

ht Reduction Sight Reduction Sight Reduction  
**Sight Reduction** **Sight Reducti**  
Reduction Sight Reduction Sight R  
**Sight Reduction** **Sight R**  
duction Sight Reduction  
ht Reduction Sight Reduction Sight Reduction  
**Sight Reduction**  
ht Reduction Sight Reduction Sight Reduc  
**Sight Reduction** **Sight R**  
Reduction Sight Reduction Sight Reduction Sig  
**Sight Reduction** **Sight R**  
Sight Reduction Sight R  
ht Reduction Sight Reduction Sight Reduc  
Sight Reduction Sight Reduction S  
Sight Reduction Sight Reduction  
Reduction Sight Reduction  
Sight Reduction Sight Reduction  
ht Reduction Sight Reduction Sight Reduction  
**Sight Reduction** **Sight R**  
ht Reduction Sight Reduction Sight Reduction  
**Sight Reduction** **Siaht R**

**Latitude 70° - 79°**  
Declination CONTRARY name to Latitude



# **Sight-Reduction Tables for Latitude 70° - 79°**

**Declination CONTRARY name to 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 09:23:24 2017



# Purpose and Scope

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

The tables on the following pages were calculated according to:

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

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

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

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

For practical Sight Reduction this manual is used as follows:

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

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

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



Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	20 00.0 -60.0 180.0	19 59.8 -60.0 178.9	19 59.2 -60.0 177.9	19 58.3 -60.0 176.8	19 57.0 -60.0 175.7
1°	19 00.0 -60.0 180.0	18 59.8 -60.0 178.9	18 59.2 -60.0 177.9	18 58.3 -60.0 176.8	18 57.0 -60.0 175.8
2°	18 00.0 -60.0 180.0	17 59.8 -60.0 178.9	17 59.2 -59.9 177.9	17 58.3 -60.0 176.8	17 57.0 -60.0 175.8
3°	17 00.0 -60.0 180.0	16 59.8 -60.0 179.0	16 59.3 -60.0 177.9	16 58.3 -60.0 176.9	16 57.0 -60.0 175.8
4°	16 00.0 -60.0 180.0	15 59.8 -60.0 179.0	15 59.3 -60.0 177.9	15 58.3 -60.0 176.9	15 57.0 -60.0 175.8
5°	15 00.0 -60.0 180.0	14 59.8 -60.0 179.0	14 59.3 -60.0 177.9	14 58.3 -60.0 176.9	14 57.0 -59.9 175.9
6°	14 00.0 -60.0 180.0	13 59.8 -60.0 179.0	13 59.3 -60.0 178.0	13 58.3 -59.9 176.9	13 57.1 -60.0 175.9
7°	13 00.0 -60.0 180.0	12 59.8 -60.0 179.0	12 59.3 -60.0 178.0	12 58.4 -60.0 176.9	12 57.1 -60.0 175.9
8°	12 00.0 -60.0 180.0	11 59.8 -60.0 179.0	11 59.3 -60.0 178.0	11 58.4 -60.0 177.0	11 57.1 -60.0 176.0
9°	11 00.0 -60.0 180.0	10 59.8 -60.0 179.0	10 59.3 -60.0 178.0	10 58.4 -60.0 177.0	10 57.1 -60.0 176.0
10°	10 00.0 -60.0 180.0	9 59.8 -60.0 179.0	9 59.3 -60.0 178.0	9 58.4 -60.0 177.0	9 57.1 -59.9 176.0
11°	9 00.0 -60.0 180.0	8 59.8 -60.0 179.0	8 59.3 -60.0 178.0	8 58.4 -60.0 177.0	8 57.2 -60.0 176.0
12°	8 00.0 -60.0 180.0	7 59.8 -60.0 179.0	7 59.3 -60.0 178.0	7 58.4 -60.0 177.0	7 57.2 -60.0 176.0
13°	7 00.0 -60.0 180.0	6 59.8 -60.0 179.0	6 59.3 -60.0 178.0	6 58.4 -60.0 177.1	6 57.2 -60.0 176.1
14°	6 00.0 -60.0 180.0	5 59.8 -60.0 179.0	5 59.3 -60.0 178.0	5 58.4 -60.0 177.1	5 57.2 -60.0 176.1
15°	5 00.0 -60.0 180.0	4 59.8 -60.0 179.0	4 59.3 -60.0 178.1	4 58.4 -60.0 177.1	4 57.2 -60.0 176.1
16°	4 00.0 -60.0 180.0	3 59.8 -60.0 179.0	3 59.3 -60.0 178.1	3 58.4 -59.9 177.1	3 57.2 -59.9 176.1
17°	3 00.0 -60.0 180.0	2 59.8 -60.0 179.0	2 59.3 -60.0 178.1	2 58.5 -60.0 177.1	2 57.3 -60.0 176.2
18°	2 00.0 -60.0 180.0	1 59.8 -60.0 179.0	1 59.3 -60.0 178.1	1 58.5 -60.0 177.1	1 57.3 -60.0 176.2
19°	1 00.0 -60.0 180.0	0 59.8 -60.0 179.1	0 59.3 -60.0 178.1	0 58.5 -60.0 177.2	0 57.3 -60.0 176.2
20°	0 00.0 -60.0 180.0	-0 00.2 -60.0	-0 00.7 -60.0	-0 01.5 -60.0	-0 02.7 -60.0
21°	-1 00.0 -60.0	-1 00.2 -60.0	-1 00.7 -60.0	-1 01.5 -60.0	-1 02.7 -60.0
22°	-2 00.0 -60.0	-2 00.2 -60.0	-2 00.7 -60.0	-2 01.5 -60.0	-2 02.7 -59.9
23°	-3 00.0 -60.0	-3 00.2 -60.0	-3 00.7 -60.0	-3 01.5 -60.0	-3 02.6 -60.0
24°	-4 00.0 -60.0	-4 00.2 -60.0	-4 00.7 -60.0	-4 01.5 -60.0	-4 02.6 -60.0
25°	-5 00.0 -60.0	-5 00.2 -60.0	-5 00.7 -59.9	-5 01.5 -60.0	-5 02.6 -60.0
26°	-6 00.0 -60.0	-6 00.2 -60.0	-6 00.6 -60.0	-6 01.5 -59.9	-6 02.6 -60.0
27°	-7 00.0 -60.0	-7 00.2 -60.0	-7 00.6 -60.0	-7 01.4 -60.0	-7 02.6 -60.0
28°	-8 00.0 -60.0	-8 00.2 -60.0	-8 00.6 -60.0	-8 01.4 -60.0	-8 02.6 -59.9
29°	-9 00.0 -60.0	-9 00.2 -60.0	-9 00.6 -60.0	-9 01.4 -60.0	-9 02.5 -60.0

Dec	LHA 005° / 355°	LHA 006° / 354°	LHA 007° / 353°	LHA 008° / 352°	LHA 009° / 351°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	19 55.2 -59.9 174.7	19 53.1 -59.9 173.6	19 50.7 -60.0 172.6	19 47.8 -59.9 171.5	19 44.6 -59.9 170.4
1°	18 55.3 -60.0 174.7	18 53.2 -60.0 173.7	18 50.7 -59.9 172.6	18 47.9 -59.9 171.5	18 44.7 -59.9 170.5
2°	17 55.3 -60.0 174.7	17 53.2 -59.9 173.7	17 50.8 -59.9 172.6	17 48.0 -59.9 171.6	17 44.8 -59.9 170.6
3°	16 55.3 -59.9 174.8	16 53.3 -60.0 173.7	16 50.9 -60.0 172.7	16 48.1 -60.0 171.7	16 44.9 -59.9 170.6
4°	15 55.4 -60.0 174.8	15 53.3 -59.9 173.8	15 50.9 -59.9 172.7	15 48.1 -59.9 171.7	15 45.0 -59.9 170.7
5°	14 55.4 -60.0 174.8	14 53.4 -60.0 173.8	14 51.0 -60.0 172.8	14 48.2 -59.9 171.8	14 45.1 -59.9 170.7
6°	13 55.4 -60.0 174.9	13 53.4 -60.0 173.9	13 51.0 -59.9 172.8	13 48.3 -60.0 171.8	13 45.2 -59.9 170.8
7°	12 55.4 -59.9 174.9	12 53.4 -59.9 173.9	12 51.1 -60.0 172.9	12 48.3 -59.9 171.9	12 45.3 -59.9 170.8
8°	11 55.5 -60.0 174.9	11 53.5 -60.0 173.9	11 51.1 -59.9 172.9	11 48.4 -59.9 171.9	11 45.4 -60.0 170.9
9°	10 55.5 -60.0 175.0	10 53.5 -59.9 174.0	10 51.2 -60.0 173.0	10 48.5 -59.9 172.0	10 45.4 -59.9 171.0
10°	9 55.5 -59.9 175.0	9 53.6 -60.0 174.0	9 51.2 -59.9 173.0	9 48.6 -60.0 172.0	9 45.5 -59.9 171.0
11°	8 55.6 -60.0 175.0	8 53.6 -60.0 174.0	8 51.3 -60.0 173.0	8 48.6 -59.9 172.1	8 45.6 -59.9 171.1
12°	7 55.6 -60.0 175.1	7 53.6 -59.9 174.1	7 51.3 -59.9 173.1	7 48.7 -59.9 172.1	7 45.7 -59.9 171.1
13°	6 55.6 -60.0 175.1	6 53.7 -60.0 174.1	6 51.4 -59.9 173.1	6 48.8 -60.0 172.2	6 45.8 -59.9 171.2
14°	5 55.6 -59.9 175.1	5 53.7 -59.9 174.1	5 51.5 -60.0 173.2	5 48.8 -59.9 172.2	5 45.9 -59.9 171.2
15°	4 55.7 -60.0 175.2	4 53.8 -60.0 174.2	4 51.5 -59.9 173.2	4 48.9 -59.9 172.2	4 46.0 -59.9 171.3
16°	3 55.7 -60.0 175.2	3 53.8 -60.0 174.2	3 51.6 -60.0 173.3	3 49.0 -60.0 172.3	3 46.1 -60.0 171.3
17°	2 55.7 -60.0 175.2	2 53.8 -59.9 174.3	2 51.6 -59.9 173.3	2 49.0 -59.9 172.3	2 46.1 -59.9 171.4
18°	1 55.7 -59.9 175.2	1 53.9 -60.0 174.3	1 51.7 -60.0 173.3	1 49.1 -59.9 172.4	1 46.2 -59.9 171.4
19°	0 55.8 -60.0 175.3	0 53.9 -60.0 174.3	0 51.7 -59.9 173.4	0 49.2 -60.0 172.4	0 46.3 -59.9 171.5
20°	-0 04.2 -60.0	-0 06.1 -59.9	-0 08.2 -60.0	-0 10.8 -59.9	-0 13.6 -59.9
21°	-1 04.2 -60.0	-1 06.0 -60.0	-1 08.2 -59.9	-1 10.7 -59.9	-1 13.5 -59.9
22°	-2 04.2 -59.9	-2 06.0 -59.9	-2 08.1 -60.0	-2 10.6 -59.9	-2 13.4 -59.9
23°	-3 04.1 -60.0	-3 05.9 -60.0	-3 08.1 -59.9	-3 10.5 -60.0	-3 13.3 -60.0
24°	-4 04.1 -60.0	-4 05.9 -60.0	-4 08.0 -60.0	-4 10.5 -59.9	-4 13.3 -59.9
25°	-5 04.1 -59.9	-5 05.9 -59.9	-5 08.0 -59.9	-5 10.4 -59.9	-5 13.2 -59.9
26°	-6 04.0 -60.0	-6 05.8 -60.0	-6 07.9 -60.0	-6 10.3 -60.0	-6 13.1 -59.9
27°	-7 04.0 -60.0	-7 05.8 -59.9	-7 07.9 -59.9	-7 10.3 -59.9	-7 13.0 -59.9
28°	-8 04.0 -60.0	-8 05.7 -60.0	-8 07.8 -60.0	-8 10.2 -59.9	-8 12.9 -59.9
29°	-9 04.0 -59.9	-9 05.7 -60.0	-9 07.8 -59.9	-9 10.1 -60.0	-9 12.8 -59.9

Dec	LHA 010° / 350°	LHA 011° / 349°	LHA 012° / 348°	LHA 013° / 347°	LHA 014° / 346°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	19 41.0 -59.9 169.4	19 37.0 -59.8 168.3	19 32.7 -59.8 167.3	19 28.0 -59.8 166.2	19 22.9 -59.8 165.1
1°	18 41.1 -59.9 169.4	18 37.2 -59.9 168.4	18 32.9 -59.9 167.3	18 28.2 -59.8 166.3	18 23.1 -59.7 165.2
2°	17 41.2 -59.8 169.5	17 37.3 -59.8 168.5	17 33.0 -59.8 167.4	17 28.4 -59.8 166.4	17 23.4 -59.8 165.3
3°	16 41.4 -59.9 169.6	16 37.5 -59.9 168.6	16 33.2 -59.8 167.5	16 28.6 -59.8 166.5	16 23.6 -59.8 165.4
4°	15 41.5 -59.9 169.6	15 37.6 -59.9 168.6	15 33.4 -59.9 167.6	15 28.8 -59.8 166.5	15 23.8 -59.8 165.5
5°	14 41.6 -59.9 169.7	14 37.7 -59.8 168.7	14 33.5 -59.8 167.6	14 29.0 -59.9 166.6	14 24.0 -59.8 165.6
6°	13 41.7 -59.9 169.8	13 37.9 -59.9 168.7	13 33.7 -59.9 167.7	13 29.1 -59.8 166.7	13 24.2 -59.7 165.7
7°	12 41.8 -59.9 169.8	12 38.0 -59.9 168.8	12 33.8 -59.8 167.8	12 29.3 -59.8 166.8	12 24.5 -59.8 165.8
8°	11 41.9 -59.9 169.9	11 38.1 -59.8 168.9	11 34.0 -59.8 167.9	11 29.5 -59.8 166.9	11 24.7 -59.8 165.9
9°	10 42.0 -59.9 169.9	10 38.3 -59.9 168.9	10 34.2 -59.9 167.9	10 29.7 -59.8 166.9	10 24.9 -59.8 165.9
10°	9 42.1 -59.8 170.0	9 38.4 -59.9 169.0	9 34.3 -59.8 168.0	9 29.9 -59.8 167.0	9 25.1 -59.8 166.0
11°	8 42.3 -59.9 170.1	8 38.5 -59.8 169.1	8 34.5 -59.9 168.1	8 30.1 -59.8 167.1	8 25.3 -59.8 166.1
12°	7 42.4 -59.9 170.1	7 38.7 -59.9 169.1	7 34.6 -59.8 168.2	7 30.3 -59.9 167.2	7 25.5 -59.8 166.2
13°	6 42.5 -59.9 170.2	6 38.8 -59.9 169.2	6 34.8 -59.9 168.2	6 30.4 -59.8 167.3	6 25.7 -59.8 166.3
14°	5 42.6 -59.9 170.3	5 38.9 -59.8 169.3	5 34.9 -59.8 168.3	5 30.6 -59.8 167.3	5 25.9 -59.8 166.4
15°	4 42.7 -59.9 170.3	4 39.1 -59.9 169.3	4 35.1 -59.9 168.4	4 30.8 -59.8 167.4	4 26.1 -59.7 166.4
16°	3 42.8 -59.9 170.4	3 39.2 -59.9 169.4	3 35.2 -59.8 168.4	3 31.0 -59.9 167.5	3 26.4 -59.8 166.5
17°	2 42.9 -59.9 170.4	2 39.3 -59.9 169.5	2 35.4 -59.8 168.5	2 31.1 -59.8 167.6	2 26.6 -59.8 166.6
18°	1 43.0 -59.9 170.5	1 39.4 -59.8 169.5	1 35.6 -59.9 168.6	1 31.3 -59.8 167.6	1 26.8 -59.8 166.7
19°	0 43.1 -59.9 170.5	0 39.6 -59.9 169.6	0 35.7 -59.8 168.7	0 31.5 -59.8 167.7	0 27.0 -59.8 166.8
20°	-0 16.8 -59.9	-0 20.3 -59.9	-0 24.1 -59.9	-0 28.3 -59.8	-0 32.8 -59.8
21°	-1 16.7 -59.9	-1 20.2 -59.8	-1 24.0 -59.8	-1 28.1 -59.9	-1 32.6 -59.8
22°	-2 16.6 -59.9	-2 20.0 -59.9	-2 23.8 -59.9	-2 28.0 -59.8	-2 32.4 -59.8
23°	-3 16.5 -59.9	-3 19.9 -59.9	-3 23.7 -59.8	-3 27.8 -59.8	-3 32.2 -59.8
24°	-4 16.4 -59.9	-4 19.8 -59.9	-4 23.5 -59.9	-4 27.6 -59.8	-4 32.0 -59.8
25°	-5 16.3 -59.8	-5 19.7 -59.8	-5 23.4 -59.8	-5 27.4 -59.8	-5 31.8 -59.8
26°	-6 16.1 -59.9	-6 19.5 -59.9	-6 23.2 -59.9	-6 27.2 -59.9	-6 31.6 -59.8
27°	-7 16.0 -59.9	-7 19.4 -59.9	-7 23.1 -59.8	-7 27.1 -59.8	-7 31.4 -59.8
28°	-8 15.9 -59.9	-8 19.3 -59.8	-8 22.9 -59.9	-8 26.9 -59.8	-8 31.2 -59.7
29°	-9 15.8 -59.9	-9 19.1 -59.9	-9 22.8 -59.8	-9 26.7 -59.8	-9 30.9 -59.8

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°	19 17.5 -59.8 164.1	19 11.7 -59.8 163.0	19 05.5 -59.7 162.0	18 59.0 -59.7 160.9	18 52.1 -59.6 159.9
1°	18 17.7 -59.7 164.2	18 11.9 -59.7 163.1	18 05.8 -59.7 162.1	17 59.3 -59.6 161.0	17 52.5 -59.6 160.0
2°	17 18.0 -59.8 164.3	17 12.2 -59.7 163.2	17 06.1 -59.6 162.2	16 59.7 -59.6 161.2	16 52.9 -59.6 160.1
3°	16 18.2 -59.7 164.4	16 12.5 -59.7 163.3	16 06.5 -59.7 162.3	16 00.1 -59.7 161.3	15 53.3 -59.6 160.2
4°	15 18.5 -59.8 164.5	15 12.8 -59.7 163.4	15 06.8 -59.7 162.4	15 00.4 -59.6 161.4	14 53.7 -59.6 160.4
5°	14 18.7 -59.7 164.6	14 13.1 -59.7 163.5	14 07.1 -59.7 162.5	14 00.8 -59.7 161.5	13 54.1 -59.6 160.5
6°	13 19.0 -59.8 164.7	13 13.4 -59.7 163.6	13 07.4 -59.6 162.6	13 01.1 -59.6 161.6	12 54.5 -59.6 160.6
7°	12 19.2 -59.7 164.8	12 13.7 -59.7 163.7	12 07.8 -59.7 162.7	12 01.5 -59.7 161.7	11 54.9 -59.6 160.7
8°	11 19.5 -59.8 164.8	11 14.0 -59.8 163.8	11 08.1 -59.7 162.8	11 01.8 -59.6 161.8	10 55.3 -59.6 160.8
9°	10 19.7 -59.7 164.9	10 14.2 -59.7 163.9	10 08.4 -59.7 162.9	10 02.2 -59.7 161.9	9 55.7 -59.7 160.9
10°	9 20.0 -59.8 165.0	9 14.5 -59.7 164.0	9 08.7 -59.7 163.0	9 02.5 -59.6 162.1	8 56.0 -59.6 161.1
11°	8 20.2 -59.7 165.1	8 14.8 -59.8 164.1	8 09.0 -59.7 163.1	8 02.9 -59.7 162.2	7 56.4 -59.6 161.2
12°	7 20.5 -59.8 165.2	7 15.0 -59.7 164.2	7 09.3 -59.7 163.2	7 03.2 -59.6 162.3	6 56.8 -59.6 161.3
13°	6 20.7 -59.8 165.3	6 15.3 -59.7 164.3	6 09.6 -59.7 163.3	6 03.6 -59.7 162.4	5 57.2 -59.6 161.4
14°	5 20.9 -59.7 165.4	5 15.6 -59.7 164.4	5 09.9 -59.7 163.5	5 03.9 -59.7 162.5	4 57.6 -59.7 161.5
15°	4 21.2 -59.8 165.5	4 15.9 -59.8 164.5	4 10.2 -59.7 163.6	4 04.2 -59.6 162.6	3 57.9 -59.6 161.6
16°	3 21.4 -59.8 165.6	3 16.1 -59.7 164.6	3 10.5 -59.7 163.7	3 04.6 -59.7 162.7	2 58.3 -59.6 161.7
17°	2 21.6 -59.7 165.7	2 16.4 -59.7 164.7	2 10.8 -59.7 163.8	2 04.9 -59.7 162.8	1 58.7 -59.6 161.8
18°	1 21.9 -59.8 165.7	1 16.7 -59.8 164.8	1 11.1 -59.7 163.9	1 05.2 -59.6 162.9	0 59.1 -59.7 162.0
19°	0 22.1 -59.7 165.8	0 16.9 -59.7 164.9	0 11.4 -59.7 164.0	0 05.6 -59.7 163.0	-0 00.6 -59.6
20°	-0 37.6 -59.8	-0 42.8 -59.7	-0 48.3 -59.7	-0 54.1 -59.6	-1 00.2 -59.6
21°	-1 37.4 -59.8	-1 42.5 -59.8	-1 48.0 -59.7	-1 53.7 -59.7	-1 59.8 -59.7
22°	-2 37.2 -59.7	-2 42.3 -59.7	-2 47.7 -59.7	-2 53.4 -59.7	-2 59.5 -59.6
23°	-3 36.9 -59.8	-3 42.0 -59.7	-3 47.4 -59.7	-3 53.1 -59.6	-3 59.1 -59.6
24°	-4 36.7 -59.8	-4 41.7 -59.8	-4 47.1 -59.7	-4 52.7 -59.7	-4 58.7 -59.6
25°	-5 36.5 -59.7	-5 41.5 -59.7	-5 46.8 -59.7	-5 52.4 -59.7	-5 58.3 -59.6
26°	-6 36.2 -59.8	-6 41.2 -59.7	-6 46.5 -59.7	-6 52.1 -59.6	-6 57.9 -59.7
27°	-7 36.0 -59.7	-7 40.9 -59.7	-7 46.2 -59.7	-7 51.7 -59.7	-7 57.6 -59.6
28°	-8 35.7 -59.8	-8 40.6 -59.8	-8 45.9 -59.6	-8 51.4 -59.6	-8 57.2 -59.6
29°	-9 35.5 -59.8	-9 40.4 -59.7	-9 45.5 -59.7	-9 51.0 -59.7	-9 56.8 -59.6

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°	18 44.8 -59.5 158.8	18 37.2 -59.5 157.8	18 29.3 -59.4 156.7	18 21.0 -59.4 155.7	18 12.4 -59.3 154.6
1°	17 45.3 -59.6 159.0	17 37.7 -59.5 157.9	17 29.9 -59.5 156.9	17 21.6 -59.4 155.8	17 13.1 -59.4 154.8
2°	16 45.7 -59.5 159.1	16 38.2 -59.5 158.0	16 30.4 -59.5 157.0	16 22.2 -59.4 156.0	16 13.7 -59.4 155.0
3°	15 46.2 -59.6 159.2	15 38.7 -59.5 158.2	15 30.9 -59.4 157.2	15 22.8 -59.4 156.1	15 14.3 -59.3 155.1
4°	14 46.6 -59.5 159.3	14 39.2 -59.5 158.3	14 31.5 -59.5 157.3	14 23.4 -59.5 156.3	14 15.0 -59.4 155.3
5°	13 47.1 -59.6 159.5	13 39.7 -59.5 158.4	13 32.0 -59.5 157.4	13 23.9 -59.4 156.4	13 15.6 -59.4 155.4
6°	12 47.5 -59.6 159.6	12 40.2 -59.5 158.6	12 32.5 -59.5 157.6	12 24.5 -59.4 156.6	12 16.2 -59.4 155.5
7°	11 47.9 -59.5 159.7	11 40.7 -59.6 158.7	11 33.0 -59.5 157.7	11 25.1 -59.5 156.7	11 16.8 -59.4 155.7
8°	10 48.4 -59.6 159.8	10 41.1 -59.5 158.8	10 33.5 -59.4 157.8	10 25.6 -59.4 156.8	10 17.4 -59.4 155.8
9°	9 48.8 -59.6 160.0	9 41.6 -59.5 159.0	9 34.1 -59.5 158.0	9 26.2 -59.5 157.0	9 18.0 -59.4 156.0
10°	8 49.2 -59.6 160.1	8 42.1 -59.6 159.1	8 34.6 -59.5 158.1	8 26.7 -59.4 157.1	8 18.6 -59.4 156.1
11°	7 49.6 -59.5 160.2	7 42.5 -59.5 159.2	7 35.1 -59.5 158.2	7 27.3 -59.5 157.2	7 19.2 -59.4 156.3
12°	6 50.1 -59.6 160.3	6 43.0 -59.6 159.3	6 35.6 -59.5 158.4	6 27.8 -59.4 157.4	6 19.8 -59.4 156.4
13°	5 50.5 -59.6 160.4	5 43.4 -59.5 159.5	5 36.1 -59.5 158.5	5 28.4 -59.5 157.5	5 20.4 -59.4 156.5
14°	4 50.9 -59.6 160.5	4 43.9 -59.6 159.6	4 36.6 -59.5 158.6	4 28.9 -59.4 157.6	4 21.0 -59.5 156.7
15°	3 51.3 -59.6 160.7	3 44.3 -59.5 159.7	3 37.1 -59.5 158.7	3 29.5 -59.5 157.8	3 21.5 -59.4 156.8
16°	2 51.7 -59.6 160.8	2 44.8 -59.5 159.8	2 37.6 -59.5 158.9	2 30.0 -59.5 157.9	2 22.1 -59.4 157.0
17°	1 52.1 -59.6 160.9	1 45.3 -59.6 159.9	1 38.1 -59.5 159.0	1 30.5 -59.4 158.1	1 22.7 -59.4 157.1
18°	0 52.5 -59.5 161.0	0 45.7 -59.5 160.1	0 38.6 -59.6 159.1	0 31.1 -59.5 158.2	0 23.3 -59.4 157.2
19°	-0 07.0 -59.6	-0 13.8 -59.6	-0 21.0 -59.5	-0 28.4 -59.4	-0 36.1 -59.4
20°	-1 06.6 -59.6	-1 13.4 -59.5	-1 20.5 -59.5	-1 27.8 -59.5	-1 35.5 -59.4
21°	-2 06.2 -59.6	-2 12.9 -59.6	-2 20.0 -59.5	-2 27.3 -59.5	-2 34.9 -59.5
22°	-3 05.8 -59.6	-3 12.5 -59.5	-3 19.5 -59.5	-3 26.8 -59.4	-3 34.4 -59.4
23°	-4 05.4 -59.6	-4 12.0 -59.6	-4 19.0 -59.5	-4 26.2 -59.5	-4 33.8 -59.4
24°	-5 05.0 -59.6	-5 11.6 -59.5	-5 18.5 -59.5	-5 25.7 -59.4	-5 33.2 -59.4
25°	-6 04.6 -59.5	-6 11.1 -59.6	-6 18.0 -59.5	-6 25.1 -59.5	-6 32.6 -59.4
26°	-7 04.1 -59.6	-7 10.7 -59.5	-7 17.5 -59.5	-7 24.6 -59.4	-7 32.0 -59.4
27°	-8 03.7 -59.6	-8 10.2 -59.5	-8 17.0 -59.5	-8 24.0 -59.5	-8 31.4 -59.4
28°	-9 03.3 -59.6	-9 09.7 -59.6	-9 16.5 -59.5	-9 23.5 -59.4	-9 30.8 -59.4
29°					

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°	18 03.5 -59.3 153.6	17 54.2 -59.3 152.6	17 44.6 -59.2 151.5	17 34.6 -59.1 150.5	17 24.3 -59.0 149.5
1°	17 04.2 -59.4 153.8	16 54.9 -59.2 152.7	16 45.4 -59.3 151.7	16 35.5 -59.2 150.7	16 25.3 -59.1 149.6
2°	16 04.8 -59.3 153.9	15 55.7 -59.3 152.9	15 46.1 -59.2 151.9	15 36.3 -59.2 150.8	15 26.2 -59.2 149.8
3°	15 05.5 -59.3 154.1	14 56.4 -59.3 153.1	14 46.9 -59.2 152.0	14 37.1 -59.1 151.0	14 27.0 -59.1 150.0
4°	14 06.2 -59.3 154.2	13 57.1 -59.3 153.2	13 47.7 -59.2 152.2	13 38.0 -59.2 151.2	13 27.9 -59.1 150.2
5°	13 06.9 -59.4 154.4	12 57.8 -59.3 153.4	12 48.5 -59.3 152.4	12 38.8 -59.2 151.4	12 28.8 -59.1 150.4
6°	12 07.5 -59.3 154.5	11 58.5 -59.3 153.5	11 49.2 -59.2 152.5	11 39.6 -59.2 151.5	11 29.7 -59.2 150.5
7°	11 08.2 -59.4 154.7	10 59.2 -59.2 153.7	10 50.0 -59.3 152.7	10 40.4 -59.2 151.7	10 30.5 -59.1 150.7
8°	10 08.8 -59.3 154.8	10 00.0 -59.4 153.8	9 50.7 -59.2 152.9	9 41.2 -59.2 151.9	9 31.4 -59.2 150.9
9°	9 09.5 -59.4 155.0	9 00.6 -59.3 154.0	8 51.5 -59.3 153.0	8 42.0 -59.2 152.0	8 32.2 -59.1 151.0
10°	8 10.1 -59.3 155.1	8 01.3 -59.3 154.2	7 52.2 -59.2 153.2	7 42.8 -59.2 152.2	7 33.1 -59.2 151.2
11°	7 10.8 -59.4 155.3	7 02.0 -59.3 154.3	6 53.0 -59.3 153.3	6 43.6 -59.2 152.4	6 33.9 -59.1 151.4
12°	6 11.4 -59.4 155.4	6 02.7 -59.3 154.5	5 53.7 -59.3 153.5	5 44.4 -59.2 152.5	5 34.8 -59.2 151.5
13°	5 12.0 -59.3 155.6	5 03.4 -59.3 154.6	4 54.4 -59.2 153.6	4 45.2 -59.2 152.7	4 35.6 -59.2 151.7
14°	4 12.7 -59.4 155.7	4 04.1 -59.3 154.8	3 55.2 -59.3 153.8	3 46.0 -59.3 152.8	3 36.4 -59.1 151.9
15°	3 13.3 -59.4 155.9	3 04.8 -59.4 154.9	2 55.9 -59.3 154.0	2 46.7 -59.2 153.0	2 37.3 -59.2 152.0
16°	2 13.9 -59.3 156.0	2 05.4 -59.3 155.1	1 56.6 -59.2 154.1	1 47.5 -59.2 153.2	1 38.1 -59.2 152.2
17°	1 14.6 -59.4 156.2	1 06.1 -59.3 155.2	0 57.4 -59.3 154.3	0 48.3 -59.2 153.3	0 38.9 -59.1 152.4
18°	0 15.2 -59.4 156.3	0 06.8 -59.3 155.4	-0 01.9 -59.3	-0 10.9 -59.2	-0 20.2 -59.2
19°	-0 44.2 -59.3	-0 52.5 -59.3	-1 01.2 -59.2	-1 10.1 -59.3	-1 19.4 -59.2
20°	-1 43.5 -59.4	-1 51.8 -59.4	-2 00.4 -59.3	-2 09.4 -59.2	-2 18.6 -59.1
21°	-2 42.9 -59.4	-2 51.2 -59.3	-2 59.7 -59.3	-3 08.6 -59.2	-3 17.7 -59.2
22°	-3 42.3 -59.3	-3 50.5 -59.3	-3 59.0 -59.3	-4 07.8 -59.2	-4 16.9 -59.2
23°	-4 41.6 -59.4	-4 49.8 -59.3	-4 58.3 -59.2	-5 07.0 -59.2	-5 16.1 -59.1
24°	-5 41.0 -59.4	-5 49.1 -59.3	-5 57.5 -59.3	-6 06.2 -59.2	-6 15.2 -59.2
25°	-6 40.4 -59.3	-6 48.4 -59.3	-6 56.8 -59.2	-7 05.4 -59.2	-7 14.4 -59.1
26°	-7 39.7 -59.4	-7 47.7 -59.3	-7 56.0 -59.3	-8 04.6 -59.2	-8 13.5 -59.2
27°	-8 39.1 -59.3	-8 47.0 -59.3	-8 55.3 -59.3	-9 03.8 -59.2	-9 12.7 -59.1
28°	-9 38.4 -59.4	-9 46.3 -59.3	-9 54.6 -59.2		
29°					

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°	17 13.8 -59.1 148.4	17 02.9 -59.0 147.4	16 51.7 -59.0 146.4	16 40.1 -58.8 145.4	16 28.3 -58.8 144.3
1°	16 14.7 -59.0 148.6	16 03.9 -59.0 147.6	15 52.7 -58.9 146.6	15 41.3 -58.9 145.6	15 29.5 -58.8 144.5
2°	15 15.7 -59.1 148.8	15 04.9 -59.0 147.8	14 53.8 -58.9 146.8	14 42.4 -58.9 145.8	14 30.7 -58.8 144.7
3°	14 16.6 -59.0 149.0	14 05.9 -59.0 148.0	13 54.9 -59.0 147.0	13 43.5 -58.9 146.0	13 31.9 -58.8 144.9
4°	13 17.6 -59.1 149.2	13 06.9 -59.0 148.2	12 55.9 -58.9 147.2	12 44.6 -58.9 146.1	12 33.1 -58.9 145.1
5°	12 18.5 -59.1 149.3	12 07.9 -59.0 148.3	11 57.0 -59.0 147.3	11 45.7 -58.9 146.3	11 34.2 -58.8 145.3
6°	11 19.4 -59.1 149.5	11 08.9 -59.1 148.5	10 58.0 -59.0 147.5	10 46.8 -58.9 146.5	10 35.4 -58.9 145.5
7°	10 20.3 -59.1 149.7	10 09.8 -59.0 148.7	9 59.0 -59.0 147.7	9 47.9 -58.9 146.7	9 36.5 -58.9 145.7
8°	9 21.2 -59.0 149.9	9 10.8 -59.0 148.9	9 00.0 -58.9 147.9	8 49.0 -58.9 146.9	8 37.6 -58.8 145.9
9°	8 22.2 -59.1 150.1	8 11.8 -59.1 149.1	8 01.1 -59.0 148.1	7 50.1 -59.0 147.1	7 38.8 -58.9 146.1
10°	7 23.1 -59.2 150.2	7 12.7 -59.0 149.3	7 02.1 -59.0 148.3	6 51.1 -58.9 147.3	6 39.9 -58.9 146.3
11°	6 23.9 -59.1 150.4	6 13.7 -59.1 149.4	6 03.1 -59.0 148.5	5 52.2 -58.9 147.5	5 41.0 -58.9 146.5
12°	5 24.8 -59.1 150.6	5 14.6 -59.0 149.6	5 04.1 -59.0 148.6	4 53.3 -59.0 147.7	4 42.1 -58.8 146.7
13°	4 25.7 -59.1 150.7	4 15.6 -59.1 149.8	4 05.1 -59.0 148.8	3 54.3 -58.9 147.9	3 43.3 -58.9 146.9
14°	3 26.6 -59.1 150.9	3 16.5 -59.1 150.0	3 06.1 -59.0 149.0	2 55.4 -59.0 148.1	2 44.4 -58.9 147.1
15°	2 27.5 -59.1 151.1	2 17.4 -59.0 150.1	2 07.1 -59.0 149.2	1 56.4 -58.9 148.2	1 45.5 -58.9 147.3
16°	1 28.4 -59.1 151.3	1 18.4 -59.1 150.3	1 08.1 -59.0 149.4	0 57.5 -59.0 148.4	0 46.6 -58.9 147.5
17°	0 29.3 -59.1 151.4	0 19.3 -59.0 150.5	0 09.1 -59.0 149.6	-0 01.5 -58.9	-0 12.3 -58.9
18°	-0 29.8 -59.2	-0 39.7 -59.1	-0 49.9 -59.0	-1 00.4 -59.0	-1 11.2 -58.9
19°	-1 29.0 -59.1	-1 38.8 -59.1	-1 48.9 -59.1	-1 59.4 -58.9	-2 10.1 -58.9
20°	-2 28.1 -59.1	-2 37.9 -59.0	-2 48.0 -59.0	-2 58.3 -59.0	-3 09.0 -58.9
21°	-3 27.2 -59.1	-3 36.9 -59.1	-3 47.0 -59.0	-3 57.3 -58.9	-4 07.9 -58.9
22°	-4 26.3 -59.1	-4 36.0 -59.0	-4 46.0 -59.0	-4 56.2 -59.0	-5 06.8 -58.8
23°	-5 25.4 -59.1	-5 35.0 -59.1	-5 45.0 -58.9	-5 55.2 -58.9	-6 05.6 -58.9
24°	-6 24.5 -59.1	-6 34.1 -59.0	-6 43.9 -59.0	-6 54.1 -58.9	-7 04.5 -58.9
25°	-7 23.6 -59.1	-7 33.1 -59.1	-7 42.9 -59.0	-7 53.0 -59.0	-8 03.4 -58.9
26°	-8 22.7 -59.1	-8 32.2 -59.0	-8 41.9 -59.0	-8 52.0 -58.9	-9 02.3 -58.8
27°	-9 21.8 -59.1	-9 31.2 -59.0	-9 40.9 -59.0	-9 50.9 -58.9	
28°					
29°					

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°	16 16.2 -58.7 143.3	16 03.8 -58.7 142.3	15 51.1 -58.6 141.3	15 38.1 -58.5 140.3	15 24.9 -58.5 139.2
1°	15 17.5 -58.8 143.5	15 05.1 -58.7 142.5	14 52.5 -58.6 141.5	14 39.6 -58.6 140.5	14 26.4 -58.5 139.5
2°	14 18.7 -58.7 143.7	14 06.4 -58.7 142.7	13 53.9 -58.7 141.7	13 41.0 -58.6 140.7	13 27.9 -58.5 139.7
3°	13 20.0 -58.8 143.9	13 07.7 -58.7 142.9	12 55.2 -58.6 141.9	12 42.4 -58.6 140.9	12 29.4 -58.6 139.9
4°	12 21.2 -58.8 144.1	12 09.0 -58.7 143.1	11 56.6 -58.7 142.1	11 43.8 -58.6 141.2	11 30.8 -58.5 140.2
5°	11 22.4 -58.8 144.3	11 10.3 -58.7 143.4	10 57.9 -58.7 142.4	10 45.2 -58.6 141.4	10 32.3 -58.6 140.4
6°	10 23.6 -58.8 144.6	10 11.6 -58.8 143.6	9 59.2 -58.6 142.6	9 46.6 -58.6 141.6	9 33.7 -58.5 140.6
7°	9 24.8 -58.8 144.8	9 12.8 -58.7 143.8	9 00.6 -58.7 142.8	8 48.0 -58.6 141.8	8 35.2 -58.6 140.8
8°	8 26.0 -58.8 145.0	8 14.1 -58.8 144.0	8 01.9 -58.7 143.0	7 49.4 -58.7 142.0	7 36.6 -58.6 141.0
9°	7 27.2 -58.8 145.2	7 15.3 -58.7 144.2	7 03.2 -58.7 143.2	6 50.7 -58.6 142.2	6 38.0 -58.5 141.3
10°	6 28.4 -58.8 145.4	6 16.6 -58.8 144.4	6 04.5 -58.7 143.4	5 52.1 -58.6 142.4	5 39.5 -58.6 141.5
11°	5 29.6 -58.9 145.6	5 17.8 -58.8 144.6	5 05.8 -58.7 143.6	4 53.5 -58.7 142.7	4 40.9 -58.6 141.7
12°	4 30.7 -58.8 145.8	4 19.0 -58.7 144.8	4 07.1 -58.7 143.8	3 54.8 -58.6 142.9	3 42.3 -58.6 141.9
13°	3 31.9 -58.8 145.9	3 20.3 -58.8 145.0	3 08.4 -58.8 144.0	2 56.2 -58.7 143.1	2 43.7 -58.6 142.1
14°	2 33.1 -58.9 146.1	2 21.5 -58.8 145.2	2 09.6 -58.7 144.2	1 57.5 -58.6 143.3	1 45.1 -58.6 142.3
15°	1 34.2 -58.8 146.3	1 22.7 -58.7 145.4	1 10.9 -58.7 144.4	0 58.9 -58.7 143.5	0 46.5 -58.6 142.6
16°	0 35.4 -58.8 146.5	0 24.0 -58.8 145.6	0 12.2 -58.7 144.7	0 00.2 -58.6 143.7	-0 12.1 -58.6
17°	-0 23.4 -58.9	-0 34.8 -58.8	-0 46.5 -58.7	-0 58.4 -58.7	-1 10.7 -58.6
18°	-1 22.3 -58.8	-1 33.6 -58.8	-1 45.2 -58.7	-1 57.1 -58.7	-2 09.3 -58.5
19°	-2 21.1 -58.8	-2 32.4 -58.7	-2 43.9 -58.7	-2 55.8 -58.6	-3 07.8 -58.6
20°	-3 19.9 -58.9	-3 31.1 -58.8	-3 42.6 -58.7	-3 54.4 -58.6	-4 06.4 -58.6
21°	-4 18.8 -58.8	-4 29.9 -58.8	-4 41.3 -58.8	-4 53.0 -58.7	-5 05.0 -58.6
22°	-5 17.6 -58.8	-5 28.7 -58.7	-5 40.1 -58.7	-5 51.7 -58.6	-6 03.6 -58.6
23°	-6 16.4 -58.8	-6 27.4 -58.8	-6 38.8 -58.6	-6 50.3 -58.7	-7 02.2 -58.5
24°	-7 15.2 -58.8	-7 26.2 -58.7	-7 37.4 -58.7	-7 49.0 -58.6	-8 00.7 -58.6
25°	-8 14.0 -58.8	-8 24.9 -58.8	-8 36.1 -58.7	-8 47.6 -58.6	-8 59.3 -58.6
26°	-9 12.8 -58.8	-9 23.7 -58.7	-9 34.8 -58.7	-9 46.2 -58.6	-9 57.9 -58.5
27°					
28°					
29°					

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°	15 11.3 -58.4 138.2	14 57.5 -58.3 137.2	14 43.5 -58.3 136.2	14 29.1 -58.2 135.2	14 14.6 -58.2 134.2
1°	14 12.9 -58.4 138.5	13 59.2 -58.4 137.5	13 45.2 -58.4 136.5	13 30.9 -58.3 135.5	13 16.4 -58.2 134.5
2°	13 14.5 -58.5 138.7	13 00.8 -58.4 137.7	12 46.8 -58.3 136.7	12 32.6 -58.2 135.7	12 18.2 -58.2 134.7
3°	12 16.0 -58.5 138.9	12 02.4 -58.4 137.9	11 48.5 -58.3 136.9	11 34.4 -58.3 136.0	11 20.0 -58.2 135.0
4°	11 17.5 -58.4 139.2	11 04.0 -58.4 138.2	10 50.2 -58.4 137.2	10 36.1 -58.3 136.2	10 21.8 -58.3 135.2
5°	10 19.1 -58.5 139.4	10 05.6 -58.5 138.4	9 51.8 -58.3 137.4	9 37.8 -58.3 136.4	9 23.5 -58.2 135.5
6°	9 20.6 -58.5 139.6	9 07.1 -58.4 138.6	8 53.5 -58.4 137.7	8 39.5 -58.3 136.7	8 25.3 -58.3 135.7
7°	8 22.1 -58.5 139.8	8 08.7 -58.4 138.9	7 55.1 -58.4 137.9	7 41.2 -58.3 136.9	7 27.0 -58.2 135.9
8°	7 23.6 -58.5 140.1	7 10.3 -58.5 139.1	6 56.7 -58.4 138.1	6 42.9 -58.4 137.2	6 28.8 -58.3 136.2
9°	6 25.1 -58.6 140.3	6 11.8 -58.4 139.3	5 58.3 -58.4 138.4	5 44.5 -58.3 137.4	5 30.5 -58.2 136.4
10°	5 26.5 -58.5 140.5	5 13.4 -58.5 139.5	4 59.9 -58.4 138.6	4 46.2 -58.3 137.6	4 32.3 -58.3 136.7
11°	4 28.0 -58.5 140.7	4 14.9 -58.5 139.8	4 01.5 -58.4 138.8	3 47.9 -58.4 137.9	3 34.0 -58.3 136.9
12°	3 29.5 -58.5 141.0	3 16.4 -58.4 140.0	3 03.1 -58.4 139.0	2 49.5 -58.3 138.1	2 35.7 -58.3 137.1
13°	2 31.0 -58.6 141.2	2 18.0 -58.5 140.2	2 04.7 -58.4 139.3	1 51.2 -58.3 138.3	1 37.4 -58.2 137.4
14°	1 32.4 -58.5 141.4	1 19.5 -58.5 140.5	1 06.3 -58.4 139.5	0 52.9 -58.4 138.6	0 39.2 -58.3 137.6
15°	0 33.9 -58.5 141.6	0 21.0 -58.4 140.7	0 07.9 -58.4 139.7	-0 05.5 -58.3	-0 19.1 -58.3
16°	-0 24.6 -58.6	-0 37.4 -58.5	-0 50.5 -58.4	-1 03.8 -58.4	-1 17.4 -58.3
17°	-1 23.2 -58.5	-1 35.9 -58.5	-1 48.9 -58.4	-2 02.2 -58.3	-2 15.7 -58.3
18°	-2 21.7 -58.5	-2 34.4 -58.4	-2 47.3 -58.4	-3 00.5 -58.4	-3 14.0 -58.2
19°	-3 20.2 -58.5	-3 32.8 -58.5	-3 45.7 -58.4	-3 58.9 -58.3	-4 12.2 -58.3
20°	-4 18.7 -58.6	-4 31.3 -58.5	-4 44.1 -58.4	-4 57.2 -58.3	-5 10.5 -58.3
21°	-5 17.3 -58.5	-5 29.8 -58.4	-5 42.5 -58.4	-5 55.5 -58.3	-6 08.8 -58.2
22°	-6 15.8 -58.5	-6 28.2 -58.5	-6 40.9 -58.4	-6 53.8 -58.4	-7 07.0 -58.3
23°	-7 14.3 -58.5	-7 26.7 -58.4	-7 39.3 -58.4	-7 52.2 -58.3	-8 05.3 -58.2
24°	-8 12.8 -58.5	-8 25.1 -58.4	-8 37.7 -58.3	-8 50.5 -58.3	-9 03.5 -58.3
25°	-9 11.3 -58.5	-9 23.5 -58.4	-9 36.0 -58.4	-9 48.8 -58.3	
26°					
27°					
28°					
29°					

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°	13 59.7 -58.1 133.2	13 44.7 -58.1 132.2	13 29.3 -58.0 131.2	13 13.8 -57.9 130.2	12 58.0 -57.9 129.2
1°	13 01.6 -58.1 133.5	12 46.6 -58.1 132.5	12 31.3 -58.0 131.5	12 15.9 -58.0 130.5	12 00.1 -57.8 129.5
2°	12 03.5 -58.2 133.7	11 48.5 -58.0 132.7	11 33.3 -58.0 131.8	11 17.9 -57.9 130.8	11 02.3 -57.9 129.8
3°	11 05.3 -58.1 134.0	10 50.5 -58.1 133.0	10 35.3 -58.0 132.0	10 20.0 -58.0 131.0	10 04.4 -57.9 130.1
4°	10 07.2 -58.2 134.2	9 52.4 -58.1 133.2	9 37.3 -58.1 132.3	9 22.0 -58.0 131.3	9 06.5 -58.0 130.3
5°	9 09.0 -58.2 134.5	8 54.3 -58.2 133.5	8 39.2 -58.0 132.5	8 24.0 -58.0 131.6	8 08.5 -57.9 130.6
6°	8 10.8 -58.1 134.7	7 56.1 -58.1 133.8	7 41.2 -58.1 132.8	7 26.0 -58.0 131.8	7 10.6 -57.9 130.8
7°	7 12.7 -58.2 135.0	6 58.0 -58.1 134.0	6 43.1 -58.0 133.0	6 28.0 -58.0 132.1	6 12.7 -58.0 131.1
8°	6 14.5 -58.2 135.2	5 59.9 -58.2 134.3	5 45.1 -58.1 133.3	5 30.0 -58.0 132.3	5 14.7 -57.9 131.4
9°	5 16.3 -58.2 135.5	5 01.7 -58.1 134.5	4 47.0 -58.1 133.5	4 32.0 -58.0 132.6	4 16.8 -58.0 131.6
10°	4 18.1 -58.3 135.7	4 03.6 -58.1 134.7	3 48.9 -58.1 133.8	3 34.0 -58.0 132.8	3 18.8 -57.9 131.9
11°	3 19.8 -58.2 135.9	3 05.5 -58.2 135.0	2 50.8 -58.1 134.0	2 36.0 -58.1 133.1	2 20.9 -58.0 132.1
12°	2 21.6 -58.2 136.2	2 07.3 -58.2 135.2	1 52.7 -58.1 134.3	1 37.9 -58.0 133.3	1 22.9 -58.0 132.4
13°	1 23.4 -58.2 136.4	1 09.1 -58.1 135.5	0 54.6 -58.1 134.5	0 39.9 -58.0 133.6	0 24.9 -57.9 132.7
14°	0 25.2 -58.2 136.7	0 11.0 -58.2 135.7	-0 03.5 -58.0	-0 18.1 -58.1	-0 33.0 -58.0
15°	-0 33.0 -58.2	-0 47.2 -58.1	-1 01.5 -58.1	-1 16.2 -58.0	-1 31.0 -58.0
16°	-1 31.2 -58.3	-1 45.3 -58.2	-1 59.6 -58.1	-2 14.2 -58.0	-2 29.0 -57.9
17°	-2 29.5 -58.2	-2 43.5 -58.1	-2 57.7 -58.1	-3 12.2 -58.0	-3 26.9 -58.0
18°	-3 27.7 -58.2	-3 41.6 -58.2	-3 55.8 -58.1	-4 10.2 -58.1	-4 24.9 -57.9
19°	-4 25.9 -58.2	-4 39.8 -58.1	-4 53.9 -58.1	-5 08.3 -58.0	-5 22.8 -58.0
20°	-5 24.1 -58.2	-5 37.9 -58.1	-5 52.0 -58.0	-6 06.3 -58.0	-6 20.8 -57.9
21°	-6 22.3 -58.2	-6 36.0 -58.2	-6 50.0 -58.1	-7 04.3 -58.0	-7 18.7 -58.0
22°	-7 20.5 -58.2	-7 34.2 -58.1	-7 48.1 -58.0	-8 02.3 -57.9	-8 16.7 -57.9
23°	-8 18.7 -58.1	-8 32.3 -58.1	-8 46.1 -58.1	-9 00.2 -58.0	-9 14.6 -57.9
24°	-9 16.8 -58.2	-9 30.4 -58.1	-9 44.2 -58.0	-9 58.2 -58.0	
25°					
26°					
27°					
28°					
29°					

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°	12 42.0 -57.8 128.3	12 25.8 -57.8 127.3	12 09.3 -57.6 126.3	11 52.7 -57.6 125.3	11 35.8 -57.5 124.3
1°	11 44.2 -57.8 128.5	11 28.0 -57.7 127.5	11 11.7 -57.7 126.6	10 55.1 -57.7 125.6	10 38.3 -57.6 124.6
2°	10 46.4 -57.9 128.8	10 30.3 -57.8 127.8	10 14.0 -57.8 126.8	9 57.4 -57.6 125.9	9 40.7 -57.6 124.9
3°	9 48.5 -57.8 129.1	9 32.5 -57.8 128.1	9 16.2 -57.7 127.1	8 59.8 -57.7 126.2	8 43.1 -57.6 125.2
4°	8 50.7 -57.9 129.3	8 34.7 -57.8 128.4	8 18.5 -57.7 127.4	8 02.1 -57.7 126.4	7 45.5 -57.6 125.5
5°	7 52.8 -57.8 129.6	7 36.9 -57.8 128.6	7 20.8 -57.8 127.7	7 04.4 -57.7 126.7	6 47.9 -57.6 125.7
6°	6 55.0 -57.9 129.9	6 39.1 -57.8 128.9	6 23.0 -57.7 127.9	6 06.7 -57.6 127.0	5 50.3 -57.7 126.0
7°	5 57.1 -57.9 130.1	5 41.3 -57.8 129.2	5 25.3 -57.8 128.2	5 09.1 -57.7 127.3	4 52.6 -57.6 126.3
8°	4 59.2 -57.9 130.4	4 43.5 -57.9 129.4	4 27.5 -57.8 128.5	4 11.4 -57.8 127.5	3 55.0 -57.7 126.6
9°	4 01.3 -57.9 130.7	3 45.6 -57.8 129.7	3 29.7 -57.7 128.8	3 13.6 -57.7 127.8	2 57.3 -57.6 126.9
10°	3 03.4 -57.9 130.9	2 47.8 -57.8 130.0	2 32.0 -57.8 129.0	2 15.9 -57.7 128.1	1 59.7 -57.7 127.1
11°	2 05.5 -57.9 131.2	1 50.0 -57.9 130.2	1 34.2 -57.8 129.3	1 18.2 -57.7 128.4	1 02.0 -57.6 127.4
12°	1 07.6 -57.9 131.5	0 52.1 -57.8 130.5	0 36.4 -57.8 129.6	0 20.5 -57.7 128.6	0 04.4 -57.7 127.7
13°	0 09.7 -57.9 131.7	-0 05.7 -57.9	-0 21.4 -57.7	-0 37.2 -57.7	-0 53.3 -57.7
14°	-0 48.2 -57.9	-1 03.6 -57.8	-1 19.1 -57.8	-1 34.9 -57.8	-1 51.0 -57.6
15°	-1 46.1 -57.9	-2 01.4 -57.8	-2 16.9 -57.8	-2 32.7 -57.7	-2 48.6 -57.7
16°	-2 44.0 -57.9	-2 59.2 -57.9	-3 14.7 -57.8	-3 30.4 -57.7	-3 46.3 -57.6
17°	-3 41.9 -57.9	-3 57.1 -57.8	-4 12.5 -57.7	-4 28.1 -57.7	-4 43.9 -57.6
18°	-4 39.8 -57.9	-4 54.9 -57.8	-5 10.2 -57.8	-5 25.8 -57.7	-5 41.5 -57.7
19°	-5 37.7 -57.8	-5 52.7 -57.8	-6 08.0 -57.7	-6 23.5 -57.7	-6 39.2 -57.6
20°	-6 35.5 -57.9	-6 50.5 -57.8	-7 05.7 -57.8	-7 21.2 -57.6	-7 36.8 -57.6
21°	-7 33.4 -57.9	-7 48.3 -57.8	-8 03.5 -57.7	-8 18.8 -57.7	-8 34.4 -57.6
22°	-8 31.3 -57.8	-8 46.1 -57.8	-9 01.2 -57.7	-9 16.5 -57.6	-9 32.0 -57.6
23°	-9 29.1 -57.9	-9 43.9 -57.8	-9 58.9 -57.7		
24°					
25°					
26°					
27°					
28°					
29°					

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°	11 18.8 -57.5 123.3	11 01.6 -57.5 122.4	10 44.1 -57.4 121.4	10 26.5 -57.3 120.4	10 08.7 -57.2 119.5
1°	10 21.3 -57.5 123.6	10 04.1 -57.5 122.7	9 46.7 -57.4 121.7	9 29.2 -57.4 120.7	9 11.5 -57.3 119.8
2°	9 23.8 -57.6 123.9	9 06.6 -57.4 123.0	8 49.3 -57.4 122.0	8 31.8 -57.3 121.0	8 14.2 -57.4 120.1
3°	8 26.2 -57.5 124.2	8 09.2 -57.5 123.2	7 51.9 -57.4 122.3	7 34.5 -57.4 121.3	7 16.8 -57.3 120.4
4°	7 28.7 -57.6 124.5	7 11.7 -57.5 123.5	6 54.5 -57.5 122.6	6 37.1 -57.4 121.6	6 19.5 -57.3 120.6
5°	6 31.1 -57.5 124.8	6 14.2 -57.5 123.8	5 57.0 -57.4 122.9	5 39.7 -57.4 121.9	5 22.2 -57.4 120.9
6°	5 33.6 -57.6 125.1	5 16.7 -57.6 124.1	4 59.6 -57.5 123.1	4 42.3 -57.4 122.2	4 24.8 -57.3 121.2
7°	4 36.0 -57.6 125.3	4 19.1 -57.5 124.4	4 02.1 -57.5 123.4	3 44.9 -57.4 122.5	3 27.5 -57.4 121.5
8°	3 38.4 -57.6 125.6	3 21.6 -57.5 124.7	3 04.6 -57.4 123.7	2 47.5 -57.4 122.8	2 30.1 -57.3 121.8
9°	2 40.8 -57.6 125.9	2 24.1 -57.5 125.0	2 07.2 -57.5 124.0	1 50.1 -57.5 123.1	1 32.8 -57.4 122.1
10°	1 43.2 -57.6 126.2	1 26.6 -57.6 125.2	1 09.7 -57.5 124.3	0 52.6 -57.4 123.4	0 35.4 -57.3 122.4
11°	0 45.6 -57.6 126.5	0 29.0 -57.5 125.5	0 12.2 -57.5 124.6	-0 04.8 -57.4	-0 21.9 -57.4
12°	-0 12.0 -57.6	-0 28.5 -57.6	-0 45.3 -57.4	-1 02.2 -57.4	-1 19.3 -57.4
13°	-1 09.6 -57.6	-1 26.1 -57.5	-1 42.7 -57.5	-1 59.6 -57.4	-2 16.7 -57.3
14°	-2 07.2 -57.6	-2 23.6 -57.5	-2 40.2 -57.5	-2 57.0 -57.4	-3 14.0 -57.4
15°	-3 04.8 -57.6	-3 21.1 -57.6	-3 37.7 -57.5	-3 54.4 -57.4	-4 11.4 -57.3
16°	-4 02.4 -57.5	-4 18.7 -57.5	-4 35.2 -57.4	-4 51.8 -57.4	-5 08.7 -57.4
17°	-4 59.9 -57.6	-5 16.2 -57.5	-5 32.6 -57.5	-5 49.2 -57.4	-6 06.1 -57.3
18°	-5 57.5 -57.6	-6 13.7 -57.5	-6 30.1 -57.4	-6 46.6 -57.4	-7 03.4 -57.3
19°	-6 55.1 -57.5	-7 11.2 -57.5	-7 27.5 -57.4	-7 44.0 -57.4	-8 00.7 -57.3
20°	-7 52.6 -57.6	-8 08.7 -57.5	-8 24.9 -57.4	-8 41.4 -57.3	-8 58.0 -57.3
21°	-8 50.2 -57.5	-9 06.2 -57.4	-9 22.3 -57.4	-9 38.7 -57.4	-9 55.3 -57.3
22°	-9 47.7 -57.5				
23°					
24°					
25°					
26°					
27°					
28°					
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°	9 50.8 -57.2 118.5	9 32.7 -57.2 117.5	9 14.4 -57.1 116.5	8 56.0 -57.1 115.6	8 37.4 -57.1 114.6
1°	8 53.6 -57.3 118.8	8 35.5 -57.2 117.8	8 17.3 -57.2 116.9	7 58.9 -57.1 115.9	7 40.3 -57.0 114.9
2°	7 56.3 -57.2 119.1	7 38.3 -57.2 118.1	7 20.1 -57.1 117.2	7 01.8 -57.1 116.2	6 43.3 -57.1 115.2
3°	6 59.1 -57.3 119.4	6 41.1 -57.2 118.4	6 23.0 -57.2 117.5	6 04.7 -57.1 116.5	5 46.2 -57.0 115.6
4°	6 01.8 -57.3 119.7	5 43.9 -57.3 118.7	5 25.8 -57.2 117.8	5 07.6 -57.2 116.8	4 49.2 -57.1 115.9
5°	5 04.5 -57.3 120.0	4 46.6 -57.2 119.0	4 28.6 -57.2 118.1	4 10.4 -57.1 117.1	3 52.1 -57.1 116.2
6°	4 07.2 -57.3 120.3	3 49.4 -57.2 119.3	3 31.4 -57.2 118.4	3 13.3 -57.1 117.4	2 55.0 -57.1 116.5
7°	3 09.9 -57.3 120.6	2 52.2 -57.3 119.6	2 34.2 -57.2 118.7	2 16.2 -57.2 117.7	1 57.9 -57.1 116.8
8°	2 12.6 -57.3 120.9	1 54.9 -57.2 119.9	1 37.0 -57.2 119.0	1 19.0 -57.1 118.0	1 00.8 -57.1 117.1
9°	1 15.3 -57.3 121.2	0 57.7 -57.3 120.2	0 39.8 -57.1 119.3	0 21.9 -57.2 118.4	0 03.7 -57.1 117.4
10°	0 18.0 -57.3 121.5	0 00.4 -57.2 120.5	-0 17.3 -57.2	-0 35.3 -57.1	-0 53.4 -57.1
11°	-0 39.3 -57.3	-0 56.8 -57.3	-1 14.5 -57.2	-1 32.4 -57.2	-1 50.5 -57.0
12°	-1 36.6 -57.3	-1 54.1 -57.2	-2 11.7 -57.2	-2 29.6 -57.1	-2 47.5 -57.1
13°	-2 33.9 -57.3	-2 51.3 -57.3	-3 08.9 -57.2	-3 26.7 -57.1	-3 44.6 -57.1
14°	-3 31.2 -57.3	-3 48.6 -57.2	-4 06.1 -57.2	-4 23.8 -57.2	-4 41.7 -57.1
15°	-4 28.5 -57.3	-4 45.8 -57.2	-5 03.3 -57.2	-5 21.0 -57.1	-5 38.8 -57.0
16°	-5 25.8 -57.3	-5 43.0 -57.3	-6 00.5 -57.1	-6 18.1 -57.1	-6 35.8 -57.1
17°	-6 23.1 -57.2	-6 40.3 -57.2	-6 57.6 -57.2	-7 15.2 -57.1	-7 32.9 -57.0
18°	-7 20.3 -57.3	-7 37.5 -57.2	-7 54.8 -57.1	-8 12.3 -57.0	-8 29.9 -57.0
19°	-8 17.6 -57.2	-8 34.7 -57.2	-8 51.9 -57.1	-9 09.3 -57.1	-9 26.9 -57.0
20°	-9 14.8 -57.3	-9 31.9 -57.1	-9 49.0 -57.1		
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	8 18.7 -57.0 113.7	7 59.8 -57.0 112.7	7 40.8 -56.9 111.7	7 21.7 -56.9 110.8	7 02.4 -56.8 109.8
1°	7 21.7 -57.0 114.0	7 02.8 -56.9 113.0	6 43.9 -56.9 112.1	6 24.8 -56.9 111.1	6 05.6 -56.8 110.2
2°	6 24.7 -57.0 114.3	6 05.9 -57.0 113.3	5 47.0 -56.9 112.4	5 27.9 -56.8 111.4	5 08.8 -56.9 110.5
3°	5 27.7 -57.1 114.6	5 08.9 -57.0 113.7	4 50.1 -57.0 112.7	4 31.1 -56.9 111.8	4 11.9 -56.8 110.8
4°	4 30.6 -57.0 114.9	4 11.9 -56.9 114.0	3 53.1 -56.9 113.0	3 34.2 -56.9 112.1	3 15.1 -56.9 111.1
5°	3 33.6 -57.0 115.2	3 15.0 -57.0 114.3	2 56.2 -57.0 113.3	2 37.3 -56.9 112.4	2 18.2 -56.8 111.4
6°	2 36.6 -57.1 115.5	2 18.0 -57.0 114.6	1 59.2 -56.9 113.6	1 40.4 -56.9 112.7	1 21.4 -56.9 111.8
7°	1 39.5 -57.0 115.9	1 21.0 -57.0 114.9	1 02.3 -56.9 114.0	0 43.5 -56.9 113.0	0 24.5 -56.8 112.1
8°	0 42.5 -57.1 116.2	0 24.0 -57.0 115.2	0 05.4 -57.0 114.3	-0 13.4 -56.9	-0 32.3 -56.9
9°	-0 14.6 -57.0	-0 33.0 -57.0	-0 51.6 -56.9	-1 10.3 -56.9	-1 29.2 -56.8
10°	-1 11.6 -57.0	-1 30.0 -57.0	-1 48.5 -57.0	-2 07.2 -56.9	-2 26.0 -56.9
11°	-2 08.6 -57.1	-2 27.0 -57.0	-2 45.5 -56.9	-3 04.1 -56.9	-3 22.9 -56.8
12°	-3 05.7 -57.0	-3 24.0 -57.0	-3 42.4 -57.0	-4 01.0 -56.9	-4 19.7 -56.9
13°	-4 02.7 -57.0	-4 21.0 -56.9	-4 39.4 -56.9	-4 57.9 -56.9	-5 16.6 -56.8
14°	-4 59.7 -57.1	-5 17.9 -57.0	-5 36.3 -56.9	-5 54.8 -56.8	-6 13.4 -56.8
15°	-5 56.8 -57.0	-6 14.9 -57.0	-6 33.2 -56.9	-6 51.6 -56.9	-7 10.2 -56.8
16°	-6 53.8 -57.0	-7 11.9 -56.9	-7 30.1 -56.9	-7 48.5 -56.8	-8 07.0 -56.8
17°	-7 50.8 -56.9	-8 08.8 -56.9	-8 27.0 -56.9	-8 45.3 -56.8	-9 03.8 -56.8
18°	-8 47.7 -57.0	-9 05.7 -56.9	-9 23.9 -56.8	-9 42.1 -56.8	
19°	-9 44.7 -57.0				
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

# Latitude 70°

# Declination CONTRARY name to 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°	6 43.1 -56.8 108.9	6 23.6 -56.7 107.9	6 04.0 -56.7 107.0	5 44.3 -56.6 106.0	5 24.6 -56.7 105.1
1°	5 46.3 -56.8 109.2	5 26.9 -56.8 108.3	5 07.3 -56.7 107.3	4 47.7 -56.7 106.4	4 27.9 -56.6 105.4
2°	4 49.5 -56.8 109.5	4 30.1 -56.8 108.6	4 10.6 -56.7 107.6	3 51.0 -56.7 106.7	3 31.3 -56.7 105.7
3°	3 52.7 -56.8 109.9	3 33.3 -56.7 108.9	3 13.9 -56.8 108.0	2 54.3 -56.7 107.0	2 34.6 -56.6 106.1
4°	2 55.9 -56.8 110.2	2 36.6 -56.8 109.2	2 17.1 -56.7 108.3	1 57.6 -56.7 107.3	1 38.0 -56.7 106.4
5°	1 59.1 -56.8 110.5	1 39.8 -56.8 109.6	1 20.4 -56.7 108.6	1 00.9 -56.7 107.7	0 41.3 -56.7 106.7
6°	1 02.3 -56.8 110.8	0 43.0 -56.7 109.9	0 23.7 -56.8 108.9	0 04.2 -56.7 108.0	-0 15.4 -56.6
7°	0 05.5 -56.9 111.1	-0 13.7 -56.8	-0 33.1 -56.7	-0 52.5 -56.7	-1 12.0 -56.7
8°	-0 51.4 -56.8	-1 10.5 -56.8	-1 29.8 -56.7	-1 49.2 -56.7	-2 08.7 -56.6
9°	-1 48.2 -56.8	-2 07.3 -56.8	-2 26.5 -56.8	-2 45.9 -56.7	-3 05.3 -56.7
10°	-2 45.0 -56.8	-3 04.1 -56.7	-3 23.3 -56.7	-3 42.6 -56.7	-4 02.0 -56.6
11°	-3 41.8 -56.8	-4 00.8 -56.8	-4 20.0 -56.7	-4 39.3 -56.6	-4 58.6 -56.7
12°	-4 38.6 -56.8	-4 57.6 -56.7	-5 16.7 -56.7	-5 35.9 -56.7	-5 55.3 -56.6
13°	-5 35.4 -56.8	-5 54.3 -56.8	-6 13.4 -56.7	-6 32.6 -56.6	-6 51.9 -56.6
14°	-6 32.2 -56.7	-6 51.1 -56.7	-7 10.1 -56.7	-7 29.2 -56.7	-7 48.5 -56.6
15°	-7 28.9 -56.8	-7 47.8 -56.7	-8 06.8 -56.6	-8 25.9 -56.6	-8 45.1 -56.6
16°	-8 25.7 -56.7	-8 44.5 -56.7	-9 03.4 -56.7	-9 22.5 -56.6	-9 41.7 -56.5
17°	-9 22.4 -56.7	-9 41.2 -56.6			
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	5 04.7 -56.6 104.1	4 44.8 -56.6 103.2	4 24.8 -56.6 102.2	4 04.7 -56.6 101.3	3 44.5 -56.5 100.4
1°	4 08.1 -56.6 104.5	3 48.2 -56.6 103.5	3 28.2 -56.6 102.6	3 08.1 -56.5 101.6	2 48.0 -56.5 100.7
2°	3 11.5 -56.6 104.8	2 51.6 -56.6 103.9	2 31.6 -56.5 102.9	2 11.6 -56.5 102.0	1 51.5 -56.5 101.0
3°	2 14.9 -56.7 105.1	1 55.0 -56.6 104.2	1 35.1 -56.6 103.2	1 15.1 -56.6 102.3	0 55.0 -56.5 101.4
4°	1 18.2 -56.6 105.5	0 58.4 -56.6 104.5	0 38.5 -56.6 103.6	0 18.5 -56.5 102.6	-0 01.5 -56.6
5°	0 21.6 -56.6 105.8	0 01.8 -56.6 104.8	-0 18.1 -56.5	-0 38.0 -56.6	-0 58.1 -56.5
6°	-0 35.0 -56.7	-0 54.8 -56.6	-1 14.6 -56.6	-1 34.6 -56.5	-1 54.6 -56.5
7°	-1 31.7 -56.6	-1 51.4 -56.6	-2 11.2 -56.6	-2 31.1 -56.5	-2 51.1 -56.5
8°	-2 28.3 -56.6	-2 48.0 -56.6	-3 07.8 -56.5	-3 27.6 -56.6	-3 47.6 -56.5
9°	-3 24.9 -56.6	-3 44.6 -56.5	-4 04.3 -56.6	-4 24.2 -56.5	-4 44.1 -56.5
10°	-4 21.5 -56.6	-4 41.1 -56.6	-5 00.9 -56.5	-5 20.7 -56.5	-5 40.6 -56.4
11°	-5 18.1 -56.6	-5 37.7 -56.6	-5 57.4 -56.5	-6 17.2 -56.5	-6 37.0 -56.5
12°	-6 14.7 -56.6	-6 34.3 -56.5	-6 53.9 -56.5	-7 13.7 -56.5	-7 33.5 -56.5
13°	-7 11.3 -56.6	-7 30.8 -56.6	-7 50.4 -56.5	-8 10.2 -56.4	-8 30.0 -56.4
14°	-8 07.9 -56.5	-8 27.4 -56.5	-8 46.9 -56.5	-9 06.6 -56.5	-9 26.4 -56.4
15°	-9 04.4 -56.6	-9 23.9 -56.5	-9 43.4 -56.5		
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data.  
The data on this page is believed to be accurate but no warranty is given for its correctness. Use it only for training and exercising!

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°	3 24.3 -56.5 99.4	3 04.0 -56.4 98.5	2 43.7 -56.4 97.5	2 23.3 -56.4 96.6	2 02.9 -56.4 95.6
1°	2 27.8 -56.5 99.7	2 07.6 -56.5 98.8	1 47.3 -56.5 97.9	1 26.9 -56.4 96.9	1 06.5 -56.4 96.0
2°	1 31.3 -56.5 100.1	1 11.1 -56.5 99.1	0 50.8 -56.5 98.2	0 30.5 -56.5 97.3	0 10.1 -56.4 96.3
3°	0 34.8 -56.5 100.4	0 14.6 -56.5 99.5	-0 05.7 -56.4	-0 26.0 -56.4	-0 46.3 -56.5
4°	-0 21.7 -56.5	-0 41.9 -56.4	-1 02.1 -56.5	-1 22.4 -56.4	-1 42.8 -56.4
5°	-1 18.2 -56.5	-1 38.3 -56.5	-1 58.6 -56.4	-2 18.8 -56.5	-2 39.2 -56.4
6°	-2 14.7 -56.4	-2 34.8 -56.5	-2 55.0 -56.4	-3 15.3 -56.4	-3 35.6 -56.4
7°	-3 11.1 -56.5	-3 31.3 -56.4	-3 51.4 -56.5	-4 11.7 -56.4	-4 32.0 -56.4
8°	-4 07.6 -56.5	-4 27.7 -56.5	-4 47.9 -56.4	-5 08.1 -56.4	-5 28.4 -56.4
9°	-5 04.1 -56.4	-5 24.2 -56.4	-5 44.3 -56.4	-6 04.5 -56.4	-6 24.8 -56.3
10°	-6 00.5 -56.5	-6 20.6 -56.4	-6 40.7 -56.4	-7 00.9 -56.4	-7 21.1 -56.4
11°	-6 57.0 -56.4	-7 17.0 -56.4	-7 37.1 -56.4	-7 57.3 -56.3	-8 17.5 -56.3
12°	-7 53.4 -56.4	-8 13.4 -56.4	-8 33.5 -56.4	-8 53.6 -56.4	-9 13.8 -56.3
13°	-8 49.8 -56.4	-9 09.8 -56.4	-9 29.9 -56.3	-9 50.0 -56.3	
14°	-9 46.2 -56.4				
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	1 42.5 -56.4 94.7	1 22.0 -56.4 93.8	1 01.5 -56.4 92.8	0 41.0 -56.4 91.9	0 20.5 -56.4 90.9
1°	0 46.1 -56.4 95.0	0 25.6 -56.4 94.1	0 05.1 -56.3 93.2	-0 15.4 -56.3	-0 35.9 -56.3
2°	-0 10.3 -56.4	-0 30.8 -56.4	-0 51.2 -56.4	-1 11.7 -56.4	-1 32.2 -56.4
3°	-1 06.7 -56.4	-1 27.2 -56.4	-1 47.6 -56.4	-2 08.1 -56.4	-2 28.6 -56.4
4°	-2 03.1 -56.4	-2 23.6 -56.4	-2 44.0 -56.4	-3 04.5 -56.4	-3 25.0 -56.4
5°	-2 59.5 -56.4	-3 20.0 -56.3	-3 40.4 -56.4	-4 00.9 -56.3	-4 21.4 -56.3
6°	-3 55.9 -56.4	-4 16.3 -56.4	-4 36.8 -56.3	-4 57.2 -56.4	-5 17.7 -56.4
7°	-4 52.3 -56.4	-5 12.7 -56.4	-5 33.1 -56.4	-5 53.6 -56.3	-6 14.1 -56.3
8°	-5 48.7 -56.4	-6 09.1 -56.3	-6 29.5 -56.3	-6 49.9 -56.3	-7 10.4 -56.3
9°	-6 45.1 -56.3	-7 05.4 -56.4	-7 25.8 -56.3	-7 46.2 -56.4	-8 06.7 -56.3
10°	-7 41.4 -56.4	-8 01.8 -56.3	-8 22.1 -56.3	-8 42.6 -56.2	-9 03.0 -56.3
11°	-8 37.8 -56.3	-8 58.1 -56.3	-9 18.4 -56.3	-9 38.8 -56.3	-9 59.3 -56.2
12°	-9 34.1 -56.3	-9 54.4 -56.2			
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

# Latitude 70°

# Declination CONTRARY name to 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 -56.4 90.0	-0 20.5 -56.4			
1°	-0 56.4 -56.4	-1 16.9 -56.4			
2°	-1 52.8 -56.3	-2 13.3 -56.4			
3°	-2 49.1 -56.4	-3 09.7 -56.3			
4°	-3 45.5 -56.4	-4 06.0 -56.4			
5°	-4 41.9 -56.3	-5 02.4 -56.3			
6°	-5 38.2 -56.4	-5 58.7 -56.4			
7°	-6 34.6 -56.3	-6 55.1 -56.3			
8°	-7 30.9 -56.3	-7 51.4 -56.3			
9°	-8 27.2 -56.3	-8 47.7 -56.3			
10°	-9 23.5 -56.2	-9 44.0 -56.2			
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°					
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°					

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data.  
 The data on this page is believed to be accurate but no warranty is given for it's correctness. Use it only for training and exercising!

Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	19 00.0 -60.0 180.0	18 59.8 -60.0 178.9	18 59.3 -60.0 177.9	18 58.4 -60.0 176.8	18 57.1 -60.0 175.8
1°	18 00.0 -60.0 180.0	17 59.8 -60.0 178.9	17 59.3 -60.0 177.9	17 58.4 -60.0 176.8	17 57.1 -59.9 175.8
2°	17 00.0 -60.0 180.0	16 59.8 -60.0 179.0	16 59.3 -60.0 177.9	16 58.4 -60.0 176.9	16 57.2 -60.0 175.8
3°	16 00.0 -60.0 180.0	15 59.8 -60.0 179.0	15 59.3 -60.0 177.9	15 58.4 -60.0 176.9	15 57.2 -60.0 175.8
4°	15 00.0 -60.0 180.0	14 59.8 -60.0 179.0	14 59.3 -60.0 177.9	14 58.4 -60.0 176.9	14 57.2 -60.0 175.9
5°	14 00.0 -60.0 180.0	13 59.8 -60.0 179.0	13 59.3 -60.0 177.9	13 58.4 -60.0 176.9	13 57.2 -60.0 175.9
6°	13 00.0 -60.0 180.0	12 59.8 -60.0 179.0	12 59.3 -60.0 178.0	12 58.4 -60.0 176.9	12 57.2 -60.0 175.9
7°	12 00.0 -60.0 180.0	11 59.8 -60.0 179.0	11 59.3 -60.0 178.0	11 58.4 -59.9 177.0	11 57.2 -60.0 175.9
8°	11 00.0 -60.0 180.0	10 59.8 -60.0 179.0	10 59.3 -60.0 178.0	10 58.5 -60.0 177.0	10 57.2 -59.9 176.0
9°	10 00.0 -60.0 180.0	9 59.8 -60.0 179.0	9 59.3 -60.0 178.0	9 58.5 -60.0 177.0	9 57.3 -60.0 176.0
10°	9 00.0 -60.0 180.0	8 59.8 -60.0 179.0	8 59.3 -60.0 178.0	8 58.5 -60.0 177.0	8 57.3 -60.0 176.0
11°	8 00.0 -60.0 180.0	7 59.8 -60.0 179.0	7 59.3 -60.0 178.0	7 58.5 -60.0 177.0	7 57.3 -60.0 176.0
12°	7 00.0 -60.0 180.0	6 59.8 -60.0 179.0	6 59.3 -60.0 178.0	6 58.5 -60.0 177.0	6 57.3 -60.0 176.1
13°	6 00.0 -60.0 180.0	5 59.8 -60.0 179.0	5 59.3 -60.0 178.0	5 58.5 -60.0 177.1	5 57.3 -60.0 176.1
14°	5 00.0 -60.0 180.0	4 59.8 -60.0 179.0	4 59.3 -60.0 178.1	4 58.5 -60.0 177.1	4 57.3 -59.9 176.1
15°	4 00.0 -60.0 180.0	3 59.8 -60.0 179.0	3 59.3 -60.0 178.1	3 58.5 -60.0 177.1	3 57.4 -60.0 176.1
16°	3 00.0 -60.0 180.0	2 59.8 -60.0 179.0	2 59.3 -60.0 178.1	2 58.5 -60.0 177.1	2 57.4 -60.0 176.2
17°	2 00.0 -60.0 180.0	1 59.8 -60.0 179.0	1 59.3 -59.9 178.1	1 58.5 -60.0 177.1	1 57.4 -60.0 176.2
18°	1 00.0 -60.0 180.0	0 59.8 -60.0 179.0	0 59.4 -60.0 178.1	0 58.5 -60.0 177.1	0 57.4 -60.0 176.2
19°	0 00.0 -60.0 180.0	-0 00.2 -60.0	-0 00.6 -60.0	-0 01.5 -59.9	-0 02.6 -60.0
20°	-1 00.0 -60.0	-1 00.2 -60.0	-1 00.6 -60.0	-1 01.4 -60.0	-1 02.6 -59.9
21°	-2 00.0 -60.0	-2 00.2 -60.0	-2 00.6 -60.0	-2 01.4 -60.0	-2 02.5 -60.0
22°	-3 00.0 -60.0	-3 00.2 -60.0	-3 00.6 -60.0	-3 01.4 -60.0	-3 02.5 -60.0
23°	-4 00.0 -60.0	-4 00.2 -60.0	-4 00.6 -60.0	-4 01.4 -60.0	-4 02.5 -60.0
24°	-5 00.0 -60.0	-5 00.2 -60.0	-5 00.6 -60.0	-5 01.4 -60.0	-5 02.5 -60.0
25°	-6 00.0 -60.0	-6 00.2 -60.0	-6 00.6 -60.0	-6 01.4 -60.0	-6 02.5 -60.0
26°	-7 00.0 -60.0	-7 00.2 -60.0	-7 00.6 -60.0	-7 01.4 -60.0	-7 02.5 -60.0
27°	-8 00.0 -60.0	-8 00.2 -60.0	-8 00.6 -60.0	-8 01.4 -60.0	-8 02.5 -59.9
28°	-9 00.0 -60.0	-9 00.2 -60.0	-9 00.6 -60.0	-9 01.4 -60.0	-9 02.4 -60.0
29°					

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°	18 55.5 -60.0 174.7	18 53.5 -59.9 173.7	18 51.2 -60.0 172.6	18 48.5 -59.9 171.5	18 45.4 -59.9 170.5
1°	17 55.5 -59.9 174.7	17 53.6 -60.0 173.7	17 51.2 -59.9 172.6	17 48.6 -60.0 171.6	17 45.5 -59.9 170.5
2°	16 55.6 -60.0 174.8	16 53.6 -60.0 173.7	16 51.3 -60.0 172.7	16 48.6 -59.9 171.6	16 45.6 -59.9 170.6
3°	15 55.6 -60.0 174.8	15 53.6 -59.9 173.8	15 51.3 -59.9 172.7	15 48.7 -59.9 171.7	15 45.7 -59.9 170.7
4°	14 55.6 -60.0 174.8	14 53.7 -60.0 173.8	14 51.4 -60.0 172.8	14 48.8 -60.0 171.7	14 45.8 -59.9 170.7
5°	13 55.6 -59.9 174.9	13 53.7 -60.0 173.8	13 51.4 -59.9 172.8	13 48.8 -59.9 171.8	13 45.9 -60.0 170.8
6°	12 55.7 -60.0 174.9	12 53.7 -59.9 173.9	12 51.5 -60.0 172.9	12 48.9 -59.9 171.8	12 45.9 -59.9 170.8
7°	11 55.7 -60.0 174.9	11 53.8 -60.0 173.9	11 51.5 -59.9 172.9	11 49.0 -60.0 171.9	11 46.0 -59.9 170.9
8°	10 55.7 -60.0 175.0	10 53.8 -59.9 173.9	10 51.6 -60.0 172.9	10 49.0 -59.9 171.9	10 46.1 -59.9 170.9
9°	9 55.7 -59.9 175.0	9 53.9 -60.0 174.0	9 51.6 -59.9 173.0	9 49.1 -60.0 172.0	9 46.2 -59.9 171.0
10°	8 55.8 -60.0 175.0	8 53.9 -60.0 174.0	8 51.7 -60.0 173.0	8 49.1 -59.9 172.0	8 46.3 -60.0 171.0
11°	7 55.8 -60.0 175.0	7 53.9 -59.9 174.1	7 51.7 -59.9 173.1	7 49.2 -59.9 172.1	7 46.3 -59.9 171.1
12°	6 55.8 -60.0 175.1	6 54.0 -60.0 174.1	6 51.8 -60.0 173.1	6 49.3 -60.0 172.1	6 46.4 -59.9 171.1
13°	5 55.8 -59.9 175.1	5 54.0 -60.0 174.1	5 51.8 -59.9 173.1	5 49.3 -59.9 172.2	5 46.5 -59.9 171.2
14°	4 55.9 -60.0 175.1	4 54.0 -59.9 174.2	4 51.9 -60.0 173.2	4 49.4 -59.9 172.2	4 46.6 -59.9 171.2
15°	3 55.9 -60.0 175.2	3 54.1 -60.0 174.2	3 51.9 -59.9 173.2	3 49.5 -60.0 172.3	3 46.7 -60.0 171.3
16°	2 55.9 -60.0 175.2	2 54.1 -60.0 174.2	2 52.0 -60.0 173.3	2 49.5 -59.9 172.3	2 46.7 -59.9 171.3
17°	1 55.9 -60.0 175.2	1 54.1 -59.9 174.3	1 52.0 -59.9 173.3	1 49.6 -60.0 172.3	1 46.8 -59.9 171.4
18°	0 55.9 -59.9 175.2	0 54.2 -60.0 174.3	0 52.1 -60.0 173.3	0 49.6 -59.9 172.4	0 46.9 -59.9 171.4
19°	-0 04.0 -60.0	-0 05.8 -60.0	-0 07.9 -59.9	-0 10.3 -59.9	-0 13.0 -60.0
20°	-1 04.0 -60.0	-1 05.8 -59.9	-1 07.8 -60.0	-1 10.2 -60.0	-1 13.0 -59.9
21°	-2 04.0 -60.0	-2 05.7 -60.0	-2 07.8 -59.9	-2 10.2 -59.9	-2 12.9 -59.9
22°	-3 04.0 -59.9	-3 05.7 -60.0	-3 07.7 -60.0	-3 10.1 -60.0	-3 12.8 -59.9
23°	-4 03.9 -60.0	-4 05.7 -59.9	-4 07.7 -60.0	-4 10.1 -59.9	-4 12.7 -59.9
24°	-5 03.9 -60.0	-5 05.6 -60.0	-5 07.7 -59.9	-5 10.0 -59.9	-5 12.6 -60.0
25°	-6 03.9 -60.0	-6 05.6 -60.0	-6 07.6 -60.0	-6 09.9 -60.0	-6 12.6 -59.9
26°	-7 03.9 -59.9	-7 05.6 -59.9	-7 07.6 -59.9	-7 09.9 -59.9	-7 12.5 -59.9
27°	-8 03.8 -60.0	-8 05.5 -60.0	-8 07.5 -60.0	-8 09.8 -59.9	-8 12.4 -59.9
28°	-9 03.8 -60.0	-9 05.5 -59.9	-9 07.5 -59.9	-9 09.7 -60.0	-9 12.3 -59.9
29°					

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°	18 42.0 -59.9 169.4	18 38.3 -59.9 168.4	18 34.2 -59.9 167.3	18 29.7 -59.8 166.3	18 24.9 -59.8 165.2
1°	17 42.1 -59.9 169.5	17 38.4 -59.9 168.5	17 34.3 -59.8 167.4	17 29.9 -59.8 166.4	17 25.1 -59.8 165.3
2°	16 42.2 -59.9 169.6	16 38.5 -59.8 168.5	16 34.5 -59.9 167.5	16 30.1 -59.9 166.4	16 25.3 -59.8 165.4
3°	15 42.3 -59.8 169.6	15 38.7 -59.9 168.6	15 34.6 -59.8 167.6	15 30.2 -59.8 166.5	15 25.5 -59.8 165.5
4°	14 42.5 -59.9 169.7	14 38.8 -59.9 168.7	14 34.8 -59.9 167.6	14 30.4 -59.8 166.6	14 25.7 -59.8 165.6
5°	13 42.6 -59.9 169.7	13 38.9 -59.9 168.7	13 34.9 -59.8 167.7	13 30.6 -59.9 166.7	13 25.9 -59.8 165.7
6°	12 42.7 -59.9 169.8	12 39.0 -59.9 168.8	12 35.1 -59.9 167.8	12 30.7 -59.8 166.8	12 26.1 -59.8 165.7
7°	11 42.8 -59.9 169.9	11 39.1 -59.8 168.9	11 35.2 -59.9 167.8	11 30.9 -59.8 166.8	11 26.3 -59.8 165.8
8°	10 42.9 -59.9 169.9	10 39.3 -59.9 168.9	10 35.3 -59.8 167.9	10 31.1 -59.8 166.9	10 26.5 -59.8 165.9
9°	9 43.0 -59.9 170.0	9 39.4 -59.9 169.0	9 35.5 -59.9 168.0	9 31.3 -59.9 167.0	9 26.7 -59.8 166.0
10°	8 43.1 -59.9 170.0	8 39.5 -59.9 169.0	8 35.6 -59.8 168.0	8 31.4 -59.8 167.1	8 26.9 -59.8 166.1
11°	7 43.2 -60.0 170.1	7 39.6 -59.9 169.1	7 35.8 -59.9 168.1	7 31.6 -59.9 167.1	7 27.1 -59.8 166.1
12°	6 43.2 -59.9 170.2	6 39.7 -59.8 169.2	6 35.9 -59.9 168.2	6 31.7 -59.8 167.2	6 27.3 -59.9 166.2
13°	5 43.3 -59.9 170.2	5 39.9 -59.9 169.2	5 36.0 -59.8 168.3	5 31.9 -59.8 167.3	5 27.4 -59.8 166.3
14°	4 43.4 -59.9 170.3	4 40.0 -59.9 169.3	4 36.2 -59.9 168.3	4 32.1 -59.9 167.4	4 27.6 -59.8 166.4
15°	3 43.5 -59.9 170.3	3 40.1 -59.9 169.4	3 36.3 -59.8 168.4	3 32.2 -59.8 167.4	3 27.8 -59.8 166.5
16°	2 43.6 -59.9 170.4	2 40.2 -59.9 169.4	2 36.5 -59.9 168.5	2 32.4 -59.8 167.5	2 28.0 -59.8 166.5
17°	1 43.7 -59.9 170.4	1 40.3 -59.9 169.5	1 36.6 -59.9 168.5	1 32.6 -59.9 167.6	1 28.2 -59.8 166.6
18°	0 43.8 -59.9 170.5	0 40.4 -59.8 169.5	0 36.7 -59.8 168.6	0 32.7 -59.8 167.6	0 28.4 -59.8 166.7
19°	-0 16.1 -59.9	-0 19.4 -59.9	-0 23.1 -59.9	-0 27.1 -59.9	-0 31.4 -59.8
20°	-1 16.0 -59.9	-1 19.3 -59.9	-1 23.0 -59.8	-1 27.0 -59.8	-1 31.2 -59.9
21°	-2 15.9 -59.9	-2 19.2 -59.9	-2 22.8 -59.9	-2 26.8 -59.8	-2 31.1 -59.8
22°	-3 15.8 -59.9	-3 19.1 -59.9	-3 22.7 -59.9	-3 26.6 -59.9	-3 30.9 -59.8
23°	-4 15.7 -59.9	-4 19.0 -59.9	-4 22.6 -59.8	-4 26.5 -59.8	-4 30.7 -59.8
24°	-5 15.6 -59.9	-5 18.9 -59.8	-5 22.4 -59.9	-5 26.3 -59.9	-5 30.5 -59.8
25°	-6 15.5 -59.9	-6 18.7 -59.9	-6 22.3 -59.9	-6 26.2 -59.8	-6 30.3 -59.8
26°	-7 15.4 -59.9	-7 18.6 -59.9	-7 22.2 -59.8	-7 26.0 -59.8	-7 30.1 -59.8
27°	-8 15.3 -59.9	-8 18.5 -59.9	-8 22.0 -59.9	-8 25.8 -59.9	-8 29.9 -59.8
28°	-9 15.2 -59.9	-9 18.4 -59.9	-9 21.9 -59.8	-9 25.7 -59.8	-9 29.7 -59.8
29°					

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°	18 19.7 -59.7 164.2	18 14.2 -59.7 163.1	18 08.4 -59.7 162.1	18 02.2 -59.6 161.0	17 55.7 -59.6 160.0
1°	17 20.0 -59.8 164.3	17 14.5 -59.7 163.2	17 08.7 -59.7 162.2	17 02.6 -59.7 161.1	16 56.1 -59.6 160.1
2°	16 20.2 -59.8 164.4	16 14.8 -59.8 163.3	16 09.0 -59.7 162.3	16 02.9 -59.7 161.3	15 56.5 -59.7 160.2
3°	15 20.4 -59.7 164.5	15 15.0 -59.7 163.4	15 09.3 -59.7 162.4	15 03.2 -59.7 161.4	14 56.8 -59.6 160.3
4°	14 20.7 -59.8 164.5	14 15.3 -59.7 163.5	14 09.6 -59.7 162.5	14 03.5 -59.6 161.5	13 57.2 -59.7 160.4
5°	13 20.9 -59.8 164.6	13 15.6 -59.8 163.6	13 09.9 -59.7 162.6	13 03.9 -59.7 161.6	12 57.5 -59.6 160.6
6°	12 21.1 -59.8 164.7	12 15.8 -59.7 163.7	12 10.2 -59.8 162.7	12 04.2 -59.7 161.7	11 57.9 -59.7 160.7
7°	11 21.3 -59.7 164.8	11 16.1 -59.8 163.8	11 10.4 -59.7 162.8	11 04.5 -59.7 161.8	10 58.2 -59.6 160.8
8°	10 21.6 -59.8 164.9	10 16.3 -59.7 163.9	10 10.7 -59.7 162.9	10 04.8 -59.7 161.9	9 58.6 -59.7 160.9
9°	9 21.8 -59.8 165.0	9 16.6 -59.8 164.0	9 11.0 -59.7 163.0	9 05.1 -59.7 162.0	8 58.9 -59.6 161.0
10°	8 22.0 -59.8 165.1	8 16.8 -59.7 164.1	8 11.3 -59.7 163.1	8 05.4 -59.6 162.1	7 59.3 -59.7 161.1
11°	7 22.2 -59.8 165.2	7 17.1 -59.8 164.2	7 11.6 -59.8 163.2	7 05.8 -59.7 162.2	6 59.6 -59.6 161.2
12°	6 22.4 -59.7 165.2	6 17.3 -59.8 164.3	6 11.8 -59.7 163.3	6 06.1 -59.7 162.3	6 00.0 -59.7 161.3
13°	5 22.7 -59.8 165.3	5 17.5 -59.7 164.4	5 12.1 -59.7 163.4	5 06.4 -59.7 162.4	5 00.3 -59.6 161.4
14°	4 22.9 -59.8 165.4	4 17.8 -59.8 164.4	4 12.4 -59.7 163.5	4 06.7 -59.7 162.5	4 00.7 -59.7 161.5
15°	3 23.1 -59.8 165.5	3 18.0 -59.7 164.5	3 12.7 -59.8 163.6	3 07.0 -59.7 162.6	3 01.0 -59.7 161.6
16°	2 23.3 -59.8 165.6	2 18.3 -59.8 164.6	2 12.9 -59.7 163.7	2 07.3 -59.7 162.7	2 01.3 -59.6 161.8
17°	1 23.5 -59.8 165.7	1 18.5 -59.7 164.7	1 13.2 -59.7 163.8	1 07.6 -59.7 162.8	1 01.7 -59.7 161.9
18°	0 23.7 -59.8 165.7	0 18.8 -59.8 164.8	0 13.5 -59.7 163.9	0 07.9 -59.7 162.9	0 02.0 -59.7 162.0
19°	-0 36.1 -59.7	-0 41.0 -59.8	-0 46.2 -59.8	-0 51.8 -59.7	-0 57.7 -59.6
20°	-1 35.8 -59.8	-1 40.8 -59.7	-1 46.0 -59.7	-1 51.5 -59.7	-1 57.3 -59.7
21°	-2 35.6 -59.8	-2 40.5 -59.8	-2 45.7 -59.7	-2 51.2 -59.7	-2 57.0 -59.6
22°	-3 35.4 -59.8	-3 40.3 -59.7	-3 45.4 -59.7	-3 50.9 -59.7	-3 56.6 -59.7
23°	-4 35.2 -59.8	-4 40.0 -59.8	-4 45.1 -59.8	-4 50.6 -59.7	-4 56.3 -59.7
24°	-5 35.0 -59.8	-5 39.8 -59.7	-5 44.9 -59.7	-5 50.3 -59.7	-5 56.0 -59.6
25°	-6 34.8 -59.8	-6 39.5 -59.8	-6 44.6 -59.7	-6 50.0 -59.7	-6 55.6 -59.7
26°	-7 34.6 -59.7	-7 39.3 -59.7	-7 44.3 -59.7	-7 49.7 -59.6	-7 55.3 -59.6
27°	-8 34.3 -59.8	-8 39.0 -59.8	-8 44.0 -59.8	-8 49.3 -59.7	-8 54.9 -59.7
28°	-9 34.1 -59.8	-9 38.8 -59.7	-9 43.8 -59.7	-9 49.0 -59.7	-9 54.6 -59.6
29°					

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°	17 48.9 -59.6 158.9	17 41.7 -59.6 157.9	17 34.2 -59.5 156.9	17 26.3 -59.4 155.8	17 18.2 -59.5 154.8
1°	16 49.3 -59.6 159.1	16 42.1 -59.5 158.0	16 34.7 -59.6 157.0	16 26.9 -59.5 156.0	16 18.7 -59.4 154.9
2°	15 49.7 -59.6 159.2	15 42.6 -59.6 158.2	15 35.1 -59.5 157.1	15 27.4 -59.5 156.1	15 19.3 -59.4 155.1
3°	14 50.1 -59.6 159.3	14 43.0 -59.6 158.3	14 35.6 -59.5 157.3	14 27.9 -59.5 156.2	14 19.9 -59.5 155.2
4°	13 50.5 -59.6 159.4	13 43.4 -59.5 158.4	13 36.1 -59.5 157.4	13 28.4 -59.5 156.4	13 20.4 -59.4 155.4
5°	12 50.9 -59.6 159.5	12 43.9 -59.6 158.5	12 36.6 -59.6 157.5	12 28.9 -59.4 156.5	12 21.0 -59.5 155.5
6°	11 51.3 -59.7 159.7	11 44.3 -59.6 158.7	11 37.0 -59.5 157.6	11 29.5 -59.5 156.6	11 21.5 -59.4 155.6
7°	10 51.6 -59.6 159.8	10 44.7 -59.5 158.8	10 37.5 -59.5 157.8	10 30.0 -59.5 156.8	10 22.1 -59.5 155.8
8°	9 52.0 -59.6 159.9	9 45.2 -59.6 158.9	9 38.0 -59.6 157.9	9 30.5 -59.5 156.9	9 22.6 -59.4 155.9
9°	8 52.4 -59.6 160.0	8 45.6 -59.6 159.0	8 38.4 -59.5 158.0	8 31.0 -59.5 157.0	8 23.2 -59.5 156.0
10°	7 52.8 -59.6 160.1	7 46.0 -59.6 159.1	7 38.9 -59.6 158.1	7 31.5 -59.5 157.2	7 23.7 -59.4 156.2
11°	6 53.2 -59.6 160.2	6 46.4 -59.6 159.3	6 39.3 -59.5 158.3	6 32.0 -59.6 157.3	6 24.3 -59.5 156.3
12°	5 53.6 -59.7 160.3	5 46.8 -59.6 159.4	5 39.8 -59.6 158.4	5 32.4 -59.5 157.4	5 24.8 -59.5 156.4
13°	4 53.9 -59.6 160.5	4 47.2 -59.5 159.5	4 40.2 -59.5 158.5	4 32.9 -59.5 157.5	4 25.3 -59.4 156.6
14°	3 54.3 -59.6 160.6	3 47.7 -59.6 159.6	3 40.7 -59.6 158.6	3 33.4 -59.5 157.7	3 25.9 -59.5 156.7
15°	2 54.7 -59.6 160.7	2 48.1 -59.6 159.7	2 41.1 -59.5 158.8	2 33.9 -59.5 157.8	2 26.4 -59.5 156.8
16°	1 55.1 -59.7 160.8	1 48.5 -59.6 159.8	1 41.6 -59.6 158.9	1 34.4 -59.5 157.9	1 26.9 -59.5 157.0
17°	0 55.4 -59.6 160.9	0 48.9 -59.6 160.0	0 42.0 -59.5 159.0	0 34.9 -59.5 158.1	0 27.4 -59.4 157.1
18°	-0 04.2 -59.6	-0 10.7 -59.6	-0 17.5 -59.6	-0 24.6 -59.5	-0 32.0 -59.5
19°	-1 03.8 -59.7	-1 10.3 -59.6	-1 17.1 -59.5	-1 24.1 -59.5	-1 31.5 -59.5
20°	-2 03.5 -59.6	-2 09.9 -59.6	-2 16.6 -59.6	-2 23.6 -59.6	-2 31.0 -59.4
21°	-3 03.1 -59.6	-3 09.5 -59.6	-3 16.2 -59.5	-3 23.2 -59.5	-3 30.4 -59.5
22°	-4 02.7 -59.6	-4 09.1 -59.5	-4 15.7 -59.6	-4 22.7 -59.5	-4 29.9 -59.5
23°	-5 02.3 -59.6	-5 08.6 -59.6	-5 15.3 -59.5	-5 22.2 -59.5	-5 29.4 -59.4
24°	-6 01.9 -59.7	-6 08.2 -59.6	-6 14.8 -59.6	-6 21.7 -59.5	-6 28.8 -59.5
25°	-7 01.6 -59.6	-7 07.8 -59.6	-7 14.4 -59.5	-7 21.2 -59.5	-7 28.3 -59.5
26°	-8 01.2 -59.6	-8 07.4 -59.6	-8 13.9 -59.5	-8 20.7 -59.5	-8 27.8 -59.4
27°	-9 00.8 -59.6	-9 07.0 -59.6	-9 13.4 -59.6	-9 20.2 -59.5	-9 27.2 -59.5
28°					
29°					

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°	17 09.7 -59.4 153.7	17 00.9 -59.3 152.7	16 51.8 -59.3 151.7	16 42.4 -59.3 150.6	16 32.6 -59.2 149.6
1°	16 10.3 -59.4 153.9	16 01.6 -59.4 152.9	15 52.5 -59.3 151.8	15 43.1 -59.2 150.8	15 33.4 -59.1 149.8
2°	15 10.9 -59.4 154.0	15 02.2 -59.3 153.0	14 53.2 -59.3 152.0	14 43.9 -59.3 151.0	14 34.3 -59.3 150.0
3°	14 11.5 -59.4 154.2	14 02.9 -59.4 153.2	13 53.9 -59.3 152.2	13 44.6 -59.2 151.1	13 35.0 -59.2 150.1
4°	13 12.1 -59.4 154.3	13 03.5 -59.3 153.3	12 54.6 -59.3 152.3	12 45.4 -59.3 151.3	12 35.8 -59.2 150.3
5°	12 12.7 -59.4 154.5	12 04.2 -59.4 153.5	11 55.3 -59.3 152.5	11 46.1 -59.3 151.5	11 36.6 -59.2 150.5
6°	11 13.3 -59.4 154.6	11 04.8 -59.4 153.6	10 56.0 -59.3 152.6	10 46.8 -59.2 151.6	10 37.4 -59.2 150.6
7°	10 13.9 -59.4 154.8	10 05.4 -59.3 153.8	9 56.7 -59.4 152.8	9 47.6 -59.3 151.8	9 38.2 -59.2 150.8
8°	9 14.5 -59.4 154.9	9 06.1 -59.4 153.9	8 57.3 -59.3 152.9	8 48.3 -59.3 151.9	8 39.0 -59.3 150.9
9°	8 15.1 -59.4 155.1	8 06.7 -59.4 154.1	7 58.0 -59.3 153.1	7 49.0 -59.3 152.1	7 39.7 -59.2 151.1
10°	7 15.7 -59.4 155.2	7 07.3 -59.3 154.2	6 58.7 -59.4 153.2	6 49.7 -59.3 152.2	6 40.5 -59.2 151.3
11°	6 16.3 -59.5 155.3	6 08.0 -59.4 154.4	5 59.3 -59.3 153.4	5 50.4 -59.2 152.4	5 41.3 -59.3 151.4
12°	5 16.8 -59.4 155.5	5 08.6 -59.4 154.5	5 00.0 -59.3 153.5	4 51.2 -59.3 152.6	4 42.0 -59.2 151.6
13°	4 17.4 -59.4 155.6	4 09.2 -59.4 154.6	4 00.7 -59.4 153.7	3 51.9 -59.3 152.7	3 42.8 -59.3 151.7
14°	3 18.0 -59.4 155.7	3 09.8 -59.4 154.8	3 01.3 -59.3 153.8	2 52.6 -59.3 152.9	2 43.5 -59.2 151.9
15°	2 18.6 -59.5 155.9	2 10.4 -59.4 154.9	2 02.0 -59.3 154.0	1 53.3 -59.3 153.0	1 44.3 -59.3 152.1
16°	1 19.1 -59.4 156.0	1 11.0 -59.3 155.1	1 02.7 -59.4 154.1	0 54.0 -59.3 153.2	0 45.0 -59.2 152.2
17°	0 19.7 -59.4 156.2	0 11.7 -59.4 155.2	0 03.3 -59.3 154.3	-0 05.3 -59.3	-0 14.2 -59.3
18°	-0 39.7 -59.5	-0 47.7 -59.4	-0 56.0 -59.4	-1 04.6 -59.3	-1 13.5 -59.2
19°	-1 39.2 -59.4	-1 47.1 -59.4	-1 55.4 -59.3	-2 03.9 -59.3	-2 12.7 -59.3
20°	-2 38.6 -59.4	-2 46.5 -59.4	-2 54.7 -59.3	-3 03.2 -59.3	-3 12.0 -59.2
21°	-3 38.0 -59.4	-3 45.9 -59.4	-3 54.0 -59.4	-4 02.5 -59.3	-4 11.2 -59.2
22°	-4 37.4 -59.5	-4 45.3 -59.3	-4 53.4 -59.3	-5 01.8 -59.3	-5 10.4 -59.3
23°	-5 36.9 -59.4	-5 44.6 -59.4	-5 52.7 -59.3	-6 01.1 -59.2	-6 09.7 -59.2
24°	-6 36.3 -59.4	-6 44.0 -59.4	-6 52.0 -59.4	-7 00.3 -59.3	-7 08.9 -59.3
25°	-7 35.7 -59.4	-7 43.4 -59.4	-7 51.4 -59.3	-7 59.6 -59.3	-8 08.2 -59.2
26°	-8 35.1 -59.4	-8 42.8 -59.3	-8 50.7 -59.3	-8 58.9 -59.3	-9 07.4 -59.2
27°	-9 34.5 -59.5	-9 42.1 -59.4	-9 50.0 -59.3	-9 58.2 -59.3	
28°					
29°					

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°	16 22.6 -59.1 148.6	16 12.3 -59.1 147.6	16 01.6 -59.0 146.5	15 50.7 -58.9 145.5	15 39.5 -58.9 144.5
1°	15 23.5 -59.2 148.8	15 13.2 -59.1 147.7	15 02.6 -59.0 146.7	14 51.8 -59.0 145.7	14 40.6 -58.9 144.7
2°	14 24.3 -59.1 148.9	14 14.1 -59.1 147.9	14 03.6 -59.1 146.9	13 52.8 -59.0 145.9	13 41.7 -59.0 144.9
3°	13 25.2 -59.2 149.1	13 15.0 -59.1 148.1	13 04.5 -59.0 147.1	12 53.8 -59.0 146.1	12 42.7 -58.9 145.1
4°	12 26.0 -59.1 149.3	12 15.9 -59.1 148.3	12 05.5 -59.1 147.3	11 54.8 -59.0 146.3	11 43.8 -59.0 145.3
5°	11 26.9 -59.2 149.5	11 16.8 -59.1 148.5	11 06.4 -59.1 147.5	10 55.8 -59.1 146.5	10 44.8 -58.9 145.5
6°	10 27.7 -59.2 149.6	10 17.7 -59.2 148.6	10 07.3 -59.0 147.6	9 56.7 -59.0 146.6	9 45.9 -59.0 145.6
7°	9 28.5 -59.2 149.8	9 18.5 -59.1 148.8	9 08.3 -59.1 147.8	8 57.7 -59.0 146.8	8 46.9 -59.0 145.8
8°	8 29.3 -59.2 150.0	8 19.4 -59.1 149.0	8 09.2 -59.1 148.0	7 58.7 -59.0 147.0	7 47.9 -59.0 146.0
9°	7 30.1 -59.1 150.1	7 20.3 -59.2 149.1	7 10.1 -59.1 148.2	6 59.7 -59.1 147.2	6 48.9 -59.0 146.2
10°	6 31.0 -59.2 150.3	6 21.1 -59.1 149.3	6 11.0 -59.1 148.3	6 00.6 -59.0 147.4	5 49.9 -58.9 146.4
11°	5 31.8 -59.2 150.5	5 22.0 -59.2 149.5	5 11.9 -59.1 148.5	5 01.6 -59.1 147.5	4 51.0 -59.0 146.6
12°	4 32.6 -59.2 150.6	4 22.8 -59.1 149.7	4 12.8 -59.1 148.7	4 02.5 -59.0 147.7	3 52.0 -59.0 146.8
13°	3 33.4 -59.2 150.8	3 23.7 -59.2 149.8	3 13.7 -59.1 148.9	3 03.5 -59.1 147.9	2 53.0 -59.0 146.9
14°	2 34.2 -59.2 150.9	2 24.5 -59.1 150.0	2 14.6 -59.1 149.0	2 04.4 -59.0 148.1	1 54.0 -59.0 147.1
15°	1 35.0 -59.2 151.1	1 25.4 -59.2 150.2	1 15.5 -59.1 149.2	1 05.4 -59.1 148.3	0 55.0 -59.0 147.3
16°	0 35.8 -59.2 151.3	0 26.2 -59.1 150.3	0 16.4 -59.1 149.4	0 06.3 -59.0 148.4	-0 04.0 -59.0
17°	-0 23.4 -59.2	-0 32.9 -59.2	-0 42.7 -59.1	-0 52.7 -59.0	-1 03.0 -59.0
18°	-1 22.6 -59.2	-1 32.1 -59.1	-1 41.8 -59.1	-1 51.7 -59.1	-2 02.0 -59.0
19°	-2 21.8 -59.2	-2 31.2 -59.1	-2 40.9 -59.1	-2 50.8 -59.0	-3 01.0 -59.0
20°	-3 21.0 -59.2	-3 30.3 -59.2	-3 40.0 -59.1	-3 49.8 -59.1	-4 00.0 -59.0
21°	-4 20.2 -59.2	-4 29.5 -59.1	-4 39.1 -59.0	-4 48.9 -59.0	-4 59.0 -59.0
22°	-5 19.4 -59.2	-5 28.6 -59.2	-5 38.1 -59.1	-5 47.9 -59.1	-5 58.0 -59.0
23°	-6 18.6 -59.2	-6 27.8 -59.1	-6 37.2 -59.1	-6 47.0 -59.0	-6 57.0 -58.9
24°	-7 17.8 -59.2	-7 26.9 -59.2	-7 36.3 -59.1	-7 46.0 -59.0	-7 55.9 -59.0
25°	-8 17.0 -59.2	-8 26.1 -59.1	-8 35.4 -59.1	-8 45.0 -59.1	-8 54.9 -59.0
26°	-9 16.2 -59.1	-9 25.2 -59.1	-9 34.5 -59.1	-9 44.1 -59.0	-9 53.9 -58.9
27°					
28°					
29°					

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°	15 28.0 -58.8 143.5	15 16.3 -58.8 142.5	15 04.2 -58.7 141.4	14 51.9 -58.7 140.4	14 39.4 -58.7 139.4
1°	14 29.2 -58.9 143.7	14 17.5 -58.9 142.7	14 05.5 -58.8 141.7	13 53.2 -58.7 140.6	13 40.7 -58.6 139.6
2°	13 30.3 -58.9 143.9	13 18.6 -58.8 142.9	13 06.7 -58.8 141.9	12 54.5 -58.7 140.9	12 42.1 -58.7 139.9
3°	12 31.4 -58.9 144.1	12 19.8 -58.8 143.1	12 07.9 -58.8 142.1	11 55.8 -58.7 141.1	11 43.4 -58.7 140.1
4°	11 32.5 -58.9 144.3	11 21.0 -58.9 143.3	11 09.1 -58.7 142.3	10 57.1 -58.8 141.3	10 44.7 -58.7 140.3
5°	10 33.6 -58.9 144.5	10 22.1 -58.8 143.5	10 10.4 -58.8 142.5	9 58.3 -58.7 141.5	9 46.0 -58.7 140.5
6°	9 34.7 -58.9 144.7	9 23.3 -58.9 143.7	9 11.6 -58.9 142.7	8 59.6 -58.8 141.7	8 47.3 -58.7 140.7
7°	8 35.8 -58.9 144.8	8 24.4 -58.9 143.9	8 12.7 -58.8 142.9	8 00.8 -58.7 141.9	7 48.6 -58.7 140.9
8°	7 36.9 -59.0 145.0	7 25.5 -58.8 144.1	7 13.9 -58.8 143.1	7 02.1 -58.8 142.1	6 49.9 -58.7 141.1
9°	6 37.9 -58.9 145.2	6 26.7 -58.9 144.3	6 15.1 -58.8 143.3	6 03.3 -58.8 142.3	5 51.2 -58.7 141.3
10°	5 39.0 -58.9 145.4	5 27.8 -58.9 144.4	5 16.3 -58.8 143.5	5 04.5 -58.8 142.5	4 52.5 -58.7 141.5
11°	4 40.1 -59.0 145.6	4 28.9 -58.9 144.6	4 17.5 -58.9 143.7	4 05.7 -58.7 142.7	3 53.8 -58.7 141.7
12°	3 41.1 -58.9 145.8	3 30.0 -58.9 144.8	3 18.6 -58.8 143.9	3 07.0 -58.8 142.9	2 55.1 -58.8 141.9
13°	2 42.2 -59.0 146.0	2 31.1 -58.9 145.0	2 19.8 -58.8 144.1	2 08.2 -58.8 143.1	1 56.3 -58.7 142.2
14°	1 43.2 -58.9 146.2	1 32.2 -58.9 145.2	1 21.0 -58.9 144.3	1 09.4 -58.8 143.3	0 57.6 -58.7 142.4
15°	0 44.3 -59.0 146.4	0 33.3 -58.9 145.4	0 22.1 -58.8 144.5	0 10.6 -58.8 143.5	-0 01.1 -58.7
16°	-0 14.7 -58.9	-0 25.6 -58.8	-0 36.7 -58.9	-0 48.2 -58.7	-0 59.8 -58.8
17°	-1 13.6 -58.9	-1 24.4 -58.9	-1 35.6 -58.8	-1 46.9 -58.8	-1 58.6 -58.7
18°	-2 12.5 -59.0	-2 23.3 -58.9	-2 34.4 -58.8	-2 45.7 -58.8	-2 57.3 -58.7
19°	-3 11.5 -58.9	-3 22.2 -58.9	-3 33.2 -58.9	-3 44.5 -58.8	-3 56.0 -58.7
20°	-4 10.4 -59.0	-4 21.1 -58.9	-4 32.1 -58.8	-4 43.3 -58.7	-4 54.7 -58.8
21°	-5 09.4 -58.9	-5 20.0 -58.9	-5 30.9 -58.8	-5 42.0 -58.8	-5 53.5 -58.7
22°	-6 08.3 -58.9	-6 18.9 -58.8	-6 29.7 -58.8	-6 40.8 -58.8	-6 52.2 -58.7
23°	-7 07.2 -58.9	-7 17.7 -58.9	-7 28.5 -58.8	-7 39.6 -58.7	-7 50.9 -58.7
24°	-8 06.1 -59.0	-8 16.6 -58.9	-8 27.3 -58.9	-8 38.3 -58.8	-8 49.6 -58.7
25°	-9 05.1 -58.9	-9 15.5 -58.8	-9 26.2 -58.8	-9 37.1 -58.7	-9 48.3 -58.6
26°					
27°					
28°					
29°					

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°	14 26.5 -58.6 138.4	14 13.4 -58.5 137.4	14 00.1 -58.5 136.4	13 46.5 -58.4 135.4	13 32.6 -58.3 134.4
1°	13 27.9 -58.6 138.6	13 14.9 -58.5 137.6	13 01.6 -58.5 136.6	12 48.1 -58.5 135.6	12 34.3 -58.4 134.6
2°	12 29.3 -58.6 138.9	12 16.4 -58.6 137.9	12 03.1 -58.5 136.9	11 49.6 -58.4 135.9	11 35.9 -58.4 134.9
3°	11 30.7 -58.6 139.1	11 17.8 -58.6 138.1	11 04.6 -58.5 137.1	10 51.2 -58.5 136.1	10 37.5 -58.4 135.1
4°	10 32.1 -58.6 139.3	10 19.2 -58.5 138.3	10 06.1 -58.5 137.3	9 52.7 -58.4 136.3	9 39.1 -58.4 135.3
5°	9 33.5 -58.7 139.5	9 20.7 -58.6 138.5	9 07.6 -58.5 137.5	8 54.3 -58.5 136.6	8 40.7 -58.4 135.6
6°	8 34.8 -58.6 139.7	8 22.1 -58.6 138.7	8 09.1 -58.6 137.8	7 55.8 -58.5 136.8	7 42.3 -58.4 135.8
7°	7 36.2 -58.7 139.9	7 23.5 -58.6 139.0	7 10.5 -58.5 138.0	6 57.3 -58.4 137.0	6 43.9 -58.4 136.0
8°	6 37.5 -58.6 140.1	6 24.9 -58.6 139.2	6 12.0 -58.5 138.2	5 58.9 -58.5 137.2	5 45.5 -58.5 136.3
9°	5 38.9 -58.7 140.4	5 26.3 -58.6 139.4	5 13.5 -58.6 138.4	5 00.4 -58.5 137.5	4 47.0 -58.4 136.5
10°	4 40.2 -58.6 140.6	4 27.7 -58.6 139.6	4 14.9 -58.5 138.6	4 01.9 -58.5 137.7	3 48.6 -58.4 136.7
11°	3 41.6 -58.7 140.8	3 29.1 -58.6 139.8	3 16.4 -58.6 138.9	3 03.4 -58.5 137.9	2 50.2 -58.5 136.9
12°	2 42.9 -58.7 141.0	2 30.5 -58.6 140.0	2 17.8 -58.6 139.1	2 04.9 -58.5 138.1	1 51.7 -58.4 137.2
13°	1 44.2 -58.6 141.2	1 31.9 -58.7 140.2	1 19.2 -58.5 139.3	1 06.4 -58.5 138.3	0 53.3 -58.5 137.4
14°	0 45.6 -58.7 141.4	0 33.2 -58.6 140.5	0 20.7 -58.6 139.5	0 07.9 -58.5 138.6	-0 05.2 -58.4
15°	-0 13.1 -58.7	-0 25.4 -58.6	-0 37.9 -58.5	-0 50.6 -58.5	-1 03.6 -58.5
16°	-1 11.8 -58.7	-1 24.0 -58.6	-1 36.4 -58.6	-1 49.1 -58.5	-2 02.1 -58.4
17°	-2 10.5 -58.6	-2 22.6 -58.6	-2 35.0 -58.5	-2 47.6 -58.5	-3 00.5 -58.4
18°	-3 09.1 -58.7	-3 21.2 -58.6	-3 33.5 -58.6	-3 46.1 -58.5	-3 58.9 -58.5
19°	-4 07.8 -58.7	-4 19.8 -58.6	-4 32.1 -58.5	-4 44.6 -58.5	-4 57.4 -58.4
20°	-5 06.5 -58.6	-5 18.4 -58.6	-5 30.6 -58.6	-5 43.1 -58.5	-5 55.8 -58.4
21°	-6 05.1 -58.7	-6 17.0 -58.6	-6 29.2 -58.5	-6 41.6 -58.5	-6 54.2 -58.5
22°	-7 03.8 -58.6	-7 15.6 -58.6	-7 27.7 -58.6	-7 40.1 -58.4	-7 52.7 -58.4
23°	-8 02.4 -58.7	-8 14.2 -58.6	-8 26.3 -58.5	-8 38.5 -58.5	-8 51.1 -58.4
24°	-9 01.1 -58.6	-9 12.8 -58.6	-9 24.8 -58.5	-9 37.0 -58.5	-9 49.5 -58.4
25°	-9 59.7 -58.6				
26°					
27°					
28°					
29°					

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°	13 18.6 -58.3 133.4	13 04.3 -58.3 132.4	12 49.7 -58.2 131.4	12 35.0 -58.2 130.4	12 20.0 -58.1 129.4
1°	12 20.3 -58.3 133.6	12 06.0 -58.2 132.6	11 51.5 -58.2 131.7	11 36.8 -58.1 130.7	11 21.9 -58.1 129.7
2°	11 22.0 -58.4 133.9	11 07.8 -58.3 132.9	10 53.3 -58.2 131.9	10 38.7 -58.2 130.9	10 23.8 -58.1 129.9
3°	10 23.6 -58.3 134.1	10 09.5 -58.3 133.1	9 55.1 -58.2 132.1	9 40.5 -58.2 131.2	9 25.7 -58.1 130.2
4°	9 25.3 -58.4 134.4	9 11.2 -58.3 133.4	8 56.9 -58.2 132.4	8 42.3 -58.1 131.4	8 27.6 -58.1 130.4
5°	8 26.9 -58.3 134.6	8 12.9 -58.3 133.6	7 58.7 -58.3 132.6	7 44.2 -58.2 131.7	7 29.5 -58.2 130.7
6°	7 28.6 -58.4 134.8	7 14.6 -58.3 133.9	7 00.4 -58.2 132.9	6 46.0 -58.2 131.9	6 31.3 -58.1 130.9
7°	6 30.2 -58.4 135.1	6 16.3 -58.3 134.1	6 02.2 -58.3 133.1	5 47.8 -58.2 132.1	5 33.2 -58.2 131.2
8°	5 31.8 -58.3 135.3	5 18.0 -58.3 134.3	5 03.9 -58.3 133.4	4 49.6 -58.2 132.4	4 35.0 -58.1 131.4
9°	4 33.5 -58.4 135.5	4 19.7 -58.4 134.6	4 05.6 -58.2 133.6	3 51.4 -58.2 132.6	3 36.9 -58.2 131.7
10°	3 35.1 -58.4 135.8	3 21.3 -58.3 134.8	3 07.4 -58.3 133.8	2 53.2 -58.2 132.9	2 38.7 -58.1 131.9
11°	2 36.7 -58.4 136.0	2 23.0 -58.3 135.0	2 09.1 -58.3 134.1	1 55.0 -58.3 133.1	1 40.6 -58.2 132.2
12°	1 38.3 -58.4 136.2	1 24.7 -58.3 135.3	1 10.8 -58.2 134.3	0 56.7 -58.2 133.4	0 42.4 -58.1 132.4
13°	0 39.9 -58.4 136.4	0 26.4 -58.4 135.5	0 12.6 -58.3 134.6	-0 01.5 -58.2	-0 15.7 -58.2
14°	-0 18.5 -58.3	-0 32.0 -58.3	-0 45.7 -58.3	-0 59.7 -58.2	-1 13.9 -58.2
15°	-1 16.8 -58.4	-1 30.3 -58.3	-1 44.0 -58.3	-1 57.9 -58.2	-2 12.1 -58.1
16°	-2 15.2 -58.4	-2 28.6 -58.4	-2 42.3 -58.2	-2 56.1 -58.2	-3 10.2 -58.2
17°	-3 13.6 -58.4	-3 27.0 -58.3	-3 40.5 -58.3	-3 54.3 -58.2	-4 08.4 -58.1
18°	-4 12.0 -58.4	-4 25.3 -58.3	-4 38.8 -58.3	-4 52.5 -58.2	-5 06.5 -58.2
19°	-5 10.4 -58.3	-5 23.6 -58.3	-5 37.1 -58.2	-5 50.7 -58.2	-6 04.7 -58.1
20°	-6 08.7 -58.4	-6 21.9 -58.3	-6 35.3 -58.3	-6 48.9 -58.2	-7 02.8 -58.1
21°	-7 07.1 -58.4	-7 20.2 -58.3	-7 33.6 -58.2	-7 47.1 -58.2	-8 00.9 -58.1
22°	-8 05.5 -58.3	-8 18.5 -58.3	-8 31.8 -58.2	-8 45.3 -58.2	-8 59.0 -58.1
23°	-9 03.8 -58.4	-9 16.8 -58.3	-9 30.0 -58.3	-9 43.5 -58.1	-9 57.1 -58.1
24°					
25°					
26°					
27°					
28°					
29°					

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°	12 04.8 -58.0 128.4	11 49.4 -58.0 127.4	11 33.8 -58.0 126.5	11 17.9 -57.8 125.5	11 01.9 -57.8 124.5
1°	11 06.8 -58.1 128.7	10 51.4 -58.0 127.7	10 35.8 -57.9 126.7	10 20.1 -57.9 125.7	10 04.1 -57.8 124.8
2°	10 08.7 -58.0 128.9	9 53.4 -58.0 128.0	9 37.9 -57.9 127.0	9 22.2 -57.9 126.0	9 06.3 -57.8 125.0
3°	9 10.7 -58.1 129.2	8 55.4 -58.0 128.2	8 40.0 -58.0 127.2	8 24.3 -57.9 126.3	8 08.5 -57.9 125.3
4°	8 12.6 -58.1 129.5	7 57.4 -58.0 128.5	7 42.0 -57.9 127.5	7 26.4 -57.9 126.5	7 10.6 -57.8 125.6
5°	7 14.5 -58.0 129.7	6 59.4 -58.0 128.7	6 44.1 -58.0 127.8	6 28.5 -57.9 126.8	6 12.8 -57.9 125.8
6°	6 16.5 -58.1 130.0	6 01.4 -58.0 129.0	5 46.1 -58.0 128.0	5 30.6 -57.9 127.1	5 14.9 -57.8 126.1
7°	5 18.4 -58.1 130.2	5 03.4 -58.1 129.3	4 48.1 -57.9 128.3	4 32.7 -57.9 127.3	4 17.1 -57.9 126.4
8°	4 20.3 -58.1 130.5	4 05.3 -58.0 129.5	3 50.2 -58.0 128.5	3 34.8 -58.0 127.6	3 19.2 -57.9 126.6
9°	3 22.2 -58.1 130.7	3 07.3 -58.1 129.8	2 52.2 -58.0 128.8	2 36.8 -57.9 127.8	2 21.3 -57.9 126.9
10°	2 24.1 -58.1 131.0	2 09.2 -58.0 130.0	1 54.2 -58.0 129.1	1 38.9 -57.9 128.1	1 23.4 -57.8 127.2
11°	1 26.0 -58.1 131.2	1 11.2 -58.1 130.3	0 56.2 -58.0 129.3	0 41.0 -58.0 128.4	0 25.6 -57.9 127.4
12°	0 27.9 -58.1 131.5	0 13.1 -58.0 130.5	-0 01.8 -58.0	-0 17.0 -57.9	-0 32.3 -57.9
13°	-0 30.2 -58.1	-0 44.9 -58.0	-0 59.8 -58.0	-1 14.9 -57.9	-1 30.2 -57.9
14°	-1 28.3 -58.1	-1 42.9 -58.1	-1 57.8 -58.0	-2 12.8 -58.0	-2 28.1 -57.9
15°	-2 26.4 -58.1	-2 41.0 -58.0	-2 55.8 -58.0	-3 10.8 -57.9	-3 26.0 -57.8
16°	-3 24.5 -58.1	-3 39.0 -58.1	-3 53.8 -57.9	-4 08.7 -57.9	-4 23.8 -57.9
17°	-4 22.6 -58.1	-4 37.1 -58.0	-4 51.7 -58.0	-5 06.6 -57.9	-5 21.7 -57.9
18°	-5 20.7 -58.1	-5 35.1 -58.0	-5 49.7 -58.0	-6 04.5 -57.9	-6 19.6 -57.8
19°	-6 18.8 -58.1	-6 33.1 -58.0	-6 47.7 -57.9	-7 02.4 -57.9	-7 17.4 -57.8
20°	-7 16.9 -58.0	-7 31.1 -58.1	-7 45.6 -58.0	-8 00.3 -57.9	-8 15.2 -57.9
21°	-8 14.9 -58.1	-8 29.2 -57.9	-8 43.6 -57.9	-8 58.2 -57.9	-9 13.1 -57.8
22°	-9 13.0 -58.0	-9 27.1 -58.0	-9 41.5 -58.0	-9 56.1 -57.9	
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	10 45.7 -57.7 123.5	10 29.4 -57.7 122.5	10 12.8 -57.6 121.6	9 56.1 -57.6 120.6	9 39.2 -57.6 119.6
1°	9 48.0 -57.8 123.8	9 31.7 -57.7 122.8	9 15.2 -57.7 121.8	8 58.5 -57.6 120.9	8 41.6 -57.5 119.9
2°	8 50.2 -57.8 124.1	8 34.0 -57.8 123.1	8 17.5 -57.7 122.1	8 00.9 -57.7 121.1	7 44.1 -57.6 120.2
3°	7 52.4 -57.7 124.3	7 36.2 -57.7 123.4	7 19.8 -57.7 122.4	7 03.2 -57.6 121.4	6 46.5 -57.6 120.5
4°	6 54.7 -57.8 124.6	6 38.5 -57.8 123.6	6 22.1 -57.7 122.7	6 05.6 -57.6 121.7	5 48.9 -57.6 120.7
5°	5 56.9 -57.8 124.9	5 40.7 -57.7 123.9	5 24.4 -57.7 122.9	5 08.0 -57.7 122.0	4 51.3 -57.6 121.0
6°	4 59.1 -57.9 125.1	4 43.0 -57.8 124.2	4 26.7 -57.7 123.2	4 10.3 -57.7 122.3	3 53.7 -57.6 121.3
7°	4 01.2 -57.8 125.4	3 45.2 -57.7 124.4	3 29.0 -57.7 123.5	3 12.6 -57.6 122.5	2 56.1 -57.6 121.6
8°	3 03.4 -57.8 125.7	2 47.5 -57.8 124.7	2 31.3 -57.7 123.8	2 15.0 -57.7 122.8	1 58.5 -57.6 121.9
9°	2 05.6 -57.8 125.9	1 49.7 -57.8 125.0	1 33.6 -57.7 124.0	1 17.3 -57.6 123.1	1 00.9 -57.7 122.1
10°	1 07.8 -57.9 126.2	0 51.9 -57.8 125.3	0 35.9 -57.7 124.3	0 19.7 -57.7 123.4	0 03.2 -57.6 122.4
11°	0 09.9 -57.8 126.5	-0 05.9 -57.7	-0 21.8 -57.8	-0 38.0 -57.7	-0 54.4 -57.6
12°	-0 47.9 -57.8	-1 03.6 -57.8	-1 19.6 -57.7	-1 35.7 -57.6	-1 52.0 -57.6
13°	-1 45.7 -57.8	-2 01.4 -57.8	-2 17.3 -57.7	-2 33.3 -57.7	-2 49.6 -57.6
14°	-2 43.5 -57.8	-2 59.2 -57.7	-3 15.0 -57.7	-3 31.0 -57.7	-3 47.2 -57.6
15°	-3 41.3 -57.9	-3 56.9 -57.8	-4 12.7 -57.7	-4 28.7 -57.6	-4 44.8 -57.6
16°	-4 39.2 -57.8	-4 54.7 -57.7	-5 10.4 -57.7	-5 26.3 -57.7	-5 42.4 -57.6
17°	-5 37.0 -57.8	-5 52.4 -57.8	-6 08.1 -57.7	-6 24.0 -57.6	-6 40.0 -57.6
18°	-6 34.8 -57.8	-6 50.2 -57.7	-7 05.8 -57.7	-7 21.6 -57.6	-7 37.6 -57.5
19°	-7 32.6 -57.7	-7 47.9 -57.8	-8 03.5 -57.6	-8 19.2 -57.6	-8 35.1 -57.6
20°	-8 30.3 -57.8	-8 45.7 -57.7	-9 01.1 -57.7	-9 16.8 -57.6	-9 32.7 -57.5
21°	-9 28.1 -57.8	-9 43.4 -57.7	-9 58.8 -57.6		
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	9 22.1 -57.5 118.6	9 04.9 -57.5 117.7	8 47.5 -57.4 116.7	8 30.0 -57.4 115.7	8 12.3 -57.3 114.8
1°	8 24.6 -57.5 118.9	8 07.4 -57.4 118.0	7 50.1 -57.4 117.0	7 32.6 -57.4 116.0	7 15.0 -57.3 115.1
2°	7 27.1 -57.5 119.2	7 10.0 -57.5 118.2	6 52.7 -57.5 117.3	6 35.2 -57.4 116.3	6 17.7 -57.4 115.4
3°	6 29.6 -57.6 119.5	6 12.5 -57.5 118.5	5 55.2 -57.4 117.6	5 37.8 -57.4 116.6	5 20.3 -57.3 115.6
4°	5 32.0 -57.5 119.8	5 15.0 -57.5 118.8	4 57.8 -57.5 117.9	4 40.4 -57.4 116.9	4 23.0 -57.4 115.9
5°	4 34.5 -57.6 120.1	4 17.5 -57.5 119.1	4 00.3 -57.4 118.1	3 43.0 -57.4 117.2	3 25.6 -57.4 116.2
6°	3 36.9 -57.5 120.3	3 20.0 -57.5 119.4	3 02.9 -57.5 118.4	2 45.6 -57.4 117.5	2 28.2 -57.3 116.5
7°	2 39.4 -57.6 120.6	2 22.5 -57.5 119.7	2 05.4 -57.4 118.7	1 48.2 -57.4 117.8	1 30.9 -57.4 116.8
8°	1 41.8 -57.6 120.9	1 25.0 -57.6 120.0	1 08.0 -57.5 119.0	0 50.8 -57.4 118.1	0 33.5 -57.4 117.1
9°	0 44.2 -57.5 121.2	0 27.4 -57.5 120.2	0 10.5 -57.5 119.3	-0 06.6 -57.4	-0 23.9 -57.4
10°	-0 13.3 -57.6	-0 30.1 -57.5	-0 47.0 -57.4	-1 04.0 -57.5	-1 21.3 -57.3
11°	-1 10.9 -57.6	-1 27.6 -57.5	-1 44.4 -57.5	-2 01.5 -57.4	-2 18.6 -57.4
12°	-2 08.5 -57.5	-2 25.1 -57.5	-2 41.9 -57.5	-2 58.9 -57.4	-3 16.0 -57.4
13°	-3 06.0 -57.6	-3 22.6 -57.5	-3 39.4 -57.4	-3 56.3 -57.4	-4 13.4 -57.3
14°	-4 03.6 -57.5	-4 20.1 -57.5	-4 36.8 -57.5	-4 53.7 -57.4	-5 10.7 -57.4
15°	-5 01.1 -57.6	-5 17.6 -57.5	-5 34.3 -57.4	-5 51.1 -57.4	-6 08.1 -57.3
16°	-5 58.7 -57.5	-6 15.1 -57.5	-6 31.7 -57.4	-6 48.5 -57.4	-7 05.4 -57.3
17°	-6 56.2 -57.5	-7 12.6 -57.5	-7 29.1 -57.5	-7 45.9 -57.3	-8 02.7 -57.3
18°	-7 53.7 -57.5	-8 10.1 -57.4	-8 26.6 -57.4	-8 43.2 -57.4	-9 00.0 -57.3
19°	-8 51.2 -57.5	-9 07.5 -57.5	-9 24.0 -57.3	-9 40.6 -57.3	-9 57.3 -57.3
20°	-9 48.7 -57.5				
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	7 54.5 -57.3 113.8	7 36.6 -57.3 112.8	7 18.5 -57.2 111.9	7 00.3 -57.1 110.9	6 42.0 -57.1 109.9
1°	6 57.2 -57.3 114.1	6 39.3 -57.2 113.1	6 21.3 -57.2 112.2	6 03.2 -57.2 111.2	5 44.9 -57.2 110.3
2°	5 59.9 -57.3 114.4	5 42.1 -57.3 113.4	5 24.1 -57.2 112.5	5 06.0 -57.2 111.5	4 47.7 -57.1 110.6
3°	5 02.6 -57.3 114.7	4 44.8 -57.3 113.7	4 26.9 -57.3 112.8	4 08.8 -57.2 111.8	3 50.6 -57.2 110.9
4°	4 05.3 -57.3 115.0	3 47.5 -57.2 114.0	3 29.6 -57.2 113.1	3 11.6 -57.2 112.1	2 53.4 -57.1 111.2
5°	3 08.0 -57.3 115.3	2 50.3 -57.3 114.3	2 32.4 -57.2 113.4	2 14.4 -57.2 112.4	1 56.3 -57.2 111.5
6°	2 10.7 -57.3 115.6	1 53.0 -57.3 114.6	1 35.2 -57.3 113.7	1 17.2 -57.2 112.7	0 59.1 -57.1 111.8
7°	1 13.4 -57.4 115.9	0 55.7 -57.3 114.9	0 37.9 -57.2 114.0	0 20.0 -57.2 113.0	0 02.0 -57.2 112.1
8°	0 16.0 -57.3 116.2	-0 01.6 -57.3	-0 19.3 -57.3	-0 37.2 -57.2	-0 55.2 -57.1
9°	-0 41.3 -57.3	-0 58.9 -57.2	-1 16.6 -57.2	-1 34.4 -57.2	-1 52.3 -57.2
10°	-1 38.6 -57.4	-1 56.1 -57.3	-2 13.8 -57.2	-2 31.6 -57.2	-2 49.5 -57.2
11°	-2 36.0 -57.3	-2 53.4 -57.3	-3 11.0 -57.3	-3 28.8 -57.2	-3 46.7 -57.1
12°	-3 33.3 -57.3	-3 50.7 -57.3	-4 08.3 -57.2	-4 26.0 -57.1	-4 43.8 -57.1
13°	-4 30.6 -57.3	-4 48.0 -57.2	-5 05.5 -57.2	-5 23.1 -57.2	-5 40.9 -57.2
14°	-5 27.9 -57.3	-5 45.2 -57.3	-6 02.7 -57.2	-6 20.3 -57.2	-6 38.1 -57.1
15°	-6 25.2 -57.3	-6 42.5 -57.2	-6 59.9 -57.2	-7 17.5 -57.1	-7 35.2 -57.1
16°	-7 22.5 -57.3	-7 39.7 -57.2	-7 57.1 -57.2	-8 14.6 -57.2	-8 32.3 -57.1
17°	-8 19.8 -57.2	-8 36.9 -57.3	-8 54.3 -57.1	-9 11.8 -57.1	-9 29.4 -57.0
18°	-9 17.0 -57.3	-9 34.2 -57.2	-9 51.4 -57.2		
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	6 23.6 -57.1 109.0	6 05.1 -57.1 108.0	5 46.4 -57.0 107.1	5 27.7 -57.0 106.1	5 08.9 -57.0 105.2
1°	5 26.5 -57.1 109.3	5 08.0 -57.1 108.3	4 49.4 -57.0 107.4	4 30.7 -57.0 106.4	4 11.9 -56.9 105.5
2°	4 29.4 -57.1 109.6	4 10.9 -57.0 108.7	3 52.4 -57.1 107.7	3 33.7 -57.0 106.7	3 15.0 -57.0 105.8
3°	3 32.3 -57.1 109.9	3 13.9 -57.1 109.0	2 55.3 -57.0 108.0	2 36.7 -57.0 107.1	2 18.0 -57.0 106.1
4°	2 35.2 -57.1 110.2	2 16.8 -57.1 109.3	1 58.3 -57.1 108.3	1 39.7 -57.0 107.4	1 21.0 -57.0 106.4
5°	1 38.1 -57.2 110.5	1 19.7 -57.1 109.6	1 01.2 -57.0 108.6	0 42.7 -57.0 107.7	0 24.0 -57.0 106.7
6°	0 40.9 -57.1 110.8	0 22.6 -57.1 109.9	0 04.2 -57.1 108.9	-0 14.3 -57.0	-0 33.0 -56.9
7°	-0 16.2 -57.1	-0 34.5 -57.0	-0 52.9 -57.0	-1 11.3 -57.1	-1 29.9 -57.0
8°	-1 13.3 -57.1	-1 31.5 -57.1	-1 49.9 -57.0	-2 08.4 -57.0	-2 26.9 -57.0
9°	-2 10.4 -57.1	-2 28.6 -57.1	-2 46.9 -57.1	-3 05.4 -57.0	-3 23.9 -57.0
10°	-3 07.5 -57.2	-3 25.7 -57.1	-3 44.0 -57.0	-4 02.4 -57.0	-4 20.9 -56.9
11°	-4 04.7 -57.1	-4 22.8 -57.0	-4 41.0 -57.1	-4 59.4 -57.0	-5 17.8 -57.0
12°	-5 01.8 -57.1	-5 19.8 -57.1	-5 38.1 -57.0	-5 56.4 -56.9	-6 14.8 -56.9
13°	-5 58.9 -57.0	-6 16.9 -57.0	-6 35.1 -57.0	-6 53.3 -57.0	-7 11.7 -57.0
14°	-6 55.9 -57.1	-7 13.9 -57.1	-7 32.1 -57.0	-7 50.3 -57.0	-8 08.7 -56.9
15°	-7 53.0 -57.1	-8 11.0 -57.0	-8 29.1 -56.9	-8 47.3 -56.9	-9 05.6 -56.9
16°	-8 50.1 -57.0	-9 08.0 -57.0	-9 26.0 -57.0	-9 44.2 -56.9	
17°	-9 47.1 -57.0				
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	4 50.0 -56.9 104.2	4 31.0 -56.9 103.3	4 12.0 -56.9 102.3	3 52.9 -56.9 101.4	3 33.7 -56.8 100.4
1°	3 53.1 -57.0 104.5	3 34.1 -56.9 103.6	3 15.1 -56.9 102.6	2 56.0 -56.9 101.7	2 36.9 -56.9 100.7
2°	2 56.1 -56.9 104.8	2 37.2 -56.9 103.9	2 18.2 -56.9 103.0	1 59.1 -56.8 102.0	1 40.0 -56.8 101.1
3°	1 59.2 -57.0 105.2	1 40.3 -56.9 104.2	1 21.3 -56.9 103.3	1 02.3 -56.9 102.3	0 43.2 -56.9 101.4
4°	1 02.2 -56.9 105.5	0 43.4 -57.0 104.5	0 24.4 -56.9 103.6	0 05.4 -56.9 102.6	-0 13.7 -56.9
5°	0 05.3 -57.0 105.8	-0 13.6 -56.9	-0 32.5 -56.9	-0 51.5 -56.9	-1 10.6 -56.8
6°	-0 51.7 -56.9	-1 10.5 -56.9	-1 29.4 -56.9	-1 48.4 -56.8	-2 07.4 -56.9
7°	-1 48.6 -57.0	-2 07.4 -56.9	-2 26.3 -56.9	-2 45.2 -56.9	-3 04.3 -56.8
8°	-2 45.6 -56.9	-3 04.3 -57.0	-3 23.2 -56.9	-3 42.1 -56.9	-4 01.1 -56.8
9°	-3 42.5 -57.0	-4 01.3 -56.9	-4 20.1 -56.8	-4 39.0 -56.8	-4 57.9 -56.9
10°	-4 39.5 -56.9	-4 58.2 -56.9	-5 16.9 -56.9	-5 35.8 -56.8	-5 54.8 -56.8
11°	-5 36.4 -56.9	-5 55.1 -56.8	-6 13.8 -56.9	-6 32.6 -56.9	-6 51.6 -56.8
12°	-6 33.3 -56.9	-6 51.9 -56.9	-7 10.7 -56.8	-7 29.5 -56.8	-7 48.4 -56.7
13°	-7 30.2 -56.9	-7 48.8 -56.9	-8 07.5 -56.8	-8 26.3 -56.8	-8 45.1 -56.8
14°	-8 27.1 -56.9	-8 45.7 -56.8	-9 04.3 -56.8	-9 23.1 -56.8	-9 41.9 -56.8
15°	-9 24.0 -56.9	-9 42.5 -56.9			
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	3 14.5 -56.9 99.5	2 55.2 -56.8 98.5	2 35.8 -56.8 97.6	2 16.4 -56.7 96.6	1 57.0 -56.8 95.7
1°	2 17.6 -56.8 99.8	1 58.4 -56.9 98.8	1 39.0 -56.8 97.9	1 19.7 -56.8 96.9	1 00.2 -56.7 96.0
2°	1 20.8 -56.8 100.1	1 01.5 -56.8 99.2	0 42.2 -56.8 98.2	0 22.9 -56.8 97.3	0 03.5 -56.8 96.3
3°	0 24.0 -56.9 100.4	0 04.7 -56.8 99.5	-0 14.6 -56.8	-0 33.9 -56.8	-0 53.3 -56.8
4°	-0 32.9 -56.8	-0 52.1 -56.8	-1 11.4 -56.8	-1 30.7 -56.8	-1 50.1 -56.7
5°	-1 29.7 -56.8	-1 48.9 -56.8	-2 08.2 -56.7	-2 27.5 -56.7	-2 46.8 -56.8
6°	-2 26.5 -56.8	-2 45.7 -56.8	-3 04.9 -56.8	-3 24.2 -56.8	-3 43.6 -56.7
7°	-3 23.3 -56.9	-3 42.5 -56.8	-4 01.7 -56.8	-4 21.0 -56.8	-4 40.3 -56.8
8°	-4 20.2 -56.8	-4 39.3 -56.8	-4 58.5 -56.8	-5 17.8 -56.7	-5 37.1 -56.7
9°	-5 17.0 -56.8	-5 36.1 -56.8	-5 55.3 -56.7	-6 14.5 -56.7	-6 33.8 -56.7
10°	-6 13.8 -56.8	-6 32.9 -56.7	-6 52.0 -56.8	-7 11.2 -56.8	-7 30.5 -56.7
11°	-7 10.6 -56.7	-7 29.6 -56.7	-7 48.8 -56.7	-8 08.0 -56.7	-8 27.2 -56.7
12°	-8 07.3 -56.8	-8 26.4 -56.7	-8 45.5 -56.7	-9 04.7 -56.7	-9 23.9 -56.7
13°	-9 04.1 -56.7	-9 23.1 -56.7	-9 42.2 -56.7		
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	1 37.6 -56.8 94.7	1 18.1 -56.8 93.8	0 58.6 -56.8 92.8	0 39.1 -56.8 91.9	0 19.5 -56.7 90.9
1°	0 40.8 -56.8 95.1	0 21.3 -56.7 94.1	0 01.8 -56.7 93.2	-0 17.7 -56.7	-0 37.2 -56.7
2°	-0 16.0 -56.7	-0 35.4 -56.8	-0 54.9 -56.7	-1 14.4 -56.7	-1 33.9 -56.8
3°	-1 12.7 -56.8	-1 32.2 -56.7	-1 51.6 -56.8	-2 11.1 -56.8	-2 30.7 -56.7
4°	-2 09.5 -56.7	-2 28.9 -56.7	-2 48.4 -56.7	-3 07.9 -56.7	-3 27.4 -56.7
5°	-3 06.2 -56.8	-3 25.6 -56.8	-3 45.1 -56.7	-4 04.6 -56.7	-4 24.1 -56.7
6°	-4 03.0 -56.7	-4 22.4 -56.7	-4 41.8 -56.7	-5 01.3 -56.7	-5 20.8 -56.7
7°	-4 59.7 -56.7	-5 19.1 -56.7	-5 38.5 -56.7	-5 58.0 -56.7	-6 17.5 -56.7
8°	-5 56.4 -56.7	-6 15.8 -56.7	-6 35.2 -56.7	-6 54.7 -56.7	-7 14.2 -56.7
9°	-6 53.1 -56.7	-7 12.5 -56.7	-7 31.9 -56.7	-7 51.4 -56.6	-8 10.9 -56.6
10°	-7 49.8 -56.7	-8 09.2 -56.7	-8 28.6 -56.7	-8 48.0 -56.7	-9 07.5 -56.6
11°	-8 46.5 -56.7	-9 05.9 -56.6	-9 25.3 -56.6	-9 44.7 -56.6	
12°	-9 43.2 -56.6				
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

# Latitude 71°

# Declination CONTRARY name to 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 -56.7 90.0	-0 19.5 -56.8			
1°	-0 56.7 -56.8	-1 16.3 -56.7			
2°	-1 53.5 -56.7	-2 13.0 -56.7			
3°	-2 50.2 -56.7	-3 09.7 -56.7			
4°	-3 46.9 -56.7	-4 06.4 -56.7			
5°	-4 43.6 -56.7	-5 03.1 -56.7			
6°	-5 40.3 -56.7	-5 59.8 -56.7			
7°	-6 37.0 -56.7	-6 56.5 -56.7			
8°	-7 33.7 -56.7	-7 53.2 -56.7			
9°	-8 30.4 -56.6	-8 49.9 -56.6			
10°	-9 27.0 -56.6	-9 46.5 -56.6			
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°					
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°	18 00.0 -60.0 180.0	17 59.8 -60.0 178.9	17 59.3 -60.0 177.9	17 58.5 -60.0 176.8	17 57.3 -60.0 175.8
1°	17 00.0 -60.0 180.0	16 59.8 -60.0 179.0	16 59.3 -60.0 177.9	16 58.5 -60.0 176.9	16 57.3 -60.0 175.8
2°	16 00.0 -60.0 180.0	15 59.8 -60.0 179.0	15 59.3 -60.0 177.9	15 58.5 -60.0 176.9	15 57.3 -60.0 175.8
3°	15 00.0 -60.0 180.0	14 59.8 -60.0 179.0	14 59.3 -60.0 177.9	14 58.5 -60.0 176.9	14 57.3 -60.0 175.9
4°	14 00.0 -60.0 180.0	13 59.8 -60.0 179.0	13 59.3 -60.0 177.9	13 58.5 -60.0 176.9	13 57.3 -59.9 175.9
5°	13 00.0 -60.0 180.0	12 59.8 -60.0 179.0	12 59.3 -60.0 178.0	12 58.5 -60.0 176.9	12 57.4 -60.0 175.9
6°	12 00.0 -60.0 180.0	11 59.8 -60.0 179.0	11 59.3 -60.0 178.0	11 58.5 -60.0 177.0	11 57.4 -60.0 175.9
7°	11 00.0 -60.0 180.0	10 59.8 -60.0 179.0	10 59.3 -60.0 178.0	10 58.5 -60.0 177.0	10 57.4 -60.0 176.0
8°	10 00.0 -60.0 180.0	9 59.8 -60.0 179.0	9 59.3 -59.9 178.0	9 58.5 -60.0 177.0	9 57.4 -60.0 176.0
9°	9 00.0 -60.0 180.0	8 59.8 -60.0 179.0	8 59.4 -60.0 178.0	8 58.5 -59.9 177.0	8 57.4 -60.0 176.0
10°	8 00.0 -60.0 180.0	7 59.8 -60.0 179.0	7 59.4 -60.0 178.0	7 58.6 -60.0 177.0	7 57.4 -60.0 176.0
11°	7 00.0 -60.0 180.0	6 59.8 -60.0 179.0	6 59.4 -60.0 178.0	6 58.6 -60.0 177.0	6 57.4 -59.9 176.0
12°	6 00.0 -60.0 180.0	5 59.8 -60.0 179.0	5 59.4 -60.0 178.0	5 58.6 -60.0 177.0	5 57.5 -60.0 176.1
13°	5 00.0 -60.0 180.0	4 59.8 -60.0 179.0	4 59.4 -60.0 178.0	4 58.6 -60.0 177.1	4 57.5 -60.0 176.1
14°	4 00.0 -60.0 180.0	3 59.8 -60.0 179.0	3 59.4 -60.0 178.1	3 58.6 -60.0 177.1	3 57.5 -60.0 176.1
15°	3 00.0 -60.0 180.0	2 59.8 -60.0 179.0	2 59.4 -60.0 178.1	2 58.6 -60.0 177.1	2 57.5 -60.0 176.1
16°	2 00.0 -60.0 180.0	1 59.8 -60.0 179.0	1 59.4 -60.0 178.1	1 58.6 -60.0 177.1	1 57.5 -60.0 176.2
17°	1 00.0 -60.0 180.0	0 59.8 -60.0 179.0	0 59.4 -60.0 178.1	0 58.6 -60.0 177.1	0 57.5 -60.0 176.2
18°	0 00.0 -60.0 180.0	-0 00.2 -60.0	-0 00.6 -60.0	-0 01.4 -60.0	-0 02.5 -59.9
19°	-1 00.0 -60.0	-1 00.2 -60.0	-1 00.6 -60.0	-1 01.4 -60.0	-1 02.4 -60.0
20°	-2 00.0 -60.0	-2 00.2 -60.0	-2 00.6 -60.0	-2 01.4 -60.0	-2 02.4 -60.0
21°	-3 00.0 -60.0	-3 00.2 -60.0	-3 00.6 -60.0	-3 01.4 -60.0	-3 02.4 -60.0
22°	-4 00.0 -60.0	-4 00.2 -59.9	-4 00.6 -60.0	-4 01.4 -59.9	-4 02.4 -60.0
23°	-5 00.0 -60.0	-5 00.1 -60.0	-5 00.6 -60.0	-5 01.3 -60.0	-5 02.4 -60.0
24°	-6 00.0 -60.0	-6 00.1 -60.0	-6 00.6 -60.0	-6 01.3 -60.0	-6 02.4 -60.0
25°	-7 00.0 -60.0	-7 00.1 -60.0	-7 00.6 -60.0	-7 01.3 -60.0	-7 02.4 -59.9
26°	-8 00.0 -60.0	-8 00.1 -60.0	-8 00.6 -60.0	-8 01.3 -60.0	-8 02.3 -60.0
27°	-9 00.0 -60.0	-9 00.1 -60.0	-9 00.6 -60.0	-9 01.3 -60.0	-9 02.3 -60.0
28°					
29°					

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°	17 55.8 -60.0 174.7	17 53.9 -60.0 173.7	17 51.7 -60.0 172.6	17 49.1 -59.9 171.6	17 46.3 -60.0 170.5
1°	16 55.8 -60.0 174.8	16 53.9 -59.9 173.7	16 51.7 -59.9 172.7	16 49.2 -59.9 171.6	16 46.3 -59.9 170.6
2°	15 55.8 -60.0 174.8	15 54.0 -60.0 173.8	15 51.8 -60.0 172.7	15 49.3 -60.0 171.7	15 46.4 -59.9 170.7
3°	14 55.8 -60.0 174.8	14 54.0 -60.0 173.8	14 51.8 -59.9 172.8	14 49.3 -59.9 171.7	14 46.5 -59.9 170.7
4°	13 55.8 -59.9 174.9	13 54.0 -59.9 173.8	13 51.9 -60.0 172.8	13 49.4 -60.0 171.8	13 46.6 -60.0 170.8
5°	12 55.9 -60.0 174.9	12 54.1 -60.0 173.9	12 51.9 -59.9 172.8	12 49.4 -59.9 171.8	12 46.6 -59.9 170.8
6°	11 55.9 -60.0 174.9	11 54.1 -60.0 173.9	11 52.0 -60.0 172.9	11 49.5 -60.0 171.9	11 46.7 -59.9 170.9
7°	10 55.9 -60.0 174.9	10 54.1 -60.0 173.9	10 52.0 -60.0 172.9	10 49.5 -59.9 171.9	10 46.8 -59.9 170.9
8°	9 55.9 -59.9 175.0	9 54.1 -59.9 174.0	9 52.0 -59.9 173.0	9 49.6 -59.9 172.0	9 46.9 -60.0 171.0
9°	8 56.0 -60.0 175.0	8 54.2 -60.0 174.0	8 52.1 -60.0 173.0	8 49.7 -60.0 172.0	8 46.9 -59.9 171.0
10°	7 56.0 -60.0 175.0	7 54.2 -60.0 174.0	7 52.1 -59.9 173.0	7 49.7 -59.9 172.0	7 47.0 -59.9 171.1
11°	6 56.0 -60.0 175.1	6 54.2 -59.9 174.1	6 52.2 -60.0 173.1	6 49.8 -60.0 172.1	6 47.1 -60.0 171.1
12°	5 56.0 -60.0 175.1	5 54.3 -60.0 174.1	5 52.2 -59.9 173.1	5 49.8 -59.9 172.1	5 47.1 -59.9 171.2
13°	4 56.0 -59.9 175.1	4 54.3 -60.0 174.1	4 52.3 -60.0 173.2	4 49.9 -60.0 172.2	4 47.2 -59.9 171.2
14°	3 56.1 -60.0 175.1	3 54.3 -59.9 174.2	3 52.3 -60.0 173.2	3 49.9 -59.9 172.2	3 47.3 -59.9 171.3
15°	2 56.1 -60.0 175.2	2 54.4 -60.0 174.2	2 52.3 -59.9 173.2	2 50.0 -59.9 172.3	2 47.4 -60.0 171.3
16°	1 56.1 -60.0 175.2	1 54.4 -60.0 174.2	1 52.4 -60.0 173.3	1 50.1 -60.0 172.3	1 47.4 -59.9 171.3
17°	0 56.1 -59.9 175.2	0 54.4 -59.9 174.3	0 52.4 -59.9 173.3	0 50.1 -59.9 172.4	0 47.5 -59.9 171.4
18°	-0 03.8 -60.0	-0 05.5 -60.0	-0 07.5 -60.0	-0 09.8 -60.0	-0 12.4 -60.0
19°	-1 03.8 -60.0	-1 05.5 -60.0	-1 07.5 -59.9	-1 09.8 -59.9	-1 12.4 -59.9
20°	-2 03.8 -60.0	-2 05.5 -59.9	-2 07.4 -60.0	-2 09.7 -60.0	-2 12.3 -59.9
21°	-3 03.8 -60.0	-3 05.4 -60.0	-3 07.4 -60.0	-3 09.7 -59.9	-3 12.2 -60.0
22°	-4 03.8 -59.9	-4 05.4 -60.0	-4 07.4 -59.9	-4 09.6 -60.0	-4 12.2 -59.9
23°	-5 03.7 -60.0	-5 05.4 -59.9	-5 07.3 -60.0	-5 09.6 -59.9	-5 12.1 -59.9
24°	-6 03.7 -60.0	-6 05.3 -60.0	-6 07.3 -59.9	-6 09.5 -59.9	-6 12.0 -59.9
25°	-7 03.7 -60.0	-7 05.3 -60.0	-7 07.2 -60.0	-7 09.4 -60.0	-7 11.9 -60.0
26°	-8 03.7 -59.9	-8 05.3 -60.0	-8 07.2 -59.9	-8 09.4 -59.9	-8 11.9 -59.9
27°	-9 03.6 -60.0	-9 05.3 -59.9	-9 07.1 -60.0	-9 09.3 -60.0	-9 11.8 -59.9
28°					
29°					

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°	17 43.0 -59.9 169.5	17 39.5 -59.9 168.4	17 35.6 -59.8 167.4	17 31.4 -59.8 166.4	17 26.9 -59.8 165.3
1°	16 43.1 -59.9 169.6	16 39.6 -59.9 168.5	16 35.8 -59.9 167.5	16 31.6 -59.9 166.4	16 27.1 -59.9 165.4
2°	15 43.2 -59.9 169.6	15 39.7 -59.9 168.6	15 35.9 -59.9 167.5	15 31.7 -59.8 166.5	15 27.2 -59.8 165.5
3°	14 43.3 -59.9 169.7	14 39.8 -59.9 168.6	14 36.0 -59.8 167.6	14 31.9 -59.9 166.6	14 27.4 -59.8 165.6
4°	13 43.4 -59.9 169.7	13 39.9 -59.8 168.7	13 36.2 -59.9 167.7	13 32.0 -59.8 166.7	13 27.6 -59.8 165.6
5°	12 43.5 -59.9 169.8	12 40.1 -59.9 168.8	12 36.3 -59.9 167.7	12 32.2 -59.9 166.7	12 27.8 -59.9 165.7
6°	11 43.6 -59.9 169.8	11 40.2 -59.9 168.8	11 36.4 -59.9 167.8	11 32.3 -59.8 166.8	11 27.9 -59.8 165.8
7°	10 43.7 -59.9 169.9	10 40.3 -59.9 168.9	10 36.5 -59.8 167.9	10 32.5 -59.9 166.9	10 28.1 -59.8 165.9
8°	9 43.8 -59.9 170.0	9 40.4 -59.9 168.9	9 36.7 -59.9 167.9	9 32.6 -59.8 166.9	9 28.3 -59.8 165.9
9°	8 43.9 -59.9 170.0	8 40.5 -59.9 169.0	8 36.8 -59.9 168.0	8 32.8 -59.9 167.0	8 28.5 -59.9 166.0
10°	7 44.0 -60.0 170.1	7 40.6 -59.9 169.1	7 36.9 -59.8 168.1	7 32.9 -59.8 167.1	7 28.6 -59.8 166.1
11°	6 44.0 -59.9 170.1	6 40.7 -59.9 169.1	6 37.1 -59.9 168.1	6 33.1 -59.9 167.2	6 28.8 -59.8 166.2
12°	5 44.1 -59.9 170.2	5 40.8 -59.9 169.2	5 37.2 -59.9 168.2	5 33.2 -59.8 167.2	5 29.0 -59.9 166.2
13°	4 44.2 -59.9 170.2	4 40.9 -59.9 169.2	4 37.3 -59.9 168.3	4 33.4 -59.9 167.3	4 29.1 -59.8 166.3
14°	3 44.3 -59.9 170.3	3 41.0 -59.9 169.3	3 37.4 -59.9 168.3	3 33.5 -59.8 167.4	3 29.3 -59.8 166.4
15°	2 44.4 -59.9 170.3	2 41.1 -59.9 169.4	2 37.5 -59.8 168.4	2 33.7 -59.9 167.4	2 29.5 -59.8 166.5
16°	1 44.5 -59.9 170.4	1 41.2 -59.9 169.4	1 37.7 -59.9 168.5	1 33.8 -59.8 167.5	1 29.7 -59.9 166.5
17°	0 44.6 -59.9 170.4	0 41.3 -59.9 169.5	0 37.8 -59.9 168.5	0 34.0 -59.9 167.6	0 29.8 -59.8 166.6
18°	-0 15.3 -60.0	-0 18.6 -59.9	-0 22.1 -59.9	-0 25.9 -59.8	-0 30.0 -59.8
19°	-1 15.3 -59.9	-1 18.5 -59.9	-1 22.0 -59.8	-1 25.7 -59.9	-1 29.8 -59.9
20°	-2 15.2 -59.9	-2 18.4 -59.8	-2 21.8 -59.9	-2 25.6 -59.9	-2 29.7 -59.8
21°	-3 15.1 -59.9	-3 18.2 -59.9	-3 21.7 -59.9	-3 25.5 -59.8	-3 29.5 -59.8
22°	-4 15.0 -59.9	-4 18.1 -59.9	-4 21.6 -59.9	-4 25.3 -59.9	-4 29.3 -59.9
23°	-5 14.9 -59.9	-5 18.0 -59.9	-5 21.5 -59.8	-5 25.2 -59.8	-5 29.2 -59.8
24°	-6 14.8 -59.9	-6 17.9 -59.9	-6 21.3 -59.9	-6 25.0 -59.9	-6 29.0 -59.8
25°	-7 14.7 -60.0	-7 17.8 -59.9	-7 21.2 -59.9	-7 24.9 -59.8	-7 28.8 -59.9
26°	-8 14.7 -59.9	-8 17.7 -59.9	-8 21.1 -59.9	-8 24.7 -59.9	-8 28.7 -59.8
27°	-9 14.6 -59.9	-9 17.6 -59.9	-9 21.0 -59.8	-9 24.6 -59.8	-9 28.5 -59.8
28°					
29°					

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°	17 22.0 -59.8 164.3	17 16.8 -59.7 163.2	17 11.3 -59.7 162.2	17 05.5 -59.7 161.1	16 59.3 -59.7 160.1
1°	16 22.2 -59.8 164.4	16 17.1 -59.8 163.3	16 11.6 -59.8 162.3	16 05.8 -59.7 161.2	15 59.6 -59.6 160.2
2°	15 22.4 -59.8 164.4	15 17.3 -59.8 163.4	15 11.8 -59.7 162.4	15 06.1 -59.7 161.3	15 00.0 -59.7 160.3
3°	14 22.6 -59.8 164.5	14 17.5 -59.7 163.5	14 12.1 -59.7 162.5	14 06.4 -59.8 161.4	14 00.3 -59.7 160.4
4°	13 22.8 -59.8 164.6	13 17.8 -59.8 163.6	13 12.4 -59.8 162.6	13 06.6 -59.7 161.5	13 00.6 -59.7 160.5
5°	12 23.0 -59.8 164.7	12 18.0 -59.8 163.7	12 12.6 -59.7 162.7	12 06.9 -59.7 161.6	12 00.9 -59.6 160.6
6°	11 23.2 -59.8 164.8	11 18.2 -59.8 163.8	11 12.9 -59.8 162.8	11 07.2 -59.7 161.7	11 01.3 -59.7 160.7
7°	10 23.4 -59.8 164.9	10 18.4 -59.7 163.9	10 13.1 -59.7 162.9	10 07.5 -59.7 161.8	10 01.6 -59.7 160.8
8°	9 23.6 -59.8 164.9	9 18.7 -59.8 163.9	9 13.4 -59.8 162.9	9 07.8 -59.7 161.9	9 01.9 -59.7 160.9
9°	8 23.8 -59.8 165.0	8 18.9 -59.8 164.0	8 13.6 -59.7 163.0	8 08.1 -59.8 162.0	8 02.2 -59.7 161.0
10°	7 24.0 -59.8 165.1	7 19.1 -59.8 164.1	7 13.9 -59.8 163.1	7 08.3 -59.7 162.1	7 02.5 -59.7 161.2
11°	6 24.2 -59.8 165.2	6 19.3 -59.8 164.2	6 14.1 -59.7 163.2	6 08.6 -59.7 162.2	6 02.8 -59.7 161.3
12°	5 24.4 -59.8 165.3	5 19.5 -59.7 164.3	5 14.4 -59.8 163.3	5 08.9 -59.7 162.3	5 03.1 -59.7 161.4
13°	4 24.6 -59.8 165.3	4 19.8 -59.8 164.4	4 14.6 -59.7 163.4	4 09.2 -59.7 162.4	4 03.4 -59.7 161.5
14°	3 24.8 -59.8 165.4	3 20.0 -59.8 164.5	3 14.9 -59.8 163.5	3 09.5 -59.8 162.5	3 03.7 -59.7 161.6
15°	2 25.0 -59.8 165.5	2 20.2 -59.8 164.5	2 15.1 -59.7 163.6	2 09.7 -59.7 162.6	2 04.0 -59.7 161.7
16°	1 25.2 -59.8 165.6	1 20.4 -59.8 164.6	1 15.4 -59.8 163.7	1 10.0 -59.7 162.7	1 04.3 -59.7 161.8
17°	0 25.4 -59.8 165.7	0 20.6 -59.7 164.7	0 15.6 -59.7 163.8	0 10.3 -59.8 162.8	0 04.6 -59.6 161.9
18°	-0 34.4 -59.8	-0 39.1 -59.8	-0 44.1 -59.8	-0 49.5 -59.7	-0 55.0 -59.7
19°	-1 34.2 -59.8	-1 38.9 -59.8	-1 43.9 -59.8	-1 49.2 -59.7	-1 54.7 -59.7
20°	-2 34.0 -59.8	-2 38.7 -59.8	-2 43.7 -59.7	-2 48.9 -59.7	-2 54.4 -59.7
21°	-3 33.8 -59.9	-3 38.5 -59.8	-3 43.4 -59.8	-3 48.6 -59.8	-3 54.1 -59.7
22°	-4 33.7 -59.8	-4 38.3 -59.7	-4 43.2 -59.7	-4 48.4 -59.7	-4 53.8 -59.7
23°	-5 33.5 -59.8	-5 38.0 -59.8	-5 42.9 -59.8	-5 48.1 -59.7	-5 53.5 -59.7
24°	-6 33.3 -59.8	-6 37.8 -59.8	-6 42.7 -59.7	-6 47.8 -59.7	-6 53.2 -59.7
25°	-7 33.1 -59.8	-7 37.6 -59.8	-7 42.4 -59.8	-7 47.5 -59.7	-7 52.9 -59.7
26°	-8 32.9 -59.8	-8 37.4 -59.8	-8 42.2 -59.7	-8 47.2 -59.8	-8 52.6 -59.7
27°	-9 32.7 -59.8	-9 37.2 -59.7	-9 41.9 -59.8	-9 47.0 -59.7	-9 52.3 -59.7
28°					
29°					

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°	16 52.8 -59.6 159.1	16 46.1 -59.6 158.0	16 39.0 -59.6 157.0	16 31.6 -59.6 155.9	16 23.9 -59.5 154.9
1°	15 53.2 -59.6 159.2	15 46.5 -59.6 158.1	15 39.4 -59.6 157.1	15 32.0 -59.5 156.1	15 24.4 -59.5 155.0
2°	14 53.6 -59.7 159.3	14 46.9 -59.6 158.3	14 39.8 -59.5 157.2	14 32.5 -59.5 156.2	14 24.9 -59.5 155.2
3°	13 53.9 -59.6 159.4	13 47.3 -59.7 158.4	13 40.3 -59.6 157.4	13 33.0 -59.6 156.3	13 25.4 -59.5 155.3
4°	12 54.3 -59.7 159.5	12 47.6 -59.6 158.5	12 40.7 -59.6 157.5	12 33.4 -59.5 156.5	12 25.9 -59.5 155.4
5°	11 54.6 -59.6 159.6	11 48.0 -59.6 158.6	11 41.1 -59.6 157.6	11 33.9 -59.5 156.6	11 26.4 -59.5 155.6
6°	10 55.0 -59.7 159.7	10 48.4 -59.6 158.7	10 41.5 -59.5 157.7	10 34.4 -59.6 156.7	10 26.9 -59.5 155.7
7°	9 55.3 -59.6 159.8	9 48.8 -59.6 158.8	9 42.0 -59.6 157.8	9 34.8 -59.5 156.8	9 27.4 -59.5 155.8
8°	8 55.7 -59.7 159.9	8 49.2 -59.6 159.0	8 42.4 -59.6 158.0	8 35.3 -59.6 157.0	8 27.9 -59.6 156.0
9°	7 56.0 -59.6 160.1	7 49.6 -59.7 159.1	7 42.8 -59.6 158.1	7 35.7 -59.5 157.1	7 28.3 -59.5 156.1
10°	6 56.4 -59.7 160.2	6 49.9 -59.6 159.2	6 43.2 -59.6 158.2	6 36.2 -59.6 157.2	6 28.8 -59.5 156.2
11°	5 56.7 -59.7 160.3	5 50.3 -59.6 159.3	5 43.6 -59.6 158.3	5 36.6 -59.6 157.3	5 29.3 -59.5 156.4
12°	4 57.0 -59.6 160.4	4 50.7 -59.7 159.4	4 44.0 -59.6 158.4	4 37.0 -59.5 157.5	4 29.8 -59.5 156.5
13°	3 57.4 -59.7 160.5	3 51.0 -59.6 159.5	3 44.4 -59.6 158.5	3 37.5 -59.6 157.6	3 30.3 -59.6 156.6
14°	2 57.7 -59.6 160.6	2 51.4 -59.6 159.6	2 44.8 -59.6 158.7	2 37.9 -59.5 157.7	2 30.7 -59.5 156.7
15°	1 58.1 -59.7 160.7	1 51.8 -59.6 159.7	1 45.2 -59.6 158.8	1 38.4 -59.6 157.8	1 31.2 -59.5 156.9
16°	0 58.4 -59.7 160.8	0 52.2 -59.7 159.8	0 45.6 -59.6 158.9	0 38.8 -59.6 157.9	0 31.7 -59.5 157.0
17°	-0 01.3 -59.6	-0 07.5 -59.6	-0 14.0 -59.6	-0 20.8 -59.5	-0 27.8 -59.6
18°	-1 00.9 -59.7	-1 07.1 -59.6	-1 13.6 -59.6	-1 20.3 -59.6	-1 27.4 -59.5
19°	-2 00.6 -59.7	-2 06.7 -59.7	-2 13.2 -59.6	-2 19.9 -59.5	-2 26.9 -59.5
20°	-3 00.3 -59.6	-3 06.4 -59.6	-3 12.8 -59.6	-3 19.4 -59.6	-3 26.4 -59.5
21°	-3 59.9 -59.7	-4 06.0 -59.6	-4 12.4 -59.6	-4 19.0 -59.6	-4 25.9 -59.5
22°	-4 59.6 -59.6	-5 05.6 -59.7	-5 12.0 -59.5	-5 18.6 -59.5	-5 25.4 -59.6
23°	-5 59.2 -59.7	-6 05.3 -59.6	-6 11.5 -59.6	-6 18.1 -59.6	-6 25.0 -59.5
24°	-6 58.9 -59.7	-7 04.9 -59.6	-7 11.1 -59.6	-7 17.7 -59.5	-7 24.5 -59.5
25°	-7 58.6 -59.6	-8 04.5 -59.6	-8 10.7 -59.6	-8 17.2 -59.6	-8 24.0 -59.5
26°	-8 58.2 -59.7	-9 04.1 -59.6	-9 10.3 -59.6	-9 16.8 -59.5	-9 23.5 -59.5
27°	-9 57.9 -59.6				
28°					
29°					

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°	16 15.8 -59.4 153.9	16 07.5 -59.4 152.8	15 58.9 -59.3 151.8	15 50.0 -59.3 150.8	15 40.8 -59.2 149.8
1°	15 16.4 -59.5 154.0	15 08.1 -59.4 153.0	14 59.6 -59.4 152.0	14 50.7 -59.3 150.9	14 41.6 -59.3 149.9
2°	14 16.9 -59.4 154.2	14 08.7 -59.4 153.1	14 00.2 -59.4 152.1	13 51.4 -59.3 151.1	13 42.3 -59.3 150.1
3°	13 17.5 -59.5 154.3	13 09.3 -59.4 153.3	13 00.8 -59.4 152.3	12 52.1 -59.4 151.3	12 43.0 -59.3 150.2
4°	12 18.0 -59.4 154.4	12 09.9 -59.4 153.4	12 01.4 -59.3 152.4	11 52.7 -59.3 151.4	11 43.7 -59.3 150.4
5°	11 18.6 -59.5 154.6	11 10.5 -59.5 153.6	11 02.1 -59.4 152.6	10 53.4 -59.4 151.6	10 44.4 -59.3 150.6
6°	10 19.1 -59.5 154.7	10 11.0 -59.4 153.7	10 02.7 -59.4 152.7	9 54.0 -59.3 151.7	9 45.1 -59.3 150.7
7°	9 19.6 -59.4 154.8	9 11.6 -59.4 153.8	9 03.3 -59.4 152.9	8 54.7 -59.4 151.9	8 45.8 -59.3 150.9
8°	8 20.2 -59.5 155.0	8 12.2 -59.5 154.0	8 03.9 -59.4 153.0	7 55.3 -59.3 152.0	7 46.5 -59.3 151.0
9°	7 20.7 -59.5 155.1	7 12.7 -59.4 154.1	7 04.5 -59.4 153.1	6 56.0 -59.4 152.2	6 47.2 -59.3 151.2
10°	6 21.2 -59.5 155.2	6 13.3 -59.4 154.3	6 05.1 -59.4 153.3	5 56.6 -59.3 152.3	5 47.9 -59.4 151.3
11°	5 21.7 -59.5 155.4	5 13.9 -59.5 154.4	5 05.7 -59.4 153.4	4 57.3 -59.4 152.4	4 48.5 -59.3 151.5
12°	4 22.2 -59.4 155.5	4 14.4 -59.4 154.5	4 06.3 -59.4 153.6	3 57.9 -59.4 152.6	3 49.2 -59.3 151.6
13°	3 22.8 -59.5 155.6	3 15.0 -59.5 154.7	3 06.9 -59.4 153.7	2 58.5 -59.3 152.7	2 49.9 -59.3 151.8
14°	2 23.3 -59.5 155.8	2 15.5 -59.4 154.8	2 07.5 -59.4 153.8	1 59.2 -59.4 152.9	1 50.6 -59.3 151.9
15°	1 23.8 -59.5 155.9	1 16.1 -59.5 154.9	1 08.1 -59.4 154.0	0 59.8 -59.4 153.0	0 51.3 -59.4 152.1
16°	0 24.3 -59.5 156.0	0 16.6 -59.4 155.1	0 08.7 -59.4 154.1	0 00.4 -59.3 153.2	-0 08.1 -59.3
17°	-0 35.2 -59.5	-0 42.8 -59.5	-0 50.7 -59.4	-0 58.9 -59.4	-1 07.4 -59.3
18°	-1 34.7 -59.5	-1 42.3 -59.4	-1 50.1 -59.4	-1 58.3 -59.3	-2 06.7 -59.3
19°	-2 34.2 -59.4	-2 41.7 -59.5	-2 49.5 -59.4	-2 57.6 -59.4	-3 06.0 -59.3
20°	-3 33.6 -59.5	-3 41.2 -59.4	-3 48.9 -59.5	-3 57.0 -59.4	-4 05.3 -59.4
21°	-4 33.1 -59.5	-4 40.6 -59.4	-4 48.4 -59.4	-4 56.4 -59.3	-5 04.7 -59.3
22°	-5 32.6 -59.5	-5 40.0 -59.5	-5 47.8 -59.4	-5 55.7 -59.4	-6 04.0 -59.3
23°	-6 32.1 -59.5	-6 39.5 -59.4	-6 47.2 -59.3	-6 55.1 -59.3	-7 03.3 -59.3
24°	-7 31.6 -59.4	-7 38.9 -59.5	-7 46.5 -59.4	-7 54.4 -59.4	-8 02.6 -59.3
25°	-8 31.0 -59.5	-8 38.4 -59.4	-8 45.9 -59.4	-8 53.8 -59.3	-9 01.9 -59.3
26°	-9 30.5 -59.5	-9 37.8 -59.4	-9 45.3 -59.4	-9 53.1 -59.4	
27°					
28°					
29°					

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°	15 31.3 -59.2 148.7	15 21.6 -59.2 147.7	15 11.5 -59.1 146.7	15 01.2 -59.1 145.7	14 50.6 -59.0 144.7
1°	14 32.1 -59.2 148.9	14 22.4 -59.2 147.9	14 12.4 -59.1 146.9	14 02.1 -59.1 145.9	13 51.6 -59.0 144.8
2°	13 32.9 -59.3 149.1	13 23.2 -59.2 148.1	13 13.3 -59.2 147.0	13 03.0 -59.1 146.0	12 52.6 -59.1 145.0
3°	12 33.6 -59.2 149.2	12 24.0 -59.2 148.2	12 14.1 -59.1 147.2	12 03.9 -59.1 146.2	11 53.5 -59.1 145.2
4°	11 34.4 -59.3 149.4	11 24.8 -59.2 148.4	11 15.0 -59.2 147.4	11 04.8 -59.1 146.4	10 54.4 -59.0 145.4
5°	10 35.1 -59.2 149.6	10 25.6 -59.2 148.6	10 15.8 -59.2 147.6	10 05.7 -59.1 146.6	9 55.4 -59.1 145.6
6°	9 35.9 -59.3 149.7	9 26.4 -59.2 148.7	9 16.6 -59.1 147.7	9 06.6 -59.1 146.7	8 56.3 -59.1 145.7
7°	8 36.6 -59.2 149.9	8 27.2 -59.2 148.9	8 17.5 -59.2 147.9	8 07.5 -59.1 146.9	7 57.2 -59.1 145.9
8°	7 37.4 -59.3 150.0	7 28.0 -59.3 149.0	7 18.3 -59.2 148.1	7 08.4 -59.2 147.1	6 58.1 -59.0 146.1
9°	6 38.1 -59.3 150.2	6 28.7 -59.2 149.2	6 19.1 -59.2 148.2	6 09.2 -59.1 147.2	5 59.1 -59.1 146.3
10°	5 38.8 -59.2 150.3	5 29.5 -59.2 149.4	5 19.9 -59.2 148.4	5 10.1 -59.2 147.4	5 00.0 -59.1 146.4
11°	4 39.6 -59.3 150.5	4 30.3 -59.2 149.5	4 20.7 -59.1 148.6	4 10.9 -59.1 147.6	4 00.9 -59.1 146.6
12°	3 40.3 -59.3 150.7	3 31.1 -59.3 149.7	3 21.6 -59.2 148.7	3 11.8 -59.1 147.8	3 01.8 -59.1 146.8
13°	2 41.0 -59.3 150.8	2 31.8 -59.2 149.8	2 22.4 -59.2 148.9	2 12.7 -59.2 147.9	2 02.7 -59.1 147.0
14°	1 41.7 -59.3 151.0	1 32.6 -59.2 150.0	1 23.2 -59.2 149.0	1 13.5 -59.1 148.1	1 03.6 -59.1 147.1
15°	0 42.4 -59.2 151.1	0 33.4 -59.3 150.2	0 24.0 -59.2 149.2	0 14.4 -59.2 148.3	0 04.5 -59.1 147.3
16°	-0 16.8 -59.3	-0 25.9 -59.2	-0 35.2 -59.2	-0 44.8 -59.1	-0 54.6 -59.1
17°	-1 16.1 -59.3	-1 25.1 -59.3	-1 34.4 -59.2	-1 43.9 -59.2	-1 53.7 -59.1
18°	-2 15.4 -59.3	-2 24.4 -59.2	-2 33.6 -59.2	-2 43.1 -59.1	-2 52.8 -59.1
19°	-3 14.7 -59.2	-3 23.6 -59.2	-3 32.8 -59.1	-3 42.2 -59.1	-3 51.9 -59.1
20°	-4 13.9 -59.3	-4 22.8 -59.2	-4 31.9 -59.2	-4 41.3 -59.2	-4 51.0 -59.1
21°	-5 13.2 -59.3	-5 22.0 -59.3	-5 31.1 -59.2	-5 40.5 -59.1	-5 50.1 -59.1
22°	-6 12.5 -59.3	-6 21.3 -59.2	-6 30.3 -59.2	-6 39.6 -59.1	-6 49.2 -59.0
23°	-7 11.8 -59.2	-7 20.5 -59.2	-7 29.5 -59.2	-7 38.7 -59.2	-7 48.2 -59.1
24°	-8 11.0 -59.3	-8 19.7 -59.2	-8 28.7 -59.1	-8 37.9 -59.1	-8 47.3 -59.1
25°	-9 10.3 -59.3	-9 18.9 -59.2	-9 27.8 -59.2	-9 37.0 -59.1	-9 46.4 -59.1
26°					
27°					
28°					
29°					

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°	14 39.8 -59.0 143.6	14 28.7 -59.0 142.6	14 17.3 -58.9 141.6	14 05.6 -58.8 140.6	13 53.7 -58.8 139.6
1°	13 40.8 -59.0 143.8	13 29.7 -58.9 142.8	13 18.4 -58.9 141.8	13 06.8 -58.9 140.8	12 54.9 -58.8 139.8
2°	12 41.8 -59.0 144.0	12 30.8 -59.0 143.0	12 19.5 -58.9 142.0	12 07.9 -58.8 141.0	11 56.1 -58.8 140.0
3°	11 42.8 -59.0 144.2	11 31.8 -59.0 143.2	11 20.6 -58.9 142.2	11 09.1 -58.9 141.2	10 57.3 -58.8 140.2
4°	10 43.8 -59.0 144.4	10 32.8 -58.9 143.4	10 21.7 -59.0 142.4	10 10.2 -58.9 141.4	9 58.5 -58.8 140.4
5°	9 44.8 -59.1 144.6	9 33.9 -59.0 143.6	9 22.7 -58.9 142.6	9 11.3 -58.8 141.6	8 59.7 -58.8 140.6
6°	8 45.7 -59.0 144.7	8 34.9 -59.0 143.8	8 23.8 -58.9 142.8	8 12.5 -58.9 141.8	8 00.9 -58.9 140.8
7°	7 46.7 -59.0 144.9	7 35.9 -59.0 143.9	7 24.9 -59.0 143.0	7 13.6 -58.9 142.0	7 02.0 -58.8 141.0
8°	6 47.7 -59.1 145.1	6 36.9 -59.0 144.1	6 25.9 -58.9 143.1	6 14.7 -58.9 142.2	6 03.2 -58.8 141.2
9°	5 48.6 -59.0 145.3	5 37.9 -59.0 144.3	5 27.0 -59.0 143.3	5 15.8 -58.9 142.4	5 04.4 -58.9 141.4
10°	4 49.6 -59.1 145.5	4 38.9 -59.0 144.5	4 28.0 -58.9 143.5	4 16.9 -58.9 142.6	4 05.5 -58.8 141.6
11°	3 50.5 -59.0 145.6	3 39.9 -59.0 144.7	3 29.1 -58.9 143.7	3 18.0 -58.9 142.7	3 06.7 -58.9 141.8
12°	2 51.5 -59.1 145.8	2 40.9 -59.0 144.9	2 30.2 -59.0 143.9	2 19.1 -58.9 142.9	2 07.8 -58.9 142.0
13°	1 52.4 -59.0 146.0	1 41.9 -59.0 145.0	1 31.2 -59.0 144.1	1 20.2 -58.9 143.1	1 08.9 -58.8 142.2
14°	0 53.4 -59.1 146.2	0 42.9 -59.0 145.2	0 32.2 -58.9 144.3	0 21.3 -58.9 143.3	0 10.1 -58.9 142.4
15°	-0 05.7 -59.0	-0 16.1 -59.0	-0 26.7 -59.0	-0 37.6 -58.9	-0 48.8 -58.8
16°	-1 04.7 -59.1	-1 15.1 -59.0	-1 25.7 -58.9	-1 36.5 -58.9	-1 47.6 -58.9
17°	-2 03.8 -59.0	-2 14.1 -59.0	-2 24.6 -59.0	-2 35.4 -58.9	-2 46.5 -58.8
18°	-3 02.8 -59.0	-3 13.1 -59.0	-3 23.6 -58.9	-3 34.3 -58.9	-3 45.3 -58.9
19°	-4 01.8 -59.1	-4 12.1 -58.9	-4 22.5 -59.0	-4 33.2 -58.9	-4 44.2 -58.8
20°	-5 00.9 -59.0	-5 11.0 -59.0	-5 21.5 -58.9	-5 32.1 -58.9	-5 43.0 -58.9
21°	-5 59.9 -59.1	-6 10.0 -59.0	-6 20.4 -58.9	-6 31.0 -58.9	-6 41.9 -58.8
22°	-6 59.0 -59.0	-7 09.0 -59.0	-7 19.3 -59.0	-7 29.9 -58.9	-7 40.7 -58.8
23°	-7 58.0 -59.0	-8 08.0 -59.0	-8 18.3 -58.9	-8 28.8 -58.8	-8 39.5 -58.8
24°	-8 57.0 -59.1	-9 07.0 -59.0	-9 17.2 -58.9	-9 27.6 -58.9	-9 38.3 -58.9
25°	-9 56.1 -59.0				
26°					
27°					
28°					
29°					

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°	13 41.6 -58.8 138.6	13 29.2 -58.7 137.6	13 16.6 -58.7 136.6	13 03.7 -58.6 135.6	12 50.6 -58.5 134.6
1°	12 42.8 -58.7 138.8	12 30.5 -58.7 137.8	12 17.9 -58.6 136.8	12 05.1 -58.6 135.8	11 52.1 -58.6 134.8
2°	11 44.1 -58.8 139.0	11 31.8 -58.7 138.0	11 19.3 -58.7 137.0	11 06.5 -58.6 136.0	10 53.5 -58.5 135.0
3°	10 45.3 -58.7 139.2	10 33.1 -58.7 138.2	10 20.6 -58.6 137.2	10 07.9 -58.6 136.2	9 55.0 -58.6 135.2
4°	9 46.6 -58.8 139.4	9 34.4 -58.7 138.4	9 22.0 -58.7 137.4	9 09.3 -58.6 136.4	8 56.4 -58.6 135.5
5°	8 47.8 -58.8 139.6	8 35.7 -58.8 138.6	8 23.3 -58.7 137.6	8 10.7 -58.6 136.7	7 57.8 -58.5 135.7
6°	7 49.0 -58.8 139.8	7 36.9 -58.7 138.8	7 24.6 -58.7 137.9	7 12.1 -58.7 136.9	6 59.3 -58.6 135.9
7°	6 50.2 -58.7 140.0	6 38.2 -58.7 139.0	6 25.9 -58.7 138.1	6 13.4 -58.6 137.1	6 00.7 -58.6 136.1
8°	5 51.5 -58.8 140.2	5 39.5 -58.8 139.2	5 27.2 -58.6 138.3	5 14.8 -58.7 137.3	5 02.1 -58.6 136.3
9°	4 52.7 -58.8 140.4	4 40.7 -58.7 139.4	4 28.6 -58.7 138.5	4 16.1 -58.6 137.5	4 03.5 -58.6 136.5
10°	3 53.9 -58.8 140.6	3 42.0 -58.8 139.7	3 29.9 -58.7 138.7	3 17.5 -58.7 137.7	3 04.9 -58.6 136.8
11°	2 55.1 -58.8 140.8	2 43.2 -58.7 139.9	2 31.2 -58.7 138.9	2 18.8 -58.6 137.9	2 06.3 -58.6 137.0
12°	1 56.3 -58.8 141.0	1 44.5 -58.8 140.1	1 32.5 -58.7 139.1	1 20.2 -58.7 138.1	1 07.7 -58.6 137.2
13°	0 57.5 -58.8 141.2	0 45.7 -58.7 140.3	0 33.8 -58.8 139.3	0 21.5 -58.6 138.4	0 09.1 -58.6 137.4
14°	-0 01.3 -58.9	-0 13.0 -58.8	-0 25.0 -58.7	-0 37.1 -58.7	-0 49.5 -58.6
15°	-1 00.2 -58.8	-1 11.8 -58.7	-1 23.7 -58.7	-1 35.8 -58.6	-1 48.1 -58.6
16°	-1 59.0 -58.8	-2 10.5 -58.8	-2 22.4 -58.7	-2 34.4 -58.7	-2 46.7 -58.6
17°	-2 57.8 -58.8	-3 09.3 -58.7	-3 21.1 -58.7	-3 33.1 -58.6	-3 45.3 -58.6
18°	-3 56.6 -58.8	-4 08.0 -58.8	-4 19.8 -58.6	-4 31.7 -58.6	-4 43.9 -58.6
19°	-4 55.4 -58.7	-5 06.8 -58.7	-5 18.4 -58.7	-5 30.3 -58.7	-5 42.5 -58.6
20°	-5 54.1 -58.8	-6 05.5 -58.8	-6 17.1 -58.7	-6 29.0 -58.6	-6 41.1 -58.5
21°	-6 52.9 -58.8	-7 04.3 -58.7	-7 15.8 -58.7	-7 27.6 -58.6	-7 39.6 -58.6
22°	-7 51.7 -58.8	-8 03.0 -58.7	-8 14.5 -58.7	-8 26.2 -58.7	-8 38.2 -58.6
23°	-8 50.5 -58.8	-9 01.7 -58.7	-9 13.2 -58.6	-9 24.9 -58.6	-9 36.8 -58.5
24°	-9 49.3 -58.7				
25°					
26°					
27°					
28°					
29°					

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°	12 37.3 -58.5 133.6	12 23.7 -58.4 132.6	12 10.0 -58.4 131.6	11 56.0 -58.3 130.6	11 41.8 -58.3 129.6
1°	11 38.8 -58.5 133.8	11 25.3 -58.4 132.8	11 11.6 -58.4 131.8	10 57.7 -58.4 130.8	10 43.5 -58.3 129.8
2°	10 40.3 -58.5 134.0	10 26.9 -58.5 133.0	10 13.2 -58.4 132.0	9 59.3 -58.3 131.1	9 45.2 -58.3 130.1
3°	9 41.8 -58.5 134.2	9 28.4 -58.4 133.3	9 14.8 -58.4 132.3	9 01.0 -58.4 131.3	8 46.9 -58.3 130.3
4°	8 43.3 -58.5 134.5	8 30.0 -58.5 133.5	8 16.4 -58.4 132.5	8 02.6 -58.4 131.5	7 48.6 -58.3 130.5
5°	7 44.8 -58.5 134.7	7 31.5 -58.5 133.7	7 18.0 -58.5 132.7	7 04.2 -58.3 131.8	6 50.3 -58.3 130.8
6°	6 46.3 -58.6 134.9	6 33.0 -58.5 133.9	6 19.5 -58.4 133.0	6 05.9 -58.4 132.0	5 52.0 -58.3 131.0
7°	5 47.7 -58.5 135.1	5 34.5 -58.5 134.2	5 21.1 -58.4 133.2	5 07.5 -58.4 132.2	4 53.7 -58.4 131.3
8°	4 49.2 -58.6 135.4	4 36.0 -58.5 134.4	4 22.7 -58.5 133.4	4 09.1 -58.4 132.5	3 55.3 -58.3 131.5
9°	3 50.6 -58.5 135.6	3 37.5 -58.4 134.6	3 24.2 -58.4 133.6	3 10.7 -58.4 132.7	2 57.0 -58.4 131.7
10°	2 52.1 -58.6 135.8	2 39.1 -58.5 134.8	2 25.8 -58.4 133.9	2 12.3 -58.4 132.9	1 58.6 -58.3 132.0
11°	1 53.5 -58.5 136.0	1 40.6 -58.5 135.1	1 27.4 -58.5 134.1	1 13.9 -58.4 133.1	1 00.3 -58.3 132.2
12°	0 55.0 -58.6 136.2	0 42.1 -58.5 135.3	0 28.9 -58.4 134.3	0 15.5 -58.4 133.4	0 02.0 -58.4 132.4
13°	-0 03.6 -58.5	-0 16.4 -58.5	-0 29.5 -58.5	-0 42.9 -58.4	-0 56.4 -58.3
14°	-1 02.1 -58.6	-1 14.9 -58.5	-1 28.0 -58.4	-1 41.3 -58.4	-1 54.7 -58.4
15°	-2 00.7 -58.5	-2 13.4 -58.5	-2 26.4 -58.5	-2 39.7 -58.3	-2 53.1 -58.3
16°	-2 59.2 -58.5	-3 11.9 -58.5	-3 24.9 -58.4	-3 38.0 -58.4	-3 51.4 -58.4
17°	-3 57.7 -58.6	-4 10.4 -58.5	-4 23.3 -58.5	-4 36.4 -58.4	-4 49.8 -58.3
18°	-4 56.3 -58.5	-5 08.9 -58.5	-5 21.8 -58.4	-5 34.8 -58.4	-5 48.1 -58.3
19°	-5 54.8 -58.6	-6 07.4 -58.5	-6 20.2 -58.4	-6 33.2 -58.4	-6 46.4 -58.3
20°	-6 53.4 -58.5	-7 05.9 -58.4	-7 18.6 -58.4	-7 31.6 -58.3	-7 44.7 -58.3
21°	-7 51.9 -58.5	-8 04.3 -58.5	-8 17.0 -58.4	-8 29.9 -58.4	-8 43.0 -58.3
22°	-8 50.4 -58.5	-9 02.8 -58.5	-9 15.4 -58.4	-9 28.3 -58.3	-9 41.3 -58.3
23°	-9 48.9 -58.5				
24°					
25°					
26°					
27°					
28°					
29°					

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°	11 27.4 -58.2 128.6	11 12.8 -58.2 127.6	10 58.0 -58.1 126.6	10 43.1 -58.1 125.6	10 27.9 -58.0 124.6
1°	10 29.2 -58.3 128.8	10 14.6 -58.1 127.9	9 59.9 -58.1 126.9	9 45.0 -58.1 125.9	9 29.9 -58.1 124.9
2°	9 30.9 -58.2 129.1	9 16.5 -58.2 128.1	9 01.8 -58.2 127.1	8 46.9 -58.1 126.1	8 31.8 -58.0 125.2
3°	8 32.7 -58.3 129.3	8 18.3 -58.3 128.3	8 03.6 -58.1 127.4	7 48.8 -58.1 126.4	7 33.8 -58.1 125.4
4°	7 34.4 -58.2 129.6	7 20.0 -58.2 128.6	7 05.5 -58.2 127.6	6 50.7 -58.1 126.6	6 35.7 -58.1 125.7
5°	6 36.2 -58.3 129.8	6 21.8 -58.2 128.8	6 07.3 -58.2 127.9	5 52.6 -58.2 126.9	5 37.6 -58.1 125.9
6°	5 37.9 -58.3 130.0	5 23.6 -58.2 129.1	5 09.1 -58.2 128.1	4 54.4 -58.1 127.1	4 39.5 -58.0 126.2
7°	4 39.6 -58.3 130.3	4 25.4 -58.3 129.3	4 10.9 -58.2 128.4	3 56.3 -58.1 127.4	3 41.5 -58.1 126.4
8°	3 41.3 -58.3 130.5	3 27.1 -58.2 129.6	3 12.7 -58.1 128.6	2 58.2 -58.2 127.6	2 43.4 -58.1 126.7
9°	2 43.0 -58.3 130.8	2 28.9 -58.2 129.8	2 14.6 -58.2 128.8	2 00.0 -58.1 127.9	1 45.3 -58.1 126.9
10°	1 44.7 -58.2 131.0	1 30.7 -58.3 130.0	1 16.4 -58.2 129.1	1 01.9 -58.2 128.1	0 47.2 -58.1 127.2
11°	0 46.5 -58.3 131.2	0 32.4 -58.2 130.3	0 18.2 -58.2 129.3	0 03.7 -58.1 128.4	-0 10.9 -58.1
12°	-0 11.8 -58.3	-0 25.8 -58.3	-0 40.0 -58.2	-0 54.4 -58.2	-1 09.0 -58.1
13°	-1 10.1 -58.3	-1 24.1 -58.2	-1 38.2 -58.2	-1 52.6 -58.1	-2 07.1 -58.1
14°	-2 08.4 -58.3	-2 22.3 -58.3	-2 36.4 -58.2	-2 50.7 -58.1	-3 05.2 -58.1
15°	-3 06.7 -58.3	-3 20.6 -58.2	-3 34.6 -58.2	-3 48.8 -58.2	-4 03.3 -58.1
16°	-4 05.0 -58.3	-4 18.8 -58.2	-4 32.8 -58.2	-4 47.0 -58.1	-5 01.4 -58.0
17°	-5 03.3 -58.3	-5 17.0 -58.3	-5 31.0 -58.1	-5 45.1 -58.1	-5 59.4 -58.1
18°	-6 01.6 -58.2	-6 15.3 -58.2	-6 29.1 -58.2	-6 43.2 -58.1	-6 57.5 -58.1
19°	-6 59.8 -58.3	-7 13.5 -58.2	-7 27.3 -58.2	-7 41.3 -58.1	-7 55.6 -58.0
20°	-7 58.1 -58.3	-8 11.7 -58.2	-8 25.5 -58.1	-8 39.4 -58.1	-8 53.6 -58.1
21°	-8 56.4 -58.2	-9 09.9 -58.2	-9 23.6 -58.2	-9 37.5 -58.1	-9 51.7 -58.0
22°	-9 54.6 -58.2				
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	10 12.6 -58.0 123.7	9 57.0 -57.9 122.7	9 41.3 -57.8 121.7	9 25.5 -57.9 120.7	9 09.5 -57.8 119.7
1°	9 14.6 -58.0 123.9	8 59.1 -58.0 122.9	8 43.5 -58.0 122.0	8 27.6 -57.8 121.0	8 11.7 -57.8 120.0
2°	8 16.6 -58.0 124.2	8 01.1 -57.9 123.2	7 45.5 -57.9 122.2	7 29.8 -57.9 121.3	7 13.9 -57.9 120.3
3°	7 18.6 -58.1 124.4	7 03.2 -58.0 123.5	6 47.6 -57.9 122.5	6 31.9 -57.9 121.5	6 16.0 -57.8 120.6
4°	6 20.5 -58.0 124.7	6 05.2 -58.0 123.7	5 49.7 -57.9 122.8	5 34.0 -57.9 121.8	5 18.2 -57.9 120.8
5°	5 22.5 -58.0 125.0	5 07.2 -57.9 124.0	4 51.8 -58.0 123.0	4 36.1 -57.8 122.1	4 20.3 -57.8 121.1
6°	4 24.5 -58.0 125.2	4 09.3 -58.0 124.2	3 53.8 -57.9 123.3	3 38.3 -57.9 122.3	3 22.5 -57.9 121.4
7°	3 26.5 -58.1 125.5	3 11.3 -58.0 124.5	2 55.9 -58.0 123.5	2 40.4 -57.9 122.6	2 24.6 -57.8 121.6
8°	2 28.4 -58.0 125.7	2 13.3 -58.0 124.8	1 57.9 -57.9 123.8	1 42.5 -57.9 122.8	1 26.8 -57.9 121.9
9°	1 30.4 -58.1 126.0	1 15.3 -58.0 125.0	1 00.0 -57.9 124.1	0 44.6 -57.9 123.1	0 28.9 -57.8 122.2
10°	0 32.3 -58.0 126.2	0 17.3 -58.0 125.3	0 02.1 -58.0 124.3	-0 13.3 -58.0	-0 28.9 -57.9
11°	-0 25.7 -58.1	-0 40.7 -58.0	-0 55.9 -57.9	-1 11.3 -57.9	-1 26.8 -57.8
12°	-1 23.8 -58.0	-1 38.7 -58.0	-1 53.8 -58.0	-2 09.2 -57.9	-2 24.6 -57.9
13°	-2 21.8 -58.1	-2 36.7 -58.0	-2 51.8 -57.9	-3 07.1 -57.8	-3 22.5 -57.8
14°	-3 19.9 -58.0	-3 34.7 -58.0	-3 49.7 -58.0	-4 04.9 -57.9	-4 20.3 -57.9
15°	-4 17.9 -58.0	-4 32.7 -58.0	-4 47.7 -57.9	-5 02.8 -57.9	-5 18.2 -57.8
16°	-5 15.9 -58.0	-5 30.7 -57.9	-5 45.6 -57.9	-6 00.7 -57.9	-6 16.0 -57.8
17°	-6 13.9 -58.1	-6 28.6 -58.0	-6 43.5 -57.9	-6 58.6 -57.9	-7 13.8 -57.8
18°	-7 12.0 -58.0	-7 26.6 -58.0	-7 41.4 -58.0	-7 56.5 -57.8	-8 11.6 -57.9
19°	-8 10.0 -58.0	-8 24.6 -57.9	-8 39.4 -57.9	-8 54.3 -57.9	-9 09.5 -57.7
20°	-9 08.0 -58.0	-9 22.5 -58.0	-9 37.3 -57.8	-9 52.2 -57.8	
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	8 53.3 -57.8 118.8	8 37.0 -57.8 117.8	8 20.5 -57.7 116.8	8 03.9 -57.7 115.9	7 47.1 -57.6 114.9
1°	7 55.5 -57.7 119.0	7 39.2 -57.7 118.1	7 22.8 -57.7 117.1	7 06.2 -57.6 116.1	6 49.5 -57.6 115.2
2°	6 57.8 -57.8 119.3	6 41.5 -57.7 118.3	6 25.1 -57.7 117.4	6 08.6 -57.7 116.4	5 51.9 -57.6 115.4
3°	6 00.0 -57.8 119.6	5 43.8 -57.8 118.6	5 27.4 -57.7 117.7	5 10.9 -57.6 116.7	4 54.3 -57.6 115.7
4°	5 02.2 -57.8 119.9	4 46.0 -57.7 118.9	4 29.7 -57.7 117.9	4 13.3 -57.7 117.0	3 56.7 -57.7 116.0
5°	4 04.4 -57.8 120.1	3 48.3 -57.8 119.2	3 32.0 -57.7 118.2	3 15.6 -57.7 117.2	2 59.0 -57.6 116.3
6°	3 06.6 -57.8 120.4	2 50.5 -57.7 119.4	2 34.3 -57.7 118.5	2 17.9 -57.7 117.5	2 01.4 -57.6 116.6
7°	2 08.8 -57.8 120.7	1 52.8 -57.8 119.7	1 36.6 -57.7 118.8	1 20.2 -57.6 117.8	1 03.8 -57.7 116.8
8°	1 11.0 -57.8 120.9	0 55.0 -57.8 120.0	0 38.9 -57.8 119.0	0 22.6 -57.7 118.1	0 06.1 -57.6 117.1
9°	0 13.2 -57.9 121.2	-0 02.8 -57.7	-0 18.9 -57.7	-0 35.1 -57.7	-0 51.5 -57.6
10°	-0 44.7 -57.8	-1 00.5 -57.8	-1 16.6 -57.7	-1 32.8 -57.7	-1 49.1 -57.7
11°	-1 42.5 -57.8	-1 58.3 -57.8	-2 14.3 -57.7	-2 30.5 -57.6	-2 46.8 -57.6
12°	-2 40.3 -57.8	-2 56.1 -57.7	-3 12.0 -57.7	-3 28.1 -57.7	-3 44.4 -57.6
13°	-3 38.1 -57.8	-3 53.8 -57.8	-4 09.7 -57.8	-4 25.8 -57.7	-4 42.0 -57.7
14°	-4 35.9 -57.8	-4 51.6 -57.7	-5 07.5 -57.7	-5 23.5 -57.6	-5 39.7 -57.6
15°	-5 33.7 -57.8	-5 49.3 -57.8	-6 05.2 -57.6	-6 21.1 -57.7	-6 37.3 -57.6
16°	-6 31.5 -57.7	-6 47.1 -57.7	-7 02.8 -57.7	-7 18.8 -57.6	-7 34.9 -57.6
17°	-7 29.2 -57.8	-7 44.8 -57.7	-8 00.5 -57.7	-8 16.4 -57.6	-8 32.5 -57.5
18°	-8 27.0 -57.8	-8 42.5 -57.7	-8 58.2 -57.7	-9 14.0 -57.7	-9 30.0 -57.6
19°	-9 24.8 -57.7	-9 40.2 -57.7	-9 55.9 -57.6		
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	7 30.2 -57.5 113.9	7 13.2 -57.5 112.9	6 56.1 -57.5 112.0	6 38.8 -57.4 111.0	6 21.5 -57.4 110.1
1°	6 32.7 -57.6 114.2	6 15.7 -57.5 113.2	5 58.6 -57.5 112.3	5 41.4 -57.5 111.3	5 24.1 -57.5 110.3
2°	5 35.1 -57.6 114.5	5 18.2 -57.6 113.5	5 01.1 -57.5 112.6	4 43.9 -57.4 111.6	4 26.6 -57.4 110.6
3°	4 37.5 -57.6 114.8	4 20.6 -57.5 113.8	4 03.6 -57.5 112.8	3 46.5 -57.5 111.9	3 29.2 -57.4 110.9
4°	3 39.9 -57.5 115.0	3 23.1 -57.6 114.1	3 06.1 -57.5 113.1	2 49.0 -57.5 112.2	2 31.8 -57.5 111.2
5°	2 42.4 -57.6 115.3	2 25.5 -57.5 114.4	2 08.6 -57.5 113.4	1 51.5 -57.5 112.5	1 34.3 -57.4 111.5
6°	1 44.8 -57.6 115.6	1 28.0 -57.6 114.7	1 11.1 -57.6 113.7	0 54.0 -57.5 112.7	0 36.9 -57.5 111.8
7°	0 47.2 -57.6 115.9	0 30.4 -57.5 114.9	0 13.5 -57.5 114.0	-0 03.5 -57.4	-0 20.6 -57.4
8°	-0 10.4 -57.6	-0 27.1 -57.6	-0 44.0 -57.5	-1 00.9 -57.5	-1 18.0 -57.5
9°	-1 08.0 -57.6	-1 24.7 -57.6	-1 41.5 -57.5	-1 58.4 -57.5	-2 15.5 -57.4
10°	-2 05.6 -57.6	-2 22.3 -57.5	-2 39.0 -57.5	-2 55.9 -57.5	-3 12.9 -57.5
11°	-3 03.2 -57.6	-3 19.8 -57.6	-3 36.5 -57.5	-3 53.4 -57.5	-4 10.4 -57.4
12°	-4 00.8 -57.6	-4 17.4 -57.5	-4 34.0 -57.5	-4 50.9 -57.4	-5 07.8 -57.4
13°	-4 58.4 -57.6	-5 14.9 -57.5	-5 31.5 -57.5	-5 48.3 -57.5	-6 05.2 -57.4
14°	-5 56.0 -57.5	-6 12.4 -57.6	-6 29.0 -57.5	-6 45.8 -57.4	-7 02.6 -57.4
15°	-6 53.5 -57.6	-7 10.0 -57.5	-7 26.5 -57.5	-7 43.2 -57.4	-8 00.0 -57.4
16°	-7 51.1 -57.5	-8 07.5 -57.5	-8 24.0 -57.5	-8 40.6 -57.5	-8 57.4 -57.4
17°	-8 48.6 -57.6	-9 05.0 -57.5	-9 21.5 -57.4	-9 38.1 -57.4	-9 54.8 -57.4
18°	-9 46.2 -57.5				
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	6 04.0 -57.4 109.1	5 46.4 -57.3 108.1	5 28.8 -57.4 107.2	5 11.0 -57.3 106.2	4 53.2 -57.3 105.3
1°	5 06.6 -57.4 109.4	4 49.1 -57.4 108.4	4 31.4 -57.3 107.5	4 13.7 -57.3 106.5	3 55.9 -57.3 105.6
2°	4 09.2 -57.4 109.7	3 51.7 -57.4 108.7	3 34.1 -57.3 107.8	3 16.4 -57.3 106.8	2 58.6 -57.3 105.9
3°	3 11.8 -57.4 110.0	2 54.3 -57.3 109.0	2 36.8 -57.4 108.1	2 19.1 -57.3 107.1	2 01.3 -57.3 106.1
4°	2 14.4 -57.4 110.3	1 57.0 -57.4 109.3	1 39.4 -57.3 108.4	1 21.8 -57.3 107.4	1 04.0 -57.3 106.4
5°	1 17.0 -57.4 110.6	0 59.6 -57.4 109.6	0 42.1 -57.4 108.6	0 24.5 -57.4 107.7	0 06.7 -57.2 106.7
6°	0 19.6 -57.4 110.8	0 02.2 -57.4 109.9	-0 15.3 -57.3	-0 32.9 -57.3	-0 50.5 -57.3
7°	-0 37.8 -57.4	-0 55.2 -57.4	-1 12.6 -57.4	-1 30.2 -57.3	-1 47.8 -57.3
8°	-1 35.2 -57.4	-1 52.6 -57.3	-2 10.0 -57.3	-2 27.5 -57.3	-2 45.1 -57.3
9°	-2 32.6 -57.5	-2 49.9 -57.4	-3 07.3 -57.4	-3 24.8 -57.3	-3 42.4 -57.3
10°	-3 30.1 -57.4	-3 47.3 -57.4	-4 04.7 -57.3	-4 22.1 -57.3	-4 39.7 -57.3
11°	-4 27.5 -57.4	-4 44.7 -57.3	-5 02.0 -57.3	-5 19.4 -57.3	-5 37.0 -57.3
12°	-5 24.9 -57.3	-5 42.0 -57.4	-5 59.3 -57.3	-6 16.7 -57.3	-6 34.2 -57.3
13°	-6 22.2 -57.4	-6 39.4 -57.3	-6 56.6 -57.3	-7 14.0 -57.3	-7 31.5 -57.2
14°	-7 19.6 -57.4	-7 36.7 -57.3	-7 53.9 -57.3	-8 11.3 -57.2	-8 28.7 -57.2
15°	-8 17.0 -57.3	-8 34.0 -57.4	-8 51.2 -57.3	-9 08.5 -57.3	-9 25.9 -57.2
16°	-9 14.3 -57.4	-9 31.4 -57.3	-9 48.5 -57.3		
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	4 35.2 -57.2 104.3	4 17.2 -57.2 103.3	3 59.2 -57.2 102.4	3 41.0 -57.2 101.4	3 22.8 -57.1 100.5
1°	3 38.0 -57.3 104.6	3 20.0 -57.2 103.6	3 02.0 -57.3 102.7	2 43.8 -57.2 101.7	2 25.7 -57.2 100.8
2°	2 40.7 -57.2 104.9	2 22.8 -57.3 103.9	2 04.7 -57.2 103.0	1 46.6 -57.1 102.0	1 28.5 -57.2 101.1
3°	1 43.5 -57.3 105.2	1 25.5 -57.2 104.2	1 07.5 -57.2 103.3	0 49.5 -57.2 102.3	0 31.3 -57.2 101.4
4°	0 46.2 -57.3 105.5	0 28.3 -57.2 104.5	0 10.3 -57.2 103.6	-0 07.7 -57.2	-0 25.9 -57.1
5°	-0 11.1 -57.2	-0 28.9 -57.3	-0 46.9 -57.2	-1 04.9 -57.2	-1 23.0 -57.2
6°	-1 08.3 -57.3	-1 26.2 -57.2	-1 44.1 -57.2	-2 02.1 -57.2	-2 20.2 -57.2
7°	-2 05.6 -57.2	-2 23.4 -57.2	-2 41.3 -57.2	-2 59.3 -57.2	-3 17.4 -57.1
8°	-3 02.8 -57.3	-3 20.6 -57.3	-3 38.5 -57.2	-3 56.5 -57.2	-4 14.5 -57.2
9°	-4 00.1 -57.2	-4 17.9 -57.2	-4 35.7 -57.2	-4 53.7 -57.1	-5 11.7 -57.1
10°	-4 57.3 -57.3	-5 15.1 -57.2	-5 32.9 -57.2	-5 50.8 -57.2	-6 08.8 -57.2
11°	-5 54.6 -57.2	-6 12.3 -57.2	-6 30.1 -57.2	-6 48.0 -57.1	-7 06.0 -57.1
12°	-6 51.8 -57.2	-7 09.5 -57.2	-7 27.3 -57.1	-7 45.1 -57.2	-8 03.1 -57.1
13°	-7 49.0 -57.2	-8 06.7 -57.2	-8 24.4 -57.2	-8 42.3 -57.1	-9 00.2 -57.1
14°	-8 46.2 -57.2	-9 03.9 -57.1	-9 21.6 -57.1	-9 39.4 -57.1	-9 57.3 -57.1
15°	-9 43.4 -57.2				
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	3 04.6 -57.2 99.5	2 46.2 -57.1 98.6	2 27.9 -57.1 97.6	2 09.5 -57.1 96.7	1 51.1 -57.1 95.7
1°	2 07.4 -57.1 99.8	1 49.1 -57.1 98.9	1 30.8 -57.1 97.9	1 12.4 -57.1 97.0	0 54.0 -57.1 96.0
2°	1 10.3 -57.2 100.1	0 52.0 -57.2 99.2	0 33.7 -57.2 98.2	0 15.3 -57.1 97.3	-0 03.1 -57.1
3°	0 13.1 -57.1 100.4	-0 05.2 -57.1	-0 23.5 -57.1	-0 41.8 -57.1	-1 00.2 -57.1
4°	-0 44.0 -57.2	-1 02.3 -57.1	-1 20.6 -57.1	-1 38.9 -57.1	-1 57.3 -57.1
5°	-1 41.2 -57.2	-1 59.4 -57.2	-2 17.7 -57.1	-2 36.0 -57.1	-2 54.4 -57.1
6°	-2 38.4 -57.1	-2 56.6 -57.1	-3 14.8 -57.1	-3 33.1 -57.1	-3 51.5 -57.1
7°	-3 35.5 -57.1	-3 53.7 -57.1	-4 11.9 -57.1	-4 30.2 -57.1	-4 48.6 -57.0
8°	-4 32.6 -57.2	-4 50.8 -57.1	-5 09.0 -57.1	-5 27.3 -57.1	-5 45.6 -57.1
9°	-5 29.8 -57.1	-5 47.9 -57.1	-6 06.1 -57.1	-6 24.4 -57.1	-6 42.7 -57.1
10°	-6 26.9 -57.1	-6 45.0 -57.1	-7 03.2 -57.1	-7 21.5 -57.0	-7 39.8 -57.0
11°	-7 24.0 -57.1	-7 42.1 -57.1	-8 00.3 -57.0	-8 18.5 -57.0	-8 36.8 -57.0
12°	-8 21.1 -57.1	-8 39.2 -57.0	-8 57.3 -57.1	-9 15.5 -57.1	-9 33.8 -57.0
13°	-9 18.2 -57.0	-9 36.2 -57.1	-9 54.4 -57.0		
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	1 32.6 -57.1 94.8	1 14.1 -57.1 93.8	0 55.6 -57.1 92.9	0 37.1 -57.1 91.9	0 18.5 -57.0 91.0
1°	0 35.5 -57.1 95.1	0 17.0 -57.0 94.1	-0 01.5 -57.0	-0 20.0 -57.1	-0 38.5 -57.1
2°	-0 21.6 -57.1	-0 40.0 -57.1	-0 58.5 -57.1	-1 17.1 -57.0	-1 35.6 -57.0
3°	-1 18.7 -57.0	-1 37.1 -57.1	-1 55.6 -57.1	-2 14.1 -57.1	-2 32.6 -57.1
4°	-2 15.7 -57.1	-2 34.2 -57.1	-2 52.7 -57.0	-3 11.2 -57.0	-3 29.7 -57.1
5°	-3 12.8 -57.1	-3 31.3 -57.0	-3 49.7 -57.1	-4 08.2 -57.1	-4 26.8 -57.0
6°	-4 09.9 -57.1	-4 28.3 -57.1	-4 46.8 -57.0	-5 05.3 -57.0	-5 23.8 -57.0
7°	-5 07.0 -57.0	-5 25.4 -57.0	-5 43.8 -57.1	-6 02.3 -57.1	-6 20.8 -57.0
8°	-6 04.0 -57.1	-6 22.4 -57.1	-6 40.9 -57.0	-6 59.4 -57.0	-7 17.8 -57.1
9°	-7 01.1 -57.0	-7 19.5 -57.0	-7 37.9 -57.0	-7 56.4 -57.0	-8 14.9 -56.9
10°	-7 58.1 -57.0	-8 16.5 -57.0	-8 34.9 -57.0	-8 53.4 -57.0	-9 11.8 -57.0
11°	-8 55.1 -57.0	-9 13.5 -57.0	-9 31.9 -57.0	-9 50.4 -56.9	
12°	-9 52.1 -57.0				
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

# Latitude 72°

# Declination CONTRARY name to 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 -57.1 90.0	-0 18.5 -57.1			
1°	-0 57.1 -57.0	-1 15.6 -57.1			
2°	-1 54.1 -57.1	-2 12.7 -57.0			
3°	-2 51.2 -57.0	-3 09.7 -57.1			
4°	-3 48.2 -57.1	-4 06.8 -57.0			
5°	-4 45.3 -57.0	-5 03.8 -57.1			
6°	-5 42.3 -57.0	-6 00.9 -57.0			
7°	-6 39.3 -57.1	-6 57.9 -57.0			
8°	-7 36.4 -57.0	-7 54.9 -57.0			
9°	-8 33.4 -57.0	-8 51.9 -57.0			
10°	-9 30.4 -56.9	-9 48.9 -56.9			
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°					
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°					

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data.  
The data on this page is believed to be accurate but no warranty is given for it's correctness. Use it only for training and exercising!

Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	17 00.0 -60.0 180.0	16 59.8 -60.0 179.0	16 59.4 -60.0 177.9	16 58.6 -60.0 176.9	16 57.4 -59.9 175.8
1°	16 00.0 -60.0 180.0	15 59.8 -60.0 179.0	15 59.4 -60.0 177.9	15 58.6 -60.0 176.9	15 57.5 -60.0 175.8
2°	15 00.0 -60.0 180.0	14 59.8 -60.0 179.0	14 59.4 -60.0 177.9	14 58.6 -60.0 176.9	14 57.5 -60.0 175.9
3°	14 00.0 -60.0 180.0	13 59.8 -60.0 179.0	13 59.4 -60.0 177.9	13 58.6 -60.0 176.9	13 57.5 -60.0 175.9
4°	13 00.0 -60.0 180.0	12 59.8 -60.0 179.0	12 59.4 -60.0 178.0	12 58.6 -60.0 176.9	12 57.5 -60.0 175.9
5°	12 00.0 -60.0 180.0	11 59.8 -60.0 179.0	11 59.4 -60.0 178.0	11 58.6 -60.0 176.9	11 57.5 -60.0 175.9
6°	11 00.0 -60.0 180.0	10 59.8 -60.0 179.0	10 59.4 -60.0 178.0	10 58.6 -60.0 177.0	10 57.5 -60.0 175.9
7°	10 00.0 -60.0 180.0	9 59.8 -60.0 179.0	9 59.4 -60.0 178.0	9 58.6 -60.0 177.0	9 57.5 -60.0 176.0
8°	9 00.0 -60.0 180.0	8 59.8 -60.0 179.0	8 59.4 -60.0 178.0	8 58.6 -60.0 177.0	8 57.5 -59.9 176.0
9°	8 00.0 -60.0 180.0	7 59.8 -60.0 179.0	7 59.4 -60.0 178.0	7 58.6 -60.0 177.0	7 57.6 -60.0 176.0
10°	7 00.0 -60.0 180.0	6 59.8 -60.0 179.0	6 59.4 -60.0 178.0	6 58.6 -60.0 177.0	6 57.6 -60.0 176.0
11°	6 00.0 -60.0 180.0	5 59.8 -60.0 179.0	5 59.4 -60.0 178.0	5 58.6 -60.0 177.0	5 57.6 -60.0 176.1
12°	5 00.0 -60.0 180.0	4 59.8 -59.9 179.0	4 59.4 -60.0 178.0	4 58.6 -59.9 177.1	4 57.6 -60.0 176.1
13°	4 00.0 -60.0 180.0	3 59.9 -60.0 179.0	3 59.4 -60.0 178.0	3 58.7 -60.0 177.1	3 57.6 -60.0 176.1
14°	3 00.0 -60.0 180.0	2 59.9 -60.0 179.0	2 59.4 -60.0 178.1	2 58.7 -60.0 177.1	2 57.6 -60.0 176.1
15°	2 00.0 -60.0 180.0	1 59.9 -60.0 179.0	1 59.4 -60.0 178.1	1 58.7 -60.0 177.1	1 57.6 -60.0 176.1
16°	1 00.0 -60.0 180.0	0 59.9 -60.0 179.0	0 59.4 -60.0 178.1	0 58.7 -60.0 177.1	0 57.6 -59.9 176.2
17°	0 00.0 -60.0 180.0	-0 00.1 -60.0	-0 00.6 -60.0	-0 01.3 -60.0	-0 02.3 -60.0
18°	-1 00.0 -60.0	-1 00.1 -60.0	-1 00.6 -60.0	-1 01.3 -60.0	-1 02.3 -60.0
19°	-2 00.0 -60.0	-2 00.1 -60.0	-2 00.6 -60.0	-2 01.3 -60.0	-2 02.3 -60.0
20°	-3 00.0 -60.0	-3 00.1 -60.0	-3 00.6 -60.0	-3 01.3 -60.0	-3 02.3 -60.0
21°	-4 00.0 -60.0	-4 00.1 -60.0	-4 00.6 -60.0	-4 01.3 -60.0	-4 02.3 -60.0
22°	-5 00.0 -60.0	-5 00.1 -60.0	-5 00.6 -60.0	-5 01.3 -60.0	-5 02.3 -60.0
23°	-6 00.0 -60.0	-6 00.1 -60.0	-6 00.6 -60.0	-6 01.3 -60.0	-6 02.3 -60.0
24°	-7 00.0 -60.0	-7 00.1 -60.0	-7 00.6 -60.0	-7 01.3 -60.0	-7 02.3 -59.9
25°	-8 00.0 -60.0	-8 00.1 -60.0	-8 00.6 -60.0	-8 01.3 -60.0	-8 02.2 -60.0
26°	-9 00.0 -60.0	-9 00.1 -60.0	-9 00.6 -60.0	-9 01.3 -59.9	-9 02.2 -60.0
27°					
28°					
29°					

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°	16 56.0 -60.0 174.8	16 54.2 -59.9 173.7	16 52.2 -60.0 172.7	16 49.8 -60.0 171.6	16 47.1 -60.0 170.6
1°	15 56.0 -60.0 174.8	15 54.3 -60.0 173.8	15 52.2 -59.9 172.7	15 49.8 -59.9 171.7	15 47.1 -59.9 170.6
2°	14 56.0 -59.9 174.8	14 54.3 -60.0 173.8	14 52.3 -60.0 172.8	14 49.9 -60.0 171.7	14 47.2 -59.9 170.7
3°	13 56.1 -60.0 174.9	13 54.3 -59.9 173.8	13 52.3 -60.0 172.8	13 49.9 -59.9 171.8	13 47.3 -60.0 170.7
4°	12 56.1 -60.0 174.9	12 54.4 -60.0 173.9	12 52.3 -59.9 172.8	12 50.0 -60.0 171.8	12 47.3 -59.9 170.8
5°	11 56.1 -60.0 174.9	11 54.4 -60.0 173.9	11 52.4 -60.0 172.9	11 50.0 -59.9 171.9	11 47.4 -59.9 170.8
6°	10 56.1 -60.0 174.9	10 54.4 -59.9 173.9	10 52.4 -59.9 172.9	10 50.1 -60.0 171.9	10 47.5 -60.0 170.9
7°	9 56.1 -59.9 175.0	9 54.5 -60.0 174.0	9 52.5 -60.0 172.9	9 50.1 -59.9 171.9	9 47.5 -59.9 170.9
8°	8 56.2 -60.0 175.0	8 54.5 -60.0 174.0	8 52.5 -60.0 173.0	8 50.2 -60.0 172.0	8 47.6 -59.9 171.0
9°	7 56.2 -60.0 175.0	7 54.5 -60.0 174.0	7 52.5 -59.9 173.0	7 50.2 -59.9 172.0	7 47.7 -60.0 171.0
10°	6 56.2 -60.0 175.0	6 54.5 -59.9 174.0	6 52.6 -60.0 173.1	6 50.3 -60.0 172.1	6 47.7 -59.9 171.1
11°	5 56.2 -60.0 175.1	5 54.6 -60.0 174.1	5 52.6 -60.0 173.1	5 50.3 -59.9 172.1	5 47.8 -59.9 171.1
12°	4 56.2 -59.9 175.1	4 54.6 -60.0 174.1	4 52.6 -59.9 173.1	4 50.4 -60.0 172.1	4 47.9 -60.0 171.2
13°	3 56.3 -60.0 175.1	3 54.6 -59.9 174.1	3 52.7 -60.0 173.2	3 50.4 -59.9 172.2	3 47.9 -59.9 171.2
14°	2 56.3 -60.0 175.1	2 54.7 -60.0 174.2	2 52.7 -59.9 173.2	2 50.5 -60.0 172.2	2 48.0 -60.0 171.3
15°	1 56.3 -60.0 175.2	1 54.7 -60.0 174.2	1 52.8 -60.0 173.2	1 50.5 -59.9 172.3	1 48.0 -59.9 171.3
16°	0 56.3 -60.0 175.2	0 54.7 -60.0 174.2	0 52.8 -60.0 173.3	0 50.6 -60.0 172.3	0 48.1 -59.9 171.4
17°	-0 03.7 -59.9	-0 05.3 -59.9	-0 07.2 -59.9	-0 09.4 -59.9	-0 11.8 -60.0
18°	-1 03.6 -60.0	-1 05.2 -60.0	-1 07.1 -60.0	-1 09.3 -60.0	-1 11.8 -59.9
19°	-2 03.6 -60.0	-2 05.2 -60.0	-2 07.1 -60.0	-2 09.3 -59.9	-2 11.7 -59.9
20°	-3 03.6 -60.0	-3 05.2 -60.0	-3 07.1 -59.9	-3 09.2 -60.0	-3 11.6 -60.0
21°	-4 03.6 -60.0	-4 05.2 -59.9	-4 07.0 -60.0	-4 09.2 -59.9	-4 11.6 -59.9
22°	-5 03.6 -59.9	-5 05.1 -60.0	-5 07.0 -59.9	-5 09.1 -60.0	-5 11.5 -60.0
23°	-6 03.5 -60.0	-6 05.1 -60.0	-6 06.9 -60.0	-6 09.1 -59.9	-6 11.5 -59.9
24°	-7 03.5 -60.0	-7 05.1 -59.9	-7 06.9 -60.0	-7 09.0 -60.0	-7 11.4 -59.9
25°	-8 03.5 -60.0	-8 05.0 -60.0	-8 06.9 -59.9	-8 09.0 -59.9	-8 11.3 -60.0
26°	-9 03.5 -60.0	-9 05.0 -60.0	-9 06.8 -60.0	-9 08.9 -60.0	-9 11.3 -59.9
27°					
28°					
29°					

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°	16 44.0 -59.9 169.6	16 40.7 -59.9 168.5	16 37.1 -59.9 167.5	16 33.1 -59.9 166.4	16 28.8 -59.8 165.4
1°	15 44.1 -59.9 169.6	15 40.8 -59.9 168.6	15 37.2 -59.9 167.5	15 33.2 -59.8 166.5	15 29.0 -59.9 165.5
2°	14 44.2 -59.9 169.7	14 40.9 -59.9 168.6	14 37.3 -59.9 167.6	14 33.4 -59.9 166.6	14 29.1 -59.8 165.5
3°	13 44.3 -59.9 169.7	13 41.0 -59.9 168.7	13 37.4 -59.9 167.7	13 33.5 -59.9 166.6	13 29.3 -59.8 165.6
4°	12 44.4 -59.9 169.8	12 41.1 -59.9 168.7	12 37.5 -59.9 167.7	12 33.6 -59.8 166.7	12 29.5 -59.9 165.7
5°	11 44.5 -60.0 169.8	11 41.2 -59.9 168.8	11 37.6 -59.8 167.8	11 33.8 -59.9 166.8	11 29.6 -59.8 165.8
6°	10 44.5 -59.9 169.9	10 41.3 -59.9 168.9	10 37.8 -59.9 167.9	10 33.9 -59.8 166.8	10 29.8 -59.9 165.8
7°	9 44.6 -59.9 169.9	9 41.4 -59.9 168.9	9 37.9 -59.9 167.9	9 34.1 -59.9 166.9	9 29.9 -59.8 165.9
8°	8 44.7 -59.9 170.0	8 41.5 -59.9 169.0	8 38.0 -59.9 168.0	8 34.2 -59.9 167.0	8 30.1 -59.9 166.0
9°	7 44.8 -59.9 170.0	7 41.6 -59.9 169.0	7 38.1 -59.9 168.0	7 34.3 -59.8 167.0	7 30.2 -59.8 166.1
10°	6 44.9 -60.0 170.1	6 41.7 -59.9 169.1	6 38.2 -59.9 168.1	6 34.5 -59.9 167.1	6 30.4 -59.9 166.1
11°	5 44.9 -59.9 170.1	5 41.8 -59.9 169.2	5 38.3 -59.9 168.2	5 34.6 -59.9 167.2	5 30.5 -59.8 166.2
12°	4 45.0 -59.9 170.2	4 41.9 -59.9 169.2	4 38.4 -59.8 168.2	4 34.7 -59.9 167.2	4 30.7 -59.9 166.3
13°	3 45.1 -59.9 170.2	3 42.0 -59.9 169.3	3 38.6 -59.9 168.3	3 34.8 -59.8 167.3	3 30.8 -59.8 166.3
14°	2 45.2 -60.0 170.3	2 42.1 -59.9 169.3	2 38.7 -59.9 168.3	2 35.0 -59.9 167.4	2 31.0 -59.9 166.4
15°	1 45.2 -59.9 170.3	1 42.2 -60.0 169.4	1 38.8 -59.9 168.4	1 35.1 -59.9 167.4	1 31.1 -59.8 166.5
16°	0 45.3 -59.9 170.4	0 42.2 -59.9 169.4	0 38.9 -59.9 168.5	0 35.2 -59.8 167.5	0 31.3 -59.9 166.6
17°	-0 14.6 -59.9	-0 17.7 -59.9	-0 21.0 -59.9	-0 24.6 -59.9	-0 28.6 -59.8
18°	-1 14.5 -59.9	-1 17.6 -59.9	-1 20.9 -59.9	-1 24.5 -59.9	-1 28.4 -59.9
19°	-2 14.4 -60.0	-2 17.5 -59.9	-2 20.8 -59.9	-2 24.4 -59.8	-2 28.3 -59.8
20°	-3 14.4 -59.9	-3 17.4 -59.9	-3 20.7 -59.9	-3 24.2 -59.9	-3 28.1 -59.8
21°	-4 14.3 -59.9	-4 17.3 -59.9	-4 20.6 -59.8	-4 24.1 -59.9	-4 27.9 -59.9
22°	-5 14.2 -59.9	-5 17.2 -59.9	-5 20.4 -59.9	-5 24.0 -59.9	-5 27.8 -59.8
23°	-6 14.1 -60.0	-6 17.1 -59.9	-6 20.3 -59.9	-6 23.9 -59.8	-6 27.6 -59.9
24°	-7 14.1 -59.9	-7 17.0 -59.9	-7 20.2 -59.9	-7 23.7 -59.9	-7 27.5 -59.8
25°	-8 14.0 -59.9	-8 16.9 -59.9	-8 20.1 -59.9	-8 23.6 -59.9	-8 27.3 -59.9
26°	-9 13.9 -59.9	-9 16.8 -59.9	-9 20.0 -59.9	-9 23.5 -59.8	-9 27.2 -59.8
27°					
28°					
29°					

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°	16 24.2 -59.8 164.3	16 19.4 -59.8 163.3	16 14.2 -59.8 162.3	16 08.7 -59.8 161.2	16 02.9 -59.7 160.2
1°	15 24.4 -59.8 164.4	15 19.6 -59.8 163.4	15 14.4 -59.8 162.4	15 08.9 -59.7 161.3	15 03.2 -59.7 160.3
2°	14 24.6 -59.8 164.5	14 19.8 -59.8 163.5	14 14.6 -59.7 162.5	14 09.2 -59.7 161.4	14 03.5 -59.7 160.4
3°	13 24.8 -59.8 164.6	13 20.0 -59.8 163.6	13 14.9 -59.8 162.5	13 09.5 -59.8 161.5	13 03.8 -59.8 160.5
4°	12 25.0 -59.8 164.7	12 20.2 -59.8 163.7	12 15.1 -59.8 162.6	12 09.7 -59.7 161.6	12 04.0 -59.7 160.6
5°	11 25.2 -59.9 164.7	11 20.4 -59.8 163.7	11 15.3 -59.7 162.7	11 10.0 -59.8 161.7	11 04.3 -59.7 160.7
6°	10 25.3 -59.8 164.8	10 20.6 -59.8 163.8	10 15.6 -59.8 162.8	10 10.2 -59.7 161.8	10 04.6 -59.7 160.8
7°	9 25.5 -59.8 164.9	9 20.8 -59.8 163.9	9 15.8 -59.8 162.9	9 10.5 -59.8 161.9	9 04.9 -59.7 160.9
8°	8 25.7 -59.8 165.0	8 21.0 -59.8 164.0	8 16.0 -59.8 163.0	8 10.7 -59.7 162.0	8 05.2 -59.8 161.0
9°	7 25.9 -59.9 165.1	7 21.2 -59.8 164.1	7 16.2 -59.7 163.1	7 11.0 -59.8 162.1	7 05.4 -59.7 161.1
10°	6 26.0 -59.8 165.1	6 21.4 -59.8 164.1	6 16.5 -59.8 163.2	6 11.2 -59.7 162.2	6 05.7 -59.7 161.2
11°	5 26.2 -59.8 165.2	5 21.6 -59.8 164.2	5 16.7 -59.8 163.2	5 11.5 -59.8 162.3	5 06.0 -59.7 161.3
12°	4 26.4 -59.8 165.3	4 21.8 -59.8 164.3	4 16.9 -59.8 163.3	4 11.7 -59.7 162.4	4 06.3 -59.8 161.4
13°	3 26.6 -59.9 165.4	3 22.0 -59.8 164.4	3 17.1 -59.8 163.4	3 12.0 -59.8 162.4	3 06.5 -59.7 161.5
14°	2 26.7 -59.8 165.4	2 22.2 -59.8 164.5	2 17.3 -59.7 163.5	2 12.2 -59.7 162.5	2 06.8 -59.7 161.6
15°	1 26.9 -59.8 165.5	1 22.4 -59.8 164.6	1 17.6 -59.8 163.6	1 12.5 -59.8 162.6	1 07.1 -59.7 161.7
16°	0 27.1 -59.9 165.6	0 22.6 -59.8 164.6	0 17.8 -59.8 163.7	0 12.7 -59.7 162.7	0 07.4 -59.8 161.8
17°	-0 32.8 -59.8	-0 37.2 -59.8	-0 42.0 -59.8	-0 47.0 -59.8	-0 52.4 -59.7
18°	-1 32.6 -59.8	-1 37.0 -59.8	-1 41.8 -59.8	-1 46.8 -59.8	-1 52.1 -59.7
19°	-2 32.4 -59.8	-2 36.8 -59.8	-2 41.6 -59.7	-2 46.6 -59.7	-2 51.8 -59.7
20°	-3 32.2 -59.9	-3 36.6 -59.9	-3 41.3 -59.8	-3 46.3 -59.8	-3 51.5 -59.8
21°	-4 32.1 -59.8	-4 36.5 -59.8	-4 41.1 -59.8	-4 46.1 -59.7	-4 51.3 -59.7
22°	-5 31.9 -59.8	-5 36.3 -59.8	-5 40.9 -59.8	-5 45.8 -59.8	-5 51.0 -59.7
23°	-6 31.7 -59.8	-6 36.1 -59.8	-6 40.7 -59.8	-6 45.6 -59.7	-6 50.7 -59.7
24°	-7 31.5 -59.9	-7 35.9 -59.8	-7 40.5 -59.7	-7 45.3 -59.8	-7 50.4 -59.8
25°	-8 31.4 -59.8	-8 35.7 -59.8	-8 40.2 -59.8	-8 45.1 -59.7	-8 50.2 -59.7
26°	-9 31.2 -59.8	-9 35.5 -59.8	-9 40.0 -59.8	-9 44.8 -59.8	-9 49.9 -59.7
27°					
28°					
29°					

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°	15 56.8 -59.7 159.2	15 50.4 -59.6 158.1	15 43.7 -59.6 157.1	15 36.7 -59.5 156.1	15 29.5 -59.6 155.0
1°	14 57.1 -59.7 159.3	14 50.8 -59.7 158.2	14 44.1 -59.6 157.2	14 37.2 -59.6 156.2	14 29.9 -59.5 155.2
2°	13 57.4 -59.6 159.4	13 51.1 -59.6 158.4	13 44.5 -59.6 157.3	13 37.6 -59.6 156.3	13 30.4 -59.6 155.3
3°	12 57.8 -59.7 159.5	12 51.5 -59.7 158.5	12 44.9 -59.6 157.4	12 38.0 -59.6 156.4	12 30.8 -59.5 155.4
4°	11 58.1 -59.7 159.6	11 51.8 -59.7 158.6	11 45.3 -59.7 157.6	11 38.4 -59.6 156.5	11 31.3 -59.6 155.5
5°	10 58.4 -59.7 159.7	10 52.1 -59.6 158.7	10 45.6 -59.6 157.7	10 38.8 -59.6 156.7	10 31.7 -59.5 155.7
6°	9 58.7 -59.7 159.8	9 52.5 -59.7 158.8	9 46.0 -59.6 157.8	9 39.2 -59.6 156.8	9 32.2 -59.6 155.8
7°	8 59.0 -59.7 159.9	8 52.8 -59.6 158.9	8 46.4 -59.7 157.9	8 39.6 -59.6 156.9	8 32.6 -59.6 155.9
8°	7 59.3 -59.7 160.0	7 53.2 -59.7 159.0	7 46.7 -59.6 158.0	7 40.0 -59.6 157.0	7 33.0 -59.5 156.0
9°	6 59.6 -59.7 160.1	6 53.5 -59.7 159.1	6 47.1 -59.6 158.1	6 40.4 -59.6 157.1	6 33.5 -59.6 156.1
10°	5 59.9 -59.7 160.2	5 53.8 -59.6 159.2	5 47.5 -59.7 158.2	5 40.8 -59.6 157.3	5 33.9 -59.6 156.3
11°	5 00.2 -59.7 160.3	4 54.2 -59.7 159.3	4 47.8 -59.6 158.3	4 41.2 -59.6 157.4	4 34.3 -59.5 156.4
12°	4 00.5 -59.7 160.4	3 54.5 -59.7 159.4	3 48.2 -59.6 158.5	3 41.6 -59.6 157.5	3 34.8 -59.6 156.5
13°	3 00.8 -59.7 160.5	2 54.8 -59.6 159.5	2 48.6 -59.7 158.6	2 42.0 -59.6 157.6	2 35.2 -59.6 156.6
14°	2 01.1 -59.7 160.6	1 55.2 -59.7 159.6	1 48.9 -59.6 158.7	1 42.4 -59.6 157.7	1 35.6 -59.6 156.7
15°	1 01.4 -59.7 160.7	0 55.5 -59.7 159.7	0 49.3 -59.7 158.8	0 42.8 -59.6 157.8	0 36.0 -59.5 156.9
16°	0 01.7 -59.7 160.8	-0 04.2 -59.6	-0 10.4 -59.6	-0 16.8 -59.6	-0 23.5 -59.6
17°	-0 58.0 -59.7	-1 03.8 -59.7	-1 10.0 -59.6	-1 16.4 -59.6	-1 23.1 -59.6
18°	-1 57.7 -59.7	-2 03.5 -59.7	-2 09.6 -59.7	-2 16.0 -59.6	-2 22.7 -59.6
19°	-2 57.4 -59.7	-3 03.2 -59.7	-3 09.3 -59.6	-3 15.6 -59.6	-3 22.3 -59.5
20°	-3 57.1 -59.7	-4 02.9 -59.6	-4 08.9 -59.6	-4 15.2 -59.6	-4 21.8 -59.6
21°	-4 56.8 -59.7	-5 02.5 -59.7	-5 08.5 -59.7	-5 14.8 -59.6	-5 21.4 -59.6
22°	-5 56.5 -59.7	-6 02.2 -59.7	-6 08.2 -59.6	-6 14.4 -59.6	-6 21.0 -59.5
23°	-6 56.2 -59.6	-7 01.9 -59.6	-7 07.8 -59.6	-7 14.0 -59.6	-7 20.5 -59.6
24°	-7 55.8 -59.7	-8 01.5 -59.7	-8 07.4 -59.7	-8 13.6 -59.6	-8 20.1 -59.6
25°	-8 55.5 -59.7	-9 01.2 -59.6	-9 07.1 -59.6	-9 13.2 -59.6	-9 19.7 -59.5
26°	-9 55.2 -59.7				
27°					
28°					
29°					

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°	15 21.9 -59.5 154.0	15 14.1 -59.5 153.0	15 06.0 -59.4 152.0	14 57.6 -59.4 150.9	14 49.0 -59.4 149.9
1°	14 22.4 -59.5 154.1	14 14.6 -59.4 153.1	14 06.6 -59.5 152.1	13 58.2 -59.4 151.1	13 49.6 -59.4 150.1
2°	13 22.9 -59.5 154.3	13 15.2 -59.5 153.3	13 07.1 -59.4 152.2	12 58.8 -59.4 151.2	12 50.2 -59.3 150.2
3°	12 23.4 -59.5 154.4	12 15.7 -59.5 153.4	12 07.7 -59.5 152.4	11 59.4 -59.4 151.4	11 50.9 -59.4 150.4
4°	11 23.9 -59.5 154.5	11 16.2 -59.5 153.5	11 08.2 -59.4 152.5	11 00.0 -59.4 151.5	10 51.5 -59.4 150.5
5°	10 24.4 -59.6 154.7	10 16.7 -59.5 153.7	10 08.8 -59.5 152.6	10 00.6 -59.4 151.6	9 52.1 -59.3 150.6
6°	9 24.8 -59.5 154.8	9 17.2 -59.5 153.8	9 09.3 -59.4 152.8	9 01.2 -59.4 151.8	8 52.8 -59.4 150.8
7°	8 25.3 -59.5 154.9	8 17.7 -59.5 153.9	8 09.9 -59.5 152.9	8 01.8 -59.5 151.9	7 53.4 -59.4 150.9
8°	7 25.8 -59.6 155.0	7 18.2 -59.5 154.0	7 10.4 -59.4 153.1	7 02.3 -59.4 152.1	6 54.0 -59.4 151.1
9°	6 26.2 -59.5 155.2	6 18.7 -59.5 154.2	6 11.0 -59.5 153.2	6 02.9 -59.4 152.2	5 54.6 -59.4 151.2
10°	5 26.7 -59.5 155.3	5 19.2 -59.5 154.3	5 11.5 -59.5 153.3	5 03.5 -59.4 152.3	4 55.2 -59.4 151.4
11°	4 27.2 -59.6 155.4	4 19.7 -59.5 154.4	4 12.0 -59.4 153.5	4 04.1 -59.5 152.5	3 55.8 -59.4 151.5
12°	3 27.6 -59.5 155.5	3 20.2 -59.5 154.6	3 12.6 -59.5 153.6	3 04.6 -59.4 152.6	2 56.4 -59.4 151.7
13°	2 28.1 -59.5 155.7	2 20.7 -59.5 154.7	2 13.1 -59.5 153.7	2 05.2 -59.4 152.8	1 57.0 -59.4 151.8
14°	1 28.6 -59.6 155.8	1 21.2 -59.5 154.8	1 13.6 -59.4 153.9	1 05.8 -59.5 152.9	0 57.6 -59.4 151.9
15°	0 29.0 -59.5 155.9	0 21.7 -59.5 154.9	0 14.2 -59.5 154.0	0 06.3 -59.4 153.0	-0 01.8 -59.3
16°	-0 30.5 -59.6	-0 37.8 -59.5	-0 45.3 -59.5	-0 53.1 -59.4	-1 01.1 -59.4
17°	-1 30.1 -59.5	-1 37.3 -59.5	-1 44.8 -59.4	-1 52.5 -59.5	-2 00.5 -59.4
18°	-2 29.6 -59.5	-2 36.8 -59.5	-2 44.2 -59.5	-2 52.0 -59.4	-2 59.9 -59.4
19°	-3 29.1 -59.6	-3 36.3 -59.5	-3 43.7 -59.5	-3 51.4 -59.4	-3 59.3 -59.4
20°	-4 28.7 -59.5	-4 35.8 -59.5	-4 43.2 -59.4	-4 50.8 -59.4	-4 58.7 -59.4
21°	-5 28.2 -59.6	-5 35.3 -59.5	-5 42.6 -59.5	-5 50.2 -59.5	-5 58.1 -59.4
22°	-6 27.8 -59.5	-6 34.8 -59.5	-6 42.1 -59.5	-6 49.7 -59.4	-6 57.5 -59.4
23°	-7 27.3 -59.5	-7 34.3 -59.5	-7 41.6 -59.4	-7 49.1 -59.4	-7 56.9 -59.4
24°	-8 26.8 -59.5	-8 33.8 -59.5	-8 41.0 -59.5	-8 48.5 -59.4	-8 56.3 -59.3
25°	-9 26.3 -59.6	-9 33.3 -59.5	-9 40.5 -59.4	-9 47.9 -59.4	-9 55.6 -59.4
26°					
27°					
28°					
29°					

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°	14 40.0 -59.3 148.9	14 30.8 -59.3 147.9	14 21.4 -59.3 146.8	14 11.6 -59.2 145.8	14 01.6 -59.1 144.8
1°	13 40.7 -59.3 149.0	13 31.5 -59.2 148.0	13 22.1 -59.2 147.0	13 12.4 -59.2 146.0	13 02.5 -59.1 145.0
2°	12 41.4 -59.3 149.2	12 32.3 -59.3 148.2	12 22.9 -59.3 147.2	12 13.2 -59.2 146.2	12 03.4 -59.2 145.1
3°	11 42.1 -59.4 149.3	11 33.0 -59.3 148.3	11 23.6 -59.2 147.3	11 14.0 -59.2 146.3	11 04.2 -59.2 145.3
4°	10 42.7 -59.3 149.5	10 33.7 -59.3 148.5	10 24.4 -59.3 147.5	10 14.8 -59.2 146.5	10 05.0 -59.1 145.5
5°	9 43.4 -59.3 149.6	9 34.4 -59.3 148.6	9 25.1 -59.2 147.6	9 15.6 -59.2 146.7	9 05.9 -59.2 145.7
6°	8 44.1 -59.4 149.8	8 35.1 -59.3 148.8	8 25.9 -59.3 147.8	8 16.4 -59.2 146.8	8 06.7 -59.2 145.8
7°	7 44.7 -59.3 149.9	7 35.8 -59.3 149.0	7 26.6 -59.2 148.0	7 17.2 -59.2 147.0	7 07.5 -59.2 146.0
8°	6 45.4 -59.4 150.1	6 36.5 -59.3 149.1	6 27.4 -59.3 148.1	6 18.0 -59.3 147.1	6 08.3 -59.2 146.2
9°	5 46.0 -59.3 150.2	5 37.2 -59.3 149.3	5 28.1 -59.3 148.3	5 18.7 -59.2 147.3	5 09.1 -59.1 146.3
10°	4 46.7 -59.4 150.4	4 37.9 -59.3 149.4	4 28.8 -59.2 148.4	4 19.5 -59.2 147.5	4 10.0 -59.2 146.5
11°	3 47.3 -59.3 150.5	3 38.6 -59.3 149.6	3 29.6 -59.3 148.6	3 20.3 -59.2 147.6	3 10.8 -59.2 146.6
12°	2 48.0 -59.4 150.7	2 39.3 -59.4 149.7	2 30.3 -59.3 148.7	2 21.1 -59.3 147.8	2 11.6 -59.2 146.8
13°	1 48.6 -59.3 150.8	1 39.9 -59.3 149.9	1 31.0 -59.3 148.9	1 21.8 -59.2 147.9	1 12.4 -59.2 147.0
14°	0 49.3 -59.4 151.0	0 40.6 -59.3 150.0	0 31.7 -59.2 149.1	0 22.6 -59.3 148.1	0 13.2 -59.2 147.1
15°	-0 10.1 -59.3	-0 18.7 -59.3	-0 27.5 -59.3	-0 36.7 -59.2	-0 46.0 -59.2
16°	-1 09.4 -59.4	-1 18.0 -59.3	-1 26.8 -59.3	-1 35.9 -59.2	-1 45.2 -59.2
17°	-2 08.8 -59.4	-2 17.3 -59.3	-2 26.1 -59.3	-2 35.1 -59.3	-2 44.4 -59.2
18°	-3 08.2 -59.3	-3 16.6 -59.4	-3 25.4 -59.2	-3 34.4 -59.2	-3 43.6 -59.2
19°	-4 07.5 -59.4	-4 16.0 -59.3	-4 24.6 -59.3	-4 33.6 -59.2	-4 42.8 -59.2
20°	-5 06.9 -59.3	-5 15.3 -59.3	-5 23.9 -59.3	-5 32.8 -59.2	-5 42.0 -59.1
21°	-6 06.2 -59.4	-6 14.6 -59.3	-6 23.2 -59.2	-6 32.0 -59.3	-6 41.1 -59.2
22°	-7 05.6 -59.3	-7 13.9 -59.3	-7 22.4 -59.3	-7 31.3 -59.2	-7 40.3 -59.2
23°	-8 04.9 -59.3	-8 13.2 -59.3	-8 21.7 -59.3	-8 30.5 -59.2	-8 39.5 -59.2
24°	-9 04.2 -59.4	-9 12.5 -59.3	-9 21.0 -59.2	-9 29.7 -59.2	-9 38.7 -59.1
25°					
26°					
27°					
28°					
29°					

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°	13 51.4 -59.1 143.8	13 40.9 -59.0 142.8	13 30.2 -59.0 141.8	13 19.2 -59.0 140.8	13 08.0 -58.9 139.7
1°	12 52.3 -59.1 144.0	12 41.9 -59.1 143.0	12 31.2 -59.0 141.9	12 20.2 -58.9 140.9	12 09.1 -59.0 139.9
2°	11 53.2 -59.1 144.1	11 42.8 -59.1 143.1	11 32.2 -59.1 142.1	11 21.3 -59.0 141.1	11 10.1 -58.9 140.1
3°	10 54.1 -59.1 144.3	10 43.7 -59.1 143.3	10 33.1 -59.0 142.3	10 22.3 -59.0 141.3	10 11.2 -58.9 140.3
4°	9 55.0 -59.2 144.5	9 44.6 -59.0 143.5	9 34.1 -59.0 142.5	9 23.3 -59.0 141.5	9 12.3 -59.0 140.5
5°	8 55.8 -59.1 144.7	8 45.6 -59.1 143.7	8 35.1 -59.1 142.7	8 24.3 -59.0 141.7	8 13.3 -59.0 140.7
6°	7 56.7 -59.1 144.8	7 46.5 -59.1 143.8	7 36.0 -59.0 142.9	7 25.3 -59.0 141.9	7 14.3 -58.9 140.9
7°	6 57.6 -59.2 145.0	6 47.4 -59.1 144.0	6 37.0 -59.1 143.0	6 26.3 -59.0 142.1	6 15.4 -59.0 141.1
8°	5 58.4 -59.1 145.2	5 48.3 -59.1 144.2	5 37.9 -59.1 143.2	5 27.3 -59.0 142.2	5 16.4 -59.0 141.3
9°	4 59.3 -59.2 145.3	4 49.2 -59.1 144.4	4 38.8 -59.0 143.4	4 28.3 -59.0 142.4	4 17.4 -58.9 141.4
10°	4 00.1 -59.1 145.5	3 50.1 -59.1 144.5	3 39.8 -59.1 143.6	3 29.3 -59.1 142.6	3 18.5 -59.0 141.6
11°	3 01.0 -59.2 145.7	2 51.0 -59.1 144.7	2 40.7 -59.0 143.7	2 30.2 -59.0 142.8	2 19.5 -59.0 141.8
12°	2 01.8 -59.1 145.8	1 51.9 -59.1 144.9	1 41.7 -59.1 143.9	1 31.2 -59.0 143.0	1 20.5 -58.9 142.0
13°	1 02.7 -59.2 146.0	0 52.8 -59.1 145.1	0 42.6 -59.1 144.1	0 32.2 -59.0 143.1	0 21.6 -59.0 142.2
14°	0 03.5 -59.1 146.2	-0 06.3 -59.1	-0 16.5 -59.0	-0 26.8 -59.0	-0 37.4 -59.0
15°	-0 55.6 -59.2	-1 05.4 -59.2	-1 15.5 -59.1	-1 25.8 -59.1	-1 36.4 -59.0
16°	-1 54.8 -59.1	-2 04.6 -59.1	-2 14.6 -59.1	-2 24.9 -59.0	-2 35.4 -58.9
17°	-2 53.9 -59.1	-3 03.7 -59.1	-3 13.7 -59.0	-3 23.9 -59.0	-3 34.3 -59.0
18°	-3 53.0 -59.2	-4 02.8 -59.1	-4 12.7 -59.1	-4 22.9 -59.0	-4 33.3 -59.0
19°	-4 52.2 -59.1	-5 01.9 -59.1	-5 11.8 -59.0	-5 21.9 -59.0	-5 32.3 -58.9
20°	-5 51.3 -59.2	-6 01.0 -59.1	-6 10.8 -59.1	-6 20.9 -59.0	-6 31.2 -59.0
21°	-6 50.5 -59.1	-7 00.1 -59.0	-7 09.9 -59.0	-7 19.9 -59.0	-7 30.2 -59.0
22°	-7 49.6 -59.1	-7 59.1 -59.1	-8 08.9 -59.1	-8 18.9 -59.0	-8 29.2 -58.9
23°	-8 48.7 -59.2	-8 58.2 -59.1	-9 08.0 -59.0	-9 17.9 -59.0	-9 28.1 -59.0
24°	-9 47.9 -59.1	-9 57.3 -59.1			
25°					
26°					
27°					
28°					
29°					

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°	12 56.5 -58.8 138.7	12 44.9 -58.9 137.7	12 32.9 -58.7 136.7	12 20.8 -58.7 135.7	12 08.4 -58.6 134.7
1°	11 57.7 -58.9 138.9	11 46.0 -58.8 137.9	11 34.2 -58.8 136.9	11 22.1 -58.8 135.9	11 09.8 -58.8 134.9
2°	10 58.8 -58.9 139.1	10 47.2 -58.9 138.1	10 35.4 -58.8 137.1	10 23.3 -58.7 136.1	10 11.0 -58.7 135.1
3°	9 59.9 -58.9 139.3	9 48.3 -58.8 138.3	9 36.6 -58.9 137.3	9 24.6 -58.8 136.3	9 12.3 -58.7 135.4
4°	9 01.0 -58.9 139.5	8 49.5 -58.9 138.5	8 37.7 -58.8 137.5	8 25.8 -58.8 136.5	8 13.6 -58.7 135.6
5°	8 02.1 -58.9 139.7	7 50.6 -58.9 138.7	7 38.9 -58.8 137.7	7 27.0 -58.8 136.7	7 14.9 -58.7 135.8
6°	7 03.2 -59.0 139.9	6 51.7 -58.8 138.9	6 40.1 -58.8 137.9	6 28.2 -58.7 137.0	6 16.2 -58.8 136.0
7°	6 04.2 -58.9 140.1	5 52.9 -58.9 139.1	5 41.3 -58.9 138.1	5 29.5 -58.8 137.2	5 17.4 -58.7 136.2
8°	5 05.3 -58.9 140.3	4 54.0 -58.9 139.3	4 42.4 -58.8 138.3	4 30.7 -58.8 137.4	4 18.7 -58.8 136.4
9°	4 06.4 -58.9 140.5	3 55.1 -58.9 139.5	3 43.6 -58.8 138.5	3 31.9 -58.8 137.6	3 19.9 -58.7 136.6
10°	3 07.5 -59.0 140.7	2 56.2 -58.8 139.7	2 44.8 -58.9 138.7	2 33.1 -58.8 137.8	2 21.2 -58.8 136.8
11°	2 08.5 -58.8 140.8	1 57.4 -58.9 139.9	1 45.9 -58.8 138.9	1 34.3 -58.8 138.0	1 22.4 -58.7 137.0
12°	1 09.6 -58.9 141.0	0 58.5 -58.9 140.1	0 47.1 -58.8 139.1	0 35.5 -58.8 138.2	0 23.7 -58.8 137.2
13°	0 10.7 -58.9 141.2	-0 00.4 -58.9	-0 11.7 -58.9	-0 23.3 -58.8	-0 35.1 -58.7
14°	-0 48.2 -59.0	-0 59.3 -58.9	-1 10.6 -58.8	-1 22.1 -58.8	-1 33.8 -58.8
15°	-1 47.2 -58.9	-1 58.2 -58.9	-2 09.4 -58.9	-2 20.9 -58.8	-2 32.6 -58.7
16°	-2 46.1 -58.9	-2 57.1 -58.9	-3 08.3 -58.8	-3 19.7 -58.8	-3 31.3 -58.7
17°	-3 45.0 -59.0	-3 56.0 -58.8	-4 07.1 -58.8	-4 18.5 -58.7	-4 30.0 -58.8
18°	-4 44.0 -58.9	-4 54.8 -58.9	-5 05.9 -58.9	-5 17.2 -58.8	-5 28.8 -58.7
19°	-5 42.9 -58.9	-5 53.7 -58.9	-6 04.8 -58.8	-6 16.0 -58.8	-6 27.5 -58.7
20°	-6 41.8 -58.9	-6 52.6 -58.8	-7 03.6 -58.8	-7 14.8 -58.8	-7 26.2 -58.8
21°	-7 40.7 -58.9	-7 51.4 -58.9	-8 02.4 -58.8	-8 13.6 -58.7	-8 25.0 -58.7
22°	-8 39.6 -58.9	-8 50.3 -58.9	-9 01.2 -58.8	-9 12.3 -58.8	-9 23.7 -58.7
23°	-9 38.5 -58.9	-9 49.2 -58.8			
24°					
25°					
26°					
27°					
28°					
29°					

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°	11 55.9 -58.7 133.7	11 43.1 -58.6 132.7	11 30.1 -58.6 131.7	11 16.9 -58.5 130.7	11 03.5 -58.5 129.7
1°	10 57.2 -58.6 133.9	10 44.5 -58.6 132.9	10 31.5 -58.5 131.9	10 18.4 -58.5 131.0	10 05.0 -58.4 130.0
2°	9 58.6 -58.7 134.1	9 45.9 -58.6 133.2	9 33.0 -58.6 132.2	9 19.9 -58.6 131.2	9 06.6 -58.5 130.2
3°	8 59.9 -58.7 134.4	8 47.3 -58.7 133.4	8 34.4 -58.6 132.4	8 21.3 -58.5 131.4	8 08.1 -58.5 130.4
4°	8 01.2 -58.7 134.6	7 48.6 -58.6 133.6	7 35.8 -58.6 132.6	7 22.8 -58.5 131.6	7 09.6 -58.5 130.6
5°	7 02.5 -58.6 134.8	6 50.0 -58.7 133.8	6 37.2 -58.6 132.8	6 24.3 -58.6 131.8	6 11.1 -58.5 130.9
6°	6 03.9 -58.7 135.0	5 51.3 -58.6 134.0	5 38.6 -58.6 133.0	5 25.7 -58.6 132.1	5 12.6 -58.5 131.1
7°	5 05.2 -58.7 135.2	4 52.7 -58.6 134.2	4 40.0 -58.6 133.3	4 27.1 -58.5 132.3	4 14.1 -58.5 131.3
8°	4 06.5 -58.7 135.4	3 54.1 -58.7 134.4	3 41.4 -58.6 133.5	3 28.6 -58.6 132.5	3 15.6 -58.6 131.5
9°	3 07.8 -58.7 135.6	2 55.4 -58.7 134.7	2 42.8 -58.6 133.7	2 30.0 -58.5 132.7	2 17.0 -58.5 131.8
10°	2 09.1 -58.7 135.8	1 56.7 -58.6 134.9	1 44.2 -58.6 133.9	1 31.5 -58.6 132.9	1 18.5 -58.5 132.0
11°	1 10.4 -58.7 136.0	0 58.1 -58.7 135.1	0 45.6 -58.6 134.1	0 32.9 -58.6 133.2	0 20.0 -58.5 132.2
12°	0 11.7 -58.7 136.2	-0 00.6 -58.6	-0 13.0 -58.6	-0 25.7 -58.5	-0 38.5 -58.5
13°	-0 47.0 -58.7	-0 59.2 -58.7	-1 11.6 -58.6	-1 24.2 -58.6	-1 37.0 -58.6
14°	-1 45.7 -58.7	-1 57.9 -58.6	-2 10.2 -58.7	-2 22.8 -58.6	-2 35.6 -58.5
15°	-2 44.4 -58.7	-2 56.5 -58.7	-3 08.9 -58.6	-3 21.4 -58.5	-3 34.1 -58.5
16°	-3 43.1 -58.7	-3 55.2 -58.6	-4 07.5 -58.6	-4 19.9 -58.6	-4 32.6 -58.5
17°	-4 41.8 -58.7	-4 53.8 -58.7	-5 06.1 -58.6	-5 18.5 -58.5	-5 31.1 -58.5
18°	-5 40.5 -58.7	-5 52.5 -58.6	-6 04.7 -58.6	-6 17.0 -58.6	-6 29.6 -58.5
19°	-6 39.2 -58.7	-6 51.1 -58.7	-7 03.3 -58.5	-7 15.6 -58.5	-7 28.1 -58.5
20°	-7 37.9 -58.7	-7 49.8 -58.6	-8 01.8 -58.6	-8 14.1 -58.6	-8 26.6 -58.5
21°	-8 36.6 -58.7	-8 48.4 -58.6	-9 00.4 -58.6	-9 12.7 -58.5	-9 25.1 -58.5
22°	-9 35.3 -58.6	-9 47.0 -58.6	-9 59.0 -58.6		
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	10 49.9 -58.4 128.7	10 36.2 -58.4 127.8	10 22.2 -58.3 126.8	10 08.0 -58.2 125.8	9 53.7 -58.2 124.8
1°	9 51.5 -58.4 129.0	9 37.8 -58.4 128.0	9 23.9 -58.4 127.0	9 09.8 -58.3 126.0	8 55.5 -58.3 125.0
2°	8 53.1 -58.5 129.2	8 39.4 -58.4 128.2	8 25.5 -58.3 127.2	8 11.5 -58.4 126.3	7 57.2 -58.2 125.3
3°	7 54.6 -58.4 129.4	7 41.0 -58.4 128.5	7 27.2 -58.4 127.5	7 13.1 -58.3 126.5	6 59.0 -58.3 125.5
4°	6 56.2 -58.5 129.7	6 42.6 -58.4 128.7	6 28.8 -58.4 127.7	6 14.8 -58.3 126.7	6 00.7 -58.3 125.8
5°	5 57.7 -58.4 129.9	5 44.2 -58.4 128.9	5 30.4 -58.3 127.9	5 16.5 -58.3 127.0	5 02.4 -58.3 126.0
6°	4 59.3 -58.5 130.1	4 45.8 -58.5 129.1	4 32.1 -58.4 128.2	4 18.2 -58.4 127.2	4 04.1 -58.3 126.2
7°	4 00.8 -58.5 130.3	3 47.3 -58.4 129.4	3 33.7 -58.4 128.4	3 19.8 -58.3 127.4	3 05.8 -58.3 126.5
8°	3 02.3 -58.4 130.6	2 48.9 -58.4 129.6	2 35.3 -58.4 128.6	2 21.5 -58.3 127.7	2 07.5 -58.3 126.7
9°	2 03.9 -58.5 130.8	1 50.5 -58.5 129.8	1 36.9 -58.4 128.9	1 23.2 -58.4 127.9	1 09.2 -58.3 126.9
10°	1 05.4 -58.5 131.0	0 52.0 -58.4 130.1	0 38.5 -58.4 129.1	0 24.8 -58.3 128.1	0 10.9 -58.3 127.2
11°	0 06.9 -58.5 131.2	-0 06.4 -58.4	-0 19.9 -58.3	-0 33.5 -58.4	-0 47.4 -58.3
12°	-0 51.6 -58.4	-1 04.8 -58.4	-1 18.2 -58.4	-1 31.9 -58.3	-1 45.7 -58.3
13°	-1 50.0 -58.5	-2 03.2 -58.5	-2 16.6 -58.4	-2 30.2 -58.3	-2 44.0 -58.2
14°	-2 48.5 -58.5	-3 01.7 -58.4	-3 15.0 -58.4	-3 28.5 -58.4	-3 42.2 -58.3
15°	-3 47.0 -58.5	-4 00.1 -58.4	-4 13.4 -58.4	-4 26.9 -58.3	-4 40.5 -58.3
16°	-4 45.5 -58.4	-4 58.5 -58.4	-5 11.8 -58.3	-5 25.2 -58.3	-5 38.8 -58.3
17°	-5 43.9 -58.5	-5 56.9 -58.4	-6 10.1 -58.4	-6 23.5 -58.3	-6 37.1 -58.3
18°	-6 42.4 -58.4	-6 55.3 -58.4	-7 08.5 -58.4	-7 21.8 -58.3	-7 35.4 -58.2
19°	-7 40.8 -58.5	-7 53.7 -58.4	-8 06.9 -58.3	-8 20.1 -58.4	-8 33.6 -58.3
20°	-8 39.3 -58.4	-8 52.1 -58.4	-9 05.2 -58.3	-9 18.5 -58.2	-9 31.9 -58.2
21°	-9 37.7 -58.4	-9 50.5 -58.4			
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	9 39.2 -58.2 123.8	9 24.6 -58.2 122.8	9 09.8 -58.2 121.8	8 54.8 -58.1 120.9	8 39.6 -58.0 119.9
1°	8 41.0 -58.2 124.1	8 26.4 -58.2 123.1	8 11.6 -58.1 122.1	7 56.7 -58.1 121.1	7 41.6 -58.1 120.1
2°	7 42.8 -58.2 124.3	7 28.2 -58.1 123.3	7 13.5 -58.1 122.3	6 58.6 -58.1 121.4	6 43.5 -58.0 120.4
3°	6 44.6 -58.2 124.5	6 30.1 -58.2 123.6	6 15.4 -58.2 122.6	6 00.5 -58.1 121.6	5 45.5 -58.1 120.6
4°	5 46.4 -58.3 124.8	5 31.9 -58.2 123.8	5 17.2 -58.1 122.8	5 02.4 -58.1 121.9	4 47.4 -58.1 120.9
5°	4 48.1 -58.2 125.0	4 33.7 -58.2 124.1	4 19.1 -58.2 123.1	4 04.3 -58.1 122.1	3 49.3 -58.0 121.2
6°	3 49.9 -58.3 125.3	3 35.5 -58.2 124.3	3 20.9 -58.2 123.3	3 06.2 -58.2 122.4	2 51.3 -58.1 121.4
7°	2 51.6 -58.2 125.5	2 37.3 -58.2 124.5	2 22.7 -58.1 123.6	2 08.0 -58.1 122.6	1 53.2 -58.1 121.7
8°	1 53.4 -58.3 125.7	1 39.1 -58.3 124.8	1 24.6 -58.2 123.8	1 09.9 -58.1 122.9	0 55.1 -58.1 121.9
9°	0 55.1 -58.2 126.0	0 40.8 -58.2 125.0	0 26.4 -58.2 124.1	0 11.8 -58.1 123.1	-0 03.0 -58.1
10°	-0 03.1 -58.3	-0 17.4 -58.2	-0 31.8 -58.1	-0 46.3 -58.2	-1 01.1 -58.1
11°	-1 01.4 -58.2	-1 15.6 -58.2	-1 29.9 -58.2	-1 44.5 -58.1	-1 59.2 -58.0
12°	-1 59.6 -58.3	-2 13.8 -58.2	-2 28.1 -58.2	-2 42.6 -58.1	-2 57.2 -58.1
13°	-2 57.9 -58.2	-3 12.0 -58.2	-3 26.3 -58.1	-3 40.7 -58.1	-3 55.3 -58.1
14°	-3 56.1 -58.3	-4 10.2 -58.2	-4 24.4 -58.2	-4 38.8 -58.1	-4 53.4 -58.1
15°	-4 54.4 -58.2	-5 08.4 -58.2	-5 22.6 -58.1	-5 36.9 -58.1	-5 51.5 -58.0
16°	-5 52.6 -58.2	-6 06.6 -58.2	-6 20.7 -58.2	-6 35.0 -58.1	-6 49.5 -58.1
17°	-6 50.8 -58.3	-7 04.8 -58.2	-7 18.9 -58.1	-7 33.1 -58.1	-7 47.6 -58.0
18°	-7 49.1 -58.2	-8 03.0 -58.1	-8 17.0 -58.1	-8 31.2 -58.1	-8 45.6 -58.1
19°	-8 47.3 -58.2	-9 01.1 -58.2	-9 15.1 -58.1	-9 29.3 -58.1	-9 43.7 -58.0
20°	-9 45.5 -58.2	-9 59.3 -58.1			
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	8 24.4 -58.0 118.9	8 08.9 -57.9 117.9	7 53.4 -58.0 117.0	7 37.7 -57.9 116.0	7 21.8 -57.8 115.0
1°	7 26.4 -58.1 119.2	7 11.0 -58.0 118.2	6 55.4 -57.9 117.2	6 39.8 -57.9 116.2	6 24.0 -57.9 115.3
2°	6 28.3 -58.0 119.4	6 13.0 -58.0 118.4	5 57.5 -58.0 117.5	5 41.9 -58.0 116.5	5 26.1 -57.9 115.5
3°	5 30.3 -58.0 119.7	5 15.0 -58.0 118.7	4 59.5 -57.9 117.7	4 43.9 -57.9 116.8	4 28.2 -57.9 115.8
4°	4 32.3 -58.1 119.9	4 17.0 -58.0 119.0	4 01.6 -58.0 118.0	3 46.0 -57.9 117.0	3 30.3 -57.8 116.1
5°	3 34.2 -58.0 120.2	3 19.0 -58.0 119.2	3 03.6 -57.9 118.3	2 48.1 -57.9 117.3	2 32.5 -57.9 116.3
6°	2 36.2 -58.0 120.4	2 21.0 -58.0 119.5	2 05.7 -58.0 118.5	1 50.2 -57.9 117.6	1 34.6 -57.9 116.6
7°	1 38.2 -58.1 120.7	1 23.0 -58.0 119.7	1 07.7 -58.0 118.8	0 52.3 -58.0 117.8	0 36.7 -57.9 116.9
8°	0 40.1 -58.0 120.9	0 25.0 -58.0 120.0	0 09.7 -57.9 119.0	-0 05.7 -57.9	-0 21.2 -57.9
9°	-0 17.9 -58.1	-0 33.0 -58.0	-0 48.2 -58.0	-1 03.6 -57.9	-1 19.1 -57.9
10°	-1 16.0 -58.0	-1 31.0 -58.0	-1 46.2 -58.0	-2 01.5 -58.0	-2 17.0 -57.9
11°	-2 14.0 -58.0	-2 29.0 -58.0	-2 44.2 -57.9	-2 59.5 -57.9	-3 14.9 -57.9
12°	-3 12.0 -58.1	-3 27.0 -58.0	-3 42.1 -58.0	-3 57.4 -57.9	-4 12.8 -57.8
13°	-4 10.1 -58.0	-4 25.0 -58.0	-4 40.1 -57.9	-4 55.3 -57.9	-5 10.6 -57.9
14°	-5 08.1 -58.0	-5 23.0 -58.0	-5 38.0 -58.0	-5 53.2 -57.9	-6 08.5 -57.9
15°	-6 06.1 -58.1	-6 21.0 -58.0	-6 36.0 -57.9	-6 51.1 -57.9	-7 06.4 -57.8
16°	-7 04.2 -58.0	-7 19.0 -57.9	-7 33.9 -57.9	-7 49.0 -57.9	-8 04.2 -57.9
17°	-8 02.2 -58.0	-8 16.9 -58.0	-8 31.8 -57.9	-8 46.9 -57.8	-9 02.1 -57.8
18°	-9 00.2 -58.0	-9 14.9 -57.9	-9 29.7 -57.9	-9 44.7 -57.9	-9 59.9 -57.8
19°	-9 58.2 -57.9				
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	7 05.9 -57.9 114.0	6 49.8 -57.8 113.1	6 33.6 -57.8 112.1	6 17.3 -57.8 111.1	6 00.9 -57.7 110.2
1°	6 08.0 -57.8 114.3	5 52.0 -57.8 113.3	5 35.8 -57.7 112.4	5 19.5 -57.7 111.4	5 03.2 -57.7 110.4
2°	5 10.2 -57.8 114.6	4 54.2 -57.8 113.6	4 38.1 -57.8 112.6	4 21.8 -57.7 111.7	4 05.5 -57.8 110.7
3°	4 12.4 -57.9 114.8	3 56.4 -57.8 113.9	3 40.3 -57.8 112.9	3 24.1 -57.8 111.9	3 07.7 -57.7 111.0
4°	3 14.5 -57.8 115.1	2 58.6 -57.8 114.1	2 42.5 -57.8 113.2	2 26.3 -57.7 112.2	2 10.0 -57.7 111.3
5°	2 16.7 -57.9 115.4	2 00.8 -57.9 114.4	1 44.7 -57.8 113.4	1 28.6 -57.8 112.5	1 12.3 -57.7 111.5
6°	1 18.8 -57.8 115.6	1 02.9 -57.8 114.7	0 46.9 -57.8 113.7	0 30.8 -57.7 112.8	0 14.6 -57.7 111.8
7°	0 21.0 -57.9 115.9	0 05.1 -57.8 114.9	-0 10.9 -57.7	-0 26.9 -57.8	-0 43.1 -57.8
8°	-0 36.9 -57.9	-0 52.7 -57.8	-1 08.6 -57.8	-1 24.7 -57.7	-1 40.9 -57.7
9°	-1 34.8 -57.8	-1 50.5 -57.8	-2 06.4 -57.8	-2 22.4 -57.8	-2 38.6 -57.7
10°	-2 32.6 -57.9	-2 48.3 -57.9	-3 04.2 -57.8	-3 20.2 -57.7	-3 36.3 -57.7
11°	-3 30.5 -57.8	-3 46.2 -57.8	-4 02.0 -57.8	-4 17.9 -57.8	-4 34.0 -57.7
12°	-4 28.3 -57.8	-4 44.0 -57.8	-4 59.8 -57.7	-5 15.7 -57.7	-5 31.7 -57.7
13°	-5 26.1 -57.9	-5 41.8 -57.8	-5 57.5 -57.8	-6 13.4 -57.7	-6 29.4 -57.7
14°	-6 24.0 -57.8	-6 39.6 -57.7	-6 55.3 -57.7	-7 11.1 -57.7	-7 27.1 -57.7
15°	-7 21.8 -57.8	-7 37.3 -57.8	-7 53.0 -57.8	-8 08.8 -57.7	-8 24.8 -57.6
16°	-8 19.6 -57.8	-8 35.1 -57.8	-8 50.8 -57.7	-9 06.5 -57.7	-9 22.4 -57.7
17°	-9 17.4 -57.8	-9 32.9 -57.7	-9 48.5 -57.7		
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	5 44.3 -57.6 109.2	5 27.7 -57.6 108.2	5 11.0 -57.6 107.3	4 54.2 -57.6 106.3	4 37.3 -57.5 105.3
1°	4 46.7 -57.7 109.5	4 30.1 -57.7 108.5	4 13.4 -57.6 107.5	3 56.6 -57.6 106.6	3 39.8 -57.6 105.6
2°	3 49.0 -57.7 109.7	3 32.4 -57.6 108.8	3 15.8 -57.7 107.8	2 59.0 -57.6 106.9	2 42.2 -57.6 105.9
3°	2 51.3 -57.7 110.0	2 34.8 -57.7 109.1	2 18.1 -57.6 108.1	2 01.4 -57.6 107.1	1 44.6 -57.6 106.2
4°	1 53.6 -57.7 110.3	1 37.1 -57.6 109.3	1 20.5 -57.6 108.4	1 03.8 -57.6 107.4	0 47.0 -57.5 106.5
5°	0 55.9 -57.7 110.6	0 39.5 -57.7 109.6	0 22.9 -57.6 108.7	0 06.2 -57.6 107.7	-0 10.5 -57.6
6°	-0 01.8 -57.7	-0 18.2 -57.7	-0 34.7 -57.7	-0 51.4 -57.6	-1 08.1 -57.6
7°	-0 59.5 -57.6	-1 15.9 -57.6	-1 32.4 -57.6	-1 49.0 -57.6	-2 05.7 -57.6
8°	-1 57.1 -57.7	-2 13.5 -57.7	-2 30.0 -57.6	-2 46.6 -57.6	-3 03.3 -57.5
9°	-2 54.8 -57.7	-3 11.2 -57.6	-3 27.6 -57.7	-3 44.2 -57.6	-4 00.8 -57.6
10°	-3 52.5 -57.7	-4 08.8 -57.7	-4 25.3 -57.6	-4 41.8 -57.6	-4 58.4 -57.6
11°	-4 50.2 -57.7	-5 06.5 -57.6	-5 22.9 -57.6	-5 39.4 -57.6	-5 56.0 -57.5
12°	-5 47.9 -57.6	-6 04.1 -57.6	-6 20.5 -57.6	-6 37.0 -57.5	-6 53.5 -57.6
13°	-6 45.5 -57.7	-7 01.7 -57.7	-7 18.1 -57.6	-7 34.5 -57.6	-7 51.1 -57.5
14°	-7 43.2 -57.6	-7 59.4 -57.6	-8 15.7 -57.6	-8 32.1 -57.5	-8 48.6 -57.5
15°	-8 40.8 -57.6	-8 57.0 -57.6	-9 13.3 -57.5	-9 29.6 -57.6	-9 46.1 -57.5
16°	-9 38.4 -57.7	-9 54.6 -57.6			
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	4 20.4 -57.6 104.4	4 03.4 -57.6 103.4	3 46.3 -57.5 102.5	3 29.1 -57.5 101.5	3 11.9 -57.5 100.5
1°	3 22.8 -57.5 104.7	3 05.8 -57.5 103.7	2 48.8 -57.6 102.7	2 31.6 -57.5 101.8	2 14.4 -57.5 100.8
2°	2 25.3 -57.6 104.9	2 08.3 -57.5 104.0	1 51.2 -57.5 103.0	1 34.1 -57.5 102.1	1 16.9 -57.4 101.1
3°	1 27.7 -57.5 105.2	1 10.8 -57.6 104.3	0 53.7 -57.5 103.3	0 36.6 -57.5 102.3	0 19.5 -57.5 101.4
4°	0 30.2 -57.6 105.5	0 13.2 -57.5 104.5	-0 03.8 -57.5	-0 20.9 -57.5	-0 38.0 -57.5
5°	-0 27.4 -57.5	-0 44.3 -57.5	-1 01.3 -57.5	-1 18.4 -57.4	-1 35.5 -57.5
6°	-1 24.9 -57.6	-1 41.8 -57.6	-1 58.8 -57.5	-2 15.8 -57.5	-2 33.0 -57.4
7°	-2 22.5 -57.5	-2 39.4 -57.5	-2 56.3 -57.5	-3 13.3 -57.5	-3 30.4 -57.5
8°	-3 20.0 -57.6	-3 36.9 -57.5	-3 53.8 -57.5	-4 10.8 -57.5	-4 27.9 -57.4
9°	-4 17.6 -57.5	-4 34.4 -57.5	-4 51.3 -57.5	-5 08.3 -57.5	-5 25.3 -57.5
10°	-5 15.1 -57.6	-5 31.9 -57.5	-5 48.8 -57.5	-6 05.8 -57.4	-6 22.8 -57.4
11°	-6 12.7 -57.5	-6 29.4 -57.5	-6 46.3 -57.5	-7 03.2 -57.5	-7 20.2 -57.5
12°	-7 10.2 -57.5	-7 26.9 -57.5	-7 43.8 -57.4	-8 00.7 -57.4	-8 17.7 -57.4
13°	-8 07.7 -57.5	-8 24.4 -57.5	-8 41.2 -57.5	-8 58.1 -57.4	-9 15.1 -57.4
14°	-9 05.2 -57.5	-9 21.9 -57.5	-9 38.7 -57.4	-9 55.5 -57.4	
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	2 54.6 -57.4 99.6	2 37.3 -57.5 98.6	2 19.9 -57.4 97.7	2 02.5 -57.4 96.7	1 45.1 -57.4 95.7
1°	1 57.2 -57.5 99.9	1 39.8 -57.4 98.9	1 22.5 -57.4 97.9	1 05.1 -57.4 97.0	0 47.7 -57.4 96.0
2°	0 59.7 -57.5 100.1	0 42.4 -57.4 99.2	0 25.1 -57.5 98.2	0 07.7 -57.4 97.3	-0 09.7 -57.4
3°	0 02.2 -57.4 100.4	-0 15.0 -57.5	-0 32.4 -57.4	-0 49.7 -57.5	-1 07.1 -57.4
4°	-0 55.2 -57.5	-1 12.5 -57.4	-1 29.8 -57.4	-1 47.2 -57.4	-2 04.5 -57.5
5°	-1 52.7 -57.4	-2 09.9 -57.5	-2 27.2 -57.4	-2 44.6 -57.4	-3 02.0 -57.3
6°	-2 50.1 -57.5	-3 07.4 -57.4	-3 24.6 -57.5	-3 42.0 -57.4	-3 59.3 -57.4
7°	-3 47.6 -57.4	-4 04.8 -57.4	-4 22.1 -57.4	-4 39.4 -57.4	-4 56.7 -57.4
8°	-4 45.0 -57.5	-5 02.2 -57.4	-5 19.5 -57.4	-5 36.8 -57.4	-5 54.1 -57.4
9°	-5 42.5 -57.4	-5 59.6 -57.5	-6 16.9 -57.4	-6 34.2 -57.3	-6 51.5 -57.4
10°	-6 39.9 -57.4	-6 57.1 -57.4	-7 14.3 -57.4	-7 31.5 -57.4	-7 48.9 -57.3
11°	-7 37.3 -57.4	-7 54.5 -57.3	-8 11.7 -57.3	-8 28.9 -57.4	-8 46.2 -57.3
12°	-8 34.7 -57.4	-8 51.8 -57.4	-9 09.0 -57.4	-9 26.3 -57.3	-9 43.5 -57.4
13°	-9 32.1 -57.4	-9 49.2 -57.4			
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	1 27.6 -57.4 94.8	1 10.1 -57.4 93.8	0 52.6 -57.4 92.9	0 35.1 -57.4 91.9	0 17.5 -57.3 91.0
1°	0 30.2 -57.4 95.1	0 12.7 -57.4 94.1	-0 04.8 -57.4	-0 22.3 -57.4	-0 39.8 -57.4
2°	-0 27.2 -57.4	-0 44.7 -57.4	-1 02.2 -57.3	-1 19.7 -57.4	-1 37.2 -57.4
3°	-1 24.6 -57.4	-1 42.1 -57.3	-1 59.5 -57.4	-2 17.1 -57.3	-2 34.6 -57.4
4°	-2 22.0 -57.4	-2 39.4 -57.4	-2 56.9 -57.4	-3 14.4 -57.4	-3 32.0 -57.3
5°	-3 19.4 -57.4	-3 36.8 -57.4	-3 54.3 -57.4	-4 11.8 -57.4	-4 29.3 -57.4
6°	-4 16.8 -57.3	-4 34.2 -57.4	-4 51.7 -57.3	-5 09.2 -57.3	-5 26.7 -57.3
7°	-5 14.1 -57.4	-5 31.6 -57.3	-5 49.0 -57.4	-6 06.5 -57.4	-6 24.0 -57.4
8°	-6 11.5 -57.4	-6 28.9 -57.4	-6 46.4 -57.3	-7 03.9 -57.3	-7 21.4 -57.3
9°	-7 08.9 -57.3	-7 26.3 -57.3	-7 43.7 -57.4	-8 01.2 -57.3	-8 18.7 -57.3
10°	-8 06.2 -57.4	-8 23.6 -57.4	-8 41.1 -57.3	-8 58.5 -57.3	-9 16.0 -57.3
11°	-9 03.6 -57.3	-9 21.0 -57.3	-9 38.4 -57.3	-9 55.8 -57.3	
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

# Latitude 73°

# Declination CONTRARY name to 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 -57.4 90.0	-0 17.5 -57.4			
1°	-0 57.4 -57.4	-1 14.9 -57.4			
2°	-1 54.8 -57.3	-2 12.3 -57.4			
3°	-2 52.1 -57.4	-3 09.7 -57.3			
4°	-3 49.5 -57.4	-4 07.0 -57.4			
5°	-4 46.9 -57.3	-5 04.4 -57.4			
6°	-5 44.2 -57.4	-6 01.8 -57.3			
7°	-6 41.6 -57.3	-6 59.1 -57.3			
8°	-7 38.9 -57.3	-7 56.4 -57.4			
9°	-8 36.2 -57.3	-8 53.8 -57.3			
10°	-9 33.5 -57.3	-9 51.1 -57.2			
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°					
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°					

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data.  
The data on this page is believed to be accurate but no warranty is given for it's correctness. Use it only for training and exercising!

Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	16 00.0 -60.0 180.0	15 59.8 -59.9 179.0	15 59.4 -60.0 177.9	15 58.6 -59.9 176.9	15 57.6 -60.0 175.8
1°	15 00.0 -60.0 180.0	14 59.9 -60.0 179.0	14 59.4 -60.0 177.9	14 58.7 -60.0 176.9	14 57.6 -60.0 175.9
2°	14 00.0 -60.0 180.0	13 59.9 -60.0 179.0	13 59.4 -60.0 177.9	13 58.7 -60.0 176.9	13 57.6 -60.0 175.9
3°	13 00.0 -60.0 180.0	12 59.9 -60.0 179.0	12 59.4 -60.0 178.0	12 58.7 -60.0 176.9	12 57.6 -60.0 175.9
4°	12 00.0 -60.0 180.0	11 59.9 -60.0 179.0	11 59.4 -60.0 178.0	11 58.7 -60.0 176.9	11 57.6 -59.9 175.9
5°	11 00.0 -60.0 180.0	10 59.9 -60.0 179.0	10 59.4 -60.0 178.0	10 58.7 -60.0 177.0	10 57.7 -60.0 175.9
6°	10 00.0 -60.0 180.0	9 59.9 -60.0 179.0	9 59.4 -60.0 178.0	9 58.7 -60.0 177.0	9 57.7 -60.0 176.0
7°	9 00.0 -60.0 180.0	8 59.9 -60.0 179.0	8 59.4 -60.0 178.0	8 58.7 -60.0 177.0	8 57.7 -60.0 176.0
8°	8 00.0 -60.0 180.0	7 59.9 -60.0 179.0	7 59.4 -60.0 178.0	7 58.7 -60.0 177.0	7 57.7 -60.0 176.0
9°	7 00.0 -60.0 180.0	6 59.9 -60.0 179.0	6 59.4 -60.0 178.0	6 58.7 -60.0 177.0	6 57.7 -60.0 176.0
10°	6 00.0 -60.0 180.0	5 59.9 -60.0 179.0	5 59.4 -60.0 178.0	5 58.7 -60.0 177.0	5 57.7 -60.0 176.0
11°	5 00.0 -60.0 180.0	4 59.9 -60.0 179.0	4 59.4 -60.0 178.0	4 58.7 -60.0 177.0	4 57.7 -60.0 176.1
12°	4 00.0 -60.0 180.0	3 59.9 -60.0 179.0	3 59.4 -60.0 178.0	3 58.7 -60.0 177.1	3 57.7 -60.0 176.1
13°	3 00.0 -60.0 180.0	2 59.9 -60.0 179.0	2 59.4 -60.0 178.0	2 58.7 -60.0 177.1	2 57.7 -59.9 176.1
14°	2 00.0 -60.0 180.0	1 59.9 -60.0 179.0	1 59.4 -60.0 178.1	1 58.7 -60.0 177.1	1 57.8 -60.0 176.1
15°	1 00.0 -60.0 180.0	0 59.9 -60.0 179.0	0 59.4 -60.0 178.1	0 58.7 -59.9 177.1	0 57.8 -60.0 176.1
16°	0 00.0 -60.0 180.0	-0 00.1 -60.0	-0 00.6 -60.0	-0 01.2 -60.0	-0 02.2 -60.0
17°	-1 00.0 -60.0	-1 00.1 -60.0	-1 00.6 -59.9	-1 01.2 -60.0	-1 02.2 -60.0
18°	-2 00.0 -60.0	-2 00.1 -60.0	-2 00.5 -60.0	-2 01.2 -60.0	-2 02.2 -60.0
19°	-3 00.0 -60.0	-3 00.1 -60.0	-3 00.5 -60.0	-3 01.2 -60.0	-3 02.2 -60.0
20°	-4 00.0 -60.0	-4 00.1 -60.0	-4 00.5 -60.0	-4 01.2 -60.0	-4 02.2 -60.0
21°	-5 00.0 -60.0	-5 00.1 -60.0	-5 00.5 -60.0	-5 01.2 -60.0	-5 02.2 -60.0
22°	-6 00.0 -60.0	-6 00.1 -60.0	-6 00.5 -60.0	-6 01.2 -60.0	-6 02.2 -59.9
23°	-7 00.0 -60.0	-7 00.1 -60.0	-7 00.5 -60.0	-7 01.2 -60.0	-7 02.1 -60.0
24°	-8 00.0 -60.0	-8 00.1 -60.0	-8 00.5 -60.0	-8 01.2 -60.0	-8 02.1 -60.0
25°	-9 00.0 -60.0	-9 00.1 -60.0	-9 00.5 -60.0	-9 01.2 -60.0	-9 02.1 -60.0
26°					
27°					
28°					
29°					

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°	15 56.2 -59.9 174.8	15 54.6 -60.0 173.8	15 52.7 -60.0 172.7	15 50.4 -59.9 171.7	15 47.9 -60.0 170.6
1°	14 56.3 -60.0 174.8	14 54.6 -59.9 173.8	14 52.7 -60.0 172.8	14 50.5 -60.0 171.7	14 47.9 -59.9 170.7
2°	13 56.3 -60.0 174.9	13 54.7 -60.0 173.8	13 52.7 -59.9 172.8	13 50.5 -59.9 171.8	13 48.0 -60.0 170.7
3°	12 56.3 -60.0 174.9	12 54.7 -60.0 173.9	12 52.8 -60.0 172.8	12 50.6 -60.0 171.8	12 48.0 -59.9 170.8
4°	11 56.3 -60.0 174.9	11 54.7 -60.0 173.9	11 52.8 -60.0 172.9	11 50.6 -60.0 171.8	11 48.1 -59.9 170.8
5°	10 56.3 -59.9 174.9	10 54.7 -59.9 173.9	10 52.8 -59.9 172.9	10 50.6 -59.9 171.9	10 48.2 -60.0 170.9
6°	9 56.4 -60.0 175.0	9 54.8 -60.0 173.9	9 52.9 -60.0 172.9	9 50.7 -60.0 171.9	9 48.2 -59.9 170.9
7°	8 56.4 -60.0 175.0	8 54.8 -60.0 174.0	8 52.9 -60.0 173.0	8 50.7 -59.9 172.0	8 48.3 -60.0 171.0
8°	7 56.4 -60.0 175.0	7 54.8 -60.0 174.0	7 52.9 -59.9 173.0	7 50.8 -60.0 172.0	7 48.3 -59.9 171.0
9°	6 56.4 -60.0 175.0	6 54.8 -59.9 174.0	6 53.0 -60.0 173.0	6 50.8 -59.9 172.0	6 48.4 -60.0 171.0
10°	5 56.4 -60.0 175.0	5 54.9 -60.0 174.1	5 53.0 -60.0 173.1	5 50.9 -60.0 172.1	5 48.4 -59.9 171.1
11°	4 56.4 -59.9 175.1	4 54.9 -60.0 174.1	4 53.0 -59.9 173.1	4 50.9 -59.9 172.1	4 48.5 -59.9 171.1
12°	3 56.5 -60.0 175.1	3 54.9 -60.0 174.1	3 53.1 -60.0 173.1	3 51.0 -60.0 172.2	3 48.6 -60.0 171.2
13°	2 56.5 -60.0 175.1	2 54.9 -59.9 174.1	2 53.1 -60.0 173.2	2 51.0 -60.0 172.2	2 48.6 -59.9 171.2
14°	1 56.5 -60.0 175.1	1 55.0 -60.0 174.2	1 53.1 -59.9 173.2	1 51.0 -59.9 172.2	1 48.7 -60.0 171.3
15°	0 56.5 -60.0 175.2	0 55.0 -60.0 174.2	0 53.2 -60.0 173.2	0 51.1 -60.0 172.3	0 48.7 -59.9 171.3
16°	-0 03.5 -59.9	-0 05.0 -60.0	-0 06.8 -60.0	-0 08.9 -59.9	-0 11.2 -60.0
17°	-1 03.4 -60.0	-1 05.0 -59.9	-1 06.8 -59.9	-1 08.8 -60.0	-1 11.2 -59.9
18°	-2 03.4 -60.0	-2 04.9 -60.0	-2 06.7 -60.0	-2 08.8 -59.9	-2 11.1 -59.9
19°	-3 03.4 -60.0	-3 04.9 -60.0	-3 06.7 -60.0	-3 08.7 -60.0	-3 11.0 -60.0
20°	-4 03.4 -60.0	-4 04.9 -60.0	-4 06.7 -59.9	-4 08.7 -59.9	-4 11.0 -59.9
21°	-5 03.4 -60.0	-5 04.9 -59.9	-5 06.6 -60.0	-5 08.6 -60.0	-5 10.9 -60.0
22°	-6 03.4 -59.9	-6 04.8 -60.0	-6 06.6 -60.0	-6 08.6 -60.0	-6 10.9 -59.9
23°	-7 03.3 -60.0	-7 04.8 -60.0	-7 06.6 -59.9	-7 08.6 -59.9	-7 10.8 -60.0
24°	-8 03.3 -60.0	-8 04.8 -60.0	-8 06.5 -60.0	-8 08.5 -60.0	-8 10.8 -59.9
25°	-9 03.3 -60.0	-9 04.8 -59.9	-9 06.5 -59.9	-9 08.5 -59.9	-9 10.7 -60.0
26°					
27°					
28°					
29°					

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°	15 45.0 -59.9 169.6	15 41.9 -59.9 168.6	15 38.5 -59.9 167.5	15 34.8 -59.9 166.5	15 30.8 -59.9 165.5
1°	14 45.1 -59.9 169.7	14 42.0 -59.9 168.6	14 38.6 -59.9 167.6	14 34.9 -59.9 166.6	14 30.9 -59.9 165.5
2°	13 45.2 -59.9 169.7	13 42.1 -59.9 168.7	13 38.7 -59.9 167.7	13 35.0 -59.9 166.6	13 31.0 -59.8 165.6
3°	12 45.3 -60.0 169.8	12 42.2 -59.9 168.7	12 38.8 -59.9 167.7	12 35.1 -59.8 166.7	12 31.2 -59.9 165.7
4°	11 45.3 -59.9 169.8	11 42.3 -60.0 168.8	11 38.9 -59.9 167.8	11 35.3 -59.9 166.8	11 31.3 -59.8 165.7
5°	10 45.4 -59.9 169.9	10 42.3 -59.9 168.8	10 39.0 -59.9 167.8	10 35.4 -59.9 166.8	10 31.5 -59.9 165.8
6°	9 45.5 -60.0 169.9	9 42.4 -59.9 168.9	9 39.1 -59.9 167.9	9 35.5 -59.9 166.9	9 31.6 -59.9 165.9
7°	8 45.5 -59.9 170.0	8 42.5 -59.9 169.0	8 39.2 -59.9 168.0	8 35.6 -59.9 166.9	8 31.7 -59.8 165.9
8°	7 45.6 -59.9 170.0	7 42.6 -59.9 169.0	7 39.3 -59.9 168.0	7 35.7 -59.9 167.0	7 31.9 -59.9 166.0
9°	6 45.7 -60.0 170.1	6 42.7 -59.9 169.1	6 39.4 -59.9 168.1	6 35.8 -59.8 167.1	6 32.0 -59.9 166.1
10°	5 45.7 -59.9 170.1	5 42.8 -60.0 169.1	5 39.5 -59.9 168.1	5 36.0 -59.9 167.1	5 32.1 -59.8 166.2
11°	4 45.8 -59.9 170.2	4 42.8 -59.9 169.2	4 39.6 -59.9 168.2	4 36.1 -59.9 167.2	4 32.3 -59.9 166.2
12°	3 45.9 -59.9 170.2	3 42.9 -59.9 169.2	3 39.7 -59.9 168.2	3 36.2 -59.9 167.3	3 32.4 -59.9 166.3
13°	2 46.0 -60.0 170.2	2 43.0 -59.9 169.3	2 39.8 -59.9 168.3	2 36.3 -59.9 167.3	2 32.5 -59.8 166.4
14°	1 46.0 -59.9 170.3	1 43.1 -59.9 169.3	1 39.9 -59.9 168.4	1 36.4 -59.9 167.4	1 32.7 -59.9 166.4
15°	0 46.1 -59.9 170.3	0 43.2 -59.9 169.4	0 40.0 -59.9 168.4	0 36.5 -59.8 167.4	0 32.8 -59.9 166.5
16°	-0 13.8 -60.0	-0 16.7 -60.0	-0 19.9 -59.9	-0 23.3 -59.9	-0 27.1 -59.8
17°	-1 13.8 -59.9	-1 16.7 -59.9	-1 19.8 -59.9	-1 23.2 -59.9	-1 26.9 -59.9
18°	-2 13.7 -59.9	-2 16.6 -59.9	-2 19.7 -59.9	-2 23.1 -59.9	-2 26.8 -59.9
19°	-3 13.6 -60.0	-3 16.5 -59.9	-3 19.6 -59.9	-3 23.0 -59.9	-3 26.7 -59.8
20°	-4 13.6 -59.9	-4 16.4 -59.9	-4 19.5 -59.9	-4 22.9 -59.9	-4 26.5 -59.9
21°	-5 13.5 -59.9	-5 16.3 -59.9	-5 19.4 -59.9	-5 22.8 -59.8	-5 26.4 -59.9
22°	-6 13.4 -60.0	-6 16.2 -60.0	-6 19.3 -59.9	-6 22.6 -59.9	-6 26.3 -59.8
23°	-7 13.4 -59.9	-7 16.2 -59.9	-7 19.2 -59.9	-7 22.5 -59.9	-7 26.1 -59.9
24°	-8 13.3 -59.9	-8 16.1 -59.9	-8 19.1 -59.9	-8 22.4 -59.9	-8 26.0 -59.8
25°	-9 13.2 -59.9	-9 16.0 -59.9	-9 19.0 -59.9	-9 22.3 -59.9	-9 25.8 -59.9
26°					
27°					
28°					
29°					

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°	15 26.5 -59.9 164.4	15 21.9 -59.8 163.4	15 17.0 -59.8 162.4	15 11.8 -59.7 161.3	15 06.4 -59.7 160.3
1°	14 26.6 -59.8 164.5	14 22.1 -59.9 163.5	14 17.2 -59.8 162.4	14 12.1 -59.8 161.4	14 06.7 -59.8 160.4
2°	13 26.8 -59.9 164.6	13 22.2 -59.8 163.6	13 17.4 -59.8 162.5	13 12.3 -59.8 161.5	13 06.9 -59.7 160.5
3°	12 26.9 -59.8 164.7	12 22.4 -59.8 163.6	12 17.6 -59.8 162.6	12 12.5 -59.7 161.6	12 07.2 -59.8 160.6
4°	11 27.1 -59.8 164.7	11 22.6 -59.8 163.7	11 17.8 -59.8 162.7	11 12.8 -59.8 161.7	11 07.4 -59.7 160.7
5°	10 27.3 -59.9 164.8	10 22.8 -59.8 163.8	10 18.0 -59.8 162.8	10 13.0 -59.8 161.8	10 07.7 -59.8 160.8
6°	9 27.4 -59.8 164.9	9 23.0 -59.9 163.9	9 18.2 -59.8 162.9	9 13.2 -59.8 161.9	9 07.9 -59.7 160.9
7°	8 27.6 -59.9 164.9	8 23.1 -59.8 163.9	8 18.4 -59.8 162.9	8 13.4 -59.7 161.9	8 08.2 -59.8 160.9
8°	7 27.7 -59.8 165.0	7 23.3 -59.8 164.0	7 18.6 -59.8 163.0	7 13.7 -59.8 162.0	7 08.4 -59.7 161.0
9°	6 27.9 -59.9 165.1	6 23.5 -59.8 164.1	6 18.8 -59.8 163.1	6 13.9 -59.8 162.1	6 08.7 -59.8 161.1
10°	5 28.0 -59.8 165.2	5 23.7 -59.9 164.2	5 19.0 -59.8 163.2	5 14.1 -59.8 162.2	5 08.9 -59.7 161.2
11°	4 28.2 -59.8 165.2	4 23.8 -59.8 164.3	4 19.2 -59.8 163.3	4 14.3 -59.8 162.3	4 09.2 -59.8 161.3
12°	3 28.4 -59.9 165.3	3 24.0 -59.8 164.3	3 19.4 -59.8 163.4	3 14.5 -59.7 162.4	3 09.4 -59.8 161.4
13°	2 28.5 -59.8 165.4	2 24.2 -59.8 164.4	2 19.6 -59.8 163.4	2 14.8 -59.8 162.5	2 09.6 -59.7 161.5
14°	1 28.7 -59.9 165.5	1 24.4 -59.9 164.5	1 19.8 -59.8 163.5	1 15.0 -59.8 162.5	1 09.9 -59.8 161.6
15°	0 28.8 -59.8 165.5	0 24.5 -59.8 164.6	0 20.0 -59.8 163.6	0 15.2 -59.8 162.6	0 10.1 -59.7 161.7
16°	-0 31.0 -59.9	-0 35.3 -59.8	-0 39.8 -59.8	-0 44.6 -59.8	-0 49.6 -59.8
17°	-1 30.9 -59.8	-1 35.1 -59.8	-1 39.6 -59.8	-1 44.4 -59.7	-1 49.4 -59.7
18°	-2 30.7 -59.9	-2 34.9 -59.9	-2 39.4 -59.8	-2 44.1 -59.8	-2 49.1 -59.8
19°	-3 30.6 -59.8	-3 34.8 -59.8	-3 39.2 -59.8	-3 43.9 -59.8	-3 48.9 -59.8
20°	-4 30.4 -59.9	-4 34.6 -59.8	-4 39.0 -59.8	-4 43.7 -59.8	-4 48.7 -59.7
21°	-5 30.3 -59.8	-5 34.4 -59.8	-5 38.8 -59.8	-5 43.5 -59.8	-5 48.4 -59.8
22°	-6 30.1 -59.9	-6 34.2 -59.9	-6 38.6 -59.8	-6 43.3 -59.7	-6 48.2 -59.7
23°	-7 30.0 -59.8	-7 34.1 -59.8	-7 38.4 -59.8	-7 43.0 -59.8	-7 47.9 -59.8
24°	-8 29.8 -59.8	-8 33.9 -59.8	-8 38.2 -59.8	-8 42.8 -59.8	-8 47.7 -59.7
25°	-9 29.6 -59.9	-9 33.7 -59.8	-9 38.0 -59.8	-9 42.6 -59.8	-9 47.4 -59.8
26°					
27°					
28°					
29°					

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°	15 00.7 -59.7 159.3	14 54.7 -59.7 158.2	14 48.4 -59.6 157.2	14 41.9 -59.6 156.2	14 35.1 -59.6 155.1
1°	14 01.0 -59.7 159.4	13 55.0 -59.7 158.3	13 48.8 -59.7 157.3	13 42.3 -59.7 156.3	13 35.5 -59.6 155.3
2°	13 01.3 -59.8 159.5	12 55.3 -59.7 158.4	12 49.1 -59.7 157.4	12 42.6 -59.6 156.4	12 35.9 -59.6 155.4
3°	12 01.5 -59.7 159.6	11 55.6 -59.7 158.5	11 49.4 -59.6 157.5	11 43.0 -59.6 156.5	11 36.3 -59.6 155.5
4°	11 01.8 -59.7 159.7	10 55.9 -59.7 158.6	10 49.8 -59.7 157.6	10 43.4 -59.7 156.6	10 36.7 -59.7 155.6
5°	10 02.1 -59.7 159.8	9 56.2 -59.7 158.7	9 50.1 -59.7 157.7	9 43.7 -59.6 156.7	9 37.0 -59.6 155.7
6°	9 02.4 -59.8 159.9	8 56.5 -59.7 158.9	8 50.4 -59.6 157.8	8 44.1 -59.7 156.8	8 37.4 -59.6 155.8
7°	8 02.6 -59.7 159.9	7 56.8 -59.7 159.0	7 50.8 -59.7 158.0	7 44.4 -59.6 157.0	7 37.8 -59.6 156.0
8°	7 02.9 -59.7 160.0	6 57.1 -59.7 159.1	6 51.1 -59.7 158.1	6 44.8 -59.7 157.1	6 38.2 -59.6 156.1
9°	6 03.2 -59.7 160.1	5 57.4 -59.7 159.2	5 51.4 -59.7 158.2	5 45.1 -59.6 157.2	5 38.6 -59.6 156.2
10°	5 03.5 -59.8 160.2	4 57.7 -59.7 159.3	4 51.7 -59.6 158.3	4 45.5 -59.7 157.3	4 39.0 -59.6 156.3
11°	4 03.7 -59.7 160.3	3 58.0 -59.7 159.4	3 52.1 -59.7 158.4	3 45.8 -59.6 157.4	3 39.4 -59.7 156.4
12°	3 04.0 -59.7 160.4	2 58.3 -59.7 159.5	2 52.4 -59.7 158.5	2 46.2 -59.7 157.5	2 39.7 -59.6 156.5
13°	2 04.3 -59.8 160.5	1 58.6 -59.7 159.5	1 52.7 -59.7 158.6	1 46.5 -59.6 157.6	1 40.1 -59.6 156.6
14°	1 04.5 -59.7 160.6	0 58.9 -59.7 159.6	0 53.0 -59.7 158.7	0 46.9 -59.7 157.7	0 40.5 -59.6 156.8
15°	0 04.8 -59.7 160.7	-0 00.8 -59.7	-0 06.7 -59.6	-0 12.8 -59.6	-0 19.1 -59.7
16°	-0 54.9 -59.8	-1 00.5 -59.7	-1 06.3 -59.7	-1 12.4 -59.7	-1 18.8 -59.6
17°	-1 54.7 -59.7	-2 00.2 -59.7	-2 06.0 -59.7	-2 12.1 -59.6	-2 18.4 -59.6
18°	-2 54.4 -59.7	-2 59.9 -59.7	-3 05.7 -59.7	-3 11.7 -59.7	-3 18.0 -59.6
19°	-3 54.1 -59.8	-3 59.6 -59.7	-4 05.4 -59.6	-4 11.4 -59.6	-4 17.6 -59.6
20°	-4 53.9 -59.7	-4 59.3 -59.7	-5 05.0 -59.7	-5 11.0 -59.7	-5 17.2 -59.7
21°	-5 53.6 -59.7	-5 59.0 -59.7	-6 04.7 -59.7	-6 10.7 -59.6	-6 16.9 -59.6
22°	-6 53.3 -59.8	-6 58.7 -59.7	-7 04.4 -59.7	-7 10.3 -59.7	-7 16.5 -59.6
23°	-7 53.1 -59.7	-7 58.4 -59.7	-8 04.1 -59.6	-8 10.0 -59.6	-8 16.1 -59.6
24°	-8 52.8 -59.7	-8 58.1 -59.7	-9 03.7 -59.7	-9 09.6 -59.6	-9 15.7 -59.6
25°	-9 52.5 -59.7	-9 57.8 -59.7			
26°					
27°					
28°					
29°					

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°	14 28.0 -59.6 154.1	14 20.6 -59.5 153.1	14 13.0 -59.5 152.1	14 05.1 -59.4 151.1	13 57.0 -59.4 150.0
1°	13 28.4 -59.6 154.2	13 21.1 -59.5 153.2	13 13.5 -59.5 152.2	13 05.7 -59.5 151.2	12 57.6 -59.5 150.2
2°	12 28.8 -59.5 154.4	12 21.6 -59.6 153.4	12 14.0 -59.5 152.3	12 06.2 -59.5 151.3	11 58.1 -59.4 150.3
3°	11 29.3 -59.6 154.5	11 22.0 -59.5 153.5	11 14.5 -59.5 152.5	11 06.7 -59.4 151.5	10 58.7 -59.4 150.5
4°	10 29.7 -59.6 154.6	10 22.5 -59.6 153.6	10 15.0 -59.5 152.6	10 07.3 -59.5 151.6	9 59.3 -59.5 150.6
5°	9 30.1 -59.6 154.7	9 22.9 -59.5 153.7	9 15.5 -59.5 152.7	9 07.8 -59.5 151.7	8 59.8 -59.4 150.7
6°	8 30.5 -59.5 154.9	8 23.4 -59.6 153.9	8 16.0 -59.6 152.9	8 08.3 -59.5 151.9	8 00.4 -59.5 150.9
7°	7 31.0 -59.6 155.0	7 23.8 -59.5 154.0	7 16.4 -59.5 153.0	7 08.8 -59.5 152.0	7 00.9 -59.4 151.0
8°	6 31.4 -59.6 155.1	6 24.3 -59.6 154.1	6 16.9 -59.5 153.1	6 09.3 -59.5 152.1	6 01.5 -59.5 151.1
9°	5 31.8 -59.6 155.2	5 24.7 -59.5 154.2	5 17.4 -59.5 153.2	5 09.8 -59.5 152.3	5 02.0 -59.5 151.3
10°	4 32.2 -59.6 155.3	4 25.2 -59.6 154.3	4 17.9 -59.6 153.4	4 10.3 -59.5 152.4	4 02.5 -59.4 151.4
11°	3 32.6 -59.6 155.4	3 25.6 -59.6 154.5	3 18.3 -59.5 153.5	3 10.8 -59.5 152.5	3 03.1 -59.5 151.5
12°	2 33.0 -59.6 155.6	2 26.0 -59.5 154.6	2 18.8 -59.5 153.6	2 11.3 -59.4 152.6	2 03.6 -59.4 151.7
13°	1 33.4 -59.6 155.7	1 26.5 -59.6 154.7	1 19.3 -59.5 153.7	1 11.9 -59.5 152.8	1 04.2 -59.5 151.8
14°	0 33.8 -59.6 155.8	0 26.9 -59.5 154.8	0 19.8 -59.6 153.9	0 12.4 -59.5 152.9	0 04.7 -59.5 151.9
15°	-0 25.8 -59.5	-0 32.6 -59.6	-0 39.8 -59.5	-0 47.1 -59.5	-0 54.8 -59.4
16°	-1 25.3 -59.6	-1 32.2 -59.6	-1 39.3 -59.5	-1 46.6 -59.5	-1 54.2 -59.5
17°	-2 24.9 -59.6	-2 31.8 -59.5	-2 38.8 -59.5	-2 46.1 -59.5	-2 53.7 -59.4
18°	-3 24.5 -59.6	-3 31.3 -59.6	-3 38.3 -59.6	-3 45.6 -59.5	-3 53.1 -59.5
19°	-4 24.1 -59.6	-4 30.9 -59.5	-4 37.9 -59.5	-4 45.1 -59.5	-4 52.6 -59.5
20°	-5 23.7 -59.6	-5 30.4 -59.6	-5 37.4 -59.5	-5 44.6 -59.5	-5 52.1 -59.4
21°	-6 23.3 -59.6	-6 30.0 -59.5	-6 36.9 -59.5	-6 44.1 -59.5	-6 51.5 -59.5
22°	-7 22.9 -59.6	-7 29.5 -59.6	-7 36.4 -59.6	-7 43.6 -59.5	-7 51.0 -59.4
23°	-8 22.5 -59.5	-8 29.1 -59.5	-8 36.0 -59.5	-8 43.1 -59.5	-8 50.4 -59.5
24°	-9 22.0 -59.6	-9 28.6 -59.6	-9 35.5 -59.5	-9 42.6 -59.4	-9 49.9 -59.4
25°					
26°					
27°					
28°					
29°					

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°	13 48.6 -59.4 149.0	13 40.0 -59.4 148.0	13 31.1 -59.3 147.0	13 22.0 -59.3 146.0	13 12.6 -59.3 144.9
1°	12 49.2 -59.4 149.2	12 40.6 -59.3 148.1	12 31.8 -59.4 147.1	12 22.7 -59.3 146.1	12 13.3 -59.2 145.1
2°	11 49.8 -59.4 149.3	11 41.3 -59.4 148.3	11 32.4 -59.3 147.3	11 23.4 -59.3 146.3	11 14.1 -59.3 145.3
3°	10 50.4 -59.4 149.4	10 41.9 -59.4 148.4	10 33.1 -59.3 147.4	10 24.1 -59.3 146.4	10 14.8 -59.2 145.4
4°	9 51.0 -59.4 149.6	9 42.5 -59.4 148.6	9 33.8 -59.4 147.6	9 24.8 -59.3 146.6	9 15.6 -59.3 145.6
5°	8 51.6 -59.4 149.7	8 43.1 -59.3 148.7	8 34.4 -59.3 147.7	8 25.5 -59.3 146.7	8 16.3 -59.3 145.7
6°	7 52.2 -59.4 149.9	7 43.8 -59.4 148.9	7 35.1 -59.4 147.9	7 26.2 -59.3 146.9	7 17.0 -59.2 145.9
7°	6 52.8 -59.5 150.0	6 44.4 -59.4 149.0	6 35.7 -59.3 148.0	6 26.9 -59.3 147.0	6 17.8 -59.3 146.1
8°	5 53.3 -59.4 150.1	5 45.0 -59.4 149.2	5 36.4 -59.4 148.2	5 27.6 -59.4 147.2	5 18.5 -59.3 146.2
9°	4 53.9 -59.4 150.3	4 45.6 -59.4 149.3	4 37.0 -59.3 148.3	4 28.2 -59.3 147.3	4 19.2 -59.3 146.4
10°	3 54.5 -59.4 150.4	3 46.2 -59.4 149.4	3 37.7 -59.4 148.5	3 28.9 -59.3 147.5	3 19.9 -59.3 146.5
11°	2 55.1 -59.4 150.6	2 46.8 -59.4 149.6	2 38.3 -59.3 148.6	2 29.6 -59.3 147.6	2 20.6 -59.2 146.7
12°	1 55.7 -59.5 150.7	1 47.4 -59.4 149.7	1 39.0 -59.4 148.8	1 30.3 -59.3 147.8	1 21.4 -59.3 146.8
13°	0 56.2 -59.4 150.8	0 48.0 -59.3 149.9	0 39.6 -59.3 148.9	0 31.0 -59.4 147.9	0 22.1 -59.3 147.0
14°	-0 03.2 -59.4	-0 11.3 -59.4	-0 19.7 -59.4	-0 28.4 -59.3	-0 37.2 -59.3
15°	-1 02.6 -59.5	-1 10.7 -59.4	-1 19.1 -59.3	-1 27.7 -59.3	-1 36.5 -59.3
16°	-2 02.1 -59.4	-2 10.1 -59.4	-2 18.4 -59.4	-2 27.0 -59.3	-2 35.8 -59.3
17°	-3 01.5 -59.4	-3 09.5 -59.4	-3 17.8 -59.4	-3 26.3 -59.3	-3 35.1 -59.2
18°	-4 00.9 -59.4	-4 08.9 -59.4	-4 17.2 -59.3	-4 25.6 -59.3	-4 34.3 -59.3
19°	-5 00.3 -59.5	-5 08.3 -59.4	-5 16.5 -59.4	-5 24.9 -59.4	-5 33.6 -59.3
20°	-5 59.8 -59.4	-6 07.7 -59.4	-6 15.9 -59.3	-6 24.3 -59.3	-6 32.9 -59.3
21°	-6 59.2 -59.4	-7 07.1 -59.4	-7 15.2 -59.3	-7 23.6 -59.3	-7 32.2 -59.2
22°	-7 58.6 -59.4	-8 06.5 -59.3	-8 14.5 -59.4	-8 22.9 -59.3	-8 31.4 -59.3
23°	-8 58.0 -59.4	-9 05.8 -59.4	-9 13.9 -59.3	-9 22.2 -59.3	-9 30.7 -59.3
24°	-9 57.4 -59.4				
25°					
26°					
27°					
28°					
29°					

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°	13 03.0 -59.3 143.9	12 53.1 -59.2 142.9	12 43.0 -59.1 141.9	12 32.7 -59.1 140.9	12 22.2 -59.1 139.9
1°	12 03.7 -59.2 144.1	11 53.9 -59.1 143.1	11 43.9 -59.2 142.1	11 33.6 -59.1 141.1	11 23.1 -59.1 140.1
2°	11 04.5 -59.2 144.3	10 54.8 -59.2 143.3	10 44.7 -59.1 142.3	10 34.5 -59.1 141.3	10 24.0 -59.0 140.2
3°	10 05.3 -59.2 144.4	9 55.6 -59.2 143.4	9 45.6 -59.1 142.4	9 35.4 -59.1 141.4	9 25.0 -59.1 140.4
4°	9 06.1 -59.2 144.6	8 56.4 -59.2 143.6	8 46.5 -59.2 142.6	8 36.3 -59.1 141.6	8 25.9 -59.1 140.6
5°	8 06.9 -59.3 144.7	7 57.2 -59.2 143.8	7 47.3 -59.1 142.8	7 37.2 -59.1 141.8	7 26.8 -59.0 140.8
6°	7 07.6 -59.2 144.9	6 58.0 -59.2 143.9	6 48.2 -59.2 142.9	6 38.1 -59.1 141.9	6 27.8 -59.1 141.0
7°	6 08.4 -59.2 145.1	5 58.8 -59.2 144.1	5 49.0 -59.2 143.1	5 39.0 -59.2 142.1	5 28.7 -59.1 141.1
8°	5 09.2 -59.3 145.2	4 59.6 -59.2 144.2	4 49.8 -59.1 143.3	4 39.8 -59.1 142.3	4 29.6 -59.1 141.3
9°	4 09.9 -59.2 145.4	4 00.4 -59.2 144.4	3 50.7 -59.2 143.4	3 40.7 -59.1 142.5	3 30.5 -59.1 141.5
10°	3 10.7 -59.3 145.5	3 01.2 -59.2 144.6	2 51.5 -59.2 143.6	2 41.6 -59.1 142.6	2 31.4 -59.1 141.7
11°	2 11.4 -59.2 145.7	2 02.0 -59.2 144.7	1 52.3 -59.1 143.8	1 42.5 -59.2 142.8	1 32.3 -59.0 141.8
12°	1 12.2 -59.3 145.9	1 02.8 -59.2 144.9	0 53.2 -59.2 143.9	0 43.3 -59.1 143.0	0 33.3 -59.1 142.0
13°	0 12.9 -59.2 146.0	0 03.6 -59.2 145.1	-0 06.0 -59.2	-0 15.8 -59.1	-0 25.8 -59.1
14°	-0 46.3 -59.2	-0 55.6 -59.2	-1 05.2 -59.1	-1 14.9 -59.2	-1 24.9 -59.1
15°	-1 45.5 -59.3	-1 54.8 -59.2	-2 04.3 -59.2	-2 14.1 -59.1	-2 24.0 -59.1
16°	-2 44.8 -59.2	-2 54.0 -59.2	-3 03.5 -59.2	-3 13.2 -59.1	-3 23.1 -59.1
17°	-3 44.0 -59.3	-3 53.2 -59.2	-4 02.7 -59.1	-4 12.3 -59.1	-4 22.2 -59.1
18°	-4 43.3 -59.2	-4 52.4 -59.2	-5 01.8 -59.2	-5 11.4 -59.2	-5 21.3 -59.1
19°	-5 42.5 -59.3	-5 51.6 -59.2	-6 01.0 -59.2	-6 10.6 -59.1	-6 20.4 -59.0
20°	-6 41.8 -59.2	-6 50.8 -59.2	-7 00.2 -59.1	-7 09.7 -59.1	-7 19.4 -59.1
21°	-7 41.0 -59.2	-7 50.0 -59.2	-7 59.3 -59.2	-8 08.8 -59.1	-8 18.5 -59.1
22°	-8 40.2 -59.2	-8 49.2 -59.2	-8 58.5 -59.1	-9 07.9 -59.1	-9 17.6 -59.0
23°	-9 39.4 -59.3	-9 48.4 -59.2	-9 57.6 -59.1		
24°					
25°					
26°					
27°					
28°					
29°					

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°	12 11.4 -59.0 138.9	12 00.4 -59.0 137.9	11 49.2 -58.9 136.9	11 37.8 -58.9 135.9	11 26.2 -58.9 134.9
1°	11 12.4 -59.0 139.1	11 01.4 -58.9 138.1	10 50.3 -59.0 137.1	10 38.9 -58.9 136.1	10 27.3 -58.8 135.1
2°	10 13.4 -59.1 139.3	10 02.5 -59.0 138.3	9 51.3 -58.9 137.3	9 40.0 -58.9 136.3	9 28.5 -58.9 135.3
3°	9 14.3 -59.0 139.4	9 03.5 -59.0 138.4	8 52.4 -59.0 137.4	8 41.1 -58.9 136.5	8 29.6 -58.9 135.5
4°	8 15.3 -59.0 139.6	8 04.5 -59.0 138.6	7 53.4 -58.9 137.6	7 42.2 -58.9 136.6	7 30.7 -58.8 135.7
5°	7 16.3 -59.1 139.8	7 05.5 -59.0 138.8	6 54.5 -59.0 137.8	6 43.3 -58.9 136.8	6 31.9 -58.9 135.9
6°	6 17.2 -59.0 140.0	6 06.5 -59.0 139.0	5 55.5 -58.9 138.0	5 44.4 -59.0 137.0	5 33.0 -58.9 136.0
7°	5 18.2 -59.0 140.2	5 07.5 -59.0 139.2	4 56.6 -59.0 138.2	4 45.4 -58.9 137.2	4 34.1 -58.9 136.2
8°	4 19.2 -59.1 140.3	4 08.5 -59.0 139.4	3 57.6 -59.0 138.4	3 46.5 -58.9 137.4	3 35.2 -58.9 136.4
9°	3 20.1 -59.0 140.5	3 09.5 -59.0 139.5	2 58.6 -58.9 138.6	2 47.6 -58.9 137.6	2 36.3 -58.8 136.6
10°	2 21.1 -59.1 140.7	2 10.5 -59.0 139.7	1 59.7 -59.0 138.7	1 48.7 -59.0 137.8	1 37.5 -58.9 136.8
11°	1 22.0 -59.0 140.9	1 11.5 -59.0 139.9	1 00.7 -59.0 138.9	0 49.7 -58.9 138.0	0 38.6 -58.9 137.0
12°	0 23.0 -59.1 141.0	0 12.5 -59.1 140.1	0 01.7 -58.9 139.1	-0 09.2 -58.9	-0 20.3 -58.9
13°	-0 36.1 -59.0	-0 46.6 -59.0	-0 57.2 -59.0	-1 08.1 -59.0	-1 19.2 -58.9
14°	-1 35.1 -59.1	-1 45.6 -59.0	-1 56.2 -59.0	-2 07.1 -58.9	-2 18.1 -58.9
15°	-2 34.2 -59.0	-2 44.6 -59.0	-2 55.2 -58.9	-3 06.0 -58.9	-3 17.0 -58.9
16°	-3 33.2 -59.1	-3 43.6 -59.0	-3 54.1 -59.0	-4 04.9 -58.9	-4 15.9 -58.9
17°	-4 32.3 -59.0	-4 42.6 -59.0	-4 53.1 -59.0	-5 03.8 -59.0	-5 14.8 -58.8
18°	-5 31.3 -59.1	-5 41.6 -59.0	-5 52.1 -58.9	-6 02.8 -58.9	-6 13.6 -58.9
19°	-6 30.4 -59.0	-6 40.6 -59.0	-6 51.0 -59.0	-7 01.7 -58.9	-7 12.5 -58.9
20°	-7 29.4 -59.0	-7 39.6 -59.0	-7 50.0 -58.9	-8 00.6 -58.9	-8 11.4 -58.8
21°	-8 28.4 -59.1	-8 38.6 -59.0	-8 48.9 -59.0	-8 59.5 -58.9	-9 10.2 -58.9
22°	-9 27.5 -59.0	-9 37.6 -58.9	-9 47.9 -58.9	-9 58.4 -58.9	
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	11 14.4 -58.9 133.9	11 02.3 -58.7 132.9	10 50.1 -58.7 131.9	10 37.7 -58.7 130.9	10 25.1 -58.6 129.9
1°	10 15.5 -58.8 134.1	10 03.6 -58.8 133.1	9 51.4 -58.8 132.1	9 39.0 -58.7 131.1	9 26.5 -58.7 130.1
2°	9 16.7 -58.8 134.3	9 04.8 -58.8 133.3	8 52.6 -58.7 132.3	8 40.3 -58.7 131.3	8 27.8 -58.7 130.3
3°	8 17.9 -58.8 134.5	8 06.0 -58.8 133.5	7 53.9 -58.7 132.5	7 41.6 -58.7 131.5	7 29.1 -58.6 130.5
4°	7 19.1 -58.9 134.7	7 07.2 -58.8 133.7	6 55.2 -58.8 132.7	6 42.9 -58.7 131.7	6 30.5 -58.7 130.7
5°	6 20.2 -58.8 134.9	6 08.4 -58.8 133.9	5 56.4 -58.7 132.9	5 44.2 -58.7 131.9	5 31.8 -58.7 130.9
6°	5 21.4 -58.8 135.1	5 09.6 -58.8 134.1	4 57.7 -58.8 133.1	4 45.5 -58.7 132.1	4 33.1 -58.7 131.2
7°	4 22.6 -58.9 135.3	4 10.8 -58.8 134.3	3 58.9 -58.8 133.3	3 46.8 -58.8 132.3	3 34.4 -58.6 131.4
8°	3 23.7 -58.8 135.5	3 12.0 -58.8 134.5	3 00.1 -58.7 133.5	2 48.0 -58.7 132.5	2 35.8 -58.7 131.6
9°	2 24.9 -58.9 135.7	2 13.2 -58.8 134.7	2 01.4 -58.8 133.7	1 49.3 -58.7 132.7	1 37.1 -58.7 131.8
10°	1 26.0 -58.8 135.8	1 14.4 -58.8 134.9	1 02.6 -58.8 133.9	0 50.6 -58.7 133.0	0 38.4 -58.7 132.0
11°	0 27.2 -58.9 136.0	0 15.6 -58.8 135.1	0 03.8 -58.7 134.1	-0 08.1 -58.8	-0 20.3 -58.7
12°	-0 31.7 -58.8	-0 43.2 -58.8	-0 54.9 -58.8	-1 06.9 -58.7	-1 19.0 -58.7
13°	-1 30.5 -58.9	-1 42.0 -58.8	-1 53.7 -58.8	-2 05.6 -58.7	-2 17.7 -58.7
14°	-2 29.4 -58.8	-2 40.8 -58.8	-2 52.5 -58.7	-3 04.3 -58.7	-3 16.4 -58.6
15°	-3 28.2 -58.9	-3 39.6 -58.8	-3 51.2 -58.8	-4 03.0 -58.8	-4 15.0 -58.7
16°	-4 27.1 -58.8	-4 38.4 -58.8	-4 50.0 -58.8	-5 01.8 -58.7	-5 13.7 -58.7
17°	-5 25.9 -58.8	-5 37.2 -58.8	-5 48.8 -58.7	-6 00.5 -58.7	-6 12.4 -58.7
18°	-6 24.7 -58.9	-6 36.0 -58.8	-6 47.5 -58.8	-6 59.2 -58.7	-7 11.1 -58.6
19°	-7 23.6 -58.8	-7 34.8 -58.8	-7 46.3 -58.7	-7 57.9 -58.7	-8 09.7 -58.7
20°	-8 22.4 -58.8	-8 33.6 -58.8	-8 45.0 -58.7	-8 56.6 -58.7	-9 08.4 -58.6
21°	-9 21.2 -58.8	-9 32.4 -58.7	-9 43.7 -58.8	-9 55.3 -58.7	
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	10 12.3 -58.6 128.9	9 59.4 -58.6 127.9	9 46.2 -58.5 126.9	9 32.9 -58.5 125.9	9 19.4 -58.4 124.9
1°	9 13.7 -58.6 129.1	9 00.8 -58.6 128.1	8 47.7 -58.5 127.1	8 34.4 -58.5 126.1	8 21.0 -58.5 125.2
2°	8 15.1 -58.6 129.3	8 02.2 -58.6 128.3	7 49.2 -58.6 127.4	7 35.9 -58.5 126.4	7 22.5 -58.4 125.4
3°	7 16.5 -58.7 129.5	7 03.6 -58.6 128.6	6 50.6 -58.5 127.6	6 37.4 -58.5 126.6	6 24.1 -58.5 125.6
4°	6 17.8 -58.6 129.8	6 05.0 -58.6 128.8	5 52.1 -58.6 127.8	5 38.9 -58.5 126.8	5 25.6 -58.5 125.8
5°	5 19.2 -58.6 130.0	5 06.4 -58.5 129.0	4 53.5 -58.6 128.0	4 40.4 -58.5 127.0	4 27.1 -58.5 126.1
6°	4 20.6 -58.7 130.2	4 07.9 -58.6 129.2	3 54.9 -58.5 128.2	3 41.9 -58.6 127.3	3 28.6 -58.5 126.3
7°	3 21.9 -58.6 130.4	3 09.3 -58.7 129.4	2 56.4 -58.6 128.4	2 43.3 -58.5 127.5	2 30.1 -58.4 126.5
8°	2 23.3 -58.7 130.6	2 10.6 -58.6 129.6	1 57.8 -58.5 128.7	1 44.8 -58.5 127.7	1 31.7 -58.5 126.7
9°	1 24.6 -58.6 130.8	1 12.0 -58.6 129.8	0 59.3 -58.6 128.9	0 46.3 -58.5 127.9	0 33.2 -58.5 127.0
10°	0 26.0 -58.6 131.0	0 13.4 -58.6 130.1	0 00.7 -58.6 129.1	-0 12.2 -58.6	-0 25.3 -58.5
11°	-0 32.6 -58.7	-0 45.2 -58.6	-0 57.9 -58.5	-1 10.8 -58.5	-1 23.8 -58.5
12°	-1 31.3 -58.6	-1 43.8 -58.6	-1 56.4 -58.6	-2 09.3 -58.5	-2 22.3 -58.5
13°	-2 29.9 -58.7	-2 42.4 -58.6	-2 55.0 -58.6	-3 07.8 -58.5	-3 20.8 -58.5
14°	-3 28.6 -58.6	-3 41.0 -58.6	-3 53.6 -58.5	-4 06.3 -58.6	-4 19.3 -58.4
15°	-4 27.2 -58.7	-4 39.6 -58.6	-4 52.1 -58.6	-5 04.9 -58.5	-5 17.7 -58.5
16°	-5 25.9 -58.6	-5 38.2 -58.6	-5 50.7 -58.5	-6 03.4 -58.5	-6 16.2 -58.5
17°	-6 24.5 -58.6	-6 36.8 -58.6	-6 49.2 -58.6	-7 01.9 -58.5	-7 14.7 -58.5
18°	-7 23.1 -58.6	-7 35.4 -58.5	-7 47.8 -58.5	-8 00.4 -58.5	-8 13.2 -58.4
19°	-8 21.7 -58.7	-8 33.9 -58.6	-8 46.3 -58.5	-8 58.9 -58.5	-9 11.6 -58.4
20°	-9 20.4 -58.6	-9 32.5 -58.6	-9 44.8 -58.6	-9 57.4 -58.4	
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	9 05.8 -58.4 123.9	8 52.0 -58.4 123.0	8 38.0 -58.3 122.0	8 23.9 -58.3 121.0	8 09.7 -58.3 120.0
1°	8 07.4 -58.4 124.2	7 53.6 -58.4 123.2	7 39.7 -58.3 122.2	7 25.6 -58.3 121.2	7 11.4 -58.3 120.3
2°	7 09.0 -58.5 124.4	6 55.2 -58.4 123.4	6 41.4 -58.4 122.4	6 27.3 -58.3 121.5	6 13.1 -58.2 120.5
3°	6 10.5 -58.4 124.6	5 56.8 -58.4 123.7	5 43.0 -58.4 122.7	5 29.0 -58.3 121.7	5 14.9 -58.3 120.7
4°	5 12.1 -58.4 124.9	4 58.4 -58.4 123.9	4 44.6 -58.3 122.9	4 30.7 -58.4 121.9	4 16.6 -58.3 121.0
5°	4 13.7 -58.5 125.1	4 00.0 -58.4 124.1	3 46.3 -58.4 123.1	3 32.3 -58.3 122.2	3 18.3 -58.3 121.2
6°	3 15.2 -58.4 125.3	3 01.6 -58.4 124.3	2 47.9 -58.4 123.4	2 34.0 -58.3 122.4	2 20.0 -58.3 121.4
7°	2 16.8 -58.5 125.5	2 03.2 -58.4 124.6	1 49.5 -58.3 123.6	1 35.7 -58.4 122.6	1 21.7 -58.3 121.7
8°	1 18.3 -58.4 125.8	1 04.8 -58.4 124.8	0 51.2 -58.4 123.8	0 37.3 -58.3 122.9	0 23.4 -58.3 121.9
9°	0 19.9 -58.5 126.0	0 06.4 -58.4 125.0	-0 07.2 -58.4	-0 21.0 -58.3	-0 34.9 -58.3
10°	-0 38.6 -58.4	-0 52.0 -58.4	-1 05.6 -58.4	-1 19.3 -58.4	-1 33.2 -58.3
11°	-1 37.0 -58.5	-1 50.4 -58.4	-2 04.0 -58.3	-2 17.7 -58.3	-2 31.5 -58.3
12°	-2 35.5 -58.4	-2 48.8 -58.4	-3 02.3 -58.4	-3 16.0 -58.3	-3 29.8 -58.3
13°	-3 33.9 -58.5	-3 47.2 -58.4	-4 00.7 -58.4	-4 14.3 -58.4	-4 28.1 -58.3
14°	-4 32.4 -58.4	-4 45.6 -58.4	-4 59.1 -58.3	-5 12.7 -58.3	-5 26.4 -58.3
15°	-5 30.8 -58.4	-5 44.0 -58.4	-5 57.4 -58.4	-6 11.0 -58.3	-6 24.7 -58.3
16°	-6 29.2 -58.5	-6 42.4 -58.4	-6 55.8 -58.3	-7 09.3 -58.3	-7 23.0 -58.2
17°	-7 27.7 -58.4	-7 40.8 -58.4	-7 54.1 -58.4	-8 07.6 -58.3	-8 21.2 -58.3
18°	-8 26.1 -58.4	-8 39.2 -58.4	-8 52.5 -58.3	-9 05.9 -58.3	-9 19.5 -58.2
19°	-9 24.5 -58.4	-9 37.6 -58.3	-9 50.8 -58.3		
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	7 55.3 -58.2 119.0	7 40.8 -58.2 118.1	7 26.1 -58.2 117.1	7 11.3 -58.1 116.1	6 56.4 -58.1 115.1
1°	6 57.1 -58.3 119.3	6 42.6 -58.2 118.3	6 27.9 -58.1 117.3	6 13.2 -58.2 116.3	5 58.3 -58.1 115.4
2°	5 58.8 -58.2 119.5	5 44.4 -58.3 118.5	5 29.8 -58.2 117.6	5 15.0 -58.1 116.6	5 00.2 -58.1 115.6
3°	5 00.6 -58.3 119.8	4 46.1 -58.2 118.8	4 31.6 -58.2 117.8	4 16.9 -58.2 116.8	4 02.1 -58.2 115.9
4°	4 02.3 -58.2 120.0	3 47.9 -58.2 119.0	3 33.4 -58.2 118.1	3 18.7 -58.1 117.1	3 03.9 -58.1 116.1
5°	3 04.1 -58.3 120.2	2 49.7 -58.2 119.3	2 35.2 -58.2 118.3	2 20.6 -58.2 117.3	2 05.8 -58.1 116.4
6°	2 05.8 -58.3 120.5	1 51.5 -58.3 119.5	1 37.0 -58.2 118.5	1 22.4 -58.1 117.6	1 07.7 -58.1 116.6
7°	1 07.5 -58.2 120.7	0 53.2 -58.2 119.7	0 38.8 -58.2 118.8	0 24.3 -58.2 117.8	0 09.6 -58.2 116.9
8°	0 09.3 -58.3 121.0	-0 05.0 -58.2	-0 19.4 -58.2	-0 33.9 -58.2	-0 48.6 -58.1
9°	-0 49.0 -58.3	-1 03.2 -58.2	-1 17.6 -58.2	-1 32.1 -58.1	-1 46.7 -58.1
10°	-1 47.3 -58.2	-2 01.4 -58.3	-2 15.8 -58.2	-2 30.2 -58.2	-2 44.8 -58.1
11°	-2 45.5 -58.3	-2 59.7 -58.2	-3 14.0 -58.1	-3 28.4 -58.1	-3 42.9 -58.2
12°	-3 43.8 -58.2	-3 57.9 -58.2	-4 12.1 -58.2	-4 26.5 -58.2	-4 41.1 -58.1
13°	-4 42.0 -58.3	-4 56.1 -58.2	-5 10.3 -58.2	-5 24.7 -58.1	-5 39.2 -58.1
14°	-5 40.3 -58.2	-5 54.3 -58.2	-6 08.5 -58.2	-6 22.8 -58.2	-6 37.3 -58.1
15°	-6 38.5 -58.3	-6 52.5 -58.2	-7 06.7 -58.1	-7 21.0 -58.1	-7 35.4 -58.1
16°	-7 36.8 -58.2	-7 50.7 -58.2	-8 04.8 -58.2	-8 19.1 -58.1	-8 33.5 -58.1
17°	-8 35.0 -58.2	-8 48.9 -58.2	-9 03.0 -58.1	-9 17.2 -58.1	-9 31.6 -58.0
18°	-9 33.2 -58.2	-9 47.1 -58.2			
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	6 41.4 -58.1 114.1	6 26.2 -58.0 113.2	6 11.0 -58.1 112.2	5 55.6 -58.0 111.2	5 40.1 -57.9 110.3
1°	5 43.3 -58.1 114.4	5 28.2 -58.1 113.4	5 12.9 -58.0 112.5	4 57.6 -58.0 111.5	4 42.2 -58.0 110.5
2°	4 45.2 -58.1 114.6	4 30.1 -58.0 113.7	4 14.9 -58.0 112.7	3 59.6 -58.0 111.7	3 44.2 -58.0 110.8
3°	3 47.1 -58.1 114.9	3 32.1 -58.1 113.9	3 16.9 -58.0 113.0	3 01.6 -58.0 112.0	2 46.2 -57.9 111.0
4°	2 49.0 -58.1 115.2	2 34.0 -58.1 114.2	2 18.9 -58.1 113.2	2 03.6 -58.0 112.3	1 48.3 -58.0 111.3
5°	1 50.9 -58.1 115.4	1 35.9 -58.0 114.4	1 20.8 -58.0 113.5	1 05.6 -58.0 112.5	0 50.3 -58.0 111.5
6°	0 52.8 -58.1 115.7	0 37.9 -58.1 114.7	0 22.8 -58.0 113.7	0 07.6 -58.0 112.8	-0 07.7 -58.0
7°	-0 05.3 -58.0	-0 20.2 -58.1	-0 35.2 -58.1	-0 50.4 -58.0	-1 05.7 -58.0
8°	-1 03.3 -58.1	-1 18.3 -58.0	-1 33.3 -58.0	-1 48.4 -58.0	-2 03.7 -57.9
9°	-2 01.4 -58.1	-2 16.3 -58.1	-2 31.3 -58.0	-2 46.4 -58.0	-3 01.6 -58.0
10°	-2 59.5 -58.1	-3 14.4 -58.0	-3 29.3 -58.1	-3 44.4 -58.0	-3 59.6 -58.0
11°	-3 57.6 -58.1	-4 12.4 -58.1	-4 27.4 -58.0	-4 42.4 -58.0	-4 57.6 -57.9
12°	-4 55.7 -58.1	-5 10.5 -58.0	-5 25.4 -58.0	-5 40.4 -58.0	-5 55.5 -58.0
13°	-5 53.8 -58.1	-6 08.5 -58.1	-6 23.4 -58.0	-6 38.4 -58.0	-6 53.5 -57.9
14°	-6 51.9 -58.0	-7 06.6 -58.0	-7 21.4 -58.0	-7 36.4 -57.9	-7 51.4 -58.0
15°	-7 49.9 -58.1	-8 04.6 -58.0	-8 19.4 -58.0	-8 34.3 -58.0	-8 49.4 -57.9
16°	-8 48.0 -58.0	-9 02.6 -58.0	-9 17.4 -58.0	-9 32.3 -57.9	-9 47.3 -57.9
17°	-9 46.0 -58.1				
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	5 24.6 -58.0 109.3	5 08.9 -57.9 108.3	4 53.2 -57.9 107.3	4 37.3 -57.8 106.4	4 21.4 -57.8 105.4
1°	4 26.6 -57.9 109.5	4 11.0 -57.9 108.6	3 55.3 -57.9 107.6	3 39.5 -57.9 106.6	3 23.6 -57.9 105.7
2°	3 28.7 -58.0 109.8	3 13.1 -57.9 108.8	2 57.4 -57.9 107.9	2 41.6 -57.9 106.9	2 25.7 -57.8 105.9
3°	2 30.7 -57.9 110.1	2 15.2 -58.0 109.1	1 59.5 -57.9 108.1	1 43.7 -57.8 107.2	1 27.9 -57.9 106.2
4°	1 32.8 -58.0 110.3	1 17.2 -57.9 109.4	1 01.6 -57.9 108.4	0 45.9 -57.9 107.4	0 30.0 -57.8 106.5
5°	0 34.8 -57.9 110.6	0 19.3 -57.9 109.6	0 03.7 -57.9 108.7	-0 12.0 -57.9	-0 27.8 -57.9
6°	-0 23.1 -58.0	-0 38.6 -57.9	-0 54.2 -57.9	-1 09.9 -57.9	-1 25.7 -57.8
7°	-1 21.1 -57.9	-1 36.5 -58.0	-1 52.1 -57.9	-2 07.8 -57.9	-2 23.5 -57.9
8°	-2 19.0 -58.0	-2 34.5 -57.9	-2 50.0 -57.9	-3 05.7 -57.8	-3 21.4 -57.8
9°	-3 17.0 -57.9	-3 32.4 -57.9	-3 47.9 -57.9	-4 03.5 -57.9	-4 19.2 -57.9
10°	-4 14.9 -57.9	-4 30.3 -57.9	-4 45.8 -57.9	-5 01.4 -57.8	-5 17.1 -57.8
11°	-5 12.8 -58.0	-5 28.2 -57.9	-5 43.7 -57.9	-5 59.2 -57.9	-6 14.9 -57.8
12°	-6 10.8 -57.9	-6 26.1 -57.9	-6 41.6 -57.8	-6 57.1 -57.8	-7 12.7 -57.8
13°	-7 08.7 -57.9	-7 24.0 -57.9	-7 39.4 -57.9	-7 54.9 -57.9	-8 10.5 -57.8
14°	-8 06.6 -57.9	-8 21.9 -57.9	-8 37.3 -57.8	-8 52.8 -57.8	-9 08.3 -57.8
15°	-9 04.5 -57.9	-9 19.8 -57.8	-9 35.1 -57.9	-9 50.6 -57.8	
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	4 05.5 -57.9 104.4	3 49.4 -57.8 103.5	3 33.3 -57.8 102.5	3 17.1 -57.8 101.5	3 00.9 -57.8 100.6
1°	3 07.6 -57.8 104.7	2 51.6 -57.8 103.7	2 35.5 -57.8 102.8	2 19.3 -57.7 101.8	2 03.1 -57.7 100.9
2°	2 09.8 -57.8 105.0	1 53.8 -57.8 104.0	1 37.7 -57.8 103.1	1 21.6 -57.8 102.1	1 05.4 -57.8 101.1
3°	1 12.0 -57.9 105.2	0 56.0 -57.8 104.3	0 39.9 -57.8 103.3	0 23.8 -57.8 102.4	0 07.6 -57.8 101.4
4°	0 14.1 -57.8 105.5	-0 01.8 -57.8	-0 17.9 -57.8	-0 34.0 -57.8	-0 50.2 -57.7
5°	-0 43.7 -57.8	-0 59.6 -57.9	-1 15.7 -57.8	-1 31.8 -57.7	-1 47.9 -57.8
6°	-1 41.5 -57.9	-1 57.5 -57.8	-2 13.5 -57.8	-2 29.5 -57.8	-2 45.7 -57.7
7°	-2 39.4 -57.8	-2 55.3 -57.8	-3 11.3 -57.7	-3 27.3 -57.8	-3 43.4 -57.8
8°	-3 37.2 -57.8	-3 53.1 -57.8	-4 09.0 -57.8	-4 25.1 -57.7	-4 41.2 -57.7
9°	-4 35.0 -57.8	-4 50.9 -57.8	-5 06.8 -57.8	-5 22.8 -57.8	-5 38.9 -57.8
10°	-5 32.8 -57.8	-5 48.7 -57.8	-6 04.6 -57.8	-6 20.6 -57.7	-6 36.7 -57.7
11°	-6 30.6 -57.8	-6 46.5 -57.7	-7 02.4 -57.7	-7 18.3 -57.8	-7 34.4 -57.7
12°	-7 28.4 -57.8	-7 44.2 -57.8	-8 00.1 -57.8	-8 16.1 -57.7	-8 32.1 -57.7
13°	-8 26.2 -57.8	-8 42.0 -57.8	-8 57.9 -57.7	-9 13.8 -57.7	-9 29.8 -57.7
14°	-9 24.0 -57.8	-9 39.8 -57.7	-9 55.6 -57.7		
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	2 44.6 -57.7 99.6	2 28.3 -57.8 98.7	2 11.9 -57.7 97.7	1 55.5 -57.7 96.7	1 39.1 -57.7 95.8
1°	1 46.9 -57.8 99.9	1 30.5 -57.7 98.9	1 14.2 -57.7 98.0	0 57.8 -57.7 97.0	0 41.4 -57.7 96.0
2°	0 49.1 -57.7 100.2	0 32.8 -57.7 99.2	0 16.5 -57.8 98.2	0 00.1 -57.7 97.3	-0 16.3 -57.7
3°	-0 08.6 -57.8	-0 24.9 -57.8	-0 41.3 -57.7	-0 57.6 -57.7	-1 14.0 -57.7
4°	-1 06.4 -57.7	-1 22.7 -57.7	-1 39.0 -57.7	-1 55.3 -57.7	-2 11.7 -57.7
5°	-2 04.1 -57.8	-2 20.4 -57.7	-2 36.7 -57.7	-2 53.0 -57.7	-3 09.4 -57.7
6°	-3 01.9 -57.7	-3 18.1 -57.7	-3 34.4 -57.7	-3 50.7 -57.7	-4 07.1 -57.7
7°	-3 59.6 -57.7	-4 15.8 -57.8	-4 32.1 -57.7	-4 48.4 -57.7	-5 04.8 -57.7
8°	-4 57.3 -57.8	-5 13.6 -57.7	-5 29.8 -57.7	-5 46.1 -57.7	-6 02.5 -57.7
9°	-5 55.1 -57.7	-6 11.3 -57.7	-6 27.5 -57.7	-6 43.8 -57.7	-7 00.2 -57.6
10°	-6 52.8 -57.7	-7 09.0 -57.7	-7 25.2 -57.7	-7 41.5 -57.7	-7 57.8 -57.7
11°	-7 50.5 -57.7	-8 06.7 -57.6	-8 22.9 -57.6	-8 39.2 -57.6	-8 55.5 -57.6
12°	-8 48.2 -57.7	-9 04.3 -57.7	-9 20.5 -57.7	-9 36.8 -57.6	-9 53.1 -57.6
13°	-9 45.9 -57.6				
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	1 22.6 -57.7 94.8	1 06.1 -57.7 93.8	0 49.6 -57.7 92.9	0 33.1 -57.7 91.9	0 16.5 -57.6 91.0
1°	0 24.9 -57.7 95.1	0 08.4 -57.7 94.1	-0 08.1 -57.7	-0 24.6 -57.7	-0 41.1 -57.7
2°	-0 32.8 -57.7	-0 49.3 -57.7	-1 05.8 -57.7	-1 22.3 -57.7	-1 38.8 -57.7
3°	-1 30.5 -57.7	-1 47.0 -57.6	-2 03.5 -57.6	-2 20.0 -57.6	-2 36.5 -57.7
4°	-2 28.2 -57.7	-2 44.6 -57.7	-3 01.1 -57.7	-3 17.6 -57.7	-3 34.2 -57.6
5°	-3 25.9 -57.6	-3 42.3 -57.7	-3 58.8 -57.7	-4 15.3 -57.7	-4 31.8 -57.7
6°	-4 23.5 -57.7	-4 40.0 -57.7	-4 56.5 -57.6	-5 13.0 -57.6	-5 29.5 -57.6
7°	-5 21.2 -57.7	-5 37.7 -57.6	-5 54.1 -57.7	-6 10.6 -57.7	-6 27.1 -57.7
8°	-6 18.9 -57.7	-6 35.3 -57.7	-6 51.8 -57.6	-7 08.3 -57.6	-7 24.8 -57.6
9°	-7 16.6 -57.6	-7 33.0 -57.6	-7 49.4 -57.7	-8 05.9 -57.6	-8 22.4 -57.6
10°	-8 14.2 -57.6	-8 30.6 -57.6	-8 47.1 -57.6	-9 03.5 -57.6	-9 20.0 -57.6
11°	-9 11.8 -57.7	-9 28.2 -57.7	-9 44.7 -57.6		
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

# Latitude 74°

# Declination CONTRARY name to 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 -57.7 90.0	-0 16.5 -57.7			
1°	-0 57.7 -57.6	-1 14.2 -57.7			
2°	-1 55.3 -57.7	-2 11.9 -57.7			
3°	-2 53.0 -57.7	-3 09.6 -57.6			
4°	-3 50.7 -57.7	-4 07.2 -57.7			
5°	-4 48.4 -57.6	-5 04.9 -57.6			
6°	-5 46.0 -57.7	-6 02.5 -57.7			
7°	-6 43.7 -57.6	-7 00.2 -57.6			
8°	-7 41.3 -57.6	-7 57.8 -57.6			
9°	-8 38.9 -57.6	-8 55.4 -57.7			
10°	-9 36.5 -57.6	-9 53.1 -57.6			
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°					
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°					

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data.  
The data on this page is believed to be accurate but no warranty is given for it's correctness. Use it only for training and exercising!

Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	15 00.0 -60.0 180.0	14 59.9 -60.0 179.0	14 59.4 -60.0 177.9	14 58.7 -60.0 176.9	14 57.8 -60.0 175.9
1°	14 00.0 -60.0 180.0	13 59.9 -60.0 179.0	13 59.4 -60.0 177.9	13 58.7 -60.0 176.9	13 57.8 -60.0 175.9
2°	13 00.0 -60.0 180.0	12 59.9 -60.0 179.0	12 59.4 -60.0 177.9	12 58.7 -59.9 176.9	12 57.8 -60.0 175.9
3°	12 00.0 -60.0 180.0	11 59.9 -60.0 179.0	11 59.4 -60.0 178.0	11 58.8 -60.0 176.9	11 57.8 -60.0 175.9
4°	11 00.0 -60.0 180.0	10 59.9 -60.0 179.0	10 59.4 -59.9 178.0	10 58.8 -60.0 177.0	10 57.8 -60.0 175.9
5°	10 00.0 -60.0 180.0	9 59.9 -60.0 179.0	9 59.5 -60.0 178.0	9 58.8 -60.0 177.0	9 57.8 -60.0 176.0
6°	9 00.0 -60.0 180.0	8 59.9 -60.0 179.0	8 59.5 -60.0 178.0	8 58.8 -60.0 177.0	8 57.8 -60.0 176.0
7°	8 00.0 -60.0 180.0	7 59.9 -60.0 179.0	7 59.5 -60.0 178.0	7 58.8 -60.0 177.0	7 57.8 -60.0 176.0
8°	7 00.0 -60.0 180.0	6 59.9 -60.0 179.0	6 59.5 -60.0 178.0	6 58.8 -60.0 177.0	6 57.8 -60.0 176.0
9°	6 00.0 -60.0 180.0	5 59.9 -60.0 179.0	5 59.5 -60.0 178.0	5 58.8 -60.0 177.0	5 57.8 -59.9 176.0
10°	5 00.0 -60.0 180.0	4 59.9 -60.0 179.0	4 59.5 -60.0 178.0	4 58.8 -60.0 177.0	4 57.9 -60.0 176.0
11°	4 00.0 -60.0 180.0	3 59.9 -60.0 179.0	3 59.5 -60.0 178.0	3 58.8 -60.0 177.0	3 57.9 -60.0 176.1
12°	3 00.0 -60.0 180.0	2 59.9 -60.0 179.0	2 59.5 -60.0 178.0	2 58.8 -60.0 177.1	2 57.9 -60.0 176.1
13°	2 00.0 -60.0 180.0	1 59.9 -60.0 179.0	1 59.5 -60.0 178.1	1 58.8 -60.0 177.1	1 57.9 -60.0 176.1
14°	1 00.0 -60.0 180.0	0 59.9 -60.0 179.0	0 59.5 -60.0 178.1	0 58.8 -60.0 177.1	0 57.9 -60.0 176.1
15°	0 00.0 -60.0 180.0	-0 00.1 -60.0	-0 00.5 -60.0	-0 01.2 -60.0	-0 02.1 -60.0
16°	-1 00.0 -60.0	-1 00.1 -60.0	-1 00.5 -60.0	-1 01.2 -60.0	-1 02.1 -60.0
17°	-2 00.0 -60.0	-2 00.1 -60.0	-2 00.5 -60.0	-2 01.2 -60.0	-2 02.1 -60.0
18°	-3 00.0 -60.0	-3 00.1 -60.0	-3 00.5 -60.0	-3 01.2 -60.0	-3 02.1 -60.0
19°	-4 00.0 -60.0	-4 00.1 -60.0	-4 00.5 -60.0	-4 01.2 -60.0	-4 02.1 -59.9
20°	-5 00.0 -60.0	-5 00.1 -60.0	-5 00.5 -60.0	-5 01.2 -59.9	-5 02.0 -60.0
21°	-6 00.0 -60.0	-6 00.1 -60.0	-6 00.5 -60.0	-6 01.1 -60.0	-6 02.0 -60.0
22°	-7 00.0 -60.0	-7 00.1 -60.0	-7 00.5 -60.0	-7 01.1 -60.0	-7 02.0 -60.0
23°	-8 00.0 -60.0	-8 00.1 -60.0	-8 00.5 -60.0	-8 01.1 -60.0	-8 02.0 -60.0
24°	-9 00.0 -60.0	-9 00.1 -60.0	-9 00.5 -60.0	-9 01.1 -60.0	-9 02.0 -60.0
25°					
26°					
27°					
28°					
29°					

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°	14 56.5 -60.0 174.8	14 55.0 -60.0 173.8	14 53.1 -59.9 172.8	14 51.0 -59.9 171.7	14 48.7 -60.0 170.7
1°	13 56.5 -60.0 174.8	13 55.0 -60.0 173.8	13 53.2 -60.0 172.8	13 51.1 -60.0 171.8	13 48.7 -59.9 170.7
2°	12 56.5 -60.0 174.9	12 55.0 -60.0 173.8	12 53.2 -60.0 172.8	12 51.1 -59.9 171.8	12 48.8 -60.0 170.8
3°	11 56.5 -59.9 174.9	11 55.0 -60.0 173.9	11 53.2 -59.9 172.9	11 51.2 -60.0 171.8	11 48.8 -59.9 170.8
4°	10 56.6 -60.0 174.9	10 55.0 -59.9 173.9	10 53.3 -60.0 172.9	10 51.2 -60.0 171.9	10 48.9 -60.0 170.9
5°	9 56.6 -60.0 174.9	9 55.1 -60.0 173.9	9 53.3 -60.0 172.9	9 51.2 -59.9 171.9	9 48.9 -59.9 170.9
6°	8 56.6 -60.0 175.0	8 55.1 -60.0 174.0	8 53.3 -59.9 173.0	8 51.3 -60.0 171.9	8 49.0 -60.0 170.9
7°	7 56.6 -60.0 175.0	7 55.1 -60.0 174.0	7 53.4 -60.0 173.0	7 51.3 -59.9 172.0	7 49.0 -59.9 171.0
8°	6 56.6 -60.0 175.0	6 55.1 -59.9 174.0	6 53.4 -60.0 173.0	6 51.4 -60.0 172.0	6 49.1 -60.0 171.0
9°	5 56.6 -59.9 175.0	5 55.2 -60.0 174.0	5 53.4 -60.0 173.0	5 51.4 -60.0 172.1	5 49.1 -59.9 171.1
10°	4 56.7 -60.0 175.1	4 55.2 -60.0 174.1	4 53.4 -59.9 173.1	4 51.4 -59.9 172.1	4 49.2 -60.0 171.1
11°	3 56.7 -60.0 175.1	3 55.2 -60.0 174.1	3 53.5 -60.0 173.1	3 51.5 -60.0 172.1	3 49.2 -59.9 171.1
12°	2 56.7 -60.0 175.1	2 55.2 -60.0 174.1	2 53.5 -60.0 173.1	2 51.5 -59.9 172.2	2 49.3 -60.0 171.2
13°	1 56.7 -60.0 175.1	1 55.2 -59.9 174.2	1 53.5 -59.9 173.2	1 51.6 -60.0 172.2	1 49.3 -59.9 171.2
14°	0 56.7 -60.0 175.1	0 55.3 -60.0 174.2	0 53.6 -60.0 173.2	0 51.6 -60.0 172.2	0 49.4 -60.0 171.3
15°	-0 03.3 -60.0	-0 04.7 -60.0	-0 06.4 -60.0	-0 08.4 -59.9	-0 10.6 -59.9
16°	-1 03.3 -59.9	-1 04.7 -60.0	-1 06.4 -59.9	-1 08.3 -60.0	-1 10.5 -60.0
17°	-2 03.2 -60.0	-2 04.7 -59.9	-2 06.3 -60.0	-2 08.3 -59.9	-2 10.5 -59.9
18°	-3 03.2 -60.0	-3 04.6 -60.0	-3 06.3 -60.0	-3 08.2 -60.0	-3 10.4 -60.0
19°	-4 03.2 -60.0	-4 04.6 -60.0	-4 06.3 -60.0	-4 08.2 -60.0	-4 10.4 -59.9
20°	-5 03.2 -60.0	-5 04.6 -60.0	-5 06.3 -59.9	-5 08.2 -59.9	-5 10.3 -60.0
21°	-6 03.2 -60.0	-6 04.6 -60.0	-6 06.2 -60.0	-6 08.1 -60.0	-6 10.3 -59.9
22°	-7 03.2 -59.9	-7 04.6 -59.9	-7 06.2 -60.0	-7 08.1 -60.0	-7 10.2 -60.0
23°	-8 03.1 -60.0	-8 04.5 -60.0	-8 06.2 -59.9	-8 08.1 -59.9	-8 10.2 -59.9
24°	-9 03.1 -60.0	-9 04.5 -60.0	-9 06.1 -60.0	-9 08.0 -60.0	-9 10.1 -60.0
25°					
26°					
27°					
28°					
29°					

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°	14 46.0 -59.9 169.7	14 43.1 -59.9 168.6	14 39.9 -59.9 167.6	14 36.4 -59.9 166.6	14 32.7 -59.9 165.5
1°	13 46.1 -60.0 169.7	13 43.2 -60.0 168.7	13 40.0 -59.9 167.6	13 36.5 -59.9 166.6	13 32.8 -59.9 165.6
2°	12 46.1 -59.9 169.8	12 43.2 -59.9 168.7	12 40.1 -59.9 167.7	12 36.6 -59.9 166.7	12 32.9 -59.9 165.7
3°	11 46.2 -59.9 169.8	11 43.3 -59.9 168.8	11 40.2 -59.9 167.8	11 36.7 -59.9 166.7	11 33.0 -59.8 165.7
4°	10 46.3 -60.0 169.8	10 43.4 -59.9 168.8	10 40.3 -60.0 167.8	10 36.8 -59.9 166.8	10 33.2 -59.9 165.8
5°	9 46.3 -59.9 169.9	9 43.5 -60.0 168.9	9 40.3 -59.9 167.9	9 36.9 -59.9 166.9	9 33.3 -59.9 165.9
6°	8 46.4 -59.9 169.9	8 43.5 -59.9 168.9	8 40.4 -59.9 167.9	8 37.0 -59.8 166.9	8 33.4 -59.9 165.9
7°	7 46.5 -60.0 170.0	7 43.6 -59.9 169.0	7 40.5 -59.9 168.0	7 37.2 -59.9 167.0	7 33.5 -59.9 166.0
8°	6 46.5 -59.9 170.0	6 43.7 -59.9 169.0	6 40.6 -59.9 168.0	6 37.3 -59.9 167.0	6 33.6 -59.8 166.0
9°	5 46.6 -60.0 170.1	5 43.8 -60.0 169.1	5 40.7 -59.9 168.1	5 37.4 -59.9 167.1	5 33.8 -59.9 166.1
10°	4 46.6 -59.9 170.1	4 43.8 -59.9 169.1	4 40.8 -59.9 168.1	4 37.5 -59.9 167.2	4 33.9 -59.9 166.2
11°	3 46.7 -59.9 170.2	3 43.9 -59.9 169.2	3 40.9 -59.9 168.2	3 37.6 -59.9 167.2	3 34.0 -59.9 166.2
12°	2 46.8 -60.0 170.2	2 44.0 -59.9 169.2	2 41.0 -60.0 168.3	2 37.7 -59.9 167.3	2 34.1 -59.9 166.3
13°	1 46.8 -59.9 170.3	1 44.1 -60.0 169.3	1 41.0 -59.9 168.3	1 37.8 -59.9 167.3	1 34.2 -59.8 166.4
14°	0 46.9 -60.0 170.3	0 44.1 -59.9 169.3	0 41.1 -59.9 168.4	0 37.9 -59.9 167.4	0 34.4 -59.9 166.4
15°	-0 13.1 -59.9	-0 15.8 -59.9	-0 18.8 -59.9	-0 22.0 -59.9	-0 25.5 -59.9
16°	-1 13.0 -59.9	-1 15.7 -59.9	-1 18.7 -59.9	-1 21.9 -59.9	-1 25.4 -59.9
17°	-2 12.9 -60.0	-2 15.6 -60.0	-2 18.6 -59.9	-2 21.8 -59.9	-2 25.3 -59.9
18°	-3 12.9 -59.9	-3 15.6 -59.9	-3 18.5 -59.9	-3 21.7 -59.9	-3 25.2 -59.9
19°	-4 12.8 -60.0	-4 15.5 -59.9	-4 18.4 -59.9	-4 21.6 -59.9	-4 25.1 -59.8
20°	-5 12.8 -59.9	-5 15.4 -59.9	-5 18.3 -60.0	-5 21.5 -59.9	-5 24.9 -59.9
21°	-6 12.7 -59.9	-6 15.3 -60.0	-6 18.3 -59.9	-6 21.4 -59.9	-6 24.8 -59.9
22°	-7 12.6 -60.0	-7 15.3 -59.9	-7 18.2 -59.9	-7 21.3 -59.9	-7 24.7 -59.9
23°	-8 12.6 -59.9	-8 15.2 -59.9	-8 18.1 -59.9	-8 21.2 -59.9	-8 24.6 -59.9
24°	-9 12.5 -59.9	-9 15.1 -60.0	-9 18.0 -59.9	-9 21.1 -59.9	-9 24.5 -59.8
25°					
26°					
27°					
28°					
29°					

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°	14 28.7 -59.9 164.5	14 24.4 -59.9 163.5	14 19.8 -59.8 162.4	14 15.0 -59.8 161.4	14 09.9 -59.8 160.4
1°	13 28.8 -59.9 164.6	13 24.5 -59.8 163.5	13 20.0 -59.8 162.5	13 15.2 -59.8 161.5	13 10.1 -59.7 160.5
2°	12 28.9 -59.8 164.6	12 24.7 -59.9 163.6	12 20.2 -59.8 162.6	12 15.4 -59.8 161.6	12 10.4 -59.8 160.6
3°	11 29.1 -59.9 164.7	11 24.8 -59.8 163.7	11 20.4 -59.9 162.7	11 15.6 -59.8 161.7	11 10.6 -59.8 160.6
4°	10 29.2 -59.8 164.8	10 25.0 -59.8 163.8	10 20.5 -59.8 162.8	10 15.8 -59.8 161.7	10 10.8 -59.8 160.7
5°	9 29.4 -59.9 164.8	9 25.2 -59.9 163.8	9 20.7 -59.8 162.8	9 16.0 -59.8 161.8	9 11.0 -59.8 160.8
6°	8 29.5 -59.9 164.9	8 25.3 -59.8 163.9	8 20.9 -59.8 162.9	8 16.2 -59.8 161.9	8 11.2 -59.7 160.9
7°	7 29.6 -59.8 165.0	7 25.5 -59.9 164.0	7 21.1 -59.9 163.0	7 16.4 -59.8 162.0	7 11.5 -59.8 161.0
8°	6 29.8 -59.9 165.1	6 25.6 -59.8 164.1	6 21.2 -59.8 163.1	6 16.6 -59.8 162.1	6 11.7 -59.8 161.1
9°	5 29.9 -59.9 165.1	5 25.8 -59.9 164.1	5 21.4 -59.8 163.1	5 16.8 -59.8 162.2	5 11.9 -59.8 161.2
10°	4 30.0 -59.8 165.2	4 25.9 -59.8 164.2	4 21.6 -59.8 163.2	4 17.0 -59.8 162.2	4 12.1 -59.8 161.2
11°	3 30.2 -59.9 165.3	3 26.1 -59.9 164.3	3 21.8 -59.9 163.3	3 17.2 -59.8 162.3	3 12.3 -59.8 161.3
12°	2 30.3 -59.9 165.3	2 26.2 -59.8 164.3	2 21.9 -59.8 163.4	2 17.4 -59.8 162.4	2 12.5 -59.8 161.4
13°	1 30.4 -59.8 165.4	1 26.4 -59.8 164.4	1 22.1 -59.8 163.4	1 17.6 -59.9 162.5	1 12.7 -59.7 161.5
14°	0 30.6 -59.9 165.5	0 26.6 -59.9 164.5	0 22.3 -59.9 163.5	0 17.7 -59.8 162.6	0 13.0 -59.8 161.6
15°	-0 29.3 -59.9	-0 33.3 -59.8	-0 37.6 -59.8	-0 42.1 -59.8	-0 46.8 -59.8
16°	-1 29.2 -59.8	-1 33.1 -59.9	-1 37.4 -59.8	-1 41.9 -59.8	-1 46.6 -59.8
17°	-2 29.0 -59.9	-2 33.0 -59.8	-2 37.2 -59.8	-2 41.7 -59.8	-2 46.4 -59.8
18°	-3 28.9 -59.8	-3 32.8 -59.9	-3 37.0 -59.9	-3 41.5 -59.8	-3 46.2 -59.8
19°	-4 28.7 -59.9	-4 32.7 -59.8	-4 36.9 -59.8	-4 41.3 -59.8	-4 46.0 -59.8
20°	-5 28.6 -59.9	-5 32.5 -59.9	-5 36.7 -59.8	-5 41.1 -59.8	-5 45.8 -59.7
21°	-6 28.5 -59.8	-6 32.4 -59.8	-6 36.5 -59.8	-6 40.9 -59.8	-6 45.5 -59.8
22°	-7 28.3 -59.9	-7 32.2 -59.9	-7 36.3 -59.9	-7 40.7 -59.8	-7 45.3 -59.8
23°	-8 28.2 -59.9	-8 32.1 -59.8	-8 36.2 -59.8	-8 40.5 -59.8	-8 45.1 -59.8
24°	-9 28.1 -59.8	-9 31.9 -59.8	-9 36.0 -59.8	-9 40.3 -59.8	-9 44.9 -59.8
25°					
26°					
27°					
28°					
29°					

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°	14 04.6 -59.8 159.4	13 59.0 -59.8 158.3	13 53.1 -59.7 157.3	13 47.0 -59.7 156.3	13 40.6 -59.6 155.3
1°	13 04.8 -59.7 159.4	12 59.2 -59.7 158.4	12 53.4 -59.7 157.4	12 47.3 -59.7 156.4	12 41.0 -59.7 155.4
2°	12 05.1 -59.8 159.5	11 59.5 -59.7 158.5	11 53.7 -59.7 157.5	11 47.6 -59.7 156.5	11 41.3 -59.7 155.5
3°	11 05.3 -59.7 159.6	10 59.8 -59.8 158.6	10 54.0 -59.7 157.6	10 47.9 -59.6 156.6	10 41.6 -59.6 155.6
4°	10 05.6 -59.8 159.7	10 00.0 -59.7 158.7	9 54.3 -59.7 157.7	9 48.3 -59.7 156.7	9 42.0 -59.7 155.7
5°	9 05.8 -59.8 159.8	9 00.3 -59.7 158.8	8 54.6 -59.7 157.8	8 48.6 -59.7 156.8	8 42.3 -59.6 155.8
6°	8 06.0 -59.7 159.9	8 00.6 -59.8 158.9	7 54.9 -59.8 157.9	7 48.9 -59.7 156.9	7 42.7 -59.7 155.9
7°	7 06.3 -59.8 160.0	7 00.8 -59.7 159.0	6 55.1 -59.7 158.0	6 49.2 -59.7 157.0	6 43.0 -59.6 156.0
8°	6 06.5 -59.7 160.1	6 01.1 -59.7 159.1	5 55.4 -59.7 158.1	5 49.5 -59.7 157.1	5 43.4 -59.7 156.1
9°	5 06.8 -59.8 160.2	5 01.4 -59.8 159.2	4 55.7 -59.7 158.2	4 49.8 -59.7 157.2	4 43.7 -59.7 156.2
10°	4 07.0 -59.8 160.3	4 01.6 -59.7 159.3	3 56.0 -59.7 158.3	3 50.1 -59.7 157.3	3 44.0 -59.6 156.3
11°	3 07.2 -59.7 160.4	3 01.9 -59.8 159.4	2 56.3 -59.7 158.4	2 50.4 -59.6 157.4	2 44.4 -59.7 156.4
12°	2 07.5 -59.8 160.4	2 02.1 -59.7 159.5	1 56.6 -59.7 158.5	1 50.8 -59.7 157.5	1 44.7 -59.7 156.5
13°	1 07.7 -59.8 160.5	1 02.4 -59.7 159.6	0 56.9 -59.8 158.6	0 51.1 -59.7 157.6	0 45.0 -59.6 156.7
14°	0 07.9 -59.7 160.6	0 02.7 -59.8 159.7	-0 02.9 -59.7	-0 08.6 -59.7	-0 14.6 -59.7
15°	-0 51.8 -59.8	-0 57.1 -59.7	-1 02.6 -59.7	-1 08.3 -59.7	-1 14.3 -59.7
16°	-1 51.6 -59.8	-1 56.8 -59.8	-2 02.3 -59.7	-2 08.0 -59.7	-2 14.0 -59.6
17°	-2 51.4 -59.7	-2 56.6 -59.7	-3 02.0 -59.7	-3 07.7 -59.7	-3 13.6 -59.7
18°	-3 51.1 -59.8	-3 56.3 -59.7	-4 01.7 -59.7	-4 07.4 -59.7	-4 13.3 -59.7
19°	-4 50.9 -59.7	-4 56.0 -59.8	-5 01.4 -59.8	-5 07.1 -59.7	-5 13.0 -59.6
20°	-5 50.6 -59.8	-5 55.8 -59.7	-6 01.2 -59.7	-6 06.8 -59.7	-6 12.6 -59.7
21°	-6 50.4 -59.8	-6 55.5 -59.8	-7 00.9 -59.7	-7 06.5 -59.7	-7 12.3 -59.7
22°	-7 50.2 -59.7	-7 55.3 -59.7	-8 00.6 -59.7	-8 06.2 -59.6	-8 12.0 -59.6
23°	-8 49.9 -59.8	-8 55.0 -59.7	-9 00.3 -59.7	-9 05.8 -59.7	-9 11.6 -59.7
24°	-9 49.7 -59.7	-9 54.7 -59.8			
25°					
26°					
27°					
28°					
29°					

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°	13 34.0 -59.6 154.2	13 27.1 -59.6 153.2	13 20.0 -59.6 152.2	13 12.6 -59.5 151.2	13 05.0 -59.5 150.2
1°	12 34.4 -59.7 154.3	12 27.5 -59.6 153.3	12 20.4 -59.6 152.3	12 13.1 -59.6 151.3	12 05.5 -59.5 150.3
2°	11 34.7 -59.6 154.5	11 27.9 -59.6 153.4	11 20.8 -59.5 152.4	11 13.5 -59.5 151.4	11 06.0 -59.5 150.4
3°	10 35.1 -59.6 154.6	10 28.3 -59.6 153.6	10 21.3 -59.6 152.6	10 14.0 -59.5 151.5	10 06.5 -59.5 150.5
4°	9 35.5 -59.7 154.7	9 28.7 -59.6 153.7	9 21.7 -59.6 152.7	9 14.5 -59.6 151.7	9 07.0 -59.5 150.7
5°	8 35.8 -59.6 154.8	8 29.1 -59.6 153.8	8 22.1 -59.5 152.8	8 14.9 -59.5 151.8	8 07.5 -59.6 150.8
6°	7 36.2 -59.6 154.9	7 29.5 -59.6 153.9	7 22.6 -59.6 152.9	7 15.4 -59.6 151.9	7 07.9 -59.5 150.9
7°	6 36.6 -59.7 155.0	6 29.9 -59.6 154.0	6 23.0 -59.6 153.0	6 15.8 -59.5 152.0	6 08.4 -59.5 151.1
8°	5 36.9 -59.6 155.1	5 30.3 -59.6 154.1	5 23.4 -59.6 153.2	5 16.3 -59.6 152.2	5 08.9 -59.5 151.2
9°	4 37.3 -59.6 155.2	4 30.7 -59.6 154.3	4 23.8 -59.6 153.3	4 16.7 -59.5 152.3	4 09.4 -59.5 151.3
10°	3 37.7 -59.7 155.4	3 31.1 -59.6 154.4	3 24.2 -59.5 153.4	3 17.2 -59.6 152.4	3 09.9 -59.6 151.4
11°	2 38.0 -59.6 155.5	2 31.5 -59.7 154.5	2 24.7 -59.6 153.5	2 17.6 -59.5 152.5	2 10.3 -59.5 151.6
12°	1 38.4 -59.7 155.6	1 31.8 -59.6 154.6	1 25.1 -59.6 153.6	1 18.1 -59.6 152.7	1 10.8 -59.5 151.7
13°	0 38.7 -59.6 155.7	0 32.2 -59.6 154.7	0 25.5 -59.6 153.7	0 18.5 -59.6 152.8	0 11.3 -59.5 151.8
14°	-0 20.9 -59.6	-0 27.4 -59.6	-0 34.1 -59.6	-0 41.1 -59.5	-0 48.2 -59.6
15°	-1 20.5 -59.7	-1 27.0 -59.6	-1 33.7 -59.6	-1 40.6 -59.6	-1 47.8 -59.5
16°	-2 20.2 -59.6	-2 26.6 -59.6	-2 33.3 -59.6	-2 40.2 -59.5	-2 47.3 -59.5
17°	-3 19.8 -59.6	-3 26.2 -59.6	-3 32.9 -59.5	-3 39.7 -59.6	-3 46.8 -59.5
18°	-4 19.4 -59.7	-4 25.8 -59.6	-4 32.4 -59.6	-4 39.3 -59.5	-4 46.3 -59.6
19°	-5 19.1 -59.6	-5 25.4 -59.6	-5 32.0 -59.6	-5 38.8 -59.6	-5 45.9 -59.5
20°	-6 18.7 -59.7	-6 25.0 -59.6	-6 31.6 -59.6	-6 38.4 -59.5	-6 45.4 -59.5
21°	-7 18.4 -59.6	-7 24.6 -59.7	-7 31.2 -59.5	-7 37.9 -59.6	-7 44.9 -59.5
22°	-8 18.0 -59.6	-8 24.3 -59.6	-8 30.7 -59.6	-8 37.5 -59.5	-8 44.4 -59.5
23°	-9 17.6 -59.6	-9 23.9 -59.6	-9 30.3 -59.6	-9 37.0 -59.6	-9 43.9 -59.5
24°					
25°					
26°					
27°					
28°					
29°					

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°	12 57.2 -59.5 149.1	12 49.1 -59.5 148.1	12 40.7 -59.4 147.1	12 32.2 -59.4 146.1	12 23.4 -59.3 145.1
1°	11 57.7 -59.5 149.3	11 49.6 -59.4 148.3	11 41.3 -59.4 147.2	11 32.8 -59.4 146.2	11 24.1 -59.4 145.2
2°	10 58.2 -59.5 149.4	10 50.2 -59.5 148.4	10 41.9 -59.4 147.4	10 33.4 -59.3 146.4	10 24.7 -59.3 145.4
3°	9 58.7 -59.5 149.5	9 50.7 -59.4 148.5	9 42.5 -59.4 147.5	9 34.1 -59.4 146.5	9 25.4 -59.4 145.5
4°	8 59.2 -59.4 149.7	8 51.3 -59.5 148.7	8 43.1 -59.4 147.7	8 34.7 -59.4 146.7	8 26.0 -59.3 145.7
5°	7 59.8 -59.5 149.8	7 51.8 -59.4 148.8	7 43.7 -59.4 147.8	7 35.3 -59.4 146.8	7 26.7 -59.4 145.8
6°	7 00.3 -59.5 149.9	6 52.4 -59.5 148.9	6 44.3 -59.5 147.9	6 35.9 -59.4 147.0	6 27.3 -59.3 146.0
7°	6 00.8 -59.5 150.1	5 52.9 -59.4 149.1	5 44.8 -59.4 148.1	5 36.5 -59.4 147.1	5 28.0 -59.4 146.1
8°	5 01.3 -59.5 150.2	4 53.5 -59.5 149.2	4 45.4 -59.4 148.2	4 37.1 -59.4 147.2	4 28.6 -59.4 146.3
9°	4 01.8 -59.5 150.3	3 54.0 -59.5 149.3	3 46.0 -59.5 148.4	3 37.7 -59.4 147.4	3 29.2 -59.3 146.4
10°	3 02.3 -59.5 150.5	2 54.5 -59.4 149.5	2 46.5 -59.4 148.5	2 38.3 -59.4 147.5	2 29.9 -59.4 146.5
11°	2 02.8 -59.5 150.6	1 55.1 -59.5 149.6	1 47.1 -59.4 148.6	1 38.9 -59.4 147.7	1 30.5 -59.4 146.7
12°	1 03.3 -59.5 150.7	0 55.6 -59.5 149.7	0 47.7 -59.5 148.8	0 39.5 -59.4 147.8	0 31.1 -59.3 146.8
13°	0 03.8 -59.5 150.8	-0 03.9 -59.4	-0 11.8 -59.4	-0 19.9 -59.4	-0 28.2 -59.4
14°	-0 55.7 -59.5	-1 03.3 -59.5	-1 11.2 -59.4	-1 19.3 -59.4	-1 27.6 -59.4
15°	-1 55.2 -59.5	-2 02.8 -59.4	-2 10.6 -59.5	-2 18.7 -59.4	-2 27.0 -59.3
16°	-2 54.7 -59.5	-3 02.2 -59.5	-3 10.1 -59.4	-3 18.1 -59.4	-3 26.3 -59.4
17°	-3 54.2 -59.4	-4 01.7 -59.5	-4 09.5 -59.4	-4 17.5 -59.4	-4 25.7 -59.4
18°	-4 53.6 -59.5	-5 01.2 -59.4	-5 08.9 -59.4	-5 16.9 -59.4	-5 25.1 -59.3
19°	-5 53.1 -59.5	-6 00.6 -59.5	-6 08.3 -59.5	-6 16.3 -59.4	-6 24.4 -59.4
20°	-6 52.6 -59.5	-7 00.1 -59.4	-7 07.8 -59.4	-7 15.7 -59.4	-7 23.8 -59.3
21°	-7 52.1 -59.5	-7 59.5 -59.5	-8 07.2 -59.4	-8 15.1 -59.3	-8 23.1 -59.4
22°	-8 51.6 -59.5	-8 59.0 -59.4	-9 06.6 -59.4	-9 14.4 -59.4	-9 22.5 -59.3
23°	-9 51.1 -59.5	-9 58.4 -59.5			
24°					
25°					
26°					
27°					
28°					
29°					

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°	12 14.4 -59.3 144.1	12 05.2 -59.3 143.1	11 55.7 -59.2 142.0	11 46.1 -59.2 141.0	11 36.2 -59.1 140.0
1°	11 15.1 -59.3 144.2	11 05.9 -59.3 143.2	10 56.5 -59.2 142.2	10 46.9 -59.2 141.2	10 37.1 -59.2 140.2
2°	10 15.8 -59.3 144.4	10 06.6 -59.2 143.4	9 57.3 -59.3 142.4	9 47.7 -59.2 141.4	9 37.9 -59.2 140.4
3°	9 16.5 -59.3 144.5	9 07.4 -59.3 143.5	8 58.0 -59.2 142.5	8 48.5 -59.3 141.5	8 38.7 -59.2 140.5
4°	8 17.2 -59.4 144.7	8 08.1 -59.3 143.7	7 58.8 -59.3 142.7	7 49.2 -59.2 141.7	7 39.5 -59.2 140.7
5°	7 17.8 -59.3 144.8	7 08.8 -59.3 143.8	6 59.5 -59.2 142.8	6 50.0 -59.2 141.9	6 40.3 -59.2 140.9
6°	6 18.5 -59.3 145.0	6 09.5 -59.3 144.0	6 00.3 -59.3 143.0	5 50.8 -59.2 142.0	5 41.1 -59.1 141.0
7°	5 19.2 -59.3 145.1	5 10.2 -59.3 144.1	5 01.0 -59.3 143.2	4 51.6 -59.2 142.2	4 42.0 -59.2 141.2
8°	4 19.9 -59.4 145.3	4 10.9 -59.3 144.3	4 01.7 -59.2 143.3	3 52.4 -59.3 142.3	3 42.8 -59.2 141.4
9°	3 20.5 -59.3 145.4	3 11.6 -59.3 144.4	3 02.5 -59.3 143.5	2 53.1 -59.2 142.5	2 43.6 -59.2 141.5
10°	2 21.2 -59.3 145.6	2 12.3 -59.3 144.6	2 03.2 -59.3 143.6	1 53.9 -59.2 142.7	1 44.4 -59.2 141.7
11°	1 21.9 -59.4 145.7	1 13.0 -59.3 144.8	1 03.9 -59.2 143.8	0 54.7 -59.3 142.8	0 45.2 -59.2 141.8
12°	0 22.5 -59.3 145.9	0 13.7 -59.3 144.9	0 04.7 -59.3 143.9	-0 04.6 -59.2	-0 14.0 -59.2
13°	-0 36.8 -59.3	-0 45.6 -59.3	-0 54.6 -59.3	-1 03.8 -59.2	-1 13.2 -59.2
14°	-1 36.1 -59.4	-1 44.9 -59.3	-1 53.9 -59.2	-2 03.0 -59.3	-2 12.4 -59.2
15°	-2 35.5 -59.3	-2 44.2 -59.3	-2 53.1 -59.3	-3 02.3 -59.2	-3 11.6 -59.2
16°	-3 34.8 -59.3	-3 43.5 -59.3	-3 52.4 -59.3	-4 01.5 -59.2	-4 10.8 -59.2
17°	-4 34.1 -59.4	-4 42.8 -59.3	-4 51.7 -59.2	-5 00.7 -59.3	-5 10.0 -59.2
18°	-5 33.5 -59.3	-5 42.1 -59.3	-5 50.9 -59.3	-6 00.0 -59.2	-6 09.2 -59.2
19°	-6 32.8 -59.3	-6 41.4 -59.3	-6 50.2 -59.2	-6 59.2 -59.2	-7 08.4 -59.2
20°	-7 32.1 -59.3	-7 40.7 -59.3	-7 49.4 -59.3	-7 58.4 -59.2	-8 07.6 -59.2
21°	-8 31.4 -59.4	-8 40.0 -59.2	-8 48.7 -59.2	-8 57.6 -59.2	-9 06.8 -59.1
22°	-9 30.8 -59.3	-9 39.2 -59.3	-9 47.9 -59.3	-9 56.8 -59.2	
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	11 26.1 -59.1 139.0	11 15.9 -59.1 138.0	11 05.4 -59.1 137.0	10 54.7 -59.1 136.0	10 43.8 -59.0 135.0
1°	10 27.0 -59.1 139.2	10 16.8 -59.1 138.2	10 06.3 -59.1 137.2	9 55.6 -59.0 136.2	9 44.8 -59.0 135.2
2°	9 27.9 -59.2 139.4	9 17.7 -59.2 138.4	9 07.2 -59.0 137.4	8 56.6 -59.0 136.4	8 45.8 -59.0 135.4
3°	8 28.7 -59.1 139.5	8 18.5 -59.1 138.5	8 08.2 -59.1 137.5	7 57.6 -59.1 136.6	7 46.8 -59.0 135.6
4°	7 29.6 -59.2 139.7	7 19.4 -59.1 138.7	7 09.1 -59.1 137.7	6 58.5 -59.0 136.7	6 47.8 -59.0 135.7
5°	6 30.4 -59.1 139.9	6 20.3 -59.1 138.9	6 10.0 -59.1 137.9	5 59.5 -59.1 136.9	5 48.8 -59.0 135.9
6°	5 31.3 -59.2 140.0	5 21.2 -59.1 139.1	5 10.9 -59.1 138.1	5 00.4 -59.0 137.1	4 49.8 -59.0 136.1
7°	4 32.1 -59.1 140.2	4 22.1 -59.2 139.2	4 11.8 -59.1 138.2	4 01.4 -59.1 137.3	3 50.8 -59.1 136.3
8°	3 33.0 -59.2 140.4	3 22.9 -59.1 139.4	3 12.7 -59.0 138.4	3 02.3 -59.0 137.4	2 51.7 -59.0 136.5
9°	2 33.8 -59.2 140.5	2 23.8 -59.1 139.6	2 13.7 -59.1 138.6	2 03.3 -59.1 137.6	1 52.7 -59.0 136.6
10°	1 34.6 -59.1 140.7	1 24.7 -59.1 139.7	1 14.6 -59.1 138.8	1 04.2 -59.0 137.8	0 53.7 -59.0 136.8
11°	0 35.5 -59.2 140.9	0 25.6 -59.2 139.9	0 15.5 -59.1 138.9	0 05.2 -59.1 138.0	-0 05.3 -59.0
12°	-0 23.7 -59.2	-0 33.6 -59.1	-0 43.6 -59.1	-0 53.9 -59.0	-1 04.3 -59.1
13°	-1 22.9 -59.1	-1 32.7 -59.1	-1 42.7 -59.1	-1 52.9 -59.1	-2 03.4 -59.0
14°	-2 22.0 -59.2	-2 31.8 -59.1	-2 41.8 -59.1	-2 52.0 -59.1	-3 02.4 -59.0
15°	-3 21.2 -59.1	-3 30.9 -59.2	-3 40.9 -59.1	-3 51.1 -59.0	-4 01.4 -59.0
16°	-4 20.3 -59.2	-4 30.1 -59.1	-4 40.0 -59.1	-4 50.1 -59.1	-5 00.4 -59.0
17°	-5 19.5 -59.2	-5 29.2 -59.1	-5 39.1 -59.1	-5 49.2 -59.0	-5 59.4 -59.0
18°	-6 18.7 -59.1	-6 28.3 -59.1	-6 38.2 -59.0	-6 48.2 -59.0	-6 58.4 -59.1
19°	-7 17.8 -59.2	-7 27.4 -59.1	-7 37.2 -59.1	-7 47.2 -59.1	-7 57.5 -59.0
20°	-8 17.0 -59.1	-8 26.5 -59.1	-8 36.3 -59.1	-8 46.3 -59.0	-8 56.5 -58.9
21°	-9 16.1 -59.1	-9 25.6 -59.1	-9 35.4 -59.0	-9 45.3 -59.0	-9 55.4 -59.0
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	10 32.7 -58.9 134.0	10 21.5 -59.0 133.0	10 10.0 -58.9 132.0	9 58.4 -58.9 131.0	9 46.6 -58.8 130.0
1°	9 33.8 -59.0 134.2	9 22.5 -58.9 133.2	9 11.1 -58.9 132.2	8 59.5 -58.8 131.2	8 47.8 -58.9 130.2
2°	8 34.8 -59.0 134.4	8 23.6 -58.9 133.4	8 12.2 -58.9 132.4	8 00.7 -58.9 131.4	7 48.9 -58.8 130.4
3°	7 35.8 -58.9 134.6	7 24.7 -59.0 133.6	7 13.3 -58.9 132.6	7 01.8 -58.8 131.6	6 50.1 -58.8 130.6
4°	6 36.9 -59.0 134.8	6 25.7 -58.9 133.8	6 14.4 -58.9 132.8	6 03.0 -58.9 131.8	5 51.3 -58.8 130.8
5°	5 37.9 -59.0 134.9	5 26.8 -58.9 134.0	5 15.5 -58.9 133.0	5 04.1 -58.9 132.0	4 52.5 -58.9 131.0
6°	4 38.9 -59.0 135.1	4 27.9 -59.0 134.1	4 16.6 -58.9 133.2	4 05.2 -58.9 132.2	3 53.6 -58.8 131.2
7°	3 39.9 -59.0 135.3	3 28.9 -58.9 134.3	3 17.7 -58.9 133.4	3 06.3 -58.8 132.4	2 54.8 -58.9 131.4
8°	2 40.9 -58.9 135.5	2 30.0 -59.0 134.5	2 18.8 -58.9 133.5	2 07.5 -58.9 132.6	1 55.9 -58.8 131.6
9°	1 42.0 -59.0 135.7	1 31.0 -58.9 134.7	1 19.9 -58.9 133.7	1 08.6 -58.9 132.8	0 57.1 -58.9 131.8
10°	0 43.0 -59.0 135.9	0 32.1 -59.0 134.9	0 21.0 -58.9 133.9	0 09.7 -58.9 133.0	-0 01.8 -58.8
11°	-0 16.0 -59.0	-0 26.9 -58.9	-0 37.9 -59.0	-0 49.2 -58.9	-1 00.6 -58.8
12°	-1 15.0 -59.0	-1 25.8 -59.0	-1 36.9 -58.9	-1 48.1 -58.8	-1 59.4 -58.9
13°	-2 14.0 -59.0	-2 24.8 -58.9	-2 35.8 -58.9	-2 46.9 -58.9	-2 58.3 -58.8
14°	-3 13.0 -58.9	-3 23.7 -59.0	-3 34.7 -58.9	-3 45.8 -58.9	-3 57.1 -58.9
15°	-4 11.9 -59.0	-4 22.7 -58.9	-4 33.6 -58.9	-4 44.7 -58.9	-4 56.0 -58.8
16°	-5 10.9 -59.0	-5 21.6 -59.0	-5 32.5 -58.9	-5 43.6 -58.8	-5 54.8 -58.8
17°	-6 09.9 -59.0	-6 20.6 -58.9	-6 31.4 -58.9	-6 42.4 -58.9	-6 53.6 -58.8
18°	-7 08.9 -58.9	-7 19.5 -58.9	-7 30.3 -58.9	-7 41.3 -58.8	-7 52.4 -58.9
19°	-8 07.8 -59.0	-8 18.4 -59.0	-8 29.2 -58.9	-8 40.1 -58.9	-8 51.3 -58.8
20°	-9 06.8 -59.0	-9 17.4 -58.9	-9 28.1 -58.9	-9 39.0 -58.8	-9 50.1 -58.8
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	9 34.6 -58.8 129.0	9 22.4 -58.7 128.0	9 10.1 -58.7 127.0	8 57.7 -58.7 126.1	8 45.0 -58.6 125.1
1°	8 35.8 -58.8 129.2	8 23.7 -58.7 128.2	8 11.4 -58.7 127.2	7 59.0 -58.7 126.3	7 46.4 -58.7 125.3
2°	7 37.0 -58.8 129.4	7 25.0 -58.8 128.4	7 12.7 -58.7 127.5	7 00.3 -58.7 126.5	6 47.7 -58.6 125.5
3°	6 38.2 -58.8 129.6	6 26.2 -58.8 128.6	6 14.0 -58.7 127.7	6 01.6 -58.7 126.7	5 49.1 -58.7 125.7
4°	5 39.4 -58.8 129.8	5 27.4 -58.7 128.9	5 15.3 -58.8 127.9	5 02.9 -58.7 126.9	4 50.4 -58.6 125.9
5°	4 40.6 -58.8 130.0	4 28.7 -58.8 129.1	4 16.5 -58.7 128.1	4 04.2 -58.7 127.1	3 51.8 -58.7 126.1
6°	3 41.8 -58.8 130.2	3 29.9 -58.8 129.3	3 17.8 -58.7 128.3	3 05.5 -58.7 127.3	2 53.1 -58.7 126.3
7°	2 43.0 -58.8 130.4	2 31.1 -58.7 129.5	2 19.1 -58.8 128.5	2 06.8 -58.7 127.5	1 54.4 -58.6 126.5
8°	1 44.2 -58.8 130.6	1 32.4 -58.8 129.7	1 20.3 -58.7 128.7	1 08.1 -58.7 127.7	0 55.8 -58.7 126.8
9°	0 45.4 -58.8 130.8	0 33.6 -58.8 129.9	0 21.6 -58.8 128.9	0 09.4 -58.7 127.9	-0 02.9 -58.7
10°	-0 13.4 -58.8	-0 25.2 -58.8	-0 37.2 -58.7	-0 49.3 -58.7	-1 01.6 -58.7
11°	-1 12.2 -58.8	-1 24.0 -58.7	-1 35.9 -58.7	-1 48.0 -58.7	-2 00.3 -58.6
12°	-2 11.0 -58.8	-2 22.7 -58.8	-2 34.6 -58.8	-2 46.7 -58.7	-2 58.9 -58.7
13°	-3 09.8 -58.8	-3 21.5 -58.8	-3 33.4 -58.7	-3 45.4 -58.7	-3 57.6 -58.6
14°	-4 08.6 -58.8	-4 20.3 -58.7	-4 32.1 -58.7	-4 44.1 -58.7	-4 56.2 -58.7
15°	-5 07.4 -58.8	-5 19.0 -58.8	-5 30.8 -58.7	-5 42.8 -58.7	-5 54.9 -58.7
16°	-6 06.2 -58.8	-6 17.8 -58.8	-6 29.5 -58.8	-6 41.5 -58.7	-6 53.6 -58.6
17°	-7 05.0 -58.8	-7 16.6 -58.7	-7 28.3 -58.7	-7 40.2 -58.6	-7 52.2 -58.6
18°	-8 03.8 -58.8	-8 15.3 -58.7	-8 27.0 -58.7	-8 38.8 -58.7	-8 50.8 -58.7
19°	-9 02.6 -58.7	-9 14.0 -58.8	-9 25.7 -58.7	-9 37.5 -58.7	-9 49.5 -58.6
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	8 32.2 -58.6 124.1	8 19.3 -58.6 123.1	8 06.2 -58.5 122.1	7 53.0 -58.5 121.1	7 39.6 -58.5 120.1
1°	7 33.6 -58.6 124.3	7 20.7 -58.6 123.3	7 07.7 -58.6 122.3	6 54.5 -58.5 121.3	6 41.1 -58.4 120.4
2°	6 35.0 -58.6 124.5	6 22.1 -58.5 123.5	6 09.1 -58.5 122.5	5 56.0 -58.6 121.6	5 42.7 -58.5 120.6
3°	5 36.4 -58.6 124.7	5 23.6 -58.6 123.7	5 10.6 -58.6 122.8	4 57.4 -58.5 121.8	4 44.2 -58.5 120.8
4°	4 37.8 -58.7 124.9	4 25.0 -58.6 124.0	4 12.0 -58.6 123.0	3 58.9 -58.5 122.0	3 45.7 -58.5 121.0
5°	3 39.1 -58.6 125.1	3 26.4 -58.6 124.2	3 13.4 -58.5 123.2	3 00.4 -58.6 122.2	2 47.2 -58.5 121.2
6°	2 40.5 -58.6 125.4	2 27.8 -58.6 124.4	2 14.9 -58.6 123.4	2 01.8 -58.5 122.4	1 48.7 -58.5 121.5
7°	1 41.9 -58.7 125.6	1 29.2 -58.6 124.6	1 16.3 -58.6 123.6	1 03.3 -58.5 122.7	0 50.2 -58.5 121.7
8°	0 43.2 -58.6 125.8	0 30.6 -58.6 124.8	0 17.7 -58.5 123.8	0 04.8 -58.6 122.9	-0 08.3 -58.5
9°	-0 15.4 -58.6	-0 28.0 -58.6	-0 40.8 -58.6	-0 53.8 -58.5	-1 06.8 -58.5
10°	-1 14.0 -58.7	-1 26.6 -58.6	-1 39.4 -58.6	-1 52.3 -58.5	-2 05.3 -58.6
11°	-2 12.7 -58.6	-2 25.2 -58.6	-2 38.0 -58.5	-2 50.8 -58.6	-3 03.9 -58.5
12°	-3 11.3 -58.6	-3 23.8 -58.6	-3 36.5 -58.6	-3 49.4 -58.5	-4 02.4 -58.4
13°	-4 09.9 -58.7	-4 22.4 -58.6	-4 35.1 -58.6	-4 47.9 -58.5	-5 00.8 -58.5
14°	-5 08.6 -58.6	-5 21.0 -58.6	-5 33.7 -58.5	-5 46.4 -58.5	-5 59.3 -58.5
15°	-6 07.2 -58.6	-6 19.6 -58.6	-6 32.2 -58.6	-6 44.9 -58.6	-6 57.8 -58.5
16°	-7 05.8 -58.6	-7 18.2 -58.6	-7 30.8 -58.5	-7 43.5 -58.5	-7 56.3 -58.5
17°	-8 04.4 -58.6	-8 16.8 -58.5	-8 29.3 -58.5	-8 42.0 -58.5	-8 54.8 -58.4
18°	-9 03.0 -58.6	-9 15.3 -58.6	-9 27.8 -58.6	-9 40.5 -58.4	-9 53.2 -58.5
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	7 26.1 -58.4 119.1	7 12.5 -58.4 118.2	6 58.7 -58.3 117.2	6 44.9 -58.4 116.2	6 30.9 -58.4 115.2
1°	6 27.7 -58.5 119.4	6 14.1 -58.4 118.4	6 00.4 -58.4 117.4	5 46.5 -58.4 116.4	5 32.5 -58.3 115.5
2°	5 29.2 -58.4 119.6	5 15.7 -58.5 118.6	5 02.0 -58.4 117.6	4 48.1 -58.3 116.7	4 34.2 -58.3 115.7
3°	4 30.8 -58.5 119.8	4 17.2 -58.4 118.9	4 03.6 -58.4 117.9	3 49.8 -58.4 116.9	3 35.9 -58.4 115.9
4°	3 32.3 -58.5 120.1	3 18.8 -58.5 119.1	3 05.2 -58.5 118.1	2 51.4 -58.4 117.1	2 37.5 -58.3 116.2
5°	2 33.8 -58.4 120.3	2 20.3 -58.4 119.3	2 06.7 -58.4 118.3	1 53.0 -58.4 117.4	1 39.2 -58.4 116.4
6°	1 35.4 -58.5 120.5	1 21.9 -58.4 119.5	1 08.3 -58.4 118.6	0 54.6 -58.4 117.6	0 40.8 -58.3 116.6
7°	0 36.9 -58.5 120.7	0 23.5 -58.5 119.8	0 09.9 -58.4 118.8	-0 03.8 -58.3	-0 17.5 -58.4
8°	-0 21.6 -58.5	-0 35.0 -58.4	-0 48.5 -58.4	-1 02.1 -58.4	-1 15.9 -58.4
9°	-1 20.1 -58.4	-1 33.4 -58.5	-1 46.9 -58.4	-2 00.5 -58.4	-2 14.3 -58.3
10°	-2 18.5 -58.5	-2 31.9 -58.4	-2 45.3 -58.4	-2 58.9 -58.4	-3 12.6 -58.3
11°	-3 17.0 -58.5	-3 30.3 -58.4	-3 43.7 -58.4	-3 57.3 -58.3	-4 10.9 -58.4
12°	-4 15.5 -58.4	-4 28.7 -58.5	-4 42.1 -58.4	-4 55.6 -58.4	-5 09.3 -58.3
13°	-5 13.9 -58.5	-5 27.2 -58.4	-5 40.5 -58.4	-5 54.0 -58.4	-6 07.6 -58.4
14°	-6 12.4 -58.4	-6 25.6 -58.4	-6 38.9 -58.4	-6 52.4 -58.3	-7 06.0 -58.3
15°	-7 10.8 -58.5	-7 24.0 -58.4	-7 37.3 -58.4	-7 50.7 -58.4	-8 04.3 -58.3
16°	-8 09.3 -58.4	-8 22.4 -58.4	-8 35.7 -58.4	-8 49.1 -58.3	-9 02.6 -58.3
17°	-9 07.7 -58.5	-9 20.8 -58.4	-9 34.1 -58.3	-9 47.4 -58.3	
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	6 16.8 -58.3 114.2	6 02.6 -58.3 113.3	5 48.3 -58.3 112.3	5 33.8 -58.2 111.3	5 19.3 -58.2 110.3
1°	5 18.5 -58.3 114.5	5 04.3 -58.3 113.5	4 50.0 -58.3 112.5	4 35.6 -58.2 111.6	4 21.1 -58.2 110.6
2°	4 20.2 -58.4 114.7	4 06.0 -58.3 113.7	3 51.7 -58.2 112.8	3 37.4 -58.3 111.8	3 22.9 -58.2 110.8
3°	3 21.8 -58.3 115.0	3 07.7 -58.3 114.0	2 53.5 -58.3 113.0	2 39.1 -58.2 112.0	2 24.7 -58.2 111.1
4°	2 23.5 -58.3 115.2	2 09.4 -58.3 114.2	1 55.2 -58.3 113.3	1 40.9 -58.3 112.3	1 26.5 -58.3 111.3
5°	1 25.2 -58.3 115.4	1 11.1 -58.3 114.5	0 56.9 -58.2 113.5	0 42.6 -58.2 112.5	0 28.2 -58.2 111.6
6°	0 26.9 -58.4 115.7	0 12.8 -58.3 114.7	-0 01.3 -58.3	-0 15.6 -58.3	-0 30.0 -58.2
7°	-0 31.5 -58.3	-0 45.5 -58.3	-0 59.6 -58.3	-1 13.9 -58.2	-1 28.2 -58.2
8°	-1 29.8 -58.3	-1 43.8 -58.3	-1 57.9 -58.3	-2 12.1 -58.3	-2 26.4 -58.2
9°	-2 28.1 -58.3	-2 42.1 -58.3	-2 56.2 -58.2	-3 10.4 -58.2	-3 24.6 -58.3
10°	-3 26.4 -58.3	-3 40.4 -58.3	-3 54.4 -58.3	-4 08.6 -58.2	-4 22.9 -58.2
11°	-4 24.7 -58.4	-4 38.7 -58.2	-4 52.7 -58.2	-5 06.8 -58.3	-5 21.1 -58.2
12°	-5 23.1 -58.3	-5 36.9 -58.3	-5 50.9 -58.3	-6 05.1 -58.2	-6 19.3 -58.2
13°	-6 21.4 -58.3	-6 35.2 -58.3	-6 49.2 -58.2	-7 03.3 -58.2	-7 17.5 -58.2
14°	-7 19.7 -58.3	-7 33.5 -58.3	-7 47.4 -58.3	-8 01.5 -58.2	-8 15.7 -58.1
15°	-8 18.0 -58.2	-8 31.8 -58.2	-8 45.7 -58.2	-8 59.7 -58.2	-9 13.8 -58.2
16°	-9 16.2 -58.3	-9 30.0 -58.3	-9 43.9 -58.2	-9 57.9 -58.2	
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	5 04.7 -58.2 109.4	4 50.0 -58.1 108.4	4 35.2 -58.1 107.4	4 20.4 -58.1 106.5	4 05.5 -58.1 105.5
1°	4 06.5 -58.2 109.6	3 51.9 -58.2 108.6	3 37.1 -58.1 107.7	3 22.3 -58.2 106.7	3 07.4 -58.2 105.7
2°	3 08.3 -58.2 109.9	2 53.7 -58.2 108.9	2 39.0 -58.2 107.9	2 24.1 -58.1 106.9	2 09.2 -58.1 106.0
3°	2 10.1 -58.2 110.1	1 55.5 -58.2 109.1	1 40.8 -58.2 108.2	1 26.0 -58.1 107.2	1 11.1 -58.1 106.2
4°	1 11.9 -58.2 110.3	0 57.3 -58.1 109.4	0 42.6 -58.1 108.4	0 27.9 -58.2 107.4	0 13.0 -58.1 106.5
5°	0 13.7 -58.2 110.6	-0 00.8 -58.2	-0 15.5 -58.2	-0 30.3 -58.1	-0 45.1 -58.1
6°	-0 44.5 -58.2	-0 59.0 -58.2	-1 13.7 -58.1	-1 28.4 -58.1	-1 43.2 -58.1
7°	-1 42.7 -58.1	-1 57.2 -58.2	-2 11.8 -58.2	-2 26.5 -58.2	-2 41.3 -58.1
8°	-2 40.8 -58.2	-2 55.4 -58.1	-3 10.0 -58.1	-3 24.7 -58.1	-3 39.4 -58.1
9°	-3 39.0 -58.2	-3 53.5 -58.2	-4 08.1 -58.2	-4 22.8 -58.1	-4 37.5 -58.1
10°	-4 37.2 -58.2	-4 51.7 -58.2	-5 06.3 -58.1	-5 20.9 -58.1	-5 35.6 -58.1
11°	-5 35.4 -58.2	-5 49.9 -58.1	-6 04.4 -58.1	-6 19.0 -58.1	-6 33.7 -58.1
12°	-6 33.6 -58.2	-6 48.0 -58.2	-7 02.5 -58.1	-7 17.1 -58.1	-7 31.8 -58.1
13°	-7 31.8 -58.1	-7 46.2 -58.1	-8 00.6 -58.1	-8 15.2 -58.1	-8 29.9 -58.0
14°	-8 29.9 -58.2	-8 44.3 -58.1	-8 58.7 -58.2	-9 13.3 -58.1	-9 27.9 -58.1
15°	-9 28.1 -58.1	-9 42.4 -58.1	-9 56.9 -58.0		
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	3 50.5 -58.1 104.5	3 35.4 -58.1 103.5	3 20.3 -58.1 102.6	3 05.1 -58.1 101.6	2 49.8 -58.0 100.6
1°	2 52.4 -58.1 104.8	2 37.3 -58.1 103.8	2 22.2 -58.0 102.8	2 07.0 -58.0 101.9	1 51.8 -58.0 100.9
2°	1 54.3 -58.1 105.0	1 39.2 -58.0 104.0	1 24.2 -58.1 103.1	1 09.0 -58.1 102.1	0 53.8 -58.0 101.1
3°	0 56.2 -58.1 105.3	0 41.2 -58.1 104.3	0 26.1 -58.1 103.3	0 10.9 -58.0 102.4	-0 04.2 -58.1
4°	-0 01.9 -58.1	-0 16.9 -58.1	-0 32.0 -58.0	-0 47.1 -58.0	-1 02.3 -58.0
5°	-1 00.0 -58.1	-1 15.0 -58.1	-1 30.0 -58.1	-1 45.1 -58.1	-2 00.3 -58.0
6°	-1 58.1 -58.1	-2 13.1 -58.0	-2 28.1 -58.0	-2 43.2 -58.0	-2 58.3 -58.1
7°	-2 56.2 -58.1	-3 11.1 -58.1	-3 26.1 -58.1	-3 41.2 -58.1	-3 56.4 -58.0
8°	-3 54.3 -58.1	-4 09.2 -58.1	-4 24.2 -58.0	-4 39.3 -58.0	-4 54.4 -58.0
9°	-4 52.4 -58.0	-5 07.3 -58.0	-5 22.2 -58.1	-5 37.3 -58.0	-5 52.4 -58.0
10°	-5 50.4 -58.1	-6 05.3 -58.1	-6 20.3 -58.0	-6 35.3 -58.0	-6 50.4 -58.0
11°	-6 48.5 -58.1	-7 03.4 -58.0	-7 18.3 -58.0	-7 33.3 -58.0	-7 48.4 -58.0
12°	-7 46.6 -58.0	-8 01.4 -58.1	-8 16.3 -58.1	-8 31.3 -58.0	-8 46.4 -58.0
13°	-8 44.6 -58.1	-8 59.5 -58.0	-9 14.4 -58.0	-9 29.3 -58.0	-9 44.4 -57.9
14°	-9 42.7 -58.0	-9 57.5 -58.0			
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	2 34.6 -58.1 99.7	2 19.2 -58.0 98.7	2 03.9 -58.0 97.7	1 48.5 -58.0 96.8	1 33.0 -58.0 95.8
1°	1 36.5 -58.0 99.9	1 21.2 -58.0 99.0	1 05.9 -58.0 98.0	0 50.5 -58.0 97.0	0 35.0 -57.9 96.1
2°	0 38.5 -58.0 100.2	0 23.2 -58.0 99.2	0 07.9 -58.0 98.2	-0 07.5 -58.0	-0 22.9 -58.0
3°	-0 19.5 -58.0	-0 34.8 -58.0	-0 50.1 -58.0	-1 05.5 -58.0	-1 20.9 -58.0
4°	-1 17.5 -58.0	-1 32.8 -58.0	-1 48.1 -58.0	-2 03.5 -58.0	-2 18.9 -58.0
5°	-2 15.5 -58.0	-2 30.8 -58.0	-2 46.1 -58.0	-3 01.5 -58.0	-3 16.9 -57.9
6°	-3 13.5 -58.1	-3 28.8 -58.0	-3 44.1 -58.0	-3 59.5 -57.9	-4 14.8 -58.0
7°	-4 11.6 -58.0	-4 26.8 -58.0	-4 42.1 -58.0	-4 57.4 -58.0	-5 12.8 -58.0
8°	-5 09.6 -58.0	-5 24.8 -58.0	-5 40.1 -57.9	-5 55.4 -58.0	-6 10.8 -57.9
9°	-6 07.6 -57.9	-6 22.8 -58.0	-6 38.0 -58.0	-6 53.4 -57.9	-7 08.7 -57.9
10°	-7 05.5 -58.0	-7 20.8 -57.9	-7 36.0 -58.0	-7 51.3 -57.9	-8 06.6 -58.0
11°	-8 03.5 -58.0	-8 18.7 -58.0	-8 34.0 -57.9	-8 49.2 -58.0	-9 04.6 -57.9
12°	-9 01.5 -58.0	-9 16.7 -57.9	-9 31.9 -57.9		
13°	-9 59.5 -57.9				
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	1 17.6 -58.0 94.8	1 02.1 -58.0 93.9	0 46.6 -58.0 92.9	0 31.1 -58.0 91.9	0 15.5 -57.9 91.0
1°	0 19.6 -58.0 95.1	0 04.1 -58.0 94.1	-0 11.4 -58.0	-0 26.9 -58.0	-0 42.4 -58.0
2°	-0 38.4 -58.0	-0 53.9 -57.9	-1 09.4 -57.9	-1 24.9 -57.9	-1 40.4 -57.9
3°	-1 36.4 -57.9	-1 51.8 -58.0	-2 07.3 -58.0	-2 22.8 -58.0	-2 38.3 -58.0
4°	-2 34.3 -58.0	-2 49.8 -57.9	-3 05.3 -57.9	-3 20.8 -57.9	-3 36.3 -57.9
5°	-3 32.3 -58.0	-3 47.7 -58.0	-4 03.2 -58.0	-4 18.7 -58.0	-4 34.2 -58.0
6°	-4 30.3 -57.9	-4 45.7 -57.9	-5 01.2 -57.9	-5 16.7 -57.9	-5 32.2 -57.9
7°	-5 28.2 -58.0	-5 43.6 -58.0	-5 59.1 -57.9	-6 14.6 -57.9	-6 30.1 -57.9
8°	-6 26.2 -57.9	-6 41.6 -57.9	-6 57.0 -58.0	-7 12.5 -57.9	-7 28.0 -57.9
9°	-7 24.1 -57.9	-7 39.5 -57.9	-7 55.0 -57.9	-8 10.4 -58.0	-8 25.9 -57.9
10°	-8 22.0 -58.0	-8 37.4 -58.0	-8 52.9 -57.9	-9 08.4 -57.9	-9 23.8 -57.9
11°	-9 20.0 -57.9	-9 35.4 -57.9	-9 50.8 -57.9		
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

# Latitude 75°

# Declination CONTRARY name to 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 -58.0 90.0	-0 15.5 -58.0			
1°	-0 58.0 -57.9	-1 13.5 -57.9			
2°	-1 55.9 -58.0	-2 11.4 -58.0			
3°	-2 53.9 -57.9	-3 09.4 -57.9			
4°	-3 51.8 -58.0	-4 07.3 -58.0			
5°	-4 49.8 -57.9	-5 05.3 -57.9			
6°	-5 47.7 -57.9	-6 03.2 -57.9			
7°	-6 45.6 -57.9	-7 01.1 -58.0			
8°	-7 43.5 -58.0	-7 59.1 -57.9			
9°	-8 41.5 -57.9	-8 57.0 -57.9			
10°	-9 39.4 -57.8	-9 54.9 -57.9			
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°					
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°					

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data.  
The data on this page is believed to be accurate but no warranty is given for it's correctness. Use it only for training and exercising!

Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	14 00.0 -60.0 180.0	13 59.9 -60.0 179.0	13 59.5 -60.0 177.9	13 58.8 -60.0 176.9	13 57.9 -60.0 175.9
1°	13 00.0 -60.0 180.0	12 59.9 -60.0 179.0	12 59.5 -60.0 177.9	12 58.8 -60.0 176.9	12 57.9 -60.0 175.9
2°	12 00.0 -60.0 180.0	11 59.9 -60.0 179.0	11 59.5 -60.0 178.0	11 58.8 -60.0 176.9	11 57.9 -60.0 175.9
3°	11 00.0 -60.0 180.0	10 59.9 -60.0 179.0	10 59.5 -60.0 178.0	10 58.8 -60.0 176.9	10 57.9 -60.0 175.9
4°	10 00.0 -60.0 180.0	9 59.9 -60.0 179.0	9 59.5 -60.0 178.0	9 58.8 -59.9 177.0	9 57.9 -59.9 175.9
5°	9 00.0 -60.0 180.0	8 59.9 -60.0 179.0	8 59.5 -60.0 178.0	8 58.9 -60.0 177.0	8 58.0 -60.0 176.0
6°	8 00.0 -60.0 180.0	7 59.9 -60.0 179.0	7 59.5 -60.0 178.0	7 58.9 -60.0 177.0	7 58.0 -60.0 176.0
7°	7 00.0 -60.0 180.0	6 59.9 -60.0 179.0	6 59.5 -60.0 178.0	6 58.9 -60.0 177.0	6 58.0 -60.0 176.0
8°	6 00.0 -60.0 180.0	5 59.9 -60.0 179.0	5 59.5 -60.0 178.0	5 58.9 -60.0 177.0	5 58.0 -60.0 176.0
9°	5 00.0 -60.0 180.0	4 59.9 -60.0 179.0	4 59.5 -60.0 178.0	4 58.9 -60.0 177.0	4 58.0 -60.0 176.0
10°	4 00.0 -60.0 180.0	3 59.9 -60.0 179.0	3 59.5 -60.0 178.0	3 58.9 -60.0 177.0	3 58.0 -60.0 176.1
11°	3 00.0 -60.0 180.0	2 59.9 -60.0 179.0	2 59.5 -60.0 178.0	2 58.9 -60.0 177.1	2 58.0 -60.0 176.1
12°	2 00.0 -60.0 180.0	1 59.9 -60.0 179.0	1 59.5 -60.0 178.0	1 58.9 -60.0 177.1	1 58.0 -60.0 176.1
13°	1 00.0 -60.0 180.0	0 59.9 -60.0 179.0	0 59.5 -60.0 178.1	0 58.9 -60.0 177.1	0 58.0 -60.0 176.1
14°	0 00.0 -60.0 180.0	-0 00.1 -60.0	-0 00.5 -60.0	-0 01.1 -60.0	-0 02.0 -60.0
15°	-1 00.0 -60.0	-1 00.1 -60.0	-1 00.5 -60.0	-1 01.1 -60.0	-1 02.0 -59.9
16°	-2 00.0 -60.0	-2 00.1 -60.0	-2 00.5 -60.0	-2 01.1 -60.0	-2 01.9 -60.0
17°	-3 00.0 -60.0	-3 00.1 -60.0	-3 00.5 -60.0	-3 01.1 -60.0	-3 01.9 -60.0
18°	-4 00.0 -60.0	-4 00.1 -60.0	-4 00.5 -60.0	-4 01.1 -60.0	-4 01.9 -60.0
19°	-5 00.0 -60.0	-5 00.1 -60.0	-5 00.5 -60.0	-5 01.1 -60.0	-5 01.9 -60.0
20°	-6 00.0 -60.0	-6 00.1 -60.0	-6 00.5 -60.0	-6 01.1 -60.0	-6 01.9 -60.0
21°	-7 00.0 -60.0	-7 00.1 -60.0	-7 00.5 -60.0	-7 01.1 -60.0	-7 01.9 -60.0
22°	-8 00.0 -60.0	-8 00.1 -60.0	-8 00.5 -60.0	-8 01.1 -60.0	-8 01.9 -60.0
23°	-9 00.0 -60.0	-9 00.1 -60.0	-9 00.5 -60.0	-9 01.1 -60.0	-9 01.9 -60.0
24°					
25°					
26°					
27°					
28°					
29°					

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°	13 56.7 -59.9 174.8	13 55.3 -60.0 173.8	13 53.6 -60.0 172.8	13 51.7 -60.0 171.8	13 49.5 -60.0 170.7
1°	12 56.8 -60.0 174.9	12 55.3 -60.0 173.8	12 53.6 -59.9 172.8	12 51.7 -60.0 171.8	12 49.5 -60.0 170.8
2°	11 56.8 -60.0 174.9	11 55.3 -59.9 173.9	11 53.7 -60.0 172.8	11 51.7 -59.9 171.8	11 49.5 -59.9 170.8
3°	10 56.8 -60.0 174.9	10 55.4 -60.0 173.9	10 53.7 -60.0 172.9	10 51.8 -60.0 171.9	10 49.6 -60.0 170.8
4°	9 56.8 -60.0 174.9	9 55.4 -60.0 173.9	9 53.7 -60.0 172.9	9 51.8 -60.0 171.9	9 49.6 -59.9 170.9
5°	8 56.8 -60.0 175.0	8 55.4 -60.0 173.9	8 53.7 -59.9 172.9	8 51.8 -59.9 171.9	8 49.7 -60.0 170.9
6°	7 56.8 -60.0 175.0	7 55.4 -60.0 174.0	7 53.8 -60.0 173.0	7 51.9 -60.0 172.0	7 49.7 -59.9 171.0
7°	6 56.8 -60.0 175.0	6 55.4 -59.9 174.0	6 53.8 -60.0 173.0	6 51.9 -60.0 172.0	6 49.8 -60.0 171.0
8°	5 56.8 -59.9 175.0	5 55.5 -60.0 174.0	5 53.8 -59.9 173.0	5 51.9 -59.9 172.0	5 49.8 -60.0 171.0
9°	4 56.9 -60.0 175.0	4 55.5 -60.0 174.1	4 53.9 -60.0 173.1	4 52.0 -60.0 172.1	4 49.8 -59.9 171.1
10°	3 56.9 -60.0 175.1	3 55.5 -60.0 174.1	3 53.9 -60.0 173.1	3 52.0 -60.0 172.1	3 49.9 -60.0 171.1
11°	2 56.9 -60.0 175.1	2 55.5 -60.0 174.1	2 53.9 -60.0 173.1	2 52.0 -59.9 172.1	2 49.9 -59.9 171.2
12°	1 56.9 -60.0 175.1	1 55.5 -59.9 174.1	1 53.9 -59.9 173.1	1 52.1 -60.0 172.2	1 50.0 -60.0 171.2
13°	0 56.9 -60.0 175.1	0 55.6 -60.0 174.2	0 54.0 -60.0 173.2	0 52.1 -60.0 172.2	0 50.0 -59.9 171.2
14°	-0 03.1 -60.0	-0 04.4 -60.0	-0 06.0 -60.0	-0 07.9 -59.9	-0 09.9 -60.0
15°	-1 03.1 -59.9	-1 04.4 -60.0	-1 06.0 -60.0	-1 07.8 -60.0	-1 09.9 -59.9
16°	-2 03.0 -60.0	-2 04.4 -60.0	-2 06.0 -59.9	-2 07.8 -60.0	-2 09.8 -60.0
17°	-3 03.0 -60.0	-3 04.4 -59.9	-3 05.9 -60.0	-3 07.8 -59.9	-3 09.8 -60.0
18°	-4 03.0 -60.0	-4 04.3 -60.0	-4 05.9 -60.0	-4 07.7 -60.0	-4 09.8 -59.9
19°	-5 03.0 -60.0	-5 04.3 -60.0	-5 05.9 -60.0	-5 07.7 -59.9	-5 09.7 -60.0
20°	-6 03.0 -60.0	-6 04.3 -60.0	-6 05.9 -59.9	-6 07.6 -60.0	-6 09.7 -59.9
21°	-7 03.0 -60.0	-7 04.3 -60.0	-7 05.8 -60.0	-7 07.6 -60.0	-7 09.6 -60.0
22°	-8 03.0 -59.9	-8 04.3 -59.9	-8 05.8 -60.0	-8 07.6 -59.9	-8 09.6 -59.9
23°	-9 02.9 -60.0	-9 04.2 -60.0	-9 05.8 -60.0	-9 07.5 -60.0	-9 09.5 -60.0
24°					
25°					
26°					
27°					
28°					
29°					

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°	13 47.0 -60.0 169.7	13 44.3 -60.0 168.7	13 41.3 -59.9 167.6	13 38.0 -59.9 166.6	13 34.6 -59.9 165.6
1°	12 47.0 -59.9 169.7	12 44.3 -59.9 168.7	12 41.4 -60.0 167.7	12 38.1 -59.9 166.7	12 34.7 -59.9 165.7
2°	11 47.1 -59.9 169.8	11 44.4 -59.9 168.8	11 41.4 -59.9 167.7	11 38.2 -59.9 166.7	11 34.8 -59.9 165.7
3°	10 47.2 -60.0 169.8	10 44.5 -60.0 168.8	10 41.5 -59.9 167.8	10 38.3 -59.9 166.8	10 34.9 -59.9 165.8
4°	9 47.2 -59.9 169.9	9 44.5 -59.9 168.9	9 41.6 -59.9 167.9	9 38.4 -59.9 166.8	9 35.0 -59.9 165.8
5°	8 47.3 -60.0 169.9	8 44.6 -59.9 168.9	8 41.7 -59.9 167.9	8 38.5 -59.9 166.9	8 35.1 -59.9 165.9
6°	7 47.3 -59.9 170.0	7 44.7 -60.0 169.0	7 41.8 -60.0 168.0	7 38.6 -59.9 167.0	7 35.2 -59.9 166.0
7°	6 47.4 -60.0 170.0	6 44.7 -59.9 169.0	6 41.8 -59.9 168.0	6 38.7 -59.9 167.0	6 35.3 -59.9 166.0
8°	5 47.4 -59.9 170.0	5 44.8 -59.9 169.1	5 41.9 -59.9 168.1	5 38.8 -59.9 167.1	5 35.4 -59.9 166.1
9°	4 47.5 -60.0 170.1	4 44.9 -60.0 169.1	4 42.0 -59.9 168.1	4 38.9 -59.9 167.1	4 35.5 -59.9 166.1
10°	3 47.5 -59.9 170.1	3 44.9 -59.9 169.1	3 42.1 -60.0 168.2	3 39.0 -59.9 167.2	3 35.6 -59.9 166.2
11°	2 47.6 -60.0 170.2	2 45.0 -60.0 169.2	2 42.1 -59.9 168.2	2 39.1 -60.0 167.2	2 35.7 -59.9 166.2
12°	1 47.6 -59.9 170.2	1 45.0 -59.9 169.2	1 42.2 -59.9 168.3	1 39.1 -59.9 167.3	1 35.8 -59.9 166.3
13°	0 47.7 -60.0 170.3	0 45.1 -59.9 169.3	0 42.3 -59.9 168.3	0 39.2 -59.9 167.3	0 35.9 -59.9 166.4
14°	-0 12.3 -59.9	-0 14.8 -60.0	-0 17.6 -60.0	-0 20.7 -59.9	-0 24.0 -59.9
15°	-1 12.2 -60.0	-1 14.8 -59.9	-1 17.6 -59.9	-1 20.6 -59.9	-1 23.9 -59.9
16°	-2 12.2 -59.9	-2 14.7 -59.9	-2 17.5 -59.9	-2 20.5 -59.9	-2 23.8 -59.9
17°	-3 12.1 -59.9	-3 14.6 -60.0	-3 17.4 -59.9	-3 20.4 -59.9	-3 23.7 -59.9
18°	-4 12.0 -60.0	-4 14.6 -59.9	-4 17.3 -60.0	-4 20.3 -59.9	-4 23.6 -59.9
19°	-5 12.0 -59.9	-5 14.5 -59.9	-5 17.3 -59.9	-5 20.2 -59.9	-5 23.5 -59.9
20°	-6 11.9 -60.0	-6 14.4 -60.0	-6 17.2 -59.9	-6 20.1 -60.0	-6 23.4 -59.8
21°	-7 11.9 -59.9	-7 14.4 -59.9	-7 17.1 -59.9	-7 20.1 -59.9	-7 23.2 -59.9
22°	-8 11.8 -60.0	-8 14.3 -59.9	-8 17.0 -59.9	-8 20.0 -59.9	-8 23.1 -59.9
23°	-9 11.8 -59.9	-9 14.2 -60.0	-9 16.9 -60.0	-9 19.9 -59.9	-9 23.0 -59.9
24°					
25°					
26°					
27°					
28°					
29°					

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°	13 30.8 -59.9 164.6	13 26.8 -59.8 163.5	13 22.6 -59.8 162.5	13 18.1 -59.8 161.5	13 13.4 -59.8 160.5
1°	12 30.9 -59.8 164.6	12 27.0 -59.9 163.6	12 22.8 -59.9 162.6	12 18.3 -59.8 161.6	12 13.6 -59.8 160.5
2°	11 31.1 -59.9 164.7	11 27.1 -59.8 163.7	11 22.9 -59.8 162.7	11 18.5 -59.9 161.6	11 13.8 -59.8 160.6
3°	10 31.2 -59.9 164.8	10 27.3 -59.9 163.7	10 23.1 -59.9 162.7	10 18.6 -59.8 161.7	10 14.0 -59.8 160.7
4°	9 31.3 -59.9 164.8	9 27.4 -59.9 163.8	9 23.2 -59.8 162.8	9 18.8 -59.8 161.8	9 14.2 -59.9 160.8
5°	8 31.4 -59.8 164.9	8 27.5 -59.8 163.9	8 23.4 -59.9 162.9	8 19.0 -59.8 161.9	8 14.3 -59.8 160.9
6°	7 31.6 -59.9 165.0	7 27.7 -59.9 164.0	7 23.5 -59.8 162.9	7 19.2 -59.9 161.9	7 14.5 -59.8 161.0
7°	6 31.7 -59.9 165.0	6 27.8 -59.9 164.0	6 23.7 -59.9 163.0	6 19.3 -59.8 162.0	6 14.7 -59.8 161.0
8°	5 31.8 -59.9 165.1	5 27.9 -59.8 164.1	5 23.8 -59.8 163.1	5 19.5 -59.8 162.1	5 14.9 -59.8 161.1
9°	4 31.9 -59.9 165.1	4 28.1 -59.9 164.2	4 24.0 -59.9 163.2	4 19.7 -59.9 162.2	4 15.1 -59.8 161.2
10°	3 32.0 -59.9 165.2	3 28.2 -59.9 164.2	3 24.1 -59.8 163.2	3 19.8 -59.8 162.3	3 15.3 -59.8 161.3
11°	2 32.1 -59.8 165.3	2 28.3 -59.8 164.3	2 24.3 -59.9 163.3	2 20.0 -59.8 162.3	2 15.5 -59.8 161.3
12°	1 32.3 -59.9 165.3	1 28.5 -59.9 164.4	1 24.4 -59.8 163.4	1 20.2 -59.9 162.4	1 15.7 -59.9 161.4
13°	0 32.4 -59.9 165.4	0 28.6 -59.9 164.4	0 24.6 -59.9 163.4	0 20.3 -59.8 162.5	0 15.8 -59.8 161.5
14°	-0 27.5 -59.9	-0 31.3 -59.8	-0 35.3 -59.8	-0 39.5 -59.8	-0 44.0 -59.8
15°	-1 27.4 -59.9	-1 31.1 -59.9	-1 35.1 -59.9	-1 39.3 -59.9	-1 43.8 -59.8
16°	-2 27.3 -59.8	-2 31.0 -59.9	-2 35.0 -59.8	-2 39.2 -59.8	-2 43.6 -59.8
17°	-3 27.1 -59.9	-3 30.9 -59.8	-3 34.8 -59.9	-3 39.0 -59.8	-3 43.4 -59.8
18°	-4 27.0 -59.9	-4 30.7 -59.9	-4 34.7 -59.8	-4 38.8 -59.9	-4 43.2 -59.8
19°	-5 26.9 -59.9	-5 30.6 -59.9	-5 34.5 -59.9	-5 38.7 -59.8	-5 43.0 -59.8
20°	-6 26.8 -59.9	-6 30.5 -59.8	-6 34.4 -59.8	-6 38.5 -59.8	-6 42.8 -59.9
21°	-7 26.7 -59.8	-7 30.3 -59.9	-7 34.2 -59.8	-7 38.3 -59.8	-7 42.7 -59.8
22°	-8 26.5 -59.9	-8 30.2 -59.8	-8 34.0 -59.9	-8 38.1 -59.9	-8 42.5 -59.8
23°	-9 26.4 -59.9	-9 30.0 -59.9	-9 33.9 -59.8	-9 38.0 -59.8	-9 42.3 -59.8
24°					
25°					
26°					
27°					
28°					
29°					

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°	13 08.4 -59.8 159.4	13 03.2 -59.8 158.4	12 57.7 -59.7 157.4	12 52.0 -59.7 156.4	12 46.1 -59.7 155.4
1°	12 08.6 -59.8 159.5	12 03.4 -59.7 158.5	11 58.0 -59.8 157.5	11 52.3 -59.7 156.5	11 46.4 -59.7 155.5
2°	11 08.8 -59.8 159.6	11 03.7 -59.8 158.6	10 58.2 -59.7 157.6	10 52.6 -59.7 156.6	10 46.7 -59.7 155.6
3°	10 09.0 -59.7 159.7	10 03.9 -59.8 158.7	9 58.5 -59.8 157.7	9 52.9 -59.8 156.7	9 47.0 -59.7 155.7
4°	9 09.3 -59.8 159.8	9 04.1 -59.7 158.8	8 58.7 -59.7 157.8	8 53.1 -59.7 156.8	8 47.3 -59.7 155.8
5°	8 09.5 -59.8 159.9	8 04.4 -59.8 158.9	7 59.0 -59.7 157.9	7 53.4 -59.7 156.9	7 47.6 -59.7 155.9
6°	7 09.7 -59.8 160.0	7 04.6 -59.8 159.0	6 59.3 -59.8 158.0	6 53.7 -59.7 157.0	6 47.9 -59.7 156.0
7°	6 09.9 -59.8 160.0	6 04.8 -59.8 159.0	5 59.5 -59.7 158.0	5 54.0 -59.8 157.1	5 48.2 -59.7 156.1
8°	5 10.1 -59.8 160.1	5 05.0 -59.7 159.1	4 59.8 -59.8 158.1	4 54.2 -59.7 157.1	4 48.5 -59.7 156.2
9°	4 10.3 -59.8 160.2	4 05.3 -59.8 159.2	4 00.0 -59.8 158.2	3 54.5 -59.7 157.2	3 48.8 -59.7 156.3
10°	3 10.5 -59.8 160.3	3 05.5 -59.8 159.3	3 00.2 -59.7 158.3	2 54.8 -59.8 157.3	2 49.1 -59.7 156.4
11°	2 10.7 -59.8 160.4	2 05.7 -59.8 159.4	2 00.5 -59.8 158.4	1 55.0 -59.7 157.4	1 49.4 -59.8 156.5
12°	1 10.9 -59.8 160.5	1 05.9 -59.7 159.5	1 00.7 -59.7 158.5	0 55.3 -59.7 157.5	0 49.6 -59.7 156.6
13°	0 11.1 -59.8 160.5	0 06.2 -59.8 159.6	0 01.0 -59.8 158.6	-0 04.4 -59.8	-0 10.1 -59.7
14°	-0 48.7 -59.8	-0 53.6 -59.8	-0 58.8 -59.7	-1 04.2 -59.7	-1 09.8 -59.7
15°	-1 48.5 -59.8	-1 53.4 -59.7	-1 58.5 -59.8	-2 03.9 -59.7	-2 09.5 -59.7
16°	-2 48.3 -59.7	-2 53.1 -59.8	-2 58.3 -59.7	-3 03.6 -59.7	-3 09.2 -59.7
17°	-3 48.0 -59.8	-3 52.9 -59.8	-3 58.0 -59.8	-4 03.3 -59.8	-4 08.9 -59.7
18°	-4 47.8 -59.8	-4 52.7 -59.8	-4 57.8 -59.7	-5 03.1 -59.7	-5 08.6 -59.7
19°	-5 47.6 -59.8	-5 52.5 -59.7	-5 57.5 -59.8	-6 02.8 -59.7	-6 08.3 -59.7
20°	-6 47.4 -59.8	-6 52.2 -59.8	-6 57.3 -59.7	-7 02.5 -59.8	-7 08.0 -59.7
21°	-7 47.2 -59.8	-7 52.0 -59.8	-7 57.0 -59.8	-8 02.3 -59.7	-8 07.7 -59.7
22°	-8 47.0 -59.8	-8 51.8 -59.7	-8 56.8 -59.7	-9 02.0 -59.7	-9 07.4 -59.7
23°	-9 46.8 -59.8	-9 51.5 -59.8	-9 56.5 -59.8		
24°					
25°					
26°					
27°					
28°					
29°					

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°	12 39.9 -59.7 154.3	12 33.5 -59.6 153.3	12 26.9 -59.6 152.3	12 20.0 -59.6 151.3	12 12.9 -59.5 150.3
1°	11 40.2 -59.6 154.4	11 33.9 -59.7 153.4	11 27.3 -59.7 152.4	11 20.4 -59.6 151.4	11 13.4 -59.6 150.4
2°	10 40.6 -59.7 154.5	10 34.2 -59.6 153.5	10 27.6 -59.6 152.5	10 20.8 -59.6 151.5	10 13.8 -59.6 150.5
3°	9 40.9 -59.7 154.7	9 34.6 -59.7 153.6	9 28.0 -59.6 152.6	9 21.2 -59.6 151.6	9 14.2 -59.6 150.6
4°	8 41.2 -59.7 154.8	8 34.9 -59.6 153.8	8 28.4 -59.6 152.7	8 21.6 -59.6 151.7	8 14.6 -59.5 150.7
5°	7 41.5 -59.6 154.9	7 35.3 -59.7 153.9	7 28.8 -59.7 152.9	7 22.0 -59.6 151.9	7 15.1 -59.6 150.9
6°	6 41.9 -59.7 155.0	6 35.6 -59.7 154.0	6 29.1 -59.6 153.0	6 22.4 -59.6 152.0	6 15.5 -59.6 151.0
7°	5 42.2 -59.7 155.1	5 35.9 -59.6 154.1	5 29.5 -59.6 153.1	5 22.8 -59.6 152.1	5 15.9 -59.6 151.1
8°	4 42.5 -59.7 155.2	4 36.3 -59.7 154.2	4 29.9 -59.7 153.2	4 23.2 -59.6 152.2	4 16.3 -59.6 151.2
9°	3 42.8 -59.7 155.3	3 36.6 -59.6 154.3	3 30.2 -59.6 153.3	3 23.6 -59.6 152.3	3 16.7 -59.5 151.3
10°	2 43.1 -59.7 155.4	2 37.0 -59.7 154.4	2 30.6 -59.7 153.4	2 24.0 -59.6 152.4	2 17.2 -59.6 151.5
11°	1 43.4 -59.6 155.5	1 37.3 -59.7 154.5	1 30.9 -59.6 153.5	1 24.4 -59.6 152.5	1 17.6 -59.6 151.6
12°	0 43.8 -59.7 155.6	0 37.6 -59.6 154.6	0 31.3 -59.6 153.6	0 24.8 -59.7 152.7	0 18.0 -59.6 151.7
13°	-0 15.9 -59.7	-0 22.0 -59.7	-0 28.3 -59.7	-0 34.9 -59.6	-0 41.6 -59.6
14°	-1 15.6 -59.7	-1 21.7 -59.6	-1 28.0 -59.6	-1 34.5 -59.6	-1 41.2 -59.6
15°	-2 15.3 -59.7	-2 21.3 -59.7	-2 27.6 -59.6	-2 34.1 -59.6	-2 40.8 -59.6
16°	-3 15.0 -59.7	-3 21.0 -59.7	-3 27.2 -59.7	-3 33.7 -59.6	-3 40.4 -59.5
17°	-4 14.7 -59.6	-4 20.7 -59.6	-4 26.9 -59.6	-4 33.3 -59.6	-4 39.9 -59.6
18°	-5 14.3 -59.7	-5 20.3 -59.7	-5 26.5 -59.6	-5 32.9 -59.6	-5 39.5 -59.6
19°	-6 14.0 -59.7	-6 20.0 -59.6	-6 26.1 -59.7	-6 32.5 -59.6	-6 39.1 -59.6
20°	-7 13.7 -59.7	-7 19.6 -59.7	-7 25.8 -59.6	-7 32.1 -59.6	-7 38.7 -59.6
21°	-8 13.4 -59.7	-8 19.3 -59.6	-8 25.4 -59.6	-8 31.7 -59.6	-8 38.3 -59.5
22°	-9 13.1 -59.6	-9 18.9 -59.7	-9 25.0 -59.7	-9 31.3 -59.6	-9 37.8 -59.6
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	12 05.6 -59.5 149.2	11 58.1 -59.5 148.2	11 50.3 -59.4 147.2	11 42.4 -59.5 146.2	11 34.2 -59.4 145.2
1°	11 06.1 -59.6 149.4	10 58.6 -59.5 148.4	10 50.9 -59.5 147.4	10 42.9 -59.4 146.3	10 34.8 -59.5 145.3
2°	10 06.5 -59.5 149.5	9 59.1 -59.6 148.5	9 51.4 -59.5 147.5	9 43.5 -59.5 146.5	9 35.3 -59.4 145.5
3°	9 07.0 -59.6 149.6	8 59.5 -59.5 148.6	8 51.9 -59.5 147.6	8 44.0 -59.5 146.6	8 35.9 -59.4 145.6
4°	8 07.4 -59.5 149.7	8 00.0 -59.5 148.7	7 52.4 -59.5 147.7	7 44.5 -59.4 146.7	7 36.5 -59.5 145.8
5°	7 07.9 -59.6 149.9	7 00.5 -59.5 148.9	6 52.9 -59.5 147.9	6 45.1 -59.5 146.9	6 37.0 -59.4 145.9
6°	6 08.3 -59.5 150.0	6 01.0 -59.6 149.0	5 53.4 -59.5 148.0	5 45.6 -59.5 147.0	5 37.6 -59.5 146.0
7°	5 08.8 -59.6 150.1	5 01.4 -59.5 149.1	4 53.9 -59.5 148.1	4 46.1 -59.5 147.1	4 38.1 -59.4 146.2
8°	4 09.2 -59.5 150.2	4 01.9 -59.5 149.3	3 54.4 -59.5 148.3	3 46.6 -59.4 147.3	3 38.7 -59.5 146.3
9°	3 09.7 -59.6 150.4	3 02.4 -59.6 149.4	2 54.9 -59.5 148.4	2 47.2 -59.5 147.4	2 39.2 -59.4 146.4
10°	2 10.1 -59.6 150.5	2 02.8 -59.5 149.5	1 55.4 -59.5 148.5	1 47.7 -59.5 147.5	1 39.8 -59.5 146.6
11°	1 10.5 -59.5 150.6	1 03.3 -59.5 149.6	0 55.9 -59.5 148.7	0 48.2 -59.5 147.7	0 40.3 -59.4 146.7
12°	0 11.0 -59.6 150.7	0 03.8 -59.6 149.7	-0 03.6 -59.5	-0 11.3 -59.4	-0 19.1 -59.4
13°	-0 48.6 -59.5	-0 55.8 -59.5	-1 03.1 -59.5	-1 10.7 -59.5	-1 18.5 -59.5
14°	-1 48.1 -59.6	-1 55.3 -59.5	-2 02.6 -59.5	-2 10.2 -59.5	-2 18.0 -59.4
15°	-2 47.7 -59.5	-2 54.8 -59.5	-3 02.1 -59.6	-3 09.7 -59.5	-3 17.4 -59.5
16°	-3 47.2 -59.6	-3 54.3 -59.6	-4 01.7 -59.5	-4 09.2 -59.4	-4 16.9 -59.4
17°	-4 46.8 -59.6	-4 53.9 -59.5	-5 01.2 -59.5	-5 08.6 -59.5	-5 16.3 -59.5
18°	-5 46.4 -59.5	-5 53.4 -59.5	-6 00.7 -59.5	-6 08.1 -59.5	-6 15.8 -59.4
19°	-6 45.9 -59.6	-6 52.9 -59.6	-7 00.2 -59.4	-7 07.6 -59.5	-7 15.2 -59.5
20°	-7 45.5 -59.5	-7 52.5 -59.5	-7 59.6 -59.5	-8 07.1 -59.4	-8 14.7 -59.4
21°	-8 45.0 -59.6	-8 52.0 -59.5	-8 59.1 -59.5	-9 06.5 -59.5	-9 14.1 -59.4
22°	-9 44.6 -59.5	-9 51.5 -59.5	-9 58.6 -59.5		
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	11 25.8 -59.4 144.2	11 17.2 -59.4 143.2	11 08.4 -59.3 142.2	10 59.4 -59.3 141.2	10 50.2 -59.3 140.2
1°	10 26.4 -59.4 144.3	10 17.8 -59.3 143.3	10 09.1 -59.4 142.3	10 00.1 -59.3 141.3	9 50.9 -59.3 140.3
2°	9 27.0 -59.4 144.5	9 18.5 -59.4 143.5	9 09.7 -59.3 142.5	9 00.8 -59.3 141.5	8 51.6 -59.2 140.5
3°	8 27.6 -59.4 144.6	8 19.1 -59.4 143.6	8 10.4 -59.4 142.6	8 01.5 -59.4 141.6	7 52.4 -59.3 140.6
4°	7 28.2 -59.4 144.8	7 19.7 -59.4 143.8	7 11.0 -59.3 142.8	7 02.1 -59.3 141.8	6 53.1 -59.3 140.8
5°	6 28.8 -59.4 144.9	6 20.3 -59.4 143.9	6 11.7 -59.4 142.9	6 02.8 -59.3 141.9	5 53.8 -59.3 140.9
6°	5 29.4 -59.5 145.0	5 20.9 -59.3 144.0	5 12.3 -59.3 143.1	5 03.5 -59.3 142.1	4 54.5 -59.3 141.1
7°	4 29.9 -59.4 145.2	4 21.6 -59.4 144.2	4 13.0 -59.4 143.2	4 04.2 -59.4 142.2	3 55.2 -59.3 141.2
8°	3 30.5 -59.4 145.3	3 22.2 -59.4 144.3	3 13.6 -59.4 143.4	3 04.8 -59.3 142.4	2 55.9 -59.3 141.4
9°	2 31.1 -59.4 145.5	2 22.8 -59.4 144.5	2 14.2 -59.3 143.5	2 05.5 -59.3 142.5	1 56.6 -59.3 141.5
10°	1 31.7 -59.4 145.6	1 23.4 -59.4 144.6	1 14.9 -59.4 143.6	1 06.2 -59.3 142.7	0 57.3 -59.3 141.7
11°	0 32.3 -59.4 145.7	0 24.0 -59.4 144.8	0 15.5 -59.3 143.8	0 06.9 -59.4 142.8	-0 02.0 -59.3
12°	-0 27.1 -59.5	-0 35.4 -59.4	-0 43.8 -59.4	-0 52.5 -59.3	-1 01.3 -59.3
13°	-1 26.6 -59.4	-1 34.8 -59.4	-1 43.2 -59.4	-1 51.8 -59.3	-2 00.6 -59.3
14°	-2 26.0 -59.4	-2 34.2 -59.4	-2 42.6 -59.3	-2 51.1 -59.4	-2 59.9 -59.3
15°	-3 25.4 -59.4	-3 33.6 -59.3	-3 41.9 -59.4	-3 50.5 -59.3	-3 59.2 -59.3
16°	-4 24.8 -59.4	-4 32.9 -59.4	-4 41.3 -59.3	-4 49.8 -59.3	-4 58.5 -59.3
17°	-5 24.2 -59.4	-5 32.3 -59.4	-5 40.6 -59.4	-5 49.1 -59.3	-5 57.8 -59.3
18°	-6 23.6 -59.5	-6 31.7 -59.4	-6 40.0 -59.3	-6 48.4 -59.4	-6 57.1 -59.3
19°	-7 23.1 -59.4	-7 31.1 -59.4	-7 39.3 -59.4	-7 47.8 -59.3	-7 56.4 -59.3
20°	-8 22.5 -59.4	-8 30.5 -59.3	-8 38.7 -59.3	-8 47.1 -59.3	-8 55.7 -59.3
21°	-9 21.9 -59.4	-9 29.8 -59.4	-9 38.0 -59.4	-9 46.4 -59.3	-9 55.0 -59.2
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	10 40.8 -59.2 139.1	10 31.2 -59.2 138.1	10 21.4 -59.2 137.1	10 11.5 -59.2 136.1	10 01.3 -59.1 135.1
1°	9 41.6 -59.3 139.3	9 32.0 -59.2 138.3	9 22.2 -59.1 137.3	9 12.3 -59.2 136.3	9 02.2 -59.1 135.3
2°	8 42.3 -59.3 139.5	8 32.8 -59.3 138.5	8 23.1 -59.2 137.5	8 13.1 -59.1 136.5	8 03.1 -59.2 135.5
3°	7 43.0 -59.2 139.6	7 33.5 -59.2 138.6	7 23.9 -59.2 137.6	7 14.0 -59.2 136.6	7 03.9 -59.1 135.7
4°	6 43.8 -59.3 139.8	6 34.3 -59.2 138.8	6 24.7 -59.2 137.8	6 14.8 -59.1 136.8	6 04.8 -59.1 135.8
5°	5 44.5 -59.2 139.9	5 35.1 -59.2 139.0	5 25.5 -59.2 138.0	5 15.7 -59.2 137.0	5 05.7 -59.2 136.0
6°	4 45.3 -59.3 140.1	4 35.9 -59.3 139.1	4 26.3 -59.2 138.1	4 16.5 -59.2 137.1	4 06.5 -59.1 136.2
7°	3 46.0 -59.3 140.3	3 36.6 -59.2 139.3	3 27.1 -59.3 138.3	3 17.3 -59.2 137.3	3 07.4 -59.2 136.3
8°	2 46.7 -59.2 140.4	2 37.4 -59.3 139.4	2 27.8 -59.2 138.5	2 18.1 -59.1 137.5	2 08.2 -59.1 136.5
9°	1 47.5 -59.3 140.6	1 38.1 -59.2 139.6	1 28.6 -59.2 138.6	1 19.0 -59.2 137.6	1 09.1 -59.2 136.7
10°	0 48.2 -59.3 140.7	0 38.9 -59.2 139.7	0 29.4 -59.2 138.8	0 19.8 -59.2 137.8	0 09.9 -59.1 136.8
11°	-0 11.1 -59.3	-0 20.3 -59.3	-0 29.8 -59.2	-0 39.4 -59.2	-0 49.2 -59.2
12°	-1 10.4 -59.2	-1 19.6 -59.2	-1 29.0 -59.2	-1 38.6 -59.2	-1 48.4 -59.1
13°	-2 09.6 -59.3	-2 18.8 -59.2	-2 28.2 -59.2	-2 37.8 -59.1	-2 47.5 -59.1
14°	-3 08.9 -59.3	-3 18.0 -59.3	-3 27.4 -59.2	-3 36.9 -59.2	-3 46.6 -59.2
15°	-4 08.2 -59.2	-4 17.3 -59.2	-4 26.6 -59.2	-4 36.1 -59.2	-4 45.8 -59.1
16°	-5 07.4 -59.3	-5 16.5 -59.3	-5 25.8 -59.2	-5 35.3 -59.1	-5 44.9 -59.2
17°	-6 06.7 -59.2	-6 15.8 -59.2	-6 25.0 -59.2	-6 34.4 -59.2	-6 44.1 -59.1
18°	-7 05.9 -59.3	-7 15.0 -59.2	-7 24.2 -59.2	-7 33.6 -59.2	-7 43.2 -59.1
19°	-8 05.2 -59.3	-8 14.2 -59.2	-8 23.4 -59.2	-8 32.8 -59.1	-8 42.3 -59.1
20°	-9 04.5 -59.2	-9 13.4 -59.2	-9 22.6 -59.2	-9 31.9 -59.2	-9 41.4 -59.2
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	9 51.0 -59.1 134.1	9 40.5 -59.1 133.1	9 29.8 -59.0 132.1	9 19.0 -59.0 131.1	9 07.9 -58.9 130.1
1°	8 51.9 -59.1 134.3	8 41.4 -59.0 133.3	8 30.8 -59.1 132.3	8 20.0 -59.0 131.3	8 09.0 -59.0 130.3
2°	7 52.8 -59.1 134.5	7 42.4 -59.1 133.5	7 31.7 -59.0 132.5	7 21.0 -59.1 131.5	7 10.0 -59.0 130.5
3°	6 53.7 -59.1 134.7	6 43.3 -59.1 133.7	6 32.7 -59.0 132.7	6 21.9 -59.0 131.7	6 11.0 -59.0 130.7
4°	5 54.6 -59.1 134.8	5 44.2 -59.1 133.8	5 33.7 -59.1 132.9	5 22.9 -59.0 131.9	5 12.0 -58.9 130.9
5°	4 55.5 -59.1 135.0	4 45.1 -59.0 134.0	4 34.6 -59.0 133.0	4 23.9 -59.0 132.1	4 13.1 -59.0 131.1
6°	3 56.4 -59.1 135.2	3 46.1 -59.1 134.2	3 35.6 -59.1 133.2	3 24.9 -59.0 132.2	3 14.1 -59.0 131.3
7°	2 57.3 -59.2 135.4	2 47.0 -59.1 134.4	2 36.5 -59.0 133.4	2 25.9 -59.0 132.4	2 15.1 -59.0 131.4
8°	1 58.1 -59.1 135.5	1 47.9 -59.1 134.5	1 37.5 -59.1 133.6	1 26.9 -59.1 132.6	1 16.1 -59.0 131.6
9°	0 59.0 -59.1 135.7	0 48.8 -59.1 134.7	0 38.4 -59.0 133.7	0 27.8 -59.0 132.8	0 17.1 -59.0 131.8
10°	-0 00.1 -59.1	-0 10.3 -59.1	-0 20.6 -59.1	-0 31.2 -59.0	-0 41.9 -59.0
11°	-0 59.2 -59.1	-1 09.4 -59.0	-1 19.7 -59.1	-1 30.2 -59.0	-1 40.9 -59.0
12°	-1 58.3 -59.1	-2 08.4 -59.1	-2 18.8 -59.0	-2 29.2 -59.1	-2 39.9 -59.0
13°	-2 57.4 -59.1	-3 07.5 -59.1	-3 17.8 -59.1	-3 28.3 -59.0	-3 38.9 -58.9
14°	-3 56.5 -59.2	-4 06.6 -59.1	-4 16.9 -59.0	-4 27.3 -59.0	-4 37.8 -59.0
15°	-4 55.7 -59.1	-5 05.7 -59.1	-5 15.9 -59.0	-5 26.3 -59.0	-5 36.8 -59.0
16°	-5 54.8 -59.1	-6 04.8 -59.0	-6 14.9 -59.1	-6 25.3 -59.0	-6 35.8 -59.0
17°	-6 53.9 -59.1	-7 03.8 -59.1	-7 14.0 -59.0	-7 24.3 -59.0	-7 34.8 -59.0
18°	-7 53.0 -59.1	-8 02.9 -59.1	-8 13.0 -59.1	-8 23.3 -59.0	-8 33.8 -58.9
19°	-8 52.1 -59.1	-9 02.0 -59.0	-9 12.1 -59.0	-9 22.3 -59.0	-9 32.7 -59.0
20°	-9 51.2 -59.0				
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	8 56.8 -59.0 129.2	8 45.4 -58.9 128.2	8 33.9 -58.8 127.2	8 22.3 -58.9 126.2	8 10.5 -58.8 125.2
1°	7 57.8 -58.9 129.3	7 46.5 -58.9 128.3	7 35.1 -58.9 127.4	7 23.4 -58.8 126.4	7 11.7 -58.8 125.4
2°	6 58.9 -59.0 129.5	6 47.6 -58.9 128.5	6 36.2 -58.9 127.6	6 24.6 -58.9 126.6	6 12.9 -58.9 125.6
3°	5 59.9 -58.9 129.7	5 48.7 -58.9 128.7	5 37.3 -58.9 127.7	5 25.7 -58.8 126.8	5 14.0 -58.8 125.8
4°	5 01.0 -59.0 129.9	4 49.8 -59.0 128.9	4 38.4 -58.9 127.9	4 26.9 -58.9 127.0	4 15.2 -58.8 126.0
5°	4 02.0 -58.9 130.1	3 50.8 -58.9 129.1	3 39.5 -58.9 128.1	3 28.0 -58.9 127.2	3 16.4 -58.9 126.2
6°	3 03.1 -59.0 130.3	2 51.9 -58.9 129.3	2 40.6 -58.9 128.3	2 29.1 -58.8 127.3	2 17.5 -58.8 126.4
7°	2 04.1 -58.9 130.5	1 53.0 -58.9 129.5	1 41.7 -58.9 128.5	1 30.3 -58.9 127.5	1 18.7 -58.8 126.6
8°	1 05.2 -59.0 130.6	0 54.1 -59.0 129.7	0 42.8 -58.9 128.7	0 31.4 -58.9 127.7	0 19.9 -58.9 126.8
9°	0 06.2 -59.0 130.8	-0 04.9 -58.9	-0 16.1 -58.9	-0 27.5 -58.8	-0 39.0 -58.8
10°	-0 52.8 -58.9	-1 03.8 -58.9	-1 15.0 -58.9	-1 26.3 -58.9	-1 37.8 -58.9
11°	-1 51.7 -59.0	-2 02.7 -59.0	-2 13.9 -58.9	-2 25.2 -58.9	-2 36.7 -58.8
12°	-2 50.7 -58.9	-3 01.7 -58.9	-3 12.8 -58.9	-3 24.1 -58.8	-3 35.5 -58.8
13°	-3 49.6 -59.0	-4 00.6 -58.9	-4 11.7 -58.9	-4 22.9 -58.9	-4 34.3 -58.9
14°	-4 48.6 -58.9	-4 59.5 -58.9	-5 10.6 -58.9	-5 21.8 -58.8	-5 33.2 -58.8
15°	-5 47.5 -59.0	-5 58.4 -58.9	-6 09.5 -58.8	-6 20.6 -58.9	-6 32.0 -58.8
16°	-6 46.5 -58.9	-6 57.3 -59.0	-7 08.3 -58.9	-7 19.5 -58.8	-7 30.8 -58.8
17°	-7 45.4 -59.0	-7 56.3 -58.9	-8 07.2 -58.9	-8 18.3 -58.9	-8 29.6 -58.8
18°	-8 44.4 -58.9	-8 55.2 -58.9	-9 06.1 -58.9	-9 17.2 -58.8	-9 28.4 -58.8
19°	-9 43.3 -58.9	-9 54.1 -58.9			
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	7 58.6 -58.8 124.2	7 46.5 -58.8 123.2	7 34.3 -58.8 122.2	7 21.9 -58.7 121.2	7 09.5 -58.7 120.2
1°	6 59.8 -58.8 124.4	6 47.7 -58.7 123.4	6 35.5 -58.7 122.4	6 23.2 -58.7 121.4	6 10.8 -58.7 120.5
2°	6 01.0 -58.8 124.6	5 49.0 -58.8 123.6	5 36.8 -58.7 122.6	5 24.5 -58.7 121.6	5 12.1 -58.7 120.7
3°	5 02.2 -58.8 124.8	4 50.2 -58.8 123.8	4 38.1 -58.8 122.8	4 25.8 -58.7 121.9	4 13.4 -58.7 120.9
4°	4 03.4 -58.8 125.0	3 51.4 -58.8 124.0	3 39.3 -58.7 123.0	3 27.1 -58.7 122.1	3 14.7 -58.7 121.1
5°	3 04.6 -58.8 125.2	2 52.6 -58.7 124.2	2 40.6 -58.8 123.2	2 28.4 -58.8 122.3	2 16.0 -58.7 121.3
6°	2 05.8 -58.8 125.4	1 53.9 -58.8 124.4	1 41.8 -58.7 123.4	1 29.6 -58.7 122.5	1 17.3 -58.7 121.5
7°	1 07.0 -58.8 125.6	0 55.1 -58.8 124.6	0 43.1 -58.8 123.6	0 30.9 -58.7 122.7	0 18.6 -58.7 121.7
8°	0 08.2 -58.9 125.8	-0 03.7 -58.8	-0 15.7 -58.7	-0 27.8 -58.7	-0 40.1 -58.7
9°	-0 50.7 -58.8	-1 02.5 -58.8	-1 14.4 -58.8	-1 26.5 -58.7	-1 38.8 -58.6
10°	-1 49.5 -58.8	-2 01.3 -58.7	-2 13.2 -58.7	-2 25.2 -58.8	-2 37.4 -58.7
11°	-2 48.3 -58.8	-3 00.0 -58.8	-3 11.9 -58.8	-3 24.0 -58.7	-3 36.1 -58.7
12°	-3 47.1 -58.8	-3 58.8 -58.8	-4 10.7 -58.7	-4 22.7 -58.7	-4 34.8 -58.7
13°	-4 45.9 -58.8	-4 57.6 -58.8	-5 09.4 -58.8	-5 21.4 -58.7	-5 33.5 -58.7
14°	-5 44.7 -58.8	-5 56.4 -58.7	-6 08.2 -58.7	-6 20.1 -58.7	-6 32.2 -58.7
15°	-6 43.5 -58.8	-6 55.1 -58.8	-7 06.9 -58.7	-7 18.8 -58.7	-7 30.9 -58.6
16°	-7 42.3 -58.8	-7 53.9 -58.7	-8 05.6 -58.8	-8 17.5 -58.7	-8 29.5 -58.7
17°	-8 41.1 -58.7	-8 52.6 -58.8	-9 04.4 -58.7	-9 16.2 -58.7	-9 28.2 -58.7
18°	-9 39.8 -58.8	-9 51.4 -58.7			
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	6 56.9 -58.7 119.3	6 44.1 -58.6 118.3	6 31.3 -58.6 117.3	6 18.3 -58.5 116.3	6 05.3 -58.6 115.3
1°	5 58.2 -58.7 119.5	5 45.5 -58.6 118.5	5 32.7 -58.6 117.5	5 19.8 -58.6 116.5	5 06.7 -58.5 115.5
2°	4 59.5 -58.6 119.7	4 46.9 -58.7 118.7	4 34.1 -58.6 117.7	4 21.2 -58.6 116.7	4 08.2 -58.6 115.8
3°	4 00.9 -58.7 119.9	3 48.2 -58.6 118.9	3 35.5 -58.6 117.9	3 22.6 -58.6 117.0	3 09.6 -58.6 116.0
4°	3 02.2 -58.6 120.1	2 49.6 -58.6 119.1	2 36.9 -58.6 118.2	2 24.0 -58.6 117.2	2 11.0 -58.5 116.2
5°	2 03.6 -58.7 120.3	1 51.0 -58.7 119.3	1 38.3 -58.7 118.4	1 25.4 -58.6 117.4	1 12.5 -58.6 116.4
6°	1 04.9 -58.7 120.5	0 52.3 -58.6 119.5	0 39.6 -58.6 118.6	0 26.8 -58.6 117.6	0 13.9 -58.6 116.6
7°	0 06.2 -58.6 120.7	-0 06.3 -58.7	-0 19.0 -58.6	-0 31.8 -58.5	-0 44.7 -58.5
8°	-0 52.4 -58.7	-1 05.0 -58.6	-1 17.6 -58.6	-1 30.3 -58.6	-1 43.2 -58.6
9°	-1 51.1 -58.7	-2 03.6 -58.6	-2 16.2 -58.6	-2 28.9 -58.6	-2 41.8 -58.5
10°	-2 49.8 -58.6	-3 02.2 -58.7	-3 14.8 -58.6	-3 27.5 -58.6	-3 40.3 -58.6
11°	-3 48.4 -58.7	-4 00.9 -58.6	-4 13.4 -58.6	-4 26.1 -58.6	-4 38.9 -58.5
12°	-4 47.1 -58.7	-4 59.5 -58.6	-5 12.0 -58.6	-5 24.7 -58.6	-5 37.4 -58.6
13°	-5 45.8 -58.6	-5 58.1 -58.7	-6 10.6 -58.6	-6 23.3 -58.5	-6 36.0 -58.5
14°	-6 44.4 -58.7	-6 56.8 -58.6	-7 09.2 -58.6	-7 21.8 -58.6	-7 34.5 -58.6
15°	-7 43.1 -58.6	-7 55.4 -58.6	-8 07.8 -58.6	-8 20.4 -58.5	-8 33.1 -58.5
16°	-8 41.7 -58.6	-8 54.0 -58.6	-9 06.4 -58.6	-9 18.9 -58.6	-9 31.6 -58.5
17°	-9 40.3 -58.7	-9 52.6 -58.6			
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	5 52.1 -58.5 114.3	5 38.8 -58.5 113.4	5 25.4 -58.4 112.4	5 12.0 -58.5 111.4	4 58.4 -58.4 110.4
1°	4 53.6 -58.6 114.6	4 40.3 -58.5 113.6	4 27.0 -58.5 112.6	4 13.5 -58.4 111.6	4 00.0 -58.5 110.7
2°	3 55.0 -58.5 114.8	3 41.8 -58.5 113.8	3 28.5 -58.5 112.8	3 15.1 -58.5 111.9	3 01.5 -58.4 110.9
3°	2 56.5 -58.5 115.0	2 43.3 -58.5 114.0	2 30.0 -58.5 113.1	2 16.6 -58.5 112.1	2 03.1 -58.5 111.1
4°	1 58.0 -58.6 115.2	1 44.8 -58.5 114.3	1 31.5 -58.5 113.3	1 18.1 -58.5 112.3	1 04.6 -58.4 111.3
5°	0 59.4 -58.5 115.4	0 46.3 -58.6 114.5	0 33.0 -58.5 113.5	0 19.6 -58.4 112.5	0 06.2 -58.5 111.6
6°	0 00.9 -58.6 115.7	-0 12.3 -58.5	-0 25.5 -58.5	-0 38.8 -58.5	-0 52.3 -58.4
7°	-0 57.7 -58.5	-1 10.8 -58.5	-1 24.0 -58.5	-1 37.3 -58.5	-1 50.7 -58.5
8°	-1 56.2 -58.5	-2 09.3 -58.5	-2 22.5 -58.5	-2 35.8 -58.4	-2 49.2 -58.4
9°	-2 54.7 -58.6	-3 07.8 -58.5	-3 21.0 -58.5	-3 34.2 -58.5	-3 47.6 -58.4
10°	-3 53.3 -58.5	-4 06.3 -58.5	-4 19.5 -58.4	-4 32.7 -58.5	-4 46.0 -58.5
11°	-4 51.8 -58.5	-5 04.8 -58.5	-5 17.9 -58.5	-5 31.2 -58.4	-5 44.5 -58.4
12°	-5 50.3 -58.5	-6 03.3 -58.5	-6 16.4 -58.5	-6 29.6 -58.5	-6 42.9 -58.4
13°	-6 48.8 -58.6	-7 01.8 -58.5	-7 14.9 -58.4	-7 28.1 -58.4	-7 41.3 -58.5
14°	-7 47.4 -58.5	-8 00.3 -58.5	-8 13.3 -58.5	-8 26.5 -58.4	-8 39.8 -58.4
15°	-8 45.9 -58.5	-8 58.8 -58.5	-9 11.8 -58.5	-9 24.9 -58.5	-9 38.2 -58.4
16°	-9 44.4 -58.5	-9 57.3 -58.4			
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	4 44.8 -58.4 109.5	4 31.0 -58.4 108.5	4 17.2 -58.3 107.5	4 03.4 -58.4 106.5	3 49.4 -58.3 105.5
1°	3 46.4 -58.5 109.7	3 32.6 -58.4 108.7	3 18.9 -58.4 107.7	3 05.0 -58.4 106.8	2 51.1 -58.4 105.8
2°	2 47.9 -58.4 109.9	2 34.2 -58.4 108.9	2 20.5 -58.4 108.0	2 06.6 -58.3 107.0	1 52.7 -58.3 106.0
3°	1 49.5 -58.4 110.1	1 35.8 -58.4 109.2	1 22.1 -58.4 108.2	1 08.3 -58.4 107.2	0 54.4 -58.4 106.2
4°	0 51.1 -58.5 110.4	0 37.4 -58.4 109.4	0 23.7 -58.4 108.4	0 09.9 -58.4 107.4	-0 04.0 -58.4
5°	-0 07.4 -58.4	-0 21.0 -58.4	-0 34.7 -58.4	-0 48.5 -58.4	-1 02.4 -58.3
6°	-1 05.8 -58.4	-1 19.4 -58.4	-1 33.1 -58.4	-1 46.9 -58.3	-2 00.7 -58.4
7°	-2 04.2 -58.4	-2 17.8 -58.4	-2 31.5 -58.4	-2 45.2 -58.4	-2 59.1 -58.3
8°	-3 02.6 -58.5	-3 16.2 -58.4	-3 29.9 -58.3	-3 43.6 -58.4	-3 57.4 -58.4
9°	-4 01.1 -58.4	-4 14.6 -58.4	-4 28.2 -58.4	-4 42.0 -58.3	-4 55.8 -58.3
10°	-4 59.5 -58.4	-5 13.0 -58.4	-5 26.6 -58.4	-5 40.3 -58.4	-5 54.1 -58.3
11°	-5 57.9 -58.4	-6 11.4 -58.4	-6 25.0 -58.4	-6 38.7 -58.3	-6 52.4 -58.4
12°	-6 56.3 -58.4	-7 09.8 -58.4	-7 23.4 -58.3	-7 37.0 -58.4	-7 50.8 -58.3
13°	-7 54.7 -58.4	-8 08.2 -58.3	-8 21.7 -58.4	-8 35.4 -58.3	-8 49.1 -58.3
14°	-8 53.1 -58.4	-9 06.5 -58.4	-9 20.1 -58.3	-9 33.7 -58.3	-9 47.4 -58.3
15°	-9 51.5 -58.4				
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	3 35.4 -58.3 104.6	3 21.3 -58.3 103.6	3 07.2 -58.3 102.6	2 53.0 -58.3 101.7	2 38.7 -58.2 100.7
1°	2 37.1 -58.4 104.8	2 23.0 -58.3 103.8	2 08.9 -58.3 102.9	1 54.7 -58.3 101.9	1 40.5 -58.3 100.9
2°	1 38.7 -58.3 105.0	1 24.7 -58.4 104.1	1 10.6 -58.3 103.1	0 56.4 -58.3 102.1	0 42.2 -58.3 101.2
3°	0 40.4 -58.4 105.3	0 26.3 -58.3 104.3	0 12.3 -58.4 103.3	-0 01.9 -58.3	-0 16.1 -58.3
4°	-0 18.0 -58.3	-0 32.0 -58.3	-0 46.1 -58.3	-1 00.2 -58.3	-1 14.4 -58.3
5°	-1 16.3 -58.3	-1 30.3 -58.3	-1 44.4 -58.3	-1 58.5 -58.3	-2 12.7 -58.2
6°	-2 14.6 -58.4	-2 28.6 -58.3	-2 42.7 -58.3	-2 56.8 -58.3	-3 10.9 -58.3
7°	-3 13.0 -58.3	-3 26.9 -58.4	-3 41.0 -58.3	-3 55.1 -58.3	-4 09.2 -58.3
8°	-4 11.3 -58.3	-4 25.3 -58.3	-4 39.3 -58.3	-4 53.4 -58.2	-5 07.5 -58.3
9°	-5 09.6 -58.3	-5 23.6 -58.3	-5 37.6 -58.3	-5 51.6 -58.3	-6 05.8 -58.2
10°	-6 07.9 -58.4	-6 21.9 -58.3	-6 35.9 -58.2	-6 49.9 -58.3	-7 04.0 -58.3
11°	-7 06.3 -58.3	-7 20.2 -58.3	-7 34.1 -58.3	-7 48.2 -58.2	-8 02.3 -58.2
12°	-8 04.6 -58.3	-8 18.5 -58.2	-8 32.4 -58.3	-8 46.4 -58.3	-9 00.5 -58.3
13°	-9 02.9 -58.3	-9 16.7 -58.3	-9 30.7 -58.2	-9 44.7 -58.2	-9 58.8 -58.2
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	2 24.5 -58.3 99.7	2 10.1 -58.2 98.7	1 55.8 -58.3 97.8	1 41.4 -58.3 96.8	1 26.9 -58.2 95.8
1°	1 26.2 -58.3 99.9	1 11.9 -58.3 99.0	0 57.5 -58.2 98.0	0 43.1 -58.2 97.0	0 28.7 -58.2 96.1
2°	0 27.9 -58.3 100.2	0 13.6 -58.3 99.2	-0 00.7 -58.3	-0 15.1 -58.3	-0 29.5 -58.3
3°	-0 30.4 -58.2	-0 44.7 -58.2	-0 59.0 -58.2	-1 13.4 -58.2	-1 27.8 -58.2
4°	-1 28.6 -58.3	-1 42.9 -58.3	-1 57.2 -58.3	-2 11.6 -58.2	-2 26.0 -58.2
5°	-2 26.9 -58.3	-2 41.2 -58.2	-2 55.5 -58.2	-3 09.8 -58.3	-3 24.2 -58.3
6°	-3 25.2 -58.2	-3 39.4 -58.3	-3 53.7 -58.3	-4 08.1 -58.2	-4 22.5 -58.2
7°	-4 23.4 -58.3	-4 37.7 -58.2	-4 52.0 -58.2	-5 06.3 -58.2	-5 20.7 -58.2
8°	-5 21.7 -58.2	-5 35.9 -58.3	-5 50.2 -58.2	-6 04.5 -58.3	-6 18.9 -58.2
9°	-6 19.9 -58.3	-6 34.2 -58.2	-6 48.4 -58.3	-7 02.8 -58.2	-7 17.1 -58.2
10°	-7 18.2 -58.2	-7 32.4 -58.2	-7 46.7 -58.2	-8 01.0 -58.2	-8 15.3 -58.2
11°	-8 16.4 -58.3	-8 30.6 -58.3	-8 44.9 -58.2	-8 59.2 -58.2	-9 13.5 -58.2
12°	-9 14.7 -58.2	-9 28.9 -58.2	-9 43.1 -58.2	-9 57.4 -58.2	
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	1 12.5 -58.2 94.9	0 58.0 -58.2 93.9	0 43.5 -58.2 92.9	0 29.0 -58.2 91.9	0 14.5 -58.2 91.0
1°	0 14.3 -58.3 95.1	-0 00.2 -58.2	-0 14.7 -58.2	-0 29.2 -58.2	-0 43.7 -58.2
2°	-0 44.0 -58.2	-0 58.4 -58.3	-1 12.9 -58.2	-1 27.4 -58.2	-1 41.9 -58.2
3°	-1 42.2 -58.2	-1 56.7 -58.2	-2 11.1 -58.3	-2 25.6 -58.2	-2 40.1 -58.2
4°	-2 40.4 -58.3	-2 54.9 -58.2	-3 09.4 -58.2	-3 23.8 -58.3	-3 38.3 -58.3
5°	-3 38.7 -58.2	-3 53.1 -58.2	-4 07.6 -58.2	-4 22.1 -58.2	-4 36.6 -58.2
6°	-4 36.9 -58.2	-4 51.3 -58.2	-5 05.8 -58.2	-5 20.3 -58.2	-5 34.8 -58.2
7°	-5 35.1 -58.2	-5 49.5 -58.2	-6 04.0 -58.2	-6 18.5 -58.2	-6 33.0 -58.2
8°	-6 33.3 -58.2	-6 47.7 -58.2	-7 02.2 -58.2	-7 16.7 -58.1	-7 31.2 -58.1
9°	-7 31.5 -58.2	-7 45.9 -58.2	-8 00.4 -58.2	-8 14.8 -58.2	-8 29.3 -58.2
10°	-8 29.7 -58.2	-8 44.1 -58.2	-8 58.6 -58.1	-9 13.0 -58.2	-9 27.5 -58.2
11°	-9 27.9 -58.2	-9 42.3 -58.2	-9 56.7 -58.2		
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

# Latitude 76°

# Declination CONTRARY name to 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 -58.2 90.0	-0 14.5 -58.2			
1°	-0 58.2 -58.2	-1 12.7 -58.2			
2°	-1 56.4 -58.2	-2 10.9 -58.3			
3°	-2 54.6 -58.3	-3 09.2 -58.2			
4°	-3 52.9 -58.2	-4 07.4 -58.2			
5°	-4 51.1 -58.2	-5 05.6 -58.2			
6°	-5 49.3 -58.2	-6 03.8 -58.2			
7°	-6 47.5 -58.2	-7 02.0 -58.2			
8°	-7 45.7 -58.1	-8 00.2 -58.1			
9°	-8 43.8 -58.2	-8 58.3 -58.2			
10°	-9 42.0 -58.2	-9 56.5 -58.2			
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°					
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°					

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data.  
 The data on this page is believed to be accurate but no warranty is given for it's correctness. Use it only for training and exercising!

Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	13 00.0 -60.0 180.0	12 59.9 -60.0 179.0	12 59.5 -60.0 177.9	12 58.9 -60.0 176.9	12 58.1 -60.0 175.9
1°	12 00.0 -60.0 180.0	11 59.9 -60.0 179.0	11 59.5 -60.0 178.0	11 58.9 -60.0 176.9	11 58.1 -60.0 175.9
2°	11 00.0 -60.0 180.0	10 59.9 -60.0 179.0	10 59.5 -60.0 178.0	10 58.9 -60.0 176.9	10 58.1 -60.0 175.9
3°	10 00.0 -60.0 180.0	9 59.9 -60.0 179.0	9 59.5 -60.0 178.0	9 58.9 -60.0 177.0	9 58.1 -60.0 175.9
4°	9 00.0 -60.0 180.0	8 59.9 -60.0 179.0	8 59.5 -60.0 178.0	8 58.9 -60.0 177.0	8 58.1 -60.0 176.0
5°	8 00.0 -60.0 180.0	7 59.9 -60.0 179.0	7 59.5 -60.0 178.0	7 58.9 -60.0 177.0	7 58.1 -60.0 176.0
6°	7 00.0 -60.0 180.0	6 59.9 -60.0 179.0	6 59.5 -60.0 178.0	6 58.9 -60.0 177.0	6 58.1 -60.0 176.0
7°	6 00.0 -60.0 180.0	5 59.9 -60.0 179.0	5 59.5 -60.0 178.0	5 58.9 -60.0 177.0	5 58.1 -60.0 176.0
8°	5 00.0 -60.0 180.0	4 59.9 -60.0 179.0	4 59.5 -60.0 178.0	4 58.9 -59.9 177.0	4 58.1 -60.0 176.0
9°	4 00.0 -60.0 180.0	3 59.9 -60.0 179.0	3 59.5 -60.0 178.0	3 59.0 -60.0 177.0	3 58.1 -60.0 176.0
10°	3 00.0 -60.0 180.0	2 59.9 -60.0 179.0	2 59.5 -60.0 178.0	2 59.0 -60.0 177.0	2 58.1 -60.0 176.1
11°	2 00.0 -60.0 180.0	1 59.9 -60.0 179.0	1 59.5 -60.0 178.0	1 59.0 -60.0 177.1	1 58.1 -59.9 176.1
12°	1 00.0 -60.0 180.0	0 59.9 -60.0 179.0	0 59.5 -60.0 178.0	0 59.0 -60.0 177.1	0 58.2 -60.0 176.1
13°	0 00.0 -60.0 180.0	-0 00.1 -60.0	-0 00.5 -60.0	-0 01.0 -60.0	-0 01.8 -60.0
14°	-1 00.0 -60.0	-1 00.1 -60.0	-1 00.5 -60.0	-1 01.0 -60.0	-1 01.8 -60.0
15°	-2 00.0 -60.0	-2 00.1 -60.0	-2 00.5 -60.0	-2 01.0 -60.0	-2 01.8 -60.0
16°	-3 00.0 -60.0	-3 00.1 -60.0	-3 00.5 -60.0	-3 01.0 -60.0	-3 01.8 -60.0
17°	-4 00.0 -60.0	-4 00.1 -60.0	-4 00.5 -59.9	-4 01.0 -60.0	-4 01.8 -60.0
18°	-5 00.0 -60.0	-5 00.1 -60.0	-5 00.4 -60.0	-5 01.0 -60.0	-5 01.8 -60.0
19°	-6 00.0 -60.0	-6 00.1 -60.0	-6 00.4 -60.0	-6 01.0 -60.0	-6 01.8 -60.0
20°	-7 00.0 -60.0	-7 00.1 -60.0	-7 00.4 -60.0	-7 01.0 -60.0	-7 01.8 -60.0
21°	-8 00.0 -60.0	-8 00.1 -60.0	-8 00.4 -60.0	-8 01.0 -60.0	-8 01.8 -60.0
22°	-9 00.0 -60.0	-9 00.1 -60.0	-9 00.4 -60.0	-9 01.0 -60.0	-9 01.8 -60.0
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	12 57.0 -60.0 174.9	12 55.7 -60.0 173.8	12 54.1 -60.0 172.8	12 52.3 -60.0 171.8	12 50.2 -59.9 170.8
1°	11 57.0 -60.0 174.9	11 55.7 -60.0 173.9	11 54.1 -60.0 172.8	11 52.3 -60.0 171.8	11 50.3 -60.0 170.8
2°	10 57.0 -60.0 174.9	10 55.7 -60.0 173.9	10 54.1 -59.9 172.9	10 52.3 -59.9 171.9	10 50.3 -60.0 170.8
3°	9 57.0 -60.0 174.9	9 55.7 -60.0 173.9	9 54.2 -60.0 172.9	9 52.4 -60.0 171.9	9 50.3 -59.9 170.9
4°	8 57.0 -60.0 175.0	8 55.7 -60.0 173.9	8 54.2 -60.0 172.9	8 52.4 -60.0 171.9	8 50.4 -60.0 170.9
5°	7 57.0 -59.9 175.0	7 55.7 -59.9 174.0	7 54.2 -60.0 173.0	7 52.4 -59.9 172.0	7 50.4 -59.9 170.9
6°	6 57.1 -60.0 175.0	6 55.8 -60.0 174.0	6 54.2 -60.0 173.0	6 52.5 -60.0 172.0	6 50.5 -60.0 171.0
7°	5 57.1 -60.0 175.0	5 55.8 -60.0 174.0	5 54.2 -59.9 173.0	5 52.5 -60.0 172.0	5 50.5 -60.0 171.0
8°	4 57.1 -60.0 175.0	4 55.8 -60.0 174.0	4 54.3 -60.0 173.0	4 52.5 -60.0 172.0	4 50.5 -59.9 171.1
9°	3 57.1 -60.0 175.0	3 55.8 -60.0 174.1	3 54.3 -60.0 173.1	3 52.5 -59.9 172.1	3 50.6 -60.0 171.1
10°	2 57.1 -60.0 175.1	2 55.8 -60.0 174.1	2 54.3 -60.0 173.1	2 52.6 -60.0 172.1	2 50.6 -60.0 171.1
11°	1 57.1 -60.0 175.1	1 55.8 -59.9 174.1	1 54.3 -59.9 173.1	1 52.6 -60.0 172.1	1 50.6 -59.9 171.2
12°	0 57.1 -60.0 175.1	0 55.9 -60.0 174.1	0 54.4 -60.0 173.2	0 52.6 -59.9 172.2	0 50.7 -60.0 171.2
13°	-0 02.9 -60.0	-0 04.1 -60.0	-0 05.6 -60.0	-0 07.3 -60.0	-0 09.3 -59.9
14°	-1 02.9 -59.9	-1 04.1 -60.0	-1 05.6 -60.0	-1 07.3 -60.0	-1 09.2 -60.0
15°	-2 02.8 -60.0	-2 04.1 -60.0	-2 05.6 -59.9	-2 07.3 -59.9	-2 09.2 -60.0
16°	-3 02.8 -60.0	-3 04.1 -60.0	-3 05.5 -60.0	-3 07.2 -60.0	-3 09.2 -59.9
17°	-4 02.8 -60.0	-4 04.1 -59.9	-4 05.5 -60.0	-4 07.2 -60.0	-4 09.1 -60.0
18°	-5 02.8 -60.0	-5 04.0 -60.0	-5 05.5 -60.0	-5 07.2 -60.0	-5 09.1 -60.0
19°	-6 02.8 -60.0	-6 04.0 -60.0	-6 05.5 -60.0	-6 07.2 -59.9	-6 09.1 -59.9
20°	-7 02.8 -60.0	-7 04.0 -60.0	-7 05.5 -59.9	-7 07.1 -60.0	-7 09.0 -60.0
21°	-8 02.8 -60.0	-8 04.0 -60.0	-8 05.4 -60.0	-8 07.1 -60.0	-8 09.0 -59.9
22°	-9 02.8 -60.0	-9 04.0 -60.0	-9 05.4 -60.0	-9 07.1 -59.9	-9 08.9 -60.0
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	12 47.9 -59.9 169.7	12 45.4 -59.9 168.7	12 42.7 -60.0 167.7	12 39.7 -59.9 166.7	12 36.4 -59.9 165.6
1°	11 48.0 -60.0 169.8	11 45.5 -60.0 168.8	11 42.7 -59.9 167.7	11 39.8 -60.0 166.7	11 36.5 -59.9 165.7
2°	10 48.0 -59.9 169.8	10 45.5 -59.9 168.8	10 42.8 -59.9 167.8	10 39.8 -59.9 166.8	10 36.6 -59.9 165.8
3°	9 48.1 -60.0 169.9	9 45.6 -59.9 168.9	9 42.9 -60.0 167.8	9 39.9 -59.9 166.8	9 36.7 -59.9 165.8
4°	8 48.1 -59.9 169.9	8 45.7 -60.0 168.9	8 42.9 -59.9 167.9	8 40.0 -59.9 166.9	8 36.8 -59.9 165.9
5°	7 48.2 -60.0 169.9	7 45.7 -59.9 168.9	7 43.0 -59.9 167.9	7 40.1 -60.0 166.9	7 36.9 -59.9 165.9
6°	6 48.2 -59.9 170.0	6 45.8 -60.0 169.0	6 43.1 -60.0 168.0	6 40.1 -59.9 167.0	6 37.0 -59.9 166.0
7°	5 48.3 -60.0 170.0	5 45.8 -59.9 169.0	5 43.1 -59.9 168.0	5 40.2 -59.9 167.0	5 37.1 -59.9 166.0
8°	4 48.3 -59.9 170.1	4 45.9 -60.0 169.1	4 43.2 -59.9 168.1	4 40.3 -59.9 167.1	4 37.2 -59.9 166.1
9°	3 48.4 -60.0 170.1	3 45.9 -59.9 169.1	3 43.3 -60.0 168.1	3 40.4 -59.9 167.1	3 37.3 -59.9 166.1
10°	2 48.4 -59.9 170.1	2 46.0 -60.0 169.2	2 43.3 -59.9 168.2	2 40.5 -60.0 167.2	2 37.4 -60.0 166.2
11°	1 48.5 -60.0 170.2	1 46.0 -59.9 169.2	1 43.4 -59.9 168.2	1 40.5 -59.9 167.2	1 37.4 -59.9 166.3
12°	0 48.5 -59.9 170.2	0 46.1 -59.9 169.2	0 43.5 -60.0 168.3	0 40.6 -59.9 167.3	0 37.5 -59.9 166.3
13°	-0 11.4 -60.0	-0 13.8 -60.0	-0 16.5 -59.9	-0 19.3 -59.9	-0 22.4 -59.9
14°	-1 11.4 -60.0	-1 13.8 -59.9	-1 16.4 -59.9	-1 19.2 -60.0	-1 22.3 -59.9
15°	-2 11.4 -59.9	-2 13.7 -60.0	-2 16.3 -60.0	-2 19.2 -59.9	-2 22.2 -59.9
16°	-3 11.3 -60.0	-3 13.7 -59.9	-3 16.3 -59.9	-3 19.1 -59.9	-3 22.1 -59.9
17°	-4 11.3 -59.9	-4 13.6 -60.0	-4 16.2 -59.9	-4 19.0 -59.9	-4 22.0 -59.9
18°	-5 11.2 -60.0	-5 13.6 -59.9	-5 16.1 -60.0	-5 18.9 -59.9	-5 21.9 -59.9
19°	-6 11.2 -59.9	-6 13.5 -60.0	-6 16.1 -59.9	-6 18.8 -60.0	-6 21.8 -60.0
20°	-7 11.1 -60.0	-7 13.5 -59.9	-7 16.0 -59.9	-7 18.8 -59.9	-7 21.8 -59.9
21°	-8 11.1 -59.9	-8 13.4 -59.9	-8 15.9 -60.0	-8 18.7 -59.9	-8 21.7 -59.9
22°	-9 11.0 -60.0	-9 13.3 -60.0	-9 15.9 -59.9	-9 18.6 -59.9	-9 21.6 -59.9
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	12 33.0 -59.9 164.6	12 29.3 -59.9 163.6	12 25.4 -59.9 162.6	12 21.2 -59.8 161.6	12 16.8 -59.8 160.5
1°	11 33.1 -59.9 164.7	11 29.4 -59.9 163.7	11 25.5 -59.9 162.6	11 21.4 -59.9 161.6	11 17.0 -59.8 160.6
2°	10 33.2 -59.9 164.7	10 29.5 -59.9 163.7	10 25.6 -59.8 162.7	10 21.5 -59.8 161.7	10 17.2 -59.9 160.7
3°	9 33.3 -59.9 164.8	9 29.6 -59.8 163.8	9 25.8 -59.9 162.8	9 21.7 -59.9 161.8	9 17.3 -59.8 160.8
4°	8 33.4 -59.9 164.9	8 29.8 -59.9 163.9	8 25.9 -59.9 162.9	8 21.8 -59.8 161.8	8 17.5 -59.8 160.8
5°	7 33.5 -59.9 164.9	7 29.9 -59.9 163.9	7 26.0 -59.8 162.9	7 22.0 -59.9 161.9	7 17.7 -59.9 160.9
6°	6 33.6 -59.9 165.0	6 30.0 -59.9 164.0	6 26.2 -59.9 163.0	6 22.1 -59.9 162.0	6 17.8 -59.8 161.0
7°	5 33.7 -59.9 165.0	5 30.1 -59.9 164.0	5 26.3 -59.9 163.1	5 22.2 -59.8 162.1	5 18.0 -59.9 161.1
8°	4 33.8 -59.9 165.1	4 30.2 -59.9 164.1	4 26.4 -59.8 163.1	4 22.4 -59.9 162.1	4 18.1 -59.8 161.1
9°	3 33.9 -59.9 165.2	3 30.3 -59.8 164.2	3 26.6 -59.9 163.2	3 22.5 -59.8 162.2	3 18.3 -59.8 161.2
10°	2 34.0 -59.9 165.2	2 30.5 -59.9 164.2	2 26.7 -59.9 163.3	2 22.7 -59.9 162.3	2 18.5 -59.9 161.3
11°	1 34.1 -59.9 165.3	1 30.6 -59.9 164.3	1 26.8 -59.9 163.3	1 22.8 -59.8 162.3	1 18.6 -59.8 161.4
12°	0 34.2 -59.9 165.3	0 30.7 -59.9 164.4	0 26.9 -59.8 163.4	0 23.0 -59.9 162.4	0 18.8 -59.9 161.4
13°	-0 25.7 -59.9	-0 29.2 -59.9	-0 32.9 -59.9	-0 36.9 -59.8	-0 41.1 -59.8
14°	-1 25.6 -59.9	-1 29.1 -59.9	-1 32.8 -59.9	-1 36.7 -59.9	-1 40.9 -59.8
15°	-2 25.5 -59.9	-2 29.0 -59.8	-2 32.7 -59.8	-2 36.6 -59.8	-2 40.7 -59.9
16°	-3 25.4 -59.9	-3 28.8 -59.9	-3 32.5 -59.9	-3 36.4 -59.9	-3 40.6 -59.8
17°	-4 25.3 -59.9	-4 28.7 -59.9	-4 32.4 -59.9	-4 36.3 -59.9	-4 40.4 -59.8
18°	-5 25.2 -59.9	-5 28.6 -59.9	-5 32.3 -59.8	-5 36.2 -59.8	-5 40.2 -59.9
19°	-6 25.1 -59.9	-6 28.5 -59.9	-6 32.1 -59.9	-6 36.0 -59.9	-6 40.1 -59.8
20°	-7 25.0 -59.9	-7 28.4 -59.9	-7 32.0 -59.9	-7 35.9 -59.8	-7 39.9 -59.9
21°	-8 24.9 -59.9	-8 28.3 -59.8	-8 31.9 -59.8	-8 35.7 -59.9	-8 39.8 -59.8
22°	-9 24.8 -59.8	-9 28.1 -59.9	-9 31.7 -59.9	-9 35.6 -59.8	-9 39.6 -59.8
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	12 12.2 -59.8 159.5	12 07.4 -59.8 158.5	12 02.3 -59.8 157.5	11 57.0 -59.7 156.5	11 51.5 -59.7 155.4
1°	11 12.4 -59.8 159.6	11 07.6 -59.8 158.6	11 02.5 -59.7 157.6	10 57.3 -59.8 156.6	10 51.8 -59.7 155.5
2°	10 12.6 -59.8 159.7	10 07.8 -59.8 158.7	10 02.8 -59.8 157.7	9 57.5 -59.7 156.6	9 52.1 -59.8 155.6
3°	9 12.8 -59.9 159.8	9 08.0 -59.8 158.7	9 03.0 -59.8 157.7	8 57.8 -59.8 156.7	8 52.3 -59.7 155.7
4°	8 12.9 -59.8 159.8	8 08.2 -59.8 158.8	8 03.2 -59.8 157.8	7 58.0 -59.8 156.8	7 52.6 -59.8 155.8
5°	7 13.1 -59.8 159.9	7 08.4 -59.8 158.9	7 03.4 -59.8 157.9	6 58.2 -59.7 156.9	6 52.8 -59.7 155.9
6°	6 13.3 -59.8 160.0	6 08.6 -59.8 159.0	6 03.6 -59.8 158.0	5 58.5 -59.8 157.0	5 53.1 -59.8 156.0
7°	5 13.5 -59.8 160.1	5 08.8 -59.8 159.1	5 03.8 -59.7 158.1	4 58.7 -59.8 157.1	4 53.3 -59.7 156.1
8°	4 13.7 -59.9 160.1	4 09.0 -59.8 159.2	4 04.1 -59.8 158.2	3 58.9 -59.7 157.2	3 53.6 -59.8 156.2
9°	3 13.8 -59.8 160.2	3 09.2 -59.8 159.2	3 04.3 -59.8 158.3	2 59.2 -59.8 157.3	2 53.8 -59.7 156.3
10°	2 14.0 -59.8 160.3	2 09.4 -59.8 159.3	2 04.5 -59.8 158.3	1 59.4 -59.8 157.4	1 54.1 -59.8 156.4
11°	1 14.2 -59.8 160.4	1 09.6 -59.8 159.4	1 04.7 -59.8 158.4	0 59.6 -59.7 157.4	0 54.3 -59.7 156.5
12°	0 14.4 -59.8 160.5	0 09.8 -59.8 159.5	0 04.9 -59.8 158.5	-0 00.1 -59.8	-0 05.4 -59.7
13°	-0 45.4 -59.9	-0 50.0 -59.9	-0 54.9 -59.8	-0 59.9 -59.8	-1 05.1 -59.8
14°	-1 45.3 -59.8	-1 49.9 -59.8	-1 54.7 -59.7	-1 59.7 -59.7	-2 04.9 -59.7
15°	-2 45.1 -59.8	-2 49.7 -59.8	-2 54.4 -59.8	-2 59.4 -59.8	-3 04.6 -59.8
16°	-3 44.9 -59.8	-3 49.5 -59.8	-3 54.2 -59.8	-3 59.2 -59.8	-4 04.4 -59.7
17°	-4 44.7 -59.9	-4 49.3 -59.8	-4 54.0 -59.8	-4 59.0 -59.7	-5 04.1 -59.8
18°	-5 44.6 -59.8	-5 49.1 -59.8	-5 53.8 -59.8	-5 58.7 -59.8	-6 03.9 -59.7
19°	-6 44.4 -59.8	-6 48.9 -59.8	-6 53.6 -59.8	-6 58.5 -59.8	-7 03.6 -59.8
20°	-7 44.2 -59.8	-7 48.7 -59.8	-7 53.4 -59.7	-7 58.3 -59.7	-8 03.4 -59.7
21°	-8 44.0 -59.8	-8 48.5 -59.8	-8 53.1 -59.8	-8 58.0 -59.8	-9 03.1 -59.8
22°	-9 43.8 -59.8	-9 48.3 -59.8	-9 52.9 -59.8	-9 57.8 -59.7	
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	11 45.8 -59.7 154.4	11 39.9 -59.7 153.4	11 33.7 -59.6 152.4	11 27.4 -59.7 151.4	11 20.8 -59.6 150.4
1°	10 46.1 -59.7 154.5	10 40.2 -59.7 153.5	10 34.1 -59.7 152.5	10 27.7 -59.6 151.5	10 21.2 -59.7 150.5
2°	9 46.4 -59.7 154.6	9 40.5 -59.7 153.6	9 34.4 -59.7 152.6	9 28.1 -59.7 151.6	9 21.5 -59.6 150.6
3°	8 46.7 -59.8 154.7	8 40.8 -59.7 153.7	8 34.7 -59.7 152.7	8 28.4 -59.6 151.7	8 21.9 -59.6 150.7
4°	7 46.9 -59.7 154.8	7 41.1 -59.7 153.8	7 35.0 -59.7 152.8	7 28.8 -59.7 151.8	7 22.3 -59.7 150.8
5°	6 47.2 -59.7 154.9	6 41.4 -59.7 153.9	6 35.3 -59.6 152.9	6 29.1 -59.7 151.9	6 22.6 -59.6 150.9
6°	5 47.5 -59.7 155.0	5 41.7 -59.7 154.0	5 35.7 -59.7 153.0	5 29.4 -59.6 152.0	5 23.0 -59.6 151.0
7°	4 47.8 -59.8 155.1	4 42.0 -59.7 154.1	4 36.0 -59.7 153.1	4 29.8 -59.7 152.1	4 23.4 -59.7 151.1
8°	3 48.0 -59.7 155.2	3 42.3 -59.7 154.2	3 36.3 -59.7 153.2	3 30.1 -59.7 152.2	3 23.7 -59.6 151.3
9°	2 48.3 -59.7 155.3	2 42.6 -59.7 154.3	2 36.6 -59.7 153.3	2 30.4 -59.6 152.3	2 24.1 -59.7 151.4
10°	1 48.6 -59.7 155.4	1 42.9 -59.8 154.4	1 36.9 -59.7 153.4	1 30.8 -59.7 152.5	1 24.4 -59.6 151.5
11°	0 48.9 -59.8 155.5	0 43.1 -59.7 154.5	0 37.2 -59.6 153.5	0 31.1 -59.6 152.6	0 24.8 -59.6 151.6
12°	-0 10.9 -59.7	-0 16.6 -59.7	-0 22.4 -59.7	-0 28.5 -59.7	-0 34.8 -59.7
13°	-1 10.6 -59.7	-1 16.3 -59.7	-1 22.1 -59.7	-1 28.2 -59.7	-1 34.5 -59.6
14°	-2 10.3 -59.8	-2 16.0 -59.7	-2 21.8 -59.7	-2 27.9 -59.6	-2 34.1 -59.7
15°	-3 10.1 -59.7	-3 15.7 -59.7	-3 21.5 -59.7	-3 27.5 -59.7	-3 33.8 -59.6
16°	-4 09.8 -59.7	-4 15.4 -59.7	-4 21.2 -59.7	-4 27.2 -59.7	-4 33.4 -59.6
17°	-5 09.5 -59.7	-5 15.1 -59.7	-5 20.9 -59.7	-5 26.9 -59.6	-5 33.0 -59.7
18°	-6 09.2 -59.8	-6 14.8 -59.7	-6 20.6 -59.6	-6 26.5 -59.7	-6 32.7 -59.6
19°	-7 09.0 -59.7	-7 14.5 -59.7	-7 20.2 -59.7	-7 26.2 -59.6	-7 32.3 -59.7
20°	-8 08.7 -59.7	-8 14.2 -59.7	-8 19.9 -59.7	-8 25.8 -59.7	-8 32.0 -59.6
21°	-9 08.4 -59.7	-9 13.9 -59.7	-9 19.6 -59.7	-9 25.5 -59.7	-9 31.6 -59.6
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	11 14.0 -59.6 149.4	11 07.0 -59.5 148.3	10 59.9 -59.6 147.3	10 52.5 -59.6 146.3	10 44.9 -59.5 145.3
1°	10 14.4 -59.6 149.5	10 07.5 -59.6 148.5	10 00.3 -59.6 147.5	9 52.9 -59.5 146.4	9 45.4 -59.5 145.4
2°	9 14.8 -59.6 149.6	9 07.9 -59.6 148.6	9 00.7 -59.5 147.6	8 53.4 -59.5 146.6	8 45.9 -59.5 145.6
3°	8 15.2 -59.6 149.7	8 08.3 -59.6 148.7	8 01.2 -59.6 147.7	7 53.9 -59.6 146.7	7 46.4 -59.6 145.7
4°	7 15.6 -59.6 149.8	7 08.7 -59.6 148.8	7 01.6 -59.6 147.8	6 54.3 -59.5 146.8	6 46.8 -59.5 145.8
5°	6 16.0 -59.6 149.9	6 09.1 -59.6 148.9	6 02.0 -59.5 147.9	5 54.8 -59.6 146.9	5 47.3 -59.5 145.9
6°	5 16.4 -59.7 150.0	5 09.5 -59.6 149.0	5 02.5 -59.6 148.1	4 55.2 -59.5 147.1	4 47.8 -59.5 146.1
7°	4 16.7 -59.6 150.2	4 09.9 -59.6 149.2	4 02.9 -59.6 148.2	3 55.7 -59.5 147.2	3 48.3 -59.5 146.2
8°	3 17.1 -59.6 150.3	3 10.3 -59.6 149.3	3 03.3 -59.5 148.3	2 56.2 -59.6 147.3	2 48.8 -59.6 146.3
9°	2 17.5 -59.6 150.4	2 10.7 -59.6 149.4	2 03.8 -59.6 148.4	1 56.6 -59.5 147.4	1 49.2 -59.5 146.5
10°	1 17.9 -59.6 150.5	1 11.1 -59.6 149.5	1 04.2 -59.6 148.5	0 57.1 -59.6 147.6	0 49.7 -59.5 146.6
11°	0 18.3 -59.6 150.6	0 11.5 -59.5 149.6	0 04.6 -59.5 148.7	-0 02.5 -59.5	-0 09.8 -59.5
12°	-0 41.3 -59.7	-0 48.0 -59.6	-0 54.9 -59.6	-1 02.0 -59.6	-1 09.3 -59.6
13°	-1 41.0 -59.6	-1 47.6 -59.6	-1 54.5 -59.6	-2 01.6 -59.5	-2 08.9 -59.5
14°	-2 40.6 -59.6	-2 47.2 -59.6	-2 54.1 -59.6	-3 01.1 -59.6	-3 08.4 -59.5
15°	-3 40.2 -59.6	-3 46.8 -59.6	-3 53.7 -59.5	-4 00.7 -59.5	-4 07.9 -59.5
16°	-4 39.8 -59.6	-4 46.4 -59.6	-4 53.2 -59.6	-5 00.2 -59.6	-5 07.4 -59.5
17°	-5 39.4 -59.6	-5 46.0 -59.6	-5 52.8 -59.6	-5 59.8 -59.5	-6 06.9 -59.6
18°	-6 39.0 -59.7	-6 45.6 -59.6	-6 52.4 -59.5	-6 59.3 -59.6	-7 06.5 -59.5
19°	-7 38.7 -59.6	-7 45.2 -59.6	-7 51.9 -59.6	-7 58.9 -59.5	-8 06.0 -59.5
20°	-8 38.3 -59.6	-8 44.8 -59.6	-8 51.5 -59.6	-8 58.4 -59.5	-9 05.5 -59.5
21°	-9 37.9 -59.6	-9 44.4 -59.6	-9 51.1 -59.5	-9 57.9 -59.6	
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	10 37.1 -59.5 144.3	10 29.1 -59.4 143.3	10 21.0 -59.5 142.3	10 12.6 -59.4 141.3	10 04.1 -59.4 140.3
1°	9 37.6 -59.5 144.4	9 29.7 -59.5 143.4	9 21.5 -59.4 142.4	9 13.2 -59.4 141.4	9 04.7 -59.4 140.4
2°	8 38.1 -59.4 144.6	8 30.2 -59.4 143.6	8 22.1 -59.4 142.6	8 13.8 -59.4 141.6	8 05.3 -59.4 140.6
3°	7 38.7 -59.5 144.7	7 30.8 -59.5 143.7	7 22.7 -59.5 142.7	7 14.4 -59.4 141.7	7 05.9 -59.3 140.7
4°	6 39.2 -59.5 144.8	6 31.3 -59.5 143.8	6 23.2 -59.4 142.8	6 15.0 -59.4 141.8	6 06.6 -59.4 140.8
5°	5 39.7 -59.5 145.0	5 31.8 -59.4 144.0	5 23.8 -59.5 143.0	5 15.6 -59.4 142.0	5 07.2 -59.4 141.0
6°	4 40.2 -59.5 145.1	4 32.4 -59.5 144.1	4 24.3 -59.4 143.1	4 16.2 -59.5 142.1	4 07.8 -59.4 141.1
7°	3 40.7 -59.5 145.2	3 32.9 -59.5 144.2	3 24.9 -59.4 143.2	3 16.7 -59.4 142.3	3 08.4 -59.4 141.3
8°	2 41.2 -59.5 145.3	2 33.4 -59.5 144.4	2 25.5 -59.5 143.4	2 17.3 -59.4 142.4	2 09.0 -59.4 141.4
9°	1 41.7 -59.5 145.5	1 33.9 -59.4 144.5	1 26.0 -59.4 143.5	1 17.9 -59.4 142.5	1 09.6 -59.4 141.6
10°	0 42.2 -59.5 145.6	0 34.5 -59.5 144.6	0 26.6 -59.5 143.7	0 18.5 -59.4 142.7	0 10.2 -59.4 141.7
11°	-0 17.3 -59.5	-0 25.0 -59.5	-0 32.9 -59.4	-0 40.9 -59.5	-0 49.2 -59.4
12°	-1 16.8 -59.5	-1 24.5 -59.4	-1 32.3 -59.5	-1 40.4 -59.4	-1 48.6 -59.4
13°	-2 16.3 -59.5	-2 23.9 -59.5	-2 31.8 -59.4	-2 39.8 -59.4	-2 48.0 -59.4
14°	-3 15.8 -59.5	-3 23.4 -59.5	-3 31.2 -59.5	-3 39.2 -59.4	-3 47.4 -59.4
15°	-4 15.3 -59.5	-4 22.9 -59.5	-4 30.7 -59.4	-4 38.6 -59.4	-4 46.8 -59.4
16°	-5 14.8 -59.5	-5 22.4 -59.4	-5 30.1 -59.5	-5 38.0 -59.5	-5 46.2 -59.4
17°	-6 14.3 -59.5	-6 21.8 -59.5	-6 29.6 -59.4	-6 37.5 -59.4	-6 45.6 -59.3
18°	-7 13.8 -59.5	-7 21.3 -59.5	-7 29.0 -59.4	-7 36.9 -59.4	-7 44.9 -59.4
19°	-8 13.3 -59.5	-8 20.8 -59.4	-8 28.4 -59.5	-8 36.3 -59.4	-8 44.3 -59.4
20°	-9 12.8 -59.4	-9 20.2 -59.5	-9 27.9 -59.4	-9 35.7 -59.4	-9 43.7 -59.4
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	9 55.4 -59.4 139.3	9 46.5 -59.3 138.3	9 37.4 -59.3 137.3	9 28.2 -59.3 136.3	9 18.7 -59.2 135.3
1°	8 56.0 -59.3 139.4	8 47.2 -59.4 138.4	8 38.1 -59.3 137.4	8 28.9 -59.3 136.4	8 19.5 -59.3 135.4
2°	7 56.7 -59.4 139.6	7 47.8 -59.3 138.6	7 38.8 -59.3 137.6	7 29.6 -59.3 136.6	7 20.2 -59.2 135.6
3°	6 57.3 -59.4 139.7	6 48.5 -59.3 138.7	6 39.5 -59.3 137.7	6 30.3 -59.3 136.7	6 21.0 -59.3 135.7
4°	5 57.9 -59.3 139.9	5 49.2 -59.4 138.9	5 40.2 -59.3 137.9	5 31.0 -59.2 136.9	5 21.7 -59.2 135.9
5°	4 58.6 -59.4 140.0	4 49.8 -59.3 139.0	4 40.9 -59.3 138.0	4 31.8 -59.3 137.0	4 22.5 -59.3 136.0
6°	3 59.2 -59.4 140.1	3 50.5 -59.4 139.2	3 41.6 -59.3 138.2	3 32.5 -59.3 137.2	3 23.2 -59.2 136.2
7°	2 59.8 -59.3 140.3	2 51.1 -59.3 139.3	2 42.3 -59.4 138.3	2 33.2 -59.3 137.3	2 24.0 -59.3 136.4
8°	2 00.5 -59.4 140.4	1 51.8 -59.3 139.5	1 42.9 -59.3 138.5	1 33.9 -59.3 137.5	1 24.7 -59.3 136.5
9°	1 01.1 -59.4 140.6	0 52.5 -59.4 139.6	0 43.6 -59.3 138.6	0 34.6 -59.3 137.7	0 25.4 -59.2 136.7
10°	0 01.7 -59.3 140.7	-0 06.9 -59.3	-0 15.7 -59.3	-0 24.7 -59.3	-0 33.8 -59.3
11°	-0 57.6 -59.4	-1 06.2 -59.4	-1 15.0 -59.3	-1 24.0 -59.3	-1 33.1 -59.3
12°	-1 57.0 -59.4	-2 05.6 -59.3	-2 14.3 -59.3	-2 23.3 -59.2	-2 32.4 -59.2
13°	-2 56.4 -59.3	-3 04.9 -59.4	-3 13.6 -59.4	-3 22.5 -59.3	-3 31.6 -59.3
14°	-3 55.7 -59.4	-4 04.3 -59.3	-4 13.0 -59.3	-4 21.8 -59.3	-4 30.9 -59.2
15°	-4 55.1 -59.4	-5 03.6 -59.3	-5 12.3 -59.3	-5 21.1 -59.3	-5 30.1 -59.3
16°	-5 54.5 -59.3	-6 02.9 -59.4	-6 11.6 -59.3	-6 20.4 -59.3	-6 29.4 -59.2
17°	-6 53.8 -59.4	-7 02.3 -59.3	-7 10.9 -59.3	-7 19.7 -59.3	-7 28.6 -59.3
18°	-7 53.2 -59.3	-8 01.6 -59.3	-8 10.2 -59.3	-8 19.0 -59.2	-8 27.9 -59.2
19°	-8 52.5 -59.4	-9 00.9 -59.4	-9 09.5 -59.3	-9 18.2 -59.3	-9 27.1 -59.3
20°	-9 51.9 -59.3				
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	9 09.2 -59.3 134.3	8 59.4 -59.2 133.3	8 49.5 -59.2 132.3	8 39.4 -59.1 131.3	8 29.2 -59.1 130.3
1°	8 09.9 -59.2 134.4	8 00.2 -59.2 133.4	7 50.3 -59.1 132.4	7 40.3 -59.2 131.4	7 30.1 -59.1 130.4
2°	7 10.7 -59.2 134.6	7 01.0 -59.2 133.6	6 51.2 -59.2 132.6	6 41.1 -59.1 131.6	6 31.0 -59.1 130.6
3°	6 11.5 -59.2 134.7	6 01.8 -59.2 133.8	5 52.0 -59.2 132.8	5 42.0 -59.1 131.8	5 31.9 -59.2 130.8
4°	5 12.3 -59.3 134.9	5 02.6 -59.2 133.9	4 52.8 -59.2 132.9	4 42.9 -59.2 131.9	4 32.7 -59.1 131.0
5°	4 13.0 -59.2 135.1	4 03.4 -59.2 134.1	3 53.6 -59.1 133.1	3 43.7 -59.1 132.1	3 33.6 -59.1 131.1
6°	3 13.8 -59.2 135.2	3 04.2 -59.2 134.2	2 54.5 -59.2 133.3	2 44.6 -59.2 132.3	2 34.5 -59.1 131.3
7°	2 14.6 -59.3 135.4	2 05.0 -59.2 134.4	1 55.3 -59.2 133.4	1 45.4 -59.2 132.4	1 35.4 -59.2 131.5
8°	1 15.3 -59.2 135.5	1 05.8 -59.2 134.6	0 56.1 -59.2 133.6	0 46.2 -59.1 132.6	0 36.2 -59.1 131.6
9°	0 16.1 -59.2 135.7	0 06.6 -59.2 134.7	-0 03.1 -59.2	-0 12.9 -59.2	-0 22.9 -59.1
10°	-0 43.1 -59.3	-0 52.6 -59.2	-1 02.3 -59.1	-1 12.1 -59.1	-1 22.0 -59.2
11°	-1 42.4 -59.2	-1 51.8 -59.2	-2 01.4 -59.2	-2 11.2 -59.2	-2 21.2 -59.1
12°	-2 41.6 -59.2	-2 51.0 -59.2	-3 00.6 -59.2	-3 10.4 -59.1	-3 20.3 -59.1
13°	-3 40.8 -59.3	-3 50.2 -59.3	-3 59.8 -59.2	-4 09.5 -59.2	-4 19.4 -59.1
14°	-4 40.1 -59.2	-4 49.5 -59.2	-4 59.0 -59.2	-5 08.7 -59.1	-5 18.5 -59.1
15°	-5 39.3 -59.2	-5 48.7 -59.2	-5 58.2 -59.1	-6 07.8 -59.2	-6 17.6 -59.2
16°	-6 38.5 -59.3	-6 47.9 -59.2	-6 57.3 -59.2	-7 07.0 -59.1	-7 16.8 -59.1
17°	-7 37.8 -59.2	-7 47.1 -59.1	-7 56.5 -59.2	-8 06.1 -59.1	-8 15.9 -59.1
18°	-8 37.0 -59.2	-8 46.2 -59.2	-8 55.7 -59.1	-9 05.2 -59.2	-9 15.0 -59.1
19°	-9 36.2 -59.2	-9 45.4 -59.2	-9 54.8 -59.2		
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	8 18.8 -59.1 129.3	8 08.3 -59.0 128.3	7 57.6 -59.0 127.3	7 46.8 -59.0 126.3	7 35.9 -59.0 125.3
1°	7 19.7 -59.0 129.4	7 09.3 -59.1 128.5	6 58.6 -59.0 127.5	6 47.8 -59.0 126.5	6 36.9 -59.0 125.5
2°	6 20.7 -59.1 129.6	6 10.2 -59.1 128.6	5 59.6 -59.1 127.6	5 48.8 -59.0 126.7	5 37.9 -59.0 125.7
3°	5 21.6 -59.1 129.8	5 11.1 -59.0 128.8	5 00.5 -59.0 127.8	4 49.8 -59.0 126.8	4 38.9 -59.0 125.8
4°	4 22.5 -59.1 130.0	4 12.1 -59.1 129.0	4 01.5 -59.1 128.0	3 50.8 -59.0 127.0	3 39.9 -59.0 126.0
5°	3 23.4 -59.1 130.1	3 13.0 -59.1 129.2	3 02.4 -59.0 128.2	2 51.8 -59.1 127.2	2 40.9 -59.0 126.2
6°	2 24.3 -59.1 130.3	2 13.9 -59.1 129.3	2 03.4 -59.1 128.4	1 52.7 -59.0 127.4	1 41.9 -59.0 126.4
7°	1 25.2 -59.1 130.5	1 14.8 -59.0 129.5	1 04.3 -59.0 128.5	0 53.7 -59.0 127.6	0 42.9 -59.0 126.6
8°	0 26.1 -59.1 130.7	0 15.8 -59.1 129.7	0 05.3 -59.1 128.7	-0 05.3 -59.0	-0 16.1 -59.0
9°	-0 33.0 -59.1	-0 43.3 -59.1	-0 53.8 -59.0	-1 04.3 -59.1	-1 15.1 -58.9
10°	-1 32.1 -59.1	-1 42.4 -59.1	-1 52.8 -59.1	-2 03.4 -59.0	-2 14.0 -59.0
11°	-2 31.2 -59.1	-2 41.5 -59.0	-2 51.9 -59.0	-3 02.4 -59.0	-3 13.0 -59.0
12°	-3 30.3 -59.1	-3 40.5 -59.1	-3 50.9 -59.0	-4 01.4 -59.0	-4 12.0 -59.0
13°	-4 29.4 -59.1	-4 39.6 -59.1	-4 49.9 -59.1	-5 00.4 -59.0	-5 11.0 -59.0
14°	-5 28.5 -59.1	-5 38.7 -59.1	-5 49.0 -59.0	-5 59.4 -59.0	-6 10.0 -59.0
15°	-6 27.6 -59.1	-6 37.8 -59.0	-6 48.0 -59.1	-6 58.4 -59.0	-7 09.0 -59.0
16°	-7 26.7 -59.1	-7 36.8 -59.1	-7 47.1 -59.0	-7 57.4 -59.1	-8 08.0 -59.0
17°	-8 25.8 -59.1	-8 35.9 -59.0	-8 46.1 -59.0	-8 56.5 -58.9	-9 07.0 -58.9
18°	-9 24.9 -59.1	-9 34.9 -59.1	-9 45.1 -59.0	-9 55.4 -59.0	
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	7 24.8 -59.0 124.3	7 13.6 -58.9 123.3	7 02.2 -58.9 122.3	6 50.8 -58.9 121.3	6 39.2 -58.9 120.3
1°	6 25.8 -58.9 124.5	6 14.7 -59.0 123.5	6 03.3 -58.9 122.5	5 51.9 -58.9 121.5	5 40.3 -58.8 120.5
2°	5 26.9 -59.0 124.7	5 15.7 -58.9 123.7	5 04.4 -58.9 122.7	4 53.0 -58.9 121.7	4 41.5 -58.9 120.7
3°	4 27.9 -58.9 124.9	4 16.8 -59.0 123.9	4 05.5 -58.9 122.9	3 54.1 -58.9 121.9	3 42.6 -58.9 120.9
4°	3 29.0 -59.0 125.0	3 17.8 -58.9 124.1	3 06.6 -58.9 123.1	2 55.2 -58.9 122.1	2 43.7 -58.8 121.1
5°	2 30.0 -59.0 125.2	2 18.9 -59.0 124.3	2 07.7 -59.0 123.3	1 56.3 -58.9 122.3	1 44.9 -58.9 121.3
6°	1 31.0 -59.0 125.4	1 19.9 -58.9 124.4	1 08.7 -58.9 123.5	0 57.4 -58.9 122.5	0 46.0 -58.9 121.5
7°	0 32.0 -58.9 125.6	0 21.0 -59.0 124.6	0 09.8 -58.9 123.7	-0 01.5 -58.9	-0 12.9 -58.9
8°	-0 26.9 -59.0	-0 38.0 -58.9	-0 49.1 -58.9	-1 00.4 -58.9	-1 11.8 -58.8
9°	-1 25.9 -59.0	-1 36.9 -58.9	-1 48.0 -58.9	-1 59.3 -58.9	-2 10.6 -58.9
10°	-2 24.9 -58.9	-2 35.8 -59.0	-2 46.9 -59.0	-2 58.2 -58.9	-3 09.5 -58.9
11°	-3 23.8 -59.0	-3 34.8 -58.9	-3 45.9 -58.9	-3 57.1 -58.8	-4 08.4 -58.8
12°	-4 22.8 -59.0	-4 33.7 -59.0	-4 44.8 -58.9	-4 55.9 -58.9	-5 07.2 -58.9
13°	-5 21.8 -58.9	-5 32.7 -58.9	-5 43.7 -58.9	-5 54.8 -58.9	-6 06.1 -58.9
14°	-6 20.7 -59.0	-6 31.6 -58.9	-6 42.6 -58.9	-6 53.7 -58.9	-7 05.0 -58.8
15°	-7 19.7 -59.0	-7 30.5 -59.0	-7 41.5 -58.9	-7 52.6 -58.9	-8 03.8 -58.9
16°	-8 18.7 -58.9	-8 29.5 -58.9	-8 40.4 -58.9	-8 51.5 -58.8	-9 02.7 -58.8
17°	-9 17.6 -58.9	-9 28.4 -58.9	-9 39.3 -58.9	-9 50.3 -58.9	
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	6 27.5 -58.9 119.4	6 15.7 -58.9 118.4	6 03.7 -58.8 117.4	5 51.7 -58.8 116.4	5 39.6 -58.8 115.4
1°	5 28.6 -58.8 119.6	5 16.8 -58.8 118.6	5 04.9 -58.8 117.6	4 52.9 -58.8 116.6	4 40.8 -58.7 115.6
2°	4 29.8 -58.8 119.8	4 18.0 -58.8 118.8	4 06.1 -58.8 117.8	3 54.1 -58.7 116.8	3 42.1 -58.8 115.8
3°	3 31.0 -58.9 119.9	3 19.2 -58.8 119.0	3 07.3 -58.8 118.0	2 55.4 -58.8 117.0	2 43.3 -58.8 116.0
4°	2 32.1 -58.8 120.1	2 20.4 -58.8 119.2	2 08.5 -58.8 118.2	1 56.6 -58.8 117.2	1 44.5 -58.7 116.2
5°	1 33.3 -58.9 120.3	1 21.6 -58.9 119.4	1 09.7 -58.8 118.4	0 57.8 -58.8 117.4	0 45.8 -58.8 116.4
6°	0 34.4 -58.8 120.5	0 22.7 -58.8 119.6	0 10.9 -58.8 118.6	-0 01.0 -58.8	-0 13.0 -58.7
7°	-0 24.4 -58.9	-0 36.1 -58.8	-0 47.9 -58.8	-0 59.8 -58.7	-1 11.7 -58.8
8°	-1 23.3 -58.8	-1 34.9 -58.9	-1 46.7 -58.8	-1 58.5 -58.8	-2 10.5 -58.8
9°	-2 22.1 -58.9	-2 33.8 -58.8	-2 45.5 -58.8	-2 57.3 -58.8	-3 09.3 -58.7
10°	-3 21.0 -58.8	-3 32.6 -58.8	-3 44.3 -58.8	-3 56.1 -58.8	-4 08.0 -58.8
11°	-4 19.8 -58.9	-4 31.4 -58.8	-4 43.1 -58.8	-4 54.9 -58.7	-5 06.8 -58.7
12°	-5 18.7 -58.8	-5 30.2 -58.8	-5 41.9 -58.8	-5 53.6 -58.8	-6 05.5 -58.8
13°	-6 17.5 -58.8	-6 29.0 -58.8	-6 40.7 -58.7	-6 52.4 -58.8	-7 04.3 -58.7
14°	-7 16.3 -58.9	-7 27.8 -58.8	-7 39.4 -58.8	-7 51.2 -58.7	-8 03.0 -58.7
15°	-8 15.2 -58.8	-8 26.6 -58.8	-8 38.2 -58.8	-8 49.9 -58.8	-9 01.7 -58.8
16°	-9 14.0 -58.8	-9 25.4 -58.8	-9 37.0 -58.8	-9 48.7 -58.7	
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	5 27.3 -58.7 114.4	5 15.0 -58.7 113.5	5 02.6 -58.7 112.5	4 50.0 -58.6 111.5	4 37.4 -58.6 110.5
1°	4 28.6 -58.7 114.6	4 16.3 -58.7 113.7	4 03.9 -58.7 112.7	3 51.4 -58.7 111.7	3 38.8 -58.7 110.7
2°	3 29.9 -58.8 114.8	3 17.6 -58.8 113.9	3 05.2 -58.7 112.9	2 52.7 -58.7 111.9	2 40.1 -58.6 110.9
3°	2 31.1 -58.7 115.0	2 18.8 -58.7 114.1	2 06.5 -58.7 113.1	1 54.0 -58.7 112.1	1 41.5 -58.7 111.1
4°	1 32.4 -58.8 115.3	1 20.1 -58.7 114.3	1 07.8 -58.7 113.3	0 55.3 -58.6 112.3	0 42.8 -58.7 111.3
5°	0 33.6 -58.7 115.5	0 21.4 -58.7 114.5	0 09.1 -58.7 113.5	-0 03.3 -58.7	-0 15.9 -58.6
6°	-0 25.1 -58.7	-0 37.3 -58.7	-0 49.6 -58.7	-1 02.0 -58.7	-1 14.5 -58.7
7°	-1 23.8 -58.8	-1 36.0 -58.8	-1 48.3 -58.7	-2 00.7 -58.7	-2 13.2 -58.6
8°	-2 22.6 -58.7	-2 34.8 -58.7	-2 47.0 -58.7	-2 59.4 -58.7	-3 11.8 -58.7
9°	-3 21.3 -58.8	-3 33.5 -58.7	-3 45.7 -58.7	-3 58.1 -58.6	-4 10.5 -58.7
10°	-4 20.1 -58.7	-4 32.2 -58.7	-4 44.4 -58.7	-4 56.7 -58.7	-5 09.2 -58.6
11°	-5 18.8 -58.7	-5 30.9 -58.7	-5 43.1 -58.7	-5 55.4 -58.7	-6 07.8 -58.6
12°	-6 17.5 -58.7	-6 29.6 -58.7	-6 41.8 -58.7	-6 54.1 -58.6	-7 06.4 -58.7
13°	-7 16.2 -58.7	-7 28.3 -58.7	-7 40.5 -58.6	-7 52.7 -58.7	-8 05.1 -58.6
14°	-8 14.9 -58.8	-8 27.0 -58.7	-8 39.1 -58.7	-8 51.4 -58.6	-9 03.7 -58.6
15°	-9 13.7 -58.7	-9 25.7 -58.7	-9 37.8 -58.7	-9 50.0 -58.7	
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	4 24.8 -58.7 109.5	4 12.0 -58.6 108.5	3 59.2 -58.6 107.6	3 46.3 -58.6 106.6	3 33.3 -58.6 105.6
1°	3 26.1 -58.6 109.7	3 13.4 -58.6 108.8	3 00.6 -58.7 107.8	2 47.7 -58.6 106.8	2 34.7 -58.6 105.8
2°	2 27.5 -58.7 110.0	2 14.8 -58.7 109.0	2 01.9 -58.6 108.0	1 49.1 -58.6 107.0	1 36.1 -58.5 106.0
3°	1 28.8 -58.6 110.2	1 16.1 -58.6 109.2	1 03.3 -58.6 108.2	0 50.5 -58.6 107.2	0 37.6 -58.6 106.3
4°	0 30.2 -58.7 110.4	0 17.5 -58.6 109.4	0 04.7 -58.6 108.4	-0 08.1 -58.6	-0 21.0 -58.6
5°	-0 28.5 -58.6	-0 41.1 -58.7	-0 53.9 -58.6	-1 06.7 -58.6	-1 19.6 -58.6
6°	-1 27.1 -58.6	-1 39.8 -58.6	-1 52.5 -58.6	-2 05.3 -58.6	-2 18.2 -58.6
7°	-2 25.7 -58.7	-2 38.4 -58.6	-2 51.1 -58.6	-3 03.9 -58.6	-3 16.8 -58.5
8°	-3 24.4 -58.6	-3 37.0 -58.6	-3 49.7 -58.6	-4 02.5 -58.6	-4 15.3 -58.6
9°	-4 23.0 -58.7	-4 35.6 -58.6	-4 48.3 -58.6	-5 01.1 -58.6	-5 13.9 -58.6
10°	-5 21.7 -58.6	-5 34.2 -58.7	-5 46.9 -58.6	-5 59.7 -58.5	-6 12.5 -58.5
11°	-6 20.3 -58.6	-6 32.9 -58.6	-6 45.5 -58.6	-6 58.2 -58.6	-7 11.0 -58.6
12°	-7 18.9 -58.6	-7 31.5 -58.6	-7 44.1 -58.6	-7 56.8 -58.6	-8 09.6 -58.5
13°	-8 17.5 -58.6	-8 30.1 -58.5	-8 42.7 -58.5	-8 55.4 -58.5	-9 08.1 -58.6
14°	-9 16.1 -58.6	-9 28.6 -58.6	-9 41.2 -58.6	-9 53.9 -58.6	
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	3 20.3 -58.6 104.6	3 07.2 -58.6 103.7	2 54.0 -58.5 102.7	2 40.8 -58.5 101.7	2 27.6 -58.5 100.7
1°	2 21.7 -58.6 104.9	2 08.6 -58.5 103.9	1 55.5 -58.5 102.9	1 42.3 -58.5 101.9	1 29.1 -58.5 100.9
2°	1 23.1 -58.5 105.1	1 10.1 -58.6 104.1	0 57.0 -58.6 103.1	0 43.8 -58.5 102.1	0 30.6 -58.6 101.2
3°	0 24.6 -58.6 105.3	0 11.5 -58.5 104.3	-0 01.6 -58.5	-0 14.7 -58.6	-0 28.0 -58.5
4°	-0 34.0 -58.6	-0 47.0 -58.6	-1 00.1 -58.6	-1 13.3 -58.5	-1 26.5 -58.5
5°	-1 32.6 -58.5	-1 45.6 -58.5	-1 58.7 -58.5	-2 11.8 -58.5	-2 25.0 -58.5
6°	-2 31.1 -58.6	-2 44.1 -58.6	-2 57.2 -58.5	-3 10.3 -58.6	-3 23.5 -58.5
7°	-3 29.7 -58.5	-3 42.7 -58.5	-3 55.7 -58.6	-4 08.9 -58.5	-4 22.0 -58.5
8°	-4 28.2 -58.6	-4 41.2 -58.6	-4 54.3 -58.5	-5 07.4 -58.5	-5 20.5 -58.5
9°	-5 26.8 -58.6	-5 39.8 -58.5	-5 52.8 -58.5	-6 05.9 -58.5	-6 19.0 -58.5
10°	-6 25.4 -58.5	-6 38.3 -58.5	-6 51.3 -58.5	-7 04.4 -58.5	-7 17.5 -58.5
11°	-7 23.9 -58.5	-7 36.8 -58.6	-7 49.8 -58.5	-8 02.9 -58.5	-8 16.0 -58.5
12°	-8 22.4 -58.6	-8 35.4 -58.5	-8 48.3 -58.5	-9 01.4 -58.5	-9 14.5 -58.5
13°	-9 21.0 -58.5	-9 33.9 -58.5	-9 46.8 -58.5	-9 59.9 -58.5	
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	2 14.3 -58.5 99.7	2 01.0 -58.5 98.8	1 47.6 -58.4 97.8	1 34.3 -58.5 96.8	1 20.8 -58.4 95.8
1°	1 15.8 -58.5 100.0	1 02.5 -58.5 99.0	0 49.2 -58.5 98.0	0 35.8 -58.5 97.0	0 22.4 -58.5 96.1
2°	0 17.3 -58.5 100.2	0 04.0 -58.5 99.2	-0 09.3 -58.5	-0 22.7 -58.5	-0 36.1 -58.5
3°	-0 41.2 -58.5	-0 54.5 -58.5	-1 07.8 -58.5	-1 21.2 -58.5	-1 34.6 -58.5
4°	-1 39.7 -58.5	-1 53.0 -58.5	-2 06.3 -58.5	-2 19.7 -58.5	-2 33.1 -58.4
5°	-2 38.2 -58.5	-2 51.5 -58.5	-3 04.8 -58.5	-3 18.2 -58.4	-3 31.5 -58.5
6°	-3 36.7 -58.5	-3 50.0 -58.5	-4 03.3 -58.5	-4 16.6 -58.5	-4 30.0 -58.5
7°	-4 35.2 -58.5	-4 48.5 -58.5	-5 01.8 -58.5	-5 15.1 -58.5	-5 28.5 -58.4
8°	-5 33.7 -58.5	-5 47.0 -58.5	-6 00.3 -58.4	-6 13.6 -58.5	-6 26.9 -58.5
9°	-6 32.2 -58.5	-6 45.5 -58.4	-6 58.7 -58.5	-7 12.1 -58.4	-7 25.4 -58.5
10°	-7 30.7 -58.5	-7 43.9 -58.5	-7 57.2 -58.5	-8 10.5 -58.5	-8 23.9 -58.4
11°	-8 29.2 -58.5	-8 42.4 -58.5	-8 55.7 -58.4	-9 09.0 -58.4	-9 22.3 -58.4
12°	-9 27.7 -58.4	-9 40.9 -58.4	-9 54.1 -58.4		
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	1 07.4 -58.5 94.9	0 53.9 -58.4 93.9	0 40.5 -58.5 92.9	0 27.0 -58.5 91.9	0 13.5 -58.5 91.0
1°	0 08.9 -58.4 95.1	-0 04.5 -58.5	-0 18.0 -58.5	-0 31.5 -58.4	-0 45.0 -58.4
2°	-0 49.5 -58.5	-1 03.0 -58.5	-1 16.5 -58.4	-1 29.9 -58.5	-1 43.4 -58.5
3°	-1 48.0 -58.5	-2 01.5 -58.4	-2 14.9 -58.5	-2 28.4 -58.5	-2 41.9 -58.4
4°	-2 46.5 -58.5	-2 59.9 -58.5	-3 13.4 -58.4	-3 26.9 -58.4	-3 40.3 -58.5
5°	-3 45.0 -58.4	-3 58.4 -58.5	-4 11.8 -58.5	-4 25.3 -58.5	-4 38.8 -58.5
6°	-4 43.4 -58.5	-4 56.9 -58.4	-5 10.3 -58.5	-5 23.8 -58.4	-5 37.3 -58.4
7°	-5 41.9 -58.4	-5 55.3 -58.5	-6 08.8 -58.4	-6 22.2 -58.5	-6 35.7 -58.4
8°	-6 40.3 -58.5	-6 53.8 -58.4	-7 07.2 -58.4	-7 20.7 -58.4	-7 34.1 -58.5
9°	-7 38.8 -58.4	-7 52.2 -58.4	-8 05.6 -58.5	-8 19.1 -58.4	-8 32.6 -58.4
10°	-8 37.2 -58.5	-8 50.6 -58.5	-9 04.1 -58.4	-9 17.5 -58.4	-9 31.0 -58.4
11°	-9 35.7 -58.4	-9 49.1 -58.4			
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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 -58.5 90.0	-0 13.5 -58.5			
1°	-0 58.5 -58.4	-1 12.0 -58.4			
2°	-1 56.9 -58.5	-2 10.4 -58.5			
3°	-2 55.4 -58.4	-3 08.9 -58.4			
4°	-3 53.8 -58.5	-4 07.3 -58.5			
5°	-4 52.3 -58.4	-5 05.8 -58.4			
6°	-5 50.7 -58.5	-6 04.2 -58.5			
7°	-6 49.2 -58.4	-7 02.7 -58.4			
8°	-7 47.6 -58.4	-8 01.1 -58.4			
9°	-8 46.0 -58.5	-8 59.5 -58.5			
10°	-9 44.5 -58.4	-9 58.0 -58.4			
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°					
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°	12 00.0 -60.0 180.0	11 59.9 -60.0 179.0	11 59.6 -60.0 178.0	11 59.0 -60.0 176.9	11 58.2 -60.0 175.9
1°	11 00.0 -60.0 180.0	10 59.9 -60.0 179.0	10 59.6 -60.0 178.0	10 59.0 -60.0 176.9	10 58.2 -60.0 175.9
2°	10 00.0 -60.0 180.0	9 59.9 -60.0 179.0	9 59.6 -60.0 178.0	9 59.0 -60.0 177.0	9 58.2 -60.0 175.9
3°	9 00.0 -60.0 180.0	8 59.9 -60.0 179.0	8 59.6 -60.0 178.0	8 59.0 -60.0 177.0	8 58.2 -60.0 176.0
4°	8 00.0 -60.0 180.0	7 59.9 -60.0 179.0	7 59.6 -60.0 178.0	7 59.0 -60.0 177.0	7 58.2 -59.9 176.0
5°	7 00.0 -60.0 180.0	6 59.9 -60.0 179.0	6 59.6 -60.0 178.0	6 59.0 -60.0 177.0	6 58.3 -60.0 176.0
6°	6 00.0 -60.0 180.0	5 59.9 -60.0 179.0	5 59.6 -60.0 178.0	5 59.0 -60.0 177.0	5 58.3 -60.0 176.0
7°	5 00.0 -60.0 180.0	4 59.9 -60.0 179.0	4 59.6 -60.0 178.0	4 59.0 -60.0 177.0	4 58.3 -60.0 176.0
8°	4 00.0 -60.0 180.0	3 59.9 -60.0 179.0	3 59.6 -60.0 178.0	3 59.0 -60.0 177.0	3 58.3 -60.0 176.0
9°	3 00.0 -60.0 180.0	2 59.9 -60.0 179.0	2 59.6 -60.0 178.0	2 59.0 -60.0 177.0	2 58.3 -60.0 176.0
10°	2 00.0 -60.0 180.0	1 59.9 -60.0 179.0	1 59.6 -60.0 178.0	1 59.0 -60.0 177.0	1 58.3 -60.0 176.1
11°	1 00.0 -60.0 180.0	0 59.9 -60.0 179.0	0 59.6 -60.0 178.0	0 59.0 -60.0 177.1	0 58.3 -60.0 176.1
12°	0 00.0 -60.0 180.0	-0 00.1 -60.0	-0 00.4 -60.0	-0 01.0 -60.0	-0 01.7 -60.0
13°	-1 00.0 -60.0	-1 00.1 -60.0	-1 00.4 -60.0	-1 01.0 -60.0	-1 01.7 -60.0
14°	-2 00.0 -60.0	-2 00.1 -60.0	-2 00.4 -60.0	-2 01.0 -59.9	-2 01.7 -60.0
15°	-3 00.0 -60.0	-3 00.1 -60.0	-3 00.4 -60.0	-3 00.9 -60.0	-3 01.7 -60.0
16°	-4 00.0 -60.0	-4 00.1 -60.0	-4 00.4 -60.0	-4 00.9 -60.0	-4 01.7 -60.0
17°	-5 00.0 -60.0	-5 00.1 -60.0	-5 00.4 -60.0	-5 00.9 -60.0	-5 01.7 -60.0
18°	-6 00.0 -60.0	-6 00.1 -60.0	-6 00.4 -60.0	-6 00.9 -60.0	-6 01.7 -60.0
19°	-7 00.0 -60.0	-7 00.1 -60.0	-7 00.4 -60.0	-7 00.9 -60.0	-7 01.7 -60.0
20°	-8 00.0 -60.0	-8 00.1 -60.0	-8 00.4 -60.0	-8 00.9 -60.0	-8 01.7 -59.9
21°	-9 00.0 -60.0	-9 00.1 -60.0	-9 00.4 -60.0	-9 00.9 -60.0	-9 01.6 -60.0
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	11 57.2 -60.0 174.9	11 56.0 -60.0 173.9	11 54.6 -60.0 172.8	11 52.9 -60.0 171.8	11 51.0 -60.0 170.8
1°	10 57.2 -60.0 174.9	10 56.0 -60.0 173.9	10 54.6 -60.0 172.9	10 52.9 -60.0 171.9	10 51.0 -59.9 170.8
2°	9 57.2 -59.9 174.9	9 56.0 -60.0 173.9	9 54.6 -60.0 172.9	9 52.9 -59.9 171.9	9 51.1 -60.0 170.9
3°	8 57.3 -60.0 174.9	8 56.0 -59.9 173.9	8 54.6 -60.0 172.9	8 53.0 -60.0 171.9	8 51.1 -60.0 170.9
4°	7 57.3 -60.0 175.0	7 56.1 -60.0 174.0	7 54.6 -59.9 172.9	7 53.0 -60.0 171.9	7 51.1 -59.9 170.9
5°	6 57.3 -60.0 175.0	6 56.1 -60.0 174.0	6 54.7 -60.0 173.0	6 53.0 -60.0 172.0	6 51.2 -60.0 171.0
6°	5 57.3 -60.0 175.0	5 56.1 -60.0 174.0	5 54.7 -60.0 173.0	5 53.0 -59.9 172.0	5 51.2 -60.0 171.0
7°	4 57.3 -60.0 175.0	4 56.1 -60.0 174.0	4 54.7 -60.0 173.0	4 53.1 -60.0 172.0	4 51.2 -59.9 171.0
8°	3 57.3 -60.0 175.0	3 56.1 -60.0 174.0	3 54.7 -60.0 173.1	3 53.1 -60.0 172.1	3 51.3 -60.0 171.1
9°	2 57.3 -60.0 175.1	2 56.1 -60.0 174.1	2 54.7 -59.9 173.1	2 53.1 -60.0 172.1	2 51.3 -60.0 171.1
10°	1 57.3 -60.0 175.1	1 56.1 -59.9 174.1	1 54.8 -60.0 173.1	1 53.1 -59.9 172.1	1 51.3 -59.9 171.1
11°	0 57.3 -60.0 175.1	0 56.2 -60.0 174.1	0 54.8 -60.0 173.1	0 53.2 -60.0 172.1	0 51.4 -60.0 171.2
12°	-0 02.7 -60.0	-0 03.8 -60.0	-0 05.2 -60.0	-0 06.8 -60.0	-0 08.6 -60.0
13°	-1 02.7 -59.9	-1 03.8 -60.0	-1 05.2 -60.0	-1 06.8 -60.0	-1 08.6 -59.9
14°	-2 02.6 -60.0	-2 03.8 -60.0	-2 05.2 -60.0	-2 06.8 -59.9	-2 08.5 -60.0
15°	-3 02.6 -60.0	-3 03.8 -60.0	-3 05.2 -59.9	-3 06.7 -60.0	-3 08.5 -60.0
16°	-4 02.6 -60.0	-4 03.8 -60.0	-4 05.1 -60.0	-4 06.7 -60.0	-4 08.5 -59.9
17°	-5 02.6 -60.0	-5 03.8 -59.9	-5 05.1 -60.0	-5 06.7 -60.0	-5 08.4 -60.0
18°	-6 02.6 -60.0	-6 03.7 -60.0	-6 05.1 -60.0	-6 06.7 -59.9	-6 08.4 -60.0
19°	-7 02.6 -60.0	-7 03.7 -60.0	-7 05.1 -60.0	-7 06.6 -60.0	-7 08.4 -60.0
20°	-8 02.6 -60.0	-8 03.7 -60.0	-8 05.1 -59.9	-8 06.6 -60.0	-8 08.4 -59.9
21°	-9 02.6 -60.0	-9 03.7 -60.0	-9 05.0 -60.0	-9 06.6 -59.9	-9 08.3 -60.0
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	11 48.9 -60.0 169.8	11 46.6 -60.0 168.8	11 44.0 -59.9 167.7	11 41.3 -59.9 166.7	11 38.3 -59.9 165.7
1°	10 48.9 -59.9 169.8	10 46.6 -59.9 168.8	10 44.1 -59.9 167.8	10 41.4 -60.0 166.8	10 38.4 -59.9 165.8
2°	9 49.0 -60.0 169.9	9 46.7 -60.0 168.8	9 44.2 -60.0 167.8	9 41.4 -59.9 166.8	9 38.5 -60.0 165.8
3°	8 49.0 -59.9 169.9	8 46.7 -59.9 168.9	8 44.2 -59.9 167.9	8 41.5 -59.9 166.9	8 38.5 -59.9 165.9
4°	7 49.1 -60.0 169.9	7 46.8 -60.0 168.9	7 44.3 -60.0 167.9	7 41.6 -60.0 166.9	7 38.6 -59.9 165.9
5°	6 49.1 -60.0 170.0	6 46.8 -59.9 169.0	6 44.3 -59.9 168.0	6 41.6 -59.9 167.0	6 38.7 -59.9 166.0
6°	5 49.1 -59.9 170.0	5 46.9 -60.0 169.0	5 44.4 -60.0 168.0	5 41.7 -59.9 167.0	5 38.8 -59.9 166.0
7°	4 49.2 -60.0 170.0	4 46.9 -59.9 169.0	4 44.4 -59.9 168.0	4 41.8 -60.0 167.1	4 38.9 -60.0 166.1
8°	3 49.2 -59.9 170.1	3 47.0 -60.0 169.1	3 44.5 -59.9 168.1	3 41.8 -59.9 167.1	3 38.9 -59.9 166.1
9°	2 49.3 -60.0 170.1	2 47.0 -59.9 169.1	2 44.6 -60.0 168.1	2 41.9 -60.0 167.1	2 39.0 -59.9 166.2
10°	1 49.3 -60.0 170.1	1 47.1 -60.0 169.2	1 44.6 -59.9 168.2	1 41.9 -59.9 167.2	1 39.1 -59.9 166.2
11°	0 49.3 -59.9 170.2	0 47.1 -59.9 169.2	0 44.7 -60.0 168.2	0 42.0 -59.9 167.2	0 39.2 -60.0 166.3
12°	-0 10.6 -60.0	-0 12.8 -60.0	-0 15.3 -59.9	-0 17.9 -60.0	-0 20.8 -59.9
13°	-1 10.6 -59.9	-1 12.8 -60.0	-1 15.2 -60.0	-1 17.9 -59.9	-1 20.7 -59.9
14°	-2 10.5 -60.0	-2 12.8 -59.9	-2 15.2 -59.9	-2 17.8 -59.9	-2 20.6 -59.9
15°	-3 10.5 -60.0	-3 12.7 -60.0	-3 15.1 -60.0	-3 17.7 -60.0	-3 20.5 -60.0
16°	-4 10.5 -59.9	-4 12.7 -59.9	-4 15.1 -59.9	-4 17.7 -59.9	-4 20.5 -59.9
17°	-5 10.4 -60.0	-5 12.6 -60.0	-5 15.0 -59.9	-5 17.6 -59.9	-5 20.4 -59.9
18°	-6 10.4 -59.9	-6 12.6 -59.9	-6 14.9 -60.0	-6 17.5 -60.0	-6 20.3 -59.9
19°	-7 10.3 -60.0	-7 12.5 -60.0	-7 14.9 -59.9	-7 17.5 -59.9	-7 20.2 -60.0
20°	-8 10.3 -60.0	-8 12.5 -59.9	-8 14.8 -60.0	-8 17.4 -59.9	-8 20.2 -59.9
21°	-9 10.3 -59.9	-9 12.4 -60.0	-9 14.8 -59.9	-9 17.3 -60.0	-9 20.1 -59.9
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	11 35.1 -59.9 164.7	11 31.7 -59.9 163.7	11 28.1 -59.9 162.6	11 24.3 -59.9 161.6	11 20.2 -59.8 160.6
1°	10 35.2 -59.9 164.7	10 31.8 -59.9 163.7	10 28.2 -59.9 162.7	10 24.4 -59.9 161.7	10 20.4 -59.9 160.7
2°	9 35.3 -59.9 164.8	9 31.9 -59.9 163.8	9 28.3 -59.9 162.8	9 24.5 -59.8 161.8	9 20.5 -59.8 160.7
3°	8 35.4 -59.9 164.8	8 32.0 -59.9 163.8	8 28.4 -59.8 162.8	8 24.7 -59.9 161.8	8 20.7 -59.9 160.8
4°	7 35.5 -59.9 164.9	7 32.1 -59.9 163.9	7 28.6 -59.9 162.9	7 24.8 -59.9 161.9	7 20.8 -59.9 160.9
5°	6 35.6 -59.9 165.0	6 32.2 -59.9 164.0	6 28.7 -59.9 163.0	6 24.9 -59.9 162.0	6 20.9 -59.8 161.0
6°	5 35.7 -60.0 165.0	5 32.3 -59.9 164.0	5 28.8 -59.9 163.0	5 25.0 -59.8 162.0	5 21.1 -59.9 161.0
7°	4 35.7 -59.9 165.1	4 32.4 -59.9 164.1	4 28.9 -59.9 163.1	4 25.2 -59.9 162.1	4 21.2 -59.8 161.1
8°	3 35.8 -59.9 165.1	3 32.5 -59.9 164.1	3 29.0 -59.9 163.1	3 25.3 -59.9 162.1	3 21.4 -59.9 161.2
9°	2 35.9 -59.9 165.2	2 32.6 -59.9 164.2	2 29.1 -59.9 163.2	2 25.4 -59.9 162.2	2 21.5 -59.9 161.2
10°	1 36.0 -59.9 165.2	1 32.7 -59.9 164.2	1 29.2 -59.9 163.3	1 25.5 -59.8 162.3	1 21.6 -59.8 161.3
11°	0 36.1 -59.9 165.3	0 32.8 -59.9 164.3	0 29.3 -59.8 163.3	0 25.7 -59.9 162.3	0 21.8 -59.9 161.4
12°	-0 23.8 -59.9	-0 27.1 -59.9	-0 30.5 -59.9	-0 34.2 -59.9	-0 38.1 -59.9
13°	-1 23.7 -59.9	-1 27.0 -59.9	-1 30.4 -59.9	-1 34.1 -59.9	-1 38.0 -59.8
14°	-2 23.6 -60.0	-2 26.9 -59.9	-2 30.3 -59.9	-2 34.0 -59.8	-2 37.8 -59.9
15°	-3 23.6 -59.9	-3 26.8 -59.9	-3 30.2 -59.9	-3 33.8 -59.9	-3 37.7 -59.8
16°	-4 23.5 -59.9	-4 26.7 -59.9	-4 30.1 -59.9	-4 33.7 -59.9	-4 37.5 -59.9
17°	-5 23.4 -59.9	-5 26.6 -59.9	-5 30.0 -59.9	-5 33.6 -59.9	-5 37.4 -59.9
18°	-6 23.3 -59.9	-6 26.5 -59.9	-6 29.9 -59.9	-6 33.5 -59.8	-6 37.3 -59.8
19°	-7 23.2 -59.9	-7 26.4 -59.9	-7 29.8 -59.9	-7 33.3 -59.9	-7 37.1 -59.9
20°	-8 23.1 -59.9	-8 26.3 -59.9	-8 29.7 -59.8	-8 33.2 -59.9	-8 37.0 -59.8
21°	-9 23.0 -59.9	-9 26.2 -59.9	-9 29.5 -59.9	-9 33.1 -59.9	-9 36.8 -59.9
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	11 16.0 -59.9 159.6	11 11.5 -59.8 158.6	11 06.9 -59.8 157.6	11 02.0 -59.8 156.5	10 56.9 -59.7 155.5
1°	10 16.1 -59.8 159.7	10 11.7 -59.8 158.7	10 07.1 -59.8 157.6	10 02.2 -59.8 156.6	9 57.2 -59.8 155.6
2°	9 16.3 -59.8 159.7	9 11.9 -59.8 158.7	9 07.3 -59.9 157.7	9 02.4 -59.8 156.7	8 57.4 -59.8 155.7
3°	8 16.5 -59.9 159.8	8 12.1 -59.9 158.8	8 07.4 -59.8 157.8	8 02.6 -59.8 156.8	7 57.6 -59.8 155.8
4°	7 16.6 -59.8 159.9	7 12.2 -59.8 158.9	7 07.6 -59.8 157.9	7 02.8 -59.8 156.9	6 57.8 -59.8 155.9
5°	6 16.8 -59.9 160.0	6 12.4 -59.8 159.0	6 07.8 -59.8 158.0	6 03.0 -59.8 157.0	5 58.0 -59.7 156.0
6°	5 16.9 -59.8 160.0	5 12.6 -59.9 159.0	5 08.0 -59.8 158.0	5 03.2 -59.8 157.0	4 58.3 -59.8 156.0
7°	4 17.1 -59.9 160.1	4 12.7 -59.8 159.1	4 08.2 -59.8 158.1	4 03.4 -59.8 157.1	3 58.5 -59.8 156.1
8°	3 17.2 -59.8 160.2	3 12.9 -59.8 159.2	3 08.4 -59.9 158.2	3 03.6 -59.8 157.2	2 58.7 -59.8 156.2
9°	2 17.4 -59.9 160.2	2 13.1 -59.9 159.3	2 08.5 -59.8 158.3	2 03.8 -59.8 157.3	1 58.9 -59.8 156.3
10°	1 17.5 -59.8 160.3	1 13.2 -59.8 159.3	1 08.7 -59.8 158.3	1 04.0 -59.8 157.4	0 59.1 -59.8 156.4
11°	0 17.7 -59.9 160.4	0 13.4 -59.8 159.4	0 08.9 -59.8 158.4	0 04.2 -59.8 157.4	-0 00.7 -59.7
12°	-0 42.2 -59.8	-0 46.4 -59.9	-0 50.9 -59.8	-0 55.6 -59.8	-1 00.4 -59.8
13°	-1 42.0 -59.9	-1 46.3 -59.8	-1 50.7 -59.8	-1 55.4 -59.8	-2 00.2 -59.8
14°	-2 41.9 -59.8	-2 46.1 -59.8	-2 50.5 -59.9	-2 55.2 -59.8	-3 00.0 -59.8
15°	-3 41.7 -59.9	-3 45.9 -59.9	-3 50.4 -59.8	-3 55.0 -59.8	-3 59.8 -59.8
16°	-4 41.6 -59.8	-4 45.8 -59.8	-4 50.2 -59.8	-4 54.8 -59.8	-4 59.6 -59.8
17°	-5 41.4 -59.8	-5 45.6 -59.8	-5 50.0 -59.8	-5 54.6 -59.8	-5 59.4 -59.7
18°	-6 41.2 -59.9	-6 45.4 -59.9	-6 49.8 -59.8	-6 54.4 -59.8	-6 59.1 -59.8
19°	-7 41.1 -59.8	-7 45.3 -59.8	-7 49.6 -59.8	-7 54.2 -59.8	-7 58.9 -59.8
20°	-8 40.9 -59.9	-8 45.1 -59.8	-8 49.4 -59.9	-8 54.0 -59.8	-8 58.7 -59.8
21°	-9 40.8 -59.8	-9 44.9 -59.8	-9 49.3 -59.8	-9 53.8 -59.8	-9 58.5 -59.8
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	10 51.7 -59.8 154.5	10 46.2 -59.7 153.5	10 40.5 -59.7 152.5	10 34.7 -59.7 151.5	10 28.6 -59.7 150.5
1°	9 51.9 -59.7 154.6	9 46.5 -59.8 153.6	9 40.8 -59.7 152.6	9 35.0 -59.7 151.6	9 28.9 -59.6 150.6
2°	8 52.2 -59.8 154.7	8 46.7 -59.7 153.7	8 41.1 -59.7 152.7	8 35.3 -59.7 151.7	8 29.3 -59.7 150.7
3°	7 52.4 -59.8 154.8	7 47.0 -59.8 153.8	7 41.4 -59.8 152.8	7 35.6 -59.7 151.8	7 29.6 -59.7 150.8
4°	6 52.6 -59.7 154.9	6 47.2 -59.7 153.9	6 41.6 -59.7 152.9	6 35.9 -59.8 151.9	6 29.9 -59.7 150.9
5°	5 52.9 -59.8 155.0	5 47.5 -59.8 154.0	5 41.9 -59.7 153.0	5 36.1 -59.7 152.0	5 30.2 -59.7 151.0
6°	4 53.1 -59.8 155.0	4 47.7 -59.7 154.1	4 42.2 -59.7 153.1	4 36.4 -59.7 152.1	4 30.5 -59.7 151.1
7°	3 53.3 -59.7 155.1	3 48.0 -59.8 154.1	3 42.5 -59.8 153.2	3 36.7 -59.7 152.2	3 30.8 -59.7 151.2
8°	2 53.6 -59.8 155.2	2 48.2 -59.7 154.2	2 42.7 -59.7 153.3	2 37.0 -59.7 152.3	2 31.1 -59.7 151.3
9°	1 53.8 -59.8 155.3	1 48.5 -59.8 154.3	1 43.0 -59.7 153.3	1 37.3 -59.7 152.4	1 31.4 -59.7 151.4
10°	0 54.0 -59.7 155.4	0 48.7 -59.7 154.4	0 43.3 -59.8 153.4	0 37.6 -59.7 152.5	0 31.7 -59.7 151.5
11°	-0 05.7 -59.8	-0 11.0 -59.8	-0 16.5 -59.7	-0 22.1 -59.7	-0 28.0 -59.7
12°	-1 05.5 -59.8	-1 10.8 -59.7	-1 16.2 -59.7	-1 21.8 -59.8	-1 27.7 -59.7
13°	-2 05.3 -59.7	-2 10.5 -59.8	-2 15.9 -59.8	-2 21.6 -59.7	-2 27.4 -59.7
14°	-3 05.0 -59.8	-3 10.3 -59.7	-3 15.7 -59.7	-3 21.3 -59.7	-3 27.1 -59.6
15°	-4 04.8 -59.8	-4 10.0 -59.8	-4 15.4 -59.7	-4 21.0 -59.7	-4 26.7 -59.7
16°	-5 04.6 -59.7	-5 09.8 -59.7	-5 15.1 -59.8	-5 20.7 -59.7	-5 26.4 -59.7
17°	-6 04.3 -59.8	-6 09.5 -59.8	-6 14.9 -59.7	-6 20.4 -59.7	-6 26.1 -59.7
18°	-7 04.1 -59.8	-7 09.3 -59.7	-7 14.6 -59.7	-7 20.1 -59.7	-7 25.8 -59.7
19°	-8 03.9 -59.7	-8 09.0 -59.7	-8 14.3 -59.7	-8 19.8 -59.7	-8 25.5 -59.7
20°	-9 03.6 -59.8	-9 08.7 -59.8	-9 14.0 -59.8	-9 19.5 -59.7	-9 25.2 -59.7
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	10 22.4 -59.7 149.4	10 15.9 -59.6 148.4	10 09.3 -59.6 147.4	10 02.5 -59.6 146.4	9 55.5 -59.6 145.4
1°	9 22.7 -59.6 149.6	9 16.3 -59.6 148.5	9 09.7 -59.6 147.5	9 02.9 -59.6 146.5	8 55.9 -59.5 145.5
2°	8 23.1 -59.7 149.7	8 16.7 -59.7 148.7	8 10.1 -59.7 147.7	8 03.3 -59.6 146.7	7 56.4 -59.6 145.6
3°	7 23.4 -59.7 149.8	7 17.0 -59.6 148.8	7 10.4 -59.6 147.8	7 03.7 -59.6 146.8	6 56.8 -59.6 145.8
4°	6 23.7 -59.7 149.9	6 17.4 -59.7 148.9	6 10.8 -59.6 147.9	6 04.1 -59.6 146.9	5 57.2 -59.6 145.9
5°	5 24.0 -59.6 150.0	5 17.7 -59.6 149.0	5 11.2 -59.6 148.0	5 04.5 -59.6 147.0	4 57.6 -59.6 146.0
6°	4 24.4 -59.7 150.1	4 18.1 -59.7 149.1	4 11.6 -59.7 148.1	4 04.9 -59.6 147.1	3 58.0 -59.6 146.1
7°	3 24.7 -59.7 150.2	3 18.4 -59.7 149.2	3 11.9 -59.6 148.2	3 05.3 -59.7 147.2	2 58.4 -59.6 146.2
8°	2 25.0 -59.7 150.3	2 18.7 -59.6 149.3	2 12.3 -59.6 148.3	2 05.6 -59.6 147.3	1 58.8 -59.6 146.4
9°	1 25.3 -59.6 150.4	1 19.1 -59.7 149.4	1 12.7 -59.7 148.4	1 06.0 -59.6 147.5	0 59.2 -59.6 146.5
10°	0 25.7 -59.7 150.5	0 19.4 -59.6 149.5	0 13.0 -59.6 148.5	0 06.4 -59.6 147.6	-0 00.4 -59.6
11°	-0 34.0 -59.7	-0 40.2 -59.7	-0 46.6 -59.7	-0 53.2 -59.6	-1 00.0 -59.5
12°	-1 33.7 -59.7	-1 39.9 -59.6	-1 46.3 -59.6	-1 52.8 -59.6	-1 59.5 -59.6
13°	-2 33.4 -59.6	-2 39.5 -59.7	-2 45.9 -59.6	-2 52.4 -59.6	-2 59.1 -59.6
14°	-3 33.0 -59.7	-3 39.2 -59.6	-3 45.5 -59.7	-3 52.0 -59.6	-3 58.7 -59.6
15°	-4 32.7 -59.7	-4 38.8 -59.7	-4 45.2 -59.6	-4 51.6 -59.7	-4 58.3 -59.6
16°	-5 32.4 -59.6	-5 38.5 -59.6	-5 44.8 -59.6	-5 51.3 -59.6	-5 57.9 -59.6
17°	-6 32.0 -59.7	-6 38.1 -59.7	-6 44.4 -59.6	-6 50.9 -59.6	-6 57.5 -59.6
18°	-7 31.7 -59.7	-7 37.8 -59.6	-7 44.0 -59.7	-7 50.5 -59.6	-7 57.1 -59.6
19°	-8 31.4 -59.6	-8 37.4 -59.7	-8 43.7 -59.6	-8 50.1 -59.6	-8 56.7 -59.6
20°	-9 31.0 -59.7	-9 37.1 -59.6	-9 43.3 -59.6	-9 49.7 -59.6	-9 56.3 -59.5
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	9 48.4 -59.6 144.4	9 41.0 -59.5 143.4	9 33.5 -59.5 142.4	9 25.8 -59.5 141.4	9 17.9 -59.5 140.4
1°	8 48.8 -59.6 144.5	8 41.5 -59.6 143.5	8 34.0 -59.6 142.5	8 26.3 -59.5 141.5	8 18.4 -59.4 140.5
2°	7 49.2 -59.5 144.6	7 41.9 -59.5 143.6	7 34.4 -59.5 142.6	7 26.8 -59.5 141.6	7 19.0 -59.5 140.6
3°	6 49.7 -59.6 144.8	6 42.4 -59.6 143.8	6 34.9 -59.5 142.8	6 27.3 -59.5 141.8	6 19.5 -59.5 140.8
4°	5 50.1 -59.6 144.9	5 42.8 -59.5 143.9	5 35.4 -59.5 142.9	5 27.8 -59.5 141.9	5 20.0 -59.5 140.9
5°	4 50.5 -59.5 145.0	4 43.3 -59.6 144.0	4 35.9 -59.6 143.0	4 28.3 -59.5 142.0	4 20.5 -59.5 141.0
6°	3 51.0 -59.6 145.1	3 43.7 -59.5 144.1	3 36.3 -59.5 143.2	3 28.8 -59.5 142.2	3 21.0 -59.4 141.2
7°	2 51.4 -59.6 145.2	2 44.2 -59.6 144.3	2 36.8 -59.5 143.3	2 29.3 -59.5 142.3	2 21.6 -59.5 141.3
8°	1 51.8 -59.5 145.4	1 44.6 -59.5 144.4	1 37.3 -59.5 143.4	1 29.8 -59.5 142.4	1 22.1 -59.5 141.4
9°	0 52.3 -59.6 145.5	0 45.1 -59.6 144.5	0 37.8 -59.6 143.5	0 30.3 -59.5 142.5	0 22.6 -59.5 141.6
10°	-0 07.3 -59.6	-0 14.5 -59.5	-0 21.8 -59.5	-0 29.2 -59.5	-0 36.9 -59.5
11°	-1 06.9 -59.6	-1 14.0 -59.6	-1 21.3 -59.5	-1 28.7 -59.6	-1 36.4 -59.5
12°	-2 06.5 -59.5	-2 13.6 -59.5	-2 20.8 -59.5	-2 28.3 -59.5	-2 35.9 -59.4
13°	-3 06.0 -59.6	-3 13.1 -59.6	-3 20.3 -59.6	-3 27.8 -59.5	-3 35.3 -59.5
14°	-4 05.6 -59.6	-4 12.7 -59.5	-4 19.9 -59.5	-4 27.3 -59.5	-4 34.8 -59.5
15°	-5 05.2 -59.5	-5 12.2 -59.5	-5 19.4 -59.5	-5 26.8 -59.5	-5 34.3 -59.5
16°	-6 04.7 -59.6	-6 11.7 -59.6	-6 18.9 -59.5	-6 26.3 -59.5	-6 33.8 -59.5
17°	-7 04.3 -59.6	-7 11.3 -59.5	-7 18.4 -59.6	-7 25.8 -59.5	-7 33.3 -59.4
18°	-8 03.9 -59.5	-8 10.8 -59.6	-8 18.0 -59.5	-8 25.3 -59.5	-8 32.7 -59.5
19°	-9 03.4 -59.6	-9 10.4 -59.5	-9 17.5 -59.5	-9 24.8 -59.4	-9 32.2 -59.5
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	9 09.9 -59.5 139.4	9 01.7 -59.5 138.4	8 53.3 -59.4 137.4	8 44.8 -59.4 136.4	8 36.1 -59.4 135.4
1°	8 10.4 -59.4 139.5	8 02.2 -59.4 138.5	7 53.9 -59.4 137.5	7 45.4 -59.4 136.5	7 36.7 -59.3 135.5
2°	7 11.0 -59.5 139.6	7 02.8 -59.4 138.7	6 54.5 -59.4 137.7	6 46.0 -59.4 136.7	6 37.4 -59.4 135.7
3°	6 11.5 -59.4 139.8	6 03.4 -59.5 138.8	5 55.1 -59.4 137.8	5 46.6 -59.4 136.8	5 38.0 -59.4 135.8
4°	5 12.1 -59.5 139.9	5 03.9 -59.4 138.9	4 55.7 -59.4 137.9	4 47.2 -59.4 136.9	4 38.6 -59.3 136.0
5°	4 12.6 -59.5 140.1	4 04.5 -59.4 139.1	3 56.3 -59.5 138.1	3 47.8 -59.4 137.1	3 39.3 -59.4 136.1
6°	3 13.1 -59.4 140.2	3 05.1 -59.5 139.2	2 56.8 -59.4 138.2	2 48.4 -59.3 137.2	2 39.9 -59.4 136.2
7°	2 13.7 -59.5 140.3	2 05.6 -59.4 139.3	1 57.4 -59.4 138.4	1 49.1 -59.4 137.4	1 40.5 -59.3 136.4
8°	1 14.2 -59.4 140.5	1 06.2 -59.4 139.5	0 58.0 -59.4 138.5	0 49.7 -59.4 137.5	0 41.2 -59.4 136.5
9°	0 14.8 -59.5 140.6	0 06.8 -59.5 139.6	-0 01.4 -59.4	-0 09.7 -59.4	-0 18.2 -59.4
10°	-0 44.7 -59.5	-0 52.7 -59.4	-1 00.8 -59.4	-1 09.1 -59.4	-1 17.6 -59.4
11°	-1 44.2 -59.4	-1 52.1 -59.5	-2 00.2 -59.5	-2 08.5 -59.4	-2 17.0 -59.3
12°	-2 43.6 -59.5	-2 51.6 -59.4	-2 59.7 -59.4	-3 07.9 -59.4	-3 16.3 -59.4
13°	-3 43.1 -59.4	-3 51.0 -59.4	-3 59.1 -59.4	-4 07.3 -59.4	-4 15.7 -59.4
14°	-4 42.5 -59.5	-4 50.4 -59.5	-4 58.5 -59.4	-5 06.7 -59.4	-5 15.1 -59.3
15°	-5 42.0 -59.5	-5 49.9 -59.4	-5 57.9 -59.4	-6 06.1 -59.4	-6 14.4 -59.4
16°	-6 41.5 -59.4	-6 49.3 -59.4	-6 57.3 -59.4	-7 05.5 -59.3	-7 13.8 -59.3
17°	-7 40.9 -59.5	-7 48.7 -59.5	-7 56.7 -59.4	-8 04.8 -59.4	-8 13.1 -59.4
18°	-8 40.4 -59.4	-8 48.2 -59.4	-8 56.1 -59.4	-9 04.2 -59.4	-9 12.5 -59.4
19°	-9 39.8 -59.5	-9 47.6 -59.4	-9 55.5 -59.4		
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	8 27.2 -59.3 134.4	8 18.2 -59.3 133.4	8 09.1 -59.3 132.4	7 59.8 -59.3 131.4	7 50.4 -59.3 130.4
1°	7 27.9 -59.3 134.5	7 18.9 -59.3 133.5	7 09.8 -59.3 132.5	7 00.5 -59.2 131.5	6 51.1 -59.2 130.5
2°	6 28.6 -59.4 134.7	6 19.6 -59.3 133.7	6 10.5 -59.3 132.7	6 01.3 -59.3 131.7	5 51.9 -59.3 130.7
3°	5 29.2 -59.3 134.8	5 20.3 -59.3 133.8	5 11.2 -59.3 132.8	5 02.0 -59.3 131.8	4 52.6 -59.2 130.9
4°	4 29.9 -59.4 135.0	4 21.0 -59.3 134.0	4 11.9 -59.3 133.0	4 02.7 -59.2 132.0	3 53.4 -59.3 131.0
5°	3 30.5 -59.3 135.1	3 21.7 -59.4 134.1	3 12.6 -59.3 133.1	3 03.5 -59.3 132.2	2 54.1 -59.2 131.2
6°	2 31.2 -59.4 135.3	2 22.3 -59.3 134.3	2 13.3 -59.3 133.3	2 04.2 -59.3 132.3	1 54.9 -59.3 131.3
7°	1 31.8 -59.3 135.4	1 23.0 -59.3 134.4	1 14.0 -59.3 133.4	1 04.9 -59.3 132.5	0 55.6 -59.2 131.5
8°	0 32.5 -59.3 135.6	0 23.7 -59.3 134.6	0 14.7 -59.3 133.6	0 05.6 -59.3 132.6	-0 03.6 -59.3
9°	-0 26.8 -59.4	-0 35.6 -59.4	-0 44.6 -59.3	-0 53.7 -59.2	-1 02.9 -59.2
10°	-1 26.2 -59.3	-1 35.0 -59.3	-1 43.9 -59.3	-1 52.9 -59.3	-2 02.1 -59.3
11°	-2 25.5 -59.4	-2 34.3 -59.3	-2 43.2 -59.3	-2 52.2 -59.3	-3 01.4 -59.3
12°	-3 24.9 -59.3	-3 33.6 -59.3	-3 42.5 -59.3	-3 51.5 -59.3	-4 00.7 -59.2
13°	-4 24.2 -59.4	-4 32.9 -59.4	-4 41.8 -59.3	-4 50.8 -59.2	-4 59.9 -59.3
14°	-5 23.6 -59.3	-5 32.3 -59.3	-5 41.1 -59.3	-5 50.0 -59.3	-5 59.2 -59.2
15°	-6 22.9 -59.4	-6 31.6 -59.3	-6 40.4 -59.3	-6 49.3 -59.3	-6 58.4 -59.2
16°	-7 22.3 -59.3	-7 30.9 -59.3	-7 39.7 -59.2	-7 48.6 -59.2	-7 57.6 -59.3
17°	-8 21.6 -59.3	-8 30.2 -59.3	-8 38.9 -59.3	-8 47.8 -59.3	-8 56.9 -59.2
18°	-9 20.9 -59.4	-9 29.5 -59.3	-9 38.2 -59.3	-9 47.1 -59.3	-9 56.1 -59.3
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	7 40.8 -59.2 129.4	7 31.1 -59.2 128.4	7 21.3 -59.2 127.4	7 11.3 -59.2 126.4	7 01.2 -59.2 125.4
1°	6 41.6 -59.2 129.5	6 31.9 -59.2 128.5	6 22.1 -59.2 127.6	6 12.1 -59.1 126.6	6 02.0 -59.1 125.6
2°	5 42.4 -59.3 129.7	5 32.7 -59.2 128.7	5 22.9 -59.2 127.7	5 13.0 -59.2 126.7	5 02.9 -59.1 125.7
3°	4 43.1 -59.2 129.9	4 33.5 -59.2 128.9	4 23.7 -59.2 127.9	4 13.8 -59.2 126.9	4 03.8 -59.2 125.9
4°	3 43.9 -59.2 130.0	3 34.3 -59.2 129.0	3 24.5 -59.2 128.0	3 14.6 -59.1 127.1	3 04.6 -59.1 126.1
5°	2 44.7 -59.3 130.2	2 35.1 -59.2 129.2	2 25.3 -59.1 128.2	2 15.5 -59.2 127.2	2 05.5 -59.2 126.2
6°	1 45.4 -59.2 130.3	1 35.9 -59.2 129.4	1 26.2 -59.2 128.4	1 16.3 -59.2 127.4	1 06.3 -59.1 126.4
7°	0 46.2 -59.2 130.5	0 36.7 -59.3 129.5	0 27.0 -59.2 128.5	0 17.1 -59.1 127.6	0 07.2 -59.2 126.6
8°	-0 13.0 -59.3	-0 22.6 -59.2	-0 32.2 -59.2	-0 42.0 -59.2	-0 52.0 -59.1
9°	-1 12.3 -59.2	-1 21.8 -59.2	-1 31.4 -59.2	-1 41.2 -59.2	-1 51.1 -59.1
10°	-2 11.5 -59.2	-2 21.0 -59.2	-2 30.6 -59.2	-2 40.4 -59.1	-2 50.2 -59.2
11°	-3 10.7 -59.3	-3 20.2 -59.2	-3 29.8 -59.2	-3 39.5 -59.2	-3 49.4 -59.1
12°	-4 10.0 -59.2	-4 19.4 -59.2	-4 29.0 -59.2	-4 38.7 -59.1	-4 48.5 -59.2
13°	-5 09.2 -59.2	-5 18.6 -59.2	-5 28.2 -59.1	-5 37.8 -59.2	-5 47.7 -59.1
14°	-6 08.4 -59.2	-6 17.8 -59.2	-6 27.3 -59.2	-6 37.0 -59.2	-6 46.8 -59.1
15°	-7 07.6 -59.3	-7 17.0 -59.2	-7 26.5 -59.2	-7 36.2 -59.1	-7 45.9 -59.2
16°	-8 06.9 -59.2	-8 16.2 -59.2	-8 25.7 -59.2	-8 35.3 -59.2	-8 45.1 -59.1
17°	-9 06.1 -59.2	-9 15.4 -59.2	-9 24.9 -59.1	-9 34.5 -59.1	-9 44.2 -59.1
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	6 50.9 -59.1 124.4	6 40.6 -59.1 123.4	6 30.1 -59.1 122.4	6 19.5 -59.0 121.4	6 08.8 -59.0 120.4
1°	5 51.8 -59.1 124.6	5 41.5 -59.1 123.6	5 31.0 -59.0 122.6	5 20.5 -59.1 121.6	5 09.8 -59.0 120.6
2°	4 52.7 -59.1 124.8	4 42.4 -59.1 123.8	4 32.0 -59.1 122.8	4 21.4 -59.0 121.8	4 10.8 -59.1 120.8
3°	3 53.6 -59.1 124.9	3 43.3 -59.1 123.9	3 32.9 -59.1 123.0	3 22.4 -59.1 122.0	3 11.7 -59.0 121.0
4°	2 54.5 -59.1 125.1	2 44.2 -59.1 124.1	2 33.8 -59.1 123.1	2 23.3 -59.0 122.1	2 12.7 -59.0 121.2
5°	1 55.4 -59.2 125.3	1 45.1 -59.1 124.3	1 34.7 -59.0 123.3	1 24.3 -59.1 122.3	1 13.7 -59.1 121.3
6°	0 56.2 -59.1 125.4	0 46.0 -59.1 124.5	0 35.7 -59.1 123.5	0 25.2 -59.1 122.5	0 14.6 -59.0 121.5
7°	-0 02.9 -59.1	-0 13.1 -59.1	-0 23.4 -59.1	-0 33.9 -59.0	-0 44.4 -59.1
8°	-1 02.0 -59.1	-1 12.2 -59.1	-1 22.5 -59.1	-1 32.9 -59.1	-1 43.5 -59.0
9°	-2 01.1 -59.2	-2 11.3 -59.1	-2 21.6 -59.1	-2 32.0 -59.0	-2 42.5 -59.0
10°	-3 00.3 -59.1	-3 10.4 -59.1	-3 20.7 -59.0	-3 31.0 -59.1	-3 41.5 -59.1
11°	-3 59.4 -59.1	-4 09.5 -59.1	-4 19.7 -59.1	-4 30.1 -59.0	-4 40.6 -59.0
12°	-4 58.5 -59.1	-5 08.6 -59.1	-5 18.8 -59.1	-5 29.1 -59.1	-5 39.6 -59.0
13°	-5 57.6 -59.1	-6 07.7 -59.1	-6 17.9 -59.1	-6 28.2 -59.0	-6 38.6 -59.1
14°	-6 56.7 -59.1	-7 06.8 -59.1	-7 17.0 -59.0	-7 27.2 -59.1	-7 37.7 -59.0
15°	-7 55.8 -59.1	-8 05.9 -59.0	-8 16.0 -59.1	-8 26.3 -59.0	-8 36.7 -59.0
16°	-8 54.9 -59.1	-9 04.9 -59.1	-9 15.1 -59.0	-9 25.3 -59.1	-9 35.7 -59.0
17°	-9 54.0 -59.1				
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	5 58.0 -59.0 119.5	5 47.1 -59.0 118.5	5 36.1 -59.0 117.5	5 25.0 -59.0 116.5	5 13.8 -59.0 115.5
1°	4 59.0 -59.0 119.6	4 48.1 -59.0 118.6	4 37.1 -59.0 117.7	4 26.0 -58.9 116.7	4 14.8 -58.9 115.7
2°	4 00.0 -59.0 119.8	3 49.1 -59.0 118.8	3 38.1 -58.9 117.8	3 27.1 -59.0 116.9	3 15.9 -59.0 115.9
3°	3 01.0 -59.0 120.0	2 50.1 -59.0 119.0	2 39.2 -59.0 118.0	2 28.1 -59.0 117.0	2 16.9 -58.9 116.1
4°	2 02.0 -59.1 120.2	1 51.1 -59.0 119.2	1 40.2 -59.0 118.2	1 29.1 -58.9 117.2	1 18.0 -58.9 116.3
5°	1 02.9 -59.0 120.4	0 52.1 -59.0 119.4	0 41.2 -59.0 118.4	0 30.2 -59.0 117.4	0 19.1 -59.0 116.4
6°	0 03.9 -59.0 120.5	-0 06.9 -59.0	-0 17.8 -59.0	-0 28.8 -58.9	-0 39.9 -58.9
7°	-0 55.1 -59.0	-1 05.9 -59.0	-1 16.8 -58.9	-1 27.7 -59.0	-1 38.8 -59.0
8°	-1 54.1 -59.0	-2 04.9 -59.0	-2 15.7 -59.0	-2 26.7 -59.0	-2 37.8 -58.9
9°	-2 53.1 -59.0	-3 03.9 -59.0	-3 14.7 -59.0	-3 25.7 -58.9	-3 36.7 -58.9
10°	-3 52.1 -59.1	-4 02.9 -59.0	-4 13.7 -59.0	-4 24.6 -59.0	-4 35.6 -59.0
11°	-4 51.2 -59.0	-5 01.9 -58.9	-5 12.7 -58.9	-5 23.6 -58.9	-5 34.6 -58.9
12°	-5 50.2 -59.0	-6 00.8 -59.0	-6 11.6 -59.0	-6 22.5 -59.0	-6 33.5 -58.9
13°	-6 49.2 -59.0	-6 59.8 -59.0	-7 10.6 -59.0	-7 21.5 -58.9	-7 32.4 -59.0
14°	-7 48.2 -59.0	-7 58.8 -59.0	-8 09.6 -58.9	-8 20.4 -58.9	-8 31.4 -58.9
15°	-8 47.2 -59.0	-8 57.8 -59.0	-9 08.5 -59.0	-9 19.3 -59.0	-9 30.3 -58.9
16°	-9 46.2 -59.0	-9 56.8 -58.9			
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	5 02.5 -59.0 114.5	4 51.1 -58.9 113.5	4 39.6 -58.9 112.5	4 28.0 -58.8 111.6	4 16.4 -58.9 110.6
1°	4 03.5 -58.9 114.7	3 52.2 -58.9 113.7	3 40.7 -58.9 112.7	3 29.2 -58.9 111.8	3 17.5 -58.8 110.8
2°	3 04.6 -58.9 114.9	2 53.3 -58.9 113.9	2 41.8 -58.9 112.9	2 30.3 -58.9 112.0	2 18.7 -58.9 111.0
3°	2 05.7 -58.9 115.1	1 54.4 -59.0 114.1	1 42.9 -58.9 113.1	1 31.4 -58.9 112.1	1 19.8 -58.8 111.2
4°	1 06.8 -59.0 115.3	0 55.4 -58.9 114.3	0 44.0 -58.9 113.3	0 32.5 -58.8 112.3	0 21.0 -58.9 111.4
5°	0 07.8 -58.9 115.5	-0 03.5 -58.9	-0 14.9 -58.9	-0 26.3 -58.9	-0 37.9 -58.9
6°	-0 51.1 -58.9	-1 02.4 -58.9	-1 13.8 -58.8	-1 25.2 -58.9	-1 36.8 -58.8
7°	-1 50.0 -58.9	-2 01.3 -58.9	-2 12.6 -58.9	-2 24.1 -58.9	-2 35.6 -58.9
8°	-2 48.9 -59.0	-3 00.2 -58.9	-3 11.5 -58.9	-3 23.0 -58.8	-3 34.5 -58.8
9°	-3 47.9 -58.9	-3 59.1 -58.9	-4 10.4 -58.9	-4 21.8 -58.9	-4 33.3 -58.9
10°	-4 46.8 -58.9	-4 58.0 -58.9	-5 09.3 -58.9	-5 20.7 -58.9	-5 32.2 -58.8
11°	-5 45.7 -58.9	-5 56.9 -58.9	-6 08.2 -58.9	-6 19.6 -58.8	-6 31.0 -58.9
12°	-6 44.6 -58.9	-6 55.8 -58.9	-7 07.1 -58.8	-7 18.4 -58.9	-7 29.9 -58.8
13°	-7 43.5 -58.9	-7 54.7 -58.9	-8 05.9 -58.9	-8 17.3 -58.8	-8 28.7 -58.8
14°	-8 42.4 -58.9	-8 53.6 -58.8	-9 04.8 -58.9	-9 16.1 -58.9	-9 27.5 -58.9
15°	-9 41.3 -58.9	-9 52.4 -58.9			
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	4 04.7 -58.9 109.6	3 52.9 -58.8 108.6	3 41.0 -58.8 107.6	3 29.1 -58.8 106.6	3 17.1 -58.8 105.7
1°	3 05.8 -58.8 109.8	2 54.1 -58.9 108.8	2 42.2 -58.8 107.8	2 30.3 -58.8 106.8	2 18.3 -58.8 105.9
2°	2 07.0 -58.9 110.0	1 55.2 -58.8 109.0	1 43.4 -58.8 108.0	1 31.5 -58.8 107.0	1 19.5 -58.7 106.1
3°	1 08.1 -58.8 110.2	0 56.4 -58.8 109.2	0 44.6 -58.8 108.2	0 32.7 -58.8 107.2	0 20.8 -58.8 106.3
4°	0 09.3 -58.8 110.4	-0 02.4 -58.9	-0 14.2 -58.8	-0 26.1 -58.8	-0 38.0 -58.8
5°	-0 49.5 -58.9	-1 01.3 -58.8	-1 13.0 -58.9	-1 24.9 -58.8	-1 36.8 -58.8
6°	-1 48.4 -58.8	-2 00.1 -58.8	-2 11.9 -58.8	-2 23.7 -58.8	-2 35.6 -58.8
7°	-2 47.2 -58.9	-2 58.9 -58.8	-3 10.7 -58.8	-3 22.5 -58.8	-3 34.4 -58.8
8°	-3 46.1 -58.8	-3 57.7 -58.9	-4 09.5 -58.8	-4 21.3 -58.8	-4 33.2 -58.8
9°	-4 44.9 -58.8	-4 56.6 -58.8	-5 08.3 -58.8	-5 20.1 -58.8	-5 32.0 -58.7
10°	-5 43.7 -58.9	-5 55.4 -58.8	-6 07.1 -58.8	-6 18.9 -58.8	-6 30.7 -58.8
11°	-6 42.6 -58.8	-6 54.2 -58.8	-7 05.9 -58.8	-7 17.7 -58.7	-7 29.5 -58.8
12°	-7 41.4 -58.8	-7 53.0 -58.8	-8 04.7 -58.8	-8 16.4 -58.8	-8 28.3 -58.7
13°	-8 40.2 -58.8	-8 51.8 -58.8	-9 03.5 -58.8	-9 15.2 -58.8	-9 27.0 -58.8
14°	-9 39.0 -58.8	-9 50.6 -58.8			
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	3 05.1 -58.8 104.7	2 53.0 -58.8 103.7	2 40.8 -58.7 102.7	2 28.7 -58.8 101.7	2 16.4 -58.7 100.8
1°	2 06.3 -58.8 104.9	1 54.2 -58.7 103.9	1 42.1 -58.8 102.9	1 29.9 -58.7 101.9	1 17.7 -58.8 101.0
2°	1 07.5 -58.7 105.1	0 55.5 -58.8 104.1	0 43.3 -58.7 103.1	0 31.2 -58.8 102.2	0 18.9 -58.7 101.2
3°	0 08.8 -58.8 105.3	-0 03.3 -58.8	-0 15.4 -58.8	-0 27.6 -58.7	-0 39.8 -58.7
4°	-0 50.0 -58.8	-1 02.1 -58.7	-1 14.2 -58.7	-1 26.3 -58.8	-1 38.5 -58.8
5°	-1 48.8 -58.8	-2 00.8 -58.8	-2 12.9 -58.8	-2 25.1 -58.7	-2 37.3 -58.7
6°	-2 47.6 -58.8	-2 59.6 -58.8	-3 11.7 -58.7	-3 23.8 -58.8	-3 36.0 -58.7
7°	-3 46.4 -58.7	-3 58.4 -58.7	-4 10.4 -58.8	-4 22.6 -58.7	-4 34.7 -58.8
8°	-4 45.1 -58.8	-4 57.1 -58.8	-5 09.2 -58.7	-5 21.3 -58.7	-5 33.5 -58.7
9°	-5 43.9 -58.8	-5 55.9 -58.7	-6 07.9 -58.8	-6 20.0 -58.8	-6 32.2 -58.7
10°	-6 42.7 -58.7	-6 54.6 -58.8	-7 06.7 -58.7	-7 18.8 -58.7	-7 30.9 -58.7
11°	-7 41.4 -58.8	-7 53.4 -58.7	-8 05.4 -58.7	-8 17.5 -58.7	-8 29.6 -58.7
12°	-8 40.2 -58.7	-8 52.1 -58.7	-9 04.1 -58.7	-9 16.2 -58.7	-9 28.3 -58.7
13°	-9 38.9 -58.7	-9 50.8 -58.8			
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	2 04.1 -58.7 99.8	1 51.8 -58.7 98.8	1 39.5 -58.7 97.8	1 27.1 -58.7 96.8	1 14.7 -58.7 95.9
1°	1 05.4 -58.7 100.0	0 53.1 -58.7 99.0	0 40.8 -58.7 98.0	0 28.4 -58.7 97.1	0 16.0 -58.7 96.1
2°	0 06.7 -58.7 100.2	-0 05.6 -58.7	-0 17.9 -58.8	-0 30.3 -58.7	-0 42.7 -58.7
3°	-0 52.0 -58.8	-1 04.3 -58.8	-1 16.7 -58.7	-1 29.0 -58.7	-1 41.4 -58.7
4°	-1 50.8 -58.7	-2 03.1 -58.7	-2 15.4 -58.7	-2 27.7 -58.7	-2 40.1 -58.7
5°	-2 49.5 -58.7	-3 01.8 -58.7	-3 14.1 -58.7	-3 26.4 -58.7	-3 38.8 -58.7
6°	-3 48.2 -58.7	-4 00.5 -58.7	-4 12.8 -58.7	-4 25.1 -58.7	-4 37.5 -58.7
7°	-4 46.9 -58.8	-4 59.2 -58.7	-5 11.5 -58.7	-5 23.8 -58.7	-5 36.2 -58.7
8°	-5 45.7 -58.7	-5 57.9 -58.7	-6 10.2 -58.7	-6 22.5 -58.7	-6 34.9 -58.7
9°	-6 44.4 -58.7	-6 56.6 -58.7	-7 08.9 -58.7	-7 21.2 -58.7	-7 33.6 -58.6
10°	-7 43.1 -58.7	-7 55.3 -58.7	-8 07.6 -58.7	-8 19.9 -58.7	-8 32.2 -58.7
11°	-8 41.8 -58.7	-8 54.0 -58.7	-9 06.3 -58.6	-9 18.6 -58.6	-9 30.9 -58.7
12°	-9 40.5 -58.7	-9 52.7 -58.7			
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	1 02.3 -58.7 94.9	0 49.9 -58.7 93.9	0 37.4 -58.7 92.9	0 24.9 -58.6 92.0	0 12.5 -58.7 91.0
1°	0 03.6 -58.7 95.1	-0 08.8 -58.7	-0 21.3 -58.7	-0 33.7 -58.7	-0 46.2 -58.7
2°	-0 55.1 -58.7	-1 07.5 -58.7	-1 20.0 -58.7	-1 32.4 -58.7	-1 44.9 -58.7
3°	-1 53.8 -58.7	-2 06.2 -58.7	-2 18.7 -58.7	-2 31.1 -58.7	-2 43.6 -58.7
4°	-2 52.5 -58.7	-3 04.9 -58.7	-3 17.4 -58.6	-3 29.8 -58.7	-3 42.3 -58.7
5°	-3 51.2 -58.7	-4 03.6 -58.7	-4 16.0 -58.7	-4 28.5 -58.7	-4 41.0 -58.6
6°	-4 49.9 -58.7	-5 02.3 -58.7	-5 14.7 -58.7	-5 27.2 -58.7	-5 39.6 -58.7
7°	-5 48.6 -58.7	-6 01.0 -58.7	-6 13.4 -58.7	-6 25.9 -58.6	-6 38.3 -58.7
8°	-6 47.3 -58.6	-6 59.7 -58.6	-7 12.1 -58.6	-7 24.5 -58.7	-7 37.0 -58.6
9°	-7 45.9 -58.7	-7 58.3 -58.7	-8 10.7 -58.7	-8 23.2 -58.6	-8 35.6 -58.7
10°	-8 44.6 -58.7	-8 57.0 -58.7	-9 09.4 -58.7	-9 21.8 -58.7	-9 34.3 -58.6
11°	-9 43.3 -58.6	-9 55.7 -58.6			
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

# Latitude 78°

# Declination CONTRARY name to 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 -58.7 90.0	-0 12.5 -58.7			
1°	-0 58.7 -58.7	-1 11.2 -58.7			
2°	-1 57.4 -58.7	-2 09.9 -58.6			
3°	-2 56.1 -58.6	-3 08.5 -58.7			
4°	-3 54.7 -58.7	-4 07.2 -58.7			
5°	-4 53.4 -58.7	-5 05.9 -58.7			
6°	-5 52.1 -58.7	-6 04.6 -58.7			
7°	-6 50.8 -58.6	-7 03.3 -58.6			
8°	-7 49.4 -58.7	-8 01.9 -58.7			
9°	-8 48.1 -58.7	-9 00.6 -58.6			
10°	-9 46.8 -58.6	-9 59.2 -58.7			
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°					
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°					

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data.  
The data on this page is believed to be accurate but no warranty is given for it's correctness. Use it only for training and exercising!

Dec	LHA 000° / 360°	LHA 001° / 359°	LHA 002° / 358°	LHA 003° / 357°	LHA 004° / 356°
	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °	H ° ' dH ' Z °
0°	11 00.0 -60.0 180.0	10 59.9 -60.0 179.0	10 59.6 -60.0 178.0	10 59.1 -60.0 176.9	10 58.4 -60.0 175.9
1°	10 00.0 -60.0 180.0	9 59.9 -60.0 179.0	9 59.6 -60.0 178.0	9 59.1 -60.0 177.0	9 58.4 -60.0 175.9
2°	9 00.0 -60.0 180.0	8 59.9 -60.0 179.0	8 59.6 -60.0 178.0	8 59.1 -60.0 177.0	8 58.4 -60.0 176.0
3°	8 00.0 -60.0 180.0	7 59.9 -60.0 179.0	7 59.6 -60.0 178.0	7 59.1 -60.0 177.0	7 58.4 -60.0 176.0
4°	7 00.0 -60.0 180.0	6 59.9 -60.0 179.0	6 59.6 -60.0 178.0	6 59.1 -60.0 177.0	6 58.4 -60.0 176.0
5°	6 00.0 -60.0 180.0	5 59.9 -60.0 179.0	5 59.6 -60.0 178.0	5 59.1 -60.0 177.0	5 58.4 -60.0 176.0
6°	5 00.0 -60.0 180.0	4 59.9 -60.0 179.0	4 59.6 -60.0 178.0	4 59.1 -60.0 177.0	4 58.4 -60.0 176.0
7°	4 00.0 -60.0 180.0	3 59.9 -60.0 179.0	3 59.6 -60.0 178.0	3 59.1 -60.0 177.0	3 58.4 -60.0 176.0
8°	3 00.0 -60.0 180.0	2 59.9 -60.0 179.0	2 59.6 -60.0 178.0	2 59.1 -60.0 177.0	2 58.4 -60.0 176.0
9°	2 00.0 -60.0 180.0	1 59.9 -60.0 179.0	1 59.6 -60.0 178.0	1 59.1 -60.0 177.0	1 58.4 -60.0 176.0
10°	1 00.0 -60.0 180.0	0 59.9 -60.0 179.0	0 59.6 -60.0 178.0	0 59.1 -60.0 177.0	0 58.4 -60.0 176.1
11°	0 00.0 -60.0 180.0	-0 00.1 -60.0	-0 00.4 -60.0	-0 00.9 -60.0	-0 01.6 -60.0
12°	-1 00.0 -60.0	-1 00.1 -60.0	-1 00.4 -60.0	-1 00.9 -60.0	-1 01.6 -60.0
13°	-2 00.0 -60.0	-2 00.1 -60.0	-2 00.4 -60.0	-2 00.9 -60.0	-2 01.6 -60.0
14°	-3 00.0 -60.0	-3 00.1 -60.0	-3 00.4 -60.0	-3 00.9 -60.0	-3 01.6 -59.9
15°	-4 00.0 -60.0	-4 00.1 -60.0	-4 00.4 -60.0	-4 00.9 -60.0	-4 01.5 -60.0
16°	-5 00.0 -60.0	-5 00.1 -60.0	-5 00.4 -60.0	-5 00.9 -60.0	-5 01.5 -60.0
17°	-6 00.0 -60.0	-6 00.1 -60.0	-6 00.4 -60.0	-6 00.9 -60.0	-6 01.5 -60.0
18°	-7 00.0 -60.0	-7 00.1 -60.0	-7 00.4 -60.0	-7 00.9 -60.0	-7 01.5 -60.0
19°	-8 00.0 -60.0	-8 00.1 -60.0	-8 00.4 -60.0	-8 00.9 -60.0	-8 01.5 -60.0
20°	-9 00.0 -60.0	-9 00.1 -60.0	-9 00.4 -60.0	-9 00.9 -60.0	-9 01.5 -60.0
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	10 57.5 -60.0 174.9	10 56.3 -59.9 173.9	10 55.0 -60.0 172.9	10 53.5 -60.0 171.9	10 51.8 -60.0 170.8
1°	9 57.5 -60.0 174.9	9 56.4 -60.0 173.9	9 55.0 -59.9 172.9	9 53.5 -60.0 171.9	9 51.8 -60.0 170.9
2°	8 57.5 -60.0 174.9	8 56.4 -60.0 173.9	8 55.1 -60.0 172.9	8 53.5 -59.9 171.9	8 51.8 -59.9 170.9
3°	7 57.5 -60.0 175.0	7 56.4 -60.0 174.0	7 55.1 -60.0 172.9	7 53.6 -60.0 171.9	7 51.9 -60.0 170.9
4°	6 57.5 -60.0 175.0	6 56.4 -60.0 174.0	6 55.1 -60.0 173.0	6 53.6 -60.0 172.0	6 51.9 -60.0 171.0
5°	5 57.5 -60.0 175.0	5 56.4 -60.0 174.0	5 55.1 -60.0 173.0	5 53.6 -60.0 172.0	5 51.9 -60.0 171.0
6°	4 57.5 -60.0 175.0	4 56.4 -60.0 174.0	4 55.1 -60.0 173.0	4 53.6 -60.0 172.0	4 51.9 -59.9 171.0
7°	3 57.5 -60.0 175.0	3 56.4 -60.0 174.0	3 55.1 -59.9 173.0	3 53.6 -59.9 172.0	3 52.0 -60.0 171.0
8°	2 57.5 -60.0 175.0	2 56.4 -60.0 174.1	2 55.2 -60.0 173.1	2 53.7 -60.0 172.1	2 52.0 -60.0 171.1
9°	1 57.5 -60.0 175.1	1 56.4 -59.9 174.1	1 55.2 -60.0 173.1	1 53.7 -60.0 172.1	1 52.0 -60.0 171.1
10°	0 57.5 -60.0 175.1	0 56.5 -60.0 174.1	0 55.2 -60.0 173.1	0 53.7 -60.0 172.1	0 52.0 -59.9 171.1
11°	-0 02.5 -59.9	-0 03.5 -60.0	-0 04.8 -60.0	-0 06.3 -59.9	-0 07.9 -60.0
12°	-1 02.4 -60.0	-1 03.5 -60.0	-1 04.8 -60.0	-1 06.2 -60.0	-1 07.9 -60.0
13°	-2 02.4 -60.0	-2 03.5 -60.0	-2 04.8 -60.0	-2 06.2 -60.0	-2 07.9 -59.9
14°	-3 02.4 -60.0	-3 03.5 -60.0	-3 04.8 -59.9	-3 06.2 -60.0	-3 07.8 -60.0
15°	-4 02.4 -60.0	-4 03.5 -60.0	-4 04.7 -60.0	-4 06.2 -60.0	-4 07.8 -60.0
16°	-5 02.4 -60.0	-5 03.5 -60.0	-5 04.7 -60.0	-5 06.2 -59.9	-5 07.8 -60.0
17°	-6 02.4 -60.0	-6 03.5 -59.9	-6 04.7 -60.0	-6 06.1 -60.0	-6 07.8 -59.9
18°	-7 02.4 -60.0	-7 03.4 -60.0	-7 04.7 -60.0	-7 06.1 -60.0	-7 07.7 -60.0
19°	-8 02.4 -60.0	-8 03.4 -60.0	-8 04.7 -60.0	-8 06.1 -60.0	-8 07.7 -60.0
20°	-9 02.4 -60.0	-9 03.4 -60.0	-9 04.7 -59.9	-9 06.1 -60.0	-9 07.7 -60.0
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	10 49.9 -60.0 169.8	10 47.7 -59.9 168.8	10 45.4 -59.9 167.8	10 42.9 -60.0 166.8	10 40.2 -60.0 165.7
1°	9 49.9 -60.0 169.9	9 47.8 -60.0 168.8	9 45.5 -60.0 167.8	9 42.9 -59.9 166.8	9 40.2 -59.9 165.8
2°	8 49.9 -59.9 169.9	8 47.8 -60.0 168.9	8 45.5 -60.0 167.9	8 43.0 -59.9 166.9	8 40.3 -59.9 165.8
3°	7 50.0 -60.0 169.9	7 47.8 -59.9 168.9	7 45.5 -59.9 167.9	7 43.1 -60.0 166.9	7 40.4 -60.0 165.9
4°	6 50.0 -60.0 170.0	6 47.9 -60.0 168.9	6 45.6 -60.0 167.9	6 43.1 -59.9 166.9	6 40.4 -59.9 165.9
5°	5 50.0 -59.9 170.0	5 47.9 -59.9 169.0	5 45.6 -59.9 168.0	5 43.2 -60.0 167.0	5 40.5 -59.9 166.0
6°	4 50.1 -60.0 170.0	4 48.0 -60.0 169.0	4 45.7 -60.0 168.0	4 43.2 -59.9 167.0	4 40.6 -60.0 166.0
7°	3 50.1 -60.0 170.1	3 48.0 -59.9 169.1	3 45.7 -59.9 168.1	3 43.3 -60.0 167.1	3 40.6 -59.9 166.1
8°	2 50.1 -59.9 170.1	2 48.1 -60.0 169.1	2 45.8 -60.0 168.1	2 43.3 -59.9 167.1	2 40.7 -60.0 166.1
9°	1 50.2 -60.0 170.1	1 48.1 -60.0 169.1	1 45.8 -59.9 168.1	1 43.4 -60.0 167.2	1 40.7 -59.9 166.2
10°	0 50.2 -60.0 170.2	0 48.1 -59.9 169.2	0 45.9 -60.0 168.2	0 43.4 -59.9 167.2	0 40.8 -59.9 166.2
11°	-0 09.8 -59.9	-0 11.8 -60.0	-0 14.1 -59.9	-0 16.5 -59.9	-0 19.1 -60.0
12°	-1 09.7 -60.0	-1 11.8 -60.0	-1 14.0 -60.0	-1 16.4 -60.0	-1 19.1 -59.9
13°	-2 09.7 -60.0	-2 11.8 -59.9	-2 14.0 -59.9	-2 16.4 -59.9	-2 19.0 -59.9
14°	-3 09.7 -60.0	-3 11.7 -60.0	-3 13.9 -60.0	-3 16.3 -60.0	-3 18.9 -60.0
15°	-4 09.7 -59.9	-4 11.7 -59.9	-4 13.9 -59.9	-4 16.3 -59.9	-4 18.9 -59.9
16°	-5 09.6 -60.0	-5 11.6 -60.0	-5 13.8 -60.0	-5 16.2 -60.0	-5 18.8 -59.9
17°	-6 09.6 -60.0	-6 11.6 -60.0	-6 13.8 -59.9	-6 16.2 -59.9	-6 18.7 -60.0
18°	-7 09.6 -59.9	-7 11.6 -59.9	-7 13.7 -60.0	-7 16.1 -60.0	-7 18.7 -59.9
19°	-8 09.5 -60.0	-8 11.5 -60.0	-8 13.7 -59.9	-8 16.1 -59.9	-8 18.6 -59.9
20°	-9 09.5 -59.9	-9 11.5 -59.9	-9 13.6 -60.0	-9 16.0 -59.9	-9 18.5 -60.0
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	10 37.2 -59.9 164.7	10 34.1 -59.9 163.7	10 30.8 -59.9 162.7	10 27.3 -59.9 161.7	10 23.6 -59.9 160.7
1°	9 37.3 -59.9 164.8	9 34.2 -59.9 163.8	9 30.9 -59.9 162.8	9 27.4 -59.9 161.7	9 23.7 -59.8 160.7
2°	8 37.4 -59.9 164.8	8 34.3 -59.9 163.8	8 31.0 -59.9 162.8	8 27.5 -59.9 161.8	8 23.9 -59.9 160.8
3°	7 37.5 -60.0 164.9	7 34.4 -59.9 163.9	7 31.1 -59.9 162.9	7 27.6 -59.8 161.9	7 24.0 -59.9 160.9
4°	6 37.5 -59.9 164.9	6 34.5 -59.9 163.9	6 31.2 -59.9 162.9	6 27.8 -59.9 161.9	6 24.1 -59.9 160.9
5°	5 37.6 -59.9 165.0	5 34.6 -60.0 164.0	5 31.3 -59.9 163.0	5 27.9 -59.9 162.0	5 24.2 -59.9 161.0
6°	4 37.7 -59.9 165.0	4 34.6 -59.9 164.0	4 31.4 -59.9 163.0	4 28.0 -59.9 162.0	4 24.3 -59.8 161.0
7°	3 37.8 -60.0 165.1	3 34.7 -59.9 164.1	3 31.5 -59.9 163.1	3 28.1 -59.9 162.1	3 24.5 -59.9 161.1
8°	2 37.8 -59.9 165.1	2 34.8 -59.9 164.1	2 31.6 -59.9 163.2	2 28.2 -59.9 162.2	2 24.6 -59.9 161.2
9°	1 37.9 -59.9 165.2	1 34.9 -59.9 164.2	1 31.7 -59.9 163.2	1 28.3 -59.9 162.2	1 24.7 -59.9 161.2
10°	0 38.0 -59.9 165.2	0 35.0 -59.9 164.2	0 31.8 -59.9 163.3	0 28.4 -59.9 162.3	0 24.8 -59.9 161.3
11°	-0 21.9 -60.0	-0 24.9 -60.0	-0 28.1 -59.9	-0 31.5 -59.9	-0 35.1 -59.9
12°	-1 21.9 -59.9	-1 24.9 -59.9	-1 28.0 -59.9	-1 31.4 -59.9	-1 35.0 -59.8
13°	-2 21.8 -59.9	-2 24.8 -59.9	-2 27.9 -60.0	-2 31.3 -59.9	-2 34.8 -59.9
14°	-3 21.7 -59.9	-3 24.7 -59.9	-3 27.9 -59.9	-3 31.2 -59.9	-3 34.7 -59.9
15°	-4 21.6 -60.0	-4 24.6 -59.9	-4 27.8 -59.9	-4 31.1 -59.9	-4 34.6 -59.9
16°	-5 21.6 -59.9	-5 24.5 -59.9	-5 27.7 -59.9	-5 31.0 -59.9	-5 34.5 -59.9
17°	-6 21.5 -59.9	-6 24.4 -60.0	-6 27.6 -59.9	-6 30.9 -59.9	-6 34.4 -59.9
18°	-7 21.4 -60.0	-7 24.4 -59.9	-7 27.5 -59.9	-7 30.8 -59.9	-7 34.3 -59.8
19°	-8 21.4 -59.9	-8 24.3 -59.9	-8 27.4 -59.9	-8 30.7 -59.9	-8 34.1 -59.9
20°	-9 21.3 -59.9	-9 24.2 -59.9	-9 27.3 -59.9	-9 30.6 -59.9	-9 34.0 -59.9
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	10 19.7 -59.8 159.7	10 15.7 -59.9 158.6	10 11.4 -59.8 157.6	10 07.0 -59.9 156.6	10 02.3 -59.8 155.6
1°	9 19.9 -59.9 159.7	9 15.8 -59.8 158.7	9 11.6 -59.9 157.7	9 07.1 -59.8 156.7	9 02.5 -59.8 155.7
2°	8 20.0 -59.9 159.8	8 16.0 -59.9 158.8	8 11.7 -59.8 157.8	8 07.3 -59.8 156.8	8 02.7 -59.8 155.8
3°	7 20.1 -59.8 159.9	7 16.1 -59.9 158.9	7 11.9 -59.9 157.8	7 07.5 -59.9 156.8	7 02.9 -59.8 155.8
4°	6 20.3 -59.9 159.9	6 16.2 -59.8 158.9	6 12.0 -59.8 157.9	6 07.6 -59.8 156.9	6 03.1 -59.9 155.9
5°	5 20.4 -59.9 160.0	5 16.4 -59.9 159.0	5 12.2 -59.9 158.0	5 07.8 -59.8 157.0	5 03.2 -59.8 156.0
6°	4 20.5 -59.8 160.1	4 16.5 -59.8 159.1	4 12.3 -59.8 158.1	4 08.0 -59.9 157.1	4 03.4 -59.8 156.1
7°	3 20.7 -59.9 160.1	3 16.7 -59.9 159.1	3 12.5 -59.8 158.1	3 08.1 -59.8 157.1	3 03.6 -59.8 156.2
8°	2 20.8 -59.9 160.2	2 16.8 -59.8 159.2	2 12.7 -59.9 158.2	2 08.3 -59.8 157.2	2 03.8 -59.8 156.2
9°	1 20.9 -59.9 160.3	1 17.0 -59.9 159.3	1 12.8 -59.8 158.3	1 08.5 -59.9 157.3	1 04.0 -59.9 156.3
10°	0 21.0 -59.8 160.3	0 17.1 -59.9 159.3	0 13.0 -59.9 158.4	0 08.6 -59.8 157.4	0 04.1 -59.8 156.4
11°	-0 38.8 -59.9	-0 42.8 -59.8	-0 46.9 -59.8	-0 51.2 -59.8	-0 55.7 -59.8
12°	-1 38.7 -59.9	-1 42.6 -59.9	-1 46.7 -59.9	-1 51.0 -59.9	-1 55.5 -59.8
13°	-2 38.6 -59.8	-2 42.5 -59.8	-2 46.6 -59.8	-2 50.9 -59.8	-2 55.3 -59.8
14°	-3 38.4 -59.9	-3 42.3 -59.9	-3 46.4 -59.9	-3 50.7 -59.8	-3 55.1 -59.8
15°	-4 38.3 -59.9	-4 42.2 -59.9	-4 46.3 -59.8	-4 50.5 -59.9	-4 54.9 -59.9
16°	-5 38.2 -59.9	-5 42.1 -59.8	-5 46.1 -59.9	-5 50.4 -59.8	-5 54.8 -59.8
17°	-6 38.1 -59.8	-6 41.9 -59.9	-6 46.0 -59.8	-6 50.2 -59.8	-6 54.6 -59.8
18°	-7 37.9 -59.9	-7 41.8 -59.8	-7 45.8 -59.8	-7 50.0 -59.8	-7 54.4 -59.8
19°	-8 37.8 -59.9	-8 41.6 -59.9	-8 45.6 -59.9	-8 49.8 -59.9	-8 54.2 -59.8
20°	-9 37.7 -59.8	-9 41.5 -59.8	-9 45.5 -59.8	-9 49.7 -59.8	-9 54.0 -59.8
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	9 57.5 -59.8 154.6	9 52.5 -59.8 153.6	9 47.3 -59.8 152.6	9 41.9 -59.7 151.6	9 36.4 -59.7 150.5
1°	8 57.7 -59.8 154.7	8 52.7 -59.8 153.7	8 47.5 -59.7 152.7	8 42.2 -59.8 151.6	8 36.7 -59.8 150.6
2°	7 57.9 -59.8 154.8	7 52.9 -59.8 153.8	7 47.8 -59.8 152.7	7 42.4 -59.7 151.7	7 36.9 -59.7 150.7
3°	6 58.1 -59.8 154.8	6 53.1 -59.7 153.8	6 48.0 -59.8 152.8	6 42.7 -59.8 151.8	6 37.2 -59.7 150.8
4°	5 58.3 -59.8 154.9	5 53.4 -59.8 153.9	5 48.2 -59.7 152.9	5 42.9 -59.7 151.9	5 37.5 -59.8 150.9
5°	4 58.5 -59.8 155.0	4 53.6 -59.8 154.0	4 48.5 -59.8 153.0	4 43.2 -59.8 152.0	4 37.7 -59.7 151.0
6°	3 58.7 -59.8 155.1	3 53.8 -59.8 154.1	3 48.7 -59.8 153.1	3 43.4 -59.7 152.1	3 38.0 -59.8 151.1
7°	2 58.9 -59.8 155.2	2 54.0 -59.8 154.2	2 48.9 -59.8 153.2	2 43.7 -59.8 152.2	2 38.2 -59.7 151.2
8°	1 59.1 -59.8 155.2	1 54.2 -59.8 154.3	1 49.1 -59.7 153.3	1 43.9 -59.8 152.3	1 38.5 -59.8 151.3
9°	0 59.3 -59.8 155.3	0 54.4 -59.8 154.3	0 49.4 -59.8 153.4	0 44.1 -59.7 152.4	0 38.7 -59.7 151.4
10°	-0 00.5 -59.8	-0 05.4 -59.8	-0 10.4 -59.8	-0 15.6 -59.8	-0 21.0 -59.7
11°	-1 00.3 -59.8	-1 05.2 -59.8	-1 10.2 -59.8	-1 15.4 -59.7	-1 20.7 -59.8
12°	-2 00.1 -59.8	-2 05.0 -59.7	-2 10.0 -59.7	-2 15.1 -59.8	-2 20.5 -59.7
13°	-2 59.9 -59.8	-3 04.7 -59.8	-3 09.7 -59.8	-3 14.9 -59.8	-3 20.2 -59.8
14°	-3 59.7 -59.8	-4 04.5 -59.8	-4 09.5 -59.8	-4 14.7 -59.7	-4 20.0 -59.7
15°	-4 59.5 -59.9	-5 04.3 -59.8	-5 09.3 -59.8	-5 14.4 -59.8	-5 19.7 -59.7
16°	-5 59.4 -59.8	-6 04.1 -59.8	-6 09.1 -59.7	-6 14.2 -59.7	-6 19.4 -59.8
17°	-6 59.2 -59.8	-7 03.9 -59.8	-7 08.8 -59.8	-7 13.9 -59.8	-7 19.2 -59.7
18°	-7 59.0 -59.8	-8 03.7 -59.8	-8 08.6 -59.8	-8 13.7 -59.7	-8 18.9 -59.8
19°	-8 58.8 -59.8	-9 03.5 -59.8	-9 08.4 -59.7	-9 13.4 -59.8	-9 18.7 -59.7
20°	-9 58.6 -59.8				
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	9 30.7 -59.7 149.5	9 24.8 -59.7 148.5	9 18.7 -59.6 147.5	9 12.5 -59.7 146.5	9 06.1 -59.6 145.5
1°	8 31.0 -59.8 149.6	8 25.1 -59.7 148.6	8 19.1 -59.7 147.6	8 12.8 -59.6 146.6	8 06.5 -59.7 145.6
2°	7 31.2 -59.7 149.7	7 25.4 -59.7 148.7	7 19.4 -59.7 147.7	7 13.2 -59.7 146.7	7 06.8 -59.7 145.7
3°	6 31.5 -59.7 149.8	6 25.7 -59.7 148.8	6 19.7 -59.7 147.8	6 13.5 -59.7 146.8	6 07.1 -59.6 145.8
4°	5 31.8 -59.7 149.9	5 26.0 -59.7 148.9	5 20.0 -59.7 147.9	5 13.8 -59.6 146.9	5 07.5 -59.7 145.9
5°	4 32.1 -59.7 150.0	4 26.3 -59.7 149.0	4 20.3 -59.7 148.0	4 14.2 -59.7 147.0	4 07.8 -59.6 146.0
6°	3 32.4 -59.8 150.1	3 26.6 -59.7 149.1	3 20.6 -59.7 148.1	3 14.5 -59.7 147.1	3 08.2 -59.7 146.2
7°	2 32.6 -59.7 150.2	2 26.9 -59.8 149.2	2 20.9 -59.7 148.2	2 14.8 -59.7 147.2	2 08.5 -59.6 146.3
8°	1 32.9 -59.7 150.3	1 27.1 -59.7 149.3	1 21.2 -59.7 148.3	1 15.1 -59.6 147.4	1 08.9 -59.7 146.4
9°	0 33.2 -59.7 150.4	0 27.4 -59.7 149.4	0 21.5 -59.7 148.4	0 15.5 -59.7 147.5	0 09.2 -59.6 146.5
10°	-0 26.5 -59.8	-0 32.3 -59.7	-0 38.2 -59.7	-0 44.2 -59.7	-0 50.4 -59.7
11°	-1 26.3 -59.7	-1 32.0 -59.7	-1 37.9 -59.6	-1 43.9 -59.7	-1 50.1 -59.7
12°	-2 26.0 -59.7	-2 31.7 -59.7	-2 37.5 -59.7	-2 43.6 -59.6	-2 49.8 -59.6
13°	-3 25.7 -59.8	-3 31.4 -59.7	-3 37.2 -59.7	-3 43.2 -59.7	-3 49.4 -59.7
14°	-4 25.5 -59.7	-4 31.1 -59.7	-4 36.9 -59.7	-4 42.9 -59.7	-4 49.1 -59.6
15°	-5 25.2 -59.7	-5 30.8 -59.7	-5 36.6 -59.7	-5 42.6 -59.7	-5 48.7 -59.7
16°	-6 24.9 -59.7	-6 30.5 -59.7	-6 36.3 -59.7	-6 42.3 -59.6	-6 48.4 -59.6
17°	-7 24.6 -59.7	-7 30.2 -59.7	-7 36.0 -59.7	-7 41.9 -59.7	-7 48.0 -59.7
18°	-8 24.3 -59.8	-8 29.9 -59.7	-8 35.7 -59.7	-8 41.6 -59.7	-8 47.7 -59.6
19°	-9 24.1 -59.7	-9 29.6 -59.7	-9 35.4 -59.7	-9 41.3 -59.6	-9 47.3 -59.7
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	8 59.5 -59.6 144.5	8 52.8 -59.6 143.5	8 45.9 -59.6 142.5	8 38.9 -59.6 141.5	8 31.7 -59.6 140.5
1°	7 59.9 -59.6 144.6	7 53.2 -59.6 143.6	7 46.3 -59.6 142.6	7 39.3 -59.6 141.6	7 32.1 -59.6 140.6
2°	7 00.3 -59.7 144.7	6 53.6 -59.6 143.7	6 46.7 -59.6 142.7	6 39.7 -59.6 141.7	6 32.5 -59.5 140.7
3°	6 00.6 -59.6 144.8	5 54.0 -59.7 143.8	5 47.1 -59.6 142.8	5 40.1 -59.5 141.8	5 33.0 -59.6 140.8
4°	5 01.0 -59.6 144.9	4 54.3 -59.6 143.9	4 47.5 -59.6 143.0	4 40.6 -59.6 142.0	4 33.4 -59.5 141.0
5°	4 01.4 -59.7 145.1	3 54.7 -59.6 144.1	3 47.9 -59.6 143.1	3 41.0 -59.6 142.1	3 33.9 -59.6 141.1
6°	3 01.7 -59.6 145.2	2 55.1 -59.6 144.2	2 48.3 -59.6 143.2	2 41.4 -59.6 142.2	2 34.3 -59.6 141.2
7°	2 02.1 -59.7 145.3	1 55.5 -59.6 144.3	1 48.7 -59.6 143.3	1 41.8 -59.6 142.3	1 34.7 -59.5 141.3
8°	1 02.4 -59.6 145.4	0 55.9 -59.7 144.4	0 49.1 -59.6 143.4	0 42.2 -59.6 142.4	0 35.2 -59.6 141.4
9°	0 02.8 -59.6 145.5	-0 03.8 -59.6	-0 10.5 -59.6	-0 17.4 -59.6	-0 24.4 -59.6
10°	-0 56.8 -59.7	-1 03.4 -59.6	-1 10.1 -59.6	-1 17.0 -59.5	-1 24.0 -59.5
11°	-1 56.5 -59.6	-2 03.0 -59.6	-2 09.7 -59.6	-2 16.5 -59.6	-2 23.5 -59.6
12°	-2 56.1 -59.6	-3 02.6 -59.6	-3 09.3 -59.6	-3 16.1 -59.6	-3 23.1 -59.6
13°	-3 55.7 -59.7	-4 02.2 -59.7	-4 08.9 -59.6	-4 15.7 -59.6	-4 22.7 -59.5
14°	-4 55.4 -59.6	-5 01.9 -59.6	-5 08.5 -59.6	-5 15.3 -59.6	-5 22.2 -59.6
15°	-5 55.0 -59.7	-6 01.5 -59.6	-6 08.1 -59.6	-6 14.9 -59.5	-6 21.8 -59.5
16°	-6 54.7 -59.6	-7 01.1 -59.6	-7 07.7 -59.6	-7 14.4 -59.6	-7 21.3 -59.6
17°	-7 54.3 -59.6	-8 00.7 -59.6	-8 07.3 -59.6	-8 14.0 -59.6	-8 20.9 -59.6
18°	-8 53.9 -59.7	-9 00.3 -59.6	-9 06.9 -59.6	-9 13.6 -59.6	-9 20.5 -59.5
19°	-9 53.6 -59.6	-9 59.9 -59.6			
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	8 24.3 -59.5 139.5	8 16.8 -59.5 138.5	8 09.1 -59.5 137.5	8 01.3 -59.5 136.5	7 53.3 -59.4 135.5
1°	7 24.8 -59.6 139.6	7 17.3 -59.6 138.6	7 09.6 -59.5 137.6	7 01.8 -59.5 136.6	6 53.9 -59.5 135.6
2°	6 25.2 -59.5 139.7	6 17.7 -59.5 138.7	6 10.1 -59.5 137.7	6 02.3 -59.4 136.7	5 54.4 -59.4 135.7
3°	5 25.7 -59.6 139.8	5 18.2 -59.5 138.9	5 10.6 -59.5 137.9	5 02.9 -59.5 136.9	4 55.0 -59.5 135.9
4°	4 26.1 -59.5 140.0	4 18.7 -59.5 139.0	4 11.1 -59.5 138.0	4 03.4 -59.5 137.0	3 55.5 -59.5 136.0
5°	3 26.6 -59.6 140.1	3 19.2 -59.6 139.1	3 11.6 -59.5 138.1	3 03.9 -59.5 137.1	2 56.0 -59.4 136.1
6°	2 27.0 -59.5 140.2	2 19.6 -59.5 139.2	2 12.1 -59.5 138.2	2 04.4 -59.5 137.3	1 56.6 -59.5 136.3
7°	1 27.5 -59.6 140.3	1 20.1 -59.5 139.4	1 12.6 -59.5 138.4	1 04.9 -59.5 137.4	0 57.1 -59.5 136.4
8°	0 27.9 -59.5 140.5	0 20.6 -59.5 139.5	0 13.1 -59.5 138.5	0 05.4 -59.5 137.5	-0 02.4 -59.5
9°	-0 31.6 -59.5	-0 38.9 -59.6	-0 46.4 -59.5	-0 54.1 -59.5	-1 01.9 -59.4
10°	-1 31.1 -59.6	-1 38.5 -59.5	-1 45.9 -59.6	-1 53.6 -59.5	-2 01.3 -59.5
11°	-2 30.7 -59.5	-2 38.0 -59.5	-2 45.5 -59.5	-2 53.1 -59.4	-3 00.8 -59.5
12°	-3 30.2 -59.6	-3 37.5 -59.6	-3 45.0 -59.5	-3 52.5 -59.5	-4 00.3 -59.4
13°	-4 29.8 -59.5	-4 37.1 -59.5	-4 44.5 -59.5	-4 52.0 -59.5	-4 59.7 -59.5
14°	-5 29.3 -59.6	-5 36.6 -59.5	-5 44.0 -59.5	-5 51.5 -59.5	-5 59.2 -59.5
15°	-6 28.9 -59.5	-6 36.1 -59.5	-6 43.5 -59.5	-6 51.0 -59.5	-6 58.7 -59.4
16°	-7 28.4 -59.5	-7 35.6 -59.5	-7 43.0 -59.5	-7 50.5 -59.5	-7 58.1 -59.5
17°	-8 27.9 -59.6	-8 35.1 -59.6	-8 42.5 -59.5	-8 50.0 -59.4	-8 57.6 -59.4
18°	-9 27.5 -59.5	-9 34.7 -59.5	-9 42.0 -59.5	-9 49.4 -59.5	-9 57.0 -59.5
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	7 45.2 -59.4 134.5	7 37.0 -59.4 133.5	7 28.6 -59.4 132.5	7 20.1 -59.4 131.5	7 11.5 -59.4 130.5
1°	6 45.8 -59.4 134.6	6 37.6 -59.4 133.6	6 29.2 -59.4 132.6	6 20.7 -59.4 131.6	6 12.1 -59.4 130.6
2°	5 46.4 -59.5 134.7	5 38.2 -59.5 133.7	5 29.8 -59.4 132.8	5 21.3 -59.3 131.8	5 12.7 -59.3 130.8
3°	4 46.9 -59.4 134.9	4 38.7 -59.4 133.9	4 30.4 -59.4 132.9	4 22.0 -59.4 131.9	4 13.4 -59.4 130.9
4°	3 47.5 -59.5 135.0	3 39.3 -59.4 134.0	3 31.0 -59.4 133.0	3 22.6 -59.4 132.0	3 14.0 -59.4 131.1
5°	2 48.0 -59.4 135.1	2 39.9 -59.5 134.2	2 31.6 -59.4 133.2	2 23.2 -59.4 132.2	2 14.6 -59.3 131.2
6°	1 48.6 -59.5 135.3	1 40.4 -59.4 134.3	1 32.2 -59.4 133.3	1 23.8 -59.4 132.3	1 15.3 -59.4 131.3
7°	0 49.1 -59.4 135.4	0 41.0 -59.4 134.4	0 32.8 -59.4 133.5	0 24.4 -59.4 132.5	0 15.9 -59.4 131.5
8°	-0 10.3 -59.5	-0 18.4 -59.5	-0 26.6 -59.5	-0 35.0 -59.4	-0 43.5 -59.4
9°	-1 09.8 -59.4	-1 17.9 -59.4	-1 26.1 -59.4	-1 34.4 -59.4	-1 42.9 -59.3
10°	-2 09.2 -59.5	-2 17.3 -59.4	-2 25.5 -59.4	-2 33.8 -59.4	-2 42.2 -59.4
11°	-3 08.7 -59.4	-3 16.7 -59.4	-3 24.9 -59.4	-3 33.2 -59.4	-3 41.6 -59.4
12°	-4 08.1 -59.5	-4 16.1 -59.5	-4 24.3 -59.4	-4 32.6 -59.4	-4 41.0 -59.4
13°	-5 07.6 -59.4	-5 15.6 -59.4	-5 23.7 -59.4	-5 32.0 -59.4	-5 40.4 -59.3
14°	-6 07.0 -59.5	-6 15.0 -59.4	-6 23.1 -59.4	-6 31.4 -59.3	-6 39.7 -59.4
15°	-7 06.5 -59.4	-7 14.4 -59.4	-7 22.5 -59.4	-7 30.7 -59.4	-7 39.1 -59.4
16°	-8 05.9 -59.5	-8 13.8 -59.5	-8 21.9 -59.4	-8 30.1 -59.4	-8 38.5 -59.3
17°	-9 05.4 -59.4	-9 13.3 -59.4	-9 21.3 -59.4	-9 29.5 -59.4	-9 37.8 -59.4
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	7 02.7 -59.3 129.5	6 53.8 -59.3 128.5	6 44.8 -59.3 127.5	6 35.6 -59.3 126.5	6 26.4 -59.3 125.5
1°	6 03.4 -59.4 129.6	5 54.5 -59.4 128.6	5 45.5 -59.3 127.6	5 36.3 -59.2 126.6	5 27.1 -59.3 125.7
2°	5 04.0 -59.3 129.8	4 55.1 -59.3 128.8	4 46.2 -59.4 127.8	4 37.1 -59.3 126.8	4 27.8 -59.3 125.8
3°	4 04.7 -59.4 129.9	3 55.8 -59.3 128.9	3 46.8 -59.3 127.9	3 37.8 -59.3 127.0	3 28.5 -59.2 126.0
4°	3 05.3 -59.4 130.1	2 56.5 -59.4 129.1	2 47.5 -59.3 128.1	2 38.5 -59.3 127.1	2 29.3 -59.3 126.1
5°	2 05.9 -59.3 130.2	1 57.1 -59.3 129.2	1 48.2 -59.3 128.2	1 39.2 -59.3 127.3	1 30.0 -59.3 126.3
6°	1 06.6 -59.4 130.4	0 57.8 -59.3 129.4	0 48.9 -59.3 128.4	0 39.9 -59.3 127.4	0 30.7 -59.3 126.4
7°	0 07.2 -59.3 130.5	-0 01.5 -59.4	-0 10.4 -59.3	-0 19.4 -59.3	-0 28.6 -59.3
8°	-0 52.1 -59.4	-1 00.9 -59.3	-1 09.7 -59.4	-1 18.7 -59.3	-1 27.9 -59.2
9°	-1 51.5 -59.3	-2 00.2 -59.3	-2 09.1 -59.3	-2 18.0 -59.3	-2 27.1 -59.3
10°	-2 50.8 -59.4	-2 59.5 -59.4	-3 08.4 -59.3	-3 17.3 -59.3	-3 26.4 -59.3
11°	-3 50.2 -59.3	-3 58.9 -59.3	-4 07.7 -59.3	-4 16.6 -59.3	-4 25.7 -59.3
12°	-4 49.5 -59.4	-4 58.2 -59.3	-5 07.0 -59.3	-5 15.9 -59.3	-5 25.0 -59.2
13°	-5 48.9 -59.3	-5 57.5 -59.4	-6 06.3 -59.3	-6 15.2 -59.3	-6 24.2 -59.3
14°	-6 48.2 -59.4	-6 56.9 -59.3	-7 05.6 -59.3	-7 14.5 -59.3	-7 23.5 -59.3
15°	-7 47.6 -59.3	-7 56.2 -59.3	-8 04.9 -59.3	-8 13.8 -59.3	-8 22.8 -59.2
16°	-8 46.9 -59.4	-8 55.5 -59.3	-9 04.2 -59.3	-9 13.1 -59.3	-9 22.0 -59.3
17°	-9 46.3 -59.3	-9 54.8 -59.3			
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	6 17.0 -59.3 124.5	6 07.5 -59.2 123.5	5 57.9 -59.2 122.5	5 48.2 -59.2 121.5	5 38.4 -59.2 120.5
1°	5 17.7 -59.2 124.7	5 08.3 -59.3 123.7	4 58.7 -59.2 122.7	4 49.0 -59.2 121.7	4 39.2 -59.2 120.7
2°	4 18.5 -59.3 124.8	4 09.0 -59.2 123.8	3 59.5 -59.3 122.8	3 49.8 -59.2 121.9	3 40.0 -59.2 120.9
3°	3 19.2 -59.2 125.0	3 09.8 -59.3 124.0	3 00.2 -59.2 123.0	2 50.6 -59.2 122.0	2 40.8 -59.2 121.0
4°	2 20.0 -59.3 125.1	2 10.5 -59.2 124.1	2 01.0 -59.2 123.2	1 51.4 -59.2 122.2	1 41.6 -59.2 121.2
5°	1 20.7 -59.3 125.3	1 11.3 -59.2 124.3	1 01.8 -59.2 123.3	0 52.2 -59.2 122.3	0 42.4 -59.2 121.4
6°	0 21.4 -59.2 125.4	0 12.1 -59.3 124.5	0 02.6 -59.3 123.5	-0 07.0 -59.3	-0 16.8 -59.1
7°	-0 37.8 -59.3	-0 47.2 -59.2	-0 56.7 -59.2	-1 06.3 -59.2	-1 15.9 -59.2
8°	-1 37.1 -59.2	-1 46.4 -59.3	-1 55.9 -59.2	-2 05.5 -59.2	-2 15.1 -59.2
9°	-2 36.3 -59.3	-2 45.7 -59.2	-2 55.1 -59.2	-3 04.7 -59.2	-3 14.3 -59.2
10°	-3 35.6 -59.3	-3 44.9 -59.3	-3 54.3 -59.3	-4 03.9 -59.2	-4 13.5 -59.2
11°	-4 34.9 -59.2	-4 44.2 -59.2	-4 53.6 -59.2	-5 03.1 -59.2	-5 12.7 -59.2
12°	-5 34.1 -59.3	-5 43.4 -59.2	-5 52.8 -59.2	-6 02.3 -59.2	-6 11.9 -59.2
13°	-6 33.4 -59.2	-6 42.6 -59.3	-6 52.0 -59.2	-7 01.5 -59.2	-7 11.1 -59.1
14°	-7 32.6 -59.3	-7 41.9 -59.2	-7 51.2 -59.2	-8 00.7 -59.2	-8 10.2 -59.2
15°	-8 31.9 -59.2	-8 41.1 -59.2	-8 50.4 -59.2	-8 59.9 -59.2	-9 09.4 -59.2
16°	-9 31.1 -59.3	-9 40.3 -59.2	-9 49.6 -59.2	-9 59.1 -59.1	
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	5 28.5 -59.2 119.5	5 18.5 -59.2 118.6	5 08.4 -59.2 117.6	4 58.2 -59.2 116.6	4 47.9 -59.1 115.6
1°	4 29.3 -59.2 119.7	4 19.3 -59.1 118.7	4 09.2 -59.1 117.7	3 59.0 -59.1 116.7	3 48.8 -59.1 115.8
2°	3 30.1 -59.1 119.9	3 20.2 -59.2 118.9	3 10.1 -59.2 117.9	2 59.9 -59.1 116.9	2 49.7 -59.1 115.9
3°	2 31.0 -59.2 120.0	2 21.0 -59.2 119.1	2 10.9 -59.1 118.1	2 00.8 -59.1 117.1	1 50.6 -59.1 116.1
4°	1 31.8 -59.2 120.2	1 21.8 -59.1 119.2	1 11.8 -59.1 118.2	1 01.7 -59.2 117.3	0 51.5 -59.2 116.3
5°	0 32.6 -59.2 120.4	0 22.7 -59.2 119.4	0 12.7 -59.2 118.4	0 02.5 -59.1 117.4	-0 07.7 -59.1
6°	-0 26.6 -59.1	-0 36.5 -59.1	-0 46.5 -59.1	-0 56.6 -59.1	-1 06.8 -59.1
7°	-1 25.7 -59.2	-1 35.6 -59.2	-1 45.6 -59.2	-1 55.7 -59.1	-2 05.9 -59.1
8°	-2 24.9 -59.2	-2 34.8 -59.1	-2 44.8 -59.1	-2 54.8 -59.2	-3 05.0 -59.1
9°	-3 24.1 -59.2	-3 33.9 -59.2	-3 43.9 -59.1	-3 54.0 -59.1	-4 04.1 -59.1
10°	-4 23.3 -59.1	-4 33.1 -59.1	-4 43.0 -59.2	-4 53.1 -59.1	-5 03.2 -59.1
11°	-5 22.4 -59.2	-5 32.2 -59.2	-5 42.2 -59.1	-5 52.2 -59.1	-6 02.3 -59.1
12°	-6 21.6 -59.2	-6 31.4 -59.1	-6 41.3 -59.1	-6 51.3 -59.1	-7 01.4 -59.1
13°	-7 20.8 -59.1	-7 30.5 -59.2	-7 40.4 -59.2	-7 50.4 -59.1	-8 00.5 -59.1
14°	-8 19.9 -59.2	-8 29.7 -59.1	-8 39.6 -59.1	-8 49.5 -59.1	-8 59.6 -59.1
15°	-9 19.1 -59.1	-9 28.8 -59.2	-9 38.7 -59.1	-9 48.6 -59.1	-9 58.7 -59.1
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	4 37.5 -59.1 114.6	4 27.1 -59.1 113.6	4 16.5 -59.0 112.6	4 05.9 -59.0 111.6	3 55.3 -59.1 110.6
1°	3 38.4 -59.1 114.8	3 28.0 -59.1 113.8	3 17.5 -59.1 112.8	3 06.9 -59.1 111.8	2 56.2 -59.0 110.8
2°	2 39.3 -59.1 114.9	2 28.9 -59.1 114.0	2 18.4 -59.1 113.0	2 07.8 -59.0 112.0	1 57.2 -59.1 111.0
3°	1 40.2 -59.1 115.1	1 29.8 -59.0 114.1	1 19.3 -59.0 113.1	1 08.8 -59.1 112.2	0 58.1 -59.0 111.2
4°	0 41.1 -59.1 115.3	0 30.8 -59.1 114.3	0 20.3 -59.1 113.3	0 09.7 -59.0 112.3	-0 00.9 -59.0
5°	-0 18.0 -59.0	-0 28.3 -59.1	-0 38.8 -59.1	-0 49.3 -59.1	-0 59.9 -59.1
6°	-1 17.0 -59.1	-1 27.4 -59.1	-1 37.9 -59.0	-1 48.4 -59.0	-1 59.0 -59.0
7°	-2 16.1 -59.1	-2 26.5 -59.1	-2 36.9 -59.1	-2 47.4 -59.1	-2 58.0 -59.1
8°	-3 15.2 -59.1	-3 25.6 -59.0	-3 36.0 -59.0	-3 46.5 -59.0	-3 57.1 -59.0
9°	-4 14.3 -59.1	-4 24.6 -59.1	-4 35.0 -59.1	-4 45.5 -59.1	-4 56.1 -59.0
10°	-5 13.4 -59.1	-5 23.7 -59.1	-5 34.1 -59.1	-5 44.6 -59.0	-5 55.1 -59.0
11°	-6 12.5 -59.1	-6 22.8 -59.1	-6 33.2 -59.0	-6 43.6 -59.1	-6 54.1 -59.1
12°	-7 11.6 -59.1	-7 21.9 -59.0	-7 32.2 -59.1	-7 42.7 -59.0	-7 53.2 -59.0
13°	-8 10.7 -59.0	-8 20.9 -59.1	-8 31.3 -59.0	-8 41.7 -59.0	-8 52.2 -59.0
14°	-9 09.7 -59.1	-9 20.0 -59.0	-9 30.3 -59.0	-9 40.7 -59.0	-9 51.2 -59.0
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	3 44.5 -59.0 109.7	3 33.7 -59.0 108.7	3 22.8 -59.0 107.7	3 11.9 -59.0 106.7	3 00.9 -59.0 105.7
1°	2 45.5 -59.0 109.8	2 34.7 -59.0 108.9	2 23.8 -59.0 107.9	2 12.9 -59.0 106.9	2 01.9 -59.0 105.9
2°	1 46.5 -59.1 110.0	1 35.7 -59.0 109.0	1 24.8 -59.0 108.1	1 13.9 -59.0 107.1	1 02.9 -59.0 106.1
3°	0 47.4 -59.0 110.2	0 36.7 -59.1 109.2	0 25.8 -59.0 108.2	0 14.9 -59.0 107.3	0 03.9 -58.9 106.3
4°	-0 11.6 -59.0	-0 22.4 -59.0	-0 33.2 -59.0	-0 44.1 -59.0	-0 55.0 -59.0
5°	-1 10.6 -59.1	-1 21.4 -59.0	-1 32.2 -59.0	-1 43.1 -59.0	-1 54.0 -59.0
6°	-2 09.7 -59.0	-2 20.4 -59.0	-2 31.2 -59.0	-2 42.1 -59.0	-2 53.0 -59.0
7°	-3 08.7 -59.0	-3 19.4 -59.0	-3 30.2 -59.0	-3 41.1 -58.9	-3 52.0 -59.0
8°	-4 07.7 -59.0	-4 18.4 -59.0	-4 29.2 -59.0	-4 40.0 -59.0	-4 51.0 -58.9
9°	-5 06.7 -59.0	-5 17.4 -59.0	-5 28.2 -59.0	-5 39.0 -59.0	-5 49.9 -59.0
10°	-6 05.7 -59.1	-6 16.4 -59.0	-6 27.2 -59.0	-6 38.0 -59.0	-6 48.9 -59.0
11°	-7 04.8 -59.0	-7 15.4 -59.0	-7 26.2 -59.0	-7 37.0 -59.0	-7 47.9 -58.9
12°	-8 03.8 -59.0	-8 14.4 -59.0	-8 25.2 -58.9	-8 36.0 -58.9	-8 46.8 -59.0
13°	-9 02.8 -59.0	-9 13.4 -59.0	-9 24.1 -59.0	-9 34.9 -59.0	-9 45.8 -58.9
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	2 49.8 -58.9 104.7	2 38.7 -58.9 103.8	2 27.6 -58.9 102.8	2 16.4 -58.9 101.8	2 05.2 -58.9 100.8
1°	1 50.9 -59.0 104.9	1 39.8 -59.0 103.9	1 28.7 -59.0 103.0	1 17.5 -59.0 102.0	1 06.3 -59.0 101.0
2°	0 51.9 -59.0 105.1	0 40.8 -58.9 104.1	0 29.7 -59.0 103.1	0 18.5 -58.9 102.2	0 07.3 -58.9 101.2
3°	-0 07.1 -58.9	-0 18.1 -59.0	-0 29.3 -58.9	-0 40.4 -59.0	-0 51.6 -59.0
4°	-1 06.0 -59.0	-1 17.1 -59.0	-1 28.2 -59.0	-1 39.4 -58.9	-1 50.6 -58.9
5°	-2 05.0 -59.0	-2 16.1 -58.9	-2 27.2 -58.9	-2 38.3 -59.0	-2 49.5 -58.9
6°	-3 04.0 -59.0	-3 15.0 -59.0	-3 26.1 -59.0	-3 37.3 -58.9	-3 48.4 -59.0
7°	-4 03.0 -58.9	-4 14.0 -58.9	-4 25.1 -58.9	-4 36.2 -58.9	-4 47.4 -58.9
8°	-5 01.9 -59.0	-5 12.9 -59.0	-5 24.0 -59.0	-5 35.1 -59.0	-5 46.3 -58.9
9°	-6 00.9 -58.9	-6 11.9 -58.9	-6 23.0 -58.9	-6 34.1 -58.9	-6 45.2 -58.9
10°	-6 59.8 -59.0	-7 10.8 -59.0	-7 21.9 -58.9	-7 33.0 -58.9	-7 44.1 -59.0
11°	-7 58.8 -58.9	-8 09.8 -58.9	-8 20.8 -59.0	-8 31.9 -58.9	-8 43.1 -58.9
12°	-8 57.7 -59.0	-9 08.7 -59.0	-9 19.8 -58.9	-9 30.8 -58.9	-9 42.0 -58.9
13°	-9 56.7 -58.9				
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
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°	1 53.9 -58.9 99.8	1 42.6 -58.9 98.8	1 31.3 -58.9 97.9	1 19.9 -58.9 96.9	1 08.6 -58.9 95.9
1°	0 55.0 -58.9 100.0	0 43.7 -58.9 99.0	0 32.4 -58.9 98.0	0 21.0 -58.9 97.1	0 09.7 -58.9 96.1
2°	-0 03.9 -59.0	-0 15.2 -58.9	-0 26.5 -59.0	-0 37.9 -58.9	-0 49.2 -59.0
3°	-1 02.9 -58.9	-1 14.1 -59.0	-1 25.5 -58.9	-1 36.8 -58.9	-1 48.2 -58.9
4°	-2 01.8 -58.9	-2 13.1 -58.9	-2 24.4 -58.9	-2 35.7 -58.9	-2 47.1 -58.9
5°	-3 00.7 -59.0	-3 12.0 -58.9	-3 23.3 -58.9	-3 34.6 -58.9	-3 46.0 -58.9
6°	-3 59.7 -58.9	-4 10.9 -58.9	-4 22.2 -58.9	-4 33.5 -58.9	-4 44.9 -58.9
7°	-4 58.6 -58.9	-5 09.8 -58.9	-5 21.1 -58.9	-5 32.4 -58.9	-5 43.8 -58.9
8°	-5 57.5 -58.9	-6 08.7 -59.0	-6 20.0 -58.9	-6 31.3 -58.9	-6 42.7 -58.9
9°	-6 56.4 -58.9	-7 07.7 -58.9	-7 18.9 -58.9	-7 30.2 -58.9	-7 41.6 -58.9
10°	-7 55.3 -58.9	-8 06.6 -58.9	-8 17.8 -58.9	-8 29.1 -58.9	-8 40.5 -58.8
11°	-8 54.2 -58.9	-9 05.5 -58.9	-9 16.7 -58.9	-9 28.0 -58.9	-9 39.3 -58.9
12°	-9 53.1 -58.9				
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°	0 57.2 -58.9 94.9	0 45.8 -58.9 93.9	0 34.3 -58.9 92.9	0 22.9 -58.9 92.0	0 11.4 -58.8 91.0
1°	-0 01.7 -58.9	-0 13.1 -58.9	-0 24.6 -58.9	-0 36.0 -58.9	-0 47.4 -58.9
2°	-1 00.6 -58.9	-1 12.0 -58.9	-1 23.5 -58.9	-1 34.9 -58.9	-1 46.3 -58.9
3°	-1 59.5 -58.9	-2 10.9 -59.0	-2 22.4 -58.9	-2 33.8 -58.9	-2 45.2 -58.9
4°	-2 58.4 -59.0	-3 09.9 -58.8	-3 21.3 -58.9	-3 32.7 -58.9	-3 44.1 -58.9
5°	-3 57.4 -58.8	-4 08.7 -58.9	-4 20.2 -58.9	-4 31.6 -58.9	-4 43.0 -58.9
6°	-4 56.2 -58.9	-5 07.6 -58.9	-5 19.1 -58.8	-5 30.5 -58.9	-5 41.9 -58.9
7°	-5 55.1 -58.9	-6 06.5 -58.9	-6 17.9 -58.9	-6 29.4 -58.9	-6 40.8 -58.9
8°	-6 54.0 -58.9	-7 05.4 -58.9	-7 16.8 -58.9	-7 28.3 -58.8	-7 39.7 -58.9
9°	-7 52.9 -58.9	-8 04.3 -58.9	-8 15.7 -58.9	-8 27.1 -58.9	-8 38.6 -58.8
10°	-8 51.8 -58.9	-9 03.2 -58.9	-9 14.6 -58.9	-9 26.0 -58.9	-9 37.4 -58.9
11°	-9 50.7 -58.9				
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

# Latitude 79°

# Declination CONTRARY name to 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 -58.9 90.0	-0 11.4 -58.9			
1°	-0 58.9 -58.9	-1 10.3 -58.9			
2°	-1 57.8 -58.9	-2 09.2 -58.9			
3°	-2 56.7 -58.9	-3 08.1 -58.9			
4°	-3 55.6 -58.9	-4 07.0 -58.9			
5°	-4 54.5 -58.9	-5 05.9 -58.9			
6°	-5 53.4 -58.8	-6 04.8 -58.9			
7°	-6 52.2 -58.9	-7 03.7 -58.9			
8°	-7 51.1 -58.9	-8 02.6 -58.8			
9°	-8 50.0 -58.9	-9 01.4 -58.9			
10°	-9 48.9 -58.8				
11°					
12°					
13°					
14°					
15°					
16°					
17°					
18°					
19°					
20°					
21°					
22°					
23°					
24°					
25°					
26°					
27°					
28°					
29°					

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°					
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°					

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data.  
 The data on this page is believed to be accurate but no warranty is given for it's correctness. Use it only for training and exercising!