

TABLE A

LAT	65°			66°			67°			68°			69°			LHA
	K	A	Z	K	A	Z	K	A	Z	K	A	Z	K	A	Z	
0	65 00.0	0	90.0	66 00.0	0	90.0	67 00.0	0	90.0	68 00.0	0	90.0	69 00.0	0	90.0	180
1	65 00.2	1	89.1	66 00.2	1	89.1	67 00.2	1	89.1	68 00.2	1	89.1	69 00.2	1	89.1	179
2	65 00.8	5	88.2	66 00.8	5	88.2	67 00.8	4	88.2	68 00.7	4	88.1	69 00.7	3	88.1	178
3	65 01.8	11	87.3	66 01.8	10	87.3	67 01.7	9	87.2	68 01.6	8	87.2	69 01.6	8	87.2	177
4	65 03.2	19	86.4	66 03.1	17	86.3	67 03.0	16	86.3	68 02.9	15	86.3	69 02.8	14	86.3	176
5	65 05.0	29	85.5	66 04.9	27	85.4	67 04.7	25	85.4	68 04.5	23	85.4	69 04.4	21	85.3	175
6	65 07.2	42	84.6	66 07.0	39	84.5	67 06.8	36	84.5	68 06.5	33	84.4	69 06.3	30	84.4	174
7	65 09.8	58	83.7	66 09.5	53	83.6	67 09.2	49	83.6	68 08.9	45	83.5	69 08.6	41	83.5	173
8	65 12.8	75	82.7	66 12.5	70	82.7	67 12.1	64	82.6	68 11.6	59	82.6	69 11.2	54	82.5	172
9	65 16.2	95	81.8	66 15.8	88	81.8	67 15.3	81	81.7	68 14.7	75	81.6	69 14.2	68	81.6	171
10	65 20.1	117	80.9	66 19.5	109	80.8	67 18.8	100	80.8	68 18.2	92	80.7	69 17.5	84	80.7	170
11	65 24.3	142	80.0	66 23.5	131	79.9	67 22.8	121	79.9	68 22.0	111	79.8	69 21.2	102	79.7	169
12	65 28.9	168	79.1	66 28.0	156	79.0	67 27.1	144	78.9	68 26.2	132	78.9	69 25.2	121	78.8	168
13	65 33.9	197	78.2	66 32.9	183	78.1	67 31.8	168	78.0	68 30.7	155	77.9	69 29.6	142	77.8	167
14	65 39.3	228	77.3	66 38.1	211	77.2	67 36.9	195	77.1	68 35.6	179	77.0	69 34.3	164	76.9	166
15	65 45.1	261	76.4	66 43.8	242	76.2	67 42.3	223	76.1	68 40.9	205	76.0	69 39.4	188	76.0	165
16	65 51.4	297	75.4	66 49.8	275	75.3	67 48.2	253	75.2	68 46.5	233	75.1	69 44.8	213	75.0	164
17	65 58.0	334	74.5	66 56.2	309	74.4	67 54.4	285	74.3	68 52.5	262	74.2	69 50.5	240	74.1	163
18	66 05.0	374	73.6	67 03.0	346	73.5	68 01.0	319	73.3	68 58.8	293	73.2	69 56.6	268	73.1	162
19	66 12.4	415	72.7	67 10.2	384	72.5	68 07.9	354	72.4	69 05.5	325	72.3	70 03.1	298	72.2	161
20	66 20.3	458	71.7	67 17.8	424	71.6	68 15.2	391	71.5	69 12.6	359	71.4	70 09.9	329	71.2	160
21	66 28.5	504	70.8	67 25.8	466	70.7	68 22.9	430	70.5	69 20.0	395	70.4	70 17.0	361	70.3	159
22	66 37.1	551	69.9	67 34.1	510	69.7	68 31.0	470	69.6	69 27.8	432	69.5	70 24.5	395	69.3	158
23	66 46.1	600	69.0	67 42.9	555	68.8	68 39.5	512	68.7	69 36.0	470	68.5	70 32.4	430	68.4	157
24	66 55.6	651	68.0	67 52.0	603	67.9	68 48.3	555	67.7	69 44.5	510	67.6	70 40.5	466	67.4	156
25	67 05.4	704	67.1	68 01.5	651	66.9	68 57.5	600	66.8	69 53.3	551	66.6	70 49.0	504	66.5	155
26	67 15.6	758	66.2	68 11.4	702	66.0	69 07.0	647	65.8	70 02.5	594	65.7	70 57.9	543	65.5	154
27	67 26.3	814	65.2	68 21.7	753	65.0	69 17.0	694	64.9	70 12.1	637	64.7	71 07.1	583	64.6	153
28	67 37.3	872	64.3	68 32.4	807	64.1	69 27.3	743	63.9	70 22.0	682	63.8	71 16.6	624	63.6	152
29	67 48.7	931	63.3	68 43.4	861	63.1	69 37.9	794	63.0	70 32.3	728	62.8	71 26.5	666	62.6	151
30	68 00.6	992	62.4	68 54.9	917	62.2	69 49.0	845	62.0	70 42.9	775	61.8	71 36.7	709	61.7	150
31	68 12.8	1054	61.4	69 06.7	974	61.2	70 00.4	898	61.1	70 53.9	824	60.9	71 47.2	753	60.7	149
32	68 25.4	1117	60.5	69 18.9	1033	60.3	70 12.1	952	60.1	71 05.2	873	59.9	71 58.1	798	59.7	148
33	68 38.4	1182	59.5	69 31.5	1093	59.3	70 24.3	1006	59.1	71 16.9	923	58.9	72 09.3	843	58.8	147
34	68 51.9	1248	58.6	69 44.4	1153	58.4	70 36.8	1062	58.2	71 28.9	974	58.0	72 20.8	890	57.8	146
35	69 05.7	1315	57.6	69 57.8	1215	57.4	70 49.6	1119	57.2	71 41.3	1026	57.0	72 32.7	937	56.8	145
36	69 19.9	1383	56.6	70 11.5	1278	56.4	71 02.8	1177	56.2	71 54.0	1079	56.0	72 44.9	986	55.9	144
37	69 34.5	1452	55.7	70 25.6	1342	55.5	71 16.4	1235	55.3	72 07.0	1133	55.1	72 57.4	1034	54.9	143
38	69 49.4	1522	54.7	70 40.0	1406	54.5	71 30.3	1294	54.3	72 20.4	1187	54.1	73 10.2	1084	53.9	142
39	70 04.8	1593	53.7	70 54.8	1471	53.5	71 44.6	1354	53.3	72 34.1	1242	53.1	73 23.4	1134	52.9	141
40	70 20.6	1665	52.7	71 10.0	1537	52.5	71 59.2	1415	52.3	72 48.2	1297	52.1	73 36.8	1184	51.9	140
41	70 36.7	1737	51.8	71 25.6	1604	51.5	72 14.2	1476	51.3	73 02.5	1353	51.1	73 50.6	1235	50.9	139
42	70 53.2	1810	50.8	71 41.5	1671	50.6	72 29.5	1538	50.3	73 17.3	1409	50.1	74 04.7	1286	49.9	138
43	71 10.1	1883	49.8	71 57.8	1739	49.6	72 45.2	1599	49.4	73 32.3	1466	49.2	74 19.1	1337	49.0	137
44	71 27.4	1957	48.8	72 14.5	1807	48.6	73 01.2	1662	48.4	73 47.7	1523	48.2	74 33.8	1389	48.0	136
45	71 45.1	2031	47.8	72 31.5	1875	47.6	73 17.6	1724	47.4	74 03.4	1580	47.2	74 48.8	1441	47.0	135
46	72 03.1	2106	46.8	72 48.8	1943	46.6	73 34.3	1787	46.4	74 19.4	1637	46.2	75 04.2	1493	46.0	134
47	72 21.5	2180	45.8	73 06.6	2012	45.6	73 51.3	1850	45.4	74 35.7	1694	45.2	75 19.8	1545	45.0	133
48	72 40.3	2255	44.8	73 24.6	2080	44.6	74 08.6	1913	44.4	74 52.3	1752	44.2	75 35.7	1597	44.0	132
49	72 59.4	2330	43.8	73 43.0	2149	43.6	74 26.3	1975	43.4	75 09.3	1809	43.2	75 51.9	1650	43.0	131
50	73 18.9	2404	42.8	74 01.8	2218	42.6	74 44.3	2038	42.4	75 26.5	1866	42.1	76 08.4	1701	41.9	130
51	73 38.7	2479	41.8	74 20.9	2286	41.6	75 02.6	2101	41.3	75 44.0	1923	41.1	76 25.1	1753	40.9	129
52	73 58.9	2553	40.8	74 40.3	2354	40.5	75 21.3	2163	40.3	76 01.9	1980	40.1	76 42.2	1805	39.9	128
53	74 19.5	2626	39.7	75 00.0	2421	39.5	75 40.2	2225	39.3	76 20.0	2036	39.1	76 59.5	1856	38.9	127
54	74 40.3	2699	38.7	75 20.1	2489	38.5	75 59.4	2286	38.3	76 38.4	2092	38.1	77 17.1	1907	37.9	126
55	75 01.6	2772	37.7	75 40.5	2555	37.5	76 19.0	2347	37.3	76 57.2	2147	37.1	77 35.0	1957	36.9	125
56	75 23.1	2844	36.7	76 01.2	2621	36.4	76 38.8	2407	36.2	77 16.1	2202	36.0	77 53.1	2007	35.8	124
57	75 45.0	2915	35.6	76 22.2	2686	35.4	76 59.0	2467	35.2	77 35.4	2257	35.0	78 11.5	2056	34.8	123
58	76 07.2	2985	34.6	76 43.5	2751	34.4	77 19.4	2526	34.2	77 54.9	2310	34.0	78 30.1	2104	33.8	122
59	76 29.7	3055	33.5	77 05.1	2814	33.3	77 40.1	2584	33.1	78 14.7	2363	32.9	78 49.0	2152	32.8	121
60	76 52.5	3123	32.5	77 27.0	2877	32.3	78 01.0	2641	32.1	78 34.8	2415	31.9	79 08.1	2199	31.7	120
61	77 15.7	3190	31.5	77 49.2	2938	31.2	78 22.3	2697	31.1	78 55.0	2466	30.9	79 27.5	2245	30.7	119
62	77 35.1	3256	30.4	78 11.6	2993	30.2	78 43.8	2752	30.0	79 15.6	2516	29.8	79 47.1	2291	29.7	118
63	78 02.8	3320	29.3	78 34.4	3057	29.2	79 05.5	2806	29.0	79 36.4	2565	28.8	80 06.9	2335	28.6	117
64	78 26.8	3384	28.3	78 57.4	3115	28.1	79 27.5	2858	27.9	79 57.4	2613	27.7	80 26.9	2378	27.6	116
65	78 51.1	3445	27.2	79 20.6	3171	27.0	79 49.8	2910	26.9	80 18.6	2659	26.7	80 47.1	2421	26.5	115
66	79 15.6	3505	26.2	79 44.1	3226	26.0	80 12.3	2960	25.8	80 40.1	2705	25.6	81 07.6	2462	25.5	114
67	79 40.4	3563	25.1	80 07.9	3280	24.9	80 35.0	3008	24.8	81 01.7	2749	24.6	81 28.2	2502	24.4	113
68	80 05.5	3620	24.0	80 31.9	3331	23.9	80 57.9	3055	23.7	81 23.6	2792	23.5	81 49.0	2540	23.4	112
69	80 30.8	3674	23.0	80 56.1	3381	22.8	81 21.0	3101	22.6	81 45.7	2833	22.5	82 10.0	2578	22.4	111
70	80 56.3	3727	21.9	81 20.5	3429	21.7	81 44.4	3144	21.6	82 07.9	2873	21.4	82 31.2	2614	21.3	110
71	81 22.1	3778	20.8	81 45.1	3475	20.7	82 07.9	3187	20.5	82 30.4	2911	20.4	82 52.6	2648	20.2	109
72	81 48.0	3826	19.7	82 10.0	3520	19.6	82 31.6	3227	19.4	82 53.0	2948	19				

61	69 19.9	1383	56.6	70 11.5	1278	56.4	71 02.8	1177	56.2	71 54.0	1079	56.0	72 44.9	986	55.9	144
62	69 34.5	1452	55.7	70 25.6	1342	55.5	71 16.4	1235	55.3	72 07.0	1133	55.1	72 57.4	1034	54.9	143
63	69 49.4	1522	54.7	70 40.0	1406	54.5	71 30.3	1294	54.3	72 20.4	1187	54.1	73 10.2	1084	53.9	142
64	70 04.8	1593	53.7	70 54.8	1471	53.5	71 44.6	1354	53.3	72 34.1	1242	53.1	73 23.4	1134	52.9	141
65	70 20.6	1665	52.7	71 10.0	1537	52.5	71 59.2	1415	52.3	72 48.2	1297	52.1	73 36.8	1184	51.9	140
41	70 36.7	1737	51.8	71 25.6	1604	51.5	72 14.2	1476	51.3	73 02.5	1353	51.1	73 50.6	1235	50.9	139
42	70 53.2	1810	50.8	71 41.5	1671	50.6	72 29.5	1538	50.3	73 17.3	1409	50.1	74 04.7	1286	49.9	138
43	71 10.1	1883	49.8	71 57.8	1739	49.6	72 45.2	1599	49.4	73 32.3	1466	49.2	74 19.1	1337	49.0	137
44	71 27.4	1957	48.8	72 14.5	1807	48.6	73 01.2	1662	48.4	73 47.7	1523	48.2	74 33.8	1389	48.0	136
45	71 45.1	2031	47.8	72 31.5	1875	47.6	73 17.6	1724	47.4	74 03.4	1580	47.2	74 48.8	1441	47.0	135
46	72 03.1	2106	46.8	72 48.8	1943	46.6	73 34.3	1787	46.4	74 19.4	1637	46.2	75 04.2	1493	46.0	134
47	72 21.5	2180	45.8	73 06.6	2012	45.6	73 51.3	1850	45.4	74 35.7	1694	45.2	75 19.8	1545	45.0	133
48	72 40.3	2255	44.8	73 24.6	2080	44.6	74 08.6	1913	44.4	74 52.3	1752	44.2	75 35.7	1597	44.0	132
49	72 59.4	2330	43.8	73 43.0	2149	43.6	74 26.3	1975	43.4	75 09.3	1809	43.2	75 51.9	1650	43.0	131
50	73 18.9	2404	42.8	74 01.8	2218	42.6	74 44.3	2038	42.4	75 26.5	1866	42.1	76 08.4	1701	41.9	130
51	73 38.7	2479	41.8	74 20.9	2286	41.6	75 02.6	2101	41.3	75 44.0	1923	41.1	76 25.1	1753	40.9	129
52	73 58.9	2553	40.8	74 40.3	2354	40.5	75 21.3	2163	40.3	76 01.9	1980	40.1	76 42.2	1805	39.9	128
53	74 19.5	2626	39.7	75 00.0	2421	39.5	75 40.2	2225	39.3	76 20.0	2036	39.1	76 59.5	1856	38.9	127
54	74 40.3	2699	38.7	75 20.1	2489	38.5	75 59.4	2286	38.3	76 38.4	2092	38.1	77 17.1	1907	37.9	126
55	75 01.6	2772	37.7	75 40.5	2555	37.5	76 19.0	2347	37.3	76 57.2	2147	37.1	77 35.0	1957	36.9	125
56	75 23.1	2844	36.7	76 01.2	2621	36.4	76 38.8	2407	36.2	77 16.1	2202	36.0	77 53.1	2007	35.8	124
57	75 45.0	2915	35.6	76 22.2	2686	35.4	76 59.0	2467	35.2	77 35.4	2257	35.0	78 11.5	2056	34.8	123
58	76 07.2	2985	34.6	76 43.5	2751	34.4	77 19.4	2526	34.2	77 54.9	2310	34.0	78 30.1	2104	33.8	122
59	76 29.7	3055	33.5	77 05.1	2814	33.3	77 40.1	2584	33.1	78 14.7	2363	32.9	78 49.0	2152	32.8	121
60	76 52.5	3123	32.5	77 27.0	2877	32.3	78 01.0	2641	32.1	78 34.8	2415	31.9	79 08.1	2199	31.7	120
61	77 15.7	3190	31.5	77 49.2	2938	31.2	78 22.3	2697	31.1	78 55.0	2466	30.9	79 27.5	2245	30.7	119
62	77 39.1	3256	30.4	78 11.6	2993	30.2	78 43.8	2752	30.0	79 15.6	2516	29.8	79 47.1	2291	29.7	118
63	78 02.8	3320	29.3	78 34.4	3057	29.2	79 05.5	2806	29.0	79 36.4	2565	28.8	80 06.9	2335	28.6	117
64	78 26.8	3384	28.3	78 57.4	3115	28.1	79 27.5	2858	27.9	79 57.4	2613	27.7	80 26.9	2378	27.6	116
65	78 51.1	3445	27.2	79 20.6	3171	27.0	79 49.8	2910	26.9	80 18.6	2659	26.7	80 47.1	2421	26.5	115
66	79 15.6	3505	26.2	79 44.1	3226	26.0	80 12.3	2960	25.8	80 40.1	2705	25.6	81 07.6	2462	25.5	114
67	79 40.4	3563	25.1	80 07.9	3280	24.9	80 35.0	3008	24.8	81 01.7	2749	24.6	81 28.2	2502	24.4	113
68	80 05.5	3620	24.0	80 31.9	3331	23.9	80 57.9	3055	23.8	81 23.6	2792	23.5	81 49.0	2540	23.4	112
69	80 30.8	3674	23.0	80 56.1	3381	22.8	81 21.0	3101	22.6	81 45.7	2833	22.5	82 10.0	2578	22.4	111
70	80 56.3	3727	21.9	81 20.5	3429	21.7	81 44.4	3144	21.6	82 07.9	2873	21.4	82 31.2	2614	21.3	110
71	81 22.1	3778	20.8	81 45.1	3475	20.7	82 07.9	3187	20.5	82 30.4	2911	20.4	82 52.6	2648	20.2	109
72	81 48.0	3826	19.7	82 10.0	3520	19.6	82 31.6	3227	19.4	82 53.0	2948	19.3	83 14.1	2681	19.2	108
73	82 14.2	3873	18.6	82 35.0	3562	18.5	82 55.5	3265	18.4	83 15.8	2982	18.2	83 35.8	2713	18.1	107
74	82 40.5	3917	17.6	83 00.2	3602	17.4	83 19.6	3302	17.3	83 38.7	3016	17.2	83 57.6	2743	17.1	106
75	83 07.1	3958	16.5	83 25.6	3641	16.3	83 43.8	3337	16.2	84 01.8	3047	16.1	84 19.6	2772	16.0	105
76	83 33.8	3998	15.4	83 51.1	3677	15.3	84 08.2	3370	15.2	84 25.0	3077	15.1	84 41.7	2798	15.0	104
77	84 00.7	4035	14.3	84 16.8	3710	14.2	84 32.7	3400	14.1	84 48.4	3105	14.0	85 03.9	2823	13.9	103
78	84 27.7	4069	13.2	84 42.7	3742	13.1	84 57.4	3429	13.0	85 11.9	3131	12.9	85 26.2	2847	12.8	102
79	84 54.9	4101	12.1	85 08.7	3771	12.0	85 22.2	3455	11.9	85 35.5	3155	11.8	85 48.7	2869	11.8	101
80	85 22.2	4131	11.0	85 34.7	3798	10.9	85 47.1	3480	10.8	85 59.2	3177	10.8	86 11.2	2889	10.7	100
81	85 49.7	4157	9.9	86 01.0	3822	9.8	86 12.1	3502	9.8	86 23.0	3197	9.7	86 33.8	2907	9.6	99
82	86 17.2	4181	8.8	86 27.3	3844	8.7	86 37.1	3522	8.7	86 46.9	3215	8.6	86 56.5	2923	8.6	98
83	86 44.8	4202	7.7	86 53.7	3863	7.7	87 02.3	3539	7.6	87 10.9	3231	7.5	87 19.3	2937	7.5	97
84	87 12.6	4221	6.6	87 20.1	3880	6.6	87 27.6	3555	6.5	87 34.9	3245	6.5	87 42.1	2950	6.4	96
85	87 40.4	4237	5.5	87 46.7	3894	5.5	87 52.9	3568	5.4	87 59.0	3257	5.4	88 05.0	2961	5.4	95
86	88 08.2	4249	4.4	88 13.3	3906	4.4	88 18.2	3578	4.3	88 23.1	3266	4.3	88 28.0	2969	4.3	94
87	88 36.1	4260	3.3	88 39.9	3915	3.3	88 43.6	3587	3.3	88 47.3	3274	3.2	88 50.9	2976	3.2	93
88	89 04.1	4267	2.2	89 06.6	3922	2.2	89 09.1	3593	2.2	89 11.5	3279	2.2	89 13.9	2981	2.1	92
89	89 32.0	4271	1.1	89 33.3	3926	1.1	89 34.5	3596	1.1	89 35.8	3282	1.1	89 37.0	2984	1.1	91
90	90 00.0	4272	0.0	90 00.0	3927	0.0	90 00.0	3597	0.0	90 00.0	3283	0.0	90 00.0	2985	0.0	90
LHA	180°-K	A	Z <sup>1</sup>	180°-K	A	Z <sup>1</sup>	180°-K	A	Z <sup>1</sup>	180°-K	A	Z <sup>1</sup>	180°-K	A	Z <sup>1</sup>	LHA

TABLE A

LAT LHA	70°			71°			72°			73°			74°			LHA
	K	A	Z'	K	A	Z'	K	A	Z'	K	A	Z'	K	A	Z'	
0	70 00.0	0	90.0	71 00.0	0	90.0	72 00.0	0	90.0	73 00.0	0	90.0	74 00.0	0	90.0	180
1	70 00.2	1	89.1	71 00.2	1	89.1	72 00.2	1	89.0	73 00.1	1	89.0	74 00.1	1	89.0	179
2	70 00.7	3	88.1	71 00.6	3	88.1	72 00.6	3	88.1	73 00.6	2	88.1	74 00.6	2	88.1	178
3	70 01.5	7	87.2	71 01.5	6	87.2	72 01.4	6	87.1	73 01.3	5	87.1	74 01.2	5	87.1	177
4	70 02.7	12	86.2	71 02.6	11	86.2	72 02.5	10	86.2	73 02.3	9	86.2	74 02.2	8	86.2	176
5	70 04.2	19	85.3	71 04.0	17	85.3	72 03.8	16	85.2	73 03.7	14	85.2	74 03.5	13	85.2	175
6	70 06.1	28	84.4	71 05.8	25	84.3	72 05.5	23	84.3	73 05.3	20	84.3	74 05.0	18	84.2	174
7	70 08.2	38	83.4	71 07.9	34	83.4	72 07.5	31	83.3	73 07.2	28	83.3	74 06.8	25	83.3	173
8	70 10.8	49	82.5	71 10.3	45	82.4	72 09.8	40	82.4	73 09.4	36	82.3	74 08.9	32	82.3	172
9	70 13.6	62	81.5	71 13.0	56	81.5	72 12.5	51	81.4	73 11.8	45	81.4	74 11.2	40	81.3	171
10	70 16.8	77	80.6	71 16.1	70	80.5	72 15.4	63	80.5	73 14.6	56	80.4	74 13.9	50	80.4	170
11	70 20.3	93	79.6	71 19.5	84	79.6	72 18.6	76	79.5	73 17.7	68	79.5	74 16.8	60	79.4	169
12	70 24.2	110	78.7	71 23.2	100	78.6	72 22.1	90	78.6	73 21.0	80	78.5	74 19.9	71	78.5	168
13	70 28.4	129	77.8	71 27.2	117	77.7	72 26.0	105	77.6	73 24.7	94	77.5	74 23.4	84	77.5	167
14	70 32.9	149	76.8	71 31.5	135	76.7	72 30.1	122	76.7	73 28.6	109	76.6	74 27.1	97	76.5	166
15	70 37.8	171	75.9	71 36.2	155	75.8	72 34.5	139	75.7	73 32.8	125	75.6	74 31.1	111	75.6	165
16	70 43.0	194	74.9	71 41.2	176	74.8	72 39.3	158	74.7	73 37.4	141	74.7	74 35.4	126	74.6	164
17	70 48.5	218	74.0	71 46.5	198	73.9	72 44.3	178	73.8	73 42.2	159	73.7	74 39.9	141	73.6	163
18	70 54.4	244	73.0	71 52.1	221	72.9	72 49.7	199	72.8	73 47.2	178	72.7	74 44.7	158	72.7	162
19	71 00.6	271	72.1	71 58.0	245	72.0	72 55.3	221	71.9	73 52.6	198	71.8	74 49.8	176	71.7	161
20	71 07.1	299	71.1	72 04.2	271	71.0	73 01.3	244	70.9	73 58.3	218	70.8	74 55.2	194	70.7	160
21	71 13.9	329	70.2	72 10.8	298	70.1	73 07.5	268	69.9	74 04.2	240	69.8	75 00.8	213	69.7	159
22	71 21.1	359	69.2	72 17.6	325	69.1	73 14.1	293	69.0	74 10.4	262	68.9	75 06.7	233	68.8	158
23	71 28.6	391	68.3	72 24.8	354	68.1	73 20.9	319	68.0	74 16.9	285	67.9	75 12.8	253	67.8	157
24	71 36.5	424	67.3	72 32.3	384	67.2	73 28.1	346	67.1	74 23.7	309	66.9	75 19.3	275	66.8	156
25	71 44.6	458	66.3	72 40.1	415	66.2	73 35.5	374	66.1	74 30.8	334	66.0	75 25.9	297	65.9	155
26	71 53.1	494	65.4	72 48.2	447	65.2	73 43.2	402	65.1	74 38.1	360	65.0	75 32.9	319	64.9	154
27	72 01.9	530	64.4	72 56.6	480	64.3	73 51.2	432	64.1	74 45.7	386	64.0	75 40.1	343	63.9	153
28	72 11.1	567	63.5	73 05.4	513	63.3	73 59.6	462	63.2	74 53.6	413	63.0	75 47.5	367	62.9	152
29	72 20.5	605	62.5	73 14.4	548	62.3	74 08.2	493	62.2	75 01.8	441	62.1	75 55.3	391	61.9	151
30	72 30.3	645	61.5	73 23.7	583	61.4	74 17.0	525	61.2	75 10.2	469	61.1	76 03.2	416	61.0	150
31	72 40.4	684	60.6	73 33.4	619	60.4	74 26.2	557	60.3	75 18.9	498	60.1	76 11.5	442	60.0	149
32	72 50.8	725	59.6	73 43.3	656	59.4	74 35.7	590	59.3	75 27.9	528	59.1	76 19.9	468	59.0	148
33	73 01.5	767	58.6	73 53.5	694	58.4	74 45.4	624	58.3	75 37.1	558	58.2	76 28.7	495	58.0	147
34	73 12.5	809	57.6	74 04.1	732	57.5	74 55.4	658	57.3	75 46.6	588	57.2	76 37.7	522	57.0	146
35	73 23.9	852	56.7	74 14.9	771	56.5	75 05.7	693	56.3	75 56.4	619	56.2	76 46.9	550	56.1	145
36	73 35.6	896	55.7	74 26.0	810	55.5	75 16.3	728	55.4	76 06.4	651	55.2	76 56.4	578	55.1	144
37	73 47.5	940	54.7	74 37.4	850	54.5	75 27.2	764	54.4	76 16.7	683	54.2	77 06.1	606	54.1	143
38	73 59.8	985	53.7	74 49.2	890	53.5	75 38.3	801	53.4	76 27.3	715	53.2	77 16.0	635	53.1	142
39	74 12.4	1030	52.7	75 01.1	931	52.6	75 49.7	837	52.4	76 38.1	748	52.2	77 26.2	663	52.1	141
40	74 25.2	1076	51.7	75 13.4	972	51.6	76 01.4	874	51.4	76 49.1	781	51.3	77 36.7	693	51.1	140
41	74 38.4	1122	50.8	75 26.0	1014	50.6	76 13.3	911	50.4	77 00.4	814	50.3	77 47.3	722	50.1	139
42	74 51.9	1168	49.8	75 38.8	1056	49.6	76 25.5	949	49.4	77 12.0	847	49.3	77 58.2	752	49.1	138
43	75 05.6	1215	48.8	75 51.9	1098	48.6	76 38.0	987	48.4	77 23.8	881	48.3	78 09.4	781	48.1	137
44	75 19.7	1262	47.8	76 05.3	1140	47.6	76 50.7	1024	47.4	77 35.8	915	47.3	78 20.7	811	47.1	136
45	75 34.0	1309	46.8	76 19.0	1182	46.6	77 03.6	1062	46.4	77 48.1	949	46.3	78 32.3	841	46.1	135
46	75 48.7	1356	45.8	76 32.9	1225	45.6	77 16.9	1100	45.4	78 00.6	982	45.3	78 44.1	871	45.1	134
47	76 03.6	1403	44.8	76 47.1	1267	44.6	77 30.3	1138	44.4	78 13.3	1016	44.3	78 56.1	901	44.1	133
48	76 18.7	1450	43.8	77 01.5	1310	43.6	77 44.0	1176	43.4	78 26.3	1050	43.3	79 08.3	931	43.1	132
49	76 34.2	1497	42.8	77 16.2	1352	42.6	77 58.0	1214	42.4	78 39.5	1084	42.3	79 20.8	961	42.1	131
50	76 49.9	1544	41.8	77 31.2	1394	41.6	78 12.2	1252	41.4	78 52.9	1118	41.3	79 33.4	990	41.1	130
51	77 05.9	1591	40.8	77 46.4	1437	40.6	78 26.6	1290	40.4	79 06.6	1151	40.3	79 46.2	1020	40.1	129
52	77 22.2	1638	39.7	78 01.9	1478	39.6	78 41.3	1327	39.4	79 20.4	1184	39.2	79 59.3	1049	39.1	128
53	77 38.7	1684	38.7	78 17.6	1520	38.6	78 56.2	1365	38.4	79 34.5	1217	38.2	80 12.5	1079	38.1	127
54	77 55.5	1730	37.7	78 33.5	1561	37.5	79 11.3	1401	37.4	79 48.7	1250	37.2	80 26.0	1108	37.1	126
55	78 12.5	1775	36.7	78 49.7	1602	36.5	79 26.6	1438	36.4	80 03.2	1283	36.2	80 39.6	1136	36.1	125
56	78 29.7	1820	35.7	79 06.1	1643	35.5	79 42.1	1474	35.3	80 17.9	1315	35.2	80 53.4	1165	35.1	124
57	78 47.2	1864	34.6	79 22.7	1682	34.5	79 57.9	1510	34.3	80 32.8	1346	34.2	81 07.4	1193	34.1	123
58	79 05.0	1908	33.6	79 39.6	1722	33.5	80 13.8	1545	33.3	80 47.8	1378	33.2	81 21.6	1220	33.1	122
59	79 23.0	1951	32.6	79 56.6	1761	32.4	80 30.0	1580	32.3	81 03.1	1409	32.1	81 35.9	1247	32.1	121
60	79 41.2	1994	31.6	80 13.9	1799	31.4	80 46.3	1614	31.3	81 18.5	1439	31.1	81 50.5	1274	31.1	120
61	79 59.6	2036	30.5	80 31.4	1836	30.4	81 03.9	1647	30.2	81 34.1	1468	30.1	82 05.1	1300	30.1	119
62	80 18.2	2076	29.5	80 49.0	1873	29.4	81 19.6	1680	29.2	81 49.9	1496	29.1	82 20.0	1326	29.1	118
63	80 37.0	2116	28.5	81 06.9	1909	28.3	81 36.5	1712	29.2	82 15.9	1524	29.1	82 35.1	1351	29.1	117
64	80 56.1	2156	27.4	81 25.0	1944	27.3	81 53.5	1744	27.2	82 32.0	1551	27.1	82 50.4	1376	29.1	116
65	81 15.3	2194	26.4	81 43.2	1979	26.3	82 10.9	1776	26.1	82 48.1	1578	26.1	83 05.9	1400	29.1	115

14	70 32.9	149 76.8	171 31.5	135 76.7	72 30.1	122 76.7	73 28.6	109 76.6	74 27.1	97 76.5	165		
15	70 37.8	171 75.9	71 36.2	155 75.8	72 34.5	139 75.7	73 32.8	125 75.6	74 31.1	111 75.6	165		
16	70 43.0	194 74.9	71 41.2	176 74.8	72 39.3	158 74.7	73 37.4	141 74.7	74 35.4	125 74.6	164		
17	70 48.5	218 74.0	71 46.5	198 73.9	72 44.3	178 73.8	73 42.2	159 73.7	74 39.9	141 73.6	163		
18	70 54.4	244 73.0	71 52.1	221 72.9	72 49.7	199 72.8	73 47.2	178 72.7	74 44.7	158 72.7	162		
19	71 00.6	271 72.1	71 58.0	245 72.0	72 55.3	221 71.9	73 52.6	198 71.8	74 49.8	176 71.7	161		
20	71 07.1	299 71.1	72 04.2	271 71.0	73 01.3	244 70.9	73 58.3	218 70.8	74 55.2	194 70.7	160		
21	71 13.9	329 70.2	72 10.8	298 70.1	73 07.5	268 69.9	74 04.2	240 69.8	75 00.8	213 69.7	159		
22	71 21.1	359 69.2	72 17.6	325 69.1	73 14.1	293 69.0	74 10.4	262 68.9	75 06.7	233 68.8	158		
23	71 28.6	391 68.3	72 24.8	354 68.1	73 20.9	319 68.0	74 16.9	285 67.9	75 12.8	253 67.8	157		
24	71 36.5	424 67.3	72 32.3	384 67.2	73 28.1	346 67.1	74 23.7	309 66.9	75 19.3	275 66.8	156		
25	71 44.6	458 66.3	72 40.1	415 66.2	73 35.5	374 66.1	74 30.8	334 66.0	75 25.9	297 65.9	155		
26	71 53.1	494 65.4	72 48.2	447 65.2	73 43.2	402 65.1	74 38.1	360 65.0	75 32.9	319 64.9	154		
27	72 01.9	530 64.4	72 56.6	480 64.3	73 51.2	432 64.1	74 45.7	386 64.0	75 40.1	343 63.9	153		
28	72 11.1	567 63.5	73 05.4	513 63.3	73 59.6	462 63.2	74 53.6	413 63.0	75 47.5	367 62.9	152		
29	72 20.5	605 62.5	73 14.4	548 62.3	74 08.2	493 62.2	75 01.8	441 62.1	75 55.3	391 61.9	151		
30	72 30.3	645 61.5	73 23.7	583 61.4	74 17.0	525 61.2	75 10.2	469 61.1	76 03.2	416 61.0	150		
31	72 40.4	684 60.6	73 33.4	619 60.4	74 26.2	557 60.3	75 18.9	498 60.1	76 11.5	442 60.0	149		
32	72 50.8	725 59.6	73 43.3	656 59.4	74 35.7	590 59.3	75 27.9	528 59.1	76 19.9	468 59.0	148		
33	73 01.5	767 58.6	73 53.5	694 58.4	74 45.4	624 58.3	75 37.1	558 58.2	76 28.7	495 58.0	147		
34	73 12.5	809 57.6	74 04.1	732 57.5	74 55.4	658 57.3	75 46.6	588 57.2	76 37.7	522 57.0	146		
35	73 23.9	852 56.7	74 14.9	771 56.5	75 05.7	693 56.3	75 56.4	619 56.2	76 46.9	550 56.1	145		
36	73 35.6	896 55.7	74 26.0	810 55.5	75 16.3	728 55.4	76 06.4	651 55.2	76 56.4	578 55.1	144		
37	73 47.5	940 54.7	74 37.4	850 54.5	75 27.2	764 54.4	76 16.7	683 54.2	77 06.1	606 54.1	143		
38	73 59.8	985 53.7	74 49.2	890 53.5	75 38.3	801 53.4	76 27.3	715 53.2	77 16.0	635 53.1	142		
39	74 12.4	1030 52.7	75 01.1	931 52.6	75 49.7	837 52.4	76 38.1	748 52.2	77 26.2	663 52.1	141		
40	74 25.2	1076 51.7	75 13.4	972 51.6	76 01.4	874 51.4	76 49.1	781 51.3	77 36.7	693 51.1	140		
41	74 38.4	1122 50.8	75 26.0	1014 50.6	76 13.3	911 50.4	77 00.4	814 50.3	77 47.3	722 50.1	139		
42	74 51.9	1168 49.8	75 38.8	1056 49.6	76 25.5	949 49.4	77 12.0	847 49.3	77 58.2	752 49.1	138		
43	75 05.6	1215 48.8	75 51.9	1098 48.6	76 38.0	987 48.4	77 23.8	881 48.3	78 09.4	781 48.1	137		
44	75 19.7	1262 47.8	76 05.3	1140 47.6	76 50.7	1074 47.4	77 35.8	915 47.3	78 20.7	811 47.1	136		
45	75 34.0	1309 46.8	76 19.0	1182 46.6	77 03.6	1062 46.4	77 48.1	949 46.3	78 32.3	841 46.1	135		
46	75 48.7	1356 45.8	76 32.9	1225 45.6	77 16.9	1100 45.4	78 00.6	982 45.3	78 44.1	871 45.1	134		
47	76 03.6	1403 44.8	76 47.1	1267 44.6	77 30.3	1138 44.4	78 13.3	1016 44.3	78 56.1	901 44.1	133		
48	76 18.7	1450 43.8	77 01.5	1310 43.6	77 44.0	1176 43.4	78 26.3	1050 43.3	79 08.3	931 43.1	132		
49	76 34.2	1497 42.8	77 16.2	1352 42.6	77 58.0	1214 42.4	78 39.5	1084 42.3	79 20.8	961 42.1	131		
50	76 49.9	1544 41.8	77 31.2	1394 41.6	78 12.2	1252 41.4	78 52.9	1118 41.3	79 33.4	990 41.1	130		
51	77 05.9	1591 40.8	77 46.4	1437 40.6	78 26.6	1290 40.4	79 06.6	1151 40.3	79 46.2	1020 40.1	129		
52	77 22.2	1638 39.7	78 01.9	1478 39.6	78 41.3	1327 39.4	79 20.4	1184 39.2	79 59.3	1049 39.1	128		
53	77 38.7	1684 38.7	78 17.6	1520 38.6	78 56.2	1365 38.4	79 34.5	1217 38.2	80 12.5	1079 38.1	127		
54	77 55.5	1730 37.7	78 33.5	1561 37.5	79 11.3	1401 37.4	79 48.7	1250 37.2	80 26.0	1108 37.1	126		
55	78 12.5	1775 36.7	78 49.7	1602 36.5	79 26.6	1438 36.4	80 03.2	1283 36.2	80 39.6	1136 36.1	125		
56	78 29.7	1820 35.7	79 06.1	1643 35.5	79 42.1	1474 35.3	80 17.9	1315 35.2	80 53.4	1165 35.1	124		
57	78 47.2	1864 34.6	79 22.7	1682 34.5	79 57.9	1510 34.3	80 32.8	1346 34.2	81 07.4	1193 34.0	123		
58	79 05.0	1908 33.6	79 39.6	1722 33.5	80 13.8	1545 33.3	80 47.8	1378 33.2	81 21.6	1220 33.0	122		
59	79 23.0	1951 32.6	79 56.6	1761 32.4	80 30.0	1580 32.3	81 03.1	1409 32.1	81 35.9	1247 32.0	121		
60	79 41.2	1994 31.6	80 13.9	1799 31.4	80 46.3	1614 31.3	81 18.5	1439 31.1	81 50.5	1274 31.0	120		
61	79 59.6	2036 30.5	80 31.4	1836 30.4	81 02.9	1647 30.2	81 34.1	1468 30.1	82 05.1	1300 30.0	119		
62	80 18.2	2076 29.5	80 49.0	1873 29.4	81 19.6	1680 29.2	81 49.9	1498 29.1	82 20.0	1326 28.9	118		
63	80 37.0	2116 28.5	81 06.9	1909 28.3	81 36.5	1712 28.2	82 05.9	1526 28.0	82 35.0	1351 27.9	117		
64	80 56.1	2156 27.4	81 25.0	1944 27.3	81 53.5	1743 27.2	82 22.0	1554 27.0	82 50.1	1375 26.9	116		
65	81 15.3	2194 26.4	81 43.2	1978 26.3	82 10.9	1774 26.1	82 38.3	1581 26.0	83 05.4	1399 25.9	115		
66	81 34.7	2231 25.4	82 01.7	2011 25.2	82 28.3	1803 25.1	82 54.7	1607 25.0	83 20.9	1422 24.9	114		
67	81 54.4	2267 24.3	82 20.2	2043 24.2	82 45.9	1832 24.1	83 11.3	1633 23.9	83 36.4	1445 23.8	113		
68	82 14.2	2301 23.3	82 39.0	2075 23.1	83 03.6	1860 23.0	83 28.0	1657 22.9	83 52.1	1467 22.8	112		
69	82 34.1	2335 22.2	82 57.9	2105 22.1	83 21.5	1887 22.0	83 44.8	1681 21.9	84 08.0	1488 21.8	111		
70	82 54.2	2367 21.2	83 17.0	2134 21.1	83 39.5	1913 20.9	84 01.8	1704 20.8	84 23.9	1508 20.7	110		
71	83 14.5	2399 20.1	83 36.2	2162 20.0	83 57.7	1938 19.9	84 18.9	1726 19.8	84 40.0	1527 19.7	109		
72	83 35.0	2428 19.1	83 55.6	2189 19.0	84 16.0	1962 18.9	84 36.2	1747 18.8	84 56.2	1546 18.7	108		
73	83 55.5	2457 18.0	84 15.1	2214 17.9	84 34.4	1984 17.8	84 53.5	1768 17.7	85 12.5	1564 17.6	107		
74	84 16.3	2484 17.0	84 34.7	2238 16.9	84 52.9	2006 16.8	85 11.0	1787 16.7	85 28.9	1581 16.6	106		
75	84 37.1	2510 15.9	84 54.4	2261 15.8	85 11.6	2026 15.7	85 28.5	1805 15.7	85 45.3	1597 15.6	105		
76	84 58.1	2534 14.9	85 14.3	2283 14.8	85 30.3	2046 14.7	85 46.2	1822 14.6	86 01.9	1612 14.5	104		
77	85 19.2	2556 13.8	85 34.3	2303 13.7	85 49.2	2064 13.6	86 03.9	1838 13.6	86 18.6	1626 13.5	103		
78	85 40.3	2577 12.7	85 54.3	2322 12.7	86 08.1	2080 12.6	86 21.8	1853 12.5	86 35.3	1639 12.5	102		
79	86 01.6	2597 11.7	86 14.5	2339 11.6	86 27.1	2096 11.6	86 39.7	1867 11.5	86 52.1	1651 11.4	101		
80	86 23.0	2615 10.6	86 34.7	2355 10.6	86 46.2	2110 10.5	86 57.7	1879 10.4	87 09.0	1662 10.4	100		
81	86 44.5	2631 9.6	86 55.0	2370 9.5	87 05.4	2123 9.5	87 15.7	1891 9.4	87 25.9	1672 9.4	99		
82	87 06.0	2646 8.5	87 15.4	2383 8.5	87 24.7	2135 8.4	87 33.8	1901 8.4	87 42.9	1681 8.3	98		
83	87 27.6	2659 7.4	87 35.8	2395 7.4	87 43.9	2145 7.4	87 52.0	1910 7.3	87 59.9	1689 7.3	97		
84	87 49.3	2670 6.4	87 56.3	2405 6.3	88 03.3	2154 6.3	88 10.2	1918 6.3	88 17.0	1696 6.2	96		
85	88 11.0	2680 5.3	88 16.9	2413 5.3	88 22.7	2162 5.3	88 28.4	1925 5.2	88 34.1	1702 5.2	95		
86	88 32.7	2687 4.3	88 37.4	2420 4.2	88 42.1	2168 4.2	88 46.7	1930 4.2	88 51.2	1707 4.2	94		
87	88 54.5	2694 3.2	88 58.1	2426 3.2	89 01.5	2173 3.2	89 05.0	1935 3.1	89 08.4	1711 3.1	93		
88	89 16.3	2698 2.1	89 18.7	2430 2.1	89 21.0	2177 2.1	89 23.3	1938 2.1	89 25.6	1714 2.1	92		
89	89 38.2	2701 1.1	89 39.3	2432 1.1	89 40.5	2179 1.1	89 41.7	1940 1.0	89 42.8	1715 1.0	91		
90	90 00.0	2701 0.0	90 00.0	2433 0.0	90 00.0	2179 0.0	90 00.0	1940 0.0	90 00.0	1716 0.0	90		
LHA	180°-K	A	Z'	180°-K	A	Z'	180°-K	A	Z'	180°-K	A	Z'	LHA

TABLE A

LAT	75°			76°			77°			78°			79°			LHA
LHA	K	A	Z <sup>1</sup>	K	A	Z <sup>1</sup>	K	A	Z <sup>1</sup>	K	A	Z <sup>1</sup>	K	A	Z <sup>1</sup>	LHA
0	75 00.0	0	90.0	76 00.0	0	90.0	77 00.0	0	90.0	78 00.0	0	90.0	79 00.0	0	90.0	180
1	75 00.1	0	89.0	76 00.1	0	89.0	77 00.1	0	89.0	78 00.1	0	89.0	79 00.1	0	89.0	179
2	75 00.5	2	88.1	76 00.5	2	88.1	77 00.5	1	88.1	78 00.4	1	88.0	79 00.4	1	88.0	178
3	75 01.2	4	87.1	76 01.1	3	87.1	77 01.0	3	87.1	78 01.0	3	87.1	79 00.9	2	87.1	177
4	75 02.1	7	86.1	76 02.0	6	86.1	77 01.8	5	86.1	78 01.7	5	86.1	79 01.6	4	86.1	176
5	75 03.3	11	85.2	76 03.1	10	85.1	77 02.9	8	85.1	78 02.7	7	85.1	79 02.5	6	85.1	175
6	75 04.7	16	84.2	76 04.4	14	84.2	77 04.1	12	84.2	78 03.8	10	84.1	79 03.5	9	84.1	174
7	75 06.4	22	83.2	76 06.0	19	83.2	77 05.6	16	83.2	78 05.2	14	83.2	79 04.8	12	83.1	173
8	75 08.4	28	82.3	76 07.9	25	82.2	77 07.3	21	82.2	78 06.8	18	82.2	79 06.3	15	82.1	172
9	75 10.6	36	81.3	76 09.9	31	81.3	77 09.3	27	81.2	78 08.6	23	81.2	79 07.9	19	81.2	171
10	75 13.1	44	80.3	76 12.3	38	80.3	77 11.5	33	80.3	78 10.6	28	80.2	79 09.8	24	80.2	170
11	75 15.8	53	79.4	76 14.8	46	79.3	77 13.9	40	79.3	78 12.9	34	79.2	79 11.8	29	79.2	169
12	75 18.8	63	78.4	76 17.7	55	78.3	77 16.5	48	78.3	78 15.3	41	78.3	79 14.1	34	78.2	168
13	75 22.1	74	77.4	76 20.7	64	77.4	77 19.3	56	77.3	78 17.9	48	77.3	79 16.5	40	77.2	167
14	75 25.6	85	76.5	76 24.0	75	76.4	77 22.4	64	76.3	78 20.8	55	76.3	79 19.1	46	76.2	166
15	75 29.4	98	75.5	76 27.6	85	75.4	77 25.7	74	75.4	78 23.9	63	75.3	79 22.0	53	75.3	165
16	75 33.4	111	74.5	76 31.3	97	74.5	77 29.2	84	74.4	78 27.1	71	74.3	79 25.0	60	74.3	164
17	75 37.7	125	73.5	76 35.3	109	73.5	77 33.0	94	73.4	78 30.6	80	73.4	79 28.2	68	73.3	163
18	75 42.2	139	72.6	76 39.6	122	72.5	77 37.0	105	72.4	78 34.3	90	72.4	79 31.6	76	72.3	162
19	75 47.0	155	71.6	76 44.1	135	71.5	77 41.2	117	71.5	78 38.2	100	71.4	79 35.1	84	71.3	161
20	75 52.0	171	70.6	76 48.8	149	70.5	77 45.6	129	70.5	78 42.3	110	70.4	79 38.9	93	70.3	160
21	75 57.3	188	69.7	76 53.8	164	69.6	77 50.2	142	69.5	78 46.6	121	69.4	79 42.9	102	69.4	159
22	76 02.9	205	68.7	76 59.0	179	68.6	77 55.1	155	68.5	78 51.1	132	68.4	79 47.0	111	68.4	158
23	76 08.7	223	67.7	77 04.4	195	67.6	78 00.1	168	67.5	78 55.8	144	67.5	79 51.3	121	67.4	157
24	76 14.7	242	66.7	77 10.1	211	66.6	78 05.4	183	66.5	79 00.7	156	66.5	79 55.8	131	66.4	156
25	76 21.0	261	65.8	77 16.0	228	65.7	78 10.9	197	65.6	79 05.8	168	65.5	80 00.5	142	65.4	155
26	76 27.6	281	64.8	77 22.1	246	64.7	78 16.6	212	64.6	79 11.1	181	64.5	80 05.4	152	64.4	154
27	76 34.3	302	63.8	77 28.5	264	63.7	78 22.6	228	63.6	79 16.5	194	63.5	80 10.5	164	63.4	153
28	76 41.4	323	62.8	77 35.1	282	62.7	78 28.7	244	62.6	79 22.2	208	62.5	80 15.7	175	62.4	152
29	76 48.6	345	61.8	77 41.9	301	61.7	78 35.1	260	61.6	79 28.1	222	61.5	80 21.1	187	61.4	151
30	76 56.1	367	60.9	77 48.9	320	60.7	78 41.6	276	60.6	79 34.2	236	60.5	80 26.7	199	60.5	150
31	77 03.9	389	59.9	77 56.2	340	59.8	78 48.4	293	59.7	79 40.5	250	59.6	80 32.4	211	59.5	149
32	77 11.9	412	58.9	78 03.7	360	58.8	78 55.3	311	58.7	79 46.9	265	58.6	80 38.4	223	58.5	148
33	77 20.1	436	57.9	78 11.4	380	57.8	79 02.5	328	57.7	79 53.5	280	57.6	80 44.5	236	57.5	147
34	77 28.5	460	56.9	78 19.3	401	56.8	79 09.9	346	56.7	80 00.4	296	56.6	80 50.7	249	56.5	146
35	77 37.2	484	55.9	78 27.4	422	55.8	79 17.5	365	55.7	80 07.4	311	55.6	80 57.2	262	55.5	145
36	77 46.1	508	54.9	78 35.8	444	54.8	79 25.2	383	54.7	80 14.6	327	54.6	81 03.8	275	54.5	144
37	77 55.3	533	54.0	78 44.3	465	53.8	79 33.2	402	53.7	80 21.9	343	53.6	81 10.6	288	53.5	143
38	78 04.6	558	53.0	78 53.1	487	52.8	79 41.3	421	52.7	80 29.5	359	52.6	81 17.5	302	52.5	142
39	78 14.2	584	52.0	79 02.0	509	51.8	79 49.7	440	51.7	80 37.2	375	51.6	81 24.6	315	51.5	141
40	78 24.0	609	51.0	79 11.2	532	50.8	79 58.2	459	50.7	80 45.1	391	50.6	81 31.8	329	50.5	140
41	78 34.1	635	50.0	79 20.6	554	49.9	80 07.0	478	49.7	80 53.2	408	49.6	81 39.3	343	49.5	139
42	78 44.3	661	49.0	79 30.2	577	48.9	80 15.9	498	48.7	81 01.4	424	48.6	81 46.8	357	48.5	138
43	78 54.8	687	48.0	79 39.9	599	47.9	80 25.0	517	47.7	81 09.8	441	47.6	81 54.5	371	47.5	137
44	79 05.4	714	47.0	79 49.9	622	46.9	80 34.2	537	46.7	81 18.4	458	46.6	82 02.4	385	46.5	136
45	79 16.3	740	46.0	80 00.1	645	45.9	80 43.7	556	45.7	81 27.1	474	45.6	82 10.4	399	45.5	135
46	79 27.4	766	45.0	80 10.4	668	44.9	80 53.3	576	44.7	81 36.0	491	44.6	82 18.6	413	44.5	134
47	79 38.6	792	44.0	80 21.0	691	43.9	81 03.1	595	43.7	81 45.1	508	43.6	82 26.9	427	43.5	133
48	79 50.1	819	43.0	80 31.7	713	42.9	81 13.1	615	42.7	81 54.3	525	42.6	82 35.4	441	42.5	132
49	80 01.8	845	42.0	80 42.6	736	41.9	81 23.2	635	41.7	82 03.7	541	41.6	82 44.0	455	41.5	131
50	80 13.7	871	41.0	80 53.7	759	40.9	81 33.5	655	40.7	82 13.2	558	40.6	82 52.7	469	40.5	130
51	80 25.7	897	40.0	81 05.0	781	39.8	81 44.0	674	39.7	82 22.9	574	39.6	83 01.5	483	39.5	129
52	80 38.0	923	39.0	81 16.4	804	38.8	81 54.6	693	38.7	82 32.7	591	38.6	83 10.5	497	38.5	128
53	80 50.4	948	38.0	81 28.0	826	37.8	82 05.4	712	37.7	82 42.6	607	37.6	83 19.7	510	37.5	127
54	81 03.0	974	36.9	81 39.8	848	36.8	82 16.3	731	36.7	82 52.7	623	36.6	83 28.9	524	36.5	126
55	81 15.8	999	35.9	81 51.7	870	35.8	82 27.4	750	35.7	83 02.9	639	35.6	83 38.3	537	35.5	125
56	81 28.7	1024	34.9	82 03.8	892	34.8	82 38.6	769	34.7	83 13.3	655	34.6	83 47.8	550	34.5	124
57	81 41.8	1048	33.9	82 16.0	913	33.8	82 50.0	787	33.7	83 23.8	670	33.6	83 57.4	563	33.5	123
58	81 55.1	1072	32.9	82 28.4	934	32.8	83 01.5	805	32.7	83 34.4	686	32.6	84 07.1	576	32.5	122
59	82 08.6	1096	31.9	82 40.9	954	31.8	83 13.1	823	31.7	83 45.1	701	31.6	84 17.0	589	31.5	121
60	82 22.2	1119	30.9	82 53.6	975	30.8	83 24.9	840	30.6	83 56.0	716	30.6	84 26.9	601	30.5	120
61	82 35.9	1142	29.9	83 06.5	995	29.7	83 36.8	857	29.6	84 07.0	730	29.5	84 37.0	613	29.5	119
62	82 49.8	1165	28.8	83 19.4	1014	28.7	83 48.8	874	28.6	84 18.1	744	28.5	84 47.2	625	28.4	118
63	83 03.9	1187	27.8	83 32.5	1033	27.7	84 01.0	890	27.6	84 29.3	758	27.5	84 57.4	637	27.4	117
64	83 18.0	1208	26.8	83 45.7	1052	26.7	84 13.3	906	26.6	84 40.6	772	26.5	85 07.8	648	26.4	116
65	83 32.4	1229	25.8	83 59.1	1070	25.7	84 25.6	922	25.6	84 52.0	785	25.5	85 18.2	659	25.4	115
66	83 46.8	1249	24.7	84 12.6	1087	24.6	84 38.1	937	24.6	85 03.5	798	24.5	85 28.8	670	24.4	114
67	84 01.4	1269	23.7	84 26.1	1104	23.5	84 50.7	952	23.5	85 15.1	810	23.5	85 39.4	680	23.4	113
68	84 16.1	1288	22.7	84 39.8	1121	22.6	85 03.4	966	22.5	85 26.8	822	22.4	85 50.1	691	22.4	112
69	84 30.9	1306	21.7	84 53.6	1137	21.6	85 16.2	979	21.5	85 38.6	834	21.4	86 00.9	700	21.4	111
70	84 45.8	1324	20.6	85 07.6	1152	20.5	85 29.1	993	20.5	85 50.5	845	20.4	86 11.8	710	20.3	110
71	85 00.9	1341	19.6	85 21.6	1167	19.5	85 42.1	1005	19.5	86 02.5	856	19.4	86 22.7	719	19.3	109
72	85 16.0	1357	18.6	85 35.7	1181	18.5	85 55.2	1017	18.4	86 14.5	866	18.4	86 33.8	727	18.3	108
73	85 31.2	1373	17.6	85 49.8	1195	17.5	86 08.3	1029	17.4	86 26.6	876	17.4	86 4			

70	84 45.8	1324 20.6	85 07.6	1152 20.6	85 29.1	993 20.5	85 50.5	845 20.4	86 11.8	710 20.3	110		
71	85 00.9	1341 19.6	85 21.6	1167 19.5	85 42.1	1005 19.5	86 02.5	856 19.4	86 22.7	719 19.3	109		
72	85 16.0	1357 18.6	85 35.7	1181 18.5	85 55.2	1017 18.4	86 14.5	866 18.4	86 33.8	727 18.3	108		
73	85 31.2	1373 17.6	85 49.8	1195 17.5	86 08.3	1029 17.4	86 26.6	876 17.4	86 44.8	735 17.3	107		
74	85 46.6	1387 16.5	86 04.1	1207 16.5	86 21.5	1040 16.4	86 38.8	885 16.3	86 56.0	743 16.3	106		
75	86 02.0	1401 15.5	86 18.5	1219 15.4	86 34.8	1050 15.4	86 51.1	894 15.3	87 07.2	750 15.3	105		
76	86 17.5	1415 14.5	86 32.9	1231 14.4	86 48.2	1060 14.4	87 03.4	902 14.3	87 18.5	757 14.3	104		
77	86 33.0	1427 13.4	86 47.4	1241 13.4	87 01.6	1069 13.3	87 15.7	910 13.3	87 29.8	764 13.2	103		
78	86 48.7	1438 12.4	87 02.0	1251 12.4	87 15.1	1078 12.3	87 28.2	917 12.3	87 41.1	770 12.2	102		
79	87 04.4	1449 11.4	87 16.6	1260 11.3	87 28.7	1086 11.3	87 40.6	924 11.2	87 52.6	775 11.2	101		
80	87 20.2	1459 10.3	87 31.3	1269 10.3	87 42.3	1093 10.3	87 53.2	930 10.2	88 04.0	781 10.2	100		
81	87 36.0	1468 9.3	87 46.0	1277 9.3	87 55.9	1099 9.2	88 05.7	936 9.2	88 15.5	785 9.2	99		
82	87 51.9	1475 8.3	88 00.8	1283 8.2	88 09.6	1105 8.2	88 18.3	941 8.2	88 27.0	789 8.1	98		
83	88 07.8	1482 7.2	88 15.6	1290 7.2	88 23.3	1110 7.2	88 31.0	945 7.2	88 38.6	793 7.1	97		
84	88 23.7	1489 6.2	88 30.4	1295 6.2	88 37.1	1115 6.2	88 43.6	949 6.1	88 50.2	796 6.1	96		
85	88 39.7	1494 5.2	88 45.3	1299 5.2	88 50.8	1119 5.1	88 56.3	952 5.1	89 01.8	799 5.1	95		
86	88 55.8	1498 4.1	89 00.2	1303 4.1	89 04.6	1122 4.1	89 09.0	955 4.1	89 13.4	801 4.1	94		
87	89 11.8	1501 3.1	89 15.1	1306 3.1	89 18.5	1124 3.1	89 21.8	957 3.1	89 25.0	803 3.1	93		
88	89 27.9	1504 2.1	89 30.1	1308 2.1	89 32.3	1126 2.1	89 34.5	958 2.0	89 36.7	804 2.0	92		
89	89 43.9	1505 1.0	89 45.0	1309 1.0	89 46.1	1127 1.0	89 47.2	959 1.0	89 48.3	805 1.0	91		
90	90 00.0	1506 0.0	90 00.0	1310 0.0	90 00.0	1128 0.0	90 00.0	960 0.0	90 00.0	805 0.0	90		
LHA	180°-K	A	Z'	180°-K	A	Z'	180°-K	A	Z'	180°-K	A	Z'	LHA

TABLE A

LAT		80°			81°			82°			83°			84°			LHA
LHA	K	A	Z'	K	A	Z'	K	A	Z'	K	A	Z'	K	A	Z'	LHA	
0	80 00.0	0 90.0	81 00.0	0 90.0	82 00.0	0 90.0	83 00.0	0 90.0	84 00.0	0 90.0	84 00.0	0 90.0	180				
1	80 00.1	0 89.0	81 00.1	0 89.0	82 00.1	0 89.0	83 00.1	0 89.0	84 00.1	0 89.0	84 00.1	0 89.0	179				
2	80 00.4	1 88.0	81 00.3	1 88.0	82 00.3	1 88.0	83 00.3	0 88.0	84 00.2	0 88.0	84 00.2	0 88.0	178				
3	80 00.8	2 87.0	81 00.7	1 87.0	82 00.6	1 87.0	83 00.6	1 87.0	84 00.5	1 87.0	84 00.5	1 87.0	177				
4	80 01.4	3 86.1	81 01.3	3 86.0	82 01.2	2 86.0	83 01.0	2 86.0	84 00.9	2 86.0	84 00.9	1 86.0	176				
5	80 02.2	5 85.1	81 02.0	4 85.1	82 01.8	3 85.0	83 01.6	2 85.0	84 01.4	2 85.0	84 01.4	2 85.0	175				
6	80 03.2	7 84.1	81 02.9	5 84.1	82 02.6	5 84.1	83 02.3	4 84.0	84 02.0	3 84.0	84 02.0	3 84.0	174				
7	80 04.4	10 83.1	81 04.0	8 83.1	82 03.5	6 83.1	83 03.1	5 83.1	84 02.7	4 83.0	84 02.7	4 83.0	173				
8	80 05.7	13 82.1	81 05.2	10 82.1	82 04.6	8 82.1	83 04.0	6 82.1	84 03.5	5 82.0	84 03.5	5 82.0	172				
9	80 07.2	16 81.1	81 06.5	13 81.1	82 05.8	10 81.1	83 05.1	8 81.1	84 04.4	6 81.0	84 04.4	6 81.0	171				
10	80 08.9	20 80.1	81 08.1	16 80.1	82 07.2	13 80.1	83 06.3	10 80.1	84 05.4	7 80.1	84 05.4	7 80.1	170				
11	80 10.8	24 79.2	81 09.8	19 79.1	82 08.7	15 79.1	83 07.6	12 79.1	84 06.6	9 79.1	84 06.6	9 79.1	169				
12	80 12.9	28 78.2	81 11.6	23 78.1	82 10.4	18 78.1	83 09.1	14 78.1	84 07.8	10 78.1	84 07.8	10 78.1	168				
13	80 15.1	33 77.2	81 13.6	27 77.2	82 12.1	21 77.1	83 10.7	16 77.1	84 09.2	12 77.1	84 09.2	12 77.1	167				
14	80 17.5	38 76.2	81 15.8	31 76.2	82 14.1	25 76.1	83 12.4	19 76.1	84 10.6	14 76.1	84 10.6	14 76.1	166				
15	80 20.1	44 75.2	81 18.1	36 75.2	82 16.2	28 75.1	83 14.2	22 75.1	84 12.2	16 75.1	84 12.2	16 75.1	165				
16	80 22.8	50 74.2	81 20.6	40 74.2	82 18.4	32 74.1	83 16.1	25 74.1	84 13.8	18 74.1	84 13.8	18 74.1	164				
17	80 25.7	56 73.2	81 23.2	45 73.2	82 20.7	36 73.2	83 18.2	28 73.1	84 15.6	20 73.1	84 15.6	20 73.1	163				
18	80 28.8	63 72.3	81 26.0	51 72.2	82 23.2	40 72.2	83 20.4	31 72.1	84 17.5	23 72.1	84 17.5	23 72.1	162				
19	80 32.1	70 71.3	81 29.0	56 71.2	82 25.8	45 71.2	83 22.7	34 71.1	84 19.5	25 71.1	84 19.5	25 71.1	161				
20	80 35.5	77 70.3	81 32.1	62 70.2	82 28.6	49 70.2	83 25.1	38 70.1	84 21.6	28 70.1	84 21.6	28 70.1	160				
21	80 39.1	84 69.3	81 35.3	68 69.2	82 31.5	54 69.2	83 27.6	41 69.1	84 23.8	30 69.1	84 23.8	30 69.1	159				
22	80 42.9	92 68.3	81 38.7	75 68.2	82 34.5	59 68.2	83 30.3	45 68.1	84 26.0	33 68.1	84 26.0	33 68.1	158				
23	80 46.8	100 67.3	81 42.3	81 67.3	82 37.7	64 67.2	83 33.1	49 67.2	84 28.4	36 67.1	84 28.4	36 67.1	157				
24	80 51.0	109 66.3	81 46.0	88 66.3	82 41.0	70 66.2	83 36.0	53 66.2	84 30.9	39 66.1	84 30.9	39 66.1	156				
25	80 55.2	117 65.3	81 49.9	95 65.3	82 44.5	75 65.2	83 39.0	58 65.2	84 33.5	42 65.1	84 33.5	42 65.1	155				
26	80 59.7	126 64.3	81 53.9	102 64.3	82 48.0	81 64.2	83 42.1	62 64.2	84 36.2	46 64.1	84 36.2	46 64.1	154				
27	81 04.3	135 63.4	81 58.0	110 63.3	82 51.7	87 63.2	83 45.4	67 63.2	84 39.0	49 63.1	84 39.0	49 63.1	153				
28	81 09.0	145 62.4	82 02.3	117 62.3	82 55.6	93 62.2	83 48.8	71 62.2	84 41.9	52 62.1	84 41.9	52 62.1	152				
29	81 14.0	154 61.4	82 06.8	125 61.3	82 59.5	99 61.2	83 52.2	76 61.2	84 44.9	56 61.1	84 44.9	56 61.1	151				
30	81 19.1	164 60.4	82 11.4	133 60.3	83 03.6	105 60.2	83 55.8	81 60.2	84 47.9	59 60.1	84 47.9	59 60.1	150				
31	81 24.3	174 59.4	82 16.1	141 59.3	83 07.9	112 59.2	83 59.5	86 59.2	84 51.1	63 59.1	84 51.1	63 59.1	149				
32	81 29.7	185 58.4	82 21.0	150 58.3	83 12.2	118 58.3	84 03.3	91 58.2	84 54.4	67 58.1	84 54.4	67 58.1	148				
33	81 35.3	195 57.4	82 26.0	158 57.3	83 16.7	125 57.3	84 07.2	96 57.2	84 57.8	70 57.1	84 57.8	70 57.1	147				
34	81 41.0	205 56.4	82 31.2	167 56.3	83 21.3	132 56.3	84 11.3	101 56.2	85 01.2	74 56.1	85 01.2	74 56.1	146				
35	81 46.9	216 55.4	82 36.5	176 55.3	83 26.0	139 55.3	84 15.4	106 55.2	85 04.8	78 55.1	85 04.8	78 55.1	145				
36	81 52.9	227 54.4	82 41.9	184 54.3	83 30.8	146 54.3	84 19.6	112 54.2	85 08.4	82 54.1	85 08.4	82 54.1	144				
37	81 59.1	238 53.4	82 47.5	193 53.3	83 35.8	153 53.3	84 24.0	117 53.2	85 12.1	86 53.2	85 12.1	86 53.2	143				
38	82 05.4	250 52.4	82 53.1	202 52.3	83 40.8	160 52.3	84 28.4	123 52.2	85 15.9	90 52.2	85 15.9	90 52.2	142				
39	82 11.8	261 51.4	82 59.0	211 51.3	83 46.0	167 51.3	84 33.0	128 51.2	85 19.8	94 51.2	85 19.8	94 51.2	141				
40	82 18.4	272 50.4	83 04.9	221 50.3	83 51.3	174 50.3	84 37.6	134 50.2	85 23.8	98 50.2	85 23.8	98 50.2	140				
41	82 25.2	284 49.4	83 11.0	230 49.4	83 56.7	182 49.3	84 42.3	139 49.2	85 27.9	102 49.2	85 27.9	102 49.2	139				
42	82 32.1	295 48.4	83 17.2	239 48.4	84 02.3	189 48.3	84 47.2	145 48.2	85 32.0	106 48.2	85 32.0	106 48.2	138				
43	82 39.1	307 47.4	83 23.6	249 47.4	84 07.9	197 47.3	84 52.1	151 47.2	85 36.3	111 47.2	85 36.3	111 47.2	137				
44	82 46.3	318 46.4	83 30.0	258 46.4	84 13.6	204 46.3	84 57.2	156 46.2	85 40.6	115 46.2	85 40.6	115 46.2	136				
45	82 53.6	330 45.4	83 36.6	267 45.4	84 19.5	211 45.3	85 02.3	162 45.2	85 45.0	119 45.2	85 45.0	119 45.2	135				
46	83 01.0	341 44.4	83 43.3	277 44.4	84 25.4	219 44.3	85 07.5	168 44.2	85 49.4	123 44.2	85 49.4	123 44.2	134				
47	83 08.6	353 43.4	83 50.1	286 43.4	84 31.5	226 43.3	85 12.8	173 43.2	85 54.0	127 43.2	85 54.0	127 43.2	133				
48	83 16.3	365 42.4	83 57.0	295 42.4	84 37.7	234 42.3	85 18.2	179 42.2	85 58.6	131 42.2	85 58.6	131 42.2	132				
49	83 24.1	376 41.4	84 04.1	305 41.4	84 43.9	241 41.3	85 23.7	184 41.2	86 03.3	136 41.2	86 03.3	136 41.2	131				
50	83 32.0	388 40.4	84 11.2	314 40.3	84 50.3	248 40.3	85 29.2	190 40.2	86 08.1	140 40.2	86 08.1	140 40.2	130				
51	83 40.1	399 39.4	84 18.5	323 39.3	84 56.7	256 39.3	85 34.9	195 39.2	86 12.9	144 39.2	86 12.9	144 39.2	129				
52	83 48.3	410 38.4	84 25.8	333 38.3	85 03.3	263 38.3	85 40.6	201 38.2	86 17.9	148 38.2	86 17.9	148 38.2	128				
53	83 56.6	422 37.4	84 33.3	342 37.3	85 09.9	270 37.3	85 46.4	207 37.2	86 22.8	152 37.2	86 22.8	152 37.2	127				
54	84 05.0	433 36.4	84 40.9	351 36.3	85 16.7	277 36.3	85 52.3	212 36.2	86 27.9	156 36.2	86 27.9	156 36.2	126				
55	84 13.5	444 35.4	84 48.6	360 35.3	85 23.5	284 35.3	85 58.3	217 35.2	86 33.0	160 35.2	86 33.0	160 35.2	125				
56	84 22.1	455 34.4	84 56.3	368 34.3	85 30.4	291 34.3	86 04.3	223 34.2	86 38.2	164 34.2	86 38.2	164 34.2	124				
57	84 30.9	466 33.4	85 04.2	377 33.3	85 37.4	298 33.3	86 10.4	228 33.2	86 43.4	168 33.2	86 43.4	168 33.2	123				
58	84 39.7	476 32.4	85 12.1	386 32.3	85 44.4	305 32.3	86 16.6	233 32.2	86 48.7	171 32.2	86 48.7	171 32.2	122				
59	84 48.7	486 31.4	85 20.2	394 31.3	85 51.6	311 31.2	86 22.9	238 31.2	86 54.1	175 31.2	86 54.1	175 31.2	121				
60	84 57.7	497 30.4	85 28.3	402 30.3	85 58.8	318 30.2	86 29.2	243 30.2	86 59.5	179 30.2	86 59.5	179 30.2	120				
61	85 06.8	507 29.4	85 36.5	410 29.3	86 06.1	324 29.2	86 35.5	248 29.2	87 05.0	182 29.2	87 05.0	182 29.2	119				
62	85 16.1	517 28.4	85 44.8	418 28.3	86 13.5	330 28.2	86 42.1	253 28.2	87 10.5	186 28.2	87 10.5	186 28.2	118				
63	85 25.4	526 27.4	85 53.2	426 27.3	86 21.0	337 27.2	86 48.6	258 27.2	87 16.1	189 27.2	87 16.1	189 27.2	117				
64	85 34.8	535 26.3	86 01.7	434 26.3	86 28.5	344 26.2	86 55.1	262 26.2	87 21.7	193 26.2	87 21.7	193 26.2	116				
65	85 44.3	545 25.3	86 10.2	441 25.3	86 36.1	349 25.2	87 01.8	267 25.2	87 27.4	196 25.2	87 27.4	196 25.2	115				
66	85 53.9	553 24.3	86 18.8	448 24.3	86 43.7	354 24.2	87 08.3	271 24.2	87 33.1	199 24.2	87 33.1	199 24.2	114				
67	86 03.5	562 23.3	86 27.5	455 23.3	86 51.4	359 23.2	87 15.2	275 23.2	87 38.9	202 23.2	87 38.9	202 23.2	113				
68	86 13.3	570 22.3	86 36.3	462 22.2	86 59.2	365 22.2	87 22.2	279 22.2	87 44.7	205 22.2	87 44.7	205 22.2	112				
69	86 23.1	578 21.3	86 45.1	468 21.2	87 07.1	370 21.2	87 29.8	283 21.2	87 50.6	208 21.2	87 50.6	208 21.2	111				
70	86 32.9	586 20.3	86 54.0	474 20.2	87 14.9	375 20.2	87 37.7	287 20.2	87 56.5	211 20.2	87 56.5	211 20.2	110				

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11	80 10.8	24 9.2	81 09.8	19 79.1	82 08.7	15 79.1	83 07.6	12 79.1	84 06.6	9 79.1	169		
12	80 12.9	28 78.2	81 11.6	23 78.1	82 10.4	18 78.1	83 09.1	14 78.1	84 07.8	10 78.1	168		
13	80 15.1	33 77.2	81 13.6	27 77.2	82 12.2	21 77.1	83 10.7	16 77.1	84 09.2	12 77.1	167		
14	80 17.5	38 76.2	81 15.8	31 76.2	82 14.1	25 76.1	83 12.4	19 76.1	84 10.6	14 76.1	166		
15	80 20.1	44 75.2	81 18.1	36 75.2	82 16.2	28 75.1	83 14.2	22 75.1	84 12.2	16 75.1	165		
16	80 22.8	50 74.2	81 20.6	40 74.2	82 18.4	32 74.1	83 16.1	25 74.1	84 13.8	18 74.1	164		
17	80 25.7	56 73.2	81 23.2	45 73.2	82 20.7	36 73.2	83 18.2	28 73.1	84 15.6	20 73.1	163		
18	80 28.8	63 72.3	81 26.0	51 72.2	82 23.2	40 72.2	83 20.4	31 72.1	84 17.5	23 72.1	162		
19	80 32.1	70 71.3	81 29.0	56 71.2	82 25.8	45 71.2	83 22.7	34 71.1	84 19.5	25 71.1	161		
20	80 35.5	77 70.3	81 32.1	62 70.2	82 28.6	49 70.2	83 25.1	38 70.1	84 21.6	28 70.1	160		
21	80 39.1	84 69.3	81 35.3	68 69.2	82 31.5	54 69.2	83 27.6	41 69.1	84 23.8	30 69.1	159		
22	80 42.9	92 68.3	81 38.7	75 68.2	82 34.5	59 68.2	83 30.3	45 68.1	84 26.0	33 68.1	158		
23	80 46.8	100 67.3	81 42.3	81 67.3	82 37.7	64 67.2	83 33.1	49 67.2	84 28.4	36 67.1	157		
24	80 51.0	109 66.3	81 46.0	88 66.3	82 41.0	70 66.2	83 36.0	53 66.2	84 30.9	39 66.1	156		
25	80 55.2	117 65.3	81 49.9	95 65.3	82 44.5	75 65.2	83 39.0	58 65.2	84 33.5	42 65.1	155		
26	80 59.7	126 64.3	81 53.9	102 64.3	82 48.0	81 64.2	83 42.1	62 64.2	84 36.2	46 64.1	154		
27	81 04.3	135 63.4	81 58.0	110 63.3	82 51.7	87 63.2	83 45.4	67 63.2	84 39.0	49 63.1	153		
28	81 09.0	145 62.4	82 02.3	117 62.3	82 55.6	93 62.2	83 48.8	71 62.2	84 41.9	52 62.1	152		
29	81 14.0	154 61.4	82 06.8	125 61.3	82 59.5	99 61.2	83 52.2	76 61.2	84 44.9	56 61.1	151		
30	81 19.1	164 60.4	82 11.4	133 60.3	83 03.6	105 60.2	83 55.8	81 60.2	84 47.9	59 60.1	150		
31	81 24.3	174 59.4	82 16.1	141 59.3	83 07.9	112 59.2	83 59.5	86 59.2	84 51.1	63 59.1	149		
32	81 29.7	185 58.4	82 21.0	150 58.3	83 12.2	118 58.3	84 03.3	91 58.2	84 54.4	67 58.1	148		
33	81 35.3	195 57.4	82 26.0	158 57.3	83 16.7	125 57.3	84 07.2	96 57.2	84 57.8	70 57.1	147		
34	81 41.0	205 56.4	82 31.2	167 56.3	83 21.3	132 56.3	84 11.3	101 56.2	85 01.2	74 56.1	146		
35	81 46.9	216 55.4	82 36.5	176 55.3	83 26.0	139 55.3	84 15.4	106 55.2	85 04.8	78 55.1	145		
36	81 52.9	227 54.4	82 41.9	184 54.3	83 30.8	146 54.3	84 19.6	112 54.2	85 08.4	82 54.1	144		
37	81 59.1	238 53.4	82 47.5	193 53.3	83 35.8	153 53.3	84 24.0	117 53.2	85 12.1	86 53.2	143		
38	82 05.4	250 52.4	82 53.1	202 52.3	83 40.8	160 52.3	84 28.4	123 52.2	85 15.9	90 52.2	142		
39	82 11.8	261 51.4	82 59.0	211 51.3	83 46.0	167 51.3	84 33.0	128 51.2	85 19.8	94 51.2	141		
40	82 18.4	272 50.4	83 04.9	221 50.3	83 51.3	174 50.3	84 37.6	134 50.2	85 23.8	98 50.2	140		
41	82 25.2	284 49.4	83 11.0	230 49.4	83 56.7	182 49.3	84 42.3	139 49.2	85 27.9	102 49.2	139		
42	82 32.1	295 48.4	83 17.2	239 48.4	84 02.3	189 48.3	84 47.2	145 48.2	85 32.0	106 48.2	138		
43	82 39.1	307 47.4	83 23.6	249 47.4	84 07.9	197 47.3	84 52.1	151 47.2	85 36.3	111 47.2	137		
44	82 45.3	318 46.4	83 30.0	258 46.4	84 13.6	204 46.3	84 57.2	156 45.2	85 40.6	115 46.2	136		
45	82 53.6	330 45.4	83 36.6	267 45.4	84 19.5	211 45.3	85 02.3	162 45.2	85 45.0	119 45.2	135		
46	83 01.0	341 44.4	83 43.3	277 44.4	84 25.4	219 44.3	85 07.5	168 44.2	85 49.4	123 44.2	134		
47	83 08.6	353 43.4	83 50.1	286 43.4	84 31.5	226 43.3	85 12.8	173 43.2	85 54.0	127 43.2	133		
48	83 16.3	365 42.4	83 57.0	295 42.4	84 37.7	234 42.3	85 18.2	179 42.2	85 58.6	131 42.2	132		
49	83 24.1	376 41.4	84 04.1	305 41.4	84 43.9	241 41.3	85 23.7	184 41.2	86 03.3	136 41.2	131		
50	83 32.0	388 40.4	84 11.2	314 40.3	84 50.3	248 40.3	85 29.2	190 40.2	86 08.1	140 40.2	130		
51	83 40.1	399 39.4	84 18.5	323 39.3	84 56.7	256 39.3	85 34.9	195 39.2	86 12.9	144 39.2	129		
52	83 48.3	410 38.4	84 25.8	333 38.3	85 03.3	263 38.3	85 40.6	201 38.2	86 17.9	148 38.2	128		
53	83 56.6	422 37.4	84 33.3	342 37.3	85 09.9	270 37.3	85 46.4	207 37.2	86 22.8	152 37.2	127		
54	84 05.0	433 36.4	84 40.9	351 36.3	85 16.7	277 36.3	85 52.3	212 36.2	86 27.9	156 36.1	126		
55	84 13.5	444 35.4	84 48.6	360 35.3	85 23.5	284 35.3	85 58.3	217 35.2	86 33.0	160 35.1	125		
56	84 22.1	455 34.4	84 56.3	368 34.3	85 30.4	291 34.3	86 04.3	223 34.2	86 38.2	164 34.1	124		
57	84 30.9	466 33.4	85 04.2	377 33.3	85 37.4	298 33.3	86 10.4	228 33.2	86 43.4	168 33.1	123		
58	84 39.7	476 32.4	85 12.1	386 32.3	85 44.4	305 32.3	86 16.6	233 32.2	86 48.7	171 32.1	122		
59	84 48.7	486 31.4	85 20.2	394 31.3	85 51.6	311 31.2	86 22.9	238 31.2	86 54.1	175 31.1	121		
60	84 57.7	497 30.4	85 28.3	402 30.3	85 58.8	318 30.2	86 29.2	243 30.2	86 59.5	179 30.1	120		
61	85 06.8	507 29.4	85 36.5	410 29.3	86 06.1	324 29.2	86 35.5	248 29.2	87 05.0	182 29.1	119		
62	85 16.1	517 28.4	85 44.8	418 28.3	86 13.5	330 28.2	86 42.1	253 28.2	87 10.5	186 28.1	118		
63	85 25.4	526 27.4	85 53.2	426 27.3	86 21.0	337 27.2	86 48.6	258 27.2	87 16.1	189 27.1	117		
64	85 34.8	535 26.3	86 01.7	434 26.3	86 28.5	342 26.2	86 55.1	262 26.2	87 21.7	193 26.1	116		
65	85 44.3	545 25.3	86 10.2	441 25.3	86 36.1	348 25.2	87 01.8	267 25.2	87 27.4	195 25.1	115		
66	85 53.9	553 24.3	86 18.8	448 24.3	86 43.7	354 24.2	87 08.5	271 24.2	87 33.1	199 24.1	114		
67	86 03.5	562 23.3	86 27.5	455 23.3	86 51.4	359 23.2	87 15.2	275 23.2	87 38.9	202 23.1	113		
68	86 13.3	570 22.3	86 36.3	462 22.2	86 59.2	365 22.2	87 22.0	279 22.1	87 44.7	205 22.1	112		
69	86 23.1	578 21.3	86 45.1	468 21.2	87 07.0	370 21.2	87 28.8	283 21.1	87 50.6	208 21.1	111		
70	86 32.9	586 20.3	86 54.0	474 20.2	87 14.9	375 20.2	87 35.7	287 20.1	87 56.5	211 20.1	110		
71	86 42.9	593 19.3	87 02.9	480 19.2	87 22.8	379 19.2	87 42.7	290 19.1	88 02.4	213 19.1	109		
72	86 52.9	600 18.3	87 11.9	486 18.2	87 30.8	384 18.2	87 49.6	294 18.1	88 08.4	216 18.1	108		
73	87 02.9	607 17.2	87 20.9	491 17.2	87 38.8	388 17.2	87 55.6	297 17.1	88 14.4	218 17.1	107		
74	87 13.0	614 16.2	87 30.0	497 16.2	87 46.9	392 16.1	88 03.7	300 16.1	88 20.4	220 16.1	106		
75	87 23.2	620 15.2	87 39.2	502 15.2	87 55.0	395 15.1	88 10.8	303 15.1	88 26.5	222 15.1	105		
76	87 33.4	625 14.2	87 48.3	506 14.2	88 03.2	400 14.1	88 17.9	306 14.1	88 32.6	225 14.1	104		
77	87 43.7	631 13.2	87 57.6	510 13.2	88 11.4	403 13.1	88 25.1	308 13.1	88 38.7	226 13.1	103		
78	87 54.0	636 12.2	88 06.8	514 12.1	88 19.6	406 12.1	88 32.3	311 12.1	88 44.9	228 12.1	102		
79	88 04.4	640 11.2	88 16.1	518 11.1	88 27.8	409 11.1	88 39.5	313 11.1	88 51.1	230 11.1	101		
80	88 14.8	645 10.2	88 25.5	522 10.1	88 36.1	412 10.1	88 46.7	315 10.1	88 57.3	231 10.1	100		
81	88 25.2	648 9.1	88 34.8	525 9.1	88 44.4	414 9.1	88 54.0	317 9.1	89 03.5	233 9.0	99		
82	88 35.7	652 8.1	88 44.2	527 8.1	88 52.8	416 8.1	89 01.3	319 8.1	89 09.7	234 8.0	98		
83	88 46.1	655 7.1	88 53.7	530 7.1	89 01.1	418 7.1	89 08.6	320 7.1	89 16.0	235 7.0	97		
84	88 56.6	657 6.1	89 03.1	532 6.1	89 09.5	420 6.1	89 15.9	321 6.0	89 22.2	236 6.0	96		
85	89 07.2	660 5.1	89 12.5	534 5.1	89 17.9	421 5.0	89 23.2	322 5.0	89 28.5	237 5.0	95		
86	89 17.7	662 4.1	89 22.0	535 4.0	89 26.3	423 4.0	89 30.6	323 4.0	89 34.8	237 4.0	94		
87	89 28.3	663 3.0	89 31.5	537 3.0	89 34.7	424 3.0	89 37.9	324 3.0	89 41.1	238 3.0	93		
88	89 38.8	664 2.0	89 41.0	537 2.0	89 43.1	424 2.0	89 45.3	325 2.0	89 47.4	238 2.0	92		
89	89 49.4	665 1.0	89 50.5	538 1.0	89 51.6	425 1.0	89 52.6	325 1.0	89 53.7	238 1.0	91		
90	90 00.0	665 0.0	90 00.0	538 0.0	90 00.0	425 0.0	90 00.0	325 0.0	90 00.0	239 0.0	90		
LHA	180°-K	A	Z'	180°-K	A	Z'	180°-K	A	Z'	180°-K	A	Z'	LHA



TABLE A

LAT	85°			86°			87°			88°			89°			LHA
	K	A	Z'	K	A	Z'	K	A	Z'	K	A	Z'	K	A	Z	
0	85 00.0	0 90.0	86 00.0	0 90.0	87 00.0	0 90.0	88 00.0	0 90.0	89 00.0	0 90.0	89 00.0	0 90.0	89 00.0	0 90.0	180	
1	85 00.0	0 89.0	86 00.0	0 89.0	87 00.0	0 89.0	88 00.0	0 89.0	89 00.0	0 89.0	89 00.0	0 89.0	89 00.0	0 89.0	179	
2	85 00.2	0 88.0	86 00.1	0 88.0	87 00.1	0 88.0	88 00.1	0 88.0	89 00.1	0 88.0	89 00.1	0 88.0	89 00.1	0 88.0	178	
3	85 00.4	0 87.0	86 00.3	0 87.0	87 00.2	0 87.0	88 00.2	0 87.0	89 00.1	0 87.0	89 00.1	0 87.0	89 00.1	0 87.0	177	
4	85 00.7	1 86.0	86 00.6	1 86.0	87 00.4	1 86.0	88 00.3	1 86.0	89 00.1	1 86.0	89 00.1	1 86.0	89 00.1	1 86.0	176	
5	85 01.1	1 85.0	86 00.9	1 85.0	87 00.7	1 85.0	88 00.5	1 85.0	89 00.2	1 85.0	89 00.2	1 85.0	89 00.2	1 85.0	175	
6	85 01.6	2 84.0	86 01.3	2 84.0	87 01.0	2 84.0	88 00.7	2 84.0	89 00.3	2 84.0	89 00.3	2 84.0	89 00.3	2 84.0	174	
7	85 02.2	2 83.0	86 01.8	2 83.0	87 01.3	2 83.0	88 00.9	2 83.0	89 00.4	2 83.0	89 00.4	2 83.0	89 00.4	2 83.0	173	
8	85 02.9	3 82.0	86 02.3	3 82.0	87 01.7	3 82.0	88 01.2	3 82.0	89 00.6	3 82.0	89 00.6	3 82.0	89 00.6	3 82.0	172	
9	85 03.7	4 81.0	86 02.9	4 81.0	87 02.2	4 81.0	88 01.5	4 81.0	89 00.7	4 81.0	89 00.7	4 81.0	89 00.7	4 81.0	171	
10	85 04.5	5 80.0	86 03.6	5 80.0	87 02.7	5 80.0	88 01.8	5 80.0	89 00.9	5 80.0	89 00.9	5 80.0	89 00.9	5 80.0	170	
11	85 05.5	6 79.0	86 04.4	6 79.0	87 03.3	6 79.0	88 02.2	6 79.0	89 01.1	6 79.0	89 01.1	6 79.0	89 01.1	6 79.0	169	
12	85 06.5	7 78.0	86 05.2	7 78.0	87 03.9	7 78.0	88 02.6	7 78.0	89 01.3	7 78.0	89 01.3	7 78.0	89 01.3	7 78.0	168	
13	85 07.7	8 77.0	86 06.1	8 77.0	87 04.6	8 77.0	88 03.1	8 77.0	89 01.5	8 77.0	89 01.5	8 77.0	89 01.5	8 77.0	167	
14	85 08.9	10 76.1	86 07.1	10 76.1	87 05.3	10 76.1	88 03.6	10 76.1	89 01.8	10 76.1	89 01.8	10 76.1	89 01.8	10 76.1	166	
15	85 10.2	11 75.1	86 08.2	11 75.1	87 06.1	11 75.1	88 04.1	11 75.1	89 02.0	11 75.1	89 02.0	11 75.1	89 02.0	11 75.1	165	
16	85 11.6	13 74.1	86 09.3	13 74.1	87 07.0	13 74.1	88 04.6	13 74.1	89 02.3	13 74.1	89 02.3	13 74.1	89 02.3	13 74.1	164	
17	85 13.0	14 73.1	86 10.5	14 73.1	87 07.9	14 73.1	88 05.2	14 73.1	89 02.6	14 73.1	89 02.6	14 73.1	89 02.6	14 73.1	163	
18	85 14.6	16 72.1	86 11.7	16 72.1	87 08.8	16 72.1	88 05.9	16 72.1	89 02.9	16 72.1	89 02.9	16 72.1	89 02.9	16 72.1	162	
19	85 16.3	17 71.1	86 13.0	17 71.1	87 09.8	17 71.1	88 06.5	17 71.1	89 03.3	17 71.1	89 03.3	17 71.1	89 03.3	17 71.1	161	
20	85 18.0	19 70.1	86 14.4	19 70.1	87 10.8	19 70.1	88 07.2	19 70.1	89 03.6	19 70.1	89 03.6	19 70.1	89 03.6	19 70.1	160	
21	85 19.8	21 69.1	86 15.9	21 69.1	87 11.9	21 69.1	88 08.0	21 69.1	89 04.0	21 69.1	89 04.0	21 69.1	89 04.0	21 69.1	159	
22	85 21.7	23 68.1	86 17.4	23 68.1	87 13.1	23 68.1	88 08.7	23 68.1	89 04.4	23 68.1	89 04.4	23 68.1	89 04.4	23 68.1	158	
23	85 23.7	25 67.1	86 19.0	25 67.1	87 14.3	25 67.1	88 09.5	25 67.1	89 04.8	25 67.1	89 04.8	25 67.1	89 04.8	25 67.1	157	
24	85 25.8	27 66.1	86 20.7	27 66.1	87 15.5	27 66.1	88 10.4	27 66.1	89 05.2	27 66.1	89 05.2	27 66.1	89 05.2	27 66.1	156	
25	85 28.0	29 65.1	86 22.4	29 65.1	87 16.8	29 65.1	88 11.2	29 65.1	89 05.6	29 65.1	89 05.6	29 65.1	89 05.6	29 65.1	155	
26	85 30.2	32 64.1	86 24.2	32 64.1	87 18.2	32 64.1	88 12.1	32 64.1	89 06.1	32 64.1	89 06.1	32 64.1	89 06.1	32 64.1	154	
27	85 32.6	34 63.1	86 26.1	34 63.1	87 19.6	34 63.1	88 13.1	34 63.1	89 06.5	34 63.1	89 06.5	34 63.1	89 06.5	34 63.1	153	
28	85 35.0	36 62.1	86 28.0	36 62.1	87 21.0	36 62.1	88 14.0	36 62.1	89 07.0	36 62.1	89 07.0	36 62.1	89 07.0	36 62.1	152	
29	85 37.5	39 61.1	86 30.0	39 61.1	87 22.5	39 61.1	88 15.0	39 61.1	89 07.5	39 61.1	89 07.5	39 61.1	89 07.5	39 61.1	151	
30	85 40.0	41 60.1	86 32.1	41 60.1	87 24.1	41 60.1	88 16.1	41 60.1	89 08.0	41 60.1	89 08.0	41 60.1	89 08.0	41 60.1	150	
31	85 42.7	44 59.1	86 34.2	44 59.1	87 25.7	44 59.1	88 17.1	44 59.1	89 08.6	44 59.1	89 08.6	44 59.1	89 08.6	44 59.1	149	
32	85 45.4	46 58.1	86 36.4	46 58.1	87 27.3	46 58.1	88 18.2	46 58.1	89 09.1	46 58.1	89 09.1	46 58.1	89 09.1	46 58.1	148	
33	85 48.2	49 57.1	86 38.6	49 57.1	87 29.0	49 57.1	88 19.3	49 57.1	89 09.7	49 57.1	89 09.7	49 57.1	89 09.7	49 57.1	147	
34	85 51.1	52 56.1	86 40.9	52 56.1	87 30.7	52 56.1	88 20.5	52 56.1	89 10.3	52 56.1	89 10.3	52 56.1	89 10.3	52 56.1	146	
35	85 54.0	54 55.1	86 43.3	54 55.1	87 32.5	54 55.1	88 21.7	54 55.1	89 10.8	54 55.1	89 10.8	54 55.1	89 10.8	54 55.1	145	
36	85 57.1	57 54.1	86 45.7	57 54.1	87 34.3	57 54.1	88 22.9	57 54.1	89 11.5	57 54.1	89 11.5	57 54.1	89 11.5	57 54.1	144	
37	86 00.2	60 53.1	86 48.2	60 53.1	87 36.2	60 53.1	88 24.1	60 53.1	89 12.1	60 53.1	89 12.1	60 53.1	89 12.1	60 53.1	143	
38	86 03.4	63 52.1	86 50.8	63 52.1	87 38.1	63 52.1	88 25.4	63 52.1	89 12.7	63 52.1	89 12.7	63 52.1	89 12.7	63 52.1	142	
39	86 06.6	65 51.1	86 53.4	65 51.1	87 40.1	65 51.1	88 26.7	65 51.1	89 13.4	65 51.1	89 13.4	65 51.1	89 13.4	65 51.1	141	
40	86 09.9	68 50.1	86 56.0	68 50.1	87 42.1	68 50.1	88 28.1	68 50.1	89 14.0	68 50.1	89 14.0	68 50.1	89 14.0	68 50.1	140	
41	86 13.3	71 49.1	86 58.7	71 49.1	87 44.1	71 49.1	88 29.4	71 49.1	89 14.7	71 49.1	89 14.7	71 49.1	89 14.7	71 49.1	139	
42	86 16.8	74 48.1	87 01.5	74 48.1	87 46.2	74 48.1	88 30.8	74 48.1	89 15.4	74 48.1	89 15.4	74 48.1	89 15.4	74 48.1	138	
43	86 20.3	77 47.1	87 04.3	77 47.1	87 48.3	77 47.1	88 32.2	77 47.1	89 16.1	77 47.1	89 16.1	77 47.1	89 16.1	77 47.1	137	
44	86 23.9	80 46.1	87 07.2	80 46.1	87 50.5	80 46.1	88 33.7	80 46.1	89 16.8	80 46.1	89 16.8	80 46.1	89 16.8	80 46.1	136	
45	86 27.6	83 45.1	87 10.2	83 45.1	87 52.7	83 45.1	88 35.1	83 45.1	89 17.6	83 45.1	89 17.6	83 45.1	89 17.6	83 45.1	135	
46	86 31.3	86 44.1	87 13.1	86 44.1	87 54.9	86 44.1	88 36.6	86 44.1	89 18.3	86 44.1	89 18.3	86 44.1	89 18.3	86 44.1	134	
47	86 35.1	88 43.1	87 16.2	88 43.1	87 57.2	88 43.1	88 38.1	88 43.1	89 19.1	88 43.1	89 19.1	88 43.1	89 19.1	88 43.1	133	
48	86 39.0	91 42.1	87 19.3	91 42.1	87 59.5	91 42.1	88 39.7	91 42.1	89 19.8	91 42.1	89 19.8	91 42.1	89 19.8	91 42.1	132	
49	86 42.9	94 41.1	87 22.4	94 41.1	88 01.8	94 41.1	88 41.3	94 41.1	89 20.6	94 41.1	89 20.6	94 41.1	89 20.6	94 41.1	131	
50	86 46.9	97 40.1	87 25.6	97 40.1	88 04.2	97 40.1	88 42.8	97 40.1	89 21.4	97 40.1	89 21.4	97 40.1	89 21.4	97 40.1	130	
51	86 50.9	100 39.1	87 28.8	100 39.1	88 06.7	100 39.1	88 44.5	100 39.1	89 22.2	100 39.1	89 22.2	100 39.1	89 22.2	100 39.1	129	
52	86 55.0	103 38.1	87 32.1	103 38.1	88 09.1	103 38.1	88 46.1	103 38.1	89 23.1	103 38.1	89 23.1	103 38.1	89 23.1	103 38.1	128	
53	86 59.2	105 37.1	87 35.4	105 37.1	88 11.6	105 37.1	88 47.8	105 37.1	89 23.9	105 37.1	89 23.9	105 37.1	89 23.9	105 37.1	127	
54	87 03.4	108 36.1	87 38.8	108 36.1	88 14.1	108 36.1	88 49.4	108 36.1	89 24.7	108 36.1	89 24.7	108 36.1	89 24.7	108 36.1	126	
55	87 07.6	111 35.1	87 42.2	111 35.1	88 16.7	111 35.1	88 51.2	111 35.1	89 25.6	111 35.1	89 25.6	111 35.1	89 25.6	111 35.1	125	
56	87 11.9	114 34.1	87 45.6	114 34.1	88 19.3	114 34.1	88 52.9	114 34.1	89 26.4	114 34.1	89 26.4	114 34.1	89 26.4	114 34.1	124	
57	87 16.3	116 33.1	87 49.1	116 33.1	88 21.9	116 33.1	88 54.6	116 33.1	89 27.3	116 33.1	89 27.3	116 33.1	89 27.3	116 33.1	123	
58	87 20.7	119 32.1	87 52.7	119 32.1	88 24.6	119 32.1	88 56.4	119 32.1	89 28.2	119 32.1	89 28.2	119 32.1	89 28.2	119 32.1	122	
59	87 25.2	122 31.1	87 56.2	122 31.1	88 27.2	122 31.1	88 58.2	122 31.1	89 29.1	122 31.1	89 29.1	122 31.1	89 29.1	122 31.1	121	
60	87 29.7	124 30.1	87 59.9	124 30.1	88 29.9	124 30.1	89 00.0	124 30.1	89 30.0	124 30.1	89 30.0	124 30.1	89 30.0	124 30.1	120	
61	87 34.3	127 29.1	88 03.5	127 29.1	88 32.7	127 29.1	89 01.8	127 29.1	89 30.9	127 29.1	89 30.9	127 29.1	89 30.9	127 29.1	119	
62	87 38.9	129 28.1	88 07.2	129 28.1	88 35.4	129 28.1	89 03.6	129 28.1	89 31.8	129 28.1	89 31.8	129 28.1	89 31.8	129 28.1	118	
63	87 43.5	131 27.1	88 10.9	131 27.1	88 38.2	131 27.1	89 05.5	131 27.1	89 32.8	131 27.1	89 32.8	131 27.1	89 32.8	131 27.1	117	
64	87 48.2	134 26.1	88 14.7	134 26.1	88 41.0	134 26.1	89 07.4	13								

