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Latitude 20° - 29°
Declination SAME name as Latitude

Sight-Reduction Tables for Latitude 20° - 29°

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 09:20:55 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° to 29° , 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°	70 00.0 +60.0 180.0	69 58.6 +59.9 177.1	69 54.3 +59.7 174.2	69 47.1 +59.4 171.3	69 37.2 +58.9 168.4
1°	71 00.0 +60.0 180.0	70 58.5 +59.9 176.9	70 54.0 +59.7 173.9	70 46.5 +59.3 170.9	70 36.1 +58.7 167.9
2°	72 00.0 +60.0 180.0	71 58.4 +59.9 176.8	71 53.7 +59.6 173.6	71 45.8 +59.2 170.4	71 34.8 +58.7 167.3
3°	73 00.0 +60.0 180.0	72 58.3 +59.9 176.6	72 53.3 +59.6 173.2	72 45.0 +59.1 169.8	72 33.5 +58.4 166.6
4°	74 00.0 +60.0 180.0	73 58.2 +59.9 176.4	73 52.9 +59.6 172.8	73 44.1 +59.0 169.3	73 31.9 +58.3 165.8
5°	75 00.0 +60.0 180.0	74 58.1 +59.9 176.2	74 52.5 +59.4 172.3	74 43.1 +58.9 168.6	74 30.2 +58.0 164.9
6°	76 00.0 +60.0 180.0	75 58.0 +59.8 175.9	75 51.9 +59.5 171.8	75 42.0 +58.7 167.8	75 28.2 +57.8 163.9
7°	77 00.0 +60.0 180.0	76 57.8 +59.9 175.6	76 51.4 +59.3 171.2	76 40.7 +58.5 167.0	76 26.0 +57.4 162.8
8°	78 00.0 +60.0 180.0	77 57.7 +59.8 175.2	77 50.7 +59.2 170.6	77 39.2 +58.3 166.0	77 23.4 +57.0 161.6
9°	79 00.0 +60.0 180.0	78 57.5 +59.7 174.8	78 49.9 +59.0 169.7	78 37.5 +57.9 164.8	78 20.4 +56.5 160.1
10°	80 00.0 +60.0 180.0	79 57.2 +59.7 174.3	79 48.9 +58.9 168.8	79 35.4 +57.5 163.4	79 16.9 +55.8 158.3
11°	81 00.0 +60.0 180.0	80 56.9 +59.7 173.7	80 47.8 +58.6 167.6	80 32.9 +56.9 161.8	80 12.7 +54.8 156.2
12°	82 00.0 +60.0 180.0	81 56.6 +59.5 173.0	81 46.4 +58.1 166.2	81 29.8 +56.2 159.7	81 07.5 +53.7 153.7
13°	83 00.0 +60.0 180.0	82 56.1 +59.4 172.1	82 44.5 +57.7 164.4	82 26.0 +55.0 157.2	82 01.2 +51.9 150.7
14°	84 00.0 +60.0 180.0	83 55.5 +59.1 170.8	83 42.2 +56.7 162.0	83 21.0 +53.4 154.0	82 53.1 +49.6 146.9
15°	85 00.0 +60.0 180.0	84 54.6 +58.7 169.0	84 38.9 +55.4 158.8	84 14.4 +50.8 149.8	83 42.7 +46.1 142.0
16°	86 00.0 +60.0 180.0	85 53.3 +57.9 166.5	85 34.3 +52.8 154.3	85 05.2 +46.8 144.0	84 28.8 +41.1 135.8
17°	87 00.0 +60.0 180.0	86 51.2 +56.1 162.3	86 27.1 +47.8 147.4	85 52.0 +39.8 136.0	85 09.9 +33.4 127.7
18°	88 00.0 +60.0 180.0	87 47.3 +50.2 154.5	87 14.9 +37.1 136.3	86 31.8 +28.2 124.7	85 43.3 +22.7 117.2
19°	89 00.0 +60.0 180.0	88 37.5 +26.1 136.5	87 52.0 +15.2 117.6	87 00.0 +10.9 109.0	86 06.0 +08.5 104.2
20°	90 00.0 -60.0 0.0	89 03.6 -25.8 89.8	88 07.2 -14.6 89.7	87 10.9 -09.9 89.5	86 14.5 -07.2 89.3
21°	89 00.0 -60.0 0.0	88 37.8 -50.2 43.0	87 52.6 -36.8 61.6	87 01.0 -27.5 69.9	86 07.3 -21.5 74.4
22°	88 00.0 -60.0 0.0	87 47.6 -56.1 24.8	87 15.8 -47.6 42.7	86 33.5 -39.3 53.9	85 45.8 -32.6 61.1
23°	87 00.0 -60.0 0.0	86 51.5 -57.9 17.0	86 28.2 -52.7 31.4	85 54.2 -46.5 42.4	85 13.2 -40.4 50.4
24°	86 00.0 -60.0 0.0	85 53.6 -58.7 12.9	85 35.5 -55.3 24.5	85 07.7 -50.7 34.3	84 32.8 -45.8 42.1
25°	85 00.0 -60.0 0.0	84 54.9 -59.1 10.3	84 40.2 -56.7 19.9	84 17.0 -53.2 28.4	83 47.0 -49.3 35.7
26°	84 00.0 -60.0 0.0	83 55.8 -59.4 8.5	83 43.5 -57.7 16.7	83 23.8 -55.0 24.1	82 57.7 -51.8 30.8
27°	83 00.0 -60.0 0.0	82 56.4 -59.5 7.3	82 45.8 -58.1 14.3	82 28.8 -56.1 20.9	82 05.9 -53.5 26.9
28°	82 00.0 -60.0 0.0	81 56.9 -59.6 6.3	81 47.7 -58.6 12.5	81 32.7 -56.9 18.3	81 12.4 -54.8 23.8
29°	81 00.0 -60.0 0.0	80 57.3 -59.7 5.6	80 49.1 -58.8 11.0	80 35.8 -57.5 16.3	80 17.6 -55.7 21.2

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°	69 24.6 +58.2 165.7	69 09.3 +57.5 162.9	68 51.5 +56.7 160.3	68 31.2 +55.9 157.7	68 08.6 +55.0 155.2
1°	70 22.8 +58.1 165.0	70 06.8 +57.4 162.1	69 48.2 +56.5 159.3	69 27.1 +55.5 156.6	69 03.6 +54.4 154.0
2°	71 20.9 +57.9 164.2	71 04.2 +57.0 161.2	70 44.7 +56.0 158.3	70 22.6 +55.0 155.5	69 58.0 +53.9 152.8
3°	72 18.8 +57.7 163.4	72 01.2 +56.7 160.2	71 40.7 +55.7 157.2	71 17.6 +54.5 154.3	70 51.9 +53.3 151.5
4°	73 16.5 +57.3 162.4	72 57.9 +56.3 159.1	72 36.4 +55.2 156.0	72 12.1 +53.9 153.0	71 45.2 +52.6 150.1
5°	74 13.8 +57.1 161.4	73 54.2 +55.9 157.9	73 31.6 +54.5 154.7	73 06.0 +53.2 151.5	72 37.8 +51.8 148.5
6°	75 10.9 +56.6 160.2	74 50.1 +55.3 156.6	74 26.1 +53.9 153.1	73 59.2 +52.4 149.9	73 29.6 +50.9 146.8
7°	76 07.5 +56.1 158.9	75 45.4 +54.7 155.1	75 20.0 +53.1 151.5	74 51.6 +51.5 148.1	74 20.5 +49.7 144.9
8°	77 03.6 +55.5 157.3	76 40.1 +53.8 153.3	76 13.1 +52.1 149.6	75 43.1 +50.2 146.0	75 10.2 +48.4 142.8
9°	77 59.1 +54.8 155.6	77 33.9 +52.9 151.3	77 05.2 +50.9 147.4	76 33.3 +48.9 143.8	75 58.6 +46.9 140.4
10°	78 53.9 +53.8 153.5	78 26.8 +51.6 149.1	77 56.1 +49.4 145.0	77 22.2 +47.2 141.2	76 45.5 +45.1 137.7
11°	79 47.7 +52.5 151.1	79 18.4 +50.1 146.4	78 45.5 +47.6 142.1	78 09.4 +45.1 138.3	77 30.6 +42.8 134.8
12°	80 40.2 +50.9 148.3	80 08.5 +48.0 143.3	79 33.1 +45.3 138.9	78 54.5 +42.7 135.0	78 13.4 +40.3 131.4
13°	81 31.1 +48.7 144.8	80 56.5 +45.5 139.7	80 18.4 +42.4 135.2	79 37.2 +39.7 131.2	78 53.7 +37.1 127.7
14°	82 19.8 +45.7 140.7	81 42.0 +42.2 135.4	81 00.8 +38.9 130.8	80 16.9 +36.0 126.9	79 30.8 +33.4 123.5
15°	83 05.5 +41.7 135.6	82 24.2 +37.8 130.2	81 39.7 +34.4 125.7	80 52.9 +31.5 122.0	80 04.2 +29.1 118.8
16°	83 47.2 +36.2 129.3	83 02.0 +32.1 124.1	82 14.1 +28.9 119.9	81 24.4 +26.2 116.5	80 33.3 +24.0 113.6
17°	84 23.4 +28.6 121.5	83 34.1 +25.0 116.8	82 43.0 +22.2 113.2	81 50.6 +20.0 110.3	80 57.3 +18.3 107.9
18°	84 52.0 +18.9 112.1	83 59.1 +16.3 108.4	83 05.2 +14.4 105.7	82 10.6 +13.0 103.5	81 15.6 +11.9 101.7
19°	85 10.9 +07.2 101.1	84 15.4 +06.3 99.0	83 19.6 +05.8 97.4	82 23.6 +05.4 96.2	81 27.5 +05.1 95.2
20°	85 18.1 -05.4 89.1	84 21.7 -04.2 89.0	83 25.4 -03.3 88.8	82 29.0 -02.5 88.6	81 32.6 -01.9 88.5
21°	85 12.7 -17.4 77.1	84 17.5 -14.3 78.9	83 22.1 -12.1 80.1	82 26.5 -10.3 81.0	81 30.7 -08.8 81.7
22°	84 55.3 -27.4 65.9	84 03.2 -23.4 69.3	83 10.0 -20.1 71.7	82 16.2 -17.6 73.6	81 21.9 -15.5 75.0
23°	84 27.9 -35.2 56.3	83 39.8 -30.8 60.7	82 49.9 -27.2 64.0	81 58.6 -24.1 66.6	81 06.4 -21.4 68.7
24°	83 52.7 -41.0 48.3	83 09.0 -36.8 53.2	82 22.7 -33.0 57.1	81 34.5 -29.7 60.2	80 45.0 -26.9 62.8
25°	83 11.7 -45.3 41.8	82 32.2 -41.3 46.8	81 49.7 -37.7 51.0	81 04.8 -34.4 54.4	80 18.1 -31.5 57.3
26°	82 26.4 -48.3 36.5	81 50.9 -44.9 41.5	81 12.0 -41.6 45.7	80 30.4 -38.5 49.3	79 46.6 -35.5 52.4
27°	81 38.1 -50.6 32.3	81 06.0 -47.6 37.0	80 30.4 -44.6 41.2	79 51.9 -41.6 44.8	79 11.1 -38.9 48.0
28°	80 47.5 -52.4 28.7	80 18.4 -49.7 33.2	79 45.8 -47.0 37.3	79 10.3 -44.3 40.8	78 32.2 -41.7 44.0
29°	79 55.1 -53.6 25.8	79 28.7 -51.3 30.0	78 58.8 -48.9 33.9	78 26.0 -46.5 37.4	77 50.5 -44.1 40.5

Latitude 20°

Declination SAME name as Latitude

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°	67 43.9 +53.9 152.7	67 17.0 +52.9 150.4	66 48.2 +51.8 148.1	66 17.5 +50.7 146.0	65 45.1 +49.6 143.9
1°	68 37.8 +53.3 151.5	68 09.9 +52.2 149.1	67 40.0 +51.1 146.8	67 08.2 +50.0 144.6	66 34.7 +48.9 142.5
2°	69 31.1 +52.8 150.3	69 02.1 +51.6 147.8	68 31.1 +50.4 145.4	67 58.2 +49.1 143.2	67 23.6 +47.9 141.0
3°	70 23.9 +52.1 148.9	69 53.7 +50.8 146.3	69 21.5 +49.4 143.9	68 47.3 +48.2 141.6	68 11.5 +46.9 139.4
4°	71 16.0 +51.2 147.4	70 44.5 +49.9 144.8	70 10.9 +48.6 142.3	69 35.5 +47.2 139.9	68 58.4 +45.9 137.7
5°	72 07.2 +50.4 145.7	71 34.4 +48.9 143.0	70 59.5 +47.4 140.5	70 22.7 +46.0 138.1	69 44.3 +44.6 135.9
6°	72 57.6 +49.3 143.9	72 23.3 +47.7 141.2	71 46.9 +46.2 138.6	71 08.7 +44.7 136.2	70 28.9 +43.3 133.9
7°	73 46.9 +48.0 141.9	73 11.0 +46.4 139.1	72 33.1 +44.8 136.5	71 53.4 +43.3 134.1	71 12.2 +41.7 131.8
8°	74 34.9 +46.6 139.7	73 57.4 +44.8 136.9	73 17.9 +43.1 134.2	72 36.7 +41.5 131.8	71 53.9 +40.0 129.6
9°	75 21.5 +45.0 137.3	74 42.2 +43.1 134.4	74 01.0 +41.4 131.8	73 18.2 +39.7 129.3	72 33.9 +38.1 127.1
10°	76 06.5 +42.9 134.6	75 25.3 +41.0 131.7	74 42.4 +39.2 129.1	73 57.9 +37.5 126.7	73 12.0 +35.9 124.5
11°	76 49.4 +40.7 131.6	76 06.3 +38.7 128.7	75 21.6 +36.8 126.1	74 35.4 +35.1 123.8	73 47.9 +33.6 121.7
12°	77 30.1 +38.0 128.3	76 45.0 +36.0 125.5	75 58.4 +34.1 123.0	75 10.5 +32.4 120.7	74 21.5 +30.9 118.6
13°	78 08.1 +34.9 124.6	77 21.0 +32.8 121.9	76 32.5 +31.0 119.5	75 42.9 +29.4 117.3	74 52.4 +27.9 115.4
14°	78 43.0 +31.2 120.6	77 53.8 +29.2 118.0	77 03.5 +27.5 115.7	76 12.3 +26.0 113.7	75 20.3 +24.7 112.0
15°	79 14.2 +27.0 116.1	78 23.0 +25.2 113.7	77 31.0 +23.7 111.7	76 38.3 +22.4 109.9	75 45.0 +21.2 108.3
16°	79 41.2 +22.2 111.2	78 48.2 +20.7 109.2	77 54.7 +19.4 107.4	77 00.7 +18.3 105.8	76 06.2 +17.4 104.5
17°	80 03.4 +16.8 105.9	79 08.9 +15.8 104.2	78 14.1 +14.8 102.8	77 19.0 +14.0 101.5	76 23.6 +13.4 100.4
18°	80 20.2 +11.1 100.3	79 24.7 +10.4 99.1	78 28.9 +9.9 98.0	77 33.0 +9.5 97.1	76 37.0 +9.1 96.3
19°	80 31.3 +05.0 94.4	79 35.1 +04.8 93.7	78 38.8 +04.8 93.0	77 42.5 +04.7 92.5	76 46.1 +04.8 92.0
20°	80 36.3 -01.4 88.3	79 39.9 -00.9 88.1	78 43.6 -00.5 87.9	77 47.2 -00.1 87.8	76 50.9 +00.3 87.6
21°	80 34.9 -07.6 82.2	79 39.0 -06.6 82.5	78 43.1 -05.7 82.8	77 47.1 -04.9 83.0	76 51.2 -04.2 83.2
22°	80 27.3 -13.7 76.1	79 32.4 -12.1 77.0	78 37.4 -10.8 77.8	77 42.2 -09.6 78.3	76 47.0 -08.6 78.8
23°	80 13.6 -19.2 70.3	79 20.3 -17.3 71.7	78 26.6 -15.7 72.8	77 32.6 -14.2 73.7	76 38.4 -12.9 74.5
24°	79 54.4 -24.4 64.8	79 03.0 -22.2 66.6	78 10.9 -20.2 68.0	77 18.4 -18.4 69.3	76 25.5 -16.9 70.3
25°	79 30.0 -28.9 59.7	78 40.8 -26.5 61.8	77 50.7 -24.4 63.5	77 00.0 -22.5 65.0	76 08.6 -20.8 66.3
26°	79 01.1 -32.8 55.0	78 14.3 -30.4 57.3	77 26.3 -28.1 59.2	76 37.5 -26.2 60.9	75 47.8 -24.3 62.4
27°	78 28.3 -36.3 50.7	77 43.9 -33.8 53.1	76 58.2 -31.6 55.2	76 11.3 -29.5 57.1	75 23.5 -27.5 58.7
28°	77 52.0 -39.2 46.8	77 10.1 -36.9 49.3	76 26.6 -34.6 51.5	75 41.8 -32.5 53.5	74 56.0 -30.6 55.3
29°	77 12.8 -41.7 43.3	76 33.2 -39.4 45.9	75 52.0 -37.3 48.1	75 09.3 -35.2 50.2	74 25.4 -33.2 52.0

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°	65 11.1 +48.6 141.9	64 35.6 +47.5 140.0	63 58.7 +46.4 138.2	63 20.5 +45.3 136.5	62 41.1 +44.3 134.8
1°	65 59.7 +47.6 140.5	65 23.1 +46.5 138.6	64 45.1 +45.4 136.7	64 05.8 +44.3 135.0	63 25.4 +43.2 133.3
2°	66 47.3 +46.7 139.0	66 09.6 +45.5 137.0	65 30.5 +44.4 135.2	64 50.1 +43.3 133.4	64 08.6 +42.2 131.7
3°	67 34.0 +45.7 137.4	66 55.1 +44.5 135.4	66 14.9 +43.3 133.5	65 33.4 +42.2 131.8	64 50.8 +41.1 130.1
4°	68 19.7 +44.6 135.6	67 39.6 +43.3 133.7	66 58.2 +42.1 131.8	66 15.6 +40.9 130.0	65 31.9 +39.8 128.4
5°	69 04.3 +43.3 133.8	68 22.9 +42.0 131.8	67 40.3 +40.8 129.9	66 56.5 +39.6 128.2	66 11.7 +38.4 126.5
6°	69 47.6 +41.9 131.8	69 04.9 +40.6 129.8	68 21.1 +39.2 128.0	67 36.1 +38.1 126.2	66 50.1 +37.0 124.6
7°	70 29.5 +40.3 129.7	69 45.5 +38.9 127.7	69 00.3 +37.7 125.9	68 14.2 +36.5 124.2	67 27.1 +35.3 122.6
8°	71 09.8 +38.5 127.5	70 24.4 +37.2 125.5	69 38.0 +35.9 123.7	68 50.7 +34.7 122.0	68 02.4 +33.7 120.4
9°	71 48.3 +36.7 125.0	71 01.6 +35.3 123.1	70 13.9 +34.0 121.4	69 25.4 +32.8 119.7	68 36.1 +31.7 118.2
10°	72 25.0 +34.4 122.5	71 36.9 +33.1 120.6	70 47.9 +31.9 118.9	69 58.2 +30.8 117.3	69 07.8 +29.7 115.8
11°	72 59.4 +32.2 119.7	72 10.0 +30.9 117.9	71 19.8 +29.7 116.3	70 29.0 +28.5 114.8	69 37.5 +27.5 113.4
12°	73 31.6 +29.5 116.8	72 40.9 +28.2 115.1	71 49.5 +27.1 113.5	70 57.5 +26.1 112.1	70 05.0 +25.2 110.8
13°	74 01.1 +26.6 113.7	73 09.1 +25.5 112.1	72 16.6 +24.5 110.6	71 23.6 +23.6 109.3	70 30.2 +22.7 108.1
14°	74 27.7 +23.6 110.4	73 34.6 +22.6 108.9	72 41.1 +21.6 107.6	71 47.2 +20.8 106.4	70 52.9 +20.1 105.3
15°	74 51.3 +20.2 106.9	73 57.2 +19.3 105.6	73 02.7 +18.6 104.4	72 08.0 +17.9 103.4	71 13.0 +17.3 102.4
16°	75 11.5 +16.6 103.2	74 16.5 +15.9 102.1	73 21.3 +15.3 101.1	72 25.9 +14.8 100.2	71 30.3 +14.4 99.4
17°	75 28.1 +12.8 99.4	74 32.4 +12.4 98.6	73 36.6 +12.0 97.7	72 40.7 +11.6 97.0	71 44.7 +11.3 96.3
18°	75 40.9 +08.9 95.5	74 44.8 +08.6 94.9	73 48.6 +08.4 94.3	72 52.3 +08.4 93.7	71 56.0 +08.3 93.2
19°	75 49.8 +04.8 91.5	74 53.4 +04.8 91.1	73 57.0 +04.9 90.7	73 00.7 +04.9 90.3	72 04.3 +05.0 90.0
20°	75 54.6 +00.6 87.4	74 58.2 +01.0 87.2	74 01.9 +01.3 87.1	73 05.6 +01.5 86.9	72 09.3 +01.8 86.7
21°	75 55.2 -03.6 83.3	74 59.2 -03.0 83.4	74 03.2 -02.5 83.4	73 07.1 -01.9 83.5	72 11.1 -01.4 83.5
22°	75 51.6 -07.7 79.2	74 56.2 -06.8 79.5	74 00.7 -06.0 79.8	73 05.2 -05.3 80.0	72 09.7 -04.7 80.2
23°	75 43.9 -11.6 75.2	74 49.4 -10.6 75.7	73 54.7 -09.7 76.2	72 59.9 -08.8 76.6	72 05.0 -07.9 76.9
24°	75 32.3 -15.6 71.2	74 38.8 -14.3 72.0	73 45.0 -13.0 72.7	72 51.1 -12.0 73.2	71 57.1 -11.0 73.7
25°	75 16.7 -19.1 67.4	74 24.5 -17.7 68.3	73 32.0 -16.5 69.2	72 39.1 -15.2 69.9	71 46.1 -14.1 70.6
26°	74 57.6 -22.6 63.7	74 06.8 -21.0 64.8	73 15.5 -19.5 65.8	72 23.9 -18.2 66.7	71 32.0 -17.0 67.5
27°	74 35.0 -25.8 60.2	73 45.8 -24.2 61.4	72 56.0 -22.6 62.6	72 05.7 -21.1 63.6	71 15.0 -19.8 64.5
28°	74 09.2 -28.7 56.8	73 21.6 -26.9 58.2	72 33.4 -25.4 59.4	71 44.6 -23.9 60.6	70 55.2 -22.4 61.6
29°	73 40.5 -31.4 53.6	72 54.7 -29.7 55.1	72 08.0 -27.9 56.5	71 20.7 -26.4 57.7	70 32.8 -25.0 58.8

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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°	62 00.5 +43.3 133.2	61 18.9 +42.3 131.7	60 36.4 +41.3 130.2	59 52.9 +40.4 128.9	59 08.6 +39.5 127.5
1°	62 43.8 +42.2 131.7	62 01.2 +41.3 130.2	61 17.7 +40.3 128.8	60 33.3 +39.4 127.4	59 48.1 +38.5 126.0
2°	63 26.0 +41.2 130.2	62 42.5 +40.1 128.6	61 58.0 +39.2 127.2	61 12.7 +38.2 125.8	60 26.6 +37.3 124.5
3°	64 07.2 +40.0 128.5	63 22.6 +39.0 127.0	62 37.2 +38.0 125.6	61 50.9 +37.1 124.2	61 03.9 +36.2 122.9
4°	64 47.2 +38.7 126.8	64 01.6 +37.7 125.3	63 15.2 +36.7 123.9	62 28.0 +35.8 122.5	61 40.1 +34.9 121.2
5°	65 25.9 +37.4 125.0	64 39.3 +36.4 123.5	63 51.9 +35.4 122.1	63 03.8 +34.5 120.8	62 15.0 +33.6 119.5
6°	66 03.3 +35.9 123.1	65 15.7 +34.8 121.6	64 27.3 +33.9 120.2	63 38.3 +33.0 118.9	62 48.6 +32.2 117.7
7°	66 39.2 +34.3 121.1	65 50.5 +33.3 119.6	65 01.2 +32.3 118.3	64 11.3 +31.4 117.0	63 20.8 +30.6 115.9
8°	67 13.5 +32.5 119.0	66 23.8 +31.6 117.6	65 33.5 +30.7 116.3	64 42.7 +29.9 115.1	63 51.4 +29.1 113.9
9°	67 46.0 +30.8 116.8	66 55.4 +29.8 115.4	66 04.2 +28.9 114.2	65 12.6 +28.1 113.0	64 20.5 +27.3 111.9
10°	68 16.8 +28.7 114.5	67 25.2 +27.8 113.2	66 33.1 +27.0 112.0	65 40.7 +26.2 110.9	64 47.8 +25.5 109.8
11°	68 45.5 +26.6 112.1	67 53.0 +25.8 110.9	67 00.1 +25.0 109.7	66 06.9 +24.3 108.7	65 13.3 +23.7 107.7
12°	69 12.1 +24.4 109.6	68 18.8 +23.6 108.5	67 25.1 +22.9 107.4	66 31.2 +22.3 106.4	65 37.0 +21.7 105.5
13°	69 36.5 +21.9 107.0	68 42.4 +21.3 105.9	67 48.0 +20.7 105.0	66 53.5 +20.1 104.1	65 58.7 +19.6 103.2
14°	69 58.4 +19.4 104.3	69 03.7 +18.8 103.3	68 08.7 +18.3 102.5	67 13.6 +17.8 101.6	66 18.3 +17.4 100.9
15°	70 17.8 +16.8 101.5	69 22.5 +16.3 100.7	68 27.0 +15.9 99.9	67 31.4 +15.6 99.2	66 35.7 +15.2 98.5
16°	70 34.6 +14.0 98.6	69 38.8 +13.7 97.9	68 42.9 +13.4 97.3	67 47.0 +13.1 96.6	66 50.9 +12.9 96.0
17°	70 48.6 +11.1 95.7	69 52.5 +10.9 95.1	68 56.3 +10.8 94.6	68 00.1 +10.6 94.0	67 03.8 +10.5 93.5
18°	70 59.7 +08.2 92.7	70 03.4 +08.1 92.2	69 07.1 +08.1 91.8	68 10.7 +08.1 91.4	67 14.3 +08.1 91.0
19°	71 07.9 +05.1 89.6	70 11.5 +05.3 89.3	69 15.2 +05.3 89.0	68 18.8 +05.5 88.7	67 22.4 +05.6 88.4
20°	71 13.0 +02.1 86.5	70 16.8 +02.3 86.4	69 20.5 +02.6 86.2	68 24.3 +02.8 86.0	67 28.0 +03.1 85.8
21°	71 15.1 -01.0 83.4	70 19.1 -00.6 83.4	69 23.1 -00.2 83.4	68 27.1 +00.2 83.3	67 31.1 +00.6 83.2
22°	71 14.1 -04.1 80.3	70 18.5 -03.5 80.4	69 22.9 -03.0 80.5	68 27.3 -02.5 80.6	67 31.7 -02.0 80.6
23°	71 10.0 -07.1 77.2	70 15.0 -06.4 77.5	69 19.9 -05.7 77.7	68 24.8 -05.0 77.9	67 29.7 -04.5 78.0
24°	71 02.9 -10.1 74.2	70 08.6 -09.2 74.5	69 14.2 -08.4 74.9	68 19.8 -07.7 75.2	67 25.2 -07.0 75.4
25°	70 52.8 -13.0 71.1	69 59.4 -12.1 71.6	69 05.8 -11.1 72.1	68 12.1 -10.3 72.5	67 18.2 -09.4 72.8
26°	70 39.8 -15.9 68.2	69 47.3 -14.7 68.8	68 54.7 -13.8 69.3	68 01.8 -12.7 69.8	67 08.8 -11.8 70.3
27°	70 23.9 -18.5 65.3	69 32.6 -17.4 66.0	68 40.9 -16.2 66.7	67 49.1 -15.2 67.2	66 57.0 -14.2 67.8
28°	70 05.4 -21.1 62.5	69 15.2 -19.8 63.3	68 24.7 -18.6 64.0	67 33.9 -17.5 64.7	66 42.8 -16.5 65.3
29°	69 44.3 -23.5 59.7	68 55.4 -22.2 60.6	68 06.1 -21.0 61.5	67 16.4 -19.8 62.2	66 26.3 -18.6 62.9

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°	58 23.5 +38.7 126.3	57 37.7 +37.8 125.0	56 51.2 +37.0 123.9	56 04.1 +36.2 122.8	55 16.4 +35.5 121.7
1°	59 02.2 +37.6 124.8	58 15.5 +36.8 123.6	57 28.2 +36.0 122.4	56 40.3 +35.3 121.3	55 51.9 +34.5 120.3
2°	59 39.8 +36.5 123.3	58 52.3 +35.7 122.1	58 04.2 +34.9 120.9	57 15.6 +34.1 119.8	56 26.4 +33.5 118.8
3°	60 16.3 +35.3 121.7	59 28.0 +34.5 120.5	58 39.1 +33.8 119.4	57 49.7 +33.0 118.3	56 59.9 +32.3 117.3
4°	60 51.6 +34.1 120.0	60 02.5 +33.3 118.9	59 12.9 +32.5 117.8	58 22.7 +31.9 116.7	57 32.2 +31.1 115.7
5°	61 25.7 +32.8 118.3	60 35.8 +32.0 117.2	59 45.4 +31.2 116.1	58 54.6 +30.5 115.1	58 03.3 +29.9 114.1
6°	61 58.5 +31.3 116.6	61 07.8 +30.6 115.5	60 16.6 +29.9 114.4	59 25.1 +29.2 113.4	58 33.2 +28.5 112.5
7°	62 29.8 +29.9 114.7	61 38.4 +29.1 113.7	60 46.5 +28.5 112.6	59 54.3 +27.8 111.7	59 01.7 +27.3 110.8
8°	62 59.7 +28.3 112.8	62 07.5 +27.6 111.8	61 15.0 +26.9 110.8	60 22.1 +26.4 109.9	59 29.0 +25.7 109.0
9°	63 28.0 +26.6 110.9	62 35.1 +26.0 109.9	61 41.9 +25.4 109.0	60 48.5 +24.8 108.1	59 54.7 +24.3 107.2
10°	63 54.6 +24.9 108.8	63 01.1 +24.3 107.9	62 07.3 +23.7 107.0	61 13.3 +23.2 106.2	60 19.0 +22.8 105.4
11°	64 19.5 +23.0 106.8	63 25.4 +22.5 105.9	62 31.0 +22.0 105.1	61 36.5 +21.5 104.3	60 41.8 +21.1 103.5
12°	64 42.5 +21.2 104.6	63 47.9 +20.6 103.8	62 53.0 +20.3 103.0	61 58.0 +19.8 102.3	61 02.9 +19.4 101.6
13°	65 03.7 +19.1 102.4	64 08.5 +18.8 101.7	63 13.3 +18.3 100.9	62 17.8 +18.1 100.3	61 22.3 +17.7 99.6
14°	65 22.8 +17.1 100.2	64 27.3 +16.7 99.5	63 31.6 +16.4 98.8	62 35.9 +16.1 98.2	61 40.0 +15.9 97.6
15°	65 39.9 +14.9 97.8	64 44.0 +14.7 97.2	63 48.0 +14.5 96.7	62 52.0 +14.3 96.1	61 55.9 +14.1 95.6
16°	65 54.8 +12.7 95.5	64 58.7 +12.5 94.9	64 02.5 +12.4 94.4	63 06.3 +12.2 94.0	62 10.0 +12.2 93.5
17°	66 07.5 +10.5 93.1	65 11.2 +10.4 92.6	64 14.9 +10.3 92.2	63 18.5 +10.3 91.8	62 22.2 +10.2 91.4
18°	66 18.0 +08.1 90.6	65 21.6 +08.1 90.3	64 25.2 +08.2 89.9	63 28.8 +08.2 89.6	62 32.4 +08.3 89.3
19°	66 26.1 +05.7 88.2	65 29.7 +05.9 87.9	64 33.4 +06.0 87.6	63 37.0 +06.2 87.4	62 40.7 +06.3 87.1
20°	66 31.8 +03.3 85.7	65 35.6 +03.6 85.5	64 39.4 +03.8 85.3	63 43.2 +04.0 85.1	62 47.0 +04.3 84.9
21°	66 35.1 +00.9 83.2	65 39.2 +01.2 83.1	64 43.2 +01.6 83.0	63 47.2 +02.0 82.9	62 51.3 +02.2 82.8
22°	66 36.0 -01.5 80.6	65 40.4 -01.0 80.6	64 44.8 -00.6 80.6	63 49.2 -00.3 80.6	62 53.5 +00.2 80.6
23°	66 34.5 -03.9 78.1	65 39.4 -03.4 78.2	64 44.2 -02.9 78.3	63 48.9 -02.3 78.3	62 53.7 -01.8 78.4
24°	66 30.6 -06.3 75.6	65 36.0 -05.7 75.8	64 41.3 -05.0 75.9	63 46.6 -04.4 76.1	62 51.9 -03.9 76.2
25°	66 24.3 -08.6 73.1	65 30.3 -07.9 73.4	64 36.3 -07.2 73.6	63 42.2 -06.6 73.8	62 48.0 -05.9 74.0
26°	66 15.7 -11.0 70.7	65 22.4 -10.1 71.0	64 29.1 -09.4 71.3	63 35.6 -08.6 71.6	62 42.1 -07.9 71.8
27°	66 04.7 -13.2 68.2	65 12.3 -12.4 68.6	64 19.7 -11.5 69.0	63 27.0 -10.7 69.4	62 34.2 -09.9 69.7
28°	65 51.5 -15.5 65.8	64 59.9 -14.5 66.3	64 08.2 -13.6 66.8	63 16.3 -12.7 67.2	62 24.3 -11.9 67.5
29°	65 36.0 -17.6 63.5	64 45.4 -16.5 64.0	63 54.6 -15.5 64.5	63 03.6 -14.6 65.0	62 12.4 -13.7 65.4

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°	54 28.1 +34.8 120.6	53 39.4 +34.1 119.6	52 50.1 +33.5 118.7	52 00.5 +32.8 117.8	51 10.4 +32.2 116.9
1°	55 02.9 +33.9 119.2	54 13.5 +33.2 118.3	53 23.6 +32.5 117.3	52 33.3 +31.9 116.4	51 42.6 +31.3 115.5
2°	55 36.8 +32.7 117.8	54 46.7 +32.1 116.8	53 56.1 +31.5 115.9	53 05.2 +30.9 115.0	52 13.9 +30.4 114.2
3°	56 09.5 +31.7 116.3	55 18.8 +31.0 115.3	54 27.6 +30.4 114.4	53 36.1 +29.8 113.6	52 44.3 +29.2 112.7
4°	56 41.2 +30.4 114.7	55 49.8 +29.8 113.8	54 58.0 +29.3 112.9	54 05.9 +28.8 112.1	53 13.5 +28.2 111.3
5°	57 11.6 +29.3 113.2	56 19.6 +28.7 112.3	55 27.3 +28.1 111.4	54 34.7 +27.5 110.6	53 41.7 +27.1 109.8
6°	57 40.9 +28.0 111.5	56 48.3 +27.4 110.7	55 55.4 +26.9 109.8	55 02.2 +26.4 109.1	54 08.8 +25.9 108.3
7°	58 08.9 +26.6 109.9	57 15.7 +26.1 109.0	56 22.3 +25.6 108.2	55 28.6 +25.2 107.5	54 34.7 +24.7 106.7
8°	58 35.5 +25.3 108.2	57 41.8 +24.8 107.4	56 47.9 +24.3 106.6	55 53.8 +23.8 105.9	54 59.4 +23.5 105.2
9°	59 00.8 +23.8 106.4	58 06.6 +23.3 105.7	57 12.2 +22.9 104.9	56 17.6 +22.5 104.2	55 22.9 +22.1 103.5
10°	59 24.6 +22.2 104.6	58 29.9 +21.9 103.9	57 35.1 +21.5 103.2	56 40.1 +21.2 102.5	55 45.0 +20.8 101.9
11°	59 46.8 +20.8 102.8	58 51.8 +20.4 102.1	57 56.6 +20.0 101.5	57 01.3 +19.7 100.8	56 05.8 +19.5 100.2
12°	60 07.6 +19.1 100.9	59 12.2 +18.7 100.3	58 16.6 +18.5 99.7	57 21.0 +18.2 99.1	56 25.3 +18.0 98.5
13°	60 26.7 +17.4 99.0	59 30.9 +17.2 98.4	58 35.1 +17.0 97.9	57 39.2 +16.8 97.3	56 43.3 +16.5 96.8
14°	60 44.1 +15.7 97.1	59 48.1 +15.5 96.5	58 52.1 +15.3 96.0	57 56.0 +15.1 95.5	56 59.8 +15.1 95.0
15°	60 59.8 +13.9 95.1	60 03.6 +13.8 94.6	59 07.4 +13.7 94.1	58 11.1 +13.6 93.7	57 14.9 +13.5 93.3
16°	61 13.7 +12.1 93.1	60 17.4 +12.0 92.6	59 21.1 +12.0 92.2	58 24.7 +12.0 91.8	57 28.4 +11.9 91.4
17°	61 25.8 +10.3 91.0	60 29.4 +10.3 90.7	59 33.1 +10.2 90.3	58 36.7 +10.3 90.0	57 40.3 +10.3 89.6
18°	61 36.1 +08.3 89.0	60 39.7 +08.4 88.6	59 43.3 +08.6 88.3	58 47.0 +08.6 88.1	57 50.6 +08.8 87.8
19°	61 44.4 +06.5 86.9	60 48.1 +06.6 86.6	59 51.9 +06.7 86.4	58 55.6 +06.9 86.1	57 59.4 +07.0 85.9
20°	61 50.9 +04.5 84.8	60 54.7 +04.8 84.6	59 58.6 +05.0 84.4	59 02.5 +05.2 84.2	58 06.4 +05.4 84.0
21°	61 55.4 +02.5 82.6	60 59.5 +02.8 82.5	60 03.6 +03.1 82.4	59 07.7 +03.4 82.3	58 11.8 +03.8 82.1
22°	61 57.9 +00.6 80.5	61 02.3 +01.0 80.5	60 06.7 +01.3 80.4	59 11.1 +01.7 80.3	58 15.6 +02.0 80.2
23°	61 58.5 -01.4 78.4	61 03.3 -01.0 78.4	60 08.0 -00.5 78.4	59 12.8 -00.1 78.4	58 17.6 +00.3 78.3
24°	61 57.1 -03.3 76.3	61 02.3 -02.8 76.3	60 07.5 -02.3 76.4	59 12.7 -01.8 76.4	58 17.9 -01.3 76.4
25°	61 53.8 -05.3 74.1	60 59.5 -04.7 74.3	60 05.2 -04.1 74.4	59 10.9 -03.6 74.5	58 16.6 -03.1 74.5
26°	61 48.5 -07.3 72.0	60 54.8 -06.6 72.2	60 01.1 -05.9 72.4	59 07.3 -05.3 72.5	58 13.5 -04.7 72.6
27°	61 41.2 -09.1 69.9	60 48.2 -08.4 70.2	59 55.2 -07.8 70.4	59 02.0 -07.0 70.6	58 08.8 -06.4 70.8
28°	61 32.1 -11.0 67.9	60 39.8 -10.2 68.2	59 47.4 -09.4 68.4	58 55.0 -08.8 68.7	58 02.4 -08.0 68.9
29°	61 21.1 -12.9 65.8	60 29.6 -12.0 66.1	59 38.0 -11.2 66.5	58 46.2 -10.4 66.7	57 54.4 -09.7 67.0

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°	50 19.9 +31.7 116.0	49 29.1 +31.1 115.2	48 37.9 +30.6 114.4	47 46.4 +30.1 113.6	46 54.6 +29.6 112.9
1°	50 51.6 +30.7 114.7	50 00.2 +30.2 113.9	49 08.5 +29.7 113.1	48 16.5 +29.2 112.3	47 24.2 +28.7 111.6
2°	51 22.3 +29.8 113.3	50 30.4 +29.3 112.5	49 38.2 +28.8 111.8	48 45.7 +28.3 111.0	47 52.9 +27.9 110.3
3°	51 52.1 +28.8 111.9	50 59.7 +28.2 111.2	50 07.0 +27.7 110.4	49 14.0 +27.3 109.7	48 20.8 +26.9 109.0
4°	52 20.9 +27.7 110.5	51 27.9 +27.3 109.7	50 34.7 +26.8 109.0	49 41.3 +26.4 108.3	48 47.7 +25.9 107.6
5°	52 48.6 +26.6 109.0	51 55.2 +26.1 108.3	51 01.5 +25.8 107.6	50 07.7 +25.3 106.9	49 13.6 +25.0 106.3
6°	53 15.2 +25.4 107.6	52 21.3 +25.1 106.8	51 27.3 +24.6 106.2	50 33.0 +24.3 105.5	49 38.6 +23.9 104.9
7°	53 40.6 +24.3 106.0	52 46.4 +23.9 105.3	51 51.9 +23.5 104.7	50 57.3 +23.2 104.1	50 02.5 +22.9 103.4
8°	54 04.9 +23.1 104.5	53 10.3 +22.7 103.8	52 15.4 +22.4 103.2	51 20.5 +22.0 102.6	50 25.4 +21.8 102.0
9°	54 28.0 +21.8 102.9	53 33.0 +21.5 102.3	52 37.8 +21.2 101.7	51 42.5 +21.0 101.1	50 47.2 +20.6 100.5
10°	54 49.8 +20.5 101.3	53 54.5 +20.2 100.7	52 59.0 +20.0 100.1	52 03.5 +19.7 99.6	51 07.8 +19.5 99.0
11°	55 10.3 +19.2 99.6	54 14.7 +18.9 99.1	53 19.0 +18.7 98.6	52 23.2 +18.5 98.0	51 27.3 +18.3 97.5
12°	55 29.5 +17.8 98.0	54 33.6 +17.6 97.5	53 37.7 +17.4 97.0	52 41.7 +17.2 96.5	51 45.6 +17.1 96.0
13°	55 47.3 +16.3 96.3	54 51.2 +16.2 95.8	53 55.1 +16.1 95.3	52 58.9 +16.0 94.9	52 02.7 +15.9 94.4
14°	55 03.6 +15.0 94.6	55 07.4 +14.8 94.1	54 11.2 +14.7 93.7	53 14.9 +14.6 93.3	52 18.6 +14.6 92.9
15°	56 18.6 +13.4 92.8	55 22.2 +13.4 92.4	54 25.9 +13.3 92.0	53 29.5 +13.4 91.6	52 33.2 +13.3 91.3
16°	56 32.0 +11.9 91.1	55 35.6 +11.9 90.7	54 39.2 +12.0 90.4	53 42.9 +11.9 90.0	52 46.5 +12.0 89.7
17°	56 43.9 +10.4 89.3	55 47.5 +10.5 89.0	54 51.2 +10.5 88.7	53 54.8 +10.6 88.3	52 58.5 +10.6 88.0
18°	56 54.3 +08.8 87.5	55 58.0 +08.9 87.2	55 01.7 +09.0 86.9	54 05.4 +09.1 86.7	53 09.1 +09.3 86.4
19°	57 03.1 +07.3 85.7	56 06.9 +07.4 85.4	55 10.7 +07.6 85.2	54 14.5 +07.8 85.0	53 18.4 +07.9 84.8
20°	57 10.4 +05.6 83.8	56 14.3 +05.9 83.7	55 18.3 +06.1 83.5	54 22.3 +06.3 83.3	53 26.3 +06.5 83.1
21°	57 16.0 +04.0 82.0	56 20.2 +04.2 81.9	55 24.4 +04.5 81.7	54 28.6 +04.8 81.6	53 32.8 +05.1 81.4
22°	57 20.0 +02.4 80.2	56 24.4 +02.8 80.1	55 28.9 +03.1 80.0	54 33.4 +03.4 79.9	53 37.9 +03.7 79.7
23°	57 22.4 +00.7 78.3	56 27.2 +01.1 78.3	55 32.0 +01.5 78.2	54 36.8 +01.9 78.1	53 41.6 +02.3 78.1
24°	57 23.1 -00.9 76.5	56 28.3 -00.4 76.4	55 33.5 +00.0 76.4	54 38.7 +00.4 76.4	53 43.9 +00.8 76.4
25°	57 22.2 -02.5 74.6	56 27.9 -02.0 74.6	55 33.5 -01.5 74.7	54 39.1 -01.0 74.7	53 44.7 -00.5 74.7
26°	57 19.7 -04.1 72.7	56 25.9 -03.6 72.8	55 32.0 -03.1 72.9	54 38.1 -02.5 73.0	53 44.2 -02.0 73.0
27°	57 15.6 -05.8 70.9	56 22.3 -05.2 71.0	55 28.9 -04.5 71.1	54 35.6 -04.0 71.2	53 42.2 -03.5 71.3
28°	57 09.8 -07.4 69.1	56 17.1 -06.7 69.2	55 24.4 -06.1 69.4	54 31.6 -05.5 69.5	53 38.7 -04.8 69.6
29°	57 02.4 -08.9 67.2	56 10.4 -08.3 67.4	55 18.3 -07.6 67.6	54 26.1 -06.9 67.8	53 33.9 -06.3 67.9

Declination SAME name as Latitude

Latitude 20°

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°	46 02.5 +29.2 112.2	45 10.2 +28.7 111.5	44 17.6 +28.3 110.8	43 24.8 +27.8 110.1	42 31.7 +27.5 109.5
1°	46 31.7 +28.3 110.9	45 38.9 +27.8 110.2	44 45.9 +27.4 109.6	43 52.6 +27.1 108.9	42 59.2 +26.7 108.3
2°	47 00.0 +27.4 109.6	46 06.7 +27.0 109.0	45 13.3 +26.6 108.3	44 19.7 +26.2 107.7	43 25.9 +25.9 107.1
3°	47 27.4 +26.5 108.3	46 33.7 +26.2 107.7	45 39.9 +25.8 107.0	44 45.9 +25.4 106.4	43 51.8 +25.0 105.8
4°	47 53.9 +25.5 107.0	46 59.9 +25.2 106.3	46 05.7 +24.8 105.7	45 11.3 +24.5 105.1	44 16.8 +24.2 104.6
5°	48 19.4 +24.6 105.6	47 25.1 +24.2 105.0	46 30.5 +24.0 104.4	45 35.8 +23.7 103.8	44 41.0 +23.4 103.3
6°	48 44.0 +23.6 104.2	47 49.3 +23.3 103.7	46 54.5 +22.9 103.1	45 59.5 +22.7 102.5	45 04.4 +22.4 102.0
7°	49 07.6 +22.6 102.8	48 12.6 +22.3 102.3	47 17.4 +22.0 101.7	46 22.2 +21.7 101.2	45 26.8 +21.5 100.7
8°	49 30.2 +21.5 101.4	48 34.9 +21.2 100.9	47 39.4 +21.1 100.3	46 43.9 +20.8 99.8	45 48.3 +20.6 99.3
9°	49 51.7 +20.4 100.0	48 56.1 +20.2 99.5	48 00.5 +19.9 98.9	47 04.7 +19.8 98.4	46 08.9 +19.6 98.0
10°	50 12.1 +19.3 98.5	49 16.3 +19.1 98.0	48 20.4 +19.0 97.5	47 24.5 +18.8 97.1	46 28.5 +18.7 96.6
11°	50 31.4 +18.1 97.0	49 35.4 +18.0 96.6	48 39.4 +17.8 96.1	47 43.3 +17.7 95.7	46 47.2 +17.6 95.2
12°	50 49.5 +17.0 95.5	49 53.4 +16.8 95.1	48 57.2 +16.8 94.7	48 01.0 +16.7 94.2	47 04.8 +16.5 93.8
13°	51 06.5 +15.8 94.0	50 10.2 +15.7 93.6	49 14.0 +15.6 93.2	48 17.7 +15.5 92.8	47 21.3 +15.5 92.4
14°	51 22.3 +14.5 92.5	50 25.9 +14.5 92.1	49 29.6 +14.5 91.7	48 33.2 +14.5 91.3	47 36.8 +14.5 91.0
15°	51 36.8 +13.3 90.9	50 40.4 +13.3 90.6	49 44.1 +13.3 90.2	48 47.7 +13.3 89.9	47 51.3 +13.3 89.5
16°	51 50.1 +12.0 89.3	50 53.7 +12.1 89.0	49 57.4 +12.1 88.7	49 01.0 +12.2 88.4	48 04.6 +12.3 88.1
17°	52 02.1 +10.7 87.7	51 05.8 +10.8 87.5	50 09.5 +10.9 87.2	49 13.2 +11.0 86.9	48 16.9 +11.1 86.6
18°	52 12.8 +09.4 86.1	51 16.6 +09.5 85.9	50 20.4 +09.6 85.6	49 24.2 +09.8 85.4	48 28.0 +09.9 85.1
19°	52 22.2 +08.1 84.5	51 26.1 +08.3 84.3	50 30.0 +08.5 84.1	49 34.0 +08.6 83.9	48 37.9 +08.8 83.6
20°	52 30.3 +06.8 82.9	51 34.4 +07.0 82.7	50 38.5 +07.2 82.5	49 42.6 +07.4 82.3	48 46.7 +07.7 82.1
21°	52 37.1 +05.4 81.3	51 41.4 +05.6 81.1	50 45.7 +05.9 81.0	49 50.0 +06.2 80.8	48 54.4 +06.4 80.6
22°	52 42.5 +04.0 79.6	51 47.0 +04.3 79.5	50 51.6 +04.6 79.4	49 56.2 +04.9 79.2	49 00.8 +05.2 79.1
23°	52 46.5 +02.6 78.0	51 51.3 +03.0 77.9	50 56.2 +03.4 77.8	50 01.1 +03.7 77.7	49 06.0 +04.1 77.6
24°	52 49.1 +01.3 76.3	51 54.3 +01.7 76.3	50 59.6 +02.0 76.2	50 04.8 +02.5 76.1	49 10.1 +02.8 76.1
25°	52 50.4 -00.2 74.7	51 56.0 +00.3 74.7	51 01.6 +00.8 74.6	50 07.3 +01.2 74.6	49 12.9 +01.6 74.5
26°	52 50.2 -01.5 73.0	51 56.3 -01.0 73.0	51 02.4 -00.5 73.0	50 08.5 -00.1 73.0	49 14.5 +00.5 73.0
27°	52 48.7 -02.8 71.4	51 55.3 -02.3 71.4	51 01.9 -01.8 71.4	50 08.4 -01.3 71.5	49 15.0 -00.8 71.5
28°	52 45.9 -04.3 69.7	51 53.0 -03.7 69.8	51 00.1 -03.2 69.9	50 07.1 -02.5 69.9	49 14.2 -02.1 69.9
29°	52 41.6 -05.6 68.1	51 49.3 -05.0 68.2	50 56.9 -04.4 68.3	50 04.6 -03.9 68.3	49 12.1 -03.2 68.4

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°	41 38.5 +27.1 108.9	40 45.0 +26.8 108.3	39 51.4 +26.4 107.7	38 57.6 +26.0 107.1	38 03.6 +25.8 106.6
1°	42 05.6 +26.3 107.7	41 11.8 +25.9 107.1	40 17.8 +25.6 106.5	39 23.6 +25.4 106.0	38 29.4 +25.0 105.4
2°	42 31.9 +25.5 106.5	41 37.7 +25.3 105.9	40 43.4 +25.0 105.3	39 49.0 +24.6 104.8	38 54.4 +24.3 104.2
3°	42 57.4 +24.8 105.2	42 03.0 +24.4 104.7	41 08.4 +24.1 104.1	40 13.6 +23.9 103.6	39 18.7 +23.7 103.1
4°	43 22.2 +23.9 104.0	42 27.4 +23.6 103.4	41 32.5 +23.4 102.9	40 37.5 +23.1 102.4	39 42.4 +22.9 101.9
5°	43 46.1 +23.1 102.7	42 51.0 +22.9 102.2	41 55.9 +22.5 101.7	41 00.6 +22.4 101.2	40 05.3 +22.1 100.7
6°	44 09.2 +22.2 101.4	43 13.9 +21.9 100.9	42 18.4 +21.8 100.4	41 23.0 +21.5 99.9	40 27.4 +21.3 99.5
7°	44 31.4 +21.3 100.1	43 35.8 +21.1 99.6	42 40.2 +20.9 99.2	41 44.5 +20.7 98.7	40 48.7 +20.6 98.2
8°	44 52.7 +20.4 98.8	43 56.9 +20.2 98.3	43 01.1 +20.0 97.9	42 05.2 +19.9 97.4	41 09.3 +19.7 97.0
9°	45 13.1 +19.4 97.5	44 17.1 +19.3 97.0	43 21.1 +19.2 96.6	42 25.1 +19.0 96.1	41 29.0 +18.9 95.7
10°	45 32.5 +18.5 96.1	44 36.4 +18.4 95.7	43 40.3 +18.2 95.3	42 44.1 +18.2 94.9	41 47.9 +18.1 94.4
11°	45 51.0 +17.5 94.8	44 54.8 +17.4 94.4	43 58.5 +17.4 94.0	43 02.3 +17.3 93.6	42 06.0 +17.2 93.2
12°	46 08.5 +16.5 93.4	45 12.2 +16.4 93.0	44 15.9 +16.4 92.6	43 19.6 +16.3 92.2	42 23.2 +16.3 91.9
13°	46 25.0 +15.5 92.0	45 28.6 +15.5 91.6	44 32.3 +15.4 91.3	43 35.9 +15.4 90.9	42 39.5 +15.5 90.6
14°	46 40.5 +14.4 90.6	45 44.1 +14.4 90.3	44 47.7 +14.5 89.9	43 51.3 +14.5 89.6	42 55.0 +14.5 89.2
15°	46 54.9 +13.4 89.2	45 58.5 +13.5 88.9	45 02.2 +13.4 88.5	44 05.8 +13.5 88.2	43 09.5 +13.5 87.9
16°	47 08.3 +12.3 87.8	46 12.0 +12.3 87.5	45 15.6 +12.5 87.2	44 19.3 +12.6 86.9	43 23.0 +12.7 86.6
17°	47 20.6 +11.2 86.3	46 24.3 +11.4 86.0	45 28.1 +11.4 85.8	44 31.9 +11.5 85.5	43 35.7 +11.7 85.2
18°	47 31.8 +10.1 84.9	46 35.7 +10.2 84.6	45 39.5 +10.4 84.4	44 43.4 +10.6 84.1	43 47.4 +10.7 83.9
19°	47 41.9 +09.0 83.4	46 45.9 +09.2 83.2	45 49.9 +09.4 83.0	44 54.0 +09.5 82.7	43 58.1 +09.7 82.5
20°	47 50.9 +07.8 81.9	46 55.1 +08.0 81.7	45 59.3 +08.3 81.5	45 03.5 +08.6 81.3	44 07.8 +08.8 81.1
21°	47 58.7 +06.7 80.5	47 03.1 +07.0 80.3	46 07.6 +07.2 80.1	45 12.1 +07.4 79.9	44 16.6 +07.7 79.8
22°	48 05.4 +05.6 79.0	47 10.1 +05.9 78.8	46 14.8 +06.2 78.7	45 19.5 +06.5 78.5	44 24.3 +06.7 78.4
23°	48 11.0 +04.4 77.5	47 16.0 +04.7 77.4	46 21.0 +05.0 77.2	45 26.0 +05.4 77.1	44 31.0 +05.7 77.0
24°	48 15.4 +03.2 76.0	47 20.7 +03.6 75.9	46 26.0 +04.0 75.8	45 31.4 +04.3 75.7	44 36.7 +04.7 75.6
25°	48 18.6 +02.0 74.5	47 24.3 +02.4 74.4	46 30.0 +02.8 74.3	45 35.7 +03.3 74.3	44 41.4 +03.7 74.2
26°	48 20.6 +00.9 73.0	47 26.7 +01.3 72.9	46 32.8 +01.8 72.9	45 39.0 +02.1 72.8	44 45.1 +02.6 72.8
27°	48 21.5 -00.3 71.5	47 28.0 +00.2 71.5	46 34.6 +00.6 71.4	45 41.1 +01.2 71.4	44 47.7 +01.6 71.4
28°	48 21.2 -01.5 70.0	47 28.2 -01.0 70.0	46 35.2 -00.4 70.0	45 42.3 +00.0 70.0	44 49.3 +00.5 70.0
29°	48 19.7 -02.7 68.5	47 27.2 -02.1 68.5	46 34.8 -01.6 68.5	45 42.3 -01.0 68.5	44 49.8 -00.5 68.6

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Latitude 20°

Declination SAME name as Latitude

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°	37 09.5 +25.4 106.0	36 15.2 +25.2 105.5	35 20.8 +24.9 105.0	34 26.3 +24.6 104.5	33 31.7 +24.3 104.0
1°	37 34.9 +24.8 104.9	36 40.4 +24.5 104.4	35 45.7 +24.2 103.8	34 50.9 +24.0 103.3	33 56.0 +23.7 102.9
2°	37 59.7 +24.1 103.7	37 04.9 +23.8 103.2	36 09.9 +23.6 102.7	35 14.9 +23.3 102.2	34 19.7 +23.1 101.7
3°	38 23.8 +23.3 102.6	37 28.7 +23.1 102.1	36 33.5 +22.9 101.6	35 38.2 +22.7 101.1	34 42.8 +22.5 100.6
4°	38 47.1 +22.7 101.4	37 51.8 +22.5 100.9	36 56.4 +22.3 100.4	36 00.9 +22.1 100.0	35 05.3 +21.9 99.5
5°	39 09.8 +21.9 100.2	38 14.3 +21.7 99.7	37 18.7 +21.5 99.3	36 23.0 +21.4 98.8	35 27.2 +21.2 98.4
6°	39 31.7 +21.2 99.0	38 36.0 +21.0 98.5	37 40.2 +20.8 98.1	36 44.4 +20.7 97.6	35 48.4 +20.6 97.2
7°	39 52.9 +20.4 97.8	38 57.0 +20.3 97.3	38 01.0 +20.2 96.9	37 05.1 +19.9 96.5	36 09.0 +19.9 96.0
8°	40 13.3 +19.6 96.5	39 17.3 +19.4 96.1	38 21.2 +19.4 95.7	37 25.0 +19.3 95.3	36 28.9 +19.2 94.9
9°	40 32.9 +18.8 95.3	39 36.7 +18.8 94.9	38 40.6 +18.6 94.5	37 44.3 +18.6 94.1	36 48.1 +18.5 93.7
10°	40 51.7 +18.0 94.0	39 55.5 +17.9 93.6	38 59.2 +17.8 93.3	38 02.9 +17.8 92.9	37 06.6 +17.7 92.5
11°	41 09.7 +17.1 92.8	40 13.4 +17.1 92.4	39 17.0 +17.1 92.0	38 20.7 +17.0 91.7	37 24.3 +17.1 91.3
12°	41 26.8 +16.3 91.5	40 30.5 +16.3 91.1	39 34.1 +16.3 90.8	38 37.7 +16.3 90.4	37 41.4 +16.2 90.1
13°	41 43.1 +15.5 90.2	40 46.8 +15.4 89.9	39 50.4 +15.4 89.5	38 54.0 +15.5 89.2	37 57.6 +15.6 88.9
14°	41 58.6 +14.5 88.9	41 02.2 +14.6 88.6	40 05.8 +14.7 88.3	39 09.5 +14.7 88.0	38 13.2 +14.7 87.6
15°	42 13.1 +13.7 87.6	41 16.8 +13.7 87.3	40 20.5 +13.8 87.0	39 24.2 +13.9 86.7	38 27.9 +14.0 86.4
16°	42 26.8 +12.7 86.3	41 30.5 +12.9 86.0	40 34.3 +12.9 85.7	39 38.1 +13.0 85.4	38 41.9 +13.1 85.2
17°	42 39.5 +11.8 85.0	41 43.4 +11.9 84.7	40 47.2 +12.1 84.4	39 51.1 +12.2 84.2	38 55.0 +12.4 83.9
18°	42 51.3 +10.9 83.6	41 55.3 +11.0 83.4	40 59.3 +11.2 83.1	40 03.3 +11.4 82.9	39 07.4 +11.6 82.7
19°	43 02.2 +09.9 82.3	42 06.3 +10.2 82.1	41 10.5 +10.3 81.8	40 14.7 +10.5 81.6	39 19.0 +10.7 81.4
20°	43 12.1 +09.0 80.9	42 16.5 +09.2 80.7	41 20.8 +09.5 80.5	40 25.2 +09.7 80.3	39 29.7 +09.9 80.1
21°	43 21.1 +08.0 79.6	42 25.7 +08.2 79.4	41 30.3 +08.5 79.2	40 34.9 +08.8 79.0	39 39.6 +09.0 78.8
22°	43 29.1 +07.0 78.2	42 33.9 +07.3 78.1	41 38.8 +07.6 77.9	40 43.7 +07.9 77.7	39 48.6 +08.2 77.5
23°	43 36.1 +06.1 76.8	42 41.2 +06.4 76.7	41 46.4 +06.7 76.6	40 51.6 +07.0 76.4	39 56.8 +07.3 76.3
24°	43 42.2 +05.0 75.5	42 47.6 +05.4 75.4	41 53.1 +05.7 75.2	40 58.6 +06.1 75.1	40 04.1 +06.4 75.0
25°	43 47.2 +04.0 74.1	42 53.0 +04.4 74.0	41 58.8 +04.8 73.9	41 04.7 +05.2 73.8	40 10.5 +05.6 73.7
26°	43 51.2 +03.1 72.7	42 57.4 +03.5 72.6	42 03.6 +03.9 72.5	41 09.9 +04.2 72.5	40 16.1 +04.7 72.4
27°	43 54.3 +02.0 71.3	43 00.9 +02.5 71.3	42 07.5 +02.9 71.2	41 14.1 +03.4 71.1	40 20.8 +03.8 71.1
28°	43 56.3 +01.1 69.9	43 03.4 +01.5 69.9	42 10.4 +02.0 69.9	41 17.5 +02.5 69.8	40 24.6 +02.9 69.7
29°	43 57.4 +00.0 68.5	43 04.9 +00.5 68.5	42 12.4 +01.1 68.5	41 20.0 +01.5 68.5	40 27.5 +02.0 68.4

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°	32 36.9 +24.1 103.5	31 42.0 +23.8 103.0	30 47.0 +23.6 102.5	29 51.9 +23.4 102.1	28 56.7 +23.2 101.6
1°	33 01.0 +23.5 102.4	32 05.8 +23.3 101.9	31 10.6 +23.1 101.5	30 15.3 +22.9 101.0	29 19.9 +22.7 100.6
2°	33 24.5 +22.9 101.3	32 29.1 +22.8 100.8	31 33.7 +22.5 100.4	30 38.2 +22.4 99.9	29 42.6 +22.2 99.5
3°	33 47.4 +22.3 100.2	32 51.9 +22.1 99.7	31 56.2 +22.0 99.3	31 00.6 +21.8 98.8	30 04.8 +21.7 98.4
4°	34 09.7 +21.7 99.0	33 14.0 +21.5 98.6	32 18.2 +21.4 98.2	31 22.4 +21.2 97.8	30 26.5 +21.1 97.3
5°	34 31.4 +21.1 97.9	33 35.5 +21.0 97.5	32 39.6 +20.8 97.1	31 43.6 +20.7 96.7	30 47.6 +20.6 96.3
6°	34 52.5 +20.4 96.8	33 56.5 +20.3 96.4	33 00.4 +20.2 96.0	32 04.3 +20.1 95.6	31 08.2 +20.0 95.2
7°	35 12.9 +19.8 95.6	34 16.8 +19.7 95.2	33 20.6 +19.6 94.8	32 24.4 +19.5 94.4	31 28.2 +19.4 94.1
8°	35 32.7 +19.1 94.5	34 36.5 +19.0 94.1	33 40.2 +19.0 93.7	32 43.9 +19.0 93.3	31 47.6 +18.9 92.9
9°	35 51.8 +18.4 93.3	34 55.5 +18.4 92.9	33 59.2 +18.3 92.6	33 02.9 +18.2 92.2	32 06.5 +18.3 91.8
10°	36 10.2 +17.8 92.1	35 13.9 +17.7 91.8	34 17.5 +17.7 91.4	33 21.1 +17.7 91.1	32 24.8 +17.6 90.7
11°	36 28.0 +17.0 90.9	35 31.6 +17.0 90.6	34 35.2 +17.0 90.2	33 38.8 +17.0 89.9	32 42.4 +17.1 89.6
12°	36 45.0 +16.3 89.8	35 48.6 +16.3 89.4	34 52.2 +16.4 89.1	33 55.8 +16.4 88.8	32 59.5 +16.4 88.4
13°	37 01.3 +15.5 88.5	36 04.9 +15.6 88.2	35 08.6 +15.6 87.9	34 12.2 +15.7 87.6	33 15.9 +15.8 87.3
14°	37 16.8 +14.8 87.3	36 20.5 +14.9 87.0	35 24.2 +15.0 86.7	34 27.9 +15.1 86.4	33 31.7 +15.1 86.1
15°	37 31.6 +14.1 86.1	36 35.4 +14.2 85.8	35 39.2 +14.2 85.5	34 43.0 +14.3 85.2	33 46.8 +14.5 85.0
16°	37 45.7 +13.3 84.9	36 49.6 +13.4 84.6	35 53.4 +13.6 84.3	34 57.3 +13.7 84.1	34 01.3 +13.8 83.8
17°	37 59.0 +12.5 83.7	37 03.0 +12.6 83.4	36 07.0 +12.8 83.1	35 11.0 +13.0 82.9	34 15.1 +13.1 82.6
18°	38 11.5 +11.7 82.4	37 15.6 +11.9 82.2	36 19.8 +12.1 81.9	35 24.0 +12.3 81.7	34 28.2 +12.5 81.4
19°	38 23.2 +10.9 81.2	37 27.5 +11.2 80.9	36 31.9 +11.3 80.7	35 36.3 +11.5 80.5	34 40.7 +11.7 80.2
20°	38 34.1 +10.2 79.9	37 38.7 +10.3 79.7	36 43.2 +10.6 79.5	35 47.8 +10.8 79.3	34 52.4 +11.1 79.0
21°	38 44.3 +09.3 78.6	37 49.0 +09.6 78.4	36 53.8 +09.8 78.3	35 58.6 +10.1 78.1	35 03.5 +10.3 77.8
22°	38 53.6 +08.4 77.4	37 58.6 +08.7 77.2	37 03.6 +09.0 77.0	36 08.7 +09.3 76.8	35 13.8 +09.6 76.6
23°	39 02.0 +07.7 76.1	38 07.3 +08.0 75.9	37 12.6 +08.3 75.8	36 18.0 +08.6 75.6	35 23.4 +08.9 75.4
24°	39 09.7 +06.7 74.8	38 15.3 +07.1 74.7	37 20.9 +07.5 74.5	36 26.6 +07.8 74.4	35 32.3 +08.2 74.2
25°	39 16.4 +06.0 73.5	38 22.4 +06.3 73.4	37 28.4 +06.7 73.3	36 34.4 +07.0 73.1	35 40.5 +07.4 73.0
26°	39 22.4 +05.1 72.3	38 28.7 +05.5 72.1	37 35.1 +05.8 72.0	36 41.4 +06.3 71.9	35 47.9 +06.6 71.8
27°	39 27.5 +04.2 71.0	38 34.2 +04.7 70.9	37 40.9 +05.1 70.8	36 47.7 +05.5 70.7	35 54.5 +06.0 70.6
28°	39 31.7 +03.4 69.7	38 38.9 +03.8 69.6	37 46.0 +04.3 69.5	36 53.2 +04.8 69.4	36 00.5 +05.1 69.3
29°	39 35.1 +02.5 68.4	38 42.7 +03.0 68.3	37 50.3 +03.5 68.2	36 58.0 +03.9 68.2	36 05.6 +04.4 68.1

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Declination SAME name as Latitude

Latitude 20°

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°	28 01.5 +23.0 101.2	27 06.1 +22.8 100.7	26 10.7 +22.6 100.3	25 15.2 +22.4 99.9	24 19.6 +22.3 99.5
1°	28 24.5 +22.5 100.1	27 28.9 +22.4 99.7	26 33.3 +22.2 99.3	25 37.6 +22.1 98.9	24 41.9 +21.9 98.5
2°	28 47.0 +22.0 99.1	27 51.3 +21.9 98.6	26 55.5 +21.7 98.2	25 59.7 +21.6 97.8	25 03.8 +21.5 97.4
3°	29 09.0 +21.5 98.0	28 13.2 +21.3 97.6	27 17.2 +21.3 97.2	26 21.3 +21.1 96.8	25 25.3 +21.0 96.4
4°	29 30.5 +21.0 96.9	28 34.5 +20.9 96.5	27 38.5 +20.8 96.1	26 42.4 +20.7 95.7	25 46.3 +20.6 95.4
5°	29 51.5 +20.5 95.9	28 55.4 +20.4 95.5	27 59.3 +20.3 95.1	27 03.1 +20.2 94.7	26 06.9 +20.1 94.3
6°	30 12.0 +19.9 94.8	29 15.8 +19.9 94.4	28 19.6 +19.8 94.0	27 23.3 +19.8 93.6	26 27.0 +19.7 93.3
7°	30 31.9 +19.4 93.7	29 35.7 +19.3 93.3	28 39.4 +19.2 92.9	27 43.1 +19.2 92.6	26 46.7 +19.2 92.2
8°	30 51.3 +18.8 92.6	29 55.0 +18.8 92.2	28 58.6 +18.8 91.8	28 02.3 +18.7 91.5	27 05.9 +18.7 91.1
9°	31 10.1 +18.3 91.5	30 13.8 +18.2 91.1	29 17.4 +18.2 90.8	28 21.0 +18.2 90.4	27 24.6 +18.3 90.1
10°	31 28.4 +17.7 90.4	30 32.0 +17.7 90.0	29 35.6 +17.7 89.7	28 39.2 +17.8 89.3	27 42.9 +17.7 89.0
11°	31 46.1 +17.0 89.2	30 49.7 +17.1 88.9	29 53.3 +17.1 88.6	28 57.0 +17.1 88.2	28 00.6 +17.2 87.9
12°	32 03.1 +16.5 88.1	31 06.8 +16.5 87.8	30 10.4 +16.6 87.5	29 14.1 +16.7 87.1	28 17.8 +16.7 86.8
13°	32 19.6 +15.8 87.0	31 23.3 +15.9 86.7	30 27.0 +16.0 86.3	29 30.8 +16.0 86.0	28 34.5 +16.2 85.7
14°	32 35.4 +15.3 85.8	31 39.2 +15.3 85.5	30 43.0 +15.4 85.2	29 46.8 +15.6 84.9	28 50.7 +15.6 84.6
15°	32 50.7 +14.5 84.7	31 54.5 +14.7 84.4	30 58.4 +14.9 84.1	30 02.4 +14.9 83.8	29 06.3 +15.1 83.5
16°	33 05.2 +14.0 83.5	32 09.2 +14.1 83.2	31 13.3 +14.2 83.0	30 17.3 +14.4 82.7	29 21.4 +14.6 82.4
17°	33 19.2 +13.3 82.4	32 23.3 +13.5 82.1	31 27.5 +13.6 81.8	30 31.7 +13.8 81.6	29 36.0 +13.9 81.3
18°	33 32.5 +12.6 81.2	32 36.8 +12.8 80.9	31 41.1 +13.0 80.7	30 45.5 +13.2 80.4	29 49.9 +13.4 80.2
19°	33 45.1 +12.0 80.0	32 49.6 +12.2 79.8	31 54.1 +12.4 79.5	30 58.7 +12.6 79.3	30 03.3 +12.9 79.1
20°	33 57.1 +11.3 78.8	33 01.8 +11.5 78.6	32 06.5 +11.8 78.4	31 11.3 +12.0 78.2	30 16.2 +12.2 77.9
21°	34 08.4 +10.6 77.6	33 13.3 +10.9 77.4	32 18.3 +11.1 77.2	31 23.3 +11.4 77.0	30 28.4 +11.7 76.8
22°	34 19.0 +09.9 76.5	33 24.2 +10.2 76.3	32 29.4 +10.5 76.1	31 34.7 +10.8 75.9	30 40.1 +11.0 75.7
23°	34 28.9 +09.2 75.3	33 34.4 +09.5 75.1	32 39.9 +09.8 74.9	31 45.5 +10.1 74.7	30 51.1 +10.5 74.5
24°	34 38.1 +08.5 74.1	33 43.9 +08.8 73.9	32 49.7 +09.2 73.7	31 55.6 +09.5 73.5	31 01.6 +09.8 73.4
25°	34 46.6 +07.7 72.9	33 52.7 +08.1 72.7	32 58.9 +08.5 72.5	32 05.1 +08.9 72.4	31 11.4 +09.2 72.2
26°	34 54.3 +07.1 71.6	34 00.8 +07.5 71.5	33 07.4 +07.8 71.4	32 14.0 +08.2 71.2	31 20.6 +08.6 71.1
27°	35 01.4 +06.3 70.4	34 08.3 +06.7 70.3	33 15.2 +07.2 70.2	32 22.2 +07.6 70.0	31 29.2 +08.0 69.9
28°	35 07.7 +05.6 69.2	34 15.0 +06.1 69.1	33 22.4 +06.5 69.0	32 29.8 +06.9 68.9	31 37.2 +07.3 68.7
29°	35 13.3 +04.9 68.0	34 21.1 +05.3 67.9	33 28.9 +05.8 67.8	32 36.7 +06.2 67.7	31 44.5 +06.7 67.6

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°	23 23.9 +22.2 99.1	22 28.2 +22.0 98.7	21 32.5 +21.8 98.3	20 36.6 +21.8 97.9	19 40.8 +21.6 97.5
1°	23 46.1 +21.8 98.0	22 50.2 +21.7 97.7	21 54.3 +21.6 97.3	20 58.4 +21.4 96.9	20 02.4 +21.3 96.5
2°	24 07.9 +21.3 97.0	23 11.9 +21.2 96.6	22 15.9 +21.1 96.3	21 19.8 +21.0 95.9	20 23.7 +20.9 95.5
3°	24 29.2 +21.0 96.0	23 33.1 +20.9 95.6	22 37.0 +20.8 95.2	21 40.8 +20.7 94.9	20 44.6 +20.7 94.5
4°	24 50.2 +20.5 95.0	23 54.0 +20.4 94.6	22 57.8 +20.3 94.2	22 01.5 +20.3 93.9	21 05.3 +20.2 93.5
5°	25 10.7 +20.0 93.9	24 14.4 +20.0 93.6	23 18.1 +20.0 93.2	22 21.8 +19.9 92.8	21 25.5 +19.9 92.5
6°	25 30.7 +19.7 92.9	24 34.4 +19.6 92.5	23 38.1 +19.6 92.2	22 41.7 +19.6 91.8	21 45.4 +19.5 91.5
7°	25 50.4 +19.2 91.8	24 54.0 +19.2 91.5	23 57.7 +19.1 91.1	23 01.3 +19.1 90.8	22 04.9 +19.1 90.4
8°	26 09.6 +18.7 90.8	25 13.2 +18.7 90.4	24 16.8 +18.7 90.1	23 20.4 +18.7 89.8	22 24.0 +18.8 89.4
9°	26 28.3 +18.2 89.7	25 31.9 +18.2 89.4	24 35.5 +18.3 89.1	23 39.1 +18.3 88.7	22 42.8 +18.3 88.4
10°	26 46.5 +17.8 88.7	25 50.1 +17.8 88.3	24 53.8 +17.8 88.0	23 57.4 +17.9 87.7	23 01.1 +18.0 87.4
11°	27 04.3 +17.2 87.6	26 07.9 +17.4 87.3	25 11.6 +17.4 87.0	24 15.3 +17.5 86.6	23 19.1 +17.5 86.3
12°	27 21.5 +16.8 86.5	26 25.3 +16.8 86.2	25 29.0 +17.0 85.9	24 32.8 +17.0 85.6	23 36.6 +17.1 85.3
13°	27 38.3 +16.3 85.4	26 42.1 +16.4 85.1	25 46.0 +16.4 84.8	24 49.8 +16.6 84.5	23 53.7 +16.7 84.2
14°	27 54.6 +15.7 84.3	26 58.5 +15.8 84.1	26 02.4 +16.0 83.8	25 06.4 +16.1 83.5	24 10.4 +16.2 83.2
15°	28 10.3 +15.2 83.3	27 14.3 +15.4 83.0	26 18.4 +15.5 82.7	25 22.5 +15.7 82.4	24 26.6 +15.8 82.1
16°	28 25.5 +14.7 82.2	27 29.7 +14.9 81.9	26 33.9 +15.0 81.6	25 38.2 +15.1 81.3	24 42.4 +15.4 81.1
17°	28 40.2 +14.2 81.0	27 44.6 +14.3 80.8	26 48.9 +14.6 80.5	25 53.3 +14.8 80.3	24 57.8 +14.9 80.0
18°	28 54.4 +13.6 79.9	27 58.9 +13.8 79.7	27 03.5 +14.0 79.4	26 08.1 +14.2 79.2	25 12.7 +14.4 78.9
19°	29 08.0 +13.1 78.8	28 12.7 +13.3 78.6	27 17.5 +13.5 78.3	26 22.3 +13.7 78.1	25 27.1 +14.0 77.9
20°	29 21.1 +12.5 77.7	28 26.0 +12.7 77.5	27 31.0 +13.0 77.2	26 36.0 +13.3 77.0	25 41.1 +13.5 76.8
21°	29 33.6 +11.9 76.6	28 38.7 +12.2 76.4	27 44.0 +12.4 76.1	26 49.3 +12.7 75.9	25 54.6 +13.0 75.7
22°	29 45.5 +11.3 75.5	28 50.9 +11.7 75.2	27 56.4 +12.0 75.0	27 02.0 +12.2 74.8	26 07.6 +12.5 74.6
23°	29 56.8 +10.8 74.3	29 02.6 +11.0 74.1	28 08.4 +11.3 73.9	27 14.2 +11.7 73.7	26 20.1 +12.0 73.5
24°	30 07.6 +10.2 73.2	29 13.6 +10.5 73.0	28 19.7 +10.9 72.8	27 25.9 +11.2 72.6	26 32.1 +11.6 72.4
25°	30 17.8 +09.5 72.0	29 24.1 +10.0 71.9	28 30.6 +10.3 71.7	27 37.1 +10.6 71.5	26 43.7 +11.0 71.3
26°	30 27.3 +09.0 70.9	29 34.1 +09.3 70.7	28 40.9 +09.7 70.6	27 47.7 +10.2 70.4	26 54.7 +10.5 70.2
27°	30 36.3 +08.4 69.8	29 43.4 +08.8 69.6	28 50.6 +09.2 69.4	27 57.9 +09.5 69.3	27 05.2 +09.9 69.1
28°	30 44.7 +07.7 68.6	29 52.2 +08.2 68.5	28 59.8 +08.6 68.3	28 07.4 +09.1 68.2	27 15.1 +09.5 68.0
29°	30 52.4 +07.2 67.4	30 00.4 +07.6 67.3	29 08.4 +08.0 67.2	28 16.5 +08.4 67.0	27 24.6 +08.9 66.9

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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°	18 44.8 +21.5 97.1	17 48.9 +21.4 96.7	16 52.8 +21.4 96.3	15 56.8 +21.2 96.0	15 00.7 +21.1 95.6
1°	19 06.3 +21.2 96.1	18 10.3 +21.1 95.7	17 14.2 +21.0 95.4	16 18.0 +20.9 95.0	15 21.8 +20.9 94.6
2°	19 27.5 +20.9 95.1	18 31.4 +20.8 94.7	17 35.2 +20.7 94.4	16 38.9 +20.7 94.0	15 42.7 +20.6 93.7
3°	19 48.4 +20.6 94.1	18 52.2 +20.5 93.8	17 55.9 +20.4 93.4	16 59.6 +20.4 93.0	16 03.3 +20.3 92.7
4°	20 09.0 +20.2 93.1	19 12.7 +20.1 92.8	18 16.3 +20.2 92.4	17 20.0 +20.1 92.1	16 23.6 +20.1 91.7
5°	20 29.2 +19.8 92.1	19 32.8 +19.8 91.8	18 36.5 +19.8 91.4	17 40.1 +19.8 91.1	16 43.7 +19.8 90.7
6°	20 49.0 +19.5 91.1	19 52.6 +19.5 90.8	18 56.3 +19.5 90.4	17 59.9 +19.5 90.1	17 03.5 +19.5 89.7
7°	21 08.5 +19.2 90.1	20 12.1 +19.2 89.8	19 15.8 +19.1 89.4	18 19.4 +19.2 89.1	17 23.0 +19.2 88.7
8°	21 27.7 +18.7 89.1	20 31.3 +18.8 88.7	19 34.9 +18.8 88.4	18 38.6 +18.8 88.1	17 42.2 +18.9 87.7
9°	21 46.4 +18.4 88.1	20 50.1 +18.4 87.7	19 53.7 +18.5 87.4	18 57.4 +18.6 87.1	18 01.1 +18.6 86.8
10°	22 04.8 +18.0 87.0	21 08.5 +18.1 86.7	20 12.2 +18.2 86.4	19 16.0 +18.2 86.1	18 19.7 +18.3 85.8
11°	22 22.8 +17.6 86.0	21 26.6 +17.7 85.7	20 30.4 +17.7 85.4	19 34.2 +17.8 85.1	18 38.0 +18.0 84.7
12°	22 40.4 +17.2 85.0	21 44.3 +17.3 84.7	20 48.1 +17.5 84.4	19 52.0 +17.6 84.0	18 56.0 +17.6 83.7
13°	22 57.6 +16.8 83.9	22 01.6 +16.9 83.6	21 05.6 +17.0 83.3	20 09.6 +17.1 83.0	19 13.6 +17.3 82.7
14°	23 14.4 +16.4 82.9	22 18.5 +16.5 82.6	21 22.6 +16.7 82.3	20 26.7 +16.9 82.0	19 30.9 +17.0 81.7
15°	23 30.8 +16.0 81.8	22 35.0 +16.1 81.6	21 39.3 +16.2 81.3	20 43.6 +16.4 81.0	19 47.9 +16.6 80.7
16°	23 46.8 +15.5 80.8	22 51.1 +15.7 80.5	21 55.5 +15.9 80.2	21 00.0 +16.1 80.0	20 04.5 +16.3 79.7
17°	24 02.3 +15.1 79.7	23 06.8 +15.3 79.5	22 11.4 +15.5 79.2	21 16.1 +15.7 78.9	20 20.8 +15.9 78.6
18°	24 17.4 +14.6 78.7	23 22.1 +14.9 78.4	22 26.9 +15.1 78.1	21 31.8 +15.3 77.9	20 36.7 +15.5 77.6
19°	24 32.0 +14.2 77.6	23 37.0 +14.4 77.4	22 42.0 +14.7 77.1	21 47.1 +14.9 76.8	20 52.2 +15.2 76.6
20°	24 46.2 +13.8 76.5	23 51.4 +14.0 76.3	22 56.7 +14.3 76.0	22 02.0 +14.5 75.8	21 07.4 +14.8 75.5
21°	25 00.0 +13.3 75.5	24 05.4 +13.6 75.2	23 11.0 +13.8 75.0	22 16.5 +14.1 74.8	21 22.2 +14.4 74.5
22°	25 13.3 +12.8 74.4	24 19.0 +13.1 74.2	23 24.8 +13.4 73.9	22 30.6 +13.8 73.7	21 36.6 +14.0 73.5
23°	25 26.1 +12.3 73.3	24 32.1 +12.7 73.1	23 38.2 +13.0 72.9	22 44.4 +13.2 72.6	21 50.6 +13.6 72.4
24°	25 38.4 +11.9 72.2	24 44.8 +12.2 72.0	23 51.2 +12.5 71.8	22 57.6 +12.9 71.6	22 04.2 +13.2 71.4
25°	25 50.3 +11.3 71.1	24 57.0 +11.7 70.9	24 03.7 +12.1 70.7	23 10.5 +12.4 70.5	22 17.4 +12.8 70.3
26°	26 01.6 +10.9 70.0	25 08.7 +11.2 69.8	24 15.8 +11.6 69.7	23 22.9 +12.0 69.5	22 30.2 +12.4 69.3
27°	26 12.5 +10.4 68.9	25 19.9 +10.8 68.8	24 27.4 +11.2 68.6	23 34.9 +11.6 68.4	22 42.6 +11.9 68.2
28°	26 22.9 +09.8 67.8	25 30.7 +10.3 67.7	24 38.6 +10.7 67.5	23 46.5 +11.1 67.3	22 54.5 +11.6 67.1
29°	26 32.7 +09.4 66.7	25 41.0 +09.8 66.6	24 49.3 +10.2 66.4	23 57.6 +10.7 66.2	23 06.1 +11.1 66.1

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°	14 04.6 +21.0 95.2	13 08.4 +21.0 94.9	12 12.2 +20.9 94.5	11 16.0 +20.8 94.2	10 19.7 +20.8 93.8
1°	14 25.6 +20.8 94.3	13 29.4 +20.7 93.9	12 33.1 +20.7 93.6	11 36.8 +20.7 93.2	10 40.5 +20.6 92.8
2°	14 46.4 +20.6 93.3	13 50.1 +20.5 92.9	12 53.8 +20.5 92.6	11 57.5 +20.4 92.2	11 01.1 +20.4 91.9
3°	15 07.0 +20.3 92.3	14 10.6 +20.3 92.0	13 14.3 +20.2 91.6	12 17.9 +20.3 91.3	11 21.5 +20.3 90.9
4°	15 27.3 +20.0 91.4	14 30.9 +20.1 91.0	13 34.5 +20.1 90.7	12 38.2 +20.0 90.3	11 41.8 +20.0 90.0
5°	15 47.3 +19.8 90.4	14 51.0 +19.7 90.0	13 54.6 +19.8 89.7	12 58.2 +19.8 89.3	12 01.8 +19.9 89.0
6°	16 07.1 +19.5 89.4	15 10.7 +19.6 89.1	14 14.4 +19.5 88.7	13 18.0 +19.6 88.4	12 21.7 +19.6 88.0
7°	16 26.6 +19.3 88.4	15 30.3 +19.3 88.1	14 33.9 +19.4 87.7	13 37.6 +19.4 87.4	12 41.3 +19.4 87.1
8°	16 45.9 +18.9 87.4	15 49.6 +19.0 87.1	14 53.3 +19.0 86.8	13 57.0 +19.1 86.4	13 00.7 +19.2 86.1
9°	17 04.8 +18.7 86.4	16 08.6 +18.7 86.1	15 12.3 +18.9 85.8	14 16.1 +18.9 85.5	13 19.9 +19.0 85.1
10°	17 23.5 +18.4 85.4	16 27.3 +18.5 85.1	15 31.2 +18.5 84.8	14 35.0 +18.7 84.5	13 38.9 +18.8 84.2
11°	17 41.9 +18.1 84.4	16 45.8 +18.2 84.1	15 49.7 +18.3 83.8	14 53.7 +18.4 83.5	13 57.7 +18.5 83.2
12°	18 00.0 +17.7 83.4	17 04.0 +17.8 83.1	16 08.0 +18.0 82.8	15 12.1 +18.1 82.5	14 16.2 +18.3 82.2
13°	18 17.7 +17.5 82.4	17 21.8 +17.6 82.1	16 26.0 +17.7 81.8	15 30.2 +17.9 81.5	14 34.5 +18.0 81.2
14°	18 35.2 +17.1 81.4	17 39.4 +17.3 81.1	16 43.7 +17.5 80.8	15 48.1 +17.6 80.5	14 52.5 +17.8 80.2
15°	18 52.3 +16.8 80.4	17 56.7 +17.0 80.1	17 01.2 +17.1 79.8	16 05.7 +17.4 79.5	15 10.3 +17.5 79.2
16°	19 09.1 +16.4 79.4	18 13.7 +16.6 79.1	17 18.3 +16.9 78.8	16 23.1 +17.0 78.5	15 27.8 +17.3 78.2
17°	19 25.5 +16.1 78.4	18 30.3 +16.4 78.1	17 35.2 +16.5 77.8	16 40.1 +16.8 77.5	15 45.1 +17.0 77.3
18°	19 41.6 +15.8 77.3	18 46.7 +16.0 77.1	17 51.7 +16.3 76.8	16 56.9 +16.4 76.5	16 02.1 +16.7 76.3
19°	19 57.4 +15.4 76.3	19 02.7 +15.6 76.1	18 08.0 +15.9 75.8	17 13.3 +16.2 75.5	16 18.8 +16.4 75.3
20°	20 12.8 +15.1 75.3	19 18.3 +15.3 75.0	18 23.9 +15.6 74.8	17 29.5 +15.9 74.5	16 35.2 +16.1 74.3
21°	20 27.9 +14.6 74.3	19 33.6 +15.0 74.0	18 39.5 +15.2 73.8	17 45.4 +15.5 73.5	16 51.3 +15.9 73.2
22°	20 42.5 +14.4 73.2	19 48.6 +14.6 73.0	18 54.7 +14.9 72.7	18 00.9 +15.2 72.5	17 07.2 +15.5 72.2
23°	20 56.9 +13.9 72.2	20 03.2 +14.3 72.0	19 09.6 +14.6 71.7	18 16.1 +15.0 71.5	17 22.7 +15.3 71.2
24°	21 10.8 +13.5 71.1	20 17.5 +13.9 70.9	19 24.2 +14.3 70.7	18 31.1 +14.5 70.5	17 38.0 +14.9 70.2
25°	21 24.3 +13.2 70.1	20 31.4 +13.5 69.9	19 38.5 +13.8 69.7	18 45.6 +14.3 69.4	17 52.9 +14.6 69.2
26°	21 37.5 +12.8 69.1	20 44.9 +13.1 68.8	19 52.3 +13.6 68.6	18 59.9 +13.9 68.4	18 07.5 +14.3 68.2
27°	21 50.3 +12.3 68.0	20 58.0 +12.8 67.8	20 05.9 +13.1 67.6	19 13.8 +13.5 67.4	18 21.8 +13.9 67.2
28°	22 02.6 +12.0 66.9	21 10.8 +12.3 66.7	20 19.0 +12.8 66.5	19 27.3 +13.2 66.3	18 35.7 +13.6 66.1
29°	22 14.6 +11.5 65.9	21 23.1 +12.0 65.7	20 31.8 +12.4 65.5	19 40.5 +12.9 65.3	18 49.3 +13.3 65.1

Declination SAME name as Latitude

Latitude 20°

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°	9 23.5 +20.7 93.5	8 27.2 +20.7 93.1	7 30.9 +20.6 92.8	6 34.6 +20.6 92.4	5 38.2 +20.6 92.1
1°	9 44.2 +20.6 92.5	8 47.9 +20.5 92.2	7 51.5 +20.5 91.8	6 55.2 +20.4 91.5	5 58.8 +20.5 91.1
2°	10 04.8 +20.4 91.5	9 08.4 +20.4 91.2	8 12.0 +20.4 90.9	7 15.6 +20.4 90.5	6 19.3 +20.3 90.2
3°	10 25.2 +20.2 90.6	9 28.8 +20.2 90.2	8 32.4 +20.2 89.9	7 36.0 +20.3 89.6	6 39.6 +20.3 89.2
4°	10 45.4 +20.0 89.6	9 49.0 +20.1 89.3	8 52.6 +20.1 89.0	7 56.3 +20.1 88.6	6 59.9 +20.2 88.3
5°	11 05.4 +19.9 88.7	10 09.1 +19.9 88.3	9 12.7 +20.0 88.0	8 16.4 +20.0 87.7	7 20.1 +20.0 87.3
6°	11 25.3 +19.7 87.7	10 29.0 +19.7 87.4	9 32.7 +19.8 87.0	8 36.4 +19.8 86.7	7 40.1 +19.9 86.4
7°	11 45.0 +19.5 86.7	10 48.7 +19.6 86.4	9 52.5 +19.6 86.1	8 56.2 +19.7 85.8	8 00.0 +19.8 85.4
8°	12 04.5 +19.3 85.8	11 08.3 +19.3 85.5	10 12.1 +19.4 85.1	9 15.9 +19.6 84.8	8 19.8 +19.6 84.5
9°	12 23.8 +19.1 84.8	11 27.6 +19.2 84.5	10 31.5 +19.3 84.2	9 35.5 +19.3 83.8	8 39.4 +19.5 83.5
10°	12 42.9 +18.8 83.8	11 46.8 +19.0 83.5	10 50.8 +19.1 83.2	9 54.8 +19.3 82.9	8 58.9 +19.4 82.6
11°	13 01.7 +18.7 82.9	12 05.8 +18.8 82.6	11 09.9 +18.9 82.2	10 14.1 +19.0 81.9	9 18.3 +19.2 81.6
12°	13 20.4 +18.4 81.9	12 24.6 +18.5 81.6	11 28.8 +18.7 81.3	10 33.1 +18.9 81.0	9 37.5 +19.0 80.6
13°	13 38.8 +18.2 80.9	12 43.1 +18.4 80.6	11 47.5 +18.6 80.3	10 52.0 +18.7 80.0	9 56.5 +18.9 79.7
14°	13 57.0 +17.9 79.9	13 01.5 +18.1 79.6	12 06.1 +18.3 79.3	11 10.7 +18.5 79.0	10 15.4 +18.7 78.7
15°	14 14.9 +17.8 78.9	13 19.6 +17.9 78.6	12 24.4 +18.1 78.3	11 29.2 +18.3 78.0	10 34.1 +18.5 77.7
16°	14 32.7 +17.4 78.0	13 37.5 +17.7 77.7	12 42.5 +17.9 77.4	11 47.5 +18.1 77.1	10 52.6 +18.3 76.8
17°	14 50.1 +17.2 77.0	13 55.2 +17.5 76.7	13 00.4 +17.7 76.4	12 05.6 +17.9 76.1	11 10.9 +18.2 75.8
18°	15 07.3 +17.0 76.0	14 12.7 +17.2 75.7	13 18.1 +17.4 75.4	12 23.5 +17.7 75.1	11 29.1 +17.9 74.8
19°	15 24.3 +16.7 75.0	14 29.9 +16.9 74.7	13 35.5 +17.2 74.4	12 41.2 +17.5 74.1	11 47.0 +17.8 73.9
20°	15 41.0 +16.4 74.0	14 46.8 +16.7 73.7	13 52.7 +17.0 73.4	12 58.7 +17.3 73.2	12 04.8 +17.6 72.9
21°	15 57.4 +16.1 73.0	15 03.5 +16.4 72.7	14 09.7 +16.7 72.5	13 16.0 +17.0 72.2	12 22.4 +17.3 71.9
22°	16 13.5 +15.9 72.0	15 19.9 +16.2 71.7	14 26.4 +16.5 71.5	13 33.0 +16.8 71.2	12 39.7 +17.1 70.9
23°	16 29.4 +15.5 71.0	15 36.1 +15.9 70.7	14 42.9 +16.3 70.5	13 49.8 +16.6 70.2	12 56.8 +16.9 69.9
24°	16 44.9 +15.3 70.0	15 52.0 +15.6 69.7	14 59.2 +15.9 69.5	14 06.4 +16.3 69.2	13 13.7 +16.7 69.0
25°	17 00.2 +15.0 69.0	16 07.6 +15.4 68.7	15 15.1 +15.7 68.5	14 22.7 +16.1 68.2	13 30.4 +16.5 68.0
26°	17 15.2 +14.7 67.9	16 23.0 +15.0 67.7	15 30.8 +15.5 67.5	14 38.8 +15.8 67.2	13 46.9 +16.2 67.0
27°	17 29.9 +14.3 66.9	16 38.0 +14.8 66.7	15 46.3 +15.1 66.5	14 54.6 +15.6 66.2	14 03.1 +16.0 66.0
28°	17 44.2 +14.0 65.9	16 52.8 +14.4 65.7	16 01.4 +14.9 65.5	15 10.2 +15.3 65.2	14 19.1 +15.7 65.0
29°	17 58.2 +13.8 64.9	17 07.2 +14.2 64.7	16 16.3 +14.6 64.5	15 25.5 +15.0 64.2	14 34.8 +15.4 64.0

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°	4 41.9 +20.5 91.7	3 45.5 +20.5 91.4	2 49.1 +20.6 91.0	1 52.8 +20.5 90.7	0 56.4 +20.5 90.3
1°	5 02.4 +20.5 90.8	4 06.0 +20.5 90.4	3 09.7 +20.4 90.1	2 13.3 +20.5 89.7	1 16.9 +20.5 89.4
2°	5 22.9 +20.4 89.8	4 26.5 +20.4 89.5	3 30.1 +20.4 89.1	2 33.8 +20.4 88.8	1 37.4 +20.5 88.5
3°	5 43.3 +20.3 88.9	4 46.9 +20.3 88.5	3 50.5 +20.4 88.2	2 54.2 +20.4 87.9	1 57.9 +20.4 87.5
4°	6 03.6 +20.2 87.9	5 07.2 +20.3 87.6	4 10.9 +20.3 87.3	3 14.6 +20.3 86.9	2 18.3 +20.4 86.6
5°	6 23.8 +20.0 87.0	5 27.5 +20.1 86.7	4 31.2 +20.2 86.3	3 34.9 +20.3 86.0	2 38.7 +20.4 85.6
6°	6 43.8 +20.0 86.0	5 47.6 +20.1 85.7	4 51.4 +20.1 85.4	3 55.2 +20.2 85.0	2 59.1 +20.3 84.7
7°	7 03.8 +19.9 85.1	6 07.7 +19.9 84.8	5 11.5 +20.1 84.4	4 15.4 +20.2 84.1	3 19.4 +20.2 83.8
8°	7 23.7 +19.7 84.1	6 27.6 +19.9 83.8	5 31.6 +19.9 83.5	4 35.6 +20.0 83.1	3 39.6 +20.2 82.8
9°	7 43.4 +19.6 83.2	6 47.5 +19.7 82.9	5 51.5 +19.9 82.5	4 55.6 +20.0 82.2	3 59.8 +20.1 81.9
10°	8 03.0 +19.5 82.2	7 07.2 +19.6 81.9	6 11.4 +19.8 81.6	5 15.6 +20.0 81.3	4 19.9 +20.1 80.9
11°	8 22.5 +19.4 81.3	7 26.8 +19.5 81.0	6 31.2 +19.6 80.6	5 35.6 +19.8 80.3	4 40.0 +20.0 80.0
12°	8 41.9 +19.2 80.3	7 46.3 +19.4 80.0	6 50.8 +19.5 79.7	5 55.4 +19.7 79.4	5 00.0 +19.9 79.0
13°	9 01.1 +19.0 79.4	8 05.7 +19.2 79.0	7 10.3 +19.5 78.7	6 15.1 +19.6 78.4	5 19.9 +19.8 78.1
14°	9 20.1 +18.9 78.4	8 24.9 +19.1 78.1	7 29.8 +19.3 77.8	6 34.7 +19.5 77.5	5 39.7 +19.7 77.1
15°	9 39.0 +18.7 77.4	8 44.0 +19.0 77.1	7 49.1 +19.1 76.8	6 54.2 +19.4 76.5	5 59.4 +19.7 76.2
16°	9 57.7 +18.6 76.5	9 03.0 +18.8 76.2	8 08.2 +19.1 75.9	7 13.6 +19.3 75.6	6 19.1 +19.5 75.2
17°	10 16.3 +18.4 75.5	9 21.8 +18.6 75.2	8 27.3 +18.9 74.9	7 32.9 +19.1 74.6	6 38.6 +19.4 74.3
18°	10 34.7 +18.2 74.5	9 40.4 +18.5 74.2	8 46.2 +18.7 73.9	7 52.0 +19.1 73.6	6 58.0 +19.3 73.3
19°	10 52.9 +18.1 73.6	9 58.9 +18.3 73.3	9 04.9 +18.6 73.0	8 11.1 +18.8 72.7	7 17.3 +19.2 72.4
20°	11 11.0 +17.8 72.6	10 17.2 +18.1 72.3	9 23.5 +18.5 72.0	8 29.9 +18.8 71.7	7 36.5 +19.0 71.4
21°	11 28.8 +17.7 71.6	10 35.3 +18.0 71.3	9 42.0 +18.3 71.1	8 48.7 +18.6 70.8	7 55.5 +18.9 70.5
22°	11 46.5 +17.4 70.6	10 53.3 +17.8 70.4	10 00.3 +18.1 70.1	9 07.3 +18.4 69.8	8 14.4 +18.8 69.5
23°	12 03.9 +17.3 69.7	11 11.1 +17.6 69.4	10 18.4 +17.9 69.1	9 25.7 +18.3 68.8	8 33.2 +18.7 68.5
24°	12 21.2 +17.0 68.7	11 28.7 +17.4 68.4	10 36.3 +17.8 68.1	9 44.0 +18.2 67.9	8 51.9 +18.4 67.6
25°	12 38.2 +16.8 67.7	11 46.1 +17.2 67.4	10 54.1 +17.5 67.2	10 02.2 +17.9 66.9	9 10.3 +18.4 66.6
26°	12 55.0 +16.6 66.7	12 03.3 +17.0 66.5	11 11.6 +17.4 66.2	10 20.1 +17.8 65.9	9 28.7 +18.2 65.7
27°	13 11.6 +16.4 65.7	12 20.3 +16.8 65.5	11 29.0 +17.2 65.2	10 37.9 +17.6 65.0	9 46.9 +18.0 64.7
28°	13 28.0 +16.1 64.8	12 37.1 +16.5 64.5	11 46.2 +17.0 64.2	10 55.5 +17.4 64.0	10 04.9 +17.8 63.7
29°	13 44.1 +16.0 63.8	12 53.6 +16.4 63.5	12 03.2 +16.8 63.3	11 12.9 +17.3 63.0	10 22.7 +17.7 62.8

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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 +20.5 90.0	-0 56.4 +20.5	-1 52.8 +20.6	-2 49.1 +20.5	-3 45.5 +20.6
1°	0 20.5 +20.5 89.1	-0 35.9 +20.6	-1 32.2 +20.6	-2 28.6 +20.6	-3 24.9 +20.6
2°	0 41.0 +20.5 88.1	-0 15.3 +20.5	-1 11.6 +20.5	-2 08.0 +20.7	-3 04.3 +20.7
3°	1 01.5 +20.5 87.2	0 05.2 +20.6 86.8	-0 51.1 +20.7	-1 47.3 +20.7	-2 43.6 +20.8
4°	1 22.0 +20.5 86.2	0 25.8 +20.5 85.9	-0 30.4 +20.6	-1 26.6 +20.6	-2 22.8 +20.8
5°	1 42.5 +20.4 85.3	0 46.3 +20.5 85.0	-0 09.8 +20.6	-1 06.0 +20.8	-2 02.0 +20.8
6°	2 02.9 +20.4 84.4	1 06.8 +20.5 84.0	0 10.8 +20.6 83.7	-0 45.2 +20.7	-1 41.2 +20.8
7°	2 23.3 +20.4 83.4	1 27.3 +20.5 83.1	0 31.4 +20.6 82.7	-0 24.5 +20.7	-1 20.4 +20.9
8°	2 43.7 +20.3 82.5	1 47.8 +20.5 82.1	0 52.0 +20.6 81.8	-0 03.8 +20.7	-0 59.5 +20.9
9°	3 04.0 +20.3 81.5	2 08.3 +20.4 81.2	1 12.6 +20.6 80.9	0 16.9 +20.8 80.5	-0 38.6 +20.9
10°	3 24.3 +20.2 80.6	2 28.7 +20.4 80.3	1 33.2 +20.5 79.9	0 37.7 +20.7 79.6	-0 17.7 +20.8
11°	3 44.5 +20.2 79.6	2 49.1 +20.3 79.3	1 53.7 +20.5 79.0	0 58.4 +20.7 78.6	0 03.1 +20.9 78.3
12°	4 04.7 +20.1 78.7	3 09.4 +20.3 78.4	2 14.2 +20.5 78.0	1 19.1 +20.7 77.7	0 24.0 +20.9 77.4
13°	4 24.8 +20.0 77.8	3 29.7 +20.2 77.4	2 34.7 +20.4 77.1	1 39.8 +20.6 76.8	0 44.9 +20.9 76.4
14°	4 44.8 +19.9 76.8	3 49.9 +20.2 76.5	2 55.1 +20.4 76.2	2 00.4 +20.6 75.8	1 05.8 +20.9 75.5
15°	5 04.7 +19.9 75.9	4 10.1 +20.1 75.5	3 15.5 +20.4 75.2	2 21.0 +20.6 74.9	1 26.7 +20.8 74.6
16°	5 24.6 +19.7 74.9	4 30.2 +20.0 74.6	3 35.9 +20.2 74.3	2 41.6 +20.6 73.9	1 47.5 +20.8 73.6
17°	5 44.3 +19.7 74.0	4 50.2 +19.9 73.7	3 56.1 +20.3 73.3	3 02.2 +20.5 73.0	2 08.3 +20.8 72.7
18°	6 04.0 +19.6 73.0	5 10.1 +19.9 72.7	4 16.4 +20.1 72.4	3 22.7 +20.4 72.1	2 29.1 +20.7 71.7
19°	6 23.6 +19.5 72.1	5 30.0 +19.8 71.8	4 36.5 +20.1 71.4	3 43.1 +20.4 71.1	2 49.8 +20.7 70.8
20°	6 43.1 +19.3 71.1	5 49.8 +19.6 70.8	4 56.6 +20.0 70.5	4 03.5 +20.3 70.2	3 10.5 +20.6 69.9
21°	7 02.4 +19.3 70.2	6 09.4 +19.6 69.9	5 16.6 +19.9 69.6	4 23.8 +20.2 69.2	3 31.1 +20.6 68.9
22°	7 21.7 +19.1 69.2	6 29.0 +19.5 68.9	5 36.5 +19.8 68.6	4 44.0 +20.2 68.3	3 51.7 +20.5 68.0
23°	7 40.8 +19.0 68.3	6 48.5 +19.3 68.0	5 56.3 +19.7 67.7	5 04.2 +20.1 67.3	4 12.2 +20.5 67.0
24°	7 59.8 +18.9 67.3	7 07.8 +19.3 67.0	6 16.0 +19.6 66.7	5 24.3 +20.0 66.4	4 32.7 +20.3 66.1
25°	8 18.7 +18.7 66.3	7 27.1 +19.1 66.0	6 35.6 +19.5 65.8	5 44.3 +19.9 65.5	4 53.0 +20.3 65.1
26°	8 37.4 +18.6 65.4	7 46.2 +19.0 65.1	6 55.1 +19.4 64.8	6 04.2 +19.7 64.5	5 13.3 +20.2 64.2
27°	8 56.0 +18.4 64.4	8 05.2 +18.8 64.1	7 14.5 +19.3 63.8	6 23.9 +19.7 63.6	5 33.5 +20.2 63.3
28°	9 14.4 +18.3 63.5	8 24.0 +18.7 63.2	7 33.8 +19.1 62.9	6 43.6 +19.6 62.6	5 53.7 +20.0 62.3
29°	9 32.7 +18.1 62.5	8 42.7 +18.6 62.2	7 52.9 +19.0 61.9	7 03.2 +19.5 61.7	6 13.7 +19.9 61.4

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°	-4 41.9 +20.7	-5 38.2 +20.6	-6 34.6 +20.8	-7 30.9 +20.8	-8 27.2 +20.8
1°	-4 21.2 +20.7	-5 17.6 +20.8	-6 13.8 +20.8	-7 10.1 +20.9	-8 06.4 +21.0
2°	-4 00.5 +20.7	-4 56.8 +20.8	-5 53.0 +20.9	-6 49.2 +20.9	-7 45.4 +21.0
3°	-3 39.8 +20.8	-4 36.0 +20.9	-5 32.1 +21.0	-6 28.3 +21.1	-7 24.4 +21.2
4°	-3 19.0 +20.9	-4 15.1 +21.0	-5 11.1 +21.0	-6 07.2 +21.2	-7 03.2 +21.3
5°	-2 58.1 +20.9	-3 54.1 +21.0	-4 50.1 +21.2	-5 46.0 +21.3	-6 41.9 +21.4
6°	-2 37.2 +21.0	-3 33.1 +21.1	-4 28.9 +21.2	-5 24.7 +21.4	-6 20.5 +21.6
7°	-2 16.2 +21.0	-3 12.0 +21.2	-4 07.7 +21.3	-5 03.3 +21.4	-5 58.9 +21.6
8°	-1 55.2 +21.0	-2 50.8 +21.2	-3 46.4 +21.4	-4 41.9 +21.5	-5 37.3 +21.7
9°	-1 34.2 +21.1	-2 29.6 +21.2	-3 25.0 +21.4	-4 20.4 +21.6	-5 15.6 +21.7
10°	-1 13.1 +21.1	-2 08.4 +21.3	-3 03.6 +21.4	-3 58.8 +21.7	-4 53.9 +21.9
11°	-0 52.0 +21.1	-1 47.1 +21.3	-2 42.2 +21.5	-3 37.1 +21.7	-4 32.0 +21.9
12°	-0 30.9 +21.1	-1 25.8 +21.3	-2 20.7 +21.6	-3 15.4 +21.8	-4 10.1 +22.0
13°	-0 09.8 +21.1	-1 04.5 +21.3	-1 59.1 +21.5	-2 53.6 +21.8	-3 48.1 +22.1
14°	0 11.3 +21.1 75.2	-0 43.2 +21.3	-1 37.6 +21.6	-2 31.8 +21.8	-3 26.0 +22.1
15°	0 32.4 +21.0 74.2	-0 21.9 +21.4	-1 16.0 +21.6	-2 10.0 +21.9	-3 03.9 +22.2
16°	0 53.4 +21.1 73.3	-0 00.5 +21.3	-0 54.4 +21.7	-1 48.1 +21.9	-2 41.7 +22.2
17°	1 14.5 +21.1 72.3	0 20.8 +21.4 72.0	-0 32.7 +21.6	-1 26.2 +21.9	-2 19.5 +22.2
18°	1 35.6 +21.0 71.4	0 42.2 +21.3 71.1	-0 11.1 +21.7	-1 04.3 +22.0	-1 57.3 +22.3
19°	1 56.6 +21.0 70.5	1 03.5 +21.3 70.1	0 10.6 +21.6 69.8	-0 42.3 +22.0	-1 35.0 +22.3
20°	2 17.6 +21.0 69.5	1 24.8 +21.3 69.2	0 32.2 +21.6 68.9	-0 20.3 +21.9	-1 12.7 +22.3
21°	2 38.6 +20.9 68.6	1 46.1 +21.3 68.3	0 53.8 +21.6 67.9	0 01.6 +22.0 67.6	-0 50.4 +22.3
22°	2 59.5 +20.9 67.7	2 07.4 +21.2 67.3	1 15.4 +21.6 67.0	0 23.6 +22.0 66.7	-0 28.1 +22.3
23°	3 20.4 +20.8 66.7	2 28.6 +21.2 66.4	1 37.0 +21.6 66.1	0 45.6 +21.9 65.7	-0 05.8 +22.4
24°	3 41.2 +20.7 65.8	2 49.8 +21.2 65.5	1 58.6 +21.5 65.1	1 07.5 +22.0 64.8	0 16.6 +22.3 64.5
25°	4 01.9 +20.7 64.8	3 11.0 +21.1 64.5	2 20.1 +21.5 64.2	1 29.5 +21.9 63.9	0 38.9 +22.3 63.5
26°	4 22.6 +20.6 63.9	3 32.1 +21.0 63.6	2 41.6 +21.5 63.3	1 51.4 +21.8 62.9	1 01.2 +22.3 62.6
27°	4 43.2 +20.6 63.0	3 53.1 +21.0 62.6	3 03.1 +21.4 62.3	2 13.2 +21.9 62.0	1 23.5 +22.3 61.7
28°	5 03.8 +20.5 62.0	4 14.1 +20.9 61.7	3 24.5 +21.4 61.4	2 35.1 +21.8 61.1	1 45.8 +22.3 60.7
29°	5 24.3 +20.3 61.1	4 35.0 +20.8 60.8	3 45.9 +21.3 60.5	2 56.9 +21.7 60.1	2 08.1 +22.2 59.8

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°	-9 23.5 +20.9				
1°	-9 02.6 +21.0	-9 58.8 +21.1			
2°	-8 41.6 +21.2	-9 37.7 +21.3			
3°	-8 20.4 +21.3	-9 16.4 +21.4			
4°	-7 59.1 +21.4	-8 55.0 +21.5	-9 50.9 +21.7		
5°	-7 37.7 +21.5	-8 33.5 +21.7	-9 29.2 +21.8		
6°	-7 16.2 +21.7	-8 11.8 +21.8	-9 07.4 +22.0		
7°	-6 54.5 +21.8	-7 50.0 +22.0	-8 45.4 +22.1		
8°	-6 32.7 +21.9	-7 28.0 +22.0	-8 23.3 +22.3		
9°	-6 10.8 +21.9	-7 06.0 +22.2	-8 01.0 +22.4		
10°	-5 48.9 +22.1	-6 43.8 +22.3	-7 38.6 +22.5		
11°	-5 26.8 +22.2	-6 21.5 +22.4	-7 16.1 +22.6		
12°	-5 04.6 +22.2	-5 59.1 +22.5	-6 53.5 +22.7		
13°	-4 42.4 +22.3	-5 36.6 +22.5	-6 30.8 +22.9		
14°	-4 20.1 +22.4	-5 14.1 +22.7	-6 07.9 +22.9		
15°	-3 57.7 +22.4	-4 51.4 +22.7	-5 45.0 +23.0		
16°	-3 35.3 +22.5	-4 28.7 +22.8	-5 22.0 +23.1		
17°	-3 12.8 +22.6	-4 05.9 +22.9	-4 58.9 +23.2		
18°	-2 50.2 +22.6	-3 43.0 +22.9	-4 35.7 +23.2		
19°	-2 27.6 +22.6	-3 20.1 +22.9	-4 12.5 +23.3		
20°	-2 05.0 +22.6	-2 57.2 +23.1	-3 49.2 +23.4		
21°	-1 42.4 +22.7	-2 34.1 +23.0	-3 25.8 +23.4		
22°	-1 19.7 +22.7	-2 11.1 +23.1	-3 02.4 +23.5		
23°	-0 57.0 +22.8	-1 48.0 +23.1	-2 38.9 +23.5		
24°	-0 34.2 +22.7	-1 24.9 +23.2	-2 15.4 +23.6		
25°	-0 11.5 +22.7	-1 01.7 +23.1	-1 51.8 +23.5		
26°	0 11.2 +22.8 62.3	-0 38.6 +23.2	-1 28.3 +23.7		
27°	0 34.0 +22.7 61.3	-0 15.4 +23.2	-1 04.6 +23.6		
28°	0 56.7 +22.7 60.4	0 07.8 +23.1 60.1	-0 41.0 +23.6		
29°	1 19.4 +22.7 59.5	0 30.9 +23.2 59.2	-0 17.4 +23.6		

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°					
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°					

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°	69 00.0 +60.0 180.0	68 58.6 +60.0 177.2	68 54.6 +59.7 174.4	68 47.8 +59.4 171.7	68 38.4 +59.0 169.0
1°	70 00.0 +60.0 180.0	69 58.6 +59.9 177.1	69 54.3 +59.7 174.2	69 47.2 +59.4 171.3	69 37.4 +58.8 168.4
2°	71 00.0 +60.0 180.0	70 58.5 +59.9 176.9	70 54.0 +59.7 173.9	70 46.6 +59.3 170.9	70 36.2 +58.8 167.9
3°	72 00.0 +60.0 180.0	71 58.4 +59.9 176.8	71 53.7 +59.7 173.6	71 45.9 +59.2 170.4	71 35.0 +58.7 167.3
4°	73 00.0 +60.0 180.0	72 58.3 +59.9 176.6	72 53.4 +59.6 173.2	72 45.1 +59.1 169.9	72 33.7 +58.4 166.6
5°	74 00.0 +60.0 180.0	73 58.2 +59.9 176.4	73 53.0 +59.5 172.8	73 44.2 +59.1 169.3	73 32.1 +58.3 165.8
6°	75 00.0 +60.0 180.0	74 58.1 +59.9 176.2	74 52.5 +59.5 172.4	74 43.3 +58.8 168.6	74 30.4 +58.1 164.9
7°	76 00.0 +60.0 180.0	75 58.0 +59.9 175.9	75 52.0 +59.4 171.8	75 42.1 +58.8 167.9	75 28.5 +57.8 164.0
8°	77 00.0 +60.0 180.0	76 57.9 +59.8 175.6	76 51.4 +59.4 171.3	76 40.9 +58.5 167.0	76 26.3 +57.5 162.9
9°	78 00.0 +60.0 180.0	77 57.7 +59.8 175.3	77 50.8 +59.2 170.6	77 39.4 +58.3 166.0	77 23.8 +57.0 161.6
10°	79 00.0 +60.0 180.0	78 57.5 +59.7 174.9	78 50.0 +59.0 169.8	78 37.7 +57.9 164.8	78 20.8 +56.5 160.1
11°	80 00.0 +60.0 180.0	79 57.2 +59.8 174.4	79 49.0 +58.9 168.8	79 35.6 +57.6 163.5	79 17.3 +55.8 158.4
12°	81 00.0 +60.0 180.0	80 57.0 +59.6 173.8	80 47.9 +58.6 167.7	80 33.2 +56.9 161.8	80 13.1 +55.0 156.3
13°	82 00.0 +60.0 180.0	81 56.6 +59.5 173.0	81 46.5 +58.2 166.2	81 30.1 +56.2 159.8	81 08.1 +53.7 153.8
14°	83 00.0 +60.0 180.0	82 56.1 +59.4 172.1	82 44.7 +57.7 164.4	82 26.3 +55.1 157.3	82 01.8 +52.0 150.8
15°	84 00.0 +60.0 180.0	83 55.5 +59.2 170.8	83 42.4 +56.8 162.1	83 21.4 +53.5 154.1	82 53.8 +49.7 147.0
16°	85 00.0 +60.0 180.0	84 54.7 +58.7 169.1	84 39.2 +55.3 158.9	84 14.9 +50.9 149.9	83 43.5 +46.3 142.2
17°	86 00.0 +60.0 180.0	85 53.4 +57.9 166.5	85 34.5 +52.9 154.4	85 05.8 +46.9 144.2	84 29.8 +41.1 135.9
18°	87 00.0 +60.0 180.0	86 51.3 +56.1 162.4	86 27.4 +47.9 147.5	85 52.7 +39.9 136.2	85 10.9 +33.7 127.8
19°	88 00.0 +60.0 180.0	87 47.4 +50.4 154.7	87 15.3 +37.3 136.4	86 32.6 +28.4 124.8	85 44.6 +22.7 117.3
20°	89 00.0 +60.0 180.0	88 37.8 +26.2 136.7	87 52.6 +15.4 117.7	87 01.0 +11.0 109.1	86 07.3 +08.6 104.2
21°	90 00.0 -60.0 0.0	89 04.0 -26.0 89.8	88 08.0 -14.7 89.6	87 12.0 -09.9 89.5	86 15.9 -07.1 89.3
22°	89 00.0 -60.0 0.0	88 38.0 -50.3 42.8	87 53.3 -36.9 61.4	87 02.1 -27.6 69.7	86 08.8 -21.6 74.2
23°	88 00.0 -60.0 0.0	87 47.7 -56.0 24.7	87 16.4 -47.8 42.5	86 34.5 -39.5 53.7	85 47.2 -32.8 60.9
24°	87 00.0 -60.0 0.0	86 51.7 -58.0 16.9	86 28.6 -52.8 31.3	85 55.0 -46.6 42.2	85 14.4 -40.5 50.2
25°	86 00.0 -60.0 0.0	85 53.7 -58.7 12.8	85 35.8 -55.3 24.3	85 08.4 -50.8 34.0	84 33.9 -45.9 41.9
26°	85 00.0 -60.0 0.0	84 55.0 -59.1 10.2	84 40.5 -56.8 19.8	84 17.6 -53.3 28.2	83 48.0 -49.4 35.5
27°	84 00.0 -60.0 0.0	83 55.9 -59.4 8.5	83 43.7 -57.6 16.5	83 24.3 -55.0 24.0	82 58.6 -51.9 30.5
28°	83 00.0 -60.0 0.0	82 56.5 -59.6 7.2	82 46.1 -58.2 14.2	82 29.3 -56.2 20.7	82 06.7 -53.6 26.7
29°	82 00.0 -60.0 0.0	81 56.9 -59.6 6.3	81 47.9 -58.6 12.4	81 33.1 -56.9 18.2	81 13.1 -54.8 23.6

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°	68 26.3 +58.5 166.3	68 11.8 +57.8 163.7	67 54.9 +57.0 161.1	67 35.5 +56.3 158.6	67 14.0 +55.4 156.2
1°	69 24.8 +58.3 165.7	69 09.6 +57.6 162.9	68 51.9 +56.8 160.2	68 31.8 +55.9 157.7	68 09.4 +54.9 155.1
2°	70 23.1 +58.1 165.0	70 07.2 +57.4 162.1	69 48.7 +56.5 159.3	69 27.7 +55.5 156.6	69 04.3 +54.6 154.0
3°	71 21.2 +57.9 164.2	71 04.6 +57.0 161.2	70 45.2 +56.1 158.3	70 23.2 +55.1 155.5	69 58.9 +53.9 152.8
4°	72 19.1 +57.7 163.4	72 01.6 +56.8 160.2	71 41.3 +55.7 157.2	71 18.3 +54.6 154.3	70 52.8 +53.4 151.5
5°	73 16.8 +57.4 162.4	72 58.4 +56.3 159.2	72 37.0 +55.2 156.0	72 12.9 +54.0 153.0	71 46.2 +52.7 150.1
6°	74 14.2 +57.1 161.4	73 54.7 +56.0 158.0	73 32.2 +54.7 154.7	73 06.9 +53.3 151.5	72 38.9 +51.9 148.6
7°	75 11.3 +56.6 160.2	74 50.7 +55.3 156.6	74 26.9 +54.0 153.2	74 00.2 +52.5 149.9	73 30.8 +51.0 146.8
8°	76 07.9 +56.2 158.9	75 46.0 +54.8 155.1	75 20.9 +53.1 151.5	74 52.7 +51.5 148.1	74 21.8 +49.8 144.9
9°	77 04.1 +55.6 157.4	76 40.8 +53.9 153.4	76 14.0 +52.2 149.6	75 44.2 +50.4 146.1	75 11.6 +48.6 142.8
10°	77 59.7 +54.8 155.6	77 34.7 +52.9 151.4	77 06.2 +51.0 147.5	76 34.6 +49.0 143.8	76 00.2 +47.0 140.4
11°	78 54.5 +53.8 153.6	78 27.6 +51.8 149.1	77 57.2 +49.5 145.0	77 23.6 +47.3 141.3	76 47.2 +45.2 137.8
12°	79 48.3 +52.7 151.2	79 19.4 +50.1 146.5	78 46.7 +47.7 142.2	78 10.9 +45.3 138.3	77 32.4 +43.0 134.8
13°	80 41.0 +50.9 148.4	80 09.5 +48.2 143.4	79 34.4 +45.5 139.0	78 56.2 +42.8 135.0	78 15.4 +40.4 131.5
14°	81 31.9 +48.9 144.9	80 57.7 +45.6 139.8	80 19.9 +42.6 135.2	79 39.0 +39.9 131.3	78 55.8 +37.3 127.8
15°	82 20.8 +45.8 140.8	81 43.3 +42.3 135.5	81 02.5 +39.0 130.9	80 18.9 +36.1 127.0	79 33.1 +33.6 123.6
16°	83 06.6 +41.9 135.7	82 25.6 +38.0 130.3	81 41.5 +34.6 125.8	80 55.0 +31.7 122.1	80 06.7 +29.3 118.9
17°	83 48.5 +36.3 129.4	83 03.6 +32.3 124.2	82 16.1 +29.1 120.0	81 26.7 +26.4 116.5	80 36.0 +24.2 113.7
18°	84 24.8 +28.8 121.6	83 35.9 +25.2 116.9	82 45.2 +22.3 113.2	81 53.1 +20.2 110.3	81 00.2 +18.5 107.9
19°	84 53.6 +19.1 112.2	84 01.1 +16.4 108.5	83 07.5 +14.6 105.7	82 13.3 +13.2 103.5	81 18.7 +12.0 101.7
20°	85 12.7 +07.2 101.2	84 17.5 +06.4 99.0	83 22.1 +05.8 97.4	82 26.5 +05.4 96.2	81 30.7 +05.2 95.2
21°	85 19.9 -05.4 89.1	84 23.9 -04.2 88.9	83 27.9 -03.2 88.7	82 31.9 -02.5 88.6	81 35.9 -01.8 88.4
22°	85 14.5 -17.4 77.0	84 19.7 -14.4 78.8	83 24.7 -12.1 80.0	82 29.4 -10.3 80.9	81 34.1 -08.9 81.6
23°	84 57.1 -27.5 65.7	84 05.3 -23.4 69.1	83 12.6 -20.3 71.6	82 19.1 -17.6 73.4	81 25.2 -15.4 74.9
24°	84 29.6 -35.4 56.1	83 41.9 -31.0 60.5	82 52.3 -27.2 63.8	82 01.5 -24.1 66.4	81 09.8 -21.6 68.5
25°	83 54.2 -41.1 48.1	83 10.9 -36.8 52.9	82 25.1 -33.1 56.8	81 37.4 -29.9 60.0	80 48.2 -26.9 62.5
26°	83 13.1 -45.4 41.6	82 34.1 -41.5 46.6	81 52.0 -37.9 50.7	81 07.5 -34.6 54.2	80 21.3 -31.6 57.1
27°	82 27.7 -48.5 36.3	81 52.6 -45.0 41.2	81 14.1 -41.7 45.4	80 32.9 -38.5 49.0	79 49.7 -35.7 52.1
28°	81 39.2 -50.7 32.0	81 07.6 -47.7 36.7	80 32.4 -44.7 40.9	79 54.4 -41.8 44.5	79 14.0 -39.0 47.7
29°	80 48.5 -52.4 28.5	80 19.9 -49.8 33.0	79 47.7 -47.1 37.0	79 12.6 -44.4 40.6	78 35.0 -41.8 43.7

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°	66 50.3 +54.4 153.8	66 24.6 +53.4 151.5	65 56.9 +52.5 149.3	65 27.4 +51.5 147.2	64 56.3 +50.4 145.2
1°	67 44.7 +54.0 152.7	67 18.0 +53.0 150.4	66 49.4 +51.9 148.1	66 18.9 +50.8 146.0	65 46.7 +49.7 143.9
2°	68 38.7 +53.5 151.5	68 11.0 +52.3 149.1	67 41.3 +51.2 146.8	67 09.7 +50.1 144.6	66 36.4 +49.0 142.5
3°	69 32.2 +52.8 150.3	69 03.3 +51.7 147.8	68 32.5 +50.5 145.4	67 59.8 +49.3 143.2	67 25.4 +48.0 141.0
4°	70 25.0 +52.2 148.9	69 55.0 +50.9 146.3	69 23.0 +49.6 143.9	68 49.1 +48.3 141.6	68 13.4 +47.1 139.4
5°	71 17.2 +51.3 147.4	70 45.9 +50.0 144.8	70 12.6 +48.6 142.3	69 37.4 +47.3 139.9	69 00.5 +46.0 137.7
6°	72 08.5 +50.5 145.7	71 35.9 +49.0 143.0	71 01.2 +47.6 140.5	70 24.7 +46.2 138.1	69 46.5 +44.8 135.9
7°	72 59.0 +49.4 143.9	72 24.9 +47.9 141.2	71 48.8 +46.4 138.6	71 10.9 +44.9 136.2	70 31.3 +43.5 133.9
8°	73 48.4 +48.2 141.9	73 12.8 +46.5 139.1	72 35.2 +44.9 136.5	71 55.8 +43.4 134.1	71 14.8 +41.9 131.8
9°	74 36.6 +46.7 139.7	73 59.3 +45.0 136.9	73 20.1 +43.3 134.3	72 39.2 +41.7 131.8	71 56.7 +40.2 129.6
10°	75 23.3 +45.1 137.3	74 44.3 +43.3 134.4	74 03.4 +41.5 131.8	73 20.9 +39.8 129.4	72 36.9 +38.3 127.1
11°	76 08.4 +43.2 134.6	75 27.6 +41.2 131.8	74 44.9 +39.4 129.1	74 00.7 +37.7 126.7	73 15.2 +36.1 124.5
12°	76 51.6 +40.8 131.7	76 08.8 +38.8 128.8	75 24.3 +37.0 126.2	74 38.4 +35.4 123.8	73 51.3 +33.8 121.7
13°	77 32.4 +38.2 128.4	76 47.6 +36.2 125.5	76 01.3 +34.3 123.0	75 13.8 +32.6 120.7	74 25.1 +31.1 118.7
14°	78 10.6 +35.0 124.7	77 23.8 +33.0 122.0	76 35.6 +31.2 119.5	75 46.4 +29.6 117.4	74 56.2 +28.2 115.4
15°	78 45.6 +31.4 120.6	77 56.8 +29.5 118.0	77 06.8 +27.8 115.8	76 16.0 +26.2 113.8	75 24.4 +24.9 112.0
16°	79 17.0 +27.2 116.1	78 26.3 +25.4 113.8	77 34.6 +23.9 111.7	76 42.2 +22.6 109.9	75 49.3 +21.4 108.3
17°	79 44.2 +22.4 111.2	78 51.7 +20.8 109.2	77 58.5 +19.6 107.4	77 04.8 +18.5 105.8	76 10.7 +17.6 104.4
18°	80 06.6 +17.1 105.9	79 12.5 +16.0 104.2	78 18.1 +15.0 102.8	77 23.3 +14.2 101.5	76 28.3 +13.6 100.4
19°	80 23.7 +11.2 100.3	79 28.5 +10.5 99.0	78 33.1 +10.0 98.0	77 37.5 +09.6 97.0	76 41.9 +09.3 96.2
20°	80 34.9 +05.0 94.3	79 39.0 +05.0 93.6	78 43.1 +04.9 93.0	77 47.1 +04.9 92.4	76 51.2 +04.8 91.9
21°	80 39.9 -01.3 88.2	79 44.0 -00.9 88.0	78 48.0 -00.4 87.8	77 52.0 +00.0 87.7	76 56.0 +00.4 87.5
22°	80 38.6 -07.6 82.0	79 43.1 -06.5 82.4	78 47.6 -05.7 82.7	77 52.0 -04.8 82.9	76 56.4 -04.1 83.1
23°	80 31.0 -13.6 76.0	79 36.6 -12.1 76.9	78 41.9 -10.7 77.6	77 47.2 -09.6 78.2	76 52.3 -08.6 78.7
24°	80 17.4 -19.3 70.1	79 24.5 -17.4 71.5	78 31.2 -15.7 72.6	77 37.6 -14.2 73.5	76 43.7 -12.8 74.3
25°	79 58.1 -24.5 64.6	79 07.1 -22.2 66.4	78 15.5 -20.3 67.8	77 23.4 -18.5 69.0	76 30.9 -16.9 70.1
26°	79 33.6 -28.9 59.5	78 44.9 -26.6 61.5	77 55.2 -24.4 63.2	77 04.9 -22.6 64.7	76 14.0 -20.8 66.0
27°	79 04.7 -33.0 54.7	78 18.3 -30.5 57.0	77 30.8 -28.3 59.0	76 42.3 -26.2 60.6	75 53.2 -24.4 62.1
28°	78 31.7 -36.4 50.4	77 47.8 -34.0 52.8	77 02.5 -31.7 54.9	76 16.1 -29.6 56.8	75 28.8 -27.6 58.4
29°	77 55.3 -39.3 46.5	77 13.8 -36.9 49.0	76 30.8 -34.7 51.2	75 46.5 -32.6 53.2	75 01.2 -30.7 54.9

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°	64 23.5 +49.4 143.2	63 49.2 +48.4 141.3	63 13.5 +47.4 139.5	62 36.5 +46.4 137.8	61 58.3 +45.4 136.1
1°	65 12.9 +48.6 141.9	64 37.6 +47.5 140.0	64 00.9 +46.5 138.1	63 22.9 +45.4 136.4	62 43.7 +44.4 134.7
2°	66 01.5 +47.8 140.5	65 25.1 +46.7 138.5	64 47.4 +45.6 136.7	64 08.3 +44.5 134.9	63 28.1 +43.5 133.2
3°	66 49.3 +46.9 139.0	66 11.8 +45.8 137.0	65 33.0 +44.6 135.1	64 52.8 +43.5 133.4	64 11.6 +42.4 131.7
4°	67 36.2 +45.9 137.3	66 57.6 +44.6 135.4	66 17.6 +43.4 133.5	65 36.3 +42.4 131.7	64 54.0 +41.2 130.0
5°	68 22.1 +44.7 135.6	67 42.2 +43.5 133.6	67 01.0 +42.3 131.8	66 18.7 +41.1 130.0	65 35.2 +40.1 128.3
6°	69 06.8 +43.5 133.8	68 25.7 +42.2 131.8	67 43.3 +41.0 129.9	66 59.8 +39.8 128.1	66 15.3 +38.6 126.5
7°	69 50.3 +42.0 131.8	69 07.9 +40.7 129.8	68 24.3 +39.5 128.0	67 39.6 +38.3 126.2	66 53.9 +37.2 124.6
8°	70 32.3 +40.5 129.7	69 48.6 +39.2 127.7	69 03.8 +37.9 125.9	68 17.9 +36.7 124.2	67 31.1 +35.6 122.5
9°	71 12.8 +38.8 127.5	70 27.8 +37.4 125.5	69 41.7 +36.1 123.7	68 54.6 +35.0 122.0	68 06.7 +33.8 120.4
10°	71 51.6 +36.8 125.0	71 05.2 +35.5 123.1	70 17.8 +34.3 121.3	69 29.6 +33.0 119.7	68 40.5 +32.0 118.2
11°	72 28.4 +34.8 122.5	71 40.7 +33.4 120.6	70 52.1 +32.1 118.9	70 02.6 +31.0 117.3	69 12.5 +30.0 115.8
12°	73 03.2 +32.3 119.7	72 14.1 +31.0 117.9	71 24.2 +29.9 116.3	70 33.6 +28.8 114.7	69 42.5 +27.8 113.3
13°	73 35.5 +29.7 116.8	72 45.1 +28.5 115.1	71 54.1 +27.3 113.5	71 02.4 +26.4 112.1	70 10.3 +25.4 110.7
14°	74 05.2 +26.9 113.7	73 13.6 +25.8 112.1	72 21.4 +24.7 110.6	71 28.8 +23.8 109.3	70 35.7 +23.0 108.0
15°	74 32.1 +23.8 110.4	73 39.4 +22.7 108.9	72 46.1 +21.9 107.6	71 52.6 +21.0 106.4	70 58.7 +20.3 105.2
16°	74 55.9 +20.4 106.9	74 02.1 +19.6 105.6	73 08.0 +18.8 104.4	72 13.6 +18.1 103.3	71 19.0 +17.5 102.3
17°	75 16.3 +16.8 103.2	74 21.7 +16.1 102.1	73 26.8 +15.5 101.1	72 31.7 +15.1 100.2	71 36.5 +14.6 99.3
18°	75 33.1 +13.0 99.4	74 37.8 +12.6 98.5	73 42.3 +12.2 97.7	72 46.8 +11.8 96.9	71 51.1 +11.6 96.2
19°	75 46.1 +09.1 95.5	74 50.4 +08.8 94.8	73 54.5 +08.7 94.2	72 58.6 +08.5 93.6	72 02.7 +08.4 93.1
20°	75 55.2 +04.9 91.4	74 59.2 +04.9 91.0	74 03.2 +05.0 90.6	73 07.1 +05.2 90.2	72 11.1 +05.3 89.8
21°	76 00.1 +00.7 87.3	75 04.1 +01.1 87.1	74 08.2 +01.4 86.9	73 12.3 +01.6 86.8	72 16.4 +01.9 86.6
22°	76 00.8 -03.5 83.2	75 05.2 -02.9 83.2	74 09.6 -02.4 83.3	73 13.9 -01.8 83.3	72 18.3 -01.3 83.3
23°	75 57.3 -07.6 79.0	75 02.3 -06.7 79.4	74 07.2 -05.9 79.6	73 12.1 -05.2 79.8	72 17.0 -04.6 80.0
24°	75 49.7 -11.6 75.0	74 55.6 -10.6 75.5	74 01.3 -09.6 76.0	73 06.9 -08.7 76.4	72 12.4 -07.8 76.7
25°	75 38.1 -15.5 71.0	74 45.0 -14.2 71.8	73 51.7 -13.1 72.4	72 58.2 -12.0 73.0	72 04.6 -11.0 73.5
26°	75 22.6 -19.2 67.1	74 30.8 -17.8 68.1	73 38.6 -16.4 68.9	72 46.2 -15.1 69.7	71 53.6 -14.0 70.3
27°	75 03.4 -22.7 63.4	74 13.0 -21.0 64.5	73 22.2 -19.6 65.5	72 31.1 -18.3 66.4	71 39.6 -17.0 67.2
28°	74 40.7 -25.8 59.9	73 52.0 -24.2 61.1	73 02.6 -22.6 62.3	72 12.8 -21.1 63.3	71 22.6 -19.8 64.2
29°	74 14.9 -28.8 56.5	73 27.8 -27.1 57.9	72 40.0 -25.4 59.1	71 51.7 -23.9 60.2	71 02.8 -22.5 61.2

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°	61 18.9 +44.4 134.6	60 38.5 +43.4 133.0	59 57.1 +42.5 131.6	59 14.7 +41.6 130.2	58 31.5 +40.7 128.8
1°	62 03.3 +43.5 133.1	61 21.9 +42.5 131.6	60 39.6 +41.5 130.1	59 56.3 +40.6 128.7	59 12.2 +39.8 127.4
2°	62 46.8 +42.4 131.6	62 04.4 +41.5 130.1	61 21.1 +40.5 128.7	60 36.9 +39.6 127.3	59 52.0 +38.7 125.9
3°	63 29.2 +41.4 130.1	62 45.9 +40.4 128.6	62 01.6 +39.5 127.1	61 16.5 +38.5 125.7	60 30.7 +37.6 124.4
4°	64 10.6 +40.2 128.4	63 26.3 +39.2 126.9	62 41.1 +38.2 125.5	61 55.0 +37.4 124.1	61 08.3 +36.5 122.8
5°	64 50.8 +39.0 126.7	64 05.5 +37.9 125.2	63 19.3 +37.0 123.8	62 32.4 +36.0 122.4	61 44.8 +35.1 121.1
6°	65 29.8 +37.6 124.9	64 43.4 +36.6 123.4	63 56.3 +35.6 122.0	63 08.4 +34.7 120.7	62 19.9 +33.9 119.4
7°	66 07.4 +36.1 123.0	65 20.0 +35.1 121.5	64 31.9 +34.2 120.2	63 43.1 +33.3 118.8	62 53.8 +32.4 117.6
8°	66 43.5 +34.5 121.0	65 55.1 +33.5 119.6	65 06.1 +32.6 118.2	64 16.4 +31.8 117.0	63 26.2 +30.9 115.7
9°	67 18.0 +32.8 118.9	66 28.6 +31.9 117.5	65 38.7 +30.9 116.2	64 48.2 +30.1 115.0	63 57.1 +29.4 113.8
10°	67 50.8 +31.0 116.7	67 00.5 +30.0 115.4	66 09.6 +29.2 114.1	65 18.3 +28.3 112.9	64 26.5 +27.6 111.8
11°	68 21.8 +29.0 114.4	67 30.5 +28.1 113.1	66 38.8 +27.3 111.9	65 46.6 +26.6 110.8	64 54.1 +25.8 109.7
12°	68 50.8 +26.9 112.0	67 58.6 +26.1 110.8	67 06.1 +25.3 109.7	66 13.2 +24.5 108.6	65 19.9 +23.9 107.6
13°	69 17.7 +24.6 109.5	68 24.7 +23.8 108.4	67 31.4 +23.1 107.3	66 37.7 +22.6 106.3	65 43.8 +22.0 105.4
14°	69 42.3 +22.2 106.9	68 48.5 +21.6 105.9	67 54.5 +21.0 104.9	67 00.3 +20.4 104.0	66 05.8 +19.9 103.1
15°	70 04.5 +19.7 104.2	69 10.1 +19.1 103.3	68 15.5 +18.5 102.4	67 20.7 +18.1 101.5	66 25.7 +17.7 100.8
16°	70 24.2 +17.0 101.4	69 29.2 +16.5 100.6	68 34.0 +16.2 99.8	67 38.8 +15.8 99.0	66 43.4 +15.5 98.3
17°	70 41.2 +14.2 98.5	69 45.7 +13.9 97.8	68 50.2 +13.6 97.1	67 54.6 +13.3 96.5	66 58.9 +13.1 95.9
18°	70 55.4 +11.4 95.6	69 59.6 +11.2 95.0	69 03.8 +11.0 94.4	68 07.9 +10.9 93.9	67 12.0 +10.8 93.4
19°	71 06.8 +08.3 92.6	70 10.8 +08.3 92.1	69 14.8 +08.3 91.7	68 18.8 +08.3 91.2	67 22.8 +08.3 90.8
20°	71 15.1 +05.3 89.5	70 19.1 +05.4 89.2	69 23.1 +05.6 88.8	68 27.1 +05.7 88.5	67 31.1 +05.8 88.3
21°	71 20.4 +02.3 86.4	70 24.5 +02.6 86.2	69 28.7 +02.7 86.0	68 32.8 +03.0 85.8	67 36.9 +03.3 85.6
22°	71 22.7 -00.9 83.3	70 27.1 -00.5 83.2	69 31.4 +00.0 83.2	68 35.8 +00.4 83.1	67 40.2 +00.8 83.0
23°	71 21.8 -04.0 80.1	70 26.6 -03.4 80.2	69 31.4 -02.8 80.3	68 36.2 -02.3 80.4	67 41.0 -01.8 80.4
24°	71 17.8 -07.0 77.0	70 23.2 -06.3 77.2	69 28.6 -05.6 77.5	68 33.9 -05.0 77.6	67 39.2 -04.4 77.8
25°	71 10.8 -10.0 73.9	70 16.9 -09.1 74.3	69 23.0 -08.4 74.6	68 28.9 -07.6 74.9	67 34.8 -06.9 75.1
26°	71 00.8 -13.0 70.9	70 07.8 -12.0 71.4	69 14.6 -11.0 71.8	68 21.3 -10.1 72.2	67 27.9 -09.3 72.5
27°	70 47.8 -15.8 67.9	69 55.8 -14.7 68.5	69 03.6 -13.7 69.1	68 11.2 -12.7 69.5	67 18.6 -11.8 70.0
28°	70 32.0 -18.5 65.0	69 41.1 -17.3 65.7	68 49.9 -16.2 66.3	67 58.5 -15.2 66.9	67 06.8 -14.1 67.4
29°	70 13.5 -21.1 62.1	69 23.8 -19.9 63.0	68 33.7 -18.6 63.7	67 43.3 -17.5 64.4	66 52.7 -16.4 64.9

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°	57 47.5 +39.8 127.5	57 02.7 +39.1 126.3	56 17.2 +38.3 125.1	55 31.1 +37.5 124.0	54 44.3 +36.8 122.9
1°	58 27.3 +39.0 126.1	57 41.8 +38.0 124.9	56 55.5 +37.3 123.7	56 08.6 +36.5 122.6	55 21.1 +35.8 121.5
2°	59 06.3 +37.8 124.7	58 19.8 +37.1 123.4	57 32.8 +36.3 122.3	56 45.1 +35.6 121.2	55 56.9 +34.8 120.1
3°	59 44.1 +36.8 123.1	58 56.9 +36.0 121.9	58 09.1 +35.1 120.8	57 20.7 +34.4 119.7	56 31.7 +33.8 118.6
4°	60 20.9 +35.6 121.6	59 32.9 +34.8 120.4	58 44.2 +34.1 119.2	57 55.1 +33.3 118.1	57 05.5 +32.6 117.1
5°	60 56.5 +34.4 119.9	60 07.7 +33.5 118.7	59 18.3 +32.8 117.6	58 28.4 +32.1 116.6	57 38.1 +31.4 115.5
6°	61 30.9 +33.0 118.2	60 41.2 +32.3 117.1	59 51.1 +31.5 116.0	59 00.5 +30.9 114.9	58 09.5 +30.2 113.9
7°	62 03.9 +31.6 116.4	61 13.5 +30.9 115.3	60 22.6 +30.2 114.3	59 31.4 +29.5 113.3	58 39.7 +28.9 112.3
8°	62 35.5 +30.2 114.6	61 44.4 +29.4 113.5	60 52.8 +28.8 112.5	60 00.9 +28.1 111.5	59 08.6 +27.6 110.6
9°	63 05.7 +28.6 112.7	62 13.8 +27.9 111.7	61 21.6 +27.2 110.7	60 29.0 +26.7 109.7	59 36.2 +26.1 108.9
10°	63 34.3 +26.9 110.8	62 41.7 +26.3 109.8	61 48.8 +25.7 108.8	60 55.7 +25.1 107.9	60 02.3 +24.6 107.1
11°	64 01.2 +25.2 108.7	63 08.0 +24.6 107.8	62 14.5 +24.1 106.9	61 20.8 +23.5 106.0	60 26.9 +23.0 105.2
12°	64 26.4 +23.3 106.6	63 32.6 +22.8 105.8	62 38.6 +22.3 104.9	61 44.3 +21.9 104.1	60 49.9 +21.4 103.3
13°	64 49.7 +21.5 104.5	63 55.4 +21.0 103.7	63 00.9 +20.5 102.9	62 06.2 +20.1 102.1	61 11.3 +19.8 101.4
14°	65 11.2 +19.4 102.3	64 16.4 +19.0 101.5	63 21.4 +18.6 100.8	62 26.3 +18.3 100.1	61 31.1 +18.0 99.4
15°	65 30.6 +17.3 100.0	64 35.4 +17.0 99.3	63 40.0 +16.8 98.7	62 44.6 +16.5 98.0	61 49.1 +16.2 97.4
16°	65 47.9 +15.2 97.7	64 52.4 +14.9 97.1	63 56.8 +14.7 96.5	63 01.1 +14.5 95.9	62 05.3 +14.4 95.4
17°	66 03.1 +13.0 95.3	65 07.3 +12.9 94.8	64 11.5 +12.7 94.3	63 15.6 +12.6 93.8	62 19.7 +12.5 93.3
18°	66 16.1 +10.7 92.9	65 20.2 +10.6 92.5	64 24.2 +10.6 92.0	63 28.2 +10.5 91.6	62 32.2 +10.5 91.2
19°	66 26.8 +08.3 90.5	65 30.8 +08.4 90.1	64 34.8 +08.4 89.7	63 38.7 +08.5 89.4	62 42.7 +08.6 89.1
20°	66 35.1 +06.0 88.0	65 39.2 +06.0 87.7	64 43.2 +06.2 87.4	63 47.2 +06.4 87.1	62 51.3 +06.5 86.9
21°	66 41.1 +03.5 85.5	65 45.2 +03.8 85.3	64 49.4 +04.1 85.1	63 53.6 +04.3 84.9	62 57.8 +04.6 84.7
22°	66 44.6 +01.1 82.9	65 49.0 +01.5 82.8	64 53.5 +01.8 82.7	63 57.9 +02.1 82.6	63 02.4 +02.4 82.5
23°	66 45.7 -01.3 80.4	65 50.5 -00.9 80.4	64 55.3 -00.5 80.4	64 00.0 +00.0 80.3	63 04.8 +00.4 80.3
24°	66 44.4 -03.8 77.9	65 49.6 -03.2 78.0	64 54.8 -02.6 78.0	64 00.0 -02.1 78.1	63 05.2 -01.6 78.1
25°	66 40.6 -06.1 75.3	65 46.4 -05.5 75.5	64 52.2 -04.9 75.7	63 57.9 -04.3 75.8	63 03.6 -03.7 75.9
26°	66 34.5 -08.6 72.8	65 40.9 -07.8 73.1	64 47.3 -07.1 73.3	63 53.6 -06.4 73.5	62 59.9 -05.8 73.7
27°	66 25.9 -10.9 70.4	65 33.1 -10.0 70.7	64 40.2 -09.3 71.0	63 47.2 -08.5 71.3	62 54.1 -07.8 71.5
28°	66 15.0 -13.1 67.9	65 23.1 -12.3 68.3	64 30.9 -11.4 68.7	63 38.7 -10.6 69.0	62 46.3 -09.7 69.3
29°	66 01.9 -15.4 65.5	65 10.8 -14.4 66.0	64 19.5 -13.4 66.4	63 28.1 -12.5 66.8	62 36.6 -11.8 67.2

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°	53 57.0 +36.1 121.8	53 09.2 +35.3 120.8	52 20.8 +34.7 119.8	51 32.0 +34.1 118.9	50 42.7 +33.5 118.0
1°	54 33.1 +35.1 120.5	53 44.5 +34.5 119.5	52 55.5 +33.9 118.5	52 06.1 +33.2 117.6	51 16.2 +32.6 116.7
2°	55 08.2 +34.1 119.1	54 19.0 +33.5 118.1	53 29.4 +32.8 117.1	52 39.3 +32.2 116.2	51 48.8 +31.7 115.3
3°	55 42.3 +33.1 117.6	54 52.5 +32.4 116.6	54 02.2 +31.8 115.7	53 11.5 +31.3 114.8	52 20.5 +30.7 113.9
4°	56 15.4 +32.0 116.1	55 24.9 +31.3 115.2	54 34.0 +30.7 114.2	53 42.8 +30.1 113.4	52 51.2 +29.6 112.5
5°	56 47.4 +30.8 114.6	55 56.2 +30.2 113.6	55 04.7 +29.7 112.8	54 12.9 +29.1 111.9	53 20.8 +28.6 111.1
6°	57 18.2 +29.5 113.0	56 26.4 +29.0 112.1	55 34.4 +28.4 111.2	54 42.0 +27.9 110.4	53 49.4 +27.4 109.6
7°	57 47.7 +28.3 111.4	56 55.4 +27.8 110.5	56 02.8 +27.2 109.7	55 09.9 +26.8 108.8	54 16.8 +26.3 108.1
8°	58 16.0 +27.0 109.7	57 23.2 +26.4 108.9	56 30.0 +26.0 108.1	55 36.7 +25.5 107.3	54 43.1 +25.0 106.5
9°	58 43.0 +25.6 108.0	57 49.6 +25.1 107.2	56 56.0 +24.6 106.4	56 02.2 +24.2 105.7	55 08.1 +23.8 104.9
10°	59 08.6 +24.1 106.3	58 14.7 +23.7 105.5	57 20.6 +23.3 104.7	56 26.4 +22.8 104.0	55 31.9 +22.5 103.3
11°	59 32.7 +22.6 104.5	58 38.4 +22.2 103.7	57 43.9 +21.8 103.0	56 49.2 +21.5 102.3	55 54.4 +21.2 101.7
12°	59 55.3 +21.1 102.6	59 00.6 +20.7 101.9	58 05.7 +20.4 101.3	57 10.7 +20.1 100.6	56 15.6 +19.8 100.0
13°	60 16.4 +19.4 100.7	59 21.3 +19.1 100.1	58 26.1 +18.8 99.5	57 30.8 +18.6 98.9	56 35.4 +18.4 98.3
14°	60 35.8 +17.7 98.8	59 40.4 +17.5 98.2	58 44.9 +17.3 97.6	57 49.4 +17.0 97.1	56 53.8 +16.8 96.6
15°	60 53.5 +16.1 96.9	59 57.9 +15.8 96.3	59 02.2 +15.7 95.8	58 06.4 +15.6 95.3	57 10.6 +15.4 94.8
16°	61 09.6 +14.2 94.9	60 13.7 +14.1 94.4	59 17.9 +14.0 93.9	58 22.0 +13.9 93.5	57 26.0 +13.9 93.0
17°	61 23.8 +12.4 92.9	60 27.8 +12.4 92.4	59 31.9 +12.3 92.0	58 35.9 +12.3 91.6	57 39.9 +12.2 91.2
18°	61 36.2 +10.5 90.8	60 40.2 +10.5 90.4	59 44.2 +10.5 90.1	58 48.2 +10.6 89.7	57 52.1 +10.7 89.4
19°	61 46.7 +08.7 88.7	60 50.7 +08.8 88.4	59 54.7 +08.9 88.1	58 58.8 +08.9 87.8	58 02.8 +09.0 87.5
20°	61 55.4 +06.7 86.6	60 59.5 +06.8 86.4	60 03.6 +07.0 86.1	59 07.7 +07.2 85.9	58 11.8 +07.4 85.6
21°	62 02.1 +04.7 84.5	61 06.3 +05.0 84.3	60 10.6 +05.2 84.1	59 14.9 +05.4 83.9	58 19.2 +05.7 83.7
22°	62 06.8 +02.8 82.4	61 11.3 +03.1 82.3	60 15.8 +03.4 82.1	59 20.3 +03.8 82.0	58 24.9 +04.0 81.8
23°	62 09.6 +00.8 80.2	61 14.4 +01.2 80.2	60 19.2 +01.6 80.1	59 24.1 +01.9 80.0	58 28.9 +02.3 79.9
24°	62 10.4 -01.2 78.1	61 15.6 -00.7 78.1	60 20.8 -00.3 78.1	59 26.0 +00.2 78.1	58 31.2 +00.6 78.0
25°	62 09.2 -03.1 76.0	61 14.9 -02.6 76.0	60 20.5 -02.1 76.1	59 26.2 -01.6 76.1	58 31.8 -01.1 76.1
26°	62 06.1 -05.1 73.8	61 12.3 -04.6 74.0	60 18.4 -03.9 74.1	59 24.6 -03.4 74.1	58 30.7 -02.9 74.2
27°	62 01.0 -07.1 71.7	61 07.7 -06.4 71.9	60 14.5 -05.8 72.0	59 21.2 -05.2 72.2	58 27.8 -04.5 72.3
28°	61 53.9 -09.0 69.6	61 01.3 -08.2 69.8	60 08.7 -07.5 70.0	59 16.0 -06.8 70.2	58 23.3 -06.2 70.4
29°	61 44.9 -10.9 67.5	60 53.1 -10.1 67.8	60 01.2 -09.4 68.0	59 09.2 -08.6 68.3	58 17.1 -07.9 68.5

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°	49 53.1 +32.9 117.1	49 03.0 +32.4 116.3	48 12.6 +31.8 115.4	47 21.8 +31.4 114.6	46 30.8 +30.8 113.9
1°	50 26.0 +32.0 115.8	49 35.4 +31.5 115.0	48 44.4 +31.0 114.2	47 53.2 +30.4 113.4	47 01.6 +30.0 112.6
2°	50 58.0 +31.1 114.5	50 06.9 +30.6 113.6	49 15.4 +30.1 112.9	48 23.6 +29.6 112.1	47 31.6 +29.1 111.3
3°	51 29.1 +30.2 113.1	50 37.5 +29.6 112.3	49 45.5 +29.1 111.5	48 53.2 +28.7 110.8	48 00.7 +28.3 110.0
4°	51 59.3 +29.1 111.7	51 07.1 +28.6 110.9	50 14.6 +28.2 110.2	49 21.9 +27.8 109.4	48 29.0 +27.3 108.7
5°	52 28.4 +28.1 110.3	51 35.7 +27.6 109.5	50 42.8 +27.2 108.8	49 49.7 +26.7 108.1	48 56.3 +26.3 107.4
6°	52 56.5 +26.9 108.8	52 03.3 +26.5 108.1	51 10.0 +26.1 107.4	50 16.4 +25.7 106.7	49 22.6 +25.4 106.0
7°	53 23.4 +25.9 107.3	52 29.8 +25.5 106.6	51 36.1 +25.0 105.9	50 42.1 +24.7 105.2	49 48.0 +24.3 104.6
8°	53 49.3 +24.6 105.8	52 55.3 +24.2 105.1	52 01.1 +23.9 104.4	51 06.8 +23.6 103.8	50 12.3 +23.3 103.2
9°	54 13.9 +23.5 104.3	53 19.5 +23.1 103.6	52 25.0 +22.8 102.9	51 30.4 +22.4 102.3	50 35.6 +22.2 101.7
10°	54 37.4 +22.1 102.7	53 42.6 +21.9 102.0	52 47.8 +21.6 101.4	51 52.8 +21.3 100.8	50 57.8 +21.0 100.3
11°	54 59.5 +20.9 101.1	54 04.5 +20.6 100.5	53 09.4 +20.3 99.9	52 14.1 +20.1 99.3	51 18.8 +19.9 98.8
12°	55 20.4 +19.5 99.4	54 25.1 +19.3 98.8	53 29.7 +19.1 98.3	52 34.2 +18.9 97.8	51 38.7 +18.7 97.3
13°	55 39.9 +18.2 97.7	54 44.4 +18.0 97.2	53 48.8 +17.8 96.7	52 53.1 +17.7 96.2	51 57.4 +17.5 95.7
14°	55 58.1 +16.7 96.0	55 02.4 +16.5 95.6	54 06.6 +16.4 95.1	53 10.8 +16.3 94.6	52 14.9 +16.3 94.2
15°	56 14.8 +15.3 94.3	55 18.9 +15.2 93.9	54 23.0 +15.1 93.4	53 27.1 +15.0 93.0	52 31.2 +14.9 92.6
16°	56 30.1 +13.8 92.6	55 34.1 +13.8 92.2	54 38.1 +13.7 91.8	53 42.1 +13.7 91.4	52 46.1 +13.7 91.0
17°	56 43.9 +12.2 90.8	55 47.9 +12.2 90.4	54 51.8 +12.3 90.1	53 55.8 +12.3 89.7	52 59.8 +12.4 89.4
18°	56 56.1 +10.7 89.0	56 00.1 +10.8 88.7	55 04.1 +10.9 88.4	54 08.1 +11.0 88.1	53 12.2 +11.0 87.7
19°	57 06.8 +09.2 87.2	56 10.9 +09.3 86.9	55 15.0 +09.4 86.6	54 19.1 +09.5 86.4	53 23.2 +09.6 86.1
20°	57 16.0 +07.5 85.4	56 20.2 +07.7 85.2	55 24.4 +07.8 84.9	54 28.6 +08.0 84.7	53 32.8 +08.3 84.4
21°	57 23.5 +06.0 83.6	56 27.9 +06.1 83.4	55 32.2 +06.4 83.2	54 36.6 +06.7 83.0	53 41.1 +06.8 82.8
22°	57 29.5 +04.2 81.7	56 34.0 +04.6 81.6	55 38.6 +04.9 81.4	54 43.3 +05.1 81.2	53 47.9 +05.4 81.1
23°	57 33.7 +02.7 79.8	56 38.6 +03.0 79.7	55 43.5 +03.3 79.6	54 48.4 +03.7 79.5	53 53.3 +04.1 79.4
24°	57 36.4 +01.0 78.0	56 41.6 +01.4 77.9	55 46.8 +01.9 77.9	54 52.1 +02.2 77.8	53 57.4 +02.5 77.7
25°	57 37.4 -00.6 76.1	56 43.0 -00.2 76.1	55 48.7 +00.2 76.1	54 54.3 +00.7 76.0	53 59.9 +01.2 76.0
26°	57 36.8 -02.3 74.2	56 42.8 -01.7 74.3	55 48.9 -01.3 74.3	54 55.0 -00.8 74.3	54 01.1 -00.3 74.3
27°	57 34.5 -04.0 72.4	56 41.1 -03.4 72.5	55 47.6 -02.8 72.5	54 54.2 -02.3 72.6	54 00.8 -01.8 72.6
28°	57 30.5 -05.6 70.5	56 37.7 -05.0 70.6	55 44.8 -04.3 70.7	54 51.9 -03.7 70.8	53 59.0 -03.2 70.9
29°	57 24.9 -07.1 68.7	56 32.7 -06.5 68.8	55 40.5 -05.9 69.0	54 48.2 -05.3 69.1	53 55.8 -04.6 69.2

Declination SAME name as Latitude

Latitude 21°

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°	45 39.4 +30.4 113.1	44 47.7 +30.0 112.4	43 55.8 +29.5 111.7	43 03.7 +29.0 111.0	42 11.3 +28.6 110.4
1°	46 09.8 +29.5 111.9	45 17.7 +29.1 111.2	44 25.3 +28.7 110.5	43 32.7 +28.3 109.8	42 39.9 +27.9 109.2
2°	46 39.3 +28.7 110.6	45 46.8 +28.2 109.9	44 54.0 +27.9 109.3	44 01.0 +27.5 108.6	43 07.8 +27.1 108.0
3°	47 08.0 +27.8 109.3	46 15.0 +27.5 108.7	45 21.9 +27.0 108.0	44 28.5 +26.7 107.4	43 34.9 +26.4 106.7
4°	47 35.8 +26.9 108.0	46 42.5 +26.5 107.4	45 48.9 +26.2 106.7	44 55.2 +25.8 106.1	44 01.3 +25.5 105.5
5°	48 02.7 +26.0 106.7	47 09.0 +25.6 106.1	46 15.1 +25.3 105.4	45 21.0 +25.0 104.8	44 26.8 +24.6 104.2
6°	48 28.7 +25.0 105.3	47 34.6 +24.7 104.7	46 40.4 +24.3 104.1	45 46.0 +24.0 103.5	44 51.4 +23.8 102.9
7°	48 53.7 +24.0 104.0	47 59.3 +23.7 103.4	47 04.7 +23.4 102.8	46 10.0 +23.2 102.2	45 15.2 +22.9 101.6
8°	49 17.7 +23.0 102.6	48 23.0 +22.7 102.0	47 28.1 +22.5 101.4	46 33.2 +22.2 100.9	45 38.1 +22.0 100.3
9°	49 40.7 +21.9 101.1	48 45.7 +21.6 100.6	47 50.6 +21.4 100.0	46 55.4 +21.2 99.5	46 00.1 +21.0 99.0
10°	50 02.6 +20.8 99.7	49 07.3 +20.6 99.2	48 12.0 +20.4 98.6	47 16.6 +20.2 98.1	46 21.1 +20.0 97.6
11°	50 23.4 +19.7 98.2	49 27.9 +19.6 97.7	48 32.4 +19.4 97.2	47 36.8 +19.2 96.7	46 41.1 +19.1 96.3
12°	50 43.1 +18.6 96.8	49 47.5 +18.4 96.3	48 51.8 +18.2 95.8	47 56.0 +18.2 95.3	47 00.2 +18.1 94.9
13°	51 01.7 +17.3 95.2	50 05.9 +17.2 94.8	49 10.0 +17.2 94.3	48 14.2 +17.0 93.9	47 18.3 +17.0 93.5
14°	51 19.0 +16.2 93.7	50 23.1 +16.1 93.3	49 27.2 +16.0 92.9	48 31.2 +16.0 92.5	47 35.3 +15.9 92.1
15°	51 35.2 +14.9 92.2	50 39.2 +14.9 91.8	49 43.2 +14.9 91.4	48 47.2 +14.9 91.0	47 51.2 +14.9 90.6
16°	51 50.1 +13.7 90.6	50 54.1 +13.7 90.2	49 58.1 +13.7 89.9	49 02.1 +13.7 89.5	48 06.1 +13.7 89.2
17°	52 03.8 +12.4 89.0	51 07.8 +12.4 88.7	50 11.8 +12.5 88.4	49 15.8 +12.6 88.0	48 19.8 +12.7 87.7
18°	52 16.2 +11.1 87.4	51 20.2 +11.2 87.1	50 24.3 +11.3 86.8	49 28.4 +11.4 86.5	48 32.5 +11.5 86.2
19°	52 27.3 +09.8 85.8	51 31.4 +10.0 85.6	50 35.6 +10.1 85.3	49 39.8 +10.2 85.0	48 44.0 +10.4 84.8
20°	52 37.1 +08.4 84.2	51 41.4 +08.6 84.0	50 45.7 +08.8 83.7	49 50.0 +09.0 83.5	48 54.4 +09.1 83.3
21°	52 45.5 +07.1 82.6	51 50.0 +07.3 82.4	50 54.5 +07.5 82.2	49 59.0 +07.8 82.0	49 03.5 +08.0 81.8
22°	52 52.6 +05.7 80.9	51 57.3 +06.0 80.8	51 02.0 +06.3 80.6	50 06.8 +06.5 80.4	49 11.5 +06.9 80.2
23°	52 58.3 +04.3 79.3	52 03.3 +04.6 79.1	51 08.3 +05.0 79.0	50 13.3 +05.3 78.9	49 18.4 +05.6 78.7
24°	53 02.6 +03.0 77.6	52 07.9 +03.3 77.5	51 13.3 +03.6 77.4	50 18.6 +04.0 77.3	49 24.0 +04.4 77.2
25°	53 05.6 +01.5 76.0	52 11.2 +02.0 75.9	51 16.9 +02.4 75.8	50 22.6 +02.8 75.7	49 28.4 +03.1 75.7
26°	53 07.1 +00.2 74.3	52 13.2 +00.6 74.3	51 19.3 +01.1 74.2	50 25.4 +01.5 74.2	49 31.5 +02.0 74.1
27°	53 07.3 -01.2 72.6	52 13.8 -00.7 72.6	51 20.4 -00.3 72.6	50 26.9 +00.3 72.6	49 33.5 +00.7 72.6
28°	53 06.1 -02.7 71.0	52 13.1 -02.1 71.0	51 20.1 -01.5 71.0	50 27.2 -01.1 71.0	49 34.2 -00.5 71.0
29°	53 03.4 -04.0 69.3	52 11.0 -03.4 69.4	51 18.6 -02.9 69.4	50 26.1 -02.2 69.5	49 33.7 -01.8 69.5

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°	41 18.6 +28.3 109.7	40 25.8 +27.9 109.1	39 32.8 +27.5 108.5	38 39.6 +27.2 107.9	37 46.2 +26.8 107.3
1°	41 46.9 +27.5 108.5	40 53.7 +27.2 107.9	40 00.3 +26.9 107.3	39 06.8 +26.5 106.7	38 13.0 +26.2 106.2
2°	42 14.4 +26.8 107.3	41 20.9 +26.4 106.7	40 27.2 +26.1 106.2	39 33.3 +25.8 105.6	38 39.2 +25.6 105.0
3°	42 41.2 +26.0 106.1	41 47.3 +25.7 105.5	40 53.3 +25.4 105.0	39 59.1 +25.1 104.4	39 04.8 +24.8 103.9
4°	43 07.2 +25.2 104.9	42 13.0 +24.9 104.3	41 18.7 +24.6 103.8	40 24.2 +24.4 103.2	39 29.6 +24.1 102.7
5°	43 32.4 +24.4 103.7	42 37.9 +24.1 103.1	41 43.3 +23.8 102.5	40 48.6 +23.6 102.0	39 53.7 +23.4 101.5
6°	43 56.8 +23.5 102.4	43 02.0 +23.3 101.8	42 07.1 +23.1 101.3	41 12.2 +22.8 100.8	40 17.1 +22.6 100.3
7°	44 20.3 +22.7 101.1	43 25.3 +22.4 100.6	42 30.2 +22.2 100.1	41 35.0 +22.0 99.6	40 39.7 +21.8 99.1
8°	44 43.0 +21.7 99.8	43 47.7 +21.6 99.3	42 52.4 +21.4 98.8	41 57.0 +21.2 98.3	41 01.5 +21.1 97.8
9°	45 04.7 +20.8 98.5	44 09.3 +20.6 98.0	43 13.8 +20.5 97.5	42 18.2 +20.4 97.1	41 22.6 +20.2 96.6
10°	45 25.5 +19.9 97.2	44 29.9 +19.8 96.7	43 34.3 +19.6 96.2	42 38.6 +19.5 95.8	41 42.8 +19.4 95.3
11°	45 45.4 +19.0 95.8	44 49.7 +18.8 95.4	43 53.9 +18.7 94.9	42 58.1 +18.6 94.5	42 02.2 +18.6 94.1
12°	46 04.4 +17.9 94.4	45 08.5 +17.9 94.0	44 12.6 +17.8 93.6	43 16.7 +17.7 93.2	42 20.8 +17.7 92.8
13°	46 22.3 +17.0 93.1	45 26.4 +16.9 92.7	44 30.4 +16.9 92.3	43 34.4 +16.9 91.9	42 38.5 +16.8 91.5
14°	46 39.3 +15.9 91.7	45 43.3 +15.9 91.3	44 47.3 +15.9 90.9	43 51.3 +15.9 90.5	42 55.3 +15.8 90.2
15°	46 55.2 +14.9 90.3	45 59.2 +14.9 89.9	45 03.2 +14.9 89.5	44 07.2 +14.9 89.2	43 11.1 +15.0 88.9
16°	47 10.1 +13.8 88.8	46 14.1 +13.8 88.5	45 18.1 +13.9 88.2	44 22.1 +14.0 87.8	43 26.1 +14.1 87.5
17°	47 23.9 +12.7 87.4	46 27.9 +12.8 87.1	45 32.0 +12.9 86.8	44 36.1 +13.0 86.5	43 40.2 +13.1 86.2
18°	47 36.6 +11.6 86.0	46 40.7 +11.8 85.7	45 44.9 +11.9 85.4	44 49.1 +12.0 85.1	43 53.3 +12.1 84.8
19°	47 48.2 +10.5 84.5	46 52.5 +10.6 84.2	45 56.8 +10.8 84.0	45 01.1 +11.0 83.7	44 05.4 +11.2 83.5
20°	47 58.7 +09.4 83.0	47 03.1 +09.6 82.8	46 07.6 +09.8 82.6	45 12.1 +09.9 82.3	44 16.6 +10.1 82.1
21°	48 08.1 +08.3 81.6	47 12.7 +08.5 81.4	46 17.4 +08.7 81.1	45 22.0 +09.0 80.9	44 26.7 +09.2 80.7
22°	48 16.4 +07.0 80.1	47 21.2 +07.3 79.9	46 26.1 +07.6 79.7	45 31.0 +07.9 79.5	44 35.9 +08.2 79.3
23°	48 23.4 +05.9 78.6	47 28.5 +06.3 78.4	46 33.7 +06.5 78.3	45 38.9 +06.8 78.1	44 44.1 +07.1 77.9
24°	48 29.3 +04.8 77.1	47 34.8 +05.1 77.0	46 40.2 +05.4 76.8	45 45.7 +05.8 76.7	44 51.2 +06.1 76.5
25°	48 34.1 +03.6 75.6	47 39.9 +03.9 75.5	46 45.6 +04.4 75.4	45 51.5 +04.7 75.3	44 57.3 +05.1 75.1
26°	48 37.7 +02.3 74.1	47 43.8 +02.8 74.0	46 50.0 +03.2 73.9	45 56.2 +03.6 73.8	45 02.4 +04.0 73.7
27°	48 40.0 +01.2 72.5	47 46.6 +01.6 72.5	46 53.2 +02.1 72.5	45 59.8 +02.5 72.4	45 06.4 +03.0 72.3
28°	48 41.2 +00.0 71.0	47 48.2 +00.5 71.0	46 55.3 +01.0 71.0	46 02.3 +01.5 71.0	45 09.4 +01.9 70.9
29°	48 41.2 -01.2 69.5	47 48.7 -00.6 69.5	46 56.3 -00.2 69.5	46 03.8 +00.4 69.5	45 11.3 +00.9 69.5

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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°	36 52.6 +26.6 106.7	35 58.9 +26.2 106.2	35 05.0 +26.0 105.6	34 11.0 +25.7 105.1	33 16.9 +25.4 104.6
1°	37 19.2 +25.9 105.6	36 25.1 +25.7 105.1	35 31.0 +25.4 104.5	34 36.7 +25.1 104.0	33 42.3 +24.9 103.5
2°	37 45.1 +25.2 104.5	36 50.8 +25.0 103.9	35 56.4 +24.7 103.4	35 01.8 +24.5 102.9	34 07.2 +24.2 102.4
3°	38 10.3 +24.6 103.3	37 15.8 +24.3 102.8	36 21.1 +24.1 102.3	35 26.3 +23.9 101.8	34 31.4 +23.7 101.3
4°	38 34.9 +23.9 102.2	37 40.1 +23.6 101.7	36 45.2 +23.4 101.2	35 50.2 +23.2 100.7	34 55.1 +23.0 100.2
5°	38 58.8 +23.1 101.0	38 03.7 +23.0 100.5	37 08.6 +22.8 100.0	36 13.4 +22.6 99.5	35 18.1 +22.4 99.1
6°	39 21.9 +22.5 99.8	38 26.7 +22.2 99.3	37 31.4 +22.1 98.8	36 36.0 +21.9 98.4	35 40.5 +21.8 97.9
7°	39 44.4 +21.6 98.6	38 48.9 +21.5 98.1	37 53.5 +21.3 97.7	36 57.9 +21.2 97.2	36 02.3 +21.1 96.8
8°	40 06.0 +20.9 97.4	39 10.4 +20.8 96.9	38 14.8 +20.6 96.5	37 19.1 +20.6 96.0	36 23.4 +20.4 95.6
9°	40 26.9 +20.1 96.1	39 31.2 +20.0 95.7	38 35.4 +19.9 95.3	37 39.7 +19.8 94.9	36 43.8 +19.7 94.4
10°	40 47.0 +19.3 94.9	39 51.2 +19.2 94.5	38 55.3 +19.2 94.1	37 59.5 +19.0 93.7	37 03.5 +19.1 93.3
11°	41 06.3 +18.5 93.7	40 10.4 +18.4 93.2	39 14.5 +18.4 92.8	38 18.5 +18.4 92.5	37 22.6 +18.2 92.1
12°	41 24.8 +17.7 92.4	40 28.8 +17.6 92.0	39 32.9 +17.5 91.6	38 36.9 +17.5 91.2	37 40.8 +17.6 90.9
13°	41 42.5 +16.7 91.1	40 46.4 +16.8 90.7	39 50.4 +16.8 90.4	38 54.4 +16.8 90.0	37 58.4 +16.8 89.7
14°	41 59.2 +15.9 89.8	41 03.2 +16.0 89.5	40 07.2 +16.0 89.1	39 11.2 +16.0 88.8	38 15.2 +16.1 88.4
15°	42 15.1 +15.1 88.5	41 19.2 +15.0 88.2	40 23.2 +15.1 87.9	39 27.2 +15.2 87.5	38 31.3 +15.2 87.2
16°	42 30.2 +14.1 87.2	41 34.2 +14.2 86.9	40 38.3 +14.3 86.6	39 42.4 +14.4 86.3	38 46.5 +14.5 86.0
17°	42 44.3 +13.2 85.9	41 48.4 +13.3 85.6	40 52.6 +13.4 85.3	39 56.8 +13.5 85.0	39 01.0 +13.7 84.7
18°	42 57.5 +12.3 84.6	42 01.7 +12.5 84.3	41 06.0 +12.6 84.0	40 10.3 +12.7 83.7	39 14.7 +12.8 83.5
19°	43 09.8 +11.3 83.2	42 14.2 +11.5 83.0	41 18.6 +11.7 82.7	40 23.0 +11.9 82.5	39 27.5 +12.1 82.2
20°	43 21.1 +10.4 81.9	42 25.7 +10.5 81.6	41 30.3 +10.7 81.4	40 34.9 +11.0 81.2	39 39.6 +11.2 80.9
21°	43 31.5 +09.4 80.5	42 36.2 +09.7 80.3	41 41.0 +09.9 80.1	40 45.9 +10.1 79.9	39 50.8 +10.3 79.7
22°	43 40.9 +08.4 79.1	42 45.9 +08.7 79.0	41 50.9 +09.0 78.8	40 56.0 +09.2 78.6	40 01.1 +09.5 78.4
23°	43 49.3 +07.4 77.8	42 54.6 +07.7 77.6	41 59.9 +08.0 77.4	41 05.2 +08.4 77.3	40 10.6 +08.6 77.1
24°	43 56.7 +06.5 76.4	43 02.3 +06.8 76.3	42 07.9 +07.1 76.1	41 13.6 +07.4 75.9	40 19.2 +07.8 75.8
25°	44 03.2 +05.4 75.0	43 09.1 +05.8 74.9	42 15.0 +06.2 74.8	41 21.0 +06.5 74.6	40 27.0 +06.9 74.5
26°	44 08.6 +04.4 73.6	43 14.9 +04.8 73.5	42 21.2 +05.2 73.4	41 27.5 +05.6 73.3	40 33.9 +06.0 73.2
27°	44 13.0 +03.5 72.2	43 19.7 +03.9 72.2	42 26.4 +04.3 72.1	41 33.1 +04.7 72.0	40 39.9 +05.1 71.9
28°	44 16.5 +02.4 70.8	43 23.6 +02.8 70.8	42 30.7 +03.3 70.7	41 37.8 +03.8 70.6	40 45.0 +04.2 70.5
29°	44 18.9 +01.3 69.5	43 26.4 +01.9 69.4	42 34.0 +02.3 69.4	41 41.6 +02.8 69.3	40 49.2 +03.3 69.2

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°	32 22.6 +25.2 104.1	31 28.2 +24.9 103.6	30 33.7 +24.7 103.1	29 39.1 +24.5 102.6	28 44.4 +24.3 102.2
1°	32 47.8 +24.6 103.0	31 53.1 +24.4 102.5	30 58.4 +24.2 102.0	30 03.6 +24.0 101.6	29 08.7 +23.7 101.1
2°	33 12.4 +24.1 101.9	32 17.5 +23.9 101.4	31 22.6 +23.6 101.0	30 27.6 +23.4 100.5	29 32.4 +23.3 100.1
3°	33 36.5 +23.4 100.8	32 41.4 +23.3 100.4	31 46.2 +23.2 99.9	30 51.0 +23.0 99.4	29 55.7 +22.8 99.0
4°	33 59.9 +22.9 99.7	33 04.7 +22.7 99.3	32 09.4 +22.5 98.8	31 14.0 +22.4 98.4	30 18.5 +22.3 97.9
5°	34 22.8 +22.2 98.6	33 27.4 +22.1 98.1	32 31.9 +22.0 97.7	31 36.4 +21.8 97.3	30 40.8 +21.7 96.8
6°	34 45.0 +21.7 97.5	33 49.5 +21.5 97.0	32 53.9 +21.3 96.6	31 58.2 +21.2 96.2	31 02.5 +21.1 95.8
7°	35 06.7 +20.9 96.3	34 11.0 +20.8 95.9	33 15.2 +20.8 95.5	32 19.4 +20.7 95.1	31 23.6 +20.6 94.7
8°	35 27.6 +20.4 95.2	34 31.8 +20.3 94.8	33 36.0 +20.2 94.4	32 40.1 +20.1 94.0	31 44.2 +20.1 93.6
9°	35 48.0 +19.6 94.0	34 52.1 +19.6 93.6	33 56.2 +19.5 93.2	33 00.2 +19.5 92.8	32 04.3 +19.4 92.5
10°	36 07.6 +19.0 92.9	35 11.7 +18.9 92.5	34 15.7 +18.9 92.1	33 19.7 +18.9 91.7	32 23.7 +18.9 91.3
11°	36 26.6 +18.2 91.7	35 30.6 +18.2 91.3	34 34.6 +18.2 90.9	33 38.6 +18.2 90.6	32 42.6 +18.2 90.2
12°	36 44.8 +17.6 90.5	35 48.8 +17.6 90.1	34 52.8 +17.6 89.8	33 56.8 +17.6 89.4	33 00.8 +17.6 89.1
13°	37 02.4 +16.8 89.3	36 06.4 +16.8 89.0	35 10.4 +16.9 88.6	34 14.4 +16.9 88.3	33 18.4 +17.0 87.9
14°	37 19.2 +16.1 88.1	36 23.2 +16.2 87.8	35 27.3 +16.2 87.4	34 31.3 +16.3 87.1	33 35.4 +16.3 86.8
15°	37 35.3 +15.3 86.9	36 39.4 +15.4 86.6	35 43.5 +15.5 86.2	34 47.6 +15.6 85.9	33 51.7 +15.7 85.6
16°	37 50.6 +14.6 85.7	36 54.8 +14.7 85.4	35 59.0 +14.8 85.1	35 03.2 +14.9 84.8	34 07.4 +15.1 84.5
17°	38 05.2 +13.8 84.4	37 09.5 +13.9 84.1	36 13.8 +14.1 83.9	35 18.1 +14.2 83.6	34 22.5 +14.3 83.3
18°	38 19.0 +13.0 83.2	37 23.4 +13.2 82.9	36 27.9 +13.3 82.7	35 32.3 +13.5 82.4	34 36.8 +13.7 82.1
19°	38 32.0 +12.3 81.9	37 36.6 +12.4 81.7	36 41.2 +12.6 81.4	35 45.8 +12.8 81.2	34 50.5 +13.0 80.9
20°	38 44.3 +11.4 80.7	37 49.0 +11.6 80.5	36 53.8 +11.8 80.2	35 58.6 +12.1 80.0	35 03.5 +12.2 79.7
21°	38 55.7 +10.6 79.4	38 00.6 +10.9 79.2	37 05.6 +11.1 79.0	36 10.7 +11.3 78.8	35 15.7 +11.6 78.5
22°	39 06.3 +09.7 78.2	38 11.5 +10.0 78.0	37 16.7 +10.3 77.8	36 22.0 +10.6 77.5	35 27.3 +10.8 77.3
23°	39 16.0 +09.0 76.9	38 21.5 +09.2 76.7	37 27.0 +09.5 76.5	36 32.6 +09.8 76.3	35 38.1 +10.2 76.1
24°	39 25.0 +08.0 75.6	38 30.7 +08.4 75.4	37 36.5 +08.8 75.3	36 42.4 +09.0 75.1	35 48.3 +09.4 74.9
25°	39 33.0 +07.3 74.3	38 39.1 +07.6 74.2	37 45.3 +07.9 74.0	36 51.4 +08.3 73.9	35 57.7 +08.6 73.7
26°	39 40.3 +06.4 73.0	38 46.7 +06.8 72.9	37 53.2 +07.1 72.8	36 59.7 +07.5 72.6	36 06.3 +07.9 72.5
27°	39 46.7 +05.5 71.7	38 53.5 +05.9 71.6	38 00.3 +06.4 71.5	37 07.2 +06.8 71.4	36 14.2 +07.1 71.2
28°	39 52.2 +04.6 70.5	38 59.4 +05.1 70.4	38 06.7 +05.5 70.2	37 14.0 +05.9 70.1	36 21.3 +06.4 70.0
29°	39 56.8 +03.8 69.2	39 04.5 +04.2 69.1	38 12.2 +04.7 69.0	37 19.9 +05.2 68.9	36 27.7 +05.6 68.8

Declination SAME name as Latitude

Latitude 21°

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°	27 49.6 +24.0 101.7	26 54.7 +23.9 101.2	25 59.7 +23.7 100.8	25 04.6 +23.6 100.3	24 09.5 +23.3 99.9
1°	28 13.6 +23.7 100.7	27 18.6 +23.4 100.2	26 23.4 +23.3 99.8	25 28.2 +23.1 99.3	24 32.8 +23.0 98.9
2°	28 37.3 +23.1 99.6	27 42.0 +23.0 99.2	26 46.7 +22.8 98.7	25 51.3 +22.6 98.3	24 55.8 +22.5 97.9
3°	29 00.4 +22.6 98.6	28 05.0 +22.4 98.1	27 09.5 +22.3 97.7	26 13.9 +22.3 97.3	25 18.3 +22.2 96.9
4°	29 23.0 +22.1 97.5	28 27.4 +22.0 97.1	27 31.8 +21.9 96.7	26 36.2 +21.7 96.2	25 40.5 +21.6 95.8
5°	29 45.1 +21.6 96.4	28 49.4 +21.5 96.0	27 53.7 +21.4 95.6	26 57.9 +21.4 95.2	26 02.1 +21.3 94.8
6°	30 06.7 +21.1 95.3	29 10.9 +21.0 94.9	28 15.1 +20.9 94.5	27 19.3 +20.8 94.1	26 23.4 +20.8 93.8
7°	30 27.8 +20.5 94.3	29 31.9 +20.5 93.9	28 36.0 +20.4 93.5	27 40.1 +20.3 93.1	26 44.2 +20.3 92.7
8°	30 48.3 +20.0 93.2	29 52.4 +19.9 92.8	28 56.4 +19.9 92.4	28 00.4 +19.9 92.0	27 04.5 +19.8 91.7
9°	31 08.3 +19.4 92.1	30 12.3 +19.4 91.7	29 16.3 +19.4 91.3	28 20.3 +19.4 91.0	27 24.3 +19.4 90.6
10°	31 27.7 +18.8 91.0	30 31.7 +18.8 90.6	29 35.7 +18.8 90.2	28 39.7 +18.8 89.9	27 43.7 +18.8 89.5
11°	31 46.5 +18.3 89.8	30 50.5 +18.3 89.5	29 54.5 +18.3 89.1	28 58.5 +18.3 88.8	28 02.5 +18.4 88.4
12°	32 04.8 +17.6 88.7	31 08.8 +17.7 88.4	30 12.8 +17.7 88.0	29 16.8 +17.8 87.7	28 20.9 +17.8 87.4
13°	32 22.4 +17.1 87.6	31 26.5 +17.1 87.3	30 30.5 +17.2 86.9	29 34.6 +17.2 86.6	28 38.7 +17.3 86.3
14°	32 39.5 +16.4 86.5	31 43.6 +16.5 86.1	30 47.7 +16.6 85.8	29 51.8 +16.7 85.5	28 56.0 +16.8 85.2
15°	32 55.9 +15.8 85.3	32 00.1 +15.9 85.0	31 04.3 +16.0 84.7	30 08.5 +16.2 84.4	29 12.8 +16.2 84.1
16°	33 11.7 +15.1 84.2	32 16.0 +15.3 83.9	31 20.3 +15.4 83.6	30 24.7 +15.5 83.3	29 29.0 +15.7 83.0
17°	33 26.8 +14.5 83.0	32 31.3 +14.6 82.7	31 35.7 +14.8 82.4	30 40.2 +15.0 82.2	29 44.7 +15.2 81.9
18°	33 41.3 +13.9 81.8	32 45.9 +14.0 81.6	31 50.5 +14.2 81.3	30 55.2 +14.4 81.0	29 59.9 +14.5 80.8
19°	33 55.2 +13.2 80.7	32 59.9 +13.4 80.4	32 04.7 +13.6 80.2	31 09.6 +13.7 79.9	30 14.4 +14.0 79.6
20°	34 08.4 +12.5 79.5	33 13.3 +12.7 79.2	32 18.3 +12.9 79.0	31 23.3 +13.2 78.8	30 28.4 +13.4 78.5
21°	34 20.9 +11.8 78.3	33 26.0 +12.1 78.1	32 31.2 +12.4 77.8	31 36.5 +12.6 77.6	30 41.8 +12.8 77.4
22°	34 32.7 +11.1 77.1	33 38.1 +11.4 76.9	32 43.6 +11.6 76.7	31 49.1 +11.9 76.5	30 54.6 +12.3 76.2
23°	34 43.8 +10.4 75.9	33 49.5 +10.7 75.7	32 55.2 +11.0 75.5	32 01.0 +11.3 75.3	31 06.9 +11.6 75.1
24°	34 54.2 +09.7 74.7	34 00.2 +10.0 74.5	33 06.2 +10.4 74.3	32 12.3 +10.7 74.2	31 18.5 +11.0 74.0
25°	35 03.9 +09.0 73.5	34 10.2 +09.4 73.3	33 16.6 +09.7 73.2	32 23.0 +10.0 73.0	31 29.5 +10.3 72.8
26°	35 12.9 +08.3 72.3	34 19.6 +08.6 72.2	33 26.3 +09.0 72.0	32 33.0 +09.4 71.8	31 39.8 +09.8 71.6
27°	35 21.2 +07.5 71.1	34 28.2 +07.9 71.0	33 35.3 +08.3 70.8	32 42.4 +08.7 70.6	31 49.6 +09.1 70.5
28°	35 28.7 +06.8 69.9	34 36.1 +07.2 69.8	33 43.6 +07.6 69.6	32 51.1 +08.1 69.5	31 58.7 +08.5 69.3
29°	35 35.5 +06.1 68.7	34 43.3 +06.5 68.5	33 51.2 +07.0 68.4	32 59.2 +07.4 68.3	32 07.2 +07.8 68.2

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°	23 14.3 +23.2 99.5	22 19.0 +23.0 99.1	21 23.6 +23.0 98.6	20 28.2 +22.8 98.2	19 32.8 +22.6 97.8
1°	23 37.5 +22.8 98.5	22 42.0 +22.7 98.1	21 46.6 +22.5 97.7	20 51.0 +22.5 97.2	19 55.4 +22.4 96.8
2°	24 00.3 +22.4 97.5	23 04.7 +22.3 97.1	22 09.1 +22.2 96.7	21 13.5 +22.0 96.3	20 17.8 +21.9 95.9
3°	24 22.7 +22.0 96.5	23 27.0 +21.9 96.1	22 31.3 +21.8 95.7	21 35.5 +21.8 95.3	20 39.7 +21.7 94.9
4°	24 44.7 +21.6 95.4	23 48.9 +21.5 95.0	22 53.1 +21.5 94.6	21 57.3 +21.3 94.3	21 01.4 +21.3 93.9
5°	25 06.3 +21.2 94.4	24 10.4 +21.1 94.0	23 14.6 +21.0 93.6	22 18.6 +21.0 93.2	21 22.7 +20.9 92.9
6°	25 27.5 +20.7 93.4	24 31.5 +20.7 93.0	23 35.6 +20.6 92.6	22 39.6 +20.6 92.2	21 43.6 +20.6 91.9
7°	25 48.2 +20.3 92.3	24 52.2 +20.3 92.0	23 56.2 +20.3 91.6	23 00.2 +20.2 91.2	22 04.2 +20.2 90.8
8°	26 08.5 +19.8 91.3	25 12.5 +19.8 90.9	24 16.5 +19.8 90.5	23 20.4 +19.8 90.2	22 24.4 +19.8 89.8
9°	26 28.3 +19.3 90.2	25 32.3 +19.3 89.9	24 36.3 +19.3 89.5	23 40.2 +19.4 89.2	22 44.2 +19.5 88.8
10°	26 47.6 +18.9 89.2	25 51.6 +18.9 88.8	24 55.6 +19.0 88.5	23 59.6 +19.0 88.1	23 03.7 +19.0 87.8
11°	27 06.5 +18.4 88.1	26 10.5 +18.5 87.8	25 14.6 +18.5 87.4	24 18.6 +18.6 87.1	23 22.7 +18.6 86.7
12°	27 24.9 +17.9 87.0	26 29.0 +17.9 86.7	25 33.1 +18.0 86.4	24 37.2 +18.1 86.0	23 41.3 +18.2 85.7
13°	27 42.8 +17.4 86.0	26 46.9 +17.5 85.6	25 51.1 +17.6 85.3	24 55.3 +17.7 85.0	23 59.5 +17.8 84.7
14°	28 00.2 +16.9 84.9	27 04.4 +17.0 84.6	26 08.7 +17.1 84.2	25 13.0 +17.2 83.9	24 17.3 +17.3 83.6
15°	28 17.1 +16.4 83.8	27 21.4 +16.5 83.5	26 25.8 +16.6 83.2	25 30.2 +16.8 82.9	24 34.6 +16.9 82.6
16°	28 33.5 +15.8 82.7	27 37.9 +16.0 82.4	26 42.4 +16.2 82.1	25 47.0 +16.3 81.8	24 51.5 +16.5 81.5
17°	28 49.3 +15.3 81.6	27 53.9 +15.5 81.3	26 58.6 +15.6 81.0	26 03.3 +15.8 80.7	25 08.0 +16.0 80.5
18°	29 04.6 +14.8 80.5	28 09.4 +14.9 80.2	27 14.2 +15.1 79.9	26 19.1 +15.3 79.7	25 24.0 +15.5 79.4
19°	29 19.4 +14.2 79.4	28 24.3 +14.4 79.1	27 29.3 +14.7 78.8	26 34.4 +14.9 78.6	25 39.5 +15.1 78.3
20°	29 33.6 +13.6 78.3	28 38.7 +13.9 78.0	27 44.0 +14.1 77.8	26 49.3 +14.3 77.5	25 54.6 +14.6 77.2
21°	29 47.2 +13.1 77.1	28 52.6 +13.3 76.9	27 58.1 +13.6 76.7	27 03.6 +13.8 76.4	26 09.2 +14.1 76.2
22°	30 00.3 +12.5 76.0	29 05.9 +12.8 75.8	28 11.7 +13.0 75.6	27 17.4 +13.4 75.3	26 23.3 +13.6 75.1
23°	30 12.8 +11.9 74.9	29 18.7 +12.2 74.7	28 24.7 +12.5 74.4	27 30.8 +12.8 74.2	26 36.9 +13.1 74.0
24°	30 24.7 +11.3 73.7	29 30.9 +11.6 73.5	28 37.2 +12.0 73.3	27 43.6 +12.3 73.1	26 50.0 +12.6 72.9
25°	30 36.0 +10.7 72.6	29 42.5 +11.1 72.4	28 49.2 +11.4 72.2	27 55.9 +11.7 72.0	27 02.6 +12.1 71.8
26°	30 46.7 +10.1 71.5	29 53.6 +10.5 71.3	29 00.6 +10.8 71.1	28 07.6 +11.2 70.9	27 14.7 +11.6 70.7
27°	30 56.8 +09.5 70.3	30 04.1 +09.9 70.1	29 11.4 +10.3 70.0	28 18.8 +10.7 69.8	27 26.3 +11.1 69.6
28°	31 06.3 +08.9 69.2	30 14.0 +09.3 69.0	29 21.7 +09.7 68.8	28 29.5 +10.1 68.7	27 37.4 +10.5 68.5
29°	31 15.2 +08.2 68.0	30 23.3 +08.7 67.9	29 31.4 +09.1 67.7	28 39.6 +09.6 67.5	27 47.9 +10.0 67.4

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Latitude 21°

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°	18 37.2 +22.6 97.4	17 41.7 +22.4 97.0	16 46.1 +22.3 96.6	15 50.4 +22.2 96.3	14 54.7 +22.1 95.9
1°	18 59.8 +22.2 96.5	18 04.1 +22.1 96.1	17 08.4 +22.0 95.7	16 12.6 +22.0 95.3	15 16.8 +21.9 94.9
2°	19 22.0 +21.9 95.5	18 26.2 +21.9 95.1	17 30.4 +21.8 94.7	16 34.6 +21.7 94.3	15 38.7 +21.6 93.9
3°	19 43.9 +21.6 94.5	18 48.1 +21.5 94.1	17 52.2 +21.4 93.7	16 56.3 +21.4 93.3	16 00.3 +21.4 93.0
4°	20 05.5 +21.3 93.5	19 09.6 +21.2 93.1	18 13.6 +21.2 92.7	17 17.7 +21.1 92.4	16 21.7 +21.1 92.0
5°	20 26.8 +20.9 92.5	19 30.8 +20.9 92.1	18 34.8 +20.9 91.8	17 38.8 +20.8 91.4	16 42.8 +20.8 91.0
6°	20 47.7 +20.5 91.5	19 51.7 +20.5 91.1	18 55.7 +20.5 90.8	17 59.6 +20.6 90.4	17 03.6 +20.6 90.0
7°	21 08.2 +20.2 90.5	20 12.2 +20.2 90.1	19 16.2 +20.2 89.8	18 20.2 +20.2 89.4	17 24.2 +20.2 89.1
8°	21 28.4 +19.8 89.5	20 32.4 +19.9 89.1	19 36.4 +19.9 88.8	18 40.4 +19.9 88.4	17 44.4 +20.0 88.1
9°	21 48.2 +19.5 88.5	20 52.3 +19.4 88.1	19 56.3 +19.5 87.8	19 00.3 +19.6 87.4	18 04.4 +19.6 87.1
10°	22 07.7 +19.1 87.4	21 11.7 +19.2 87.1	20 15.8 +19.2 86.8	19 19.9 +19.3 86.4	18 24.0 +19.3 86.1
11°	22 26.8 +18.7 86.4	21 30.9 +18.7 86.1	20 35.0 +18.8 85.7	19 39.2 +18.9 85.4	18 43.3 +19.1 85.1
12°	22 45.5 +18.2 85.4	21 49.6 +18.4 85.1	20 53.8 +18.5 84.7	19 58.1 +18.6 84.4	19 02.4 +18.6 84.1
13°	23 03.7 +17.9 84.4	22 08.0 +18.0 84.0	21 12.3 +18.1 83.7	20 16.7 +18.2 83.4	19 21.0 +18.4 83.1
14°	23 21.6 +17.5 83.3	22 26.0 +17.6 83.0	21 30.4 +17.8 82.7	20 34.9 +17.9 82.4	19 39.4 +18.0 82.1
15°	23 39.1 +17.1 82.3	22 43.6 +17.2 82.0	21 48.2 +17.3 81.7	20 52.8 +17.5 81.4	19 57.4 +17.7 81.1
16°	23 56.2 +16.6 81.2	23 00.8 +16.8 80.9	22 05.5 +17.0 80.6	21 10.3 +17.1 80.3	20 15.1 +17.3 80.0
17°	24 12.8 +16.2 80.2	23 17.6 +16.4 79.9	22 22.5 +16.5 79.6	21 27.4 +16.8 79.3	20 32.4 +17.0 79.0
18°	24 29.0 +15.7 79.1	23 34.0 +15.9 78.8	22 39.0 +16.2 78.6	21 44.2 +16.3 78.3	20 49.4 +16.5 78.0
19°	24 44.7 +15.3 78.0	23 49.9 +15.5 77.8	22 55.2 +15.8 77.5	22 00.5 +16.0 77.2	21 05.9 +16.3 77.0
20°	25 00.0 +14.8 77.0	24 05.4 +15.1 76.7	23 11.0 +15.3 76.5	22 16.5 +15.6 76.2	21 22.2 +15.8 75.9
21°	25 14.8 +14.4 75.9	24 20.5 +14.7 75.7	23 26.3 +14.9 75.4	22 32.1 +15.2 75.1	21 38.0 +15.4 74.9
22°	25 29.2 +13.9 74.8	24 35.2 +14.1 74.6	23 41.2 +14.5 74.3	22 47.3 +14.7 74.1	21 53.4 +15.1 73.8
23°	25 43.1 +13.4 73.8	24 49.3 +13.8 73.5	23 55.7 +14.0 73.3	23 02.0 +14.4 73.0	22 08.5 +14.7 72.8
24°	25 56.5 +12.9 72.7	25 03.1 +13.2 72.5	24 09.7 +13.6 72.2	23 16.4 +13.9 72.0	22 23.2 +14.2 71.8
25°	26 09.4 +12.5 71.6	25 16.3 +12.8 71.4	24 23.3 +13.1 71.2	23 30.3 +13.5 70.9	22 37.4 +13.8 70.7
26°	26 21.9 +11.9 70.5	25 29.1 +12.3 70.3	24 36.4 +12.7 70.1	23 43.8 +13.0 69.9	22 51.2 +13.5 69.6
27°	26 33.8 +11.5 69.4	25 41.4 +11.9 69.2	24 49.1 +12.2 69.0	23 56.8 +12.6 68.8	23 04.7 +13.0 68.6
28°	26 45.3 +10.9 68.3	25 53.3 +11.3 68.1	25 01.3 +11.8 67.9	24 09.4 +12.2 67.7	23 17.7 +12.5 67.5
29°	26 56.2 +10.4 67.2	26 04.6 +10.9 67.0	25 13.1 +11.2 66.8	24 21.6 +11.7 66.7	23 30.2 +12.1 66.5

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°	13 59.0 +22.0 95.5	13 03.2 +22.0 95.1	12 07.4 +21.9 94.7	11 11.5 +21.9 94.4	10 15.7 +21.7 94.0
1°	14 21.0 +21.8 94.5	13 25.2 +21.7 94.1	12 29.3 +21.7 93.8	11 33.4 +21.6 93.4	10 37.4 +21.6 93.0
2°	14 42.8 +21.6 93.6	13 46.9 +21.5 93.2	12 51.0 +21.4 92.8	11 55.0 +21.5 92.5	10 59.0 +21.5 92.1
3°	15 04.4 +21.3 92.6	14 08.4 +21.3 92.2	13 12.4 +21.3 91.9	12 16.5 +21.2 91.5	11 20.5 +21.2 91.1
4°	15 25.7 +21.1 91.6	14 29.7 +21.1 91.3	13 33.7 +21.1 90.9	12 37.7 +21.1 90.5	11 41.7 +21.0 90.2
5°	15 46.8 +20.8 90.7	14 50.8 +20.8 90.3	13 54.8 +20.8 89.9	12 58.8 +20.8 89.6	12 02.7 +20.9 89.2
6°	16 07.6 +20.6 89.7	15 11.6 +20.6 89.3	14 15.6 +20.6 89.0	13 19.6 +20.6 88.6	12 23.6 +20.6 88.3
7°	16 28.2 +20.2 88.7	15 32.2 +20.3 88.4	14 36.2 +20.3 88.0	13 40.2 +20.4 87.7	12 44.2 +20.5 87.3
8°	16 48.4 +20.0 87.7	15 52.5 +20.0 87.4	14 56.5 +20.1 87.0	14 00.6 +20.1 86.7	13 04.7 +20.2 86.3
9°	17 08.4 +19.7 86.7	16 12.5 +19.8 86.4	15 16.6 +19.9 86.1	14 20.7 +20.0 85.7	13 24.9 +20.0 85.4
10°	17 28.1 +19.4 85.7	16 32.3 +19.5 85.4	15 36.5 +19.5 85.1	14 40.7 +19.6 84.7	13 44.9 +19.8 84.4
11°	17 47.5 +19.2 84.8	16 51.8 +19.2 84.4	15 56.0 +19.4 84.1	15 00.3 +19.5 83.8	14 04.7 +19.5 83.4
12°	18 06.7 +18.8 83.8	17 11.0 +18.9 83.4	16 15.4 +19.0 83.1	15 19.8 +19.1 82.8	14 24.2 +19.3 82.5
13°	18 25.5 +18.4 82.8	17 29.9 +18.6 82.4	16 34.4 +18.8 82.1	15 38.9 +18.9 81.8	14 43.5 +19.1 81.5
14°	18 43.9 +18.2 81.8	17 48.5 +18.3 81.4	16 53.2 +18.4 81.1	15 57.8 +18.7 80.8	15 02.6 +18.8 80.5
15°	19 02.1 +17.8 80.7	18 06.8 +18.1 80.4	17 11.6 +18.2 80.1	16 16.5 +18.3 79.8	15 21.4 +18.5 79.5
16°	19 19.9 +17.5 79.7	18 24.9 +17.6 79.4	17 29.8 +17.9 79.1	16 34.8 +18.1 78.8	15 39.9 +18.3 78.5
17°	19 37.4 +17.2 78.7	18 42.5 +17.4 78.4	17 47.7 +17.6 78.1	16 52.9 +17.8 77.8	15 58.2 +18.0 77.5
18°	19 54.6 +16.8 77.7	18 59.9 +17.0 77.4	18 05.3 +17.2 77.1	17 10.7 +17.5 76.8	16 16.2 +17.7 76.5
19°	20 11.4 +16.5 76.7	19 16.9 +16.7 76.4	18 22.5 +17.0 76.1	17 28.2 +17.2 75.8	16 33.9 +17.4 75.5
20°	20 27.9 +16.1 75.7	19 33.6 +16.4 75.4	18 39.5 +16.6 75.1	17 45.4 +16.8 74.8	16 51.3 +17.2 74.5
21°	20 44.0 +15.7 74.6	19 50.0 +16.0 74.4	18 56.1 +16.3 74.1	18 02.2 +16.6 73.8	17 08.5 +16.8 73.5
22°	20 59.7 +15.3 73.6	20 06.0 +15.6 73.3	19 12.4 +15.9 73.1	18 18.8 +16.3 72.8	17 25.3 +16.6 72.5
23°	21 15.0 +15.0 72.6	20 21.6 +15.3 72.3	19 28.3 +15.6 72.0	18 35.1 +15.9 71.8	17 41.9 +16.2 71.5
24°	21 30.0 +14.6 71.5	20 36.9 +14.9 71.3	19 43.9 +15.2 71.0	18 51.0 +15.6 70.8	17 58.1 +15.9 70.5
25°	21 44.6 +14.2 70.5	20 51.8 +14.6 70.2	19 59.1 +14.9 70.0	19 06.6 +15.2 69.8	18 14.0 +15.6 69.5
26°	21 58.8 +13.7 69.4	21 06.4 +14.1 69.2	20 14.0 +14.6 69.0	19 21.8 +14.9 68.7	18 29.6 +15.3 68.5
27°	22 12.5 +13.4 68.4	21 20.5 +13.8 68.2	20 28.6 +14.1 67.9	19 36.7 +14.5 67.7	18 44.9 +15.0 67.5
28°	22 25.9 +13.0 67.3	21 34.3 +13.4 67.1	20 42.7 +13.8 66.9	19 51.2 +14.2 66.7	18 59.9 +14.6 66.4
29°	22 38.9 +12.5 66.3	21 47.7 +12.9 66.1	20 56.5 +13.4 65.9	20 05.4 +13.9 65.6	19 14.5 +14.2 65.4

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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°	9 19.8 +21.7 93.6	8 23.9 +21.6 93.2	7 27.9 +21.7 92.9	6 32.0 +21.6 92.5	5 36.0 +21.6 92.2
1°	9 41.5 +21.6 92.7	8 45.5 +21.6 92.3	7 49.6 +21.5 91.9	6 53.6 +21.4 91.6	5 57.6 +21.4 91.2
2°	10 03.1 +21.4 91.7	9 07.1 +21.3 91.4	8 11.1 +21.3 91.0	7 15.0 +21.4 90.6	6 19.0 +21.4 90.3
3°	10 24.5 +21.2 90.8	9 28.4 +21.3 90.4	8 32.4 +21.3 90.1	7 36.4 +21.3 89.7	6 40.4 +21.3 89.3
4°	10 45.7 +21.0 89.8	9 49.7 +21.0 89.5	8 53.7 +21.0 89.1	7 57.7 +21.1 88.8	7 01.7 +21.1 88.4
5°	11 06.7 +20.9 88.9	10 10.7 +20.9 88.5	9 14.7 +21.0 88.2	8 18.8 +20.9 87.8	7 22.8 +21.0 87.5
6°	11 27.6 +20.7 87.9	10 31.6 +20.8 87.6	9 35.7 +20.8 87.2	8 39.7 +20.9 86.9	7 43.8 +20.9 86.5
7°	11 48.3 +20.5 87.0	10 52.4 +20.5 86.6	9 56.5 +20.6 86.3	9 00.6 +20.7 85.9	8 04.7 +20.8 85.6
8°	12 08.8 +20.3 86.0	11 12.9 +20.4 85.6	10 17.1 +20.4 85.3	9 21.3 +20.5 85.0	8 25.5 +20.6 84.6
9°	12 29.1 +20.1 85.0	11 33.3 +20.2 84.7	10 37.5 +20.3 84.3	9 41.8 +20.4 84.0	8 46.1 +20.5 83.7
10°	12 49.2 +19.9 84.1	11 53.5 +20.0 83.7	10 57.8 +20.1 83.4	10 02.2 +20.2 83.1	9 06.6 +20.4 82.7
11°	13 09.1 +19.6 83.1	12 13.5 +19.7 82.8	11 17.9 +19.9 82.4	10 22.4 +20.1 82.1	9 27.0 +20.1 81.8
12°	13 28.7 +19.4 82.1	12 33.2 +19.6 81.8	11 37.8 +19.7 81.5	10 42.5 +19.8 81.1	9 47.1 +20.1 80.8
13°	13 48.1 +19.3 81.2	12 52.8 +19.4 80.8	11 57.5 +19.6 80.5	11 02.3 +19.7 80.2	10 07.2 +19.8 79.8
14°	14 07.4 +18.9 80.2	13 12.2 +19.1 79.9	12 17.1 +19.3 79.5	11 22.0 +19.5 79.2	10 27.0 +19.7 78.9
15°	14 26.3 +18.7 79.2	13 31.3 +18.9 78.9	12 36.4 +19.1 78.6	11 41.5 +19.3 78.2	10 46.7 +19.5 77.9
16°	14 45.0 +18.5 78.2	13 50.2 +18.7 77.9	12 55.5 +18.9 77.6	12 00.8 +19.1 77.3	11 06.2 +19.3 77.0
17°	15 03.5 +18.2 77.2	14 08.9 +18.5 76.9	13 14.4 +18.7 76.6	12 19.9 +18.9 76.3	11 25.5 +19.2 76.0
18°	15 21.7 +18.0 76.2	14 27.4 +18.2 75.9	13 33.1 +18.4 75.6	12 38.8 +18.7 75.3	11 44.7 +18.9 75.0
19°	15 39.7 +17.7 75.3	14 45.6 +17.9 75.0	13 51.5 +18.2 74.7	12 57.5 +18.5 74.4	12 03.6 +18.8 74.1
20°	15 57.4 +17.4 74.3	15 03.5 +17.7 74.0	14 09.7 +18.0 73.7	13 16.0 +18.2 73.4	12 22.4 +18.5 73.1
21°	16 14.8 +17.1 73.3	15 21.2 +17.4 73.0	14 27.7 +17.7 72.7	13 34.2 +18.1 72.4	12 40.9 +18.3 72.1
22°	16 31.9 +16.9 72.3	15 38.6 +17.2 72.0	14 45.4 +17.5 71.7	13 52.3 +17.7 71.4	12 59.2 +18.1 71.1
23°	16 48.8 +16.6 71.3	15 55.8 +16.9 71.0	15 02.9 +17.2 70.7	14 10.0 +17.6 70.4	13 17.3 +17.9 70.2
24°	17 05.4 +16.2 70.3	16 12.7 +16.6 70.0	15 20.1 +16.9 69.7	14 27.6 +17.3 69.5	13 35.2 +17.6 69.2
25°	17 21.6 +16.0 69.3	16 29.3 +16.3 69.0	15 37.0 +16.7 68.7	14 44.9 +17.0 68.5	13 52.8 +17.4 68.2
26°	17 37.6 +15.6 68.2	16 45.6 +16.0 68.0	15 53.7 +16.4 67.7	15 01.9 +16.8 67.5	14 10.2 +17.2 67.2
27°	17 53.2 +15.4 67.2	17 01.6 +15.7 67.0	16 10.1 +16.1 66.7	15 18.7 +16.5 66.5	14 27.4 +16.9 66.2
28°	18 08.6 +15.0 66.2	17 17.3 +15.5 66.0	16 26.2 +15.9 65.7	15 35.2 +16.3 65.5	14 44.3 +16.7 65.2
29°	18 23.6 +14.6 65.2	17 32.8 +15.1 65.0	16 42.1 +15.5 64.7	15 51.5 +15.9 64.5	15 01.0 +16.4 64.2

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°	4 40.0 +21.6 91.8	3 44.0 +21.6 91.4	2 48.0 +21.5 91.1	1 52.0 +21.5 90.7	0 56.0 +21.5 90.4
1°	5 01.6 +21.4 90.9	4 05.6 +21.4 90.5	3 09.5 +21.5 90.1	2 13.5 +21.5 89.8	1 17.5 +21.5 89.4
2°	5 23.0 +21.4 89.9	4 27.0 +21.4 89.6	3 31.0 +21.4 89.2	2 35.0 +21.4 88.8	1 39.0 +21.4 88.5
3°	5 44.4 +21.3 89.0	4 48.4 +21.3 88.6	3 52.4 +21.3 88.3	2 56.4 +21.4 87.9	2 00.4 +21.5 87.6
4°	6 05.7 +21.1 88.0	5 09.7 +21.2 87.7	4 13.7 +21.3 87.3	3 17.8 +21.3 87.0	2 21.9 +21.3 86.6
5°	6 26.8 +21.1 87.1	5 30.9 +21.1 86.7	4 35.0 +21.2 86.4	3 39.1 +21.3 86.0	2 43.2 +21.4 85.7
6°	6 47.9 +21.0 86.2	5 52.0 +21.1 85.8	4 56.2 +21.1 85.5	4 00.4 +21.2 85.1	3 04.6 +21.3 84.8
7°	7 08.9 +20.8 85.2	6 13.1 +20.9 84.9	5 17.3 +21.0 84.5	4 21.6 +21.1 84.2	3 25.9 +21.2 83.8
8°	7 29.7 +20.8 84.3	6 34.0 +20.9 83.9	5 38.3 +21.0 83.6	4 42.7 +21.0 83.2	3 47.1 +21.2 82.9
9°	7 50.5 +20.6 83.3	6 54.9 +20.7 83.0	5 59.3 +20.8 82.6	5 03.7 +21.0 82.3	4 08.3 +21.1 81.9
10°	8 11.1 +20.4 82.4	7 15.6 +20.6 82.0	6 20.1 +20.8 81.7	5 24.7 +20.9 81.3	4 29.4 +21.0 81.0
11°	8 31.5 +20.4 81.4	7 36.2 +20.5 81.1	6 40.9 +20.6 80.7	5 45.6 +20.8 80.4	4 50.4 +21.0 80.1
12°	8 51.9 +20.2 80.5	7 56.7 +20.3 80.1	7 01.5 +20.5 79.8	6 06.4 +20.7 79.5	5 11.4 +20.8 79.1
13°	9 12.1 +20.0 79.5	8 17.0 +20.2 79.2	7 22.0 +20.4 78.9	6 27.1 +20.6 78.5	5 32.2 +20.8 78.2
14°	9 32.1 +19.9 78.6	8 37.2 +20.1 78.2	7 42.4 +20.3 77.9	6 47.7 +20.5 77.6	5 53.0 +20.7 77.2
15°	9 52.0 +19.7 77.6	8 57.3 +19.9 77.3	8 02.7 +20.1 77.0	7 08.2 +20.3 76.6	6 13.7 +20.6 76.3
16°	10 11.7 +19.5 76.6	9 17.2 +19.8 76.3	8 22.8 +20.0 76.0	7 28.5 +20.3 75.7	6 34.3 +20.5 75.3
17°	10 31.2 +19.4 75.7	9 37.0 +19.6 75.4	8 42.8 +19.9 75.0	7 48.8 +20.1 74.7	6 54.8 +20.3 74.4
18°	10 50.6 +19.2 74.7	9 56.6 +19.5 74.4	9 02.7 +19.7 74.1	8 08.9 +20.0 73.8	7 15.1 +20.3 73.5
19°	11 09.8 +19.0 73.8	10 16.1 +19.2 73.4	9 22.4 +19.6 73.1	8 28.9 +19.8 72.8	7 35.4 +20.1 72.5
20°	11 28.8 +18.8 72.8	10 35.3 +19.2 72.5	9 42.0 +19.4 72.2	8 48.7 +19.7 71.9	7 55.5 +20.0 71.6
21°	11 47.6 +18.6 71.8	10 54.5 +18.9 71.5	10 01.4 +19.2 71.2	9 08.4 +19.5 70.9	8 15.5 +19.9 70.6
22°	12 06.2 +18.5 70.8	11 13.4 +18.7 70.6	10 20.6 +19.1 70.3	9 27.9 +19.4 70.0	8 35.4 +19.7 69.6
23°	12 24.7 +18.2 69.9	11 32.1 +18.6 69.6	10 39.7 +18.9 69.3	9 47.3 +19.3 69.0	8 55.1 +19.6 68.7
24°	12 42.9 +18.0 68.9	11 50.7 +18.3 68.6	10 58.6 +18.7 68.3	10 06.6 +19.0 68.0	9 14.7 +19.4 67.7
25°	13 00.9 +17.7 67.9	12 09.0 +18.2 67.6	11 17.3 +18.5 67.4	10 25.6 +18.9 67.1	9 34.1 +19.2 66.8
26°	13 18.6 +17.6 66.9	12 27.2 +17.9 66.7	11 35.8 +18.3 66.4	10 44.5 +18.7 66.1	9 53.3 +19.1 65.8
27°	13 36.2 +17.3 66.0	12 45.1 +17.7 66.0	11 54.1 +18.1 65.4	11 03.2 +18.5 65.1	10 12.4 +19.0 64.8
28°	13 53.5 +17.1 65.0	13 02.8 +17.5 64.7	12 12.2 +17.9 64.4	11 21.7 +18.4 64.2	10 31.4 +18.7 63.9
29°	14 10.6 +16.8 64.0	13 20.3 +17.3 63.7	12 30.1 +17.7 63.5	11 40.1 +18.1 63.2	10 50.1 +18.6 62.9

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 +21.5 90.0	-0 56.0 +21.5	-1 52.0 +21.5	-2 48.0 +21.5	-3 44.0 +21.5
1°	0 21.5 +21.5 89.1	-0 34.5 +21.5	-1 30.5 +21.6	-2 26.5 +21.6	-3 22.5 +21.7
2°	0 43.0 +21.5 88.1	-0 13.0 +21.5	-1 08.9 +21.5	-2 04.9 +21.6	-3 00.8 +21.6
3°	1 04.5 +21.4 87.2	0 08.5 +21.6 86.8	-0 47.4 +21.6	-1 43.3 +21.7	-2 39.2 +21.8
4°	1 25.9 +21.5 86.3	0 30.1 +21.5 85.9	-0 25.8 +21.6	-1 21.6 +21.6	-2 17.4 +21.7
5°	1 47.4 +21.4 85.3	0 51.6 +21.5 85.0	-0 04.2 +21.6	-1 00.0 +21.7	-1 55.7 +21.8
6°	2 08.8 +21.4 84.4	1 13.1 +21.5 84.0	0 17.4 +21.6 83.7	-0 38.3 +21.7	-1 33.9 +21.8
7°	2 30.2 +21.3 83.5	1 34.6 +21.4 83.1	0 39.0 +21.5 82.8	-0 16.6 +21.7	-1 12.1 +21.9
8°	2 51.5 +21.3 82.5	1 56.0 +21.4 82.2	1 00.5 +21.6 81.8	0 05.1 +21.7 81.5	-0 50.2 +21.8
9°	3 12.8 +21.3 81.6	2 17.4 +21.4 81.2	1 22.1 +21.5 80.9	0 26.8 +21.7 80.5	-0 28.4 +21.9
10°	3 34.1 +21.2 80.7	2 38.8 +21.4 80.3	1 43.6 +21.6 79.9	0 48.5 +21.7 79.6	-0 06.5 +21.8
11°	3 55.3 +21.1 79.7	3 00.2 +21.3 79.4	2 05.2 +21.4 79.0	1 10.2 +21.7 78.7	0 15.3 +21.9 78.3
12°	4 16.4 +21.0 78.8	3 21.5 +21.2 78.4	2 26.6 +21.5 78.1	1 31.9 +21.6 77.7	0 37.2 +21.8 77.4
13°	4 37.4 +21.0 77.8	3 42.7 +21.2 77.5	2 48.1 +21.4 77.1	1 53.5 +21.6 76.8	0 59.0 +21.8 76.4
14°	4 58.4 +20.9 76.9	4 03.9 +21.1 76.6	3 09.5 +21.3 76.2	2 15.1 +21.6 75.9	1 20.8 +21.8 75.5
15°	5 19.3 +20.8 76.0	4 25.0 +21.1 75.6	3 30.8 +21.3 75.3	2 36.7 +21.5 74.9	1 42.6 +21.8 74.6
16°	5 40.1 +20.8 75.0	4 46.1 +20.9 74.7	3 52.1 +21.2 74.3	2 58.2 +21.5 74.0	2 04.4 +21.7 73.6
17°	6 00.9 +20.6 74.1	5 07.0 +20.9 73.7	4 13.3 +21.2 73.4	3 19.7 +21.4 73.1	2 26.1 +21.7 72.7
18°	6 21.5 +20.5 73.1	5 27.9 +20.8 72.8	4 34.5 +21.1 72.5	3 41.1 +21.4 72.1	2 47.8 +21.7 71.8
19°	6 42.0 +20.4 72.2	5 48.7 +20.7 71.9	4 55.6 +21.0 71.5	4 02.5 +21.3 71.2	3 09.5 +21.6 70.8
20°	7 02.4 +20.3 71.2	6 09.4 +20.6 70.9	5 16.6 +20.9 70.6	4 23.8 +21.2 70.2	3 31.1 +21.6 69.9
21°	7 22.7 +20.2 70.3	6 30.0 +20.5 70.0	5 37.5 +20.8 69.6	4 45.0 +21.2 69.3	3 52.7 +21.5 69.0
22°	7 42.9 +20.1 69.3	6 50.5 +20.4 69.0	5 58.3 +20.7 68.7	5 06.2 +21.1 68.4	4 14.2 +21.4 68.0
23°	8 03.0 +19.9 68.4	7 10.9 +20.3 68.1	6 19.0 +20.7 67.8	5 27.3 +20.9 67.4	4 35.6 +21.3 67.1
24°	8 22.9 +19.8 67.4	7 31.2 +20.2 67.1	6 39.7 +20.5 66.8	5 48.2 +20.9 66.5	4 56.9 +21.3 66.2
25°	8 42.7 +19.6 66.5	7 51.4 +20.0 66.2	7 00.2 +20.4 65.9	6 09.1 +20.8 65.5	5 18.2 +21.2 65.2
26°	9 02.3 +19.5 65.5	8 11.4 +19.9 65.2	7 20.6 +20.3 64.9	6 29.9 +20.7 64.6	5 39.4 +21.1 64.3
27°	9 21.8 +19.3 64.6	8 31.3 +19.7 64.3	7 40.9 +20.2 64.0	6 50.6 +20.6 63.7	6 00.5 +21.0 63.3
28°	9 41.1 +19.2 63.6	8 51.0 +19.6 63.3	8 01.1 +20.0 63.0	7 11.2 +20.5 62.7	6 21.5 +20.9 62.4
29°	10 00.3 +19.0 62.6	9 10.6 +19.5 62.4	8 21.1 +19.9 62.1	7 31.7 +20.3 61.8	6 42.4 +20.8 61.5

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°	-4 40.0 +21.6	-5 36.0 +21.6	-6 32.0 +21.7	-7 27.9 +21.7	-8 23.9 +21.8
1°	-4 18.4 +21.7	-5 14.4 +21.8	-6 10.3 +21.8	-7 06.2 +21.9	-8 02.1 +22.0
2°	-3 56.7 +21.7	-4 52.6 +21.8	-5 48.5 +21.9	-6 44.3 +21.9	-7 40.1 +22.0
3°	-3 35.0 +21.8	-4 30.8 +21.9	-5 26.6 +22.0	-6 22.4 +22.1	-7 18.1 +22.2
4°	-3 13.2 +21.8	-4 08.9 +21.9	-5 04.6 +22.0	-6 00.3 +22.2	-6 55.9 +22.3
5°	-2 51.4 +21.9	-3 47.0 +22.0	-4 42.6 +22.1	-5 38.1 +22.2	-6 33.6 +22.3
6°	-2 29.5 +22.0	-3 25.0 +22.1	-4 20.5 +22.2	-5 15.9 +22.3	-6 11.3 +22.5
7°	-2 07.5 +21.9	-3 02.9 +22.1	-3 58.3 +22.3	-4 53.6 +22.5	-5 48.8 +22.6
8°	-1 45.6 +22.0	-2 40.8 +22.1	-3 36.0 +22.3	-4 31.1 +22.4	-5 26.2 +22.6
9°	-1 23.6 +22.1	-2 18.7 +22.2	-3 13.7 +22.4	-4 08.7 +22.6	-5 03.6 +22.8
10°	-1 01.5 +22.0	-1 56.5 +22.2	-2 51.3 +22.4	-3 46.1 +22.6	-4 40.8 +22.8
11°	-0 39.5 +22.0	-1 34.3 +22.3	-2 28.9 +22.4	-3 23.5 +22.7	-4 18.0 +22.9
12°	-0 17.5 +22.1	-1 12.0 +22.3	-2 06.5 +22.5	-3 00.8 +22.7	-3 55.1 +22.9
13°	0 04.6 +22.0 76.1	-0 49.7 +22.2	-1 44.0 +22.5	-2 38.1 +22.7	-3 32.2 +23.0
14°	0 26.6 +22.1 75.2	-0 27.5 +22.3	-1 21.5 +22.6	-2 15.4 +22.8	-3 09.2 +23.0
15°	0 48.7 +22.0 74.2	-0 05.2 +22.3	-0 58.9 +22.5	-1 52.6 +22.8	-2 46.2 +23.1
16°	1 10.7 +22.0 73.3	0 17.1 +22.3 72.9	-0 36.4 +22.6	-1 29.8 +22.8	-2 23.1 +23.1
17°	1 32.7 +22.0 72.4	0 39.4 +22.2 72.0	-0 13.8 +22.5	-1 07.0 +22.9	-2 00.0 +23.2
18°	1 54.7 +21.9 71.4	1 01.6 +22.3 71.1	0 08.7 +22.6 70.7	-0 44.1 +22.9	-1 36.8 +23.2
19°	2 16.6 +22.0 70.5	1 23.9 +22.2 70.2	0 31.3 +22.5 69.8	-0 21.2 +22.8	-1 13.6 +23.2
20°	2 38.6 +21.8 69.6	1 46.1 +22.2 69.2	0 53.8 +22.6 68.9	0 01.6 +22.9 68.5	-0 50.4 +23.2
21°	3 00.4 +21.9 68.6	2 08.3 +22.2 68.3	1 16.4 +22.5 67.9	0 24.5 +22.9 67.6	-0 27.2 +23.2
22°	3 22.3 +21.7 67.7	2 30.5 +22.1 67.4	1 38.9 +22.5 67.0	0 47.4 +22.8 66.7	-0 04.0 +23.2
23°	3 44.0 +21.8 66.8	2 52.6 +22.1 66.4	2 01.4 +22.4 66.1	1 10.2 +22.9 65.7	0 19.2 +23.2 65.4
24°	4 05.8 +21.6 65.8	3 14.7 +22.1 65.5	2 23.8 +22.4 65.2	1 33.1 +22.8 64.8	0 42.4 +23.2 64.5
25°	4 27.4 +21.6 64.9	3 36.8 +21.9 64.6	2 46.2 +22.4 64.2	1 55.9 +22.7 63.9	1 05.6 +23.2 63.5
26°	4 49.0 +21.5 64.0	3 58.7 +21.9 63.6	3 08.6 +22.3 63.3	2 18.6 +22.8 63.0	1 28.8 +23.2 62.6
27°	5 10.5 +21.4 63.0	4 20.6 +21.9 62.7	3 30.9 +22.3 62.4	2 41.4 +22.7 62.0	1 52.0 +23.1 61.7
28°	5 31.9 +21.3 62.1	4 42.5 +21.8 61.8	3 53.2 +22.2 61.4	3 04.1 +22.6 61.1	2 15.1 +23.1 60.8
29°	5 53.2 +21.3 61.2	5 04.3 +21.6 60.8	4 15.4 +22.2 60.5	3 26.7 +22.6 60.2	2 38.2 +23.1 59.9

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°	-9 19.8 +21.9				
1°	-8 57.9 +22.0	-9 53.7 +22.1			
2°	-8 35.9 +22.1	-9 31.6 +22.2			
3°	-8 13.8 +22.3	-9 09.4 +22.4			
4°	-7 51.5 +22.4	-8 47.0 +22.5	-9 42.5 +22.7		
5°	-7 29.1 +22.5	-8 24.5 +22.7	-9 19.8 +22.8		
6°	-7 06.6 +22.7	-8 01.8 +22.8	-8 57.0 +22.9	-9 52.2 +23.2	
7°	-6 43.9 +22.7	-7 39.0 +22.9	-8 34.1 +23.1	-9 29.0 +23.2	
8°	-6 21.2 +22.8	-7 16.1 +23.0	-8 11.0 +23.2	-9 05.8 +23.4	
9°	-5 58.4 +23.0	-6 53.1 +23.1	-7 47.8 +23.4	-8 42.4 +23.6	
10°	-5 35.4 +23.0	-6 30.0 +23.2	-7 24.4 +23.4	-8 18.8 +23.7	
11°	-5 12.4 +23.1	-6 06.8 +23.4	-7 01.0 +23.6	-7 55.1 +23.8	
12°	-4 49.3 +23.1	-5 43.4 +23.4	-6 37.4 +23.6	-7 31.3 +23.9	
13°	-4 26.2 +23.3	-5 20.0 +23.5	-6 13.8 +23.8	-7 07.4 +24.0	
14°	-4 02.9 +23.3	-4 56.5 +23.6	-5 50.0 +23.8	-6 43.4 +24.1	
15°	-3 39.6 +23.4	-4 32.9 +23.6	-5 26.2 +24.0	-6 19.3 +24.3	
16°	-3 16.2 +23.4	-4 09.3 +23.7	-5 02.2 +24.0	-5 55.0 +24.3	
17°	-2 52.8 +23.4	-3 45.6 +23.8	-4 38.2 +24.1	-5 30.7 +24.4	
18°	-2 29.4 +23.5	-3 21.8 +23.8	-4 14.1 +24.1	-5 06.3 +24.4	
19°	-2 05.9 +23.5	-2 58.0 +23.9	-3 50.0 +24.2	-4 41.9 +24.6	
20°	-1 42.4 +23.6	-2 34.1 +23.9	-3 25.8 +24.3	-4 17.3 +24.6	
21°	-1 18.8 +23.6	-2 10.2 +23.9	-3 01.5 +24.3	-3 52.7 +24.7	
22°	-0 55.2 +23.6	-1 46.3 +24.0	-2 37.2 +24.3	-3 28.0 +24.7	
23°	-0 31.6 +23.6	-1 22.3 +23.9	-2 12.9 +24.4	-3 03.3 +24.8	
24°	-0 08.0 +23.6	-0 58.4 +24.0	-1 48.5 +24.4	-2 38.5 +24.8	
25°	0 15.6 +23.6 63.2	-0 34.4 +24.1	-1 24.1 +24.4	-2 13.7 +24.9	
26°	0 39.2 +23.5 62.3	-0 10.3 +24.0	-0 59.7 +24.5	-1 48.8 +24.8	
27°	1 02.7 +23.6 61.4	0 13.7 +24.0 61.0	-0 35.2 +24.4	-1 24.0 +24.9	
28°	1 26.3 +23.6 60.4	0 37.7 +24.0 60.1	-0 10.8 +24.5	-0 59.1 +24.9	
29°	1 49.9 +23.5 59.5	1 01.7 +24.0 59.2	0 13.7 +24.4 58.8	-0 34.2 +25.0	

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°					
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°					

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°	68 00.0 +60.0 180.0	67 58.7 +59.9 177.3	67 54.8 +59.8 174.7	67 48.4 +59.5 172.0	67 39.4 +59.1 169.4
1°	69 00.0 +60.0 180.0	68 58.6 +60.0 177.2	68 54.6 +59.7 174.4	68 47.9 +59.4 171.7	68 38.5 +59.0 169.0
2°	70 00.0 +60.0 180.0	69 58.6 +59.9 177.1	69 54.3 +59.8 174.2	69 47.3 +59.4 171.3	69 37.5 +58.9 168.4
3°	71 00.0 +60.0 180.0	70 58.5 +59.9 176.9	70 54.1 +59.6 173.9	70 46.7 +59.3 170.9	70 36.4 +58.8 167.9
4°	72 00.0 +60.0 180.0	71 58.4 +59.9 176.8	71 53.7 +59.7 173.6	71 46.0 +59.2 170.4	71 35.2 +58.7 167.3
5°	73 00.0 +60.0 180.0	72 58.3 +59.9 176.6	72 53.4 +59.6 173.2	72 45.2 +59.2 169.9	72 33.9 +58.5 166.6
6°	74 00.0 +60.0 180.0	73 58.2 +59.9 176.4	73 53.0 +59.6 172.8	73 44.4 +59.0 169.3	73 32.4 +58.3 165.8
7°	75 00.0 +60.0 180.0	74 58.1 +59.9 176.2	74 52.6 +59.5 172.4	74 43.4 +58.9 168.6	74 30.7 +58.1 165.0
8°	76 00.0 +60.0 180.0	75 58.0 +59.9 175.9	75 52.1 +59.4 171.9	75 42.3 +58.7 167.9	75 28.8 +57.8 164.0
9°	77 00.0 +60.0 180.0	76 57.9 +59.8 175.6	76 51.5 +59.4 171.3	76 41.0 +58.6 167.0	76 26.6 +57.5 162.9
10°	78 00.0 +60.0 180.0	77 57.7 +59.8 175.3	77 50.9 +59.2 170.6	77 39.6 +58.3 166.0	77 24.1 +57.1 161.6
11°	79 00.0 +60.0 180.0	78 57.5 +59.8 174.9	78 50.1 +59.1 169.8	78 37.9 +58.0 164.9	78 21.2 +56.5 160.2
12°	80 00.0 +60.0 180.0	79 57.3 +59.7 174.4	79 49.2 +58.8 168.9	79 35.9 +57.5 163.5	79 17.7 +55.9 158.4
13°	81 00.0 +60.0 180.0	80 57.0 +59.6 173.8	80 48.0 +58.6 167.7	80 33.4 +57.0 161.9	80 13.6 +55.0 156.4
14°	82 00.0 +60.0 180.0	81 56.6 +59.6 173.1	81 46.6 +58.3 166.3	81 30.4 +56.3 159.9	81 08.6 +53.8 153.9
15°	83 00.0 +60.0 180.0	82 56.2 +59.4 172.1	82 44.9 +57.7 164.5	82 26.7 +55.1 157.4	82 02.4 +52.1 150.9
16°	84 00.0 +60.0 180.0	83 55.6 +59.1 170.9	83 42.6 +56.8 162.2	83 21.8 +53.6 154.2	82 54.5 +49.8 147.1
17°	85 00.0 +60.0 180.0	84 54.7 +58.8 169.2	84 39.4 +55.4 159.0	84 15.4 +51.0 150.0	83 44.3 +46.4 142.3
18°	86 00.0 +60.0 180.0	85 53.5 +57.9 166.6	85 34.8 +53.0 154.5	85 06.4 +47.0 144.3	84 30.7 +41.3 136.1
19°	87 00.0 +60.0 180.0	86 51.4 +56.2 162.5	86 27.8 +48.0 147.7	85 53.4 +40.1 136.3	85 12.0 +33.8 128.0
20°	88 00.0 +60.0 180.0	87 47.6 +50.4 154.8	87 15.8 +37.5 136.6	86 33.5 +28.6 125.0	85 45.8 +23.0 117.4
21°	89 00.0 +60.0 180.0	88 38.0 +26.4 136.9	87 53.3 +15.4 117.9	87 02.1 +11.0 109.2	86 08.8 +08.7 104.3
22°	90 00.0 -60.0 0.0	89 04.4 -26.1 89.8	88 08.7 -14.8 89.6	87 13.1 -09.9 89.4	86 17.5 -07.2 89.3
23°	89 00.0 -60.0 0.0	88 38.3 -50.4 42.5	87 53.9 -37.0 61.2	87 03.2 -27.8 69.6	86 10.3 -21.7 74.1
24°	88 00.0 -60.0 0.0	87 47.9 -56.1 24.5	87 16.9 -47.9 42.2	86 35.4 -39.6 53.5	85 48.6 -32.9 60.7
25°	87 00.0 -60.0 0.0	86 51.8 -58.0 16.8	86 29.0 -52.8 31.0	85 55.8 -46.7 41.9	85 15.7 -40.7 49.9
26°	86 00.0 -60.0 0.0	85 53.8 -58.7 12.7	85 36.2 -55.4 24.1	85 09.1 -50.9 33.8	84 35.0 -46.0 41.6
27°	85 00.0 -60.0 0.0	84 55.1 -59.2 10.1	84 40.8 -56.8 19.6	84 18.2 -53.4 28.0	83 49.0 -49.5 35.2
28°	84 00.0 -60.0 0.0	83 55.9 -59.4 8.4	83 44.0 -57.7 16.4	83 24.8 -55.1 23.8	82 59.5 -52.0 30.3
29°	83 00.0 -60.0 0.0	82 56.5 -59.5 7.1	82 46.3 -58.2 14.0	82 29.7 -56.2 20.5	82 07.5 -53.6 26.4

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°	67 28.0 +58.6 166.9	67 14.1 +58.0 164.3	66 58.0 +57.3 161.9	66 39.5 +56.6 159.4	66 18.9 +55.8 157.1
1°	68 26.6 +58.4 166.3	68 12.1 +57.9 163.7	67 55.3 +57.1 161.1	67 36.1 +56.3 158.6	67 14.7 +55.4 156.1
2°	69 25.0 +58.4 165.7	69 10.0 +57.6 162.9	68 52.4 +56.8 160.3	68 32.4 +56.0 157.7	68 10.1 +55.1 155.1
3°	70 23.4 +58.1 165.0	70 07.6 +57.4 162.1	69 49.2 +56.6 159.3	69 28.4 +55.6 156.6	69 05.2 +54.6 154.0
4°	71 21.5 +58.0 164.2	71 05.0 +57.1 161.2	70 45.8 +56.1 158.3	70 24.0 +55.1 155.6	69 59.8 +54.0 152.9
5°	72 19.5 +57.7 163.4	72 02.1 +56.8 160.3	71 41.9 +55.8 157.3	71 19.1 +54.7 154.4	70 53.8 +53.5 151.6
6°	73 17.2 +57.4 162.5	72 58.9 +56.4 159.2	72 37.7 +55.3 156.0	72 13.8 +54.0 153.0	71 47.3 +52.8 150.1
7°	74 14.6 +57.1 161.4	73 55.3 +56.0 158.0	73 33.0 +54.7 154.7	73 07.8 +53.4 151.6	72 40.1 +52.0 148.6
8°	75 11.7 +56.7 160.3	74 51.3 +55.4 156.7	74 27.7 +54.1 153.2	74 01.2 +52.6 150.0	73 32.1 +51.0 146.9
9°	76 08.4 +56.2 158.9	75 46.7 +54.8 155.2	75 21.8 +53.2 151.6	74 53.8 +51.6 148.2	74 23.1 +50.0 145.0
10°	77 04.6 +55.7 157.4	76 41.5 +54.0 153.4	76 15.0 +52.3 149.7	75 45.4 +50.5 146.1	75 13.1 +48.7 142.9
11°	78 00.3 +54.8 155.7	77 35.5 +53.0 151.5	77 07.3 +51.0 147.5	76 35.9 +49.1 143.9	76 01.8 +47.2 140.5
12°	78 55.1 +54.0 153.7	78 28.5 +51.8 149.2	77 58.3 +49.7 145.1	77 25.0 +47.5 141.3	76 49.0 +45.3 137.9
13°	79 49.1 +52.7 151.3	79 20.3 +50.3 146.6	78 48.0 +47.8 142.3	78 12.5 +45.4 138.4	77 34.3 +43.2 134.9
14°	80 41.8 +51.1 148.5	80 10.6 +48.3 143.5	79 35.8 +45.6 139.1	78 57.9 +43.0 135.1	78 17.5 +40.6 131.6
15°	81 32.9 +48.9 145.1	80 58.9 +45.8 139.9	80 21.4 +42.8 135.4	79 40.9 +40.1 131.4	78 58.1 +37.5 127.8
16°	82 21.8 +46.0 140.9	81 44.7 +42.5 135.6	81 04.2 +39.2 131.0	80 21.0 +36.3 127.1	79 35.6 +33.8 123.6
17°	83 07.8 +42.0 135.8	82 27.2 +38.1 130.4	81 43.4 +34.8 125.9	80 57.3 +31.9 122.2	80 09.4 +29.5 118.9
18°	83 49.8 +36.5 129.5	83 05.3 +32.5 124.3	82 18.2 +29.3 120.1	81 29.2 +26.6 116.6	80 38.9 +24.4 113.7
19°	84 26.3 +29.0 121.7	83 37.8 +25.4 117.0	82 47.5 +22.5 113.3	81 55.8 +20.4 110.4	81 03.3 +18.6 108.0
20°	84 55.3 +19.2 112.3	84 03.2 +16.5 108.6	83 10.0 +14.7 105.7	82 16.2 +13.2 103.5	81 21.9 +12.2 101.7
21°	85 14.5 +07.4 101.2	84 19.7 +06.5 99.0	83 24.7 +05.9 97.4	82 29.4 +05.6 96.2	81 34.1 +05.3 95.1
22°	85 21.9 -05.5 89.1	84 26.2 -04.1 88.9	83 30.6 -03.2 88.7	82 35.0 -02.4 88.5	81 39.4 -01.8 88.3
23°	85 16.4 -17.5 76.8	84 22.1 -14.5 78.6	83 27.4 -12.1 79.9	82 32.6 -10.4 80.8	81 37.6 -08.8 81.4
24°	84 58.9 -27.6 65.5	84 07.6 -23.6 68.9	83 15.3 -20.4 71.4	82 22.2 -17.6 73.3	81 28.8 -15.6 74.7
25°	84 31.3 -35.5 55.8	83 44.0 -31.0 60.2	82 54.9 -27.3 63.6	82 04.6 -24.3 66.2	81 13.2 -21.6 68.3
26°	83 55.8 -41.3 47.8	83 13.0 -37.1 52.7	82 27.6 -33.3 56.6	81 40.3 -29.9 59.7	80 51.6 -27.0 62.3
27°	83 14.5 -45.5 41.3	82 35.9 -41.6 46.3	81 54.3 -38.0 50.5	81 10.4 -34.8 53.9	80 24.6 -31.8 56.8
28°	82 29.0 -48.6 36.0	81 54.3 -45.1 41.0	81 16.3 -41.8 45.2	80 35.6 -38.6 48.8	79 52.8 -35.7 51.8
29°	81 40.4 -50.8 31.8	81 09.2 -47.8 36.5	80 34.5 -44.8 40.6	79 57.0 -41.9 44.2	79 17.1 -39.2 47.4

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°	65 56.2 +55.0 154.8	65 31.6 +54.0 152.6	65 05.0 +53.1 150.4	64 36.7 +52.1 148.4	64 06.7 +51.1 146.4
1°	66 51.2 +54.5 153.8	66 25.6 +53.6 151.5	65 58.1 +52.6 149.3	65 28.8 +51.6 147.2	64 57.8 +50.6 145.1
2°	67 45.7 +54.0 152.7	67 19.2 +53.0 150.4	66 50.7 +52.0 148.1	66 20.4 +50.9 145.9	65 48.4 +49.9 143.8
3°	68 39.7 +53.6 151.5	68 12.2 +52.4 149.1	67 42.7 +51.3 146.8	67 11.3 +50.2 144.6	66 38.3 +49.0 142.5
4°	69 33.3 +52.9 150.3	69 04.6 +51.8 147.8	68 34.0 +50.6 145.4	68 01.5 +49.4 143.2	67 27.3 +48.2 141.0
5°	70 26.2 +52.3 148.9	69 56.4 +51.0 146.3	69 24.6 +49.7 143.9	68 50.9 +48.5 141.6	68 15.5 +47.3 139.4
6°	71 18.5 +51.4 147.4	70 47.4 +50.1 144.8	70 14.3 +48.8 142.3	69 39.4 +47.5 139.9	69 02.8 +46.2 137.7
7°	72 09.9 +50.6 145.8	71 37.5 +49.2 143.1	71 03.1 +47.8 140.5	70 26.9 +46.3 138.2	69 49.0 +44.9 135.9
8°	73 00.5 +49.5 144.0	72 26.7 +48.0 141.2	71 50.9 +46.5 138.6	71 13.2 +45.0 136.2	70 33.9 +43.6 133.9
9°	73 50.0 +48.3 142.0	73 14.7 +46.7 139.2	72 37.4 +45.1 136.6	71 58.2 +43.6 134.1	71 17.5 +42.1 131.8
10°	74 38.3 +46.9 139.8	74 01.4 +45.1 136.9	73 22.5 +43.5 134.3	72 41.8 +41.9 131.9	71 59.6 +40.4 129.6
11°	75 25.2 +45.3 137.4	74 46.5 +43.5 134.5	74 06.0 +41.6 131.8	73 23.7 +40.1 129.4	72 40.0 +38.5 127.1
12°	76 10.5 +43.3 134.7	75 30.0 +41.4 131.8	74 47.6 +39.6 129.2	74 03.8 +37.9 126.7	73 18.5 +36.4 124.5
13°	76 53.8 +41.1 131.7	76 11.4 +39.0 128.8	75 27.2 +37.3 126.2	74 41.7 +35.5 123.9	73 54.9 +34.0 121.7
14°	77 34.9 +38.3 128.4	76 50.4 +36.4 125.6	76 04.5 +34.5 123.0	75 17.2 +32.9 120.8	74 28.9 +31.3 118.7
15°	78 13.2 +35.3 124.8	77 26.8 +33.2 122.0	76 39.0 +31.4 119.6	75 50.1 +29.8 117.4	75 00.2 +28.4 115.4
16°	78 48.5 +31.6 120.7	78 00.0 +29.6 118.1	77 10.4 +27.9 115.8	76 19.9 +26.5 113.8	75 28.6 +25.2 112.0
17°	79 20.1 +27.4 116.2	78 29.6 +25.7 113.8	77 38.3 +24.1 111.8	76 46.4 +22.7 109.9	75 53.8 +21.6 108.3
18°	79 47.5 +22.5 111.3	78 55.3 +21.0 109.2	78 02.4 +19.8 107.4	77 09.1 +18.8 105.8	76 15.4 +17.8 104.4
19°	80 10.0 +17.3 106.0	79 16.3 +16.1 104.3	78 22.2 +15.2 102.8	77 27.9 +14.3 101.5	76 33.2 +13.8 100.4
20°	80 27.3 +11.3 100.3	79 32.4 +10.7 99.0	78 37.4 +10.2 97.9	77 42.2 +09.8 97.0	76 47.0 +09.4 96.1
21°	80 38.6 +05.2 94.3	79 43.1 +05.1 93.5	78 47.6 +05.0 92.9	77 52.0 +05.0 92.3	76 56.4 +05.0 91.8
22°	80 43.8 -01.3 88.1	79 48.2 -00.8 87.9	78 52.6 -00.3 87.7	77 57.0 +00.1 87.6	77 01.4 +00.5 87.4
23°	80 42.5 -07.5 81.9	79 47.4 -06.5 82.3	78 52.3 -05.6 82.6	77 57.1 -04.8 82.8	77 01.9 -04.0 82.9
24°	80 35.0 -13.7 75.8	79 40.9 -12.1 76.7	78 46.7 -10.8 77.4	77 52.3 -09.5 78.0	76 57.9 -08.5 78.5
25°	80 21.3 -19.4 69.9	79 28.8 -17.4 71.3	78 35.9 -15.7 72.4	77 42.8 -14.2 73.3	76 49.4 -12.9 74.1
26°	80 01.9 -24.5 64.4	79 11.4 -22.3 66.1	78 20.2 -20.3 67.6	77 28.6 -18.6 68.8	76 36.5 -17.0 69.9
27°	79 37.4 -29.1 59.2	78 49.1 -26.7 61.2	77 59.9 -24.5 63.0	77 10.0 -22.6 64.5	76 19.5 -20.8 65.8
28°	79 08.3 -33.1 54.5	78 22.4 -30.6 56.7	77 35.4 -28.4 58.7	76 47.4 -26.3 60.4	75 58.7 -24.4 61.8
29°	78 35.2 -36.5 50.1	77 51.8 -34.1 52.5	77 07.0 -31.8 54.6	76 21.1 -29.7 56.5	75 34.3 -27.8 58.1

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°	63 35.1 +50.2 144.4	63 02.0 +49.2 142.6	62 27.5 +48.2 140.8	61 51.6 +47.3 139.1	61 14.6 +46.3 137.4
1°	64 25.3 +49.5 143.2	63 51.2 +48.5 141.3	63 15.7 +47.5 139.5	62 38.9 +46.5 137.7	62 00.9 +45.5 136.1
2°	65 14.8 +48.8 141.8	64 39.7 +47.7 139.9	64 03.2 +46.7 138.1	63 25.4 +45.7 136.3	62 46.4 +44.7 134.7
3°	66 03.6 +47.9 140.4	65 27.4 +46.9 138.5	64 49.9 +45.8 136.6	64 11.1 +44.7 134.9	63 31.1 +43.6 133.2
4°	66 51.5 +47.1 138.9	66 14.3 +45.9 137.0	65 35.7 +44.7 135.1	64 55.8 +43.7 133.3	64 14.7 +42.7 131.6
5°	67 38.6 +46.0 137.3	67 00.2 +44.8 135.3	66 20.4 +43.7 133.5	65 39.5 +42.5 131.7	64 57.4 +41.4 130.0
6°	68 24.6 +44.9 135.6	67 45.0 +43.7 133.6	67 04.1 +42.5 131.7	66 22.0 +41.3 129.9	65 38.8 +40.3 128.3
7°	69 09.5 +43.7 133.8	68 28.7 +42.4 131.8	67 46.6 +41.1 129.9	67 03.3 +40.0 128.1	66 19.1 +38.9 126.4
8°	69 53.2 +42.2 131.8	69 11.1 +40.9 129.8	68 27.7 +39.8 127.9	67 43.3 +38.6 126.2	66 58.0 +37.4 124.5
9°	70 35.4 +40.7 129.7	69 52.0 +39.4 127.7	69 07.5 +38.1 125.9	68 21.9 +36.9 124.1	67 35.4 +35.8 122.5
10°	71 16.1 +39.0 127.5	70 31.4 +37.6 125.5	69 45.6 +36.4 123.7	68 58.8 +35.2 122.0	68 11.2 +34.1 120.4
11°	71 55.1 +37.1 125.1	71 09.0 +35.7 123.1	70 22.0 +34.4 121.3	69 34.0 +33.3 119.7	68 45.3 +32.2 118.1
12°	72 32.2 +34.9 122.5	71 44.7 +33.6 120.6	70 56.4 +32.4 118.9	70 07.3 +31.3 117.3	69 17.5 +30.3 115.8
13°	73 07.1 +32.6 119.7	72 18.3 +31.3 117.9	71 28.8 +30.1 116.2	70 38.6 +29.0 114.7	69 47.8 +28.0 113.3
14°	73 39.7 +29.9 116.8	72 49.6 +28.8 115.1	71 58.9 +27.6 113.5	71 07.6 +26.6 112.0	70 15.8 +25.7 110.7
15°	74 09.6 +27.1 113.7	73 18.4 +25.9 112.1	72 26.5 +25.0 110.6	71 34.2 +24.1 109.2	70 41.5 +23.2 108.0
16°	74 36.7 +24.0 110.3	73 44.3 +23.0 108.9	72 51.5 +22.1 107.5	71 58.3 +21.2 106.3	71 04.7 +20.6 105.2
17°	75 00.7 +20.7 106.8	74 07.3 +19.8 105.5	73 13.6 +19.0 104.3	72 19.5 +18.4 103.3	71 25.3 +17.8 102.3
18°	75 21.4 +17.0 103.2	74 27.1 +16.4 102.0	73 32.6 +15.8 101.0	72 37.9 +15.3 100.1	71 43.1 +14.8 99.2
19°	75 38.4 +13.2 99.3	74 43.5 +12.7 98.4	73 48.4 +12.3 97.6	72 53.2 +12.0 96.8	71 57.9 +11.8 96.1
20°	75 51.6 +09.2 95.4	74 56.2 +09.0 94.7	74 00.7 +08.9 94.1	73 05.2 +08.7 93.5	72 09.7 +08.6 92.9
21°	76 00.8 +05.1 91.3	75 05.2 +05.1 90.9	74 09.6 +05.2 90.5	73 13.9 +05.3 90.1	72 18.3 +05.4 89.7
22°	76 05.9 +00.8 87.2	75 10.3 +01.2 87.0	74 14.8 +01.5 86.8	73 19.2 +01.8 86.6	72 23.7 +02.1 86.4
23°	76 06.7 -03.4 83.0	75 11.5 -02.8 83.1	74 16.3 -02.3 83.1	73 21.0 -01.7 83.1	72 25.8 -01.2 83.1
24°	76 03.3 -07.5 78.9	75 08.7 -06.7 79.2	74 14.0 -05.9 79.4	73 19.3 -05.1 79.6	72 24.6 -04.5 79.8
25°	75 55.8 -11.7 74.8	75 02.0 -10.5 75.3	74 08.1 -09.5 75.8	73 14.2 -08.6 76.2	72 20.1 -07.7 76.5
26°	75 44.1 -15.5 70.8	74 51.5 -14.2 71.5	73 58.6 -13.0 72.2	73 05.6 -12.0 72.8	72 12.4 -11.0 73.2
27°	75 28.6 -19.2 66.9	74 37.3 -17.8 67.8	73 45.6 -16.4 68.7	72 53.6 -15.1 69.4	72 01.4 -14.0 70.0
28°	75 09.4 -22.7 63.1	74 19.5 -21.1 64.3	73 29.2 -19.7 65.3	72 38.5 -18.3 66.1	71 47.4 -16.9 66.9
29°	74 46.7 -26.0 59.6	73 58.4 -24.2 60.8	73 09.5 -22.6 62.0	72 20.2 -21.2 63.0	71 30.5 -19.9 63.9

Declination SAME name as Latitude

Latitude 22°

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°	45 15.4 +31.5 114.1	44 24.4 +31.1 113.3	43 33.2 +30.7 112.6	42 41.7 +30.2 111.9	41 50.0 +29.8 111.2
1°	45 46.9 +30.8 112.8	44 55.5 +30.3 112.1	44 03.9 +29.8 111.4	43 11.9 +29.5 110.7	42 19.8 +29.1 110.0
2°	46 17.7 +29.9 111.6	45 25.8 +29.6 110.9	44 33.7 +29.2 110.2	43 41.4 +28.7 109.5	42 48.9 +28.3 108.8
3°	46 47.6 +29.1 110.3	45 55.4 +28.6 109.6	45 02.9 +28.2 109.0	44 10.1 +28.0 108.3	43 17.2 +27.6 107.6
4°	47 16.7 +28.3 109.1	46 24.0 +27.9 108.4	45 31.1 +27.5 107.7	44 38.1 +27.1 107.0	43 44.8 +26.8 106.4
5°	47 45.0 +27.3 107.8	46 51.9 +26.9 107.1	45 58.6 +26.6 106.4	45 05.2 +26.2 105.8	44 11.6 +25.9 105.2
6°	48 12.3 +26.4 106.4	47 18.8 +26.1 105.8	46 25.2 +25.7 105.1	45 31.4 +25.4 104.5	44 37.5 +25.1 103.9
7°	48 38.7 +25.4 105.1	47 44.9 +25.1 104.4	46 50.9 +24.8 103.8	45 56.8 +24.5 103.2	45 02.6 +24.2 102.6
8°	49 04.1 +24.4 103.7	48 10.0 +24.1 103.1	47 15.7 +23.8 102.5	46 21.3 +23.6 101.9	45 26.8 +23.4 101.3
9°	49 28.5 +23.4 102.3	48 34.1 +23.1 101.7	47 39.5 +22.9 101.1	46 44.9 +22.6 100.6	45 50.2 +22.4 100.0
10°	49 51.9 +22.3 100.9	48 57.2 +22.1 100.3	48 02.4 +21.9 99.7	47 07.5 +21.7 99.2	46 12.6 +21.4 98.7
11°	50 14.2 +21.2 99.4	49 19.3 +21.0 98.9	48 24.3 +20.8 98.3	47 29.2 +20.7 97.8	46 34.0 +20.5 97.3
12°	50 35.4 +20.1 98.0	49 40.3 +19.9 97.4	48 45.1 +19.8 96.9	47 49.9 +19.6 96.4	46 54.5 +19.5 95.9
13°	50 55.5 +19.0 96.5	50 00.2 +18.8 96.0	49 04.9 +18.7 95.5	48 09.5 +18.6 95.0	47 14.0 +18.5 94.6
14°	51 14.5 +17.8 95.0	50 19.0 +17.7 94.5	49 23.6 +17.6 94.0	48 28.1 +17.5 93.6	47 32.5 +17.5 93.2
15°	51 32.3 +16.5 93.4	50 36.7 +16.5 93.0	49 41.2 +16.4 92.6	48 45.6 +16.4 92.1	47 50.0 +16.3 91.7
16°	51 48.8 +15.3 91.9	50 53.2 +15.3 91.5	49 57.6 +15.3 91.1	49 02.0 +15.3 90.7	48 06.3 +15.3 90.3
17°	52 04.1 +14.1 90.3	51 08.5 +14.1 89.9	50 12.9 +14.1 89.6	49 17.3 +14.1 89.2	48 21.6 +14.2 88.8
18°	52 18.2 +12.8 88.7	51 22.6 +12.8 88.4	50 27.0 +12.9 88.0	49 31.4 +13.0 87.7	48 35.8 +13.1 87.4
19°	52 31.0 +11.5 87.1	51 35.4 +11.6 86.8	50 39.9 +11.7 86.5	49 44.4 +11.8 86.2	48 48.9 +11.9 85.9
20°	52 42.5 +10.1 85.5	51 47.0 +10.3 85.2	50 51.6 +10.4 85.0	49 56.2 +10.6 84.7	49 00.8 +10.7 84.4
21°	52 52.6 +08.8 83.9	51 57.3 +09.0 83.6	51 02.0 +09.2 83.4	50 06.8 +09.3 83.1	49 11.5 +09.6 82.9
22°	53 01.4 +07.4 82.2	52 06.3 +07.6 82.0	51 11.2 +07.9 81.8	50 16.1 +08.2 81.6	49 21.1 +08.4 81.4
23°	53 08.8 +06.0 80.6	52 13.9 +06.4 80.4	51 19.1 +06.6 80.2	50 24.3 +06.9 80.1	49 29.5 +07.2 79.9
24°	53 14.8 +04.7 78.9	52 20.3 +04.9 78.8	51 25.7 +05.3 78.6	50 31.2 +05.6 78.5	49 36.7 +05.9 78.3
25°	53 19.5 +03.2 77.3	52 25.2 +03.7 77.2	51 31.0 +04.0 77.0	50 36.8 +04.4 76.9	49 42.6 +04.8 76.8
26°	53 22.7 +01.9 75.6	52 28.9 +02.2 75.5	51 35.0 +02.7 75.4	50 41.2 +03.1 75.4	49 47.4 +03.5 75.3
27°	53 24.6 +00.4 73.9	52 31.1 +00.9 73.9	51 37.7 +01.4 73.8	50 44.3 +01.8 73.8	49 50.9 +02.2 73.7
28°	53 25.0 -01.0 72.2	52 32.0 -00.4 72.2	51 39.1 +00.0 72.2	50 46.1 +00.5 72.2	49 53.1 +01.0 72.2
29°	53 24.0 -02.3 70.6	52 31.6 -01.9 70.6	51 39.1 -01.3 70.6	50 46.6 -00.7 70.6	49 54.1 -00.2 70.6

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°	40 58.0 +29.4 110.5	40 05.8 +29.0 109.9	39 13.4 +28.7 109.3	38 20.8 +28.3 108.6	37 27.9 +28.0 108.0
1°	41 27.4 +28.7 109.4	40 34.8 +28.4 108.7	39 42.1 +28.0 108.1	38 49.1 +27.7 107.5	37 55.9 +27.4 106.9
2°	41 56.1 +28.0 108.2	41 03.2 +27.6 107.6	40 10.1 +27.3 107.0	39 16.8 +27.0 106.4	38 23.3 +26.7 105.8
3°	42 24.1 +27.2 107.0	41 30.8 +26.9 106.4	40 37.4 +26.6 105.8	39 43.8 +26.3 105.2	38 50.0 +26.0 104.6
4°	42 51.3 +26.5 105.8	41 57.7 +26.2 105.2	41 04.0 +25.8 104.6	40 10.1 +25.5 104.0	39 16.0 +25.3 103.5
5°	43 17.8 +25.6 104.6	42 23.9 +25.3 104.0	41 29.8 +25.1 103.4	40 35.6 +24.9 102.9	39 41.3 +24.6 102.3
6°	43 43.4 +24.9 103.3	42 49.2 +24.6 102.8	41 54.9 +24.3 102.2	41 00.5 +24.1 101.6	40 05.9 +23.9 101.1
7°	44 08.3 +23.9 102.1	43 13.8 +23.7 101.5	42 19.2 +23.5 101.0	41 24.6 +23.3 100.4	40 29.8 +23.1 99.9
8°	44 32.2 +23.1 100.8	43 37.5 +22.9 100.2	42 42.7 +22.7 99.7	41 47.9 +22.5 99.2	40 52.9 +22.3 98.7
9°	44 55.3 +22.3 99.5	44 00.4 +22.0 99.0	43 05.4 +21.9 98.4	42 10.4 +21.7 98.0	41 15.2 +21.6 97.5
10°	45 17.6 +21.2 98.2	44 22.4 +21.2 97.7	43 27.3 +21.0 97.2	42 32.1 +20.8 96.7	41 36.8 +20.7 96.2
11°	45 38.8 +20.4 96.8	44 43.6 +20.2 96.3	43 48.3 +20.1 95.9	42 52.9 +20.0 95.4	41 57.5 +19.9 95.0
12°	45 59.2 +19.4 95.5	45 03.8 +19.3 95.0	44 08.4 +19.1 94.6	43 12.9 +19.1 94.1	42 17.4 +19.0 93.7
13°	46 18.6 +18.4 94.1	45 23.1 +18.3 93.7	44 27.5 +18.3 93.2	43 32.0 +18.2 92.8	42 36.4 +18.2 92.4
14°	46 37.0 +17.4 92.7	45 41.4 +17.3 92.3	44 45.8 +17.3 91.9	43 50.2 +17.3 91.5	42 54.6 +17.3 91.1
15°	46 54.4 +16.3 91.3	45 58.7 +16.4 90.9	45 03.1 +16.4 90.6	44 07.5 +16.3 90.2	43 11.9 +16.3 89.8
16°	47 10.7 +15.3 89.9	46 15.1 +15.3 89.6	45 19.5 +15.3 89.2	44 23.8 +15.4 88.8	43 28.2 +15.5 88.5
17°	47 26.0 +14.3 88.5	46 30.4 +14.3 88.1	45 34.8 +14.4 87.8	44 39.2 +14.5 87.5	43 43.7 +14.5 87.1
18°	47 40.3 +13.1 87.1	46 44.7 +13.2 86.7	45 49.2 +13.3 86.4	44 53.7 +13.4 86.1	43 58.2 +13.5 85.8
19°	47 53.4 +12.0 85.6	46 57.9 +12.2 85.3	46 02.5 +12.3 85.0	45 07.1 +12.4 84.7	44 11.7 +12.6 84.4
20°	48 05.4 +11.0 84.1	47 10.1 +11.1 83.9	46 14.8 +11.3 83.6	45 19.5 +11.5 83.3	44 24.3 +11.6 83.1
21°	48 16.4 +09.7 82.7	47 21.2 +10.0 82.4	46 26.1 +10.1 82.2	45 31.0 +10.4 81.9	44 35.9 +10.6 81.7
22°	48 26.1 +08.6 81.2	47 31.2 +08.8 81.0	46 36.2 +09.1 80.7	45 41.4 +09.3 80.5	44 46.5 +09.6 80.3
23°	48 34.7 +07.5 79.7	47 40.0 +07.8 79.5	46 45.3 +08.1 79.3	45 50.7 +08.3 79.1	44 56.1 +08.6 78.9
24°	48 42.2 +06.3 78.2	47 47.8 +06.6 78.0	46 53.4 +06.9 77.9	45 59.0 +07.2 77.7	45 04.7 +07.5 77.5
25°	48 48.5 +05.1 76.7	47 54.4 +05.4 76.5	47 00.3 +05.8 76.4	46 06.2 +06.2 76.3	45 12.2 +06.5 76.1
26°	48 53.6 +03.9 75.2	47 59.8 +04.3 75.1	47 06.1 +04.7 74.9	46 12.4 +05.0 74.8	45 18.7 +05.4 74.7
27°	48 57.5 +02.7 73.6	48 04.1 +03.1 73.6	47 10.8 +03.5 73.5	46 17.4 +04.0 73.4	45 24.1 +04.4 73.3
28°	49 00.2 +01.5 72.1	48 07.2 +02.0 72.1	47 14.3 +02.5 72.0	46 21.4 +02.9 71.9	45 28.5 +03.4 71.9
29°	49 01.7 +00.3 70.6	48 09.2 +00.8 70.6	47 16.8 +01.2 70.5	46 24.3 +01.8 70.5	45 31.9 +02.2 70.4

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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°	36 35.0 +27.6 107.4	35 41.8 +27.4 106.9	34 48.5 +27.1 106.3	33 55.0 +26.8 105.8	33 01.4 +26.6 105.2
1°	37 02.6 +27.1 106.3	36 09.2 +26.8 105.8	35 15.6 +26.5 105.2	34 21.8 +26.3 104.7	33 28.0 +25.9 104.2
2°	37 29.7 +26.4 105.2	36 36.0 +26.1 104.7	35 42.1 +25.8 104.1	34 48.1 +25.6 103.6	33 53.9 +25.4 103.1
3°	37 56.1 +25.8 104.1	37 02.1 +25.5 103.5	36 07.9 +25.3 103.0	35 13.7 +25.0 102.5	34 19.3 +24.8 102.0
4°	38 21.9 +25.0 102.9	37 27.6 +24.8 102.4	36 33.2 +24.6 101.9	35 38.7 +24.4 101.4	34 44.1 +24.2 100.9
5°	38 46.9 +24.4 101.8	37 52.4 +24.2 101.3	36 57.8 +24.0 100.7	36 03.1 +23.8 100.2	35 08.3 +23.6 99.8
6°	39 11.3 +23.7 100.6	38 16.6 +23.4 100.1	37 21.8 +23.3 99.6	36 26.9 +23.1 99.1	35 31.9 +23.0 98.6
7°	39 35.0 +22.9 99.4	38 40.0 +22.8 98.9	37 45.1 +22.5 98.4	36 50.0 +22.4 98.0	35 54.9 +22.3 97.5
8°	39 57.9 +22.2 98.2	39 02.8 +22.0 97.7	38 07.6 +21.9 97.3	37 12.4 +21.8 96.8	36 17.2 +21.6 96.3
9°	40 20.1 +21.4 97.0	39 24.8 +21.3 96.5	38 29.5 +21.2 96.1	37 34.2 +21.0 95.6	36 38.8 +20.9 95.2
10°	40 41.5 +20.6 95.8	39 46.1 +20.5 95.3	38 50.7 +20.4 94.9	37 55.2 +20.3 94.4	36 59.7 +20.3 94.0
11°	41 02.1 +19.8 94.5	40 06.6 +19.7 94.1	39 11.1 +19.6 93.7	38 15.5 +19.6 93.2	37 20.0 +19.5 92.8
12°	41 21.9 +18.9 93.3	40 26.3 +18.9 92.8	39 30.7 +18.9 92.4	38 35.1 +18.9 92.0	37 39.5 +18.9 91.6
13°	41 40.8 +18.2 92.0	40 45.2 +18.1 91.6	39 49.6 +18.1 91.2	38 54.0 +18.1 90.8	37 58.4 +18.0 90.4
14°	41 59.0 +17.2 90.7	41 03.3 +17.3 90.3	40 07.7 +17.3 90.0	39 12.1 +17.3 89.6	38 16.4 +17.4 89.2
15°	42 16.2 +16.4 89.4	41 20.6 +16.4 89.1	40 25.0 +16.4 88.7	39 29.4 +16.5 88.4	38 33.8 +16.5 88.0
16°	42 32.6 +15.5 88.1	41 37.0 +15.6 87.8	40 41.4 +15.7 87.4	39 45.9 +15.7 87.1	38 50.3 +15.8 86.8
17°	42 48.1 +14.6 86.8	41 52.6 +14.7 86.5	40 57.1 +14.7 86.2	40 01.6 +14.8 85.8	39 06.1 +15.0 85.5
18°	43 02.7 +13.7 85.5	42 07.3 +13.7 85.2	41 11.8 +13.9 84.9	40 16.4 +14.1 84.6	39 21.1 +14.1 84.3
19°	43 16.4 +12.7 84.2	42 21.0 +12.9 83.9	41 25.7 +13.1 83.6	40 30.5 +13.2 83.3	39 35.2 +13.4 83.0
20°	43 29.1 +11.8 82.8	42 33.9 +12.0 82.5	41 38.8 +12.1 82.3	40 43.7 +12.3 82.0	39 48.6 +12.5 81.8
21°	43 40.9 +10.8 81.5	42 45.9 +11.0 81.2	41 50.9 +11.3 81.0	40 56.0 +11.4 80.7	40 01.1 +11.7 80.5
22°	43 51.7 +09.8 80.1	42 56.9 +10.1 79.9	42 02.2 +10.3 79.6	41 07.4 +10.6 79.4	40 12.8 +10.8 79.2
23°	44 01.5 +08.9 78.7	43 07.0 +09.1 78.5	42 12.5 +09.4 78.3	41 18.0 +09.7 78.1	40 23.6 +10.0 77.9
24°	44 10.4 +07.8 77.3	43 16.1 +08.2 77.2	42 21.9 +08.4 77.0	41 27.7 +08.8 76.8	40 33.6 +09.0 76.6
25°	44 18.2 +06.9 76.0	43 24.3 +07.1 75.8	42 30.3 +07.6 75.6	41 36.5 +07.8 75.5	40 42.6 +08.2 75.3
26°	44 25.1 +05.8 74.6	43 31.4 +06.2 74.4	42 37.9 +06.5 74.3	41 44.3 +07.0 74.1	40 50.8 +07.4 74.0
27°	44 30.9 +04.8 73.2	43 37.6 +05.3 73.1	42 44.4 +05.7 72.9	41 51.3 +06.0 72.8	40 58.2 +06.4 72.7
28°	44 35.7 +03.8 71.8	43 42.9 +04.2 71.7	42 50.1 +04.6 71.6	41 57.3 +05.1 71.5	41 04.6 +05.5 71.4
29°	44 39.5 +02.7 70.4	43 47.1 +03.2 70.3	42 54.7 +03.7 70.2	42 02.4 +04.1 70.1	41 10.1 +04.6 70.0

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°	32 07.7 +26.2 104.7	31 13.8 +26.0 104.2	30 19.8 +25.8 103.7	29 25.7 +25.6 103.2	28 31.5 +25.3 102.7
1°	32 33.9 +25.8 103.6	31 39.8 +25.5 103.1	30 45.6 +25.3 102.6	29 51.3 +25.0 102.1	28 56.8 +24.9 101.7
2°	32 59.7 +25.2 102.6	32 05.3 +25.0 102.1	31 10.9 +24.7 101.6	30 16.3 +24.6 101.1	29 21.7 +24.4 100.6
3°	33 24.9 +24.6 101.5	32 30.3 +24.4 101.0	31 35.6 +24.2 100.5	30 40.9 +24.0 100.0	29 46.1 +23.8 99.6
4°	33 49.5 +24.0 100.4	32 54.7 +23.8 99.9	31 59.8 +23.7 99.4	31 04.9 +23.5 99.0	30 09.9 +23.4 98.5
5°	34 13.5 +23.4 99.3	33 18.5 +23.3 98.8	32 23.5 +23.1 98.3	31 28.4 +23.0 97.9	30 33.3 +22.8 97.4
6°	34 36.9 +22.8 98.2	33 41.8 +22.6 97.7	32 46.6 +22.6 97.2	31 51.4 +22.4 96.8	30 56.1 +22.3 96.4
7°	34 59.7 +22.1 97.0	34 04.4 +22.1 96.6	33 09.2 +21.9 96.1	32 13.8 +21.9 95.7	31 18.4 +21.8 95.3
8°	35 21.8 +21.6 95.9	34 26.5 +21.4 95.5	33 31.1 +21.3 95.0	32 35.7 +21.2 94.6	31 40.2 +21.2 94.2
9°	35 43.4 +20.8 94.7	34 47.9 +20.8 94.3	33 52.4 +20.7 93.9	32 56.9 +20.7 93.5	32 01.4 +20.6 93.1
10°	36 04.2 +20.2 93.6	35 08.7 +20.1 93.2	34 13.1 +20.1 92.8	33 17.6 +20.0 92.4	32 22.0 +20.0 92.0
11°	36 24.4 +19.5 92.4	35 28.8 +19.5 92.0	34 33.2 +19.5 91.6	33 37.6 +19.4 91.2	32 42.0 +19.4 90.8
12°	36 43.9 +18.8 91.2	35 48.3 +18.8 90.9	34 52.7 +18.8 90.5	33 57.0 +18.8 90.1	33 01.4 +18.8 89.7
13°	37 02.7 +18.1 90.1	36 07.1 +18.1 89.7	35 11.5 +18.1 89.3	34 15.8 +18.2 88.9	33 20.2 +18.2 88.6
14°	37 20.8 +17.4 88.9	36 25.2 +17.4 88.5	35 29.6 +17.4 88.1	34 34.0 +17.5 87.8	33 38.4 +17.6 87.4
15°	37 38.2 +16.6 87.7	36 42.6 +16.7 87.3	35 47.0 +16.8 87.0	34 51.5 +16.8 86.6	33 56.0 +16.9 86.3
16°	37 54.8 +15.8 86.4	36 59.3 +15.9 86.1	36 03.8 +16.0 85.8	35 08.3 +16.2 85.5	34 12.9 +16.2 85.1
17°	38 10.6 +15.1 85.2	37 15.2 +15.2 84.9	36 19.8 +15.3 84.6	35 24.5 +15.4 84.3	34 29.1 +15.6 84.0
18°	38 25.7 +14.3 84.0	37 30.4 +14.5 83.7	36 35.1 +14.6 83.4	35 39.9 +14.7 83.1	34 44.7 +14.9 82.8
19°	38 40.0 +13.6 82.7	37 44.9 +13.7 82.5	36 49.7 +13.9 82.2	35 54.6 +14.1 81.9	34 59.6 +14.2 81.6
20°	38 53.6 +12.7 81.5	37 58.6 +12.9 81.2	37 03.6 +13.1 81.0	36 08.7 +13.3 80.7	35 13.8 +13.5 80.4
21°	39 06.3 +11.9 80.2	38 11.5 +12.1 80.0	37 16.7 +12.3 79.7	36 22.0 +12.5 79.5	35 27.3 +12.8 79.2
22°	39 18.2 +11.0 79.0	38 23.6 +11.3 78.7	37 29.0 +11.6 78.5	36 34.5 +11.9 78.3	35 40.1 +12.1 78.0
23°	39 29.2 +10.3 77.7	38 34.9 +10.5 77.5	37 40.6 +10.8 77.3	36 46.4 +11.0 77.0	35 52.2 +11.3 76.8
24°	39 39.5 +09.4 76.4	38 45.4 +09.7 76.2	37 51.4 +10.0 76.0	36 57.4 +10.4 75.8	36 03.5 +10.6 75.6
25°	39 48.9 +08.5 75.1	38 55.1 +08.9 75.0	38 01.4 +09.2 74.8	37 07.8 +09.5 74.6	36 14.1 +09.9 74.4
26°	39 57.4 +07.7 73.8	39 04.0 +08.0 73.7	38 10.6 +08.4 73.5	37 17.3 +08.7 73.3	36 24.0 +09.1 73.2
27°	40 05.1 +06.8 72.5	39 12.0 +07.2 72.4	38 19.0 +07.6 72.3	37 26.0 +08.0 72.1	36 33.1 +08.4 71.9
28°	40 11.9 +05.9 71.2	39 19.2 +06.4 71.1	38 26.6 +06.8 71.0	37 34.0 +07.2 70.9	36 41.5 +07.6 70.7
29°	40 17.8 +05.0 69.9	39 25.6 +05.5 69.8	38 33.4 +05.9 69.7	37 41.2 +06.4 69.6	36 49.1 +06.8 69.5

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°	18 29.3 +23.6 97.8	17 34.2 +23.4 97.3	16 39.0 +23.3 96.9	15 43.7 +23.2 96.5	14 48.4 +23.2 96.1
1°	18 52.9 +23.2 96.8	17 57.6 +23.1 96.4	17 02.3 +23.0 96.0	16 06.9 +23.0 95.6	15 11.6 +22.8 95.2
2°	19 16.1 +22.9 95.8	18 20.7 +22.9 95.4	17 25.3 +22.8 95.0	16 29.9 +22.7 94.6	15 34.4 +22.7 94.2
3°	19 39.0 +22.7 94.8	18 43.6 +22.5 94.4	17 48.1 +22.5 94.0	16 52.6 +22.4 93.6	15 57.1 +22.4 93.3
4°	20 01.7 +22.2 93.9	19 06.1 +22.3 93.5	18 10.6 +22.2 93.1	17 15.0 +22.2 92.7	16 19.5 +22.1 92.3
5°	20 23.9 +22.0 92.9	19 28.4 +21.9 92.5	18 32.8 +21.9 92.1	17 37.2 +21.9 91.7	16 41.6 +21.8 91.3
6°	20 45.9 +21.6 91.9	19 50.3 +21.6 91.5	18 54.7 +21.5 91.1	17 59.1 +21.5 90.7	17 03.4 +21.6 90.3
7°	21 07.5 +21.3 90.9	20 11.9 +21.2 90.5	19 16.2 +21.3 90.1	18 20.6 +21.3 89.7	17 25.0 +21.3 89.4
8°	21 28.8 +20.8 89.9	20 33.1 +20.9 89.5	19 37.5 +20.9 89.1	18 41.9 +20.9 88.8	17 46.3 +20.9 88.4
9°	21 49.6 +20.6 88.9	20 54.0 +20.6 88.5	19 58.4 +20.6 88.1	19 02.8 +20.7 87.8	18 07.2 +20.7 87.4
10°	22 10.2 +20.1 87.8	21 14.6 +20.2 87.5	20 19.0 +20.3 87.1	19 23.5 +20.3 86.8	18 27.9 +20.4 86.4
11°	22 30.3 +19.8 86.8	21 34.8 +19.8 86.5	20 39.3 +19.9 86.1	19 43.8 +19.9 85.8	18 48.3 +20.1 85.4
12°	22 50.1 +19.3 85.8	21 54.6 +19.5 85.5	20 59.2 +19.5 85.1	20 03.7 +19.7 84.8	19 08.4 +19.7 84.4
13°	23 09.4 +19.0 84.8	22 14.1 +19.0 84.4	21 18.7 +19.2 84.1	20 23.4 +19.3 83.8	19 28.1 +19.4 83.4
14°	23 28.4 +18.5 83.7	22 33.1 +18.7 83.4	21 37.9 +18.8 83.1	20 42.7 +18.9 82.8	19 47.5 +19.1 82.4
15°	23 46.9 +18.2 82.7	22 51.8 +18.3 82.4	21 56.7 +18.4 82.1	21 01.6 +18.6 81.7	20 06.6 +18.7 81.4
16°	24 05.1 +17.7 81.7	23 10.1 +17.8 81.3	22 15.1 +18.0 81.0	21 20.2 +18.2 80.7	20 25.3 +18.4 80.4
17°	24 22.8 +17.3 80.6	23 27.9 +17.5 80.3	22 33.1 +17.6 80.0	21 38.4 +17.8 79.7	20 43.7 +18.0 79.4
18°	24 40.1 +16.8 79.6	23 45.4 +17.0 79.3	22 50.7 +17.3 79.0	21 56.2 +17.4 78.7	21 01.7 +17.6 78.4
19°	24 56.9 +16.4 78.5	24 02.4 +16.6 78.2	23 08.0 +16.8 77.9	22 13.6 +17.0 77.6	21 19.3 +17.3 77.3
20°	25 13.3 +15.9 77.4	24 19.0 +16.2 77.2	23 24.8 +16.4 76.9	22 30.6 +16.7 76.6	21 36.6 +16.8 76.3
21°	25 29.2 +15.5 76.4	24 35.2 +15.7 76.1	23 41.2 +16.0 75.8	22 47.3 +16.2 75.6	21 53.4 +16.5 75.3
22°	25 44.7 +14.9 75.3	24 50.9 +15.2 75.0	23 57.2 +15.5 74.8	23 03.5 +15.8 74.5	22 09.9 +16.1 74.2
23°	25 59.6 +14.5 74.2	25 06.1 +14.8 74.0	24 12.7 +15.1 73.7	23 19.3 +15.4 73.5	22 26.0 +15.7 73.2
24°	26 14.1 +14.1 73.1	25 20.9 +14.4 72.9	24 27.8 +14.7 72.7	23 34.7 +15.0 72.4	22 41.7 +15.3 72.1
25°	26 28.2 +13.5 72.1	25 35.3 +13.8 71.8	24 42.5 +14.2 71.6	23 49.7 +14.5 71.3	22 57.0 +14.9 71.1
26°	26 41.7 +13.0 71.0	25 49.1 +13.4 70.7	24 56.7 +13.7 70.5	24 04.2 +14.1 70.3	23 11.9 +14.5 70.0
27°	26 54.7 +12.5 69.9	26 02.5 +12.9 69.7	25 10.4 +13.3 69.4	24 18.3 +13.7 69.2	23 26.4 +14.0 69.0
28°	27 07.2 +12.0 68.8	26 15.4 +12.4 68.6	25 23.7 +12.8 68.4	24 32.0 +13.2 68.1	23 40.4 +13.6 67.9
29°	27 19.2 +11.5 67.7	26 27.8 +11.9 67.5	25 36.5 +12.3 67.3	24 45.2 +12.7 67.1	23 54.0 +13.1 66.9

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°	13 53.1 +23.0 95.7	12 57.7 +23.0 95.3	12 02.3 +22.9 94.9	11 06.9 +22.8 94.6	10 11.4 +22.8 94.2
1°	14 16.1 +22.9 94.8	13 20.7 +22.7 94.4	12 25.2 +22.7 94.0	11 29.7 +22.6 93.6	10 34.2 +22.5 93.2
2°	14 39.0 +22.5 93.8	13 43.4 +22.6 93.4	12 47.9 +22.5 93.0	11 52.3 +22.5 92.7	10 56.7 +22.5 92.3
3°	15 01.5 +22.4 92.9	14 06.0 +22.3 92.5	13 10.4 +22.2 92.1	12 14.8 +22.2 91.7	11 19.2 +22.2 91.3
4°	15 23.9 +22.1 91.9	14 28.3 +22.0 91.5	13 32.6 +22.1 91.1	12 37.0 +22.1 90.8	11 41.4 +22.0 90.4
5°	15 46.0 +21.8 90.9	14 50.3 +21.9 90.6	13 54.7 +21.8 90.2	12 59.1 +21.8 89.8	12 03.4 +21.9 89.4
6°	16 07.8 +21.6 90.0	15 12.2 +21.5 89.6	14 16.5 +21.6 89.2	13 20.9 +21.6 88.9	12 25.3 +21.6 88.5
7°	16 29.4 +21.3 89.0	15 33.7 +21.4 88.6	14 38.1 +21.4 88.3	13 42.5 +21.4 87.9	12 46.9 +21.5 87.5
8°	16 50.7 +21.0 88.0	15 55.1 +21.0 87.7	14 59.5 +21.1 87.3	14 03.9 +21.2 86.9	13 08.4 +21.2 86.6
9°	17 11.7 +20.7 87.0	16 16.1 +20.8 86.7	15 20.6 +20.9 86.3	14 25.1 +20.9 86.0	13 29.6 +21.0 85.6
10°	17 32.4 +20.5 86.1	16 36.9 +20.6 85.7	15 41.5 +20.6 85.4	14 46.0 +20.7 85.0	13 50.6 +20.8 84.6
11°	17 52.9 +20.1 85.1	16 57.5 +20.2 84.7	16 02.1 +20.3 84.4	15 06.7 +20.5 84.0	14 11.4 +20.6 83.7
12°	18 13.0 +19.8 84.1	17 17.7 +19.9 83.7	16 22.4 +20.1 83.4	15 27.2 +20.2 83.1	14 32.0 +20.3 82.7
13°	18 32.8 +19.6 83.1	17 37.6 +19.7 82.8	16 42.5 +19.8 82.4	15 47.4 +19.9 82.1	14 52.3 +20.0 81.7
14°	18 52.4 +19.2 82.1	17 57.3 +19.3 81.8	17 02.3 +19.5 81.4	16 07.3 +19.6 81.1	15 12.3 +19.9 80.8
15°	19 11.6 +18.9 81.1	18 16.6 +19.1 80.8	17 21.8 +19.2 80.4	16 26.9 +19.4 80.1	15 32.2 +19.5 79.8
16°	19 30.5 +18.5 80.1	18 35.7 +18.7 79.8	17 41.0 +18.9 79.4	16 46.3 +19.1 79.1	15 51.7 +19.3 78.8
17°	19 49.0 +18.2 79.1	18 54.4 +18.4 78.8	17 59.9 +18.6 78.4	17 05.4 +18.8 78.1	16 11.0 +19.0 77.8
18°	20 07.2 +17.9 78.1	19 12.8 +18.1 77.8	18 18.5 +18.3 77.4	17 24.2 +18.5 77.1	16 30.0 +18.7 76.8
19°	20 25.1 +17.4 77.0	19 30.9 +17.7 76.7	18 36.8 +17.9 76.4	17 42.7 +18.2 76.1	16 48.7 +18.5 75.8
20°	20 42.5 +17.2 76.0	19 48.6 +17.4 75.7	18 54.7 +17.7 75.4	18 00.9 +17.9 75.1	17 07.2 +18.1 74.8
21°	20 59.7 +16.7 75.0	20 06.0 +17.0 74.7	19 12.4 +17.3 74.4	18 18.8 +17.6 74.1	17 25.3 +17.9 73.8
22°	21 16.4 +16.4 74.0	20 23.0 +16.7 73.7	19 29.7 +16.9 73.4	18 36.4 +17.2 73.1	17 43.2 +17.5 72.8
23°	21 32.8 +16.0 72.9	20 39.7 +16.3 72.7	19 46.6 +16.6 72.4	18 53.6 +17.0 72.1	18 00.7 +17.3 71.8
24°	21 48.8 +15.6 71.9	20 56.0 +15.9 71.6	20 03.2 +16.3 71.4	19 10.6 +16.6 71.1	18 18.0 +16.9 70.8
25°	22 04.4 +15.3 70.9	21 11.9 +15.6 70.6	20 19.5 +15.9 70.3	19 27.2 +16.2 70.1	18 34.9 +16.6 69.8
26°	22 19.7 +14.8 69.8	21 27.5 +15.2 69.6	20 35.4 +15.5 69.3	19 43.4 +15.9 69.1	18 51.5 +16.3 68.8
27°	22 34.5 +14.4 68.8	21 42.7 +14.7 68.6	20 50.9 +15.2 68.3	19 59.3 +15.5 68.0	19 07.8 +15.9 67.8
28°	22 48.9 +14.0 67.7	21 57.4 +14.4 67.5	21 06.1 +14.8 67.2	20 14.8 +15.2 67.0	19 23.7 +15.6 66.8
29°	23 02.9 +13.5 66.7	22 11.8 +14.0 66.4	21 20.9 +14.4 66.2	20 30.0 +14.8 66.0	19 39.3 +15.2 65.7

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°	9 15.9 +22.7 93.8	8 20.4 +22.6 93.4	7 24.8 +22.7 93.0	6 29.3 +22.5 92.6	5 33.7 +22.5 92.3
1°	9 38.6 +22.6 92.8	8 43.0 +22.5 92.5	7 47.5 +22.4 92.1	6 51.8 +22.5 91.7	5 56.2 +22.5 91.3
2°	10 01.2 +22.3 91.9	9 05.5 +22.4 91.5	8 09.9 +22.4 91.1	7 14.3 +22.4 90.8	6 18.7 +22.3 90.4
3°	10 23.5 +22.3 91.0	9 27.9 +22.2 90.6	8 32.3 +22.2 90.2	7 36.7 +22.2 89.8	6 41.0 +22.3 89.5
4°	10 45.8 +22.0 90.0	9 50.1 +22.1 89.6	8 54.5 +22.1 89.3	7 58.9 +22.1 88.9	7 03.3 +22.1 88.5
5°	11 07.8 +21.9 89.1	10 12.2 +21.9 88.7	9 16.6 +21.9 88.3	8 21.0 +21.9 88.0	7 25.4 +22.0 87.6
6°	11 29.7 +21.7 88.1	10 34.1 +21.7 87.7	9 38.5 +21.8 87.4	8 42.9 +21.9 87.0	7 47.4 +21.9 86.6
7°	11 51.4 +21.5 87.2	10 55.8 +21.6 86.8	10 00.3 +21.6 86.4	9 04.8 +21.7 86.1	8 09.3 +21.7 85.7
8°	12 12.9 +21.3 86.2	11 17.4 +21.3 85.8	10 21.9 +21.4 85.5	9 26.5 +21.5 85.1	8 31.0 +21.7 84.8
9°	12 34.2 +21.1 85.3	11 38.7 +21.2 84.9	10 43.3 +21.3 84.5	9 48.0 +21.4 84.2	8 52.7 +21.4 83.8
10°	12 55.3 +20.8 84.3	11 59.9 +21.0 83.9	11 04.6 +21.1 83.6	10 09.4 +21.2 83.2	9 14.1 +21.4 82.9
11°	13 16.1 +20.7 83.3	12 20.9 +20.8 83.0	11 25.7 +20.9 82.6	10 30.6 +21.0 82.3	9 35.5 +21.1 81.9
12°	13 36.8 +20.4 82.4	12 41.7 +20.6 82.0	11 46.6 +20.7 81.7	10 51.6 +20.9 81.3	9 56.6 +21.0 81.0
13°	13 57.2 +20.3 81.4	13 02.3 +20.3 81.1	12 07.3 +20.6 80.7	11 12.5 +20.6 80.4	10 17.6 +20.9 80.0
14°	14 17.5 +19.9 80.4	13 22.6 +20.2 80.1	12 27.9 +20.3 79.8	11 33.1 +20.5 79.4	10 38.5 +20.7 79.1
15°	14 37.4 +19.8 79.5	13 42.8 +19.9 79.1	12 48.2 +20.1 78.8	11 53.6 +20.3 78.5	10 59.2 +20.5 78.1
16°	14 57.2 +19.4 78.5	14 02.7 +19.7 78.1	13 08.3 +19.9 77.8	12 13.9 +20.1 77.5	11 19.7 +20.3 77.2
17°	15 16.6 +19.3 77.5	14 22.4 +19.4 77.2	13 28.2 +19.6 76.9	12 34.0 +19.9 76.5	11 40.0 +20.1 76.2
18°	15 35.9 +18.9 76.5	14 41.8 +19.2 76.2	13 47.8 +19.5 75.9	12 53.9 +19.7 75.6	12 00.1 +19.9 75.2
19°	15 54.8 +18.7 75.5	15 01.0 +18.9 75.2	14 07.3 +19.1 74.9	13 13.6 +19.4 74.6	12 20.0 +19.7 74.3
20°	16 13.5 +18.4 74.5	15 19.9 +18.7 74.2	14 26.4 +19.0 73.9	13 33.0 +19.3 73.6	12 39.7 +19.5 73.3
21°	16 31.9 +18.2 73.5	15 38.6 +18.4 73.2	14 45.4 +18.7 72.9	13 52.3 +19.0 72.6	12 59.2 +19.3 72.3
22°	16 50.1 +17.8 72.6	15 57.0 +18.2 72.3	15 04.1 +18.5 72.0	14 11.3 +18.7 71.7	13 18.5 +19.1 71.4
23°	17 07.9 +17.6 71.6	16 15.2 +17.9 71.3	15 22.6 +18.1 71.0	14 30.0 +18.5 70.7	13 37.6 +18.8 70.4
24°	17 25.5 +17.2 70.6	16 33.1 +17.5 70.3	15 40.7 +18.0 70.0	14 48.5 +18.3 69.7	13 56.4 +18.6 69.4
25°	17 42.7 +17.0 69.5	16 50.6 +17.3 69.3	15 58.7 +17.6 69.0	15 06.8 +18.0 68.7	14 15.0 +18.4 68.4
26°	17 59.7 +16.6 68.5	17 07.9 +17.0 68.3	16 16.3 +17.4 68.0	15 24.8 +17.7 67.7	14 33.4 +18.1 67.4
27°	18 16.3 +16.3 67.5	17 24.9 +16.7 67.3	16 33.7 +17.1 67.0	15 42.5 +17.5 66.7	14 51.5 +17.8 66.5
28°	18 32.6 +16.0 66.5	17 41.6 +16.4 66.3	16 50.8 +16.8 66.0	16 00.0 +17.2 65.7	15 09.3 +17.6 65.5
29°	18 48.6 +15.6 65.5	17 58.0 +16.1 65.2	17 07.6 +16.4 65.0	16 17.2 +16.9 64.7	15 26.9 +17.4 64.5

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°	4 38.1 +22.5 91.9	3 42.5 +22.5 91.5	2 46.9 +22.5 91.1	1 51.3 +22.4 90.7	0 55.6 +22.5 90.4
1°	5 00.6 +22.5 90.9	4 05.0 +22.4 90.6	3 09.4 +22.4 90.2	2 13.7 +22.5 89.8	1 18.1 +22.5 89.4
2°	5 23.1 +22.3 90.0	4 27.4 +22.4 89.6	3 31.8 +22.4 89.3	2 36.2 +22.4 88.9	1 40.6 +22.4 88.5
3°	5 45.4 +22.3 89.1	4 49.8 +22.3 88.7	3 54.2 +22.3 88.3	2 58.6 +22.3 88.0	2 03.0 +22.4 87.6
4°	6 07.7 +22.1 88.1	5 12.1 +22.2 87.8	4 16.5 +22.2 87.4	3 20.9 +22.3 87.0	2 25.4 +22.3 86.7
5°	6 29.8 +22.1 87.2	5 34.3 +22.1 86.8	4 38.7 +22.2 86.5	3 43.2 +22.3 86.1	2 47.7 +22.3 85.7
6°	6 51.9 +21.9 86.3	5 56.4 +22.0 85.9	5 00.9 +22.1 85.5	4 05.5 +22.1 85.2	3 10.0 +22.3 84.8
7°	7 13.8 +21.9 85.3	6 18.4 +21.9 85.0	5 23.0 +22.0 84.6	4 27.6 +22.1 84.2	3 32.3 +22.2 83.9
8°	7 35.7 +21.7 84.4	6 40.3 +21.8 84.0	5 45.0 +21.9 83.7	4 49.7 +22.1 83.3	3 54.5 +22.1 82.9
9°	7 57.4 +21.6 83.5	7 02.1 +21.7 83.1	6 06.9 +21.8 82.7	5 11.8 +21.9 82.4	4 16.6 +22.1 82.0
10°	8 19.0 +21.4 82.5	7 23.8 +21.6 82.2	6 28.7 +21.8 81.8	5 33.7 +21.9 81.4	4 38.7 +22.0 81.1
11°	8 40.4 +21.3 81.6	7 45.4 +21.5 81.2	6 50.5 +21.6 80.9	5 55.6 +21.7 80.5	5 00.7 +21.9 80.1
12°	9 01.7 +21.2 80.6	8 06.9 +21.3 80.3	7 12.1 +21.4 79.9	6 17.3 +21.7 79.6	5 22.6 +21.9 79.2
13°	9 22.9 +21.0 79.7	8 28.2 +21.2 79.3	7 33.5 +21.4 79.0	6 39.0 +21.5 78.6	5 44.5 +21.7 78.3
14°	9 43.9 +20.9 78.7	8 49.4 +21.0 78.4	7 54.9 +21.3 78.0	7 00.5 +21.5 77.7	6 06.2 +21.7 77.3
15°	10 04.8 +20.7 77.8	9 10.4 +20.9 77.4	8 16.2 +21.1 77.1	7 22.0 +21.3 76.7	6 27.9 +21.5 76.4
16°	10 25.5 +20.5 76.8	9 31.3 +20.8 76.5	8 37.3 +20.9 76.1	7 43.3 +21.2 75.8	6 49.4 +21.4 75.5
17°	10 46.0 +20.3 75.9	9 52.1 +20.6 75.5	8 58.2 +20.9 75.2	8 04.5 +21.1 74.9	7 10.8 +21.4 74.5
18°	11 06.3 +20.2 74.9	10 12.7 +20.4 74.6	9 19.1 +20.6 74.2	8 25.6 +20.9 73.9	7 32.2 +21.2 73.6
19°	11 26.5 +20.0 73.9	10 33.1 +20.2 73.6	9 39.7 +20.6 73.3	8 46.5 +20.8 73.0	7 53.4 +21.0 72.6
20°	11 46.5 +19.7 73.0	10 53.3 +20.1 72.7	10 00.3 +20.3 72.3	9 07.3 +20.6 72.0	8 14.4 +21.0 71.7
21°	12 06.2 +19.6 72.0	11 13.4 +19.9 71.7	10 20.6 +20.2 71.4	9 27.9 +20.5 71.1	8 35.4 +20.8 70.7
22°	12 25.8 +19.4 71.1	11 33.3 +19.7 70.7	10 40.8 +20.0 70.4	9 48.4 +20.4 70.1	8 56.2 +20.6 69.8
23°	12 45.2 +19.2 70.1	11 53.0 +19.4 69.8	11 00.8 +19.8 69.5	10 08.8 +20.1 69.2	9 16.8 +20.5 68.8
24°	13 04.4 +18.9 69.1	12 12.4 +19.3 68.8	11 20.6 +19.7 68.5	10 28.9 +20.0 68.2	9 37.3 +20.4 67.9
25°	13 23.3 +18.7 68.1	12 31.7 +19.1 67.8	11 40.3 +19.4 67.5	10 48.9 +19.8 67.2	9 57.7 +20.2 66.9
26°	13 42.0 +18.5 67.2	12 50.8 +18.9 66.9	11 59.7 +19.3 66.6	11 08.7 +19.7 66.3	10 17.9 +20.0 66.0
27°	14 00.5 +18.3 66.2	13 09.7 +18.6 66.5	12 19.0 +19.0 65.6	11 28.4 +19.4 65.3	10 37.9 +19.8 65.0
28°	14 18.8 +18.0 65.2	13 28.3 +18.5 64.9	12 38.0 +18.8 64.6	11 47.8 +19.2 64.3	10 57.7 +19.7 64.1
29°	14 36.8 +17.7 64.2	13 46.8 +18.1 63.9	12 56.8 +18.6 63.7	12 07.0 +19.1 63.4	11 17.4 +19.4 63.1

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 +22.5 90.0	-0 55.6 +22.5	-1 51.3 +22.5	-2 46.9 +22.5	-3 42.5 +22.6
1°	0 22.5 +22.4 89.1	-0 33.1 +22.4	-1 28.8 +22.6	-2 24.4 +22.6	-3 19.9 +22.6
2°	0 44.9 +22.5 88.1	-0 10.7 +22.5	-1 06.2 +22.5	-2 01.8 +22.6	-2 57.3 +22.6
3°	1 07.4 +22.4 87.2	0 11.8 +22.5 86.8	-0 43.7 +22.6	-1 39.2 +22.6	-2 34.7 +22.7
4°	1 29.8 +22.5 86.3	0 34.3 +22.5 85.9	-0 21.1 +22.5	-1 16.6 +22.7	-2 12.0 +22.7
5°	1 52.3 +22.3 85.4	0 56.8 +22.5 85.0	0 01.4 +22.6 84.6	-0 53.9 +22.6	-1 49.3 +22.8
6°	2 14.6 +22.4 84.4	1 19.3 +22.4 84.1	0 24.0 +22.5 83.7	-0 31.3 +22.7	-1 26.5 +22.8
7°	2 37.0 +22.3 83.5	1 41.7 +22.5 83.1	0 46.5 +22.6 82.8	-0 08.6 +22.6	-1 03.7 +22.7
8°	2 59.3 +22.3 82.6	2 04.2 +22.4 82.2	1 09.1 +22.5 81.8	0 14.0 +22.7 81.5	-0 41.0 +22.9
9°	3 21.6 +22.2 81.6	2 26.6 +22.3 81.3	1 31.6 +22.5 80.9	0 36.7 +22.6 80.5	-0 18.1 +22.8
10°	3 43.8 +22.1 80.7	2 48.9 +22.3 80.3	1 54.1 +22.5 80.0	0 59.3 +22.7 79.6	0 04.7 +22.8 79.2
11°	4 05.9 +22.1 79.8	3 11.2 +22.3 79.4	2 16.6 +22.4 79.1	1 22.0 +22.6 78.7	0 27.5 +22.8 78.3
12°	4 28.0 +22.0 78.9	3 33.5 +22.2 78.5	2 39.0 +22.4 78.1	1 44.6 +22.6 77.8	0 50.3 +22.8 77.4
13°	4 50.0 +22.0 77.9	3 55.7 +22.1 77.6	3 01.4 +22.3 77.2	2 07.2 +22.5 76.8	1 13.1 +22.7 76.5
14°	5 12.0 +21.8 77.0	4 17.8 +22.1 76.6	3 23.7 +22.3 76.3	2 29.7 +22.5 75.9	1 35.8 +22.8 75.5
15°	5 33.8 +21.8 76.0	4 39.9 +22.0 75.7	3 46.0 +22.3 75.3	2 52.2 +22.5 75.0	1 58.6 +22.7 74.6
16°	5 55.6 +21.7 75.1	5 01.9 +21.9 74.8	4 08.3 +22.1 74.4	3 14.7 +22.4 74.0	2 21.3 +22.7 73.7
17°	6 17.3 +21.5 74.2	5 23.8 +21.8 73.8	4 30.4 +22.1 73.5	3 37.1 +22.4 73.1	2 44.0 +22.6 72.8
18°	6 38.8 +21.5 73.2	5 45.6 +21.8 72.9	4 52.5 +22.0 72.5	3 59.5 +22.3 72.2	3 06.6 +22.6 71.8
19°	7 00.3 +21.4 72.3	6 07.4 +21.6 72.0	5 14.5 +22.0 71.6	4 21.8 +22.2 71.3	3 29.2 +22.5 70.9
20°	7 21.7 +21.2 71.4	6 29.0 +21.5 71.0	5 36.5 +21.8 70.7	4 44.0 +22.2 70.3	3 51.7 +22.5 70.0
21°	7 42.9 +21.1 70.4	6 50.5 +21.5 70.1	5 58.3 +21.8 69.7	5 06.2 +22.0 69.4	4 14.2 +22.4 69.0
22°	8 04.0 +21.0 69.5	7 12.0 +21.3 69.1	6 20.1 +21.6 68.8	5 28.2 +22.0 68.5	4 36.6 +22.3 68.1
23°	8 25.0 +20.8 68.5	7 33.3 +21.2 68.2	6 41.7 +21.5 67.9	5 50.2 +21.9 67.5	4 58.9 +22.2 67.2
24°	8 45.8 +20.7 67.6	7 54.5 +21.0 67.2	7 03.2 +21.5 66.9	6 12.1 +21.8 66.6	5 21.1 +22.2 66.2
25°	9 06.5 +20.6 66.6	8 15.5 +21.0 66.3	7 24.7 +21.3 66.0	6 33.9 +21.7 65.6	5 43.3 +22.1 65.3
26°	9 27.1 +20.4 65.7	8 36.5 +20.8 65.4	7 46.0 +21.2 65.0	6 55.6 +21.6 64.7	6 05.4 +22.0 64.4
27°	9 47.5 +20.2 64.7	8 57.3 +20.6 64.4	8 07.2 +21.0 64.1	7 17.2 +21.5 63.8	6 27.4 +21.8 63.4
28°	10 07.7 +20.1 63.8	9 17.9 +20.5 63.5	8 28.2 +20.9 63.1	7 38.7 +21.3 62.8	6 49.2 +21.8 62.5
29°	10 27.8 +19.9 62.8	9 38.4 +20.3 62.5	8 49.1 +20.8 62.2	8 00.0 +21.2 61.9	7 11.0 +21.7 61.6

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°	-4 38.1 +22.6	-5 33.7 +22.6	-6 29.3 +22.7	-7 24.8 +22.7	-8 20.4 +22.8
1°	-4 15.5 +22.6	-5 11.1 +22.7	-6 06.6 +22.8	-7 02.1 +22.8	-7 57.6 +22.9
2°	-3 52.9 +22.7	-4 48.4 +22.8	-5 43.8 +22.8	-6 39.3 +23.0	-7 34.7 +23.0
3°	-3 30.2 +22.8	-4 25.6 +22.9	-5 21.0 +23.0	-6 16.3 +23.0	-7 11.7 +23.2
4°	-3 07.4 +22.8	-4 02.7 +22.9	-4 58.0 +23.0	-5 53.3 +23.1	-6 48.5 +23.2
5°	-2 44.6 +22.9	-3 39.8 +23.0	-4 35.0 +23.1	-5 30.2 +23.2	-6 25.3 +23.4
6°	-2 21.7 +22.9	-3 16.8 +23.0	-4 11.9 +23.1	-5 07.0 +23.3	-6 01.9 +23.4
7°	-1 58.8 +22.9	-2 53.8 +23.0	-3 48.8 +23.2	-4 43.7 +23.4	-5 38.5 +23.5
8°	-1 35.9 +23.0	-2 30.8 +23.2	-3 25.6 +23.3	-4 20.3 +23.4	-5 15.0 +23.6
9°	-1 12.9 +22.9	-2 07.6 +23.1	-3 02.3 +23.3	-3 56.9 +23.5	-4 51.4 +23.7
10°	-0 50.0 +23.0	-1 44.5 +23.2	-2 39.0 +23.4	-3 33.4 +23.6	-4 27.7 +23.8
11°	-0 27.0 +23.0	-1 21.3 +23.2	-2 15.6 +23.4	-3 09.8 +23.6	-4 03.9 +23.8
12°	-0 04.0 +23.0	-0 58.1 +23.2	-1 52.2 +23.4	-2 46.2 +23.6	-3 40.1 +23.8
13°	0 19.0 +23.0 76.1	-0 34.9 +23.2	-1 28.8 +23.4	-2 22.6 +23.7	-3 16.3 +24.0
14°	0 42.0 +23.0 75.2	-0 11.7 +23.2	-1 05.4 +23.5	-1 58.9 +23.7	-2 52.3 +23.9
15°	1 05.0 +22.9 74.2	0 11.5 +23.2 73.9	-0 41.9 +23.5	-1 35.2 +23.7	-2 28.4 +24.0
16°	1 27.9 +23.0 73.3	0 34.7 +23.2 72.9	-0 18.4 +23.4	-1 11.5 +23.8	-2 04.4 +24.1
17°	1 50.9 +22.9 72.4	0 57.9 +23.2 72.0	0 05.0 +23.5 71.7	-0 47.7 +23.8	-1 40.3 +24.0
18°	2 13.8 +22.9 71.5	1 21.1 +23.2 71.1	0 28.5 +23.5 70.7	-0 23.9 +23.7	-1 16.3 +24.1
19°	2 36.7 +22.8 70.5	1 44.3 +23.1 70.2	0 52.0 +23.4 69.8	-0 00.2 +23.8	-0 52.2 +24.1
20°	2 59.5 +22.8 69.6	2 07.4 +23.1 69.3	1 15.4 +23.5 68.9	0 23.6 +23.8 68.5	-0 28.1 +24.1
21°	3 22.3 +22.7 68.7	2 30.5 +23.1 68.3	1 38.9 +23.4 68.0	0 47.4 +23.7 67.6	-0 04.0 +24.1
22°	3 45.0 +22.7 67.8	2 53.6 +23.0 67.4	2 02.3 +23.4 67.1	1 11.1 +23.8 66.7	0 20.1 +24.1 66.3
23°	4 07.7 +22.6 66.8	3 16.6 +23.0 66.5	2 25.7 +23.3 66.1	1 34.9 +23.7 65.8	0 44.2 +24.1 65.4
24°	4 30.3 +22.5 65.9	3 39.6 +22.9 65.6	2 49.0 +23.3 65.2	1 58.6 +23.6 64.8	1 08.3 +24.1 64.5
25°	4 52.8 +22.5 65.0	4 02.5 +22.8 64.6	3 12.3 +23.2 64.3	2 22.2 +23.7 63.9	1 32.4 +24.0 63.6
26°	5 15.3 +22.4 64.0	4 25.3 +22.8 63.7	3 35.5 +23.2 63.4	2 45.9 +23.6 63.0	1 56.4 +24.0 62.7
27°	5 37.7 +22.3 63.1	4 48.1 +22.7 62.8	3 58.7 +23.2 62.4	3 09.5 +23.5 62.1	2 20.4 +24.0 61.7
28°	6 00.0 +22.2 62.2	5 10.8 +22.7 61.8	4 21.9 +23.0 61.5	3 33.0 +23.5 61.2	2 44.4 +23.9 60.8
29°	6 22.2 +22.0 61.2	5 33.5 +22.5 60.9	4 44.9 +23.0 60.6	3 56.5 +23.5 60.2	3 08.3 +23.9 59.9

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°	-9 15.9 +22.8				
1°	-8 53.1 +23.0	-9 48.5 +23.1			
2°	-8 30.1 +23.1	-9 25.4 +23.2			
3°	-8 07.0 +23.3	-9 02.2 +23.4	-9 57.4 +23.5		
4°	-7 43.7 +23.4	-8 38.8 +23.5	-9 33.9 +23.6		
5°	-7 20.3 +23.4	-8 15.3 +23.6	-9 10.3 +23.8		
6°	-6 56.9 +23.6	-7 51.7 +23.7	-8 46.5 +23.9	-9 41.2 +24.0	
7°	-6 33.3 +23.7	-7 28.0 +23.9	-8 22.6 +24.0	-9 17.2 +24.3	
8°	-6 09.6 +23.8	-7 04.1 +24.0	-7 58.6 +24.2	-8 52.9 +24.3	
9°	-5 45.8 +23.9	-6 40.1 +24.0	-7 34.4 +24.3	-8 28.6 +24.5	
10°	-5 21.9 +23.9	-6 16.1 +24.2	-7 10.1 +24.4	-8 04.1 +24.6	
11°	-4 58.0 +24.1	-5 51.9 +24.3	-6 45.7 +24.4	-7 39.5 +24.7	
12°	-4 33.9 +24.1	-5 27.6 +24.3	-6 21.3 +24.6	-7 14.8 +24.9	
13°	-4 09.8 +24.1	-5 03.3 +24.4	-5 56.7 +24.7	-6 49.9 +24.9	
14°	-3 45.7 +24.3	-4 38.9 +24.5	-5 32.0 +24.8	-6 25.0 +25.1	
15°	-3 21.4 +24.2	-4 14.4 +24.6	-5 07.2 +24.8	-5 59.9 +25.1	
16°	-2 57.2 +24.4	-3 49.8 +24.6	-4 42.4 +24.9	-5 34.8 +25.2	
17°	-2 32.8 +24.3	-3 25.2 +24.6	-4 17.5 +25.0	-5 09.6 +25.3	
18°	-2 08.5 +24.4	-3 00.6 +24.8	-3 52.5 +25.0	-4 44.3 +25.4	
19°	-1 44.1 +24.4	-2 35.8 +24.7	-3 27.5 +25.1	-4 18.9 +25.4	
20°	-1 19.7 +24.5	-2 11.1 +24.8	-3 02.4 +25.2	-3 53.5 +25.5	
21°	-0 55.2 +24.4	-1 46.3 +24.8	-2 37.2 +25.1	-3 28.0 +25.5	
22°	-0 30.8 +24.5	-1 21.5 +24.8	-2 12.1 +25.2	-3 02.5 +25.6	
23°	-0 06.3 +24.5	-0 56.7 +24.9	-1 46.9 +25.3	-2 36.9 +25.6	
24°	0 18.2 +24.4 64.1	-0 31.8 +24.8	-1 21.6 +25.2	-2 11.3 +25.7	
25°	0 42.6 +24.5 63.2	-0 07.0 +24.9	-0 56.4 +25.3	-1 45.6 +25.7	
26°	1 07.1 +24.4 62.3	0 17.9 +24.9 61.9	-0 31.1 +25.3	-1 19.9 +25.7	
27°	1 31.5 +24.4 61.4	0 42.8 +24.8 61.0	-0 05.8 +25.3	-0 54.2 +25.7	
28°	1 55.9 +24.4 60.5	1 07.6 +24.8 60.1	0 19.5 +25.2 59.7	-0 28.5 +25.7	
29°	2 20.3 +24.3 59.5	1 32.4 +24.8 59.2	0 44.7 +25.3 58.8	-0 02.8 +25.7	

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°					
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°					

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°	67 00.0 +60.0 180.0	66 58.8 +59.9 177.4	66 55.1 +59.8 174.9	66 48.9 +59.6 172.4	66 40.4 +59.2 169.9
1°	68 00.0 +60.0 180.0	67 58.7 +60.0 177.3	67 54.9 +59.7 174.7	67 48.5 +59.5 172.0	67 39.6 +59.1 169.4
2°	69 00.0 +60.0 180.0	68 58.7 +59.9 177.2	68 54.6 +59.8 174.4	68 48.0 +59.4 171.7	68 38.7 +59.0 169.0
3°	70 00.0 +60.0 180.0	69 58.6 +59.9 177.1	69 54.4 +59.7 174.2	69 47.4 +59.4 171.3	69 37.7 +58.9 168.5
4°	71 00.0 +60.0 180.0	70 58.5 +59.9 176.9	70 54.1 +59.7 173.9	70 46.8 +59.3 170.9	70 36.6 +58.8 167.9
5°	72 00.0 +60.0 180.0	71 58.4 +60.0 176.8	71 53.8 +59.7 173.6	71 46.1 +59.3 170.4	71 35.4 +58.7 167.3
6°	73 00.0 +60.0 180.0	72 58.4 +59.9 176.6	72 53.5 +59.6 173.2	72 45.4 +59.1 169.9	72 34.1 +58.5 166.6
7°	74 00.0 +60.0 180.0	73 58.3 +59.9 176.4	73 53.1 +59.6 172.8	73 44.5 +59.1 169.3	73 32.6 +58.4 165.9
8°	75 00.0 +60.0 180.0	74 58.2 +59.8 176.2	74 52.7 +59.5 172.4	74 43.6 +58.9 168.7	74 31.0 +58.1 165.0
9°	76 00.0 +60.0 180.0	75 58.0 +59.9 175.9	75 52.2 +59.4 171.9	75 42.5 +58.7 167.9	75 29.1 +57.8 164.0
10°	77 00.0 +60.0 180.0	76 57.9 +59.8 175.6	76 51.6 +59.4 171.3	76 41.2 +58.6 167.1	76 26.9 +57.6 163.0
11°	78 00.0 +60.0 180.0	77 57.7 +59.8 175.3	77 51.0 +59.2 170.6	77 39.8 +58.3 166.1	77 24.5 +57.1 161.7
12°	79 00.0 +60.0 180.0	78 57.5 +59.8 174.9	78 50.2 +59.1 169.8	78 38.1 +58.0 164.9	78 21.6 +56.6 160.2
13°	80 00.0 +60.0 180.0	79 57.3 +59.7 174.4	79 49.3 +58.9 168.9	79 36.1 +57.6 163.6	79 18.2 +55.9 158.5
14°	81 00.0 +60.0 180.0	80 57.0 +59.7 173.8	80 48.2 +58.6 167.8	80 33.7 +57.1 162.0	80 14.1 +55.1 156.5
15°	82 00.0 +60.0 180.0	81 56.7 +59.5 173.1	81 46.8 +58.3 166.4	81 30.8 +56.3 160.0	81 09.2 +53.8 154.0
16°	83 00.0 +60.0 180.0	82 56.2 +59.4 172.2	82 45.1 +57.7 164.6	82 27.1 +55.2 157.5	82 03.0 +52.3 151.0
17°	84 00.0 +60.0 180.0	83 55.6 +59.2 170.9	83 42.8 +56.9 162.3	83 22.3 +53.6 154.3	82 55.3 +49.9 147.2
18°	85 00.0 +60.0 180.0	84 54.8 +58.8 169.2	84 39.7 +55.5 159.1	84 15.9 +51.1 150.1	83 45.2 +46.5 142.4
19°	86 00.0 +60.0 180.0	85 53.6 +57.9 166.7	85 35.2 +53.0 154.6	85 07.0 +47.2 144.5	84 31.7 +41.5 136.2
20°	87 00.0 +60.0 180.0	86 51.5 +56.2 162.6	86 28.2 +48.2 147.8	85 54.2 +40.3 136.5	85 13.2 +34.0 128.1
21°	88 00.0 +60.0 180.0	87 47.7 +50.6 154.9	87 16.4 +37.5 136.8	86 34.5 +28.7 125.1	85 47.2 +23.1 117.6
22°	89 00.0 +60.0 180.0	88 38.3 +26.5 137.1	87 53.9 +15.6 118.0	87 03.2 +11.1 109.3	86 10.3 +08.8 104.4
23°	90 00.0 -60.0 0.0	89 04.8 -26.2 89.8	88 09.5 -14.8 89.6	87 14.3 -09.9 89.4	86 19.1 -07.2 89.2
24°	89 00.0 -60.0 0.0	88 38.6 -50.5 42.3	87 54.7 -37.2 61.0	87 04.4 -28.0 69.4	86 11.9 -21.8 74.0
25°	88 00.0 -60.0 0.0	87 48.1 -56.2 24.3	87 17.5 -48.0 42.0	86 36.4 -39.7 53.3	85 50.1 -33.1 60.5
26°	87 00.0 -60.0 0.0	86 51.9 -58.0 16.7	86 29.5 -53.0 30.8	85 56.7 -46.9 41.7	85 17.0 -40.8 49.7
27°	86 00.0 -60.0 0.0	85 53.9 -58.7 12.6	85 36.5 -55.4 24.0	85 09.8 -50.9 33.6	84 36.2 -46.2 41.4
28°	85 00.0 -60.0 0.0	84 55.2 -59.2 10.0	84 41.1 -56.9 19.4	84 18.9 -53.5 27.8	83 50.0 -49.6 35.0
29°	84 00.0 -60.0 0.0	83 56.0 -59.4 8.3	83 44.2 -57.7 16.2	83 25.4 -55.2 23.6	83 00.4 -52.0 30.1

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°	66 29.5 +58.7 167.4	66 16.3 +58.2 164.9	66 00.8 +57.6 162.6	65 43.2 +56.9 160.2	65 23.5 +56.1 157.9
1°	67 28.2 +58.6 166.9	67 14.5 +58.0 164.3	66 58.4 +57.4 161.8	66 40.1 +56.6 159.4	66 19.6 +55.9 157.1
2°	68 26.8 +58.5 166.3	68 12.5 +57.9 163.7	67 55.8 +57.1 161.1	67 36.7 +56.4 158.6	67 15.5 +55.5 156.1
3°	69 25.3 +58.4 165.7	69 10.4 +57.6 162.9	68 52.9 +56.9 160.3	68 33.1 +56.0 157.7	68 11.0 +55.1 155.1
4°	70 23.7 +58.1 165.0	70 08.0 +57.4 162.1	69 49.8 +56.6 159.4	69 29.1 +55.7 156.7	69 06.1 +54.6 154.1
5°	71 21.8 +58.0 164.2	71 05.4 +57.2 161.3	70 46.4 +56.2 158.4	70 24.8 +55.2 155.6	70 00.7 +54.2 152.9
6°	72 19.8 +57.8 163.4	72 02.6 +56.8 160.3	71 42.6 +55.8 157.3	71 20.0 +54.7 154.4	70 54.9 +53.6 151.6
7°	73 17.6 +57.4 162.5	72 59.4 +56.5 159.2	72 38.4 +55.4 156.1	72 14.7 +54.2 153.1	71 48.5 +52.8 150.2
8°	74 15.0 +57.2 161.5	73 55.9 +56.0 158.0	73 33.8 +54.8 154.8	73 08.9 +53.4 151.6	72 41.3 +52.1 148.6
9°	75 12.2 +56.7 160.3	74 51.9 +55.5 156.7	74 28.6 +54.1 153.3	74 02.3 +52.7 150.0	73 33.4 +51.2 146.9
10°	76 08.9 +56.3 159.0	75 47.4 +54.9 155.2	75 22.7 +53.3 151.6	74 55.0 +51.7 148.2	74 24.6 +50.1 145.0
11°	77 05.2 +55.7 157.5	76 42.3 +54.1 153.5	76 16.0 +52.4 149.7	75 46.7 +50.6 146.2	75 14.7 +48.8 142.9
12°	78 00.9 +54.9 155.8	77 36.4 +53.1 151.6	77 08.4 +51.2 147.6	76 37.3 +49.3 144.0	76 03.5 +47.3 140.6
13°	78 55.8 +54.0 153.7	78 29.5 +51.9 149.3	77 59.6 +49.7 145.2	77 26.6 +47.6 141.4	76 50.8 +45.5 137.9
14°	79 49.8 +52.8 151.4	79 21.4 +50.4 146.7	78 49.3 +48.0 142.4	78 14.2 +45.6 138.5	77 36.3 +43.4 135.0
15°	80 42.6 +51.2 148.6	80 11.8 +48.4 143.6	79 37.3 +45.8 139.2	78 59.8 +43.2 135.2	78 19.7 +40.8 131.7
16°	81 33.8 +49.1 145.2	81 00.2 +46.0 140.0	80 23.1 +42.9 135.5	79 43.0 +40.2 131.5	79 00.5 +37.6 127.9
17°	82 22.9 +46.1 141.0	81 46.2 +42.6 135.7	81 06.0 +39.4 131.1	80 23.2 +36.5 127.2	79 38.1 +34.1 123.7
18°	83 09.0 +42.2 136.0	82 28.8 +38.3 130.6	81 45.4 +35.0 126.1	80 59.7 +32.1 122.3	80 12.2 +29.6 119.0
19°	83 51.2 +36.7 129.7	83 07.1 +32.7 124.4	82 20.4 +29.5 120.2	81 31.8 +26.8 116.7	80 41.8 +24.6 113.8
20°	84 27.9 +29.2 121.9	83 39.8 +25.5 117.1	82 49.9 +22.7 113.4	81 58.6 +20.5 110.4	81 06.4 +18.8 108.0
21°	84 57.1 +19.3 112.4	84 05.3 +16.8 108.6	83 12.6 +14.8 105.8	82 19.1 +13.5 103.6	81 25.2 +12.4 101.8
22°	85 16.4 +07.5 101.2	84 22.1 +06.5 99.1	83 27.4 +06.0 97.4	82 32.6 +05.6 96.2	81 37.6 +05.4 95.1
23°	85 23.9 -05.5 89.0	84 28.6 -04.1 88.8	83 33.4 -03.2 88.6	82 38.2 -02.4 88.4	81 43.0 -01.7 88.2
24°	85 18.4 -17.6 76.7	84 24.5 -14.5 78.5	83 30.2 -12.1 79.8	82 35.8 -10.3 80.7	81 41.3 -08.9 81.3
25°	85 00.8 -27.7 65.4	84 10.0 -23.7 68.8	83 18.1 -20.4 71.2	82 25.5 -17.8 73.1	81 32.4 -15.5 74.5
26°	84 33.1 -35.7 55.6	83 46.3 -31.2 60.0	82 57.7 -27.5 63.4	82 07.7 -24.4 66.0	81 16.9 -21.8 68.1
27°	83 57.4 -41.4 47.5	83 15.1 -37.2 52.4	82 30.2 -33.4 56.3	81 43.3 -30.0 59.5	80 55.1 -27.1 62.0
28°	83 16.0 -45.6 41.0	82 37.9 -41.8 46.0	81 56.8 -38.2 50.2	81 13.3 -34.9 53.6	80 28.0 -31.9 56.5
29°	82 30.4 -48.7 35.8	81 56.1 -45.2 40.7	81 18.6 -41.9 44.9	80 38.4 -38.8 48.5	79 56.1 -35.9 51.5

Latitude 23°

Declination SAME name as Latitude

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°	65 01.7 +55.4 155.7	64 38.1 +54.5 153.6	64 12.6 +53.6 151.5	63 45.3 +52.8 149.4	63 16.4 +51.9 147.5
1°	65 57.1 +55.0 154.8	65 32.6 +54.1 152.6	65 06.2 +53.2 150.4	64 38.1 +52.2 148.3	64 08.3 +51.3 146.3
2°	66 52.1 +54.6 153.8	66 26.7 +53.7 151.5	65 59.4 +52.7 149.3	65 30.3 +51.7 147.2	64 59.6 +50.6 145.1
3°	67 46.7 +54.1 152.7	67 20.4 +53.1 150.4	66 52.1 +52.1 148.1	66 22.0 +51.1 145.9	65 50.2 +50.0 143.8
4°	68 40.8 +53.7 151.5	68 13.5 +52.5 149.1	67 44.2 +51.4 146.8	67 13.1 +50.3 144.6	66 40.2 +49.2 142.5
5°	69 34.5 +53.0 150.3	69 06.0 +51.9 147.8	68 35.6 +50.7 145.4	68 03.4 +49.5 143.2	67 29.4 +48.4 141.0
6°	70 27.5 +52.3 148.9	69 57.9 +51.1 146.4	69 26.3 +49.9 143.9	68 52.9 +48.7 141.6	68 17.8 +47.4 139.4
7°	71 19.8 +51.6 147.4	70 49.0 +50.3 144.8	70 16.2 +49.0 142.3	69 41.6 +47.6 140.0	69 05.2 +46.3 137.7
8°	72 11.4 +50.7 145.8	71 39.3 +49.3 143.1	71 05.2 +47.8 140.6	70 29.2 +46.5 138.2	69 51.5 +45.2 135.9
9°	73 02.1 +49.7 144.0	72 28.6 +48.1 141.3	71 53.0 +46.7 138.7	71 15.7 +45.2 136.2	70 36.7 +43.8 134.0
10°	73 51.8 +48.4 142.0	73 16.7 +46.9 139.2	72 39.7 +45.3 136.6	72 00.9 +43.7 134.2	71 20.5 +42.3 131.9
11°	74 40.2 +47.1 139.9	74 03.6 +45.3 137.0	73 25.0 +43.6 134.4	72 44.6 +42.1 131.9	72 02.8 +40.6 129.6
12°	75 27.3 +45.4 137.4	74 48.9 +43.6 134.6	74 08.6 +41.9 131.9	73 26.7 +40.3 129.4	72 43.4 +38.7 127.2
13°	76 12.7 +43.5 134.8	75 32.5 +41.6 131.9	74 50.5 +39.8 129.2	74 07.0 +38.1 126.8	73 22.1 +36.6 124.6
14°	76 56.2 +41.2 131.8	76 14.1 +39.2 128.9	75 30.3 +37.4 126.3	74 45.1 +35.8 123.9	73 58.7 +34.2 121.7
15°	77 37.4 +38.6 128.5	76 53.3 +36.6 125.7	76 07.7 +34.8 123.1	75 20.9 +33.0 120.8	74 32.9 +31.6 118.7
16°	78 16.0 +35.4 124.8	77 29.9 +33.4 122.1	76 42.5 +31.6 119.6	75 53.9 +30.1 117.4	75 04.5 +28.6 115.5
17°	78 51.4 +31.8 120.8	78 03.3 +29.9 118.2	77 14.1 +28.2 115.9	76 24.0 +26.7 113.8	75 33.1 +25.4 112.0
18°	79 23.2 +27.6 116.3	78 33.2 +25.8 113.9	77 42.3 +24.3 111.8	76 50.7 +23.0 109.9	75 58.5 +21.9 108.3
19°	79 50.8 +22.8 111.3	78 59.0 +21.3 109.2	78 06.6 +20.0 107.4	77 13.7 +18.9 105.8	76 20.4 +18.0 104.4
20°	80 13.6 +17.4 106.0	79 20.3 +16.3 104.3	78 26.6 +15.3 102.8	77 32.6 +14.6 101.5	76 38.4 +13.9 100.3
21°	80 31.0 +11.5 100.3	79 36.6 +10.8 99.0	78 41.9 +10.4 97.9	77 47.2 +09.9 96.9	76 52.3 +09.6 96.1
22°	80 42.5 +05.3 94.2	79 47.4 +05.2 93.5	78 52.3 +05.1 92.8	77 57.1 +05.1 92.2	77 01.9 +05.2 91.7
23°	80 47.8 -01.2 88.0	79 52.6 -00.7 87.8	78 57.4 -00.2 87.6	78 02.2 +00.2 87.5	77 07.1 +00.6 87.3
24°	80 46.6 -07.6 81.8	79 51.9 -06.5 82.2	78 57.2 -05.6 82.4	78 02.4 -04.7 82.6	77 07.7 -04.0 82.8
25°	80 39.0 -13.7 75.6	79 45.4 -12.1 76.5	78 51.6 -10.7 77.2	77 57.7 -09.6 77.8	77 03.7 -08.5 78.3
26°	80 25.3 -19.4 69.7	79 33.3 -17.5 71.1	78 40.9 -15.8 72.2	77 48.1 -14.2 73.1	76 55.2 -12.9 73.9
27°	80 05.9 -24.6 64.1	79 15.8 -22.3 65.9	78 25.1 -20.3 67.3	77 33.9 -18.6 68.6	76 42.3 -17.0 69.6
28°	79 41.3 -29.2 58.9	78 53.5 -26.8 61.0	78 04.8 -24.7 62.7	77 15.3 -22.6 64.2	76 25.3 -20.9 65.5
29°	79 12.1 -33.2 54.2	78 26.7 -30.8 56.4	77 40.1 -28.5 58.4	76 52.7 -26.5 60.1	76 04.4 -24.5 61.5

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°	62 45.9 +51.0 145.6	62 14.0 +50.0 143.7	61 40.6 +49.1 142.0	61 05.9 +48.2 140.3	60 30.0 +47.2 138.6
1°	63 36.9 +50.3 144.4	63 04.0 +49.3 142.5	62 29.7 +48.4 140.7	61 54.1 +47.4 139.0	61 17.2 +46.6 137.3
2°	64 27.2 +49.7 143.1	63 53.3 +48.7 141.3	63 18.1 +47.7 139.4	62 41.5 +46.7 137.7	62 03.8 +45.7 136.0
3°	65 16.9 +48.9 141.8	64 42.0 +47.9 139.9	64 05.8 +46.8 138.1	63 28.2 +45.8 136.3	62 49.5 +44.8 134.6
4°	66 05.8 +48.1 140.4	65 29.9 +47.0 138.5	64 52.6 +45.9 136.6	64 14.0 +44.9 134.8	63 34.3 +43.9 133.1
5°	66 53.9 +47.2 138.9	66 16.9 +46.1 136.9	65 38.5 +45.0 135.1	64 58.9 +43.9 133.3	64 18.2 +42.8 131.6
6°	67 41.1 +46.2 137.3	67 03.0 +45.0 135.3	66 23.5 +43.9 133.4	65 42.8 +42.8 131.7	65 01.0 +41.7 129.9
7°	68 27.3 +45.1 135.6	67 48.0 +43.8 133.6	67 07.4 +42.6 131.7	66 25.6 +41.5 129.9	65 42.7 +40.4 128.2
8°	69 12.4 +43.8 133.8	68 31.8 +42.6 131.8	67 50.0 +41.4 129.9	67 07.1 +40.2 128.1	66 23.1 +39.2 126.4
9°	69 56.2 +42.5 131.8	69 14.4 +41.2 129.8	68 31.4 +40.0 127.9	67 47.3 +38.8 126.2	67 02.3 +37.6 124.5
10°	70 38.7 +40.9 129.7	69 55.6 +39.6 127.7	69 11.4 +38.3 125.9	68 26.1 +37.2 124.1	67 39.9 +36.1 122.5
11°	71 19.6 +39.2 127.5	70 35.2 +37.8 125.5	69 49.7 +36.6 123.7	69 03.3 +35.4 121.9	68 16.0 +34.4 120.3
12°	71 58.8 +37.3 125.1	71 13.0 +36.0 123.1	70 26.3 +34.7 121.3	69 38.7 +33.6 119.7	68 50.4 +32.5 118.1
13°	72 36.1 +35.1 122.5	71 49.0 +33.8 120.6	71 01.0 +32.7 118.9	70 12.3 +31.5 117.2	69 22.9 +30.4 115.7
14°	73 11.2 +32.8 119.7	72 22.8 +31.6 117.9	71 33.7 +30.3 116.2	70 43.8 +29.3 114.7	69 53.3 +28.3 113.3
15°	73 44.0 +30.2 116.8	72 54.4 +29.0 115.1	72 04.0 +27.9 113.5	71 13.1 +26.9 112.0	70 21.6 +26.0 110.7
16°	74 14.2 +27.4 113.7	73 23.4 +26.2 112.0	72 31.9 +25.2 110.6	71 40.0 +24.2 109.2	70 47.6 +23.5 108.0
17°	74 41.6 +24.2 110.3	73 49.6 +23.2 108.9	72 57.1 +22.3 107.5	72 04.2 +21.6 106.3	71 11.1 +20.8 105.1
18°	75 05.8 +20.9 106.8	74 12.8 +20.0 105.5	73 19.4 +19.3 104.3	72 25.8 +18.6 103.2	71 31.9 +18.0 102.2
19°	75 26.7 +17.2 103.1	74 32.8 +16.6 102.0	73 38.7 +16.0 101.0	72 44.4 +15.5 100.0	71 49.9 +15.1 99.2
20°	75 43.9 +13.4 99.3	74 49.4 +12.9 98.4	73 54.7 +12.5 97.5	72 59.9 +12.2 96.7	72 05.0 +12.0 96.0
21°	75 57.3 +09.4 95.3	75 02.3 +09.2 94.6	74 07.2 +09.1 94.0	73 12.1 +08.9 93.4	72 17.0 +08.8 92.8
22°	76 06.7 +05.2 91.2	75 11.5 +05.3 90.8	74 16.3 +05.3 90.3	73 21.0 +05.5 89.9	72 25.8 +05.6 89.6
23°	76 11.9 +01.0 87.1	75 16.8 +01.3 86.9	74 21.6 +01.6 86.7	73 26.5 +01.9 86.5	72 31.4 +02.2 86.3
24°	76 12.9 -03.3 82.9	75 18.1 -02.7 82.9	74 23.2 -02.1 82.9	73 28.4 -01.5 82.9	72 33.6 -01.1 82.9
25°	76 09.6 -07.6 78.7	75 15.4 -06.7 79.0	74 21.1 -05.8 79.2	73 26.9 -05.1 79.4	72 32.5 -04.4 79.6
26°	76 02.0 -11.6 74.5	75 08.7 -10.5 75.1	74 15.3 -09.5 75.6	73 21.8 -08.6 75.9	72 28.1 -07.6 76.3
27°	75 50.4 -15.5 70.5	74 58.2 -14.2 71.3	74 05.8 -13.0 71.9	73 13.2 -11.9 72.5	72 20.5 -10.9 73.0
28°	75 34.9 -19.3 66.6	74 44.0 -17.8 67.6	73 52.8 -16.4 68.4	73 01.3 -15.2 69.1	72 09.6 -14.0 69.8
29°	75 15.6 -22.8 62.8	74 26.2 -21.2 64.0	73 36.4 -19.7 65.0	72 46.1 -18.2 65.8	71 55.6 -17.0 66.6

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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°	44 50.5 +32.7 115.0	44 00.3 +32.2 114.2	43 09.7 +31.8 113.5	42 18.9 +31.4 112.7	41 27.9 +30.9 112.0
1°	45 23.2 +31.9 113.8	44 32.5 +31.5 113.0	43 41.5 +31.1 112.3	42 50.3 +30.6 111.6	41 58.8 +30.3 110.9
2°	45 55.1 +31.2 112.6	45 04.0 +30.7 111.8	44 12.6 +30.3 111.1	43 20.9 +30.0 110.4	42 29.1 +29.5 109.7
3°	46 26.3 +30.3 111.3	45 34.7 +29.9 110.6	44 42.9 +29.5 109.9	43 50.9 +29.1 109.2	42 58.6 +28.8 108.5
4°	46 56.6 +29.5 110.1	46 04.6 +29.1 109.4	45 12.4 +28.7 108.7	44 20.0 +28.4 108.0	43 27.4 +28.0 107.3
5°	47 26.1 +28.7 108.8	46 33.7 +28.3 108.1	45 41.1 +27.9 107.4	44 48.4 +27.5 106.7	43 55.4 +27.2 106.1
6°	47 54.8 +27.7 107.5	47 02.0 +27.4 106.8	46 09.0 +27.1 106.1	45 15.9 +26.7 105.5	44 22.6 +26.4 104.9
7°	48 22.5 +26.8 106.2	47 29.4 +26.4 105.5	46 36.1 +26.1 104.8	45 42.6 +25.8 104.2	44 49.0 +25.5 103.6
8°	48 49.3 +25.8 104.8	47 55.8 +25.5 104.2	47 02.2 +25.2 103.5	46 08.4 +25.0 102.9	45 14.5 +24.7 102.3
9°	49 15.1 +24.9 103.4	48 21.3 +24.6 102.8	47 27.4 +24.3 102.2	46 33.4 +24.0 101.6	45 39.2 +23.8 101.0
10°	49 40.0 +23.8 102.0	48 45.9 +23.5 101.4	47 51.7 +23.3 100.8	46 57.4 +23.1 100.3	46 03.0 +22.9 99.7
11°	50 03.8 +22.7 100.6	49 09.4 +22.5 100.0	48 15.0 +22.3 99.5	47 20.5 +22.1 98.9	46 25.9 +21.9 98.4
12°	50 26.5 +21.6 99.2	49 31.9 +21.5 98.6	48 37.3 +21.2 98.1	47 42.6 +21.1 97.5	46 47.8 +20.9 97.0
13°	50 48.1 +20.6 97.7	49 53.4 +20.3 97.2	48 58.5 +20.2 96.6	48 03.7 +20.0 96.1	47 08.7 +20.0 95.6
14°	51 08.7 +19.3 96.2	50 13.7 +19.3 95.7	49 18.7 +19.2 95.2	48 23.7 +19.0 94.7	47 28.7 +18.9 94.2
15°	51 28.0 +18.2 94.7	50 33.0 +18.0 94.2	49 37.9 +18.0 93.7	48 42.7 +18.0 93.3	47 47.6 +17.9 92.8
16°	51 46.2 +17.0 93.1	50 51.0 +16.9 92.7	49 55.9 +16.8 92.3	49 00.7 +16.8 91.8	48 05.5 +16.8 91.4
17°	52 03.2 +15.7 91.6	51 07.9 +15.7 91.2	50 12.7 +15.7 90.8	49 17.5 +15.7 90.4	48 22.3 +15.7 90.0
18°	52 18.9 +14.4 90.0	51 23.6 +14.5 89.6	50 28.4 +14.5 89.3	49 33.2 +14.5 88.9	48 38.0 +14.6 88.5
19°	52 33.3 +13.2 88.4	51 38.1 +13.2 88.1	50 42.9 +13.3 87.7	49 47.7 +13.4 87.4	48 52.6 +13.4 87.0
20°	52 46.5 +11.8 86.8	51 51.3 +12.0 86.5	50 56.2 +12.1 86.2	50 01.1 +12.2 85.9	49 06.0 +12.4 85.6
21°	52 58.3 +10.5 85.2	52 03.3 +10.6 84.9	51 08.3 +10.8 84.6	50 13.3 +11.0 84.3	49 18.4 +11.1 84.1
22°	53 08.8 +09.1 83.6	52 13.9 +09.4 83.3	51 19.1 +09.5 83.1	50 24.3 +09.7 82.8	49 29.5 +10.0 82.5
23°	53 17.9 +07.8 81.9	52 23.3 +08.0 81.7	51 28.6 +08.3 81.5	50 34.0 +08.5 81.3	49 39.5 +08.7 81.0
24°	53 25.7 +06.3 80.2	52 31.3 +06.6 80.1	51 36.9 +06.9 79.9	50 42.5 +07.3 79.7	49 48.2 +07.5 79.5
25°	53 32.0 +05.0 78.6	52 37.9 +05.3 78.4	51 43.8 +05.7 78.3	50 49.8 +05.9 78.1	49 55.7 +06.3 78.0
26°	53 37.0 +03.6 76.9	52 43.2 +04.0 76.8	51 49.5 +04.3 76.7	50 55.7 +04.7 76.5	50 02.0 +05.1 76.4
27°	53 40.6 +02.1 75.2	52 47.2 +02.5 75.1	51 53.8 +03.0 75.1	51 00.4 +03.5 75.0	50 07.1 +03.8 74.9
28°	53 42.7 +00.7 73.5	52 49.7 +01.2 73.5	51 56.8 +01.6 73.4	51 03.9 +02.1 73.4	50 10.9 +02.6 73.3
29°	53 43.4 -00.7 71.8	52 50.9 -00.2 71.8	51 58.4 +00.3 71.8	51 06.0 +00.8 71.8	50 13.5 +01.3 71.7

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°	40 36.5 +30.6 111.3	39 45.0 +30.2 110.7	38 53.2 +29.8 110.0	38 01.2 +29.5 109.4	37 09.0 +29.1 108.8
1°	41 07.1 +29.9 110.2	40 15.2 +29.5 109.5	39 23.0 +29.1 108.9	38 30.7 +28.8 108.3	37 38.1 +28.5 107.7
2°	41 37.0 +29.1 109.0	40 44.7 +28.8 108.4	39 52.1 +28.5 107.8	38 59.5 +28.1 107.1	38 06.6 +27.9 106.5
3°	42 06.1 +28.5 107.9	41 13.5 +28.1 107.2	40 20.6 +27.8 106.6	39 27.6 +27.5 106.0	38 34.5 +27.1 105.4
4°	42 34.6 +27.6 106.7	41 41.6 +27.3 106.1	40 48.4 +27.1 105.4	39 55.1 +26.8 104.9	39 01.6 +26.5 104.3
5°	43 02.2 +26.9 105.5	42 08.9 +26.6 104.9	41 15.5 +26.3 104.3	40 21.9 +26.0 103.7	39 28.1 +25.9 103.1
6°	43 29.1 +26.1 104.2	42 35.5 +25.9 103.6	41 41.8 +25.6 103.1	40 47.9 +25.4 102.5	39 54.0 +25.0 101.9
7°	43 55.2 +25.3 103.0	43 01.4 +25.0 102.4	42 07.4 +24.8 101.9	41 13.3 +24.5 101.3	40 19.0 +24.4 100.8
8°	44 20.5 +24.5 101.7	43 26.4 +24.2 101.2	42 32.2 +23.9 100.6	41 37.8 +23.8 100.1	40 43.4 +23.6 99.6
9°	44 45.0 +23.5 100.5	43 50.6 +23.4 99.9	42 56.1 +23.2 99.4	42 01.6 +23.0 98.8	41 07.0 +22.8 98.3
10°	45 08.5 +22.7 99.2	44 14.0 +22.4 98.6	43 19.3 +22.3 98.1	42 24.6 +22.2 97.6	41 29.8 +22.0 97.1
11°	45 31.2 +21.7 97.8	44 36.4 +21.6 97.3	43 41.6 +21.5 96.8	42 46.8 +21.3 96.3	41 51.8 +21.2 95.9
12°	45 52.9 +20.8 96.5	44 58.0 +20.7 96.0	44 03.1 +20.5 95.5	43 08.1 +20.4 95.1	42 13.0 +20.4 94.6
13°	46 13.7 +19.9 95.2	45 18.7 +19.7 94.7	44 23.6 +19.7 94.2	43 28.5 +19.6 93.8	42 33.4 +19.5 93.3
14°	46 33.6 +18.8 93.8	45 38.4 +18.8 93.3	44 43.3 +18.7 92.9	43 48.1 +18.7 92.5	42 52.9 +18.7 92.0
15°	46 52.4 +17.8 92.4	45 57.2 +17.8 92.0	45 02.0 +17.8 91.6	44 06.8 +17.8 91.1	43 11.6 +17.7 90.7
16°	47 10.2 +16.8 91.0	46 15.0 +16.8 90.6	45 19.8 +16.8 90.2	44 24.6 +16.8 89.8	43 29.3 +16.9 89.4
17°	47 27.0 +15.8 89.6	46 31.8 +15.8 89.2	45 36.6 +15.8 88.8	44 41.4 +15.8 88.5	43 46.2 +15.9 88.1
18°	47 42.8 +14.6 88.2	46 47.6 +14.7 87.8	45 52.4 +14.8 87.4	44 57.2 +14.9 87.1	44 02.1 +14.9 86.8
19°	47 57.4 +13.6 86.7	47 02.3 +13.7 86.4	46 07.2 +13.8 86.1	45 12.1 +13.9 85.7	44 17.0 +14.0 85.4
20°	48 11.0 +12.4 85.3	47 16.0 +12.5 84.9	46 21.0 +12.7 84.6	45 26.0 +12.9 84.3	44 31.0 +13.1 84.0
21°	48 23.4 +11.3 83.8	47 28.5 +11.5 83.5	46 33.7 +11.6 83.2	45 38.9 +11.8 83.0	44 44.1 +12.0 82.7
22°	48 34.7 +10.2 82.3	47 40.0 +10.4 82.0	46 45.3 +10.6 81.8	45 50.7 +10.8 81.5	44 56.1 +11.0 81.3
23°	48 44.9 +09.0 80.8	47 50.4 +09.3 80.6	46 55.9 +09.5 80.4	46 01.5 +09.8 80.1	45 07.1 +10.0 79.9
24°	48 53.9 +07.8 79.3	47 59.7 +08.1 79.1	47 05.4 +08.4 78.9	46 11.3 +08.7 78.7	45 17.1 +09.0 78.5
25°	49 01.7 +06.7 77.8	48 07.8 +06.9 77.6	47 13.8 +07.3 77.5	46 20.0 +07.6 77.3	45 26.1 +07.9 77.1
26°	49 08.4 +05.4 76.3	48 14.7 +05.8 76.1	47 21.1 +06.2 76.0	46 27.6 +06.5 75.8	45 34.0 +06.9 75.7
27°	49 13.8 +04.2 74.8	48 20.5 +04.7 74.6	47 27.3 +05.0 74.5	46 34.1 +05.4 74.4	45 40.9 +05.8 74.3
28°	49 18.0 +03.1 73.2	48 25.2 +03.4 73.1	47 32.3 +03.9 73.0	46 39.5 +04.3 72.9	45 46.7 +04.8 72.8
29°	49 21.1 +01.8 71.7	48 28.6 +02.3 71.6	47 36.2 +02.8 71.6	46 43.8 +03.3 71.5	45 51.5 +03.7 71.4

Declination SAME name as Latitude

Latitude 23°

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°	27 24.2 +26.2 102.7	26 30.3 +26.0 102.2	25 36.2 +25.8 101.7	24 42.1 +25.6 101.3	23 47.9 +25.4 100.8
1°	27 50.4 +25.7 101.7	26 56.3 +25.5 101.2	26 02.0 +25.4 100.7	25 07.7 +25.2 100.3	24 13.3 +25.1 99.8
2°	28 16.1 +25.3 100.7	27 21.8 +25.1 100.2	26 27.4 +25.0 99.7	25 32.9 +24.8 99.3	24 38.4 +24.6 98.8
3°	28 41.4 +24.8 99.6	27 46.9 +24.7 99.2	26 52.4 +24.5 98.7	25 57.7 +24.4 98.2	25 03.0 +24.3 97.8
4°	29 06.2 +24.3 98.6	28 11.6 +24.1 98.1	27 16.9 +24.0 97.7	26 22.1 +23.9 97.2	25 27.3 +23.8 96.8
5°	29 30.5 +23.8 97.6	28 35.7 +23.7 97.1	27 40.9 +23.6 96.6	26 46.0 +23.5 96.2	25 51.1 +23.4 95.8
6°	29 54.3 +23.4 96.5	28 59.4 +23.2 96.0	28 04.5 +23.1 95.6	27 09.5 +23.0 95.2	26 14.5 +22.9 94.7
7°	30 17.7 +22.7 95.4	29 22.6 +22.8 95.0	28 27.6 +22.6 94.6	27 32.5 +22.6 94.1	26 37.4 +22.5 93.7
8°	30 40.4 +22.3 94.4	29 45.4 +22.1 93.9	28 50.2 +22.2 93.5	27 55.1 +22.1 93.1	26 59.9 +22.1 92.7
9°	31 02.7 +21.7 93.3	30 07.5 +21.7 92.9	29 12.4 +21.6 92.4	28 17.2 +21.6 92.0	27 22.0 +21.6 91.6
10°	31 24.4 +21.2 92.2	30 29.2 +21.1 91.8	29 34.0 +21.1 91.4	28 38.8 +21.1 91.0	27 43.6 +21.0 90.6
11°	31 45.6 +20.5 91.1	30 50.3 +20.6 90.7	29 55.1 +20.6 90.3	28 59.9 +20.6 89.9	28 04.6 +20.6 89.5
12°	32 06.1 +20.0 90.0	31 10.9 +20.0 89.6	30 15.7 +20.0 89.2	29 20.5 +20.0 88.8	28 25.2 +20.1 88.4
13°	32 26.1 +19.4 88.9	31 30.9 +19.5 88.5	30 35.7 +19.5 88.1	29 40.5 +19.6 87.7	28 45.3 +19.6 87.4
14°	32 45.5 +18.8 87.7	31 50.4 +18.8 87.4	30 55.2 +18.9 87.0	30 00.1 +18.9 86.7	29 04.9 +19.1 86.3
15°	33 04.3 +18.2 86.6	32 09.2 +18.3 86.3	31 14.1 +18.4 85.9	30 19.0 +18.5 85.6	29 24.0 +18.5 85.2
16°	33 22.5 +17.6 85.5	32 27.5 +17.6 85.1	31 32.5 +17.7 84.8	30 37.5 +17.9 84.5	29 42.5 +18.0 84.1
17°	33 40.1 +16.9 84.3	32 45.1 +17.1 84.0	31 50.2 +17.2 83.7	30 55.4 +17.3 83.3	30 00.5 +17.5 83.0
18°	33 57.0 +16.3 83.2	33 02.2 +16.4 82.9	32 07.4 +16.6 82.5	31 12.7 +16.7 82.2	30 18.0 +16.8 81.9
19°	34 13.3 +15.6 82.0	33 18.6 +15.8 81.7	32 24.0 +15.9 81.4	31 29.4 +16.1 81.1	30 34.8 +16.3 80.8
20°	34 28.9 +14.9 80.8	33 34.4 +15.1 80.5	32 39.9 +15.3 80.3	31 45.5 +15.5 80.0	30 51.1 +15.8 79.7
21°	34 43.8 +14.2 79.7	33 49.5 +14.4 79.4	32 55.2 +14.7 79.1	32 01.0 +14.9 78.8	31 06.9 +15.1 78.5
22°	34 58.0 +13.6 78.5	34 03.9 +13.8 78.2	33 09.9 +14.0 78.0	32 15.9 +14.3 77.7	31 22.0 +14.5 77.4
23°	35 11.6 +12.8 77.3	34 17.7 +13.2 77.0	33 23.9 +13.4 76.8	32 30.2 +13.7 76.5	31 36.5 +13.9 76.3
24°	35 24.4 +12.2 76.1	34 30.9 +12.4 75.9	33 37.3 +12.8 75.6	32 43.9 +13.0 75.4	31 50.4 +13.4 75.1
25°	35 36.6 +11.4 74.9	34 43.3 +11.7 74.7	33 50.1 +12.0 74.4	32 56.9 +12.3 74.2	32 03.8 +12.6 74.0
26°	35 48.0 +10.7 73.7	34 55.0 +11.1 73.5	34 02.1 +11.4 73.3	33 09.2 +11.8 73.0	32 16.4 +12.1 72.8
27°	35 58.7 +09.9 72.5	35 06.1 +10.3 72.3	34 13.5 +10.7 72.1	33 21.0 +11.0 71.9	32 28.5 +11.4 71.7
28°	36 08.6 +09.2 71.2	35 16.4 +09.6 71.1	34 24.2 +09.9 70.9	33 32.0 +10.4 70.7	32 39.9 +10.8 70.5
29°	36 17.8 +08.5 70.0	35 26.0 +08.8 69.9	34 34.1 +09.3 69.7	33 42.4 +09.7 69.5	32 50.7 +10.1 69.3

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°	22 53.6 +25.3 100.3	21 59.2 +25.2 99.9	21 04.8 +25.0 99.4	20 10.3 +24.8 99.0	19 15.7 +24.7 98.5
1°	23 18.9 +24.9 99.3	22 24.4 +24.7 98.9	21 29.8 +24.6 98.4	20 35.1 +24.5 98.0	19 40.4 +24.3 97.6
2°	23 43.8 +24.5 98.3	22 49.1 +24.4 97.9	21 54.4 +24.2 97.5	20 59.6 +24.1 97.0	20 04.7 +24.1 96.6
3°	24 08.3 +24.1 97.3	23 13.5 +24.0 96.9	22 18.6 +23.9 96.5	21 23.7 +23.8 96.0	20 28.8 +23.7 95.6
4°	24 32.4 +23.7 96.3	23 37.5 +23.6 95.9	22 42.5 +23.6 95.5	21 47.5 +23.5 95.1	20 52.5 +23.4 94.6
5°	24 56.1 +23.3 95.3	24 01.1 +23.2 94.9	23 06.1 +23.1 94.5	22 11.0 +23.1 94.1	21 15.9 +23.0 93.6
6°	25 19.4 +22.9 94.3	24 24.3 +22.9 93.9	23 29.2 +22.8 93.5	22 34.1 +22.7 93.1	21 38.9 +22.7 92.7
7°	25 42.3 +22.5 93.3	24 47.2 +22.4 92.9	23 52.0 +22.4 92.5	22 56.8 +22.3 92.1	22 01.6 +22.3 91.7
8°	26 04.8 +22.0 92.3	25 09.6 +21.9 91.9	24 14.4 +21.9 91.5	23 19.1 +22.0 91.1	22 23.9 +22.0 90.7
9°	26 26.8 +21.5 91.2	25 31.5 +21.6 90.8	24 36.3 +21.6 90.4	23 41.1 +21.5 90.0	22 45.9 +21.5 89.6
10°	26 48.3 +21.1 90.2	25 53.1 +21.1 89.8	24 57.9 +21.1 89.4	24 02.6 +21.2 89.0	23 07.4 +21.2 88.6
11°	27 09.4 +20.6 89.1	26 14.2 +20.6 88.7	25 19.0 +20.7 88.4	24 23.8 +20.7 88.0	23 28.6 +20.8 87.6
12°	27 30.0 +20.2 88.1	26 34.8 +20.2 87.7	25 39.7 +20.2 87.3	24 44.5 +20.3 87.0	23 49.4 +20.3 86.6
13°	27 50.2 +19.6 87.0	26 55.0 +19.7 86.6	25 59.9 +19.8 86.3	25 04.8 +19.9 85.9	24 09.7 +20.0 85.6
14°	28 09.8 +19.2 85.9	27 14.7 +19.3 85.6	26 19.7 +19.3 85.2	25 24.7 +19.4 84.9	24 29.7 +19.5 84.5
15°	28 29.0 +18.6 84.9	27 34.0 +18.7 84.5	26 39.0 +18.9 84.2	25 44.1 +19.0 83.8	24 49.2 +19.1 83.5
16°	28 47.6 +18.1 83.8	27 52.7 +18.3 83.4	26 57.9 +18.3 83.1	26 03.1 +18.5 82.8	25 08.3 +18.6 82.4
17°	29 05.7 +17.6 82.7	28 11.0 +17.7 82.4	27 16.2 +17.9 82.0	26 21.6 +18.0 81.7	25 26.9 +18.2 81.4
18°	29 23.3 +17.0 81.6	28 28.7 +17.2 81.3	27 34.1 +17.4 81.0	26 39.6 +17.5 80.6	25 45.1 +17.8 80.3
19°	29 40.3 +16.5 80.5	28 45.9 +16.7 80.2	27 51.5 +16.9 79.9	26 57.1 +17.1 79.6	26 02.9 +17.2 79.3
20°	29 56.8 +16.0 79.4	29 02.6 +16.1 79.1	28 08.4 +16.3 78.8	27 14.2 +16.6 78.5	26 20.1 +16.8 78.2
21°	30 12.8 +15.3 78.3	29 18.7 +15.6 78.0	28 24.7 +15.8 77.7	27 30.8 +16.0 77.4	26 36.9 +16.3 77.1
22°	30 28.1 +14.8 77.1	29 34.3 +15.0 76.9	28 40.5 +15.3 76.6	27 46.8 +15.6 76.3	26 53.2 +15.8 76.1
23°	30 42.9 +14.2 76.0	29 49.3 +14.5 75.8	28 55.8 +14.8 75.5	28 02.4 +15.0 75.2	27 09.0 +15.3 75.0
24°	30 57.1 +13.6 74.9	30 03.8 +13.9 74.6	29 10.6 +14.2 74.4	28 17.4 +14.5 74.1	27 24.3 +14.8 73.9
25°	31 10.7 +13.0 73.8	30 17.7 +13.3 73.5	29 24.8 +13.6 73.3	28 31.9 +14.0 73.0	27 39.1 +14.3 72.8
26°	31 23.7 +12.4 72.6	30 31.0 +12.8 72.4	29 38.4 +13.1 72.2	28 45.9 +13.4 71.9	27 53.4 +13.8 71.7
27°	31 36.1 +11.8 71.5	30 43.8 +12.1 71.3	29 51.5 +12.5 71.0	28 59.3 +12.9 70.8	28 07.2 +13.2 70.6
28°	31 47.9 +11.1 70.3	30 55.9 +11.5 70.1	30 04.0 +11.9 69.9	29 12.2 +12.3 69.7	28 20.4 +12.7 69.5
29°	31 59.0 +10.5 69.2	31 07.4 +11.0 69.0	30 15.9 +11.3 68.8	29 24.5 +11.7 68.6	28 33.1 +12.1 68.4

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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°	18 21.0 +24.6 98.1	17 26.3 +24.5 97.7	16 31.6 +24.3 97.2	15 36.7 +24.3 96.8	14 41.9 +24.1 96.4
1°	18 45.6 +24.2 97.1	17 50.8 +24.1 96.7	16 55.9 +24.0 96.3	16 01.0 +23.9 95.9	15 06.0 +23.9 95.4
2°	19 09.8 +24.0 96.2	18 14.9 +23.9 95.7	17 19.9 +23.8 95.3	16 24.9 +23.7 94.9	15 29.9 +23.6 94.5
3°	19 33.8 +23.6 95.2	18 38.8 +23.5 94.8	17 43.7 +23.5 94.4	16 48.6 +23.5 93.9	15 53.5 +23.4 93.5
4°	19 57.4 +23.4 94.2	19 02.3 +23.3 93.8	18 07.2 +23.2 93.4	17 12.1 +23.1 93.0	16 16.9 +23.1 92.6
5°	20 20.8 +22.9 93.2	19 25.6 +22.9 92.8	18 30.4 +22.9 92.4	17 35.2 +22.9 92.0	16 40.0 +22.9 91.6
6°	20 43.7 +22.7 92.2	19 48.5 +22.7 91.8	18 53.3 +22.6 91.4	17 58.1 +22.6 91.0	17 02.9 +22.6 90.7
7°	21 06.4 +22.3 91.3	20 11.2 +22.3 90.9	19 15.9 +22.3 90.5	18 20.7 +22.3 90.1	17 25.5 +22.3 89.7
8°	21 28.7 +21.9 90.3	20 33.5 +21.9 89.9	19 38.2 +22.0 89.5	18 43.0 +22.0 89.1	17 47.8 +22.0 88.7
9°	21 50.6 +21.6 89.3	20 55.4 +21.6 88.9	20 00.2 +21.6 88.5	19 05.0 +21.7 88.1	18 09.8 +21.7 87.7
10°	22 12.2 +21.2 88.3	21 17.0 +21.3 87.9	20 21.8 +21.3 87.5	19 26.7 +21.3 87.1	18 31.5 +21.4 86.7
11°	22 33.4 +20.8 87.2	21 38.3 +20.8 86.9	20 43.1 +21.0 86.5	19 48.0 +21.0 86.1	18 52.9 +21.1 85.8
12°	22 54.2 +20.5 86.2	21 59.1 +20.6 85.9	21 04.1 +20.6 85.5	20 09.0 +20.7 85.1	19 14.0 +20.8 84.8
13°	23 14.7 +20.0 85.2	22 19.7 +20.1 84.8	21 24.7 +20.2 84.5	20 29.7 +20.3 84.1	19 34.8 +20.4 83.8
14°	23 34.7 +19.6 84.2	22 39.8 +19.7 83.8	21 44.9 +19.9 83.5	20 50.0 +20.0 83.1	19 55.2 +20.1 82.8
15°	23 54.3 +19.3 83.1	22 59.5 +19.4 82.8	22 04.8 +19.4 82.5	21 10.0 +19.6 82.1	20 15.3 +19.8 81.8
16°	24 13.6 +18.7 82.1	23 18.9 +18.9 81.8	22 24.2 +19.1 81.4	21 29.6 +19.3 81.1	20 35.1 +19.4 80.8
17°	24 32.3 +18.4 81.1	23 37.8 +18.5 80.7	22 43.3 +18.7 80.4	21 48.9 +18.9 80.1	20 54.5 +19.1 79.8
18°	24 50.7 +17.9 80.0	23 56.3 +18.1 79.7	23 02.0 +18.3 79.4	22 07.8 +18.5 79.1	21 13.6 +18.7 78.7
19°	25 08.6 +17.5 79.0	24 14.4 +17.7 78.7	23 20.3 +17.9 78.3	22 26.3 +18.1 78.0	21 32.3 +18.3 77.7
20°	25 26.1 +17.0 77.9	24 32.1 +17.2 77.6	23 38.2 +17.5 77.3	22 44.4 +17.6 77.0	21 50.6 +17.9 76.7
21°	25 43.1 +16.5 76.8	24 49.3 +16.8 76.5	23 55.7 +17.0 76.3	23 02.0 +17.3 76.0	22 08.5 +17.5 75.7
22°	25 59.6 +16.1 75.8	25 06.1 +16.4 75.5	24 12.7 +16.6 75.2	23 19.3 +16.9 74.9	22 26.0 +17.2 74.6
23°	26 15.7 +15.6 74.7	25 22.5 +15.9 74.4	24 29.3 +16.2 74.2	23 36.2 +16.5 73.9	22 43.2 +16.7 73.6
24°	26 31.3 +15.1 73.6	25 38.4 +15.4 73.4	24 45.5 +15.7 73.1	23 52.7 +16.0 72.8	22 59.9 +16.4 72.6
25°	26 46.4 +14.6 72.5	25 53.8 +14.9 72.3	25 01.2 +15.2 72.0	24 08.7 +15.6 71.8	23 16.3 +15.9 71.5
26°	27 01.0 +14.1 71.5	26 08.7 +14.4 71.2	25 16.4 +14.8 71.0	24 24.3 +15.1 70.7	23 32.2 +15.5 70.5
27°	27 15.1 +13.6 70.4	26 23.1 +14.0 70.1	25 31.2 +14.4 69.9	24 39.4 +14.7 69.6	23 47.7 +15.0 69.4
28°	27 28.7 +13.1 69.3	26 37.1 +13.5 69.0	25 45.6 +13.8 68.8	24 54.1 +14.2 68.6	24 02.7 +14.7 68.3
29°	27 41.8 +12.5 68.2	26 50.6 +12.9 67.9	25 59.4 +13.4 67.7	25 08.3 +13.8 67.5	24 17.4 +14.1 67.3

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°	13 47.0 +24.0 96.0	12 52.0 +24.0 95.6	11 57.0 +23.9 95.2	11 02.0 +23.8 94.7	10 07.0 +23.7 94.3
1°	14 11.0 +23.8 95.0	13 16.0 +23.7 94.6	12 20.9 +23.7 94.2	11 25.8 +23.6 93.8	10 30.7 +23.6 93.4
2°	14 34.8 +23.6 94.1	13 39.7 +23.5 93.7	12 44.6 +23.5 93.3	11 49.4 +23.5 92.9	10 54.3 +23.4 92.5
3°	14 58.4 +23.3 93.1	14 03.2 +23.3 92.7	13 08.1 +23.2 92.3	12 12.9 +23.2 91.9	11 17.7 +23.2 91.5
4°	15 21.7 +23.1 92.2	14 26.5 +23.1 91.8	13 31.3 +23.1 91.4	12 36.1 +23.0 91.0	11 40.9 +23.0 90.6
5°	15 44.8 +22.9 91.2	14 49.6 +22.8 90.8	13 54.4 +22.8 90.4	12 59.1 +22.9 90.0	12 03.9 +22.9 89.7
6°	16 07.7 +22.6 90.3	15 12.4 +22.6 89.9	14 17.2 +22.6 89.5	13 22.0 +22.6 89.1	12 26.8 +22.6 88.7
7°	16 30.3 +22.3 89.3	15 35.0 +22.4 88.9	14 39.8 +22.4 88.5	13 44.6 +22.4 88.1	12 49.4 +22.5 88.8
8°	16 52.6 +22.0 88.3	15 57.4 +22.1 87.9	15 02.2 +22.1 87.6	14 07.0 +22.2 87.2	13 11.9 +22.2 86.8
9°	17 14.6 +21.8 87.4	16 19.5 +21.8 87.0	15 24.3 +21.9 86.6	14 29.2 +21.9 86.2	13 34.1 +22.0 85.8
10°	17 36.4 +21.4 86.4	16 41.3 +21.5 86.0	15 46.2 +21.6 85.6	14 51.1 +21.7 85.3	13 56.1 +21.8 84.9
11°	17 57.8 +21.2 85.4	17 02.8 +21.3 85.0	16 07.8 +21.4 84.7	15 12.8 +21.5 84.3	14 17.9 +21.5 83.9
12°	18 19.0 +20.9 84.4	17 24.1 +20.9 84.0	16 29.2 +21.0 83.7	15 34.3 +21.2 83.3	14 39.4 +21.4 83.0
13°	18 39.9 +20.6 83.4	17 45.0 +20.7 83.1	16 50.2 +20.9 82.7	15 55.5 +20.9 82.4	15 00.8 +21.0 82.0
14°	19 00.5 +20.2 82.4	18 05.7 +20.4 82.1	17 11.1 +20.5 81.7	16 16.4 +20.7 81.4	15 21.8 +20.9 81.0
15°	19 20.7 +19.9 81.4	18 26.1 +20.1 81.1	17 31.6 +20.2 80.7	16 37.1 +20.4 80.4	15 42.7 +20.5 80.1
16°	19 40.6 +19.6 80.4	18 46.2 +19.7 80.1	17 51.8 +19.9 79.8	16 57.5 +20.1 79.4	16 03.2 +20.3 79.1
17°	20 00.2 +19.2 79.4	19 05.9 +19.5 79.1	18 11.7 +19.6 78.8	17 17.6 +19.8 78.4	16 23.5 +20.0 78.1
18°	20 19.4 +18.9 78.4	19 25.4 +19.1 78.1	18 31.3 +19.4 77.8	17 37.4 +19.5 77.4	16 43.5 +19.8 77.1
19°	20 38.3 +18.6 77.4	19 44.5 +18.7 77.1	18 50.7 +18.9 76.8	17 56.9 +19.2 76.5	17 03.3 +19.4 76.1
20°	20 56.9 +18.1 76.4	20 03.2 +18.4 76.1	19 09.6 +18.7 75.8	18 16.1 +19.0 75.5	17 22.7 +19.2 75.1
21°	21 15.0 +17.8 75.4	20 21.6 +18.1 75.1	19 28.3 +18.3 74.8	18 35.1 +18.5 74.5	17 41.9 +18.8 74.1
22°	21 32.8 +17.5 74.3	20 39.7 +17.7 74.0	19 46.6 +18.0 73.7	18 53.6 +18.3 73.4	18 00.7 +18.6 73.1
23°	21 50.3 +17.0 73.3	20 57.4 +17.3 73.0	20 04.6 +17.6 72.7	19 11.9 +17.9 72.4	18 19.3 +18.2 72.1
24°	22 07.3 +16.6 72.3	21 14.7 +17.0 72.0	20 22.2 +17.3 71.7	19 29.8 +17.6 71.4	18 37.5 +17.9 71.1
25°	22 23.9 +16.3 71.2	21 31.7 +16.6 71.0	20 39.5 +16.9 70.7	19 47.4 +17.3 70.4	18 55.4 +17.6 70.1
26°	22 40.2 +15.8 70.2	21 48.3 +16.2 69.9	20 56.4 +16.6 69.7	20 04.7 +16.9 69.4	19 13.0 +17.3 69.1
27°	22 56.0 +15.4 69.1	22 04.5 +15.7 68.9	21 13.0 +16.1 68.6	20 21.6 +16.5 68.4	19 30.3 +16.9 68.1
28°	23 11.4 +15.1 68.1	22 20.2 +15.4 67.9	21 29.1 +15.8 67.6	20 38.1 +16.2 67.3	19 47.2 +16.6 67.1
29°	23 26.5 +14.5 67.0	22 35.6 +15.0 66.8	21 44.9 +15.4 66.6	20 54.3 +15.8 66.3	20 03.8 +16.2 66.1

Declination SAME name as Latitude

Latitude 23°

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°	9 11.9 +23.6 93.9	8 16.8 +23.6 93.5	7 21.6 +23.6 93.1	6 26.5 +23.5 92.7	5 31.3 +23.5 92.4
1°	9 35.5 +23.6 93.0	8 40.4 +23.5 92.6	7 45.2 +23.5 92.2	6 50.0 +23.4 91.8	5 54.8 +23.4 91.4
2°	9 59.1 +23.3 92.1	9 03.9 +23.3 91.7	8 08.7 +23.3 91.3	7 13.4 +23.4 90.9	6 18.2 +23.3 90.5
3°	10 22.4 +23.3 91.1	9 27.2 +23.2 90.7	8 32.0 +23.2 90.4	7 36.8 +23.2 90.0	6 41.5 +23.2 89.6
4°	10 45.7 +23.0 90.2	9 50.4 +23.1 89.8	8 55.2 +23.1 89.4	8 00.0 +23.0 89.0	7 04.7 +23.2 88.6
5°	11 08.7 +22.9 89.3	10 13.5 +22.9 88.9	9 18.3 +22.9 88.5	8 23.0 +23.0 88.1	7 27.9 +22.9 87.7
6°	11 31.6 +22.6 88.3	10 36.4 +22.7 87.9	9 41.2 +22.7 87.6	8 46.0 +22.8 87.2	7 50.8 +22.9 86.8
7°	11 54.2 +22.5 87.4	10 59.1 +22.5 87.0	10 03.9 +22.6 86.6	9 08.8 +22.7 86.2	8 13.7 +22.7 85.8
8°	12 16.7 +22.3 86.4	11 21.6 +22.4 86.0	10 26.5 +22.5 85.7	9 31.5 +22.5 85.3	8 36.4 +22.6 84.9
9°	12 39.0 +22.1 85.5	11 44.0 +22.1 85.1	10 49.0 +22.2 84.7	9 54.0 +22.3 84.4	8 59.0 +22.5 84.0
10°	13 01.1 +21.9 84.5	12 06.1 +22.0 84.2	11 11.2 +22.1 83.8	10 16.3 +22.2 83.4	9 21.5 +22.3 83.0
11°	13 23.0 +21.7 83.6	12 28.1 +21.8 83.2	11 33.3 +21.9 82.8	10 38.5 +22.1 82.5	9 43.8 +22.2 82.1
12°	13 44.7 +21.4 82.6	12 49.9 +21.6 82.2	11 55.2 +21.7 81.9	11 00.6 +21.8 81.5	10 06.0 +21.9 81.2
13°	14 06.1 +21.2 81.6	13 11.5 +21.3 81.3	12 16.9 +21.5 80.9	11 22.4 +21.7 80.6	10 27.9 +21.9 80.2
14°	14 27.3 +21.0 80.7	13 32.8 +21.2 80.3	12 38.4 +21.3 80.0	11 44.1 +21.4 79.6	10 49.8 +21.6 79.3
15°	14 48.3 +20.7 79.7	13 54.0 +20.9 79.4	12 59.7 +21.1 79.0	12 05.5 +21.3 78.7	11 11.4 +21.5 78.3
16°	15 09.0 +20.5 78.7	14 14.9 +20.7 78.4	13 20.8 +20.9 78.1	12 26.8 +21.1 77.7	11 32.9 +21.3 77.4
17°	15 29.5 +20.2 77.8	14 35.6 +20.4 77.4	13 41.7 +20.6 77.1	12 47.9 +20.9 76.7	11 54.2 +21.1 76.4
18°	15 49.7 +20.0 76.8	14 56.0 +20.2 76.5	14 02.3 +20.5 76.1	13 08.8 +20.6 75.8	12 15.3 +20.9 75.4
19°	16 09.7 +19.7 75.8	15 16.2 +19.9 75.5	14 22.8 +20.1 75.1	13 29.4 +20.4 74.8	12 36.2 +20.6 74.5
20°	16 29.4 +19.4 74.8	15 36.1 +19.7 74.5	14 42.9 +20.0 74.2	13 49.8 +20.2 73.9	12 56.8 +20.5 73.5
21°	16 48.8 +19.1 73.8	15 55.8 +19.4 73.5	15 02.9 +19.7 73.2	14 10.0 +20.0 72.9	13 17.3 +20.3 72.6
22°	17 07.9 +18.9 72.8	16 15.2 +19.1 72.5	15 22.6 +19.4 72.2	14 30.0 +19.7 71.9	13 37.6 +20.0 71.6
23°	17 26.8 +18.5 71.8	16 34.3 +18.9 71.5	15 42.0 +19.1 71.2	14 49.7 +19.5 70.9	13 57.6 +19.8 70.6
24°	17 45.3 +18.2 70.8	16 53.2 +18.5 70.6	16 01.1 +18.9 70.3	15 09.2 +19.2 70.0	14 17.4 +19.5 69.6
25°	18 03.5 +18.0 69.8	17 11.7 +18.3 69.6	16 20.0 +18.7 69.3	15 28.4 +19.0 69.0	14 36.9 +19.4 68.7
26°	18 21.5 +17.6 68.8	17 30.0 +18.0 68.6	16 38.7 +18.3 68.3	15 47.4 +18.7 68.0	14 56.3 +19.0 67.7
27°	18 39.1 +17.3 67.8	17 48.0 +17.7 67.6	16 57.0 +18.0 67.3	16 06.1 +18.4 67.0	15 15.3 +18.8 66.7
28°	18 56.4 +16.9 66.8	18 05.7 +17.3 66.6	17 15.0 +17.8 66.3	16 24.5 +18.2 66.0	15 34.1 +18.6 65.7
29°	19 13.3 +16.7 65.8	18 23.0 +17.0 65.5	17 32.8 +17.4 65.3	16 42.7 +17.8 65.0	15 52.7 +18.2 64.7

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°	4 36.1 +23.5 92.0	3 40.9 +23.5 91.6	2 45.7 +23.4 91.2	1 50.5 +23.4 90.8	0 55.2 +23.5 90.4
1°	4 59.6 +23.4 91.0	4 04.4 +23.4 90.6	3 09.1 +23.4 90.3	2 13.9 +23.4 89.9	1 18.7 +23.4 89.5
2°	5 23.0 +23.3 90.1	4 27.8 +23.3 89.7	3 32.5 +23.4 89.3	2 37.3 +23.4 88.9	1 42.1 +23.4 88.5
3°	5 46.3 +23.2 89.2	4 51.1 +23.2 88.8	3 55.9 +23.3 88.4	3 00.7 +23.3 88.0	2 05.5 +23.3 87.6
4°	6 09.5 +23.2 88.3	5 14.3 +23.2 87.9	4 19.2 +23.2 87.5	3 24.0 +23.3 87.1	2 28.8 +23.4 86.7
5°	6 32.7 +23.0 87.3	5 37.5 +23.1 86.9	4 42.4 +23.1 86.6	3 47.3 +23.2 86.2	2 52.2 +23.2 85.8
6°	6 55.7 +22.9 86.4	6 00.6 +23.0 86.0	5 05.5 +23.1 85.6	4 10.5 +23.1 85.2	3 15.4 +23.3 84.9
7°	7 18.6 +22.8 85.5	6 23.6 +22.9 85.1	5 28.6 +23.0 84.7	4 33.6 +23.1 84.3	3 38.7 +23.1 83.9
8°	7 41.4 +22.7 84.5	6 46.5 +22.8 84.2	5 51.6 +22.8 83.8	4 56.7 +23.0 83.4	4 01.8 +23.1 83.0
9°	8 04.1 +22.6 83.6	7 09.3 +22.6 83.2	6 14.4 +22.8 82.8	5 19.7 +22.9 82.5	4 24.9 +23.1 82.1
10°	8 26.7 +22.4 82.7	7 31.9 +22.6 82.3	6 37.2 +22.7 81.9	5 42.6 +22.8 81.5	4 48.0 +22.9 81.2
11°	8 49.1 +22.3 81.7	7 54.5 +22.4 81.4	6 59.9 +22.6 81.0	6 05.4 +22.7 80.6	5 10.9 +22.9 80.2
12°	9 11.4 +22.2 80.8	8 16.9 +22.3 80.4	7 22.5 +22.4 80.0	6 28.1 +22.6 79.7	5 33.8 +22.8 79.3
13°	9 33.6 +21.9 79.8	8 39.2 +22.2 79.5	7 44.9 +22.4 79.1	6 50.7 +22.6 78.7	5 56.6 +22.7 78.4
14°	9 55.5 +21.9 78.9	9 01.4 +22.0 78.5	8 07.3 +22.2 78.2	7 13.3 +22.4 77.8	6 19.3 +22.6 77.4
15°	10 17.4 +21.6 78.0	9 23.4 +21.9 77.6	8 29.5 +22.1 77.2	7 35.7 +22.2 76.9	6 41.9 +22.5 76.5
16°	10 39.0 +21.5 77.0	9 45.3 +21.7 76.7	8 51.6 +21.9 76.3	7 57.9 +22.2 75.9	7 04.4 +22.4 75.6
17°	11 00.5 +21.3 76.1	10 07.0 +21.5 75.7	9 13.5 +21.8 75.4	8 20.1 +22.0 75.0	7 26.8 +22.3 74.6
18°	11 21.8 +21.2 75.1	10 28.5 +21.4 74.8	9 35.3 +21.6 74.4	8 42.1 +21.9 74.1	7 49.1 +22.1 73.7
19°	11 43.0 +20.9 74.1	10 49.9 +21.2 73.8	9 56.9 +21.5 73.5	9 04.0 +21.7 73.1	8 11.2 +22.0 72.8
20°	12 03.9 +20.8 73.2	11 11.1 +21.0 72.9	10 18.4 +21.3 72.5	9 25.7 +21.6 72.2	8 33.2 +21.9 71.8
21°	12 24.7 +20.5 72.2	11 32.1 +20.9 71.9	10 39.7 +21.1 71.6	9 47.3 +21.5 71.2	8 55.1 +21.7 70.9
22°	12 45.2 +20.3 71.3	11 53.0 +20.6 70.9	11 00.8 +21.0 70.6	10 08.8 +21.2 70.3	9 16.8 +21.6 69.9
23°	13 05.5 +20.2 70.3	12 13.6 +20.4 70.0	11 21.8 +20.7 69.7	10 30.0 +21.1 69.3	9 38.4 +21.4 69.0
24°	13 25.7 +19.8 69.3	12 34.0 +20.3 69.0	11 42.5 +20.6 68.7	10 51.1 +20.9 68.4	9 59.8 +21.3 68.0
25°	13 45.5 +19.7 68.4	12 54.3 +20.0 68.1	12 03.1 +20.4 67.7	11 12.0 +20.8 67.4	10 21.1 +21.1 67.1
26°	14 05.2 +19.4 67.4	13 14.3 +19.8 67.1	12 23.5 +20.1 66.8	11 32.8 +20.5 66.5	10 42.2 +20.9 66.1
27°	14 24.6 +19.2 66.4	13 34.1 +19.6 66.1	12 43.6 +20.0 65.8	11 53.3 +20.4 65.5	11 03.1 +20.8 65.2
28°	14 43.8 +19.0 65.4	13 53.7 +19.3 65.1	13 03.6 +19.8 64.8	12 13.7 +20.1 64.5	11 23.9 +20.5 64.2
29°	15 02.8 +18.7 64.5	14 13.0 +19.1 64.2	13 23.4 +19.5 63.9	12 33.8 +20.0 63.6	11 44.4 +20.4 63.3

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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 +23.4 90.0	-0 55.2 +23.4	-1 50.5 +23.5	-2 45.7 +23.5	-3 40.9 +23.5
1°	0 23.4 +23.5 89.1	-0 31.8 +23.5	-1 27.0 +23.5	-2 22.2 +23.5	-3 17.4 +23.6
2°	0 46.9 +23.4 88.2	-0 08.3 +23.4	-1 03.5 +23.5	-1 58.7 +23.6	-2 53.8 +23.6
3°	1 10.3 +23.4 87.2	0 15.1 +23.5 86.8	-0 40.0 +23.5	-1 35.1 +23.6	-2 30.2 +23.7
4°	1 33.7 +23.4 86.3	0 38.6 +23.5 85.9	-0 16.5 +23.6	-1 11.5 +23.6	-2 06.5 +23.7
5°	1 57.1 +23.3 85.4	1 02.1 +23.4 85.0	0 07.1 +23.5 84.6	-0 47.9 +23.6	-1 42.8 +23.7
6°	2 20.4 +23.4 84.5	1 25.5 +23.4 84.1	0 30.6 +23.5 83.7	-0 24.3 +23.6	-1 19.1 +23.7
7°	2 43.8 +23.2 83.6	1 48.9 +23.4 83.2	0 54.1 +23.5 82.8	-0 00.7 +23.6	-0 55.4 +23.7
8°	3 07.0 +23.3 82.6	2 12.3 +23.3 82.2	1 17.6 +23.5 81.9	0 22.9 +23.7 81.5	-0 31.7 +23.8
9°	3 30.3 +23.1 81.7	2 35.6 +23.3 81.3	1 41.1 +23.4 80.9	0 46.6 +23.6 80.5	-0 07.9 +23.8
10°	3 53.4 +23.1 80.8	2 58.9 +23.3 80.4	2 04.5 +23.4 80.0	1 10.2 +23.5 79.6	0 15.9 +23.7 79.2
11°	4 16.5 +23.1 79.9	3 22.2 +23.2 79.5	2 27.9 +23.4 79.1	1 33.7 +23.6 78.7	0 39.6 +23.8 78.3
12°	4 39.6 +23.0 78.9	3 45.4 +23.2 78.6	2 51.3 +23.4 78.2	1 57.3 +23.5 77.8	1 03.4 +23.7 77.4
13°	5 02.6 +22.8 78.0	4 08.6 +23.1 77.6	3 14.7 +23.2 77.2	2 20.8 +23.5 76.9	1 27.1 +23.7 76.5
14°	5 25.4 +22.9 77.1	4 31.7 +23.0 76.7	3 37.9 +23.3 76.3	2 44.3 +23.5 75.9	1 50.8 +23.7 75.6
15°	5 48.3 +22.7 76.1	4 54.7 +22.9 75.8	4 01.2 +23.1 75.4	3 07.8 +23.4 75.0	2 14.5 +23.6 74.6
16°	6 11.0 +22.6 75.2	5 17.6 +22.9 74.8	4 24.3 +23.1 74.5	3 31.2 +23.3 74.1	2 38.1 +23.6 73.7
17°	6 33.6 +22.5 74.3	5 40.5 +22.7 73.9	4 47.4 +23.1 73.6	3 54.5 +23.3 73.2	3 01.7 +23.6 72.8
18°	6 56.1 +22.4 73.3	6 03.2 +22.7 73.0	5 10.5 +22.9 72.6	4 17.8 +23.2 72.3	3 25.3 +23.5 71.9
19°	7 18.5 +22.3 72.4	6 25.9 +22.6 72.1	5 33.4 +22.9 71.7	4 41.0 +23.2 71.3	3 48.8 +23.4 71.0
20°	7 40.8 +22.2 71.5	6 48.5 +22.4 71.1	5 56.3 +22.7 70.8	5 04.2 +23.1 70.4	4 12.2 +23.4 70.0
21°	8 03.0 +22.0 70.5	7 10.9 +22.4 70.2	6 19.0 +22.7 69.8	5 27.3 +22.9 69.5	4 35.6 +23.3 69.1
22°	8 25.0 +21.9 69.6	7 33.3 +22.2 69.3	6 41.7 +22.6 68.9	5 50.2 +22.9 68.6	4 58.9 +23.2 68.2
23°	8 46.9 +21.8 68.7	7 55.5 +22.1 68.3	7 04.3 +22.4 68.0	6 13.1 +22.8 67.6	5 22.1 +23.2 67.3
24°	9 08.7 +21.6 67.7	8 17.6 +22.0 67.4	7 26.7 +22.3 67.0	6 35.9 +22.7 66.7	5 45.3 +23.0 66.3
25°	9 30.3 +21.5 66.8	8 39.6 +21.8 66.4	7 49.0 +22.2 66.1	6 58.6 +22.6 65.8	6 08.3 +23.0 65.4
26°	9 51.8 +21.3 65.8	9 01.4 +21.7 65.5	8 11.2 +22.1 65.2	7 21.2 +22.5 64.8	6 31.3 +22.8 64.5
27°	10 13.1 +21.1 64.9	9 23.1 +21.6 64.5	8 33.3 +22.0 64.2	7 43.7 +22.3 63.9	6 54.1 +22.8 63.6
28°	10 34.2 +21.0 63.9	9 44.7 +21.3 63.6	8 55.3 +21.8 63.3	8 06.0 +22.2 63.0	7 16.9 +22.6 62.6
29°	10 55.2 +20.8 63.0	10 06.0 +21.3 62.7	9 17.1 +21.6 62.3	8 28.2 +22.1 62.0	7 39.5 +22.5 61.7

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°	-4 36.1 +23.6	-5 31.3 +23.6	-6 26.5 +23.7	-7 21.6 +23.7	-8 16.8 +23.8
1°	-4 12.5 +23.6	-5 07.7 +23.7	-6 02.8 +23.7	-6 57.9 +23.8	-7 53.0 +23.9
2°	-3 48.9 +23.7	-4 44.0 +23.7	-5 39.1 +23.8	-6 34.1 +23.9	-7 29.1 +24.0
3°	-3 25.2 +23.7	-4 20.3 +23.8	-5 15.3 +23.9	-6 10.2 +24.0	-7 05.1 +24.1
4°	-3 01.5 +23.8	-3 56.5 +23.9	-4 51.4 +24.0	-5 46.2 +24.1	-6 41.0 +24.2
5°	-2 37.7 +23.8	-3 32.6 +23.9	-4 27.4 +24.1	-5 22.1 +24.1	-6 16.8 +24.3
6°	-2 13.9 +23.8	-3 08.7 +24.0	-4 03.3 +24.1	-4 58.0 +24.3	-5 52.5 +24.4
7°	-1 50.1 +23.9	-2 44.7 +24.0	-3 39.2 +24.1	-4 33.7 +24.3	-5 28.1 +24.4
8°	-1 26.2 +23.9	-2 20.7 +24.1	-3 15.1 +24.3	-4 09.4 +24.4	-5 03.7 +24.6
9°	-1 02.3 +23.9	-1 56.6 +24.1	-2 50.8 +24.2	-3 45.0 +24.4	-4 39.1 +24.6
10°	-0 38.4 +24.0	-1 32.5 +24.1	-2 26.6 +24.3	-3 20.6 +24.5	-4 14.5 +24.7
11°	-0 14.4 +23.9	-1 08.4 +24.1	-2 02.3 +24.3	-2 56.1 +24.5	-3 49.8 +24.7
12°	0 09.5 +23.9 77.0	-0 44.3 +24.2	-1 38.0 +24.4	-2 31.6 +24.6	-3 25.1 +24.8
13°	0 33.4 +24.0 76.1	-0 20.1 +24.1	-1 13.6 +24.4	-2 07.0 +24.6	-3 00.3 +24.9
14°	0 57.4 +23.9 75.2	0 04.0 +24.1 74.8	-0 49.2 +24.3	-1 42.4 +24.6	-2 35.4 +24.9
15°	1 21.3 +23.8 74.3	0 28.1 +24.2 73.9	-0 24.9 +24.4	-1 17.8 +24.7	-2 10.5 +24.9
16°	1 45.1 +23.9 73.3	0 52.3 +24.1 73.0	-0 00.5 +24.4	-0 53.1 +24.7	-1 45.6 +24.9
17°	2 09.0 +23.8 72.4	1 16.4 +24.1 72.0	0 23.9 +24.4 71.7	-0 28.4 +24.6	-1 20.7 +25.0
18°	2 32.8 +23.8 71.5	1 40.5 +24.1 71.1	0 48.3 +24.4 70.7	-0 03.8 +24.7	-0 55.7 +25.0
19°	2 56.6 +23.8 70.6	2 04.6 +24.0 70.2	1 12.7 +24.3 69.8	0 20.9 +24.7 69.4	-0 30.7 +24.9
20°	3 20.4 +23.6 69.7	2 28.6 +24.0 69.3	1 37.0 +24.4 68.9	0 45.6 +24.6 68.5	-0 05.8 +25.0
21°	3 44.0 +23.7 68.7	2 52.6 +24.0 68.4	2 01.4 +24.3 68.0	1 10.2 +24.7 67.6	0 19.2 +25.0 67.2
22°	4 07.7 +23.5 67.8	3 16.6 +23.9 67.5	2 25.7 +24.2 67.1	1 34.9 +24.6 66.7	0 44.2 +25.0 66.3
23°	4 31.2 +23.5 66.9	3 40.5 +23.9 66.5	2 49.9 +24.2 66.2	1 59.5 +24.6 65.8	1 09.2 +24.9 65.4
24°	4 54.7 +23.5 66.0	4 04.4 +23.8 65.6	3 14.1 +24.2 65.3	2 24.1 +24.5 64.9	1 34.1 +24.9 64.5
25°	5 18.2 +23.3 65.1	4 28.2 +23.7 64.7	3 38.3 +24.1 64.3	2 48.6 +24.5 64.0	1 59.0 +24.9 63.6
26°	5 41.5 +23.3 64.1	4 51.9 +23.6 63.8	4 02.4 +24.1 63.4	3 13.1 +24.5 63.1	2 23.9 +24.9 62.7
27°	6 04.8 +23.1 63.2	5 15.5 +23.6 62.9	4 26.5 +23.9 62.5	3 37.6 +24.4 62.1	2 48.8 +24.8 61.8
28°	6 27.9 +23.1 62.3	5 39.1 +23.5 61.9	4 50.4 +24.0 61.6	4 02.0 +24.3 61.2	3 13.6 +24.8 60.9
29°	6 51.0 +22.9 61.3	6 02.6 +23.4 61.0	5 14.4 +23.8 60.7	4 26.3 +24.3 60.3	3 38.4 +24.7 60.0

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°	-9 11.9 +23.8				
1°	-8 48.1 +24.0	-9 43.1 +24.1			
2°	-8 24.1 +24.1	-9 19.0 +24.2			
3°	-8 00.0 +24.2	-8 54.8 +24.3	-9 49.6 +24.4		
4°	-7 35.8 +24.3	-8 30.5 +24.4	-9 25.2 +24.6		
5°	-7 11.5 +24.5	-8 06.1 +24.6	-9 00.6 +24.7	-9 55.0 +24.8	
6°	-6 47.0 +24.5	-7 41.5 +24.7	-8 35.9 +24.9	-9 30.2 +25.1	
7°	-6 22.5 +24.6	-7 16.8 +24.8	-8 11.0 +25.0	-9 05.1 +25.1	-9 59.2 +25.4
8°	-5 57.9 +24.8	-6 52.0 +24.9	-7 46.0 +25.1	-8 40.0 +25.3	-9 33.8 +25.5
9°	-5 33.1 +24.8	-6 27.1 +25.0	-7 20.9 +25.2	-8 14.7 +25.5	-9 08.3 +25.6
10°	-5 08.3 +24.9	-6 02.1 +25.1	-6 55.7 +25.3	-7 49.2 +25.5	-8 42.7 +25.8
11°	-4 43.4 +24.9	-5 37.0 +25.2	-6 30.4 +25.4	-7 23.7 +25.7	-8 16.9 +25.9
12°	-4 18.5 +25.1	-5 11.8 +25.3	-6 05.0 +25.5	-6 58.0 +25.7	-7 51.0 +26.0
13°	-3 53.4 +25.0	-4 46.5 +25.3	-5 39.5 +25.6	-6 32.3 +25.9	-7 25.0 +26.1
14°	-3 28.4 +25.2	-4 21.2 +25.4	-5 13.9 +25.7	-6 06.4 +25.9	-6 58.9 +26.2
15°	-3 03.2 +25.2	-3 55.8 +25.5	-4 48.2 +25.7	-5 40.5 +26.0	-6 32.7 +26.4
16°	-2 38.0 +25.2	-3 30.3 +25.5	-4 22.5 +25.9	-5 14.5 +26.1	-6 06.3 +26.4
17°	-2 12.8 +25.3	-3 04.8 +25.6	-3 56.6 +25.8	-4 48.4 +26.2	-5 39.9 +26.5
18°	-1 47.5 +25.2	-2 39.2 +25.6	-3 30.8 +25.9	-4 22.2 +26.3	-5 13.4 +26.5
19°	-1 22.3 +25.3	-2 13.6 +25.6	-3 04.9 +26.0	-3 55.9 +26.3	-4 46.9 +26.7
20°	-0 57.0 +25.4	-1 48.0 +25.7	-2 38.9 +26.0	-3 29.6 +26.3	-4 20.2 +26.7
21°	-0 31.6 +25.3	-1 22.3 +25.6	-2 12.9 +26.0	-3 03.3 +26.4	-3 53.5 +26.8
22°	-0 06.3 +25.3	-0 56.7 +25.7	-1 46.9 +26.1	-2 36.9 +26.5	-3 26.7 +26.8
23°	0 19.0 +25.3 65.0	-0 31.0 +25.7	-1 20.8 +26.1	-2 10.4 +26.4	-2 59.9 +26.8
24°	0 44.3 +25.4 64.1	-0 05.3 +25.7	-0 54.7 +26.1	-1 44.0 +26.5	-2 33.1 +26.9
25°	1 09.7 +25.3 63.2	0 20.4 +25.7 62.8	-0 28.6 +26.1	-1 17.5 +26.5	-2 06.2 +26.9
26°	1 35.0 +25.2 62.3	0 46.1 +25.7 61.9	-0 02.5 +26.1	-0 51.0 +26.6	-1 39.3 +27.0
27°	2 00.2 +25.3 61.4	1 11.8 +25.7 61.0	0 23.6 +26.1 60.6	-0 24.4 +26.5	-1 12.3 +27.0
28°	2 25.5 +25.2 60.5	1 37.5 +25.6 60.1	0 49.7 +26.1 59.7	0 02.1 +26.5 59.4	-0 45.3 +26.9
29°	2 50.7 +25.1 59.6	2 03.1 +25.7 59.2	1 15.8 +26.0 58.8	0 28.6 +26.5 58.5	-0 18.4 +27.0

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°					
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°					

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°	66 00.0 +60.0 180.0	65 58.8 +60.0 177.5	65 55.3 +59.8 175.1	65 49.5 +59.5 172.7	65 41.3 +59.3 170.2
1°	67 00.0 +60.0 180.0	66 58.8 +59.9 177.4	66 55.1 +59.8 174.9	66 49.0 +59.6 172.4	66 40.6 +59.1 169.9
2°	68 00.0 +60.0 180.0	67 58.7 +60.0 177.3	67 54.9 +59.8 174.7	67 48.6 +59.5 172.0	67 39.7 +59.2 169.4
3°	69 00.0 +60.0 180.0	68 58.7 +59.9 177.2	68 54.7 +59.7 174.4	68 48.1 +59.4 171.7	68 38.9 +59.0 169.0
4°	70 00.0 +60.0 180.0	69 58.6 +59.9 177.1	69 54.4 +59.8 174.2	69 47.5 +59.4 171.3	69 37.9 +58.9 168.5
5°	71 00.0 +60.0 180.0	70 58.5 +60.0 176.9	70 54.2 +59.7 173.9	70 46.9 +59.3 170.9	70 36.8 +58.8 167.9
6°	72 00.0 +60.0 180.0	71 58.5 +59.9 176.8	71 53.9 +59.6 173.6	71 46.2 +59.3 170.4	71 35.6 +58.7 167.3
7°	73 00.0 +60.0 180.0	72 58.4 +59.9 176.6	72 53.5 +59.7 173.2	72 45.5 +59.2 169.9	72 34.3 +58.6 166.6
8°	74 00.0 +60.0 180.0	73 58.3 +59.9 176.4	73 53.2 +59.5 172.8	73 44.7 +59.0 169.3	73 32.9 +58.4 165.9
9°	75 00.0 +60.0 180.0	74 58.2 +59.9 176.2	74 52.7 +59.5 172.4	74 43.7 +59.0 168.7	74 31.3 +58.1 165.0
10°	76 00.0 +60.0 180.0	75 58.1 +59.8 175.9	75 52.2 +59.5 171.9	75 42.7 +58.7 167.9	75 29.4 +57.9 164.1
11°	77 00.0 +60.0 180.0	76 57.9 +59.9 175.6	76 51.7 +59.4 171.3	76 41.4 +58.6 167.1	76 27.3 +57.6 163.0
12°	78 00.0 +60.0 180.0	77 57.8 +59.8 175.3	77 51.1 +59.2 170.7	77 40.0 +58.4 166.1	77 24.9 +57.1 161.8
13°	79 00.0 +60.0 180.0	78 57.6 +59.7 174.9	78 50.3 +59.1 169.9	78 38.4 +58.0 165.0	78 22.0 +56.7 160.3
14°	80 00.0 +60.0 180.0	79 57.3 +59.8 174.4	79 49.4 +58.9 169.0	79 36.4 +57.6 163.7	79 18.7 +56.0 158.6
15°	81 00.0 +60.0 180.0	80 57.1 +59.6 173.8	80 48.3 +58.7 167.8	80 34.0 +57.1 162.0	80 14.7 +55.1 156.6
16°	82 00.0 +60.0 180.0	81 56.7 +59.6 173.1	81 47.0 +58.2 166.4	81 31.1 +56.4 160.1	81 09.8 +53.9 154.1
17°	83 00.0 +60.0 180.0	82 56.3 +59.4 172.2	82 45.2 +57.8 164.7	82 27.5 +55.3 157.6	82 03.7 +52.3 151.1
18°	84 00.0 +60.0 180.0	83 55.7 +59.2 171.0	83 43.0 +56.9 162.3	83 22.8 +53.7 154.4	82 56.0 +50.1 147.4
19°	85 00.0 +60.0 180.0	84 54.9 +58.7 169.3	84 39.9 +55.6 159.2	84 16.5 +51.2 150.3	83 46.1 +46.7 142.6
20°	86 00.0 +60.0 180.0	85 53.6 +58.1 166.8	85 35.5 +53.1 154.7	85 07.7 +47.3 144.6	84 32.8 +41.6 136.4
21°	87 00.0 +60.0 180.0	86 51.7 +56.2 162.7	86 28.6 +48.3 148.0	85 55.0 +40.4 136.7	85 14.4 +34.2 128.3
22°	88 00.0 +60.0 180.0	87 47.9 +50.7 155.1	87 16.9 +37.8 137.0	86 35.4 +29.0 125.3	85 48.6 +23.3 117.7
23°	89 00.0 +60.0 180.0	88 38.6 +26.6 137.3	87 54.7 +15.7 118.2	87 04.4 +11.2 109.4	86 11.9 +08.9 104.4
24°	90 00.0 -60.0 0.0	89 05.2 -26.3 89.8	88 10.4 -15.0 89.6	87 15.6 -10.0 89.4	86 20.8 -07.3 89.2
25°	89 00.0 -60.0 0.0	88 38.9 -50.6 42.1	87 55.4 -37.3 60.8	87 05.6 -28.1 69.3	86 13.5 -21.9 73.8
26°	88 00.0 -60.0 0.0	87 48.3 -56.3 24.2	87 18.1 -48.2 41.8	86 37.5 -40.0 53.0	85 51.6 -33.2 60.3
27°	87 00.0 -60.0 0.0	86 52.0 -58.0 16.5	86 29.9 -53.0 30.6	85 57.5 -46.9 41.4	85 18.4 -41.0 49.4
28°	86 00.0 -60.0 0.0	85 54.0 -58.8 12.4	85 36.9 -55.5 23.8	85 10.6 -51.1 33.3	84 37.4 -46.3 41.1
29°	85 00.0 -60.0 0.0	84 55.2 -59.1 9.9	84 41.4 -56.9 19.3	84 19.5 -53.6 27.6	83 51.1 -49.7 34.7

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°	65 30.9 +58.8 167.9	65 18.3 +58.3 165.5	65 03.5 +57.8 163.2	64 46.6 +57.2 160.9	64 27.7 +56.5 158.7
1°	66 29.7 +58.8 167.4	66 16.6 +58.2 164.9	66 01.3 +57.6 162.6	65 43.8 +56.9 160.2	65 24.2 +56.2 157.9
2°	67 28.5 +58.6 166.9	67 14.8 +58.1 164.3	66 58.9 +57.4 161.9	66 40.7 +56.7 159.4	66 20.4 +55.9 157.1
3°	68 27.1 +58.5 166.3	68 12.9 +57.9 163.7	67 56.3 +57.2 161.1	67 37.4 +56.4 158.6	67 16.3 +55.6 156.2
4°	69 25.6 +58.4 165.7	69 10.8 +57.7 162.9	68 53.5 +56.9 160.3	68 33.8 +56.1 157.7	68 11.9 +55.2 155.2
5°	70 24.0 +58.2 165.0	70 08.5 +57.4 162.1	69 50.4 +56.6 159.4	69 29.9 +55.7 156.7	69 07.1 +54.7 154.1
6°	71 22.2 +58.0 164.3	71 05.9 +57.2 161.3	70 47.0 +56.3 158.4	70 25.6 +55.3 155.6	70 01.8 +54.2 152.9
7°	72 20.2 +57.8 163.4	72 03.1 +56.9 160.3	71 43.3 +55.9 157.3	71 20.9 +54.8 154.4	70 56.0 +53.7 151.6
8°	73 18.0 +57.5 162.5	73 00.0 +56.5 159.3	72 39.2 +55.4 156.1	72 15.7 +54.2 153.1	71 49.7 +53.0 150.2
9°	74 15.5 +57.2 161.5	73 56.5 +56.1 158.1	73 34.6 +54.9 154.8	73 09.9 +53.6 151.7	72 42.7 +52.1 148.7
10°	75 12.7 +56.8 160.4	74 52.6 +55.6 156.8	74 29.5 +54.2 153.3	74 03.5 +52.7 150.1	73 34.8 +51.3 147.0
11°	76 09.5 +56.3 159.0	75 48.2 +54.9 155.3	75 23.7 +53.4 151.7	74 56.2 +51.9 148.3	74 26.1 +50.3 145.1
12°	77 05.8 +55.7 157.6	76 43.1 +54.2 153.6	76 17.1 +52.5 149.8	75 48.1 +50.7 146.3	75 16.4 +48.9 143.0
13°	78 01.5 +55.0 155.8	77 37.3 +53.2 151.6	77 09.6 +51.3 147.7	76 38.8 +49.4 144.0	76 05.3 +47.5 140.7
14°	78 56.5 +54.1 153.8	78 30.5 +52.0 149.4	78 00.9 +49.9 145.3	77 28.2 +47.7 141.5	76 52.8 +45.6 138.0
15°	79 50.6 +52.9 151.5	79 22.5 +50.5 146.8	78 50.8 +48.1 142.5	78 15.9 +45.8 138.6	77 38.4 +43.6 135.1
16°	80 43.5 +51.3 148.7	80 13.0 +48.6 143.7	79 38.9 +45.9 139.3	79 01.7 +43.4 135.3	78 22.0 +40.9 131.8
17°	81 34.8 +49.2 145.3	81 01.6 +46.1 140.1	80 24.8 +43.1 135.6	79 45.1 +40.4 131.6	79 02.9 +37.9 128.0
18°	82 24.0 +46.3 141.2	81 47.7 +42.8 135.9	81 07.9 +39.6 131.2	80 25.5 +36.7 127.3	79 40.8 +34.3 123.8
19°	83 10.3 +42.4 136.1	82 30.5 +38.5 130.7	81 47.5 +35.2 126.2	81 02.2 +32.3 122.4	80 15.1 +29.9 119.1
20°	83 52.7 +36.9 129.8	83 09.0 +32.9 124.6	82 22.7 +29.6 120.3	81 34.5 +27.0 116.8	80 45.0 +24.8 113.9
21°	84 29.6 +29.3 122.0	83 41.9 +25.7 117.2	82 52.3 +23.0 113.5	82 01.5 +20.7 110.5	81 09.8 +19.0 108.1
22°	84 58.9 +19.5 112.5	84 07.6 +16.9 108.7	83 15.3 +14.9 105.9	82 22.2 +13.6 103.6	81 28.8 +12.5 101.8
23°	85 18.4 +07.6 101.3	84 24.5 +06.6 99.1	83 30.2 +06.2 97.4	82 35.8 +05.8 96.2	81 41.3 +05.5 95.1
24°	85 26.0 -05.5 89.0	84 31.1 -04.1 88.8	83 36.4 -03.2 88.6	82 41.6 -02.4 88.4	81 46.8 -01.7 88.2
25°	85 20.5 -17.7 76.6	84 27.0 -14.6 78.4	83 33.2 -12.2 79.6	82 39.2 -10.4 80.5	81 45.1 -08.9 81.2
26°	85 02.8 -27.9 65.1	84 12.4 -23.8 68.6	83 21.0 -20.5 71.0	82 28.8 -17.8 72.9	81 36.2 -15.6 74.3
27°	84 34.9 -35.8 55.3	83 48.6 -31.3 59.7	83 00.5 -27.7 63.1	82 11.0 -24.5 65.7	81 20.6 -21.8 67.8
28°	83 59.1 -41.6 47.3	83 17.3 -37.4 52.1	82 32.8 -33.5 56.1	81 46.5 -30.2 59.2	80 58.8 -27.3 61.8
29°	83 17.5 -45.7 40.7	82 39.9 -41.9 45.7	81 59.3 -38.3 49.9	81 16.3 -35.0 53.3	80 31.5 -32.0 56.2

Latitude 24°

Declination SAME name as Latitude

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°	64 06.9 +55.7 156.6	63 44.1 +55.0 154.5	63 19.6 +54.2 152.4	62 53.4 +53.3 150.4	62 25.5 +52.5 148.5
1°	65 02.6 +55.4 155.7	64 39.1 +54.6 153.5	64 13.8 +53.7 151.4	63 46.7 +52.9 149.4	63 18.0 +52.0 147.4
2°	65 58.0 +55.1 154.8	65 33.7 +54.2 152.6	65 07.5 +53.3 150.4	64 39.6 +52.4 148.3	64 10.0 +51.4 146.3
3°	66 53.1 +54.7 153.8	66 27.9 +53.8 151.5	66 00.8 +52.8 149.3	65 32.0 +51.8 147.2	65 01.4 +50.8 145.1
4°	67 47.8 +54.2 152.7	67 21.7 +53.2 150.4	66 53.6 +52.2 148.1	66 23.8 +51.1 145.9	65 52.2 +50.1 143.8
5°	68 42.0 +53.7 151.6	68 14.9 +52.6 149.1	67 45.8 +51.6 146.8	67 14.9 +50.5 144.6	66 42.3 +49.4 142.5
6°	69 35.7 +53.1 150.3	69 07.5 +52.0 147.8	68 37.4 +50.8 145.4	68 05.4 +49.7 143.2	67 31.7 +48.5 141.0
7°	70 28.8 +52.5 148.9	69 59.5 +51.3 146.4	69 28.2 +50.0 144.0	68 55.1 +48.7 141.6	68 20.2 +47.6 139.4
8°	71 21.3 +51.7 147.5	70 50.8 +50.4 144.8	70 18.2 +49.1 142.3	69 43.8 +47.8 140.0	69 07.8 +46.5 137.7
9°	72 13.0 +50.8 145.8	71 41.2 +49.4 143.1	71 07.3 +48.0 140.6	70 31.6 +46.7 138.2	69 54.3 +45.3 135.9
10°	73 03.8 +49.8 144.1	72 30.6 +48.3 141.3	71 55.3 +46.8 138.7	71 18.3 +45.4 136.3	70 39.6 +44.0 134.0
11°	73 53.6 +48.6 142.1	73 18.9 +47.0 139.3	72 42.1 +45.5 136.7	72 03.7 +43.9 134.2	71 23.6 +42.5 131.9
12°	74 42.2 +47.2 139.9	74 05.9 +45.5 137.1	73 27.6 +43.9 134.4	72 47.6 +42.3 131.9	72 06.1 +40.8 129.6
13°	75 29.4 +45.6 137.5	74 51.4 +43.8 134.6	74 11.5 +42.0 132.0	73 29.9 +40.5 129.5	72 46.9 +39.0 127.2
14°	76 15.0 +43.7 134.9	75 35.2 +41.7 131.9	74 53.5 +40.0 129.3	74 10.4 +38.3 126.8	73 25.9 +36.8 124.6
15°	76 58.7 +41.4 131.9	76 16.9 +39.5 129.0	75 33.5 +37.7 126.4	74 48.7 +36.0 124.0	74 02.7 +34.4 121.8
16°	77 40.1 +38.8 128.6	76 56.4 +36.8 125.7	76 11.2 +34.9 123.2	75 24.7 +33.3 120.8	74 37.1 +31.8 118.7
17°	78 18.9 +35.6 124.9	77 33.2 +33.6 122.2	76 46.1 +31.9 119.7	75 58.0 +30.3 117.5	75 08.9 +28.9 115.5
18°	78 54.5 +32.1 120.9	78 06.8 +30.1 118.2	77 18.0 +28.4 115.9	76 28.3 +26.9 113.9	75 37.8 +25.6 112.0
19°	79 26.6 +27.8 116.3	78 36.9 +26.1 113.9	77 46.4 +24.5 111.8	76 55.2 +23.2 110.0	76 03.4 +22.1 108.3
20°	79 54.4 +23.0 111.4	79 03.0 +21.5 109.3	78 10.9 +20.3 107.4	77 18.4 +19.2 105.8	76 25.5 +18.2 104.4
21°	80 17.4 +17.6 106.0	79 24.5 +16.4 104.3	78 31.2 +15.5 102.8	77 37.6 +14.7 101.5	76 43.7 +14.2 100.3
22°	80 35.0 +11.6 100.3	79 40.9 +11.0 99.0	78 46.7 +10.5 97.9	77 52.3 +10.1 96.9	76 57.9 +09.8 96.0
23°	80 46.6 +05.4 94.2	79 51.9 +05.3 93.4	78 57.2 +05.2 92.8	78 02.4 +05.3 92.2	77 07.7 +05.2 91.6
24°	80 52.0 -01.1 88.0	79 57.2 -00.6 87.8	79 02.4 -00.1 87.6	78 07.7 +00.3 87.3	77 12.9 +00.7 87.1
25°	80 50.9 -07.6 81.7	79 56.6 -06.5 82.0	79 02.3 -05.5 82.3	78 08.0 -04.7 82.5	77 13.6 -03.9 82.6
26°	80 43.3 -13.8 75.5	79 50.1 -12.1 76.4	78 56.8 -10.8 77.1	78 03.3 -09.6 77.6	77 09.7 -08.5 78.1
27°	80 29.5 -19.5 69.5	79 38.0 -17.6 70.9	78 46.0 -15.8 72.0	77 53.7 -14.2 72.9	77 01.2 -12.8 73.7
28°	80 10.0 -24.7 63.9	79 20.4 -22.4 65.6	78 30.2 -20.4 67.1	77 39.5 -18.7 68.3	76 48.4 -17.1 69.4
29°	79 45.3 -29.3 58.6	78 58.0 -26.9 60.7	78 09.8 -24.8 62.4	77 20.8 -22.7 63.9	76 31.3 -20.9 65.2

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°	61 56.1 +51.6 146.6	61 25.2 +50.8 144.8	60 53.0 +49.8 143.1	60 19.4 +49.0 141.4	59 44.6 +48.1 139.8
1°	62 47.7 +51.1 145.5	62 16.0 +50.1 143.7	61 42.8 +49.3 141.9	61 08.4 +48.3 140.2	60 32.7 +47.4 138.5
2°	63 38.8 +50.5 144.4	63 06.1 +49.6 142.5	62 32.1 +48.6 140.7	61 56.7 +47.6 139.0	61 20.1 +46.7 137.3
3°	64 29.3 +49.8 143.1	63 55.7 +48.8 141.2	63 20.7 +47.8 139.4	62 44.3 +46.9 137.6	62 06.8 +45.9 136.0
4°	65 19.1 +49.1 141.8	64 44.5 +48.0 139.9	64 08.5 +47.0 138.0	63 31.2 +46.0 136.3	62 52.7 +45.0 134.6
5°	66 08.2 +48.2 140.4	65 32.5 +47.2 138.5	64 55.5 +46.1 136.6	64 17.2 +45.1 134.8	63 37.7 +44.1 133.1
6°	66 56.4 +47.4 138.9	66 19.7 +46.2 136.9	65 41.6 +45.2 135.1	65 02.3 +44.1 133.3	64 21.8 +43.1 131.6
7°	67 43.8 +46.4 137.3	67 05.9 +45.3 135.3	66 26.8 +44.0 133.4	65 46.4 +43.0 131.6	65 04.9 +41.9 129.9
8°	68 30.2 +45.2 135.6	67 51.2 +44.0 133.6	67 10.8 +42.9 131.7	66 29.4 +41.7 129.9	65 46.8 +40.7 128.2
9°	69 15.4 +44.1 133.8	68 35.2 +42.8 131.8	67 53.7 +41.6 129.9	67 11.1 +40.5 128.1	66 27.5 +39.3 126.4
10°	69 59.5 +42.6 131.8	69 18.0 +41.4 129.8	68 35.3 +40.2 127.9	67 51.6 +39.0 126.1	67 06.8 +38.0 124.5
11°	70 42.1 +41.2 129.8	69 59.4 +39.8 127.7	69 15.5 +38.6 125.9	68 30.6 +37.4 124.1	67 44.8 +36.3 122.4
12°	71 23.3 +39.4 127.5	70 39.2 +38.1 125.5	69 54.1 +36.8 123.7	69 08.0 +35.7 121.9	68 21.1 +34.6 120.3
13°	72 02.7 +37.5 125.1	71 17.3 +36.2 123.2	70 30.9 +35.0 121.3	69 43.7 +33.8 119.7	68 55.7 +32.8 118.1
14°	72 40.2 +35.4 122.5	71 53.5 +34.1 120.6	71 05.9 +32.9 118.9	70 17.5 +31.8 117.2	69 28.5 +30.7 115.7
15°	73 15.6 +33.0 119.8	72 27.6 +31.8 117.9	71 38.8 +30.6 116.2	70 49.3 +29.5 114.7	69 59.2 +28.6 113.2
16°	73 48.6 +30.5 116.8	72 59.4 +29.2 115.1	72 09.4 +28.1 113.5	71 18.8 +27.2 112.0	70 27.8 +26.2 110.6
17°	74 19.1 +27.6 113.7	73 28.6 +26.5 112.1	72 37.5 +25.5 110.6	71 46.0 +24.5 109.2	70 54.0 +23.7 107.9
18°	74 46.7 +24.5 110.4	73 55.1 +23.4 108.9	73 03.0 +22.6 107.5	72 10.5 +21.8 106.2	71 17.7 +21.1 105.1
19°	75 11.2 +21.1 106.8	74 18.5 +20.3 105.5	73 25.6 +19.4 104.3	72 32.3 +18.8 103.2	71 38.8 +18.3 102.1
20°	75 32.3 +17.4 103.1	74 38.8 +16.8 102.0	73 45.0 +16.3 100.9	72 51.1 +15.8 100.0	71 57.1 +15.3 99.1
21°	75 49.7 +13.6 99.3	74 55.6 +13.1 98.3	74 01.3 +12.7 97.5	73 06.9 +12.4 96.7	72 12.4 +12.2 95.9
22°	76 03.3 +09.6 95.2	75 08.7 +09.4 94.5	74 14.0 +09.2 93.9	73 19.3 +09.1 93.3	72 24.6 +09.0 92.7
23°	76 12.9 +05.3 91.1	75 18.1 +05.4 90.7	74 23.2 +05.6 90.2	73 28.4 +05.6 89.8	72 33.6 +05.8 89.4
24°	76 18.2 +01.1 86.9	75 23.5 +01.4 86.7	74 28.8 +01.7 86.5	73 34.0 +02.1 86.3	72 39.4 +02.4 86.1
25°	76 19.3 -03.3 82.7	75 24.9 -02.6 82.8	74 30.5 -02.0 82.8	73 36.1 -01.4 82.8	72 41.8 -01.0 82.8
26°	76 16.0 -07.5 78.5	75 22.3 -06.6 78.8	74 28.5 -05.8 79.0	73 34.7 -05.1 79.2	72 40.8 -04.3 79.4
27°	76 08.5 -11.6 74.3	75 15.7 -10.5 74.9	74 22.7 -09.4 75.3	73 29.6 -08.4 75.7	72 36.5 -07.6 76.0
28°	75 56.9 -15.5 70.3	75 05.2 -14.2 71.0	74 13.3 -13.0 71.7	73 21.2 -11.9 72.3	72 28.9 -10.9 72.7
29°	75 41.4 -19.4 66.3	74 51.0 -17.9 67.3	74 00.3 -16.5 68.1	73 09.3 -15.2 68.8	72 18.0 -14.0 69.5

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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°	59 08.6 +47.2 138.2	58 31.5 +46.4 136.7	57 53.4 +45.5 135.2	57 14.3 +44.7 133.8	56 34.2 +44.0 132.4
1°	59 55.8 +46.6 137.0	59 17.9 +45.7 135.4	58 38.9 +44.8 134.0	57 59.0 +44.0 132.5	57 18.2 +43.1 131.2
2°	60 42.4 +45.8 135.7	60 03.6 +44.9 134.1	59 23.7 +44.1 132.7	58 43.0 +43.1 131.2	58 01.3 +42.4 129.9
3°	61 28.2 +44.9 134.3	60 48.5 +44.0 132.8	60 07.8 +43.1 131.3	59 26.1 +42.3 129.9	58 43.7 +41.4 128.5
4°	62 13.1 +44.1 132.9	61 32.5 +43.1 131.4	60 50.9 +42.2 129.9	60 08.4 +41.4 128.5	59 25.1 +40.5 127.1
5°	62 57.2 +43.1 131.5	62 15.6 +42.2 129.9	61 33.1 +41.3 128.4	60 49.8 +40.3 127.0	60 05.6 +39.5 125.6
6°	63 40.3 +42.0 129.9	62 57.8 +41.0 128.4	62 14.4 +40.1 126.9	61 30.1 +39.3 125.5	60 45.1 +38.4 124.1
7°	64 22.3 +40.9 128.3	63 38.8 +40.0 126.7	62 54.5 +39.0 125.3	62 09.4 +38.1 123.9	61 23.5 +37.3 122.5
8°	65 03.2 +39.7 126.6	64 18.8 +38.7 125.0	63 33.5 +37.8 123.6	62 47.5 +36.8 122.2	62 00.8 +36.0 120.9
9°	65 42.9 +38.3 124.8	64 57.5 +37.3 123.3	64 11.3 +36.4 121.8	63 24.3 +35.6 120.5	62 36.8 +34.7 119.2
10°	66 21.2 +36.9 122.9	65 34.8 +35.9 121.4	64 47.7 +34.9 120.0	63 59.9 +34.1 118.6	63 11.5 +33.3 117.4
11°	66 58.1 +35.3 120.9	66 10.7 +34.3 119.4	65 22.6 +33.5 118.0	64 34.0 +32.6 116.7	63 44.8 +31.7 115.5
12°	67 33.4 +33.6 118.8	66 45.0 +32.7 117.4	65 56.1 +31.8 116.0	65 06.6 +30.9 114.8	64 16.5 +30.2 113.6
13°	68 07.0 +31.8 116.6	67 17.7 +30.9 115.2	66 27.9 +30.0 113.9	65 37.5 +29.3 112.7	64 46.7 +28.6 111.6
14°	68 38.8 +29.8 114.3	67 48.6 +28.9 113.0	66 57.9 +28.1 111.7	66 06.8 +27.3 110.6	65 15.3 +26.7 109.5
15°	69 08.6 +27.7 111.9	68 17.5 +26.9 110.6	67 26.0 +26.1 109.5	66 34.1 +25.5 108.4	65 42.0 +24.8 107.3
16°	69 36.3 +25.4 109.4	68 44.4 +24.6 108.2	67 52.1 +24.0 107.1	66 59.6 +23.4 106.1	66 06.8 +22.8 105.1
17°	70 01.7 +23.0 106.7	69 09.0 +22.4 105.7	68 16.1 +21.8 104.6	67 23.0 +21.2 103.7	66 29.6 +20.8 102.8
18°	70 24.7 +20.4 104.0	69 31.4 +19.9 103.0	68 37.9 +19.4 102.1	67 44.2 +19.0 101.2	66 50.4 +18.5 100.4
19°	70 45.1 +17.8 101.2	69 51.3 +17.3 100.3	68 57.3 +16.9 99.5	68 03.2 +16.6 98.7	67 08.9 +16.3 98.0
20°	71 02.9 +14.9 98.3	70 08.6 +14.6 97.5	69 14.2 +14.4 96.8	68 19.8 +14.1 96.1	67 25.2 +14.0 95.5
21°	71 17.8 +12.0 95.3	70 23.2 +11.9 94.6	69 28.6 +11.7 94.0	68 33.9 +11.6 93.5	67 39.2 +11.5 92.9
22°	71 29.8 +09.0 92.2	70 35.1 +08.9 91.7	69 40.3 +08.9 91.2	68 45.5 +08.9 90.8	67 50.7 +09.0 90.3
23°	71 38.8 +05.9 89.1	70 44.0 +06.0 88.7	69 49.2 +06.2 88.4	68 54.4 +06.3 88.0	67 59.7 +06.4 87.7
24°	71 44.7 +02.7 85.9	70 50.0 +03.0 85.7	69 55.4 +03.3 85.5	69 00.7 +03.6 85.3	68 06.1 +03.9 85.1
25°	71 47.4 -00.5 82.7	70 53.0 +00.0 82.6	69 58.7 +00.4 82.6	69 04.3 +00.9 82.5	68 10.0 +01.2 82.4
26°	71 46.9 -03.6 79.5	70 53.0 -03.0 79.6	69 59.1 -02.4 79.6	69 05.2 -01.9 79.7	68 11.2 -01.3 79.7
27°	71 43.3 -06.8 76.3	70 50.0 -06.0 76.5	69 56.7 -05.3 76.7	69 03.3 -04.6 76.9	68 09.9 -04.0 77.0
28°	71 36.5 -09.9 73.2	70 44.0 -09.0 73.5	69 51.4 -08.2 73.8	68 58.7 -07.3 74.1	68 05.9 -06.5 74.3
29°	71 26.6 -12.9 70.0	70 35.0 -11.9 70.5	69 43.2 -10.8 71.0	68 51.4 -10.0 71.3	67 59.4 -09.1 71.7

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°	55 53.3 +43.2 131.1	55 11.6 +42.4 129.8	54 29.2 +41.6 128.6	53 46.0 +40.9 127.4	53 02.1 +40.2 126.3
1°	56 36.5 +42.3 129.8	55 54.0 +41.6 128.6	55 10.8 +40.8 127.3	54 26.9 +40.1 126.2	53 42.3 +39.4 125.0
2°	57 18.8 +41.6 128.5	56 35.6 +40.7 127.3	55 51.6 +40.0 126.1	55 07.0 +39.2 124.9	54 21.7 +38.6 123.7
3°	58 00.4 +40.6 127.2	57 16.3 +39.9 125.9	56 31.6 +39.1 124.7	55 46.2 +38.4 123.5	55 00.3 +37.6 122.4
4°	58 41.0 +39.7 125.8	57 56.2 +38.9 124.5	57 10.7 +38.2 123.3	56 24.6 +37.4 122.2	55 37.9 +36.8 121.0
5°	59 20.7 +38.7 124.3	58 35.1 +37.9 123.1	57 48.9 +37.1 121.9	57 02.0 +36.5 120.7	56 14.7 +35.7 119.6
6°	59 59.4 +37.6 122.8	59 13.0 +36.8 121.6	58 26.0 +36.1 120.4	57 38.5 +35.3 119.3	56 50.4 +34.7 118.2
7°	60 37.0 +36.4 121.3	59 49.8 +35.7 120.0	59 02.1 +34.9 118.9	58 13.8 +34.2 117.7	57 25.1 +33.5 116.7
8°	61 13.4 +35.2 119.6	60 25.5 +34.4 118.4	59 37.0 +33.7 117.3	58 48.0 +33.1 116.2	57 58.6 +32.4 115.1
9°	61 48.6 +33.9 117.9	60 59.9 +33.2 116.7	60 10.7 +32.5 115.6	59 21.1 +31.8 114.5	58 31.0 +31.2 113.5
10°	62 22.5 +32.5 116.2	61 33.1 +31.8 115.0	60 43.2 +31.1 113.9	59 52.9 +30.5 112.9	59 02.2 +29.9 111.9
11°	62 55.0 +31.1 114.3	62 04.9 +30.3 113.2	61 14.3 +29.7 112.2	60 23.4 +29.0 111.1	59 32.1 +28.5 110.2
12°	63 26.1 +29.5 112.4	62 35.2 +28.8 111.4	61 44.0 +28.2 110.3	60 52.4 +27.7 109.4	60 00.6 +27.1 108.4
13°	63 55.6 +27.8 110.5	63 04.0 +27.3 109.4	62 12.2 +26.6 108.5	61 20.1 +26.1 107.5	60 27.7 +25.6 106.6
14°	64 23.4 +26.1 108.4	63 31.3 +25.5 107.5	62 38.8 +25.0 106.5	61 46.2 +24.5 105.6	60 53.3 +24.0 104.8
15°	64 49.5 +24.3 106.3	63 56.8 +23.7 105.4	63 03.8 +23.3 104.5	62 10.7 +22.8 103.7	61 17.3 +22.4 102.9
16°	65 13.8 +22.3 104.2	64 20.5 +21.9 103.3	63 27.1 +21.4 102.5	62 33.5 +21.1 101.7	61 39.7 +20.8 100.9
17°	65 36.1 +20.3 101.9	64 42.4 +19.9 101.1	63 48.5 +19.6 100.4	62 54.6 +19.2 99.7	62 00.5 +18.9 99.0
18°	65 56.4 +18.2 99.6	65 02.3 +17.9 98.9	64 08.1 +17.6 98.2	63 13.8 +17.4 97.6	62 19.4 +17.2 96.9
19°	66 14.6 +16.0 97.3	65 20.2 +15.8 96.6	64 25.7 +15.6 96.0	63 31.2 +15.4 95.4	62 36.6 +15.3 94.9
20°	66 30.6 +13.8 94.9	65 36.0 +13.6 94.3	64 41.3 +13.5 93.8	63 46.6 +13.4 93.2	62 51.9 +13.3 92.7
21°	66 44.4 +11.4 92.4	65 49.6 +11.4 91.9	64 54.8 +11.4 91.5	64 00.0 +11.4 91.0	63 05.2 +11.4 90.6
22°	66 55.8 +09.1 89.9	66 01.0 +09.1 89.5	65 06.2 +09.2 89.2	64 11.4 +09.3 88.8	63 16.6 +09.4 88.4
23°	67 04.9 +06.6 87.4	66 10.1 +06.8 87.1	65 15.4 +07.0 86.8	64 20.7 +07.1 86.5	63 26.0 +07.3 86.2
24°	67 11.5 +04.2 84.8	66 16.9 +04.5 84.6	65 22.4 +04.7 84.4	64 27.8 +05.0 84.2	63 33.3 +05.2 84.0
25°	67 15.7 +01.6 82.3	66 21.4 +02.0 82.2	65 27.1 +02.4 82.0	64 32.8 +02.8 81.9	63 38.5 +03.2 81.8
26°	67 17.3 -00.8 79.7	66 23.4 -00.4 79.7	65 29.5 +00.1 79.6	64 35.6 +00.5 79.6	63 41.7 +01.0 79.5
27°	67 16.5 -03.4 77.1	66 23.0 -02.7 77.2	65 29.6 -02.2 77.2	64 36.1 -01.6 77.2	63 42.7 -01.1 77.2
28°	67 13.1 -05.8 74.5	66 20.3 -05.1 74.7	65 27.4 -04.5 74.8	64 34.5 -03.8 74.9	63 41.6 -03.3 75.0
29°	67 07.3 -08.2 71.9	66 15.2 -07.5 72.2	65 22.9 -06.7 72.4	64 30.7 -06.0 72.6	63 38.3 -05.3 72.7

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°	52 17.6 +39.5 125.2	51 32.5 +38.9 124.1	50 46.8 +38.3 123.1	50 00.6 +37.6 122.1	49 13.9 +37.0 121.1
1°	52 57.1 +38.7 123.9	52 11.4 +38.0 122.9	51 25.1 +37.4 121.8	50 38.2 +36.8 120.8	49 50.9 +36.3 119.9
2°	53 35.8 +37.9 122.6	52 49.4 +37.2 121.6	52 02.5 +36.6 120.6	51 15.0 +36.0 119.6	50 27.2 +35.3 118.6
3°	54 13.7 +37.0 121.3	53 26.6 +36.4 120.3	52 39.1 +35.7 119.3	51 51.0 +35.1 118.3	51 02.5 +34.6 117.4
4°	54 50.7 +36.1 120.0	54 03.0 +35.4 118.9	53 14.8 +34.8 117.9	52 26.1 +34.3 117.0	51 37.1 +33.6 116.0
5°	55 26.8 +35.0 118.6	54 38.4 +34.4 117.6	53 49.6 +33.8 116.6	53 00.4 +33.2 115.6	52 10.7 +32.8 114.7
6°	56 01.8 +34.1 117.1	55 12.8 +33.4 116.1	54 23.4 +32.8 115.2	53 33.6 +32.3 114.2	52 43.5 +31.7 113.3
7°	56 35.9 +32.9 115.6	55 46.2 +32.4 114.7	54 56.2 +31.8 113.7	54 05.9 +31.2 112.8	53 15.2 +30.7 111.9
8°	57 08.8 +31.8 114.1	56 18.6 +31.2 113.2	55 28.0 +30.7 112.2	54 37.1 +30.1 111.3	53 45.9 +29.6 110.5
9°	57 40.6 +30.6 112.5	56 49.8 +30.0 111.6	55 58.7 +29.5 110.7	55 07.2 +29.0 109.8	54 15.5 +28.6 109.0
10°	58 11.2 +29.3 110.9	57 19.8 +28.8 110.0	56 28.2 +28.2 109.1	55 36.2 +27.9 108.3	54 44.1 +27.3 107.5
11°	58 40.5 +27.9 109.3	57 48.6 +27.5 108.4	56 56.4 +27.0 107.5	56 04.1 +26.5 106.7	55 11.4 +26.2 105.9
12°	59 08.4 +26.6 107.5	58 16.1 +26.1 106.7	57 23.4 +25.7 105.9	56 30.6 +25.3 105.1	55 37.6 +24.9 104.3
13°	59 35.0 +25.2 105.8	58 42.2 +24.7 105.0	57 49.1 +24.4 104.2	56 55.9 +24.0 103.4	56 02.5 +23.6 102.7
14°	60 00.2 +23.6 104.0	59 06.9 +23.2 103.2	58 13.5 +22.8 102.5	57 19.9 +22.5 101.8	56 26.1 +22.3 101.1
15°	60 23.8 +22.1 102.1	59 30.1 +21.8 101.4	58 36.3 +21.5 100.7	57 42.4 +21.2 100.0	56 48.4 +20.9 99.4
16°	60 45.9 +20.4 100.2	59 51.9 +20.1 99.6	58 57.8 +19.8 98.9	58 03.6 +19.6 98.3	57 09.3 +19.4 97.7
17°	61 06.3 +18.7 98.3	60 12.0 +18.5 97.7	59 17.6 +18.3 97.1	58 23.2 +18.1 96.5	57 28.7 +18.0 95.9
18°	61 25.0 +17.0 96.3	60 30.5 +16.8 95.7	59 35.9 +16.7 95.2	58 41.3 +16.5 94.6	57 46.7 +16.4 94.1
19°	61 42.0 +15.1 94.3	60 47.3 +15.0 93.8	59 52.6 +14.9 93.3	58 57.8 +14.9 92.8	58 03.1 +14.8 92.3
20°	61 57.1 +13.3 92.3	61 02.3 +13.3 91.8	60 07.5 +13.3 91.3	59 12.7 +13.3 90.9	58 17.9 +13.3 90.5
21°	62 10.4 +11.4 90.2	61 15.6 +11.5 89.8	60 20.8 +11.5 89.4	59 26.0 +11.5 89.0	58 31.2 +11.6 88.6
22°	62 21.8 +09.5 88.1	61 27.1 +09.5 87.7	60 32.3 +09.7 87.4	59 37.5 +09.9 87.1	58 42.8 +10.0 86.7
23°	62 31.3 +07.5 85.9	61 36.6 +07.7 85.7	60 42.0 +07.9 85.4	59 47.4 +08.0 85.1	58 52.8 +08.2 84.8
24°	62 38.8 +05.5 83.8	61 44.3 +05.8 83.6	60 49.9 +06.0 83.3	59 55.4 +06.3 83.1	59 01.0 +06.6 82.9
25°	62 44.3 +03.5 81.6	61 50.1 +03.8 81.5	60 55.9 +04.1 81.3	60 01.7 +04.5 81.1	59 07.6 +04.8 81.0
26°	62 47.8 +01.4 79.4	61 53.9 +01.9 79.3	61 00.0 +02.3 79.2	60 06.2 +02.7 79.1	59 12.4 +03.0 79.0
27°	62 49.2 -00.6 77.2	61 55.8 -00.1 77.2	61 02.3 +00.4 77.2	60 08.9 +00.8 77.1	59 15.4 +01.3 77.1
28°	62 48.6 -02.6 75.1	61 55.7 -02.1 75.1	61 02.7 -01.5 75.1	60 09.7 -01.0 75.1	59 16.7 -00.4 75.1
29°	62 46.0 -04.7 72.9	61 53.6 -04.0 73.0	61 01.2 -03.4 73.1	60 08.7 -02.8 73.1	59 16.3 -02.3 73.2

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°	48 26.8 +36.4 120.2	47 39.2 +35.8 119.2	46 51.1 +35.3 118.4	46 02.7 +34.8 117.5	45 13.9 +34.3 116.7
1°	49 03.2 +35.6 118.9	48 15.0 +35.1 118.0	47 26.4 +34.6 117.2	46 37.5 +34.0 116.3	45 48.2 +33.6 115.5
2°	49 38.8 +34.9 117.7	48 50.1 +34.3 116.8	48 01.0 +33.8 116.0	47 11.5 +33.3 115.1	46 21.8 +32.8 114.3
3°	50 13.7 +34.0 116.4	49 24.4 +33.5 115.6	48 34.8 +32.9 114.7	47 44.8 +32.5 113.9	46 54.6 +32.0 113.1
4°	50 47.7 +33.1 115.2	49 57.9 +32.6 114.3	49 07.7 +32.1 113.4	48 17.3 +31.6 112.6	47 26.6 +31.1 111.8
5°	51 20.8 +32.2 113.8	50 30.5 +31.7 113.0	49 39.8 +31.3 112.1	48 48.9 +30.8 111.3	47 57.7 +30.4 110.6
6°	51 53.0 +31.2 112.5	51 02.2 +30.7 111.6	50 11.1 +30.2 110.8	49 19.7 +29.8 110.0	48 28.1 +29.4 109.3
7°	52 24.2 +30.2 111.1	51 32.9 +29.8 110.3	50 41.3 +29.4 109.5	49 49.5 +29.0 108.7	48 57.5 +28.5 108.0
8°	52 54.4 +29.2 109.6	52 02.7 +28.7 108.8	51 10.7 +28.3 108.1	50 18.5 +27.9 107.3	49 26.0 +27.6 106.6
9°	53 23.6 +28.1 108.2	52 31.4 +27.7 107.4	51 39.0 +27.3 106.7	50 46.4 +26.9 105.9	49 53.6 +26.6 105.2
10°	53 51.7 +26.9 106.7	52 59.1 +26.6 105.9	52 06.3 +26.2 105.2	51 13.3 +25.9 104.5	50 20.2 +25.5 103.8
11°	54 18.6 +25.8 105.2	53 25.7 +25.4 104.5	52 32.5 +25.1 103.7	51 39.2 +24.8 103.1	50 45.7 +24.5 102.4
12°	54 44.4 +24.6 103.6	53 51.1 +24.2 102.9	52 57.6 +23.9 102.2	52 04.0 +23.6 101.6	51 10.2 +23.4 101.0
13°	55 09.0 +23.3 102.0	54 15.3 +23.0 101.4	53 21.5 +22.8 100.7	52 27.6 +22.5 100.1	51 33.6 +22.3 99.5
14°	55 32.3 +22.0 100.4	54 38.3 +21.8 99.8	53 44.3 +21.5 99.2	52 50.1 +21.3 98.6	51 55.9 +21.1 98.0
15°	55 54.3 +20.6 98.8	55 00.1 +20.4 98.2	54 05.8 +20.2 97.6	53 11.4 +20.1 97.0	52 17.0 +19.9 96.5
16°	56 14.9 +19.3 97.1	55 20.5 +19.1 96.5	54 26.0 +18.9 96.0	53 31.5 +18.7 95.4	52 36.9 +18.6 94.9
17°	56 34.2 +17.8 95.4	55 39.6 +17.6 94.8	54 44.9 +17.6 94.3	53 50.2 +17.5 93.8	52 55.5 +17.5 93.3
18°	56 52.0 +16.3 93.6	55 57.2 +16.3 93.1	55 02.5 +16.2 92.7	54 07.7 +16.2 92.2	53 13.0 +16.1 91.8
19°	57 08.3 +14.8 91.9	56 13.5 +14.8 91.4	55 18.7 +14.8 91.0	54 23.9 +14.8 90.6	53 29.1 +14.8 90.1
20°	57 23.1 +13.3 90.1	56 28.3 +13.3 89.7	55 33.5 +13.3 89.3	54 38.7 +13.4 88.9	53 43.9 +13.5 88.5
21°	57 36.4 +11.7 88.3	56 41.6 +11.8 87.9	55 46.8 +11.9 87.5	54 52.1 +12.0 87.2	53 57.4 +12.0 86.9
22°	57 48.1 +10.1 86.4	56 53.4 +10.2 86.1	55 58.7 +10.4 85.8	55 04.1 +10.5 85.5	54 09.4 +10.7 85.2
23°	57 58.2 +08.4 84.6	57 03.6 +08.7 84.3	56 09.1 +08.9 84.0	55 14.6 +09.1 83.8	54 20.1 +09.3 83.5
24°	58 06.6 +06.8 82.7	57 12.3 +07.0 82.5	56 18.0 +07.3 82.3	55 23.7 +07.5 82.0	54 29.4 +07.8 81.8
25°	58 13.4 +05.2 80.8	57 19.3 +05.5 80.6	56 25.3 +05.7 80.5	55 31.2 +06.1 80.3	54 37.2 +06.4 80.1
26°	58 18.6 +03.4 78.9	57 24.8 +03.8 78.8	56 31.0 +04.2 78.7	55 37.3 +04.6 78.5	54 43.6 +04.9 78.4
27°	58 22.0 +01.8 77.0	57 28.6 +02.2 76.9	56 35.2 +02.6 76.8	55 41.9 +03.0 76.8	54 48.5 +03.5 76.6
28°	58 23.8 +00.0 75.1	57 30.8 +00.5 75.1	56 37.8 +01.0 75.0	55 44.9 +01.5 75.0	54 52.0 +01.9 74.9
29°	58 23.8 -01.7 73.2	57 31.3 -01.1 73.2	56 38.8 -00.5 73.2	55 46.4 -00.1 73.2	54 53.9 +00.5 73.2

Declination SAME name as Latitude

Latitude 24°

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°	44 24.7 +33.8 115.9	43 35.2 +33.4 115.1	42 45.4 +32.9 114.3	41 55.4 +32.4 113.6	41 05.0 +32.0 112.8
1°	44 58.5 +33.1 114.7	44 08.6 +32.6 113.9	43 18.3 +32.2 113.2	42 27.8 +31.8 112.4	41 37.0 +31.4 111.7
2°	45 31.6 +32.4 113.5	44 41.2 +31.9 112.7	43 50.5 +31.5 112.0	42 59.6 +31.1 111.3	42 08.4 +30.7 110.6
3°	46 04.0 +31.5 112.3	45 13.1 +31.2 111.6	44 22.0 +30.8 110.8	43 30.7 +30.3 110.1	42 39.1 +30.0 109.4
4°	46 35.5 +30.8 111.1	45 44.3 +30.3 110.3	44 52.8 +29.9 109.6	44 01.0 +29.6 108.9	43 09.1 +29.2 108.2
5°	47 06.3 +29.9 109.8	46 14.6 +29.5 109.1	45 22.7 +29.2 108.4	44 30.6 +28.8 107.7	43 38.3 +28.4 107.0
6°	47 36.2 +29.1 108.5	46 44.1 +28.7 107.8	45 51.9 +28.3 107.1	44 59.4 +28.0 106.5	44 06.7 +27.7 105.8
7°	48 05.3 +28.1 107.2	47 12.8 +27.8 106.5	46 20.2 +27.4 105.9	45 27.4 +27.1 105.2	44 34.4 +26.8 104.6
8°	48 33.4 +27.2 105.9	47 40.6 +26.9 105.2	46 47.6 +26.6 104.6	45 54.5 +26.3 103.9	45 01.2 +26.0 103.3
9°	49 00.6 +26.3 104.6	48 07.5 +25.9 103.9	47 14.2 +25.7 103.3	46 20.8 +25.4 102.6	45 27.2 +25.2 102.0
10°	49 26.9 +25.2 103.2	48 33.4 +25.0 102.5	47 39.9 +24.7 101.9	46 46.2 +24.4 101.3	45 52.4 +24.2 100.7
11°	49 52.1 +24.2 101.8	48 58.4 +24.0 101.2	48 04.6 +23.7 100.6	47 10.6 +23.5 100.0	46 16.6 +23.3 99.4
12°	50 16.3 +23.2 100.4	49 22.4 +22.9 99.8	48 28.3 +22.7 99.2	47 34.1 +22.6 98.6	46 39.9 +22.4 98.1
13°	50 39.5 +22.0 98.9	49 45.3 +21.9 98.3	48 51.0 +21.7 97.8	47 56.7 +21.5 97.2	47 02.3 +21.3 96.7
14°	51 01.5 +21.0 97.4	50 07.2 +20.7 96.9	49 12.7 +20.6 96.4	48 18.2 +20.5 95.8	47 23.6 +20.4 95.3
15°	51 22.5 +19.7 95.9	50 27.9 +19.7 95.4	49 33.3 +19.6 94.9	48 38.7 +19.4 94.4	47 44.0 +19.4 93.9
16°	51 42.2 +18.6 94.4	50 47.6 +18.5 93.9	49 52.9 +18.4 93.4	48 58.1 +18.4 93.0	48 03.4 +18.3 92.5
17°	52 00.8 +17.4 92.9	51 06.1 +17.3 92.4	50 11.3 +17.3 92.0	49 16.5 +17.2 91.5	48 21.7 +17.2 91.1
18°	52 18.2 +16.1 91.3	51 23.4 +16.1 90.9	50 28.6 +16.1 90.5	49 33.7 +16.2 90.1	48 38.9 +16.2 89.6
19°	52 34.3 +14.8 89.7	51 39.5 +14.8 89.3	50 44.7 +14.9 88.9	49 49.9 +14.9 88.6	48 55.1 +15.0 88.2
20°	52 49.1 +13.5 88.1	51 54.3 +13.6 87.8	50 59.6 +13.7 87.4	50 04.8 +13.8 87.1	49 10.1 +13.9 86.7
21°	53 02.6 +12.2 86.5	52 07.9 +12.4 86.2	51 13.3 +12.4 85.9	50 18.6 +12.6 85.5	49 24.0 +12.7 85.2
22°	53 14.8 +10.9 84.9	52 20.3 +11.0 84.6	51 25.7 +11.2 84.3	50 31.2 +11.3 84.0	49 36.7 +11.5 83.7
23°	53 25.7 +09.5 83.2	52 31.3 +09.7 83.0	51 36.9 +09.9 82.7	50 42.5 +10.1 82.5	49 48.2 +10.3 82.2
24°	53 35.2 +08.0 81.6	52 41.0 +08.3 81.4	51 46.8 +08.6 81.1	50 52.6 +08.9 80.9	49 58.5 +09.2 80.7
25°	53 43.2 +06.7 79.9	52 49.3 +07.0 79.7	51 55.4 +07.3 79.5	51 01.5 +07.6 79.3	50 07.7 +07.8 79.1
26°	53 49.9 +05.3 78.2	52 56.3 +05.6 78.1	52 02.7 +05.9 77.9	51 09.1 +06.3 77.7	50 15.5 +06.7 77.6
27°	53 55.2 +03.8 76.5	53 01.9 +04.2 76.4	52 08.6 +04.7 76.3	51 15.4 +05.0 76.2	50 22.2 +05.4 76.0
28°	53 59.0 +02.4 74.8	53 06.1 +02.9 74.8	52 13.3 +03.3 74.7	51 20.4 +03.7 74.6	50 27.6 +04.1 74.5
29°	54 01.4 +01.0 73.1	53 09.0 +01.4 73.1	52 16.6 +01.9 73.0	51 24.1 +02.4 73.0	50 31.7 +02.9 72.9

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°	40 14.3 +31.7 112.1	39 23.4 +31.3 111.4	38 32.3 +30.9 110.8	37 40.9 +30.6 110.1	36 49.4 +30.1 109.5
1°	40 46.0 +31.0 111.0	39 54.7 +30.6 110.3	39 03.2 +30.2 109.7	38 11.5 +29.9 109.0	37 19.5 +29.6 108.4
2°	41 17.0 +30.3 109.9	40 25.3 +30.0 109.2	39 33.4 +29.7 108.6	38 41.4 +29.3 107.9	37 49.1 +29.0 107.3
3°	41 47.3 +29.6 108.7	40 55.3 +29.2 108.1	40 03.1 +28.9 107.4	39 10.7 +28.6 106.8	38 18.1 +28.3 106.2
4°	42 16.9 +28.9 107.6	41 24.5 +28.6 106.9	40 32.0 +28.3 106.3	39 39.3 +28.0 105.7	38 46.4 +27.7 105.1
5°	42 45.8 +28.1 106.4	41 53.1 +27.8 105.7	41 00.3 +27.5 105.1	40 07.3 +27.2 104.5	39 14.1 +27.0 103.9
6°	43 13.9 +27.4 105.2	42 20.9 +27.1 104.5	41 27.8 +26.8 103.9	40 34.5 +26.6 103.3	39 41.1 +26.3 102.8
7°	43 41.3 +26.5 103.9	42 48.0 +26.3 103.3	41 54.6 +26.0 102.7	41 01.1 +25.8 102.1	40 07.4 +25.6 101.6
8°	44 07.8 +25.8 102.7	43 14.3 +25.5 102.1	42 20.6 +25.3 101.5	41 26.9 +25.0 100.9	40 33.0 +24.9 100.4
9°	44 33.6 +24.9 101.4	43 39.8 +24.7 100.8	42 45.9 +24.5 100.3	41 51.9 +24.3 99.7	40 57.9 +24.0 99.2
10°	44 58.5 +24.0 100.1	44 04.5 +23.8 99.6	43 10.4 +23.6 99.0	42 16.2 +23.5 98.5	41 21.9 +23.4 98.0
11°	45 22.5 +23.1 98.8	44 28.3 +22.9 98.3	43 34.0 +22.8 97.8	42 39.7 +22.6 97.3	41 45.3 +22.5 96.7
12°	45 45.6 +22.2 97.5	44 51.2 +22.1 97.0	43 56.8 +21.9 96.5	43 02.3 +21.8 96.0	42 07.8 +21.7 95.5
13°	46 07.8 +21.3 96.2	45 13.3 +21.1 95.7	44 18.7 +21.0 95.2	43 24.1 +20.9 94.7	42 29.5 +20.8 94.2
14°	46 29.1 +20.2 94.8	45 34.4 +20.2 94.4	44 39.7 +20.2 93.9	43 45.0 +20.1 93.4	42 50.3 +20.0 93.0
15°	46 49.3 +19.3 93.5	45 54.6 +19.2 93.0	44 59.9 +19.1 92.6	44 05.1 +19.1 92.1	43 10.3 +19.1 91.7
16°	47 08.6 +18.3 92.1	46 13.8 +18.3 91.6	45 19.0 +18.3 91.2	44 24.2 +18.3 90.8	43 29.4 +18.3 90.4
17°	47 26.9 +17.2 90.7	46 32.1 +17.2 90.3	45 37.3 +17.2 89.9	44 42.5 +17.2 89.4	43 47.7 +17.3 89.1
18°	47 44.1 +16.2 89.3	46 49.3 +16.2 88.9	45 54.5 +16.3 88.5	44 59.7 +16.3 88.1	44 05.0 +16.3 87.7
19°	48 00.3 +15.1 87.8	47 05.5 +15.2 87.5	46 10.8 +15.2 87.1	45 16.0 +15.4 86.7	44 21.3 +15.4 86.4
20°	48 15.4 +13.9 86.4	47 20.7 +14.1 86.0	46 26.0 +14.2 85.7	45 31.4 +14.3 85.4	44 36.7 +14.5 85.0
21°	48 29.3 +12.9 84.9	47 34.8 +13.0 84.6	46 40.2 +13.2 84.3	45 45.7 +13.3 84.0	44 51.2 +13.5 83.7
22°	48 42.2 +11.7 83.4	47 47.8 +11.9 83.1	46 53.4 +12.0 82.9	45 59.0 +12.3 82.6	45 04.7 +12.4 82.3
23°	48 53.9 +10.6 81.9	47 59.7 +10.7 81.7	47 05.4 +11.0 81.4	46 11.3 +11.2 81.2	45 17.1 +11.5 80.9
24°	49 04.5 +09.3 80.4	48 10.4 +09.7 80.2	47 16.4 +09.9 80.0	46 22.5 +10.1 79.7	45 28.6 +10.4 79.5
25°	49 13.8 +08.2 78.9	48 20.1 +08.5 78.7	47 26.3 +08.8 78.5	46 32.6 +09.1 78.3	45 39.0 +09.4 78.1
26°	49 22.0 +07.0 77.4	48 28.6 +07.3 77.2	47 35.1 +07.7 77.1	46 41.7 +08.0 76.9	45 48.4 +08.3 76.7
27°	49 29.0 +05.8 75.9	48 35.9 +06.1 75.7	47 42.8 +06.5 75.6	46 49.7 +06.9 75.4	45 56.7 +07.2 75.3
28°	49 34.8 +04.6 74.3	48 42.0 +05.0 74.2	47 49.3 +05.4 74.1	46 56.6 +05.8 74.0	46 03.9 +06.2 73.8
29°	49 39.4 +03.3 72.8	48 47.0 +03.8 72.7	47 54.7 +04.2 72.6	47 02.4 +04.7 72.5	46 10.1 +05.1 72.4

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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°	35 57.6 +29.8 108.8	35 05.6 +29.6 108.2	34 13.5 +29.2 107.6	33 21.1 +29.0 107.0	32 28.7 +28.6 106.5
1°	36 27.4 +29.3 107.8	35 35.2 +28.9 107.2	34 42.7 +28.7 106.6	33 50.1 +28.4 106.0	32 57.3 +28.2 105.4
2°	36 56.7 +28.7 106.7	36 04.1 +28.4 106.1	35 11.4 +28.1 105.5	34 18.5 +27.8 104.9	33 25.5 +27.6 104.4
3°	37 25.4 +28.0 105.6	36 32.5 +27.8 105.0	35 39.5 +27.5 104.4	34 46.3 +27.3 103.9	33 53.1 +27.0 103.3
4°	37 53.4 +27.5 104.5	37 00.3 +27.2 103.9	36 07.0 +26.9 103.3	35 13.6 +26.7 102.8	34 20.1 +26.5 102.2
5°	38 20.9 +26.7 103.3	37 27.5 +26.5 102.8	36 33.9 +26.3 102.2	35 40.3 +26.1 101.7	34 46.6 +25.9 101.1
6°	38 47.6 +26.1 102.2	37 54.0 +25.8 101.6	37 00.2 +25.7 101.1	36 06.4 +25.5 100.6	35 12.5 +25.2 100.0
7°	39 13.7 +25.4 101.0	38 19.8 +25.2 100.5	37 25.9 +25.0 100.0	36 31.9 +24.8 99.4	35 37.7 +24.7 98.9
8°	39 39.1 +24.6 99.9	38 45.0 +24.5 99.3	37 50.9 +24.3 98.8	36 56.7 +24.1 98.3	36 02.4 +24.0 97.8
9°	40 03.7 +23.9 98.7	39 09.5 +23.8 98.1	38 15.2 +23.6 97.6	37 20.8 +23.5 97.1	36 26.4 +23.4 96.7
10°	40 27.6 +23.2 97.5	39 33.3 +23.0 97.0	38 38.8 +22.9 96.5	37 44.3 +22.8 96.0	36 49.8 +22.7 95.5
11°	40 50.8 +22.4 96.2	39 56.3 +22.3 95.8	39 01.7 +22.2 95.3	38 07.1 +22.1 94.8	37 12.5 +22.0 94.3
12°	41 13.2 +21.6 95.0	40 18.6 +21.5 94.5	39 23.9 +21.4 94.1	38 29.2 +21.4 93.6	37 34.5 +21.3 93.2
13°	41 34.8 +20.8 93.8	40 40.1 +20.7 93.3	39 45.3 +20.7 92.9	38 50.6 +20.6 92.4	37 55.8 +20.6 92.0
14°	41 55.6 +19.9 92.5	41 00.8 +19.9 92.1	40 06.0 +19.9 91.6	39 11.2 +19.9 91.2	38 16.4 +19.9 90.8
15°	42 15.5 +19.1 91.2	41 20.7 +19.1 90.8	40 25.9 +19.1 90.4	39 31.1 +19.1 90.0	38 36.3 +19.1 89.6
16°	42 34.6 +18.2 90.0	41 39.8 +18.3 89.6	40 45.0 +18.3 89.2	39 50.2 +18.3 88.8	38 55.4 +18.4 88.4
17°	42 52.8 +17.4 88.7	41 58.1 +17.3 88.3	41 03.3 +17.4 87.9	40 08.5 +17.5 87.5	39 13.8 +17.5 87.2
18°	43 10.2 +16.4 87.4	42 15.4 +16.6 87.0	41 20.7 +16.6 86.6	40 26.0 +16.7 86.3	39 31.3 +16.8 85.9
19°	43 26.6 +15.6 86.0	42 32.0 +15.6 85.7	41 37.3 +15.8 85.3	40 42.7 +15.9 85.0	39 48.1 +16.0 84.7
20°	43 42.2 +14.5 84.7	42 47.6 +14.7 84.4	41 53.1 +14.8 84.1	40 58.6 +15.0 83.7	40 04.1 +15.1 83.4
21°	43 56.7 +13.7 83.4	43 02.3 +13.8 83.1	42 07.9 +14.0 82.7	41 13.6 +14.1 82.4	40 19.2 +14.4 82.1
22°	44 10.4 +12.6 82.0	43 16.1 +12.9 81.7	42 21.9 +13.0 81.4	41 27.7 +13.3 81.2	40 33.6 +13.4 80.9
23°	44 23.0 +11.7 80.6	43 29.0 +11.9 80.4	42 34.9 +12.2 80.1	41 41.0 +12.3 79.8	40 47.0 +12.6 79.6
24°	44 34.7 +10.7 79.3	43 40.9 +10.9 79.0	42 47.1 +11.2 78.8	41 53.3 +11.5 78.5	40 59.6 +11.8 78.3
25°	44 45.4 +09.6 77.9	43 51.8 +10.0 77.7	42 58.3 +10.2 77.4	42 04.8 +10.6 77.2	41 11.4 +10.8 77.0
26°	44 55.0 +08.7 76.5	44 01.8 +09.0 76.3	43 08.5 +09.4 76.1	42 15.4 +09.6 75.9	41 22.2 +10.0 75.7
27°	45 03.7 +07.6 75.1	44 10.8 +07.9 74.9	43 17.9 +08.3 74.7	42 25.0 +08.7 74.6	41 32.2 +09.0 74.4
28°	45 11.3 +06.6 73.7	44 18.7 +07.0 73.5	43 26.2 +07.4 73.4	42 33.7 +07.8 73.2	41 41.2 +08.2 73.0
29°	45 17.9 +05.5 72.3	44 25.7 +06.0 72.1	43 33.6 +06.3 72.0	42 41.5 +06.8 71.9	41 49.4 +07.2 71.7

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°	31 36.0 +28.4 105.9	30 43.2 +28.2 105.3	29 50.3 +27.9 104.8	28 57.2 +27.7 104.3	28 04.0 +27.5 103.7
1°	32 04.4 +27.9 104.9	31 11.4 +27.6 104.3	30 18.2 +27.4 103.8	29 24.9 +27.2 103.2	28 31.5 +27.0 102.7
2°	32 32.3 +27.4 103.8	31 39.0 +27.1 103.3	30 45.6 +26.9 102.7	29 52.1 +26.7 102.2	28 58.5 +26.5 101.7
3°	32 59.7 +26.8 102.8	32 06.1 +26.7 102.2	31 12.5 +26.4 101.7	30 18.8 +26.2 101.2	29 25.0 +26.0 100.7
4°	33 26.5 +26.3 101.7	32 32.8 +26.0 101.2	31 38.9 +25.9 100.6	30 45.0 +25.7 100.1	29 51.0 +25.6 99.6
5°	33 52.8 +25.6 100.6	32 58.8 +25.5 100.1	32 04.8 +25.4 99.6	31 10.7 +25.2 99.1	30 16.6 +25.0 98.6
6°	34 18.4 +25.2 99.5	33 24.3 +25.0 99.0	32 30.2 +24.8 98.5	31 35.9 +24.7 98.0	30 41.6 +24.6 97.5
7°	34 43.6 +24.5 98.4	33 49.3 +24.4 97.9	32 55.0 +24.2 97.4	32 00.6 +24.1 96.9	31 06.2 +24.0 96.5
8°	35 08.1 +23.8 97.3	34 13.7 +23.7 96.8	33 19.2 +23.7 96.3	32 24.7 +23.6 95.9	31 30.2 +23.4 95.4
9°	35 31.9 +23.3 96.2	34 37.4 +23.2 95.7	33 42.9 +23.0 95.2	32 48.3 +22.9 94.8	31 53.6 +22.9 94.3
10°	35 55.2 +22.6 95.0	35 00.6 +22.5 94.6	34 05.9 +22.5 94.1	33 11.2 +22.4 93.7	32 16.5 +22.4 93.2
11°	36 17.8 +22.0 93.9	35 23.1 +21.9 93.4	34 28.4 +21.8 93.0	33 33.6 +21.8 92.6	32 38.9 +21.7 92.1
12°	36 39.8 +21.2 92.7	35 45.0 +21.2 92.3	34 50.2 +21.2 91.9	33 55.4 +21.2 91.4	33 00.6 +21.2 91.0
13°	37 01.0 +20.6 91.6	36 06.2 +20.6 91.1	35 11.4 +20.6 90.7	34 16.6 +20.6 90.3	33 21.8 +20.6 89.9
14°	37 21.6 +19.9 90.4	36 26.8 +19.9 90.0	35 32.0 +19.9 89.6	34 37.2 +19.9 89.2	33 42.4 +19.9 88.8
15°	37 41.5 +19.1 89.2	36 46.7 +19.1 88.8	35 51.9 +19.2 88.4	34 57.1 +19.2 88.0	34 02.3 +19.3 87.6
16°	38 00.6 +18.4 88.0	37 05.8 +18.5 87.6	36 11.1 +18.5 87.2	35 16.3 +18.6 86.9	34 21.6 +18.7 86.5
17°	38 19.0 +17.7 86.8	37 24.3 +17.7 86.4	36 29.6 +17.8 86.1	35 34.9 +17.9 85.7	34 40.3 +18.0 85.3
18°	38 36.7 +16.8 85.6	37 42.0 +17.0 85.2	36 47.4 +17.1 84.9	35 52.8 +17.3 84.5	34 58.3 +17.3 84.2
19°	38 53.5 +16.2 84.3	37 59.0 +16.3 84.0	37 04.5 +16.4 83.7	36 10.1 +16.5 83.3	35 15.6 +16.7 83.0
20°	39 09.7 +15.3 83.1	38 15.3 +15.4 82.8	37 20.9 +15.6 82.5	36 26.6 +15.8 82.1	35 32.3 +16.0 81.8
21°	39 25.0 +14.5 81.8	38 30.7 +14.7 81.5	37 36.5 +14.9 81.2	36 42.4 +15.0 80.9	35 48.3 +15.2 80.6
22°	39 39.5 +13.6 80.6	38 45.4 +13.9 80.3	37 51.4 +14.1 80.0	36 57.4 +14.4 79.7	35 03.5 +14.6 79.5
23°	39 53.1 +12.9 79.3	38 59.3 +13.1 79.1	38 05.5 +13.3 78.8	37 11.8 +13.5 78.5	36 18.1 +13.8 78.2
24°	40 06.0 +12.0 78.0	39 12.4 +12.3 77.8	38 18.8 +12.6 77.5	37 25.3 +12.9 77.3	36 31.9 +13.1 77.0
25°	40 18.0 +11.1 76.8	39 24.7 +11.4 76.5	38 31.4 +11.7 76.3	37 38.2 +12.0 76.1	36 45.0 +12.3 75.8
26°	40 29.1 +10.3 75.5	39 36.1 +10.6 75.3	38 43.1 +11.0 75.0	37 50.2 +11.3 74.8	36 57.3 +11.6 74.6
27°	40 39.4 +09.4 74.2	39 46.7 +09.8 74.0	38 54.1 +10.1 73.8	38 01.5 +10.4 73.6	37 08.9 +10.8 73.4
28°	40 48.8 +08.6 72.9	39 56.5 +08.9 72.7	39 04.2 +09.3 72.5	38 11.9 +09.7 72.3	37 19.7 +10.1 72.1
29°	40 57.4 +07.6 71.6	40 05.4 +08.0 71.4	39 13.5 +08.4 71.2	38 21.6 +08.8 71.1	37 29.8 +09.2 70.9

Declination SAME name as Latitude

Latitude 24°

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°	27 10.7 +27.3 103.2	26 17.3 +27.0 102.7	25 23.8 +26.8 102.2	24 30.2 +26.6 101.7	23 36.5 +26.4 101.2
1°	27 38.0 +26.7 102.2	26 44.3 +26.6 101.7	25 50.6 +26.4 101.2	24 56.8 +26.2 100.7	24 02.9 +26.1 100.2
2°	28 04.7 +26.4 101.2	27 10.9 +26.2 100.7	26 17.0 +26.0 100.2	25 23.0 +25.9 99.7	24 29.0 +25.7 99.3
3°	28 31.1 +25.8 100.2	27 37.1 +25.7 99.7	26 43.0 +25.6 99.2	25 48.9 +25.4 98.7	24 54.7 +25.2 98.3
4°	28 56.9 +25.4 99.1	28 02.8 +25.2 98.7	27 08.6 +25.1 98.2	26 14.3 +25.0 97.7	25 19.9 +24.9 97.3
5°	29 22.3 +25.0 98.1	28 28.0 +24.8 97.6	27 33.7 +24.7 97.2	26 39.3 +24.5 96.7	25 44.8 +24.5 96.2
6°	29 47.3 +24.4 97.1	28 52.8 +24.3 96.6	27 58.4 +24.2 96.1	27 03.8 +24.1 95.7	26 09.3 +24.0 95.2
7°	30 11.7 +23.9 96.0	29 17.1 +23.8 95.6	28 22.6 +23.7 95.1	27 27.9 +23.7 94.7	26 33.3 +23.6 94.2
8°	30 35.6 +23.4 94.9	29 40.9 +23.4 94.5	28 46.3 +23.2 94.1	27 51.6 +23.2 93.6	26 56.9 +23.1 93.2
9°	30 59.0 +22.8 93.9	30 04.3 +22.7 93.4	29 09.5 +22.8 93.0	28 14.8 +22.7 92.6	27 20.0 +22.7 92.1
10°	31 21.8 +22.3 92.8	30 27.0 +22.3 92.4	29 32.3 +22.2 91.9	28 37.5 +22.2 91.5	27 42.7 +22.2 91.1
11°	31 44.1 +21.7 91.7	30 49.3 +21.7 91.3	29 54.5 +21.7 90.9	28 59.7 +21.7 90.5	28 04.9 +21.7 90.0
12°	32 05.8 +21.2 90.6	31 11.0 +21.2 90.2	30 16.2 +21.2 89.8	29 21.4 +21.2 89.4	28 26.6 +21.2 89.0
13°	32 27.0 +20.6 89.5	31 32.2 +20.6 89.1	30 37.4 +20.6 88.7	29 42.6 +20.7 88.3	28 47.8 +20.7 87.9
14°	32 47.6 +20.0 88.4	31 52.8 +20.0 88.0	30 58.0 +20.1 87.6	30 03.3 +20.1 87.2	29 08.5 +20.2 86.8
15°	33 07.6 +19.3 87.3	32 12.8 +19.4 86.9	31 18.1 +19.5 86.5	30 23.4 +19.6 86.1	29 28.7 +19.7 85.8
16°	33 26.9 +18.8 86.1	32 32.2 +18.9 85.8	31 37.6 +18.9 85.4	30 43.0 +19.0 85.0	29 48.4 +19.1 84.7
17°	33 45.7 +18.1 85.0	32 51.1 +18.2 84.6	31 56.5 +18.4 84.3	31 02.0 +18.5 83.9	30 07.5 +18.6 83.6
18°	34 03.8 +17.5 83.8	33 09.3 +17.6 83.5	32 14.9 +17.7 83.2	31 20.5 +17.8 82.8	30 26.1 +18.0 82.5
19°	34 21.3 +16.8 82.7	33 26.9 +17.0 82.4	32 32.6 +17.1 82.0	31 38.3 +17.3 81.7	30 44.1 +17.5 81.4
20°	34 38.1 +16.1 81.5	33 43.9 +16.3 81.2	32 49.7 +16.5 80.9	31 55.6 +16.7 80.6	31 01.6 +16.9 80.3
21°	34 54.2 +15.5 80.3	34 00.2 +15.7 80.0	33 06.2 +15.9 79.7	32 12.3 +16.1 79.4	31 18.5 +16.3 79.1
22°	35 09.7 +14.7 79.2	34 15.9 +15.0 78.9	33 22.1 +15.2 78.6	32 28.4 +15.5 78.3	31 34.8 +15.6 78.0
23°	35 24.4 +14.1 78.0	34 30.9 +14.3 77.7	33 37.3 +14.6 77.4	32 43.9 +14.8 77.2	31 50.4 +15.1 76.9
24°	35 38.5 +13.4 76.8	34 45.2 +13.6 76.5	33 51.9 +13.9 76.3	32 58.7 +14.2 76.0	32 05.5 +14.5 75.7
25°	35 51.9 +12.6 75.6	34 58.8 +13.0 75.3	34 05.8 +13.3 75.1	33 12.9 +13.5 74.8	32 20.0 +13.8 74.6
26°	36 04.5 +11.9 74.4	35 11.8 +12.2 74.1	34 19.1 +12.5 73.9	33 26.4 +12.9 73.7	32 33.8 +13.3 73.4
27°	36 16.4 +11.2 73.2	35 24.0 +11.5 72.9	34 31.6 +11.9 72.7	33 39.3 +12.2 72.5	32 47.1 +12.5 72.3
28°	36 27.6 +10.4 71.9	35 35.5 +10.8 71.7	34 43.5 +11.1 71.5	33 51.5 +11.6 71.3	32 59.6 +11.9 71.1
29°	36 38.0 +09.7 70.7	35 46.3 +10.1 70.5	34 54.6 +10.5 70.3	34 03.1 +10.8 70.1	33 11.5 +11.3 69.9

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°	22 42.7 +26.2 100.7	21 48.8 +26.1 100.3	20 54.8 +25.9 99.8	20 00.7 +25.8 99.3	19 06.6 +25.7 98.9
1°	23 08.9 +25.9 99.8	22 14.9 +25.7 99.3	21 20.7 +25.7 98.8	20 26.5 +25.5 98.4	19 32.3 +25.4 97.9
2°	23 34.8 +25.6 98.8	22 40.6 +25.4 98.3	21 46.4 +25.3 97.9	20 52.0 +25.2 97.4	19 57.7 +25.0 97.0
3°	24 00.4 +25.1 97.8	23 06.0 +25.1 97.3	22 11.7 +24.9 96.9	21 17.2 +24.8 96.4	20 22.7 +24.8 96.0
4°	24 25.5 +24.8 96.8	23 31.1 +24.7 96.3	22 36.6 +24.6 95.9	21 42.0 +24.5 95.5	20 47.5 +24.4 95.0
5°	24 50.3 +24.4 95.8	23 55.8 +24.2 95.3	23 01.2 +24.2 94.9	22 06.5 +24.2 94.5	21 11.9 +24.0 94.0
6°	25 14.7 +23.9 94.8	24 20.0 +23.9 94.3	23 25.4 +23.8 93.9	22 30.7 +23.7 93.5	21 35.9 +23.8 93.1
7°	25 38.6 +23.5 93.8	24 43.9 +23.5 93.3	23 49.2 +23.4 92.9	22 54.4 +23.4 92.5	21 59.7 +23.3 92.1
8°	26 02.1 +23.1 92.7	25 07.4 +23.0 92.3	24 12.6 +23.0 91.9	23 17.8 +23.0 91.5	22 23.0 +23.0 91.1
9°	26 25.2 +22.7 91.7	25 30.4 +22.7 91.3	24 35.6 +22.6 90.9	23 40.8 +22.6 90.5	22 46.0 +22.6 90.1
10°	26 47.9 +22.2 90.7	25 53.1 +22.2 90.3	24 58.2 +22.2 89.9	24 03.4 +22.3 89.5	23 08.6 +22.3 89.1
11°	27 10.1 +21.7 89.6	26 15.3 +21.7 89.2	25 20.4 +21.8 88.8	24 25.7 +21.8 88.4	23 30.9 +21.8 88.0
12°	27 31.8 +21.2 88.6	26 37.0 +21.3 88.2	25 42.2 +21.3 87.8	24 47.5 +21.3 87.4	23 52.7 +21.4 87.0
13°	27 53.0 +20.8 87.5	26 58.3 +20.8 87.2	26 03.5 +20.9 86.8	25 08.8 +21.0 86.4	24 14.1 +21.1 86.0
14°	28 13.8 +20.3 86.5	27 19.1 +20.3 86.1	26 24.4 +20.4 85.7	25 29.8 +20.5 85.4	24 35.2 +20.6 85.0
15°	28 34.1 +19.7 85.4	27 39.4 +19.9 85.0	26 44.8 +20.0 84.7	25 50.3 +20.0 84.3	24 55.8 +20.1 83.9
16°	28 53.8 +19.3 84.3	27 59.3 +19.4 84.0	27 04.8 +19.5 83.6	26 10.3 +19.7 83.3	25 15.9 +19.8 82.9
17°	29 13.1 +18.7 83.2	28 18.7 +18.8 82.9	27 24.3 +19.0 82.5	26 30.0 +19.1 82.2	25 35.7 +19.3 81.9
18°	29 31.8 +18.2 82.2	28 37.5 +18.3 81.8	27 43.3 +18.5 81.5	26 49.1 +18.6 81.1	25 55.0 +18.8 80.8
19°	29 50.0 +17.6 81.1	28 55.8 +17.8 80.7	28 01.8 +17.9 80.4	27 07.7 +18.2 80.1	26 13.8 +18.3 79.8
20°	30 07.6 +17.1 80.0	29 13.6 +17.3 79.6	28 19.7 +17.5 79.3	27 25.9 +17.7 79.0	26 32.1 +17.9 78.7
21°	30 24.7 +16.5 78.8	29 30.9 +16.7 78.5	28 37.2 +17.0 78.2	27 43.6 +17.2 77.9	26 50.0 +17.4 77.6
22°	30 41.2 +15.9 77.7	29 47.6 +16.2 77.4	28 54.2 +16.4 77.1	28 00.8 +16.6 76.8	27 07.4 +16.9 76.5
23°	30 57.1 +15.3 76.6	30 03.8 +15.6 76.3	29 10.6 +15.9 76.0	28 17.4 +16.2 75.8	27 24.3 +16.4 75.5
24°	31 12.4 +14.8 75.5	30 19.4 +15.1 75.2	29 26.5 +15.3 74.9	28 33.6 +15.6 74.7	27 40.7 +15.9 74.4
25°	31 27.2 +14.1 74.3	30 34.5 +14.4 74.1	29 41.8 +14.7 73.8	28 49.2 +15.0 73.6	27 56.6 +15.4 73.3
26°	31 41.3 +13.6 73.2	30 48.9 +13.9 73.0	29 56.5 +14.2 72.7	29 04.2 +14.6 72.5	28 12.0 +14.9 72.2
27°	31 54.9 +12.9 72.1	31 02.8 +13.2 71.8	30 10.7 +13.6 71.6	29 18.8 +13.9 71.3	28 26.9 +14.3 71.1
28°	32 07.8 +12.3 70.9	31 16.0 +12.7 70.7	30 24.3 +13.1 70.5	29 32.7 +13.4 70.2	28 41.2 +13.8 70.0
29°	32 20.1 +11.6 69.7	31 28.7 +12.0 69.5	30 37.4 +12.4 69.3	29 46.1 +12.9 69.1	28 55.0 +13.2 68.9

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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°	18 12.4 +25.6 98.4	17 18.2 +25.4 98.0	16 23.9 +25.3 97.5	15 29.5 +25.2 97.1	14 35.1 +25.1 96.7
1°	18 38.0 +25.2 97.5	17 43.6 +25.1 97.0	16 49.2 +25.0 96.6	15 54.7 +24.9 96.1	15 00.2 +24.8 95.7
2°	19 03.2 +25.0 96.5	18 08.7 +24.9 96.1	17 14.2 +24.8 95.6	16 19.6 +24.8 95.2	15 25.0 +24.7 94.8
3°	19 28.2 +24.6 95.5	18 33.6 +24.6 95.1	17 39.0 +24.5 94.7	16 44.4 +24.4 94.2	15 49.7 +24.4 93.8
4°	19 52.8 +24.4 94.6	18 58.2 +24.3 94.1	18 03.5 +24.2 93.7	17 08.8 +24.2 93.3	16 14.1 +24.1 92.9
5°	20 17.2 +24.0 93.6	19 22.5 +23.9 93.2	18 27.7 +23.9 92.8	17 33.0 +23.9 92.3	16 38.2 +23.9 91.9
6°	20 41.2 +23.7 92.6	19 46.4 +23.7 92.2	18 51.6 +23.7 91.8	17 56.9 +23.6 91.4	17 02.1 +23.6 91.0
7°	21 04.9 +23.3 91.6	20 10.1 +23.3 91.2	19 15.3 +23.3 90.8	18 20.5 +23.3 90.4	17 25.7 +23.3 90.0
8°	21 28.2 +23.0 90.7	20 33.4 +23.0 90.2	19 38.6 +23.0 89.8	18 43.8 +23.0 89.4	17 49.0 +23.0 89.0
9°	21 51.2 +22.6 89.7	20 56.4 +22.6 89.3	20 01.6 +22.7 88.9	19 06.8 +22.7 88.5	18 12.0 +22.7 88.1
10°	22 13.8 +22.3 88.7	21 19.0 +22.3 88.3	20 24.3 +22.3 87.9	19 29.5 +22.4 87.5	18 34.7 +22.5 87.1
11°	22 36.1 +21.9 87.7	21 41.3 +22.0 87.3	20 46.6 +22.0 86.9	19 51.9 +22.0 86.5	18 57.2 +22.1 86.1
12°	22 58.0 +21.5 86.6	22 03.3 +21.5 86.3	21 08.6 +21.6 85.9	20 13.9 +21.7 85.5	19 19.3 +21.8 85.1
13°	23 19.5 +21.1 85.6	22 24.8 +21.2 85.3	21 30.2 +21.3 84.9	20 35.6 +21.4 84.5	19 41.1 +21.5 84.1
14°	23 40.6 +20.7 84.6	22 46.0 +20.8 84.2	21 51.5 +20.9 83.9	20 57.0 +21.1 83.5	20 02.6 +21.1 83.1
15°	24 01.3 +20.3 83.6	23 06.8 +20.4 83.2	22 12.4 +20.6 82.9	21 18.1 +20.6 82.5	20 23.7 +20.8 82.1
16°	24 21.6 +19.8 82.6	23 27.2 +20.0 82.2	22 33.0 +20.1 81.8	21 38.7 +20.3 81.5	20 44.5 +20.5 81.1
17°	24 41.4 +19.5 81.5	23 47.2 +19.6 81.2	22 53.1 +19.8 80.8	21 59.0 +19.9 80.5	21 05.0 +20.1 80.1
18°	25 00.9 +19.0 80.5	24 06.8 +19.2 80.1	23 12.9 +19.3 79.8	22 18.9 +19.6 79.5	21 25.1 +19.7 79.1
19°	25 19.9 +18.5 79.4	24 26.0 +18.8 79.1	23 32.2 +19.0 78.8	22 38.5 +19.1 78.4	21 44.8 +19.4 78.1
20°	25 38.4 +18.1 78.4	24 44.8 +18.3 78.1	23 51.2 +18.5 77.7	22 57.6 +18.8 77.4	22 04.2 +19.0 77.1
21°	25 56.5 +17.6 77.3	25 03.1 +17.8 77.0	24 09.7 +18.1 76.7	23 16.4 +18.3 76.4	22 23.2 +18.5 76.1
22°	26 14.1 +17.2 76.2	25 20.9 +17.5 75.9	24 27.8 +17.7 75.6	23 34.7 +18.0 75.3	22 41.7 +18.2 75.0
23°	26 31.3 +16.7 75.2	25 38.4 +16.9 74.9	24 45.5 +17.2 74.6	23 52.7 +17.5 74.3	22 59.9 +17.8 74.0
24°	26 48.0 +16.2 74.1	25 55.3 +16.5 73.8	25 02.7 +16.8 73.5	24 10.2 +17.0 73.2	23 17.7 +17.4 73.0
25°	27 04.2 +15.7 73.0	26 11.8 +16.0 72.8	25 19.5 +16.3 72.5	24 27.2 +16.7 72.2	23 35.1 +17.0 71.9
26°	27 19.9 +15.1 71.9	26 27.8 +15.5 71.7	25 35.8 +15.8 71.4	24 43.9 +16.2 71.1	23 52.1 +16.5 70.9
27°	27 35.0 +14.7 70.8	26 43.3 +15.0 70.6	25 51.6 +15.4 70.3	25 00.1 +15.7 70.1	24 08.6 +16.1 69.8
28°	27 49.7 +14.2 69.8	26 58.3 +14.6 69.5	26 07.0 +14.9 69.3	25 15.8 +15.3 69.0	24 24.7 +15.6 68.8
29°	28 03.9 +13.6 68.7	27 12.9 +14.0 68.4	26 21.9 +14.4 68.2	25 31.1 +14.8 67.9	24 40.3 +15.2 67.7

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°	13 40.6 +25.0 96.2	12 46.1 +24.9 95.8	11 51.5 +24.9 95.4	10 56.9 +24.8 94.9	10 02.3 +24.7 94.5
1°	14 05.6 +24.8 95.3	13 11.0 +24.7 94.9	12 16.4 +24.6 94.4	11 21.7 +24.6 94.0	10 27.0 +24.6 93.6
2°	14 30.4 +24.6 94.3	13 35.7 +24.5 93.9	12 41.0 +24.5 93.5	11 46.3 +24.4 93.1	10 51.6 +24.3 92.7
3°	14 55.0 +24.3 93.4	14 00.2 +24.3 93.0	13 05.5 +24.3 92.6	12 10.7 +24.3 92.1	11 15.9 +24.3 91.7
4°	15 19.3 +24.1 92.5	14 24.5 +24.1 92.0	13 29.8 +24.0 91.6	12 35.0 +24.0 91.2	11 40.2 +24.0 90.8
5°	15 43.4 +23.8 91.5	14 48.6 +23.8 91.1	13 53.8 +23.8 90.7	12 59.0 +23.8 90.3	12 04.2 +23.8 89.9
6°	16 07.2 +23.6 90.5	15 12.4 +23.6 90.1	14 17.6 +23.6 89.7	13 22.8 +23.6 89.3	12 28.0 +23.6 88.9
7°	16 30.8 +23.4 89.6	15 36.0 +23.4 89.2	14 41.2 +23.4 88.8	13 46.4 +23.4 88.4	12 51.6 +23.5 88.0
8°	16 54.2 +23.0 88.6	15 59.4 +23.1 88.2	15 04.6 +23.1 87.8	14 09.8 +23.2 87.4	13 15.1 +23.2 87.0
9°	17 17.2 +22.8 87.7	16 22.5 +22.8 87.3	15 27.7 +22.9 86.9	14 33.0 +22.9 86.5	13 38.3 +23.0 86.1
10°	17 40.0 +22.5 86.7	16 45.3 +22.6 86.3	15 50.6 +22.6 85.9	14 55.9 +22.8 85.5	14 01.3 +22.8 85.1
11°	18 02.5 +22.2 85.7	17 07.9 +22.2 85.3	16 13.2 +22.4 85.0	15 18.7 +22.4 84.6	14 24.1 +22.6 84.2
12°	18 24.7 +21.9 84.7	17 30.1 +22.0 84.4	16 35.6 +22.1 84.0	15 41.1 +22.2 83.6	14 46.7 +22.3 83.2
13°	18 46.6 +21.6 83.8	17 52.1 +21.7 83.4	16 57.7 +21.8 83.0	16 03.3 +22.0 82.6	15 09.0 +22.1 82.3
14°	19 08.2 +21.3 82.8	18 13.8 +21.4 82.4	17 19.5 +21.6 82.0	16 25.3 +21.6 81.7	15 31.1 +21.8 81.3
15°	19 29.5 +20.9 81.8	18 35.2 +21.1 81.4	17 41.1 +21.2 81.1	16 46.9 +21.4 80.7	15 52.9 +21.5 80.3
16°	19 50.4 +20.6 80.8	18 56.3 +20.8 80.4	18 02.3 +20.9 80.1	17 08.3 +21.2 79.7	16 14.4 +21.3 79.4
17°	20 11.0 +20.3 79.8	19 17.1 +20.5 79.4	18 23.2 +20.7 79.1	17 29.5 +20.8 78.7	16 35.7 +21.1 78.4
18°	20 31.3 +19.9 78.8	19 37.6 +20.1 78.4	18 43.9 +20.3 78.1	17 50.3 +20.5 77.8	16 56.8 +20.7 77.4
19°	20 51.2 +19.6 77.8	19 57.7 +19.8 77.4	19 04.2 +20.0 77.1	18 10.8 +20.3 76.8	17 17.5 +20.5 76.4
20°	21 10.8 +19.2 76.8	20 17.5 +19.4 76.4	19 24.2 +19.7 76.1	18 31.1 +19.9 75.8	17 38.0 +20.1 75.4
21°	21 30.0 +18.8 75.7	20 36.9 +19.1 75.4	19 43.9 +19.3 75.1	18 51.0 +19.6 74.8	17 58.1 +19.9 74.5
22°	21 48.8 +18.5 74.7	20 56.0 +18.7 74.4	20 03.2 +19.0 74.1	19 10.6 +19.2 73.8	18 18.0 +19.5 73.5
23°	22 07.3 +18.1 73.7	21 14.7 +18.4 73.4	20 22.2 +18.7 73.1	19 29.8 +19.0 72.8	18 37.5 +19.3 72.5
24°	22 25.4 +17.6 72.7	21 33.1 +18.0 72.4	20 40.9 +18.3 72.1	19 48.8 +18.6 71.8	18 56.8 +18.9 71.5
25°	22 43.0 +17.3 71.6	21 51.1 +17.6 71.3	20 59.2 +17.9 71.1	20 07.4 +18.2 70.8	19 15.7 +18.6 70.5
26°	23 00.3 +16.9 70.6	22 08.7 +17.2 70.3	21 17.1 +17.5 70.0	20 25.6 +17.9 69.7	19 34.3 +18.2 69.5
27°	23 17.2 +16.4 69.5	22 25.9 +16.8 69.3	21 34.6 +17.2 69.0	20 43.5 +17.6 68.7	19 52.5 +17.9 68.4
28°	23 33.6 +16.1 68.5	22 42.7 +16.4 68.2	21 51.8 +16.8 68.0	21 01.1 +17.1 67.7	20 10.4 +17.5 67.4
29°	23 49.7 +15.6 67.4	22 59.1 +16.0 67.2	22 08.6 +16.4 66.9	21 18.2 +16.8 66.7	20 27.9 +17.2 66.4

Declination SAME name as Latitude

Latitude 24°

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°	9 07.7 +24.6 94.1	8 13.0 +24.6 93.7	7 18.3 +24.5 93.3	6 23.5 +24.5 92.9	5 28.8 +24.4 92.4
1°	9 32.3 +24.5 93.2	8 37.6 +24.4 92.8	7 42.8 +24.4 92.4	6 48.0 +24.4 91.9	5 53.2 +24.4 91.5
2°	9 56.8 +24.4 92.3	9 02.0 +24.4 91.8	8 07.2 +24.3 91.4	7 12.4 +24.3 91.0	6 17.6 +24.3 90.6
3°	10 21.2 +24.1 91.3	9 26.4 +24.1 90.9	8 31.5 +24.2 90.5	7 36.7 +24.2 90.1	6 41.9 +24.2 89.7
4°	10 45.3 +24.1 90.4	9 50.5 +24.1 90.0	8 55.7 +24.1 89.6	8 00.9 +24.1 89.2	7 06.1 +24.1 88.8
5°	11 09.4 +23.8 89.5	10 14.6 +23.8 89.1	9 19.8 +23.8 88.7	8 25.0 +23.9 88.2	7 30.2 +23.9 87.8
6°	11 33.2 +23.7 88.5	10 38.4 +23.7 88.1	9 43.6 +23.8 87.7	8 48.9 +23.8 87.3	7 54.1 +23.9 86.9
7°	11 56.9 +23.5 87.6	11 02.1 +23.5 87.2	10 07.4 +23.6 86.8	9 12.7 +23.6 86.4	8 18.0 +23.7 86.0
8°	12 20.4 +23.2 86.6	11 25.6 +23.4 86.2	10 31.0 +23.4 85.9	9 36.3 +23.5 85.5	8 41.7 +23.6 85.1
9°	12 43.6 +23.1 85.7	11 49.0 +23.2 85.3	10 54.4 +23.2 84.9	9 59.8 +23.3 84.5	9 05.3 +23.4 84.1
10°	13 06.7 +22.9 84.8	12 12.2 +22.9 84.4	11 17.6 +23.1 84.0	10 23.1 +23.2 83.6	9 28.7 +23.3 83.2
11°	13 29.6 +22.7 83.8	12 35.1 +22.8 83.4	11 40.7 +22.9 83.0	10 46.3 +23.0 82.7	9 52.0 +23.1 82.3
12°	13 52.3 +22.4 82.8	12 57.9 +22.5 82.5	12 03.6 +22.7 82.1	11 09.3 +22.8 81.7	10 15.1 +23.0 81.3
13°	14 14.7 +22.2 81.9	13 20.4 +22.4 81.5	12 26.3 +22.5 81.1	11 32.1 +22.7 80.8	10 38.1 +22.8 80.4
14°	14 36.9 +22.0 80.9	13 42.8 +22.1 80.6	12 48.8 +22.2 80.2	11 54.8 +22.4 79.8	11 00.9 +22.6 79.4
15°	14 58.9 +21.7 80.0	14 04.9 +21.9 79.6	13 11.0 +22.1 79.2	12 17.2 +22.3 78.9	11 23.5 +22.4 78.5
16°	15 20.6 +21.5 79.0	14 26.8 +21.7 78.6	13 33.1 +21.9 78.3	12 39.5 +22.0 77.9	11 45.9 +22.3 77.6
17°	15 42.1 +21.2 78.0	14 48.5 +21.4 77.7	13 55.0 +21.6 77.3	13 01.5 +21.9 77.0	12 08.2 +22.0 76.6
18°	16 03.3 +21.0 77.1	15 09.9 +21.2 76.7	14 16.6 +21.4 76.4	13 23.4 +21.6 76.0	12 30.2 +21.9 75.7
19°	16 24.3 +20.6 76.1	15 31.1 +20.9 75.7	14 38.0 +21.2 75.4	13 45.0 +21.4 75.1	12 52.1 +21.6 74.7
20°	16 44.9 +20.5 75.1	15 52.0 +20.7 74.8	14 59.2 +20.9 74.4	14 06.4 +21.2 74.1	13 13.7 +21.5 73.7
21°	17 05.4 +20.1 74.1	16 12.7 +20.4 73.8	15 20.1 +20.6 73.5	14 27.6 +20.9 73.1	13 35.2 +21.2 72.8
22°	17 25.5 +19.8 73.1	16 33.1 +20.1 72.8	15 40.7 +20.4 72.5	14 48.5 +20.7 72.2	13 56.4 +21.0 71.8
23°	17 45.3 +19.5 72.1	16 53.2 +19.8 71.8	16 01.1 +20.2 71.5	15 09.2 +20.5 71.2	14 17.4 +20.7 70.9
24°	18 04.8 +19.3 71.2	17 13.0 +19.6 70.8	16 21.3 +19.8 70.5	15 29.7 +20.1 70.2	14 38.1 +20.5 69.9
25°	18 24.1 +18.9 70.2	17 32.6 +19.2 69.9	16 41.1 +19.6 69.5	15 49.8 +20.0 69.2	14 58.6 +20.3 68.9
26°	18 43.0 +18.6 69.2	17 51.8 +18.9 68.9	17 00.7 +19.3 68.6	16 09.8 +19.6 68.2	15 18.9 +20.0 67.9
27°	19 01.6 +18.2 68.2	18 10.7 +18.7 67.9	17 20.0 +19.0 67.6	16 29.4 +19.4 67.3	15 38.9 +19.8 67.0
28°	19 19.8 +18.0 67.1	18 29.4 +18.3 66.9	17 39.0 +18.7 66.6	16 48.8 +19.1 66.3	15 58.7 +19.4 66.0
29°	19 37.8 +17.6 66.1	18 47.7 +18.0 65.9	17 57.7 +18.4 65.6	17 07.9 +18.8 65.3	16 18.1 +19.3 65.0

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°	4 34.0 +24.5 92.0	3 39.2 +24.4 91.6	2 44.4 +24.4 91.2	1 49.6 +24.4 90.8	0 54.8 +24.4 90.4
1°	4 58.5 +24.3 91.1	4 03.6 +24.4 90.7	3 08.8 +24.4 90.3	2 14.0 +24.4 89.9	1 19.2 +24.4 89.5
2°	5 22.8 +24.3 90.2	4 28.0 +24.3 89.8	3 33.2 +24.3 89.4	2 38.4 +24.3 89.0	1 43.6 +24.3 88.6
3°	5 47.1 +24.2 89.3	4 52.3 +24.2 88.9	3 57.5 +24.3 88.5	3 02.7 +24.3 88.1	2 07.9 +24.4 87.7
4°	6 11.3 +24.1 88.4	5 16.5 +24.2 88.0	4 21.8 +24.1 87.6	3 27.0 +24.2 87.2	2 32.3 +24.2 86.7
5°	6 35.4 +24.0 87.4	5 40.7 +24.0 87.0	4 45.9 +24.1 86.6	3 51.2 +24.2 86.2	2 56.5 +24.3 85.8
6°	6 59.4 +23.9 86.5	6 04.7 +24.0 86.1	5 10.0 +24.1 85.7	4 15.4 +24.1 85.3	3 20.8 +24.2 84.9
7°	7 23.3 +23.8 85.6	6 28.7 +23.8 85.2	5 34.1 +23.9 84.8	4 39.5 +24.0 84.4	3 45.0 +24.1 84.0
8°	7 47.1 +23.6 84.7	6 52.5 +23.8 84.3	5 58.0 +23.9 83.9	5 03.5 +24.0 83.5	4 09.1 +24.1 83.1
9°	8 10.7 +23.6 83.7	7 16.3 +23.6 83.3	6 21.9 +23.7 83.0	5 27.5 +23.9 82.6	4 33.2 +24.0 82.2
10°	8 34.3 +23.4 82.8	7 39.9 +23.5 82.4	6 45.6 +23.7 82.0	5 51.4 +23.7 81.6	4 57.2 +23.9 81.2
11°	8 57.7 +23.2 81.9	8 03.4 +23.4 81.5	7 09.3 +23.5 81.1	6 15.1 +23.7 80.7	5 21.1 +23.8 80.3
12°	9 20.9 +23.1 80.9	8 26.8 +23.3 80.6	7 32.8 +23.4 80.2	6 38.8 +23.6 79.8	5 44.9 +23.8 79.4
13°	9 44.0 +23.0 80.0	8 50.1 +23.1 79.6	7 56.2 +23.3 79.2	7 02.4 +23.5 78.9	6 08.7 +23.6 78.5
14°	10 07.0 +22.8 79.1	9 13.2 +23.0 78.7	8 19.5 +23.2 78.3	7 25.9 +23.3 77.9	6 32.3 +23.6 77.6
15°	10 29.8 +22.6 78.1	9 36.2 +22.8 77.8	8 42.7 +23.0 77.4	7 49.2 +23.3 77.0	6 55.9 +23.4 76.6
16°	10 52.4 +22.5 77.2	9 59.0 +22.7 76.8	9 05.7 +22.9 76.5	8 12.5 +23.1 76.1	7 19.3 +23.3 75.7
17°	11 14.9 +22.3 76.2	10 21.7 +22.5 75.9	9 28.6 +22.7 75.5	8 35.6 +22.9 75.1	7 42.6 +23.2 74.8
18°	11 37.2 +22.1 75.3	10 44.2 +22.3 74.9	9 51.3 +22.6 74.6	8 58.5 +22.9 74.2	8 05.8 +23.1 73.8
19°	11 59.3 +21.9 74.3	11 06.5 +22.2 74.0	10 13.9 +22.4 73.6	9 21.4 +22.6 73.3	8 28.9 +23.0 72.9
20°	12 21.2 +21.7 73.4	11 28.7 +22.0 73.0	10 36.3 +22.3 72.7	9 44.0 +22.6 72.3	8 51.9 +22.8 72.0
21°	12 42.9 +21.5 72.4	11 50.7 +21.7 72.1	10 58.6 +22.0 71.7	10 06.6 +22.3 71.4	9 14.7 +22.6 71.0
22°	13 04.4 +21.3 71.5	12 12.4 +21.6 71.1	11 20.6 +21.9 70.8	10 28.9 +22.2 70.4	9 37.3 +22.5 70.1
23°	13 25.7 +21.0 70.5	12 34.0 +21.4 70.2	11 42.5 +21.7 69.8	10 51.1 +22.0 69.5	9 59.8 +22.4 69.2
24°	13 46.7 +20.9 69.6	12 55.4 +21.2 69.2	12 04.2 +21.5 68.9	11 13.1 +21.9 68.6	10 22.2 +22.2 68.2
25°	14 07.6 +20.6 68.6	13 16.6 +20.9 68.3	12 25.7 +21.3 67.9	11 35.0 +21.6 67.6	10 44.4 +22.0 67.3
26°	14 28.2 +20.3 67.6	13 37.5 +20.8 67.3	12 47.0 +21.1 67.0	11 56.6 +21.5 66.7	11 06.4 +21.8 66.3
27°	14 48.5 +20.2 66.7	13 58.3 +20.5 66.3	13 08.1 +20.9 66.0	12 18.1 +21.3 65.7	11 28.2 +21.7 65.4
28°	15 08.7 +19.8 65.7	14 18.8 +20.2 65.4	13 29.0 +20.7 65.1	12 39.4 +21.0 64.7	11 49.9 +21.4 64.4
29°	15 28.5 +19.6 64.7	14 39.0 +20.1 64.4	13 49.7 +20.4 64.1	13 00.4 +20.9 63.8	12 11.3 +21.3 63.5

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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 +24.4 90.0	-0 54.8 +24.4	-1 49.6 +24.4	-2 44.4 +24.4	-3 39.2 +24.5
1°	0 24.4 +24.4 89.1	-0 30.4 +24.4	-1 25.2 +24.5	-2 20.0 +24.5	-3 14.7 +24.5
2°	0 48.8 +24.4 88.2	-0 06.0 +24.4	-1 00.7 +24.4	-1 55.5 +24.5	-2 50.2 +24.6
3°	1 13.2 +24.4 87.3	0 18.4 +24.5 86.9	-0 36.3 +24.5	-1 31.0 +24.6	-2 25.6 +24.6
4°	1 37.6 +24.3 86.3	0 42.9 +24.4 85.9	-0 11.8 +24.5	-1 06.4 +24.5	-2 01.0 +24.6
5°	2 01.9 +24.3 85.4	1 07.3 +24.4 85.0	0 12.7 +24.5 84.6	-0 41.9 +24.6	-1 36.4 +24.7
6°	2 26.2 +24.3 84.5	1 31.7 +24.3 84.1	0 37.2 +24.4 83.7	-0 17.3 +24.6	-1 11.7 +24.7
7°	2 50.5 +24.2 83.6	1 56.0 +24.4 83.2	1 01.6 +24.5 82.8	0 07.3 +24.5 82.4	-0 47.0 +24.7
8°	3 14.7 +24.2 82.7	2 20.4 +24.3 82.3	1 26.1 +24.4 81.9	0 31.8 +24.6 81.5	-0 22.3 +24.7
9°	3 38.9 +24.1 81.8	2 44.7 +24.2 81.4	1 50.5 +24.4 81.0	0 56.4 +24.5 80.6	0 02.4 +24.7 80.2
10°	4 03.0 +24.1 80.8	3 08.9 +24.2 80.5	2 14.9 +24.4 80.1	1 20.9 +24.6 79.7	0 27.1 +24.7 79.2
11°	4 27.1 +24.0 79.9	3 33.1 +24.2 79.5	2 39.3 +24.3 79.1	1 45.5 +24.5 78.7	0 51.8 +24.6 78.3
12°	4 51.1 +23.9 79.0	3 57.3 +24.1 78.6	3 03.6 +24.3 78.2	2 10.0 +24.4 77.8	1 16.4 +24.7 77.4
13°	5 15.0 +23.8 78.1	4 21.4 +24.0 77.7	3 27.9 +24.2 77.3	2 34.4 +24.5 76.9	1 41.1 +24.6 76.5
14°	5 38.8 +23.8 77.2	4 45.4 +24.0 76.8	3 52.1 +24.2 76.4	2 58.9 +24.4 76.0	2 05.7 +24.6 75.6
15°	6 02.6 +23.6 76.2	5 09.4 +23.8 75.9	4 16.3 +24.1 75.5	3 23.3 +24.3 75.1	2 30.3 +24.6 74.7
16°	6 26.2 +23.6 75.3	5 33.2 +23.8 74.9	4 40.4 +24.0 74.6	3 47.6 +24.3 74.2	2 54.9 +24.5 73.8
17°	6 49.8 +23.4 74.4	5 57.0 +23.7 74.0	5 04.4 +23.9 73.6	4 11.9 +24.2 73.2	3 19.4 +24.5 72.9
18°	7 13.2 +23.4 73.5	6 20.7 +23.6 73.1	5 28.3 +23.9 72.7	4 36.1 +24.1 72.3	3 43.9 +24.4 71.9
19°	7 36.6 +23.2 72.5	6 44.3 +23.5 72.2	5 52.2 +23.8 71.8	5 00.2 +24.1 71.4	4 08.3 +24.4 71.0
20°	7 59.8 +23.1 71.6	7 07.8 +23.4 71.2	6 16.0 +23.7 70.9	5 24.3 +23.9 70.5	4 32.7 +24.2 70.1
21°	8 22.9 +22.9 70.7	7 31.2 +23.3 70.3	6 39.7 +23.5 69.9	5 48.2 +23.9 69.6	4 56.9 +24.2 69.2
22°	8 45.8 +22.9 69.7	7 54.5 +23.1 69.4	7 03.2 +23.5 69.0	6 12.1 +23.8 68.6	5 21.1 +24.2 68.3
23°	9 08.7 +22.6 68.8	8 17.6 +23.0 68.4	7 26.7 +23.4 68.1	6 35.9 +23.7 67.7	5 45.3 +24.0 67.4
24°	9 31.3 +22.6 67.9	8 40.6 +22.9 67.5	7 50.1 +23.2 67.2	6 59.6 +23.6 66.8	6 09.3 +23.9 66.4
25°	9 53.9 +22.4 66.9	9 03.5 +22.7 66.6	8 13.3 +23.1 66.2	7 23.2 +23.5 65.9	6 33.2 +23.9 65.5
26°	10 16.3 +22.2 66.0	9 26.2 +22.6 65.6	8 36.4 +22.9 65.3	7 46.7 +23.3 64.9	6 57.1 +23.7 64.6
27°	10 38.5 +22.0 65.0	9 48.8 +22.5 64.7	8 59.3 +22.9 64.4	8 10.0 +23.2 64.0	7 20.8 +23.6 63.7
28°	11 00.5 +21.9 64.1	10 11.3 +22.2 63.8	9 22.2 +22.6 63.4	8 33.2 +23.1 63.1	7 44.4 +23.5 62.7
29°	11 22.4 +21.6 63.1	10 33.5 +22.1 62.8	9 44.8 +22.6 62.5	8 56.3 +22.9 62.1	8 07.9 +23.4 61.8

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°	-4 34.0 +24.5	-5 28.8 +24.6	-6 23.5 +24.6	-7 18.3 +24.7	-8 13.0 +24.7
1°	-4 09.5 +24.6	-5 04.2 +24.6	-5 58.9 +24.7	-6 53.6 +24.8	-7 48.3 +24.9
2°	-3 44.9 +24.6	-4 39.6 +24.7	-5 34.2 +24.8	-6 28.8 +24.8	-7 23.4 +24.9
3°	-3 20.3 +24.7	-4 14.9 +24.8	-5 09.4 +24.8	-6 04.0 +25.0	-6 58.5 +25.1
4°	-2 55.6 +24.7	-3 50.1 +24.8	-4 44.6 +24.9	-5 39.0 +25.0	-6 33.4 +25.1
5°	-2 30.9 +24.8	-3 25.3 +24.9	-4 19.7 +25.0	-5 14.0 +25.1	-6 08.3 +25.3
6°	-2 06.1 +24.8	-3 00.4 +24.9	-3 54.7 +25.1	-4 48.9 +25.2	-5 43.0 +25.3
7°	-1 41.3 +24.8	-2 35.5 +25.0	-3 29.6 +25.1	-4 23.7 +25.3	-5 17.7 +25.4
8°	-1 16.5 +24.9	-2 10.5 +25.0	-3 04.5 +25.2	-3 58.4 +25.3	-4 52.3 +25.5
9°	-0 51.6 +24.8	-1 45.5 +25.0	-2 39.3 +25.2	-3 33.1 +25.4	-4 26.8 +25.6
10°	-0 26.8 +24.9	-1 20.5 +25.1	-2 14.1 +25.2	-3 07.7 +25.4	-4 01.2 +25.6
11°	-0 01.9 +24.9	-0 55.4 +25.0	-1 48.9 +25.2	-2 42.3 +25.5	-3 35.6 +25.7
12°	0 23.0 +24.8 77.0	-0 30.4 +25.1	-1 23.7 +25.3	-2 16.8 +25.4	-3 09.9 +25.7
13°	0 47.8 +24.9 76.1	-0 05.3 +25.0	-0 58.4 +25.3	-1 51.4 +25.6	-2 44.2 +25.7
14°	1 12.7 +24.8 75.2	0 19.7 +25.1 74.8	-0 33.1 +25.3	-1 25.8 +25.5	-2 18.5 +25.8
15°	1 37.5 +24.8 74.3	0 44.8 +25.1 73.9	-0 07.8 +25.3	-1 00.3 +25.6	-1 52.7 +25.8
16°	2 02.3 +24.8 73.4	1 09.9 +25.0 73.0	0 17.5 +25.3 72.6	-0 34.7 +25.5	-1 26.9 +25.9
17°	2 27.1 +24.7 72.5	1 34.9 +25.0 72.1	0 42.8 +25.3 71.7	-0 09.2 +25.6	-1 01.0 +25.8
18°	2 51.8 +24.7 71.6	1 59.9 +25.0 71.2	1 08.1 +25.3 70.8	0 16.4 +25.6 70.4	-0 35.2 +25.9
19°	3 16.5 +24.7 70.6	2 24.9 +24.9 70.2	1 33.4 +25.2 69.9	0 42.0 +25.5 69.5	-0 09.3 +25.9
20°	3 41.2 +24.6 69.7	2 49.8 +24.9 69.3	1 58.6 +25.2 68.9	1 07.5 +25.6 68.5	0 16.6 +25.8 68.1
21°	4 05.8 +24.5 68.8	3 14.7 +24.9 68.4	2 23.8 +25.2 68.0	1 33.1 +25.5 67.6	0 42.4 +25.9 67.2
22°	4 30.3 +24.4 67.9	3 39.6 +24.8 67.5	2 49.0 +25.1 67.1	1 58.6 +25.5 66.7	1 08.3 +25.8 66.3
23°	4 54.7 +24.4 67.0	4 04.4 +24.7 66.6	3 14.1 +25.1 66.2	2 24.1 +25.4 65.8	1 34.1 +25.8 65.4
24°	5 19.1 +24.3 66.1	4 29.1 +24.7 65.7	3 39.2 +25.1 65.3	2 49.5 +25.4 64.9	1 59.9 +25.8 64.5
25°	5 43.4 +24.2 65.1	4 53.8 +24.6 64.8	4 04.3 +24.9 64.4	3 14.9 +25.4 64.0	2 25.7 +25.8 63.6
26°	6 07.6 +24.2 64.2	5 18.4 +24.5 63.9	4 29.2 +24.9 63.5	3 40.3 +25.3 63.1	2 51.5 +25.7 62.7
27°	6 31.8 +24.0 63.3	5 42.9 +24.4 62.9	4 54.1 +24.9 62.6	4 05.6 +25.2 62.2	3 17.2 +25.6 61.8
28°	6 55.8 +23.9 62.4	6 07.3 +24.3 62.0	5 19.0 +24.7 61.7	4 30.8 +25.2 61.3	3 42.8 +25.6 60.9
29°	7 19.7 +23.8 61.5	6 31.6 +24.2 61.1	5 43.7 +24.7 60.7	4 56.0 +25.1 60.4	4 08.4 +25.6 60.0

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°	-9 07.7 +24.8				
1°	-8 42.9 +24.9	-9 37.5 +25.0			
2°	-8 18.0 +25.1	-9 12.5 +25.2			
3°	-7 52.9 +25.2	-8 47.3 +25.3	-9 41.7 +25.4		
4°	-7 27.7 +25.2	-8 22.0 +25.4	-9 16.3 +25.6		
5°	-7 02.5 +25.4	-7 56.6 +25.5	-8 50.7 +25.7	-9 44.7 +25.8	
6°	-6 37.1 +25.5	-7 31.1 +25.6	-8 25.0 +25.8	-9 18.9 +26.0	
7°	-6 11.6 +25.6	-7 05.5 +25.8	-7 59.2 +25.9	-8 52.9 +26.1	-9 46.5 +26.3
8°	-5 46.0 +25.6	-6 39.7 +25.8	-7 33.3 +26.0	-8 26.8 +26.2	-9 20.2 +26.4
9°	-5 20.4 +25.8	-6 13.9 +26.0	-7 07.3 +26.2	-8 00.6 +26.3	-8 53.8 +26.5
10°	-4 54.6 +25.8	-5 47.9 +26.0	-6 41.1 +26.2	-7 34.3 +26.5	-8 27.3 +26.7
11°	-4 28.8 +25.9	-5 21.9 +26.1	-6 14.9 +26.3	-7 07.8 +26.6	-8 00.6 +26.8
12°	-4 02.9 +25.9	-4 55.8 +26.2	-5 48.6 +26.4	-6 41.2 +26.6	-7 33.8 +27.0
13°	-3 37.0 +26.0	-4 29.6 +26.2	-5 22.2 +26.5	-6 14.6 +26.8	-7 06.8 +27.0
14°	-3 11.0 +26.1	-4 03.4 +26.3	-4 55.7 +26.6	-5 47.8 +26.8	-6 39.8 +27.1
15°	-2 44.9 +26.1	-3 37.1 +26.4	-4 29.1 +26.7	-5 21.0 +27.0	-6 12.7 +27.2
16°	-2 18.8 +26.1	-3 10.7 +26.4	-4 02.4 +26.6	-4 54.0 +26.9	-5 45.5 +27.3
17°	-1 52.7 +26.1	-2 44.3 +26.4	-3 35.8 +26.8	-4 27.1 +27.1	-5 18.2 +27.4
18°	-1 26.6 +26.2	-2 17.9 +26.5	-3 09.0 +26.8	-4 00.0 +27.1	-4 50.8 +27.4
19°	-1 00.4 +26.2	-1 51.4 +26.5	-2 42.2 +26.8	-3 32.9 +27.2	-4 23.4 +27.5
20°	-0 34.2 +26.2	-1 24.9 +26.5	-2 15.4 +26.9	-3 05.7 +27.2	-3 55.9 +27.6
21°	-0 08.0 +26.2	-0 58.4 +26.6	-1 48.5 +26.9	-2 38.5 +27.2	-3 28.3 +27.6
22°	0 18.2 +26.1 65.9	-0 31.8 +26.5	-1 21.6 +26.9	-2 11.3 +27.3	-3 00.7 +27.6
23°	0 44.3 +26.2 65.0	-0 05.3 +26.6	-0 54.7 +26.9	-1 44.0 +27.3	-2 33.1 +27.7
24°	1 10.5 +26.2 64.1	0 21.3 +26.5 63.7	-0 27.8 +27.0	-1 16.7 +27.4	-2 05.4 +27.7
25°	1 36.7 +26.1 63.2	0 47.8 +26.6 62.8	-0 00.8 +26.9	-0 49.3 +27.3	-1 37.7 +27.8
26°	2 02.8 +26.1 62.3	1 14.4 +26.5 61.9	0 26.1 +26.9 61.5	-0 22.0 +27.3	-1 09.9 +27.7
27°	2 28.9 +26.1 61.4	1 40.9 +26.5 61.0	0 53.0 +26.9 60.6	0 05.3 +27.4 60.2	-0 42.2 +27.8
28°	2 55.0 +26.0 60.5	2 07.4 +26.4 60.1	1 19.9 +26.9 59.8	0 32.7 +27.3 59.4	-0 14.4 +27.8
29°	3 21.0 +26.0 59.6	2 33.8 +26.5 59.3	1 46.8 +26.9 58.9	1 00.0 +27.3 58.5	0 13.4 +27.8 58.1

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°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°					
9°	-9 46.9 +26.7				
10°	-9 20.2 +27.0				
11°	-8 53.2 +27.0				
12°	-8 26.2 +27.2				
13°	-7 59.0 +27.3				
14°	-7 31.7 +27.4				
15°	-7 04.3 +27.5				
16°	-6 36.8 +27.6				
17°	-6 09.2 +27.7				
18°	-5 41.5 +27.7				
19°	-5 13.8 +27.9				
20°	-4 45.9 +27.9				
21°	-4 18.0 +28.0				
22°	-3 50.0 +28.0				
23°	-3 22.0 +28.1				
24°	-2 53.9 +28.1				
25°	-2 25.8 +28.2				
26°	-1 57.6 +28.1				
27°	-1 29.5 +28.3				
28°	-1 01.2 +28.2				
29°	-0 33.0 +28.2				

Declination SAME name as Latitude

Latitude 25°

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°	65 00.0 +60.0 180.0	64 58.9 +59.9 177.6	64 55.5 +59.8 175.3	64 49.9 +59.6 172.9	64 42.1 +59.4 170.6
1°	66 00.0 +60.0 180.0	65 58.8 +60.0 177.5	65 55.3 +59.9 175.1	65 49.5 +59.6 172.7	65 41.5 +59.2 170.2
2°	67 00.0 +60.0 180.0	66 58.8 +59.9 177.4	66 55.2 +59.7 174.9	66 49.1 +59.6 172.4	66 40.7 +59.2 169.9
3°	68 00.0 +60.0 180.0	67 58.7 +60.0 177.3	67 54.9 +59.8 174.7	67 48.7 +59.5 172.0	67 39.9 +59.1 169.4
4°	69 00.0 +60.0 180.0	68 58.7 +59.9 177.2	68 54.7 +59.8 174.4	68 48.2 +59.4 171.7	68 39.0 +59.1 169.0
5°	70 00.0 +60.0 180.0	69 58.6 +60.0 177.1	69 54.5 +59.7 174.2	69 47.6 +59.4 171.3	69 38.1 +58.9 168.5
6°	71 00.0 +60.0 180.0	70 58.6 +59.9 176.9	70 54.2 +59.7 173.9	70 47.0 +59.4 170.9	70 37.0 +58.9 167.9
7°	72 00.0 +60.0 180.0	71 58.5 +59.9 176.8	71 53.9 +59.7 173.6	71 46.4 +59.2 170.4	71 35.9 +58.7 167.3
8°	73 00.0 +60.0 180.0	72 58.4 +59.9 176.6	72 53.6 +59.6 173.3	72 45.6 +59.2 169.9	72 34.6 +58.6 166.7
9°	74 00.0 +60.0 180.0	73 58.3 +59.9 176.4	73 53.2 +59.6 172.9	73 44.8 +59.1 169.4	73 33.2 +58.4 165.9
10°	75 00.0 +60.0 180.0	74 58.2 +59.9 176.2	74 52.8 +59.5 172.4	74 43.9 +58.9 168.7	74 31.6 +58.1 165.1
11°	76 00.0 +60.0 180.0	75 58.1 +59.8 175.9	75 52.3 +59.5 171.9	75 42.8 +58.8 168.0	75 29.7 +58.0 164.1
12°	77 00.0 +60.0 180.0	76 57.9 +59.9 175.7	76 51.8 +59.4 171.4	76 41.6 +58.7 167.1	76 27.7 +57.6 163.1
13°	78 00.0 +60.0 180.0	77 57.8 +59.8 175.3	77 51.2 +59.2 170.7	77 40.3 +58.3 166.2	77 25.3 +57.2 161.8
14°	79 00.0 +60.0 180.0	78 57.6 +59.8 174.9	78 50.4 +59.1 169.9	78 38.6 +58.1 165.1	78 22.5 +56.7 160.4
15°	80 00.0 +60.0 180.0	79 57.4 +59.7 174.5	79 49.5 +59.0 169.0	79 36.7 +57.7 163.7	79 19.2 +56.0 158.7
16°	81 00.0 +60.0 180.0	80 57.1 +59.7 173.9	80 48.5 +58.6 167.9	80 34.4 +57.1 162.1	80 15.2 +55.2 156.7
17°	82 00.0 +60.0 180.0	81 56.8 +59.5 173.2	81 47.1 +58.3 166.5	81 31.5 +56.4 160.1	81 10.4 +54.0 154.2
18°	83 00.0 +60.0 180.0	82 56.3 +59.4 172.2	82 45.4 +57.8 164.7	82 27.9 +55.3 157.7	82 04.4 +52.5 151.2
19°	84 00.0 +60.0 180.0	83 55.7 +59.2 171.0	83 43.2 +57.0 162.4	83 23.2 +53.8 154.6	82 56.9 +50.1 147.5
20°	85 00.0 +60.0 180.0	84 54.9 +58.8 169.3	84 40.2 +55.6 159.3	84 17.0 +51.4 150.4	83 47.0 +46.9 142.7
21°	86 00.0 +60.0 180.0	85 53.7 +58.1 166.8	85 35.8 +53.2 154.9	85 08.4 +47.4 144.8	84 33.9 +41.8 136.6
22°	87 00.0 +60.0 180.0	86 51.8 +56.3 162.8	86 29.0 +48.5 148.2	85 55.8 +40.6 136.9	85 15.7 +34.4 128.5
23°	88 00.0 +60.0 180.0	87 48.1 +50.8 155.2	87 17.5 +37.9 137.2	86 36.4 +29.2 125.5	85 50.1 +23.4 117.9
24°	89 00.0 +60.0 180.0	88 38.9 +26.7 137.5	87 55.4 +15.8 118.4	87 05.6 +11.3 109.5	86 13.5 +09.0 104.5
25°	90 00.0 -60.0 0.0	89 05.6 -26.4 89.8	88 11.2 -15.0 89.6	87 16.9 -10.1 89.4	86 22.5 -07.3 89.2
26°	89 00.0 -60.0 0.0	88 39.2 -50.8 41.9	87 56.2 -37.5 60.6	87 06.8 -28.2 69.1	86 15.2 -22.0 73.7
27°	88 00.0 -60.0 0.0	87 48.4 -56.2 24.0	87 18.7 -48.3 41.5	86 38.6 -40.1 52.8	85 53.2 -33.4 60.0
28°	87 00.0 -60.0 0.0	86 52.2 -58.1 16.4	86 30.4 -53.1 30.4	85 58.5 -47.1 41.2	85 19.8 -41.2 49.2
29°	86 00.0 -60.0 0.0	85 54.1 -58.8 12.3	85 37.3 -55.6 23.6	85 11.4 -51.2 33.1	84 38.6 -46.4 40.8

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°	64 32.2 +58.9 168.3	64 20.1 +58.5 166.0	64 06.0 +57.9 163.8	63 49.8 +57.4 161.6	63 31.7 +56.7 159.5
1°	65 31.1 +58.9 167.9	65 18.6 +58.4 165.5	65 03.9 +57.9 163.2	64 47.2 +57.2 160.9	64 28.4 +56.6 158.7
2°	66 30.0 +58.7 167.4	66 17.0 +58.2 164.9	66 01.8 +57.6 162.6	65 44.4 +57.0 160.2	65 25.0 +56.2 157.9
3°	67 28.7 +58.7 166.9	67 15.2 +58.1 164.3	66 59.4 +57.5 161.9	66 41.4 +56.7 159.4	66 21.2 +56.0 157.1
4°	68 27.4 +58.5 166.3	68 13.3 +57.9 163.7	67 56.9 +57.2 161.1	67 38.1 +56.5 158.6	67 17.2 +55.6 156.2
5°	69 25.9 +58.4 165.7	69 11.2 +57.8 163.0	68 54.1 +57.0 160.3	68 34.6 +56.1 157.7	68 12.8 +55.3 155.2
6°	70 24.3 +58.2 165.0	70 09.0 +57.5 162.2	69 51.1 +56.6 159.4	69 30.7 +55.8 156.7	69 08.1 +54.8 154.1
7°	71 22.5 +58.1 164.3	71 06.5 +57.2 161.3	70 47.7 +56.4 158.4	70 26.5 +55.4 155.6	70 02.9 +54.3 152.9
8°	72 20.6 +57.8 163.5	72 03.7 +56.9 160.4	71 44.1 +55.9 157.4	71 21.9 +54.8 154.5	70 57.2 +53.8 151.7
9°	73 18.4 +57.5 162.6	73 00.6 +56.6 159.3	72 40.0 +55.5 156.2	72 16.7 +54.4 153.2	71 51.0 +53.0 150.3
10°	74 15.9 +57.3 161.5	73 57.2 +56.1 158.1	73 35.5 +54.9 154.9	73 11.1 +53.6 151.7	72 44.0 +52.3 148.7
11°	75 13.2 +56.8 160.4	74 53.3 +55.7 156.8	74 30.4 +54.3 153.4	74 04.7 +52.9 150.1	73 36.3 +51.5 147.0
12°	76 10.0 +56.4 159.1	75 49.0 +55.0 155.3	75 24.7 +53.5 151.8	74 57.6 +51.9 148.4	74 27.8 +50.3 145.2
13°	77 06.4 +55.8 157.6	76 44.0 +54.2 153.7	76 18.2 +52.6 149.9	75 49.5 +50.9 146.4	75 18.1 +49.1 143.1
14°	78 02.2 +55.1 155.9	77 38.2 +53.3 151.7	77 10.8 +51.4 147.8	76 40.4 +49.5 144.1	76 07.2 +47.6 140.7
15°	78 57.3 +54.2 153.9	78 31.5 +52.1 149.5	78 02.2 +50.1 145.4	77 29.9 +47.9 141.6	76 54.8 +45.9 138.1
16°	79 51.5 +52.9 151.6	79 23.6 +50.7 146.9	78 52.3 +48.2 142.6	78 17.8 +45.9 138.7	77 40.7 +43.7 135.2
17°	80 44.4 +51.5 148.8	80 14.3 +48.7 143.9	79 40.5 +46.1 139.4	79 03.7 +43.6 135.5	78 24.4 +41.2 131.9
18°	81 35.9 +49.3 145.4	81 03.0 +46.2 140.3	80 26.6 +43.3 135.7	79 47.3 +40.6 131.7	79 05.6 +38.1 128.2
19°	82 25.2 +46.5 141.3	81 49.2 +43.0 136.0	81 09.9 +39.8 131.4	80 27.9 +36.9 127.4	79 43.7 +34.4 124.0
20°	83 11.7 +42.5 136.3	82 32.2 +38.7 130.9	81 49.7 +35.4 126.3	81 04.8 +32.6 122.5	80 18.1 +30.1 119.2
21°	83 54.2 +37.1 130.0	83 10.9 +33.1 124.7	82 25.1 +29.8 120.4	81 37.4 +27.2 116.9	80 48.2 +25.0 114.0
22°	84 31.3 +29.5 122.2	83 44.0 +26.0 117.4	82 54.9 +23.2 113.6	82 04.6 +20.9 110.6	81 13.2 +19.2 108.1
23°	85 00.8 +19.7 112.6	84 10.0 +17.0 108.8	83 18.1 +15.1 105.9	82 25.5 +13.7 103.7	81 32.4 +12.7 101.8
24°	85 20.5 +07.6 101.4	84 27.0 +06.8 99.1	83 33.2 +06.2 97.5	82 39.2 +05.8 96.1	81 45.1 +05.6 95.1
25°	85 28.1 -05.4 88.9	84 33.8 -04.2 88.7	83 39.4 -03.2 88.5	82 45.0 -02.3 88.3	81 50.7 -01.7 88.1
26°	85 22.7 -17.8 76.4	84 29.6 -14.6 78.3	83 36.2 -12.2 79.5	82 42.7 -10.4 80.4	81 49.0 -08.8 81.1
27°	85 04.9 -28.1 64.9	84 15.0 -24.0 68.4	83 24.0 -20.6 70.9	82 32.3 -17.9 72.7	81 40.2 -15.7 74.2
28°	84 36.8 -36.0 55.1	83 51.0 -31.5 59.5	83 03.4 -27.8 62.9	82 14.4 -24.6 65.5	81 24.5 -21.9 67.6
29°	84 00.8 -41.7 47.0	83 19.5 -37.5 51.9	82 35.6 -33.7 55.8	81 49.8 -30.4 58.9	81 02.6 -27.5 61.5

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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°	63 11.6 +56.1 157.4	62 49.8 +55.4 155.3	62 26.2 +54.6 153.3	62 01.0 +53.8 151.4	61 34.1 +53.1 149.5
1°	64 07.7 +55.9 156.6	63 45.2 +55.0 154.4	63 20.8 +54.3 152.4	62 54.8 +53.4 150.4	62 27.2 +52.6 148.5
2°	65 03.6 +55.5 155.7	64 40.2 +54.7 153.5	64 15.1 +53.9 151.4	63 48.2 +53.0 149.4	63 19.8 +52.0 147.4
3°	65 59.1 +55.1 154.8	65 34.9 +54.3 152.6	65 09.0 +53.4 150.4	64 41.2 +52.5 148.3	64 11.8 +51.6 146.3
4°	66 54.2 +54.8 153.8	66 29.2 +53.9 151.5	66 02.4 +52.8 149.3	65 33.7 +51.9 147.2	65 03.4 +50.9 145.1
5°	67 49.0 +54.3 152.7	67 23.1 +53.3 150.4	66 55.2 +52.4 148.1	66 25.6 +51.3 145.9	65 54.3 +50.3 143.8
6°	68 43.3 +53.8 151.6	68 16.4 +52.7 149.2	67 47.6 +51.6 146.8	67 16.9 +50.6 144.6	66 44.6 +49.5 142.5
7°	69 37.1 +53.2 150.3	69 09.1 +52.1 147.8	68 39.2 +51.0 145.5	68 07.5 +49.8 143.2	67 34.1 +48.7 141.0
8°	70 30.3 +52.6 149.0	70 01.2 +51.4 146.4	69 30.2 +50.1 144.0	68 57.3 +49.0 141.7	68 22.8 +47.7 139.4
9°	71 22.9 +51.8 147.5	70 52.6 +50.5 144.9	70 20.3 +49.3 142.4	69 46.3 +47.9 140.0	69 10.5 +46.7 137.8
10°	72 14.7 +50.9 145.9	71 43.1 +49.6 143.2	71 09.6 +48.2 140.7	70 34.2 +46.8 138.2	69 57.2 +45.5 136.0
11°	73 05.6 +49.9 144.1	72 32.7 +48.4 141.4	71 57.8 +46.9 138.8	71 21.0 +45.6 136.3	70 42.7 +44.2 134.0
12°	73 55.5 +48.8 142.2	73 21.1 +47.2 139.3	72 44.7 +45.7 136.7	72 06.6 +44.1 134.3	71 26.9 +42.7 131.9
13°	74 44.3 +47.3 140.0	74 08.3 +45.7 137.1	73 30.4 +44.0 134.5	72 50.7 +42.6 132.0	72 09.6 +41.0 129.7
14°	75 31.6 +45.8 137.6	74 54.0 +43.9 134.7	74 14.4 +42.3 132.0	73 33.3 +40.6 129.6	72 50.6 +39.2 127.3
15°	76 17.4 +43.9 135.0	75 37.9 +42.0 132.0	74 56.7 +40.2 129.4	74 13.9 +38.6 126.9	73 29.8 +37.1 124.7
16°	77 01.3 +41.6 132.0	76 19.9 +39.7 129.1	75 36.9 +37.9 126.4	74 52.5 +36.2 124.0	74 06.9 +34.7 121.8
17°	77 42.9 +39.0 128.7	76 59.6 +37.0 125.8	76 14.8 +35.2 123.2	75 28.7 +33.6 120.9	74 41.6 +32.0 118.8
18°	78 21.9 +35.9 125.0	77 36.6 +33.9 122.2	76 50.0 +32.1 119.8	76 02.3 +30.5 117.5	75 13.6 +29.1 115.5
19°	78 57.8 +32.2 120.9	78 10.5 +30.3 118.3	77 22.1 +28.6 116.0	76 32.8 +27.2 113.9	75 42.7 +25.9 112.1
20°	79 30.0 +28.1 116.4	78 40.8 +26.3 114.0	77 50.7 +24.8 111.9	77 00.0 +23.4 110.0	76 08.6 +22.3 108.3
21°	79 58.1 +23.2 111.5	79 07.1 +21.7 109.3	78 15.5 +20.4 107.5	77 23.4 +19.4 105.9	76 30.9 +18.5 104.4
22°	80 21.3 +17.7 106.1	79 28.8 +16.6 104.3	78 35.9 +15.7 102.8	77 42.8 +14.9 101.5	76 49.4 +14.3 100.3
23°	80 39.0 +11.9 100.3	79 45.4 +11.2 99.0	78 51.6 +10.7 97.9	77 57.7 +10.3 96.9	77 03.7 +09.9 96.0
24°	80 50.9 +05.4 94.2	79 56.6 +05.4 93.4	79 02.3 +05.4 92.7	78 08.0 +05.4 92.1	77 13.6 +05.4 91.6
25°	80 56.3 -01.0 87.9	80 02.0 -00.5 87.7	79 07.7 -00.1 87.5	78 13.4 +00.3 87.2	77 19.0 +00.8 87.0
26°	80 55.3 -07.6 81.5	80 01.5 -06.5 81.9	79 07.6 -05.5 82.2	78 13.7 -04.6 82.3	77 19.8 -03.8 82.5
27°	80 47.7 -13.8 75.3	79 55.0 -12.2 76.2	79 02.1 -10.8 76.9	78 09.1 -09.6 77.5	77 16.0 -08.5 77.9
28°	80 33.9 -19.6 69.3	79 42.8 -17.6 70.6	78 51.3 -15.8 71.8	77 59.5 -14.2 72.7	77 07.5 -12.9 73.5
29°	80 14.3 -24.8 63.6	79 25.2 -22.5 65.4	78 35.5 -20.5 66.8	77 45.3 -18.8 68.1	76 54.6 -17.1 69.1

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°	61 05.7 +52.3 147.6	60 35.9 +51.4 145.8	60 04.7 +50.6 144.1	59 32.2 +49.7 142.4	58 58.4 +48.9 140.8
1°	61 58.0 +51.7 146.6	61 27.3 +50.9 144.8	60 55.3 +50.0 143.0	60 21.9 +49.2 141.3	59 47.3 +48.3 139.7
2°	62 49.7 +51.2 145.5	62 18.2 +50.3 143.7	61 45.3 +49.4 141.9	61 11.1 +48.5 140.2	60 35.6 +47.6 138.5
3°	63 40.9 +50.6 144.3	63 08.5 +49.6 142.5	62 34.7 +48.7 140.7	61 59.6 +47.8 138.9	61 23.2 +46.9 137.2
4°	64 31.5 +50.0 143.1	63 58.1 +49.0 141.2	63 23.4 +48.0 139.4	62 47.4 +47.0 137.6	62 10.1 +46.1 135.9
5°	65 21.5 +49.2 141.8	64 47.1 +48.2 139.9	64 11.4 +47.2 138.0	63 34.4 +46.2 136.2	62 56.2 +45.2 134.5
6°	66 10.7 +48.4 140.4	65 35.3 +47.4 138.4	64 58.6 +46.3 136.6	64 20.6 +45.3 134.8	63 41.4 +44.3 133.1
7°	66 59.1 +47.6 138.9	66 22.7 +46.4 136.9	65 44.9 +45.3 135.0	65 05.9 +44.3 133.2	64 25.7 +43.3 131.5
8°	67 46.7 +46.5 137.3	67 09.1 +45.4 135.3	66 30.2 +44.3 133.4	65 50.2 +43.2 131.6	65 09.0 +42.1 129.9
9°	68 33.2 +45.5 135.6	67 54.5 +44.3 133.6	67 14.5 +43.1 131.7	66 33.4 +42.0 129.9	65 51.1 +41.0 128.2
10°	69 18.7 +44.2 133.8	68 38.8 +43.0 131.8	67 57.6 +41.9 129.9	67 15.4 +40.7 128.1	66 32.1 +39.6 126.4
11°	70 02.9 +42.9 131.9	69 21.8 +41.6 129.9	68 39.5 +40.3 127.9	67 56.1 +39.2 126.2	67 11.7 +38.1 124.5
12°	70 45.8 +41.3 129.8	70 03.4 +40.0 127.8	69 19.8 +38.9 125.9	68 35.3 +37.7 124.1	67 49.8 +36.6 122.4
13°	71 27.1 +39.7 127.6	70 43.4 +38.4 125.6	69 58.7 +37.1 123.7	69 13.0 +35.9 121.9	68 26.4 +34.9 120.3
14°	72 06.8 +37.7 125.2	71 21.8 +36.4 123.2	70 35.8 +35.2 121.4	69 48.9 +34.1 119.7	69 01.3 +33.0 118.1
15°	72 44.5 +35.7 122.6	71 58.2 +34.3 120.7	71 11.0 +33.1 118.9	70 23.0 +32.1 117.2	69 34.3 +31.1 115.7
16°	73 20.2 +33.3 119.8	72 32.5 +32.1 118.0	71 44.1 +30.9 116.3	70 55.1 +29.8 114.7	70 05.4 +28.8 113.2
17°	73 53.5 +30.7 116.9	73 04.6 +29.5 115.1	72 15.0 +28.4 113.5	71 24.9 +27.4 112.0	70 34.2 +26.5 110.6
18°	74 24.2 +27.8 113.7	73 34.1 +26.7 112.1	72 43.4 +25.7 110.6	71 52.3 +24.8 109.2	71 00.7 +24.0 107.9
19°	74 52.0 +24.7 110.4	74 00.8 +23.7 108.9	73 09.1 +22.9 107.5	72 17.1 +22.0 106.2	71 24.7 +21.4 105.0
20°	75 16.7 +21.4 106.8	74 24.5 +20.5 105.5	73 32.0 +19.7 104.3	72 39.1 +19.1 103.1	71 46.1 +18.5 102.1
21°	75 38.1 +17.7 103.1	74 45.0 +17.0 102.0	73 51.7 +16.4 100.9	72 58.2 +16.0 99.9	72 04.6 +15.5 99.0
22°	75 55.8 +13.8 99.2	75 02.0 +13.4 98.3	74 08.1 +13.0 97.4	73 14.2 +12.7 96.6	72 20.1 +12.4 95.9
23°	76 09.6 +09.7 95.2	75 15.4 +09.5 94.5	74 21.1 +09.4 93.8	73 26.9 +09.2 93.2	72 32.5 +09.3 92.6
24°	76 19.3 +05.4 91.0	75 24.9 +05.6 90.6	74 30.5 +05.7 90.1	73 36.1 +05.8 89.7	72 41.8 +05.9 89.3
25°	76 24.7 +01.2 86.8	75 30.5 +01.5 86.6	74 36.2 +01.9 86.4	73 41.9 +02.2 86.2	72 47.7 +02.5 86.0
26°	76 25.9 -03.2 82.6	75 32.0 -02.5 82.6	74 38.1 -02.0 82.6	73 44.1 -01.3 82.6	72 50.2 -00.8 82.6
27°	76 22.7 -07.4 78.3	75 29.5 -06.6 78.6	74 36.1 -05.7 78.8	73 42.8 -05.0 79.0	72 49.4 -04.3 79.2
28°	76 15.3 -11.6 74.1	75 22.9 -10.4 74.7	74 30.4 -09.4 75.1	73 37.8 -08.4 75.5	72 45.1 -07.5 75.8
29°	76 03.7 -15.6 70.0	75 12.5 -14.3 70.8	74 21.0 -13.0 71.4	73 29.4 -11.9 72.0	72 37.6 -10.8 72.5

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°	58 23.5 +48.1 139.3	57 47.5 +47.2 137.8	57 10.4 +46.4 136.3	56 32.3 +45.7 134.9	55 53.3 +44.9 133.5
1°	59 11.6 +47.4 138.1	58 34.7 +46.6 136.6	57 56.8 +45.8 135.1	57 18.0 +44.9 133.7	56 38.2 +44.2 132.3
2°	59 59.0 +46.7 136.9	59 21.3 +45.9 135.4	58 42.6 +45.0 133.9	58 02.9 +44.2 132.4	57 22.4 +43.4 131.1
3°	60 45.7 +46.0 135.6	60 07.2 +45.1 134.1	59 27.6 +44.3 132.6	58 47.1 +43.4 131.2	58 05.8 +42.5 129.8
4°	61 31.7 +45.2 134.3	60 52.3 +44.3 132.7	60 11.9 +43.4 131.2	59 30.5 +42.6 129.8	58 48.3 +41.7 128.4
5°	62 16.9 +44.3 132.9	61 36.6 +43.3 131.3	60 55.3 +42.4 129.8	60 13.1 +41.6 128.4	59 30.0 +40.8 127.0
6°	63 01.2 +43.3 131.4	62 19.9 +42.4 129.9	61 37.7 +41.5 128.4	60 54.7 +40.6 126.9	60 10.8 +39.8 125.6
7°	63 44.5 +42.3 129.9	63 02.3 +41.3 128.3	62 19.2 +40.4 126.8	61 35.3 +39.5 125.4	60 50.6 +38.6 124.0
8°	64 26.8 +41.1 128.3	63 43.6 +40.2 126.7	62 59.6 +39.3 125.2	62 14.8 +38.4 123.8	61 29.2 +37.6 122.5
9°	65 07.9 +39.9 126.6	64 23.8 +38.9 125.0	63 38.9 +38.0 123.5	62 53.2 +37.1 122.1	62 06.8 +36.3 120.8
10°	65 47.8 +38.6 124.8	65 02.7 +37.6 123.2	64 16.9 +36.7 121.8	63 30.3 +35.8 120.4	62 43.1 +35.0 119.1
11°	66 26.4 +37.1 122.9	65 40.3 +36.2 121.4	64 53.6 +35.2 119.9	64 06.1 +34.4 118.6	63 18.1 +33.6 117.3
12°	67 03.5 +35.6 120.9	66 16.5 +34.6 119.4	65 28.8 +33.7 118.0	64 40.5 +32.9 116.7	63 51.7 +32.1 115.4
13°	67 39.1 +33.9 118.8	66 51.1 +33.0 117.3	66 02.5 +32.1 116.0	65 13.4 +31.2 114.7	64 23.8 +30.5 113.5
14°	68 13.0 +32.0 116.6	67 24.1 +31.1 115.2	66 34.6 +30.3 113.9	65 44.6 +29.6 112.7	64 54.3 +28.8 111.5
15°	68 45.0 +30.1 114.3	67 55.2 +29.2 112.9	67 04.9 +28.4 111.7	66 14.2 +27.7 110.5	65 23.1 +27.0 109.4
16°	69 15.1 +28.0 111.9	68 24.4 +27.2 110.6	67 33.3 +26.5 109.4	66 41.9 +25.7 108.3	65 50.1 +25.1 107.2
17°	69 43.1 +25.7 109.3	68 51.6 +25.0 108.1	67 59.8 +24.3 107.0	67 07.6 +23.7 106.0	66 15.2 +23.2 105.0
18°	70 08.8 +23.3 106.7	69 16.6 +22.6 105.6	68 24.1 +22.0 104.6	67 31.3 +21.5 103.6	66 38.4 +21.0 102.7
19°	70 32.1 +20.7 104.0	69 39.2 +20.2 103.0	68 46.1 +19.7 102.0	67 52.8 +19.3 101.1	66 59.4 +18.8 100.3
20°	70 52.8 +18.0 101.1	69 59.4 +17.5 100.2	69 05.8 +17.2 99.4	68 12.1 +16.8 98.6	67 18.2 +16.6 97.9
21°	71 10.8 +15.2 98.2	70 16.9 +14.9 97.4	69 23.0 +14.6 96.7	68 28.9 +14.4 96.0	67 34.8 +14.2 95.4
22°	71 26.0 +12.2 95.2	70 31.8 +12.1 94.5	69 37.6 +11.9 93.9	68 43.3 +11.8 93.3	67 49.0 +11.7 92.8
23°	71 38.2 +09.2 92.1	70 43.9 +09.1 91.6	69 49.5 +09.2 91.1	68 55.1 +09.2 90.6	68 00.7 +09.3 90.2
24°	71 47.4 +06.0 88.9	70 53.0 +06.2 88.6	69 58.7 +06.3 88.2	69 04.3 +06.5 87.9	68 10.0 +06.6 87.5
25°	71 53.4 +02.9 85.7	70 59.2 +03.2 85.5	70 05.0 +03.5 85.3	69 10.8 +03.8 85.1	68 16.6 +04.1 84.9
26°	71 56.3 -00.4 82.5	71 02.4 +00.1 82.5	70 08.5 +00.6 82.4	69 14.6 +01.0 82.3	68 20.7 +01.4 82.2
27°	71 55.9 -03.5 79.3	71 02.5 -02.9 79.4	70 09.1 -02.4 79.4	69 15.6 -01.8 79.5	68 22.1 -01.2 79.5
28°	71 52.4 -06.7 76.1	70 59.6 -06.0 76.3	70 06.7 -05.2 76.5	69 13.8 -04.5 76.6	68 20.9 -03.8 76.7
29°	71 45.7 -09.9 72.9	70 53.6 -08.9 73.3	70 01.5 -08.0 73.6	69 09.3 -07.2 73.8	68 17.1 -06.5 74.0

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°	55 13.5 +44.1 132.2	54 32.8 +43.3 130.9	53 51.3 +42.6 129.7	53 09.1 +41.9 128.5	52 26.2 +41.2 127.3
1°	55 57.6 +43.4 131.0	55 16.1 +42.7 129.7	54 33.9 +41.9 128.5	53 51.0 +41.2 127.3	53 07.4 +40.5 126.1
2°	56 41.0 +42.6 129.7	55 58.8 +41.8 128.5	55 15.8 +41.1 127.2	54 32.2 +40.4 126.0	53 47.9 +39.7 124.9
3°	57 23.6 +41.8 128.4	56 40.6 +41.0 127.2	55 56.9 +40.3 125.9	55 12.6 +39.5 124.7	54 27.6 +38.8 123.6
4°	58 05.4 +40.9 127.1	57 21.6 +40.2 125.8	56 37.2 +39.4 124.6	55 52.1 +38.7 123.4	55 06.4 +38.0 122.3
5°	58 46.3 +39.9 125.7	58 01.8 +39.1 124.4	57 16.6 +38.4 123.2	56 30.8 +37.7 122.0	55 44.4 +37.0 120.9
6°	59 26.2 +39.0 124.3	58 40.9 +38.2 123.0	57 55.0 +37.4 121.8	57 08.5 +36.7 120.6	56 21.4 +36.1 119.5
7°	60 05.2 +37.8 122.7	59 19.1 +37.1 121.5	58 32.4 +36.4 120.3	57 45.2 +35.7 119.2	56 57.5 +35.0 118.1
8°	60 43.0 +36.8 121.2	59 56.2 +36.0 119.9	59 08.8 +35.2 118.8	58 20.9 +34.5 117.6	57 32.5 +33.9 116.6
9°	61 19.8 +35.5 119.5	60 32.2 +34.7 118.3	59 44.0 +34.1 117.2	58 55.4 +33.4 116.1	58 06.4 +32.7 115.0
10°	61 55.3 +34.2 117.8	61 06.9 +33.5 116.7	60 18.1 +32.8 115.5	59 28.8 +32.1 114.4	58 39.1 +31.5 113.4
11°	62 29.5 +32.8 116.1	61 40.4 +32.1 114.9	60 50.9 +31.4 113.8	60 00.9 +30.8 112.8	59 10.6 +30.2 111.8
12°	63 02.3 +31.4 114.3	62 12.5 +30.7 113.1	61 22.3 +30.0 112.1	60 31.7 +29.4 111.0	59 40.8 +28.9 110.1
13°	63 33.7 +29.8 112.4	62 43.2 +29.1 111.3	61 52.3 +28.6 110.2	61 01.1 +28.0 109.2	60 09.7 +27.4 108.3
14°	64 03.5 +28.1 110.4	63 12.3 +27.6 109.3	62 20.9 +26.9 108.4	61 29.1 +26.4 107.4	60 37.1 +25.9 106.5
15°	64 31.6 +26.4 108.4	63 39.9 +25.8 107.4	62 47.8 +25.3 106.4	61 55.5 +24.9 105.5	61 03.0 +24.4 104.7
16°	64 58.0 +24.6 106.2	64 05.7 +24.0 105.3	63 13.1 +23.6 104.4	62 20.4 +23.1 103.6	61 27.4 +22.8 102.8
17°	65 22.6 +22.6 104.1	64 29.7 +22.2 103.2	63 36.7 +21.8 102.4	62 43.5 +21.4 101.6	61 50.2 +21.0 100.8
18°	65 45.2 +20.6 101.8	64 51.9 +20.2 101.0	63 58.5 +19.9 100.2	63 04.9 +19.6 99.5	62 11.2 +19.3 98.8
19°	66 05.8 +18.5 99.5	65 12.1 +18.2 98.8	64 18.4 +17.9 98.1	63 24.5 +17.7 97.4	62 30.5 +17.5 96.8
20°	66 24.3 +16.3 97.2	65 30.3 +16.1 96.5	64 36.3 +15.9 95.9	63 42.2 +15.7 95.3	62 48.0 +15.6 94.7
21°	66 40.6 +14.1 94.8	65 46.4 +13.9 94.2	64 52.2 +13.8 93.6	63 57.9 +13.7 93.1	63 03.6 +13.6 92.6
22°	66 54.7 +11.7 92.3	66 00.3 +11.7 91.8	65 06.0 +11.6 91.3	64 11.6 +11.7 90.9	63 17.2 +11.7 90.4
23°	67 06.4 +09.3 89.8	66 12.0 +09.4 89.4	65 17.6 +09.5 89.0	64 23.3 +09.5 88.6	63 28.9 +09.6 88.2
24°	67 15.7 +06.8 87.2	66 21.4 +07.0 86.9	65 27.1 +07.2 86.6	64 32.8 +07.4 86.3	63 38.5 +07.6 86.0
25°	67 22.5 +04.3 84.6	66 28.4 +04.6 84.4	65 34.3 +04.9 84.2	64 40.2 +05.2 84.0	63 46.1 +05.5 83.8
26°	67 26.8 +01.9 82.1	66 33.0 +02.2 81.9	65 39.2 +02.6 81.8	64 45.4 +02.9 81.7	63 51.6 +03.3 81.5
27°	67 28.7 -00.7 79.4	66 35.2 -00.2 79.4	65 41.8 +00.3 79.4	64 48.3 +00.8 79.3	63 54.9 +01.2 79.2
28°	67 28.0 -03.2 76.8	66 35.0 -02.6 76.9	65 42.1 -02.1 76.9	64 49.1 -01.5 77.0	63 56.1 -00.9 77.0
29°	67 24.8 -05.7 74.2	66 32.4 -05.0 74.4	65 40.0 -04.3 74.5	64 47.6 -03.7 74.6	63 55.2 -03.1 74.7

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°	51 42.6 +40.6 126.2	50 58.4 +39.9 125.1	50 13.7 +39.2 124.1	49 28.3 +38.7 123.1	48 42.5 +38.1 122.1
1°	52 23.2 +39.8 125.0	51 38.3 +39.2 123.9	50 52.9 +38.6 122.9	50 07.0 +37.9 121.9	49 20.6 +37.3 120.9
2°	53 03.0 +39.0 123.8	52 17.5 +38.4 122.7	51 31.5 +37.7 121.7	50 44.9 +37.2 120.7	49 57.9 +36.6 119.7
3°	53 42.0 +38.2 122.5	52 55.9 +37.5 121.4	52 09.2 +36.9 120.4	51 22.1 +36.3 119.4	50 34.5 +35.7 118.4
4°	54 20.2 +37.3 121.2	53 33.4 +36.7 120.1	52 46.1 +36.1 119.1	51 58.4 +35.5 118.1	51 10.2 +34.9 117.2
5°	54 57.5 +36.4 119.8	54 10.1 +35.7 118.8	53 22.2 +35.1 117.8	52 33.9 +34.5 116.8	51 45.1 +34.0 115.9
6°	55 33.9 +35.4 118.4	54 45.8 +34.8 117.4	53 57.3 +34.2 116.4	53 08.4 +33.6 115.4	52 19.1 +33.1 114.5
7°	56 09.3 +34.3 117.0	55 20.6 +33.7 116.0	54 31.5 +33.2 115.0	53 42.0 +32.6 114.1	52 52.2 +32.1 113.1
8°	56 43.6 +33.3 115.5	55 54.3 +32.7 114.5	55 04.7 +32.1 113.6	54 14.6 +31.6 112.6	53 24.3 +31.1 111.7
9°	57 16.9 +32.1 114.0	56 27.0 +31.6 113.0	55 36.8 +31.0 112.1	54 46.2 +30.5 111.2	53 55.4 +30.0 110.3
10°	57 49.0 +30.9 112.4	56 58.6 +30.3 111.5	56 07.8 +29.8 110.5	55 16.7 +29.4 109.7	54 25.4 +28.9 108.8
11°	58 19.9 +29.7 110.8	57 28.9 +29.2 109.9	56 37.6 +28.7 109.0	55 46.1 +28.2 108.1	54 54.3 +27.7 107.3
12°	58 49.6 +28.3 109.1	57 58.1 +27.8 108.2	57 06.3 +27.4 107.4	56 14.3 +26.9 106.5	55 22.0 +26.6 105.8
13°	59 17.9 +26.9 107.4	58 25.9 +26.5 106.5	57 33.7 +26.0 105.7	56 41.2 +25.7 104.9	55 48.6 +25.3 104.2
14°	59 44.8 +25.5 105.6	58 52.4 +25.0 104.8	57 59.7 +24.7 104.0	57 06.9 +24.3 103.3	56 13.9 +23.9 102.5
15°	60 10.3 +24.0 103.8	59 17.4 +23.6 103.1	58 24.4 +23.2 102.3	57 31.2 +22.9 101.6	56 37.8 +22.7 100.9
16°	60 34.3 +22.4 102.0	59 41.0 +22.1 101.2	58 47.6 +21.8 100.5	57 54.1 +21.5 99.8	57 00.5 +21.2 99.2
17°	60 56.7 +20.7 100.1	60 03.1 +20.5 99.4	59 09.4 +20.2 98.7	58 15.6 +20.0 98.1	57 21.7 +19.8 97.5
18°	61 17.4 +19.1 98.1	60 23.6 +18.8 97.5	59 29.6 +18.6 96.9	58 35.6 +18.4 96.3	57 41.5 +18.3 95.7
19°	61 36.5 +17.3 96.2	60 42.4 +17.1 95.6	59 48.2 +17.0 95.0	58 54.0 +16.9 94.4	57 59.8 +16.8 93.9
20°	61 53.8 +15.4 94.1	60 59.5 +15.4 93.6	60 05.2 +15.3 93.1	59 10.9 +15.3 92.6	58 16.6 +15.2 92.1
21°	62 09.2 +13.7 92.1	61 14.9 +13.6 91.6	60 20.5 +13.6 91.1	59 26.2 +13.5 90.7	58 31.8 +13.6 90.3
22°	62 22.9 +11.6 90.0	61 28.5 +11.7 89.6	60 34.1 +11.8 89.2	59 39.7 +11.9 88.8	58 45.4 +11.9 88.4
23°	62 34.5 +09.8 87.9	61 40.2 +09.9 87.5	60 45.9 +10.0 87.2	59 51.6 +10.1 86.8	58 57.3 +10.3 86.5
24°	62 44.3 +07.7 85.7	61 50.1 +07.9 85.4	60 55.9 +08.1 85.1	60 01.7 +08.4 84.9	59 07.6 +08.5 84.6
25°	62 52.0 +05.8 83.5	61 58.0 +06.0 83.3	61 04.0 +06.3 83.1	60 10.1 +06.5 82.9	59 16.1 +06.8 82.6
26°	62 57.8 +03.7 81.4	62 04.0 +04.1 81.2	61 10.3 +04.4 81.0	60 16.6 +04.7 80.9	59 22.9 +05.1 80.7
27°	63 01.5 +01.6 79.2	62 08.1 +02.1 79.1	61 14.7 +02.5 79.0	60 21.3 +02.9 78.8	59 28.0 +03.3 78.7
28°	63 03.1 -00.4 76.9	62 10.2 +00.1 76.9	61 17.2 +00.6 76.9	60 24.2 +01.1 76.8	59 31.3 +01.5 76.8
29°	63 02.7 -02.4 74.7	62 10.3 -01.9 74.8	61 17.8 -01.3 74.8	60 25.3 -00.8 74.8	59 32.8 -00.2 74.8

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°	47 56.2 +37.5 121.1	47 09.4 +37.0 120.2	46 22.2 +36.4 119.3	45 34.6 +35.8 118.4	44 46.5 +35.4 117.6
1°	48 33.7 +36.8 119.9	47 46.4 +36.2 119.0	46 58.6 +35.7 118.1	46 10.4 +35.2 117.3	45 21.9 +34.7 116.4
2°	49 10.5 +35.9 118.7	48 22.6 +35.4 117.8	47 34.3 +34.9 116.9	46 45.6 +34.5 116.1	45 56.6 +34.0 115.2
3°	49 46.4 +35.2 117.5	48 58.0 +34.7 116.6	48 09.2 +34.2 115.7	47 20.1 +33.6 114.9	46 30.6 +33.2 114.1
4°	50 21.6 +34.4 116.2	49 32.7 +33.8 115.4	48 43.4 +33.3 114.5	47 53.7 +32.9 113.7	47 03.8 +32.4 112.8
5°	50 56.0 +33.5 115.0	50 06.5 +33.0 114.1	49 16.7 +32.5 113.2	48 26.6 +32.0 112.4	47 36.2 +31.5 111.6
6°	51 29.5 +32.5 113.6	50 39.5 +32.1 112.8	49 49.2 +31.6 111.9	48 58.6 +31.2 111.1	48 07.7 +30.8 110.3
7°	52 02.0 +31.6 112.3	51 11.6 +31.1 111.4	50 20.8 +30.7 110.6	49 29.8 +30.2 109.8	48 38.5 +29.8 109.0
8°	52 33.6 +30.6 110.9	51 42.7 +30.1 110.1	50 51.5 +29.7 109.2	50 00.0 +29.3 108.5	49 08.3 +29.0 107.7
9°	53 04.2 +29.6 109.5	52 12.8 +29.2 108.6	51 21.2 +28.7 107.9	50 29.3 +28.4 107.1	49 37.3 +27.9 106.4
10°	53 33.8 +28.5 108.0	52 42.0 +28.0 107.2	51 49.9 +27.7 106.5	50 57.7 +27.3 105.7	50 05.2 +27.0 105.0
11°	54 02.3 +27.3 106.5	53 10.0 +27.0 105.7	52 17.6 +26.6 105.0	51 25.0 +26.2 104.3	50 32.2 +26.0 103.6
12°	54 29.6 +26.2 105.0	53 37.0 +25.8 104.2	52 44.2 +25.5 103.5	51 51.2 +25.2 102.8	50 58.2 +24.9 102.2
13°	54 55.8 +24.9 103.4	54 02.8 +24.6 102.7	53 09.7 +24.3 102.0	52 16.4 +24.1 101.4	51 23.1 +23.8 100.7
14°	55 20.7 +23.7 101.8	54 27.4 +23.4 101.2	53 34.0 +23.1 100.5	52 40.5 +22.9 99.9	51 46.9 +22.6 99.2
15°	55 44.4 +22.3 100.2	54 50.8 +22.1 99.6	53 57.1 +21.9 98.9	53 03.4 +21.7 98.3	52 09.5 +21.5 97.7
16°	56 06.7 +21.1 98.6	55 12.9 +20.8 97.9	54 19.0 +20.7 97.4	53 25.1 +20.4 96.8	52 31.0 +20.4 96.2
17°	56 27.8 +19.6 96.9	55 33.7 +19.5 96.3	54 39.7 +19.3 95.7	53 45.5 +19.2 95.2	52 51.4 +19.0 94.7
18°	56 47.4 +18.1 95.2	55 53.2 +18.0 94.6	54 59.0 +17.9 94.1	54 04.7 +17.9 93.6	53 10.4 +17.8 93.1
19°	57 05.5 +16.7 93.4	56 11.2 +16.7 92.9	55 16.9 +16.6 92.4	54 22.6 +16.5 91.9	53 28.2 +16.5 91.5
20°	57 22.2 +15.2 91.6	56 27.9 +15.1 91.2	55 33.5 +15.2 90.7	54 39.1 +15.2 90.3	53 44.7 +15.2 89.9
21°	57 37.4 +13.6 89.8	56 43.0 +13.7 89.4	55 48.7 +13.7 89.0	54 54.3 +13.7 88.6	53 59.9 +13.9 88.2
22°	57 51.0 +12.0 88.0	56 56.7 +12.1 87.6	56 02.4 +12.2 87.3	55 08.0 +12.4 86.9	54 13.8 +12.4 86.6
23°	58 03.0 +10.4 86.2	57 08.8 +10.5 85.8	56 14.6 +10.7 85.5	55 20.4 +10.8 85.2	54 26.2 +11.0 84.9
24°	58 13.4 +08.8 84.3	57 19.3 +09.0 84.0	56 25.3 +09.2 83.7	55 31.2 +09.4 83.5	54 37.2 +09.6 83.2
25°	58 22.2 +07.1 82.4	57 28.3 +07.4 82.2	56 34.5 +07.6 82.0	55 40.6 +07.9 81.7	54 46.8 +08.2 81.5
26°	58 29.3 +05.4 80.5	57 35.7 +05.7 80.3	56 42.1 +06.0 80.1	55 48.5 +06.4 80.0	54 55.0 +06.7 79.8
27°	58 34.7 +03.7 78.6	57 41.4 +04.1 78.5	56 48.1 +04.5 78.3	55 54.9 +04.8 78.2	55 01.7 +05.2 78.0
28°	58 38.4 +02.0 76.7	57 45.5 +02.4 76.6	56 52.6 +02.8 76.5	55 59.7 +03.3 76.4	55 06.9 +03.7 76.3
29°	58 40.4 +00.2 74.8	57 47.9 +00.8 74.7	56 55.4 +01.3 74.7	56 03.0 +01.7 74.6	55 10.6 +02.2 74.5

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°	43 58.2 +34.9 116.7	43 09.4 +34.4 115.9	42 20.3 +34.0 115.1	41 31.0 +33.5 114.4	40 41.3 +33.1 113.6
1°	44 33.1 +34.2 115.6	43 43.8 +33.8 114.8	42 54.3 +33.3 114.0	42 04.5 +32.9 113.3	41 14.4 +32.5 112.5
2°	45 07.3 +33.4 114.4	44 17.6 +33.0 113.6	43 27.6 +32.7 112.9	42 37.4 +32.2 112.1	41 46.9 +31.8 111.4
3°	45 40.7 +32.8 113.3	44 50.6 +32.4 112.5	44 00.3 +31.9 111.7	43 09.6 +31.5 111.0	42 18.7 +31.1 110.3
4°	46 13.5 +32.0 112.1	45 23.0 +31.5 111.3	44 32.2 +31.1 110.5	43 41.1 +30.8 109.8	42 49.8 +30.5 109.1
5°	46 45.5 +31.1 110.8	45 54.5 +30.8 110.1	45 03.3 +30.4 109.3	44 11.9 +30.0 108.6	43 20.3 +29.6 107.9
6°	47 16.6 +30.4 109.6	46 25.3 +29.9 108.8	45 33.7 +29.6 108.1	44 41.9 +29.2 107.4	43 49.9 +28.9 106.7
7°	47 47.0 +29.4 108.3	46 55.2 +29.1 107.6	46 03.3 +28.7 106.9	45 11.1 +28.5 106.2	44 18.8 +28.1 105.5
8°	48 16.4 +28.6 107.0	47 24.3 +28.2 106.3	46 32.0 +27.9 105.6	45 39.6 +27.6 104.9	44 46.9 +27.3 104.3
9°	48 45.0 +27.6 105.7	47 52.5 +27.3 105.0	46 59.9 +27.0 104.3	46 07.2 +26.7 103.6	45 14.2 +26.5 103.0
10°	49 12.6 +26.7 104.3	48 19.8 +26.4 103.6	47 26.9 +26.1 103.0	46 33.9 +25.8 102.3	45 40.7 +25.6 101.7
11°	49 39.3 +25.6 102.9	48 46.2 +25.4 102.3	47 53.0 +25.2 101.6	46 59.7 +24.9 101.0	46 06.3 +24.6 100.4
12°	50 04.9 +24.7 101.5	49 11.6 +24.4 100.9	48 18.2 +24.1 100.3	47 24.6 +23.9 99.7	46 30.9 +23.8 99.1
13°	50 29.6 +23.5 100.1	49 36.0 +23.3 99.5	48 42.3 +23.2 98.9	47 48.5 +23.0 98.3	46 54.7 +22.8 97.8
14°	50 53.1 +22.5 98.6	49 59.3 +22.3 98.1	49 05.5 +22.1 97.5	48 11.5 +22.0 96.9	47 17.5 +21.8 96.4
15°	51 15.6 +21.4 97.2	50 21.6 +21.2 96.6	49 27.6 +21.0 96.1	48 33.5 +20.9 95.5	47 39.3 +20.9 95.0
16°	51 37.0 +20.1 95.7	50 42.8 +20.1 95.1	49 48.6 +20.0 94.6	48 54.4 +19.9 94.1	48 00.2 +19.8 93.6
17°	51 57.1 +19.0 94.2	51 02.9 +18.9 93.7	50 08.6 +18.8 93.2	49 14.3 +18.8 92.7	48 20.0 +18.7 92.2
18°	52 16.1 +17.8 92.6	51 21.8 +17.7 92.1	50 27.4 +17.7 91.7	49 33.1 +17.6 91.2	48 38.7 +17.7 90.8
19°	52 33.9 +16.5 91.0	51 39.5 +16.5 90.6	50 45.1 +16.5 90.2	49 50.7 +16.6 89.7	48 56.4 +16.5 89.3
20°	52 50.4 +15.2 89.5	51 56.0 +15.2 89.0	51 01.6 +15.3 88.6	50 07.3 +15.3 88.3	49 12.9 +15.5 87.9
21°	53 05.6 +13.9 87.8	52 11.2 +14.0 87.5	51 16.9 +14.1 87.1	50 22.6 +14.2 86.7	49 28.4 +14.2 86.4
22°	53 19.5 +12.5 86.2	52 25.2 +12.7 85.9	51 31.0 +12.8 85.5	50 36.8 +13.0 85.2	49 42.6 +13.1 84.9
23°	53 32.0 +11.2 84.6	52 37.9 +11.4 84.3	51 43.8 +11.6 84.0	50 49.8 +11.7 83.7	49 55.7 +12.0 83.4
24°	53 43.2 +09.9 82.9	52 49.3 +10.0 82.7	51 55.4 +10.2 82.4	51 01.5 +10.5 82.1	50 07.7 +10.7 81.8
25°	53 53.1 +08.4 81.3	52 59.3 +08.7 81.0	52 05.6 +09.0 80.8	51 12.0 +09.2 80.5	50 18.4 +09.4 80.3
26°	54 01.5 +07.0 79.6	53 08.0 +07.3 79.4	52 14.6 +07.6 79.2	51 21.2 +07.9 79.0	50 27.8 +08.3 78.8
27°	54 08.5 +05.6 77.9	53 15.3 +06.0 77.7	52 22.2 +06.3 77.6	51 29.1 +06.7 77.4	50 36.1 +07.0 77.2
28°	54 14.1 +04.1 76.2	53 21.3 +04.5 76.1	52 28.5 +04.9 75.9	51 35.8 +05.3 75.8	50 43.1 +05.7 75.6
29°	54 18.2 +02.6 74.5	53 25.8 +03.1 74.4	52 33.4 +03.6 74.3	51 41.1 +04.0 74.2	50 48.8 +04.4 74.1

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°	39 51.3 +32.8 112.9	39 01.1 +32.4 112.2	38 10.7 +31.9 111.5	37 19.9 +31.6 110.8	36 29.0 +31.3 110.2
1°	40 24.1 +32.1 111.8	39 33.5 +31.7 111.1	38 42.6 +31.4 110.4	37 51.5 +31.1 109.8	37 00.3 +30.6 109.1
2°	40 56.2 +31.4 110.7	40 05.2 +31.1 110.0	39 14.0 +30.7 109.3	38 22.6 +30.3 108.7	37 30.9 +30.1 108.0
3°	41 27.6 +30.8 109.6	40 36.3 +30.4 108.9	39 44.7 +30.1 108.2	38 52.9 +29.8 107.6	38 01.0 +29.5 106.9
4°	41 58.4 +30.0 108.4	41 06.7 +29.7 107.7	40 14.8 +29.4 107.1	39 22.7 +29.1 106.4	38 30.5 +28.8 105.8
5°	42 28.4 +29.4 107.2	41 36.4 +29.0 106.6	40 44.2 +28.7 105.9	39 51.8 +28.5 105.3	38 59.3 +28.2 104.7
6°	42 57.8 +28.5 106.1	42 05.4 +28.3 105.4	41 12.9 +28.0 104.8	40 20.3 +27.7 104.2	39 27.5 +27.5 103.6
7°	43 26.3 +27.9 104.9	42 33.7 +27.6 104.2	41 40.9 +27.3 103.6	40 48.0 +27.0 103.0	39 55.0 +26.8 102.4
8°	43 54.2 +27.0 103.6	43 01.3 +26.7 103.0	42 08.2 +26.5 102.4	41 15.0 +26.3 101.8	40 21.8 +26.0 101.2
9°	44 21.2 +26.2 102.4	43 28.0 +26.0 101.8	42 34.7 +25.8 101.2	41 41.3 +25.6 100.6	40 47.8 +25.4 100.0
10°	44 47.4 +25.3 101.1	43 54.0 +25.1 100.5	43 00.5 +24.9 100.0	42 06.9 +24.7 99.4	41 13.2 +24.5 98.8
11°	45 12.7 +24.5 99.8	44 19.1 +24.3 99.3	43 25.4 +24.1 98.7	42 31.6 +24.0 98.2	41 37.7 +23.8 97.6
12°	45 37.2 +23.6 98.5	44 43.4 +23.4 98.0	43 49.5 +23.3 97.4	42 55.6 +23.1 96.9	42 01.5 +23.0 96.4
13°	46 00.8 +22.6 97.2	45 06.8 +22.5 96.7	44 12.8 +22.4 96.2	43 18.7 +22.3 95.7	42 24.5 +22.2 95.2
14°	46 23.4 +21.8 95.9	45 29.3 +21.6 95.4	44 35.2 +21.5 94.9	43 41.0 +21.4 94.4	42 46.7 +21.4 93.9
15°	46 45.2 +20.7 94.5	45 50.9 +20.7 94.0	44 56.7 +20.5 93.6	44 02.4 +20.5 93.1	43 08.1 +20.4 92.6
16°	47 05.9 +19.7 93.2	46 11.6 +19.7 92.7	45 17.2 +19.7 92.2	44 22.9 +19.6 91.8	43 28.5 +19.6 91.3
17°	47 25.6 +18.7 91.8	46 31.3 +18.7 91.3	45 36.9 +18.7 90.9	44 42.5 +18.7 90.4	43 48.1 +18.7 90.0
18°	47 44.3 +17.7 90.4	46 50.0 +17.6 89.9	45 55.6 +17.7 89.5	45 01.2 +17.7 89.1	44 06.8 +17.8 88.7
19°	48 02.0 +16.6 88.9	47 07.6 +16.7 88.5	46 13.3 +16.7 88.1	45 18.9 +16.8 87.7	44 24.6 +16.8 87.4
20°	48 18.6 +15.5 87.5	47 24.3 +15.6 87.1	46 30.0 +15.6 86.7	45 35.7 +15.8 86.4	44 41.4 +15.9 86.0
21°	48 34.1 +14.4 86.0	47 39.9 +14.5 85.7	46 45.6 +14.7 85.3	45 51.5 +14.7 85.0	44 57.3 +14.9 84.7
22°	48 48.5 +13.2 84.6	47 54.4 +13.4 84.2	47 00.3 +13.5 83.9	46 06.2 +13.8 83.6	45 12.2 +13.9 83.3
23°	49 01.7 +12.1 83.1	48 07.8 +12.3 82.8	47 13.8 +12.5 82.5	46 20.0 +12.6 82.2	45 26.1 +12.9 81.9
24°	49 13.8 +11.0 81.6	48 20.1 +11.1 81.3	47 26.3 +11.4 81.0	46 32.6 +11.7 80.8	45 39.0 +11.9 80.5
25°	49 24.8 +09.7 80.1	48 31.2 +10.1 79.8	47 37.7 +10.3 79.6	46 44.3 +10.5 79.3	45 50.9 +10.8 79.1
26°	49 34.5 +08.6 78.6	48 41.3 +08.8 78.3	47 48.0 +09.2 78.1	46 54.8 +09.5 77.9	46 01.7 +09.8 77.7
27°	49 43.1 +07.3 77.0	48 50.1 +07.7 76.8	47 57.2 +08.0 76.6	47 04.3 +08.4 76.5	46 11.5 +08.7 76.3
28°	49 50.4 +06.1 75.5	48 57.8 +06.5 75.3	48 05.2 +06.9 75.2	47 12.7 +07.2 75.0	46 20.2 +07.6 74.8
29°	49 56.5 +04.9 73.9	49 04.3 +05.3 73.8	48 12.1 +05.7 73.7	47 19.9 +06.1 73.5	46 27.8 +06.5 73.4

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°	35 37.9 +30.9 109.5	34 46.5 +30.6 108.9	33 55.0 +30.3 108.3	33 03.2 +30.0 107.7	32 11.3 +29.8 107.1
1°	36 08.8 +30.3 108.5	35 17.1 +30.1 107.8	34 25.3 +29.7 107.2	33 33.2 +29.5 106.6	32 41.1 +29.2 106.0
2°	36 39.1 +29.8 107.4	35 47.2 +29.4 106.8	34 55.0 +29.2 106.2	34 02.7 +28.9 105.6	33 10.3 +28.6 105.0
3°	37 08.9 +29.2 106.3	36 16.6 +28.9 105.7	35 24.2 +28.6 105.1	34 31.6 +28.4 104.5	33 38.9 +28.2 103.9
4°	37 38.1 +28.5 105.2	36 45.5 +28.3 104.6	35 52.8 +28.1 104.0	35 00.0 +27.8 103.4	34 07.1 +27.6 102.9
5°	38 06.6 +27.9 104.1	37 13.8 +27.7 103.5	36 20.9 +27.4 102.9	35 27.8 +27.2 102.4	34 34.7 +27.0 101.8
6°	38 34.5 +27.3 103.0	37 41.5 +27.0 102.4	36 48.3 +26.8 101.8	35 55.0 +26.6 101.3	35 01.7 +26.4 100.7
7°	39 01.8 +26.6 101.8	38 08.5 +26.4 101.3	37 15.1 +26.2 100.7	36 21.6 +26.0 100.2	35 28.1 +25.8 99.6
8°	39 28.4 +25.8 100.7	38 34.9 +25.7 100.1	37 41.3 +25.5 99.6	36 47.6 +25.4 99.0	35 53.9 +25.2 98.5
9°	39 54.2 +25.2 99.5	39 00.6 +25.0 99.0	38 06.8 +24.8 98.4	37 13.0 +24.7 97.9	36 19.1 +24.5 97.4
10°	40 19.4 +24.4 98.3	39 25.6 +24.2 97.8	38 31.6 +24.2 97.3	37 37.7 +24.0 96.8	36 43.6 +23.9 96.3
11°	40 43.8 +23.7 97.1	39 49.8 +23.6 96.6	38 55.8 +23.4 96.1	38 01.7 +23.3 95.6	37 07.5 +23.3 95.1
12°	41 07.5 +22.9 95.9	40 13.4 +22.8 95.4	39 19.2 +22.7 94.9	38 25.0 +22.6 94.4	37 30.8 +22.5 93.9
13°	41 30.4 +22.1 94.7	40 36.2 +22.0 94.2	39 41.9 +21.9 93.7	38 47.6 +21.9 93.2	37 53.3 +21.9 92.8
14°	41 52.5 +21.2 93.4	40 58.2 +21.2 92.9	40 03.8 +21.2 92.5	39 09.5 +21.2 92.0	38 15.2 +21.1 91.6
15°	42 13.7 +20.5 92.2	41 19.4 +20.4 91.7	40 25.0 +20.4 91.3	39 30.7 +20.3 90.8	38 36.3 +20.4 90.4
16°	42 34.2 +19.6 90.9	41 39.8 +19.6 90.4	40 45.4 +19.6 90.0	39 51.0 +19.7 89.6	38 56.7 +19.6 89.2
17°	42 53.8 +18.7 89.6	41 59.4 +18.7 89.2	41 05.0 +18.8 88.8	40 10.7 +18.8 88.4	39 16.3 +18.9 88.0
18°	43 12.5 +17.8 88.3	42 18.1 +17.9 87.9	41 23.8 +17.9 87.5	40 29.5 +18.0 87.1	39 35.2 +18.1 86.7
19°	43 30.3 +16.9 87.0	42 36.0 +17.0 86.6	41 41.7 +17.1 86.2	40 47.5 +17.2 85.9	39 53.3 +17.2 85.5
20°	43 47.2 +16.0 85.7	42 53.0 +16.1 85.3	41 58.8 +16.2 84.9	41 04.7 +16.3 84.6	40 10.5 +16.5 84.3
21°	44 03.2 +15.0 84.3	43 09.1 +15.2 84.0	42 15.0 +15.3 83.6	41 21.0 +15.5 83.3	40 27.0 +15.6 83.0
22°	44 18.2 +14.1 83.0	43 24.3 +14.2 82.7	42 30.3 +14.5 82.3	41 36.5 +14.6 82.0	40 42.6 +14.8 81.7
23°	44 32.3 +13.1 81.6	43 38.5 +13.3 81.3	42 44.8 +13.5 81.0	41 51.1 +13.7 80.7	40 57.4 +14.0 80.4
24°	44 45.4 +12.1 80.2	43 51.8 +12.3 80.0	42 58.3 +12.6 79.7	42 04.8 +12.8 79.4	41 11.4 +13.0 79.1
25°	44 57.5 +11.1 78.9	44 04.1 +11.4 78.6	43 10.9 +11.6 78.4	42 17.6 +11.9 78.1	41 24.4 +12.2 77.8
26°	45 08.6 +10.1 77.5	44 15.5 +10.4 77.2	43 22.5 +10.7 77.0	42 29.5 +11.0 76.8	41 36.6 +11.3 76.5
27°	45 18.7 +09.0 76.1	44 25.9 +09.4 75.9	43 33.2 +09.7 75.6	42 40.5 +10.1 75.4	41 47.9 +10.4 75.2
28°	45 27.7 +08.0 74.7	44 35.3 +08.3 74.5	43 42.9 +08.7 74.3	42 50.6 +09.1 74.1	41 58.3 +09.5 73.9
29°	45 35.7 +06.9 73.2	44 43.6 +07.4 73.1	43 51.6 +07.8 72.9	42 59.7 +08.1 72.7	42 07.8 +08.5 72.6

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°	31 19.3 +29.4 106.5	30 27.1 +29.1 105.9	29 34.7 +28.9 105.3	28 42.2 +28.7 104.8	27 49.5 +28.5 104.2
1°	31 48.7 +29.0 105.5	30 56.2 +28.7 104.9	30 03.6 +28.5 104.3	29 10.9 +28.2 103.8	28 18.0 +28.0 103.3
2°	32 17.7 +28.4 104.4	31 24.9 +28.2 103.9	30 32.1 +28.0 103.3	29 39.1 +27.8 102.8	28 46.0 +27.6 102.2
3°	32 46.1 +27.9 103.4	31 53.1 +27.7 102.8	31 00.1 +27.4 102.3	30 06.9 +27.3 101.8	29 13.6 +27.1 101.2
4°	33 14.0 +27.4 102.3	32 20.8 +27.2 101.8	31 27.5 +27.0 101.2	30 34.2 +26.8 100.7	29 40.7 +26.6 100.2
5°	33 41.4 +26.8 101.3	32 48.0 +26.6 100.7	31 54.5 +26.5 100.2	31 01.0 +26.2 99.7	30 07.3 +26.1 99.2
6°	34 08.2 +26.2 100.2	33 14.6 +26.1 99.7	32 21.0 +25.9 99.1	31 27.2 +25.8 98.6	30 33.4 +25.7 98.1
7°	34 34.4 +25.7 99.1	33 40.7 +25.5 98.6	32 46.9 +25.3 98.1	31 53.0 +25.2 97.6	30 59.1 +25.1 97.1
8°	35 00.1 +25.0 98.0	34 06.2 +24.9 97.5	33 12.2 +24.8 97.0	32 18.2 +24.7 96.5	31 24.2 +24.6 96.0
9°	35 25.1 +24.5 96.9	34 31.1 +24.3 96.4	33 37.0 +24.3 95.9	32 42.9 +24.2 95.4	31 48.8 +24.0 94.9
10°	35 49.6 +23.8 95.8	34 55.4 +23.7 95.3	34 01.3 +23.6 94.8	33 07.1 +23.5 94.3	32 12.8 +23.5 93.9
11°	36 13.4 +23.1 94.6	35 19.1 +23.1 94.2	34 24.9 +23.0 93.7	33 30.6 +23.0 93.2	32 36.3 +22.9 92.8
12°	36 36.5 +22.5 93.5	35 42.2 +22.5 93.0	34 47.9 +22.4 92.6	33 53.6 +22.3 92.1	32 59.2 +22.4 91.7
13°	36 59.0 +21.8 92.3	36 04.7 +21.7 91.9	35 10.3 +21.8 91.4	34 15.9 +21.8 91.0	33 21.6 +21.7 91.0
14°	37 20.8 +21.1 91.1	36 26.4 +21.1 90.7	35 32.1 +21.1 90.3	34 37.7 +21.1 89.9	33 43.3 +21.1 89.4
15°	37 41.9 +20.4 90.0	36 47.5 +20.4 89.5	35 53.2 +20.4 89.1	34 58.8 +20.5 88.7	34 04.4 +20.5 88.3
16°	38 02.3 +19.7 88.8	37 07.9 +19.7 88.4	36 13.6 +19.7 88.0	35 19.3 +19.8 87.6	34 24.9 +19.9 87.2
17°	38 22.0 +18.9 87.6	37 27.6 +19.0 87.2	36 33.3 +19.1 86.8	35 39.1 +19.1 86.4	34 44.8 +19.2 86.0
18°	38 40.9 +18.2 86.4	37 46.6 +18.3 86.0	36 52.4 +18.3 85.6	35 58.2 +18.4 85.2	35 04.0 +18.6 84.9
19°	38 59.1 +17.3 85.1	38 04.9 +17.5 84.8	37 10.7 +17.7 84.4	36 16.6 +17.8 84.1	35 22.6 +17.9 83.7
20°	39 16.4 +16.6 83.9	38 22.4 +16.7 83.6	37 28.4 +16.9 83.2	36 34.4 +17.0 82.9	35 40.5 +17.2 82.5
21°	39 33.0 +15.9 82.7	38 39.1 +16.0 82.3	37 45.3 +16.1 82.0	36 51.4 +16.4 81.7	35 57.7 +16.4 81.4
22°	39 48.9 +14.9 81.4	38 55.1 +15.2 81.1	38 01.4 +15.4 80.8	37 07.8 +15.5 80.5	36 14.1 +15.8 80.2
23°	40 03.8 +14.2 80.1	39 10.3 +14.4 79.9	38 16.8 +14.6 79.6	37 23.3 +14.9 79.3	36 29.9 +15.1 79.0
24°	40 18.0 +13.3 78.9	39 24.7 +13.5 78.6	38 31.4 +13.8 78.3	37 38.2 +14.0 78.0	36 45.0 +14.3 77.8
25°	40 31.3 +12.5 77.6	39 38.2 +12.8 77.3	38 45.2 +13.0 77.1	37 52.2 +13.3 76.8	36 59.3 +13.6 76.6
26°	40 43.8 +11.6 76.3	39 51.0 +11.9 76.1	38 58.2 +12.2 75.8	38 05.5 +12.5 75.6	37 12.9 +12.8 75.3
27°	40 55.4 +10.7 75.0	40 02.9 +11.0 74.8	39 10.4 +11.4 74.6	38 18.0 +11.8 74.3	37 25.7 +12.1 74.1
28°	41 06.1 +09.8 73.7	40 13.9 +10.2 73.5	39 21.8 +10.6 73.3	38 29.8 +10.9 73.1	37 37.8 +11.2 72.9
29°	41 15.9 +09.0 72.4	40 24.1 +09.4 72.2	39 32.4 +09.7 72.0	38 40.7 +10.1 71.8	37 49.0 +10.5 71.6

Declination SAME name as Latitude

Latitude 25°

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°	26 56.8 +28.2 103.7	26 03.9 +28.0 103.2	25 10.9 +27.8 102.7	24 17.8 +27.6 102.2	23 24.6 +27.4 101.6
1°	27 25.0 +27.8 102.7	26 31.9 +27.6 102.2	25 38.7 +27.4 101.7	24 45.4 +27.3 101.2	23 52.0 +27.1 100.7
2°	27 52.8 +27.4 101.7	26 59.5 +27.2 101.2	26 06.1 +27.1 100.7	25 12.7 +26.8 100.2	24 19.1 +26.7 99.7
3°	28 20.2 +26.9 100.7	27 26.7 +26.8 100.2	26 33.2 +26.6 99.7	25 39.5 +26.5 99.2	24 45.8 +26.3 98.7
4°	28 47.1 +26.5 99.7	27 53.5 +26.3 99.2	26 59.8 +26.1 98.7	26 06.0 +26.0 98.2	25 12.1 +25.9 97.7
5°	29 13.6 +26.0 98.7	28 19.8 +25.9 98.2	27 25.9 +25.8 97.7	26 32.0 +25.6 97.2	25 38.0 +25.5 96.7
6°	29 39.6 +25.5 97.6	28 45.7 +25.3 97.1	27 51.7 +25.2 96.7	26 57.6 +25.2 96.2	26 03.5 +25.1 95.7
7°	30 05.1 +25.0 96.6	29 11.0 +24.9 96.1	28 16.9 +24.9 95.6	27 22.8 +24.7 95.2	26 28.6 +24.7 94.7
8°	30 30.1 +24.5 95.5	29 35.9 +24.5 95.1	28 41.8 +24.3 94.6	27 47.5 +24.3 94.1	26 53.3 +24.2 93.7
9°	30 54.6 +24.0 94.5	30 00.4 +23.9 94.0	29 06.1 +23.8 93.6	28 11.8 +23.8 93.1	27 17.5 +23.8 92.7
10°	31 18.6 +23.4 93.4	30 24.3 +23.3 93.0	29 29.9 +23.4 92.5	28 35.6 +23.3 92.1	27 41.3 +23.2 91.6
11°	31 42.0 +22.9 92.3	30 47.6 +22.9 91.9	29 53.3 +22.8 91.4	28 58.9 +22.8 91.0	28 04.5 +22.9 90.6
12°	32 04.9 +22.3 91.2	31 10.5 +22.3 90.8	30 16.1 +22.3 90.4	29 21.7 +22.4 90.0	28 27.4 +22.3 89.5
13°	32 27.2 +21.7 90.1	31 32.8 +21.8 89.7	30 38.4 +21.8 89.3	29 44.1 +21.8 88.9	28 49.7 +21.8 88.5
14°	32 48.9 +21.2 89.0	31 54.6 +21.1 88.6	31 00.2 +21.2 88.2	30 05.9 +21.2 87.8	29 11.5 +21.3 87.4
15°	33 10.1 +20.5 87.9	32 15.7 +20.6 87.5	31 21.4 +20.7 87.1	30 27.1 +20.8 86.7	29 32.8 +20.8 86.3
16°	33 30.6 +20.0 86.8	32 36.3 +20.1 86.4	31 42.1 +20.1 86.0	30 47.9 +20.1 85.6	29 53.6 +20.3 85.3
17°	33 50.6 +19.3 85.7	32 56.4 +19.4 85.3	32 02.2 +19.5 84.9	31 08.0 +19.6 84.5	30 13.9 +19.7 84.2
18°	34 09.9 +18.6 84.5	33 15.8 +18.7 84.2	32 21.7 +18.9 83.8	31 27.6 +19.1 83.4	30 33.6 +19.2 83.1
19°	34 28.5 +18.1 83.4	33 34.5 +18.2 83.0	32 40.6 +18.3 82.7	31 46.7 +18.4 82.3	30 52.8 +18.6 82.0
20°	34 46.6 +17.3 82.2	33 52.7 +17.5 81.9	32 58.9 +17.7 81.5	32 05.1 +17.9 81.2	31 11.4 +18.1 80.9
21°	35 03.9 +16.7 81.0	34 10.2 +16.9 80.7	33 16.6 +17.0 80.4	32 23.0 +17.2 80.1	31 29.5 +17.4 79.7
22°	35 20.6 +16.0 79.9	34 27.1 +16.2 79.6	33 33.6 +16.5 79.2	32 40.2 +16.7 78.9	31 46.9 +16.9 78.6
23°	35 36.6 +15.3 78.7	34 43.3 +15.5 78.4	33 50.1 +15.7 78.1	32 56.9 +16.0 77.8	32 03.8 +16.2 77.5
24°	35 51.9 +14.6 77.5	34 58.8 +14.9 77.2	34 05.8 +15.1 76.9	33 12.9 +15.3 76.6	32 20.0 +15.6 76.4
25°	36 06.5 +13.8 76.3	35 13.7 +14.1 76.0	34 20.9 +14.4 75.8	33 28.2 +14.8 75.5	32 35.6 +15.0 75.2
26°	36 20.3 +13.1 75.1	35 27.8 +13.4 74.8	34 35.3 +13.8 74.6	33 43.0 +14.0 74.3	32 50.6 +14.4 74.1
27°	36 33.4 +12.4 73.9	35 41.2 +12.8 73.6	34 49.1 +13.1 73.4	33 57.0 +13.4 73.1	33 05.0 +13.7 72.9
28°	36 45.8 +11.7 72.6	35 54.0 +12.0 72.4	35 02.2 +12.3 72.2	34 10.4 +12.7 72.0	33 18.7 +13.1 71.7
29°	36 57.5 +10.8 71.4	36 06.0 +11.2 71.2	35 14.5 +11.6 71.0	34 23.1 +12.0 70.8	33 31.8 +12.4 70.6

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°	22 31.3 +27.2 101.1	21 37.9 +27.1 100.7	20 44.4 +26.9 100.2	19 50.8 +26.8 99.7	18 57.2 +26.6 99.2
1°	22 58.5 +27.0 100.2	22 05.0 +26.7 99.7	21 11.3 +26.7 99.2	20 17.6 +26.5 98.7	19 23.8 +26.4 98.3
2°	23 25.5 +26.5 99.2	22 31.7 +26.5 98.7	21 38.0 +26.3 98.3	20 44.1 +26.2 97.8	19 50.2 +26.1 97.3
3°	23 52.0 +26.2 98.2	22 58.2 +26.0 97.8	22 04.3 +25.9 97.3	21 10.3 +25.8 96.8	20 16.3 +25.7 96.4
4°	24 18.2 +25.8 97.2	23 24.2 +25.7 96.8	22 30.2 +25.6 96.3	21 36.1 +25.5 95.8	20 42.0 +25.4 95.4
5°	24 44.0 +25.4 96.3	23 49.9 +25.3 95.8	22 55.8 +25.2 95.3	22 01.6 +25.2 94.9	21 07.4 +25.1 94.4
6°	25 09.4 +25.0 95.3	24 15.2 +25.0 94.8	23 21.0 +24.9 94.3	22 26.8 +24.8 93.9	21 32.5 +24.8 93.4
7°	25 34.4 +24.6 94.2	24 40.2 +24.5 93.8	23 45.9 +24.5 93.3	22 51.6 +24.4 92.9	21 57.3 +24.4 92.5
8°	25 59.0 +24.2 93.2	25 04.7 +24.1 92.8	24 10.4 +24.1 92.3	23 16.0 +24.1 91.9	22 21.7 +24.0 91.5
9°	26 23.2 +23.7 92.2	25 28.8 +23.7 91.8	24 34.5 +23.6 91.3	23 40.1 +23.7 90.9	22 45.7 +23.7 90.5
10°	26 46.9 +23.3 91.2	25 52.5 +23.3 90.8	24 58.1 +23.3 90.3	24 03.8 +23.2 89.9	23 09.4 +23.3 89.5
11°	27 10.2 +22.8 90.2	26 15.8 +22.8 89.7	25 21.4 +22.9 89.3	24 27.0 +22.9 88.9	23 32.7 +22.9 88.5
12°	27 33.0 +22.3 89.1	26 38.6 +22.4 88.7	25 44.3 +22.4 88.3	24 49.9 +22.5 87.9	23 55.6 +22.5 87.5
13°	27 55.3 +21.9 88.1	27 01.0 +21.9 87.7	26 06.7 +21.9 87.3	25 12.4 +22.0 86.9	24 18.1 +22.1 86.5
14°	28 17.2 +21.4 87.0	27 22.9 +21.5 86.6	26 28.6 +21.6 86.2	25 34.4 +21.6 85.8	24 40.2 +21.7 85.4
15°	28 38.6 +20.9 85.9	27 44.4 +20.9 85.6	26 50.2 +21.0 85.2	25 56.0 +21.1 84.8	25 01.9 +21.2 84.4
16°	28 59.5 +20.3 84.9	28 05.3 +20.5 84.5	27 11.2 +20.6 84.1	26 17.1 +20.7 83.7	25 23.1 +20.8 83.4
17°	29 19.8 +19.9 83.8	28 25.8 +20.0 83.4	27 31.8 +20.1 83.1	26 37.8 +20.3 82.7	25 43.9 +20.4 82.3
18°	29 39.7 +19.3 82.7	28 45.8 +19.4 82.4	27 51.9 +19.6 82.0	26 58.1 +19.7 81.6	26 04.3 +19.9 81.3
19°	29 59.0 +18.8 81.6	29 05.2 +18.9 81.3	28 11.5 +19.1 80.9	27 17.8 +19.3 80.6	26 24.2 +19.5 80.2
20°	30 17.8 +18.2 80.5	29 24.1 +18.4 80.2	28 30.6 +18.6 79.9	27 37.1 +18.8 79.5	26 43.7 +18.9 79.2
21°	30 36.0 +17.6 79.4	29 42.5 +17.9 79.1	28 49.2 +18.0 78.8	27 55.9 +18.3 78.4	27 02.6 +18.5 78.1
22°	30 53.6 +17.1 78.3	30 00.4 +17.3 78.0	29 07.2 +17.6 77.7	28 14.2 +17.7 77.4	27 21.1 +18.0 77.0
23°	31 10.7 +16.5 77.2	30 17.7 +16.8 76.9	29 24.8 +17.0 76.6	28 31.9 +17.3 76.3	27 39.1 +17.5 76.0
24°	31 27.2 +15.9 76.1	30 34.5 +16.1 75.8	29 41.8 +16.4 75.5	28 49.2 +16.7 75.2	27 56.6 +17.0 74.9
25°	31 43.1 +15.3 74.9	30 50.6 +15.6 74.7	29 58.2 +15.9 74.4	29 05.9 +16.2 74.1	28 13.6 +16.5 73.8
26°	31 58.4 +14.7 73.8	31 06.2 +15.0 73.5	30 14.1 +15.3 73.3	29 22.1 +15.6 73.0	28 30.1 +15.9 72.7
27°	32 13.1 +14.0 72.6	31 21.2 +14.4 72.4	30 29.4 +14.7 72.1	29 37.7 +15.1 71.9	28 46.0 +15.5 71.6
28°	32 27.1 +13.5 71.5	31 35.6 +13.8 71.3	30 44.1 +14.2 71.0	29 52.8 +14.5 70.8	29 01.5 +14.8 70.5
29°	32 40.6 +12.8 70.3	31 49.4 +13.2 70.1	30 58.3 +13.5 69.9	30 07.3 +13.9 69.6	29 16.3 +14.3 69.4

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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°	18 03.5 +26.5 98.7	17 09.7 +26.4 98.3	16 15.8 +26.3 97.8	15 21.9 +26.2 97.4	14 28.0 +26.1 96.9
1°	18 30.0 +26.2 97.8	17 36.1 +26.1 97.3	16 42.1 +26.1 96.9	15 48.1 +26.0 96.4	14 54.1 +25.8 96.0
2°	18 56.2 +26.0 96.9	18 02.2 +25.9 96.4	17 08.2 +25.7 95.9	16 14.1 +25.7 95.5	15 19.9 +25.6 95.0
3°	19 22.2 +25.7 95.9	18 28.1 +25.6 95.4	17 33.9 +25.5 95.0	16 39.8 +25.4 94.5	15 45.5 +25.4 94.1
4°	19 47.9 +25.3 94.9	18 53.7 +25.3 94.5	17 59.4 +25.3 94.0	17 05.2 +25.2 93.6	16 10.9 +25.1 93.2
5°	20 13.2 +25.0 94.0	19 19.0 +24.9 93.5	18 24.7 +24.9 93.1	17 30.4 +24.9 92.7	16 36.0 +24.9 92.2
6°	20 38.2 +24.8 93.0	19 43.9 +24.7 92.6	18 49.6 +24.6 92.1	17 55.3 +24.6 91.7	17 00.9 +24.6 91.3
7°	21 03.0 +24.3 92.0	20 08.6 +24.3 91.6	19 14.2 +24.4 91.2	18 19.9 +24.3 90.7	17 25.5 +24.3 90.3
8°	21 27.3 +24.0 91.0	20 32.9 +24.1 90.6	19 38.6 +24.0 90.2	18 44.2 +24.0 89.8	17 49.8 +24.1 89.4
9°	21 51.3 +23.7 90.1	20 57.0 +23.6 89.6	20 02.6 +23.7 89.2	19 08.2 +23.7 88.8	18 13.9 +23.7 88.4
10°	22 15.0 +23.3 89.1	21 20.6 +23.4 88.7	20 26.3 +23.4 88.2	19 31.9 +23.5 87.8	18 37.6 +23.5 87.4
11°	22 38.3 +23.0 88.1	21 44.0 +23.0 87.7	20 49.7 +23.0 87.3	19 55.4 +23.0 86.9	19 01.1 +23.1 86.4
12°	23 01.3 +22.5 87.1	22 07.0 +22.6 86.7	21 12.7 +22.7 86.3	20 18.4 +22.8 85.9	19 24.2 +22.9 85.5
13°	23 23.8 +22.2 86.1	22 29.6 +22.2 85.7	21 35.4 +22.3 85.3	20 41.2 +22.4 84.9	19 47.1 +22.5 84.5
14°	23 46.0 +21.7 85.0	22 51.8 +21.9 84.7	21 57.7 +22.0 84.3	21 03.6 +22.1 83.9	20 09.6 +22.1 83.5
15°	24 07.7 +21.4 84.0	23 13.7 +21.5 83.6	22 19.7 +21.5 83.3	21 25.7 +21.7 82.9	20 31.7 +21.9 82.5
16°	24 29.1 +20.9 83.0	23 35.2 +21.0 82.6	22 41.2 +21.3 82.3	21 47.4 +21.3 81.9	20 53.6 +21.5 81.5
17°	24 50.0 +20.6 82.0	23 56.2 +20.7 81.6	23 02.5 +20.8 81.2	22 08.7 +21.0 80.9	21 15.1 +21.1 80.5
18°	25 10.6 +20.0 80.9	24 16.9 +20.2 80.6	23 23.3 +20.4 80.2	22 29.7 +20.6 79.9	21 36.2 +20.8 79.5
19°	25 30.6 +19.7 79.9	24 37.1 +19.9 79.5	23 43.7 +20.0 79.2	22 50.3 +20.2 78.8	21 57.0 +20.4 78.5
20°	25 50.3 +19.1 78.8	24 57.0 +19.3 78.5	24 03.7 +19.6 78.2	23 10.5 +19.8 77.8	22 17.4 +20.0 77.5
21°	26 09.4 +18.8 77.8	25 16.3 +19.0 77.5	24 23.3 +19.2 77.1	23 30.3 +19.4 76.8	22 37.4 +19.6 76.5
22°	26 28.2 +18.2 76.7	25 35.3 +18.5 76.4	24 42.5 +18.7 76.1	23 49.7 +19.0 75.8	22 57.0 +19.3 75.4
23°	26 46.4 +17.8 75.7	25 53.8 +18.0 75.4	25 01.2 +18.3 75.0	24 08.7 +18.5 74.7	23 16.3 +18.8 74.4
24°	27 04.2 +17.2 74.6	26 11.8 +17.5 74.3	25 19.5 +17.8 74.0	24 27.2 +18.2 73.7	23 35.1 +18.4 73.4
25°	27 21.4 +16.8 73.5	26 29.3 +17.1 73.2	25 37.3 +17.4 72.9	24 45.4 +17.7 72.6	23 53.5 +18.0 72.3
26°	27 38.2 +16.3 72.4	26 46.4 +16.6 72.2	25 54.7 +16.9 71.9	25 03.1 +17.2 71.6	24 11.5 +17.6 71.3
27°	27 54.5 +15.7 71.3	27 03.0 +16.1 71.1	26 11.6 +16.4 70.8	25 20.3 +16.8 70.5	24 29.1 +17.1 70.2
28°	28 10.2 +15.3 70.3	27 19.1 +15.6 70.0	26 28.0 +16.0 69.7	25 37.1 +16.3 69.5	24 46.2 +16.7 69.2
29°	28 25.5 +14.7 69.2	27 34.7 +15.1 68.9	26 44.0 +15.5 68.6	25 53.4 +15.8 68.4	25 02.9 +16.2 68.1

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°	13 34.0 +26.0 96.5	12 39.9 +25.9 96.0	11 45.8 +25.8 95.6	10 51.7 +25.7 95.1	9 57.5 +25.7 94.7
1°	14 00.0 +25.7 95.5	13 05.8 +25.7 95.1	12 11.6 +25.7 94.6	11 17.4 +25.6 94.2	10 23.2 +25.5 93.8
2°	14 25.7 +25.6 94.6	13 31.5 +25.5 94.2	12 37.3 +25.4 93.7	11 43.0 +25.4 93.3	10 48.7 +25.3 92.9
3°	14 51.3 +25.3 93.7	13 57.0 +25.3 93.2	13 02.7 +25.2 92.8	12 08.4 +25.2 92.4	11 14.0 +25.2 91.9
4°	15 16.6 +25.1 92.7	14 22.3 +25.0 92.3	13 27.9 +25.1 91.9	12 33.6 +25.0 91.4	11 39.2 +25.0 91.0
5°	15 41.7 +24.8 91.8	14 47.3 +24.8 91.4	13 53.0 +24.8 90.9	12 58.6 +24.8 90.5	12 04.2 +24.8 90.1
6°	16 06.5 +24.6 90.8	15 12.1 +24.6 90.4	14 17.8 +24.6 90.0	13 23.4 +24.6 89.6	12 29.0 +24.6 89.1
7°	16 31.1 +24.3 89.9	15 36.7 +24.4 89.5	14 42.4 +24.3 89.0	13 48.0 +24.4 88.6	12 53.6 +24.5 88.2
8°	16 55.4 +24.1 88.9	16 01.1 +24.1 88.5	15 06.7 +24.2 88.1	14 12.4 +24.1 87.7	13 18.1 +24.2 87.3
9°	17 19.5 +23.8 88.0	16 25.2 +23.8 87.6	15 30.9 +23.8 87.2	14 36.5 +24.0 86.7	13 42.3 +24.0 86.3
10°	17 43.3 +23.5 87.0	16 49.0 +23.6 86.6	15 54.7 +23.7 86.2	15 00.5 +23.7 85.8	14 06.3 +23.7 85.4
11°	18 06.8 +23.2 86.0	17 12.6 +23.3 85.6	16 18.4 +23.3 85.2	15 24.2 +23.4 84.8	14 30.0 +23.6 84.4
12°	18 30.0 +22.9 85.1	17 35.9 +23.0 84.7	16 41.7 +23.1 84.3	15 47.6 +23.3 83.9	14 53.6 +23.3 83.5
13°	18 52.9 +22.7 84.1	17 58.9 +22.7 83.7	17 04.8 +22.9 83.3	16 10.9 +22.9 82.9	15 16.9 +23.1 82.5
14°	19 15.6 +22.3 83.1	18 21.6 +22.4 82.7	17 27.7 +22.5 82.3	16 33.8 +22.7 82.0	15 40.0 +22.8 81.6
15°	19 37.9 +21.9 82.1	18 44.0 +22.1 81.8	17 50.2 +22.3 81.4	16 56.5 +22.4 81.0	16 02.8 +22.6 80.6
16°	19 59.8 +21.7 81.1	19 06.1 +21.8 80.8	18 12.5 +21.9 80.4	17 18.9 +22.1 80.0	16 25.4 +22.3 79.7
17°	20 21.5 +21.3 80.2	19 27.9 +21.5 79.8	18 34.4 +21.7 79.4	17 41.0 +21.9 79.1	16 47.7 +22.0 78.7
18°	20 42.8 +20.9 79.2	19 49.4 +21.1 78.8	18 56.1 +21.3 78.4	18 02.9 +21.5 78.1	17 09.7 +21.7 77.7
19°	21 03.7 +20.6 78.1	20 10.5 +20.9 77.8	19 17.4 +21.1 77.4	18 24.4 +21.2 77.1	17 31.4 +21.5 76.7
20°	21 24.3 +20.3 77.1	20 31.4 +20.4 76.8	19 38.5 +20.6 76.5	18 45.6 +21.0 76.1	17 52.9 +21.1 75.8
21°	21 44.6 +19.8 76.1	20 51.8 +20.1 75.8	19 59.1 +20.4 75.5	19 06.6 +20.6 75.1	18 14.0 +20.9 74.8
22°	22 04.4 +19.5 75.1	21 11.9 +19.8 74.8	20 19.5 +20.0 74.5	19 27.2 +20.2 74.1	18 34.9 +20.5 73.8
23°	22 23.9 +19.1 74.1	21 31.7 +19.4 73.8	20 39.5 +19.7 73.4	19 47.4 +20.0 73.1	18 55.4 +20.3 72.8
24°	22 43.0 +18.7 73.1	21 51.1 +19.0 72.8	20 59.2 +19.3 72.4	20 07.4 +19.6 72.1	19 15.7 +19.9 71.8
25°	23 01.7 +18.4 72.0	22 10.1 +18.6 71.7	21 18.5 +18.9 71.4	20 27.0 +19.2 71.1	19 35.6 +19.5 70.8
26°	23 20.1 +17.8 71.0	22 28.7 +18.2 70.7	21 37.4 +18.6 70.4	20 46.2 +18.9 70.1	19 55.1 +19.3 69.8
27°	23 37.9 +17.5 70.0	22 46.9 +17.8 69.7	21 56.0 +18.1 69.4	21 05.1 +18.6 69.1	20 14.4 +18.9 68.8
28°	23 55.4 +17.1 68.9	23 04.7 +17.5 68.6	22 14.1 +17.8 68.3	21 23.7 +18.1 68.1	20 33.3 +18.5 67.8
29°	24 12.5 +16.6 67.9	23 22.2 +17.0 67.6	22 31.9 +17.4 67.3	21 41.8 +17.8 67.0	20 51.8 +18.2 66.8

Declination SAME name as Latitude

Latitude 25°

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°	9 03.3 +25.6 94.3	8 09.0 +25.6 93.8	7 14.8 +25.5 93.4	6 20.5 +25.4 93.0	5 26.2 +25.4 92.5
1°	9 28.9 +25.5 93.3	8 34.6 +25.4 92.9	7 40.3 +25.4 92.5	6 45.9 +25.4 92.1	5 51.6 +25.3 91.6
2°	9 54.4 +25.3 92.4	9 00.0 +25.3 92.0	8 05.7 +25.2 91.6	7 11.3 +25.3 91.1	6 16.9 +25.3 90.7
3°	10 19.7 +25.1 91.5	9 25.3 +25.2 91.1	8 30.9 +25.2 90.7	7 36.6 +25.1 90.2	6 42.2 +25.1 89.8
4°	10 44.8 +25.0 90.6	9 50.5 +24.9 90.2	8 56.1 +25.0 89.7	8 01.7 +25.0 89.3	7 07.3 +25.1 88.9
5°	11 09.8 +24.8 89.7	10 15.4 +24.9 89.2	9 21.1 +24.8 88.8	8 26.7 +24.9 88.4	7 32.4 +24.9 88.0
6°	11 34.6 +24.7 88.7	10 40.3 +24.7 88.3	9 45.9 +24.7 87.9	8 51.6 +24.8 87.5	7 57.3 +24.8 87.1
7°	11 59.3 +24.4 87.8	11 05.0 +24.5 87.4	10 10.6 +24.6 87.0	9 16.4 +24.6 86.6	8 22.1 +24.7 86.1
8°	12 23.7 +24.3 86.9	11 29.5 +24.3 86.5	10 35.2 +24.4 86.0	9 41.0 +24.4 85.6	8 46.8 +24.5 85.2
9°	12 48.0 +24.1 85.9	11 53.8 +24.1 85.5	10 59.6 +24.2 85.1	10 05.4 +24.3 84.7	9 11.3 +24.4 84.3
10°	13 12.1 +23.8 85.0	12 17.9 +24.0 84.6	11 23.8 +24.1 84.2	10 29.7 +24.2 83.8	9 35.7 +24.2 83.4
11°	13 35.9 +23.7 84.0	12 41.9 +23.7 83.6	11 47.9 +23.8 83.2	10 53.9 +24.0 82.8	9 59.9 +24.1 82.4
12°	13 59.6 +23.4 83.1	13 05.6 +23.6 82.7	12 11.7 +23.7 82.3	11 17.9 +23.8 81.9	10 24.0 +24.0 81.5
13°	14 23.0 +23.2 82.1	13 29.2 +23.3 81.8	12 35.4 +23.5 81.4	11 41.7 +23.6 81.0	10 48.0 +23.7 80.6
14°	14 46.2 +23.0 81.2	13 52.5 +23.1 80.8	12 58.9 +23.2 80.4	12 05.3 +23.4 80.0	11 11.7 +23.6 79.6
15°	15 09.2 +22.7 80.2	14 15.6 +22.9 79.9	13 22.1 +23.1 79.5	12 28.7 +23.2 79.1	11 35.3 +23.4 78.7
16°	15 31.9 +22.5 79.3	14 38.5 +22.7 78.9	13 45.2 +22.8 78.5	12 51.9 +23.1 78.1	11 58.7 +23.3 77.8
17°	15 54.4 +22.2 78.3	15 01.2 +22.4 77.9	14 08.0 +22.6 77.6	13 15.0 +22.8 77.2	12 22.0 +23.0 76.8
18°	16 16.6 +21.9 77.3	15 23.6 +22.1 77.0	14 30.6 +22.4 76.6	13 37.8 +22.6 76.2	12 45.0 +22.8 75.9
19°	16 38.5 +21.7 76.4	15 45.7 +21.9 76.0	14 53.0 +22.1 75.7	14 00.4 +22.3 75.3	13 07.8 +22.6 74.9
20°	17 00.2 +21.4 75.4	16 07.6 +21.7 75.0	15 15.1 +21.9 74.7	14 22.7 +22.2 74.3	13 30.4 +22.4 74.0
21°	17 21.6 +21.1 74.4	16 29.3 +21.3 74.1	15 37.0 +21.7 73.7	14 44.9 +21.9 73.4	13 52.8 +22.2 73.0
22°	17 42.7 +20.8 73.4	16 50.6 +21.1 73.1	15 58.7 +21.3 72.8	15 06.8 +21.6 72.4	14 15.0 +21.9 72.1
23°	18 03.5 +20.6 72.5	17 11.7 +20.9 72.1	16 20.0 +21.1 71.8	15 28.4 +21.4 71.4	14 36.9 +21.7 71.1
24°	18 24.1 +20.2 71.5	17 32.6 +20.5 71.1	16 41.1 +20.9 70.8	15 49.8 +21.2 70.5	14 58.6 +21.5 70.1
25°	18 44.3 +19.9 70.5	17 53.1 +20.2 70.2	17 02.0 +20.5 69.8	16 11.0 +20.9 69.5	15 20.1 +21.2 69.2
26°	19 04.2 +19.5 69.5	18 13.3 +19.9 69.2	17 22.5 +20.3 68.8	16 31.9 +20.6 68.5	15 41.3 +21.0 68.2
27°	19 23.7 +19.3 68.5	18 33.2 +19.6 68.2	17 42.8 +19.9 67.9	16 52.5 +20.3 67.5	16 02.3 +20.7 67.2
28°	19 43.0 +18.9 67.5	18 52.8 +19.3 67.2	18 02.7 +19.7 66.9	17 12.8 +20.0 66.6	16 23.0 +20.4 66.2
29°	20 01.9 +18.5 66.5	19 12.1 +18.9 66.2	18 22.4 +19.3 65.9	17 32.8 +19.8 65.6	16 43.4 +20.1 65.3

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°	4 31.8 +25.4 92.1	3 37.5 +25.4 91.7	2 43.1 +25.4 91.3	1 48.8 +25.3 90.8	0 54.4 +25.3 90.4
1°	4 57.2 +25.4 91.2	4 02.9 +25.3 90.8	3 08.5 +25.3 90.4	2 14.1 +25.3 89.9	1 19.7 +25.4 89.5
2°	5 22.6 +25.2 90.3	4 28.2 +25.2 89.9	3 33.8 +25.3 89.5	2 39.4 +25.3 89.0	1 45.1 +25.3 88.6
3°	5 47.8 +25.2 89.4	4 53.4 +25.2 89.0	3 59.1 +25.2 88.5	3 04.7 +25.2 88.1	2 10.4 +25.2 87.7
4°	6 13.0 +25.0 88.5	5 18.6 +25.1 88.1	4 24.3 +25.1 87.6	3 29.9 +25.2 87.2	2 35.6 +25.3 86.8
5°	6 38.0 +25.0 87.6	5 43.7 +25.0 87.1	4 49.4 +25.1 86.7	3 55.1 +25.2 86.3	3 00.9 +25.2 85.9
6°	7 03.0 +24.8 86.6	6 08.7 +24.9 86.2	5 14.5 +25.0 85.8	4 20.3 +25.0 85.4	3 26.1 +25.1 85.0
7°	7 27.8 +24.8 85.7	6 33.6 +24.9 85.3	5 39.5 +24.9 84.9	4 45.3 +25.0 84.5	3 51.2 +25.1 84.1
8°	7 52.6 +24.6 84.8	6 58.5 +24.7 84.4	6 04.4 +24.8 84.0	5 10.3 +24.9 83.6	4 16.3 +25.0 83.2
9°	8 17.2 +24.5 83.9	7 23.2 +24.6 83.5	6 29.2 +24.7 83.1	5 35.2 +24.8 82.7	4 41.3 +24.9 82.2
10°	8 41.7 +24.4 83.0	7 47.8 +24.4 82.6	6 53.9 +24.6 82.1	6 00.0 +24.8 81.7	5 06.2 +24.9 81.3
11°	9 06.1 +24.2 82.0	8 12.2 +24.4 81.6	7 18.5 +24.5 81.2	6 24.8 +24.6 80.8	5 31.1 +24.8 80.4
12°	9 30.3 +24.1 81.1	8 36.6 +24.2 80.7	7 43.0 +24.3 80.3	6 49.4 +24.5 79.9	5 55.9 +24.7 79.5
13°	9 54.4 +23.9 80.2	9 00.8 +24.1 79.8	8 07.3 +24.3 79.4	7 13.9 +24.4 79.0	6 20.6 +24.6 78.6
14°	10 18.3 +23.7 79.2	9 24.9 +23.9 78.9	8 31.6 +24.1 78.5	7 38.3 +24.3 78.1	6 45.2 +24.5 77.7
15°	10 42.0 +23.6 78.3	9 48.8 +23.8 77.9	8 55.7 +24.0 77.5	8 02.6 +24.2 77.1	7 09.7 +24.3 76.7
16°	11 05.6 +23.5 77.4	10 12.6 +23.6 77.0	9 19.7 +23.8 76.6	8 26.8 +24.1 76.2	7 34.0 +24.3 75.8
17°	11 29.1 +23.2 76.4	10 36.2 +23.5 76.1	9 43.5 +23.7 75.7	8 50.9 +23.9 75.3	7 58.3 +24.2 74.9
18°	11 52.3 +23.1 75.5	10 59.7 +23.3 75.1	10 07.2 +23.5 74.7	9 14.8 +23.7 74.4	8 22.5 +24.0 74.0
19°	12 15.4 +22.8 74.6	11 23.0 +23.1 74.2	10 30.7 +23.4 73.8	9 38.5 +23.7 73.4	8 46.5 +23.8 73.1
20°	12 38.2 +22.7 73.6	11 46.1 +22.9 73.2	10 54.1 +23.2 72.9	10 02.2 +23.4 72.5	9 10.3 +23.8 72.1
21°	13 00.9 +22.4 72.7	12 09.0 +22.7 72.3	11 17.3 +23.0 71.9	10 25.6 +23.3 71.6	9 34.1 +23.6 71.2
22°	13 23.3 +22.2 71.7	12 31.7 +22.6 71.3	11 40.3 +22.8 71.0	10 48.9 +23.1 70.6	9 57.7 +23.4 70.3
23°	13 45.5 +22.1 70.8	12 54.3 +22.3 70.4	12 03.1 +22.6 70.0	11 12.0 +23.0 69.7	10 21.1 +23.3 69.3
24°	14 07.6 +21.7 69.8	13 16.6 +22.1 69.4	12 25.7 +22.5 69.1	11 35.0 +22.8 68.7	10 44.4 +23.1 68.4
25°	14 29.3 +21.6 68.8	13 38.7 +21.9 68.5	12 48.2 +22.2 68.1	11 57.8 +22.5 67.8	11 07.5 +22.9 67.4
26°	14 50.9 +21.3 67.9	14 00.6 +21.6 67.5	13 10.4 +22.0 67.2	12 20.3 +22.4 66.9	11 30.4 +22.7 66.5
27°	15 12.2 +21.1 66.9	14 22.2 +21.6 66.6	13 32.4 +21.8 66.2	12 42.7 +22.2 66.5	11 53.1 +22.6 65.6
28°	15 33.3 +20.8 65.9	14 43.7 +21.2 65.6	13 54.2 +21.6 65.3	13 04.9 +21.9 64.9	12 15.7 +22.3 64.6
29°	15 54.1 +20.5 65.0	15 04.9 +20.9 64.6	14 15.8 +21.3 64.3	13 26.8 +21.8 64.0	12 38.0 +22.2 63.7

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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 +25.4 90.0	-0 54.4 +25.4	-1 48.8 +25.4	-2 43.1 +25.4	-3 37.5 +25.5
1°	0 25.4 +25.3 89.1	-0 29.0 +25.4	-1 23.4 +25.4	-2 17.7 +25.4	-3 12.0 +25.4
2°	0 50.7 +25.3 88.2	-0 03.6 +25.3	-0 58.0 +25.5	-1 52.3 +25.5	-2 46.6 +25.6
3°	1 16.0 +25.4 87.3	0 21.7 +25.4 86.9	-0 32.5 +25.4	-1 26.8 +25.5	-2 21.0 +25.5
4°	1 41.4 +25.3 86.4	0 47.1 +25.4 86.0	-0 07.1 +25.4	-1 01.3 +25.5	-1 55.5 +25.6
5°	2 06.7 +25.2 85.5	1 12.5 +25.3 85.0	0 18.3 +25.4 84.6	-0 35.8 +25.5	-1 29.9 +25.6
6°	2 31.9 +25.2 84.6	1 37.8 +25.3 84.1	0 43.7 +25.4 83.7	-0 10.3 +25.5	-1 04.3 +25.6
7°	2 57.1 +25.2 83.7	2 03.1 +25.3 83.2	1 09.1 +25.4 82.8	0 15.2 +25.5 82.4	-0 38.7 +25.7
8°	3 22.3 +25.1 82.7	2 28.4 +25.2 82.3	1 34.5 +25.4 81.9	0 40.7 +25.5 81.5	-0 13.0 +25.6
9°	3 47.4 +25.1 81.8	2 53.6 +25.2 81.4	1 59.9 +25.3 81.0	1 06.2 +25.5 80.6	0 12.6 +25.7 80.2
10°	4 12.5 +25.0 80.9	3 18.8 +25.2 80.5	2 25.2 +25.4 80.1	1 31.7 +25.5 79.7	0 38.3 +25.6 79.3
11°	4 37.5 +25.0 80.0	3 44.0 +25.1 79.6	2 50.6 +25.2 79.2	1 57.2 +25.4 78.8	1 03.9 +25.6 78.4
12°	5 02.5 +24.8 79.1	4 09.1 +25.0 78.7	3 15.8 +25.2 78.3	2 22.6 +25.4 77.9	1 29.5 +25.6 77.4
13°	5 27.3 +24.8 78.2	4 34.1 +25.0 77.8	3 41.0 +25.2 77.4	2 48.0 +25.4 77.0	1 55.1 +25.5 76.5
14°	5 52.1 +24.7 77.3	4 59.1 +24.9 76.9	4 06.2 +25.1 76.5	3 13.4 +25.3 76.0	2 20.6 +25.6 75.6
15°	6 16.8 +24.6 76.4	5 24.0 +24.8 75.9	4 31.3 +25.0 75.5	3 38.7 +25.2 75.1	2 46.2 +25.4 74.7
16°	6 41.4 +24.5 75.4	5 48.8 +24.7 75.0	4 56.3 +25.0 74.6	4 03.9 +25.2 74.2	3 11.6 +25.5 73.8
17°	7 05.9 +24.3 74.5	6 13.5 +24.6 74.1	5 21.3 +24.8 73.7	4 29.1 +25.1 73.3	3 37.1 +25.4 72.9
18°	7 30.2 +24.3 73.6	6 38.1 +24.6 73.2	5 46.1 +24.8 72.8	4 54.2 +25.1 72.4	4 02.5 +25.3 72.0
19°	7 54.5 +24.2 72.7	7 02.7 +24.4 72.3	6 10.9 +24.7 71.9	5 19.3 +25.0 71.5	4 27.8 +25.2 71.1
20°	8 18.7 +24.0 71.7	7 27.1 +24.3 71.4	6 35.6 +24.6 71.0	5 44.3 +24.8 70.6	4 53.0 +25.2 70.2
21°	8 42.7 +23.8 70.8	7 51.4 +24.1 70.4	7 00.2 +24.5 70.1	6 09.1 +24.8 69.7	5 18.2 +25.1 69.3
22°	9 06.5 +23.8 69.9	8 15.5 +24.1 69.5	7 24.7 +24.3 69.1	6 33.9 +24.7 68.8	5 43.3 +25.0 68.4
23°	9 30.3 +23.6 69.0	8 39.6 +23.9 68.6	7 49.0 +24.3 68.2	6 58.6 +24.6 67.8	6 08.3 +24.9 67.5
24°	9 53.9 +23.4 68.0	9 03.5 +23.8 67.7	8 13.3 +24.1 67.3	7 23.2 +24.5 66.9	6 33.2 +24.9 66.5
25°	10 17.3 +23.3 67.1	9 27.3 +23.6 66.7	8 37.4 +24.0 66.4	7 47.7 +24.3 66.0	6 58.1 +24.7 65.6
26°	10 40.6 +23.1 66.2	9 50.9 +23.5 65.8	9 01.4 +23.8 65.4	8 12.0 +24.2 65.1	7 22.8 +24.6 64.7
27°	11 03.7 +22.9 65.2	10 14.4 +23.3 64.9	9 25.2 +23.7 64.5	8 36.2 +24.1 64.1	7 47.4 +24.5 63.8
28°	11 26.6 +22.8 64.3	10 37.7 +23.2 63.9	9 48.9 +23.6 63.6	9 00.3 +24.0 63.2	8 11.9 +24.3 62.9
29°	11 49.4 +22.5 63.3	11 00.9 +22.9 63.0	10 12.5 +23.4 62.6	9 24.3 +23.8 62.3	8 36.2 +24.2 61.9

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°	-4 31.8 +25.4	-5 26.2 +25.5	-6 20.5 +25.6	-7 14.8 +25.6	-8 09.0 +25.6
1°	-4 06.4 +25.6	-5 00.7 +25.6	-5 54.9 +25.6	-6 49.2 +25.8	-7 43.4 +25.8
2°	-3 40.8 +25.6	-4 35.1 +25.7	-5 29.3 +25.8	-6 23.4 +25.8	-7 17.6 +25.9
3°	-3 15.2 +25.6	-4 09.4 +25.7	-5 03.5 +25.8	-5 57.6 +25.9	-6 51.7 +26.0
4°	-2 49.6 +25.7	-3 43.7 +25.8	-4 37.7 +25.8	-5 31.7 +26.0	-6 25.7 +26.1
5°	-2 23.9 +25.7	-3 17.9 +25.8	-4 11.9 +26.0	-5 05.7 +26.0	-5 59.6 +26.2
6°	-1 58.2 +25.7	-2 52.1 +25.9	-3 45.9 +26.0	-4 39.7 +26.1	-5 33.4 +26.3
7°	-1 32.5 +25.8	-2 26.2 +25.9	-3 19.9 +26.0	-4 13.6 +26.2	-5 07.1 +26.3
8°	-1 06.7 +25.8	-2 00.3 +25.9	-2 53.9 +26.1	-3 47.4 +26.3	-4 40.8 +26.4
9°	-0 40.9 +25.8	-1 34.4 +26.0	-2 27.8 +26.1	-3 21.1 +26.3	-4 14.4 +26.5
10°	-0 15.1 +25.8	-1 08.4 +25.9	-2 01.7 +26.2	-2 54.8 +26.3	-3 47.9 +26.6
11°	0 10.7 +25.8 77.9	-0 42.5 +26.0	-1 35.5 +26.2	-2 28.5 +26.4	-3 21.3 +26.5
12°	0 36.5 +25.7 77.0	-0 16.5 +26.0	-1 09.3 +26.1	-2 02.1 +26.4	-2 54.8 +26.7
13°	1 02.2 +25.8 76.1	0 09.5 +26.0 75.7	-0 43.2 +26.3	-1 35.7 +26.4	-2 28.1 +26.6
14°	1 28.0 +25.8 75.2	0 35.5 +26.0 74.8	-0 16.9 +26.2	-1 09.3 +26.5	-2 01.5 +26.7
15°	1 53.8 +25.7 74.3	1 01.5 +25.9 73.9	0 09.3 +26.2 73.5	-0 42.8 +26.4	-1 34.8 +26.7
16°	2 19.5 +25.7 73.4	1 27.4 +25.9 73.0	0 35.5 +26.2 72.6	-0 16.4 +26.5	-1 08.1 +26.8
17°	2 45.2 +25.6 72.5	1 53.3 +26.0 72.1	1 01.7 +26.1 71.7	0 10.1 +26.5 71.3	-0 41.3 +26.7
18°	3 10.8 +25.6 71.6	2 19.3 +25.8 71.2	1 27.8 +26.2 70.8	0 36.6 +26.4 70.4	-0 14.6 +26.8
19°	3 36.4 +25.5 70.7	2 45.1 +25.9 70.3	1 54.0 +26.1 69.9	1 03.0 +26.5 69.5	0 12.2 +26.7 69.0
20°	4 01.9 +25.5 69.8	3 11.0 +25.8 69.4	2 20.1 +26.1 69.0	1 29.5 +26.4 68.6	0 38.9 +26.7 68.2
21°	4 27.4 +25.4 68.9	3 36.8 +25.7 68.5	2 46.2 +26.1 68.1	1 55.9 +26.3 67.7	1 05.6 +26.8 67.3
22°	4 52.8 +25.4 68.0	4 02.5 +25.7 67.6	3 12.3 +26.0 67.2	2 22.2 +26.4 66.8	1 32.4 +26.6 66.4
23°	5 18.2 +25.2 67.1	4 28.2 +25.6 66.7	3 38.3 +26.0 66.3	2 48.6 +26.3 65.9	1 59.0 +26.7 65.5
24°	5 43.4 +25.2 66.2	4 53.8 +25.5 65.8	4 04.3 +25.9 65.4	3 14.9 +26.3 65.0	2 25.7 +26.6 64.6
25°	6 08.6 +25.1 65.2	5 19.3 +25.5 64.9	4 30.2 +25.8 64.5	3 41.2 +26.2 64.1	2 52.3 +26.6 63.7
26°	6 33.7 +25.0 64.3	5 44.8 +25.3 63.9	4 56.0 +25.7 63.6	4 07.4 +26.1 63.2	3 18.9 +26.6 62.8
27°	6 58.7 +24.8 63.4	6 10.1 +25.3 63.0	5 21.7 +25.7 62.7	4 33.5 +26.1 62.3	3 45.5 +26.5 61.9
28°	7 23.5 +24.8 62.5	6 35.4 +25.2 62.1	5 47.4 +25.6 61.7	4 59.6 +26.0 61.4	4 12.0 +26.4 61.0
29°	7 48.3 +24.6 61.6	7 00.6 +25.0 61.2	6 13.0 +25.5 60.8	5 25.6 +25.9 60.5	4 38.4 +26.3 60.1

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°	-9 03.3 +25.8	-9 57.5 +25.8			
1°	-8 37.5 +25.8	-9 31.7 +26.0			
2°	-8 11.7 +26.0	-9 05.7 +26.1	-9 59.7 +26.2		
3°	-7 45.7 +26.1	-8 39.6 +26.2	-9 33.5 +26.3		
4°	-7 19.6 +26.3	-8 13.4 +26.4	-9 07.2 +26.5		
5°	-6 53.3 +26.3	-7 47.0 +26.4	-8 40.7 +26.6	-9 34.2 +26.7	
6°	-6 27.0 +26.4	-7 20.6 +26.6	-8 14.1 +26.8	-9 07.5 +26.9	
7°	-6 00.6 +26.5	-6 54.0 +26.7	-7 47.3 +26.8	-8 40.6 +27.1	-9 33.7 +27.2
8°	-5 34.1 +26.6	-6 27.3 +26.7	-7 20.5 +27.0	-8 13.5 +27.1	-9 06.5 +27.3
9°	-5 07.5 +26.7	-6 00.6 +26.9	-6 53.5 +27.0	-7 46.4 +27.3	-8 39.2 +27.5
10°	-4 40.8 +26.7	-5 33.7 +26.9	-6 26.5 +27.2	-7 19.1 +27.3	-8 11.7 +27.6
11°	-4 14.1 +26.8	-5 06.8 +27.1	-5 59.3 +27.2	-6 51.8 +27.5	-7 44.1 +27.7
12°	-3 47.3 +26.8	-4 39.7 +27.0	-5 32.1 +27.3	-6 24.3 +27.6	-7 16.4 +27.8
13°	-3 20.5 +26.9	-4 12.7 +27.2	-5 04.8 +27.4	-5 56.7 +27.6	-6 48.6 +27.9
14°	-2 53.6 +27.0	-3 45.5 +27.2	-4 37.4 +27.5	-5 29.1 +27.8	-6 20.7 +28.0
15°	-2 26.6 +27.0	-3 18.3 +27.2	-4 09.9 +27.5	-5 01.3 +27.8	-5 52.7 +28.1
16°	-1 59.6 +27.0	-2 51.1 +27.3	-3 42.4 +27.6	-4 33.5 +27.8	-5 24.6 +28.2
17°	-1 32.6 +27.0	-2 23.8 +27.3	-3 14.8 +27.6	-4 05.7 +27.9	-4 56.4 +28.2
18°	-1 05.6 +27.1	-1 56.5 +27.4	-2 47.2 +27.7	-3 37.8 +28.0	-4 28.2 +28.3
19°	-0 38.5 +27.0	-1 29.1 +27.4	-2 19.5 +27.7	-3 09.8 +28.0	-3 59.9 +28.4
20°	-0 11.5 +27.1	-1 01.7 +27.3	-1 51.8 +27.7	-2 41.8 +28.1	-3 31.5 +28.4
21°	0 15.6 +27.0 66.8	-0 34.4 +27.4	-1 24.1 +27.7	-2 13.7 +28.1	-3 03.1 +28.4
22°	0 42.6 +27.1 65.9	-0 07.0 +27.4	-0 56.4 +27.8	-1 45.6 +28.1	-2 34.7 +28.5
23°	1 09.7 +27.0 65.1	0 20.4 +27.4 64.6	-0 28.6 +27.8	-1 17.5 +28.2	-2 06.2 +28.5
24°	1 36.7 +27.0 64.2	0 47.8 +27.4 63.7	-0 00.8 +27.7	-0 49.3 +28.1	-1 37.7 +28.6
25°	2 03.7 +27.0 63.3	1 15.2 +27.4 62.9	0 26.9 +27.8 62.4	-0 21.2 +28.2	-1 09.1 +28.5
26°	2 30.7 +26.9 62.4	1 42.6 +27.3 62.0	0 54.7 +27.7 61.6	0 07.0 +28.1 61.1	-0 40.6 +28.6
27°	2 57.6 +26.9 61.5	2 09.9 +27.3 61.1	1 22.4 +27.7 60.7	0 35.1 +28.1 60.3	-0 12.0 +28.6
28°	3 24.5 +26.8 60.6	2 37.2 +27.3 60.2	1 50.1 +27.7 59.8	1 03.2 +28.2 59.4	0 16.6 +28.5 59.0
29°	3 51.3 +26.8 59.7	3 04.5 +27.2 59.3	2 17.8 +27.7 58.9	1 31.4 +28.1 58.5	0 45.1 +28.6 58.1

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°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°	-9 59.4 +27.6				
9°	-9 31.8 +27.7				
10°	-9 04.1 +27.8				
11°	-8 36.3 +28.0				
12°	-8 08.3 +28.0				
13°	-7 40.3 +28.2				
14°	-7 12.1 +28.3				
15°	-6 43.8 +28.4				
16°	-6 15.4 +28.4				
17°	-5 47.0 +28.6				
18°	-5 18.4 +28.6				
19°	-4 49.8 +28.7				
20°	-4 21.1 +28.7				
21°	-3 52.4 +28.9				
22°	-3 23.5 +28.8				
23°	-2 54.7 +28.9				
24°	-2 25.8 +28.9				
25°	-1 56.9 +29.0				
26°	-1 27.9 +29.0				
27°	-0 58.9 +29.0				
28°	-0 29.9 +29.0				
29°	-0 00.9 +29.0				

Declination SAME name as Latitude

Latitude 26°

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°	57 37.7 +48.8 140.3	57 02.7 +48.1 138.8	56 26.6 +47.3 137.3	55 49.6 +46.5 135.9	55 11.6 +45.8 134.6
1°	58 26.5 +48.3 139.2	57 50.8 +47.4 137.7	57 13.9 +46.7 136.2	56 36.1 +45.9 134.8	55 57.4 +45.1 133.4
2°	59 14.8 +47.6 138.1	58 38.2 +46.8 136.5	58 00.6 +46.0 135.0	57 22.0 +45.2 133.6	56 42.5 +44.4 132.2
3°	60 02.4 +46.9 136.8	59 25.0 +46.1 135.3	58 46.6 +45.2 133.8	58 07.2 +44.4 132.4	57 26.9 +43.6 131.0
4°	60 49.3 +46.2 135.6	60 11.1 +45.3 134.0	59 31.8 +44.5 132.5	58 51.6 +43.6 131.1	58 10.5 +42.9 129.7
5°	61 35.5 +45.4 134.3	60 56.4 +44.5 132.7	60 16.3 +43.6 131.2	59 35.2 +42.8 129.7	58 53.4 +41.9 128.4
6°	62 20.9 +44.5 132.9	61 40.9 +43.6 131.3	60 59.9 +42.7 129.8	60 18.0 +41.9 128.3	59 35.3 +41.0 127.0
7°	63 05.4 +43.5 131.4	62 24.5 +42.6 129.8	61 42.6 +41.7 128.3	60 59.9 +40.8 126.9	60 16.3 +40.1 125.5
8°	63 48.9 +42.6 129.9	63 07.1 +41.6 128.3	62 24.3 +40.7 126.8	61 40.7 +39.8 125.4	60 56.4 +38.9 124.0
9°	64 31.5 +41.4 128.2	63 48.7 +40.4 126.7	63 05.0 +39.5 125.2	62 20.5 +38.7 123.8	61 35.3 +37.9 122.4
10°	65 12.9 +40.1 126.5	64 29.1 +39.2 125.0	63 44.5 +38.3 123.5	62 59.2 +37.4 122.1	62 13.2 +36.5 120.8
11°	65 53.0 +38.9 124.7	65 08.3 +37.9 123.2	64 22.8 +37.0 121.7	63 36.6 +36.1 120.4	62 49.7 +35.3 119.0
12°	66 31.9 +37.4 122.9	65 46.2 +36.4 121.3	64 59.8 +35.5 119.9	64 12.7 +34.7 118.5	63 25.0 +33.9 117.2
13°	67 09.3 +35.8 120.9	66 22.6 +34.9 119.4	65 35.3 +34.0 118.0	64 47.4 +33.2 116.6	63 58.9 +32.4 115.4
14°	67 45.1 +34.2 118.8	66 57.5 +33.3 117.3	66 09.3 +32.4 116.0	65 20.6 +31.5 114.7	64 31.3 +30.8 113.4
15°	68 19.3 +32.3 116.6	67 30.8 +31.4 115.2	66 41.7 +30.6 113.9	65 52.1 +29.9 112.6	65 02.1 +29.2 111.4
16°	68 51.6 +30.4 114.3	68 02.2 +29.5 112.9	67 12.3 +28.7 111.7	66 22.0 +28.0 110.5	65 31.3 +27.3 109.3
17°	69 22.0 +28.2 111.9	68 31.7 +27.5 110.6	67 41.0 +26.7 109.4	66 50.0 +26.0 108.2	65 58.6 +25.4 107.2
18°	69 50.2 +26.0 109.3	68 59.2 +25.2 108.1	68 07.7 +24.6 107.0	67 16.0 +24.0 105.9	66 24.0 +23.5 104.9
19°	70 16.2 +23.6 106.7	69 24.4 +22.9 105.6	68 32.3 +22.4 104.5	67 40.0 +21.8 103.5	66 47.5 +21.3 102.6
20°	70 39.8 +21.0 103.9	69 47.3 +20.5 102.9	68 54.7 +19.9 102.0	68 01.8 +19.5 101.1	67 08.8 +19.1 100.2
21°	71 00.8 +18.2 101.1	70 07.8 +17.8 100.2	69 14.6 +17.5 99.3	68 21.3 +17.2 98.5	67 27.9 +16.9 97.8
22°	71 19.0 +15.5 98.1	70 25.6 +15.1 97.3	69 32.1 +14.8 96.6	68 38.5 +14.6 95.9	67 44.8 +14.4 95.2
23°	71 34.5 +12.4 95.1	70 40.7 +12.3 94.4	69 46.9 +12.2 93.8	68 53.1 +12.1 93.2	67 59.2 +12.0 92.7
24°	71 46.9 +09.4 92.0	70 53.0 +09.4 91.5	69 59.1 +09.4 91.0	69 05.2 +09.4 90.5	68 11.2 +09.5 90.0
25°	71 56.3 +06.2 88.8	71 02.4 +06.4 88.4	70 08.5 +06.5 88.1	69 14.6 +06.7 87.7	68 20.7 +06.9 87.4
26°	72 02.5 +03.0 85.6	71 08.8 +03.3 85.4	70 15.0 +03.6 85.1	69 21.3 +03.9 84.9	68 27.6 +04.2 84.7
27°	72 05.5 -00.2 82.3	71 12.1 +00.2 82.3	70 18.6 +00.8 82.2	69 25.2 +01.2 82.1	68 31.4 +01.6 82.0
28°	72 05.3 -03.5 79.1	71 12.3 -02.8 79.2	70 19.4 -02.2 79.2	69 26.4 -01.6 79.2	68 33.4 -01.1 79.2
29°	72 01.8 -06.6 75.8	71 09.5 -05.8 76.1	70 17.2 -05.2 76.2	69 24.8 -04.4 76.4	68 32.3 -03.7 76.5

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°	54 32.8 +45.0 133.2	53 53.1 +44.3 131.9	53 12.6 +43.6 130.7	52 31.3 +42.9 129.5	51 49.4 +42.2 128.3
1°	55 17.8 +44.3 132.1	54 37.4 +43.6 130.8	53 56.2 +42.9 129.5	53 14.2 +42.2 128.3	52 31.6 +41.5 127.2
2°	56 02.1 +43.7 130.9	55 21.0 +42.9 129.6	54 39.1 +42.1 128.4	53 56.4 +41.5 127.1	53 13.1 +40.8 126.0
3°	56 45.8 +42.8 129.6	56 03.9 +42.1 128.4	55 21.2 +41.4 127.1	54 37.9 +40.6 125.9	53 53.9 +40.0 124.7
4°	57 28.6 +42.1 128.4	56 46.0 +41.3 127.1	56 02.6 +40.5 125.8	55 18.5 +39.9 124.6	54 33.9 +39.1 123.5
5°	58 10.7 +41.2 127.0	57 27.3 +40.4 125.7	56 43.1 +39.7 124.5	55 58.4 +38.9 123.3	55 13.0 +38.3 122.2
6°	58 51.9 +40.2 125.6	58 07.7 +39.4 124.3	57 22.8 +38.7 123.1	56 37.3 +38.1 121.9	55 51.3 +37.3 120.8
7°	59 32.1 +39.2 124.2	58 47.1 +38.5 122.9	58 01.5 +37.8 121.7	57 15.4 +37.0 120.5	56 28.6 +36.4 119.4
8°	60 11.3 +38.2 122.7	59 25.6 +37.4 121.4	58 39.3 +36.7 120.2	57 52.4 +36.0 119.0	57 05.0 +35.3 117.9
9°	60 49.5 +37.0 121.1	60 03.0 +36.3 119.9	59 16.0 +35.5 118.7	58 28.4 +34.9 117.5	57 40.3 +34.2 116.4
10°	61 26.5 +35.8 119.5	60 39.3 +35.0 118.2	59 51.5 +34.4 117.1	59 03.3 +33.6 116.0	58 14.5 +33.1 114.9
11°	62 02.3 +34.5 117.8	61 14.3 +33.8 116.6	60 25.9 +33.1 115.4	59 36.9 +32.5 114.3	58 47.6 +31.8 113.3
12°	62 36.8 +33.2 116.0	61 48.1 +32.4 114.8	60 59.0 +31.7 113.7	60 09.4 +31.1 112.7	59 19.4 +30.6 111.6
13°	63 10.0 +31.6 114.2	62 20.5 +31.0 113.0	61 30.7 +30.4 112.0	60 40.5 +29.8 110.9	59 50.0 +29.2 109.9
14°	63 41.6 +30.1 112.3	62 51.5 +29.5 111.2	62 01.1 +28.8 110.1	61 10.3 +28.3 109.1	60 19.2 +27.8 108.2
15°	64 11.7 +28.5 110.3	63 21.0 +27.9 109.3	62 29.9 +27.3 108.3	61 38.6 +26.8 107.3	60 47.0 +26.3 106.4
16°	64 40.2 +26.7 108.3	63 48.9 +26.1 107.3	62 57.2 +25.7 106.3	62 05.4 +25.1 105.4	61 13.3 +24.7 104.5
17°	65 06.9 +24.9 106.2	64 15.0 +24.4 105.2	63 22.9 +23.9 104.3	62 30.5 +23.5 103.4	61 38.0 +23.1 102.6
18°	65 31.8 +23.0 104.0	64 39.4 +22.5 103.1	63 46.8 +22.1 102.2	62 54.0 +21.7 101.4	62 01.1 +21.4 100.7
19°	65 54.8 +20.9 101.7	65 01.9 +20.5 100.9	64 08.9 +20.2 100.1	63 15.7 +19.9 99.4	62 22.5 +19.6 98.7
20°	66 15.7 +18.8 99.4	65 22.4 +18.5 98.7	64 29.1 +18.2 98.0	63 35.6 +18.0 97.3	62 42.1 +17.8 96.6
21°	66 34.5 +16.6 97.1	65 40.9 +16.4 96.4	64 47.3 +16.2 95.7	63 53.6 +16.0 95.1	62 59.9 +15.9 94.5
22°	66 51.1 +14.3 94.6	65 57.3 +14.2 94.0	65 03.5 +14.1 93.5	64 09.6 +14.0 92.9	63 15.8 +13.9 92.4
23°	67 05.4 +11.9 92.1	66 11.5 +11.9 91.6	65 17.6 +11.9 91.1	64 23.6 +12.0 90.7	63 29.7 +12.0 90.2
24°	67 17.3 +09.5 89.6	66 23.4 +09.6 89.2	65 29.5 +09.7 88.8	64 35.6 +09.8 88.4	63 41.7 +09.9 88.0
25°	67 26.8 +07.1 87.0	66 33.0 +07.2 86.7	65 39.2 +07.4 86.4	64 45.4 +07.6 86.1	63 51.6 +07.8 85.8
26°	67 33.9 +04.5 84.4	66 40.2 +04.9 84.2	65 46.6 +05.1 84.0	64 53.0 +05.4 83.8	63 59.4 +05.7 83.5
27°	67 38.4 +02.0 81.8	66 45.1 -02.1 81.7	65 51.7 +02.8 81.6	64 58.4 +03.2 81.4	64 05.1 +03.5 81.3
28°	67 40.4 -00.5 79.2	66 47.5 -00.1 79.2	65 54.5 +00.5 79.1	65 01.6 +00.9 79.0	64 08.6 +01.4 79.0
29°	67 39.9 -03.1 76.6	66 47.4 -02.4 76.6	65 55.0 -01.9 76.7	65 02.5 -01.3 76.7	64 10.0 -00.7 76.7

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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°	51 06.7 +41.6 127.2	50 23.5 +40.9 126.1	49 39.6 +40.3 125.1	48 55.2 +39.7 124.0	48 10.2 +39.1 123.0
1°	51 48.3 +40.9 126.1	51 04.4 +40.2 125.0	50 19.9 +39.6 123.9	49 34.9 +39.0 122.9	48 49.3 +38.4 121.9
2°	52 29.2 +40.1 124.9	51 44.6 +39.5 123.8	50 59.5 +38.9 122.7	50 13.9 +38.2 121.7	49 27.7 +37.7 120.7
3°	53 09.3 +39.3 123.6	52 24.1 +38.7 122.5	51 38.4 +38.0 121.5	50 52.1 +37.5 120.5	50 05.4 +36.9 119.5
4°	53 48.6 +38.5 122.4	53 02.8 +37.8 121.3	52 16.4 +37.3 120.2	51 29.6 +36.7 119.2	50 42.3 +36.1 118.3
5°	54 27.1 +37.6 121.0	53 40.6 +37.0 120.0	52 53.7 +36.4 118.9	52 06.3 +35.8 118.0	51 18.4 +35.3 117.0
6°	55 04.7 +36.7 119.7	54 17.6 +36.1 118.6	53 30.1 +35.4 117.6	52 42.1 +34.9 116.6	51 53.7 +34.3 115.7
7°	55 41.4 +35.7 118.3	54 53.7 +35.1 117.3	54 05.5 +34.6 116.3	53 17.0 +33.9 115.3	52 28.0 +33.5 114.3
8°	56 17.1 +34.7 116.9	55 28.8 +34.1 115.8	54 40.1 +33.5 114.9	53 50.9 +33.0 113.9	53 01.5 +32.4 113.0
9°	56 51.8 +33.6 115.4	56 02.9 +33.0 114.4	55 13.6 +32.5 113.4	54 23.9 +32.0 112.5	53 33.9 +31.5 111.6
10°	57 25.4 +32.5 113.9	56 35.9 +31.9 112.9	55 46.1 +31.3 111.9	54 55.9 +30.8 111.0	54 05.4 +30.4 110.1
11°	57 57.9 +31.3 112.3	57 07.8 +30.7 111.3	56 17.4 +30.2 110.4	55 26.7 +29.8 109.5	54 35.8 +29.2 108.6
12°	58 29.2 +30.0 110.7	57 38.5 +29.5 109.7	56 47.6 +29.0 108.8	55 56.5 +28.5 108.0	55 05.0 +28.2 107.1
13°	58 59.2 +28.6 109.0	58 08.0 +28.2 108.1	57 16.6 +27.8 107.2	56 25.0 +27.3 106.4	55 33.2 +26.9 105.6
14°	59 27.8 +27.3 107.3	58 36.2 +26.9 106.4	57 44.4 +26.4 105.6	56 52.3 +26.1 104.8	56 00.1 +25.7 104.0
15°	59 55.1 +25.9 105.5	59 03.1 +25.4 104.7	58 10.8 +25.0 103.9	57 18.4 +24.6 103.1	56 25.8 +24.3 102.4
16°	60 21.0 +24.3 103.7	59 28.5 +23.9 102.9	58 35.8 +23.6 102.1	57 43.0 +23.3 101.4	56 50.1 +23.0 100.7
17°	60 45.3 +22.7 101.8	59 52.4 +22.4 101.1	58 59.4 +22.1 100.4	58 06.3 +21.9 99.7	57 13.1 +21.6 99.0
18°	61 08.0 +21.1 99.9	60 14.8 +20.8 99.2	59 21.5 +20.6 98.6	58 28.2 +20.3 97.9	57 34.7 +20.2 97.3
19°	61 29.1 +19.4 98.0	60 35.6 +19.2 97.3	59 42.1 +19.0 96.7	58 48.5 +18.8 96.1	57 54.9 +18.6 95.5
20°	61 48.5 +17.6 96.0	60 54.8 +17.5 95.4	60 01.1 +17.3 94.8	59 07.3 +17.3 94.3	58 13.5 +17.2 93.7
21°	62 06.1 +15.8 94.0	61 12.3 +15.7 93.4	60 18.4 +15.7 92.9	59 24.6 +15.5 92.4	58 30.7 +15.5 91.9
22°	62 21.9 +13.9 91.9	61 28.0 +13.9 91.4	60 34.1 +13.8 90.9	59 40.1 +13.9 90.5	58 46.2 +13.9 90.0
23°	62 35.8 +12.0 89.8	61 41.9 +12.0 89.4	60 47.9 +12.1 88.9	59 54.0 +12.2 88.5	59 00.1 +12.3 88.1
24°	62 47.8 +10.0 87.6	61 53.9 +10.1 87.3	61 00.0 +10.3 86.9	60 06.2 +10.4 86.6	59 12.4 +10.5 86.2
25°	62 57.8 +08.0 85.5	62 04.0 +08.3 85.2	61 10.3 +08.4 84.9	60 16.6 +08.6 84.6	59 22.9 +08.9 84.3
26°	63 05.8 +06.0 83.3	62 12.3 +06.2 83.1	61 18.7 +06.6 82.8	60 25.2 +06.9 82.6	59 31.8 +07.1 82.4
27°	63 11.8 +03.9 81.1	62 18.5 +04.3 80.9	61 25.3 +04.6 80.8	60 32.1 +04.9 80.6	59 38.9 +05.3 80.4
28°	63 15.7 +01.8 78.9	62 22.8 +02.3 78.8	61 29.9 +02.7 78.7	60 37.0 +03.2 78.6	59 44.2 +03.5 78.4
29°	63 17.5 +00.2 76.7	62 25.1 +00.3 76.6	61 32.6 +00.8 76.6	60 40.2 +01.2 76.5	59 47.7 +01.8 76.4

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°	47 24.8 +38.5 122.0	46 38.8 +38.0 121.1	45 52.4 +37.5 120.2	45 05.6 +36.9 119.3	44 18.4 +36.4 118.4
1°	48 03.3 +37.8 120.9	47 16.8 +37.3 120.0	46 29.9 +36.7 119.1	45 42.5 +36.3 118.2	44 54.8 +35.8 117.3
2°	48 41.1 +37.2 119.7	47 54.1 +36.6 118.8	47 06.6 +36.1 117.9	46 18.8 +35.5 117.0	45 30.6 +35.0 116.2
3°	49 18.3 +36.3 118.5	48 30.7 +35.8 117.6	47 42.7 +35.3 116.7	46 54.3 +34.9 115.9	46 05.6 +34.4 115.0
4°	49 54.6 +35.6 117.3	49 06.5 +35.0 116.4	48 18.0 +34.5 115.5	47 29.2 +34.0 114.7	46 40.0 +33.6 113.8
5°	50 30.2 +34.7 116.1	49 41.5 +34.2 115.2	48 52.5 +33.8 114.3	48 03.2 +33.3 113.4	47 13.6 +32.8 112.6
6°	51 04.9 +33.8 114.8	50 15.7 +33.4 113.9	49 26.3 +32.8 113.0	48 36.5 +32.4 112.2	47 46.4 +32.0 111.4
7°	51 38.7 +33.0 113.4	50 49.1 +32.4 112.6	49 59.1 +32.0 111.7	49 08.9 +31.5 110.9	48 18.4 +31.1 110.1
8°	52 11.7 +31.9 112.1	51 21.5 +31.5 111.2	50 31.1 +31.1 110.4	49 40.4 +30.7 109.6	48 49.5 +30.3 108.8
9°	52 43.6 +31.0 110.7	51 53.0 +30.6 109.9	51 02.2 +30.1 109.0	50 11.1 +29.7 108.3	49 19.8 +29.3 107.5
10°	53 14.6 +29.9 109.3	52 23.6 +29.5 108.5	51 32.3 +29.1 107.7	50 40.8 +28.8 106.9	49 49.1 +28.4 106.1
11°	53 44.5 +28.9 107.8	52 53.1 +28.5 107.0	52 01.4 +28.1 106.2	51 09.6 +27.7 105.5	50 17.5 +27.4 104.8
12°	54 13.4 +27.7 106.3	53 21.6 +27.3 105.6	52 29.5 +27.0 104.8	51 37.3 +26.7 104.1	50 44.9 +26.4 103.4
13°	54 41.1 +26.6 104.8	53 48.9 +26.2 104.1	52 56.5 +25.9 103.3	52 04.0 +25.5 102.6	51 11.3 +25.3 101.9
14°	55 07.7 +25.3 103.2	54 15.1 +25.0 102.5	53 22.4 +24.7 101.8	52 29.5 +24.5 101.2	51 36.6 +24.2 100.5
15°	55 33.0 +24.1 101.7	54 40.1 +23.8 101.0	53 47.1 +23.5 100.3	52 54.0 +23.3 99.6	52 00.8 +23.1 99.0
16°	55 57.1 +22.7 100.0	55 03.9 +22.5 99.4	54 10.6 +22.3 98.7	53 17.3 +22.1 98.1	52 23.9 +21.9 97.5
17°	56 19.8 +21.4 98.4	55 26.4 +21.2 97.7	54 32.9 +21.0 97.1	53 39.4 +20.8 96.5	52 45.8 +20.7 96.0
18°	56 41.2 +20.0 96.7	55 47.6 +19.8 96.1	54 53.9 +19.7 95.5	54 00.2 +19.6 95.0	53 06.5 +19.5 94.4
19°	57 01.2 +18.5 94.9	56 07.4 +18.5 94.4	55 13.6 +18.4 93.9	54 19.8 +18.3 93.3	53 26.0 +18.2 92.8
20°	57 19.7 +17.1 93.2	56 25.9 +16.9 92.7	55 32.0 +16.9 92.2	54 38.1 +16.9 91.7	53 44.2 +16.9 91.2
21°	57 36.8 +15.5 91.4	56 42.8 +15.5 90.9	55 48.9 +15.5 90.5	54 55.0 +15.5 90.0	54 01.1 +15.5 89.6
22°	57 52.3 +13.9 89.6	56 58.3 +14.0 89.2	56 04.4 +14.1 88.8	55 10.5 +14.1 88.4	54 16.6 +14.2 88.0
23°	58 06.2 +12.4 87.8	57 12.3 +12.5 87.4	56 18.5 +12.5 87.0	55 24.6 +12.7 86.6	54 30.8 +12.8 86.3
24°	58 18.6 +10.7 85.9	57 24.8 +10.9 85.6	56 31.0 +11.1 85.2	55 37.3 +11.2 84.9	54 43.6 +11.4 84.6
25°	58 29.3 +09.0 84.0	57 35.7 +09.2 83.7	56 42.1 +09.5 83.5	55 48.5 +09.7 83.2	54 55.0 +09.9 82.9
26°	58 38.3 +07.4 82.1	57 44.9 +07.7 81.9	56 51.6 +07.9 81.7	55 58.2 +08.2 81.4	55 04.9 +08.5 81.2
27°	58 45.7 +05.7 80.2	57 52.6 +06.0 80.0	56 59.5 +06.3 79.8	56 06.4 +06.7 79.6	55 13.4 +07.0 79.4
28°	58 51.4 +03.9 78.3	57 58.6 +04.3 78.2	57 05.8 +04.7 78.0	56 13.1 +05.1 77.9	55 20.4 +05.5 77.7
29°	58 55.3 +02.2 76.4	58 02.9 +02.7 76.3	57 10.5 +03.1 76.2	56 18.2 +03.5 76.1	55 25.9 +03.9 75.9

Declination SAME name as Latitude

Latitude 26°

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°	43 30.8 +35.9 117.6	42 42.8 +35.5 116.8	41 54.5 +35.0 116.0	41 05.8 +34.6 115.2	40 16.9 +34.1 114.4
1°	44 06.7 +35.3 116.5	43 18.3 +34.8 115.7	42 29.5 +34.4 114.9	41 40.4 +34.0 114.1	40 51.0 +33.6 113.3
2°	44 42.0 +34.6 115.3	43 53.1 +34.2 114.5	43 03.9 +33.7 113.7	42 14.4 +33.3 113.0	41 24.6 +32.9 112.2
3°	45 16.6 +33.9 114.2	44 27.3 +33.4 113.4	43 37.6 +33.1 112.6	42 47.7 +32.6 111.9	41 57.5 +32.3 111.1
4°	45 50.5 +33.2 113.0	45 00.7 +32.8 112.2	44 10.7 +32.3 111.5	43 20.3 +32.0 110.7	42 29.8 +31.5 110.0
5°	46 23.7 +32.3 111.8	45 33.5 +31.9 111.0	44 43.0 +31.6 110.3	43 52.3 +31.2 109.5	43 01.3 +30.9 108.8
6°	46 56.0 +31.6 110.6	46 05.4 +31.2 109.8	45 14.6 +30.8 109.1	44 23.5 +30.4 108.3	43 32.2 +30.1 107.6
7°	47 27.6 +30.8 109.3	46 36.6 +30.4 108.6	45 45.4 +30.0 107.8	44 53.9 +29.7 107.1	44 02.3 +29.4 106.4
8°	47 58.4 +29.8 108.1	47 07.0 +29.5 107.3	46 15.4 +29.2 106.6	45 23.6 +28.9 105.9	44 31.7 +28.5 105.2
9°	48 28.2 +29.0 106.7	47 36.5 +28.6 106.0	46 44.6 +28.3 105.3	45 52.5 +28.0 104.6	45 00.2 +27.8 104.0
10°	48 57.2 +28.1 105.4	48 05.1 +27.8 104.7	47 12.9 +27.4 104.0	46 20.5 +27.2 103.4	45 28.0 +26.9 102.7
11°	49 25.3 +27.1 104.1	48 32.9 +26.8 103.4	47 40.3 +26.6 102.7	46 47.7 +26.2 102.1	45 54.9 +26.0 101.4
12°	49 52.4 +26.0 102.7	48 59.7 +26.8 102.0	48 06.9 +25.5 101.4	47 13.9 +25.4 100.8	46 20.9 +25.1 100.1
13°	50 18.4 +25.1 101.3	49 25.5 +24.8 100.6	48 32.4 +24.6 100.0	47 39.3 +24.4 99.4	46 46.0 +24.3 98.8
14°	50 43.5 +24.0 99.9	49 50.3 +23.8 99.2	48 57.0 +23.6 98.6	48 03.7 +23.4 98.1	47 10.3 +23.2 97.5
15°	51 07.5 +22.9 98.4	50 14.1 +22.7 97.8	49 20.6 +22.6 97.2	48 27.1 +22.4 96.7	47 33.5 +22.3 96.1
16°	51 30.4 +21.7 96.9	50 36.8 +21.6 96.4	49 43.2 +21.5 95.8	48 49.5 +21.4 95.3	47 55.8 +21.3 94.7
17°	51 52.1 +20.6 95.4	50 58.4 +20.5 94.9	50 04.7 +20.3 94.4	49 10.9 +20.3 93.8	48 17.1 +20.2 93.3
18°	52 12.7 +19.4 93.9	51 18.9 +19.3 93.4	50 25.0 +19.3 92.9	49 31.2 +19.2 92.4	48 37.3 +19.2 91.9
19°	52 32.1 +18.1 92.3	51 38.2 +18.1 91.9	50 44.3 +18.1 91.4	49 50.4 +18.1 90.9	48 56.5 +18.0 90.5
20°	52 50.2 +16.9 90.8	51 56.3 +16.9 90.3	51 02.4 +16.9 89.9	50 08.5 +16.9 89.5	49 14.5 +17.0 89.0
21°	53 07.1 +15.6 89.2	52 13.2 +15.7 88.8	51 19.3 +15.7 88.4	50 25.4 +15.8 88.0	49 31.5 +15.9 87.6
22°	53 22.7 +14.3 87.6	52 28.9 +14.3 87.2	51 35.0 +14.5 86.8	50 41.2 +14.5 86.4	49 47.4 +14.6 86.1
23°	53 37.0 +12.9 85.9	52 43.2 +13.1 85.6	51 49.5 +13.2 85.2	50 55.7 +13.4 84.9	50 02.0 +13.5 84.6
24°	53 49.9 +11.6 84.3	52 56.3 +11.7 84.0	52 02.7 +11.9 83.7	51 09.1 +12.1 83.3	50 15.5 +12.3 83.0
25°	54 01.5 +10.1 82.6	53 08.0 +10.4 82.3	52 14.6 +10.6 82.1	51 21.2 +10.9 81.8	50 27.8 +11.1 81.5
26°	54 11.6 +08.8 80.9	53 18.4 +09.0 80.7	52 25.2 +09.3 80.4	51 32.1 +09.5 80.2	50 38.9 +09.9 80.0
27°	54 20.4 +07.3 79.2	53 27.4 +07.7 79.0	52 34.5 +08.0 78.8	51 41.6 +08.3 78.6	50 48.8 +08.6 78.4
28°	54 27.7 +05.9 77.5	53 35.1 +06.2 77.4	52 42.5 +06.6 77.2	51 49.9 +06.9 77.0	50 57.4 +07.3 76.8
29°	54 33.6 +04.4 75.8	53 41.3 +04.8 75.7	52 49.1 +05.2 75.5	51 56.8 +05.7 75.4	51 04.7 +06.0 75.3

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°	39 27.6 +33.8 113.7	38 38.1 +33.4 112.9	37 48.3 +33.0 112.2	36 58.3 +32.6 111.5	36 08.0 +32.3 110.9
1°	40 01.4 +33.2 112.6	39 11.5 +32.8 111.9	38 21.3 +32.4 111.2	37 30.9 +32.1 110.5	36 40.3 +31.7 109.8
2°	40 34.6 +32.5 111.5	39 44.3 +32.1 110.8	38 53.7 +31.8 110.1	38 03.0 +31.5 109.4	37 12.0 +31.2 108.8
3°	41 07.1 +31.9 110.4	40 16.4 +31.6 109.7	39 25.5 +31.2 109.0	38 34.5 +30.8 108.3	37 43.2 +30.5 107.7
4°	41 39.0 +31.2 109.3	40 48.0 +30.8 108.6	39 56.7 +30.6 107.9	39 05.3 +30.3 107.2	38 13.7 +30.0 106.6
5°	42 10.2 +30.5 108.1	41 18.8 +30.2 107.4	40 27.3 +29.9 106.8	39 35.6 +29.6 106.1	38 43.7 +29.3 105.5
6°	42 40.7 +29.8 106.9	41 49.0 +29.5 106.3	40 57.2 +29.2 105.6	40 05.2 +28.9 105.0	39 13.0 +28.7 104.4
7°	43 10.5 +29.1 105.8	42 18.5 +28.8 105.1	41 26.4 +28.5 104.5	40 34.1 +28.2 103.8	39 41.7 +27.9 103.2
8°	43 39.6 +28.2 104.6	42 47.3 +28.0 103.9	41 54.9 +27.7 103.3	41 02.3 +27.5 102.7	40 09.6 +27.3 102.1
9°	44 07.8 +27.5 103.3	43 15.3 +27.2 102.7	42 22.6 +27.0 102.1	41 29.8 +26.8 101.5	40 36.9 +26.6 100.9
10°	44 35.3 +26.7 102.1	43 42.5 +26.5 101.5	42 49.6 +26.2 100.9	41 56.6 +26.0 100.3	41 03.5 +25.8 99.7
11°	45 02.0 +25.8 100.8	44 09.0 +25.6 100.2	43 15.8 +25.4 99.6	42 22.6 +25.3 99.1	41 29.3 +25.1 98.5
12°	45 27.8 +24.9 99.5	44 34.6 +24.7 99.0	43 41.2 +24.6 98.4	42 47.9 +24.4 97.8	41 54.4 +24.3 97.3
13°	45 52.7 +24.1 98.2	44 59.3 +23.9 97.7	44 05.8 +23.8 97.1	43 12.3 +23.6 96.6	42 18.7 +23.5 96.1
14°	46 16.8 +23.1 96.9	45 23.2 +23.0 96.4	44 29.6 +22.8 95.8	43 35.9 +22.8 95.3	42 42.2 +22.6 94.8
15°	46 39.9 +22.1 95.6	45 46.2 +22.0 95.1	44 52.4 +22.0 94.5	43 58.7 +21.8 94.0	43 04.8 +21.9 93.5
16°	47 02.0 +21.2 94.2	46 08.2 +21.1 93.7	45 14.4 +21.0 93.2	44 20.5 +21.0 92.7	43 26.7 +20.9 92.3
17°	47 23.2 +20.2 92.8	46 29.3 +20.2 92.4	45 35.4 +20.1 91.9	44 41.5 +20.1 91.4	43 47.6 +20.1 91.0
18°	47 43.4 +19.1 91.5	46 49.5 +19.1 91.0	45 55.5 +19.2 90.5	45 01.6 +19.2 90.1	44 07.7 +19.2 89.7
19°	48 02.5 +18.1 90.0	47 08.6 +18.1 89.6	46 14.7 +18.1 89.2	45 20.8 +18.2 88.8	44 26.9 +18.2 88.3
20°	48 20.6 +17.1 88.6	47 26.7 +17.1 88.2	46 32.8 +17.2 87.8	45 39.0 +17.2 87.4	44 45.1 +17.3 87.0
21°	48 37.7 +15.9 87.2	47 43.8 +16.0 86.8	46 50.0 +16.1 86.4	45 56.2 +16.2 86.0	45 02.4 +16.3 85.6
22°	48 53.6 +14.8 85.7	47 59.8 +14.9 85.3	47 06.1 +15.0 85.0	46 12.4 +15.2 84.6	45 18.7 +15.3 84.3
23°	49 08.4 +13.6 84.2	48 14.7 +13.9 83.9	47 21.1 +14.0 83.6	46 27.6 +14.1 83.2	45 34.0 +14.4 82.9
24°	49 22.0 +12.5 82.7	48 28.6 +12.7 82.4	47 35.1 +12.9 82.1	46 41.7 +13.1 81.8	45 48.4 +13.3 81.5
25°	49 34.5 +11.3 81.2	48 41.3 +11.5 80.9	47 48.0 +11.8 80.7	46 54.8 +12.1 80.4	46 01.7 +12.3 80.1
26°	49 45.8 +10.2 79.7	48 52.8 +10.4 79.5	47 59.8 +10.7 79.2	47 06.9 +10.9 79.0	46 14.0 +11.2 78.7
27°	49 56.0 +08.9 78.2	49 03.2 +09.2 78.0	48 10.5 +09.5 77.7	47 17.8 +09.9 77.5	46 25.2 +10.1 77.3
28°	50 04.9 +07.6 76.6	49 12.4 +08.1 76.4	48 20.0 +08.4 76.3	47 27.7 +08.7 76.1	46 35.3 +09.1 75.8
29°	50 12.5 +06.5 75.1	49 20.5 +06.8 74.9	48 28.4 +07.2 74.8	47 36.4 +07.6 74.6	46 44.4 +08.0 74.4

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Latitude 26°

Declination SAME name as Latitude

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°	35 17.5 +31.9 110.2	34 26.8 +31.6 109.5	33 35.8 +31.4 108.9	32 44.7 +31.1 108.3	31 53.4 +30.8 107.7
1°	35 49.4 +31.4 109.2	34 58.4 +31.1 108.5	34 07.2 +30.8 107.9	33 15.8 +30.5 107.3	32 24.2 +30.2 106.7
2°	36 20.8 +30.9 108.1	35 29.5 +30.5 107.5	34 38.0 +30.2 106.8	33 46.3 +30.0 106.2	32 54.4 +29.7 105.6
3°	36 51.7 +30.3 107.0	36 00.0 +30.0 106.4	35 08.2 +29.8 105.8	34 16.3 +29.4 105.2	33 24.1 +29.3 104.6
4°	37 22.0 +29.6 105.9	36 30.0 +29.4 105.3	35 38.0 +29.1 104.7	34 45.7 +28.9 104.1	33 53.4 +28.6 103.5
5°	37 51.6 +29.1 104.9	36 59.4 +28.8 104.2	36 07.1 +28.6 103.6	35 14.6 +28.4 103.1	34 22.0 +28.1 102.5
6°	38 20.7 +28.4 103.7	37 28.2 +28.2 103.1	36 35.7 +27.9 102.6	35 43.0 +27.7 102.0	34 50.1 +27.6 101.4
7°	38 49.1 +27.7 102.6	37 56.4 +27.5 102.0	37 03.6 +27.3 101.4	36 10.7 +27.1 100.9	35 17.7 +26.9 100.3
8°	39 16.8 +27.1 101.5	38 23.9 +26.9 100.9	37 30.9 +26.7 100.3	36 37.8 +26.5 99.8	35 44.6 +26.4 99.2
9°	39 43.9 +26.4 100.3	38 50.8 +26.2 99.7	37 57.6 +26.1 99.2	37 04.3 +25.9 98.6	36 11.0 +25.7 98.1
10°	40 10.3 +25.7 99.1	39 17.0 +25.5 98.6	38 23.7 +25.3 98.0	37 30.2 +25.2 97.5	36 36.7 +25.1 97.0
11°	40 36.0 +24.9 98.0	39 42.5 +24.8 97.4	38 49.0 +24.7 96.9	37 55.4 +24.6 96.4	37 01.8 +24.5 95.9
12°	41 00.9 +24.1 96.8	40 07.3 +24.0 96.2	39 13.7 +23.9 95.7	38 20.0 +23.8 95.2	37 26.3 +23.7 94.7
13°	41 25.0 +23.4 95.5	40 31.3 +23.3 95.0	39 37.6 +23.2 94.5	38 43.8 +23.2 94.0	37 50.0 +23.1 93.5
14°	41 48.4 +22.6 94.3	40 54.6 +22.5 93.8	40 00.8 +22.5 93.3	39 07.0 +22.4 92.8	38 13.1 +22.4 92.4
15°	42 11.0 +21.8 93.1	41 17.1 +21.8 92.6	40 23.3 +21.6 92.1	39 29.4 +21.6 91.6	38 35.5 +21.6 91.2
16°	42 32.8 +20.9 91.8	41 38.9 +20.9 91.3	40 44.9 +20.9 90.9	39 51.0 +20.9 90.4	38 57.1 +20.9 90.0
17°	42 53.7 +20.1 90.5	41 59.8 +20.0 90.1	41 05.8 +20.1 89.6	40 11.9 +20.1 89.2	39 18.0 +20.1 88.8
18°	43 13.8 +19.2 89.2	42 19.8 +19.3 88.8	41 25.9 +19.3 88.4	40 32.0 +19.4 88.0	39 38.1 +19.4 87.6
19°	43 33.0 +18.2 87.9	42 39.1 +18.3 87.5	41 45.2 +18.4 87.1	40 51.4 +18.5 86.7	39 57.5 +18.6 86.3
20°	43 51.2 +17.4 86.6	42 57.4 +17.5 86.2	42 03.6 +17.6 85.8	41 09.9 +17.6 85.5	40 16.1 +17.8 85.1
21°	44 08.6 +16.5 85.3	43 14.9 +16.5 84.9	42 21.2 +16.7 84.6	41 27.5 +16.8 84.2	40 33.9 +16.9 83.8
22°	44 25.1 +15.4 83.9	43 31.4 +15.7 83.6	42 37.9 +15.8 83.3	41 44.3 +16.0 82.9	40 50.8 +16.2 82.6
23°	44 40.5 +14.5 82.6	43 47.1 +14.7 82.3	42 53.7 +14.8 81.9	42 00.3 +15.1 81.6	41 07.0 +15.2 81.3
24°	44 55.0 +13.6 81.2	44 01.8 +13.7 80.9	43 08.5 +14.0 80.6	42 15.4 +14.1 80.3	41 22.2 +14.4 80.0
25°	45 08.6 +12.5 79.8	44 15.5 +12.8 79.6	43 22.5 +13.0 79.3	42 29.5 +13.3 79.0	41 36.6 +13.6 78.7
26°	45 21.1 +11.5 78.4	44 28.3 +11.8 78.2	43 35.5 +12.1 77.9	42 42.8 +12.4 77.7	41 50.2 +12.6 77.4
27°	45 32.6 +10.5 77.0	44 40.1 +10.8 76.8	43 47.6 +11.1 76.6	42 55.2 +11.4 76.3	42 02.8 +11.7 76.1
28°	45 43.1 +09.4 75.6	44 50.9 +09.7 75.4	43 58.7 +10.1 75.2	43 06.6 +10.4 75.0	42 14.5 +10.8 74.8
29°	45 52.5 +08.4 74.2	45 00.6 +08.8 74.0	44 08.8 +09.1 73.8	43 17.0 +09.5 73.6	42 25.3 +09.9 73.4

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°	31 02.0 +30.4 107.1	30 10.3 +30.2 106.5	29 18.5 +30.0 105.9	28 26.6 +29.7 105.3	27 34.5 +29.5 104.8
1°	31 32.4 +30.0 106.1	30 40.5 +29.8 105.5	29 48.5 +29.5 104.9	28 56.3 +29.3 104.3	28 04.0 +29.0 103.8
2°	32 02.4 +29.5 105.0	31 10.3 +29.2 104.5	30 18.0 +29.0 103.9	29 25.6 +28.8 103.3	28 33.0 +28.6 102.8
3°	32 31.9 +29.0 104.0	31 39.5 +28.8 103.4	30 47.0 +28.5 102.9	29 54.4 +28.3 102.3	29 01.6 +28.2 101.8
4°	33 00.9 +28.4 103.0	32 08.3 +28.2 102.4	31 15.5 +28.1 101.8	30 22.7 +27.9 101.3	29 29.8 +27.7 100.8
5°	33 29.3 +27.9 101.9	32 36.5 +27.7 101.4	31 43.6 +27.5 100.8	30 50.6 +27.3 100.3	29 57.5 +27.2 99.7
6°	33 57.2 +27.4 100.8	33 04.2 +27.2 100.3	32 11.1 +27.0 99.8	31 17.9 +26.9 99.2	30 24.7 +26.7 98.7
7°	34 24.6 +26.8 99.8	33 31.4 +26.6 99.2	32 38.1 +26.5 98.7	31 44.8 +26.3 98.2	30 51.4 +26.2 97.7
8°	34 51.4 +26.2 98.7	33 58.0 +26.1 98.2	33 04.6 +25.9 97.6	32 11.1 +25.8 97.1	31 17.6 +25.7 96.6
9°	35 17.6 +25.6 97.6	34 24.1 +25.5 97.1	33 30.5 +25.4 96.6	32 36.9 +25.3 96.1	31 43.3 +25.2 95.6
10°	35 43.2 +24.9 96.5	34 49.6 +24.8 96.0	33 55.9 +24.8 95.5	33 02.2 +24.7 95.0	32 08.5 +24.6 94.5
11°	36 08.1 +24.4 95.4	35 14.4 +24.3 94.9	34 20.7 +24.2 94.4	33 26.9 +24.1 93.9	32 33.1 +24.0 93.4
12°	36 32.5 +23.7 94.2	35 38.7 +23.6 93.7	34 44.9 +23.5 93.3	33 51.0 +23.5 92.8	32 57.1 +23.5 92.3
13°	36 56.2 +23.0 93.1	36 02.3 +23.0 92.6	35 08.4 +23.0 92.1	34 14.5 +23.0 91.7	33 20.6 +22.9 91.2
14°	37 19.2 +22.3 91.9	36 25.3 +22.3 91.5	35 31.4 +22.3 91.0	34 37.5 +22.3 90.6	33 43.5 +22.3 90.1
15°	37 41.5 +21.7 90.7	36 47.6 +21.6 90.3	35 53.7 +21.6 89.9	34 59.8 +21.6 89.4	34 05.8 +21.7 89.0
16°	38 03.2 +20.9 89.6	37 09.2 +21.0 89.1	36 15.3 +21.0 88.7	35 21.4 +21.0 88.3	34 27.5 +21.1 87.9
17°	38 24.1 +20.2 88.4	37 30.2 +20.2 88.0	36 36.3 +20.3 87.5	35 42.4 +20.4 87.1	34 48.6 +20.4 86.7
18°	38 44.3 +19.4 87.2	37 50.4 +19.5 86.8	36 56.6 +19.6 86.4	36 02.8 +19.7 86.0	35 09.0 +19.8 85.6
19°	39 03.7 +18.7 85.9	38 09.9 +18.8 85.6	37 16.2 +18.9 85.2	36 22.5 +18.9 84.8	35 28.8 +19.1 84.4
20°	39 22.4 +17.9 84.7	38 28.7 +18.0 84.4	37 35.1 +18.1 84.0	36 41.4 +18.3 83.6	35 47.9 +18.4 83.3
21°	39 40.3 +17.1 83.5	38 46.7 +17.3 83.1	37 53.2 +17.4 82.8	36 59.7 +17.6 82.4	36 06.3 +17.7 82.1
22°	39 57.4 +16.3 82.2	39 04.0 +16.4 81.9	38 10.6 +16.7 81.6	37 17.3 +16.8 81.2	36 24.0 +17.0 80.9
23°	40 13.7 +15.4 81.0	39 20.4 +15.7 80.7	38 27.3 +15.8 80.3	37 34.1 +16.1 80.0	36 41.0 +16.3 79.7
24°	40 29.1 +14.7 79.7	39 36.1 +14.9 79.4	38 43.1 +15.1 79.1	37 50.2 +15.3 78.8	36 57.3 +15.6 78.5
25°	40 43.8 +13.8 78.4	39 51.0 +14.0 78.1	38 58.2 +14.3 77.9	38 05.5 +14.6 77.6	37 12.9 +14.8 77.3
26°	40 57.6 +12.9 77.1	40 05.0 +13.2 76.9	39 12.5 +13.5 76.6	38 20.1 +13.8 76.3	37 27.7 +14.1 76.1
27°	41 10.5 +12.0 75.8	40 18.2 +12.4 75.6	39 26.0 +12.7 75.4	38 33.9 +12.9 75.1	37 41.8 +13.3 74.8
28°	41 22.5 +11.2 74.5	40 30.6 +11.5 74.3	39 38.7 +11.8 74.1	38 46.8 +12.2 73.8	37 55.1 +12.5 73.6
29°	41 33.7 +10.2 73.2	40 42.1 +10.6 73.0	39 50.5 +11.0 72.8	38 59.0 +11.4 72.6	38 07.6 +11.7 72.4

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Declination SAME name as Latitude

Latitude 26°

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°	26 42.3 +29.2 104.2	25 50.0 +29.0 103.7	24 57.5 +28.8 103.1	24 04.9 +28.6 102.6	23 12.2 +28.5 102.1
1°	27 11.5 +28.9 103.2	26 19.0 +28.6 102.7	25 26.3 +28.5 102.2	24 33.5 +28.3 101.6	23 40.7 +28.1 101.1
2°	27 40.4 +28.4 102.2	26 47.6 +28.2 101.7	25 54.8 +28.0 101.2	25 01.8 +27.9 100.7	24 08.8 +27.7 100.1
3°	28 08.8 +27.9 101.2	27 15.8 +27.8 100.7	26 22.8 +27.6 100.2	25 29.7 +27.5 99.7	24 36.5 +27.3 99.2
4°	28 36.7 +27.6 100.2	27 43.6 +27.4 99.7	26 50.4 +27.3 99.2	25 57.2 +27.0 98.7	25 03.8 +27.0 98.2
5°	29 04.3 +27.0 99.2	28 11.0 +26.9 98.7	27 17.7 +26.7 98.2	26 24.2 +26.7 97.7	25 30.8 +26.5 97.2
6°	29 31.3 +26.6 98.2	28 37.9 +26.5 97.7	27 44.4 +26.4 97.2	26 50.9 +26.2 96.7	25 57.3 +26.2 96.2
7°	29 57.9 +26.1 97.2	29 04.4 +26.0 96.7	28 10.8 +25.9 96.2	27 17.1 +25.8 95.7	26 23.5 +25.7 95.2
8°	30 24.0 +25.6 96.1	29 30.4 +25.5 95.6	28 36.7 +25.4 95.1	27 42.9 +25.4 94.7	26 49.2 +25.2 94.2
9°	30 49.6 +25.1 95.1	29 55.9 +25.0 94.6	29 02.1 +24.9 94.1	28 08.3 +24.9 93.6	27 14.4 +24.9 93.2
10°	31 14.7 +24.5 94.0	30 20.9 +24.5 93.5	29 27.0 +24.5 93.1	28 33.2 +24.4 92.6	27 39.3 +24.4 92.1
11°	31 39.2 +24.0 92.9	30 45.4 +23.9 92.5	29 51.5 +23.9 92.0	28 57.6 +23.9 91.6	28 03.7 +23.9 91.1
12°	32 03.2 +23.5 91.9	31 09.3 +23.5 91.4	30 15.4 +23.5 91.0	29 21.5 +23.4 90.5	28 27.6 +23.4 90.1
13°	32 26.7 +22.9 90.8	31 32.8 +22.9 90.3	30 38.9 +22.9 89.9	29 44.9 +22.9 89.5	28 51.0 +22.9 89.0
14°	32 49.6 +22.3 89.7	31 55.7 +22.3 89.2	31 01.8 +22.3 88.8	30 07.8 +22.4 88.4	29 13.9 +22.5 88.0
15°	33 11.9 +21.7 88.6	32 18.0 +21.8 88.1	31 24.1 +21.8 87.7	30 30.2 +21.9 87.3	29 36.4 +21.9 86.9
16°	33 33.6 +21.2 87.5	32 39.8 +21.2 87.0	31 45.9 +21.3 86.6	30 52.1 +21.3 86.2	29 58.3 +21.4 85.8
17°	33 54.8 +20.5 86.3	33 01.0 +20.5 85.9	32 07.2 +20.6 85.5	31 13.4 +20.8 85.1	30 19.7 +20.9 84.7
18°	34 15.3 +19.8 85.2	33 21.5 +20.0 84.8	32 27.8 +20.1 84.4	31 34.2 +20.2 84.0	30 40.6 +20.3 83.7
19°	34 35.1 +19.2 84.0	33 41.5 +19.3 83.7	32 47.9 +19.5 83.3	31 54.4 +19.6 82.9	31 00.9 +19.7 82.6
20°	34 54.3 +18.6 82.9	34 00.8 +18.8 82.5	33 07.4 +18.9 82.2	32 14.0 +19.0 81.8	31 20.6 +19.2 81.5
21°	35 12.9 +17.9 81.7	34 19.6 +18.0 81.4	33 26.3 +18.2 81.0	32 33.0 +18.4 80.7	31 39.8 +18.6 80.3
22°	35 30.8 +17.2 80.6	34 37.6 +17.4 80.2	33 44.5 +17.6 79.9	32 51.4 +17.8 79.6	31 58.4 +18.0 79.2
23°	35 48.0 +16.5 79.4	34 55.0 +16.8 79.1	34 02.1 +17.0 78.7	33 09.2 +17.2 78.4	32 16.4 +17.4 78.1
24°	36 04.5 +15.8 78.2	35 11.8 +16.0 77.9	34 19.1 +16.2 77.6	33 26.4 +16.6 77.3	32 33.8 +16.8 77.0
25°	36 20.3 +15.1 77.0	35 27.8 +15.4 76.7	34 35.3 +15.7 76.4	33 43.0 +15.9 76.1	32 50.6 +16.2 75.8
26°	36 35.4 +14.4 75.8	35 43.2 +14.6 75.5	34 51.0 +14.9 75.2	33 58.9 +15.2 75.0	33 06.8 +15.5 74.7
27°	36 49.8 +13.6 74.6	35 57.8 +13.9 74.3	35 05.9 +14.3 74.1	34 14.1 +14.6 73.8	33 22.3 +14.9 73.5
28°	37 03.4 +12.8 73.4	36 11.7 +13.2 73.1	35 20.2 +13.5 72.9	34 28.7 +13.8 72.6	33 37.2 +14.3 72.4
29°	37 16.2 +12.1 72.1	36 24.9 +12.5 71.9	35 33.7 +12.8 71.7	34 42.5 +13.2 71.4	33 51.5 +13.5 71.2

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°	22 19.5 +28.2 101.6	21 26.6 +28.1 101.0	20 33.6 +27.9 100.5	19 40.5 +27.8 100.0	18 47.4 +27.6 99.6
1°	22 47.7 +27.9 100.6	21 54.7 +27.7 100.1	21 01.5 +27.7 99.6	20 08.3 +27.5 99.1	19 15.0 +27.4 98.6
2°	23 15.6 +27.6 99.6	22 22.4 +27.5 99.1	21 29.2 +27.2 98.6	20 35.8 +27.2 98.2	19 42.4 +27.0 97.7
3°	23 43.2 +27.2 98.7	22 49.9 +27.0 98.2	21 56.4 +27.0 97.7	21 03.0 +26.8 97.2	20 09.4 +26.8 96.7
4°	24 10.4 +26.8 97.7	23 16.9 +26.8 97.2	22 23.4 +26.6 96.7	21 29.8 +26.5 96.2	20 36.2 +26.4 95.8
5°	24 37.2 +26.5 96.7	23 43.7 +26.3 96.2	22 50.0 +26.3 95.7	21 56.3 +26.2 95.3	21 02.6 +26.1 94.8
6°	25 03.7 +26.0 95.7	24 10.0 +26.0 95.2	23 16.3 +25.9 94.8	22 22.5 +25.8 94.3	21 28.7 +25.8 93.8
7°	25 29.7 +25.7 94.7	24 36.0 +25.5 94.3	23 42.2 +25.5 93.8	22 48.3 +25.5 93.3	21 54.5 +25.4 92.9
8°	25 55.4 +25.2 93.7	25 01.5 +25.2 93.3	24 07.7 +25.1 92.8	23 13.8 +25.1 92.3	22 19.9 +25.1 91.9
9°	26 20.6 +24.8 92.7	25 26.7 +24.8 92.3	24 32.8 +24.8 91.8	23 38.9 +24.7 91.4	22 45.0 +24.7 90.9
10°	26 45.4 +24.3 91.7	25 51.5 +24.3 91.2	24 57.6 +24.3 90.8	24 03.6 +24.4 90.4	23 09.7 +24.3 89.9
11°	27 09.7 +23.9 90.7	26 15.8 +23.9 90.2	25 21.9 +23.9 89.8	24 28.0 +23.9 89.4	23 34.0 +24.0 88.9
12°	27 33.6 +23.5 89.6	26 39.7 +23.5 89.2	25 45.8 +23.5 88.8	24 51.9 +23.5 88.3	23 58.0 +23.6 87.9
13°	27 57.1 +23.0 88.6	27 03.2 +23.0 88.2	26 09.3 +23.0 87.7	25 15.4 +23.1 87.3	24 21.6 +23.1 86.9
14°	28 20.1 +22.4 87.5	27 26.2 +22.5 87.1	26 32.3 +22.6 86.7	25 38.5 +22.7 86.3	24 44.7 +22.8 85.9
15°	28 42.5 +22.0 86.5	27 48.7 +22.1 86.1	26 54.9 +22.2 85.7	26 01.2 +22.2 85.3	25 07.5 +22.3 84.9
16°	29 04.5 +21.5 85.4	28 10.8 +21.6 85.0	27 17.1 +21.7 84.6	26 23.4 +21.8 84.2	25 29.8 +21.9 83.8
17°	29 26.0 +21.0 84.4	28 32.4 +21.1 84.0	27 38.8 +21.2 83.6	26 45.2 +21.3 83.2	25 51.7 +21.4 82.8
18°	29 47.0 +20.4 83.3	28 53.5 +20.5 82.9	28 00.0 +20.7 82.5	27 06.5 +20.9 82.2	26 13.1 +21.0 81.8
19°	30 07.4 +19.9 82.2	29 14.0 +20.1 81.8	28 20.7 +20.2 81.5	27 27.4 +20.3 81.1	26 34.1 +20.6 80.7
20°	30 27.3 +19.4 81.1	29 34.1 +19.5 80.7	28 40.9 +19.7 80.4	27 47.7 +19.9 80.0	26 54.7 +20.0 79.7
21°	30 46.7 +18.8 80.0	29 53.6 +19.0 79.7	29 00.6 +19.2 79.3	28 07.6 +19.4 79.0	27 14.7 +19.6 78.6
22°	31 05.5 +18.2 78.9	30 12.6 +18.4 78.6	29 19.8 +18.6 78.2	28 27.0 +18.9 77.9	27 34.3 +19.1 77.6
23°	31 23.7 +17.6 77.8	30 31.0 +17.9 77.5	29 38.4 +18.1 77.1	28 45.9 +18.3 76.8	27 53.4 +18.6 76.5
24°	31 41.3 +17.1 76.7	30 48.9 +17.3 76.3	29 56.5 +17.6 76.0	29 04.2 +17.9 75.7	28 12.0 +18.1 75.4
25°	31 58.4 +16.4 75.5	31 06.2 +16.7 75.2	30 14.1 +17.0 74.9	29 22.1 +17.2 74.6	28 30.1 +17.6 74.3
26°	32 14.8 +15.9 74.4	31 22.9 +16.2 74.1	30 31.1 +16.4 73.8	29 39.3 +16.8 73.5	28 47.7 +17.0 73.2
27°	32 30.7 +15.2 73.3	31 39.1 +15.5 73.0	30 47.5 +15.9 72.7	29 56.1 +16.2 72.4	29 04.7 +16.5 72.1
28°	32 45.9 +14.5 72.1	31 54.6 +14.9 71.8	31 03.4 +15.3 71.6	30 12.3 +15.6 71.3	29 21.2 +16.0 71.0
29°	33 00.4 +14.0 71.0	32 09.5 +14.3 70.7	31 18.7 +14.6 70.4	30 27.9 +15.0 70.2	29 37.2 +15.4 69.9

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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°	17 54.2 +27.5 99.1	17 00.9 +27.4 98.6	16 07.5 +27.3 98.1	15 14.1 +27.2 97.6	14 20.6 +27.1 97.2
1°	18 21.7 +27.2 98.1	17 28.3 +27.1 97.7	16 34.8 +27.0 97.2	15 41.3 +26.9 96.7	14 47.7 +26.8 96.2
2°	18 48.9 +27.0 97.2	17 55.4 +26.8 96.7	17 01.8 +26.8 96.2	16 08.2 +26.6 95.8	15 14.5 +26.6 95.3
3°	19 15.9 +26.6 96.2	18 22.2 +26.6 95.8	17 28.6 +26.4 95.3	16 34.8 +26.5 94.8	15 41.1 +26.3 94.4
4°	19 42.5 +26.4 95.3	18 48.8 +26.3 94.8	17 55.0 +26.3 94.4	17 01.3 +26.1 93.9	16 07.4 +26.1 93.5
5°	20 08.9 +26.0 94.3	19 15.1 +26.0 93.9	18 21.3 +25.9 93.4	17 27.4 +25.9 93.0	16 33.5 +25.9 92.5
6°	20 34.9 +25.7 93.4	19 41.1 +25.6 92.9	18 47.2 +25.6 92.5	17 53.3 +25.6 92.0	16 59.4 +25.6 91.6
7°	21 00.6 +25.4 92.4	20 06.7 +25.4 92.0	19 12.8 +25.4 91.5	18 18.9 +25.4 91.1	17 25.0 +25.3 90.6
8°	21 26.0 +25.1 91.4	20 32.1 +25.0 91.0	19 38.2 +25.0 90.6	18 44.3 +25.0 90.1	17 50.3 +25.1 89.7
9°	21 51.1 +24.7 90.5	20 57.1 +24.8 90.0	20 03.2 +24.7 89.6	19 09.3 +24.7 89.2	18 15.4 +24.7 88.7
10°	22 15.8 +24.3 89.5	21 21.9 +24.3 89.0	20 27.9 +24.4 88.6	19 34.0 +24.5 88.2	18 40.1 +24.5 87.8
11°	22 40.1 +24.0 88.5	21 46.2 +24.0 88.1	20 52.3 +24.1 87.6	19 58.5 +24.1 87.2	19 04.6 +24.2 86.8
12°	23 04.1 +23.6 87.5	22 10.2 +23.7 87.1	21 16.4 +23.7 86.7	20 22.6 +23.8 86.2	19 28.8 +23.8 85.8
13°	23 27.7 +23.2 86.5	22 33.9 +23.3 86.1	21 40.1 +23.4 85.7	20 46.4 +23.4 85.3	19 52.6 +23.6 84.8
14°	23 50.9 +22.9 85.5	22 57.2 +22.9 85.1	22 03.5 +23.0 84.7	21 09.8 +23.1 84.3	20 16.2 +23.2 83.9
15°	24 13.8 +22.4 84.5	23 20.1 +22.5 84.1	22 26.5 +22.6 83.7	21 32.9 +22.8 83.3	20 39.4 +22.8 82.9
16°	24 36.2 +22.0 83.5	23 42.6 +22.2 83.1	22 49.1 +22.3 82.7	21 55.7 +22.3 82.3	21 02.2 +22.6 81.9
17°	24 58.2 +21.6 82.4	24 04.8 +21.7 82.0	23 11.4 +21.8 81.7	22 18.0 +22.1 81.3	21 24.8 +22.1 80.9
18°	25 19.8 +21.1 81.4	24 26.5 +21.3 81.0	23 33.2 +21.5 80.7	22 40.1 +21.6 80.3	21 46.9 +21.8 79.9
19°	25 40.9 +20.7 80.4	24 47.8 +20.9 80.0	23 54.7 +21.1 79.6	23 01.7 +21.2 79.3	22 08.7 +21.5 78.9
20°	26 01.6 +20.3 79.3	25 08.7 +20.4 79.0	24 15.8 +20.6 78.6	23 22.9 +20.9 78.2	22 30.2 +21.0 77.9
21°	26 21.9 +19.8 78.3	25 29.1 +20.0 77.9	24 36.4 +20.3 77.6	23 43.8 +20.4 77.2	22 51.2 +20.7 76.9
22°	26 41.7 +19.3 77.2	25 49.1 +19.6 76.9	24 56.7 +19.7 76.5	24 04.2 +20.1 76.2	23 11.9 +20.3 75.9
23°	27 01.0 +18.9 76.2	26 08.7 +19.1 75.8	25 16.4 +19.4 75.5	24 24.3 +19.6 75.2	23 32.2 +19.9 74.8
24°	27 19.9 +18.3 75.1	26 27.8 +18.6 74.8	25 35.8 +18.9 74.4	24 43.9 +19.2 74.1	23 52.1 +19.4 73.8
25°	27 38.2 +17.9 74.0	26 46.4 +18.2 73.7	25 54.7 +18.4 73.4	25 03.1 +18.7 73.1	24 11.5 +19.0 72.8
26°	27 56.1 +17.3 72.9	27 04.6 +17.6 72.6	26 13.1 +18.0 72.3	25 21.8 +18.3 72.0	24 30.5 +18.6 71.7
27°	28 13.4 +16.9 71.9	27 22.2 +17.2 71.6	26 31.1 +17.5 71.3	25 40.1 +17.8 71.0	24 49.1 +18.2 70.7
28°	28 30.3 +16.3 70.8	27 39.4 +16.6 70.5	26 48.6 +17.0 70.2	25 57.9 +17.4 69.9	25 07.3 +17.7 69.6
29°	28 46.6 +15.7 69.7	27 56.0 +16.2 69.4	27 05.6 +16.5 69.1	26 15.3 +16.9 68.8	25 25.0 +17.3 68.6

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°	13 27.1 +26.9 96.7	12 33.5 +26.9 96.2	11 39.9 +26.8 95.8	10 46.2 +26.7 95.3	9 52.5 +26.6 94.9
1°	13 54.0 +26.8 95.8	13 00.4 +26.6 95.3	12 06.7 +26.5 94.9	11 12.9 +26.5 94.4	10 19.1 +26.5 94.0
2°	14 20.8 +26.5 94.9	13 27.0 +26.5 94.4	12 33.2 +26.4 93.9	11 39.4 +26.4 93.5	10 45.6 +26.3 93.0
3°	14 47.3 +26.3 93.9	13 53.5 +26.2 93.5	12 59.6 +26.3 93.0	12 05.8 +26.2 92.6	11 11.9 +26.1 92.1
4°	15 13.6 +26.1 93.0	14 19.7 +26.1 92.5	13 25.9 +26.0 92.1	12 32.0 +25.9 91.7	11 38.0 +26.0 91.2
5°	15 39.7 +25.8 92.1	14 45.8 +25.8 91.6	13 51.9 +25.7 91.2	12 57.9 +25.8 90.7	12 04.0 +25.8 90.3
6°	16 05.5 +25.6 91.1	15 11.6 +25.5 90.7	14 17.6 +25.6 90.2	13 23.7 +25.6 89.8	12 29.8 +25.6 89.4
7°	16 31.1 +25.3 90.2	15 37.1 +25.4 89.7	14 43.2 +25.4 89.3	13 49.3 +25.4 88.9	12 55.4 +25.4 88.4
8°	16 56.4 +25.1 89.2	16 02.5 +25.1 88.8	15 08.6 +25.1 88.4	14 14.7 +25.1 87.9	13 20.8 +25.2 87.5
9°	17 21.5 +24.8 88.3	16 27.6 +24.8 87.9	15 33.7 +24.9 87.4	14 39.8 +24.9 87.0	13 46.0 +25.0 86.6
10°	17 46.3 +24.5 87.3	16 52.4 +24.6 86.9	15 58.6 +24.6 86.5	15 04.7 +24.7 86.1	14 11.0 +24.7 85.6
11°	18 10.8 +24.2 86.4	17 17.0 +24.3 86.0	16 23.2 +24.4 85.5	15 29.4 +24.5 85.1	14 35.7 +24.6 84.7
12°	18 35.0 +23.9 85.4	17 41.3 +24.0 85.0	16 47.6 +24.1 84.6	15 53.9 +24.2 84.2	15 00.3 +24.3 83.8
13°	18 58.9 +23.7 84.4	18 05.3 +23.7 84.0	17 11.7 +23.8 83.6	16 18.1 +23.9 83.2	15 24.6 +24.0 82.8
14°	19 22.6 +23.3 83.5	18 29.0 +23.4 83.1	17 35.5 +23.6 82.7	16 42.0 +23.7 82.3	15 48.6 +23.8 81.9
15°	19 45.9 +23.0 82.5	18 52.4 +23.2 82.1	17 59.1 +23.2 81.7	17 05.7 +23.4 81.3	16 12.4 +23.6 80.9
16°	20 08.9 +22.6 81.5	19 15.6 +22.8 81.1	18 22.3 +23.0 80.7	17 29.1 +23.1 80.3	16 36.0 +23.3 79.9
17°	20 31.5 +22.4 80.5	19 38.4 +22.5 80.1	18 45.3 +22.6 79.8	17 52.2 +22.9 79.4	16 59.3 +23.0 79.0
18°	20 53.9 +22.0 79.5	20 00.9 +22.1 79.1	19 07.9 +22.4 78.8	18 15.1 +22.5 78.4	17 22.3 +22.7 78.0
19°	21 15.9 +21.6 78.5	20 23.0 +21.9 78.2	19 30.3 +22.0 77.8	18 37.6 +22.3 77.4	17 45.0 +22.5 77.0
20°	21 37.5 +21.3 77.5	20 44.9 +21.5 77.2	19 52.3 +21.7 76.8	18 59.9 +21.9 76.4	18 07.5 +22.1 76.1
21°	21 58.8 +20.9 76.5	21 06.4 +21.1 76.2	20 14.0 +21.4 75.8	19 21.8 +21.6 75.5	18 29.6 +21.9 75.1
22°	22 19.7 +20.5 75.5	21 27.5 +20.8 75.2	20 35.4 +21.0 74.8	19 43.4 +21.3 74.5	18 51.5 +21.5 74.1
23°	22 40.2 +20.1 74.5	21 48.3 +20.4 74.2	20 56.4 +20.7 73.8	20 04.7 +20.9 73.5	19 13.0 +21.3 73.1
24°	23 00.3 +19.8 73.5	22 08.7 +20.0 73.1	21 17.1 +20.3 72.8	20 25.6 +20.6 72.5	19 34.3 +20.8 72.1
25°	23 20.1 +19.3 72.4	22 28.7 +19.6 72.1	21 37.4 +19.9 71.8	20 46.2 +20.3 71.5	19 55.1 +20.6 71.1
26°	23 39.4 +18.9 71.4	22 48.3 +19.3 71.1	21 57.3 +19.6 70.8	21 06.5 +19.9 70.5	20 15.7 +20.2 70.1
27°	23 58.3 +18.5 70.4	23 07.6 +18.8 70.1	22 16.9 +19.2 69.8	21 26.4 +19.5 69.4	20 35.9 +19.9 69.1
28°	24 16.8 +18.1 69.3	23 26.4 +18.4 69.0	22 36.1 +18.8 68.7	21 45.9 +19.1 68.4	20 55.8 +19.5 68.1
29°	24 34.9 +17.6 68.3	23 44.8 +18.0 68.0	22 54.9 +18.4 67.7	22 05.0 +18.8 67.4	21 15.3 +19.2 67.1

Declination SAME name as Latitude

Latitude 26°

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°	8 58.7 +26.6 94.4	8 05.0 +26.5 94.0	7 11.2 +26.4 93.5	6 17.3 +26.4 93.1	5 23.5 +26.3 92.6
1°	9 25.3 +26.4 93.5	8 31.5 +26.3 93.1	7 37.6 +26.3 92.6	6 43.7 +26.3 92.2	5 49.8 +26.3 91.7
2°	9 51.7 +26.3 92.6	8 57.8 +26.3 92.2	8 03.9 +26.3 91.7	7 10.0 +26.2 91.3	6 16.1 +26.2 90.8
3°	10 18.0 +26.1 91.7	9 24.1 +26.1 91.2	8 30.2 +26.1 90.8	7 36.2 +26.1 90.4	6 42.3 +26.1 89.9
4°	10 44.1 +26.0 90.8	9 50.2 +26.0 90.3	8 56.3 +25.9 89.9	8 02.3 +26.0 89.5	7 08.4 +26.0 89.0
5°	11 10.1 +25.8 89.9	10 16.2 +25.8 89.4	9 22.2 +25.9 89.0	8 28.3 +25.9 88.5	7 34.4 +25.9 88.1
6°	11 35.9 +25.6 88.9	10 42.0 +25.6 88.5	9 48.1 +25.6 88.1	8 54.2 +25.7 87.6	8 00.3 +25.8 87.2
7°	12 01.5 +25.4 88.0	11 07.6 +25.5 87.6	10 13.7 +25.5 87.1	9 19.9 +25.6 86.7	8 26.1 +25.6 86.3
8°	12 26.9 +25.3 87.1	11 33.1 +25.3 86.7	10 39.2 +25.4 86.2	9 45.5 +25.4 85.8	8 51.7 +25.5 85.4
9°	12 52.2 +25.0 86.2	11 58.4 +25.1 85.7	11 04.6 +25.2 85.3	10 10.9 +25.2 84.9	9 17.2 +25.3 84.5
10°	13 17.2 +24.8 85.2	12 23.5 +24.9 84.8	11 29.8 +25.0 84.4	10 36.1 +25.2 84.0	9 42.5 +25.3 83.5
11°	13 42.0 +24.7 84.3	12 48.4 +24.7 83.9	11 54.8 +24.8 83.5	11 01.3 +24.9 83.0	10 07.8 +25.0 82.6
12°	14 06.7 +24.4 83.3	13 13.1 +24.6 82.9	12 19.6 +24.7 82.5	11 26.2 +24.8 82.1	10 32.8 +24.9 81.7
13°	14 31.1 +24.2 82.4	13 37.7 +24.3 82.0	12 44.3 +24.4 81.6	11 51.0 +24.5 81.2	10 57.7 +24.7 80.8
14°	14 55.3 +23.9 81.5	14 02.0 +24.1 81.1	13 08.7 +24.3 80.6	12 15.5 +24.4 80.2	11 22.4 +24.6 79.8
15°	15 19.2 +23.7 80.5	14 26.1 +23.8 80.1	13 33.0 +24.0 79.7	12 39.9 +24.2 79.3	11 47.0 +24.4 78.9
16°	15 42.9 +23.5 79.6	14 49.9 +23.7 79.2	13 57.0 +23.8 78.8	13 04.1 +24.0 78.4	12 11.4 +24.1 78.0
17°	16 06.4 +23.2 78.6	15 13.6 +23.3 78.2	14 20.8 +23.6 77.8	13 28.1 +23.8 77.4	12 35.5 +24.0 77.0
18°	16 29.6 +22.9 77.6	15 36.9 +23.2 77.3	14 44.4 +23.3 76.9	13 51.9 +23.6 76.5	12 59.5 +23.8 76.1
19°	16 52.5 +22.7 76.7	16 00.1 +22.9 76.3	15 07.7 +23.1 75.9	14 15.5 +23.3 75.5	13 23.3 +23.6 75.2
20°	17 15.2 +22.4 75.7	16 23.0 +22.6 75.3	15 30.8 +22.9 75.0	14 38.8 +23.1 74.6	13 46.9 +23.3 74.2
21°	17 37.6 +22.1 74.7	16 45.6 +22.3 74.4	15 53.7 +22.6 74.0	15 01.9 +22.9 73.6	14 10.2 +23.2 73.3
22°	17 59.7 +21.8 73.8	17 07.9 +22.1 73.4	16 16.3 +22.4 73.0	15 24.8 +22.6 72.7	14 33.4 +22.9 72.3
23°	18 21.5 +21.5 72.8	17 30.0 +21.8 72.4	16 38.7 +22.0 72.1	15 47.4 +22.4 71.7	14 56.3 +22.6 71.3
24°	18 43.0 +21.2 71.8	17 51.8 +21.5 71.4	17 00.7 +21.8 71.1	16 09.8 +22.1 70.7	15 18.9 +22.4 70.4
25°	19 04.2 +20.8 70.8	18 13.3 +21.2 70.5	17 22.5 +21.5 70.1	16 31.9 +21.8 69.8	15 41.3 +22.2 69.4
26°	19 25.0 +20.6 69.8	18 34.5 +20.9 69.5	17 44.0 +21.3 69.1	16 53.7 +21.6 68.8	16 03.5 +21.9 68.5
27°	19 45.6 +20.2 68.8	18 55.4 +20.5 68.5	18 05.3 +20.9 68.2	17 15.3 +21.2 67.8	16 25.4 +21.6 67.5
28°	20 05.8 +19.9 67.8	19 15.9 +20.3 67.5	18 26.2 +20.6 67.2	17 36.5 +21.0 66.8	16 47.0 +21.4 66.5
29°	20 25.7 +19.5 66.8	19 36.2 +19.9 66.5	18 46.8 +20.3 66.2	17 57.5 +20.7 65.9	17 08.4 +21.0 65.5

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°	4 29.6 +26.3 92.2	3 35.7 +26.3 91.8	2 41.8 +26.3 91.3	1 47.9 +26.3 90.9	0 53.9 +26.3 90.4
1°	4 55.9 +26.3 91.3	4 02.0 +26.3 90.9	3 08.1 +26.2 90.4	2 14.2 +26.2 90.0	1 20.2 +26.3 89.5
2°	5 22.2 +26.2 90.4	4 28.3 +26.2 90.0	3 34.3 +26.3 89.5	2 40.4 +26.2 89.1	1 46.5 +26.3 88.6
3°	5 48.4 +26.1 89.5	4 54.5 +26.1 89.1	4 00.6 +26.1 88.6	3 06.6 +26.2 88.2	2 12.8 +26.2 87.7
4°	6 14.5 +26.0 88.6	5 20.6 +26.0 88.1	4 26.7 +26.1 87.7	3 32.8 +26.2 87.3	2 39.0 +26.2 86.8
5°	6 40.5 +25.9 87.7	5 46.6 +26.0 87.2	4 52.8 +26.0 86.8	3 59.0 +26.0 86.4	3 05.2 +26.1 85.9
6°	7 06.4 +25.9 86.8	6 12.6 +25.9 86.3	5 18.8 +25.9 85.9	4 25.0 +26.0 85.5	3 31.3 +26.1 85.0
7°	7 32.3 +25.6 85.9	6 38.5 +25.7 85.4	5 44.7 +25.9 85.0	4 51.0 +26.0 84.6	3 57.4 +26.0 84.1
8°	7 57.9 +25.6 84.9	7 04.2 +25.7 84.5	6 10.6 +25.7 84.1	5 17.0 +25.8 83.7	4 23.4 +26.0 83.2
9°	8 23.5 +25.5 84.0	7 29.9 +25.6 83.6	6 36.3 +25.7 83.2	5 42.8 +25.8 82.8	4 49.4 +25.8 82.3
10°	8 49.0 +25.3 83.1	7 55.5 +25.4 82.7	7 02.0 +25.6 82.3	6 08.6 +25.7 81.8	5 15.2 +25.8 81.4
11°	9 14.3 +25.2 82.2	8 20.9 +25.3 81.8	7 27.6 +25.4 81.4	6 34.3 +25.5 80.9	5 41.0 +25.8 80.5
12°	9 39.5 +25.0 81.3	8 46.2 +25.2 80.9	7 53.0 +25.3 80.4	6 59.8 +25.5 80.0	6 06.8 +25.6 79.6
13°	10 04.5 +24.9 80.4	9 11.4 +25.0 79.9	8 18.3 +25.2 79.5	7 25.3 +25.4 79.1	6 32.4 +25.5 78.7
14°	10 29.4 +24.7 79.4	9 36.4 +24.9 79.0	8 43.5 +25.1 78.6	7 50.7 +25.2 78.2	6 57.9 +25.5 77.8
15°	10 54.1 +24.6 78.5	10 01.3 +24.7 78.1	9 08.6 +24.9 77.7	8 15.9 +25.1 77.3	7 23.4 +25.3 76.9
16°	11 18.7 +24.3 77.6	10 26.0 +24.6 77.2	9 33.5 +24.8 76.8	8 41.0 +25.0 76.4	7 48.7 +25.2 76.0
17°	11 43.0 +24.2 76.6	10 50.6 +24.4 76.2	9 58.3 +24.6 75.8	9 06.0 +24.9 75.4	8 13.9 +25.0 75.0
18°	12 07.2 +24.0 75.7	11 15.0 +24.2 75.3	10 22.9 +24.5 74.9	9 30.9 +24.7 74.5	8 38.9 +25.0 74.1
19°	12 31.2 +23.8 74.8	11 39.2 +24.1 74.4	10 47.4 +24.2 74.0	9 55.6 +24.5 73.6	9 03.9 +24.8 73.2
20°	12 55.0 +23.6 73.8	12 03.3 +23.9 73.4	11 11.6 +24.2 73.1	10 20.1 +24.4 72.7	9 28.7 +24.6 72.3
21°	13 18.6 +23.4 72.9	12 27.2 +23.6 72.5	11 35.8 +23.9 72.1	10 44.5 +24.2 71.7	9 53.3 +24.6 71.4
22°	13 42.0 +23.2 71.9	12 50.8 +23.5 71.6	11 59.7 +23.8 71.2	11 08.7 +24.1 70.8	10 17.9 +24.3 70.4
23°	14 05.2 +23.0 71.0	13 14.3 +23.2 70.6	12 23.5 +23.5 70.2	11 32.8 +23.8 69.9	10 42.2 +24.2 69.5
24°	14 28.2 +22.7 70.0	13 37.5 +23.1 69.7	12 47.0 +23.4 69.3	11 56.6 +23.7 68.9	11 06.4 +24.0 68.6
25°	14 50.9 +22.5 69.1	14 00.6 +22.8 68.7	13 10.4 +23.1 68.4	12 20.3 +23.5 68.0	11 30.4 +23.8 67.6
26°	15 13.4 +22.2 68.1	14 23.4 +22.6 67.8	13 33.5 +23.0 67.4	12 43.8 +23.3 67.1	11 54.2 +23.7 66.7
27°	15 35.6 +22.0 67.2	14 46.0 +22.3 67.0	13 56.5 +22.7 66.5	13 07.1 +23.1 66.1	12 17.9 +23.4 65.8
28°	15 57.6 +21.7 66.2	15 08.3 +22.1 65.8	14 19.2 +22.5 65.5	13 30.2 +22.9 65.2	12 41.3 +23.3 64.8
29°	16 19.3 +21.5 65.2	15 30.4 +21.9 64.9	14 41.7 +22.2 64.5	13 53.1 +22.6 64.2	13 04.6 +23.0 63.9

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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 +26.3 90.0	-0 53.9 +26.3	-1 47.9 +26.4	-2 41.8 +26.4	-3 35.7 +26.4
1°	0 26.3 +26.3 89.1	-0 27.6 +26.3	-1 21.5 +26.3	-2 15.4 +26.4	-3 09.3 +26.4
2°	0 52.6 +26.3 88.2	-0 01.3 +26.3	-0 55.2 +26.4	-1 49.0 +26.4	-2 42.9 +26.5
3°	1 18.9 +26.2 87.3	0 25.0 +26.3 86.9	-0 28.8 +26.4	-1 22.6 +26.4	-2 16.4 +26.5
4°	1 45.1 +26.3 86.4	0 51.3 +26.3 86.0	-0 02.4 +26.3	-0 56.2 +26.5	-1 49.9 +26.5
5°	2 11.4 +26.2 85.5	1 17.6 +26.3 85.1	0 23.9 +26.4 84.6	-0 29.7 +26.4	-1 23.4 +26.6
6°	2 37.6 +26.1 84.6	1 43.9 +26.3 84.2	0 50.3 +26.3 83.7	-0 03.3 +26.5	-0 56.8 +26.5
7°	3 03.7 +26.2 83.7	2 10.2 +26.2 83.3	1 16.6 +26.4 82.8	0 23.2 +26.4 82.4	-0 30.3 +26.6
8°	3 29.9 +26.0 82.8	2 36.4 +26.2 82.4	1 43.0 +26.3 81.9	0 49.6 +26.4 81.5	-0 03.7 +26.6
9°	3 55.9 +26.0 81.9	3 02.6 +26.1 81.5	2 09.3 +26.2 81.0	1 16.0 +26.5 80.6	0 22.9 +26.5 80.2
10°	4 21.9 +26.0 81.0	3 28.7 +26.1 80.6	2 35.5 +26.3 80.1	1 42.5 +26.3 79.7	0 49.4 +26.6 79.3
11°	4 47.9 +25.9 80.1	3 54.8 +26.0 79.7	3 01.8 +26.2 79.2	2 08.8 +26.4 78.8	1 16.0 +26.5 78.4
12°	5 13.8 +25.8 79.2	4 20.8 +26.0 78.8	3 28.0 +26.1 78.3	2 35.2 +26.3 77.9	1 42.5 +26.5 77.5
13°	5 39.6 +25.7 78.3	4 46.8 +25.9 77.9	3 54.1 +26.1 77.4	3 01.5 +26.3 77.0	2 09.0 +26.5 76.6
14°	6 05.3 +25.6 77.4	5 12.7 +25.8 77.0	4 20.2 +26.0 76.5	3 27.8 +26.2 76.1	2 35.5 +26.4 75.7
15°	6 30.9 +25.5 76.5	5 38.5 +25.7 76.0	4 46.2 +26.0 75.6	3 54.0 +26.2 75.2	3 01.9 +26.4 74.8
16°	6 56.4 +25.4 75.5	6 04.2 +25.7 75.1	5 12.2 +25.8 74.7	4 20.2 +26.1 74.3	3 28.3 +26.4 73.9
17°	7 21.8 +25.3 74.6	6 29.9 +25.5 74.2	5 38.0 +25.8 73.8	4 46.3 +26.0 73.4	3 54.7 +26.3 73.0
18°	7 47.1 +25.2 73.7	6 55.4 +25.5 73.3	6 03.8 +25.7 72.9	5 12.3 +26.0 72.5	4 21.0 +26.2 72.1
19°	8 12.3 +25.1 72.8	7 20.9 +25.3 72.4	6 29.5 +25.6 72.0	5 38.3 +25.9 71.6	4 47.2 +26.1 71.2
20°	8 37.4 +24.9 71.9	7 46.2 +25.2 71.5	6 55.1 +25.5 71.1	6 04.2 +25.7 70.7	5 13.3 +26.1 70.3
21°	9 02.3 +24.8 71.0	8 11.4 +25.1 70.6	7 20.6 +25.4 70.2	6 29.9 +25.7 69.8	5 39.4 +26.0 69.4
22°	9 27.1 +24.7 70.0	8 36.5 +24.9 69.7	7 46.0 +25.2 69.3	6 55.6 +25.6 68.9	6 05.4 +25.9 68.5
23°	9 51.8 +24.5 69.1	9 01.4 +24.8 68.7	8 11.2 +25.2 68.3	7 21.2 +25.5 68.0	6 31.3 +25.8 67.6
24°	10 16.3 +24.3 68.2	9 26.2 +24.7 67.8	8 36.4 +25.0 67.4	7 46.7 +25.3 67.0	6 57.1 +25.7 66.6
25°	10 40.6 +24.2 67.3	9 50.9 +24.5 66.9	9 01.4 +24.9 66.5	8 12.0 +25.2 66.1	7 22.8 +25.6 65.7
26°	11 04.8 +24.0 66.3	10 15.4 +24.4 66.0	9 26.3 +24.7 65.6	8 37.2 +25.1 65.2	7 48.4 +25.4 64.8
27°	11 28.8 +23.8 65.4	10 39.8 +24.2 65.0	9 51.0 +24.6 64.7	9 02.3 +25.0 64.3	8 13.8 +25.4 63.9
28°	11 52.6 +23.6 64.5	11 04.0 +24.0 64.1	10 15.6 +24.4 63.7	9 27.3 +24.8 63.4	8 39.2 +25.2 63.0
29°	12 16.2 +23.5 63.5	11 28.0 +23.9 63.2	10 40.0 +24.2 62.8	9 52.1 +24.7 62.4	9 04.4 +25.0 62.1

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°	-4 29.6 +26.4	-5 23.5 +26.5	-6 17.3 +26.5	-7 11.2 +26.6	-8 05.0 +26.7
1°	-4 03.2 +26.5	-4 57.0 +26.5	-5 50.8 +26.6	-6 44.6 +26.7	-7 38.3 +26.7
2°	-3 36.7 +26.5	-4 30.5 +26.6	-5 24.2 +26.7	-6 17.9 +26.7	-7 11.6 +26.8
3°	-3 10.2 +26.6	-4 03.9 +26.7	-4 57.5 +26.7	-5 51.2 +26.9	-6 44.8 +27.0
4°	-2 43.6 +26.6	-3 37.2 +26.7	-4 30.8 +26.8	-5 24.3 +26.9	-6 17.8 +27.0
5°	-2 17.0 +26.7	-3 10.5 +26.8	-4 04.0 +26.9	-4 57.4 +27.0	-5 50.8 +27.1
6°	-1 50.3 +26.7	-2 43.7 +26.8	-3 37.1 +26.9	-4 30.4 +27.0	-5 23.7 +27.2
7°	-1 23.6 +26.7	-2 16.9 +26.8	-3 10.2 +27.0	-4 03.4 +27.2	-4 56.5 +27.3
8°	-0 56.9 +26.7	-1 50.1 +26.8	-2 43.2 +27.0	-3 36.2 +27.1	-4 29.2 +27.3
9°	-0 30.2 +26.7	-1 23.3 +26.9	-2 16.2 +27.0	-3 09.1 +27.2	-4 01.9 +27.4
10°	-0 03.5 +26.7	-0 56.4 +26.9	-1 49.2 +27.1	-2 41.9 +27.3	-3 34.5 +27.5
11°	0 23.2 +26.7 77.9	-0 29.5 +26.9	-1 22.1 +27.1	-2 14.6 +27.3	-3 07.0 +27.5
12°	0 49.9 +26.7 77.0	-0 02.6 +26.9	-0 55.0 +27.1	-1 47.3 +27.3	-2 39.5 +27.5
13°	1 16.6 +26.7 76.1	0 24.3 +26.9 75.7	-0 27.9 +27.1	-1 20.0 +27.3	-2 12.0 +27.6
14°	1 43.3 +26.7 75.2	0 51.2 +26.9 74.8	-0 00.8 +27.1	-0 52.7 +27.4	-1 44.4 +27.6
15°	2 10.0 +26.6 74.4	1 18.1 +26.8 73.9	0 26.3 +27.1 73.5	-0 25.3 +27.3	-1 16.8 +27.6
16°	2 36.6 +26.6 73.5	1 44.9 +26.9 73.0	0 53.4 +27.1 72.6	0 02.0 +27.4 72.2	-0 49.2 +27.6
17°	3 03.2 +26.5 72.6	2 11.8 +26.8 72.1	1 20.5 +27.1 71.7	0 29.4 +27.3 71.3	-0 21.6 +27.6
18°	3 29.7 +26.5 71.7	2 38.6 +26.7 71.2	1 47.6 +27.0 70.8	0 56.7 +27.3 70.4	0 06.0 +27.6 69.9
19°	3 56.2 +26.4 70.8	3 05.3 +26.8 70.3	2 14.6 +27.0 69.9	1 24.0 +27.4 69.5	0 33.6 +27.6 69.1
20°	4 22.6 +26.4 69.9	3 32.1 +26.6 69.4	2 41.6 +27.0 69.0	1 51.4 +27.2 68.6	1 01.2 +27.6 68.2
21°	4 49.0 +26.3 69.0	3 58.7 +26.6 68.5	3 08.6 +26.9 68.1	2 18.6 +27.3 67.7	1 28.8 +27.6 67.3
22°	5 15.3 +26.2 68.1	4 25.3 +26.6 67.6	3 35.5 +26.9 67.2	2 45.9 +27.2 66.8	1 56.4 +27.5 66.4
23°	5 41.5 +26.1 67.2	4 51.9 +26.5 66.7	4 02.4 +26.8 66.3	3 13.1 +27.2 65.9	2 23.9 +27.6 65.5
24°	6 07.6 +26.1 66.2	5 18.4 +26.4 65.8	4 29.2 +26.8 65.4	3 40.3 +27.1 65.0	2 51.5 +27.4 64.6
25°	6 33.7 +25.9 65.3	5 44.8 +26.3 64.9	4 56.0 +26.7 64.5	4 07.4 +27.0 64.1	3 18.9 +27.5 63.7
26°	6 59.6 +25.9 64.4	6 11.1 +26.2 64.0	5 22.7 +26.6 63.6	4 34.4 +27.0 63.2	3 46.4 +27.3 62.8
27°	7 25.5 +25.7 63.5	6 37.3 +26.1 63.0	5 49.3 +26.5 62.7	5 01.4 +26.9 62.3	4 13.7 +27.3 61.9
28°	7 51.2 +25.6 62.6	7 03.4 +26.0 62.2	6 15.8 +26.4 61.8	5 28.3 +26.8 61.4	4 41.0 +27.3 61.0
29°	8 16.8 +25.5 61.7	7 29.4 +25.9 61.3	6 42.2 +26.3 60.9	5 55.1 +26.8 60.5	5 08.3 +27.1 60.2

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°	-8 58.7 +26.6	-9 52.5 +26.8			
1°	-8 32.1 +26.9	-9 25.7 +26.9			
2°	-8 05.2 +26.9	-8 58.8 +27.0	-9 52.4 +27.2		
3°	-7 38.3 +27.1	-8 31.8 +27.2	-9 25.2 +27.3		
4°	-7 11.2 +27.1	-8 04.6 +27.3	-8 57.9 +27.4	-9 51.2 +27.6	
5°	-6 44.1 +27.3	-7 37.3 +27.4	-8 30.5 +27.5	-9 23.6 +27.7	
6°	-6 16.8 +27.3	-7 09.9 +27.5	-8 03.0 +27.7	-8 55.9 +27.8	-9 48.8 +28.0
7°	-5 49.5 +27.4	-6 42.4 +27.6	-7 35.3 +27.8	-8 28.1 +28.0	-9 20.8 +28.2
8°	-5 22.1 +27.6	-6 14.8 +27.7	-7 07.5 +27.8	-8 00.1 +28.0	-8 52.6 +28.2
9°	-4 54.5 +27.5	-5 47.1 +27.7	-6 39.7 +28.0	-7 32.1 +28.2	-8 24.4 +28.4
10°	-4 27.0 +27.7	-5 19.4 +27.9	-6 11.7 +28.1	-7 03.9 +28.3	-7 56.0 +28.5
11°	-3 59.3 +27.7	-4 51.5 +27.9	-5 43.6 +28.1	-6 35.6 +28.4	-7 27.5 +28.6
12°	-3 31.6 +27.7	-4 23.6 +28.0	-5 15.5 +28.2	-6 07.2 +28.4	-6 58.9 +28.7
13°	-3 03.9 +27.8	-3 55.6 +28.0	-4 47.3 +28.3	-5 38.8 +28.5	-6 30.2 +28.8
14°	-2 36.1 +27.9	-3 27.6 +28.1	-4 19.0 +28.3	-5 10.3 +28.7	-6 01.4 +28.9
15°	-2 08.2 +27.8	-2 59.5 +28.1	-3 50.7 +28.4	-4 41.6 +28.6	-5 32.5 +29.0
16°	-1 40.4 +27.9	-2 31.4 +28.2	-3 22.3 +28.5	-4 13.0 +28.8	-5 03.5 +29.0
17°	-1 12.5 +27.9	-2 03.2 +28.2	-2 53.8 +28.5	-3 44.2 +28.7	-4 34.5 +29.1
18°	-0 44.6 +27.9	-1 35.0 +28.2	-2 25.3 +28.5	-3 15.5 +28.9	-4 05.4 +29.1
19°	-0 16.7 +27.9	-1 06.8 +28.2	-1 56.8 +28.5	-2 46.6 +28.8	-3 36.3 +29.2
20°	0 11.2 +28.0 67.7	-0 38.6 +28.3	-1 28.3 +28.6	-2 17.8 +29.0	-3 07.1 +29.3
21°	0 39.2 +27.9 66.8	-0 10.3 +28.2	-0 59.7 +28.6	-1 48.8 +28.9	-2 37.8 +29.2
22°	1 07.1 +27.9 66.0	0 17.9 +28.2 65.5	-0 31.1 +28.6	-1 19.9 +28.9	-2 08.6 +29.3
23°	1 35.0 +27.8 65.1	0 46.1 +28.3 64.6	-0 02.5 +28.6	-0 51.0 +29.0	-1 39.3 +29.4
24°	2 02.8 +27.9 64.2	1 14.4 +28.2 63.8	0 26.1 +28.6 63.3	-0 22.0 +29.0	-1 09.9 +29.3
25°	2 30.7 +27.8 63.3	1 42.6 +28.2 62.9	0 54.7 +28.5 62.5	0 07.0 +28.9 62.0	-0 40.6 +29.4
26°	2 58.5 +27.7 62.4	2 10.8 +28.1 62.0	1 23.2 +28.6 61.6	0 35.9 +29.0 61.1	-0 11.2 +29.3
27°	3 26.2 +27.7 61.5	2 38.9 +28.1 61.1	1 51.8 +28.5 60.7	1 04.9 +28.9 60.3	0 18.1 +29.4 59.8
28°	3 53.9 +27.7 60.6	3 07.0 +28.1 60.2	2 20.3 +28.5 59.8	1 33.8 +28.9 59.4	0 47.5 +29.3 59.0
29°	4 21.6 +27.6 59.7	3 35.1 +28.0 59.3	2 48.8 +28.5 58.9	2 02.7 +28.9 58.5	1 16.8 +29.4 58.1

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°					
1°					
2°					
3°					
4°					
5°					
6°					
7°					
8°	-9 45.0 +28.5				
9°	-9 16.5 +28.6				
10°	-8 47.9 +28.7	-9 39.8 +29.0			
11°	-8 19.2 +28.8	-9 10.8 +29.1			
12°	-7 50.4 +29.0	-8 41.7 +29.2			
13°	-7 21.4 +29.0	-8 12.5 +29.3			
14°	-6 52.4 +29.2	-7 43.2 +29.4			
15°	-6 23.2 +29.2	-7 13.8 +29.6			
16°	-5 54.0 +29.4	-6 44.2 +29.6			
17°	-5 24.6 +29.4	-6 14.6 +29.7			
18°	-4 55.2 +29.4	-5 44.9 +29.8			
19°	-4 25.8 +29.6	-5 15.1 +29.9			
20°	-3 56.2 +29.5	-4 45.2 +29.9			
21°	-3 26.7 +29.7	-4 15.3 +30.0			
22°	-2 57.0 +29.7	-3 45.3 +30.1			
23°	-2 27.3 +29.7	-3 15.2 +30.1			
24°	-1 57.6 +29.7	-2 45.1 +30.1			
25°	-1 27.9 +29.8	-2 15.0 +30.1			
26°	-0 58.1 +29.7	-1 44.9 +30.2			
27°	-0 28.4 +29.8	-1 14.7 +30.2			
28°	0 01.4 +29.8 58.5	-0 44.5 +30.2			
29°	0 31.2 +29.7 57.7	-0 14.3 +30.2			

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°	63 00.0 +60.0 180.0	62 59.0 +59.9 177.8	62 55.9 +59.8 175.6	62 50.8 +59.7 173.4	62 43.6 +59.5 171.2
1°	64 00.0 +60.0 180.0	63 58.9 +60.0 177.7	63 55.7 +59.9 175.4	63 50.5 +59.6 173.2	63 43.1 +59.4 170.9
2°	65 00.0 +60.0 180.0	64 58.9 +60.0 177.6	64 55.6 +59.8 175.3	64 50.1 +59.6 172.9	64 42.5 +59.3 170.6
3°	66 00.0 +60.0 180.0	65 58.9 +59.9 177.5	65 55.4 +59.8 175.1	65 49.7 +59.6 172.7	65 41.8 +59.3 170.3
4°	67 00.0 +60.0 180.0	66 58.8 +60.0 177.4	66 55.2 +59.8 174.9	66 49.3 +59.6 172.4	66 41.1 +59.2 169.9
5°	68 00.0 +60.0 180.0	67 58.8 +59.9 177.3	67 55.0 +59.8 174.7	67 48.9 +59.5 172.1	67 40.3 +59.2 169.5
6°	69 00.0 +60.0 180.0	68 58.7 +59.9 177.2	68 54.8 +59.8 174.5	68 48.4 +59.5 171.7	68 39.5 +59.0 169.0
7°	70 00.0 +60.0 180.0	69 58.6 +60.0 177.1	69 54.6 +59.7 174.2	69 47.9 +59.4 171.3	69 38.5 +59.0 168.5
8°	71 00.0 +60.0 180.0	70 58.6 +59.9 177.0	70 54.3 +59.8 173.9	70 47.3 +59.4 170.9	70 37.5 +58.9 168.0
9°	72 00.0 +60.0 180.0	71 58.5 +59.9 176.8	71 54.1 +59.6 173.6	71 46.7 +59.3 170.5	71 36.4 +58.8 167.4
10°	73 00.0 +60.0 180.0	72 58.4 +59.9 176.6	72 53.7 +59.7 173.3	72 46.0 +59.2 170.0	72 35.2 +58.6 166.7
11°	74 00.0 +60.0 180.0	73 58.3 +59.9 176.4	73 53.4 +59.6 172.9	73 45.2 +59.1 169.4	73 33.8 +58.4 166.0
12°	75 00.0 +60.0 180.0	74 58.2 +59.9 176.2	74 53.0 +59.5 172.5	74 44.3 +59.0 168.8	74 32.2 +58.3 165.2
13°	76 00.0 +60.0 180.0	75 58.1 +59.9 176.0	75 52.5 +59.5 172.0	75 43.3 +58.8 168.1	75 30.5 +57.9 164.2
14°	77 00.0 +60.0 180.0	76 58.0 +59.8 175.7	76 52.0 +59.4 171.4	76 42.1 +58.7 167.2	76 28.4 +57.7 163.2
15°	78 00.0 +60.0 180.0	77 57.8 +59.9 175.4	77 51.4 +59.3 170.8	77 40.8 +58.4 166.3	77 26.1 +57.3 162.0
16°	79 00.0 +60.0 180.0	78 57.7 +59.7 175.0	78 50.7 +59.1 170.0	78 39.2 +58.1 165.2	78 23.4 +56.8 160.5
17°	80 00.0 +60.0 180.0	79 57.4 +59.8 174.5	79 49.8 +59.0 169.1	79 37.3 +57.8 163.9	79 20.2 +56.2 158.9
18°	81 00.0 +60.0 180.0	80 57.2 +59.6 173.9	80 48.8 +58.7 168.0	80 35.1 +57.2 162.3	80 16.4 +55.3 156.9
19°	82 00.0 +60.0 180.0	81 56.8 +59.6 173.2	81 47.5 +58.3 166.6	81 32.3 +56.5 160.3	81 11.7 +54.2 154.5
20°	83 00.0 +60.0 180.0	82 56.4 +59.5 172.3	82 45.8 +57.9 164.9	82 28.8 +55.5 157.9	82 05.9 +52.7 151.5
21°	84 00.0 +60.0 180.0	83 55.9 +59.2 171.1	83 43.7 +57.1 162.6	83 24.3 +53.9 154.8	82 58.6 +50.4 147.8
22°	85 00.0 +60.0 180.0	84 55.1 +58.8 169.5	84 40.8 +55.7 159.6	84 18.2 +51.6 150.7	83 49.0 +47.2 143.1
23°	86 00.0 +60.0 180.0	85 53.9 +58.1 167.0	85 36.5 +53.4 155.2	85 09.8 +47.7 145.1	84 36.2 +42.2 137.0
24°	87 00.0 +60.0 180.0	86 52.0 +56.4 163.0	86 29.9 +48.8 148.5	85 57.5 +41.1 137.3	85 18.4 +34.8 128.8
25°	88 00.0 +60.0 180.0	87 48.4 +51.1 155.6	87 18.7 +38.3 137.6	86 38.6 +29.5 125.9	85 53.2 +23.8 118.2
26°	89 00.0 +60.0 180.0	88 39.5 +27.0 137.9	87 57.0 +16.1 118.7	87 08.1 +11.5 109.8	86 17.0 +09.2 104.7
27°	90 00.0 -60.0 0.0	89 06.5 -26.7 89.8	88 13.1 -15.3 89.5	87 19.6 -10.2 89.3	86 26.2 -07.4 89.1
28°	89 00.0 -60.0 0.0	88 39.8 -51.0 41.3	87 57.8 -37.9 60.1	87 09.4 -28.5 68.7	86 18.8 -22.3 73.3
29°	88 00.0 -60.0 0.0	87 48.8 -56.4 23.6	87 19.9 -48.5 41.0	86 40.9 -40.5 52.2	85 56.5 -33.7 59.5

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°	62 34.5 +59.1 169.1	62 23.4 +58.8 167.0	62 10.4 +58.3 164.9	61 55.5 +57.8 162.8	61 38.8 +57.3 160.8
1°	63 33.6 +59.1 168.7	63 22.2 +58.6 166.5	63 08.7 +58.2 164.4	62 53.3 +57.7 162.2	62 36.1 +57.1 160.1
2°	64 32.7 +58.9 168.3	64 20.8 +58.5 166.0	64 06.9 +58.0 163.8	63 51.0 +57.5 161.6	63 33.2 +56.8 159.4
3°	65 31.6 +58.9 167.9	65 19.3 +58.5 165.5	65 04.9 +57.9 163.2	64 48.5 +57.3 160.9	64 30.0 +56.7 158.7
4°	66 30.5 +58.8 167.4	66 17.8 +58.3 165.0	66 02.8 +57.8 162.6	65 45.8 +57.1 160.2	65 26.7 +56.4 157.9
5°	67 29.3 +58.7 166.9	67 16.1 +58.1 164.4	67 00.6 +57.5 161.9	66 42.9 +56.8 159.5	66 23.1 +56.1 157.1
6°	68 28.0 +58.6 166.3	68 14.2 +58.0 163.7	67 58.1 +57.3 161.1	67 39.7 +56.6 158.6	67 19.2 +55.8 156.2
7°	69 26.6 +58.5 165.7	69 12.2 +57.8 163.0	68 55.4 +57.1 160.3	68 36.3 +56.3 157.7	68 15.0 +55.4 155.2
8°	70 25.1 +58.2 165.1	70 10.0 +57.6 162.2	69 52.5 +56.8 159.5	69 32.6 +55.9 156.8	69 10.4 +54.9 154.2
9°	71 23.3 +58.1 164.4	71 07.6 +57.3 161.4	70 49.3 +56.4 158.5	70 28.5 +55.5 155.7	70 05.3 +54.5 153.0
10°	72 21.4 +57.9 163.5	72 04.9 +57.0 160.5	71 45.7 +56.1 157.5	71 24.0 +55.0 154.6	70 59.8 +54.0 151.8
11°	73 19.3 +57.7 162.7	73 01.9 +56.7 159.4	72 41.8 +55.6 156.3	72 19.0 +54.5 153.3	71 53.8 +53.2 150.4
12°	74 17.0 +57.3 161.7	73 58.6 +56.3 158.3	73 37.4 +55.1 155.0	73 13.5 +53.8 151.9	72 47.0 +52.6 148.9
13°	75 14.3 +56.9 160.5	74 54.9 +55.7 157.0	74 32.5 +54.5 153.5	74 07.3 +53.1 150.3	73 39.6 +51.6 147.2
14°	76 11.2 +56.5 159.3	75 50.6 +55.2 155.5	75 27.0 +53.7 151.9	75 00.4 +52.2 148.5	74 31.2 +50.7 145.3
15°	77 07.7 +56.0 157.8	76 45.8 +54.4 153.8	76 20.7 +52.8 150.1	75 52.6 +51.1 146.6	75 21.9 +49.4 143.3
16°	78 03.7 +55.2 156.1	77 40.2 +53.5 151.9	77 13.5 +51.6 148.0	76 43.7 +49.8 144.4	76 11.3 +47.9 141.0
17°	78 58.9 +54.3 154.1	78 33.7 +52.4 149.7	78 05.1 +50.3 145.6	77 33.5 +48.2 141.8	76 59.2 +46.2 138.4
18°	79 53.2 +53.2 151.8	79 26.1 +50.9 147.2	78 55.4 +48.6 142.9	78 21.7 +46.3 139.0	77 45.4 +44.1 135.4
19°	80 46.4 +51.7 149.1	80 17.0 +49.0 144.2	79 44.0 +46.4 139.7	79 08.0 +43.9 135.7	78 29.5 +41.6 132.2
20°	81 38.1 +49.6 145.7	81 06.0 +46.6 140.6	80 30.4 +43.7 136.0	79 51.9 +41.0 132.0	79 11.1 +38.6 128.4
21°	82 27.7 +46.8 141.7	81 52.6 +43.3 136.3	81 14.1 +40.2 131.7	80 32.9 +37.5 127.7	79 49.7 +34.9 124.2
22°	83 14.5 +42.9 136.6	82 35.9 +39.2 131.2	81 54.3 +35.9 126.6	81 10.4 +32.9 122.8	80 24.6 +30.5 119.5
23°	83 57.4 +37.5 130.4	83 15.1 +33.5 125.0	82 30.2 +30.3 120.7	81 43.3 +27.7 117.1	80 55.1 +25.5 114.2
24°	84 34.9 +30.0 122.5	83 48.6 +26.4 117.7	83 00.5 +23.5 113.9	82 11.0 +21.3 110.8	81 20.6 +19.6 108.3
25°	85 04.9 +20.0 112.9	84 15.0 +17.3 109.0	83 24.0 +15.4 106.1	82 32.3 +14.0 103.8	81 40.2 +12.9 101.9
26°	85 24.9 +07.8 101.5	84 32.3 +07.0 99.2	83 39.4 +06.4 97.5	82 46.3 +06.1 96.2	81 53.1 +05.9 95.1
27°	85 32.7 -05.8 88.9	84 39.3 -04.2 88.6	83 45.8 -03.1 88.4	82 52.4 -02.3 88.2	81 59.0 -01.6 88.0
28°	85 27.2 -18.0 76.1	84 35.1 -14.8 78.0	83 42.7 -12.4 79.2	82 50.1 -10.5 80.1	81 57.4 -08.9 80.8
29°	85 09.2 -28.4 64.5	84 20.3 -24.2 67.9	83 30.3 -20.8 70.4	82 39.6 -18.1 72.3	81 48.5 -15.9 73.8

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°	56 51.2 +49.6 141.3	56 17.2 +48.8 139.8	55 42.2 +48.0 138.3	55 06.1 +47.4 136.9	54 29.2 +46.6 135.6
1°	57 40.8 +49.0 140.2	57 06.0 +48.3 138.7	56 30.2 +47.5 137.3	55 53.5 +46.7 135.8	55 15.8 +46.0 134.5
2°	58 29.8 +48.4 139.1	57 54.3 +47.6 137.6	57 17.7 +46.9 136.1	56 40.2 +46.1 134.7	56 01.8 +45.3 133.3
3°	59 18.2 +47.8 138.0	58 41.9 +47.0 136.5	58 04.6 +46.2 135.0	57 26.3 +45.4 133.5	56 47.1 +44.6 132.1
4°	60 06.0 +47.2 136.8	59 28.9 +46.3 135.3	58 50.8 +45.5 133.8	58 11.7 +44.7 132.3	57 31.7 +43.9 130.9
5°	60 53.2 +46.4 135.6	60 15.2 +45.5 134.0	59 36.3 +44.6 132.5	58 56.4 +43.8 131.0	58 15.6 +43.1 129.6
6°	61 39.6 +45.6 134.2	61 00.7 +44.8 132.7	60 20.9 +43.9 131.1	59 40.2 +43.1 129.7	58 58.7 +42.2 128.3
7°	62 25.2 +44.7 132.8	61 45.5 +43.8 131.3	61 04.8 +43.0 129.7	60 23.3 +42.1 128.3	59 40.9 +41.3 126.9
8°	63 09.9 +43.8 131.4	62 29.3 +42.8 129.8	61 47.8 +41.9 128.3	61 05.4 +41.1 126.8	60 22.2 +40.3 125.4
9°	63 53.7 +42.7 129.9	63 12.1 +41.9 128.3	62 29.7 +41.0 126.8	61 46.5 +40.1 125.3	61 02.5 +39.3 123.9
10°	64 36.4 +41.7 128.2	63 54.0 +40.7 126.7	63 10.7 +39.8 125.2	62 26.6 +38.9 123.7	61 41.8 +38.1 122.4
11°	65 18.1 +40.4 126.5	64 34.7 +39.4 125.0	63 50.5 +38.5 123.5	63 05.5 +37.7 122.1	62 19.9 +36.9 120.7
12°	65 58.5 +39.1 124.7	65 14.1 +38.2 123.2	64 29.0 +37.3 121.7	63 43.2 +36.4 120.3	62 56.8 +35.5 119.0
13°	66 37.6 +37.7 122.9	65 52.3 +36.7 121.3	65 06.3 +35.8 119.9	64 19.6 +35.0 118.5	63 32.3 +34.2 117.2
14°	67 15.3 +36.1 120.9	66 29.0 +35.2 119.4	65 42.1 +34.3 118.0	64 54.6 +33.5 116.6	64 06.5 +32.8 115.3
15°	67 51.4 +34.5 118.8	67 04.2 +33.5 117.3	66 16.4 +32.7 115.9	65 28.1 +31.9 114.6	64 39.3 +31.1 113.4
16°	68 25.9 +32.6 116.6	67 37.7 +31.8 115.2	66 49.1 +30.9 113.8	66 00.0 +30.1 112.6	65 10.4 +29.4 111.4
17°	68 58.5 +30.6 114.3	68 09.5 +29.8 112.9	67 20.0 +29.0 111.6	66 30.1 +28.3 110.4	65 39.8 +27.7 109.3
18°	69 29.1 +28.6 111.8	68 39.3 +27.7 110.5	67 49.0 +27.1 109.3	66 58.4 +26.4 108.2	66 07.5 +25.7 107.1
19°	69 57.7 +26.2 109.3	69 07.0 +25.6 108.1	68 16.1 +24.8 106.9	67 24.8 +24.3 105.9	66 33.2 +23.8 104.9
20°	70 23.9 +23.9 106.7	69 32.6 +23.2 105.5	68 40.9 +22.7 104.5	67 49.1 +22.1 103.5	66 57.0 +21.6 102.5
21°	70 47.8 +21.3 103.9	69 55.8 +20.7 102.9	69 03.6 +20.2 101.9	68 11.2 +19.8 101.0	67 18.6 +19.4 100.1
22°	71 09.1 +18.5 101.0	70 16.5 +18.1 100.1	69 23.8 +17.7 99.2	68 31.0 +17.4 98.4	67 38.0 +17.2 97.7
23°	71 27.6 +15.7 98.1	70 34.6 +15.4 97.3	69 41.5 +15.2 96.5	68 48.4 +14.9 95.8	67 55.2 +14.7 95.1
24°	71 43.3 +12.6 95.0	70 50.0 +12.5 94.3	69 56.7 +12.4 93.7	69 03.3 +12.3 93.1	68 09.9 +12.2 92.5
25°	71 55.9 +09.6 91.9	71 02.5 +09.6 91.3	70 09.1 +09.5 90.8	69 15.6 +09.6 90.4	68 22.1 +09.7 89.9
26°	72 05.5 +06.4 88.7	71 12.1 +06.5 88.3	70 18.6 +06.8 87.9	69 25.2 +06.9 87.6	68 31.8 +07.1 87.2
27°	72 11.9 +03.2 85.4	71 18.6 +03.5 85.2	70 25.4 +03.8 85.0	69 32.1 +04.2 84.7	68 38.9 +04.4 84.5
28°	72 15.1 -00.1 82.2	71 22.1 +00.4 82.1	70 29.2 +00.8 82.0	69 36.3 +01.3 81.9	68 43.3 +01.8 81.7
29°	72 15.0 -00.4 78.9	71 22.5 -02.7 78.9	70 30.0 -02.1 79.0	69 37.6 -01.5 79.0	68 45.1 -00.9 79.0

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°	53 51.3 +45.9 134.2	53 12.6 +45.2 132.9	52 33.0 +44.5 131.7	51 52.8 +43.8 130.5	51 11.7 +43.2 129.3
1°	54 37.2 +45.2 133.1	53 57.8 +44.5 131.8	53 17.5 +43.9 130.6	52 36.6 +43.1 129.4	51 54.9 +42.5 128.2
2°	55 22.4 +44.6 132.0	54 42.3 +43.9 130.7	54 01.4 +43.1 129.4	53 19.7 +42.5 128.2	52 37.4 +41.8 127.0
3°	56 07.0 +43.9 130.8	55 26.2 +43.1 129.5	54 44.5 +42.5 128.2	54 02.2 +41.7 127.0	53 19.2 +41.1 125.9
4°	56 50.9 +43.1 129.6	56 09.3 +42.4 128.3	55 27.0 +41.6 127.0	54 43.9 +41.0 125.8	54 00.3 +40.3 124.6
5°	57 34.0 +42.3 128.3	56 51.7 +41.6 127.0	56 08.6 +40.9 125.7	55 24.9 +40.1 124.5	54 40.6 +39.4 123.4
6°	58 16.3 +41.5 126.9	57 33.3 +40.6 125.6	56 49.5 +39.9 124.4	56 05.0 +39.3 123.2	55 20.0 +38.6 122.0
7°	58 57.8 +40.5 125.6	58 13.9 +39.8 124.3	57 29.4 +39.1 123.0	56 44.3 +38.3 121.8	55 58.6 +37.7 120.7
8°	59 38.3 +39.5 124.1	58 53.7 +38.8 122.8	58 08.5 +38.0 121.6	57 22.6 +37.4 120.4	56 36.3 +36.7 119.3
9°	60 17.8 +38.5 122.6	59 32.5 +37.7 121.3	58 46.5 +37.0 120.1	58 00.0 +36.3 119.0	57 13.0 +35.6 117.8
10°	60 56.3 +37.3 121.0	60 10.2 +36.5 119.8	59 23.5 +35.9 118.6	58 36.3 +35.2 117.4	57 48.6 +34.6 116.3
11°	61 33.6 +36.1 119.4	60 46.7 +35.4 118.2	59 59.4 +34.6 117.0	59 11.5 +34.0 115.9	58 23.2 +33.4 114.8
12°	62 09.7 +34.8 117.7	61 22.1 +34.1 116.5	60 34.0 +33.5 115.4	59 45.5 +32.8 114.2	58 56.6 +32.1 113.2
13°	62 44.5 +33.5 116.0	61 56.2 +32.8 114.8	61 07.5 +32.1 113.6	60 18.3 +31.5 112.6	59 28.7 +30.9 111.5
14°	63 18.0 +32.0 114.1	62 29.0 +31.3 113.0	61 39.6 +30.6 111.9	60 49.8 +30.1 110.8	59 59.6 +29.6 109.8
15°	63 50.0 +30.4 112.2	63 00.3 +29.8 111.1	62 10.2 +29.2 110.1	61 19.9 +28.6 109.0	60 29.2 +28.1 108.1
16°	64 20.4 +28.8 110.3	63 30.1 +28.2 109.2	62 39.4 +27.7 108.2	61 48.5 +27.1 107.2	60 57.3 +26.6 106.3
17°	64 49.2 +27.0 108.2	63 58.3 +26.4 107.2	63 07.1 +25.9 106.2	62 15.6 +25.5 105.3	61 23.9 +25.1 104.4
18°	65 16.2 +25.2 106.1	64 24.7 +24.7 105.1	63 33.0 +24.3 104.2	62 41.1 +23.8 103.3	61 49.0 +23.4 102.5
19°	65 41.4 +23.3 103.9	64 49.4 +22.9 103.0	63 57.3 +22.4 102.1	63 04.9 +22.1 101.3	62 12.4 +21.8 100.5
20°	66 04.7 +21.2 101.7	65 12.3 +20.8 100.8	64 19.7 +20.5 100.0	63 27.0 +20.2 99.3	62 34.2 +19.9 98.5
21°	66 25.9 +19.1 99.3	65 33.1 +18.8 98.6	64 40.2 +18.5 97.8	63 47.2 +18.3 97.1	62 54.1 +18.1 96.5
22°	66 45.0 +16.9 96.9	65 51.9 +16.7 96.3	64 58.7 +16.5 95.6	64 05.5 +16.3 95.0	63 12.2 +16.2 94.4
23°	67 01.9 +14.6 94.5	66 08.6 +14.4 93.9	65 15.2 +14.4 93.3	64 21.8 +14.3 92.8	63 28.4 +14.3 92.2
24°	67 16.5 +12.2 92.0	66 23.0 +12.2 91.5	65 29.6 +12.2 91.0	64 36.1 +12.2 90.5	63 42.7 +12.2 90.0
25°	67 28.7 +09.7 89.5	66 35.2 +09.9 89.0	65 41.8 +09.9 88.6	64 48.3 +10.1 88.2	63 54.9 +10.2 87.8
26°	67 38.4 +07.3 86.9	66 45.1 +07.4 86.5	65 51.7 +07.7 86.2	64 58.4 +07.8 85.9	64 05.1 +08.0 85.6
27°	67 45.7 +04.7 84.3	66 52.5 +05.1 84.0	65 59.4 +05.3 83.8	65 06.2 +05.7 83.5	64 13.1 +06.0 83.3
28°	67 50.4 +02.2 81.6	66 57.6 +02.5 81.5	66 04.7 +03.0 81.3	65 11.9 +03.3 81.2	64 19.1 +03.7 81.0
29°	67 52.6 -00.4 78.9	67 00.1 +00.2 78.9	66 07.7 +00.6 78.9	65 15.2 +01.2 78.8	64 22.8 +01.6 78.7

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°	50 30.1 +42.5 128.2	49 47.7 +41.9 127.1	49 04.8 +41.2 126.0	48 21.2 +40.7 125.0	47 37.1 +40.1 123.9
1°	51 12.6 +41.8 127.1	50 29.6 +41.2 126.0	49 46.0 +40.6 124.9	49 01.9 +40.0 123.8	48 17.2 +39.5 122.8
2°	51 54.4 +41.2 125.9	51 10.8 +40.5 124.8	50 26.6 +39.9 123.7	49 41.9 +39.3 122.7	48 56.7 +38.7 121.7
3°	52 35.6 +40.4 124.7	51 51.3 +39.8 123.6	51 06.5 +39.2 122.6	50 21.2 +38.6 121.5	49 35.4 +38.0 120.5
4°	53 16.0 +39.6 123.5	52 31.1 +39.0 122.4	51 45.7 +38.4 121.3	50 59.8 +37.8 120.3	50 13.4 +37.3 119.3
5°	53 55.6 +38.8 122.2	53 10.1 +38.2 121.1	52 24.1 +37.6 120.1	51 37.6 +37.0 119.1	50 50.7 +36.4 118.1
6°	54 34.4 +38.0 120.9	53 48.3 +37.3 119.8	53 01.7 +36.7 118.8	52 14.6 +36.2 117.8	51 27.1 +35.6 116.8
7°	55 12.4 +37.0 119.6	54 25.6 +36.4 118.5	53 38.4 +35.8 117.5	52 50.8 +35.2 116.5	52 02.7 +34.8 115.5
8°	55 49.4 +36.0 118.2	55 02.0 +35.5 117.1	54 14.2 +34.9 116.1	53 26.0 +34.4 115.1	52 37.5 +33.8 114.2
9°	56 25.4 +35.1 116.8	55 37.5 +34.4 115.7	54 49.1 +33.9 114.7	54 00.4 +33.3 113.7	53 11.3 +32.8 112.8
10°	57 00.5 +33.9 115.3	56 11.9 +33.4 114.3	55 23.0 +32.8 113.3	54 33.7 +32.3 112.3	53 44.1 +31.8 111.4
11°	57 34.4 +32.8 113.7	56 45.3 +32.3 112.7	55 55.8 +31.8 111.8	55 06.0 +31.3 110.9	54 15.9 +30.8 110.0
12°	58 07.2 +31.7 112.2	57 17.6 +31.0 111.2	56 27.6 +30.5 110.3	55 37.3 +30.1 109.4	54 46.7 +29.7 108.5
13°	58 38.9 +30.3 110.6	57 48.6 +29.9 109.6	56 58.1 +29.4 108.7	56 07.4 +28.9 107.8	55 16.4 +28.5 107.0
14°	59 09.2 +29.0 108.9	58 18.5 +28.5 108.0	57 27.5 +28.1 107.1	56 36.3 +27.7 106.2	55 44.9 +27.3 105.4
15°	59 38.2 +27.7 107.2	58 47.0 +27.2 106.3	57 55.6 +26.8 105.4	57 04.0 +26.4 104.6	56 12.2 +26.0 103.8
16°	60 05.9 +26.2 105.4	59 14.2 +25.8 104.5	58 22.4 +25.4 103.7	57 30.4 +25.0 103.0	56 38.2 +24.7 102.2
17°	60 32.1 +24.6 103.6	59 40.0 +24.3 102.8	58 47.8 +24.0 102.0	57 55.4 +23.7 101.3	57 02.9 +23.4 100.5
18°	60 56.7 +23.1 101.7	60 04.3 +22.8 100.9	59 11.8 +22.4 100.2	58 19.1 +22.2 99.5	57 26.3 +22.0 98.8
19°	61 19.8 +21.4 99.8	60 27.1 +21.1 99.1	59 34.2 +21.0 98.4	58 41.3 +20.7 97.7	57 48.3 +20.5 97.1
20°	61 41.2 +19.8 97.8	60 48.2 +19.5 97.2	59 55.2 +19.3 96.5	59 02.0 +19.2 95.9	58 08.8 +19.0 95.3
21°	62 01.0 +17.9 95.8	61 07.7 +17.8 95.2	60 14.5 +17.6 94.6	59 21.2 +17.5 94.1	58 27.8 +17.5 93.5
22°	62 18.9 +16.1 93.8	61 25.5 +16.1 93.2	60 32.1 +16.0 92.7	59 38.7 +15.9 92.2	58 45.3 +15.9 91.7
23°	62 35.0 +14.2 91.7	61 41.6 +14.2 91.2	60 48.1 +14.2 90.7	59 54.6 +14.3 90.3	59 01.2 +14.2 89.8
24°	62 49.2 +12.3 89.6	61 55.8 +12.3 89.2	61 02.3 +12.4 88.7	60 08.9 +12.4 88.3	59 15.4 +12.6 87.9
25°	63 01.5 +10.3 87.4	62 08.1 +10.4 87.1	61 14.7 +10.6 86.7	60 21.3 +10.8 86.4	59 28.0 +10.9 86.0
26°	63 11.8 +08.2 85.3	62 18.5 +08.5 85.0	61 25.3 +08.7 84.7	60 32.1 +08.9 84.4	59 38.9 +09.1 84.1
27°	63 20.0 +06.3 83.1	62 27.0 +06.5 82.8	61 34.0 +06.8 82.6	60 41.0 +07.0 82.3	59 48.0 +07.4 82.1
28°	63 26.3 +04.1 80.8	62 33.5 +04.5 80.7	61 40.8 +04.8 80.5	60 48.0 +05.3 80.3	59 55.4 +05.5 80.1
29°	63 30.4 +02.0 78.6	62 38.0 +02.5 78.5	61 45.6 +02.9 78.4	60 53.3 +03.3 78.3	60 00.9 +03.8 78.1

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°	46 52.5 +39.6 123.0	46 07.4 +39.0 122.0	45 21.9 +38.4 121.1	44 35.9 +37.9 120.2	43 49.4 +37.5 119.3
1°	47 32.1 +38.8 121.9	46 46.4 +38.3 120.9	46 00.3 +37.8 120.0	45 13.8 +37.3 119.1	44 26.9 +36.8 118.2
2°	48 10.9 +38.2 120.7	47 24.7 +37.7 119.8	46 38.1 +37.2 118.8	45 51.1 +36.6 117.9	45 03.7 +36.1 117.1
3°	48 49.1 +37.5 119.6	48 02.4 +36.9 118.6	47 15.3 +36.4 117.7	46 27.7 +36.0 116.8	45 39.8 +35.5 115.9
4°	49 26.6 +36.7 118.4	48 39.3 +36.2 117.4	47 51.7 +35.7 116.5	47 03.7 +35.2 115.6	46 15.3 +34.7 114.8
5°	50 03.3 +35.9 117.1	49 15.5 +35.4 116.2	48 27.4 +34.9 115.3	47 38.9 +34.4 114.4	46 50.0 +34.0 113.6
6°	50 39.2 +35.1 115.9	49 50.9 +34.6 115.0	49 02.3 +34.1 114.1	48 13.3 +33.7 113.2	47 24.0 +33.2 112.4
7°	51 14.3 +34.2 114.6	50 25.5 +33.7 113.7	49 36.4 +33.3 112.8	48 47.0 +32.8 112.0	47 57.2 +32.4 111.1
8°	51 48.5 +33.3 113.3	50 59.2 +32.9 112.4	50 09.7 +32.3 111.5	49 19.8 +31.9 110.7	48 29.6 +31.6 109.9
9°	52 21.8 +32.4 111.9	51 32.1 +31.9 111.0	50 42.0 +31.5 110.2	49 51.7 +31.1 109.4	49 01.2 +30.7 108.6
10°	52 54.2 +31.3 110.5	52 04.0 +30.9 109.7	51 13.5 +30.5 108.9	50 22.8 +30.1 108.1	49 31.9 +29.7 107.3
11°	53 25.5 +30.4 109.1	52 34.9 +29.9 108.3	51 44.0 +29.5 107.5	50 52.9 +29.2 106.7	50 01.6 +28.8 105.9
12°	53 55.9 +29.2 107.6	53 04.8 +28.9 106.8	52 13.5 +28.5 106.1	51 22.1 +28.1 105.3	50 30.4 +27.8 104.6
13°	54 25.1 +28.1 106.2	53 33.7 +27.7 105.4	52 42.0 +27.4 104.6	51 50.2 +27.1 103.9	50 58.2 +26.8 103.2
14°	54 53.2 +27.0 104.6	54 01.4 +26.6 103.9	53 09.4 +26.3 103.1	52 17.3 +26.0 102.4	51 25.0 +25.7 101.7
15°	55 20.2 +25.7 103.1	54 28.0 +25.4 102.3	53 35.7 +25.1 101.6	52 43.3 +24.9 100.9	51 50.7 +24.7 100.3
16°	55 45.9 +24.4 101.5	54 53.4 +24.2 100.8	54 00.8 +24.0 100.1	53 08.2 +23.7 99.4	52 15.4 +23.5 98.8
17°	56 10.3 +23.1 99.8	55 17.6 +22.9 99.2	54 24.8 +22.6 98.5	53 31.9 +22.4 97.9	52 38.9 +22.3 97.3
18°	56 33.4 +21.8 98.2	55 40.5 +21.6 97.5	54 47.4 +21.4 96.9	53 54.3 +21.3 96.3	53 01.2 +21.1 95.7
19°	56 55.2 +20.4 96.5	56 02.1 +20.2 95.9	55 08.8 +20.1 95.3	54 15.6 +20.0 94.7	53 22.3 +19.9 94.2
20°	57 15.6 +18.9 94.7	56 22.3 +18.8 94.2	55 28.9 +18.7 93.6	54 35.6 +18.6 93.1	53 42.2 +18.6 92.6
21°	57 34.5 +17.4 93.0	56 41.1 +17.3 92.5	55 47.6 +17.4 92.0	54 54.2 +17.3 91.5	54 00.8 +17.2 91.0
22°	57 51.9 +15.8 91.2	56 58.4 +15.9 90.7	56 05.0 +15.8 90.2	55 11.5 +15.9 89.8	54 18.0 +16.0 89.3
23°	58 07.7 +14.3 89.4	57 14.3 +14.3 88.9	56 20.8 +14.4 88.5	55 27.4 +14.5 88.1	54 34.0 +14.5 87.7
24°	58 22.0 +12.7 87.5	57 28.6 +12.8 87.1	56 35.2 +12.9 86.8	55 41.9 +13.0 86.4	54 48.5 +13.2 86.0
25°	58 34.7 +11.0 85.7	57 41.4 +11.2 85.3	56 48.1 +11.4 85.0	55 54.9 +11.5 84.6	55 01.7 +11.7 84.3
26°	58 45.7 +09.4 83.8	57 52.6 +09.6 83.5	56 59.5 +09.8 83.2	56 06.4 +10.0 82.9	55 13.4 +10.2 82.6
27°	58 55.1 +07.6 81.9	58 02.2 +07.9 81.6	57 09.3 +08.2 81.4	56 16.4 +08.5 81.1	55 23.6 +08.8 80.9
28°	59 02.7 +05.9 79.9	58 10.1 +06.3 79.7	57 17.5 +06.6 79.5	56 24.9 +07.0 79.3	55 32.4 +07.3 79.1
29°	59 08.6 +04.2 78.0	58 16.4 +04.5 77.8	57 24.1 +05.0 77.7	56 31.9 +05.4 77.5	55 39.7 +05.8 77.4

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°	43 02.6 +37.0 118.4	42 15.4 +36.5 117.6	41 27.8 +36.1 116.8	40 39.9 +35.6 116.0	39 51.7 +35.2 115.2
1°	43 39.6 +36.3 117.3	42 51.9 +35.9 116.5	42 03.9 +35.4 115.7	41 15.5 +35.1 114.9	40 26.9 +34.6 114.1
2°	44 15.9 +35.7 116.2	43 27.8 +35.2 115.4	42 39.3 +34.8 114.6	41 50.6 +34.4 113.8	41 01.5 +34.0 113.0
3°	44 51.6 +35.0 115.1	44 03.0 +34.6 114.3	43 14.1 +34.2 113.5	42 25.0 +33.7 112.7	41 35.5 +33.4 111.9
4°	45 26.6 +34.3 113.9	44 37.6 +33.9 113.1	43 48.3 +33.4 112.3	42 58.7 +33.1 111.6	42 08.9 +32.7 110.8
5°	46 00.9 +33.6 112.8	45 11.5 +33.1 112.0	44 21.7 +32.8 111.2	43 31.8 +32.3 110.4	42 41.6 +32.0 109.7
6°	46 34.5 +32.8 111.6	45 44.6 +32.4 110.8	44 54.5 +32.0 110.0	44 04.1 +31.7 109.3	43 13.6 +31.3 108.5
7°	47 07.3 +31.9 110.3	46 17.0 +31.6 109.6	45 26.5 +31.3 108.8	44 35.8 +30.9 108.1	43 44.9 +30.5 107.4
8°	47 39.2 +31.2 109.1	46 48.6 +30.8 108.3	45 57.8 +30.4 107.6	45 06.7 +30.1 106.9	44 15.4 +29.8 106.2
9°	48 10.4 +30.3 107.8	47 19.4 +30.0 107.1	46 28.2 +29.6 106.3	45 36.8 +29.3 105.6	44 45.2 +29.1 104.9
10°	48 40.7 +29.4 106.5	47 49.4 +29.0 105.8	46 57.8 +28.8 105.1	46 06.1 +28.5 104.4	45 14.3 +28.2 103.7
11°	49 10.1 +28.5 105.2	48 18.4 +28.2 104.5	47 26.6 +27.9 103.8	46 34.6 +27.6 103.1	45 42.5 +27.3 102.5
12°	49 38.6 +27.5 103.8	48 46.6 +27.2 103.1	47 54.5 +26.9 102.5	47 02.2 +26.7 101.8	46 09.8 +26.5 101.2
13°	50 06.1 +26.5 102.5	49 13.8 +26.3 101.8	48 21.4 +26.0 101.1	47 28.9 +25.8 100.5	46 36.3 +25.6 99.9
14°	50 32.6 +25.5 101.1	49 40.1 +25.2 100.4	48 47.4 +25.1 99.8	47 54.7 +24.9 99.2	47 01.9 +24.6 98.5
15°	50 58.1 +24.4 99.6	50 05.3 +24.2 99.0	49 12.5 +24.0 98.4	48 19.6 +23.8 97.8	47 26.5 +23.8 97.2
16°	51 22.5 +23.3 98.2	50 29.5 +23.2 97.6	49 36.5 +23.0 97.0	48 43.4 +22.9 96.4	47 50.3 +22.7 95.8
17°	51 45.8 +22.2 96.7	50 52.7 +22.0 96.1	49 59.5 +21.9 95.5	49 06.3 +21.8 95.0	48 13.0 +21.7 94.5
18°	52 08.0 +21.0 95.2	51 14.7 +20.9 94.6	50 21.4 +20.8 94.1	49 28.1 +20.7 93.6	48 34.7 +20.7 93.1
19°	52 29.0 +19.7 93.6	51 35.6 +19.7 93.1	50 42.2 +19.7 92.6	49 48.8 +19.6 92.1	48 55.4 +19.6 91.6
20°	52 48.7 +18.6 92.1	51 55.3 +18.5 91.6	51 01.9 +18.5 91.1	50 08.4 +18.5 90.6	49 15.0 +18.5 90.2
21°	53 07.3 +17.3 90.5	52 13.8 +17.3 90.1	51 20.4 +17.3 89.6	50 26.9 +17.4 89.2	49 33.5 +17.4 88.7
22°	53 24.6 +16.0 88.9	52 31.1 +16.1 88.5	51 37.7 +16.1 88.1	50 44.3 +16.1 87.7	49 50.9 +16.2 87.2
23°	53 40.6 +14.6 87.3	52 47.2 +14.7 86.9	51 53.8 +14.8 86.5	51 00.4 +15.0 86.1	50 07.1 +15.1 85.7
24°	53 55.2 +13.3 85.6	53 01.9 +13.4 85.3	52 08.6 +13.6 84.9	51 15.4 +13.7 84.6	50 22.2 +13.9 84.2
25°	54 08.5 +11.9 84.0	53 15.3 +12.1 83.7	52 22.2 +12.3 83.3	51 29.1 +12.5 83.0	50 36.1 +12.7 82.7
26°	54 20.4 +10.5 82.3	53 27.4 +10.8 82.0	52 34.5 +11.0 81.7	51 41.6 +11.2 81.4	50 48.8 +11.4 81.2
27°	54 30.9 +09.0 80.6	53 38.2 +09.3 80.4	52 45.5 +09.6 80.1	51 52.8 +09.9 79.9	51 00.2 +10.2 79.6
28°	54 39.9 +07.7 78.9	53 47.5 +07.9 78.7	52 55.1 +08.3 78.5	52 02.7 +08.6 78.3	51 10.4 +08.9 78.0
29°	54 47.6 +06.1 77.2	53 55.4 +06.6 77.0	53 03.4 +06.9 76.8	52 11.3 +07.3 76.6	51 19.3 +07.7 76.5

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°	39 03.2 +34.8 114.4	38 14.3 +34.5 113.7	37 25.3 +34.0 112.9	36 35.9 +33.7 112.2	35 46.3 +33.3 111.5
1°	39 38.0 +34.2 113.4	38 48.8 +33.8 112.6	37 59.3 +33.4 111.9	37 09.6 +33.1 111.2	36 19.6 +32.8 110.5
2°	40 12.2 +33.6 112.3	39 22.6 +33.2 111.6	38 32.7 +32.9 110.8	37 42.7 +32.5 110.1	36 52.4 +32.2 109.5
3°	40 45.8 +33.0 111.2	39 55.8 +32.7 110.5	39 05.6 +32.3 109.8	38 15.2 +32.0 109.1	37 24.6 +31.6 108.4
4°	41 18.8 +32.3 110.1	40 28.5 +31.9 109.4	39 37.9 +31.7 108.7	38 47.2 +31.3 108.0	37 56.2 +31.1 107.3
5°	41 51.1 +31.7 109.0	41 00.4 +31.4 108.3	40 09.6 +31.0 107.6	39 18.5 +30.7 106.9	38 27.3 +30.4 106.2
6°	42 22.8 +31.0 107.8	41 31.8 +30.6 107.1	40 40.6 +30.4 106.5	39 49.2 +30.1 105.8	38 57.7 +29.8 105.1
7°	42 53.8 +30.2 106.7	42 02.4 +30.0 106.0	41 11.0 +29.6 105.3	40 19.3 +29.4 104.7	39 27.5 +29.2 104.0
8°	43 24.0 +29.5 105.5	42 32.4 +29.2 104.8	41 40.6 +29.0 104.2	40 48.7 +28.7 103.5	39 56.7 +28.5 102.9
9°	43 53.5 +28.8 104.3	43 01.6 +28.5 103.6	42 09.6 +28.2 103.0	41 17.4 +28.0 102.3	40 25.2 +27.7 101.7
10°	44 22.3 +27.9 103.1	43 30.1 +27.7 102.4	42 37.8 +27.5 101.8	41 45.4 +27.3 101.2	40 52.9 +27.1 100.6
11°	44 50.2 +27.1 101.8	43 57.8 +26.9 101.2	43 05.3 +26.7 100.6	42 12.7 +26.5 100.0	41 20.0 +26.3 99.4
12°	45 17.3 +26.3 100.5	44 24.7 +26.1 99.9	43 32.0 +25.9 99.3	42 39.2 +25.7 98.8	41 46.3 +25.6 98.2
13°	45 43.6 +25.4 99.3	44 50.8 +25.2 98.7	43 57.9 +25.0 98.1	43 04.9 +24.9 97.5	42 11.9 +24.8 97.0
14°	46 09.0 +24.5 98.0	45 16.0 +24.3 97.4	44 22.9 +24.3 96.8	43 29.8 +24.1 96.3	42 36.7 +23.9 95.7
15°	46 33.5 +23.5 96.6	45 40.3 +23.5 96.1	44 47.2 +23.3 95.5	43 53.9 +23.3 95.0	43 00.6 +23.2 94.5
16°	46 57.0 +22.7 95.3	46 03.8 +22.5 94.8	45 10.5 +22.4 94.2	44 17.2 +22.3 93.7	43 23.8 +22.3 93.2
17°	47 19.7 +21.6 93.9	46 26.3 +21.6 93.4	45 32.9 +21.5 92.9	44 39.5 +21.5 92.4	43 46.1 +21.4 91.9
18°	47 41.3 +20.6 92.6	46 47.9 +20.6 92.1	45 54.4 +20.6 91.6	45 01.0 +20.5 91.1	44 07.5 +20.6 90.6
19°	48 01.9 +19.6 91.2	47 08.5 +19.5 90.7	46 15.0 +19.6 90.2	45 21.5 +19.6 89.8	44 28.1 +19.6 89.3
20°	48 21.5 +18.5 89.7	47 28.0 +18.6 89.3	46 34.6 +18.6 88.9	45 41.1 +18.7 88.4	44 47.7 +18.7 88.0
21°	48 40.0 +17.5 88.3	47 46.6 +17.5 87.9	46 53.2 +17.6 87.5	45 59.8 +17.6 87.1	45 06.4 +17.7 86.6
22°	48 57.5 +16.3 86.8	48 04.1 +16.4 86.5	47 10.8 +16.5 86.1	46 17.4 +16.7 85.7	45 24.1 +16.8 85.3
23°	49 13.8 +15.2 85.4	48 20.5 +15.4 85.0	47 27.3 +15.5 84.6	46 34.1 +15.6 84.3	45 40.9 +15.8 83.9
24°	49 29.0 +14.1 83.9	48 35.9 +14.2 83.5	47 42.8 +14.4 83.2	46 49.7 +14.6 82.9	45 56.7 +14.8 82.5
25°	49 43.1 +12.9 82.4	48 50.1 +13.1 82.1	47 57.2 +13.3 81.8	47 04.3 +13.5 81.5	46 11.5 +13.7 81.1
26°	49 56.0 +11.7 80.9	49 03.2 +11.9 80.6	48 10.5 +12.2 80.3	47 17.8 +12.4 80.0	46 25.2 +12.7 79.7
27°	50 07.7 +10.4 79.3	49 15.1 +10.8 79.1	48 22.7 +11.0 78.8	47 30.2 +11.4 78.6	46 37.9 +11.6 78.3
28°	50 18.1 +09.3 77.8	49 25.9 +09.6 77.6	48 33.7 +09.9 77.4	47 41.6 +10.2 77.1	46 49.5 +10.5 76.9
29°	50 27.4 +08.0 76.3	49 35.5 +08.4 76.1	48 43.6 +08.8 75.9	47 51.8 +09.1 75.7	47 00.0 +09.5 75.4

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°	34 56.4 +33.0 110.9	34 06.4 +32.6 110.2	33 16.1 +32.3 109.5	32 25.6 +32.0 108.9	31 34.9 +31.8 108.3
1°	35 29.4 +32.5 109.8	34 39.0 +32.2 109.2	33 48.4 +31.9 108.5	32 57.6 +31.6 107.9	32 06.7 +31.2 107.3
2°	36 01.9 +31.9 108.8	35 11.2 +31.6 108.1	34 20.3 +31.3 107.5	33 29.2 +31.0 106.9	32 37.9 +30.8 106.2
3°	36 33.8 +31.3 107.7	35 42.8 +31.0 107.1	34 51.6 +30.8 106.5	34 00.2 +30.5 105.8	33 08.7 +30.3 105.2
4°	37 05.1 +30.8 106.7	36 13.8 +30.5 106.0	35 22.4 +30.2 105.4	34 30.7 +30.0 104.8	33 39.0 +29.7 104.2
5°	37 35.9 +30.1 105.6	36 44.3 +29.9 105.0	35 52.6 +29.6 104.3	35 00.7 +29.5 103.7	34 08.7 +29.2 103.1
6°	38 06.0 +29.6 104.5	37 14.2 +29.3 103.9	36 22.2 +29.1 103.3	35 30.2 +28.8 102.7	34 37.9 +28.7 102.1
7°	38 35.6 +28.9 103.4	37 43.5 +28.7 102.8	36 51.3 +28.5 102.2	35 59.0 +28.3 101.6	35 06.6 +28.1 101.0
8°	39 04.5 +28.3 102.3	38 12.2 +28.0 101.7	37 19.8 +27.8 101.1	36 27.3 +27.6 100.5	35 34.7 +27.5 99.9
9°	39 32.8 +27.5 101.1	38 40.2 +27.4 100.5	37 47.6 +27.2 100.0	36 54.9 +27.1 99.4	36 02.2 +26.8 98.8
10°	40 00.3 +26.9 100.0	39 07.6 +26.7 99.4	38 14.8 +26.6 98.8	37 22.0 +26.4 98.3	36 29.0 +26.3 97.7
11°	40 27.2 +26.2 98.8	39 34.3 +26.0 98.2	38 41.4 +25.9 97.7	37 48.4 +25.7 97.1	36 55.3 +25.6 96.6
12°	40 53.4 +25.4 97.6	40 00.3 +25.3 97.1	39 07.3 +25.1 96.5	38 14.1 +25.1 96.0	37 20.9 +25.0 95.5
13°	41 18.8 +24.7 96.4	40 25.6 +24.6 95.9	39 32.4 +24.5 95.4	38 39.2 +24.4 94.8	37 45.9 +24.3 94.3
14°	41 43.5 +23.8 95.2	40 50.2 +23.8 94.7	39 56.9 +23.7 94.2	39 03.6 +23.6 93.7	38 10.2 +23.6 93.2
15°	42 07.3 +23.1 94.0	41 14.0 +23.0 93.5	40 20.6 +23.0 93.0	39 27.2 +22.9 92.5	38 33.8 +22.9 92.0
16°	42 30.4 +22.3 92.7	41 37.0 +22.2 92.2	40 43.6 +22.2 91.7	39 50.1 +22.2 91.3	38 56.7 +22.1 90.8
17°	42 52.7 +21.4 91.5	41 59.2 +21.4 91.0	41 05.8 +21.4 90.5	40 12.3 +21.4 90.1	39 18.8 +21.5 89.6
18°	43 14.1 +20.5 90.2	42 20.6 +20.6 89.7	41 27.2 +20.5 89.3	40 33.7 +20.6 88.8	39 40.3 +20.6 88.4
19°	43 34.6 +19.7 88.9	42 41.2 +19.7 88.4	41 47.7 +19.8 88.0	40 54.3 +19.8 87.6	40 00.9 +19.9 87.2
20°	43 54.3 +18.7 87.6	43 00.9 +18.8 87.2	42 07.5 +18.9 86.7	41 14.1 +19.0 86.3	40 20.8 +19.1 85.9
21°	44 13.0 +17.9 86.3	43 19.7 +17.9 85.9	42 26.4 +18.0 85.5	41 33.1 +18.2 85.1	40 39.9 +18.3 84.7
22°	44 30.9 +16.9 84.9	43 37.6 +17.1 84.5	42 44.4 +17.2 84.2	41 51.3 +17.3 83.8	40 58.2 +17.4 83.4
23°	44 47.8 +15.9 83.6	43 54.7 +16.1 83.2	43 01.6 +16.3 82.9	42 08.6 +16.4 82.5	41 15.6 +16.6 82.2
24°	45 03.7 +15.0 82.2	44 10.8 +15.1 81.9	43 17.9 +15.3 81.5	42 25.0 +15.5 81.2	41 32.2 +15.7 80.9
25°	45 18.7 +13.9 80.8	44 25.9 +14.2 80.5	43 33.2 +14.4 80.2	42 40.5 +14.7 79.9	41 47.9 +14.9 79.6
26°	45 32.6 +12.9 79.4	44 40.1 +13.2 79.2	43 47.6 +13.4 78.9	42 55.2 +13.7 78.6	42 02.8 +14.0 78.3
27°	45 45.5 +12.0 78.0	44 53.3 +12.2 77.8	44 01.0 +12.5 77.5	43 08.9 +12.8 77.2	42 16.8 +13.0 77.0
28°	45 57.5 +10.8 76.6	45 05.5 +11.2 76.4	44 13.5 +11.5 76.2	43 21.7 +11.8 75.9	42 29.8 +12.2 75.7
29°	46 08.3 +09.8 75.2	45 16.7 +10.1 75.0	44 25.0 +10.6 74.8	43 33.5 +10.8 74.6	42 42.0 +11.2 74.3

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°	30 44.1 +31.4 107.6	29 53.0 +31.2 107.0	29 01.8 +31.0 106.4	28 10.5 +30.7 105.8	27 19.0 +30.4 105.3
1°	31 15.5 +31.0 106.6	30 24.2 +30.8 106.0	29 32.8 +30.5 105.4	28 41.2 +30.2 104.9	27 49.4 +30.1 104.3
2°	31 46.5 +30.6 105.6	30 55.0 +30.3 105.0	30 03.3 +30.0 104.5	29 11.4 +29.9 103.9	28 19.5 +29.6 103.3
3°	32 17.1 +30.0 104.6	31 25.3 +29.8 104.0	30 33.3 +29.6 103.4	29 41.3 +29.3 102.9	28 49.1 +29.2 102.3
4°	32 47.1 +29.5 103.6	31 55.1 +29.3 103.0	31 02.9 +29.1 102.4	30 10.6 +29.0 101.9	29 18.3 +28.7 101.3
5°	33 16.6 +29.0 102.6	32 24.4 +28.8 102.0	31 32.0 +28.6 101.4	30 39.6 +28.4 100.9	29 47.0 +28.3 100.3
6°	33 45.6 +28.5 101.5	32 53.2 +28.2 100.9	32 00.6 +28.1 100.4	31 08.0 +27.9 99.8	30 15.3 +27.8 99.3
7°	34 14.1 +27.9 100.4	33 21.4 +27.8 99.9	32 28.7 +27.6 99.3	31 35.9 +27.5 98.8	30 43.1 +27.3 98.3
8°	34 42.0 +27.3 99.4	33 49.2 +27.2 98.8	32 56.3 +27.0 98.3	32 03.4 +26.9 97.7	31 10.4 +26.8 97.2
9°	35 09.3 +26.7 98.3	34 16.4 +26.6 97.7	33 23.3 +26.5 97.2	32 30.3 +26.4 96.7	31 37.2 +26.2 96.2
10°	35 36.0 +26.2 97.2	34 43.0 +26.0 96.7	33 49.8 +26.0 96.1	32 56.7 +25.8 95.6	32 03.4 +25.8 95.1
11°	36 02.2 +25.5 96.1	35 09.0 +25.4 95.6	34 15.8 +25.3 95.0	33 22.5 +25.2 94.5	32 29.2 +25.2 94.0
12°	36 27.7 +24.9 95.0	35 34.4 +24.8 94.4	34 41.1 +24.7 93.9	33 47.7 +24.7 93.5	32 54.4 +24.6 93.0
13°	36 52.6 +24.2 93.8	35 59.2 +24.2 93.3	35 05.8 +24.2 92.8	34 12.4 +24.1 92.4	33 19.0 +24.1 91.9
14°	37 16.8 +23.6 92.7	36 23.4 +23.5 92.2	35 30.0 +23.5 91.7	34 36.5 +23.5 91.2	33 43.1 +23.4 90.8
15°	37 40.4 +22.8 91.5	36 46.9 +22.9 91.0	35 53.5 +22.8 90.6	35 00.0 +22.8 90.1	34 06.5 +22.9 89.7
16°	38 03.2 +22.2 90.3	37 09.8 +22.1 89.9	36 16.3 +22.2 89.4	35 22.8 +22.3 89.0	34 29.4 +22.2 88.6
17°	38 25.4 +21.4 89.2	37 31.9 +21.5 88.7	36 38.5 +21.5 88.3	35 45.1 +21.5 87.9	34 51.6 +21.7 87.4
18°	38 46.8 +20.7 88.0	37 53.4 +20.8 87.5	37 00.0 +20.8 87.1	36 06.6 +20.9 86.7	35 13.3 +20.9 86.3
19°	39 07.5 +20.0 86.8	38 14.2 +20.0 86.3	37 20.8 +20.1 85.9	36 27.5 +20.2 85.5	35 34.2 +20.3 85.1
20°	39 27.5 +19.2 85.5	38 34.2 +19.3 85.1	37 40.9 +19.4 84.8	36 47.7 +19.5 84.4	35 54.5 +19.7 84.0
21°	39 46.7 +18.4 84.3	38 53.5 +18.5 83.9	38 00.3 +18.7 83.6	37 07.2 +18.8 83.2	36 14.2 +18.9 82.8
22°	40 05.1 +17.6 83.1	39 12.0 +17.8 82.7	38 19.0 +17.9 82.3	37 26.0 +18.1 82.0	36 33.1 +18.3 81.6
23°	40 22.7 +16.7 81.8	39 29.8 +16.9 81.5	38 36.9 +17.2 81.1	37 44.1 +17.4 80.8	36 51.4 +17.5 80.4
24°	40 39.4 +16.0 80.6	39 46.7 +16.2 80.2	38 54.1 +16.3 79.9	38 01.5 +16.5 79.6	37 08.9 +16.8 79.2
25°	40 55.4 +15.1 79.3	40 02.9 +15.3 79.0	39 10.4 +15.6 78.7	38 18.0 +15.9 78.3	37 25.7 +16.1 78.0
26°	41 10.5 +14.2 78.0	40 18.2 +14.5 77.7	39 26.0 +14.8 77.4	38 33.9 +15.0 77.1	37 41.8 +15.3 76.8
27°	41 24.7 +13.4 76.7	40 32.7 +13.7 76.4	39 40.8 +13.9 76.2	38 48.9 +14.2 75.9	37 57.1 +14.5 75.6
28°	41 38.1 +12.4 75.4	40 46.4 +12.8 75.1	39 54.7 +13.1 74.9	39 03.1 +13.5 74.6	38 11.6 +13.8 74.4
29°	41 50.5 +11.6 74.1	40 59.2 +11.9 73.9	40 07.8 +12.3 73.6	39 16.6 +12.6 73.4	38 25.4 +13.0 73.1

Latitude 27°

Declination SAME name as Latitude

Table with 6 columns: Dec, LHA 070° / 290°, LHA 071° / 289°, LHA 072° / 288°, LHA 073° / 287°, LHA 074° / 286°. Rows include Dec values from 0 to 29 and their corresponding LHA values with H, dH, and Z components.

Table with 6 columns: Dec, LHA 075° / 285°, LHA 076° / 284°, LHA 077° / 283°, LHA 078° / 282°, LHA 079° / 281°. Rows include Dec values from 0 to 29 and their corresponding LHA values with H, dH, and Z components.

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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 +27.2 90.0	-0 53.5 +27.3	-1 46.9 +27.2	-2 40.4 +27.3	-3 33.8 +27.3
1°	0 27.2 +27.3 89.1	-0 26.2 +27.2	-1 19.7 +27.3	-2 13.1 +27.3	-3 06.5 +27.4
2°	0 54.5 +27.2 88.2	0 01.0 +27.3 87.8	-0 52.4 +27.3	-1 45.8 +27.4	-2 39.1 +27.4
3°	1 21.7 +27.2 87.3	0 28.3 +27.2 86.9	-0 25.1 +27.3	-1 18.4 +27.3	-2 11.7 +27.4
4°	1 48.9 +27.2 86.4	0 55.5 +27.3 86.0	0 02.2 +27.3 85.5	-0 51.1 +27.4	-1 44.3 +27.5
5°	2 16.1 +27.1 85.5	1 22.8 +27.2 85.1	0 29.5 +27.3 84.6	-0 23.7 +27.4	-1 16.8 +27.4
6°	2 43.2 +27.1 84.6	1 50.0 +27.2 84.2	0 56.8 +27.3 83.7	0 03.7 +27.4 83.3	-0 49.4 +27.5
7°	3 10.3 +27.1 83.8	2 17.2 +27.1 83.3	1 24.1 +27.3 82.9	0 31.1 +27.4 82.4	-0 21.9 +27.5
8°	3 37.4 +27.0 82.9	2 44.3 +27.1 82.4	1 51.4 +27.2 82.0	0 58.5 +27.3 81.5	0 05.6 +27.5 81.1
9°	4 04.4 +26.9 82.0	3 11.4 +27.1 81.5	2 18.6 +27.2 81.1	1 25.8 +27.4 80.6	0 33.1 +27.5 80.2
10°	4 31.3 +26.9 81.1	3 38.5 +27.0 80.6	2 45.8 +27.2 80.2	1 53.2 +27.3 79.7	1 00.6 +27.5 79.3
11°	4 58.2 +26.8 80.2	4 05.5 +27.0 79.7	3 13.0 +27.1 79.3	2 20.5 +27.3 78.8	1 28.1 +27.4 78.4
12°	5 25.0 +26.7 79.3	4 32.5 +26.9 78.8	3 40.1 +27.0 78.4	2 47.8 +27.2 78.0	1 55.5 +27.4 77.5
13°	5 51.7 +26.6 78.4	4 59.4 +26.8 77.9	4 07.1 +27.0 77.5	3 15.0 +27.2 77.1	2 22.9 +27.4 76.6
14°	6 18.3 +26.6 77.5	5 26.2 +26.7 77.0	4 34.1 +27.0 76.6	3 42.2 +27.1 76.2	2 50.3 +27.4 75.7
15°	6 44.9 +26.4 76.6	5 52.9 +26.7 76.1	5 01.1 +26.8 75.7	4 09.3 +27.1 75.3	3 17.7 +27.3 74.8
16°	7 11.3 +26.4 75.7	6 19.6 +26.5 75.2	5 27.9 +26.8 74.8	4 36.4 +27.0 74.4	3 45.0 +27.2 73.9
17°	7 37.7 +26.2 74.8	6 46.1 +26.5 74.3	5 54.7 +26.7 73.9	5 03.4 +26.9 73.5	4 12.2 +27.2 73.0
18°	8 03.9 +26.1 73.9	7 12.6 +26.3 73.4	6 21.4 +26.6 73.0	5 30.3 +26.9 72.6	4 39.4 +27.1 72.2
19°	8 30.0 +26.0 72.9	7 38.9 +26.3 72.5	6 48.0 +26.5 72.1	5 57.2 +26.7 71.7	5 06.5 +27.0 71.3
20°	8 56.0 +25.8 72.0	8 05.2 +26.1 71.6	7 14.5 +26.4 71.2	6 23.9 +26.7 70.8	5 33.5 +27.0 70.4
21°	9 21.8 +25.7 71.1	8 31.3 +26.0 70.7	7 40.9 +26.3 70.3	6 50.6 +26.6 69.9	6 00.5 +26.9 69.5
22°	9 47.5 +25.6 70.2	8 57.3 +25.8 69.8	8 07.2 +26.1 69.4	7 17.2 +26.5 69.0	6 27.4 +26.7 68.6
23°	10 13.1 +25.4 69.3	9 23.1 +25.7 68.9	8 33.3 +26.0 68.5	7 43.7 +26.3 68.1	6 54.1 +26.7 67.7
24°	10 38.5 +25.2 68.4	9 48.8 +25.6 68.0	8 59.3 +25.9 67.6	8 10.0 +26.2 67.2	7 20.8 +26.6 66.8
25°	11 03.7 +25.1 67.4	10 14.4 +25.4 67.0	9 25.2 +25.8 66.7	8 36.2 +26.1 66.3	7 47.4 +26.4 65.9
26°	11 28.8 +24.9 66.5	10 39.8 +25.3 66.1	9 51.0 +25.6 65.7	9 02.3 +26.0 65.3	8 13.8 +26.3 64.9
27°	11 53.7 +24.7 65.6	11 05.1 +25.0 65.2	10 16.6 +25.4 64.8	9 28.3 +25.8 64.4	8 40.1 +26.2 64.0
28°	12 18.4 +24.5 64.7	11 30.1 +24.9 64.3	10 42.0 +25.3 63.9	9 54.1 +25.7 63.5	9 06.3 +26.1 63.1
29°	12 42.9 +24.3 63.7	11 55.0 +24.8 63.3	11 07.3 +25.1 63.0	10 19.8 +25.5 62.6	9 32.4 +25.9 62.2

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°	-4 27.2 +27.3	-5 20.6 +27.4	-6 14.0 +27.4	-7 07.4 +27.5	-8 00.7 +27.5
1°	-3 59.9 +27.4	-4 53.2 +27.4	-5 46.6 +27.5	-6 39.9 +27.6	-7 33.2 +27.7
2°	-3 32.5 +27.5	-4 25.8 +27.6	-5 19.1 +27.7	-6 12.3 +27.7	-7 05.5 +27.8
3°	-3 05.0 +27.5	-3 58.2 +27.5	-4 51.4 +27.6	-5 44.6 +27.8	-6 37.7 +27.9
4°	-2 37.5 +27.5	-3 30.7 +27.7	-4 23.8 +27.8	-5 16.8 +27.8	-6 09.8 +27.9
5°	-2 10.0 +27.6	-3 03.0 +27.7	-3 56.0 +27.8	-4 49.0 +27.9	-5 41.9 +28.1
6°	-1 42.4 +27.6	-2 35.3 +27.7	-3 28.2 +27.8	-4 21.1 +28.0	-5 13.8 +28.1
7°	-1 14.8 +27.6	-2 07.6 +27.7	-3 00.4 +27.9	-3 53.1 +28.0	-4 45.7 +28.2
8°	-0 47.2 +27.7	-1 39.9 +27.8	-2 32.5 +27.9	-3 25.1 +28.1	-4 17.5 +28.2
9°	-0 19.5 +27.6	-1 12.1 +27.8	-2 04.6 +28.0	-2 57.0 +28.1	-3 49.3 +28.3
10°	0 08.1 +27.6 78.8	-0 44.3 +27.8	-1 36.6 +28.0	-2 28.9 +28.2	-3 21.0 +28.4
11°	0 35.7 +27.7 77.9	-0 16.5 +27.8	-1 08.6 +28.0	-2 00.7 +28.2	-2 52.6 +28.3
12°	1 03.4 +27.6 77.1	0 11.3 +27.8 76.6	-0 40.6 +28.0	-1 32.5 +28.2	-2 24.3 +28.5
13°	1 31.0 +27.6 76.2	0 39.1 +27.8 75.7	-0 12.6 +28.0	-1 04.3 +28.2	-1 55.8 +28.4
14°	1 58.6 +27.5 75.3	1 06.9 +27.8 74.8	0 15.4 +28.0 74.4	-0 36.1 +28.3	-1 27.4 +28.5
15°	2 26.1 +27.5 74.4	1 34.7 +27.7 73.9	0 43.4 +28.0 73.5	-0 07.8 +28.2	-0 58.9 +28.5
16°	2 53.6 +27.5 73.5	2 02.4 +27.8 73.1	1 11.4 +27.9 72.6	0 20.4 +28.2 72.2	-0 30.4 +28.5
17°	3 21.1 +27.5 72.6	2 30.2 +27.7 72.2	1 39.3 +28.0 71.7	0 48.6 +28.3 71.3	-0 01.9 +28.5
18°	3 48.6 +27.3 71.7	2 57.9 +27.6 71.3	2 07.3 +27.9 70.8	1 16.9 +28.2 70.4	0 26.6 +28.5 69.9
19°	4 15.9 +27.3 70.8	3 25.5 +27.6 70.4	2 35.2 +27.9 70.0	1 45.1 +28.1 69.5	0 55.1 +28.4 69.1
20°	4 43.2 +27.3 69.9	3 53.1 +27.5 69.5	3 03.1 +27.8 69.1	2 13.2 +28.2 68.6	1 23.5 +28.5 68.2
21°	5 10.5 +27.2 69.0	4 20.6 +27.5 68.6	3 30.9 +27.8 68.2	2 41.4 +28.1 67.7	1 52.0 +28.4 67.3
22°	5 37.7 +27.1 68.1	4 48.1 +27.4 67.7	3 58.7 +27.8 67.3	3 09.5 +28.1 66.9	2 20.4 +28.4 66.4
23°	6 04.8 +27.0 67.2	5 15.5 +27.4 66.8	4 26.5 +27.6 66.4	3 37.6 +28.0 66.0	2 48.8 +28.4 65.5
24°	6 31.8 +26.9 66.3	5 42.9 +27.2 65.9	4 54.1 +27.6 65.5	4 05.6 +27.9 65.1	3 17.2 +28.3 64.7
25°	6 58.7 +26.8 65.4	6 10.1 +27.2 65.0	5 21.7 +27.6 64.6	4 33.5 +27.9 64.2	3 45.5 +28.2 63.8
26°	7 25.5 +26.7 64.5	6 37.3 +27.0 64.1	5 49.3 +27.4 63.7	5 01.4 +27.8 63.3	4 13.7 +28.2 62.9
27°	7 52.2 +26.5 63.6	7 04.3 +27.0 63.2	6 16.7 +27.3 62.8	5 29.2 +27.8 62.4	4 41.9 +28.1 62.0
28°	8 18.7 +26.5 62.7	7 31.3 +26.9 62.3	6 44.0 +27.3 61.9	5 57.0 +27.6 61.5	5 10.0 +28.1 61.1
29°	8 45.2 +26.3 61.8	7 58.2 +26.7 61.4	7 11.3 +27.1 61.0	6 24.6 +27.6 60.6	5 38.1 +28.0 60.2

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°	-8 54.0 +27.6	-9 47.3 +27.7			
1°	-8 26.4 +27.8	-9 19.6 +27.8			
2°	-7 58.6 +27.8	-8 51.8 +28.0	-9 44.8 +28.1		
3°	-7 30.8 +28.0	-8 23.8 +28.1	-9 16.7 +28.2		
4°	-7 02.8 +28.1	-7 55.7 +28.2	-8 48.5 +28.3	-9 41.3 +28.5	
5°	-6 34.7 +28.2	-7 27.5 +28.3	-8 20.2 +28.5	-9 12.8 +28.6	
6°	-6 06.5 +28.2	-6 59.2 +28.5	-7 51.7 +28.6	-8 44.2 +28.8	-9 36.5 +28.9
7°	-5 38.3 +28.4	-6 30.7 +28.5	-7 23.1 +28.7	-8 15.4 +28.8	-9 07.6 +29.0
8°	-5 09.9 +28.4	-6 02.2 +28.6	-6 54.4 +28.7	-7 46.6 +29.0	-8 38.6 +29.2
9°	-4 41.5 +28.5	-5 33.6 +28.6	-6 25.7 +28.9	-7 17.6 +29.1	-8 09.4 +29.3
10°	-4 13.0 +28.5	-5 05.0 +28.8	-5 56.8 +29.0	-6 48.5 +29.1	-7 40.1 +29.4
11°	-3 44.5 +28.6	-4 36.2 +28.8	-5 27.8 +29.0	-6 19.4 +29.3	-7 10.7 +29.5
12°	-3 15.9 +28.7	-4 07.4 +28.9	-4 58.8 +29.1	-5 50.1 +29.3	-6 41.2 +29.5
13°	-2 47.2 +28.6	-3 38.5 +28.9	-4 29.7 +29.1	-5 20.8 +29.4	-6 11.7 +29.7
14°	-2 18.6 +28.8	-3 09.6 +28.9	-4 00.6 +29.3	-4 51.4 +29.5	-5 42.0 +29.7
15°	-1 49.8 +28.7	-2 40.7 +29.0	-3 31.3 +29.2	-4 21.9 +29.6	-5 12.3 +29.9
16°	-1 21.1 +28.8	-2 11.7 +29.1	-3 02.1 +29.3	-3 52.3 +29.6	-4 42.4 +29.8
17°	-0 52.3 +28.7	-1 42.6 +29.0	-2 32.8 +29.4	-3 22.7 +29.6	-4 12.6 +30.0
18°	-0 23.6 +28.8	-1 13.6 +29.1	-2 03.4 +29.4	-2 53.1 +29.7	-3 42.6 +30.0
19°	0 05.2 +28.8 68.6	-0 44.5 +29.1	-1 34.0 +29.4	-2 23.4 +29.7	-3 12.6 +30.0
20°	0 34.0 +28.7 67.7	-0 15.4 +29.1	-1 04.6 +29.4	-1 53.7 +29.7	-2 42.6 +30.1
21°	1 02.7 +28.8 66.9	0 13.7 +29.1 66.4	-0 35.2 +29.4	-1 24.0 +29.8	-2 12.5 +30.1
22°	1 31.5 +28.7 66.0	0 42.8 +29.0 65.5	-0 05.8 +29.4	-0 54.2 +29.8	-1 42.4 +30.1
23°	2 00.2 +28.7 65.1	1 11.8 +29.1 64.7	0 23.6 +29.4 64.2	-0 24.4 +29.7	-1 12.3 +30.1
24°	2 28.9 +28.7 64.2	1 40.9 +29.0 63.8	0 53.0 +29.4 63.3	0 05.3 +29.8 62.9	-0 42.2 +30.2
25°	2 57.6 +28.6 63.3	2 09.9 +29.0 62.9	1 22.4 +29.4 62.5	0 35.1 +29.8 62.0	-0 12.0 +30.1
26°	3 26.2 +28.6 62.5	2 38.9 +29.0 62.0	1 51.8 +29.4 61.6	1 04.9 +29.7 61.2	0 18.1 +30.2 60.7
27°	3 54.8 +28.5 61.6	3 07.9 +28.9 61.2	2 21.2 +29.3 60.7	1 34.6 +29.7 60.3	0 48.3 +30.1 59.8
28°	4 23.3 +28.5 60.7	3 36.8 +28.9 60.3	2 50.5 +29.3 59.9	2 04.3 +29.8 59.4	1 18.4 +30.2 59.0
29°	4 51.8 +28.4 59.8	4 05.7 +28.8 59.4	3 19.8 +29.2 59.0	2 34.1 +29.6 58.5	1 48.6 +30.0 58.1

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°					
1°					
2°					
3°					
4°					
5°					
6°					
7°	-9 59.7 +29.2				
8°	-9 30.5 +29.4				
9°	-9 01.1 +29.5	-9 52.7 +29.7			
10°	-8 31.6 +29.6	-9 23.0 +29.9			
11°	-8 02.0 +29.7	-8 53.1 +30.0	-9 44.1 +30.2		
12°	-7 32.3 +29.9	-8 23.1 +30.0	-9 13.9 +30.4		
13°	-7 02.4 +29.9	-7 53.1 +30.2	-8 43.5 +30.4		
14°	-6 32.5 +30.0	-7 22.9 +30.3	-8 13.1 +30.6		
15°	-6 02.5 +30.1	-6 52.6 +30.4	-7 42.5 +30.7		
16°	-5 32.4 +30.2	-6 22.2 +30.5	-7 11.8 +30.8		
17°	-5 02.2 +30.2	-5 51.7 +30.5	-6 41.0 +30.9		
18°	-4 32.0 +30.3	-5 21.2 +30.7	-6 10.1 +30.9		
19°	-4 01.7 +30.4	-4 50.5 +30.7	-5 39.2 +31.0		
20°	-3 31.3 +30.4	-4 19.8 +30.7	-5 08.2 +31.1		
21°	-3 00.9 +30.5	-3 49.1 +30.8	-4 37.1 +31.2		
22°	-2 30.4 +30.4	-3 18.3 +30.9	-4 05.9 +31.2		
23°	-2 00.0 +30.5	-2 47.4 +30.9	-3 34.7 +31.3		
24°	-1 29.5 +30.6	-2 16.5 +30.9	-3 03.4 +31.3		
25°	-0 58.9 +30.5	-1 45.6 +30.9	-2 32.1 +31.3		
26°	-0 28.4 +30.6	-1 14.7 +31.0	-2 00.8 +31.4		
27°	0 02.2 +30.5 59.4	-0 43.7 +30.9	-1 29.4 +31.4		
28°	0 32.7 +30.6 58.5	-0 12.8 +31.0	-0 58.0 +31.4		
29°	1 03.3 +30.5 57.7	0 18.2 +31.0 57.2	-0 26.6 +31.4		

Latitude 28°

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 +28.2 90.0	-0 53.0 +28.2	-1 45.9 +28.1	-2 38.9 +28.2	-3 31.9 +28.3
1°	0 28.2 +28.1 89.1	-0 24.8 +28.2	-1 17.8 +28.3	-2 10.7 +28.2	-3 03.6 +28.3
2°	0 56.3 +28.2 88.2	0 03.4 +28.2 87.8	-0 49.5 +28.2	-1 42.5 +28.3	-2 35.3 +28.3
3°	1 24.5 +28.1 87.4	0 31.6 +28.1 86.9	-0 21.3 +28.2	-1 14.2 +28.3	-2 07.0 +28.3
4°	1 52.6 +28.1 86.5	0 59.7 +28.2 86.0	0 06.9 +28.2 85.5	-0 45.9 +28.3	-1 38.7 +28.4
5°	2 20.7 +28.1 85.6	1 27.9 +28.1 85.1	0 35.1 +28.3 84.6	-0 17.6 +28.3	-1 10.3 +28.4
6°	2 48.8 +28.0 84.7	1 56.0 +28.2 84.2	1 03.4 +28.2 83.8	0 10.7 +28.3 83.3	-0 41.9 +28.4
7°	3 16.8 +28.0 83.8	2 24.2 +28.0 83.3	1 31.6 +28.1 82.9	0 39.0 +28.3 82.4	-0 13.5 +28.4
8°	3 44.8 +27.9 82.9	2 52.2 +28.1 82.5	1 59.7 +28.2 82.0	1 07.3 +28.3 81.5	0 14.9 +28.4 81.1
9°	4 12.7 +27.9 82.0	3 20.3 +28.0 81.6	2 27.9 +28.1 81.1	1 35.6 +28.2 80.7	0 43.3 +28.4 80.2
10°	4 40.6 +27.8 81.2	3 48.3 +27.9 80.7	2 56.0 +28.1 80.2	2 03.8 +28.3 79.8	1 11.7 +28.4 79.3
11°	5 08.4 +27.7 80.3	4 16.2 +27.9 79.8	3 24.1 +28.0 79.3	2 32.1 +28.1 78.9	1 40.1 +28.4 78.4
12°	5 36.1 +27.6 79.4	4 44.1 +27.8 78.9	3 52.1 +28.0 78.5	3 00.2 +28.2 78.0	2 08.5 +28.3 77.5
13°	6 03.7 +27.6 78.5	5 11.9 +27.7 78.0	4 20.1 +27.9 77.6	3 28.4 +28.1 77.1	2 36.8 +28.3 76.7
14°	6 31.3 +27.4 77.6	5 39.6 +27.6 77.1	4 48.0 +27.8 76.7	3 56.5 +28.0 76.2	3 05.1 +28.2 75.8
15°	6 58.7 +27.4 76.7	6 07.2 +27.6 76.2	5 15.8 +27.8 75.8	4 24.5 +28.0 75.3	3 33.3 +28.2 74.9
16°	7 26.1 +27.3 75.8	6 34.8 +27.5 75.3	5 43.6 +27.7 74.9	4 52.5 +27.9 74.5	4 01.5 +28.2 74.0
17°	7 53.4 +27.1 74.9	7 02.3 +27.3 74.5	6 11.3 +27.6 74.0	5 20.4 +27.8 73.6	4 29.7 +28.0 73.1
18°	8 20.5 +27.0 74.0	7 29.6 +27.3 73.6	6 38.9 +27.5 73.1	5 48.2 +27.8 72.7	4 57.7 +28.0 72.2
19°	8 47.5 +26.9 73.1	7 56.9 +27.1 72.7	7 06.4 +27.4 72.2	6 16.0 +27.6 71.8	5 25.7 +28.0 71.3
20°	9 14.4 +26.7 72.2	8 24.0 +27.0 71.8	7 33.8 +27.3 71.3	6 43.6 +27.6 70.9	5 53.7 +27.8 70.5
21°	9 41.1 +26.6 71.3	8 51.0 +26.9 70.9	8 01.1 +27.1 70.4	7 11.2 +27.5 70.0	6 21.5 +27.7 69.6
22°	10 07.7 +26.5 70.4	9 17.9 +26.8 69.9	8 28.2 +27.1 69.5	7 38.7 +27.3 69.1	6 49.2 +27.7 68.7
23°	10 34.2 +26.3 69.5	9 44.7 +26.6 69.0	8 55.3 +26.9 68.6	8 06.0 +27.2 68.2	7 16.9 +27.5 67.8
24°	11 00.5 +26.1 68.5	10 11.3 +26.4 68.1	9 22.2 +26.7 67.7	8 33.2 +27.1 67.3	7 44.4 +27.5 66.9
25°	11 26.6 +26.0 67.6	10 37.7 +26.3 67.2	9 48.9 +26.7 66.8	9 00.3 +27.0 66.4	8 11.9 +27.3 66.0
26°	11 52.6 +25.8 66.7	11 04.0 +26.1 66.3	10 15.6 +26.4 65.9	9 27.3 +26.8 65.5	8 39.2 +27.1 65.1
27°	12 18.4 +25.6 65.8	11 30.1 +26.0 65.4	10 42.0 +26.4 65.0	9 54.1 +26.7 64.6	9 06.3 +27.1 64.2
28°	12 44.0 +25.4 64.9	11 56.1 +25.8 64.5	11 08.4 +26.1 64.1	10 20.8 +26.5 63.7	9 33.4 +26.9 63.3
29°	13 09.4 +25.2 63.9	12 21.9 +25.5 63.5	11 34.5 +26.0 63.2	10 47.3 +26.4 62.8	10 00.3 +26.8 62.4

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°	-4 24.8 +28.3	-5 17.7 +28.3	-6 10.6 +28.3	-7 03.5 +28.4	-7 56.4 +28.5
1°	-3 56.5 +28.3	-4 49.4 +28.4	-5 42.3 +28.5	-6 35.1 +28.5	-7 27.9 +28.6
2°	-3 28.2 +28.4	-4 21.0 +28.4	-5 13.8 +28.5	-6 06.6 +28.7	-6 59.3 +28.7
3°	-2 59.8 +28.4	-3 52.6 +28.6	-4 45.3 +28.6	-5 37.9 +28.7	-6 30.6 +28.8
4°	-2 31.4 +28.5	-3 24.0 +28.5	-4 16.7 +28.7	-5 09.2 +28.7	-6 01.8 +28.9
5°	-2 02.9 +28.5	-2 55.5 +28.6	-3 48.0 +28.7	-4 40.5 +28.9	-5 32.9 +29.0
6°	-1 34.4 +28.5	-2 26.9 +28.6	-3 19.3 +28.8	-4 11.6 +28.8	-5 03.9 +29.0
7°	-1 05.9 +28.5	-1 58.3 +28.7	-2 50.5 +28.8	-3 42.8 +29.0	-4 34.9 +29.1
8°	-0 37.4 +28.6	-1 29.6 +28.7	-2 21.7 +28.8	-3 13.8 +29.0	-4 05.8 +29.1
9°	-0 08.8 +28.5	-1 00.9 +28.7	-1 52.9 +28.9	-2 44.8 +29.0	-3 36.7 +29.2
10°	0 19.7 +28.6 78.8	-0 32.2 +28.7	-1 24.0 +28.8	-2 15.8 +29.1	-3 07.5 +29.3
11°	0 48.3 +28.5 78.0	-0 03.5 +28.7	-0 55.2 +28.9	-1 46.7 +29.0	-2 38.2 +29.3
12°	1 16.8 +28.5 77.1	0 25.2 +28.7 76.6	-0 26.3 +28.9	-1 17.7 +29.1	-2 08.9 +29.3
13°	1 45.3 +28.5 76.2	0 53.9 +28.7 75.7	0 02.6 +28.9 75.3	-0 48.6 +29.2	-1 39.6 +29.3
14°	2 13.8 +28.4 75.3	1 22.6 +28.7 74.9	0 31.5 +28.9 74.4	-0 19.4 +29.1	-1 10.3 +29.4
15°	2 42.2 +28.5 74.4	1 51.3 +28.6 74.0	1 00.4 +28.9 73.5	0 09.7 +29.1 73.0	-0 40.9 +29.3
16°	3 10.7 +28.3 73.6	2 19.9 +28.6 73.1	1 29.3 +28.8 72.6	0 38.8 +29.1 72.2	-0 11.6 +29.4
17°	3 39.0 +28.3 72.7	2 48.5 +28.6 72.2	1 58.1 +28.9 71.8	1 07.9 +29.1 71.3	0 17.8 +29.3 70.8
18°	4 07.3 +28.3 71.8	3 17.1 +28.5 71.3	2 27.0 +28.8 70.9	1 37.0 +29.0 70.4	0 47.1 +29.4 70.0
19°	4 35.6 +28.2 70.9	3 45.6 +28.5 70.5	2 55.8 +28.7 70.0	2 06.0 +29.1 69.5	1 16.5 +29.3 69.1
20°	5 03.8 +28.1 70.0	4 14.1 +28.4 69.6	3 24.5 +28.7 69.1	2 35.1 +29.0 68.7	1 45.8 +29.3 68.2
21°	5 31.9 +28.1 69.1	4 42.5 +28.3 68.7	3 53.2 +28.7 68.2	3 04.1 +28.9 67.8	2 15.1 +29.3 67.3
22°	6 00.0 +27.9 68.2	5 10.8 +28.3 67.8	4 21.9 +28.5 67.4	3 33.0 +29.0 66.9	2 44.4 +29.2 66.5
23°	6 27.9 +27.9 67.3	5 39.1 +28.2 66.9	4 50.4 +28.6 66.5	4 02.0 +28.8 66.0	3 13.6 +29.2 65.6
24°	6 55.8 +27.7 66.5	6 07.3 +28.1 66.0	5 19.0 +28.4 65.6	4 30.8 +28.8 65.2	3 42.8 +29.2 64.7
25°	7 23.5 +27.7 65.6	6 35.4 +28.0 65.1	5 47.4 +28.4 64.7	4 59.6 +28.7 64.3	4 12.0 +29.0 63.8
26°	7 51.2 +27.5 64.7	7 03.4 +27.9 64.2	6 15.8 +28.2 63.8	5 28.3 +28.7 63.4	4 41.0 +29.0 63.0
27°	8 18.7 +27.5 63.8	7 31.3 +27.8 63.4	6 44.0 +28.2 62.9	5 57.0 +28.5 62.5	5 10.0 +29.0 62.1
28°	8 46.2 +27.3 62.9	7 59.1 +27.7 62.5	7 12.2 +28.1 62.0	6 25.5 +28.5 61.6	5 39.0 +28.8 61.2
29°	9 13.5 +27.1 62.0	8 26.8 +27.5 61.6	7 40.3 +27.9 61.2	6 54.0 +28.3 60.7	6 07.8 +28.8 60.3

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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°	-8 49.2 +28.6	-9 41.9 +28.6			
1°	-8 20.6 +28.7	-9 13.3 +28.8			
2°	-7 51.9 +28.8	-8 44.5 +28.9	-9 37.1 +29.0		
3°	-7 23.1 +28.9	-8 15.6 +29.0	-9 08.1 +29.2		
4°	-6 54.2 +29.0	-7 46.6 +29.1	-8 38.9 +29.2	-9 31.2 +29.4	
5°	-6 25.2 +29.1	-7 17.5 +29.2	-8 09.7 +29.4	-9 01.8 +29.5	-9 53.8 +29.7
6°	-5 56.1 +29.1	-6 48.3 +29.4	-7 40.3 +29.5	-8 32.3 +29.7	-9 24.1 +29.8
7°	-5 27.0 +29.3	-6 18.9 +29.4	-7 10.8 +29.6	-8 02.6 +29.7	-8 54.3 +29.9
8°	-4 57.7 +29.3	-5 49.5 +29.5	-6 41.2 +29.6	-7 32.9 +29.9	-8 24.4 +30.1
9°	-4 28.4 +29.4	-5 20.0 +29.5	-6 11.6 +29.8	-7 03.0 +30.0	-7 54.3 +30.2
10°	-3 59.0 +29.4	-4 50.5 +29.7	-5 41.8 +29.8	-6 33.0 +30.0	-7 24.1 +30.2
11°	-3 29.6 +29.5	-4 20.8 +29.7	-5 12.0 +29.9	-6 03.0 +30.1	-6 53.9 +30.4
12°	-3 00.1 +29.5	-3 51.1 +29.7	-4 42.1 +30.0	-5 32.9 +30.3	-6 23.5 +30.4
13°	-2 30.6 +29.6	-3 21.4 +29.8	-4 12.1 +30.1	-5 02.6 +30.2	-5 53.1 +30.6
14°	-2 01.0 +29.6	-2 51.6 +29.8	-3 42.0 +30.0	-4 32.4 +30.4	-5 22.5 +30.6
15°	-1 31.4 +29.6	-2 21.8 +29.9	-3 12.0 +30.2	-4 02.0 +30.4	-4 51.9 +30.6
16°	-1 01.8 +29.6	-1 51.9 +29.9	-2 41.8 +30.1	-3 31.6 +30.4	-4 21.3 +30.8
17°	-0 32.2 +29.6	-1 22.0 +29.9	-2 11.7 +30.2	-3 01.2 +30.5	-3 50.5 +30.7
18°	-0 02.6 +29.7	-0 52.1 +29.9	-1 41.5 +30.2	-2 30.7 +30.5	-3 19.8 +30.9
19°	0 27.1 +29.6 68.6	-0 22.2 +30.0	-1 11.3 +30.3	-2 00.2 +30.6	-2 48.9 +30.8
20°	0 56.7 +29.6 67.8	0 07.8 +29.9 67.3	-0 41.0 +30.2	-1 29.6 +30.5	-2 18.1 +30.9
21°	1 26.3 +29.6 66.9	0 37.7 +29.9 66.4	-0 10.8 +30.3	-0 59.1 +30.6	-1 47.2 +30.9
22°	1 55.9 +29.6 66.0	1 07.6 +29.9 65.6	0 19.5 +30.2 65.1	-0 28.5 +30.6	-1 16.3 +31.0
23°	2 25.5 +29.5 65.1	1 37.5 +29.9 64.7	0 49.7 +30.2 64.2	0 02.1 +30.6 63.8	-0 45.3 +30.9
24°	2 55.0 +29.5 64.3	2 07.4 +29.8 63.8	1 19.9 +30.2 63.4	0 32.7 +30.5 62.9	-0 14.4 +31.0
25°	3 24.5 +29.4 63.4	2 37.2 +29.8 62.9	1 50.1 +30.2 62.5	1 03.2 +30.6 62.0	0 16.6 +30.9 61.6
26°	3 53.9 +29.4 62.5	3 07.0 +29.8 62.1	2 20.3 +30.2 61.6	1 33.8 +30.5 61.2	0 47.5 +30.9 60.7
27°	4 23.3 +29.4 61.6	3 36.8 +29.7 61.2	2 50.5 +30.1 60.8	2 04.3 +30.6 60.3	1 18.4 +30.9 59.9
28°	4 52.7 +29.2 60.8	4 06.5 +29.7 60.3	3 20.6 +30.1 59.9	2 34.9 +30.4 59.5	1 49.3 +30.9 59.0
29°	5 21.9 +29.2 59.9	4 36.2 +29.6 59.5	3 50.7 +30.0 59.0	3 05.3 +30.5 58.6	2 20.2 +30.9 58.1

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°					
1°					
2°					
3°					
4°					
5°					
6°					
7°	-9 45.9 +30.1				
8°	-9 15.8 +30.3				
9°	-8 45.5 +30.4	-9 36.6 +30.6			
10°	-8 15.1 +30.5	-9 06.0 +30.7	-9 56.7 +31.0		
11°	-7 44.6 +30.6	-8 35.3 +30.9	-9 25.7 +31.0		
12°	-7 14.0 +30.7	-8 04.4 +30.9	-8 54.7 +31.3	-9 44.7 +31.4	
13°	-6 43.3 +30.7	-7 33.5 +31.1	-8 23.4 +31.3	-9 13.3 +31.6	
14°	-6 12.6 +30.9	-7 02.4 +31.1	-7 52.1 +31.4	-8 41.7 +31.7	
15°	-5 41.7 +31.0	-6 31.3 +31.3	-7 20.7 +31.5	-8 10.0 +31.9	
16°	-5 10.7 +31.0	-6 00.0 +31.3	-6 49.2 +31.6	-7 38.1 +31.9	
17°	-4 39.7 +31.1	-5 28.7 +31.4	-6 17.6 +31.7	-7 06.2 +32.0	
18°	-4 08.6 +31.1	-4 57.3 +31.4	-5 45.9 +31.8	-6 34.2 +32.1	
19°	-3 37.5 +31.2	-4 25.9 +31.5	-5 14.1 +31.8	-6 02.1 +32.2	
20°	-3 06.3 +31.2	-3 54.4 +31.6	-4 42.3 +32.0	-5 29.9 +32.2	
21°	-2 35.1 +31.3	-3 22.8 +31.6	-4 10.3 +31.9	-4 57.7 +32.3	
22°	-2 03.8 +31.2	-2 51.2 +31.6	-3 38.4 +32.0	-4 25.4 +32.4	
23°	-1 32.6 +31.4	-2 19.6 +31.7	-3 06.4 +32.1	-3 53.0 +32.4	
24°	-1 01.2 +31.3	-1 47.9 +31.7	-2 34.3 +32.0	-3 20.6 +32.5	
25°	-0 29.9 +31.3	-1 16.2 +31.7	-2 02.3 +32.2	-2 48.1 +32.5	
26°	0 01.4 +31.3 60.2	-0 44.5 +31.7	-1 30.1 +32.1	-2 15.6 +32.5	
27°	0 32.7 +31.3 59.4	-0 12.8 +31.8	-0 58.0 +32.1	-1 43.1 +32.6	
28°	1 04.0 +31.4 58.5	0 19.0 +31.7 58.1	-0 25.9 +32.2	-1 10.5 +32.6	
29°	1 35.4 +31.2 57.7	0 50.7 +31.7 57.2	0 06.3 +32.1 56.8	-0 37.9 +32.6	

Declination SAME name as Latitude

Latitude 29°

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°	25 55.9 +32.2 105.6	25 05.3 +32.0 105.0	24 14.6 +31.7 104.5	23 23.7 +31.5 103.9	22 32.7 +31.3 103.3
1°	26 28.1 +31.8 104.7	25 37.3 +31.6 104.1	24 46.3 +31.4 103.5	23 55.2 +31.2 102.9	23 04.0 +31.0 102.4
2°	26 59.9 +31.4 103.7	26 08.9 +31.2 103.2	25 17.7 +31.0 102.6	24 26.4 +30.9 102.0	23 35.0 +30.7 101.4
3°	27 31.3 +31.0 102.8	26 40.1 +30.8 102.2	25 48.7 +30.7 101.6	24 57.3 +30.5 101.1	24 05.7 +30.3 100.5
4°	28 02.3 +30.6 101.8	27 10.9 +30.4 101.2	26 19.4 +30.2 100.7	25 27.8 +30.1 100.1	24 36.0 +30.0 99.6
5°	28 32.9 +30.2 100.8	27 41.3 +30.0 100.3	26 49.6 +29.9 99.7	25 57.9 +29.7 99.2	25 06.0 +29.6 98.6
6°	29 03.1 +29.7 99.9	28 11.3 +29.6 99.3	27 19.5 +29.5 98.7	26 27.6 +29.3 98.2	25 35.6 +29.2 97.6
7°	29 32.8 +29.3 98.9	28 40.9 +29.2 98.3	27 49.0 +29.0 97.8	26 56.9 +28.9 97.2	26 04.8 +28.9 96.7
8°	30 02.1 +28.8 97.9	29 10.1 +28.7 97.3	28 18.0 +28.6 96.8	27 25.8 +28.6 96.2	26 33.7 +28.4 95.7
9°	30 30.9 +28.4 96.8	29 38.8 +28.2 96.3	28 46.6 +28.1 95.8	27 54.4 +28.0 95.2	27 02.1 +28.0 94.7
10°	30 59.3 +27.8 95.8	30 07.0 +27.8 95.3	29 14.7 +27.7 94.8	28 22.4 +27.7 94.2	27 30.1 +27.6 93.7
11°	31 27.1 +27.4 94.8	30 34.8 +27.3 94.3	29 42.4 +27.3 93.7	28 50.1 +27.1 93.2	27 57.7 +27.1 92.7
12°	31 54.5 +26.8 93.7	31 02.1 +26.8 93.2	30 09.7 +26.7 92.7	29 17.2 +26.7 92.2	28 24.8 +26.7 91.7
13°	32 21.3 +26.3 92.7	31 28.9 +26.2 92.2	30 36.4 +26.2 91.7	29 43.9 +26.3 91.2	28 51.5 +26.2 90.7
14°	32 47.6 +25.7 91.6	31 55.1 +25.8 91.1	31 02.6 +25.8 90.6	30 10.2 +25.7 90.1	29 17.7 +25.7 89.6
15°	33 13.3 +25.2 90.5	32 20.9 +25.1 90.0	31 28.4 +25.2 89.6	30 35.9 +25.2 89.1	29 43.4 +25.3 88.6
16°	33 38.5 +24.6 89.4	32 46.0 +24.7 89.0	31 53.6 +24.6 88.5	31 01.1 +24.7 88.0	30 08.7 +24.7 87.6
17°	34 03.1 +24.0 88.3	33 10.7 +24.0 87.9	32 18.2 +24.2 87.4	31 25.8 +24.2 87.0	30 33.4 +24.3 86.5
18°	34 27.1 +23.5 87.2	33 34.7 +23.5 86.8	32 42.4 +23.5 86.3	31 50.0 +23.6 85.9	30 57.7 +23.7 85.4
19°	34 50.6 +22.7 86.1	33 58.2 +22.9 85.7	33 05.9 +23.0 85.2	32 13.6 +23.1 84.8	31 21.4 +23.1 84.4
20°	35 13.3 +22.2 85.0	34 21.1 +22.2 84.6	33 28.9 +22.3 84.1	32 36.7 +22.5 83.7	31 44.5 +22.7 83.3
21°	35 35.5 +21.5 83.8	34 43.3 +21.7 83.4	33 51.2 +21.8 83.0	32 59.2 +21.9 82.6	32 07.2 +22.0 82.2
22°	35 57.0 +20.8 82.7	35 05.0 +21.0 82.3	34 13.0 +21.1 81.9	33 21.1 +21.3 81.5	32 29.2 +21.5 81.1
23°	36 17.8 +20.2 81.5	35 26.0 +20.3 81.1	34 34.1 +20.5 80.8	33 42.4 +20.7 80.4	32 50.7 +20.8 80.0
24°	36 38.0 +19.5 80.4	35 46.3 +19.7 80.0	34 54.6 +19.9 79.6	34 03.1 +20.0 79.2	33 11.5 +20.3 78.9
25°	36 57.5 +18.7 79.2	36 06.0 +18.9 78.8	35 14.5 +19.2 78.5	34 23.1 +19.4 78.1	33 31.8 +19.7 77.7
26°	37 16.2 +18.1 78.0	36 24.9 +18.3 77.6	35 33.7 +18.5 77.3	34 42.5 +18.8 77.0	33 51.5 +19.0 76.6
27°	37 34.3 +17.3 76.8	36 43.2 +17.6 76.5	35 52.2 +17.9 76.1	35 01.3 +18.1 75.8	34 10.5 +18.4 75.5
28°	37 51.6 +16.5 75.6	37 00.8 +16.8 75.3	36 10.1 +17.1 74.9	35 19.4 +17.5 74.6	34 28.9 +17.7 74.3
29°	38 08.1 +15.8 74.4	37 17.6 +16.1 74.1	36 27.2 +16.4 73.8	35 36.9 +16.7 73.5	34 46.6 +17.1 73.1

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°	21 41.6 +31.1 102.7	20 50.3 +31.0 102.2	19 59.0 +30.8 101.6	19 07.5 +30.7 101.1	18 16.0 +30.5 100.5
1°	22 12.7 +30.9 101.8	21 21.3 +30.7 101.3	20 29.8 +30.5 100.7	19 38.2 +30.4 100.2	18 46.5 +30.2 99.6
2°	22 43.6 +30.5 100.9	21 52.0 +30.3 100.3	20 00.3 +30.2 99.8	20 08.6 +30.0 99.3	19 16.7 +30.0 98.7
3°	23 14.1 +30.2 100.0	22 22.3 +30.1 99.4	21 30.5 +29.9 98.9	20 38.6 +29.8 98.3	19 46.7 +29.7 97.8
4°	23 44.3 +29.8 99.0	22 52.4 +29.7 98.5	22 00.4 +29.6 97.9	21 08.4 +29.5 97.4	20 16.4 +29.4 96.9
5°	24 14.1 +29.5 98.1	23 22.1 +29.4 97.5	22 30.0 +29.3 97.0	21 37.9 +29.2 96.5	20 45.8 +29.0 95.9
6°	24 43.6 +29.1 97.1	23 51.5 +29.0 96.6	22 59.3 +28.9 96.0	22 07.1 +28.8 95.5	21 14.8 +28.8 95.0
7°	25 12.7 +28.7 96.1	24 20.5 +28.6 95.6	23 28.2 +28.6 95.1	22 35.9 +28.5 94.6	21 43.6 +28.5 94.1
8°	25 41.4 +28.4 95.2	24 49.1 +28.3 94.6	23 56.8 +28.2 94.1	23 04.4 +28.2 93.6	22 12.1 +28.1 93.1
9°	26 09.8 +27.9 94.2	25 17.4 +27.9 93.7	24 25.0 +27.9 93.2	23 32.6 +27.8 92.7	22 40.2 +27.8 92.2
10°	26 37.7 +27.5 93.2	25 45.3 +27.5 92.7	24 52.9 +27.4 92.2	24 00.4 +27.5 91.7	23 08.0 +27.4 91.2
11°	27 05.2 +27.1 92.2	26 12.8 +27.1 91.7	25 20.3 +27.1 91.2	24 27.9 +27.0 90.7	23 35.4 +27.0 90.2
12°	27 32.3 +26.7 91.2	26 39.9 +26.6 90.7	25 47.4 +26.6 90.2	24 54.9 +26.7 89.7	24 02.4 +26.7 89.3
13°	27 59.0 +26.2 90.2	27 06.5 +26.3 89.7	26 14.0 +26.3 89.2	25 21.6 +26.3 88.7	24 29.1 +26.3 88.3
14°	28 25.2 +25.8 89.2	27 32.8 +25.7 88.7	26 40.3 +25.8 88.2	25 47.9 +25.8 87.7	24 55.4 +25.9 87.3
15°	28 51.0 +25.3 88.1	27 58.5 +25.4 87.7	27 06.1 +25.4 87.2	26 13.7 +25.4 86.7	25 21.3 +25.5 86.3
16°	29 16.3 +24.8 87.1	28 23.9 +24.8 86.6	27 31.5 +24.9 86.2	26 39.1 +25.1 85.7	25 46.8 +25.1 85.3
17°	29 41.1 +24.3 86.1	28 48.7 +24.4 85.6	27 56.4 +24.5 85.2	27 04.2 +24.5 84.7	26 11.9 +24.7 84.3
18°	30 05.4 +23.8 85.0	29 13.1 +23.9 84.6	28 20.9 +24.0 84.1	27 28.7 +24.1 83.7	26 36.6 +24.2 83.3
19°	30 29.2 +23.2 83.9	29 37.0 +23.4 83.5	28 44.9 +23.5 83.1	27 52.8 +23.7 82.7	27 00.8 +23.8 82.2
20°	30 52.4 +22.8 82.9	30 00.4 +22.9 82.4	29 08.4 +23.0 82.0	28 16.5 +23.1 81.6	27 24.6 +23.3 81.2
21°	31 15.2 +22.2 81.8	30 23.3 +22.3 81.4	29 31.4 +22.5 81.0	28 39.6 +22.7 80.6	27 47.9 +22.8 80.2
22°	31 37.4 +21.6 80.7	30 45.6 +21.8 80.3	29 53.9 +22.0 79.9	29 02.3 +22.2 79.5	28 10.7 +22.4 79.1
23°	31 59.0 +21.1 79.6	31 07.4 +21.3 79.2	30 15.9 +21.5 78.8	29 24.5 +21.6 78.4	28 33.1 +21.9 78.1
24°	32 20.1 +20.5 78.5	31 28.7 +20.7 78.1	30 37.4 +20.9 77.7	29 46.1 +21.2 77.4	28 55.0 +21.3 77.0
25°	32 40.6 +19.8 77.4	31 49.4 +20.1 77.0	30 58.3 +20.4 76.7	30 07.3 +20.6 76.3	29 16.3 +20.9 75.9
26°	33 00.4 +19.3 76.3	32 09.5 +19.5 75.9	31 18.7 +19.7 75.6	30 27.9 +20.0 75.2	29 37.2 +20.3 74.8
27°	33 19.7 +18.7 75.1	32 29.0 +19.0 74.8	31 38.4 +19.3 74.4	30 47.9 +19.5 74.1	29 57.5 +19.8 73.8
28°	33 38.4 +18.0 74.0	32 48.0 +18.3 73.7	31 57.7 +18.6 73.3	31 07.4 +19.0 73.0	30 17.3 +19.2 72.7
29°	33 56.4 +17.4 72.8	33 06.3 +17.7 72.5	32 16.3 +18.0 72.2	31 26.4 +18.3 71.9	30 36.5 +18.7 71.6

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Latitude 29°

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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°	17 24.3 +30.4 100.0	16 32.6 +30.3 99.5	15 40.8 +30.1 99.0	14 49.0 +29.9 98.4	13 57.0 +29.9 97.9
1°	17 54.7 +30.1 99.1	17 02.9 +29.9 98.6	16 10.9 +29.9 98.1	15 18.9 +29.8 97.5	14 26.9 +29.7 97.0
2°	18 24.8 +29.9 98.2	17 32.8 +29.8 97.7	16 40.8 +29.6 97.1	15 48.7 +29.6 96.6	14 56.6 +29.4 96.1
3°	18 54.7 +29.5 97.3	18 02.6 +29.5 96.8	17 10.4 +29.4 96.2	16 18.3 +29.3 95.7	15 26.0 +29.3 95.2
4°	19 24.2 +29.3 96.4	18 32.1 +29.2 95.8	17 39.8 +29.2 95.3	16 47.6 +29.0 94.8	15 55.3 +29.0 94.3
5°	19 53.5 +29.0 95.4	19 01.3 +28.9 94.9	18 09.0 +28.8 94.4	17 16.6 +28.9 93.9	16 24.3 +28.7 93.4
6°	20 22.5 +28.8 94.5	19 30.2 +28.7 94.0	18 37.8 +28.6 93.5	17 45.5 +28.5 93.0	16 53.0 +28.6 92.5
7°	20 51.3 +28.4 93.6	19 58.9 +28.3 93.1	19 06.4 +28.4 92.6	18 14.0 +28.3 92.1	17 21.6 +28.2 91.6
8°	21 19.7 +28.0 92.6	20 27.2 +28.1 92.1	19 34.8 +28.0 91.6	18 42.3 +28.0 91.1	17 49.8 +28.0 90.6
9°	21 47.7 +27.8 91.7	20 55.3 +27.7 91.2	20 02.8 +27.7 90.7	19 10.3 +27.8 90.2	18 17.8 +27.8 89.7
10°	22 15.5 +27.4 90.7	21 23.0 +27.4 90.2	20 30.5 +27.5 89.7	19 38.1 +27.4 89.3	18 45.6 +27.4 88.8
11°	22 42.9 +27.1 89.7	21 50.4 +27.1 89.3	20 58.0 +27.1 88.8	20 05.5 +27.1 88.3	19 13.0 +27.2 87.8
12°	23 10.0 +26.7 88.8	22 17.5 +26.7 88.3	21 25.1 +26.7 87.8	20 32.6 +26.8 87.4	19 40.2 +26.9 86.9
13°	23 36.7 +26.3 87.8	22 44.2 +26.4 87.3	21 51.8 +26.5 86.9	20 59.4 +26.5 86.4	20 07.1 +26.6 85.9
14°	24 03.0 +26.0 86.8	23 10.6 +26.1 86.4	22 18.3 +26.1 85.9	21 25.9 +26.2 85.4	20 33.7 +26.2 85.0
15°	24 29.0 +25.6 85.8	23 36.7 +25.6 85.4	22 44.4 +25.7 84.9	21 52.1 +25.8 84.5	20 59.9 +25.9 84.0
16°	24 54.6 +25.1 84.8	24 02.3 +25.3 84.4	23 10.1 +25.4 83.9	22 17.9 +25.5 83.5	21 25.8 +25.6 83.1
17°	25 19.7 +24.8 83.8	24 27.6 +24.8 83.4	23 35.5 +25.0 83.0	22 43.4 +25.1 82.5	21 51.4 +25.3 82.1
18°	25 44.5 +24.3 82.8	24 52.4 +24.5 82.4	24 00.5 +24.6 82.0	23 08.5 +24.8 81.5	22 16.7 +24.8 81.1
19°	26 08.8 +23.9 81.8	25 16.9 +24.1 81.4	24 25.1 +24.2 81.0	23 33.3 +24.3 80.5	22 41.5 +24.6 80.1
20°	26 32.7 +23.5 80.8	25 41.0 +23.6 80.4	24 49.3 +23.8 80.0	23 57.6 +24.0 79.5	23 06.1 +24.1 79.1
21°	26 56.2 +23.0 79.8	26 04.6 +23.2 79.3	25 13.1 +23.4 78.9	24 21.6 +23.6 78.5	23 30.2 +23.8 78.1
22°	27 19.2 +22.6 78.7	26 27.8 +22.8 78.3	25 36.5 +22.9 77.9	24 45.2 +23.1 77.5	23 54.0 +23.4 77.1
23°	27 41.8 +22.1 77.7	26 50.6 +22.3 77.3	25 59.4 +22.5 76.9	25 08.3 +22.8 76.5	24 17.4 +22.9 76.1
24°	28 03.9 +21.6 76.6	27 12.9 +21.8 76.2	26 21.9 +22.1 75.9	25 31.1 +22.3 75.5	24 40.3 +22.6 75.1
25°	28 25.5 +21.1 75.6	27 34.7 +21.3 75.2	26 44.0 +21.6 74.8	25 53.4 +21.9 74.5	25 02.9 +22.1 74.1
26°	28 46.6 +20.6 74.5	27 56.0 +20.9 74.1	27 05.6 +21.2 73.8	26 15.3 +21.4 73.4	25 25.0 +21.7 73.1
27°	29 07.2 +20.0 73.4	28 16.9 +20.4 73.1	27 26.8 +20.6 72.7	26 36.7 +21.0 72.4	25 46.7 +21.3 72.0
28°	29 27.2 +19.6 72.3	28 37.3 +19.9 72.0	27 47.4 +20.2 71.7	26 57.7 +20.5 71.3	26 08.0 +20.8 71.0
29°	29 46.8 +19.0 71.2	28 57.2 +19.3 70.9	28 07.6 +19.7 70.6	27 18.2 +20.0 70.3	26 28.8 +20.4 69.9

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°	13 05.0 +29.8 97.4	12 12.9 +29.7 96.9	11 20.8 +29.6 96.4	10 28.6 +29.5 95.9	9 36.4 +29.4 95.4
1°	13 34.8 +29.6 96.5	12 42.6 +29.5 96.0	11 50.4 +29.4 95.5	10 58.1 +29.4 95.0	10 05.8 +29.3 94.5
2°	14 04.4 +29.3 95.6	13 12.1 +29.3 95.1	12 19.8 +29.3 94.6	11 27.5 +29.2 94.1	10 35.1 +29.2 93.6
3°	14 33.7 +29.2 94.7	13 41.4 +29.1 94.2	12 49.1 +29.0 93.7	11 56.7 +29.0 93.2	11 04.3 +29.0 92.7
4°	15 02.9 +29.0 93.8	14 10.5 +28.9 93.3	13 18.1 +28.9 92.8	12 25.7 +28.8 92.3	11 33.3 +28.8 91.8
5°	15 31.9 +28.7 92.9	14 39.4 +28.7 92.4	13 47.0 +28.7 91.9	12 54.5 +28.7 91.4	12 02.1 +28.6 90.9
6°	16 00.6 +28.5 92.0	15 08.1 +28.5 91.5	14 15.7 +28.5 91.0	13 23.2 +28.5 90.5	12 30.7 +28.5 90.0
7°	16 29.1 +28.3 91.1	15 36.6 +28.3 90.6	14 44.2 +28.2 90.1	13 51.7 +28.2 89.6	12 59.2 +28.3 89.1
8°	16 57.4 +28.0 90.2	16 04.9 +28.0 89.7	15 12.4 +28.0 89.2	14 19.9 +28.1 88.7	13 27.5 +28.1 88.2
9°	17 25.4 +27.7 89.2	16 32.9 +27.8 88.7	15 40.4 +27.9 88.3	14 48.0 +27.8 87.8	13 55.6 +27.9 87.3
10°	17 53.1 +27.5 88.3	17 00.7 +27.5 87.8	16 08.3 +27.5 87.3	15 15.8 +27.7 86.9	14 23.5 +27.6 86.4
11°	18 20.6 +27.2 87.4	17 28.2 +27.3 86.9	16 35.8 +27.3 86.4	15 43.5 +27.3 86.0	14 51.1 +27.5 85.5
12°	18 47.8 +27.0 86.4	17 55.5 +27.0 86.0	17 03.1 +27.1 85.5	16 10.8 +27.2 85.0	15 18.6 +27.2 84.6
13°	19 14.8 +26.6 85.5	18 22.5 +26.7 85.0	17 30.2 +26.8 84.6	16 38.0 +26.9 84.1	15 45.8 +27.0 83.6
14°	19 41.4 +26.3 84.5	18 49.2 +26.4 84.1	17 57.0 +26.5 83.6	17 04.9 +26.6 83.2	16 12.8 +26.7 82.7
15°	20 07.7 +26.1 83.6	19 15.6 +26.1 83.1	18 23.5 +26.3 82.7	17 31.5 +26.4 82.2	16 39.5 +26.5 81.8
16°	20 33.8 +25.7 82.6	19 41.7 +25.9 82.2	18 49.8 +25.9 81.7	17 57.9 +26.1 81.3	17 06.0 +26.3 80.8
17°	20 59.5 +25.3 81.6	20 07.6 +25.5 81.2	19 15.7 +25.7 80.8	18 24.0 +25.8 80.3	17 32.3 +25.9 79.9
18°	21 24.8 +25.1 80.7	20 33.1 +25.2 80.2	19 41.4 +25.4 79.8	18 49.8 +25.5 79.4	17 58.2 +25.7 79.0
19°	21 49.9 +24.7 79.7	20 58.3 +24.8 79.3	20 06.8 +25.0 78.8	19 15.3 +25.2 78.4	18 23.9 +25.4 78.0
20°	22 14.6 +24.3 78.7	21 23.1 +24.6 78.3	20 31.8 +24.7 77.9	19 40.5 +24.9 77.5	18 49.3 +25.2 77.0
21°	22 38.9 +24.0 77.7	21 47.7 +24.1 77.3	20 56.5 +24.4 76.9	20 05.4 +24.6 76.5	19 14.5 +24.8 76.1
22°	23 02.9 +23.6 76.7	22 11.8 +23.8 76.3	21 20.9 +24.0 75.9	20 30.0 +24.3 75.5	19 39.3 +24.5 75.1
23°	23 26.5 +23.2 75.7	22 35.6 +23.5 75.3	21 44.9 +23.7 74.9	20 54.3 +23.9 74.5	20 03.8 +24.1 74.1
24°	23 49.7 +22.8 74.7	22 59.1 +23.1 74.3	22 08.6 +23.3 73.9	21 18.2 +23.6 73.6	20 27.9 +23.9 73.2
25°	24 12.5 +22.4 73.7	23 22.2 +22.6 73.3	22 31.9 +23.0 73.0	21 41.8 +23.2 72.6	20 51.8 +23.5 72.2
26°	24 34.9 +22.0 72.7	23 44.8 +22.3 72.3	22 54.9 +22.6 72.0	22 05.0 +22.9 71.6	21 15.3 +23.2 71.2
27°	24 56.9 +21.5 71.7	24 07.1 +21.9 71.3	23 17.5 +22.1 70.9	22 27.9 +22.5 70.6	21 38.5 +22.8 70.2
28°	25 18.4 +21.2 70.6	24 29.0 +21.5 70.3	23 39.6 +21.8 69.9	22 50.4 +22.1 69.6	22 01.3 +22.4 69.2
29°	25 39.6 +20.7 69.6	24 50.5 +21.0 69.3	24 01.4 +21.4 68.9	23 12.5 +21.8 68.6	22 23.7 +22.1 68.2

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Latitude 29°

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°	8 44.1 +29.4 94.9	7 51.8 +29.3 94.4	6 59.5 +29.3 93.9	6 07.1 +29.2 93.4	5 14.7 +29.2 92.9
1°	9 13.5 +29.2 94.0	8 21.1 +29.2 93.5	7 28.8 +29.1 93.0	6 36.3 +29.2 92.5	5 43.9 +29.1 92.0
2°	9 42.7 +29.1 93.1	8 50.3 +29.1 92.6	7 57.9 +29.0 92.1	7 05.5 +29.0 91.6	6 13.0 +29.0 91.2
3°	10 11.8 +29.0 92.2	9 19.4 +28.9 91.7	8 26.9 +29.0 91.3	7 34.5 +28.9 90.8	6 42.0 +28.9 90.3
4°	10 40.8 +28.8 91.3	9 48.3 +28.8 90.9	8 55.9 +28.8 90.4	8 03.4 +28.8 89.9	7 10.9 +28.8 89.4
5°	11 09.6 +28.7 90.4	10 17.1 +28.7 90.0	9 24.7 +28.6 89.5	8 32.2 +28.7 89.0	7 39.7 +28.7 88.5
6°	11 38.3 +28.4 89.5	10 45.8 +28.5 89.1	9 53.3 +28.5 88.6	9 00.9 +28.5 88.1	8 08.4 +28.6 87.6
7°	12 06.7 +28.3 88.7	11 14.3 +28.3 88.2	10 21.8 +28.4 87.7	9 29.4 +28.4 87.2	8 37.0 +28.5 86.7
8°	12 35.0 +28.2 87.7	11 42.6 +28.2 87.3	10 50.2 +28.2 86.8	9 57.8 +28.3 86.3	9 05.5 +28.3 85.8
9°	13 03.2 +27.9 86.8	12 10.8 +28.0 86.4	11 18.4 +28.1 85.9	10 26.1 +28.1 85.4	9 33.8 +28.2 85.0
10°	13 31.1 +27.7 85.9	12 38.8 +27.8 85.5	11 46.5 +27.9 85.0	10 54.2 +28.0 84.5	10 02.0 +28.0 84.1
11°	13 58.8 +27.6 85.0	13 06.6 +27.6 84.6	12 14.4 +27.7 84.1	11 22.2 +27.8 83.6	10 30.0 +27.9 83.2
12°	14 26.4 +27.3 84.1	13 34.2 +27.4 83.6	12 42.1 +27.5 83.2	11 50.0 +27.6 82.7	10 57.9 +27.8 82.3
13°	14 53.7 +27.1 83.2	14 01.6 +27.2 82.7	13 09.6 +27.3 82.3	12 17.6 +27.4 81.8	11 25.7 +27.6 81.4
14°	15 20.8 +26.8 82.3	14 28.8 +27.0 81.8	13 36.9 +27.1 81.4	12 45.0 +27.3 80.9	11 53.3 +27.4 80.4
15°	15 47.6 +26.7 81.3	14 55.8 +26.8 80.9	14 04.0 +26.9 80.4	13 12.3 +27.1 80.0	12 20.7 +27.2 79.5
16°	16 14.3 +26.4 80.4	15 22.6 +26.5 80.0	14 30.9 +26.7 79.5	13 39.4 +26.8 79.1	12 47.9 +27.0 78.6
17°	16 40.7 +26.1 79.5	15 49.1 +26.3 79.0	14 57.6 +26.5 78.6	14 06.2 +26.7 78.1	13 14.9 +26.8 77.7
18°	17 06.8 +25.8 78.5	16 15.4 +26.0 78.1	15 24.1 +26.2 77.7	14 32.9 +26.4 77.2	13 41.7 +26.7 76.8
19°	17 32.6 +25.6 77.6	16 41.4 +25.8 77.1	15 50.3 +26.0 76.7	14 59.3 +26.2 76.3	14 08.4 +26.4 75.9
20°	17 58.2 +25.4 76.6	17 07.2 +25.6 76.2	16 16.3 +25.8 75.8	15 25.5 +26.0 75.4	14 34.8 +26.2 74.9
21°	18 23.6 +25.0 75.7	17 32.8 +25.2 75.3	16 42.1 +25.5 74.8	15 51.5 +25.7 74.4	15 01.0 +25.9 74.0
22°	18 48.6 +24.7 74.7	17 58.0 +25.0 74.3	17 07.6 +25.2 73.9	16 17.2 +25.5 73.5	15 26.9 +25.8 73.1
23°	19 13.3 +24.5 73.7	18 23.0 +24.7 73.3	17 32.8 +24.9 72.9	16 42.7 +25.2 72.5	15 52.7 +25.4 72.1
24°	19 37.8 +24.1 72.8	18 47.7 +24.4 72.4	17 57.7 +24.7 72.0	17 07.9 +24.9 71.6	16 18.1 +25.3 71.2
25°	20 01.9 +23.8 71.8	19 12.1 +24.1 71.4	18 22.4 +24.4 71.0	17 32.8 +24.7 70.6	16 43.4 +25.0 70.2
26°	20 25.7 +23.5 70.8	19 36.2 +23.8 70.4	18 46.8 +24.1 70.1	17 57.5 +24.4 69.7	17 08.4 +24.7 69.3
27°	20 49.2 +23.1 69.8	20 00.0 +23.4 69.5	19 10.9 +23.7 69.1	18 21.9 +24.1 68.7	17 33.1 +24.4 68.3
28°	21 12.3 +22.8 68.9	20 23.4 +23.1 68.5	19 34.6 +23.5 68.1	18 46.0 +23.8 67.8	17 57.5 +24.2 67.4
29°	21 35.1 +22.4 67.9	20 46.5 +22.8 67.5	19 58.1 +23.1 67.1	19 09.8 +23.5 66.8	18 21.7 +23.8 66.4

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°	4 22.3 +29.1 92.4	3 29.9 +29.1 91.9	2 37.4 +29.1 91.5	1 44.9 +29.1 91.0	0 52.5 +29.1 90.5
1°	4 51.4 +29.1 91.6	3 59.0 +29.0 91.1	3 06.5 +29.1 90.6	2 14.0 +29.1 90.1	1 21.6 +29.0 89.6
2°	5 20.5 +29.0 90.7	4 28.0 +29.0 90.2	3 35.6 +29.0 89.7	2 43.1 +29.0 89.2	1 50.6 +29.1 88.7
3°	5 49.5 +28.9 89.8	4 57.0 +29.0 89.3	4 04.6 +28.9 88.8	3 12.1 +29.0 88.3	2 19.7 +29.0 87.9
4°	6 18.4 +28.9 88.9	5 26.0 +28.8 88.4	4 33.5 +28.9 87.9	3 41.1 +28.9 87.5	2 48.7 +28.9 87.0
5°	6 47.3 +28.7 88.0	5 54.8 +28.8 87.5	5 02.4 +28.8 87.1	4 10.0 +28.9 86.6	3 17.6 +29.0 86.1
6°	7 16.0 +28.6 87.1	6 23.6 +28.7 86.7	5 31.2 +28.8 86.2	4 38.9 +28.8 85.7	3 46.6 +28.8 85.2
7°	7 44.6 +28.5 86.3	6 52.3 +28.6 85.8	6 00.0 +28.6 85.3	5 07.7 +28.7 84.8	4 15.4 +28.8 84.3
8°	8 13.1 +28.4 85.4	7 20.9 +28.4 84.9	6 28.6 +28.6 84.4	5 36.4 +28.6 83.9	4 44.2 +28.8 83.5
9°	8 41.5 +28.3 84.5	7 49.3 +28.4 84.0	6 57.2 +28.4 83.5	6 05.0 +28.6 83.1	5 13.0 +28.7 82.6
10°	9 09.8 +28.2 83.6	8 17.7 +28.2 83.1	7 25.6 +28.4 82.6	6 33.6 +28.5 82.2	5 41.7 +28.5 81.7
11°	9 38.0 +28.0 82.7	8 45.9 +28.2 82.2	7 54.0 +28.2 81.8	7 02.1 +28.3 81.3	6 10.2 +28.5 80.8
12°	10 06.0 +27.8 81.8	9 14.1 +28.0 81.3	8 22.2 +28.1 80.9	7 30.4 +28.3 80.4	6 38.7 +28.4 79.9
13°	10 33.8 +27.7 80.9	9 42.1 +27.8 80.4	8 50.3 +28.0 80.0	7 58.7 +28.2 79.5	7 07.1 +28.3 79.0
14°	11 01.5 +27.6 80.0	10 09.9 +27.7 79.5	9 18.3 +27.9 79.1	8 26.9 +28.0 78.6	7 35.4 +28.2 78.2
15°	11 29.1 +27.4 79.1	10 37.6 +27.5 78.6	9 46.2 +27.7 78.2	8 54.9 +27.9 77.7	8 03.6 +28.1 77.3
16°	11 56.5 +27.2 78.2	11 05.1 +27.4 77.7	10 13.9 +27.6 77.3	9 22.8 +27.7 76.8	8 31.7 +28.0 76.4
17°	12 23.7 +27.0 77.3	11 32.5 +27.2 76.8	10 41.5 +27.4 76.4	9 50.5 +27.6 75.9	8 59.7 +27.8 75.5
18°	12 50.7 +26.8 76.3	11 59.7 +27.1 75.9	11 08.9 +27.2 75.5	10 18.1 +27.5 75.0	9 27.5 +27.7 74.6
19°	13 17.5 +26.6 75.4	12 26.8 +26.8 75.0	11 36.1 +27.1 74.6	10 45.6 +27.3 74.1	9 55.2 +27.5 73.7
20°	13 44.1 +26.5 74.5	12 53.6 +26.7 74.1	12 03.2 +26.9 73.7	11 12.9 +27.2 73.2	10 22.7 +27.4 72.8
21°	14 10.6 +26.2 73.6	13 20.3 +26.5 73.2	12 30.1 +26.7 72.7	11 40.1 +26.9 72.3	10 50.1 +27.3 71.9
22°	14 36.8 +26.0 72.7	13 46.8 +26.2 72.2	12 56.8 +26.6 71.8	12 07.0 +26.8 71.4	11 17.4 +27.0 71.0
23°	15 02.8 +25.7 71.7	14 13.0 +26.0 71.3	13 23.4 +26.3 70.9	12 33.8 +26.6 70.5	11 44.4 +26.9 70.1
24°	15 28.5 +25.6 70.8	14 39.0 +25.9 70.4	13 49.7 +26.1 70.0	13 00.4 +26.4 69.6	12 11.3 +26.7 69.1
25°	15 54.1 +25.2 69.8	15 04.9 +25.5 69.4	14 15.8 +25.9 69.0	13 26.8 +26.3 68.6	12 38.0 +26.6 68.2
26°	16 19.3 +25.1 68.9	15 30.4 +25.4 68.5	14 41.7 +25.7 68.1	13 53.1 +26.0 67.7	13 04.6 +26.3 67.3
27°	16 44.4 +24.7 68.0	15 55.8 +25.1 67.6	15 07.4 +25.4 67.2	14 19.1 +25.7 66.8	13 30.9 +26.1 66.4
28°	17 09.1 +24.5 67.0	16 20.9 +24.8 66.6	15 32.8 +25.2 66.2	14 44.8 +25.6 65.8	13 57.0 +25.9 65.5
29°	17 33.6 +24.2 66.0	16 45.7 +24.6 65.7	15 58.0 +24.9 65.3	15 10.4 +25.3 64.9	14 22.9 +25.7 64.5

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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 +29.1 90.0	-0 52.5 +29.1	-1 44.9 +29.1	-2 37.4 +29.1	-3 29.9 +29.2
1°	0 29.1 +29.1 89.1	-0 23.4 +29.1	-1 15.8 +29.1	-2 08.3 +29.2	-3 00.7 +29.2
2°	0 58.2 +29.0 88.3	0 05.7 +29.1 87.8	-0 46.7 +29.1	-1 39.1 +29.2	-2 31.5 +29.2
3°	1 27.2 +29.1 87.4	0 34.8 +29.1 86.9	-0 17.6 +29.2	-1 09.9 +29.2	-2 02.3 +29.3
4°	1 56.3 +29.0 86.5	1 03.9 +29.1 86.0	0 11.6 +29.1 85.5	-0 40.7 +29.2	-1 33.0 +29.3
5°	2 25.3 +29.0 85.6	1 33.0 +29.1 85.1	0 40.7 +29.2 84.7	-0 11.5 +29.2	-1 03.7 +29.3
6°	2 54.3 +28.9 84.7	2 02.1 +29.0 84.3	1 09.9 +29.1 83.8	0 17.7 +29.2 83.3	-0 34.4 +29.3
7°	3 23.2 +28.9 83.9	2 31.1 +29.0 83.4	1 39.0 +29.1 82.9	0 46.9 +29.2 82.4	-0 05.1 +29.4
8°	3 52.1 +28.9 83.0	3 00.1 +28.9 82.5	2 08.1 +29.0 82.0	1 16.1 +29.2 81.6	0 24.3 +29.3 81.1
9°	4 21.0 +28.8 82.1	3 29.0 +28.9 81.6	2 37.1 +29.1 81.2	1 45.3 +29.2 80.7	0 53.6 +29.3 80.2
10°	4 49.8 +28.7 81.2	3 57.9 +28.9 80.8	3 06.2 +28.9 80.3	2 14.5 +29.1 79.8	1 22.9 +29.2 79.3
11°	5 18.5 +28.6 80.4	4 26.8 +28.8 79.9	3 35.1 +29.0 79.4	2 43.6 +29.1 78.9	1 52.1 +29.3 78.5
12°	5 47.1 +28.6 79.5	4 55.6 +28.7 79.0	4 04.1 +28.9 78.5	3 12.7 +29.0 78.1	2 21.4 +29.2 77.6
13°	6 15.7 +28.4 78.6	5 24.3 +28.6 78.1	4 33.0 +28.8 77.6	3 41.7 +29.0 77.2	2 50.6 +29.2 76.7
14°	6 44.1 +28.4 77.7	5 52.9 +28.6 77.2	5 01.8 +28.7 76.8	4 10.7 +29.0 76.3	3 19.8 +29.1 75.8
15°	7 12.5 +28.3 76.8	6 21.5 +28.4 76.3	5 30.5 +28.7 75.9	4 39.7 +28.8 75.4	3 48.9 +29.1 75.0
16°	7 40.8 +28.1 75.9	6 49.9 +28.4 75.5	5 59.2 +28.6 75.0	5 08.5 +28.8 74.5	4 18.0 +29.0 74.1
17°	8 08.9 +28.1 75.0	7 18.3 +28.2 74.6	6 27.8 +28.4 74.1	5 37.3 +28.8 73.7	4 47.0 +29.0 73.2
18°	8 37.0 +27.9 74.1	7 46.5 +28.2 73.7	6 56.2 +28.4 73.2	6 06.1 +28.6 72.8	5 16.0 +28.9 72.3
19°	9 04.9 +27.8 73.2	8 14.7 +28.0 72.8	7 24.6 +28.3 72.3	6 34.7 +28.5 71.9	5 44.9 +28.8 71.4
20°	9 32.7 +27.6 72.3	8 42.7 +27.9 71.9	7 52.9 +28.2 71.5	7 03.2 +28.5 71.0	6 13.7 +28.7 70.6
21°	10 00.3 +27.5 71.4	9 10.6 +27.8 71.0	8 21.1 +28.0 70.6	7 31.7 +28.3 70.1	6 42.4 +28.6 69.7
22°	10 27.8 +27.4 70.5	9 38.4 +27.6 70.1	8 49.1 +28.0 69.7	8 00.0 +28.2 69.2	7 11.0 +28.5 68.8
23°	10 55.2 +27.2 69.6	10 06.0 +27.5 69.2	9 17.1 +27.7 68.8	8 28.2 +28.1 68.3	7 39.5 +28.4 67.9
24°	11 22.4 +27.0 68.7	10 33.5 +27.4 68.3	9 44.8 +27.7 67.9	8 56.3 +28.0 67.4	8 07.9 +28.3 67.0
25°	11 49.4 +26.8 67.8	11 00.9 +27.1 67.4	10 12.5 +27.5 67.0	9 24.3 +27.8 66.5	8 36.2 +28.2 66.1
26°	12 16.2 +26.7 66.9	11 28.0 +27.0 66.5	10 40.0 +27.3 66.1	9 52.1 +27.7 65.6	9 04.4 +28.0 65.2
27°	12 42.9 +26.5 66.0	11 55.0 +26.9 65.6	11 07.3 +27.2 65.2	10 19.8 +27.5 64.7	9 32.4 +27.9 64.3
28°	13 09.4 +26.2 65.1	12 21.9 +26.6 64.7	11 34.5 +27.0 64.3	10 47.3 +27.4 63.8	10 00.3 +27.8 63.4
29°	13 35.6 +26.1 64.1	12 48.5 +26.4 63.7	12 01.5 +26.8 63.3	11 14.7 +27.2 62.9	10 28.1 +27.6 62.5

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°	-4 22.3 +29.2	-5 14.7 +29.2	-6 07.1 +29.3	-6 59.5 +29.4	-7 51.8 +29.4
1°	-3 53.1 +29.3	-4 45.5 +29.3	-5 37.8 +29.3	-6 30.1 +29.4	-7 22.4 +29.5
2°	-3 23.8 +29.3	-4 16.2 +29.4	-5 08.5 +29.5	-6 00.7 +29.5	-6 52.9 +29.6
3°	-2 54.5 +29.3	-3 46.8 +29.4	-4 39.0 +29.5	-5 31.2 +29.6	-6 23.3 +29.7
4°	-2 25.2 +29.4	-3 17.4 +29.5	-4 09.5 +29.6	-5 01.6 +29.7	-5 53.6 +29.8
5°	-1 55.8 +29.4	-2 47.9 +29.5	-3 39.9 +29.6	-4 31.9 +29.8	-5 23.8 +29.9
6°	-1 26.4 +29.4	-2 18.4 +29.6	-3 10.3 +29.7	-4 02.1 +29.7	-4 53.9 +29.9
7°	-0 57.0 +29.5	-1 48.8 +29.5	-2 40.6 +29.7	-3 32.4 +29.9	-4 24.0 +30.0
8°	-0 27.5 +29.4	-1 19.3 +29.6	-2 10.9 +29.7	-3 02.5 +29.9	-3 54.0 +30.0
9°	0 01.9 +29.4 79.7	-0 49.7 +29.6	-1 41.2 +29.7	-2 32.6 +29.9	-3 24.0 +30.1
10°	0 31.3 +29.5 78.8	-0 20.1 +29.6	-1 11.5 +29.8	-2 02.7 +29.9	-2 53.9 +30.2
11°	1 00.8 +29.4 78.0	0 09.5 +29.6 77.5	-0 41.7 +29.8	-1 32.8 +30.0	-2 23.7 +30.1
12°	1 30.2 +29.4 77.1	0 39.1 +29.6 76.6	-0 11.9 +29.8	-1 02.8 +30.0	-1 53.6 +30.2
13°	1 59.6 +29.4 76.2	1 08.7 +29.6 75.7	0 17.9 +29.8 75.3	-0 32.8 +30.0	-1 23.4 +30.2
14°	2 29.0 +29.3 75.4	1 38.3 +29.5 74.9	0 47.7 +29.7 74.4	-0 02.8 +30.0	-0 53.2 +30.2
15°	2 58.3 +29.3 74.5	2 07.8 +29.5 74.0	1 17.4 +29.8 73.5	0 27.2 +29.9 73.0	-0 23.0 +30.3
16°	3 27.6 +29.3 73.6	2 37.3 +29.5 73.1	1 47.2 +29.7 72.7	0 57.1 +30.0 72.2	0 07.3 +30.2 71.7
17°	3 56.9 +29.2 72.7	3 06.8 +29.5 72.3	2 16.9 +29.7 71.8	1 27.1 +30.0 71.3	0 37.5 +30.2 70.8
18°	4 26.1 +29.1 71.9	3 36.3 +29.4 71.4	2 46.6 +29.7 70.9	1 57.1 +29.9 70.4	1 07.7 +30.2 70.0
19°	4 55.2 +29.1 71.0	4 05.7 +29.3 70.5	3 16.3 +29.6 70.1	2 27.0 +29.9 69.6	1 37.9 +30.2 69.1
20°	5 24.3 +28.9 70.1	4 35.0 +29.3 69.6	3 45.9 +29.5 69.2	2 56.9 +29.8 68.7	2 08.1 +30.1 68.2
21°	5 53.2 +29.0 69.2	5 04.3 +29.2 68.8	4 15.4 +29.5 68.3	3 26.7 +29.8 67.8	2 38.2 +30.1 67.4
22°	6 22.2 +28.8 68.3	5 33.5 +29.1 67.9	4 44.9 +29.5 67.4	3 56.5 +29.8 67.0	3 08.3 +30.1 66.5
23°	6 51.0 +28.7 67.5	6 02.6 +29.0 67.0	5 14.4 +29.3 66.6	4 26.3 +29.7 66.1	3 38.4 +30.0 65.6
24°	7 19.7 +28.6 66.6	6 31.6 +29.0 66.1	5 43.7 +29.3 65.7	4 56.0 +29.6 65.2	4 08.4 +30.0 64.8
25°	7 48.3 +28.5 65.7	7 00.6 +28.8 65.2	6 13.0 +29.2 64.8	5 25.6 +29.5 64.4	4 38.4 +29.9 63.9
26°	8 16.8 +28.4 64.8	7 29.4 +28.8 64.4	6 42.2 +29.1 63.9	5 55.1 +29.5 63.5	5 08.3 +29.8 63.0
27°	8 45.2 +28.3 63.9	7 58.2 +28.6 63.5	7 11.3 +29.0 63.0	6 24.6 +29.4 62.6	5 38.1 +29.7 62.2
28°	9 13.5 +28.1 63.0	8 26.8 +28.5 62.6	7 40.3 +28.9 62.2	6 54.0 +29.2 61.7	6 07.8 +29.7 61.3
29°	9 41.6 +28.0 62.1	8 55.3 +28.4 61.7	8 09.2 +28.7 61.3	7 23.2 +29.2 60.9	6 37.5 +29.6 60.4

Declination SAME name as Latitude

Latitude 29°

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°	-8 44.1 +29.4	-9 36.4 +29.6			
1°	-8 14.7 +29.7	-9 06.8 +29.7	-9 59.0 +29.8		
2°	-7 45.0 +29.7	-8 37.1 +29.8	-9 29.2 +29.9		
3°	-7 15.3 +29.8	-8 07.3 +29.9	-8 59.3 +30.1	-9 51.1 +30.2	
4°	-6 45.5 +29.9	-7 37.4 +30.0	-8 29.2 +30.2	-9 20.9 +30.3	
5°	-6 15.6 +30.0	-7 07.4 +30.2	-7 59.0 +30.2	-8 50.6 +30.4	-9 42.1 +30.5
6°	-5 45.6 +30.1	-6 37.2 +30.2	-7 28.8 +30.4	-8 20.2 +30.5	-9 11.6 +30.8
7°	-5 15.5 +30.1	-6 07.0 +30.3	-6 58.4 +30.5	-7 49.7 +30.7	-8 40.8 +30.8
8°	-4 45.4 +30.2	-5 36.7 +30.4	-6 27.9 +30.5	-7 19.0 +30.7	-8 10.0 +30.9
9°	-4 15.2 +30.3	-5 06.3 +30.4	-5 57.4 +30.7	-6 48.3 +30.9	-7 39.1 +31.1
10°	-3 44.9 +30.3	-4 35.9 +30.5	-5 26.7 +30.7	-6 17.4 +30.9	-7 08.0 +31.1
11°	-3 14.6 +30.4	-4 05.4 +30.6	-4 56.0 +30.8	-5 46.5 +31.0	-6 36.9 +31.2
12°	-2 44.2 +30.4	-3 34.8 +30.6	-4 25.2 +30.8	-5 15.5 +31.1	-6 05.7 +31.3
13°	-2 13.8 +30.4	-3 04.2 +30.7	-3 54.4 +30.9	-4 44.4 +31.1	-5 34.4 +31.4
14°	-1 43.4 +30.4	-2 33.5 +30.7	-3 23.5 +31.0	-4 13.3 +31.2	-5 03.0 +31.5
15°	-1 13.0 +30.5	-2 02.8 +30.7	-2 52.5 +30.9	-3 42.1 +31.2	-4 31.5 +31.5
16°	-0 42.5 +30.5	-1 32.1 +30.7	-2 21.6 +31.0	-3 10.9 +31.3	-4 00.0 +31.5
17°	-0 12.0 +30.5	-1 01.4 +30.8	-1 50.6 +31.1	-2 39.6 +31.3	-3 28.5 +31.7
18°	0 18.5 +30.4 69.5	-0 30.6 +30.8	-1 19.5 +31.0	-2 08.3 +31.4	-2 56.8 +31.6
19°	0 48.9 +30.5 68.6	0 00.2 +30.7 68.1	-0 48.5 +31.1	-1 36.9 +31.3	-2 25.2 +31.7
20°	1 19.4 +30.5 67.8	0 30.9 +30.8 67.3	-0 17.4 +31.1	-1 05.6 +31.4	-1 53.5 +31.7
21°	1 49.9 +30.4 66.9	1 01.7 +30.7 66.4	0 13.7 +31.0 65.9	-0 34.2 +31.4	-1 21.8 +31.7
22°	2 20.3 +30.4 66.0	1 32.4 +30.7 65.6	0 44.7 +31.1 65.1	-0 02.8 +31.4	-0 50.1 +31.7
23°	2 50.7 +30.3 65.2	2 03.1 +30.7 64.7	1 15.8 +31.0 64.2	0 28.6 +31.4 63.8	-0 18.4 +31.8
24°	3 21.0 +30.3 64.3	2 33.8 +30.7 63.9	1 46.8 +31.0 63.4	1 00.0 +31.4 62.9	0 13.4 +31.7 62.4
25°	3 51.3 +30.3 63.5	3 04.5 +30.6 63.0	2 17.8 +31.0 62.5	1 31.4 +31.3 62.1	0 45.1 +31.7 61.6
26°	4 21.6 +30.2 62.6	3 35.1 +30.6 62.1	2 48.8 +31.0 61.7	2 02.7 +31.4 61.2	1 16.8 +31.8 60.7
27°	4 51.8 +30.1 61.7	4 05.7 +30.5 61.3	3 19.8 +30.9 60.8	2 34.1 +31.2 60.3	1 48.6 +31.6 59.9
28°	5 21.9 +30.1 60.9	4 36.2 +30.4 60.4	3 50.7 +30.8 60.0	3 05.3 +31.3 59.5	2 20.2 +31.7 59.0
29°	5 52.0 +29.9 60.0	5 06.6 +30.4 59.5	4 21.5 +30.8 59.1	3 36.6 +31.2 58.6	2 51.9 +31.6 58.2

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°					
1°					
2°					
3°					
4°					
5°					
6°					
7°	-9 31.9 +31.0				
8°	-9 00.9 +31.1	-9 51.7 +31.4			
9°	-8 29.8 +31.3	-9 20.3 +31.5			
10°	-7 58.5 +31.4	-8 48.8 +31.5	-9 39.0 +31.8		
11°	-7 27.1 +31.4	-8 17.3 +31.7	-9 07.2 +31.9	-9 57.0 +32.2	
12°	-6 55.7 +31.6	-7 45.6 +31.8	-8 35.3 +32.1	-9 24.8 +32.3	
13°	-6 24.1 +31.6	-7 13.8 +31.9	-8 03.2 +32.1	-8 52.5 +32.4	
14°	-5 52.5 +31.7	-6 41.9 +32.0	-7 31.1 +32.3	-8 20.1 +32.6	
15°	-5 20.8 +31.8	-6 09.9 +32.1	-6 58.8 +32.4	-7 47.5 +32.6	
16°	-4 49.0 +31.8	-5 37.8 +32.1	-6 26.4 +32.4	-7 14.9 +32.7	
17°	-4 17.2 +32.0	-5 05.7 +32.2	-5 54.0 +32.5	-6 42.2 +32.9	
18°	-3 45.2 +31.9	-4 33.5 +32.3	-5 21.5 +32.6	-6 09.3 +32.9	
19°	-3 13.3 +32.0	-4 01.2 +32.3	-4 48.9 +32.6	-5 36.4 +32.9	
20°	-2 41.3 +32.0	-3 28.9 +32.4	-4 16.3 +32.7	-5 03.5 +33.1	
21°	-2 09.3 +32.1	-2 56.5 +32.4	-3 43.6 +32.8	-4 30.4 +33.1	
22°	-1 37.2 +32.1	-2 24.1 +32.4	-3 10.8 +32.8	-3 57.3 +33.1	
23°	-1 05.1 +32.1	-1 51.7 +32.5	-2 38.0 +32.8	-3 24.2 +33.2	
24°	-0 33.0 +32.1	-1 19.2 +32.4	-2 05.2 +32.8	-2 51.0 +33.2	
25°	-0 00.9 +32.1	-0 46.8 +32.5	-1 32.4 +32.9	-2 17.8 +33.3	
26°	0 31.2 +32.1 60.3	-0 14.3 +32.5	-0 59.5 +32.9	-1 44.5 +33.3	
27°	1 03.3 +32.1 59.4	0 18.2 +32.5 58.9	-0 26.6 +32.9	-1 11.2 +33.3	
28°	1 35.4 +32.0 58.6	0 50.7 +32.5 58.1	0 06.3 +32.8 57.6	-0 37.9 +33.3	
29°	2 07.4 +32.0 57.7	1 23.2 +32.4 57.2	0 39.1 +32.9 56.8	-0 04.6 +33.3	

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