +57.7 155.9	51 42.4 +57.5 154.4	51 25.3 +57.2 152.9	51 07.4 +56.8 151.5	50 48.5 +56.5 150.0
15°	52 56.3 +57.7 155.5	52 39.9 +57.3 154.0	52 22.5 +57.0 152.4	52 04.2 +56.7 150.9	51 45.0 +56.4 149.5
16°	53 54.0 +57.5 155.0	53 37.2 +57.2 153.5	53 19.5 +56.9 151.9	53 00.9 +56.6 150.4	52 41.4 +56.3 148.9
17°	54 51.5 +57.3 154.5	54 34.4 +57.1 153.0	54 16.4 +56.7 151.4	53 57.5 +56.4 149.9	53 37.7 +56.0 148.3
18°	55 48.8 +57.3 154.0	55 31.5 +56.9 152.4	55 13.1 +56.6 150.8	54 53.9 +56.2 149.3	54 33.7 +55.9 147.7
19°	56 46.1 +57.1 153.5	56 28.4 +56.7 151.8	56 09.7 +56.4 150.2	55 50.1 +56.0 148.6	55 29.6 +55.6 147.1
20°	57 43.2 +56.9 152.9	57 25.1 +56.6 151.2	57 06.1 +56.2 149.6	56 46.1 +55.8 148.0	56 25.2 +55.4 146.4
21°	58 40.1 +56.8 152.3	58 21.7 +56.4 150.6	58 02.3 +56.0 149.0	57 41.9 +55.6 147.3	57 20.6 +55.2 145.7
22°	59 36.9 +56.5 151.7	59 18.1 +56.1 150.0	58 58.3 +55.7 148.3	58 37.5 +55.3 146.6	58 15.8 +54.9 145.0
23°	60 33.4 +56.4 151.0	60 14.2 +55.9 149.3	59 54.0 +55.5 147.5	59 32.8 +55.1 145.9	59 10.7 +54.6 144.2
24°	61 29.8 +56.1 150.3	61 10.1 +55.7 148.5	60 49.5 +55.2 146.8	60 27.9 +54.8 145.1	60 05.3 +54.3 143.4
25°	62 25.9 +55.8 149.5	62 05.8 +55.4 147.7	61 44.7 +54.9 146.0	61 22.7 +54.4 144.2	60 59.6 +54.0 142.5
26°	63 21.7 +55.6 148.7	63 01.2 +55.1 146.9	62 39.6 +54.6 145.1	62 17.1 +54.0 143.3	61 53.6 +53.5 141.6
27°	64 17.3 +55.3 147.9	63 56.3 +54.7 146.0	63 34.2 +54.2 144.2	63 11.1 +53.7 142.4	62 47.1 +53.2 140.6
28°	65 12.6 +54.8 147.0	64 51.0 +54.3 145.1	64 28.4 +53.8 143.2	64 04.8 +53.2 141.4	63 40.3 +52.6 139.6
29°	66 07.4 +54.5 146.0	65 45.3 +53.9 144.0	65 22.2 +53.3 142.2	64 58.0 +52.7 140.3	64 32.9 +52.2 138.5

# Declination SAME name as Latitude

# Latitude 50°

Dec	LHA 020° / 340°	LHA 021° / 339°	LHA 022° / 338°	LHA 023° / 337°	LHA 024° / 336°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	37 09.5 +57.7 154.6	36 52.6 +57.4 153.4	36 35.0 +57.2 152.2	36 16.6 +57.0 151.0	35 57.6 +56.7 149.8
1°	38 07.2 +57.5 154.2	37 50.0 +57.4 153.0	37 32.2 +57.1 151.8	37 13.6 +56.9 150.6	36 54.3 +56.7 149.4
2°	39 04.7 +57.5 153.9	38 47.4 +57.3 152.6	38 29.3 +57.0 151.4	38 10.5 +56.8 150.2	37 51.0 +56.6 149.0
3°	40 02.2 +57.5 153.5	39 44.7 +57.2 152.3	39 26.3 +57.0 151.0	39 07.3 +56.7 149.8	38 47.6 +56.4 148.6
4°	40 59.7 +57.3 153.1	40 41.9 +57.1 151.9	40 23.3 +56.9 150.6	40 04.0 +56.7 149.4	39 44.0 +56.4 148.2
5°	41 57.0 +57.3 152.7	41 39.0 +57.0 151.5	41 20.2 +56.8 150.2	41 00.7 +56.5 148.9	40 40.4 +56.3 147.7
6°	42 54.3 +57.2 152.3	42 36.0 +57.0 151.0	42 17.0 +56.7 149.8	41 57.2 +56.4 148.5	41 36.7 +56.1 147.2
7°	43 51.5 +57.1 151.9	43 33.0 +56.8 150.6	43 13.7 +56.5 149.3	42 53.6 +56.3 148.0	42 32.8 +56.1 146.8
8°	44 48.6 +57.0 151.5	44 29.8 +56.7 150.2	44 10.2 +56.5 148.9	43 49.9 +56.2 147.6	43 28.9 +55.9 146.3
9°	45 45.6 +56.9 151.0	45 26.5 +56.6 149.7	45 06.7 +56.3 148.4	44 46.1 +56.0 147.1	44 24.8 +55.7 145.8
10°	46 42.5 +56.8 150.6	46 23.1 +56.5 149.2	46 03.0 +56.2 147.9	45 42.1 +56.0 146.6	45 20.5 +55.6 145.3
11°	47 39.3 +56.6 150.1	47 19.6 +56.4 148.7	46 59.2 +56.1 147.4	46 38.1 +55.7 146.0	46 16.1 +55.5 144.7
12°	48 35.9 +56.5 149.6	48 16.0 +56.2 148.2	47 55.3 +55.9 146.9	47 33.8 +55.6 145.5	47 11.6 +55.3 144.2
13°	49 32.4 +56.4 149.1	49 12.2 +56.1 147.7	48 51.2 +55.8 146.3	48 29.4 +55.5 144.9	48 06.9 +55.1 143.6
14°	50 28.8 +56.2 148.6	50 08.3 +55.9 147.1	49 47.0 +55.6 145.7	49 24.9 +55.2 144.4	49 02.0 +54.9 143.0
15°	51 25.0 +56.1 148.0	51 04.2 +55.7 146.6	50 42.6 +55.3 145.2	50 20.1 +55.1 143.8	49 56.9 +54.8 142.4
16°	52 21.1 +55.9 147.4	51 59.9 +55.6 146.0	51 37.9 +55.2 144.5	51 15.2 +54.8 143.1	50 51.7 +54.5 141.7
17°	53 17.0 +55.7 146.8	52 55.5 +55.3 145.4	52 33.1 +55.0 143.9	52 10.0 +54.7 142.5	51 46.2 +54.2 141.1
18°	54 12.7 +55.5 146.2	53 50.8 +55.1 144.7	53 28.1 +54.8 143.2	53 04.7 +54.3 141.8	52 40.4 +54.0 140.4
19°	55 08.2 +55.3 145.5	54 45.9 +54.9 144.0	54 22.9 +54.5 142.5	53 59.0 +54.2 141.1	53 34.4 +53.8 139.6
20°	56 03.5 +55.0 144.9	55 40.8 +54.7 143.3	55 17.4 +54.2 141.8	54 53.2 +53.8 140.3	54 28.2 +53.4 138.9
21°	56 58.5 +54.7 144.1	56 35.5 +54.3 142.6	56 11.6 +54.0 141.1	55 47.0 +53.5 139.6	55 21.6 +53.1 138.1
22°	57 53.2 +54.5 143.4	57 29.8 +54.1 141.8	57 05.6 +53.6 140.3	56 40.5 +53.2 138.7	56 14.7 +52.8 137.3
23°	58 47.7 +54.2 142.6	58 23.9 +53.7 141.0	57 59.2 +53.3 139.4	57 33.7 +52.8 137.9	57 07.5 +52.4 136.4
24°	59 41.9 +53.8 141.7	59 17.6 +53.4 140.1	58 52.5 +52.9 138.5	58 26.5 +52.5 137.0	57 59.9 +51.9 135.5
25°	60 35.7 +53.5 140.9	60 11.0 +52.9 139.2	59 45.4 +52.4 137.6	59 19.0 +52.0 136.1	58 51.8 +51.6 134.5
26°	61 29.2 +53.0 139.9	61 03.9 +52.6 138.3	60 37.8 +52.1 136.6	60 11.0 +51.5 135.1	59 43.4 +51.0 133.5
27°	62 22.2 +52.6 138.9	61 56.5 +52.0 137.2	61 29.9 +51.5 135.6	61 02.5 +51.1 134.0	60 34.4 +50.6 132.5
28°	63 14.8 +52.1 137.9	62 48.5 +51.6 136.2	62 21.4 +51.0 134.5	61 53.6 +50.4 132.9	61 25.0 +49.9 131.4
29°	64 06.9 +51.6 136.7	63 40.1 +51.0 135.0	63 12.4 +50.5 133.4	62 44.0 +49.9 131.8	62 14.9 +49.3 130.2

Dec	LHA 025° / 335°	LHA 026° / 334°	LHA 027° / 333°	LHA 028° / 332°	LHA 029° / 331°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	35 37.9 +56.5 148.7	35 17.5 +56.2 147.5	34 56.4 +56.1 146.4	34 34.8 +55.7 145.2	34 12.5 +55.5 144.1
1°	36 34.4 +56.4 148.3	36 13.7 +56.2 147.1	35 52.5 +55.9 145.9	35 30.5 +55.7 144.8	35 08.0 +55.4 143.6
2°	37 30.8 +56.3 147.8	37 09.9 +56.1 146.6	36 48.4 +55.8 145.5	36 26.2 +55.6 144.3	36 03.4 +55.3 143.2
3°	38 27.1 +56.2 147.4	38 06.0 +56.0 146.2	37 44.2 +55.7 145.0	37 21.8 +55.4 143.9	36 58.7 +55.2 142.7
4°	39 23.3 +56.2 146.9	39 02.0 +55.8 145.7	38 39.9 +55.6 144.5	38 17.2 +55.3 143.4	37 53.9 +55.1 142.2
5°	40 19.5 +56.0 146.5	39 57.8 +55.8 145.3	39 35.5 +55.5 144.1	39 12.5 +55.2 142.9	38 49.0 +54.9 141.7
6°	41 15.5 +55.8 146.0	40 53.6 +55.6 144.8	40 31.0 +55.3 143.6	40 07.7 +55.1 142.4	39 43.9 +54.8 141.2
7°	42 11.3 +55.8 145.5	41 49.2 +55.4 144.3	41 26.3 +55.2 143.1	41 02.8 +54.9 141.8	40 38.7 +54.6 140.6
8°	43 07.1 +55.6 145.0	42 44.6 +55.4 143.8	42 21.5 +55.1 142.5	41 57.7 +54.8 141.3	41 33.3 +54.5 140.1
9°	44 02.7 +55.5 144.5	43 40.0 +55.2 143.2	43 16.6 +54.8 142.0	42 52.5 +54.6 140.7	42 27.8 +54.3 139.5
10°	44 58.2 +55.3 144.0	44 35.2 +55.0 142.7	44 11.4 +54.8 141.4	43 47.1 +54.4 140.2	43 22.1 +54.1 138.9
11°	45 53.5 +55.2 143.4	45 30.2 +54.8 142.1	45 06.2 +54.5 140.8	44 41.5 +54.2 139.6	44 16.2 +53.9 138.3
12°	46 48.7 +55.0 142.8	46 25.0 +54.7 141.5	46 00.7 +54.4 140.3	45 35.7 +54.0 139.0	45 10.1 +53.7 137.7
13°	47 43.7 +54.7 142.3	47 19.7 +54.5 140.9	46 55.1 +54.1 139.6	46 29.7 +53.9 138.4	46 03.8 +53.5 137.1
14°	48 38.4 +54.6 141.6	48 14.2 +54.2 140.3	47 49.2 +53.9 139.0	47 23.6 +53.6 137.7	46 57.3 +53.3 136.4
15°	49 33.0 +54.4 141.0	49 08.4 +54.1 139.7	48 43.1 +53.7 138.3	48 17.2 +53.3 137.0	47 50.6 +53.0 135.8
16°	50 27.4 +54.2 140.4	50 02.5 +53.8 139.0	49 36.8 +53.5 137.7	49 10.5 +53.1 136.3	48 43.6 +52.7 135.1
17°	51 21.6 +53.9 139.7	50 56.3 +53.5 138.3	50 30.3 +53.1 137.0	50 03.6 +52.8 135.6	49 36.3 +52.5 134.3
18°	52 15.5 +53.6 139.0	51 49.8 +53.2 137.6	51 23.4 +52.9 136.2	50 56.4 +52.5 134.9	50 28.8 +52.1 133.6
19°	53 09.1 +53.3 138.2	52 43.0 +53.0 136.8	52 16.3 +52.6 135.5	51 48.9 +52.2 134.1	51 20.9 +51.9 132.8
20°	54 02.4 +53.1 137.4	53 36.0 +52.6 136.0	53 08.9 +52.2 134.7	52 41.1 +51.9 133.3	52 12.8 +51.5 132.0
21°	54 55.5 +52.7 136.6	54 28.6 +52.3 135.2	54 01.1 +51.9 133.8	53 33.0 +51.5 132.5	53 04.3 +51.1 131.1
22°	55 48.2 +52.3 135.8	55 20.9 +52.0 134.4	54 53.0 +51.6 133.0	54 24.5 +51.1 131.6	53 55.4 +50.7 130.2
23°	56 40.5 +52.0 134.9	56 12.9 +51.5 133.5	55 44.6 +51.0 132.1	55 15.6 +50.7 130.7	54 46.1 +50.2 129.3
24°	57 32.5 +51.5 134.0	57 04.4 +51.1 132.5	56 35.6 +50.7 131.1	56 06.3 +50.2 129.7	55 36.3 +49.8 128.4
25°	58 24.0 +51.1 133.0	57 55.5 +50.6 131.6	57 26.3 +50.2 130.1	56 56.5 +49.7 128.7	56 26.1 +49.3 127.4
26°	59 15.1 +50.5 132.0	58 46.1 +50.1 130.5	58 16.5 +49.6 129.1	57 46.2 +49.2 127.7	57 15.4 +48.8 126.3
27°	60 05.6 +50.1 131.0	59 36.2 +49.5 129.5	59 06.1 +49.1 128.0	58 35.4 +48.7 126.6	58 04.2 +48.2 125.2
28°	60 55.7 +49.4 129.8	60 25.7 +49.0 128.3	59 55.2 +48.5 126.9	59 24.1 +48.0 125.5	58 52.4 +47.5 124.1
29°	61 45.1 +48.8 128.6	61 14.7 +48.3 127.2	60 43.7 +47.8 125.7	60 12.1 +47.3 124.3	59 39.9 +46.9 122.9

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Dec	LHA 030° / 330°	LHA 031° / 329°	LHA 032° / 328°	LHA 033° / 327°	LHA 034° / 326°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	33 49.6 +55.2 143.0	33 26.0 +55.1 141.9	33 02.0 +54.7 140.8	32 37.3 +54.5 139.7	32 12.1 +54.2 138.6
1°	34 44.8 +55.2 142.5	34 21.1 +54.9 141.4	33 56.7 +54.7 140.3	33 31.8 +54.4 139.2	33 06.3 +54.2 138.1
2°	35 40.0 +55.0 142.0	35 16.0 +54.8 140.9	34 51.4 +54.5 139.8	34 26.2 +54.3 138.7	34 00.5 +54.0 137.6
3°	36 35.0 +55.0 141.6	36 10.8 +54.6 140.4	35 45.9 +54.4 139.3	35 20.5 +54.1 138.2	34 54.5 +53.8 137.1
4°	37 30.0 +54.7 141.0	37 05.4 +54.5 139.9	36 40.3 +54.2 138.8	36 14.6 +54.0 137.7	35 48.3 +53.7 136.5
5°	38 24.7 +54.7 140.5	37 59.9 +54.4 139.4	37 34.5 +54.1 138.2	37 08.6 +53.8 137.1	36 42.0 +53.6 136.0
6°	39 19.4 +54.5 140.0	38 54.3 +54.2 138.8	38 28.6 +54.0 137.7	38 02.4 +53.6 136.5	37 35.6 +53.4 135.4
7°	40 13.9 +54.3 139.5	39 48.5 +54.1 138.3	39 22.6 +53.7 137.1	38 56.0 +53.5 136.0	38 29.0 +53.2 134.8
8°	41 08.2 +54.2 138.9	40 42.6 +53.9 137.7	40 16.3 +53.6 136.5	39 49.5 +53.3 135.4	39 22.2 +53.0 134.3
9°	42 02.4 +54.0 138.3	41 36.5 +53.7 137.1	41 09.9 +53.5 136.0	40 42.8 +53.2 134.8	40 15.2 +52.8 133.6
10°	42 56.4 +53.8 137.7	42 30.2 +53.5 136.5	42 03.4 +53.2 135.3	41 36.0 +52.9 134.2	41 08.0 +52.7 133.0
11°	43 50.2 +53.6 137.1	43 23.7 +53.3 135.9	42 56.6 +53.0 134.7	42 28.9 +52.7 133.5	42 00.7 +52.4 132.4
12°	44 43.8 +53.4 136.5	44 17.0 +53.1 135.3	43 49.6 +52.7 134.1	43 21.6 +52.5 132.9	42 53.1 +52.1 131.7
13°	45 37.2 +53.2 135.8	45 10.1 +52.8 134.6	44 42.3 +52.6 133.4	44 14.1 +52.2 132.2	43 45.2 +51.9 131.0
14°	46 30.4 +53.0 135.2	46 02.9 +52.6 133.9	45 34.9 +52.3 132.7	45 06.3 +51.9 131.5	44 37.1 +51.7 130.3
15°	47 23.4 +52.6 134.5	46 55.5 +52.4 133.2	46 27.2 +52.0 132.0	45 58.2 +51.7 130.8	45 28.8 +51.4 129.6
16°	48 16.0 +52.4 133.8	47 47.9 +52.1 132.5	47 19.2 +51.7 131.3	46 49.9 +51.4 130.1	46 20.2 +51.0 128.9
17°	49 08.4 +52.1 133.0	48 40.0 +51.7 131.8	48 10.9 +51.4 130.5	47 41.3 +51.1 129.3	47 11.2 +50.8 128.1
18°	50 00.5 +51.8 132.3	49 31.7 +51.5 131.0	49 02.3 +51.1 129.8	48 32.4 +50.8 128.5	48 02.0 +50.4 127.3
19°	50 52.3 +51.5 131.5	50 23.2 +51.1 130.2	49 53.4 +50.8 128.9	49 23.2 +50.4 127.7	48 52.4 +50.1 126.5
20°	51 43.8 +51.1 130.7	51 14.3 +50.7 129.4	50 44.2 +50.4 128.1	50 13.6 +50.0 126.9	49 42.5 +49.7 125.7
21°	52 34.9 +50.7 129.8	52 05.0 +50.4 128.5	51 34.6 +49.9 127.2	51 03.6 +49.6 126.0	50 32.2 +49.2 124.8
22°	53 25.6 +50.3 128.9	52 55.4 +49.9 127.6	52 24.5 +49.6 126.3	51 53.2 +49.2 125.1	51 21.4 +48.9 123.9
23°	54 15.9 +49.9 128.0	53 45.3 +49.5 126.7	53 14.1 +49.1 125.4	52 42.4 +48.8 124.2	52 10.3 +48.4 122.9
24°	55 05.8 +49.4 127.0	54 34.8 +49.0 125.7	54 03.2 +48.6 124.4	53 31.2 +48.2 123.2	52 58.7 +47.9 122.0
25°	55 55.2 +48.9 126.0	55 23.8 +48.5 124.7	54 51.8 +48.1 123.4	54 19.4 +47.7 122.2	53 46.6 +47.3 121.0
26°	56 44.1 +48.3 125.0	56 12.3 +47.9 123.7	55 39.9 +47.6 122.4	55 07.1 +47.2 121.1	54 33.9 +46.8 119.9
27°	57 32.4 +47.8 123.9	57 00.2 +47.3 122.6	56 27.5 +46.9 121.3	55 54.3 +46.5 120.0	55 20.7 +46.2 118.8
28°	58 20.2 +47.1 122.8	57 47.5 +46.7 121.4	57 14.4 +46.3 120.2	56 40.8 +45.9 118.9	56 06.9 +45.5 117.7
29°	59 07.3 +46.4 121.6	58 34.2 +46.0 120.2	58 00.7 +45.6 119.0	57 26.7 +45.3 117.7	56 52.4 +44.9 116.5

Dec	LHA 035° / 325°	LHA 036° / 324°	LHA 037° / 323°	LHA 038° / 322°	LHA 039° / 321°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	31 46.3 +54.0 137.6	31 20.0 +53.8 136.5	30 53.2 +53.5 135.5	30 26.0 +53.2 134.4	29 58.2 +53.0 133.4
1°	32 40.3 +53.9 137.1	32 13.8 +53.6 136.0	31 46.7 +53.4 134.9	31 19.2 +53.1 133.9	30 51.2 +52.8 132.9
2°	33 34.2 +53.7 136.5	33 07.4 +53.5 135.5	32 40.1 +53.2 134.4	32 12.3 +53.0 133.4	31 44.0 +52.7 132.3
3°	34 27.9 +53.6 136.0	34 00.9 +53.3 134.9	33 33.3 +53.1 133.8	33 05.3 +52.8 132.8	32 36.7 +52.6 131.7
4°	35 21.5 +53.5 135.4	34 54.2 +53.2 134.4	34 26.4 +52.9 133.3	33 58.1 +52.6 132.2	33 29.3 +52.4 131.2
5°	36 15.0 +53.2 134.9	35 47.4 +53.0 133.8	35 19.3 +52.7 132.7	34 50.7 +52.5 131.6	34 21.7 +52.2 130.6
6°	37 08.2 +53.2 134.3	36 40.4 +52.8 133.2	36 12.0 +52.6 132.1	35 43.2 +52.3 131.0	35 13.9 +52.0 130.0
7°	38 01.4 +52.9 133.7	37 33.2 +52.7 132.6	37 04.6 +52.4 131.5	36 35.5 +52.1 130.4	36 05.9 +51.8 129.4
8°	38 54.3 +52.7 133.1	38 25.9 +52.4 132.0	37 57.0 +52.2 130.9	37 27.6 +51.9 129.8	36 57.7 +51.7 128.7
9°	39 47.0 +52.6 132.5	39 18.3 +52.3 131.4	38 49.2 +51.9 130.3	38 19.5 +51.7 129.2	37 49.4 +51.4 128.1
10°	40 39.6 +52.3 131.9	40 10.6 +52.0 130.7	39 41.1 +51.8 129.6	39 11.2 +51.5 128.5	38 40.8 +51.2 127.4
11°	41 31.9 +52.1 131.2	41 02.6 +51.9 130.1	40 32.9 +51.5 129.0	40 02.7 +51.2 127.9	39 32.0 +51.0 126.8
12°	42 24.0 +51.9 130.6	41 54.5 +51.5 129.4	41 24.4 +51.3 128.3	40 53.9 +51.0 127.2	40 23.0 +50.7 126.1
13°	43 15.9 +51.6 129.9	42 46.0 +51.3 128.7	42 15.7 +51.0 127.6	41 44.9 +50.7 126.5	41 13.7 +50.4 125.4
14°	44 07.5 +51.3 129.2	43 37.3 +51.1 128.0	43 06.7 +50.8 126.9	42 35.6 +50.5 125.8	42 04.1 +50.2 124.7
15°	44 58.8 +51.1 128.4	44 28.4 +50.7 127.3	43 57.5 +50.4 126.1	43 26.1 +50.2 125.0	42 54.3 +49.9 123.9
16°	45 49.9 +50.7 127.7	45 19.1 +50.5 126.5	44 47.9 +50.2 125.4	44 16.3 +49.8 124.3	43 44.2 +49.5 123.1
17°	46 40.6 +50.5 126.9	46 09.6 +50.1 125.8	45 38.1 +49.8 124.6	45 06.1 +49.5 123.5	44 33.7 +49.2 122.4
18°	47 31.1 +50.1 126.1	46 59.7 +49.8 125.0	46 27.9 +49.4 123.8	45 55.6 +49.2 122.7	45 22.9 +48.9 121.6
19°	48 21.2 +49.7 125.3	47 49.5 +49.4 124.1	47 17.3 +49.1 123.0	46 44.8 +48.8 121.8	46 11.8 +48.5 120.7
20°	49 10.9 +49.4 124.5	48 38.9 +49.0 123.3	48 06.4 +48.7 122.1	47 33.6 +48.4 121.0	47 00.3 +48.1 119.9
21°	50 00.3 +48.9 123.6	49 27.9 +48.6 122.4	48 55.1 +48.3 121.2	48 22.0 +48.0 120.1	47 48.4 +47.7 119.0
22°	50 49.2 +48.5 122.7	50 16.5 +48.2 121.5	49 43.4 +47.9 120.3	49 10.0 +47.5 119.2	48 36.1 +47.2 118.1
23°	51 37.7 +48.0 121.7	51 04.7 +47.7 120.5	50 31.3 +47.4 119.4	49 57.5 +47.1 118.2	49 23.3 +46.8 117.1
24°	52 25.7 +47.6 120.8	51 52.4 +47.2 119.6	51 18.7 +46.8 118.4	50 44.6 +46.5 117.3	50 10.1 +46.3 116.2
25°	53 13.3 +47.0 119.7	52 39.6 +46.7 118.6	52 05.5 +46.4 117.4	51 31.1 +46.0 116.3	50 56.4 +45.7 115.2
26°	54 00.3 +46.4 118.7	53 26.3 +46.1 117.5	52 51.9 +45.7 116.4	52 17.1 +45.5 115.2	51 42.1 +45.2 114.1
27°	54 46.7 +45.8 117.6	54 12.4 +45.4 116.4	53 37.6 +45.2 115.3	53 02.6 +44.9 114.2	52 27.3 +44.5 113.1
28°	55 32.5 +45.2 116.5	54 57.8 +44.9 115.3	54 22.8 +44.5 114.2	53 47.5 +44.2 113.0	53 11.8 +44.0 111.9
29°	56 17.7 +44.5 115.3	55 42.7 +44.1 114.1	55 07.3 +43.9 113.0	54 31.7 +43.5 111.9	53 55.8 +43.2 110.8

# Declination SAME name as Latitude

# Latitude 50°

Dec	LHA 040° / 320°	LHA 041° / 319°	LHA 042° / 318°	LHA 043° / 317°	LHA 044° / 316°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	29 29.9 +52.8 132.4	29 01.2 +52.5 131.4	28 32.1 +52.2 130.4	28 02.5 +52.0 129.4	27 32.5 +51.7 128.4
1°	30 22.7 +52.6 131.8	29 53.7 +52.4 130.8	29 24.3 +52.1 129.8	28 54.5 +51.8 128.8	28 24.2 +51.6 127.9
2°	31 15.3 +52.4 131.3	30 46.1 +52.2 130.3	30 16.4 +52.0 129.3	29 46.3 +51.7 128.3	29 15.8 +51.5 127.3
3°	32 07.7 +52.3 130.7	31 38.3 +52.0 129.7	31 08.4 +51.8 128.7	30 38.0 +51.6 127.7	30 07.3 +51.3 126.7
4°	33 00.0 +52.1 130.1	32 30.3 +51.9 129.1	32 00.2 +51.6 128.1	31 29.6 +51.4 127.1	30 58.6 +51.2 126.1
5°	33 52.1 +52.0 129.5	33 22.2 +51.7 128.5	32 51.8 +51.4 127.5	32 21.0 +51.2 126.5	31 49.8 +50.9 125.5
6°	34 44.1 +51.8 128.9	34 13.9 +51.5 127.9	33 43.2 +51.3 126.9	33 12.2 +51.0 125.8	32 40.7 +50.8 124.8
7°	35 35.9 +51.5 128.3	35 05.4 +51.3 127.3	34 34.5 +51.0 126.2	34 03.2 +50.8 125.2	33 31.5 +50.5 124.2
8°	36 27.4 +51.4 127.7	35 56.7 +51.1 126.6	35 25.5 +50.9 125.6	34 54.0 +50.6 124.6	34 22.0 +50.4 123.6
9°	37 18.8 +51.2 127.0	36 47.8 +50.9 126.0	36 16.4 +50.6 124.9	35 44.6 +50.4 123.9	35 12.4 +50.1 122.9
10°	38 10.0 +50.9 126.4	37 38.7 +50.7 125.3	37 07.0 +50.4 124.3	36 35.0 +50.1 123.2	36 02.5 +49.9 122.2
11°	39 00.9 +50.7 125.7	38 29.4 +50.4 124.6	37 57.4 +50.2 123.6	37 25.1 +49.9 122.5	36 52.4 +49.7 121.5
12°	39 51.6 +50.4 125.0	39 19.8 +50.2 123.9	38 47.6 +49.9 122.9	38 15.0 +49.7 121.8	37 42.1 +49.4 120.8
13°	40 42.0 +50.2 124.3	40 10.0 +49.9 123.2	39 37.5 +49.7 122.2	39 04.7 +49.4 121.1	38 31.5 +49.1 120.1
14°	41 32.2 +49.9 123.6	40 59.9 +49.6 122.5	40 27.2 +49.3 121.4	39 54.1 +49.1 120.4	39 20.6 +48.9 119.4
15°	42 22.1 +49.6 122.8	41 49.5 +49.3 121.7	41 16.5 +49.1 120.7	40 43.2 +48.7 119.6	40 09.5 +48.5 118.6
16°	43 11.7 +49.3 122.1	42 38.8 +49.0 121.0	42 05.6 +48.7 119.9	41 31.9 +48.5 118.9	40 58.0 +48.2 117.8
17°	44 01.0 +48.9 121.3	43 27.8 +48.7 120.2	42 54.3 +48.4 119.1	42 20.4 +48.2 118.1	41 46.2 +47.9 117.0
18°	44 49.9 +48.6 120.5	44 16.5 +48.3 119.4	43 42.7 +48.0 118.3	43 08.6 +47.7 117.3	42 34.1 +47.6 116.2
19°	45 38.5 +48.2 119.6	45 04.8 +47.9 118.5	44 30.7 +47.7 117.5	43 56.3 +47.5 116.4	43 21.7 +47.1 115.4
20°	46 26.7 +47.8 118.8	45 52.7 +47.5 117.7	45 18.4 +47.3 116.6	44 43.8 +47.0 115.6	44 08.8 +46.8 114.5
21°	47 14.5 +47.4 117.9	46 40.2 +47.2 116.8	46 05.7 +46.8 115.7	45 30.8 +46.6 114.7	44 55.6 +46.3 113.7
22°	48 01.9 +46.9 117.0	47 27.4 +46.6 115.9	46 52.5 +46.4 114.8	46 17.4 +46.1 113.8	45 41.9 +45.9 112.8
23°	48 48.8 +46.5 116.0	48 14.0 +46.2 115.0	47 38.9 +46.0 113.9	47 03.5 +45.7 112.9	46 27.8 +45.5 111.8
24°	49 35.3 +46.0 115.1	49 00.2 +45.7 114.0	48 24.9 +45.4 112.9	47 49.2 +45.2 111.9	47 13.3 +45.0 110.9
25°	50 21.3 +45.5 114.1	49 45.9 +45.2 113.0	49 10.3 +44.9 111.9	48 34.4 +44.7 110.9	47 58.3 +44.4 109.9
26°	51 06.8 +44.8 113.0	50 31.1 +44.6 112.0	49 55.2 +44.4 110.9	49 19.1 +44.1 109.9	48 42.7 +43.9 108.9
27°	51 51.6 +44.3 112.0	51 15.7 +44.1 110.9	50 39.6 +43.8 109.9	50 03.2 +43.5 108.8	49 26.6 +43.3 107.8
28°	52 35.9 +43.7 110.9	51 59.8 +43.4 109.8	51 23.4 +43.1 108.8	50 46.7 +43.0 107.8	50 09.9 +42.7 106.8
29°	53 19.6 +43.0 109.7	52 43.2 +42.7 108.7	52 06.5 +42.5 107.7	51 29.7 +42.2 106.6	50 52.6 +42.1 105.7

Dec	LHA 045° / 315°	LHA 046° / 314°	LHA 047° / 313°	LHA 048° / 312°	LHA 049° / 311°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	27 02.0 +51.6 127.5	26 31.2 +51.3 126.5	26 00.0 +51.1 125.5	25 28.5 +50.8 124.6	24 56.5 +50.7 123.7
1°	27 53.6 +51.4 126.9	27 22.5 +51.2 125.9	26 51.1 +50.9 125.0	26 19.3 +50.7 124.0	25 47.2 +50.4 123.1
2°	28 45.0 +51.2 126.3	28 13.7 +51.0 125.3	27 42.0 +50.8 124.4	27 10.0 +50.5 123.4	26 37.6 +50.4 122.5
3°	29 36.2 +51.0 125.7	29 04.7 +50.8 124.7	28 32.8 +50.6 123.8	28 00.5 +50.4 122.8	27 28.0 +50.1 121.9
4°	30 27.2 +50.9 125.1	29 55.5 +50.7 124.1	29 23.4 +50.4 123.1	28 50.9 +50.2 122.2	28 18.1 +50.0 121.2
5°	31 18.1 +50.8 124.5	30 46.2 +50.4 123.5	30 13.8 +50.3 122.5	29 41.1 +50.0 121.6	29 08.1 +49.8 120.6
6°	32 08.9 +50.5 123.8	31 36.6 +50.3 122.9	31 04.1 +50.0 121.9	30 31.1 +49.9 120.9	29 57.9 +49.6 120.0
7°	32 59.4 +50.3 123.2	32 26.9 +50.1 122.2	31 54.1 +49.9 121.2	31 21.0 +49.6 120.3	30 47.5 +49.4 119.3
8°	33 49.7 +50.1 122.5	33 17.0 +49.9 121.6	32 44.0 +49.6 120.6	32 10.6 +49.4 119.6	31 36.9 +49.2 118.6
9°	34 39.8 +49.9 121.9	34 06.9 +49.7 120.9	33 33.6 +49.5 119.9	33 00.0 +49.2 118.9	32 26.1 +49.0 118.0
10°	35 29.7 +49.7 121.2	34 56.6 +49.4 120.2	34 23.1 +49.2 119.2	33 49.2 +49.0 118.2	33 15.1 +48.8 117.3
11°	36 19.4 +49.4 120.5	35 46.0 +49.2 119.5	35 12.3 +48.9 118.5	34 38.2 +48.7 117.5	34 03.9 +48.5 116.6
12°	37 08.8 +49.2 119.8	36 35.2 +48.9 118.8	36 01.2 +48.7 117.8	35 26.9 +48.5 116.8	34 52.4 +48.2 115.9
13°	37 58.0 +48.8 119.1	37 24.1 +48.6 118.1	36 49.9 +48.4 117.1	36 15.4 +48.2 116.1	35 40.6 +48.0 115.1
14°	38 46.8 +48.6 118.3	38 12.7 +48.4 117.3	37 38.3 +48.2 116.3	37 03.6 +47.9 115.4	36 28.6 +47.7 114.4
15°	39 35.4 +48.3 117.6	39 01.1 +48.1 116.6	38 26.5 +47.8 115.6	37 51.5 +47.7 114.6	37 16.3 +47.5 113.6
16°	40 23.7 +48.0 116.8	39 49.2 +47.7 115.8	39 14.3 +47.5 114.8	38 39.2 +47.3 113.8	38 03.8 +47.1 112.9
17°	41 11.7 +47.7 116.0	40 36.9 +47.4 115.0	40 01.8 +47.2 114.0	39 26.5 +46.9 113.0	38 50.9 +46.7 112.1
18°	41 59.4 +47.3 115.2	41 24.3 +47.1 114.2	40 49.0 +46.9 113.2	40 13.4 +46.7 112.2	39 37.6 +46.5 111.3
19°	42 46.7 +46.9 114.4	42 11.4 +46.7 113.4	41 35.9 +46.4 112.4	41 00.1 +46.2 111.4	40 24.1 +46.0 110.4
20°	43 33.6 +46.5 113.5	42 58.1 +46.3 112.5	42 22.3 +46.1 111.5	41 46.3 +45.9 110.6	41 10.1 +45.7 109.6
21°	44 20.1 +46.1 112.6	43 44.4 +45.9 111.6	43 08.4 +45.7 110.7	42 32.2 +45.5 109.7	41 55.8 +45.3 108.7
22°	45 06.2 +45.7 111.7	44 30.3 +45.5 110.7	43 54.1 +45.3 109.8	43 17.7 +45.1 108.8	42 41.1 +44.9 107.8
23°	45 51.9 +45.2 110.8	45 15.8 +45.0 109.8	44 39.4 +44.8 108.8	44 02.8 +44.6 107.9	43 26.0 +44.4 106.9
24°	46 37.1 +44.8 109.9	46 00.8 +44.5 108.9	45 24.2 +44.3 107.9	44 47.4 +44.1 106.9	44 10.4 +43.9 106.0
25°	47 21.9 +44.2 108.9	46 45.3 +44.0 107.9	46 08.5 +43.8 106.9	45 31.5 +43.6 106.0	44 54.3 +43.5 105.0
26°	48 06.1 +43.7 107.9	47 29.3 +43.5 106.9	46 52.3 +43.3 105.9	46 15.1 +43.2 105.0	45 37.8 +43.0 104.1
27°	48 49.8 +43.1 106.8	48 12.8 +42.9 105.9	47 35.6 +42.7 104.9	46 58.3 +42.5 104.0	46 20.8 +42.4 103.1
28°	49 32.9 +42.5 105.8	48 55.7 +42.3 104.8	48 18.3 +42.2 103.9	47 40.8 +42.0 102.9	47 03.2 +41.8 102.0
29°	50 15.4 +41.9 104.7	49 38.0 +41.7 103.7	49 00.5 +41.5 102.8	48 22.8 +41.4 101.9	47 45.0 +41.2 101.0

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Dec	LHA 050° / 310°	LHA 051° / 309°	LHA 052° / 308°	LHA 053° / 307°	LHA 054° / 306°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	24 24.3 +50.4 122.7	23 51.7 +50.1 121.8	23 18.7 +50.0 120.9	22 45.5 +49.8 120.0	22 11.9 +49.6 119.1
1°	25 14.7 +50.2 122.1	24 41.8 +50.1 121.2	24 08.7 +49.8 120.3	23 35.3 +49.6 119.4	23 01.5 +49.4 118.5
2°	26 04.9 +50.1 121.5	25 31.9 +49.9 120.6	24 58.5 +49.7 119.7	24 24.9 +49.5 118.8	23 50.9 +49.3 117.9
3°	26 55.0 +50.0 120.9	26 21.8 +49.7 120.0	25 48.2 +49.5 119.1	25 14.4 +49.3 118.2	24 40.2 +49.1 117.2
4°	27 45.0 +49.7 120.3	27 11.5 +49.6 119.4	26 37.7 +49.4 118.4	26 03.7 +49.1 117.5	25 29.3 +49.0 116.6
5°	28 34.7 +49.6 119.7	28 01.1 +49.3 118.7	27 27.1 +49.2 117.8	26 52.8 +49.0 116.9	26 18.3 +48.8 116.0
6°	29 24.3 +49.4 119.0	28 50.4 +49.2 118.1	28 16.3 +49.0 117.1	27 41.8 +48.8 116.2	27 07.1 +48.6 115.3
7°	30 13.7 +49.2 118.4	29 39.6 +49.0 117.4	29 05.3 +48.8 116.5	28 30.6 +48.6 115.6	27 55.7 +48.4 114.7
8°	31 02.9 +49.0 117.7	30 28.6 +48.8 116.8	29 54.1 +48.5 115.8	29 19.2 +48.4 114.9	28 44.1 +48.2 114.0
9°	31 51.9 +48.8 117.0	31 17.4 +48.6 116.1	30 42.6 +48.4 115.1	30 07.6 +48.2 114.2	29 32.3 +48.0 113.3
10°	32 40.7 +48.5 116.3	32 06.0 +48.3 115.4	31 31.0 +48.2 114.4	30 55.8 +47.9 113.5	30 20.3 +47.8 112.6
11°	33 29.2 +48.3 115.6	32 54.3 +48.1 114.7	32 19.2 +47.9 113.7	31 43.7 +47.8 112.8	31 08.1 +47.5 111.9
12°	34 17.5 +48.1 114.9	33 42.4 +47.9 114.0	33 07.1 +47.6 113.0	32 31.5 +47.4 112.1	31 55.6 +47.3 111.2
13°	35 05.6 +47.8 114.2	34 30.3 +47.6 113.2	33 54.7 +47.4 112.3	33 18.9 +47.2 111.4	32 42.9 +47.0 110.5
14°	35 53.4 +47.5 113.4	35 17.9 +47.3 112.5	34 42.1 +47.1 111.6	34 06.1 +47.0 110.6	33 29.9 +46.8 109.7
15°	36 40.9 +47.2 112.7	36 05.2 +47.0 111.7	35 29.2 +46.9 110.8	34 53.1 +46.6 109.9	34 16.7 +46.5 109.0
16°	37 28.1 +46.9 111.9	36 52.2 +46.7 111.0	36 16.1 +46.5 110.0	35 39.7 +46.4 109.1	35 03.2 +46.2 108.2
17°	38 15.0 +46.6 111.1	37 38.9 +46.4 110.2	37 02.6 +46.2 109.2	36 26.1 +46.0 108.3	35 49.4 +45.9 107.4
18°	39 01.6 +46.2 110.3	38 25.3 +46.0 109.4	37 48.8 +45.9 108.4	37 12.1 +45.7 107.5	36 35.3 +45.5 106.6
19°	39 47.8 +45.9 109.5	39 11.3 +45.7 108.5	38 34.7 +45.5 107.6	37 57.8 +45.4 106.7	37 20.8 +45.2 105.8
20°	40 33.7 +45.5 108.6	39 57.0 +45.4 107.7	39 20.2 +45.2 106.8	38 43.2 +45.0 105.9	38 06.0 +44.9 105.0
21°	41 19.2 +45.1 107.8	40 42.4 +44.9 106.8	40 05.4 +44.7 105.9	39 28.2 +44.6 105.0	38 50.9 +44.4 104.1
22°	42 04.3 +44.7 106.9	41 27.3 +44.5 106.0	40 50.1 +44.4 105.1	40 12.8 +44.2 104.1	39 35.3 +44.1 103.3
23°	42 49.0 +44.2 106.0	42 11.8 +44.1 105.1	41 34.5 +43.9 104.2	40 57.0 +43.8 103.3	40 19.4 +43.7 102.4
24°	43 33.2 +43.8 105.1	42 55.9 +43.6 104.1	42 18.4 +43.5 103.2	41 40.8 +43.4 102.3	41 03.1 +43.2 101.5
25°	44 17.0 +43.3 104.1	43 39.5 +43.2 103.2	43 01.9 +43.0 102.3	42 24.2 +42.9 101.4	41 46.3 +42.8 100.5
26°	45 00.3 +42.8 103.1	44 22.7 +42.6 102.2	43 44.9 +42.6 101.3	43 07.1 +42.4 100.5	42 29.1 +42.3 99.6
27°	45 43.1 +42.3 102.1	45 05.3 +42.2 101.2	44 27.5 +42.0 100.4	43 49.5 +41.9 99.5	43 11.4 +41.8 98.6
28°	46 25.4 +41.7 101.1	45 47.5 +41.6 100.2	45 09.5 +41.4 99.4	44 31.4 +41.3 98.5	43 53.2 +41.3 97.6
29°	47 07.1 +41.1 100.1	46 29.1 +41.0 99.2	45 50.9 +40.9 98.3	45 12.7 +40.8 97.5	44 34.5 +40.7 96.6

Dec	LHA 055° / 305°	LHA 056° / 304°	LHA 057° / 303°	LHA 058° / 302°	LHA 059° / 301°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	21 38.1 +49.4 118.2	21 04.0 +49.1 117.3	20 29.6 +49.0 116.4	19 54.9 +48.8 115.6	19 20.0 +48.6 114.7
1°	22 27.5 +49.2 117.6	21 53.1 +49.1 116.7	21 18.6 +48.8 115.8	20 43.7 +48.7 115.0	20 08.6 +48.5 114.1
2°	23 16.7 +49.1 117.0	22 42.2 +48.9 116.1	22 07.4 +48.7 115.2	21 32.4 +48.6 114.3	20 57.1 +48.4 113.5
3°	24 05.8 +48.9 116.3	23 31.1 +48.7 115.5	22 56.1 +48.6 114.6	22 21.0 +48.3 113.7	21 45.5 +48.2 112.8
4°	24 54.7 +48.8 115.7	24 19.8 +48.6 114.8	23 44.7 +48.4 113.9	23 09.3 +48.3 113.1	22 33.7 +48.1 112.2
5°	25 43.5 +48.6 115.1	25 08.4 +48.4 114.2	24 33.1 +48.3 113.3	23 57.6 +48.1 112.4	23 21.8 +47.9 111.5
6°	26 32.1 +48.4 114.4	25 56.8 +48.3 113.5	25 21.4 +48.0 112.6	24 45.7 +47.9 111.8	24 09.7 +47.8 110.9
7°	27 20.5 +48.2 113.8	26 45.1 +48.0 112.9	26 09.4 +47.9 112.0	25 33.6 +47.7 111.1	24 57.5 +47.5 110.2
8°	28 08.7 +48.1 113.1	27 33.1 +47.9 112.2	26 57.3 +47.7 111.3	26 21.3 +47.5 110.4	25 45.0 +47.4 109.5
9°	28 56.8 +47.8 112.4	28 21.0 +47.6 111.5	27 45.0 +47.5 110.6	27 08.8 +47.3 109.7	26 32.4 +47.2 108.9
10°	29 44.6 +47.6 111.7	29 08.6 +47.5 110.8	28 32.5 +47.2 109.9	27 56.1 +47.1 109.0	27 19.6 +46.9 108.2
11°	30 32.2 +47.3 111.0	29 56.1 +47.2 110.1	29 19.7 +47.1 109.2	28 43.2 +46.9 108.3	28 06.5 +46.8 107.5
12°	31 19.5 +47.2 110.3	30 43.3 +46.9 109.4	30 06.8 +46.8 108.5	29 30.1 +46.7 107.6	28 53.3 +46.5 106.7
13°	32 06.7 +46.8 109.6	31 30.2 +46.7 108.7	30 53.6 +46.5 107.8	30 16.8 +46.4 106.9	29 39.8 +46.3 106.0
14°	32 53.5 +46.6 108.8	32 16.9 +46.5 107.9	31 40.1 +46.3 107.0	31 03.2 +46.1 106.2	30 26.1 +46.0 105.3
15°	33 40.1 +46.4 108.1	33 03.4 +46.1 107.2	32 26.4 +46.1 106.3	31 49.3 +45.9 105.4	31 12.1 +45.7 104.5
16°	34 26.5 +46.0 107.3	33 49.5 +45.9 106.4	33 12.5 +45.7 105.5	32 35.2 +45.6 104.6	31 57.8 +45.5 103.8
17°	35 12.5 +45.7 106.5	34 35.4 +45.6 105.6	33 58.2 +45.4 104.7	33 20.8 +45.3 103.9	32 43.3 +45.2 103.0
18°	35 58.2 +45.4 105.7	35 21.0 +45.3 104.8	34 43.6 +45.2 104.0	34 06.1 +45.1 103.1	33 28.5 +44.9 102.2
19°	36 43.6 +45.1 104.9	36 06.3 +44.9 104.0	35 28.8 +44.8 103.1	34 51.2 +44.6 102.3	34 13.4 +44.6 101.4
20°	37 28.7 +44.7 104.1	36 51.2 +44.6 103.2	36 13.6 +44.4 102.3	35 35.8 +44.4 101.5	34 58.0 +44.2 100.6
21°	38 13.4 +44.3 103.2	37 35.8 +44.2 102.4	36 58.0 +44.1 101.5	36 20.2 +44.0 100.6	35 42.2 +43.9 99.8
22°	38 57.7 +44.0 102.4	38 20.0 +43.8 101.5	37 42.1 +43.8 100.6	37 04.2 +43.6 99.8	36 26.1 +43.6 98.9
23°	39 41.7 +43.5 101.5	39 03.8 +43.5 100.6	38 25.9 +43.3 99.8	37 47.8 +43.3 98.9	37 09.7 +43.1 98.1
24°	40 25.2 +43.1 100.6	39 47.3 +43.0 99.7	39 09.2 +42.9 98.9	38 31.1 +42.8 98.0	37 52.8 +42.8 97.2
25°	41 08.3 +42.7 99.7	40 30.3 +42.6 98.8	39 52.1 +42.5 98.0	39 13.9 +42.4 97.1	38 35.6 +42.3 96.3
26°	41 51.0 +42.2 98.7	41 12.9 +42.1 97.9	40 34.6 +42.1 97.0	39 56.3 +42.0 96.2	39 17.9 +41.9 95.4
27°	42 33.2 +41.7 97.8	41 55.0 +41.6 96.9	41 16.7 +41.5 96.1	40 38.3 +41.5 95.3	39 59.8 +41.5 94.5
28°	43 14.9 +41.2 96.8	42 36.6 +41.1 96.0	41 58.2 +41.1 95.1	41 19.8 +41.0 94.3	40 41.3 +41.0 93.5
29°	43 56.1 +40.7 95.8	43 17.7 +40.6 95.0	42 39.3 +40.5 94.2	42 00.8 +40.5 93.3	41 22.3 +40.5 92.6

## Declination SAME name as Latitude

## Latitude 50°

Dec	LHA 060° / 300°	LHA 061° / 299°	LHA 062° / 298°	LHA 063° / 297°	LHA 064° / 296°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	18 44.8 +48.5 113.9	18 09.4 +48.4 113.0	17 33.8 +48.2 112.2	16 58.0 +48.0 111.3	16 22.0 +47.8 110.5
1°	19 33.3 +48.4 113.2	18 57.8 +48.1 112.4	18 22.0 +48.0 111.5	17 46.0 +47.9 110.7	17 09.8 +47.8 109.9
2°	20 21.7 +48.2 112.6	19 45.9 +48.1 111.8	19 10.0 +47.9 110.9	18 33.9 +47.7 110.1	17 57.6 +47.6 109.2
3°	21 09.9 +48.0 112.0	20 34.0 +47.9 111.1	19 57.9 +47.8 110.3	19 21.6 +47.6 109.4	18 45.2 +47.4 108.6
4°	21 57.9 +47.9 111.3	21 21.9 +47.8 110.5	20 45.7 +47.6 109.6	20 09.2 +47.5 108.8	19 32.6 +47.4 107.9
5°	22 45.8 +47.8 110.7	22 09.7 +47.6 109.8	21 33.3 +47.4 109.0	20 56.7 +47.3 108.1	20 20.0 +47.2 107.3
6°	23 33.6 +47.6 110.0	22 57.3 +47.4 109.2	22 20.7 +47.3 108.3	21 44.0 +47.2 107.5	21 07.2 +47.0 106.6
7°	24 21.2 +47.4 109.3	23 44.7 +47.3 108.5	23 08.0 +47.1 107.6	22 31.2 +47.0 106.8	21 54.2 +46.8 106.0
8°	25 08.6 +47.2 108.7	24 32.0 +47.0 107.8	23 55.1 +47.0 107.0	23 18.2 +46.8 106.1	22 41.0 +46.7 105.3
9°	25 55.8 +47.0 108.0	25 19.0 +46.9 107.1	24 42.1 +46.7 106.3	24 05.0 +46.6 105.4	23 27.7 +46.6 104.6
10°	26 42.8 +46.8 107.3	26 05.9 +46.7 106.4	25 28.8 +46.6 105.6	24 51.6 +46.5 104.7	24 14.3 +46.3 103.9
11°	27 29.6 +46.7 106.6	26 52.6 +46.5 105.7	26 15.4 +46.4 104.9	25 38.1 +46.2 104.0	25 00.6 +46.1 103.2
12°	28 16.3 +46.3 105.9	27 39.1 +46.2 105.0	27 01.8 +46.1 104.2	26 24.3 +46.0 103.3	25 46.7 +45.9 102.5
13°	29 02.6 +46.2 105.2	28 25.3 +46.1 104.3	27 47.9 +45.9 103.5	27 10.3 +45.8 102.6	26 32.6 +45.7 101.8
14°	29 48.8 +45.9 104.4	29 11.4 +45.7 103.6	28 33.8 +45.7 102.7	27 56.1 +45.6 101.9	27 18.3 +45.5 101.1
15°	30 34.7 +45.6 103.7	29 57.1 +45.6 102.8	29 19.5 +45.4 102.0	28 41.7 +45.3 101.1	28 03.8 +45.2 100.3
16°	31 20.3 +45.4 102.9	30 42.7 +45.2 102.1	30 04.9 +45.1 101.2	29 27.0 +45.1 100.4	28 49.0 +45.0 99.6
17°	32 05.7 +45.1 102.2	31 27.9 +45.0 101.3	30 50.0 +44.9 100.5	30 12.1 +44.8 99.6	29 34.0 +44.7 98.8
18°	32 50.8 +44.8 101.4	32 12.9 +44.7 100.5	31 34.9 +44.6 99.7	30 56.9 +44.5 98.9	30 18.7 +44.5 98.0
19°	33 35.6 +44.4 100.6	32 57.6 +44.4 99.7	32 19.5 +44.3 98.9	31 41.4 +44.2 98.1	31 03.2 +44.1 97.3
20°	34 20.0 +44.2 99.8	33 42.0 +44.0 98.9	33 03.8 +44.0 98.1	32 25.6 +43.9 97.3	31 47.3 +43.9 96.5
21°	35 04.2 +43.8 98.9	34 26.0 +43.8 98.1	33 47.8 +43.7 97.3	33 09.5 +43.6 96.5	32 31.2 +43.5 95.7
22°	35 48.0 +43.5 98.1	35 09.8 +43.4 97.3	34 31.5 +43.3 96.5	33 53.1 +43.3 95.6	33 14.7 +43.2 94.8
23°	36 31.5 +43.0 97.3	35 53.2 +43.0 96.4	35 14.8 +43.0 95.6	34 36.4 +42.9 94.8	33 57.9 +42.9 94.0
24°	37 14.5 +42.7 96.4	36 36.2 +42.6 95.6	35 57.8 +42.6 94.8	35 19.3 +42.6 94.0	34 40.8 +42.5 93.2
25°	37 57.2 +42.3 95.5	37 18.8 +42.3 94.7	36 40.4 +42.2 93.9	36 01.9 +42.1 93.1	35 23.3 +42.2 92.3
26°	38 39.5 +41.9 94.6	38 01.1 +41.8 93.8	37 22.6 +41.7 93.0	36 44.0 +41.8 92.2	36 05.5 +41.7 91.4
27°	39 21.4 +41.4 93.7	38 42.9 +41.4 92.9	38 04.3 +41.4 92.1	37 25.8 +41.3 91.3	36 47.2 +41.4 90.5
28°	40 02.8 +40.9 92.7	39 24.3 +40.9 91.9	38 45.7 +40.9 91.2	38 07.1 +41.0 90.4	37 28.6 +40.9 89.6
29°	40 43.7 +40.5 91.8	40 05.2 +40.4 91.0	39 26.6 +40.5 90.2	38 48.1 +40.4 89.5	38 09.5 +40.5 88.7

Dec	LHA 065° / 295°	LHA 066° / 294°	LHA 067° / 293°	LHA 068° / 292°	LHA 069° / 291°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	15 45.8 +47.7 109.7	15 09.4 +47.5 108.8	14 32.8 +47.4 108.0	13 56.0 +47.3 107.2	13 19.1 +47.2 106.4
1°	16 33.5 +47.6 109.0	15 56.9 +47.5 108.2	15 20.2 +47.3 107.4	14 43.3 +47.2 106.6	14 06.3 +47.0 105.8
2°	17 21.1 +47.4 108.4	16 44.4 +47.3 107.6	16 07.5 +47.2 106.7	15 30.5 +47.1 105.9	14 53.3 +47.0 105.1
3°	18 08.5 +47.4 107.7	17 31.7 +47.2 106.9	16 54.7 +47.1 106.1	16 17.6 +47.0 105.3	15 40.3 +46.9 104.5
4°	18 55.9 +47.2 107.1	18 18.9 +47.1 106.3	17 41.8 +47.0 105.4	17 04.6 +46.8 104.6	16 27.2 +46.7 103.8
5°	19 43.1 +47.0 106.4	19 06.0 +46.9 105.6	18 28.8 +46.8 104.8	17 51.4 +46.7 104.0	17 13.9 +46.6 103.2
6°	20 30.1 +46.9 105.8	19 52.9 +46.8 105.0	19 15.6 +46.7 104.1	18 38.1 +46.6 103.3	18 00.5 +46.5 102.5
7°	21 17.0 +46.8 105.1	20 39.7 +46.7 104.3	20 02.3 +46.5 103.5	19 24.7 +46.4 102.6	18 47.0 +46.4 101.8
8°	22 03.8 +46.5 104.4	21 26.4 +46.4 103.6	20 48.8 +46.4 102.8	20 11.1 +46.3 102.0	19 33.4 +46.1 101.2
9°	22 50.3 +46.5 103.8	22 12.8 +46.3 102.9	21 35.2 +46.2 102.1	20 57.4 +46.1 101.3	20 19.5 +46.1 100.5
10°	23 36.8 +46.2 103.1	22 59.1 +46.1 102.2	22 21.4 +46.0 101.4	21 43.5 +46.0 100.6	21 05.6 +45.8 99.8
11°	24 23.0 +46.0 102.4	23 45.2 +46.0 101.5	23 07.4 +45.8 100.7	22 29.5 +45.7 99.9	21 51.4 +45.7 99.1
12°	25 09.0 +45.8 101.7	24 31.2 +45.7 100.8	23 53.2 +45.7 100.0	23 15.2 +45.6 99.2	22 37.1 +45.5 98.4
13°	25 54.8 +45.6 100.9	25 16.9 +45.5 100.1	24 38.9 +45.4 99.3	24 00.8 +45.3 98.5	23 22.6 +45.3 97.7
14°	26 40.4 +45.4 100.2	26 02.4 +45.3 99.4	25 24.3 +45.2 98.6	24 46.1 +45.2 97.8	24 07.9 +45.1 97.0
15°	27 25.8 +45.1 99.5	26 47.7 +45.1 98.7	26 09.5 +45.1 97.9	25 31.3 +45.0 97.1	24 53.0 +44.9 96.3
16°	28 10.9 +45.0 98.7	27 32.8 +44.8 97.9	26 54.6 +44.7 97.1	26 16.3 +44.7 96.3	25 37.9 +44.7 95.5
17°	28 55.9 +44.6 98.0	28 17.6 +44.6 97.2	27 39.3 +44.5 96.4	27 01.0 +44.4 95.6	26 22.6 +44.4 94.8
18°	29 40.5 +44.4 97.2	29 02.2 +44.3 96.4	28 23.8 +44.3 95.6	27 45.4 +44.3 94.8	27 07.0 +44.2 94.0
19°	30 24.9 +44.1 96.4	29 46.5 +44.1 95.6	29 08.1 +44.0 94.8	28 29.7 +43.9 94.0	27 51.2 +43.9 93.3
20°	31 09.0 +43.8 95.7	30 30.6 +43.7 94.9	29 52.1 +43.7 94.1	29 13.6 +43.7 93.3	28 35.1 +43.7 92.5
21°	31 52.8 +43.5 94.9	31 14.3 +43.5 94.1	30 35.8 +43.5 93.3	29 57.3 +43.4 92.5	29 18.8 +43.4 91.7
22°	32 36.3 +43.2 94.0	31 57.8 +43.1 93.3	31 19.3 +43.1 92.5	30 40.7 +43.1 91.7	30 02.2 +43.1 90.9
23°	33 19.5 +42.8 93.2	32 40.9 +42.9 92.4	32 02.4 +42.8 91.6	31 23.8 +42.8 90.9	30 45.3 +42.8 90.1
24°	34 02.3 +42.5 92.4	33 23.8 +42.4 91.6	32 45.2 +42.5 90.8	32 06.6 +42.5 90.0	31 28.1 +42.4 89.3
25°	34 44.8 +42.1 91.5	34 06.2 +42.2 90.7	33 27.7 +42.1 90.0	32 49.1 +42.1 89.2	32 10.5 +42.2 88.5
26°	35 26.9 +41.8 90.6	34 48.4 +41.7 89.9	34 09.8 +41.7 89.1	33 31.2 +41.8 88.4	32 52.7 +41.8 87.6
27°	36 08.7 +41.3 89.8	35 30.1 +41.4 89.0	34 51.5 +41.4 88.2	34 13.0 +41.4 87.5	33 34.5 +41.4 86.8
28°	36 50.0 +40.9 88.9	36 11.5 +40.9 88.1	35 32.9 +41.0 87.4	34 54.4 +41.0 86.6	34 15.9 +41.1 85.9
29°	37 30.9 +40.5 87.9	36 52.4 +40.5 87.2	36 13.9 +40.6 86.5	35 35.4 +40.6 85.7	34 57.0 +40.7 85.0

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Dec	LHA 070° / 290°	LHA 071° / 289°	LHA 072° / 288°	LHA 073° / 287°	LHA 074° / 286°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	12 42.0 +47.1 105.6	12 04.8 +46.9 104.8	11 27.4 +46.9 104.0	10 49.9 +46.8 103.2	10 12.3 +46.7 102.4
1°	13 29.1 +46.9 104.9	12 51.7 +46.9 104.1	12 14.3 +46.7 103.3	11 36.7 +46.7 102.5	10 59.0 +46.6 101.7
2°	14 16.0 +46.9 104.3	13 38.6 +46.8 103.5	13 01.0 +46.7 102.7	12 23.4 +46.5 101.9	11 45.6 +46.5 101.1
3°	15 02.9 +46.8 103.7	14 25.4 +46.6 102.9	13 47.7 +46.6 102.1	13 09.9 +46.5 101.3	12 32.1 +46.4 100.5
4°	15 49.7 +46.6 103.0	15 12.0 +46.6 102.2	14 34.3 +46.4 101.4	13 56.4 +46.4 100.6	13 18.5 +46.3 99.8
5°	16 36.3 +46.5 102.4	15 58.6 +46.4 101.5	15 20.7 +46.4 100.7	14 42.8 +46.3 99.9	14 04.8 +46.2 99.2
6°	17 22.8 +46.4 101.7	16 45.0 +46.3 100.9	16 07.1 +46.2 100.1	15 29.1 +46.1 99.3	14 51.0 +46.0 98.5
7°	18 09.2 +46.3 101.0	17 31.3 +46.2 100.2	16 53.3 +46.1 99.4	16 15.2 +46.0 98.6	15 37.0 +46.0 97.8
8°	18 55.5 +46.1 100.4	18 17.5 +46.0 99.5	17 39.4 +46.0 98.8	17 01.2 +45.9 98.0	16 23.0 +45.8 97.2
9°	19 41.6 +45.9 99.7	19 03.5 +45.9 98.9	18 25.4 +45.8 98.1	17 47.1 +45.8 97.3	17 08.8 +45.7 96.5
10°	20 27.5 +45.8 99.0	19 49.4 +45.7 98.2	19 11.2 +45.6 97.4	18 32.9 +45.6 96.6	17 54.5 +45.6 95.8
11°	21 13.3 +45.6 98.3	20 35.1 +45.5 97.5	19 56.8 +45.5 96.7	19 18.5 +45.4 95.9	18 40.1 +45.4 95.1
12°	21 58.9 +45.4 97.6	21 20.6 +45.4 96.8	20 42.3 +45.3 96.0	20 03.9 +45.3 95.2	19 25.5 +45.3 94.4
13°	22 44.3 +45.3 96.9	22 06.0 +45.2 96.1	21 27.6 +45.2 95.3	20 49.2 +45.1 94.5	20 10.8 +45.0 93.7
14°	23 29.6 +45.0 96.2	22 51.2 +45.0 95.4	22 12.8 +45.0 94.6	21 34.3 +45.0 93.8	20 55.8 +44.9 93.0
15°	24 14.6 +44.9 95.5	23 36.2 +44.8 94.7	22 57.8 +44.7 93.9	22 19.3 +44.7 93.1	21 40.7 +44.8 92.3
16°	24 59.5 +44.6 94.7	24 21.0 +44.6 93.9	23 42.5 +44.6 93.2	23 04.0 +44.5 92.4	22 25.5 +44.5 91.6
17°	25 44.1 +44.4 94.0	25 05.6 +44.4 93.2	24 27.1 +44.3 92.4	23 48.5 +44.4 91.6	23 10.0 +44.3 90.9
18°	26 28.5 +44.2 93.2	25 50.0 +44.1 92.5	25 11.4 +44.2 91.7	24 32.9 +44.1 90.9	23 54.3 +44.1 90.1
19°	27 12.7 +43.9 92.5	26 34.1 +43.9 91.7	25 55.6 +43.8 90.9	25 17.0 +43.9 90.2	24 38.4 +43.9 89.4
20°	27 56.6 +43.6 91.7	27 18.0 +43.7 90.9	26 39.4 +43.7 90.2	26 00.9 +43.6 89.4	25 22.3 +43.7 88.6
21°	28 40.2 +43.4 90.9	28 01.7 +43.3 90.2	27 23.1 +43.4 89.4	26 44.5 +43.4 88.6	26 06.0 +43.4 87.9
22°	29 23.6 +43.1 90.1	28 45.0 +43.1 89.4	28 06.5 +43.1 88.6	27 27.9 +43.2 87.9	26 49.4 +43.2 87.1
23°	30 06.7 +42.8 89.3	29 28.1 +42.9 88.6	28 49.6 +42.8 87.8	28 11.1 +42.8 87.1	27 32.6 +42.9 86.3
24°	30 49.5 +42.5 88.5	30 11.0 +42.5 87.8	29 32.4 +42.6 87.0	28 53.9 +42.6 86.3	28 15.5 +42.6 85.5
25°	31 32.0 +42.2 87.7	30 53.5 +42.2 87.0	30 15.0 +42.2 86.2	29 36.5 +42.3 85.5	28 58.1 +42.3 84.7
26°	32 14.2 +41.8 86.9	31 35.7 +41.8 86.1	30 57.2 +41.9 85.4	30 18.8 +42.0 84.7	29 40.4 +42.0 83.9
27°	32 56.0 +41.5 86.0	32 17.5 +41.6 85.3	31 39.1 +41.6 84.5	31 00.8 +41.6 83.8	30 22.4 +41.8 83.1
28°	33 37.5 +41.1 85.1	32 59.1 +41.1 84.4	32 20.7 +41.2 83.7	31 42.4 +41.3 83.0	31 04.2 +41.3 82.3
29°	34 18.6 +40.7 84.3	33 40.2 +40.8 83.5	33 01.9 +40.9 82.8	32 23.7 +41.0 82.1	31 45.5 +41.1 81.4

Dec	LHA 075° / 285°	LHA 076° / 284°	LHA 077° / 283°	LHA 078° / 282°	LHA 079° / 281°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	9 34.6 +46.6 101.6	8 56.8 +46.5 100.8	8 18.8 +46.5 100.0	7 40.8 +46.4 99.2	7 02.7 +46.3 98.5
1°	10 21.2 +46.5 101.0	9 43.3 +46.4 100.2	9 05.3 +46.3 99.4	8 27.2 +46.2 98.6	7 49.0 +46.2 97.8
2°	11 07.7 +46.4 100.3	10 29.7 +46.3 99.5	9 51.6 +46.3 98.7	9 13.4 +46.3 98.0	8 35.2 +46.2 97.2
3°	11 54.1 +46.3 99.7	11 16.0 +46.3 98.9	10 37.9 +46.2 98.1	9 59.7 +46.1 97.3	9 21.4 +46.1 96.5
4°	12 40.4 +46.3 99.0	12 02.3 +46.2 98.2	11 24.1 +46.1 97.4	10 45.8 +46.1 96.7	10 07.5 +46.0 95.9
5°	13 26.7 +46.1 98.4	12 48.5 +46.0 97.6	12 10.2 +46.0 96.8	11 31.9 +45.9 96.0	10 53.5 +45.9 95.2
6°	14 12.8 +46.0 97.7	13 34.5 +46.0 96.9	12 56.2 +45.9 96.1	12 17.8 +45.9 95.4	11 39.4 +45.9 94.6
7°	14 58.8 +45.9 97.0	14 20.5 +45.9 96.3	13 42.1 +45.8 95.5	13 03.7 +45.8 94.7	12 25.3 +45.7 93.9
8°	15 44.7 +45.8 96.4	15 06.4 +45.7 95.6	14 27.9 +45.7 94.8	13 49.5 +45.7 94.0	13 11.0 +45.6 93.3
9°	16 30.5 +45.6 95.7	15 52.1 +45.6 94.9	15 13.6 +45.6 94.1	14 35.2 +45.5 93.4	13 56.6 +45.6 92.6
10°	17 16.1 +45.6 95.0	16 37.7 +45.5 94.2	15 59.2 +45.5 93.5	15 20.7 +45.4 92.7	14 42.2 +45.4 91.9
11°	18 01.7 +45.3 94.3	17 23.2 +45.3 93.6	16 44.7 +45.3 92.8	16 06.1 +45.3 92.0	15 27.6 +45.3 91.2
12°	18 47.0 +45.3 93.7	18 08.5 +45.2 92.9	17 30.0 +45.2 92.1	16 51.4 +45.2 91.3	16 12.9 +45.1 90.6
13°	19 32.3 +45.0 93.0	18 53.7 +45.1 92.2	18 15.2 +45.0 91.4	17 36.6 +45.0 90.6	16 58.0 +45.1 89.9
14°	20 17.3 +44.9 92.3	19 38.8 +44.8 91.5	19 00.2 +44.9 90.7	18 21.6 +44.9 89.9	17 43.1 +44.8 89.2
15°	21 02.2 +44.7 91.5	20 23.6 +44.7 90.8	19 45.1 +44.7 90.0	19 06.5 +44.7 89.2	18 27.9 +44.8 88.5
16°	21 46.9 +44.5 90.8	21 08.3 +44.6 90.1	20 29.8 +44.5 89.3	19 51.2 +44.5 88.5	19 12.7 +44.5 87.8
17°	22 31.4 +44.3 90.1	21 52.9 +44.3 89.3	21 14.3 +44.3 88.6	20 35.7 +44.4 87.8	19 57.2 +44.4 87.1
18°	23 15.7 +44.2 89.4	22 37.2 +44.1 88.6	21 58.6 +44.2 87.9	21 20.1 +44.2 87.1	20 41.6 +44.2 86.3
19°	23 59.9 +43.9 88.6	23 21.3 +43.9 87.9	22 42.8 +43.9 87.1	22 04.3 +44.0 86.4	21 25.8 +44.0 85.6
20°	24 43.8 +43.7 87.9	24 05.2 +43.7 87.1	23 26.7 +43.8 86.4	22 48.3 +43.7 85.6	22 09.8 +43.8 84.9
21°	25 27.5 +43.4 87.1	24 48.9 +43.5 86.4	24 10.5 +43.5 85.6	23 32.0 +43.6 84.9	22 53.6 +43.7 84.2
22°	26 10.9 +43.2 86.4	25 32.4 +43.3 85.6	24 54.0 +43.3 84.9	24 15.6 +43.3 84.1	23 37.3 +43.4 83.4
23°	26 54.1 +42.9 85.6	26 15.7 +42.9 84.8	25 37.3 +43.0 84.1	24 58.9 +43.1 83.4	24 20.7 +43.1 82.6
24°	27 37.0 +42.7 84.8	26 58.6 +42.8 84.1	26 20.3 +42.8 83.3	25 42.0 +42.9 82.6	25 03.8 +42.9 81.9
25°	28 19.7 +42.4 84.0	27 41.4 +42.4 83.3	27 03.1 +42.5 82.5	26 24.9 +42.6 81.8	25 46.7 +42.7 81.1
26°	29 02.1 +42.1 83.2	28 23.8 +42.2 82.5	27 45.6 +42.3 81.8	27 07.5 +42.3 81.0	26 29.4 +42.4 80.3
27°	29 44.2 +41.8 82.4	29 06.0 +41.9 81.7	28 27.9 +41.9 81.0	27 49.8 +42.1 80.2	27 11.8 +42.2 79.5
28°	30 26.0 +41.4 81.5	29 47.9 +41.5 80.8	29 09.8 +41.7 80.1	28 31.9 +41.7 79.4	27 54.0 +41.9 78.7
29°	31 07.4 +41.2 80.7	30 29.4 +41.3 80.0	29 51.5 +41.3 79.3	29 13.6 +41.5 78.6	28 35.9 +41.5 77.9

# Declination SAME name as Latitude

# Latitude 50°

Dec	LHA 080° / 280°	LHA 081° / 279°	LHA 082° / 278°	LHA 083° / 277°	LHA 084° / 276°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	6 24.5 +46.2 97.7	5 46.3 +46.1 96.9	5 07.9 +46.2 96.1	4 29.6 +46.1 95.4	3 51.2 +46.0 94.6
1°	7 10.7 +46.2 97.1	6 32.4 +46.2 96.3	5 54.1 +46.1 95.5	5 15.7 +46.0 94.7	4 37.2 +46.0 94.0
2°	7 56.9 +46.1 96.4	7 18.6 +46.0 95.6	6 40.2 +46.0 94.9	6 01.7 +46.0 94.1	5 23.2 +46.0 93.3
3°	8 43.0 +46.1 95.8	8 04.6 +46.0 95.0	7 26.2 +46.0 94.2	6 47.7 +46.0 93.4	6 09.2 +45.9 92.7
4°	9 29.1 +46.0 95.1	8 50.6 +46.0 94.3	8 12.2 +45.9 93.6	7 33.7 +45.9 92.8	6 55.1 +45.9 92.0
5°	10 15.1 +45.9 94.5	9 36.6 +45.9 93.7	8 58.1 +45.8 92.9	8 19.6 +45.8 92.1	7 41.0 +45.8 91.4
6°	11 01.0 +45.8 93.8	10 22.5 +45.7 93.0	9 43.9 +45.8 92.3	9 05.4 +45.7 91.5	8 26.8 +45.8 90.7
7°	11 46.8 +45.7 93.1	11 08.2 +45.7 92.4	10 29.7 +45.7 91.6	9 51.1 +45.7 90.8	9 12.6 +45.7 90.1
8°	12 32.5 +45.6 92.5	11 53.9 +45.7 91.7	11 15.4 +45.6 90.9	10 36.8 +45.6 90.2	9 58.3 +45.6 89.4
9°	13 18.1 +45.5 91.8	12 39.6 +45.5 91.0	12 01.0 +45.5 90.3	11 22.4 +45.5 89.5	10 43.9 +45.5 88.7
10°	14 03.6 +45.4 91.1	13 25.1 +45.4 90.4	12 46.5 +45.4 89.6	12 07.9 +45.4 88.8	11 29.4 +45.4 88.1
11°	14 49.0 +45.3 90.5	14 10.5 +45.3 89.7	13 31.9 +45.3 88.9	12 53.3 +45.4 88.2	12 14.8 +45.3 87.4
12°	15 34.3 +45.2 89.8	14 55.8 +45.1 89.0	14 17.2 +45.2 88.3	13 38.7 +45.2 87.5	13 00.1 +45.3 86.7
13°	16 19.5 +45.0 89.1	15 40.9 +45.1 88.3	15 02.4 +45.0 87.6	14 23.9 +45.0 86.8	13 45.4 +45.1 86.1
14°	17 04.5 +44.9 88.4	16 26.0 +44.9 87.7	15 47.4 +45.0 86.9	15 08.9 +45.0 86.1	14 30.5 +45.0 85.4
15°	17 49.4 +44.7 87.7	17 10.9 +44.7 87.0	16 32.4 +44.8 86.2	15 53.9 +44.8 85.5	15 15.5 +44.9 84.7
16°	18 34.1 +44.6 87.0	17 55.6 +44.6 86.3	17 17.2 +44.6 85.5	16 38.7 +44.7 84.8	16 00.4 +44.7 84.0
17°	19 18.7 +44.4 86.3	18 40.2 +44.5 85.6	18 01.8 +44.5 84.8	17 23.4 +44.6 84.1	16 45.1 +44.6 83.3
18°	20 03.1 +44.3 85.6	19 24.7 +44.3 84.8	18 46.3 +44.3 84.1	18 08.0 +44.4 83.4	17 29.7 +44.4 82.6
19°	20 47.4 +44.0 84.9	20 09.0 +44.1 84.1	19 30.6 +44.2 83.4	18 52.4 +44.2 82.7	18 14.1 +44.3 81.9
20°	21 31.4 +43.9 84.1	20 53.1 +43.9 83.4	20 14.8 +44.0 82.7	19 36.6 +44.1 81.9	18 58.4 +44.2 81.2
21°	22 15.3 +43.7 83.4	21 37.0 +43.8 82.7	20 58.8 +43.8 81.9	20 20.7 +43.8 81.2	19 42.6 +43.9 80.5
22°	22 59.0 +43.4 82.7	22 20.8 +43.5 81.9	21 42.6 +43.6 81.2	21 04.5 +43.7 80.5	20 26.5 +43.8 79.8
23°	23 42.4 +43.3 81.9	23 04.3 +43.3 81.2	22 26.2 +43.4 80.5	21 48.2 +43.5 79.7	21 10.3 +43.6 79.0
24°	24 25.7 +43.0 81.2	23 47.6 +43.1 80.4	23 09.6 +43.2 79.7	22 31.7 +43.3 79.0	21 53.9 +43.4 78.3
25°	25 08.7 +42.7 80.4	24 30.7 +42.9 79.7	23 52.8 +43.0 79.0	23 15.0 +43.1 78.3	22 37.3 +43.2 77.5
26°	25 51.4 +42.6 79.6	25 13.6 +42.6 78.9	24 35.8 +42.7 78.2	23 58.1 +42.8 77.5	23 20.5 +42.9 76.8
27°	26 34.0 +42.2 78.8	25 56.2 +42.3 78.1	25 18.5 +42.5 77.4	24 40.9 +42.6 76.7	24 03.4 +42.7 76.0
28°	27 16.2 +42.0 78.0	26 38.5 +42.1 77.3	26 01.0 +42.2 76.6	25 23.5 +42.4 75.9	24 46.1 +42.5 75.3
29°	27 58.2 +41.7 77.2	27 20.6 +41.9 76.5	26 43.2 +41.9 75.8	26 05.9 +42.0 75.2	25 28.6 +42.3 74.5

Dec	LHA 085° / 275°	LHA 086° / 274°	LHA 087° / 273°	LHA 088° / 272°	LHA 089° / 271°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	3 12.7 +46.0 93.8	2 34.2 +46.0 93.1	1 55.7 +46.0 92.3	1 17.1 +46.0 91.5	0 38.6 +45.9 90.8
1°	3 58.7 +46.0 93.2	3 20.2 +46.0 92.4	2 41.7 +45.9 91.7	2 03.1 +45.9 90.9	1 24.5 +46.0 90.1
2°	4 44.7 +46.0 92.5	4 06.2 +45.9 91.8	3 27.6 +45.9 91.0	2 49.0 +46.0 90.2	2 10.5 +45.9 89.5
3°	5 30.7 +45.9 91.9	4 52.1 +45.9 91.1	4 13.5 +45.9 90.4	3 35.0 +45.9 89.6	2 56.4 +45.9 88.8
4°	6 16.6 +45.8 91.3	5 38.0 +45.9 90.5	4 59.4 +45.9 89.7	4 20.9 +45.9 89.0	3 42.3 +45.9 88.2
5°	7 02.4 +45.9 90.6	6 23.9 +45.8 89.8	5 45.3 +45.8 89.1	5 06.8 +45.8 88.3	4 28.2 +45.9 87.5
6°	7 48.3 +45.7 90.0	7 09.7 +45.7 89.2	6 31.1 +45.8 88.4	5 52.6 +45.8 87.7	5 14.1 +45.8 86.9
7°	8 34.0 +45.7 89.3	7 55.4 +45.7 88.5	7 16.9 +45.7 87.8	6 38.4 +45.7 87.0	5 59.9 +45.7 86.2
8°	9 19.7 +45.6 88.6	8 41.1 +45.7 87.9	8 02.6 +45.7 87.1	7 24.1 +45.7 86.4	6 45.6 +45.8 85.6
9°	10 05.3 +45.5 88.0	9 26.8 +45.5 87.2	8 48.3 +45.5 86.5	8 09.8 +45.6 85.7	7 31.4 +45.6 84.9
10°	10 50.8 +45.5 87.3	10 12.3 +45.5 86.6	9 33.8 +45.6 85.8	8 55.4 +45.6 85.0	8 17.0 +45.6 84.3
11°	11 36.3 +45.4 86.7	10 57.8 +45.4 85.9	10 19.4 +45.4 85.1	9 41.0 +45.4 84.4	9 02.6 +45.5 83.6
12°	12 21.7 +45.2 86.0	11 43.2 +45.3 85.2	11 04.8 +45.3 84.5	10 26.4 +45.4 83.7	9 48.1 +45.5 83.0
13°	13 06.9 +45.2 85.3	12 28.5 +45.2 84.6	11 50.1 +45.3 83.8	11 11.8 +45.3 83.1	10 33.6 +45.3 82.3
14°	13 52.1 +45.0 84.6	13 13.7 +45.1 83.9	12 35.4 +45.1 83.1	11 57.1 +45.2 82.4	11 18.9 +45.3 81.6
15°	14 37.1 +44.9 84.0	13 58.8 +45.0 83.2	13 20.5 +45.1 82.5	12 42.3 +45.1 81.7	12 04.2 +45.2 81.0
16°	15 22.0 +44.8 83.3	14 43.8 +44.8 82.5	14 05.6 +44.9 81.8	13 27.4 +45.0 81.0	12 49.4 +45.0 80.3
17°	16 06.8 +44.7 82.6	15 28.6 +44.7 81.8	14 50.5 +44.8 81.1	14 12.4 +44.9 80.4	13 34.4 +45.0 79.6
18°	16 51.5 +44.5 81.9	16 13.3 +44.6 81.1	15 35.3 +44.6 80.4	14 57.3 +44.7 79.7	14 19.4 +44.8 78.9
19°	17 36.0 +44.4 81.2	16 57.9 +44.5 80.4	16 19.9 +44.6 79.7	15 42.0 +44.7 79.0	15 04.2 +44.7 78.3
20°	18 20.4 +44.2 80.5	17 42.4 +44.3 79.7	17 04.5 +44.4 79.0	16 26.7 +44.4 78.3	15 48.9 +44.6 77.6
21°	19 04.6 +44.0 79.8	18 26.7 +44.1 79.0	17 48.9 +44.2 78.3	17 11.1 +44.4 77.6	16 33.5 +44.5 76.9
22°	19 48.6 +43.9 79.0	19 10.8 +44.0 78.3	18 33.1 +44.1 77.6	17 55.5 +44.2 76.9	17 18.0 +44.3 76.2
23°	20 32.5 +43.7 78.3	19 54.8 +43.8 77.6	19 17.2 +43.9 76.9	18 39.7 +44.0 76.2	18 02.3 +44.1 75.5
24°	21 16.2 +43.5 77.6	20 38.6 +43.6 76.9	20 01.1 +43.7 76.2	19 23.7 +43.8 75.4	18 46.4 +44.0 74.7
25°	21 59.7 +43.3 76.8	21 22.2 +43.4 76.1	20 44.8 +43.5 75.4	20 07.5 +43.7 74.7	19 30.4 +43.8 74.0
26°	22 43.0 +43.0 76.1	22 05.6 +43.2 75.4	21 28.3 +43.4 74.7	20 51.2 +43.5 74.0	20 14.2 +43.6 73.3
27°	23 26.0 +42.9 75.3	22 48.8 +43.0 74.6	22 11.7 +43.1 73.9	21 34.7 +43.3 73.3	20 57.8 +43.4 72.6
28°	24 08.9 +42.6 74.6	23 31.8 +42.8 73.9	22 54.8 +42.9 73.2	22 18.0 +43.0 72.5	21 41.2 +43.3 71.8
29°	24 51.5 +42.4 73.8	24 14.6 +42.5 73.1	23 37.7 +42.7 72.4	23 01.0 +42.9 71.7	22 24.5 +43.0 71.1

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Dec	LHA 090° / 270°	LHA 091° / 269°	LHA 092° / 268°	LHA 093° / 267°	LHA 094° / 266°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' ' dH ' Z °	H ° ' ' dH ' Z °	H ° ' ' dH ' Z °
0°	0 00.0 +46.0 90.0	-0 38.6 +46.0	-1 17.1 +46.0	-1 55.7 +46.0	-2 34.2 +46.0
1°	0 46.0 +45.9 89.4	0 07.4 +46.0 88.6	-0 31.1 +45.9	-1 09.7 +46.0	-1 48.2 +46.1
2°	1 31.9 +46.0 88.7	0 53.4 +45.9 87.9	0 14.8 +46.0 87.2	-0 23.7 +46.0	-1 02.1 +46.0
3°	2 17.9 +45.9 88.1	1 39.3 +46.0 87.3	1 00.8 +46.0 86.5	0 22.3 +46.0 85.8	-0 16.1 +46.0
4°	3 03.8 +45.9 87.4	2 25.3 +45.9 86.7	1 46.8 +45.9 85.9	1 08.3 +46.0 85.1	0 29.9 +46.1 84.4
5°	3 49.7 +45.9 86.8	3 11.2 +45.9 86.0	2 32.7 +46.0 85.3	1 54.3 +46.0 84.5	1 16.0 +46.0 83.7
6°	4 35.6 +45.8 86.1	3 57.1 +45.9 85.4	3 18.7 +45.9 84.6	2 40.3 +46.0 83.8	2 02.0 +46.0 83.1
7°	5 21.4 +45.8 85.5	4 43.0 +45.8 84.7	4 04.6 +45.9 84.0	3 26.3 +45.9 83.2	2 48.0 +46.0 82.4
8°	6 07.2 +45.8 84.8	5 28.8 +45.8 84.1	4 50.5 +45.8 83.3	4 12.2 +45.9 82.6	3 34.0 +46.0 81.8
9°	6 53.0 +45.7 84.2	6 14.6 +45.8 83.4	5 36.3 +45.8 82.7	4 58.1 +45.9 81.9	4 20.0 +45.9 81.2
10°	7 38.7 +45.6 83.5	7 00.4 +45.7 82.8	6 22.1 +45.8 82.0	5 44.0 +45.8 81.3	5 05.9 +45.9 80.5
11°	8 24.3 +45.6 82.9	7 46.1 +45.6 82.1	7 07.9 +45.7 81.4	6 29.8 +45.8 80.6	5 51.8 +45.8 79.9
12°	9 09.9 +45.5 82.2	8 31.7 +45.6 81.5	7 53.6 +45.6 80.7	7 15.6 +45.7 80.0	6 37.6 +45.8 79.2
13°	9 55.4 +45.4 81.6	9 17.3 +45.5 80.8	8 39.2 +45.6 80.1	8 01.3 +45.6 79.3	7 23.4 +45.8 78.6
14°	10 40.8 +45.3 80.9	10 02.8 +45.4 80.1	9 24.8 +45.5 79.4	8 46.9 +45.6 78.7	8 09.2 +45.7 77.9
15°	11 26.1 +45.3 80.2	10 48.2 +45.3 79.5	10 10.3 +45.4 78.7	9 32.5 +45.5 78.0	8 54.9 +45.6 77.3
16°	12 11.4 +45.1 79.6	11 33.5 +45.2 78.8	10 55.7 +45.4 78.1	10 18.0 +45.5 77.3	9 40.5 +45.5 76.6
17°	12 56.5 +45.1 78.9	12 18.7 +45.2 78.1	11 41.1 +45.2 77.4	11 03.5 +45.3 76.7	10 26.0 +45.4 75.9
18°	13 41.6 +44.9 78.2	13 03.9 +45.0 77.5	12 26.3 +45.1 76.7	11 48.8 +45.3 76.0	11 11.4 +45.4 75.3
19°	14 26.5 +44.8 77.5	13 48.9 +44.9 76.8	13 11.4 +45.1 76.1	12 34.1 +45.1 75.3	11 56.8 +45.3 74.6
20°	15 11.3 +44.7 76.8	14 33.8 +44.8 76.1	13 56.5 +44.9 75.4	13 19.2 +45.0 74.7	12 42.1 +45.1 73.9
21°	15 56.0 +44.6 76.1	15 18.6 +44.7 75.4	14 41.4 +44.8 74.7	14 04.2 +45.0 74.0	13 27.2 +45.1 73.3
22°	16 40.6 +44.4 75.4	16 03.3 +44.6 74.7	15 26.2 +44.6 74.0	14 49.2 +44.8 73.3	14 12.3 +44.9 72.6
23°	17 25.0 +44.3 74.7	16 47.9 +44.4 74.0	16 10.8 +44.6 73.3	15 34.0 +44.6 72.6	14 57.2 +44.9 71.9
24°	18 09.3 +44.1 74.0	17 32.3 +44.2 73.3	16 55.4 +44.4 72.6	16 18.6 +44.6 71.9	15 42.1 +44.6 71.2
25°	18 53.4 +43.9 73.3	18 16.5 +44.1 72.6	17 39.8 +44.2 71.9	17 03.2 +44.4 71.2	16 26.7 +44.6 70.5
26°	19 37.3 +43.8 72.6	19 00.6 +43.9 71.9	18 24.0 +44.1 71.2	17 47.6 +44.2 70.5	17 11.3 +44.4 69.8
27°	20 21.1 +43.6 71.9	19 44.5 +43.8 71.2	19 08.1 +43.9 70.5	18 31.8 +44.1 69.8	17 55.7 +44.2 69.1
28°	21 04.7 +43.4 71.1	20 28.3 +43.5 70.4	19 52.0 +43.7 69.8	19 15.9 +43.9 69.1	18 39.9 +44.1 68.4
29°	21 48.1 +43.2 70.4	21 11.8 +43.4 69.7	20 35.7 +43.6 69.0	19 59.8 +43.7 68.3	19 24.0 +43.9 67.7

Dec	LHA 095° / 265°	LHA 096° / 264°	LHA 097° / 263°	LHA 098° / 262°	LHA 099° / 261°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' ' dH ' Z °	H ° ' ' dH ' Z °	H ° ' ' dH ' Z °
0°	-3 12.7 +46.1	-3 51.2 +46.1	-4 29.6 +46.1	-5 07.9 +46.1	-5 46.3 +46.3
1°	-2 26.6 +46.0	-3 05.1 +46.1	-3 43.5 +46.2	-4 21.8 +46.2	-5 00.0 +46.2
2°	-1 40.6 +46.1	-2 19.0 +46.1	-2 57.3 +46.2	-3 35.6 +46.2	-4 13.8 +46.3
3°	-0 54.5 +46.1	-1 32.9 +46.2	-2 11.1 +46.1	-2 49.4 +46.3	-3 27.5 +46.3
4°	-0 08.4 +46.1	-0 46.7 +46.1	-1 25.0 +46.2	-2 03.1 +46.2	-2 41.2 +46.3
5°	0 37.7 +46.0 83.0	-0 00.6 +46.2	-0 38.8 +46.2	-1 16.9 +46.3	-1 54.9 +46.4
6°	1 23.7 +46.1 82.3	0 45.6 +46.1 81.6	0 07.4 +46.2 80.8	-0 30.6 +46.3	-1 08.5 +46.3
7°	2 09.8 +46.1 81.7	1 31.7 +46.1 80.9	0 53.6 +46.2 80.2	0 15.7 +46.3 79.4	-0 22.2 +46.4
8°	2 55.9 +46.0 81.0	2 17.8 +46.1 80.3	1 39.8 +46.2 79.5	1 02.0 +46.2 78.8	0 24.2 +46.3 78.0
9°	3 41.9 +46.0 80.4	3 03.9 +46.1 79.6	2 26.0 +46.2 78.9	1 48.2 +46.3 78.1	1 10.5 +46.4 77.4
10°	4 27.9 +46.0 79.8	3 50.0 +46.0 79.0	3 12.2 +46.1 78.2	2 34.5 +46.2 77.5	1 56.9 +46.3 76.7
11°	5 13.9 +45.9 79.1	4 36.0 +46.1 78.4	3 58.3 +46.1 77.6	3 20.7 +46.2 76.8	2 43.2 +46.3 76.1
12°	5 59.8 +45.9 78.5	5 22.1 +45.9 77.7	4 44.4 +46.1 77.0	4 06.9 +46.2 76.2	3 29.5 +46.3 75.4
13°	6 45.7 +45.8 77.8	6 08.0 +46.0 77.1	5 30.5 +46.0 76.3	4 53.1 +46.1 75.6	4 15.8 +46.3 74.8
14°	7 31.5 +45.8 77.2	6 54.0 +45.9 76.4	6 16.5 +46.0 75.7	5 39.2 +46.1 74.9	5 02.1 +46.2 74.2
15°	8 17.3 +45.7 76.5	7 39.9 +45.8 75.8	7 02.5 +46.0 75.0	6 25.3 +46.1 74.3	5 48.3 +46.2 73.5
16°	9 03.0 +45.6 75.9	8 25.7 +45.7 75.1	7 48.5 +45.8 74.4	7 11.4 +46.0 73.6	6 34.5 +46.1 72.9
17°	9 48.6 +45.6 75.2	9 11.4 +45.7 74.5	8 34.3 +45.8 73.7	7 57.4 +45.9 73.0	7 20.6 +46.0 72.2
18°	10 34.2 +45.5 74.5	9 57.1 +45.6 73.8	9 20.1 +45.8 73.1	8 43.3 +45.9 72.3	8 06.6 +46.1 71.6
19°	11 19.7 +45.4 73.9	10 42.7 +45.5 73.1	10 05.9 +45.6 72.4	9 29.2 +45.8 71.7	8 52.7 +45.9 70.9
20°	12 05.1 +45.3 73.2	11 28.2 +45.5 72.5	10 51.5 +45.6 71.7	10 15.0 +45.7 71.0	9 38.6 +45.9 70.3
21°	12 50.4 +45.2 72.5	12 13.7 +45.3 71.8	11 37.1 +45.5 71.1	11 00.7 +45.6 70.4	10 24.5 +45.7 69.6
22°	13 35.6 +45.1 71.9	12 59.0 +45.2 71.1	12 22.6 +45.4 70.4	11 46.3 +45.6 69.7	11 10.2 +45.7 69.0
23°	14 20.7 +44.9 71.2	13 44.2 +45.2 70.5	13 08.0 +45.2 69.7	12 31.9 +45.4 69.0	11 55.9 +45.6 68.3
24°	15 05.6 +44.9 70.5	14 29.4 +45.0 69.8	13 53.2 +45.2 69.1	13 17.3 +45.3 68.4	12 41.5 +45.6 67.7
25°	15 50.5 +44.7 69.8	15 14.4 +44.8 69.1	14 38.4 +45.1 68.4	14 02.6 +45.3 67.7	13 27.1 +45.4 67.0
26°	16 35.2 +44.5 69.1	15 59.2 +44.8 68.4	15 23.5 +44.9 67.7	14 47.9 +45.1 67.0	14 12.5 +45.2 66.3
27°	17 19.7 +44.5 68.4	16 44.0 +44.6 67.7	16 08.4 +44.8 67.0	15 33.0 +44.9 66.3	14 57.7 +45.2 65.6
28°	18 04.2 +44.2 67.7	17 28.6 +44.4 67.0	16 53.2 +44.6 66.3	16 17.9 +44.9 65.6	15 42.9 +45.0 65.0
29°	18 48.4 +44.1 67.0	18 13.0 +44.3 66.3	17 37.8 +44.5 65.6	17 02.8 +44.7 64.9	16 27.9 +44.9 64.3

# Declination SAME name as Latitude

# Latitude 50°

Dec	LHA 100° / 260°	LHA 101° / 259°	LHA 102° / 258°	LHA 103° / 257°	LHA 104° / 256°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-6 24.5 +46.3	-7 02.7 +46.3	-7 40.8 +46.4	-8 18.8 +46.4	-8 56.8 +46.6
1°	-5 38.2 +46.3	-6 16.4 +46.4	-6 54.4 +46.5	-7 32.4 +46.6	-8 10.2 +46.6
2°	-4 51.9 +46.3	-5 30.0 +46.4	-6 07.9 +46.5	-6 45.8 +46.6	-7 23.6 +46.7
3°	-4 05.6 +46.4	-4 43.6 +46.5	-5 21.4 +46.5	-5 59.2 +46.6	-6 36.9 +46.7
4°	-3 19.2 +46.4	-3 57.1 +46.5	-4 34.9 +46.6	-5 12.6 +46.7	-5 50.2 +46.8
5°	-2 32.8 +46.4	-3 10.6 +46.5	-3 48.3 +46.6	-4 25.9 +46.7	-5 03.4 +46.8
6°	-1 46.4 +46.5	-2 24.1 +46.5	-3 01.7 +46.6	-3 39.2 +46.7	-4 16.6 +46.8
7°	-0 59.9 +46.4	-1 37.6 +46.6	-2 15.1 +46.6	-2 52.5 +46.7	-3 29.8 +46.9
8°	-0 13.5 +46.5	-0 51.0 +46.5	-1 28.5 +46.7	-2 05.8 +46.8	-2 42.9 +46.8
9°	0 33.0 +46.4 76.6	-0 04.5 +46.6	-0 41.8 +46.6	-1 19.0 +46.8	-1 56.1 +46.9
10°	1 19.4 +46.4 76.0	0 42.1 +46.5 75.2	0 04.8 +46.7 74.4	-0 32.2 +46.7	-1 09.2 +46.9
11°	2 05.8 +46.5 75.3	1 28.6 +46.5 74.6	0 51.5 +46.7 73.8	0 14.5 +46.8 73.0	-0 22.3 +46.9
12°	2 52.3 +46.4 74.7	2 15.1 +46.6 73.9	1 38.2 +46.6 73.2	1 01.3 +46.8 72.4	0 24.6 +46.9 71.6
13°	3 38.7 +46.3 74.1	3 01.7 +46.4 73.3	2 24.8 +46.6 72.5	1 48.1 +46.7 71.8	1 11.5 +46.9 71.0
14°	4 25.0 +46.4 73.4	3 48.1 +46.5 72.7	3 11.4 +46.6 71.9	2 34.8 +46.8 71.2	1 58.4 +46.9 70.4
15°	5 11.4 +46.3 72.8	4 34.6 +46.4 72.0	3 58.0 +46.6 71.3	3 21.6 +46.7 70.5	2 45.3 +46.8 69.8
16°	5 57.7 +46.2 72.1	5 21.0 +46.4 71.4	4 44.6 +46.5 70.6	4 08.3 +46.6 69.9	3 32.1 +46.9 69.1
17°	6 43.9 +46.2 71.5	6 07.4 +46.4 70.8	5 31.1 +46.5 70.0	4 54.9 +46.7 69.3	4 19.0 +46.8 68.5
18°	7 30.1 +46.2 70.9	6 53.8 +46.3 70.1	6 17.6 +46.4 69.4	5 41.6 +46.6 68.6	5 05.8 +46.7 67.9
19°	8 16.3 +46.1 70.2	7 40.1 +46.2 69.5	7 04.0 +46.4 68.7	6 28.2 +46.6 68.0	5 52.5 +46.8 67.3
20°	9 02.4 +46.0 69.6	8 26.3 +46.2 68.8	7 50.4 +46.4 68.1	7 14.8 +46.5 67.4	6 39.3 +46.6 66.6
21°	9 48.4 +45.9 68.9	9 12.5 +46.1 68.2	8 36.8 +46.3 67.5	8 01.3 +46.4 66.7	7 25.9 +46.6 66.0
22°	10 34.3 +45.9 68.3	9 58.6 +46.0 67.5	9 23.1 +46.2 66.8	8 47.7 +46.4 66.1	8 12.5 +46.6 65.4
23°	11 20.2 +45.8 67.6	10 44.6 +46.0 66.9	10 09.3 +46.1 66.2	9 34.1 +46.3 65.4	8 59.1 +46.5 64.7
24°	12 06.0 +45.6 66.9	11 30.6 +45.8 66.2	10 55.4 +46.0 65.5	10 20.4 +46.2 64.8	9 45.6 +46.4 64.1
25°	12 51.6 +45.6 66.3	12 16.4 +45.8 65.6	11 41.4 +46.0 64.9	11 06.6 +46.2 64.2	10 32.0 +46.3 63.4
26°	13 37.2 +45.5 65.6	13 02.2 +45.7 64.9	12 27.4 +45.8 64.2	11 52.8 +46.0 63.5	11 18.3 +46.3 62.8
27°	14 22.7 +45.4 64.9	13 47.9 +45.5 64.2	13 13.2 +45.8 63.5	12 38.8 +46.0 62.8	12 04.6 +46.2 62.1
28°	15 08.1 +45.2 64.3	14 33.4 +45.5 63.6	13 59.0 +45.6 62.9	13 24.8 +45.8 62.2	12 50.8 +46.0 61.5
29°	15 53.3 +45.1 63.6	15 18.9 +45.3 62.9	14 44.6 +45.6 62.2	14 10.6 +45.8 61.5	13 36.8 +46.0 60.8

Dec	LHA 105° / 255°	LHA 106° / 254°	LHA 107° / 253°	LHA 108° / 252°	LHA 109° / 251°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-9 34.6 +46.7				
1°	-8 47.9 +46.7	-9 25.6 +46.8			
2°	-8 01.2 +46.7	-8 38.8 +46.9	-9 16.2 +47.0	-9 53.5 +47.1	
3°	-7 14.5 +46.9	-7 51.9 +46.9	-8 29.2 +47.0	-9 06.4 +47.2	-9 43.4 +47.3
4°	-6 27.6 +46.8	-7 05.0 +47.0	-7 42.2 +47.1	-8 19.2 +47.2	-8 56.1 +47.3
5°	-5 40.8 +46.9	-6 18.0 +47.0	-6 55.1 +47.1	-7 32.0 +47.2	-8 08.8 +47.4
6°	-4 53.9 +47.0	-5 31.0 +47.1	-6 08.0 +47.2	-6 44.8 +47.3	-7 21.4 +47.4
7°	-4 06.9 +46.9	-4 43.9 +47.1	-5 20.8 +47.2	-5 57.5 +47.4	-6 34.0 +47.5
8°	-3 20.0 +47.0	-3 56.8 +47.1	-4 33.6 +47.3	-5 10.1 +47.4	-5 46.5 +47.5
9°	-2 33.0 +47.0	-3 09.7 +47.1	-3 46.3 +47.3	-4 22.7 +47.4	-4 59.0 +47.6
10°	-1 46.0 +47.1	-2 22.6 +47.2	-2 59.0 +47.3	-3 35.3 +47.4	-4 11.4 +47.6
11°	-0 58.9 +47.0	-1 35.4 +47.1	-2 11.7 +47.3	-2 47.9 +47.5	-3 23.8 +47.6
12°	-0 11.9 +47.0	-0 48.3 +47.2	-1 24.4 +47.3	-2 00.4 +47.4	-2 36.2 +47.6
13°	0 35.1 +47.1 70.3	-0 01.1 +47.2	-0 37.1 +47.3	-1 13.0 +47.5	-1 48.6 +47.6
14°	1 22.2 +47.0 69.6	0 46.1 +47.2 68.9	0 10.2 +47.3 68.1	-0 25.5 +47.5	-1 01.0 +47.7
15°	2 09.2 +47.0 69.0	1 33.3 +47.1 68.3	0 57.5 +47.4 67.5	0 22.0 +47.5 66.7	-0 13.3 +47.6
16°	2 56.2 +47.0 68.4	2 20.4 +47.2 67.6	1 44.9 +47.3 66.9	1 09.5 +47.5 66.1	0 34.3 +47.7 65.4
17°	3 43.2 +46.9 67.8	3 07.6 +47.1 67.0	2 32.2 +47.3 66.3	1 57.0 +47.4 65.5	1 22.0 +47.6 64.8
18°	4 30.1 +47.0 67.1	3 54.7 +47.1 66.4	3 19.5 +47.2 65.6	2 44.4 +47.5 64.9	2 09.6 +47.6 64.1
19°	5 17.1 +46.8 66.5	4 41.8 +47.0 65.8	4 06.7 +47.3 65.0	3 31.9 +47.4 64.3	2 57.2 +47.6 63.5
20°	6 03.9 +46.9 65.9	5 28.8 +47.1 65.2	4 54.0 +47.2 64.4	4 19.3 +47.4 63.7	3 44.8 +47.6 62.9
21°	6 50.8 +46.8 65.3	6 15.9 +46.9 64.5	5 41.2 +47.1 63.8	5 06.7 +47.3 63.1	4 32.4 +47.5 62.3
22°	7 37.6 +46.7 64.6	7 02.8 +47.0 63.9	6 28.3 +47.1 63.2	5 54.0 +47.3 62.4	5 19.9 +47.5 61.7
23°	8 24.3 +46.7 64.0	7 49.8 +46.8 63.3	7 15.4 +47.1 62.5	6 41.3 +47.3 61.8	6 07.4 +47.5 61.1
24°	9 11.0 +46.6 63.4	8 36.6 +46.9 62.6	8 02.5 +47.0 61.9	7 28.6 +47.2 61.2	6 54.9 +47.4 60.5
25°	9 57.6 +46.6 62.7	9 23.5 +46.7 62.0	8 49.5 +47.0 61.3	8 15.8 +47.2 60.6	7 42.3 +47.4 59.9
26°	10 44.2 +46.4 62.1	10 10.2 +46.7 61.4	9 36.5 +46.8 60.7	9 03.0 +47.0 59.9	8 29.7 +47.3 59.2
27°	11 30.6 +46.4 61.4	10 56.9 +46.5 60.7	10 23.3 +46.8 60.0	9 50.0 +47.1 59.3	9 17.0 +47.2 58.6
28°	12 17.0 +46.3 60.8	11 43.4 +46.5 60.1	11 10.1 +46.8 59.4	10 37.1 +46.9 58.7	10 04.2 +47.2 58.0
29°	13 03.3 +46.2 60.1	12 29.9 +46.5 59.4	11 56.9 +46.6 58.8	11 24.0 +46.9 58.1	10 51.4 +47.1 57.4

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Dec	LHA 110° / 250°	LHA 111° / 249°	LHA 112° / 248°	LHA 113° / 247°	LHA 114° / 246°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°	-9 32.9 +47.5				
5°	-8 45.4 +47.5	-9 21.9 +47.7	-9 58.1 +47.8		
6°	-7 57.9 +47.6	-8 34.2 +47.7	-9 10.3 +47.8	-9 46.2 +48.0	
7°	-7 10.3 +47.6	-7 46.5 +47.8	-8 22.5 +48.0	-8 58.2 +48.0	-9 33.8 +48.2
8°	-6 22.7 +47.7	-6 58.7 +47.8	-7 34.5 +47.9	-8 10.2 +48.2	-8 45.6 +48.3
9°	-5 35.0 +47.7	-6 10.9 +47.9	-6 46.6 +48.0	-7 22.0 +48.1	-7 57.3 +48.4
10°	-4 47.3 +47.7	-5 23.0 +47.8	-5 58.6 +48.1	-6 33.9 +48.3	-7 08.9 +48.3
11°	-3 59.6 +47.8	-4 35.2 +48.0	-5 10.5 +48.1	-5 45.6 +48.2	-6 20.6 +48.5
12°	-3 11.8 +47.8	-3 47.2 +47.9	-4 22.4 +48.1	-4 57.4 +48.3	-5 32.1 +48.4
13°	-2 24.0 +47.8	-2 59.3 +48.0	-3 34.3 +48.1	-4 09.1 +48.3	-4 43.7 +48.5
14°	-1 36.2 +47.8	-2 11.3 +48.0	-2 46.2 +48.2	-3 20.8 +48.3	-3 55.2 +48.5
15°	-0 48.4 +47.8	-1 23.3 +48.0	-1 58.0 +48.2	-2 32.5 +48.4	-3 06.7 +48.6
16°	-0 00.6 +47.8	-0 35.3 +48.0	-1 09.8 +48.1	-1 44.1 +48.4	-2 18.1 +48.5
17°	0 47.2 +47.8 64.0	0 12.7 +47.9 63.2	-0 21.7 +48.2	-0 55.7 +48.3	-1 29.6 +48.6
18°	1 35.0 +47.8 63.4	1 00.6 +48.0 62.6	0 26.5 +48.2 61.9	-0 07.4 +48.4	-0 41.0 +48.6
19°	2 22.8 +47.8 62.8	1 48.6 +48.0 62.0	1 14.7 +48.2 61.3	0 41.0 +48.4 60.5	0 07.6 +48.5 59.7
20°	3 10.6 +47.8 62.2	2 36.6 +48.0 61.4	2 02.9 +48.1 60.7	1 29.4 +48.3 59.9	0 56.1 +48.6 59.2
21°	3 58.4 +47.7 61.6	3 24.6 +47.9 60.8	2 51.0 +48.2 60.1	2 17.7 +48.4 59.3	1 44.7 +48.5 58.6
22°	4 46.1 +47.7 61.0	4 12.5 +47.9 60.2	3 39.2 +48.1 59.5	3 06.1 +48.3 58.7	2 33.2 +48.6 58.0
23°	5 33.8 +47.7 60.4	5 00.4 +47.9 59.6	4 27.3 +48.1 58.9	3 54.4 +48.3 58.1	3 21.8 +48.5 57.4
24°	6 21.5 +47.6 59.7	5 48.3 +47.8 59.0	5 15.4 +48.0 58.3	4 42.7 +48.2 57.5	4 10.3 +48.5 56.8
25°	7 09.1 +47.6 59.1	6 36.1 +47.8 58.4	6 03.4 +48.0 57.7	5 30.9 +48.3 56.9	4 58.8 +48.4 56.2
26°	7 56.7 +47.5 58.5	7 23.9 +47.8 57.8	6 51.4 +48.0 57.1	6 19.2 +48.2 56.3	5 47.2 +48.4 55.6
27°	8 44.2 +47.5 57.9	8 11.7 +47.6 57.2	7 39.4 +47.9 56.5	7 07.4 +48.1 55.7	6 35.6 +48.4 55.0
28°	9 31.7 +47.4 57.3	8 59.3 +47.7 56.6	8 27.3 +47.8 55.9	7 55.5 +48.1 55.1	7 24.0 +48.3 54.4
29°	10 19.1 +47.3 56.7	9 47.0 +47.5 56.0	9 15.1 +47.8 55.2	8 43.6 +48.0 54.5	8 12.3 +48.3 53.8

Dec	LHA 115° / 245°	LHA 116° / 244°	LHA 117° / 243°	LHA 118° / 242°	LHA 119° / 241°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°	-9 20.8 +48.5	-9 55.7 +48.6			
9°	-8 32.3 +48.5	-9 07.1 +48.7	-9 41.7 +48.9		
10°	-7 43.8 +48.6	-8 18.4 +48.7	-8 52.8 +48.9	-9 26.9 +49.1	
11°	-6 55.2 +48.6	-7 29.7 +48.8	-8 03.9 +49.0	-8 37.8 +49.1	-9 11.5 +49.4
12°	-6 06.6 +48.6	-6 40.9 +48.8	-7 14.9 +49.0	-7 48.7 +49.2	-8 22.1 +49.3
13°	-5 18.0 +48.7	-5 52.1 +48.9	-6 25.9 +49.1	-6 59.5 +49.3	-7 32.8 +49.5
14°	-4 29.3 +48.7	-5 03.2 +48.9	-5 36.8 +49.0	-6 10.2 +49.3	-6 43.3 +49.5
15°	-3 40.6 +48.7	-4 14.3 +48.9	-4 47.8 +49.2	-5 20.9 +49.3	-5 53.8 +49.5
16°	-2 51.9 +48.8	-3 25.4 +48.9	-3 58.6 +49.1	-4 31.6 +49.3	-5 04.3 +49.5
17°	-2 03.1 +48.7	-2 36.5 +49.0	-3 09.5 +49.1	-3 42.3 +49.4	-4 14.8 +49.6
18°	-1 14.4 +48.8	-1 47.5 +49.0	-2 20.4 +49.2	-2 52.9 +49.4	-3 25.2 +49.6
19°	-0 25.6 +48.7	-0 58.5 +48.9	-1 31.2 +49.2	-2 03.5 +49.3	-2 35.6 +49.6
20°	0 23.1 +48.8 58.4	-0 09.6 +49.0	-0 42.0 +49.2	-1 14.2 +49.4	-1 46.0 +49.6
21°	1 11.9 +48.8 57.8	0 39.4 +49.0 57.1	0 07.2 +49.2 56.3	-0 24.8 +49.4	-0 56.4 +49.6
22°	2 00.7 +48.7 57.2	1 28.4 +48.9 56.5	0 56.4 +49.1 55.7	0 24.6 +49.4 55.0	-0 06.8 +49.6
23°	2 49.4 +48.7 56.6	2 17.3 +49.0 55.9	1 45.5 +49.2 55.1	1 14.0 +49.4 54.4	0 42.8 +49.7 53.6
24°	3 38.1 +48.7 56.1	3 06.3 +48.9 55.3	2 34.7 +49.2 54.6	2 03.4 +49.4 53.8	1 32.5 +49.6 53.1
25°	4 26.8 +48.7 55.5	3 55.2 +48.9 54.7	3 23.9 +49.1 54.0	2 52.8 +49.4 53.2	2 22.1 +49.6 52.5
26°	5 15.5 +48.7 54.9	4 44.1 +48.9 54.2	4 13.0 +49.1 53.4	3 42.2 +49.3 52.7	3 11.7 +49.5 51.9
27°	6 04.2 +48.6 54.3	5 33.0 +48.8 53.6	5 02.1 +49.1 52.8	4 31.5 +49.3 52.1	4 01.2 +49.6 51.4
28°	6 52.8 +48.5 53.7	6 21.8 +48.8 53.0	5 51.2 +49.0 52.3	5 20.8 +49.3 51.5	4 50.8 +49.5 50.8
29°	7 41.3 +48.5 53.1	7 10.6 +48.8 52.4	6 40.2 +49.0 51.7	6 10.1 +49.2 51.0	5 40.3 +49.5 50.2

# Declination SAME name as Latitude

# Latitude 50°

Dec	LHA 120° / 240°	LHA 121° / 239°	LHA 122° / 238°	LHA 123° / 237°	LHA 124° / 236°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°	-9 44.9 +49.5				
12°	-8 55.4 +49.6	-9 28.3 +49.8			
13°	-8 05.8 +49.7	-8 38.5 +49.8	-9 10.9 +50.0	-9 43.1 +50.3	
14°	-7 16.1 +49.7	-7 48.7 +49.9	-8 20.9 +50.1	-8 52.8 +50.3	-9 24.4 +50.5
15°	-6 26.4 +49.7	-6 58.8 +50.0	-7 30.8 +50.2	-8 02.5 +50.4	-8 33.9 +50.6
16°	-5 36.7 +49.7	-6 08.8 +49.9	-6 40.6 +50.1	-7 12.1 +50.3	-7 43.3 +50.6
17°	-4 47.0 +49.8	-5 18.9 +50.0	-5 50.5 +50.2	-6 21.8 +50.5	-6 52.7 +50.6
18°	-3 57.2 +49.8	-4 28.9 +50.0	-5 00.3 +50.3	-5 31.3 +50.4	-6 02.1 +50.7
19°	-3 07.4 +49.8	-3 38.9 +50.1	-4 10.0 +50.2	-4 40.9 +50.5	-5 11.4 +50.7
20°	-2 17.6 +49.9	-2 48.8 +50.0	-3 19.8 +50.3	-3 50.4 +50.5	-4 20.7 +50.7
21°	-1 27.7 +49.8	-1 58.8 +50.1	-2 29.5 +50.3	-2 59.9 +50.5	-3 30.0 +50.8
22°	-0 37.9 +49.8	-1 08.7 +50.1	-1 39.2 +50.3	-2 09.4 +50.5	-2 39.2 +50.7
23°	0 11.9 +49.9 52.9	-0 18.6 +50.0	-0 48.9 +50.3	-1 18.9 +50.6	-1 48.5 +50.8
24°	1 01.8 +49.8 52.3	0 31.4 +50.1 51.5	0 01.4 +50.3 50.8	-0 28.3 +50.5	-0 57.7 +50.8
25°	1 51.6 +49.8 51.7	1 21.5 +50.0 51.0	0 51.7 +50.3 50.2	0 22.2 +50.5 49.5	-0 06.9 +50.7
26°	2 41.4 +49.9 51.2	2 11.5 +50.1 50.4	1 42.0 +50.3 49.7	1 12.7 +50.6 48.9	0 43.8 +50.8 48.2
27°	3 31.3 +49.7 50.6	3 01.6 +50.0 49.9	2 32.3 +50.2 49.1	2 03.3 +50.5 48.4	1 34.6 +50.7 47.6
28°	4 21.0 +49.8 50.1	3 51.6 +50.0 49.3	3 22.5 +50.3 48.6	2 53.8 +50.5 47.9	2 25.3 +50.8 47.1
29°	5 10.8 +49.7 49.5	4 41.6 +50.0 48.8	4 12.8 +50.2 48.1	3 44.3 +50.5 47.3	3 16.1 +50.7 46.6

Dec	LHA 125° / 235°	LHA 126° / 234°	LHA 127° / 233°	LHA 128° / 232°	LHA 129° / 231°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°	-9 55.7 +50.7				
15°	-9 05.0 +50.8	-9 35.7 +51.0			
16°	-8 14.2 +50.8	-8 44.7 +51.1	-9 14.9 +51.3	-9 44.7 +51.5	
17°	-7 23.4 +50.9	-7 53.6 +51.0	-8 23.6 +51.3	-8 53.2 +51.5	-9 22.4 +51.7
18°	-6 32.5 +50.9	-7 02.6 +51.2	-7 32.3 +51.4	-8 01.7 +51.6	-8 30.7 +51.8
19°	-5 41.6 +50.9	-6 11.4 +51.1	-6 40.9 +51.3	-7 10.1 +51.6	-7 38.9 +51.9
20°	-4 50.7 +51.0	-5 20.3 +51.2	-5 49.6 +51.4	-6 18.5 +51.7	-6 47.0 +51.8
21°	-3 59.7 +51.0	-4 29.1 +51.2	-4 58.2 +51.5	-5 26.8 +51.6	-5 55.2 +51.9
22°	-3 08.7 +50.9	-3 37.9 +51.2	-4 06.7 +51.4	-4 35.2 +51.7	-5 03.3 +52.0
23°	-2 17.8 +51.0	-2 46.7 +51.2	-3 15.3 +51.5	-3 43.5 +51.7	-4 11.3 +51.9
24°	-1 26.8 +51.0	-1 55.5 +51.3	-2 23.8 +51.5	-2 51.8 +51.7	-3 19.4 +52.0
25°	-0 35.8 +51.1	-1 04.2 +51.2	-1 32.3 +51.5	-2 00.1 +51.8	-2 27.4 +51.9
26°	0 15.3 +51.0 47.4	-0 13.0 +51.3	-0 40.8 +51.5	-1 08.3 +51.7	-1 35.5 +52.0
27°	1 06.3 +51.0 46.9	0 38.3 +51.2 46.1	0 10.7 +51.4 45.4	-0 16.6 +51.7	-0 43.5 +52.0
28°	1 57.3 +51.0 46.4	1 29.5 +51.3 45.6	1 02.1 +51.5 44.9	0 35.1 +51.8 44.1	0 08.5 +52.0 43.3
29°	2 48.3 +50.9 45.8	2 20.8 +51.2 45.1	1 53.6 +51.5 44.3	1 26.9 +51.7 43.6	1 00.5 +51.9 42.8

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# Latitude 50°

# Declination SAME name as Latitude

Dec	LHA 130° / 230°	LHA 131° / 229°	LHA 132° / 228°	LHA 133° / 227°	LHA 134° / 226°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°	-9 51.3 +52.0				
18°	-8 59.3 +52.0	-9 27.6 +52.3	-9 55.4 +52.5		
19°	-8 07.3 +52.1	-8 35.3 +52.3	-9 02.9 +52.5		
20°	-7 15.2 +52.1	-7 43.0 +52.3	-8 10.4 +52.6		
21°	-6 23.1 +52.1	-6 50.7 +52.4	-7 17.8 +52.6		
22°	-5 31.0 +52.2	-5 58.3 +52.4	-6 25.2 +52.6		
23°	-4 38.8 +52.2	-5 05.9 +52.4	-5 32.6 +52.6		
24°	-3 46.6 +52.2	-4 13.5 +52.4	-4 40.0 +52.7		
25°	-2 54.4 +52.2	-3 21.1 +52.5	-3 47.3 +52.7		
26°	-2 02.2 +52.2	-2 28.6 +52.4	-2 54.6 +52.7		
27°	-1 10.0 +52.2	-1 36.2 +52.5	-2 01.9 +52.7		
28°	-0 17.8 +52.2	-0 43.7 +52.5	-1 09.2 +52.7		
29°	0 34.4 +52.2 42.1	0 08.8 +52.4 41.3	-0 16.5 +52.7		

Dec	LHA 135° / 225°	LHA 136° / 224°	LHA 137° / 223°	LHA 138° / 222°	LHA 139° / 221°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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 The data on this page is believed to be accurate but no warranty is given for it's correctness. Use it only for training and exercising!

Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	39 00.0 +60.0 180.0	38 59.6 +60.0 178.7	38 58.3 +60.0 177.4	38 56.2 +59.9 176.1	38 53.2 +59.9 174.9
1°	40 00.0 +60.0 180.0	39 59.6 +60.0 178.7	39 58.3 +60.0 177.4	39 56.1 +60.0 176.1	39 53.1 +59.9 174.8
2°	41 00.0 +60.0 180.0	40 59.6 +60.0 178.7	40 58.3 +59.9 177.4	40 56.1 +59.9 176.0	40 53.0 +59.9 174.7
3°	42 00.0 +60.0 180.0	41 59.6 +60.0 178.7	41 58.2 +60.0 177.3	41 56.0 +60.0 176.0	41 52.9 +59.9 174.6
4°	43 00.0 +60.0 180.0	42 59.6 +59.9 178.6	42 58.2 +60.0 177.3	42 56.0 +59.9 175.9	42 52.8 +59.9 174.6
5°	44 00.0 +60.0 180.0	43 59.5 +60.0 178.6	43 58.2 +59.9 177.2	43 55.9 +59.9 175.8	43 52.7 +59.9 174.5
6°	45 00.0 +60.0 180.0	44 59.5 +60.0 178.6	44 58.1 +60.0 177.2	44 55.8 +60.0 175.8	44 52.6 +59.9 174.4
7°	46 00.0 +60.0 180.0	45 59.5 +60.0 178.6	45 58.1 +60.0 177.1	45 55.8 +59.9 175.7	45 52.5 +59.9 174.3
8°	47 00.0 +60.0 180.0	46 59.5 +60.0 178.5	46 58.1 +60.0 177.1	46 55.7 +59.9 175.6	46 52.4 +59.8 174.2
9°	48 00.0 +60.0 180.0	47 59.5 +60.0 178.5	47 58.1 +59.9 177.0	47 55.6 +60.0 175.6	47 52.2 +59.9 174.1
10°	49 00.0 +60.0 180.0	48 59.5 +60.0 178.5	48 58.0 +60.0 177.0	48 55.6 +59.9 175.5	48 52.1 +59.9 174.0
11°	50 00.0 +60.0 180.0	49 59.5 +60.0 178.5	49 58.0 +60.0 176.9	49 55.5 +59.9 175.4	49 52.0 +59.8 173.9
12°	51 00.0 +60.0 180.0	50 59.5 +60.0 178.4	50 58.0 +59.9 176.9	50 55.4 +59.9 175.3	50 51.8 +59.9 173.8
13°	52 00.0 +60.0 180.0	51 59.5 +60.0 178.4	51 57.9 +60.0 176.8	51 55.3 +59.9 175.3	51 51.7 +59.8 173.7
14°	53 00.0 +60.0 180.0	52 59.5 +60.0 178.4	52 57.9 +59.9 176.8	52 55.2 +59.9 175.2	52 51.5 +59.9 173.6
15°	54 00.0 +60.0 180.0	53 59.5 +59.9 178.4	53 57.8 +60.0 176.7	53 55.1 +59.9 175.1	53 51.4 +59.8 173.4
16°	55 00.0 +60.0 180.0	54 59.4 +60.0 178.3	54 57.8 +59.9 176.7	54 55.0 +59.9 175.0	54 51.2 +59.8 173.3
17°	56 00.0 +60.0 180.0	55 59.4 +60.0 178.3	55 57.7 +60.0 176.6	55 54.9 +59.9 174.9	55 51.0 +59.8 173.2
18°	57 00.0 +60.0 180.0	56 59.4 +60.0 178.3	56 57.7 +59.9 176.5	56 54.8 +59.9 174.8	56 50.8 +59.8 173.0
19°	58 00.0 +60.0 180.0	57 59.4 +60.0 178.2	57 57.6 +60.0 176.4	57 54.7 +59.9 174.7	57 50.6 +59.8 172.9
20°	59 00.0 +60.0 180.0	58 59.4 +60.0 178.2	58 57.6 +59.9 176.4	58 54.6 +59.9 174.5	58 50.4 +59.8 172.7
21°	60 00.0 +60.0 180.0	59 59.4 +60.0 178.1	59 57.5 +60.0 176.3	59 54.5 +59.8 174.4	59 50.2 +59.7 172.6
22°	61 00.0 +60.0 180.0	60 59.4 +60.0 178.1	60 57.5 +59.9 176.2	60 54.3 +59.9 174.3	60 49.9 +59.8 172.4
23°	62 00.0 +60.0 180.0	61 59.4 +59.9 178.0	61 57.4 +60.0 176.1	61 54.2 +59.8 174.1	61 49.7 +59.7 172.2
24°	63 00.0 +60.0 180.0	62 59.3 +60.0 178.0	62 57.4 +59.9 176.0	62 54.0 +59.9 174.0	62 49.4 +59.7 172.0
25°	64 00.0 +60.0 180.0	63 59.3 +60.0 177.9	63 57.3 +59.9 175.9	63 53.9 +59.8 173.8	63 49.1 +59.7 171.8
26°	65 00.0 +60.0 180.0	64 59.3 +60.0 177.9	64 57.2 +59.9 175.8	64 53.7 +59.8 173.6	64 48.8 +59.7 171.5
27°	66 00.0 +60.0 180.0	65 59.3 +60.0 177.8	65 57.1 +59.9 175.6	65 53.5 +59.8 173.4	65 48.5 +59.6 171.3
28°	67 00.0 +60.0 180.0	66 59.3 +59.9 177.7	66 57.0 +59.9 175.5	66 53.3 +59.8 173.2	66 48.1 +59.6 171.0
29°	68 00.0 +60.0 180.0	67 59.2 +60.0 177.7	67 56.9 +59.9 175.3	67 53.1 +59.8 173.0	67 47.7 +59.6 170.7

Dec	LHA 005° / 355°	LHA 006° / 354°	LHA 007° / 353°	LHA 008° / 352°	LHA 009° / 351°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	38 49.4 +59.9 173.6	38 44.8 +59.8 172.3	38 39.3 +59.7 171.0	38 33.0 +59.6 169.7	38 25.9 +59.5 168.5
1°	39 49.3 +59.8 173.5	39 44.6 +59.7 172.2	39 39.0 +59.7 170.9	39 32.6 +59.6 169.6	39 25.4 +59.5 168.3
2°	40 49.1 +59.9 173.4	40 44.3 +59.8 172.1	40 38.7 +59.7 170.8	40 32.2 +59.6 169.5	40 24.9 +59.5 168.2
3°	41 49.0 +59.8 173.3	41 44.1 +59.8 172.0	41 38.4 +59.7 170.6	41 31.8 +59.6 169.3	41 24.4 +59.4 168.0
4°	42 48.8 +59.8 173.2	42 43.9 +59.7 171.8	42 38.1 +59.6 170.5	42 31.4 +59.6 169.1	42 23.8 +59.5 167.8
5°	43 48.6 +59.8 173.1	43 43.6 +59.8 171.7	43 37.7 +59.7 170.3	43 31.0 +59.5 169.0	43 23.3 +59.4 167.6
6°	44 48.4 +59.9 173.0	44 43.4 +59.7 171.6	44 37.4 +59.6 170.2	44 30.5 +59.6 168.8	44 22.7 +59.5 167.4
7°	45 48.3 +59.8 172.9	45 43.1 +59.7 171.5	45 37.0 +59.7 170.0	45 30.1 +59.5 168.6	45 22.2 +59.4 167.2
8°	46 48.1 +59.8 172.8	46 42.8 +59.8 171.3	46 36.7 +59.6 169.9	46 29.6 +59.5 168.5	46 21.6 +59.3 167.0
9°	47 47.9 +59.8 172.6	47 42.6 +59.7 171.2	47 36.3 +59.6 169.7	47 29.1 +59.5 168.3	47 20.9 +59.4 166.8
10°	48 47.7 +59.8 172.5	48 42.3 +59.7 171.0	48 35.9 +59.6 169.5	48 28.6 +59.4 168.1	48 20.3 +59.3 166.6
11°	49 47.5 +59.7 172.4	49 42.0 +59.6 170.9	49 35.5 +59.5 169.4	49 28.0 +59.5 167.9	49 19.6 +59.3 166.4
12°	50 47.2 +59.8 172.3	50 41.6 +59.7 170.7	50 35.0 +59.6 169.2	50 27.5 +59.4 167.7	50 18.9 +59.3 166.1
13°	51 47.0 +59.8 172.1	51 41.3 +59.7 170.5	51 34.6 +59.5 169.0	51 26.9 +59.4 167.4	51 18.2 +59.2 165.9
14°	52 46.8 +59.7 172.0	52 41.0 +59.6 170.4	52 34.1 +59.5 168.8	52 26.3 +59.3 167.2	52 17.4 +59.2 165.6
15°	53 46.5 +59.7 171.8	53 40.6 +59.6 170.2	53 33.6 +59.5 168.6	53 25.6 +59.4 167.0	53 16.6 +59.2 165.4
16°	54 46.2 +59.8 171.6	54 40.2 +59.6 170.0	54 33.1 +59.5 168.3	54 25.0 +59.3 166.7	54 15.8 +59.1 165.1
17°	55 46.0 +59.7 171.5	55 39.8 +59.6 169.8	55 32.6 +59.4 168.1	55 24.3 +59.2 166.4	55 14.9 +59.1 164.8
18°	56 45.7 +59.7 171.3	56 39.4 +59.6 169.6	56 32.0 +59.4 167.9	56 23.5 +59.3 166.2	56 14.0 +59.0 164.5
19°	57 45.4 +59.6 171.1	57 39.0 +59.5 169.4	57 31.4 +59.4 167.6	57 22.8 +59.1 165.9	57 13.0 +59.0 164.1
20°	58 45.0 +59.7 170.9	58 38.5 +59.5 169.1	58 30.8 +59.3 167.3	58 21.9 +59.2 165.6	58 12.0 +58.9 163.8
21°	59 44.7 +59.6 170.7	59 38.0 +59.5 168.9	59 30.1 +59.3 167.0	59 21.1 +59.0 165.2	59 10.9 +58.8 163.4
22°	60 44.3 +59.6 170.5	60 37.5 +59.4 168.6	60 29.4 +59.2 166.7	60 20.1 +59.1 164.9	60 09.7 +58.8 163.1
23°	61 43.9 +59.6 170.2	61 36.9 +59.4 168.3	61 28.6 +59.2 166.4	61 19.2 +58.9 164.5	61 08.5 +58.7 162.6
24°	62 43.5 +59.6 170.0	62 36.3 +59.4 168.0	62 27.8 +59.2 166.1	62 18.1 +58.9 164.1	62 07.2 +58.6 162.2
25°	63 43.1 +59.5 169.7	63 35.7 +59.3 167.7	63 27.0 +59.1 165.7	63 17.0 +58.8 163.7	63 05.8 +58.5 161.7
26°	64 42.6 +59.5 169.4	64 35.0 +59.3 167.4	64 26.1 +59.0 165.3	64 15.8 +58.8 163.3	64 04.3 +58.4 161.2
27°	65 42.1 +59.4 169.1	65 34.3 +59.2 167.0	65 25.1 +58.9 164.9	65 14.6 +58.6 162.8	65 02.7 +58.3 160.7
28°	66 41.5 +59.4 168.8	66 33.5 +59.1 166.6	66 24.0 +58.8 164.4	66 13.2 +58.5 162.3	66 01.0 +58.1 160.1
29°	67 40.9 +59.4 168.4	67 32.6 +59.1 166.2	67 22.8 +58.8 163.9	67 11.7 +58.4 161.7	66 59.1 +58.0 159.5

Dec	LHA 010° / 350°	LHA 011° / 349°	LHA 012° / 348°	LHA 013° / 347°	LHA 014° / 346°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	38 17.9 +59.4 167.2	38 09.2 +59.2 166.0	37 59.6 +59.1 164.7	37 49.2 +59.1 163.5	37 38.1 +58.9 162.2
1°	39 17.3 +59.4 167.0	39 08.4 +59.3 165.8	38 58.7 +59.2 164.5	38 48.3 +58.9 163.2	38 37.0 +58.8 162.0
2°	40 16.7 +59.4 166.9	40 07.7 +59.3 165.6	39 57.9 +59.1 164.3	39 47.2 +59.0 163.0	39 35.8 +58.8 161.7
3°	41 16.1 +59.3 166.7	41 07.0 +59.2 165.3	40 57.0 +59.1 164.0	40 46.2 +58.9 162.7	40 34.6 +58.8 161.5
4°	42 15.4 +59.4 166.5	42 06.2 +59.2 165.1	41 56.1 +59.0 163.8	41 45.1 +58.9 162.5	41 33.4 +58.7 161.2
5°	43 14.8 +59.3 166.3	43 05.4 +59.1 164.9	42 55.1 +59.0 163.6	42 44.0 +58.9 162.2	42 32.1 +58.7 160.9
6°	44 14.1 +59.3 166.1	44 04.5 +59.2 164.7	43 54.1 +59.0 163.3	43 42.9 +58.8 162.0	43 30.8 +58.6 160.6
7°	45 13.4 +59.2 165.8	45 03.7 +59.1 164.4	44 53.1 +59.0 163.1	44 41.7 +58.8 161.7	44 29.4 +58.6 160.3
8°	46 12.6 +59.3 165.6	46 02.8 +59.1 164.2	45 52.1 +58.9 162.8	45 40.5 +58.7 161.4	45 28.0 +58.5 160.0
9°	47 11.9 +59.2 165.4	47 01.9 +59.0 163.9	46 51.0 +58.9 162.5	46 39.2 +58.7 161.1	46 26.5 +58.5 159.7
10°	48 11.1 +59.1 165.1	48 00.9 +59.0 163.7	47 49.9 +58.8 162.2	47 37.9 +58.6 160.8	47 25.0 +58.5 159.4
11°	49 10.2 +59.2 164.9	48 59.9 +59.0 163.4	48 48.7 +58.8 161.9	48 36.5 +58.6 160.5	48 23.5 +58.3 159.0
12°	50 09.4 +59.1 164.6	49 58.9 +58.9 163.1	49 47.5 +58.7 161.6	49 35.1 +58.5 160.2	49 21.8 +58.3 158.7
13°	51 08.5 +59.0 164.4	50 57.8 +58.9 162.8	50 46.2 +58.7 161.3	50 33.6 +58.5 159.8	50 20.1 +58.3 158.3
14°	52 07.5 +59.1 164.1	51 56.7 +58.8 162.5	51 44.9 +58.6 161.0	51 32.1 +58.4 159.5	51 18.4 +58.1 157.9
15°	53 06.6 +58.9 163.8	52 55.5 +58.8 162.2	52 43.5 +58.5 160.6	52 30.5 +58.3 159.1	52 16.5 +58.1 157.5
16°	54 05.5 +59.0 163.5	53 54.3 +58.7 161.9	53 42.0 +58.5 160.3	53 28.8 +58.2 158.7	53 14.6 +58.0 157.1
17°	55 04.5 +58.8 163.1	54 53.0 +58.6 161.5	54 40.5 +58.4 159.9	54 27.0 +58.2 158.3	54 12.6 +57.9 156.7
18°	56 03.3 +58.8 162.8	55 51.6 +58.6 161.1	55 38.9 +58.3 159.5	55 25.2 +58.0 157.9	55 10.5 +57.7 156.2
19°	57 02.1 +58.8 162.4	56 50.2 +58.5 160.7	56 37.2 +58.3 159.1	56 23.2 +58.0 157.4	56 08.2 +57.7 155.8
20°	58 00.9 +58.6 162.1	57 48.7 +58.4 160.3	57 35.5 +58.1 158.6	57 21.2 +57.8 156.9	57 05.9 +57.5 155.3
21°	58 59.5 +58.6 161.7	58 47.1 +58.3 159.9	58 33.6 +58.0 158.2	58 19.0 +57.7 156.4	58 03.4 +57.4 154.7
22°	59 58.1 +58.5 161.2	59 45.4 +58.3 159.4	59 31.6 +57.9 157.7	59 16.7 +57.6 155.9	59 00.8 +57.2 154.2
23°	60 56.6 +58.5 160.8	60 43.7 +58.1 158.9	60 29.5 +57.8 157.1	60 14.3 +57.4 155.3	59 58.0 +57.1 153.6
24°	61 55.1 +58.3 160.3	61 41.8 +57.9 158.4	61 27.3 +57.6 156.6	61 11.7 +57.3 154.8	60 55.1 +56.9 153.0
25°	62 53.4 +58.2 159.8	62 39.7 +57.9 157.9	62 24.9 +57.5 156.0	62 09.0 +57.1 154.1	61 52.0 +56.7 152.3
26°	63 51.6 +58.0 159.3	63 37.6 +57.7 157.3	63 22.4 +57.3 155.4	63 06.1 +56.9 153.5	62 48.7 +56.4 151.6
27°	64 49.6 +57.9 158.7	64 35.3 +57.5 156.7	64 19.7 +57.1 154.7	64 03.0 +56.6 152.7	63 45.1 +56.2 150.8
28°	65 47.5 +57.8 158.0	65 32.8 +57.3 156.0	65 16.8 +56.9 154.0	64 59.6 +56.4 152.0	64 41.3 +56.0 150.0
29°	66 45.3 +57.5 157.4	66 30.1 +57.1 155.3	66 13.7 +56.6 153.2	65 56.0 +56.2 151.2	65 37.3 +55.6 149.2

Dec	LHA 015° / 345°	LHA 016° / 344°	LHA 017° / 343°	LHA 018° / 342°	LHA 019° / 341°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	37 26.2 +58.7 161.0	37 13.5 +58.5 159.7	37 00.0 +58.4 158.5	36 45.8 +58.2 157.3	36 30.9 +58.0 156.1
1°	38 24.9 +58.6 160.7	38 12.0 +58.5 159.5	37 58.4 +58.3 158.2	37 44.0 +58.1 157.0	37 28.9 +57.9 155.8
2°	39 23.5 +58.7 160.4	39 10.5 +58.5 159.2	38 56.7 +58.3 157.9	38 42.1 +58.1 156.7	38 26.8 +57.9 155.5
3°	40 22.2 +58.6 160.2	40 09.0 +58.4 158.9	39 55.0 +58.2 157.6	39 40.2 +58.1 156.4	39 24.7 +57.8 155.1
4°	41 20.8 +58.5 159.9	41 07.4 +58.3 158.6	40 53.2 +58.2 157.3	40 38.3 +57.9 156.0	40 22.5 +57.8 154.8
5°	42 19.3 +58.5 159.6	42 05.7 +58.4 158.3	41 51.4 +58.1 157.0	41 36.2 +57.9 155.7	41 20.3 +57.7 154.4
6°	43 17.8 +58.5 159.3	43 04.1 +58.2 158.0	42 49.5 +58.0 156.6	42 34.1 +57.9 155.3	42 18.0 +57.6 154.0
7°	44 16.3 +58.4 159.0	44 02.3 +58.2 157.6	43 47.5 +58.0 156.3	43 32.0 +57.7 155.0	43 15.6 +57.5 153.7
8°	45 14.7 +58.3 158.7	45 00.5 +58.1 157.3	44 45.5 +57.9 155.9	44 29.7 +57.7 154.6	44 13.1 +57.5 153.3
9°	46 13.0 +58.3 158.3	45 58.6 +58.1 156.9	45 43.4 +57.9 155.6	45 27.4 +57.6 154.2	45 10.6 +57.3 152.9
10°	47 11.3 +58.2 158.0	46 56.7 +58.0 156.6	46 41.3 +57.7 155.2	46 25.0 +57.5 153.8	46 07.9 +57.3 152.4
11°	48 09.5 +58.2 157.6	47 54.7 +57.9 156.2	47 39.0 +57.7 154.8	47 22.5 +57.5 153.4	47 05.2 +57.2 152.0
12°	49 07.7 +58.0 157.2	48 52.6 +57.9 155.8	48 36.7 +57.6 154.4	48 20.0 +57.3 153.0	48 02.4 +57.0 151.6
13°	50 05.7 +58.0 156.9	49 50.5 +57.7 155.4	49 34.3 +57.5 153.9	49 17.3 +57.2 152.5	48 59.4 +57.0 151.1
14°	51 03.7 +57.9 156.4	50 48.2 +57.6 155.0	50 31.8 +57.4 153.5	50 14.5 +57.1 152.0	49 56.4 +56.8 150.6
15°	52 01.6 +57.8 156.0	51 45.8 +57.6 154.5	51 29.2 +57.2 153.0	51 11.6 +57.0 151.6	50 53.2 +56.7 150.1
16°	52 59.4 +57.8 155.6	52 43.4 +57.4 154.1	52 26.4 +57.2 152.5	52 08.6 +56.8 151.1	51 49.9 +56.5 149.6
17°	53 57.2 +57.6 155.1	53 40.8 +57.3 153.6	53 23.6 +57.0 152.0	53 05.4 +56.7 150.5	52 46.4 +56.4 149.0
18°	54 54.8 +57.4 154.6	54 38.1 +57.2 153.1	54 20.6 +56.8 151.5	54 02.1 +56.5 150.0	53 42.8 +56.2 148.5
19°	55 52.2 +57.4 154.1	55 35.3 +57.0 152.5	55 17.4 +56.7 151.0	54 58.6 +56.4 149.4	54 39.0 +56.0 147.9
20°	56 49.6 +57.2 153.6	56 32.3 +56.9 152.0	56 14.1 +56.5 150.4	55 55.0 +56.2 148.8	55 35.0 +55.8 147.2
21°	57 46.8 +57.0 153.1	57 29.2 +56.7 151.4	57 10.6 +56.4 149.8	56 51.2 +56.0 148.2	56 30.8 +55.6 146.6
22°	58 43.8 +56.9 152.5	58 25.9 +56.5 150.8	58 07.0 +56.1 149.1	57 47.2 +55.7 147.5	57 26.4 +55.4 145.9
23°	59 40.7 +56.7 151.8	59 22.4 +56.3 150.1	59 03.1 +55.9 148.4	58 42.9 +55.5 146.8	58 21.8 +55.1 145.2
24°	60 37.4 +56.5 151.2	60 18.7 +56.1 149.4	59 59.0 +55.7 147.7	59 38.4 +55.3 146.0	59 16.9 +54.8 144.4
25°	61 33.9 +56.3 150.5	61 14.8 +55.8 148.7	60 54.7 +55.4 147.0	60 33.7 +54.9 145.3	60 11.7 +54.5 143.6
26°	62 30.2 +56.0 149.7	62 10.6 +55.6 147.9	61 50.1 +55.1 146.2	61 28.6 +54.6 144.4	61 06.2 +54.2 142.7
27°	63 26.2 +55.7 149.0	63 06.2 +55.3 147.1	62 45.2 +54.8 145.3	62 23.2 +54.3 143.6	62 00.4 +53.7 141.8
28°	64 21.9 +55.4 148.1	64 01.5 +54.9 146.2	63 40.0 +54.4 144.4	63 17.5 +53.9 142.6	62 54.1 +53.4 140.9
29°	65 17.3 +55.1 147.2	64 56.4 +54.5 145.3	64 34.4 +54.0 143.4	64 11.4 +53.5 141.6	63 47.5 +52.9 139.9

Dec	LHA 020° / 340°	LHA 021° / 339°	LHA 022° / 338°	LHA 023° / 337°	LHA 024° / 336°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	36 15.2 +57.8 154.9	35 58.9 +57.6 153.7	35 41.8 +57.4 152.5	35 24.0 +57.2 151.4	35 05.6 +57.0 150.2
1°	37 13.0 +57.8 154.6	36 56.5 +57.5 153.4	36 39.2 +57.3 152.2	36 21.2 +57.1 151.0	36 02.6 +56.8 149.8
2°	38 10.8 +57.7 154.2	37 54.0 +57.5 153.0	37 36.5 +57.3 151.8	37 18.3 +57.0 150.6	36 59.4 +56.8 149.4
3°	39 08.5 +57.6 153.9	38 51.5 +57.4 152.6	38 33.8 +57.1 151.4	38 15.3 +57.0 150.2	37 56.2 +56.7 149.0
4°	40 06.1 +57.5 153.5	39 48.9 +57.3 152.3	39 30.9 +57.1 151.0	39 12.3 +56.8 149.8	38 52.9 +56.7 148.6
5°	41 03.6 +57.5 153.1	40 46.2 +57.2 151.9	40 28.0 +57.0 150.6	40 09.1 +56.8 149.4	39 49.6 +56.5 148.2
6°	42 01.1 +57.4 152.8	41 43.4 +57.2 151.5	41 25.0 +56.9 150.2	41 05.9 +56.7 149.0	40 46.1 +56.4 147.7
7°	42 58.5 +57.3 152.4	42 40.6 +57.0 151.1	42 21.9 +56.8 149.8	42 02.6 +56.5 148.5	41 42.5 +56.3 147.3
8°	43 55.8 +57.2 151.9	43 37.6 +57.0 150.6	43 18.7 +56.8 149.3	42 59.1 +56.5 148.1	42 38.8 +56.2 146.8
9°	44 53.0 +57.1 151.5	44 34.6 +56.8 150.2	44 15.5 +56.6 148.9	43 55.6 +56.3 147.6	43 35.0 +56.1 146.3
10°	45 50.1 +57.0 151.1	45 31.4 +56.8 149.8	45 12.1 +56.4 148.4	44 51.9 +56.2 147.1	44 31.1 +55.9 145.8
11°	46 47.1 +56.9 150.6	46 28.2 +56.6 149.3	46 08.5 +56.4 147.9	45 48.1 +56.1 146.6	45 27.0 +55.8 145.3
12°	47 44.0 +56.8 150.2	47 24.8 +56.5 148.8	47 04.9 +56.2 147.4	46 44.2 +55.9 146.1	46 22.8 +55.6 144.8
13°	48 40.8 +56.6 149.7	48 21.3 +56.4 148.3	48 01.1 +56.1 146.9	47 40.1 +55.8 145.6	47 18.4 +55.5 144.2
14°	49 37.4 +56.6 149.2	49 17.7 +56.2 147.8	48 57.2 +55.9 146.4	48 35.9 +55.6 145.0	48 13.9 +55.3 143.7
15°	50 34.0 +56.3 148.7	50 13.9 +56.1 147.2	49 53.1 +55.8 145.8	49 31.5 +55.5 144.4	49 09.2 +55.1 143.1
16°	51 30.3 +56.3 148.1	51 10.0 +55.9 146.7	50 48.9 +55.5 145.3	50 27.0 +55.2 143.9	50 04.3 +54.9 142.5
17°	52 26.6 +56.0 147.5	52 05.9 +55.7 146.1	51 44.4 +55.4 144.7	51 22.2 +55.1 143.2	50 59.2 +54.7 141.8
18°	53 22.6 +55.9 147.0	53 01.6 +55.5 145.5	52 39.8 +55.2 144.0	52 17.3 +54.8 142.6	51 53.9 +54.5 141.2
19°	54 18.5 +55.6 146.3	53 57.1 +55.3 144.8	53 35.0 +54.9 143.4	53 12.1 +54.6 141.9	52 48.4 +54.3 140.5
20°	55 14.1 +55.5 145.7	54 52.4 +55.1 144.2	54 29.9 +54.8 142.7	54 06.7 +54.3 141.2	53 42.7 +53.9 139.8
21°	56 09.6 +55.2 145.0	55 47.5 +54.9 143.5	55 24.7 +54.4 142.0	55 01.0 +54.1 140.5	54 36.6 +53.7 139.0
22°	57 04.8 +55.0 144.3	56 42.4 +54.5 142.7	56 19.1 +54.2 141.2	55 55.1 +53.7 139.7	55 30.3 +53.4 138.2
23°	57 59.8 +54.7 143.6	57 36.9 +54.3 142.0	57 13.3 +53.8 140.4	56 48.8 +53.5 138.9	56 23.7 +53.0 137.4
24°	58 54.5 +54.3 142.8	58 31.2 +53.9 141.2	58 07.1 +53.5 139.6	57 42.3 +53.1 138.1	57 16.7 +52.6 136.6
25°	59 48.8 +54.1 141.9	59 25.1 +53.6 140.3	59 00.6 +53.2 138.7	58 35.4 +52.7 137.2	58 09.3 +52.3 135.7
26°	60 42.9 +53.7 141.1	60 18.7 +53.3 139.4	59 53.8 +52.7 137.8	59 28.1 +52.3 136.3	59 01.6 +51.8 134.7
27°	61 36.6 +53.3 140.1	61 12.0 +52.8 138.5	60 46.5 +52.4 136.9	60 20.4 +51.8 135.3	59 53.4 +51.4 133.7
28°	62 29.9 +52.8 139.2	62 04.8 +52.3 137.5	61 38.9 +51.8 135.9	61 12.2 +51.3 134.3	60 44.8 +50.8 132.7
29°	63 22.7 +52.4 138.1	62 57.1 +51.9 136.4	62 30.7 +51.3 134.8	62 03.5 +50.8 133.2	61 35.6 +50.3 131.6

Dec	LHA 025° / 335°	LHA 026° / 334°	LHA 027° / 333°	LHA 028° / 332°	LHA 029° / 331°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	34 46.5 +56.7 149.0	34 26.8 +56.5 147.9	34 06.4 +56.2 146.7	33 45.4 +56.0 145.6	33 23.7 +55.8 144.5
1°	35 43.2 +56.7 148.6	35 23.3 +56.4 147.5	35 02.6 +56.2 146.3	34 41.4 +55.9 145.2	34 19.5 +55.7 144.1
2°	36 39.9 +56.6 148.2	36 19.7 +56.3 147.1	35 58.8 +56.1 145.9	35 37.3 +55.9 144.7	35 15.2 +55.6 143.6
3°	37 36.5 +56.4 147.8	37 16.0 +56.2 146.6	36 54.9 +56.0 145.5	36 33.2 +55.7 144.3	36 10.8 +55.5 143.1
4°	38 32.9 +56.4 147.4	38 12.2 +56.2 146.2	37 50.9 +55.9 145.0	37 28.9 +55.7 143.8	37 06.3 +55.4 142.7
5°	39 29.3 +56.3 146.9	39 08.4 +56.0 145.7	38 46.8 +55.7 144.5	38 24.6 +55.5 143.4	38 01.7 +55.3 142.2
6°	40 25.6 +56.1 146.5	40 04.4 +55.9 145.3	39 42.5 +55.7 144.1	39 20.1 +55.4 142.9	38 57.0 +55.1 141.7
7°	41 21.7 +56.1 146.0	41 00.3 +55.8 144.8	40 38.2 +55.5 143.6	40 15.5 +55.2 142.4	39 52.1 +55.0 141.2
8°	42 17.8 +55.9 145.5	41 56.1 +55.6 144.3	41 33.7 +55.4 143.1	41 10.7 +55.1 141.9	40 47.1 +54.8 140.6
9°	43 13.7 +55.8 145.0	42 51.7 +55.6 143.8	42 29.1 +55.2 142.6	42 05.8 +55.0 141.3	41 41.9 +54.7 140.1
10°	44 09.5 +55.7 144.5	43 47.3 +55.3 143.3	43 24.3 +55.1 142.0	43 00.8 +54.8 140.8	42 36.6 +54.5 139.6
11°	45 05.2 +55.5 144.0	44 42.6 +55.2 142.7	44 19.4 +55.0 141.5	43 55.6 +54.6 140.2	43 31.1 +54.4 139.0
12°	46 00.7 +55.3 143.5	45 37.8 +55.1 142.2	45 14.4 +54.7 140.9	44 50.2 +54.5 139.6	44 25.5 +54.1 138.4
13°	46 56.0 +55.2 142.9	46 32.9 +54.9 141.6	46 09.1 +54.6 140.3	45 44.7 +54.2 139.0	45 19.6 +54.0 137.8
14°	47 51.2 +55.0 142.3	47 27.8 +54.6 141.0	47 03.7 +54.3 139.7	46 38.9 +54.1 138.4	46 13.6 +53.7 137.2
15°	48 46.2 +54.8 141.7	48 22.4 +54.5 140.4	47 58.0 +54.2 139.1	47 33.0 +53.8 137.8	47 07.3 +53.5 136.5
16°	49 41.0 +54.6 141.1	49 16.9 +54.3 139.8	48 52.2 +53.9 138.4	48 26.8 +53.6 137.1	48 00.8 +53.3 135.8
17°	50 35.6 +54.3 140.5	50 11.2 +54.0 139.1	49 46.1 +53.7 137.8	49 20.4 +53.4 136.4	48 54.1 +53.0 135.1
18°	51 29.9 +54.1 139.8	51 05.2 +53.8 138.4	50 39.8 +53.4 137.1	50 13.8 +53.0 135.7	49 47.1 +52.7 134.4
19°	52 24.0 +53.9 139.1	51 59.0 +53.5 137.7	51 33.2 +53.2 136.3	51 06.8 +52.8 135.0	50 39.8 +52.5 133.7
20°	53 17.9 +53.6 138.4	52 52.5 +53.2 137.0	52 26.4 +52.8 135.6	51 59.6 +52.5 134.2	51 32.3 +52.1 132.9
21°	54 11.5 +53.3 137.6	53 45.7 +52.9 136.2	53 19.2 +52.6 134.8	52 52.1 +52.2 133.4	52 24.4 +51.8 132.1
22°	55 04.8 +53.0 136.8	54 38.6 +52.6 135.4	54 11.8 +52.1 134.0	53 44.3 +51.8 132.6	53 16.2 +51.4 131.3
23°	55 57.8 +52.6 136.0	55 31.2 +52.2 134.5	55 03.9 +51.8 133.1	54 36.1 +51.4 131.8	54 07.6 +51.0 130.4
24°	56 50.4 +52.2 135.1	56 23.4 +51.8 133.7	55 55.7 +51.4 132.2	55 27.5 +51.0 130.9	54 58.6 +50.6 129.5
25°	57 42.6 +51.8 134.2	57 15.2 +51.4 132.7	56 47.1 +51.0 131.3	56 18.5 +50.5 129.9	55 49.2 +50.2 128.5
26°	58 34.4 +51.4 133.2	58 06.6 +50.9 131.8	57 38.1 +50.5 130.3	57 09.0 +50.1 128.9	56 39.4 +49.6 127.6
27°	59 25.8 +50.9 132.2	58 57.5 +50.5 130.8	58 28.6 +50.0 129.3	57 59.1 +49.6 127.9	57 29.0 +49.2 126.5
28°	60 16.7 +50.4 131.2	59 48.0 +49.9 129.7	59 18.6 +49.4 128.2	58 48.7 +48.9 126.8	58 18.2 +48.5 125.4
29°	61 07.1 +49.8 130.1	60 37.9 +49.3 128.6	60 08.0 +48.9 127.1	59 37.6 +48.4 125.7	59 06.7 +48.0 124.3

Dec	LHA 030° / 330°	LHA 031° / 329°	LHA 032° / 328°	LHA 033° / 327°	LHA 034° / 326°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	33 01.5 +55.6 143.4	32 38.7 +55.3 142.3	32 15.3 +55.1 141.2	31 51.4 +54.8 140.1	31 26.9 +54.6 139.0
1°	33 57.1 +55.4 142.9	33 34.0 +55.2 141.8	33 10.4 +55.0 140.7	32 46.2 +54.8 139.6	32 21.5 +54.5 138.6
2°	34 52.5 +55.4 142.5	34 29.2 +55.2 141.4	34 05.4 +54.8 140.2	33 41.0 +54.6 139.1	33 16.0 +54.4 138.1
3°	35 47.9 +55.2 142.0	35 24.4 +55.0 140.9	35 00.2 +54.8 139.8	34 35.6 +54.5 138.6	34 10.4 +54.2 137.5
4°	36 43.1 +55.2 141.5	36 19.4 +54.8 140.4	35 55.0 +54.6 139.3	35 30.1 +54.3 138.1	35 04.6 +54.1 137.0
5°	37 38.3 +55.0 141.0	37 14.2 +54.8 139.9	36 49.6 +54.5 138.7	36 24.4 +54.2 137.6	35 58.7 +53.9 136.5
6°	38 33.3 +54.8 140.5	38 09.0 +54.5 139.4	37 44.1 +54.3 138.2	37 18.6 +54.1 137.1	36 52.6 +53.9 136.0
7°	39 28.1 +54.7 140.0	39 03.5 +54.5 138.8	38 38.4 +54.2 137.7	38 12.7 +53.9 136.5	37 46.5 +53.6 135.4
8°	40 22.8 +54.6 139.5	39 58.0 +54.3 138.3	39 32.6 +54.0 137.1	39 06.6 +53.8 136.0	38 40.1 +53.5 134.8
9°	41 17.4 +54.4 138.9	40 52.3 +54.1 137.7	40 26.6 +53.8 136.5	40 00.4 +53.5 135.4	39 33.6 +53.3 134.2
10°	42 11.8 +54.2 138.3	41 46.4 +54.0 137.1	41 20.4 +53.7 136.0	40 53.9 +53.4 134.8	40 26.9 +53.1 133.6
11°	43 06.0 +54.1 137.8	42 40.4 +53.7 136.6	42 14.1 +53.5 135.4	41 47.3 +53.2 134.2	41 20.0 +52.9 133.0
12°	44 00.1 +53.8 137.2	43 34.1 +53.6 135.9	43 07.6 +53.2 134.7	42 40.5 +53.0 133.6	42 12.9 +52.6 132.4
13°	44 53.9 +53.7 136.5	44 27.7 +53.3 135.3	44 00.8 +53.1 134.1	43 33.5 +52.7 132.9	43 05.5 +52.5 131.7
14°	45 47.6 +53.4 135.9	45 21.0 +53.1 134.7	44 53.9 +52.8 133.5	44 26.2 +52.5 132.3	43 58.0 +52.2 131.1
15°	46 41.0 +53.2 135.3	46 14.1 +52.9 134.0	45 46.7 +52.6 132.8	45 18.7 +52.3 131.6	44 50.2 +52.0 130.4
16°	47 34.2 +53.0 134.6	47 07.0 +52.7 133.3	46 39.3 +52.3 132.1	46 11.0 +52.0 130.9	45 42.2 +51.7 129.7
17°	48 27.2 +52.6 133.9	47 59.7 +52.3 132.6	47 31.6 +52.0 131.4	47 03.0 +51.7 130.1	46 33.9 +51.4 128.9
18°	49 19.8 +52.4 133.1	48 52.0 +52.1 131.9	48 23.6 +51.8 130.6	47 54.7 +51.4 129.4	47 25.3 +51.1 128.2
19°	50 12.2 +52.1 132.4	49 44.1 +51.7 131.1	49 15.4 +51.4 129.9	48 46.1 +51.1 128.6	48 16.4 +50.7 127.4
20°	51 04.3 +51.8 131.6	50 35.8 +51.4 130.3	50 06.8 +51.0 129.1	49 37.2 +50.7 127.8	49 07.1 +50.4 126.6
21°	51 56.1 +51.4 130.8	51 27.2 +51.1 129.5	50 57.8 +50.8 128.2	50 27.9 +50.4 127.0	49 57.5 +50.1 125.8
22°	52 47.5 +51.1 129.9	52 18.3 +50.7 128.6	51 48.6 +50.3 127.4	51 18.3 +50.0 126.1	50 47.6 +49.6 124.9
23°	53 38.6 +50.6 129.1	53 09.0 +50.3 127.8	52 38.9 +49.9 126.5	52 08.3 +49.5 125.2	51 37.2 +49.2 124.0
24°	54 29.2 +50.2 128.2	53 59.3 +49.8 126.8	53 28.8 +49.5 125.6	52 57.8 +49.1 124.3	52 26.4 +48.8 123.1
25°	55 19.4 +49.8 127.2	54 49.1 +49.4 125.9	54 18.3 +48.9 124.6	53 46.9 +48.7 123.3	53 15.2 +48.2 122.1
26°	56 09.2 +49.2 126.2	55 38.5 +48.8 124.9	55 07.2 +48.5 123.6	54 35.6 +48.1 122.3	54 03.4 +47.8 121.1
27°	56 58.4 +48.7 125.2	56 27.3 +48.3 123.9	55 55.7 +48.0 122.6	55 23.7 +47.5 121.3	54 51.2 +47.2 120.1
28°	57 47.1 +48.2 124.1	57 15.6 +47.8 122.8	56 43.7 +47.3 121.5	56 11.2 +47.0 120.2	55 38.4 +46.6 119.0
29°	58 35.3 +47.5 123.0	58 03.4 +47.1 121.6	57 31.0 +46.7 120.3	56 58.2 +46.3 119.1	56 25.0 +46.0 117.8

Dec	LHA 035° / 325°	LHA 036° / 324°	LHA 037° / 323°	LHA 038° / 322°	LHA 039° / 321°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	31 01.9 +54.3 138.0	30 36.4 +54.1 136.9	30 10.3 +53.9 135.9	29 43.8 +53.6 134.8	29 16.8 +53.4 133.8
1°	31 56.2 +54.3 137.5	31 30.5 +54.0 136.4	31 04.2 +53.7 135.4	30 37.4 +53.5 134.3	30 10.2 +53.2 133.3
2°	32 50.5 +54.1 137.0	32 24.5 +53.8 135.9	31 57.9 +53.7 134.9	31 30.9 +53.4 133.8	31 03.4 +53.2 132.8
3°	33 44.6 +54.0 136.5	33 18.3 +53.8 135.4	32 51.6 +53.5 134.3	32 24.3 +53.3 133.3	31 56.6 +53.0 132.2
4°	34 38.6 +53.8 135.9	34 12.1 +53.6 134.9	33 45.1 +53.3 133.8	33 17.6 +53.0 132.7	32 49.6 +52.8 131.7
5°	35 32.4 +53.7 135.4	35 05.7 +53.4 134.3	34 38.4 +53.2 133.2	34 10.6 +53.0 132.2	33 42.4 +52.7 131.1
6°	36 26.1 +53.6 134.8	35 59.1 +53.3 133.7	35 31.6 +53.0 132.7	35 03.6 +52.7 131.6	34 35.1 +52.5 130.5
7°	37 19.7 +53.4 134.3	36 52.4 +53.1 133.2	36 24.6 +52.9 132.1	35 56.3 +52.6 131.0	35 27.6 +52.4 129.9
8°	38 13.1 +53.2 133.7	37 45.5 +52.9 132.6	37 17.5 +52.6 131.5	36 48.9 +52.5 130.4	36 20.0 +52.1 129.3
9°	39 06.3 +53.0 133.1	38 38.4 +52.8 132.0	38 10.1 +52.5 130.9	37 41.4 +52.2 129.8	37 12.1 +52.0 128.7
10°	39 59.3 +52.8 132.5	39 31.2 +52.5 131.4	39 02.6 +52.3 130.3	38 33.6 +52.0 129.2	38 04.1 +51.7 128.1
11°	40 52.1 +52.6 131.9	40 23.7 +52.4 130.7	39 54.9 +52.1 129.6	39 25.6 +51.8 128.5	38 55.8 +51.5 127.4
12°	41 44.7 +52.4 131.2	41 16.1 +52.1 130.1	40 47.0 +51.8 129.0	40 17.4 +51.5 127.9	39 47.3 +51.3 126.8
13°	42 37.1 +52.2 130.6	42 08.2 +51.9 129.4	41 38.8 +51.6 128.3	41 08.9 +51.4 127.2	40 38.6 +51.1 126.1
14°	43 29.3 +51.9 129.9	43 00.1 +51.6 128.8	42 30.4 +51.4 127.6	42 00.3 +51.0 126.5	41 29.7 +50.8 125.4
15°	44 21.2 +51.7 129.2	43 51.7 +51.4 128.1	43 21.8 +51.0 126.9	42 51.3 +50.8 125.8	42 20.5 +50.5 124.7
16°	45 12.9 +51.4 128.5	44 43.1 +51.1 127.3	44 12.8 +50.8 126.2	43 42.1 +50.5 125.1	43 11.0 +50.2 123.9
17°	46 04.3 +51.0 127.8	45 34.2 +50.8 126.6	45 03.6 +50.5 125.4	44 32.6 +50.2 124.3	44 01.2 +50.0 123.2
18°	46 55.3 +50.8 127.0	46 25.0 +50.4 125.8	45 54.1 +50.2 124.7	45 22.8 +49.9 123.5	44 51.2 +49.6 122.4
19°	47 46.1 +50.5 126.2	47 15.4 +50.2 125.0	46 44.3 +49.8 123.9	46 12.7 +49.6 122.7	45 40.8 +49.2 121.6
20°	48 36.6 +50.1 125.4	48 05.6 +49.7 124.2	47 34.1 +49.5 123.1	47 02.3 +49.1 121.9	46 30.0 +48.9 120.8
21°	49 26.7 +49.7 124.6	48 55.3 +49.4 123.4	48 23.6 +49.1 122.2	47 51.4 +48.8 121.1	47 18.9 +48.5 119.9
22°	50 16.4 +49.3 123.7	49 44.7 +49.0 122.5	49 12.7 +48.7 121.3	48 40.2 +48.4 120.2	48 07.4 +48.1 119.1
23°	51 05.7 +48.9 122.8	50 33.7 +48.6 121.6	50 01.4 +48.2 120.4	49 28.6 +48.0 119.3	48 55.5 +47.7 118.2
24°	51 54.6 +48.4 121.9	51 22.3 +48.1 120.7	50 49.6 +47.8 119.5	50 16.6 +47.4 118.4	49 43.2 +47.1 117.2
25°	52 43.0 +47.9 120.9	52 10.4 +47.6 119.7	51 37.4 +47.3 118.5	51 04.0 +47.0 117.4	50 30.3 +46.7 116.3
26°	53 30.9 +47.4 119.9	52 58.0 +47.1 118.7	52 24.7 +46.7 117.5	51 51.0 +46.5 116.4	51 17.0 +46.2 115.3
27°	54 18.3 +46.9 118.8	53 45.1 +46.5 117.7	53 11.4 +46.3 116.5	52 37.5 +45.9 115.4	52 03.2 +45.6 114.2
28°	55 05.2 +46.2 117.8	54 31.6 +45.9 116.6	53 57.7 +45.6 115.4	53 23.4 +45.3 114.3	52 48.8 +45.0 113.2
29°	55 51.4 +45.7 116.6	55 17.5 +45.3 115.5	54 43.3 +44.9 114.3	54 08.7 +44.7 113.2	53 33.8 +44.4 112.1

Dec	LHA 040° / 320°	LHA 041° / 319°	LHA 042° / 318°	LHA 043° / 317°	LHA 044° / 316°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	28 49.3 +53.2 132.8	28 21.4 +52.9 131.8	27 53.0 +52.7 130.8	27 24.2 +52.5 129.8	26 55.0 +52.2 128.8
1°	29 42.5 +53.0 132.3	29 14.3 +52.8 131.3	28 45.7 +52.6 130.3	28 16.7 +52.3 129.3	27 47.2 +52.1 128.3
2°	30 35.5 +52.9 131.7	30 07.1 +52.7 130.7	29 38.3 +52.4 129.7	29 09.0 +52.2 128.7	28 39.3 +52.0 127.7
3°	31 28.4 +52.7 131.2	30 59.8 +52.5 130.2	30 30.7 +52.2 129.1	30 01.2 +52.0 128.1	29 31.3 +51.8 127.1
4°	32 21.1 +52.6 130.6	31 52.3 +52.3 129.6	31 22.9 +52.2 128.6	30 53.2 +51.9 127.6	30 23.1 +51.6 126.6
5°	33 13.7 +52.5 130.0	32 44.6 +52.2 129.0	32 15.1 +51.9 128.0	31 45.1 +51.7 127.0	31 14.7 +51.5 126.0
6°	34 06.2 +52.2 129.5	33 36.8 +52.0 128.4	33 07.0 +51.8 127.4	32 36.8 +51.5 126.4	32 06.2 +51.3 125.4
7°	34 58.4 +52.1 128.9	34 28.8 +51.9 127.8	33 58.8 +51.6 126.8	33 28.3 +51.4 125.8	32 57.5 +51.1 124.7
8°	35 50.5 +51.9 128.3	35 20.7 +51.6 127.2	34 50.4 +51.4 126.2	34 19.7 +51.2 125.1	33 48.6 +51.0 124.1
9°	36 42.4 +51.7 127.6	36 12.3 +51.5 126.6	35 41.8 +51.2 125.5	35 10.9 +50.9 124.5	34 39.6 +50.7 123.5
10°	37 34.1 +51.5 127.0	37 03.8 +51.2 125.9	36 33.0 +51.0 124.9	36 01.8 +50.8 123.8	35 30.3 +50.5 122.8
11°	38 25.6 +51.3 126.3	37 55.0 +51.0 125.3	37 24.0 +50.7 124.2	36 52.6 +50.5 123.2	36 20.8 +50.3 122.2
12°	39 16.9 +51.0 125.7	38 46.0 +50.8 124.6	38 14.7 +50.6 123.6	37 43.1 +50.3 122.5	37 11.1 +50.0 121.5
13°	40 07.9 +50.8 125.0	39 36.8 +50.5 123.9	39 05.3 +50.2 122.9	38 33.4 +50.0 121.8	38 01.1 +49.8 120.8
14°	40 58.7 +50.5 124.3	40 27.3 +50.3 123.2	39 55.5 +50.0 122.2	39 23.4 +49.7 121.1	38 50.9 +49.5 120.1
15°	41 49.2 +50.3 123.6	41 17.6 +50.0 122.5	40 45.5 +49.8 121.4	40 13.1 +49.5 120.4	39 40.4 +49.2 119.3
16°	42 39.5 +49.9 122.8	42 07.6 +49.7 121.8	41 35.3 +49.4 120.7	41 02.6 +49.2 119.6	40 29.6 +49.0 118.6
17°	43 29.4 +49.7 122.1	42 57.3 +49.3 121.0	42 24.7 +49.1 119.9	41 51.8 +48.9 118.9	41 18.6 +48.6 117.8
18°	44 19.1 +49.3 121.3	43 46.6 +49.1 120.2	43 13.8 +48.8 119.1	42 40.7 +48.5 118.1	42 07.2 +48.3 117.0
19°	45 08.4 +49.0 120.5	44 35.7 +48.7 119.4	44 02.6 +48.5 118.3	43 29.2 +48.2 117.3	42 55.5 +48.0 116.2
20°	45 57.4 +48.6 119.7	45 24.4 +48.4 118.6	44 51.1 +48.1 117.5	44 17.4 +47.9 116.5	43 43.5 +47.6 115.4
21°	46 46.0 +48.2 118.8	46 12.8 +47.9 117.7	45 39.2 +47.7 116.7	45 05.3 +47.4 115.6	44 31.1 +47.2 114.6
22°	47 34.2 +47.8 118.0	47 00.7 +47.5 116.9	46 26.9 +47.2 115.8	45 52.7 +47.0 114.7	45 18.3 +46.8 113.7
23°	48 22.0 +47.4 117.0	47 48.2 +47.1 116.0	47 14.1 +46.9 114.9	46 39.7 +46.6 113.8	46 05.1 +46.3 112.8
24°	49 09.4 +46.9 116.1	48 35.3 +46.7 115.0	48 01.0 +46.4 114.0	47 26.3 +46.2 112.9	46 51.4 +45.9 111.9
25°	49 56.3 +46.4 115.2	49 22.0 +46.1 114.1	48 47.4 +45.9 113.0	48 12.5 +45.6 112.0	47 37.3 +45.5 110.9
26°	50 42.7 +45.9 114.2	50 08.1 +45.7 113.1	49 33.3 +45.3 112.0	48 58.1 +45.2 111.0	48 22.8 +44.9 109.9
27°	51 28.6 +45.4 113.1	50 53.8 +45.0 112.1	50 18.6 +44.9 111.0	49 43.3 +44.6 110.0	49 07.7 +44.3 108.9
28°	52 14.0 +44.7 112.1	51 38.8 +44.5 111.0	51 03.5 +44.2 110.0	50 27.9 +44.0 108.9	49 52.0 +43.8 107.9
29°	52 58.7 +44.1 111.0	52 23.3 +43.9 109.9	51 47.7 +43.7 108.9	51 11.9 +43.4 107.8	50 35.8 +43.2 106.8

Dec	LHA 045° / 315°	LHA 046° / 314°	LHA 047° / 313°	LHA 048° / 312°	LHA 049° / 311°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	26 25.4 +52.0 127.9	25 55.4 +51.8 126.9	25 25.0 +51.6 125.9	24 54.2 +51.4 125.0	24 23.1 +51.2 124.0
1°	27 17.4 +51.9 127.3	26 47.2 +51.6 126.3	26 16.6 +51.4 125.4	25 45.6 +51.2 124.4	25 14.3 +50.9 123.5
2°	28 09.3 +51.7 126.7	27 38.8 +51.5 125.8	27 08.0 +51.3 124.8	26 36.8 +51.0 123.8	26 05.2 +50.9 122.9
3°	29 01.0 +51.6 126.1	28 30.3 +51.4 125.2	27 59.3 +51.1 124.2	27 27.8 +51.0 123.2	26 56.1 +50.7 122.3
4°	29 52.6 +51.4 125.6	29 21.7 +51.1 124.6	28 50.4 +51.0 123.6	28 18.8 +50.7 122.6	27 46.8 +50.5 121.7
5°	30 44.0 +51.2 125.0	30 12.8 +51.1 124.0	29 41.4 +50.8 123.0	29 09.5 +50.6 122.0	28 37.3 +50.4 121.1
6°	31 35.2 +51.1 124.4	31 03.9 +50.8 123.4	30 32.2 +50.6 122.4	30 00.1 +50.4 121.4	29 27.7 +50.2 120.5
7°	32 26.3 +50.9 123.7	31 54.7 +50.7 122.7	31 22.8 +50.4 121.8	30 50.5 +50.2 120.8	30 17.9 +50.0 119.8
8°	33 17.2 +50.7 123.1	32 45.4 +50.4 122.1	32 13.2 +50.3 121.1	31 40.7 +50.1 120.1	31 07.9 +49.8 119.2
9°	34 07.9 +50.5 122.5	33 35.8 +50.3 121.5	33 03.5 +50.0 120.5	32 30.8 +49.8 119.5	31 57.7 +49.6 118.5
10°	34 58.4 +50.2 121.8	34 26.1 +50.0 120.8	33 53.5 +49.8 119.8	33 20.6 +49.6 118.8	32 47.3 +49.4 117.9
11°	35 48.6 +50.1 121.1	35 16.1 +49.9 120.1	34 43.3 +49.6 119.1	34 10.2 +49.4 118.2	33 36.7 +49.2 117.2
12°	36 38.7 +49.8 120.5	36 06.0 +49.5 119.4	35 32.9 +49.4 118.4	34 59.6 +49.1 117.5	34 25.9 +48.9 116.5
13°	37 28.5 +49.5 119.8	36 55.5 +49.4 118.7	36 22.3 +49.1 117.7	35 48.7 +48.9 116.8	35 14.8 +48.7 115.8
14°	38 18.0 +49.3 119.0	37 44.9 +49.0 118.0	37 11.4 +48.8 117.0	36 37.6 +48.6 116.0	36 03.5 +48.5 115.1
15°	39 07.3 +49.0 118.3	38 33.9 +48.8 117.3	38 00.2 +48.6 116.3	37 26.2 +48.4 115.3	36 52.0 +48.1 114.3
16°	39 56.3 +48.7 117.6	39 22.7 +48.5 116.5	38 48.8 +48.2 115.5	38 14.6 +48.0 114.6	37 40.1 +47.8 113.6
17°	40 45.0 +48.4 116.8	40 11.2 +48.2 115.8	39 37.0 +48.0 114.8	39 02.6 +47.8 113.8	38 27.9 +47.6 112.8
18°	41 33.4 +48.1 116.0	40 59.4 +47.8 115.0	40 25.0 +47.6 114.0	39 50.4 +47.4 113.0	39 15.5 +47.2 112.0
19°	42 21.5 +47.7 115.2	41 47.2 +47.5 114.2	41 12.6 +47.3 113.2	40 37.8 +47.1 112.2	40 02.7 +46.9 111.2
20°	43 09.2 +47.4 114.4	42 34.7 +47.1 113.4	41 59.9 +46.9 112.4	41 24.9 +46.7 111.4	40 49.6 +46.5 110.4
21°	43 56.6 +47.0 113.5	43 21.8 +46.8 112.5	42 46.8 +46.6 111.5	42 11.6 +46.3 110.5	41 36.1 +46.2 109.6
22°	44 43.6 +46.5 112.7	44 08.6 +46.3 111.7	43 33.4 +46.1 110.7	42 57.9 +46.0 109.7	42 22.3 +45.7 108.7
23°	45 30.1 +46.2 111.8	44 54.9 +46.0 110.8	44 19.5 +45.7 109.8	43 43.9 +45.5 108.8	43 08.0 +45.4 107.8
24°	46 16.3 +45.6 110.9	45 40.9 +45.4 109.8	45 05.2 +45.3 108.9	44 29.4 +45.1 107.9	43 53.4 +44.9 106.9
25°	47 01.9 +45.3 109.9	46 26.3 +45.0 108.9	45 50.5 +44.8 107.9	45 14.5 +44.6 107.0	44 38.3 +44.4 106.0
26°	47 47.2 +44.6 108.9	47 11.3 +44.5 107.9	46 35.3 +44.3 107.0	45 59.1 +44.1 106.0	45 22.7 +44.0 105.0
27°	48 31.8 +44.2 107.9	47 55.8 +44.0 106.9	47 19.6 +43.8 106.0	46 43.2 +43.6 105.0	46 06.7 +43.4 104.1
28°	49 16.0 +43.6 106.9	48 39.8 +43.4 105.9	48 03.4 +43.2 105.0	47 26.8 +43.1 104.0	46 50.1 +42.9 103.1
29°	49 59.6 +43.0 105.8	49 23.2 +42.8 104.9	48 46.6 +42.7 103.9	48 09.9 +42.5 103.0	47 33.0 +42.4 102.0

Dec	LHA 050° / 310°	LHA 051° / 309°	LHA 052° / 308°	LHA 053° / 307°	LHA 054° / 306°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	23 51.7 +50.9 123.1	23 19.9 +50.7 122.2	22 47.7 +50.6 121.3	22 15.3 +50.3 120.4	21 42.6 +50.1 119.5
1°	24 42.6 +50.8 122.5	24 10.6 +50.6 121.6	23 38.3 +50.3 120.7	23 05.6 +50.2 119.8	22 32.7 +50.0 118.9
2°	25 33.4 +50.6 121.9	25 01.2 +50.4 121.0	24 28.6 +50.3 120.1	23 55.8 +50.1 119.2	23 22.7 +49.9 118.3
3°	26 24.0 +50.5 121.3	25 51.6 +50.3 120.4	25 18.9 +50.1 119.5	24 45.9 +49.9 118.6	24 12.6 +49.7 117.6
4°	27 14.5 +50.3 120.7	26 41.9 +50.1 119.8	26 09.0 +49.9 118.9	25 35.8 +49.7 117.9	25 02.3 +49.5 117.0
5°	28 04.8 +50.2 120.1	27 32.0 +50.0 119.2	26 58.9 +49.8 118.2	26 25.5 +49.6 117.3	25 51.8 +49.4 116.4
6°	28 55.0 +50.0 119.5	28 22.0 +49.8 118.6	27 48.7 +49.6 117.6	27 15.1 +49.4 116.7	26 41.2 +49.2 115.8
7°	29 45.0 +49.8 118.9	29 11.8 +49.6 117.9	28 38.3 +49.4 117.0	28 04.5 +49.2 116.1	27 30.4 +49.1 115.1
8°	30 34.8 +49.6 118.2	30 01.4 +49.4 117.3	29 27.7 +49.2 116.3	28 53.7 +49.0 115.4	28 19.5 +48.8 114.5
9°	31 24.4 +49.4 117.6	30 50.8 +49.2 116.6	30 16.9 +49.0 115.7	29 42.7 +48.9 114.7	29 08.3 +48.7 113.8
10°	32 13.8 +49.2 116.9	31 40.0 +49.0 115.9	31 05.9 +48.8 115.0	30 31.6 +48.6 114.1	29 57.0 +48.4 113.1
11°	33 03.0 +49.0 116.2	32 29.0 +48.8 115.3	31 54.7 +48.6 114.3	31 20.2 +48.4 113.4	30 45.4 +48.2 112.5
12°	33 52.0 +48.7 115.5	33 17.8 +48.5 114.6	32 43.3 +48.4 113.6	32 08.6 +48.2 112.7	31 33.6 +48.0 111.8
13°	34 40.7 +48.5 114.8	34 06.3 +48.3 113.9	33 31.7 +48.1 112.9	32 56.8 +47.9 112.0	32 21.6 +47.8 111.1
14°	35 29.2 +48.2 114.1	34 54.6 +48.0 113.1	34 19.8 +47.8 112.2	33 44.7 +47.7 111.3	33 09.4 +47.5 110.3
15°	36 17.4 +48.0 113.4	35 42.6 +47.8 112.4	35 07.6 +47.6 111.5	34 32.4 +47.4 110.5	33 56.9 +47.2 109.6
16°	37 05.4 +47.6 112.6	36 30.4 +47.5 111.7	35 55.2 +47.3 110.7	35 19.8 +47.1 109.8	34 44.1 +47.0 108.9
17°	37 53.0 +47.4 111.8	37 17.9 +47.1 110.9	36 42.5 +47.0 110.0	36 06.9 +46.8 109.0	35 31.1 +46.6 108.1
18°	38 40.4 +47.0 111.1	38 05.0 +46.9 110.1	37 29.5 +46.6 109.2	36 53.7 +46.5 108.2	36 17.7 +46.4 107.3
19°	39 27.4 +46.7 110.3	38 51.9 +46.5 109.3	38 16.1 +46.4 108.4	37 40.2 +46.2 107.4	37 04.1 +46.0 106.5
20°	40 14.1 +46.3 109.4	39 38.4 +46.2 108.5	39 02.5 +46.0 107.6	38 26.4 +45.8 106.6	37 50.1 +45.7 105.7
21°	41 00.4 +46.0 108.6	40 24.6 +45.8 107.7	39 48.5 +45.6 106.7	39 12.2 +45.5 105.8	38 35.8 +45.4 104.9
22°	41 46.4 +45.6 107.8	41 10.4 +45.4 106.8	40 34.1 +45.3 105.9	39 57.7 +45.1 105.0	39 21.2 +44.9 104.1
23°	42 32.0 +45.2 106.9	41 55.8 +45.0 105.9	41 19.4 +44.8 105.0	40 42.8 +44.7 104.1	40 06.1 +44.6 103.2
24°	43 17.2 +44.7 106.0	42 40.8 +44.6 105.0	42 04.2 +44.5 104.1	41 27.5 +44.3 103.2	40 50.7 +44.2 102.3
25°	44 01.9 +44.3 105.1	43 25.4 +44.1 104.1	42 48.7 +44.0 103.2	42 11.8 +43.9 102.3	41 34.9 +43.7 101.4
26°	44 46.2 +43.8 104.1	44 09.5 +43.6 103.2	43 32.7 +43.5 102.3	42 55.7 +43.4 101.4	42 18.6 +43.3 100.5
27°	45 30.0 +43.3 103.1	44 53.1 +43.2 102.2	44 16.2 +43.0 101.3	43 39.1 +42.9 100.4	43 01.9 +42.8 99.6
28°	46 13.3 +42.7 102.1	45 36.3 +42.6 101.2	44 59.2 +42.5 100.3	44 22.0 +42.4 99.5	43 44.7 +42.3 98.6
29°	46 56.0 +42.3 101.1	46 18.9 +42.1 100.2	45 41.7 +42.0 99.3	45 04.4 +41.9 98.5	44 27.0 +41.8 97.6

Dec	LHA 055° / 305°	LHA 056° / 304°	LHA 057° / 303°	LHA 058° / 302°	LHA 059° / 301°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	21 09.6 +49.9 118.6	20 36.3 +49.7 117.7	20 02.7 +49.6 116.8	19 28.8 +49.4 115.9	18 54.8 +49.2 115.0
1°	21 59.5 +49.8 118.0	21 26.0 +49.6 117.1	20 52.3 +49.4 116.2	20 18.2 +49.3 115.3	19 44.0 +49.1 114.4
2°	22 49.3 +49.7 117.4	22 15.6 +49.5 116.5	21 41.7 +49.3 115.6	21 07.5 +49.2 114.7	20 33.1 +49.0 113.8
3°	23 39.0 +49.5 116.7	23 05.1 +49.4 115.8	22 31.0 +49.2 115.0	21 56.7 +49.0 114.1	21 22.1 +48.8 113.2
4°	24 28.5 +49.4 116.1	23 54.5 +49.2 115.2	23 20.2 +49.0 114.3	22 45.7 +48.8 113.4	22 10.9 +48.7 112.6
5°	25 17.9 +49.2 115.5	24 43.7 +49.0 114.6	24 09.2 +48.9 113.7	23 34.5 +48.7 112.8	22 59.6 +48.5 111.9
6°	26 07.1 +49.0 114.9	25 32.7 +48.9 114.0	24 58.1 +48.7 113.1	24 23.2 +48.6 112.2	23 48.1 +48.4 111.3
7°	26 56.1 +48.9 114.2	26 21.6 +48.6 113.3	25 46.8 +48.5 112.4	25 11.8 +48.3 111.5	24 36.5 +48.2 110.6
8°	27 45.0 +48.7 113.6	27 10.2 +48.6 112.7	26 35.3 +48.3 111.8	26 00.1 +48.2 110.9	25 24.7 +48.1 110.0
9°	28 33.7 +48.4 112.9	27 58.8 +48.3 112.0	27 23.6 +48.2 111.1	26 48.3 +48.0 110.2	26 12.8 +47.8 109.3
10°	29 22.1 +48.3 112.2	28 47.1 +48.1 111.3	28 11.8 +47.9 110.4	27 36.3 +47.8 109.5	27 00.6 +47.7 108.6
11°	30 10.4 +48.1 111.5	29 35.2 +47.9 110.6	28 59.7 +47.8 109.7	28 24.1 +47.6 108.8	27 48.3 +47.4 108.0
12°	30 58.5 +47.8 110.9	30 23.1 +47.6 109.9	29 47.5 +47.5 109.0	29 11.7 +47.4 108.2	28 35.7 +47.2 107.3
13°	31 46.3 +47.6 110.1	31 10.7 +47.5 109.2	30 35.0 +47.3 108.3	29 59.1 +47.1 107.4	29 22.9 +47.1 106.6
14°	32 33.9 +47.3 109.4	31 58.2 +47.2 108.5	31 22.3 +47.0 107.6	30 46.2 +46.9 106.7	30 10.0 +46.7 105.8
15°	33 21.2 +47.1 108.7	32 45.4 +46.9 107.8	32 09.3 +46.8 106.9	31 33.1 +46.6 106.0	30 56.7 +46.5 105.1
16°	34 08.3 +46.8 107.9	33 32.3 +46.6 107.0	32 56.1 +46.5 106.1	32 19.7 +46.4 105.3	31 43.2 +46.3 104.4
17°	34 55.1 +46.5 107.2	34 18.9 +46.4 106.3	33 42.6 +46.2 105.4	33 06.1 +46.1 104.5	32 29.5 +46.0 103.6
18°	35 41.6 +46.2 106.4	35 05.3 +46.1 105.5	34 28.8 +46.0 104.6	33 52.2 +45.8 103.7	33 15.5 +45.7 102.9
19°	36 27.8 +45.9 105.6	35 51.4 +45.7 104.7	35 14.8 +45.6 103.8	34 38.0 +45.6 103.0	34 01.2 +45.4 102.1
20°	37 13.7 +45.6 104.8	36 37.1 +45.5 103.9	36 00.4 +45.3 103.0	35 23.6 +45.2 102.2	34 46.6 +45.1 101.3
21°	37 59.3 +45.2 104.0	37 22.6 +45.0 103.1	36 45.7 +45.0 102.2	36 08.8 +44.8 101.4	35 31.7 +44.7 100.5
22°	38 44.5 +44.8 103.2	38 07.6 +44.8 102.3	37 30.7 +44.6 101.4	36 53.6 +44.5 100.5	36 16.4 +44.5 99.7
23°	39 29.3 +44.5 102.3	38 52.4 +44.3 101.4	38 15.3 +44.2 100.5	37 38.1 +44.2 99.7	37 00.9 +44.0 98.8
24°	40 13.8 +44.0 101.4	39 36.7 +43.9 100.5	38 59.5 +43.9 99.7	38 22.3 +43.7 98.8	37 44.9 +43.7 98.0
25°	40 57.8 +43.6 100.5	40 20.6 +43.6 99.7	39 43.4 +43.4 98.8	39 06.0 +43.4 97.9	38 28.6 +43.3 97.1
26°	41 41.4 +43.2 99.6	41 04.2 +43.1 98.8	40 26.8 +43.0 97.9	39 49.4 +42.9 97.1	39 11.9 +42.8 96.2
27°	42 24.6 +42.7 98.7	41 47.3 +42.6 97.8	41 09.8 +42.6 97.0	40 32.3 +42.5 96.1	39 54.7 +42.5 95.3
28°	43 07.3 +42.3 97.7	42 29.9 +42.1 96.9	41 52.4 +42.1 96.0	41 14.8 +42.0 95.2	40 37.2 +42.0 94.4
29°	43 49.6 +41.7 96.7	43 12.0 +41.7 95.9	42 34.5 +41.5 95.1	41 56.8 +41.6 94.2	41 19.2 +41.5 93.4

# Declination SAME name as Latitude

# Latitude 51°

Dec	LHA 060° / 300°	LHA 061° / 299°	LHA 062° / 298°	LHA 063° / 297°	LHA 064° / 296°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	18 20.4 +49.1 114.2	17 45.9 +48.9 113.3	17 11.1 +48.7 112.5	16 36.1 +48.6 111.6	16 00.9 +48.4 110.8
1°	19 09.5 +48.9 113.6	18 34.8 +48.7 112.7	17 59.8 +48.7 111.8	17 24.7 +48.5 111.0	16 49.3 +48.4 110.1
2°	19 58.4 +48.8 112.9	19 23.5 +48.7 112.1	18 48.5 +48.5 111.2	18 13.2 +48.3 110.4	17 37.7 +48.2 109.5
3°	20 47.2 +48.7 112.3	20 12.2 +48.5 111.5	19 37.0 +48.3 110.6	19 01.5 +48.3 109.7	18 25.9 +48.1 108.9
4°	21 35.9 +48.6 111.7	21 00.7 +48.4 110.8	20 25.3 +48.3 110.0	19 49.8 +48.1 109.1	19 14.0 +48.0 108.3
5°	22 24.5 +48.4 111.1	21 49.1 +48.3 110.2	21 13.6 +48.1 109.3	20 37.9 +47.9 108.5	20 02.0 +47.8 107.6
6°	23 12.9 +48.2 110.4	22 37.4 +48.1 109.6	22 01.7 +47.9 108.7	21 25.8 +47.9 107.8	20 49.8 +47.7 107.0
7°	24 01.1 +48.1 109.8	23 25.5 +47.9 108.9	22 49.6 +47.8 108.0	22 13.7 +47.6 107.2	21 37.5 +47.5 106.3
8°	24 49.2 +47.8 109.1	24 13.4 +47.7 108.2	23 37.4 +47.7 107.4	23 01.3 +47.5 106.5	22 25.0 +47.4 105.7
9°	25 37.0 +47.7 108.4	25 01.1 +47.6 107.6	24 25.1 +47.4 106.7	23 48.8 +47.3 105.9	23 12.4 +47.2 105.0
10°	26 24.7 +47.6 107.8	25 48.7 +47.4 106.9	25 12.5 +47.3 106.0	24 36.1 +47.2 105.2	23 59.6 +47.0 104.3
11°	27 12.3 +47.3 107.1	26 36.1 +47.2 106.2	25 59.8 +47.0 105.4	25 23.3 +46.9 104.5	24 46.6 +46.9 103.7
12°	27 59.6 +47.1 106.4	27 23.3 +46.9 105.5	26 46.8 +46.9 104.7	26 10.2 +46.8 103.8	25 33.5 +46.6 103.0
13°	28 46.7 +46.8 105.7	28 10.2 +46.8 104.8	27 33.7 +46.6 104.0	26 57.0 +46.5 103.1	26 20.1 +46.5 102.3
14°	29 33.5 +46.7 105.0	28 57.0 +46.5 104.1	28 20.3 +46.4 103.3	27 43.5 +46.3 102.4	27 06.6 +46.2 101.6
15°	30 20.2 +46.4 104.3	29 43.5 +46.3 103.4	29 06.7 +46.2 102.5	28 29.8 +46.1 101.7	27 52.8 +46.0 100.8
16°	31 06.6 +46.1 103.5	30 29.8 +46.1 102.7	29 52.9 +45.9 101.8	29 15.9 +45.8 100.9	28 38.8 +45.7 100.1
17°	31 52.7 +45.9 102.8	31 15.9 +45.7 101.9	30 38.8 +45.7 101.1	30 01.7 +45.6 100.2	29 24.5 +45.5 99.4
18°	32 38.6 +45.6 102.0	32 01.6 +45.5 101.1	31 24.5 +45.4 100.3	30 47.3 +45.3 99.5	30 10.0 +45.3 98.6
19°	33 24.2 +45.3 101.2	32 47.1 +45.2 100.4	32 09.9 +45.1 99.5	31 32.6 +45.1 98.7	30 55.3 +44.9 97.9
20°	34 09.5 +45.0 100.4	33 32.3 +44.9 99.6	32 55.0 +44.9 98.7	32 17.7 +44.7 97.9	31 40.2 +44.7 97.1
21°	34 54.5 +44.7 99.6	34 17.2 +44.6 98.8	33 39.9 +44.5 97.9	33 02.4 +44.5 97.1	32 24.9 +44.4 96.3
22°	35 39.2 +44.3 98.8	35 01.8 +44.3 98.0	34 24.4 +44.2 97.1	33 46.9 +44.1 96.3	33 09.3 +44.1 95.5
23°	36 23.5 +44.0 98.0	35 46.1 +43.9 97.1	35 08.6 +43.8 96.3	34 31.0 +43.8 95.5	33 53.4 +43.7 94.7
24°	37 07.5 +43.6 97.1	36 30.0 +43.5 96.3	35 52.4 +43.5 95.5	35 14.8 +43.4 94.7	34 37.1 +43.5 93.9
25°	37 51.1 +43.2 96.3	37 13.5 +43.2 95.4	36 35.9 +43.1 94.6	35 58.2 +43.1 93.8	35 20.6 +43.0 93.0
26°	38 34.3 +42.8 95.4	37 56.7 +42.7 94.6	37 19.0 +42.8 93.8	36 41.3 +42.7 92.9	36 03.6 +42.7 92.1
27°	39 17.1 +42.4 94.5	38 39.4 +42.4 93.7	38 01.8 +42.3 92.9	37 24.0 +42.3 92.1	36 46.3 +42.3 91.3
28°	39 59.5 +41.9 93.6	39 21.8 +41.9 92.8	38 44.1 +41.9 92.0	38 06.3 +41.9 91.2	37 28.6 +41.9 90.4
29°	40 41.4 +41.5 92.6	40 03.7 +41.5 91.8	39 26.0 +41.4 91.0	38 48.2 +41.5 90.3	38 10.5 +41.4 89.5

Dec	LHA 065° / 295°	LHA 066° / 294°	LHA 067° / 293°	LHA 068° / 292°	LHA 069° / 291°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	15 25.4 +48.4 109.9	14 49.9 +48.1 109.1	14 14.1 +48.0 108.3	13 38.1 +48.0 107.4	13 02.0 +47.9 106.6
1°	16 13.8 +48.2 109.3	15 38.0 +48.1 108.5	15 02.1 +48.0 107.6	14 26.1 +47.8 106.8	13 49.9 +47.7 106.0
2°	17 02.0 +48.1 108.7	16 26.1 +48.0 107.8	15 50.1 +47.8 107.0	15 13.9 +47.7 106.2	14 37.6 +47.6 105.4
3°	17 50.1 +48.0 108.1	17 14.1 +47.8 107.2	16 37.9 +47.8 106.4	16 01.6 +47.7 105.6	15 25.2 +47.5 104.7
4°	18 38.1 +47.8 107.4	18 01.9 +47.8 106.6	17 25.7 +47.6 105.8	16 49.3 +47.5 104.9	16 12.7 +47.4 104.1
5°	19 25.9 +47.7 106.8	18 49.7 +47.6 105.9	18 13.3 +47.5 105.1	17 36.8 +47.3 104.3	17 00.1 +47.3 103.5
6°	20 13.6 +47.6 106.1	19 37.3 +47.4 105.3	19 00.8 +47.3 104.5	18 24.1 +47.3 103.6	17 47.4 +47.1 102.8
7°	21 01.2 +47.4 105.5	20 24.7 +47.3 104.7	19 48.1 +47.2 103.8	19 11.4 +47.1 103.0	18 34.5 +47.1 102.2
8°	21 48.6 +47.3 104.8	21 12.0 +47.2 104.0	20 35.3 +47.1 103.2	19 58.5 +47.0 102.3	19 21.6 +46.8 101.5
9°	22 35.9 +47.1 104.2	21 59.2 +47.0 103.3	21 22.4 +46.9 102.5	20 45.5 +46.8 101.7	20 08.4 +46.8 100.8
10°	23 23.0 +46.9 103.5	22 46.2 +46.8 102.7	22 09.3 +46.7 101.8	21 32.3 +46.6 101.0	20 55.2 +46.5 100.2
11°	24 09.9 +46.7 102.8	23 33.0 +46.7 102.0	22 56.0 +46.6 101.1	22 18.9 +46.5 100.3	21 41.7 +46.4 99.5
12°	24 56.6 +46.6 102.1	24 19.7 +46.4 101.3	23 42.6 +46.3 100.5	23 05.4 +46.3 99.6	22 28.1 +46.2 98.8
13°	25 43.2 +46.3 101.4	25 06.1 +46.3 100.6	24 28.9 +46.2 99.8	23 51.7 +46.1 98.9	23 14.3 +46.1 98.1
14°	26 29.5 +46.1 100.7	25 52.4 +46.0 99.9	25 15.1 +46.0 99.1	24 37.8 +45.9 98.2	24 00.4 +45.8 97.4
15°	27 15.6 +46.0 100.0	26 38.4 +45.8 99.2	26 01.1 +45.8 98.3	25 23.7 +45.7 97.5	24 46.2 +45.7 96.7
16°	28 01.6 +45.6 99.3	27 24.2 +45.6 98.4	26 46.9 +45.5 97.6	26 09.4 +45.5 96.8	25 31.9 +45.4 96.0
17°	28 47.2 +45.5 98.5	28 09.8 +45.4 97.7	27 32.4 +45.3 96.9	26 54.9 +45.2 96.1	26 17.3 +45.2 95.3
18°	29 32.7 +45.1 97.8	28 55.2 +45.1 97.0	28 17.7 +45.1 96.1	27 40.1 +45.0 95.3	27 02.5 +45.0 94.5
19°	30 17.8 +44.9 97.0	29 40.3 +44.9 96.2	29 02.8 +44.8 95.4	28 25.1 +44.8 94.6	27 47.5 +44.7 93.8
20°	31 02.7 +44.7 96.3	30 25.2 +44.6 95.4	29 47.6 +44.5 94.6	29 09.9 +44.5 93.8	28 32.2 +44.5 93.0
21°	31 47.4 +44.3 95.5	31 09.8 +44.3 94.7	30 32.1 +44.3 93.9	29 54.4 +44.3 93.1	29 16.7 +44.2 92.3
22°	32 31.7 +44.0 94.7	31 54.1 +44.0 93.9	31 16.4 +43.9 93.1	30 38.7 +43.9 92.3	30 00.9 +43.9 91.5
23°	33 15.7 +43.8 93.9	32 38.1 +43.6 93.1	32 00.3 +43.7 92.3	31 22.6 +43.6 91.5	30 44.8 +43.7 90.7
24°	33 59.5 +43.3 93.0	33 21.7 +43.4 92.3	32 44.0 +43.3 91.5	32 06.2 +43.4 90.7	31 28.5 +43.3 89.9
25°	34 42.8 +43.1 92.2	34 05.1 +43.0 91.4	33 27.3 +43.1 90.6	32 49.6 +43.0 89.9	32 11.8 +43.0 89.1
26°	35 25.9 +42.6 91.4	34 48.1 +42.7 90.6	34 10.4 +42.6 89.8	33 32.6 +42.7 89.0	32 54.8 +42.7 88.3
27°	36 08.5 +42.3 90.5	35 30.8 +42.3 89.6	34 53.0 +42.3 88.9	34 15.3 +42.3 88.2	33 37.5 +42.4 87.4
28°	36 50.8 +41.9 89.6	36 13.1 +41.9 88.8	35 35.3 +41.9 88.1	34 57.6 +41.9 87.3	34 19.9 +42.0 86.6
29°	37 32.7 +41.5 88.7	36 55.0 +41.4 87.9	36 17.2 +41.5 87.2	35 39.5 +41.6 86.4	35 01.9 +41.6 85.7

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Dec	LHA 070° / 290°	LHA 071° / 289°	LHA 072° / 288°	LHA 073° / 287°	LHA 074° / 286°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	12 25.8 +47.7 105.8	11 49.4 +47.6 105.0	11 12.8 +47.5 104.2	10 36.2 +47.4 103.4	9 59.4 +47.3 102.6
1°	13 13.5 +47.6 105.2	12 37.0 +47.5 104.4	12 00.3 +47.4 103.5	11 23.6 +47.3 102.7	10 46.7 +47.2 101.9
2°	14 01.1 +47.5 104.5	13 24.5 +47.4 103.7	12 47.7 +47.4 102.9	12 10.9 +47.2 102.1	11 33.9 +47.2 101.3
3°	14 48.6 +47.4 103.9	14 11.9 +47.3 103.1	13 35.1 +47.2 102.3	12 58.1 +47.2 101.5	12 21.1 +47.0 100.7
4°	15 36.0 +47.3 103.3	14 59.2 +47.2 102.5	14 22.3 +47.1 101.7	13 45.3 +47.0 100.8	13 08.1 +47.0 100.0
5°	16 23.3 +47.2 102.6	15 46.4 +47.1 101.8	15 09.4 +47.0 101.0	14 32.3 +46.9 100.2	13 55.1 +46.9 99.4
6°	17 10.5 +47.1 102.0	16 33.5 +47.0 101.2	15 56.4 +46.9 100.4	15 19.2 +46.9 99.6	14 42.0 +46.7 98.8
7°	17 57.6 +46.9 101.3	17 20.5 +46.9 100.5	16 43.3 +46.8 99.7	16 06.1 +46.7 98.9	15 28.7 +46.7 98.1
8°	18 44.5 +46.8 100.7	18 07.4 +46.7 99.9	17 30.1 +46.7 99.1	16 52.8 +46.6 98.3	16 15.4 +46.5 97.5
9°	19 31.3 +46.6 100.0	18 54.1 +46.5 99.2	18 16.8 +46.5 98.4	17 39.4 +46.4 97.6	17 01.9 +46.4 96.8
10°	20 17.9 +46.5 99.4	19 40.6 +46.5 98.5	19 03.3 +46.3 97.7	18 25.8 +46.3 96.9	17 48.3 +46.3 96.1
11°	21 04.4 +46.4 98.7	20 27.1 +46.2 97.9	19 49.6 +46.2 97.1	19 12.1 +46.2 96.3	18 34.6 +46.1 95.5
12°	21 50.8 +46.1 98.0	21 13.3 +46.1 97.2	20 35.8 +46.1 96.4	19 58.3 +46.0 95.6	19 20.7 +46.0 94.8
13°	22 36.9 +46.0 97.3	21 59.4 +46.0 96.5	21 21.9 +45.9 95.7	20 44.3 +45.8 94.9	20 06.7 +45.8 94.1
14°	23 22.9 +45.8 96.6	22 45.4 +45.7 95.8	22 07.8 +45.7 95.0	21 30.1 +45.7 94.2	20 52.5 +45.6 93.4
15°	24 08.7 +45.6 95.9	23 31.1 +45.6 95.1	22 53.5 +45.5 94.3	22 15.8 +45.5 93.5	21 38.1 +45.5 92.7
16°	24 54.3 +45.4 95.2	24 16.7 +45.3 94.4	23 39.0 +45.3 93.6	23 01.3 +45.3 92.8	22 23.6 +45.3 92.0
17°	25 39.7 +45.2 94.5	25 02.0 +45.2 93.7	24 24.3 +45.1 92.9	23 46.6 +45.1 92.1	23 08.9 +45.0 91.3
18°	26 24.9 +44.9 93.7	25 47.2 +44.9 92.9	25 09.4 +44.9 92.1	24 31.7 +44.9 91.4	23 53.9 +44.9 90.6
19°	27 09.8 +44.7 93.0	26 32.1 +44.7 92.2	25 54.3 +44.7 91.4	25 16.6 +44.7 90.6	24 38.8 +44.7 89.9
20°	27 54.5 +44.5 92.2	27 16.8 +44.4 91.5	26 39.0 +44.5 90.7	26 01.3 +44.4 89.9	25 23.5 +44.4 89.1
21°	28 39.0 +44.2 91.5	28 01.2 +44.2 90.7	27 23.5 +44.1 89.9	26 45.7 +44.2 89.1	26 07.9 +44.3 88.4
22°	29 23.2 +43.9 90.7	28 45.4 +43.9 89.9	28 07.6 +44.0 89.1	27 29.9 +43.9 88.4	26 52.2 +43.9 87.6
23°	30 07.1 +43.6 89.9	29 29.3 +43.7 89.1	28 51.6 +43.6 88.4	28 13.8 +43.7 87.6	27 36.1 +43.7 86.8
24°	30 50.7 +43.4 89.1	30 13.0 +43.3 88.4	29 35.2 +43.4 87.6	28 57.5 +43.4 86.8	28 19.8 +43.5 86.1
25°	31 34.1 +43.0 88.3	30 56.3 +43.1 87.6	30 18.6 +43.1 86.8	29 40.9 +43.2 86.0	29 03.3 +43.2 85.3
26°	32 17.1 +42.7 87.5	31 39.4 +42.7 86.7	31 01.7 +42.8 86.0	30 24.1 +42.8 85.2	29 46.5 +42.8 84.5
27°	32 59.8 +42.4 86.7	32 22.1 +42.5 85.9	31 44.5 +42.5 85.2	31 06.9 +42.5 84.4	30 29.3 +42.6 83.7
28°	33 42.2 +42.0 85.8	33 04.6 +42.0 85.1	32 27.0 +42.1 84.3	31 49.4 +42.2 83.6	31 11.9 +42.3 82.9
29°	34 24.2 +41.7 85.0	33 46.6 +41.7 84.2	33 09.1 +41.8 83.5	32 31.6 +41.9 82.8	31 54.2 +41.9 82.0

Dec	LHA 075° / 285°	LHA 076° / 284°	LHA 077° / 283°	LHA 078° / 282°	LHA 079° / 281°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	9 22.4 +47.3 101.8	8 45.4 +47.2 101.0	8 08.3 +47.1 100.2	7 31.1 +47.0 99.4	6 53.8 +46.9 98.6
1°	10 09.7 +47.1 101.1	9 32.6 +47.1 100.3	8 55.4 +47.0 99.5	8 18.1 +47.0 98.8	7 40.7 +46.9 98.0
2°	10 56.8 +47.1 100.5	10 19.7 +47.0 99.7	9 42.4 +46.9 98.9	9 05.1 +46.8 98.1	8 27.6 +46.9 97.3
3°	11 43.9 +47.0 99.9	11 06.7 +46.9 99.1	10 29.3 +46.9 98.3	9 51.9 +46.8 97.5	9 14.5 +46.7 96.7
4°	12 30.9 +46.9 99.2	11 53.6 +46.8 98.4	11 16.2 +46.8 97.6	10 38.7 +46.8 96.9	10 01.2 +46.7 96.1
5°	13 17.8 +46.8 98.6	12 40.4 +46.8 97.8	12 03.0 +46.7 97.0	11 25.5 +46.6 96.2	10 47.9 +46.6 95.4
6°	14 04.6 +46.7 98.0	13 27.2 +46.6 97.2	12 49.7 +46.6 96.4	12 12.1 +46.6 95.6	11 34.5 +46.5 94.8
7°	14 51.3 +46.6 97.3	14 13.8 +46.6 96.5	13 36.3 +46.5 95.7	12 58.7 +46.4 94.9	12 21.0 +46.5 94.1
8°	15 37.9 +46.5 96.7	15 00.4 +46.4 95.9	14 22.8 +46.4 95.1	13 45.1 +46.4 94.3	13 07.5 +46.3 93.5
9°	16 24.4 +46.3 96.0	15 46.8 +46.3 95.2	15 09.2 +46.3 94.4	14 31.5 +46.3 93.6	13 53.8 +46.2 92.8
10°	17 10.7 +46.3 95.3	16 33.1 +46.2 94.5	15 55.5 +46.1 93.7	15 17.8 +46.1 93.0	14 40.0 +46.2 92.2
11°	17 57.0 +46.0 94.7	17 19.3 +46.1 93.9	16 41.6 +46.0 93.1	16 03.9 +46.0 92.3	15 26.2 +46.0 91.5
12°	18 43.0 +46.0 94.0	18 05.4 +45.9 93.2	17 27.6 +45.9 92.4	16 49.9 +45.9 91.6	16 12.2 +45.8 90.8
13°	19 29.0 +45.8 93.3	18 51.3 +45.7 92.5	18 13.5 +45.8 91.7	17 35.8 +45.7 91.0	16 58.0 +45.8 90.2
14°	20 14.8 +45.6 92.6	19 37.0 +45.6 91.8	18 59.3 +45.6 91.1	18 21.5 +45.6 90.3	17 43.8 +45.6 89.5
15°	21 00.4 +45.4 91.9	20 22.6 +45.5 91.1	19 44.9 +45.4 90.4	19 07.1 +45.5 89.6	18 29.4 +45.4 88.8
16°	21 45.8 +45.3 91.2	21 08.1 +45.2 90.4	20 30.3 +45.3 89.7	19 52.6 +45.2 88.9	19 14.8 +45.3 88.1
17°	22 31.1 +45.1 90.5	21 53.3 +45.1 89.7	21 15.6 +45.1 89.0	20 37.8 +45.1 88.2	20 00.1 +45.1 87.4
18°	23 16.2 +44.9 89.8	22 38.4 +44.9 89.0	22 00.7 +44.9 88.3	21 22.9 +45.0 87.5	20 45.2 +45.0 86.7
19°	24 01.1 +44.6 89.1	23 23.3 +44.7 88.3	22 45.6 +44.7 87.5	22 07.9 +44.7 86.8	21 30.2 +44.8 86.0
20°	24 45.7 +44.5 88.3	24 08.0 +44.5 87.6	23 30.3 +44.5 86.8	22 52.6 +44.6 86.1	22 15.0 +44.5 85.3
21°	25 30.2 +44.2 87.6	24 52.5 +44.3 86.8	24 14.8 +44.3 86.1	23 37.2 +44.3 85.3	22 59.5 +44.4 84.6
22°	26 14.4 +44.0 86.9	25 36.8 +44.0 86.1	24 59.1 +44.1 85.3	24 21.5 +44.1 84.6	23 43.9 +44.2 83.8
23°	26 58.4 +43.8 86.1	26 20.8 +43.8 85.3	25 43.2 +43.8 84.6	25 05.6 +43.9 83.8	24 28.1 +43.9 83.1
24°	27 42.2 +43.5 85.3	27 04.6 +43.5 84.6	26 27.0 +43.6 83.8	25 49.5 +43.7 83.1	25 12.0 +43.8 82.3
25°	28 25.7 +43.2 84.5	27 48.1 +43.3 83.8	27 10.6 +43.4 83.1	26 33.2 +43.4 82.3	25 55.8 +43.5 81.6
26°	29 08.9 +42.9 83.7	28 31.4 +43.0 83.0	27 54.0 +43.0 82.3	27 16.6 +43.1 81.5	26 39.3 +43.2 80.8
27°	29 51.8 +42.7 82.9	29 14.4 +42.7 82.2	28 37.0 +42.8 81.5	27 59.7 +42.9 80.8	27 22.5 +43.0 80.0
28°	30 34.5 +42.3 82.1	29 57.1 +42.4 81.4	29 19.8 +42.5 80.7	28 42.6 +42.6 80.0	28 05.5 +42.7 79.3
29°	31 16.8 +42.0 81.3	30 39.5 +42.1 80.6	30 02.3 +42.2 79.9	29 25.2 +42.3 79.2	28 48.2 +42.4 78.5

# Declination SAME name as Latitude

# Latitude 51°

Dec	LHA 080° / 280°	LHA 081° / 279°	LHA 082° / 278°	LHA 083° / 277°	LHA 084° / 276°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	6 16.4 +46.9 97.8	5 39.0 +46.8 97.0	5 01.5 +46.8 96.2	4 23.9 +46.8 95.5	3 46.3 +46.7 94.7
1°	7 03.3 +46.9 97.2	6 25.8 +46.8 96.4	5 48.3 +46.7 95.6	5 10.7 +46.7 94.8	4 33.0 +46.7 94.0
2°	7 50.2 +46.7 96.5	7 12.6 +46.7 95.8	6 35.0 +46.7 95.0	5 57.4 +46.6 94.2	5 19.7 +46.6 93.4
3°	8 36.9 +46.7 95.9	7 59.3 +46.7 95.1	7 21.7 +46.7 94.3	6 44.0 +46.7 93.6	6 06.3 +46.6 92.8
4°	9 23.6 +46.7 95.3	8 46.0 +46.6 94.5	8 08.4 +46.6 93.7	7 30.7 +46.5 92.9	6 52.9 +46.6 92.1
5°	10 10.3 +46.6 94.6	9 32.6 +46.6 93.9	8 55.0 +46.5 93.1	8 17.2 +46.5 92.3	7 39.5 +46.5 91.5
6°	10 56.9 +46.5 94.0	10 19.2 +46.5 93.2	9 41.5 +46.4 92.4	9 03.7 +46.5 91.6	8 26.0 +46.4 90.9
7°	11 43.4 +46.4 93.4	11 05.7 +46.3 92.6	10 27.9 +46.4 91.8	9 50.2 +46.3 91.0	9 12.4 +46.4 90.2
8°	12 29.8 +46.3 92.7	11 52.0 +46.3 91.9	11 14.3 +46.3 91.1	10 36.5 +46.3 90.4	9 58.8 +46.3 89.6
9°	13 16.1 +46.2 92.1	12 38.3 +46.2 91.3	12 00.6 +46.2 90.5	11 22.8 +46.2 89.7	10 45.1 +46.2 88.9
10°	14 02.3 +46.1 91.4	13 24.5 +46.1 90.6	12 46.8 +46.1 89.8	12 09.0 +46.1 89.1	11 31.3 +46.1 88.3
11°	14 48.4 +46.0 90.7	14 10.6 +46.0 90.0	13 32.9 +46.0 89.2	12 55.1 +46.0 88.4	12 17.4 +46.0 87.6
12°	15 34.4 +45.9 90.1	14 56.6 +45.9 89.3	14 18.9 +45.9 88.5	13 41.1 +45.9 87.7	13 03.4 +46.0 87.0
13°	16 20.3 +45.7 89.4	15 42.5 +45.8 88.6	15 04.8 +45.7 87.9	14 27.0 +45.8 87.1	13 49.4 +45.8 86.3
14°	17 06.0 +45.6 88.7	16 28.3 +45.6 88.0	15 50.5 +45.7 87.2	15 12.8 +45.7 86.4	14 35.2 +45.7 85.6
15°	17 51.6 +45.5 88.0	17 13.9 +45.5 87.3	16 36.2 +45.5 86.5	15 58.5 +45.6 85.7	15 20.9 +45.6 85.0
16°	18 37.1 +45.3 87.4	17 59.4 +45.3 86.6	17 21.7 +45.4 85.8	16 44.1 +45.4 85.1	16 06.5 +45.4 84.3
17°	19 22.4 +45.2 86.7	18 44.7 +45.2 85.9	18 07.1 +45.2 85.1	17 29.5 +45.2 84.4	16 51.9 +45.3 83.6
18°	20 07.6 +44.9 86.0	19 29.9 +45.0 85.2	18 52.3 +45.1 84.4	18 14.7 +45.2 83.7	17 37.2 +45.2 82.9
19°	20 52.5 +44.8 85.3	20 14.9 +44.9 84.5	19 37.4 +44.9 83.7	18 59.9 +44.9 83.0	18 22.4 +45.0 82.2
20°	21 37.3 +44.7 84.5	20 59.8 +44.7 83.8	20 22.3 +44.7 83.0	19 44.8 +44.8 82.3	19 07.4 +44.9 81.5
21°	22 22.0 +44.4 83.8	21 44.5 +44.5 83.1	21 07.0 +44.6 82.3	20 29.6 +44.6 81.6	19 52.3 +44.7 80.8
22°	23 06.4 +44.2 83.1	22 29.0 +44.3 82.3	21 51.6 +44.3 81.6	21 14.2 +44.5 80.9	20 37.0 +44.5 80.1
23°	23 50.6 +44.1 82.4	23 13.3 +44.0 81.6	22 35.9 +44.2 80.9	21 58.7 +44.2 80.1	21 21.5 +44.4 79.4
24°	24 34.7 +43.8 81.6	23 57.3 +43.9 80.9	23 20.1 +44.0 80.1	22 42.9 +44.1 79.4	22 05.9 +44.1 78.7
25°	25 18.5 +43.5 80.9	24 41.2 +43.7 80.1	24 04.1 +43.7 79.4	23 27.0 +43.8 78.7	22 50.0 +44.0 78.0
26°	26 02.0 +43.3 80.1	25 24.9 +43.4 79.4	24 47.8 +43.5 78.6	24 10.8 +43.6 77.9	23 34.0 +43.7 77.2
27°	26 45.3 +43.1 79.3	26 08.3 +43.1 78.6	25 31.3 +43.3 77.9	24 54.4 +43.4 77.2	24 17.7 +43.5 76.5
28°	27 28.4 +42.8 78.5	26 51.4 +43.0 77.8	26 14.6 +43.0 77.1	25 37.8 +43.2 76.4	25 01.2 +43.3 75.7
29°	28 11.2 +42.5 77.7	27 34.4 +42.6 77.0	26 57.6 +42.8 76.3	26 21.0 +42.9 75.6	25 44.5 +43.0 74.9

Dec	LHA 085° / 275°	LHA 086° / 274°	LHA 087° / 273°	LHA 088° / 272°	LHA 089° / 271°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	3 08.7 +46.6 93.9	2 31.0 +46.6 93.1	1 53.2 +46.7 92.3	1 15.5 +46.6 91.6	0 37.8 +46.6 90.8
1°	3 55.3 +46.7 93.3	3 17.6 +46.7 92.5	2 39.9 +46.6 91.7	2 02.1 +46.7 90.9	1 24.4 +46.6 90.1
2°	4 42.0 +46.6 92.6	4 04.3 +46.6 91.9	3 26.5 +46.6 91.1	2 48.8 +46.6 90.3	2 11.0 +46.6 89.5
3°	5 28.6 +46.6 92.0	4 50.9 +46.6 91.2	4 13.1 +46.6 90.4	3 35.4 +46.5 89.7	2 57.6 +46.6 88.9
4°	6 15.2 +46.5 91.4	5 37.5 +46.5 90.6	4 59.7 +46.5 89.8	4 21.9 +46.6 89.0	3 44.2 +46.5 88.3
5°	7 01.7 +46.5 90.7	6 24.0 +46.5 90.0	5 46.2 +46.5 89.2	5 08.5 +46.5 88.4	4 30.7 +46.6 87.6
6°	7 48.2 +46.5 90.1	7 10.5 +46.4 89.3	6 32.7 +46.5 88.5	5 55.0 +46.4 87.8	5 17.3 +46.4 87.0
7°	8 34.7 +46.3 89.5	7 56.9 +46.4 88.7	7 19.2 +46.4 87.9	6 41.4 +46.5 87.1	6 03.7 +46.5 86.4
8°	9 21.0 +46.3 88.8	8 43.3 +46.3 88.0	8 05.6 +46.3 87.3	7 27.9 +46.3 86.5	6 50.2 +46.4 85.7
9°	10 07.3 +46.2 88.2	9 29.6 +46.2 87.4	8 51.9 +46.3 86.6	8 14.2 +46.3 85.8	7 36.6 +46.3 85.1
10°	10 53.5 +46.2 87.5	10 15.8 +46.2 86.7	9 38.2 +46.1 86.0	9 00.5 +46.2 85.2	8 22.9 +46.3 84.4
11°	11 39.7 +46.0 86.9	11 02.0 +46.1 86.1	10 24.3 +46.2 85.3	9 46.7 +46.2 84.6	9 09.2 +46.2 83.8
12°	12 25.7 +46.0 86.2	11 48.1 +46.0 85.4	11 10.5 +46.0 84.7	10 32.9 +46.1 83.9	9 55.4 +46.1 83.1
13°	13 11.7 +45.8 85.5	12 34.1 +45.9 84.8	11 56.5 +45.9 84.0	11 19.0 +45.9 83.3	10 41.5 +46.0 82.5
14°	13 57.5 +45.8 84.9	13 20.0 +45.7 84.1	12 42.4 +45.9 83.4	12 04.9 +45.9 82.6	11 27.5 +46.0 81.8
15°	14 43.3 +45.6 84.2	14 05.7 +45.7 83.5	13 28.3 +45.7 82.7	12 50.8 +45.8 81.9	12 13.5 +45.9 81.2
16°	15 28.9 +45.5 83.5	14 51.4 +45.6 82.8	14 14.0 +45.6 82.0	13 36.6 +45.7 81.3	12 59.4 +45.7 80.5
17°	16 14.4 +45.4 82.9	15 37.0 +45.4 82.1	14 59.6 +45.5 81.4	14 22.3 +45.6 80.6	13 45.1 +45.7 79.9
18°	16 59.8 +45.2 82.2	16 22.4 +45.3 81.4	15 45.1 +45.4 80.7	15 07.9 +45.5 79.9	14 30.8 +45.5 79.2
19°	17 45.0 +45.1 81.5	17 07.7 +45.2 80.7	16 30.5 +45.2 80.0	15 53.4 +45.3 79.3	15 16.3 +45.4 78.5
20°	18 30.1 +45.0 80.8	17 52.9 +45.0 80.1	17 15.7 +45.2 79.3	16 38.7 +45.2 78.6	16 01.7 +45.3 77.8
21°	19 15.1 +44.7 80.1	18 37.9 +44.9 79.4	18 00.9 +44.9 78.6	17 23.9 +45.0 77.9	16 47.0 +45.2 77.2
22°	19 59.8 +44.7 79.4	19 22.8 +44.7 78.7	18 45.8 +44.8 77.9	18 08.9 +44.9 77.2	17 32.2 +45.0 76.5
23°	20 44.5 +44.4 78.7	20 07.5 +44.5 78.0	19 30.6 +44.6 77.2	18 53.8 +44.8 76.5	18 17.2 +44.8 75.8
24°	21 28.9 +44.2 78.0	20 52.0 +44.4 77.2	20 15.2 +44.5 76.5	19 38.6 +44.6 75.8	19 02.0 +44.7 75.1
25°	22 13.1 +44.1 77.2	21 36.4 +44.1 76.5	20 59.7 +44.3 75.8	20 23.2 +44.4 75.1	19 46.7 +44.6 74.4
26°	22 57.2 +43.8 76.5	22 20.5 +44.0 75.8	21 44.0 +44.1 75.1	21 07.6 +44.2 74.4	20 31.3 +44.3 73.6
27°	23 41.0 +43.7 75.8	23 04.5 +43.7 75.0	22 28.1 +43.9 74.3	21 51.8 +44.0 73.6	21 15.6 +44.2 72.9
28°	24 24.7 +43.4 75.0	23 48.2 +43.6 74.3	23 12.0 +43.6 73.6	22 35.8 +43.8 72.9	21 59.8 +43.9 72.2
29°	25 08.1 +43.1 74.2	24 31.8 +43.3 73.5	23 55.6 +43.5 72.9	23 19.6 +43.6 72.2	22 43.7 +43.8 71.5

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Dec	LHA 090° / 270°	LHA 091° / 269°	LHA 092° / 268°	LHA 093° / 267°	LHA 094° / 266°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	0 00.0 +46.6 90.0	-0 37.8 +46.7	-1 15.5 +46.6	-1 53.2 +46.6	-2 31.0 +46.7
1°	0 46.6 +46.7 89.4	0 08.9 +46.6 88.6	-0 28.9 +46.7	-1 06.6 +46.7	-1 44.3 +46.7
2°	1 33.3 +46.6 88.7	0 55.5 +46.6 88.0	0 17.8 +46.6 87.2	-0 19.9 +46.7	-0 57.6 +46.7
3°	2 19.9 +46.6 88.1	1 42.1 +46.6 87.3	1 04.4 +46.7 86.6	0 26.8 +46.6 85.8	-0 10.9 +46.7
4°	3 06.5 +46.5 87.5	2 28.7 +46.6 86.7	1 51.1 +46.6 85.9	1 13.4 +46.7 85.2	0 35.8 +46.7 84.4
5°	3 53.0 +46.6 86.8	3 15.3 +46.6 86.1	2 37.7 +46.6 85.3	2 00.1 +46.6 84.5	1 22.5 +46.7 83.7
6°	4 39.6 +46.5 86.2	4 01.9 +46.6 85.4	3 24.3 +46.6 84.7	2 46.7 +46.6 83.9	2 09.2 +46.7 83.1
7°	5 26.1 +46.4 85.6	4 48.5 +46.5 84.8	4 10.9 +46.5 84.0	3 33.3 +46.6 83.3	2 55.9 +46.6 82.5
8°	6 12.5 +46.5 84.9	5 35.0 +46.4 84.2	4 57.4 +46.5 83.4	4 19.9 +46.6 82.6	3 42.5 +46.7 81.9
9°	6 59.0 +46.3 84.3	6 21.4 +46.4 83.5	5 43.9 +46.5 82.8	5 06.5 +46.5 82.0	4 29.2 +46.5 81.2
10°	7 45.3 +46.4 83.7	7 07.8 +46.4 82.9	6 30.4 +46.4 82.1	5 53.0 +46.5 81.4	5 15.7 +46.6 80.6
11°	8 31.7 +46.2 83.0	7 54.2 +46.3 82.3	7 16.8 +46.4 81.5	6 39.5 +46.5 80.7	6 02.3 +46.5 80.0
12°	9 17.9 +46.2 82.4	8 40.5 +46.3 81.6	8 03.2 +46.3 80.9	7 26.0 +46.3 80.1	6 48.8 +46.5 79.3
13°	10 04.1 +46.1 81.7	9 26.8 +46.1 81.0	8 49.5 +46.3 80.2	8 12.3 +46.4 79.5	7 35.3 +46.4 78.7
14°	10 50.2 +46.0 81.1	10 12.9 +46.1 80.3	9 35.8 +46.1 79.6	8 58.7 +46.2 78.8	8 21.7 +46.3 78.1
15°	11 36.2 +46.0 80.4	10 59.0 +46.0 79.7	10 21.9 +46.1 78.9	9 44.9 +46.2 78.2	9 08.0 +46.3 77.4
16°	12 22.2 +45.8 79.8	11 45.0 +46.0 79.0	11 08.0 +46.0 78.3	10 31.1 +46.1 77.5	9 54.3 +46.2 76.8
17°	13 08.0 +45.7 79.1	12 31.0 +45.8 78.4	11 54.0 +45.9 77.6	11 17.2 +46.0 76.9	10 40.5 +46.1 76.1
18°	13 53.7 +45.7 78.4	13 16.8 +45.7 77.7	12 39.9 +45.9 77.0	12 03.2 +45.9 76.2	11 26.6 +46.0 75.5
19°	14 39.4 +45.5 77.8	14 02.5 +45.6 77.0	13 25.8 +45.7 76.3	12 49.1 +45.9 75.5	12 12.6 +46.0 74.8
20°	15 24.9 +45.4 77.1	14 48.1 +45.5 76.4	14 11.5 +45.6 75.6	13 35.0 +45.7 74.9	12 58.6 +45.8 74.1
21°	16 10.3 +45.2 76.4	15 33.6 +45.4 75.7	14 57.1 +45.5 75.0	14 20.7 +45.6 74.2	13 44.4 +45.7 73.5
22°	16 55.5 +45.1 75.7	16 19.0 +45.2 75.0	15 42.6 +45.3 74.3	15 06.3 +45.5 73.5	14 30.1 +45.7 72.8
23°	17 40.6 +45.0 75.0	17 04.2 +45.1 74.3	16 27.9 +45.3 73.6	15 51.8 +45.3 72.9	15 15.8 +45.5 72.1
24°	18 25.6 +44.8 74.3	17 49.3 +45.0 73.6	17 13.2 +45.0 72.9	16 37.1 +45.3 72.2	16 01.3 +45.3 71.5
25°	19 10.4 +44.7 73.6	18 34.3 +44.8 72.9	17 58.2 +45.0 72.2	17 22.4 +45.0 71.5	16 46.6 +45.3 70.8
26°	19 55.1 +44.5 72.9	19 19.1 +44.6 72.2	18 43.2 +44.8 71.5	18 07.4 +45.0 70.8	17 31.9 +45.0 70.1
27°	20 39.6 +44.3 72.2	20 03.7 +44.5 71.5	19 28.0 +44.6 70.8	18 52.4 +44.8 70.1	18 16.9 +45.0 69.4
28°	21 23.9 +44.1 71.5	20 48.2 +44.2 70.8	20 12.6 +44.4 70.1	19 37.2 +44.6 69.4	19 01.9 +44.8 68.7
29°	22 08.0 +43.9 70.8	21 32.4 +44.1 70.1	20 57.0 +44.3 69.4	20 21.8 +44.4 68.7	19 46.7 +44.6 68.0

Dec	LHA 095° / 265°	LHA 096° / 264°	LHA 097° / 263°	LHA 098° / 262°	LHA 099° / 261°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-3 08.7 +46.8	-3 46.3 +46.7	-4 23.9 +46.8	-5 01.5 +46.8	-5 39.0 +46.9
1°	-2 21.9 +46.7	-2 59.6 +46.8	-3 37.1 +46.8	-4 14.7 +46.9	-4 52.1 +46.9
2°	-1 35.2 +46.7	-2 12.8 +46.8	-2 50.3 +46.8	-3 27.8 +46.9	-4 05.2 +46.9
3°	-0 48.5 +46.8	-1 26.0 +46.8	-2 03.5 +46.8	-2 40.9 +46.9	-3 18.3 +47.0
4°	-0 01.7 +46.7	-0 39.2 +46.8	-1 16.7 +46.9	-1 54.0 +46.9	-2 31.3 +47.0
5°	0 45.0 +46.7 83.0	0 07.6 +46.8 82.2	-0 29.8 +46.8	-1 07.1 +46.9	-1 44.3 +47.0
6°	1 31.7 +46.8 82.3	0 54.4 +46.7 81.6	0 17.0 +46.9 80.8	-0 20.2 +46.9	-0 57.3 +47.0
7°	2 18.5 +46.7 81.7	1 41.1 +46.8 80.9	1 03.9 +46.8 80.2	0 26.7 +47.0 79.4	-0 10.3 +47.0
8°	3 05.2 +46.7 81.1	2 27.9 +46.8 80.3	1 50.7 +46.9 79.5	1 13.7 +46.9 78.8	0 36.7 +47.0 78.0
9°	3 51.9 +46.6 80.5	3 14.7 +46.7 79.7	2 37.6 +46.8 78.9	2 00.6 +46.9 78.1	1 23.7 +47.0 77.4
10°	4 38.5 +46.7 79.8	4 01.4 +46.7 79.1	3 24.4 +46.8 78.3	2 47.5 +46.8 77.5	2 10.7 +46.9 76.8
11°	5 25.2 +46.6 79.2	4 48.1 +46.7 78.4	4 11.2 +46.7 77.7	3 34.3 +46.9 76.9	2 57.6 +47.0 76.1
12°	6 11.8 +46.5 78.6	5 34.8 +46.6 77.8	4 57.9 +46.8 77.0	4 21.2 +46.8 76.3	3 44.6 +46.9 75.5
13°	6 58.3 +46.5 77.9	6 21.4 +46.6 77.2	5 44.7 +46.6 76.4	5 08.0 +46.8 75.6	4 31.5 +46.9 74.9
14°	7 44.8 +46.4 77.3	7 08.0 +46.5 76.5	6 31.3 +46.7 75.8	5 54.8 +46.7 75.0	5 18.4 +46.9 74.3
15°	8 31.2 +46.4 76.7	7 54.5 +46.5 75.9	7 18.0 +46.6 75.1	6 41.5 +46.7 74.4	6 05.3 +46.8 73.6
16°	9 17.6 +46.3 76.0	8 41.0 +46.4 75.3	8 04.6 +46.5 74.5	7 28.2 +46.7 73.8	6 52.1 +46.7 73.0
17°	10 03.9 +46.2 75.4	9 27.4 +46.4 74.6	8 51.1 +46.4 73.9	8 14.9 +46.6 73.1	7 38.8 +46.7 72.4
18°	10 50.1 +46.2 74.7	10 13.8 +46.2 74.0	9 37.5 +46.4 73.2	9 01.5 +46.5 72.5	8 25.5 +46.7 71.7
19°	11 36.3 +46.0 74.1	11 00.0 +46.2 73.3	10 23.9 +46.3 72.6	9 48.0 +46.4 71.8	9 12.2 +46.5 71.1
20°	12 22.3 +46.0 73.4	11 46.2 +46.1 72.7	11 10.2 +46.3 71.9	10 34.4 +46.4 71.2	9 58.7 +46.6 70.5
21°	13 08.3 +45.8 72.8	12 32.3 +46.0 72.0	11 56.5 +46.1 71.3	11 20.8 +46.2 70.5	10 45.3 +46.4 69.8
22°	13 54.1 +45.8 72.1	13 18.3 +45.9 71.4	12 42.6 +46.0 70.6	12 07.0 +46.2 69.9	11 31.7 +46.3 69.2
23°	14 39.9 +45.6 71.4	14 04.2 +45.8 70.7	13 28.6 +46.0 70.0	12 53.2 +46.1 69.2	12 18.0 +46.3 68.5
24°	15 25.5 +45.6 70.7	14 50.0 +45.6 70.0	14 14.6 +45.8 69.3	13 39.3 +46.0 68.6	13 04.3 +46.1 67.9
25°	16 11.1 +45.3 70.1	15 35.6 +45.6 69.4	15 00.4 +45.7 68.6	14 25.3 +45.9 67.9	13 50.4 +46.0 67.2
26°	16 56.4 +45.3 69.4	16 21.2 +45.4 68.7	15 46.1 +45.6 68.0	15 11.2 +45.7 67.3	14 36.4 +46.0 66.5
27°	17 41.7 +45.1 68.7	17 06.6 +45.3 68.0	16 31.7 +45.4 67.3	15 56.9 +45.7 66.6	15 22.4 +45.8 65.9
28°	18 26.8 +44.9 68.0	17 51.9 +45.1 67.3	17 17.1 +45.3 66.6	16 42.6 +45.4 65.9	16 08.2 +45.7 65.2
29°	19 11.7 +44.8 67.3	18 37.0 +45.0 66.6	18 02.4 +45.2 65.9	17 28.0 +45.4 65.2	16 53.9 +45.5 64.5

Dec	LHA 100° / 260°	LHA 101° / 259°	LHA 102° / 258°	LHA 103° / 257°	LHA 104° / 256°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-6 16.4 +46.9	-6 53.8 +47.0	-7 31.1 +47.1	-8 08.3 +47.1	-8 45.4 +47.2
1°	-5 29.5 +47.0	-6 06.8 +47.0	-6 44.0 +47.1	-7 21.2 +47.2	-7 58.2 +47.2
2°	-4 42.5 +47.0	-5 19.8 +47.1	-5 56.9 +47.1	-6 34.0 +47.2	-7 11.0 +47.4
3°	-3 55.5 +47.0	-4 32.7 +47.1	-5 09.8 +47.2	-5 46.8 +47.3	-6 23.6 +47.3
4°	-3 08.5 +47.1	-3 45.6 +47.1	-4 22.6 +47.2	-4 59.5 +47.3	-5 36.3 +47.4
5°	-2 21.4 +47.0	-2 58.5 +47.2	-3 35.4 +47.3	-4 12.2 +47.3	-4 48.9 +47.4
6°	-1 34.4 +47.1	-2 11.3 +47.2	-2 48.1 +47.2	-3 24.9 +47.4	-4 01.5 +47.5
7°	-0 47.3 +47.1	-1 24.1 +47.1	-2 00.9 +47.3	-2 37.5 +47.4	-3 14.0 +47.5
8°	-0 00.2 +47.1	-0 37.0 +47.2	-1 13.6 +47.3	-1 50.1 +47.4	-2 26.5 +47.5
9°	0 46.9 +47.1 76.6	0 10.2 +47.2 75.8	-0 26.3 +47.3	-1 02.7 +47.3	-1 39.0 +47.5
10°	1 34.0 +47.0 76.0	0 57.4 +47.2 75.2	0 21.0 +47.2 74.4	-0 15.4 +47.4	-0 51.5 +47.5
11°	2 21.0 +47.1 75.4	1 44.6 +47.1 74.6	1 08.2 +47.3 73.8	0 32.0 +47.4 73.0	-0 04.0 +47.5
12°	3 08.1 +47.0 74.7	2 31.7 +47.2 74.0	1 55.5 +47.3 73.2	1 19.4 +47.4 72.4	0 43.5 +47.5 71.7
13°	3 55.1 +47.0 74.1	3 18.9 +47.1 73.3	2 42.8 +47.2 72.6	2 06.8 +47.4 71.8	1 31.0 +47.5 71.0
14°	4 42.1 +47.0 73.5	4 06.0 +47.1 72.7	3 30.0 +47.2 72.0	2 54.2 +47.3 71.2	2 18.5 +47.5 70.4
15°	5 29.1 +46.9 72.9	4 53.1 +47.0 72.1	4 17.2 +47.2 71.3	3 41.5 +47.4 70.6	3 06.0 +47.5 69.8
16°	6 16.0 +46.9 72.2	5 40.1 +47.1 71.5	5 04.4 +47.2 70.7	4 28.9 +47.3 70.0	3 53.5 +47.4 69.2
17°	7 02.9 +46.8 71.6	6 27.2 +46.9 70.9	5 51.6 +47.1 70.1	5 16.2 +47.2 69.3	4 40.9 +47.4 68.6
18°	7 49.7 +46.8 71.0	7 14.1 +47.0 70.2	6 38.7 +47.0 69.5	6 03.4 +47.2 68.7	5 28.3 +47.4 68.0
19°	8 36.5 +46.7 70.4	8 01.1 +46.8 69.6	7 25.7 +47.1 68.9	6 50.6 +47.2 68.1	6 15.7 +47.3 67.4
20°	9 23.2 +46.7 69.7	8 47.9 +46.8 69.0	8 12.8 +46.9 68.2	7 37.8 +47.1 67.5	7 03.0 +47.3 66.7
21°	10 09.9 +46.6 69.1	9 34.7 +46.7 68.3	8 59.7 +46.9 67.6	8 24.9 +47.0 66.9	7 50.3 +47.2 66.1
22°	10 56.5 +46.5 68.4	10 21.4 +46.7 67.7	9 46.6 +46.8 67.0	9 11.9 +47.0 66.2	8 37.5 +47.1 65.5
23°	11 43.0 +46.4 67.8	11 08.1 +46.6 67.1	10 33.4 +46.8 66.3	9 58.9 +46.9 65.6	9 24.6 +47.1 64.9
24°	12 29.4 +46.3 67.1	11 54.7 +46.5 66.4	11 20.2 +46.6 65.7	10 45.8 +46.9 65.0	10 11.7 +47.1 64.2
25°	13 15.7 +46.2 66.5	12 41.2 +46.3 65.8	12 06.8 +46.6 65.1	11 32.7 +46.7 64.3	10 58.8 +46.9 63.6
26°	14 01.9 +46.1 65.8	13 27.5 +46.3 65.1	12 53.4 +46.5 64.4	12 19.4 +46.7 63.7	11 45.7 +46.9 63.0
27°	14 48.0 +46.0 65.2	14 13.8 +46.2 64.5	13 39.9 +46.3 63.8	13 06.1 +46.6 63.0	12 32.6 +46.7 62.3
28°	15 34.0 +45.9 64.5	15 00.0 +46.1 63.8	14 26.2 +46.3 63.1	13 52.7 +46.4 62.4	13 19.3 +46.7 61.7
29°	16 19.9 +45.7 63.8	15 46.1 +45.9 63.1	15 12.5 +46.1 62.4	14 39.1 +46.4 61.7	14 06.0 +46.5 61.0

Dec	LHA 105° / 255°	LHA 106° / 254°	LHA 107° / 253°	LHA 108° / 252°	LHA 109° / 251°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-9 22.4 +47.2	-9 59.4 +47.4	-9 48.7 +47.6		
1°	-8 35.2 +47.4	-9 12.0 +47.5	-9 01.1 +47.6	-9 37.6 +47.7	
2°	-7 47.8 +47.4	-8 24.5 +47.5	-8 13.5 +47.6	-8 49.9 +47.8	-9 26.1 +47.9
3°	-7 00.4 +47.5	-7 37.0 +47.5	-7 25.9 +47.7	-8 02.1 +47.8	-8 38.2 +47.9
4°	-6 12.9 +47.5	-6 49.5 +47.6			
5°	-5 25.4 +47.5	-6 01.9 +47.7	-6 38.2 +47.8	-7 14.3 +47.9	-7 50.3 +48.0
6°	-4 37.9 +47.6	-5 14.2 +47.6	-5 50.4 +47.8	-6 26.4 +47.9	-7 02.3 +48.1
7°	-3 50.3 +47.5	-4 26.6 +47.7	-5 02.6 +47.8	-5 38.5 +47.9	-6 14.2 +48.0
8°	-3 02.8 +47.7	-3 38.9 +47.8	-4 14.8 +47.9	-4 50.6 +48.0	-5 26.2 +48.2
9°	-2 15.1 +47.6	-2 51.1 +47.7	-3 26.9 +47.8	-4 02.6 +48.0	-4 38.0 +48.1
10°	-1 27.5 +47.6	-2 03.4 +47.8	-2 39.1 +47.9	-3 14.6 +48.1	-3 49.9 +48.2
11°	-0 39.9 +47.7	-1 15.6 +47.8	-1 51.2 +48.0	-2 26.5 +48.0	-3 01.7 +48.2
12°	0 07.8 +47.6 70.9	-0 27.8 +47.7	-1 03.2 +47.9	-1 38.5 +48.1	-2 13.5 +48.2
13°	0 55.4 +47.6 70.3	0 19.9 +47.8 69.5	-0 15.3 +47.9	-0 50.4 +48.0	-1 25.3 +48.2
14°	1 43.0 +47.7 69.7	1 07.7 +47.8 68.9	0 32.6 +47.9 68.1	-0 02.4 +48.1	-0 37.1 +48.2
15°	2 30.7 +47.6 69.1	1 55.5 +47.7 68.3	1 20.5 +47.9 67.5	0 45.7 +48.1 66.7	0 11.1 +48.2 66.0
16°	3 18.3 +47.5 68.4	2 43.2 +47.8 67.7	2 08.4 +47.9 66.9	1 33.8 +48.0 66.1	0 59.3 +48.3 65.4
17°	4 05.8 +47.6 67.8	3 31.0 +47.7 67.1	2 56.3 +47.9 66.3	2 21.8 +48.1 65.5	1 47.6 +48.2 64.8
18°	4 53.4 +47.5 67.2	4 18.7 +47.7 66.5	3 44.2 +47.8 65.7	3 09.9 +48.0 64.9	2 35.8 +48.1 64.2
19°	5 40.9 +47.5 66.6	5 06.4 +47.6 65.9	4 32.0 +47.8 65.1	3 57.9 +48.0 64.3	3 23.9 +48.2 63.6
20°	6 28.4 +47.4 66.0	5 54.0 +47.6 65.2	5 19.8 +47.8 64.5	4 45.9 +47.9 63.7	4 12.1 +48.1 63.0
21°	7 15.8 +47.4 65.4	6 41.6 +47.6 64.6	6 07.6 +47.7 63.9	5 33.8 +47.9 63.1	5 00.2 +48.1 62.4
22°	8 03.2 +47.4 64.8	7 29.2 +47.5 64.0	6 55.3 +47.7 63.3	6 21.7 +47.9 62.5	5 48.3 +48.1 61.8
23°	8 50.6 +47.2 64.1	8 16.7 +47.4 63.4	7 43.0 +47.7 62.7	7 09.6 +47.8 61.9	6 36.4 +48.0 61.2
24°	9 37.8 +47.2 63.5	9 04.1 +47.4 62.8	8 30.7 +47.6 62.0	7 57.4 +47.8 61.3	7 24.4 +48.0 60.6
25°	10 25.0 +47.2 62.9	9 51.5 +47.4 62.2	9 18.3 +47.5 61.4	8 45.2 +47.7 60.7	8 12.4 +47.9 60.0
26°	11 12.2 +47.0 62.3	10 38.9 +47.2 61.5	10 05.8 +47.4 60.8	9 32.9 +47.7 60.1	9 00.3 +47.9 59.4
27°	11 59.2 +47.0 61.6	11 26.1 +47.2 60.9	10 53.2 +47.4 60.2	10 20.6 +47.6 59.5	9 48.2 +47.8 58.8
28°	12 46.2 +46.9 61.0	12 13.3 +47.1 60.3	11 40.6 +47.3 59.6	11 08.2 +47.5 58.9	10 36.0 +47.7 58.1
29°	13 33.1 +46.7 60.3	13 00.4 +46.9 59.6	12 27.9 +47.2 58.9	11 55.7 +47.4 58.2	11 23.7 +47.6 57.5

Dec	LHA 110° / 250°	LHA 111° / 249°	LHA 112° / 248°	LHA 113° / 247°	LHA 114° / 246°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°	-9 14.2 +48.1	-9 49.9 +48.1			
5°	-8 26.1 +48.1	-9 01.8 +48.3	-9 37.2 +48.4		
6°	-7 38.0 +48.2	-8 13.5 +48.3	-8 48.8 +48.4	-9 24.0 +48.6	-9 58.9 +48.8
7°	-6 49.8 +48.2	-7 25.2 +48.4	-8 00.4 +48.5	-8 35.4 +48.7	-9 10.1 +48.8
8°	-6 01.6 +48.3	-6 36.8 +48.4	-7 11.9 +48.6	-7 46.7 +48.7	-8 21.3 +48.8
9°	-5 13.3 +48.3	-5 48.4 +48.4	-6 23.3 +48.6	-6 58.0 +48.7	-7 32.5 +48.9
10°	-4 25.0 +48.3	-5 00.0 +48.5	-5 34.7 +48.6	-6 09.3 +48.8	-6 43.6 +49.0
11°	-3 36.7 +48.3	-4 11.5 +48.5	-4 46.1 +48.6	-5 20.5 +48.8	-5 54.6 +48.9
12°	-2 48.4 +48.4	-3 23.0 +48.5	-3 57.5 +48.7	-4 31.7 +48.9	-5 05.7 +49.0
13°	-2 00.0 +48.4	-2 34.5 +48.5	-3 08.8 +48.7	-3 42.8 +48.8	-4 16.7 +49.1
14°	-1 11.6 +48.3	-1 46.0 +48.6	-2 20.1 +48.7	-2 54.0 +48.9	-3 27.6 +49.0
15°	-0 23.3 +48.4	-0 57.4 +48.5	-1 31.4 +48.8	-2 05.1 +48.9	-2 38.6 +49.1
16°	0 25.1 +48.4 64.6	-0 08.9 +48.6	-0 42.6 +48.7	-1 16.2 +48.9	-1 49.5 +49.1
17°	1 13.5 +48.4 64.0	0 39.7 +48.5 63.2	0 06.1 +48.7 62.5	-0 27.3 +48.9	-1 00.4 +49.1
18°	2 01.9 +48.3 63.4	1 28.2 +48.6 62.6	0 54.8 +48.7 61.9	0 21.6 +48.9 61.1	-0 11.3 +49.1
19°	2 50.2 +48.4 62.8	2 16.8 +48.5 62.1	1 43.5 +48.7 61.3	1 10.5 +48.9 60.5	0 37.8 +49.1 59.7
20°	3 38.6 +48.3 62.2	3 05.3 +48.5 61.5	2 32.2 +48.7 60.7	1 59.4 +48.9 59.9	1 26.9 +49.1 59.2
21°	4 26.9 +48.3 61.6	3 53.8 +48.5 60.9	3 20.9 +48.7 60.1	2 48.3 +48.9 59.4	2 16.0 +49.0 58.6
22°	5 15.2 +48.2 61.0	4 42.3 +48.4 60.3	4 09.6 +48.6 59.5	3 37.2 +48.8 58.8	3 05.0 +49.1 58.0
23°	6 03.4 +48.3 60.4	5 30.7 +48.4 59.7	4 58.2 +48.7 58.9	4 26.0 +48.8 58.2	3 54.1 +49.0 57.4
24°	6 51.7 +48.1 59.8	6 19.1 +48.4 59.1	5 46.9 +48.5 58.4	5 14.8 +48.8 57.6	4 43.1 +49.0 56.9
25°	7 39.8 +48.2 59.2	7 07.5 +48.3 58.5	6 35.4 +48.6 57.8	6 03.6 +48.8 57.0	5 32.1 +49.0 56.3
26°	8 28.0 +48.0 58.6	7 55.8 +48.3 57.9	7 24.0 +48.5 57.2	6 52.4 +48.7 56.4	6 21.1 +48.9 55.7
27°	9 16.0 +48.0 58.0	8 44.1 +48.2 57.3	8 12.5 +48.4 56.6	7 41.1 +48.6 55.9	7 10.0 +48.9 55.1
28°	10 04.0 +48.0 57.4	9 32.3 +48.2 56.7	9 00.9 +48.4 56.0	8 29.7 +48.6 55.3	7 58.9 +48.8 54.5
29°	10 52.0 +47.8 56.8	10 20.5 +48.1 56.1	9 49.3 +48.3 55.4	9 18.3 +48.6 54.7	8 47.7 +48.8 54.0

Dec	LHA 115° / 245°	LHA 116° / 244°	LHA 117° / 243°	LHA 118° / 242°	LHA 119° / 241°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°	-9 44.7 +48.9				
8°	-8 55.8 +49.1	-9 30.0 +49.2			
9°	-8 06.7 +49.0	-8 40.8 +49.3	-9 14.6 +49.4	-9 48.1 +49.6	
10°	-7 17.7 +49.1	-7 51.5 +49.2	-8 25.2 +49.5	-8 58.5 +49.6	-9 31.6 +49.8
11°	-6 28.6 +49.2	-7 02.3 +49.4	-7 35.7 +49.5	-8 08.9 +49.7	-8 41.8 +49.8
12°	-5 39.4 +49.2	-6 12.9 +49.3	-6 46.2 +49.5	-7 19.2 +49.7	-7 52.0 +50.0
13°	-4 50.2 +49.2	-5 23.6 +49.4	-5 56.7 +49.6	-6 29.5 +49.8	-7 02.0 +49.9
14°	-4 01.0 +49.2	-4 34.2 +49.4	-5 07.1 +49.6	-5 39.7 +49.8	-6 12.1 +50.0
15°	-3 11.8 +49.3	-3 44.8 +49.5	-4 17.5 +49.6	-4 49.9 +49.8	-5 22.1 +50.0
16°	-2 22.5 +49.2	-2 55.3 +49.4	-3 27.9 +49.7	-4 00.1 +49.8	-4 32.1 +50.0
17°	-1 33.3 +49.3	-2 05.9 +49.5	-2 38.2 +49.6	-3 10.3 +49.9	-3 42.1 +50.1
18°	-0 44.0 +49.3	-1 16.4 +49.5	-1 48.6 +49.7	-2 20.4 +49.8	-2 52.0 +50.1
19°	0 05.3 +49.3 59.0	-0 26.9 +49.5	-0 58.9 +49.7	-1 30.6 +49.9	-2 01.9 +50.0
20°	0 54.6 +49.3 58.4	0 22.6 +49.4 57.6	-0 09.2 +49.7	-0 40.7 +49.9	-1 11.9 +50.1
21°	1 43.9 +49.2 57.8	1 12.0 +49.5 57.1	0 40.5 +49.7 56.3	0 09.2 +49.9 55.5	-0 21.8 +50.1
22°	2 33.1 +49.3 57.3	2 01.5 +49.5 56.5	1 30.2 +49.6 55.7	0 59.1 +49.9 55.0	0 28.3 +50.1 54.2
23°	3 22.4 +49.2 56.7	2 51.0 +49.4 55.9	2 19.8 +49.7 55.2	1 49.0 +49.8 54.4	1 18.4 +50.1 53.6
24°	4 11.6 +49.2 56.1	3 40.4 +49.4 55.4	3 09.5 +49.6 54.6	2 38.8 +49.9 53.8	2 08.5 +50.1 53.1
25°	5 00.8 +49.2 55.5	4 29.8 +49.4 54.8	3 59.1 +49.6 54.0	3 28.7 +49.8 53.3	2 58.6 +50.0 52.5
26°	5 50.0 +49.1 55.0	5 19.2 +49.4 54.2	4 48.7 +49.6 53.5	4 18.5 +49.8 52.7	3 48.6 +50.1 52.0
27°	6 39.1 +49.1 54.4	6 08.6 +49.3 53.7	5 38.3 +49.6 52.9	5 08.3 +49.8 52.2	4 38.7 +50.0 51.4
28°	7 28.2 +49.1 53.8	6 57.9 +49.3 53.1	6 27.9 +49.5 52.3	5 58.1 +49.8 51.6	5 28.7 +49.9 50.9
29°	8 17.3 +49.0 53.2	7 47.2 +49.2 52.5	7 17.4 +49.4 51.8	6 47.9 +49.7 51.1	6 18.6 +50.0 50.3

Dec	LHA 120° / 240°	LHA 121° / 239°	LHA 122° / 238°	LHA 123° / 237°	LHA 124° / 236°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°	-9 14.5 +50.1	-9 46.9 +50.3			
12°	-8 24.4 +50.1	-8 56.6 +50.3	-9 28.5 +50.5		
13°	-7 34.3 +50.1	-8 06.3 +50.3	-8 38.0 +50.5	-9 09.4 +50.7	-9 40.5 +50.9
14°	-6 44.2 +50.2	-7 16.0 +50.4	-7 47.5 +50.6	-8 18.7 +50.8	-8 49.6 +51.0
15°	-5 54.0 +50.2	-6 25.6 +50.4	-6 56.9 +50.6	-7 27.9 +50.8	-7 58.6 +51.0
16°	-5 03.8 +50.2	-5 35.2 +50.4	-6 06.3 +50.6	-6 37.1 +50.8	-7 07.6 +51.0
17°	-4 13.6 +50.3	-4 44.8 +50.5	-5 15.7 +50.7	-5 46.3 +50.9	-6 16.6 +51.1
18°	-3 23.3 +50.3	-3 54.3 +50.5	-4 25.0 +50.7	-4 55.4 +50.9	-5 25.5 +51.1
19°	-2 33.0 +50.3	-3 03.8 +50.5	-3 34.3 +50.7	-4 04.5 +50.9	-4 34.4 +51.2
20°	-1 42.7 +50.3	-2 13.3 +50.5	-2 43.6 +50.7	-3 13.6 +51.0	-3 43.2 +51.1
21°	-0 52.4 +50.3	-1 22.8 +50.5	-1 52.9 +50.7	-2 22.6 +50.9	-2 52.1 +51.2
22°	-0 02.1 +50.3	-0 32.3 +50.5	-1 02.2 +50.8	-1 31.7 +51.0	-2 00.9 +51.2
23°	0 48.2 +50.3 52.9	0 18.2 +50.5 52.1	-0 11.4 +50.7	-0 40.7 +50.9	-1 09.7 +51.2
24°	1 38.5 +50.3 52.3	1 08.7 +50.5 51.6	0 39.3 +50.8 50.8	0 10.2 +51.0 50.0	-0 18.5 +51.1
25°	2 28.8 +50.2 51.8	1 59.2 +50.5 51.0	1 30.1 +50.7 50.3	1 01.2 +50.9 49.5	0 32.6 +51.2 48.7
26°	3 19.0 +50.3 51.2	2 49.7 +50.5 50.5	2 20.8 +50.7 49.7	1 52.1 +51.0 49.0	1 23.8 +51.2 48.2
27°	4 09.3 +50.2 50.7	3 40.2 +50.5 49.9	3 11.5 +50.7 49.2	2 43.1 +50.9 48.4	2 15.0 +51.2 47.7
28°	4 59.5 +50.2 50.1	4 30.7 +50.4 49.4	4 02.2 +50.7 48.6	3 34.0 +50.9 47.9	3 06.2 +51.1 47.1
29°	5 49.7 +50.2 49.6	5 21.1 +50.5 48.8	4 52.9 +50.6 48.1	4 24.9 +50.9 47.4	3 57.3 +51.2 46.6

Dec	LHA 125° / 235°	LHA 126° / 234°	LHA 127° / 233°	LHA 128° / 232°	LHA 129° / 231°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°	-9 20.2 +51.2	-9 50.4 +51.4			
15°	-8 29.0 +51.2	-8 59.0 +51.4	-9 28.8 +51.7	-9 58.1 +51.9	
16°	-7 37.8 +51.3	-8 07.6 +51.5	-8 37.1 +51.7	-9 06.2 +51.9	-9 35.0 +52.1
17°	-6 46.5 +51.3	-7 16.1 +51.5	-7 45.4 +51.7	-8 14.3 +51.9	-8 42.9 +52.1
18°	-5 55.2 +51.3	-6 24.6 +51.5	-6 53.7 +51.8	-7 22.4 +52.0	-7 50.8 +52.2
19°	-5 03.9 +51.4	-5 33.1 +51.6	-6 01.9 +51.8	-6 30.4 +52.0	-6 58.6 +52.3
20°	-4 12.5 +51.3	-4 41.5 +51.6	-5 10.1 +51.8	-5 38.4 +52.0	-6 06.3 +52.2
21°	-3 21.2 +51.4	-3 49.9 +51.6	-4 18.3 +51.8	-4 46.4 +52.1	-5 14.1 +52.3
22°	-2 29.8 +51.4	-2 58.3 +51.6	-3 26.5 +51.8	-3 54.3 +52.0	-4 21.8 +52.3
23°	-1 38.4 +51.4	-2 06.7 +51.6	-2 34.7 +51.9	-3 02.3 +52.1	-3 29.5 +52.3
24°	-0 47.0 +51.4	-1 15.1 +51.7	-1 42.8 +51.9	-2 10.2 +52.1	-2 37.2 +52.3
25°	0 04.4 +51.5 47.9	-0 23.4 +51.6	-0 50.9 +51.8	-1 18.1 +52.1	-1 44.9 +52.4
26°	0 55.9 +51.4 47.4	0 28.2 +51.7 46.6	0 00.9 +51.9 45.9	-0 26.0 +52.1	-0 52.5 +52.3
27°	1 47.3 +51.4 46.9	1 19.9 +51.6 46.1	0 52.8 +51.9 45.4	0 26.1 +52.1 44.6	-0 00.2 +52.3
28°	2 38.7 +51.3 46.4	2 11.5 +51.6 45.6	1 44.7 +51.8 44.9	1 18.2 +52.1 44.1	0 52.1 +52.4 43.3
29°	3 30.0 +51.4 45.9	3 03.1 +51.6 45.1	2 36.5 +51.9 44.4	2 10.3 +52.1 43.6	1 44.5 +52.3 42.8

# Latitude 51°

# Declination SAME name as Latitude

Dec	LHA 130° / 230°	LHA 131° / 229°	LHA 132° / 228°	LHA 133° / 227°	LHA 134° / 226°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°	-9 11.1 +52.4	-9 39.0 +52.6			
18°	-8 18.7 +52.4	-8 46.4 +52.7	-9 13.6 +52.9	-9 40.4 +53.1	
19°	-7 26.3 +52.4	-7 53.7 +52.6	-8 20.7 +52.9	-8 47.3 +53.1	-9 13.6 +53.4
20°	-6 33.9 +52.5	-7 01.1 +52.7	-7 27.8 +52.9	-7 54.2 +53.1	-8 20.2 +53.3
21°	-5 41.4 +52.5	-6 08.4 +52.8	-6 34.9 +52.9	-7 01.1 +53.2	-7 26.9 +53.4
22°	-4 48.9 +52.5	-5 15.6 +52.7	-5 42.0 +53.0	-6 07.9 +53.2	-6 33.5 +53.5
23°	-3 56.4 +52.6	-4 22.9 +52.8	-4 49.0 +53.0	-5 14.7 +53.2	-5 40.0 +53.4
24°	-3 03.8 +52.5	-3 30.1 +52.8	-3 56.0 +53.0	-4 21.5 +53.2	-4 46.6 +53.5
25°	-2 11.3 +52.6	-2 37.3 +52.7	-3 03.0 +53.0	-3 28.3 +53.3	-3 53.1 +53.4
26°	-1 18.7 +52.5	-1 44.6 +52.8	-2 10.0 +53.0	-2 35.0 +53.2	-2 59.7 +53.5
27°	-0 26.2 +52.6	-0 51.8 +52.8	-1 17.0 +53.1	-1 41.8 +53.3	-2 06.2 +53.5
28°	0 26.4 +52.6 42.6	0 01.0 +52.8 41.8	-0 23.9 +53.0	-0 48.5 +53.3	-1 12.7 +53.5
29°	1 19.0 +52.5 42.1	0 53.8 +52.8 41.3	0 29.1 +53.0 40.5	0 04.8 +53.2 39.8	-0 19.2 +53.5

Dec	LHA 135° / 225°	LHA 136° / 224°	LHA 137° / 223°	LHA 138° / 222°	LHA 139° / 221°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	38 00.0 +60.0 180.0	37 59.6 +60.0 178.7	37 58.4 +59.9 177.5	37 56.3 +60.0 176.2	37 53.5 +59.9 174.9
1°	39 00.0 +60.0 180.0	38 59.6 +60.0 178.7	38 58.3 +60.0 177.4	38 56.3 +59.9 176.1	38 53.4 +59.9 174.9
2°	40 00.0 +60.0 180.0	39 59.6 +60.0 178.7	39 58.3 +60.0 177.4	39 56.2 +60.0 176.1	39 53.3 +59.9 174.8
3°	41 00.0 +60.0 180.0	40 59.6 +60.0 178.7	40 58.3 +60.0 177.4	40 56.2 +59.9 176.0	40 53.2 +59.9 174.7
4°	42 00.0 +60.0 180.0	41 59.6 +60.0 178.7	41 58.3 +59.9 177.3	41 56.1 +60.0 176.0	41 53.1 +59.9 174.6
5°	43 00.0 +60.0 180.0	42 59.6 +60.0 178.6	42 58.2 +60.0 177.3	42 56.1 +59.9 175.9	42 53.0 +59.9 174.6
6°	44 00.0 +60.0 180.0	43 59.6 +59.9 178.6	43 58.2 +60.0 177.2	43 56.0 +59.9 175.9	43 52.9 +59.9 174.5
7°	45 00.0 +60.0 180.0	44 59.5 +60.0 178.6	44 58.2 +60.0 177.2	44 55.9 +60.0 175.8	44 52.8 +59.9 174.4
8°	46 00.0 +60.0 180.0	45 59.5 +60.0 178.6	45 58.2 +59.9 177.1	45 55.9 +59.9 175.7	45 52.7 +59.8 174.3
9°	47 00.0 +60.0 180.0	46 59.5 +60.0 178.6	46 58.1 +60.0 177.1	46 55.8 +59.9 175.7	46 52.5 +59.9 174.2
10°	48 00.0 +60.0 180.0	47 59.5 +60.0 178.5	47 58.1 +60.0 177.1	47 55.7 +60.0 175.6	47 52.4 +59.9 174.1
11°	49 00.0 +60.0 180.0	48 59.5 +60.0 178.5	48 58.1 +59.9 177.0	48 55.7 +59.9 175.5	48 52.3 +59.9 174.0
12°	50 00.0 +60.0 180.0	49 59.5 +60.0 178.5	49 58.0 +60.0 177.0	49 55.6 +59.9 175.4	49 52.2 +59.8 173.9
13°	51 00.0 +60.0 180.0	50 59.5 +60.0 178.5	50 58.0 +60.0 176.9	50 55.5 +59.9 175.4	50 52.0 +59.9 173.8
14°	52 00.0 +60.0 180.0	51 59.5 +60.0 178.4	51 58.0 +59.9 176.8	51 55.4 +59.9 175.3	51 51.9 +59.8 173.7
15°	53 00.0 +60.0 180.0	52 59.5 +60.0 178.4	52 57.9 +60.0 176.8	52 55.3 +60.0 175.2	52 51.7 +59.9 173.6
16°	54 00.0 +60.0 180.0	53 59.5 +60.0 178.4	53 57.9 +60.0 176.7	53 55.3 +59.9 175.1	53 51.6 +59.8 173.5
17°	55 00.0 +60.0 180.0	54 59.5 +60.0 178.3	54 57.9 +59.9 176.7	54 55.2 +59.9 175.0	54 51.4 +59.8 173.3
18°	56 00.0 +60.0 180.0	55 59.5 +59.9 178.3	55 57.8 +60.0 176.6	55 55.1 +59.9 174.9	55 51.2 +59.9 173.2
19°	57 00.0 +60.0 180.0	56 59.4 +60.0 178.3	56 57.8 +59.9 176.5	56 55.0 +59.9 174.8	56 51.1 +59.8 173.1
20°	58 00.0 +60.0 180.0	57 59.4 +60.0 178.2	57 57.7 +60.0 176.5	57 54.9 +59.8 174.7	57 50.9 +59.8 172.9
21°	59 00.0 +60.0 180.0	58 59.4 +60.0 178.2	58 57.7 +59.9 176.4	58 54.7 +59.9 174.6	58 50.7 +59.8 172.8
22°	60 00.0 +60.0 180.0	59 59.4 +60.0 178.1	59 57.6 +60.0 176.3	59 54.6 +59.9 174.4	59 50.5 +59.7 172.6
23°	61 00.0 +60.0 180.0	60 59.4 +60.0 178.1	60 57.6 +59.9 176.2	60 54.5 +59.9 174.3	60 50.2 +59.8 172.4
24°	62 00.0 +60.0 180.0	61 59.4 +60.0 178.1	61 57.5 +59.9 176.1	61 54.4 +59.8 174.2	61 50.0 +59.7 172.2
25°	63 00.0 +60.0 180.0	62 59.4 +59.9 178.0	62 57.4 +60.0 176.0	62 54.2 +59.9 174.0	62 49.7 +59.8 172.0
26°	64 00.0 +60.0 180.0	63 59.3 +60.0 178.0	63 57.4 +59.9 175.9	63 54.1 +59.8 173.9	63 49.5 +59.7 171.8
27°	65 00.0 +60.0 180.0	64 59.3 +60.0 177.9	64 57.3 +59.9 175.8	64 53.9 +59.8 173.7	64 49.2 +59.6 171.6
28°	66 00.0 +60.0 180.0	65 59.3 +60.0 177.8	65 57.2 +59.9 175.7	65 53.7 +59.8 173.5	65 48.8 +59.7 171.4
29°	67 00.0 +60.0 180.0	66 59.3 +60.0 177.8	66 57.1 +59.9 175.5	66 53.5 +59.8 173.3	66 48.5 +59.6 171.1

Dec	LHA 005° / 355°	LHA 006° / 354°	LHA 007° / 353°	LHA 008° / 352°	LHA 009° / 351°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	37 49.8 +59.9 173.7	37 45.3 +59.8 172.4	37 40.0 +59.8 171.1	37 33.9 +59.7 169.9	37 27.1 +59.5 168.6
1°	38 49.7 +59.8 173.6	38 45.1 +59.8 172.3	38 39.8 +59.7 171.0	38 33.6 +59.6 169.7	38 26.6 +59.5 168.5
2°	39 49.5 +59.9 173.5	39 44.9 +59.8 172.2	39 39.5 +59.7 170.9	39 33.2 +59.6 169.6	39 26.1 +59.6 168.3
3°	40 49.4 +59.8 173.4	40 44.7 +59.8 172.1	40 39.2 +59.7 170.8	40 32.8 +59.6 169.5	40 25.7 +59.5 168.2
4°	41 49.2 +59.8 173.3	41 44.5 +59.7 172.0	41 38.9 +59.7 170.6	41 32.4 +59.6 169.3	41 25.2 +59.5 168.0
5°	42 49.0 +59.9 173.2	42 44.2 +59.8 171.8	42 38.6 +59.7 170.5	42 32.0 +59.6 169.2	42 24.7 +59.5 167.8
6°	43 48.9 +59.8 173.1	43 44.0 +59.8 171.7	43 38.3 +59.6 170.4	43 31.6 +59.6 169.0	43 24.2 +59.4 167.6
7°	44 48.7 +59.8 173.0	44 43.8 +59.7 171.6	44 37.9 +59.7 170.2	44 31.2 +59.6 168.8	44 23.6 +59.5 167.4
8°	45 48.5 +59.9 172.9	45 43.5 +59.8 171.5	45 37.6 +59.6 170.1	45 30.8 +59.5 168.7	45 23.1 +59.4 167.3
9°	46 48.4 +59.8 172.8	46 43.3 +59.7 171.3	46 37.2 +59.7 169.9	46 30.3 +59.5 168.5	46 22.5 +59.4 167.1
10°	47 48.2 +59.8 172.7	47 43.0 +59.7 171.2	47 36.9 +59.6 169.7	47 29.8 +59.5 168.3	47 21.9 +59.4 166.9
11°	48 48.0 +59.8 172.5	48 42.7 +59.7 171.1	48 36.5 +59.6 169.6	48 29.3 +59.5 168.1	48 21.3 +59.3 166.6
12°	49 47.8 +59.8 172.4	49 42.4 +59.7 170.9	49 36.1 +59.6 169.4	49 28.8 +59.5 167.9	49 20.6 +59.3 166.4
13°	50 47.6 +59.7 172.3	50 42.1 +59.7 170.7	50 35.7 +59.6 169.2	50 28.3 +59.4 167.7	50 19.9 +59.3 166.2
14°	51 47.3 +59.8 172.1	51 41.8 +59.7 170.6	51 35.3 +59.5 169.0	51 27.7 +59.4 167.5	51 19.2 +59.3 165.9
15°	52 47.1 +59.8 172.0	52 41.5 +59.6 170.4	52 34.8 +59.5 168.8	52 27.1 +59.4 167.3	52 18.5 +59.2 165.7
16°	53 46.9 +59.7 171.8	53 41.1 +59.6 170.2	53 34.3 +59.5 168.6	53 26.5 +59.4 167.0	53 17.7 +59.2 165.4
17°	54 46.6 +59.7 171.7	54 40.7 +59.7 170.0	54 33.8 +59.5 168.4	54 25.9 +59.3 166.8	54 16.9 +59.2 165.2
18°	55 46.3 +59.8 171.5	55 40.4 +59.6 169.8	55 33.3 +59.5 168.2	55 25.2 +59.3 166.5	55 16.1 +59.1 164.9
19°	56 46.1 +59.7 171.4	56 40.0 +59.5 169.6	56 32.8 +59.4 167.9	56 24.5 +59.3 166.2	56 15.2 +59.1 164.6
20°	57 45.8 +59.7 171.2	57 39.5 +59.6 169.4	57 32.2 +59.4 167.7	57 23.8 +59.2 166.0	57 14.3 +59.0 164.2
21°	58 45.5 +59.6 171.0	58 39.1 +59.5 169.2	58 31.6 +59.4 167.4	58 23.0 +59.2 165.6	58 13.3 +59.0 163.9
22°	59 45.1 +59.7 170.8	59 38.6 +59.5 168.9	59 31.0 +59.3 167.1	59 22.2 +59.1 165.3	59 12.3 +58.8 163.5
23°	60 44.8 +59.6 170.6	60 38.1 +59.5 168.7	60 30.3 +59.3 166.8	60 21.3 +59.0 165.0	60 11.1 +58.9 163.2
24°	61 44.4 +59.6 170.3	61 37.6 +59.4 168.4	61 29.6 +59.2 166.5	61 20.3 +59.1 164.6	61 10.0 +58.7 162.8
25°	62 44.0 +59.6 170.1	62 37.0 +59.4 168.1	62 28.8 +59.2 166.2	62 19.4 +58.9 164.2	62 08.7 +58.7 162.3
26°	63 43.6 +59.5 169.8	63 36.4 +59.3 167.8	63 28.0 +59.1 165.8	63 18.3 +58.8 163.8	63 07.4 +58.6 161.9
27°	64 43.1 +59.5 169.5	64 35.7 +59.3 167.5	64 27.1 +59.0 165.4	64 17.1 +58.8 163.4	64 06.0 +58.4 161.4
28°	65 42.6 +59.5 169.2	65 35.0 +59.3 167.1	65 26.1 +59.0 165.0	65 15.9 +58.7 162.9	65 04.4 +58.4 160.9
29°	66 42.1 +59.4 168.9	66 34.3 +59.1 166.7	66 25.1 +58.9 164.5	66 14.6 +58.6 162.4	66 02.8 +58.2 160.3

Dec	LHA 010° / 350°	LHA 011° / 349°	LHA 012° / 348°	LHA 013° / 347°	LHA 014° / 346°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	37 19.4 +59.4 167.4	37 10.9 +59.4 166.1	37 01.7 +59.2 164.9	36 51.7 +59.1 163.7	36 40.9 +59.0 162.4
1°	38 18.8 +59.5 167.2	38 10.3 +59.3 166.0	38 00.9 +59.2 164.7	37 50.8 +59.0 163.5	37 39.9 +58.9 162.2
2°	39 18.3 +59.4 167.0	39 09.6 +59.3 165.8	39 00.1 +59.2 164.5	38 49.8 +59.1 163.2	38 38.8 +58.9 162.0
3°	40 17.7 +59.4 166.9	40 08.9 +59.3 165.6	39 59.3 +59.1 164.3	39 48.9 +59.0 163.0	39 37.7 +58.8 161.7
4°	41 17.1 +59.4 166.7	41 08.2 +59.2 165.4	40 58.4 +59.1 164.1	40 47.9 +58.9 162.8	40 36.5 +58.8 161.5
5°	42 16.5 +59.3 166.5	42 07.4 +59.2 165.2	41 57.5 +59.1 163.8	41 46.8 +59.0 162.5	41 35.3 +58.8 161.2
6°	43 15.8 +59.4 166.3	43 06.6 +59.2 164.9	42 56.6 +59.1 163.6	42 45.8 +58.9 162.3	42 34.1 +58.7 160.9
7°	44 15.2 +59.3 166.1	44 05.8 +59.2 164.7	43 55.7 +59.0 163.3	43 44.7 +58.8 162.0	43 32.8 +58.7 160.7
8°	45 14.5 +59.3 165.9	45 05.0 +59.2 164.5	44 54.7 +59.0 163.1	44 43.5 +58.9 161.7	44 31.5 +58.7 160.4
9°	46 13.8 +59.2 165.6	46 04.2 +59.1 164.2	45 53.7 +59.0 162.8	45 42.4 +58.8 161.4	45 30.2 +58.6 160.1
10°	47 13.0 +59.3 165.4	47 03.3 +59.1 164.0	46 52.7 +58.9 162.6	46 41.2 +58.7 161.2	46 28.8 +58.6 159.8
11°	48 12.3 +59.2 165.2	48 02.4 +59.0 163.7	47 51.6 +58.9 162.3	47 39.9 +58.7 160.9	47 27.4 +58.5 159.4
12°	49 11.5 +59.2 164.9	49 01.4 +59.0 163.5	48 50.5 +58.8 162.0	48 38.6 +58.6 160.5	48 25.9 +58.4 159.1
13°	50 10.7 +59.1 164.7	50 00.4 +59.0 163.2	49 49.3 +58.8 161.7	49 37.2 +58.6 160.2	49 24.3 +58.4 158.8
14°	51 09.8 +59.1 164.4	50 59.4 +58.9 162.9	50 48.1 +58.7 161.4	50 35.8 +58.5 159.9	50 22.7 +58.3 158.4
15°	52 08.9 +59.1 164.1	51 58.3 +58.9 162.6	51 46.8 +58.7 161.1	51 34.3 +58.5 159.5	51 21.0 +58.2 158.0
16°	53 08.0 +59.0 163.8	52 57.2 +58.8 162.3	52 45.5 +58.6 160.7	52 32.8 +58.4 159.2	52 19.2 +58.2 157.6
17°	54 07.0 +58.9 163.5	53 56.0 +58.8 161.9	53 44.1 +58.5 160.4	53 31.2 +58.3 158.8	53 17.4 +58.0 157.2
18°	55 05.9 +59.0 163.2	54 54.8 +58.7 161.6	54 42.6 +58.5 160.0	54 29.5 +58.2 158.4	54 15.4 +58.0 156.8
19°	56 04.9 +58.8 162.9	55 53.5 +58.6 161.2	55 41.1 +58.4 159.6	55 27.7 +58.2 158.0	55 13.4 +57.9 156.4
20°	57 03.7 +58.8 162.5	56 52.1 +58.6 160.8	56 39.5 +58.3 159.2	56 25.9 +58.0 157.5	56 11.3 +57.7 155.9
21°	58 02.5 +58.7 162.2	57 50.7 +58.5 160.4	57 37.8 +58.2 158.7	57 23.9 +57.9 157.1	57 09.0 +57.6 155.4
22°	59 01.2 +58.7 161.8	58 49.2 +58.3 160.0	58 36.0 +58.1 158.3	58 21.8 +57.8 156.6	58 06.6 +57.5 154.9
23°	59 59.9 +58.6 161.4	59 47.5 +58.3 159.6	59 34.1 +58.0 157.8	59 19.6 +57.7 156.1	59 04.1 +57.4 154.3
24°	60 58.5 +58.4 160.9	60 45.8 +58.2 159.1	60 32.1 +57.9 157.3	60 17.3 +57.5 155.5	60 01.5 +57.2 153.7
25°	61 56.9 +58.4 160.4	61 44.0 +58.1 158.6	61 30.0 +57.7 156.7	61 14.8 +57.4 154.9	60 58.7 +57.0 153.1
26°	62 55.3 +58.3 159.9	62 42.1 +57.9 158.0	62 27.7 +57.6 156.2	62 12.2 +57.2 154.3	61 55.7 +56.8 152.5
27°	63 53.6 +58.1 159.4	63 40.0 +57.8 157.5	63 25.3 +57.4 155.5	63 09.4 +57.0 153.6	62 52.5 +56.6 151.8
28°	64 51.7 +58.0 158.8	64 37.8 +57.6 156.8	64 22.7 +57.2 154.9	64 06.4 +56.8 152.9	63 49.1 +56.3 151.0
29°	65 49.7 +57.8 158.2	65 35.4 +57.4 156.2	65 19.9 +57.0 154.2	65 03.2 +56.6 152.2	64 45.4 +56.1 150.3

Dec	LHA 015° / 345°	LHA 016° / 344°	LHA 017° / 343°	LHA 018° / 342°	LHA 019° / 341°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	36 29.4 +58.8 161.2	36 17.1 +58.7 160.0	36 04.1 +58.5 158.8	35 50.4 +58.3 157.6	35 36.0 +58.1 156.4
1°	37 28.2 +58.8 161.0	37 15.8 +58.6 159.7	37 02.6 +58.5 158.5	36 48.7 +58.3 157.3	36 34.1 +58.1 156.1
2°	38 27.0 +58.7 160.7	38 14.4 +58.5 159.5	38 01.1 +58.3 158.2	37 47.0 +58.2 157.0	37 32.2 +58.0 155.8
3°	39 25.7 +58.7 160.5	39 12.9 +58.6 159.2	38 59.4 +58.4 157.9	38 45.2 +58.2 156.7	38 30.2 +58.0 155.5
4°	40 24.4 +58.6 160.2	40 11.5 +58.4 158.9	39 57.8 +58.3 157.6	39 43.4 +58.1 156.4	39 28.2 +57.9 155.1
5°	41 23.0 +58.6 159.9	41 09.9 +58.5 158.6	40 56.1 +58.2 157.3	40 41.5 +58.0 156.0	40 26.1 +57.8 154.8
6°	42 21.6 +58.6 159.6	42 08.4 +58.4 158.3	41 54.3 +58.2 157.0	41 39.5 +58.0 155.7	41 23.9 +57.8 154.4
7°	43 20.2 +58.5 159.3	43 06.8 +58.3 158.0	42 52.5 +58.2 156.7	42 37.5 +57.9 155.4	42 21.7 +57.7 154.1
8°	44 18.7 +58.5 159.0	44 05.1 +58.3 157.7	43 50.7 +58.0 156.3	43 35.4 +57.9 155.0	43 19.4 +57.7 153.7
9°	45 17.2 +58.4 158.7	45 03.4 +58.2 157.3	44 48.7 +58.0 156.0	44 33.3 +57.8 154.6	44 17.1 +57.5 153.3
10°	46 15.6 +58.4 158.4	46 01.6 +58.1 157.0	45 46.7 +58.0 155.6	45 31.1 +57.7 154.3	45 14.6 +57.5 152.9
11°	47 14.0 +58.3 158.0	46 59.7 +58.1 156.6	46 44.7 +57.8 155.2	46 28.8 +57.6 153.9	46 12.1 +57.4 152.5
12°	48 12.3 +58.2 157.7	47 57.8 +58.0 156.3	47 42.5 +57.8 154.8	47 26.4 +57.5 153.5	47 09.5 +57.3 152.1
13°	49 10.5 +58.1 157.3	48 55.8 +57.9 155.9	48 40.3 +57.7 154.4	48 23.9 +57.5 153.0	48 06.8 +57.2 151.6
14°	50 08.6 +58.1 156.9	49 53.7 +57.9 155.5	49 38.0 +57.6 154.0	49 21.4 +57.3 152.6	49 04.0 +57.0 151.2
15°	51 06.7 +58.0 156.5	50 51.6 +57.7 155.1	50 35.6 +57.4 153.6	50 18.7 +57.2 152.1	50 01.0 +57.0 150.7
16°	52 04.7 +57.9 156.1	51 49.3 +57.6 154.6	51 33.0 +57.4 153.1	51 15.9 +57.1 151.7	50 58.0 +56.8 150.2
17°	53 02.6 +57.8 155.7	52 46.9 +57.6 154.2	52 30.4 +57.3 152.7	52 13.0 +57.0 151.2	51 54.8 +56.7 149.7
18°	54 00.4 +57.7 155.2	53 44.5 +57.4 153.7	53 27.7 +57.1 152.2	53 10.0 +56.8 150.6	52 51.5 +56.5 149.1
19°	54 58.1 +57.6 154.8	54 41.9 +57.3 153.2	54 24.8 +57.0 151.6	54 06.8 +56.7 150.1	53 48.0 +56.3 148.6
20°	55 55.7 +57.4 154.3	55 39.2 +57.1 152.7	55 21.8 +56.8 151.1	55 03.5 +56.5 149.5	54 44.3 +56.2 148.0
21°	56 53.1 +57.4 153.7	56 36.3 +57.0 152.1	56 18.6 +56.7 150.5	56 00.0 +56.3 148.9	55 40.5 +56.0 147.4
22°	57 50.5 +57.1 153.2	57 33.3 +56.9 151.6	57 15.3 +56.5 149.9	56 56.3 +56.2 148.3	56 36.5 +55.8 146.7
23°	58 47.6 +57.0 152.6	58 30.2 +56.6 150.9	58 11.8 +56.3 149.3	57 52.5 +55.9 147.7	57 32.3 +55.5 146.1
24°	59 44.6 +56.9 152.0	59 26.8 +56.5 150.3	59 08.1 +56.0 148.6	58 48.4 +55.7 147.0	58 27.8 +55.3 145.3
25°	60 41.5 +56.6 151.4	60 23.3 +56.2 149.6	60 04.1 +55.9 147.9	59 44.1 +55.4 146.2	59 23.1 +55.0 144.6
26°	61 38.1 +56.4 150.7	61 19.5 +56.0 148.9	61 00.0 +55.5 147.2	60 39.5 +55.1 145.5	60 18.1 +54.7 143.8
27°	62 34.5 +56.2 150.0	62 15.5 +55.8 148.2	61 55.5 +55.3 146.4	61 34.6 +54.9 144.7	61 12.8 +54.4 143.0
28°	63 30.7 +55.9 149.2	63 11.3 +55.4 147.3	62 50.8 +55.0 145.6	62 29.5 +54.5 143.8	62 07.2 +54.0 142.1
29°	64 26.6 +55.6 148.4	64 06.7 +55.1 146.5	63 45.8 +54.6 144.7	63 24.0 +54.1 142.9	63 01.2 +53.6 141.1

# Declination SAME name as Latitude

# Latitude 52°

Dec	LHA 020° / 340°	LHA 021° / 339°	LHA 022° / 338°	LHA 023° / 337°	LHA 024° / 336°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	35 20.8 +58.0 155.2	35 05.0 +57.8 154.0	34 48.5 +57.5 152.9	34 31.3 +57.4 151.7	34 13.5 +57.1 150.5
1°	36 18.8 +57.9 154.9	36 02.8 +57.7 153.7	35 46.0 +57.5 152.5	35 28.7 +57.2 151.3	35 10.6 +57.1 150.2
2°	37 16.7 +57.8 154.6	37 00.5 +57.6 153.4	36 43.5 +57.5 152.2	36 25.9 +57.3 151.0	36 07.7 +57.0 149.8
3°	38 14.5 +57.8 154.2	37 58.1 +57.6 153.0	37 41.0 +57.3 151.8	37 23.2 +57.1 150.6	37 04.7 +56.9 149.4
4°	39 12.3 +57.7 153.9	38 55.7 +57.5 152.6	38 38.3 +57.3 151.4	38 20.3 +57.1 150.2	38 01.6 +56.9 149.0
5°	40 10.0 +57.6 153.5	39 53.2 +57.4 152.3	39 35.6 +57.2 151.0	39 17.4 +57.0 149.8	38 58.5 +56.7 148.6
6°	41 07.6 +57.6 153.2	40 50.6 +57.3 151.9	40 32.8 +57.2 150.6	40 14.4 +56.9 149.4	39 55.2 +56.7 148.2
7°	42 05.2 +57.5 152.8	41 47.9 +57.3 151.5	41 30.0 +57.0 150.2	41 11.3 +56.8 149.0	40 51.9 +56.6 147.7
8°	43 02.7 +57.4 152.4	42 45.2 +57.2 151.1	42 27.0 +56.9 149.8	42 08.1 +56.7 148.5	41 48.5 +56.4 147.3
9°	44 00.1 +57.3 152.0	43 42.4 +57.1 150.7	43 23.9 +56.9 149.4	43 04.8 +56.6 148.1	42 44.9 +56.4 146.8
10°	44 57.4 +57.3 151.6	44 39.5 +57.0 150.3	44 20.8 +56.7 148.9	44 01.4 +56.5 147.6	43 41.3 +56.2 146.4
11°	45 54.7 +57.1 151.1	45 36.5 +56.9 149.8	45 17.5 +56.7 148.5	44 57.9 +56.3 147.2	44 37.5 +56.1 145.9
12°	46 51.8 +57.0 150.7	46 33.4 +56.7 149.4	46 14.2 +56.5 148.0	45 54.2 +56.3 146.7	45 33.6 +55.9 145.4
13°	47 48.8 +57.0 150.2	47 30.1 +56.7 148.9	47 10.7 +56.3 147.5	46 50.5 +56.1 146.2	46 29.5 +55.9 144.9
14°	48 45.8 +56.7 149.8	48 26.8 +56.5 148.4	48 07.0 +56.3 147.0	47 46.6 +55.9 145.7	47 25.4 +55.6 144.3
15°	49 42.5 +56.7 149.3	49 23.3 +56.4 147.9	49 03.3 +56.1 146.5	48 42.5 +55.8 145.1	48 21.0 +55.5 143.8
16°	50 39.2 +56.5 148.8	50 19.7 +56.2 147.3	49 59.4 +55.9 145.9	49 38.3 +55.6 144.6	49 16.5 +55.3 143.2
17°	51 35.7 +56.4 148.2	51 15.9 +56.1 146.8	50 55.3 +55.7 145.4	50 33.9 +55.5 144.0	50 11.8 +55.1 142.6
18°	52 32.1 +56.2 147.7	52 12.0 +55.8 146.2	51 51.0 +55.6 144.8	51 29.4 +55.2 143.4	51 06.9 +55.0 142.0
19°	53 28.3 +56.0 147.1	53 07.8 +55.7 145.6	52 46.6 +55.4 144.2	52 24.6 +55.0 142.7	52 01.9 +54.7 141.3
20°	54 24.3 +55.9 146.5	54 03.5 +55.5 145.0	53 42.0 +55.1 143.5	53 19.6 +54.8 142.1	52 56.6 +54.4 140.6
21°	55 20.2 +55.6 145.8	54 59.0 +55.3 144.3	54 37.1 +54.9 142.8	54 14.4 +54.6 141.4	53 51.0 +54.2 139.9
22°	56 15.8 +55.4 145.2	55 54.3 +55.0 143.6	55 32.0 +54.7 142.1	55 09.0 +54.3 140.7	54 45.2 +53.9 139.2
23°	57 11.2 +55.2 144.5	56 49.3 +54.8 142.9	56 26.7 +54.4 141.4	56 03.3 +54.0 139.9	55 39.1 +53.6 138.4
24°	58 06.4 +54.9 143.7	57 44.1 +54.5 142.2	57 21.1 +54.1 140.6	56 57.3 +53.6 139.1	56 32.7 +53.3 137.6
25°	59 01.3 +54.6 143.0	58 38.6 +54.2 141.4	58 15.2 +53.7 139.8	57 50.9 +53.4 138.3	57 26.0 +52.9 136.8
26°	59 55.9 +54.2 142.2	59 32.8 +53.8 140.5	59 08.9 +53.4 139.0	58 44.3 +53.0 137.4	58 18.9 +52.6 135.9
27°	60 50.1 +54.0 141.3	60 26.6 +53.5 139.7	60 02.3 +53.0 138.1	59 37.3 +52.5 136.5	59 11.5 +52.1 135.0
28°	61 44.1 +53.5 140.4	61 20.1 +53.1 138.7	60 55.3 +52.6 137.1	60 29.8 +52.2 135.5	60 03.6 +51.7 134.0
29°	62 37.6 +53.1 139.4	62 13.2 +52.6 137.7	61 47.9 +52.2 136.1	61 22.0 +51.6 134.5	60 55.3 +51.1 132.9

Dec	LHA 025° / 335°	LHA 026° / 334°	LHA 027° / 333°	LHA 028° / 332°	LHA 029° / 331°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	33 55.0 +56.9 149.4	33 35.8 +56.8 148.2	33 16.1 +56.5 147.1	32 55.7 +56.3 146.0	32 34.8 +56.0 144.9
1°	34 51.9 +56.9 149.0	34 32.6 +56.6 147.9	34 12.6 +56.4 146.7	33 52.0 +56.2 145.6	33 30.8 +55.9 144.5
2°	35 48.8 +56.8 148.6	35 29.2 +56.6 147.4	35 09.0 +56.4 146.3	34 48.2 +56.1 145.2	34 26.8 +55.9 144.0
3°	36 45.6 +56.7 148.2	36 25.8 +56.5 147.0	36 05.4 +56.2 145.9	35 44.3 +56.1 144.7	35 22.7 +55.8 143.6
4°	37 42.3 +56.6 147.8	37 22.3 +56.3 146.6	37 01.6 +56.2 145.4	36 40.4 +55.9 144.3	36 18.5 +55.7 143.1
5°	38 38.9 +56.5 147.4	38 18.6 +56.3 146.2	37 57.8 +56.0 145.0	37 36.3 +55.8 143.8	37 14.2 +55.5 142.7
6°	39 35.4 +56.4 146.9	39 14.9 +56.2 145.7	38 53.8 +56.0 144.5	38 32.1 +55.7 143.4	38 09.7 +55.5 142.2
7°	40 31.8 +56.4 146.5	40 11.1 +56.1 145.3	39 49.8 +55.8 144.1	39 27.8 +55.6 142.9	39 05.2 +55.3 141.7
8°	41 28.2 +56.2 146.0	41 07.2 +56.0 144.8	40 45.6 +55.7 143.6	40 23.4 +55.4 142.4	40 00.5 +55.2 141.2
9°	42 24.4 +56.1 145.6	42 03.2 +55.8 144.3	41 41.3 +55.6 143.1	41 18.8 +55.3 141.9	40 55.7 +55.0 140.7
10°	43 20.5 +55.9 145.1	42 59.0 +55.7 143.8	42 36.9 +55.4 142.6	42 14.1 +55.2 141.4	41 50.7 +54.9 140.1
11°	44 16.4 +55.9 144.6	43 54.7 +55.5 143.3	43 32.3 +55.3 142.1	43 09.3 +55.0 140.8	42 45.6 +54.8 139.6
12°	45 12.3 +55.6 144.1	44 50.2 +55.5 142.8	44 27.6 +55.1 141.5	44 04.3 +54.8 140.3	43 40.4 +54.5 139.0
13°	46 07.9 +55.6 143.5	45 45.7 +55.2 142.2	45 22.7 +55.0 141.0	44 59.1 +54.7 139.7	44 34.9 +54.4 138.5
14°	47 03.5 +55.3 143.0	46 40.9 +55.1 141.7	46 17.7 +54.8 140.4	45 53.8 +54.5 139.1	45 29.3 +54.2 137.9
15°	47 58.8 +55.2 142.4	47 36.0 +54.9 141.1	47 12.5 +54.5 139.8	46 48.3 +54.3 138.5	46 23.5 +54.0 137.2
16°	48 54.0 +55.0 141.8	48 30.9 +54.7 140.5	48 07.0 +54.4 139.2	47 42.6 +54.1 137.9	47 17.5 +53.8 136.6
17°	49 49.0 +54.8 141.2	49 25.6 +54.4 139.9	49 01.4 +54.2 138.5	48 36.7 +53.8 137.2	48 11.3 +53.5 135.9
18°	50 43.8 +54.6 140.6	50 20.0 +54.3 139.2	49 55.6 +53.9 137.9	49 30.5 +53.6 136.6	49 04.8 +53.3 135.3
19°	51 38.4 +54.4 139.9	51 14.3 +54.0 138.5	50 49.5 +53.7 137.2	50 24.1 +53.3 135.9	49 58.1 +53.0 134.5
20°	52 32.8 +54.1 139.2	52 08.3 +53.8 137.8	51 43.2 +53.4 136.5	51 17.4 +53.1 135.1	50 51.1 +52.7 133.8
21°	53 26.9 +53.8 138.5	53 02.1 +53.4 137.1	52 36.6 +53.1 135.7	52 10.5 +52.8 134.4	51 43.8 +52.4 133.0
22°	54 20.7 +53.5 137.8	53 55.5 +53.2 136.3	53 29.7 +52.8 135.0	53 03.3 +52.4 133.6	52 36.2 +52.1 132.3
23°	55 14.2 +53.3 137.0	54 48.7 +52.9 135.6	54 22.5 +52.5 134.2	53 55.7 +52.1 132.8	53 28.3 +51.7 131.4
24°	56 07.5 +52.9 136.2	55 41.6 +52.5 134.7	55 15.0 +52.1 133.3	54 47.8 +51.7 131.9	54 20.0 +51.4 130.6
25°	57 00.4 +52.5 135.3	56 34.1 +52.1 133.9	56 07.1 +51.7 132.4	55 39.5 +51.4 131.0	55 11.4 +50.9 129.7
26°	57 52.9 +52.1 134.4	57 26.2 +51.7 132.9	56 58.8 +51.3 131.5	56 30.9 +50.8 130.1	56 02.3 +50.5 128.7
27°	58 45.0 +51.7 133.5	58 17.9 +51.2 132.0	57 50.1 +50.8 130.5	57 21.7 +50.5 129.1	56 52.8 +50.0 127.8
28°	59 36.7 +51.2 132.5	59 09.1 +50.8 131.0	58 40.9 +50.4 129.5	58 12.2 +49.9 128.1	57 42.8 +49.5 126.7
29°	60 27.9 +50.7 131.4	59 59.9 +50.2 129.9	59 31.3 +49.8 128.5	59 02.1 +49.3 127.1	58 32.3 +48.9 125.7

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Dec	LHA 030° / 330°	LHA 031° / 329°	LHA 032° / 328°	LHA 033° / 327°	LHA 034° / 326°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	32 13.2 +55.9 143.8	31 51.1 +55.6 142.7	31 28.4 +55.4 141.6	31 05.2 +55.2 140.5	30 41.5 +54.9 139.4
1°	33 09.1 +55.7 143.3	32 46.7 +55.5 142.2	32 23.8 +55.3 141.1	32 00.4 +55.0 140.0	31 36.4 +54.8 139.0
2°	34 04.8 +55.7 142.9	33 42.2 +55.5 141.8	33 19.1 +55.2 140.7	32 55.4 +55.0 139.6	32 31.2 +54.7 138.5
3°	35 00.5 +55.5 142.4	34 37.7 +55.3 141.3	34 14.3 +55.1 140.2	33 50.4 +54.8 139.1	33 25.9 +54.6 138.0
4°	35 56.0 +55.5 142.0	35 33.0 +55.2 140.8	35 09.4 +54.9 139.7	34 45.2 +54.7 138.6	34 20.5 +54.5 137.5
5°	36 51.5 +55.3 141.5	36 28.2 +55.1 140.4	36 04.3 +54.9 139.2	35 39.9 +54.6 138.1	35 15.0 +54.3 137.0
6°	37 46.8 +55.2 141.0	37 23.3 +54.9 139.9	36 59.2 +54.7 138.7	36 34.5 +54.5 137.6	36 09.3 +54.2 136.5
7°	38 42.0 +55.1 140.5	38 18.2 +54.8 139.4	37 53.9 +54.5 138.2	37 29.0 +54.3 137.1	37 03.5 +54.1 135.9
8°	39 37.1 +54.9 140.0	39 13.0 +54.7 138.8	38 48.4 +54.4 137.7	38 23.3 +54.1 136.5	37 57.6 +53.9 135.4
9°	40 32.0 +54.8 139.5	40 07.7 +54.5 138.3	39 42.8 +54.3 137.1	39 17.4 +54.0 136.0	38 51.5 +53.7 134.8
10°	41 26.8 +54.6 138.9	41 02.2 +54.4 137.7	40 37.1 +54.1 136.6	40 11.4 +53.8 135.4	39 45.2 +53.6 134.2
11°	42 21.4 +54.5 138.4	41 56.6 +54.2 137.2	41 31.2 +53.9 136.0	41 05.2 +53.7 134.8	40 38.8 +53.4 133.7
12°	43 15.9 +54.2 137.8	42 50.8 +54.0 136.6	42 25.1 +53.7 135.4	41 58.9 +53.4 134.2	41 32.2 +53.1 133.1
13°	44 10.1 +54.1 137.2	43 44.8 +53.8 136.0	43 18.8 +53.6 134.8	42 52.3 +53.3 133.6	42 25.3 +53.0 132.4
14°	45 04.2 +53.9 136.6	44 38.6 +53.6 135.4	44 12.4 +53.3 134.2	43 45.6 +53.0 133.0	43 18.3 +52.8 131.8
15°	45 58.1 +53.7 136.0	45 32.2 +53.4 134.7	45 05.7 +53.1 133.5	44 38.6 +52.8 132.3	44 11.1 +52.5 131.1
16°	46 51.8 +53.5 135.3	46 25.6 +53.1 134.1	45 58.8 +52.8 132.9	45 31.4 +52.6 131.6	45 03.6 +52.2 130.4
17°	47 45.3 +53.2 134.7	47 18.7 +52.9 133.4	46 51.6 +52.6 132.2	46 24.0 +52.3 131.0	45 55.8 +52.0 129.7
18°	48 38.5 +53.0 134.0	48 11.6 +52.7 132.7	47 44.2 +52.3 131.5	47 16.3 +52.0 130.2	46 47.8 +51.7 129.0
19°	49 31.5 +52.6 133.3	49 04.3 +52.3 132.0	48 36.5 +52.1 130.7	48 08.3 +51.7 129.5	47 39.5 +51.5 128.3
20°	50 24.1 +52.4 132.5	49 56.6 +52.1 131.2	49 28.6 +51.7 130.0	49 00.0 +51.4 128.7	48 31.0 +51.1 127.5
21°	51 16.5 +52.1 131.7	50 48.7 +51.7 130.5	50 20.3 +51.4 129.2	49 51.4 +51.1 127.9	49 22.1 +50.7 126.7
22°	52 08.6 +51.7 130.9	51 40.4 +51.4 129.6	51 11.7 +51.1 128.4	50 42.5 +50.7 127.1	50 12.8 +50.4 125.9
23°	53 00.3 +51.4 130.1	52 31.8 +51.0 128.8	52 02.8 +50.6 127.5	51 33.2 +50.4 126.3	51 03.2 +50.0 125.0
24°	53 51.7 +51.0 129.2	53 22.8 +50.6 127.9	52 53.4 +50.3 126.6	52 23.6 +49.9 125.4	51 53.2 +49.6 124.1
25°	54 42.7 +50.5 128.3	54 13.4 +50.2 127.0	53 43.7 +49.8 125.7	53 13.5 +49.5 124.5	52 42.8 +49.1 123.2
26°	55 33.2 +50.1 127.4	55 03.6 +49.8 126.1	54 33.5 +49.4 124.8	54 03.0 +49.0 123.5	53 31.9 +48.7 122.3
27°	56 23.3 +49.7 126.4	55 53.4 +49.2 125.1	55 22.9 +48.9 123.8	54 52.0 +48.5 122.5	54 20.6 +48.2 121.3
28°	57 13.0 +49.0 125.4	56 42.6 +48.7 124.1	56 11.8 +48.3 122.8	55 40.5 +47.9 121.5	55 08.8 +47.6 120.2
29°	58 02.0 +48.6 124.3	57 31.3 +48.1 123.0	57 00.1 +47.7 121.7	56 28.4 +47.4 120.4	55 56.4 +47.0 119.2

Dec	LHA 035° / 325°	LHA 036° / 324°	LHA 037° / 323°	LHA 038° / 322°	LHA 039° / 321°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	30 17.2 +54.7 138.4	29 52.4 +54.5 137.3	29 27.1 +54.2 136.3	29 01.3 +54.0 135.2	28 35.1 +53.8 134.2
1°	31 11.9 +54.6 137.9	30 46.9 +54.3 136.8	30 21.3 +54.2 135.8	29 55.3 +53.9 134.7	29 28.9 +53.6 133.7
2°	32 06.5 +54.4 137.4	31 41.2 +54.3 136.3	31 15.5 +54.0 135.3	30 49.2 +53.8 134.2	30 22.5 +53.6 133.2
3°	33 00.9 +54.4 136.9	32 35.5 +54.1 135.8	32 09.5 +53.9 134.8	31 43.0 +53.7 133.7	31 16.1 +53.4 132.7
4°	33 55.3 +54.2 136.4	33 29.6 +54.0 135.3	33 03.4 +53.7 134.3	32 36.7 +53.5 133.2	32 09.5 +53.3 132.1
5°	34 49.5 +54.1 135.9	34 23.6 +53.8 134.8	33 57.1 +53.6 133.7	33 30.2 +53.4 132.6	33 02.8 +53.1 131.6
6°	35 43.6 +54.0 135.4	35 17.4 +53.7 134.3	34 50.7 +53.5 133.2	34 23.6 +53.2 132.1	33 55.9 +53.0 131.0
7°	36 37.6 +53.8 134.8	36 11.1 +53.6 133.7	35 44.2 +53.3 132.6	35 16.8 +53.0 131.5	34 48.9 +52.8 130.5
8°	37 31.4 +53.6 134.3	37 04.7 +53.4 133.1	36 37.5 +53.1 132.0	36 09.8 +52.9 131.0	35 41.7 +52.7 129.9
9°	38 25.0 +53.5 133.7	37 58.1 +53.2 132.6	37 30.6 +53.0 131.5	37 02.7 +52.7 130.4	36 34.4 +52.4 129.3
10°	39 18.5 +53.3 133.1	38 51.3 +53.0 132.0	38 23.6 +52.8 130.9	37 55.4 +52.6 129.8	37 26.8 +52.3 128.7
11°	40 11.8 +53.1 132.5	39 44.3 +52.9 131.4	39 16.4 +52.6 130.3	38 48.0 +52.3 129.2	38 19.1 +52.1 128.1
12°	41 04.9 +52.9 131.9	40 37.2 +52.6 130.8	40 09.0 +52.3 129.6	39 40.3 +52.1 128.5	39 11.2 +51.8 127.4
13°	41 57.8 +52.7 131.3	41 29.8 +52.4 130.1	41 01.3 +52.2 129.0	40 32.4 +51.9 127.9	40 03.0 +51.6 126.8
14°	42 50.5 +52.5 130.6	42 22.2 +52.2 129.5	41 53.5 +51.9 128.3	41 24.3 +51.6 127.2	40 54.6 +51.4 126.1
15°	43 43.0 +52.2 130.0	43 14.4 +52.0 128.8	42 45.4 +51.7 127.7	42 15.9 +51.4 126.5	41 46.0 +51.2 125.4
16°	44 35.2 +52.0 129.3	44 06.4 +51.7 128.1	43 37.1 +51.4 127.0	43 07.3 +51.2 125.8	42 37.2 +50.9 124.7
17°	45 27.2 +51.7 128.6	44 58.1 +51.4 127.4	44 28.5 +51.1 126.2	43 58.5 +50.8 125.1	43 28.1 +50.5 124.0
18°	46 18.9 +51.4 127.8	45 49.5 +51.1 126.7	45 19.6 +50.9 125.5	44 49.3 +50.6 124.4	44 18.6 +50.3 123.2
19°	47 10.3 +51.1 127.1	46 40.6 +50.8 125.9	46 10.5 +50.5 124.7	45 39.9 +50.3 123.6	45 08.9 +50.0 122.5
20°	48 01.4 +50.8 126.3	47 31.4 +50.5 125.1	47 01.0 +50.2 124.0	46 30.2 +49.9 122.8	45 58.9 +49.6 121.7
21°	48 52.2 +50.5 125.5	48 21.9 +50.2 124.3	47 51.2 +49.8 123.1	47 20.1 +49.5 122.0	46 48.5 +49.3 120.9
22°	49 42.7 +50.0 124.7	49 12.1 +49.7 123.5	48 41.0 +49.5 122.3	48 09.6 +49.2 121.2	47 37.8 +48.9 120.0
23°	50 32.7 +49.7 123.8	50 01.8 +49.4 122.6	49 30.5 +49.1 121.4	48 58.8 +48.8 120.3	48 26.7 +48.5 119.2
24°	51 22.4 +49.3 122.9	50 51.2 +48.9 121.7	50 19.6 +48.6 120.6	49 47.6 +48.3 119.4	49 15.2 +48.1 118.3
25°	52 11.7 +48.8 122.0	51 40.1 +48.5 120.8	51 08.2 +48.2 119.6	50 35.9 +47.9 118.5	50 03.3 +47.6 117.3
26°	53 00.5 +48.3 121.0	52 28.6 +48.1 119.8	51 56.4 +47.7 118.7	51 23.8 +47.4 117.5	50 50.9 +47.1 116.4
27°	53 48.8 +47.8 120.0	53 16.7 +47.5 118.9	52 44.1 +47.2 117.7	52 11.2 +46.9 116.5	51 38.0 +46.6 115.4
28°	54 36.6 +47.3 119.0	54 04.2 +46.9 117.8	53 31.3 +46.7 116.6	52 58.1 +46.4 115.5	52 24.6 +46.1 114.4
29°	55 23.9 +46.7 117.9	54 51.1 +46.4 116.7	54 18.0 +46.0 115.6	53 44.5 +45.7 114.4	53 10.7 +45.5 113.3

Dec	LHA 040° / 320°	LHA 041° / 319°	LHA 042° / 318°	LHA 043° / 317°	LHA 044° / 316°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	28 08.4 +53.5 133.2	27 41.2 +53.4 132.2	27 13.7 +53.1 131.2	26 45.6 +52.9 130.2	26 17.2 +52.7 129.2
1°	29 01.9 +53.5 132.7	28 34.6 +53.2 131.7	28 06.8 +53.0 130.7	27 38.5 +52.8 129.7	27 09.9 +52.6 128.7
2°	29 55.4 +53.3 132.2	29 27.8 +53.1 131.1	28 59.8 +52.8 130.1	28 31.3 +52.6 129.1	28 02.5 +52.4 128.1
3°	30 48.7 +53.2 131.6	30 20.9 +52.9 130.6	29 52.6 +52.7 129.6	29 23.9 +52.6 128.6	28 54.9 +52.3 127.6
4°	31 41.9 +53.0 131.1	31 13.8 +52.8 130.1	30 45.3 +52.6 129.0	30 16.5 +52.3 128.0	29 47.2 +52.1 127.0
5°	32 34.9 +52.9 130.5	32 06.6 +52.7 129.5	31 37.9 +52.5 128.5	31 08.8 +52.2 127.5	30 39.3 +52.0 126.4
6°	33 27.8 +52.8 130.0	32 59.3 +52.5 128.9	32 30.4 +52.2 127.9	32 01.0 +52.1 126.9	31 31.3 +51.8 125.9
7°	34 20.6 +52.5 129.4	33 51.8 +52.4 128.4	33 22.6 +52.1 127.3	32 53.1 +51.8 126.3	32 23.1 +51.6 125.3
8°	35 13.1 +52.4 128.8	34 44.2 +52.1 127.8	34 14.7 +52.0 126.7	33 44.9 +51.7 125.7	33 14.7 +51.5 124.7
9°	36 05.5 +52.3 128.2	35 36.3 +52.0 127.2	35 06.7 +51.7 126.1	34 36.6 +51.5 125.1	34 06.2 +51.3 124.0
10°	36 57.8 +52.0 127.6	36 28.3 +51.8 126.5	35 58.4 +51.6 125.5	35 28.1 +51.4 124.4	34 57.5 +51.1 123.4
11°	37 49.8 +51.8 127.0	37 20.1 +51.6 125.9	36 50.0 +51.3 124.9	36 19.5 +51.1 123.8	35 48.6 +50.8 122.8
12°	38 41.6 +51.6 126.3	38 11.7 +51.3 125.3	37 41.3 +51.1 124.2	37 10.6 +50.8 123.2	36 39.4 +50.7 122.1
13°	39 33.2 +51.4 125.7	39 03.0 +51.1 124.6	38 32.4 +50.9 123.5	38 01.4 +50.7 122.5	37 30.1 +50.4 121.4
14°	40 24.6 +51.1 125.0	39 54.1 +50.9 123.9	39 23.3 +50.6 122.9	38 52.1 +50.4 121.8	38 20.5 +50.2 120.8
15°	41 15.7 +50.9 124.3	40 45.0 +50.7 123.2	40 13.9 +50.4 122.2	39 42.5 +50.1 121.1	39 10.7 +49.9 120.1
16°	42 06.6 +50.6 123.6	41 35.7 +50.3 122.5	41 04.3 +50.1 121.4	40 32.6 +49.9 120.4	40 00.6 +49.6 119.3
17°	42 57.2 +50.4 122.9	42 26.0 +50.1 121.8	41 54.4 +49.9 120.7	41 22.5 +49.6 119.6	40 50.2 +49.4 118.6
18°	43 47.6 +50.0 122.1	43 16.1 +49.8 121.0	42 44.3 +49.5 120.0	42 12.1 +49.3 118.9	41 39.6 +49.0 117.8
19°	44 37.6 +49.7 121.4	44 05.9 +49.4 120.3	43 33.8 +49.2 119.2	43 01.4 +48.9 118.1	42 28.6 +48.7 117.1
20°	45 27.3 +49.4 120.6	44 55.3 +49.1 119.5	44 23.0 +48.8 118.4	43 50.3 +48.6 117.3	43 17.3 +48.4 116.3
21°	46 16.7 +49.0 119.7	45 44.4 +48.8 118.6	45 11.8 +48.5 117.6	44 38.9 +48.3 116.5	44 05.7 +48.0 115.4
22°	47 05.7 +48.6 118.9	46 33.2 +48.3 117.8	46 00.3 +48.1 116.7	45 27.2 +47.8 115.7	44 53.7 +47.7 114.6
23°	47 54.3 +48.2 118.0	47 21.5 +48.0 116.9	46 48.4 +47.7 115.9	46 15.0 +47.5 114.8	45 41.4 +47.2 113.7
24°	48 42.5 +47.8 117.1	48 09.5 +47.5 116.0	47 36.1 +47.3 115.0	47 02.5 +47.1 113.9	46 28.6 +46.8 112.9
25°	49 30.3 +47.3 116.2	48 57.0 +47.1 115.1	48 23.4 +46.9 114.0	47 49.6 +46.5 113.0	47 15.4 +46.4 111.9
26°	50 17.6 +46.9 115.3	49 44.1 +46.6 114.2	49 10.3 +46.3 113.1	48 36.1 +46.1 112.0	48 01.8 +45.9 111.0
27°	51 04.5 +46.3 114.3	50 30.7 +46.1 113.2	49 56.6 +45.8 112.1	49 22.2 +45.6 111.1	48 47.7 +45.3 110.0
28°	51 50.8 +45.8 113.3	51 16.8 +45.5 112.2	50 42.4 +45.3 111.1	50 07.8 +45.1 110.1	49 33.0 +44.9 109.0
29°	52 36.6 +45.2 112.2	52 02.3 +45.0 111.1	51 27.7 +44.7 110.1	50 52.9 +44.5 109.0	50 17.9 +44.3 108.0

Dec	LHA 045° / 315°	LHA 046° / 314°	LHA 047° / 313°	LHA 048° / 312°	LHA 049° / 311°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	25 48.4 +52.5 128.2	25 19.2 +52.2 127.3	24 49.6 +52.1 126.3	24 19.7 +51.8 125.4	23 49.4 +51.6 124.4
1°	26 40.9 +52.3 127.7	26 11.4 +52.2 126.7	25 41.7 +51.9 125.8	25 11.5 +51.7 124.8	24 41.0 +51.5 123.9
2°	27 33.2 +52.2 127.1	27 03.6 +52.0 126.2	26 33.6 +51.7 125.2	26 03.2 +51.6 124.2	25 32.5 +51.4 123.3
3°	28 25.4 +52.1 126.6	27 55.6 +51.8 125.6	27 25.3 +51.7 124.6	26 54.8 +51.4 123.7	26 23.9 +51.2 122.7
4°	29 17.5 +51.9 126.0	28 47.4 +51.7 125.0	28 17.0 +51.5 124.1	27 46.2 +51.3 123.1	27 15.1 +51.1 122.1
5°	30 09.4 +51.7 125.4	29 39.1 +51.5 124.5	29 08.5 +51.3 123.5	28 37.5 +51.1 122.5	28 06.2 +50.9 121.5
6°	31 01.1 +51.6 124.9	30 30.6 +51.4 123.9	29 59.8 +51.2 122.9	29 28.6 +51.0 121.9	28 57.1 +50.7 120.9
7°	31 52.7 +51.5 124.3	31 22.0 +51.2 123.3	30 51.0 +51.0 122.3	30 19.6 +50.8 121.3	29 47.8 +50.6 120.3
8°	32 44.2 +51.2 123.6	32 13.2 +51.1 122.6	31 42.0 +50.8 121.7	31 10.4 +50.6 120.7	30 38.4 +50.4 119.7
9°	33 35.4 +51.1 123.0	33 04.3 +50.8 122.0	32 32.8 +50.6 121.0	32 01.0 +50.4 120.0	31 28.8 +50.3 119.1
10°	34 26.5 +50.8 122.4	33 55.1 +50.7 121.4	33 23.4 +50.4 120.4	32 51.4 +50.2 119.4	32 19.1 +50.0 118.4
11°	35 17.3 +50.7 121.7	34 45.8 +50.4 120.7	34 13.8 +50.3 119.7	33 41.6 +50.0 118.7	33 09.1 +49.8 117.8
12°	36 08.0 +50.4 121.1	35 36.2 +50.2 120.1	35 04.1 +49.9 119.1	34 31.6 +49.8 118.1	33 58.9 +49.6 117.1
13°	36 58.4 +50.2 120.4	36 26.4 +50.0 119.4	35 54.0 +49.8 118.4	35 21.4 +49.5 117.4	34 48.5 +49.3 116.4
14°	37 48.6 +49.9 119.7	37 16.4 +49.7 118.7	36 43.8 +49.5 117.7	36 10.9 +49.3 116.7	35 37.8 +49.1 115.7
15°	38 38.5 +49.7 119.0	38 06.1 +49.4 118.0	37 33.3 +49.3 117.0	37 00.2 +49.1 116.0	36 26.9 +48.9 115.0
16°	39 28.2 +49.4 118.3	38 55.5 +49.2 117.3	38 22.6 +48.9 116.3	37 49.3 +48.8 115.3	37 15.8 +48.5 114.3
17°	40 17.6 +49.2 117.6	39 44.7 +48.9 116.5	39 11.5 +48.7 115.5	38 38.1 +48.5 114.5	38 04.3 +48.3 113.5
18°	41 06.8 +48.8 116.8	40 33.6 +48.6 115.8	40 00.2 +48.4 114.8	39 26.6 +48.1 113.8	38 52.6 +48.0 112.8
19°	41 55.6 +48.5 116.0	41 22.2 +48.3 115.0	40 48.6 +48.1 114.0	40 14.7 +47.9 113.0	39 40.6 +47.7 112.0
20°	42 44.1 +48.1 115.2	42 10.5 +47.9 114.2	41 36.7 +47.7 113.2	41 02.6 +47.5 112.2	40 28.3 +47.3 111.2
21°	43 32.2 +47.8 114.4	42 58.4 +47.6 113.4	42 24.4 +47.4 112.4	41 50.1 +47.2 111.4	41 15.6 +47.0 110.4
22°	44 20.0 +47.4 113.6	43 46.0 +47.2 112.5	43 11.8 +47.0 111.5	42 37.3 +46.8 110.5	42 02.6 +46.6 109.6
23°	45 07.4 +47.0 112.7	44 33.2 +46.8 111.7	43 58.8 +46.6 110.7	43 24.1 +46.4 109.7	42 49.2 +46.2 108.7
24°	45 54.4 +46.6 111.8	45 20.0 +46.4 110.8	44 45.4 +46.2 109.8	44 10.5 +46.0 108.8	43 35.4 +45.9 107.8
25°	46 41.0 +46.2 110.9	46 06.4 +45.9 109.9	45 31.6 +45.7 108.9	44 56.5 +45.6 107.9	44 21.3 +45.4 106.9
26°	47 27.2 +45.6 110.0	46 52.3 +45.5 109.0	46 17.3 +45.3 108.0	45 42.1 +45.1 107.0	45 06.7 +44.9 106.0
27°	48 12.8 +45.2 109.0	47 37.8 +45.0 108.0	47 02.6 +44.8 107.0	46 27.2 +44.6 106.0	45 51.6 +44.4 105.1
28°	48 58.0 +44.7 108.0	48 22.8 +44.4 107.0	47 47.4 +44.2 106.0	47 11.8 +44.1 105.1	46 36.0 +44.0 104.1
29°	49 42.7 +44.0 107.0	49 07.2 +43.9 106.0	48 31.6 +43.8 105.0	47 55.9 +43.5 104.1	47 20.0 +43.4 103.1

Dec	LHA 050° / 310°	LHA 051° / 309°	LHA 052° / 308°	LHA 053° / 307°	LHA 054° / 306°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	23 18.7 +51.4 123.5	22 47.7 +51.3 122.5	22 16.5 +51.0 121.6	21 44.8 +50.9 120.7	21 12.9 +50.7 119.8
1°	24 10.1 +51.3 122.9	23 39.0 +51.1 122.0	23 07.5 +50.9 121.0	22 35.7 +50.7 120.1	22 03.6 +50.5 119.2
2°	25 01.4 +51.2 122.3	24 30.1 +50.9 121.4	23 58.4 +50.8 120.5	23 26.4 +50.6 119.5	22 54.1 +50.4 118.6
3°	25 52.6 +51.0 121.8	25 21.0 +50.9 120.8	24 49.2 +50.6 119.9	24 17.0 +50.4 119.0	23 44.5 +50.3 118.0
4°	26 43.6 +50.9 121.2	26 11.9 +50.7 120.2	25 39.8 +50.5 119.3	25 07.4 +50.4 118.4	24 34.8 +50.1 117.4
5°	27 34.5 +50.7 120.6	27 02.6 +50.5 119.6	26 30.3 +50.3 118.7	25 57.8 +50.1 117.8	25 24.9 +50.0 116.8
6°	28 25.2 +50.6 120.0	27 53.1 +50.4 119.0	27 20.6 +50.2 118.1	26 47.9 +50.0 117.1	26 14.9 +49.8 116.2
7°	29 15.8 +50.4 119.4	28 43.5 +50.2 118.4	28 10.8 +50.0 117.5	27 37.9 +49.8 116.5	27 04.7 +49.7 115.6
8°	30 06.2 +50.2 118.7	29 33.7 +50.0 117.8	29 00.8 +49.9 116.8	28 27.7 +49.7 115.9	27 54.4 +49.4 115.0
9°	30 56.4 +50.0 118.1	30 23.7 +49.8 117.1	29 50.7 +49.6 116.2	29 17.4 +49.4 115.3	28 43.8 +49.3 114.3
10°	31 46.4 +49.8 117.5	31 13.5 +49.6 116.5	30 40.3 +49.4 115.5	30 06.8 +49.3 114.6	29 33.1 +49.1 113.7
11°	32 36.2 +49.6 116.8	32 03.1 +49.4 115.8	31 29.7 +49.3 114.9	30 56.1 +49.1 113.9	30 22.2 +48.9 113.0
12°	33 25.8 +49.4 116.1	32 52.5 +49.2 115.2	32 19.0 +49.0 114.2	31 45.2 +48.8 113.3	31 11.1 +48.7 112.3
13°	34 15.2 +49.2 115.4	33 41.7 +49.0 114.5	33 08.0 +48.8 113.5	32 34.0 +48.6 112.6	31 59.8 +48.4 111.6
14°	35 04.4 +48.9 114.7	34 30.7 +48.7 113.8	33 56.8 +48.5 112.8	33 22.6 +48.4 111.9	32 48.2 +48.2 110.9
15°	35 53.3 +48.7 114.0	35 19.4 +48.5 113.1	34 45.3 +48.3 112.1	34 11.0 +48.1 111.2	33 36.4 +48.0 110.2
16°	36 42.0 +48.3 113.3	36 07.9 +48.2 112.3	35 33.6 +48.1 111.4	34 59.1 +47.9 110.4	34 24.4 +47.7 109.5
17°	37 30.3 +48.1 112.6	36 56.1 +47.9 111.6	36 21.7 +47.7 110.6	35 47.0 +47.6 109.7	35 12.1 +47.4 108.8
18°	38 18.4 +47.8 111.8	37 44.0 +47.7 110.8	37 09.4 +47.5 109.9	36 34.6 +47.3 108.9	35 59.5 +47.2 108.0
19°	39 06.2 +47.5 111.0	38 31.7 +47.3 110.1	37 56.9 +47.1 109.1	37 21.9 +46.9 108.2	36 46.7 +46.8 107.2
20°	39 53.7 +47.2 110.2	39 19.0 +46.9 109.3	38 44.0 +46.8 108.3	38 08.8 +46.7 107.4	37 33.5 +46.5 106.5
21°	40 40.9 +46.8 109.4	40 05.9 +46.7 108.5	39 30.8 +46.5 107.5	38 55.5 +46.3 106.6	38 20.0 +46.2 105.7
22°	41 27.7 +46.4 108.6	40 52.6 +46.3 107.6	40 17.3 +46.1 106.7	39 41.8 +46.0 105.8	39 06.2 +45.8 104.8
23°	42 14.1 +46.1 107.7	41 38.9 +45.9 106.8	41 03.4 +45.8 105.9	40 27.8 +45.6 104.9	39 52.0 +45.5 104.0
24°	43 00.2 +45.6 106.9	42 24.8 +45.4 105.9	41 49.2 +45.3 105.0	41 13.4 +45.2 104.1	40 37.5 +45.1 103.2
25°	43 45.8 +45.3 106.0	43 10.2 +45.1 105.0	42 34.5 +44.9 104.1	41 58.6 +44.8 103.2	41 22.6 +44.6 102.3
26°	44 31.1 +44.7 105.1	43 55.3 +44.6 104.1	43 19.4 +44.5 103.2	42 43.4 +44.4 102.3	42 07.2 +44.3 101.4
27°	45 15.8 +44.3 104.1	44 39.9 +44.2 103.2	44 03.9 +44.0 102.3	43 27.8 +43.9 101.4	42 51.5 +43.8 100.5
28°	46 00.1 +43.8 103.2	45 24.1 +43.7 102.2	44 47.9 +43.6 101.3	44 11.7 +43.4 100.4	43 35.3 +43.3 99.5
29°	46 43.9 +43.3 102.2	46 07.8 +43.1 101.3	45 31.5 +43.0 100.3	44 55.1 +42.9 99.5	44 18.6 +42.8 98.6

Dec	LHA 055° / 305°	LHA 056° / 304°	LHA 057° / 303°	LHA 058° / 302°	LHA 059° / 301°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	20 40.7 +50.5 118.9	20 08.2 +50.3 118.0	19 35.5 +50.1 117.1	19 02.5 +49.9 116.2	18 29.2 +49.8 115.3
1°	21 31.2 +50.4 118.3	20 58.5 +50.2 117.4	20 25.6 +50.0 116.5	19 52.4 +49.9 115.6	19 19.0 +49.7 114.7
2°	22 21.6 +50.2 117.7	21 48.7 +50.1 116.8	21 15.6 +49.9 115.9	20 42.3 +49.7 115.0	20 08.7 +49.6 114.2
3°	23 11.8 +50.1 117.1	22 38.8 +49.9 116.2	22 05.5 +49.8 115.3	21 32.0 +49.6 114.4	20 58.3 +49.4 113.5
4°	24 01.9 +49.9 116.5	23 28.7 +49.8 115.6	22 55.3 +49.6 114.7	22 21.6 +49.5 113.8	21 47.7 +49.3 112.9
5°	24 51.8 +49.8 115.9	24 18.5 +49.6 115.0	23 44.9 +49.5 114.1	23 11.1 +49.3 113.2	22 37.0 +49.1 112.3
6°	25 41.6 +49.7 115.3	25 08.1 +49.5 114.4	24 34.4 +49.3 113.5	24 00.4 +49.1 112.6	23 26.1 +49.1 111.7
7°	26 31.3 +49.5 114.7	25 57.6 +49.3 113.8	25 23.7 +49.1 112.9	24 49.5 +49.0 112.0	24 15.2 +48.8 111.1
8°	27 20.8 +49.3 114.0	26 46.9 +49.1 113.1	26 12.8 +49.0 112.2	25 38.5 +48.8 111.3	25 04.0 +48.7 110.4
9°	28 10.1 +49.1 113.4	27 36.0 +49.0 112.5	27 01.8 +48.8 111.6	26 27.3 +48.7 110.7	25 52.7 +48.5 109.8
10°	28 59.2 +48.9 112.7	28 25.0 +48.8 111.8	27 50.6 +48.6 110.9	27 16.0 +48.5 110.0	26 41.2 +48.3 109.1
11°	29 48.1 +48.7 112.1	29 13.8 +48.5 111.2	28 39.2 +48.4 110.3	28 04.5 +48.2 109.4	27 29.5 +48.1 108.5
12°	30 36.8 +48.5 111.4	30 02.3 +48.4 110.5	29 27.6 +48.2 109.6	28 52.7 +48.1 108.7	28 17.6 +48.0 107.8
13°	31 25.3 +48.3 110.7	30 50.7 +48.1 109.8	30 15.8 +48.0 108.9	29 40.8 +47.8 108.0	29 05.6 +47.7 107.1
14°	32 13.6 +48.1 110.0	31 38.8 +47.9 109.1	31 03.8 +47.8 108.2	30 28.6 +47.7 107.3	29 53.3 +47.5 106.4
15°	33 01.7 +47.8 109.3	32 26.7 +47.7 108.4	31 51.6 +47.5 107.5	31 16.3 +47.3 106.6	30 40.8 +47.2 105.7
16°	33 49.5 +47.5 108.6	33 14.4 +47.4 107.7	32 39.1 +47.3 106.8	32 03.6 +47.2 105.9	31 28.0 +47.0 105.0
17°	34 37.0 +47.3 107.8	34 01.8 +47.1 106.9	33 26.4 +47.0 106.0	32 50.8 +46.9 105.1	32 15.0 +46.8 104.2
18°	35 24.3 +47.0 107.1	34 48.9 +46.9 106.2	34 13.4 +46.7 105.3	33 37.7 +46.6 104.4	33 01.8 +46.5 103.5
19°	36 11.3 +46.7 106.3	35 35.8 +46.5 105.4	35 00.1 +46.4 104.5	34 24.3 +46.3 103.6	33 48.3 +46.2 102.7
20°	36 58.0 +46.4 105.5	36 22.3 +46.3 104.6	35 46.5 +46.1 103.7	35 10.6 +46.0 102.9	34 34.5 +45.9 102.0
21°	37 44.4 +46.0 104.7	37 08.6 +45.9 103.8	36 32.6 +45.8 102.9	35 56.6 +45.7 102.1	35 20.4 +45.6 101.2
22°	38 30.4 +45.7 103.9	37 54.5 +45.6 103.0	37 18.4 +45.5 102.1	36 42.3 +45.3 101.3	36 06.0 +45.3 100.4
23°	39 16.1 +45.4 103.1	38 40.1 +45.2 102.2	38 03.9 +45.1 101.3	37 27.6 +45.1 100.4	36 51.3 +44.9 99.6
24°	40 01.5 +44.9 102.3	39 25.3 +44.8 101.4	38 49.0 +44.8 100.5	38 12.7 +44.6 99.6	37 36.2 +44.6 98.7
25°	40 46.4 +44.6 101.4	40 10.1 +44.5 100.5	39 33.8 +44.3 99.6	38 57.3 +44.3 98.7	38 20.8 +44.2 97.9
26°	41 31.0 +44.1 100.5	40 54.6 +44.0 99.6	40 18.1 +44.0 98.7	39 41.6 +43.9 97.9	39 05.0 +43.8 97.0
27°	42 15.1 +43.7 99.6	41 38.6 +43.6 98.7	41 02.1 +43.5 97.8	40 25.5 +43.4 97.0	39 48.8 +43.3 96.1
28°	42 58.8 +43.2 98.7	42 22.2 +43.2 97.8	41 45.6 +43.1 96.9	41 08.9 +43.0 96.1	40 32.1 +43.0 95.2
29°	43 42.0 +42.8 97.7	43 05.4 +42.7 96.8	42 28.7 +42.6 96.0	41 51.9 +42.6 95.1	41 15.1 +42.5 94.3

Dec	LHA 060° / 300°	LHA 061° / 299°	LHA 062° / 298°	LHA 063° / 297°	LHA 064° / 296°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	17 55.7 +49.7 114.5	17 22.0 +49.5 113.6	16 48.0 +49.4 112.7	16 13.8 +49.2 111.9	15 39.5 +49.0 111.0
1°	18 45.4 +49.5 113.9	18 11.5 +49.3 113.0	17 37.4 +49.2 112.1	17 03.0 +49.1 111.3	16 28.5 +49.0 110.4
2°	19 34.9 +49.4 113.3	19 00.8 +49.3 112.4	18 26.6 +49.1 111.5	17 52.1 +49.0 110.7	17 17.5 +48.8 109.8
3°	20 24.3 +49.3 112.7	19 50.1 +49.1 111.8	19 15.7 +49.0 110.9	18 41.1 +48.8 110.1	18 06.3 +48.7 109.2
4°	21 13.6 +49.1 112.1	20 39.2 +49.0 111.2	20 04.7 +48.8 110.3	19 29.9 +48.8 109.5	18 55.0 +48.6 108.6
5°	22 02.7 +49.0 111.4	21 28.2 +48.9 110.6	20 53.5 +48.8 109.7	20 18.7 +48.6 108.8	19 43.6 +48.5 108.0
6°	22 51.7 +48.9 110.8	22 17.1 +48.7 109.9	21 42.3 +48.6 109.1	21 07.3 +48.4 108.2	20 32.1 +48.3 107.3
7°	23 40.6 +48.7 110.2	23 05.8 +48.6 109.3	22 30.9 +48.4 108.4	21 55.7 +48.3 107.6	21 20.4 +48.2 106.7
8°	24 29.3 +48.5 109.5	23 54.4 +48.4 108.7	23 19.3 +48.3 107.8	22 44.0 +48.2 106.9	22 08.6 +48.1 106.1
9°	25 17.8 +48.4 108.9	24 42.8 +48.2 108.0	24 07.6 +48.1 107.1	23 32.2 +48.0 106.3	22 56.7 +47.8 105.4
10°	26 06.2 +48.2 108.2	25 31.0 +48.1 107.4	24 55.7 +47.9 106.5	24 20.2 +47.8 105.6	23 44.5 +47.8 104.8
11°	26 54.4 +48.0 107.6	26 19.1 +47.9 106.7	25 43.6 +47.8 105.8	25 08.0 +47.6 105.0	24 32.3 +47.5 104.1
12°	27 42.4 +47.8 106.9	27 07.0 +47.6 106.0	26 31.4 +47.5 105.2	25 55.6 +47.5 104.3	25 19.8 +47.3 103.4
13°	28 30.2 +47.6 106.2	27 54.6 +47.5 105.3	27 18.9 +47.4 104.5	26 43.1 +47.3 103.6	26 07.1 +47.2 102.7
14°	29 17.8 +47.3 105.5	28 42.1 +47.3 104.6	28 06.3 +47.1 103.8	27 30.4 +47.0 102.9	26 54.3 +46.9 102.1
15°	30 05.1 +47.2 104.8	29 29.4 +47.0 103.9	28 53.4 +47.0 103.1	28 17.4 +46.8 102.2	27 41.2 +46.8 101.4
16°	30 52.3 +46.9 104.1	30 16.4 +46.8 103.2	29 40.4 +46.6 102.4	29 04.2 +46.6 101.5	28 28.0 +46.5 100.6
17°	31 39.2 +46.6 103.4	31 03.2 +46.5 102.5	30 27.0 +46.5 101.6	29 50.8 +46.4 100.8	29 14.5 +46.2 99.9
18°	32 25.8 +46.4 102.6	31 49.7 +46.3 101.8	31 13.5 +46.2 100.9	30 37.2 +46.1 100.0	30 00.7 +46.1 99.2
19°	33 12.2 +46.1 101.9	32 36.0 +46.0 101.0	31 59.7 +45.9 100.1	31 23.3 +45.8 99.3	30 46.8 +45.7 98.4
20°	33 58.3 +45.8 101.1	33 22.0 +45.7 100.2	32 45.6 +45.6 99.4	32 09.1 +45.6 98.5	31 32.5 +45.5 97.7
21°	34 44.1 +45.5 100.3	34 07.7 +45.4 99.5	33 31.2 +45.4 98.6	32 54.7 +45.2 97.8	32 18.0 +45.2 96.9
22°	35 29.6 +45.2 99.5	34 53.1 +45.1 98.7	34 16.6 +45.0 97.8	33 39.9 +45.0 97.0	33 03.2 +45.0 96.1
23°	36 14.8 +44.8 98.7	35 38.2 +44.8 97.9	35 01.6 +44.7 97.0	34 24.9 +44.7 96.2	33 48.2 +44.6 95.3
24°	36 59.6 +44.5 97.9	36 23.0 +44.4 97.0	35 46.3 +44.4 96.2	35 09.6 +44.3 95.4	34 32.8 +44.2 94.5
25°	37 44.1 +44.2 97.0	37 07.4 +44.1 96.2	36 30.7 +44.0 95.4	35 53.9 +44.0 94.5	35 17.0 +44.0 93.7
26°	38 28.3 +43.7 96.2	37 51.5 +43.7 95.3	37 14.7 +43.6 94.5	36 37.9 +43.6 93.7	36 01.0 +43.6 92.9
27°	39 12.0 +43.3 95.3	38 35.2 +43.3 94.5	37 58.3 +43.3 93.6	37 21.5 +43.2 92.8	36 44.6 +43.2 92.0
28°	39 55.3 +42.9 94.4	39 18.5 +42.9 93.6	38 41.6 +42.8 92.8	38 04.7 +42.8 92.0	37 27.8 +42.8 91.2
29°	40 38.2 +42.5 93.5	40 01.4 +42.4 92.7	39 24.4 +42.5 91.9	38 47.5 +42.4 91.1	38 10.6 +42.4 90.3

Dec	LHA 065° / 295°	LHA 066° / 294°	LHA 067° / 293°	LHA 068° / 292°	LHA 069° / 291°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	15 04.9 +48.9 110.2	14 30.1 +48.8 109.3	13 55.2 +48.6 108.5	13 20.1 +48.5 107.7	12 44.8 +48.4 106.8
1°	15 53.8 +48.8 109.6	15 18.9 +48.7 108.7	14 43.8 +48.6 107.9	14 08.6 +48.5 107.1	13 33.2 +48.4 106.2
2°	16 42.6 +48.7 109.0	16 07.6 +48.6 108.1	15 32.4 +48.5 107.3	14 57.1 +48.3 106.4	14 21.6 +48.2 105.6
3°	17 31.3 +48.6 108.4	16 56.2 +48.5 107.5	16 20.9 +48.3 106.7	15 45.4 +48.3 105.8	15 09.8 +48.2 105.0
4°	18 19.9 +48.5 107.7	17 44.7 +48.3 106.9	17 09.2 +48.3 106.1	16 33.7 +48.1 105.2	15 58.0 +48.0 104.4
5°	19 08.4 +48.4 107.1	18 33.0 +48.3 106.3	17 57.5 +48.1 105.4	17 21.8 +48.0 104.6	16 46.0 +47.9 103.8
6°	19 56.8 +48.2 106.5	19 21.3 +48.1 105.6	18 45.6 +48.0 104.8	18 09.8 +47.9 104.0	17 33.9 +47.8 103.1
7°	20 45.0 +48.1 105.9	20 09.4 +47.9 105.0	19 33.6 +47.9 104.2	18 57.7 +47.8 103.3	18 21.7 +47.7 102.5
8°	21 33.1 +47.9 105.2	20 57.3 +47.9 104.4	20 21.5 +47.7 103.5	19 45.5 +47.6 102.7	19 09.4 +47.6 101.8
9°	22 21.0 +47.8 104.6	21 45.2 +47.6 103.7	21 09.2 +47.6 102.9	20 33.1 +47.5 102.0	19 57.0 +47.4 101.2
10°	23 08.8 +47.6 103.9	22 32.8 +47.5 103.1	21 56.8 +47.4 102.2	21 20.6 +47.4 101.4	20 44.4 +47.2 100.5
11°	23 56.4 +47.4 103.2	23 20.3 +47.4 102.4	22 44.2 +47.3 101.6	22 08.0 +47.1 100.7	21 31.6 +47.1 99.9
12°	24 43.8 +47.2 102.6	24 07.7 +47.1 101.7	23 31.5 +47.0 100.9	22 55.1 +47.0 100.1	22 18.7 +46.9 99.2
13°	25 31.0 +47.1 101.9	24 54.8 +47.0 101.0	24 18.5 +46.9 100.2	23 42.1 +46.9 99.4	23 05.6 +46.8 98.5
14°	26 18.1 +46.9 101.2	25 41.8 +46.8 100.4	25 05.4 +46.7 99.5	24 29.0 +46.6 98.7	23 52.4 +46.6 97.9
15°	27 05.0 +46.6 100.5	26 28.6 +46.6 99.7	25 52.1 +46.5 98.8	25 15.6 +46.4 98.0	24 39.0 +46.4 97.2
16°	27 51.6 +46.4 99.8	27 15.2 +46.3 99.0	26 38.6 +46.3 98.1	26 02.0 +46.3 97.3	25 25.4 +46.1 96.5
17°	28 38.0 +46.2 99.1	28 01.5 +46.2 98.2	27 24.9 +46.1 97.4	26 48.3 +46.0 96.6	26 11.5 +46.0 95.8
18°	29 24.2 +46.0 98.3	28 47.7 +45.8 97.5	28 11.0 +45.8 96.7	27 34.3 +45.8 95.9	26 57.5 +45.8 95.0
19°	30 10.2 +45.7 97.6	29 33.5 +45.7 96.8	28 56.8 +45.6 95.9	28 20.1 +45.5 95.1	27 43.3 +45.5 94.3
20°	30 55.9 +45.4 96.9	30 19.2 +45.4 96.0	29 42.4 +45.4 95.2	29 05.6 +45.3 94.4	28 28.8 +45.2 93.6
21°	31 41.3 +45.2 96.1	31 04.6 +45.1 95.3	30 27.8 +45.0 94.4	29 50.9 +45.1 93.6	29 14.0 +45.1 92.8
22°	32 26.5 +44.9 95.3	31 49.7 +44.8 94.5	31 12.8 +44.8 93.7	30 36.0 +44.7 92.9	29 59.1 +44.7 92.1
23°	33 11.4 +44.5 94.5	32 34.5 +44.5 93.7	31 57.6 +44.5 92.9	31 20.7 +44.5 92.1	30 43.8 +44.5 91.3
24°	33 55.9 +44.3 93.7	33 19.0 +44.3 92.9	32 42.1 +44.2 92.1	32 05.2 +44.2 91.3	31 28.3 +44.2 90.5
25°	34 40.2 +43.9 92.9	34 03.3 +43.8 92.1	33 26.3 +43.9 91.3	32 49.4 +43.9 90.5	32 12.5 +43.8 89.7
26°	35 24.1 +43.5 92.1	34 47.1 +43.6 91.3	34 10.2 +43.6 90.5	33 33.3 +43.5 89.7	32 56.3 +43.6 88.9
27°	36 07.6 +43.2 91.2	35 30.7 +43.2 89.6	34 53.8 +43.2 89.6	34 16.8 +43.2 88.9	33 39.9 +43.2 88.1
28°	36 50.8 +42.8 90.4	36 13.9 +42.8 89.6	35 37.0 +42.8 88.8	35 00.0 +42.9 88.0	34 23.1 +42.9 87.2
29°	37 33.6 +42.5 89.5	36 56.7 +42.4 88.7	36 19.8 +42.4 87.9	35 42.9 +42.5 87.2	35 06.0 +42.5 86.4

Dec	LHA 070° / 290°	LHA 071° / 289°	LHA 072° / 288°	LHA 073° / 287°	LHA 074° / 286°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	12 09.3 +48.4 106.0	11 33.8 +48.2 105.2	10 58.0 +48.2 104.4	10 22.2 +48.0 103.5	9 46.2 +48.0 102.7
1°	12 57.7 +48.2 105.4	12 22.0 +48.1 104.6	11 46.2 +48.0 103.8	11 10.2 +48.0 102.9	10 34.2 +47.8 102.1
2°	13 45.9 +48.2 104.8	13 10.1 +48.1 104.0	12 34.2 +48.0 103.1	11 58.2 +47.9 102.3	11 22.0 +47.8 101.5
3°	14 34.1 +48.0 104.2	13 58.2 +47.9 103.3	13 22.2 +47.8 102.5	12 46.1 +47.7 101.7	12 09.8 +47.7 100.9
4°	15 22.1 +48.0 103.5	14 46.1 +47.9 102.7	14 10.0 +47.8 101.9	13 33.8 +47.7 101.1	12 57.5 +47.7 100.3
5°	16 10.1 +47.8 102.9	15 34.0 +47.7 102.1	14 57.8 +47.7 101.3	14 21.5 +47.6 100.5	13 45.2 +47.5 99.6
6°	16 57.9 +47.7 102.3	16 21.7 +47.7 101.5	15 45.5 +47.6 100.6	15 09.1 +47.5 99.8	14 32.7 +47.4 99.0
7°	17 45.6 +47.6 101.7	17 09.4 +47.5 100.8	16 33.1 +47.4 100.0	15 56.6 +47.4 99.2	15 20.1 +47.3 98.4
8°	18 33.2 +47.5 101.0	17 56.9 +47.4 100.2	17 20.5 +47.3 99.4	16 44.0 +47.3 98.6	16 07.4 +47.2 97.7
9°	19 20.7 +47.3 100.4	18 44.3 +47.2 99.5	18 07.8 +47.2 98.7	17 31.3 +47.1 97.9	16 54.6 +47.1 97.1
10°	20 08.0 +47.2 99.7	19 31.5 +47.2 98.9	18 55.0 +47.1 98.1	18 18.4 +47.0 97.3	17 41.7 +47.0 96.4
11°	20 55.2 +47.0 99.1	20 18.7 +46.9 98.2	19 42.1 +46.9 97.4	19 05.4 +46.9 96.6	18 28.7 +46.8 95.8
12°	21 42.2 +46.9 98.4	21 05.6 +46.8 97.6	20 29.0 +46.7 96.8	19 52.3 +46.7 95.9	19 15.5 +46.7 95.1
13°	22 29.1 +46.7 97.7	21 52.4 +46.7 96.9	21 15.7 +46.6 96.1	20 39.0 +46.5 95.3	20 02.2 +46.5 94.5
14°	23 15.8 +46.5 97.0	22 39.1 +46.5 96.2	22 02.3 +46.5 95.4	21 25.5 +46.4 94.6	20 48.7 +46.4 93.8
15°	24 02.3 +46.3 96.3	23 25.6 +46.2 95.5	22 48.8 +46.2 94.7	22 11.9 +46.2 93.9	21 35.1 +46.1 93.1
16°	24 48.6 +46.2 95.7	24 11.8 +46.1 94.8	23 35.0 +46.1 94.0	22 58.1 +46.1 93.2	22 21.2 +46.1 92.4
17°	25 34.8 +45.9 94.9	24 57.9 +45.9 94.1	24 21.1 +45.8 93.3	23 44.2 +45.8 92.5	23 07.3 +45.8 91.7
18°	26 20.7 +45.7 94.2	25 43.8 +45.7 93.4	25 06.9 +45.7 92.6	24 30.0 +45.7 91.8	23 53.1 +45.6 91.0
19°	27 06.4 +45.5 93.5	26 29.5 +45.5 92.7	25 52.6 +45.4 91.9	25 15.7 +45.4 91.1	24 38.7 +45.5 90.3
20°	27 51.9 +45.2 92.8	27 15.0 +45.2 92.0	26 38.0 +45.3 91.2	26 01.1 +45.2 90.4	25 24.2 +45.2 89.6
21°	28 37.1 +45.0 92.0	28 00.2 +45.0 91.2	27 23.3 +45.0 90.4	26 46.3 +45.0 89.6	26 09.4 +45.0 88.9
22°	29 22.1 +44.8 91.3	28 45.2 +44.7 90.5	28 08.3 +44.7 89.7	27 31.3 +44.8 88.9	26 54.4 +44.8 88.1
23°	30 06.9 +44.4 90.5	29 29.9 +44.5 89.7	28 53.0 +44.5 88.9	28 16.1 +44.5 88.1	27 39.2 +44.5 87.4
24°	30 51.3 +44.2 89.7	30 14.4 +44.2 88.9	29 37.5 +44.2 88.2	29 00.6 +44.2 87.4	28 23.7 +44.2 86.6
25°	31 35.5 +43.9 88.9	30 58.6 +43.9 88.2	30 21.7 +43.9 87.4	29 44.8 +44.0 86.6	29 07.9 +44.0 85.8
26°	32 19.4 +43.6 88.1	31 42.5 +43.6 87.4	31 05.6 +43.6 86.6	30 28.8 +43.6 85.8	29 51.9 +43.7 85.1
27°	33 03.0 +43.2 87.3	32 26.1 +43.3 86.5	31 49.2 +43.4 85.8	31 12.4 +43.4 85.0	30 35.6 +43.5 84.3
28°	33 46.2 +43.0 86.5	33 09.4 +42.9 85.7	32 32.6 +43.0 85.0	31 55.8 +43.0 84.2	31 19.1 +43.1 83.5
29°	34 29.2 +42.5 85.6	33 52.3 +42.6 84.9	33 15.6 +42.6 84.1	32 38.8 +42.8 83.4	32 02.2 +42.8 82.6

Dec	LHA 075° / 285°	LHA 076° / 284°	LHA 077° / 283°	LHA 078° / 282°	LHA 079° / 281°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	9 10.1 +47.9 101.9	8 33.9 +47.8 101.1	7 57.6 +47.8 100.3	7 21.3 +47.6 99.5	6 44.8 +47.6 98.7
1°	9 58.0 +47.8 101.3	9 21.7 +47.7 100.5	8 45.4 +47.6 99.7	8 08.9 +47.6 98.9	7 32.4 +47.5 98.1
2°	10 45.8 +47.7 100.7	10 09.4 +47.7 99.9	9 33.0 +47.6 99.1	8 56.5 +47.5 98.3	8 19.9 +47.5 97.5
3°	11 33.5 +47.7 100.1	10 57.1 +47.6 99.3	10 20.6 +47.5 98.5	9 44.0 +47.5 97.7	9 07.4 +47.4 96.9
4°	12 21.2 +47.5 99.5	11 44.7 +47.5 98.6	11 08.1 +47.5 97.8	10 31.5 +47.4 97.0	9 54.8 +47.3 96.2
5°	13 08.7 +47.5 98.8	12 32.2 +47.4 98.0	11 55.6 +47.3 97.2	11 18.9 +47.3 96.4	10 42.1 +47.3 95.6
6°	13 56.2 +47.3 98.2	13 19.6 +47.3 97.4	12 42.9 +47.3 96.6	12 06.2 +47.2 95.8	11 29.4 +47.2 95.0
7°	14 43.5 +47.3 97.6	14 06.9 +47.2 96.8	13 30.2 +47.1 96.0	12 53.4 +47.1 95.2	12 16.6 +47.1 94.4
8°	15 30.8 +47.2 96.9	14 54.1 +47.1 96.1	14 17.3 +47.1 95.3	13 40.5 +47.1 94.5	13 03.7 +47.0 93.7
9°	16 18.0 +47.0 96.3	15 41.2 +47.0 95.5	15 04.4 +47.0 94.7	14 27.6 +46.9 93.9	13 50.7 +46.9 93.1
10°	17 05.0 +46.9 95.6	16 28.2 +46.9 94.8	15 51.4 +46.8 94.0	15 14.5 +46.8 93.2	14 37.6 +46.8 92.4
11°	17 51.9 +46.8 95.0	17 15.1 +46.7 94.2	16 38.2 +46.7 93.4	16 01.3 +46.7 92.6	15 24.4 +46.7 91.8
12°	18 38.7 +46.6 94.3	18 01.8 +46.6 93.5	17 24.9 +46.6 92.7	16 48.0 +46.6 91.9	16 11.1 +46.6 91.1
13°	19 25.3 +46.5 93.7	18 48.4 +46.5 92.9	18 11.5 +46.5 92.1	17 34.6 +46.5 91.3	16 57.7 +46.4 90.5
14°	20 11.8 +46.4 93.0	19 34.9 +46.3 92.2	18 58.0 +46.3 91.4	18 21.1 +46.3 90.6	17 44.1 +46.3 89.8
15°	20 58.2 +46.1 92.3	20 21.2 +46.2 91.5	19 44.3 +46.2 90.7	19 07.4 +46.1 89.9	18 30.4 +46.2 89.1
16°	21 44.3 +46.0 91.6	21 07.4 +46.0 90.8	20 30.5 +46.0 90.0	19 53.5 +46.0 89.3	19 16.6 +46.0 88.5
17°	22 30.3 +45.9 90.9	21 53.4 +45.8 90.1	21 16.5 +45.8 89.4	20 39.5 +45.9 88.6	20 02.6 +45.9 87.8
18°	23 16.2 +45.6 90.2	22 39.2 +45.7 89.4	22 02.3 +45.6 88.7	21 25.4 +45.6 87.9	20 48.5 +45.7 87.1
19°	24 01.8 +45.4 89.5	23 24.9 +45.4 88.7	22 47.9 +45.5 88.0	22 11.0 +45.5 87.2	21 34.2 +45.5 86.4
20°	24 47.2 +45.3 88.8	24 10.3 +45.3 88.0	23 33.4 +45.3 87.2	22 56.5 +45.3 86.5	22 19.7 +45.3 85.7
21°	25 32.5 +45.0 88.1	24 55.6 +45.0 87.3	24 18.7 +45.0 86.5	23 41.8 +45.1 85.8	23 05.0 +45.1 85.0
22°	26 17.5 +44.8 87.3	25 40.6 +44.8 86.6	25 03.7 +44.9 85.8	24 26.9 +44.9 85.0	23 50.1 +45.0 84.3
23°	27 02.3 +44.5 86.6	26 25.4 +44.6 85.8	25 48.6 +44.6 85.1	25 11.8 +44.7 84.3	24 35.1 +44.7 83.6
24°	27 46.8 +44.3 85.8	27 10.0 +44.3 85.1	26 33.2 +44.4 84.3	25 56.5 +44.4 83.6	25 19.8 +44.5 82.8
25°	28 31.1 +44.1 85.1	27 54.3 +44.1 84.3	27 17.6 +44.1 83.6	26 40.9 +44.2 82.8	26 04.3 +44.3 82.1
26°	29 15.2 +43.7 84.3	28 38.4 +43.8 83.6	28 01.7 +43.9 82.8	27 25.1 +44.0 82.1	26 48.6 +44.0 81.3
27°	29 58.9 +43.5 83.5	29 22.2 +43.6 82.8	28 45.6 +43.6 82.0	28 09.1 +43.7 81.3	27 32.6 +43.8 80.6
28°	30 42.4 +43.2 82.7	30 05.8 +43.2 82.0	29 29.2 +43.4 81.2	28 52.8 +43.4 80.5	28 16.4 +43.5 79.8
29°	31 25.6 +42.8 81.9	30 49.0 +43.0 81.2	30 12.6 +43.0 80.4	29 36.2 +43.1 79.7	28 59.9 +43.2 79.0

# Declination SAME name as Latitude

# Latitude 52°

Dec	LHA 080° / 280°	LHA 081° / 279°	LHA 082° / 278°	LHA 083° / 277°	LHA 084° / 276°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	6 08.2 +47.6 97.9	5 31.6 +47.5 97.1	4 54.9 +47.5 96.3	4 18.2 +47.4 95.5	3 41.4 +47.4 94.7
1°	6 55.8 +47.4 97.3	6 19.1 +47.4 96.5	5 42.4 +47.4 95.7	5 05.6 +47.3 94.9	4 28.8 +47.3 94.1
2°	7 43.2 +47.5 96.7	7 06.5 +47.4 95.9	6 29.8 +47.3 95.1	5 52.9 +47.4 94.3	5 16.1 +47.3 93.5
3°	8 30.7 +47.3 96.1	7 53.9 +47.3 95.3	7 17.1 +47.3 94.5	6 40.3 +47.2 93.7	6 03.4 +47.2 92.9
4°	9 18.0 +47.4 95.4	8 41.2 +47.3 94.6	8 04.4 +47.3 93.8	7 27.5 +47.3 93.1	6 50.6 +47.2 92.3
5°	10 05.4 +47.2 94.8	9 28.5 +47.2 94.0	8 51.7 +47.1 93.2	8 14.8 +47.1 92.4	7 37.8 +47.2 91.6
6°	10 52.6 +47.1 94.2	10 15.7 +47.2 93.4	9 38.8 +47.2 92.6	9 01.9 +47.1 91.8	8 25.0 +47.1 91.0
7°	11 39.7 +47.1 93.6	11 02.9 +47.0 92.8	10 26.0 +47.0 92.0	9 49.0 +47.1 91.2	9 12.1 +47.0 90.4
8°	12 26.8 +47.0 92.9	11 49.9 +47.0 92.1	11 13.0 +47.0 91.3	10 36.1 +46.9 90.5	9 59.1 +47.0 89.8
9°	13 13.8 +46.9 92.3	12 36.9 +46.9 91.5	12 00.0 +46.8 90.7	11 23.0 +46.9 89.9	10 46.1 +46.9 89.1
10°	14 00.7 +46.8 91.6	13 23.8 +46.8 90.9	12 46.8 +46.8 90.1	12 09.9 +46.8 89.3	11 33.0 +46.8 88.5
11°	14 47.5 +46.7 91.0	14 10.6 +46.6 90.2	13 33.6 +46.7 89.4	12 56.7 +46.7 88.6	12 19.8 +46.7 87.9
12°	15 34.2 +46.5 90.3	14 57.2 +46.6 89.6	14 20.3 +46.6 88.8	13 43.4 +46.6 88.0	13 06.5 +46.6 87.2
13°	16 20.7 +46.5 89.7	15 43.8 +46.5 88.9	15 06.9 +46.4 88.1	14 30.0 +46.5 87.3	13 53.1 +46.5 86.6
14°	17 07.2 +46.3 89.0	16 30.3 +46.3 88.2	15 53.3 +46.4 87.5	15 16.5 +46.3 86.7	14 39.6 +46.4 85.9
15°	17 53.5 +46.2 88.4	17 16.6 +46.2 87.6	16 39.7 +46.2 86.8	16 02.8 +46.3 86.0	15 26.0 +46.3 85.3
16°	18 39.7 +46.0 87.7	18 02.8 +46.0 86.9	17 25.9 +46.1 86.1	16 49.1 +46.1 85.4	16 12.3 +46.1 84.6
17°	19 25.7 +45.9 87.0	18 48.8 +45.9 86.2	18 12.0 +45.9 85.5	17 35.2 +46.0 84.7	16 58.4 +46.1 83.9
18°	20 11.6 +45.7 86.3	19 34.7 +45.8 85.6	18 57.9 +45.8 84.8	18 21.2 +45.8 84.0	17 44.5 +45.8 83.3
19°	20 57.3 +45.6 85.6	20 20.5 +45.6 84.9	19 43.7 +45.7 84.1	19 07.0 +45.7 83.3	18 30.3 +45.8 82.6
20°	21 42.9 +45.3 84.9	21 06.1 +45.4 84.2	20 29.4 +45.4 83.4	19 52.7 +45.5 82.6	19 16.1 +45.6 81.9
21°	22 28.2 +45.2 84.2	21 51.5 +45.2 83.5	21 14.8 +45.3 82.7	20 38.2 +45.4 82.0	20 01.7 +45.4 81.2
22°	23 13.4 +45.0 83.5	22 36.7 +45.1 82.8	22 00.1 +45.1 82.0	21 23.6 +45.2 81.3	20 47.1 +45.3 80.5
23°	23 58.4 +44.8 82.8	23 21.8 +44.8 82.0	22 45.2 +44.9 81.3	22 08.8 +44.9 80.5	21 32.4 +45.0 79.8
24°	24 43.2 +44.5 82.1	24 06.6 +44.7 81.3	23 30.1 +44.8 80.6	22 53.7 +44.8 79.8	22 17.4 +44.9 79.1
25°	25 27.7 +44.4 81.3	24 51.3 +44.4 80.6	24 14.9 +44.5 79.8	23 38.5 +44.6 79.1	23 02.3 +44.7 78.4
26°	26 12.1 +44.1 80.6	25 35.7 +44.2 79.8	24 59.4 +44.3 79.1	24 23.1 +44.4 78.4	23 47.0 +44.5 77.6
27°	26 56.2 +43.9 79.8	26 19.9 +43.9 79.1	25 43.7 +44.0 78.4	25 07.5 +44.2 77.6	24 31.5 +44.3 76.9
28°	27 40.1 +43.6 79.1	27 03.8 +43.7 78.3	26 27.7 +43.8 77.6	25 51.7 +43.9 76.9	25 15.8 +44.0 76.2
29°	28 23.7 +43.3 78.3	27 47.5 +43.5 77.6	27 11.5 +43.6 76.8	26 35.6 +43.7 76.1	25 59.8 +43.8 75.4

Dec	LHA 085° / 275°	LHA 086° / 274°	LHA 087° / 273°	LHA 088° / 272°	LHA 089° / 271°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	3 04.6 +47.3 93.9	2 27.7 +47.3 93.2	1 50.8 +47.3 92.4	1 13.9 +47.3 91.6	0 36.9 +47.3 90.8
1°	3 51.9 +47.3 93.3	3 15.0 +47.3 92.5	2 38.1 +47.3 91.7	2 01.2 +47.2 91.0	1 24.2 +47.3 90.2
2°	4 39.2 +47.3 92.7	4 02.3 +47.3 91.9	3 25.4 +47.2 91.1	2 48.4 +47.3 90.3	2 11.5 +47.2 89.6
3°	5 26.5 +47.2 92.1	4 49.6 +47.2 91.3	4 12.6 +47.2 90.5	3 35.7 +47.2 89.7	2 58.7 +47.3 88.9
4°	6 13.7 +47.2 91.5	5 36.8 +47.2 90.7	4 59.8 +47.2 89.9	4 22.9 +47.2 89.1	3 46.0 +47.2 88.3
5°	7 00.9 +47.2 90.9	6 24.0 +47.1 90.1	5 47.0 +47.2 89.3	5 10.1 +47.2 88.5	4 33.2 +47.2 87.7
6°	7 48.1 +47.1 90.2	7 11.1 +47.1 89.4	6 34.2 +47.1 88.7	5 57.3 +47.1 87.9	5 20.4 +47.1 87.1
7°	8 35.2 +47.0 89.6	7 58.2 +47.1 88.8	7 21.3 +47.0 88.0	6 44.4 +47.1 87.2	6 07.5 +47.1 86.5
8°	9 22.2 +47.0 89.0	8 45.3 +46.9 88.0	8 08.3 +47.0 87.4	7 31.5 +47.0 86.6	6 54.6 +47.0 85.8
9°	10 09.2 +46.8 88.3	9 32.2 +46.9 87.6	8 55.3 +47.0 86.8	8 18.5 +46.9 86.0	7 41.6 +47.0 85.2
10°	10 56.0 +46.9 87.7	10 19.1 +46.9 86.9	9 42.3 +46.8 86.1	9 05.4 +46.9 85.4	8 28.6 +47.0 84.6
11°	11 42.9 +46.7 87.1	11 06.0 +46.7 86.3	10 29.1 +46.8 85.5	9 52.3 +46.9 84.7	9 15.6 +46.8 84.0
12°	12 29.6 +46.6 86.4	11 52.7 +46.7 85.6	11 15.9 +46.7 84.9	10 39.2 +46.7 84.1	10 02.4 +46.8 83.3
13°	13 16.2 +46.6 85.8	12 39.4 +46.6 85.0	12 02.6 +46.6 84.2	11 25.9 +46.7 83.5	10 49.2 +46.7 82.7
14°	14 02.8 +46.4 85.1	13 26.0 +46.5 84.4	12 49.2 +46.6 83.6	12 12.6 +46.5 82.8	11 35.9 +46.7 82.0
15°	14 49.2 +46.3 84.5	14 12.5 +46.3 83.7	13 35.8 +46.4 82.9	12 59.1 +46.5 82.2	12 22.6 +46.5 81.4
16°	15 35.5 +46.2 83.8	14 58.8 +46.3 83.1	14 22.2 +46.3 82.3	13 45.6 +46.4 81.5	13 09.1 +46.5 80.8
17°	16 21.7 +46.1 83.2	15 45.1 +46.1 82.4	15 08.5 +46.2 81.6	14 32.0 +46.3 80.9	13 55.6 +46.3 80.1
18°	17 07.8 +45.9 82.5	16 31.2 +46.0 81.7	15 54.7 +46.1 81.0	15 18.3 +46.1 80.2	14 41.9 +46.2 79.4
19°	17 53.7 +45.9 81.8	17 17.2 +45.9 81.1	16 40.8 +45.9 80.3	16 04.4 +46.0 79.5	15 28.1 +46.1 78.8
20°	18 39.6 +45.6 81.1	18 03.1 +45.7 80.4	17 26.7 +45.8 79.6	16 50.4 +45.9 78.9	16 14.2 +46.0 78.1
21°	19 25.2 +45.5 80.4	18 48.8 +45.6 79.7	18 12.5 +45.7 78.9	17 36.3 +45.8 78.2	17 00.2 +45.9 77.4
22°	20 10.7 +45.3 79.8	19 34.4 +45.4 79.0	18 58.2 +45.5 78.3	18 22.1 +45.6 77.5	17 46.1 +45.7 76.8
23°	20 56.0 +45.2 79.1	20 19.8 +45.3 78.3	19 43.7 +45.3 77.6	19 07.7 +45.4 76.8	18 31.8 +45.5 76.1
24°	21 41.2 +45.0 78.3	21 05.1 +45.1 77.6	20 29.0 +45.2 76.9	19 53.1 +45.3 76.1	19 17.3 +45.4 75.4
25°	22 26.2 +44.8 77.6	21 50.2 +44.9 76.9	21 14.2 +45.0 76.2	20 38.4 +45.1 75.4	20 02.7 +45.3 74.7
26°	23 11.0 +44.6 76.9	22 35.1 +44.7 76.2	21 59.2 +44.9 75.5	21 23.5 +45.0 74.7	20 48.0 +45.0 74.0
27°	23 55.6 +44.4 76.2	23 19.8 +44.5 75.5	22 44.1 +44.6 74.7	22 08.5 +44.7 74.0	21 33.0 +44.9 73.3
28°	24 40.0 +44.1 75.4	24 04.3 +44.2 74.7	23 28.7 +44.4 74.0	22 53.2 +44.6 73.3	22 17.9 +44.7 72.6
29°	25 24.1 +44.0 74.7	24 48.5 +44.1 74.0	24 13.1 +44.2 73.3	23 37.8 +44.3 72.6	23 02.6 +44.5 71.9

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Dec	LHA 090° / 270°	LHA 091° / 269°	LHA 092° / 268°	LHA 093° / 267°	LHA 094° / 266°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	0 00.0 +47.3 90.0	-0 36.9 +47.2	-1 13.9 +47.3	-1 50.8 +47.3	-2 27.7 +47.3
1°	0 47.3 +47.3 89.4	0 10.3 +47.3 88.6	-0 26.6 +47.3	-1 03.5 +47.3	-1 40.4 +47.4
2°	1 34.6 +47.2 88.8	0 57.6 +47.3 88.0	0 20.7 +47.3 87.2	-0 16.2 +47.4	-0 53.0 +47.3
3°	2 21.8 +47.3 88.2	1 44.9 +47.3 87.4	1 08.0 +47.3 86.6	0 31.2 +47.3 85.8	-0 05.7 +47.4
4°	3 09.1 +47.2 87.5	2 32.2 +47.2 86.7	1 55.3 +47.3 86.0	1 18.5 +47.3 85.2	0 41.7 +47.3 84.4
5°	3 56.3 +47.2 86.9	3 19.4 +47.2 86.1	2 42.6 +47.2 85.3	2 05.8 +47.3 84.6	1 29.0 +47.4 83.8
6°	4 43.5 +47.2 86.3	4 06.6 +47.2 85.5	3 29.8 +47.3 84.7	2 53.1 +47.2 83.9	2 16.4 +47.3 83.2
7°	5 30.7 +47.1 85.7	4 53.8 +47.2 84.9	4 17.1 +47.2 84.1	3 40.3 +47.3 83.3	3 03.7 +47.3 82.5
8°	6 17.8 +47.1 85.1	5 41.0 +47.1 84.3	5 04.3 +47.1 83.5	4 27.6 +47.2 82.7	3 51.0 +47.3 81.9
9°	7 04.9 +47.0 84.4	6 28.1 +47.1 83.7	5 51.4 +47.2 82.9	5 14.8 +47.2 82.1	4 38.3 +47.2 81.3
10°	7 51.9 +47.0 83.8	7 15.2 +47.0 83.0	6 38.6 +47.0 82.2	6 02.0 +47.1 81.5	5 25.5 +47.2 80.7
11°	8 38.9 +46.9 83.2	8 02.2 +47.0 82.4	7 25.6 +47.1 81.6	6 49.1 +47.1 80.8	6 12.7 +47.2 80.1
12°	9 25.8 +46.8 82.5	8 49.2 +46.9 81.8	8 12.7 +46.9 81.0	7 36.2 +47.1 80.2	6 59.9 +47.1 79.4
13°	10 12.6 +46.8 81.9	9 36.1 +46.8 81.1	8 59.6 +46.9 80.4	8 23.3 +46.9 79.6	7 47.0 +47.0 78.8
14°	10 59.4 +46.7 81.3	10 22.9 +46.8 80.5	9 46.5 +46.9 79.7	9 10.2 +46.9 79.0	8 34.0 +47.0 78.2
15°	11 46.1 +46.6 80.6	11 09.7 +46.7 79.9	10 33.4 +46.7 79.1	9 57.1 +46.9 78.3	9 21.0 +46.9 77.6
16°	12 32.7 +46.5 80.0	11 56.4 +46.6 79.2	11 20.1 +46.7 78.5	10 44.0 +46.7 77.7	10 07.9 +46.9 76.9
17°	13 19.2 +46.4 79.3	12 43.0 +46.5 78.6	12 06.8 +46.6 77.8	11 30.7 +46.7 77.1	10 54.8 +46.8 76.3
18°	14 05.6 +46.3 78.7	13 29.5 +46.3 77.9	12 53.4 +46.5 77.2	12 17.4 +46.6 76.4	11 41.6 +46.7 75.7
19°	14 51.9 +46.2 78.0	14 15.8 +46.3 77.3	13 39.9 +46.4 76.5	13 04.0 +46.5 75.8	12 28.3 +46.6 75.0
20°	15 38.1 +46.1 77.4	15 02.1 +46.2 76.6	14 26.3 +46.2 75.9	13 50.5 +46.4 75.1	13 14.9 +46.5 74.4
21°	16 24.2 +46.0 76.7	15 48.3 +46.1 76.0	15 12.5 +46.2 75.2	14 36.9 +46.3 74.5	14 01.4 +46.3 73.7
22°	17 10.2 +45.8 76.0	16 34.4 +45.9 75.3	15 58.7 +46.0 74.5	15 23.2 +46.1 73.8	14 47.7 +46.3 73.1
23°	17 56.0 +45.6 75.4	17 20.3 +45.8 74.6	16 44.7 +45.9 73.9	16 09.3 +46.0 73.1	15 34.0 +46.2 72.4
24°	18 41.6 +45.6 74.7	18 06.1 +45.6 73.9	17 30.6 +45.8 73.2	16 55.3 +46.0 72.5	16 20.2 +46.0 71.7
25°	19 27.2 +45.3 74.0	18 51.7 +45.5 73.3	18 16.4 +45.6 72.5	17 41.3 +45.7 71.8	17 06.2 +45.9 71.1
26°	20 12.5 +45.2 73.3	19 37.2 +45.3 72.6	19 02.0 +45.5 71.8	18 27.0 +45.6 71.1	17 52.1 +45.8 70.4
27°	20 57.7 +45.0 72.6	20 22.5 +45.2 71.9	19 47.5 +45.3 71.1	19 12.6 +45.5 70.4	18 37.9 +45.6 69.7
28°	21 42.7 +44.9 71.9	21 07.7 +45.0 71.2	20 32.8 +45.2 70.5	19 58.1 +45.3 69.7	19 23.5 +45.5 69.0
29°	22 27.6 +44.6 71.2	21 52.7 +44.8 70.5	21 18.0 +44.9 69.7	20 43.4 +45.1 69.0	20 09.0 +45.3 68.3

Dec	LHA 095° / 265°	LHA 096° / 264°	LHA 097° / 263°	LHA 098° / 262°	LHA 099° / 261°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-3 04.6 +47.4	-3 41.4 +47.4	-4 18.2 +47.5	-4 54.9 +47.5	-5 31.6 +47.5
1°	-2 17.2 +47.4	-2 54.0 +47.4	-3 30.7 +47.4	-4 07.4 +47.5	-4 44.1 +47.6
2°	-1 29.8 +47.4	-2 06.6 +47.4	-2 43.3 +47.5	-3 19.9 +47.5	-3 56.5 +47.5
3°	-0 42.4 +47.4	-1 19.2 +47.5	-1 55.8 +47.5	-2 32.4 +47.5	-3 09.0 +47.6
4°	0 05.0 +47.3 83.6	-0 31.7 +47.4	-1 08.3 +47.4	-1 44.9 +47.6	-2 21.4 +47.7
5°	0 52.3 +47.4 83.0	0 15.7 +47.4 82.2	-0 20.9 +47.5	-0 57.3 +47.5	-1 33.7 +47.6
6°	1 39.7 +47.4 82.4	1 03.1 +47.5 81.6	0 26.6 +47.5 80.8	-0 09.8 +47.6	-0 46.1 +47.6
7°	2 27.1 +47.4 81.8	1 50.6 +47.4 81.0	1 14.1 +47.5 80.2	0 37.8 +47.5 79.4	0 01.5 +47.6 78.6
8°	3 14.5 +47.3 81.1	2 38.0 +47.4 80.4	2 01.6 +47.5 79.6	1 25.3 +47.6 78.8	0 49.1 +47.7 78.0
9°	4 01.8 +47.3 80.5	3 25.4 +47.4 79.7	2 49.1 +47.4 79.0	2 12.9 +47.5 78.2	1 36.8 +47.6 77.4
10°	4 49.1 +47.3 79.9	4 12.8 +47.3 79.1	3 36.5 +47.5 78.4	3 00.4 +47.5 77.6	2 24.4 +47.6 76.8
11°	5 36.4 +47.2 79.3	5 00.1 +47.3 78.5	4 24.0 +47.4 77.7	3 47.9 +47.5 77.0	3 12.0 +47.6 76.2
12°	6 23.6 +47.2 78.7	5 47.4 +47.3 77.9	5 11.4 +47.3 77.1	4 35.4 +47.5 76.3	3 59.6 +47.5 75.6
13°	7 10.8 +47.1 78.1	6 34.7 +47.2 77.3	5 58.7 +47.3 76.5	5 22.9 +47.4 75.7	4 47.1 +47.5 75.0
14°	7 57.9 +47.1 77.4	7 21.9 +47.2 76.7	6 46.0 +47.3 75.9	6 10.3 +47.3 75.1	5 34.6 +47.5 74.3
15°	8 45.0 +47.0 76.8	8 09.1 +47.1 76.0	7 33.3 +47.2 75.3	6 57.6 +47.4 74.5	6 22.1 +47.4 73.7
16°	9 32.0 +47.0 76.2	8 56.2 +47.1 75.4	8 20.5 +47.2 74.6	7 45.0 +47.2 73.9	7 09.5 +47.4 73.1
17°	10 19.0 +46.8 75.5	9 43.3 +46.9 74.8	9 07.7 +47.1 74.0	8 32.2 +47.2 73.3	7 56.9 +47.4 72.5
18°	11 05.8 +46.8 74.9	10 30.2 +46.9 74.1	9 54.8 +47.0 73.4	9 19.4 +47.2 72.6	8 44.3 +47.2 71.9
19°	11 52.6 +46.7 74.3	11 17.1 +46.9 73.5	10 41.8 +46.9 72.8	10 06.6 +47.1 72.0	9 31.5 +47.2 71.3
20°	12 39.3 +46.7 73.6	12 04.0 +46.7 72.9	11 28.7 +46.9 72.1	10 53.7 +47.0 71.4	10 18.7 +47.2 70.6
21°	13 26.0 +46.5 73.0	12 50.7 +46.7 72.2	12 15.6 +46.8 71.5	11 40.7 +46.9 70.7	11 05.9 +47.0 70.0
22°	14 12.5 +46.4 72.3	13 37.4 +46.5 71.6	13 02.4 +46.7 70.8	12 27.6 +46.8 70.1	11 52.9 +47.0 69.4
23°	14 58.9 +46.3 71.7	14 23.9 +46.4 70.9	13 49.1 +46.5 70.2	13 14.4 +46.7 69.5	12 39.9 +46.9 68.7
24°	15 45.2 +46.2 71.0	15 10.3 +46.4 70.3	14 35.6 +46.5 69.5	14 01.1 +46.6 68.8	13 26.8 +46.7 68.1
25°	16 31.4 +46.0 70.3	15 56.7 +46.2 69.6	15 22.1 +46.4 68.9	14 47.7 +46.5 68.2	14 13.5 +46.7 67.4
26°	17 17.4 +45.9 69.7	16 42.9 +46.0 69.0	16 08.5 +46.2 68.2	15 34.2 +46.4 67.5	15 00.2 +46.6 66.8
27°	18 03.3 +45.8 69.0	17 28.9 +46.0 68.3	16 54.7 +46.1 67.6	16 20.6 +46.3 66.9	15 46.8 +46.4 66.1
28°	18 49.1 +45.6 68.3	18 14.9 +45.8 67.6	17 40.8 +46.0 66.9	17 06.9 +46.2 66.2	16 33.2 +46.3 65.5
29°	19 34.7 +45.5 67.6	19 00.7 +45.6 66.9	18 26.8 +45.8 66.2	17 53.1 +46.0 65.5	17 19.5 +46.2 64.8

# Declination SAME name as Latitude

# Latitude 52°

Dec	LHA 100° / 260°	LHA 101° / 259°	LHA 102° / 258°	LHA 103° / 257°	LHA 104° / 256°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-6 08.2 +47.5	-6 44.8 +47.7	-7 21.3 +47.7	-7 57.6 +47.7	-8 33.9 +47.8
1°	-5 20.7 +47.7	-5 57.1 +47.6	-6 33.6 +47.8	-7 09.9 +47.8	-7 46.1 +47.9
2°	-4 33.0 +47.6	-5 09.5 +47.7	-5 45.8 +47.8	-6 22.1 +47.9	-6 58.2 +47.9
3°	-3 45.4 +47.7	-4 21.8 +47.8	-4 58.0 +47.8	-5 34.2 +47.9	-6 10.3 +48.0
4°	-2 57.7 +47.6	-3 34.0 +47.7	-4 10.2 +47.8	-4 46.3 +47.9	-5 22.3 +48.0
5°	-2 10.1 +47.7	-2 46.3 +47.8	-3 22.4 +47.9	-3 58.4 +48.0	-4 34.3 +48.1
6°	-1 22.4 +47.8	-1 58.5 +47.8	-2 34.5 +47.9	-3 10.4 +47.9	-3 46.2 +48.1
7°	-0 34.6 +47.7	-1 10.7 +47.8	-1 46.6 +47.9	-2 22.5 +48.0	-2 58.1 +48.0
8°	0 13.1 +47.7 77.2	-0 22.9 +47.8	-0 58.7 +47.9	-1 34.5 +48.0	-2 10.1 +48.1
9°	1 00.8 +47.7 76.6	0 24.9 +47.8 75.8	-0 10.8 +47.9	-0 46.5 +48.0	-1 22.0 +48.2
10°	1 48.5 +47.7 76.0	1 12.7 +47.8 75.2	0 37.1 +47.8 74.4	0 01.5 +48.0 73.7	-0 33.8 +48.1
11°	2 36.2 +47.7 75.4	2 00.5 +47.8 74.6	1 24.9 +47.9 73.8	0 49.5 +48.0 73.1	0 14.3 +48.1 72.3
12°	3 23.9 +47.6 74.8	2 48.3 +47.7 74.0	2 12.8 +47.9 73.2	1 37.5 +48.0 72.5	1 02.4 +48.1 71.7
13°	4 11.5 +47.6 74.2	3 36.0 +47.8 73.4	3 00.7 +47.9 72.6	2 25.5 +48.0 71.9	1 50.5 +48.1 71.1
14°	4 59.1 +47.6 73.6	4 23.8 +47.7 72.8	3 48.6 +47.8 72.0	3 13.5 +48.0 71.2	2 38.6 +48.1 70.5
15°	5 46.7 +47.6 73.0	5 11.5 +47.6 72.2	4 36.4 +47.8 71.4	4 01.5 +47.9 70.6	3 26.7 +48.0 69.9
16°	6 34.3 +47.5 72.3	5 59.1 +47.7 71.6	5 24.2 +47.7 70.8	4 49.4 +47.9 70.0	4 14.7 +48.1 69.3
17°	7 21.8 +47.4 71.7	6 46.8 +47.6 71.0	6 11.9 +47.8 70.2	5 37.3 +47.8 69.4	5 02.8 +48.0 68.7
18°	8 09.2 +47.4 71.1	7 34.4 +47.5 70.4	6 59.7 +47.6 69.6	6 25.1 +47.8 68.8	5 50.8 +47.9 68.1
19°	8 56.6 +47.4 70.5	8 21.9 +47.5 69.7	7 47.3 +47.6 69.0	7 12.9 +47.8 68.2	6 38.7 +47.9 67.5
20°	9 44.0 +47.2 69.9	9 09.4 +47.4 69.1	8 34.9 +47.6 68.4	8 00.7 +47.7 67.6	7 26.6 +47.9 66.9
21°	10 31.2 +47.2 69.2	9 56.8 +47.3 68.5	9 22.5 +47.5 67.8	8 48.4 +47.7 67.0	8 14.5 +47.8 66.2
22°	11 18.4 +47.1 68.6	10 44.1 +47.3 67.9	10 10.0 +47.4 67.1	9 36.1 +47.5 66.4	9 02.3 +47.8 65.6
23°	12 05.5 +47.1 68.0	11 31.4 +47.2 67.2	10 57.4 +47.4 66.5	10 23.6 +47.6 65.8	9 50.1 +47.6 65.0
24°	12 52.6 +46.9 67.3	12 18.6 +47.1 66.6	11 44.8 +47.2 65.9	11 11.2 +47.4 65.1	10 37.7 +47.6 64.4
25°	13 39.5 +46.9 66.7	13 05.7 +47.0 66.0	12 32.0 +47.2 65.3	11 58.6 +47.3 64.5	11 25.3 +47.6 63.8
26°	14 26.4 +46.7 66.1	13 52.7 +46.9 65.3	13 19.2 +47.1 64.6	12 45.9 +47.3 63.9	12 12.9 +47.4 63.2
27°	15 13.1 +46.6 65.4	14 39.6 +46.8 64.7	14 06.3 +47.0 64.0	13 33.2 +47.2 63.3	13 00.3 +47.4 62.5
28°	15 59.7 +46.5 64.8	15 26.4 +46.7 64.0	14 53.3 +46.8 63.3	14 20.4 +47.0 62.6	13 47.7 +47.2 61.9
29°	16 46.2 +46.4 64.1	16 13.1 +46.5 63.4	15 40.1 +46.8 62.7	15 07.4 +47.0 62.0	14 34.9 +47.2 61.3

Dec	LHA 105° / 255°	LHA 106° / 254°	LHA 107° / 253°	LHA 108° / 252°	LHA 109° / 251°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-9 10.1 +47.9	-9 46.2 +48.0			
1°	-8 22.2 +48.0	-8 58.2 +48.1	-9 34.1 +48.2		
2°	-7 34.2 +48.0	-8 10.1 +48.1	-8 45.9 +48.2	-9 21.6 +48.3	-9 57.1 +48.4
3°	-6 46.2 +48.1	-7 22.0 +48.1	-7 57.7 +48.3	-8 33.3 +48.4	-9 08.7 +48.5
4°	-5 58.1 +48.1	-6 33.9 +48.3	-7 09.4 +48.3	-7 44.9 +48.4	-8 20.2 +48.6
5°	-5 10.0 +48.1	-5 45.6 +48.2	-6 21.1 +48.3	-6 56.5 +48.5	-7 31.6 +48.6
6°	-4 21.9 +48.2	-4 57.4 +48.3	-5 32.8 +48.4	-6 08.0 +48.5	-6 43.0 +48.6
7°	-3 33.7 +48.2	-4 09.1 +48.3	-4 44.4 +48.5	-5 19.5 +48.6	-5 54.4 +48.7
8°	-2 45.5 +48.2	-3 20.8 +48.3	-3 55.9 +48.4	-4 30.9 +48.5	-5 05.7 +48.7
9°	-1 57.3 +48.2	-2 32.5 +48.4	-3 07.5 +48.5	-3 42.4 +48.6	-4 17.0 +48.7
10°	-1 09.1 +48.3	-1 44.1 +48.3	-2 19.0 +48.5	-2 53.8 +48.7	-3 28.3 +48.7
11°	-0 20.8 +48.2	-0 55.8 +48.4	-1 30.5 +48.4	-2 05.1 +48.6	-2 39.6 +48.8
12°	0 27.4 +48.2 70.9	-0 07.4 +48.4	-0 42.1 +48.5	-1 16.5 +48.6	-1 50.8 +48.8
13°	1 15.6 +48.3 70.3	0 41.0 +48.3 69.5	0 06.4 +48.5 68.7	-0 27.9 +48.7	-1 02.0 +48.8
14°	2 03.9 +48.2 69.7	1 29.3 +48.4 68.9	0 54.9 +48.5 68.1	0 20.8 +48.6 67.3	-0 13.2 +48.8
15°	2 52.1 +48.2 69.1	2 17.7 +48.3 68.3	1 43.4 +48.5 67.5	1 09.4 +48.6 66.8	0 35.6 +48.7 66.0
16°	3 40.3 +48.2 68.5	3 06.0 +48.3 67.7	2 31.9 +48.5 66.9	1 58.0 +48.6 66.2	1 24.3 +48.8 65.4
17°	4 28.5 +48.1 67.9	3 54.3 +48.3 67.1	3 20.4 +48.4 66.4	2 46.6 +48.6 65.6	2 13.1 +48.8 64.8
18°	5 16.6 +48.1 67.3	4 42.6 +48.3 66.5	4 08.8 +48.4 65.8	3 35.2 +48.6 65.0	3 01.9 +48.7 64.2
19°	6 04.7 +48.1 66.7	5 30.9 +48.2 65.9	4 57.2 +48.4 65.2	4 23.8 +48.6 64.4	3 50.6 +48.7 63.6
20°	6 52.8 +48.0 66.1	6 19.1 +48.2 65.3	5 45.6 +48.4 64.6	5 12.4 +48.5 63.8	4 39.3 +48.7 63.1
21°	7 40.8 +48.0 65.5	7 07.3 +48.1 64.7	6 34.0 +48.3 64.0	6 00.9 +48.5 63.2	5 28.0 +48.7 62.5
22°	8 28.8 +47.9 64.9	7 55.4 +48.1 64.1	7 22.3 +48.2 63.4	6 49.4 +48.4 62.6	6 16.7 +48.6 61.9
23°	9 16.7 +47.8 64.3	8 43.5 +48.0 63.5	8 10.5 +48.2 62.8	7 37.8 +48.4 62.0	7 05.3 +48.6 61.3
24°	10 04.5 +47.8 63.7	9 31.5 +48.0 62.9	8 58.7 +48.2 62.2	8 26.2 +48.3 61.4	7 53.9 +48.5 60.7
25°	10 52.3 +47.7 63.1	10 19.5 +47.9 62.3	9 46.9 +48.1 61.6	9 14.5 +48.3 60.8	8 42.4 +48.4 60.1
26°	11 40.0 +47.6 62.4	11 07.4 +47.8 61.7	10 35.0 +48.0 61.0	10 02.8 +48.2 60.2	9 30.8 +48.4 59.5
27°	12 27.6 +47.6 61.8	11 55.2 +47.7 61.1	11 23.0 +47.9 60.4	10 51.0 +48.1 59.6	10 19.2 +48.4 58.9
28°	13 15.2 +47.4 61.2	12 42.9 +47.7 60.5	12 10.9 +47.9 59.7	11 39.1 +48.1 59.0	11 07.6 +48.2 58.3
29°	14 02.6 +47.4 60.6	13 30.6 +47.6 59.8	12 58.8 +47.7 59.1	12 27.2 +48.0 58.4	11 55.8 +48.2 57.7

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Dec	LHA 110° / 250°	LHA 111° / 249°	LHA 112° / 248°	LHA 113° / 247°	LHA 114° / 246°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°	-9 43.9 +48.6				
4°	-8 55.3 +48.7	-9 30.3 +48.8			
5°	-8 06.6 +48.7	-8 41.5 +48.9	-9 16.2 +49.0	-9 50.6 +49.1	
6°	-7 17.9 +48.7	-7 52.6 +48.8	-8 27.2 +49.0	-9 01.5 +49.1	-9 35.7 +49.4
7°	-6 29.2 +48.8	-7 03.8 +49.0	-7 38.2 +49.1	-8 12.4 +49.3	-8 46.3 +49.3
8°	-5 40.4 +48.9	-6 14.8 +48.9	-6 49.1 +49.1	-7 23.1 +49.2	-7 57.0 +49.4
9°	-4 51.5 +48.8	-5 25.9 +49.1	-6 00.0 +49.2	-6 33.9 +49.3	-7 07.6 +49.5
10°	-4 02.7 +48.9	-4 36.8 +49.0	-5 10.8 +49.2	-5 44.6 +49.4	-6 18.1 +49.5
11°	-3 13.8 +48.9	-3 47.8 +49.0	-4 21.6 +49.2	-4 55.2 +49.3	-5 28.6 +49.5
12°	-2 24.9 +48.9	-2 58.8 +49.1	-3 32.4 +49.2	-4 05.9 +49.4	-4 39.1 +49.5
13°	-1 36.0 +49.0	-2 09.7 +49.1	-2 43.2 +49.2	-3 16.5 +49.4	-3 49.6 +49.6
14°	-0 47.0 +48.9	-1 20.6 +49.1	-1 54.0 +49.3	-2 27.1 +49.4	-3 00.0 +49.6
15°	0 01.9 +49.0 65.2	-0 31.5 +49.1	-1 04.7 +49.3	-1 37.7 +49.5	-2 10.4 +49.6
16°	0 50.9 +48.9 64.6	0 17.6 +49.1 63.8	-0 15.4 +49.2	-0 48.2 +49.4	-1 20.8 +49.6
17°	1 39.8 +48.9 64.0	1 06.7 +49.1 63.2	0 33.8 +49.3 62.5	0 01.2 +49.4 61.7	-0 31.2 +49.6
18°	2 28.7 +48.9 63.4	1 55.8 +49.1 62.7	1 23.1 +49.2 61.9	0 50.6 +49.4 61.1	0 18.4 +49.6 60.3
19°	3 17.6 +48.9 62.9	2 44.9 +49.0 62.1	2 12.3 +49.3 61.3	1 40.0 +49.5 60.5	1 08.0 +49.6 59.8
20°	4 06.5 +48.9 62.3	3 33.9 +49.1 61.5	3 01.6 +49.2 60.7	2 29.5 +49.4 60.0	1 57.6 +49.6 59.2
21°	4 55.4 +48.8 61.7	4 23.0 +49.0 60.9	3 50.8 +49.2 60.2	3 18.9 +49.4 59.4	2 47.2 +49.6 58.6
22°	5 44.2 +48.8 61.1	5 12.0 +49.0 60.4	4 40.0 +49.2 59.6	4 08.3 +49.3 58.8	3 36.8 +49.5 58.1
23°	6 33.0 +48.8 60.5	6 01.0 +48.9 59.8	5 29.2 +49.1 59.0	4 57.6 +49.3 58.3	4 26.3 +49.6 57.5
24°	7 21.8 +48.7 60.0	6 49.9 +48.9 59.2	6 18.3 +49.1 58.4	5 46.9 +49.3 57.7	5 15.9 +49.5 56.9
25°	8 10.5 +48.6 59.4	7 38.8 +48.9 58.6	7 07.4 +49.1 57.9	6 36.2 +49.3 57.1	6 05.4 +49.4 56.4
26°	8 59.1 +48.6 58.8	8 27.7 +48.8 58.0	7 56.5 +49.0 57.3	7 25.5 +49.2 56.5	6 54.8 +49.4 55.8
27°	9 47.7 +48.6 58.2	9 16.5 +48.7 57.4	8 45.5 +48.9 56.7	8 14.7 +49.2 56.0	7 44.2 +49.4 55.2
28°	10 36.3 +48.4 57.6	10 05.2 +48.7 56.9	9 34.4 +48.9 56.1	9 03.9 +49.1 55.4	8 33.6 +49.3 54.7
29°	11 24.7 +48.4 57.0	10 53.9 +48.6 56.3	10 23.3 +48.8 55.5	9 53.0 +49.0 54.8	9 22.9 +49.3 54.1

Dec	LHA 115° / 245°	LHA 116° / 244°	LHA 117° / 243°	LHA 118° / 242°	LHA 119° / 241°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°	-9 20.1 +49.5	-9 53.7 +49.7			
8°	-8 30.6 +49.5	-9 04.0 +49.7	-9 37.2 +49.9		
9°	-7 41.1 +49.7	-8 14.3 +49.8	-8 47.3 +49.9	-9 20.1 +50.1	-9 52.6 +50.3
10°	-6 51.4 +49.6	-7 24.5 +49.8	-7 57.4 +50.0	-8 30.0 +50.2	-9 02.3 +50.3
11°	-6 01.8 +49.7	-6 34.7 +49.8	-7 07.4 +50.0	-7 39.8 +50.1	-8 12.0 +50.3
12°	-5 12.1 +49.7	-5 44.9 +49.9	-6 17.4 +50.1	-6 49.7 +50.3	-7 21.7 +50.4
13°	-4 22.4 +49.7	-4 55.0 +49.9	-5 27.3 +50.0	-5 59.4 +50.2	-6 31.3 +50.5
14°	-3 32.7 +49.8	-4 05.1 +49.9	-4 37.3 +50.1	-5 09.2 +50.3	-5 40.8 +50.5
15°	-2 42.9 +49.8	-3 15.2 +50.0	-3 47.2 +50.2	-4 18.9 +50.3	-4 50.3 +50.5
16°	-1 53.1 +49.7	-2 25.2 +50.0	-2 57.0 +50.1	-3 28.6 +50.4	-3 59.8 +50.5
17°	-1 03.4 +49.8	-1 35.2 +49.9	-2 06.9 +50.2	-2 38.2 +50.3	-3 09.3 +50.5
18°	-0 13.6 +49.8	-0 45.3 +50.0	-1 16.7 +50.1	-1 47.9 +50.4	-2 18.8 +50.6
19°	0 36.2 +49.8 59.0	0 04.7 +50.0 58.2	-0 26.6 +50.2	-0 57.5 +50.3	-1 28.2 +50.5
20°	1 26.0 +49.8 58.4	0 54.7 +49.9 57.6	0 23.6 +50.2 56.9	-0 07.2 +50.4	-0 37.7 +50.6
21°	2 15.8 +49.8 57.9	1 44.6 +50.0 57.1	1 13.8 +50.1 56.3	0 43.2 +50.3 55.5	0 12.9 +50.5 54.7
22°	3 05.6 +49.7 57.3	2 34.6 +50.0 56.5	2 03.9 +50.2 55.8	1 33.5 +50.4 55.0	1 03.4 +50.6 54.2
23°	3 55.3 +49.7 56.7	3 24.6 +49.9 56.0	2 54.1 +50.1 55.2	2 23.9 +50.3 54.4	1 54.0 +50.5 53.7
24°	4 45.0 +49.7 56.2	4 14.5 +49.9 55.4	3 44.2 +50.1 54.7	3 14.2 +50.3 53.9	2 44.5 +50.5 53.1
25°	5 34.7 +49.7 55.6	5 04.4 +49.9 54.9	4 34.3 +50.1 54.1	4 04.5 +50.3 53.3	3 35.0 +50.6 52.6
26°	6 24.4 +49.6 55.1	5 54.3 +49.8 54.3	5 24.4 +50.1 53.6	4 54.8 +50.3 52.8	4 25.6 +50.4 52.0
27°	7 14.0 +49.6 54.5	6 44.1 +49.8 53.7	6 14.5 +50.0 53.0	5 45.1 +50.2 52.3	5 16.0 +50.5 51.5
28°	8 03.6 +49.6 53.9	7 33.9 +49.8 53.2	7 04.5 +50.0 52.4	6 35.3 +50.2 51.7	6 06.5 +50.4 51.0
29°	8 53.2 +49.4 53.4	8 23.7 +49.7 52.6	7 54.5 +49.9 51.9	7 25.5 +50.2 51.1	6 56.9 +50.4 50.4

Dec	LHA 120° / 240°	LHA 121° / 239°	LHA 122° / 238°	LHA 123° / 237°	LHA 124° / 236°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°	-9 34.4 +50.5				
11°	-8 43.9 +50.5	-9 15.6 +50.8	-9 46.9 +50.9		
12°	-7 53.4 +50.6	-8 24.8 +50.7	-8 56.0 +51.0	-9 26.9 +51.2	-9 57.4 +51.3
13°	-7 02.8 +50.6	-7 34.1 +50.8	-8 05.0 +51.0	-8 35.7 +51.2	-9 06.1 +51.4
14°	-6 12.2 +50.7	-6 43.3 +50.9	-7 14.0 +51.0	-7 44.5 +51.2	-8 14.7 +51.4
15°	-5 21.5 +50.7	-5 52.4 +50.9	-6 23.0 +51.1	-6 53.3 +51.3	-7 23.3 +51.5
16°	-4 30.8 +50.7	-5 01.5 +50.9	-5 31.9 +51.1	-6 02.0 +51.3	-6 31.8 +51.5
17°	-3 40.1 +50.7	-4 10.6 +50.9	-4 40.8 +51.1	-5 10.7 +51.3	-5 40.3 +51.5
18°	-2 49.4 +50.7	-3 19.7 +50.9	-3 49.7 +51.1	-4 19.4 +51.3	-4 48.8 +51.5
19°	-1 58.7 +50.8	-2 28.8 +51.0	-2 58.6 +51.2	-3 28.1 +51.4	-3 57.3 +51.6
20°	-1 07.9 +50.8	-1 37.8 +50.9	-2 07.4 +51.1	-2 36.7 +51.3	-3 05.7 +51.6
21°	-0 17.1 +50.7	-0 46.9 +51.0	-1 16.3 +51.2	-1 45.4 +51.4	-2 14.1 +51.5
22°	0 33.6 +50.8 53.4	0 04.1 +51.0 52.6	-0 25.1 +51.2	-0 54.0 +51.4	-1 22.6 +51.6
23°	1 24.4 +50.7 52.9	0 55.1 +50.9 52.1	0 26.1 +51.1 51.3	-0 02.6 +51.4	-0 31.0 +51.6
24°	2 15.1 +50.8 52.4	1 46.0 +51.0 51.6	1 17.2 +51.2 50.8	0 48.8 +51.4 50.0	0 20.6 +51.6 49.2
25°	3 05.9 +50.7 51.8	2 37.0 +50.9 51.0	2 08.4 +51.2 50.3	1 40.2 +51.3 49.5	1 12.2 +51.6 48.7
26°	3 56.6 +50.7 51.3	3 27.9 +50.9 50.5	2 59.6 +51.1 49.8	2 31.5 +51.4 49.0	2 03.8 +51.6 48.2
27°	4 47.3 +50.7 50.7	4 18.8 +50.9 50.0	3 50.7 +51.1 49.2	3 22.9 +51.3 48.5	2 55.4 +51.6 47.7
28°	5 38.0 +50.6 50.2	5 09.7 +50.9 49.5	4 41.8 +51.1 48.7	4 14.2 +51.3 47.9	3 47.0 +51.5 47.2
29°	6 28.6 +50.6 49.7	6 00.6 +50.8 48.9	5 32.9 +51.1 48.2	5 05.5 +51.3 47.4	4 38.5 +51.5 46.7

Dec	LHA 125° / 235°	LHA 126° / 234°	LHA 127° / 233°	LHA 128° / 232°	LHA 129° / 231°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°	-9 36.2 +51.6				
14°	-8 44.6 +51.6	-9 14.1 +51.8	-9 43.3 +52.0		
15°	-7 53.0 +51.7	-8 22.3 +51.9	-8 51.3 +52.1	-9 20.0 +52.3	-9 48.3 +52.5
16°	-7 01.3 +51.7	-7 30.4 +51.9	-7 59.2 +52.1	-8 27.7 +52.3	-8 55.8 +52.5
17°	-6 09.6 +51.7	-6 38.5 +51.9	-7 07.1 +52.1	-7 35.4 +52.3	-8 03.3 +52.5
18°	-5 17.9 +51.8	-5 46.6 +51.9	-6 15.0 +52.1	-6 43.1 +52.4	-7 10.8 +52.6
19°	-4 26.1 +51.7	-4 54.7 +52.0	-5 22.9 +52.2	-5 50.7 +52.4	-6 18.2 +52.6
20°	-3 34.4 +51.8	-4 02.7 +52.0	-4 30.7 +52.2	-4 58.3 +52.4	-5 25.6 +52.6
21°	-2 42.6 +51.8	-3 10.7 +52.0	-3 38.5 +52.3	-4 05.9 +52.4	-4 33.0 +52.7
22°	-1 50.8 +51.8	-2 18.7 +52.0	-2 46.2 +52.2	-3 13.5 +52.5	-3 40.3 +52.7
23°	-0 59.0 +51.8	-1 26.7 +52.1	-1 54.0 +52.2	-2 21.0 +52.4	-2 47.6 +52.6
24°	-0 07.2 +51.8	-0 34.6 +52.0	-1 01.8 +52.3	-1 28.6 +52.5	-1 55.0 +52.7
25°	0 44.6 +51.8 47.9	0 17.4 +52.0 47.2	-0 09.5 +52.2	-0 36.1 +52.5	-1 02.3 +52.7
26°	1 36.4 +51.8 47.4	1 09.4 +52.0 46.7	0 42.7 +52.3 45.9	0 16.4 +52.4 45.1	-0 09.6 +52.7
27°	2 28.2 +51.8 46.9	2 01.4 +52.0 46.2	1 35.0 +52.2 45.4	1 08.8 +52.5 44.6	0 43.1 +52.7 43.8
28°	3 20.0 +51.8 46.4	2 53.4 +52.0 45.7	2 27.2 +52.2 44.9	2 01.3 +52.4 44.1	1 35.8 +52.6 43.3
29°	4 11.8 +51.8 45.9	3 45.4 +52.0 45.2	3 19.4 +52.2 44.4	2 53.7 +52.5 43.6	2 28.4 +52.7 42.9

Dec	LHA 130° / 230°	LHA 131° / 229°	LHA 132° / 228°	LHA 133° / 227°	LHA 134° / 226°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°	-9 23.6 +52.7	-9 51.0 +53.0			
17°	-8 30.9 +52.8	-8 58.0 +52.9	-9 24.8 +53.1	-9 51.3 +53.4	
18°	-7 38.1 +52.8	-8 05.1 +53.0	-8 31.7 +53.3	-8 57.9 +53.5	-9 23.7 +53.7
19°	-6 45.3 +52.8	-7 12.1 +53.1	-7 38.4 +53.2	-8 04.4 +53.4	-8 30.0 +53.6
20°	-5 52.5 +52.8	-6 19.0 +53.0	-6 45.2 +53.3	-7 11.0 +53.5	-7 36.4 +53.7
21°	-4 59.7 +52.9	-5 26.0 +53.1	-5 51.9 +53.2	-6 17.5 +53.5	-6 42.7 +53.7
22°	-4 06.8 +52.9	-4 32.9 +53.1	-4 58.7 +53.3	-5 24.0 +53.5	-5 49.0 +53.8
23°	-3 13.9 +52.9	-3 39.8 +53.1	-4 05.4 +53.4	-4 30.5 +53.5	-4 55.2 +53.7
24°	-2 21.0 +52.9	-2 46.7 +53.1	-3 12.0 +53.3	-3 37.0 +53.6	-4 01.5 +53.8
25°	-1 28.1 +52.9	-1 53.6 +53.1	-2 18.7 +53.4	-2 43.4 +53.6	-3 07.7 +53.8
26°	-0 35.2 +52.9	-1 00.5 +53.2	-1 25.3 +53.3	-1 49.8 +53.5	-2 13.9 +53.8
27°	0 17.7 +52.9 43.0	-0 07.3 +53.1	-0 32.0 +53.4	-0 56.3 +53.6	-1 20.1 +53.7
28°	1 10.6 +52.9 42.6	0 45.8 +53.1 41.8	0 21.4 +53.3 41.0	-0 02.7 +53.6	-0 26.4 +53.8
29°	2 03.5 +52.9 42.1	1 38.9 +53.1 41.3	1 14.7 +53.3 40.6	0 50.9 +53.5 39.8	0 27.4 +53.8 39.0

Dec	LHA 135° / 225°	LHA 136° / 224°	LHA 137° / 223°	LHA 138° / 222°	LHA 139° / 221°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°	-9 49.1 +53.9				
19°	-8 55.2 +53.8	-9 20.0 +54.0			
20°	-8 01.4 +53.9	-8 26.0 +54.2			
21°	-7 07.5 +54.0	-7 31.8 +54.1			
22°	-6 13.5 +53.9	-6 37.7 +54.2			
23°	-5 19.6 +54.0	-5 43.5 +54.2			
24°	-4 25.6 +54.0	-4 49.3 +54.2			
25°	-3 31.6 +54.0	-3 55.1 +54.2			
26°	-2 37.6 +54.0	-3 00.9 +54.2			
27°	-1 43.6 +54.0	-2 06.7 +54.2			
28°	-0 49.6 +54.0	-1 12.5 +54.3			
29°	0 04.4 +54.0 38.2	-0 18.2 +54.2			

Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	37 00.0 +60.0 180.0	36 59.6 +60.0 178.7	36 58.4 +60.0 177.5	36 56.5 +59.9 176.2	36 53.7 +59.9 175.0
1°	38 00.0 +60.0 180.0	37 59.6 +60.0 178.7	37 58.4 +60.0 177.5	37 56.4 +60.0 176.2	37 53.6 +59.9 174.9
2°	39 00.0 +60.0 180.0	38 59.6 +60.0 178.7	38 58.4 +60.0 177.4	38 56.4 +59.9 176.1	38 53.5 +59.9 174.9
3°	40 00.0 +60.0 180.0	39 59.6 +60.0 178.7	39 58.4 +59.9 177.4	39 56.3 +60.0 176.1	39 53.4 +59.9 174.8
4°	41 00.0 +60.0 180.0	40 59.6 +60.0 178.7	40 58.3 +60.0 177.4	40 56.3 +59.9 176.0	40 53.3 +60.0 174.7
5°	42 00.0 +60.0 180.0	41 59.6 +60.0 178.7	41 58.3 +60.0 177.3	41 56.2 +59.9 176.0	41 53.3 +59.9 174.6
6°	43 00.0 +60.0 180.0	42 59.6 +60.0 178.6	42 58.3 +60.0 177.3	42 56.1 +60.0 175.9	42 53.2 +59.9 174.6
7°	44 00.0 +60.0 180.0	43 59.6 +60.0 178.6	43 58.3 +59.9 177.2	43 56.1 +59.9 175.9	43 53.1 +59.8 174.5
8°	45 00.0 +60.0 180.0	44 59.6 +60.0 178.6	44 58.2 +60.0 177.2	44 56.0 +60.0 175.8	44 52.9 +59.9 174.4
9°	46 00.0 +60.0 180.0	45 59.6 +59.9 178.6	45 58.2 +60.0 177.2	45 56.0 +59.9 175.7	45 52.8 +59.9 174.3
10°	47 00.0 +60.0 180.0	46 59.5 +60.0 178.6	46 58.2 +60.0 177.1	46 55.9 +59.9 175.7	46 52.7 +59.9 174.2
11°	48 00.0 +60.0 180.0	47 59.5 +60.0 178.5	47 58.2 +59.9 177.1	47 55.8 +60.0 175.6	47 52.6 +59.9 174.1
12°	49 00.0 +60.0 180.0	48 59.5 +60.0 178.5	48 58.1 +60.0 177.0	48 55.8 +59.9 175.5	48 52.5 +59.9 174.0
13°	50 00.0 +60.0 180.0	49 59.5 +60.0 178.5	49 58.1 +60.0 177.0	49 55.7 +59.9 175.5	49 52.4 +59.8 173.9
14°	51 00.0 +60.0 180.0	50 59.5 +60.0 178.5	50 58.1 +59.9 176.9	50 55.6 +60.0 175.4	50 52.2 +59.9 173.8
15°	52 00.0 +60.0 180.0	51 59.5 +60.0 178.4	51 58.0 +60.0 176.9	51 55.6 +59.9 175.3	51 52.1 +59.9 173.7
16°	53 00.0 +60.0 180.0	52 59.5 +60.0 178.4	52 58.0 +60.0 176.8	52 55.5 +59.9 175.2	52 52.0 +59.8 173.6
17°	54 00.0 +60.0 180.0	53 59.5 +60.0 178.4	53 58.0 +59.9 176.7	53 55.4 +59.9 175.1	53 51.8 +59.9 173.5
18°	55 00.0 +60.0 180.0	54 59.5 +60.0 178.3	54 57.9 +60.0 176.7	54 55.3 +59.9 175.0	54 51.7 +59.8 173.4
19°	56 00.0 +60.0 180.0	55 59.5 +60.0 178.3	55 57.9 +59.9 176.6	55 55.2 +59.9 174.9	55 51.5 +59.8 173.3
20°	57 00.0 +60.0 180.0	56 59.5 +59.9 178.3	56 57.8 +60.0 176.6	56 55.1 +59.9 174.8	56 51.3 +59.8 173.1
21°	58 00.0 +60.0 180.0	57 59.4 +60.0 178.2	57 57.8 +59.9 176.5	57 55.0 +59.9 174.7	57 51.1 +59.8 173.0
22°	59 00.0 +60.0 180.0	58 59.4 +60.0 178.2	58 57.7 +60.0 176.4	58 54.9 +59.9 174.6	58 50.9 +59.8 172.8
23°	60 00.0 +60.0 180.0	59 59.4 +60.0 178.2	59 57.7 +59.9 176.3	59 54.8 +59.9 174.5	59 50.7 +59.8 172.7
24°	61 00.0 +60.0 180.0	60 59.4 +60.0 178.1	60 57.6 +60.0 176.2	60 54.7 +59.8 174.4	60 50.5 +59.8 172.5
25°	62 00.0 +60.0 180.0	61 59.4 +60.0 178.1	61 57.6 +59.9 176.1	61 54.5 +59.9 174.2	61 50.3 +59.8 172.3
26°	63 00.0 +60.0 180.0	62 59.4 +60.0 178.0	62 57.5 +59.9 176.0	62 54.4 +59.8 174.1	62 50.1 +59.7 172.1
27°	64 00.0 +60.0 180.0	63 59.4 +59.9 178.0	63 57.4 +60.0 175.9	63 54.2 +59.9 173.9	63 49.8 +59.7 171.9
28°	65 00.0 +60.0 180.0	64 59.3 +60.0 177.9	64 57.4 +59.9 175.8	64 54.1 +59.8 173.7	64 49.5 +59.7 171.7
29°	66 00.0 +60.0 180.0	65 59.3 +60.0 177.9	65 57.3 +59.9 175.7	65 53.9 +59.8 173.6	65 49.2 +59.7 171.4

Dec	LHA 005° / 355°	LHA 006° / 354°	LHA 007° / 353°	LHA 008° / 352°	LHA 009° / 351°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	36 50.2 +59.8 173.7	36 45.8 +59.8 172.5	36 40.7 +59.8 171.3	36 34.9 +59.6 170.0	36 28.2 +59.6 168.8
1°	37 50.0 +59.9 173.7	37 45.6 +59.9 172.4	37 40.5 +59.7 171.1	37 34.5 +59.7 169.9	37 27.8 +59.6 168.6
2°	38 49.9 +59.8 173.6	38 45.5 +59.8 172.3	38 40.2 +59.7 171.0	38 34.2 +59.6 169.8	38 27.4 +59.5 168.5
3°	39 49.7 +59.9 173.5	39 45.3 +59.7 172.2	39 39.9 +59.8 170.9	39 33.8 +59.7 169.6	39 26.9 +59.6 168.3
4°	40 49.6 +59.9 173.4	40 45.0 +59.8 172.1	40 39.7 +59.7 170.8	40 33.5 +59.6 169.5	40 26.5 +59.5 168.2
5°	41 49.5 +59.8 173.3	41 44.8 +59.8 172.0	41 39.4 +59.7 170.6	41 33.1 +59.6 169.3	41 26.0 +59.5 168.0
6°	42 49.3 +59.9 173.2	42 44.6 +59.8 171.9	42 39.1 +59.7 170.5	42 32.7 +59.6 169.2	42 25.5 +59.5 167.8
7°	43 49.2 +59.8 173.1	43 44.4 +59.8 171.7	43 38.8 +59.7 170.4	43 32.3 +59.6 169.0	43 25.0 +59.5 167.7
8°	44 49.0 +59.8 173.0	44 44.2 +59.7 171.6	44 38.5 +59.6 170.2	44 31.9 +59.6 168.9	44 24.5 +59.5 167.5
9°	45 48.8 +59.9 172.9	45 43.9 +59.8 171.5	45 38.1 +59.7 170.1	45 31.5 +59.6 168.7	45 24.0 +59.4 167.3
10°	46 48.7 +59.8 172.8	46 43.7 +59.7 171.4	46 37.8 +59.7 169.9	46 31.1 +59.5 168.5	46 23.4 +59.5 167.1
11°	47 48.5 +59.8 172.7	47 43.4 +59.7 171.2	47 37.5 +59.6 169.8	47 30.6 +59.5 168.3	47 22.9 +59.4 166.9
12°	48 48.3 +59.8 172.6	48 43.1 +59.8 171.1	48 37.1 +59.6 169.6	48 30.1 +59.5 168.1	48 22.3 +59.3 166.7
13°	49 48.1 +59.8 172.4	49 42.9 +59.7 170.9	49 36.7 +59.6 169.4	49 29.6 +59.5 167.9	49 21.6 +59.4 166.5
14°	50 47.9 +59.8 172.3	50 42.6 +59.7 170.8	50 36.3 +59.6 169.3	50 29.1 +59.5 167.7	50 21.0 +59.3 166.2
15°	51 47.7 +59.8 172.2	51 42.3 +59.7 170.6	51 35.9 +59.6 169.1	51 28.6 +59.4 167.5	51 20.3 +59.3 166.0
16°	52 47.5 +59.7 172.0	52 42.0 +59.6 170.5	52 35.5 +59.5 168.9	52 28.0 +59.5 167.3	52 19.6 +59.3 165.8
17°	53 47.2 +59.8 171.9	53 41.6 +59.7 170.3	53 35.0 +59.6 168.7	53 27.5 +59.3 167.1	53 18.9 +59.2 165.5
18°	54 47.0 +59.7 171.7	54 41.3 +59.6 170.1	54 34.6 +59.5 168.5	54 26.8 +59.4 166.8	54 18.1 +59.2 165.2
19°	55 46.7 +59.8 171.6	55 40.9 +59.6 169.9	55 34.1 +59.4 168.2	55 26.2 +59.3 166.6	55 17.3 +59.2 164.9
20°	56 46.5 +59.7 171.4	56 40.5 +59.6 169.7	56 33.5 +59.5 168.0	56 25.5 +59.3 166.3	56 16.5 +59.1 164.6
21°	57 46.2 +59.7 171.2	57 40.1 +59.6 169.5	57 33.0 +59.4 167.8	57 24.8 +59.3 166.0	57 15.6 +59.0 164.3
22°	58 45.9 +59.7 171.0	58 39.7 +59.5 169.3	58 32.4 +59.4 167.5	58 24.1 +59.2 165.7	58 14.6 +59.0 164.0
23°	59 45.6 +59.6 170.8	59 39.2 +59.6 169.0	59 31.8 +59.4 167.2	59 23.3 +59.1 165.4	59 13.6 +59.0 163.7
24°	60 45.2 +59.7 170.6	60 38.8 +59.4 168.8	60 31.2 +59.3 166.9	60 22.4 +59.1 165.1	60 12.6 +58.9 163.3
25°	61 44.9 +59.6 170.4	61 38.2 +59.5 168.5	61 30.5 +59.2 166.6	61 21.5 +59.1 164.7	61 11.5 +58.8 162.9
26°	62 44.5 +59.6 170.2	62 37.7 +59.4 168.2	62 29.7 +59.2 166.3	62 20.6 +59.0 164.4	62 10.3 +58.7 162.5
27°	63 44.1 +59.5 169.9	63 37.1 +59.4 167.9	63 28.9 +59.2 165.9	63 19.6 +58.9 164.0	63 09.0 +58.6 162.0
28°	64 43.6 +59.6 169.6	64 36.5 +59.3 167.6	64 28.1 +59.1 165.5	64 18.5 +58.8 163.5	64 07.6 +58.6 161.5
29°	65 43.2 +59.5 169.3	65 35.8 +59.3 167.2	65 27.2 +59.0 165.1	65 17.3 +58.7 163.1	65 06.2 +58.4 161.0

Dec	LHA 010° / 350°	LHA 011° / 349°	LHA 012° / 348°	LHA 013° / 347°	LHA 014° / 346°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	36 20.8 +59.5 167.5	36 12.6 +59.4 166.3	36 03.7 +59.3 165.1	35 54.1 +59.1 163.9	35 43.7 +59.0 162.7
1°	37 20.3 +59.5 167.4	37 12.0 +59.4 166.1	37 03.0 +59.3 164.9	36 53.2 +59.1 163.7	36 42.7 +59.0 162.4
2°	38 19.8 +59.4 167.2	38 11.4 +59.3 166.0	38 02.3 +59.2 164.7	37 52.3 +59.1 163.5	37 41.7 +58.9 162.2
3°	39 19.2 +59.5 167.0	39 10.7 +59.4 165.8	39 01.5 +59.2 164.5	38 51.4 +59.1 163.2	38 40.6 +59.0 162.0
4°	40 18.7 +59.4 166.9	40 10.1 +59.3 165.6	40 00.7 +59.2 164.3	39 50.5 +59.1 163.0	39 39.6 +58.9 161.7
5°	41 18.1 +59.4 166.7	41 09.4 +59.3 165.4	40 59.9 +59.1 164.1	40 49.6 +59.0 162.8	40 38.5 +58.8 161.5
6°	42 17.5 +59.4 166.5	42 08.7 +59.2 165.2	41 59.0 +59.2 163.8	41 48.6 +59.0 162.5	41 37.3 +58.9 161.2
7°	43 16.9 +59.4 166.3	43 07.9 +59.3 165.0	42 58.2 +59.1 163.6	42 47.6 +58.9 162.3	42 36.2 +58.8 161.0
8°	44 16.3 +59.3 166.1	44 07.2 +59.2 164.7	43 57.3 +59.0 163.4	43 46.5 +58.9 162.0	43 35.0 +58.7 160.7
9°	45 15.6 +59.3 165.9	45 06.4 +59.2 164.5	44 56.3 +59.1 163.1	44 45.4 +58.9 161.8	44 33.7 +58.7 160.4
10°	46 14.9 +59.3 165.7	46 05.6 +59.1 164.3	45 55.4 +59.0 162.9	45 44.3 +58.9 161.5	45 32.4 +58.7 160.1
11°	47 14.2 +59.3 165.5	47 04.7 +59.2 164.0	46 54.4 +58.9 162.6	46 43.2 +58.8 161.2	46 31.1 +58.6 159.8
12°	48 13.5 +59.2 165.2	48 03.9 +59.0 163.8	47 53.3 +59.0 162.3	47 42.0 +58.7 160.9	47 29.7 +58.6 159.5
13°	49 12.7 +59.3 165.0	49 02.9 +59.1 163.5	48 52.3 +58.8 162.1	48 40.7 +58.7 160.6	48 28.3 +58.5 159.2
14°	50 12.0 +59.1 164.7	50 02.0 +59.0 163.2	49 51.1 +58.9 161.8	49 39.4 +58.6 160.3	49 26.8 +58.4 158.8
15°	51 11.1 +59.2 164.5	51 01.0 +59.0 163.0	50 50.0 +58.8 161.5	50 38.0 +58.6 160.0	50 25.2 +58.4 158.5
16°	52 10.3 +59.1 164.2	52 00.0 +58.9 162.7	51 48.8 +58.7 161.1	51 36.6 +58.6 159.6	51 23.6 +58.3 158.1
17°	53 09.4 +59.0 163.9	52 58.9 +58.9 162.4	52 47.5 +58.7 160.8	52 35.2 +58.4 159.3	52 21.9 +58.3 157.7
18°	54 08.4 +59.0 163.6	53 57.8 +58.8 162.0	53 46.2 +58.6 160.5	53 33.6 +58.4 158.9	53 20.2 +58.1 157.3
19°	55 07.4 +59.0 163.3	54 56.6 +58.7 161.7	54 44.8 +58.5 160.1	54 32.0 +58.3 158.5	54 18.3 +58.1 156.9
20°	56 06.4 +58.9 163.0	55 55.3 +58.7 161.3	55 43.3 +58.5 159.7	55 30.3 +58.2 158.1	55 16.4 +57.9 156.5
21°	57 05.3 +58.9 162.6	56 54.0 +58.7 161.0	56 41.8 +58.3 159.3	56 28.5 +58.1 157.7	56 14.3 +57.9 156.0
22°	58 04.2 +58.8 162.3	57 52.7 +58.5 160.6	57 40.1 +58.3 158.9	57 26.6 +58.1 157.2	57 12.2 +57.7 155.5
23°	59 03.0 +58.7 161.9	58 51.2 +58.5 160.1	58 38.4 +58.2 158.4	58 24.7 +57.9 156.7	58 09.9 +57.6 155.0
24°	60 01.7 +58.6 161.5	59 49.7 +58.3 159.7	59 36.6 +58.1 157.9	59 22.6 +57.7 156.2	59 07.5 +57.5 154.5
25°	61 00.3 +58.5 161.1	60 48.0 +58.3 159.2	60 34.7 +58.0 157.4	60 20.3 +57.7 155.7	60 05.0 +57.3 153.9
26°	61 58.8 +58.5 160.6	61 46.3 +58.1 158.7	61 32.7 +57.8 156.9	61 18.0 +57.5 155.1	61 02.3 +57.1 153.3
27°	62 57.3 +58.3 160.1	62 44.4 +58.1 158.2	62 30.5 +57.7 156.3	62 15.5 +57.3 154.5	61 59.4 +56.9 152.7
28°	63 55.6 +58.2 159.6	63 42.5 +57.8 157.6	63 28.2 +57.5 155.7	63 12.8 +57.1 153.9	62 56.3 +56.8 152.0
29°	64 53.8 +58.1 159.0	64 40.3 +57.7 157.0	64 25.7 +57.3 155.1	64 09.9 +56.9 153.2	63 53.1 +56.5 151.3

Dec	LHA 015° / 345°	LHA 016° / 344°	LHA 017° / 343°	LHA 018° / 342°	LHA 019° / 341°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	35 32.6 +58.8 161.5	35 20.7 +58.7 160.2	35 08.2 +58.5 159.1	34 54.9 +58.4 157.9	34 40.9 +58.3 156.7
1°	36 31.4 +58.9 161.2	36 19.4 +58.7 160.0	36 06.7 +58.6 158.8	35 53.3 +58.4 157.6	35 39.2 +58.2 156.4
2°	37 30.3 +58.8 161.0	37 18.1 +58.7 159.7	37 05.3 +58.5 158.5	36 51.7 +58.3 157.3	36 37.4 +58.2 156.1
3°	38 29.1 +58.8 160.7	38 16.8 +58.6 159.5	38 03.8 +58.4 158.2	37 50.0 +58.3 157.0	37 35.6 +58.1 155.8
4°	39 27.9 +58.7 160.5	39 15.4 +58.6 159.2	39 02.2 +58.5 157.9	38 48.3 +58.3 156.7	38 33.7 +58.0 155.5
5°	40 26.6 +58.7 160.2	40 14.0 +58.6 158.9	40 00.7 +58.3 157.6	39 46.6 +58.2 156.4	39 31.7 +58.0 155.1
6°	41 25.3 +58.7 159.9	41 12.6 +58.5 158.6	40 59.0 +58.4 157.3	40 44.8 +58.1 156.1	40 29.7 +58.0 154.8
7°	42 24.0 +58.6 159.6	42 11.1 +58.4 158.3	41 57.4 +58.2 157.0	41 42.9 +58.1 155.7	41 27.7 +57.9 154.5
8°	43 22.6 +58.6 159.4	43 09.5 +58.4 158.0	42 55.6 +58.2 156.7	42 41.0 +58.0 155.4	42 25.6 +57.8 154.1
9°	44 21.2 +58.6 159.1	44 07.9 +58.4 157.7	43 53.8 +58.2 156.4	43 39.0 +57.9 155.1	43 23.4 +57.7 153.7
10°	45 19.8 +58.4 158.7	45 06.3 +58.3 157.4	44 52.0 +58.1 156.0	44 36.9 +57.9 154.7	44 21.1 +57.7 153.4
11°	46 18.2 +58.5 158.4	46 04.6 +58.2 157.0	45 50.1 +58.0 155.7	45 34.8 +57.8 154.3	45 18.8 +57.6 153.0
12°	47 16.7 +58.3 158.1	47 02.8 +58.1 156.7	46 48.1 +57.9 155.3	46 32.6 +57.7 153.9	46 16.4 +57.5 152.6
13°	48 15.0 +58.3 157.7	48 00.9 +58.1 156.3	47 46.0 +57.9 154.9	47 30.3 +57.7 153.5	47 13.9 +57.4 152.1
14°	49 13.3 +58.3 157.4	48 59.0 +58.0 156.0	48 43.9 +57.8 154.5	48 28.0 +57.5 153.1	48 11.3 +57.3 151.7
15°	50 11.6 +58.1 157.0	49 57.0 +58.0 155.6	49 41.7 +57.7 154.1	49 25.5 +57.5 152.7	49 08.6 +57.1 151.3
16°	51 09.7 +58.1 156.6	50 55.0 +57.8 155.1	50 39.4 +57.6 153.7	50 23.0 +57.3 152.2	50 05.7 +57.1 150.8
17°	52 07.8 +58.0 156.2	51 52.8 +57.8 154.7	51 37.0 +57.5 153.2	51 20.3 +57.2 151.8	51 02.8 +57.0 150.3
18°	53 05.8 +57.9 155.8	52 50.6 +57.6 154.3	52 34.5 +57.3 152.8	52 17.5 +57.1 151.3	51 59.8 +56.8 149.8
19°	54 03.7 +57.8 155.4	53 48.2 +57.5 153.8	53 31.8 +57.3 152.3	53 14.6 +57.0 150.8	52 56.6 +56.6 149.3
20°	55 01.5 +57.7 154.9	54 45.7 +57.4 153.3	54 29.1 +57.1 151.8	54 11.6 +56.8 150.2	53 53.2 +56.5 148.7
21°	55 59.2 +57.5 154.4	55 43.1 +57.3 152.8	55 26.2 +57.0 151.2	55 08.4 +56.6 149.7	54 49.7 +56.4 148.2
22°	56 56.7 +57.5 153.9	56 40.4 +57.1 152.3	56 23.2 +56.8 150.7	56 05.0 +56.5 149.1	55 46.1 +56.1 147.5
23°	57 54.2 +57.3 153.4	57 37.5 +57.0 151.7	57 20.0 +56.6 150.1	57 01.5 +56.3 148.5	56 42.2 +56.0 146.9
24°	58 51.5 +57.1 152.8	58 34.5 +56.8 151.1	58 16.6 +56.4 149.5	57 57.8 +56.1 147.8	57 38.2 +55.7 146.2
25°	59 48.6 +57.0 152.2	59 31.3 +56.6 150.5	59 13.0 +56.3 148.8	58 53.9 +55.9 147.2	58 33.9 +55.5 145.5
26°	60 45.6 +56.7 151.6	60 27.9 +56.4 149.8	60 09.3 +56.0 148.1	59 49.8 +55.6 146.5	59 29.4 +55.2 144.8
27°	61 42.3 +56.6 150.9	61 24.3 +56.1 149.1	61 05.3 +55.7 147.4	60 45.4 +55.3 145.7	60 24.6 +54.9 144.0
28°	62 38.9 +56.3 150.2	62 20.4 +55.9 148.4	62 01.0 +55.5 146.6	61 40.7 +55.1 144.9	61 19.5 +54.6 143.2
29°	63 35.2 +56.1 149.4	63 16.3 +55.7 147.6	62 56.5 +55.2 145.8	62 35.8 +54.7 144.0	62 14.1 +54.3 142.3

# Declination SAME name as Latitude

# Latitude 53°

Dec	LHA 020° / 340°	LHA 021° / 339°	LHA 022° / 338°	LHA 023° / 337°	LHA 024° / 336°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	34 26.3 +58.1 155.5	34 11.0 +57.9 154.3	33 55.0 +57.7 153.2	33 38.4 +57.5 152.0	33 21.1 +57.4 150.9
1°	35 24.4 +58.0 155.2	35 08.9 +57.8 154.0	34 52.7 +57.7 152.8	34 35.9 +57.5 151.7	34 18.5 +57.2 150.5
2°	36 22.4 +58.0 154.9	36 06.7 +57.8 153.7	35 50.4 +57.6 152.5	35 33.4 +57.4 151.3	35 15.7 +57.3 150.1
3°	37 20.4 +57.9 154.6	37 04.5 +57.8 153.3	36 48.0 +57.6 152.1	36 30.8 +57.3 151.0	36 13.0 +57.1 149.8
4°	38 18.3 +57.9 154.2	38 02.3 +57.7 153.0	37 45.6 +57.4 151.8	37 28.1 +57.3 150.6	37 10.1 +57.0 149.4
5°	39 16.2 +57.8 153.9	39 00.0 +57.6 152.7	38 43.0 +57.4 151.4	38 25.4 +57.2 150.2	38 07.1 +57.0 149.0
6°	40 14.0 +57.8 153.5	39 57.6 +57.5 152.3	39 40.4 +57.4 151.1	39 22.6 +57.1 149.8	39 04.1 +56.9 148.6
7°	41 11.8 +57.6 153.2	40 55.1 +57.5 151.9	40 37.8 +57.2 150.7	40 19.7 +57.1 149.4	40 01.0 +56.8 148.2
8°	42 09.4 +57.6 152.8	41 52.6 +57.4 151.5	41 35.0 +57.2 150.3	41 16.8 +56.9 149.0	40 57.8 +56.7 147.8
9°	43 07.0 +57.6 152.4	42 50.0 +57.3 151.1	42 32.2 +57.1 149.9	42 13.7 +56.8 148.6	41 54.5 +56.7 147.3
10°	44 04.6 +57.4 152.0	43 47.3 +57.2 150.7	43 29.3 +56.9 149.4	43 10.5 +56.8 148.2	42 51.2 +56.5 146.9
11°	45 02.0 +57.4 151.6	44 44.5 +57.1 150.3	44 26.2 +56.9 149.0	44 07.3 +56.6 147.7	43 47.7 +56.3 146.4
12°	45 59.4 +57.2 151.2	45 41.6 +57.0 149.9	45 23.1 +56.8 148.6	45 03.9 +56.5 147.2	44 44.0 +56.3 145.9
13°	46 56.6 +57.2 150.8	46 38.6 +56.9 149.4	46 19.9 +56.6 148.1	46 00.4 +56.4 146.8	45 40.3 +56.1 145.4
14°	47 53.8 +57.0 150.3	47 35.5 +56.8 149.0	47 16.5 +56.6 147.6	46 56.8 +56.3 146.3	46 36.4 +56.0 144.9
15°	48 50.8 +56.9 149.9	48 32.3 +56.7 148.5	48 13.1 +56.4 147.1	47 53.1 +56.1 145.8	47 32.4 +55.9 144.4
16°	49 47.7 +56.8 149.4	49 29.0 +56.5 148.0	49 09.5 +56.2 146.6	48 49.2 +56.0 145.2	48 28.3 +55.6 143.9
17°	50 44.5 +56.7 148.9	50 25.5 +56.4 147.5	50 05.7 +56.1 146.1	49 45.2 +55.8 144.7	49 23.9 +55.6 143.3
18°	51 41.2 +56.5 148.4	51 21.9 +56.2 146.9	51 01.8 +55.9 145.5	50 41.0 +55.6 144.1	50 19.5 +55.3 142.7
19°	52 37.7 +56.4 147.8	52 18.1 +56.1 146.4	51 57.7 +55.8 144.9	51 36.6 +55.4 143.5	51 14.8 +55.1 142.1
20°	53 34.1 +56.2 147.2	53 14.2 +55.8 145.8	52 53.5 +55.5 144.3	52 32.0 +55.3 142.9	52 09.9 +54.9 141.5
21°	54 30.3 +56.0 146.6	54 10.0 +55.7 145.1	53 49.0 +55.4 143.7	53 27.3 +55.0 142.2	53 04.8 +54.7 140.8
22°	55 26.3 +55.8 146.0	55 05.7 +55.5 144.5	54 44.4 +55.1 143.0	54 22.3 +54.8 141.5	53 59.5 +54.4 140.1
23°	56 22.1 +55.6 145.4	56 01.2 +55.2 143.8	55 39.5 +54.9 142.3	55 17.1 +54.5 140.8	54 53.9 +54.1 139.4
24°	57 17.7 +55.4 144.7	56 56.4 +55.0 143.1	56 34.4 +54.6 141.6	56 11.6 +54.2 140.1	55 48.0 +53.9 138.6
25°	58 13.1 +55.0 143.9	57 51.4 +54.7 142.4	57 29.0 +54.3 140.8	57 05.8 +53.9 139.3	56 41.9 +53.6 137.8
26°	59 08.1 +54.9 143.2	58 46.1 +54.4 141.6	58 23.3 +54.0 140.0	57 59.7 +53.6 138.5	57 35.5 +53.2 137.0
27°	60 03.0 +54.5 142.4	59 40.5 +54.1 140.8	59 17.3 +53.7 139.2	58 53.3 +53.3 137.6	58 28.7 +52.8 136.1
28°	60 57.5 +54.1 141.5	60 34.6 +53.7 139.9	60 11.0 +53.2 138.3	59 46.6 +52.8 136.7	59 21.5 +52.4 135.2
29°	61 51.6 +53.8 140.6	61 28.3 +53.4 139.0	61 04.2 +52.9 137.4	60 39.4 +52.4 135.8	60 13.9 +52.0 134.2

Dec	LHA 025° / 335°	LHA 026° / 334°	LHA 027° / 333°	LHA 028° / 332°	LHA 029° / 331°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	33 03.2 +57.2 149.7	32 44.7 +57.0 148.6	32 25.6 +56.7 147.5	32 05.9 +56.5 146.3	31 45.6 +56.3 145.2
1°	34 00.4 +57.1 149.4	33 41.7 +56.8 148.2	33 22.3 +56.7 147.1	33 02.4 +56.5 145.9	32 41.9 +56.2 144.8
2°	34 57.5 +57.0 149.0	34 38.5 +56.8 147.8	34 19.0 +56.6 146.7	33 58.9 +56.3 145.5	33 38.1 +56.2 144.4
3°	35 54.5 +56.9 148.6	35 35.3 +56.7 147.4	35 15.6 +56.5 146.3	34 55.2 +56.3 145.1	34 34.3 +56.1 144.0
4°	36 51.4 +56.8 148.2	36 32.0 +56.7 147.0	36 12.1 +56.4 145.9	35 51.5 +56.2 144.7	35 30.4 +55.9 143.6
5°	37 48.2 +56.8 147.8	37 28.7 +56.5 146.6	37 08.5 +56.3 145.4	36 47.7 +56.1 144.3	36 26.3 +55.9 143.1
6°	38 45.0 +56.7 147.4	38 25.2 +56.5 146.2	38 04.8 +56.2 145.0	37 43.8 +56.0 143.8	37 22.2 +55.7 142.6
7°	39 41.7 +56.5 147.0	39 21.7 +56.3 145.8	39 01.0 +56.1 144.6	38 39.8 +55.9 143.4	38 17.9 +55.7 142.2
8°	40 38.2 +56.5 146.5	40 18.0 +56.3 145.3	39 57.1 +56.0 144.1	39 35.7 +55.7 142.9	39 13.6 +55.5 141.7
9°	41 34.7 +56.4 146.1	41 14.3 +56.1 144.8	40 53.1 +55.9 143.6	40 31.4 +55.7 142.4	40 09.1 +55.4 141.2
10°	42 31.1 +56.3 145.6	42 10.4 +56.0 144.4	41 49.0 +55.8 143.1	41 27.1 +55.5 141.9	41 04.5 +55.2 140.7
11°	43 27.4 +56.1 145.1	43 06.4 +55.9 143.9	42 44.8 +55.6 142.6	42 22.6 +55.3 141.4	41 59.7 +55.2 140.2
12°	44 23.5 +56.0 144.7	44 02.3 +55.7 143.4	43 40.4 +55.5 142.1	43 17.9 +55.3 140.9	42 54.9 +54.9 139.6
13°	45 19.5 +55.9 144.1	44 58.0 +55.6 142.9	44 35.9 +55.3 141.6	44 13.2 +55.0 140.3	43 49.8 +54.8 139.1
14°	46 15.4 +55.7 143.6	45 53.6 +55.5 142.3	45 31.2 +55.2 141.0	45 08.2 +54.9 139.8	44 44.6 +54.6 138.5
15°	47 11.1 +55.5 143.1	46 49.1 +55.2 141.8	46 26.4 +55.0 140.5	46 03.1 +54.7 139.2	45 39.2 +54.4 137.9
16°	48 06.6 +55.4 142.5	47 44.3 +55.1 141.2	47 21.4 +54.8 139.9	46 57.8 +54.5 138.6	46 33.6 +54.3 137.3
17°	49 02.0 +55.2 141.9	48 39.4 +54.9 140.6	48 16.2 +54.6 139.3	47 52.3 +54.3 138.0	47 27.9 +54.0 136.7
18°	49 57.2 +55.0 141.3	49 34.3 +54.7 140.0	49 10.8 +54.4 138.7	48 46.6 +54.1 137.3	48 21.9 +53.8 136.1
19°	50 52.2 +54.8 140.7	50 29.0 +54.5 139.4	50 05.2 +54.2 138.0	49 40.7 +53.9 136.7	49 15.7 +53.5 135.4
20°	51 47.0 +54.6 140.1	51 23.5 +54.3 138.7	50 59.4 +53.9 137.3	50 34.6 +53.6 136.0	50 09.2 +53.3 134.7
21°	52 41.6 +54.4 139.4	52 17.8 +54.0 138.0	51 53.3 +53.7 136.6	51 28.2 +53.3 135.3	51 02.5 +53.0 134.0
22°	53 36.0 +54.0 138.7	53 11.8 +53.7 137.3	52 47.0 +53.4 135.9	52 21.5 +53.1 134.5	51 55.5 +52.7 133.2
23°	54 30.0 +53.8 137.9	54 05.5 +53.5 136.5	53 40.4 +53.0 135.1	53 14.6 +52.7 133.8	52 48.2 +52.4 132.4
24°	55 23.8 +53.5 137.2	54 59.0 +53.1 135.7	54 33.4 +52.8 134.3	54 07.3 +52.4 133.0	53 40.6 +52.0 131.6
25°	56 17.3 +53.2 136.4	55 52.1 +52.8 134.9	55 26.2 +52.4 133.5	54 59.7 +52.0 132.1	54 32.6 +51.7 130.8
26°	57 10.5 +52.8 135.5	56 44.9 +52.4 134.1	56 18.6 +52.0 132.6	55 51.7 +51.7 131.2	55 24.3 +51.3 129.9
27°	58 03.3 +52.4 134.6	57 37.3 +52.0 133.2	57 10.6 +51.6 131.7	56 43.4 +51.2 130.3	56 15.6 +50.8 128.9
28°	58 55.7 +52.0 133.7	58 29.3 +51.5 132.2	58 02.2 +51.2 130.8	57 34.6 +50.8 129.4	57 06.4 +50.4 128.0
29°	59 47.7 +51.5 132.7	59 20.8 +51.1 131.2	58 53.4 +50.7 129.8	58 25.4 +50.2 128.4	57 56.8 +49.8 127.0

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Dec	LHA 030° / 330°	LHA 031° / 329°	LHA 032° / 328°	LHA 033° / 327°	LHA 034° / 326°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	31 24.7 +56.1 144.1	31 03.3 +55.9 143.0	30 41.3 +55.7 142.0	30 18.8 +55.4 140.9	29 55.7 +55.3 139.8
1°	32 20.8 +56.0 143.7	31 59.2 +55.8 142.6	31 37.0 +55.6 141.5	31 14.2 +55.4 140.4	30 51.0 +55.1 139.4
2°	33 16.8 +56.0 143.3	32 55.0 +55.7 142.2	32 32.6 +55.5 141.1	32 09.6 +55.3 140.0	31 46.1 +55.1 138.9
3°	34 12.8 +55.8 142.9	33 50.7 +55.6 141.7	33 28.1 +55.3 140.6	33 04.9 +55.2 139.5	32 41.2 +54.9 138.4
4°	35 08.6 +55.8 142.4	34 46.3 +55.5 141.3	34 23.4 +55.3 140.2	34 00.1 +55.0 139.1	33 36.1 +54.9 138.0
5°	36 04.4 +55.6 142.0	35 41.8 +55.4 140.8	35 18.7 +55.2 139.7	34 55.1 +54.9 138.6	34 31.0 +54.7 137.5
6°	37 00.0 +55.5 141.5	36 37.2 +55.3 140.3	36 13.9 +55.1 139.2	35 50.0 +54.9 138.1	35 25.7 +54.5 137.0
7°	37 55.5 +55.4 141.0	37 32.5 +55.2 139.9	37 09.0 +54.9 138.7	36 44.9 +54.6 137.6	36 20.2 +54.5 136.4
8°	38 50.9 +55.3 140.5	38 27.7 +55.0 139.4	38 03.9 +54.8 138.2	37 39.5 +54.6 137.1	37 14.7 +54.3 135.9
9°	39 46.2 +55.1 140.0	39 22.7 +54.9 138.8	38 58.7 +54.6 137.7	38 34.1 +54.4 136.5	38 09.0 +54.1 135.4
10°	40 41.3 +55.0 139.5	40 17.6 +54.7 138.3	39 53.3 +54.5 137.1	39 28.5 +54.2 136.0	39 03.1 +54.0 134.8
11°	41 36.3 +54.9 139.0	41 12.3 +54.6 137.8	40 47.8 +54.3 136.6	40 22.7 +54.1 135.4	39 57.1 +53.9 134.3
12°	42 31.2 +54.7 138.4	42 06.9 +54.5 137.2	41 42.1 +54.2 136.0	41 16.8 +53.9 134.9	40 51.0 +53.6 133.7
13°	43 25.9 +54.5 137.9	43 01.4 +54.2 136.7	42 36.3 +54.0 135.5	42 10.7 +53.7 134.3	41 44.6 +53.4 133.1
14°	44 20.4 +54.3 137.3	43 55.6 +54.1 136.1	43 30.3 +53.8 134.9	43 04.4 +53.5 133.7	42 38.0 +53.3 132.5
15°	45 14.7 +54.2 136.7	44 49.7 +53.8 135.5	44 24.1 +53.6 134.2	43 57.9 +53.4 133.0	43 31.3 +53.0 131.8
16°	46 08.9 +53.9 136.1	45 43.5 +53.7 134.8	45 17.7 +53.3 133.6	44 51.3 +53.0 132.4	44 24.3 +52.8 131.2
17°	47 02.8 +53.7 135.4	46 37.2 +53.4 134.2	46 11.0 +53.2 132.9	45 44.3 +52.9 131.7	45 17.1 +52.6 130.5
18°	47 56.5 +53.5 134.8	47 30.6 +53.2 133.5	47 04.2 +52.9 132.3	46 37.2 +52.6 131.0	46 09.7 +52.3 129.8
19°	48 50.0 +53.3 134.1	48 23.8 +52.9 132.8	47 57.1 +52.6 131.6	47 29.8 +52.3 130.3	47 02.0 +52.1 129.1
20°	49 43.3 +52.9 133.4	49 16.7 +52.7 132.1	48 49.7 +52.3 130.9	48 22.1 +52.1 129.6	47 54.1 +51.7 128.4
21°	50 36.2 +52.7 132.7	50 09.4 +52.4 131.4	49 42.0 +52.1 130.1	49 14.2 +51.7 128.9	48 45.8 +51.4 127.6
22°	51 28.9 +52.4 131.9	51 01.8 +52.0 130.6	50 34.1 +51.7 129.3	50 05.9 +51.4 128.1	49 37.2 +51.1 126.8
23°	52 21.3 +52.0 131.1	51 53.8 +51.7 129.8	51 25.8 +51.4 128.5	50 57.3 +51.1 127.3	50 28.3 +50.8 126.0
24°	53 13.3 +51.7 130.3	52 45.5 +51.4 129.0	52 17.2 +51.0 127.7	51 48.4 +50.7 126.4	51 19.1 +50.3 125.2
25°	54 05.0 +51.3 129.4	53 36.9 +50.9 128.1	53 08.2 +50.6 126.8	52 39.1 +50.2 125.5	52 09.4 +50.0 124.3
26°	54 56.3 +50.9 128.5	54 27.8 +50.6 127.2	53 58.8 +50.2 125.9	53 29.3 +49.9 124.6	52 59.4 +49.5 123.4
27°	55 47.2 +50.5 127.6	55 18.4 +50.1 126.3	54 49.0 +49.7 125.0	54 19.2 +49.4 123.7	53 48.9 +49.1 122.4
28°	56 37.7 +50.0 126.6	56 08.5 +49.6 125.3	55 38.7 +49.3 124.0	55 08.6 +48.9 122.7	54 38.0 +48.6 121.5
29°	57 27.7 +49.4 125.6	56 58.1 +49.1 124.3	56 28.0 +48.7 123.0	55 57.5 +48.4 121.7	55 26.6 +48.0 120.4

Dec	LHA 035° / 325°	LHA 036° / 324°	LHA 037° / 323°	LHA 038° / 322°	LHA 039° / 321°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	29 32.2 +55.0 138.8	29 08.1 +54.8 137.7	28 43.6 +54.6 136.7	28 18.6 +54.4 135.6	27 53.1 +54.2 134.6
1°	30 27.2 +54.9 138.3	30 02.9 +54.8 137.2	29 38.2 +54.5 136.2	29 13.0 +54.2 135.1	28 47.3 +54.0 134.1
2°	31 22.1 +54.9 137.8	30 57.7 +54.6 136.8	30 32.7 +54.4 135.7	30 07.2 +54.2 134.7	29 41.3 +54.0 133.6
3°	32 17.0 +54.7 137.3	31 52.3 +54.5 136.3	31 27.1 +54.2 135.2	31 01.4 +54.0 134.2	30 35.3 +53.8 133.1
4°	33 11.7 +54.6 136.9	32 46.8 +54.3 135.8	32 21.3 +54.2 134.7	31 55.4 +53.9 133.6	31 29.1 +53.7 132.6
5°	34 06.3 +54.5 136.4	33 41.1 +54.3 135.3	33 15.5 +54.0 134.2	32 49.3 +53.8 133.1	32 22.8 +53.5 132.1
6°	35 00.8 +54.3 135.9	34 35.4 +54.1 134.8	34 09.5 +53.9 133.7	33 43.1 +53.7 132.6	33 16.3 +53.4 131.5
7°	35 55.1 +54.2 135.3	35 29.5 +53.9 134.2	35 03.4 +53.7 133.1	34 36.8 +53.5 132.1	34 09.7 +53.3 131.0
8°	36 49.3 +54.1 134.8	36 23.4 +53.9 133.7	35 57.1 +53.6 132.6	35 30.3 +53.3 131.5	35 03.0 +53.1 130.4
9°	37 43.4 +53.9 134.3	37 17.3 +53.6 133.1	36 50.7 +53.4 132.0	36 23.6 +53.2 130.9	35 56.1 +53.0 129.9
10°	38 37.3 +53.7 133.7	38 10.9 +53.5 132.6	37 44.1 +53.3 131.5	37 16.8 +53.0 130.4	36 49.1 +52.7 129.3
11°	39 31.0 +53.6 133.1	39 04.4 +53.3 132.0	38 37.4 +53.0 130.9	38 09.8 +52.8 129.8	37 41.8 +52.6 128.7
12°	40 24.6 +53.4 132.5	39 57.7 +53.2 131.4	39 30.4 +52.9 130.3	39 02.6 +52.7 129.2	38 34.4 +52.4 128.1
13°	41 18.0 +53.2 131.9	40 50.9 +52.9 130.8	40 23.3 +52.7 129.7	39 55.3 +52.4 128.5	39 26.8 +52.2 127.4
14°	42 11.2 +53.0 131.3	41 43.8 +52.7 130.2	41 16.0 +52.5 129.0	40 47.7 +52.2 127.9	40 19.0 +52.0 126.8
15°	43 04.2 +52.7 130.7	42 36.5 +52.5 129.5	42 08.5 +52.2 128.4	41 39.9 +52.0 127.2	41 11.0 +51.7 126.1
16°	43 56.9 +52.6 130.0	43 29.0 +52.3 128.9	43 00.7 +52.0 127.7	42 31.9 +51.7 126.6	42 02.7 +51.5 125.5
17°	44 49.5 +52.2 129.3	44 21.3 +52.0 128.2	43 52.7 +51.7 127.0	43 23.6 +51.5 125.9	42 54.2 +51.2 124.8
18°	45 41.7 +52.1 128.6	45 13.3 +51.8 127.5	44 44.4 +51.5 126.3	44 15.1 +51.2 125.2	43 45.4 +51.0 124.0
19°	46 33.8 +51.7 127.9	46 05.1 +51.4 126.7	45 35.9 +51.2 125.6	45 06.3 +51.0 124.4	44 36.4 +50.6 123.3
20°	47 25.5 +51.5 127.2	46 56.5 +51.2 126.0	46 27.1 +50.9 124.8	45 57.3 +50.6 123.7	45 27.0 +50.4 122.5
21°	48 17.0 +51.1 126.4	47 47.7 +50.8 125.2	47 18.0 +50.6 124.1	46 47.9 +50.3 122.9	46 17.4 +50.0 121.8
22°	49 08.1 +50.8 125.6	48 38.5 +50.5 124.4	48 08.6 +50.2 123.3	47 38.2 +49.9 122.1	47 07.4 +49.6 121.0
23°	49 58.9 +50.4 124.8	49 29.0 +50.2 123.6	48 58.8 +49.8 122.4	48 28.1 +49.6 121.3	47 57.0 +49.3 120.1
24°	50 49.3 +50.1 124.0	50 19.2 +49.7 122.8	49 48.6 +49.5 121.6	49 17.7 +49.1 120.4	48 46.3 +48.9 119.3
25°	51 39.4 +49.6 123.1	51 08.9 +49.4 121.9	50 38.1 +49.0 120.7	50 06.8 +48.8 119.5	49 35.2 +48.5 118.4
26°	52 29.0 +49.3 122.2	51 58.3 +48.9 121.0	51 27.1 +48.6 119.8	50 55.6 +48.3 118.6	50 23.7 +48.1 117.5
27°	53 18.3 +48.7 121.2	52 47.2 +48.4 120.0	52 15.7 +48.1 118.8	51 43.9 +47.8 117.7	51 11.8 +47.5 116.5
28°	54 07.0 +48.2 120.2	53 35.6 +47.9 119.0	53 03.8 +47.7 117.8	52 31.7 +47.4 116.7	51 59.3 +47.1 115.5
29°	54 55.2 +47.7 119.2	54 23.5 +47.4 118.0	53 51.5 +47.0 116.8	53 19.1 +46.8 115.7	52 46.4 +46.5 114.5

Dec	LHA 040° / 320°	LHA 041° / 319°	LHA 042° / 318°	LHA 043° / 317°	LHA 044° / 316°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	27 27.2 +53.9 133.6	27 00.8 +53.7 132.6	26 34.0 +53.5 131.6	26 06.8 +53.3 130.6	25 39.1 +53.1 129.6
1°	28 21.1 +53.8 133.1	27 54.5 +53.6 132.1	27 27.5 +53.4 131.1	27 00.1 +53.2 130.1	26 32.2 +53.0 129.1
2°	29 14.9 +53.8 132.6	28 48.1 +53.6 131.6	28 20.9 +53.3 130.5	27 53.3 +53.1 129.5	27 25.2 +52.9 128.5
3°	30 08.7 +53.6 132.1	29 41.7 +53.3 131.0	29 14.2 +53.2 130.0	28 46.4 +52.9 129.0	28 18.1 +52.7 128.0
4°	31 02.3 +53.4 131.6	30 35.0 +53.3 130.5	30 07.4 +53.0 129.5	29 39.3 +52.8 128.5	29 10.8 +52.6 127.5
5°	31 55.7 +53.4 131.0	31 28.3 +53.1 130.0	31 00.4 +52.9 128.9	30 32.1 +52.7 127.9	30 03.4 +52.5 126.9
6°	32 49.1 +53.2 130.5	32 21.4 +53.0 129.4	31 53.3 +52.7 128.4	31 24.8 +52.5 127.4	30 55.9 +52.3 126.4
7°	33 42.3 +53.0 129.9	33 14.4 +52.8 128.9	32 46.0 +52.6 127.8	32 17.3 +52.4 126.8	31 48.2 +52.2 125.8
8°	34 35.3 +52.9 129.4	34 07.2 +52.6 128.3	33 38.6 +52.5 127.3	33 09.7 +52.2 126.2	32 40.4 +52.0 125.2
9°	35 28.2 +52.7 128.8	34 59.8 +52.5 127.7	34 31.1 +52.2 126.7	34 01.9 +52.1 125.6	33 32.4 +51.8 124.6
10°	36 20.9 +52.5 128.2	35 52.3 +52.3 127.1	35 23.3 +52.1 126.1	34 54.0 +51.8 125.0	34 24.2 +51.6 124.0
11°	37 13.4 +52.4 127.6	36 44.6 +52.1 126.5	36 15.4 +51.9 125.5	35 45.8 +51.7 124.4	35 15.8 +51.5 123.4
12°	38 05.8 +52.1 127.0	37 36.7 +52.0 125.9	37 07.3 +51.7 124.8	36 37.5 +51.4 123.8	36 07.3 +51.2 122.7
13°	38 57.9 +52.0 126.3	38 28.7 +51.7 125.3	37 59.0 +51.4 124.2	37 28.9 +51.3 123.1	36 58.5 +51.0 122.1
14°	39 49.9 +51.7 125.7	39 20.4 +51.4 124.6	38 50.4 +51.3 123.5	38 20.2 +51.0 122.5	37 49.5 +50.8 121.4
15°	40 41.6 +51.5 125.0	40 11.8 +51.3 123.9	39 41.7 +51.0 122.9	39 11.2 +50.8 121.8	38 40.3 +50.6 120.7
16°	41 33.1 +51.2 124.3	41 03.1 +51.0 123.3	40 32.7 +50.8 122.2	40 02.0 +50.5 121.1	39 30.9 +50.3 120.1
17°	42 24.3 +51.0 123.6	41 54.1 +50.7 122.5	41 23.5 +50.4 121.5	40 52.5 +50.2 120.4	40 21.2 +50.0 119.3
18°	43 15.3 +50.7 122.9	42 44.8 +50.4 121.8	42 13.9 +50.2 120.7	41 42.7 +50.0 119.7	41 11.2 +49.7 118.6
19°	44 06.0 +50.4 122.2	43 35.2 +50.2 121.1	43 04.1 +50.0 120.0	42 32.7 +49.7 118.9	42 00.9 +49.5 117.9
20°	44 56.4 +50.1 121.4	44 25.4 +49.8 120.3	43 54.1 +49.6 119.2	43 22.4 +49.3 118.2	42 50.4 +49.1 117.1
21°	45 46.5 +49.7 120.6	45 15.2 +49.5 119.5	44 43.7 +49.2 118.4	44 11.7 +49.1 117.4	43 39.5 +48.8 116.3
22°	46 36.2 +49.4 119.8	46 04.7 +49.2 118.7	45 32.9 +48.9 117.6	45 00.8 +48.6 116.6	44 28.3 +48.5 115.5
23°	47 25.6 +49.1 119.0	46 53.9 +48.8 117.9	46 21.8 +48.6 116.8	45 49.4 +48.3 115.7	45 16.8 +48.0 114.7
24°	48 14.7 +48.6 118.1	47 42.7 +48.4 117.0	47 10.4 +48.1 115.9	46 37.7 +47.9 114.9	46 04.8 +47.7 113.8
25°	49 03.3 +48.2 117.3	48 31.1 +47.9 116.1	47 58.5 +47.7 115.1	47 25.6 +47.5 114.0	46 52.5 +47.3 112.9
26°	49 51.5 +47.8 116.3	49 19.0 +47.5 115.2	48 46.2 +47.3 114.1	48 13.1 +47.1 113.1	47 39.8 +46.8 112.0
27°	50 39.3 +47.3 115.4	50 06.5 +47.1 114.3	49 33.5 +46.8 113.2	49 00.2 +46.5 112.1	48 26.6 +46.3 111.1
28°	51 26.6 +46.8 114.4	50 53.6 +46.5 113.3	50 20.3 +46.3 112.2	49 46.7 +46.1 111.2	49 12.9 +45.9 110.1
29°	52 13.4 +46.2 113.4	51 40.1 +46.0 112.3	51 06.6 +45.7 111.2	50 32.8 +45.5 110.2	49 58.8 +45.3 109.1

Dec	LHA 045° / 315°	LHA 046° / 314°	LHA 047° / 313°	LHA 048° / 312°	LHA 049° / 311°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	25 11.1 +52.9 128.6	24 42.7 +52.7 127.6	24 13.9 +52.5 126.7	23 44.8 +52.3 125.7	23 15.3 +52.1 124.8
1°	26 04.0 +52.8 128.1	25 35.4 +52.6 127.1	25 06.4 +52.4 126.1	24 37.1 +52.2 125.2	24 07.4 +52.0 124.2
2°	26 56.8 +52.7 127.6	26 28.0 +52.4 126.6	25 58.8 +52.3 125.6	25 29.3 +52.0 124.6	24 59.4 +51.9 123.7
3°	27 49.5 +52.5 127.0	27 20.4 +52.4 126.0	26 51.1 +52.1 125.1	26 21.3 +52.0 124.1	25 51.3 +51.7 123.1
4°	28 42.0 +52.4 126.5	28 12.8 +52.2 125.5	27 43.2 +52.0 124.5	27 13.3 +51.7 123.5	26 43.0 +51.6 122.6
5°	29 34.4 +52.2 125.9	29 05.0 +52.0 124.9	28 35.2 +51.8 123.9	28 05.0 +51.7 123.0	27 34.6 +51.4 122.0
6°	30 26.6 +52.1 125.3	29 57.0 +51.9 124.3	29 27.0 +51.7 123.4	28 56.7 +51.5 122.4	28 26.0 +51.3 121.4
7°	31 18.7 +52.0 124.8	30 48.9 +51.7 123.8	30 18.7 +51.5 122.8	29 48.2 +51.3 121.8	29 17.3 +51.2 120.8
8°	32 10.7 +51.8 124.2	31 40.6 +51.6 123.2	31 10.2 +51.4 122.2	30 39.5 +51.2 121.2	30 08.5 +50.9 120.2
9°	33 02.5 +51.6 123.6	32 32.2 +51.4 122.6	32 01.6 +51.2 121.6	31 30.7 +51.0 120.6	30 59.4 +50.8 119.6
10°	33 54.1 +51.4 123.0	33 23.6 +51.2 122.0	32 52.8 +51.0 120.9	32 21.7 +50.8 120.0	31 50.2 +50.7 119.0
11°	34 45.5 +51.2 122.3	34 14.8 +51.0 121.3	33 43.8 +50.8 120.3	33 12.5 +50.6 119.3	32 40.9 +50.4 118.3
12°	35 36.7 +51.0 121.7	35 05.8 +50.8 120.7	34 34.6 +50.6 119.7	34 03.1 +50.4 118.7	33 31.3 +50.2 117.7
13°	36 27.7 +50.8 121.1	35 56.6 +50.6 120.0	35 25.2 +50.4 119.0	34 53.5 +50.2 118.0	34 21.5 +50.0 117.0
14°	37 18.5 +50.6 120.4	36 47.2 +50.4 119.4	36 15.6 +50.2 118.4	35 43.7 +49.9 117.3	35 11.5 +49.7 116.4
15°	38 09.1 +50.4 119.7	37 37.6 +50.1 118.7	37 05.8 +49.9 117.7	36 33.6 +49.8 116.7	36 01.2 +49.6 115.7
16°	38 59.5 +50.0 119.0	38 27.7 +49.9 118.0	37 55.7 +49.6 117.0	37 23.4 +49.4 116.0	36 50.8 +49.2 115.0
17°	39 49.5 +49.8 118.3	39 17.6 +49.6 117.3	38 45.3 +49.4 116.3	38 12.8 +49.2 115.2	37 40.0 +49.0 114.2
18°	40 39.3 +49.6 117.6	40 07.2 +49.3 116.5	39 34.7 +49.1 115.5	39 02.0 +48.9 114.5	38 29.0 +48.8 113.5
19°	41 28.9 +49.2 116.8	40 56.5 +49.0 115.8	40 23.8 +48.9 114.8	39 50.9 +48.6 113.8	39 17.8 +48.4 112.8
20°	42 18.1 +48.9 116.1	41 45.5 +48.7 115.0	41 12.7 +48.5 114.0	40 39.5 +48.4 113.0	40 06.2 +48.1 112.0
21°	43 07.0 +48.6 115.3	42 34.2 +48.4 114.2	42 01.2 +48.1 113.2	41 27.9 +47.9 112.2	40 54.3 +47.8 111.2
22°	43 55.6 +48.2 114.5	43 22.6 +48.0 113.4	42 49.3 +47.8 112.4	42 15.8 +47.7 111.4	41 42.1 +47.4 110.4
23°	44 43.8 +47.9 113.6	44 10.6 +47.7 112.6	43 37.1 +47.5 111.6	43 03.5 +47.2 110.6	42 29.5 +47.1 109.6
24°	45 31.7 +47.4 112.8	44 58.3 +47.2 111.7	44 24.6 +47.1 110.7	43 50.7 +46.9 109.7	43 16.6 +46.7 108.7
25°	46 19.1 +47.1 111.9	45 45.5 +46.9 110.9	45 11.7 +46.6 109.9	44 37.6 +46.5 108.9	44 03.3 +46.3 107.9
26°	47 06.2 +46.6 111.0	46 32.4 +46.4 110.0	45 58.3 +46.2 109.0	45 24.1 +46.0 108.0	44 49.6 +45.9 107.0
27°	47 52.8 +46.1 110.1	47 18.8 +45.9 109.0	46 44.5 +45.8 108.0	46 10.1 +45.6 107.0	45 35.5 +45.4 106.1
28°	48 38.9 +45.7 109.1	48 04.7 +45.4 108.1	47 30.3 +45.2 107.1	46 55.7 +45.1 106.1	46 20.9 +44.9 105.1
29°	49 24.6 +45.1 108.1	48 50.1 +45.0 107.1	48 15.5 +44.8 106.1	47 40.8 +44.6 105.1	47 05.8 +44.5 104.2

Dec	LHA 050° / 310°	LHA 051° / 309°	LHA 052° / 308°	LHA 053° / 307°	LHA 054° / 306°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	22 45.5 +51.9 123.8	22 15.3 +51.7 122.9	21 44.8 +51.6 122.0	21 14.1 +51.3 121.0	20 43.0 +51.1 120.1
1°	23 37.4 +51.8 123.3	23 07.0 +51.6 122.3	22 36.4 +51.4 121.4	22 05.4 +51.2 120.5	21 34.1 +51.1 119.6
2°	24 29.2 +51.6 122.7	23 58.6 +51.5 121.8	23 27.8 +51.3 120.8	22 56.6 +51.2 119.9	22 25.2 +50.9 119.0
3°	25 20.8 +51.6 122.2	24 50.1 +51.4 121.2	24 19.1 +51.2 120.3	23 47.8 +51.0 119.4	23 16.1 +50.9 118.4
4°	26 12.4 +51.4 121.6	25 41.5 +51.2 120.6	25 10.3 +51.0 119.7	24 38.8 +50.8 118.8	24 07.0 +50.6 117.8
5°	27 03.8 +51.3 121.0	26 32.7 +51.1 120.1	26 01.3 +50.9 119.1	25 29.6 +50.7 118.2	24 57.6 +50.6 117.3
6°	27 55.1 +51.1 120.4	27 23.8 +50.9 119.5	26 52.2 +50.7 118.5	26 20.3 +50.6 117.6	25 48.2 +50.4 116.7
7°	28 46.2 +50.9 119.8	28 14.7 +50.8 118.9	27 42.9 +50.6 117.9	27 10.9 +50.4 117.0	26 38.6 +50.2 116.1
8°	29 37.1 +50.8 119.2	29 05.5 +50.6 118.3	28 33.5 +50.4 117.3	28 01.3 +50.2 116.4	27 28.8 +50.1 115.4
9°	30 27.9 +50.6 118.6	29 56.1 +50.4 117.7	29 23.9 +50.3 116.7	28 51.5 +50.1 115.8	28 18.9 +49.9 114.8
10°	31 18.5 +50.4 118.0	30 46.5 +50.2 117.0	30 14.2 +50.0 116.1	29 41.6 +49.9 115.1	29 08.8 +49.7 114.2
11°	32 08.9 +50.2 117.4	31 36.7 +50.1 116.4	31 04.2 +49.9 115.4	30 31.5 +49.7 114.5	29 58.5 +49.5 113.5
12°	32 59.1 +50.1 116.7	32 26.8 +49.8 115.7	31 54.1 +49.7 114.8	31 21.2 +49.5 113.8	30 48.0 +49.4 112.9
13°	33 49.2 +49.8 116.0	33 16.6 +49.6 115.1	32 43.8 +49.4 114.1	32 10.7 +49.3 113.2	31 37.4 +49.1 112.2
14°	34 39.0 +49.6 115.4	34 06.2 +49.4 114.4	33 33.2 +49.2 113.4	33 00.0 +49.0 112.5	32 26.5 +48.9 111.5
15°	35 28.6 +49.3 114.7	34 55.6 +49.2 113.7	34 22.4 +49.0 112.7	33 49.0 +48.8 111.8	33 15.4 +48.6 110.9
16°	36 17.9 +49.1 114.0	35 44.8 +48.9 113.0	35 11.4 +48.8 112.0	34 37.8 +48.6 111.1	34 04.0 +48.5 110.1
17°	37 07.0 +48.8 113.3	36 33.7 +48.6 112.3	36 00.2 +48.4 111.3	35 26.4 +48.3 110.4	34 52.5 +48.1 109.4
18°	37 55.8 +48.5 112.5	37 22.3 +48.4 111.6	36 48.6 +48.2 110.6	36 14.7 +48.1 109.6	35 40.6 +47.9 108.7
19°	38 44.3 +48.3 111.8	38 10.7 +48.1 110.8	37 36.8 +48.0 109.8	37 02.8 +47.7 108.9	36 28.5 +47.6 108.0
20°	39 32.6 +47.9 111.0	38 58.8 +47.7 110.0	38 24.8 +47.6 109.1	37 50.5 +47.5 108.1	37 16.1 +47.3 107.2
21°	40 20.5 +47.6 110.2	39 46.5 +47.5 109.3	39 12.4 +47.2 108.3	38 38.0 +47.1 107.4	38 03.4 +47.0 106.4
22°	41 08.1 +47.3 109.4	40 34.0 +47.1 108.5	39 59.6 +47.0 107.5	39 25.1 +46.8 106.6	38 50.4 +46.7 105.6
23°	41 55.4 +46.9 108.6	41 21.1 +46.7 107.6	40 46.6 +46.6 106.7	40 11.9 +46.5 105.7	39 37.1 +46.3 104.8
24°	42 42.3 +46.6 107.8	42 07.8 +46.4 106.8	41 33.2 +46.2 105.9	40 58.4 +46.1 104.9	40 23.4 +46.0 104.0
25°	43 28.9 +46.1 106.9	42 54.2 +46.0 105.9	42 19.4 +45.9 105.0	41 44.5 +45.7 104.1	41 09.4 +45.5 103.1
26°	44 15.0 +45.7 106.0	43 40.2 +45.6 105.1	43 05.3 +45.4 104.1	42 30.2 +45.3 103.2	41 54.9 +45.2 102.3
27°	45 00.7 +45.3 105.1	44 25.8 +45.1 104.2	43 50.7 +45.0 103.2	43 15.5 +44.8 102.3	42 40.1 +44.8 101.4
28°	45 46.0 +44.7 104.2	45 10.9 +44.6 103.2	44 35.7 +44.5 102.3	44 00.3 +44.4 101.4	43 24.9 +44.3 100.5
29°	46 30.7 +44.3 103.2	45 55.5 +44.2 102.3	45 20.2 +44.0 101.3	44 44.7 +44.0 100.4	44 09.2 +43.8 99.5

Dec	LHA 055° / 305°	LHA 056° / 304°	LHA 057° / 303°	LHA 058° / 302°	LHA 059° / 301°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	20 11.6 +51.0 119.2	19 39.9 +50.9 118.3	19 08.0 +50.7 117.4	18 35.8 +50.5 116.5	18 03.4 +50.3 115.6
1°	21 02.6 +50.9 118.7	20 30.8 +50.7 117.7	19 58.7 +50.5 116.8	19 26.3 +50.4 116.0	18 53.7 +50.3 115.1
2°	21 53.5 +50.8 118.1	21 21.5 +50.6 117.2	20 49.2 +50.5 116.3	20 16.7 +50.3 115.4	19 44.0 +50.1 114.5
3°	22 44.3 +50.6 117.5	22 12.1 +50.5 116.6	21 39.7 +50.3 115.7	21 07.0 +50.2 114.8	20 34.1 +50.0 113.9
4°	23 34.9 +50.5 116.9	23 02.6 +50.3 116.0	22 30.0 +50.2 115.1	21 57.2 +50.0 114.2	21 24.1 +49.9 113.3
5°	24 25.4 +50.4 116.3	23 52.9 +50.2 115.4	23 20.2 +50.0 114.5	22 47.2 +49.9 113.6	22 14.0 +49.8 112.7
6°	25 15.8 +50.2 115.7	24 43.1 +50.1 114.8	24 10.2 +50.0 113.9	23 37.1 +49.8 113.0	23 03.8 +49.6 112.1
7°	26 06.0 +50.1 115.1	25 33.2 +49.9 114.2	25 00.2 +49.7 113.3	24 26.9 +49.6 112.4	23 53.4 +49.4 111.5
8°	26 56.1 +49.9 114.5	26 23.1 +49.8 113.6	25 49.9 +49.6 112.7	25 16.5 +49.4 111.8	24 42.8 +49.4 110.9
9°	27 46.0 +49.7 113.9	27 12.9 +49.5 113.0	26 39.5 +49.4 112.0	26 05.9 +49.3 111.1	25 32.2 +49.1 110.2
10°	28 35.7 +49.6 113.3	28 02.4 +49.4 112.3	27 28.9 +49.3 111.4	26 55.2 +49.1 110.5	26 21.3 +49.0 109.6
11°	29 25.3 +49.4 112.6	28 51.8 +49.3 111.7	28 18.2 +49.1 110.8	27 44.3 +49.0 109.9	27 10.3 +48.8 109.0
12°	30 14.7 +49.1 112.0	29 41.1 +49.0 111.0	29 07.3 +48.8 110.1	28 33.3 +48.7 109.2	27 59.1 +48.6 108.3
13°	31 03.8 +49.0 111.3	30 30.1 +48.8 110.4	29 56.1 +48.7 109.4	29 22.0 +48.5 108.5	28 47.7 +48.4 107.6
14°	31 52.8 +48.7 110.6	31 18.9 +48.6 109.7	30 44.8 +48.5 108.8	30 10.5 +48.3 107.9	29 36.1 +48.2 107.0
15°	32 41.5 +48.5 109.9	32 07.5 +48.4 109.0	31 33.3 +48.2 108.1	30 58.8 +48.1 107.2	30 24.3 +47.9 106.3
16°	33 30.0 +48.3 109.2	32 55.9 +48.1 108.3	32 21.5 +48.0 107.4	31 46.9 +47.9 106.5	31 12.2 +47.8 105.6
17°	34 18.3 +48.0 108.5	33 44.0 +47.9 107.6	33 09.5 +47.7 106.7	32 34.8 +47.6 105.8	32 00.0 +47.5 104.9
18°	35 06.3 +47.8 107.8	34 31.9 +47.6 106.8	33 57.2 +47.5 105.9	33 22.4 +47.4 105.0	32 47.5 +47.2 104.1
19°	35 54.1 +47.4 107.0	35 19.5 +47.3 106.1	34 44.7 +47.2 105.2	34 09.8 +47.1 104.3	33 34.7 +47.0 103.4
20°	36 41.5 +47.2 106.3	36 06.8 +47.0 105.3	35 31.9 +46.9 104.4	34 56.9 +46.8 103.5	34 21.7 +46.7 102.6
21°	37 28.7 +46.9 105.5	36 53.8 +46.8 104.6	36 18.8 +46.6 103.7	35 43.7 +46.5 102.8	35 08.4 +46.4 101.9
22°	38 15.6 +46.5 104.7	37 40.6 +46.4 103.8	37 05.4 +46.3 102.9	36 30.2 +46.2 102.0	35 54.8 +46.1 101.1
23°	39 02.1 +46.2 103.9	38 27.0 +46.1 103.0	37 51.7 +46.0 102.1	37 16.4 +45.8 101.2	36 40.9 +45.8 100.3
24°	39 48.3 +45.8 103.1	39 13.1 +45.7 102.2	38 37.7 +45.6 101.3	38 02.2 +45.6 100.4	37 26.7 +45.4 99.5
25°	40 34.1 +45.5 102.2	39 58.8 +45.3 101.3	39 23.3 +45.3 100.4	38 47.8 +45.1 99.5	38 12.1 +45.1 98.7
26°	41 19.6 +45.1 101.4	40 44.1 +45.0 100.5	40 08.6 +44.9 99.6	39 32.9 +44.8 98.7	38 57.2 +44.7 97.8
27°	42 04.7 +44.6 100.5	41 29.1 +44.5 99.6	40 53.5 +44.4 98.7	40 17.7 +44.4 97.8	39 41.9 +44.3 97.0
28°	42 49.3 +44.2 99.6	42 13.6 +44.2 98.7	41 37.9 +44.1 97.8	41 02.1 +44.0 96.9	40 26.2 +44.3 96.1
29°	43 33.5 +43.7 98.6	42 57.8 +43.6 97.8	42 22.0 +43.5 96.9	41 46.1 +43.5 96.0	41 10.1 +43.5 95.2

## Declination SAME name as Latitude

## Latitude 53°

Dec	LHA 060° / 300°	LHA 061° / 299°	LHA 062° / 298°	LHA 063° / 297°	LHA 064° / 296°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	17 30.7 +50.2 114.8	16 57.8 +50.1 113.9	16 24.7 +49.9 113.0	15 51.4 +49.7 112.1	15 17.8 +49.6 111.3
1°	18 20.9 +50.1 114.2	17 47.9 +49.9 113.3	17 14.6 +49.8 112.4	16 41.1 +49.7 111.6	16 07.4 +49.6 110.7
2°	19 11.0 +50.0 113.6	18 37.8 +49.9 112.7	18 04.4 +49.7 111.8	17 30.8 +49.5 111.0	16 57.0 +49.4 110.1
3°	20 01.0 +49.9 113.0	19 27.7 +49.7 112.1	18 54.1 +49.6 111.3	18 20.3 +49.5 110.4	17 46.4 +49.3 109.5
4°	20 50.9 +49.7 112.4	20 17.4 +49.6 111.5	19 43.7 +49.5 110.7	19 09.8 +49.3 109.8	18 35.7 +49.2 108.9
5°	21 40.6 +49.6 111.8	21 07.0 +49.4 110.9	20 33.2 +49.3 110.1	19 59.1 +49.2 109.2	19 24.9 +49.1 108.3
6°	22 30.2 +49.5 111.2	21 56.4 +49.4 110.3	21 22.5 +49.2 109.4	20 48.3 +49.1 108.6	20 14.0 +49.0 107.7
7°	23 19.7 +49.3 110.6	22 45.8 +49.2 109.7	22 11.7 +49.1 108.8	21 37.4 +49.0 108.0	21 03.0 +48.8 107.1
8°	24 09.0 +49.2 110.0	23 35.0 +49.0 109.1	23 00.8 +48.9 108.2	22 26.4 +48.8 107.3	21 51.8 +48.7 106.5
9°	24 58.2 +49.0 109.3	24 24.0 +48.9 108.5	23 49.7 +48.7 107.6	23 15.2 +48.6 106.7	22 40.5 +48.5 105.8
10°	25 47.2 +48.8 108.7	25 12.9 +48.7 107.8	24 38.4 +48.6 106.9	24 03.8 +48.5 106.1	23 29.0 +48.4 105.2
11°	26 36.0 +48.7 108.1	26 01.6 +48.5 107.2	25 27.0 +48.5 106.3	24 52.3 +48.3 105.4	24 17.4 +48.2 104.5
12°	27 24.7 +48.5 107.4	26 50.1 +48.4 106.5	26 15.5 +48.2 105.6	25 40.6 +48.1 104.8	25 05.6 +48.1 103.9
13°	28 13.2 +48.2 106.7	27 38.5 +48.2 105.8	27 03.7 +48.0 105.0	26 28.7 +48.0 104.1	25 53.7 +47.8 103.2
14°	29 01.4 +48.1 106.1	28 26.7 +47.9 105.2	27 51.7 +47.9 104.3	27 16.7 +47.7 103.4	26 41.5 +47.7 102.5
15°	29 49.5 +47.9 105.4	29 14.6 +47.8 104.5	28 39.6 +47.6 103.6	28 04.4 +47.6 102.7	27 29.2 +47.4 101.9
16°	30 37.4 +47.6 104.7	30 02.4 +47.5 103.8	29 27.2 +47.5 102.9	28 52.0 +47.3 102.0	28 16.6 +47.3 101.2
17°	31 25.0 +47.4 104.0	30 49.9 +47.3 103.1	30 14.7 +47.1 102.2	29 39.3 +47.1 101.3	29 03.9 +47.0 100.5
18°	32 12.4 +47.1 103.2	31 37.2 +47.0 102.4	31 01.8 +47.0 101.5	30 26.4 +46.9 100.6	29 50.9 +46.8 99.8
19°	32 59.5 +46.9 102.5	32 24.2 +46.8 101.6	31 48.8 +46.7 100.8	31 13.3 +46.6 99.9	30 37.7 +46.5 99.0
20°	33 46.4 +46.6 101.8	33 11.0 +46.5 100.9	32 35.5 +46.4 100.0	31 59.9 +46.3 99.2	31 24.2 +46.3 98.3
21°	34 33.0 +46.3 101.0	33 57.5 +46.2 100.1	33 21.9 +46.2 99.3	32 46.2 +46.1 98.4	32 10.5 +46.0 97.5
22°	35 19.3 +46.0 100.2	34 43.7 +46.0 99.4	34 08.1 +45.8 98.5	33 32.3 +45.8 97.6	32 56.5 +45.7 96.8
23°	36 05.3 +45.7 99.4	35 29.7 +45.6 98.6	34 53.9 +45.6 97.7	34 18.1 +45.5 96.9	33 42.2 +45.5 96.0
24°	36 51.0 +45.4 98.6	36 15.3 +45.3 97.8	35 39.5 +45.2 96.9	35 03.6 +45.2 96.1	34 27.7 +45.1 95.2
25°	37 36.4 +45.0 97.8	37 00.6 +44.9 96.9	36 24.7 +44.9 96.1	35 48.8 +44.8 95.3	35 12.8 +44.8 94.4
26°	38 21.4 +44.6 97.0	37 45.5 +44.6 96.1	37 09.6 +44.5 95.3	36 33.6 +44.5 94.4	35 57.6 +44.4 93.6
27°	39 06.0 +44.3 96.1	38 30.1 +44.2 95.3	37 54.1 +44.2 94.4	37 18.1 +44.1 93.6	36 42.0 +44.2 92.8
28°	39 50.3 +43.9 95.2	39 14.3 +43.8 94.4	38 38.3 +43.8 93.6	38 02.2 +43.8 92.7	37 26.2 +43.7 91.9
29°	40 34.2 +43.4 94.3	39 58.1 +43.4 93.5	39 22.1 +43.3 92.7	38 46.0 +43.3 91.9	38 09.9 +43.3 91.1

Dec	LHA 065° / 295°	LHA 066° / 294°	LHA 067° / 293°	LHA 068° / 292°	LHA 069° / 291°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	14 44.1 +49.5 110.4	14 10.1 +49.4 109.6	13 36.0 +49.3 108.7	13 01.7 +49.2 107.9	12 27.3 +49.0 107.0
1°	15 33.6 +49.4 109.8	14 59.5 +49.3 109.0	14 25.3 +49.1 108.1	13 50.9 +49.0 107.3	13 16.3 +49.0 106.5
2°	16 23.0 +49.3 109.3	15 48.8 +49.2 108.4	15 14.4 +49.1 107.5	14 39.9 +49.0 106.7	14 05.3 +48.8 105.9
3°	17 12.3 +49.2 108.7	16 38.0 +49.1 107.8	16 03.5 +49.0 106.9	15 28.9 +48.9 106.1	14 54.1 +48.8 105.3
4°	18 01.5 +49.1 108.1	17 27.1 +49.0 107.2	16 52.5 +48.9 106.3	16 17.8 +48.7 105.5	15 42.9 +48.7 104.7
5°	18 50.6 +49.0 107.4	18 16.1 +48.8 106.6	17 41.4 +48.7 105.7	17 06.5 +48.7 104.9	16 31.6 +48.5 104.0
6°	19 39.6 +48.8 106.8	19 04.9 +48.8 106.0	18 30.1 +48.7 105.1	17 55.2 +48.5 104.3	17 20.1 +48.5 103.4
7°	20 28.4 +48.7 106.2	19 53.7 +48.6 105.4	19 18.8 +48.5 104.5	18 43.7 +48.5 103.7	18 08.6 +48.3 102.8
8°	21 17.1 +48.6 105.6	20 42.3 +48.4 104.7	20 07.3 +48.4 103.9	19 32.2 +48.2 103.0	18 56.9 +48.2 102.2
9°	22 05.7 +48.4 105.0	21 30.7 +48.4 104.1	20 55.7 +48.2 103.2	20 20.4 +48.2 102.4	19 45.1 +48.1 101.6
10°	22 54.1 +48.3 104.3	22 19.1 +48.1 103.5	21 43.9 +48.1 102.6	21 08.6 +48.0 101.8	20 33.2 +47.9 100.9
11°	23 42.4 +48.1 103.7	23 07.2 +48.1 102.8	22 32.0 +47.9 102.0	21 56.6 +47.8 101.1	21 21.1 +47.8 100.3
12°	24 30.5 +47.9 103.0	23 55.3 +47.8 102.2	23 19.9 +47.8 101.3	22 44.4 +47.7 100.5	22 08.9 +47.6 99.6
13°	25 18.4 +47.8 102.4	24 43.1 +47.7 101.5	24 07.7 +47.6 100.7	23 32.1 +47.6 99.8	22 56.5 +47.5 99.0
14°	26 06.2 +47.6 101.7	25 30.8 +47.5 100.8	24 55.3 +47.4 100.0	24 19.7 +47.3 99.1	23 44.0 +47.3 98.3
15°	26 53.8 +47.3 101.0	26 18.3 +47.3 100.2	25 42.7 +47.2 99.3	25 07.0 +47.2 98.5	24 31.3 +47.1 97.6
16°	27 41.1 +47.2 100.3	27 05.6 +47.1 99.5	26 29.9 +47.0 98.6	25 54.2 +46.9 97.8	25 18.4 +46.9 96.9
17°	28 28.3 +46.9 99.6	27 52.7 +46.8 98.8	27 16.9 +46.8 97.9	26 41.1 +46.8 97.1	26 05.3 +46.7 96.2
18°	29 15.2 +46.8 98.9	28 39.5 +46.7 98.1	28 03.7 +46.6 97.2	27 27.9 +46.5 96.4	26 52.0 +46.5 95.5
19°	30 02.0 +46.4 98.2	29 26.2 +46.4 97.3	28 50.3 +46.4 96.5	28 14.4 +46.3 95.7	27 38.5 +46.2 94.8
20°	30 48.4 +46.2 97.4	30 12.6 +46.2 96.6	29 36.7 +46.1 95.8	29 00.7 +46.1 94.9	28 24.7 +46.1 94.1
21°	31 34.6 +46.0 96.7	30 58.8 +45.9 95.9	30 22.8 +45.9 95.0	29 46.8 +45.8 94.2	29 10.8 +45.8 93.4
22°	32 20.6 +45.7 95.9	31 44.7 +45.6 95.1	31 08.7 +45.6 94.3	30 32.6 +45.6 93.5	29 56.6 +45.5 92.6
23°	33 06.3 +45.4 95.2	32 30.3 +45.4 94.3	31 54.3 +45.3 93.5	31 18.2 +45.3 92.7	30 42.1 +45.3 91.9
24°	33 51.7 +45.1 94.4	33 15.7 +45.0 93.6	32 39.6 +45.0 92.7	32 03.5 +45.0 91.9	31 27.4 +45.0 91.1
25°	34 36.8 +44.7 93.6	34 00.7 +44.8 92.8	33 24.6 +44.8 92.0	32 48.5 +44.8 91.1	32 12.4 +44.7 90.3
26°	35 21.5 +44.5 92.8	34 45.5 +44.4 92.0	34 09.4 +44.4 91.2	33 33.3 +44.4 90.3	32 57.1 +44.5 89.6
27°	36 06.0 +44.1 92.0	35 29.9 +44.1 91.1	34 53.8 +44.0 90.3	34 17.7 +44.0 89.5	33 41.6 +44.1 88.7
28°	36 50.1 +43.7 91.1	36 14.0 +43.7 90.3	35 37.8 +43.8 89.5	35 01.7 +43.8 88.7	34 25.7 +43.7 87.9
29°	37 33.8 +43.3 90.2	36 57.7 +43.3 89.5	36 21.6 +43.3 88.7	35 45.5 +43.4 87.9	35 09.4 +43.4 87.1

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Dec	LHA 070° / 290°	LHA 071° / 289°	LHA 072° / 288°	LHA 073° / 287°	LHA 074° / 286°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	11 52.7 +48.9 106.2	11 17.9 +48.9 105.4	10 43.1 +48.7 104.5	10 08.0 +48.7 103.7	9 32.9 +48.6 102.9
1°	12 41.6 +48.9 105.6	12 06.8 +48.7 104.8	11 31.8 +48.7 104.0	10 56.7 +48.6 103.1	10 21.5 +48.5 102.3
2°	13 30.5 +48.7 105.0	12 55.5 +48.7 104.2	12 20.5 +48.5 103.4	11 45.3 +48.5 102.5	11 10.0 +48.4 101.7
3°	14 19.2 +48.7 104.4	13 44.2 +48.6 103.6	13 09.0 +48.5 102.8	12 33.8 +48.4 101.9	11 58.4 +48.3 101.1
4°	15 07.9 +48.6 103.8	14 32.8 +48.5 103.0	13 57.5 +48.4 102.1	13 22.2 +48.3 101.3	12 46.7 +48.3 100.5
5°	15 56.5 +48.5 103.2	15 21.3 +48.4 102.4	14 45.9 +48.4 101.5	14 10.5 +48.3 100.7	13 35.0 +48.2 99.9
6°	16 45.0 +48.3 102.6	16 09.7 +48.2 101.8	15 34.3 +48.2 100.9	14 58.8 +48.1 100.1	14 23.2 +48.0 99.3
7°	17 33.3 +48.3 102.0	16 57.9 +48.2 101.1	16 22.5 +48.1 100.3	15 46.9 +48.0 99.5	15 11.2 +48.0 98.7
8°	18 21.6 +48.1 101.3	17 46.1 +48.1 100.5	17 10.6 +47.9 99.7	16 34.9 +47.9 98.9	15 59.2 +47.9 98.0
9°	19 09.7 +48.0 100.7	18 34.2 +47.9 99.9	17 58.5 +47.9 99.0	17 22.8 +47.9 98.2	16 47.1 +47.7 97.4
10°	19 57.7 +47.8 100.1	19 22.1 +47.8 99.2	18 46.4 +47.7 98.4	18 10.7 +47.6 97.6	17 34.8 +47.7 96.8
11°	20 45.5 +47.7 99.4	20 09.9 +47.6 98.6	19 34.1 +47.6 97.8	18 58.3 +47.6 96.9	18 22.5 +47.4 96.1
12°	21 33.2 +47.6 98.8	20 57.5 +47.5 98.0	20 21.7 +47.5 97.1	19 45.9 +47.4 96.3	19 09.9 +47.4 95.5
13°	22 20.8 +47.4 98.1	21 45.0 +47.4 97.3	21 09.2 +47.3 96.5	20 33.3 +47.2 95.6	19 57.3 +47.2 94.8
14°	23 08.2 +47.2 97.5	22 32.4 +47.1 96.6	21 56.5 +47.1 95.8	21 20.5 +47.1 95.0	20 44.5 +47.1 94.2
15°	23 55.4 +47.1 96.8	23 19.5 +47.0 96.0	22 43.6 +47.0 95.1	22 07.6 +46.9 94.3	21 31.6 +46.9 93.5
16°	24 42.5 +46.8 96.1	24 06.5 +46.9 95.3	23 30.6 +46.8 94.5	22 54.5 +46.8 93.6	22 18.5 +46.7 92.8
17°	25 29.3 +46.7 95.4	24 53.4 +46.6 94.6	24 17.4 +46.6 93.8	23 41.3 +46.6 93.0	23 05.2 +46.6 92.2
18°	26 16.0 +46.5 94.7	25 40.0 +46.4 93.9	25 04.0 +46.4 93.1	24 27.9 +46.4 92.3	23 51.8 +46.4 91.5
19°	27 02.5 +46.2 94.0	26 26.4 +46.2 93.2	25 50.4 +46.2 92.4	25 14.3 +46.2 91.6	24 38.2 +46.2 90.8
20°	27 48.7 +46.0 93.3	27 12.6 +46.0 92.5	26 36.6 +45.9 91.7	26 00.5 +45.9 90.9	25 24.4 +45.9 90.1
21°	28 34.7 +45.8 92.6	27 58.6 +45.8 91.8	27 22.5 +45.8 91.0	26 46.4 +45.8 90.1	26 10.3 +45.8 89.4
22°	29 20.5 +45.5 91.8	28 44.4 +45.5 91.0	28 08.3 +45.5 90.2	27 32.2 +45.5 89.4	26 56.1 +45.5 88.6
23°	30 06.0 +45.3 91.1	29 29.9 +45.3 90.3	28 53.8 +45.3 89.5	28 17.7 +45.3 88.7	27 41.6 +45.3 87.9
24°	30 51.3 +45.0 90.3	30 15.2 +45.0 89.5	29 39.1 +45.0 88.7	29 03.0 +45.0 87.9	28 26.9 +45.1 87.2
25°	31 36.3 +44.7 89.5	31 00.2 +44.7 88.8	30 24.1 +44.8 88.0	29 48.0 +44.8 87.2	29 12.0 +44.8 86.4
26°	32 21.0 +44.5 88.8	31 44.9 +44.5 88.0	31 08.9 +44.4 87.2	30 32.8 +44.5 86.4	29 56.8 +44.5 85.6
27°	33 05.5 +44.1 88.0	32 29.4 +44.1 87.2	31 53.3 +44.2 86.4	31 17.3 +44.2 85.6	30 41.3 +44.3 84.9
28°	33 49.6 +43.8 87.1	33 13.5 +43.8 86.4	32 37.5 +43.9 85.6	32 01.5 +43.9 84.8	31 25.6 +43.9 84.1
29°	34 33.4 +43.4 86.3	33 57.3 +43.5 85.6	33 21.4 +43.5 84.8	32 45.4 +43.6 84.0	32 09.5 +43.7 83.3

Dec	LHA 075° / 285°	LHA 076° / 284°	LHA 077° / 283°	LHA 078° / 282°	LHA 079° / 281°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	8 57.7 +48.4 102.1	8 22.3 +48.4 101.3	7 46.8 +48.4 100.4	7 11.3 +48.2 99.6	6 35.6 +48.3 98.8
1°	9 46.1 +48.5 101.5	9 10.7 +48.3 100.7	8 35.2 +48.3 99.8	7 59.5 +48.3 99.0	7 23.9 +48.1 98.2
2°	10 34.6 +48.3 100.9	9 59.0 +48.2 100.1	9 23.5 +48.2 99.2	8 47.8 +48.1 98.4	8 12.0 +48.1 97.6
3°	11 22.9 +48.3 100.3	10 47.3 +48.2 99.5	10 11.7 +48.1 98.6	9 35.9 +48.1 97.8	9 00.1 +48.1 97.0
4°	12 11.2 +48.2 99.7	11 35.5 +48.2 98.9	10 59.8 +48.1 98.0	10 24.0 +48.1 97.2	9 48.2 +48.0 96.4
5°	12 59.4 +48.1 99.1	12 23.7 +48.0 98.2	11 47.9 +48.0 97.4	11 12.1 +47.9 96.6	10 36.2 +47.9 95.8
6°	13 47.5 +48.0 98.4	13 11.7 +48.0 97.6	12 35.9 +47.9 96.8	12 00.0 +47.9 96.0	11 24.1 +47.8 95.2
7°	14 35.5 +47.9 97.8	13 59.7 +47.9 97.0	13 23.8 +47.9 96.2	12 47.9 +47.8 95.4	12 11.9 +47.8 94.6
8°	15 23.4 +47.8 97.2	14 47.6 +47.7 96.4	14 11.7 +47.7 95.6	13 35.7 +47.7 94.8	12 59.7 +47.7 94.0
9°	16 11.2 +47.7 96.6	15 35.3 +47.7 95.8	14 59.4 +47.6 94.9	14 23.4 +47.6 94.1	13 47.4 +47.5 93.3
10°	16 58.9 +47.6 95.9	16 23.0 +47.5 95.1	15 47.0 +47.5 94.3	15 11.0 +47.5 93.5	14 34.9 +47.5 92.7
11°	17 46.5 +47.5 95.3	17 10.5 +47.5 94.5	16 34.5 +47.4 93.7	15 58.5 +47.4 92.9	15 22.4 +47.4 92.1
12°	18 34.0 +47.3 94.7	17 58.0 +47.3 93.8	17 21.9 +47.3 93.0	16 45.9 +47.2 92.2	16 09.8 +47.2 91.4
13°	19 21.3 +47.2 94.0	18 45.3 +47.1 93.2	18 09.2 +47.2 92.4	17 33.1 +47.2 91.6	16 57.0 +47.1 90.8
14°	20 08.5 +47.0 93.4	19 32.4 +47.1 92.5	18 56.4 +47.0 91.7	18 20.3 +47.0 90.9	17 44.1 +47.0 90.1
15°	20 55.5 +46.9 92.7	20 19.5 +46.8 91.9	19 43.4 +46.8 91.1	19 07.3 +46.8 90.3	18 31.1 +46.9 89.5
16°	21 42.4 +46.7 92.0	21 06.3 +46.7 91.2	20 30.2 +46.7 90.4	19 54.1 +46.7 89.6	19 18.0 +46.7 88.8
17°	22 29.1 +46.6 91.3	21 53.0 +46.6 90.5	21 16.9 +46.6 89.7	20 40.8 +46.6 88.9	20 04.7 +46.6 88.2
18°	23 15.7 +46.4 90.7	22 39.6 +46.4 89.9	22 03.5 +46.4 89.1	21 27.4 +46.4 88.3	20 51.3 +46.4 87.5
19°	24 02.1 +46.1 90.0	23 26.0 +46.1 89.2	22 49.9 +46.2 88.4	22 13.8 +46.2 87.6	21 37.7 +46.2 86.8
20°	24 48.2 +46.0 89.3	24 12.1 +46.0 88.5	23 36.1 +46.0 87.7	23 00.0 +46.0 86.9	22 23.9 +46.1 86.1
21°	25 34.2 +45.8 88.6	24 58.1 +45.8 87.8	24 22.1 +45.8 87.0	23 46.0 +45.9 86.2	23 10.0 +45.9 85.4
22°	26 20.0 +45.6 87.8	25 43.9 +45.6 87.1	25 07.9 +45.6 86.3	24 31.9 +45.6 85.5	23 55.9 +45.7 84.7
23°	27 05.6 +45.3 87.1	26 29.5 +45.4 86.3	25 53.5 +45.4 85.6	25 17.5 +45.4 84.8	24 41.6 +45.5 84.0
24°	27 50.9 +45.1 86.4	27 14.9 +45.1 85.6	26 38.9 +45.2 84.8	26 02.9 +45.3 84.1	25 27.1 +45.2 83.3
25°	28 36.0 +44.8 85.6	28 00.0 +44.9 84.9	27 24.1 +44.9 84.1	26 48.2 +44.9 83.3	26 12.3 +45.1 82.6
26°	29 20.8 +44.6 84.9	28 44.9 +44.6 84.1	28 09.0 +44.7 83.3	27 33.1 +44.8 82.6	26 57.4 +44.8 81.8
27°	30 05.4 +44.3 84.1	29 29.5 +44.4 83.3	28 53.7 +44.4 82.6	28 17.9 +44.5 81.8	27 42.2 +44.5 81.1
28°	30 49.7 +44.0 83.3	30 13.9 +44.0 82.6	29 38.1 +44.1 81.8	29 02.4 +44.2 81.1	28 26.7 +44.4 80.3
29°	31 33.7 +43.7 82.5	30 57.9 +43.8 81.8	30 22.2 +43.9 81.0	29 46.6 +44.0 80.3	29 11.1 +44.0 79.5

# Declination SAME name as Latitude

# Latitude 53°

Dec	LHA 080° / 280°	LHA 081° / 279°	LHA 082° / 278°	LHA 083° / 277°	LHA 084° / 276°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	5 59.9 +48.2 98.0	5 24.1 +48.1 97.2	4 48.3 +48.0 96.4	4 12.4 +48.0 95.6	3 36.4 +48.0 94.8
1°	6 48.1 +48.1 97.4	6 12.2 +48.1 96.6	5 36.3 +48.1 95.8	5 00.4 +48.0 95.0	4 24.4 +48.0 94.2
2°	7 36.2 +48.1 96.8	7 00.3 +48.0 96.0	6 24.4 +48.0 95.2	5 48.4 +48.0 94.4	5 12.4 +47.9 93.6
3°	8 24.3 +48.0 96.2	7 48.3 +48.0 95.4	7 12.4 +47.9 94.6	6 36.4 +47.9 93.8	6 00.3 +47.9 93.0
4°	9 12.3 +47.9 95.6	8 36.3 +47.9 94.8	8 00.3 +47.9 94.0	7 24.3 +47.8 93.2	6 48.2 +47.9 92.4
5°	10 00.2 +47.9 95.0	9 24.2 +47.9 94.2	8 48.2 +47.8 93.4	8 12.1 +47.9 92.6	7 36.1 +47.8 91.8
6°	10 48.1 +47.8 94.4	10 12.1 +47.8 93.6	9 36.0 +47.8 92.8	9 00.0 +47.7 92.0	8 23.9 +47.7 91.2
7°	11 35.9 +47.7 93.8	10 59.9 +47.7 93.0	10 23.8 +47.7 92.2	9 47.7 +47.7 91.4	9 11.6 +47.7 90.6
8°	12 23.6 +47.7 93.1	11 47.6 +47.6 92.3	11 11.5 +47.6 91.5	10 35.4 +47.6 90.7	9 59.3 +47.6 89.9
9°	13 11.3 +47.6 92.5	12 35.2 +47.6 91.7	11 59.1 +47.6 90.9	11 23.0 +47.5 90.1	10 46.9 +47.5 89.3
10°	13 58.9 +47.4 91.9	13 22.8 +47.4 91.1	12 46.7 +47.4 90.3	12 10.5 +47.5 89.5	11 34.4 +47.5 88.7
11°	14 46.3 +47.4 91.3	14 10.2 +47.4 90.5	13 34.1 +47.4 89.7	12 58.0 +47.4 88.9	12 21.9 +47.4 88.1
12°	15 33.7 +47.2 90.6	14 57.6 +47.2 89.8	14 21.5 +47.2 89.0	13 45.4 +47.2 88.2	13 09.3 +47.3 87.4
13°	16 20.9 +47.1 90.0	15 44.8 +47.1 89.2	15 08.7 +47.1 88.4	14 32.6 +47.2 87.6	13 56.6 +47.1 86.8
14°	17 08.0 +47.0 89.3	16 31.9 +47.1 88.5	15 55.8 +47.1 87.8	15 19.8 +47.0 87.0	14 43.7 +47.1 86.2
15°	17 55.0 +46.9 88.7	17 19.0 +46.8 87.9	16 42.9 +46.9 87.1	16 06.8 +47.0 86.3	15 30.8 +47.0 85.5
16°	18 41.9 +46.7 88.0	18 05.8 +46.8 87.2	17 29.8 +46.8 86.5	16 53.8 +46.8 85.7	16 17.8 +46.8 84.9
17°	19 28.6 +46.6 87.4	18 52.6 +46.6 86.6	18 16.6 +46.6 85.8	17 40.6 +46.6 85.0	17 04.6 +46.7 84.2
18°	20 15.2 +46.5 86.7	19 39.2 +46.5 85.9	19 03.2 +46.5 85.1	18 27.2 +46.6 84.3	17 51.3 +46.6 83.6
19°	21 01.7 +46.2 86.0	20 25.7 +46.3 85.2	19 49.7 +46.3 84.5	19 13.8 +46.4 83.7	18 37.9 +46.5 82.9
20°	21 47.9 +46.1 85.3	21 12.0 +46.1 84.6	20 36.0 +46.2 83.8	20 00.2 +46.2 83.0	19 24.4 +46.3 82.2
21°	22 34.0 +46.0 84.6	21 58.1 +46.0 83.9	21 22.2 +46.1 83.1	20 46.4 +46.1 82.3	20 10.7 +46.1 81.6
22°	23 20.0 +45.7 83.9	22 44.1 +45.8 83.2	22 08.3 +45.8 82.4	21 32.5 +45.9 81.6	20 56.8 +46.0 80.9
23°	24 05.7 +45.5 83.2	23 29.9 +45.6 82.5	22 54.1 +45.7 81.7	22 18.4 +45.7 80.9	21 42.8 +45.8 80.2
24°	24 51.2 +45.4 82.5	24 15.5 +45.3 81.8	23 39.8 +45.4 81.0	23 04.1 +45.6 80.2	22 28.6 +45.6 79.5
25°	25 36.6 +45.1 81.8	25 00.8 +45.2 81.0	24 25.2 +45.3 80.3	23 49.7 +45.3 79.5	23 14.2 +45.4 78.8
26°	26 21.7 +44.8 81.1	25 46.0 +45.0 80.3	25 10.5 +45.0 79.6	24 35.0 +45.1 78.8	23 59.6 +45.3 78.1
27°	27 06.5 +44.7 80.3	26 31.0 +44.7 79.6	25 55.5 +44.8 78.8	25 20.1 +45.0 78.1	24 44.9 +45.0 77.4
28°	27 51.2 +44.4 79.6	27 15.7 +44.5 78.8	26 40.3 +44.6 78.1	26 05.1 +44.7 77.4	25 29.9 +44.8 76.6
29°	28 35.6 +44.1 78.8	28 00.2 +44.3 78.1	27 24.9 +44.4 77.3	26 49.8 +44.4 76.6	26 14.7 +44.6 75.9

Dec	LHA 085° / 275°	LHA 086° / 274°	LHA 087° / 273°	LHA 088° / 272°	LHA 089° / 271°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	3 00.4 +48.0 94.0	2 24.4 +47.9 93.2	1 48.3 +47.9 92.4	1 12.2 +47.9 91.6	0 36.1 +47.9 90.8
1°	3 48.4 +47.9 93.4	3 12.3 +47.9 92.6	2 36.2 +47.9 91.8	2 00.1 +47.9 91.0	1 24.0 +47.9 90.2
2°	4 36.3 +47.9 92.8	4 00.2 +47.9 92.0	3 24.1 +47.9 91.2	2 48.0 +47.9 90.4	2 11.9 +47.9 89.6
3°	5 24.2 +47.9 92.2	4 48.1 +47.9 91.4	4 12.0 +47.9 90.6	3 35.9 +47.9 89.8	2 59.8 +47.9 89.0
4°	6 12.1 +47.9 91.6	5 36.0 +47.9 90.8	4 59.9 +47.8 90.0	4 23.8 +47.8 89.2	3 47.7 +47.9 88.4
5°	7 00.0 +47.8 91.0	6 23.9 +47.7 90.2	5 47.7 +47.8 89.4	5 11.6 +47.8 88.6	4 35.6 +47.8 87.8
6°	7 47.8 +47.7 90.4	7 11.6 +47.8 89.6	6 35.5 +47.8 88.8	5 59.4 +47.8 88.0	5 23.4 +47.8 87.2
7°	8 35.5 +47.7 89.8	7 59.4 +47.7 89.0	7 23.3 +47.7 88.2	6 47.2 +47.7 87.4	6 11.2 +47.7 86.6
8°	9 23.2 +47.6 89.1	8 47.1 +47.6 88.3	8 11.0 +47.6 87.5	7 34.9 +47.7 86.8	6 58.9 +47.7 86.0
9°	10 10.8 +47.5 88.5	9 34.7 +47.6 87.7	8 58.6 +47.6 86.9	8 22.6 +47.6 86.1	7 46.6 +47.6 85.3
10°	10 58.3 +47.5 87.9	10 22.3 +47.5 87.1	9 46.2 +47.5 86.3	9 10.2 +47.6 85.5	8 34.2 +47.6 84.7
11°	11 45.8 +47.4 87.3	11 09.8 +47.4 86.5	10 33.7 +47.5 85.7	9 57.8 +47.4 84.9	9 21.8 +47.5 84.1
12°	12 33.2 +47.3 86.6	11 57.2 +47.3 85.9	11 21.2 +47.3 85.1	10 45.2 +47.4 84.3	10 09.3 +47.5 83.5
13°	13 20.5 +47.2 86.0	12 44.5 +47.3 85.2	12 08.5 +47.3 84.4	11 32.6 +47.4 83.7	10 56.8 +47.3 82.9
14°	14 07.7 +47.1 85.4	13 31.8 +47.1 84.6	12 55.8 +47.2 83.8	12 20.0 +47.2 83.0	11 44.1 +47.3 82.2
15°	14 54.8 +47.0 84.7	14 18.9 +47.0 84.0	13 43.0 +47.1 83.2	13 07.2 +47.1 82.4	12 31.4 +47.2 81.6
16°	15 41.8 +46.9 84.1	15 05.9 +47.0 83.3	14 30.1 +47.0 82.5	13 54.3 +47.1 81.8	13 18.6 +47.1 81.0
17°	16 28.7 +46.8 83.4	15 52.9 +46.8 82.7	15 17.1 +46.9 81.9	14 41.4 +46.9 81.1	14 05.7 +47.0 80.3
18°	17 15.5 +46.6 82.8	16 39.7 +46.7 82.0	16 04.0 +46.7 81.2	15 28.3 +46.8 80.5	14 52.7 +46.9 79.7
19°	18 02.1 +46.5 82.1	17 26.4 +46.6 81.4	16 50.7 +46.7 80.6	16 15.1 +46.7 79.8	15 39.6 +46.8 79.1
20°	18 48.6 +46.4 81.5	18 13.0 +46.4 80.7	17 37.4 +46.5 79.9	17 01.8 +46.6 79.2	16 26.4 +46.7 78.4
21°	19 35.0 +46.2 80.8	18 59.4 +46.3 80.0	18 23.9 +46.3 79.3	17 48.4 +46.5 78.5	17 13.1 +46.5 77.8
22°	20 21.2 +46.0 80.1	19 45.7 +46.1 79.4	19 10.2 +46.2 78.6	18 34.9 +46.3 77.8	17 59.6 +46.4 77.1
23°	21 07.2 +45.9 79.4	20 31.8 +46.0 78.7	19 56.4 +46.1 77.9	19 21.2 +46.1 77.2	18 46.0 +46.3 76.4
24°	21 53.1 +45.7 78.7	21 17.8 +45.8 78.0	20 42.5 +45.9 77.2	20 07.3 +46.0 76.5	19 32.3 +46.1 75.7
25°	22 38.8 +45.6 78.0	22 03.6 +45.6 77.3	21 28.4 +45.7 76.5	20 53.3 +45.8 75.8	20 18.4 +45.9 75.1
26°	23 24.4 +45.3 77.3	22 49.2 +45.4 76.6	22 14.1 +45.5 75.9	21 39.1 +45.7 75.1	21 04.3 +45.8 74.4
27°	24 09.7 +45.1 76.6	23 34.6 +45.2 75.9	22 59.6 +45.4 75.1	22 24.8 +45.5 74.4	21 50.1 +45.6 73.7
28°	24 54.8 +44.9 75.9	24 19.8 +45.1 75.2	23 45.0 +45.2 74.4	23 10.3 +45.3 73.7	22 35.7 +45.4 73.0
29°	25 39.7 +44.7 75.2	25 04.9 +44.8 74.4	24 30.2 +44.9 73.7	23 55.6 +45.0 73.0	23 21.1 +45.2 72.3

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Dec	LHA 090° / 270°	LHA 091° / 269°	LHA 092° / 268°	LHA 093° / 267°	LHA 094° / 266°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	0 00.0 +47.9 90.0	-0 36.1 +47.9	-1 12.2 +47.9	-1 48.3 +48.0	-2 24.4 +48.0
1°	0 47.9 +47.9 89.4	0 11.8 +47.9 88.6	-0 24.3 +48.0	-1 00.3 +47.9	-1 36.4 +48.0
2°	1 35.8 +47.9 88.8	0 59.7 +47.9 88.0	0 23.7 +47.9 87.2	-0 12.4 +48.0	-0 48.4 +48.0
3°	2 23.7 +47.9 88.2	1 47.6 +48.0 87.4	1 11.6 +47.9 86.6	0 35.6 +47.9 85.8	-0 00.4 +48.0
4°	3 11.6 +47.9 87.6	2 35.6 +47.8 86.8	1 59.5 +47.9 86.0	1 23.5 +48.0 85.2	0 47.6 +47.9 84.4
5°	3 59.5 +47.8 87.0	3 23.4 +47.9 86.2	2 47.4 +47.9 85.4	2 11.5 +47.9 84.6	1 35.5 +48.0 83.8
6°	4 47.3 +47.8 86.4	4 11.3 +47.8 85.6	3 35.3 +47.9 84.8	2 59.4 +47.9 84.0	2 23.5 +47.9 83.2
7°	5 35.1 +47.8 85.8	4 59.1 +47.8 85.0	4 23.2 +47.8 84.2	3 47.3 +47.9 83.4	3 11.4 +48.0 82.6
8°	6 22.9 +47.7 85.2	5 46.9 +47.8 84.4	5 11.0 +47.8 83.6	4 35.2 +47.8 82.8	3 59.4 +47.9 82.0
9°	7 10.6 +47.7 84.6	6 34.7 +47.7 83.8	5 58.8 +47.8 83.0	5 23.0 +47.8 82.2	4 47.3 +47.9 81.4
10°	7 58.3 +47.6 83.9	7 22.4 +47.7 83.2	6 46.6 +47.7 82.4	6 10.8 +47.8 81.6	5 35.2 +47.8 80.8
11°	8 45.9 +47.6 83.3	8 10.1 +47.6 82.5	7 34.3 +47.7 81.8	6 58.6 +47.7 81.0	6 23.0 +47.8 80.2
12°	9 33.5 +47.5 82.7	8 57.7 +47.5 81.9	8 22.0 +47.6 81.1	7 46.3 +47.7 80.4	7 10.8 +47.7 79.6
13°	10 21.0 +47.4 82.1	9 45.2 +47.5 81.3	9 09.6 +47.5 80.5	8 34.0 +47.6 79.7	7 58.5 +47.7 79.0
14°	11 08.4 +47.3 81.5	10 32.7 +47.4 80.7	9 57.1 +47.5 79.9	9 21.6 +47.6 79.1	8 46.2 +47.6 78.3
15°	11 55.7 +47.3 80.8	11 20.1 +47.4 80.1	10 44.6 +47.4 79.3	10 09.2 +47.5 78.5	9 33.8 +47.6 77.7
16°	12 43.0 +47.2 80.2	12 07.5 +47.2 79.4	11 32.0 +47.3 78.7	10 56.7 +47.4 77.9	10 21.4 +47.5 77.1
17°	13 30.2 +47.1 79.6	12 54.7 +47.2 78.8	12 19.3 +47.3 78.0	11 44.1 +47.3 77.3	11 08.9 +47.4 76.5
18°	14 17.3 +46.9 78.9	13 41.9 +47.0 78.2	13 06.6 +47.1 77.4	12 31.4 +47.2 76.6	11 56.3 +47.4 75.9
19°	15 04.2 +46.9 78.3	14 28.9 +47.0 77.5	13 53.7 +47.1 76.8	13 18.6 +47.2 76.0	12 43.7 +47.2 75.2
20°	15 51.1 +46.8 77.6	15 15.9 +46.8 76.9	14 40.8 +46.9 76.1	14 05.8 +47.0 75.4	13 30.9 +47.2 74.6
21°	16 37.9 +46.6 77.0	16 02.7 +46.8 76.2	15 27.7 +46.8 75.5	14 52.8 +47.0 74.7	14 18.1 +47.0 74.0
22°	17 24.5 +46.5 76.3	16 49.5 +46.5 75.6	16 14.5 +46.7 74.8	15 39.8 +46.8 74.1	15 05.1 +46.9 73.3
23°	18 11.0 +46.3 75.7	17 36.0 +46.5 74.9	17 01.2 +46.6 74.2	16 26.6 +46.7 73.4	15 52.0 +46.9 72.7
24°	18 57.3 +46.2 75.0	18 22.5 +46.3 74.3	17 47.8 +46.5 73.5	17 13.3 +46.5 72.8	16 38.9 +46.6 72.0
25°	19 43.5 +46.1 74.3	19 08.8 +46.2 73.6	18 34.3 +46.3 72.8	17 59.8 +46.5 72.1	17 25.5 +46.6 71.4
26°	20 29.6 +45.9 73.6	19 55.0 +46.0 72.9	19 20.6 +46.1 72.2	18 46.3 +46.3 71.4	18 12.1 +46.4 70.7
27°	21 15.5 +45.7 73.0	20 41.0 +45.9 72.2	20 06.7 +46.0 71.5	19 32.6 +46.1 70.8	18 58.5 +46.3 70.0
28°	22 01.2 +45.6 72.3	21 26.9 +45.7 71.5	20 52.7 +45.9 70.8	20 18.7 +46.0 70.1	19 44.8 +46.2 69.4
29°	22 46.8 +45.3 71.6	22 12.6 +45.5 70.8	21 38.6 +45.6 70.1	21 04.7 +45.8 69.4	20 31.0 +45.9 68.7

Dec	LHA 095° / 265°	LHA 096° / 264°	LHA 097° / 263°	LHA 098° / 262°	LHA 099° / 261°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-3 00.4 +48.0	-3 36.4 +48.0	-4 12.4 +48.1	-4 48.3 +48.1	-5 24.1 +48.1
1°	-2 12.4 +48.0	-2 48.4 +48.1	-3 24.3 +48.1	-4 00.2 +48.2	-4 36.0 +48.2
2°	-1 24.4 +48.0	-2 00.3 +48.0	-2 36.2 +48.1	-3 12.0 +48.1	-3 47.8 +48.2
3°	-0 36.4 +48.0	-1 12.3 +48.1	-1 48.1 +48.1	-2 23.9 +48.2	-2 59.6 +48.2
4°	0 11.6 +48.1 83.6	-0 24.2 +48.1	-1 00.0 +48.1	-1 35.7 +48.1	-2 11.4 +48.3
5°	0 59.7 +48.0 83.0	0 23.9 +48.0 82.2	-0 11.9 +48.1	-0 47.6 +48.2	-1 23.1 +48.2
6°	1 47.7 +48.0 82.4	1 11.9 +48.1 81.6	0 36.2 +48.1 80.8	0 00.6 +48.2 80.0	-0 34.9 +48.3
7°	2 35.7 +48.0 81.8	2 00.0 +48.0 81.0	1 24.3 +48.2 80.2	0 48.8 +48.2 79.4	0 13.4 +48.2 78.6
8°	3 23.7 +47.9 81.2	2 48.0 +48.0 80.4	2 12.5 +48.0 79.6	1 37.0 +48.1 78.8	1 01.6 +48.2 78.0
9°	4 11.6 +48.0 80.6	3 36.0 +48.0 79.8	3 00.5 +48.1 79.0	2 25.1 +48.2 78.2	1 49.8 +48.3 77.4
10°	4 59.6 +47.9 80.0	4 24.0 +48.0 79.2	3 48.6 +48.1 78.4	3 13.3 +48.1 77.6	2 38.1 +48.2 76.8
11°	5 47.5 +47.8 79.4	5 12.0 +47.9 78.6	4 36.7 +48.0 77.8	4 01.4 +48.1 77.0	3 26.3 +48.2 76.2
12°	6 35.3 +47.8 78.8	5 59.9 +47.9 78.0	5 24.7 +48.0 77.2	4 49.5 +48.1 76.4	4 14.5 +48.1 75.6
13°	7 23.1 +47.8 78.2	6 47.8 +47.9 77.4	6 12.7 +47.9 76.6	5 37.6 +48.0 75.8	5 02.6 +48.2 75.0
14°	8 10.9 +47.7 77.6	7 35.7 +47.8 76.8	7 00.6 +47.9 76.0	6 25.6 +48.0 75.2	5 50.8 +48.1 74.4
15°	8 58.6 +47.7 77.0	8 23.5 +47.7 76.2	7 48.5 +47.8 75.4	7 13.6 +48.0 74.6	6 38.9 +48.0 73.8
16°	9 46.3 +47.6 76.3	9 11.2 +47.7 75.6	8 36.3 +47.8 74.8	8 01.6 +47.8 74.0	7 26.9 +48.0 73.2
17°	10 33.9 +47.5 75.7	9 58.9 +47.6 74.9	9 24.1 +47.7 74.2	8 49.4 +47.9 73.4	8 14.9 +48.0 72.6
18°	11 21.4 +47.4 75.1	10 46.5 +47.6 74.3	10 11.8 +47.7 73.6	9 37.3 +47.7 72.8	9 02.9 +47.8 72.0
19°	12 08.8 +47.4 74.5	11 34.1 +47.4 73.7	10 59.5 +47.6 72.9	10 25.0 +47.7 72.2	9 50.7 +47.9 71.4
20°	12 56.2 +47.2 73.8	12 21.5 +47.4 73.1	11 47.1 +47.5 72.3	11 12.7 +47.7 71.6	10 38.6 +47.7 70.8
21°	13 43.4 +47.2 73.2	13 08.9 +47.3 72.5	12 34.6 +47.4 71.7	12 00.4 +47.5 70.9	11 26.3 +47.7 70.2
22°	14 30.6 +47.0 72.6	13 56.2 +47.2 71.8	13 22.0 +47.3 71.1	12 47.9 +47.4 70.3	12 14.0 +47.6 69.6
23°	15 17.6 +47.0 71.9	14 43.4 +47.1 71.2	14 09.3 +47.2 70.4	13 35.3 +47.4 69.7	13 01.6 +47.4 68.9
24°	16 04.6 +46.8 71.3	15 30.5 +46.9 70.5	14 56.5 +47.1 69.8	14 22.7 +47.2 69.1	13 49.0 +47.4 68.3
25°	16 51.4 +46.7 70.6	16 17.4 +46.9 69.9	15 43.6 +47.0 69.2	15 09.9 +47.2 68.4	14 36.4 +47.3 67.7
26°	17 38.1 +46.6 70.0	17 04.3 +46.7 69.2	16 30.6 +46.9 68.5	15 57.1 +47.0 67.8	15 23.7 +47.2 67.0
27°	18 24.7 +46.4 69.3	17 51.0 +46.6 68.6	17 17.5 +46.7 67.9	16 44.1 +46.9 67.1	16 10.9 +47.1 66.4
28°	19 11.1 +46.3 68.6	18 37.6 +46.4 67.9	18 04.2 +46.6 67.2	17 31.0 +46.8 66.5	16 58.0 +46.9 65.7
29°	19 57.4 +46.1 68.0	19 24.0 +46.3 67.2	18 50.8 +46.5 66.5	18 17.8 +46.6 65.8	17 44.9 +46.8 65.1

# Declination SAME name as Latitude

# Latitude 53°

Dec	LHA 100° / 260°	LHA 101° / 259°	LHA 102° / 258°	LHA 103° / 257°	LHA 104° / 256°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-5 59.9 +48.2	-6 35.6 +48.2	-7 11.3 +48.3	-7 46.8 +48.4	-8 22.3 +48.5
1°	-5 11.7 +48.2	-5 47.4 +48.3	-6 23.0 +48.4	-6 58.4 +48.4	-7 33.8 +48.5
2°	-4 23.5 +48.3	-4 59.1 +48.3	-5 34.6 +48.4	-6 10.0 +48.5	-6 45.3 +48.5
3°	-3 35.2 +48.3	-4 10.8 +48.4	-4 46.2 +48.4	-5 21.5 +48.5	-5 56.8 +48.6
4°	-2 46.9 +48.3	-3 22.4 +48.4	-3 57.8 +48.5	-4 33.0 +48.5	-5 08.2 +48.6
5°	-1 58.6 +48.3	-2 34.0 +48.4	-3 09.3 +48.5	-3 44.5 +48.6	-4 19.6 +48.7
6°	-1 10.3 +48.3	-1 45.6 +48.4	-2 20.8 +48.4	-2 55.9 +48.5	-3 30.9 +48.7
7°	-0 22.0 +48.3	-0 57.2 +48.4	-1 32.4 +48.5	-2 07.4 +48.6	-2 42.2 +48.6
8°	0 26.3 +48.4 77.2	-0 08.8 +48.4	-0 43.9 +48.5	-1 18.8 +48.6	-1 53.6 +48.7
9°	1 14.7 +48.3 76.6	0 39.6 +48.4 75.8	0 04.6 +48.5 75.0	-0 30.2 +48.6	-1 04.9 +48.7
10°	2 03.0 +48.3 76.0	1 28.0 +48.4 75.2	0 53.1 +48.5 74.5	0 18.4 +48.6 73.7	-0 16.2 +48.8
11°	2 51.3 +48.3 75.4	2 16.4 +48.4 74.7	1 41.6 +48.5 73.9	1 07.0 +48.6 73.1	0 32.6 +48.7 72.3
12°	3 39.6 +48.2 74.9	3 04.8 +48.3 74.1	2 30.1 +48.5 73.3	1 55.6 +48.6 72.5	1 21.3 +48.7 71.7
13°	4 27.8 +48.3 74.3	3 53.1 +48.4 73.5	3 18.6 +48.4 72.7	2 44.2 +48.6 71.9	2 10.0 +48.6 71.1
14°	5 16.1 +48.2 73.7	4 41.5 +48.3 72.9	4 07.0 +48.5 72.1	3 32.8 +48.5 71.3	2 58.6 +48.7 70.5
15°	6 04.3 +48.1 73.1	5 29.8 +48.3 72.3	4 55.5 +48.4 71.5	4 21.3 +48.5 70.7	3 47.3 +48.6 69.9
16°	6 52.4 +48.1 72.5	6 18.1 +48.2 71.7	5 43.9 +48.3 70.9	5 09.8 +48.5 70.1	4 35.9 +48.7 69.3
17°	7 40.5 +48.1 71.9	7 06.3 +48.2 71.1	6 32.2 +48.3 70.3	5 58.3 +48.4 69.5	5 24.6 +48.5 68.8
18°	8 28.6 +48.0 71.3	7 54.5 +48.1 70.5	7 20.5 +48.3 69.7	6 46.7 +48.4 68.9	6 13.1 +48.6 68.2
19°	9 16.6 +47.9 70.6	8 42.6 +48.1 69.9	8 08.8 +48.2 69.1	7 35.1 +48.4 68.3	7 01.7 +48.5 67.6
20°	10 04.5 +47.9 70.0	9 30.7 +48.0 69.3	8 57.0 +48.1 68.5	8 23.5 +48.3 67.7	7 50.2 +48.4 67.0
21°	10 52.4 +47.8 69.4	10 18.7 +47.9 68.7	9 45.1 +48.1 67.9	9 11.8 +48.2 67.1	8 38.6 +48.4 66.4
22°	11 40.2 +47.7 68.8	11 06.6 +47.9 68.1	10 33.2 +48.1 67.3	10 00.0 +48.2 66.5	9 27.0 +48.3 65.8
23°	12 27.9 +47.7 68.2	11 54.5 +47.8 67.4	11 21.3 +47.9 66.7	10 48.2 +48.1 65.9	10 15.3 +48.3 65.2
24°	13 15.6 +47.5 67.6	12 42.3 +47.7 66.8	12 09.2 +47.9 66.1	11 36.3 +48.0 65.3	11 03.6 +48.2 64.6
25°	14 03.1 +47.5 66.9	13 30.0 +47.6 66.2	12 57.1 +47.7 65.5	12 24.3 +47.9 64.7	11 51.8 +48.1 64.0
26°	14 50.6 +47.3 66.3	14 17.6 +47.5 65.6	13 44.8 +47.7 64.8	13 12.2 +47.9 64.1	12 39.9 +48.0 63.4
27°	15 37.9 +47.3 65.7	15 05.1 +47.4 64.9	14 32.5 +47.6 64.2	14 00.1 +47.8 63.5	13 27.9 +47.9 62.7
28°	16 25.2 +47.1 65.0	15 52.5 +47.3 64.3	15 20.1 +47.5 63.6	14 47.9 +47.6 62.9	14 15.8 +47.9 62.1
29°	17 12.3 +47.0 64.4	16 39.8 +47.2 63.7	16 07.6 +47.3 62.9	15 35.5 +47.5 62.2	15 03.7 +47.7 61.5

Dec	LHA 105° / 255°	LHA 106° / 254°	LHA 107° / 253°	LHA 108° / 252°	LHA 109° / 251°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-8 57.7 +48.6	-9 32.9 +48.6	-9 19.3 +48.7	-9 54.3 +48.9	-9 40.1 +49.0
1°	-8 09.1 +48.6	-8 44.3 +48.7	-8 30.6 +48.8	-9 05.4 +48.9	-8 51.1 +49.1
2°	-7 20.5 +48.6	-7 55.6 +48.7	-7 41.8 +48.9	-8 16.5 +49.0	-8 02.0 +49.1
3°	-6 31.9 +48.7	-7 06.9 +48.8	-6 52.9 +48.9	-7 27.5 +49.0	-7 12.9 +49.2
4°	-5 43.2 +48.7	-6 18.1 +48.8	-6 04.0 +49.0	-6 38.5 +49.1	-6 23.7 +49.2
5°	-4 54.5 +48.7	-5 29.3 +48.8	-5 15.0 +49.0	-5 49.4 +49.1	-5 34.5 +49.3
6°	-4 05.8 +48.8	-4 40.5 +48.9	-4 26.0 +49.0	-5 00.3 +49.1	-4 45.2 +49.2
7°	-3 17.0 +48.8	-3 51.6 +48.9	-3 37.0 +49.0	-4 11.2 +49.1	-3 56.0 +49.3
8°	-2 28.2 +48.8	-3 02.7 +48.9	-2 48.0 +49.0	-3 22.1 +49.2	-3 06.7 +49.3
9°	-1 39.4 +48.8	-2 13.8 +48.9	-1 59.0 +49.1	-2 32.9 +49.2	-2 17.4 +49.4
10°	-0 50.6 +48.8	-1 24.9 +49.0	-1 09.9 +49.1	-1 43.7 +49.2	-1 28.0 +49.3
11°	-0 01.8 +48.9	-0 35.9 +48.9	-0 20.8 +49.0	-0 54.5 +49.2	-0 38.7 +49.3
12°	0 47.1 +48.8 70.9	0 13.0 +49.0 70.1	0 28.2 +49.1 68.7	-0 05.3 +49.2	0 10.6 +49.4 66.6
13°	1 35.9 +48.8 70.3	1 02.0 +48.9 69.5	1 17.3 +49.0 68.1	0 43.9 +49.2 67.4	1 00.0 +49.3 66.0
14°	2 24.7 +48.8 69.7	1 50.9 +48.9 68.9	2 06.3 +49.1 67.6	2 22.2 +49.2 66.2	1 49.3 +49.3 65.4
15°	3 13.5 +48.7 69.1	2 39.8 +48.9 68.4	2 55.4 +49.0 67.0	3 11.4 +49.2 65.6	2 38.6 +49.3 64.8
16°	4 02.2 +48.8 68.6	3 28.7 +48.9 67.8	3 44.4 +49.0 66.4	4 00.6 +49.1 65.1	3 27.9 +49.3 64.3
17°	4 51.0 +48.7 68.0	4 17.6 +48.9 67.2	4 33.4 +49.0 65.8	4 49.7 +49.1 64.5	4 17.2 +49.3 63.7
18°	5 39.7 +48.7 67.4	5 06.5 +48.8 66.6	5 22.4 +48.9 65.3	5 38.8 +49.1 63.9	5 06.5 +49.2 63.1
19°	6 28.4 +48.6 66.8	5 55.3 +48.8 66.0	6 11.3 +48.9 64.7	6 27.9 +49.0 63.3	5 55.7 +49.2 62.6
20°	7 17.0 +48.6 66.2	6 44.1 +48.7 65.4	7 00.2 +48.9 64.1	7 16.9 +49.0 62.7	6 44.9 +49.2 62.0
21°	8 05.6 +48.6 65.6	7 32.8 +48.7 64.9	7 49.1 +48.8 63.5	8 05.9 +48.9 62.2	7 34.1 +49.1 61.4
22°	8 54.2 +48.4 65.0	8 21.5 +48.7 64.3	8 37.9 +48.8 62.9	8 54.8 +48.9 61.6	8 23.2 +49.0 60.8
23°	9 42.6 +48.5 64.4	9 10.2 +48.6 63.7	9 26.7 +48.7 62.3	9 43.7 +48.8 61.0	9 12.2 +49.0 60.2
24°	10 31.1 +48.3 63.8	9 58.8 +48.5 63.1	10 15.4 +48.6 61.7	10 32.5 +48.7 60.4	10 01.2 +49.0 59.7
25°	11 19.4 +48.3 63.2	10 47.3 +48.4 62.5	11 04.0 +48.6 61.1	11 21.2 +48.7 59.8	10 50.2 +48.8 59.1
26°	12 07.7 +48.2 62.6	11 35.7 +48.4 61.9	11 52.6 +48.5 60.5	12 09.9 +48.6 59.2	11 39.0 +48.8 58.5
27°	12 55.9 +48.1 62.0	12 24.1 +48.3 61.3	12 41.1 +48.4 59.9	12 58.5 +48.5 58.6	12 27.8 +48.7 57.9
28°	13 44.0 +48.0 61.4	13 12.4 +48.2 60.7	13 29.5 +48.3 59.3		
29°	14 32.0 +48.0 60.8	14 00.6 +48.2 60.1			

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Dec	LHA 110° / 250°	LHA 111° / 249°	LHA 112° / 248°	LHA 113° / 247°	LHA 114° / 246°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°	-9 25.5 +49.2	-9 59.8 +49.4			
4°	-8 36.3 +49.2	-9 10.4 +49.3	-9 44.4 +49.5		
5°	-7 47.1 +49.3	-8 21.1 +49.4	-8 54.9 +49.5	-9 28.6 +49.7	
6°	-6 57.8 +49.4	-7 31.7 +49.5	-8 05.4 +49.6	-8 38.9 +49.7	-9 12.3 +49.9
7°	-6 08.4 +49.3	-6 42.2 +49.5	-7 15.8 +49.6	-7 49.2 +49.7	-8 22.4 +49.9
8°	-5 19.1 +49.4	-5 52.7 +49.5	-6 26.2 +49.7	-6 59.5 +49.9	-7 32.5 +49.9
9°	-4 29.7 +49.5	-5 03.2 +49.6	-5 36.5 +49.7	-6 09.6 +49.8	-6 42.6 +50.0
10°	-3 40.2 +49.4	-4 13.6 +49.5	-4 46.8 +49.7	-5 19.8 +49.9	-5 52.6 +50.0
11°	-2 50.8 +49.5	-3 24.1 +49.6	-3 57.1 +49.7	-4 29.9 +49.9	-5 02.6 +50.1
12°	-2 01.3 +49.4	-2 34.5 +49.7	-3 07.4 +49.8	-3 40.0 +49.9	-4 12.5 +50.1
13°	-1 11.9 +49.5	-1 44.8 +49.6	-2 17.6 +49.8	-2 50.1 +49.9	-3 22.4 +50.1
14°	-0 22.4 +49.5	-0 55.2 +49.6	-1 27.8 +49.8	-2 00.2 +50.0	-2 32.3 +50.1
15°	0 27.1 +49.5 65.2	-0 05.6 +49.7	-0 38.0 +49.8	-1 10.2 +49.9	-1 42.2 +50.1
16°	1 16.6 +49.5 64.6	0 44.1 +49.6 63.8	0 11.8 +49.8 63.0	-0 20.3 +50.0	-0 52.1 +50.1
17°	2 06.1 +49.4 64.1	1 33.7 +49.6 63.3	1 01.6 +49.7 62.5	0 29.7 +49.9 61.7	-0 02.0 +50.1
18°	2 55.5 +49.5 63.5	2 23.3 +49.6 62.7	1 51.3 +49.8 61.9	1 19.6 +49.9 61.1	0 48.1 +50.1 60.3
19°	3 45.0 +49.4 62.9	3 12.9 +49.6 62.1	2 41.1 +49.8 61.4	2 09.5 +50.0 60.6	1 38.2 +50.1 59.8
20°	4 34.4 +49.4 62.4	4 02.5 +49.6 61.6	3 30.9 +49.7 60.8	2 59.5 +49.9 60.0	2 28.3 +50.1 59.2
21°	5 23.8 +49.3 61.8	4 52.1 +49.5 61.0	4 20.6 +49.7 60.2	3 49.4 +49.9 59.5	3 18.4 +50.1 58.7
22°	6 13.1 +49.4 61.2	5 41.6 +49.5 60.4	5 10.3 +49.7 59.7	4 39.3 +49.8 58.9	4 08.5 +50.0 58.1
23°	7 02.5 +49.3 60.6	6 31.1 +49.5 59.9	6 00.0 +49.7 59.1	5 29.1 +49.9 58.3	4 58.5 +50.1 57.6
24°	7 51.8 +49.2 60.1	7 20.6 +49.4 59.3	6 49.7 +49.6 58.5	6 19.0 +49.8 57.8	5 48.6 +49.9 57.0
25°	8 41.0 +49.2 59.5	8 10.0 +49.4 58.7	7 39.3 +49.5 58.0	7 08.8 +49.7 57.2	6 38.5 +50.0 56.5
26°	9 30.2 +49.1 58.9	8 59.4 +49.3 58.2	8 28.8 +49.5 57.4	7 58.5 +49.7 56.7	7 28.5 +49.9 55.9
27°	10 19.3 +49.1 58.3	9 48.7 +49.3 57.6	9 18.3 +49.5 56.8	8 48.2 +49.7 56.1	8 18.4 +49.9 55.3
28°	11 08.4 +49.0 57.7	10 38.0 +49.2 57.0	10 07.8 +49.4 56.3	9 37.9 +49.6 55.5	9 08.3 +49.8 54.8
29°	11 57.4 +48.9 57.2	11 27.2 +49.1 56.4	10 57.2 +49.3 55.7	10 27.5 +49.5 55.0	9 58.1 +49.7 54.2

Dec	LHA 115° / 245°	LHA 116° / 244°	LHA 117° / 243°	LHA 118° / 242°	LHA 119° / 241°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°	-9 45.4 +50.0				
7°	-8 55.4 +50.0	-9 28.2 +50.2			
8°	-8 05.4 +50.1	-8 38.0 +50.3	-9 10.4 +50.4	-9 42.5 +50.5	
9°	-7 15.3 +50.2	-7 47.7 +50.3	-8 20.0 +50.5	-8 52.0 +50.7	-9 23.7 +50.8
10°	-6 25.1 +50.2	-6 57.4 +50.3	-7 29.5 +50.5	-8 01.3 +50.6	-8 32.9 +50.8
11°	-5 34.9 +50.2	-6 07.1 +50.4	-6 39.0 +50.5	-7 10.7 +50.7	-7 42.1 +50.8
12°	-4 44.7 +50.2	-5 16.7 +50.3	-5 48.5 +50.5	-6 20.0 +50.7	-6 51.3 +50.9
13°	-3 54.5 +50.2	-4 26.4 +50.5	-4 58.0 +50.6	-5 29.3 +50.8	-6 00.4 +51.0
14°	-3 04.3 +50.3	-3 35.9 +50.4	-4 07.4 +50.6	-4 38.5 +50.7	-5 09.4 +50.9
15°	-2 14.0 +50.3	-2 45.5 +50.4	-3 16.8 +50.6	-3 47.8 +50.8	-4 18.5 +51.0
16°	-1 23.7 +50.3	-1 55.1 +50.5	-2 26.2 +50.7	-2 57.0 +50.8	-3 27.5 +51.0
17°	-0 33.4 +50.3	-1 04.6 +50.5	-1 35.5 +50.6	-2 06.2 +50.9	-2 36.5 +51.0
18°	0 16.9 +50.2 59.5	-0 14.1 +50.4	-0 44.9 +50.7	-1 15.3 +50.8	-1 45.5 +51.0
19°	1 07.1 +50.3 59.0	0 36.3 +50.5 58.2	0 05.8 +50.6 57.4	-0 24.5 +50.8	-0 54.5 +51.0
20°	1 57.4 +50.3 58.4	1 26.8 +50.4 57.7	0 56.4 +50.6 56.9	0 26.3 +50.8 56.1	-0 03.5 +51.0
21°	2 47.7 +50.2 57.9	2 17.2 +50.5 57.1	1 47.0 +50.7 56.3	1 17.1 +50.9 55.5	0 47.5 +51.0 54.7
22°	3 37.9 +50.3 57.4	3 07.7 +50.4 56.6	2 37.7 +50.6 55.8	2 08.0 +50.8 55.0	1 38.5 +51.0 54.2
23°	4 28.2 +50.2 56.8	3 58.1 +50.4 56.0	3 28.3 +50.6 55.3	2 58.8 +50.8 54.5	2 29.5 +51.0 53.7
24°	5 18.4 +50.2 56.3	4 48.5 +50.4 55.5	4 18.9 +50.6 54.7	3 49.6 +50.7 53.9	3 20.5 +51.0 53.2
25°	6 08.6 +50.1 55.7	5 38.9 +50.3 54.9	5 09.5 +50.5 54.2	4 40.3 +50.8 53.4	4 11.5 +50.9 52.6
26°	6 58.7 +50.1 55.2	6 29.2 +50.3 54.4	6 00.0 +50.5 53.6	5 31.1 +50.7 52.9	5 02.4 +51.0 52.1
27°	7 48.8 +50.1 54.6	7 19.5 +50.3 53.8	6 50.5 +50.5 53.1	6 21.8 +50.7 52.3	5 53.4 +50.9 51.6
28°	8 38.9 +50.0 54.0	8 09.8 +50.2 53.3	7 41.0 +50.4 52.5	7 12.5 +50.6 51.8	6 44.3 +50.8 51.0
29°	9 28.9 +50.0 53.5	9 00.0 +50.2 52.7	8 31.4 +50.4 52.0	8 03.1 +50.6 51.3	7 35.1 +50.8 50.5

Dec	LHA 120° / 240°	LHA 121° / 239°	LHA 122° / 238°	LHA 123° / 237°	LHA 124° / 236°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°	-9 55.2 +51.0				
10°	-9 04.2 +50.9	-9 35.3 +51.2			
11°	-8 13.3 +51.1	-8 44.1 +51.2	-9 14.7 +51.3	-9 45.0 +51.5	
12°	-7 22.2 +51.0	-7 52.9 +51.2	-8 23.4 +51.5	-8 53.5 +51.6	-9 23.3 +51.8
13°	-6 31.2 +51.1	-7 01.7 +51.3	-7 31.9 +51.4	-8 01.9 +51.6	-8 31.5 +51.8
14°	-5 40.1 +51.2	-6 10.4 +51.3	-6 40.5 +51.5	-7 10.3 +51.7	-7 39.7 +51.8
15°	-4 48.9 +51.1	-5 19.1 +51.3	-5 49.0 +51.5	-6 18.6 +51.7	-6 47.9 +51.9
16°	-3 57.8 +51.2	-4 27.8 +51.4	-4 57.5 +51.6	-5 26.9 +51.8	-5 56.0 +52.0
17°	-3 06.6 +51.2	-3 36.4 +51.3	-4 05.9 +51.5	-4 35.1 +51.7	-5 04.0 +51.9
18°	-2 15.4 +51.2	-2 45.1 +51.4	-3 14.4 +51.6	-3 43.4 +51.8	-4 12.1 +52.0
19°	-1 24.2 +51.2	-1 53.7 +51.4	-2 22.8 +51.6	-2 51.6 +51.8	-3 20.1 +51.9
20°	-0 33.0 +51.2	-1 02.3 +51.4	-1 31.2 +51.6	-1 59.8 +51.7	-2 28.2 +52.0
21°	0 18.2 +51.2 54.0	-0 10.9 +51.4	-0 39.6 +51.6	-1 08.1 +51.8	-1 36.2 +52.0
22°	1 09.4 +51.2 53.4	0 40.5 +51.4 52.6	0 12.0 +51.6 51.8	-0 16.3 +51.8	-0 44.2 +52.0
23°	2 00.6 +51.2 52.9	1 31.9 +51.4 52.1	1 03.6 +51.6 51.3	0 35.5 +51.8 50.5	0 07.8 +52.0 49.7
24°	2 51.8 +51.1 52.4	2 23.3 +51.4 51.6	1 55.2 +51.5 50.8	1 27.3 +51.8 50.0	0 59.8 +52.0 49.2
25°	3 42.9 +51.2 51.9	3 14.7 +51.3 51.1	2 46.7 +51.6 50.3	2 19.1 +51.8 49.5	1 51.8 +52.0 48.7
26°	4 34.1 +51.1 51.3	4 06.0 +51.4 50.6	3 38.3 +51.6 49.8	3 10.9 +51.8 49.0	2 43.8 +52.0 48.2
27°	5 25.2 +51.1 50.8	4 57.4 +51.3 50.1	4 29.9 +51.5 49.3	4 02.7 +51.7 48.5	3 35.8 +51.9 47.7
28°	6 16.3 +51.1 50.3	5 48.7 +51.3 49.5	5 21.4 +51.5 48.8	4 54.4 +51.7 48.0	4 27.7 +52.0 47.2
29°	7 07.4 +51.0 49.8	6 40.0 +51.2 49.0	6 12.9 +51.5 48.3	5 46.1 +51.7 47.5	5 19.7 +51.9 46.7

Dec	LHA 125° / 235°	LHA 126° / 234°	LHA 127° / 233°	LHA 128° / 232°	LHA 129° / 231°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°	-9 52.8 +51.9				
13°	-9 00.9 +52.0	-9 29.9 +52.2	-9 58.6 +52.4		
14°	-8 08.9 +52.1	-8 37.7 +52.2	-9 06.2 +52.4	-9 34.4 +52.7	
15°	-7 16.8 +52.1	-7 45.5 +52.3	-8 13.8 +52.5	-8 41.7 +52.6	-9 09.4 +52.9
16°	-6 24.7 +52.1	-6 53.2 +52.3	-7 21.3 +52.5	-7 49.1 +52.7	-8 16.5 +52.9
17°	-5 32.6 +52.1	-6 00.9 +52.4	-6 28.8 +52.5	-6 56.4 +52.7	-7 23.6 +52.9
18°	-4 40.5 +52.2	-5 08.5 +52.3	-5 36.3 +52.6	-6 03.7 +52.8	-6 30.7 +52.9
19°	-3 48.3 +52.1	-4 16.2 +52.4	-4 43.7 +52.5	-5 10.9 +52.8	-5 37.8 +53.0
20°	-2 56.2 +52.2	-3 23.8 +52.4	-3 51.2 +52.6	-4 18.1 +52.7	-4 44.8 +53.0
21°	-2 04.0 +52.2	-2 31.4 +52.4	-2 58.6 +52.6	-3 25.4 +52.8	-3 51.8 +53.0
22°	-1 11.8 +52.2	-1 39.0 +52.4	-2 06.0 +52.6	-2 32.6 +52.9	-2 58.8 +53.0
23°	-0 19.6 +52.2	-0 46.6 +52.4	-1 13.4 +52.7	-1 39.7 +52.8	-2 05.8 +53.1
24°	0 32.6 +52.2 48.4	0 05.8 +52.4 47.7	-0 20.7 +52.6	-0 46.9 +52.8	-1 12.7 +53.0
25°	1 24.8 +52.2 48.0	0 58.2 +52.4 47.2	0 31.9 +52.6 46.4	0 05.9 +52.8 45.6	-0 19.7 +53.0
26°	2 17.0 +52.2 47.5	1 50.6 +52.4 46.7	1 24.5 +52.6 45.9	0 58.7 +52.8 45.1	0 33.3 +53.1 44.3
27°	3 09.2 +52.2 47.0	2 43.0 +52.4 46.2	2 17.1 +52.6 45.4	1 51.5 +52.9 44.6	1 26.4 +53.0 43.8
28°	4 01.4 +52.1 46.5	3 35.4 +52.3 45.7	3 09.7 +52.6 44.9	2 44.4 +52.8 44.2	2 19.4 +53.0 43.4
29°	4 53.5 +52.2 46.0	4 27.7 +52.4 45.2	4 02.3 +52.5 44.4	3 37.2 +52.7 43.7	3 12.4 +53.0 42.9

Dec	LHA 130° / 230°	LHA 131° / 229°	LHA 132° / 228°	LHA 133° / 227°	LHA 134° / 226°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°	-9 36.7 +53.1				
16°	-8 43.6 +53.1	-9 10.3 +53.3	-9 36.7 +53.5		
17°	-7 50.5 +53.1	-8 17.0 +53.3	-8 43.2 +53.5	-9 08.9 +53.7	-9 34.3 +53.9
18°	-6 57.4 +53.2	-7 23.7 +53.3	-7 49.7 +53.6	-8 15.2 +53.7	-8 40.4 +53.9
19°	-6 04.2 +53.1	-6 30.4 +53.4	-6 56.1 +53.6	-7 21.5 +53.8	-7 46.5 +54.0
20°	-5 11.1 +53.2	-5 37.0 +53.4	-6 02.5 +53.6	-6 27.7 +53.8	-6 52.5 +54.0
21°	-4 17.9 +53.2	-4 43.6 +53.4	-5 08.9 +53.6	-5 33.9 +53.8	-5 58.5 +54.1
22°	-3 24.7 +53.3	-3 50.2 +53.5	-4 15.3 +53.6	-4 40.1 +53.9	-5 04.4 +54.0
23°	-2 31.4 +53.2	-2 56.7 +53.4	-3 21.7 +53.7	-3 46.2 +53.8	-4 10.4 +54.1
24°	-1 38.2 +53.2	-2 03.3 +53.5	-2 28.0 +53.6	-2 52.4 +53.9	-3 16.3 +54.0
25°	-0 45.0 +53.3	-1 09.8 +53.4	-1 34.4 +53.7	-1 58.5 +53.9	-2 22.3 +54.1
26°	0 08.3 +53.2 43.5	-0 16.4 +53.5	-0 40.7 +53.7	-1 04.6 +53.8	-1 28.2 +54.1
27°	1 01.5 +53.3 43.1	0 37.1 +53.4 42.3	0 13.0 +53.6 41.5	-0 10.8 +53.9	-0 34.1 +54.1
28°	1 54.8 +53.2 42.6	1 30.5 +53.5 41.8	1 06.6 +53.7 41.0	0 43.1 +53.9 40.2	0 20.0 +54.1 39.4
29°	2 48.0 +53.2 42.1	2 24.0 +53.4 41.4	2 00.3 +53.6 40.6	1 37.0 +53.9 39.8	1 14.1 +54.1 39.0

Dec	LHA 135° / 225°	LHA 136° / 224°	LHA 137° / 223°	LHA 138° / 222°	LHA 139° / 221°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°	-9 59.3 +54.1				
18°	-9 05.2 +54.2	-9 29.6 +54.4	-9 53.6 +54.6		
19°	-8 11.0 +54.1	-8 35.2 +54.4	-8 59.0 +54.6	-9 22.4 +54.8	
20°	-7 16.9 +54.3	-7 40.8 +54.4	-8 04.4 +54.6	-8 27.6 +54.8	
21°	-6 22.6 +54.2	-6 46.4 +54.4	-7 09.8 +54.6	-7 32.8 +54.9	
22°	-5 28.4 +54.2	-5 52.0 +54.5	-6 15.2 +54.7	-6 37.9 +54.8	
23°	-4 34.2 +54.3	-4 57.5 +54.4	-5 20.5 +54.7	-5 43.1 +54.9	
24°	-3 39.9 +54.3	-4 03.1 +54.5	-4 25.8 +54.6	-4 48.2 +54.9	
25°	-2 45.6 +54.3	-3 08.6 +54.5	-3 31.2 +54.7	-3 53.3 +54.9	
26°	-1 51.3 +54.3	-2 14.1 +54.5	-2 36.5 +54.7	-2 58.4 +54.9	
27°	-0 57.0 +54.3	-1 19.6 +54.5	-1 41.8 +54.8	-2 03.5 +54.9	
28°	-0 02.7 +54.2	-0 25.1 +54.5	-0 47.0 +54.7	-1 08.6 +54.9	
29°	0 51.5 +54.3 38.2	0 29.4 +54.5 37.4	0 07.7 +54.7 36.6	-0 13.7 +55.0	

Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	36 00.0 +60.0 180.0	35 59.6 +60.0 178.8	35 58.5 +60.0 177.5	35 56.6 +59.9 176.3	35 53.9 +59.9 175.1
1°	37 00.0 +60.0 180.0	36 59.6 +60.0 178.7	36 58.5 +59.9 177.5	36 56.5 +60.0 176.2	36 53.8 +60.0 175.0
2°	38 00.0 +60.0 180.0	37 59.6 +60.0 178.7	37 58.4 +60.0 177.5	37 56.5 +59.9 176.2	37 53.8 +59.9 174.9
3°	39 00.0 +60.0 180.0	38 59.6 +60.0 178.7	38 58.4 +60.0 177.4	38 56.4 +60.0 176.1	38 53.7 +59.9 174.9
4°	40 00.0 +60.0 180.0	39 59.6 +60.0 178.7	39 58.4 +60.0 177.4	39 56.4 +59.9 176.1	39 53.6 +59.9 174.8
5°	41 00.0 +60.0 180.0	40 59.6 +60.0 178.7	40 58.4 +60.0 177.4	40 56.3 +60.0 176.0	40 53.5 +59.9 174.7
6°	42 00.0 +60.0 180.0	41 59.6 +60.0 178.7	41 58.4 +59.9 177.3	41 56.3 +59.9 176.0	41 53.4 +59.9 174.7
7°	43 00.0 +60.0 180.0	42 59.6 +60.0 178.6	42 58.3 +60.0 177.3	42 56.2 +60.0 175.9	42 53.3 +59.9 174.6
8°	44 00.0 +60.0 180.0	43 59.6 +60.0 178.6	43 58.3 +60.0 177.2	43 56.2 +59.9 175.9	43 53.2 +59.9 174.5
9°	45 00.0 +60.0 180.0	44 59.6 +60.0 178.6	44 58.3 +60.0 177.2	44 56.1 +60.0 175.8	44 53.1 +59.9 174.4
10°	46 00.0 +60.0 180.0	45 59.6 +60.0 178.6	45 58.3 +59.9 177.2	45 56.1 +59.9 175.8	45 53.0 +59.9 174.3
11°	47 00.0 +60.0 180.0	46 59.6 +60.0 178.6	46 58.2 +60.0 177.1	46 56.0 +60.0 175.7	46 52.9 +59.9 174.3
12°	48 00.0 +60.0 180.0	47 59.6 +59.9 178.5	47 58.2 +60.0 177.1	47 56.0 +59.9 175.6	47 52.8 +59.9 174.2
13°	49 00.0 +60.0 180.0	48 59.5 +60.0 178.5	48 58.2 +59.9 177.0	48 55.9 +59.9 175.5	48 52.7 +59.9 174.1
14°	50 00.0 +60.0 180.0	49 59.5 +60.0 178.5	49 58.1 +60.0 177.0	49 55.8 +60.0 175.5	49 52.6 +59.9 174.0
15°	51 00.0 +60.0 180.0	50 59.5 +60.0 178.5	50 58.1 +60.0 176.9	50 55.8 +59.9 175.4	50 52.5 +59.8 173.9
16°	52 00.0 +60.0 180.0	51 59.5 +60.0 178.4	51 58.1 +59.9 176.9	51 55.7 +59.9 175.3	51 52.3 +59.9 173.8
17°	53 00.0 +60.0 180.0	52 59.5 +60.0 178.4	52 58.0 +60.0 176.8	52 55.6 +59.9 175.2	52 52.2 +59.8 173.7
18°	54 00.0 +60.0 180.0	53 59.5 +60.0 178.4	53 58.0 +60.0 176.8	53 55.5 +59.9 175.2	53 52.0 +59.9 173.5
19°	55 00.0 +60.0 180.0	54 59.5 +60.0 178.4	54 58.0 +59.9 176.7	54 55.4 +60.0 175.1	54 51.9 +59.8 173.4
20°	56 00.0 +60.0 180.0	55 59.5 +60.0 178.3	55 57.9 +60.0 176.6	55 55.4 +59.9 175.0	55 51.7 +59.9 173.3
21°	57 00.0 +60.0 180.0	56 59.5 +60.0 178.3	56 57.9 +59.9 176.6	56 55.3 +59.9 174.9	56 51.6 +59.8 173.2
22°	58 00.0 +60.0 180.0	57 59.5 +60.0 178.3	57 57.8 +60.0 176.5	57 55.2 +59.9 174.8	57 51.4 +59.8 173.0
23°	59 00.0 +60.0 180.0	58 59.5 +59.9 178.2	58 57.8 +60.0 176.4	58 55.1 +59.8 174.6	58 51.2 +59.8 172.9
24°	60 00.0 +60.0 180.0	59 59.4 +60.0 178.2	59 57.8 +59.9 176.3	59 54.9 +59.9 174.5	59 51.0 +59.8 172.7
25°	61 00.0 +60.0 180.0	60 59.4 +60.0 178.1	60 57.7 +59.9 176.3	60 54.8 +59.9 174.4	60 50.8 +59.8 172.5
26°	62 00.0 +60.0 180.0	61 59.4 +60.0 178.1	61 57.6 +60.0 176.2	61 54.7 +59.9 174.3	61 50.6 +59.8 172.4
27°	63 00.0 +60.0 180.0	62 59.4 +60.0 178.0	62 57.6 +59.9 176.1	62 54.6 +59.8 174.1	62 50.4 +59.7 172.2
28°	64 00.0 +60.0 180.0	63 59.4 +60.0 178.0	63 57.5 +60.0 176.0	63 54.4 +59.9 174.0	63 50.1 +59.7 172.0
29°	65 00.0 +60.0 180.0	64 59.4 +59.9 177.9	64 57.5 +59.9 175.9	64 54.3 +59.8 173.8	64 49.8 +59.8 171.8

Dec	LHA 005° / 355°	LHA 006° / 354°	LHA 007° / 353°	LHA 008° / 352°	LHA 009° / 351°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	35 50.5 +59.9 173.8	35 46.3 +59.9 172.6	35 41.4 +59.8 171.4	35 35.8 +59.6 170.1	35 29.3 +59.7 168.9
1°	36 50.4 +59.9 173.7	36 46.2 +59.8 172.5	36 41.2 +59.7 171.3	36 35.4 +59.7 170.0	36 29.0 +59.6 168.8
2°	37 50.3 +59.8 173.7	37 46.0 +59.8 172.4	37 40.9 +59.8 171.1	37 35.1 +59.7 169.9	37 28.6 +59.6 168.6
3°	38 50.1 +59.9 173.6	38 45.8 +59.8 172.3	38 40.7 +59.7 171.0	38 34.8 +59.7 169.8	38 28.2 +59.5 168.5
4°	39 50.0 +59.9 173.5	39 45.6 +59.8 172.2	39 40.4 +59.8 170.9	39 34.5 +59.6 169.6	39 27.7 +59.6 168.3
5°	40 49.9 +59.8 173.4	40 45.4 +59.8 172.1	40 40.2 +59.7 170.8	40 34.1 +59.7 169.5	40 27.3 +59.6 168.2
6°	41 49.7 +59.9 173.3	41 45.2 +59.8 172.0	41 39.9 +59.7 170.7	41 33.8 +59.6 169.3	41 26.9 +59.5 168.0
7°	42 49.6 +59.8 173.2	42 45.0 +59.8 171.9	42 39.6 +59.7 170.5	42 33.4 +59.6 169.2	42 26.4 +59.5 167.9
8°	43 49.4 +59.9 173.1	43 44.8 +59.8 171.8	43 39.3 +59.7 170.4	43 33.0 +59.6 169.0	43 25.9 +59.5 167.7
9°	44 49.3 +59.8 173.0	44 44.6 +59.7 171.6	44 39.0 +59.7 170.3	44 32.6 +59.6 168.9	44 25.4 +59.5 167.5
10°	45 49.1 +59.9 172.9	45 44.3 +59.8 171.5	45 38.7 +59.7 170.1	45 32.2 +59.6 168.7	45 24.9 +59.5 167.3
11°	46 49.0 +59.8 172.8	46 44.1 +59.8 171.4	46 38.4 +59.7 170.0	46 31.8 +59.6 168.5	46 24.4 +59.4 167.1
12°	47 48.8 +59.8 172.7	47 43.9 +59.7 171.3	47 38.1 +59.6 169.8	47 31.4 +59.5 168.4	47 23.8 +59.5 166.9
13°	48 48.6 +59.8 172.6	48 43.6 +59.7 171.1	48 37.7 +59.7 169.6	48 30.9 +59.6 168.2	48 23.3 +59.4 166.7
14°	49 48.4 +59.8 172.5	49 43.3 +59.8 171.0	49 37.4 +59.6 169.5	49 30.5 +59.5 168.0	49 22.7 +59.4 166.5
15°	50 48.2 +59.8 172.3	50 43.1 +59.7 170.8	50 37.0 +59.6 169.3	50 30.0 +59.5 167.8	50 22.1 +59.3 166.3
16°	51 48.0 +59.8 172.2	51 42.8 +59.7 170.7	51 36.6 +59.6 169.1	51 29.5 +59.4 167.6	51 21.4 +59.4 166.1
17°	52 47.8 +59.8 172.1	52 42.5 +59.7 170.5	52 36.2 +59.5 168.9	52 28.9 +59.5 167.4	52 20.8 +59.3 165.8
18°	53 47.6 +59.8 171.9	53 42.2 +59.6 170.3	53 35.7 +59.6 168.7	53 28.4 +59.4 167.2	53 20.1 +59.2 165.6
19°	54 47.4 +59.7 171.8	54 41.8 +59.7 170.2	54 35.3 +59.5 168.5	54 27.8 +59.4 166.9	54 19.3 +59.3 165.3
20°	55 47.1 +59.8 171.6	55 41.5 +59.6 170.0	55 34.8 +59.5 168.3	55 27.2 +59.3 166.7	55 18.6 +59.2 165.0
21°	56 46.9 +59.7 171.5	56 41.1 +59.6 169.8	56 34.3 +59.5 168.1	56 26.5 +59.4 166.4	56 17.8 +59.1 164.7
22°	57 46.6 +59.7 171.3	57 40.7 +59.6 169.6	57 33.8 +59.5 167.8	57 25.9 +59.2 166.1	57 16.9 +59.1 164.4
23°	58 46.3 +59.7 171.1	58 40.3 +59.6 169.3	58 33.3 +59.4 167.6	58 25.1 +59.3 165.8	58 16.0 +59.1 164.1
24°	59 46.0 +59.7 170.9	59 39.9 +59.5 169.1	59 32.7 +59.3 167.3	59 24.4 +59.2 165.5	59 15.1 +58.9 163.8
25°	60 45.7 +59.6 170.7	60 39.4 +59.5 168.9	60 32.0 +59.4 167.0	60 23.6 +59.1 165.2	60 14.0 +59.0 163.4
26°	61 45.3 +59.7 170.5	61 38.9 +59.5 168.6	61 31.4 +59.3 166.7	61 22.7 +59.1 164.9	61 13.0 +58.8 163.0
27°	62 45.0 +59.6 170.2	62 38.4 +59.5 168.3	62 30.7 +59.2 166.4	62 21.8 +59.0 164.5	62 11.8 +58.8 162.6
28°	63 44.6 +59.6 170.0	63 37.9 +59.4 168.0	63 29.9 +59.2 166.0	63 20.8 +59.0 164.1	63 10.6 +58.7 162.2
29°	64 44.2 +59.5 169.7	64 37.3 +59.3 167.7	64 29.1 +59.2 165.7	64 19.8 +58.9 163.7	64 09.3 +58.6 161.7

Dec	LHA 010° / 350°	LHA 011° / 349°	LHA 012° / 348°	LHA 013° / 347°	LHA 014° / 346°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	35 22.2 +59.5 167.7	35 14.3 +59.5 166.5	35 05.7 +59.3 165.3	34 56.4 +59.2 164.1	34 46.4 +59.1 162.9
1°	36 21.7 +59.5 167.5	36 13.8 +59.4 166.3	36 05.0 +59.3 165.1	35 55.6 +59.2 163.9	35 45.5 +59.0 162.7
2°	37 21.2 +59.5 167.4	37 13.2 +59.4 166.1	37 04.3 +59.3 164.9	36 54.8 +59.2 163.7	36 44.5 +59.1 162.4
3°	38 20.7 +59.5 167.2	38 12.6 +59.3 166.0	38 03.6 +59.3 164.7	37 54.0 +59.1 163.5	37 43.6 +59.0 162.2
4°	39 20.2 +59.5 167.1	39 11.9 +59.4 165.8	39 02.9 +59.2 164.5	38 53.1 +59.1 163.2	38 42.6 +58.9 162.0
5°	40 19.7 +59.4 166.9	40 11.3 +59.3 165.6	40 02.1 +59.3 164.3	39 52.2 +59.1 163.0	39 41.5 +59.0 161.7
6°	41 19.1 +59.5 166.7	41 10.6 +59.4 165.4	41 01.4 +59.2 164.1	40 51.3 +59.1 162.8	40 40.5 +58.9 161.5
7°	42 18.6 +59.4 166.5	42 10.0 +59.3 165.2	42 00.6 +59.1 163.9	41 50.4 +59.0 162.6	41 39.4 +58.9 161.3
8°	43 18.0 +59.4 166.3	43 09.3 +59.2 165.0	42 59.7 +59.2 163.7	42 49.4 +59.0 162.3	42 38.3 +58.9 161.0
9°	44 17.4 +59.4 166.1	44 08.5 +59.3 164.8	43 58.9 +59.1 163.4	43 48.4 +59.0 162.1	43 37.2 +58.8 160.7
10°	45 16.8 +59.3 165.9	45 07.8 +59.2 164.6	44 58.0 +59.1 163.2	44 47.4 +58.9 161.8	44 36.0 +58.7 160.5
11°	46 16.1 +59.3 165.7	46 07.0 +59.2 164.3	45 57.1 +59.0 162.9	45 46.3 +58.9 161.5	45 34.7 +58.8 160.2
12°	47 15.4 +59.3 165.5	47 06.2 +59.2 164.1	46 56.1 +59.0 162.7	46 45.2 +58.8 161.3	46 33.5 +58.6 159.9
13°	48 14.7 +59.3 165.3	48 05.4 +59.1 163.8	47 55.1 +59.0 162.4	47 44.0 +58.8 161.0	47 32.1 +58.7 159.6
14°	49 14.0 +59.3 165.0	49 04.5 +59.1 163.6	48 54.1 +58.9 162.1	48 42.8 +58.8 160.7	48 30.8 +58.5 159.2
15°	50 13.3 +59.2 164.8	50 03.6 +59.0 163.3	49 53.0 +58.9 161.8	49 41.6 +58.7 160.4	49 29.3 +58.6 158.9
16°	51 12.5 +59.2 164.5	51 02.6 +59.1 163.0	50 51.9 +58.9 161.5	50 40.3 +58.7 160.1	50 27.9 +58.4 158.6
17°	52 11.7 +59.1 164.3	52 01.7 +58.9 162.7	51 50.8 +58.7 161.2	51 39.0 +58.6 159.7	51 26.3 +58.4 158.2
18°	53 10.8 +59.1 164.0	53 00.6 +59.0 162.4	52 49.5 +58.8 160.9	52 37.6 +58.5 159.4	52 24.7 +58.3 157.8
19°	54 09.9 +59.1 163.7	53 59.6 +58.8 162.1	53 48.3 +58.6 160.6	53 36.1 +58.4 159.0	53 23.0 +58.2 157.4
20°	55 09.0 +59.0 163.4	54 58.4 +58.8 161.8	54 46.9 +58.6 160.2	54 34.5 +58.4 158.6	54 21.2 +58.2 157.0
21°	56 08.0 +58.9 163.1	55 57.2 +58.8 161.4	55 45.5 +58.6 159.8	55 32.9 +58.3 158.2	55 19.4 +58.0 156.6
22°	57 06.9 +58.9 162.8	56 56.0 +58.7 161.1	56 44.1 +58.4 159.4	56 31.2 +58.2 157.8	56 17.4 +58.0 156.2
23°	58 05.8 +58.9 162.4	57 54.7 +58.6 160.7	57 42.5 +58.4 159.0	57 29.4 +58.1 157.3	57 15.4 +57.8 155.7
24°	59 04.7 +58.7 162.0	58 53.3 +58.5 160.3	58 40.9 +58.3 158.6	58 27.5 +58.0 156.9	58 13.2 +57.7 155.2
25°	60 03.4 +58.7 161.6	59 51.8 +58.5 159.9	59 39.2 +58.1 158.1	59 25.5 +57.9 156.4	59 10.9 +57.6 154.7
26°	61 02.1 +58.7 161.2	60 50.3 +58.3 159.4	60 37.3 +58.1 157.6	60 23.4 +57.7 155.8	60 08.5 +57.4 154.1
27°	62 00.8 +58.5 160.7	61 48.6 +58.2 158.9	61 35.4 +57.9 157.1	61 21.1 +57.6 155.3	61 05.9 +57.3 153.5
28°	62 59.3 +58.4 160.3	62 46.8 +58.1 158.4	62 33.3 +57.8 156.5	62 18.7 +57.5 154.7	62 03.2 +57.0 152.9
29°	63 57.7 +58.3 159.8	63 44.9 +58.0 157.8	63 31.1 +57.6 155.9	63 16.2 +57.2 154.1	63 00.2 +56.9 152.2

Dec	LHA 015° / 345°	LHA 016° / 344°	LHA 017° / 343°	LHA 018° / 342°	LHA 019° / 341°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	34 35.6 +59.0 161.7	34 24.2 +58.8 160.5	34 12.1 +58.7 159.3	33 59.3 +58.5 158.1	33 45.8 +58.4 156.9
1°	35 34.6 +58.9 161.4	35 23.0 +58.8 160.2	35 10.8 +58.6 159.0	34 57.8 +58.5 157.9	34 44.2 +58.3 156.7
2°	36 33.5 +58.9 161.2	36 21.8 +58.8 160.0	36 09.4 +58.6 158.8	35 56.3 +58.4 157.6	35 42.5 +58.3 156.4
3°	37 32.4 +58.9 161.0	37 20.6 +58.7 159.7	37 08.0 +58.6 158.5	36 54.7 +58.4 157.3	36 40.8 +58.2 156.1
4°	38 31.3 +58.8 160.7	38 19.3 +58.7 159.5	38 06.6 +58.5 158.2	37 53.1 +58.4 157.0	37 39.0 +58.2 155.8
5°	39 30.1 +58.8 160.5	39 18.0 +58.6 159.2	39 05.1 +58.5 158.0	38 51.5 +58.3 156.7	38 37.2 +58.2 155.5
6°	40 28.9 +58.8 160.2	40 16.6 +58.6 158.9	40 03.6 +58.4 157.7	39 49.8 +58.3 156.4	39 35.4 +58.1 155.2
7°	41 27.7 +58.7 160.0	41 15.2 +58.6 158.7	41 02.0 +58.4 157.4	40 48.1 +58.2 156.1	40 33.5 +58.0 154.8
8°	42 26.4 +58.7 159.7	42 13.8 +58.5 158.4	42 00.4 +58.4 157.1	41 46.3 +58.2 155.8	41 31.5 +58.0 154.5
9°	43 25.1 +58.7 159.4	43 12.3 +58.5 158.1	42 58.8 +58.3 156.8	42 44.5 +58.1 155.4	42 29.5 +57.9 154.1
10°	44 23.8 +58.6 159.1	44 10.8 +58.4 157.8	43 57.1 +58.2 156.4	43 42.6 +58.0 155.1	43 27.4 +57.8 153.8
11°	45 22.4 +58.5 158.8	45 09.2 +58.4 157.4	44 55.3 +58.2 156.1	44 40.6 +58.0 154.7	44 25.2 +57.8 153.4
12°	46 20.9 +58.5 158.5	46 07.6 +58.3 157.1	45 53.5 +58.1 155.7	45 38.6 +57.9 154.4	45 23.0 +57.7 153.0
13°	47 19.4 +58.5 158.2	47 05.9 +58.2 156.8	46 51.6 +58.0 155.4	46 36.5 +57.8 154.0	46 20.7 +57.6 152.6
14°	48 17.9 +58.3 157.8	48 04.1 +58.2 156.4	47 49.6 +58.0 155.0	47 34.3 +57.8 153.6	47 18.3 +57.5 152.2
15°	49 16.2 +58.4 157.5	49 02.3 +58.1 156.0	48 47.6 +57.9 154.6	48 32.1 +57.6 153.2	48 15.8 +57.4 151.8
16°	50 14.6 +58.2 157.1	50 00.4 +58.0 155.7	49 45.5 +57.8 154.2	49 29.7 +57.6 152.8	49 13.2 +57.3 151.4
17°	51 12.8 +58.2 156.7	50 58.4 +58.0 155.3	50 43.3 +57.7 153.8	50 27.3 +57.5 152.3	50 10.5 +57.2 150.9
18°	52 11.0 +58.0 156.3	51 56.4 +57.8 154.8	51 41.0 +57.6 153.4	51 24.8 +57.3 151.9	51 07.7 +57.1 150.4
19°	53 09.0 +58.0 155.9	52 54.2 +57.8 154.4	52 38.6 +57.5 152.9	52 22.1 +57.2 151.4	52 04.8 +57.0 149.9
20°	54 07.0 +57.9 155.5	53 52.0 +57.6 153.9	53 36.1 +57.3 152.4	53 19.3 +57.1 150.9	53 01.8 +56.8 149.4
21°	55 04.9 +57.8 155.0	54 49.6 +57.5 153.5	54 33.4 +57.3 151.9	54 16.4 +57.0 150.4	53 58.6 +56.6 148.9
22°	56 02.7 +57.7 154.6	55 47.1 +57.4 153.0	55 30.7 +57.1 151.4	55 13.4 +56.8 149.8	54 55.2 +56.5 148.3
23°	57 00.4 +57.5 154.1	56 44.5 +57.3 152.4	56 27.8 +56.9 150.8	56 10.2 +56.6 149.3	55 51.7 +56.3 147.7
24°	57 57.9 +57.4 153.5	57 41.8 +57.1 151.9	57 24.7 +56.8 150.3	57 06.8 +56.4 148.7	56 48.0 +56.2 147.1
25°	58 55.3 +57.3 153.0	58 38.9 +56.9 151.3	58 21.5 +56.6 149.7	58 03.2 +56.3 148.0	57 44.2 +55.9 146.4
26°	59 52.6 +57.1 152.4	59 35.8 +56.7 150.7	59 18.1 +56.4 149.0	58 59.5 +56.0 147.4	58 40.1 +55.6 145.8
27°	60 49.7 +56.9 151.8	60 32.5 +56.6 150.0	60 14.5 +56.1 148.3	59 55.5 +55.8 146.7	59 35.7 +55.4 145.0
28°	61 46.6 +56.7 151.1	61 29.1 +56.3 149.3	61 10.6 +56.0 147.6	60 51.3 +55.6 145.9	60 31.1 +55.2 144.3
29°	62 43.3 +56.5 150.4	62 25.4 +56.1 148.6	62 06.6 +55.6 146.9	61 46.9 +55.2 145.1	61 26.3 +54.8 143.4

# Declination SAME name as Latitude

# Latitude 54°

Dec	LHA 020° / 340°	LHA 021° / 339°	LHA 022° / 338°	LHA 023° / 337°	LHA 024° / 336°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	33 31.7 +58.2 155.8	33 16.9 +58.0 154.6	33 01.4 +57.9 153.5	32 45.3 +57.7 152.3	32 28.7 +57.5 151.2
1°	34 29.9 +58.1 155.5	34 14.9 +58.0 154.3	33 59.3 +57.8 153.1	33 43.0 +57.7 152.0	33 26.2 +57.4 150.8
2°	35 28.0 +58.1 155.2	35 12.9 +57.9 154.0	34 57.1 +57.8 152.8	34 40.7 +57.6 151.7	34 23.6 +57.4 150.5
3°	36 26.1 +58.1 154.9	36 10.8 +57.9 153.7	35 54.9 +57.7 152.5	35 38.3 +57.5 151.3	35 21.0 +57.3 150.1
4°	37 24.2 +58.0 154.6	37 08.7 +57.9 153.4	36 52.6 +57.6 152.2	36 35.8 +57.4 151.0	36 18.3 +57.3 149.8
5°	38 22.2 +58.0 154.2	38 06.6 +57.8 153.0	37 50.2 +57.6 151.8	37 33.2 +57.4 150.6	37 15.6 +57.2 149.4
6°	39 20.2 +57.9 153.9	39 04.4 +57.7 152.7	38 47.8 +57.5 151.4	38 30.6 +57.4 150.2	38 12.8 +57.1 149.0
7°	40 18.1 +57.9 153.6	40 02.1 +57.6 152.3	39 45.3 +57.5 151.1	39 28.0 +57.2 149.8	39 09.9 +57.1 148.6
8°	41 16.0 +57.7 153.2	40 59.7 +57.6 152.0	40 42.8 +57.4 150.7	40 25.2 +57.2 149.5	40 07.0 +56.9 148.2
9°	42 13.7 +57.8 152.9	41 57.3 +57.5 151.6	41 40.2 +57.3 150.3	41 22.4 +57.0 149.1	41 03.9 +56.9 147.8
10°	43 11.5 +57.6 152.5	42 54.8 +57.4 151.2	42 37.5 +57.2 149.9	42 19.4 +57.0 148.6	42 00.8 +56.7 147.4
11°	44 09.1 +57.5 152.1	43 52.2 +57.4 150.8	43 34.7 +57.1 149.5	43 16.4 +56.9 148.2	42 57.5 +56.7 146.9
12°	45 06.6 +57.5 151.7	44 49.6 +57.2 150.4	44 31.8 +57.0 149.1	44 13.3 +56.8 147.8	43 54.2 +56.5 146.5
13°	46 04.1 +57.4 151.3	45 46.8 +57.2 150.0	45 28.8 +56.9 148.6	45 10.1 +56.7 147.3	44 50.7 +56.4 146.0
14°	47 01.5 +57.3 150.9	46 44.0 +57.0 149.5	46 25.7 +56.8 148.2	46 06.8 +56.5 146.8	45 47.1 +56.3 145.5
15°	47 58.8 +57.1 150.4	47 41.0 +56.9 149.1	47 22.5 +56.7 147.7	47 03.3 +56.4 146.4	46 43.4 +56.2 145.0
16°	48 55.9 +57.1 150.0	48 37.9 +56.8 148.6	48 19.2 +56.5 147.2	47 59.7 +56.3 145.9	47 39.6 +56.0 144.5
17°	49 53.0 +57.0 149.5	49 34.7 +56.7 148.1	49 15.7 +56.5 146.7	48 56.0 +56.2 145.3	48 35.6 +55.9 144.0
18°	50 50.0 +56.8 149.0	50 31.4 +56.6 147.6	50 12.2 +56.2 146.2	49 52.2 +55.9 144.8	49 31.5 +55.7 143.4
19°	51 46.8 +56.6 148.5	51 28.0 +56.3 147.0	51 08.4 +56.1 145.6	50 48.1 +55.9 144.2	50 27.2 +55.5 142.8
20°	52 43.4 +56.6 148.0	52 24.3 +56.3 146.5	52 04.5 +55.9 145.1	51 44.0 +55.6 143.6	51 22.7 +55.3 142.2
21°	53 40.0 +56.3 147.4	53 20.6 +56.0 145.9	53 00.4 +55.8 144.5	52 39.6 +55.4 143.0	52 18.0 +55.1 141.6
22°	54 36.3 +56.2 146.8	54 16.6 +55.9 145.3	53 56.2 +55.5 143.8	53 35.0 +55.2 142.4	53 13.1 +54.9 141.0
23°	55 32.5 +56.0 146.2	55 12.5 +55.6 144.7	54 51.7 +55.4 143.2	54 30.2 +55.0 141.7	54 08.0 +54.7 140.3
24°	56 28.5 +55.8 145.5	56 08.1 +55.5 144.0	55 47.1 +55.0 142.5	55 25.2 +54.8 141.0	55 02.7 +54.4 139.6
25°	57 24.3 +55.5 144.9	57 03.6 +55.2 143.3	56 42.1 +54.9 141.8	56 20.0 +54.4 140.3	55 57.1 +54.1 138.8
26°	58 19.8 +55.3 144.2	57 58.8 +54.9 142.6	57 37.0 +54.5 141.0	57 14.4 +54.2 139.5	56 51.2 +53.8 138.0
27°	59 15.1 +55.0 143.4	58 53.7 +54.6 141.8	58 31.5 +54.3 140.3	58 08.6 +53.9 138.7	57 45.0 +53.5 137.2
28°	60 10.1 +54.8 142.6	59 48.3 +54.4 141.0	59 25.8 +53.9 139.4	59 02.5 +53.5 137.9	58 38.5 +53.1 136.4
29°	61 04.9 +54.4 141.8	60 42.7 +53.9 140.2	60 19.7 +53.5 138.6	59 56.0 +53.1 137.0	59 31.6 +52.7 135.5

Dec	LHA 025° / 335°	LHA 026° / 334°	LHA 027° / 333°	LHA 028° / 332°	LHA 029° / 331°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	32 11.3 +57.4 150.0	31 53.4 +57.2 148.9	31 34.9 +57.0 147.8	31 15.8 +56.8 146.7	30 56.2 +56.5 145.6
1°	33 08.7 +57.2 149.7	32 50.6 +57.0 148.6	32 31.9 +56.9 147.4	32 12.6 +56.7 146.3	31 52.7 +56.5 145.2
2°	34 05.9 +57.2 149.3	33 47.6 +57.1 148.2	33 28.8 +56.8 147.0	33 09.3 +56.6 145.9	32 49.2 +56.4 144.8
3°	35 03.1 +57.2 149.0	34 44.7 +56.9 147.8	34 25.6 +56.7 146.7	34 05.9 +56.5 145.5	33 45.6 +56.4 144.4
4°	36 00.3 +57.0 148.6	35 41.6 +56.9 147.4	35 22.3 +56.7 146.3	35 02.4 +56.5 145.1	34 42.0 +56.2 144.0
5°	36 57.3 +57.0 148.2	36 38.5 +56.7 147.0	36 19.0 +56.5 145.9	35 58.9 +56.3 144.7	35 38.2 +56.1 143.5
6°	37 54.3 +56.9 147.8	37 35.2 +56.7 146.6	37 15.5 +56.5 145.4	36 55.2 +56.3 144.3	36 34.3 +56.1 143.1
7°	38 51.2 +56.9 147.4	38 31.9 +56.6 146.2	38 12.0 +56.4 145.0	37 51.5 +56.2 143.8	37 30.4 +55.9 142.7
8°	39 48.1 +56.7 147.0	39 28.5 +56.5 145.8	39 08.4 +56.3 144.6	38 47.7 +56.0 143.4	38 26.3 +55.9 142.2
9°	40 44.8 +56.6 146.6	40 25.0 +56.5 145.3	40 04.7 +56.2 144.1	39 43.7 +56.0 142.9	39 22.2 +55.7 141.7
10°	41 41.4 +56.6 146.1	41 21.5 +56.3 144.9	41 00.9 +56.0 143.7	40 39.7 +55.8 142.4	40 17.9 +55.6 141.2
11°	42 38.0 +56.4 145.7	42 17.8 +56.1 144.4	41 56.9 +56.0 143.2	41 35.5 +55.7 142.0	41 13.5 +55.4 140.7
12°	43 34.4 +56.3 145.2	43 13.9 +56.1 143.9	42 52.9 +55.8 142.7	42 31.2 +55.6 141.5	42 08.9 +55.3 140.2
13°	44 30.7 +56.2 144.7	44 10.0 +55.9 143.5	43 48.7 +55.7 142.2	43 26.8 +55.4 140.9	43 04.2 +55.2 139.7
14°	45 26.9 +56.0 144.2	45 05.9 +55.8 142.9	44 44.4 +55.5 141.7	44 22.2 +55.3 140.4	43 59.4 +55.0 139.2
15°	46 22.9 +55.9 143.7	46 01.7 +55.7 142.4	45 39.9 +55.4 141.1	45 17.5 +55.1 139.9	44 54.4 +54.9 138.6
16°	47 18.8 +55.8 143.2	46 57.4 +55.4 141.9	46 35.3 +55.2 140.6	46 12.6 +54.9 139.3	45 49.3 +54.6 138.0
17°	48 14.6 +55.5 142.6	47 52.8 +55.3 141.3	47 30.5 +55.0 140.0	47 07.5 +54.8 138.7	46 43.9 +54.5 137.4
18°	49 10.1 +55.5 142.1	48 48.1 +55.2 140.7	48 25.5 +54.8 139.4	48 02.3 +54.5 138.1	47 38.4 +54.3 136.8
19°	50 05.6 +55.2 141.5	49 43.3 +54.9 140.1	49 20.3 +54.7 138.8	48 56.8 +54.3 137.5	48 32.7 +54.0 136.2
20°	51 00.8 +55.0 140.9	50 38.2 +54.7 139.5	50 15.0 +54.4 138.2	49 51.1 +54.2 136.8	49 26.7 +53.8 135.5
21°	51 55.8 +54.8 140.2	51 32.9 +54.5 138.8	51 09.4 +54.2 137.5	50 45.3 +53.8 136.1	50 20.5 +53.6 134.8
22°	52 50.6 +54.6 139.6	52 27.4 +54.2 138.2	52 03.6 +53.9 136.8	51 39.1 +53.6 135.4	51 14.1 +53.3 134.1
23°	53 45.2 +54.3 138.9	53 21.6 +54.0 137.5	52 57.5 +53.6 136.1	52 32.7 +53.3 134.7	52 07.4 +53.0 133.4
24°	54 39.5 +54.0 138.1	54 15.6 +53.7 136.7	53 51.1 +53.4 135.3	53 26.0 +53.1 134.0	53 00.4 +52.7 132.6
25°	55 33.5 +53.8 137.4	55 09.3 +53.4 135.9	54 44.5 +53.0 134.5	54 19.1 +52.7 133.2	53 53.1 +52.3 131.8
26°	56 27.3 +53.4 136.6	56 02.7 +53.1 135.1	55 37.5 +52.7 133.7	55 11.8 +52.3 132.3	54 45.4 +52.0 131.0
27°	57 20.7 +53.1 135.7	56 55.8 +52.7 134.3	56 30.5 +52.4 132.9	56 04.1 +52.0 131.5	55 37.4 +51.6 130.1
28°	58 13.8 +52.7 134.9	57 48.5 +52.3 133.4	57 22.6 +51.9 132.0	56 56.1 +51.5 130.6	56 29.0 +51.2 129.2
29°	59 06.5 +52.3 133.9	58 40.8 +51.9 132.5	58 14.5 +51.5 131.0	57 47.6 +51.1 129.6	57 20.2 +50.7 128.2

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# Latitude 54°

# Declination SAME name as Latitude

Dec	LHA 030° / 330°	LHA 031° / 329°	LHA 032° / 328°	LHA 033° / 327°	LHA 034° / 326°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	30 36.0 +56.3 144.5	30 15.2 +56.2 143.4	29 53.9 +56.0 142.3	29 32.1 +55.8 141.2	29 09.8 +55.5 140.2
1°	31 32.3 +56.3 144.1	31 11.4 +56.1 143.0	30 49.9 +55.9 141.9	30 27.9 +55.6 140.8	30 05.3 +55.5 139.7
2°	32 28.6 +56.2 143.7	32 07.5 +56.0 142.6	31 45.8 +55.7 141.5	31 23.5 +55.6 140.4	31 00.8 +55.3 139.3
3°	33 24.8 +56.1 143.3	33 03.5 +55.9 142.1	32 41.5 +55.7 141.0	32 19.1 +55.5 139.9	31 56.1 +55.3 138.9
4°	34 20.9 +56.1 142.8	33 59.4 +55.8 141.7	33 37.2 +55.6 140.6	33 14.6 +55.4 139.5	32 51.4 +55.2 138.4
5°	35 17.0 +55.9 142.4	34 55.2 +55.7 141.3	34 32.8 +55.5 140.1	34 10.0 +55.2 139.0	33 46.6 +55.0 137.9
6°	36 12.9 +55.8 142.0	35 50.9 +55.6 140.8	35 28.3 +55.4 139.7	35 05.2 +55.2 138.6	34 41.6 +55.0 137.4
7°	37 08.7 +55.7 141.5	36 46.5 +55.5 140.3	36 23.7 +55.3 139.2	36 00.4 +55.0 138.1	35 36.6 +54.8 136.9
8°	38 04.4 +55.6 141.0	37 42.0 +55.3 139.9	37 19.0 +55.1 138.7	36 55.4 +55.0 137.6	36 31.4 +54.7 136.4
9°	39 00.0 +55.5 140.5	38 37.3 +55.3 139.4	38 14.1 +55.0 138.2	37 50.4 +54.7 137.1	37 26.1 +54.5 135.9
10°	39 55.5 +55.4 140.1	39 32.6 +55.1 138.9	39 09.1 +54.9 137.7	38 45.1 +54.7 136.5	38 20.6 +54.4 135.4
11°	40 50.9 +55.2 139.5	40 27.7 +55.0 138.4	40 04.0 +54.7 137.2	39 39.8 +54.5 136.0	39 15.0 +54.3 134.9
12°	41 46.1 +55.1 139.0	41 22.7 +54.8 137.8	40 58.7 +54.6 136.6	40 34.3 +54.3 135.5	40 09.3 +54.1 134.3
13°	42 41.2 +54.9 138.5	42 17.5 +54.7 137.3	41 53.3 +54.4 136.1	41 28.6 +54.2 134.9	41 03.4 +53.9 133.7
14°	43 36.1 +54.7 137.9	43 12.2 +54.5 136.7	42 47.7 +54.3 135.5	42 22.8 +53.9 134.3	41 57.3 +53.7 133.1
15°	44 30.8 +54.6 137.4	44 06.7 +54.3 136.1	43 42.0 +54.0 134.9	43 16.7 +53.8 133.7	42 51.0 +53.5 132.5
16°	45 25.4 +54.4 136.8	45 01.0 +54.1 135.5	44 36.0 +53.9 134.3	44 10.5 +53.6 133.1	43 44.5 +53.4 131.9
17°	46 19.8 +54.2 136.2	45 55.1 +53.9 134.9	45 29.9 +53.6 133.7	45 04.1 +53.4 132.5	44 37.9 +53.1 131.3
18°	47 14.0 +54.0 135.5	46 49.0 +53.7 134.3	46 23.5 +53.4 133.1	45 57.5 +53.1 131.8	45 31.0 +52.8 130.6
19°	48 08.0 +53.7 134.9	47 42.7 +53.5 133.6	47 16.9 +53.2 132.4	46 50.6 +52.9 131.2	46 23.8 +52.6 129.9
20°	49 01.7 +53.5 134.2	48 36.2 +53.2 133.0	48 10.1 +52.9 131.7	47 43.5 +52.7 130.5	47 16.4 +52.4 129.2
21°	49 55.2 +53.3 133.5	49 29.4 +52.9 132.3	49 03.0 +52.7 131.0	48 36.2 +52.3 129.7	48 08.8 +52.1 128.5
22°	50 48.5 +53.0 132.8	50 22.3 +52.7 131.5	49 55.7 +52.3 130.2	49 28.5 +52.1 129.0	49 00.9 +51.7 127.8
23°	51 41.5 +52.6 132.1	51 15.0 +52.4 130.8	50 48.0 +52.1 129.5	50 20.6 +51.7 128.2	49 52.6 +51.5 127.0
24°	52 34.1 +52.4 131.3	52 07.4 +52.0 130.0	51 40.1 +51.7 128.7	51 12.3 +51.4 127.4	50 44.1 +51.1 126.2
25°	53 26.5 +52.0 130.5	52 59.4 +51.7 129.2	52 31.8 +51.4 127.9	52 03.7 +51.1 126.6	51 35.2 +50.7 125.3
26°	54 18.5 +51.6 129.6	53 51.1 +51.3 128.3	53 23.2 +50.9 127.0	52 54.8 +50.6 125.7	52 25.9 +50.3 124.5
27°	55 10.1 +51.3 128.7	54 42.4 +50.9 127.4	54 14.1 +50.6 126.1	53 45.4 +50.2 124.8	53 16.2 +50.0 123.6
28°	56 01.4 +50.8 127.8	55 33.3 +50.4 126.5	55 04.7 +50.1 125.2	54 35.6 +49.8 123.9	54 06.2 +49.4 122.6
29°	56 52.2 +50.4 126.9	56 23.7 +50.0 125.5	55 54.8 +49.6 124.2	55 25.4 +49.3 122.9	54 55.6 +49.0 121.7

Dec	LHA 035° / 325°	LHA 036° / 324°	LHA 037° / 323°	LHA 038° / 322°	LHA 039° / 321°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	28 46.9 +55.4 139.1	28 23.6 +55.2 138.1	27 59.8 +55.0 137.0	27 35.6 +54.7 136.0	27 10.8 +54.5 135.0
1°	29 42.3 +55.2 138.7	29 18.8 +55.0 137.6	28 54.8 +54.8 136.6	28 30.3 +54.6 135.5	28 05.3 +54.5 134.5
2°	30 37.5 +55.2 138.2	30 13.8 +54.9 137.2	29 49.6 +54.7 136.1	29 24.9 +54.5 135.1	28 59.8 +54.3 134.0
3°	31 32.7 +55.0 137.8	31 08.7 +54.9 136.7	30 44.3 +54.7 135.6	30 19.4 +54.4 134.6	29 54.1 +54.2 133.5
4°	32 27.7 +55.0 137.3	32 03.6 +54.7 136.2	31 39.0 +54.5 135.2	31 13.8 +54.4 134.1	30 48.3 +54.1 133.0
5°	33 22.7 +54.8 136.8	32 58.3 +54.6 135.7	32 33.5 +54.4 134.7	32 08.2 +54.1 133.6	31 42.4 +54.0 132.5
6°	34 17.5 +54.7 136.3	33 52.9 +54.5 135.2	33 27.9 +54.2 134.2	33 02.3 +54.1 133.1	32 36.4 +53.8 132.0
7°	35 12.2 +54.6 135.8	34 47.4 +54.4 134.7	34 22.1 +54.2 133.6	33 56.4 +53.9 132.6	33 30.2 +53.7 131.5
8°	36 06.8 +54.5 135.3	35 41.8 +54.2 134.2	35 16.3 +54.0 133.1	34 50.3 +53.8 132.0	34 23.9 +53.6 131.0
9°	37 01.3 +54.3 134.8	36 36.0 +54.1 133.7	36 10.3 +53.9 132.6	35 44.1 +53.6 131.5	35 17.5 +53.4 130.4
10°	37 55.6 +54.2 134.3	37 30.1 +54.0 133.1	37 04.2 +53.7 132.0	36 37.7 +53.5 130.9	36 10.9 +53.2 129.8
11°	38 49.8 +54.0 133.7	38 24.1 +53.7 132.6	37 57.9 +53.5 131.5	37 31.2 +53.3 130.4	37 04.1 +53.1 129.3
12°	39 43.8 +53.8 133.2	39 17.8 +53.6 132.0	38 51.4 +53.4 130.9	38 24.5 +53.1 129.8	37 57.2 +52.9 128.7
13°	40 37.6 +53.7 132.6	40 11.4 +53.4 131.4	39 44.8 +53.1 130.3	39 17.6 +53.0 129.2	38 50.1 +52.7 128.1
14°	41 31.3 +53.5 132.0	41 04.8 +53.3 130.8	40 37.9 +53.0 129.7	40 10.6 +52.7 128.6	39 42.8 +52.5 127.5
15°	42 24.8 +53.2 131.4	41 58.1 +53.0 130.2	41 30.9 +52.8 129.1	41 03.3 +52.6 127.9	40 35.3 +52.3 126.8
16°	43 18.0 +53.1 130.7	42 51.1 +52.8 129.6	42 23.7 +52.6 128.4	41 55.9 +52.3 127.3	41 27.6 +52.1 126.2
17°	44 11.1 +52.9 130.1	43 43.9 +52.6 128.9	43 16.3 +52.3 127.8	42 48.2 +52.0 126.6	42 19.7 +51.8 125.5
18°	45 04.0 +52.6 129.4	44 36.5 +52.3 128.3	44 08.6 +52.1 127.1	43 40.2 +51.9 126.0	43 11.5 +51.6 124.8
19°	45 56.6 +52.3 128.7	45 28.8 +52.1 127.6	45 00.7 +51.8 126.4	44 32.1 +51.5 125.3	44 03.1 +51.3 124.1
20°	46 48.9 +52.1 128.0	46 20.9 +51.8 126.9	45 52.5 +51.5 125.7	45 23.6 +51.3 124.5	44 54.4 +51.0 123.4
21°	47 41.0 +51.8 127.3	47 12.7 +51.5 126.1	46 44.0 +51.2 124.9	46 14.9 +51.0 123.8	45 45.4 +50.7 122.6
22°	48 32.8 +51.4 126.6	48 04.2 +51.2 125.4	47 35.2 +51.0 124.2	47 05.9 +50.6 123.0	46 36.1 +50.4 121.9
23°	49 24.2 +51.2 125.8	48 55.4 +50.9 124.6	48 26.2 +50.6 123.4	47 56.5 +50.3 122.2	47 26.5 +50.1 121.1
24°	50 15.4 +50.8 125.0	49 46.3 +50.5 123.8	49 16.8 +50.2 122.6	48 46.8 +50.0 121.4	48 16.6 +49.7 120.3
25°	51 06.2 +50.4 124.1	50 36.8 +50.1 122.9	50 07.0 +49.8 121.7	49 36.8 +49.6 120.6	49 06.3 +49.3 119.4
26°	51 56.6 +50.1 123.2	51 26.9 +49.8 122.0	50 56.8 +49.5 120.8	50 26.4 +49.1 119.7	49 55.6 +48.9 118.5
27°	52 46.7 +49.5 122.3	52 16.7 +49.3 121.1	51 46.3 +49.0 119.9	51 15.5 +48.8 118.8	50 44.5 +48.4 117.6
28°	53 36.2 +49.2 121.4	53 06.0 +48.8 120.2	52 35.3 +48.5 119.0	52 04.3 +48.2 117.8	51 32.9 +48.0 116.7
29°	54 25.4 +48.6 120.4	53 54.8 +48.3 119.2	53 23.8 +48.1 118.0	52 52.5 +47.8 116.9	52 20.9 +47.5 115.7

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## Declination SAME name as Latitude

## Latitude 54°

Dec	LHA 040° / 320°	LHA 041° / 319°	LHA 042° / 318°	LHA 043° / 317°	LHA 044° / 316°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	26 45.7 +54.3 134.0	26 20.1 +54.1 132.9	25 54.0 +53.9 131.9	25 27.6 +53.7 130.9	25 00.8 +53.5 130.0
1°	27 40.0 +54.2 133.5	27 14.2 +54.0 132.5	26 47.9 +53.9 131.5	26 21.3 +53.6 130.4	25 54.3 +53.4 129.5
2°	28 34.2 +54.1 133.0	28 08.2 +53.9 132.0	27 41.8 +53.7 131.0	27 14.9 +53.5 129.9	26 47.7 +53.3 128.9
3°	29 28.3 +54.0 132.5	29 02.1 +53.8 131.5	28 35.5 +53.5 130.4	28 08.4 +53.4 129.4	27 41.0 +53.2 128.4
4°	30 22.3 +53.9 132.0	29 55.9 +53.6 131.0	29 29.0 +53.5 129.9	29 01.8 +53.3 128.9	28 34.2 +53.0 127.9
5°	31 16.2 +53.7 131.5	30 49.5 +53.6 130.4	30 22.5 +53.3 129.4	29 55.1 +53.1 128.4	29 27.2 +52.9 127.4
6°	32 09.9 +53.7 131.0	31 43.1 +53.4 129.9	31 15.8 +53.2 128.9	30 48.2 +53.0 127.8	30 20.1 +52.8 126.8
7°	33 03.6 +53.4 130.4	32 36.5 +53.3 129.4	32 09.0 +53.1 128.3	31 41.2 +52.8 127.3	31 12.9 +52.7 126.3
8°	33 57.0 +53.4 129.9	33 29.8 +53.1 128.8	33 02.1 +52.9 127.8	32 34.0 +52.7 126.7	32 05.6 +52.5 125.7
9°	34 50.4 +53.2 129.3	34 22.9 +53.0 128.3	33 55.0 +52.8 127.2	33 26.7 +52.6 126.2	32 58.1 +52.3 125.1
10°	35 43.6 +53.0 128.8	35 15.9 +52.8 127.7	34 47.8 +52.6 126.6	34 19.3 +52.3 125.6	33 50.4 +52.2 124.5
11°	36 36.6 +52.8 128.2	36 08.7 +52.6 127.1	35 40.4 +52.4 126.0	35 11.6 +52.2 125.0	34 42.6 +52.0 124.0
12°	37 29.4 +52.7 127.6	37 01.3 +52.4 126.5	36 32.8 +52.2 125.4	36 03.8 +52.0 124.4	35 34.6 +51.8 123.3
13°	38 22.1 +52.5 127.0	37 53.7 +52.3 125.9	37 25.0 +52.0 124.8	36 55.8 +51.9 123.8	36 26.4 +51.5 122.7
14°	39 14.6 +52.3 126.4	38 46.0 +52.0 125.3	38 17.0 +51.8 124.2	37 47.7 +51.6 123.1	37 17.9 +51.4 122.1
15°	40 06.9 +52.0 125.7	39 38.0 +51.9 124.6	39 08.8 +51.6 123.5	38 39.3 +51.3 122.5	38 09.3 +51.2 121.4
16°	40 58.9 +51.9 125.1	40 29.9 +51.6 124.0	40 00.4 +51.4 122.9	39 30.6 +51.2 121.8	39 00.5 +50.9 120.8
17°	41 50.8 +51.5 124.4	41 21.5 +51.3 123.3	40 51.8 +51.1 122.2	40 21.8 +50.9 121.1	39 51.4 +50.7 120.1
18°	42 42.3 +51.4 123.7	42 12.8 +51.1 122.6	41 42.9 +50.9 121.5	41 12.7 +50.6 120.4	40 42.1 +50.4 119.4
19°	43 33.7 +51.0 123.0	43 03.9 +50.8 121.9	42 33.8 +50.6 120.8	42 03.3 +50.4 119.7	41 32.5 +50.2 118.7
20°	44 24.7 +50.8 122.3	43 54.7 +50.6 121.2	43 24.4 +50.3 120.1	42 53.7 +50.1 119.0	42 22.7 +49.8 117.9
21°	45 15.5 +50.5 121.5	44 45.3 +50.2 120.4	44 14.7 +50.0 119.3	43 43.8 +49.7 118.2	43 12.5 +49.6 117.2
22°	46 06.0 +50.1 120.7	45 35.5 +49.9 119.6	45 04.7 +49.6 118.5	44 33.5 +49.5 117.4	44 02.1 +49.2 116.4
23°	46 56.1 +49.8 119.9	46 25.4 +49.5 118.8	45 54.3 +49.4 117.7	45 23.0 +49.1 116.6	44 51.3 +48.9 115.6
24°	47 45.9 +49.5 119.1	47 14.9 +49.2 118.0	46 43.7 +48.9 116.9	46 12.1 +48.7 115.8	45 40.2 +48.5 114.8
25°	48 35.4 +49.0 118.3	48 04.1 +48.8 117.2	47 32.6 +48.6 116.1	47 00.8 +48.3 115.0	46 28.7 +48.1 113.9
26°	49 24.4 +48.7 117.4	48 52.9 +48.4 116.3	48 21.2 +48.1 115.2	47 49.1 +47.9 114.1	47 16.8 +47.7 113.0
27°	50 13.1 +48.2 116.5	49 41.3 +48.0 115.4	49 09.3 +47.7 114.3	48 37.0 +47.5 113.2	48 04.5 +47.3 112.1
28°	51 01.3 +47.7 115.5	50 29.3 +47.5 114.4	49 57.0 +47.3 113.3	49 24.5 +47.1 112.3	48 51.8 +46.8 111.2
29°	51 49.0 +47.2 114.6	51 16.8 +47.0 113.5	50 44.3 +46.7 112.4	50 11.6 +46.5 111.3	49 38.6 +46.3 110.2

Dec	LHA 045° / 315°	LHA 046° / 314°	LHA 047° / 313°	LHA 048° / 312°	LHA 049° / 311°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	24 33.5 +53.3 129.0	24 05.9 +53.1 128.0	23 37.9 +53.0 127.0	23 09.6 +52.8 126.1	22 40.9 +52.6 125.1
1°	25 26.8 +53.3 128.5	24 59.0 +53.1 127.5	24 30.9 +52.8 126.5	24 02.4 +52.6 125.6	23 33.5 +52.5 124.6
2°	26 20.1 +53.1 128.0	25 52.1 +52.9 127.0	25 23.7 +52.7 126.0	24 55.0 +52.5 125.0	24 26.0 +52.3 124.1
3°	27 13.2 +52.9 127.4	26 45.0 +52.8 126.4	26 16.4 +52.6 125.5	25 47.5 +52.4 124.5	25 18.3 +52.2 123.5
4°	28 06.1 +52.9 126.9	27 37.8 +52.6 125.9	27 09.0 +52.5 124.9	26 39.9 +52.3 123.9	26 10.5 +52.1 123.0
5°	28 59.0 +52.7 126.4	28 30.4 +52.6 125.4	28 01.5 +52.3 124.4	27 32.2 +52.2 123.4	27 02.6 +52.0 122.4
6°	29 51.7 +52.6 125.8	29 23.0 +52.3 124.8	28 53.8 +52.2 123.8	28 24.4 +52.0 122.8	27 54.6 +51.8 121.9
7°	30 44.3 +52.5 125.3	30 15.3 +52.3 124.3	29 46.0 +52.1 123.3	29 16.4 +51.8 122.3	28 46.4 +51.7 121.3
8°	31 36.8 +52.3 124.7	31 07.6 +52.1 123.7	30 38.1 +51.9 122.7	30 08.2 +51.7 121.7	29 38.1 +51.5 120.7
9°	32 29.1 +52.1 124.1	31 59.7 +51.9 123.1	31 30.0 +51.7 122.1	30 59.9 +51.6 121.1	30 29.6 +51.3 120.1
10°	33 21.2 +51.9 123.5	32 51.6 +51.8 122.5	32 21.7 +51.6 121.5	31 51.5 +51.3 120.5	31 20.9 +51.2 119.5
11°	34 13.1 +51.8 122.9	33 43.4 +51.5 121.9	33 13.3 +51.3 120.9	32 42.8 +51.2 119.9	32 12.1 +51.0 118.9
12°	35 04.9 +51.6 122.3	34 34.9 +51.4 121.3	34 04.6 +51.2 120.3	33 34.0 +51.0 119.3	33 03.1 +50.8 118.3
13°	35 56.5 +51.4 121.7	35 26.3 +51.2 120.7	34 55.8 +51.0 119.6	34 25.0 +50.8 118.6	33 53.9 +50.6 117.6
14°	36 47.9 +51.2 121.0	36 17.5 +51.0 120.0	35 46.8 +50.8 119.0	35 15.8 +50.6 118.0	34 44.5 +50.4 117.0
15°	37 39.1 +50.9 120.4	37 08.5 +50.7 119.3	36 37.6 +50.6 118.3	36 06.4 +50.4 117.3	35 34.9 +50.2 116.3
16°	38 30.0 +50.7 119.7	37 59.2 +50.6 118.7	37 28.2 +50.3 117.7	36 56.8 +50.1 116.6	36 25.1 +50.0 115.6
17°	39 20.7 +50.5 119.0	38 49.8 +50.2 118.0	38 18.5 +50.0 117.0	37 46.9 +49.9 115.9	37 15.1 +49.6 114.9
18°	40 11.2 +50.2 118.3	39 40.0 +50.0 117.3	39 08.5 +49.8 116.3	38 36.8 +49.6 115.2	38 04.7 +49.5 114.2
19°	41 01.4 +50.0 117.6	40 30.0 +49.8 116.6	39 58.3 +49.6 115.5	39 26.4 +49.3 114.5	38 54.2 +49.1 113.5
20°	41 51.4 +49.6 116.9	41 19.8 +49.4 115.8	40 47.9 +49.2 114.8	40 15.7 +49.1 113.8	39 43.3 +48.9 112.8
21°	42 41.0 +49.3 116.1	42 09.2 +49.1 115.1	41 37.1 +48.9 114.0	41 04.8 +48.7 113.0	40 32.2 +48.6 112.0
22°	43 30.3 +49.0 115.3	42 58.3 +48.8 114.3	42 26.0 +48.7 113.3	41 53.5 +48.4 112.2	41 20.8 +48.2 111.2
23°	44 19.3 +48.7 114.5	43 47.1 +48.5 113.5	43 14.7 +48.2 112.5	42 41.9 +48.1 111.4	42 09.0 +47.9 110.4
24°	45 08.0 +48.3 113.7	44 35.6 +48.1 112.7	44 02.9 +47.9 111.6	43 30.0 +47.7 110.6	42 56.9 +47.5 109.6
25°	45 56.3 +47.9 112.9	45 23.7 +47.7 111.8	44 50.8 +47.5 110.8	44 17.7 +47.4 109.8	43 44.4 +47.2 108.8
26°	46 44.2 +47.5 112.0	46 11.4 +47.3 110.9	45 38.3 +47.1 109.9	45 05.1 +46.9 108.9	44 31.6 +46.8 107.9
27°	47 31.7 +47.1 111.1	46 58.7 +46.9 110.0	46 25.4 +46.7 109.0	45 52.0 +46.5 108.0	45 18.4 +46.3 107.0
28°	48 18.8 +46.6 110.2	47 45.6 +46.4 109.1	47 12.1 +46.3 108.1	46 38.5 +46.1 107.1	46 04.7 +45.9 106.1
29°	49 05.4 +46.1 109.2	48 32.0 +45.9 108.2	47 58.4 +45.7 107.2	47 24.6 +45.6 106.2	46 50.6 +45.5 105.2

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Dec	LHA 050° / 310°	LHA 051° / 309°	LHA 052° / 308°	LHA 053° / 307°	LHA 054° / 306°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	22 11.9 +52.4 124.2	21 42.6 +52.2 123.2	21 12.9 +52.0 122.3	20 43.0 +51.8 121.4	20 12.7 +51.7 120.4
1°	23 04.3 +52.3 123.6	22 34.8 +52.1 122.7	22 04.9 +52.0 121.8	21 34.8 +51.8 120.8	21 04.4 +51.6 119.9
2°	23 56.6 +52.1 123.1	23 26.9 +51.9 122.2	22 56.9 +51.8 121.2	22 26.6 +51.6 120.3	21 56.0 +51.4 119.4
3°	24 48.7 +52.1 122.6	24 18.8 +51.9 121.6	23 48.7 +51.6 120.7	23 18.2 +51.5 119.7	22 47.4 +51.4 118.8
4°	25 40.8 +51.9 122.0	25 10.7 +51.7 121.1	24 40.3 +51.6 120.1	24 09.7 +51.4 119.2	23 38.8 +51.2 118.2
5°	26 32.7 +51.8 121.5	26 02.4 +51.6 120.5	25 31.9 +51.4 119.5	25 01.1 +51.2 118.6	24 30.0 +51.1 117.7
6°	27 24.5 +51.6 120.9	26 54.0 +51.5 119.9	26 23.3 +51.3 119.0	25 52.3 +51.1 118.0	25 21.1 +50.9 117.1
7°	28 16.1 +51.5 120.3	27 45.5 +51.3 119.3	27 14.6 +51.2 118.4	26 43.4 +51.0 117.4	26 12.0 +50.8 116.5
8°	29 07.6 +51.3 119.7	28 36.8 +51.2 118.8	28 05.8 +50.9 117.8	27 34.4 +50.8 116.8	27 02.8 +50.7 115.9
9°	29 58.9 +51.2 119.1	29 28.0 +51.0 118.2	28 56.7 +50.9 117.2	28 25.2 +50.7 116.2	27 53.5 +50.5 115.3
10°	30 50.1 +51.0 118.5	30 19.0 +50.8 117.6	29 47.6 +50.6 116.6	29 15.9 +50.5 115.6	28 44.0 +50.3 114.7
11°	31 41.1 +50.8 117.9	31 09.8 +50.6 116.9	30 38.2 +50.5 116.0	30 06.4 +50.3 115.0	29 34.3 +50.1 114.1
12°	32 31.9 +50.6 117.3	32 00.4 +50.5 116.3	31 28.7 +50.3 115.3	30 56.7 +50.1 114.4	30 24.4 +50.0 113.4
13°	33 22.5 +50.5 116.6	32 50.9 +50.2 115.7	32 19.0 +50.1 114.7	31 46.8 +49.9 113.7	31 14.4 +49.8 112.8
14°	34 13.0 +50.2 116.0	33 41.1 +50.1 115.0	33 09.1 +49.8 114.0	32 36.7 +49.7 113.1	32 04.2 +49.5 112.1
15°	35 03.2 +50.0 115.3	34 31.2 +49.8 114.3	33 58.9 +49.7 113.4	33 26.4 +49.5 112.4	32 53.7 +49.4 111.5
16°	35 53.2 +49.7 114.6	35 21.0 +49.6 113.7	34 48.6 +49.4 112.7	34 15.9 +49.3 111.7	33 43.1 +49.1 110.8
17°	36 42.9 +49.6 114.0	36 10.6 +49.3 113.0	35 38.0 +49.2 112.0	35 05.2 +49.0 111.0	34 32.2 +48.9 110.1
18°	37 32.5 +49.2 113.2	36 59.9 +49.1 112.3	36 27.2 +48.9 111.3	35 54.2 +48.8 110.3	35 21.1 +48.6 109.4
19°	38 21.7 +49.0 112.5	37 49.0 +48.8 111.5	37 16.1 +48.7 110.6	36 43.0 +48.5 109.6	36 09.7 +48.3 108.7
20°	39 10.7 +48.7 111.8	38 37.8 +48.6 110.8	38 04.8 +48.3 109.8	37 31.5 +48.2 108.9	36 58.0 +48.1 107.9
21°	39 59.4 +48.4 111.0	39 26.4 +48.2 110.0	38 53.1 +48.1 109.1	38 19.7 +47.9 108.1	37 46.1 +47.8 107.2
22°	40 47.8 +48.1 110.2	40 14.6 +47.9 109.3	39 41.2 +47.8 108.3	39 07.6 +47.6 107.3	38 33.9 +47.5 106.4
23°	41 35.9 +47.7 109.5	41 02.5 +47.6 108.5	40 29.0 +47.4 107.5	39 55.2 +47.3 106.6	39 21.4 +47.1 105.6
24°	42 23.6 +47.4 108.6	41 50.1 +47.2 107.7	41 16.4 +47.1 106.7	40 42.5 +47.0 105.7	40 08.5 +46.8 104.8
25°	43 11.0 +47.0 107.8	42 37.3 +46.8 106.8	42 03.5 +46.7 105.9	41 29.5 +46.5 104.9	40 55.3 +46.4 104.0
26°	43 58.0 +46.6 106.9	43 24.1 +46.5 106.0	42 50.2 +46.3 105.0	42 16.0 +46.2 104.1	41 41.7 +46.1 103.1
27°	44 44.6 +46.2 106.1	44 10.6 +46.1 105.1	43 36.5 +45.9 104.1	43 02.2 +45.8 103.2	42 27.8 +45.7 102.3
28°	45 30.8 +45.7 105.2	44 56.7 +45.6 104.2	44 22.4 +45.5 103.2	43 48.0 +45.4 102.3	43 13.5 +45.2 101.4
29°	46 16.5 +45.3 104.2	45 42.3 +45.1 103.3	45 07.9 +45.0 102.3	44 33.4 +44.9 101.4	43 58.7 +44.8 100.5

Dec	LHA 055° / 305°	LHA 056° / 304°	LHA 057° / 303°	LHA 058° / 302°	LHA 059° / 301°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	19 42.2 +51.5 119.5	19 11.3 +51.4 118.6	18 40.3 +51.1 117.7	18 08.9 +51.0 116.8	17 37.3 +50.9 115.9
1°	20 33.7 +51.4 119.0	20 02.7 +51.2 118.1	19 31.4 +51.1 117.2	18 59.9 +51.0 116.3	18 28.2 +50.8 115.4
2°	21 25.1 +51.3 118.4	20 53.9 +51.2 117.5	20 22.5 +51.0 116.6	19 50.9 +50.8 115.7	19 19.0 +50.7 114.8
3°	22 16.4 +51.2 117.9	21 45.1 +51.0 117.0	21 13.5 +50.9 116.0	20 41.7 +50.7 115.1	20 09.7 +50.5 114.2
4°	23 07.6 +51.0 117.3	22 36.1 +50.9 116.4	22 04.4 +50.7 115.5	21 32.4 +50.6 114.6	21 00.2 +50.5 113.7
5°	23 58.6 +50.9 116.7	23 27.0 +50.8 115.8	22 55.1 +50.6 114.9	22 23.0 +50.5 114.0	21 50.7 +50.3 113.1
6°	24 49.5 +50.8 116.2	24 17.8 +50.6 115.2	23 45.7 +50.5 114.3	23 13.5 +50.3 113.4	22 41.0 +50.2 112.5
7°	25 40.3 +50.7 115.6	25 08.4 +50.5 114.6	24 36.2 +50.4 113.7	24 03.8 +50.2 112.8	23 31.2 +50.1 111.9
8°	26 31.0 +50.5 115.0	25 58.9 +50.3 114.0	25 26.6 +50.2 113.1	24 54.0 +50.1 112.2	24 21.3 +49.9 111.3
9°	27 21.5 +50.3 114.4	26 49.2 +50.2 113.4	26 16.8 +50.0 112.5	25 44.1 +49.9 111.6	25 11.2 +49.7 110.7
10°	28 11.8 +50.2 113.7	27 39.4 +50.0 112.8	27 06.8 +49.9 111.9	26 34.0 +49.7 111.0	26 00.9 +49.6 110.1
11°	29 02.0 +50.0 113.1	28 29.4 +49.9 112.2	27 56.7 +49.7 111.3	27 23.7 +49.6 110.3	26 50.5 +49.5 109.4
12°	29 52.0 +49.8 112.5	29 19.3 +49.6 111.6	28 46.4 +49.5 110.6	28 13.3 +49.4 109.7	27 40.0 +49.2 108.8
13°	30 41.8 +49.6 111.8	30 08.9 +49.5 110.9	29 35.9 +49.3 110.0	29 02.7 +49.1 109.1	28 29.2 +49.1 108.1
14°	31 31.4 +49.4 111.2	30 58.4 +49.3 110.2	30 25.2 +49.2 109.3	29 51.8 +49.0 108.4	29 18.3 +48.9 107.5
15°	32 20.8 +49.2 110.5	31 47.7 +49.0 109.6	31 14.4 +48.9 108.7	30 40.8 +48.8 107.7	30 07.2 +48.6 106.8
16°	33 10.0 +49.0 109.8	32 36.7 +48.8 108.9	32 03.3 +48.7 108.0	31 29.6 +48.6 107.1	30 55.8 +48.5 106.1
17°	33 59.0 +48.7 109.1	33 25.5 +48.6 108.2	32 52.0 +48.4 107.3	32 18.2 +48.3 106.4	31 44.3 +48.2 105.5
18°	34 47.7 +48.5 108.4	34 14.1 +48.4 107.5	33 40.4 +48.2 106.6	33 06.5 +48.1 105.7	32 32.5 +48.0 104.8
19°	35 36.2 +48.2 107.7	35 02.5 +48.1 106.8	34 28.6 +48.0 105.9	33 54.6 +47.9 104.9	33 20.5 +47.7 104.0
20°	36 24.4 +47.9 107.0	35 50.6 +47.8 106.0	35 16.6 +47.7 105.1	34 42.5 +47.6 104.2	34 08.2 +47.5 103.3
21°	37 12.3 +47.7 106.2	36 38.4 +47.5 105.3	36 04.3 +47.4 104.4	35 30.1 +47.3 103.5	34 55.7 +47.2 102.6
22°	38 00.0 +47.3 105.5	37 25.9 +47.2 104.5	36 51.7 +47.1 103.6	36 17.4 +47.0 102.7	35 42.9 +46.9 101.8
23°	38 47.3 +47.0 104.7	38 13.1 +46.9 103.8	37 38.8 +46.8 102.8	37 04.4 +46.6 101.9	36 29.8 +46.6 101.0
24°	39 34.3 +46.7 103.9	39 00.0 +46.6 103.0	38 25.6 +46.5 102.0	37 51.0 +46.4 101.1	37 16.4 +46.3 100.2
25°	40 21.0 +46.3 103.1	39 46.6 +46.2 102.1	39 12.1 +46.1 101.2	38 37.4 +46.0 100.3	38 02.7 +45.9 99.4
26°	41 07.3 +46.0 102.2	40 32.8 +45.9 101.3	39 58.2 +45.7 100.4	39 23.4 +45.7 99.5	38 48.6 +45.6 98.6
27°	41 53.3 +45.6 101.4	41 18.7 +45.4 100.5	40 43.9 +45.4 99.6	40 09.1 +45.3 98.7	39 34.2 +45.2 97.8
28°	42 38.9 +45.1 100.5	42 04.1 +45.1 99.6	41 29.3 +45.0 98.7	40 54.4 +44.9 97.8	40 19.4 +44.9 96.9
29°	43 24.0 +44.7 99.6	42 49.2 +44.6 98.7	42 14.3 +44.5 97.8	41 39.3 +44.5 96.9	41 04.3 +44.4 96.1

# Declination SAME name as Latitude

# Latitude 54°

Dec	LHA 060° / 300°	LHA 061° / 299°	LHA 062° / 298°	LHA 063° / 297°	LHA 064° / 296°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	17 05.5 +50.7 115.0	16 33.4 +50.6 114.2	16 01.1 +50.5 113.3	15 28.6 +50.3 112.4	14 55.9 +50.2 111.5
1°	17 56.2 +50.6 114.5	17 24.0 +50.5 113.6	16 51.6 +50.3 112.7	16 18.9 +50.3 111.8	15 46.1 +50.1 111.0
2°	18 46.8 +50.6 113.9	18 14.5 +50.4 113.0	17 41.9 +50.3 112.1	17 09.2 +50.1 111.3	16 36.2 +50.0 110.4
3°	19 37.4 +50.4 113.3	19 04.9 +50.3 112.5	18 32.2 +50.2 111.6	17 59.3 +50.0 110.7	17 26.2 +49.9 109.8
4°	20 27.8 +50.3 112.8	19 55.2 +50.2 111.9	19 22.4 +50.0 111.0	18 49.3 +50.0 110.1	18 16.1 +49.8 109.2
5°	21 18.1 +50.2 112.2	20 45.4 +50.0 111.3	20 12.4 +49.9 110.4	19 39.3 +49.8 109.5	19 05.9 +49.7 108.6
6°	22 08.3 +50.1 111.6	21 35.4 +50.0 110.7	21 02.3 +49.8 109.8	20 29.1 +49.6 108.9	19 55.6 +49.6 108.0
7°	22 58.4 +49.9 111.0	22 25.4 +49.8 110.1	21 52.1 +49.7 109.2	21 18.7 +49.6 108.3	20 45.2 +49.4 107.4
8°	23 48.3 +49.8 110.4	23 15.2 +49.6 109.5	22 41.8 +49.6 108.6	22 08.3 +49.4 107.7	21 34.6 +49.3 106.8
9°	24 38.1 +49.6 109.8	24 04.8 +49.5 108.9	23 31.4 +49.3 108.0	22 57.7 +49.3 107.1	22 23.9 +49.2 106.2
10°	25 27.7 +49.5 109.2	24 54.3 +49.4 108.3	24 20.7 +49.3 107.4	23 47.0 +49.1 106.5	23 13.1 +49.0 105.6
11°	26 17.2 +49.3 108.5	25 43.7 +49.2 107.6	25 10.0 +49.0 106.7	24 36.1 +49.0 105.9	24 02.1 +48.9 105.0
12°	27 06.5 +49.1 107.9	26 32.9 +49.0 107.0	25 59.0 +49.0 106.1	25 25.1 +48.8 105.2	24 51.0 +48.7 104.3
13°	27 55.6 +49.0 107.2	27 21.9 +48.8 106.3	26 48.0 +48.7 105.5	26 13.9 +48.6 104.6	25 39.7 +48.5 103.7
14°	28 44.6 +48.7 106.6	28 10.7 +48.6 105.7	27 36.7 +48.5 104.8	27 02.5 +48.4 103.9	26 28.2 +48.4 103.0
15°	29 33.3 +48.6 105.9	28 59.3 +48.5 105.0	28 25.2 +48.4 104.1	27 50.9 +48.3 103.2	27 16.6 +48.1 102.4
16°	30 21.9 +48.3 105.2	29 47.8 +48.2 104.3	29 13.6 +48.1 103.5	28 39.2 +48.0 102.6	28 04.7 +48.0 101.7
17°	31 10.2 +48.1 104.6	30 36.0 +48.0 103.7	30 01.7 +47.9 102.8	29 27.2 +47.9 101.9	28 52.7 +47.7 101.0
18°	31 58.3 +47.9 103.9	31 24.0 +47.8 103.0	30 49.6 +47.7 102.1	30 15.1 +47.6 101.2	29 40.4 +47.5 100.3
19°	32 46.2 +47.6 103.1	32 11.8 +47.5 102.2	31 37.3 +47.4 101.4	31 02.7 +47.3 100.5	30 27.9 +47.3 99.6
20°	33 33.8 +47.4 102.4	32 59.3 +47.3 101.5	32 24.7 +47.2 100.6	31 50.0 +47.1 99.8	31 15.2 +47.1 98.9
21°	34 21.2 +47.1 101.7	33 46.6 +47.0 100.8	33 11.9 +47.0 99.9	32 37.1 +46.9 99.0	32 02.3 +46.8 98.2
22°	35 08.3 +46.8 100.9	34 33.6 +46.8 100.0	33 58.9 +46.6 99.2	33 24.0 +46.6 98.3	32 49.1 +46.5 97.4
23°	35 55.1 +46.5 100.1	35 20.4 +46.4 99.3	34 45.5 +46.4 98.4	34 10.6 +46.3 97.5	33 35.6 +46.2 96.7
24°	36 41.6 +46.2 99.4	36 06.8 +46.1 98.5	35 31.9 +46.0 97.6	34 56.9 +46.0 96.8	34 21.8 +46.0 95.9
25°	37 27.8 +45.9 98.6	36 52.9 +45.8 97.7	36 17.9 +45.8 96.8	35 42.9 +45.7 96.0	35 07.8 +45.6 95.1
26°	38 13.7 +45.5 97.7	37 38.7 +45.5 96.9	37 03.7 +45.4 96.0	36 28.6 +45.3 95.2	35 53.4 +45.4 94.3
27°	38 59.2 +45.2 96.9	38 24.2 +45.1 96.1	37 49.1 +45.0 95.2	37 13.9 +45.1 94.4	36 38.8 +44.9 93.5
28°	39 44.4 +44.8 96.1	39 09.3 +44.7 95.2	38 34.1 +44.7 94.4	37 59.0 +44.6 93.5	37 23.7 +44.7 92.7
29°	40 29.2 +44.3 95.2	39 54.0 +44.4 94.3	39 18.8 +44.3 93.5	38 43.6 +44.3 92.7	38 08.4 +44.2 91.8

Dec	LHA 065° / 295°	LHA 066° / 294°	LHA 067° / 293°	LHA 068° / 292°	LHA 069° / 291°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	14 23.0 +50.1 110.7	13 49.9 +50.0 109.8	13 16.6 +49.9 109.0	12 43.2 +49.7 108.1	12 09.6 +49.6 107.3
1°	15 13.1 +50.0 110.1	14 39.9 +49.8 109.2	14 06.5 +49.7 108.4	13 32.9 +49.7 107.5	12 59.2 +49.6 106.7
2°	16 03.1 +49.8 109.5	15 29.7 +49.8 108.7	14 56.2 +49.7 107.8	14 22.6 +49.5 106.9	13 48.8 +49.4 106.1
3°	16 52.9 +49.8 108.9	16 19.5 +49.7 108.1	15 45.9 +49.6 107.2	15 12.1 +49.5 106.4	14 38.2 +49.4 105.5
4°	17 42.7 +49.7 108.4	17 09.2 +49.6 107.5	16 35.5 +49.4 106.6	16 01.6 +49.4 105.8	15 27.6 +49.3 104.9
5°	18 32.4 +49.6 107.8	17 58.8 +49.4 106.9	17 24.9 +49.4 106.0	16 51.0 +49.2 105.2	16 16.9 +49.2 104.3
6°	19 22.0 +49.5 107.2	18 48.2 +49.4 106.3	18 14.3 +49.3 105.4	17 40.2 +49.2 104.6	17 06.1 +49.0 103.7
7°	20 11.5 +49.3 106.6	19 37.6 +49.2 105.7	19 03.6 +49.1 104.8	18 29.4 +49.1 104.0	17 55.1 +49.0 103.1
8°	21 00.8 +49.2 106.0	20 26.8 +49.1 105.1	19 52.7 +49.0 104.2	19 18.5 +48.9 103.4	18 44.1 +48.8 102.5
9°	21 50.0 +49.1 105.4	21 15.9 +49.0 104.5	20 41.7 +48.9 103.6	20 07.4 +48.8 102.8	19 32.9 +48.7 101.9
10°	22 39.1 +48.9 104.7	22 04.9 +48.8 103.9	21 30.6 +48.7 103.0	20 56.2 +48.6 102.1	20 21.6 +48.6 101.3
11°	23 28.0 +48.8 104.1	22 53.7 +48.7 103.2	22 19.3 +48.6 102.4	21 44.8 +48.5 101.5	21 10.2 +48.5 100.7
12°	24 16.8 +48.6 103.5	23 42.4 +48.5 102.6	23 07.9 +48.5 101.7	22 33.3 +48.4 100.9	21 58.7 +48.2 100.0
13°	25 05.4 +48.4 102.8	24 30.9 +48.4 102.0	23 56.4 +48.2 101.1	23 21.7 +48.2 100.2	22 46.9 +48.2 99.4
14°	25 53.8 +48.3 102.2	25 19.3 +48.1 101.3	24 44.6 +48.1 100.4	24 09.9 +48.0 99.6	23 35.1 +48.0 98.7
15°	26 42.1 +48.0 101.5	26 07.4 +48.0 100.6	25 32.7 +48.0 99.8	24 57.9 +47.9 98.9	24 23.1 +47.8 98.1
16°	27 30.1 +47.9 100.8	26 55.4 +47.8 100.0	26 20.7 +47.7 99.1	25 45.8 +47.7 98.3	25 10.9 +47.6 97.4
17°	28 18.0 +47.7 100.1	27 43.2 +47.6 99.3	27 08.4 +47.5 98.4	26 33.5 +47.4 97.6	25 58.5 +47.4 96.7
18°	29 05.7 +47.4 99.5	28 30.8 +47.4 98.6	27 55.9 +47.4 97.7	27 20.9 +47.3 96.9	26 45.9 +47.2 96.0
19°	29 53.1 +47.2 98.8	29 18.2 +47.2 97.9	28 43.3 +47.1 97.0	28 08.2 +47.1 96.2	27 33.1 +47.1 95.4
20°	30 40.3 +47.0 98.0	30 05.4 +46.9 97.2	29 30.4 +46.8 96.3	28 55.3 +46.8 95.5	28 20.2 +46.8 94.7
21°	31 27.3 +46.8 97.3	30 52.3 +46.7 96.5	30 17.2 +46.7 95.6	29 42.1 +46.6 94.8	29 07.0 +46.5 93.9
22°	32 14.1 +46.4 96.6	31 39.0 +46.4 95.7	31 03.9 +46.4 94.9	30 28.7 +46.4 94.0	29 53.5 +46.4 93.2
23°	33 00.5 +46.2 95.8	32 25.4 +46.2 95.0	31 50.3 +46.1 94.1	31 15.1 +46.1 93.3	30 39.9 +46.0 92.5
24°	33 46.7 +45.9 95.1	33 11.6 +45.9 94.2	32 36.4 +45.8 93.4	32 01.2 +45.8 92.6	31 25.9 +45.8 91.7
25°	34 32.6 +45.7 94.3	33 57.5 +45.5 93.4	33 22.2 +45.6 92.6	32 47.0 +45.5 91.8	32 11.7 +45.6 91.0
26°	35 18.3 +45.2 93.5	34 43.0 +45.3 92.7	34 07.8 +45.3 91.8	33 32.5 +45.3 91.0	32 57.3 +45.2 90.2
27°	36 03.5 +45.0 92.7	35 28.3 +45.0 91.9	34 53.1 +44.9 91.0	34 17.8 +44.9 90.2	33 42.5 +45.0 89.4
28°	36 48.5 +44.6 91.9	36 13.3 +44.6 91.0	35 38.0 +44.6 90.2	35 02.7 +44.6 89.4	34 27.5 +44.6 88.6
29°	37 33.1 +44.3 91.0	36 57.9 +44.2 90.2	36 22.6 +44.2 89.4	35 47.3 +44.3 88.6	35 12.1 +44.3 87.8

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# Latitude 54°

# Declination SAME name as Latitude

Dec	LHA 070° / 290°	LHA 071° / 289°	LHA 072° / 288°	LHA 073° / 287°	LHA 074° / 286°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	11 35.8 +49.6 106.4	11 01.9 +49.5 105.6	10 27.9 +49.3 104.7	9 53.7 +49.3 103.9	9 19.4 +49.2 103.1
1°	12 25.4 +49.4 105.8	11 51.4 +49.3 105.0	11 17.2 +49.3 104.1	10 43.0 +49.2 103.3	10 08.6 +49.1 102.5
2°	13 14.8 +49.4 105.2	12 40.7 +49.3 104.4	12 06.5 +49.2 103.6	11 32.2 +49.1 102.7	10 57.7 +49.0 101.9
3°	14 04.2 +49.3 104.7	13 30.0 +49.2 103.8	12 55.7 +49.1 103.0	12 21.3 +49.0 102.1	11 46.7 +49.0 101.3
4°	14 53.5 +49.1 104.1	14 19.2 +49.1 103.2	13 44.8 +49.0 102.4	13 10.3 +48.9 101.6	12 35.7 +48.9 100.7
5°	15 42.6 +49.1 103.5	15 08.3 +49.0 102.6	14 33.8 +49.0 101.8	13 59.2 +48.9 101.0	13 24.6 +48.8 100.1
6°	16 31.7 +49.0 102.9	15 57.3 +48.9 102.0	15 22.8 +48.8 101.2	14 48.1 +48.8 100.4	14 13.4 +48.7 99.5
7°	17 20.7 +48.9 102.3	16 46.2 +48.8 101.4	16 11.6 +48.7 100.6	15 36.9 +48.6 99.8	15 02.1 +48.6 98.9
8°	18 09.6 +48.8 101.7	17 35.0 +48.7 100.8	17 00.3 +48.6 100.0	16 25.5 +48.6 99.1	15 50.7 +48.5 98.3
9°	18 58.4 +48.6 101.1	18 23.7 +48.6 100.2	17 48.9 +48.6 99.4	17 14.1 +48.5 98.5	16 39.2 +48.4 97.7
10°	19 47.0 +48.5 100.4	19 12.3 +48.4 99.6	18 37.5 +48.3 98.7	18 02.6 +48.3 97.9	17 27.6 +48.3 97.1
11°	20 35.5 +48.4 99.8	20 00.7 +48.3 99.0	19 25.8 +48.3 98.1	18 50.9 +48.2 97.3	18 15.9 +48.1 96.5
12°	21 23.9 +48.2 99.2	20 49.0 +48.2 98.3	20 14.1 +48.1 97.5	19 39.1 +48.1 96.7	19 04.0 +48.1 95.8
13°	22 12.1 +48.1 98.5	21 37.2 +48.0 97.7	21 02.2 +48.0 96.9	20 27.2 +47.9 96.0	19 52.1 +47.9 95.2
14°	23 00.2 +47.9 97.9	22 25.2 +47.9 97.0	21 50.2 +47.8 96.2	21 15.1 +47.8 95.4	20 40.0 +47.7 94.5
15°	23 48.1 +47.8 97.2	23 13.1 +47.7 96.4	22 38.0 +47.7 95.6	22 02.9 +47.6 94.7	21 27.7 +47.6 93.9
16°	24 35.9 +47.5 96.6	24 00.8 +47.5 95.7	23 25.7 +47.5 94.9	22 50.5 +47.5 94.1	22 15.3 +47.5 93.2
17°	25 23.4 +47.4 95.9	24 48.3 +47.4 95.1	24 13.2 +47.3 94.2	23 38.0 +47.3 93.4	23 02.8 +47.2 92.6
18°	26 10.8 +47.2 95.2	25 35.7 +47.1 94.4	25 00.5 +47.1 93.6	24 25.3 +47.1 92.7	23 50.0 +47.1 91.9
19°	26 58.0 +47.0 94.5	26 22.8 +47.0 93.7	25 47.6 +46.9 92.9	25 12.4 +46.9 92.0	24 37.1 +46.9 91.2
20°	27 45.0 +46.8 93.8	27 09.8 +46.7 93.0	26 34.5 +46.8 92.2	25 59.3 +46.7 91.4	25 24.0 +46.8 90.5
21°	28 31.8 +46.5 93.1	27 56.5 +46.6 92.3	27 21.3 +46.5 91.5	26 46.0 +46.5 90.7	26 10.8 +46.5 89.8
22°	29 18.3 +46.3 92.4	28 43.1 +46.3 91.6	28 07.8 +46.3 90.8	27 32.5 +46.3 89.9	26 57.3 +46.3 89.1
23°	30 04.6 +46.1 91.7	29 29.4 +46.0 90.8	28 54.1 +46.0 90.0	28 18.8 +46.1 89.2	27 43.6 +46.0 88.4
24°	30 50.7 +45.8 90.9	30 15.4 +45.8 90.1	29 40.1 +45.9 89.3	29 04.9 +45.8 88.5	28 29.6 +45.9 87.7
25°	31 36.5 +45.5 90.2	31 01.2 +45.5 89.4	30 26.0 +45.5 88.5	29 50.7 +45.6 87.8	29 15.5 +45.6 87.0
26°	32 22.0 +45.3 89.4	31 46.7 +45.3 88.6	31 11.5 +45.3 87.8	30 36.3 +45.3 87.0	30 01.1 +45.3 86.2
27°	33 07.3 +44.9 88.6	32 32.0 +45.0 87.8	31 56.8 +45.0 87.0	31 21.6 +45.0 86.2	30 46.4 +45.1 85.5
28°	33 52.2 +44.7 87.8	33 17.0 +44.6 87.0	32 41.8 +44.7 86.2	32 06.6 +44.7 85.5	31 31.5 +44.7 84.7
29°	34 36.9 +44.3 87.0	34 01.6 +44.4 86.2	33 26.5 +44.4 85.4	32 51.3 +44.5 84.7	32 16.2 +44.5 83.9

Dec	LHA 075° / 285°	LHA 076° / 284°	LHA 077° / 283°	LHA 078° / 282°	LHA 079° / 281°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	8 45.0 +49.1 102.2	8 10.5 +49.0 101.4	7 35.9 +48.9 100.6	7 01.2 +48.9 99.8	6 26.4 +48.8 98.9
1°	9 34.1 +49.0 101.6	8 59.5 +49.0 100.8	8 24.8 +48.9 100.0	7 50.1 +48.8 99.2	7 15.2 +48.8 98.4
2°	10 23.1 +49.0 101.1	9 48.5 +48.9 100.2	9 13.7 +48.9 99.4	8 38.9 +48.8 98.6	8 04.0 +48.7 97.8
3°	11 12.1 +48.9 100.5	10 37.4 +48.8 99.6	10 02.6 +48.7 98.8	9 27.7 +48.7 98.0	8 52.7 +48.7 97.2
4°	12 01.0 +48.8 99.9	11 26.2 +48.8 99.1	10 51.3 +48.7 98.2	10 16.4 +48.7 97.4	9 41.4 +48.6 96.6
5°	12 49.8 +48.7 99.3	12 15.0 +48.6 98.5	11 40.0 +48.7 97.6	11 05.1 +48.5 96.8	10 30.0 +48.6 96.0
6°	13 38.5 +48.7 98.7	13 03.6 +48.6 97.9	12 28.7 +48.5 97.0	11 53.6 +48.6 96.2	11 18.6 +48.4 95.4
7°	14 27.2 +48.6 98.1	13 52.2 +48.6 97.3	13 17.2 +48.5 96.4	12 42.2 +48.4 95.6	12 07.0 +48.4 94.8
8°	15 15.8 +48.4 97.5	14 40.8 +48.4 96.6	14 05.7 +48.4 95.8	13 30.6 +48.3 95.0	12 55.4 +48.3 94.2
9°	16 04.2 +48.4 96.9	15 29.2 +48.3 96.0	14 54.1 +48.3 95.2	14 18.9 +48.3 94.4	13 43.7 +48.3 93.6
10°	16 52.6 +48.2 96.2	16 17.5 +48.2 95.4	15 42.4 +48.1 94.6	15 07.2 +48.1 93.8	14 32.0 +48.1 93.0
11°	17 40.8 +48.1 95.6	17 05.7 +48.1 94.8	16 30.5 +48.1 94.0	15 55.3 +48.1 93.2	15 20.1 +48.0 92.3
12°	18 28.9 +48.0 95.0	17 53.8 +47.9 94.2	17 18.6 +47.9 93.4	16 43.4 +47.9 92.5	16 08.1 +47.9 91.7
13°	19 16.9 +47.9 94.4	18 41.7 +47.9 93.5	18 06.5 +47.9 92.7	17 31.3 +47.8 91.9	16 56.0 +47.8 91.1
14°	20 04.8 +47.7 93.7	19 29.6 +47.7 92.9	18 54.4 +47.6 92.1	18 19.1 +47.7 91.3	17 43.8 +47.7 90.5
15°	20 52.5 +47.6 93.1	20 17.3 +47.6 92.3	19 42.0 +47.6 91.4	19 06.8 +47.5 90.6	18 31.5 +47.6 89.8
16°	21 40.1 +47.4 92.4	21 04.9 +47.4 91.6	20 29.6 +47.4 90.8	19 54.3 +47.4 90.0	19 19.1 +47.4 89.2
17°	22 27.5 +47.3 91.8	21 52.3 +47.2 90.9	21 17.0 +47.2 90.1	20 41.7 +47.3 89.3	20 06.5 +47.2 88.5
18°	23 14.8 +47.1 91.1	22 39.5 +47.1 90.3	22 04.2 +47.1 89.5	21 29.0 +47.1 88.7	20 53.7 +47.1 87.9
19°	24 01.9 +46.9 90.4	23 26.6 +46.9 89.6	22 51.3 +47.0 88.8	22 16.1 +46.9 88.0	21 40.8 +47.0 87.2
20°	24 48.8 +46.7 89.7	24 13.5 +46.7 88.9	23 38.3 +46.7 88.1	23 03.0 +46.8 87.3	22 27.8 +46.8 86.5
21°	25 35.5 +46.5 89.0	25 00.2 +46.6 88.2	24 25.0 +46.5 87.4	23 49.8 +46.5 86.6	23 14.6 +46.6 85.8
22°	26 22.0 +46.3 88.3	25 46.8 +46.3 87.5	25 11.5 +46.4 86.7	24 36.3 +46.4 85.9	24 01.2 +46.4 85.2
23°	27 08.3 +46.1 87.6	26 33.1 +46.1 86.8	25 57.9 +46.1 86.0	25 22.7 +46.2 85.2	24 47.6 +46.2 84.5
24°	27 54.4 +45.9 86.9	27 19.2 +45.9 86.1	26 44.0 +46.0 85.3	26 08.9 +46.0 84.5	25 33.8 +46.0 83.8
25°	28 40.3 +45.6 86.2	28 05.1 +45.7 85.4	27 30.0 +45.7 84.6	26 54.9 +45.7 83.8	26 19.8 +45.8 83.0
26°	29 25.9 +45.4 85.4	28 50.8 +45.4 84.6	28 15.7 +45.4 83.9	27 40.6 +45.5 83.1	27 05.6 +45.6 82.3
27°	30 11.3 +45.1 84.7	29 36.2 +45.1 83.9	29 01.1 +45.2 83.1	28 26.1 +45.3 82.4	27 51.2 +45.4 81.6
28°	30 56.4 +44.8 83.9	30 21.3 +44.9 83.1	29 46.3 +45.0 82.4	29 11.4 +45.0 81.6	28 36.6 +45.1 80.8
29°	31 41.2 +44.6 83.1	31 06.2 +44.6 82.4	30 31.3 +44.7 81.6	29 56.4 +44.8 80.8	29 21.7 +44.8 80.1

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Dec	LHA 080° / 280°	LHA 081° / 279°	LHA 082° / 278°	LHA 083° / 277°	LHA 084° / 276°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	5 51.5 +48.8 98.1	5 16.5 +48.8 97.3	4 41.5 +48.7 96.5	4 06.5 +48.6 95.7	3 31.3 +48.7 94.9
1°	6 40.3 +48.7 97.5	6 05.3 +48.7 96.7	5 30.2 +48.7 95.9	4 55.1 +48.6 95.1	4 20.0 +48.6 94.3
2°	7 29.0 +48.7 96.9	6 54.0 +48.6 96.1	6 18.9 +48.6 95.3	5 43.7 +48.6 94.5	5 08.6 +48.5 93.7
3°	8 17.7 +48.6 96.4	7 42.6 +48.6 95.5	7 07.5 +48.6 94.7	6 32.3 +48.6 93.9	5 57.1 +48.5 93.1
4°	9 06.3 +48.6 95.8	8 31.2 +48.6 94.9	7 56.1 +48.5 94.1	7 20.9 +48.5 93.3	6 45.6 +48.5 92.5
5°	9 54.9 +48.5 95.2	9 19.8 +48.5 94.4	8 44.6 +48.4 93.5	8 09.4 +48.4 92.7	7 34.1 +48.5 91.9
6°	10 43.4 +48.5 94.6	10 08.3 +48.4 93.8	9 33.0 +48.4 92.9	8 57.8 +48.4 92.1	8 22.6 +48.3 91.3
7°	11 31.9 +48.3 94.0	10 56.7 +48.3 93.2	10 21.4 +48.4 92.3	9 46.2 +48.3 91.5	9 10.9 +48.4 90.7
8°	12 20.2 +48.3 93.4	11 45.0 +48.3 92.5	11 09.8 +48.2 91.7	10 34.5 +48.3 90.9	9 59.3 +48.2 90.1
9°	13 08.5 +48.2 92.8	12 33.3 +48.2 91.9	11 58.0 +48.2 91.1	11 22.8 +48.2 90.3	10 47.5 +48.2 89.5
10°	13 56.7 +48.2 92.1	13 21.5 +48.1 91.3	12 46.2 +48.1 90.5	12 11.0 +48.1 89.7	11 35.7 +48.1 88.9
11°	14 44.9 +48.0 91.5	14 09.6 +48.0 90.7	13 34.3 +48.0 89.9	12 59.1 +48.0 89.1	12 23.8 +48.0 88.3
12°	15 32.9 +47.9 90.9	14 57.6 +47.9 90.1	14 22.3 +47.9 89.3	13 47.1 +47.9 88.5	13 11.8 +48.0 87.7
13°	16 20.8 +47.8 90.3	15 45.5 +47.8 89.5	15 10.2 +47.9 88.7	14 35.0 +47.8 87.9	13 59.8 +47.8 87.1
14°	17 08.6 +47.6 89.6	16 33.3 +47.7 88.8	15 58.1 +47.7 88.0	15 22.8 +47.7 87.2	14 47.6 +47.7 86.4
15°	17 56.2 +47.6 89.0	17 21.0 +47.6 88.2	16 45.8 +47.5 87.4	16 10.5 +47.6 86.6	15 35.3 +47.7 85.8
16°	18 43.8 +47.4 88.4	18 08.6 +47.4 87.6	17 33.3 +47.5 86.8	16 58.1 +47.5 86.0	16 23.0 +47.5 85.2
17°	19 31.2 +47.3 87.7	18 56.0 +47.3 86.9	18 20.8 +47.3 86.1	17 45.6 +47.4 85.3	17 10.5 +47.4 84.5
18°	20 18.5 +47.1 87.1	19 43.3 +47.2 86.3	19 08.1 +47.2 85.5	18 33.0 +47.2 84.7	17 57.9 +47.3 83.9
19°	21 05.6 +47.0 86.4	20 30.5 +47.0 85.6	19 55.3 +47.1 84.8	19 20.2 +47.1 84.0	18 45.2 +47.1 83.2
20°	21 52.6 +46.8 85.7	21 17.5 +46.8 84.9	20 42.4 +46.8 84.2	20 07.3 +46.9 83.4	19 32.3 +47.0 82.6
21°	22 39.4 +46.7 85.1	22 04.3 +46.7 84.3	21 29.2 +46.8 83.5	20 54.2 +46.8 82.7	20 19.3 +46.8 81.9
22°	23 26.1 +46.4 84.4	22 51.0 +46.5 83.6	22 16.0 +46.5 82.8	21 41.0 +46.6 82.0	21 06.1 +46.7 81.3
23°	24 12.5 +46.3 83.7	23 37.5 +46.3 82.9	23 02.5 +46.4 82.1	22 27.6 +46.5 81.4	21 52.8 +46.5 80.6
24°	24 58.8 +46.1 83.0	24 23.8 +46.2 82.2	23 48.9 +46.2 81.4	23 14.1 +46.2 80.7	22 39.3 +46.4 79.9
25°	25 44.9 +45.8 82.3	25 10.0 +45.9 81.5	24 35.1 +46.0 80.7	24 00.3 +46.1 80.0	23 25.7 +46.1 79.2
26°	26 30.7 +45.7 81.6	25 55.9 +45.7 80.8	25 21.1 +45.8 80.0	24 46.4 +45.9 79.3	24 11.8 +46.0 78.5
27°	27 16.4 +45.4 80.8	26 41.6 +45.5 80.1	26 06.9 +45.6 79.3	25 32.3 +45.7 78.6	24 57.8 +45.7 77.8
28°	28 01.8 +45.2 80.1	27 27.1 +45.2 79.3	26 52.5 +45.3 78.6	26 18.0 +45.4 77.8	25 43.5 +45.6 77.1
29°	28 47.0 +44.9 79.3	28 12.3 +45.1 78.6	27 37.8 +45.1 77.8	27 03.4 +45.2 77.1	26 29.1 +45.3 76.4

Dec	LHA 085° / 275°	LHA 086° / 274°	LHA 087° / 273°	LHA 088° / 272°	LHA 089° / 271°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	2 56.2 +48.6 94.0	2 21.0 +48.6 93.2	1 45.8 +48.5 92.4	1 10.5 +48.6 91.6	0 35.3 +48.5 90.8
1°	3 44.8 +48.6 93.5	3 09.6 +48.5 92.7	2 34.3 +48.6 91.8	1 59.1 +48.5 91.0	1 23.8 +48.5 90.2
2°	4 33.4 +48.5 92.9	3 58.1 +48.5 92.1	3 22.9 +48.5 91.3	2 47.6 +48.5 90.4	2 12.3 +48.6 89.6
3°	5 21.9 +48.5 92.3	4 46.6 +48.5 91.5	4 11.4 +48.5 90.7	3 36.1 +48.5 89.9	3 00.9 +48.5 89.0
4°	6 10.4 +48.5 91.7	5 35.1 +48.5 90.9	4 59.9 +48.4 90.1	4 24.6 +48.5 89.3	3 49.4 +48.4 88.5
5°	6 58.9 +48.4 91.1	6 23.6 +48.4 90.3	5 48.3 +48.5 89.5	5 13.1 +48.4 88.7	4 37.8 +48.5 87.9
6°	7 47.3 +48.4 90.5	7 12.0 +48.4 89.7	6 36.8 +48.4 88.9	6 01.5 +48.4 88.1	5 26.3 +48.4 87.3
7°	8 35.7 +48.3 89.9	8 00.4 +48.3 89.1	7 25.2 +48.3 88.3	6 49.9 +48.4 87.5	6 14.7 +48.4 86.7
8°	9 24.0 +48.2 89.3	8 48.7 +48.3 88.5	8 13.5 +48.3 87.7	7 38.3 +48.3 86.9	7 03.1 +48.3 86.1
9°	10 12.2 +48.2 88.7	9 37.0 +48.2 87.9	9 01.8 +48.2 87.1	8 26.6 +48.2 86.3	7 51.4 +48.3 85.5
10°	11 00.4 +48.2 88.1	10 25.2 +48.1 87.3	9 50.0 +48.1 86.5	9 14.8 +48.2 85.7	8 39.7 +48.2 84.9
11°	11 48.6 +48.0 87.5	11 13.3 +48.1 86.7	10 38.1 +48.1 85.9	10 03.0 +48.1 85.1	9 27.9 +48.1 84.3
12°	12 36.6 +48.0 86.9	12 01.4 +48.0 86.1	11 26.2 +48.0 85.3	10 51.1 +48.1 84.5	10 16.0 +48.1 83.7
13°	13 24.6 +47.8 86.3	12 49.4 +47.9 85.5	12 14.2 +48.0 84.7	11 39.2 +47.9 83.9	11 04.1 +48.0 83.1
14°	14 12.4 +47.8 85.6	13 37.3 +47.8 84.8	13 02.2 +47.8 84.0	12 27.1 +47.9 83.2	11 52.1 +48.0 82.5
15°	15 00.2 +47.7 85.0	14 25.1 +47.7 84.2	13 50.0 +47.8 83.4	13 15.0 +47.8 82.6	12 40.1 +47.8 81.8
16°	15 47.9 +47.5 84.4	15 12.8 +47.6 83.6	14 37.8 +47.6 82.8	14 02.8 +47.7 82.0	13 27.9 +47.8 81.2
17°	16 35.4 +47.4 83.7	16 00.4 +47.5 83.0	15 25.4 +47.6 82.2	14 50.5 +47.6 81.4	14 15.7 +47.6 80.6
18°	17 22.8 +47.4 83.1	16 47.9 +47.3 82.3	16 13.0 +47.4 81.5	15 38.1 +47.5 80.8	15 03.3 +47.6 80.0
19°	18 10.2 +47.2 82.5	17 35.2 +47.3 81.7	17 00.4 +47.3 80.9	16 25.6 +47.4 80.1	15 50.9 +47.4 79.3
20°	18 57.4 +47.0 81.8	18 22.5 +47.1 81.0	17 47.7 +47.2 80.3	17 13.0 +47.2 79.5	16 38.3 +47.4 78.7
21°	19 44.4 +46.9 81.1	19 09.6 +47.0 80.4	18 34.9 +47.0 79.6	18 00.2 +47.1 78.8	17 25.7 +47.2 78.1
22°	20 31.3 +46.7 80.5	19 56.6 +46.8 79.7	19 21.9 +46.9 78.9	18 47.3 +47.0 78.2	18 12.9 +47.0 77.4
23°	21 18.0 +46.6 79.8	20 43.4 +46.6 79.0	20 08.8 +46.8 78.3	19 34.3 +46.9 77.5	18 59.9 +47.0 76.8
24°	22 04.6 +46.5 79.1	21 30.0 +46.5 78.4	20 55.6 +46.5 77.6	20 21.2 +46.6 76.9	19 46.9 +46.8 76.1
25°	22 51.1 +46.2 78.5	22 16.5 +46.4 77.7	21 42.1 +46.5 76.9	21 07.8 +46.6 76.2	20 33.7 +46.6 75.4
26°	23 37.3 +46.0 77.8	23 02.9 +46.1 77.0	22 28.6 +46.2 76.3	21 54.4 +46.3 75.5	21 20.3 +46.4 74.8
27°	24 23.3 +45.9 77.1	23 49.0 +46.0 76.3	23 14.8 +46.1 75.6	22 40.7 +46.2 74.8	22 06.7 +46.3 74.1
28°	25 09.2 +45.7 76.3	24 35.0 +45.7 75.6	24 00.9 +45.9 74.9	23 26.9 +46.0 74.1	22 53.0 +46.2 73.4
29°	25 54.9 +45.4 75.6	25 20.7 +45.6 74.9	24 46.8 +45.6 74.2	24 12.9 +45.8 73.4	23 39.2 +45.9 72.7

# Latitude 54°

# Declination SAME name as Latitude

Dec	LHA 090° / 270°	LHA 091° / 269°	LHA 092° / 268°	LHA 093° / 267°	LHA 094° / 266°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	0 00.0 +48.5 90.0	-0 35.3 +48.6	-1 10.5 +48.5	-1 45.8 +48.6	-2 21.0 +48.6
1°	0 48.5 +48.6 89.4	0 13.3 +48.5 88.6	-0 22.0 +48.6	-0 57.2 +48.6	-1 32.4 +48.6
2°	1 37.1 +48.5 88.8	1 01.8 +48.6 88.0	0 26.6 +48.5 87.2	-0 08.6 +48.5	-0 43.8 +48.6
3°	2 25.6 +48.5 88.2	1 50.4 +48.5 87.4	1 15.1 +48.6 86.6	0 39.9 +48.6 85.8	0 04.8 +48.6 85.0
4°	3 14.1 +48.5 87.6	2 38.9 +48.5 86.8	2 03.7 +48.5 86.0	1 28.5 +48.6 85.2	0 53.4 +48.6 84.4
5°	4 02.6 +48.5 87.1	3 27.4 +48.5 86.2	2 52.2 +48.5 85.4	2 17.1 +48.5 84.6	1 42.0 +48.6 83.8
6°	4 51.1 +48.4 86.5	4 15.9 +48.4 85.7	3 40.7 +48.5 84.9	3 05.6 +48.6 84.0	2 30.6 +48.6 83.2
7°	5 39.5 +48.4 85.9	5 04.3 +48.5 85.1	4 29.2 +48.5 84.3	3 54.2 +48.5 83.5	3 19.2 +48.5 82.7
8°	6 27.9 +48.3 85.3	5 52.8 +48.4 84.5	5 17.7 +48.4 83.7	4 42.7 +48.4 82.9	4 07.7 +48.5 82.1
9°	7 16.2 +48.4 84.7	6 41.2 +48.3 83.9	6 06.1 +48.4 83.1	5 31.1 +48.5 82.3	4 56.2 +48.5 81.5
10°	8 04.6 +48.2 84.1	7 29.5 +48.3 83.3	6 54.5 +48.3 82.5	6 19.6 +48.4 81.7	5 44.7 +48.5 80.9
11°	8 52.8 +48.2 83.5	8 17.8 +48.2 82.7	7 42.8 +48.3 81.9	7 08.0 +48.3 81.1	6 33.2 +48.4 80.3
12°	9 41.0 +48.1 82.9	9 06.0 +48.2 82.1	8 31.1 +48.3 81.3	7 56.3 +48.3 80.5	7 21.6 +48.3 79.7
13°	10 29.1 +48.1 82.3	9 54.2 +48.1 81.5	9 19.4 +48.2 80.7	8 44.6 +48.3 79.9	8 09.9 +48.4 79.1
14°	11 17.2 +48.0 81.7	10 42.3 +48.1 80.9	10 07.6 +48.1 80.1	9 32.9 +48.1 79.3	8 58.3 +48.2 78.5
15°	12 05.2 +47.9 81.0	11 30.4 +48.0 80.3	10 55.7 +48.0 79.5	10 21.0 +48.2 78.7	9 46.5 +48.2 77.9
16°	12 53.1 +47.8 80.4	12 18.4 +47.9 79.6	11 43.7 +48.0 78.9	11 09.2 +48.0 78.1	10 34.7 +48.1 77.3
17°	13 40.9 +47.8 79.8	13 06.3 +47.8 79.0	12 31.7 +47.9 78.2	11 57.2 +48.0 77.5	11 22.8 +48.1 76.7
18°	14 28.7 +47.6 79.2	13 54.1 +47.7 78.4	13 19.6 +47.7 77.6	12 45.2 +47.8 76.8	12 10.9 +47.9 76.1
19°	15 16.3 +47.5 78.6	14 41.8 +47.6 77.8	14 07.3 +47.7 77.0	13 33.0 +47.8 76.2	12 58.8 +47.9 75.5
20°	16 03.8 +47.4 77.9	15 29.4 +47.5 77.2	14 55.0 +47.6 76.4	14 20.8 +47.7 75.6	13 46.7 +47.8 74.8
21°	16 51.2 +47.3 77.3	16 16.9 +47.3 76.5	15 42.6 +47.5 75.7	15 08.5 +47.6 75.0	14 34.5 +47.7 74.2
22°	17 38.5 +47.2 76.6	17 04.2 +47.3 75.9	16 30.1 +47.4 75.1	15 56.1 +47.4 74.3	15 22.2 +47.6 73.6
23°	18 25.7 +47.0 76.0	17 51.5 +47.1 75.2	17 17.5 +47.2 74.5	16 43.5 +47.4 73.7	16 09.8 +47.4 73.0
24°	19 12.7 +46.9 75.3	18 38.6 +47.0 74.6	18 04.7 +47.1 73.8	17 30.9 +47.2 73.1	16 57.2 +47.4 72.3
25°	19 59.6 +46.7 74.7	19 25.6 +46.9 73.9	18 51.8 +47.0 73.2	18 18.1 +47.1 72.4	17 44.6 +47.2 71.7
26°	20 46.3 +46.6 74.0	20 12.5 +46.7 73.3	19 38.8 +46.8 72.5	19 05.2 +47.0 71.8	18 31.8 +47.1 71.0
27°	21 32.9 +46.4 73.3	20 59.2 +46.5 72.6	20 25.6 +46.7 71.8	19 52.2 +46.8 71.1	19 18.9 +46.9 70.4
28°	22 19.3 +46.3 72.6	21 45.7 +46.4 71.9	21 12.3 +46.5 71.2	20 39.0 +46.6 70.4	20 05.8 +46.8 69.7
29°	23 05.6 +46.0 72.0	22 32.1 +46.2 71.2	21 58.8 +46.3 70.5	21 25.6 +46.5 69.8	20 52.6 +46.6 69.0

Dec	LHA 095° / 265°	LHA 096° / 264°	LHA 097° / 263°	LHA 098° / 262°	LHA 099° / 261°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-2 56.2 +48.6	-3 31.3 +48.6	-4 06.5 +48.7	-4 41.5 +48.7	-5 16.5 +48.7
1°	-2 07.6 +48.7	-2 42.7 +48.7	-3 17.8 +48.7	-3 52.8 +48.7	-4 27.8 +48.8
2°	-1 18.9 +48.6	-1 54.0 +48.6	-2 29.1 +48.7	-3 04.1 +48.8	-3 39.0 +48.8
3°	-0 30.3 +48.6	-1 05.4 +48.7	-1 40.4 +48.7	-2 15.3 +48.8	-2 50.2 +48.9
4°	0 18.3 +48.7 83.6	-0 16.7 +48.7	-0 51.7 +48.8	-1 26.5 +48.7	-2 01.3 +48.8
5°	1 07.0 +48.6 83.0	0 32.0 +48.7 82.2	-0 02.9 +48.7	-0 37.8 +48.8	-1 12.5 +48.8
6°	1 55.6 +48.6 82.4	1 20.7 +48.6 81.6	0 45.8 +48.7 80.8	0 11.0 +48.8 80.0	-0 23.7 +48.9
7°	2 44.2 +48.6 81.8	2 09.3 +48.7 81.0	1 34.5 +48.7 80.2	0 59.8 +48.8 79.4	0 25.2 +48.8 78.6
8°	3 32.8 +48.6 81.3	2 58.0 +48.6 80.5	2 23.2 +48.8 79.7	1 48.6 +48.8 78.8	1 14.0 +48.9 78.0
9°	4 21.4 +48.5 80.7	3 46.6 +48.6 79.9	3 12.0 +48.6 79.1	2 37.4 +48.7 78.3	2 02.9 +48.8 77.5
10°	5 09.9 +48.6 80.1	4 35.2 +48.6 79.3	4 00.6 +48.7 78.5	3 26.1 +48.8 77.7	2 51.7 +48.8 76.9
11°	5 58.5 +48.4 79.5	5 23.8 +48.6 78.7	4 49.3 +48.6 77.9	4 14.9 +48.7 77.1	3 40.5 +48.8 76.3
12°	6 46.9 +48.5 78.9	6 12.4 +48.5 78.1	5 37.9 +48.6 77.3	5 03.6 +48.6 76.5	4 29.3 +48.8 75.7
13°	7 35.4 +48.4 78.3	7 00.9 +48.4 77.5	6 26.5 +48.6 76.7	5 52.2 +48.7 75.9	5 18.1 +48.7 75.1
14°	8 23.8 +48.3 77.7	7 49.3 +48.5 76.9	7 15.1 +48.5 76.1	6 40.9 +48.6 75.3	6 06.8 +48.7 74.5
15°	9 12.1 +48.3 77.1	8 37.8 +48.3 76.3	8 03.6 +48.4 75.5	7 29.5 +48.5 74.7	6 55.5 +48.7 74.0
16°	10 00.4 +48.2 76.5	9 26.1 +48.3 75.7	8 52.0 +48.4 74.9	8 18.0 +48.5 74.2	7 44.2 +48.6 73.4
17°	10 48.6 +48.1 75.9	10 14.4 +48.3 75.1	9 40.4 +48.3 74.3	9 06.5 +48.4 73.6	8 32.8 +48.5 72.8
18°	11 36.7 +48.1 75.3	11 02.7 +48.1 74.5	10 28.7 +48.3 73.7	9 54.9 +48.4 73.0	9 21.3 +48.5 72.2
19°	12 24.8 +47.9 74.7	11 50.8 +48.1 73.9	11 17.0 +48.2 73.1	10 43.3 +48.3 72.4	10 09.8 +48.4 71.6
20°	13 12.7 +47.9 74.1	12 38.9 +48.0 73.3	12 05.2 +48.1 72.5	11 31.6 +48.2 71.8	10 58.2 +48.4 71.0
21°	14 00.6 +47.8 73.4	13 26.9 +47.9 72.7	12 53.3 +48.0 71.9	12 19.8 +48.2 71.1	11 46.6 +48.2 70.4
22°	14 48.4 +47.7 72.8	14 14.8 +47.8 72.1	13 41.3 +48.0 71.3	13 08.0 +48.1 70.5	12 34.8 +48.2 69.8
23°	15 36.1 +47.6 72.2	15 02.6 +47.7 71.4	14 29.3 +47.8 70.7	13 56.1 +47.9 69.9	13 23.0 +48.1 69.2
24°	16 23.7 +47.5 71.6	15 50.3 +47.6 70.8	15 17.1 +47.7 70.0	14 44.0 +47.9 69.3	14 11.1 +48.0 68.5
25°	17 11.2 +47.3 70.9	16 37.9 +47.5 70.2	16 04.8 +47.6 69.4	15 31.9 +47.7 68.7	14 59.1 +47.9 67.9
26°	17 58.5 +47.2 70.3	17 25.4 +47.4 69.5	16 52.4 +47.5 68.8	16 19.6 +47.7 68.0	15 47.0 +47.8 67.3
27°	18 45.7 +47.1 69.6	18 12.8 +47.2 68.9	17 39.9 +47.4 68.1	17 07.3 +47.5 67.4	16 34.8 +47.7 66.7
28°	19 32.8 +47.0 69.0	19 00.0 +47.1 68.2	18 27.3 +47.3 67.5	17 54.8 +47.4 66.8	17 22.5 +47.6 66.0
29°	20 19.8 +46.7 68.3	19 47.1 +46.9 67.6	19 14.6 +47.1 66.8	18 42.2 +47.3 66.1	18 10.1 +47.4 65.4

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Dec	LHA 100° / 260°		LHA 101° / 259°		LHA 102° / 258°		LHA 103° / 257°		LHA 104° / 256°	
	H °	' dH ' Z °	H °	' dH ' Z °	H °	' dH ' Z °	H °	' dH ' Z °	H °	' dH ' Z °
0°	-5 51.5	+48.8	-6 26.4	+48.9	-7 01.2	+49.0	-7 35.9	+49.0	-8 10.5	+49.1
1°	-5 02.7	+48.9	-5 37.5	+48.9	-6 12.2	+48.9	-6 46.9	+49.0	-7 21.4	+49.1
2°	-4 13.8	+48.8	-4 48.6	+48.9	-5 23.3	+49.0	-5 57.9	+49.1	-6 32.3	+49.1
3°	-3 25.0	+48.9	-3 59.7	+49.0	-4 34.3	+49.1	-5 08.8	+49.1	-5 43.2	+49.2
4°	-2 36.1	+48.9	-3 10.7	+49.0	-3 45.2	+49.0	-4 19.7	+49.1	-4 54.0	+49.2
5°	-1 47.2	+49.0	-2 21.7	+49.0	-2 56.2	+49.1	-3 30.6	+49.2	-4 04.8	+49.2
6°	-0 58.2	+48.9	-1 32.7	+49.0	-2 07.1	+49.0	-2 41.4	+49.2	-3 15.6	+49.3
7°	-0 09.3	+48.9	-0 43.7	+49.0	-1 18.1	+49.1	-1 52.2	+49.1	-2 26.3	+49.3
8°	0 39.6	+48.9	0 05.3	+49.0	-0 29.0	+49.1	-1 03.1	+49.2	-1 37.0	+49.3
9°	1 28.5	+48.9	0 54.3	+49.0	0 20.1	+49.1	-0 13.9	+49.2	-0 47.7	+49.2
10°	2 17.4	+48.9	1 43.3	+49.0	1 09.2	+49.1	0 35.3	+49.2	0 01.5	+49.3
11°	3 06.3	+48.9	2 32.3	+48.9	1 58.3	+49.1	1 24.5	+49.2	0 50.8	+49.3
12°	3 55.2	+48.9	3 21.2	+49.0	2 47.4	+49.0	2 13.7	+49.1	1 40.1	+49.3
13°	4 44.1	+48.8	4 10.2	+48.9	3 36.4	+49.1	3 02.8	+49.2	2 29.4	+49.2
14°	5 32.9	+48.8	4 59.1	+48.9	4 25.5	+49.0	3 52.0	+49.1	3 18.6	+49.3
15°	6 21.7	+48.7	5 48.0	+48.9	5 14.5	+48.9	4 41.1	+49.1	4 07.9	+49.2
16°	7 10.4	+48.7	6 36.9	+48.8	6 03.4	+49.0	5 30.2	+49.0	4 57.1	+49.1
17°	7 59.1	+48.7	7 25.7	+48.8	6 52.4	+48.9	6 19.2	+49.0	5 46.2	+49.2
18°	8 47.8	+48.6	8 14.5	+48.7	7 41.3	+48.8	7 08.2	+49.0	6 35.4	+49.1
19°	9 36.4	+48.5	9 03.2	+48.6	8 30.1	+48.8	7 57.2	+48.9	7 24.5	+49.1
20°	10 24.9	+48.5	9 51.8	+48.6	9 18.9	+48.7	8 46.1	+48.9	8 13.6	+49.0
21°	11 13.4	+48.4	10 40.4	+48.6	10 07.6	+48.7	9 35.0	+48.8	9 02.6	+48.9
22°	12 01.8	+48.3	11 29.0	+48.4	10 56.3	+48.6	10 23.8	+48.8	9 51.5	+48.9
23°	12 50.1	+48.3	12 17.4	+48.4	11 44.9	+48.5	11 12.6	+48.6	10 40.4	+48.8
24°	13 38.4	+48.1	13 05.8	+48.3	12 33.4	+48.5	12 01.2	+48.6	11 29.2	+48.8
25°	14 26.5	+48.1	13 54.1	+48.2	13 21.9	+48.3	12 49.8	+48.6	12 18.0	+48.7
26°	15 14.6	+47.9	14 42.3	+48.1	14 10.2	+48.3	13 38.4	+48.4	13 06.7	+48.6
27°	16 02.5	+47.9	15 30.4	+48.0	14 58.5	+48.2	14 26.8	+48.3	13 55.3	+48.5
28°	16 50.4	+47.7	16 18.4	+47.9	15 46.7	+48.0	15 15.1	+48.3	14 43.8	+48.4
29°	17 38.1	+47.6	17 06.3	+47.8	16 34.7	+48.0	16 03.4	+48.1	15 32.2	+48.3

Dec	LHA 105° / 255°		LHA 106° / 254°		LHA 107° / 253°		LHA 108° / 252°		LHA 109° / 251°	
	H °	' dH ' Z °	H °	' dH ' Z °	H °	' dH ' Z °	H °	' dH ' Z °	H °	' dH ' Z °
0°	-8 45.0	+49.1	-9 19.4	+49.2	-9 53.7	+49.3				
1°	-7 55.9	+49.2	-8 30.2	+49.3	-9 04.4	+49.3	-9 38.5	+49.4		
2°	-7 06.7	+49.2	-7 40.9	+49.3	-8 15.1	+49.4	-8 49.1	+49.5	-9 22.9	+49.6
3°	-6 17.5	+49.3	-6 51.6	+49.3	-7 25.7	+49.5	-7 59.6	+49.6	-8 33.3	+49.6
4°	-5 28.2	+49.3	-6 02.3	+49.4	-6 36.2	+49.5	-7 10.0	+49.6	-7 43.7	+49.7
5°	-4 38.9	+49.3	-5 12.9	+49.4	-5 46.7	+49.5	-6 20.4	+49.6	-6 54.0	+49.8
6°	-3 49.6	+49.4	-4 23.5	+49.5	-4 57.2	+49.5	-5 30.8	+49.7	-6 04.2	+49.7
7°	-3 00.2	+49.3	-3 34.0	+49.5	-4 07.7	+49.6	-4 41.1	+49.7	-5 14.5	+49.8
8°	-2 10.9	+49.4	-2 44.5	+49.4	-3 18.1	+49.6	-3 51.4	+49.7	-4 24.7	+49.9
9°	-1 21.5	+49.4	-1 55.1	+49.5	-2 28.5	+49.6	-3 01.7	+49.7	-3 34.8	+49.8
10°	-0 32.1	+49.4	-1 05.6	+49.5	-1 38.9	+49.6	-2 12.0	+49.7	-2 45.0	+49.9
11°	0 17.3	+49.4	-0 16.1	+49.5	-0 49.3	+49.7	-1 22.3	+49.8	-1 55.1	+49.9
12°	1 06.7	+49.4	0 33.4	+49.5	0 00.4	+49.6	-0 32.5	+49.7	-1 05.2	+49.8
13°	1 56.1	+49.3	1 22.9	+49.5	0 50.0	+49.6	0 17.2	+49.8	-0 15.4	+49.9
14°	2 45.4	+49.4	2 12.4	+49.5	1 39.6	+49.6	1 07.0	+49.7	0 34.5	+49.9
15°	3 34.8	+49.3	3 01.9	+49.5	2 29.2	+49.6	1 56.7	+49.7	1 24.4	+49.9
16°	4 24.1	+49.3	3 51.4	+49.4	3 18.8	+49.6	2 46.4	+49.8	2 14.3	+49.8
17°	5 13.4	+49.3	4 40.8	+49.4	4 08.4	+49.5	3 36.2	+49.6	3 04.1	+49.9
18°	6 02.7	+49.3	5 30.2	+49.4	4 57.9	+49.6	4 25.8	+49.7	3 54.0	+49.8
19°	6 52.0	+49.2	6 19.6	+49.4	5 47.5	+49.5	5 15.5	+49.7	4 43.8	+49.8
20°	7 41.2	+49.1	7 09.0	+49.3	6 37.0	+49.4	6 05.2	+49.6	5 33.6	+49.7
21°	8 30.3	+49.1	7 58.3	+49.2	7 26.4	+49.4	6 54.8	+49.5	6 23.3	+49.7
22°	9 19.4	+49.1	8 47.5	+49.2	8 15.8	+49.4	7 44.3	+49.5	7 13.0	+49.7
23°	10 08.5	+48.9	9 36.7	+49.1	9 05.2	+49.3	8 33.8	+49.5	8 02.7	+49.7
24°	10 57.4	+49.0	10 25.8	+49.1	9 54.5	+49.2	9 23.3	+49.4	8 52.4	+49.5
25°	11 46.4	+48.8	11 14.9	+49.0	10 43.7	+49.2	10 12.7	+49.4	9 41.9	+49.6
26°	12 35.2	+48.8	12 03.9	+49.0	11 32.9	+49.1	11 02.1	+49.2	10 31.5	+49.4
27°	13 24.0	+48.6	12 52.9	+48.8	12 22.0	+49.0	11 51.3	+49.3	11 20.9	+49.4
28°	14 12.6	+48.6	13 41.7	+48.8	13 11.0	+49.0	12 40.6	+49.1	12 10.3	+49.3
29°	15 01.2	+48.5	14 30.5	+48.7	14 00.0	+48.8	13 29.7	+49.0	12 59.6	+49.3

Dec	LHA 110° / 250°	LHA 111° / 249°	LHA 112° / 248°	LHA 113° / 247°	LHA 114° / 246°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°	-9 56.6 +49.7				
4°	-9 06.9 +49.8	-9 40.3 +49.8			
	-8 17.1 +49.8	-8 50.5 +50.0	-9 23.6 +50.0	-9 56.6 +50.2	
5°	-7 27.3 +49.8	-8 00.5 +49.9	-8 33.6 +50.1	-9 06.4 +50.2	-9 39.1 +50.4
6°	-6 37.5 +49.9	-7 10.6 +50.0	-7 43.5 +50.1	-8 16.2 +50.2	-8 48.7 +50.4
7°	-5 47.6 +49.9	-6 20.6 +50.1	-6 53.4 +50.2	-7 26.0 +50.3	-7 58.3 +50.4
8°	-4 57.7 +50.0	-5 30.5 +50.0	-6 03.2 +50.2	-6 35.7 +50.4	-7 07.9 +50.5
9°	-4 07.7 +49.9	-4 40.5 +50.1	-5 13.0 +50.2	-5 45.3 +50.3	-6 17.4 +50.5
10°	-3 17.8 +50.0	-3 50.4 +50.2	-4 22.8 +50.3	-4 55.0 +50.4	-5 26.9 +50.5
11°	-2 27.8 +50.0	-3 00.2 +50.1	-3 32.5 +50.3	-4 04.6 +50.5	-4 36.4 +50.6
12°	-1 37.8 +50.0	-2 10.1 +50.1	-2 42.2 +50.3	-3 14.1 +50.4	-3 45.8 +50.5
13°	-0 47.8 +50.1	-1 20.0 +50.2	-1 51.9 +50.3	-2 23.7 +50.4	-2 55.3 +50.6
14°	0 02.3 +50.0 65.8	-0 29.8 +50.2	-1 01.6 +50.3	-1 33.3 +50.5	-2 04.7 +50.7
15°	0 52.3 +50.0 65.2	0 20.4 +50.1 64.4	-0 11.3 +50.3	-0 42.8 +50.5	-1 14.0 +50.6
16°	1 42.3 +50.0 64.6	1 10.5 +50.2 63.8	0 39.0 +50.3 63.0	0 07.7 +50.4 62.2	-0 23.4 +50.6
17°	2 32.3 +50.0 64.1	2 00.7 +50.1 63.3	1 29.3 +50.3 62.5	0 58.1 +50.5 61.7	0 27.2 +50.6 60.9
18°	3 22.3 +49.9 63.5	2 50.8 +50.1 62.7	2 19.6 +50.3 61.9	1 48.6 +50.4 61.2	1 17.8 +50.6 60.3
19°	4 12.2 +50.0 63.0	3 40.9 +50.1 62.2	3 09.9 +50.2 61.4	2 39.0 +50.4 60.6	2 08.4 +50.6 59.8
20°	5 02.2 +49.9 62.4	4 31.0 +50.1 61.6	4 00.1 +50.3 60.9	3 29.4 +50.4 60.1	2 59.0 +50.6 59.3
21°	5 52.1 +49.9 61.9	5 21.1 +50.1 61.1	4 50.4 +50.2 60.3	4 19.8 +50.4 59.5	3 49.6 +50.5 58.7
22°	6 42.0 +49.8 61.3	6 11.2 +50.0 60.5	5 40.6 +50.2 59.8	5 10.2 +50.4 59.0	4 40.1 +50.6 58.2
23°	7 31.8 +49.8 60.8	7 01.2 +50.0 60.0	6 30.8 +50.1 59.2	6 00.6 +50.3 58.4	5 30.7 +50.5 57.7
24°	8 21.6 +49.8 60.2	7 51.2 +49.9 59.4	7 20.9 +50.1 58.7	6 50.9 +50.3 57.9	6 21.2 +50.4 57.1
25°	9 11.4 +49.7 59.6	8 41.1 +49.9 58.9	8 11.0 +50.1 58.1	7 41.2 +50.3 57.3	7 11.6 +50.5 56.6
26°	10 01.1 +49.6 59.1	9 31.0 +49.8 58.3	9 01.1 +50.0 57.5	8 31.5 +50.2 56.8	8 02.1 +50.4 56.0
27°	10 50.7 +49.6 58.5	10 20.8 +49.8 57.7	9 51.1 +50.0 57.0	9 21.7 +50.1 56.2	8 52.5 +50.3 55.5
28°	11 40.3 +49.5 57.9	11 10.6 +49.7 57.2	10 41.1 +49.8 56.4	10 11.8 +50.1 55.7	9 42.8 +50.3 54.9
29°	12 29.8 +49.5 57.3	12 00.3 +49.6 56.6	11 30.9 +49.9 55.9	11 01.9 +50.0 55.1	10 33.1 +50.2 54.4

Dec	LHA 115° / 245°	LHA 116° / 244°	LHA 117° / 243°	LHA 118° / 242°	LHA 119° / 241°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°	-9 21.1 +50.6	-9 53.2 +50.7			
7°	-8 30.5 +50.5	-9 02.5 +50.7	-9 34.2 +50.8		
8°	-7 40.0 +50.7	-8 11.8 +50.8	-8 43.4 +50.9	-9 14.7 +51.0	-9 45.9 +51.2
9°	-6 49.3 +50.6	-7 21.0 +50.8	-7 52.5 +51.0	-8 23.7 +51.1	-8 54.7 +51.3
10°	-5 58.7 +50.7	-6 30.2 +50.8	-7 01.5 +51.0	-7 32.6 +51.2	-8 03.4 +51.3
11°	-5 08.0 +50.7	-5 39.4 +50.9	-6 10.5 +51.0	-6 41.4 +51.1	-7 12.1 +51.3
12°	-4 17.3 +50.7	-4 48.5 +50.8	-5 19.5 +51.0	-5 50.3 +51.2	-6 20.8 +51.4
13°	-3 26.6 +50.8	-3 57.7 +51.0	-4 28.5 +51.1	-4 59.1 +51.3	-5 29.4 +51.4
14°	-2 35.8 +50.7	-3 06.7 +50.9	-3 37.4 +51.1	-4 07.8 +51.2	-4 38.0 +51.4
15°	-1 45.1 +50.8	-2 15.8 +50.9	-2 46.3 +51.1	-3 16.6 +51.3	-3 46.6 +51.4
16°	-0 54.3 +50.8	-1 24.9 +50.9	-1 55.2 +51.1	-2 25.3 +51.2	-2 55.2 +51.5
17°	-0 03.5 +50.8	-0 34.0 +51.0	-1 04.1 +51.1	-1 34.1 +51.3	-2 03.7 +51.4
18°	0 47.3 +50.7 59.5	0 17.0 +50.9 58.7	-0 13.0 +51.1	-0 42.8 +51.3	-1 12.3 +51.5
19°	1 38.0 +50.8 59.0	1 07.9 +51.0 58.2	0 38.1 +51.1 57.4	0 08.5 +51.3 56.6	-0 20.8 +51.5
20°	2 28.8 +50.8 58.5	1 58.9 +50.9 57.7	1 29.2 +51.1 56.9	0 59.8 +51.3 56.1	0 30.7 +51.4 55.3
21°	3 19.6 +50.7 57.9	2 49.8 +50.9 57.2	2 20.3 +51.1 56.4	1 51.1 +51.2 55.6	1 22.1 +51.5 54.8
22°	4 10.3 +50.7 57.4	3 40.7 +50.9 56.6	3 11.4 +51.1 55.8	2 42.3 +51.3 55.0	2 13.6 +51.4 54.2
23°	5 01.0 +50.7 56.9	4 31.6 +50.9 56.1	4 02.5 +51.0 55.3	3 33.6 +51.2 54.5	3 05.0 +51.5 53.7
24°	5 51.7 +50.6 56.3	5 22.5 +50.8 55.6	4 53.5 +51.1 54.8	4 24.8 +51.3 54.0	3 56.5 +51.4 53.2
25°	6 42.3 +50.7 55.8	6 13.3 +50.8 55.0	5 44.6 +51.0 54.3	5 16.1 +51.2 53.5	4 47.9 +51.4 52.7
26°	7 33.0 +50.5 55.3	7 04.1 +50.8 54.5	6 35.6 +50.9 53.7	6 07.3 +51.1 53.0	5 39.3 +51.3 52.2
27°	8 23.5 +50.6 54.7	7 54.9 +50.7 54.0	7 26.5 +50.9 53.2	6 58.4 +51.2 52.4	6 30.6 +51.3 51.7
28°	9 14.1 +50.5 54.2	8 45.6 +50.7 53.4	8 17.4 +50.9 52.7	7 49.6 +51.0 51.9	7 21.9 +51.3 51.1
29°	10 04.6 +50.4 53.6	9 36.3 +50.6 52.9	9 08.3 +50.9 52.1	8 40.6 +51.1 51.4	8 13.2 +51.3 50.6

Dec	LHA 120° / 240°	LHA 121° / 239°	LHA 122° / 238°	LHA 123° / 237°	LHA 124° / 236°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°	-9 25.4 +51.5	-9 55.8 +51.6			
10°	-8 33.9 +51.4	-9 04.2 +51.6	-9 34.2 +51.8		
11°	-7 42.5 +51.5	-8 12.6 +51.7	-8 42.4 +51.8	-9 12.0 +52.0	-9 41.3 +52.2
12°	-6 51.0 +51.5	-7 20.9 +51.7	-7 50.6 +51.9	-8 20.0 +52.0	-8 49.1 +52.2
13°	-5 59.5 +51.6	-6 29.2 +51.7	-6 58.7 +51.9	-7 28.0 +52.1	-7 56.9 +52.3
14°	-5 07.9 +51.6	-5 37.5 +51.7	-6 06.8 +51.9	-6 35.9 +52.1	-7 04.6 +52.3
15°	-4 16.3 +51.6	-4 45.8 +51.8	-5 14.9 +51.9	-5 43.8 +52.2	-6 12.3 +52.3
16°	-3 24.7 +51.6	-3 54.0 +51.8	-4 23.0 +52.0	-4 51.6 +52.1	-5 20.0 +52.3
17°	-2 33.1 +51.6	-3 02.2 +51.8	-3 31.0 +52.0	-3 59.5 +52.2	-4 27.7 +52.4
18°	-1 41.5 +51.7	-2 10.4 +51.8	-2 39.0 +52.0	-3 07.3 +52.2	-3 35.3 +52.3
19°	-0 49.8 +51.6	-1 18.6 +51.9	-1 47.0 +52.0	-2 15.1 +52.2	-2 43.0 +52.4
20°	0 01.8 +51.7 54.5	-0 26.7 +51.8	-0 55.0 +52.0	-1 22.9 +52.2	-1 50.6 +52.4
21°	0 53.5 +51.6 54.0	0 25.1 +51.8 53.2	-0 03.0 +52.0	-0 30.7 +52.2	-0 58.2 +52.4
22°	1 45.1 +51.6 53.5	1 16.9 +51.8 52.7	0 49.0 +52.1 51.8	0 21.5 +52.2 51.0	-0 05.8 +52.4
23°	2 36.7 +51.7 52.9	2 08.7 +51.9 52.1	1 41.1 +52.0 51.3	1 13.7 +52.2 50.5	0 46.6 +52.4 49.7
24°	3 28.4 +51.6 52.4	3 00.6 +51.8 51.6	2 33.1 +51.9 50.9	2 05.9 +52.1 50.1	1 39.0 +52.4 49.3
25°	4 20.0 +51.5 51.9	3 52.4 +51.7 51.1	3 25.0 +52.0 50.4	2 58.0 +52.2 49.6	2 31.4 +52.3 48.8
26°	5 11.5 +51.6 51.4	4 44.1 +51.8 50.6	4 17.0 +52.0 49.8	3 50.2 +52.2 49.1	3 23.7 +52.4 48.3
27°	6 03.1 +51.5 50.9	5 35.9 +51.7 50.1	5 09.0 +51.9 49.3	4 42.4 +52.1 48.6	4 16.1 +52.3 47.8
28°	6 54.6 +51.5 50.4	6 27.6 +51.7 49.6	6 00.9 +51.9 48.8	5 34.5 +52.1 48.1	5 08.4 +52.3 47.3
29°	7 46.1 +51.5 49.9	7 19.3 +51.7 49.1	6 52.8 +51.9 48.3	6 26.6 +52.1 47.6	6 00.7 +52.3 46.8

Dec	LHA 125° / 235°	LHA 126° / 234°	LHA 127° / 233°	LHA 128° / 232°	LHA 129° / 231°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°	-9 17.9 +52.4	-9 46.4 +52.6			
13°	-8 25.5 +52.4	-8 53.8 +52.6	-9 21.8 +52.8	-9 49.4 +53.0	
14°	-7 33.1 +52.5	-8 01.2 +52.7	-8 29.0 +52.9	-8 56.4 +53.0	-9 23.6 +53.2
15°	-6 40.6 +52.5	-7 08.5 +52.7	-7 36.1 +52.8	-8 03.4 +53.0	-8 30.4 +53.3
16°	-5 48.1 +52.5	-6 15.8 +52.7	-6 43.3 +52.9	-7 10.4 +53.1	-7 37.1 +53.2
17°	-4 55.6 +52.6	-5 23.1 +52.7	-5 50.4 +52.9	-6 17.3 +53.1	-6 43.9 +53.3
18°	-4 03.0 +52.5	-4 30.4 +52.7	-4 57.5 +53.0	-5 24.2 +53.1	-5 50.6 +53.3
19°	-3 10.5 +52.6	-3 37.7 +52.8	-4 04.5 +52.9	-4 31.1 +53.2	-4 57.3 +53.4
20°	-2 17.9 +52.6	-2 44.9 +52.7	-3 11.6 +53.0	-3 37.9 +53.1	-4 03.9 +53.3
21°	-1 25.3 +52.5	-1 52.2 +52.8	-2 18.6 +52.9	-2 44.8 +53.2	-3 10.6 +53.4
22°	-0 32.8 +52.6	-0 59.4 +52.8	-1 25.7 +53.0	-1 51.6 +53.2	-2 17.2 +53.3
23°	0 19.8 +52.6 48.9	-0 06.6 +52.8	-0 32.7 +53.0	-0 58.4 +53.1	-1 23.9 +53.4
24°	1 12.4 +52.6 48.5	0 46.2 +52.8 47.7	0 20.3 +53.0 46.9	-0 05.3 +53.2	-0 30.5 +53.4
25°	2 05.0 +52.6 48.0	1 39.0 +52.7 47.2	1 13.3 +52.9 46.4	0 47.9 +53.2 45.6	0 22.9 +53.4 44.8
26°	2 57.6 +52.5 47.5	2 31.7 +52.8 46.7	2 06.2 +53.0 45.9	1 41.1 +53.1 45.1	1 16.3 +53.3 44.3
27°	3 50.1 +52.6 47.0	3 24.5 +52.7 46.2	2 59.2 +52.9 45.4	2 34.2 +53.2 44.7	2 09.6 +53.4 43.9
28°	4 42.7 +52.5 46.5	4 17.2 +52.8 45.8	3 52.1 +53.0 45.0	3 27.4 +53.1 44.2	3 03.0 +53.3 43.4
29°	5 35.2 +52.5 46.0	5 10.0 +52.7 45.3	4 45.1 +52.9 44.5	4 20.5 +53.2 43.7	3 56.3 +53.4 42.9

Dec	LHA 130° / 230°	LHA 131° / 229°	LHA 132° / 228°	LHA 133° / 227°	LHA 134° / 226°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°	-9 50.3 +53.3				
15°	-8 57.0 +53.5	-9 23.2 +53.6	-9 49.1 +53.8		
16°	-8 03.5 +53.4	-8 29.6 +53.7	-8 55.3 +53.9	-9 20.6 +54.0	-9 45.5 +54.2
17°	-7 10.1 +53.5	-7 35.9 +53.6	-8 01.4 +53.8	-8 26.6 +54.1	-8 51.3 +54.2
18°	-6 16.6 +53.5	-6 42.3 +53.7	-7 07.6 +53.9	-7 32.5 +54.1	-7 57.1 +54.3
19°	-5 23.1 +53.5	-5 48.6 +53.7	-6 13.7 +53.9	-6 38.4 +54.1	-7 02.8 +54.3
20°	-4 29.6 +53.6	-4 54.9 +53.8	-5 19.8 +53.9	-5 44.3 +54.1	-6 08.5 +54.3
21°	-3 36.0 +53.5	-4 01.1 +53.7	-4 25.9 +54.0	-4 50.2 +54.1	-5 14.2 +54.4
22°	-2 42.5 +53.6	-3 07.4 +53.8	-3 31.9 +53.9	-3 56.1 +54.2	-4 19.8 +54.3
23°	-1 48.9 +53.6	-2 13.6 +53.7	-2 38.0 +54.0	-3 01.9 +54.1	-3 25.5 +54.4
24°	-0 55.3 +53.5	-1 19.9 +53.8	-1 44.0 +54.0	-2 07.8 +54.2	-2 31.1 +54.3
25°	-0 01.8 +53.6	-0 26.1 +53.8	-0 50.0 +54.0	-1 13.6 +54.2	-1 36.8 +54.4
26°	0 51.8 +53.6 43.5	0 27.7 +53.8 42.7	0 04.0 +53.9 41.9	-0 19.4 +54.2	-0 42.4 +54.4
27°	1 45.4 +53.5 43.1	1 21.5 +53.7 42.3	0 57.9 +54.0 41.5	0 34.8 +54.1 40.7	0 12.0 +54.3 39.9
28°	2 38.9 +53.6 42.6	2 15.2 +53.8 41.8	1 51.9 +54.0 41.0	1 28.9 +54.2 40.2	1 06.3 +54.4 39.4
29°	3 32.5 +53.5 42.2	3 09.0 +53.7 41.4	2 45.9 +53.9 40.6	2 23.1 +54.1 39.8	2 00.7 +54.4 39.0

Dec	LHA 135° / 225°	LHA 136° / 224°	LHA 137° / 223°	LHA 138° / 222°	LHA 139° / 221°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°	-9 15.7 +54.5	-9 39.6 +54.6			
18°	-8 21.2 +54.4	-8 45.0 +54.7	-9 08.4 +54.9	-9 31.3 +55.0	-9 53.9 +55.2
19°	-7 26.8 +54.5	-7 50.3 +54.6	-8 13.5 +54.8	-8 36.3 +55.1	-8 58.7 +55.3
20°	-6 32.3 +54.5	-6 55.7 +54.7	-7 18.7 +54.9	-7 41.2 +55.0	-8 03.4 +55.3
21°	-5 37.8 +54.6	-6 01.0 +54.8	-6 23.8 +54.9	-6 46.2 +55.1	-7 08.1 +55.3
22°	-4 43.2 +54.5	-5 06.2 +54.7	-5 28.9 +55.0	-5 51.1 +55.2	-6 12.8 +55.3
23°	-3 48.7 +54.5	-4 11.5 +54.7	-4 33.9 +54.9	-4 55.9 +55.1	-5 17.5 +55.3
24°	-2 54.2 +54.6	-3 16.8 +54.8	-3 39.0 +55.0	-4 00.8 +55.1	-4 22.2 +55.3
25°	-1 59.6 +54.6	-2 22.0 +54.8	-2 44.0 +54.9	-3 05.7 +55.2	-3 26.9 +55.4
26°	-1 05.0 +54.5	-1 27.2 +54.7	-1 49.1 +55.0	-2 10.5 +55.2	-2 31.5 +55.3
27°	-0 10.5 +54.6	-0 32.5 +54.8	-0 54.1 +55.0	-1 15.3 +55.1	-1 36.2 +55.4
28°	0 44.1 +54.6 38.6	0 22.3 +54.8 37.8	0 00.9 +54.9 37.0	-0 20.2 +55.2	-0 40.8 +55.3
29°	1 38.7 +54.6 38.2	1 17.1 +54.7 37.4	0 55.8 +55.0 36.6	0 35.0 +55.1 35.8	0 14.5 +55.4 35.0

Dec	LHA 140° / 220°	LHA 141° / 219°	LHA 142° / 218°	LHA 143° / 217°	LHA 144° / 216°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°	-9 20.6 +55.4				
20°	-8 25.2 +55.5				
21°	-7 29.7 +55.5				
22°	-6 34.2 +55.5				
23°	-5 38.7 +55.5				
24°	-4 43.2 +55.5				
25°	-3 47.7 +55.6				
26°	-2 52.1 +55.5				
27°	-1 56.6 +55.6				
28°	-1 01.0 +55.5				
29°	-0 05.5 +55.6				

Dec	LHA 145° / 215°	LHA 146° / 214°	LHA 147° / 213°	LHA 148° / 212°	LHA 149° / 211°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
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26°					
27°					
28°					
29°					



Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	35 00.0 +60.0 180.0	34 59.6 +60.0 178.8	34 58.5 +60.0 177.6	34 56.7 +60.0 176.3	34 54.1 +60.0 175.1
1°	36 00.0 +60.0 180.0	35 59.6 +60.0 178.8	35 58.5 +60.0 177.5	35 56.7 +59.9 176.3	35 54.1 +59.9 175.1
2°	37 00.0 +60.0 180.0	36 59.6 +60.0 178.7	36 58.5 +60.0 177.5	36 56.6 +60.0 176.2	36 54.0 +59.9 175.0
3°	38 00.0 +60.0 180.0	37 59.6 +60.0 178.7	37 58.5 +60.0 177.5	37 56.6 +59.9 176.2	37 53.9 +59.9 174.9
4°	39 00.0 +60.0 180.0	38 59.6 +60.0 178.7	38 58.5 +59.9 177.4	38 56.5 +60.0 176.2	38 53.8 +60.0 174.9
5°	40 00.0 +60.0 180.0	39 59.6 +60.0 178.7	39 58.4 +60.0 177.4	39 56.5 +59.9 176.1	39 53.8 +59.9 174.8
6°	41 00.0 +60.0 180.0	40 59.6 +60.0 178.7	40 58.4 +60.0 177.4	40 56.4 +60.0 176.0	40 53.7 +59.9 174.7
7°	42 00.0 +60.0 180.0	41 59.6 +60.0 178.7	41 58.4 +60.0 177.3	41 56.4 +59.9 176.0	41 53.6 +59.9 174.7
8°	43 00.0 +60.0 180.0	42 59.6 +60.0 178.6	42 58.4 +60.0 177.3	42 56.3 +60.0 175.9	42 53.5 +59.9 174.6
9°	44 00.0 +60.0 180.0	43 59.6 +60.0 178.6	43 58.4 +59.9 177.3	43 56.3 +59.9 175.9	43 53.4 +59.9 174.5
10°	45 00.0 +60.0 180.0	44 59.6 +60.0 178.6	44 58.3 +60.0 177.2	44 56.2 +60.0 175.8	44 53.3 +59.9 174.4
11°	46 00.0 +60.0 180.0	45 59.6 +60.0 178.6	45 58.3 +60.0 177.2	45 56.2 +59.9 175.8	45 53.2 +59.9 174.4
12°	47 00.0 +60.0 180.0	46 59.6 +60.0 178.6	46 58.3 +60.0 177.1	46 56.1 +60.0 175.7	46 53.1 +59.9 174.3
13°	48 00.0 +60.0 180.0	47 59.6 +60.0 178.5	47 58.3 +59.9 177.1	47 56.1 +59.9 175.6	47 53.0 +59.9 174.2
14°	49 00.0 +60.0 180.0	48 59.6 +59.9 178.5	48 58.2 +60.0 177.0	48 56.0 +59.9 175.6	48 52.9 +59.9 174.1
15°	50 00.0 +60.0 180.0	49 59.5 +60.0 178.5	49 58.2 +60.0 177.0	49 55.9 +60.0 175.5	49 52.8 +59.9 174.0
16°	51 00.0 +60.0 180.0	50 59.5 +60.0 178.5	50 58.2 +59.9 176.9	50 55.9 +59.9 175.4	50 52.7 +59.8 173.9
17°	52 00.0 +60.0 180.0	51 59.5 +60.0 178.4	51 58.1 +60.0 176.9	51 55.8 +59.9 175.3	51 52.5 +59.9 173.8
18°	53 00.0 +60.0 180.0	52 59.5 +60.0 178.4	52 58.1 +60.0 176.8	52 55.7 +60.0 175.3	52 52.4 +59.9 173.7
19°	54 00.0 +60.0 180.0	53 59.5 +60.0 178.4	53 58.1 +59.9 176.8	53 55.7 +59.9 175.2	53 52.3 +59.8 173.6
20°	55 00.0 +60.0 180.0	54 59.5 +60.0 178.4	54 58.0 +60.0 176.7	54 55.6 +59.9 175.1	54 52.1 +59.9 173.5
21°	56 00.0 +60.0 180.0	55 59.5 +60.0 178.3	55 58.0 +60.0 176.7	55 55.5 +59.9 175.0	55 52.0 +59.8 173.3
22°	57 00.0 +60.0 180.0	56 59.5 +60.0 178.3	56 58.0 +59.9 176.6	56 55.4 +59.9 174.9	56 51.8 +59.9 173.2
23°	58 00.0 +60.0 180.0	57 59.5 +60.0 178.3	57 57.9 +60.0 176.5	57 55.3 +59.9 174.8	57 51.7 +59.8 173.1
24°	59 00.0 +60.0 180.0	58 59.5 +60.0 178.2	58 57.9 +59.9 176.5	58 55.2 +59.9 174.7	58 51.5 +59.8 172.9
25°	60 00.0 +60.0 180.0	59 59.5 +59.9 178.2	59 57.8 +60.0 176.4	59 55.1 +59.9 174.6	59 51.3 +59.8 172.8
26°	61 00.0 +60.0 180.0	60 59.4 +60.0 178.1	60 57.8 +59.9 176.3	60 55.0 +59.9 174.4	60 51.1 +59.8 172.6
27°	62 00.0 +60.0 180.0	61 59.4 +60.0 178.1	61 57.7 +60.0 176.2	61 54.9 +59.9 174.3	61 50.9 +59.8 172.4
28°	63 00.0 +60.0 180.0	62 59.4 +60.0 178.1	62 57.7 +59.9 176.1	62 54.8 +59.8 174.2	62 50.7 +59.7 172.2
29°	64 00.0 +60.0 180.0	63 59.4 +60.0 178.0	63 57.6 +59.9 176.0	63 54.6 +59.9 174.0	63 50.4 +59.8 172.0

Dec	LHA 005° / 355°	LHA 006° / 354°	LHA 007° / 353°	LHA 008° / 352°	LHA 009° / 351°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	34 50.8 +59.9 173.9	34 46.8 +59.9 172.7	34 42.1 +59.8 171.5	34 36.6 +59.7 170.3	34 30.5 +59.6 169.1
1°	35 50.7 +59.9 173.8	35 46.7 +59.8 172.6	35 41.9 +59.7 171.4	35 36.3 +59.7 170.1	35 30.1 +59.6 168.9
2°	36 50.6 +59.9 173.8	36 46.5 +59.8 172.5	36 41.6 +59.8 171.3	36 36.0 +59.7 170.0	36 29.7 +59.6 168.8
3°	37 50.5 +59.9 173.7	37 46.3 +59.9 172.4	37 41.4 +59.8 171.2	37 35.7 +59.7 169.9	37 29.3 +59.7 168.6
4°	38 50.4 +59.9 173.6	38 46.2 +59.8 172.3	38 41.2 +59.7 171.0	38 35.4 +59.7 169.8	38 29.0 +59.6 168.5
5°	39 50.3 +59.8 173.5	39 46.0 +59.8 172.2	39 40.9 +59.8 170.9	39 35.1 +59.7 169.6	39 28.6 +59.5 168.4
6°	40 50.1 +59.9 173.4	40 45.8 +59.8 172.1	40 40.7 +59.7 170.8	40 34.8 +59.7 169.5	40 28.1 +59.6 168.2
7°	41 50.0 +59.9 173.3	41 45.6 +59.8 172.0	41 40.4 +59.8 170.7	41 34.5 +59.6 169.4	41 27.7 +59.6 168.0
8°	42 49.9 +59.8 173.2	42 45.4 +59.8 171.9	42 40.2 +59.7 170.6	42 34.1 +59.6 169.2	42 27.3 +59.5 167.9
9°	43 49.7 +59.9 173.1	43 45.2 +59.8 171.8	43 39.9 +59.7 170.4	43 33.7 +59.7 169.1	43 26.8 +59.6 167.7
10°	44 49.6 +59.8 173.0	44 45.0 +59.8 171.7	44 39.6 +59.7 170.3	44 33.4 +59.6 168.9	44 26.4 +59.5 167.5
11°	45 49.4 +59.9 172.9	45 44.8 +59.7 171.5	45 39.3 +59.7 170.1	45 33.0 +59.6 168.8	45 25.9 +59.5 167.4
12°	46 49.3 +59.8 172.8	46 44.5 +59.8 171.4	46 39.0 +59.7 170.0	46 32.6 +59.6 168.6	46 25.4 +59.4 167.2
13°	47 49.1 +59.8 172.7	47 44.3 +59.8 171.3	47 38.7 +59.6 169.8	47 32.2 +59.6 168.4	47 24.8 +59.5 167.0
14°	48 48.9 +59.8 172.6	48 44.1 +59.7 171.2	48 38.3 +59.7 169.7	48 31.8 +59.5 168.2	48 24.3 +59.4 166.8
15°	49 48.7 +59.9 172.5	49 43.8 +59.7 171.0	49 38.0 +59.6 169.5	49 31.3 +59.5 168.0	49 23.7 +59.5 166.6
16°	50 48.6 +59.8 172.4	50 43.5 +59.8 170.9	50 37.6 +59.7 169.4	50 30.8 +59.6 167.9	50 23.2 +59.4 166.4
17°	51 48.4 +59.8 172.3	51 43.3 +59.7 170.7	51 37.3 +59.6 169.2	51 30.4 +59.4 167.7	51 22.6 +59.3 166.1
18°	52 48.2 +59.8 172.1	52 43.0 +59.7 170.6	52 36.9 +59.6 169.0	52 29.8 +59.5 167.4	52 21.9 +59.3 165.9
19°	53 48.0 +59.7 172.0	53 42.7 +59.7 170.4	53 36.5 +59.5 168.8	53 29.3 +59.5 167.2	53 21.2 +59.4 165.7
20°	54 47.7 +59.8 171.8	54 42.4 +59.6 170.2	54 36.0 +59.6 168.6	54 28.8 +59.4 167.0	54 20.6 +59.2 165.4
21°	55 47.5 +59.8 171.7	55 42.0 +59.7 170.0	55 35.6 +59.5 168.4	55 28.2 +59.4 166.7	55 19.8 +59.2 165.1
22°	56 47.3 +59.7 171.5	56 41.7 +59.6 169.8	56 35.1 +59.5 168.2	56 27.6 +59.3 166.5	56 19.0 +59.2 164.8
23°	57 47.0 +59.7 171.3	57 41.3 +59.6 169.6	57 34.6 +59.5 167.9	57 26.9 +59.3 166.2	57 18.2 +59.2 164.5
24°	58 46.7 +59.7 171.2	58 40.9 +59.6 169.4	58 34.1 +59.4 167.7	58 26.2 +59.3 165.9	58 17.4 +59.1 164.2
25°	59 46.4 +59.7 171.0	59 40.5 +59.6 169.2	59 33.5 +59.4 167.4	59 25.5 +59.2 165.6	59 16.5 +59.0 163.9
26°	60 46.1 +59.7 170.8	60 40.1 +59.5 168.9	60 32.9 +59.4 167.1	60 24.7 +59.2 165.3	60 15.5 +59.0 163.5
27°	61 45.8 +59.7 170.6	61 39.6 +59.5 168.7	61 32.3 +59.3 166.8	61 23.9 +59.2 165.0	61 14.5 +59.0 163.2
28°	62 45.5 +59.6 170.3	62 39.1 +59.5 168.4	62 31.6 +59.3 166.5	62 23.1 +59.0 164.6	62 13.4 +58.8 162.8
29°	63 45.1 +59.6 170.1	63 38.6 +59.4 168.1	63 30.9 +59.3 166.2	63 22.1 +59.0 164.2	63 12.2 +58.8 162.3

Dec	LHA 010° / 350°	LHA 011° / 349°	LHA 012° / 348°	LHA 013° / 347°	LHA 014° / 346°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	34 23.6 +59.5 167.9	34 16.0 +59.4 166.7	34 07.7 +59.3 165.5	33 58.7 +59.2 164.3	33 49.0 +59.2 163.1
1°	35 23.1 +59.6 167.7	35 15.4 +59.5 166.5	35 07.0 +59.4 165.3	34 57.9 +59.3 164.1	34 48.2 +59.1 162.9
2°	36 22.7 +59.5 167.6	36 14.9 +59.4 166.3	36 06.4 +59.3 165.1	35 57.2 +59.2 163.9	35 47.3 +59.1 162.7
3°	37 22.2 +59.5 167.4	37 14.3 +59.4 166.2	37 05.7 +59.3 164.9	36 56.4 +59.2 163.7	36 46.4 +59.1 162.4
4°	38 21.7 +59.5 167.2	38 13.7 +59.5 166.0	38 05.0 +59.3 164.7	37 55.6 +59.2 163.5	37 45.5 +59.0 162.2
5°	39 21.2 +59.5 167.1	39 13.2 +59.3 165.8	39 04.3 +59.3 164.5	38 54.8 +59.2 163.3	38 44.5 +59.1 162.0
6°	40 20.7 +59.5 166.9	40 12.5 +59.4 165.6	40 03.6 +59.3 164.3	39 54.0 +59.1 163.0	39 43.6 +59.0 161.8
7°	41 20.2 +59.5 166.7	41 11.9 +59.4 165.4	41 02.9 +59.2 164.1	40 53.1 +59.1 162.8	40 42.6 +58.9 161.5
8°	42 19.7 +59.4 166.6	42 11.3 +59.3 165.2	42 02.1 +59.2 163.9	41 52.2 +59.1 162.6	41 41.5 +59.0 161.3
9°	43 19.1 +59.4 166.4	43 10.6 +59.3 165.0	43 01.3 +59.2 163.7	42 51.3 +59.0 162.4	42 40.5 +58.9 161.0
10°	44 18.5 +59.4 166.2	44 09.9 +59.3 164.8	44 00.5 +59.2 163.5	43 50.3 +59.0 162.1	43 39.4 +58.8 160.8
11°	45 17.9 +59.4 166.0	45 09.2 +59.3 164.6	44 59.7 +59.1 163.2	44 49.3 +59.0 161.9	44 38.2 +58.9 160.5
12°	46 17.3 +59.4 165.8	46 08.5 +59.2 164.4	45 58.8 +59.1 163.0	45 48.3 +59.0 161.6	45 37.1 +58.7 160.2
13°	47 16.7 +59.3 165.6	47 07.7 +59.2 164.1	46 57.9 +59.0 162.7	46 47.3 +58.9 161.3	46 35.8 +58.8 159.9
14°	48 16.0 +59.3 165.3	48 06.9 +59.2 163.9	47 56.9 +59.1 162.5	47 46.2 +58.8 161.0	47 34.6 +58.7 159.6
15°	49 15.3 +59.3 165.1	49 06.1 +59.1 163.7	48 56.0 +58.9 162.2	48 45.0 +58.8 160.8	48 33.3 +58.6 159.3
16°	50 14.6 +59.3 164.9	50 05.2 +59.1 163.4	49 54.9 +59.0 161.9	49 43.8 +58.8 160.5	49 31.9 +58.6 159.0
17°	51 13.9 +59.2 164.6	51 04.3 +59.1 163.1	50 53.9 +58.9 161.6	50 42.6 +58.7 160.1	50 30.5 +58.5 158.7
18°	52 13.1 +59.2 164.4	52 03.4 +59.0 162.8	51 52.8 +58.8 161.3	51 41.3 +58.7 159.8	51 29.0 +58.5 158.3
19°	53 12.3 +59.1 164.1	53 02.4 +59.0 162.5	52 51.6 +58.8 161.0	52 40.0 +58.6 159.5	52 27.5 +58.4 158.0
20°	54 11.4 +59.1 163.8	54 01.4 +58.9 162.2	53 50.4 +58.7 160.7	53 38.6 +58.5 159.1	53 25.9 +58.3 157.6
21°	55 10.5 +59.1 163.5	55 00.3 +58.9 161.9	54 49.1 +58.7 160.3	54 37.1 +58.5 158.7	54 24.2 +58.2 157.2
22°	56 09.6 +59.0 163.2	55 59.2 +58.8 161.6	55 47.8 +58.6 159.9	55 35.6 +58.3 158.3	55 22.4 +58.1 156.7
23°	57 08.6 +58.9 162.9	56 58.0 +58.7 161.2	56 46.4 +58.5 159.6	56 33.9 +58.3 157.9	56 20.5 +58.1 156.3
24°	58 07.5 +58.9 162.5	57 56.7 +58.7 160.8	57 44.9 +58.5 159.1	57 32.2 +58.2 157.5	57 18.6 +57.9 155.8
25°	59 06.4 +58.8 162.2	58 55.4 +58.6 160.4	58 43.4 +58.3 158.7	58 30.4 +58.1 157.0	58 16.5 +57.8 155.4
26°	60 05.2 +58.8 161.8	59 54.0 +58.5 160.0	59 41.7 +58.3 158.3	59 28.5 +58.0 156.5	59 14.3 +57.7 154.8
27°	61 04.0 +58.7 161.3	60 52.5 +58.4 159.6	60 40.0 +58.1 157.8	60 26.5 +57.8 156.0	60 12.0 +57.6 154.3
28°	62 02.7 +58.6 160.9	61 50.9 +58.3 159.1	61 38.1 +58.0 157.3	61 24.3 +57.7 155.5	61 09.6 +57.3 153.7
29°	63 01.3 +58.4 160.4	62 49.2 +58.2 158.6	62 36.1 +57.9 156.7	62 22.0 +57.6 154.9	62 06.9 +57.2 153.1

Dec	LHA 015° / 345°	LHA 016° / 344°	LHA 017° / 343°	LHA 018° / 342°	LHA 019° / 341°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	33 38.6 +59.1 161.9	33 27.6 +58.9 160.7	33 15.9 +58.8 159.5	33 03.5 +58.7 158.4	32 50.5 +58.5 157.2
1°	34 37.7 +59.0 161.7	34 26.5 +58.9 160.5	34 14.7 +58.7 159.3	34 02.2 +58.6 158.1	33 49.0 +58.5 156.9
2°	35 36.7 +59.0 161.4	35 25.4 +58.8 160.2	35 13.4 +58.7 159.0	35 00.8 +58.5 157.8	34 47.5 +58.4 156.7
3°	36 35.7 +58.9 161.2	36 24.2 +58.8 160.0	36 12.1 +58.7 158.8	35 59.3 +58.6 157.6	35 45.9 +58.3 156.4
4°	37 34.6 +58.9 161.0	37 23.0 +58.8 159.8	37 10.8 +58.6 158.5	36 57.9 +58.4 157.3	36 44.2 +58.4 156.1
5°	38 33.5 +58.9 160.7	38 21.8 +58.8 159.5	38 09.4 +58.6 158.3	37 56.3 +58.5 157.0	37 42.6 +58.2 155.8
6°	39 32.4 +58.9 160.5	39 20.6 +58.7 159.2	39 08.0 +58.6 158.0	38 54.8 +58.4 156.7	38 40.8 +58.3 155.5
7°	40 31.3 +58.8 160.2	40 19.3 +58.7 159.0	40 06.6 +58.5 157.7	39 53.2 +58.3 156.4	39 39.1 +58.2 155.2
8°	41 30.1 +58.8 160.0	41 18.0 +58.6 158.7	41 05.1 +58.5 157.4	40 51.5 +58.3 156.1	40 37.3 +58.1 154.9
9°	42 28.9 +58.8 159.7	42 16.6 +58.6 158.4	42 03.6 +58.4 157.1	41 49.8 +58.3 155.8	41 35.4 +58.1 154.5
10°	43 27.7 +58.7 159.4	43 15.2 +58.5 158.1	43 02.0 +58.4 156.8	42 48.1 +58.2 155.5	42 33.5 +58.0 154.2
11°	44 26.4 +58.6 159.2	44 13.7 +58.5 157.8	44 00.4 +58.3 156.5	43 46.3 +58.1 155.2	43 31.5 +57.9 153.8
12°	45 25.0 +58.6 158.9	45 12.2 +58.5 157.5	44 58.7 +58.3 156.2	44 44.4 +58.1 154.8	44 29.4 +57.9 153.5
13°	46 23.6 +58.6 158.6	46 10.7 +58.4 157.2	45 57.0 +58.2 155.8	45 42.5 +58.0 154.5	45 27.3 +57.8 153.1
14°	47 22.2 +58.5 158.2	47 09.1 +58.3 156.8	46 55.2 +58.1 155.5	46 40.5 +57.9 154.1	46 25.1 +57.7 152.7
15°	48 20.7 +58.5 157.9	48 07.4 +58.3 156.5	47 53.3 +58.0 155.1	47 38.4 +57.9 153.7	47 22.8 +57.6 152.3
16°	49 19.2 +58.4 157.6	49 05.7 +58.1 156.1	48 51.3 +58.0 154.7	48 36.3 +57.7 153.3	48 20.4 +57.6 151.9
17°	50 17.6 +58.3 157.2	50 03.8 +58.2 155.8	49 49.3 +57.9 154.3	49 34.0 +57.7 152.9	49 18.0 +57.4 151.5
18°	51 15.9 +58.2 156.8	51 02.0 +58.0 155.4	50 47.2 +57.8 153.9	50 31.7 +57.6 152.5	50 15.4 +57.3 151.0
19°	52 14.1 +58.2 156.4	52 00.0 +57.9 155.0	51 45.0 +57.7 153.5	51 29.3 +57.4 152.0	51 12.7 +57.2 150.6
20°	53 12.3 +58.1 156.0	52 57.9 +57.9 154.5	52 42.7 +57.6 153.0	52 26.7 +57.4 151.5	52 09.9 +57.1 150.1
21°	54 10.4 +58.0 155.6	53 55.8 +57.7 154.1	53 40.3 +57.5 152.6	53 24.1 +57.2 151.1	53 07.0 +57.0 149.6
22°	55 08.4 +57.9 155.2	54 53.5 +57.6 153.6	54 37.8 +57.4 152.1	54 21.3 +57.1 150.6	54 04.0 +56.8 149.0
23°	56 06.3 +57.8 154.7	55 51.1 +57.6 153.1	55 35.2 +57.2 151.6	55 18.4 +56.9 150.0	55 00.8 +56.6 148.5
24°	57 04.1 +57.6 154.2	56 48.7 +57.3 152.6	56 32.4 +57.1 151.0	56 15.3 +56.8 149.5	55 57.4 +56.5 147.9
25°	58 01.7 +57.5 153.7	57 46.0 +57.3 152.1	57 29.5 +56.9 150.5	57 12.1 +56.6 148.9	56 53.9 +56.3 147.3
26°	58 59.2 +57.4 153.2	58 43.3 +57.0 151.5	58 26.4 +56.8 149.9	58 08.7 +56.4 148.2	57 50.2 +56.1 146.7
27°	59 56.6 +57.2 152.6	59 40.3 +56.9 150.9	59 23.2 +56.5 149.2	59 05.1 +56.2 147.6	58 46.3 +55.8 146.0
28°	60 53.8 +57.1 152.0	60 37.2 +56.7 150.3	60 19.7 +56.4 148.6	60 01.3 +56.0 146.9	59 42.1 +55.6 145.3
29°	61 50.9 +56.8 151.3	61 33.9 +56.5 149.6	61 16.1 +56.1 147.9	60 57.3 +55.7 146.2	60 37.7 +55.4 144.5

# Declination SAME name as Latitude

# Latitude 55°

Dec	LHA 020° / 340°	LHA 021° / 339°	LHA 022° / 338°	LHA 023° / 337°	LHA 024° / 336°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	32 36.9 +58.3 156.0	32 22.6 +58.2 154.9	32 07.7 +58.0 153.7	31 52.1 +57.9 152.6	31 36.0 +57.7 151.5
1°	33 35.2 +58.3 155.8	33 20.8 +58.1 154.6	33 05.7 +58.0 153.4	32 50.0 +57.8 152.3	32 33.7 +57.6 151.1
2°	34 33.5 +58.3 155.5	34 18.9 +58.1 154.3	34 03.7 +57.9 153.1	33 47.8 +57.7 152.0	33 31.3 +57.6 150.8
3°	35 31.8 +58.2 155.2	35 17.0 +58.0 154.0	35 01.6 +57.9 152.8	34 45.5 +57.7 151.6	34 28.9 +57.5 150.5
4°	36 30.0 +58.1 154.9	36 15.0 +58.0 153.7	35 59.5 +57.8 152.5	35 43.2 +57.7 151.3	35 26.4 +57.5 150.1
5°	37 28.1 +58.1 154.6	37 13.0 +58.0 153.4	36 57.3 +57.7 152.2	36 40.9 +57.6 151.0	36 23.9 +57.4 149.8
6°	38 26.2 +58.1 154.3	38 11.0 +57.8 153.0	37 55.0 +57.7 151.8	37 38.5 +57.5 150.6	37 21.3 +57.3 149.4
7°	39 24.3 +58.0 153.9	39 08.8 +57.9 152.7	38 52.7 +57.7 151.5	38 36.0 +57.4 150.2	38 18.6 +57.2 149.0
8°	40 22.3 +58.0 153.6	40 06.7 +57.7 152.4	39 50.4 +57.5 151.1	39 33.4 +57.4 149.9	39 15.8 +57.2 148.7
9°	41 20.3 +57.8 153.3	41 04.4 +57.7 152.0	40 47.9 +57.5 150.7	40 30.8 +57.3 149.5	40 13.0 +57.1 148.3
10°	42 18.1 +57.9 152.9	42 02.1 +57.6 151.6	41 45.4 +57.5 150.4	41 28.1 +57.2 149.1	41 10.1 +57.0 147.9
11°	43 16.0 +57.7 152.5	42 59.7 +57.6 151.3	42 42.9 +57.3 150.0	42 25.3 +57.1 148.7	42 07.1 +56.9 147.4
12°	44 13.7 +57.7 152.2	43 57.3 +57.4 150.9	43 40.2 +57.2 149.6	43 22.4 +57.0 148.3	43 04.0 +56.8 147.0
13°	45 11.4 +57.6 151.8	44 54.7 +57.4 150.5	44 37.4 +57.2 149.1	44 19.4 +57.0 147.8	44 00.8 +56.7 146.6
14°	46 09.0 +57.5 151.4	45 52.1 +57.3 150.0	45 34.6 +57.0 148.7	45 16.4 +56.8 147.4	44 57.5 +56.6 146.1
15°	47 06.5 +57.4 151.0	46 49.4 +57.2 149.6	46 31.6 +57.0 148.3	46 13.2 +56.7 146.9	45 54.1 +56.5 145.6
16°	48 03.9 +57.3 150.5	47 46.6 +57.0 149.2	47 28.6 +56.8 147.8	47 09.9 +56.6 146.5	46 50.6 +56.3 145.1
17°	49 01.2 +57.2 150.1	48 43.6 +57.0 148.7	48 25.4 +56.7 147.3	48 06.5 +56.4 146.0	47 46.9 +56.2 144.6
18°	49 58.4 +57.0 149.6	49 40.6 +56.8 148.2	49 22.1 +56.6 146.8	49 02.9 +56.4 145.5	48 43.1 +56.0 144.1
19°	50 55.4 +57.0 149.1	50 37.4 +56.7 147.7	50 18.7 +56.4 146.3	49 59.3 +56.1 144.9	49 39.1 +55.9 143.6
20°	51 52.4 +56.8 148.6	51 34.1 +56.6 147.2	51 15.1 +56.3 145.8	50 55.4 +56.0 144.4	50 35.0 +55.7 143.0
21°	52 49.2 +56.7 148.1	52 30.7 +56.4 146.7	52 11.4 +56.1 145.2	51 51.4 +55.8 143.8	51 30.7 +55.6 142.4
22°	53 45.9 +56.5 147.6	53 27.1 +56.2 146.1	53 07.5 +55.9 144.6	52 47.2 +55.7 143.2	52 26.3 +55.3 141.8
23°	54 42.4 +56.4 147.0	54 23.3 +56.0 145.5	54 03.4 +55.8 144.0	53 42.9 +55.4 142.6	53 21.6 +55.1 141.1
24°	55 38.8 +56.1 146.4	55 19.3 +55.9 144.9	54 59.2 +55.5 143.4	54 38.3 +55.2 141.9	54 16.7 +54.9 140.5
25°	56 34.9 +56.0 145.7	56 15.2 +55.6 144.2	55 54.7 +55.3 142.7	55 33.5 +55.0 141.2	55 11.6 +54.6 139.8
26°	57 30.9 +55.7 145.1	57 10.8 +55.4 143.5	56 50.0 +55.0 142.0	56 28.5 +54.7 140.5	56 06.2 +54.4 139.0
27°	58 26.6 +55.5 144.4	58 06.2 +55.1 142.8	57 45.0 +54.8 141.3	57 23.2 +54.4 139.8	57 00.6 +54.1 138.3
28°	59 22.1 +55.3 143.7	59 01.3 +54.9 142.1	58 39.8 +54.5 140.5	58 17.6 +54.1 139.0	57 54.7 +53.7 137.5
29°	60 17.4 +54.9 142.9	59 56.2 +54.6 141.3	59 34.3 +54.2 139.7	59 11.7 +53.8 138.1	58 48.4 +53.4 136.6

Dec	LHA 025° / 335°	LHA 026° / 334°	LHA 027° / 333°	LHA 028° / 332°	LHA 029° / 331°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	31 19.3 +57.5 150.3	31 02.0 +57.3 149.2	30 44.1 +57.1 148.1	30 25.6 +57.0 147.0	30 06.6 +56.8 145.9
1°	32 16.8 +57.4 150.0	31 59.3 +57.3 148.9	31 41.2 +57.1 147.8	31 22.6 +56.9 146.6	31 03.4 +56.7 145.5
2°	33 14.2 +57.4 149.7	32 56.6 +57.2 148.5	32 38.3 +57.0 147.4	32 19.5 +56.8 146.3	32 00.1 +56.6 145.2
3°	34 11.6 +57.4 149.3	33 53.8 +57.1 148.2	33 35.3 +57.0 147.0	33 16.3 +56.8 145.9	32 56.7 +56.6 144.8
4°	35 09.0 +57.2 149.0	34 50.9 +57.1 147.8	34 32.3 +56.9 146.6	34 13.1 +56.7 145.5	33 53.3 +56.5 144.4
5°	36 06.2 +57.2 148.6	35 48.0 +57.0 147.4	35 29.2 +56.8 146.3	35 09.8 +56.6 145.1	34 49.8 +56.4 144.0
6°	37 03.4 +57.2 148.2	36 45.0 +56.9 147.0	36 26.0 +56.7 145.9	36 06.4 +56.5 144.7	35 46.2 +56.3 143.5
7°	38 00.6 +57.0 147.8	37 41.9 +56.9 146.6	37 22.7 +56.7 145.5	37 02.9 +56.5 144.3	36 42.5 +56.3 143.1
8°	38 57.6 +57.0 147.4	38 38.8 +56.8 146.2	38 19.4 +56.5 145.0	37 59.4 +56.3 143.9	37 38.8 +56.1 142.7
9°	39 54.6 +56.9 147.0	39 35.6 +56.6 145.8	39 15.9 +56.5 144.6	38 55.7 +56.2 143.4	38 34.9 +56.0 142.2
10°	40 51.5 +56.8 146.6	40 32.2 +56.6 145.4	40 12.4 +56.3 144.2	39 51.9 +56.2 143.0	39 30.9 +55.9 141.8
11°	41 48.3 +56.6 146.2	41 28.8 +56.5 144.9	41 08.7 +56.3 143.7	40 48.1 +56.0 142.5	40 26.8 +55.8 141.3
12°	42 44.9 +56.6 145.7	42 25.3 +56.3 144.5	42 05.0 +56.1 143.2	41 44.1 +55.9 142.0	41 22.6 +55.7 140.8
13°	43 41.5 +56.5 145.3	43 21.6 +56.3 144.0	43 01.1 +56.0 142.8	42 40.0 +55.7 141.5	42 18.3 +55.5 140.3
14°	44 38.0 +56.3 144.8	44 17.9 +56.1 143.5	43 57.1 +55.9 142.3	43 35.7 +55.7 141.0	43 13.8 +55.4 139.8
15°	45 34.3 +56.3 144.3	45 14.0 +55.9 143.0	44 53.0 +55.7 141.8	44 31.4 +55.5 140.5	44 09.2 +55.2 139.3
16°	46 30.6 +56.1 143.8	46 09.9 +55.9 142.5	45 48.7 +55.6 141.2	45 26.9 +55.3 140.0	45 04.4 +55.1 138.7
17°	47 26.7 +55.9 143.3	47 05.8 +55.7 142.0	46 44.3 +55.4 140.7	46 22.2 +55.1 139.4	45 59.5 +54.9 138.1
18°	48 22.6 +55.8 142.8	48 01.5 +55.5 141.4	47 39.7 +55.2 140.1	47 17.3 +55.0 138.8	46 54.4 +54.7 137.6
19°	49 18.4 +55.6 142.2	48 57.0 +55.3 140.9	48 34.9 +55.1 139.5	48 12.3 +54.8 138.2	47 49.1 +54.5 136.9
20°	50 14.0 +55.4 141.6	49 52.3 +55.2 140.3	49 30.0 +54.9 138.9	49 07.1 +54.6 137.6	48 43.6 +54.3 136.3
21°	51 09.4 +55.3 141.0	50 47.5 +54.9 139.7	50 24.9 +54.6 138.3	50 01.7 +54.3 137.0	49 37.9 +54.1 135.7
22°	52 04.7 +55.0 140.4	51 42.4 +54.7 139.0	51 19.5 +54.4 137.7	50 56.0 +54.2 136.3	50 32.0 +53.8 135.0
23°	52 59.7 +54.8 139.7	52 37.1 +54.5 138.3	52 13.9 +54.2 137.0	51 50.2 +53.8 135.6	51 25.8 +53.6 134.3
24°	53 54.5 +54.5 139.1	53 31.6 +54.3 137.6	53 08.1 +53.9 136.3	52 44.0 +53.6 134.9	52 19.4 +53.3 133.6
25°	54 49.0 +54.3 138.3	54 25.9 +53.9 136.9	54 02.0 +53.7 135.5	53 37.6 +53.4 134.2	53 12.7 +53.0 132.8
26°	55 43.3 +54.1 137.6	55 19.8 +53.7 136.2	54 55.7 +53.3 134.8	54 31.0 +52.9 133.4	54 05.7 +52.6 132.0
27°	56 37.4 +53.7 136.8	56 13.5 +53.3 135.4	55 49.0 +53.0 133.9	55 23.9 +52.7 132.6	54 58.3 +52.3 131.2
28°	57 31.1 +53.3 136.0	57 06.8 +53.0 134.5	56 42.0 +52.6 133.1	56 16.6 +52.3 131.7	55 50.6 +52.0 130.3
29°	58 24.4 +53.0 135.1	57 59.8 +52.7 133.7	57 34.6 +52.3 132.2	57 08.9 +51.9 130.8	56 42.6 +51.5 129.4

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Dec	LHA 030° / 330°	LHA 031° / 329°	LHA 032° / 328°	LHA 033° / 327°	LHA 034° / 326°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	29 47.0 +56.6 144.8	29 26.9 +56.5 143.7	29 06.3 +56.3 142.7	28 45.2 +56.0 141.6	28 23.6 +55.8 140.5
1°	30 43.6 +56.6 144.4	30 23.4 +56.3 143.3	30 02.6 +56.1 142.3	29 41.2 +56.0 141.2	29 19.4 +55.8 140.1
2°	31 40.2 +56.4 144.0	31 19.7 +56.3 142.9	30 58.7 +56.1 141.9	30 37.2 +55.8 140.8	30 15.2 +55.6 139.7
3°	32 36.6 +56.4 143.6	32 16.0 +56.1 142.5	31 54.8 +55.9 141.4	31 33.0 +55.8 140.3	31 10.8 +55.6 139.3
4°	33 33.0 +56.3 143.2	33 12.1 +56.1 142.1	32 50.7 +55.9 141.0	32 28.8 +55.7 139.9	32 06.4 +55.5 138.8
5°	34 29.3 +56.2 142.8	34 08.2 +56.0 141.7	33 46.6 +55.8 140.6	33 24.5 +55.6 139.5	33 01.9 +55.4 138.4
6°	35 25.5 +56.1 142.4	35 04.2 +55.9 141.3	34 42.4 +55.7 140.1	34 20.1 +55.5 139.0	33 57.3 +55.3 137.9
7°	36 21.6 +56.0 142.0	36 00.1 +55.8 140.8	35 38.1 +55.6 139.7	35 15.6 +55.4 138.5	34 52.6 +55.1 137.4
8°	37 17.6 +55.9 141.5	36 55.9 +55.7 140.4	36 33.7 +55.5 139.2	36 11.0 +55.2 138.1	35 47.7 +55.1 136.9
9°	38 13.5 +55.8 141.1	37 51.6 +55.6 139.9	37 29.2 +55.4 138.7	37 06.2 +55.2 137.6	36 42.8 +54.9 136.5
10°	39 09.3 +55.7 140.6	38 47.2 +55.5 139.4	38 24.6 +55.2 138.2	38 01.4 +55.0 137.1	37 37.7 +54.8 135.9
11°	40 05.0 +55.6 140.1	39 42.7 +55.3 138.9	39 19.8 +55.1 137.7	38 56.4 +54.9 136.6	38 32.5 +54.6 135.4
12°	41 00.6 +55.4 139.6	40 38.0 +55.2 138.4	40 14.9 +55.0 137.2	39 51.3 +54.7 136.1	39 27.1 +54.5 134.9
13°	41 56.0 +55.3 139.1	41 33.2 +55.1 137.9	41 09.9 +54.8 136.7	40 46.0 +54.6 135.5	40 21.6 +54.4 134.4
14°	42 51.3 +55.2 138.6	42 28.3 +54.9 137.4	42 04.7 +54.6 136.2	41 40.6 +54.4 135.0	41 16.0 +54.2 133.8
15°	43 46.5 +54.9 138.0	43 23.2 +54.7 136.8	42 59.3 +54.5 135.6	42 35.0 +54.2 134.4	42 10.2 +54.0 133.2
16°	44 41.4 +54.9 137.5	44 17.9 +54.6 136.2	43 53.8 +54.3 135.0	43 29.2 +54.1 133.8	43 04.2 +53.8 132.6
17°	45 36.3 +54.6 136.9	45 12.5 +54.3 135.6	44 48.1 +54.2 134.4	44 23.3 +53.9 133.2	43 58.0 +53.6 132.0
18°	46 30.9 +54.4 136.3	46 06.8 +54.2 135.0	45 42.3 +53.9 133.8	45 17.2 +53.6 132.6	44 51.6 +53.4 131.4
19°	47 25.3 +54.3 135.7	47 01.0 +54.0 134.4	46 36.2 +53.7 133.2	46 10.8 +53.5 131.9	45 45.0 +53.2 130.7
20°	48 19.6 +54.0 135.0	47 55.0 +53.7 133.8	47 29.9 +53.4 132.5	47 04.3 +53.2 131.3	46 38.2 +52.9 130.1
21°	49 13.6 +53.8 134.4	48 48.7 +53.5 133.1	48 23.3 +53.3 131.8	47 57.5 +52.9 130.6	47 31.1 +52.7 129.4
22°	50 07.4 +53.5 133.7	49 42.2 +53.3 132.4	49 16.6 +52.9 131.1	48 50.4 +52.7 129.9	48 23.8 +52.4 128.7
23°	51 00.9 +53.3 133.0	50 35.5 +52.9 131.7	50 09.5 +52.7 130.4	49 43.1 +52.4 129.2	49 16.2 +52.1 127.9
24°	51 54.2 +53.0 132.2	51 28.4 +52.7 130.9	51 02.2 +52.4 129.7	50 35.5 +52.0 128.4	50 08.3 +51.7 127.2
25°	52 47.2 +52.6 131.5	52 21.1 +52.4 130.2	51 54.6 +52.0 128.9	51 27.5 +51.8 127.6	51 00.0 +51.5 126.4
26°	53 39.8 +52.3 130.7	53 13.5 +52.0 129.4	52 46.6 +51.7 128.1	52 19.3 +51.4 126.8	51 51.5 +51.1 125.5
27°	54 32.1 +52.0 129.8	54 05.5 +51.6 128.5	53 38.3 +51.3 127.2	53 10.7 +51.0 125.9	52 42.6 +50.7 124.7
28°	55 24.1 +51.6 129.0	54 57.1 +51.3 127.6	54 29.6 +50.9 126.3	54 01.7 +50.6 125.0	53 33.3 +50.3 123.8
29°	56 15.7 +51.2 128.1	55 48.4 +50.8 126.7	55 20.5 +50.5 125.4	54 52.3 +50.1 124.1	54 23.6 +49.8 122.9

Dec	LHA 035° / 325°	LHA 036° / 324°	LHA 037° / 323°	LHA 038° / 322°	LHA 039° / 321°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	28 01.5 +55.6 139.5	27 38.9 +55.4 138.4	27 15.8 +55.2 137.4	26 52.3 +55.0 136.4	26 28.3 +54.9 135.3
1°	28 57.1 +55.6 139.1	28 34.3 +55.4 138.0	28 11.0 +55.2 136.9	27 47.3 +55.0 135.9	27 23.2 +54.7 134.9
2°	29 52.7 +55.4 138.6	29 29.7 +55.2 137.6	29 06.2 +55.1 136.5	28 42.3 +54.9 135.5	28 17.9 +54.7 134.4
3°	30 48.1 +55.4 138.2	30 24.9 +55.2 137.1	30 01.3 +55.0 136.0	29 37.2 +54.7 135.0	29 12.6 +54.6 133.9
4°	31 43.5 +55.3 137.7	31 20.1 +55.1 136.6	30 56.3 +54.8 135.6	30 31.9 +54.7 134.5	30 07.2 +54.5 133.5
5°	32 38.8 +55.2 137.3	32 15.2 +55.0 136.2	31 51.1 +54.8 135.1	31 26.6 +54.6 134.0	31 01.7 +54.3 133.0
6°	33 34.0 +55.0 136.8	33 10.2 +54.8 135.7	32 45.9 +54.7 134.6	32 21.2 +54.4 133.5	31 56.0 +54.3 132.5
7°	34 29.0 +55.0 136.3	34 05.0 +54.8 135.2	33 40.6 +54.5 134.1	33 15.6 +54.3 133.0	32 50.3 +54.1 132.0
8°	35 24.0 +54.8 135.8	34 59.8 +54.6 134.7	34 35.1 +54.4 133.6	34 09.9 +54.2 132.5	33 44.4 +54.0 131.5
9°	36 18.8 +54.7 135.3	35 54.4 +54.5 134.2	35 29.5 +54.3 133.1	35 04.1 +54.1 132.0	34 38.4 +53.8 130.9
10°	37 13.5 +54.6 134.8	36 48.9 +54.3 133.7	36 23.8 +54.1 132.6	35 58.2 +53.9 131.5	35 32.2 +53.7 130.4
11°	38 08.1 +54.4 134.3	37 43.2 +54.2 133.2	37 17.9 +54.0 132.0	36 52.1 +53.8 130.9	36 25.9 +53.5 129.8
12°	39 02.5 +54.3 133.8	38 37.4 +54.1 132.6	38 11.9 +53.8 131.5	37 45.9 +53.6 130.4	37 19.4 +53.4 129.3
13°	39 56.8 +54.1 133.2	39 31.5 +53.9 132.1	39 05.7 +53.6 130.9	38 39.5 +53.4 129.8	38 12.8 +53.2 128.7
14°	40 50.9 +53.9 132.6	40 25.4 +53.7 131.5	39 59.3 +53.5 130.3	39 32.9 +53.2 129.2	39 06.0 +53.1 128.1
15°	41 44.8 +53.8 132.0	41 19.1 +53.5 130.9	40 52.8 +53.3 129.7	40 26.1 +53.1 128.6	39 59.1 +52.8 127.5
16°	42 38.6 +53.6 131.4	42 12.6 +53.3 130.3	41 46.1 +53.1 129.1	41 19.2 +52.9 128.0	40 51.9 +52.6 126.9
17°	43 32.2 +53.3 130.8	43 05.9 +53.1 129.7	42 39.2 +52.9 128.5	42 12.1 +52.6 127.4	41 44.5 +52.4 126.2
18°	44 25.5 +53.2 130.2	43 59.0 +52.9 129.0	43 32.1 +52.6 127.9	43 04.7 +52.4 126.7	42 36.9 +52.2 125.6
19°	45 18.7 +52.9 129.5	44 51.9 +52.7 128.4	44 24.7 +52.4 127.2	43 57.1 +52.2 126.0	43 29.1 +51.9 124.9
20°	46 11.6 +52.7 128.9	45 44.6 +52.4 127.7	45 17.1 +52.2 126.5	44 49.3 +51.9 125.4	44 21.0 +51.6 124.2
21°	47 04.3 +52.4 128.2	46 37.0 +52.1 127.0	46 09.3 +51.9 125.8	45 41.2 +51.6 124.6	45 12.6 +51.4 123.5
22°	47 56.7 +52.1 127.4	47 29.1 +51.9 126.2	47 01.2 +51.5 125.1	46 32.8 +51.3 123.9	46 04.0 +51.1 122.8
23°	48 48.8 +51.8 126.7	48 21.0 +51.5 125.5	47 52.7 +51.3 124.3	47 24.1 +51.1 123.1	46 55.1 +50.8 122.0
24°	49 40.6 +51.5 125.9	49 12.5 +51.3 124.7	48 44.0 +51.0 123.5	48 15.2 +50.7 122.4	47 45.9 +50.4 121.2
25°	50 32.1 +51.2 125.1	50 03.8 +50.8 123.9	49 35.0 +50.6 122.7	49 05.9 +50.3 121.6	48 36.3 +50.1 120.4
26°	51 23.3 +50.8 124.3	50 54.6 +50.5 123.1	50 25.6 +50.2 121.9	49 56.2 +50.0 120.7	49 26.4 +49.8 119.6
27°	52 14.1 +50.4 123.4	51 45.1 +50.2 122.2	51 15.8 +49.9 121.0	50 46.2 +49.5 119.8	50 16.2 +49.3 118.7
28°	53 04.5 +50.0 122.5	52 35.3 +49.7 121.3	52 05.7 +49.4 120.1	51 35.7 +49.2 118.9	51 05.5 +48.8 117.8
29°	53 54.5 +49.5 121.6	53 25.0 +49.2 120.4	52 55.1 +49.0 119.2	52 24.9 +48.7 118.0	51 54.3 +48.5 116.9

# Declination SAME name as Latitude

# Latitude 55°

Dec	LHA 040° / 320°	LHA 041° / 319°	LHA 042° / 318°	LHA 043° / 317°	LHA 044° / 316°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	26 03.9 +54.6 134.3	25 39.0 +54.5 133.3	25 13.8 +54.3 132.3	24 48.1 +54.1 131.3	24 22.1 +53.9 130.3
1°	26 58.5 +54.6 133.9	26 33.5 +54.4 132.8	26 08.1 +54.2 131.8	25 42.2 +54.0 130.8	25 16.0 +53.8 129.8
2°	27 53.1 +54.5 133.4	27 27.9 +54.3 132.4	27 02.3 +54.1 131.3	26 36.2 +53.9 130.3	26 09.8 +53.7 129.3
3°	28 47.6 +54.4 132.9	28 22.2 +54.2 131.9	27 56.4 +54.0 130.9	27 30.1 +53.8 129.8	27 03.5 +53.6 128.8
4°	29 42.0 +54.3 132.4	29 16.4 +54.0 131.4	28 50.4 +53.8 130.4	28 23.9 +53.7 129.3	27 57.1 +53.5 128.3
5°	30 36.3 +54.1 131.9	30 10.4 +54.0 130.9	29 44.2 +53.8 129.9	29 17.6 +53.6 128.8	28 50.6 +53.4 127.8
6°	31 30.4 +54.1 131.4	31 04.4 +53.8 130.4	30 38.0 +53.6 129.3	30 11.2 +53.4 128.3	29 44.0 +53.2 127.3
7°	32 24.5 +53.9 130.9	31 58.2 +53.8 129.9	31 31.6 +53.5 128.8	31 04.6 +53.3 127.8	30 37.2 +53.1 126.8
8°	33 18.4 +53.7 130.4	32 52.0 +53.5 129.3	32 25.1 +53.4 128.3	31 57.9 +53.2 127.2	31 30.3 +53.0 126.2
9°	34 12.1 +53.7 129.9	33 45.5 +53.5 128.8	33 18.5 +53.2 127.7	32 51.1 +53.0 126.7	32 23.3 +52.8 125.7
10°	35 05.8 +53.5 129.3	34 39.0 +53.2 128.2	34 11.7 +53.1 127.2	33 44.1 +52.9 126.1	33 16.1 +52.7 125.1
11°	35 59.3 +53.3 128.8	35 32.2 +53.2 127.7	35 04.8 +52.9 126.6	34 37.0 +52.7 125.6	34 08.8 +52.5 124.5
12°	36 52.6 +53.2 128.2	36 25.4 +52.9 127.1	35 57.7 +52.8 126.0	35 29.7 +52.5 125.0	35 01.3 +52.4 123.9
13°	37 45.8 +52.9 127.6	37 18.3 +52.8 126.5	36 50.5 +52.5 125.4	36 22.2 +52.4 124.4	35 53.7 +52.1 123.3
14°	38 38.7 +52.8 127.0	38 11.1 +52.6 125.9	37 43.0 +52.4 124.8	37 14.6 +52.1 123.8	36 45.8 +52.0 122.7
15°	39 31.5 +52.6 126.4	39 03.7 +52.3 125.3	38 35.4 +52.1 124.2	38 06.7 +52.0 123.1	37 37.8 +51.7 122.1
16°	40 24.1 +52.4 125.8	39 56.0 +52.2 124.7	39 27.5 +52.0 123.6	38 58.7 +51.7 122.5	38 29.5 +51.5 121.4
17°	41 16.5 +52.2 125.1	40 48.2 +52.0 124.0	40 19.5 +51.7 122.9	39 50.4 +51.6 121.9	39 21.0 +51.3 120.8
18°	42 08.7 +51.9 124.5	41 40.2 +51.7 123.4	41 11.2 +51.5 122.3	40 42.0 +51.2 121.2	40 12.3 +51.1 120.1
19°	43 00.6 +51.7 123.8	42 31.9 +51.4 122.7	42 02.7 +51.3 121.6	41 33.2 +51.0 120.5	41 03.4 +50.8 119.4
20°	43 52.3 +51.5 123.1	43 23.3 +51.2 122.0	42 54.0 +50.9 120.9	42 24.2 +50.8 119.8	41 54.2 +50.6 118.7
21°	44 43.8 +51.1 122.4	44 14.5 +50.9 121.2	43 44.9 +50.7 120.1	43 15.0 +50.5 119.1	42 44.8 +50.2 118.0
22°	45 34.9 +50.9 121.6	45 05.4 +50.6 120.5	44 35.6 +50.4 119.4	44 05.5 +50.1 118.3	43 35.0 +50.0 117.2
23°	46 25.8 +50.5 120.9	45 56.0 +50.3 119.7	45 26.0 +50.1 118.6	44 55.6 +49.9 117.5	44 25.0 +49.6 116.5
24°	47 16.3 +50.2 120.1	46 46.3 +50.0 118.9	46 16.1 +49.7 117.8	45 45.5 +49.5 116.7	45 14.6 +49.3 115.7
25°	48 06.5 +49.8 119.3	47 36.3 +49.6 118.1	47 05.8 +49.4 117.0	46 35.0 +49.1 115.9	46 03.9 +48.9 114.9
26°	48 56.3 +49.5 118.4	48 25.9 +49.2 117.3	47 55.2 +49.0 116.2	47 24.1 +48.8 115.1	46 52.8 +48.6 114.0
27°	49 45.8 +49.1 117.5	49 15.1 +48.8 116.4	48 44.2 +48.6 115.3	48 12.9 +48.4 114.2	47 41.4 +48.2 113.1
28°	50 34.9 +48.6 116.6	50 03.9 +48.4 115.5	49 32.8 +48.1 114.4	49 01.3 +47.9 113.3	48 29.6 +47.7 112.3
29°	51 23.5 +48.2 115.7	50 52.3 +48.0 114.6	50 20.9 +47.7 113.5	49 49.2 +47.5 112.4	49 17.3 +47.3 111.3

Dec	LHA 045° / 315°	LHA 046° / 314°	LHA 047° / 313°	LHA 048° / 312°	LHA 049° / 311°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	23 55.6 +53.8 129.3	23 28.8 +53.6 128.3	23 01.7 +53.3 127.4	22 34.1 +53.2 126.4	22 06.3 +53.0 125.5
1°	24 49.4 +53.6 128.8	24 22.4 +53.4 127.9	23 55.0 +53.3 126.9	23 27.3 +53.1 125.9	22 59.3 +52.9 124.9
2°	25 43.0 +53.5 128.3	25 15.8 +53.4 127.4	24 48.3 +53.1 126.4	24 20.4 +53.0 125.4	23 52.2 +52.8 124.4
3°	26 36.5 +53.4 127.8	26 09.2 +53.2 126.8	25 41.4 +53.1 125.9	25 13.4 +52.8 124.9	24 45.0 +52.7 123.9
4°	27 29.9 +53.3 127.3	27 02.4 +53.1 126.3	26 34.5 +52.9 125.3	26 06.2 +52.8 124.4	25 37.7 +52.5 123.4
5°	28 23.2 +53.2 126.8	27 55.5 +53.0 125.8	27 27.4 +52.8 124.8	26 59.0 +52.6 123.8	26 30.2 +52.5 122.8
6°	29 16.4 +53.1 126.3	28 48.5 +52.9 125.3	28 20.2 +52.7 124.3	27 51.6 +52.5 123.3	27 22.7 +52.3 122.3
7°	30 09.5 +52.9 125.7	29 41.4 +52.7 124.7	29 12.9 +52.6 123.7	28 44.1 +52.4 122.7	28 15.0 +52.2 121.7
8°	31 02.4 +52.8 125.2	30 34.1 +52.6 124.2	30 05.5 +52.4 123.2	29 36.5 +52.2 122.2	29 07.2 +52.0 121.2
9°	31 55.2 +52.6 124.6	31 26.7 +52.4 123.6	30 57.9 +52.2 122.6	30 28.7 +52.1 121.6	29 59.2 +51.9 120.6
10°	32 47.8 +52.5 124.1	32 19.1 +52.3 123.0	31 50.1 +52.1 122.0	31 20.8 +51.9 121.0	30 51.1 +51.8 120.0
11°	33 40.3 +52.3 123.5	33 11.4 +52.1 122.5	32 42.2 +51.9 121.4	32 12.7 +51.7 120.4	31 42.9 +51.5 119.4
12°	34 32.6 +52.1 122.9	34 03.5 +52.0 121.9	33 34.1 +51.8 120.8	33 04.4 +51.6 119.8	32 34.4 +51.4 118.8
13°	35 24.7 +52.0 122.3	34 55.5 +51.7 121.3	34 25.9 +51.6 120.2	33 56.0 +51.4 119.2	33 25.8 +51.2 118.2
14°	36 16.7 +51.7 121.7	35 47.2 +51.6 120.6	35 17.5 +51.3 119.6	34 47.4 +51.2 118.6	34 17.0 +51.0 117.6
15°	37 08.4 +51.6 121.0	36 38.8 +51.3 120.0	36 08.8 +51.2 119.0	35 38.6 +51.0 118.0	35 08.0 +50.8 117.0
16°	38 00.0 +51.3 120.4	37 30.1 +51.2 119.4	37 00.0 +50.9 118.3	36 29.6 +50.7 117.3	35 58.8 +50.6 116.3
17°	38 51.3 +51.1 119.7	38 21.3 +50.9 118.7	37 50.9 +50.8 117.7	37 20.3 +50.5 116.6	36 49.4 +50.4 115.6
18°	39 42.4 +50.9 119.1	39 12.2 +50.6 118.0	38 41.7 +50.4 117.0	38 10.8 +50.3 116.0	37 39.8 +50.1 114.9
19°	40 33.3 +50.6 118.4	40 02.8 +50.5 117.3	39 32.1 +50.2 116.3	39 01.1 +50.1 115.3	38 29.9 +49.8 114.2
20°	41 23.9 +50.3 117.7	40 53.3 +50.1 116.6	40 22.3 +50.0 115.6	39 51.2 +49.7 114.5	39 19.7 +49.6 113.5
21°	42 14.2 +50.1 116.9	41 43.4 +49.8 115.9	41 12.3 +49.7 114.8	40 40.9 +49.5 113.8	40 09.3 +49.3 112.8
22°	43 04.3 +49.7 116.2	42 33.2 +49.6 115.1	42 02.0 +49.3 114.1	41 30.4 +49.2 113.1	40 58.6 +49.0 112.0
23°	43 54.0 +49.5 115.4	43 22.8 +49.2 114.4	42 51.3 +49.1 113.3	42 19.6 +48.9 112.3	41 47.6 +48.7 111.3
24°	44 43.5 +49.0 114.6	44 12.0 +48.9 113.6	43 40.4 +48.7 112.5	43 08.5 +48.5 111.5	42 36.3 +48.4 110.5
25°	45 32.5 +48.8 113.8	45 00.9 +48.6 112.7	44 29.1 +48.3 111.7	43 57.0 +48.2 110.7	43 24.7 +48.0 109.7
26°	46 21.3 +48.3 113.0	45 49.5 +48.1 111.9	45 17.4 +48.0 110.9	44 45.2 +47.8 109.9	44 12.7 +47.6 108.9
27°	47 09.6 +48.0 112.1	46 37.6 +47.8 111.0	46 05.4 +47.6 110.0	45 33.0 +47.4 109.0	45 00.3 +47.3 108.0
28°	47 57.6 +47.5 111.2	47 25.4 +47.3 110.2	46 53.0 +47.1 109.1	46 20.4 +46.9 108.1	45 47.6 +46.8 107.1
29°	48 45.1 +47.1 110.3	48 12.7 +46.9 109.2	47 40.1 +46.7 108.2	47 07.3 +46.6 107.2	46 34.4 +46.4 106.2

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Dec	LHA 050° / 310°	LHA 051° / 309°	LHA 052° / 308°	LHA 053° / 307°	LHA 054° / 306°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	21 38.1 +52.8 124.5	21 09.6 +52.6 123.6	20 40.7 +52.5 122.6	20 11.6 +52.3 121.7	19 42.2 +52.1 120.8
1°	22 30.9 +52.7 124.0	22 02.2 +52.6 123.0	21 33.2 +52.4 122.1	21 03.9 +52.2 121.2	20 34.3 +52.1 120.2
2°	23 23.6 +52.7 123.5	22 54.8 +52.4 122.5	22 25.6 +52.3 121.6	21 56.1 +52.2 120.6	21 26.4 +51.9 119.7
3°	24 16.3 +52.5 122.9	23 47.2 +52.4 122.0	23 17.9 +52.2 121.0	22 48.3 +52.0 120.1	22 18.3 +51.9 119.2
4°	25 08.8 +52.4 122.4	24 39.6 +52.2 121.5	24 10.1 +52.0 120.5	23 40.3 +51.9 119.6	23 10.2 +51.7 118.6
5°	26 01.2 +52.3 121.9	25 31.8 +52.1 120.9	25 02.1 +52.0 120.0	24 32.2 +51.7 119.0	24 01.9 +51.7 118.1
6°	26 53.5 +52.1 121.3	26 23.9 +52.0 120.4	25 54.1 +51.8 119.4	25 23.9 +51.7 118.4	24 53.6 +51.4 117.5
7°	27 45.6 +52.0 120.8	27 15.9 +51.8 119.8	26 45.9 +51.7 118.8	26 15.6 +51.5 117.9	25 45.0 +51.4 116.9
8°	28 37.6 +51.9 120.2	28 07.7 +51.7 119.2	27 37.6 +51.5 118.3	27 07.1 +51.4 117.3	26 36.4 +51.2 116.4
9°	29 29.5 +51.7 119.6	28 59.4 +51.6 118.7	28 29.1 +51.4 117.7	27 58.5 +51.2 116.7	27 27.6 +51.1 115.8
10°	30 21.2 +51.6 119.0	29 51.0 +51.4 118.1	29 20.5 +51.2 117.1	28 49.7 +51.1 116.1	28 18.7 +50.9 115.2
11°	31 12.8 +51.3 118.4	30 42.4 +51.2 117.5	30 11.7 +51.0 116.5	29 40.8 +50.9 115.5	29 09.6 +50.7 114.6
12°	32 04.1 +51.3 117.8	31 33.6 +51.0 116.9	31 02.7 +50.9 115.9	30 31.7 +50.7 114.9	30 00.3 +50.6 114.0
13°	32 55.4 +51.0 117.2	32 24.6 +50.9 116.2	31 53.6 +50.7 115.3	31 22.4 +50.5 114.3	30 50.9 +50.4 113.3
14°	33 46.4 +50.8 116.6	33 15.5 +50.7 115.6	32 44.3 +50.5 114.6	32 12.9 +50.4 113.7	31 41.3 +50.2 112.7
15°	34 37.2 +50.7 116.0	34 06.2 +50.4 115.0	33 34.8 +50.3 114.0	33 03.3 +50.1 113.0	32 31.5 +50.0 112.1
16°	35 27.9 +50.4 115.3	34 56.6 +50.3 114.3	34 25.1 +50.1 113.3	33 53.4 +49.9 112.4	33 21.5 +49.8 111.4
17°	36 18.3 +50.1 114.6	35 46.9 +50.0 113.6	35 15.2 +49.9 112.7	34 43.3 +49.7 111.7	34 11.3 +49.5 110.7
18°	37 08.4 +50.0 113.9	36 36.9 +49.7 113.0	36 05.1 +49.6 112.0	35 33.0 +49.5 111.0	35 00.8 +49.3 110.0
19°	37 58.4 +49.7 113.2	37 26.6 +49.6 112.3	36 54.7 +49.4 111.3	36 22.5 +49.2 110.3	35 50.1 +49.1 109.3
20°	38 48.1 +49.4 112.5	38 16.2 +49.2 111.5	37 44.1 +49.1 110.6	37 11.7 +49.0 109.6	36 39.2 +48.8 108.6
21°	39 37.5 +49.1 111.8	39 05.4 +49.0 110.8	38 33.2 +48.8 109.8	38 00.7 +48.7 108.9	37 28.0 +48.6 107.9
22°	40 26.6 +48.9 111.0	39 54.4 +48.7 110.1	39 22.0 +48.5 109.1	38 49.4 +48.3 108.1	38 16.6 +48.2 107.2
23°	41 15.5 +48.5 110.3	40 43.1 +48.3 109.3	40 10.5 +48.2 108.3	39 37.7 +48.1 107.3	39 04.8 +48.0 106.4
24°	42 04.0 +48.2 109.5	41 31.4 +48.1 108.5	40 58.7 +47.9 107.5	40 25.8 +47.8 106.6	39 52.8 +47.6 105.6
25°	42 52.2 +47.8 108.7	42 19.5 +47.7 107.7	41 46.6 +47.6 106.7	41 13.6 +47.4 105.8	40 40.4 +47.3 104.8
26°	43 40.0 +47.5 107.9	43 07.2 +47.3 106.9	42 34.2 +47.2 105.9	42 01.0 +47.0 104.9	41 27.7 +46.9 104.0
27°	44 27.5 +47.1 107.0	43 54.5 +46.9 106.0	43 21.4 +46.8 105.1	42 48.0 +46.7 104.1	42 14.6 +46.6 103.2
28°	45 14.6 +46.7 106.1	44 41.4 +46.6 105.2	44 08.2 +46.4 104.2	43 34.7 +46.3 103.2	43 01.2 +46.1 102.3
29°	46 01.3 +46.2 105.2	45 28.0 +46.1 104.3	44 54.6 +45.9 103.3	44 21.0 +45.9 102.4	43 47.3 +45.8 101.4

Dec	LHA 055° / 305°	LHA 056° / 304°	LHA 057° / 303°	LHA 058° / 302°	LHA 059° / 301°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	19 12.4 +52.0 119.8	18 42.5 +51.8 118.9	18 12.2 +51.7 118.0	17 41.7 +51.5 117.1	17 10.9 +51.4 116.2
1°	20 04.4 +52.0 119.3	19 34.3 +51.8 118.4	19 03.9 +51.6 117.5	18 33.2 +51.5 116.6	18 02.3 +51.4 115.7
2°	20 56.4 +51.8 118.8	20 26.1 +51.6 117.9	19 55.5 +51.5 116.9	19 24.7 +51.4 116.0	18 53.7 +51.2 115.1
3°	21 48.2 +51.7 118.2	21 17.7 +51.5 117.3	20 47.0 +51.4 116.4	20 16.1 +51.2 115.5	19 44.9 +51.1 114.6
4°	22 39.9 +51.5 117.7	22 09.2 +51.5 116.8	21 38.4 +51.3 115.8	21 07.3 +51.1 114.9	20 36.0 +51.0 114.0
5°	23 31.4 +51.5 117.1	23 00.7 +51.3 116.2	22 29.7 +51.1 115.3	21 58.4 +51.1 114.4	21 27.0 +50.9 113.4
6°	24 22.9 +51.3 116.6	23 52.0 +51.2 115.6	23 20.8 +51.1 114.7	22 49.5 +50.9 113.8	22 17.9 +50.7 112.9
7°	25 14.2 +51.2 116.0	24 43.2 +51.0 115.1	24 11.9 +50.9 114.1	23 40.4 +50.7 113.2	23 08.6 +50.7 112.3
8°	26 05.4 +51.1 115.4	25 34.2 +50.9 114.5	25 02.8 +50.8 113.5	24 31.1 +50.7 112.6	23 59.3 +50.5 111.7
9°	26 56.5 +50.9 114.8	26 25.1 +50.8 113.9	25 53.6 +50.6 113.0	25 21.8 +50.5 112.0	24 49.8 +50.3 111.1
10°	27 47.4 +50.8 114.2	27 15.9 +50.6 113.3	26 44.2 +50.5 112.4	26 12.3 +50.3 111.4	25 40.1 +50.2 110.5
11°	28 38.2 +50.6 113.6	28 06.5 +50.5 112.7	27 34.7 +50.3 111.8	27 02.6 +50.2 110.8	26 30.3 +50.1 109.9
12°	29 28.8 +50.4 113.0	28 57.0 +50.3 112.1	28 25.0 +50.1 111.1	27 52.8 +50.0 110.2	27 20.4 +49.9 109.3
13°	30 19.2 +50.2 112.4	29 47.3 +50.1 111.4	29 15.1 +50.0 110.5	28 42.8 +49.8 109.6	28 10.3 +49.7 108.7
14°	31 09.4 +50.1 111.8	30 37.4 +49.9 110.8	30 05.1 +49.8 109.9	29 32.6 +49.7 108.9	29 00.0 +49.5 108.0
15°	31 59.5 +49.8 111.1	31 27.3 +49.7 110.2	30 54.9 +49.6 109.2	30 22.3 +49.4 108.3	29 49.5 +49.4 107.4
16°	32 49.3 +49.7 110.4	32 17.0 +49.5 109.5	31 44.5 +49.3 108.6	31 11.7 +49.3 107.6	30 38.9 +49.1 106.7
17°	33 39.0 +49.4 109.8	33 06.5 +49.3 108.8	32 33.8 +49.2 107.9	32 01.0 +49.0 107.0	31 28.0 +48.9 106.0
18°	34 28.4 +49.2 109.1	33 55.8 +49.0 108.1	33 23.0 +48.9 107.2	32 50.0 +48.8 106.3	32 16.9 +48.7 105.4
19°	35 17.6 +48.9 108.4	34 44.8 +48.8 107.4	34 11.9 +48.7 106.5	33 38.8 +48.6 105.6	33 05.6 +48.5 104.7
20°	36 06.5 +48.7 107.7	35 33.6 +48.6 106.7	35 00.6 +48.4 105.8	34 27.4 +48.3 104.9	33 54.1 +48.2 104.0
21°	36 55.2 +48.4 107.0	36 22.2 +48.3 106.0	35 49.0 +48.2 105.1	35 15.7 +48.1 104.2	34 42.3 +48.0 103.2
22°	37 43.6 +48.1 106.2	37 10.5 +48.0 105.3	36 37.2 +47.9 104.3	36 03.8 +47.8 103.4	35 30.3 +47.6 102.5
23°	38 31.7 +47.8 105.4	37 58.5 +47.7 104.5	37 25.1 +47.6 103.6	36 51.6 +47.5 102.7	36 17.9 +47.4 101.8
24°	39 19.5 +47.5 104.7	38 46.2 +47.4 103.7	38 12.7 +47.3 102.8	37 39.1 +47.1 101.9	37 05.3 +47.1 101.0
25°	40 07.0 +47.2 103.9	39 33.6 +47.0 102.9	39 00.0 +46.9 102.0	38 26.2 +46.9 101.1	37 52.4 +46.8 100.2
26°	40 54.2 +46.8 103.1	40 20.6 +46.7 102.1	39 46.9 +46.6 101.2	39 13.1 +46.5 100.3	38 39.2 +46.5 99.4
27°	41 41.0 +46.5 102.2	41 07.3 +46.4 101.3	40 33.5 +46.3 100.4	39 59.6 +46.2 99.5	39 25.7 +46.1 98.6
28°	42 27.5 +46.0 101.4	41 53.7 +46.0 100.5	41 19.8 +45.9 99.6	40 45.8 +45.8 98.7	40 11.8 +45.7 97.8
29°	43 13.5 +45.7 100.5	42 39.7 +45.5 99.6	42 05.7 +45.5 98.7	41 31.6 +45.4 97.8	40 57.5 +45.3 96.9

Dec	LHA 060° / 300°	LHA 061° / 299°	LHA 062° / 298°	LHA 063° / 297°	LHA 064° / 296°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	16 39.9 +51.3 115.3	16 08.7 +51.1 114.4	15 37.3 +51.0 113.5	15 05.6 +50.9 112.7	14 33.8 +50.7 111.8
1°	17 31.2 +51.2 114.8	16 59.8 +51.1 113.9	16 28.3 +50.9 113.0	15 56.5 +50.8 112.1	15 24.5 +50.7 111.2
2°	18 22.4 +51.1 114.2	17 50.9 +50.9 113.3	17 19.2 +50.8 112.4	16 47.3 +50.7 111.5	16 15.2 +50.5 110.7
3°	19 13.5 +50.9 113.7	18 41.8 +50.9 112.8	18 10.0 +50.7 111.9	17 38.0 +50.6 111.0	17 05.7 +50.5 110.1
4°	20 04.4 +50.9 113.1	19 32.7 +50.7 112.2	19 00.7 +50.6 111.3	18 28.6 +50.4 110.4	17 56.2 +50.4 109.5
5°	20 55.3 +50.8 112.5	20 23.4 +50.6 111.6	19 51.3 +50.5 110.7	19 19.0 +50.4 109.9	18 46.6 +50.3 109.0
6°	21 46.1 +50.6 112.0	21 14.0 +50.5 111.1	20 41.8 +50.4 110.2	20 09.4 +50.3 109.3	19 36.9 +50.1 108.4
7°	22 36.7 +50.5 111.4	22 04.5 +50.4 110.5	21 32.2 +50.3 109.6	20 59.7 +50.2 108.7	20 27.0 +50.1 107.8
8°	23 27.2 +50.4 110.8	22 54.9 +50.3 109.9	22 22.5 +50.1 109.0	21 49.9 +50.0 108.1	21 17.1 +49.9 107.2
9°	24 17.6 +50.2 110.2	23 45.2 +50.1 109.3	23 12.6 +50.0 108.4	22 39.9 +49.9 107.5	22 07.0 +49.8 106.6
10°	25 07.8 +50.1 109.6	24 35.3 +50.0 108.7	24 02.6 +49.9 107.8	23 29.8 +49.7 106.9	22 56.8 +49.6 106.0
11°	25 57.9 +49.9 109.0	25 25.3 +49.8 108.1	24 52.5 +49.7 107.2	24 19.5 +49.6 106.3	23 46.4 +49.5 105.4
12°	26 47.8 +49.8 108.4	26 15.1 +49.6 107.5	25 42.2 +49.5 106.6	25 09.1 +49.5 105.7	24 35.9 +49.4 104.8
13°	27 37.6 +49.6 107.7	27 04.7 +49.5 106.8	26 31.7 +49.4 105.9	25 58.6 +49.2 105.0	25 25.3 +49.1 104.2
14°	28 27.2 +49.4 107.1	27 54.2 +49.3 106.2	27 21.1 +49.2 105.3	26 47.8 +49.1 104.4	26 14.4 +49.0 103.5
15°	29 16.6 +49.2 106.5	28 43.5 +49.1 105.6	28 10.3 +49.0 104.7	27 36.9 +49.0 103.8	27 03.4 +48.9 102.9
16°	30 05.8 +49.1 105.8	29 32.6 +49.0 104.9	28 59.3 +48.8 104.0	28 25.9 +48.7 103.1	27 52.3 +48.6 102.2
17°	30 54.9 +48.8 105.1	30 21.6 +48.7 104.2	29 48.1 +48.7 103.3	29 14.6 +48.5 102.4	28 40.9 +48.5 101.6
18°	31 43.7 +48.6 104.5	31 10.3 +48.5 103.5	30 36.8 +48.4 102.7	30 03.1 +48.3 101.8	29 29.4 +48.2 100.9
19°	32 32.3 +48.3 103.8	31 58.8 +48.2 102.9	31 25.2 +48.1 102.0	30 51.4 +48.1 101.1	30 17.6 +48.0 100.2
20°	33 20.6 +48.1 103.1	32 47.0 +48.1 102.2	32 13.3 +48.0 101.3	31 39.5 +47.9 100.4	31 05.6 +47.8 99.5
21°	34 08.7 +47.9 102.3	33 35.1 +47.7 101.4	33 01.3 +47.7 100.5	32 27.4 +47.6 99.7	31 53.4 +47.6 98.8
22°	34 56.6 +47.6 101.6	34 22.8 +47.5 100.7	33 49.0 +47.4 99.8	33 15.0 +47.4 98.9	32 41.0 +47.3 98.1
23°	35 44.2 +47.3 100.9	35 10.3 +47.3 100.0	34 36.4 +47.2 99.1	34 02.4 +47.1 98.2	33 28.3 +47.0 97.3
24°	36 31.5 +47.0 100.1	35 57.6 +46.9 99.2	35 23.6 +46.8 98.3	34 49.5 +46.8 97.5	34 15.3 +46.8 96.6
25°	37 18.5 +46.7 99.3	36 44.5 +46.6 98.4	36 10.4 +46.6 97.6	35 36.3 +46.5 96.7	35 02.1 +46.4 95.8
26°	38 05.2 +46.4 98.5	37 31.1 +46.4 97.6	36 57.0 +46.3 96.8	36 22.8 +46.2 95.9	35 48.5 +46.2 95.0
27°	38 51.6 +46.0 97.7	38 17.5 +45.9 96.8	37 43.3 +45.9 96.0	37 09.0 +45.9 95.1	36 34.7 +45.8 94.3
28°	39 37.6 +45.7 96.9	39 03.4 +45.6 96.0	38 29.2 +45.5 95.2	37 54.9 +45.5 94.3	37 20.5 +45.5 93.4
29°	40 23.3 +45.3 96.0	39 49.0 +45.3 95.2	39 14.7 +45.3 94.3	38 40.4 +45.2 93.5	38 06.0 +45.2 92.6

Dec	LHA 065° / 295°	LHA 066° / 294°	LHA 067° / 293°	LHA 068° / 292°	LHA 069° / 291°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	14 01.7 +50.6 110.9	13 29.5 +50.5 110.0	12 57.0 +50.4 109.2	12 24.5 +50.2 108.3	11 51.7 +50.2 107.5
1°	14 52.3 +50.6 110.4	14 20.0 +50.4 109.5	13 47.4 +50.4 108.6	13 14.7 +50.3 107.8	12 41.9 +50.1 106.9
2°	15 42.9 +50.4 109.8	15 10.4 +50.3 108.9	14 37.8 +50.2 108.1	14 05.0 +50.1 107.2	13 32.0 +50.1 106.3
3°	16 33.3 +50.4 109.2	16 00.7 +50.3 108.4	15 28.0 +50.2 107.5	14 55.1 +50.1 106.6	14 22.1 +49.9 105.8
4°	17 23.7 +50.3 108.7	16 51.0 +50.2 107.8	16 18.2 +50.0 106.9	15 45.2 +49.9 106.1	15 12.0 +49.9 105.2
5°	18 14.0 +50.1 108.1	17 41.2 +50.0 107.2	17 08.2 +50.0 106.3	16 35.1 +49.9 105.5	16 01.9 +49.8 104.6
6°	19 04.1 +50.1 107.5	18 31.2 +50.0 106.6	17 58.2 +49.8 105.8	17 25.0 +49.7 104.9	16 51.7 +49.6 104.0
7°	19 54.2 +49.9 106.9	19 21.2 +49.8 106.0	18 48.0 +49.8 105.2	18 14.7 +49.7 104.3	17 41.3 +49.6 103.4
8°	20 44.1 +49.8 106.3	20 11.0 +49.7 105.5	19 37.8 +49.6 104.6	19 04.4 +49.5 103.7	18 30.9 +49.5 102.8
9°	21 33.9 +49.7 105.7	21 00.7 +49.6 104.9	20 27.4 +49.5 104.0	19 53.9 +49.5 103.1	19 20.4 +49.3 102.3
10°	22 23.6 +49.6 105.1	21 50.3 +49.5 104.3	21 16.9 +49.4 103.4	20 43.4 +49.3 102.5	20 09.7 +49.2 101.6
11°	23 13.2 +49.4 104.5	22 39.8 +49.3 103.6	22 06.3 +49.2 102.8	21 32.7 +49.1 101.9	20 58.9 +49.1 101.0
12°	24 02.6 +49.2 103.9	23 29.1 +49.2 103.0	22 55.5 +49.1 102.1	22 21.8 +49.0 101.3	21 48.0 +49.0 100.4
13°	24 51.8 +49.1 103.3	24 18.3 +49.0 102.4	23 44.6 +48.9 101.5	23 10.8 +48.9 100.7	22 37.0 +48.8 99.8
14°	25 40.9 +48.9 102.6	25 07.3 +48.8 101.8	24 33.5 +48.8 100.9	23 59.7 +48.7 100.0	23 25.8 +48.6 99.2
15°	26 29.8 +48.8 102.0	25 56.1 +48.7 101.1	25 22.3 +48.6 100.2	24 48.4 +48.5 99.4	24 14.4 +48.5 98.5
16°	27 18.6 +48.6 101.3	26 44.8 +48.5 100.5	26 10.9 +48.4 99.6	25 36.9 +48.4 98.7	25 02.9 +48.3 97.9
17°	28 07.2 +48.3 100.7	27 33.3 +48.3 99.8	26 59.3 +48.3 98.9	26 25.3 +48.2 98.1	25 51.2 +48.1 97.2
18°	28 55.5 +48.2 100.0	28 21.6 +48.1 99.1	27 47.6 +48.0 98.3	27 13.5 +48.0 97.4	26 39.3 +48.0 96.5
19°	29 43.7 +47.9 99.3	29 09.7 +47.9 98.4	28 35.6 +47.9 97.6	28 01.5 +47.8 96.7	27 27.3 +47.7 95.9
20°	30 31.6 +47.8 98.6	29 57.6 +47.7 97.8	29 23.5 +47.6 96.9	28 49.3 +47.5 96.0	28 15.0 +47.5 95.2
21°	31 19.4 +47.5 97.9	30 45.3 +47.4 97.1	30 11.1 +47.4 96.2	29 36.8 +47.4 95.3	29 02.5 +47.4 94.5
22°	32 06.9 +47.2 97.2	31 32.7 +47.2 96.3	30 58.5 +47.1 95.5	30 24.2 +47.1 94.6	29 49.9 +47.1 93.8
23°	32 54.1 +47.0 96.5	32 19.9 +46.9 95.6	31 45.6 +46.9 94.8	31 11.3 +46.9 93.9	30 37.0 +46.8 93.1
24°	33 41.1 +46.7 95.7	33 06.8 +46.7 94.9	32 32.5 +46.7 94.0	31 58.2 +46.6 93.2	31 23.8 +46.6 92.3
25°	34 27.8 +46.4 95.0	33 53.5 +46.4 94.1	33 19.2 +46.3 93.3	32 44.8 +46.3 92.4	32 10.4 +46.3 91.6
26°	35 14.2 +46.2 94.2	34 39.9 +46.1 93.3	34 05.5 +46.1 92.5	33 31.1 +46.1 91.7	32 56.7 +46.1 90.8
27°	36 00.4 +45.8 93.4	35 26.0 +45.8 92.6	34 51.6 +45.8 91.7	34 17.2 +45.8 90.9	33 42.8 +45.8 90.1
28°	36 46.2 +45.5 92.6	36 11.8 +45.5 91.8	35 37.4 +45.4 90.9	35 03.0 +45.4 90.1	34 28.6 +45.4 89.3
29°	37 31.7 +45.1 91.8	36 57.3 +45.1 91.0	36 22.8 +45.2 90.1	35 48.4 +45.2 89.3	35 14.0 +45.2 88.5

Dec	LHA 070° / 290°	LHA 071° / 289°	LHA 072° / 288°	LHA 073° / 287°	LHA 074° / 286°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	11 18.8 +50.1 106.6	10 45.7 +50.0 105.8	10 12.6 +49.9 104.9	9 39.2 +49.9 104.1	9 05.8 +49.7 103.2
1°	12 08.9 +50.0 106.0	11 35.7 +50.0 105.2	11 02.5 +49.8 104.3	10 29.1 +49.7 103.5	9 55.5 +49.7 102.7
2°	12 58.9 +50.0 105.5	12 25.7 +49.8 104.6	11 52.3 +49.8 103.8	11 18.8 +49.7 102.9	10 45.2 +49.7 102.1
3°	13 48.9 +49.8 104.9	13 15.5 +49.8 104.1	12 42.1 +49.7 103.2	12 08.5 +49.7 102.4	11 34.9 +49.5 101.5
4°	14 38.7 +49.8 104.3	14 05.3 +49.7 103.5	13 31.8 +49.6 102.6	12 58.2 +49.5 101.8	12 24.4 +49.5 100.9
5°	15 28.5 +49.7 103.8	14 55.0 +49.6 102.9	14 21.4 +49.6 102.0	13 47.7 +49.5 101.2	13 13.9 +49.4 100.4
6°	16 18.2 +49.6 103.2	15 44.6 +49.6 102.3	15 11.0 +49.4 101.5	14 37.2 +49.4 100.6	14 03.3 +49.3 99.8
7°	17 07.8 +49.5 102.6	16 34.2 +49.4 101.7	16 00.4 +49.4 100.9	15 26.6 +49.3 100.0	14 52.6 +49.3 99.2
8°	17 57.3 +49.4 102.0	17 23.6 +49.3 101.1	16 49.8 +49.2 100.3	16 15.9 +49.2 99.4	15 41.9 +49.1 98.6
9°	18 46.7 +49.3 101.4	18 12.9 +49.2 100.5	17 39.0 +49.2 99.7	17 05.1 +49.0 98.8	16 31.0 +49.0 98.0
10°	19 36.0 +49.1 100.8	19 02.1 +49.1 99.9	18 28.2 +49.0 99.1	17 54.1 +49.0 98.2	17 20.0 +49.0 97.4
11°	20 25.1 +49.0 100.2	19 51.2 +48.9 99.3	19 17.2 +48.9 98.5	18 43.1 +48.9 97.6	18 09.0 +48.8 96.8
12°	21 14.1 +48.9 99.6	20 40.1 +48.9 98.7	20 06.1 +48.8 97.9	19 32.0 +48.7 97.0	18 57.8 +48.7 96.2
13°	22 03.0 +48.7 98.9	21 29.0 +48.7 98.1	20 54.9 +48.6 97.2	20 20.7 +48.6 96.4	19 46.5 +48.5 95.5
14°	22 51.7 +48.6 98.3	22 17.7 +48.5 97.5	21 43.5 +48.5 96.6	21 09.3 +48.4 95.8	20 35.0 +48.4 94.9
15°	23 40.3 +48.5 97.7	23 06.2 +48.4 96.8	22 32.0 +48.3 96.0	21 57.7 +48.3 95.1	21 23.4 +48.3 94.3
16°	24 28.8 +48.2 97.0	23 54.6 +48.2 96.2	23 20.3 +48.2 95.3	22 46.0 +48.2 94.5	22 11.7 +48.1 93.6
17°	25 17.0 +48.1 96.4	24 42.8 +48.0 95.5	24 08.5 +48.0 94.7	23 34.2 +48.0 93.8	22 59.8 +48.0 93.0
18°	26 05.1 +47.9 95.7	25 30.8 +47.9 94.9	24 56.5 +47.9 94.0	24 22.2 +47.8 93.2	23 47.8 +47.8 92.3
19°	26 53.0 +47.7 95.0	26 18.7 +47.7 94.2	25 44.4 +47.6 93.3	25 10.0 +47.6 92.5	24 35.6 +47.6 91.7
20°	27 40.7 +47.5 94.3	27 06.4 +47.5 93.5	26 32.0 +47.5 92.7	25 57.6 +47.5 91.8	25 23.2 +47.5 91.0
21°	28 28.2 +47.3 93.7	27 53.9 +47.2 92.8	27 19.5 +47.2 92.0	26 45.1 +47.2 91.2	26 10.7 +47.2 90.3
22°	29 15.5 +47.1 93.0	28 41.1 +47.1 92.1	28 06.7 +47.1 91.3	27 32.3 +47.1 90.5	26 57.9 +47.0 89.6
23°	30 02.6 +46.8 92.2	29 28.2 +46.8 91.4	28 53.8 +46.8 90.6	28 19.4 +46.8 89.8	27 44.9 +46.9 88.9
24°	30 49.4 +46.6 91.5	30 15.0 +46.6 90.7	29 40.6 +46.6 89.9	29 06.2 +46.6 89.0	28 31.8 +46.6 88.2
25°	31 36.0 +46.3 90.8	31 01.6 +46.3 90.0	30 27.2 +46.3 89.1	29 52.8 +46.3 88.3	29 18.4 +46.3 87.5
26°	32 22.3 +46.1 90.0	31 47.9 +46.1 89.2	31 13.5 +46.1 88.4	30 39.1 +46.1 87.6	30 04.7 +46.1 86.8
27°	33 08.4 +45.7 89.3	32 34.0 +45.8 88.5	31 59.6 +45.8 87.6	31 25.2 +45.8 86.8	30 50.8 +45.9 86.0
28°	33 54.1 +45.5 88.5	33 19.8 +45.4 87.7	32 45.4 +45.5 86.9	32 11.0 +45.6 86.1	31 36.7 +45.6 85.3
29°	34 39.6 +45.2 87.7	34 05.2 +45.2 86.9	33 30.9 +45.2 86.1	32 56.6 +45.2 85.3	32 22.3 +45.3 84.5

Dec	LHA 075° / 285°	LHA 076° / 284°	LHA 077° / 283°	LHA 078° / 282°	LHA 079° / 281°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	8 32.2 +49.7 102.4	7 58.6 +49.6 101.5	7 24.8 +49.5 100.7	6 50.9 +49.5 99.9	6 17.0 +49.4 99.0
1°	9 21.9 +49.6 101.8	8 48.2 +49.5 101.0	8 14.3 +49.5 100.1	7 40.4 +49.5 99.3	7 06.4 +49.4 98.5
2°	10 11.5 +49.6 101.2	9 37.7 +49.5 100.4	9 03.8 +49.5 99.6	8 29.9 +49.3 98.7	7 55.8 +49.3 97.9
3°	11 01.1 +49.5 100.7	10 27.2 +49.5 99.8	9 53.3 +49.4 99.0	9 19.2 +49.4 98.2	8 45.1 +49.3 97.3
4°	11 50.6 +49.4 100.1	11 16.7 +49.3 99.3	10 42.7 +49.3 98.4	10 08.6 +49.2 97.6	9 34.4 +49.3 96.8
5°	12 40.0 +49.4 99.5	12 06.0 +49.3 98.7	11 32.0 +49.2 97.8	10 57.8 +49.2 97.0	10 23.7 +49.1 96.2
6°	13 29.4 +49.2 98.9	12 55.3 +49.2 98.1	12 21.2 +49.2 97.3	11 47.0 +49.2 96.4	11 12.8 +49.1 95.6
7°	14 18.6 +49.2 98.3	13 44.5 +49.2 97.5	13 10.4 +49.1 96.7	12 36.2 +49.0 95.8	12 01.9 +49.0 95.0
8°	15 07.8 +49.1 97.7	14 33.7 +49.0 96.9	13 59.5 +49.0 96.1	13 25.2 +49.0 95.2	12 50.9 +49.0 94.4
9°	15 56.9 +49.0 97.1	15 22.7 +49.0 96.3	14 48.5 +48.9 95.5	14 14.2 +48.9 94.6	13 39.9 +48.8 93.8
10°	16 45.9 +48.9 96.5	16 11.7 +48.8 95.7	15 37.4 +48.8 94.9	15 03.1 +48.8 94.0	14 28.7 +48.8 93.2
11°	17 34.8 +48.7 95.9	17 00.5 +48.7 95.1	16 26.2 +48.7 94.3	15 51.9 +48.7 93.4	15 17.5 +48.7 92.6
12°	18 23.5 +48.7 95.3	17 49.2 +48.7 94.5	17 14.9 +48.6 93.7	16 40.6 +48.5 92.8	16 06.2 +48.5 92.0
13°	19 12.2 +48.5 94.7	18 37.9 +48.5 93.9	18 03.5 +48.5 93.0	17 29.1 +48.5 92.2	16 54.7 +48.5 91.4
14°	20 00.7 +48.4 94.1	19 26.4 +48.3 93.3	18 52.0 +48.3 92.4	18 17.6 +48.3 91.6	17 43.2 +48.3 90.8
15°	20 49.1 +48.3 93.5	20 14.7 +48.3 92.6	19 40.3 +48.3 91.8	19 05.9 +48.3 91.0	18 31.5 +48.2 90.2
16°	21 37.4 +48.1 92.8	21 03.0 +48.1 92.0	20 28.6 +48.1 91.2	19 54.2 +48.0 90.3	19 19.7 +48.1 89.5
17°	22 25.5 +47.9 92.2	21 51.1 +47.9 91.3	21 16.7 +47.9 90.5	20 42.2 +48.0 89.7	20 07.8 +48.0 88.9
18°	23 13.4 +47.8 91.5	22 39.0 +47.8 90.7	22 04.6 +47.8 89.9	21 30.2 +47.8 89.1	20 55.8 +47.8 88.2
19°	24 01.2 +47.6 90.9	23 26.8 +47.6 90.0	22 52.4 +47.6 89.2	22 18.0 +47.6 88.4	21 43.6 +47.6 87.6
20°	24 48.8 +47.4 90.2	24 14.4 +47.4 89.4	23 40.0 +47.4 88.6	23 05.6 +47.5 87.7	22 31.2 +47.5 86.9
21°	25 36.2 +47.3 89.5	25 01.8 +47.3 88.7	24 27.4 +47.3 87.9	23 53.1 +47.2 87.1	23 18.7 +47.3 86.3
22°	26 23.5 +47.0 88.8	25 49.1 +47.0 88.0	25 14.7 +47.1 87.2	24 40.3 +47.1 86.4	24 06.0 +47.1 85.6
23°	27 10.5 +46.9 88.1	26 36.1 +46.9 87.3	26 01.8 +46.9 86.5	25 27.4 +47.0 85.7	24 53.1 +47.0 84.9
24°	27 57.4 +46.6 87.4	27 23.0 +46.7 86.6	26 48.7 +46.6 85.8	26 14.4 +46.7 85.0	25 40.1 +46.8 84.2
25°	28 44.0 +46.4 86.7	28 09.7 +46.4 85.9	27 35.3 +46.5 85.1	27 01.1 +46.5 84.3	26 26.9 +46.5 83.5
26°	29 30.4 +46.1 86.0	28 56.1 +46.2 85.2	28 21.8 +46.2 84.4	27 47.6 +46.3 83.6	27 13.4 +46.3 82.8
27°	30 16.5 +45.9 85.3	29 42.3 +45.9 84.5	29 08.0 +46.0 83.7	28 33.9 +46.0 82.9	27 59.7 +46.1 82.1
28°	31 02.4 +45.7 84.5	30 28.2 +45.7 83.7	29 54.0 +45.8 82.9	29 19.9 +45.8 82.2	28 45.8 +45.9 81.4
29°	31 48.1 +45.3 83.7	31 13.9 +45.4 83.0	30 39.8 +45.4 82.2	30 05.7 +45.5 81.4	29 31.7 +45.6 80.6

# Declination SAME name as Latitude

# Latitude 55°

Dec	LHA 080° / 280°	LHA 081° / 279°	LHA 082° / 278°	LHA 083° / 277°	LHA 084° / 276°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	5 43.0 +49.3 98.2	5 08.9 +49.3 97.4	4 34.7 +49.3 96.6	4 00.5 +49.3 95.7	3 26.2 +49.3 94.9
1°	6 32.3 +49.4 97.6	5 58.2 +49.3 96.8	5 24.0 +49.3 96.0	4 49.8 +49.2 95.2	4 15.5 +49.2 94.3
2°	7 21.7 +49.3 97.1	6 47.5 +49.3 96.2	6 13.3 +49.2 95.4	5 39.0 +49.2 94.6	5 04.7 +49.1 93.8
3°	8 11.0 +49.2 96.5	7 36.8 +49.2 95.7	7 02.5 +49.2 94.8	6 28.2 +49.1 94.0	5 53.8 +49.2 93.2
4°	9 00.2 +49.2 95.9	8 26.0 +49.1 95.1	7 51.7 +49.1 94.3	7 17.3 +49.1 93.4	6 43.0 +49.1 92.6
5°	9 49.4 +49.1 95.3	9 15.1 +49.1 94.5	8 40.8 +49.1 93.7	8 06.4 +49.1 92.9	7 32.1 +49.0 92.0
6°	10 38.5 +49.1 94.8	10 04.2 +49.1 93.9	9 29.9 +49.0 93.1	8 55.5 +49.0 92.3	8 21.1 +49.0 91.5
7°	11 27.6 +49.0 94.2	10 53.3 +48.9 93.3	10 18.9 +49.0 92.5	9 44.5 +49.0 91.7	9 10.1 +48.9 90.9
8°	12 16.6 +48.9 93.6	11 42.2 +48.9 92.8	11 07.9 +48.9 91.9	10 33.5 +48.8 91.1	9 59.0 +48.9 90.3
9°	13 05.5 +48.9 93.0	12 31.1 +48.9 92.2	11 56.8 +48.8 91.3	11 22.3 +48.9 90.5	10 47.9 +48.8 89.7
10°	13 54.4 +48.7 92.4	13 20.0 +48.7 91.6	12 45.6 +48.7 90.7	12 11.2 +48.7 89.9	11 36.7 +48.8 89.1
11°	14 43.1 +48.7 91.8	14 08.7 +48.7 91.0	13 34.3 +48.6 90.1	12 59.9 +48.6 89.3	12 25.5 +48.6 88.5
12°	15 31.8 +48.5 91.2	14 57.4 +48.5 90.4	14 22.9 +48.6 89.5	13 48.5 +48.6 88.7	13 14.1 +48.6 87.9
13°	16 20.3 +48.5 90.6	15 45.9 +48.5 89.8	15 11.5 +48.5 88.9	14 37.1 +48.5 88.1	14 02.7 +48.5 87.3
14°	17 08.8 +48.3 90.0	16 34.4 +48.3 89.1	16 00.0 +48.3 88.3	15 25.6 +48.3 87.5	14 51.2 +48.4 86.7
15°	17 57.1 +48.2 89.3	17 22.7 +48.2 88.5	16 48.3 +48.3 87.7	16 13.9 +48.3 86.9	15 39.6 +48.3 86.1
16°	18 45.3 +48.1 88.7	18 10.9 +48.1 87.9	17 36.6 +48.1 87.1	17 02.2 +48.1 86.3	16 27.9 +48.1 85.5
17°	19 33.4 +48.0 88.1	18 59.0 +48.0 87.3	18 24.7 +48.0 86.5	17 50.3 +48.1 85.6	17 16.0 +48.1 84.8
18°	20 21.4 +47.8 87.4	19 47.0 +47.8 86.6	19 12.7 +47.8 85.8	18 38.4 +47.9 85.0	18 04.1 +47.9 84.2
19°	21 09.2 +47.7 86.8	20 34.8 +47.7 86.0	20 00.5 +47.8 85.2	19 26.3 +47.7 84.4	18 52.0 +47.8 83.6
20°	21 56.9 +47.5 86.1	21 22.5 +47.6 85.3	20 48.3 +47.5 84.5	20 14.0 +47.7 83.7	19 39.8 +47.7 82.9
21°	22 44.4 +47.3 85.5	22 10.1 +47.4 84.7	21 35.8 +47.5 83.9	21 01.7 +47.4 83.1	20 27.5 +47.5 82.3
22°	23 31.7 +47.2 84.8	22 57.5 +47.2 84.0	22 23.3 +47.2 83.2	21 49.1 +47.3 82.4	21 15.0 +47.4 81.6
23°	24 18.9 +47.0 84.1	23 44.7 +47.0 83.3	23 10.5 +47.1 82.6	22 36.4 +47.2 81.8	22 02.4 +47.2 81.0
24°	25 05.9 +46.8 83.4	24 31.7 +46.9 82.7	23 57.6 +46.9 81.9	23 23.6 +47.0 81.1	22 49.6 +47.1 80.3
25°	25 52.7 +46.6 82.8	25 18.6 +46.6 82.0	24 44.5 +46.8 81.2	24 10.6 +46.8 80.4	23 36.7 +46.8 79.6
26°	26 39.3 +46.4 82.1	26 05.2 +46.5 81.3	25 31.3 +46.5 80.5	24 57.4 +46.5 79.7	24 23.5 +46.7 79.0
27°	27 25.7 +46.1 81.3	26 51.7 +46.2 80.6	26 17.8 +46.3 79.8	25 43.9 +46.4 79.0	25 10.2 +46.5 78.3
28°	28 11.8 +46.0 80.6	27 37.9 +46.0 79.8	27 04.1 +46.1 79.1	26 30.3 +46.2 78.3	25 56.7 +46.3 77.6
29°	28 57.8 +45.7 79.9	28 23.9 +45.8 79.1	27 50.2 +45.9 78.4	27 16.5 +46.0 77.6	26 43.0 +46.0 76.9

Dec	LHA 085° / 275°	LHA 086° / 274°	LHA 087° / 273°	LHA 088° / 272°	LHA 089° / 271°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	2 51.9 +49.2 94.1	2 17.6 +49.2 93.3	1 43.2 +49.2 92.5	1 08.8 +49.2 91.6	0 34.4 +49.2 90.8
1°	3 41.1 +49.2 93.5	3 06.8 +49.1 92.7	2 32.4 +49.1 91.9	1 58.0 +49.1 91.1	1 23.6 +49.1 90.2
2°	4 30.3 +49.2 93.0	3 55.9 +49.2 92.1	3 21.5 +49.2 91.3	2 47.1 +49.1 90.5	2 12.7 +49.1 89.7
3°	5 19.5 +49.1 92.4	4 45.1 +49.1 91.6	4 10.7 +49.1 90.7	3 36.2 +49.1 89.9	3 01.8 +49.1 89.1
4°	6 08.6 +49.1 91.8	5 34.2 +49.1 91.0	4 59.8 +49.0 90.2	4 25.3 +49.1 89.3	3 50.9 +49.1 88.5
5°	6 57.7 +49.0 91.2	6 23.3 +49.0 90.4	5 48.8 +49.1 89.6	5 14.4 +49.1 88.8	4 40.0 +49.1 87.9
6°	7 46.7 +49.0 90.6	7 12.3 +49.0 89.8	6 37.9 +49.0 89.0	6 03.5 +49.0 88.2	5 29.1 +49.0 87.4
7°	8 35.7 +48.9 90.1	8 01.3 +48.9 89.2	7 26.9 +48.9 88.4	6 52.5 +48.9 87.6	6 18.1 +49.0 86.8
8°	9 24.6 +48.9 89.5	8 50.2 +48.9 88.7	8 15.8 +48.9 87.8	7 41.4 +49.0 87.0	7 07.1 +48.9 86.2
9°	10 13.5 +48.8 88.9	9 39.1 +48.8 88.1	9 04.7 +48.9 87.2	8 30.4 +48.8 86.4	7 56.0 +48.9 85.6
10°	11 02.3 +48.8 88.3	10 27.9 +48.8 87.5	9 53.6 +48.8 86.7	9 19.2 +48.8 85.8	8 44.9 +48.9 85.0
11°	11 51.1 +48.7 87.7	11 16.7 +48.7 86.9	10 42.4 +48.7 86.1	10 08.0 +48.8 85.3	9 33.8 +48.7 84.4
12°	12 39.8 +48.5 87.1	12 05.4 +48.6 86.3	11 31.1 +48.6 85.5	10 56.8 +48.7 84.7	10 22.5 +48.8 83.9
13°	13 28.3 +48.6 86.5	12 54.0 +48.5 85.7	12 19.7 +48.6 84.9	11 45.5 +48.6 84.1	11 11.3 +48.6 83.3
14°	14 16.9 +48.4 85.9	13 42.5 +48.5 85.1	13 08.3 +48.5 84.3	12 34.1 +48.5 83.5	11 59.9 +48.6 82.7
15°	15 05.3 +48.3 85.3	14 31.0 +48.3 84.5	13 56.8 +48.4 83.7	13 22.6 +48.4 82.9	12 48.5 +48.5 82.1
16°	15 53.6 +48.2 84.7	15 19.3 +48.3 83.9	14 45.2 +48.2 83.1	14 11.0 +48.4 82.3	13 37.0 +48.3 81.5
17°	16 41.8 +48.1 84.0	16 07.6 +48.1 83.2	15 33.4 +48.2 82.4	14 59.4 +48.2 81.6	14 25.3 +48.3 80.8
18°	17 29.9 +48.0 83.4	16 55.7 +48.1 82.6	16 21.6 +48.1 81.8	15 47.6 +48.1 81.0	15 13.6 +48.3 80.2
19°	18 17.9 +47.8 82.8	17 43.8 +47.9 82.0	17 09.7 +48.0 81.2	16 35.7 +48.1 80.4	16 01.9 +48.0 79.6
20°	19 05.7 +47.7 82.1	18 31.7 +47.7 81.4	17 57.7 +47.8 80.6	17 23.8 +47.9 79.8	16 49.9 +48.0 79.0
21°	19 53.4 +47.6 81.5	19 19.4 +47.7 80.7	18 45.5 +47.7 79.9	18 11.7 +47.8 79.1	17 37.9 +47.9 78.4
22°	20 41.0 +47.5 80.9	20 07.1 +47.5 80.1	19 33.2 +47.6 79.3	18 59.5 +47.6 78.5	18 25.8 +47.7 77.7
23°	21 28.5 +47.2 80.2	20 54.6 +47.3 79.4	20 20.8 +47.4 78.6	19 47.1 +47.5 77.9	19 13.5 +47.6 77.1
24°	22 15.7 +47.2 79.5	21 41.9 +47.2 78.8	21 08.2 +47.3 78.0	20 34.6 +47.4 77.2	20 01.1 +47.5 76.4
25°	23 02.9 +46.9 78.9	22 29.1 +47.1 78.1	21 55.5 +47.1 77.3	21 22.0 +47.2 76.6	20 48.6 +47.3 75.8
26°	23 49.8 +46.8 78.2	23 16.2 +46.8 77.4	22 42.6 +47.0 76.7	22 09.2 +47.0 75.9	21 35.9 +47.1 75.1
27°	24 36.6 +46.5 77.5	24 03.0 +46.7 76.7	23 29.6 +46.7 76.0	22 56.2 +46.9 75.2	22 23.0 +47.0 74.5
28°	25 23.1 +46.4 76.8	24 49.7 +46.5 76.0	24 16.3 +46.6 75.3	23 43.1 +46.7 74.5	23 10.0 +46.8 73.8
29°	26 09.5 +46.2 76.1	25 36.2 +46.2 75.3	25 02.9 +46.4 74.6	24 29.8 +46.5 73.9	23 56.8 +46.6 73.1

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Dec	LHA 090° / 270°	LHA 091° / 269°	LHA 092° / 268°	LHA 093° / 267°	LHA 094° / 266°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	0 00.0 +49.1 90.0	-0 34.4 +49.1	-1 08.8 +49.1	-1 43.2 +49.2	-2 17.6 +49.2
1°	0 49.1 +49.2 89.4	0 14.7 +49.2 88.6	-0 19.7 +49.2	-0 54.0 +49.1	-1 28.4 +49.2
2°	1 38.3 +49.1 88.9	1 03.9 +49.1 88.0	0 29.5 +49.2 87.2	-0 04.9 +49.2	-0 39.2 +49.2
3°	2 27.4 +49.1 88.3	1 53.0 +49.2 87.5	1 18.7 +49.1 86.6	0 44.3 +49.2 85.8	0 10.0 +49.2 85.0
4°	3 16.5 +49.1 87.7	2 42.2 +49.1 86.9	2 07.8 +49.2 86.1	1 33.5 +49.2 85.3	0 59.2 +49.2 84.4
5°	4 05.6 +49.1 87.1	3 31.3 +49.1 86.3	2 57.0 +49.1 85.5	2 22.7 +49.1 84.7	1 48.4 +49.2 83.9
6°	4 54.7 +49.1 86.6	4 20.4 +49.1 85.7	3 46.1 +49.1 84.9	3 11.8 +49.2 84.1	2 37.6 +49.2 83.3
7°	5 43.8 +49.0 86.0	5 09.5 +49.0 85.2	4 35.2 +49.1 84.3	4 01.0 +49.1 83.5	3 26.8 +49.1 82.7
8°	6 32.8 +48.9 85.4	5 58.5 +49.0 84.6	5 24.3 +49.0 83.8	4 50.1 +49.0 83.0	4 15.9 +49.2 82.1
9°	7 21.7 +49.0 84.8	6 47.5 +48.9 84.0	6 13.3 +49.0 83.2	5 39.1 +49.1 82.4	5 05.1 +49.1 81.6
10°	8 10.7 +48.8 84.2	7 36.4 +49.0 83.4	7 02.3 +48.9 82.6	6 28.2 +49.0 81.8	5 54.2 +49.0 81.0
11°	8 59.5 +48.9 83.6	8 25.4 +48.8 82.8	7 51.2 +49.0 82.0	7 17.2 +49.0 81.2	6 43.2 +49.0 80.4
12°	9 48.4 +48.7 83.0	9 14.2 +48.8 82.2	8 40.2 +48.8 81.4	8 06.2 +48.9 80.6	7 32.2 +49.0 79.8
13°	10 37.1 +48.7 82.5	10 03.0 +48.8 81.7	9 29.0 +48.8 80.8	8 55.1 +48.8 80.0	8 21.2 +48.9 79.2
14°	11 25.8 +48.6 81.9	10 51.8 +48.6 81.1	10 17.8 +48.7 80.3	9 43.9 +48.8 79.5	9 10.1 +48.9 78.7
15°	12 14.4 +48.6 81.3	11 40.4 +48.6 80.5	11 06.5 +48.7 79.7	10 32.7 +48.8 78.9	9 59.0 +48.8 78.1
16°	13 03.0 +48.4 80.7	12 29.0 +48.6 79.9	11 55.2 +48.6 79.1	11 21.5 +48.6 78.3	10 47.8 +48.7 77.5
17°	13 51.4 +48.4 80.1	13 17.6 +48.4 79.3	12 43.8 +48.5 78.5	12 10.1 +48.6 77.7	11 36.5 +48.7 76.9
18°	14 39.8 +48.2 79.4	14 06.0 +48.3 78.7	13 32.3 +48.4 77.9	12 58.7 +48.5 77.1	12 25.2 +48.6 76.3
19°	15 28.0 +48.2 78.8	14 54.3 +48.3 78.0	14 20.7 +48.3 77.3	13 47.2 +48.4 76.5	13 13.8 +48.5 75.7
20°	16 16.2 +48.1 78.2	15 42.6 +48.1 77.4	15 09.0 +48.3 76.6	14 35.6 +48.3 75.9	14 02.3 +48.4 75.1
21°	17 04.3 +47.9 77.6	16 30.7 +48.0 76.8	15 57.3 +48.1 76.0	15 23.9 +48.2 75.2	14 50.7 +48.3 74.5
22°	17 52.2 +47.8 77.0	17 18.7 +47.9 76.2	16 45.4 +48.0 75.4	16 12.1 +48.1 74.6	15 39.0 +48.2 73.8
23°	18 40.0 +47.7 76.3	18 06.6 +47.8 75.5	17 33.4 +47.9 74.8	17 00.2 +48.0 74.0	16 27.2 +48.1 73.2
24°	19 27.7 +47.6 75.7	18 54.4 +47.7 74.9	18 21.3 +47.7 74.1	17 48.2 +47.9 73.4	17 15.3 +48.0 72.6
25°	20 15.3 +47.4 75.0	19 42.1 +47.5 74.3	19 09.0 +47.6 73.5	18 36.1 +47.7 72.7	18 03.3 +47.8 72.0
26°	21 02.7 +47.2 74.4	20 29.6 +47.4 73.6	19 56.6 +47.5 72.9	19 23.8 +47.6 72.1	18 51.1 +47.8 71.3
27°	21 49.9 +47.1 73.7	21 17.0 +47.2 73.0	20 44.1 +47.4 72.2	20 11.4 +47.5 71.4	19 38.9 +47.6 70.7
28°	22 37.0 +46.9 73.0	22 04.2 +47.0 72.3	21 31.5 +47.1 71.5	20 58.9 +47.3 70.8	20 26.5 +47.4 70.0
29°	23 23.9 +46.8 72.4	22 51.2 +46.9 71.6	22 18.6 +47.0 70.9	21 46.2 +47.1 70.1	21 13.9 +47.3 69.4

Dec	LHA 095° / 265°	LHA 096° / 264°	LHA 097° / 263°	LHA 098° / 262°	LHA 099° / 261°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-2 51.9 +49.2	-3 26.2 +49.2	-4 00.5 +49.3	-4 34.7 +49.3	-5 08.9 +49.4
1°	-2 02.7 +49.2	-2 37.0 +49.3	-3 11.2 +49.3	-3 45.4 +49.3	-4 19.5 +49.4
2°	-1 13.5 +49.3	-1 47.7 +49.2	-2 21.9 +49.3	-2 56.1 +49.4	-3 30.1 +49.4
3°	-0 24.2 +49.2	-0 58.5 +49.3	-1 32.6 +49.3	-2 06.7 +49.4	-2 40.7 +49.4
4°	0 25.0 +49.2 83.6	-0 09.2 +49.3	-0 43.3 +49.3	-1 17.3 +49.4	-1 51.3 +49.4
5°	1 14.2 +49.3 83.0	0 40.1 +49.3 82.2	0 06.0 +49.4 81.4	-0 27.9 +49.3	-1 01.9 +49.5
6°	2 03.5 +49.2 82.5	1 29.4 +49.3 81.7	0 55.4 +49.3 80.8	0 21.4 +49.4 80.0	-0 12.4 +49.4
7°	2 52.7 +49.2 81.9	2 18.7 +49.2 81.1	1 44.7 +49.3 80.3	1 10.8 +49.4 79.4	0 37.0 +49.5 78.6
8°	3 41.9 +49.2 81.3	3 07.9 +49.2 80.5	2 34.0 +49.3 79.7	2 00.2 +49.3 78.9	1 26.5 +49.4 78.1
9°	4 31.1 +49.1 80.8	3 57.1 +49.3 79.9	3 23.3 +49.3 79.1	2 49.5 +49.4 78.3	2 15.9 +49.4 77.5
10°	5 20.2 +49.1 80.2	4 46.4 +49.1 79.4	4 12.6 +49.2 78.6	3 38.9 +49.3 77.7	3 05.3 +49.4 76.9
11°	6 09.3 +49.1 79.6	5 35.5 +49.2 78.8	5 01.8 +49.2 78.0	4 28.2 +49.3 77.2	3 54.7 +49.4 76.4
12°	6 58.4 +49.1 79.0	6 24.7 +49.1 78.2	5 51.0 +49.2 77.4	5 17.5 +49.3 76.6	4 44.1 +49.3 75.8
13°	7 47.5 +49.0 78.4	7 13.8 +49.1 77.6	6 40.2 +49.2 76.8	6 06.8 +49.2 76.0	5 33.4 +49.4 75.2
14°	8 36.5 +48.9 77.9	8 02.9 +49.0 77.1	7 29.4 +49.1 76.3	6 56.0 +49.2 75.5	6 22.8 +49.2 74.6
15°	9 25.4 +48.9 77.3	8 51.9 +48.9 76.5	8 18.5 +49.0 75.7	7 45.2 +49.1 74.9	7 12.0 +49.3 74.1
16°	10 14.3 +48.8 76.7	9 40.8 +48.9 75.9	9 07.5 +49.0 75.1	8 34.3 +49.1 74.3	8 01.3 +49.2 73.5
17°	11 03.1 +48.7 76.1	10 29.7 +48.9 75.3	9 56.5 +48.9 74.5	9 23.4 +49.0 73.7	8 50.5 +49.1 72.9
18°	11 51.8 +48.7 75.5	11 18.6 +48.7 74.7	10 45.4 +48.9 73.9	10 12.4 +49.0 73.1	9 39.6 +49.1 72.3
19°	12 40.5 +48.6 74.9	12 07.3 +48.7 74.1	11 34.3 +48.8 73.3	11 01.4 +48.9 72.5	10 28.7 +49.0 71.8
20°	13 29.1 +48.5 74.3	12 56.0 +48.6 73.5	12 23.1 +48.7 72.7	11 50.3 +48.8 71.9	11 17.7 +48.9 71.2
21°	14 17.6 +48.4 73.7	13 44.6 +48.6 72.9	13 11.8 +48.6 72.1	12 39.1 +48.8 71.4	12 06.6 +48.9 70.6
22°	15 06.0 +48.3 73.1	14 33.2 +48.4 72.3	14 00.4 +48.6 71.5	13 27.9 +48.6 70.8	12 55.5 +48.7 70.0
23°	15 54.3 +48.2 72.5	15 21.6 +48.3 71.7	14 49.0 +48.4 70.9	14 16.5 +48.6 70.2	13 44.2 +48.7 69.4
24°	16 42.5 +48.1 71.8	16 09.9 +48.2 71.1	15 37.4 +48.4 70.3	15 05.1 +48.5 69.5	14 32.9 +48.6 68.8
25°	17 30.6 +48.0 71.2	16 58.1 +48.1 70.5	16 25.8 +48.2 69.7	15 53.6 +48.3 68.9	15 21.5 +48.6 68.2
26°	18 18.6 +47.9 70.6	17 46.2 +48.0 69.8	17 14.0 +48.1 69.1	16 41.9 +48.3 68.3	16 10.1 +48.3 67.6
27°	19 06.5 +47.7 69.9	18 34.2 +47.9 69.2	18 02.1 +48.0 68.4	17 30.2 +48.1 67.7	16 58.4 +48.3 66.9
28°	19 54.2 +47.6 69.3	19 22.1 +47.7 68.6	18 50.1 +47.9 67.8	18 18.3 +48.1 67.1	17 46.7 +48.2 66.3
29°	20 41.8 +47.4 68.7	20 09.8 +47.6 67.9	19 38.0 +47.7 67.2	19 06.4 +47.8 66.4	18 34.9 +48.0 65.7

# Declination SAME name as Latitude

# Latitude 55°

Dec	LHA 100° / 260°	LHA 101° / 259°	LHA 102° / 258°	LHA 103° / 257°	LHA 104° / 256°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-5 43.0 +49.4	-6 17.0 +49.5	-6 50.9 +49.5	-7 24.8 +49.6	-7 58.6 +49.7
1°	-4 53.6 +49.5	-5 27.5 +49.5	-6 01.4 +49.5	-6 35.2 +49.6	-7 08.9 +49.7
2°	-4 04.1 +49.4	-4 38.0 +49.5	-5 11.9 +49.6	-5 45.6 +49.7	-6 19.2 +49.7
3°	-3 14.7 +49.5	-3 48.5 +49.5	-4 22.3 +49.6	-4 55.9 +49.6	-5 29.5 +49.8
4°	-2 25.2 +49.5	-2 59.0 +49.6	-3 32.7 +49.7	-4 06.3 +49.8	-4 39.7 +49.8
5°	-1 35.7 +49.5	-2 09.4 +49.6	-2 43.0 +49.6	-3 16.5 +49.7	-3 49.9 +49.8
6°	-0 46.2 +49.5	-1 19.8 +49.6	-1 53.4 +49.7	-2 26.8 +49.7	-3 00.1 +49.8
7°	0 03.3 +49.5 77.8	-0 30.2 +49.5	-1 03.7 +49.6	-1 37.1 +49.8	-2 10.3 +49.8
8°	0 52.8 +49.6 77.2	0 19.3 +49.6 76.4	-0 14.1 +49.7	-0 47.3 +49.7	-1 20.5 +49.9
9°	1 42.4 +49.4 76.7	1 08.9 +49.6 75.9	0 35.6 +49.7 75.1	0 02.4 +49.8 74.2	-0 30.6 +49.8
10°	2 31.8 +49.5 76.1	1 58.5 +49.6 75.3	1 25.3 +49.6 74.5	0 52.2 +49.7 73.7	0 19.2 +49.9 72.9
11°	3 21.3 +49.5 75.6	2 48.1 +49.5 74.7	2 14.9 +49.7 73.9	1 41.9 +49.8 73.1	1 09.1 +49.8 72.3
12°	4 10.8 +49.4 75.0	3 37.6 +49.5 74.2	3 04.6 +49.6 73.4	2 31.7 +49.7 72.6	1 58.9 +49.8 71.7
13°	5 00.2 +49.4 74.4	4 27.1 +49.5 73.6	3 54.2 +49.6 72.8	3 21.4 +49.7 72.0	2 48.7 +49.9 71.2
14°	5 49.6 +49.4 73.8	5 16.6 +49.5 73.0	4 43.8 +49.6 72.2	4 11.1 +49.7 71.4	3 38.6 +49.7 70.6
15°	6 39.0 +49.3 73.3	6 06.1 +49.5 72.5	5 33.4 +49.5 71.7	5 00.8 +49.6 70.9	4 28.3 +49.8 70.1
16°	7 28.3 +49.3 72.7	6 55.6 +49.3 71.9	6 22.9 +49.5 71.1	5 50.4 +49.7 70.3	5 18.1 +49.8 69.5
17°	8 17.6 +49.3 72.1	7 44.9 +49.4 71.3	7 12.4 +49.5 70.5	6 40.1 +49.5 69.7	6 07.9 +49.7 68.9
18°	9 06.9 +49.1 71.5	8 34.3 +49.3 70.8	8 01.9 +49.4 70.0	7 29.6 +49.6 69.2	6 57.6 +49.6 68.4
19°	9 56.0 +49.2 71.0	9 23.6 +49.2 70.2	8 51.3 +49.4 69.4	8 19.2 +49.5 68.6	7 47.2 +49.6 67.8
20°	10 45.2 +49.0 70.4	10 12.8 +49.2 69.6	9 40.7 +49.3 68.8	9 08.7 +49.4 68.0	8 36.8 +49.6 67.2
21°	11 34.2 +49.0 69.8	11 02.0 +49.1 69.0	10 30.0 +49.2 68.2	9 58.1 +49.4 67.5	9 26.4 +49.5 66.7
22°	12 23.2 +48.9 69.2	11 51.1 +49.1 68.4	11 19.2 +49.2 67.7	10 47.5 +49.3 66.9	10 15.9 +49.5 66.1
23°	13 12.1 +48.8 68.6	12 40.2 +48.9 67.8	12 08.4 +49.1 67.1	11 36.8 +49.2 66.3	11 05.4 +49.3 65.5
24°	14 00.9 +48.8 68.0	13 29.1 +48.9 67.2	12 57.5 +49.0 66.5	12 26.0 +49.2 65.7	11 54.7 +49.4 64.9
25°	14 49.7 +48.6 67.4	14 18.0 +48.8 66.7	13 46.5 +48.9 65.9	13 15.2 +49.1 65.1	12 44.1 +49.2 64.4
26°	15 38.3 +48.6 66.8	15 06.8 +48.7 66.0	14 35.4 +48.9 65.3	14 04.3 +49.0 64.5	13 33.3 +49.1 63.8
27°	16 26.9 +48.4 66.2	15 55.5 +48.6 65.4	15 24.3 +48.7 64.7	14 53.3 +48.9 63.9	14 22.4 +49.1 63.2
28°	17 15.3 +48.3 65.6	16 44.1 +48.4 64.8	16 13.0 +48.7 64.1	15 42.2 +48.8 63.3	15 11.5 +49.0 62.6
29°	18 03.6 +48.2 65.0	17 32.5 +48.4 64.2	17 01.7 +48.5 63.5	16 31.0 +48.7 62.7	16 00.5 +48.8 62.0

Dec	LHA 105° / 255°	LHA 106° / 254°	LHA 107° / 253°	LHA 108° / 252°	LHA 109° / 251°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-8 32.2 +49.7	-9 05.8 +49.8	-9 39.2 +49.8	-9 22.6 +50.0	-9 55.7 +50.1
1°	-7 42.5 +49.8	-8 16.0 +49.9	-8 49.4 +50.0	-8 32.6 +50.1	-9 05.6 +50.2
2°	-6 52.7 +49.8	-7 26.1 +49.8	-7 59.4 +50.0	-7 42.5 +50.1	-8 15.4 +50.2
3°	-6 02.9 +49.8	-6 36.3 +50.0	-7 09.4 +50.0	-7 42.5 +50.1	-8 15.4 +50.2
4°	-5 13.1 +49.9	-5 46.3 +49.9	-6 19.4 +50.0	-6 52.4 +50.2	-7 25.2 +50.2
5°	-4 23.2 +49.9	-4 56.4 +50.0	-5 29.4 +50.1	-6 02.2 +50.1	-6 35.0 +50.3
6°	-3 33.3 +49.9	-4 06.4 +50.0	-4 39.3 +50.1	-5 12.1 +50.3	-5 44.7 +50.4
7°	-2 43.4 +49.9	-3 16.4 +50.1	-3 49.2 +50.1	-4 21.8 +50.2	-4 54.3 +50.3
8°	-1 53.5 +50.0	-2 26.3 +50.0	-2 59.1 +50.2	-3 31.6 +50.2	-4 04.0 +50.4
9°	-1 03.5 +49.9	-1 36.3 +50.1	-2 08.9 +50.1	-2 41.4 +50.3	-3 13.6 +50.4
10°	-0 13.6 +50.0	-0 46.2 +50.0	-1 18.8 +50.2	-1 51.1 +50.3	-2 23.2 +50.3
11°	0 36.4 +49.9 71.5	0 03.8 +50.1 70.7	-0 28.6 +50.2	-1 00.8 +50.3	-1 32.9 +50.5
12°	1 26.3 +49.9 70.9	0 53.9 +50.0 70.1	0 21.6 +50.1 69.3	-0 10.5 +50.3	-0 42.4 +50.4
13°	2 16.2 +50.0 70.4	1 43.9 +50.1 69.6	1 11.7 +50.2 68.7	0 39.8 +50.2 67.9	0 08.0 +50.4 67.1
14°	3 06.2 +49.9 69.8	2 34.0 +50.0 69.0	2 01.9 +50.2 68.2	1 30.0 +50.3 67.4	0 58.4 +50.4 66.6
15°	3 56.1 +49.9 69.3	3 24.0 +50.0 68.5	2 52.1 +50.1 67.6	2 20.3 +50.3 66.8	1 48.8 +50.4 66.0
16°	4 46.0 +49.8 68.7	4 14.0 +50.0 67.9	3 42.2 +50.1 67.1	3 10.6 +50.2 66.3	2 39.2 +50.4 65.5
17°	5 35.8 +49.8 68.1	5 04.0 +49.9 67.3	4 32.3 +50.1 66.5	4 00.8 +50.3 65.7	3 29.6 +50.3 64.9
18°	6 25.6 +49.8 67.6	5 53.9 +49.9 66.8	5 22.4 +50.0 66.0	4 51.1 +50.1 65.2	4 19.9 +50.3 64.4
19°	7 15.4 +49.8 67.0	6 43.8 +49.9 66.2	6 12.4 +50.1 65.4	5 41.2 +50.2 64.6	5 10.2 +50.4 63.9
20°	8 05.2 +49.7 66.5	7 33.7 +49.9 65.7	7 02.5 +50.0 64.9	6 31.4 +50.1 64.1	6 00.6 +50.2 63.3
21°	8 54.9 +49.6 65.9	8 23.6 +49.8 65.1	7 52.5 +49.9 64.3	7 21.5 +50.1 63.5	6 50.8 +50.3 62.8
22°	9 44.5 +49.6 65.3	9 13.4 +49.7 64.5	8 42.4 +49.9 63.8	8 11.6 +50.1 63.0	7 41.1 +50.2 62.2
23°	10 34.1 +49.6 64.8	10 03.1 +49.7 64.0	9 32.3 +49.8 63.2	9 01.7 +50.0 62.4	8 31.3 +50.1 61.7
24°	11 23.7 +49.4 64.2	10 52.8 +49.6 63.4	10 22.1 +49.8 62.6	9 51.7 +49.9 61.9	9 21.4 +50.1 61.1
25°	12 13.1 +49.4 63.6	11 42.4 +49.6 62.8	11 11.9 +49.7 62.1	10 41.6 +49.9 61.3	10 11.5 +50.1 60.5
26°	13 02.5 +49.3 63.0	12 32.0 +49.4 62.3	12 01.6 +49.6 61.5	11 31.5 +49.8 60.7	11 01.6 +49.9 60.0
27°	13 51.8 +49.3 62.4	13 21.4 +49.4 61.7	12 51.2 +49.6 60.9	12 21.3 +49.7 60.2	11 51.5 +49.9 59.4
28°	14 41.1 +49.1 61.8	14 10.8 +49.3 61.1	13 40.8 +49.5 60.3	13 11.0 +49.7 59.6	12 41.4 +49.9 58.8
29°	15 30.2 +49.0 61.2	15 00.1 +49.3 60.5	14 30.3 +49.4 59.8	14 00.7 +49.5 59.0	13 31.3 +49.7 58.3

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Dec	LHA 110° / 250°	LHA 111° / 249°	LHA 112° / 248°	LHA 113° / 247°	LHA 114° / 246°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°	-9 38.4 +50.2		-9 53.2 +50.5		
4°	-8 48.2 +50.3	-9 20.8 +50.5	-9 02.7 +50.6	-9 34.8 +50.7	
5°	-7 57.9 +50.4	-8 30.3 +50.4			
6°					
7°	-7 07.5 +50.4	-7 39.9 +50.5	-8 12.1 +50.6	-8 44.1 +50.7	-9 15.9 +50.8
8°	-6 17.1 +50.4	-6 49.4 +50.6	-7 21.5 +50.7	-7 53.4 +50.8	-8 25.1 +50.9
9°	-5 26.7 +50.5	-5 58.8 +50.5	-6 30.8 +50.7	-7 02.6 +50.8	-7 34.2 +51.0
10°	-4 36.2 +50.5	-5 08.3 +50.7	-5 40.1 +50.7	-6 11.8 +50.9	-6 43.2 +51.0
11°	-3 45.7 +50.5	-4 17.6 +50.6	-4 49.4 +50.8	-5 20.9 +50.9	-5 52.2 +51.0
12°					
13°	-2 55.2 +50.5	-3 27.0 +50.6	-3 58.6 +50.7	-4 30.0 +50.9	-5 01.2 +51.0
14°	-2 04.7 +50.5	-2 36.4 +50.7	-3 07.9 +50.8	-3 39.1 +50.9	-4 10.2 +51.1
15°	-1 14.2 +50.6	-1 45.7 +50.6	-2 17.1 +50.8	-2 48.2 +50.9	-3 19.1 +51.1
16°	-0 23.6 +50.5	-0 55.1 +50.7	-1 26.3 +50.8	-1 57.3 +51.0	-2 28.0 +51.1
17°	0 26.9 +50.5 65.8	-0 04.4 +50.7	-0 35.5 +50.9	-1 06.3 +50.9	-1 36.9 +51.1
18°					
19°	1 17.4 +50.6 65.2	0 46.3 +50.7 64.4	0 15.4 +50.8 63.6	-0 15.4 +51.0	-0 45.8 +51.1
20°	2 08.0 +50.5 64.7	1 37.0 +50.6 63.9	1 06.2 +50.8 63.1	0 35.6 +51.0 62.2	0 05.3 +51.1 61.4
21°	2 58.5 +50.5 64.1	2 27.6 +50.7 63.3	1 57.0 +50.8 62.5	1 26.6 +50.9 61.7	0 56.4 +51.1 60.9
22°	3 49.0 +50.5 63.6	3 18.3 +50.6 62.8	2 47.8 +50.7 62.0	2 17.5 +50.9 61.2	1 47.5 +51.1 60.4
23°	4 39.5 +50.4 63.1	4 08.9 +50.6 62.3	3 38.5 +50.8 61.5	3 08.4 +51.0 60.7	2 38.6 +51.0 59.8
24°					
25°	5 29.9 +50.4 62.5	4 59.5 +50.6 61.7	4 29.3 +50.7 60.9	3 59.4 +50.8 60.1	3 29.6 +51.1 59.3
26°	6 20.3 +50.4 62.0	5 50.1 +50.5 61.2	5 20.0 +50.8 60.4	4 50.2 +50.9 59.6	4 20.7 +51.0 58.8
27°	7 10.7 +50.4 61.4	6 40.6 +50.5 60.6	6 10.8 +50.6 59.8	5 41.1 +50.9 59.1	5 11.7 +51.0 58.3
28°	8 01.1 +50.3 60.9	7 31.1 +50.5 60.1	7 01.4 +50.7 59.3	6 32.0 +50.8 58.5	6 02.7 +51.0 57.7
29°	8 51.4 +50.3 60.3	8 21.6 +50.5 59.5	7 52.1 +50.6 58.8	7 22.8 +50.7 58.0	6 53.7 +51.0 57.2
30°					
31°	9 41.7 +50.2 59.8	9 12.1 +50.3 59.0	8 42.7 +50.5 58.2	8 13.5 +50.8 57.5	7 44.7 +50.9 56.7
32°	10 31.9 +50.1 59.2	10 02.4 +50.4 58.4	9 33.2 +50.5 57.7	9 04.3 +50.6 56.9	8 35.6 +50.8 56.1
33°	11 22.0 +50.1 58.7	10 52.8 +50.2 57.9	10 23.7 +50.5 57.1	9 54.9 +50.7 56.4	9 26.4 +50.8 55.6
34°	12 12.1 +50.0 58.1	11 43.0 +50.2 57.3	11 14.2 +50.4 56.6	10 45.6 +50.5 55.8	10 17.2 +50.8 55.1
35°	13 02.1 +50.0 57.5	12 33.2 +50.1 56.8	12 04.6 +50.3 56.0	11 36.1 +50.5 55.3	11 08.0 +50.7 54.5

Dec	LHA 115° / 245°	LHA 116° / 244°	LHA 117° / 243°	LHA 118° / 242°	LHA 119° / 241°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°	-9 47.6 +51.0				
6°	-8 56.6 +51.1				
7°	-8 05.5 +51.0				
8°	-7 14.5 +51.2	-9 27.9 +51.2	-9 58.9 +51.3	-9 38.3 +51.5	
9°	-6 23.3 +51.1	-8 36.7 +51.2	-9 07.6 +51.3	-8 46.8 +51.5	-9 17.2 +51.7
10°		-7 45.5 +51.3	-8 16.3 +51.4	-7 55.3 +51.6	-8 25.5 +51.8
11°		-6 54.2 +51.3	-7 24.9 +51.5		
12°					
13°	-5 32.2 +51.2	-6 02.9 +51.3	-6 33.4 +51.4	-7 03.7 +51.6	-7 33.7 +51.7
14°	-4 41.0 +51.2	-5 11.6 +51.3	-5 42.0 +51.5	-6 12.1 +51.6	-6 42.0 +51.8
15°	-3 49.8 +51.2	-4 20.3 +51.4	-4 50.5 +51.5	-5 20.5 +51.7	-5 50.2 +51.8
16°	-2 58.6 +51.3	-3 28.9 +51.4	-3 59.0 +51.6	-4 28.8 +51.7	-4 58.4 +51.9
17°	-2 07.3 +51.2	-2 37.5 +51.4	-3 07.4 +51.5	-3 37.1 +51.7	-4 06.5 +51.9
18°					
19°	-1 16.1 +51.3	-1 46.1 +51.4	-2 15.9 +51.6	-2 45.4 +51.7	-3 14.6 +51.8
20°	-0 24.8 +51.2	-0 54.7 +51.4	-1 24.3 +51.6	-1 53.7 +51.8	-2 22.8 +51.9
21°	0 26.4 +51.3 60.1	-0 03.3 +51.4	-0 32.7 +51.5	-1 01.9 +51.7	-1 30.9 +51.9
22°	1 17.7 +51.2 59.6	0 48.1 +51.4 58.7	0 18.8 +51.6 57.9	-0 10.2 +51.7	-0 39.0 +51.9
23°	2 08.9 +51.3 59.0	1 39.5 +51.4 58.2	1 10.4 +51.6 57.4	0 41.5 +51.8 56.6	0 12.9 +51.9 55.8
24°					
25°	3 00.2 +51.2 58.5	2 30.9 +51.4 57.7	2 02.0 +51.5 56.9	1 33.3 +51.7 56.1	1 04.8 +51.9 55.3
26°	3 51.4 +51.2 58.0	3 22.3 +51.4 57.2	2 53.5 +51.6 56.4	2 25.0 +51.7 55.6	1 56.7 +51.9 54.8
27°	4 42.6 +51.2 57.5	4 13.7 +51.3 56.7	3 45.1 +51.5 55.9	3 16.7 +51.7 55.1	2 48.6 +51.9 54.3
28°	5 33.8 +51.1 57.0	5 05.0 +51.4 56.2	4 36.6 +51.5 55.4	4 08.4 +51.7 54.6	3 40.5 +51.9 53.8
29°	6 24.9 +51.1 56.4	5 56.4 +51.3 55.6	5 28.1 +51.5 54.9	5 00.1 +51.6 54.1	4 32.4 +51.8 53.3
30°					
31°	7 16.0 +51.1 55.9	6 47.7 +51.2 55.1	6 19.6 +51.4 54.3	5 51.7 +51.7 53.6	5 24.2 +51.8 52.8
32°	8 07.1 +51.1 55.4	7 38.9 +51.3 54.6	7 11.0 +51.4 53.8	6 43.4 +51.6 53.0	6 16.0 +51.8 52.3
33°	8 58.2 +50.9 54.8	8 30.2 +51.1 54.1	8 02.4 +51.4 53.3	7 35.0 +51.5 52.5	7 07.8 +51.7 51.8
34°	9 49.1 +51.0 54.3	9 21.3 +51.2 53.5	8 53.8 +51.3 52.8	8 26.5 +51.5 52.0	7 59.5 +51.8 51.2
35°	10 40.1 +50.9 53.8	10 12.5 +51.1 53.0	9 45.1 +51.3 52.3	9 18.0 +51.5 51.5	8 51.3 +51.6 50.7

Dec	LHA 120° / 240°	LHA 121° / 239°	LHA 122° / 238°	LHA 123° / 237°	LHA 124° / 236°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°	-9 47.2 +51.8				
9°	-8 55.4 +51.9	-9 25.1 +52.1	-9 54.5 +52.2		
10°	-8 03.5 +51.9	-8 33.0 +52.0	-9 02.3 +52.3	-9 31.2 +52.4	-9 59.9 +52.6
11°	-7 11.6 +52.0	-7 41.0 +52.2	-8 10.0 +52.2	-8 38.8 +52.4	-9 07.3 +52.6
12°	-6 19.6 +51.9	-6 48.8 +52.1	-7 17.8 +52.3	-7 46.4 +52.5	-8 14.7 +52.6
13°	-5 27.7 +52.0	-5 56.7 +52.2	-6 25.5 +52.4	-6 53.9 +52.5	-7 22.1 +52.7
14°	-4 35.7 +52.1	-5 04.5 +52.2	-5 33.1 +52.3	-6 01.4 +52.5	-6 29.4 +52.7
15°	-3 43.6 +52.0	-4 12.3 +52.2	-4 40.8 +52.4	-5 08.9 +52.5	-5 36.7 +52.7
16°	-2 51.6 +52.1	-3 20.1 +52.2	-3 48.4 +52.4	-4 16.4 +52.6	-4 44.0 +52.7
17°	-1 59.5 +52.0	-2 27.9 +52.2	-2 56.0 +52.4	-3 23.8 +52.6	-3 51.3 +52.8
18°	-1 07.5 +52.1	-1 35.7 +52.3	-2 03.6 +52.4	-2 31.2 +52.6	-2 58.5 +52.7
19°	-0 15.4 +52.1	-0 43.4 +52.2	-1 11.2 +52.5	-1 38.6 +52.6	-2 05.8 +52.8
20°	0 36.7 +52.1 54.5	0 08.8 +52.3 53.7	-0 18.7 +52.4	-0 46.0 +52.6	-1 13.0 +52.8
21°	1 28.8 +52.0 54.0	1 01.1 +52.2 53.2	0 33.7 +52.4 52.4	0 06.6 +52.6 51.5	-0 20.2 +52.8
22°	2 20.8 +52.1 53.5	1 53.3 +52.3 52.7	1 26.1 +52.4 51.9	0 59.2 +52.6 51.1	0 32.6 +52.8 50.2
23°	3 12.9 +52.0 53.0	2 45.6 +52.2 52.2	2 18.5 +52.4 51.4	1 51.8 +52.6 50.6	1 25.4 +52.7 49.8
24°	4 04.9 +52.0 52.5	3 37.8 +52.2 51.7	3 10.9 +52.4 50.9	2 44.4 +52.5 50.1	2 18.1 +52.8 49.3
25°	4 56.9 +52.0 52.0	4 30.0 +52.2 51.2	4 03.3 +52.4 50.4	3 36.9 +52.6 49.6	3 10.9 +52.7 48.8
26°	5 48.9 +52.0 51.5	5 22.2 +52.1 50.7	4 55.7 +52.3 49.9	4 29.5 +52.6 49.1	4 03.6 +52.8 48.3
27°	6 40.9 +52.0 51.0	6 14.3 +52.2 50.2	5 48.0 +52.4 49.4	5 22.1 +52.5 48.6	4 56.4 +52.7 47.9
28°	7 32.9 +51.9 50.5	7 06.5 +52.1 49.7	6 40.4 +52.3 48.9	6 14.6 +52.5 48.2	5 49.1 +52.7 47.4
29°	8 24.8 +51.8 50.0	7 58.6 +52.0 49.2	7 32.7 +52.2 48.4	7 07.1 +52.4 47.7	6 41.8 +52.6 46.9

Dec	LHA 125° / 235°	LHA 126° / 234°	LHA 127° / 233°	LHA 128° / 232°	LHA 129° / 231°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°	-9 35.6 +52.8				
12°	-8 42.8 +52.8	-9 10.5 +52.9	-9 38.0 +53.2		
13°	-7 50.0 +52.8	-8 17.6 +53.0	-8 44.8 +53.2	-9 11.7 +53.3	-9 38.4 +53.6
14°	-6 57.2 +52.9	-7 24.6 +53.1	-7 51.6 +53.2	-8 18.4 +53.4	-8 44.8 +53.6
15°	-6 04.3 +52.9	-6 31.5 +53.1	-6 58.4 +53.2	-7 25.0 +53.4	-7 51.2 +53.5
16°	-5 11.4 +52.9	-5 38.4 +53.0	-6 05.2 +53.3	-6 31.6 +53.5	-6 57.7 +53.7
17°	-4 18.5 +53.0	-4 45.4 +53.2	-5 11.9 +53.3	-5 38.1 +53.4	-6 04.0 +53.6
18°	-3 25.5 +52.9	-3 52.2 +53.1	-4 18.6 +53.3	-4 44.7 +53.5	-5 10.4 +53.7
19°	-2 32.6 +53.0	-2 59.1 +53.1	-3 25.3 +53.3	-3 51.2 +53.5	-4 16.7 +53.7
20°	-1 39.6 +52.9	-2 06.0 +53.2	-2 32.0 +53.3	-2 57.7 +53.5	-3 23.0 +53.7
21°	-0 46.7 +53.0	-1 12.8 +53.1	-1 38.7 +53.3	-2 04.2 +53.5	-2 29.3 +53.7
22°	0 06.3 +52.9 49.4	-0 19.7 +53.1	-0 45.4 +53.4	-1 10.7 +53.6	-1 35.6 +53.7
23°	0 59.2 +53.0 49.0	0 33.4 +53.2 48.1	0 08.0 +53.3 47.3	-0 17.1 +53.5	-0 41.9 +53.7
24°	1 52.2 +53.0 48.5	1 26.6 +53.1 47.7	1 01.3 +53.3 46.9	0 36.4 +53.5 46.0	0 11.8 +53.7 45.2
25°	2 45.2 +52.9 48.0	2 19.7 +53.2 47.2	1 54.6 +53.4 46.4	1 29.9 +53.5 45.6	1 05.5 +53.7 44.8
26°	3 38.1 +52.9 47.5	3 12.9 +53.1 46.7	2 48.0 +53.3 45.9	2 23.4 +53.5 45.1	1 59.2 +53.7 44.3
27°	4 31.0 +52.9 47.1	4 06.0 +53.1 46.3	3 41.3 +53.3 45.5	3 16.9 +53.5 44.7	2 52.9 +53.7 43.9
28°	5 23.9 +52.9 46.6	4 59.1 +53.1 45.8	4 34.6 +53.3 45.0	4 10.4 +53.5 44.2	3 46.6 +53.6 43.4
29°	6 16.8 +52.9 46.1	5 52.2 +53.0 45.3	5 27.9 +53.2 44.6	5 03.9 +53.4 43.8	4 40.2 +53.7 43.0

Dec	LHA 130° / 230°	LHA 131° / 229°	LHA 132° / 228°	LHA 133° / 227°	LHA 134° / 226°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°	-9 10.9 +53.7	-9 36.6 +53.9			
15°	-8 17.2 +53.8	-8 42.7 +53.9	-9 07.9 +54.1	-9 32.8 +54.4	-9 57.2 +54.5
16°	-7 23.4 +53.8	-7 48.8 +54.0	-8 13.8 +54.2	-8 38.4 +54.3	-9 02.7 +54.5
17°	-6 29.6 +53.8	-6 54.8 +54.0	-7 19.6 +54.2	-7 44.1 +54.4	-8 08.2 +54.6
18°	-5 35.8 +53.9	-6 00.8 +54.1	-6 25.4 +54.2	-6 49.7 +54.4	-7 13.6 +54.5
19°	-4 41.9 +53.9	-5 06.7 +54.0	-5 31.2 +54.2	-5 55.3 +54.4	-6 19.1 +54.6
20°	-3 48.0 +53.8	-4 12.7 +54.1	-4 37.0 +54.3	-5 00.9 +54.4	-5 24.5 +54.6
21°	-2 54.2 +53.9	-3 18.6 +54.0	-3 42.7 +54.2	-4 06.5 +54.5	-4 29.9 +54.7
22°	-2 00.3 +53.9	-2 24.6 +54.1	-2 48.5 +54.3	-3 12.0 +54.4	-3 35.2 +54.6
23°	-1 06.4 +53.9	-1 30.5 +54.1	-1 54.2 +54.3	-2 17.6 +54.5	-2 40.6 +54.7
24°	-0 12.5 +53.9	-0 36.4 +54.1	-0 59.9 +54.2	-1 23.1 +54.4	-1 45.9 +54.6
25°	0 41.4 +53.9 44.0	0 17.7 +54.1 43.2	-0 05.7 +54.3	-0 28.7 +54.5	-0 51.3 +54.7
26°	1 35.3 +53.9 43.5	1 11.8 +54.1 42.7	0 48.6 +54.3 41.9	0 25.8 +54.5 41.1	0 03.4 +54.6 40.3
27°	2 29.2 +53.9 43.1	2 05.9 +54.0 42.3	1 42.9 +54.2 41.5	1 20.3 +54.4 40.7	0 58.0 +54.7 39.9
28°	3 23.1 +53.8 42.7	2 59.9 +54.1 41.9	2 37.1 +54.3 41.1	2 14.7 +54.5 40.3	1 52.7 +54.6 39.5
29°	4 16.9 +53.9 42.2	3 54.0 +54.0 41.4	3 31.4 +54.3 40.6	3 09.2 +54.4 39.8	2 47.3 +54.6 39.0

Dec	LHA 135° / 225°	LHA 136° / 224°	LHA 137° / 223°	LHA 138° / 222°	LHA 139° / 221°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°	-9 26.6 +54.7	-9 50.1 +54.8			
17°	-8 31.9 +54.7	-8 55.3 +55.0	-9 18.2 +55.1	-9 40.7 +55.2	
18°	-7 37.2 +54.8	-8 00.3 +54.9	-8 23.1 +55.1	-8 45.5 +55.3	-9 07.4 +55.5
19°	-6 42.4 +54.8	-7 05.4 +55.0	-7 28.0 +55.2	-7 50.2 +55.4	-8 11.9 +55.5
20°	-5 47.6 +54.8	-6 10.4 +54.9	-6 32.8 +55.1	-6 54.8 +55.3	-7 16.4 +55.5
21°	-4 52.8 +54.8	-5 15.5 +55.0	-5 37.7 +55.2	-5 59.5 +55.4	-6 20.9 +55.5
22°	-3 58.0 +54.8	-4 20.5 +55.0	-4 42.5 +55.2	-5 04.1 +55.3	-5 25.4 +55.6
23°	-3 03.2 +54.8	-3 25.5 +55.1	-3 47.3 +55.2	-4 08.8 +55.4	-4 29.8 +55.6
24°	-2 08.4 +54.9	-2 30.4 +55.0	-2 52.1 +55.2	-3 13.4 +55.4	-3 34.2 +55.5
25°	-1 13.5 +54.8	-1 35.4 +55.0	-1 56.9 +55.2	-2 18.0 +55.4	-2 38.7 +55.6
26°	-0 18.7 +54.8	-0 40.4 +55.0	-1 01.7 +55.2	-1 22.6 +55.4	-1 43.1 +55.6
27°	0 36.1 +54.9 39.1	0 14.6 +55.1 38.2	-0 06.5 +55.3	-0 27.2 +55.4	-0 47.5 +55.6
28°	1 31.0 +54.8 38.6	1 09.7 +55.0 37.8	0 48.8 +55.2 37.0	0 28.2 +55.4 36.2	0 08.1 +55.6 35.4
29°	2 25.8 +54.9 38.2	2 04.7 +55.0 37.4	1 44.0 +55.2 36.6	1 23.6 +55.4 35.8	1 03.7 +55.6 35.0

Dec	LHA 140° / 220°	LHA 141° / 219°	LHA 142° / 218°	LHA 143° / 217°	LHA 144° / 216°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°	-9 29.0 +55.7	-9 50.1 +55.9			
19°	-8 33.3 +55.7	-8 54.2 +55.8	-9 14.7 +56.0	-9 34.8 +56.2	
20°	-7 37.6 +55.7	-7 58.4 +55.9	-8 18.7 +56.1	-8 38.6 +56.2	
21°	-6 41.9 +55.7	-7 02.5 +55.9	-7 22.6 +56.0	-7 42.4 +56.3	
22°	-5 46.2 +55.8	-6 06.6 +55.9	-6 26.6 +56.1	-6 46.1 +56.2	
23°	-4 50.4 +55.7	-5 10.7 +55.9	-5 30.5 +56.1	-5 49.9 +56.3	
24°	-3 54.7 +55.8	-4 14.8 +56.0	-4 34.4 +56.1	-4 53.6 +56.3	
25°	-2 58.9 +55.7	-3 18.8 +55.9	-3 38.3 +56.2	-3 57.3 +56.3	
26°	-2 03.2 +55.8	-2 22.9 +56.0	-2 42.1 +56.1	-3 01.0 +56.3	
27°	-1 07.4 +55.8	-1 26.9 +55.9	-1 46.0 +56.1	-2 04.7 +56.3	
28°	-0 11.6 +55.7	-0 31.0 +56.0	-0 49.9 +56.2	-1 08.4 +56.3	
29°	0 44.1 +55.8 34.2	0 25.0 +55.9 33.4	0 06.3 +56.1 32.6	-0 12.1 +56.3	

Dec	LHA 145° / 215°	LHA 146° / 214°	LHA 147° / 213°	LHA 148° / 212°	LHA 149° / 211°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
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16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					



Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	34 00.0 +60.0 180.0	33 59.6 +60.0 178.8	33 58.6 +60.0 177.6	33 56.8 +60.0 176.4	33 54.4 +59.9 175.2
1°	35 00.0 +60.0 180.0	34 59.6 +60.0 178.8	34 58.6 +60.0 177.6	34 56.8 +59.9 176.3	34 54.3 +59.9 175.1
2°	36 00.0 +60.0 180.0	35 59.6 +60.0 178.8	35 58.6 +59.9 177.5	35 56.7 +60.0 176.3	35 54.2 +59.9 175.1
3°	37 00.0 +60.0 180.0	36 59.6 +60.0 178.7	36 58.5 +60.0 177.5	36 56.7 +60.0 176.3	36 54.1 +60.0 175.0
4°	38 00.0 +60.0 180.0	37 59.6 +60.0 178.7	37 58.5 +60.0 177.5	37 56.7 +59.9 176.2	37 54.1 +59.9 174.9
5°	39 00.0 +60.0 180.0	38 59.6 +60.0 178.7	38 58.5 +60.0 177.4	38 56.6 +60.0 176.2	38 54.0 +59.9 174.9
6°	40 00.0 +60.0 180.0	39 59.6 +60.0 178.7	39 58.5 +60.0 177.4	39 56.6 +59.9 176.1	39 53.9 +59.9 174.8
7°	41 00.0 +60.0 180.0	40 59.6 +60.0 178.7	40 58.5 +59.9 177.4	40 56.5 +60.0 176.1	40 53.8 +60.0 174.7
8°	42 00.0 +60.0 180.0	41 59.6 +60.0 178.7	41 58.4 +60.0 177.3	41 56.5 +59.9 176.0	41 53.8 +59.9 174.7
9°	43 00.0 +60.0 180.0	42 59.6 +60.0 178.6	42 58.4 +60.0 177.3	42 56.4 +60.0 176.0	42 53.7 +59.9 174.6
10°	44 00.0 +60.0 180.0	43 59.6 +60.0 178.6	43 58.4 +60.0 177.3	43 56.4 +59.9 175.9	43 53.6 +59.9 174.5
11°	45 00.0 +60.0 180.0	44 59.6 +60.0 178.6	44 58.4 +60.0 177.2	44 56.3 +60.0 175.8	44 53.5 +59.9 174.5
12°	46 00.0 +60.0 180.0	45 59.6 +60.0 178.6	45 58.4 +59.9 177.2	45 56.3 +59.9 175.8	45 53.4 +59.9 174.4
13°	47 00.0 +60.0 180.0	46 59.6 +60.0 178.6	46 58.3 +60.0 177.1	46 56.2 +60.0 175.7	46 53.3 +59.9 174.3
14°	48 00.0 +60.0 180.0	47 59.6 +60.0 178.6	47 58.3 +60.0 177.1	47 56.2 +59.9 175.7	47 53.2 +59.9 174.2
15°	49 00.0 +60.0 180.0	48 59.6 +60.0 178.5	48 58.3 +59.9 177.1	48 56.1 +60.0 175.6	48 53.1 +59.9 174.1
16°	50 00.0 +60.0 180.0	49 59.6 +60.0 178.5	49 58.2 +60.0 177.0	49 56.1 +59.9 175.5	49 53.0 +59.9 174.0
17°	51 00.0 +60.0 180.0	50 59.6 +59.9 178.5	50 58.2 +60.0 177.0	50 56.0 +59.9 175.4	50 52.9 +59.9 173.9
18°	52 00.0 +60.0 180.0	51 59.5 +60.0 178.5	51 58.2 +60.0 176.9	51 55.9 +60.0 175.4	51 52.8 +59.9 173.8
19°	53 00.0 +60.0 180.0	52 59.5 +60.0 178.4	52 58.2 +59.9 176.9	52 55.9 +59.9 175.3	52 52.7 +59.8 173.7
20°	54 00.0 +60.0 180.0	53 59.5 +60.0 178.4	53 58.1 +60.0 176.8	53 55.8 +59.9 175.2	53 52.5 +59.9 173.6
21°	55 00.0 +60.0 180.0	54 59.5 +60.0 178.4	54 58.1 +60.0 176.7	54 55.7 +59.9 175.1	54 52.4 +59.8 173.5
22°	56 00.0 +60.0 180.0	55 59.5 +60.0 178.3	55 58.1 +59.9 176.7	55 55.6 +60.0 175.0	55 52.2 +59.9 173.4
23°	57 00.0 +60.0 180.0	56 59.5 +60.0 178.3	56 58.0 +60.0 176.6	56 55.6 +59.9 174.9	56 52.1 +59.8 173.3
24°	58 00.0 +60.0 180.0	57 59.5 +60.0 178.3	57 58.0 +59.9 176.6	57 55.5 +59.9 174.8	57 51.9 +59.9 173.1
25°	59 00.0 +60.0 180.0	58 59.5 +60.0 178.2	58 57.9 +60.0 176.5	58 55.4 +59.9 174.7	58 51.8 +59.8 173.0
26°	60 00.0 +60.0 180.0	59 59.5 +60.0 178.2	59 57.9 +59.9 176.4	59 55.3 +59.9 174.6	59 51.6 +59.8 172.8
27°	61 00.0 +60.0 180.0	60 59.5 +59.9 178.2	60 57.8 +60.0 176.3	60 55.2 +59.9 174.5	60 51.4 +59.8 172.7
28°	62 00.0 +60.0 180.0	61 59.4 +60.0 178.1	61 57.8 +59.9 176.2	61 55.1 +59.8 174.4	61 51.2 +59.8 172.5
29°	63 00.0 +60.0 180.0	62 59.4 +60.0 178.1	62 57.7 +60.0 176.1	62 54.9 +59.9 174.2	62 51.0 +59.8 172.3

Dec	LHA 005° / 355°	LHA 006° / 354°	LHA 007° / 353°	LHA 008° / 352°	LHA 009° / 351°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	33 51.2 +59.9 174.0	33 47.3 +59.9 172.8	33 42.7 +59.8 171.6	33 37.5 +59.7 170.4	33 31.5 +59.7 169.2
1°	34 51.1 +59.9 173.9	34 47.2 +59.8 172.7	34 42.5 +59.8 171.5	34 37.2 +59.7 170.3	34 31.2 +59.7 169.1
2°	35 51.0 +59.9 173.8	35 47.0 +59.9 172.6	35 42.3 +59.8 171.4	35 36.9 +59.8 170.1	35 30.9 +59.6 168.9
3°	36 50.9 +59.8 173.8	36 46.9 +59.8 172.5	36 42.1 +59.8 171.3	36 36.7 +59.7 170.0	36 30.5 +59.6 168.8
4°	37 50.7 +59.9 173.7	37 46.7 +59.8 172.4	37 41.9 +59.8 171.2	37 36.4 +59.7 169.9	37 30.1 +59.7 168.7
5°	38 50.6 +59.9 173.6	38 46.5 +59.9 172.3	38 41.7 +59.7 171.1	38 36.1 +59.7 169.8	38 29.8 +59.6 168.5
6°	39 50.5 +59.9 173.5	39 46.4 +59.8 172.2	39 41.4 +59.8 170.9	39 35.8 +59.7 169.7	39 29.4 +59.6 168.4
7°	40 50.4 +59.9 173.4	40 46.2 +59.8 172.1	40 41.2 +59.8 170.8	40 35.5 +59.7 169.5	40 29.0 +59.6 168.2
8°	41 50.3 +59.8 173.3	41 46.0 +59.8 172.0	41 41.0 +59.7 170.7	41 35.2 +59.6 169.4	41 28.6 +59.6 168.1
9°	42 50.1 +59.9 173.3	42 45.8 +59.8 171.9	42 40.7 +59.7 170.6	42 34.8 +59.7 169.2	42 28.2 +59.5 167.9
10°	43 50.0 +59.9 173.2	43 45.6 +59.8 171.8	43 40.4 +59.8 170.4	43 34.5 +59.6 169.1	43 27.7 +59.6 167.7
11°	44 49.9 +59.8 173.1	44 45.4 +59.8 171.7	44 40.2 +59.7 170.3	44 34.1 +59.7 168.9	44 27.3 +59.5 167.6
12°	45 49.7 +59.9 173.0	45 45.2 +59.8 171.6	45 39.9 +59.7 170.2	45 33.8 +59.6 168.8	45 26.8 +59.6 167.4
13°	46 49.6 +59.8 172.9	46 45.0 +59.8 171.5	46 39.6 +59.7 170.0	46 33.4 +59.6 168.6	46 26.4 +59.5 167.2
14°	47 49.4 +59.8 172.8	47 44.8 +59.7 171.3	47 39.3 +59.7 169.9	47 33.0 +59.6 168.5	47 25.9 +59.5 167.0
15°	48 49.2 +59.9 172.7	48 44.5 +59.8 171.2	48 39.0 +59.7 169.7	48 32.6 +59.6 168.3	48 25.4 +59.4 166.8
16°	49 49.1 +59.8 172.5	49 44.3 +59.7 171.1	49 38.7 +59.6 169.6	49 32.2 +59.5 168.1	49 24.8 +59.5 166.6
17°	50 48.9 +59.8 172.4	50 44.0 +59.8 170.9	50 38.3 +59.7 169.4	50 31.7 +59.6 167.9	50 24.3 +59.4 166.4
18°	51 48.7 +59.8 172.3	51 43.8 +59.7 170.8	51 38.0 +59.6 169.2	51 31.3 +59.5 167.7	51 23.7 +59.4 166.2
19°	52 48.5 +59.8 172.2	52 43.5 +59.7 170.6	52 37.6 +59.6 169.1	52 30.8 +59.5 167.5	52 23.1 +59.3 166.0
20°	53 48.3 +59.8 172.0	53 43.2 +59.7 170.4	53 37.2 +59.6 168.9	53 30.3 +59.4 167.3	53 22.4 +59.4 165.7
21°	54 48.1 +59.8 171.9	54 42.9 +59.7 170.3	54 36.8 +59.6 168.7	54 29.7 +59.5 167.1	54 21.8 +59.3 165.5
22°	55 47.9 +59.8 171.7	55 42.6 +59.7 170.1	55 36.4 +59.5 168.5	55 29.2 +59.4 166.8	55 21.1 +59.3 165.2
23°	56 47.7 +59.7 171.6	56 42.3 +59.6 169.9	56 35.9 +59.5 168.2	56 28.6 +59.4 166.6	56 20.4 +59.2 164.9
24°	57 47.4 +59.8 171.4	57 41.9 +59.7 169.7	57 35.4 +59.5 168.0	57 28.0 +59.3 166.3	57 19.6 +59.2 164.6
25°	58 47.2 +59.7 171.2	58 41.6 +59.6 169.5	58 34.9 +59.5 167.8	58 27.3 +59.3 166.0	58 18.8 +59.1 164.3
26°	59 46.9 +59.7 171.0	59 41.2 +59.5 169.3	59 34.4 +59.4 167.5	59 26.6 +59.3 165.8	59 17.9 +59.1 164.0
27°	60 46.6 +59.7 170.8	60 40.7 +59.6 169.0	60 33.8 +59.4 167.2	60 25.9 +59.2 165.4	60 17.0 +59.0 163.7
28°	61 46.3 +59.7 170.6	61 40.3 +59.5 168.8	61 33.2 +59.4 166.9	61 25.1 +59.2 165.1	61 16.0 +59.0 163.3
29°	62 46.0 +59.6 170.4	62 39.8 +59.5 168.5	62 32.6 +59.3 166.6	62 24.3 +59.1 164.8	62 15.0 +58.9 162.9

Dec	LHA 010° / 350°	LHA 011° / 349°	LHA 012° / 348°	LHA 013° / 347°	LHA 014° / 346°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	33 24.9 +59.6 168.0	33 17.6 +59.5 166.8	33 09.6 +59.4 165.6	33 00.9 +59.3 164.4	32 51.6 +59.2 163.3
1°	34 24.5 +59.6 167.9	34 17.1 +59.5 166.7	34 09.0 +59.4 165.5	34 00.2 +59.3 164.3	33 50.8 +59.2 163.1
2°	35 24.1 +59.5 167.7	35 16.6 +59.4 166.5	35 08.4 +59.4 165.3	34 59.5 +59.3 164.1	34 50.0 +59.1 162.9
3°	36 23.6 +59.6 167.6	36 16.0 +59.5 166.3	36 07.8 +59.3 165.1	35 58.8 +59.3 163.9	35 49.1 +59.2 162.7
4°	37 23.2 +59.5 167.4	37 15.5 +59.5 166.2	37 07.1 +59.4 164.9	36 58.1 +59.2 163.7	36 48.3 +59.1 162.5
5°	38 22.7 +59.6 167.3	38 15.0 +59.4 166.0	38 06.5 +59.3 164.7	37 57.3 +59.2 163.5	37 47.4 +59.1 162.2
6°	39 22.3 +59.5 167.1	39 14.4 +59.4 165.8	39 05.8 +59.3 164.5	38 56.5 +59.2 163.3	38 46.5 +59.1 162.0
7°	40 21.8 +59.5 166.9	40 13.8 +59.4 165.6	40 05.1 +59.3 164.4	39 55.7 +59.2 163.1	39 45.6 +59.0 161.8
8°	41 21.3 +59.5 166.8	41 13.2 +59.4 165.5	41 04.4 +59.3 164.2	40 54.9 +59.1 162.9	40 44.6 +59.1 161.6
9°	42 20.8 +59.4 166.6	42 12.6 +59.4 165.3	42 03.7 +59.2 163.9	41 54.0 +59.2 162.6	41 43.7 +59.0 161.3
10°	43 20.2 +59.5 166.4	43 12.0 +59.3 165.1	43 02.9 +59.3 163.7	42 53.2 +59.1 162.4	42 42.7 +58.9 161.1
11°	44 19.7 +59.4 166.2	44 11.3 +59.3 164.9	44 02.2 +59.2 163.5	43 52.3 +59.0 162.2	43 41.6 +58.9 160.8
12°	45 19.1 +59.4 166.0	45 10.6 +59.3 164.6	45 01.4 +59.1 163.3	44 51.3 +59.1 161.9	44 40.5 +58.9 160.6
13°	46 18.5 +59.4 165.8	46 09.9 +59.3 164.4	46 00.5 +59.2 163.0	45 50.4 +59.0 161.7	45 39.4 +58.9 160.3
14°	47 17.9 +59.4 165.6	47 09.2 +59.2 164.2	46 59.7 +59.1 162.8	46 49.4 +58.9 161.4	46 38.3 +58.8 160.0
15°	48 17.3 +59.3 165.4	48 08.4 +59.3 164.0	47 58.8 +59.0 162.5	47 48.3 +58.9 161.1	47 37.1 +58.7 159.7
16°	49 16.6 +59.4 165.2	49 07.7 +59.1 163.7	48 57.8 +59.1 162.3	48 47.2 +58.9 160.8	48 35.8 +58.7 159.4
17°	50 16.0 +59.3 164.9	50 06.8 +59.2 163.5	49 56.9 +59.0 162.0	49 46.1 +58.8 160.5	49 34.5 +58.7 159.1
18°	51 15.3 +59.2 164.7	51 06.0 +59.1 163.2	50 55.9 +58.9 161.7	50 44.9 +58.8 160.2	50 33.2 +58.6 158.8
19°	52 14.5 +59.2 164.4	52 05.1 +59.1 162.9	51 54.8 +58.9 161.4	51 43.7 +58.7 159.9	51 31.8 +58.5 158.4
20°	53 13.7 +59.2 164.2	53 04.2 +59.0 162.6	52 53.7 +58.9 161.1	52 42.4 +58.7 159.6	52 30.3 +58.5 158.1
21°	54 12.9 +59.2 163.9	54 03.2 +59.0 162.3	53 52.6 +58.8 160.8	53 41.1 +58.6 159.2	53 28.8 +58.4 157.7
22°	55 12.1 +59.1 163.6	55 02.2 +58.9 162.0	54 51.4 +58.7 160.4	54 39.7 +58.5 158.9	54 27.2 +58.3 157.3
23°	56 11.2 +59.0 163.3	56 01.1 +58.8 161.7	55 50.1 +58.7 160.1	55 38.2 +58.5 158.5	55 25.5 +58.2 156.9
24°	57 10.2 +59.0 163.0	56 59.9 +58.9 161.3	56 48.8 +58.6 159.7	56 36.7 +58.3 158.1	56 23.7 +58.1 156.5
25°	58 09.2 +59.0 162.6	57 58.8 +58.7 161.0	57 47.4 +58.5 159.3	57 35.0 +58.3 157.6	57 21.8 +58.1 156.0
26°	59 08.2 +58.9 162.3	58 57.5 +58.7 160.6	58 45.9 +58.4 158.9	58 33.3 +58.2 157.2	58 19.9 +57.9 155.5
27°	60 07.1 +58.8 161.9	59 56.2 +58.5 160.2	59 44.3 +58.3 158.4	59 31.5 +58.1 156.7	59 17.8 +57.8 155.0
28°	61 05.9 +58.7 161.5	60 54.7 +58.5 159.7	60 42.6 +58.3 158.0	60 29.6 +57.9 156.2	60 15.6 +57.6 154.5
29°	62 04.6 +58.7 161.1	61 53.2 +58.4 159.3	61 40.9 +58.1 157.5	61 27.5 +57.8 155.7	61 13.2 +57.5 153.9

Dec	LHA 015° / 345°	LHA 016° / 344°	LHA 017° / 343°	LHA 018° / 342°	LHA 019° / 341°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	32 41.6 +59.1 162.1	32 30.9 +59.0 160.9	32 19.7 +58.8 159.8	32 07.7 +58.8 158.6	31 55.2 +58.6 157.4
1°	33 40.7 +59.1 161.9	33 29.9 +59.0 160.7	33 18.5 +58.8 159.5	33 06.5 +58.6 158.4	32 53.8 +58.5 157.2
2°	34 39.8 +59.0 161.7	34 28.9 +58.9 160.5	34 17.3 +58.8 159.3	34 05.1 +58.7 158.1	33 52.3 +58.5 156.9
3°	35 38.8 +59.0 161.5	35 27.8 +58.9 160.2	35 16.1 +58.8 159.0	35 03.8 +58.6 157.9	34 50.8 +58.5 156.7
4°	36 37.8 +59.0 161.2	36 26.7 +58.9 160.0	36 14.9 +58.7 158.8	36 02.4 +58.6 157.6	35 49.3 +58.5 156.4
5°	37 36.8 +59.0 161.0	37 25.6 +58.8 159.8	37 13.6 +58.7 158.5	37 01.0 +58.6 157.3	36 47.8 +58.4 156.1
6°	38 35.8 +59.0 160.8	38 24.4 +58.8 159.5	38 12.3 +58.7 158.3	37 59.6 +58.5 157.0	37 46.2 +58.3 155.8
7°	39 34.8 +58.9 160.5	39 23.2 +58.8 159.3	39 11.0 +58.6 158.0	38 58.1 +58.5 156.8	38 44.5 +58.4 155.5
8°	40 33.7 +58.9 160.3	40 22.0 +58.8 159.0	40 09.6 +58.6 157.7	39 56.6 +58.4 156.5	39 42.9 +58.2 155.2
9°	41 32.6 +58.8 160.0	41 20.8 +58.7 158.7	41 08.2 +58.6 157.5	40 55.0 +58.4 156.2	40 41.1 +58.3 154.9
10°	42 31.4 +58.8 159.8	42 19.5 +58.6 158.5	42 06.8 +58.5 157.2	41 53.4 +58.3 155.9	41 39.4 +58.1 154.6
11°	43 30.2 +58.8 159.5	43 18.1 +58.6 158.2	43 05.3 +58.4 156.9	42 51.7 +58.3 155.6	42 37.5 +58.1 154.3
12°	44 29.0 +58.7 159.2	44 16.7 +58.6 157.9	44 03.7 +58.4 156.5	43 50.0 +58.3 155.2	43 35.6 +58.1 153.9
13°	45 27.7 +58.7 158.9	45 15.3 +58.5 157.6	45 02.1 +58.4 156.2	44 48.3 +58.1 154.9	44 33.7 +57.9 153.6
14°	46 26.4 +58.7 158.6	46 13.8 +58.5 157.3	46 00.5 +58.3 155.9	45 46.4 +58.1 154.5	45 31.6 +57.9 153.2
15°	47 25.1 +58.5 158.3	47 12.3 +58.4 156.9	46 58.8 +58.2 155.5	46 44.5 +58.0 154.2	46 29.5 +57.9 152.8
16°	48 23.6 +58.6 158.0	48 10.7 +58.3 156.6	47 57.0 +58.1 155.2	47 42.5 +58.0 153.8	47 27.4 +57.7 152.4
17°	49 22.2 +58.4 157.7	49 09.0 +58.3 156.2	48 55.1 +58.1 154.8	48 40.5 +57.9 153.4	48 25.1 +57.7 152.0
18°	50 20.6 +58.4 157.3	50 07.3 +58.2 155.9	49 53.2 +58.0 154.4	49 38.4 +57.7 153.0	49 22.8 +57.5 151.6
19°	51 19.0 +58.4 156.9	51 05.5 +58.1 155.5	50 51.2 +57.9 154.0	50 36.1 +57.7 152.6	50 20.3 +57.5 151.2
20°	52 17.4 +58.2 156.6	52 03.6 +58.1 155.1	51 49.1 +57.8 153.6	51 33.8 +57.6 152.2	51 17.8 +57.3 150.7
21°	53 15.6 +58.2 156.2	53 01.7 +57.9 154.7	52 46.9 +57.7 153.2	52 31.4 +57.5 151.7	52 15.1 +57.2 150.2
22°	54 13.8 +58.1 155.8	53 59.6 +57.9 154.2	53 44.6 +57.6 152.7	53 28.9 +57.3 151.2	53 12.3 +57.1 149.7
23°	55 11.9 +58.0 155.3	54 57.5 +57.7 153.8	54 42.2 +57.5 152.2	54 26.2 +57.2 150.7	54 09.4 +57.0 149.2
24°	56 09.9 +57.9 154.9	55 55.2 +57.6 153.3	55 39.7 +57.4 151.7	55 23.4 +57.1 150.2	55 06.4 +56.8 148.7
25°	57 07.8 +57.7 154.4	56 52.8 +57.5 152.8	56 37.1 +57.2 151.2	56 20.5 +57.0 149.6	56 03.2 +56.6 148.1
26°	58 05.5 +57.7 153.9	57 50.3 +57.4 152.3	57 34.3 +57.1 150.7	57 17.5 +56.7 149.1	56 59.8 +56.5 147.5
27°	59 03.2 +57.5 153.4	58 47.7 +57.2 151.7	58 31.4 +56.9 150.1	58 14.2 +56.6 148.5	57 56.3 +56.2 146.9
28°	60 00.7 +57.3 152.8	59 44.9 +57.0 151.1	59 28.3 +56.7 149.5	59 10.8 +56.4 147.8	58 52.5 +56.1 146.2
29°	60 58.0 +57.2 152.2	60 41.9 +56.9 150.5	60 25.0 +56.5 148.8	60 07.2 +56.2 147.1	59 48.6 +55.8 145.5

## Declination SAME name as Latitude

## Latitude 56°

Dec	LHA 020° / 340°	LHA 021° / 339°	LHA 022° / 338°	LHA 023° / 337°	LHA 024° / 336°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	31 42.0 +58.4 156.3	31 28.2 +58.3 155.2	31 13.8 +58.2 154.0	30 58.8 +58.0 152.9	30 43.2 +57.9 151.8
1°	32 40.4 +58.5 156.0	32 26.5 +58.3 154.9	32 12.0 +58.1 153.7	31 56.8 +58.0 152.6	31 41.1 +57.8 151.5
2°	33 38.9 +58.3 155.8	33 24.8 +58.2 154.6	33 10.1 +58.0 153.4	32 54.8 +57.9 152.3	32 38.9 +57.7 151.1
3°	34 37.2 +58.4 155.5	34 23.0 +58.2 154.3	34 08.1 +58.1 153.1	33 52.7 +57.8 152.0	33 36.6 +57.7 150.8
4°	35 35.6 +58.3 155.2	35 21.2 +58.1 154.0	35 06.2 +57.9 152.8	34 50.5 +57.8 151.6	34 34.3 +57.6 150.5
5°	36 33.9 +58.2 154.9	36 19.3 +58.1 153.7	36 04.1 +58.0 152.5	35 48.3 +57.8 151.3	35 31.9 +57.6 150.1
6°	37 32.1 +58.2 154.6	37 17.4 +58.0 153.4	37 02.1 +57.8 152.2	36 46.1 +57.7 151.0	36 29.5 +57.5 149.8
7°	38 30.3 +58.2 154.3	38 15.4 +58.0 153.1	37 59.9 +57.8 151.8	37 43.8 +57.6 150.6	37 27.0 +57.5 149.4
8°	39 28.5 +58.1 154.0	39 13.4 +58.0 152.7	38 57.7 +57.8 151.5	38 41.4 +57.6 150.3	38 24.5 +57.4 149.1
9°	40 26.6 +58.0 153.6	40 11.4 +57.8 152.4	39 55.5 +57.7 151.2	39 39.0 +57.5 149.9	39 21.9 +57.3 148.7
10°	41 24.6 +58.0 153.3	41 09.2 +57.8 152.0	40 53.2 +57.6 150.8	40 36.5 +57.4 149.5	40 19.2 +57.2 148.3
11°	42 22.6 +57.9 153.0	42 07.0 +57.8 151.7	41 50.8 +57.5 150.4	41 33.9 +57.3 149.2	41 16.4 +57.1 147.9
12°	43 20.5 +57.9 152.6	43 04.8 +57.6 151.3	42 48.3 +57.5 150.0	42 31.2 +57.3 148.8	42 13.5 +57.1 147.5
13°	44 18.4 +57.8 152.2	44 02.4 +57.6 150.9	43 45.8 +57.4 149.6	43 28.5 +57.2 148.4	43 10.6 +56.9 147.1
14°	45 16.2 +57.7 151.9	45 00.0 +57.5 150.5	44 43.2 +57.3 149.2	44 25.7 +57.1 147.9	44 07.5 +56.9 146.6
15°	46 13.9 +57.6 151.5	45 57.5 +57.4 150.1	45 40.5 +57.1 148.8	45 22.8 +56.9 147.5	45 04.4 +56.8 146.2
16°	47 11.5 +57.5 151.1	46 54.9 +57.3 149.7	46 37.6 +57.1 148.4	46 19.7 +56.9 147.0	46 01.2 +56.6 145.7
17°	48 09.0 +57.4 150.6	47 52.2 +57.2 149.3	47 34.7 +57.0 147.9	47 16.6 +56.7 146.6	46 57.8 +56.5 145.3
18°	49 06.4 +57.4 150.2	48 49.4 +57.1 148.8	48 31.7 +56.9 147.5	48 13.3 +56.6 146.1	47 54.3 +56.4 144.8
19°	50 03.8 +57.2 149.8	49 46.5 +57.0 148.4	49 28.6 +56.7 147.0	49 09.9 +56.5 145.6	48 50.7 +56.2 144.2
20°	51 01.0 +57.1 149.3	50 43.5 +56.8 147.9	50 25.3 +56.6 146.5	50 06.4 +56.4 145.1	49 46.9 +56.1 143.7
21°	51 58.1 +57.0 148.8	51 40.3 +56.8 147.4	51 21.9 +56.4 145.9	51 02.8 +56.1 144.5	50 43.0 +55.9 143.2
22°	52 55.1 +56.8 148.3	52 37.1 +56.5 146.8	52 18.3 +56.3 145.4	51 58.9 +56.1 144.0	51 38.9 +55.7 142.6
23°	53 51.9 +56.7 147.7	53 33.6 +56.4 146.3	53 14.6 +56.1 144.8	52 55.0 +55.8 143.4	52 34.6 +55.6 142.0
24°	54 48.6 +56.5 147.2	54 30.0 +56.2 145.7	54 10.7 +56.0 144.2	53 50.8 +55.6 142.8	53 30.2 +55.3 141.3
25°	55 45.1 +56.3 146.6	55 26.2 +56.1 145.1	55 06.7 +55.7 143.6	54 46.4 +55.4 142.1	54 25.5 +55.1 140.7
26°	56 41.4 +56.2 146.0	56 22.3 +55.8 144.4	56 02.4 +55.5 142.9	55 41.8 +55.2 141.5	55 20.6 +54.9 140.0
27°	57 37.6 +55.9 145.3	57 18.1 +55.6 143.8	56 57.9 +55.3 142.2	56 37.0 +55.0 140.7	56 15.5 +54.6 139.3
28°	58 33.5 +55.7 144.6	58 13.7 +55.4 143.1	57 53.2 +55.0 141.5	57 32.0 +54.6 140.0	57 10.1 +54.3 138.5
29°	59 29.2 +55.5 143.9	59 09.1 +55.1 142.3	58 48.2 +54.7 140.8	58 26.6 +54.4 139.2	58 04.4 +54.0 137.7

Dec	LHA 025° / 335°	LHA 026° / 334°	LHA 027° / 333°	LHA 028° / 332°	LHA 029° / 331°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	30 27.1 +57.6 150.6	30 10.3 +57.5 149.5	29 53.0 +57.4 148.4	29 35.2 +57.2 147.3	29 16.8 +57.0 146.2
1°	31 24.7 +57.7 150.3	31 07.8 +57.5 149.2	30 50.4 +57.3 148.1	30 32.4 +57.1 147.0	30 13.8 +57.0 145.9
2°	32 22.4 +57.5 150.0	32 05.3 +57.4 148.9	31 47.7 +57.2 147.7	31 29.5 +57.0 146.6	31 10.8 +56.8 145.5
3°	33 19.9 +57.6 149.7	33 02.7 +57.4 148.5	32 44.9 +57.2 147.4	32 26.5 +57.0 146.3	32 07.6 +56.8 145.1
4°	34 17.5 +57.4 149.3	34 00.1 +57.2 148.2	33 42.1 +57.1 147.0	33 23.5 +56.9 145.9	33 04.4 +56.8 144.8
5°	35 14.9 +57.4 149.0	34 57.3 +57.3 147.8	34 39.2 +57.0 146.6	34 20.4 +56.9 145.5	34 01.2 +56.6 144.4
6°	36 12.3 +57.4 148.6	35 54.6 +57.1 147.4	35 36.2 +57.0 146.3	35 17.3 +56.8 145.1	34 57.8 +56.6 144.0
7°	37 09.7 +57.2 148.2	36 51.7 +57.1 147.1	36 33.2 +56.9 145.9	36 14.1 +56.7 144.7	35 54.4 +56.5 143.6
8°	38 06.9 +57.2 147.9	37 48.8 +57.0 146.7	37 30.1 +56.8 145.5	37 10.8 +56.6 144.3	36 50.9 +56.4 143.1
9°	39 04.1 +57.1 147.5	38 45.8 +56.9 146.3	38 26.9 +56.7 145.1	38 07.4 +56.5 143.9	37 47.3 +56.3 142.7
10°	40 01.2 +57.1 147.1	39 42.7 +56.8 145.9	39 23.6 +56.6 144.7	39 03.9 +56.4 143.5	38 43.6 +56.2 142.3
11°	40 58.3 +56.9 146.7	40 39.5 +56.8 145.4	40 20.2 +56.5 144.2	40 00.3 +56.3 143.0	39 39.8 +56.1 141.8
12°	41 55.2 +56.8 146.3	41 36.3 +56.6 145.0	41 16.7 +56.4 143.8	40 56.6 +56.2 142.6	40 35.9 +56.0 141.4
13°	42 52.0 +56.8 145.8	42 32.9 +56.5 144.6	42 13.1 +56.4 143.3	41 52.8 +56.1 142.1	41 31.9 +55.9 140.9
14°	43 48.8 +56.6 145.4	43 29.4 +56.4 144.1	43 09.5 +56.1 142.9	42 48.9 +56.0 141.6	42 27.8 +55.7 140.4
15°	44 45.4 +56.5 144.9	44 25.8 +56.3 143.6	44 05.6 +56.1 142.4	43 44.9 +55.8 141.1	43 23.5 +55.6 139.9
16°	45 41.9 +56.4 144.4	45 22.1 +56.2 143.1	45 01.7 +55.9 141.9	44 40.7 +55.7 140.6	44 19.1 +55.5 139.4
17°	46 38.3 +56.3 143.9	46 18.3 +56.0 142.6	45 57.6 +55.8 141.4	45 36.4 +55.5 140.1	45 14.6 +55.3 138.8
18°	47 34.6 +56.1 143.4	47 14.3 +55.9 142.1	46 53.4 +55.6 140.8	46 31.9 +55.4 139.5	46 09.9 +55.1 138.3
19°	48 30.7 +56.0 142.9	48 10.2 +55.7 141.6	47 49.0 +55.5 140.3	47 27.3 +55.2 139.0	47 05.0 +54.9 137.7
20°	49 26.7 +55.8 142.4	49 05.9 +55.6 141.0	48 44.5 +55.3 139.7	48 22.5 +55.0 138.4	47 59.9 +54.8 137.1
21°	50 22.5 +55.7 141.8	50 01.5 +55.3 140.4	49 39.8 +55.1 139.1	49 17.5 +54.9 137.8	48 54.7 +54.6 136.5
22°	51 18.2 +55.4 141.2	50 56.8 +55.2 139.8	50 34.9 +54.9 138.5	50 12.4 +54.6 137.1	49 49.3 +54.3 135.8
23°	52 13.6 +55.3 140.6	51 52.0 +55.0 139.2	51 29.8 +54.6 137.8	51 07.0 +54.3 136.5	50 43.6 +54.1 135.2
24°	53 08.9 +55.0 139.9	52 47.0 +54.7 138.5	52 24.4 +54.5 137.2	52 01.3 +54.2 135.8	51 37.7 +53.8 134.5
25°	54 03.9 +54.8 139.3	53 41.7 +54.5 137.9	53 18.9 +54.2 136.5	52 55.5 +53.9 135.1	52 31.5 +53.6 133.8
26°	54 58.7 +54.6 138.6	54 36.2 +54.2 137.1	54 13.1 +53.9 135.7	53 49.4 +53.6 134.4	53 25.1 +53.3 133.0
27°	55 53.3 +54.2 137.8	55 30.4 +54.0 136.4	55 07.0 +53.6 135.0	54 43.0 +53.2 133.6	54 18.4 +53.0 132.2
28°	56 47.5 +54.0 137.1	56 24.4 +53.6 135.6	56 00.6 +53.3 134.2	55 36.2 +53.0 132.8	55 11.4 +52.6 131.4
29°	57 41.5 +53.6 136.2	57 18.0 +53.3 134.8	56 53.9 +52.9 133.4	56 29.2 +52.6 132.0	56 04.0 +52.2 130.6

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Dec	LHA 030° / 330°	LHA 031° / 329°	LHA 032° / 328°	LHA 033° / 327°	LHA 034° / 326°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	28 57.9 +56.8 145.1	28 38.5 +56.6 144.1	28 18.5 +56.5 143.0	27 58.1 +56.3 141.9	27 37.1 +56.2 140.9
1°	29 54.7 +56.8 144.8	29 35.1 +56.6 143.7	29 15.0 +56.4 142.6	28 54.4 +56.2 141.5	28 33.3 +56.0 140.5
2°	30 51.5 +56.7 144.4	30 31.7 +56.5 143.3	30 11.4 +56.3 142.2	29 50.6 +56.1 141.1	29 29.3 +55.9 140.1
3°	31 48.2 +56.6 144.0	31 28.2 +56.4 142.9	31 07.7 +56.3 141.8	30 46.7 +56.1 140.7	30 25.2 +55.9 139.6
4°	32 44.8 +56.6 143.6	32 24.6 +56.4 142.5	32 04.0 +56.1 141.4	31 42.8 +56.0 140.3	31 21.1 +55.8 139.2
5°	33 41.4 +56.4 143.2	33 21.0 +56.3 142.1	33 00.1 +56.1 141.0	32 38.8 +55.9 139.9	32 16.9 +55.7 138.8
6°	34 37.8 +56.4 142.8	34 17.3 +56.2 141.7	33 56.2 +56.0 140.6	33 34.7 +55.8 139.4	33 12.6 +55.6 138.3
7°	35 34.2 +56.3 142.4	35 13.5 +56.1 141.3	34 52.2 +55.9 140.1	34 30.5 +55.7 139.0	34 08.2 +55.5 137.9
8°	36 30.5 +56.2 142.0	36 09.6 +56.0 140.8	35 48.1 +55.8 139.7	35 26.2 +55.6 138.6	35 03.7 +55.4 137.4
9°	37 26.7 +56.1 141.5	37 05.6 +55.9 140.4	36 43.9 +55.7 139.2	36 21.8 +55.4 138.1	35 59.1 +55.3 137.0
10°	38 22.8 +56.0 141.1	38 01.5 +55.8 139.9	37 39.6 +55.6 138.8	37 17.2 +55.4 137.6	36 54.4 +55.1 136.5
11°	39 18.8 +55.9 140.6	38 57.3 +55.6 139.4	38 35.2 +55.5 138.3	38 12.6 +55.3 137.1	37 49.5 +55.1 136.0
12°	40 14.7 +55.8 140.2	39 52.9 +55.6 139.0	39 30.7 +55.3 137.8	39 07.9 +55.1 136.6	38 44.6 +54.9 135.5
13°	41 10.5 +55.6 139.7	40 48.5 +55.4 138.5	40 26.0 +55.2 137.3	40 03.0 +55.0 136.1	39 39.5 +54.7 134.9
14°	42 06.1 +55.5 139.2	41 43.9 +55.3 138.0	41 21.2 +55.0 136.8	40 58.0 +54.8 135.6	40 34.2 +54.6 134.4
15°	43 01.6 +55.4 138.6	42 39.2 +55.1 137.4	42 16.2 +54.9 136.2	41 52.8 +54.7 135.0	41 28.8 +54.5 133.9
16°	43 57.0 +55.2 138.1	43 34.3 +55.0 136.9	43 11.1 +54.8 135.7	42 47.5 +54.5 134.5	42 23.3 +54.2 133.3
17°	44 52.2 +55.1 137.6	44 29.3 +54.8 136.3	44 05.9 +54.5 135.1	43 42.0 +54.3 133.9	43 17.5 +54.1 132.7
18°	45 47.3 +54.8 137.0	45 24.1 +54.6 135.8	45 00.4 +54.4 134.5	44 36.3 +54.1 133.3	44 11.6 +53.9 132.1
19°	46 42.1 +54.7 136.4	46 18.7 +54.5 135.2	45 54.8 +54.2 133.9	45 30.4 +54.0 132.7	45 05.5 +53.7 131.5
20°	47 36.8 +54.5 135.8	47 13.2 +54.2 134.6	46 49.0 +54.0 133.3	46 24.4 +53.7 132.1	45 59.2 +53.5 130.9
21°	48 31.3 +54.3 135.2	48 07.4 +54.0 133.9	47 43.0 +53.7 132.7	47 18.1 +53.5 131.4	46 52.7 +53.2 130.2
22°	49 25.6 +54.1 134.5	49 01.4 +53.8 133.3	48 36.7 +53.6 132.0	48 11.6 +53.2 130.8	47 45.9 +53.0 129.5
23°	50 19.7 +53.8 133.9	49 55.2 +53.5 132.6	49 30.3 +53.2 131.3	49 04.8 +53.0 130.1	48 38.9 +52.7 128.8
24°	51 13.5 +53.5 133.2	50 48.7 +53.3 131.9	50 23.5 +53.0 130.6	49 57.8 +52.7 129.3	49 31.6 +52.5 128.1
25°	52 07.0 +53.3 132.4	51 42.0 +53.0 131.1	51 16.5 +52.7 129.9	50 50.5 +52.4 128.6	50 24.1 +52.1 127.3
26°	53 00.3 +53.0 131.7	52 35.0 +52.7 130.4	52 09.2 +52.4 129.1	51 42.9 +52.1 127.8	51 16.2 +51.8 126.6
27°	53 53.3 +52.6 130.9	53 27.7 +52.3 129.6	53 01.6 +52.0 128.3	52 35.0 +51.7 127.0	52 08.0 +51.4 125.7
28°	54 45.9 +52.3 130.1	54 20.0 +52.0 128.7	53 53.6 +51.7 127.4	53 26.7 +51.4 126.2	52 59.4 +51.1 124.9
29°	55 38.2 +52.0 129.2	55 12.0 +51.6 127.9	54 45.3 +51.3 126.6	54 18.1 +51.0 125.3	53 50.5 +50.7 124.0

Dec	LHA 035° / 325°	LHA 036° / 324°	LHA 037° / 323°	LHA 038° / 322°	LHA 039° / 321°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	27 15.7 +56.0 139.8	26 53.9 +55.7 138.8	26 31.5 +55.6 137.7	26 08.7 +55.4 136.7	25 45.5 +55.2 135.7
1°	28 11.7 +55.8 139.4	27 49.6 +55.7 138.4	27 27.1 +55.4 137.3	27 04.1 +55.3 136.3	26 40.7 +55.1 135.2
2°	29 07.5 +55.8 139.0	28 45.3 +55.5 137.9	28 22.5 +55.4 136.9	27 59.4 +55.2 135.8	27 35.8 +55.0 134.8
3°	30 03.3 +55.7 138.6	29 40.8 +55.5 137.5	29 17.9 +55.4 136.4	28 54.6 +55.1 135.4	28 30.8 +54.9 134.3
4°	30 59.0 +55.6 138.1	30 36.3 +55.4 137.1	30 13.3 +55.2 136.0	29 49.7 +55.0 134.9	29 25.7 +54.9 133.9
5°	31 54.6 +55.5 137.7	31 31.7 +55.4 136.6	31 08.5 +55.1 135.5	30 44.7 +55.0 134.5	30 20.6 +54.7 133.4
6°	32 50.1 +55.4 137.2	32 27.1 +55.2 136.2	32 03.6 +55.0 135.1	31 39.7 +54.8 134.0	31 15.3 +54.6 132.9
7°	33 45.5 +55.3 136.8	33 22.3 +55.1 135.7	32 58.6 +54.9 134.6	32 34.5 +54.7 133.5	32 09.9 +54.6 132.4
8°	34 40.8 +55.2 136.3	34 17.4 +55.0 135.2	33 53.5 +54.8 134.1	33 29.2 +54.6 133.0	33 04.5 +54.3 132.0
9°	35 36.0 +55.0 135.8	35 12.4 +54.8 134.7	34 48.3 +54.7 133.6	34 23.8 +54.4 132.5	33 58.8 +54.3 131.4
10°	36 31.0 +55.0 135.3	36 07.2 +54.8 134.2	35 43.0 +54.5 133.1	35 18.2 +54.4 132.0	34 53.1 +54.1 130.9
11°	37 26.0 +54.8 134.8	37 02.0 +54.6 133.7	36 37.5 +54.4 132.6	36 12.6 +54.2 131.5	35 47.2 +54.0 130.4
12°	38 20.8 +54.7 134.3	37 56.6 +54.4 133.2	37 31.9 +54.3 132.1	37 06.8 +54.0 131.0	36 41.2 +53.9 129.9
13°	39 15.5 +54.5 133.8	38 51.0 +54.4 132.7	38 26.2 +54.1 131.5	38 00.8 +53.9 130.4	37 35.1 +53.6 129.3
14°	40 10.0 +54.4 133.3	39 45.4 +54.1 132.1	39 20.3 +53.9 131.0	38 54.7 +53.7 129.9	38 28.7 +53.6 128.7
15°	41 04.4 +54.2 132.7	40 39.5 +54.0 131.5	40 14.2 +53.8 130.4	39 48.4 +53.6 129.3	39 22.3 +53.3 128.2
16°	41 58.6 +54.1 132.1	41 33.5 +53.8 131.0	41 08.0 +53.5 129.8	40 42.0 +53.3 128.7	40 15.6 +53.1 127.6
17°	42 52.7 +53.8 131.5	42 27.3 +53.6 130.4	42 01.5 +53.4 129.2	41 35.3 +53.2 128.1	41 08.7 +53.0 126.9
18°	43 46.5 +53.7 130.9	43 20.9 +53.5 129.8	42 54.9 +53.2 128.6	42 28.5 +53.0 127.5	42 01.7 +52.7 126.3
19°	44 40.2 +53.4 130.3	44 14.4 +53.2 129.1	43 48.1 +53.0 128.0	43 21.5 +52.7 126.8	42 54.4 +52.5 125.7
20°	45 33.6 +53.2 129.7	45 07.6 +52.9 128.5	44 41.1 +52.7 127.3	44 14.2 +52.5 126.1	43 46.9 +52.3 125.0
21°	46 26.8 +53.0 129.0	46 00.5 +52.8 127.8	45 33.8 +52.5 126.6	45 06.7 +52.2 125.5	44 39.2 +52.0 124.3
22°	47 19.8 +52.7 128.3	46 53.3 +52.4 127.1	46 26.3 +52.2 125.9	45 58.9 +52.0 124.8	45 31.2 +51.7 123.6
23°	48 12.5 +52.5 127.6	47 45.7 +52.2 126.4	47 18.5 +52.0 125.2	46 50.9 +51.7 124.0	46 22.9 +51.5 122.9
24°	49 05.0 +52.2 126.9	48 37.9 +51.9 125.7	48 10.5 +51.6 124.5	47 42.6 +51.4 123.3	47 14.4 +51.2 122.1
25°	49 57.2 +51.8 126.1	49 29.8 +51.6 124.9	49 02.1 +51.4 123.7	48 34.0 +51.1 122.5	48 05.6 +50.8 121.4
26°	50 49.0 +51.5 125.3	50 21.4 +51.3 124.1	49 53.5 +50.9 122.9	49 25.1 +50.7 121.7	48 56.4 +50.5 120.6
27°	51 40.5 +51.2 124.5	51 12.7 +50.9 123.3	50 44.4 +50.7 122.1	50 15.8 +50.4 120.9	49 46.9 +50.1 119.7
28°	52 31.7 +50.8 123.6	52 03.6 +50.5 122.4	51 35.1 +50.2 121.2	51 06.2 +50.0 120.0	50 37.0 +49.7 118.9
29°	53 22.5 +50.4 122.8	52 54.1 +50.1 121.5	52 25.3 +49.8 120.3	51 56.2 +49.5 119.1	51 26.7 +49.3 118.0

# Declination SAME name as Latitude

# Latitude 56°

Dec	LHA 040° / 320°	LHA 041° / 319°	LHA 042° / 318°	LHA 043° / 317°	LHA 044° / 316°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	25 21.8 +55.0 134.7	24 57.8 +54.8 133.6	24 33.3 +54.6 132.6	24 08.4 +54.5 131.6	23 43.1 +54.3 130.6
1°	26 16.8 +55.0 134.2	25 52.6 +54.7 133.2	25 27.9 +54.6 132.2	25 02.9 +54.3 131.2	24 37.4 +54.2 130.2
2°	27 11.8 +54.8 133.8	26 47.3 +54.7 132.7	26 22.5 +54.5 131.7	25 57.2 +54.3 130.7	25 31.6 +54.1 129.7
3°	28 06.6 +54.8 133.3	27 42.0 +54.5 132.3	27 17.0 +54.3 131.2	26 51.5 +54.2 130.2	26 25.7 +54.0 129.2
4°	29 01.4 +54.6 132.8	28 36.5 +54.5 131.8	28 11.3 +54.3 130.8	27 45.7 +54.1 129.8	27 19.7 +54.0 128.7
5°	29 56.0 +54.5 132.4	29 31.0 +54.4 131.3	29 05.6 +54.2 130.3	28 39.8 +54.0 129.3	28 13.7 +53.8 128.2
6°	30 50.5 +54.5 131.9	30 25.4 +54.2 130.8	29 59.8 +54.0 129.8	29 33.8 +53.9 128.8	29 07.5 +53.6 127.7
7°	31 45.0 +54.3 131.4	31 19.6 +54.1 130.3	30 53.8 +54.0 129.3	30 27.7 +53.7 128.3	30 01.1 +53.6 127.2
8°	32 39.3 +54.2 130.9	32 13.7 +54.0 129.8	31 47.8 +53.8 128.8	31 21.4 +53.6 127.7	30 54.7 +53.4 126.7
9°	33 33.5 +54.1 130.4	33 07.7 +53.9 129.3	32 41.6 +53.6 128.3	32 15.0 +53.5 127.2	31 48.1 +53.3 126.2
10°	34 27.6 +53.9 129.8	34 01.6 +53.7 128.8	33 35.2 +53.6 127.7	33 08.5 +53.4 126.7	32 41.4 +53.2 125.6
11°	35 21.5 +53.8 129.3	34 55.3 +53.6 128.2	34 28.8 +53.4 127.2	34 01.9 +53.2 126.1	33 34.6 +53.0 125.1
12°	36 15.3 +53.6 128.8	35 48.9 +53.4 127.7	35 22.2 +53.2 126.6	34 55.1 +53.0 125.6	34 27.6 +52.8 124.5
13°	37 08.9 +53.5 128.2	36 42.3 +53.3 127.1	36 15.4 +53.1 126.0	35 48.1 +52.9 125.0	35 20.4 +52.7 123.9
14°	38 02.4 +53.3 127.6	37 35.6 +53.1 126.5	37 08.5 +52.9 125.5	36 41.0 +52.6 124.4	36 13.1 +52.5 123.3
15°	38 55.7 +53.1 127.0	38 28.7 +52.9 126.0	38 01.4 +52.7 124.9	37 33.6 +52.6 123.8	37 05.6 +52.3 122.7
16°	39 48.8 +52.9 126.4	39 21.6 +52.7 125.3	38 54.1 +52.5 124.3	38 26.2 +52.3 123.2	37 57.9 +52.1 122.1
17°	40 41.7 +52.7 125.8	40 14.3 +52.5 124.7	39 46.6 +52.3 123.6	39 18.5 +52.1 122.6	38 50.0 +51.9 121.5
18°	41 34.4 +52.6 125.2	41 06.8 +52.3 124.1	40 38.9 +52.1 123.0	40 10.6 +51.8 121.9	39 41.9 +51.7 120.8
19°	42 27.0 +52.2 124.5	41 59.1 +52.1 123.4	41 31.0 +51.8 122.3	41 02.4 +51.7 121.2	40 33.6 +51.4 120.2
20°	43 19.2 +52.1 123.9	42 51.2 +51.8 122.8	42 22.8 +51.6 121.7	41 54.1 +51.4 120.6	41 25.0 +51.2 119.5
21°	44 11.3 +51.8 123.2	43 43.0 +51.6 122.1	43 14.4 +51.4 121.0	42 45.5 +51.1 119.9	42 16.2 +51.0 118.8
22°	45 03.1 +51.5 122.5	44 34.6 +51.3 121.4	44 05.8 +51.0 120.2	43 36.6 +50.9 119.2	43 07.2 +50.6 118.1
23°	45 54.6 +51.2 121.7	45 25.9 +51.0 120.6	44 56.8 +50.8 119.5	44 27.5 +50.6 118.4	43 57.8 +50.4 117.3
24°	46 45.8 +50.9 121.0	46 16.9 +50.7 119.9	45 47.6 +50.5 118.8	45 18.1 +50.2 117.7	44 48.2 +50.0 116.6
25°	47 36.7 +50.6 120.2	47 07.6 +50.3 119.1	46 38.1 +50.1 118.0	46 08.3 +49.9 116.9	45 38.2 +49.8 115.8
26°	48 27.3 +50.3 119.4	47 57.9 +50.0 118.3	47 28.2 +49.8 117.2	46 58.2 +49.6 116.1	46 28.0 +49.3 115.0
27°	49 17.6 +49.8 118.6	48 47.9 +49.7 117.4	48 18.0 +49.4 116.3	47 47.8 +49.2 115.2	47 17.3 +49.0 114.1
28°	50 07.4 +49.5 117.7	49 37.6 +49.2 116.6	49 07.4 +49.1 115.5	48 37.0 +48.8 114.4	48 06.3 +48.6 113.3
29°	50 56.9 +49.1 116.8	50 26.8 +48.9 115.7	49 56.5 +48.6 114.6	49 25.8 +48.4 113.5	48 54.9 +48.2 112.4

Dec	LHA 045° / 315°	LHA 046° / 314°	LHA 047° / 313°	LHA 048° / 312°	LHA 049° / 311°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	23 17.5 +54.1 129.7	22 51.5 +53.9 128.7	22 25.1 +53.8 127.7	21 58.4 +53.6 126.7	21 31.3 +53.5 125.8
1°	24 11.6 +54.0 129.2	23 45.4 +53.9 128.2	23 18.9 +53.7 127.2	22 52.0 +53.5 126.3	22 24.8 +53.3 125.3
2°	25 05.6 +54.0 128.7	24 39.3 +53.7 127.7	24 12.6 +53.5 126.7	23 45.5 +53.4 125.8	23 18.1 +53.2 124.8
3°	25 59.6 +53.8 128.2	25 33.0 +53.7 127.2	25 06.1 +53.5 126.2	24 38.9 +53.3 125.3	24 11.3 +53.2 124.3
4°	26 53.4 +53.7 127.7	26 26.7 +53.5 126.7	25 59.6 +53.4 125.7	25 32.2 +53.2 124.8	25 04.5 +53.0 123.8
5°	27 47.1 +53.6 127.2	27 20.2 +53.5 126.2	26 53.0 +53.3 125.2	26 25.4 +53.1 124.2	25 57.5 +52.9 123.3
6°	28 40.7 +53.5 126.7	28 13.7 +53.3 125.7	27 46.3 +53.1 124.7	27 18.5 +53.0 123.7	26 50.4 +52.8 122.7
7°	29 34.2 +53.4 126.2	29 07.0 +53.2 125.2	28 39.4 +53.0 124.2	28 11.5 +52.8 123.2	27 43.2 +52.7 122.2
8°	30 27.6 +53.3 125.7	30 00.2 +53.1 124.7	29 32.4 +52.9 123.6	29 04.3 +52.7 122.6	28 35.9 +52.6 121.7
9°	31 20.9 +53.1 125.1	30 53.3 +52.9 124.1	30 25.3 +52.8 123.1	29 57.0 +52.6 122.1	29 28.5 +52.4 121.1
10°	32 14.0 +52.9 124.6	31 46.2 +52.8 123.6	31 18.1 +52.6 122.5	30 49.6 +52.5 121.5	30 20.9 +52.2 120.5
11°	33 06.9 +52.9 124.0	32 39.0 +52.6 123.0	32 10.7 +52.4 122.0	31 42.1 +52.2 121.0	31 13.1 +52.1 120.0
12°	33 59.8 +52.6 123.5	33 31.6 +52.5 122.4	33 03.1 +52.3 121.4	32 34.3 +52.2 120.4	32 05.2 +52.0 119.4
13°	34 52.4 +52.5 122.9	34 24.1 +52.3 121.8	33 55.4 +52.1 120.8	33 26.5 +51.9 119.8	32 57.2 +51.8 118.8
14°	35 44.9 +52.3 122.3	35 16.4 +52.1 121.2	34 47.5 +52.0 120.2	34 18.4 +51.8 119.2	33 49.0 +51.6 118.2
15°	36 37.2 +52.1 121.7	36 08.5 +51.9 120.6	35 39.5 +51.7 119.6	35 10.2 +51.5 118.6	34 40.6 +51.4 117.6
16°	37 29.3 +51.9 121.1	37 00.4 +51.8 120.0	36 31.2 +51.6 119.0	36 01.7 +51.4 118.0	35 32.0 +51.2 116.9
17°	38 21.2 +51.7 120.4	37 52.2 +51.5 119.4	37 22.8 +51.3 118.3	36 53.1 +51.2 117.3	36 23.2 +50.9 116.3
18°	39 12.9 +51.5 119.8	38 43.7 +51.3 118.7	38 14.1 +51.1 117.7	37 44.3 +50.9 116.7	37 14.1 +50.8 115.6
19°	40 04.4 +51.3 119.1	39 35.0 +51.0 118.1	39 05.2 +50.9 117.0	38 35.2 +50.7 116.0	38 04.9 +50.5 115.0
20°	40 55.7 +51.0 118.4	40 26.0 +50.8 117.4	39 56.1 +50.6 116.3	39 25.9 +50.4 115.3	38 55.4 +50.3 114.3
21°	41 46.7 +50.7 117.7	41 16.8 +50.6 116.7	40 46.7 +50.4 115.6	40 16.3 +50.2 114.6	39 45.7 +50.0 113.6
22°	42 37.4 +50.5 117.0	42 07.4 +50.3 115.9	41 37.1 +50.1 114.9	41 06.5 +49.9 113.9	40 35.7 +49.8 112.8
23°	43 27.9 +50.1 116.3	42 57.7 +49.9 115.2	42 27.2 +49.8 114.2	41 56.4 +49.6 113.1	41 25.5 +49.4 112.1
24°	44 18.0 +49.9 115.5	43 47.6 +49.7 114.4	43 17.0 +49.4 113.4	42 46.0 +49.3 112.4	42 14.9 +49.1 111.3
25°	45 07.9 +49.5 114.7	44 37.3 +49.3 113.7	44 06.4 +49.2 112.6	43 35.3 +49.0 111.6	43 04.0 +48.9 110.6
26°	45 57.4 +49.2 113.9	45 26.6 +49.0 112.9	44 55.6 +48.8 111.8	44 24.3 +48.7 110.8	43 52.9 +48.4 109.8
27°	46 46.6 +48.8 113.1	46 15.6 +48.6 112.0	45 44.4 +48.4 111.0	45 13.0 +48.2 110.0	44 41.3 +48.1 108.9
28°	47 35.4 +48.4 112.2	47 04.2 +48.2 111.2	46 32.8 +48.1 110.1	46 01.2 +47.9 109.1	45 29.4 +47.7 108.1
29°	48 23.8 +48.0 111.3	47 52.4 +47.8 110.3	47 20.9 +47.6 109.3	46 49.1 +47.4 108.2	46 17.1 +47.3 107.2

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Dec	LHA 050° / 310°	LHA 051° / 309°	LHA 052° / 308°	LHA 053° / 307°	LHA 054° / 306°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	21 04.0 +53.2 124.8	20 36.3 +53.1 123.9	20 08.2 +53.0 122.9	19 39.9 +52.8 122.0	19 11.3 +52.7 121.1
1°	21 57.2 +53.2 124.3	21 29.4 +53.0 123.4	21 01.2 +52.8 122.4	20 32.7 +52.7 121.5	20 04.0 +52.5 120.6
2°	22 50.4 +53.1 123.8	22 22.4 +52.9 122.9	21 54.0 +52.8 121.9	21 25.4 +52.6 121.0	20 56.5 +52.4 120.0
3°	23 43.5 +52.9 123.3	23 15.3 +52.8 122.4	22 46.8 +52.6 121.4	22 18.0 +52.5 120.5	21 48.9 +52.4 119.5
4°	24 36.4 +52.9 122.8	24 08.1 +52.7 121.8	23 39.4 +52.6 120.9	23 10.5 +52.4 119.9	22 41.3 +52.2 119.0
5°	25 29.3 +52.8 122.3	25 00.8 +52.6 121.3	24 32.0 +52.4 120.4	24 02.9 +52.3 119.4	23 33.5 +52.2 118.5
6°	26 22.1 +52.6 121.8	25 53.4 +52.5 120.8	25 24.4 +52.3 119.8	24 55.2 +52.1 118.9	24 25.7 +52.0 117.9
7°	27 14.7 +52.5 121.2	26 45.9 +52.3 120.2	26 16.7 +52.2 119.3	25 47.3 +52.1 118.3	25 17.7 +51.9 117.4
8°	28 07.2 +52.4 120.7	27 38.2 +52.2 119.7	27 08.9 +52.1 118.7	26 39.4 +51.9 117.8	26 09.6 +51.7 116.8
9°	28 59.6 +52.2 120.1	28 30.4 +52.1 119.1	28 01.0 +51.9 118.2	27 31.3 +51.7 117.2	27 01.3 +51.6 116.2
10°	29 51.8 +52.1 119.6	29 22.5 +51.9 118.6	28 52.9 +51.8 117.6	28 23.0 +51.7 116.6	27 52.9 +51.5 115.7
11°	30 43.9 +52.0 119.0	30 14.4 +51.8 118.0	29 44.7 +51.6 117.0	29 14.7 +51.4 116.0	28 44.4 +51.3 115.1
12°	31 35.9 +51.7 118.4	31 06.2 +51.6 117.4	30 36.3 +51.5 116.4	30 06.1 +51.3 115.4	29 35.7 +51.2 114.5
13°	32 27.6 +51.7 117.8	31 57.8 +51.5 116.8	31 27.8 +51.2 115.8	30 57.4 +51.2 114.8	30 26.9 +51.0 113.9
14°	33 19.3 +51.4 117.2	32 49.3 +51.2 116.2	32 19.0 +51.2 115.2	31 48.6 +50.9 114.2	31 17.9 +50.8 113.3
15°	34 10.7 +51.2 116.6	33 40.5 +51.1 115.6	33 10.2 +50.9 114.6	32 39.5 +50.8 113.6	32 08.7 +50.6 112.6
16°	35 01.9 +51.0 115.9	34 31.6 +50.9 114.9	34 01.1 +50.7 114.0	33 30.3 +50.6 113.0	32 59.3 +50.4 112.0
17°	35 52.9 +50.9 115.3	35 22.5 +50.6 114.3	34 51.8 +50.5 113.3	34 20.9 +50.3 112.3	33 49.7 +50.2 111.4
18°	36 43.8 +50.6 114.6	36 13.1 +50.5 113.6	35 42.3 +50.3 112.6	35 11.2 +50.2 111.7	34 39.9 +50.0 110.7
19°	37 34.4 +50.3 114.0	37 03.6 +50.2 113.0	36 32.6 +50.0 112.0	36 01.4 +49.9 111.0	35 29.9 +49.8 110.0
20°	38 24.7 +50.1 113.3	37 53.8 +49.9 112.3	37 22.6 +49.8 111.3	36 51.3 +49.6 110.3	36 19.7 +49.5 109.3
21°	39 14.8 +49.9 112.6	38 43.7 +49.7 111.6	38 12.4 +49.6 110.6	37 40.9 +49.4 109.6	37 09.2 +49.3 108.6
22°	40 04.7 +49.6 111.8	39 33.4 +49.5 110.8	39 02.0 +49.3 109.8	38 30.3 +49.2 108.9	37 58.5 +49.0 107.9
23°	40 54.3 +49.2 111.1	40 22.9 +49.1 110.1	39 51.3 +48.9 109.1	39 19.5 +48.8 108.1	38 47.5 +48.7 107.2
24°	41 43.5 +49.0 110.3	41 12.0 +48.8 109.3	40 40.2 +48.7 108.4	40 08.3 +48.5 107.4	39 36.2 +48.4 106.4
25°	42 32.5 +48.7 109.6	42 00.8 +48.5 108.6	41 28.9 +48.4 107.6	40 56.8 +48.3 106.6	40 24.6 +48.1 105.6
26°	43 21.2 +48.3 108.8	42 49.3 +48.2 107.8	42 17.3 +48.0 106.8	41 45.1 +47.9 105.8	41 12.7 +47.8 104.9
27°	44 09.5 +47.9 107.9	43 37.5 +47.8 106.9	43 05.3 +47.7 106.0	42 33.0 +47.5 105.0	42 00.5 +47.4 104.0
28°	44 57.4 +47.6 107.1	44 25.3 +47.4 106.1	43 53.0 +47.3 105.1	43 20.5 +47.2 104.2	42 47.9 +47.1 103.2
29°	45 45.0 +47.2 106.2	45 12.7 +47.0 105.2	44 40.3 +46.8 104.3	44 07.7 +46.7 103.3	43 35.0 +46.6 102.4

Dec	LHA 055° / 305°	LHA 056° / 304°	LHA 057° / 303°	LHA 058° / 302°	LHA 059° / 301°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	18 42.5 +52.4 120.1	18 13.3 +52.3 119.2	17 43.9 +52.2 118.3	17 14.2 +52.1 117.4	16 44.3 +51.9 116.5
1°	19 34.9 +52.4 119.6	19 05.6 +52.3 118.7	18 36.1 +52.1 117.8	18 06.3 +51.9 116.9	17 36.2 +51.8 116.0
2°	20 27.3 +52.3 119.1	19 57.9 +52.1 118.2	19 28.2 +52.0 117.3	18 58.2 +51.9 116.3	18 28.0 +51.8 115.4
3°	21 19.6 +52.2 118.6	20 50.0 +52.1 117.6	20 20.2 +51.9 116.7	19 50.1 +51.8 115.8	19 19.8 +51.6 114.9
4°	22 11.8 +52.1 118.0	21 42.1 +51.9 117.1	21 12.1 +51.8 116.2	20 41.9 +51.6 115.3	20 11.4 +51.5 114.3
5°	23 03.9 +52.0 117.5	22 34.0 +51.9 116.6	22 03.9 +51.7 115.6	21 33.5 +51.6 114.7	21 02.9 +51.5 113.8
6°	23 55.9 +51.8 117.0	23 25.9 +51.7 116.0	22 55.6 +51.6 115.1	22 25.1 +51.4 114.2	21 54.4 +51.3 113.2
7°	24 47.7 +51.8 116.4	24 17.6 +51.6 115.5	23 47.2 +51.4 114.5	23 16.5 +51.4 113.6	22 45.7 +51.2 112.7
8°	25 39.5 +51.6 115.9	25 09.2 +51.4 114.9	24 38.6 +51.4 114.0	24 07.9 +51.2 113.0	23 36.9 +51.0 112.1
9°	26 31.1 +51.5 115.3	26 00.6 +51.4 114.3	25 30.0 +51.1 113.4	24 59.1 +51.0 112.5	24 27.9 +51.0 111.5
10°	27 22.6 +51.3 114.7	26 52.0 +51.2 113.8	26 21.1 +51.1 112.8	25 50.1 +50.9 111.9	25 18.9 +50.8 111.0
11°	28 13.9 +51.2 114.1	27 43.2 +51.0 113.2	27 12.2 +50.9 112.2	26 41.0 +50.8 111.3	26 09.7 +50.6 110.4
12°	29 05.1 +51.0 113.5	28 34.2 +50.9 112.6	28 03.1 +50.8 111.6	27 31.8 +50.6 110.7	27 00.3 +50.5 109.8
13°	29 56.1 +50.8 112.9	29 25.1 +50.7 112.0	28 53.9 +50.5 111.0	28 22.4 +50.5 110.1	27 50.8 +50.4 109.2
14°	30 46.9 +50.7 112.3	30 15.8 +50.5 111.4	29 44.4 +50.4 110.4	29 12.9 +50.3 109.5	28 41.2 +50.1 108.5
15°	31 37.6 +50.5 111.7	31 06.3 +50.4 110.7	30 34.8 +50.3 109.8	30 03.2 +50.1 108.8	29 31.3 +50.0 107.9
16°	32 28.1 +50.3 111.0	31 56.7 +50.1 110.1	31 25.1 +50.0 109.1	30 53.3 +49.9 108.2	30 21.3 +49.8 107.3
17°	33 18.4 +50.0 110.4	32 46.8 +50.0 109.4	32 15.1 +49.8 108.5	31 43.2 +49.7 107.6	31 11.1 +49.6 106.6
18°	34 08.4 +49.9 109.7	33 36.8 +49.7 108.8	33 04.9 +49.6 107.8	32 32.9 +49.5 106.9	32 00.7 +49.4 106.0
19°	34 58.3 +49.6 109.1	34 26.5 +49.5 108.1	33 54.5 +49.4 107.2	33 22.4 +49.3 106.2	32 50.1 +49.2 105.3
20°	35 47.9 +49.4 108.4	35 16.0 +49.3 107.4	34 43.9 +49.2 106.5	34 11.7 +49.0 105.5	33 39.3 +48.9 104.6
21°	36 37.3 +49.2 107.7	36 05.3 +49.0 106.7	35 33.1 +48.9 105.8	35 00.7 +48.8 104.8	34 28.2 +48.7 103.9
22°	37 26.5 +48.8 106.9	36 54.3 +48.8 106.0	36 22.0 +48.6 105.1	35 49.5 +48.5 104.1	35 16.9 +48.4 103.2
23°	38 15.3 +48.6 106.2	37 43.1 +48.4 105.3	37 10.6 +48.4 104.3	36 38.0 +48.3 103.4	36 05.3 +48.2 102.5
24°	39 03.9 +48.3 105.5	38 31.5 +48.2 104.5	37 59.0 +48.1 103.6	37 26.3 +48.0 102.7	36 53.5 +47.9 101.7
25°	39 52.2 +48.0 104.7	39 19.7 +47.9 103.7	38 47.1 +47.7 102.8	38 14.3 +47.7 101.9	37 41.4 +47.6 101.0
26°	40 40.2 +47.7 103.9	40 07.6 +47.5 103.0	39 34.8 +47.5 102.0	39 02.0 +47.3 101.1	38 29.0 +47.3 100.2
27°	41 27.9 +47.3 103.1	40 55.1 +47.2 102.2	40 22.3 +47.1 101.2	39 49.3 +47.0 100.3	39 16.3 +46.9 99.4
28°	42 15.2 +46.9 102.3	41 42.3 +46.9 101.3	41 09.4 +46.8 100.4	40 36.3 +46.7 99.5	40 03.2 +46.6 98.6
29°	43 02.1 +46.6 101.4	42 29.2 +46.5 100.5	41 56.2 +46.3 99.6	41 23.0 +46.3 98.7	40 49.8 +46.3 97.8

# Declination SAME name as Latitude

# Latitude 56°

Dec	LHA 060° / 300°	LHA 061° / 299°	LHA 062° / 298°	LHA 063° / 297°	LHA 064° / 296°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	16 14.2 +51.7 115.6	15 43.8 +51.6 114.7	15 13.2 +51.5 113.8	14 42.4 +51.4 112.9	14 11.4 +51.3 112.0
1°	17 05.9 +51.7 115.1	16 35.4 +51.6 114.2	16 04.7 +51.4 113.3	15 33.8 +51.3 112.4	15 02.7 +51.2 111.5
2°	17 57.6 +51.6 114.5	17 27.0 +51.5 113.6	16 56.1 +51.4 112.7	16 25.1 +51.2 111.8	15 53.9 +51.1 110.9
3°	18 49.2 +51.5 114.0	18 18.5 +51.3 113.1	17 47.5 +51.2 112.2	17 16.3 +51.2 111.3	16 45.0 +51.0 110.4
4°	19 40.7 +51.4 113.4	19 09.8 +51.3 112.5	18 38.7 +51.2 111.6	18 07.5 +51.0 110.7	17 36.0 +50.9 109.8
5°	20 32.1 +51.3 112.9	20 01.1 +51.2 112.0	19 29.9 +51.1 111.1	18 58.5 +51.0 110.2	18 26.9 +50.9 109.3
6°	21 23.4 +51.2 112.3	20 52.3 +51.1 111.4	20 21.0 +50.9 110.5	19 49.5 +50.8 109.6	19 17.8 +50.7 108.7
7°	22 14.6 +51.1 111.8	21 43.4 +50.9 110.9	21 11.9 +50.9 110.0	20 40.3 +50.7 109.1	20 08.5 +50.6 108.2
8°	23 05.7 +50.9 111.2	22 34.3 +50.8 110.3	22 02.8 +50.7 109.4	21 31.0 +50.6 108.5	20 59.1 +50.5 107.6
9°	23 56.6 +50.9 110.6	23 25.1 +50.8 109.7	22 53.5 +50.6 108.8	22 21.6 +50.5 107.9	21 49.6 +50.4 107.0
10°	24 47.5 +50.6 110.0	24 15.9 +50.5 109.1	23 44.1 +50.4 108.2	23 12.1 +50.4 107.3	22 40.0 +50.3 106.4
11°	25 38.1 +50.6 109.4	25 06.4 +50.4 108.5	24 34.5 +50.3 107.6	24 02.5 +50.2 106.7	23 30.3 +50.1 105.8
12°	26 28.7 +50.4 108.8	25 56.8 +50.3 107.9	25 24.8 +50.2 107.0	24 52.7 +50.0 106.1	24 20.4 +49.9 105.2
13°	27 19.1 +50.2 108.2	26 47.1 +50.1 107.3	26 15.0 +50.0 106.4	25 42.7 +50.0 105.5	25 10.3 +49.9 104.6
14°	28 09.3 +50.0 107.6	27 37.2 +50.0 106.7	27 05.0 +49.9 105.8	26 32.7 +49.7 104.9	26 00.2 +49.6 104.0
15°	28 59.3 +49.9 107.0	28 27.2 +49.7 106.1	27 54.9 +49.6 105.2	27 22.4 +49.6 104.3	26 49.8 +49.5 103.4
16°	29 49.2 +49.7 106.4	29 16.9 +49.6 105.4	28 44.5 +49.5 104.5	28 12.0 +49.4 103.6	27 39.3 +49.3 102.7
17°	30 38.9 +49.5 105.7	30 06.5 +49.4 104.8	29 34.0 +49.3 103.9	29 01.4 +49.2 103.0	28 28.6 +49.2 102.1
18°	31 28.4 +49.3 105.0	30 55.9 +49.2 104.1	30 23.3 +49.1 103.2	29 50.6 +49.0 102.3	29 17.8 +48.9 101.4
19°	32 17.7 +49.0 104.4	31 45.1 +49.0 103.5	31 12.4 +48.9 102.6	30 39.6 +48.8 101.7	30 06.7 +48.7 100.8
20°	33 06.7 +48.9 103.7	32 34.1 +48.7 102.8	32 01.3 +48.7 101.9	31 28.4 +48.6 101.0	30 55.4 +48.5 100.1
21°	33 55.6 +48.6 103.0	33 22.8 +48.5 102.1	32 50.0 +48.4 101.2	32 17.0 +48.4 100.3	31 43.9 +48.3 99.4
22°	34 44.2 +48.3 102.3	34 11.3 +48.3 101.4	33 38.4 +48.2 100.5	33 05.4 +48.1 99.6	32 32.2 +48.1 98.7
23°	35 32.5 +48.1 101.6	34 59.6 +48.0 100.7	34 26.6 +47.9 99.8	33 53.5 +47.8 98.9	33 20.3 +47.8 98.0
24°	36 20.6 +47.8 100.8	35 47.6 +47.7 99.9	35 14.5 +47.7 99.0	34 41.3 +47.6 98.1	34 08.1 +47.5 97.3
25°	37 08.4 +47.5 100.1	36 35.3 +47.5 99.2	36 02.2 +47.3 98.3	35 28.9 +47.3 97.4	34 55.6 +47.3 96.5
26°	37 55.9 +47.2 99.3	37 22.8 +47.1 98.4	36 49.5 +47.1 97.5	36 16.2 +47.1 96.6	35 42.9 +47.0 95.8
27°	38 43.1 +46.9 98.5	38 09.9 +46.8 97.6	37 36.6 +46.8 96.7	37 03.3 +46.7 95.9	36 29.9 +46.6 95.0
28°	39 30.0 +46.5 97.7	38 56.7 +46.5 96.8	38 23.4 +46.4 95.9	37 50.0 +46.4 95.1	37 16.5 +46.4 94.2
29°	40 16.5 +46.2 96.9	39 43.2 +46.1 96.0	39 09.8 +46.1 95.1	38 36.4 +46.0 94.3	38 02.9 +46.0 93.4

Dec	LHA 065° / 295°	LHA 066° / 294°	LHA 067° / 293°	LHA 068° / 292°	LHA 069° / 291°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	13 40.2 +51.1 111.1	13 08.8 +51.0 110.3	12 37.2 +51.0 109.4	12 05.5 +50.8 108.5	11 33.6 +50.8 107.7
1°	14 31.3 +51.1 110.6	13 59.8 +51.0 109.7	13 28.2 +50.8 108.8	12 56.3 +50.8 108.0	12 24.4 +50.6 107.1
2°	15 22.4 +51.0 110.1	14 50.8 +50.9 109.2	14 19.0 +50.8 108.3	13 47.1 +50.7 107.4	13 15.0 +50.6 106.6
3°	16 13.4 +50.9 109.5	15 41.7 +50.8 108.6	15 09.8 +50.8 107.7	14 37.8 +50.6 106.9	14 05.6 +50.6 106.0
4°	17 04.3 +50.9 109.0	16 32.5 +50.8 108.1	16 00.6 +50.6 107.2	15 28.4 +50.6 106.3	14 56.2 +50.4 105.4
5°	17 55.2 +50.7 108.4	17 23.3 +50.6 107.5	16 51.2 +50.5 106.6	16 19.0 +50.4 105.8	15 46.6 +50.4 104.9
6°	18 45.9 +50.6 107.8	18 13.9 +50.5 106.9	17 41.7 +50.5 106.1	17 09.4 +50.4 105.2	16 37.0 +50.2 104.3
7°	19 36.5 +50.6 107.3	19 04.4 +50.4 106.4	18 32.2 +50.3 105.5	17 59.8 +50.2 104.6	17 27.2 +50.2 103.7
8°	20 27.1 +50.4 106.7	19 54.8 +50.4 105.8	19 22.5 +50.2 104.9	18 50.0 +50.1 104.0	18 17.4 +50.1 103.2
9°	21 17.5 +50.2 106.1	20 45.2 +50.2 105.2	20 12.7 +50.1 104.3	19 40.1 +50.1 103.5	19 07.5 +49.9 102.6
10°	22 07.7 +50.2 105.5	21 35.4 +50.0 104.6	21 02.8 +50.0 103.8	20 30.2 +49.9 102.9	19 57.4 +49.8 102.0
11°	22 57.9 +50.0 104.9	22 25.4 +50.0 104.0	21 52.8 +49.9 103.2	21 20.1 +49.8 102.3	20 47.2 +49.8 101.4
12°	23 47.9 +49.9 104.3	23 15.4 +49.8 103.4	22 42.7 +49.7 102.6	22 09.9 +49.6 101.7	21 37.0 +49.5 100.8
13°	24 37.8 +49.7 103.7	24 05.2 +49.6 102.8	23 32.4 +49.6 102.0	22 59.5 +49.5 101.1	22 26.5 +49.5 100.2
14°	25 27.5 +49.6 103.1	24 54.8 +49.5 102.2	24 22.0 +49.4 101.3	23 49.0 +49.4 100.5	23 16.0 +49.3 99.6
15°	26 17.1 +49.4 102.5	25 44.3 +49.3 101.6	25 11.4 +49.3 100.7	24 38.4 +49.2 99.8	24 05.3 +49.1 99.0
16°	27 06.5 +49.3 101.8	26 33.6 +49.2 101.0	26 00.7 +49.1 100.1	25 27.6 +49.0 99.2	24 54.4 +49.0 98.3
17°	27 55.8 +49.0 101.2	27 22.8 +49.0 100.3	26 49.8 +48.9 99.4	26 16.6 +48.9 98.6	25 43.4 +48.8 97.7
18°	28 44.8 +48.9 100.5	28 11.8 +48.8 99.7	27 38.7 +48.7 98.8	27 05.5 +48.7 97.9	26 32.2 +48.7 97.0
19°	29 33.7 +48.7 99.9	29 00.6 +48.6 99.0	28 27.4 +48.6 98.1	27 54.2 +48.5 97.3	27 20.9 +48.4 96.4
20°	30 22.4 +48.4 99.2	29 49.2 +48.4 98.3	29 16.0 +48.3 97.5	28 42.7 +48.3 96.6	28 09.3 +48.3 95.7
21°	31 10.8 +48.2 98.5	30 37.6 +48.2 97.6	30 04.3 +48.1 96.8	29 31.0 +48.0 95.9	28 57.6 +48.0 95.0
22°	31 59.0 +48.0 97.8	31 25.8 +47.9 96.9	30 52.4 +47.9 96.1	30 19.0 +47.9 95.2	29 45.6 +47.8 94.4
23°	32 47.0 +47.8 97.1	32 13.7 +47.7 96.2	31 40.3 +47.7 95.4	31 06.9 +47.6 94.5	30 33.4 +47.6 93.7
24°	33 34.8 +47.5 96.4	33 01.4 +47.4 95.5	32 28.0 +47.4 94.7	31 54.5 +47.4 93.8	31 21.0 +47.4 93.0
25°	34 22.3 +47.2 95.6	33 48.8 +47.2 94.8	33 15.4 +47.1 93.9	32 41.9 +47.1 93.1	32 08.4 +47.1 92.2
26°	35 09.5 +46.9 94.9	34 36.0 +46.9 94.0	34 02.5 +46.9 93.2	33 29.0 +46.9 92.3	32 55.5 +46.9 91.5
27°	35 56.4 +46.7 94.1	35 22.9 +46.7 93.3	34 49.4 +46.6 92.4	34 15.9 +46.6 91.6	33 42.4 +46.5 90.7
28°	36 43.1 +46.3 93.3	36 09.6 +46.3 92.5	35 36.0 +46.3 91.7	35 02.5 +46.3 90.8	34 28.9 +46.3 90.0
29°	37 29.4 +46.0 92.6	36 55.9 +45.9 91.7	36 22.3 +46.0 90.9	35 48.8 +45.9 90.0	35 15.2 +46.0 89.2

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Dec	LHA 070° / 290°	LHA 071° / 289°	LHA 072° / 288°	LHA 073° / 287°	LHA 074° / 286°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	11 01.6 +50.6 106.8	10 29.4 +50.5 105.9	9 57.0 +50.5 105.1	9 24.6 +50.4 104.2	8 52.0 +50.3 103.4
1°	11 52.2 +50.6 106.2	11 19.9 +50.5 105.4	10 47.5 +50.4 104.5	10 15.0 +50.3 103.7	9 42.3 +50.3 102.8
2°	12 42.8 +50.5 105.7	12 10.4 +50.5 104.8	11 37.9 +50.4 104.0	11 05.3 +50.3 103.1	10 32.6 +50.2 102.3
3°	13 33.3 +50.5 105.1	13 00.9 +50.3 104.3	12 28.3 +50.3 103.4	11 55.6 +50.2 102.6	11 22.8 +50.1 101.7
4°	14 23.8 +50.3 104.6	13 51.2 +50.3 103.7	13 18.6 +50.2 102.9	12 45.8 +50.1 102.0	12 12.9 +50.1 101.1
5°	15 14.1 +50.3 104.0	14 41.5 +50.2 103.2	14 08.8 +50.1 102.3	13 35.9 +50.1 101.4	13 03.0 +50.0 100.6
6°	16 04.4 +50.2 103.5	15 31.7 +50.1 102.6	14 58.9 +50.1 101.7	14 26.0 +50.0 100.9	13 53.0 +49.9 100.0
7°	16 54.6 +50.1 102.9	16 21.8 +50.0 102.0	15 49.0 +49.9 101.2	15 16.0 +49.9 100.3	14 42.9 +49.9 99.4
8°	17 44.7 +50.0 102.3	17 11.8 +50.0 101.4	16 38.9 +49.9 100.6	16 05.9 +49.8 99.7	15 32.8 +49.7 98.9
9°	18 34.7 +49.8 101.7	18 01.8 +49.8 100.9	17 28.8 +49.7 100.0	16 55.7 +49.7 99.1	16 22.5 +49.7 98.3
10°	19 24.5 +49.8 101.1	18 51.6 +49.7 100.3	18 18.5 +49.7 99.4	17 45.4 +49.6 98.6	17 12.2 +49.5 97.7
11°	20 14.3 +49.7 100.5	19 41.3 +49.6 99.7	19 08.2 +49.5 98.8	18 35.0 +49.5 98.0	18 01.7 +49.4 97.1
12°	21 04.0 +49.5 99.9	20 30.9 +49.4 99.1	19 57.7 +49.4 98.2	19 24.5 +49.3 97.4	18 51.1 +49.4 96.5
13°	21 53.5 +49.4 99.3	21 20.3 +49.4 98.5	20 47.1 +49.3 97.6	20 13.8 +49.3 96.8	19 40.5 +49.2 95.9
14°	22 42.9 +49.2 98.7	22 09.7 +49.1 97.9	21 36.4 +49.1 97.0	21 03.1 +49.1 96.1	20 29.7 +49.0 95.3
15°	23 32.1 +49.1 98.1	22 58.8 +49.1 97.2	22 25.5 +49.0 96.4	21 52.2 +48.9 95.5	21 18.7 +49.0 94.7
16°	24 21.2 +48.9 97.5	23 47.9 +48.9 96.6	23 14.5 +48.9 95.8	22 41.1 +48.8 94.9	22 07.7 +48.8 94.1
17°	25 10.1 +48.8 96.8	24 36.8 +48.7 96.0	24 03.4 +48.7 95.1	23 29.9 +48.7 94.3	22 56.5 +48.6 93.4
18°	25 58.9 +48.6 96.2	25 25.5 +48.6 95.3	24 52.1 +48.5 94.5	24 18.6 +48.5 93.6	23 45.1 +48.5 92.8
19°	26 47.5 +48.4 95.5	26 14.1 +48.3 94.7	25 40.6 +48.4 93.8	25 07.1 +48.3 93.0	24 33.6 +48.3 92.1
20°	27 35.9 +48.2 94.9	27 02.4 +48.2 94.0	26 29.0 +48.1 93.2	25 55.4 +48.2 92.3	25 21.9 +48.2 91.5
21°	28 24.1 +48.0 94.2	27 50.6 +48.0 93.3	27 17.1 +48.0 92.5	26 43.6 +48.0 91.7	26 10.1 +47.9 90.8
22°	29 12.1 +47.8 93.5	28 38.6 +47.8 92.7	28 05.1 +47.8 91.8	27 31.6 +47.7 91.0	26 58.0 +47.8 90.2
23°	29 59.9 +47.6 92.8	29 26.4 +47.6 92.0	28 52.9 +47.5 91.1	28 19.3 +47.6 90.3	27 45.8 +47.5 89.5
24°	30 47.5 +47.4 92.1	30 14.0 +47.3 91.3	29 40.4 +47.4 90.4	29 06.9 +47.3 89.6	28 33.3 +47.4 88.8
25°	31 34.9 +47.1 91.4	31 01.3 +47.1 90.6	30 27.8 +47.1 89.7	29 54.2 +47.1 88.9	29 20.7 +47.1 88.1
26°	32 22.0 +46.8 90.7	31 48.4 +46.9 89.8	31 14.9 +46.8 89.0	30 41.3 +46.9 88.2	30 07.8 +46.9 87.4
27°	33 08.8 +46.6 89.9	32 35.3 +46.5 89.1	32 01.7 +46.6 88.3	31 28.2 +46.6 87.5	30 54.7 +46.6 86.6
28°	33 55.4 +46.3 89.2	33 21.8 +46.3 88.3	32 48.3 +46.3 87.5	32 14.8 +46.3 86.7	31 41.3 +46.4 85.9
29°	34 41.7 +46.0 88.4	34 08.1 +46.1 87.6	33 34.6 +46.1 86.8	33 01.1 +46.1 86.0	32 27.7 +46.1 85.2

Dec	LHA 075° / 285°	LHA 076° / 284°	LHA 077° / 283°	LHA 078° / 282°	LHA 079° / 281°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	8 19.3 +50.2 102.5	7 46.5 +50.2 101.7	7 13.6 +50.1 100.8	6 40.6 +50.1 100.0	6 07.5 +50.0 99.2
1°	9 09.5 +50.2 102.0	8 36.7 +50.1 101.1	8 03.7 +50.1 100.3	7 30.7 +50.0 99.4	6 57.5 +50.0 98.6
2°	9 59.7 +50.2 101.4	9 26.8 +50.1 100.6	8 53.8 +50.0 99.7	8 20.7 +49.9 98.9	7 47.5 +49.9 98.0
3°	10 49.9 +50.1 100.9	10 16.9 +50.0 100.0	9 43.8 +50.0 99.2	9 10.6 +50.0 98.3	8 37.4 +49.9 97.5
4°	11 40.0 +50.0 100.3	11 06.9 +50.0 99.4	10 33.8 +49.9 98.6	10 00.6 +49.8 97.8	9 27.3 +49.8 96.9
5°	12 30.0 +49.9 99.7	11 56.9 +49.9 98.9	11 23.7 +49.8 98.0	10 50.4 +49.8 97.2	10 17.1 +49.8 96.4
6°	13 19.9 +49.9 99.2	12 46.8 +49.8 98.3	12 13.5 +49.8 97.5	11 40.2 +49.8 96.6	11 06.9 +49.7 95.8
7°	14 09.8 +49.8 98.6	13 36.6 +49.7 97.7	13 03.3 +49.7 96.9	12 30.0 +49.6 96.1	11 56.6 +49.6 95.2
8°	14 59.6 +49.7 98.0	14 26.3 +49.7 97.2	13 53.0 +49.6 96.3	13 19.6 +49.6 95.5	12 46.2 +49.6 94.6
9°	15 49.3 +49.6 97.4	15 16.0 +49.5 96.6	14 42.6 +49.5 95.7	14 09.2 +49.5 94.9	13 35.8 +49.4 94.1
10°	16 38.9 +49.5 96.8	16 05.5 +49.5 96.0	15 32.1 +49.5 95.2	14 58.7 +49.4 94.3	14 25.2 +49.4 93.5
11°	17 28.4 +49.4 96.3	16 55.0 +49.4 95.4	16 21.6 +49.3 94.6	15 48.1 +49.3 93.7	15 14.6 +49.3 92.9
12°	18 17.8 +49.3 95.7	17 44.4 +49.2 94.8	17 10.9 +49.3 94.0	16 37.4 +49.2 93.1	16 03.9 +49.2 92.3
13°	19 07.1 +49.1 95.1	18 33.6 +49.2 94.2	18 00.2 +49.1 93.4	17 26.6 +49.2 92.5	16 53.1 +49.1 91.7
14°	19 56.2 +49.1 94.4	19 22.8 +49.0 93.6	18 49.3 +49.0 92.8	18 15.8 +48.9 91.9	17 42.2 +49.0 91.1
15°	20 45.3 +48.9 93.8	20 11.8 +48.9 93.0	19 38.3 +48.9 92.2	19 04.7 +48.9 91.3	18 31.2 +48.9 90.5
16°	21 34.2 +48.8 93.2	21 00.7 +48.7 92.4	20 27.2 +48.7 91.5	19 53.6 +48.7 90.7	19 20.1 +48.7 89.9
17°	22 23.0 +48.6 92.6	21 49.4 +48.7 91.7	21 15.9 +48.6 90.9	20 42.3 +48.7 90.1	20 08.8 +48.6 89.3
18°	23 11.6 +48.5 91.9	22 38.1 +48.4 91.1	22 04.5 +48.5 90.3	21 31.0 +48.4 89.5	20 57.4 +48.5 88.6
19°	24 00.1 +48.3 91.3	23 26.5 +48.3 90.5	22 53.0 +48.3 89.6	22 19.4 +48.3 88.8	21 45.9 +48.3 88.0
20°	24 48.4 +48.1 90.7	24 14.8 +48.2 89.8	23 41.3 +48.1 89.0	23 07.7 +48.2 88.2	22 34.2 +48.2 87.4
21°	25 36.5 +48.0 90.0	25 03.0 +47.9 89.2	24 29.4 +48.0 88.3	23 55.9 +48.0 87.5	23 22.4 +48.0 86.7
22°	26 24.5 +47.7 89.3	25 50.9 +47.8 88.5	25 17.4 +47.8 87.7	24 43.9 +47.8 86.9	24 10.4 +47.8 86.1
23°	27 12.2 +47.6 88.6	26 38.7 +47.6 87.8	26 05.2 +47.6 87.0	25 31.7 +47.6 86.2	24 58.2 +47.7 85.4
24°	27 59.8 +47.3 88.0	27 26.3 +47.3 87.1	26 52.8 +47.4 86.3	26 19.3 +47.4 85.5	25 45.9 +47.4 84.7
25°	28 47.1 +47.2 87.3	28 13.6 +47.2 86.5	27 40.2 +47.2 85.6	27 06.7 +47.3 84.8	26 33.3 +47.3 84.0
26°	29 34.3 +46.9 86.6	29 00.8 +47.0 85.7	28 27.4 +46.9 84.9	27 54.0 +47.0 84.1	27 20.6 +47.1 83.3
27°	30 21.2 +46.7 85.8	29 47.8 +46.7 85.0	29 14.3 +46.8 84.2	28 41.0 +46.8 83.4	28 07.7 +46.8 82.6
28°	31 07.9 +46.4 85.1	30 34.5 +46.4 84.3	30 01.1 +46.5 83.5	29 27.8 +46.6 82.7	28 54.5 +46.7 81.9
29°	31 54.3 +46.1 84.4	31 20.9 +46.2 83.6	30 47.6 +46.3 82.8	30 14.4 +46.3 82.0	29 41.2 +46.3 81.2

# Declination SAME name as Latitude

# Latitude 56°

Dec	LHA 080° / 280°	LHA 081° / 279°	LHA 082° / 278°	LHA 083° / 277°	LHA 084° / 276°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	5 34.3 +50.0 98.3	5 01.1 +49.9 97.5	4 27.8 +49.9 96.6	3 54.5 +49.8 95.8	3 21.1 +49.8 95.0
1°	6 24.3 +49.9 97.8	5 51.0 +49.9 96.9	5 17.7 +49.8 96.1	4 44.3 +49.8 95.3	4 10.9 +49.8 94.4
2°	7 14.2 +49.9 97.2	6 40.9 +49.9 96.4	6 07.5 +49.9 95.5	5 34.1 +49.8 94.7	5 00.7 +49.7 93.9
3°	8 04.1 +49.9 96.6	7 30.8 +49.8 95.8	6 57.4 +49.7 95.0	6 23.9 +49.8 94.1	5 50.4 +49.8 93.3
4°	8 54.0 +49.7 96.1	8 20.6 +49.7 95.2	7 47.1 +49.8 94.4	7 13.7 +49.7 93.6	6 40.2 +49.7 92.7
5°	9 43.7 +49.8 95.5	9 10.3 +49.7 94.7	8 36.9 +49.6 93.8	8 03.4 +49.6 93.0	7 29.9 +49.6 92.2
6°	10 33.5 +49.6 94.9	10 00.0 +49.7 94.1	9 26.5 +49.7 93.3	8 53.0 +49.6 92.4	8 19.5 +49.6 91.6
7°	11 23.1 +49.6 94.4	10 49.7 +49.6 93.5	10 16.2 +49.5 92.7	9 42.6 +49.6 91.9	9 09.1 +49.6 91.0
8°	12 12.7 +49.6 93.8	11 39.3 +49.5 93.0	11 05.7 +49.5 92.1	10 32.2 +49.5 91.3	9 58.7 +49.4 90.5
9°	13 02.3 +49.4 93.2	12 28.8 +49.4 92.4	11 55.2 +49.5 91.6	11 21.7 +49.4 90.7	10 48.1 +49.5 89.9
10°	13 51.7 +49.4 92.6	13 18.2 +49.4 91.8	12 44.7 +49.3 91.0	12 11.1 +49.4 90.1	11 37.6 +49.3 89.3
11°	14 41.1 +49.3 92.1	14 07.6 +49.2 91.2	13 34.0 +49.3 90.4	13 00.5 +49.2 89.6	12 26.9 +49.3 88.7
12°	15 30.4 +49.2 91.5	14 56.8 +49.2 90.6	14 23.3 +49.2 89.8	13 49.7 +49.2 89.0	13 16.2 +49.2 88.1
13°	16 19.6 +49.1 90.9	15 46.0 +49.1 90.0	15 12.5 +49.1 89.2	14 38.9 +49.1 88.4	14 05.4 +49.1 87.6
14°	17 08.7 +48.9 90.3	16 35.1 +49.0 89.4	16 01.6 +49.0 88.6	15 28.0 +49.0 87.8	14 54.5 +49.0 87.0
15°	17 57.6 +48.9 89.7	17 24.1 +48.9 88.8	16 50.6 +48.8 88.0	16 17.0 +48.9 87.2	15 43.5 +49.0 86.4
16°	18 46.5 +48.8 89.0	18 13.0 +48.7 88.2	17 39.4 +48.8 87.4	17 05.9 +48.8 86.6	16 32.5 +48.8 85.8
17°	19 35.3 +48.6 88.4	19 01.7 +48.7 87.6	18 28.2 +48.7 86.8	17 54.7 +48.7 86.0	17 21.3 +48.7 85.2
18°	20 23.9 +48.5 87.8	19 50.4 +48.5 87.0	19 16.9 +48.5 86.2	18 43.4 +48.6 85.4	18 10.0 +48.6 84.5
19°	21 12.4 +48.3 87.2	20 38.9 +48.3 86.4	20 05.4 +48.4 85.5	19 32.0 +48.4 84.7	18 58.6 +48.4 83.9
20°	22 00.7 +48.2 86.5	21 27.2 +48.2 85.7	20 53.8 +48.2 84.9	20 20.4 +48.3 84.1	19 47.0 +48.4 83.3
21°	22 48.9 +48.0 85.9	22 15.4 +48.1 85.1	21 42.0 +48.1 84.3	21 08.7 +48.1 83.5	20 35.4 +48.2 82.7
22°	23 36.9 +47.9 85.2	23 03.5 +47.9 84.4	22 30.1 +48.0 83.6	21 56.8 +48.0 82.8	21 23.6 +48.0 82.0
23°	24 24.8 +47.7 84.6	23 51.4 +47.8 83.8	23 18.1 +47.8 83.0	22 44.8 +47.9 82.2	22 11.6 +47.9 81.4
24°	25 12.5 +47.5 83.9	24 39.2 +47.5 83.1	24 05.9 +47.6 82.3	23 32.7 +47.6 81.5	22 59.5 +47.7 80.7
25°	26 00.0 +47.3 83.2	25 26.7 +47.4 82.4	24 53.5 +47.4 81.6	24 20.3 +47.5 80.9	23 47.2 +47.6 80.1
26°	26 47.3 +47.1 82.6	26 14.1 +47.2 81.8	25 40.9 +47.3 81.0	25 07.8 +47.3 80.2	24 34.8 +47.4 79.4
27°	27 34.4 +47.0 81.9	27 01.3 +46.9 81.1	26 28.2 +47.0 80.3	25 55.1 +47.1 79.5	25 22.2 +47.2 78.7
28°	28 21.4 +46.6 81.1	27 48.2 +46.8 80.4	27 15.2 +46.8 79.6	26 42.2 +47.0 78.8	26 09.4 +47.0 78.0
29°	29 08.0 +46.5 80.4	28 35.0 +46.5 79.7	28 02.0 +46.6 78.9	27 29.2 +46.6 78.1	26 56.4 +46.8 77.3

Dec	LHA 085° / 275°	LHA 086° / 274°	LHA 087° / 273°	LHA 088° / 272°	LHA 089° / 271°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	2 47.6 +49.8 94.1	2 14.1 +49.8 93.3	1 40.6 +49.8 92.5	1 07.1 +49.7 91.7	0 33.6 +49.7 90.8
1°	3 37.4 +49.8 93.6	3 03.9 +49.8 92.8	2 30.4 +49.7 91.9	1 56.8 +49.8 91.1	1 23.3 +49.7 90.3
2°	4 27.2 +49.7 93.0	3 53.7 +49.7 92.2	3 20.1 +49.7 91.4	2 46.6 +49.7 90.5	2 13.0 +49.7 89.7
3°	5 16.9 +49.7 92.5	4 43.4 +49.7 91.6	4 09.8 +49.8 90.8	3 36.3 +49.7 90.0	3 02.7 +49.8 89.1
4°	6 06.6 +49.7 91.9	5 33.1 +49.7 91.1	4 59.6 +49.6 90.2	4 26.0 +49.7 89.4	3 52.5 +49.6 88.6
5°	6 56.3 +49.7 91.3	6 22.8 +49.6 90.5	5 49.2 +49.7 89.7	5 15.7 +49.6 88.9	4 42.1 +49.7 88.0
6°	7 46.0 +49.6 90.8	7 12.4 +49.6 89.9	6 38.9 +49.6 89.1	6 05.3 +49.6 88.3	5 31.8 +49.6 87.5
7°	8 35.6 +49.5 90.2	8 02.0 +49.6 89.4	7 28.5 +49.5 88.6	6 54.9 +49.6 87.7	6 21.4 +49.6 86.9
8°	9 25.1 +49.5 89.6	8 51.6 +49.5 88.8	8 18.0 +49.5 88.0	7 44.5 +49.5 87.2	7 11.0 +49.5 86.3
9°	10 14.6 +49.4 89.1	9 41.1 +49.4 88.2	9 07.5 +49.5 87.4	8 34.0 +49.5 86.6	8 00.5 +49.5 85.8
10°	11 04.0 +49.4 88.5	10 30.5 +49.4 87.7	9 57.0 +49.4 86.8	9 23.5 +49.4 86.0	8 50.0 +49.5 85.2
11°	11 53.4 +49.3 87.9	11 19.9 +49.3 87.1	10 46.4 +49.3 86.3	10 12.9 +49.4 85.4	9 39.5 +49.4 84.6
12°	12 42.7 +49.2 87.3	12 09.2 +49.2 86.5	11 35.7 +49.3 85.7	11 02.3 +49.3 84.9	10 28.9 +49.3 84.0
13°	13 31.9 +49.1 86.7	12 58.4 +49.2 85.9	12 25.0 +49.1 85.1	11 51.6 +49.2 84.3	11 18.2 +49.3 83.5
14°	14 21.0 +49.1 86.1	13 47.6 +49.0 85.3	13 14.1 +49.2 84.5	12 40.8 +49.1 83.7	12 07.5 +49.1 82.9
15°	15 10.1 +48.9 85.5	14 36.6 +49.0 84.7	14 03.3 +49.0 83.9	13 29.9 +49.1 83.1	12 56.6 +49.1 82.3
16°	15 59.0 +48.9 84.9	15 25.6 +48.9 84.1	14 52.3 +48.9 83.3	14 19.0 +48.9 82.5	13 45.7 +49.1 81.7
17°	16 47.9 +48.7 84.3	16 14.5 +48.8 83.5	15 41.2 +48.8 82.7	15 07.9 +48.9 81.9	14 34.8 +48.9 81.1
18°	17 36.6 +48.6 83.7	17 03.3 +48.7 82.9	16 30.0 +48.7 82.1	15 56.8 +48.8 81.3	15 23.7 +48.8 80.5
19°	18 25.2 +48.5 83.1	17 52.0 +48.5 82.3	17 18.7 +48.6 81.5	16 45.6 +48.7 80.7	16 12.5 +48.7 79.9
20°	19 13.7 +48.4 82.5	18 40.5 +48.4 81.7	18 07.3 +48.5 80.9	17 34.3 +48.5 80.1	17 01.2 +48.7 79.3
21°	20 02.1 +48.3 81.9	19 28.9 +48.3 81.1	18 55.8 +48.4 80.3	18 22.8 +48.4 79.5	17 49.9 +48.5 78.7
22°	20 50.4 +48.1 81.2	20 17.2 +48.2 80.4	19 44.2 +48.2 79.6	19 11.2 +48.3 78.8	18 38.4 +48.3 78.1
23°	21 38.5 +47.9 80.6	21 05.4 +48.0 79.8	20 32.4 +48.1 79.0	19 59.5 +48.2 78.2	19 26.7 +48.3 77.4
24°	22 26.4 +47.8 79.9	21 53.4 +47.9 79.2	21 20.5 +48.0 78.4	20 47.7 +48.0 77.6	20 15.0 +48.1 76.8
25°	23 14.2 +47.7 79.3	22 41.3 +47.7 78.5	22 08.5 +47.8 77.7	21 35.7 +47.9 76.9	21 03.1 +48.0 76.2
26°	24 01.9 +47.4 78.6	23 29.0 +47.6 77.8	22 56.3 +47.6 77.1	22 23.6 +47.7 76.3	21 51.1 +47.8 75.5
27°	24 49.3 +47.3 77.9	24 16.6 +47.3 77.2	23 43.9 +47.4 76.4	23 11.3 +47.6 75.6	22 38.9 +47.6 74.9
28°	25 36.6 +47.1 77.3	25 03.9 +47.2 76.5	24 31.3 +47.3 75.7	23 58.9 +47.4 75.0	23 26.5 +47.5 74.2
29°	26 23.7 +46.9 76.6	25 51.1 +47.0 75.8	25 18.6 +47.1 75.1	24 46.3 +47.2 74.3	24 14.0 +47.3 73.5

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Dec	LHA 090° / 270°	LHA 091° / 269°	LHA 092° / 268°	LHA 093° / 267°	LHA 094° / 266°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	0 00.0 +49.7 90.0	-0 33.6 +49.8	-1 07.1 +49.8	-1 40.6 +49.7	-2 14.1 +49.8
1°	0 49.7 +49.8 89.4	0 16.2 +49.7 88.6	-0 17.3 +49.7	-0 50.9 +49.8	-1 24.3 +49.7
2°	1 39.5 +49.7 88.9	1 05.9 +49.8 88.1	0 32.4 +49.8 87.2	-0 01.1 +49.8	-0 34.6 +49.8
3°	2 29.2 +49.7 88.3	1 55.7 +49.7 87.5	1 22.2 +49.7 86.7	0 48.7 +49.8 85.8	0 15.2 +49.8 85.0
4°	3 18.9 +49.7 87.8	2 45.4 +49.7 86.9	2 11.9 +49.7 86.1	1 38.5 +49.7 85.3	1 05.0 +49.8 84.4
5°	4 08.6 +49.7 87.2	3 35.1 +49.7 86.4	3 01.6 +49.8 85.5	2 28.2 +49.8 84.7	1 54.8 +49.8 83.9
6°	4 58.3 +49.6 86.6	4 24.8 +49.7 85.8	3 51.4 +49.7 85.0	3 18.0 +49.7 84.2	2 44.6 +49.8 83.3
7°	5 47.9 +49.6 86.1	5 14.5 +49.6 85.2	4 41.1 +49.6 84.4	4 07.7 +49.7 83.6	3 34.4 +49.7 82.8
8°	6 37.5 +49.6 85.5	6 04.1 +49.6 84.7	5 30.7 +49.7 83.9	4 57.4 +49.7 83.0	4 24.1 +49.7 82.2
9°	7 27.1 +49.5 84.9	6 53.7 +49.6 84.1	6 20.4 +49.6 83.3	5 47.1 +49.6 82.5	5 13.8 +49.7 81.7
10°	8 16.6 +49.5 84.4	7 43.3 +49.5 83.5	7 10.0 +49.5 82.7	6 36.7 +49.6 81.9	6 03.5 +49.7 81.1
11°	9 06.1 +49.4 83.8	8 32.8 +49.4 83.0	7 59.5 +49.5 82.2	7 26.3 +49.6 81.3	6 53.2 +49.6 80.5
12°	9 55.5 +49.4 83.2	9 22.2 +49.4 82.4	8 49.0 +49.5 81.6	8 15.9 +49.5 80.8	7 42.8 +49.5 80.0
13°	10 44.9 +49.3 82.6	10 11.6 +49.4 81.8	9 38.5 +49.4 81.0	9 05.4 +49.4 80.2	8 32.3 +49.6 79.4
14°	11 34.2 +49.2 82.1	11 01.0 +49.3 81.3	10 27.9 +49.3 80.4	9 54.8 +49.4 79.6	9 21.9 +49.4 78.8
15°	12 23.4 +49.2 81.5	11 50.3 +49.2 80.7	11 17.2 +49.3 79.9	10 44.2 +49.4 79.0	10 11.3 +49.4 78.2
16°	13 12.6 +49.0 80.9	12 39.5 +49.1 80.1	12 06.5 +49.2 79.3	11 33.6 +49.2 78.5	11 00.7 +49.4 77.7
17°	14 01.6 +49.0 80.3	13 28.6 +49.1 79.5	12 55.7 +49.1 78.7	12 22.8 +49.2 77.9	11 50.1 +49.2 77.1
18°	14 50.6 +48.9 79.7	14 17.7 +48.9 78.9	13 44.8 +49.0 78.1	13 12.0 +49.1 77.3	12 39.3 +49.2 76.5
19°	15 39.5 +48.8 79.1	15 06.6 +48.9 78.3	14 33.8 +49.0 77.5	14 01.1 +49.0 76.7	13 28.5 +49.1 75.9
20°	16 28.3 +48.7 78.5	15 55.5 +48.8 77.7	15 22.8 +48.8 76.9	14 50.1 +49.0 76.1	14 17.6 +49.0 75.3
21°	17 17.0 +48.6 77.9	16 44.3 +48.6 77.1	16 11.6 +48.7 76.3	15 39.1 +48.8 75.5	15 06.6 +49.0 74.7
22°	18 05.6 +48.4 77.3	17 32.9 +48.6 76.5	17 00.3 +48.7 75.7	16 27.9 +48.7 74.9	15 55.6 +48.8 74.1
23°	18 54.0 +48.4 76.6	18 21.5 +48.4 75.9	17 49.0 +48.5 75.1	17 16.6 +48.6 74.3	16 44.4 +48.7 73.5
24°	19 42.4 +48.2 76.0	19 09.9 +48.3 75.2	18 37.5 +48.4 74.5	18 05.2 +48.5 73.7	17 33.1 +48.6 72.9
25°	20 30.6 +48.0 75.4	19 58.2 +48.1 74.6	19 25.9 +48.3 73.8	18 53.7 +48.4 73.1	18 21.7 +48.5 72.3
26°	21 18.6 +48.0 74.7	20 46.3 +48.1 74.0	20 14.2 +48.1 73.2	19 42.1 +48.2 72.4	19 10.2 +48.3 71.7
27°	22 06.6 +47.7 74.1	21 34.4 +47.8 73.3	21 02.3 +48.0 72.6	20 30.3 +48.1 71.8	19 58.5 +48.3 71.0
28°	22 54.3 +47.6 73.4	22 22.2 +47.7 72.7	21 50.3 +47.8 71.9	21 18.4 +48.0 71.2	20 46.8 +48.0 70.4
29°	23 41.9 +47.4 72.8	23 09.9 +47.6 72.0	22 38.1 +47.7 71.3	22 06.4 +47.8 70.5	21 34.8 +48.0 69.8

Dec	LHA 095° / 265°	LHA 096° / 264°	LHA 097° / 263°	LHA 098° / 262°	LHA 099° / 261°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-2 47.6 +49.8	-3 21.1 +49.9	-3 54.5 +49.9	-4 27.8 +49.9	-5 01.1 +49.9
1°	-1 57.8 +49.8	-2 31.2 +49.8	-3 04.6 +49.9	-3 37.9 +49.9	-4 11.2 +50.0
2°	-1 08.0 +49.8	-1 41.4 +49.9	-2 14.7 +49.9	-2 48.0 +50.0	-3 21.2 +50.0
3°	-0 18.2 +49.9	-0 51.5 +49.9	-1 24.8 +49.9	-1 58.0 +49.9	-2 31.2 +50.0
4°	0 31.7 +49.8 83.6	-0 01.6 +49.8	-0 34.9 +49.9	-1 08.1 +50.0	-1 41.2 +50.0
5°	1 21.5 +49.8 83.1	0 48.2 +49.9 82.2	0 15.0 +49.9 81.4	-0 18.1 +49.9	-0 51.2 +50.0
6°	2 11.3 +49.8 82.5	1 38.1 +49.8 81.7	1 04.9 +49.9 80.9	0 31.8 +50.0 80.0	-0 01.2 +50.0
7°	3 01.1 +49.8 81.9	2 27.9 +49.9 81.1	1 54.8 +49.9 80.3	1 21.8 +49.9 79.5	0 48.8 +50.1 78.6
8°	3 50.9 +49.8 81.4	3 17.8 +49.8 80.6	2 44.7 +49.9 79.7	2 11.7 +50.0 78.9	1 38.9 +50.0 78.1
9°	4 40.7 +49.7 80.8	4 07.6 +49.8 80.0	3 34.6 +49.8 79.2	3 01.7 +49.9 78.4	2 28.9 +50.0 77.5
10°	5 30.4 +49.7 80.3	4 57.4 +49.7 79.4	4 24.4 +49.9 78.6	3 51.6 +49.9 77.8	3 18.9 +49.9 77.0
11°	6 20.1 +49.7 79.7	5 47.1 +49.8 78.9	5 14.3 +49.8 78.1	4 41.5 +49.9 77.2	4 08.8 +50.0 76.4
12°	7 09.8 +49.6 79.1	6 36.9 +49.7 78.3	6 04.1 +49.7 77.5	5 31.4 +49.8 76.7	4 58.8 +49.9 75.9
13°	7 59.4 +49.6 78.6	7 26.6 +49.6 77.8	6 53.8 +49.8 76.9	6 21.2 +49.8 76.1	5 48.7 +49.9 75.3
14°	8 49.0 +49.5 78.0	8 16.2 +49.6 77.2	7 43.6 +49.6 76.4	7 11.0 +49.8 75.6	6 38.6 +49.8 74.8
15°	9 38.5 +49.5 77.4	9 05.8 +49.6 76.6	8 33.2 +49.7 75.8	8 00.8 +49.7 75.0	7 28.4 +49.8 74.2
16°	10 28.0 +49.4 76.9	9 55.4 +49.5 76.1	9 22.9 +49.6 75.2	8 50.5 +49.7 74.4	8 18.2 +49.8 73.6
17°	11 17.4 +49.4 76.3	10 44.9 +49.4 75.5	10 12.5 +49.5 74.7	9 40.2 +49.6 73.9	9 08.0 +49.7 73.1
18°	12 06.8 +49.2 75.7	11 34.3 +49.4 74.9	11 02.0 +49.4 74.1	10 29.8 +49.5 73.3	9 57.7 +49.7 72.5
19°	12 56.0 +49.2 75.1	12 23.7 +49.3 74.3	11 51.4 +49.4 73.5	11 19.3 +49.5 72.7	10 47.4 +49.5 71.9
20°	13 45.2 +49.1 74.5	13 13.0 +49.2 73.7	12 40.8 +49.3 72.9	12 08.8 +49.4 72.1	11 36.9 +49.6 71.4
21°	14 34.3 +49.1 73.9	14 02.2 +49.1 73.1	13 30.1 +49.2 72.4	12 58.2 +49.3 71.6	12 26.5 +49.4 70.8
22°	15 23.4 +48.9 73.3	14 51.3 +49.0 72.6	14 19.3 +49.2 71.8	13 47.5 +49.3 71.0	13 15.9 +49.4 70.2
23°	16 12.3 +48.8 72.7	15 40.3 +48.9 72.0	15 08.5 +49.0 71.2	14 36.8 +49.2 70.4	14 05.3 +49.2 69.6
24°	17 01.1 +48.7 72.1	16 29.2 +48.9 71.4	15 57.5 +49.0 70.6	15 26.0 +49.0 69.8	14 54.5 +49.2 69.0
25°	17 49.8 +48.6 71.5	17 18.1 +48.7 70.7	16 46.5 +48.8 70.0	16 15.0 +49.0 69.2	15 43.7 +49.1 68.4
26°	18 38.4 +48.5 70.9	18 06.8 +48.6 70.1	17 35.3 +48.7 69.4	17 04.0 +48.8 68.6	16 32.8 +49.0 67.8
27°	19 26.9 +48.3 70.3	18 55.4 +48.4 69.5	18 24.0 +48.6 68.8	17 52.8 +48.8 68.0	17 21.8 +48.9 67.2
28°	20 15.2 +48.2 69.6	19 43.8 +48.4 68.9	19 12.6 +48.5 68.1	18 41.6 +48.6 67.4	18 10.7 +48.7 66.6
29°	21 03.4 +48.1 69.0	20 32.2 +48.2 68.3	20 01.1 +48.3 67.5	19 30.2 +48.5 66.8	18 59.4 +48.7 66.0

Dec	LHA 100° / 260°	LHA 101° / 259°	LHA 102° / 258°	LHA 103° / 257°	LHA 104° / 256°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-5 34.3 +50.0	-6 07.5 +50.0	-6 40.6 +50.1	-7 13.6 +50.2	-7 46.5 +50.2
1°	-4 44.3 +50.0	-5 17.5 +50.1	-5 50.5 +50.1	-6 23.4 +50.2	-6 56.3 +50.3
2°	-3 54.3 +50.0	-4 27.4 +50.1	-5 00.4 +50.2	-5 33.2 +50.2	-6 06.0 +50.3
3°	-3 04.3 +50.1	-3 37.3 +50.1	-4 10.2 +50.2	-4 43.0 +50.2	-5 15.7 +50.3
4°	-2 14.2 +50.0	-2 47.2 +50.2	-3 20.0 +50.2	-3 52.8 +50.3	-4 25.4 +50.4
5°	-1 24.2 +50.1	-1 57.0 +50.1	-2 29.8 +50.2	-3 02.5 +50.3	-3 35.0 +50.3
6°	-0 34.1 +50.1	-1 06.9 +50.2	-1 39.6 +50.2	-2 12.2 +50.3	-2 44.7 +50.4
7°	0 16.0 +50.1 77.8	-0 16.7 +50.1	-0 49.4 +50.3	-1 21.9 +50.3	-1 54.3 +50.4
8°	1 06.1 +50.1 77.3	0 33.4 +50.2 76.4	0 00.9 +50.2 75.6	-0 31.6 +50.3	-1 03.9 +50.4
9°	1 56.2 +50.0 76.7	1 23.6 +50.1 75.9	0 51.1 +50.2 75.1	0 18.7 +50.3 74.2	-0 13.5 +50.4
10°	2 46.2 +50.1 76.2	2 13.7 +50.1 75.3	1 41.3 +50.2 74.5	1 09.0 +50.3 73.7	0 36.9 +50.4 72.9
11°	3 36.3 +50.0 75.6	3 03.8 +50.1 74.8	2 31.5 +50.2 74.0	1 59.3 +50.3 73.1	1 27.3 +50.4 72.3
12°	4 26.3 +50.0 75.1	3 53.9 +50.1 74.2	3 21.7 +50.2 73.4	2 49.6 +50.3 72.6	2 17.7 +50.4 71.8
13°	5 16.3 +50.0 74.5	4 44.0 +50.1 73.7	4 11.9 +50.2 72.9	3 39.9 +50.3 72.1	3 08.1 +50.3 71.2
14°	6 06.3 +49.9 73.9	5 34.1 +50.0 73.1	5 02.1 +50.1 72.3	4 30.2 +50.2 71.5	3 58.4 +50.4 70.7
15°	6 56.2 +49.9 73.4	6 24.1 +50.0 72.6	5 52.2 +50.1 71.8	5 20.4 +50.2 71.0	4 48.8 +50.3 70.1
16°	7 46.1 +49.9 72.8	7 14.1 +50.0 72.0	6 42.3 +50.1 71.2	6 10.6 +50.2 70.4	5 39.1 +50.3 69.6
17°	8 36.0 +49.8 72.3	8 04.1 +49.9 71.5	7 32.4 +50.0 70.7	7 00.8 +50.1 69.9	6 29.4 +50.2 69.0
18°	9 25.8 +49.7 71.7	8 54.0 +49.9 70.9	8 22.4 +49.9 70.1	7 50.9 +50.1 69.3	7 19.6 +50.2 68.5
19°	10 15.5 +49.7 71.1	9 43.9 +49.8 70.3	9 12.3 +50.0 69.5	8 41.0 +50.0 68.7	8 09.8 +50.2 67.9
20°	11 05.2 +49.7 70.6	10 33.7 +49.7 69.8	10 02.3 +49.8 69.0	9 31.0 +50.0 68.2	9 00.0 +50.1 67.4
21°	11 54.9 +49.5 70.0	11 23.4 +49.7 69.2	10 52.1 +49.8 68.4	10 21.0 +49.9 67.6	9 50.1 +50.0 66.8
22°	12 44.4 +49.5 69.4	12 13.1 +49.6 68.6	11 41.9 +49.8 67.8	11 10.9 +49.9 67.1	10 40.1 +50.0 66.3
23°	13 33.9 +49.4 68.8	13 02.7 +49.5 68.1	12 31.7 +49.6 67.3	12 00.8 +49.8 66.5	11 30.1 +50.0 65.7
24°	14 23.3 +49.3 68.2	13 52.2 +49.5 67.5	13 21.3 +49.6 66.7	12 50.6 +49.7 65.9	12 20.1 +49.8 65.1
25°	15 12.6 +49.2 67.7	14 41.7 +49.3 66.9	14 10.9 +49.5 66.1	13 40.3 +49.6 65.3	13 09.9 +49.8 64.6
26°	16 01.8 +49.2 67.1	15 31.0 +49.3 66.3	15 00.4 +49.4 65.5	14 29.9 +49.6 64.8	13 59.7 +49.7 64.0
27°	16 51.0 +49.0 66.5	16 20.3 +49.2 65.7	15 49.8 +49.3 64.9	15 19.5 +49.5 64.2	14 49.4 +49.6 63.4
28°	17 40.0 +48.9 65.9	17 09.5 +49.0 65.1	16 39.1 +49.2 64.4	16 09.0 +49.3 63.6	15 39.0 +49.5 62.8
29°	18 28.9 +48.8 65.3	17 58.5 +49.0 64.5	17 28.3 +49.1 63.8	16 58.3 +49.3 63.0	16 28.5 +49.5 62.2

Dec	LHA 105° / 255°	LHA 106° / 254°	LHA 107° / 253°	LHA 108° / 252°	LHA 109° / 251°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-8 19.3 +50.3	-8 52.0 +50.4	-9 24.6 +50.5	-9 57.0 +50.5	-9 38.8 +50.7
1°	-7 29.0 +50.3	-8 01.6 +50.4	-8 34.1 +50.5	-9 06.5 +50.6	-8 48.1 +50.7
2°	-6 38.7 +50.4	-7 11.2 +50.4	-7 43.6 +50.5	-8 15.9 +50.6	-7 57.4 +50.8
3°	-5 48.3 +50.4	-6 20.8 +50.5	-6 53.1 +50.6	-7 25.3 +50.6	-7 06.6 +50.8
4°	-4 57.9 +50.4	-5 30.3 +50.5	-6 02.5 +50.6	-6 34.7 +50.7	-6 15.8 +50.8
5°	-4 07.5 +50.5	-4 39.8 +50.6	-5 11.9 +50.6	-5 44.0 +50.8	-5 25.0 +50.8
6°	-3 17.0 +50.5	-3 49.2 +50.5	-4 21.3 +50.6	-4 53.2 +50.7	-4 34.2 +50.9
7°	-2 26.5 +50.4	-2 58.7 +50.6	-3 30.7 +50.7	-4 02.5 +50.8	-3 43.3 +50.9
8°	-1 36.1 +50.5	-2 08.1 +50.6	-2 40.0 +50.7	-3 11.7 +50.8	-2 52.4 +50.9
9°	-0 45.6 +50.5	-1 17.5 +50.6	-1 49.3 +50.7	-2 20.9 +50.8	-2 01.5 +50.9
10°	0 04.9 +50.5 72.0	-0 26.9 +50.6	-0 58.6 +50.7	-1 30.1 +50.8	-1 10.6 +51.0
11°	0 55.4 +50.5 71.5	0 23.7 +50.6 70.7	-0 07.9 +50.7	-0 39.3 +50.8	-0 19.6 +50.9
12°	1 45.9 +50.5 71.0	1 14.3 +50.5 70.1	0 42.8 +50.7 69.3	0 11.5 +50.8 68.5	0 31.3 +50.9 67.1
13°	2 36.4 +50.4 70.4	2 04.8 +50.6 69.6	1 33.5 +50.7 68.8	1 02.3 +50.8 67.9	1 21.2 +50.9 66.6
14°	3 26.8 +50.5 69.9	2 55.4 +50.6 69.1	2 24.2 +50.7 68.2	1 53.1 +50.8 67.4	
15°	4 17.3 +50.4 69.3	3 46.0 +50.5 68.5	3 14.9 +50.6 67.7	2 43.9 +50.8 66.9	2 13.1 +50.9 66.1
16°	5 07.7 +50.4 68.8	4 36.5 +50.5 68.0	4 05.5 +50.6 67.2	3 34.7 +50.7 66.3	3 04.0 +50.9 65.5
17°	5 58.1 +50.4 68.2	5 27.0 +50.5 67.4	4 56.1 +50.7 66.6	4 25.4 +50.8 65.8	3 54.9 +50.9 65.0
18°	6 48.5 +50.3 67.7	6 17.5 +50.5 66.9	5 46.8 +50.5 66.1	5 16.2 +50.7 65.3	4 45.8 +50.9 64.5
19°	7 38.8 +50.3 67.1	7 08.0 +50.4 66.3	6 37.3 +50.6 65.5	6 06.9 +50.7 64.7	5 36.7 +50.8 63.9
20°	8 29.1 +50.2 66.6	7 58.4 +50.4 65.8	7 27.9 +50.5 65.0	6 57.6 +50.6 64.2	6 27.5 +50.8 63.4
21°	9 19.3 +50.2 66.0	8 48.8 +50.3 65.2	8 18.4 +50.4 64.5	7 48.2 +50.6 63.7	7 18.3 +50.7 62.9
22°	10 09.5 +50.1 65.5	9 39.1 +50.2 64.7	9 08.8 +50.5 63.9	8 38.8 +50.6 63.1	8 09.0 +50.7 62.3
23°	10 59.6 +50.1 64.9	10 29.3 +50.3 64.1	9 59.3 +50.3 63.4	9 29.4 +50.5 62.6	8 59.7 +50.7 61.8
24°	11 49.7 +50.0 64.4	11 19.6 +50.1 63.6	10 49.6 +50.3 62.8	10 19.9 +50.4 62.0	9 50.4 +50.6 61.2
25°	12 39.7 +49.9 63.8	12 09.7 +50.1 63.0	11 39.9 +50.2 62.2	11 10.3 +50.4 61.5	10 41.0 +50.5 60.7
26°	13 29.6 +49.9 63.2	12 59.8 +50.0 62.5	12 30.1 +50.2 61.7	12 00.7 +50.3 60.9	11 31.5 +50.5 60.1
27°	14 19.5 +49.8 62.7	13 49.8 +49.9 61.9	13 20.3 +50.1 61.1	12 51.0 +50.3 60.4	12 22.0 +50.4 59.6
28°	15 09.3 +49.6 62.1	14 39.7 +49.9 61.3	14 10.4 +50.0 60.6	13 41.3 +50.2 59.8	13 12.4 +50.3 59.0
29°	15 58.9 +49.6 61.5	15 29.6 +49.7 60.7	15 00.4 +49.9 60.0	14 31.5 +50.1 59.2	14 02.7 +50.3 58.5

# Latitude 56°

# Declination SAME name as Latitude

Dec	LHA 110° / 250°	LHA 111° / 249°	LHA 112° / 248°	LHA 113° / 247°	LHA 114° / 246°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°	-9 20.1 +50.8	-9 52.0 +51.0	-9 32.6 +51.0		
4°	-8 29.3 +50.9	-9 01.0 +50.9	-8 41.6 +51.1	-9 12.9 +51.2	-9 44.0 +51.3
5°	-7 38.4 +50.9	-8 10.1 +51.0			
6°					
7°	-6 47.5 +50.9	-7 19.1 +51.0	-7 50.5 +51.2	-8 21.7 +51.3	-8 52.7 +51.4
8°	-5 56.6 +50.9	-6 28.1 +51.1	-6 59.3 +51.2	-7 30.4 +51.3	-8 01.3 +51.4
9°	-5 05.7 +51.0	-5 37.0 +51.1	-6 08.1 +51.2	-6 39.1 +51.3	-7 09.9 +51.5
10°	-4 14.7 +51.0	-4 45.9 +51.1	-5 16.9 +51.2	-5 47.8 +51.4	-6 18.4 +51.5
11°	-3 23.7 +51.1	-3 54.8 +51.2	-4 25.7 +51.3	-4 56.4 +51.4	-5 26.9 +51.5
12°					
13°	-2 32.6 +51.0	-3 03.6 +51.1	-3 34.4 +51.2	-4 05.0 +51.4	-4 35.4 +51.5
14°	-1 41.6 +51.0	-2 12.5 +51.2	-2 43.2 +51.3	-3 13.6 +51.4	-3 43.9 +51.6
15°	-0 50.6 +51.1	-1 21.3 +51.2	-1 51.9 +51.3	-2 22.2 +51.4	-2 52.3 +51.5
16°	0 00.5 +51.0 66.3	-0 30.1 +51.1	-1 00.6 +51.3	-1 30.8 +51.5	-2 00.8 +51.6
17°	0 51.5 +51.1 65.8	0 21.0 +51.2 64.9	-0 09.3 +51.3	-0 39.3 +51.4	-1 09.2 +51.6
18°					
19°	1 42.6 +51.0 65.2	1 12.2 +51.2 64.4	0 42.0 +51.4 63.6	0 12.1 +51.4 62.8	-0 17.6 +51.6
20°	2 33.6 +51.0 64.7	2 03.4 +51.1 63.9	1 33.4 +51.2 63.1	1 03.5 +51.5 62.3	0 34.0 +51.5 61.4
21°	3 24.6 +51.0 64.2	2 54.5 +51.2 63.4	2 24.6 +51.3 62.6	1 55.0 +51.4 61.7	1 25.5 +51.6 60.9
22°	4 15.6 +51.0 63.7	3 45.7 +51.1 62.8	3 15.9 +51.3 62.0	2 46.4 +51.4 61.2	2 17.1 +51.6 60.4
23°	5 06.6 +51.0 63.1	4 36.8 +51.1 62.3	4 07.2 +51.2 61.5	3 37.8 +51.4 60.7	3 08.7 +51.5 59.9
24°					
25°	5 57.6 +50.9 62.6	5 27.9 +51.1 61.8	4 58.4 +51.3 61.0	4 29.2 +51.4 60.2	4 00.2 +51.5 59.4
26°	6 48.5 +50.9 62.1	6 19.0 +51.0 61.3	5 49.7 +51.2 60.5	5 20.6 +51.3 59.7	4 51.7 +51.5 58.9
27°	7 39.4 +50.8 61.5	7 10.0 +51.0 60.7	6 40.9 +51.1 59.9	6 11.9 +51.3 59.1	5 43.2 +51.5 58.3
28°	8 30.2 +50.9 61.0	8 01.0 +51.0 60.2	7 32.0 +51.1 59.4	7 03.2 +51.3 58.6	6 34.7 +51.5 57.8
29°	9 21.1 +50.7 60.5	8 52.0 +50.9 59.7	8 23.1 +51.1 58.9	7 54.5 +51.3 58.1	7 26.2 +51.4 57.3
30°					
31°	10 11.8 +50.7 59.9	9 42.9 +50.9 59.1	9 14.2 +51.0 58.4	8 45.8 +51.2 57.6	8 17.6 +51.3 56.8
32°	11 02.5 +50.7 59.4	10 33.8 +50.8 58.6	10 05.2 +51.0 57.8	9 37.0 +51.1 57.0	9 08.9 +51.4 56.3
33°	11 53.2 +50.5 58.8	11 24.6 +50.7 58.1	10 56.2 +50.9 57.3	10 28.1 +51.1 56.5	10 00.3 +51.2 55.7
34°	12 43.7 +50.6 58.3	12 15.3 +50.7 57.5	11 47.1 +50.9 56.7	11 19.2 +51.0 56.0	10 51.5 +51.2 55.2
35°	13 34.3 +50.4 57.7	13 06.0 +50.6 57.0	12 38.0 +50.8 56.2	12 10.2 +51.0 55.4	11 42.7 +51.2 54.7

Dec	LHA 115° / 245°	LHA 116° / 244°	LHA 117° / 243°	LHA 118° / 242°	LHA 119° / 241°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°	-9 23.5 +51.5	-9 54.1 +51.7			
9°	-8 32.0 +51.6	-9 02.4 +51.6	-9 32.7 +51.8		
10°	-7 40.4 +51.6	-8 10.8 +51.7	-8 40.9 +51.9	-9 10.8 +52.0	-9 40.5 +52.2
11°	-6 48.8 +51.6	-7 19.1 +51.8	-7 49.0 +51.8	-8 18.8 +52.0	-8 48.3 +52.1
12°	-5 57.2 +51.6	-6 27.3 +51.8	-6 57.2 +51.9	-7 26.8 +52.0	-7 56.2 +52.2
13°					
14°	-5 05.6 +51.7	-5 35.5 +51.8	-6 05.3 +52.0	-6 34.8 +52.1	-7 04.0 +52.2
15°	-4 13.9 +51.7	-4 43.7 +51.8	-5 13.3 +51.9	-5 42.7 +52.1	-6 11.8 +52.3
16°	-3 22.2 +51.7	-3 51.9 +51.8	-4 21.4 +52.0	-4 50.6 +52.2	-5 19.5 +52.3
17°	-2 30.5 +51.7	-3 00.1 +51.9	-3 29.4 +52.0	-3 58.4 +52.1	-4 27.2 +52.2
18°	-1 38.8 +51.7	-2 08.2 +51.8	-2 37.4 +52.0	-3 06.3 +52.2	-3 35.0 +52.4
19°					
20°	-0 47.1 +51.7	-1 16.4 +51.9	-1 45.4 +52.0	-2 14.1 +52.1	-2 42.6 +52.3
21°	0 04.6 +51.7 60.6	-0 24.5 +51.9	-0 53.4 +52.1	-1 22.0 +52.2	-1 50.3 +52.3
22°	0 56.3 +51.8 60.1	0 27.4 +51.8 59.3	-0 01.3 +52.0	-0 29.8 +52.2	-0 58.0 +52.3
23°	1 48.1 +51.7 59.6	1 19.2 +51.9 58.8	0 50.7 +52.0 57.9	0 22.4 +52.2 57.1	-0 05.7 +52.4
24°	2 39.8 +51.7 59.1	2 11.1 +51.9 58.3	1 42.7 +52.0 57.4	1 14.6 +52.1 56.6	0 46.7 +52.3 55.8
25°					
26°	3 31.5 +51.6 58.6	3 03.0 +51.8 57.8	2 34.7 +52.0 56.9	2 06.7 +52.2 56.1	1 39.0 +52.3 55.3
27°	4 23.1 +51.7 58.1	3 54.8 +51.8 57.3	3 26.7 +52.0 56.4	2 58.9 +52.1 55.6	2 31.3 +52.3 54.8
28°	5 14.8 +51.6 57.5	4 46.6 +51.8 56.7	4 18.7 +52.0 55.9	3 51.0 +52.2 55.1	3 23.6 +52.3 54.3
29°	6 06.4 +51.6 57.0	5 38.4 +51.8 56.2	5 10.7 +51.9 55.4	4 43.2 +52.1 54.6	4 15.9 +52.3 53.8
30°	6 58.0 +51.6 56.5	6 30.2 +51.7 55.7	6 02.6 +51.9 54.9	5 35.3 +52.1 54.1	5 08.2 +52.3 53.3
31°					
32°	7 49.6 +51.6 56.0	7 21.9 +51.7 55.2	6 54.5 +51.9 54.4	6 27.4 +52.0 53.6	6 00.5 +52.2 52.8
33°	8 41.2 +51.5 55.5	8 13.6 +51.7 54.7	7 46.4 +51.8 53.9	7 19.4 +52.0 53.1	6 52.7 +52.2 52.4
34°	9 32.7 +51.4 55.0	9 05.3 +51.6 54.2	8 38.2 +51.8 53.4	8 11.4 +52.0 52.6	7 44.9 +52.2 51.9
35°	10 24.1 +51.4 54.4	9 56.9 +51.6 53.7	9 30.0 +51.8 52.9	9 03.4 +51.9 52.1	8 37.1 +52.1 51.4
36°	11 15.5 +51.3 53.9	10 48.5 +51.5 53.2	10 21.8 +51.7 52.4	9 55.3 +51.9 51.6	9 29.2 +52.1 50.9

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Dec	LHA 120° / 240°	LHA 121° / 239°	LHA 122° / 238°	LHA 123° / 237°	LHA 124° / 236°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°	-9 17.6 +52.3	-9 46.7 +52.5			
9°	-8 25.3 +52.3	-8 54.2 +52.5	-9 22.8 +52.6	-9 51.2 +52.8	
10°	-7 33.0 +52.4	-8 01.7 +52.5	-8 30.2 +52.7	-8 58.4 +52.8	-9 26.3 +53.0
11°	-6 40.6 +52.4	-7 09.2 +52.5	-7 37.5 +52.7	-8 05.6 +52.9	-8 33.3 +53.0
12°	-5 48.2 +52.4	-6 16.7 +52.6	-6 44.8 +52.7	-7 12.7 +52.9	-7 40.3 +53.0
13°	-4 55.8 +52.4	-5 24.1 +52.6	-5 52.1 +52.8	-6 19.8 +52.9	-6 47.3 +53.1
14°	-4 03.4 +52.5	-4 31.5 +52.6	-4 59.3 +52.7	-5 26.9 +52.9	-5 54.2 +53.1
15°	-3 10.9 +52.5	-3 38.9 +52.7	-4 06.6 +52.8	-4 34.0 +53.0	-5 01.1 +53.1
16°	-2 18.4 +52.5	-2 46.2 +52.6	-3 13.8 +52.8	-3 41.0 +53.0	-4 08.0 +53.2
17°	-1 25.9 +52.5	-1 53.6 +52.7	-2 21.0 +52.9	-2 48.0 +52.9	-3 14.8 +53.1
18°	-0 33.4 +52.5	-1 00.9 +52.6	-1 28.1 +52.8	-1 55.1 +53.0	-2 21.7 +53.2
19°	0 19.1 +52.5 55.0	-0 08.3 +52.7	-0 35.3 +52.8	-1 02.1 +53.0	-1 28.5 +53.1
20°	1 11.6 +52.4 54.5	0 44.4 +52.6 53.7	0 17.5 +52.8 52.8	-0 09.1 +53.0	-0 35.4 +53.2
21°	2 04.0 +52.5 54.0	1 37.0 +52.7 53.2	1 10.3 +52.8 52.4	0 43.9 +53.0 51.5	0 17.8 +53.1 50.7
22°	2 56.5 +52.5 53.5	2 29.7 +52.6 52.7	2 03.1 +52.9 51.9	1 36.9 +53.0 51.1	1 10.9 +53.2 50.2
23°	3 49.0 +52.4 53.0	3 22.3 +52.6 52.2	2 56.0 +52.8 51.4	2 29.9 +52.9 50.6	2 04.1 +53.2 49.8
24°	4 41.4 +52.5 52.5	4 14.9 +52.7 51.7	3 48.8 +52.7 50.9	3 22.8 +53.0 50.1	2 57.3 +53.1 49.3
25°	5 33.9 +52.4 52.1	5 07.6 +52.5 51.3	4 41.5 +52.8 50.5	4 15.8 +52.9 49.7	3 50.4 +53.1 48.9
26°	6 26.3 +52.4 51.6	6 00.1 +52.6 50.8	5 34.3 +52.7 50.0	5 08.7 +53.0 49.2	4 43.5 +53.1 48.4
27°	7 18.7 +52.3 51.1	6 52.7 +52.5 50.3	6 27.0 +52.7 49.5	6 01.7 +52.9 48.7	5 36.6 +53.1 47.9
28°	8 11.0 +52.3 50.6	7 45.2 +52.5 49.8	7 19.7 +52.7 49.0	6 54.6 +52.8 48.2	6 29.7 +53.0 47.5
29°	9 03.3 +52.3 50.1	8 37.7 +52.5 49.3	8 12.4 +52.7 48.5	7 47.4 +52.9 47.8	7 22.7 +53.1 47.0

Dec	LHA 125° / 235°	LHA 126° / 234°	LHA 127° / 233°	LHA 128° / 232°	LHA 129° / 231°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°	-9 53.9 +53.1				
11°	-9 00.8 +53.2	-9 27.9 +53.3	-9 54.8 +53.5		
12°	-8 07.6 +53.2	-8 34.6 +53.4	-9 01.3 +53.5	-9 27.7 +53.7	-9 53.7 +53.8
13°	-7 14.4 +53.2	-7 41.2 +53.4	-8 07.8 +53.6	-8 34.0 +53.7	-8 59.9 +53.9
14°	-6 21.2 +53.3	-6 47.8 +53.4	-7 14.2 +53.6	-7 40.3 +53.8	-8 06.0 +53.9
15°	-5 27.9 +53.3	-5 54.4 +53.4	-6 20.6 +53.6	-6 46.5 +53.8	-7 12.1 +54.0
16°	-4 34.6 +53.3	-5 01.0 +53.5	-5 27.0 +53.6	-5 52.7 +53.8	-6 18.1 +54.0
17°	-3 41.3 +53.3	-4 07.5 +53.5	-4 33.4 +53.7	-4 58.9 +53.8	-5 24.1 +54.0
18°	-2 48.0 +53.3	-3 14.0 +53.5	-3 39.7 +53.6	-4 05.1 +53.8	-4 30.1 +54.0
19°	-1 54.7 +53.3	-2 20.5 +53.5	-2 46.1 +53.7	-3 11.3 +53.9	-3 36.1 +54.0
20°	-1 01.4 +53.4	-1 27.0 +53.5	-1 52.4 +53.7	-2 17.4 +53.8	-2 42.1 +54.0
21°	0 08.0 +53.3	-0 33.5 +53.5	-0 58.7 +53.7	-1 23.6 +53.9	-1 48.1 +54.0
22°	0 45.3 +53.3 49.4	0 20.0 +53.5 48.6	-0 05.0 +53.7	-0 29.7 +53.9	-0 54.1 +54.1
23°	1 38.6 +53.4 49.0	1 13.5 +53.5 48.1	0 48.7 +53.6 47.3	0 24.2 +53.8 46.5	0 00.0 +54.0 45.7
24°	2 32.0 +53.3 48.5	2 07.0 +53.5 47.7	1 42.3 +53.7 46.9	1 18.0 +53.9 46.1	0 54.0 +54.1 45.2
25°	3 25.3 +53.3 48.1	3 00.5 +53.5 47.2	2 36.0 +53.7 46.4	2 11.9 +53.8 45.6	1 48.1 +54.0 44.8
26°	4 18.6 +53.3 47.6	3 54.0 +53.4 46.8	3 29.7 +53.6 46.0	3 05.7 +53.8 45.2	2 42.1 +54.0 44.4
27°	5 11.9 +53.2 47.1	4 47.4 +53.5 46.3	4 23.3 +53.7 45.5	3 59.5 +53.9 44.7	3 36.1 +54.0 43.9
28°	6 05.1 +53.3 46.7	5 40.9 +53.4 45.9	5 17.0 +53.6 45.1	4 53.4 +53.8 44.3	4 30.1 +54.0 43.5
29°	6 58.4 +53.2 46.2	6 34.3 +53.4 45.4	6 10.6 +53.6 44.6	5 47.2 +53.8 43.8	5 24.1 +54.0 43.1

Dec	LHA 130° / 230°	LHA 131° / 229°	LHA 132° / 228°	LHA 133° / 227°	LHA 134° / 226°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°	-9 25.4 +54.0	-9 50.6 +54.2			
14°	-8 31.4 +54.1	-8 56.4 +54.3	-9 21.1 +54.4	-9 45.4 +54.6	
15°	-7 37.3 +54.1	-8 02.1 +54.2	-8 26.7 +54.5	-8 50.8 +54.6	-9 14.6 +54.8
16°	-6 43.2 +54.2	-7 07.9 +54.4	-7 32.2 +54.5	-7 56.2 +54.6	-8 19.8 +54.8
17°	-5 49.0 +54.2	-6 13.5 +54.3	-6 37.7 +54.5	-7 01.6 +54.7	-7 25.0 +54.8
18°	-4 54.8 +54.1	-5 19.2 +54.3	-5 43.2 +54.5	-6 06.9 +54.7	-6 30.2 +54.9
19°	-4 00.7 +54.2	-4 24.9 +54.4	-4 48.7 +54.5	-5 12.2 +54.7	-5 35.3 +54.9
20°	-3 06.5 +54.2	-3 30.5 +54.4	-3 54.2 +54.6	-4 17.5 +54.8	-4 40.4 +54.9
21°	-2 12.3 +54.2	-2 36.1 +54.4	-2 59.6 +54.6	-3 22.7 +54.7	-3 45.5 +54.9
22°	-1 18.1 +54.3	-1 41.7 +54.4	-2 05.0 +54.5	-2 28.0 +54.8	-2 50.6 +54.9
23°	-0 23.8 +54.2	-0 47.3 +54.4	-1 10.5 +54.6	-1 33.2 +54.7	-1 55.7 +55.0
24°	0 30.4 +54.2 44.4	0 07.1 +54.4 43.6	-0 15.9 +54.6	-0 38.5 +54.8	-1 00.7 +54.9
25°	1 24.6 +54.2 44.0	1 01.5 +54.3 43.2	0 38.7 +54.5 42.3	0 16.3 +54.7 41.5	-0 05.8 +54.9
26°	2 18.8 +54.2 43.6	1 55.8 +54.4 42.7	1 33.2 +54.6 41.9	1 11.0 +54.8 41.1	0 49.1 +55.0 40.3
27°	3 13.0 +54.2 43.1	2 50.2 +54.4 42.3	2 27.8 +54.6 41.5	2 05.8 +54.7 40.7	1 44.1 +54.9 39.9
28°	4 07.2 +54.2 42.7	3 44.6 +54.4 41.9	3 22.4 +54.5 41.1	3 00.5 +54.7 40.3	2 39.0 +54.9 39.5
29°	5 01.4 +54.1 42.3	4 39.0 +54.3 41.5	4 16.9 +54.6 40.7	3 55.2 +54.8 39.9	3 33.9 +54.9 39.1

Dec	LHA 135° / 225°	LHA 136° / 224°	LHA 137° / 223°	LHA 138° / 222°	LHA 139° / 221°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°	-9 38.1 +55.0				
16°	-8 43.1 +55.0	-9 06.0 +55.2	-9 28.5 +55.4	-9 50.6 +55.5	
17°	-7 48.1 +55.0	-8 10.8 +55.2	-8 33.1 +55.3	-8 55.1 +55.6	-9 16.6 +55.7
18°	-6 53.1 +55.1	-7 15.6 +55.2	-7 37.8 +55.4	-7 59.5 +55.5	-8 20.9 +55.8
19°	-5 58.0 +55.0	-6 20.4 +55.2	-6 42.4 +55.4	-7 04.0 +55.6	-7 25.1 +55.7
20°	-5 03.0 +55.1	-5 25.2 +55.3	-5 47.0 +55.5	-6 08.4 +55.6	-6 29.4 +55.8
21°	-4 07.9 +55.1	-4 29.9 +55.3	-4 51.5 +55.4	-5 12.8 +55.6	-5 33.6 +55.8
22°	-3 12.8 +55.1	-3 34.6 +55.2	-3 56.1 +55.4	-4 17.2 +55.6	-4 37.8 +55.7
23°	-2 17.7 +55.1	-2 39.4 +55.3	-3 00.7 +55.5	-3 21.6 +55.7	-3 42.1 +55.8
24°	-1 22.6 +55.1	-1 44.1 +55.3	-2 05.2 +55.5	-2 25.9 +55.6	-2 46.3 +55.9
25°	-0 27.5 +55.1	-0 48.8 +55.3	-1 09.7 +55.4	-1 30.3 +55.7	-1 50.4 +55.8
26°	0 27.6 +55.1 39.5	0 06.5 +55.3 38.6	-0 14.3 +55.5	-0 34.6 +55.6	-0 54.6 +55.8
27°	1 22.7 +55.1 39.1	1 01.8 +55.3 38.2	0 41.2 +55.5 37.4	0 21.0 +55.6 36.6	0 01.2 +55.8 35.8
28°	2 17.8 +55.1 38.7	1 57.1 +55.2 37.9	1 36.7 +55.4 37.0	1 16.6 +55.7 36.2	0 57.0 +55.8 35.4
29°	3 12.9 +55.1 38.3	2 52.3 +55.3 37.5	2 32.1 +55.5 36.7	2 12.3 +55.6 35.9	1 52.8 +55.8 35.0

Dec	LHA 140° / 220°	LHA 141° / 219°	LHA 142° / 218°	LHA 143° / 217°	LHA 144° / 216°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°	-9 37.7 +55.9	-9 58.4 +56.0			
18°	-8 41.8 +55.9	-9 02.4 +56.1	-9 22.5 +56.2	-9 42.2 +56.4	
19°	-7 45.9 +55.9	-8 06.3 +56.1	-8 26.3 +56.3	-8 45.8 +56.4	-9 04.9 +56.6
20°	-6 50.0 +55.9	-7 10.2 +56.1	-7 30.0 +56.3	-7 49.4 +56.5	-8 08.3 +56.6
21°	-5 54.1 +56.0	-6 14.1 +56.1	-6 33.7 +56.3	-6 52.9 +56.4	-7 11.7 +56.6
22°	-4 58.1 +55.9	-5 18.0 +56.1	-5 37.4 +56.3	-5 56.5 +56.5	-6 15.1 +56.6
23°	-4 02.2 +56.0	-4 21.9 +56.2	-4 41.1 +56.3	-5 00.0 +56.5	-5 18.5 +56.7
24°	-3 06.2 +56.0	-3 25.7 +56.1	-3 44.8 +56.3	-4 03.5 +56.5	-4 21.8 +56.6
25°	-2 10.2 +56.0	-2 29.6 +56.2	-2 48.5 +56.3	-3 07.0 +56.4	-3 25.2 +56.7
26°	-1 14.2 +56.0	-1 33.4 +56.2	-1 52.2 +56.3	-2 10.6 +56.5	-2 28.5 +56.7
27°	-0 18.2 +56.0	-0 37.2 +56.1	-0 55.9 +56.4	-1 14.1 +56.5	-1 31.8 +56.6
28°	0 37.8 +56.0 34.6	0 18.9 +56.2 33.8	0 00.5 +56.3 32.9	-0 17.6 +56.5	-0 35.2 +56.7
29°	1 33.8 +55.9 34.2	1 15.1 +56.1 33.4	0 56.8 +56.3 32.6	0 38.9 +56.5 31.8	0 21.5 +56.7 30.9

Dec	LHA 145° / 215°	LHA 146° / 214°	LHA 147° / 213°	LHA 148° / 212°	LHA 149° / 211°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°	-9 23.6 +56.8	-9 41.8 +56.9			
20°	-8 26.8 +56.8	-8 44.9 +57.0			
21°	-7 30.0 +56.7	-7 47.9 +56.9			
22°	-6 33.3 +56.8	-6 51.0 +56.9			
23°	-5 36.5 +56.8	-5 54.1 +57.0			
24°	-4 39.7 +56.8	-4 57.1 +57.0			
25°	-3 42.9 +56.9	-4 00.1 +57.0			
26°	-2 46.0 +56.8	-3 03.1 +56.9			
27°	-1 49.2 +56.8	-2 06.2 +57.0			
28°	-0 52.4 +56.8	-1 09.2 +57.0			
29°	0 04.4 +56.9 30.1	-0 12.2 +57.0			



Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	33 00.0 +60.0 180.0	32 59.7 +60.0 178.8	32 58.6 +60.0 177.6	32 56.9 +60.0 176.4	32 54.6 +59.9 175.2
1°	34 00.0 +60.0 180.0	33 59.7 +60.0 178.8	33 58.6 +60.0 177.6	33 56.9 +60.0 176.4	33 54.5 +59.9 175.2
2°	35 00.0 +60.0 180.0	34 59.7 +59.9 178.8	34 58.6 +60.0 177.6	34 56.9 +59.9 176.3	34 54.4 +60.0 175.1
3°	36 00.0 +60.0 180.0	35 59.6 +60.0 178.8	35 58.6 +60.0 177.5	35 56.8 +60.0 176.3	35 54.4 +59.9 175.1
4°	37 00.0 +60.0 180.0	36 59.6 +60.0 178.8	36 58.6 +60.0 177.5	36 56.8 +60.0 176.3	36 54.3 +59.9 175.0
5°	38 00.0 +60.0 180.0	37 59.6 +60.0 178.7	37 58.6 +59.9 177.5	37 56.8 +59.9 176.2	37 54.2 +60.0 174.9
6°	39 00.0 +60.0 180.0	38 59.6 +60.0 178.7	38 58.5 +60.0 177.4	38 56.7 +60.0 176.2	38 54.2 +59.9 174.9
7°	40 00.0 +60.0 180.0	39 59.6 +60.0 178.7	39 58.5 +60.0 177.4	39 56.7 +59.9 176.1	39 54.1 +59.9 174.8
8°	41 00.0 +60.0 180.0	40 59.6 +60.0 178.7	40 58.5 +60.0 177.4	40 56.6 +60.0 176.1	40 54.0 +59.9 174.8
9°	42 00.0 +60.0 180.0	41 59.6 +60.0 178.7	41 58.5 +60.0 177.3	41 56.6 +59.9 176.0	41 53.9 +60.0 174.7
10°	43 00.0 +60.0 180.0	42 59.6 +60.0 178.7	42 58.5 +59.9 177.3	42 56.5 +60.0 176.0	42 53.9 +59.9 174.6
11°	44 00.0 +60.0 180.0	43 59.6 +60.0 178.6	43 58.4 +60.0 177.3	43 56.5 +60.0 175.9	43 53.8 +59.9 174.5
12°	45 00.0 +60.0 180.0	44 59.6 +60.0 178.6	44 58.4 +60.0 177.2	44 56.5 +59.9 175.9	44 53.7 +59.9 174.5
13°	46 00.0 +60.0 180.0	45 59.6 +60.0 178.6	45 58.4 +60.0 177.2	45 56.4 +60.0 175.8	45 53.6 +59.9 174.4
14°	47 00.0 +60.0 180.0	46 59.6 +60.0 178.6	46 58.4 +60.0 177.2	46 56.4 +59.9 175.7	46 53.5 +59.9 174.3
15°	48 00.0 +60.0 180.0	47 59.6 +60.0 178.6	47 58.4 +59.9 177.1	47 56.3 +59.9 175.7	47 53.4 +59.9 174.2
16°	49 00.0 +60.0 180.0	48 59.6 +60.0 178.5	48 58.3 +60.0 177.1	48 56.2 +60.0 175.6	48 53.3 +59.9 174.1
17°	50 00.0 +60.0 180.0	49 59.6 +60.0 178.5	49 58.3 +60.0 177.0	49 56.2 +59.9 175.5	49 53.2 +59.9 174.1
18°	51 00.0 +60.0 180.0	50 59.6 +60.0 178.5	50 58.3 +59.9 177.0	50 56.1 +60.0 175.5	50 53.1 +59.9 174.0
19°	52 00.0 +60.0 180.0	51 59.6 +60.0 178.5	51 58.2 +60.0 176.9	51 56.1 +59.9 175.4	51 53.0 +59.9 173.9
20°	53 00.0 +60.0 180.0	52 59.6 +59.9 178.4	52 58.2 +60.0 176.9	52 56.0 +59.9 175.3	52 52.9 +59.9 173.8
21°	54 00.0 +60.0 180.0	53 59.5 +60.0 178.4	53 58.2 +60.0 176.8	53 55.9 +60.0 175.2	53 52.8 +59.8 173.7
22°	55 00.0 +60.0 180.0	54 59.5 +60.0 178.4	54 58.2 +59.9 176.8	54 55.9 +59.9 175.2	54 52.6 +59.9 173.5
23°	56 00.0 +60.0 180.0	55 59.5 +60.0 178.4	55 58.1 +60.0 176.7	55 55.8 +59.9 175.1	55 52.5 +59.9 173.4
24°	57 00.0 +60.0 180.0	56 59.5 +60.0 178.3	56 58.1 +60.0 176.6	56 55.7 +59.9 175.0	56 52.4 +59.8 173.3
25°	58 00.0 +60.0 180.0	57 59.5 +60.0 178.3	57 58.1 +59.9 176.6	57 55.6 +59.9 174.9	57 52.2 +59.9 173.2
26°	59 00.0 +60.0 180.0	58 59.5 +60.0 178.3	58 58.0 +60.0 176.5	58 55.5 +59.9 174.8	58 52.1 +59.8 173.0
27°	60 00.0 +60.0 180.0	59 59.5 +60.0 178.2	59 58.0 +59.9 176.4	59 55.4 +59.9 174.7	59 51.9 +59.8 172.9
28°	61 00.0 +60.0 180.0	60 59.5 +60.0 178.2	60 57.9 +60.0 176.4	60 55.3 +59.9 174.5	60 51.7 +59.8 172.7
29°	62 00.0 +60.0 180.0	61 59.5 +60.0 178.1	61 57.9 +59.9 176.3	61 55.2 +59.9 174.4	61 51.5 +59.8 172.6

Dec	LHA 005° / 355°	LHA 006° / 354°	LHA 007° / 353°	LHA 008° / 352°	LHA 009° / 351°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	32 51.5 +59.9 174.0	32 47.8 +59.8 172.9	32 43.4 +59.8 171.7	32 38.3 +59.8 170.5	32 32.6 +59.7 169.3
1°	33 51.4 +59.9 174.0	33 47.6 +59.9 172.8	33 43.2 +59.8 171.6	33 38.1 +59.7 170.4	33 32.3 +59.7 169.2
2°	34 51.3 +59.9 173.9	34 47.5 +59.9 172.7	34 43.0 +59.8 171.5	34 37.8 +59.8 170.3	34 32.0 +59.6 169.1
3°	35 51.2 +59.9 173.8	35 47.4 +59.8 172.6	35 42.8 +59.8 171.4	35 37.6 +59.7 170.2	35 31.6 +59.7 168.9
4°	36 51.1 +59.9 173.8	36 47.2 +59.9 172.5	36 42.6 +59.8 171.3	36 37.3 +59.7 170.0	36 31.3 +59.7 168.8
5°	37 51.0 +59.9 173.7	37 47.1 +59.8 172.4	37 42.4 +59.8 171.2	37 37.0 +59.7 169.9	37 31.0 +59.6 168.7
6°	38 50.9 +59.9 173.6	38 46.9 +59.8 172.3	38 42.2 +59.8 171.1	38 36.7 +59.8 169.8	38 30.6 +59.6 168.5
7°	39 50.8 +59.9 173.5	39 46.7 +59.9 172.2	39 42.0 +59.7 171.0	39 36.5 +59.7 169.7	39 30.2 +59.7 168.4
8°	40 50.7 +59.8 173.4	40 46.6 +59.8 172.1	40 41.7 +59.8 170.8	40 36.2 +59.7 169.5	40 29.9 +59.6 168.2
9°	41 50.5 +59.9 173.4	41 46.4 +59.8 172.0	41 41.5 +59.8 170.7	41 35.9 +59.6 169.4	41 29.5 +59.6 168.1
10°	42 50.4 +59.9 173.3	42 46.2 +59.8 171.9	42 41.3 +59.7 170.6	42 35.5 +59.7 169.3	42 29.1 +59.6 167.9
11°	43 50.3 +59.9 173.2	43 46.0 +59.8 171.8	43 41.0 +59.7 170.5	43 35.2 +59.7 169.1	43 28.7 +59.6 167.8
12°	44 50.2 +59.8 173.1	44 45.8 +59.8 171.7	44 40.7 +59.8 170.3	44 34.9 +59.6 169.0	44 28.3 +59.5 167.6
13°	45 50.0 +59.9 173.0	45 45.6 +59.8 171.6	45 40.5 +59.7 170.2	45 34.5 +59.7 168.8	45 27.8 +59.6 167.4
14°	46 49.9 +59.8 172.9	46 45.4 +59.8 171.5	46 40.2 +59.7 170.1	46 34.2 +59.6 168.7	46 27.4 +59.5 167.3
15°	47 49.7 +59.9 172.8	47 45.2 +59.8 171.4	47 39.9 +59.7 169.9	47 33.8 +59.6 168.5	47 26.9 +59.5 167.1
16°	48 49.6 +59.8 172.7	48 45.0 +59.8 171.2	48 39.6 +59.7 169.8	48 33.4 +59.6 168.3	48 26.4 +59.5 166.9
17°	49 49.4 +59.9 172.6	49 44.8 +59.7 171.1	49 39.3 +59.7 169.6	49 33.0 +59.6 168.2	49 25.9 +59.5 166.7
18°	50 49.3 +59.8 172.5	50 44.5 +59.8 171.0	50 39.0 +59.7 169.5	50 32.6 +59.6 168.0	50 25.4 +59.4 166.5
19°	51 49.1 +59.8 172.3	51 44.3 +59.7 170.8	51 38.7 +59.6 169.3	51 32.2 +59.5 167.8	51 24.8 +59.5 166.3
20°	52 48.9 +59.8 172.2	52 44.0 +59.8 170.7	52 38.3 +59.6 169.1	52 31.7 +59.5 167.6	52 24.3 +59.4 166.1
21°	53 48.7 +59.8 172.1	53 43.8 +59.7 170.5	53 37.9 +59.6 168.9	53 31.2 +59.5 167.4	53 23.7 +59.3 165.8
22°	54 48.5 +59.8 171.9	54 43.5 +59.7 170.3	54 37.5 +59.6 168.7	54 30.7 +59.5 167.2	54 23.0 +59.4 165.6
23°	55 48.3 +59.8 171.8	55 43.2 +59.7 170.2	55 37.1 +59.6 168.5	55 30.2 +59.4 166.9	55 22.4 +59.3 165.3
24°	56 48.1 +59.7 171.6	56 42.9 +59.6 170.0	56 36.7 +59.6 168.3	56 29.6 +59.5 166.7	56 21.7 +59.2 165.0
25°	57 47.8 +59.8 171.5	57 42.5 +59.7 169.8	57 36.3 +59.5 168.1	57 29.1 +59.3 166.4	57 20.9 +59.3 164.8
26°	58 47.6 +59.7 171.3	58 42.2 +59.6 169.6	58 35.8 +59.5 167.9	58 28.4 +59.4 166.2	58 20.2 +59.1 164.5
27°	59 47.3 +59.8 171.1	59 41.8 +59.6 169.4	59 35.3 +59.4 167.6	59 27.8 +59.3 165.9	59 19.3 +59.2 164.1
28°	60 47.1 +59.7 170.9	60 41.4 +59.6 169.1	60 34.7 +59.5 167.3	60 27.1 +59.3 165.6	60 18.5 +59.0 163.8
29°	61 46.8 +59.7 170.7	61 41.0 +59.5 168.9	61 34.2 +59.4 167.1	61 26.4 +59.2 165.2	61 17.5 +59.1 163.5

Dec	LHA 010° / 350°	LHA 011° / 349°	LHA 012° / 348°	LHA 013° / 347°	LHA 014° / 346°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	32 26.2 +59.6 168.1	32 19.1 +59.6 167.0	32 11.4 +59.5 165.8	32 03.1 +59.3 164.6	31 54.1 +59.3 163.4
1°	33 25.8 +59.6 168.0	33 18.7 +59.5 166.8	33 10.9 +59.4 165.6	33 02.4 +59.4 164.4	32 53.4 +59.2 163.3
2°	34 25.4 +59.6 167.9	34 18.2 +59.5 166.7	34 10.3 +59.5 165.5	34 01.8 +59.3 164.3	33 52.6 +59.2 163.1
3°	35 25.0 +59.6 167.7	35 17.7 +59.5 166.5	35 09.8 +59.4 165.3	35 01.1 +59.3 164.1	34 51.8 +59.2 162.9
4°	36 24.6 +59.6 167.6	36 17.2 +59.5 166.3	36 09.2 +59.4 165.1	36 00.4 +59.3 163.9	35 51.0 +59.2 162.7
5°	37 24.2 +59.6 167.4	37 16.7 +59.5 166.2	37 08.6 +59.4 164.9	36 59.7 +59.3 163.7	36 50.2 +59.2 162.5
6°	38 23.8 +59.5 167.3	38 16.2 +59.5 166.0	38 08.0 +59.3 164.8	37 59.0 +59.3 163.5	37 49.4 +59.2 162.3
7°	39 23.3 +59.6 167.1	39 15.7 +59.4 165.8	39 07.3 +59.4 164.6	38 58.3 +59.2 163.3	38 48.6 +59.1 162.1
8°	40 22.9 +59.5 167.0	40 15.1 +59.4 165.7	40 06.7 +59.3 164.4	39 57.5 +59.2 163.1	39 47.7 +59.1 161.8
9°	41 22.4 +59.5 166.8	41 14.5 +59.5 165.5	41 06.0 +59.3 164.2	40 56.7 +59.2 162.9	40 46.8 +59.0 161.6
10°	42 21.9 +59.5 166.6	42 14.0 +59.4 165.3	42 05.3 +59.3 164.0	41 55.9 +59.2 162.7	41 45.8 +59.1 161.4
11°	43 21.4 +59.5 166.4	43 13.4 +59.3 165.1	43 04.6 +59.3 163.8	42 55.1 +59.1 162.5	42 44.9 +59.0 161.1
12°	44 20.9 +59.4 166.3	44 12.7 +59.4 164.9	44 03.9 +59.2 163.6	43 54.2 +59.2 162.2	43 43.9 +59.0 160.9
13°	45 20.3 +59.5 166.1	45 12.1 +59.3 164.7	45 03.1 +59.2 163.3	44 53.4 +59.0 162.0	44 42.9 +58.9 160.6
14°	46 19.8 +59.4 165.9	46 11.4 +59.3 164.5	46 02.3 +59.2 163.1	45 52.4 +59.1 161.7	45 41.8 +58.9 160.4
15°	47 19.2 +59.4 165.7	47 10.7 +59.3 164.3	47 01.5 +59.1 162.9	46 51.5 +59.0 161.5	46 40.7 +58.9 160.1
16°	48 18.6 +59.4 165.5	48 10.0 +59.3 164.0	48 00.6 +59.2 162.6	47 50.5 +59.0 161.2	47 39.6 +58.8 159.8
17°	49 18.0 +59.3 165.2	49 09.3 +59.2 163.8	48 59.8 +59.0 162.4	48 49.5 +58.9 160.9	48 38.4 +58.8 159.5
18°	50 17.3 +59.4 165.0	50 08.5 +59.2 163.6	49 58.8 +59.1 162.1	49 48.4 +58.9 160.6	49 37.2 +58.7 159.2
19°	51 16.7 +59.3 164.8	51 07.7 +59.1 163.3	50 57.9 +59.0 161.8	50 47.3 +58.8 160.3	50 35.9 +58.7 158.9
20°	52 16.0 +59.2 164.5	52 06.8 +59.1 163.0	51 56.9 +58.9 161.5	51 46.1 +58.8 160.0	51 34.6 +58.6 158.5
21°	53 15.2 +59.2 164.3	53 05.9 +59.1 162.7	52 55.8 +58.9 161.2	52 44.9 +58.7 159.7	52 33.2 +58.5 158.2
22°	54 14.4 +59.2 164.0	54 05.0 +59.0 162.4	53 54.7 +58.9 160.9	53 43.6 +58.7 159.4	53 31.7 +58.5 157.8
23°	55 13.6 +59.2 163.7	55 04.0 +59.0 162.1	54 53.6 +58.8 160.6	54 42.3 +58.6 159.0	54 30.2 +58.4 157.4
24°	56 12.8 +59.1 163.4	56 03.0 +58.9 161.8	55 52.4 +58.7 160.2	55 40.9 +58.5 158.6	55 28.6 +58.3 157.0
25°	57 11.9 +59.0 163.1	57 01.9 +58.9 161.5	56 51.1 +58.7 159.8	56 39.4 +58.5 158.2	56 26.9 +58.2 156.6
26°	58 10.9 +59.0 162.8	58 00.8 +58.8 161.1	57 49.8 +58.6 159.5	57 37.9 +58.3 157.8	57 25.1 +58.1 156.2
27°	59 09.9 +59.0 162.4	58 59.6 +58.7 160.7	58 48.4 +58.5 159.0	58 36.2 +58.3 157.4	58 23.2 +58.1 155.7
28°	60 08.9 +58.9 162.1	59 58.3 +58.7 160.3	59 46.9 +58.4 158.6	59 34.5 +58.2 156.9	59 21.3 +57.9 155.2
29°	61 07.8 +58.8 161.7	60 57.0 +58.6 159.9	60 45.3 +58.3 158.1	60 32.7 +58.0 156.4	60 19.2 +57.7 154.7

Dec	LHA 015° / 345°	LHA 016° / 344°	LHA 017° / 343°	LHA 018° / 342°	LHA 019° / 341°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	31 44.5 +59.1 162.3	31 34.2 +59.1 161.1	31 23.3 +59.0 160.0	31 11.8 +58.8 158.8	30 59.7 +58.7 157.7
1°	32 43.6 +59.2 162.1	32 33.3 +59.0 160.9	32 22.3 +58.9 159.8	32 10.6 +58.8 158.6	31 58.4 +58.7 157.4
2°	33 42.8 +59.1 161.9	33 32.3 +59.0 160.7	33 21.2 +58.9 159.5	33 09.4 +58.8 158.4	32 57.1 +58.6 157.2
3°	34 41.9 +59.1 161.7	34 31.3 +59.0 160.5	34 20.1 +58.8 159.3	34 08.2 +58.7 158.1	33 55.7 +58.6 156.9
4°	35 41.0 +59.1 161.5	35 30.3 +58.9 160.3	35 18.9 +58.8 159.1	35 06.9 +58.7 157.9	34 54.3 +58.6 156.7
5°	36 40.1 +59.0 161.2	36 29.2 +59.0 160.0	36 17.7 +58.8 158.8	36 05.6 +58.7 157.6	35 52.9 +58.5 156.4
6°	37 39.1 +59.0 161.0	37 28.2 +58.9 159.8	37 16.5 +58.8 158.6	37 04.3 +58.6 157.3	36 51.4 +58.5 156.1
7°	38 38.1 +59.0 160.8	38 27.1 +58.8 159.6	38 15.3 +58.8 158.3	38 02.9 +58.6 157.1	37 49.9 +58.4 155.8
8°	39 37.1 +59.0 160.6	39 25.9 +58.9 159.3	39 14.1 +58.7 158.1	39 01.5 +58.6 156.8	38 48.3 +58.4 155.6
9°	40 36.1 +59.0 160.3	40 24.8 +58.8 159.0	40 12.8 +58.6 157.8	40 00.1 +58.5 156.5	39 46.7 +58.4 155.3
10°	41 35.1 +58.9 160.1	41 23.6 +58.7 158.8	41 11.4 +58.6 157.5	40 58.6 +58.4 156.2	40 45.1 +58.3 155.0
11°	42 34.0 +58.8 159.8	42 22.3 +58.8 158.5	42 10.0 +58.6 157.2	41 57.0 +58.5 155.9	41 43.4 +58.2 154.6
12°	43 32.8 +58.9 159.6	43 21.1 +58.7 158.2	43 08.6 +58.5 156.9	42 55.5 +58.3 155.6	42 41.6 +58.2 154.3
13°	44 31.7 +58.8 159.3	44 19.8 +58.6 157.9	44 07.1 +58.5 156.6	43 53.8 +58.3 155.3	43 39.8 +58.2 154.0
14°	45 30.5 +58.7 159.0	45 18.4 +58.6 157.6	45 05.6 +58.4 156.3	44 52.1 +58.3 155.0	44 38.0 +58.1 153.6
15°	46 29.2 +58.7 158.7	46 17.0 +58.5 157.3	46 04.0 +58.4 156.0	45 50.4 +58.2 154.6	45 36.1 +58.0 153.3
16°	47 27.9 +58.7 158.4	47 15.5 +58.5 157.0	47 02.4 +58.3 155.6	46 48.6 +58.1 154.3	46 34.1 +57.9 152.9
17°	48 26.6 +58.6 158.1	48 14.0 +58.4 156.7	48 00.7 +58.3 155.3	47 46.7 +58.1 153.9	47 32.0 +57.8 152.5
18°	49 25.2 +58.5 157.8	49 12.4 +58.4 156.3	48 59.0 +58.1 154.9	48 44.8 +57.9 153.5	48 29.8 +57.8 152.1
19°	50 23.7 +58.5 157.4	50 10.8 +58.3 156.0	49 57.1 +58.1 154.6	49 42.7 +57.9 153.1	49 27.6 +57.7 151.7
20°	51 22.2 +58.4 157.1	51 09.1 +58.2 155.6	50 55.2 +58.0 154.2	50 40.6 +57.8 152.7	50 25.3 +57.6 151.3
21°	52 20.6 +58.4 156.7	52 07.3 +58.2 155.2	51 53.2 +58.0 153.8	51 38.4 +57.7 152.3	51 22.9 +57.4 150.9
22°	53 19.0 +58.2 156.3	53 05.5 +58.0 154.8	52 51.2 +57.8 153.3	52 36.1 +57.6 151.9	52 20.3 +57.4 150.4
23°	54 17.2 +58.2 155.9	54 03.5 +58.0 154.4	53 49.0 +57.7 152.9	53 33.7 +57.5 151.4	53 17.7 +57.2 149.9
24°	55 15.4 +58.1 155.5	55 01.5 +57.8 153.9	54 46.7 +57.6 152.4	54 31.2 +57.4 150.9	54 14.9 +57.1 149.4
25°	56 13.5 +58.0 155.0	55 59.3 +57.8 153.5	55 44.3 +57.5 151.9	55 28.6 +57.2 150.4	55 12.0 +57.0 148.9
26°	57 11.5 +57.9 154.6	56 57.1 +57.6 153.0	56 41.8 +57.4 151.4	56 25.8 +57.1 149.8	56 09.0 +56.8 148.3
27°	58 09.4 +57.7 154.1	57 54.7 +57.5 152.5	57 39.2 +57.2 150.9	57 22.9 +56.9 149.3	57 05.8 +56.6 147.7
28°	59 07.1 +57.7 153.6	58 52.2 +57.3 151.9	58 36.4 +57.0 150.3	58 19.8 +56.7 148.7	58 02.4 +56.5 147.1
29°	60 04.8 +57.4 153.0	59 49.5 +57.2 151.3	59 33.4 +56.9 149.7	59 16.5 +56.6 148.1	58 58.9 +56.2 146.5

# Declination SAME name as Latitude

# Latitude 57°

Dec	LHA 020° / 340°	LHA 021° / 339°	LHA 022° / 338°	LHA 023° / 337°	LHA 024° / 336°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	30 47.0 +58.6 156.5	30 33.7 +58.4 155.4	30 19.8 +58.3 154.3	30 05.3 +58.2 153.2	29 50.3 +58.0 152.0
1°	31 45.6 +58.5 156.3	31 32.1 +58.4 155.1	31 18.1 +58.2 154.0	31 03.5 +58.1 152.9	30 48.3 +57.9 151.7
2°	32 44.1 +58.5 156.0	32 30.5 +58.4 154.9	32 16.3 +58.2 153.7	32 01.6 +58.0 152.6	31 46.2 +57.9 151.4
3°	33 42.6 +58.4 155.8	33 28.9 +58.3 154.6	33 14.5 +58.2 153.4	32 59.6 +58.0 152.3	32 44.1 +57.9 151.1
4°	34 41.0 +58.5 155.5	34 27.2 +58.2 154.3	34 12.7 +58.1 153.1	33 57.6 +58.0 152.0	33 42.0 +57.8 150.8
5°	35 39.5 +58.3 155.2	35 25.4 +58.3 154.0	35 10.8 +58.1 152.8	34 55.6 +57.9 151.7	34 39.8 +57.8 150.5
6°	36 37.8 +58.4 154.9	36 23.7 +58.2 153.7	36 08.9 +58.0 152.5	35 53.5 +57.9 151.3	35 37.6 +57.7 150.2
7°	37 36.2 +58.3 154.6	37 21.9 +58.1 153.4	37 06.9 +58.0 152.2	36 51.4 +57.8 151.0	36 35.3 +57.6 149.8
8°	38 34.5 +58.2 154.3	38 20.0 +58.1 153.1	38 04.9 +57.9 151.9	37 49.2 +57.8 150.7	37 32.9 +57.6 149.5
9°	39 32.7 +58.2 154.0	39 18.1 +58.0 152.8	39 02.8 +57.9 151.5	38 47.0 +57.6 150.3	38 30.5 +57.5 149.1
10°	40 30.9 +58.2 153.7	40 16.1 +58.0 152.4	40 00.7 +57.8 151.2	39 44.6 +57.7 150.0	39 28.0 +57.4 148.7
11°	41 29.1 +58.1 153.4	41 14.1 +57.9 152.1	40 58.5 +57.7 150.9	40 42.3 +57.5 149.6	40 25.4 +57.4 148.4
12°	42 27.2 +58.0 153.0	42 12.0 +57.9 151.8	41 56.2 +57.7 150.5	41 39.8 +57.5 149.2	41 22.8 +57.3 148.0
13°	43 25.2 +57.9 152.7	43 09.9 +57.7 151.4	42 53.9 +57.6 150.1	42 37.3 +57.4 148.8	42 20.1 +57.2 147.6
14°	44 23.1 +57.9 152.3	44 07.6 +57.7 151.0	43 51.5 +57.5 149.7	43 34.7 +57.3 148.4	43 17.3 +57.1 147.2
15°	45 21.0 +57.8 152.0	45 05.3 +57.7 150.6	44 49.0 +57.4 149.3	44 32.0 +57.2 148.0	44 14.4 +57.0 146.7
16°	46 18.8 +57.8 151.6	46 03.0 +57.5 150.2	45 46.4 +57.3 148.9	45 29.2 +57.1 147.6	45 11.4 +56.9 146.3
17°	47 16.6 +57.6 151.2	47 00.5 +57.4 149.8	46 43.7 +57.3 148.5	46 26.3 +57.0 147.2	46 08.3 +56.8 145.9
18°	48 14.2 +57.6 150.8	47 57.9 +57.4 149.4	47 41.0 +57.1 148.0	47 23.3 +57.0 146.7	47 05.1 +56.7 145.4
19°	49 11.8 +57.4 150.3	48 55.3 +57.2 149.0	48 38.1 +57.0 147.6	48 20.3 +56.7 146.2	48 01.8 +56.5 144.9
20°	50 09.2 +57.4 149.9	49 52.5 +57.1 148.5	49 35.1 +56.9 147.1	49 17.0 +56.7 145.7	48 58.3 +56.4 144.4
21°	51 06.6 +57.2 149.4	50 49.6 +57.0 148.0	50 32.0 +56.7 146.6	50 13.7 +56.5 145.2	49 54.7 +56.3 143.9
22°	52 03.8 +57.2 148.9	51 46.6 +56.9 147.5	51 28.7 +56.7 146.1	51 10.2 +56.4 144.7	50 51.0 +56.1 143.3
23°	53 01.0 +56.9 148.4	52 43.5 +56.7 147.0	52 25.4 +56.4 145.6	52 06.6 +56.2 144.2	51 47.1 +55.9 142.8
24°	53 57.9 +56.9 147.9	53 40.2 +56.6 146.5	53 21.8 +56.3 145.0	53 02.8 +56.0 143.6	52 43.0 +55.8 142.2
25°	54 54.8 +56.7 147.4	54 36.8 +56.4 145.9	54 18.1 +56.1 144.4	53 58.8 +55.8 143.0	53 38.8 +55.5 141.5
26°	55 51.5 +56.5 146.8	55 33.2 +56.2 145.3	55 14.2 +56.0 143.8	54 54.6 +55.6 142.3	54 34.3 +55.4 140.9
27°	56 48.0 +56.3 146.2	56 29.4 +56.0 144.7	56 10.2 +55.7 143.2	55 50.2 +55.5 141.7	55 29.7 +55.1 140.2
28°	57 44.3 +56.1 145.5	57 25.4 +55.9 144.0	57 05.9 +55.5 142.5	56 45.7 +55.1 141.0	56 24.8 +54.8 139.5
29°	58 40.4 +55.9 144.9	58 21.3 +55.5 143.3	58 01.4 +55.2 141.8	57 40.8 +54.9 140.3	57 19.6 +54.6 138.8

Dec	LHA 025° / 335°	LHA 026° / 334°	LHA 027° / 333°	LHA 028° / 332°	LHA 029° / 331°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	29 34.7 +57.8 150.9	29 18.5 +57.7 149.8	29 01.8 +57.6 148.7	28 44.6 +57.4 147.6	28 26.8 +57.2 146.5
1°	30 32.5 +57.8 150.6	30 16.2 +57.7 149.5	29 59.4 +57.4 148.4	29 42.0 +57.3 147.3	29 24.0 +57.2 146.2
2°	31 30.3 +57.8 150.3	31 13.9 +57.5 149.2	30 56.8 +57.5 148.1	30 39.3 +57.2 146.9	30 21.2 +57.1 145.8
3°	32 28.1 +57.7 150.0	32 11.4 +57.6 148.8	31 54.3 +57.3 147.7	31 36.5 +57.2 146.6	31 18.3 +57.0 145.5
4°	33 25.8 +57.6 149.7	33 09.0 +57.5 148.5	32 51.6 +57.4 147.4	32 33.7 +57.2 146.2	32 15.3 +57.0 145.1
5°	34 23.4 +57.6 149.3	34 06.5 +57.4 148.2	33 49.0 +57.2 147.0	33 30.9 +57.1 145.9	33 12.3 +56.9 144.7
6°	35 21.0 +57.5 149.0	35 03.9 +57.3 147.8	34 46.2 +57.2 146.7	34 28.0 +57.0 145.5	34 09.2 +56.8 144.4
7°	36 18.5 +57.5 148.6	36 01.2 +57.3 147.5	35 43.4 +57.1 146.3	35 25.0 +56.9 145.1	35 06.0 +56.8 144.0
8°	37 16.0 +57.4 148.3	36 58.5 +57.3 147.1	36 40.5 +57.0 145.9	36 21.9 +56.9 144.7	36 02.8 +56.6 143.6
9°	38 13.4 +57.3 147.9	37 55.8 +57.1 146.7	37 37.5 +57.0 145.5	37 18.8 +56.7 144.3	36 59.4 +56.6 143.2
10°	39 10.7 +57.3 147.5	38 52.9 +57.1 146.3	38 34.5 +56.9 145.1	38 15.5 +56.7 143.9	37 56.0 +56.5 142.7
11°	40 08.0 +57.2 147.1	39 50.0 +57.0 145.9	39 31.4 +56.8 144.7	39 12.2 +56.6 143.5	38 52.5 +56.4 142.3
12°	41 05.2 +57.1 146.7	40 47.0 +56.8 145.5	40 28.2 +56.7 144.3	40 08.8 +56.5 143.1	39 48.9 +56.3 141.9
13°	42 02.3 +57.0 146.3	41 43.8 +56.8 145.1	41 24.9 +56.6 143.9	41 05.3 +56.4 142.6	40 45.2 +56.2 141.4
14°	42 59.3 +56.9 145.9	42 40.6 +56.7 144.7	42 21.5 +56.4 143.4	42 01.7 +56.3 142.2	41 41.4 +56.0 141.0
15°	43 56.2 +56.8 145.5	43 37.3 +56.6 144.2	43 17.9 +56.4 142.9	42 58.0 +56.1 141.7	42 37.4 +55.8 140.5
16°	44 53.0 +56.7 145.0	44 33.9 +56.5 143.7	44 14.3 +56.3 142.5	43 54.1 +56.1 141.2	43 33.4 +55.8 140.0
17°	45 49.7 +56.5 144.5	45 30.4 +56.3 143.3	45 10.6 +56.1 142.0	44 50.2 +55.8 140.7	44 29.2 +55.7 139.5
18°	46 46.2 +56.5 144.1	46 26.7 +56.3 142.8	46 06.7 +56.0 141.5	45 46.0 +55.8 140.2	45 24.9 +55.5 138.9
19°	47 42.7 +56.3 143.6	47 23.0 +56.0 142.3	47 02.7 +55.8 141.0	46 41.8 +55.6 139.7	46 20.4 +55.3 138.4
20°	48 39.0 +56.1 143.1	48 19.0 +56.0 141.7	47 58.5 +55.7 140.4	47 37.4 +55.4 139.1	47 15.7 +55.2 137.8
21°	49 35.1 +56.1 142.5	49 15.0 +55.7 141.2	48 54.2 +55.5 139.9	48 32.8 +55.3 138.5	48 10.9 +55.0 137.2
22°	50 31.2 +55.8 142.0	50 10.7 +55.6 140.6	49 49.7 +55.3 139.3	49 28.1 +55.0 137.9	49 05.9 +54.8 136.6
23°	51 27.0 +55.7 141.4	51 06.3 +55.4 140.0	50 45.0 +55.1 138.7	50 23.1 +54.9 137.3	50 00.7 +54.6 136.0
24°	52 22.7 +55.4 140.8	52 01.7 +55.2 139.4	51 40.1 +55.0 138.0	51 18.0 +54.6 136.7	50 55.3 +54.4 135.4
25°	53 18.1 +55.3 140.1	52 56.9 +55.0 138.7	52 35.1 +54.6 137.4	52 12.6 +54.4 136.0	51 49.7 +54.1 134.7
26°	54 13.4 +55.0 139.5	53 51.9 +54.7 138.1	53 29.7 +54.5 136.7	53 07.0 +54.2 135.3	52 43.8 +53.9 134.0
27°	55 08.4 +54.8 138.8	54 46.6 +54.5 137.4	54 24.2 +54.2 136.0	54 01.2 +53.9 134.6	53 37.7 +53.5 133.2
28°	56 03.2 +54.6 138.1	55 41.1 +54.2 136.6	55 18.4 +53.9 135.2	54 55.1 +53.6 133.8	54 31.2 +53.3 132.5
29°	56 57.8 +54.2 137.3	56 35.3 +53.9 135.9	56 12.3 +53.6 134.5	55 48.7 +53.2 133.1	55 24.5 +53.0 131.7

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Dec	LHA 030° / 330°	LHA 031° / 329°	LHA 032° / 328°	LHA 033° / 327°	LHA 034° / 326°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	28 08.6 +57.0 145.5	27 49.8 +56.9 144.4	27 30.5 +56.7 143.3	27 10.7 +56.6 142.2	26 50.5 +56.4 141.2
1°	29 05.6 +57.0 145.1	28 46.7 +56.8 144.0	28 27.2 +56.7 142.9	28 07.3 +56.5 141.9	27 46.9 +56.3 140.8
2°	30 02.6 +56.9 144.7	29 43.5 +56.7 143.7	29 23.9 +56.5 142.6	29 03.8 +56.4 141.5	28 43.2 +56.2 140.4
3°	30 59.5 +56.9 144.4	30 40.2 +56.7 143.3	30 20.4 +56.5 142.2	30 00.2 +56.3 141.1	29 39.4 +56.2 140.0
4°	31 56.4 +56.8 144.0	31 36.9 +56.6 142.9	31 16.9 +56.5 141.8	30 56.5 +56.2 140.7	30 35.6 +56.0 139.6
5°	32 53.2 +56.7 143.6	32 33.5 +56.6 142.5	32 13.4 +56.3 141.4	31 52.7 +56.2 140.3	31 31.6 +56.0 139.2
6°	33 49.9 +56.6 143.2	33 30.1 +56.4 142.1	33 09.7 +56.3 141.0	32 48.9 +56.1 139.9	32 27.6 +55.9 138.8
7°	34 46.5 +56.6 142.8	34 26.5 +56.4 141.7	34 06.0 +56.2 140.6	33 45.0 +56.0 139.4	33 23.5 +55.9 138.3
8°	35 43.1 +56.5 142.4	35 22.9 +56.3 141.3	35 02.2 +56.1 140.1	34 41.0 +55.9 139.0	34 19.4 +55.7 137.9
9°	36 39.6 +56.4 142.0	36 19.2 +56.2 140.8	35 58.3 +56.0 139.7	35 36.9 +55.9 138.6	35 15.1 +55.6 137.4
10°	37 36.0 +56.3 141.6	37 15.4 +56.1 140.4	36 54.3 +55.9 139.3	36 32.8 +55.7 138.1	36 10.7 +55.5 137.0
11°	38 32.3 +56.2 141.1	38 11.5 +56.0 140.0	37 50.2 +55.8 138.8	37 28.5 +55.6 137.6	37 06.2 +55.4 136.5
12°	39 28.5 +56.1 140.7	39 07.5 +55.9 139.5	38 46.0 +55.7 138.3	38 24.1 +55.4 137.2	38 01.6 +55.3 136.0
13°	40 24.6 +55.9 140.2	40 03.4 +55.7 139.0	39 41.7 +55.6 137.9	39 19.5 +55.4 136.7	38 56.9 +55.1 135.5
14°	41 20.5 +55.9 139.7	40 59.1 +55.7 138.5	40 37.3 +55.4 137.4	40 14.9 +55.2 136.2	39 52.0 +55.0 135.0
15°	42 16.4 +55.7 139.3	41 54.8 +55.5 138.0	41 32.7 +55.3 136.9	41 10.1 +55.1 135.7	40 47.0 +54.9 134.5
16°	43 12.1 +55.6 138.7	42 50.3 +55.4 137.5	42 28.0 +55.1 136.3	42 05.2 +54.9 135.1	41 41.9 +54.7 134.0
17°	44 07.7 +55.4 138.2	43 45.7 +55.2 137.0	43 23.1 +55.0 135.8	43 00.1 +54.8 134.6	42 36.6 +54.5 133.4
18°	45 03.1 +55.3 137.7	44 40.9 +55.0 136.5	44 18.1 +54.8 135.2	43 54.9 +54.5 134.0	43 31.1 +54.4 132.8
19°	45 58.4 +55.1 137.1	45 35.9 +54.9 135.9	45 12.9 +54.7 134.7	44 49.4 +54.4 133.4	44 25.5 +54.2 132.2
20°	46 53.5 +55.0 136.6	46 30.8 +54.7 135.3	46 07.6 +54.4 134.1	45 43.8 +54.3 132.8	45 19.7 +53.9 131.6
21°	47 48.5 +54.7 136.0	47 25.5 +54.5 134.7	47 02.0 +54.3 133.5	46 38.1 +54.0 132.2	46 13.6 +53.8 131.0
22°	48 43.2 +54.6 135.4	48 20.0 +54.3 134.1	47 56.3 +54.0 132.8	47 32.1 +53.8 131.6	47 07.4 +53.5 130.4
23°	49 37.8 +54.3 134.7	49 14.3 +54.1 133.4	48 50.3 +53.8 132.2	48 25.9 +53.5 130.9	48 00.9 +53.3 129.7
24°	50 32.1 +54.1 134.1	50 08.4 +53.8 132.8	49 44.1 +53.6 131.5	49 19.4 +53.3 130.2	48 54.2 +53.1 129.0
25°	51 26.2 +53.8 133.4	51 02.2 +53.5 132.1	50 37.7 +53.3 130.8	50 12.7 +53.0 129.5	49 47.3 +52.7 128.3
26°	52 20.0 +53.6 132.7	51 55.7 +53.3 131.3	51 31.0 +53.0 130.1	51 05.7 +52.8 128.8	50 40.0 +52.5 127.5
27°	53 13.6 +53.3 131.9	52 49.0 +53.0 130.6	52 24.0 +52.7 129.3	51 58.5 +52.4 128.0	51 32.5 +52.2 126.8
28°	54 06.9 +53.0 131.1	53 42.0 +52.7 129.8	53 16.7 +52.4 128.5	52 50.9 +52.1 127.2	52 24.7 +51.8 126.0
29°	54 59.9 +52.6 130.3	54 34.7 +52.3 129.0	54 09.1 +52.0 127.7	53 43.0 +51.7 126.4	53 16.5 +51.4 125.1

Dec	LHA 035° / 325°	LHA 036° / 324°	LHA 037° / 323°	LHA 038° / 322°	LHA 039° / 321°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	26 29.8 +56.2 140.1	26 08.6 +56.0 139.1	25 47.0 +55.8 138.1	25 24.9 +55.7 137.0	25 02.4 +55.6 136.0
1°	27 26.0 +56.1 139.7	27 04.6 +56.0 138.7	26 42.8 +55.8 137.7	26 20.6 +55.6 136.6	25 58.0 +55.4 135.6
2°	28 22.1 +56.1 139.3	28 00.6 +55.9 138.3	27 38.6 +55.7 137.2	27 16.2 +55.5 136.2	26 53.4 +55.3 135.2
3°	29 18.2 +55.9 138.9	28 56.5 +55.8 137.9	28 34.3 +55.7 136.8	28 11.7 +55.5 135.8	27 48.7 +55.3 134.7
4°	30 14.1 +55.9 138.5	29 52.3 +55.7 137.5	29 30.0 +55.5 136.4	29 07.2 +55.4 135.3	28 44.0 +55.2 134.3
5°	31 10.0 +55.9 138.1	30 48.0 +55.6 137.0	30 25.5 +55.4 136.0	30 02.6 +55.2 134.9	29 39.2 +55.1 133.8
6°	32 05.9 +55.7 137.7	31 43.6 +55.6 136.6	31 20.9 +55.4 135.5	30 57.8 +55.2 134.4	30 34.3 +55.0 133.4
7°	33 01.6 +55.6 137.2	32 39.2 +55.4 136.1	32 16.3 +55.3 135.1	31 53.0 +55.1 134.0	31 29.3 +54.9 132.9
8°	33 57.2 +55.5 136.8	33 34.6 +55.4 135.7	33 11.6 +55.1 134.6	32 48.1 +54.9 133.5	32 24.2 +54.7 132.4
9°	34 52.7 +55.5 136.3	34 30.0 +55.2 135.2	34 06.7 +55.1 134.1	33 43.0 +54.9 133.0	33 18.9 +54.7 131.9
10°	35 48.2 +55.3 135.9	35 25.2 +55.1 134.7	35 01.8 +54.9 133.6	34 37.9 +54.7 132.5	34 13.6 +54.5 131.4
11°	36 43.5 +55.2 135.4	36 20.3 +55.0 134.3	35 56.7 +54.8 133.1	35 32.6 +54.6 132.0	35 08.1 +54.4 130.9
12°	37 38.7 +55.0 134.9	37 15.3 +54.9 133.8	36 51.5 +54.6 132.6	36 27.2 +54.5 131.5	36 02.5 +54.3 130.4
13°	38 33.7 +55.0 134.4	38 10.2 +54.7 133.2	37 46.1 +54.6 132.1	37 21.7 +54.3 131.0	36 56.8 +54.1 129.9
14°	39 28.7 +54.8 133.9	39 04.9 +54.6 132.7	38 40.7 +54.3 131.6	38 16.0 +54.2 130.5	37 50.9 +54.0 129.3
15°	40 23.5 +54.6 133.3	39 59.5 +54.4 132.2	39 35.0 +54.3 131.0	39 10.2 +54.0 129.9	38 44.9 +53.8 128.8
16°	41 18.1 +54.5 132.8	40 53.9 +54.3 131.6	40 29.3 +54.0 130.5	40 04.2 +53.9 129.3	39 38.7 +53.7 128.2
17°	42 12.6 +54.3 132.2	41 48.2 +54.1 131.1	41 23.3 +53.9 129.9	40 58.1 +53.6 128.8	40 32.4 +53.4 127.6
18°	43 06.9 +54.2 131.6	42 42.3 +53.9 130.5	42 17.2 +53.7 129.3	41 51.7 +53.5 128.2	41 25.8 +53.3 127.0
19°	44 01.1 +53.9 131.0	43 36.2 +53.7 129.9	43 10.9 +53.5 128.7	42 45.2 +53.3 127.6	42 19.1 +53.1 126.4
20°	44 55.0 +53.7 130.4	44 29.9 +53.5 129.3	44 04.4 +53.3 128.1	43 38.5 +53.0 126.9	43 12.2 +52.8 125.8
21°	45 48.7 +53.6 129.8	45 23.4 +53.3 128.6	44 57.7 +53.0 127.4	44 31.5 +52.9 126.3	44 05.0 +52.6 125.1
22°	46 42.3 +53.3 129.1	46 16.7 +53.1 128.0	45 50.7 +52.9 126.8	45 24.4 +52.6 125.6	44 57.6 +52.4 124.5
23°	47 35.6 +53.0 128.5	47 09.8 +52.8 127.3	46 43.6 +52.5 126.1	46 17.0 +52.3 124.9	45 50.0 +52.1 123.8
24°	48 28.6 +52.8 127.8	48 02.6 +52.5 126.6	47 36.1 +52.3 125.4	47 09.3 +52.1 124.2	46 42.1 +51.8 123.0
25°	49 21.4 +52.5 127.1	48 55.1 +52.3 125.8	48 28.4 +52.0 124.6	48 01.4 +51.7 123.5	47 33.9 +51.5 122.3
26°	50 13.9 +52.2 126.3	49 47.4 +51.9 125.1	49 20.4 +51.7 123.9	48 53.1 +51.5 122.7	48 25.4 +51.3 121.5
27°	51 06.1 +51.9 125.5	50 39.3 +51.6 124.3	50 12.1 +51.4 123.1	49 44.6 +51.1 121.9	49 16.7 +50.8 120.7
28°	51 58.0 +51.5 124.7	51 30.9 +51.3 123.5	51 03.5 +51.0 122.3	50 35.7 +50.8 121.1	50 07.5 +50.6 119.9
29°	52 49.5 +51.2 123.9	52 22.2 +50.9 122.6	51 54.5 +50.7 121.4	51 26.5 +50.3 120.2	50 58.1 +50.1 119.1

Dec	LHA 040° / 320°	LHA 041° / 319°	LHA 042° / 318°	LHA 043° / 317°	LHA 044° / 316°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	24 39.5 +55.4 135.0	24 16.2 +55.2 134.0	23 52.5 +55.0 133.0	23 28.4 +54.8 132.0	23 03.9 +54.7 131.0
1°	25 34.9 +55.2 134.6	25 11.4 +55.1 133.5	24 47.5 +54.9 132.5	24 23.2 +54.8 131.5	23 58.6 +54.5 130.5
2°	26 30.1 +55.2 134.1	26 06.5 +55.0 133.1	25 42.4 +54.8 132.1	25 18.0 +54.6 131.1	24 53.1 +54.5 130.1
3°	27 25.3 +55.1 133.7	27 01.5 +54.9 132.7	26 37.2 +54.8 131.6	26 12.6 +54.6 130.6	25 47.6 +54.4 129.6
4°	28 20.4 +55.0 133.2	27 56.4 +54.8 132.2	27 32.0 +54.6 131.2	27 07.2 +54.5 130.1	26 42.0 +54.3 129.1
5°	29 15.4 +54.9 132.8	28 51.2 +54.8 131.7	28 26.6 +54.6 130.7	28 01.7 +54.4 129.7	27 36.3 +54.2 128.7
6°	30 10.3 +54.8 132.3	29 46.0 +54.6 131.3	29 21.2 +54.4 130.2	28 56.1 +54.2 129.2	28 30.5 +54.2 128.2
7°	31 05.1 +54.7 131.8	30 40.6 +54.5 130.8	30 15.6 +54.4 129.7	29 50.3 +54.2 128.7	29 24.7 +53.9 127.7
8°	31 59.8 +54.6 131.4	31 35.1 +54.4 130.3	31 10.0 +54.2 129.3	30 44.5 +54.0 128.2	30 18.6 +53.9 127.2
9°	32 54.4 +54.5 130.9	32 29.5 +54.3 129.8	32 04.2 +54.1 128.7	31 38.5 +54.0 127.7	31 12.5 +53.8 126.7
10°	33 48.9 +54.3 130.4	33 23.8 +54.2 129.3	32 58.3 +54.0 128.2	32 32.5 +53.8 127.2	32 06.3 +53.6 126.1
11°	34 43.2 +54.3 129.9	34 18.0 +54.0 128.8	33 52.3 +53.8 127.7	33 26.3 +53.6 126.7	32 59.9 +53.5 125.6
12°	35 37.5 +54.0 129.3	35 12.0 +53.9 128.2	34 46.1 +53.7 127.2	34 19.9 +53.5 126.1	33 53.4 +53.3 125.1
13°	36 31.5 +54.0 128.8	36 05.9 +53.7 127.7	35 39.8 +53.6 126.6	35 13.4 +53.4 125.6	34 46.7 +53.2 124.5
14°	37 25.5 +53.8 128.2	36 59.6 +53.6 127.2	36 33.4 +53.4 126.1	36 06.8 +53.2 125.0	35 39.9 +53.0 123.9
15°	38 19.3 +53.6 127.7	37 53.2 +53.4 126.6	37 26.8 +53.2 125.5	37 00.0 +53.0 124.4	36 32.9 +52.8 123.4
16°	39 12.9 +53.4 127.1	38 46.6 +53.3 126.0	38 20.0 +53.0 124.9	37 53.0 +52.9 123.8	37 25.7 +52.7 122.8
17°	40 06.3 +53.3 126.5	39 39.9 +53.0 125.4	39 13.0 +52.9 124.3	38 45.9 +52.6 123.2	38 18.4 +52.4 122.2
18°	40 59.6 +53.0 125.9	40 32.9 +52.9 124.8	40 05.9 +52.6 123.7	39 38.5 +52.5 122.6	39 10.8 +52.3 121.5
19°	41 52.6 +52.9 125.3	41 25.8 +52.6 124.2	40 58.5 +52.5 123.1	40 31.0 +52.2 122.0	40 03.1 +52.1 120.9
20°	42 45.5 +52.6 124.6	42 18.4 +52.4 123.5	41 51.0 +52.2 122.4	41 23.2 +52.0 121.3	40 55.2 +51.8 120.2
21°	43 38.1 +52.4 124.0	43 10.8 +52.2 122.9	42 43.2 +52.0 121.8	42 15.2 +51.8 120.7	41 47.0 +51.6 119.6
22°	44 30.5 +52.1 123.3	44 03.0 +51.9 122.2	43 35.2 +51.7 121.1	43 07.0 +51.5 120.0	42 38.6 +51.3 118.9
23°	45 22.6 +51.9 122.6	44 54.9 +51.7 121.5	44 26.9 +51.5 120.4	43 58.5 +51.3 119.3	43 29.9 +51.0 118.2
24°	46 14.5 +51.6 121.9	45 46.6 +51.4 120.8	45 18.4 +51.1 119.6	44 49.8 +51.0 118.5	44 20.9 +50.8 117.4
25°	47 06.1 +51.3 121.1	46 38.0 +51.1 120.0	46 09.5 +50.9 118.9	45 40.8 +50.6 117.8	45 11.7 +50.5 116.7
26°	47 57.4 +51.0 120.4	47 29.1 +50.7 119.2	47 00.4 +50.5 118.1	46 31.4 +50.4 117.0	46 02.2 +50.1 115.9
27°	48 48.4 +50.7 119.6	48 19.8 +50.5 118.4	47 50.9 +50.3 117.3	47 21.8 +50.0 116.2	46 52.3 +49.8 115.1
28°	49 39.1 +50.2 118.8	49 10.3 +50.0 117.6	48 41.2 +49.8 116.5	48 11.8 +49.6 115.4	47 42.1 +49.5 114.3
29°	50 29.3 +49.9 117.9	50 00.3 +49.7 116.8	49 31.0 +49.5 115.7	49 01.4 +49.3 114.5	48 31.6 +49.0 113.5

Dec	LHA 045° / 315°	LHA 046° / 314°	LHA 047° / 313°	LHA 048° / 312°	LHA 049° / 311°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	22 39.1 +54.5 130.0	22 13.8 +54.4 129.0	21 48.3 +54.1 128.0	21 22.4 +54.0 127.1	20 56.1 +53.9 126.1
1°	23 33.6 +54.4 129.5	23 08.2 +54.2 128.5	22 42.4 +54.1 127.6	22 16.4 +53.9 126.6	21 50.0 +53.7 125.6
2°	24 28.0 +54.3 129.1	24 02.4 +54.2 128.1	23 36.5 +54.0 127.1	23 10.3 +53.8 126.1	22 43.7 +53.7 125.1
3°	25 22.3 +54.2 128.6	24 56.6 +54.0 127.6	24 30.5 +53.9 126.6	24 04.1 +53.7 125.6	23 37.4 +53.6 124.7
4°	26 16.5 +54.1 128.1	25 50.6 +54.0 127.1	25 24.4 +53.8 126.1	24 57.8 +53.7 125.1	24 31.0 +53.4 124.2
5°	27 10.6 +54.1 127.6	26 44.6 +53.9 126.6	26 18.2 +53.7 125.6	25 51.5 +53.5 124.6	25 24.4 +53.4 123.7
6°	28 04.7 +53.9 127.2	27 38.5 +53.7 126.1	27 11.9 +53.6 125.1	26 45.0 +53.4 124.1	26 17.8 +53.3 123.2
7°	28 58.6 +53.8 126.7	28 32.2 +53.7 125.6	28 05.5 +53.5 124.6	27 38.4 +53.4 123.6	27 11.1 +53.1 122.6
8°	29 52.4 +53.7 126.1	29 25.9 +53.5 125.1	28 59.0 +53.3 124.1	28 31.8 +53.2 123.1	28 04.2 +53.1 122.1
9°	30 46.1 +53.6 125.6	30 19.4 +53.4 124.6	29 52.3 +53.3 123.6	29 25.0 +53.0 122.6	28 57.3 +52.9 121.6
10°	31 39.7 +53.4 125.1	31 12.8 +53.3 124.1	30 45.6 +53.1 123.1	30 18.0 +52.9 122.0	29 50.2 +52.7 121.0
11°	32 33.1 +53.3 124.6	32 06.1 +53.1 123.5	31 38.7 +52.9 122.5	31 10.9 +52.8 121.5	30 42.9 +52.7 120.5
12°	33 26.4 +53.2 124.0	32 59.2 +53.0 123.0	32 31.6 +52.8 122.0	32 03.7 +52.7 120.9	31 35.6 +52.4 119.9
13°	34 19.6 +53.0 123.5	33 52.2 +52.8 122.4	33 24.4 +52.7 121.4	32 56.4 +52.5 120.4	32 28.0 +52.4 119.4
14°	35 12.6 +52.8 122.9	34 45.0 +52.6 121.8	34 17.1 +52.5 120.8	33 48.9 +52.3 119.8	33 20.4 +52.1 118.8
15°	36 05.4 +52.7 122.3	35 37.6 +52.5 121.3	35 09.6 +52.3 120.2	34 41.2 +52.1 119.2	34 12.5 +52.0 118.2
16°	36 58.1 +52.5 121.7	36 30.1 +52.3 120.7	36 01.9 +52.1 119.6	35 33.3 +52.0 118.6	35 04.5 +51.8 117.6
17°	37 50.6 +52.2 121.1	37 22.4 +52.1 120.0	36 54.0 +51.9 119.0	36 25.3 +51.7 118.0	35 56.3 +51.6 116.9
18°	38 42.8 +52.1 120.5	38 14.5 +51.9 119.4	37 45.9 +51.7 118.4	37 17.0 +51.6 117.3	36 47.9 +51.3 116.3
19°	39 34.9 +51.9 119.8	39 06.4 +51.7 118.8	38 37.6 +51.5 117.7	38 08.6 +51.3 116.7	37 39.2 +51.2 115.7
20°	40 26.8 +51.6 119.2	39 58.1 +51.4 118.1	39 29.1 +51.3 117.1	38 59.9 +51.1 116.0	38 30.4 +51.0 115.0
21°	41 18.4 +51.4 118.5	40 49.5 +51.3 117.4	40 20.4 +51.0 116.4	39 51.0 +50.9 115.4	39 21.4 +50.6 114.3
22°	42 09.8 +51.1 117.8	41 40.8 +50.9 116.7	41 11.4 +50.8 115.7	40 41.9 +50.6 114.7	40 12.0 +50.5 113.6
23°	43 00.9 +50.9 117.1	42 31.7 +50.7 116.0	42 02.2 +50.5 115.0	41 32.5 +50.3 113.9	41 02.5 +50.2 112.9
24°	43 51.8 +50.6 116.4	43 22.4 +50.4 115.3	42 52.7 +50.2 114.3	42 22.8 +50.1 113.2	41 52.7 +49.8 112.2
25°	44 42.4 +50.3 115.6	44 12.8 +50.1 114.6	43 42.9 +49.9 113.5	43 12.9 +49.7 112.5	42 42.5 +49.6 111.4
26°	45 32.7 +49.9 114.8	45 02.9 +49.7 113.8	44 32.8 +49.6 112.7	44 02.6 +49.4 111.7	43 32.1 +49.3 110.7
27°	46 22.6 +49.6 114.0	45 52.6 +49.5 113.0	45 22.4 +49.3 111.9	44 52.0 +49.1 110.9	44 21.4 +48.9 109.9
28°	47 12.2 +49.3 113.2	46 42.1 +49.0 112.2	46 11.7 +48.9 111.1	45 41.1 +48.7 110.1	45 10.3 +48.6 109.1
29°	48 01.5 +48.8 112.4	47 31.1 +48.7 111.3	47 00.6 +48.5 110.3	46 29.8 +48.4 109.2	45 58.9 +48.2 108.2

Dec	LHA 050° / 310°	LHA 051° / 309°	LHA 052° / 308°	LHA 053° / 307°	LHA 054° / 306°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	20 29.6 +53.6 125.1	20 02.7 +53.5 124.2	19 35.5 +53.4 123.2	19 08.0 +53.2 122.3	18 40.3 +53.0 121.4
1°	21 23.2 +53.6 124.7	20 56.2 +53.4 123.7	20 28.9 +53.3 122.7	20 01.2 +53.2 121.8	19 33.3 +53.0 120.9
2°	22 16.8 +53.5 124.2	21 49.6 +53.4 123.2	21 22.2 +53.2 122.3	20 54.4 +53.0 121.3	20 26.3 +52.9 120.4
3°	23 10.3 +53.5 123.7	22 43.0 +53.3 122.7	22 15.4 +53.1 121.8	21 47.4 +53.0 120.8	21 19.2 +52.8 119.9
4°	24 03.8 +53.3 123.2	23 36.3 +53.1 122.2	23 08.5 +53.0 121.3	22 40.4 +52.9 120.3	22 12.0 +52.8 119.3
5°	24 57.1 +53.2 122.7	24 29.4 +53.1 121.7	24 01.5 +52.9 120.7	23 33.3 +52.7 119.8	23 04.8 +52.6 118.8
6°	25 50.3 +53.1 122.2	25 22.5 +52.9 121.2	24 54.4 +52.8 120.2	24 26.0 +52.7 119.3	23 57.4 +52.5 118.3
7°	26 43.4 +53.0 121.7	26 15.4 +52.9 120.7	25 47.2 +52.7 119.7	25 18.7 +52.5 118.7	24 49.9 +52.4 117.8
8°	27 36.4 +52.9 121.1	27 08.3 +52.7 120.1	26 39.9 +52.6 119.2	26 11.2 +52.4 118.2	25 42.3 +52.3 117.2
9°	28 29.3 +52.7 120.6	28 01.0 +52.6 119.6	27 32.5 +52.4 118.6	27 03.6 +52.3 117.7	26 34.6 +52.1 116.7
10°	29 22.0 +52.6 120.0	28 53.6 +52.4 119.1	28 24.9 +52.3 118.1	27 55.9 +52.2 117.1	27 26.7 +52.0 116.1
11°	30 14.6 +52.5 119.5	29 46.0 +52.4 118.5	29 17.2 +52.2 117.5	28 48.1 +52.0 116.5	28 18.7 +51.9 115.6
12°	31 07.1 +52.3 118.9	30 38.4 +52.1 117.9	30 09.4 +52.0 116.9	29 40.1 +51.9 116.0	29 10.6 +51.7 115.0
13°	31 59.4 +52.2 118.4	31 30.5 +52.0 117.4	31 01.4 +51.8 116.4	30 32.0 +51.7 115.4	30 02.3 +51.6 114.4
14°	32 51.6 +52.0 117.8	32 22.5 +51.9 116.8	31 53.2 +51.7 115.8	31 23.7 +51.5 114.8	30 53.9 +51.4 113.8
15°	33 43.6 +51.8 117.2	33 14.4 +51.6 116.2	32 44.9 +51.5 115.2	32 15.2 +51.4 114.2	31 45.3 +51.2 113.2
16°	34 35.4 +51.6 116.6	34 06.0 +51.5 115.6	33 36.4 +51.3 114.6	33 06.6 +51.2 113.6	32 36.5 +51.1 112.6
17°	35 27.0 +51.4 115.9	34 57.5 +51.3 114.9	34 27.7 +51.2 113.9	33 57.8 +51.0 113.0	33 27.6 +50.8 112.0
18°	36 18.4 +51.3 115.3	35 48.8 +51.0 114.3	35 18.9 +50.9 113.3	34 48.8 +50.7 112.3	34 18.4 +50.7 111.3
19°	37 09.7 +51.0 114.7	36 39.8 +50.9 113.6	36 09.8 +50.7 112.6	35 39.5 +50.6 111.7	35 09.1 +50.4 110.7
20°	38 00.7 +50.8 114.0	37 30.7 +50.6 113.0	37 00.5 +50.5 112.0	36 30.1 +50.3 111.0	35 59.5 +50.2 110.0
21°	38 51.5 +50.5 113.3	38 21.3 +50.4 112.3	37 51.0 +50.2 111.3	37 20.4 +50.1 110.3	36 49.7 +50.0 109.3
22°	39 42.0 +50.3 112.6	39 11.7 +50.2 111.6	38 41.2 +50.0 110.6	38 10.5 +49.9 109.6	37 39.7 +49.7 108.6
23°	40 32.3 +50.0 111.9	40 01.9 +49.8 110.9	39 31.2 +49.7 109.9	39 00.4 +49.6 108.9	38 29.4 +49.4 107.9
24°	41 22.3 +49.7 111.2	40 51.7 +49.6 110.2	40 20.9 +49.5 109.2	39 50.0 +49.3 108.2	39 18.8 +49.2 107.2
25°	42 12.0 +49.4 110.4	41 41.3 +49.3 109.4	41 10.4 +49.1 108.4	40 39.3 +49.0 107.4	40 08.0 +48.9 106.5
26°	43 01.4 +49.2 109.6	42 30.6 +48.9 108.6	41 59.5 +48.8 107.6	41 28.3 +48.7 106.7	40 56.9 +48.6 105.7
27°	43 50.6 +48.7 108.9	43 19.5 +48.7 107.9	42 48.3 +48.5 106.9	42 17.0 +48.4 105.9	41 45.5 +48.2 104.9
28°	44 39.3 +48.4 108.0	44 08.2 +48.2 107.0	43 36.8 +48.2 106.1	43 05.4 +48.0 105.1	42 33.7 +47.9 104.1
29°	45 27.7 +48.1 107.2	44 56.4 +47.9 106.2	44 25.0 +47.8 105.2	43 53.4 +47.6 104.2	43 21.6 +47.6 103.3

Dec	LHA 055° / 305°	LHA 056° / 304°	LHA 057° / 303°	LHA 058° / 302°	LHA 059° / 301°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	18 12.2 +52.9 120.4	17 43.9 +52.8 119.5	17 15.3 +52.7 118.6	16 46.5 +52.5 117.7	16 17.4 +52.4 116.7
1°	19 05.1 +52.9 119.9	18 36.7 +52.7 119.0	18 08.0 +52.6 118.1	17 39.0 +52.5 117.2	17 09.8 +52.3 116.2
2°	19 58.0 +52.8 119.4	19 29.4 +52.6 118.5	19 00.6 +52.4 117.6	18 31.5 +52.3 116.6	18 02.1 +52.3 115.7
3°	20 50.8 +52.6 118.9	20 22.0 +52.6 118.0	19 53.0 +52.4 117.0	19 23.8 +52.3 116.1	18 54.4 +52.1 115.2
4°	21 43.4 +52.6 118.4	21 14.6 +52.4 117.5	20 45.4 +52.4 116.5	20 16.1 +52.2 115.6	19 46.5 +52.1 114.7
5°	22 36.0 +52.5 117.9	22 07.0 +52.3 116.9	21 37.8 +52.2 116.0	21 08.3 +52.0 115.1	20 38.6 +51.9 114.1
6°	23 28.5 +52.4 117.4	22 59.3 +52.3 116.4	22 30.0 +52.1 115.5	22 00.3 +52.0 114.5	21 30.5 +51.9 113.6
7°	24 20.9 +52.2 116.8	23 51.6 +52.1 115.9	23 22.1 +51.9 114.9	22 52.3 +51.9 114.0	22 22.4 +51.7 113.1
8°	25 13.1 +52.1 116.3	24 43.7 +52.0 115.3	24 14.0 +51.9 114.4	23 44.2 +51.7 113.5	23 14.1 +51.6 112.5
9°	26 05.2 +52.1 115.7	25 35.7 +51.9 114.8	25 05.9 +51.8 113.8	24 35.9 +51.6 112.9	24 05.7 +51.5 112.0
10°	26 57.3 +51.8 115.2	26 27.6 +51.7 114.2	25 57.7 +51.6 113.3	25 27.5 +51.5 112.3	24 57.2 +51.4 111.4
11°	27 49.1 +51.8 114.6	27 19.3 +51.6 113.7	26 49.3 +51.4 112.7	26 19.0 +51.4 111.8	25 48.6 +51.2 110.8
12°	28 40.9 +51.6 114.0	28 10.9 +51.5 113.1	27 40.7 +51.4 112.1	27 10.4 +51.2 111.2	26 39.8 +51.1 110.2
13°	29 32.5 +51.4 113.4	29 02.4 +51.3 112.5	28 32.1 +51.1 111.5	28 01.6 +51.0 110.6	27 30.9 +50.9 109.7
14°	30 23.9 +51.3 112.9	29 53.7 +51.1 111.9	29 23.2 +51.1 110.9	28 52.6 +50.9 110.0	28 21.8 +50.8 109.1
15°	31 15.2 +51.0 112.2	30 44.8 +51.0 111.3	30 14.3 +50.8 110.3	29 43.5 +50.8 109.4	29 12.6 +50.6 108.5
16°	32 06.2 +51.0 111.6	31 35.8 +50.8 110.7	31 05.1 +50.7 109.7	30 34.3 +50.5 108.8	30 03.2 +50.5 107.8
17°	32 57.2 +50.7 111.0	32 26.6 +50.5 110.0	31 55.8 +50.4 109.1	31 24.8 +50.4 108.1	30 53.7 +50.2 107.2
18°	33 47.9 +50.5 110.4	33 17.1 +50.4 109.4	32 46.2 +50.3 108.5	32 15.2 +50.1 107.5	31 43.9 +50.1 106.6
19°	34 38.4 +50.3 109.7	34 07.5 +50.2 108.8	33 36.5 +50.1 107.8	33 05.3 +50.0 106.9	32 34.0 +49.8 105.9
20°	35 28.7 +50.1 109.0	34 57.7 +50.0 108.1	34 26.6 +49.8 107.1	33 55.3 +49.7 106.2	33 23.8 +49.6 105.3
21°	36 18.8 +49.8 108.4	35 47.7 +49.7 107.4	35 16.4 +49.6 106.5	34 45.0 +49.5 105.5	34 13.4 +49.5 104.6
22°	37 08.6 +49.6 107.7	36 37.4 +49.5 106.7	36 06.0 +49.4 105.8	35 34.5 +49.3 104.8	35 02.9 +49.1 103.9
23°	37 58.2 +49.4 107.0	37 26.9 +49.2 106.0	36 55.4 +49.1 105.1	36 23.8 +49.0 104.1	35 52.0 +48.9 103.2
24°	38 47.6 +49.0 106.2	38 16.1 +48.9 105.3	37 44.5 +48.9 104.3	37 12.8 +48.7 103.4	36 40.9 +48.7 102.5
25°	39 36.6 +48.8 105.5	39 05.0 +48.7 104.5	38 33.4 +48.5 103.6	38 01.5 +48.5 102.7	37 29.6 +48.4 101.7
26°	40 25.4 +48.4 104.7	39 53.7 +48.4 103.8	39 21.9 +48.3 102.8	38 50.0 +48.2 101.9	38 18.0 +48.0 101.0
27°	41 13.8 +48.2 104.0	40 42.1 +48.0 103.0	40 10.2 +47.9 102.1	39 38.2 +47.8 101.1	39 06.0 +47.8 100.2
28°	42 02.0 +47.8 103.2	41 30.1 +47.7 102.2	40 58.1 +47.6 101.3	40 26.0 +47.5 100.3	39 53.8 +47.5 99.4
29°	42 49.8 +47.4 102.3	42 17.8 +47.3 101.4	41 45.7 +47.3 100.5	41 13.5 +47.2 99.5	40 41.3 +47.1 98.6

Dec	LHA 060° / 300°	LHA 061° / 299°	LHA 062° / 298°	LHA 063° / 297°	LHA 064° / 296°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	15 48.1 +52.3 115.8	15 18.6 +52.2 114.9	14 48.9 +52.0 114.0	14 18.9 +51.9 113.1	13 48.8 +51.8 112.2
1°	16 40.4 +52.2 115.3	16 10.8 +52.0 114.4	15 40.9 +51.9 113.5	15 10.8 +51.9 112.6	14 40.6 +51.7 111.7
2°	17 32.6 +52.1 114.8	17 02.8 +52.0 113.9	16 32.8 +51.9 113.0	16 02.7 +51.7 112.1	15 32.3 +51.6 111.2
3°	18 24.7 +52.0 114.3	17 54.8 +51.9 113.4	17 24.7 +51.8 112.5	16 54.4 +51.7 111.6	16 23.9 +51.6 110.7
4°	19 16.7 +51.9 113.8	18 46.7 +51.8 112.8	18 16.5 +51.7 111.9	17 46.1 +51.6 111.0	17 15.5 +51.5 110.1
5°	20 08.6 +51.9 113.2	19 38.5 +51.7 112.3	19 08.2 +51.6 111.4	18 37.7 +51.4 110.5	18 07.0 +51.3 109.6
6°	21 00.5 +51.7 112.7	20 30.2 +51.6 111.8	19 59.8 +51.5 110.9	19 29.1 +51.4 110.0	18 58.3 +51.3 109.1
7°	21 52.2 +51.6 112.1	21 21.8 +51.5 111.2	20 51.3 +51.4 110.3	20 20.5 +51.3 109.4	19 49.6 +51.2 108.5
8°	22 43.8 +51.5 111.6	22 13.3 +51.4 110.7	21 42.7 +51.2 109.8	21 11.8 +51.2 108.9	20 40.8 +51.1 107.9
9°	23 35.3 +51.4 111.0	23 04.7 +51.3 110.1	22 33.9 +51.2 109.2	22 03.0 +51.1 108.3	21 31.9 +50.9 107.4
10°	24 26.7 +51.2 110.5	23 56.0 +51.1 109.5	23 25.1 +51.0 108.6	22 54.1 +50.9 107.7	22 22.8 +50.9 106.8
11°	25 17.9 +51.2 109.9	24 47.1 +51.0 109.0	24 16.1 +50.9 108.1	23 45.0 +50.8 107.1	23 13.7 +50.7 106.2
12°	26 09.1 +50.9 109.3	25 38.1 +50.9 108.4	25 07.0 +50.8 107.5	24 35.8 +50.7 106.6	24 04.4 +50.6 105.7
13°	27 00.0 +50.9 108.7	26 29.0 +50.7 107.8	25 57.8 +50.6 106.9	25 26.5 +50.5 106.0	24 55.0 +50.4 105.1
14°	27 50.9 +50.6 108.1	27 19.7 +50.6 107.2	26 48.4 +50.5 106.3	26 17.0 +50.4 105.4	25 45.4 +50.3 104.5
15°	28 41.5 +50.5 107.5	28 10.3 +50.4 106.6	27 38.9 +50.3 105.7	27 07.4 +50.2 104.8	26 35.7 +50.1 103.9
16°	29 32.0 +50.4 106.9	29 00.7 +50.2 106.0	28 29.2 +50.1 105.1	27 57.6 +50.0 104.1	27 25.8 +50.0 103.2
17°	30 22.4 +50.1 106.3	29 50.9 +50.1 105.3	29 19.3 +50.0 104.4	28 47.6 +49.9 103.5	28 15.8 +49.8 102.6
18°	31 12.5 +50.0 105.6	30 41.0 +49.8 104.7	30 09.3 +49.8 103.8	29 37.5 +49.7 102.9	29 05.6 +49.6 102.0
19°	32 02.5 +49.7 105.0	31 30.8 +49.7 104.1	30 59.1 +49.5 103.1	30 27.2 +49.5 102.2	29 55.2 +49.4 101.3
20°	32 52.2 +49.6 104.3	32 20.5 +49.4 103.4	31 48.6 +49.4 102.5	31 16.7 +49.3 101.6	30 44.6 +49.2 100.7
21°	33 41.8 +49.3 103.6	33 09.9 +49.3 102.7	32 38.0 +49.2 101.8	32 06.0 +49.0 100.9	31 33.8 +49.0 100.0
22°	34 31.1 +49.0 103.0	33 59.2 +49.0 102.0	33 27.2 +48.9 101.1	32 55.0 +48.9 100.2	32 22.8 +48.8 99.3
23°	35 20.1 +48.9 102.3	34 48.2 +48.7 101.3	34 16.1 +48.6 100.4	33 43.9 +48.6 99.5	33 11.6 +48.6 98.6
24°	36 09.0 +48.5 101.5	35 36.9 +48.5 100.6	35 04.7 +48.5 99.7	34 32.5 +48.3 98.8	34 00.2 +48.3 97.9
25°	36 57.5 +48.3 100.8	36 25.4 +48.2 99.9	35 53.2 +48.1 99.0	35 20.8 +48.1 98.1	34 48.5 +48.0 97.2
26°	37 45.8 +48.0 100.1	37 13.6 +47.9 99.2	36 41.3 +47.9 98.3	36 08.9 +47.8 97.4	35 36.5 +47.8 96.5
27°	38 33.8 +47.7 99.3	38 01.5 +47.7 98.4	37 29.2 +47.6 97.5	36 56.7 +47.6 96.6	36 24.3 +47.4 95.7
28°	39 21.5 +47.4 98.5	38 49.2 +47.3 97.6	38 16.8 +47.2 96.7	37 44.3 +47.2 95.8	37 11.7 +47.2 95.0
29°	40 08.9 +47.1 97.7	39 36.5 +47.0 96.8	39 04.0 +47.0 95.9	38 31.5 +46.9 95.1	37 58.9 +46.9 94.2

Dec	LHA 065° / 295°	LHA 066° / 294°	LHA 067° / 293°	LHA 068° / 292°	LHA 069° / 291°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	13 18.4 +51.7 111.4	12 47.9 +51.6 110.5	12 17.2 +51.5 109.6	11 46.3 +51.4 108.7	11 15.3 +51.3 107.8
1°	14 10.1 +51.6 110.8	13 39.5 +51.5 110.0	13 08.7 +51.4 109.1	12 37.7 +51.3 108.2	12 06.6 +51.2 107.3
2°	15 01.7 +51.6 110.3	14 31.0 +51.4 109.4	14 00.1 +51.3 108.5	13 29.0 +51.3 107.7	12 57.8 +51.2 106.8
3°	15 53.3 +51.4 109.8	15 22.4 +51.4 108.9	14 51.4 +51.3 108.0	14 20.3 +51.1 107.1	13 49.0 +51.0 106.2
4°	16 44.7 +51.4 109.2	16 13.8 +51.3 108.4	15 42.7 +51.2 107.5	15 11.4 +51.1 106.6	14 40.0 +51.1 105.7
5°	17 36.1 +51.3 108.7	17 05.1 +51.1 107.8	16 33.9 +51.1 106.9	16 02.5 +51.0 106.0	15 31.1 +50.9 105.2
6°	18 27.4 +51.2 108.2	17 56.2 +51.1 107.3	17 25.0 +51.0 106.4	16 53.5 +51.0 105.5	16 22.0 +50.8 104.6
7°	19 18.6 +51.0 107.6	18 47.3 +51.0 106.7	18 16.0 +50.9 105.8	17 44.5 +50.8 104.9	17 12.8 +50.8 104.1
8°	20 09.6 +51.0 107.0	19 38.3 +50.9 106.2	19 06.9 +50.8 105.3	18 35.3 +50.7 104.4	18 03.6 +50.6 103.5
9°	21 00.6 +50.9 106.5	20 29.2 +50.8 105.6	19 57.7 +50.7 104.7	19 26.0 +50.6 103.8	18 54.2 +50.6 102.9
10°	21 51.5 +50.7 105.9	21 20.0 +50.7 105.0	20 48.4 +50.6 104.1	20 16.6 +50.5 103.2	19 44.8 +50.4 102.4
11°	22 42.2 +50.7 105.3	22 10.7 +50.5 104.4	21 39.0 +50.4 103.5	21 07.1 +50.4 102.7	20 35.2 +50.3 101.8
12°	23 32.9 +50.5 104.8	23 01.2 +50.4 103.9	22 29.4 +50.4 103.0	21 57.5 +50.3 102.1	21 25.5 +50.2 101.2
13°	24 23.4 +50.3 104.2	23 51.6 +50.3 103.3	23 19.8 +50.1 102.4	22 47.8 +50.1 101.5	22 15.7 +50.1 100.6
14°	25 13.7 +50.2 103.6	24 41.9 +50.1 102.7	24 09.9 +50.1 101.8	23 37.9 +50.0 100.9	23 05.8 +49.9 100.0
15°	26 03.9 +50.1 103.0	25 32.0 +50.0 102.1	25 00.0 +49.9 101.2	24 27.9 +49.8 100.3	23 55.7 +49.8 99.4
16°	26 54.0 +49.9 102.3	26 22.0 +49.8 101.4	25 49.9 +49.8 100.6	25 17.7 +49.7 99.7	24 45.5 +49.6 98.8
17°	27 43.9 +49.7 101.7	27 11.8 +49.7 100.8	26 39.7 +49.6 99.9	26 07.4 +49.6 99.0	25 35.1 +49.5 98.2
18°	28 33.6 +49.5 101.1	28 01.5 +49.4 100.2	27 29.3 +49.4 99.3	26 57.0 +49.3 98.4	26 24.6 +49.3 97.5
19°	29 23.1 +49.4 100.4	28 50.9 +49.3 99.5	28 18.7 +49.2 98.7	27 46.3 +49.2 97.8	27 13.9 +49.1 96.9
20°	30 12.5 +49.1 99.8	29 40.2 +49.1 98.9	29 07.9 +49.0 98.0	28 35.5 +49.0 97.1	28 03.0 +49.0 96.3
21°	31 01.6 +48.9 99.1	30 29.3 +48.9 98.2	29 56.9 +48.9 97.3	29 24.5 +48.8 96.5	28 52.0 +48.7 95.6
22°	31 50.5 +48.8 98.4	31 18.2 +48.7 97.5	30 45.8 +48.6 96.7	30 13.3 +48.6 95.8	29 40.7 +48.6 94.9
23°	32 39.3 +48.5 97.7	32 06.9 +48.4 96.9	31 34.4 +48.4 96.0	31 01.9 +48.3 95.1	30 29.3 +48.3 94.2
24°	33 27.8 +48.2 97.0	32 55.3 +48.2 96.2	32 22.8 +48.1 95.3	31 50.2 +48.2 94.4	31 17.6 +48.1 93.6
25°	34 16.0 +48.0 96.3	33 43.5 +48.0 95.4	33 10.9 +48.0 94.6	32 38.4 +47.8 93.7	32 05.7 +47.9 92.9
26°	35 04.0 +47.7 95.6	34 31.5 +47.6 94.7	33 58.9 +47.6 93.9	33 26.2 +47.7 93.0	32 53.6 +47.6 92.1
27°	35 51.7 +47.5 94.9	35 19.1 +47.5 94.0	34 46.5 +47.4 93.1	34 13.9 +47.4 92.3	33 41.2 +47.4 91.4
28°	36 39.2 +47.1 94.1	36 06.6 +47.1 93.2	35 33.9 +47.1 92.4	35 01.3 +47.0 91.5	34 28.6 +47.1 90.7
29°	37 26.3 +46.9 93.3	36 53.7 +46.8 92.5	36 21.0 +46.8 91.6	35 48.3 +46.9 90.8	35 15.7 +46.8 89.9

Dec	LHA 070° / 290°	LHA 071° / 289°	LHA 072° / 288°	LHA 073° / 287°	LHA 074° / 286°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	10 44.1 +51.2 107.0	10 12.8 +51.1 106.1	9 41.3 +51.1 105.2	9 09.8 +50.9 104.4	8 38.0 +50.9 103.5
1°	11 35.3 +51.2 106.4	11 03.9 +51.1 105.6	10 32.4 +50.9 104.7	10 00.7 +50.9 103.8	9 28.9 +50.8 103.0
2°	12 26.5 +51.0 105.9	11 55.0 +50.9 105.0	11 23.3 +51.0 104.2	10 51.6 +50.8 103.3	10 19.7 +50.8 102.4
3°	13 17.5 +51.0 105.4	12 45.9 +51.0 104.5	12 14.3 +50.8 103.6	11 42.4 +50.8 102.8	11 10.5 +50.7 101.9
4°	14 08.5 +50.9 104.8	13 36.9 +50.8 104.0	13 05.1 +50.8 103.1	12 33.2 +50.7 102.2	12 01.2 +50.7 101.4
5°	14 59.4 +50.9 104.3	14 27.7 +50.8 103.4	13 55.9 +50.7 102.5	13 23.9 +50.7 101.7	12 51.9 +50.6 100.8
6°	15 50.3 +50.8 103.7	15 18.5 +50.7 102.9	14 46.6 +50.6 102.0	14 14.6 +50.5 101.1	13 42.5 +50.5 100.3
7°	16 41.1 +50.6 103.2	16 09.2 +50.6 102.3	15 37.2 +50.5 101.4	15 05.1 +50.5 100.6	14 33.0 +50.4 99.7
8°	17 31.7 +50.6 102.6	16 59.8 +50.5 101.7	16 27.7 +50.5 100.9	15 55.6 +50.4 100.0	15 23.4 +50.3 99.1
9°	18 22.3 +50.5 102.0	17 50.3 +50.4 101.2	17 18.2 +50.3 100.3	16 46.0 +50.3 99.4	16 13.7 +50.3 98.6
10°	19 12.8 +50.3 101.5	18 40.7 +50.3 100.6	18 08.5 +50.3 99.7	17 36.3 +50.2 98.9	17 04.0 +50.1 98.0
11°	20 03.1 +50.3 100.9	19 31.0 +50.2 100.0	18 58.8 +50.1 99.2	18 26.5 +50.1 98.3	17 54.1 +50.1 97.4
12°	20 53.4 +50.1 100.3	20 21.2 +50.1 99.4	19 48.9 +50.1 98.6	19 16.6 +50.0 97.7	18 44.2 +49.9 96.8
13°	21 43.5 +50.0 99.7	21 11.3 +49.9 98.9	20 39.0 +49.9 98.0	20 06.6 +49.8 97.1	19 34.1 +49.8 96.3
14°	22 33.5 +49.9 99.1	22 01.2 +49.9 98.3	21 28.9 +49.8 97.4	20 56.4 +49.8 96.5	20 23.9 +49.7 95.7
15°	23 23.4 +49.8 98.5	22 51.1 +49.7 97.7	22 18.7 +49.6 96.8	21 46.2 +49.6 95.9	21 13.6 +49.6 95.1
16°	24 13.2 +49.5 97.9	23 40.8 +49.5 97.0	23 08.3 +49.5 96.2	22 35.8 +49.5 95.3	22 03.2 +49.5 94.5
17°	25 02.7 +49.5 97.3	24 30.3 +49.4 96.4	23 57.8 +49.4 95.6	23 25.3 +49.3 94.7	22 52.7 +49.3 93.8
18°	25 52.2 +49.2 96.7	25 19.7 +49.2 95.8	24 47.2 +49.2 94.9	24 14.6 +49.1 94.1	23 42.0 +49.1 93.2
19°	26 41.4 +49.1 96.0	26 08.9 +49.1 95.2	25 36.4 +49.0 94.3	25 03.7 +49.1 93.5	24 31.1 +49.0 92.6
20°	27 30.5 +48.9 95.4	26 58.0 +48.9 94.5	26 25.4 +48.8 93.7	25 52.8 +48.8 92.8	25 20.1 +48.8 92.0
21°	28 19.4 +48.8 94.7	27 46.9 +48.7 93.9	27 14.2 +48.7 93.0	26 41.6 +48.7 92.2	26 08.9 +48.7 91.3
22°	29 08.2 +48.5 94.1	28 35.6 +48.4 93.2	28 02.9 +48.5 92.4	27 30.3 +48.4 91.5	26 57.6 +48.4 90.7
23°	29 56.7 +48.3 93.4	29 24.0 +48.3 92.5	28 51.4 +48.3 91.7	28 18.7 +48.3 90.8	27 46.0 +48.3 90.0
24°	30 45.0 +48.1 92.7	30 12.3 +48.1 91.9	29 39.7 +48.0 91.0	29 07.0 +48.1 90.2	28 34.3 +48.1 89.3
25°	31 33.1 +47.8 92.0	31 00.4 +47.9 91.2	30 27.7 +47.9 90.3	29 55.1 +47.8 89.5	29 22.4 +47.8 88.6
26°	32 20.9 +47.6 91.3	31 48.3 +47.6 90.4	31 15.6 +47.6 89.6	30 42.9 +47.6 88.8	30 10.2 +47.7 87.9
27°	33 08.5 +47.4 90.6	32 35.9 +47.3 89.7	32 03.2 +47.4 88.9	31 30.5 +47.4 88.1	30 57.9 +47.4 87.2
28°	33 55.9 +47.1 89.8	33 23.2 +47.1 89.0	32 50.6 +47.1 88.2	32 17.9 +47.1 87.3	31 45.3 +47.1 86.5
29°	34 43.0 +46.8 89.1	34 10.3 +46.8 88.3	33 37.7 +46.8 87.4	33 05.0 +46.9 86.6	32 32.4 +46.9 85.8

Dec	LHA 075° / 285°	LHA 076° / 284°	LHA 077° / 283°	LHA 078° / 282°	LHA 079° / 281°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	8 06.2 +50.8 102.7	7 34.3 +50.7 101.8	7 02.2 +50.7 101.0	6 30.1 +50.6 100.1	5 57.9 +50.6 99.3
1°	8 57.0 +50.8 102.1	8 25.0 +50.7 101.3	7 52.9 +50.7 100.4	7 20.7 +50.6 99.6	6 48.5 +50.5 98.7
2°	9 47.8 +50.7 101.6	9 15.7 +50.7 100.7	8 43.6 +50.6 99.9	8 11.3 +50.6 99.0	7 39.0 +50.5 98.2
3°	10 38.5 +50.6 101.0	10 06.4 +50.6 100.2	9 34.2 +50.5 99.3	9 01.9 +50.5 98.5	8 29.5 +50.5 97.6
4°	11 29.1 +50.6 100.5	10 57.0 +50.5 99.6	10 24.7 +50.5 98.8	9 52.4 +50.4 97.9	9 20.0 +50.4 97.1
5°	12 19.7 +50.6 99.9	11 47.5 +50.5 99.1	11 15.2 +50.4 98.2	10 42.8 +50.4 97.4	10 10.4 +50.3 96.5
6°	13 10.3 +50.4 99.4	12 38.0 +50.4 98.5	12 05.6 +50.4 97.7	11 33.2 +50.3 96.8	11 00.7 +50.3 96.0
7°	14 00.7 +50.4 98.8	13 28.4 +50.3 98.0	12 56.0 +50.3 97.1	12 23.5 +50.3 96.3	11 51.0 +50.2 95.4
8°	14 51.1 +50.3 98.3	14 18.7 +50.3 97.4	13 46.3 +50.2 96.6	13 13.8 +50.2 95.7	12 41.2 +50.2 94.9
9°	15 41.4 +50.2 97.7	15 09.0 +50.1 96.9	14 36.5 +50.1 96.0	14 04.0 +50.1 95.1	13 31.4 +50.1 94.3
10°	16 31.6 +50.1 97.1	15 59.1 +50.1 96.3	15 26.6 +50.1 95.4	14 54.1 +50.0 94.6	14 21.5 +50.0 93.7
11°	17 21.7 +50.0 96.6	16 49.2 +50.0 95.7	16 16.7 +49.9 94.9	15 44.1 +49.9 94.0	15 11.5 +49.9 93.2
12°	18 11.7 +49.9 96.0	17 39.2 +49.9 95.1	17 06.6 +49.9 94.3	16 34.0 +49.8 93.4	16 01.4 +49.8 92.6
13°	19 01.6 +49.8 95.4	18 29.1 +49.7 94.5	17 56.5 +49.7 93.7	17 23.8 +49.8 92.8	16 51.2 +49.7 92.0
14°	19 51.4 +49.7 94.8	19 18.8 +49.7 94.0	18 46.2 +49.6 93.1	18 13.6 +49.6 92.3	17 40.9 +49.6 91.4
15°	20 41.1 +49.5 94.2	20 08.5 +49.5 93.4	19 35.8 +49.5 92.5	19 03.2 +49.5 91.7	18 30.5 +49.5 90.8
16°	21 30.6 +49.4 93.6	20 58.0 +49.4 92.8	20 25.3 +49.4 91.9	19 52.7 +49.4 91.1	19 20.0 +49.4 90.2
17°	22 20.0 +49.3 93.0	21 47.4 +49.3 92.1	21 14.7 +49.3 91.3	20 42.1 +49.2 90.5	20 09.4 +49.2 89.6
18°	23 09.3 +49.2 92.4	22 36.7 +49.1 91.5	22 04.0 +49.1 90.7	21 31.3 +49.1 89.8	20 58.6 +49.2 89.0
19°	23 58.5 +48.9 91.8	23 25.8 +49.0 90.9	22 53.1 +49.0 90.1	22 20.4 +49.0 89.2	21 47.8 +49.0 88.4
20°	24 47.4 +48.9 91.1	24 14.8 +48.8 90.3	23 42.1 +48.8 89.4	23 09.4 +48.8 88.6	22 36.8 +48.8 87.8
21°	25 36.3 +48.6 90.5	25 03.6 +48.6 89.6	24 30.9 +48.7 88.8	23 58.2 +48.7 88.0	23 25.6 +48.7 87.1
22°	26 24.9 +48.5 89.8	25 52.2 +48.5 89.0	25 19.6 +48.4 88.2	24 46.9 +48.5 87.3	24 14.3 +48.5 86.5
23°	27 13.4 +48.2 89.2	26 40.7 +48.3 88.3	26 08.0 +48.3 87.5	25 35.4 +48.3 86.7	25 02.8 +48.3 85.9
24°	28 01.6 +48.1 88.5	27 29.0 +48.1 87.7	26 56.3 +48.2 86.8	26 23.7 +48.2 86.0	25 51.1 +48.2 85.2
25°	28 49.7 +47.9 87.8	28 17.1 +47.9 87.0	27 44.5 +47.9 86.2	27 11.9 +47.9 85.3	26 39.3 +48.0 84.5
26°	29 37.6 +47.7 87.1	29 05.0 +47.7 86.3	28 32.4 +47.7 85.5	27 59.8 +47.8 84.7	27 27.3 +47.8 83.9
27°	30 25.3 +47.4 86.4	29 52.7 +47.4 85.6	29 20.1 +47.5 84.8	28 47.6 +47.5 84.0	28 15.1 +47.6 83.2
28°	31 12.7 +47.2 85.7	30 40.1 +47.2 84.9	30 07.6 +47.2 84.1	29 35.1 +47.3 83.3	29 02.7 +47.3 82.5
29°	31 59.9 +46.9 85.0	31 27.3 +47.0 84.2	30 54.8 +47.1 83.4	30 22.4 +47.1 82.6	29 50.0 +47.2 81.8

Dec	LHA 080° / 280°	LHA 081° / 279°	LHA 082° / 278°	LHA 083° / 277°	LHA 084° / 276°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	5 25.6 +50.5 98.4	4 53.3 +50.4 97.6	4 20.8 +50.5 96.7	3 48.3 +50.5 95.9	3 15.8 +50.4 95.0
1°	6 16.1 +50.5 97.9	5 43.7 +50.5 97.0	5 11.3 +50.4 96.2	4 38.8 +50.4 95.3	4 06.2 +50.4 94.5
2°	7 06.6 +50.5 97.3	6 34.2 +50.4 96.5	6 01.7 +50.4 95.6	5 29.2 +50.3 94.8	4 56.6 +50.3 93.9
3°	7 57.1 +50.4 96.8	7 24.6 +50.4 95.9	6 52.1 +50.4 95.1	6 19.5 +50.4 94.2	5 46.9 +50.3 93.4
4°	8 47.5 +50.4 96.2	8 15.0 +50.3 95.4	7 42.5 +50.3 94.5	7 09.9 +50.3 93.7	6 37.2 +50.3 92.9
5°	9 37.9 +50.3 95.7	9 05.3 +50.3 94.8	8 32.8 +50.2 94.0	8 00.2 +50.2 93.1	7 27.5 +50.2 92.3
6°	10 28.2 +50.3 95.1	9 55.6 +50.3 94.3	9 23.0 +50.2 93.4	8 50.4 +50.2 92.6	8 17.7 +50.2 91.8
7°	11 18.5 +50.2 94.6	10 45.9 +50.1 93.7	10 13.2 +50.2 92.9	9 40.6 +50.1 92.0	9 07.9 +50.2 91.2
8°	12 08.7 +50.1 94.0	11 36.0 +50.2 93.2	11 03.4 +50.1 92.3	10 30.7 +50.1 91.5	9 58.1 +50.1 90.6
9°	12 58.8 +50.0 93.5	12 26.2 +50.0 92.6	11 53.5 +50.0 91.8	11 20.8 +50.1 90.9	10 48.2 +50.0 90.1
10°	13 48.8 +50.0 92.9	13 16.2 +50.0 92.0	12 43.5 +50.0 91.2	12 10.9 +49.9 90.4	11 38.2 +49.9 89.5
11°	14 38.8 +49.9 92.3	14 06.2 +49.8 91.5	13 33.5 +49.9 90.6	13 00.8 +49.9 89.8	12 28.1 +49.9 89.0
12°	15 28.7 +49.8 91.7	14 56.0 +49.8 90.9	14 23.4 +49.8 90.1	13 50.7 +49.8 89.2	13 18.0 +49.8 88.4
13°	16 18.5 +49.7 91.2	15 45.8 +49.7 90.3	15 13.2 +49.7 89.5	14 40.5 +49.7 88.6	14 07.8 +49.8 87.8
14°	17 08.2 +49.6 90.6	16 35.5 +49.7 89.7	16 02.9 +49.6 88.9	15 30.2 +49.6 88.1	14 57.6 +49.6 87.2
15°	17 57.8 +49.5 90.0	17 25.2 +49.5 89.1	16 52.5 +49.5 88.3	16 19.8 +49.6 87.5	15 47.2 +49.5 86.6
16°	18 47.3 +49.4 89.4	18 14.7 +49.3 88.6	17 42.0 +49.4 87.7	17 09.4 +49.4 86.9	16 36.7 +49.5 86.1
17°	19 36.7 +49.3 88.8	19 04.0 +49.3 88.0	18 31.4 +49.3 87.1	17 58.8 +49.3 86.3	17 26.2 +49.3 85.5
18°	20 26.0 +49.1 88.2	19 53.3 +49.2 87.3	19 20.7 +49.2 86.5	18 48.1 +49.2 85.7	18 15.5 +49.2 84.9
19°	21 15.1 +49.0 87.6	20 42.5 +49.0 86.7	20 09.9 +49.0 85.9	19 37.3 +49.1 85.1	19 04.7 +49.2 84.3
20°	22 04.1 +48.9 86.9	21 31.5 +48.9 86.1	20 58.9 +48.9 85.3	20 26.4 +48.9 84.5	19 53.9 +48.9 83.7
21°	22 53.0 +48.7 86.3	22 20.4 +48.7 85.5	21 47.8 +48.8 84.7	21 15.3 +48.8 83.9	20 42.8 +48.9 83.0
22°	23 41.7 +48.5 85.7	23 09.1 +48.6 84.9	22 36.6 +48.6 84.0	22 04.1 +48.7 83.2	21 31.7 +48.7 82.4
23°	24 30.2 +48.4 85.0	23 57.7 +48.4 84.2	23 25.2 +48.5 83.4	22 52.8 +48.5 82.6	22 20.4 +48.6 81.8
24°	25 18.6 +48.2 84.4	24 46.1 +48.3 83.6	24 13.7 +48.3 82.8	23 41.3 +48.3 82.0	23 09.0 +48.4 81.2
25°	26 06.8 +48.0 83.7	25 34.4 +48.0 82.9	25 02.0 +48.1 82.1	24 29.6 +48.2 81.3	23 57.4 +48.2 80.5
26°	26 54.8 +47.9 83.1	26 22.4 +47.9 82.2	25 50.1 +47.9 81.4	25 17.8 +48.0 80.6	24 45.6 +48.1 79.9
27°	27 42.7 +47.6 82.4	27 10.3 +47.7 81.6	26 38.0 +47.8 80.8	26 05.8 +47.8 80.0	25 33.7 +47.9 79.2
28°	28 30.3 +47.4 81.7	27 58.0 +47.5 80.9	27 25.8 +47.5 80.1	26 53.6 +47.6 79.3	26 21.6 +47.7 78.5
29°	29 17.7 +47.2 81.0	28 45.5 +47.3 80.2	28 13.3 +47.4 79.4	27 41.2 +47.5 78.6	27 09.3 +47.5 77.8

Dec	LHA 085° / 275°	LHA 086° / 274°	LHA 087° / 273°	LHA 088° / 272°	LHA 089° / 271°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	2 43.2 +50.4 94.2	2 10.6 +50.4 93.4	1 38.0 +50.3 92.5	1 05.3 +50.4 91.7	0 32.7 +50.3 90.8
1°	3 33.6 +50.4 93.7	3 01.0 +50.3 92.8	2 28.3 +50.4 92.0	1 55.7 +50.3 91.1	1 23.0 +50.3 90.3
2°	4 24.0 +50.3 93.1	3 51.3 +50.3 92.3	3 18.7 +50.3 91.4	2 46.0 +50.3 90.6	2 13.3 +50.3 89.7
3°	5 14.3 +50.3 92.6	4 41.6 +50.3 91.7	4 09.0 +50.2 90.9	3 36.3 +50.3 90.0	3 03.6 +50.3 89.2
4°	6 04.6 +50.3 92.0	5 31.9 +50.3 91.2	4 59.2 +50.3 90.3	4 26.6 +50.2 89.5	3 53.9 +50.3 88.7
5°	6 54.9 +50.2 91.5	6 22.2 +50.2 90.6	5 49.5 +50.2 89.8	5 16.8 +50.3 88.9	4 44.2 +50.2 88.1
6°	7 45.1 +50.2 90.9	7 12.4 +50.2 90.1	6 39.7 +50.2 89.2	6 07.1 +50.1 88.4	5 34.4 +50.2 87.6
7°	8 35.3 +50.1 90.4	8 02.6 +50.1 89.5	7 29.9 +50.2 88.7	6 57.2 +50.2 87.8	6 24.6 +50.2 87.0
8°	9 25.4 +50.1 89.8	8 52.7 +50.1 89.0	8 20.1 +50.1 88.1	7 47.4 +50.1 87.3	7 14.8 +50.1 86.5
9°	10 15.5 +50.0 89.2	9 42.8 +50.0 88.4	9 10.2 +50.0 87.6	8 37.5 +50.1 86.7	8 04.9 +50.1 85.9
10°	11 05.5 +50.0 88.7	10 32.8 +50.0 87.8	10 00.2 +50.0 87.0	9 27.6 +50.0 86.2	8 55.0 +50.0 85.3
11°	11 55.5 +49.9 88.1	11 22.8 +49.9 87.3	10 50.2 +49.9 86.4	10 17.6 +49.9 85.6	9 45.0 +50.0 84.8
12°	12 45.4 +49.8 87.5	12 12.7 +49.9 86.7	11 40.1 +49.9 85.9	11 07.5 +49.9 85.1	10 35.0 +49.9 84.2
13°	13 35.2 +49.7 87.0	13 02.6 +49.7 86.1	12 30.0 +49.8 85.3	11 57.4 +49.9 84.5	11 24.9 +49.9 83.7
14°	14 24.9 +49.7 86.4	13 52.3 +49.7 85.6	13 19.8 +49.7 84.7	12 47.3 +49.7 83.9	12 14.8 +49.8 83.1
15°	15 14.6 +49.6 85.8	14 42.0 +49.6 85.0	14 09.5 +49.6 84.2	13 37.0 +49.7 83.3	13 04.6 +49.7 82.5
16°	16 04.2 +49.4 85.2	15 31.6 +49.5 84.4	14 59.1 +49.6 83.6	14 26.7 +49.5 82.8	13 54.3 +49.6 81.9
17°	16 53.6 +49.4 84.6	16 21.1 +49.4 83.8	15 48.7 +49.4 83.0	15 16.2 +49.5 82.2	14 43.9 +49.5 81.4
18°	17 43.0 +49.3 84.0	17 10.5 +49.3 83.2	16 38.1 +49.3 82.4	16 05.7 +49.4 81.6	15 33.4 +49.5 80.8
19°	18 32.3 +49.1 83.4	17 59.8 +49.2 82.6	17 27.4 +49.3 81.8	16 55.1 +49.3 81.0	16 22.9 +49.3 80.2
20°	19 21.4 +49.0 82.8	18 49.0 +49.1 82.0	18 16.7 +49.1 81.2	17 44.4 +49.2 80.4	17 12.2 +49.3 79.6
21°	20 10.4 +48.9 82.2	19 38.1 +48.9 81.4	19 05.8 +49.0 80.6	18 33.6 +49.1 79.8	18 01.5 +49.1 79.0
22°	20 59.3 +48.8 81.6	20 27.0 +48.8 80.8	19 54.8 +48.9 80.0	19 22.7 +48.9 79.2	18 50.6 +49.0 78.4
23°	21 48.1 +48.6 81.0	21 15.8 +48.7 80.2	20 43.7 +48.7 79.4	20 11.6 +48.8 78.6	19 39.6 +48.9 77.8
24°	22 36.7 +48.5 80.3	22 04.5 +48.6 79.6	21 32.4 +48.6 78.8	21 00.4 +48.7 78.0	20 28.5 +48.8 77.2
25°	23 25.2 +48.3 79.7	22 53.1 +48.3 78.9	22 21.0 +48.5 78.1	21 49.1 +48.5 77.3	21 17.3 +48.6 76.5
26°	24 13.5 +48.1 79.1	23 41.4 +48.2 78.3	23 09.5 +48.3 77.5	22 37.6 +48.4 76.7	22 05.9 +48.4 75.9
27°	25 01.6 +48.0 78.4	24 29.6 +48.1 77.6	23 57.8 +48.1 76.8	23 26.0 +48.2 76.1	22 54.3 +48.4 75.3
28°	25 49.6 +47.8 77.7	25 17.7 +47.9 77.0	24 45.9 +48.0 76.2	24 14.2 +48.1 75.4	23 42.7 +48.1 74.6
29°	26 37.4 +47.5 77.1	26 05.6 +47.6 76.3	25 33.9 +47.7 75.5	25 02.3 +47.9 74.7	24 30.8 +48.0 74.0

Dec	LHA 090° / 270°	LHA 091° / 269°	LHA 092° / 268°	LHA 093° / 267°	LHA 094° / 266°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	0 00.0 +50.3 90.0	-0 32.7 +50.3	-1 05.3 +50.3	-1 38.0 +50.3	-2 10.6 +50.3
1°	0 50.3 +50.3 89.5	0 17.6 +50.4 88.6	-0 15.0 +50.3	-0 47.7 +50.4	-1 20.3 +50.4
2°	1 40.6 +50.3 88.9	1 08.0 +50.3 88.1	0 35.3 +50.3 87.2	0 02.7 +50.3 86.4	-0 29.9 +50.4
3°	2 30.9 +50.3 88.4	1 58.3 +50.3 87.5	1 25.6 +50.4 86.7	0 53.0 +50.4 85.9	0 20.5 +50.3 85.0
4°	3 21.2 +50.3 87.8	2 48.6 +50.3 87.0	2 16.0 +50.3 86.1	1 43.4 +50.3 85.3	1 10.8 +50.4 84.5
5°	4 11.5 +50.3 87.3	3 38.9 +50.2 86.4	3 06.3 +50.3 85.6	2 33.7 +50.3 84.8	2 01.2 +50.3 83.9
6°	5 01.8 +50.2 86.7	4 29.1 +50.3 85.9	3 56.6 +50.2 85.1	3 24.0 +50.3 84.2	2 51.5 +50.4 83.4
7°	5 52.0 +50.2 86.2	5 19.4 +50.2 85.3	4 46.8 +50.3 84.5	4 14.3 +50.3 83.7	3 41.9 +50.3 82.8
8°	6 42.2 +50.1 85.6	6 09.6 +50.2 84.8	5 37.1 +50.2 84.0	5 04.6 +50.3 83.1	4 32.2 +50.3 82.3
9°	7 32.3 +50.1 85.1	6 59.8 +50.1 84.2	6 27.3 +50.2 83.4	5 54.9 +50.2 82.6	5 22.5 +50.3 81.7
10°	8 22.4 +50.1 84.5	7 49.9 +50.1 83.7	7 17.5 +50.1 82.9	6 45.1 +50.2 82.0	6 12.8 +50.2 81.2
11°	9 12.5 +50.0 84.0	8 40.0 +50.1 83.1	8 07.6 +50.1 82.3	7 35.3 +50.1 81.5	7 03.0 +50.2 80.6
12°	10 02.5 +50.0 83.4	9 30.1 +50.0 82.6	8 57.7 +50.1 81.7	8 25.4 +50.1 80.9	7 53.2 +50.1 80.1
13°	10 52.5 +49.9 82.8	10 20.1 +49.9 82.0	9 47.8 +49.9 81.2	9 15.5 +50.0 80.4	8 43.3 +50.1 79.5
14°	11 42.4 +49.8 82.3	11 10.0 +49.9 81.4	10 37.7 +50.0 80.6	10 05.5 +50.0 79.8	9 33.4 +50.1 79.0
15°	12 32.2 +49.8 81.7	11 59.9 +49.8 80.9	11 27.7 +49.8 80.1	10 55.5 +49.9 79.2	10 23.5 +50.0 78.4
16°	13 22.0 +49.6 81.1	12 49.7 +49.7 80.3	12 17.5 +49.8 79.5	11 45.4 +49.9 78.7	11 13.5 +49.9 77.9
17°	14 11.6 +49.6 80.5	13 39.4 +49.7 79.7	13 07.3 +49.7 78.9	12 35.3 +49.8 78.1	12 03.4 +49.8 77.3
18°	15 01.2 +49.5 80.0	14 29.1 +49.6 79.2	13 57.0 +49.7 78.3	13 25.1 +49.7 77.5	12 53.2 +49.8 76.7
19°	15 50.7 +49.4 79.4	15 18.7 +49.4 78.6	14 46.7 +49.5 77.8	14 14.8 +49.6 77.0	13 43.0 +49.7 76.1
20°	16 40.1 +49.3 78.8	16 08.1 +49.4 78.0	15 36.2 +49.5 77.2	15 04.4 +49.5 76.4	14 32.7 +49.6 75.6
21°	17 29.4 +49.2 78.2	16 57.5 +49.3 77.4	16 25.7 +49.3 76.6	15 53.9 +49.5 75.8	15 22.3 +49.5 75.0
22°	18 18.6 +49.1 77.6	17 46.8 +49.1 76.8	17 15.0 +49.3 76.0	16 43.4 +49.3 75.2	16 11.8 +49.5 74.4
23°	19 07.7 +49.0 77.0	18 35.9 +49.1 76.2	18 04.3 +49.1 75.4	17 32.7 +49.2 74.6	17 01.3 +49.3 73.8
24°	19 56.7 +48.8 76.4	19 25.0 +48.9 75.6	18 53.4 +49.0 74.8	18 21.9 +49.1 74.0	17 50.6 +49.2 73.2
25°	20 45.5 +48.7 75.7	20 13.9 +48.8 75.0	19 42.4 +48.9 74.2	19 11.0 +49.0 73.4	18 39.8 +49.1 72.6
26°	21 34.2 +48.6 75.1	21 02.7 +48.7 74.3	20 31.3 +48.8 73.6	20 00.0 +48.9 72.8	19 28.9 +49.0 72.0
27°	22 22.8 +48.4 74.5	21 51.4 +48.5 73.7	21 20.1 +48.6 72.9	20 48.9 +48.7 72.2	20 17.9 +48.8 71.4
28°	23 11.2 +48.3 73.8	22 39.9 +48.3 73.1	22 08.7 +48.5 72.3	21 37.6 +48.6 71.5	21 06.7 +48.7 70.8
29°	23 59.5 +48.1 73.2	23 28.2 +48.3 72.4	22 57.2 +48.3 71.7	22 26.2 +48.4 70.9	21 55.4 +48.6 70.1

Dec	LHA 095° / 265°	LHA 096° / 264°	LHA 097° / 263°	LHA 098° / 262°	LHA 099° / 261°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-2 43.2 +50.3	-3 15.8 +50.4	-3 48.3 +50.4	-4 20.8 +50.4	-4 53.3 +50.6
1°	-1 52.9 +50.4	-2 25.4 +50.4	-2 57.9 +50.5	-3 30.4 +50.5	-4 02.7 +50.5
2°	-1 02.5 +50.4	-1 35.0 +50.4	-2 07.4 +50.4	-2 39.9 +50.6	-3 12.2 +50.6
3°	-0 12.1 +50.4	-0 44.6 +50.5	-1 17.0 +50.5	-1 49.3 +50.5	-2 21.6 +50.5
4°	0 38.3 +50.4 83.6	0 05.9 +50.4 82.8	-0 26.5 +50.5	-0 58.8 +50.5	-1 31.1 +50.6
5°	1 28.7 +50.4 83.1	0 56.3 +50.4 82.3	0 24.0 +50.4 81.4	-0 08.3 +50.5	-0 40.5 +50.6
6°	2 19.1 +50.4 82.5	1 46.7 +50.5 81.7	1 14.4 +50.5 80.9	0 42.2 +50.5 80.0	0 10.1 +50.6 79.2
7°	3 09.5 +50.4 82.0	2 37.2 +50.4 81.2	2 04.9 +50.5 80.3	1 32.7 +50.6 79.5	1 00.7 +50.5 78.7
8°	3 59.9 +50.3 81.5	3 27.6 +50.4 80.6	2 55.4 +50.4 79.8	2 23.3 +50.5 79.0	1 51.2 +50.6 78.1
9°	4 50.2 +50.3 80.9	4 18.0 +50.3 80.1	3 45.8 +50.4 79.2	3 13.8 +50.4 78.4	2 41.8 +50.5 77.6
10°	5 40.5 +50.3 80.4	5 08.3 +50.4 79.5	4 36.2 +50.4 78.7	4 04.2 +50.5 77.9	3 32.3 +50.6 77.0
11°	6 30.8 +50.2 79.8	5 58.7 +50.3 79.0	5 26.6 +50.4 78.2	4 54.7 +50.4 77.3	4 22.9 +50.5 76.5
12°	7 21.0 +50.2 79.3	6 49.0 +50.2 78.4	6 17.0 +50.3 77.6	5 45.1 +50.4 76.8	5 13.4 +50.5 76.0
13°	8 11.2 +50.2 78.7	7 39.2 +50.3 77.9	7 07.3 +50.3 77.1	6 35.5 +50.4 76.2	6 03.9 +50.4 75.4
14°	9 01.4 +50.1 78.2	8 29.5 +50.1 77.3	7 57.6 +50.3 76.5	7 25.9 +50.3 75.7	6 54.3 +50.4 74.9
15°	9 51.5 +50.1 77.6	9 19.6 +50.2 76.8	8 47.9 +50.2 76.0	8 16.2 +50.3 75.1	7 44.7 +50.4 74.3
16°	10 41.6 +49.9 77.0	10 09.8 +50.0 76.2	9 38.1 +50.1 75.4	9 06.5 +50.2 74.6	8 35.1 +50.3 73.8
17°	11 31.5 +50.0 76.5	10 59.8 +50.0 75.7	10 28.2 +50.1 74.9	9 56.7 +50.2 74.0	9 25.4 +50.3 73.2
18°	12 21.5 +49.8 75.9	11 49.8 +50.0 75.1	11 18.3 +50.0 74.3	10 46.9 +50.1 73.5	10 15.7 +50.2 72.7
19°	13 11.3 +49.8 75.3	12 39.8 +49.8 74.5	12 08.3 +50.0 73.7	11 37.0 +50.1 72.9	11 05.9 +50.1 72.1
20°	14 01.1 +49.7 74.8	13 29.6 +49.8 74.0	12 58.3 +49.9 73.2	12 27.1 +50.0 72.4	11 56.0 +50.1 71.6
21°	14 50.8 +49.6 74.2	14 19.4 +49.7 73.4	13 48.2 +49.8 72.6	13 17.1 +49.9 71.8	12 46.1 +50.0 71.0
22°	15 40.4 +49.5 73.6	15 09.1 +49.7 72.8	14 38.0 +49.7 72.0	14 07.0 +49.8 71.2	13 36.1 +49.9 70.4
23°	16 29.9 +49.5 73.0	15 58.8 +49.5 72.2	15 27.7 +49.6 71.4	14 56.8 +49.7 70.6	14 26.0 +49.9 69.9
24°	17 19.4 +49.3 72.4	16 48.3 +49.4 71.6	16 17.3 +49.6 70.8	15 46.5 +49.7 70.1	15 15.9 +49.8 69.3
25°	18 08.7 +49.2 71.8	17 37.7 +49.3 71.0	17 06.9 +49.4 70.3	16 36.2 +49.5 69.5	16 05.7 +49.6 68.7
26°	18 57.9 +49.1 71.2	18 27.0 +49.2 70.4	17 56.3 +49.3 69.7	17 25.7 +49.5 68.9	16 55.3 +49.6 68.1
27°	19 47.0 +48.9 70.6	19 16.2 +49.1 69.8	18 45.6 +49.2 69.1	18 15.2 +49.3 68.3	17 44.9 +49.5 67.5
28°	20 35.9 +48.8 70.0	20 05.3 +48.9 69.2	19 34.8 +49.1 68.5	19 04.5 +49.2 67.7	18 34.4 +49.3 66.9
29°	21 24.7 +48.7 69.4	20 54.2 +48.9 68.6	20 23.9 +48.9 67.8	19 53.7 +49.1 67.1	19 23.7 +49.2 66.3

Dec	LHA 100° / 260°	LHA 101° / 259°	LHA 102° / 258°	LHA 103° / 257°	LHA 104° / 256°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-5 25.6 +50.5	-5 57.9 +50.6	-6 30.1 +50.6	-7 02.2 +50.7	-7 34.3 +50.8
1°	-4 35.1 +50.6	-5 07.3 +50.6	-5 39.5 +50.7	-6 11.5 +50.7	-6 43.5 +50.8
2°	-3 44.5 +50.6	-4 16.7 +50.7	-4 48.8 +50.8	-5 20.8 +50.8	-5 52.7 +50.9
3°	-2 53.9 +50.7	-3 26.0 +50.7	-3 58.0 +50.7	-4 30.0 +50.8	-5 01.8 +50.8
4°	-2 03.2 +50.6	-2 35.3 +50.7	-3 07.3 +50.7	-3 39.2 +50.8	-4 11.0 +50.9
5°	-1 12.6 +50.6	-1 44.6 +50.7	-2 16.6 +50.8	-2 48.4 +50.9	-3 20.1 +50.9
6°	-0 22.0 +50.7	-0 53.9 +50.7	-1 25.8 +50.8	-1 57.5 +50.8	-2 29.2 +51.0
7°	0 28.7 +50.6 77.8	-0 03.2 +50.7	-0 35.0 +50.8	-1 06.7 +50.9	-1 38.2 +50.9
8°	1 19.3 +50.6 77.3	0 47.5 +50.7 76.5	0 15.8 +50.7 75.6	-0 15.8 +50.8	-0 47.3 +50.9
9°	2 09.9 +50.6 76.7	1 38.2 +50.7 75.9	1 06.5 +50.8 75.1	0 35.0 +50.9 74.2	0 03.6 +51.0 73.4
10°	3 00.5 +50.6 76.2	2 28.9 +50.6 75.4	1 57.3 +50.8 74.5	1 25.9 +50.8 73.7	0 54.6 +50.9 72.9
11°	3 51.1 +50.6 75.7	3 19.5 +50.7 74.8	2 48.1 +50.7 74.0	2 16.7 +50.9 73.2	1 45.5 +50.9 72.3
12°	4 41.7 +50.6 75.1	4 10.2 +50.6 74.3	3 38.8 +50.7 73.5	3 07.6 +50.8 72.6	2 36.4 +50.9 71.8
13°	5 32.3 +50.5 74.6	5 00.8 +50.7 73.8	4 29.5 +50.7 72.9	3 58.4 +50.8 72.1	3 27.3 +50.9 71.3
14°	6 22.8 +50.5 74.1	5 51.5 +50.5 73.2	5 20.2 +50.7 72.4	4 49.2 +50.7 71.6	4 18.2 +50.9 70.8
15°	7 13.3 +50.5 73.5	6 42.0 +50.6 72.7	6 10.9 +50.7 71.9	5 39.9 +50.8 71.0	5 09.1 +50.8 70.2
16°	8 03.8 +50.4 73.0	7 32.6 +50.5 72.1	7 01.6 +50.6 71.3	6 30.7 +50.7 70.5	5 59.9 +50.9 69.7
17°	8 54.2 +50.3 72.4	8 23.1 +50.5 71.6	7 52.2 +50.5 70.8	7 21.4 +50.6 70.0	6 50.8 +50.7 69.2
18°	9 44.5 +50.3 71.9	9 13.6 +50.4 71.1	8 42.7 +50.5 70.2	8 12.0 +50.7 69.4	7 41.5 +50.8 68.6
19°	10 34.8 +50.3 71.3	10 04.0 +50.3 70.5	9 33.2 +50.5 69.7	9 02.7 +50.5 68.9	8 32.3 +50.7 68.1
20°	11 25.1 +50.2 70.8	10 54.3 +50.3 69.9	10 23.7 +50.4 69.1	9 53.2 +50.6 68.3	9 23.0 +50.6 67.5
21°	12 15.3 +50.1 70.2	11 44.6 +50.2 69.4	11 14.1 +50.4 68.6	10 43.8 +50.4 67.8	10 13.6 +50.6 67.0
22°	13 05.4 +50.0 69.6	12 34.8 +50.2 68.8	12 04.5 +50.2 68.0	11 34.2 +50.4 67.2	11 04.2 +50.5 66.4
23°	13 55.4 +50.0 69.1	13 25.0 +50.1 68.3	12 54.7 +50.2 67.5	12 24.6 +50.4 66.7	11 54.7 +50.5 65.9
24°	14 45.4 +49.9 68.5	14 15.1 +50.0 67.7	13 44.9 +50.2 66.9	13 15.0 +50.2 66.1	12 45.2 +50.4 65.3
25°	15 35.3 +49.8 67.9	15 05.1 +49.9 67.1	14 35.1 +50.0 66.4	14 05.2 +50.2 65.6	13 35.6 +50.3 64.8
26°	16 25.1 +49.7 67.3	15 55.0 +49.8 66.6	15 25.1 +50.0 65.8	14 55.4 +50.1 65.0	14 25.9 +50.2 64.2
27°	17 14.8 +49.6 66.7	16 44.8 +49.8 66.0	16 15.1 +49.9 65.2	15 45.5 +50.0 64.4	15 16.1 +50.2 63.7
28°	18 04.4 +49.5 66.2	17 34.6 +49.6 65.4	17 05.0 +49.7 64.6	16 35.5 +49.9 63.9	16 06.3 +50.0 63.1
29°	18 53.9 +49.3 65.6	18 24.2 +49.5 64.8	17 54.7 +49.7 64.0	17 25.4 +49.8 63.3	16 56.3 +50.0 62.5

Dec	LHA 105° / 255°	LHA 106° / 254°	LHA 107° / 253°	LHA 108° / 252°	LHA 109° / 251°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-8 06.2 +50.8	-8 38.0 +50.9	-9 09.8 +51.0	-9 41.3 +51.0	-9 21.7 +51.2
1°	-7 15.4 +50.9	-7 47.1 +50.9	-8 18.8 +51.1	-8 50.3 +51.1	-8 30.5 +51.3
2°	-6 24.5 +50.9	-6 56.2 +51.0	-7 27.7 +51.0	-7 59.2 +51.2	-7 39.2 +51.3
3°	-5 33.6 +51.0	-6 05.2 +51.1	-6 36.7 +51.2	-7 08.0 +51.2	-6 47.9 +51.3
4°	-4 42.6 +51.0	-5 14.1 +51.0	-5 45.5 +51.1	-6 16.8 +51.2	-5 56.6 +51.3
5°	-3 51.6 +50.9	-4 23.1 +51.1	-4 54.4 +51.1	-5 25.6 +51.3	-5 05.3 +51.4
6°	-3 00.7 +51.1	-3 32.0 +51.1	-4 03.3 +51.2	-4 34.3 +51.2	-4 13.9 +51.4
7°	-2 09.6 +51.0	-2 40.9 +51.1	-3 12.1 +51.2	-3 43.1 +51.3	-3 22.5 +51.4
8°	-1 18.6 +51.0	-1 49.8 +51.1	-2 20.9 +51.2	-2 51.8 +51.3	-2 31.1 +51.4
9°	-0 27.6 +51.0	-0 58.7 +51.1	-1 29.7 +51.3	-2 00.5 +51.4	-1 39.7 +51.5
10°	0 23.4 +51.0 72.0	-0 07.6 +51.1	-0 38.4 +51.2	-1 09.1 +51.3	-0 48.2 +51.4
11°	1 14.4 +51.1 71.5	0 43.5 +51.1 70.7	0 12.8 +51.2 69.8	-0 17.8 +51.3	0 03.2 +51.4 67.6
12°	2 05.5 +51.0 71.0	1 34.6 +51.2 70.2	1 04.0 +51.2 69.3	0 33.5 +51.3 68.5	0 54.6 +51.4 67.1
13°	2 56.5 +51.0 70.5	2 25.8 +51.0 69.6	1 55.2 +51.2 68.8	1 24.8 +51.3 68.0	1 46.0 +51.5 66.6
14°	3 47.5 +50.9 69.9	3 16.8 +51.1 69.1	2 46.4 +51.2 68.3	2 16.1 +51.3 67.4	
15°	4 38.4 +51.0 69.4	4 07.9 +51.1 68.6	3 37.6 +51.2 67.8	3 07.4 +51.3 66.9	2 37.5 +51.4 66.1
16°	5 29.4 +50.9 68.9	4 59.0 +51.0 68.1	4 28.8 +51.1 67.2	3 58.7 +51.3 66.4	3 28.9 +51.4 65.6
17°	6 20.3 +50.9 68.3	5 50.0 +51.0 67.5	5 19.9 +51.1 66.7	4 50.0 +51.2 65.9	4 20.3 +51.3 65.1
18°	7 11.2 +50.8 67.8	6 41.0 +51.0 67.0	6 11.0 +51.1 66.2	5 41.2 +51.2 65.4	5 11.6 +51.4 64.5
19°	8 02.0 +50.9 67.3	7 32.0 +50.9 66.5	7 02.1 +51.1 65.7	6 32.4 +51.2 64.8	6 03.0 +51.3 64.0
20°	8 52.9 +50.7 66.7	8 22.9 +50.9 65.9	7 53.2 +51.0 65.1	7 23.6 +51.2 64.3	6 54.3 +51.3 63.5
21°	9 43.6 +50.7 66.2	9 13.8 +50.8 65.4	8 44.2 +51.0 64.6	8 14.8 +51.1 63.8	7 45.6 +51.2 63.0
22°	10 34.3 +50.7 65.7	10 04.6 +50.8 64.9	9 35.2 +50.9 64.1	9 05.9 +51.0 63.3	8 36.8 +51.2 62.5
23°	11 25.0 +50.6 65.1	10 55.4 +50.8 64.3	10 26.1 +50.9 63.5	9 56.9 +51.0 62.7	9 28.0 +51.1 61.9
24°	12 15.6 +50.5 64.6	11 46.2 +50.6 63.8	11 17.0 +50.8 63.0	10 47.9 +51.0 62.2	10 19.1 +51.1 61.4
25°	13 06.1 +50.5 64.0	12 36.8 +50.6 63.2	12 07.8 +50.7 62.4	11 38.9 +50.9 61.7	11 10.2 +51.1 60.9
26°	13 56.6 +50.3 63.4	13 27.4 +50.6 62.7	12 58.5 +50.7 61.9	12 29.8 +50.8 61.1	12 01.3 +51.0 60.3
27°	14 46.9 +50.3 62.9	14 18.0 +50.4 62.1	13 49.2 +50.6 61.3	13 20.6 +50.8 60.6	12 52.3 +50.9 59.8
28°	15 37.2 +50.3 62.3	15 08.4 +50.4 61.6	14 39.8 +50.5 60.8	14 11.4 +50.6 60.0	13 43.2 +50.8 59.2
29°	16 27.5 +50.1 61.8	15 58.8 +50.3 61.0	15 30.3 +50.4 60.2	15 02.0 +50.6 59.5	14 34.0 +50.8 58.7

Dec	LHA 110° / 250°	LHA 111° / 249°	LHA 112° / 248°	LHA 113° / 247°	LHA 114° / 246°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°	-9 52.9 +51.3				
2°	-9 01.6 +51.3	-9 32.6 +51.4			
3°	-8 10.3 +51.4	-8 41.2 +51.5	-9 11.9 +51.6	-9 42.5 +51.7	
4°	-7 18.9 +51.4	-7 49.7 +51.5	-8 20.3 +51.6	-8 50.8 +51.7	-9 21.1 +51.9
5°	-6 27.5 +51.5	-6 58.2 +51.6	-7 28.7 +51.6	-7 59.1 +51.8	-8 29.2 +51.8
6°	-5 36.0 +51.4	-6 06.6 +51.5	-6 37.1 +51.7	-7 07.3 +51.8	-7 37.4 +52.0
7°	-4 44.6 +51.5	-5 15.1 +51.6	-5 45.4 +51.7	-6 15.5 +51.8	-6 45.4 +51.9
8°	-3 53.1 +51.5	-4 23.5 +51.7	-4 53.7 +51.8	-5 23.7 +51.9	-5 53.5 +52.0
9°	-3 01.6 +51.6	-3 31.8 +51.6	-4 01.9 +51.7	-4 31.8 +51.8	-5 01.5 +52.0
10°	-2 10.0 +51.5	-2 40.2 +51.7	-3 10.2 +51.8	-3 40.0 +51.9	-4 09.5 +52.0
11°	-1 18.5 +51.6	-1 48.5 +51.6	-2 18.4 +51.8	-2 48.1 +51.9	-3 17.5 +52.0
12°	-0 26.9 +51.5	-0 56.9 +51.7	-1 26.6 +51.8	-1 56.2 +51.9	-2 25.5 +52.0
13°	0 24.6 +51.5 66.3	-0 05.2 +51.6	-0 34.8 +51.7	-1 04.3 +51.9	-1 33.5 +52.1
14°	1 16.1 +51.6 65.8	0 46.4 +51.7 64.9	0 16.9 +51.8 64.1	-0 12.4 +52.0	-0 41.4 +52.0
15°	2 07.7 +51.5 65.3	1 38.1 +51.7 64.4	1 08.7 +51.8 63.6	0 39.6 +51.9 62.8	0 10.6 +52.1 61.9
16°	2 59.2 +51.5 64.8	2 29.8 +51.6 63.9	2 00.5 +51.8 63.1	1 31.5 +51.9 62.3	1 02.7 +52.0 61.4
17°	3 50.7 +51.5 64.2	3 21.4 +51.6 63.4	2 52.3 +51.7 62.6	2 23.4 +51.9 61.8	1 54.7 +52.0 60.9
18°	4 42.2 +51.5 63.7	4 13.0 +51.6 62.9	3 44.0 +51.8 62.1	3 15.3 +51.8 61.3	2 46.7 +52.0 60.4
19°	5 33.7 +51.4 63.2	5 04.6 +51.6 62.4	4 35.8 +51.7 61.6	4 07.1 +51.9 60.8	3 38.7 +52.1 59.9
20°	6 25.1 +51.5 62.7	5 56.2 +51.6 61.9	5 27.5 +51.7 61.1	4 59.0 +51.8 60.3	4 30.8 +51.9 59.4
21°	7 16.6 +51.3 62.2	6 47.8 +51.5 61.4	6 19.2 +51.7 60.6	5 50.8 +51.9 59.8	5 22.7 +52.0 58.9
22°	8 07.9 +51.4 61.7	7 39.3 +51.5 60.9	7 10.9 +51.6 60.1	6 42.7 +51.7 59.2	6 14.7 +51.9 58.4
23°	8 59.3 +51.3 61.1	8 30.8 +51.4 60.3	8 02.5 +51.6 59.5	7 34.4 +51.8 58.7	7 06.6 +51.9 57.9
24°	9 50.6 +51.2 60.6	9 22.2 +51.4 59.8	8 54.1 +51.5 59.0	8 26.2 +51.7 58.2	7 58.5 +51.9 57.4
25°	10 41.8 +51.2 60.1	10 13.6 +51.3 59.3	9 45.6 +51.5 58.5	9 17.9 +51.6 57.7	8 50.4 +51.8 56.9
26°	11 33.0 +51.1 59.5	11 04.9 +51.3 58.8	10 37.1 +51.5 58.0	10 09.5 +51.6 57.2	9 42.2 +51.8 56.4
27°	12 24.1 +51.1 59.0	11 56.2 +51.3 58.2	11 28.6 +51.4 57.5	11 01.1 +51.6 56.7	10 34.0 +51.7 55.9
28°	13 15.2 +51.0 58.5	12 47.5 +51.1 57.7	12 20.0 +51.3 56.9	11 52.7 +51.5 56.2	11 25.7 +51.7 55.4
29°	14 06.2 +50.9 57.9	13 38.6 +51.1 57.2	13 11.3 +51.3 56.4	12 44.2 +51.4 55.6	12 17.4 +51.6 54.9

Dec	LHA 115° / 245°	LHA 116° / 244°	LHA 117° / 243°	LHA 118° / 242°	LHA 119° / 241°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°	-9 51.1 +51.9				
5°	-8 59.2 +52.0	-9 29.0 +52.1	-9 58.5 +52.2		
6°	-8 07.2 +52.0	-8 36.9 +52.2	-9 06.3 +52.3	-9 35.5 +52.4	
7°	-7 15.2 +52.1	-7 44.7 +52.2	-8 14.0 +52.3	-8 43.1 +52.4	-9 12.0 +52.6
8°	-6 23.1 +52.1	-6 52.5 +52.2	-7 21.7 +52.3	-7 50.7 +52.5	-8 19.4 +52.6
9°	-5 31.0 +52.1	-6 00.3 +52.2	-6 29.4 +52.4	-6 58.2 +52.5	-7 26.8 +52.7
10°	-4 38.9 +52.1	-5 08.1 +52.3	-5 37.0 +52.4	-6 05.7 +52.5	-6 34.1 +52.6
11°	-3 46.8 +52.2	-4 15.8 +52.3	-4 44.6 +52.4	-5 13.2 +52.6	-5 41.5 +52.7
12°	-2 54.6 +52.1	-3 23.5 +52.3	-3 52.2 +52.4	-4 20.6 +52.6	-4 48.8 +52.7
13°	-2 02.5 +52.2	-2 31.2 +52.3	-2 59.8 +52.5	-3 28.0 +52.5	-3 56.1 +52.7
14°	-1 10.3 +52.2	-1 38.9 +52.3	-2 07.3 +52.4	-2 35.5 +52.6	-3 03.4 +52.8
15°	-0 18.1 +52.2	-0 46.6 +52.3	-1 14.9 +52.5	-1 42.9 +52.6	-2 10.6 +52.7
16°	0 34.1 +52.2 60.6	0 05.7 +52.3 59.8	-0 22.4 +52.5	-0 50.3 +52.6	-1 17.9 +52.8
17°	1 26.3 +52.1 60.1	0 58.0 +52.4 59.3	0 30.1 +52.4 58.4	0 02.3 +52.7 57.6	-0 25.1 +52.7
18°	2 18.4 +52.2 59.6	1 50.4 +52.3 58.8	1 22.5 +52.5 58.0	0 55.0 +52.6 57.1	0 27.6 +52.8 56.3
19°	3 10.6 +52.1 59.1	2 42.7 +52.3 58.3	2 15.0 +52.4 57.5	1 47.6 +52.6 56.6	1 20.4 +52.7 55.8
20°	4 02.7 +52.2 58.6	3 35.0 +52.2 57.8	3 07.4 +52.5 57.0	2 40.2 +52.5 56.2	2 13.1 +52.8 55.3
21°	4 54.9 +52.1 58.1	4 27.2 +52.3 57.3	3 59.9 +52.4 56.5	3 32.7 +52.6 55.7	3 05.9 +52.7 54.9
22°	5 47.0 +52.0 57.6	5 19.5 +52.2 56.8	4 52.3 +52.4 56.0	4 25.3 +52.6 55.2	3 58.6 +52.7 54.4
23°	6 39.0 +52.1 57.1	6 11.7 +52.2 56.3	5 44.7 +52.3 55.5	5 17.9 +52.5 54.7	4 51.3 +52.7 53.9
24°	7 31.1 +52.0 56.6	7 03.9 +52.2 55.8	6 37.0 +52.4 55.0	6 10.4 +52.5 54.2	5 44.0 +52.7 53.4
25°	8 23.1 +52.0 56.1	7 56.1 +52.2 55.3	7 29.4 +52.3 54.5	7 02.9 +52.5 53.7	6 36.7 +52.6 52.9
26°	9 15.1 +51.9 55.6	8 48.3 +52.1 54.8	8 21.7 +52.2 54.0	7 55.4 +52.4 53.2	7 29.3 +52.6 52.5
27°	10 07.0 +51.9 55.1	9 40.4 +52.0 54.3	9 13.9 +52.3 53.5	8 47.8 +52.4 52.8	8 21.9 +52.6 52.0
28°	10 58.9 +51.9 54.6	10 32.4 +52.0 53.8	10 06.2 +52.1 53.0	9 40.2 +52.3 52.3	9 14.5 +52.5 51.5
29°	11 50.8 +51.7 54.1	11 24.4 +52.0 53.3	10 58.3 +52.2 52.5	10 32.5 +52.3 51.8	10 07.0 +52.5 51.0

Dec	LHA 120° / 240°	LHA 121° / 239°	LHA 122° / 238°	LHA 123° / 237°	LHA 124° / 236°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°	-9 40.6 +52.7				
9°	-8 47.9 +52.8	-9 16.1 +52.9	-9 44.1 +53.0		
10°	-7 55.1 +52.7	-8 23.2 +52.9	-8 51.1 +53.1	-9 18.6 +53.2	-9 45.9 +53.3
11°					
12°	-7 02.4 +52.9	-7 30.3 +52.9	-7 58.0 +53.1	-8 25.4 +53.2	-8 52.6 +53.4
13°	-6 09.5 +52.8	-6 37.4 +53.0	-7 04.9 +53.1	-7 32.2 +53.3	-7 59.2 +53.4
14°	-5 16.7 +52.8	-5 44.4 +53.0	-6 11.8 +53.2	-6 38.9 +53.3	-7 05.8 +53.5
15°	-4 23.9 +52.9	-4 51.4 +53.0	-5 18.6 +53.1	-5 45.6 +53.3	-6 12.3 +53.4
16°	-3 31.0 +52.9	-3 58.4 +53.1	-4 25.5 +53.2	-4 52.3 +53.3	-5 18.9 +53.5
17°					
18°	-2 38.1 +52.9	-3 05.3 +53.0	-3 32.3 +53.2	-3 59.0 +53.4	-4 25.4 +53.5
19°	-1 45.2 +52.9	-2 12.3 +53.1	-2 39.1 +53.2	-3 05.6 +53.3	-3 31.9 +53.5
20°	-0 52.3 +52.9	-1 19.2 +53.0	-1 45.9 +53.2	-2 12.3 +53.4	-2 38.4 +53.6
21°	0 00.6 +52.9 55.5	-0 26.2 +53.1	-0 52.7 +53.2	-1 18.9 +53.4	-1 44.8 +53.5
22°	0 53.5 +52.9 55.0	0 26.9 +53.0 54.1	0 00.5 +53.2 53.3	-0 25.5 +53.3	-0 51.3 +53.5
23°					
24°	1 46.4 +52.9 54.5	1 19.9 +53.1 53.7	0 53.7 +53.3 52.8	0 27.8 +53.4 52.0	0 02.2 +53.6 51.2
25°	2 39.3 +52.9 54.0	2 13.0 +53.0 53.2	1 47.0 +53.2 52.4	1 21.2 +53.4 51.6	0 55.8 +53.5 50.7
26°	3 32.2 +52.8 53.6	3 06.0 +53.1 52.7	2 40.2 +53.2 51.9	2 14.6 +53.3 51.1	1 49.3 +53.5 50.3
27°	4 25.0 +52.9 53.1	3 59.1 +53.0 52.3	3 33.4 +53.1 51.5	3 07.9 +53.4 50.6	2 42.8 +53.5 49.8
28°	5 17.9 +52.8 52.6	4 52.1 +53.0 51.8	4 26.5 +53.2 51.0	4 01.3 +53.3 50.2	3 36.3 +53.5 49.4
29°					
30°	6 10.7 +52.8 52.1	5 45.1 +52.9 51.3	5 19.7 +53.1 50.5	4 54.6 +53.3 49.7	4 29.8 +53.5 48.9
31°	7 03.5 +52.8 51.7	6 38.0 +53.0 50.9	6 12.8 +53.2 50.1	5 47.9 +53.3 49.3	5 23.3 +53.5 48.5
32°	7 56.3 +52.8 51.2	7 31.0 +52.9 50.4	7 06.0 +53.1 49.6	6 41.2 +53.3 48.8	6 16.8 +53.4 48.0
33°	8 49.1 +52.7 50.7	8 23.9 +52.9 49.9	7 59.1 +53.0 49.1	7 34.5 +53.2 48.3	7 10.2 +53.4 47.5
34°	9 41.8 +52.6 50.2	9 16.8 +52.8 49.4	8 52.1 +53.0 48.7	8 27.7 +53.2 47.9	8 03.6 +53.4 47.1

Dec	LHA 125° / 235°	LHA 126° / 234°	LHA 127° / 233°	LHA 128° / 232°	LHA 129° / 231°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°	-9 19.4 +53.5	-9 46.0 +53.7			
12°	-8 25.9 +53.6	-8 52.3 +53.7	-9 18.4 +53.9	-9 44.2 +54.0	
13°	-7 32.3 +53.6	-7 58.6 +53.8	-8 24.5 +53.9	-8 50.2 +54.1	-9 15.5 +54.2
14°	-6 38.7 +53.6	-7 04.8 +53.7	-7 30.6 +53.9	-7 56.1 +54.1	-8 21.3 +54.2
15°	-5 45.1 +53.6	-6 11.1 +53.8	-6 36.7 +53.9	-7 02.0 +54.1	-7 27.1 +54.3
16°					
17°	-4 51.5 +53.7	-5 17.3 +53.8	-5 42.8 +54.0	-6 07.9 +54.1	-6 32.8 +54.3
18°	-3 57.8 +53.7	-4 23.5 +53.9	-4 48.8 +54.0	-5 13.8 +54.1	-5 38.5 +54.3
19°	-3 04.1 +53.6	-3 29.6 +53.8	-3 54.8 +54.0	-4 19.7 +54.2	-4 44.2 +54.3
20°	-2 10.5 +53.7	-2 35.8 +53.9	-3 00.8 +54.0	-3 25.5 +54.2	-3 49.9 +54.4
21°	-1 16.8 +53.7	-1 41.9 +53.8	-2 06.8 +54.0	-2 31.3 +54.2	-2 55.5 +54.3
22°					
23°	-0 23.1 +53.7	-0 48.1 +53.9	-1 12.8 +54.1	-1 37.1 +54.2	-2 01.2 +54.4
24°	0 30.6 +53.7 49.9	0 05.8 +53.9 49.1	-0 18.7 +54.0	-0 42.9 +54.2	-1 06.8 +54.3
25°	1 24.3 +53.7 49.4	0 59.7 +53.8 48.6	0 35.3 +54.0 47.8	0 11.3 +54.1 46.9	-0 12.5 +54.4
26°	2 18.0 +53.7 49.0	1 53.5 +53.9 48.2	1 29.3 +54.0 47.3	1 05.4 +54.2 46.5	0 41.9 +54.4 45.7
27°	3 11.7 +53.7 48.5	2 47.4 +53.8 47.7	2 23.3 +54.0 46.9	1 59.6 +54.2 46.1	1 36.3 +54.3 45.3
28°					
29°	4 05.4 +53.6 48.1	3 41.2 +53.8 47.3	3 17.3 +54.0 46.5	2 53.8 +54.2 45.7	2 30.6 +54.4 44.8
30°	4 59.0 +53.7 47.6	4 35.0 +53.8 46.8	4 11.3 +54.0 46.0	3 48.0 +54.2 45.2	3 25.0 +54.3 44.4
31°	5 52.7 +53.6 47.2	5 28.8 +53.8 46.4	5 05.3 +54.0 45.6	4 42.2 +54.1 44.8	4 19.3 +54.3 44.0
32°	6 46.3 +53.6 46.7	6 22.6 +53.8 46.0	5 59.3 +53.9 45.2	5 36.3 +54.1 44.4	5 13.6 +54.3 43.6
33°	7 39.9 +53.5 46.3	7 16.4 +53.7 45.5	6 53.2 +54.0 44.7	6 30.4 +54.1 43.9	6 07.9 +54.3 43.1

Dec	LHA 130° / 230°	LHA 131° / 229°	LHA 132° / 228°	LHA 133° / 227°	LHA 134° / 226°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°	-9 40.5 +54.3				
13°	-8 46.2 +54.5	-9 10.7 +54.6	-9 34.8 +54.7	-9 58.7 +54.9	
14°	-7 51.7 +54.4	-8 16.1 +54.6	-8 40.1 +54.7	-9 03.8 +54.9	-9 27.1 +55.1
15°	-6 57.3 +54.4	-7 21.5 +54.6	-7 45.4 +54.8	-8 08.9 +55.0	-8 32.0 +55.1
16°	-6 02.9 +54.5	-6 26.9 +54.6	-6 50.6 +54.8	-7 13.9 +54.9	-7 36.9 +55.1
17°	-5 08.4 +54.5	-5 32.3 +54.7	-5 55.8 +54.8	-6 19.0 +55.0	-6 41.8 +55.2
18°	-4 13.9 +54.5	-4 37.6 +54.7	-5 01.0 +54.9	-5 24.0 +55.0	-5 46.6 +55.1
19°	-3 19.4 +54.5	-3 42.9 +54.6	-4 06.1 +54.8	-4 29.0 +55.0	-4 51.5 +55.2
20°	-2 24.9 +54.5	-2 48.3 +54.7	-3 11.3 +54.9	-3 34.0 +55.1	-3 56.3 +55.2
21°	-1 30.4 +54.6	-1 53.6 +54.7	-2 16.4 +54.8	-2 38.9 +55.0	-3 01.1 +55.2
22°	-0 35.8 +54.5	-0 58.9 +54.7	-1 21.6 +54.9	-1 43.9 +55.0	-2 05.9 +55.2
23°	0 18.7 +54.5 44.8	-0 04.2 +54.7	-0 26.7 +54.9	-0 48.9 +55.0	-1 10.7 +55.2
24°	1 13.2 +54.5 44.4	0 50.5 +54.7 43.6	0 28.2 +54.8 42.8	0 06.1 +55.1 41.9	-0 15.5 +55.2
25°	2 07.7 +54.6 44.0	1 45.2 +54.7 43.2	1 23.0 +54.9 42.4	1 01.2 +55.0 41.5	0 39.7 +55.2 40.7
26°	3 02.3 +54.5 43.6	2 39.9 +54.7 42.8	2 17.9 +54.8 41.9	1 56.2 +55.0 41.1	1 34.9 +55.2 40.3
27°	3 56.8 +54.5 43.2	3 34.6 +54.6 42.4	3 12.7 +54.9 41.5	2 51.2 +55.1 40.7	2 30.1 +55.2 39.9
28°	4 51.3 +54.4 42.8	4 29.2 +54.7 41.9	4 07.6 +54.8 41.1	3 46.3 +55.0 40.3	3 25.3 +55.2 39.5
29°	5 45.7 +54.5 42.3	5 23.9 +54.6 41.5	5 02.4 +54.8 40.7	4 41.3 +55.0 39.9	4 20.5 +55.1 39.1

Dec	LHA 135° / 225°	LHA 136° / 224°	LHA 137° / 223°	LHA 138° / 222°	LHA 139° / 221°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°	-9 50.0 +55.2				
15°	-8 54.8 +55.3	-9 17.2 +55.5	-9 39.2 +55.6		
16°	-7 59.5 +55.3	-8 21.7 +55.4	-8 43.6 +55.6	-9 05.1 +55.8	-9 26.2 +56.0
17°	-7 04.2 +55.3	-7 26.3 +55.5	-7 48.0 +55.6	-8 09.3 +55.8	-8 30.2 +55.9
18°	-6 08.9 +55.3	-6 30.8 +55.5	-6 52.4 +55.7	-7 13.5 +55.8	-7 34.3 +56.0
19°	-5 13.6 +55.4	-5 35.3 +55.5	-5 56.7 +55.7	-6 17.7 +55.8	-6 38.3 +56.0
20°	-4 18.2 +55.3	-4 39.8 +55.5	-5 01.0 +55.6	-5 21.9 +55.9	-5 42.3 +56.0
21°	-3 22.9 +55.4	-3 44.3 +55.5	-4 05.4 +55.7	-4 26.0 +55.8	-4 46.3 +56.0
22°	-2 27.5 +55.3	-2 48.8 +55.5	-3 09.7 +55.7	-3 30.2 +55.9	-3 50.3 +56.0
23°	-1 32.2 +55.4	-1 53.3 +55.6	-2 14.0 +55.7	-2 34.3 +55.8	-2 54.3 +56.1
24°	-0 36.8 +55.4	-0 57.7 +55.5	-1 18.3 +55.7	-1 38.5 +55.9	-1 58.2 +56.0
25°	0 18.6 +55.3 39.9	-0 02.2 +55.6	-0 22.6 +55.7	-0 42.6 +55.9	-1 02.2 +56.0
26°	1 13.9 +55.4 39.5	0 53.4 +55.5 38.6	0 33.1 +55.7 37.8	0 13.3 +55.9 37.0	-0 06.2 +56.1
27°	2 09.3 +55.4 39.1	1 48.9 +55.5 38.3	1 28.8 +55.7 37.4	1 09.2 +55.8 36.6	0 49.9 +56.0 35.8
28°	3 04.7 +55.3 38.7	2 44.4 +55.5 37.9	2 24.5 +55.7 37.1	2 05.0 +55.9 36.2	1 45.9 +56.0 35.4
29°	4 00.0 +55.4 38.3	3 39.9 +55.6 37.5	3 20.2 +55.7 36.7	3 00.9 +55.9 35.9	2 41.9 +56.1 35.1

Dec	LHA 140° / 220°	LHA 141° / 219°	LHA 142° / 218°	LHA 143° / 217°	LHA 144° / 216°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°	-9 46.9 +56.1				
17°	-8 50.8 +56.1	-9 10.9 +56.3	-9 30.6 +56.4	-9 49.9 +56.6	
18°	-7 54.7 +56.2	-8 14.6 +56.3	-8 34.2 +56.5	-8 53.3 +56.6	-9 12.0 +56.7
19°	-6 58.5 +56.1	-7 18.3 +56.3	-7 37.7 +56.4	-7 56.7 +56.6	-8 15.3 +56.8
20°	-6 02.4 +56.2	-6 22.0 +56.3	-6 41.3 +56.5	-7 00.1 +56.7	-7 18.5 +56.8
21°	-5 06.2 +56.2	-5 25.7 +56.3	-5 44.8 +56.5	-6 03.4 +56.6	-6 21.7 +56.8
22°	-4 10.0 +56.2	-4 29.4 +56.4	-4 48.3 +56.5	-5 06.8 +56.7	-5 24.9 +56.8
23°	-3 13.8 +56.2	-3 33.0 +56.3	-3 51.8 +56.5	-4 10.1 +56.6	-4 28.1 +56.9
24°	-2 17.6 +56.2	-2 36.7 +56.4	-2 55.3 +56.6	-3 13.5 +56.7	-3 31.2 +56.8
25°	-1 21.4 +56.2	-1 40.3 +56.4	-1 58.7 +56.5	-2 16.8 +56.7	-2 34.4 +56.8
26°	-0 25.2 +56.2	-0 43.9 +56.3	-1 02.2 +56.5	-1 20.1 +56.7	-1 37.6 +56.9
27°	0 31.0 +56.2 34.9	0 12.4 +56.4 34.1	-0 05.7 +56.5	-0 23.4 +56.7	-0 40.7 +56.8
28°	1 27.2 +56.2 34.6	1 08.8 +56.4 33.8	0 50.8 +56.6 32.9	0 33.3 +56.7 32.1	0 16.1 +56.8 31.3
29°	2 23.4 +56.2 34.2	2 05.2 +56.3 33.4	1 47.4 +56.5 32.6	1 30.0 +56.6 31.8	1 12.9 +56.9 30.9

Dec	LHA 145° / 215°	LHA 146° / 214°	LHA 147° / 213°	LHA 148° / 212°	LHA 149° / 211°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°	-9 30.3 +56.9	-9 48.2 +57.1			
19°	-8 33.4 +56.9	-8 51.1 +57.1	-9 08.4 +57.3	-9 25.2 +57.4	-9 41.6 +57.6
20°	-7 36.5 +57.0	-7 54.0 +57.1	-8 11.1 +57.2	-8 27.8 +57.4	-8 44.0 +57.5
21°	-6 39.5 +56.9	-6 56.9 +57.1	-7 13.9 +57.3	-7 30.4 +57.4	-7 46.5 +57.5
22°	-5 42.6 +57.0	-5 59.8 +57.1	-6 16.6 +57.2	-6 33.0 +57.4	-6 49.0 +57.6
23°	-4 45.6 +57.0	-5 02.7 +57.1	-5 19.4 +57.3	-5 35.6 +57.4	-5 51.4 +57.6
24°	-3 48.6 +57.0	-4 05.6 +57.2	-4 22.1 +57.3	-4 38.2 +57.5	-4 53.8 +57.5
25°	-2 51.6 +57.0	-3 08.4 +57.1	-3 24.8 +57.3	-3 40.7 +57.4	-3 56.3 +57.6
26°	-1 54.6 +57.0	-2 11.3 +57.2	-2 27.5 +57.3	-2 43.3 +57.4	-2 58.7 +57.6
27°	-0 57.6 +57.0	-1 14.1 +57.1	-1 30.2 +57.3	-1 45.9 +57.5	-2 01.1 +57.6
28°	-0 00.6 +57.0	-0 17.0 +57.2	-0 32.9 +57.3	-0 48.4 +57.4	-1 03.5 +57.6
29°	0 56.4 +56.9 30.1	0 40.2 +57.1 29.3	0 24.4 +57.3 28.4	0 09.0 +57.5 27.6	-0 05.9 +57.6



Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	32 00.0 +60.0 180.0	31 59.7 +60.0 178.8	31 58.7 +60.0 177.6	31 57.1 +59.9 176.5	31 54.8 +59.9 175.3
1°	33 00.0 +60.0 180.0	32 59.7 +60.0 178.8	32 58.7 +60.0 177.6	32 57.0 +60.0 176.4	32 54.7 +60.0 175.2
2°	34 00.0 +60.0 180.0	33 59.7 +60.0 178.8	33 58.7 +59.9 177.6	33 57.0 +60.0 176.4	33 54.7 +59.9 175.2
3°	35 00.0 +60.0 180.0	34 59.7 +60.0 178.8	34 58.6 +60.0 177.6	34 57.0 +59.9 176.3	34 54.6 +59.9 175.1
4°	36 00.0 +60.0 180.0	35 59.7 +60.0 178.8	35 58.6 +60.0 177.5	35 56.9 +60.0 176.3	35 54.5 +60.0 175.1
5°	37 00.0 +60.0 180.0	36 59.7 +59.9 178.8	36 58.6 +60.0 177.5	36 56.9 +60.0 176.3	36 54.5 +59.9 175.0
6°	38 00.0 +60.0 180.0	37 59.6 +60.0 178.7	37 58.6 +60.0 177.5	37 56.9 +59.9 176.2	37 54.4 +59.9 175.0
7°	39 00.0 +60.0 180.0	38 59.6 +60.0 178.7	38 58.6 +60.0 177.4	38 56.8 +60.0 176.2	38 54.3 +60.0 174.9
8°	40 00.0 +60.0 180.0	39 59.6 +60.0 178.7	39 58.6 +59.9 177.4	39 56.8 +59.9 176.1	39 54.3 +59.9 174.8
9°	41 00.0 +60.0 180.0	40 59.6 +60.0 178.7	40 58.5 +60.0 177.4	40 56.7 +60.0 176.1	40 54.2 +59.9 174.8
10°	42 00.0 +60.0 180.0	41 59.6 +60.0 178.7	41 58.5 +60.0 177.4	41 56.7 +60.0 176.0	41 54.1 +59.9 174.7
11°	43 00.0 +60.0 180.0	42 59.6 +60.0 178.7	42 58.5 +60.0 177.3	42 56.7 +59.9 176.0	42 54.0 +60.0 174.6
12°	44 00.0 +60.0 180.0	43 59.6 +60.0 178.6	43 58.5 +60.0 177.3	43 56.6 +60.0 175.9	43 54.0 +59.9 174.6
13°	45 00.0 +60.0 180.0	44 59.6 +60.0 178.6	44 58.5 +60.0 177.2	44 56.6 +59.9 175.9	44 53.9 +59.9 174.5
14°	46 00.0 +60.0 180.0	45 59.6 +60.0 178.6	45 58.5 +59.9 177.2	45 56.5 +60.0 175.8	45 53.8 +59.9 174.4
15°	47 00.0 +60.0 180.0	46 59.6 +60.0 178.6	46 58.4 +60.0 177.2	46 56.5 +59.9 175.8	46 53.7 +59.9 174.3
16°	48 00.0 +60.0 180.0	47 59.6 +60.0 178.6	47 58.4 +60.0 177.1	47 56.4 +60.0 175.7	47 53.6 +59.9 174.3
17°	49 00.0 +60.0 180.0	48 59.6 +60.0 178.5	48 58.4 +60.0 177.1	48 56.4 +59.9 175.6	48 53.5 +59.9 174.2
18°	50 00.0 +60.0 180.0	49 59.6 +60.0 178.5	49 58.4 +59.9 177.0	49 56.3 +60.0 175.6	49 53.4 +59.9 174.1
19°	51 00.0 +60.0 180.0	50 59.6 +60.0 178.5	50 58.3 +60.0 177.0	50 56.3 +59.9 175.5	50 53.3 +59.9 174.0
20°	52 00.0 +60.0 180.0	51 59.6 +60.0 178.5	51 58.3 +60.0 176.9	51 56.2 +59.9 175.4	51 53.2 +59.9 173.9
21°	53 00.0 +60.0 180.0	52 59.6 +60.0 178.4	52 58.3 +60.0 176.9	52 56.1 +60.0 175.4	52 53.1 +59.9 173.8
22°	54 00.0 +60.0 180.0	53 59.6 +60.0 178.4	53 58.3 +59.9 176.8	53 56.1 +59.9 175.3	53 53.0 +59.9 173.7
23°	55 00.0 +60.0 180.0	54 59.6 +59.9 178.4	54 58.2 +60.0 176.8	54 56.0 +59.9 175.2	54 52.9 +59.9 173.6
24°	56 00.0 +60.0 180.0	55 59.5 +60.0 178.4	55 58.2 +60.0 176.7	55 55.9 +59.9 175.1	55 52.8 +59.8 173.5
25°	57 00.0 +60.0 180.0	56 59.5 +60.0 178.3	56 58.2 +59.9 176.7	56 55.8 +60.0 175.0	56 52.6 +59.9 173.4
26°	58 00.0 +60.0 180.0	57 59.5 +60.0 178.3	57 58.1 +60.0 176.6	57 55.8 +59.9 174.9	57 52.5 +59.8 173.2
27°	59 00.0 +60.0 180.0	58 59.5 +60.0 178.3	58 58.1 +59.9 176.5	58 55.7 +59.9 174.8	58 52.3 +59.9 173.1
28°	60 00.0 +60.0 180.0	59 59.5 +60.0 178.2	59 58.0 +60.0 176.5	59 55.6 +59.9 174.7	59 52.2 +59.8 173.0
29°	61 00.0 +60.0 180.0	60 59.5 +60.0 178.2	60 58.0 +60.0 176.4	60 55.5 +59.9 174.6	60 52.0 +59.8 172.8

Dec	LHA 005° / 355°	LHA 006° / 354°	LHA 007° / 353°	LHA 008° / 352°	LHA 009° / 351°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	31 51.8 +59.9 174.1	31 48.2 +59.9 172.9	31 44.0 +59.8 171.8	31 39.1 +59.8 170.6	31 33.6 +59.7 169.4
1°	32 51.7 +60.0 174.0	32 48.1 +59.9 172.9	32 43.8 +59.9 171.7	32 38.9 +59.8 170.5	32 33.3 +59.7 169.3
2°	33 51.7 +59.9 174.0	33 48.0 +59.8 172.8	33 43.7 +59.8 171.6	33 38.7 +59.7 170.4	33 33.0 +59.7 169.2
3°	34 51.6 +59.9 173.9	34 47.8 +59.9 172.7	34 43.5 +59.8 171.5	34 38.4 +59.8 170.3	34 32.7 +59.7 169.1
4°	35 51.5 +59.9 173.8	35 47.7 +59.9 172.6	35 43.3 +59.8 171.4	35 38.2 +59.7 170.2	35 32.4 +59.7 168.9
5°	36 51.4 +59.9 173.8	36 47.6 +59.8 172.5	36 43.1 +59.8 171.3	36 37.9 +59.8 170.1	36 32.1 +59.7 168.8
6°	37 51.3 +59.9 173.7	37 47.4 +59.9 172.4	37 42.9 +59.8 171.2	37 37.7 +59.7 169.9	37 31.8 +59.7 168.7
7°	38 51.2 +59.8 173.6	38 47.3 +59.8 172.4	38 42.7 +59.8 171.1	38 37.4 +59.7 169.8	38 31.5 +59.6 168.6
8°	39 51.0 +59.9 173.5	39 47.1 +59.9 172.3	39 42.5 +59.8 171.0	39 37.1 +59.8 169.7	39 31.1 +59.7 168.4
9°	40 50.9 +59.9 173.5	40 47.0 +59.8 172.2	40 42.3 +59.7 170.9	40 36.9 +59.7 169.6	40 30.8 +59.6 168.3
10°	41 50.8 +59.9 173.4	41 46.8 +59.8 172.1	41 42.0 +59.8 170.7	41 36.6 +59.7 169.4	41 30.4 +59.6 168.1
11°	42 50.7 +59.9 173.3	42 46.6 +59.9 172.0	42 41.8 +59.8 170.6	42 36.3 +59.7 169.3	42 30.0 +59.6 168.0
12°	43 50.6 +59.9 173.2	43 46.5 +59.8 171.9	43 41.6 +59.7 170.5	43 36.0 +59.7 169.2	43 29.6 +59.6 167.8
13°	44 50.5 +59.8 173.1	44 46.3 +59.8 171.8	44 41.3 +59.8 170.4	44 35.7 +59.6 169.0	44 29.2 +59.6 167.7
14°	45 50.3 +59.9 173.0	45 46.1 +59.8 171.6	45 41.1 +59.7 170.3	45 35.3 +59.7 168.9	45 28.8 +59.6 167.5
15°	46 50.2 +59.9 172.9	46 45.9 +59.8 171.5	46 40.8 +59.8 170.1	46 35.0 +59.6 168.7	46 28.4 +59.5 167.3
16°	47 50.1 +59.8 172.8	47 45.7 +59.8 171.4	47 40.6 +59.7 170.0	47 34.6 +59.7 168.6	47 27.9 +59.6 167.1
17°	48 49.9 +59.9 172.7	48 45.5 +59.8 171.3	48 40.3 +59.7 169.8	48 34.3 +59.6 168.4	48 27.5 +59.5 167.0
18°	49 49.8 +59.8 172.6	49 45.3 +59.7 171.1	49 40.0 +59.7 169.7	49 33.9 +59.6 168.2	49 27.0 +59.5 166.8
19°	50 49.6 +59.8 172.5	50 45.0 +59.8 171.0	50 39.7 +59.7 169.5	50 33.5 +59.6 168.0	50 26.5 +59.5 166.6
20°	51 49.4 +59.9 172.4	51 44.8 +59.8 170.9	51 39.4 +59.6 169.4	51 33.1 +59.5 167.9	51 26.0 +59.4 166.4
21°	52 49.3 +59.8 172.3	52 44.6 +59.7 170.7	52 39.0 +59.7 169.2	52 32.6 +59.6 167.7	52 25.4 +59.5 166.1
22°	53 49.1 +59.8 172.1	53 44.3 +59.7 170.6	53 38.7 +59.6 169.0	53 32.2 +59.5 167.5	53 24.9 +59.4 165.9
23°	54 48.9 +59.8 172.0	54 44.0 +59.8 170.4	54 38.3 +59.6 168.8	54 31.7 +59.5 167.2	54 24.3 +59.3 165.7
24°	55 48.7 +59.8 171.9	55 43.8 +59.7 170.2	55 37.9 +59.6 168.6	55 31.2 +59.5 167.0	55 23.6 +59.4 165.4
25°	56 48.5 +59.8 171.7	56 43.5 +59.6 170.1	56 37.5 +59.6 168.4	56 30.7 +59.4 166.8	56 23.0 +59.3 165.2
26°	57 48.3 +59.7 171.5	57 43.1 +59.7 169.9	57 37.1 +59.5 168.2	57 30.1 +59.5 166.5	57 22.3 +59.3 164.9
27°	58 48.0 +59.8 171.4	58 42.8 +59.7 169.7	58 36.6 +59.6 168.0	58 29.6 +59.3 166.3	58 21.6 +59.2 164.6
28°	59 47.8 +59.7 171.2	59 42.5 +59.6 169.5	59 36.2 +59.5 167.7	59 28.9 +59.4 166.0	59 20.8 +59.2 164.3
29°	60 47.5 +59.8 171.0	60 42.1 +59.6 169.2	60 35.7 +59.4 167.5	60 28.3 +59.3 165.7	60 20.0 +59.1 164.0

Dec	LHA 010° / 350°	LHA 011° / 349°	LHA 012° / 348°	LHA 013° / 347°	LHA 014° / 346°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	31 27.5 +59.6 168.3	31 20.7 +59.5 167.1	31 13.3 +59.4 165.9	31 05.2 +59.4 164.8	30 56.6 +59.3 163.6
1°	32 27.1 +59.6 168.1	32 20.2 +59.6 167.0	32 12.7 +59.5 165.8	32 04.6 +59.4 164.6	31 55.9 +59.3 163.4
2°	33 26.7 +59.7 168.0	33 19.8 +59.6 166.8	33 12.2 +59.5 165.6	33 04.0 +59.4 164.4	32 55.2 +59.3 163.3
3°	34 26.4 +59.6 167.9	34 19.4 +59.5 166.7	34 11.7 +59.5 165.5	34 03.4 +59.4 164.3	33 54.5 +59.2 163.1
4°	35 26.0 +59.6 167.7	35 18.9 +59.5 166.5	35 11.2 +59.4 165.3	35 02.8 +59.3 164.1	34 53.7 +59.3 162.9
5°	36 25.6 +59.6 167.6	36 18.4 +59.6 166.4	36 10.6 +59.4 165.1	36 02.1 +59.4 163.9	35 53.0 +59.2 162.7
6°	37 25.2 +59.6 167.4	37 18.0 +59.5 166.2	37 10.0 +59.5 165.0	37 01.5 +59.3 163.7	36 52.2 +59.2 162.5
7°	38 24.8 +59.6 167.3	38 17.5 +59.5 166.0	38 09.5 +59.4 164.8	38 00.8 +59.3 163.5	37 51.4 +59.2 162.3
8°	39 24.4 +59.5 167.1	39 17.0 +59.4 165.9	39 08.9 +59.3 164.6	39 00.1 +59.3 163.3	38 50.6 +59.2 162.1
9°	40 23.9 +59.6 167.0	40 16.4 +59.5 165.7	40 08.2 +59.4 164.4	39 59.4 +59.2 163.1	39 49.8 +59.1 161.9
10°	41 23.5 +59.5 166.8	41 15.9 +59.4 165.5	41 07.6 +59.3 164.2	40 58.6 +59.3 162.9	40 48.9 +59.2 161.7
11°	42 23.0 +59.6 166.7	42 15.3 +59.5 165.3	42 06.9 +59.4 164.0	41 57.9 +59.2 162.7	41 48.1 +59.1 161.4
12°	43 22.6 +59.5 166.5	43 14.8 +59.4 165.2	43 06.3 +59.3 163.8	42 57.1 +59.1 162.5	42 47.2 +59.0 161.2
13°	44 22.1 +59.5 166.3	44 14.2 +59.4 165.0	44 05.6 +59.3 163.6	43 56.2 +59.2 162.3	43 46.2 +59.1 160.9
14°	45 21.6 +59.4 166.1	45 13.6 +59.3 164.8	45 04.9 +59.2 163.4	44 55.4 +59.1 162.0	44 45.3 +58.9 160.7
15°	46 21.0 +59.5 165.9	46 12.9 +59.4 164.6	46 04.1 +59.2 163.2	45 54.5 +59.1 161.8	45 44.2 +59.0 160.4
16°	47 20.5 +59.4 165.7	47 12.3 +59.3 164.3	47 03.3 +59.2 162.9	46 53.6 +59.1 161.6	46 43.2 +58.9 160.2
17°	48 19.9 +59.4 165.5	48 11.6 +59.3 164.1	48 02.5 +59.2 162.7	47 52.7 +59.0 161.3	47 42.1 +58.9 159.9
18°	49 19.3 +59.4 165.3	49 10.9 +59.3 163.9	49 01.7 +59.1 162.4	48 51.7 +59.0 161.0	48 41.0 +58.8 159.6
19°	50 18.7 +59.4 165.1	50 10.2 +59.2 163.6	50 00.8 +59.1 162.2	49 50.7 +59.0 160.7	49 39.8 +58.8 159.3
20°	51 18.1 +59.3 164.9	51 09.4 +59.2 163.4	50 59.9 +59.1 161.9	50 49.7 +58.8 160.4	50 38.6 +58.8 159.0
21°	52 17.4 +59.3 164.6	52 08.6 +59.1 163.1	51 59.0 +59.0 161.6	51 48.5 +58.9 160.1	51 37.4 +58.6 158.7
22°	53 16.7 +59.3 164.4	53 07.7 +59.2 162.9	52 58.0 +58.9 161.3	52 47.4 +58.8 159.8	52 36.0 +58.7 158.3
23°	54 16.0 +59.2 164.1	54 06.9 +59.0 162.6	53 56.9 +58.9 161.0	53 46.2 +58.7 159.5	53 34.7 +58.5 158.0
24°	55 15.2 +59.2 163.8	55 05.9 +59.1 162.3	54 55.8 +58.9 160.7	54 44.9 +58.7 159.1	54 33.2 +58.5 157.6
25°	56 14.4 +59.2 163.5	56 05.0 +59.0 161.9	55 54.7 +58.8 160.4	55 43.6 +58.6 158.8	55 31.7 +58.4 157.2
26°	57 13.6 +59.1 163.2	57 04.0 +58.9 161.6	56 53.5 +58.7 160.0	56 42.2 +58.5 158.4	56 30.1 +58.3 156.8
27°	58 12.7 +59.0 162.9	58 02.9 +58.8 161.3	57 52.2 +58.7 159.6	57 40.7 +58.5 158.0	57 28.4 +58.2 156.4
28°	59 11.7 +59.0 162.6	59 01.7 +58.8 160.9	58 50.9 +58.6 159.2	58 39.2 +58.3 157.6	58 26.6 +58.1 155.9
29°	60 10.7 +58.9 162.2	60 00.5 +58.8 160.5	59 49.5 +58.5 158.8	59 37.5 +58.3 157.1	59 24.7 +58.1 155.4

Dec	LHA 015° / 345°	LHA 016° / 344°	LHA 017° / 343°	LHA 018° / 342°	LHA 019° / 341°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	30 47.3 +59.2 162.5	30 37.4 +59.1 161.3	30 26.9 +59.0 160.2	30 15.8 +58.9 159.0	30 04.2 +58.7 157.9
1°	31 46.5 +59.2 162.3	31 36.5 +59.1 161.1	31 25.9 +59.0 160.0	31 14.7 +58.9 158.8	31 02.9 +58.8 157.7
2°	32 45.7 +59.2 162.1	32 35.6 +59.1 160.9	32 24.9 +59.0 159.7	32 13.6 +58.9 158.6	32 01.7 +58.7 157.4
3°	33 44.9 +59.2 161.9	33 34.7 +59.1 160.7	33 23.9 +58.9 159.5	33 12.5 +58.8 158.4	33 00.4 +58.7 157.2
4°	34 44.1 +59.1 161.7	34 33.8 +59.0 160.5	34 22.8 +59.0 159.3	34 11.3 +58.8 158.1	33 59.1 +58.7 156.9
5°	35 43.2 +59.1 161.5	35 32.8 +59.0 160.3	35 21.8 +58.8 159.1	35 10.1 +58.8 157.9	34 57.8 +58.6 156.7
6°	36 42.3 +59.1 161.3	36 31.8 +59.0 160.1	36 20.6 +58.9 158.8	36 08.9 +58.7 157.6	35 56.4 +58.7 156.4
7°	37 41.4 +59.1 161.1	37 30.8 +59.0 159.8	37 19.5 +58.8 158.6	37 07.6 +58.7 157.4	36 55.1 +58.5 156.2
8°	38 40.5 +59.1 160.8	38 29.8 +58.9 159.6	38 18.3 +58.8 158.3	38 06.3 +58.7 157.1	37 53.6 +58.5 155.9
9°	39 39.6 +59.0 160.6	39 28.7 +58.9 159.3	39 17.1 +58.8 158.1	39 05.0 +58.6 156.8	38 52.1 +58.5 155.6
10°	40 38.6 +59.0 160.4	40 27.6 +58.9 159.1	40 15.9 +58.7 157.8	40 03.6 +58.6 156.6	39 50.6 +58.5 155.3
11°	41 37.6 +59.0 160.1	41 26.5 +58.8 158.8	41 14.6 +58.7 157.6	41 02.2 +58.5 156.3	40 49.1 +58.4 155.0
12°	42 36.6 +58.9 159.9	42 25.3 +58.8 158.6	42 13.3 +58.7 157.3	42 00.7 +58.5 156.0	41 47.5 +58.3 154.7
13°	43 35.5 +58.9 159.6	43 24.1 +58.7 158.3	43 12.0 +58.6 157.0	42 59.2 +58.5 155.7	42 45.8 +58.3 154.4
14°	44 34.4 +58.8 159.4	44 22.8 +58.7 158.0	44 10.6 +58.6 156.7	43 57.7 +58.4 155.4	43 44.1 +58.2 154.1
15°	45 33.2 +58.9 159.1	45 21.5 +58.7 157.7	45 09.2 +58.5 156.4	44 56.1 +58.3 155.1	44 42.3 +58.2 153.7
16°	46 32.1 +58.7 158.8	46 20.2 +58.6 157.4	46 07.7 +58.4 156.1	45 54.4 +58.3 154.7	45 40.5 +58.1 153.4
17°	47 30.8 +58.8 158.5	47 18.8 +58.6 157.1	47 06.1 +58.4 155.7	46 52.7 +58.2 154.4	46 38.6 +58.1 153.0
18°	48 29.6 +58.6 158.2	48 17.4 +58.5 156.8	48 04.5 +58.3 155.4	47 50.9 +58.2 154.0	47 36.7 +57.9 152.7
19°	49 28.2 +58.7 157.9	49 15.9 +58.4 156.5	49 02.8 +58.3 155.1	48 49.1 +58.1 153.7	48 34.6 +57.9 152.3
20°	50 26.9 +58.5 157.5	50 14.3 +58.4 156.1	50 01.1 +58.2 154.7	49 47.2 +58.0 153.3	49 32.5 +57.8 151.9
21°	51 25.4 +58.5 157.2	51 12.7 +58.3 155.7	50 59.3 +58.1 154.3	50 45.2 +57.9 152.9	50 30.3 +57.7 151.5
22°	52 23.9 +58.4 156.8	52 11.0 +58.3 155.4	51 57.4 +58.0 153.9	51 43.1 +57.8 152.5	51 28.0 +57.6 151.0
23°	53 22.3 +58.4 156.5	53 09.3 +58.1 155.0	52 55.4 +58.0 153.5	52 40.9 +57.7 152.0	52 25.6 +57.5 150.6
24°	54 20.7 +58.3 156.1	54 07.4 +58.1 154.6	53 53.4 +57.8 153.1	53 38.6 +57.6 151.6	53 23.1 +57.4 150.1
25°	55 19.0 +58.2 155.7	55 05.5 +57.9 154.1	54 51.2 +57.8 152.6	54 36.2 +57.5 151.1	54 20.5 +57.2 149.6
26°	56 17.2 +58.1 155.2	56 03.4 +57.9 153.7	55 49.0 +57.6 152.1	55 33.7 +57.4 150.6	55 17.7 +57.1 149.1
27°	57 15.3 +57.9 154.8	57 01.3 +57.7 153.2	56 46.6 +57.5 151.6	56 31.1 +57.2 150.1	56 14.8 +57.0 148.5
28°	58 13.2 +57.9 154.3	57 59.0 +57.7 152.7	57 44.1 +57.3 151.1	57 28.3 +57.1 149.5	57 11.8 +56.8 148.0
29°	59 11.1 +57.8 153.8	58 56.7 +57.4 152.1	58 41.4 +57.2 150.5	58 25.4 +56.9 148.9	58 08.6 +56.6 147.4

# Declination SAME name as Latitude

# Latitude 58°

Dec	LHA 020° / 340°	LHA 021° / 339°	LHA 022° / 338°	LHA 023° / 337°	LHA 024° / 336°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	29 51.9 +58.7 156.8	29 39.1 +58.5 155.6	29 25.7 +58.4 154.5	29 11.7 +58.3 153.4	28 57.2 +58.2 152.3
1°	30 50.6 +58.6 156.5	30 37.6 +58.5 155.4	30 24.1 +58.4 154.3	30 10.0 +58.2 153.1	29 55.4 +58.1 152.0
2°	31 49.2 +58.6 156.3	31 36.1 +58.5 155.1	31 22.5 +58.3 154.0	31 08.2 +58.2 152.9	30 53.5 +58.0 151.7
3°	32 47.8 +58.6 156.0	32 34.6 +58.4 154.9	32 20.8 +58.3 153.7	32 06.4 +58.2 152.6	31 51.5 +58.0 151.4
4°	33 46.4 +58.5 155.8	33 33.0 +58.4 154.6	33 19.1 +58.3 153.4	33 04.6 +58.1 152.3	32 49.5 +58.0 151.1
5°	34 44.9 +58.5 155.5	34 31.4 +58.4 154.3	34 17.4 +58.2 153.1	34 02.7 +58.1 152.0	33 47.5 +57.9 150.8
6°	35 43.4 +58.5 155.2	35 29.8 +58.3 154.0	35 15.6 +58.2 152.9	35 00.8 +58.0 151.7	34 45.4 +57.9 150.5
7°	36 41.9 +58.4 155.0	36 28.1 +58.3 153.7	36 13.8 +58.1 152.6	35 58.8 +58.0 151.4	35 43.3 +57.8 150.2
8°	37 40.3 +58.4 154.7	37 26.4 +58.2 153.5	37 11.9 +58.1 152.2	36 56.8 +57.9 151.0	36 41.1 +57.8 149.9
9°	38 38.7 +58.3 154.4	38 24.6 +58.2 153.1	38 10.0 +58.0 151.9	37 54.7 +57.9 150.7	37 38.9 +57.7 149.5
10°	39 37.0 +58.3 154.1	39 22.8 +58.2 152.8	39 08.0 +58.0 151.6	38 52.6 +57.8 150.4	38 36.6 +57.6 149.2
11°	40 35.3 +58.3 153.8	40 21.0 +58.0 152.5	40 06.0 +57.9 151.3	39 50.4 +57.7 150.0	39 34.2 +57.6 148.8
12°	41 33.6 +58.2 153.4	41 19.0 +58.1 152.2	41 03.9 +57.9 150.9	40 48.1 +57.7 149.7	40 31.8 +57.5 148.4
13°	42 31.8 +58.1 153.1	42 17.1 +57.9 151.8	42 01.8 +57.7 150.6	41 45.8 +57.6 149.3	41 29.3 +57.4 148.1
14°	43 29.9 +58.1 152.8	43 15.0 +57.9 151.5	42 59.5 +57.7 150.2	42 43.4 +57.6 148.9	42 26.7 +57.4 147.7
15°	44 28.0 +58.0 152.4	44 12.9 +57.8 151.1	43 57.2 +57.7 149.8	43 41.0 +57.4 148.5	43 24.1 +57.2 147.3
16°	45 26.0 +57.9 152.1	45 10.7 +57.8 150.7	44 54.9 +57.5 149.4	44 38.4 +57.4 148.1	44 21.3 +57.2 146.9
17°	46 23.9 +57.8 151.7	46 08.5 +57.6 150.4	45 52.4 +57.5 149.0	45 35.8 +57.2 147.7	45 18.5 +57.0 146.4
18°	47 21.7 +57.8 151.3	47 06.1 +57.6 150.0	46 49.9 +57.4 148.6	46 33.0 +57.2 147.3	46 15.5 +57.0 146.0
19°	48 19.5 +57.7 150.9	48 03.7 +57.5 149.5	47 47.3 +57.2 148.2	47 30.2 +57.0 146.8	47 12.5 +56.8 145.5
20°	49 17.2 +57.6 150.5	49 01.2 +57.4 149.1	48 44.5 +57.2 147.7	48 27.2 +57.0 146.4	48 09.3 +56.8 145.0
21°	50 14.8 +57.5 150.0	49 58.6 +57.2 148.7	49 41.7 +57.0 147.3	49 24.2 +56.8 145.9	49 06.1 +56.5 144.6
22°	51 12.3 +57.3 149.6	50 55.8 +57.2 148.2	50 38.7 +57.0 146.8	50 21.0 +56.7 145.4	50 02.6 +56.5 144.0
23°	52 09.6 +57.3 149.1	51 53.0 +57.0 147.7	51 35.7 +56.7 146.3	51 17.7 +56.5 144.9	50 59.1 +56.3 143.5
24°	53 06.9 +57.1 148.6	52 50.0 +56.9 147.2	52 32.4 +56.7 145.8	52 14.2 +56.4 144.3	51 55.4 +56.1 143.0
25°	54 04.0 +57.0 148.1	53 46.9 +56.7 146.7	53 29.1 +56.5 145.2	53 10.6 +56.2 143.8	52 51.5 +56.0 142.4
26°	55 01.0 +56.9 147.6	54 43.6 +56.6 146.1	54 25.6 +56.3 144.6	54 06.8 +56.1 143.2	53 47.5 +55.7 141.8
27°	55 57.9 +56.7 147.0	55 40.2 +56.4 145.5	55 21.9 +56.1 144.0	55 02.9 +55.8 142.6	54 43.2 +55.6 141.1
28°	56 54.6 +56.5 146.4	56 36.6 +56.2 144.9	56 18.0 +55.9 143.4	55 58.7 +55.7 141.9	55 38.8 +55.3 140.5
29°	57 51.1 +56.3 145.8	57 32.8 +56.1 144.3	57 13.9 +55.7 142.7	56 54.4 +55.4 141.3	56 34.1 +55.1 139.8

Dec	LHA 025° / 335°	LHA 026° / 334°	LHA 027° / 333°	LHA 028° / 332°	LHA 029° / 331°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	28 42.2 +58.0 151.2	28 26.6 +57.8 150.1	28 10.5 +57.7 149.0	27 53.8 +57.6 147.9	27 36.7 +57.4 146.8
1°	29 40.2 +57.9 150.9	29 24.4 +57.8 149.8	29 08.2 +57.6 148.7	28 51.4 +57.5 147.6	28 34.1 +57.4 146.5
2°	30 38.1 +57.9 150.6	30 22.2 +57.8 149.5	30 05.8 +57.6 148.4	29 48.9 +57.5 147.3	29 31.5 +57.3 146.2
3°	31 36.0 +57.9 150.3	31 20.0 +57.7 149.2	31 03.4 +57.6 148.0	30 46.4 +57.4 146.9	30 28.8 +57.2 145.8
4°	32 33.9 +57.8 150.0	32 17.7 +57.7 148.8	32 01.0 +57.5 147.7	31 43.8 +57.3 146.6	31 26.0 +57.2 145.5
5°	33 31.7 +57.8 149.7	33 15.4 +57.6 148.5	32 58.5 +57.5 147.4	32 41.1 +57.3 146.2	32 23.2 +57.1 145.1
6°	34 29.5 +57.7 149.3	34 13.0 +57.6 148.2	33 56.0 +57.4 147.0	33 38.4 +57.2 145.9	33 20.3 +57.1 144.8
7°	35 27.2 +57.7 149.0	35 10.6 +57.5 147.8	34 53.4 +57.3 146.7	34 35.6 +57.2 145.5	34 17.4 +57.0 144.4
8°	36 24.9 +57.6 148.7	36 08.1 +57.4 147.5	35 50.7 +57.3 146.3	35 32.8 +57.1 145.2	35 14.4 +56.9 144.0
9°	37 22.5 +57.5 148.3	37 05.5 +57.3 147.1	36 48.0 +57.1 145.9	36 29.9 +57.0 144.8	36 11.3 +56.8 143.6
10°	38 20.0 +57.5 148.0	38 02.8 +57.3 146.8	37 45.1 +57.2 145.6	37 26.9 +56.9 144.4	37 08.1 +56.8 143.2
11°	39 17.5 +57.4 147.6	39 00.1 +57.3 146.4	38 42.3 +57.0 145.2	38 23.8 +56.9 144.0	38 04.9 +56.6 142.8
12°	40 14.9 +57.3 147.2	39 57.4 +57.1 146.0	39 39.3 +56.9 144.8	39 20.7 +56.8 143.6	39 01.5 +56.6 142.4
13°	41 12.2 +57.2 146.8	40 54.5 +57.0 145.6	40 36.2 +56.9 144.4	40 17.5 +56.6 143.2	40 58.1 +56.5 141.9
14°	42 09.4 +57.2 146.4	41 51.5 +57.0 145.2	41 33.1 +56.8 143.9	41 14.1 +56.6 142.7	40 54.6 +56.4 141.5
15°	43 06.6 +57.0 146.0	42 48.5 +56.9 144.7	42 29.9 +56.6 143.5	42 10.7 +56.5 142.3	41 51.0 +56.2 141.0
16°	44 03.6 +57.0 145.6	43 45.4 +56.7 144.3	43 26.5 +56.6 143.1	43 07.2 +56.3 141.8	42 47.2 +56.2 140.6
17°	45 00.6 +56.9 145.1	44 42.1 +56.7 143.9	44 23.1 +56.4 142.6	44 03.5 +56.2 141.3	43 43.4 +56.0 140.1
18°	45 57.5 +56.7 144.7	45 38.8 +56.5 143.4	45 19.5 +56.4 142.1	44 59.7 +56.1 140.8	44 39.4 +55.9 139.6
19°	46 54.2 +56.6 144.2	46 35.3 +56.4 142.9	46 15.9 +56.1 141.6	45 55.8 +56.0 140.3	45 35.3 +55.7 139.1
20°	47 50.8 +56.5 143.7	47 31.7 +56.3 142.4	47 12.0 +56.1 141.1	46 51.8 +55.8 139.8	46 31.0 +55.6 138.5
21°	48 47.3 +56.4 143.2	48 28.0 +56.1 141.9	48 08.1 +55.9 140.6	47 47.6 +55.7 139.3	47 26.6 +55.4 138.0
22°	49 43.7 +56.2 142.7	49 24.1 +56.0 141.3	49 04.0 +55.7 140.0	48 43.3 +55.4 138.7	48 22.0 +55.3 137.4
23°	50 39.9 +56.0 142.1	50 20.1 +55.8 140.8	49 59.7 +55.5 139.5	49 38.7 +55.3 138.1	49 17.3 +55.0 136.8
24°	51 35.9 +55.9 141.6	51 15.9 +55.6 140.2	50 55.2 +55.4 138.9	50 34.0 +55.1 137.5	50 12.3 +54.9 136.2
25°	52 31.8 +55.7 141.0	52 11.5 +55.4 139.6	51 50.6 +55.2 138.2	51 29.1 +54.9 136.9	51 07.2 +54.6 135.6
26°	53 27.5 +55.5 140.4	53 06.9 +55.2 139.0	52 45.8 +54.9 137.6	52 24.0 +54.7 136.2	52 01.8 +54.4 134.9
27°	54 23.0 +55.3 139.7	54 02.1 +55.0 138.3	53 40.7 +54.7 136.9	53 18.7 +54.4 135.6	52 56.2 +54.1 134.2
28°	55 18.3 +55.0 139.0	54 57.1 +54.8 137.6	54 35.4 +54.5 136.2	54 13.1 +54.2 134.8	53 50.3 +53.9 133.5
29°	56 13.3 +54.8 138.3	55 51.9 +54.5 136.9	55 29.9 +54.1 135.5	55 07.3 +53.9 134.1	54 44.2 +53.6 132.7

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Dec	LHA 030° / 330°	LHA 031° / 329°	LHA 032° / 328°	LHA 033° / 327°	LHA 034° / 326°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	27 19.1 +57.2 145.8	27 00.9 +57.1 144.7	26 42.3 +56.9 143.6	26 23.2 +56.8 142.6	26 03.6 +56.7 141.5
1°	28 16.3 +57.2 145.4	27 58.0 +57.0 144.3	27 39.2 +56.9 143.3	27 20.0 +56.7 142.2	27 00.3 +56.5 141.1
2°	29 13.5 +57.1 145.1	28 55.0 +57.0 144.0	28 36.1 +56.8 142.9	28 16.7 +56.6 141.8	27 56.8 +56.5 140.8
3°	30 10.6 +57.1 144.7	29 52.0 +56.9 143.6	29 32.9 +56.8 142.5	29 13.3 +56.6 141.4	28 53.3 +56.4 140.4
4°	31 07.7 +57.0 144.4	30 48.9 +56.9 143.3	30 29.7 +56.7 142.2	30 09.9 +56.6 141.1	29 49.7 +56.4 140.0
5°	32 04.7 +57.0 144.0	31 45.8 +56.8 142.9	31 26.4 +56.6 141.8	31 06.5 +56.4 140.7	30 46.1 +56.3 139.6
6°	33 01.7 +56.9 143.6	32 42.6 +56.7 142.5	32 23.0 +56.5 141.4	32 02.9 +56.4 140.3	31 42.4 +56.2 139.2
7°	33 58.6 +56.8 143.2	33 39.3 +56.7 142.1	33 19.5 +56.5 141.0	32 59.3 +56.3 139.9	32 38.6 +56.1 138.8
8°	34 55.4 +56.8 142.9	34 36.0 +56.5 141.7	34 16.0 +56.4 140.6	33 55.6 +56.2 139.5	33 34.7 +56.0 138.3
9°	35 52.2 +56.6 142.5	35 32.5 +56.5 141.3	35 12.4 +56.3 140.2	34 51.8 +56.1 139.0	34 30.7 +56.0 137.9
10°	36 48.8 +56.6 142.0	36 29.0 +56.4 140.9	36 08.7 +56.2 139.7	35 47.9 +56.0 138.6	35 26.7 +55.8 137.5
11°	37 45.4 +56.5 141.6	37 25.4 +56.3 140.5	37 04.9 +56.1 139.3	36 43.9 +56.0 138.2	36 22.5 +55.7 137.0
12°	38 41.9 +56.4 141.2	38 21.7 +56.2 140.0	38 01.0 +56.0 138.9	37 39.9 +55.8 137.7	37 18.2 +55.7 136.6
13°	39 38.3 +56.2 140.8	39 17.9 +56.1 139.6	38 57.0 +55.9 138.4	38 35.7 +55.7 137.2	38 13.9 +55.5 136.1
14°	40 34.5 +56.2 140.3	40 14.0 +56.0 139.1	39 52.9 +55.8 137.9	39 31.4 +55.6 136.8	39 09.4 +55.3 135.6
15°	41 30.7 +56.1 139.8	41 10.0 +55.8 138.6	40 48.7 +55.7 137.4	40 27.0 +55.4 136.3	40 04.7 +55.3 135.1
16°	42 26.8 +55.9 139.4	42 05.8 +55.7 138.1	41 44.4 +55.5 136.9	41 22.4 +55.3 135.8	41 00.0 +55.1 134.6
17°	43 22.7 +55.8 138.9	43 01.5 +55.6 137.6	42 39.9 +55.4 136.4	42 17.7 +55.2 135.2	41 55.1 +55.0 134.1
18°	44 18.5 +55.7 138.4	43 57.1 +55.5 137.1	43 35.3 +55.2 135.9	43 12.9 +55.0 134.7	42 50.1 +54.8 133.5
19°	45 14.2 +55.5 137.8	44 52.6 +55.3 136.6	44 30.5 +55.1 135.4	44 07.9 +54.9 134.2	43 44.9 +54.6 133.0
20°	46 09.7 +55.4 137.3	45 47.9 +55.1 136.0	45 25.6 +54.9 134.8	45 02.8 +54.6 133.6	44 39.5 +54.5 132.4
21°	47 05.1 +55.1 136.7	46 43.0 +55.0 135.5	46 20.5 +54.7 134.2	45 57.4 +54.5 133.0	45 34.0 +54.2 131.8
22°	48 00.2 +55.0 136.1	47 38.0 +54.7 134.9	47 15.2 +54.5 133.6	46 51.9 +54.3 132.4	46 28.2 +54.1 131.2
23°	48 55.2 +54.8 135.5	48 32.7 +54.6 134.3	48 09.7 +54.3 133.0	47 46.2 +54.1 131.8	47 22.3 +53.8 130.5
24°	49 50.0 +54.6 134.9	49 27.3 +54.3 133.6	49 04.0 +54.1 132.4	48 40.3 +53.8 131.1	48 16.1 +53.6 129.9
25°	50 44.6 +54.4 134.3	50 21.6 +54.1 133.0	49 58.1 +53.9 131.7	49 34.1 +53.7 130.4	49 09.7 +53.4 129.2
26°	51 39.0 +54.1 133.6	51 15.7 +53.9 132.3	50 52.0 +53.6 131.0	50 27.8 +53.3 129.7	50 03.1 +53.1 128.5
27°	52 33.1 +53.9 132.9	52 09.6 +53.6 131.6	51 45.6 +53.3 130.3	51 21.1 +53.1 129.0	50 56.2 +52.8 127.8
28°	53 27.0 +53.6 132.2	53 03.2 +53.3 130.8	52 38.9 +53.0 129.5	52 14.2 +52.7 128.3	51 49.0 +52.5 127.0
29°	54 20.6 +53.3 131.4	53 56.5 +53.0 130.1	53 31.9 +52.8 128.8	53 06.9 +52.5 127.5	52 41.5 +52.2 126.2

Dec	LHA 035° / 325°	LHA 036° / 324°	LHA 037° / 323°	LHA 038° / 322°	LHA 039° / 321°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	25 43.6 +56.5 140.5	25 23.2 +56.2 139.4	25 02.3 +56.1 138.4	24 40.9 +56.0 137.3	24 19.2 +55.8 136.3
1°	26 40.1 +56.4 140.1	26 19.4 +56.3 139.0	25 58.4 +56.0 138.0	25 36.9 +55.9 136.9	25 15.0 +55.7 135.9
2°	27 36.5 +56.3 139.7	27 15.7 +56.1 138.6	26 54.4 +56.0 137.6	26 32.8 +55.8 136.5	26 10.7 +55.7 135.5
3°	28 32.8 +56.3 139.3	28 11.8 +56.1 138.2	27 50.4 +56.0 137.2	27 28.6 +55.8 136.1	27 06.4 +55.6 135.1
4°	29 29.1 +56.1 138.9	29 07.9 +56.0 137.8	28 46.4 +55.8 136.8	28 24.4 +55.7 135.7	28 02.0 +55.5 134.7
5°	30 25.2 +56.2 138.5	30 03.9 +56.0 137.4	29 42.2 +55.8 136.4	29 20.1 +55.6 135.3	28 57.5 +55.4 134.2
6°	31 21.4 +56.0 138.1	30 59.9 +55.8 137.0	30 38.0 +55.7 135.9	30 15.7 +55.5 134.9	29 52.9 +55.4 133.8
7°	32 17.4 +55.9 137.7	31 55.7 +55.8 136.6	31 33.7 +55.6 135.5	31 11.2 +55.4 134.4	30 48.3 +55.2 133.3
8°	33 13.3 +55.9 137.2	32 51.5 +55.7 136.1	32 29.3 +55.5 135.0	32 06.6 +55.3 134.0	31 43.5 +55.1 132.9
9°	34 09.2 +55.7 136.8	33 47.2 +55.6 135.7	33 24.8 +55.4 134.6	33 01.9 +55.2 133.5	32 38.6 +55.1 132.4
10°	35 04.9 +55.7 136.3	34 42.8 +55.4 135.2	34 20.2 +55.2 134.1	33 57.1 +55.1 133.0	33 33.7 +54.9 131.9
11°	36 00.6 +55.5 135.9	35 38.2 +55.4 134.8	35 15.4 +55.2 133.7	34 52.2 +55.0 132.6	34 28.6 +54.8 131.5
12°	36 56.1 +55.5 135.4	36 33.6 +55.2 134.3	36 10.6 +55.1 133.2	35 47.2 +54.9 132.1	35 23.4 +54.7 131.0
13°	37 51.6 +55.3 134.9	37 28.8 +55.2 133.8	37 05.7 +54.9 132.7	36 42.1 +54.7 131.6	36 18.1 +54.6 130.5
14°	38 46.9 +55.2 134.4	38 24.0 +55.0 133.3	38 00.6 +54.8 132.2	37 36.8 +54.6 131.1	37 12.7 +54.4 129.9
15°	39 42.1 +55.0 133.9	39 19.0 +54.8 132.8	38 55.4 +54.7 131.7	38 31.4 +54.5 130.5	38 07.1 +54.2 129.4
16°	40 37.1 +54.9 133.4	40 13.8 +54.7 132.3	39 50.1 +54.5 131.1	39 25.9 +54.3 130.0	39 01.3 +54.2 128.9
17°	41 32.0 +54.8 132.9	41 08.5 +54.6 131.7	40 44.6 +54.3 130.6	40 20.2 +54.2 129.4	39 55.5 +53.9 128.3
18°	42 26.8 +54.6 132.3	42 03.1 +54.3 131.2	41 38.9 +54.2 130.0	41 14.4 +53.9 128.9	40 49.4 +53.8 127.7
19°	43 21.4 +54.4 131.8	42 57.4 +54.2 130.6	42 33.1 +54.0 129.4	42 08.3 +53.8 128.3	41 43.2 +53.6 127.1
20°	44 15.8 +54.2 131.2	43 51.6 +54.1 130.0	43 27.1 +53.8 128.8	43 02.1 +53.6 127.7	42 36.8 +53.3 126.5
21°	45 10.0 +54.1 130.6	44 45.7 +53.8 129.4	44 20.9 +53.6 128.2	43 55.7 +53.4 127.1	43 30.1 +53.2 125.9
22°	46 04.1 +53.8 130.0	45 39.5 +53.6 128.8	45 14.5 +53.4 127.6	44 49.1 +53.2 126.4	44 23.3 +53.0 125.3
23°	46 57.9 +53.6 129.3	46 33.1 +53.4 128.1	46 07.9 +53.1 126.9	45 42.3 +52.9 125.8	45 16.3 +52.7 124.6
24°	47 51.5 +53.4 128.7	47 26.5 +53.1 127.4	47 01.0 +52.9 126.3	46 35.2 +52.7 125.1	46 09.0 +52.4 123.9
25°	48 44.9 +53.1 128.0	48 19.6 +52.9 126.8	47 53.9 +52.7 125.6	47 27.9 +52.4 124.4	47 01.4 +52.2 123.2
26°	49 38.0 +52.8 127.3	49 12.5 +52.6 126.0	48 46.6 +52.3 124.8	48 20.3 +52.1 123.6	47 53.6 +51.9 122.5
27°	50 30.8 +52.6 126.5	50 05.1 +52.3 125.3	49 38.9 +52.1 124.1	49 12.4 +51.8 122.9	48 45.5 +51.6 121.7
28°	51 23.4 +52.2 125.8	50 57.4 +52.0 124.5	50 31.0 +51.7 123.3	50 04.2 +51.6 122.1	49 37.1 +51.3 120.9
29°	52 15.6 +51.9 125.0	51 49.4 +51.6 123.7	51 22.7 +51.4 122.5	50 55.8 +51.1 121.3	50 28.4 +50.9 120.1

# Declination SAME name as Latitude

# Latitude 58°

Dec	LHA 040° / 320°	LHA 041° / 319°	LHA 042° / 318°	LHA 043° / 317°	LHA 044° / 316°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	23 57.0 +55.7 135.3	23 34.4 +55.5 134.3	23 11.5 +55.3 133.3	22 48.2 +55.1 132.3	22 24.5 +55.0 131.3
1°	24 52.7 +55.5 134.9	24 29.9 +55.4 133.9	24 06.8 +55.3 132.9	23 43.3 +55.1 131.9	23 19.5 +54.9 130.9
2°	25 48.2 +55.5 134.5	25 25.3 +55.4 133.5	25 02.1 +55.1 132.4	24 38.4 +55.0 131.4	24 14.4 +54.8 130.4
3°	26 43.7 +55.5 134.1	26 20.7 +55.2 133.0	25 57.2 +55.1 132.0	25 33.4 +55.0 131.0	25 09.2 +54.8 130.0
4°	27 39.2 +55.3 133.6	27 15.9 +55.2 132.6	26 52.3 +55.1 131.6	26 28.4 +54.8 130.5	26 04.0 +54.7 129.5
5°	28 34.5 +55.3 133.2	28 11.1 +55.1 132.1	27 47.4 +54.9 131.1	27 23.2 +54.8 130.1	26 58.7 +54.6 129.1
6°	29 29.8 +55.1 132.7	29 06.2 +55.0 131.7	28 42.3 +54.8 130.6	28 18.0 +54.6 129.6	27 53.3 +54.5 128.6
7°	30 24.9 +55.1 132.3	30 01.2 +54.9 131.2	29 37.1 +54.7 130.2	29 12.6 +54.6 129.1	28 47.8 +54.4 128.1
8°	31 20.0 +55.0 131.8	30 56.1 +54.8 130.8	30 31.8 +54.7 129.7	30 07.2 +54.5 128.7	29 42.2 +54.3 127.6
9°	32 15.0 +54.8 131.4	31 50.9 +54.7 130.3	31 26.5 +54.5 129.2	31 01.7 +54.3 128.2	30 36.5 +54.2 127.1
10°	33 09.8 +54.8 130.9	32 45.6 +54.6 129.8	32 21.0 +54.4 128.7	31 56.0 +54.2 127.7	31 30.7 +54.0 126.6
11°	34 04.6 +54.6 130.4	33 40.2 +54.4 129.3	33 15.4 +54.3 128.2	32 50.2 +54.1 127.2	32 24.7 +53.9 126.1
12°	34 59.2 +54.5 129.9	34 34.6 +54.3 128.8	34 09.7 +54.1 127.7	33 44.3 +54.0 126.7	33 18.7 +53.7 125.6
13°	35 53.7 +54.4 129.4	35 28.9 +54.2 128.3	35 03.8 +54.0 127.2	34 38.3 +53.8 126.1	34 12.4 +53.7 125.1
14°	36 48.1 +54.2 128.8	36 23.1 +54.1 127.7	35 57.8 +53.9 126.7	35 32.1 +53.7 125.6	35 06.1 +53.5 124.5
15°	37 42.3 +54.1 128.3	37 17.2 +53.9 127.2	36 51.7 +53.7 126.1	36 25.8 +53.5 125.0	35 59.6 +53.4 124.0
16°	38 36.4 +53.9 127.7	38 11.1 +53.7 126.6	37 45.4 +53.5 125.6	37 19.3 +53.4 124.5	36 53.0 +53.1 123.4
17°	39 30.3 +53.8 127.2	39 04.8 +53.6 126.1	38 38.9 +53.4 125.0	38 12.7 +53.2 123.9	37 46.1 +53.1 122.8
18°	40 24.1 +53.5 126.6	39 58.4 +53.3 125.5	39 32.3 +53.2 124.4	39 05.9 +53.0 123.3	38 39.2 +52.8 122.2
19°	41 17.6 +53.4 126.0	40 51.7 +53.2 124.9	40 25.5 +53.0 123.8	39 58.9 +52.8 122.7	39 32.0 +52.6 121.6
20°	42 11.0 +53.2 125.4	41 44.9 +53.0 124.3	41 18.5 +52.8 123.2	40 51.7 +52.6 122.1	40 24.6 +52.4 121.0
21°	43 04.2 +53.0 124.8	42 37.9 +52.8 123.6	42 11.3 +52.5 122.5	41 44.3 +52.4 121.4	41 17.0 +52.2 120.3
22°	43 57.2 +52.7 124.1	43 30.7 +52.5 123.0	43 03.8 +52.4 121.9	42 36.7 +52.1 120.8	42 09.2 +52.0 119.7
23°	44 49.9 +52.5 123.5	44 23.2 +52.3 122.3	43 56.2 +52.1 121.2	43 28.8 +51.9 120.1	43 01.2 +51.7 119.0
24°	45 42.4 +52.3 122.8	45 15.5 +52.1 121.6	44 48.3 +51.8 120.5	44 20.7 +51.7 119.4	43 52.9 +51.4 118.3
25°	46 34.7 +51.9 122.1	46 07.6 +51.7 120.9	45 40.1 +51.6 119.8	45 12.4 +51.3 118.7	44 44.3 +51.2 117.6
26°	47 26.6 +51.7 121.3	46 59.3 +51.5 120.2	46 31.7 +51.2 119.1	46 03.7 +51.1 117.9	45 35.5 +50.9 116.8
27°	48 18.3 +51.4 120.6	47 50.8 +51.2 119.4	47 22.9 +51.0 118.3	46 54.8 +50.8 117.2	46 26.4 +50.5 116.1
28°	49 09.7 +51.1 119.8	48 42.0 +50.8 118.6	48 13.9 +50.6 117.5	47 45.6 +50.4 116.4	47 16.9 +50.3 115.3
29°	50 00.8 +50.7 119.0	49 32.8 +50.5 117.8	49 04.5 +50.3 116.7	48 36.0 +50.1 115.6	48 07.2 +49.8 114.5

Dec	LHA 045° / 315°	LHA 046° / 314°	LHA 047° / 313°	LHA 048° / 312°	LHA 049° / 311°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	22 00.4 +54.8 130.3	21 36.0 +54.6 129.3	21 11.2 +54.5 128.3	20 46.1 +54.4 127.4	20 20.6 +54.3 126.4
1°	22 55.2 +54.8 129.9	22 30.6 +54.7 128.9	22 05.7 +54.5 127.9	21 40.5 +54.3 126.9	21 14.9 +54.1 125.9
2°	23 50.0 +54.7 129.4	23 25.3 +54.5 128.4	23 00.2 +54.4 127.4	22 34.8 +54.2 126.5	22 09.0 +54.1 125.5
3°	24 44.7 +54.6 129.0	24 19.8 +54.5 128.0	23 54.6 +54.3 127.0	23 29.0 +54.1 126.0	23 03.1 +54.0 125.0
4°	25 39.3 +54.5 128.5	25 14.3 +54.3 127.5	24 48.9 +54.2 126.5	24 23.1 +54.1 125.5	23 57.1 +53.9 124.5
5°	26 33.8 +54.5 128.0	26 08.6 +54.3 127.0	25 43.1 +54.1 126.0	25 17.2 +54.0 125.0	24 51.0 +53.8 124.0
6°	27 28.3 +54.3 127.6	27 02.9 +54.2 126.6	26 37.2 +54.0 125.6	26 11.2 +53.8 124.6	25 44.8 +53.7 123.6
7°	28 22.6 +54.2 127.1	27 57.1 +54.0 126.1	27 31.2 +53.9 125.1	27 05.0 +53.8 124.1	26 38.5 +53.6 123.1
8°	29 16.8 +54.2 126.6	28 51.1 +54.0 125.6	28 25.1 +53.8 124.6	27 58.8 +53.6 123.6	27 32.1 +53.5 122.6
9°	30 11.0 +54.0 126.1	29 45.1 +53.9 125.1	29 18.9 +53.7 124.1	28 52.4 +53.6 123.0	28 25.6 +53.4 122.0
10°	31 05.0 +53.9 125.6	30 39.0 +53.7 124.6	30 12.6 +53.6 123.5	29 46.0 +53.4 122.5	29 19.0 +53.3 121.5
11°	31 58.9 +53.7 125.1	31 32.7 +53.6 124.0	31 06.2 +53.4 123.0	30 39.4 +53.3 122.0	30 12.3 +53.1 121.0
12°	32 52.6 +53.7 124.6	32 26.3 +53.4 123.5	31 59.6 +53.3 122.5	31 32.7 +53.1 121.5	31 05.4 +53.0 120.5
13°	33 46.3 +53.4 124.0	33 19.7 +53.4 123.0	32 52.9 +53.2 121.9	32 25.8 +53.0 120.9	31 58.4 +52.8 119.9
14°	34 39.7 +53.4 123.5	34 13.1 +53.1 122.4	33 46.1 +53.0 121.4	33 18.8 +52.8 120.4	32 51.2 +52.7 119.3
15°	35 33.1 +53.2 122.9	35 06.2 +53.0 121.9	34 39.1 +52.8 120.8	34 11.6 +52.7 119.8	33 43.9 +52.5 118.8
16°	36 26.3 +53.0 122.3	35 59.2 +52.9 121.3	35 31.9 +52.7 120.2	35 04.3 +52.5 119.2	34 36.4 +52.4 118.2
17°	37 19.3 +52.8 121.8	36 52.1 +52.6 120.7	36 24.6 +52.5 119.7	35 56.8 +52.4 118.6	35 28.8 +52.1 117.6
18°	38 12.1 +52.6 121.2	37 44.7 +52.5 120.1	37 17.1 +52.3 119.0	36 49.2 +52.1 118.0	36 20.9 +52.0 117.0
19°	39 04.7 +52.5 120.5	38 37.2 +52.3 119.5	38 09.4 +52.1 118.4	37 41.3 +51.9 117.4	37 12.9 +51.8 116.4
20°	39 57.2 +52.2 119.9	39 29.5 +52.0 118.8	39 01.5 +51.9 117.8	38 33.2 +51.8 116.8	38 04.7 +51.6 115.7
21°	40 49.4 +52.0 119.3	40 21.5 +51.9 118.2	39 53.4 +51.7 117.1	39 25.0 +51.5 116.1	38 56.3 +51.3 115.1
22°	41 41.4 +51.8 118.6	41 13.4 +51.6 117.5	40 45.1 +51.4 116.5	40 16.5 +51.2 115.4	39 47.6 +51.1 114.4
23°	42 33.2 +51.6 117.9	42 05.0 +51.3 116.9	41 36.5 +51.2 115.8	41 07.7 +51.1 114.7	40 38.7 +50.9 113.7
24°	43 24.8 +51.2 117.2	42 56.3 +51.1 116.1	42 27.7 +50.9 115.1	41 58.8 +50.7 114.0	41 29.6 +50.6 113.0
25°	44 16.0 +51.0 116.5	43 47.4 +50.8 115.4	43 18.6 +50.6 114.4	42 49.5 +50.5 113.3	42 20.2 +50.3 112.3
26°	45 07.0 +50.7 115.8	44 38.2 +50.6 114.7	44 09.2 +50.4 113.6	43 40.0 +50.2 112.6	43 10.5 +50.0 111.5
27°	45 57.7 +50.4 115.0	45 28.8 +50.2 113.9	44 59.6 +50.0 112.9	44 30.2 +49.8 111.8	44 00.5 +49.8 110.8
28°	46 48.1 +50.0 114.2	46 19.0 +49.8 113.1	45 49.6 +49.7 112.1	45 20.0 +49.6 111.0	44 50.3 +49.3 110.0
29°	47 38.1 +49.7 113.4	47 08.8 +49.5 112.3	46 39.3 +49.3 111.3	46 09.6 +49.1 110.2	45 39.6 +49.1 109.2

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Dec	LHA 050° / 310°	LHA 051° / 309°	LHA 052° / 308°	LHA 053° / 307°	LHA 054° / 306°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	19 54.9 +54.1 125.4	19 28.8 +54.0 124.5	19 02.5 +53.8 123.5	18 35.8 +53.7 122.6	18 08.9 +53.5 121.6
1°	20 49.0 +54.0 125.0	20 22.8 +53.8 124.0	19 56.3 +53.7 123.1	19 29.5 +53.6 122.1	19 02.4 +53.4 121.2
2°	21 43.0 +53.9 124.5	21 16.6 +53.8 123.5	20 50.0 +53.6 122.6	20 23.1 +53.5 121.6	19 55.8 +53.4 120.7
3°	22 36.9 +53.9 124.0	22 10.4 +53.7 123.1	21 43.6 +53.6 122.1	21 16.6 +53.4 121.1	20 49.2 +53.3 120.2
4°	23 30.8 +53.7 123.6	23 04.1 +53.6 122.6	22 37.2 +53.4 121.6	22 10.0 +53.3 120.7	21 42.5 +53.2 119.7
5°	24 24.5 +53.7 123.1	23 57.7 +53.5 122.1	23 30.6 +53.4 121.1	23 03.3 +53.2 120.2	22 35.7 +53.1 119.2
6°	25 18.2 +53.5 122.6	24 51.2 +53.5 121.6	24 24.0 +53.3 120.6	23 56.5 +53.1 119.7	23 28.8 +52.9 118.7
7°	26 11.7 +53.5 122.1	25 44.7 +53.3 121.1	25 17.3 +53.2 120.1	24 49.6 +53.1 119.1	24 21.7 +52.9 118.2
8°	27 05.2 +53.3 121.6	26 38.0 +53.2 120.6	26 10.5 +53.0 119.6	25 42.7 +52.9 118.6	25 14.6 +52.8 117.7
9°	27 58.5 +53.3 121.0	27 31.2 +53.0 120.1	27 03.5 +52.9 119.1	26 35.6 +52.8 118.1	26 07.4 +52.7 117.1
10°	28 51.8 +53.1 120.5	28 24.2 +53.0 119.5	27 56.4 +52.8 118.5	27 28.4 +52.7 117.6	27 00.1 +52.5 116.6
11°	29 44.9 +52.9 120.0	29 17.2 +52.8 119.0	28 49.2 +52.7 118.0	28 21.1 +52.5 117.0	27 52.6 +52.4 116.1
12°	30 37.8 +52.9 119.4	30 10.0 +52.7 118.4	29 41.9 +52.6 117.5	29 13.6 +52.4 116.5	28 45.0 +52.3 115.5
13°	31 30.7 +52.7 118.9	31 02.7 +52.5 117.9	30 34.5 +52.4 116.9	30 06.0 +52.3 115.9	29 37.3 +52.1 114.9
14°	32 23.4 +52.5 118.3	31 55.2 +52.4 117.3	31 26.9 +52.2 116.3	30 58.3 +52.1 115.3	30 29.4 +52.0 114.4
15°	33 15.9 +52.4 117.8	32 47.6 +52.2 116.7	32 19.1 +52.1 115.8	31 50.4 +51.9 114.8	31 21.4 +51.8 113.8
16°	34 08.3 +52.2 117.2	33 39.8 +52.1 116.2	33 11.2 +51.9 115.2	32 42.3 +51.8 114.2	32 13.2 +51.6 113.2
17°	35 00.5 +52.0 116.6	34 31.9 +51.9 115.6	34 03.1 +51.7 114.6	33 34.1 +51.6 113.6	33 04.8 +51.5 112.6
18°	35 52.5 +51.8 116.0	35 23.8 +51.7 114.9	34 54.8 +51.6 113.9	34 25.7 +51.4 113.0	33 56.3 +51.3 112.0
19°	36 44.3 +51.6 115.3	36 15.5 +51.4 114.3	35 46.4 +51.3 113.3	35 17.1 +51.2 112.3	34 47.6 +51.0 111.3
20°	37 35.9 +51.5 114.7	37 06.9 +51.3 113.7	36 37.7 +51.1 112.7	36 08.3 +51.0 111.7	35 38.6 +50.9 110.7
21°	38 27.4 +51.2 114.0	37 58.2 +51.1 113.0	37 28.8 +51.0 112.0	36 59.3 +50.7 111.0	36 29.5 +50.6 110.0
22°	39 18.6 +50.9 113.4	38 49.3 +50.8 112.4	38 19.8 +50.6 111.3	37 50.0 +50.6 110.4	37 20.1 +50.4 109.4
23°	40 09.5 +50.7 112.7	39 40.1 +50.5 111.7	39 10.4 +50.5 110.7	38 40.6 +50.3 109.7	38 10.5 +50.2 108.7
24°	41 00.2 +50.5 112.0	40 30.6 +50.3 111.0	40 00.9 +50.1 110.0	39 30.9 +50.0 109.0	39 00.7 +49.9 108.0
25°	41 50.7 +50.1 111.3	41 20.9 +50.1 110.2	40 51.0 +49.9 109.2	40 20.9 +49.8 108.2	39 50.6 +49.7 107.3
26°	42 40.8 +49.9 110.5	42 11.0 +49.7 109.5	41 40.9 +49.6 108.5	41 10.7 +49.4 107.5	40 40.3 +49.3 106.5
27°	43 30.7 +49.6 109.8	43 00.7 +49.4 108.7	42 30.5 +49.3 107.7	42 00.1 +49.2 106.7	41 29.6 +49.1 105.8
28°	44 20.3 +49.2 109.0	43 50.1 +49.1 108.0	43 19.8 +49.0 107.0	42 49.3 +48.8 106.0	42 18.7 +48.7 105.0
29°	45 09.5 +48.9 108.2	44 39.2 +48.8 107.2	44 08.8 +48.6 106.2	43 38.1 +48.5 105.2	43 07.4 +48.4 104.2

Dec	LHA 055° / 305°	LHA 056° / 304°	LHA 057° / 303°	LHA 058° / 302°	LHA 059° / 301°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	17 41.7 +53.4 120.7	17 14.2 +53.3 119.8	16 46.5 +53.1 118.8	16 18.5 +53.0 117.9	15 50.3 +52.9 117.0
1°	18 35.1 +53.3 120.2	18 07.5 +53.1 119.3	17 39.6 +53.0 118.4	17 11.5 +52.9 117.4	16 43.2 +52.8 116.5
2°	19 28.4 +53.2 119.7	19 00.6 +53.1 118.8	18 32.6 +53.0 117.9	18 04.4 +52.9 116.9	17 36.0 +52.7 116.0
3°	20 21.6 +53.1 119.2	19 53.7 +53.0 118.3	19 25.6 +52.9 117.4	18 57.3 +52.7 116.4	18 28.7 +52.6 115.5
4°	21 14.7 +53.1 118.7	20 46.7 +53.0 117.8	20 18.5 +52.8 116.9	19 50.0 +52.7 115.9	19 21.3 +52.5 115.0
5°	22 07.8 +52.9 118.2	21 39.7 +52.8 117.3	21 11.3 +52.7 116.4	20 42.7 +52.5 115.4	20 13.8 +52.5 114.5
6°	23 00.7 +52.9 117.7	22 32.5 +52.7 116.8	22 04.0 +52.6 115.8	21 35.2 +52.5 114.9	21 06.3 +52.4 114.0
7°	23 53.6 +52.8 117.2	23 25.2 +52.6 116.3	22 56.6 +52.5 115.3	22 27.7 +52.4 114.4	21 58.7 +52.2 113.4
8°	24 46.4 +52.6 116.7	24 17.8 +52.5 115.7	23 49.1 +52.4 114.8	23 20.1 +52.3 113.9	22 50.9 +52.2 112.9
9°	25 39.0 +52.5 116.2	25 10.3 +52.4 115.2	24 41.5 +52.2 114.3	24 12.4 +52.1 113.3	23 43.1 +52.0 112.4
10°	26 31.5 +52.4 115.6	26 02.7 +52.3 114.7	25 33.7 +52.2 113.7	25 04.5 +52.1 112.8	24 35.1 +51.9 111.8
11°	27 23.9 +52.3 115.1	26 55.0 +52.2 114.1	26 25.9 +52.0 113.2	25 56.6 +51.9 112.2	25 27.0 +51.8 111.3
12°	28 16.2 +52.1 114.5	27 47.2 +52.0 113.6	27 17.9 +51.9 112.6	26 48.5 +51.7 111.7	26 18.8 +51.7 110.7
13°	29 08.3 +52.0 114.0	28 39.2 +51.8 113.0	28 09.8 +51.7 112.0	27 40.2 +51.7 111.1	27 10.5 +51.5 110.1
14°	30 00.3 +51.9 113.4	29 31.0 +51.8 112.4	29 01.5 +51.6 111.5	28 31.9 +51.4 110.5	28 02.0 +51.4 109.6
15°	30 52.2 +51.6 112.8	30 22.8 +51.5 111.8	29 53.1 +51.5 110.9	29 23.3 +51.4 109.9	28 53.4 +51.2 109.0
16°	31 43.8 +51.6 112.2	31 14.3 +51.4 111.2	30 44.6 +51.3 110.3	30 14.7 +51.1 109.3	29 44.6 +51.0 108.4
17°	32 35.4 +51.3 111.6	32 05.7 +51.2 110.6	31 35.9 +51.0 109.7	31 05.8 +51.0 108.7	30 35.6 +50.9 107.8
18°	33 26.7 +51.1 111.0	32 56.9 +51.0 110.0	32 26.9 +51.0 109.1	31 56.8 +50.8 108.1	31 26.5 +50.7 107.2
19°	34 17.8 +51.0 110.4	33 47.9 +50.9 109.4	33 17.9 +50.7 108.4	32 47.6 +50.6 107.5	32 17.2 +50.5 106.5
20°	35 08.8 +50.7 109.7	34 38.8 +50.6 108.7	34 08.6 +50.5 107.8	33 38.2 +50.4 106.8	33 07.7 +50.3 105.9
21°	35 59.5 +50.6 109.1	35 29.4 +50.4 108.1	34 59.1 +50.3 107.1	34 28.6 +50.2 106.2	33 58.0 +50.1 105.2
22°	36 50.1 +50.2 108.4	36 19.8 +50.2 107.4	35 49.4 +50.0 106.5	35 18.8 +50.0 105.5	34 48.1 +49.9 104.6
23°	37 40.3 +50.1 107.7	37 10.0 +49.9 106.7	36 39.4 +49.9 105.8	36 08.8 +49.7 104.8	35 38.0 +49.6 103.9
24°	38 30.4 +49.8 107.0	37 59.9 +49.7 106.0	37 29.3 +49.6 105.1	36 58.5 +49.5 104.1	36 27.6 +49.4 103.2
25°	39 20.2 +49.5 106.3	38 49.6 +49.4 105.3	38 18.9 +49.3 104.4	37 48.0 +49.2 103.4	37 17.0 +49.1 102.5
26°	40 09.7 +49.2 105.6	39 39.0 +49.1 104.6	39 08.2 +49.0 103.6	38 37.2 +48.9 102.7	38 06.1 +48.9 101.8
27°	40 58.9 +49.0 104.8	40 28.1 +48.9 103.8	39 57.2 +48.7 102.9	39 26.1 +48.7 101.9	38 55.0 +48.6 101.0
28°	41 47.9 +48.6 104.0	41 17.0 +48.5 103.1	40 45.9 +48.5 102.1	40 14.8 +48.3 101.2	39 43.6 +48.2 100.3
29°	42 36.5 +48.3 103.2	42 05.5 +48.2 102.3	41 34.4 +48.1 101.3	41 03.1 +48.1 100.4	40 31.8 +48.0 99.5

Dec	LHA 060° / 300°	LHA 061° / 299°	LHA 062° / 298°	LHA 063° / 297°	LHA 064° / 296°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	15 21.9 +52.7 116.1	14 53.2 +52.6 115.2	14 24.3 +52.5 114.3	13 55.2 +52.4 113.4	13 26.0 +52.2 112.5
1°	16 14.6 +52.7 115.6	15 45.8 +52.6 114.7	15 16.8 +52.5 113.8	14 47.6 +52.4 112.9	14 18.2 +52.3 112.0
2°	17 07.3 +52.6 115.1	16 38.4 +52.4 114.2	16 09.3 +52.3 113.3	15 40.0 +52.2 112.4	15 10.5 +52.1 111.5
3°	17 59.9 +52.5 114.6	17 30.8 +52.4 113.7	17 01.6 +52.3 112.8	16 32.2 +52.2 111.8	16 02.6 +52.1 110.9
4°	18 52.4 +52.4 114.1	18 23.2 +52.4 113.2	17 53.9 +52.2 112.2	17 24.4 +52.1 111.3	16 54.7 +52.0 110.4
5°	19 44.8 +52.3 113.6	19 15.6 +52.2 112.6	18 46.1 +52.1 111.7	18 16.5 +52.0 110.8	17 46.7 +51.9 109.9
6°	20 37.1 +52.3 113.0	20 07.8 +52.1 112.1	19 38.2 +52.1 111.2	19 08.5 +51.9 110.3	18 38.6 +51.8 109.4
7°	21 29.4 +52.1 112.5	20 59.9 +52.1 111.6	20 30.3 +51.9 110.7	20 00.4 +51.9 109.8	19 30.4 +51.7 108.8
8°	22 21.5 +52.1 112.0	21 52.0 +51.9 111.1	21 22.2 +51.8 110.1	20 52.3 +51.7 109.2	20 22.1 +51.7 108.3
9°	23 13.6 +51.9 111.4	22 43.9 +51.8 110.5	22 14.0 +51.7 109.6	21 44.0 +51.6 108.7	21 13.8 +51.5 107.8
10°	24 05.5 +51.8 110.9	23 35.7 +51.7 110.0	23 05.7 +51.6 109.0	22 35.6 +51.5 108.1	22 05.3 +51.4 107.2
11°	24 57.3 +51.7 110.3	24 27.4 +51.6 109.4	23 57.3 +51.5 108.5	23 27.1 +51.4 107.6	22 56.7 +51.3 106.6
12°	25 49.0 +51.5 109.8	25 19.0 +51.4 108.8	24 48.8 +51.4 107.9	24 18.5 +51.2 107.0	23 48.0 +51.2 106.1
13°	26 40.5 +51.4 109.2	26 10.4 +51.3 108.3	25 40.2 +51.2 107.3	25 09.7 +51.2 106.4	24 39.2 +51.0 105.5
14°	27 31.9 +51.3 108.6	27 01.7 +51.2 107.7	26 31.4 +51.0 106.8	26 00.9 +50.9 105.8	25 30.2 +50.9 104.9
15°	28 23.2 +51.1 108.0	27 52.9 +51.0 107.1	27 22.4 +51.0 106.2	26 51.8 +50.9 105.3	26 21.1 +50.7 104.3
16°	29 14.3 +51.0 107.4	28 43.9 +50.9 106.5	28 13.4 +50.7 105.6	27 42.7 +50.6 104.7	27 11.8 +50.6 103.7
17°	30 05.3 +50.8 106.8	29 34.8 +50.6 105.9	29 04.1 +50.6 105.0	28 33.3 +50.5 104.1	28 02.4 +50.5 103.1
18°	30 56.1 +50.5 106.2	30 25.4 +50.6 105.3	29 54.7 +50.4 104.4	29 23.8 +50.4 103.4	28 52.9 +50.2 102.5
19°	31 46.6 +50.5 105.6	31 16.0 +50.3 104.7	30 45.1 +50.3 103.7	30 14.2 +50.1 102.8	29 43.1 +50.1 101.9
20°	32 37.1 +50.2 104.9	32 06.3 +50.1 104.0	31 35.4 +50.0 103.1	31 04.3 +50.0 102.2	30 33.2 +49.9 101.3
21°	33 27.3 +50.0 104.3	32 56.4 +49.9 103.4	32 25.4 +49.8 102.4	31 54.3 +49.8 101.5	31 23.1 +49.7 100.6
22°	34 17.3 +49.8 103.6	33 46.3 +49.7 102.7	33 15.2 +49.7 101.8	32 44.1 +49.5 100.9	32 12.8 +49.5 99.9
23°	35 07.1 +49.5 102.9	34 36.0 +49.5 102.0	34 04.9 +49.4 101.1	33 33.6 +49.3 100.2	33 02.3 +49.2 99.3
24°	35 56.6 +49.3 102.3	35 25.5 +49.2 101.3	34 54.3 +49.1 100.4	34 22.9 +49.1 99.5	33 51.5 +49.1 98.6
25°	36 45.9 +49.1 101.5	36 14.7 +49.0 100.6	35 43.4 +48.9 99.7	35 12.0 +48.9 98.8	34 40.6 +48.8 97.9
26°	37 35.0 +48.7 100.8	37 03.7 +48.7 99.9	36 32.3 +48.7 99.0	36 00.9 +48.6 98.1	35 29.4 +48.5 97.2
27°	38 23.7 +48.5 100.1	37 52.4 +48.4 99.2	37 21.0 +48.3 98.3	36 49.5 +48.3 97.4	36 17.9 +48.3 96.5
28°	39 12.2 +48.2 99.3	38 40.8 +48.1 98.4	38 09.3 +48.1 97.5	37 37.8 +48.0 96.6	37 06.2 +47.9 95.7
29°	40 00.4 +47.9 98.6	39 28.9 +47.9 97.6	38 57.4 +47.8 96.7	38 25.8 +47.7 95.8	37 54.1 +47.7 95.0

Dec	LHA 065° / 295°	LHA 066° / 294°	LHA 067° / 293°	LHA 068° / 292°	LHA 069° / 291°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	12 56.5 +52.2 111.6	12 26.8 +52.1 110.7	11 57.0 +52.0 109.8	11 27.0 +51.9 108.9	10 56.8 +51.8 108.0
1°	13 48.7 +52.1 111.1	13 18.9 +52.0 110.2	12 49.0 +51.9 109.3	12 18.9 +51.8 108.4	11 48.6 +51.8 107.5
2°	14 40.8 +52.0 110.6	14 10.9 +52.0 109.7	13 40.9 +51.9 108.8	13 10.7 +51.8 107.9	12 40.4 +51.7 107.0
3°	15 32.8 +52.0 110.0	15 02.9 +51.9 109.1	14 32.8 +51.7 108.3	14 02.5 +51.7 107.4	13 32.1 +51.6 106.5
4°	16 24.8 +51.9 109.5	15 54.8 +51.8 108.6	15 24.5 +51.8 107.7	14 54.2 +51.6 106.8	14 23.7 +51.5 106.0
5°	17 16.7 +51.8 109.0	16 46.6 +51.7 108.1	16 16.3 +51.6 107.2	15 45.8 +51.6 106.3	15 15.2 +51.5 105.4
6°	18 08.5 +51.7 108.5	17 38.3 +51.6 107.6	17 07.9 +51.5 106.7	16 37.4 +51.4 105.8	16 06.7 +51.4 104.9
7°	19 00.2 +51.7 107.9	18 29.9 +51.6 107.0	17 59.4 +51.5 106.1	17 28.8 +51.4 105.2	16 58.1 +51.3 104.4
8°	19 51.9 +51.5 107.4	19 21.5 +51.4 106.5	18 50.9 +51.4 105.6	18 20.2 +51.3 104.7	17 49.4 +51.2 103.8
9°	20 43.4 +51.4 106.8	20 12.9 +51.4 105.9	19 42.3 +51.2 105.0	19 11.5 +51.2 104.2	18 40.6 +51.1 103.3
10°	21 34.8 +51.4 106.3	21 04.3 +51.2 105.4	20 33.5 +51.2 104.5	20 02.7 +51.1 103.6	19 31.7 +51.1 102.7
11°	22 26.2 +51.2 105.7	21 55.5 +51.1 104.8	21 24.7 +51.0 103.9	20 53.8 +51.0 103.0	20 22.8 +50.9 102.1
12°	23 17.4 +51.1 105.2	22 46.6 +51.0 104.3	22 15.7 +51.0 103.4	21 44.8 +50.8 102.5	21 13.7 +50.8 101.6
13°	24 08.5 +50.9 104.6	23 37.6 +50.9 103.7	23 06.7 +50.8 102.8	22 35.6 +50.8 101.9	22 04.5 +50.6 101.0
14°	24 59.4 +50.8 104.0	24 28.5 +50.7 103.1	23 57.5 +50.6 102.2	23 26.4 +50.6 101.3	22 55.1 +50.6 100.4
15°	25 50.2 +50.7 103.4	25 19.2 +50.6 102.5	24 48.1 +50.6 101.6	24 17.0 +50.4 100.7	23 45.7 +50.4 99.8
16°	26 40.9 +50.5 102.8	26 09.8 +50.5 101.9	25 38.7 +50.4 101.0	25 07.4 +50.3 100.1	24 36.1 +50.3 99.2
17°	27 31.4 +50.4 102.2	27 00.3 +50.3 101.3	26 29.1 +50.2 100.4	25 57.7 +50.2 99.5	25 26.4 +50.1 98.6
18°	28 21.8 +50.2 101.6	27 50.6 +50.1 100.7	27 19.3 +50.1 99.8	26 47.9 +50.0 98.9	26 16.5 +49.9 98.0
19°	29 12.0 +50.0 101.0	28 40.7 +50.0 100.1	28 09.4 +49.8 99.2	27 37.9 +49.9 98.3	27 06.4 +49.8 97.4
20°	30 02.0 +49.8 100.4	29 30.7 +49.7 99.5	28 59.2 +49.8 98.6	28 27.8 +49.6 97.7	27 56.2 +49.7 96.8
21°	30 51.8 +49.6 99.7	30 20.4 +49.6 98.8	29 49.0 +49.5 97.9	29 17.4 +49.5 97.0	28 45.9 +49.4 96.1
22°	31 41.4 +49.5 99.0	31 10.0 +49.4 98.2	30 38.5 +49.3 97.3	30 06.9 +49.3 96.4	29 35.3 +49.2 95.5
23°	32 30.9 +49.2 98.4	31 59.4 +49.1 97.5	31 27.8 +49.1 96.6	30 56.2 +49.1 95.7	30 24.5 +49.1 94.8
24°	33 20.1 +48.9 97.7	32 48.5 +49.0 96.8	32 16.9 +48.9 95.9	31 45.3 +48.8 95.0	31 13.6 +48.8 94.2
25°	34 09.0 +48.8 97.0	33 37.5 +48.7 96.1	33 05.8 +48.7 95.2	32 34.1 +48.7 94.4	32 02.4 +48.6 93.5
26°	34 57.8 +48.5 96.3	34 26.2 +48.4 95.4	33 54.5 +48.4 94.5	33 22.8 +48.4 93.7	32 51.0 +48.4 92.8
27°	35 46.3 +48.2 95.6	35 14.6 +48.2 94.7	34 42.9 +48.2 93.8	34 11.2 +48.1 92.9	33 39.4 +48.1 92.1
28°	36 34.5 +47.9 94.8	36 02.8 +47.9 94.0	35 31.1 +47.9 93.1	34 59.3 +47.9 92.2	34 27.5 +47.9 91.4
29°	37 22.4 +47.7 94.1	36 50.7 +47.6 93.2	36 19.0 +47.6 92.3	35 47.2 +47.6 91.5	35 15.4 +47.6 90.6

Dec	LHA 070° / 290°	LHA 071° / 289°	LHA 072° / 288°	LHA 073° / 287°	LHA 074° / 286°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	10 26.5 +51.7 107.2	9 56.1 +51.6 106.3	9 25.5 +51.5 105.4	8 54.8 +51.5 104.5	8 23.9 +51.5 103.7
1°	11 18.2 +51.7 106.6	10 47.7 +51.6 105.8	10 17.0 +51.6 104.9	9 46.3 +51.4 104.0	9 15.4 +51.3 103.1
2°	12 09.9 +51.6 106.1	11 39.3 +51.5 105.2	11 08.6 +51.4 104.4	10 37.7 +51.4 103.5	10 06.7 +51.3 102.6
3°	13 01.5 +51.5 105.6	12 30.8 +51.5 104.7	12 00.0 +51.4 103.8	11 29.1 +51.3 103.0	10 58.0 +51.3 102.1
4°	13 53.0 +51.5 105.1	13 22.3 +51.4 104.2	12 51.4 +51.3 103.3	12 20.4 +51.3 102.4	11 49.3 +51.2 101.6
5°	14 44.5 +51.4 104.5	14 13.7 +51.3 103.7	13 42.7 +51.3 102.8	13 11.7 +51.2 101.9	12 40.5 +51.1 101.0
6°	15 35.9 +51.3 104.0	15 05.0 +51.3 103.1	14 34.0 +51.2 102.2	14 02.9 +51.1 101.4	13 31.6 +51.1 100.5
7°	16 27.2 +51.3 103.5	15 56.3 +51.1 102.6	15 25.2 +51.1 101.7	14 54.0 +51.0 100.8	14 22.7 +51.0 100.0
8°	17 18.5 +51.1 102.9	16 47.4 +51.1 102.0	16 16.3 +51.0 101.2	15 45.0 +51.0 100.3	15 13.7 +50.9 99.4
9°	18 09.6 +51.1 102.4	17 38.5 +51.0 101.5	17 07.3 +50.9 100.6	16 36.0 +50.9 99.7	16 04.6 +50.9 98.9
10°	19 00.7 +50.9 101.8	18 29.5 +50.9 100.9	17 58.2 +50.9 100.1	17 26.9 +50.8 99.2	16 55.5 +50.7 98.3
11°	19 51.6 +50.9 101.3	19 20.4 +50.8 100.4	18 49.1 +50.7 99.5	18 17.7 +50.7 98.6	17 46.2 +50.6 97.7
12°	20 42.5 +50.7 100.7	20 11.2 +50.7 99.8	19 39.8 +50.6 98.9	19 08.4 +50.5 98.1	18 36.8 +50.6 97.2
13°	21 33.2 +50.6 100.1	21 01.9 +50.5 99.2	20 30.4 +50.6 98.4	19 58.9 +50.5 97.5	19 27.4 +50.4 96.6
14°	22 23.8 +50.5 99.5	21 52.4 +50.5 98.7	21 21.0 +50.3 97.8	20 49.4 +50.4 96.9	20 17.8 +50.3 96.0
15°	23 14.3 +50.4 99.0	22 42.9 +50.3 98.1	22 11.3 +50.3 97.2	21 39.8 +50.2 96.3	21 08.1 +50.2 95.5
16°	24 04.7 +50.2 98.4	23 33.2 +50.1 97.5	23 01.6 +50.2 96.6	22 30.0 +50.1 95.7	21 58.3 +50.1 94.9
17°	24 54.9 +50.1 97.8	24 23.3 +50.1 96.9	23 51.8 +49.9 96.0	23 20.1 +50.0 95.1	22 48.4 +50.0 94.3
18°	25 45.0 +49.9 97.1	25 13.4 +49.9 96.3	24 41.7 +49.9 95.4	24 10.1 +49.8 94.5	23 38.4 +49.8 93.7
19°	26 34.9 +49.7 96.5	26 03.3 +49.7 95.7	25 31.6 +49.7 94.8	24 59.9 +49.7 93.9	24 28.2 +49.6 93.1
20°	27 24.6 +49.6 95.9	26 53.0 +49.5 95.0	26 21.3 +49.5 94.2	25 49.6 +49.5 93.3	25 17.8 +49.5 92.4
21°	28 14.2 +49.4 95.3	27 42.5 +49.4 94.4	27 10.8 +49.4 93.5	26 39.1 +49.3 92.7	26 07.3 +49.3 91.8
22°	29 03.6 +49.2 94.6	28 31.9 +49.2 93.8	28 00.2 +49.1 92.9	27 28.4 +49.2 92.0	26 56.6 +49.2 91.2
23°	29 52.8 +49.1 94.0	29 21.1 +49.0 93.1	28 49.3 +49.0 92.2	28 17.6 +48.9 91.4	27 45.8 +48.9 90.5
24°	30 41.9 +48.8 93.3	30 10.1 +48.8 92.4	29 38.3 +48.8 91.6	29 06.5 +48.8 90.7	28 34.7 +48.8 89.9
25°	31 30.7 +48.6 92.6	30 58.9 +48.6 91.8	30 27.1 +48.6 90.9	29 55.3 +48.6 90.1	29 23.5 +48.6 89.2
26°	32 19.3 +48.3 91.9	31 47.5 +48.3 91.1	31 15.7 +48.3 90.2	30 43.9 +48.3 89.4	30 12.1 +48.4 88.5
27°	33 07.6 +48.1 91.2	32 35.8 +48.1 90.4	32 04.0 +48.1 89.5	31 32.2 +48.2 88.7	31 00.5 +48.1 87.8
28°	33 55.7 +47.9 90.5	33 23.9 +47.9 89.7	32 52.1 +47.9 88.8	32 20.4 +47.8 88.0	31 48.6 +47.9 87.1
29°	34 43.6 +47.6 89.8	34 11.8 +47.6 88.9	33 40.0 +47.6 88.1	33 08.2 +47.7 87.3	32 36.5 +47.7 86.4

Dec	LHA 075° / 285°	LHA 076° / 284°	LHA 077° / 283°	LHA 078° / 282°	LHA 079° / 281°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	7 53.0 +51.3 102.8	7 21.9 +51.3 101.9	6 50.8 +51.2 101.1	6 19.5 +51.2 100.2	5 48.2 +51.1 99.4
1°	8 44.3 +51.3 102.3	8 13.2 +51.3 101.4	7 42.0 +51.2 100.6	7 10.7 +51.1 99.7	6 39.3 +51.1 98.8
2°	9 35.6 +51.3 101.8	9 04.5 +51.2 100.9	8 33.2 +51.1 100.0	8 01.8 +51.2 99.2	7 30.4 +51.1 98.3
3°	10 26.9 +51.2 101.2	9 55.7 +51.1 100.4	9 24.3 +51.2 99.5	8 53.0 +51.0 98.6	8 21.5 +51.0 97.8
4°	11 18.1 +51.2 100.7	10 46.8 +51.1 99.8	10 15.5 +51.0 99.0	9 44.0 +51.0 98.1	9 12.5 +51.0 97.2
5°	12 09.3 +51.0 100.2	11 37.9 +51.1 99.3	11 06.5 +51.0 98.4	10 35.0 +51.0 97.6	10 03.5 +50.9 96.7
6°	13 00.3 +51.1 99.6	12 29.0 +50.9 98.8	11 57.5 +50.9 97.9	11 26.0 +50.9 97.0	10 54.4 +50.8 96.2
7°	13 51.4 +50.9 99.1	13 19.9 +50.9 98.2	12 48.4 +50.9 97.4	12 16.9 +50.8 96.5	11 45.2 +50.8 95.6
8°	14 42.3 +50.9 98.5	14 10.8 +50.9 97.7	13 39.3 +50.8 96.8	13 07.7 +50.7 95.9	12 36.0 +50.8 95.1
9°	15 33.2 +50.8 98.0	15 01.7 +50.7 97.1	14 30.1 +50.7 96.3	13 58.4 +50.7 95.4	13 26.8 +50.6 94.5
10°	16 24.0 +50.7 97.4	15 52.4 +50.7 96.6	15 20.8 +50.6 95.7	14 49.1 +50.6 94.8	14 17.4 +50.6 94.0
11°	17 14.7 +50.6 96.9	16 43.1 +50.5 96.0	16 11.4 +50.6 95.1	15 39.7 +50.6 94.3	15 08.0 +50.5 93.4
12°	18 05.3 +50.5 96.3	17 33.6 +50.5 95.4	17 02.0 +50.4 94.6	16 30.3 +50.4 93.7	15 58.5 +50.4 92.9
13°	18 55.8 +50.4 95.7	18 24.1 +50.4 94.9	17 52.4 +50.4 94.0	17 20.7 +50.3 93.2	16 48.9 +50.4 92.3
14°	19 46.2 +50.3 95.2	19 14.5 +50.3 94.3	18 42.8 +50.2 93.4	18 11.0 +50.3 92.6	17 39.3 +50.2 91.7
15°	20 36.5 +50.1 94.6	20 04.8 +50.1 93.7	19 33.0 +50.2 92.9	19 01.3 +50.1 92.0	18 29.5 +50.1 91.2
16°	21 26.6 +50.1 94.0	20 54.9 +50.0 93.1	20 23.2 +50.0 92.3	19 51.4 +50.0 91.4	19 19.6 +50.0 90.6
17°	22 16.7 +49.9 93.4	21 44.9 +49.9 92.5	21 13.2 +49.9 91.7	20 41.4 +49.9 90.8	20 09.6 +49.9 90.0
18°	23 06.6 +49.8 92.8	22 34.8 +49.8 91.9	22 03.1 +49.7 91.1	21 31.3 +49.7 90.2	20 59.5 +49.7 89.4
19°	23 56.4 +49.6 92.2	23 24.6 +49.6 91.3	22 52.8 +49.6 90.5	22 21.0 +49.7 89.6	21 49.2 +49.7 88.8
20°	24 46.0 +49.5 91.6	24 14.2 +49.5 90.7	23 42.4 +49.5 89.9	23 10.7 +49.4 89.0	22 38.9 +49.5 88.2
21°	25 35.5 +49.3 91.0	25 03.7 +49.3 90.1	24 31.9 +49.3 89.3	24 00.1 +49.4 88.4	23 28.4 +49.3 87.6
22°	26 24.8 +49.2 90.3	25 53.0 +49.2 89.5	25 21.2 +49.2 88.6	24 49.5 +49.1 87.8	24 17.7 +49.2 87.0
23°	27 14.0 +48.9 89.7	26 42.2 +49.0 88.8	26 10.4 +49.0 88.0	25 38.6 +49.0 87.2	25 06.9 +49.0 86.3
24°	28 02.9 +48.8 89.0	27 31.2 +48.8 88.2	26 59.4 +48.8 87.3	26 27.6 +48.9 86.5	25 55.9 +48.9 85.7
25°	28 51.7 +48.6 88.4	28 20.0 +48.6 87.5	27 48.2 +48.6 86.7	27 16.5 +48.6 85.9	26 44.8 +48.7 85.0
26°	29 40.3 +48.4 87.7	29 08.6 +48.4 86.9	28 36.8 +48.4 86.0	28 05.1 +48.5 85.2	27 33.5 +48.4 84.4
27°	30 28.7 +48.2 87.0	29 57.0 +48.1 86.2	29 25.2 +48.3 85.4	28 53.6 +48.2 84.5	28 21.9 +48.3 83.7
28°	31 16.9 +47.9 86.3	30 45.1 +48.0 85.5	30 13.5 +48.0 84.7	29 41.8 +48.1 83.8	29 10.2 +48.1 83.0
29°	32 04.8 +47.7 85.6	31 33.1 +47.7 84.8	31 01.5 +47.7 84.0	30 29.9 +47.8 83.2	29 58.3 +47.9 82.3

## Declination SAME name as Latitude

## Latitude 58°

Dec	LHA 080° / 280°	LHA 081° / 279°	LHA 082° / 278°	LHA 083° / 277°	LHA 084° / 276°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	5 16.8 +51.1 98.5	4 45.3 +51.1 97.7	4 13.8 +51.0 96.8	3 42.2 +50.9 95.9	3 10.5 +51.0 95.1
1°	6 07.9 +51.0 98.0	5 36.4 +51.0 97.1	5 04.8 +51.0 96.3	4 33.1 +51.0 95.4	4 01.5 +50.9 94.6
2°	6 58.9 +51.0 97.4	6 27.4 +51.0 96.6	5 55.8 +50.9 95.7	5 24.1 +50.9 94.9	4 52.4 +50.9 94.0
3°	7 49.9 +51.0 96.9	7 18.4 +50.9 96.1	6 46.7 +50.9 95.2	6 15.0 +50.9 94.4	5 43.3 +50.9 93.5
4°	8 40.9 +51.0 96.4	8 09.3 +50.9 95.5	7 37.6 +50.9 94.7	7 05.9 +50.9 93.8	6 34.2 +50.8 93.0
5°	9 31.9 +50.8 95.8	9 00.2 +50.9 95.0	8 28.5 +50.9 94.1	7 56.8 +50.8 93.3	7 25.0 +50.8 92.4
6°	10 22.7 +50.9 95.3	9 51.1 +50.8 94.5	9 19.4 +50.7 93.6	8 47.6 +50.8 92.7	8 15.8 +50.8 91.9
7°	11 13.6 +50.8 94.8	10 41.9 +50.7 93.9	10 10.1 +50.8 93.1	9 38.4 +50.7 92.2	9 06.6 +50.7 91.4
8°	12 04.4 +50.7 94.2	11 32.6 +50.7 93.4	11 00.9 +50.6 92.5	10 29.1 +50.7 91.7	9 57.3 +50.7 90.8
9°	12 55.1 +50.6 93.7	12 23.3 +50.6 92.8	11 51.5 +50.7 92.0	11 19.8 +50.6 91.1	10 48.0 +50.6 90.3
10°	13 45.7 +50.6 93.1	13 13.9 +50.6 92.3	12 42.2 +50.5 91.4	12 10.4 +50.5 90.6	11 38.6 +50.5 89.7
11°	14 36.3 +50.5 92.6	14 04.5 +50.5 91.7	13 32.7 +50.5 90.9	13 00.9 +50.5 90.0	12 29.1 +50.5 89.2
12°	15 26.8 +50.4 92.0	14 55.0 +50.4 91.2	14 23.2 +50.4 90.3	13 51.4 +50.4 89.5	13 19.6 +50.4 88.6
13°	16 17.2 +50.3 91.4	15 45.4 +50.3 90.6	15 13.6 +50.3 89.8	14 41.8 +50.3 88.9	14 10.0 +50.3 88.1
14°	17 07.5 +50.2 90.9	16 35.7 +50.2 90.0	16 03.9 +50.2 89.2	15 32.1 +50.2 88.3	15 00.3 +50.3 87.5
15°	17 57.7 +50.1 90.3	17 25.9 +50.1 89.5	16 54.1 +50.1 88.6	16 22.3 +50.1 87.8	15 50.6 +50.1 86.9
16°	18 47.8 +50.0 89.7	18 16.0 +50.0 88.9	17 44.2 +50.0 88.0	17 12.4 +50.1 87.2	16 40.7 +50.1 86.4
17°	19 37.8 +49.9 89.1	19 06.0 +49.9 88.3	18 34.2 +49.9 87.5	18 02.5 +49.9 86.6	17 30.8 +49.9 85.8
18°	20 27.7 +49.8 88.6	19 55.9 +49.8 87.7	19 24.1 +49.8 86.9	18 52.4 +49.8 86.0	18 20.7 +49.9 85.2
19°	21 17.5 +49.6 88.0	20 45.7 +49.6 87.1	20 13.9 +49.7 86.3	19 42.2 +49.7 85.4	19 10.6 +49.7 84.6
20°	22 07.1 +49.5 87.3	21 35.3 +49.6 86.5	21 03.6 +49.6 85.7	20 31.9 +49.6 84.8	20 00.3 +49.6 84.0
21°	22 56.6 +49.4 86.7	22 24.9 +49.4 85.9	21 53.2 +49.4 85.1	21 21.5 +49.5 84.2	20 49.9 +49.5 83.4
22°	23 46.0 +49.2 86.1	23 14.3 +49.2 85.3	22 42.6 +49.3 84.5	22 11.0 +49.3 83.6	21 39.4 +49.3 82.8
23°	24 35.2 +49.0 85.5	24 03.5 +49.1 84.7	23 31.9 +49.1 83.8	23 00.3 +49.1 83.0	22 28.7 +49.3 82.2
24°	25 24.2 +48.9 84.9	24 52.6 +48.9 84.0	24 21.0 +49.0 83.2	23 49.4 +49.1 82.4	23 18.0 +49.0 81.6
25°	26 13.1 +48.7 84.2	25 41.5 +48.8 83.4	25 10.0 +48.8 82.6	24 38.5 +48.8 81.8	24 07.0 +48.9 80.9
26°	27 01.8 +48.6 83.6	26 30.3 +48.5 82.7	25 58.8 +48.6 81.9	25 27.3 +48.7 81.1	24 55.9 +48.8 80.3
27°	27 50.4 +48.3 82.9	27 18.8 +48.4 82.1	26 47.4 +48.4 81.3	26 16.0 +48.5 80.5	25 44.7 +48.5 79.7
28°	28 38.7 +48.1 82.2	28 07.2 +48.2 81.4	27 35.8 +48.3 80.6	27 04.5 +48.3 79.8	26 33.2 +48.4 79.0
29°	29 26.8 +48.0 81.5	28 55.4 +48.0 80.7	28 24.1 +48.0 79.9	27 52.8 +48.1 79.1	27 21.6 +48.2 78.3

Dec	LHA 085° / 275°	LHA 086° / 274°	LHA 087° / 273°	LHA 088° / 272°	LHA 089° / 271°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	2 38.8 +51.0 94.2	2 07.1 +50.9 93.4	1 35.4 +50.9 92.5	1 03.6 +50.9 91.7	0 31.8 +50.9 90.8
1°	3 29.8 +50.9 93.7	2 58.0 +50.9 92.9	2 26.3 +50.8 92.0	1 54.5 +50.8 91.2	1 22.7 +50.9 90.3
2°	4 20.7 +50.9 93.2	3 48.9 +50.9 92.3	3 17.1 +50.9 91.5	2 45.3 +50.9 90.6	2 13.6 +50.8 89.8
3°	5 11.6 +50.8 92.7	4 39.8 +50.8 91.8	4 08.0 +50.9 91.0	3 36.2 +50.9 90.1	3 04.4 +50.9 89.3
4°	6 02.4 +50.9 92.1	5 30.6 +50.9 91.3	4 58.9 +50.8 90.4	4 27.1 +50.8 89.6	3 55.3 +50.8 88.7
5°	6 53.3 +50.8 91.6	6 21.5 +50.8 90.7	5 49.7 +50.8 89.9	5 17.9 +50.8 89.0	4 46.1 +50.8 88.2
6°	7 44.1 +50.7 91.0	7 12.3 +50.7 90.2	6 40.5 +50.7 89.4	6 08.7 +50.7 88.5	5 36.9 +50.8 87.7
7°	8 34.8 +50.7 90.5	8 03.0 +50.7 89.7	7 31.2 +50.7 88.8	6 59.4 +50.8 88.0	6 27.7 +50.7 87.1
8°	9 25.5 +50.7 90.0	8 53.7 +50.7 89.1	8 21.9 +50.7 88.3	7 50.2 +50.7 87.4	7 18.4 +50.7 86.6
9°	10 16.2 +50.6 89.4	9 44.4 +50.6 88.6	9 12.6 +50.6 87.7	8 40.9 +50.6 86.9	8 09.1 +50.7 86.0
10°	11 06.8 +50.5 88.9	10 35.0 +50.6 88.0	10 03.2 +50.6 87.2	9 31.5 +50.6 86.3	8 59.8 +50.6 85.5
11°	11 57.3 +50.5 88.3	11 25.6 +50.5 87.5	10 53.8 +50.5 86.6	10 22.1 +50.5 85.8	9 50.4 +50.5 85.0
12°	12 47.8 +50.4 87.8	12 16.1 +50.4 86.9	11 44.3 +50.5 86.1	11 12.6 +50.5 85.3	10 40.9 +50.5 84.4
13°	13 38.2 +50.4 87.2	13 06.5 +50.3 86.4	12 34.8 +50.3 85.5	12 03.1 +50.4 84.7	11 31.4 +50.5 83.9
14°	14 28.6 +50.2 86.7	13 56.8 +50.3 85.8	13 25.1 +50.3 85.0	12 53.5 +50.3 84.1	12 21.9 +50.4 83.3
15°	15 18.8 +50.2 86.1	14 47.1 +50.2 85.3	14 15.4 +50.3 84.4	13 43.8 +50.3 83.6	13 12.3 +50.3 82.8
16°	16 09.0 +50.1 85.5	15 37.3 +50.1 84.7	15 05.7 +50.1 83.9	14 34.1 +50.2 83.0	14 02.6 +50.2 82.2
17°	16 59.1 +50.0 84.9	16 27.4 +50.0 84.1	15 55.8 +50.1 83.3	15 24.3 +50.1 82.5	14 52.8 +50.1 81.6
18°	17 49.1 +49.8 84.4	17 17.4 +49.9 83.5	16 45.9 +49.9 82.7	16 14.4 +50.0 81.9	15 42.9 +50.1 81.1
19°	18 38.9 +49.8 83.8	18 07.3 +49.9 83.0	17 35.8 +49.9 82.1	17 04.4 +49.9 81.3	16 33.0 +49.9 80.5
20°	19 28.7 +49.7 83.2	18 57.2 +49.7 82.4	18 25.7 +49.7 81.5	17 54.3 +49.8 80.7	17 22.9 +49.9 79.9
21°	20 18.4 +49.5 82.6	19 46.9 +49.5 81.8	19 15.4 +49.6 81.0	18 44.1 +49.6 80.1	18 12.8 +49.7 79.3
22°	21 07.9 +49.4 82.0	20 36.4 +49.5 81.2	20 05.0 +49.6 80.4	19 33.7 +49.6 79.5	19 02.5 +49.6 78.7
23°	21 57.3 +49.2 81.4	21 25.9 +49.3 80.6	20 54.6 +49.3 79.8	20 23.3 +49.4 78.9	19 52.1 +49.6 78.1
24°	22 46.5 +49.2 80.8	22 15.2 +49.2 80.0	21 43.9 +49.3 79.1	21 12.7 +49.4 78.3	20 41.7 +49.3 77.5
25°	23 35.7 +48.9 80.1	23 04.4 +49.0 79.3	22 33.2 +49.1 78.5	22 02.1 +49.1 77.7	21 31.0 +49.3 76.9
26°	24 24.6 +48.8 79.5	23 53.4 +48.9 78.7	23 22.3 +48.9 77.9	22 51.2 +49.1 77.1	22 20.3 +49.1 76.3
27°	25 13.4 +48.7 78.9	24 42.3 +48.7 78.1	24 11.2 +48.8 77.3	23 40.3 +48.8 76.5	23 09.4 +49.0 75.7
28°	26 02.1 +48.4 78.2	25 31.0 +48.5 77.4	25 00.0 +48.6 76.6	24 29.1 +48.7 75.8	23 58.4 +48.8 75.1
29°	26 50.5 +48.3 77.6	26 19.5 +48.4 76.8	25 48.6 +48.5 76.0	25 17.8 +48.6 75.2	24 47.2 +48.6 74.4

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Dec	LHA 090° / 270°	LHA 091° / 269°	LHA 092° / 268°	LHA 093° / 267°	LHA 094° / 266°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	0 00.0 +50.9 90.0	-0 31.8 +50.9	-1 03.6 +50.9	-1 35.4 +51.0	-2 07.1 +50.9
1°	0 50.9 +50.9 89.5	0 19.1 +50.9 88.6	-0 12.7 +50.9	-0 44.4 +50.9	-1 16.2 +50.9
2°	1 41.8 +50.8 88.9	1 10.0 +50.9 88.1	0 38.2 +50.9 87.2	0 06.5 +50.9 86.4	-0 25.3 +51.0
3°	2 32.6 +50.9 88.4	2 00.9 +50.8 87.6	1 29.1 +50.9 86.7	0 57.4 +50.9 85.9	0 25.7 +50.9 85.0
4°	3 23.5 +50.8 87.9	2 51.7 +50.9 87.0	2 20.0 +50.9 86.2	1 48.3 +50.9 85.3	1 16.6 +50.9 84.5
5°	4 14.3 +50.8 87.3	3 42.6 +50.8 86.5	3 10.9 +50.8 85.7	2 39.2 +50.9 84.8	2 07.5 +50.9 84.0
6°	5 05.1 +50.8 86.8	4 33.4 +50.8 86.0	4 01.7 +50.8 85.1	3 30.1 +50.8 84.3	2 58.4 +50.9 83.4
7°	5 55.9 +50.8 86.3	5 24.2 +50.8 85.4	4 52.5 +50.9 84.6	4 20.9 +50.9 83.7	3 49.3 +50.9 82.9
8°	6 46.7 +50.7 85.7	6 15.0 +50.8 84.9	5 43.4 +50.7 84.1	5 11.8 +50.8 83.2	4 40.2 +50.9 82.4
9°	7 37.4 +50.7 85.2	7 05.8 +50.7 84.4	6 34.1 +50.8 83.5	6 02.6 +50.8 82.7	5 31.1 +50.8 81.8
10°	8 28.1 +50.6 84.7	7 56.5 +50.6 83.8	7 24.9 +50.7 83.0	6 53.4 +50.7 82.1	6 21.9 +50.8 81.3
11°	9 18.7 +50.6 84.1	8 47.1 +50.7 83.3	8 15.6 +50.6 82.4	7 44.1 +50.7 81.6	7 12.7 +50.7 80.8
12°	10 09.3 +50.6 83.6	9 37.8 +50.5 82.7	9 06.2 +50.7 81.9	8 34.8 +50.7 81.1	8 03.4 +50.7 80.2
13°	10 59.9 +50.4 83.0	10 28.3 +50.5 82.2	9 56.9 +50.5 81.4	9 25.5 +50.6 80.5	8 54.1 +50.7 79.7
14°	11 50.3 +50.4 82.5	11 18.8 +50.5 81.6	10 47.4 +50.5 80.8	10 16.1 +50.5 80.0	9 44.8 +50.6 79.1
15°	12 40.7 +50.4 81.9	12 09.3 +50.4 81.1	11 37.9 +50.5 80.3	11 06.6 +50.5 79.4	10 35.4 +50.6 78.6
16°	13 31.1 +50.3 81.4	12 59.7 +50.3 80.5	12 28.4 +50.3 79.7	11 57.1 +50.5 78.9	11 26.0 +50.5 78.1
17°	14 21.4 +50.1 80.8	13 50.0 +50.3 80.0	13 18.7 +50.3 79.1	12 47.6 +50.3 78.3	12 16.5 +50.4 77.5
18°	15 11.5 +50.1 80.2	14 40.3 +50.1 79.4	14 09.0 +50.3 78.6	13 37.9 +50.3 77.8	13 06.9 +50.4 76.9
19°	16 01.6 +50.1 79.7	15 30.4 +50.1 78.8	14 59.3 +50.1 78.0	14 28.2 +50.2 77.2	13 57.3 +50.2 76.4
20°	16 51.7 +49.9 79.1	16 20.5 +50.0 78.3	15 49.4 +50.0 77.5	15 18.4 +50.1 76.6	14 47.5 +50.2 75.8
21°	17 41.6 +49.8 78.5	17 10.5 +49.8 77.7	16 39.4 +50.0 76.9	16 08.5 +50.1 76.1	15 37.7 +50.1 75.3
22°	18 31.4 +49.7 77.9	18 00.3 +49.8 77.1	17 29.4 +49.8 76.3	16 58.6 +49.9 75.5	16 27.8 +50.0 74.7
23°	19 21.1 +49.6 77.3	18 50.1 +49.7 76.5	18 19.2 +49.8 75.7	17 48.5 +49.8 74.9	17 17.8 +50.0 74.1
24°	20 10.7 +49.4 76.7	19 39.8 +49.5 75.9	19 09.0 +49.6 75.1	18 38.3 +49.7 74.3	18 07.8 +49.8 73.5
25°	21 00.1 +49.4 76.1	20 29.3 +49.4 75.3	19 58.6 +49.5 74.5	19 28.0 +49.6 73.7	18 57.6 +49.7 72.9
26°	21 49.5 +49.1 75.5	21 18.7 +49.3 74.7	20 48.1 +49.4 73.9	20 17.6 +49.5 73.1	19 47.3 +49.5 72.3
27°	22 38.6 +49.1 74.9	22 08.0 +49.2 74.1	21 37.5 +49.2 73.3	21 07.1 +49.3 72.5	20 36.8 +49.5 71.7
28°	23 27.7 +48.9 74.3	22 57.2 +49.0 73.5	22 26.7 +49.1 72.7	21 56.4 +49.2 71.9	21 26.3 +49.3 71.1
29°	24 16.6 +48.7 73.6	23 46.2 +48.8 72.9	23 15.8 +49.0 72.1	22 45.6 +49.1 71.3	22 15.6 +49.2 70.5

Dec	LHA 095° / 265°	LHA 096° / 264°	LHA 097° / 263°	LHA 098° / 262°	LHA 099° / 261°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-2 38.8 +50.9	-3 10.5 +50.9	-3 42.2 +51.0	-4 13.8 +51.1	-4 45.3 +51.1
1°	-1 47.9 +51.0	-2 19.6 +51.0	-2 51.2 +51.0	-3 22.7 +51.0	-3 54.2 +51.1
2°	-0 56.9 +50.9	-1 28.6 +51.0	-2 00.2 +51.1	-2 31.7 +51.1	-3 03.1 +51.1
3°	-0 06.0 +51.0	-0 37.6 +51.0	-1 09.1 +51.0	-1 40.6 +51.0	-2 12.0 +51.1
4°	0 45.0 +50.9 83.6	0 13.4 +51.0 82.8	-0 18.1 +51.0	-0 49.6 +51.1	-1 20.9 +51.1
5°	1 35.9 +51.0 83.1	1 04.4 +51.0 82.3	0 32.9 +51.1 81.4	0 01.5 +51.1 80.6	-0 29.8 +51.1
6°	2 26.9 +50.9 82.6	1 55.4 +51.0 81.7	1 24.0 +51.0 80.9	0 52.6 +51.1 80.0	0 21.3 +51.1 79.2
7°	3 17.8 +50.9 82.1	2 46.4 +50.9 81.2	2 15.0 +51.0 80.4	1 43.7 +51.0 79.5	1 12.4 +51.2 78.7
8°	4 08.7 +50.9 81.5	3 37.3 +51.0 80.7	3 06.0 +51.0 79.8	2 34.7 +51.1 79.0	2 03.6 +51.1 78.2
9°	4 59.6 +50.9 81.0	4 28.3 +50.9 80.2	3 57.0 +50.9 79.3	3 25.8 +51.0 78.5	2 54.7 +51.1 77.6
10°	5 50.5 +50.8 80.5	5 19.2 +50.9 79.6	4 47.9 +51.0 78.8	4 16.8 +51.0 77.9	3 45.8 +51.0 77.1
11°	6 41.3 +50.8 79.9	6 10.1 +50.8 79.1	5 38.9 +50.9 78.3	5 07.8 +51.0 77.4	4 36.8 +51.1 76.6
12°	7 32.1 +50.8 79.4	7 00.9 +50.9 78.6	6 29.8 +50.9 77.7	5 58.8 +50.9 76.9	5 27.9 +51.0 76.1
13°	8 22.9 +50.7 78.9	7 51.8 +50.7 78.0	7 20.7 +50.8 77.2	6 49.7 +51.0 76.4	6 18.9 +51.0 75.5
14°	9 13.6 +50.7 78.3	8 42.5 +50.8 77.5	8 11.5 +50.9 76.7	7 40.7 +50.8 75.8	7 09.9 +51.0 75.0
15°	10 04.3 +50.6 77.8	9 33.3 +50.7 76.9	9 02.4 +50.7 76.1	8 31.5 +50.9 75.3	8 00.9 +50.9 74.5
16°	10 54.9 +50.6 77.2	10 24.0 +50.6 76.4	9 53.1 +50.7 75.6	9 22.4 +50.8 74.8	8 51.8 +50.8 73.9
17°	11 45.5 +50.5 76.7	11 14.6 +50.6 75.9	10 43.8 +50.7 75.0	10 13.2 +50.7 74.2	9 42.6 +50.8 73.4
18°	12 36.0 +50.4 76.1	12 05.2 +50.5 75.3	11 34.5 +50.6 74.5	11 03.9 +50.7 73.7	10 33.4 +50.8 72.8
19°	13 26.4 +50.4 75.6	12 55.7 +50.4 74.8	12 25.1 +50.5 73.9	11 54.6 +50.6 73.1	11 24.2 +50.7 72.3
20°	14 16.8 +50.2 75.0	13 46.1 +50.4 74.2	13 15.6 +50.4 73.4	12 45.2 +50.5 72.6	12 14.9 +50.6 71.8
21°	15 07.0 +50.2 74.4	14 36.5 +50.2 73.6	14 06.0 +50.4 72.8	13 35.7 +50.5 72.0	13 05.5 +50.6 71.2
22°	15 57.2 +50.1 73.9	15 26.7 +50.2 73.1	14 56.4 +50.3 72.3	14 26.2 +50.4 71.5	13 56.1 +50.5 70.7
23°	16 47.3 +50.0 73.3	16 16.9 +50.1 72.5	15 46.7 +50.2 71.7	15 16.6 +50.3 70.9	14 46.6 +50.4 70.1
24°	17 37.3 +49.9 72.7	17 07.0 +50.0 71.9	16 36.9 +50.1 71.1	16 06.9 +50.2 70.3	15 37.0 +50.3 69.5
25°	18 27.2 +49.8 72.1	17 57.0 +49.9 71.3	17 27.0 +50.0 70.6	16 57.1 +50.1 69.8	16 27.3 +50.3 69.0
26°	19 17.0 +49.7 71.5	18 46.9 +49.8 70.8	18 17.0 +49.9 70.0	17 47.2 +50.0 69.2	17 17.6 +50.1 68.4
27°	20 06.7 +49.6 71.0	19 36.7 +49.7 70.2	19 06.9 +49.8 69.4	18 37.2 +49.9 68.6	18 07.7 +50.0 67.8
28°	20 56.3 +49.4 70.4	20 26.4 +49.5 69.6	19 56.7 +49.6 68.8	19 27.1 +49.8 68.0	18 57.7 +49.9 67.2
29°	21 45.7 +49.3 69.7	21 15.9 +49.5 69.0	20 46.3 +49.6 68.2	20 16.9 +49.7 67.4	19 47.6 +49.8 66.6

# Declination SAME name as Latitude

# Latitude 58°

Dec	LHA 100° / 260°	LHA 101° / 259°	LHA 102° / 258°	LHA 103° / 257°	LHA 104° / 256°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-5 16.8 +51.1	-5 48.2 +51.2	-6 19.5 +51.2	-6 50.8 +51.3	-7 21.9 +51.3
1°	-4 25.7 +51.2	-4 57.0 +51.1	-5 28.3 +51.2	-5 59.5 +51.3	-6 30.6 +51.3
2°	-3 34.5 +51.1	-4 05.9 +51.2	-4 37.1 +51.3	-5 08.2 +51.3	-5 39.3 +51.4
3°	-2 43.4 +51.2	-3 14.7 +51.3	-3 45.8 +51.3	-4 16.9 +51.3	-4 47.9 +51.4
4°	-1 52.2 +51.2	-2 23.4 +51.2	-2 54.5 +51.2	-3 25.6 +51.4	-3 56.5 +51.5
5°	-1 01.0 +51.1	-1 32.2 +51.2	-2 03.3 +51.4	-2 34.2 +51.4	-3 05.0 +51.4
6°	-0 09.9 +51.2	-0 41.0 +51.3	-1 11.9 +51.3	-1 42.8 +51.3	-2 13.6 +51.5
7°	0 41.3 +51.2 77.8	0 10.3 +51.2 77.0	-0 20.6 +51.3	-0 51.5 +51.4	-1 22.1 +51.4
8°	1 32.5 +51.2 77.3	1 01.5 +51.3 76.5	0 30.7 +51.3 75.6	-0 00.1 +51.4	-0 30.7 +51.5
9°	2 23.7 +51.1 76.8	1 52.8 +51.2 75.9	1 22.0 +51.3 75.1	0 51.3 +51.4 74.3	0 20.8 +51.4 73.4
10°	3 14.8 +51.2 76.3	2 44.0 +51.2 75.4	2 13.3 +51.3 74.6	1 42.7 +51.4 73.7	1 12.2 +51.5 72.9
11°	4 06.0 +51.1 75.7	3 35.2 +51.2 74.9	3 04.6 +51.2 74.1	2 34.1 +51.3 73.2	2 03.7 +51.4 72.4
12°	4 57.1 +51.1 75.2	4 26.4 +51.2 74.4	3 55.8 +51.3 73.5	3 25.4 +51.4 72.7	2 55.1 +51.5 71.9
13°	5 48.2 +51.0 74.7	5 17.6 +51.1 73.9	4 47.1 +51.2 73.0	4 16.8 +51.3 72.2	3 46.6 +51.4 71.3
14°	6 39.2 +51.1 74.2	6 08.7 +51.1 73.3	5 38.3 +51.2 72.5	5 08.1 +51.3 71.7	4 38.0 +51.4 70.8
15°	7 30.3 +51.0 73.6	6 59.8 +51.1 72.8	6 29.5 +51.2 72.0	5 59.4 +51.2 71.1	5 29.4 +51.3 70.3
16°	8 21.3 +50.9 73.1	7 50.9 +51.1 72.3	7 20.7 +51.1 71.4	6 50.6 +51.3 70.6	6 20.7 +51.4 69.8
17°	9 12.2 +50.9 72.6	8 42.0 +51.0 71.7	8 11.8 +51.1 70.9	7 41.9 +51.2 70.1	7 12.1 +51.2 69.3
18°	10 03.1 +50.9 72.0	9 33.0 +50.9 71.2	9 02.9 +51.1 70.4	8 33.1 +51.1 69.6	8 03.3 +51.3 68.7
19°	10 54.0 +50.8 71.5	10 23.9 +50.9 70.7	9 54.0 +51.0 69.9	9 24.2 +51.1 69.0	8 54.6 +51.2 68.2
20°	11 44.8 +50.7 70.9	11 14.8 +50.8 70.1	10 45.0 +50.9 69.3	10 15.3 +51.1 68.5	9 45.8 +51.2 67.7
21°	12 35.5 +50.7 70.4	12 05.6 +50.8 69.6	11 35.9 +50.9 68.8	11 06.4 +51.0 68.0	10 37.0 +51.1 67.2
22°	13 26.2 +50.6 69.8	12 56.4 +50.7 69.0	12 26.8 +50.8 68.2	11 57.4 +50.9 67.4	11 28.1 +51.0 66.6
23°	14 16.8 +50.5 69.3	13 47.1 +50.6 68.5	13 17.6 +50.8 67.7	12 48.3 +50.8 66.9	12 19.1 +51.0 66.1
24°	15 07.3 +50.4 68.7	14 37.7 +50.6 67.9	14 08.4 +50.6 67.1	13 39.1 +50.8 66.4	13 10.1 +50.9 65.6
25°	15 57.7 +50.4 68.2	15 28.3 +50.5 67.4	14 59.0 +50.6 66.6	14 29.9 +50.8 65.8	14 01.0 +50.9 65.0
26°	16 48.1 +50.2 67.6	16 18.8 +50.3 66.8	15 49.6 +50.5 66.0	15 20.7 +50.6 65.2	14 51.9 +50.7 64.5
27°	17 38.3 +50.2 67.0	17 09.1 +50.3 66.3	16 40.1 +50.4 65.5	16 11.3 +50.5 64.7	15 42.6 +50.7 63.9
28°	18 28.5 +50.0 66.5	17 59.4 +50.2 65.7	17 30.5 +50.3 64.9	17 01.8 +50.5 64.1	16 33.3 +50.6 63.4
29°	19 18.5 +50.0 65.9	18 49.6 +50.1 65.1	18 20.8 +50.3 64.3	17 52.3 +50.3 63.6	17 23.9 +50.5 62.8

Dec	LHA 105° / 255°	LHA 106° / 254°	LHA 107° / 253°	LHA 108° / 252°	LHA 109° / 251°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-7 53.0 +51.4	-8 23.9 +51.4	-8 54.8 +51.5	-9 25.5 +51.6	-9 56.1 +51.7
1°	-7 01.6 +51.4	-7 32.5 +51.5	-8 03.3 +51.6	-8 33.9 +51.7	-9 04.4 +51.7
2°	-6 10.2 +51.5	-6 41.0 +51.5	-7 11.7 +51.6	-7 42.2 +51.6	-8 12.7 +51.8
3°	-5 18.7 +51.4	-5 49.5 +51.6	-6 20.1 +51.6	-6 50.6 +51.7	-7 20.9 +51.8
4°	-4 27.3 +51.5	-4 57.9 +51.6	-5 28.5 +51.7	-5 58.9 +51.8	-6 29.1 +51.8
5°	-3 35.8 +51.6	-4 06.3 +51.5	-4 36.8 +51.7	-5 07.1 +51.7	-5 37.3 +51.9
6°	-2 44.2 +51.5	-3 14.8 +51.7	-3 45.1 +51.7	-4 15.4 +51.8	-4 45.4 +51.8
7°	-1 52.7 +51.5	-2 23.1 +51.6	-2 53.4 +51.7	-3 23.6 +51.8	-3 53.6 +51.9
8°	-1 01.2 +51.6	-1 31.5 +51.6	-2 01.7 +51.7	-2 31.8 +51.8	-3 01.7 +51.9
9°	-0 09.6 +51.5	-0 39.9 +51.6	-1 10.0 +51.7	-1 40.0 +51.9	-2 09.8 +52.0
10°	0 41.9 +51.6 72.0	0 11.7 +51.7 71.2	-0 18.3 +51.7	-0 48.1 +51.8	-1 17.8 +51.9
11°	1 33.5 +51.5 71.5	1 03.4 +51.6 70.7	0 33.4 +51.8 69.8	0 03.7 +51.8 69.0	-0 25.9 +51.9
12°	2 25.0 +51.5 71.0	1 55.0 +51.6 70.2	1 25.2 +51.7 69.3	0 55.5 +51.8 68.5	0 26.0 +51.9 67.7
13°	3 16.5 +51.5 70.5	2 46.6 +51.6 69.7	2 16.9 +51.7 68.8	1 47.3 +51.8 68.0	1 17.9 +51.9 67.1
14°	4 08.0 +51.5 70.0	3 38.2 +51.6 69.2	3 08.6 +51.7 68.3	2 39.1 +51.8 67.5	2 09.8 +52.0 66.6
15°	4 59.5 +51.5 69.5	4 29.8 +51.6 68.7	4 00.3 +51.6 67.8	3 30.9 +51.8 67.0	3 01.8 +51.8 66.1
16°	5 51.0 +51.4 69.0	5 21.4 +51.5 68.1	4 51.9 +51.7 67.3	4 22.7 +51.8 66.5	3 53.6 +51.9 65.6
17°	6 42.4 +51.4 68.4	6 12.9 +51.5 67.6	5 43.6 +51.6 66.8	5 14.5 +51.7 66.0	4 45.5 +51.9 65.1
18°	7 33.8 +51.4 67.9	7 04.4 +51.5 67.1	6 35.2 +51.6 66.3	6 06.2 +51.7 65.5	5 37.4 +51.8 64.6
19°	8 25.2 +51.3 67.4	7 55.9 +51.4 66.6	7 26.8 +51.6 65.8	6 57.9 +51.7 64.9	6 29.2 +51.8 64.1
20°	9 16.5 +51.3 66.9	8 47.3 +51.4 66.1	8 18.4 +51.5 65.3	7 49.6 +51.6 64.4	7 21.0 +51.8 63.6
21°	10 07.8 +51.2 66.4	9 38.7 +51.4 65.5	9 09.9 +51.4 64.7	8 41.2 +51.6 63.9	8 12.8 +51.7 63.1
22°	10 59.0 +51.2 65.8	10 30.1 +51.3 65.0	10 01.3 +51.5 64.2	9 32.8 +51.6 63.4	9 04.5 +51.7 62.6
23°	11 50.2 +51.1 65.3	11 21.4 +51.2 64.5	10 52.8 +51.3 63.7	10 24.4 +51.5 62.9	9 56.2 +51.6 62.1
24°	12 41.3 +51.0 64.8	12 12.6 +51.2 64.0	11 44.1 +51.3 63.2	11 15.9 +51.4 62.4	10 47.8 +51.6 61.6
25°	13 32.3 +51.0 64.2	13 03.8 +51.1 63.4	12 35.4 +51.3 62.6	12 07.3 +51.4 61.8	11 39.4 +51.5 61.0
26°	14 23.3 +50.9 63.7	13 54.9 +51.0 62.9	13 26.7 +51.2 62.1	12 58.7 +51.3 61.3	12 30.9 +51.5 60.5
27°	15 14.2 +50.8 63.1	14 45.9 +51.0 62.3	14 17.9 +51.1 61.6	13 50.0 +51.3 60.8	13 22.4 +51.4 60.0
28°	16 05.0 +50.7 62.6	15 36.9 +50.9 61.8	15 09.0 +51.0 61.0	14 41.3 +51.1 60.2	14 13.8 +51.3 59.5
29°	16 55.7 +50.7 62.0	16 27.8 +50.7 61.2	16 00.0 +50.9 60.5	15 32.4 +51.1 59.7	15 05.1 +51.2 58.9

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Dec	LHA 110° / 250°	LHA 111° / 249°	LHA 112° / 248°	LHA 113° / 247°	LHA 114° / 246°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°	-9 34.8 +51.8				
2°	-8 43.0 +51.9	-9 13.1 +52.0	-9 43.1 +52.1		
3°	-7 51.1 +51.9	-8 21.1 +51.9	-8 51.0 +52.0	-9 20.7 +52.1	-9 50.3 +52.3
4°	-6 59.2 +51.9	-7 29.2 +52.0	-7 59.0 +52.2	-8 28.6 +52.3	-8 58.0 +52.3
5°	-6 07.3 +51.9	-6 37.2 +52.1	-7 06.8 +52.1	-7 36.3 +52.2	-8 05.7 +52.4
6°	-5 15.4 +52.0	-5 45.1 +52.1	-6 14.7 +52.2	-6 44.1 +52.3	-7 13.3 +52.4
7°	-4 23.4 +52.0	-4 53.0 +52.0	-5 22.5 +52.2	-5 51.8 +52.3	-6 20.9 +52.4
8°	-3 31.4 +52.0	-4 01.0 +52.2	-4 30.3 +52.2	-4 59.5 +52.3	-5 28.5 +52.4
9°	-2 39.4 +52.0	-3 08.8 +52.1	-3 38.1 +52.2	-4 07.2 +52.4	-4 36.1 +52.5
10°	-1 47.4 +52.1	-2 16.7 +52.1	-2 45.9 +52.3	-3 14.8 +52.3	-3 43.6 +52.5
11°	-0 55.3 +52.0	-1 24.6 +52.2	-1 53.6 +52.2	-2 22.5 +52.4	-2 51.1 +52.4
12°	-0 03.3 +52.0	-0 32.4 +52.1	-1 01.4 +52.3	-1 30.1 +52.4	-1 58.7 +52.5
13°	0 48.7 +52.0 66.3	0 19.7 +52.1 65.5	-0 09.1 +52.2	-0 37.7 +52.3	-1 06.2 +52.5
14°	1 40.7 +52.1 65.8	1 11.8 +52.2 65.0	0 43.1 +52.3 64.1	0 14.6 +52.4 63.3	-0 13.7 +52.5
15°	2 32.8 +52.0 65.3	2 04.0 +52.1 64.5	1 35.4 +52.2 63.6	1 07.0 +52.4 62.8	0 38.8 +52.5 61.9
16°	3 24.8 +52.0 64.8	2 56.1 +52.1 64.0	2 27.6 +52.3 63.1	1 59.4 +52.3 62.3	1 31.3 +52.5 61.5
17°	4 16.8 +51.9 64.3	3 48.2 +52.1 63.5	3 19.9 +52.2 62.6	2 51.7 +52.4 61.8	2 23.8 +52.5 61.0
18°	5 08.7 +52.0 63.8	4 40.3 +52.1 63.0	4 12.1 +52.2 62.2	3 44.1 +52.3 61.3	3 16.3 +52.5 60.5
19°	6 00.7 +51.9 63.3	5 32.4 +52.0 62.5	5 04.3 +52.2 61.7	4 36.4 +52.3 60.8	4 08.8 +52.4 60.0
20°	6 52.6 +51.9 62.8	6 24.4 +52.1 62.0	5 56.5 +52.1 61.2	5 28.7 +52.3 60.3	5 01.2 +52.5 59.5
21°	7 44.5 +51.9 62.3	7 16.5 +51.9 61.5	6 48.6 +52.2 60.7	6 21.0 +52.3 59.8	5 53.7 +52.4 59.0
22°	8 36.4 +51.8 61.8	8 08.4 +52.0 61.0	7 40.8 +52.0 60.2	7 13.3 +52.2 59.4	6 46.1 +52.3 58.5
23°	9 28.2 +51.7 61.3	9 00.4 +51.9 60.5	8 32.8 +52.1 59.7	8 05.5 +52.2 58.9	7 38.4 +52.4 58.0
24°	10 19.9 +51.8 60.8	9 52.3 +51.9 60.0	9 24.9 +52.0 59.2	8 57.7 +52.2 58.4	8 30.8 +52.3 57.6
25°	11 11.7 +51.6 60.2	10 44.2 +51.8 59.5	10 16.9 +52.0 58.7	9 49.9 +52.1 57.9	9 23.1 +52.2 57.1
26°	12 03.3 +51.6 59.7	11 36.0 +51.7 58.9	11 08.9 +51.9 58.1	10 42.0 +52.0 57.4	10 15.3 +52.2 56.6
27°	12 54.9 +51.6 59.2	12 27.7 +51.7 58.4	12 00.8 +51.8 57.6	11 34.0 +52.0 56.8	11 07.5 +52.2 56.1
28°	13 46.5 +51.5 58.7	13 19.4 +51.7 57.9	12 52.6 +51.8 57.1	12 26.0 +52.0 56.3	11 59.7 +52.1 55.5
29°	14 38.0 +51.4 58.1	14 11.1 +51.5 57.4	13 44.4 +51.7 56.6	13 18.0 +51.9 55.8	12 51.8 +52.1 55.0

Dec	LHA 115° / 245°	LHA 116° / 244°	LHA 117° / 243°	LHA 118° / 242°	LHA 119° / 241°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°	-9 27.2 +52.4	-9 56.3 +52.6			
5°	-8 34.8 +52.5	-9 03.7 +52.6	-9 32.5 +52.7		
6°	-7 42.3 +52.5	-8 11.1 +52.6	-8 39.8 +52.8	-9 08.1 +52.8	-9 36.3 +53.0
7°	-6 49.8 +52.5	-7 18.5 +52.6	-7 47.0 +52.7	-8 15.3 +52.9	-8 43.3 +53.0
8°	-5 57.3 +52.5	-6 25.9 +52.7	-6 54.3 +52.8	-7 22.4 +52.9	-7 50.3 +53.0
9°	-5 04.8 +52.6	-5 33.2 +52.7	-6 01.5 +52.9	-6 29.5 +53.0	-6 57.3 +53.1
10°	-4 12.2 +52.6	-4 40.5 +52.7	-5 08.6 +52.8	-5 36.5 +52.9	-6 04.2 +53.1
11°	-3 19.6 +52.6	-3 47.8 +52.7	-4 15.8 +52.8	-4 43.6 +53.0	-5 11.1 +53.1
12°	-2 27.0 +52.6	-2 55.1 +52.8	-3 23.0 +52.9	-3 50.6 +53.0	-4 18.0 +53.1
13°	-1 34.4 +52.7	-2 02.3 +52.7	-2 30.1 +52.9	-2 57.6 +53.0	-3 24.9 +53.2
14°	-0 41.7 +52.6	-1 09.6 +52.8	-1 37.2 +52.9	-2 04.6 +53.0	-2 31.7 +53.1
15°	0 10.9 +52.6 61.1	-0 16.8 +52.7	-0 44.3 +52.9	-1 11.6 +53.1	-1 38.6 +53.2
16°	1 03.5 +52.6 60.6	0 35.9 +52.8 59.8	0 08.6 +52.9 58.9	-0 18.5 +53.0	-0 45.4 +53.2
17°	1 56.1 +52.7 60.1	1 28.7 +52.7 59.3	1 01.5 +52.9 58.5	0 34.5 +53.0 57.6	0 07.8 +53.1 56.8
18°	2 48.8 +52.6 59.7	2 21.4 +52.8 58.8	1 54.4 +52.8 58.0	1 27.5 +53.0 57.1	1 00.9 +53.2 56.3
19°	3 41.4 +52.5 59.2	3 14.2 +52.7 58.3	2 47.2 +52.9 57.5	2 20.5 +53.0 56.7	1 54.1 +53.2 55.8
20°	4 33.9 +52.6 58.7	4 06.9 +52.7 57.9	3 40.1 +52.8 57.0	3 13.5 +53.0 56.2	2 47.3 +53.1 55.4
21°	5 26.5 +52.6 58.2	4 59.6 +52.7 57.4	4 32.9 +52.9 56.6	4 06.5 +53.0 55.7	3 40.4 +53.1 54.9
22°	6 19.1 +52.5 57.7	5 52.3 +52.7 56.9	5 25.8 +52.8 56.1	4 59.5 +53.0 55.3	4 33.5 +53.1 54.4
23°	7 11.6 +52.5 57.2	6 45.0 +52.6 56.4	6 18.6 +52.8 55.6	5 52.5 +52.9 54.8	5 26.6 +53.1 54.0
24°	8 04.1 +52.4 56.7	7 37.6 +52.6 55.9	7 11.4 +52.7 55.1	6 45.4 +52.9 54.3	6 19.7 +53.1 53.5
25°	8 56.5 +52.4 56.3	8 30.2 +52.6 55.5	8 04.1 +52.8 54.6	7 38.3 +52.9 53.8	7 12.8 +53.0 53.0
26°	9 48.9 +52.4 55.8	9 22.8 +52.5 55.0	8 56.9 +52.6 54.2	8 31.2 +52.8 53.4	8 05.8 +53.0 52.6
27°	10 41.3 +52.3 55.3	10 15.3 +52.5 54.5	9 49.5 +52.7 53.7	9 24.0 +52.8 52.9	8 58.8 +53.0 52.1
28°	11 33.6 +52.3 54.8	11 07.8 +52.4 54.0	10 42.2 +52.6 53.2	10 16.8 +52.8 52.4	9 51.8 +52.9 51.6
29°	12 25.9 +52.2 54.3	12 00.2 +52.4 53.5	11 34.8 +52.5 52.7	11 09.6 +52.7 51.9	10 44.7 +52.9 51.1

Dec	LHA 120° / 240°	LHA 121° / 239°	LHA 122° / 238°	LHA 123° / 237°	LHA 124° / 236°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°	-9 11.1 +53.1	-9 38.7 +53.3			
8°	-8 18.0 +53.2	-8 45.4 +53.3	-9 12.6 +53.4	-9 39.5 +53.5	
9°	-7 24.8 +53.2	-7 52.1 +53.3	-8 19.2 +53.5	-8 46.0 +53.7	-9 12.5 +53.8
10°	-6 31.6 +53.2	-6 58.8 +53.4	-7 25.7 +53.5	-7 52.3 +53.6	-8 18.7 +53.8
11°	-5 38.4 +53.3	-6 05.4 +53.4	-6 32.2 +53.5	-6 58.7 +53.7	-7 24.9 +53.8
12°	-4 45.1 +53.2	-5 12.0 +53.4	-5 38.7 +53.6	-6 05.0 +53.6	-6 31.1 +53.8
13°	-3 51.9 +53.3	-4 18.6 +53.4	-4 45.1 +53.5	-5 11.4 +53.7	-5 37.3 +53.8
14°	-2 58.6 +53.3	-3 25.2 +53.4	-3 51.6 +53.6	-4 17.7 +53.8	-4 43.5 +53.9
15°	-2 05.3 +53.3	-2 31.8 +53.5	-2 58.0 +53.6	-3 23.9 +53.7	-3 49.6 +53.9
16°	-1 12.0 +53.3	-1 38.3 +53.4	-2 04.4 +53.6	-2 30.2 +53.7	-2 55.7 +53.9
17°	-0 18.7 +53.3	-0 44.9 +53.5	-1 10.8 +53.6	-1 36.5 +53.8	-2 01.8 +53.9
18°	0 34.6 +53.3 55.5	0 08.6 +53.4 54.6	-0 17.2 +53.6	-0 42.7 +53.7	-1 07.9 +53.9
19°	1 27.9 +53.3 55.0	1 02.0 +53.5 54.2	0 36.4 +53.6 53.3	0 11.0 +53.8 52.5	-0 14.0 +53.9
20°	2 21.2 +53.3 54.5	1 55.5 +53.4 53.7	1 30.0 +53.6 52.9	1 04.8 +53.7 52.0	0 39.9 +53.9 51.2
21°	3 14.5 +53.3 54.1	2 48.9 +53.4 53.2	2 23.6 +53.6 52.4	1 58.5 +53.8 51.6	1 33.8 +53.8 50.7
22°	4 07.8 +53.3 53.6	3 42.3 +53.5 52.8	3 17.2 +53.5 52.0	2 52.3 +53.7 51.1	2 27.6 +53.9 50.3
23°	5 01.1 +53.2 53.2	4 35.8 +53.3 52.3	4 10.7 +53.6 51.5	3 46.0 +53.7 50.7	3 21.5 +53.9 49.9
24°	5 54.3 +53.2 52.7	5 29.1 +53.4 51.9	5 04.3 +53.5 51.1	4 39.7 +53.7 50.2	4 15.4 +53.9 49.4
25°	6 47.5 +53.2 52.2	6 22.5 +53.4 51.4	5 57.8 +53.5 50.6	5 33.4 +53.7 49.8	5 09.3 +53.8 49.0
26°	7 40.7 +53.2 51.8	7 15.9 +53.3 51.0	6 51.3 +53.5 50.1	6 27.1 +53.6 49.3	6 03.1 +53.8 48.5
27°	8 33.9 +53.1 51.3	8 09.2 +53.3 50.5	7 44.8 +53.5 49.7	7 20.7 +53.6 48.9	6 56.9 +53.8 48.1
28°	9 27.0 +53.1 50.8	9 02.5 +53.3 50.0	8 38.3 +53.4 49.2	8 14.3 +53.6 48.4	7 50.7 +53.8 47.6
29°	10 20.1 +53.0 50.3	9 55.8 +53.2 49.6	9 31.7 +53.4 48.8	9 07.9 +53.6 48.0	8 44.5 +53.7 47.2

Dec	LHA 125° / 235°	LHA 126° / 234°	LHA 127° / 233°	LHA 128° / 232°	LHA 129° / 231°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°	-9 38.7 +53.9				
10°	-8 44.8 +53.9	-9 10.6 +54.0	-9 36.1 +54.2		
11°	-7 50.9 +54.0	-8 16.6 +54.1	-8 41.9 +54.2	-9 07.0 +54.4	-9 31.7 +54.5
12°	-6 56.9 +53.9	-7 22.5 +54.2	-7 47.7 +54.3	-8 12.6 +54.4	-8 37.2 +54.6
13°	-6 03.0 +54.0	-6 28.3 +54.1	-6 53.4 +54.3	-7 18.2 +54.4	-7 42.6 +54.5
14°	-5 09.0 +54.0	-5 34.2 +54.1	-5 59.1 +54.3	-6 23.8 +54.5	-6 48.1 +54.6
15°	-4 15.0 +54.0	-4 40.1 +54.2	-5 04.8 +54.3	-5 29.3 +54.5	-5 53.5 +54.7
16°	-3 21.0 +54.1	-3 45.9 +54.2	-4 10.5 +54.3	-4 34.8 +54.5	-4 58.8 +54.6
17°	-2 26.9 +54.0	-2 51.7 +54.2	-3 16.2 +54.4	-3 40.3 +54.5	-4 04.2 +54.7
18°	-1 32.9 +54.1	-1 57.5 +54.2	-2 21.8 +54.3	-2 45.8 +54.5	-3 09.5 +54.6
19°	-0 38.8 +54.0	-1 03.3 +54.2	-1 27.5 +54.4	-1 51.3 +54.5	-2 14.9 +54.7
20°	0 15.2 +54.1 50.3	-0 09.1 +54.2	-0 33.1 +54.4	-0 56.8 +54.5	-1 20.2 +54.7
21°	1 09.3 +54.0 49.9	0 45.1 +54.2 49.1	0 21.3 +54.3 48.2	-0 02.3 +54.5	-0 25.5 +54.6
22°	2 03.3 +54.1 49.5	1 39.3 +54.2 48.6	1 15.6 +54.4 47.8	0 52.2 +54.5 46.9	0 29.1 +54.7 46.1
23°	2 57.4 +54.0 49.0	2 33.5 +54.2 48.2	2 10.0 +54.3 47.4	1 46.7 +54.5 46.5	1 23.8 +54.7 45.7
24°	3 51.4 +54.0 48.6	3 27.7 +54.2 47.8	3 04.3 +54.4 46.9	2 41.2 +54.5 46.1	2 18.5 +54.7 45.3
25°	4 45.4 +54.0 48.2	4 21.9 +54.1 47.3	3 58.7 +54.3 46.5	3 35.7 +54.5 45.7	3 13.2 +54.6 44.9
26°	5 39.4 +54.0 47.7	5 16.0 +54.2 46.9	4 53.0 +54.3 46.1	4 30.2 +54.5 45.3	4 07.8 +54.6 44.5
27°	6 33.4 +54.0 47.3	6 10.2 +54.1 46.5	5 47.3 +54.3 45.7	5 24.7 +54.5 44.9	5 02.4 +54.7 44.0
28°	7 27.4 +53.9 46.8	7 04.3 +54.1 46.0	6 41.6 +54.3 45.2	6 19.2 +54.4 44.4	5 57.1 +54.6 43.6
29°	8 21.3 +53.9 46.4	7 58.4 +54.1 45.6	7 35.9 +54.2 44.8	7 13.6 +54.4 44.0	6 51.7 +54.6 43.2

Dec	LHA 130° / 230°	LHA 131° / 229°	LHA 132° / 228°	LHA 133° / 227°	LHA 134° / 226°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°	-9 56.2 +54.7				
12°	-9 01.5 +54.7	-9 25.4 +54.8	-9 49.1 +55.0		
13°	-8 06.8 +54.8	-8 30.6 +54.9	-8 54.1 +55.1	-9 17.2 +55.2	-9 40.0 +55.4
14°	-7 12.0 +54.7	-7 35.7 +54.9	-7 59.0 +55.0	-8 22.0 +55.2	-8 44.6 +55.3
15°	-6 17.3 +54.8	-6 40.8 +54.9	-7 04.0 +55.1	-7 26.8 +55.3	-7 49.3 +55.4
16°	-5 22.5 +54.8	-5 45.9 +55.0	-6 08.9 +55.1	-6 31.5 +55.2	-6 53.9 +55.4
17°	-4 27.7 +54.8	-4 50.9 +54.9	-5 13.8 +55.1	-5 36.3 +55.3	-5 58.5 +55.5
18°	-3 32.9 +54.8	-3 56.0 +55.0	-4 18.7 +55.2	-4 41.0 +55.3	-5 03.0 +55.4
19°	-2 38.1 +54.8	-3 01.0 +55.0	-3 23.5 +55.1	-3 45.7 +55.3	-4 07.6 +55.5
20°	-1 43.3 +54.9	-2 06.0 +55.0	-2 28.4 +55.2	-2 50.4 +55.3	-3 12.1 +55.4
21°	-0 48.4 +54.8	-1 11.0 +55.0	-1 33.2 +55.1	-1 55.1 +55.3	-2 16.7 +55.5
22°	0 06.4 +54.8 45.3	-0 16.0 +55.0	-0 38.1 +55.2	-0 59.8 +55.3	-1 21.2 +55.4
23°	1 01.2 +54.9 44.9	0 39.0 +55.0 44.0	0 17.1 +55.1 43.2	-0 04.5 +55.3	-0 25.8 +55.5
24°	1 56.1 +54.8 44.4	1 34.0 +55.0 43.6	1 12.2 +55.2 42.8	0 50.8 +55.3 41.9	0 29.7 +55.5 41.1
25°	2 50.9 +54.8 44.0	2 29.0 +54.9 43.2	2 07.4 +55.1 42.4	1 46.1 +55.3 41.5	1 25.2 +55.5 40.7
26°	3 45.7 +54.8 43.6	3 23.9 +55.0 42.8	3 02.5 +55.1 42.0	2 41.4 +55.3 41.2	2 20.7 +55.4 40.3
27°	4 40.5 +54.8 43.2	4 18.9 +55.0 42.4	3 57.6 +55.1 41.6	3 36.7 +55.3 40.8	3 16.1 +55.5 39.9
28°	5 35.3 +54.8 42.8	5 13.9 +54.9 42.0	4 52.7 +55.2 41.2	4 32.0 +55.3 40.4	4 11.6 +55.4 39.6
29°	6 30.1 +54.7 42.4	6 08.8 +54.9 41.6	5 47.9 +55.0 40.8	5 27.3 +55.2 40.0	5 07.0 +55.4 39.2

Dec	LHA 135° / 225°	LHA 136° / 224°	LHA 137° / 223°	LHA 138° / 222°	LHA 139° / 221°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°	-9 06.9 +55.5	-9 28.8 +55.7	-9 50.4 +55.9		
15°	-8 11.4 +55.6	-8 33.1 +55.7	-8 54.5 +55.8	-9 15.5 +56.0	-9 36.2 +56.2
16°	-7 15.8 +55.5	-7 37.4 +55.7	-7 58.7 +55.9	-8 19.5 +56.0	-8 40.0 +56.2
17°	-6 20.3 +55.6	-6 41.7 +55.7	-7 02.8 +55.9	-7 23.5 +56.0	-7 43.8 +56.2
18°	-5 24.7 +55.6	-5 46.0 +55.8	-6 06.9 +55.9	-6 27.5 +56.1	-6 47.6 +56.2
19°	-4 29.1 +55.6	-4 50.2 +55.7	-5 11.0 +55.9	-5 31.4 +56.1	-5 51.4 +56.2
20°	-3 33.5 +55.6	-3 54.5 +55.8	-4 15.1 +55.9	-4 35.3 +56.0	-4 55.2 +56.2
21°	-2 37.9 +55.6	-2 58.7 +55.8	-3 19.2 +56.0	-3 39.3 +56.1	-3 59.0 +56.3
22°	-1 42.3 +55.7	-2 02.9 +55.8	-2 23.2 +55.9	-2 43.2 +56.1	-3 02.7 +56.2
23°	-0 46.6 +55.6	-1 07.1 +55.7	-1 27.3 +55.9	-1 47.1 +56.1	-2 06.5 +56.3
24°	0 09.0 +55.6 40.2	-0 11.4 +55.8	-0 31.4 +56.0	-0 51.0 +56.1	-1 10.2 +56.2
25°	1 04.6 +55.7 39.9	0 44.4 +55.8 39.0	0 24.6 +55.9 38.2	0 05.1 +56.1 37.3	-0 14.0 +56.3
26°	2 00.3 +55.6 39.5	1 40.2 +55.8 38.7	1 20.5 +56.0 37.8	1 01.2 +56.1 37.0	0 42.3 +56.2 36.1
27°	2 55.9 +55.6 39.1	2 36.0 +55.8 38.3	2 16.5 +55.9 37.5	1 57.3 +56.1 36.6	1 38.5 +56.3 35.8
28°	3 51.5 +55.6 38.7	3 31.8 +55.7 37.9	3 12.4 +55.9 37.1	2 53.4 +56.1 36.3	2 34.8 +56.2 35.4
29°	4 47.1 +55.6 38.4	4 27.5 +55.8 37.5	4 08.3 +56.0 36.7	3 49.5 +56.1 35.9	3 31.0 +56.3 35.1

Dec	LHA 140° / 220°	LHA 141° / 219°	LHA 142° / 218°	LHA 143° / 217°	LHA 144° / 216°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°	-9 56.4 +56.3				
16°	-9 00.1 +56.3	-9 19.8 +56.5	-9 39.1 +56.6	-9 58.0 +56.8	
17°	-8 03.8 +56.4	-8 23.3 +56.5	-8 42.5 +56.7	-9 01.2 +56.8	-9 19.5 +56.9
18°	-7 07.4 +56.3	-7 26.8 +56.5	-7 45.8 +56.7	-8 04.4 +56.8	-8 22.6 +57.0
19°	-6 11.1 +56.4	-6 30.3 +56.5	-6 49.1 +56.6	-7 07.6 +56.8	-7 25.6 +57.0
20°	-5 14.7 +56.4	-5 33.8 +56.6	-5 52.5 +56.7	-6 10.8 +56.9	-6 28.6 +56.9
21°	-4 18.3 +56.4	-4 37.2 +56.5	-4 55.8 +56.7	-5 13.9 +56.8	-5 31.7 +57.0
22°	-3 21.9 +56.4	-3 40.7 +56.6	-3 59.1 +56.7	-4 17.1 +56.9	-4 34.7 +57.0
23°	-2 25.5 +56.4	-2 44.1 +56.5	-3 02.4 +56.7	-3 20.2 +56.8	-3 37.7 +57.0
24°	-1 29.1 +56.4	-1 47.6 +56.6	-2 05.7 +56.7	-2 23.4 +56.9	-2 40.7 +57.1
25°	-0 32.7 +56.4	-0 51.0 +56.5	-1 09.0 +56.8	-1 26.5 +56.9	-1 43.6 +57.0
26°	0 23.7 +56.4 35.3	0 05.5 +56.6 34.4	-0 12.2 +56.7	-0 29.6 +56.8	-0 46.6 +57.0
27°	1 20.1 +56.4 35.0	1 02.1 +56.6 34.1	0 44.5 +56.7 33.3	0 27.2 +56.9 32.4	0 10.4 +57.0 31.6
28°	2 16.5 +56.4 34.6	1 58.7 +56.5 33.8	1 41.2 +56.7 32.9	1 24.1 +56.9 32.1	1 07.4 +57.0 31.3
29°	3 12.9 +56.4 34.3	2 55.2 +56.6 33.4	2 37.9 +56.7 32.6	2 21.0 +56.8 31.8	2 04.4 +57.0 31.0

Dec	LHA 145° / 215°	LHA 146° / 214°	LHA 147° / 213°	LHA 148° / 212°	LHA 149° / 211°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°	-9 37.4 +57.1	-9 54.9 +57.2			
18°	-8 40.3 +57.1	-8 57.7 +57.3	-9 14.6 +57.4	-9 31.0 +57.5	-9 47.0 +57.6
19°	-7 43.2 +57.1	-8 00.4 +57.2	-8 17.2 +57.4	-8 33.5 +57.5	-8 49.4 +57.7
20°	-6 46.1 +57.1	-7 03.2 +57.3	-7 19.8 +57.4	-7 36.0 +57.6	-7 51.7 +57.7
21°	-5 49.0 +57.2	-6 05.9 +57.3	-6 22.4 +57.5	-6 38.4 +57.5	-6 54.0 +57.7
22°	-4 51.8 +57.1	-5 08.6 +57.3	-5 24.9 +57.4	-5 40.9 +57.6	-5 56.3 +57.7
23°	-3 54.7 +57.2	-4 11.3 +57.3	-4 27.5 +57.4	-4 43.3 +57.6	-4 58.6 +57.7
24°	-2 57.5 +57.1	-3 14.0 +57.3	-3 30.1 +57.5	-3 45.7 +57.6	-4 00.9 +57.7
25°	-2 00.4 +57.2	-2 16.7 +57.3	-2 32.6 +57.4	-2 48.1 +57.5	-3 03.2 +57.7
26°	-1 03.2 +57.1	-1 19.4 +57.3	-1 35.2 +57.4	-1 50.6 +57.6	-2 05.5 +57.7
27°	-0 06.1 +57.2	-0 22.1 +57.3	-0 37.8 +57.5	-0 53.0 +57.6	-1 07.8 +57.7
28°	0 51.1 +57.1 30.4	0 35.2 +57.3 29.6	0 19.7 +57.4 28.7	0 04.6 +57.6 27.9	-0 10.1 +57.8
29°	1 48.2 +57.2 30.1	1 32.5 +57.3 29.3	1 17.1 +57.5 28.5	1 02.2 +57.6 27.6	0 47.7 +57.7 26.8

# Latitude 58°

# Declination SAME name as Latitude

Dec	LHA 150° / 210°	LHA 151° / 209°	LHA 152° / 208°	LHA 153° / 207°	LHA 154° / 206°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°	-9 04.8 +57.8	-9 19.8 +57.9	-9 34.4 +58.1	-9 48.5 +58.2	
20°	-8 07.0 +57.8	-8 21.9 +58.0	-8 36.3 +58.1	-8 50.3 +58.2	
21°	-7 09.2 +57.8	-7 23.9 +57.9	-7 38.2 +58.0	-7 52.1 +58.2	
22°	-6 11.4 +57.8	-6 26.0 +58.0	-6 40.2 +58.1	-6 53.9 +58.3	
23°	-5 13.6 +57.9	-5 28.0 +57.9	-5 42.1 +58.1	-5 55.6 +58.2	
24°	-4 15.7 +57.8	-4 30.1 +58.0	-4 44.0 +58.1	-4 57.4 +58.2	
25°	-3 17.9 +57.9	-3 32.1 +58.0	-3 45.9 +58.1	-3 59.2 +58.2	
26°	-2 20.0 +57.8	-2 34.1 +58.0	-2 47.8 +58.2	-3 01.0 +58.3	
27°	-1 22.2 +57.9	-1 36.1 +58.0	-1 49.6 +58.1	-2 02.7 +58.2	
28°	-0 24.3 +57.8	-0 38.1 +58.0	-0 51.5 +58.1	-1 04.5 +58.2	
29°	0 33.5 +57.9 25.9	0 19.9 +57.9 25.1	0 06.6 +58.1 24.2	-0 06.3 +58.3	

Dec	LHA 155° / 205°	LHA 156° / 204°	LHA 157° / 203°	LHA 158° / 202°	LHA 159° / 201°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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## Declination SAME name as Latitude

## Latitude 59°

Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	31 00.0 +60.0 180.0	30 59.7 +60.0 178.8	30 58.7 +60.0 177.7	30 57.2 +59.9 176.5	30 55.0 +59.9 175.3
1°	32 00.0 +60.0 180.0	31 59.7 +60.0 178.8	31 58.7 +60.0 177.6	31 57.1 +60.0 176.5	31 54.9 +60.0 175.3
2°	33 00.0 +60.0 180.0	32 59.7 +60.0 178.8	32 58.7 +60.0 177.6	32 57.1 +60.0 176.4	32 54.9 +59.9 175.2
3°	34 00.0 +60.0 180.0	33 59.7 +60.0 178.8	33 58.7 +60.0 177.6	33 57.1 +59.9 176.4	33 54.8 +60.0 175.2
4°	35 00.0 +60.0 180.0	34 59.7 +60.0 178.8	34 58.7 +60.0 177.6	34 57.0 +60.0 176.3	34 54.8 +59.9 175.1
5°	36 00.0 +60.0 180.0	35 59.7 +60.0 178.8	35 58.7 +60.0 177.5	35 57.0 +60.0 176.3	35 54.7 +59.9 175.1
6°	37 00.0 +60.0 180.0	36 59.7 +60.0 178.8	36 58.7 +59.9 177.5	36 57.0 +59.9 176.3	36 54.6 +60.0 175.0
7°	38 00.0 +60.0 180.0	37 59.7 +60.0 178.7	37 58.6 +60.0 177.5	37 56.9 +60.0 176.2	37 54.6 +59.9 175.0
8°	39 00.0 +60.0 180.0	38 59.7 +60.0 178.7	38 58.6 +60.0 177.5	38 56.9 +60.0 176.2	38 54.5 +59.9 174.9
9°	40 00.0 +60.0 180.0	39 59.7 +59.9 178.7	39 58.6 +60.0 177.4	39 56.9 +59.9 176.1	39 54.4 +60.0 174.8
10°	41 00.0 +60.0 180.0	40 59.6 +60.0 178.7	40 58.6 +60.0 177.4	40 56.8 +60.0 176.1	40 54.4 +59.9 174.8
11°	42 00.0 +60.0 180.0	41 59.6 +60.0 178.7	41 58.6 +60.0 177.4	41 56.8 +60.0 176.0	41 54.3 +59.9 174.7
12°	43 00.0 +60.0 180.0	42 59.6 +60.0 178.7	42 58.6 +59.9 177.3	42 56.8 +59.9 176.0	42 54.2 +60.0 174.7
13°	44 00.0 +60.0 180.0	43 59.6 +60.0 178.6	43 58.5 +60.0 177.3	43 56.7 +60.0 175.9	43 54.2 +59.9 174.6
14°	45 00.0 +60.0 180.0	44 59.6 +60.0 178.6	44 58.5 +60.0 177.3	44 56.7 +59.9 175.9	44 54.1 +59.9 174.5
15°	46 00.0 +60.0 180.0	45 59.6 +60.0 178.6	45 58.5 +60.0 177.2	45 56.6 +60.0 175.8	45 54.0 +59.9 174.4
16°	47 00.0 +60.0 180.0	46 59.6 +60.0 178.6	46 58.5 +60.0 177.2	46 56.6 +59.9 175.8	46 53.9 +59.9 174.4
17°	48 00.0 +60.0 180.0	47 59.6 +60.0 178.6	47 58.5 +59.9 177.1	47 56.5 +60.0 175.7	47 53.8 +60.0 174.3
18°	49 00.0 +60.0 180.0	48 59.6 +60.0 178.6	48 58.4 +60.0 177.1	48 56.5 +59.9 175.7	48 53.8 +59.9 174.2
19°	50 00.0 +60.0 180.0	49 59.6 +60.0 178.5	49 58.4 +60.0 177.1	49 56.4 +60.0 175.6	49 53.7 +59.9 174.1
20°	51 00.0 +60.0 180.0	50 59.6 +60.0 178.5	50 58.4 +60.0 177.0	50 56.4 +59.9 175.5	50 53.6 +59.9 174.0
21°	52 00.0 +60.0 180.0	51 59.6 +60.0 178.5	51 58.4 +59.9 177.0	51 56.3 +60.0 175.5	51 53.5 +59.9 173.9
22°	53 00.0 +60.0 180.0	52 59.6 +60.0 178.5	52 58.3 +60.0 176.9	52 56.3 +59.9 175.4	52 53.4 +59.9 173.8
23°	54 00.0 +60.0 180.0	53 59.6 +60.0 178.4	53 58.3 +60.0 176.9	53 56.2 +59.9 175.3	53 53.3 +59.8 173.7
24°	55 00.0 +60.0 180.0	54 59.6 +60.0 178.4	54 58.3 +60.0 176.8	54 56.1 +60.0 175.2	54 53.1 +59.9 173.6
25°	56 00.0 +60.0 180.0	55 59.6 +60.0 178.4	55 58.3 +59.9 176.8	55 56.1 +59.9 175.1	55 53.0 +59.9 173.5
26°	57 00.0 +60.0 180.0	56 59.6 +59.9 178.3	56 58.2 +60.0 176.7	56 56.0 +59.9 175.1	56 52.9 +59.9 173.4
27°	58 00.0 +60.0 180.0	57 59.5 +60.0 178.3	57 58.2 +60.0 176.6	57 55.9 +59.9 175.0	57 52.8 +59.8 173.3
28°	59 00.0 +60.0 180.0	58 59.5 +60.0 178.3	58 58.2 +59.9 176.6	58 55.8 +60.0 174.9	58 52.6 +59.9 173.2
29°	60 00.0 +60.0 180.0	59 59.5 +60.0 178.3	59 58.1 +60.0 176.5	59 55.8 +59.9 174.8	59 52.5 +59.8 173.0

Dec	LHA 005° / 355°	LHA 006° / 354°	LHA 007° / 353°	LHA 008° / 352°	LHA 009° / 351°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	30 52.1 +60.0 174.2	30 48.7 +59.9 173.0	30 44.6 +59.9 171.8	30 39.9 +59.8 170.7	30 34.6 +59.8 169.5
1°	31 52.1 +59.9 174.1	31 48.6 +59.9 172.9	31 44.5 +59.8 171.8	31 39.7 +59.8 170.6	31 34.4 +59.7 169.4
2°	32 52.0 +59.9 174.0	32 48.5 +59.8 172.9	32 44.3 +59.8 171.7	32 39.5 +59.8 170.5	32 34.1 +59.7 169.3
3°	33 51.9 +59.9 174.0	33 48.3 +59.9 172.8	33 44.1 +59.9 171.6	33 39.3 +59.8 170.4	33 33.8 +59.7 169.2
4°	34 51.8 +59.9 173.9	34 48.2 +59.9 172.7	34 44.0 +59.8 171.5	34 39.1 +59.7 170.3	34 33.5 +59.7 169.1
5°	35 51.7 +59.9 173.8	35 48.1 +59.8 172.6	35 43.8 +59.8 171.4	35 38.8 +59.8 170.2	35 33.2 +59.7 169.0
6°	36 51.6 +59.9 173.8	36 47.9 +59.9 172.5	36 43.6 +59.8 171.3	36 38.6 +59.7 170.1	36 32.9 +59.7 168.8
7°	37 51.5 +59.9 173.7	37 47.8 +59.9 172.5	37 43.4 +59.8 171.2	37 38.3 +59.8 170.0	37 32.6 +59.7 168.7
8°	38 51.4 +59.9 173.6	38 47.7 +59.8 172.4	38 43.2 +59.8 171.1	38 38.1 +59.7 169.8	38 32.3 +59.7 168.6
9°	39 51.3 +59.9 173.6	39 47.5 +59.9 172.3	39 43.0 +59.8 171.0	39 37.8 +59.8 169.7	39 32.0 +59.7 168.4
10°	40 51.2 +59.9 173.5	40 47.4 +59.8 172.2	40 42.8 +59.8 170.9	40 37.6 +59.7 169.6	40 31.7 +59.6 168.3
11°	41 51.1 +59.9 173.4	41 47.2 +59.9 172.1	41 42.6 +59.8 170.8	41 37.3 +59.7 169.5	41 31.3 +59.7 168.2
12°	42 51.0 +59.9 173.3	42 47.1 +59.8 172.0	42 42.4 +59.8 170.7	42 37.0 +59.7 169.3	42 31.0 +59.6 168.0
13°	43 50.9 +59.9 173.2	43 46.9 +59.8 171.9	43 42.2 +59.7 170.5	43 36.7 +59.7 169.2	43 30.6 +59.6 167.9
14°	44 50.8 +59.8 173.1	44 46.7 +59.8 171.8	44 41.9 +59.8 170.4	44 36.4 +59.7 169.1	44 30.2 +59.6 167.7
15°	45 50.6 +59.9 173.1	45 46.5 +59.9 171.7	45 41.7 +59.8 170.3	45 36.1 +59.7 168.9	45 29.8 +59.6 167.6
16°	46 50.5 +59.9 173.0	46 46.4 +59.8 171.6	46 41.5 +59.7 170.2	46 35.8 +59.7 168.8	46 29.4 +59.6 167.4
17°	47 50.4 +59.8 172.9	47 46.2 +59.8 171.4	47 41.2 +59.7 170.0	47 35.5 +59.6 168.6	47 29.0 +59.6 167.2
18°	48 50.2 +59.9 172.8	48 46.0 +59.8 171.3	48 40.9 +59.8 169.9	48 35.1 +59.7 168.5	48 28.6 +59.5 167.0
19°	49 50.1 +59.9 172.7	49 45.8 +59.8 171.2	49 40.7 +59.7 169.7	49 34.8 +59.6 168.3	49 28.1 +59.5 166.8
20°	50 50.0 +59.8 172.5	50 45.6 +59.7 171.1	50 40.4 +59.7 169.6	50 34.4 +59.6 168.1	50 27.6 +59.5 166.6
21°	51 49.8 +59.8 172.4	51 45.3 +59.8 170.9	51 40.1 +59.6 169.4	51 34.0 +59.6 167.9	51 27.1 +59.5 166.4
22°	52 49.6 +59.9 172.3	52 45.1 +59.8 170.8	52 39.7 +59.7 169.3	52 33.6 +59.6 167.7	52 26.6 +59.5 166.2
23°	53 49.5 +59.8 172.2	53 44.9 +59.7 170.6	53 39.4 +59.7 169.1	53 33.2 +59.5 167.5	53 26.1 +59.4 166.0
24°	54 49.3 +59.8 172.1	54 44.6 +59.7 170.5	54 39.1 +59.6 168.9	54 32.7 +59.5 167.3	54 25.5 +59.4 165.8
25°	55 49.1 +59.8 171.9	55 44.3 +59.8 170.3	55 38.7 +59.6 168.7	55 32.2 +59.5 167.1	55 24.9 +59.4 165.5
26°	56 48.9 +59.8 171.8	56 44.1 +59.7 170.1	56 38.3 +59.6 168.5	56 31.7 +59.5 166.9	56 24.3 +59.4 165.3
27°	57 48.7 +59.8 171.6	57 43.8 +59.6 170.0	57 37.9 +59.6 168.3	57 31.2 +59.5 166.6	57 23.7 +59.3 165.0
28°	58 48.5 +59.7 171.5	58 43.4 +59.7 169.8	58 37.5 +59.5 168.1	58 30.7 +59.4 166.4	58 23.0 +59.2 164.7
29°	59 48.2 +59.8 171.3	59 43.1 +59.7 169.6	59 37.0 +59.6 167.8	59 30.1 +59.4 166.1	59 22.2 +59.2 164.4

Dec	LHA 010° / 350°	LHA 011° / 349°	LHA 012° / 348°	LHA 013° / 347°	LHA 014° / 346°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	30 28.7 +59.7 168.4	30 22.2 +59.6 167.2	30 15.0 +59.6 166.1	30 07.3 +59.5 164.9	29 59.0 +59.3 163.8
1°	31 28.4 +59.6 168.3	31 21.8 +59.6 167.1	31 14.6 +59.5 165.9	31 06.8 +59.4 164.8	30 58.3 +59.4 163.6
2°	32 28.0 +59.7 168.1	32 21.4 +59.6 167.0	32 14.1 +59.5 165.8	32 06.2 +59.4 164.6	31 57.7 +59.3 163.4
3°	33 27.7 +59.7 168.0	33 21.0 +59.5 166.8	33 13.6 +59.5 165.6	33 05.6 +59.4 164.4	32 57.0 +59.4 163.3
4°	34 27.4 +59.6 167.9	34 20.5 +59.6 166.7	34 13.1 +59.5 165.5	34 05.0 +59.4 164.3	33 56.4 +59.3 163.1
5°	35 27.0 +59.6 167.7	35 20.1 +59.6 166.5	35 12.6 +59.5 165.3	35 04.4 +59.4 164.1	34 55.7 +59.3 162.9
6°	36 26.6 +59.6 167.6	36 19.7 +59.5 166.4	36 12.1 +59.4 165.2	36 03.8 +59.4 163.9	35 55.0 +59.2 162.7
7°	37 26.2 +59.7 167.5	37 19.2 +59.5 166.2	37 11.5 +59.5 165.0	37 03.2 +59.4 163.8	36 54.2 +59.3 162.5
8°	38 25.9 +59.6 167.3	38 18.7 +59.6 166.1	38 11.0 +59.4 164.8	38 02.6 +59.3 163.6	37 53.5 +59.2 162.3
9°	39 25.5 +59.6 167.2	39 18.3 +59.5 165.9	39 10.4 +59.4 164.6	39 01.9 +59.3 163.4	38 52.7 +59.3 162.1
10°	40 25.1 +59.5 167.0	40 17.8 +59.5 165.7	40 09.8 +59.4 164.5	40 01.2 +59.3 163.2	39 52.0 +59.1 161.9
11°	41 24.6 +59.6 166.9	41 17.3 +59.4 165.6	41 09.2 +59.4 164.3	41 00.5 +59.3 163.0	40 51.1 +59.2 161.7
12°	42 24.2 +59.5 166.7	42 16.7 +59.5 165.4	42 08.6 +59.4 164.1	41 59.8 +59.3 162.8	41 50.3 +59.2 161.5
13°	43 23.7 +59.6 166.5	43 16.2 +59.4 165.2	43 08.0 +59.3 163.9	42 59.1 +59.2 162.6	42 49.5 +59.1 161.3
14°	44 23.3 +59.5 166.4	44 15.6 +59.5 165.0	44 07.3 +59.3 163.7	43 58.3 +59.2 162.3	43 48.6 +59.1 161.0
15°	45 22.8 +59.5 166.2	45 15.1 +59.4 164.8	45 06.6 +59.3 163.5	44 57.5 +59.2 162.1	44 47.7 +59.0 160.8
16°	46 22.3 +59.5 166.0	46 14.5 +59.4 164.6	46 05.9 +59.3 163.2	45 56.7 +59.1 161.9	45 46.7 +59.0 160.5
17°	47 21.8 +59.5 165.8	47 13.9 +59.3 164.4	47 05.2 +59.2 163.0	46 55.8 +59.1 161.6	46 45.7 +59.0 160.3
18°	48 21.3 +59.4 165.6	48 13.2 +59.3 164.2	48 04.4 +59.2 162.8	47 54.9 +59.1 161.4	47 44.7 +58.9 160.0
19°	49 20.7 +59.4 165.4	49 12.5 +59.3 164.0	49 03.6 +59.2 162.5	48 54.0 +59.0 161.1	48 43.6 +58.9 159.7
20°	50 20.1 +59.4 165.2	50 11.8 +59.3 163.7	50 02.8 +59.2 162.3	49 53.0 +59.0 160.8	49 42.5 +58.9 159.4
21°	51 19.5 +59.4 165.0	51 11.1 +59.3 163.5	51 02.0 +59.1 162.0	50 52.0 +59.0 160.6	50 41.4 +58.8 159.1
22°	52 18.9 +59.3 164.7	52 10.4 +59.2 163.2	52 01.1 +59.0 161.7	51 51.0 +58.9 160.3	51 40.2 +58.7 158.8
23°	53 18.2 +59.3 164.5	53 09.6 +59.1 163.0	53 00.1 +59.0 161.5	52 49.9 +58.9 160.0	52 38.9 +58.7 158.5
24°	54 17.5 +59.3 164.2	54 08.7 +59.2 162.7	53 59.1 +59.0 161.2	53 48.8 +58.8 159.6	53 37.6 +58.7 158.1
25°	55 16.8 +59.2 164.0	55 07.9 +59.0 162.4	54 58.1 +58.9 160.8	54 47.6 +58.7 159.3	54 36.3 +58.5 157.8
26°	56 16.0 +59.2 163.7	56 06.9 +59.1 162.1	55 57.0 +58.9 160.5	55 46.3 +58.7 158.9	55 34.8 +58.5 157.4
27°	57 15.2 +59.2 163.4	57 06.0 +59.0 161.8	56 55.9 +58.8 160.2	56 45.0 +58.6 158.6	56 33.3 +58.4 157.0
28°	58 14.4 +59.1 163.1	58 05.0 +58.9 161.4	57 54.7 +58.7 159.8	57 43.6 +58.5 158.2	57 31.7 +58.3 156.6
29°	59 13.5 +59.0 162.7	59 03.9 +58.8 161.1	58 53.4 +58.7 159.4	58 42.1 +58.5 157.7	58 30.0 +58.2 156.1

Dec	LHA 015° / 345°	LHA 016° / 344°	LHA 017° / 343°	LHA 018° / 342°	LHA 019° / 341°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	29 50.0 +59.3 162.6	29 40.5 +59.2 161.5	29 30.4 +59.1 160.4	29 19.8 +58.9 159.2	29 08.5 +58.9 158.1
1°	30 49.3 +59.3 162.5	30 39.7 +59.2 161.3	30 29.5 +59.1 160.2	30 18.7 +59.0 159.0	30 07.4 +58.9 157.9
2°	31 48.6 +59.2 162.3	31 38.9 +59.1 161.1	31 28.6 +59.0 160.0	31 17.7 +58.9 158.8	31 06.3 +58.8 157.7
3°	32 47.8 +59.3 162.1	32 38.0 +59.2 160.9	32 27.6 +59.1 159.8	32 16.6 +59.0 158.6	32 05.1 +58.8 157.4
4°	33 47.1 +59.2 161.9	33 37.2 +59.1 160.7	33 26.7 +59.0 159.5	33 15.6 +58.9 158.4	33 03.9 +58.8 157.2
5°	34 46.3 +59.2 161.7	34 36.3 +59.1 160.5	34 25.7 +58.9 159.3	34 14.5 +58.8 158.1	34 02.7 +58.7 157.0
6°	35 45.5 +59.1 161.5	35 35.4 +59.0 160.3	35 24.6 +59.0 159.1	35 13.3 +58.9 157.9	35 01.4 +58.7 156.7
7°	36 44.6 +59.2 161.3	36 34.4 +59.1 160.1	36 23.6 +58.9 158.9	36 12.2 +58.8 157.7	36 00.1 +58.7 156.5
8°	37 43.8 +59.1 161.1	37 33.5 +59.0 159.9	37 22.5 +58.9 158.6	37 11.0 +58.7 157.4	36 58.8 +58.6 156.2
9°	38 42.9 +59.1 160.9	38 32.5 +59.0 159.6	38 21.4 +58.9 158.4	38 09.7 +58.8 157.2	37 57.4 +58.6 155.9
10°	39 42.0 +59.1 160.7	39 31.5 +58.9 159.4	39 20.3 +58.8 158.1	39 08.5 +58.7 156.9	38 56.0 +58.6 155.7
11°	40 41.1 +59.1 160.4	40 30.4 +59.0 159.2	40 19.1 +58.8 157.9	40 07.2 +58.6 156.6	39 54.6 +58.5 155.4
12°	41 40.2 +59.0 160.2	41 29.4 +58.9 158.9	41 17.9 +58.8 157.6	41 05.8 +58.7 156.4	40 53.1 +58.5 155.1
13°	42 39.2 +59.0 159.9	42 28.3 +58.8 158.6	42 16.7 +58.7 157.4	42 04.5 +58.6 156.1	41 51.6 +58.5 154.8
14°	43 38.2 +58.9 159.7	43 27.1 +58.8 158.4	43 15.4 +58.7 157.1	43 03.1 +58.5 155.8	42 50.1 +58.3 154.5
15°	44 37.1 +59.0 159.4	44 25.9 +58.8 158.1	44 14.1 +58.6 156.8	44 01.6 +58.5 155.5	43 48.4 +58.4 154.2
16°	45 36.1 +58.8 159.2	45 24.7 +58.8 157.8	45 12.7 +58.6 156.5	45 00.1 +58.4 155.2	44 46.8 +58.2 153.8
17°	46 34.9 +58.9 158.9	46 23.5 +58.7 157.5	46 11.3 +58.6 156.2	45 58.5 +58.4 154.8	45 45.0 +58.3 153.5
18°	47 33.8 +58.8 158.6	47 22.2 +58.6 157.2	47 09.9 +58.4 155.9	46 56.9 +58.3 154.5	46 43.3 +58.1 153.2
19°	48 32.6 +58.7 158.3	48 20.8 +58.6 156.9	48 08.3 +58.5 155.5	47 55.2 +58.3 154.2	47 41.4 +58.1 152.8
20°	49 31.3 +58.7 158.0	49 19.4 +58.5 156.6	49 06.8 +58.3 155.2	48 53.5 +58.1 153.8	48 39.5 +58.0 152.4
21°	50 30.0 +58.7 157.7	50 17.9 +58.5 156.2	50 05.1 +58.3 154.8	49 51.6 +58.1 153.4	49 37.5 +57.9 152.0
22°	51 28.7 +58.5 157.3	51 16.4 +58.4 155.9	51 03.4 +58.2 154.5	50 49.7 +58.1 153.0	50 35.4 +57.8 151.6
23°	52 27.2 +58.5 157.0	52 14.8 +58.3 155.5	52 01.6 +58.2 154.1	51 47.8 +57.9 152.6	51 33.2 +57.7 151.2
24°	53 25.7 +58.5 156.6	53 13.1 +58.3 155.1	52 59.8 +58.0 153.7	52 45.7 +57.8 152.2	52 30.9 +57.7 150.7
25°	54 24.2 +58.4 156.2	54 11.4 +58.1 154.7	53 57.8 +58.0 153.2	53 43.5 +57.8 151.7	53 28.6 +57.5 150.3
26°	55 22.6 +58.2 155.8	55 09.5 +58.1 154.3	54 55.8 +57.8 152.8	54 41.3 +57.6 151.3	54 26.1 +57.4 149.8
27°	56 20.8 +58.2 155.4	56 07.6 +58.0 153.9	55 53.6 +57.7 152.3	55 38.9 +57.5 150.8	55 23.5 +57.2 149.3
28°	57 19.0 +58.1 155.0	57 05.6 +57.8 153.4	56 51.3 +57.7 151.8	56 36.4 +57.4 150.3	56 20.7 +57.1 148.8
29°	58 17.1 +58.0 154.5	58 03.4 +57.8 152.9	57 49.0 +57.4 151.3	57 33.8 +57.2 149.7	57 17.8 +57.0 148.2

Dec	LHA 020° / 340°	LHA 021° / 339°	LHA 022° / 338°	LHA 023° / 337°	LHA 024° / 336°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	28 56.7 +58.8 157.0	28 44.4 +58.6 155.9	28 31.5 +58.5 154.8	28 18.0 +58.4 153.7	28 04.0 +58.3 152.6
1°	29 55.5 +58.7 156.8	29 43.0 +58.6 155.6	29 30.0 +58.5 154.5	29 16.4 +58.4 153.4	29 02.3 +58.3 152.3
2°	30 54.2 +58.7 156.5	30 41.6 +58.6 155.4	30 28.5 +58.4 154.3	30 14.8 +58.3 153.1	30 00.6 +58.2 152.0
3°	31 52.9 +58.7 156.3	31 40.2 +58.6 155.1	31 26.9 +58.5 154.0	31 13.1 +58.3 152.9	30 58.8 +58.1 151.7
4°	32 51.6 +58.7 156.0	32 38.8 +58.5 154.9	32 25.4 +58.4 153.7	32 11.4 +58.3 152.6	31 56.9 +58.1 151.4
5°	33 50.3 +58.6 155.8	33 37.3 +58.5 154.6	33 23.8 +58.3 153.4	33 09.7 +58.2 152.3	32 55.0 +58.1 151.1
6°	34 48.9 +58.6 155.5	34 35.8 +58.4 154.3	34 22.1 +58.3 153.2	34 07.9 +58.2 152.0	33 53.1 +58.1 150.8
7°	35 47.5 +58.5 155.3	35 34.2 +58.5 154.1	35 20.4 +58.3 152.9	35 06.1 +58.1 151.7	34 51.2 +57.9 150.5
8°	36 46.0 +58.5 155.0	36 32.7 +58.3 153.8	36 18.7 +58.3 152.6	36 04.2 +58.1 151.4	35 49.1 +58.0 150.2
9°	37 44.5 +58.5 154.7	37 31.0 +58.4 153.5	37 17.0 +58.1 152.3	37 02.3 +58.0 151.1	36 47.1 +57.9 149.9
10°	38 43.0 +58.4 154.4	38 29.4 +58.2 153.2	38 15.1 +58.2 152.0	38 00.3 +58.0 150.8	37 45.0 +57.8 149.6
11°	39 41.4 +58.4 154.1	39 27.6 +58.3 152.9	39 13.3 +58.1 151.7	38 58.3 +57.9 150.4	38 42.8 +57.8 149.2
12°	40 39.8 +58.4 153.8	40 25.9 +58.2 152.6	40 11.4 +58.0 151.3	39 56.2 +57.9 150.1	39 40.6 +57.7 148.9
13°	41 38.2 +58.2 153.5	41 24.1 +58.1 152.3	41 09.4 +57.9 151.0	40 54.1 +57.8 149.8	40 38.3 +57.6 148.5
14°	42 36.4 +58.3 153.2	42 22.2 +58.1 151.9	42 07.3 +58.0 150.7	41 51.9 +57.7 149.4	41 35.9 +57.5 148.1
15°	43 34.7 +58.1 152.9	43 20.3 +58.0 151.6	43 05.3 +57.8 150.3	42 49.6 +57.7 149.0	42 33.4 +57.5 147.8
16°	44 32.8 +58.1 152.5	44 18.3 +57.9 151.2	44 03.1 +57.7 149.9	43 47.3 +57.6 148.6	43 30.9 +57.4 147.4
17°	45 30.9 +58.1 152.2	45 16.2 +57.9 150.9	45 00.8 +57.7 149.6	44 44.9 +57.5 148.3	44 28.3 +57.3 147.0
18°	46 29.0 +57.9 151.8	46 14.1 +57.7 150.5	45 58.5 +57.6 149.2	45 42.4 +57.4 147.9	45 25.6 +57.3 146.6
19°	47 26.9 +57.9 151.4	47 11.8 +57.7 150.1	46 56.1 +57.5 148.8	46 39.8 +57.3 147.4	46 22.9 +57.1 146.1
20°	48 24.8 +57.8 151.0	48 09.5 +57.7 149.7	47 53.6 +57.4 148.3	47 37.1 +57.2 147.0	47 20.0 +57.0 145.7
21°	49 22.6 +57.8 150.6	49 07.2 +57.5 149.3	48 51.0 +57.4 147.9	48 34.3 +57.1 146.5	48 17.0 +56.9 145.2
22°	50 20.4 +57.6 150.2	50 04.7 +57.4 148.8	49 48.4 +57.2 147.4	49 31.4 +57.0 146.1	49 13.9 +56.7 144.7
23°	51 18.0 +57.5 149.8	51 02.1 +57.3 148.4	50 45.6 +57.0 147.0	50 28.4 +56.9 145.6	50 10.6 +56.7 144.2
24°	52 15.5 +57.4 149.3	51 59.4 +57.2 147.9	51 42.6 +57.0 146.5	51 25.3 +56.7 145.1	51 07.3 +56.5 143.7
25°	53 12.9 +57.3 148.8	52 56.6 +57.0 147.4	52 39.6 +56.8 146.0	52 22.0 +56.5 144.6	52 03.8 +56.3 143.2
26°	54 10.2 +57.1 148.3	53 53.6 +56.9 146.9	53 36.4 +56.7 145.4	53 18.5 +56.5 144.0	53 00.1 +56.1 142.6
27°	55 07.3 +57.0 147.8	54 50.5 +56.8 146.3	54 33.1 +56.5 144.9	54 15.0 +56.2 143.4	53 56.2 +56.0 142.0
28°	56 04.3 +56.9 147.2	55 47.3 +56.6 145.8	55 29.6 +56.3 144.3	55 11.2 +56.1 142.8	54 52.2 +55.8 141.4
29°	57 01.2 +56.7 146.7	56 43.9 +56.4 145.2	56 25.9 +56.1 143.7	56 07.3 +55.8 142.2	55 48.0 +55.6 140.7

Dec	LHA 025° / 335°	LHA 026° / 334°	LHA 027° / 333°	LHA 028° / 332°	LHA 029° / 331°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	27 49.5 +58.2 151.5	27 34.5 +58.0 150.4	27 19.0 +57.8 149.3	27 02.9 +57.8 148.2	26 46.4 +57.6 147.1
1°	28 47.7 +58.1 151.2	28 32.5 +58.0 150.1	28 16.8 +57.9 149.0	28 00.7 +57.6 147.9	27 44.0 +57.5 146.8
2°	29 45.8 +58.0 150.9	29 30.5 +57.9 149.8	29 14.7 +57.8 148.7	28 58.3 +57.7 147.6	28 41.5 +57.5 146.5
3°	30 43.8 +58.1 150.6	30 28.4 +57.9 149.5	30 12.5 +57.7 148.4	29 56.0 +57.6 147.2	29 39.0 +57.5 146.1
4°	31 41.9 +57.9 150.3	31 26.3 +57.8 149.2	31 10.2 +57.7 148.0	30 53.6 +57.5 146.9	30 36.5 +57.4 145.8
5°	32 39.8 +58.0 150.0	32 24.1 +57.8 148.9	32 07.9 +57.6 147.7	31 51.1 +57.5 146.6	31 33.9 +57.3 145.5
6°	33 37.8 +57.9 149.7	33 21.9 +57.8 148.5	33 05.5 +57.6 147.4	32 48.6 +57.5 146.3	32 31.2 +57.3 145.1
7°	34 35.7 +57.8 149.4	34 19.7 +57.6 148.2	34 03.1 +57.5 147.1	33 46.1 +57.3 145.9	33 28.5 +57.2 144.8
8°	35 33.5 +57.8 149.0	35 17.3 +57.7 147.9	35 00.6 +57.5 146.7	34 43.4 +57.3 145.6	34 25.7 +57.1 144.4
9°	36 31.3 +57.7 148.7	36 15.0 +57.5 147.5	35 58.1 +57.4 146.4	35 40.7 +57.3 145.2	35 22.8 +57.1 144.0
10°	37 29.0 +57.7 148.4	37 12.5 +57.6 147.2	36 55.5 +57.4 146.0	36 38.0 +57.2 144.8	36 19.9 +57.0 143.7
11°	38 26.7 +57.6 148.0	38 10.1 +57.4 146.8	37 52.9 +57.2 145.6	37 35.2 +57.1 144.4	37 16.9 +57.0 143.3
12°	39 24.3 +57.5 147.7	39 07.5 +57.4 146.4	38 50.1 +57.2 145.2	38 32.3 +57.0 144.0	38 13.9 +56.8 142.9
13°	40 21.8 +57.5 147.3	40 04.9 +57.2 146.1	39 47.3 +57.1 144.9	39 29.3 +56.9 143.6	39 10.7 +56.8 142.5
14°	41 19.3 +57.4 146.9	41 02.1 +57.3 145.7	40 44.4 +57.1 144.5	40 26.2 +56.9 143.2	40 07.5 +56.6 142.0
15°	42 16.7 +57.3 146.5	41 59.4 +57.1 145.3	41 41.5 +56.9 144.0	41 23.1 +56.7 142.8	41 04.1 +56.6 141.6
16°	43 14.0 +57.2 146.1	42 56.5 +57.0 144.9	42 38.4 +56.9 143.6	42 19.8 +56.7 142.4	42 00.7 +56.4 141.2
17°	44 11.2 +57.1 145.7	43 53.5 +56.9 144.4	43 35.3 +56.7 143.2	43 16.5 +56.5 141.9	42 57.1 +56.4 140.7
18°	45 08.3 +57.0 145.3	44 50.4 +56.9 144.0	44 32.0 +56.6 142.7	44 13.0 +56.4 141.5	43 53.5 +56.2 140.2
19°	46 05.3 +57.0 144.8	45 47.3 +56.7 143.5	45 28.6 +56.5 142.3	45 09.4 +56.3 141.0	44 49.7 +56.1 139.7
20°	47 02.3 +56.8 144.4	46 44.0 +56.6 143.1	46 25.1 +56.4 141.8	46 05.7 +56.2 140.5	45 45.8 +56.0 139.2
21°	47 59.1 +56.6 143.9	47 40.6 +56.4 142.6	47 21.5 +56.2 141.3	47 01.9 +56.0 140.0	46 41.8 +55.8 138.7
22°	48 55.7 +56.6 143.4	48 37.0 +56.3 142.1	48 17.7 +56.1 140.7	47 57.9 +55.9 139.5	47 37.6 +55.6 138.2
23°	49 52.3 +56.4 142.9	49 33.3 +56.2 141.5	49 13.8 +56.0 140.2	48 53.8 +55.7 138.9	48 33.2 +55.5 137.6
24°	50 48.7 +56.2 142.3	50 29.5 +56.0 141.0	50 09.8 +55.8 139.7	49 49.5 +55.5 138.3	49 28.7 +55.3 137.0
25°	51 44.9 +56.1 141.8	51 25.5 +55.9 140.4	51 05.6 +55.5 139.1	50 45.0 +55.4 137.7	50 24.0 +55.1 136.4
26°	52 41.0 +55.9 141.2	52 21.4 +55.6 139.8	52 01.1 +55.4 138.5	51 40.4 +55.1 137.1	51 19.1 +54.9 135.8
27°	53 36.9 +55.7 140.6	53 17.0 +55.5 139.2	52 56.5 +55.2 137.8	52 35.5 +55.0 136.5	52 14.0 +54.7 135.1
28°	54 32.6 +55.5 140.0	54 12.5 +55.2 138.6	53 51.7 +55.0 137.2	53 30.5 +54.7 135.8	53 08.7 +54.4 134.5
29°	55 28.1 +55.3 139.3	55 07.7 +55.0 137.9	54 46.7 +54.7 136.5	54 25.2 +54.4 135.1	54 03.1 +54.2 133.8

Dec	LHA 030° / 330°	LHA 031° / 329°	LHA 032° / 328°	LHA 033° / 327°	LHA 034° / 326°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	26 29.4 +57.4 146.0	26 11.9 +57.3 145.0	25 53.9 +57.2 143.9	25 35.5 +57.0 142.9	25 16.6 +56.8 141.8
1°	27 26.8 +57.4 145.7	27 09.2 +57.2 144.6	26 51.1 +57.1 143.6	26 32.5 +56.9 142.5	26 13.4 +56.8 141.4
2°	28 24.2 +57.4 145.4	28 06.4 +57.2 144.3	27 48.2 +57.0 143.2	27 29.4 +56.9 142.2	27 10.2 +56.8 141.1
3°	29 21.6 +57.3 145.0	29 03.6 +57.2 144.0	28 45.2 +57.0 142.9	28 26.3 +56.8 141.8	28 07.0 +56.7 140.7
4°	30 18.9 +57.2 144.7	30 00.8 +57.0 143.6	29 42.2 +56.9 142.5	29 23.1 +56.8 141.4	29 03.7 +56.6 140.3
5°	31 16.1 +57.2 144.4	30 57.8 +57.1 143.2	30 39.1 +56.9 142.1	30 19.9 +56.7 141.1	30 00.3 +56.5 140.0
6°	32 13.3 +57.1 144.0	31 54.9 +56.9 142.9	31 36.0 +56.8 141.8	31 16.6 +56.7 140.7	30 56.8 +56.5 139.6
7°	33 10.4 +57.1 143.6	32 51.8 +56.9 142.5	32 32.8 +56.7 141.4	32 13.3 +56.5 140.3	31 53.3 +56.4 139.2
8°	34 07.5 +56.9 143.3	33 48.7 +56.9 142.1	33 29.5 +56.7 141.0	33 09.8 +56.5 139.9	32 49.7 +56.3 138.8
9°	35 04.4 +57.0 142.9	34 45.6 +56.7 141.7	34 26.2 +56.6 140.6	34 06.3 +56.4 139.5	33 46.0 +56.3 138.4
10°	36 01.4 +56.8 142.5	35 42.3 +56.7 141.3	35 22.8 +56.5 140.2	35 02.7 +56.4 139.1	34 42.3 +56.1 137.9
11°	36 58.2 +56.8 142.1	36 39.0 +56.6 140.9	36 19.3 +56.4 139.8	35 59.1 +56.2 138.6	35 38.4 +56.1 137.5
12°	37 55.0 +56.6 141.7	37 35.6 +56.4 140.5	37 15.7 +56.3 139.4	36 55.3 +56.1 138.2	36 34.5 +55.9 137.1
13°	38 51.6 +56.6 141.3	38 32.0 +56.4 140.1	38 12.0 +56.2 138.9	37 51.4 +56.1 137.8	37 30.4 +55.9 136.6
14°	39 48.2 +56.5 140.8	39 28.4 +56.3 139.7	39 08.2 +56.1 138.5	38 47.5 +55.9 137.3	38 26.3 +55.7 136.2
15°	40 44.7 +56.4 140.4	40 24.7 +56.2 139.2	40 04.3 +56.0 138.0	39 43.4 +55.8 136.8	39 22.0 +55.7 135.7
16°	41 41.1 +56.2 139.9	41 20.9 +56.1 138.7	41 00.3 +55.9 137.5	40 39.2 +55.7 136.4	40 17.7 +55.4 135.2
17°	42 37.3 +56.2 139.5	42 17.0 +55.9 138.3	41 56.2 +55.7 137.1	41 34.9 +55.5 135.9	41 13.1 +55.4 134.7
18°	43 33.5 +56.0 139.0	43 12.9 +55.9 137.8	42 51.9 +55.6 136.6	42 30.4 +55.5 135.4	42 08.5 +55.2 134.2
19°	44 29.5 +55.9 138.5	44 08.8 +55.6 137.3	43 47.5 +55.5 136.0	43 25.9 +55.2 134.8	43 03.7 +55.1 133.6
20°	45 25.4 +55.7 138.0	45 04.4 +55.6 136.7	44 43.0 +55.3 135.5	44 21.1 +55.1 134.3	43 58.8 +54.9 133.1
21°	46 21.1 +55.6 137.4	46 00.0 +55.3 136.2	45 38.3 +55.2 135.0	45 16.2 +55.0 133.7	44 53.7 +54.7 132.5
22°	47 16.7 +55.4 136.9	46 55.3 +55.2 135.6	46 33.5 +55.0 134.4	46 11.2 +54.7 133.2	45 48.4 +54.6 131.9
23°	48 12.1 +55.3 136.3	47 50.5 +55.1 135.1	47 28.5 +54.8 133.8	47 05.9 +54.6 132.6	46 43.0 +54.3 131.3
24°	49 07.4 +55.0 135.7	48 45.6 +54.8 134.5	48 23.3 +54.6 133.2	48 00.5 +54.4 132.0	47 37.3 +54.2 130.7
25°	50 02.4 +54.9 135.1	49 40.4 +54.6 133.8	49 17.9 +54.3 132.6	48 54.9 +54.1 131.3	48 31.5 +53.9 130.1
26°	50 57.3 +54.6 134.5	50 35.0 +54.4 133.2	50 12.2 +54.2 131.9	49 49.0 +53.9 130.7	49 25.4 +53.6 129.4
27°	51 51.9 +54.5 133.8	51 29.4 +54.2 132.5	51 06.4 +53.9 131.2	50 42.9 +53.7 130.0	50 19.0 +53.5 128.7
28°	52 46.4 +54.1 133.1	52 23.6 +53.9 131.8	52 00.3 +53.7 130.5	51 36.6 +53.4 129.3	51 12.5 +53.1 128.0
29°	53 40.5 +53.9 132.4	53 17.5 +53.6 131.1	52 54.0 +53.3 129.8	52 30.0 +53.1 128.5	52 05.6 +52.9 127.2

Dec	LHA 035° / 325°	LHA 036° / 324°	LHA 037° / 323°	LHA 038° / 322°	LHA 039° / 321°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	24 57.3 +56.7 140.8	24 37.5 +56.5 139.7	24 17.3 +56.4 138.7	23 56.7 +56.2 137.7	23 35.7 +56.1 136.6
1°	25 54.0 +56.6 140.4	25 34.0 +56.5 139.3	25 13.7 +56.3 138.3	24 52.9 +56.2 137.3	24 31.8 +56.0 136.2
2°	26 50.6 +56.6 140.0	26 30.5 +56.5 139.0	26 10.0 +56.3 137.9	25 49.1 +56.1 136.9	25 27.8 +56.0 135.8
3°	27 47.2 +56.5 139.7	27 27.0 +56.3 138.6	27 06.3 +56.2 137.5	26 45.2 +56.1 136.5	26 23.8 +55.9 135.4
4°	28 43.7 +56.5 139.3	28 23.3 +56.3 138.2	28 02.5 +56.2 137.1	27 41.3 +56.0 136.1	27 19.7 +55.8 135.0
5°	29 40.2 +56.4 138.9	29 19.6 +56.3 137.8	28 58.7 +56.0 136.7	28 37.3 +55.9 135.7	28 15.5 +55.7 134.6
6°	30 36.6 +56.3 138.5	30 15.9 +56.1 137.4	29 54.7 +56.0 136.3	29 33.2 +55.8 135.3	29 11.2 +55.7 134.2
7°	31 32.9 +56.2 138.1	31 12.0 +56.1 137.0	30 50.7 +55.9 135.9	30 29.0 +55.8 134.8	30 06.9 +55.6 133.8
8°	32 29.1 +56.2 137.7	32 08.1 +56.0 136.6	31 46.6 +55.9 135.5	31 24.8 +55.6 134.4	31 02.5 +55.5 133.3
9°	33 25.3 +56.0 137.3	33 04.1 +55.9 136.2	32 42.5 +55.7 135.1	32 20.4 +55.6 134.0	31 58.0 +55.4 132.9
10°	34 21.3 +56.0 136.8	34 00.0 +55.8 135.7	33 38.2 +55.6 134.6	33 16.0 +55.5 133.5	32 53.4 +55.3 132.4
11°	35 17.3 +55.9 136.4	34 55.8 +55.7 135.3	34 33.8 +55.6 134.2	34 11.5 +55.3 133.1	33 48.7 +55.2 132.0
12°	36 13.2 +55.8 135.9	35 51.5 +55.6 134.8	35 29.4 +55.4 133.7	35 06.8 +55.3 132.6	34 43.9 +55.1 131.5
13°	37 09.0 +55.7 135.5	36 47.1 +55.5 134.3	36 24.8 +55.3 133.2	36 02.1 +55.1 132.1	35 39.0 +54.9 131.0
14°	38 04.7 +55.5 135.0	37 42.6 +55.4 133.9	37 20.1 +55.2 132.7	36 57.2 +55.0 131.6	36 33.9 +54.8 130.5
15°	39 00.2 +55.5 134.5	38 38.0 +55.2 133.4	38 15.3 +55.1 132.2	37 52.2 +54.9 131.1	37 28.7 +54.7 130.0
16°	39 55.7 +55.3 134.0	39 33.2 +55.1 132.9	39 10.4 +54.9 131.7	38 47.1 +54.7 130.6	38 23.4 +54.6 129.5
17°	40 51.0 +55.1 133.5	40 28.3 +55.0 132.4	40 05.3 +54.8 131.2	39 41.8 +54.6 130.1	39 18.0 +54.4 128.9
18°	41 46.1 +55.0 133.0	41 23.3 +54.8 131.8	41 00.1 +54.6 130.7	40 36.4 +54.5 129.5	40 12.4 +54.3 128.4
19°	42 41.1 +54.9 132.5	42 18.1 +54.7 131.3	41 54.7 +54.5 130.1	41 30.9 +54.2 129.0	41 06.7 +54.0 127.8
20°	43 36.0 +54.7 131.9	43 12.8 +54.5 130.7	42 49.2 +54.3 129.6	42 25.1 +54.1 128.4	42 00.7 +53.9 127.3
21°	44 30.7 +54.5 131.3	44 07.3 +54.3 130.1	43 43.5 +54.1 129.0	43 19.2 +53.9 127.8	42 54.6 +53.7 126.7
22°	45 25.2 +54.3 130.7	45 01.6 +54.1 129.5	44 37.6 +53.9 128.4	44 13.1 +53.7 127.2	43 48.3 +53.5 126.0
23°	46 19.5 +54.2 130.1	45 55.7 +53.9 128.9	45 31.5 +53.7 127.7	45 06.8 +53.5 126.6	44 41.8 +53.3 125.4
24°	47 13.7 +53.9 129.5	46 49.6 +53.7 128.3	46 25.2 +53.5 127.1	46 00.3 +53.3 125.9	45 35.1 +53.1 124.8
25°	48 07.6 +53.7 128.8	47 43.3 +53.5 127.6	47 18.7 +53.2 126.4	46 53.6 +53.0 125.3	46 28.2 +52.8 124.1
26°	49 01.3 +53.4 128.2	48 36.8 +53.2 127.0	48 11.9 +53.0 125.8	47 46.6 +52.8 124.6	47 21.0 +52.6 123.4
27°	49 54.7 +53.2 127.5	49 30.0 +52.9 126.3	49 04.9 +52.7 125.0	48 39.4 +52.5 123.9	48 13.6 +52.2 122.7
28°	50 47.9 +52.9 126.7	50 22.9 +52.7 125.5	49 57.6 +52.4 124.3	49 31.9 +52.2 123.1	49 05.8 +52.0 121.9
29°	51 40.8 +52.6 126.0	51 15.6 +52.4 124.8	50 50.0 +52.2 123.5	50 24.1 +51.9 122.4	49 57.8 +51.7 121.2

# Declination SAME name as Latitude

# Latitude 59°

Dec	LHA 040° / 320°	LHA 041° / 319°	LHA 042° / 318°	LHA 043° / 317°	LHA 044° / 316°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	23 14.2 +56.0 135.6	22 52.4 +55.8 134.6	22 30.2 +55.7 133.6	22 07.7 +55.5 132.6	21 44.7 +55.4 131.6
1°	24 10.2 +55.9 135.2	23 48.2 +55.7 134.2	23 25.9 +55.6 133.2	23 03.2 +55.4 132.2	22 40.1 +55.3 131.2
2°	25 06.1 +55.8 134.8	24 43.9 +55.7 133.8	24 21.5 +55.5 132.8	23 58.6 +55.3 131.8	23 35.4 +55.2 130.8
3°	26 01.9 +55.7 134.4	25 39.6 +55.6 133.4	25 17.0 +55.4 132.4	24 53.9 +55.3 131.3	24 30.6 +55.1 130.3
4°	26 57.6 +55.7 134.0	26 35.2 +55.5 133.0	26 12.4 +55.4 131.9	25 49.2 +55.2 130.9	25 25.7 +55.0 129.9
5°	27 53.3 +55.6 133.6	27 30.7 +55.4 132.5	27 07.8 +55.2 131.5	26 44.4 +55.1 130.5	26 20.7 +55.0 129.4
6°	28 48.9 +55.5 133.1	28 26.1 +55.4 132.1	28 03.0 +55.2 131.1	27 39.5 +55.1 130.0	27 15.7 +54.9 129.0
7°	29 44.4 +55.4 132.7	29 21.5 +55.3 131.7	28 58.2 +55.1 130.6	28 34.6 +54.9 129.6	28 10.6 +54.8 128.5
8°	30 39.8 +55.3 132.3	30 16.8 +55.1 131.2	29 53.3 +55.0 130.2	29 29.5 +54.9 129.1	29 05.4 +54.7 128.1
9°	31 35.1 +55.3 131.8	31 11.9 +55.1 130.8	30 48.3 +54.9 129.7	30 24.4 +54.7 128.6	30 00.1 +54.6 127.6
10°	32 30.4 +55.1 131.4	32 07.0 +55.0 130.3	31 43.2 +54.8 129.2	31 19.1 +54.7 128.2	30 54.7 +54.4 127.1
11°	33 25.5 +55.0 130.9	33 02.0 +54.8 129.8	32 38.0 +54.7 128.7	32 13.8 +54.5 127.7	31 49.1 +54.4 126.6
12°	34 20.5 +54.9 130.4	33 56.8 +54.8 129.3	33 32.7 +54.6 128.3	33 08.3 +54.4 127.2	32 43.5 +54.2 126.1
13°	35 15.4 +54.8 129.9	34 51.6 +54.6 128.8	34 27.3 +54.4 127.7	34 02.7 +54.3 126.7	33 37.7 +54.2 125.6
14°	36 10.2 +54.7 129.4	35 46.2 +54.5 128.3	35 21.7 +54.4 127.2	34 57.0 +54.1 126.2	34 31.9 +53.9 125.1
15°	37 04.9 +54.5 128.9	36 40.7 +54.3 127.8	36 16.1 +54.1 126.7	35 51.1 +54.0 125.6	35 25.8 +53.9 124.6
16°	37 59.4 +54.4 128.4	37 35.0 +54.2 127.3	37 10.2 +54.0 126.2	36 45.1 +53.9 125.1	36 19.7 +53.6 124.0
17°	38 53.8 +54.2 127.8	38 29.2 +54.0 126.7	38 04.2 +53.9 125.6	37 39.0 +53.7 124.5	37 13.3 +53.6 123.5
18°	39 48.0 +54.1 127.3	39 23.2 +53.9 126.2	38 58.1 +53.7 125.1	38 32.7 +53.5 124.0	38 06.9 +53.3 122.9
19°	40 42.1 +53.9 126.7	40 17.1 +53.7 125.6	39 51.8 +53.5 124.5	39 26.2 +53.3 123.4	39 00.2 +53.2 122.3
20°	41 36.0 +53.7 126.1	41 10.8 +53.5 125.0	40 45.3 +53.4 123.9	40 19.5 +53.2 122.8	39 53.4 +53.0 121.7
21°	42 29.7 +53.5 125.5	42 04.3 +53.4 124.4	41 38.7 +53.1 123.3	41 12.7 +52.9 122.2	40 46.4 +52.7 121.1
22°	43 23.2 +53.3 124.9	42 57.7 +53.1 123.8	42 31.8 +52.9 122.7	42 05.6 +52.8 121.6	41 39.1 +52.6 120.5
23°	44 16.5 +53.1 124.3	43 50.8 +52.9 123.1	43 24.7 +52.7 122.0	42 58.4 +52.5 120.9	42 31.7 +52.4 119.8
24°	45 09.6 +52.8 123.6	44 43.7 +52.6 122.5	44 17.4 +52.5 121.4	43 50.9 +52.3 120.2	43 24.1 +52.1 119.1
25°	46 02.4 +52.6 122.9	45 36.3 +52.4 121.8	45 09.9 +52.2 120.7	44 43.2 +52.0 119.6	44 16.2 +51.8 118.5
26°	46 55.0 +52.4 122.2	46 28.7 +52.2 121.1	46 02.1 +52.0 120.0	45 35.2 +51.8 118.8	45 08.0 +51.6 117.7
27°	47 47.4 +52.1 121.5	47 20.9 +51.8 120.4	46 54.1 +51.6 119.2	46 27.0 +51.4 118.1	45 59.6 +51.3 117.0
28°	48 39.5 +51.7 120.8	48 12.7 +51.6 119.6	47 45.7 +51.4 118.5	47 18.4 +51.2 117.4	46 50.9 +50.9 116.3
29°	49 31.2 +51.5 120.0	49 04.3 +51.2 118.9	48 37.1 +51.0 117.7	48 09.6 +50.8 116.6	47 41.8 +50.7 115.5

Dec	LHA 045° / 315°	LHA 046° / 314°	LHA 047° / 313°	LHA 048° / 312°	LHA 049° / 311°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	21 21.5 +55.1 130.6	20 57.8 +55.1 129.6	20 33.8 +54.9 128.6	20 09.5 +54.8 127.7	19 44.9 +54.6 126.7
1°	22 16.6 +55.2 130.2	21 52.9 +54.9 129.2	21 28.7 +54.9 128.2	21 04.3 +54.7 127.2	20 39.5 +54.6 126.2
2°	23 11.8 +55.0 129.8	22 47.8 +54.9 128.8	22 23.6 +54.7 127.8	21 59.0 +54.6 126.8	21 34.1 +54.4 125.8
3°	24 06.8 +55.0 129.3	23 42.7 +54.9 128.3	23 18.3 +54.7 127.3	22 53.6 +54.5 126.3	22 28.5 +54.4 125.4
4°	25 01.8 +54.9 128.9	24 37.6 +54.7 127.9	24 13.0 +54.6 126.9	23 48.1 +54.5 125.9	23 22.9 +54.4 124.9
5°	25 56.7 +54.8 128.4	25 32.3 +54.7 127.4	25 07.6 +54.5 126.4	24 42.6 +54.4 125.4	24 17.3 +54.2 124.4
6°	26 51.5 +54.7 128.0	26 27.0 +54.6 127.0	26 02.1 +54.5 126.0	25 37.0 +54.2 125.0	25 11.5 +54.1 124.0
7°	27 46.2 +54.7 127.5	27 21.6 +54.4 126.5	26 56.6 +54.3 125.5	26 31.2 +54.2 124.5	26 05.6 +54.1 123.5
8°	28 40.9 +54.5 127.0	28 16.0 +54.4 126.0	27 50.9 +54.2 125.0	27 25.4 +54.1 124.0	26 59.7 +53.9 123.0
9°	29 35.4 +54.4 126.6	29 10.4 +54.3 125.5	28 45.1 +54.2 124.5	28 19.5 +54.0 123.5	27 53.6 +53.8 122.5
10°	30 29.8 +54.4 126.1	30 04.7 +54.2 125.1	29 39.3 +54.0 124.0	29 13.5 +53.9 123.0	28 47.4 +53.7 122.0
11°	31 24.2 +54.2 125.6	30 58.9 +54.0 124.6	30 33.3 +53.9 123.5	30 07.4 +53.7 122.5	29 41.1 +53.6 121.5
12°	32 18.4 +54.1 125.1	31 52.9 +53.9 124.0	31 27.2 +53.7 123.0	31 01.1 +53.6 122.0	30 34.7 +53.5 121.0
13°	33 12.5 +53.9 124.6	32 46.8 +53.8 123.5	32 20.9 +53.7 122.5	31 54.7 +53.5 121.5	31 28.2 +53.4 120.4
14°	34 06.4 +53.8 124.0	33 40.6 +53.7 123.0	33 14.6 +53.5 122.0	32 48.2 +53.4 120.9	32 21.6 +53.2 119.9
15°	35 00.2 +53.7 123.5	34 34.3 +53.5 122.5	34 08.1 +53.3 121.4	33 41.6 +53.2 120.4	33 14.8 +53.0 119.3
16°	35 53.9 +53.5 123.0	35 27.8 +53.4 121.9	35 01.4 +53.2 120.9	34 34.8 +53.0 119.8	34 07.8 +52.9 118.8
17°	36 47.4 +53.4 122.4	36 21.2 +53.2 121.3	35 54.6 +53.1 120.3	35 27.8 +52.9 119.2	35 00.7 +52.7 118.2
18°	37 40.8 +53.1 121.8	37 14.4 +53.0 120.8	36 47.7 +52.8 119.7	36 20.7 +52.7 118.7	35 53.4 +52.6 117.6
19°	38 33.9 +53.0 121.2	38 07.4 +52.8 120.2	37 40.5 +52.7 119.1	37 13.4 +52.5 118.1	36 46.0 +52.3 117.0
20°	39 26.9 +52.9 120.6	39 00.2 +52.7 119.6	38 33.2 +52.5 118.5	38 05.9 +52.3 117.5	37 38.3 +52.2 116.4
21°	40 19.8 +52.6 120.0	39 52.9 +52.4 118.9	39 25.7 +52.2 117.9	38 58.2 +52.1 116.8	38 30.5 +52.0 115.8
22°	41 12.4 +52.4 119.4	40 45.3 +52.2 118.3	40 17.9 +52.1 117.2	39 50.3 +51.9 116.2	39 22.5 +51.7 115.1
23°	42 04.8 +52.1 118.7	41 37.5 +52.0 117.6	41 10.0 +51.8 116.6	40 42.2 +51.7 115.5	40 14.2 +51.6 114.5
24°	42 56.9 +51.9 118.1	42 29.5 +51.8 117.0	42 01.8 +51.6 115.9	41 33.9 +51.5 114.9	41 05.8 +51.2 113.8
25°	43 48.8 +51.7 117.4	43 21.3 +51.5 116.3	42 53.4 +51.4 115.2	42 25.4 +51.1 114.2	41 57.0 +51.1 113.1
26°	44 40.5 +51.4 116.7	44 12.8 +51.2 115.6	43 44.8 +51.0 114.5	43 16.5 +50.9 113.4	42 48.1 +50.7 112.4
27°	45 31.9 +51.1 115.9	45 04.0 +50.9 114.8	44 35.8 +50.8 113.8	44 07.4 +50.6 112.7	43 38.8 +50.5 111.7
28°	46 23.0 +50.8 115.2	45 54.9 +50.6 114.1	45 26.6 +50.5 113.0	44 58.0 +50.3 112.0	44 29.3 +50.1 110.9
29°	47 13.8 +50.5 114.4	46 45.5 +50.4 113.3	46 17.1 +50.1 112.2	45 48.3 +50.0 111.2	45 19.4 +49.9 110.1

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Dec	LHA 050° / 310°	LHA 051° / 309°	LHA 052° / 308°	LHA 053° / 307°	LHA 054° / 306°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	19 20.0 +54.5 125.7	18 54.8 +54.3 124.8	18 29.2 +54.2 123.8	18 03.4 +54.1 122.9	17 37.3 +53.9 121.9
1°	20 14.5 +54.4 125.3	19 49.1 +54.2 124.3	19 23.4 +54.1 123.4	18 57.5 +54.0 122.4	18 31.2 +53.9 121.5
2°	21 08.9 +54.3 124.8	20 43.3 +54.2 123.9	20 17.5 +54.1 122.9	19 51.5 +53.9 121.9	19 25.1 +53.8 121.0
3°	22 03.2 +54.2 124.4	21 37.5 +54.2 123.4	21 11.6 +54.0 122.4	20 45.4 +53.8 121.5	20 18.9 +53.7 120.5
4°	22 57.4 +54.2 123.9	22 31.7 +54.0 122.9	22 05.6 +53.9 122.0	21 39.2 +53.8 121.0	21 12.6 +53.6 120.0
5°	23 51.6 +54.1 123.4	23 25.7 +53.9 122.5	22 59.5 +53.8 121.5	22 33.0 +53.7 120.5	22 06.2 +53.6 119.6
6°	24 45.7 +54.0 123.0	24 19.6 +53.9 122.0	23 53.3 +53.7 121.0	23 26.7 +53.5 120.0	22 59.8 +53.4 119.1
7°	25 39.7 +53.9 122.5	25 13.5 +53.7 121.5	24 47.0 +53.6 120.5	24 20.2 +53.5 119.5	23 53.2 +53.4 118.6
8°	26 33.6 +53.8 122.0	26 07.2 +53.7 121.0	25 40.6 +53.5 120.0	25 13.7 +53.4 119.0	24 46.6 +53.2 118.1
9°	27 27.4 +53.7 121.5	27 00.9 +53.5 120.5	26 34.1 +53.5 119.5	26 07.1 +53.3 118.5	25 39.8 +53.2 117.6
10°	28 21.1 +53.6 121.0	27 54.4 +53.5 120.0	27 27.6 +53.3 119.0	27 00.4 +53.2 118.0	26 33.0 +53.0 117.0
11°	29 14.7 +53.4 120.5	28 47.9 +53.3 119.5	28 20.9 +53.1 118.5	27 53.6 +53.0 117.5	27 26.0 +52.9 116.5
12°	30 08.1 +53.3 120.0	29 41.2 +53.2 119.0	29 14.0 +53.1 118.0	28 46.6 +52.9 117.0	28 18.9 +52.8 116.0
13°	31 01.4 +53.2 119.4	30 34.4 +53.0 118.4	30 07.1 +52.9 117.4	29 39.5 +52.8 116.4	29 11.7 +52.7 115.4
14°	31 54.6 +53.1 118.9	31 27.4 +53.0 117.9	31 00.0 +52.8 116.9	30 32.3 +52.7 115.9	30 04.4 +52.5 114.9
15°	32 47.7 +52.9 118.3	32 20.4 +52.7 117.3	31 52.8 +52.6 116.3	31 25.0 +52.5 115.3	30 56.9 +52.4 114.3
16°	33 40.6 +52.7 117.8	33 13.1 +52.6 116.8	32 45.4 +52.5 115.7	32 17.5 +52.3 114.7	31 49.3 +52.2 113.8
17°	34 33.3 +52.6 117.2	34 05.7 +52.5 116.2	33 37.9 +52.3 115.2	33 09.8 +52.2 114.2	32 41.5 +52.0 113.2
18°	35 25.9 +52.4 116.6	34 58.2 +52.2 115.6	34 30.2 +52.1 114.6	34 02.0 +52.0 113.6	33 33.5 +51.9 112.6
19°	36 18.3 +52.3 116.0	35 50.4 +52.1 115.0	35 22.3 +52.0 114.0	34 54.0 +51.8 113.0	34 25.4 +51.7 112.0
20°	37 10.6 +52.0 115.4	36 42.5 +51.9 114.4	36 14.3 +51.7 113.4	35 45.8 +51.6 112.4	35 17.1 +51.5 111.4
21°	38 02.6 +51.8 114.8	37 34.4 +51.7 113.7	37 06.0 +51.6 112.7	36 37.4 +51.4 111.7	36 08.6 +51.3 110.7
22°	38 54.4 +51.6 114.1	38 26.1 +51.5 113.1	37 57.6 +51.3 112.1	37 28.8 +51.2 111.1	36 59.9 +51.1 110.1
23°	39 46.0 +51.4 113.5	39 17.6 +51.2 112.4	38 48.9 +51.1 111.4	38 20.0 +51.0 110.4	37 51.0 +50.8 109.4
24°	40 37.4 +51.1 112.8	40 08.8 +51.0 111.8	39 40.0 +50.8 110.7	39 11.0 +50.7 109.7	38 41.8 +50.6 108.7
25°	41 28.5 +50.9 112.1	40 59.8 +50.7 111.1	40 30.8 +50.6 110.0	40 01.7 +50.5 109.0	39 32.4 +50.4 108.1
26°	42 19.4 +50.6 111.4	41 50.5 +50.5 110.3	41 21.4 +50.4 109.3	40 52.2 +50.2 108.3	40 22.8 +50.1 107.3
27°	43 10.0 +50.3 110.6	42 41.0 +50.2 109.6	42 11.8 +50.0 108.6	41 42.4 +49.9 107.6	41 12.9 +49.8 106.6
28°	44 00.3 +50.0 109.9	43 31.2 +49.8 108.9	43 01.8 +49.8 107.9	42 32.3 +49.7 106.9	42 02.7 +49.5 105.9
29°	44 50.3 +49.7 109.1	44 21.0 +49.6 108.1	43 51.6 +49.4 107.1	43 22.0 +49.3 106.1	42 52.2 +49.2 105.1

Dec	LHA 055° / 305°	LHA 056° / 304°	LHA 057° / 303°	LHA 058° / 302°	LHA 059° / 301°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	17 10.9 +53.8 121.0	16 44.3 +53.7 120.0	16 17.4 +53.6 119.1	15 50.3 +53.4 118.2	15 23.0 +53.3 117.3
1°	18 04.7 +53.8 120.5	17 38.0 +53.6 119.6	17 11.0 +53.5 118.6	16 43.7 +53.4 117.7	16 16.3 +53.2 116.8
2°	18 58.5 +53.6 120.0	18 31.6 +53.5 119.1	18 04.5 +53.4 118.2	17 37.1 +53.3 117.2	17 09.5 +53.2 116.3
3°	19 52.1 +53.6 119.6	19 25.1 +53.5 118.6	18 57.9 +53.3 117.7	18 30.4 +53.2 116.7	18 02.7 +53.1 115.8
4°	20 45.7 +53.5 119.1	20 18.6 +53.4 118.1	19 51.2 +53.3 117.2	19 23.6 +53.2 116.3	18 55.8 +53.0 115.3
5°	21 39.2 +53.4 118.6	21 12.0 +53.3 117.6	20 44.5 +53.2 116.7	20 16.8 +53.0 115.8	19 48.8 +53.0 114.8
6°	22 32.6 +53.4 118.1	22 05.3 +53.2 117.2	21 37.7 +53.0 116.2	21 09.8 +53.0 115.3	20 41.8 +52.8 114.3
7°	23 26.0 +53.2 117.6	22 58.5 +53.1 116.7	22 30.7 +53.0 115.7	22 02.8 +52.9 114.8	21 34.6 +52.8 113.8
8°	24 19.2 +53.1 117.1	23 51.6 +53.0 116.1	23 23.7 +52.9 115.2	22 55.7 +52.7 114.2	22 27.4 +52.6 113.3
9°	25 12.3 +53.1 116.6	24 44.6 +52.9 115.6	24 16.6 +52.8 114.7	23 48.4 +52.7 113.7	23 20.0 +52.6 112.8
10°	26 05.4 +52.9 116.1	25 37.5 +52.8 115.1	25 09.4 +52.7 114.1	24 41.1 +52.6 113.2	24 12.6 +52.4 112.2
11°	26 58.3 +52.8 115.5	26 30.3 +52.6 114.6	26 02.1 +52.5 113.6	25 33.7 +52.4 112.7	25 05.0 +52.4 111.7
12°	27 51.1 +52.6 115.0	27 22.9 +52.6 114.0	26 54.6 +52.4 113.1	26 26.1 +52.3 112.1	25 57.4 +52.2 111.2
13°	28 43.7 +52.6 114.5	28 15.5 +52.4 113.5	27 47.0 +52.3 112.5	27 18.4 +52.2 111.6	26 49.6 +52.1 110.6
14°	29 36.3 +52.3 113.9	29 07.9 +52.3 112.9	28 39.3 +52.2 112.0	28 10.6 +52.0 111.0	27 41.7 +51.9 110.1
15°	30 28.6 +52.3 113.4	30 00.2 +52.1 112.4	29 31.5 +52.0 111.4	29 02.6 +51.9 110.4	28 33.6 +51.8 109.5
16°	31 20.9 +52.1 112.8	30 52.3 +52.0 111.8	30 23.5 +51.9 110.8	29 54.5 +51.8 109.9	29 25.4 +51.6 108.9
17°	32 13.0 +51.9 112.2	31 44.3 +51.8 111.2	31 15.4 +51.7 110.2	30 46.3 +51.6 109.3	30 17.0 +51.5 108.3
18°	33 04.9 +51.8 111.6	32 36.1 +51.6 110.6	32 07.1 +51.5 109.7	31 37.9 +51.4 108.7	31 08.5 +51.3 107.7
19°	33 56.7 +51.5 111.0	33 27.7 +51.5 110.0	32 58.6 +51.3 109.0	32 29.3 +51.2 108.1	31 59.8 +51.2 107.1
20°	34 48.2 +51.4 110.4	34 19.2 +51.2 109.4	33 49.9 +51.2 108.4	33 20.5 +51.1 107.5	32 51.0 +50.9 106.5
21°	35 39.6 +51.2 109.7	35 10.4 +51.1 108.8	34 41.1 +50.9 107.8	34 11.6 +50.8 106.8	33 41.9 +50.8 105.9
22°	36 30.8 +50.9 109.1	36 01.5 +50.8 108.1	35 32.0 +50.8 107.1	35 02.4 +50.7 106.2	34 32.7 +50.5 105.2
23°	37 21.7 +50.8 108.4	36 52.3 +50.7 107.5	36 22.8 +50.5 106.5	35 53.1 +50.4 105.5	35 23.2 +50.4 104.6
24°	38 12.5 +50.5 107.8	37 43.0 +50.3 106.8	37 13.3 +50.3 105.8	36 43.5 +50.2 104.9	36 13.6 +50.1 103.9
25°	39 03.0 +50.2 107.1	38 33.3 +50.2 106.1	38 03.6 +50.0 105.1	37 33.7 +49.9 104.2	37 03.7 +49.8 103.2
26°	39 53.2 +50.0 106.4	39 23.5 +49.9 105.4	38 53.6 +49.8 104.4	38 23.6 +49.7 103.5	37 53.5 +49.6 102.5
27°	40 43.2 +49.7 105.6	40 13.4 +49.6 104.7	39 43.4 +49.5 103.7	39 13.3 +49.4 102.7	38 43.1 +49.4 101.8
28°	41 32.9 +49.4 104.9	41 03.0 +49.3 103.9	40 32.9 +49.2 103.0	40 02.7 +49.2 102.0	39 32.5 +49.0 101.1
29°	42 22.3 +49.1 104.1	41 52.3 +49.0 103.2	41 22.1 +48.9 102.2	40 51.9 +48.8 101.3	40 21.5 +48.8 100.3

## Declination SAME name as Latitude

## Latitude 59°

Dec	LHA 060° / 300°	LHA 061° / 299°	LHA 062° / 298°	LHA 063° / 297°	LHA 064° / 296°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	14 55.4 +53.2 116.3	14 27.6 +53.1 115.4	13 59.6 +52.9 114.5	13 31.3 +52.9 113.6	13 02.9 +52.8 112.7
1°	15 48.6 +53.1 115.9	15 20.7 +53.0 114.9	14 52.5 +52.9 114.0	14 24.2 +52.8 113.1	13 55.7 +52.7 112.2
2°	16 41.7 +53.1 115.4	16 13.7 +52.9 114.4	15 45.4 +52.9 113.5	15 17.0 +52.8 112.6	14 48.4 +52.6 111.7
3°	17 34.8 +53.0 114.9	17 06.6 +52.9 114.0	16 38.3 +52.8 113.0	16 09.8 +52.6 112.1	15 41.0 +52.6 111.2
4°	18 27.8 +52.9 114.4	17 59.5 +52.8 113.5	17 31.1 +52.7 112.5	17 02.4 +52.6 111.6	16 33.6 +52.5 110.7
5°	19 20.7 +52.8 113.9	18 52.3 +52.7 113.0	18 23.8 +52.6 112.0	17 55.0 +52.5 111.1	17 26.1 +52.4 110.2
6°	20 13.5 +52.7 113.4	19 45.0 +52.7 112.5	19 16.4 +52.5 111.5	18 47.5 +52.5 110.6	18 18.5 +52.4 109.7
7°	21 06.2 +52.7 112.9	20 37.7 +52.5 111.9	20 08.9 +52.5 111.0	19 40.0 +52.3 110.1	19 10.9 +52.2 109.2
8°	21 58.9 +52.5 112.4	21 30.2 +52.5 111.4	21 01.4 +52.3 110.5	20 32.3 +52.3 109.6	20 03.1 +52.2 108.7
9°	22 51.4 +52.5 111.8	22 22.7 +52.3 110.9	21 53.7 +52.3 110.0	21 24.6 +52.1 109.0	20 55.3 +52.1 108.1
10°	23 43.9 +52.3 111.3	23 15.0 +52.3 110.4	22 46.0 +52.1 109.4	22 16.7 +52.1 108.5	21 47.4 +51.9 107.6
11°	24 36.2 +52.3 110.8	24 07.3 +52.1 109.8	23 38.1 +52.0 108.9	23 08.8 +51.9 108.0	22 39.3 +51.9 107.0
12°	25 28.5 +52.1 110.2	24 59.4 +52.0 109.3	24 30.1 +51.9 108.4	24 00.7 +51.8 107.4	23 31.2 +51.7 106.5
13°	26 20.6 +51.9 109.7	25 51.4 +51.9 108.7	25 22.0 +51.8 107.8	24 52.5 +51.7 106.9	24 22.9 +51.6 105.9
14°	27 12.5 +51.9 109.1	26 43.3 +51.7 108.2	26 13.8 +51.7 107.2	25 44.2 +51.6 106.3	25 14.5 +51.5 105.4
15°	28 04.4 +51.7 108.5	27 35.0 +51.6 107.6	27 05.5 +51.5 106.7	26 35.8 +51.4 105.7	26 06.0 +51.3 104.8
16°	28 56.1 +51.5 108.0	28 26.6 +51.5 107.0	27 57.0 +51.3 106.1	27 27.2 +51.3 105.2	26 57.3 +51.2 104.2
17°	29 47.6 +51.4 107.4	29 18.1 +51.3 106.4	28 48.3 +51.3 105.5	28 18.5 +51.1 104.6	27 48.5 +51.1 103.7
18°	30 39.0 +51.2 106.8	30 09.4 +51.1 105.8	29 39.6 +51.0 104.9	29 09.6 +51.0 104.0	28 39.6 +50.9 103.1
19°	31 30.2 +51.1 106.2	31 00.5 +50.9 105.2	30 30.6 +50.9 104.3	30 00.6 +50.8 103.4	29 30.5 +50.7 102.4
20°	32 21.3 +50.8 105.6	31 51.4 +50.8 104.6	31 21.5 +50.7 103.7	30 51.4 +50.6 102.8	30 21.2 +50.5 101.8
21°	33 12.1 +50.7 104.9	32 42.2 +50.6 104.0	32 12.2 +50.5 103.1	31 42.0 +50.4 102.1	31 11.7 +50.4 101.2
22°	34 02.8 +50.5 104.3	33 32.8 +50.4 103.3	33 02.7 +50.3 102.4	32 32.4 +50.3 101.5	32 02.1 +50.2 100.6
23°	34 53.3 +50.2 103.6	34 23.2 +50.1 102.7	33 53.0 +50.1 101.8	33 22.7 +50.0 100.8	32 52.3 +49.9 99.9
24°	35 43.5 +50.0 103.0	35 13.3 +50.0 102.0	34 43.1 +49.8 101.1	34 12.7 +49.8 100.2	33 42.2 +49.8 99.3
25°	36 33.5 +49.8 102.3	36 03.3 +49.7 101.3	35 32.9 +49.7 100.4	35 02.5 +49.6 99.5	34 32.0 +49.5 98.6
26°	37 23.3 +49.5 101.6	36 53.0 +49.4 100.6	36 22.6 +49.3 99.7	35 52.1 +49.3 98.8	35 21.5 +49.3 97.9
27°	38 12.8 +49.3 100.9	37 42.4 +49.2 99.9	37 11.9 +49.2 99.0	36 41.4 +49.1 98.1	36 10.8 +49.0 97.2
28°	39 02.1 +49.0 100.1	38 31.6 +48.9 99.2	38 01.1 +48.8 98.3	37 30.5 +48.8 97.4	36 59.8 +48.7 96.5
29°	39 51.1 +48.6 99.4	39 20.5 +48.7 98.5	38 49.9 +48.6 97.5	38 19.3 +48.5 96.6	37 48.5 +48.5 95.7

Dec	LHA 065° / 295°	LHA 066° / 294°	LHA 067° / 293°	LHA 068° / 292°	LHA 069° / 291°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	12 34.3 +52.7 111.8	12 05.5 +52.6 110.9	11 36.6 +52.5 110.0	11 07.5 +52.3 109.1	10 38.2 +52.3 108.2
1°	13 27.0 +52.6 111.3	12 58.1 +52.5 110.4	12 29.1 +52.4 109.5	11 59.8 +52.4 108.6	11 30.5 +52.2 107.7
2°	14 19.6 +52.5 110.8	13 50.6 +52.5 109.9	13 21.5 +52.3 109.0	12 52.2 +52.3 108.1	12 22.7 +52.2 107.2
3°	15 12.1 +52.5 110.3	14 43.1 +52.4 109.4	14 13.8 +52.3 108.5	13 44.5 +52.2 107.6	13 14.9 +52.2 106.7
4°	16 04.6 +52.4 109.8	15 35.5 +52.3 108.9	15 06.1 +52.3 108.0	14 36.7 +52.1 107.1	14 07.1 +52.0 106.2
5°	16 57.0 +52.4 109.3	16 27.8 +52.2 108.4	15 58.4 +52.1 107.5	15 28.8 +52.1 106.6	14 59.1 +52.0 105.7
6°	17 49.4 +52.2 108.8	17 20.0 +52.2 107.9	16 50.5 +52.1 107.0	16 20.9 +52.0 106.1	15 51.1 +52.0 105.2
7°	18 41.6 +52.2 108.3	18 12.2 +52.1 107.3	17 42.6 +52.0 106.4	17 12.9 +51.9 105.5	16 43.1 +51.8 104.6
8°	19 33.8 +52.0 107.7	19 04.3 +52.0 106.8	18 34.6 +51.9 105.9	18 04.8 +51.9 105.0	17 34.9 +51.8 104.1
9°	20 25.8 +52.0 107.2	19 56.3 +51.9 106.3	19 26.5 +51.8 105.4	18 56.7 +51.7 104.5	18 26.7 +51.7 103.6
10°	21 17.8 +51.9 106.7	20 48.2 +51.7 105.8	20 18.3 +51.8 104.9	19 48.4 +51.7 103.9	19 18.4 +51.5 103.0
11°	22 09.7 +51.8 106.1	21 39.9 +51.7 105.2	21 10.1 +51.6 104.3	20 40.1 +51.5 103.4	20 09.9 +51.5 102.5
12°	23 01.5 +51.6 105.6	22 31.6 +51.6 104.7	22 01.7 +51.5 103.8	21 31.6 +51.4 102.9	21 01.4 +51.4 102.0
13°	23 53.1 +51.5 105.0	23 23.2 +51.5 104.1	22 53.2 +51.4 103.2	22 23.0 +51.4 102.3	21 52.8 +51.3 101.4
14°	24 44.6 +51.5 104.5	24 14.7 +51.3 103.6	23 44.6 +51.2 102.6	23 14.4 +51.2 101.7	22 44.1 +51.1 100.8
15°	25 36.1 +51.2 103.9	25 06.0 +51.2 103.0	24 35.8 +51.2 102.1	24 05.6 +51.0 101.2	23 35.2 +51.0 100.3
16°	26 27.3 +51.1 103.3	25 57.2 +51.1 102.4	25 27.0 +51.0 101.5	24 56.6 +51.0 100.6	24 26.2 +50.9 99.7
17°	27 18.4 +51.0 102.7	26 48.3 +50.9 101.8	26 18.0 +50.8 100.9	25 47.6 +50.8 100.0	25 17.1 +50.7 99.1
18°	28 09.4 +50.8 102.1	27 39.2 +50.7 101.2	27 08.8 +50.7 100.3	26 38.4 +50.6 99.4	26 07.8 +50.6 98.5
19°	29 00.2 +50.7 101.5	28 29.9 +50.6 100.6	27 59.5 +50.5 99.7	27 29.0 +50.5 98.8	26 58.4 +50.5 97.9
20°	29 50.9 +50.5 100.9	29 20.5 +50.4 100.0	28 50.0 +50.4 99.1	28 19.5 +50.3 98.2	27 48.9 +50.2 97.3
21°	30 41.4 +50.3 100.3	30 10.9 +50.3 99.4	29 40.4 +50.2 98.5	29 09.8 +50.2 97.6	28 39.1 +50.2 96.7
22°	31 31.7 +50.1 99.7	31 01.2 +50.0 98.7	30 30.6 +50.0 97.8	30 00.0 +49.9 96.9	29 29.3 +49.9 96.1
23°	32 21.8 +49.9 99.0	31 51.2 +49.9 98.1	31 20.6 +49.8 97.2	30 49.9 +49.8 96.3	30 19.2 +49.7 95.4
24°	33 11.7 +49.7 98.3	32 41.1 +49.6 97.4	32 10.4 +49.6 96.5	31 39.7 +49.5 95.7	31 08.9 +49.5 94.8
25°	34 01.4 +49.4 97.7	33 30.7 +49.4 96.8	33 00.0 +49.4 95.9	32 29.2 +49.4 95.0	31 58.4 +49.4 94.1
26°	34 50.8 +49.3 97.0	34 20.1 +49.2 96.1	33 49.4 +49.1 95.2	33 18.6 +49.1 94.3	32 47.8 +49.1 93.4
27°	35 40.1 +49.0 96.3	35 09.3 +49.0 95.4	34 38.5 +49.0 94.5	34 07.7 +48.9 93.6	33 36.9 +48.8 92.7
28°	36 29.1 +48.7 95.6	35 58.3 +48.7 94.7	35 27.5 +48.6 93.8	34 56.6 +48.7 92.9	34 25.7 +48.7 92.0
29°	37 17.8 +48.4 94.8	36 47.0 +48.4 94.0	36 16.1 +48.4 93.1	35 45.3 +48.3 92.2	35 14.4 +48.3 91.3

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Dec	LHA 070° / 290°	LHA 071° / 289°	LHA 072° / 288°	LHA 073° / 287°	LHA 074° / 286°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	10 08.7 +52.3 107.3	9 39.2 +52.1 106.4	9 09.5 +52.0 105.6	8 39.6 +52.0 104.7	8 09.7 +51.9 103.8
1°	11 01.0 +52.1 106.8	10 31.3 +52.1 105.9	10 01.5 +52.1 105.1	9 31.6 +52.0 104.2	9 01.6 +51.9 103.3
2°	11 53.1 +52.2 106.3	11 23.4 +52.1 105.4	10 53.6 +51.9 104.6	10 23.6 +51.9 103.7	9 53.5 +51.9 102.8
3°	12 45.3 +52.0 105.8	12 15.5 +52.0 104.9	11 45.5 +52.0 104.0	11 15.5 +51.9 103.2	10 45.4 +51.8 102.3
4°	13 37.3 +52.0 105.3	13 07.5 +51.9 104.4	12 37.5 +51.8 103.5	12 07.4 +51.8 102.6	11 37.2 +51.7 101.8
5°	14 29.3 +52.0 104.8	13 59.4 +51.9 103.9	13 29.3 +51.8 103.0	12 59.2 +51.7 102.1	12 28.9 +51.7 101.3
6°	15 21.3 +51.8 104.3	14 51.3 +51.7 103.4	14 21.1 +51.8 102.5	13 50.9 +51.7 101.6	13 20.6 +51.6 100.7
7°	16 13.1 +51.8 103.7	15 43.0 +51.8 102.9	15 12.9 +51.6 102.0	14 42.6 +51.6 101.1	14 12.2 +51.6 100.2
8°	17 04.9 +51.7 103.2	16 34.8 +51.6 102.3	16 04.5 +51.6 101.4	15 34.2 +51.5 100.6	15 03.8 +51.4 99.7
9°	17 56.6 +51.6 102.7	17 26.4 +51.5 101.8	16 56.1 +51.5 100.9	16 25.7 +51.5 100.0	15 55.2 +51.4 99.1
10°	18 48.2 +51.5 102.2	18 17.9 +51.5 101.3	17 47.6 +51.4 100.4	17 17.2 +51.3 99.5	16 46.6 +51.4 98.6
11°	19 39.7 +51.4 101.6	19 09.4 +51.4 100.7	18 39.0 +51.3 99.8	18 08.5 +51.3 98.9	17 38.0 +51.2 98.1
12°	20 31.1 +51.4 101.1	20 00.8 +51.2 100.2	19 30.3 +51.2 99.3	18 59.8 +51.1 98.4	18 29.2 +51.1 97.5
13°	21 22.5 +51.2 100.5	20 52.0 +51.2 99.6	20 21.5 +51.1 98.7	19 50.9 +51.1 97.8	19 20.3 +51.0 97.0
14°	22 13.7 +51.0 99.9	21 43.2 +51.0 99.1	21 12.6 +51.0 98.2	20 42.0 +51.0 97.3	20 11.3 +50.9 96.4
15°	23 04.7 +51.0 99.4	22 34.2 +50.9 98.5	22 03.6 +50.9 97.6	21 33.0 +50.8 96.7	21 02.2 +50.9 95.8
16°	23 55.7 +50.8 98.8	23 25.1 +50.8 97.9	22 54.5 +50.7 97.0	22 23.8 +50.7 96.1	21 53.1 +50.6 95.3
17°	24 46.5 +50.7 98.2	24 15.9 +50.7 97.3	23 45.2 +50.7 96.4	23 14.5 +50.6 95.6	22 43.7 +50.6 94.7
18°	25 37.2 +50.6 97.6	25 06.6 +50.5 96.7	24 35.9 +50.4 95.9	24 05.1 +50.5 95.0	23 34.3 +50.4 94.1
19°	26 27.8 +50.4 97.0	25 57.1 +50.4 96.1	25 26.3 +50.4 95.3	24 55.6 +50.3 94.4	24 24.7 +50.3 93.5
20°	27 18.2 +50.2 96.4	26 47.5 +50.2 95.5	26 16.7 +50.2 94.7	25 45.9 +50.1 93.8	25 15.0 +50.1 92.9
21°	28 08.4 +50.1 95.8	27 37.7 +50.0 94.9	27 06.9 +50.0 94.0	26 36.0 +50.0 93.2	26 05.1 +50.0 92.3
22°	28 58.5 +49.9 95.2	28 27.7 +49.9 94.3	27 56.9 +49.8 93.4	27 26.0 +49.8 92.5	26 55.1 +49.8 91.7
23°	29 48.4 +49.7 94.5	29 17.6 +49.6 93.7	28 46.7 +49.7 92.8	28 15.8 +49.7 91.9	27 44.9 +49.7 91.1
24°	30 38.1 +49.5 93.9	30 07.2 +49.5 93.0	29 36.4 +49.5 92.1	29 05.5 +49.5 91.3	28 34.6 +49.5 90.4
25°	31 27.6 +49.3 93.2	30 56.7 +49.3 92.4	30 25.9 +49.2 91.5	29 55.0 +49.2 90.6	29 24.1 +49.2 89.8
26°	32 16.9 +49.1 92.6	31 46.0 +49.1 91.7	31 15.1 +49.1 90.8	30 44.2 +49.1 90.0	30 13.3 +49.1 89.1
27°	33 06.0 +48.8 91.9	32 35.1 +48.8 91.0	32 04.2 +48.8 90.1	31 33.3 +48.8 89.3	31 02.4 +48.9 88.4
28°	33 54.8 +48.7 91.2	33 23.9 +48.7 90.3	32 53.0 +48.7 89.5	32 22.1 +48.7 88.6	31 51.3 +48.6 87.8
29°	34 43.5 +48.3 90.5	34 12.6 +48.3 89.6	33 41.7 +48.3 88.8	33 10.8 +48.4 87.9	32 39.9 +48.4 87.1

Dec	LHA 075° / 285°	LHA 076° / 284°	LHA 077° / 283°	LHA 078° / 282°	LHA 079° / 281°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	7 39.6 +51.9 102.9	7 09.5 +51.8 102.1	6 39.2 +51.8 101.2	6 08.8 +51.7 100.3	5 38.4 +51.7 99.5
1°	8 31.5 +51.8 102.4	8 01.3 +51.8 101.6	7 31.0 +51.7 100.7	7 00.5 +51.7 99.8	6 30.1 +51.6 98.9
2°	9 23.3 +51.8 101.9	8 53.1 +51.7 101.0	8 22.7 +51.7 100.2	7 52.2 +51.7 99.3	7 21.7 +51.6 98.4
3°	10 15.1 +51.8 101.4	9 44.8 +51.7 100.5	9 14.4 +51.6 99.7	8 43.9 +51.6 98.8	8 13.3 +51.5 97.9
4°	11 06.9 +51.7 100.9	10 36.5 +51.6 100.0	10 06.0 +51.6 99.1	9 35.5 +51.5 98.3	9 04.8 +51.6 97.4
5°	11 58.6 +51.6 100.4	11 28.1 +51.6 99.5	10 57.6 +51.5 98.6	10 27.0 +51.5 97.8	9 56.4 +51.4 96.9
6°	12 50.2 +51.6 99.9	12 19.7 +51.5 99.0	11 49.1 +51.5 98.1	11 18.5 +51.5 97.2	10 47.8 +51.4 96.4
7°	13 41.8 +51.5 99.3	13 11.2 +51.5 98.4	12 40.6 +51.5 97.6	12 10.0 +51.4 96.7	11 39.2 +51.4 95.8
8°	14 33.3 +51.4 98.8	14 02.7 +51.4 97.9	13 32.1 +51.3 97.0	13 01.4 +51.3 96.2	12 30.6 +51.3 95.3
9°	15 24.7 +51.3 98.3	14 54.1 +51.3 97.4	14 23.4 +51.3 96.5	13 52.7 +51.2 95.6	13 21.9 +51.2 94.8
10°	16 16.0 +51.3 97.7	15 45.4 +51.2 96.8	15 14.7 +51.2 96.0	14 43.9 +51.2 95.1	14 13.1 +51.2 94.2
11°	17 07.3 +51.2 97.2	16 36.6 +51.2 96.3	16 05.9 +51.1 95.4	15 35.1 +51.1 94.6	15 04.3 +51.1 93.7
12°	17 58.5 +51.1 96.6	17 27.8 +51.0 95.8	16 57.0 +51.1 94.9	16 26.2 +51.0 94.0	15 55.4 +51.0 93.2
13°	18 49.6 +51.0 96.1	18 18.8 +51.0 95.2	17 48.1 +50.9 94.3	17 17.2 +50.9 93.5	16 46.4 +50.9 92.6
14°	19 40.6 +50.9 95.5	19 09.8 +50.9 94.7	18 39.0 +50.8 93.8	18 08.1 +50.9 92.9	17 37.3 +50.8 92.1
15°	20 31.5 +50.8 95.0	20 00.7 +50.7 94.1	19 29.8 +50.8 93.2	18 59.0 +50.7 92.4	18 28.1 +50.7 91.5
16°	21 22.3 +50.6 94.4	20 51.4 +50.7 93.5	20 20.6 +50.6 92.7	19 49.7 +50.6 91.8	19 18.8 +50.6 90.9
17°	22 12.9 +50.6 93.8	21 42.1 +50.5 92.9	21 11.2 +50.5 92.1	20 40.3 +50.5 91.2	20 09.4 +50.5 90.4
18°	23 03.5 +50.4 93.2	22 32.6 +50.4 92.4	22 01.7 +50.4 91.5	21 30.8 +50.4 90.6	20 59.9 +50.4 89.8
19°	23 53.9 +50.2 92.6	23 23.0 +50.2 91.8	22 52.1 +50.2 90.9	22 21.2 +50.2 90.1	21 50.3 +50.2 89.2
20°	24 44.1 +50.2 92.0	24 13.2 +50.2 91.2	23 42.3 +50.2 90.3	23 11.4 +50.2 89.5	22 40.5 +50.2 88.6
21°	25 34.3 +49.9 91.4	25 03.4 +49.9 90.6	24 32.5 +49.9 89.7	24 01.6 +49.9 88.9	23 30.7 +50.0 88.0
22°	26 24.2 +49.8 90.8	25 53.3 +49.8 90.0	25 22.4 +49.8 89.1	24 51.5 +49.9 88.3	24 20.7 +49.8 87.4
23°	27 14.0 +49.7 90.2	26 43.1 +49.7 89.3	26 12.2 +49.7 88.5	25 41.4 +49.6 87.6	25 10.5 +49.7 86.8
24°	28 03.7 +49.5 89.6	27 32.8 +49.5 88.7	27 01.9 +49.5 87.9	26 31.0 +49.5 87.0	26 00.2 +49.5 86.2
25°	28 53.2 +49.2 88.9	28 22.3 +49.3 88.1	27 51.4 +49.3 87.2	27 20.5 +49.4 86.4	26 49.7 +49.4 85.5
26°	29 42.4 +49.1 88.3	29 11.6 +49.1 87.4	28 40.7 +49.1 86.6	28 09.9 +49.1 85.7	27 39.1 +49.1 84.9
27°	30 31.5 +48.9 87.6	30 00.7 +48.8 86.8	29 29.8 +48.9 85.9	28 59.0 +49.0 85.1	28 28.2 +49.0 84.2
28°	31 20.4 +48.7 86.9	30 49.5 +48.7 86.1	30 18.7 +48.8 85.2	29 48.0 +48.7 84.4	29 17.2 +48.8 83.6
29°	32 09.1 +48.4 86.2	31 38.2 +48.5 85.4	31 07.5 +48.5 84.6	30 36.7 +48.5 83.7	30 06.0 +48.6 82.9

# Declination SAME name as Latitude

# Latitude 59°

Dec	LHA 080° / 280°	LHA 081° / 279°	LHA 082° / 278°	LHA 083° / 277°	LHA 084° / 276°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	5 07.9 +51.6 98.6	4 37.3 +51.6 97.7	4 06.6 +51.6 96.9	3 35.9 +51.5 96.0	3 05.2 +51.5 95.1
1°	5 59.5 +51.6 98.1	5 28.9 +51.5 97.2	4 58.2 +51.5 96.4	4 27.4 +51.5 95.5	3 56.7 +51.4 94.6
2°	6 51.1 +51.5 97.6	6 20.4 +51.6 96.7	5 49.7 +51.5 95.8	5 18.9 +51.5 95.0	4 48.1 +51.5 94.1
3°	7 42.6 +51.6 97.1	7 12.0 +51.4 96.2	6 41.2 +51.5 95.3	6 10.4 +51.5 94.5	5 39.6 +51.4 93.6
4°	8 34.2 +51.5 96.5	8 03.4 +51.5 95.7	7 32.7 +51.4 94.8	7 01.9 +51.4 93.9	6 31.0 +51.4 93.1
5°	9 25.7 +51.4 96.0	8 54.9 +51.4 95.2	8 24.1 +51.4 94.3	7 53.3 +51.3 93.4	7 22.4 +51.4 92.6
6°	10 17.1 +51.4 95.5	9 46.3 +51.4 94.6	9 15.5 +51.3 93.8	8 44.6 +51.4 92.9	8 13.8 +51.3 92.0
7°	11 08.5 +51.3 95.0	10 37.7 +51.3 94.1	10 06.8 +51.3 93.2	9 36.0 +51.3 92.4	9 05.1 +51.3 91.5
8°	11 59.8 +51.3 94.4	11 29.0 +51.2 93.6	10 58.1 +51.3 92.7	10 27.3 +51.2 91.9	9 56.4 +51.2 91.0
9°	12 51.1 +51.2 93.9	12 20.2 +51.2 93.0	11 49.4 +51.2 92.2	11 18.5 +51.2 91.3	10 47.6 +51.2 90.5
10°	13 42.3 +51.1 93.4	13 11.4 +51.2 92.5	12 40.6 +51.1 91.6	12 09.7 +51.1 90.8	11 38.8 +51.1 89.9
11°	14 33.4 +51.1 92.8	14 02.6 +51.0 92.0	13 31.7 +51.0 91.1	13 00.8 +51.0 90.3	12 29.9 +51.0 89.4
12°	15 24.5 +51.0 92.3	14 53.6 +51.0 91.4	14 22.7 +51.0 90.6	13 51.8 +51.0 89.7	13 20.9 +51.0 88.9
13°	16 15.5 +50.9 91.7	15 44.6 +50.9 90.9	15 13.7 +50.9 90.0	14 42.8 +50.9 89.2	14 11.9 +50.9 88.3
14°	17 06.4 +50.8 91.2	16 35.5 +50.8 90.3	16 04.6 +50.8 89.5	15 33.7 +50.8 88.6	15 02.8 +50.8 87.8
15°	17 57.2 +50.7 90.6	17 26.3 +50.7 89.8	16 55.4 +50.7 88.9	16 24.5 +50.7 88.1	15 53.6 +50.8 87.2
16°	18 47.9 +50.6 90.1	18 17.0 +50.6 89.2	17 46.1 +50.6 88.4	17 15.2 +50.7 87.5	16 44.4 +50.6 86.7
17°	19 38.5 +50.5 89.5	19 07.6 +50.5 88.6	18 36.7 +50.5 87.8	18 05.9 +50.5 86.9	17 35.0 +50.6 86.1
18°	20 29.0 +50.4 88.9	19 58.1 +50.4 88.1	19 27.2 +50.5 87.2	18 56.4 +50.4 86.4	18 25.6 +50.4 85.5
19°	21 19.4 +50.3 88.3	20 48.5 +50.3 87.5	20 17.7 +50.2 86.6	19 46.8 +50.3 85.8	19 16.0 +50.4 85.0
20°	22 09.7 +50.1 87.8	21 38.8 +50.1 86.9	21 07.9 +50.2 86.1	20 37.1 +50.2 85.2	20 06.4 +50.2 84.4
21°	22 59.8 +50.0 87.2	22 28.9 +50.1 86.3	21 58.1 +50.1 85.5	21 27.3 +50.1 84.6	20 56.6 +50.1 83.8
22°	23 49.8 +49.9 86.6	23 19.0 +49.8 85.7	22 48.2 +49.9 84.9	22 17.4 +50.0 84.0	21 46.7 +50.0 83.2
23°	24 39.7 +49.7 85.9	24 08.8 +49.8 85.1	23 38.1 +49.7 84.3	23 07.4 +49.8 83.4	22 36.7 +49.8 82.6
24°	25 29.4 +49.5 85.3	24 58.6 +49.6 84.5	24 27.8 +49.7 83.7	23 57.2 +49.6 82.8	23 26.5 +49.7 82.0
25°	26 18.9 +49.4 84.7	25 48.2 +49.4 83.9	25 17.5 +49.4 83.0	24 46.8 +49.5 82.2	24 16.2 +49.6 81.4
26°	27 08.3 +49.2 84.1	26 37.6 +49.2 83.2	26 06.9 +49.3 82.4	25 36.3 +49.4 81.6	25 05.8 +49.4 80.8
27°	27 57.5 +49.0 83.4	27 26.8 +49.1 82.6	26 56.2 +49.2 81.8	26 25.7 +49.2 81.0	25 55.2 +49.2 80.1
28°	28 46.5 +48.9 82.8	28 15.9 +48.9 81.9	27 45.4 +48.9 81.1	27 14.9 +49.0 80.3	26 44.4 +49.1 79.5
29°	29 35.4 +48.6 82.1	29 04.8 +48.7 81.3	28 34.3 +48.7 80.5	28 03.9 +48.8 79.7	27 33.5 +48.9 78.9

Dec	LHA 085° / 275°	LHA 086° / 274°	LHA 087° / 273°	LHA 088° / 272°	LHA 089° / 271°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	2 34.4 +51.4 94.3	2 03.5 +51.5 93.4	1 32.7 +51.4 92.6	1 01.8 +51.4 91.7	0 30.9 +51.4 90.9
1°	3 25.8 +51.5 93.8	2 55.0 +51.4 92.9	2 24.1 +51.5 92.1	1 53.2 +51.5 91.2	1 22.3 +51.5 90.3
2°	4 17.3 +51.4 93.3	3 46.4 +51.5 92.4	3 15.6 +51.4 91.5	2 44.7 +51.4 90.7	2 13.8 +51.4 89.8
3°	5 08.7 +51.5 92.7	4 37.9 +51.4 91.9	4 07.0 +51.4 91.0	3 36.1 +51.4 90.2	3 05.2 +51.4 89.3
4°	6 00.2 +51.3 92.2	5 29.3 +51.3 91.4	4 58.4 +51.3 90.5	4 27.5 +51.3 89.7	3 56.6 +51.3 88.8
5°	6 51.5 +51.4 91.7	6 20.6 +51.4 90.8	5 49.7 +51.4 90.0	5 18.8 +51.4 89.1	4 47.9 +51.4 88.3
6°	7 42.9 +51.3 91.2	7 12.0 +51.3 90.3	6 41.1 +51.3 89.5	6 10.2 +51.3 88.6	5 39.3 +51.3 87.8
7°	8 34.2 +51.3 90.7	8 03.3 +51.3 89.8	7 32.4 +51.3 88.9	7 01.5 +51.3 88.1	6 30.6 +51.3 87.2
8°	9 25.5 +51.2 90.1	8 54.6 +51.2 89.3	8 23.7 +51.2 88.4	7 52.8 +51.2 87.6	7 21.9 +51.3 86.7
9°	10 16.7 +51.2 89.6	9 45.8 +51.2 88.7	9 14.9 +51.2 87.9	8 44.0 +51.2 87.0	8 13.2 +51.2 86.2
10°	11 07.9 +51.1 89.1	10 37.0 +51.1 88.2	10 06.1 +51.1 87.4	9 35.2 +51.2 86.5	9 04.4 +51.2 85.7
11°	11 59.0 +51.0 88.5	11 28.1 +51.1 87.7	10 57.2 +51.1 86.8	10 26.4 +51.1 86.0	9 55.6 +51.1 85.1
12°	12 50.0 +51.0 88.0	12 19.2 +51.0 87.1	11 48.3 +51.0 86.3	11 17.5 +51.0 85.4	10 46.7 +51.1 84.6
13°	13 41.0 +50.9 87.5	13 10.2 +50.9 86.6	12 39.3 +51.0 85.8	12 08.5 +51.0 84.9	11 37.8 +51.0 84.1
14°	14 31.9 +50.9 86.9	14 01.1 +50.8 86.1	13 30.3 +50.9 85.2	12 59.5 +50.9 84.4	12 28.8 +50.9 83.5
15°	15 22.8 +50.7 86.4	14 51.9 +50.8 85.5	14 21.2 +50.8 84.7	13 50.4 +50.8 83.8	13 19.7 +50.9 83.0
16°	16 13.5 +50.7 85.8	15 42.7 +50.7 85.0	15 12.0 +50.7 84.1	14 41.2 +50.8 83.3	14 10.6 +50.8 82.4
17°	17 04.2 +50.6 85.3	16 33.4 +50.6 84.4	16 02.7 +50.6 83.6	15 32.0 +50.7 82.7	15 01.4 +50.7 81.9
18°	17 54.8 +50.5 84.7	17 24.0 +50.5 83.8	16 53.3 +50.6 83.0	16 22.7 +50.6 82.2	15 52.1 +50.6 81.3
19°	18 45.3 +50.3 84.1	18 14.5 +50.4 83.3	17 43.9 +50.4 82.4	17 13.3 +50.5 81.6	16 42.7 +50.6 80.8
20°	19 35.6 +50.3 83.5	19 04.9 +50.4 82.7	18 34.3 +50.4 81.9	18 03.8 +50.4 81.0	17 33.3 +50.4 80.2
21°	20 25.9 +50.1 83.0	19 55.3 +50.1 82.1	19 24.7 +50.2 81.3	18 54.2 +50.3 80.5	18 23.7 +50.4 79.6
22°	21 16.0 +50.1 82.4	20 45.4 +50.1 81.5	20 14.9 +50.1 80.7	19 44.5 +50.1 79.9	19 14.1 +50.2 79.1
23°	22 06.1 +49.9 81.8	21 35.5 +50.0 81.0	21 05.0 +50.0 80.1	20 34.6 +50.1 79.3	20 04.3 +50.1 78.5
24°	22 56.0 +49.7 81.2	22 25.5 +49.8 80.4	21 55.0 +49.9 79.5	21 24.7 +49.9 78.7	20 54.4 +50.0 77.9
25°	23 45.7 +49.6 80.6	23 15.3 +49.6 79.8	22 44.9 +49.7 78.9	22 14.6 +49.8 78.1	21 44.4 +49.9 77.3
26°	24 35.3 +49.5 80.0	24 04.9 +49.6 79.1	23 34.6 +49.6 78.3	23 04.4 +49.7 77.5	22 34.3 +49.7 76.7
27°	25 24.8 +49.3 79.3	24 54.5 +49.3 78.5	24 24.2 +49.5 77.7	23 54.1 +49.5 76.9	23 24.0 +49.6 76.1
28°	26 14.1 +49.1 78.7	25 43.8 +49.2 77.9	25 13.7 +49.2 77.1	24 43.6 +49.3 76.3	24 13.6 +49.5 75.5
29°	27 03.2 +49.0 78.1	26 33.0 +49.1 77.3	26 02.9 +49.1 76.5	25 32.9 +49.2 75.7	25 03.1 +49.2 74.9

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Dec	LHA 090° / 270°	LHA 091° / 269°	LHA 092° / 268°	LHA 093° / 267°	LHA 094° / 266°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	0 00.0 +51.4 90.0	-0 30.9 +51.4	-1 01.8 +51.4	-1 32.7 +51.5	-2 03.5 +51.4
1°	0 51.4 +51.5 89.5	0 20.5 +51.5 88.6	-0 10.4 +51.5	-0 41.2 +51.4	-1 12.1 +51.5
2°	1 42.9 +51.4 89.0	1 12.0 +51.4 88.1	0 41.1 +51.4 87.3	0 10.2 +51.5 86.4	-0 20.6 +51.5
3°	2 34.3 +51.4 88.5	2 03.4 +51.4 87.6	1 32.5 +51.5 86.7	1 01.7 +51.4 85.9	0 30.9 +51.5 85.0
4°	3 25.7 +51.4 87.9	2 54.8 +51.4 87.1	2 24.0 +51.4 86.2	1 53.1 +51.5 85.4	1 22.4 +51.4 84.5
5°	4 17.1 +51.3 87.4	3 46.2 +51.4 86.6	3 15.4 +51.4 85.7	2 44.6 +51.4 84.9	2 13.8 +51.5 84.0
6°	5 08.4 +51.4 86.9	4 37.6 +51.3 86.0	4 06.8 +51.4 85.2	3 36.0 +51.4 84.3	3 05.3 +51.4 83.5
7°	5 59.8 +51.3 86.4	5 28.9 +51.4 85.5	4 58.2 +51.3 84.7	4 27.4 +51.4 83.8	3 56.7 +51.4 83.0
8°	6 51.1 +51.3 85.9	6 20.3 +51.3 85.0	5 49.5 +51.3 84.2	5 18.8 +51.4 83.3	4 48.1 +51.4 82.5
9°	7 42.4 +51.2 85.3	7 11.6 +51.2 84.5	6 40.8 +51.3 83.6	6 10.2 +51.3 82.8	5 39.5 +51.4 81.9
10°	8 33.6 +51.2 84.8	8 02.8 +51.3 84.0	7 32.1 +51.3 83.1	7 01.5 +51.3 82.3	6 30.9 +51.3 81.4
11°	9 24.8 +51.1 84.3	8 54.1 +51.2 83.4	8 23.4 +51.2 82.6	7 52.8 +51.2 81.7	7 22.2 +51.3 80.9
12°	10 15.9 +51.1 83.8	9 45.3 +51.1 82.9	9 14.6 +51.2 82.1	8 44.0 +51.3 81.2	8 13.5 +51.3 80.4
13°	11 07.0 +51.1 83.2	10 36.4 +51.1 82.4	10 05.8 +51.1 81.5	9 35.3 +51.1 80.7	9 04.8 +51.2 79.8
14°	11 58.1 +51.0 82.7	11 27.5 +51.0 81.8	10 56.9 +51.1 81.0	10 26.4 +51.1 80.2	9 56.0 +51.2 79.3
15°	12 49.1 +50.9 82.1	12 18.5 +50.9 81.3	11 48.0 +51.0 80.5	11 17.5 +51.1 79.6	10 47.2 +51.1 78.8
16°	13 40.0 +50.8 81.6	13 09.4 +50.9 80.8	12 39.0 +50.9 79.9	12 08.6 +51.0 79.1	11 38.3 +51.0 78.3
17°	14 30.8 +50.8 81.1	14 00.3 +50.8 80.2	13 29.9 +50.9 79.4	12 59.6 +50.9 78.5	12 29.3 +51.0 77.7
18°	15 21.6 +50.7 80.5	14 51.1 +50.8 79.7	14 20.8 +50.8 78.8	13 50.5 +50.9 78.0	13 20.3 +51.0 77.2
19°	16 12.3 +50.6 79.9	15 41.9 +50.6 79.1	15 11.6 +50.7 78.3	14 41.4 +50.7 77.5	14 11.3 +50.8 76.6
20°	17 02.9 +50.5 79.4	16 32.5 +50.6 78.6	16 02.3 +50.6 77.7	15 32.1 +50.7 76.9	15 02.1 +50.8 76.1
21°	17 53.4 +50.4 78.8	17 23.1 +50.5 78.0	16 52.9 +50.5 77.2	16 22.8 +50.6 76.3	15 52.9 +50.6 75.5
22°	18 43.8 +50.3 78.2	18 13.6 +50.3 77.4	17 43.4 +50.5 76.6	17 13.4 +50.6 75.8	16 43.5 +50.6 75.0
23°	19 34.1 +50.2 77.7	19 03.9 +50.3 76.9	18 33.9 +50.3 76.0	18 04.0 +50.4 75.2	17 34.1 +50.5 74.4
24°	20 24.3 +50.0 77.1	19 54.2 +50.1 76.3	19 24.2 +50.2 75.5	18 54.4 +50.3 74.6	18 24.6 +50.4 73.8
25°	21 14.3 +50.0 76.5	20 44.3 +50.1 75.7	20 14.4 +50.1 74.9	19 44.7 +50.2 74.1	19 15.0 +50.3 73.3
26°	22 04.3 +49.8 75.9	21 34.4 +49.8 75.1	21 04.5 +50.0 74.3	20 34.9 +50.0 73.5	20 05.3 +50.2 72.7
27°	22 54.1 +49.7 75.3	22 24.2 +49.8 74.5	21 54.5 +49.9 73.7	21 24.9 +50.0 72.9	20 55.5 +50.0 72.1
28°	23 43.8 +49.5 74.7	23 14.0 +49.6 73.9	22 44.4 +49.7 73.1	22 14.9 +49.8 72.3	21 45.5 +49.9 71.5
29°	24 33.3 +49.4 74.1	24 03.6 +49.5 73.3	23 34.1 +49.6 72.5	23 04.7 +49.7 71.7	22 35.4 +49.8 70.9

Dec	LHA 095° / 265°	LHA 096° / 264°	LHA 097° / 263°	LHA 098° / 262°	LHA 099° / 261°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-2 34.4 +51.5	-3 05.2 +51.5	-3 35.9 +51.5	-4 06.6 +51.5	-4 37.3 +51.6
1°	-1 42.9 +51.5	-2 13.7 +51.6	-2 44.4 +51.6	-3 15.1 +51.6	-3 45.7 +51.7
2°	-0 51.4 +51.5	-1 22.1 +51.5	-1 52.8 +51.5	-2 23.5 +51.6	-2 54.0 +51.6
3°	0 00.1 +51.5 84.2	-0 30.6 +51.5	-1 01.3 +51.6	-1 31.9 +51.6	-2 02.4 +51.6
4°	0 51.6 +51.5 83.7	0 20.9 +51.6 82.8	-0 09.7 +51.6	-0 40.3 +51.6	-1 10.8 +51.7
5°	1 43.1 +51.5 83.1	1 12.5 +51.5 82.3	0 41.9 +51.5 81.4	0 11.3 +51.7 80.6	-0 19.1 +51.7
6°	2 34.6 +51.5 82.6	2 04.0 +51.5 81.8	1 33.4 +51.6 80.9	1 03.0 +51.6 80.1	0 32.6 +51.6 79.2
7°	3 26.1 +51.4 82.1	2 55.5 +51.5 81.3	2 25.0 +51.5 80.4	1 54.6 +51.6 79.6	1 24.2 +51.7 78.7
8°	4 17.5 +51.5 81.6	3 47.0 +51.5 80.7	3 16.5 +51.6 79.9	2 46.2 +51.5 79.0	2 15.9 +51.6 78.2
9°	5 09.0 +51.4 81.1	4 38.5 +51.4 80.2	4 08.1 +51.5 79.4	3 37.7 +51.6 78.5	3 07.5 +51.6 77.7
10°	6 00.4 +51.4 80.6	5 29.9 +51.5 79.7	4 59.6 +51.5 78.9	4 29.3 +51.5 78.0	3 59.1 +51.6 77.2
11°	6 51.8 +51.3 80.0	6 21.4 +51.4 79.2	5 51.1 +51.4 78.4	5 20.8 +51.6 77.5	4 50.7 +51.6 76.7
12°	7 43.1 +51.3 79.5	7 12.8 +51.3 78.7	6 42.5 +51.4 77.8	6 12.4 +51.4 77.0	5 42.3 +51.6 76.1
13°	8 34.4 +51.3 79.0	8 04.1 +51.4 78.2	7 33.9 +51.4 77.3	7 03.8 +51.5 76.5	6 33.9 +51.5 75.6
14°	9 25.7 +51.2 78.5	8 55.5 +51.2 77.6	8 25.3 +51.4 76.8	7 55.3 +51.4 76.0	7 25.4 +51.5 75.1
15°	10 16.9 +51.2 77.9	9 46.7 +51.3 77.1	9 16.7 +51.3 76.3	8 46.7 +51.4 75.4	8 16.9 +51.4 74.6
16°	11 08.1 +51.1 77.4	10 38.0 +51.2 76.6	10 08.0 +51.2 75.7	9 38.1 +51.3 74.9	9 08.3 +51.4 74.1
17°	11 59.2 +51.1 76.9	11 29.2 +51.1 76.0	10 59.2 +51.2 75.2	10 29.4 +51.3 74.4	9 59.7 +51.4 73.6
18°	12 50.3 +50.9 76.3	12 20.3 +51.0 75.5	11 50.4 +51.2 74.7	11 20.7 +51.2 73.9	10 51.1 +51.2 73.0
19°	13 41.2 +51.0 75.8	13 11.3 +51.0 75.0	12 41.6 +51.0 74.1	12 11.9 +51.1 73.3	11 42.3 +51.3 72.5
20°	14 32.2 +50.8 75.3	14 02.3 +50.9 74.4	13 32.6 +51.0 73.6	13 03.0 +51.1 72.8	12 33.6 +51.2 72.0
21°	15 23.0 +50.8 74.7	14 53.2 +50.9 73.9	14 23.6 +50.9 73.1	13 54.1 +51.0 72.2	13 24.8 +51.1 71.4
22°	16 13.8 +50.6 74.2	15 44.1 +50.7 73.3	15 14.5 +50.9 72.5	14 45.1 +51.0 71.7	14 15.9 +51.0 70.9
23°	17 04.4 +50.6 73.6	16 34.8 +50.7 72.8	16 05.4 +50.7 72.0	15 36.1 +50.8 71.2	15 06.9 +51.0 70.3
24°	17 55.0 +50.5 73.0	17 25.5 +50.6 72.2	16 56.1 +50.7 71.4	16 26.9 +50.8 70.6	15 57.9 +50.8 69.8
25°	18 45.5 +50.4 72.5	18 16.1 +50.5 71.7	17 46.8 +50.6 70.9	17 17.7 +50.7 70.0	16 48.7 +50.8 69.2
26°	19 35.9 +50.2 71.9	19 06.6 +50.3 71.1	18 37.4 +50.5 70.3	18 08.4 +50.5 69.5	17 39.5 +50.7 68.7
27°	20 26.1 +50.2 71.3	19 56.9 +50.3 70.5	19 27.9 +50.3 69.7	18 58.9 +50.5 68.9	18 30.2 +50.6 68.1
28°	21 16.3 +50.0 70.7	20 47.2 +50.1 69.9	20 18.2 +50.3 69.1	19 49.4 +50.4 68.3	19 20.8 +50.5 67.6
29°	22 06.3 +49.9 70.1	21 37.3 +50.0 69.3	21 08.5 +50.1 68.6	20 39.8 +50.2 67.8	20 11.3 +50.3 67.0

# Declination SAME name as Latitude

# Latitude 59°

Dec	LHA 100° / 260°	LHA 101° / 259°	LHA 102° / 258°	LHA 103° / 257°	LHA 104° / 256°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-5 07.9 +51.7	-5 38.4 +51.7	-6 08.8 +51.7	-6 39.2 +51.8	-7 09.5 +51.9
1°	-4 16.2 +51.6	-4 46.7 +51.7	-5 17.1 +51.8	-5 47.4 +51.8	-6 17.6 +51.9
2°	-3 24.6 +51.7	-3 55.0 +51.8	-4 25.3 +51.8	-4 55.6 +51.9	-5 25.7 +51.9
3°	-2 32.9 +51.7	-3 03.2 +51.7	-3 33.5 +51.8	-4 03.7 +51.8	-4 33.8 +51.9
4°	-1 41.2 +51.7	-2 11.5 +51.8	-2 41.7 +51.8	-3 11.9 +51.9	-3 41.9 +51.9
5°	-0 49.5 +51.7	-1 19.7 +51.7	-1 49.9 +51.8	-2 20.0 +51.9	-2 50.0 +52.0
6°	0 02.2 +51.8 78.4	-0 28.0 +51.8	-0 58.1 +51.8	-1 28.1 +51.9	-1 58.0 +52.0
7°	0 54.0 +51.7 77.8	0 23.8 +51.8 77.0	-0 06.3 +51.9	-0 36.2 +51.9	-1 06.0 +51.9
8°	1 45.7 +51.7 77.3	1 15.6 +51.7 76.5	0 45.6 +51.8 75.6	0 15.7 +51.9 74.8	-0 14.1 +52.0
9°	2 37.4 +51.6 76.8	2 07.3 +51.8 76.0	1 37.4 +51.8 75.1	1 07.6 +51.9 74.3	0 37.9 +52.0 73.4
10°	3 29.0 +51.7 76.3	2 59.1 +51.7 75.5	2 29.2 +51.8 74.6	1 59.5 +51.9 73.8	1 29.9 +51.9 72.9
11°	4 20.7 +51.7 75.8	3 50.8 +51.7 75.0	3 21.0 +51.8 74.1	2 51.4 +51.8 73.3	2 21.8 +52.0 72.4
12°	5 12.4 +51.6 75.3	4 42.5 +51.7 74.5	4 12.8 +51.8 73.6	3 43.2 +51.9 72.8	3 13.8 +51.9 71.9
13°	6 04.0 +51.6 74.8	5 34.2 +51.7 73.9	5 04.6 +51.7 73.1	4 35.1 +51.8 72.3	4 05.7 +51.9 71.4
14°	6 55.6 +51.5 74.3	6 25.9 +51.6 73.4	5 56.3 +51.7 72.6	5 26.9 +51.8 71.8	4 57.6 +51.9 70.9
15°	7 47.1 +51.5 73.8	7 17.5 +51.6 72.9	6 48.0 +51.7 72.1	6 18.7 +51.8 71.2	5 49.5 +51.9 70.4
16°	8 38.6 +51.5 73.2	8 09.1 +51.6 72.4	7 39.7 +51.7 71.6	7 10.5 +51.7 70.7	6 41.4 +51.8 69.9
17°	9 30.1 +51.5 72.7	9 00.7 +51.5 71.9	8 31.4 +51.6 71.1	8 02.2 +51.7 70.2	7 33.2 +51.8 69.4
18°	10 21.6 +51.3 72.2	9 52.2 +51.5 71.4	9 23.0 +51.6 70.5	8 53.9 +51.7 69.7	8 25.0 +51.8 68.9
19°	11 12.9 +51.4 71.7	10 43.7 +51.4 70.8	10 14.6 +51.5 70.0	9 45.6 +51.6 69.2	9 16.8 +51.7 68.4
20°	12 04.3 +51.2 71.1	11 35.1 +51.4 70.3	11 06.1 +51.4 69.5	10 37.2 +51.6 68.7	10 08.5 +51.7 67.9
21°	12 55.5 +51.2 70.6	12 26.5 +51.3 69.8	11 57.5 +51.4 69.0	11 28.8 +51.5 68.2	11 00.2 +51.6 67.3
22°	13 46.7 +51.2 70.1	13 17.8 +51.2 69.3	12 48.9 +51.4 68.4	12 20.3 +51.4 67.6	11 51.8 +51.5 66.8
23°	14 37.9 +51.0 69.5	14 09.0 +51.2 68.7	13 40.3 +51.3 67.9	13 11.7 +51.4 67.1	12 43.3 +51.5 66.3
24°	15 28.9 +51.0 69.0	15 00.2 +51.0 68.2	14 31.6 +51.1 67.4	14 03.1 +51.3 66.6	13 34.8 +51.5 65.8
25°	16 19.9 +50.9 68.4	15 51.2 +51.0 67.6	15 22.7 +51.2 66.8	14 54.4 +51.3 66.0	14 26.3 +51.3 65.2
26°	17 10.8 +50.8 67.9	16 42.2 +51.0 67.1	16 13.9 +51.0 66.3	15 45.7 +51.1 65.5	15 17.6 +51.3 64.7
27°	18 01.6 +50.7 67.3	17 33.2 +50.8 66.5	17 04.9 +50.9 65.7	16 36.8 +51.1 65.0	16 08.9 +51.2 64.2
28°	18 52.3 +50.6 66.8	18 24.0 +50.7 66.0	17 55.8 +50.9 65.2	17 27.9 +51.0 64.4	17 00.1 +51.1 63.6
29°	19 42.9 +50.5 66.2	19 14.7 +50.6 65.4	18 46.7 +50.7 64.6	18 18.9 +50.8 63.9	17 51.2 +51.0 63.1

Dec	LHA 105° / 255°	LHA 106° / 254°	LHA 107° / 253°	LHA 108° / 252°	LHA 109° / 251°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	-7 39.6 +51.9	-8 09.7 +52.0	-8 39.6 +52.0	-9 09.5 +52.1	-9 39.2 +52.2
1°	-6 47.7 +51.9	-7 17.7 +52.0	-7 47.6 +52.1	-8 17.4 +52.2	-8 47.0 +52.2
2°	-5 55.8 +52.0	-6 25.7 +52.0	-6 55.5 +52.1	-7 25.2 +52.2	-7 54.8 +52.3
3°	-5 03.8 +52.0	-5 33.7 +52.1	-6 03.4 +52.1	-6 33.0 +52.2	-7 02.5 +52.3
4°	-4 11.8 +52.0	-4 41.6 +52.1	-5 11.3 +52.2	-5 40.8 +52.2	-6 10.2 +52.3
5°	-3 19.8 +52.0	-3 49.5 +52.1	-4 19.1 +52.2	-4 48.6 +52.3	-5 17.9 +52.4
6°	-2 27.8 +52.1	-2 57.4 +52.1	-3 26.9 +52.2	-3 56.3 +52.3	-4 25.5 +52.3
7°	-1 35.7 +52.0	-2 05.3 +52.1	-2 34.7 +52.2	-3 04.0 +52.3	-3 33.2 +52.4
8°	-0 43.7 +52.1	-1 13.2 +52.1	-1 42.5 +52.2	-2 11.7 +52.3	-2 40.8 +52.4
9°	0 08.4 +52.0 72.6	-0 21.1 +52.2	-0 50.3 +52.2	-1 19.4 +52.3	-1 48.4 +52.4
10°	1 00.4 +52.0 72.1	0 31.1 +52.1 71.2	0 01.9 +52.2 70.4	-0 27.1 +52.3	-0 56.0 +52.4
11°	1 52.4 +52.1 71.6	1 23.2 +52.1 70.7	0 54.1 +52.2 69.9	0 25.2 +52.3 69.0	-0 03.6 +52.4
12°	2 44.5 +52.0 71.1	2 15.3 +52.1 70.2	1 46.3 +52.2 69.4	1 17.5 +52.3 68.5	0 48.8 +52.4 67.7
13°	3 36.5 +52.0 70.6	3 07.4 +52.1 69.7	2 38.5 +52.2 68.9	2 09.8 +52.3 68.0	1 41.2 +52.4 67.2
14°	4 28.5 +52.0 70.1	3 59.5 +52.1 69.2	3 30.7 +52.2 68.4	3 02.1 +52.3 67.5	2 33.6 +52.4 66.7
15°	5 20.5 +52.0 69.6	4 51.6 +52.1 68.7	4 22.9 +52.2 67.9	3 54.4 +52.2 67.0	3 26.0 +52.4 66.2
16°	6 12.5 +51.9 69.1	5 43.7 +52.0 68.2	5 15.1 +52.1 67.4	4 46.6 +52.3 66.5	4 18.4 +52.3 65.7
17°	7 04.4 +51.9 68.6	6 35.7 +52.0 67.7	6 07.2 +52.1 66.9	5 38.9 +52.2 66.1	5 10.7 +52.3 65.2
18°	7 56.3 +51.8 68.1	7 27.7 +52.0 67.2	6 59.3 +52.1 66.4	6 31.1 +52.2 65.6	6 03.0 +52.3 64.7
19°	8 48.1 +51.9 67.5	8 19.7 +51.9 66.7	7 51.4 +52.0 65.9	7 23.3 +52.1 65.1	6 55.3 +52.3 64.2
20°	9 40.0 +51.7 67.0	9 11.6 +51.9 66.2	8 43.4 +52.0 65.4	8 15.4 +52.1 64.6	7 47.6 +52.2 63.7
21°	10 31.7 +51.8 66.5	10 03.5 +51.8 65.7	9 35.4 +52.0 64.9	9 07.5 +52.1 64.1	8 39.8 +52.2 63.2
22°	11 23.5 +51.6 66.0	10 55.3 +51.8 65.2	10 27.4 +51.9 64.4	9 59.6 +52.0 63.6	9 32.0 +52.2 62.7
23°	12 15.1 +51.7 65.5	11 47.1 +51.7 64.7	11 19.3 +51.8 63.9	10 51.6 +52.0 63.1	10 24.2 +52.1 62.2
24°	13 06.8 +51.5 65.0	12 38.8 +51.7 64.2	12 11.1 +51.8 63.4	11 43.6 +51.9 62.5	11 16.3 +52.0 61.7
25°	13 58.3 +51.5 64.4	13 30.5 +51.6 63.6	13 02.9 +51.8 62.8	12 35.5 +51.9 62.0	12 08.3 +52.0 61.2
26°	14 49.8 +51.4 63.9	14 22.1 +51.6 63.1	13 54.7 +51.6 62.3	13 27.4 +51.8 61.5	13 00.3 +52.0 60.7
27°	15 41.2 +51.3 63.4	15 13.7 +51.4 62.6	14 46.3 +51.6 61.8	14 19.2 +51.7 61.0	13 52.3 +51.9 60.2
28°	16 32.5 +51.3 62.8	16 05.1 +51.4 62.0	15 37.9 +51.5 61.3	15 10.9 +51.7 60.5	14 44.2 +51.8 59.7
29°	17 23.8 +51.1 62.3	16 56.5 +51.3 61.5	16 29.4 +51.5 60.7	16 02.6 +51.6 59.9	15 36.0 +51.7 59.2

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# Latitude 59°

# Declination SAME name as Latitude

Dec	LHA 110° / 250°	LHA 111° / 249°	LHA 112° / 248°	LHA 113° / 247°	LHA 114° / 246°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°	-9 16.5 +52.3	-9 45.8 +52.4			
2°	-8 24.2 +52.4	-8 53.4 +52.4	-9 22.5 +52.5	-9 51.5 +52.6	
3°	-7 31.8 +52.4	-8 01.0 +52.5	-8 30.0 +52.6	-8 58.9 +52.7	-9 27.5 +52.7
4°	-6 39.4 +52.4	-7 08.5 +52.5	-7 37.4 +52.5	-8 06.2 +52.7	-8 34.8 +52.8
5°	-5 47.0 +52.4	-6 16.0 +52.5	-6 44.9 +52.7	-7 13.5 +52.7	-7 42.0 +52.8
6°	-4 54.6 +52.5	-5 23.5 +52.5	-5 52.2 +52.6	-6 20.8 +52.8	-6 49.2 +52.9
7°	-4 02.1 +52.4	-4 31.0 +52.6	-4 59.6 +52.7	-5 28.0 +52.7	-5 56.3 +52.9
8°	-3 09.7 +52.5	-3 38.4 +52.6	-4 06.9 +52.7	-4 35.3 +52.8	-5 03.4 +52.9
9°	-2 17.2 +52.5	-2 45.8 +52.6	-3 14.2 +52.7	-3 42.5 +52.8	-4 10.5 +52.9
10°	-1 24.7 +52.5	-1 53.2 +52.6	-2 21.5 +52.7	-2 49.7 +52.8	-3 17.6 +52.9
11°	-0 32.2 +52.5	-1 00.6 +52.6	-1 28.8 +52.7	-1 56.9 +52.9	-2 24.7 +52.9
12°	0 20.3 +52.5 66.8	-0 08.0 +52.6	-0 36.1 +52.7	-1 04.0 +52.8	-1 31.8 +53.0
13°	1 12.8 +52.5 66.3	0 44.6 +52.6 65.5	0 16.6 +52.7 64.6	-0 11.2 +52.8	-0 38.8 +52.9
14°	2 05.3 +52.5 65.8	1 37.2 +52.6 65.0	1 09.3 +52.7 64.1	0 41.6 +52.8 63.3	0 14.1 +53.0 62.4
15°	2 57.8 +52.5 65.4	2 29.8 +52.6 64.5	2 02.0 +52.7 63.7	1 34.4 +52.9 62.8	1 07.1 +52.9 62.0
16°	3 50.3 +52.4 64.9	3 22.4 +52.6 64.0	2 54.7 +52.7 63.2	2 27.3 +52.8 62.3	2 00.0 +52.9 61.5
17°	4 42.7 +52.5 64.4	4 15.0 +52.5 63.5	3 47.4 +52.7 62.7	3 20.1 +52.8 61.9	2 52.9 +52.9 61.0
18°	5 35.2 +52.4 63.9	5 07.5 +52.6 63.1	4 40.1 +52.6 62.2	4 12.9 +52.7 61.4	3 45.8 +52.9 60.5
19°	6 27.6 +52.4 63.4	6 00.1 +52.5 62.6	5 32.7 +52.7 61.7	5 05.6 +52.8 60.9	4 38.7 +52.9 60.1
20°	7 20.0 +52.3 62.9	6 52.6 +52.5 62.1	6 25.4 +52.6 61.3	5 58.4 +52.7 60.4	5 31.6 +52.9 59.6
21°	8 12.3 +52.4 62.4	7 45.1 +52.4 61.6	7 18.0 +52.6 60.8	6 51.1 +52.7 59.9	6 24.5 +52.8 59.1
22°	9 04.7 +52.2 61.9	8 37.5 +52.4 61.1	8 10.6 +52.5 60.3	7 43.8 +52.7 59.5	7 17.3 +52.8 58.6
23°	9 56.9 +52.3 61.4	9 29.9 +52.4 60.6	9 03.1 +52.5 59.8	8 36.5 +52.6 59.0	8 10.1 +52.8 58.2
24°	10 49.2 +52.2 60.9	10 22.3 +52.3 60.1	9 55.6 +52.4 59.3	9 29.1 +52.6 58.5	9 02.9 +52.7 57.7
25°	11 41.4 +52.1 60.4	11 14.6 +52.3 59.6	10 48.0 +52.5 58.8	10 21.7 +52.6 58.0	9 55.6 +52.7 57.2
26°	12 33.5 +52.1 59.9	12 06.9 +52.2 59.1	11 40.5 +52.3 58.3	11 14.3 +52.5 57.5	10 48.3 +52.7 56.7
27°	13 25.6 +52.0 59.4	12 59.1 +52.1 58.6	12 32.8 +52.3 57.8	12 06.8 +52.4 57.0	11 41.0 +52.6 56.2
28°	14 17.6 +51.9 58.9	13 51.2 +52.1 58.1	13 25.1 +52.3 57.3	12 59.2 +52.4 56.5	12 33.6 +52.5 55.7
29°	15 09.5 +51.9 58.4	14 43.3 +52.1 57.6	14 17.4 +52.1 56.8	13 51.6 +52.3 56.0	13 26.1 +52.5 55.2

Dec	LHA 115° / 245°	LHA 116° / 244°	LHA 117° / 243°	LHA 118° / 242°	LHA 119° / 241°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°	-9 56.0 +52.8				
4°	-9 03.2 +52.9	-9 31.3 +52.9	-9 59.3 +53.1		
5°	-8 10.3 +53.0	-8 38.4 +53.1	-9 06.2 +53.1	-9 33.9 +53.2	
6°	-7 17.3 +52.9	-7 45.3 +53.0	-8 13.1 +53.2	-8 40.7 +53.3	-9 08.0 +53.4
7°	-6 24.4 +53.0	-6 52.3 +53.1	-7 19.9 +53.2	-7 47.4 +53.4	-8 14.6 +53.5
8°	-5 31.4 +53.0	-5 59.2 +53.2	-6 26.7 +53.2	-6 54.0 +53.3	-7 21.1 +53.4
9°	-4 38.4 +53.0	-5 06.0 +53.1	-5 33.5 +53.3	-6 00.7 +53.4	-6 27.7 +53.5
10°	-3 45.4 +53.1	-4 12.9 +53.1	-4 40.2 +53.2	-5 07.3 +53.4	-5 34.2 +53.5
11°	-2 52.3 +53.0	-3 19.8 +53.2	-3 47.0 +53.3	-4 13.9 +53.4	-4 40.7 +53.6
12°	-1 59.3 +53.1	-2 26.6 +53.2	-2 53.7 +53.3	-3 20.5 +53.4	-3 47.1 +53.5
13°	-1 06.2 +53.0	-1 33.4 +53.2	-2 00.4 +53.3	-2 27.1 +53.4	-2 53.6 +53.6
14°	-0 13.2 +53.1	-0 40.2 +53.1	-1 07.1 +53.3	-1 33.7 +53.5	-2 00.0 +53.5
15°	0 39.9 +53.1 61.1	0 12.9 +53.2 60.2	-0 13.8 +53.3	-0 40.2 +53.4	-1 06.5 +53.6
16°	1 33.0 +53.0 60.6	1 06.1 +53.2 59.8	0 39.5 +53.4 58.9	0 13.2 +53.4 58.1	-0 12.9 +53.6
17°	2 26.0 +53.0 60.2	1 59.3 +53.2 59.3	1 32.9 +53.3 58.5	1 06.6 +53.5 57.6	0 40.7 +53.5 56.8
18°	3 19.0 +53.1 59.7	2 52.5 +53.1 58.9	2 26.2 +53.2 58.0	2 00.1 +53.4 57.2	1 34.2 +53.6 56.3
19°	4 12.1 +53.0 59.2	3 45.6 +53.2 58.4	3 19.4 +53.3 57.6	2 53.5 +53.4 56.7	2 27.8 +53.5 55.9
20°	5 05.1 +53.0 58.8	4 38.8 +53.1 57.9	4 12.7 +53.3 57.1	3 46.9 +53.4 56.3	3 21.3 +53.6 55.4
21°	5 58.1 +53.0 58.3	5 31.9 +53.1 57.5	5 06.0 +53.2 56.6	4 40.3 +53.4 55.8	4 14.9 +53.5 55.0
22°	6 51.1 +52.9 57.8	6 25.0 +53.1 57.0	5 59.2 +53.2 56.2	5 33.7 +53.3 55.3	5 08.4 +53.5 54.5
23°	7 44.0 +52.9 57.3	7 18.1 +53.0 56.5	6 52.4 +53.2 55.7	6 27.0 +53.4 54.9	6 01.9 +53.5 54.1
24°	8 36.9 +52.9 56.9	8 11.1 +53.1 56.1	7 45.6 +53.2 55.2	7 20.4 +53.3 54.4	6 55.4 +53.4 53.6
25°	9 29.8 +52.8 56.4	9 04.2 +52.9 55.6	8 38.8 +53.1 54.8	8 13.7 +53.3 54.0	7 48.8 +53.4 53.1
26°	10 22.6 +52.8 55.9	9 57.1 +53.0 55.1	9 31.9 +53.1 54.3	9 07.0 +53.2 53.5	8 42.2 +53.4 52.7
27°	11 15.4 +52.7 55.4	10 50.1 +52.9 54.6	10 25.0 +53.1 53.8	10 00.2 +53.2 53.0	9 35.6 +53.4 52.2
28°	12 08.1 +52.7 54.9	11 43.0 +52.8 54.1	11 18.1 +53.0 53.3	10 53.4 +53.2 52.6	10 29.0 +53.3 51.8
29°	13 00.8 +52.7 54.4	12 35.8 +52.8 53.7	12 11.1 +52.9 52.9	11 46.6 +53.1 52.1	11 22.3 +53.3 51.3

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# Declination SAME name as Latitude

# Latitude 59°

Dec	LHA 120° / 240°	LHA 121° / 239°	LHA 122° / 238°	LHA 123° / 237°	LHA 124° / 236°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°	-9 35.1 +53.5				
7°	-8 41.6 +53.6				
8°	-7 48.0 +53.6	-9 08.3 +53.7	-9 34.8 +53.8		
9°	-6 54.4 +53.6	-8 14.6 +53.7	-8 41.0 +53.8	-9 07.1 +53.9	-9 33.0 +54.1
10°		-7 20.9 +53.7	-7 47.2 +53.9	-8 13.2 +54.0	-8 38.9 +54.1
11°	-6 00.8 +53.6	-6 27.2 +53.8	-6 53.3 +53.9	-7 19.2 +54.1	-7 44.8 +54.2
12°	-5 07.2 +53.7	-5 33.4 +53.8	-5 59.4 +53.9	-6 25.1 +54.0	-6 50.6 +54.2
13°	-4 13.5 +53.7	-4 39.6 +53.8	-5 05.5 +53.9	-5 31.1 +54.1	-5 56.4 +54.2
14°	-3 19.8 +53.6	-3 45.8 +53.8	-4 11.6 +54.0	-4 37.0 +54.0	-5 02.2 +54.2
15°	-2 26.2 +53.7	-2 52.0 +53.8	-3 17.6 +53.9	-3 43.0 +54.1	-4 08.0 +54.2
16°	-1 32.5 +53.7	-1 58.2 +53.8	-2 23.7 +54.0	-2 48.9 +54.1	-3 13.8 +54.3
17°	-0 38.8 +53.7	-1 04.4 +53.9	-1 29.7 +54.0	-1 54.8 +54.2	-2 19.5 +54.2
18°	0 14.9 +53.7 55.9	-0 10.5 +53.8	-0 35.7 +54.0	-1 00.6 +54.1	-1 25.3 +54.3
19°	1 08.6 +53.7 55.5	0 43.3 +53.8 54.6	0 18.3 +53.9 53.8	-0 06.5 +54.1	-0 31.0 +54.2
20°	2 02.3 +53.7 55.0	1 37.1 +53.9 54.2	1 12.2 +54.0 53.3	0 47.6 +54.1 52.5	0 23.2 +54.3 51.6
21°	2 56.0 +53.7 54.6	2 31.0 +53.8 53.7	2 06.2 +54.0 52.9	1 41.7 +54.1 52.0	1 17.5 +54.2 51.2
22°	3 49.7 +53.7 54.1	3 24.8 +53.8 53.3	3 00.2 +53.9 52.4	2 35.8 +54.1 51.6	2 11.7 +54.3 50.8
23°	4 43.4 +53.6 53.7	4 18.6 +53.8 52.8	3 54.1 +53.9 52.0	3 29.9 +54.1 51.2	3 06.0 +54.2 50.3
24°	5 37.0 +53.6 53.2	5 12.4 +53.8 52.4	4 48.0 +54.0 51.6	4 24.0 +54.0 50.7	4 00.2 +54.2 49.9
25°	6 30.6 +53.6 52.8	6 06.2 +53.7 52.0	5 42.0 +53.9 51.1	5 18.0 +54.1 50.3	4 54.4 +54.2 49.5
26°	7 24.2 +53.6 52.3	6 59.9 +53.7 51.5	6 35.9 +53.8 50.7	6 12.1 +54.0 49.9	5 48.6 +54.2 49.0
27°	8 17.8 +53.6 51.9	7 53.6 +53.7 51.1	7 29.7 +53.9 50.2	7 06.1 +54.0 49.4	6 42.8 +54.2 48.6
28°	9 11.4 +53.5 51.4	8 47.3 +53.7 50.6	8 23.6 +53.8 49.8	8 00.1 +54.0 49.0	7 37.0 +54.1 48.2
29°	10 04.9 +53.4 51.0	9 41.0 +53.6 50.2	9 17.4 +53.8 49.4	8 54.1 +53.9 48.5	8 31.1 +54.1 47.7
30°	10 58.3 +53.5 50.5	10 34.6 +53.6 49.7	10 11.2 +53.7 48.9	9 48.0 +54.0 48.1	9 25.2 +54.1 47.3

Dec	LHA 125° / 235°	LHA 126° / 234°	LHA 127° / 233°	LHA 128° / 232°	LHA 129° / 231°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°	-9 58.6 +54.2				
9°	-9 04.4 +54.3	-9 29.5 +54.4	-9 54.4 +54.5		
10°	-8 10.1 +54.3	-8 35.1 +54.4	-8 59.9 +54.6	-9 24.3 +54.7	-9 48.5 +54.8
11°	-7 15.8 +54.3	-7 40.7 +54.4	-8 05.3 +54.6	-8 29.6 +54.7	-8 53.7 +54.9
12°	-6 21.5 +54.3	-6 46.3 +54.5	-7 10.7 +54.6	-7 34.9 +54.7	-7 58.8 +54.9
13°	-5 27.2 +54.4	-5 51.8 +54.5	-6 16.1 +54.6	-6 40.2 +54.8	-7 03.9 +54.9
14°	-4 32.8 +54.4	-4 57.3 +54.5	-5 21.5 +54.7	-5 45.4 +54.8	-6 09.0 +54.9
15°	-3 38.4 +54.3	-4 02.8 +54.5	-4 26.8 +54.6	-4 50.6 +54.8	-5 14.1 +55.0
16°	-2 44.1 +54.4	-3 08.3 +54.6	-3 32.2 +54.7	-3 55.8 +54.8	-4 19.1 +55.0
17°	-1 49.7 +54.4	-2 13.7 +54.5	-2 37.5 +54.7	-3 01.0 +54.8	-3 24.1 +54.9
18°	-0 55.3 +54.4	-1 19.2 +54.5	-1 42.8 +54.7	-2 06.2 +54.9	-2 29.2 +55.0
19°	-0 00.9 +54.4	-0 24.7 +54.6	-0 48.1 +54.6	-1 11.3 +54.8	-1 34.2 +55.0
20°	0 53.5 +54.4 50.3	0 29.9 +54.5 49.5	0 06.5 +54.7 48.6	-0 16.5 +54.8	-0 39.2 +55.0
21°	1 47.9 +54.4 49.9	1 24.4 +54.6 49.1	1 01.2 +54.7 48.2	0 38.3 +54.9 47.4	0 15.8 +54.9 46.5
22°	2 42.3 +54.4 49.5	2 19.0 +54.5 48.7	1 55.9 +54.7 47.8	1 33.2 +54.8 47.0	1 10.7 +55.0 46.1
23°	3 36.7 +54.4 49.1	3 13.5 +54.5 48.2	2 50.6 +54.7 47.4	2 28.0 +54.8 46.6	2 05.7 +55.0 45.7
24°	4 31.1 +54.3 48.6	4 08.0 +54.5 47.8	3 45.3 +54.6 47.0	3 22.8 +54.8 46.1	3 00.7 +55.0 45.3
25°	5 25.4 +54.4 48.2	5 02.5 +54.5 47.4	4 39.9 +54.7 46.6	4 17.6 +54.8 45.7	3 55.7 +54.9 44.9
26°	6 19.8 +54.3 47.8	5 57.0 +54.5 47.0	5 34.6 +54.6 46.2	5 12.4 +54.8 45.3	4 50.6 +55.0 44.5
27°	7 14.1 +54.3 47.4	6 51.5 +54.4 46.6	6 29.2 +54.6 45.7	6 07.2 +54.8 44.9	5 45.6 +54.9 44.1
28°	8 08.4 +54.2 46.9	7 45.9 +54.5 46.1	7 23.8 +54.6 45.3	7 02.0 +54.7 44.5	6 40.5 +54.9 43.7
29°	9 02.6 +54.3 46.5	8 40.4 +54.4 45.7	8 18.4 +54.5 44.9	7 56.7 +54.7 44.1	7 35.4 +54.9 43.3

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Dec	LHA 130° / 230°	LHA 131° / 229°	LHA 132° / 228°	LHA 133° / 227°	LHA 134° / 226°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°	-9 17.4 +55.0	-9 40.8 +55.2			
12°	-8 22.4 +55.1	-8 45.6 +55.2	-9 08.5 +55.3	-9 31.1 +55.5	-9 53.3 +55.6
13°	-7 27.3 +55.0	-7 50.4 +55.2	-8 13.2 +55.3	-8 35.6 +55.4	-8 57.7 +55.6
14°	-6 32.3 +55.1	-6 55.2 +55.2	-7 17.9 +55.4	-7 40.2 +55.6	-8 02.1 +55.6
15°	-5 37.2 +55.1	-6 00.0 +55.2	-6 22.5 +55.4	-6 44.6 +55.5	-7 06.5 +55.7
16°	-4 42.1 +55.1	-5 04.8 +55.3	-5 27.1 +55.4	-5 49.1 +55.5	-6 10.8 +55.7
17°	-3 47.0 +55.1	-4 09.5 +55.2	-4 31.7 +55.4	-4 53.6 +55.6	-5 15.1 +55.7
18°	-2 51.9 +55.1	-3 14.3 +55.3	-3 36.3 +55.4	-3 58.0 +55.5	-4 19.4 +55.7
19°	-1 56.8 +55.2	-2 19.0 +55.3	-2 40.9 +55.4	-3 02.5 +55.6	-3 23.7 +55.7
20°	-1 01.6 +55.1	-1 23.7 +55.3	-1 45.5 +55.5	-2 06.9 +55.6	-2 28.0 +55.8
21°	-0 06.5 +55.1	-0 28.4 +55.2	-0 50.0 +55.4	-1 11.3 +55.6	-1 32.2 +55.7
22°	0 48.6 +55.2 45.3	0 26.8 +55.3 44.4	0 05.4 +55.4 43.6	-0 15.7 +55.5	-0 36.5 +55.7
23°	1 43.8 +55.1 44.9	1 22.1 +55.3 44.0	1 00.8 +55.4 43.2	0 39.8 +55.6 42.3	0 19.2 +55.7 41.5
24°	2 38.9 +55.1 44.5	2 17.4 +55.3 43.6	1 56.2 +55.5 42.8	1 35.4 +55.6 41.9	1 14.9 +55.8 41.1
25°	3 34.0 +55.1 44.1	3 12.7 +55.2 43.2	2 51.7 +55.4 42.4	2 31.0 +55.6 41.6	2 10.7 +55.7 40.7
26°	4 29.1 +55.1 43.7	4 07.9 +55.3 42.9	3 47.1 +55.4 42.0	3 26.6 +55.5 41.2	3 06.4 +55.7 40.4
27°	5 24.2 +55.1 43.3	5 03.2 +55.2 42.5	4 42.5 +55.4 41.6	4 22.1 +55.6 40.8	4 02.1 +55.7 40.0
28°	6 19.3 +55.0 42.9	5 58.4 +55.2 42.1	5 37.9 +55.4 41.2	5 17.7 +55.5 40.4	4 57.8 +55.7 39.6
29°	7 14.3 +55.1 42.5	6 53.6 +55.2 41.7	6 33.3 +55.3 40.9	6 13.2 +55.5 40.0	5 53.5 +55.7 39.2

Dec	LHA 135° / 225°	LHA 136° / 224°	LHA 137° / 223°	LHA 138° / 222°	LHA 139° / 221°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°	-9 19.5 +55.8	-9 40.9 +55.9			
14°	-8 23.7 +55.8	-8 45.0 +56.0	-9 05.9 +56.1	-9 26.4 +56.2	-9 46.5 +56.3
15°	-7 27.9 +55.8	-7 49.0 +55.9	-8 09.8 +56.1	-8 30.2 +56.3	-8 50.2 +56.4
16°	-6 32.1 +55.8	-6 53.1 +56.0	-7 13.7 +56.1	-7 33.9 +56.3	-7 53.8 +56.4
17°	-5 36.3 +55.9	-5 57.1 +56.0	-6 17.6 +56.2	-6 37.6 +56.2	-6 57.4 +56.5
18°	-4 40.4 +55.8	-5 01.1 +56.0	-5 21.4 +56.1	-5 41.4 +56.3	-6 00.9 +56.4
19°	-3 44.6 +55.9	-4 05.1 +56.0	-4 25.3 +56.2	-4 45.1 +56.3	-5 04.5 +56.4
20°	-2 48.7 +55.9	-3 09.1 +56.0	-3 29.1 +56.2	-3 48.8 +56.3	-4 08.1 +56.5
21°	-1 52.8 +55.8	-2 13.1 +56.1	-2 32.9 +56.1	-2 52.5 +56.4	-3 11.6 +56.5
22°	-0 57.0 +55.9	-1 17.0 +56.0	-1 36.8 +56.2	-1 56.1 +56.3	-2 15.1 +56.4
23°	-0 01.1 +55.9	-0 21.0 +56.0	-0 40.6 +56.2	-0 59.8 +56.3	-1 18.7 +56.5
24°	0 54.8 +55.9 40.2	0 35.0 +56.0 39.4	0 15.6 +56.2 38.5	-0 03.5 +56.3	-0 22.2 +56.5
25°	1 50.7 +55.8 39.9	1 31.0 +56.1 39.0	1 11.8 +56.1 38.2	0 52.8 +56.4 37.3	0 34.3 +56.4 36.5
26°	2 46.5 +55.9 39.5	2 27.1 +56.0 38.7	2 07.9 +56.2 37.8	1 49.2 +56.3 37.0	1 30.7 +56.5 36.1
27°	3 42.4 +55.9 39.2	3 23.1 +56.0 38.3	3 04.1 +56.2 37.5	2 45.5 +56.3 36.6	2 27.2 +56.5 35.8
28°	4 38.3 +55.8 38.8	4 19.1 +56.0 38.0	4 00.3 +56.1 37.1	3 41.8 +56.3 36.3	3 23.7 +56.4 35.5
29°	5 34.1 +55.8 38.4	5 15.1 +56.0 37.6	4 56.4 +56.2 36.8	4 38.1 +56.3 36.0	4 20.1 +56.5 35.1

Dec	LHA 140° / 220°	LHA 141° / 219°	LHA 142° / 218°	LHA 143° / 217°	LHA 144° / 216°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°	-9 09.8 +56.5	-9 29.0 +56.6	-9 47.9 +56.8		
16°	-8 13.3 +56.6	-8 32.4 +56.7	-8 51.1 +56.9	-9 09.4 +57.0	-9 27.3 +57.1
17°	-7 16.7 +56.6	-7 35.7 +56.7	-7 54.2 +56.8	-8 12.4 +57.0	-8 30.2 +57.2
18°	-6 20.1 +56.5	-6 39.0 +56.8	-6 57.4 +56.9	-7 15.4 +57.0	-7 33.0 +57.1
19°	-5 23.6 +56.6	-5 42.2 +56.7	-6 00.5 +56.9	-6 18.4 +57.0	-6 35.9 +57.2
20°	-4 27.0 +56.6	-4 45.5 +56.7	-5 03.6 +56.8	-5 21.4 +57.0	-5 38.7 +57.1
21°	-3 30.4 +56.6	-3 48.8 +56.8	-4 06.8 +56.9	-4 24.4 +57.1	-4 41.6 +57.2
22°	-2 33.8 +56.7	-2 52.0 +56.7	-3 09.9 +56.9	-3 27.3 +57.0	-3 44.4 +57.2
23°	-1 37.1 +56.6	-1 55.3 +56.8	-2 13.0 +56.9	-2 30.3 +57.0	-2 47.2 +57.1
24°	-0 40.5 +56.6	-0 58.5 +56.8	-1 16.1 +56.9	-1 33.3 +57.1	-1 50.1 +57.2
25°	0 16.1 +56.6 35.6	-0 01.7 +56.7	-0 19.2 +56.9	-0 36.2 +57.0	-0 52.9 +57.2
26°	1 12.7 +56.6 35.3	0 55.0 +56.8 34.5	0 37.7 +56.9 33.6	0 20.8 +57.1 32.7	0 04.3 +57.2 31.9
27°	2 09.3 +56.6 35.0	1 51.8 +56.7 34.1	1 34.6 +56.9 33.3	1 17.9 +57.0 32.4	1 01.5 +57.2 31.6
28°	3 05.9 +56.6 34.6	2 48.5 +56.8 33.8	2 31.5 +56.9 33.0	2 14.9 +57.1 32.1	1 58.7 +57.2 31.3
29°	4 02.5 +56.6 34.3	3 45.3 +56.7 33.5	3 28.4 +56.9 32.6	3 12.0 +57.0 31.8	2 55.9 +57.1 31.0

Dec	LHA 145° / 215°	LHA 146° / 214°	LHA 147° / 213°	LHA 148° / 212°	LHA 149° / 211°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°	-9 44.8 +57.3				
17°	-8 47.5 +57.2	-9 04.5 +57.4	-9 21.0 +57.5	-9 37.1 +57.7	-9 52.8 +57.8
18°	-7 50.3 +57.3	-8 07.1 +57.4	-8 23.5 +57.6	-8 39.4 +57.6	-8 55.0 +57.8
19°	-6 53.0 +57.3	-7 09.7 +57.5	-7 25.9 +57.5	-7 41.8 +57.7	-7 57.2 +57.9
20°	-5 55.7 +57.3	-6 12.2 +57.4	-6 28.4 +57.6	-6 44.1 +57.7	-6 59.3 +57.8
21°	-4 58.4 +57.3	-5 14.8 +57.4	-5 30.8 +57.6	-5 46.4 +57.7	-6 01.5 +57.8
22°	-4 01.1 +57.3	-4 17.4 +57.5	-4 33.2 +57.6	-4 48.7 +57.7	-5 03.7 +57.8
23°	-3 03.8 +57.3	-3 19.9 +57.4	-3 35.6 +57.5	-3 51.0 +57.8	-4 05.9 +57.9
24°	-2 06.5 +57.4	-2 22.5 +57.5	-2 38.1 +57.6	-2 53.2 +57.7	-3 08.0 +57.8
25°	-1 09.1 +57.3	-1 25.0 +57.4	-1 40.5 +57.6	-1 55.5 +57.7	-2 10.2 +57.9
26°	-0 11.8 +57.3	-0 27.6 +57.5	-0 42.9 +57.6	-0 57.8 +57.7	-1 12.3 +57.8
27°	0 45.5 +57.3 30.7	0 29.9 +57.5 29.9	0 14.7 +57.6 29.0	-0 00.1 +57.7	-0 14.5 +57.9
28°	1 42.8 +57.3 30.4	1 27.4 +57.4 29.6	1 12.3 +57.6 28.8	0 57.6 +57.8 27.9	0 43.4 +57.8 27.1
29°	2 40.1 +57.4 30.1	2 24.8 +57.5 29.3	2 09.9 +57.6 28.5	1 55.4 +57.7 27.6	1 41.2 +57.9 26.8

# Latitude 59°

# Declination SAME name as Latitude

Dec	LHA 150° / 210°	LHA 151° / 209°	LHA 152° / 208°	LHA 153° / 207°	LHA 154° / 206°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°	-9 10.1 +58.0	-9 24.7 +58.0	-9 39.0 +58.2	-9 52.7 +58.3	
19°	-8 12.1 +57.9	-8 26.7 +58.1	-8 40.8 +58.2	-8 54.4 +58.3	-9 07.6 +58.4
20°	-7 14.2 +57.9	-7 28.6 +58.1	-7 42.6 +58.2	-7 56.1 +58.3	-8 09.2 +58.4
21°	-6 16.3 +58.0	-6 30.5 +58.0	-6 44.4 +58.2	-6 57.8 +58.3	-7 10.8 +58.4
22°	-5 18.3 +58.0	-5 32.5 +58.1	-5 46.2 +58.2	-5 59.5 +58.3	-6 12.4 +58.5
23°	-4 20.3 +57.9	-4 34.4 +58.1	-4 48.0 +58.2	-5 01.2 +58.3	-5 13.9 +58.4
24°	-3 22.4 +58.0	-3 36.3 +58.1	-3 49.8 +58.2	-4 02.9 +58.4	-4 15.5 +58.5
25°	-2 24.4 +58.0	-2 38.2 +58.1	-2 51.6 +58.2	-3 04.5 +58.3	-3 17.0 +58.4
26°	-1 26.4 +58.0	-1 40.1 +58.1	-1 53.4 +58.3	-2 06.2 +58.3	-2 18.6 +58.4
27°	-0 28.4 +57.9	-0 42.0 +58.1	-0 55.1 +58.2	-1 07.9 +58.4	-1 20.2 +58.5
28°	0 29.5 +58.0 26.2	0 16.1 +58.1 25.3	0 03.1 +58.2 24.5	-0 09.5 +58.3	-0 21.7 +58.5
29°	1 27.5 +58.0 25.9	1 14.2 +58.1 25.1	1 01.3 +58.2 24.2	0 48.8 +58.3 23.4	0 36.8 +58.4 22.5

Dec	LHA 155° / 205°	LHA 156° / 204°	LHA 157° / 203°	LHA 158° / 202°	LHA 159° / 201°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°					
10°					
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°	-9 20.4 +58.6	-9 32.7 +58.7	-9 44.5 +58.8	-9 55.8 +58.8	
20°	-8 21.8 +58.5	-8 34.0 +58.6	-8 45.7 +58.7	-8 57.0 +58.9	
21°	-7 23.3 +58.5	-7 35.4 +58.7	-7 47.0 +58.8	-7 58.1 +58.8	
22°	-6 24.8 +58.6	-6 36.7 +58.6	-6 48.2 +58.7	-6 59.3 +58.9	
23°	-5 26.2 +58.5	-5 38.1 +58.7	-5 49.5 +58.8	-6 00.4 +58.8	
24°	-4 27.7 +58.6	-4 39.4 +58.6	-4 50.7 +58.7	-5 01.6 +58.9	
25°	-3 29.1 +58.5	-3 40.8 +58.7	-3 52.0 +58.8	-4 02.7 +58.9	
26°	-2 30.6 +58.6	-2 42.1 +58.7	-2 53.2 +58.8	-3 03.8 +58.8	
27°	-1 32.0 +58.6	-1 43.4 +58.6	-1 54.4 +58.8	-2 05.0 +58.9	
28°	-0 33.4 +58.5	-0 44.8 +58.7	-0 55.6 +58.7	-1 06.1 +58.9	
29°	0 25.1 +58.6 21.7	0 13.9 +58.7 20.8	0 03.1 +58.8 20.0	-0 07.2 +58.9	

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 The data on this page is believed to be accurate but no warranty is given for it's correctness. Use it only for training and exercising!