

WORLD MAP WITH STATION PREDICTIONS

HERSCHEL ASSUMED SIGNAL FREQUENCY (MHZ): 8468.500

EPOCH (UTC) 2013/05/15 00:00: 0.000 DURATION (DAYS): 46.000 INCREMENT (MIN): 15  
 EPOCH (TDB) 2013/05/15 00:01: 7.185

STATE RELATIVE TO POSITION (KM) = -1156567.302325 -1455187.706728 -201353.596050  
 CENTRE OF EARTH VELOCITY (KM/S) = 0.070270 -0.120267 -0.049234

COORDINATES OF 4 STATION(S)

STATION NUMBER	GEODETTIC POSITION			GEOCENTRIC POSITION			STATION NAME
	LONGITUDE (DEG)	LATITUDE (DEG)	HEIGHT (KM)	X - KM	Y - KM	Z - KM	
74	116.191503	-31.048222	0.252	-2414.067	4907.869	-3270.605	NEW NORCIA 35 METRE
83	355.632452	40.452691	0.794	4846.734	-370.175	4116.879	CEBREROS 35 METRE
84	290.601818	-35.775970	1.572	1823.343	-4850.458	-3708.972	MALARGUE 35 METRE
75	397.195336	5.251440	-0.015	3839.717	-5059.496	579.876	KOUROU 15 METRE

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 1863318.  
 ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/05/15 S/C TO SUN IN AU: 1.02306

-----GEOCENTRIC-----										-----NEW NORCIA-----				-----CEBREROS -----				-----MALARGUE -----			
UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.		
HH:MM	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ		
00:00	231.52	-6.18	12.47	358.82	-6.23	1863318	12.43					175.7	43.1	0.04	-1.015	82.1	21.1	-0.29	8.292		
37																					
00:15	231.53	-6.18	12.48	355.06	-6.23	1863368	12.43					180.8	43.2	0.06	-1.670	79.7	24.1	-0.28	8.013		
41																					
00:30	231.53	-6.18	12.48	351.30	-6.23	1863418	12.43					185.9	43.0	0.08	-2.324	77.2	27.1	-0.27	7.693		
44																					
00:45	231.53	-6.19	12.48	347.55	-6.23	1863468	12.43					191.0	42.6	0.11	-2.974	74.6	30.1	-0.26	7.333		
48																					
01:00	231.54	-6.19	12.48	343.79	-6.23	1863518	12.43					195.9	41.9	0.13	-3.619	71.9	33.0	-0.25	6.935		
52																					
01:15	231.54	-6.19	12.48	340.03	-6.23	1863568	12.43					200.8	41.0	0.15	-4.254	69.0	35.9	-0.23	6.500		
55																					
01:30	231.54	-6.19	12.48	336.28	-6.24	1863618	12.43					205.5	39.9	0.17	-4.879	65.9	38.7	-0.21	6.029		
59																					
01:45	231.55	-6.19	12.48	332.52	-6.24	1863668	12.43					210.0	38.5	0.19	-5.488	62.6	41.4	-0.20	5.527		
62																					
02:00	231.55	-6.19	12.49	328.76	-6.24	1863718	12.43					214.3	37.0	0.22	-6.081	59.0	44.1	-0.18	4.993		
66																					
02:15	231.56	-6.19	12.49	325.01	-6.24	1863768	12.43					218.5	35.3	0.24	-6.654	55.1	46.7	-0.16	4.431		
69																					
02:30	231.56	-6.19	12.49	321.25	-6.24	1863818	12.43					222.4	33.5	0.26	-7.206	50.9	49.1	-0.14	3.843		
72																					
02:45	231.56	-6.20	12.49	317.49	-6.24	1863869	12.43					226.1	31.5	0.27	-7.733	46.3	51.4	-0.11	3.232		
75																					
03:00	231.57	-6.20	12.49	313.74	-6.24	1863919	12.43					229.7	29.3	0.29	-8.233	41.2	53.5	-0.09	2.600		
77																					
03:15	231.57	-6.20	12.49	309.98	-6.24	1863969	12.44					233.1	27.1	0.31	-8.705	35.6	55.4	-0.07	1.949		
78																					
03:30	231.57	-6.20	12.49	306.22	-6.24	1864020	12.44					236.4	24.8	0.32	-9.146	29.6	57.1	-0.05	1.284		
78																					
03:45	231.58	-6.20	12.50	302.47	-6.25	1864070	12.44					239.5	22.3	0.34	-9.554	23.0	58.4	-0.02	0.606		
78																					
04:00	231.58	-6.20	12.50	298.71	-6.25	1864120	12.44					242.4	19.8	0.35	-9.928	16.1	59.4	0.00	-0.081		
76																					
04:15	231.58	-6.20	12.50	294.95	-6.25	1864171	12.44					245.3	17.3	0.36	-10.266	8.7	60.1	0.03	-0.775		
73																					
04:30	231.59	-6.20	12.50	291.20	-6.25	1864221	12.44					248.1	14.6	0.37	-10.566	1.2	60.4	0.05	-1.473		
70																					
04:45	231.59	-6.21	12.50	287.44	-6.25	1864272	12.44					250.7	12.0	0.38	-10.828	353.6	60.2	0.08	-2.170		
67																					
05:00	231.59	-6.21	12.50	283.68	-6.25	1864322	12.44					253.3	9.2	0.39	-11.049	346.2	59.7	0.10	-2.866		
64																					
05:15	231.60	-6.21	12.50	279.93	-6.25	1864373	12.44					255.9	6.5	0.40	-11.231	339.1	58.8	0.13	-3.555		
60																					
05:23	231.60	-6.21	12.50	277.92	-6.25	1864400	12.44					257.2+	5.0	0.40	-11.310	335.5	58.2	0.14	-3.920		
58																					
05:24	231.60	-6.21	12.50	277.67	-6.25	1864403	12.44					257.4L	4.8	0.40	-11.319	335.0	58.1	0.14	-3.965		
58																					
05:30	231.60	-6.21	12.51	276.17	-6.25	1864424	12.44									332.4	57.5	0.15	-4.237		
57																					
05:45	231.61	-6.21	12.51	272.41	-6.26	1864474	12.44									326.2	56.0	0.17	-4.906		
53																					
06:00	231.61	-6.21	12.51	268.66	-6.26	1864525	12.44									320.5	54.2	0.20	-5.562		
50																					
06:15	231.61	-6.21	12.51	264.90	-6.26	1864576	12.44									315.3	52.1	0.22	-6.200		
46																					
06:30	231.62	-6.21	12.51	261.14	-6.26	1864626	12.44									310.5	49.9	0.24	-6.818		
42																					
06:45	231.62	-6.22	12.51	257.39	-6.26	1864677	12.44									306.1	47.5	0.26	-7.414		
39																					
07:00	231.62	-6.22	12.51	253.63	-6.26	1864728	12.44									302.2	44.9	0.28	-7.984		
35																					
07:15	231.63	-6.22	12.52	249.87	-6.26	1864779	12.44									298.5	42.3	0.30	-8.527		
31																					
07:30	231.63	-6.22	12.52	246.12	-6.26	1864830	12.44									295.1	39.6	0.32	-9.039		
28																					
07:45	231.63	-6.22	12.52	242.36	-6.27	1864881	12.44									291.9	36.8	0.34	-9.520		
24																					
08:00	231.64	-6.22	12.52	238.60	-6.27	1864932	12.44									289.0	33.9	0.35	-9.966		
20																					
08:15	231.64	-6.22	12.52	234.85	-6.27	1864983	12.44									286.2	31.0	0.37	-10.376		
17																					
08:30	231.65	-6.22	12.52	231.09	-6.27	1865034	12.44									283.5	28.1	0.38	-10.748		



20:15	231.82	-6.28	12.59	54.53	-6.33	1867468	12.46	279.7	27.3	0.41	-11.509	116.1	18.4	-0.24	6.870		
20:30	231.82	-6.28	12.59	50.77	-6.33	1867520	12.46	277.5	24.1	0.42	-11.835	119.0	21.0	-0.23	6.515		
20:45	231.82	-6.29	12.59	47.01	-6.33	1867573	12.46	275.4	20.9	0.43	-12.118	122.1	23.4	-0.22	6.124		
21:00	231.83	-6.29	12.60	43.26	-6.33	1867626	12.46	273.4	17.7	0.44	-12.355	125.2	25.8	-0.20	5.700		
21:15	231.83	-6.29	12.60	39.50	-6.33	1867678	12.46	271.4	14.5	0.44	-12.546	128.5	28.1	-0.19	5.245		
21:30	231.83	-6.29	12.60	35.75	-6.34	1867731	12.46	269.4	11.2	0.45	-12.691	132.0	30.3	-0.17	4.759		
21:37	231.84	-6.29	12.60	33.99	-6.34	1867756	12.46	268.5	9.7	0.45	-12.742	133.7	31.3	-0.16	4.523		
A 21																	
21:45	231.84	-6.29	12.60	31.99	-6.34	1867784	12.46	267.5	8.0	0.45	-12.787	135.7	32.3	-0.15	4.246		
4																	
21:48	231.84	-6.29	12.60	31.24	-6.34	1867794	12.46	267.1	7.4	0.45	-12.801	136.4	32.7	-0.15	4.140		
+ 5																	
7																	
21:55	231.84	-6.29	12.60	29.48	-6.34	1867819	12.46	266.2L	5.9	0.45	-12.825	138.2	33.7	-0.14	3.890		
8																	
22:00	231.84	-6.29	12.60	28.23	-6.34	1867836	12.46					139.5	34.3	-0.13	3.707		
12																	
22:15	231.85	-6.29	12.60	24.48	-6.34	1867889	12.46					143.5	36.1	-0.11	3.145	97.4A	0.4 -0.32 8.920
16																	
22:30	231.85	-6.30	12.61	20.72	-6.34	1867942	12.46					147.8	37.7	-0.09	2.563	95.2	3.4 -0.32 8.945
17																	
22:38	231.85	-6.30	12.61	18.72	-6.34	1867970	12.46					150.1	38.5	-0.08	2.244	94.1+	5.0 -0.32 8.940
19																	
22:45	231.85	-6.30	12.61	16.96	-6.34	1867995	12.46					152.2	39.1	-0.07	1.962	93.0	6.5 -0.32 8.925
23																	
23:00	231.86	-6.30	12.61	13.21	-6.34	1868048	12.46					156.8	40.3	-0.05	1.345	90.9	9.5 -0.31 8.859
27																	
23:15	231.86	-6.30	12.61	9.45	-6.34	1868101	12.46					161.5	41.4	-0.03	0.715	88.7	12.6 -0.31 8.748
30																	
23:30	231.86	-6.30	12.61	5.69	-6.35	1868154	12.46					166.4	42.2	-0.00	0.075	86.4	15.6 -0.30 8.592
34																	
23:45	231.87	-6.30	12.61	1.94	-6.35	1868207	12.46					171.4	42.7	0.02	-0.572	84.2	18.6 -0.30 8.391

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 1868259.  
 ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/05/16 S/C TO SUN IN AU: 1.02329

-----GEOCENTRIC-----										-----NEW NORCIA-----				-----CEBREROS-----				-----MALARGUE-----			
UTC	EL	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	
HH:MM	DEG	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	
00:00	231.87	-6.30	12.61	358.18	-6.35	1868259	12.46					176.5	43.0	0.04	-1.224	81.8	21.7	-0.29	8.148		
38																					
00:15	231.87	-6.30	12.62	354.42	-6.35	1868313	12.46					181.6	43.0	0.07	-1.878	79.4	24.7	-0.28	7.862		
41																					
00:30	231.88	-6.31	12.62	350.67	-6.35	1868366	12.46					186.8	42.8	0.09	-2.532	76.9	27.7	-0.27	7.536		
45																					
00:45	231.88	-6.31	12.62	346.91	-6.35	1868419	12.46					191.8	42.4	0.11	-3.181	74.3	30.6	-0.25	7.169		
49																					
01:00	231.89	-6.31	12.62	343.15	-6.35	1868472	12.47					196.7	41.7	0.14	-3.824	71.5	33.5	-0.24	6.764		
52																					
01:15	231.89	-6.31	12.62	339.40	-6.35	1868525	12.47					201.6	40.7	0.16	-4.458	68.6	36.4	-0.22	6.323		
56																					
01:30	231.89	-6.31	12.62	335.64	-6.36	1868578	12.47					206.2	39.6	0.18	-5.079	65.5	39.2	-0.21	5.848		
59																					
01:45	231.90	-6.31	12.62	331.88	-6.36	1868631	12.47					210.7	38.2	0.20	-5.686	62.1	42.0	-0.19	5.340		
63																					
02:00	231.90	-6.31	12.63	328.13	-6.36	1868685	12.47					215.0	36.6	0.22	-6.276	58.5	44.6	-0.17	4.802		
66																					
02:15	231.90	-6.31	12.63	324.37	-6.36	1868738	12.47					219.1	34.9	0.24	-6.845	54.6	47.2	-0.15	4.235		
69																					
02:30	231.91	-6.32	12.63	320.61	-6.36	1868791	12.47					223.0	33.0	0.26	-7.392	50.3	49.6	-0.13	3.644		
72																					
02:45	231.91	-6.32	12.63	316.86	-6.36	1868844	12.47					226.7	31.0	0.28	-7.915	45.6	51.9	-0.11	3.029		
75																					
03:00	231.91	-6.32	12.63	313.10	-6.36	1868898	12.47					230.2	28.9	0.30	-8.410	40.4	54.0	-0.08	2.394		
77																					
03:15	231.92	-6.32	12.63	309.34	-6.37	1868951	12.47					233.6	26.6	0.31	-8.876	34.8	55.8	-0.06	1.741		
78																					
03:30	231.92	-6.32	12.64	305.59	-6.37	1869005	12.47					236.8	24.3	0.33	-9.312	28.6	57.4	-0.04	1.073		
78																					
03:45	231.93	-6.32	12.64	301.83	-6.37	1869058	12.47					239.9	21.8	0.34	-9.714	22.0	58.7	-0.01	0.394		
77																					
04:00	231.93	-6.32	12.64	298.07	-6.37	1869112	12.47					242.8	19.3	0.36	-10.082	14.9	59.7	0.01	-0.295		
75																					
04:15	231.93	-6.33	12.64	294.32	-6.37	1869165	12.47					245.7	16.7	0.37	-10.413	7.5	60.3	0.04	-0.989		
73																					
04:30	231.94	-6.33	12.64	290.56	-6.37	1869219	12.47					248.4	14.1	0.38	-10.707	359.9	60.5	0.06	-1.686		
70																					
04:45	231.94	-6.33	12.64	286.80	-6.37	1869272	12.47					251.1	11.4	0.39	-10.961	352.3	60.3	0.08	-2.384		
66																					
05:00	231.94	-6.33	12.64	283.05	-6.37	1869326	12.47					253.7	8.7	0.40	-11.176	344.9	59.7	0.11	-3.078		
63																					
05:15	231.95	-6.33	12.65	279.29	-6.38	1869379	12.47					256.2	5.9	0.40	-11.350	337.9	58.7	0.13	-3.766		
60																					
05:20	231.95	-6.33	12.65	278.04	-6.38	1869397	12.47					257.1+	5.0	0.40	-11.399	335.6	58.3	0.14	-3.994		
59																					
05:21	231.95	-6.33	12.65	277.79	-6.38	1869401	12.47					257.2L	4.8	0.40	-11.408	335.2	58.2	0.14	-4.039		
58																					
05:30	231.95	-6.33	12.65	275.53	-6.38	1869433	12.47									331.2	57.4	0.16	-4.445		
56																					
05:45	231.95	-6.33	12.65	271.78	-6.38	1869487	12.47									325.1	55.8	0.18	-5.112		
53																					
06:00	231.96	-6.33	12.65	268.02	-6.38	1869540	12.47									319.5	53.9	0.20	-5.765		
49																					
06:15	231.96	-6.34	12.65	264.26	-6.38	1869594	12.47									314.3	51.8	0.23	-6.399		
45																					



18:47	232.15	-6.41	12.73	75.93	-6.45	1872326	12.49	294.7	44.9	0.32	-8.976	101.2A	2.9	-0.29	8.063
18:58	232.15	-6.41	12.73	73.18	-6.45	1872367	12.49	292.3	42.7	0.33	-9.378	103.0+	5.0	-0.28	7.972
19:00	232.15	-6.41	12.73	72.68	-6.45	1872374	12.49	291.9	42.3	0.33	-9.450	103.4	5.4	-0.28	7.953
19:15	232.15	-6.41	12.74	68.92	-6.45	1872429	12.49	289.0	39.3	0.35	-9.965	105.9	8.1	-0.28	7.787
19:30	232.16	-6.41	12.74	65.16	-6.45	1872485	12.49	286.3	36.2	0.37	-10.446	108.5	10.8	-0.27	7.579
19:45	232.16	-6.41	12.74	61.41	-6.46	1872540	12.49	283.8	33.1	0.39	-10.888	111.1	13.5	-0.26	7.332
20:00	232.16	-6.41	12.74	57.65	-6.46	1872595	12.49	281.4	30.0	0.40	-11.291	113.9	16.2	-0.25	7.045
20:15	232.17	-6.41	12.74	53.90	-6.46	1872651	12.49	279.2	26.8	0.41	-11.653	116.7	18.8	-0.24	6.721
20:30	232.17	-6.41	12.74	50.14	-6.46	1872706	12.49	277.0	23.6	0.42	-11.972	119.6	21.3	-0.23	6.360
20:45	232.18	-6.42	12.74	46.38	-6.46	1872761	12.49	274.9	20.4	0.43	-12.246	122.7	23.7	-0.21	5.964
21:00	232.18	-6.42	12.75	42.63	-6.46	1872817	12.49	272.9	17.2	0.44	-12.476	125.9	26.1	-0.20	5.535
21:15	232.18	-6.42	12.75	38.87	-6.46	1872872	12.49	270.9	14.0	0.45	-12.659	129.2	28.4	-0.18	5.075
21:30	232.19	-6.42	12.75	35.11	-6.47	1872928	12.49	269.0	10.8	0.45	-12.795	132.7	30.5	-0.16	4.585
21:34	232.19	-6.42	12.75	34.11	-6.47	1872943	12.49	268.5	9.9	0.45	-12.824	133.7	31.1	-0.16	4.449
A 21:45	232.19	-6.42	12.75	31.36	-6.47	1872983	12.50	267.1	7.5	0.46	-12.884	136.4	32.6	-0.14	4.067
+ 5 21:53	232.19	-6.42	12.75	29.35	-6.47	1873013	12.50	266.1L	5.8	0.46	-12.912	138.4	33.6	-0.13	3.781
7 22:00	232.19	-6.42	12.75	27.60	-6.47	1873039	12.50					140.3	34.5	-0.12	3.525
9 22:12	232.20	-6.42	12.75	24.59	-6.47	1873083	12.50					143.5	35.9	-0.11	3.074
12 22:15	232.20	-6.42	12.75	23.84	-6.47	1873094	12.50					144.3	36.2	-0.10	2.959
12 22:30	232.20	-6.43	12.76	20.09	-6.47	1873150	12.50					148.6	37.8	-0.08	2.374
16 22:35	232.20	-6.43	12.76	18.83	-6.47	1873169	12.50					150.0	38.3	-0.08	2.174
17 22:45	232.21	-6.43	12.76	16.33	-6.47	1873206	12.50					153.0	39.2	-0.06	1.770
20 23:00	232.21	-6.43	12.76	12.57	-6.47	1873261	12.50					157.6	40.4	-0.04	1.151
24 23:15	232.21	-6.43	12.76	8.82	-6.48	1873317	12.50					162.4	41.4	-0.02	0.520
27 23:30	232.22	-6.43	12.76	5.06	-6.48	1873373	12.50					167.3	42.1	0.00	-0.121
31 23:45	232.22	-6.43	12.76	1.30	-6.48	1873428	12.50					172.3	42.6	0.03	-0.769
35															

HERSCHEL WORLD MAP PRINTOUT  
ESCS = ANGLE EARTH-S/C-SUN

CREATED ON 2013/05/15

FREQUENCY IN MHZ: 8468.500  
DATE: 2013/05/17

ALTITUDE IN KM:  
S/C TO SUN IN AU:

1873484.  
1.02352

-----GEOCENTRIC-----									-----NEW NORCIA-----				-----CEBREROS-----				-----MALARGUE-----			
UTC	EL	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.
HH:MM	DEG	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
DEG	DEG	DEG																		
00:00	232.22	-6.43	12.77	357.55	-6.48	1873484	12.50					177.4	42.9	0.05	-1.422	81.5	22.3	-0.28	8.013	
38 00:15	232.23	-6.44	12.77	353.79	-6.48	1873540	12.50					182.5	42.9	0.07	-2.076	79.1	25.3	-0.27	7.721	
42 00:30	232.23	-6.44	12.77	350.03	-6.48	1873596	12.50					187.6	42.6	0.10	-2.728	76.6	28.3	-0.26	7.388	
46 00:45	232.24	-6.44	12.77	346.28	-6.48	1873652	12.50					192.6	42.1	0.12	-3.376	74.0	31.2	-0.25	7.015	
49 01:00	232.24	-6.44	12.77	342.52	-6.49	1873708	12.50					197.5	41.4	0.14	-4.018	71.2	34.1	-0.23	6.604	
53 01:15	232.24	-6.44	12.77	338.76	-6.49	1873763	12.50					202.3	40.4	0.16	-4.649	68.2	37.0	-0.22	6.157	
56 01:30	232.25	-6.44	12.78	335.01	-6.49	1873819	12.50					206.9	39.2	0.19	-5.268	65.1	39.8	-0.20	5.677	
60 01:45	232.25	-6.44	12.78	331.25	-6.49	1873875	12.50					211.4	37.8	0.21	-5.872	61.7	42.5	-0.18	5.164	
63 02:00	232.25	-6.45	12.78	327.49	-6.49	1873931	12.50					215.6	36.2	0.23	-6.458	58.0	45.2	-0.16	4.621	
67 02:15	232.26	-6.45	12.78	323.74	-6.49	1873987	12.50					219.7	34.5	0.25	-7.023	54.0	47.7	-0.14	4.050	
70 02:30	232.26	-6.45	12.78	319.98	-6.49	1874043	12.50					223.5	32.6	0.27	-7.566	49.6	50.1	-0.12	3.455	
73 02:45	232.26	-6.45	12.78	316.22	-6.50	1874099	12.50					227.2	30.5	0.29	-8.084	44.8	52.3	-0.10	2.836	
75 03:00	232.27	-6.45	12.79	312.47	-6.50	1874156	12.50					230.7	28.4	0.30	-8.574	39.6	54.4	-0.08	2.198	
77 03:15	232.27	-6.45	12.79	308.71	-6.50	1874212	12.50					234.0	26.1	0.32	-9.035	33.9	56.2	-0.05	1.543	
78 03:30	232.28	-6.45	12.79	304.95	-6.50	1874268	12.50					237.2	23.8	0.34	-9.465	27.6	57.8	-0.03	0.874	
78 03:45	232.28	-6.46	12.79	301.20	-6.50	1874324	12.50					240.3	21.3	0.35	-9.861	20.9	59.1	-0.01	0.193	
77 04:00	232.28	-6.46	12.79	297.44	-6.50	1874380	12.50					243.2	18.8	0.36	-10.223	13.7	60.0	0.02	-0.496	
75 04:15	232.29	-6.46	12.79	293.69	-6.50	1874436	12.50					246.1	16.2	0.37	-10.548	6.2	60.5	0.04	-1.191	
72 04:30	232.29	-6.46	12.80	289.93	-6.51	1874493	12.51					248.8	13.6	0.38	-10.835	358.6	60.6	0.07	-1.888	
69 04:45	232.29	-6.46	12.80	286.17	-6.51	1874549	12.51					251.4	10.9	0.39	-11.083	351.0	60.4	0.09	-2.585	
66 05:00	232.30	-6.46	12.80	282.42	-6.51	1874605	12.51					254.0	8.1	0.40	-11.291	343.7	59.7	0.12	-3.278	



16:30	232.47	-6.53	12.88	109.62	-6.58	1877223	12.52	344.5	64.7	0.11	-3.086									
16:45	232.47	-6.53	12.88	105.86	-6.58	1877280	12.52	336.3	63.6	0.14	-3.814									
17:00	232.48	-6.53	12.88	102.10	-6.58	1877338	12.52	328.8	62.1	0.16	-4.533									
17:15	232.48	-6.54	12.88	98.35	-6.58	1877395	12.52	322.0	60.3	0.19	-5.241									
17:30	232.49	-6.54	12.88	94.59	-6.58	1877453	12.53	316.0	58.2	0.21	-5.933									
17:45	232.49	-6.54	12.89	90.83	-6.58	1877511	12.53	310.6	55.8	0.23	-6.608									
18:00	232.49	-6.54	12.89	87.08	-6.58	1877568	12.53	305.9	53.3	0.26	-7.261									
18:15	232.50	-6.54	12.89	83.32	-6.59	1877626	12.53	301.6	50.6	0.28	-7.891									
18:30	232.50	-6.54	12.89	79.56	-6.59	1877683	12.53	297.8	47.8	0.30	-8.495									
18:45	232.50	-6.55	12.89	75.81	-6.59	1877741	12.53	294.4	44.9	0.32	-9.070	101.4A	2.9	-0.28	7.978					
18:56	232.51	-6.55	12.89	73.05	-6.59	1877783	12.53	292.1	42.7	0.34	-9.472	103.2+	5.0	-0.28	7.886					
19:00	232.51	-6.55	12.89	72.05	-6.59	1877799	12.53	291.3	41.9	0.34	-9.613	103.9	5.7	-0.28	7.847					
19:15	232.51	-6.55	12.90	68.29	-6.59	1877857	12.53	288.4	38.9	0.36	-10.123	106.4	8.5	-0.27	7.674					
19:30	232.52	-6.55	12.90	64.54	-6.59	1877914	12.53	285.7	35.8	0.38	-10.597	109.0	11.2	-0.26	7.460					
19:45	232.52	-6.55	12.90	60.78	-6.60	1877972	12.53	283.2	32.7	0.39	-11.033	111.7	13.9	-0.26	7.206					
20:00	232.52	-6.55	12.90	57.02	-6.60	1878030	12.53	280.9	29.5	0.40	-11.429	114.4	16.5	-0.24	6.914					
20:15	232.53	-6.55	12.90	53.27	-6.60	1878088	12.53	278.7	26.4	0.42	-11.783	117.3	19.1	-0.23	6.583					
20:30	232.53	-6.56	12.91	49.51	-6.60	1878146	12.53	276.5	23.2	0.43	-12.094	120.2	21.6	-0.22	6.217					
20:45	232.53	-6.56	12.91	45.75	-6.60	1878203	12.53	274.5	20.0	0.44	-12.361	123.3	24.0	-0.21	5.815					
21:00	232.54	-6.56	12.91	42.00	-6.60	1878261	12.53	272.5	16.7	0.45	-12.583	126.5	26.4	-0.19	5.381					
21:15	232.54	-6.56	12.91	38.24	-6.60	1878319	12.53	270.5	13.5	0.45	-12.758	129.9	28.6	-0.17	4.916					
21:30	232.55	-6.56	12.91	34.49	-6.61	1878377	12.53	268.6	10.3	0.46	-12.886	133.4	30.8	-0.16	4.421					
21:32	232.55	-6.56	12.91	33.98	-6.61	1878385	12.53	268.3	9.9	0.46	-12.900	133.9	31.0	-0.15	4.353					
A 2	21:43	232.55	-6.56	12.91	31.23	-6.61	1878427	12.53	266.9	7.5	0.46	-12.959	136.6	32.5	-0.14	3.971				
+ 5	21:45	232.55	-6.56	12.91	30.73	-6.61	1878435	12.53	266.6	7.1	0.46	-12.967	137.1	32.8	-0.14	3.900				
6	21:51	232.55	-6.56	12.91	29.23	-6.61	1878458	12.53	265.9L	5.8	0.46	-12.986	138.6	33.5	-0.13	3.684				
7	22:00	232.55	-6.56	12.92	26.97	-6.61	1878493	12.53				141.0	34.7	-0.12	3.354					
9	22:09	232.56	-6.57	12.92	24.72	-6.61	1878528	12.53				143.4	35.7	-0.11	3.015	97.8A	0.3	-0.31	8.748	
12	22:15	232.56	-6.57	12.92	23.22	-6.61	1878551	12.53				145.1	36.4	-0.10	2.785	96.9	1.6	-0.31	8.764	
13	22:30	232.56	-6.57	12.92	19.46	-6.61	1878609	12.53				149.3	37.9	-0.08	2.197	94.7	4.6	-0.31	8.774	
17	22:32	232.56	-6.57	12.92	18.96	-6.61	1878617	12.53				149.9	38.1	-0.07	2.117	94.4+	5.0	-0.31	8.772	
17	22:45	232.56	-6.57	12.92	15.70	-6.61	1878667	12.53				153.8	39.3	-0.06	1.591	92.5	7.6	-0.31	8.739	
20	23:00	232.57	-6.57	12.92	11.95	-6.62	1878725	12.53				158.4	40.4	-0.03	0.970	90.4	10.7	-0.31	8.658	
24	23:15	232.57	-6.57	12.92	8.19	-6.62	1878783	12.53				163.2	41.4	-0.01	0.337	88.2	13.7	-0.30	8.532	
28	23:30	232.58	-6.57	12.93	4.43	-6.62	1878842	12.53				168.2	42.1	0.01	-0.305	85.9	16.8	-0.30	8.361	
31	23:45	232.58	-6.58	12.93	0.68	-6.62	1878900	12.53				173.2	42.6	0.03	-0.954	83.6	19.8	-0.29	8.147	

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 1878958.  
 ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/05/18 S/C TO SUN IN AU: 1.02375

-----GEOCENTRIC-----										-----NEW NORCIA-----				-----CEBREROS -----				-----MALARGUE -----					
KOU	UTC	EL	EL	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	
	HH:MM	DEG	DEG	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	
39	00:00	232.58	-6.58	12.93	356.92	-6.62	1878958	12.54				178.3	42.8	0.06	-1.606	81.3	22.8	-0.28	7.890				
42	00:15	232.59	-6.58	12.93	353.16	-6.62	1879016	12.54				183.3	42.7	0.08	-2.260	78.8	25.9	-0.27	7.590				
46	00:30	232.59	-6.58	12.93	349.41	-6.62	1879074	12.54				188.4	42.4	0.10	-2.911	76.3	28.8	-0.26	7.251				
50	00:45	232.59	-6.58	12.93	345.65	-6.63	1879133	12.54				193.4	41.9	0.13	-3.558	73.6	31.8	-0.24	6.872				
53	01:00	232.60	-6.58	12.94	341.89	-6.63	1879191	12.54				198.3	41.1	0.15	-4.198	70.8	34.7	-0.23	6.455				
57	01:15	232.60	-6.58	12.94	338.14	-6.63	1879249	12.54				203.0	40.1	0.17	-4.827	67.8	37.5	-0.21	6.003				
60	01:30	232.61	-6.59	12.94	334.38	-6.63	1879307	12.54				207.6	38.9	0.19	-5.443	64.7	40.3	-0.20	5.517				
64	01:45	232.61	-6.59	12.94	330.63	-6.63	1879366	12.54				212.0	37.4	0.21	-6.044	61.2	43.1	-0.18	4.999				
67	02:00	232.61	-6.59	12.94	326.87	-6.63	1879424	12.54				216.2	35.8	0.23	-6.626	57.5	45.7	-0.16	4.452				
70	02:15	232.62	-6.59	12.95	323.11	-6.64	1879482	12.54				220.2	34.1	0.25	-7.188	53.4	48.2	-0.14	3.877				
73	02:30	232.62	-6.59	12.95	319.36	-6.64	1879541	12.54				224.1	32.1	0.27	-7.727	49.0	50.6	-0.12	3.278				

02:45	232.62	-6.59	12.95	315.60	-6.64	1879599	12.54		227.7	30.1	0.29	-8.240	44.1	52.8	-0.09	2.656		
75																		
03:00	232.63	-6.60	12.95	311.84	-6.64	1879658	12.54		231.2	27.9	0.31	-8.725	38.8	54.8	-0.07	2.016		
77																		
03:15	232.63	-6.60	12.95	308.09	-6.64	1879716	12.54		234.5	25.6	0.33	-9.181	33.0	56.6	-0.05	1.358		
78																		
03:30	232.64	-6.60	12.95	304.33	-6.64	1879775	12.54		237.7	23.2	0.34	-9.605	26.6	58.2	-0.02	0.687		
78																		
03:45	232.64	-6.60	12.96	300.57	-6.64	1879833	12.54		240.7	20.8	0.35	-9.995	19.8	59.4	-0.00	0.005		
76																		
04:00	232.64	-6.60	12.96	296.82	-6.65	1879892	12.54		243.6	18.3	0.37	-10.350	12.5	60.2	0.02	-0.685		
74																		
04:15	232.65	-6.60	12.96	293.06	-6.65	1879950	12.54		246.4	15.7	0.38	-10.669	5.0	60.7	0.05	-1.380		
71																		
04:30	232.65	-6.60	12.96	289.30	-6.65	1880009	12.54		249.1	13.0	0.39	-10.949	357.4	60.8	0.07	-2.077		
68																		
04:45	232.66	-6.61	12.96	285.55	-6.65	1880067	12.54		251.8	10.3	0.40	-11.190	349.8	60.4	0.10	-2.773		
65																		
05:00	232.66	-6.61	12.96	281.79	-6.65	1880126	12.54		254.3	7.6	0.40	-11.391	342.4	59.7	0.12	-3.465		
62																		
05:14	232.66	-6.61	12.97	278.28	-6.65	1880181	12.54		256.7+	5.0	0.41	-11.542	335.9	58.7	0.15	-4.104		
59																		
05:15	232.66	-6.61	12.97	278.03	-6.65	1880185	12.54		256.9L	4.8	0.41	-11.551	335.4	58.6	0.15	-4.150		
58																		
05:30	232.67	-6.61	12.97	274.28	-6.66	1880243	12.54						328.9	57.2	0.17	-4.824		
55																		
05:45	232.67	-6.61	12.97	270.52	-6.66	1880302	12.54						322.9	55.4	0.19	-5.486		
51																		
06:00	232.67	-6.61	12.97	266.77	-6.66	1880361	12.54						317.4	53.5	0.22	-6.132		
48																		
06:15	232.68	-6.62	12.97	263.01	-6.66	1880420	12.54						312.4	51.3	0.24	-6.760		
44																		
06:30	232.68	-6.62	12.98	259.25	-6.66	1880478	12.55						307.9	49.0	0.26	-7.366		
41																		
06:45	232.69	-6.62	12.98	255.50	-6.66	1880537	12.55						303.7	46.5	0.28	-7.948		
37																		
07:00	232.69	-6.62	12.98	251.74	-6.67	1880596	12.55						299.9	43.9	0.30	-8.504		
33																		
07:15	232.69	-6.62	12.98	247.98	-6.67	1880655	12.55						296.3	41.2	0.32	-9.031		
30																		
07:30	232.70	-6.62	12.98	244.23	-6.67	1880714	12.55						293.1	38.4	0.34	-9.527		
26																		
07:45	232.70	-6.63	12.98	240.47	-6.67	1880772	12.55						290.0	35.6	0.35	-9.990		
22																		
08:00	232.70	-6.63	12.99	236.71	-6.67	1880831	12.55						287.2	32.7	0.37	-10.418		
18																		
08:15	232.71	-6.63	12.99	232.96	-6.67	1880890	12.55						284.5	29.8	0.38	-10.808		
15																		
08:30	232.71	-6.63	12.99	229.20	-6.67	1880949	12.55						281.9	26.8	0.40	-11.160		
11																		
08:45	232.72	-6.63	12.99	225.44	-6.68	1881008	12.55						279.4	23.8	0.41	-11.472		
7																		
08:54	232.72	-6.63	12.99	223.19	-6.68	1881043	12.55						278.0	22.0	0.41			
-11.639	+5																	
09:00	232.72	-6.63	12.99	221.69	-6.68	1881067	12.55						277.0	20.8	0.42	-11.742		
4																		
09:09	232.72	-6.63	12.99	219.43	-6.68	1881102	12.55						275.7	19.0	0.42			
-11.884	L 1																	
09:15	232.72	-6.63	13.00	217.93	-6.68	1881126	12.55						274.7	17.8	0.42	-11.969		
09:30	232.73	-6.64	13.00	214.17	-6.68	1881185	12.55						272.5	14.7	0.43	-12.153		
09:45	232.73	-6.64	13.00	210.42	-6.68	1881244	12.55						270.3	11.7	0.44	-12.293		
09:47	232.73	-6.64	13.00	209.92	-6.68	1881252	12.55		97.6A	0.1	-0.33	9.304	270.0	11.3	0.44	-12.308		
10:00	232.73	-6.64	13.00	206.66	-6.68	1881303	12.55		96.0	2.8	-0.33	9.329	268.1	8.6	0.44	-12.388		
10:10	232.74	-6.64	13.00	204.16	-6.68	1881343	12.55		94.7+	5.0	-0.33	9.323	266.6	6.6	0.44	-12.426		
10:15	232.74	-6.64	13.00	202.91	-6.69	1881362	12.55		94.1	6.1	-0.33	9.312	265.9	5.6	0.44	-12.437		
10:18	232.74	-6.64	13.00	202.15	-6.69	1881374	12.55		93.7	6.7	-0.33	9.303	265.5+	5.0	0.44	-12.441		
10:26	232.74	-6.64	13.00	200.15	-6.69	1881406	12.55		92.7	8.4	-0.33	9.269	264.3L	3.3	0.44	-12.444		
10:30	232.74	-6.64	13.00	199.15	-6.69	1881421	12.55		92.1	9.3	-0.33	9.248						
10:45	232.75	-6.64	13.01	195.39	-6.69	1881480	12.55		90.2	12.5	-0.32	9.135						
11:00	232.75	-6.65	13.01	191.64	-6.69	1881540	12.55		88.3	15.7	-0.32	8.976						
11:15	232.75	-6.65	13.01	187.88	-6.69	1881599	12.55		86.3	18.9	-0.31	8.769						
11:30	232.76	-6.65	13.01	184.12	-6.69	1881658	12.55		84.3	22.1	-0.30	8.517						
11:45	232.76	-6.65	13.01	180.37	-6.69	1881717	12.55		82.1	25.3	-0.29	8.220						
12:00	232.77	-6.65	13.02	176.61	-6.70	1881776	12.55		80.0	28.5	-0.28	7.880						
12:15	232.77	-6.65	13.02	172.85	-6.70	1881836	12.55		77.7	31.7	-0.27	7.498						
12:30	232.77	-6.66	13.02	169.10	-6.70	1881895	12.55		75.2	34.8	-0.25	7.075						
12:45	232.78	-6.66	13.02	165.34	-6.70	1881954	12.56		72.6	37.9	-0.23	6.614						
13:00	232.78	-6.66	13.02	161.58	-6.70	1882014	12.56		69.8	41.0	-0.22	6.116						
13:15	232.78	-6.66	13.02	157.83	-6.70	1882073	12.56		66.8	44.0	-0.20	5.584						
13:30	232.79	-6.66	13.03	154.07	-6.71	1882132	12.56		63.5	46.9	-0.18	5.020						
13:45	232.79	-6.66	13.03	150.31														



14:30	232.80	-6.67	13.03	139.05	-6.71	1882370	12.56	46.0	57.5	-0.09	2.490			
14:45	232.81	-6.67	13.04	135.29	-6.71	1882429	12.56	40.2	59.7	-0.06	1.804			
15:00	232.81	-6.67	13.04	131.53	-6.72	1882489	12.56	33.7	61.7	-0.04	1.101			
15:15	232.82	-6.67	13.04	127.78	-6.72	1882548	12.56	26.4	63.3	-0.01	0.386			
15:30	232.82	-6.67	13.04	124.02	-6.72	1882608	12.56	18.4	64.5	0.01	-0.339			
15:45	232.82	-6.68	13.04	120.26	-6.72	1882667	12.56	9.7	65.3	0.04	-1.070			
16:00	232.83	-6.68	13.04	116.51	-6.72	1882727	12.56	0.8	65.6	0.06	-1.806			
16:15	232.83	-6.68	13.05	112.75	-6.72	1882786	12.56	351.7	65.4	0.09	-2.541			
16:30	232.83	-6.68	13.05	108.99	-6.73	1882846	12.56	343.0	64.7	0.12	-3.273			
16:45	232.84	-6.68	13.05	105.24	-6.73	1882906	12.56	334.9	63.5	0.14	-3.999			
17:00	232.84	-6.68	13.05	101.48	-6.73	1882965	12.56	327.4	62.0	0.17	-4.716			
17:15	232.85	-6.69	13.05	97.72	-6.73	1883025	12.56	320.8	60.1	0.19	-5.421			
17:30	232.85	-6.69	13.06	93.97	-6.73	1883085	12.56	314.9	57.9	0.22	-6.110			
17:45	232.85	-6.69	13.06	90.21	-6.73	1883144	12.56	309.6	55.5	0.24	-6.781			
18:00	232.86	-6.69	13.06	86.46	-6.73	1883204	12.56	305.0	52.9	0.26	-7.431			
18:15	232.86	-6.69	13.06	82.70	-6.74	1883264	12.56	300.8	50.2	0.29	-8.057			
18:30	232.86	-6.69	13.06	78.94	-6.74	1883323	12.56	297.1	47.4	0.31	-8.655			
18:43	232.87	-6.70	13.06	75.69	-6.74	1883375	12.56	294.1	44.9	0.32	-9.151	101.6A	2.9 -0.28 7.906	
18:45	232.87	-6.70	13.06	75.19	-6.74	1883383	12.56	293.7	44.5	0.33	-9.225	101.9 3.3 -0.28 7.891		
18:54	232.87	-6.70	13.07	72.93	-6.74	1883419	12.56	291.8	42.7	0.34	-9.551	103.4+ 5.0 -0.28 7.813		
19:00	232.87	-6.70	13.07	71.43	-6.74	1883443	12.56	290.6	41.5	0.35	-9.763	104.4 6.1 -0.27 7.753		
19:15	232.88	-6.70	13.07	67.67	-6.74	1883503	12.57	287.8	38.5	0.36	-10.266	107.0 8.8 -0.27 7.573		
19:30	232.88	-6.70	13.07	63.92	-6.74	1883563	12.57	285.2	35.4	0.38	-10.733	109.6 11.5 -0.26 7.353		
19:45	232.88	-6.70	13.07	60.16	-6.75	1883623	12.57	282.7	32.2	0.40	-11.162	112.2 14.2 -0.25 7.093		
20:00	232.89	-6.70	13.07	56.40	-6.75	1883682	12.57	280.4	29.1	0.41	-11.551	115.0 16.8 -0.24 6.794		
20:15	232.89	-6.71	13.08	52.65	-6.75	1883742	12.57	278.2	25.9	0.42	-11.899	117.9 19.4 -0.23 6.458		
20:30	232.90	-6.71	13.08	48.89	-6.75	1883802	12.57	276.0	22.7	0.43	-12.202	120.8 21.9 -0.22 6.085		
20:45	232.90	-6.71	13.08	45.13	-6.75	1883862	12.57	274.0	19.5	0.44	-12.462	123.9 24.3 -0.20 5.679		
21:00	232.90	-6.71	13.08	41.38	-6.75	1883922	12.57	272.0	16.3	0.45	-12.676	127.2 26.6 -0.19 5.240		
21:15	232.91	-6.71	13.08	37.62	-6.76	1883982	12.57	270.0	13.1	0.45	-12.843	130.5 28.9 -0.17 4.770		
21:29	232.91	-6.71	13.08	34.12	-6.76	1884038	12.57	268.2	10.1	0.46	-12.957	133.9 30.8 -0.15 4.305		
A 2 21:30	232.91	-6.71	13.08	33.87	-6.76	1884042	12.57	268.1	9.8	0.46	-12.963	134.1 31.0 -0.15 4.271		
2 21:40	232.91	-6.71	13.09	31.36	-6.76	1884082	12.57	266.8	7.7	0.46	-13.017	136.6 32.3 -0.14 3.923		
+ 5 21:45	232.91	-6.72	13.09	30.11	-6.76	1884102	12.57	266.2	6.6	0.46	-13.036	137.8 33.0 -0.13 3.745		
6 21:48	232.92	-6.72	13.09	29.36	-6.76	1884114	12.57	265.8L	6.0	0.46	-13.044	138.6 33.4 -0.13 3.637		
7 22:00	232.92	-6.72	13.09	26.35	-6.76	1884162	12.57				141.7 34.8 -0.11 3.196			
10 22:06	232.92	-6.72	13.09	24.85	-6.76	1884186	12.57				143.4 35.5 -0.11 2.969	98.0A 0.3 -0.31 8.679		
11 22:15	232.92	-6.72	13.09	22.60	-6.76	1884222	12.57				145.9 36.5 -0.09 2.624	96.7 2.1 -0.31 8.702		
14 22:29	232.93	-6.72	13.09	19.09	-6.76	1884278	12.57				149.9 37.9 -0.07 2.073	94.6+ 5.0 -0.31 8.706		
17 22:30	232.93	-6.72	13.09	18.84	-6.76	1884282	12.57				150.1 38.0 -0.07 2.033	94.5 5.2 -0.31 8.705		
17 22:45	232.93	-6.72	13.09	15.08	-6.77	1884342	12.57				154.6 39.4 -0.05 1.425	92.3 8.2 -0.31 8.662		
21 23:00	232.93	-6.72	13.10	11.33	-6.77	1884402	12.57				159.3 40.5 -0.03 0.802	90.1 11.3 -0.30 8.574		
25 23:15	232.94	-6.72	13.10	7.57	-6.77	1884462	12.57				164.1 41.4 -0.01 0.168	87.9 14.3 -0.30 8.441		
28 23:30	232.94	-6.73	13.10	3.81	-6.77	1884523	12.57				169.0 42.0 0.02 -0.475	85.7 17.4 -0.29 8.263		
32 23:45	232.95	-6.73	13.10	0.06	-6.77	1884583	12.57				174.0 42.5 0.04 -1.124	83.4 20.4 -0.28 8.042		
36														

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 1884643.  
 ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/05/19 S/C TO SUN IN AU: 1.02398

-----GEOCENTRIC-----								-----NEW NORCIA-----				-----CEBREROS-----				-----MALARGUE-----						
UTL	EL	EL	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	
HH:MM	DEG	DEG	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	
DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	
00:00	232.95	-6.73	13.10	356.30	-6.77	1884643	12.57						179.1 42.6 0.06 -1.777	81.0 23.4 -0.28 7.778								
39 00:15	232.95	-6.73	13.11	352.54	-6.78	1884703	12.57						184.2 42.5 0.09 -2.430	78.6 26.4 -0.26 7.472								

43	00:30	232.96	-6.73	13.11	348.79	-6.78	1884763	12.57		189.2	42.2	0.11	-3.081		76.0	29.4	-0.25	7.126	
47	00:45	232.96	-6.73	13.11	345.03	-6.78	1884824	12.57		194.2	41.6	0.13	-3.726		73.3	32.4	-0.24	6.741	
50	01:00	232.96	-6.74	13.11	341.28	-6.78	1884884	12.57		199.0	40.8	0.15	-4.364		70.5	35.3	-0.22	6.318	
54	01:15	232.97	-6.74	13.11	337.52	-6.78	1884944	12.57		203.7	39.8	0.18	-4.991		67.5	38.1	-0.21	5.861	
57	01:30	232.97	-6.74	13.11	333.76	-6.78	1885004	12.58		208.3	38.5	0.20	-5.604		64.3	40.9	-0.19	5.370	
61	01:45	232.98	-6.74	13.12	330.01	-6.79	1885065	12.58		212.6	37.0	0.22	-6.202		60.8	43.6	-0.17	4.847	
64	02:00	232.98	-6.74	13.12	326.25	-6.79	1885125	12.58		216.8	35.4	0.24	-6.780		57.0	46.2	-0.15	4.295	
67	02:15	232.98	-6.74	13.12	322.49	-6.79	1885185	12.58		220.8	33.6	0.26	-7.338		52.9	48.7	-0.13	3.717	
70	02:30	232.99	-6.75	13.12	318.74	-6.79	1885246	12.58		224.6	31.7	0.28	-7.872		48.4	51.1	-0.11	3.114	
73	02:45	232.99	-6.75	13.12	314.98	-6.79	1885306	12.58		228.2	29.6	0.30	-8.381		43.4	53.3	-0.09	2.490	
76	03:00	233.00	-6.75	13.13	311.22	-6.79	1885366	12.58		231.6	27.4	0.31	-8.861		38.0	55.3	-0.07	1.847	
77	03:15	233.00	-6.75	13.13	307.47	-6.80	1885427	12.58		234.9	25.1	0.33	-9.311		32.1	57.0	-0.04	1.187	
78	03:30	233.00	-6.75	13.13	303.71	-6.80	1885487	12.58		238.1	22.7	0.34	-9.729		25.6	58.5	-0.02	0.514	
77	03:45	233.01	-6.75	13.13	299.95	-6.80	1885548	12.58		241.1	20.3	0.36	-10.114		18.7	59.7	0.01	-0.169	
76	04:00	233.01	-6.76	13.13	296.20	-6.80	1885608	12.58		244.0	17.7	0.37	-10.463		11.4	60.5	0.03	-0.860	
74	04:15	233.01	-6.76	13.13	292.44	-6.80	1885669	12.58		246.8	15.1	0.38	-10.775		3.8	60.9	0.06	-1.555	
71	04:30	233.02	-6.76	13.14	288.69	-6.80	1885729	12.58		249.5	12.5	0.39	-11.049		356.1	60.9	0.08	-2.251	
68	04:45	233.02	-6.76	13.14	284.93	-6.81	1885790	12.58		252.1	9.8	0.40	-11.283		348.5	60.5	0.10	-2.947	
65	05:00	233.03	-6.76	13.14	281.17	-6.81	1885850	12.58		254.6	7.0	0.41	-11.477		341.2	59.7	0.13	-3.637	
61	05:11	233.03	-6.76	13.14	278.42	-6.81	1885895	12.58		256.5+	5.0	0.41	-11.593		336.0	58.9	0.15	-4.139	
59	05:13	233.03	-6.76	13.14	277.92	-6.81	1885903	12.58		256.8L	4.6	0.41	-11.612		335.1	58.7	0.15	-4.230	
58	05:15	233.03	-6.76	13.14	277.42	-6.81	1885911	12.58							334.2	58.5	0.15	-4.320	
58	05:30	233.03	-6.77	13.14	273.66	-6.81	1885971	12.58							327.8	57.0	0.18	-4.993	
54	05:45	233.04	-6.77	13.15	269.90	-6.81	1886032	12.58							321.9	55.3	0.20	-5.652	
51	06:00	233.04	-6.77	13.15	266.15	-6.81	1886093	12.58							316.4	53.3	0.22	-6.295	
47	06:15	233.05	-6.77	13.15	262.39	-6.82	1886153	12.58							311.5	51.1	0.24	-6.918	
44	06:30	233.05	-6.77	13.15	258.63	-6.82	1886214	12.58							307.0	48.7	0.27	-7.520	
40	06:45	233.05	-6.77	13.15	254.88	-6.82	1886274	12.58							302.9	46.2	0.29	-8.098	
36	07:00	233.06	-6.78	13.16	251.12	-6.82	1886335	12.58							299.1	43.6	0.31	-8.649	
33	07:15	233.06	-6.78	13.16	247.37	-6.82	1886396	12.58							295.6	40.9	0.32	-9.171	
29	07:30	233.07	-6.78	13.16	243.61	-6.82	1886457	12.59							292.4	38.1	0.34	-9.661	
25	07:45	233.07	-6.78	13.16	239.85	-6.83	1886517	12.59							289.4	35.2	0.36	-10.118	
22	08:00	233.07	-6.78	13.16	236.10	-6.83	1886578	12.59							286.6	32.3	0.37	-10.539	
18	08:15	233.08	-6.78	13.16	232.34	-6.83	1886639	12.59							283.9	29.4	0.39	-10.923	
14	08:30	233.08	-6.79	13.17	228.58	-6.83	1886700	12.59							281.3	26.4	0.40	-11.268	
10	08:45	233.08	-6.79	13.17	224.83	-6.83	1886760	12.59							278.9	23.4	0.41	-11.573	
7	08:52	233.09	-6.79	13.17	223.07	-6.83	1886789	12.59							277.8	22.0	0.41		
-11.701	09:00	233.09	-6.79	13.17	221.07	-6.83	1886821	12.59							276.5	20.4	0.42	-11.836	
3	09:06	233.09	-6.79	13.17	219.57	-6.83	1886845	12.59							275.6	19.2	0.42		
-11.930	09:15	233.09	-6.79	13.17	217.31	-6.84	1886882	12.59							274.2	17.3	0.43	-12.056	
	09:30	233.10	-6.79	13.17	213.56	-6.84	1886943	12.59							272.0	14.3	0.43	-12.233	
	09:44	233.10	-6.79	13.18	210.05	-6.84	1887000	12.59		97.8A	0.0	-0.33	9.242		269.9	11.5	0.44	-12.358	
	09:45	233.10	-6.79	13.18	209.80	-6.84	1887004	12.59		97.7	0.3	-0.33	9.245		269.8	11.3	0.44	-12.365	
	10:00	233.10	-6.80	13.18	206.05	-6.84	1887065	12.59		95.8	3.5	-0.33	9.269		267.6	8.2	0.44	-12.452	
	10:07	233.11	-6.80	13.18	204.29	-6.84	1887093	12.59		94.9+	5.0	-0.33	9.263		266.6	6.8	0.44	-12.477	
	10:15	233.11	-6.80	13.18	202.29	-6.84	1887125	12.59		93.9	6.7	-0.33	9.244		265.4	5.2	0.44	-12.494	
	10:16	233.11	-6.80	13.18	202.04	-6.84	1887130	12.59		93.8	6.9	-0.33	9.241		265.3+	5.0	0.44	-12.495	
	10:24	233.11	-6.80	13.18	200.03	-6.84	1887162	12.59		92.7	8.6	-0.33	9.207		264.1L	3.3	0.44	-12.497	
	10:30	233.11	-6.80	13.18	198.53	-6.84	1887186	12.59		92.0	9.9	-0.32	9.172						
	10:45	233.12	-6.80	13.18	194.78	-6.85	1887247	12.59		90.0	13.1	-0.32	9.052						
	11:00	233.12	-6.80	13.19	191.02	-6.85	1887308	12.59		88.1	16.3	-0.31	8.885						
	11:15	233.12	-6.80	13.19	187.26	-6.85	1887369	12.59		86.1	19.5	-0.31	8.671						
	11:30	233.13	-6.81	13.19	183.51	-6.85	1887430	12.59		84.1	22.7	-0.30	8.412						

11:45	233.13	-6.81	13.19	179.75	-6.85	1887491	12.59	81.9	25.9	-0.29	8.108		
12:00	233.13	-6.81	13.19	175.99	-6.85	1887552	12.59	79.7	29.1	-0.27	7.761		
12:15	233.14	-6.81	13.20	172.24	-6.86	1887613	12.59	77.4	32.3	-0.26	7.373		
12:30	233.14	-6.81	13.20	168.48	-6.86	1887674	12.59	75.0	35.4	-0.25	6.944		
12:45	233.15	-6.81	13.20	164.72	-6.86	1887735	12.59	72.3	38.5	-0.23	6.477		
13:00	233.15	-6.82	13.20	160.97	-6.86	1887796	12.59	69.5	41.6	-0.21	5.973		
13:15	233.15	-6.82	13.20	157.21	-6.86	1887858	12.59	66.5	44.6	-0.19	5.436		
13:30	233.16	-6.82	13.20	153.46	-6.86	1887919	12.59	63.1	47.5	-0.17	4.867		
13:45	233.16	-6.82	13.21	149.70	-6.87	1887980	12.60	59.4	50.3	-0.15	4.268		
14:00	233.17	-6.82	13.21	145.94	-6.87	1888041	12.60	55.2	53.0	-0.13	3.643		
14:15	233.17	-6.83	13.21	142.19	-6.87	1888102	12.60	50.6	55.6	-0.11	2.994		
14:30	233.17	-6.83	13.21	138.43	-6.87	1888163	12.60	45.3	58.0	-0.08	2.323		
14:45	233.18	-6.83	13.21	134.67	-6.87	1888224	12.60	39.4	60.2	-0.06	1.634		
15:00	233.18	-6.83	13.22	130.92	-6.87	1888286	12.60	32.7	62.1	-0.03	0.930		
15:15	233.19	-6.83	13.22	127.16	-6.88	1888347	12.60	25.3	63.7	-0.01	0.213		
15:30	233.19	-6.83	13.22	123.40	-6.88	1888408	12.60	17.1	64.8	0.02	-0.513		
15:45	233.19	-6.84	13.22	119.65	-6.88	1888469	12.60	8.3	65.5	0.04	-1.245		
16:00	233.20	-6.84	13.22	115.89	-6.88	1888531	12.60	359.3	65.8	0.07	-1.979		
16:15	233.20	-6.84	13.23	112.14	-6.88	1888592	12.60	350.2	65.5	0.10	-2.714		
16:30	233.21	-6.84	13.23	108.38	-6.88	1888653	12.60	341.6	64.7	0.12	-3.445		
16:45	233.21	-6.84	13.23	104.62	-6.89	1888715	12.60	333.5	63.4	0.15	-4.170		
17:00	233.21	-6.84	13.23	100.87	-6.89	1888776	12.60	326.1	61.8	0.17	-4.885		
17:15	233.22	-6.85	13.23	97.11	-6.89	1888837	12.60	319.6	59.9	0.20	-5.587		
17:30	233.22	-6.85	13.24	93.35	-6.89	1888899	12.60	313.8	57.6	0.22	-6.273		
17:45	233.22	-6.85	13.24	89.60	-6.89	1888960	12.60	308.6	55.2	0.25	-6.940		
18:00	233.23	-6.85	13.24	85.84	-6.89	1889021	12.60	304.1	52.6	0.27	-7.585		
18:15	233.23	-6.85	13.24	82.08	-6.90	1889083	12.60	300.0	49.9	0.29	-8.206		
18:30	233.24	-6.85	13.24	78.33	-6.90	1889144	12.60	296.3	47.0	0.31	-8.800		
18:41	233.24	-6.86	13.24	75.57	-6.90	1889189	12.60	293.9	44.9	0.33	-9.217	101.8A	2.9 -0.28 7.847
18:45	233.24	-6.86	13.25	74.57	-6.90	1889206	12.60	293.0	44.1	0.33	-9.364	102.4 3.6 -0.28 7.815	
18:52	233.24	-6.86	13.25	72.82	-6.90	1889234	12.60	291.6	42.7	0.34	-9.617	103.6+ 4.9 -0.27 7.753	
19:00	233.24	-6.86	13.25	70.82	-6.90	1889267	12.60	290.0	41.1	0.35	-9.896	104.9 6.4 -0.27 7.670	
19:15	233.25	-6.86	13.25	67.06	-6.90	1889329	12.60	287.2	38.1	0.37	-10.394	107.5 9.2 -0.26 7.484	
19:30	233.25	-6.86	13.25	63.30	-6.90	1889390	12.60	284.6	35.0	0.38	-10.855	110.1 11.9 -0.26 7.258	
19:45	233.26	-6.86	13.25	59.55	-6.91	1889452	12.61	282.1	31.8	0.40	-11.277	112.8 14.5 -0.25 6.991	
20:00	233.26	-6.86	13.25	55.79	-6.91	1889513	12.61	279.8	28.7	0.41	-11.659	115.6 17.1 -0.24 6.687	
20:15	233.26	-6.87	13.26	52.03	-6.91	1889575	12.61	277.7	25.5	0.42	-11.999	118.4 19.7 -0.22 6.345	
20:30	233.27	-6.87	13.26	48.28	-6.91	1889636	12.61	275.6	22.3	0.44	-12.295	121.4 22.2 -0.21 5.967	
20:45	233.27	-6.87	13.26	44.52	-6.91	1889698	12.61	273.5	19.1	0.44	-12.547	124.6 24.6 -0.20 5.555	
21:00	233.28	-6.87	13.26	40.77	-6.92	1889759	12.61	271.5	15.8	0.45	-12.753	127.8 26.9 -0.18 5.111	
21:15	233.28	-6.87	13.26	37.01	-6.92	1889821	12.61	269.6	12.6	0.46	-12.913	131.2 29.1 -0.16 4.637	
21:27	233.28	-6.87	13.27	34.00	-6.92	1889870	12.61	268.0	10.0	0.46	-13.006	134.1 30.8 -0.15 4.237	
A 2 21:30	233.28	-6.88	13.27	33.25	-6.92	1889882	12.61	267.7	9.4	0.46	-13.025	134.8 31.2 -0.15 4.134	
3 21:38	233.29	-6.88	13.27	31.25	-6.92	1889915	12.61	266.6	7.7	0.46	-13.065	136.8 32.2 -0.14 3.855	
+ 5 21:45	233.29	-6.88	13.27	29.50	-6.92	1889944	12.61	265.7	6.2	0.46	-13.089	138.6 33.1 -0.13 3.605	
7 21:46	233.29	-6.88	13.27	29.25	-6.92	1889948	12.61	265.6L	6.0	0.46	-13.092	138.8 33.3 -0.13 3.568	
7 22:00	233.29	-6.88	13.27	25.74	-6.92	1890006	12.61				142.5 35.0 -0.11 3.051		
10 22:03	233.29	-6.88	13.27	24.99	-6.92	1890018	12.61				143.3 35.3 -0.10 2.938	98.2A 0.3 -0.31 8.623	
11 22:15	233.29	-6.88	13.27	21.98	-6.92	1890067	12.61				146.6 36.6 -0.09 2.477	96.4 2.7 -0.31 8.652	
14 22:26	233.30	-6.88	13.27	19.23	-6.93	1890113	12.61				149.8 37.7 -0.07 2.043	94.8+ 5.0 -0.31 8.653	
17 22:30	233.30	-6.88	13.27	18.23	-6.93	1890129	12.61				150.9 38.1 -0.07 1.883	94.3 5.8 -0.31 8.648	
18 22:45	233.30	-6.88	13.28	14.47	-6.93	1890191	12.61				155.4 39.4 -0.05 1.273	92.1 8.8 -0.30 8.597	
22 23:00	233.31	-6.89	13.28	10.71	-6.93	1890252	12.61				160.1 40.5 -0.02 0.648	89.9 11.9 -0.30 8.502	
25 23:15	233.31	-6.89	13.28	6.96	-6.93	1890314	12.61				164.9 41.3 -0.00 0.013	87.7 14.9 -0.30 8.362	

29	23:30	233.31	-6.89	13.28	3.20	-6.93	1890376	12.61		169.8	42.0	0.02	-0.631		85.4	18.0	-0.29	8.177
33	23:45	233.32	-6.89	13.28	359.45	-6.93	1890437	12.61		174.9	42.3	0.05	-1.280		83.1	21.0	-0.28	7.949

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15      FREQUENCY IN MHZ: 8468.500      ALTITUDE IN KM: 1890499.  
 ESCS = ANGLE EARTH-S/C-SUN      DATE: 2013/05/20      S/C TO SUN IN AU: 1.02420

-----GEOCENTRIC-----									-----NEW NORCIA-----				-----CEBREROS -----				-----MALARGUE -----						
KOU	UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLTL	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.			
EL	EL	EL	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ			
HH:MM	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG			
DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG			
00:00	233.32	-6.89	13.29	355.69	-6.94	1890499	12.61		179.9	42.5	0.07	-1.933		80.8	24.0	-0.27	7.678						
40	00:15	233.33	-6.89	13.29	351.93	-6.94	1890561	12.61		185.0	42.3	0.09	-2.585		78.3	27.0	-0.26	7.366					
44	00:30	233.33	-6.90	13.29	348.18	-6.94	1890623	12.61		190.0	42.0	0.11	-3.235		75.7	30.0	-0.25	7.014					
47	00:45	233.33	-6.90	13.29	344.42	-6.94	1890685	12.61		194.9	41.3	0.14	-3.879		73.0	32.9	-0.23	6.623					
51	01:00	233.34	-6.90	13.29	340.66	-6.94	1890746	12.61		199.7	40.5	0.16	-4.515		70.2	35.8	-0.22	6.195					
54	01:15	233.34	-6.90	13.30	336.91	-6.94	1890808	12.61		204.4	39.4	0.18	-5.139		67.1	38.7	-0.20	5.732					
58	01:30	233.35	-6.90	13.30	333.15	-6.95	1890870	12.61		208.9	38.1	0.20	-5.750		63.9	41.5	-0.19	5.236					
61	01:45	233.35	-6.90	13.30	329.39	-6.95	1890932	12.61		213.2	36.6	0.22	-6.344		60.3	44.2	-0.17	4.709					
65	02:00	233.35	-6.91	13.30	325.64	-6.95	1890994	12.62		217.4	35.0	0.24	-6.919		56.5	46.8	-0.15	4.153					
68	02:15	233.36	-6.91	13.30	321.88	-6.95	1891056	12.62		221.3	33.2	0.26	-7.473		52.3	49.3	-0.13	3.571					
71	02:30	233.36	-6.91	13.31	318.13	-6.95	1891117	12.62		225.1	31.2	0.28	-8.003		47.8	51.6	-0.10	2.965					
74	02:45	233.37	-6.91	13.31	314.37	-6.96	1891179	12.62		228.6	29.1	0.30	-8.506		42.7	53.8	-0.08	2.337					
76	03:00	233.37	-6.91	13.31	310.61	-6.96	1891241	12.62		232.1	26.9	0.32	-8.981		37.2	55.7	-0.06	1.692					
77	03:15	233.37	-6.92	13.31	306.86	-6.96	1891303	12.62		235.3	24.6	0.33	-9.426		31.2	57.5	-0.04	1.030					
78	03:30	233.38	-6.92	13.31	303.10	-6.96	1891365	12.62		238.4	22.2	0.35	-9.839		24.6	58.9	-0.01	0.356					
77	03:45	233.38	-6.92	13.32	299.34	-6.96	1891427	12.62		241.4	19.7	0.36	-10.217		17.6	60.0	0.01	-0.328					
75	04:00	233.39	-6.92	13.32	295.59	-6.96	1891489	12.62		244.3	17.2	0.37	-10.560		10.2	60.7	0.04	-1.020					
73	04:15	233.39	-6.92	13.32	291.83	-6.97	1891551	12.62		247.1	14.6	0.38	-10.866		2.5	61.1	0.06	-1.715					
70	04:30	233.39	-6.92	13.32	288.07	-6.97	1891613	12.62		249.8	11.9	0.39	-11.133		354.8	61.0	0.09	-2.411					
67	04:45	233.40	-6.93	13.32	284.32	-6.97	1891675	12.62		252.4	9.2	0.40	-11.360		347.2	60.5	0.11	-3.105					
64	05:00	233.40	-6.93	13.32	280.56	-6.97	1891737	12.62		254.9	6.5	0.41	-11.548		339.9	59.7	0.13	-3.794					
61	05:08	233.40	-6.93	13.33	278.56	-6.97	1891770	12.62		256.3+ 5.0	0.41	-11.631		336.2	59.1	0.15	-4.159						
59	05:10	233.40	-6.93	13.33	278.06	-6.97	1891778	12.62		256.6L 4.6	0.41	-11.649		335.3	58.9	0.15	-4.249						
58	05:15	233.41	-6.93	13.33	276.81	-6.97	1891799	12.62						333.0	58.4	0.16	-4.475						
57	05:30	233.41	-6.93	13.33	273.05	-6.97	1891861	12.62						326.6	56.9	0.18	-5.145						
54	05:45	233.41	-6.93	13.33	269.29	-6.98	1891923	12.62						320.8	55.1	0.21	-5.802						
50	06:00	233.42	-6.93	13.33	265.54	-6.98	1891985	12.62						315.4	53.1	0.23	-6.441						
47	06:15	233.42	-6.94	13.33	261.78	-6.98	1892047	12.62						310.6	50.8	0.25	-7.061						
43	06:30	233.42	-6.94	13.34	258.02	-6.98	1892109	12.62						306.1	48.4	0.27	-7.659						
39	06:45	233.43	-6.94	13.34	254.27	-6.98	1892171	12.62						302.1	45.9	0.29	-8.232						
36	07:00	233.43	-6.94	13.34	250.51	-6.99	1892234	12.62						298.4	43.3	0.31	-8.778						
32	07:15	233.44	-6.94	13.34	246.76	-6.99	1892296	12.62						294.9	40.5	0.33	-9.295						
28	07:30	233.44	-6.95	13.34	243.00	-6.99	1892358	12.62						291.8	37.7	0.35	-9.779						
25	07:45	233.44	-6.95	13.35	239.24	-6.99	1892420	12.62						288.8	34.9	0.36	-10.230						
21	08:00	233.45	-6.95	13.35	235.49	-6.99	1892482	12.63						286.0	32.0	0.38	-10.645						
17	08:15	233.45	-6.95	13.35	231.73	-6.99	1892544	12.63						283.3	29.0	0.39	-11.023						
14	08:30	233.46	-6.95	13.35	227.97	-7.00	1892607	12.63						280.8	26.0	0.40	-11.361						
10	08:45	233.46	-6.95	13.35	224.22	-7.00	1892669	12.63						278.4	23.0	0.41	-11.659						
6	08:49	233.46	-6.95	13.35	223.22	-7.00	1892685	12.63						277.7	22.2	0.42							
-11.731	09:00	233.46	-6.96	13.36	220.46	-7.00	1892731	12.63						276.0	20.0	0.42	-11.915						
2	09:04	233.47	-6.96	13.36	219.46	-7.00	1892748	12.63						275.4	19.2	0.42							
-11.976	09:15	233.47	-6.96	13.36	216.70	-7.00	1892793	12.63						273.7	17.0	0.43	-12.128						
	09:30	233.47	-6.96	13.36	212.95	-7.00	1892855	12.63						271.5	13.9	0.44	-12.297						
	09:41	233.48	-6.96	13.36	210.19	-7.00	1892901	12.63		98.1A	0.0	-0.33	9.192		269.9	11.7	0.44	-12.393					
	09:45	233.48	-6.96	13.36	209.19	-7.00	1892918	12.63		97.5	0.9	-0.33	9.205		269.3	10.9	0.44	-12.422					

10:00	233.48	-6.96	13.36	205.44	-7.01	1892980	12.63	95.6	4.1	-0.33	9.221	267.1	7.8	0.44	-12.501
10:04	233.48	-6.96	13.36	204.43	-7.01	1892997	12.63	95.1+	4.9	-0.33	9.217	266.5	7.0	0.44	-12.515
10:14	233.48	-6.96	13.37	201.93	-7.01	1893038	12.63	93.8	7.1	-0.33	9.192	265.1+	5.0	0.44	-12.535
10:15	233.48	-6.96	13.37	201.68	-7.01	1893042	12.63	93.7	7.3	-0.33	9.189	264.9	4.8	0.44	-12.536
10:22	233.49	-6.97	13.37	199.93	-7.01	1893071	12.63	92.8	8.8	-0.32	9.157	263.9L	3.4	0.44	-12.536
10:30	233.49	-6.97	13.37	197.92	-7.01	1893105	12.63	91.8	10.5	-0.32	9.109				
10:45	233.49	-6.97	13.37	194.17	-7.01	1893167	12.63	89.9	13.7	-0.32	8.981				
11:00	233.50	-6.97	13.37	190.41	-7.01	1893229	12.63	87.9	16.9	-0.31	8.807				
11:15	233.50	-6.97	13.37	186.65	-7.02	1893292	12.63	85.9	20.1	-0.30	8.586				
11:30	233.50	-6.97	13.38	182.90	-7.02	1893354	12.63	83.9	23.4	-0.29	8.319				
11:45	233.51	-6.98	13.38	179.14	-7.02	1893416	12.63	81.8	26.6	-0.28	8.009				
12:00	233.51	-6.98	13.38	175.39	-7.02	1893479	12.63	79.5	29.7	-0.27	7.655				
12:15	233.52	-6.98	13.38	171.63	-7.02	1893541	12.63	77.2	32.9	-0.26	7.260				
12:30	233.52	-6.98	13.38	167.87	-7.02	1893603	12.63	74.7	36.0	-0.24	6.825				
12:45	233.52	-6.98	13.39	164.12	-7.03	1893666	12.63	72.1	39.1	-0.22	6.353				
13:00	233.53	-6.98	13.39	160.36	-7.03	1893728	12.63	69.2	42.2	-0.21	5.844				
13:15	233.53	-6.99	13.39	156.60	-7.03	1893791	12.63	66.1	45.1	-0.19	5.302				
13:30	233.54	-6.99	13.39	152.85	-7.03	1893853	12.63	62.7	48.1	-0.17	4.728				
13:45	233.54	-6.99	13.39	149.09	-7.03	1893915	12.63	58.9	50.9	-0.15	4.125				
14:00	233.54	-6.99	13.40	145.34	-7.04	1893978	12.64	54.7	53.6	-0.12	3.496				
14:15	233.55	-6.99	13.40	141.58	-7.04	1894040	12.64	50.0	56.1	-0.10	2.844				
14:30	233.55	-7.00	13.40	137.82	-7.04	1894103	12.64	44.6	58.5	-0.08	2.171				
14:45	233.56	-7.00	13.40	134.07	-7.04	1894165	12.64	38.6	60.7	-0.05	1.479				
15:00	233.56	-7.00	13.40	130.31	-7.04	1894228	12.64	31.7	62.5	-0.03	0.773				
15:15	233.56	-7.00	13.41	126.55	-7.04	1894290	12.64	24.1	64.0	-0.00	0.055				
15:30	233.57	-7.00	13.41	122.80	-7.05	1894353	12.64	15.8	65.1	0.02	-0.671				
15:45	233.57	-7.00	13.41	119.04	-7.05	1894415	12.64	6.9	65.8	0.05	-1.403				
16:00	233.58	-7.01	13.41	115.28	-7.05	1894478	12.64	357.8	65.9	0.08	-2.138				
16:15	233.58	-7.01	13.41	111.53	-7.05	1894541	12.64	348.7	65.5	0.10	-2.872				
16:30	233.58	-7.01	13.42	107.77	-7.05	1894603	12.64	340.1	64.7	0.13	-3.602				
16:45	233.59	-7.01	13.42	104.02	-7.05	1894666	12.64	332.1	63.4	0.15	-4.325				
17:00	233.59	-7.01	13.42	100.26	-7.06	1894728	12.64	324.9	61.7	0.18	-5.037				
17:15	233.60	-7.02	13.42	96.50	-7.06	1894791	12.64	318.4	59.7	0.20	-5.736				
17:30	233.60	-7.02	13.42	92.75	-7.06	1894854	12.64	312.7	57.4	0.23	-6.419				
17:45	233.60	-7.02	13.43	88.99	-7.06	1894916	12.64	307.6	54.9	0.25	-7.083				
18:00	233.61	-7.02	13.43	85.23	-7.06	1894979	12.64	303.2	52.3	0.27	-7.724				
18:15	233.61	-7.02	13.43	81.48	-7.07	1895041	12.64	299.2	49.5	0.30	-8.340				
18:30	233.61	-7.02	13.43	77.72	-7.07	1895104	12.64	295.6	46.7	0.32	-8.929				
18:39	233.62	-7.03	13.43	75.47	-7.07	1895142	12.64	293.6	44.9	0.33	-9.268	102.0A	2.9	-0.28	7.801
18:45	233.62	-7.03	13.43	73.97	-7.07	1895167	12.64	292.3	43.7	0.34	-9.488	103.0	4.0	-0.27	7.752
18:50	233.62	-7.03	13.43	72.71	-7.07	1895188	12.64	291.3	42.7	0.34	-9.667	103.8+	4.9	-0.27	7.706
19:00	233.62	-7.03	13.44	70.21	-7.07	1895229	12.64	289.3	40.7	0.35	-10.014	105.5	6.8	-0.27	7.601
19:15	233.63	-7.03	13.44	66.45	-7.07	1895292	12.64	286.6	37.7	0.37	-10.505	108.0	9.5	-0.26	7.408
19:30	233.63	-7.03	13.44	62.70	-7.07	1895355	12.64	284.0	34.5	0.39	-10.960	110.7	12.2	-0.25	7.175
19:45	233.63	-7.03	13.44	58.94	-7.08	1895418	12.64	281.6	31.4	0.40	-11.375	113.4	14.8	-0.24	6.903
20:00	233.64	-7.04	13.44	55.18	-7.08	1895480	12.65	279.3	28.2	0.42	-11.750	116.2	17.4	-0.23	6.593
20:15	233.64	-7.04	13.45	51.43	-7.08	1895543	12.65	277.2	25.0	0.43	-12.083	119.0	20.0	-0.22	6.245
20:30	233.65	-7.04	13.45	47.67	-7.08	1895606	12.65	275.1	21.8	0.44	-12.372	122.1	22.4	-0.21	5.862
20:45	233.65	-7.04	13.45	43.92	-7.08	1895668	12.65	273.0	18.6	0.45	-12.616	125.2	24.8	-0.19	5.445
21:00	233.65	-7.04	13.45	40.16	-7.09	1895731	12.65	271.1	15.4	0.45	-12.815	128.5	27.1	-0.18	4.997
21:15	233.66	-7.04	13.45	36.40	-7.09	1895794	12.65	269.1	12.2	0.46	-12.966	131.9	29.3	-0.16	4.518
21:24	233.66	-7.05	13.46	34.15	-7.09	1895832	12.65	268.0	10.3	0.46	-13.035	134.0	30.5	-0.15	4.217
A 2															
21:30	233.66	-7.05	13.46	32.65	-7.09	1895857	12.65	267.2	9.0	0.46	-13.071	135.5	31.4	-0.14	4.011

21:35	233.66	-7.05	13.46	31.39	-7.09	1895878	12.65	266.6	7.9	0.46	-13.095	136.7	32.0	-0.14	3.836		
+ 5																	
21:44	233.67	-7.05	13.46	29.14	-7.09	1895915	12.65	265.4L	6.0	0.46	-13.125	139.0	33.2	-0.12	3.514		
7																	
21:45	233.67	-7.05	13.46	28.89	-7.09	1895920	12.65					139.3	33.3	-0.12	3.478		
7																	
22:00	233.67	-7.05	13.46	25.13	-7.09	1895982	12.65					143.2	35.1	-0.10	2.921		
11																	
22:01	233.67	-7.05	13.46	24.88	-7.09	1895987	12.65					143.5	35.2	-0.10	2.884	98.3A	0.5 -0.30 8.584
11																	
22:15	233.67	-7.05	13.46	21.38	-7.10	1896045	12.65					147.4	36.7	-0.08	2.344	96.2	3.3 -0.30 8.614
15																	
22:23	233.68	-7.05	13.46	19.37	-7.10	1896079	12.65					149.7	37.5	-0.07	2.028	95.1+	4.9 -0.30 8.614
17																	
22:30	233.68	-7.05	13.46	17.62	-7.10	1896108	12.65					151.7	38.2	-0.06	1.748	94.0	6.4 -0.30 8.602
18																	
22:45	233.68	-7.06	13.47	13.87	-7.10	1896171	12.65					156.2	39.4	-0.04	1.135	91.9	9.4 -0.30 8.545
22																	
23:00	233.69	-7.06	13.47	10.11	-7.10	1896234	12.65					160.9	40.5	-0.02	0.509	89.7	12.5 -0.30 8.443
26																	
23:15	233.69	-7.06	13.47	6.35	-7.10	1896297	12.65					165.7	41.3	0.00	-0.127	87.5	15.5 -0.29 8.295
30																	
23:30	233.69	-7.06	13.47	2.60	-7.10	1896359	12.65					170.7	41.9	0.03	-0.772	85.2	18.6 -0.29 8.104
33																	
23:45	233.70	-7.06	13.47	358.84	-7.11	1896422	12.65					175.7	42.2	0.05	-1.421	82.9	21.6 -0.28 7.869
37																	

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15  
ESCS = ANGLE EARTH-S/C-SUN

FREQUENCY IN MHZ: 8468.500  
DATE: 2013/05/21

ALTITUDE IN KM: 1896485.  
S/C TO SUN IN AU: 1.02442

-----GEOCENTRIC-----									-----NEW NORCIA-----				-----CEBREROS -----				-----MALARGUE -----			
UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTL	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	
EL	EL	EL																		
HH:MM	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	
DEG	DEG	DEG	DEG	DEG	DEG			DEG	DEG			DEG	DEG			DEG	DEG			
00:00	233.70	-7.06	13.48	355.08	-7.11	1896485	12.65					180.7	42.3	0.07	-2.074	80.5	24.6	-0.27	7.592	
40																				
00:15	233.71	-7.07	13.48	351.33	-7.11	1896548	12.65					185.8	42.1	0.10	-2.725	78.0	27.6	-0.26	7.273	
44																				
00:30	233.71	-7.07	13.48	347.57	-7.11	1896611	12.65					190.8	41.7	0.12	-3.374	75.5	30.6	-0.24	6.915	
48																				
00:45	233.71	-7.07	13.48	343.82	-7.11	1896674	12.65					195.7	41.1	0.14	-4.016	72.7	33.5	-0.23	6.518	
51																				
01:00	233.72	-7.07	13.48	340.06	-7.12	1896737	12.65					200.5	40.2	0.16	-4.650	69.9	36.4	-0.22	6.085	
55																				
01:15	233.72	-7.07	13.49	336.30	-7.12	1896800	12.65					205.1	39.1	0.19	-5.272	66.8	39.2	-0.20	5.617	
58																				
01:30	233.73	-7.08	13.49	332.55	-7.12	1896863	12.65					209.5	37.7	0.21	-5.880	63.5	42.0	-0.18	5.116	
62																				
01:45	233.73	-7.08	13.49	328.79	-7.12	1896926	12.65					213.8	36.2	0.23	-6.471	59.9	44.7	-0.16	4.584	
65																				
02:00	233.73	-7.08	13.49	325.03	-7.12	1896988	12.66					217.9	34.6	0.25	-7.042	56.0	47.3	-0.14	4.024	
68																				
02:15	233.74	-7.08	13.49	321.28	-7.12	1897051	12.66					221.8	32.7	0.27	-7.592	51.8	49.8	-0.12	3.439	
71																				
02:30	233.74	-7.08	13.50	317.52	-7.13	1897114	12.66					225.5	30.7	0.29	-8.117	47.2	52.1	-0.10	2.829	
74																				
02:45	233.75	-7.09	13.50	313.77	-7.13	1897177	12.66					229.1	28.6	0.31	-8.616	42.1	54.2	-0.08	2.199	
76																				
03:00	233.75	-7.09	13.50	310.01	-7.13	1897240	12.66					232.5	26.4	0.32	-9.086	36.4	56.2	-0.05	1.551	
77																				
03:15	233.75	-7.09	13.50	306.25	-7.13	1897303	12.66					235.7	24.1	0.34	-9.526	30.3	57.9	-0.03	0.888	
78																				
03:30	233.76	-7.09	13.50	302.50	-7.13	1897366	12.66					238.8	21.7	0.35	-9.932	23.7	59.3	-0.01	0.212	
77																				
03:45	233.76	-7.09	13.51	298.74	-7.14	1897429	12.66					241.8	19.2	0.36	-10.305	16.5	60.3	0.02	-0.473	
75																				
04:00	233.77	-7.09	13.51	294.98	-7.14	1897492	12.66					244.6	16.6	0.38	-10.642	9.0	61.0	0.04	-1.164	
73																				
04:15	233.77	-7.10	13.51	291.23	-7.14	1897555	12.66					247.4	14.0	0.39	-10.941	1.3	61.3	0.07	-1.860	
70																				
04:30	233.77	-7.10	13.51	287.47	-7.14	1897619	12.66					250.1	11.4	0.40	-11.202	353.5	61.1	0.09	-2.555	
67																				
04:45	233.78	-7.10	13.51	283.71	-7.14	1897682	12.66					252.7	8.7	0.40	-11.422	345.9	60.6	0.11	-3.248	
63																				
05:00	233.78	-7.10	13.52	279.96	-7.15	1897745	12.66					255.2	5.9	0.41	-11.603	338.7	59.7	0.14	-3.936	
60																				
05:05	233.78	-7.10	13.52	278.71	-7.15	1897766	12.66					256.0+	5.0	0.41	-11.654	336.3	59.3	0.15	-4.163	
59																				
05:07	233.78	-7.10	13.52	278.21	-7.15	1897774	12.66					256.4L	4.6	0.41	-11.673	335.4	59.1	0.15	-4.254	
58																				
05:15	233.79	-7.10	13.52	276.20	-7.15	1897808	12.66									331.8	58.4	0.16	-4.615	
57																				
05:30	233.79	-7.11	13.52	272.45	-7.15	1897871	12.66									325.5	56.8	0.19	-5.283	
53																				
05:45	233.79	-7.11	13.52	268.69	-7.15	1897934	12.66									319.7	54.9	0.21	-5.936	
49																				
06:00	233.80	-7.11	13.53	264.93	-7.15	1897997	12.66									314.5	52.9	0.23	-6.572	
46																				
06:15	233.80	-7.11	13.53	261.18	-7.15	1898060	12.66									309.7	50.6	0.25	-7.188	
42																				
06:30	233.81	-7.11	13.53	257.42	-7.16	1898123	12.66									305.3	48.2	0.28	-7.782	
39																				
06:45	233.81	-7.11	13.53	253.66	-7.16	1898186	12.66									301.3	45.6	0.30	-8.351	
35																				
07:00	233.82	-7.12	13.53	249.91	-7.16	1898249	12.66									297.6	43.0	0.31	-8.892	
31																				
07:15	233.82	-7.12	13.54	246.15	-7.16	1898313	12.66									294.2	40.2	0.33	-9.403	
28																				



19:30	234.02	-7.21	13.64	62.10	-7.25	1901415	12.68	283.4	34.1	0.39	-11.050	111.2	12.5	-0.25	7.106
19:45	234.02	-7.21	13.64	58.34	-7.26	1901479	12.69	281.1	31.0	0.41	-11.458	113.9	15.1	-0.24	6.828
20:00	234.03	-7.22	13.64	54.59	-7.26	1901542	12.69	278.8	27.8	0.42	-11.826	116.7	17.7	-0.23	6.511
20:15	234.03	-7.22	13.64	50.83	-7.26	1901606	12.69	276.6	24.6	0.43	-12.152	119.6	20.2	-0.22	6.158
20:30	234.03	-7.22	13.64	47.07	-7.26	1901669	12.69	274.6	21.4	0.44	-12.434	122.7	22.7	-0.20	5.770
20:45	234.04	-7.22	13.65	43.32	-7.26	1901733	12.69	272.6	18.2	0.45	-12.671	125.8	25.0	-0.19	5.348
21:00	234.04	-7.22	13.65	39.56	-7.27	1901797	12.69	270.6	15.0	0.46	-12.861	129.1	27.3	-0.17	4.895
21:15	234.05	-7.22	13.65	35.80	-7.27	1901860	12.69	268.7	11.8	0.46	-13.005	132.6	29.5	-0.16	4.412
21:22	234.05	-7.23	13.65	34.05	-7.27	1901890	12.69	267.8	10.3	0.46	-13.056	134.3	30.5	-0.15	4.177
21:30	234.05	-7.23	13.65	32.05	-7.27	1901924	12.69	266.7	8.6	0.46	-13.102	136.2	31.5	-0.14	3.901
21:33	234.05	-7.23	13.65	31.30	-7.27	1901936	12.69	266.4	7.9	0.46	-13.116	137.0	31.9	-0.13	3.796
21:42	234.05	-7.23	13.65	29.04	-7.27	1901974	12.69	265.2	6.0	0.47	-13.145	139.2	33.1	-0.12	3.474
21:45	234.05	-7.23	13.66	28.29	-7.27	1901987	12.69					140.0	33.4	-0.12	3.365
21:58	234.06	-7.23	13.66	25.04	-7.27	1902042	12.69					143.5	35.0	-0.10	2.881
22:00	234.06	-7.23	13.66	24.54	-7.27	1902051	12.69					144.0	35.2	-0.10	2.805
22:15	234.06	-7.23	13.66	20.78	-7.28	1902114	12.69					148.2	36.8	-0.08	2.225
22:20	234.06	-7.23	13.66	19.53	-7.28	1902135	12.69					149.6	37.3	-0.07	2.027
22:30	234.07	-7.23	13.66	17.02	-7.28	1902178	12.69					152.5	38.2	-0.06	1.626
22:45	234.07	-7.24	13.66	13.27	-7.28	1902241	12.69					157.1	39.4	-0.04	1.012
23:00	234.07	-7.24	13.67	9.51	-7.28	1902305	12.69					161.7	40.4	-0.01	0.385
23:15	234.08	-7.24	13.67	5.75	-7.28	1902369	12.69					166.6	41.2	0.01	-0.253
23:30	234.08	-7.24	13.67	2.00	-7.28	1902432	12.69					171.5	41.8	0.03	-0.898
23:45	234.09	-7.24	13.67	358.24	-7.29	1902496	12.69					176.5	42.1	0.05	-1.548

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15  
 ESCS = ANGLE EARTH-S/C-SUN

FREQUENCY IN MHZ: 8468.500  
 DATE: 2013/05/22

ALTITUDE IN KM: 1902559.  
 S/C TO SUN IN AU: 1.02464

-----GEOCENTRIC-----									-----NEW NORCIA-----				-----CEBREROS -----				-----MALARGUE -----			
RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.		
DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ		
00:00	234.09	-7.25	13.67	354.49	-7.29	1902559	12.69				181.5	42.1	0.08	-2.200	80.3	25.2	-0.27	7.518		
00:15	234.09	-7.25	13.68	350.73	-7.29	1902623	12.69				186.6	41.9	0.10	-2.851	77.8	28.2	-0.25	7.193		
00:30	234.10	-7.25	13.68	346.97	-7.29	1902686	12.69				191.5	41.4	0.12	-3.498	75.2	31.2	-0.24	6.829		
00:45	234.10	-7.25	13.68	343.22	-7.29	1902750	12.69				196.4	40.8	0.15	-4.139	72.5	34.1	-0.23	6.426		
01:00	234.11	-7.25	13.68	339.46	-7.30	1902814	12.69				201.1	39.8	0.17	-4.771	69.6	37.0	-0.21	5.988		
01:15	234.11	-7.26	13.68	335.70	-7.30	1902877	12.69				205.7	38.7	0.19	-5.390	66.5	39.8	-0.20	5.514		
01:30	234.11	-7.26	13.69	331.95	-7.30	1902941	12.70				210.1	37.3	0.21	-5.995	63.1	42.6	-0.18	5.009		
01:45	234.12	-7.26	13.69	328.19	-7.30	1903005	12.70				214.4	35.8	0.23	-6.583	59.5	45.3	-0.16	4.473		
02:00	234.12	-7.26	13.69	324.44	-7.30	1903068	12.70				218.4	34.1	0.25	-7.151	55.6	47.8	-0.14	3.909		
02:15	234.13	-7.26	13.69	320.68	-7.31	1903132	12.70				222.3	32.3	0.27	-7.696	51.3	50.3	-0.12	3.320		
02:30	234.13	-7.27	13.70	316.92	-7.31	1903196	12.70				226.0	30.3	0.29	-8.217	46.6	52.6	-0.10	2.708		
02:45	234.13	-7.27	13.70	313.17	-7.31	1903259	12.70				229.5	28.1	0.31	-8.711	41.4	54.7	-0.07	2.075		
03:00	234.14	-7.27	13.70	309.41	-7.31	1903323	12.70				232.9	25.9	0.32	-9.176	35.7	56.6	-0.05	1.425		
03:15	234.14	-7.27	13.70	305.66	-7.31	1903386	12.70				236.1	23.6	0.34	-9.610	29.4	58.3	-0.03	0.760		
03:30	234.15	-7.27	13.70	301.90	-7.32	1903450	12.70				239.2	21.2	0.35	-10.011	22.7	59.6	-0.00	0.083		
03:45	234.15	-7.28	13.71	298.14	-7.32	1903514	12.70				242.1	18.7	0.37	-10.378	15.4	60.6	0.02	-0.603		
04:00	234.16	-7.28	13.71	294.39	-7.32	1903578	12.70				244.9	16.1	0.38	-10.708	7.8	61.2	0.05	-1.295		
04:15	234.16	-7.28	13.71	290.63	-7.32	1903641	12.70				247.7	13.5	0.39	-11.001	0.1	61.5	0.07	-1.990		
04:30	234.16	-7.28	13.71	286.87	-7.32	1903705	12.70				250.3	10.8	0.40	-11.256	352.3	61.3	0.10	-2.685		
04:45	234.17	-7.28	13.71	283.12	-7.33	1903769	12.70				252.9	8.1	0.41	-11.470	344.7	60.6	0.12	-3.377		
05:00	234.17	-7.28	13.72	279.36	-7.33	1903832	12.70				255.5	5.3	0.41	-11.644	337.4	59.7	0.14	-4.063		
05:02	234.17	-7.29	13.72	278.86	-7.33	1903841	12.70				255.8+	5.0	0.41	-11.664	336.5	59.5	0.15	-4.154		
05:04	234.17	-7.29	13.72	278.36	-7.33	1903849	12.70				256.1L	4.6	0.41	-11.683	335.6	59.3	0.15	-4.245		
05:15	234.18	-7.29	13.72	275.61	-7.33	1903896	12.70								330.7	58.3	0.17	-4.740		









15:00	234.73	-7.56	14.01	128.53	-7.60	1912524	12.76	28.7	63.8	-0.01	0.383								
15:15	234.74	-7.56	14.01	124.77	-7.60	1912588	12.76	20.7	65.1	0.01	-0.338								
15:30	234.74	-7.56	14.01	121.01	-7.60	1912652	12.76	11.9	66.1	0.04	-1.066								
15:45	234.74	-7.56	14.02	117.26	-7.61	1912717	12.76	2.7	66.5	0.06	-1.799								
16:00	234.75	-7.57	14.02	113.50	-7.61	1912781	12.76	353.3	66.4	0.09	-2.532								
16:15	234.75	-7.57	14.02	109.75	-7.61	1912845	12.76	344.2	65.7	0.12	-3.263								
16:30	234.76	-7.57	14.02	105.99	-7.61	1912909	12.76	335.7	64.6	0.14	-3.989								
16:45	234.76	-7.57	14.03	102.23	-7.62	1912973	12.76	328.0	63.1	0.17	-4.706								
17:00	234.77	-7.58	14.03	98.48	-7.62	1913037	12.76	321.1	61.2	0.19	-5.411								
17:15	234.77	-7.58	14.03	94.72	-7.62	1913101	12.76	314.9	59.1	0.22	-6.102								
17:30	234.77	-7.58	14.03	90.97	-7.62	1913165	12.76	309.5	56.7	0.24	-6.774								
17:45	234.78	-7.58	14.03	87.21	-7.62	1913229	12.76	304.8	54.1	0.26	-7.427								
18:00	234.78	-7.58	14.04	83.45	-7.63	1913293	12.76	300.5	51.4	0.29	-8.055								
18:15	234.79	-7.59	14.04	79.70	-7.63	1913357	12.76	296.8	48.6	0.31	-8.658								
18:30	234.79	-7.59	14.04	75.94	-7.63	1913421	12.76	293.3	45.6	0.33	-9.231								
18:34	234.79	-7.59	14.04	74.94	-7.63	1913438	12.77	292.5	44.8	0.33	-9.379	102.7A	2.9	-0.27	7.727				
18:45	234.79	-7.59	14.04	72.19	-7.63	1913485	12.77	290.2	42.6	0.35	-9.774	104.6+	4.9	-0.27	7.629				
19:00	234.80	-7.59	14.05	68.43	-7.63	1913549	12.77	287.4	39.6	0.36	-10.283	107.1	7.7	-0.26	7.458				
19:15	234.80	-7.59	14.05	64.67	-7.64	1913613	12.77	284.7	36.5	0.38	-10.756	109.7	10.4	-0.26	7.247				
19:30	234.81	-7.60	14.05	60.92	-7.64	1913677	12.77	282.3	33.4	0.40	-11.191	112.3	13.1	-0.25	6.996				
19:45	234.81	-7.60	14.05	57.16	-7.64	1913741	12.77	280.0	30.2	0.41	-11.587	115.1	15.7	-0.24	6.706				
20:00	234.82	-7.60	14.05	53.40	-7.64	1913805	12.77	277.7	27.0	0.42	-11.941	117.9	18.2	-0.23	6.379				
20:15	234.82	-7.60	14.06	49.65	-7.64	1913869	12.77	275.6	23.8	0.43	-12.253	120.9	20.7	-0.21	6.015				
20:30	234.82	-7.60	14.06	45.89	-7.65	1913934	12.77	273.6	20.6	0.44	-12.520	123.9	23.1	-0.20	5.617				
20:45	234.83	-7.61	14.06	42.14	-7.65	1913998	12.77	271.6	17.4	0.45	-12.742	127.1	25.5	-0.18	5.185				
21:00	234.83	-7.61	14.06	38.38	-7.65	1914062	12.77	269.6	14.2	0.46	-12.918	130.4	27.7	-0.17	4.723				
21:15	234.84	-7.61	14.07	34.62	-7.65	1914126	12.77	267.7	11.0	0.46	-13.047	133.9	29.8	-0.15	4.232				
21:17	234.84	-7.61	14.07	34.12	-7.65	1914134	12.77	267.5	10.5	0.46	-13.061	134.4	30.1	-0.15	4.164				
21:29	234.84	-7.61	14.07	31.12	-7.65	1914185	12.77	265.9	8.0	0.46	-13.124	137.4	31.7	-0.13	3.748				
21:30	234.84	-7.61	14.07	30.87	-7.65	1914190	12.77	265.8	7.7	0.46	-13.128	137.6	31.8	-0.13	3.713				
21:38	234.84	-7.61	14.07	28.87	-7.66	1914224	12.77	264.8L	6.0	0.47	-13.152	139.6	32.8	-0.12	3.426				
21:45	234.84	-7.61	14.07	27.11	-7.66	1914254	12.77					141.5	33.7	-0.11	3.170				
21:52	234.85	-7.62	14.07	25.36	-7.66	1914284	12.77					143.3	34.5	-0.10	2.909	99.0A	0.5	-0.30	8.525
22:00	234.85	-7.62	14.07	23.36	-7.66	1914318	12.77					145.5	35.4	-0.09	2.604	97.8	2.1	-0.30	8.550
22:15	234.85	-7.62	14.07	19.60	-7.66	1914382	12.77					149.7	36.9	-0.07	2.019	95.7+	5.1	-0.30	8.562
22:30	234.86	-7.62	14.08	15.84	-7.66	1914446	12.77					154.1	38.3	-0.05	1.416	93.5	8.1	-0.30	8.529
22:45	234.86	-7.62	14.08	12.09	-7.67	1914510	12.77					158.6	39.4	-0.03	0.798	91.3	11.2	-0.30	8.451
23:00	234.87	-7.63	14.08	8.33	-7.67	1914574	12.77					163.4	40.3	-0.01	0.168	89.1	14.2	-0.29	8.327
23:15	234.87	-7.63	14.08	4.58	-7.67	1914638	12.77					168.2	41.0	0.02	-0.472	86.9	17.3	-0.29	8.159
23:30	234.87	-7.63	14.09	0.82	-7.67	1914702	12.77					173.1	41.5	0.04	-1.118	84.6	20.3	-0.28	7.948
23:45	234.88	-7.63	14.09	357.06	-7.67	1914766	12.77					178.1	41.7	0.06	-1.768	82.3	23.4	-0.27	7.693

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15  
 ESCS = ANGLE EARTH-S/C-SUN

FREQUENCY IN MHZ: 8468.500  
 DATE: 2013/05/24

ALTITUDE IN KM: 1914830.  
 S/C TO SUN IN AU: 1.02507

GEOCENTRIC								NEW NORCIA				CEBREROS				MALARGUE							
KOU	UTC	EL	EL	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	
DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	
00:00	234.88	-7.63	14.09	353.31	-7.68	1914830	12.77					183.1	41.7	0.09	-2.419	79.9	26.4	-0.26	7.397				
00:15	234.89	-7.64	14.09	349.55	-7.68	1914894	12.77					188.1	41.4	0.11	-3.069	77.4	29.4	-0.25	7.060				
00:30	234.89	-7.64	14.09	345.80	-7.68	1914958	12.78					193.0	40.9	0.13	-3.713	74.7	32.3	-0.24	6.684				
00:45	234.89	-7.64	14.10	342.04	-7.68	1915023	12.78					197.8	40.1	0.15	-4.351	71.9	35.3	-0.22	6.271				
01:00	234.90	-7.64	14.10	338.28	-7.68	1915087	12.78					202.4	39.1	0.18	-4.978	69.0	38.1	-0.21	5.822				
01:15	234.90	-7.64	14.10	334.53	-7.69	1915151	12.78					207.0	37.9	0.20	-5.593	65.8	40.9	-0.19	5.339				



13:15	235.10	-7.75	14.21	154.24	-7.79	1918226	12.80	64.9	47.5	-0.17	4.880									
13:30	235.11	-7.75	14.21	150.48	-7.79	1918290	12.80	61.3	50.3	-0.15	4.289									
13:45	235.11	-7.75	14.21	146.72	-7.79	1918354	12.80	57.2	53.1	-0.13	3.671									
14:00	235.12	-7.75	14.22	142.97	-7.79	1918418	12.80	52.7	55.8	-0.11	3.029									
14:15	235.12	-7.75	14.22	139.21	-7.80	1918482	12.80	47.6	58.2	-0.08	2.364									
14:30	235.13	-7.76	14.22	135.46	-7.80	1918547	12.80	41.8	60.5	-0.06	1.681									
14:45	235.13	-7.76	14.22	131.70	-7.80	1918611	12.80	35.2	62.5	-0.03	0.982									
15:00	235.13	-7.76	14.23	127.94	-7.80	1918675	12.80	27.7	64.2	-0.01	0.269									
15:15	235.14	-7.76	14.23	124.19	-7.80	1918739	12.80	19.5	65.5	0.02	-0.453									
15:30	235.14	-7.77	14.23	120.43	-7.81	1918803	12.80	10.6	66.3	0.04	-1.182									
15:45	235.15	-7.77	14.23	116.67	-7.81	1918867	12.80	1.2	66.7	0.07	-1.914									
16:00	235.15	-7.77	14.23	112.92	-7.81	1918931	12.80	351.8	66.5	0.09	-2.647									
16:15	235.15	-7.77	14.24	109.16	-7.81	1918995	12.80	342.8	65.8	0.12	-3.377									
16:30	235.16	-7.77	14.24	105.41	-7.82	1919059	12.80	334.3	64.6	0.15	-4.101									
16:45	235.16	-7.78	14.24	101.65	-7.82	1919123	12.80	326.7	63.0	0.17	-4.816									
17:00	235.17	-7.78	14.24	97.89	-7.82	1919187	12.80	319.8	61.1	0.20	-5.519									
17:15	235.17	-7.78	14.25	94.14	-7.82	1919251	12.80	313.8	58.9	0.22	-6.206									
17:30	235.18	-7.78	14.25	90.38	-7.82	1919316	12.80	308.5	56.4	0.24	-6.876									
17:45	235.18	-7.78	14.25	86.63	-7.83	1919380	12.80	303.8	53.8	0.27	-7.524									
18:00	235.18	-7.79	14.25	82.87	-7.83	1919444	12.81	299.7	51.1	0.29	-8.149									
18:15	235.19	-7.79	14.26	79.11	-7.83	1919508	12.81	296.0	48.2	0.31	-8.746									
18:30	235.19	-7.79	14.26	75.36	-7.83	1919572	12.81	292.6	45.3	0.33	-9.315									
18:32	235.19	-7.79	14.26	74.86	-7.83	1919580	12.81	292.2	44.9	0.33	-9.389	103.0A	2.8	-0.27	7.719					
18:44	235.20	-7.79	14.26	71.85	-7.83	1919632	12.81	289.8	42.5	0.35	-9.818	104.9+	5.0	-0.27	7.609					
18:45	235.20	-7.79	14.26	71.60	-7.83	1919636	12.81	289.6	42.3	0.35	-9.852	105.1	5.2	-0.27	7.599					
19:00	235.20	-7.80	14.26	67.85	-7.84	1919700	12.81	286.7	39.2	0.37	-10.356	107.6	8.0	-0.26	7.422					
19:15	235.21	-7.80	14.26	64.09	-7.84	1919764	12.81	284.1	36.1	0.38	-10.823	110.2	10.7	-0.26	7.205					
19:30	235.21	-7.80	14.27	60.33	-7.84	1919828	12.81	281.7	33.0	0.40	-11.252	112.9	13.3	-0.25	6.948					
19:45	235.21	-7.80	14.27	56.58	-7.84	1919892	12.81	279.4	29.8	0.41	-11.641	115.7	15.9	-0.24	6.652					
20:00	235.22	-7.80	14.27	52.82	-7.85	1919956	12.81	277.2	26.6	0.42	-11.989	118.5	18.5	-0.22	6.319					
20:15	235.22	-7.81	14.27	49.07	-7.85	1920020	12.81	275.1	23.4	0.44	-12.293	121.5	21.0	-0.21	5.950					
20:30	235.23	-7.81	14.28	45.31	-7.85	1920085	12.81	273.1	20.2	0.44	-12.553	124.5	23.4	-0.20	5.547					
20:45	235.23	-7.81	14.28	41.55	-7.85	1920149	12.81	271.1	17.0	0.45	-12.768	127.8	25.7	-0.18	5.111					
21:00	235.23	-7.81	14.28	37.80	-7.85	1920213	12.81	269.2	13.8	0.46	-12.937	131.1	27.9	-0.16	4.644					
21:15	235.24	-7.82	14.28	34.04	-7.86	1920277	12.81	267.2	10.6	0.46	-13.058	134.6	30.0	-0.15	4.149					
A 2 21:26	235.24	-7.82	14.28	31.29	-7.86	1920324	12.81	265.8	8.2	0.46	-13.117	137.3	31.4	-0.13	3.768					
+ 5 21:30	235.24	-7.82	14.29	30.29	-7.86	1920341	12.81	265.3	7.3	0.46	-13.132	138.3	31.9	-0.13	3.626					
6 21:37	235.24	-7.82	14.29	28.53	-7.86	1920371	12.81	264.4L	5.8	0.47	-13.150	140.1	32.8	-0.12	3.374					
8 21:45	235.25	-7.82	14.29	26.53	-7.86	1920405	12.81					142.2	33.8	-0.11	3.080					
10 21:49	235.25	-7.82	14.29	25.53	-7.86	1920422	12.81					143.3	34.2	-0.10	2.930	99.2A	0.4	-0.30	8.516	
11 22:00	235.25	-7.82	14.29	22.77	-7.86	1920469	12.81					146.2	35.4	-0.09	2.511	97.6	2.6	-0.30	8.549	
13 22:12	235.25	-7.82	14.29	19.77	-7.86	1920520	12.81					149.6	36.7	-0.07	2.042	95.9+	5.1	-0.30	8.557	
16 22:15	235.26	-7.82	14.29	19.02	-7.87	1920533	12.81					150.5	36.9	-0.07	1.923	95.5	5.7	-0.30	8.554	
17 22:30	235.26	-7.83	14.29	15.26	-7.87	1920597	12.81					154.9	38.3	-0.05	1.318	93.3	8.7	-0.30	8.514	
21 22:45	235.26	-7.83	14.30	11.51	-7.87	1920661	12.81					159.4	39.4	-0.02	0.698	91.1	11.8	-0.30	8.428	
24 23:00	235.27	-7.83	14.30	7.75	-7.87	1920725	12.81					164.2	40.3	-0.00	0.067	89.0	14.8	-0.29	8.298	
28 23:15	235.27	-7.83	14.30	3.99	-7.87	1920790	12.81					169.0	40.9	0.02	-0.574	86.7	17.9	-0.29	8.124	
32 23:30	235.28	-7.83	14.30	0.24	-7.88	1920854	12.81					173.9	41.3	0.04	-1.220	84.4	20.9	-0.28	7.905	
35 23:45	235.28	-7.84	14.31	356.48	-7.88	1920918	12.81					178.9	41.5	0.07	-1.870	82.1	23.9	-0.27	7.645	
39																				

HERSCHEL WORLD MAP PRINTOUT    CREATED ON 2013/05/15    FREQUENCY IN MHZ: 8468.500    ALTITUDE IN KM: 1920982.  
ESCS = ANGLE EARTH-S/C-SUN    DATE: 2013/05/25    S/C TO SUN IN AU: 1.02528

-----GEOCENTRIC-----										-----NEW NORCIA-----				-----CEBROS-----				-----MALARGUE-----			
KOU	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.		
EL	EL	EL																			

HH:MM  DEG DEG DEG	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
43 00:00 235.29 -7.84 14.31 352.72 -7.88 1920982 12.82												183.9 41.5 0.09 -2.521	79.7 27.0 -0.26 7.342						
46 00:15 235.29 -7.84 14.31 348.97 -7.88 1921046 12.82												188.8 41.1 0.11 -3.170	77.1 29.9 -0.25 6.999						
50 00:30 235.29 -7.84 14.31 345.21 -7.88 1921110 12.82												193.7 40.6 0.13 -3.813	74.5 32.9 -0.23 6.618						
53 00:45 235.30 -7.85 14.32 341.46 -7.89 1921174 12.82												198.4 39.8 0.16 -4.449	71.7 35.8 -0.22 6.199						
57 01:00 235.30 -7.85 14.32 337.70 -7.89 1921238 12.82												203.1 38.8 0.18 -5.074	68.7 38.7 -0.20 5.744						
60 01:15 235.31 -7.85 14.32 333.94 -7.89 1921302 12.82												207.6 37.5 0.20 -5.686	65.5 41.5 -0.19 5.257						
63 01:30 235.31 -7.85 14.32 330.19 -7.89 1921366 12.82												211.9 36.1 0.22 -6.282	62.1 44.3 -0.17 4.737						
67 01:45 235.31 -7.85 14.32 326.43 -7.90 1921430 12.82												216.0 34.5 0.24 -6.860	58.3 46.9 -0.15 4.189						
70 02:00 235.32 -7.86 14.33 322.68 -7.90 1921495 12.82												219.9 32.7 0.26 -7.416	54.2 49.5 -0.13 3.614						
72 02:15 235.32 -7.86 14.33 318.92 -7.90 1921559 12.82												223.7 30.8 0.28 -7.950	49.7 51.9 -0.11 3.015						
75 02:30 235.33 -7.86 14.33 315.16 -7.90 1921623 12.82												227.3 28.8 0.30 -8.457	44.8 54.1 -0.08 2.393						
76 02:45 235.33 -7.86 14.33 311.41 -7.90 1921687 12.82												230.7 26.6 0.32 -8.937	39.3 56.2 -0.06 1.753						
77 03:00 235.34 -7.87 14.34 307.65 -7.91 1921751 12.82												234.0 24.4 0.33 -9.387	33.3 58.0 -0.04 1.097						
76 03:15 235.34 -7.87 14.34 303.90 -7.91 1921815 12.82												237.1 22.0 0.35 -9.805	26.7 59.5 -0.02 0.427						
75 03:30 235.34 -7.87 14.34 300.14 -7.91 1921879 12.82												240.1 19.6 0.36 -10.190	19.7 60.7 0.01 -0.253						
73 03:45 235.35 -7.87 14.34 296.38 -7.91 1921943 12.82												243.0 17.0 0.37 -10.539	12.1 61.6 0.03 -0.941						
70 04:00 235.35 -7.87 14.35 292.63 -7.92 1922007 12.82												245.8 14.5 0.38 -10.851	4.3 62.0 0.06 -1.634						
67 04:15 235.36 -7.88 14.35 288.87 -7.92 1922071 12.82												248.5 11.8 0.39 -11.126	356.3 62.0 0.08 -2.328						
64 04:30 235.36 -7.88 14.35 285.12 -7.92 1922136 12.82												251.1 9.1 0.40 -11.361	348.5 61.6 0.11 -3.021						
61 04:45 235.37 -7.88 14.35 281.36 -7.92 1922200 12.82												253.7 6.4 0.41 -11.556	340.9 60.8 0.13 -3.709						
59 04:53 235.37 -7.88 14.35 279.36 -7.92 1922234 12.82												255.0+ 4.9 0.41 -11.643	337.0 60.2 0.14 -4.074						
58 04:56 235.37 -7.88 14.35 278.61 -7.92 1922247 12.82												255.5L 4.4 0.41 -11.673	335.6 60.0 0.15 -4.210						
58 05:00 235.37 -7.88 14.35 277.60 -7.92 1922264 12.82													333.8 59.6 0.16 -4.391						
54 05:15 235.37 -7.88 14.36 273.85 -7.93 1922328 12.82													327.2 58.1 0.18 -5.061						
51 05:30 235.38 -7.89 14.36 270.09 -7.93 1922392 12.82													321.1 56.3 0.20 -5.719						
47 05:45 235.38 -7.89 14.36 266.34 -7.93 1922456 12.83													315.6 54.3 0.23 -6.360						
43 06:00 235.39 -7.89 14.36 262.58 -7.93 1922520 12.83													310.6 52.1 0.25 -6.983						
40 06:15 235.39 -7.89 14.37 258.82 -7.94 1922584 12.83													306.1 49.7 0.27 -7.584						
36 06:30 235.39 -7.90 14.37 255.07 -7.94 1922648 12.83													302.0 47.1 0.29 -8.161						
33 06:45 235.40 -7.90 14.37 251.31 -7.94 1922713 12.83													298.2 44.5 0.31 -8.711						
29 07:00 235.40 -7.90 14.37 247.56 -7.94 1922777 12.83													294.7 41.8 0.33 -9.232						
25 07:15 235.41 -7.90 14.38 243.80 -7.94 1922841 12.83													291.5 39.0 0.34 -9.723						
22 07:30 235.41 -7.90 14.38 240.04 -7.95 1922905 12.83													288.5 36.1 0.36 -10.179						
18 07:45 235.42 -7.91 14.38 236.29 -7.95 1922969 12.83													285.7 33.2 0.38 -10.601						
14 08:00 235.42 -7.91 14.38 232.53 -7.95 1923033 12.83													283.0 30.2 0.39 -10.985						
10 08:15 235.42 -7.91 14.38 228.77 -7.95 1923097 12.83													280.5 27.2 0.40 -11.331						
7 08:30 235.43 -7.91 14.39 225.02 -7.95 1923161 12.83													278.0 24.2 0.41 -11.637						
-11.765 + 5 08:37 235.43 -7.91 14.39 223.27 -7.96 1923191 12.83													276.9 22.8 0.42						
3 08:45 235.43 -7.92 14.39 221.26 -7.96 1923226 12.83													275.7 21.2 0.42 -11.901						
-11.994 L 2 08:51 235.43 -7.92 14.39 219.76 -7.96 1923251 12.83													274.7 20.0 0.42						
09:00 235.44 -7.92 14.39 217.51 -7.96 1923290 12.83													273.4 18.2 0.43 -12.122						
09:15 235.44 -7.92 14.39 213.75 -7.96 1923354 12.83													271.1 15.1 0.44 -12.300						
09:27 235.44 -7.92 14.40 210.75 -7.96 1923405 12.83	99.2A	0.0	-0.32	9.101								269.4 12.7 0.44 -12.410							
09:30 235.45 -7.92 14.40 209.99 -7.96 1923418 12.83	98.8	0.7	-0.32	9.112								268.9 12.1 0.44 -12.433							
09:45 235.45 -7.92 14.40 206.24 -7.97 1923482 12.83	96.9	3.9	-0.32	9.139								266.8 9.0 0.44 -12.522							
09:50 235.45 -7.93 14.40 204.99 -7.97 1923503 12.83	96.2+	4.9	-0.32	9.137								266.0 8.0 0.44 -12.541							
10:00 235.45 -7.93 14.40 202.48 -7.97 1923546 12.83	95.0	7.1	-0.32	9.117								264.6 6.0 0.44 -12.565							
10:05 235.45 -7.93 14.40 201.23 -7.97 1923568 12.83	94.3	8.1	-0.32	9.100								263.9+ 5.0 0.44 -12.570							
10:13 235.46 -7.93 14.40 199.23 -7.97 1923602 12.83	93.3	9.9	-0.32	9.060								262.7L 3.4 0.44 -12.566							
10:15 235.46 -7.93 14.40 198.73 -7.97 1923610 12.83	93.1	10.3	-0.32	9.048															
10:30 235.46 -7.93 14.41 194.97 -7.97 1923674 12.83	91.1	13.5	-0.32	8.931															
10:45 235.47 -7.93 14.41 191.21 -7.97 1923739 12.83	89.2	16.7	-0.31	8.767															

11:00	235.47	-7.94	14.41	187.46	-7.98	1923803	12.83	87.2	19.9	-0.30	8.557							
11:15	235.47	-7.94	14.41	183.70	-7.98	1923867	12.83	85.2	23.2	-0.29	8.301							
11:30	235.48	-7.94	14.42	179.95	-7.98	1923931	12.84	83.1	26.4	-0.28	8.001							
11:45	235.48	-7.94	14.42	176.19	-7.98	1923995	12.84	81.0	29.6	-0.27	7.658							
12:00	235.49	-7.94	14.42	172.43	-7.99	1924059	12.84	78.7	32.7	-0.26	7.272							
12:15	235.49	-7.95	14.42	168.68	-7.99	1924123	12.84	76.3	35.9	-0.24	6.847							
12:30	235.50	-7.95	14.42	164.92	-7.99	1924188	12.84	73.7	39.0	-0.23	6.384							
12:45	235.50	-7.95	14.43	161.17	-7.99	1924252	12.84	70.9	42.1	-0.21	5.884							
13:00	235.50	-7.95	14.43	157.41	-7.99	1924316	12.84	67.9	45.1	-0.19	5.351							
13:15	235.51	-7.96	14.43	153.65	-8.00	1924380	12.84	64.6	48.0	-0.17	4.785							
13:30	235.51	-7.96	14.43	149.90	-8.00	1924444	12.84	60.9	50.9	-0.15	4.190							
13:45	235.52	-7.96	14.44	146.14	-8.00	1924508	12.84	56.8	53.7	-0.13	3.568							
14:00	235.52	-7.96	14.44	142.39	-8.00	1924572	12.84	52.2	56.3	-0.10	2.922							
14:15	235.53	-7.96	14.44	138.63	-8.01	1924637	12.84	47.0	58.8	-0.08	2.255							
14:30	235.53	-7.97	14.44	134.87	-8.01	1924701	12.84	41.0	61.0	-0.06	1.569							
14:45	235.53	-7.97	14.45	131.12	-8.01	1924765	12.84	34.3	63.0	-0.03	0.868							
15:00	235.54	-7.97	14.45	127.36	-8.01	1924829	12.84	26.7	64.6	-0.01	0.155							
15:15	235.54	-7.97	14.45	123.61	-8.01	1924893	12.84	18.3	65.9	0.02	-0.568							
15:30	235.55	-7.98	14.45	119.85	-8.02	1924957	12.84	9.2	66.6	0.05	-1.298							
15:45	235.55	-7.98	14.46	116.09	-8.02	1925022	12.84	359.8	66.9	0.07	-2.030							
16:00	235.55	-7.98	14.46	112.34	-8.02	1925086	12.84	350.3	66.6	0.10	-2.762							
16:15	235.56	-7.98	14.46	108.58	-8.02	1925150	12.84	341.3	65.8	0.12	-3.491							
16:30	235.56	-7.98	14.46	104.83	-8.03	1925214	12.84	332.9	64.6	0.15	-4.214							
16:45	235.57	-7.99	14.46	101.07	-8.03	1925278	12.84	325.3	62.9	0.17	-4.927							
17:00	235.57	-7.99	14.47	97.31	-8.03	1925342	12.84	318.6	60.9	0.20	-5.627							
17:15	235.58	-7.99	14.47	93.56	-8.03	1925407	12.84	312.7	58.7	0.22	-6.312							
17:30	235.58	-7.99	14.47	89.80	-8.03	1925471	12.85	307.5	56.2	0.25	-6.978							
17:45	235.58	-8.00	14.47	86.05	-8.04	1925535	12.85	302.9	53.6	0.27	-7.622							
18:00	235.59	-8.00	14.48	82.29	-8.04	1925599	12.85	298.8	50.8	0.29	-8.243							
18:15	235.59	-8.00	14.48	78.53	-8.04	1925663	12.85	295.2	47.9	0.31	-8.836							
18:30	235.60	-8.00	14.48	74.78	-8.04	1925727	12.85	291.9	45.0	0.33	-9.400							
18:31	235.60	-8.00	14.48	74.53	-8.04	1925732	12.85	291.7	44.8	0.33	-9.436	103.3A	2.9 -0.27	7.700				
18:42	235.60	-8.00	14.48	71.77	-8.05	1925779	12.85	289.5	42.6	0.35	-9.828	105.2+	5.0 -0.27	7.598				
18:45	235.60	-8.00	14.48	71.02	-8.05	1925792	12.85	288.9	41.9	0.35	-9.932	105.7	5.5 -0.27	7.566				
19:00	235.61	-8.01	14.49	67.27	-8.05	1925856	12.85	286.1	38.9	0.37	-10.429	108.2	8.2 -0.26	7.383				
19:15	235.61	-8.01	14.49	63.51	-8.05	1925920	12.85	283.5	35.8	0.39	-10.890	110.8	10.9 -0.25	7.159				
19:30	235.61	-8.01	14.49	59.75	-8.05	1925984	12.85	281.1	32.6	0.40	-11.313	113.5	13.6 -0.24	6.896				
19:45	235.62	-8.01	14.49	56.00	-8.05	1926048	12.85	278.9	29.4	0.41	-11.696	116.2	16.2 -0.23	6.595				
20:00	235.62	-8.02	14.50	52.24	-8.06	1926113	12.85	276.7	26.2	0.43	-12.037	119.1	18.7 -0.22	6.256				
20:15	235.63	-8.02	14.50	48.48	-8.06	1926177	12.85	274.6	23.0	0.44	-12.335	122.1	21.2 -0.21	5.882				
20:30	235.63	-8.02	14.50	44.73	-8.06	1926241	12.85	272.6	19.8	0.45	-12.588	125.2	23.6 -0.19	5.474				
20:45	235.63	-8.02	14.50	40.97	-8.06	1926305	12.85	270.6	16.6	0.45	-12.795	128.4	25.8 -0.18	5.033				
21:00	235.64	-8.02	14.51	37.22	-8.07	1926369	12.85	268.7	13.4	0.46	-12.957	131.8	28.0 -0.16	4.562				
21:13	235.64	-8.03	14.51	33.96	-8.07	1926425	12.85	267.0	10.6	0.46	-13.058	134.8	29.8 -0.15	4.130				
A 2	21:15	235.64	-8.03	14.51	33.46	-8.07	1926434	12.85	266.8	10.2	0.46	-13.071	135.3	30.1 -0.14	4.062			
3	21:24	235.65	-8.03	14.51	31.21	-8.07	1926472	12.85	265.6	8.2	0.46	-13.116	137.5	31.3 -0.13	3.750			
+ 5	21:30	235.65	-8.03	14.51	29.70	-8.07	1926498	12.85	264.9	7.0	0.47	-13.137	139.0	32.0 -0.13	3.536			
6	21:35	235.65	-8.03	14.51	28.45	-8.07	1926519	12.85	264.2L	5.9	0.47	-13.149	140.3	32.7 -0.12	3.355			
8	21:45	235.65	-8.03	14.51	25.95	-8.07	1926562	12.85				142.9	33.8 -0.11	2.986				
10	21:46	235.65	-8.03	14.51	25.70	-8.07	1926566	12.85				143.2	34.0 -0.10	2.949	99.5A	0.4 -0.30	8.504	
10	22:00	235.66	-8.03	14.51	22.19	-8.07	1926626	12.85				147.0	35.5 -0.09	2.415	97.5	3.2 -0.30	8.543	
14	22:09	235.66	-8.03	14.52	19.94	-8.08	1926665	12.85				149.5	36.4 -0.07	2.062	96.2+	5.1 -0.30	8.547	
16	22:15	235.66	-8.04	14.52	18.44	-8.08	1926691	12.85				151.2	37.0 -0.06	1.824	95.3	6.3 -0.30	8.541	
18																		







21:10	236.05	-8.24	14.74	34.13	-8.29	1932594	12.89	266.9	10.9	0.46	-13.061	134.8	29.6	-0.15	4.136
A 2															
21:15	236.05	-8.25	14.74	32.88	-8.29	1932616	12.89	266.3	9.8	0.46	-13.092	136.0	30.2	-0.14	3.965
3															
21:22	236.05	-8.25	14.74	31.13	-8.29	1932646	12.89	265.4	8.3	0.46	-13.125	137.7	31.1	-0.13	3.721
+ 5															
21:30	236.05	-8.25	14.74	29.12	-8.29	1932680	12.89	264.4	6.6	0.47	-13.151	139.8	32.1	-0.12	3.436
7															
21:34	236.05	-8.25	14.74	28.12	-8.29	1932698	12.89	263.9L	5.7	0.47	-13.159	140.8	32.6	-0.12	3.291
8															
21:43	236.06	-8.25	14.74	25.87	-8.29	1932736	12.89					143.1	33.7	-0.10	2.958
10															99.8A 0.4 -0.30 8.482
21:45	236.06	-8.25	14.74	25.37	-8.29	1932745	12.89					143.7	33.9	-0.10	2.883
11															99.5 0.8 -0.30 8.490
22:00	236.06	-8.25	14.75	21.61	-8.29	1932810	12.89					147.7	35.5	-0.08	2.308
14															97.3 3.8 -0.30 8.526
22:06	236.06	-8.25	14.75	20.11	-8.29	1932836	12.89					149.4	36.1	-0.07	2.073
16															96.5+ 5.0 -0.30 8.528
22:15	236.07	-8.25	14.75	17.86	-8.30	1932874	12.89					152.0	37.0	-0.06	1.715
18															95.2 6.9 -0.30 8.517
22:30	236.07	-8.26	14.75	14.10	-8.30	1932939	12.90					156.4	38.2	-0.04	1.105
22															93.0 9.9 -0.30 8.463
22:45	236.07	-8.26	14.75	10.34	-8.30	1933004	12.90					161.0	39.2	-0.02	0.482
25															90.8 13.0 -0.30 8.364
23:00	236.08	-8.26	14.76	6.59	-8.30	1933068	12.90					165.7	40.1	0.01	-0.152
29															88.6 16.0 -0.29 8.219
23:15	236.08	-8.26	14.76	2.83	-8.30	1933133	12.90					170.6	40.6	0.03	-0.794
33															86.4 19.1 -0.28 8.031
23:30	236.09	-8.27	14.76	359.08	-8.31	1933198	12.90					175.5	41.0	0.05	-1.441
36															84.1 22.1 -0.28 7.800
23:45	236.09	-8.27	14.76	355.32	-8.31	1933262	12.90					180.4	41.1	0.07	-2.091
40															81.7 25.1 -0.27 7.526

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 1933327.  
 ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/05/27 S/C TO SUN IN AU: 1.02569

-----GEOCENTRIC-----										-----NEW NORCIA-----				-----CEBREROS -----				-----MALARGUE -----					
KOU	UTL	EL	EL	RA	EL	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.
HH:MM	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
00:00	236.10	-8.27	14.77	351.56	-8.31	1933327	12.90					185.3	40.9	0.10	-2.741	79.3	28.1	-0.26	7.211				
44																							
00:15	236.10	-8.27	14.77	347.81	-8.31	1933392	12.90					190.2	40.6	0.12	-3.388	76.7	31.1	-0.24	6.856				
47																							
00:30	236.10	-8.28	14.77	344.05	-8.32	1933457	12.90					195.0	39.9	0.14	-4.029	74.1	34.1	-0.23	6.463				
51																							
00:45	236.11	-8.28	14.77	340.30	-8.32	1933521	12.90					199.7	39.1	0.17	-4.661	71.2	37.0	-0.21	6.033				
54																							
01:00	236.11	-8.28	14.78	336.54	-8.32	1933586	12.90					204.3	38.0	0.19	-5.282	68.2	39.9	-0.20	5.569				
58																							
01:15	236.12	-8.28	14.78	332.78	-8.32	1933651	12.90					208.7	36.7	0.21	-5.889	64.9	42.7	-0.18	5.071				
61																							
01:30	236.12	-8.28	14.78	329.03	-8.33	1933716	12.90					212.9	35.2	0.23	-6.479	61.4	45.4	-0.16	4.543				
64																							
01:45	236.12	-8.29	14.78	325.27	-8.33	1933780	12.90					217.0	33.6	0.25	-7.050	57.5	48.0	-0.14	3.987				
67																							
02:00	236.13	-8.29	14.79	321.52	-8.33	1933845	12.90					220.9	31.8	0.27	-7.599	53.3	50.5	-0.12	3.404				
70																							
02:15	236.13	-8.29	14.79	317.76	-8.33	1933910	12.90					224.6	29.9	0.29	-8.125	48.7	52.9	-0.10	2.798				
73																							
02:30	236.14	-8.29	14.79	314.00	-8.33	1933975	12.90					228.1	27.8	0.31	-8.624	43.6	55.1	-0.08	2.171				
75																							
02:45	236.14	-8.30	14.79	310.25	-8.34	1934040	12.90					231.5	25.6	0.32	-9.094	37.9	57.1	-0.05	1.526				
76																							
03:00	236.15	-8.30	14.80	306.49	-8.34	1934104	12.90					234.7	23.3	0.34	-9.534	31.7	58.9	-0.03	0.866				
76																							
03:15	236.15	-8.30	14.80	302.74	-8.34	1934169	12.90					237.8	20.9	0.35	-9.942	24.9	60.3	-0.01	0.193				
76																							
03:30	236.15	-8.30	14.80	298.98	-8.34	1934234	12.90					240.7	18.5	0.37	-10.316	17.6	61.4	0.02	-0.490				
74																							
03:45	236.16	-8.31	14.80	295.22	-8.35	1934299	12.90					243.6	15.9	0.38	-10.654	9.9	62.2	0.04	-1.179				
72																							
04:00	236.16	-8.31	14.81	291.47	-8.35	1934364	12.90					246.3	13.3	0.39	-10.954	1.9	62.5	0.07	-1.872				
69																							
04:15	236.17	-8.31	14.81	287.71	-8.35	1934429	12.91					249.0	10.7	0.40	-11.217	353.8	62.4	0.09	-2.565				
66																							
04:30	236.17	-8.31	14.81	283.96	-8.35	1934494	12.91					251.6	8.0	0.40	-11.439	345.9	61.8	0.12	-3.257				
63																							
04:45	236.18	-8.32	14.81	280.20	-8.36	1934558	12.91					254.1	5.3	0.41	-11.622	338.4	60.9	0.14	-3.943				
60																							
04:46	236.18	-8.32	14.81	279.95	-8.36	1934563	12.91					254.3+	5.1	0.41	-11.633	337.9	60.8	0.14	-3.988				
60																							
04:51	236.18	-8.32	14.82	278.70	-8.36	1934584	12.91					255.1L	4.2	0.41	-11.683	335.5	60.4	0.15	-4.215				
58																							
05:00	236.18	-8.32	14.82	276.44	-8.36	1934623	12.91									331.3	59.6	0.16	-4.620				
56																							
05:15	236.18	-8.32	14.82	272.69	-8.36	1934688	12.91									324.9	58.0	0.19	-5.287				
53																							
05:30	236.19	-8.32	14.82	268.93	-8.36	1934753	12.91									318.9	56.1	0.21	-5.939				
49																							
05:45	236.19	-8.32	14.82	265.18	-8.37	1934818	12.91									313.6	54.0	0.23	-6.575				
46																							
06:00	236.20	-8.33	14.83	261.42	-8.37	1934883	12.91									308.7	51.7	0.25	-7.190				
42																							
06:15	236.20	-8.33	14.83	257.66																			



18:45	236.41	-8.45	14.96	69.86	-8.49	1938207	12.93	287.5	41.3	0.36	-10.119	106.8	6.1	-0.26	7.463
19:00	236.42	-8.45	14.96	66.10	-8.49	1938272	12.93	284.8	38.2	0.38	-10.606	109.3	8.8	-0.26	7.267
19:15	236.42	-8.45	14.96	62.35	-8.49	1938337	12.93	282.3	35.0	0.39	-11.055	111.9	11.5	-0.25	7.032
19:30	236.42	-8.45	14.96	58.59	-8.49	1938403	12.93	280.0	31.9	0.41	-11.466	114.6	14.1	-0.24	6.756
19:45	236.43	-8.46	14.97	54.84	-8.50	1938468	12.93	277.7	28.7	0.42	-11.835	117.4	16.6	-0.23	6.443
20:00	236.43	-8.46	14.97	51.08	-8.50	1938534	12.93	275.6	25.5	0.43	-12.163	120.3	19.1	-0.22	6.094
20:15	236.44	-8.46	14.97	47.32	-8.50	1938599	12.93	273.6	22.3	0.44	-12.447	123.3	21.6	-0.20	5.709
20:30	236.44	-8.46	14.97	43.57	-8.50	1938665	12.93	271.6	19.1	0.45	-12.687	126.5	23.9	-0.19	5.290
20:45	236.44	-8.47	14.98	39.81	-8.51	1938731	12.93	269.6	15.8	0.46	-12.880	129.7	26.2	-0.17	4.840
21:00	236.45	-8.47	14.98	36.06	-8.51	1938796	12.93	267.7	12.6	0.46	-13.027	133.1	28.3	-0.15	4.360
21:08	236.45	-8.47	14.98	34.05	-8.51	1938831	12.93	266.7	10.9	0.46	-13.086	135.0	29.4	-0.14	4.093
A 21:15	236.45	-8.47	14.98	32.30	-8.51	1938862	12.93	265.8	9.4	0.46	-13.127	136.7	30.3	-0.14	3.852
4 21:20	236.45	-8.47	14.98	31.05	-8.51	1938884	12.93	265.1	8.3	0.47	-13.149	138.0	31.0	-0.13	3.677
+ 5 21:30	236.46	-8.47	14.98	28.54	-8.51	1938927	12.94	263.9	6.2	0.47	-13.179	140.5	32.2	-0.12	3.319
8 21:32	236.46	-8.47	14.98	28.04	-8.51	1938936	12.94	263.6L	5.8	0.47	-13.182	141.0	32.5	-0.11	3.246
8 21:40	236.46	-8.47	14.98	26.04	-8.52	1938971	12.94					143.1	33.4	-0.10	2.951
10 21:45	236.46	-8.48	14.99	24.79	-8.52	1938993	12.94					144.4	34.0	-0.10	2.763
11 22:00	236.47	-8.48	14.99	21.03	-8.52	1939058	12.94					148.5	35.6	-0.08	2.185
15 22:03	236.47	-8.48	14.99	20.28	-8.52	1939072	12.94					149.3	35.9	-0.07	2.067
16 22:15	236.47	-8.48	14.99	17.28	-8.52	1939124	12.94					152.8	37.0	-0.06	1.589
19 22:30	236.47	-8.48	14.99	13.52	-8.52	1939190	12.94					157.2	38.2	-0.03	0.978
22 22:45	236.48	-8.49	15.00	9.76	-8.53	1939255	12.94					161.8	39.2	-0.01	0.353
26 23:00	236.48	-8.49	15.00	6.01	-8.53	1939321	12.94					166.5	39.9	0.01	-0.282
30 23:15	236.49	-8.49	15.00	2.25	-8.53	1939387	12.94					171.4	40.5	0.03	-0.925
33 23:30	236.49	-8.49	15.00	358.50	-8.53	1939452	12.94					176.3	40.8	0.06	-1.573
37 23:45	236.50	-8.49	15.01	354.74	-8.54	1939518	12.94					181.2	40.9	0.08	-2.223
40															

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 1939584.  
ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/05/28 S/C TO SUN IN AU: 1.02589

-----GEOCENTRIC-----								-----NEW NORCIA-----				-----CEBREROS-----				-----MALARGUE-----			
UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.
HH:MM	EL	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
DEG	DEG	DEG																	
00:00	236.50	-8.50	15.01	350.98	-8.54	1939584	12.94					186.1	40.7	0.10	-2.872	79.1	28.7	-0.25	7.122
44 00:15	236.50	-8.50	15.01	347.23	-8.54	1939650	12.94					190.9	40.3	0.12	-3.518	76.5	31.7	-0.24	6.761
48 00:30	236.51	-8.50	15.01	343.47	-8.54	1939715	12.94					195.7	39.6	0.15	-4.158	73.8	34.7	-0.23	6.363
51 00:45	236.51	-8.50	15.02	339.72	-8.54	1939781	12.94					200.4	38.7	0.17	-4.788	71.0	37.6	-0.21	5.927
55 01:00	236.52	-8.51	15.02	335.96	-8.55	1939847	12.94					204.9	37.6	0.19	-5.407	67.9	40.4	-0.19	5.458
58 01:15	236.52	-8.51	15.02	332.20	-8.55	1939913	12.94					209.3	36.3	0.21	-6.011	64.6	43.2	-0.18	4.955
61 01:30	236.52	-8.51	15.02	328.45	-8.55	1939978	12.94					213.5	34.8	0.23	-6.599	61.0	46.0	-0.16	4.423
65 01:45	236.53	-8.51	15.03	324.69	-8.55	1940044	12.94					217.5	33.1	0.25	-7.166	57.1	48.6	-0.14	3.862
68 02:00	236.53	-8.52	15.03	320.93	-8.56	1940110	12.94					221.3	31.3	0.27	-7.712	52.9	51.1	-0.12	3.276
70 02:15	236.54	-8.52	15.03	317.18	-8.56	1940176	12.94					225.0	29.4	0.29	-8.233	48.1	53.5	-0.09	2.667
73 02:30	236.54	-8.52	15.03	313.42	-8.56	1940242	12.94					228.5	27.3	0.31	-8.728	42.9	55.6	-0.07	2.037
75 02:45	236.55	-8.52	15.04	309.67	-8.56	1940308	12.94					231.8	25.1	0.33	-9.194	37.2	57.6	-0.05	1.390
76 03:00	236.55	-8.53	15.04	305.91	-8.57	1940373	12.94					235.0	22.8	0.34	-9.629	30.9	59.3	-0.03	0.727
76 03:15	236.55	-8.53	15.04	302.15	-8.57	1940439	12.95					238.1	20.4	0.36	-10.031	24.0	60.7	-0.00	0.053
75 03:30	236.56	-8.53	15.04	298.40	-8.57	1940505	12.95					241.0	17.9	0.37	-10.399	16.5	61.8	0.02	-0.631
74 03:45	236.56	-8.53	15.05	294.64	-8.57	1940571	12.95					243.9	15.4	0.38	-10.732	8.7	62.5	0.05	-1.320
71 04:00	236.57	-8.54	15.05	290.89	-8.58	1940637	12.95					246.6	12.8	0.39	-11.027	0.6	62.7	0.07	-2.013
69 04:15	236.57	-8.54	15.05	287.13	-8.58	1940703	12.95					249.2	10.1	0.40	-11.283	352.5	62.5	0.10	-2.707
66 04:30	236.58	-8.54	15.05	283.37	-8.58	1940769	12.95					251.8	7.4	0.41	-11.500	344.6	61.9	0.12	-3.397
62 04:43	236.58	-8.54	15.06	280.12	-8.58	1940826	12.95					254.0+	5.1	0.41	-11.655	338.1	61.1	0.14	-3.991
60 04:45	236.58	-8.54	15.06	279.62	-8.58	1940835	12.95					254.4	4.7	0.41	-11.676	337.1	60.9	0.14	-4.082
59																			

04:48	236.58	-8.54	15.06	278.87	-8.58	1940848	12.95					254.9L	4.1	0.41	-11.706	335.7	60.7	0.15	-4.218		
58																					
05:00	236.58	-8.55	15.06	275.86	-8.59	1940901	12.95										330.1	59.6	0.17	-4.758	
56																					
05:15	236.59	-8.55	15.06	272.11	-8.59	1940967	12.95											323.7	57.9	0.19	-5.422
52																					
05:30	236.59	-8.55	15.07	268.35	-8.59	1941033	12.95											317.9	56.0	0.21	-6.072
49																					
05:45	236.60	-8.55	15.07	264.59	-8.59	1941099	12.95											312.6	53.8	0.24	-6.704
45																					
06:00	236.60	-8.55	15.07	260.84	-8.59	1941165	12.95											307.8	51.5	0.26	-7.316
42																					
06:15	236.60	-8.56	15.07	257.08	-8.60	1941231	12.95											303.4	49.0	0.28	-7.906
38																					
06:30	236.61	-8.56	15.08	253.33	-8.60	1941297	12.95											299.5	46.4	0.30	-8.471
34																					
06:45	236.61	-8.56	15.08	249.57	-8.60	1941363	12.95											295.9	43.7	0.32	-9.007
31																					
07:00	236.62	-8.56	15.08	245.81	-8.60	1941429	12.95											292.5	40.9	0.34	-9.514
27																					
07:15	236.62	-8.57	15.08	242.06	-8.61	1941496	12.95											289.4	38.1	0.35	-9.989
23																					
07:30	236.63	-8.57	15.09	238.30	-8.61	1941562	12.95											286.5	35.2	0.37	-10.429
20																					
07:45	236.63	-8.57	15.09	234.55	-8.61	1941628	12.95											283.8	32.2	0.38	-10.833
16																					
08:00	236.63	-8.57	15.09	230.79	-8.61	1941694	12.95											281.2	29.2	0.40	-11.200
12																					
08:15	236.64	-8.58	15.09	227.03	-8.62	1941760	12.95											278.7	26.2	0.41	-11.527
9																					
08:30	236.64	-8.58	15.10	223.28	-8.62	1941827	12.95											276.3	23.2	0.42	
-11.813	+ 5																				
08:44	236.65	-8.58	15.10	219.77	-8.62	1941888	12.95											274.2	20.4	0.43	
-12.043	L 2																				
08:45	236.65	-8.58	15.10	219.52	-8.62	1941893	12.95											274.0	20.2	0.43	-12.058
09:00	236.65	-8.58	15.10	215.77	-8.62	1941959	12.96											271.8	17.1	0.43	-12.259
09:15	236.66	-8.59	15.10	212.01	-8.63	1942025	12.96											269.6	14.1	0.44	-12.417
09:18	236.66	-8.59	15.10	211.26	-8.63	1942038	12.96	100.0A	-0.0	-0.32	9.007						269.1	13.5	0.44	-12.443	
09:30	236.66	-8.59	15.11	208.25	-8.63	1942092	12.96	98.5	2.5	-0.32	9.045						267.4	11.0	0.44	-12.530	
09:42	236.66	-8.59	15.11	205.25	-8.63	1942145	12.96	96.9+	5.1	-0.32	9.051						265.7	8.6	0.45	-12.588	
09:45	236.66	-8.59	15.11	204.50	-8.63	1942158	12.96	96.6	5.7	-0.32	9.048						265.2	8.0	0.45	-12.598	
10:00	236.67	-8.59	15.11	200.74	-8.63	1942224	12.96	94.7	8.9	-0.32	9.004						263.1+	5.0	0.45	-12.621	
10:09	236.67	-8.59	15.11	198.49	-8.63	1942264	12.96	93.5	10.8	-0.32	8.955						261.8L	3.1	0.45	-12.613	
10:15	236.67	-8.60	15.11	196.98	-8.64	1942290	12.96	92.8	12.1	-0.32	8.913										
10:30	236.68	-8.60	15.12	193.23	-8.64	1942357	12.96	90.9	15.3	-0.31	8.774										
10:45	236.68	-8.60	15.12	189.47	-8.64	1942423	12.96	88.9	18.6	-0.30	8.588										
11:00	236.68	-8.60	15.12	185.72	-8.64	1942490	12.96	86.9	21.8	-0.30	8.356										
11:15	236.69	-8.61	15.12	181.96	-8.65	1942556	12.96	84.9	25.0	-0.29	8.080										
11:30	236.69	-8.61	15.13	178.20	-8.65	1942622	12.96	82.8	28.2	-0.27	7.759										
11:45	236.70	-8.61	15.13	174.45	-8.65	1942689	12.96	80.6	31.4	-0.26	7.396										
12:00	236.70	-8.61	15.13	170.69	-8.65	1942755	12.96	78.3	34.6	-0.25	6.993										
12:15	236.71	-8.62	15.14	166.94	-8.66	1942822	12.96	75.8	37.7	-0.23	6.550										
12:30	236.71	-8.62	15.14	163.18	-8.66	1942888	12.96	73.2	40.8	-0.21	6.069										
12:45	236.71	-8.62	15.14	159.42	-8.66	1942955	12.96	70.3	43.9	-0.20	5.554										
13:00	236.72	-8.62	15.14	155.67	-8.66	1943021	12.96	67.2	46.9	-0.18	5.006										
13:15	236.72	-8.62	15.15	151.91	-8.66	1943088	12.96	63.7	49.8	-0.16	4.427										
13:30	236.73	-8.63	15.15	148.16	-8.67	1943154	12.96	59.9	52.7	-0.14	3.819										
13:45	236.73	-8.63	15.15	144.40	-8.67	1943221	12.96	55.6	55.4	-0.11	3.187										
14:00	236.73	-8.63	15.15	140.64	-8.67	1943287	12.96	50.7	58.0	-0.09	2.531										
14:15	236.74	-8.63	15.16	136.89	-8.67	1943354	12.96	45.1	60.4	-0.07	1.856										
14:30	236.74	-8.64	15.16	133.13	-8.68	1943421	12.97	38.8	62.5	-0.04	1.163										
14:45	236.75	-8.64	15.16	129.38	-8.68	1943487	12.97	31.6	64.4	-0.02	0.456										
15:00	236.75	-8.64	15.16	125.62	-8.68	1943554	12.97	23.4	65.9	0.01	-0.261										
15:15	236.76	-8.64	15.17	121.86	-8.68	1943621	12.97	14.5	66.9	0.03	-0.987										
15:30	236.76	-8.65	15.17	118.11	-8.69	1943687	12.97	5.0	67.5	0.06	-1.717										
15:45	236.76	-8.65	15.17	114.35	-8.69	1943754	12.97	355.2													

17:15	236.79	-8.66	15.19	91.81	-8.70	1944155	12.97	309.4	58.0	0.24	-6.698								
17:30	236.79	-8.67	15.19	88.06	-8.71	1944221	12.97	304.5	55.5	0.26	-7.354								
17:45	236.80	-8.67	15.19	84.30	-8.71	1944288	12.97	300.1	52.7	0.28	-7.987								
18:00	236.80	-8.67	15.20	80.55	-8.71	1944355	12.97	296.3	49.9	0.30	-8.595								
18:15	236.81	-8.67	15.20	76.79	-8.71	1944422	12.97	292.8	47.0	0.32	-9.174								
18:25	236.81	-8.68	15.20	74.29	-8.72	1944467	12.97	290.7	45.0	0.34	-9.543	104.0A	2.7	-0.27	7.589				
18:30	236.81	-8.68	15.20	73.03	-8.72	1944489	12.97	289.7	44.0	0.34	-9.723	104.8	3.6	-0.27	7.544				
18:38	236.81	-8.68	15.20	71.03	-8.72	1944525	12.97	288.1	42.3	0.35	-10.002	106.1+	5.1	-0.26	7.463				
18:45	236.81	-8.68	15.20	69.28	-8.72	1944556	12.97	286.8	40.9	0.36	-10.239	107.3	6.3	-0.26	7.383				
19:00	236.82	-8.68	15.21	65.52	-8.72	1944623	12.97	284.2	37.8	0.38	-10.719	109.9	9.0	-0.25	7.181				
19:15	236.82	-8.68	15.21	61.77	-8.72	1944690	12.97	281.7	34.7	0.40	-11.163	112.5	11.7	-0.25	6.939				
19:30	236.83	-8.69	15.21	58.01	-8.73	1944757	12.97	279.4	31.5	0.41	-11.567	115.2	14.3	-0.24	6.658				
19:45	236.83	-8.69	15.21	54.25	-8.73	1944824	12.97	277.2	28.3	0.42	-11.931	118.0	16.9	-0.22	6.339				
20:00	236.84	-8.69	15.22	50.50	-8.73	1944891	12.97	275.1	25.1	0.43	-12.252	120.9	19.4	-0.21	5.983				
20:15	236.84	-8.69	15.22	46.74	-8.73	1944958	12.98	273.0	21.9	0.44	-12.529	124.0	21.8	-0.20	5.593				
20:30	236.84	-8.70	15.22	42.99	-8.74	1945025	12.98	271.0	18.7	0.45	-12.761	127.1	24.1	-0.18	5.170				
20:45	236.85	-8.70	15.22	39.23	-8.74	1945092	12.98	269.1	15.4	0.46	-12.948	130.4	26.3	-0.17	4.715				
21:00	236.85	-8.70	15.23	35.47	-8.74	1945159	12.98	267.2	12.2	0.46	-13.087	133.8	28.4	-0.15	4.230				
21:06	236.85	-8.70	15.23	33.97	-8.74	1945186	12.98	266.4	10.9	0.46	-13.130	135.3	29.3	-0.14	4.029				
A 2																			
21:15	236.86	-8.70	15.23	31.72	-8.74	1945226	12.98	265.3	9.0	0.47	-13.180	137.4	30.4	-0.13	3.719				
4																			
21:17	236.86	-8.70	15.23	31.22	-8.74	1945235	12.98	265.0	8.6	0.47	-13.189	137.9	30.7	-0.13	3.649				
+ 5																			
21:30	236.86	-8.71	15.23	27.96	-8.75	1945293	12.98	263.4	5.8	0.47	-13.225	141.2	32.3	-0.11	3.182				
8																			
21:31	236.86	-8.71	15.23	27.71	-8.75	1945298	12.98	263.3L	5.6	0.47	-13.226	141.5	32.4	-0.11	3.145				
8																			
21:37	236.86	-8.71	15.23	26.21	-8.75	1945325	12.98					143.0	33.1	-0.10	2.923	100.4A	0.4	-0.30	8.385
10																			
21:45	236.86	-8.71	15.24	24.21	-8.75	1945360	12.98					145.2	34.0	-0.09	2.622	99.2	2.0	-0.30	8.415
12																			
22:00	236.87	-8.71	15.24	20.45	-8.75	1945428	12.98					149.3	35.6	-0.07	2.042	97.0+	5.0	-0.30	8.437
15																			
22:15	236.87	-8.71	15.24	16.69	-8.75	1945495	12.98					153.6	36.9	-0.05	1.443	94.9	8.1	-0.30	8.414
19																			
22:30	236.88	-8.72	15.24	12.94	-8.76	1945562	12.98					158.0	38.1	-0.03	0.830	92.7	11.1	-0.30	8.345
23																			
22:45	236.88	-8.72	15.25	9.18	-8.76	1945629	12.98					162.6	39.1	-0.01	0.203	90.5	14.2	-0.29	8.231
26																			
23:00	236.89	-8.72	15.25	5.42	-8.76	1945697	12.98					167.3	39.8	0.02	-0.433	88.3	17.2	-0.29	8.073
30																			
23:15	236.89	-8.72	15.25	1.67	-8.76	1945764	12.98					172.1	40.3	0.04	-1.077	86.1	20.3	-0.28	7.871
34																			
23:30	236.89	-8.73	15.25	357.91	-8.76	1945831	12.98					177.0	40.6	0.06	-1.725	83.8	23.3	-0.27	7.626
37																			
23:45	236.90	-8.73	15.26	354.16	-8.77	1945899	12.98					181.9	40.6	0.08	-2.375	81.4	26.3	-0.26	7.340
41																			

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 1945966.  
 ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/05/29 S/C TO SUN IN AU: 1.02609

GEOCENTRIC								NEW NORCIA				CEBREROS				MALARGUE				
KOU	UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.
EL	EL	EL	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
HH:MM	DEG	DEG	DEG	DEG	DEG	DEG			DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
00:00	236.90	-8.73	15.26	350.40	-8.77	1945966	12.98					186.8	40.4	0.11	-3.024	78.9	29.3	-0.25	7.012	
45																				
00:15	236.91	-8.73	15.26	346.64	-8.77	1946033	12.98					191.6	39.9	0.13	-3.669	76.4	32.3	-0.24	6.645	
48																				
00:30	236.91	-8.74	15.26	342.89	-8.77	1946101	12.98					196.4	39.2	0.15	-4.307	73.6	35.3	-0.22	6.241	
52																				
00:45	236.91	-8.74	15.27	339.13	-8.78	1946168	12.98					201.0	38.3	0.17	-4.936	70.7	38.2	-0.21	5.800	
55																				
01:00	236.92	-8.74	15.27	335.38	-8.78	1946235	12.98					205.5	37.2	0.20	-5.552	67.6	41.0	-0.19	5.325	
58																				
01:15	236.92	-8.74	15.27	331.62	-8.78	1946303	12.98					209.8	35.9	0.22	-6.154	64.3	43.8	-0.17	4.818	
62																				
01:30	236.93	-8.74	15.28	327.86	-8.78	1946370	12.98					214.0	34.3	0.24	-6.738	60.7	46.5	-0.15	4.281	
65																				
01:45	236.93	-8.75	15.28	324.11	-8.79	1946438	12.99					217.9	32.7	0.26	-7.302	56.7	49.2	-0.13	3.716	
68																				
02:00	236.94	-8.75	15.28	320.35	-8.79	1946505	12.99					221.7	30.8	0.28	-7.844	52.4	51.6	-0.11	3.127	
71																				
02:15	236.94	-8.75	15.28	316.60	-8.79	1946573	12.99					225.4	28.8	0.30	-8.361	47.6	54.0	-0.09	2.514	
73																				
02:30	236.94	-8.75	15.29	312.84	-8.79	1946640	12.99					228.8	26.7	0.31	-8.852	42.3	56.2	-0.07	1.882	
75																				
02:45	236.95	-8.76	15.29	309.08	-8.80	1946708	12.99					232.2	24.5	0.33	-9.313	36.5	58.1	-0.04	1.232	
76																				
03:00	236.95	-8.76	15.29	305.33	-8.80	1946776	12.99					235.3	22.2	0.34	-9.743	30.0	59.8	-0.02	0.568	
76																				
03:15	236.96	-8.76	15.29	301.57	-8.80	1946843	12.99					238.4	19.8	0.36	-10.140	23.0	61.1	0.00	-0.108	





15:15	237.16	-8.88	15.42	121.28	-8.92	1950116	13.01	13.2	67.3	0.04	-1.166								
15:30	237.16	-8.88	15.43	117.52	-8.92	1950185	13.01	3.5	67.8	0.07	-1.897								
15:45	237.17	-8.89	15.43	113.77	-8.93	1950254	13.01	353.7	67.7	0.09	-2.628								
16:00	237.17	-8.89	15.43	110.01	-8.93	1950322	13.01	344.1	67.1	0.12	-3.358								
16:15	237.17	-8.89	15.43	106.25	-8.93	1950391	13.01	335.2	65.9	0.14	-4.082								
16:30	237.18	-8.89	15.44	102.50	-8.93	1950460	13.01	327.1	64.4	0.17	-4.798								
16:45	237.18	-8.90	15.44	98.74	-8.94	1950529	13.01	320.0	62.5	0.19	-5.503								
17:00	237.19	-8.90	15.44	94.99	-8.94	1950598	13.01	313.7	60.3	0.22	-6.193								
17:15	237.19	-8.90	15.44	91.23	-8.94	1950667	13.01	308.3	57.8	0.24	-6.866								
17:30	237.19	-8.90	15.45	87.47	-8.94	1950736	13.01	303.5	55.2	0.27	-7.518								
17:45	237.20	-8.91	15.45	83.72	-8.95	1950805	13.01	299.2	52.5	0.29	-8.147								
18:00	237.20	-8.91	15.45	79.96	-8.95	1950874	13.01	295.4	49.6	0.31	-8.750								
18:15	237.21	-8.91	15.46	76.21	-8.95	1950943	13.02	292.0	46.6	0.33	-9.325								
18:23	237.21	-8.91	15.46	74.20	-8.95	1950980	13.02	290.4	45.0	0.34	-9.619	104.2A	2.6	-0.27	7.511				
18:30	237.21	-8.91	15.46	72.45	-8.95	1951012	13.02	289.0	43.6	0.35	-9.869	105.4	3.9	-0.26	7.447				
18:36	237.21	-8.92	15.46	70.95	-8.95	1951040	13.02	287.8	42.4	0.36	-10.077	106.4+	5.0	-0.26	7.385				
18:45	237.21	-8.92	15.46	68.69	-8.96	1951081	13.02	286.1	40.6	0.37	-10.379	107.9	6.6	-0.26	7.279				
19:00	237.22	-8.92	15.46	64.94	-8.96	1951150	13.02	283.5	37.4	0.38	-10.854	110.5	9.3	-0.25	7.071				
19:15	237.22	-8.92	15.47	61.18	-8.96	1951220	13.02	281.1	34.3	0.40	-11.292	113.1	11.9	-0.24	6.822				
19:30	237.23	-8.92	15.47	57.43	-8.96	1951289	13.02	278.8	31.1	0.41	-11.690	115.8	14.5	-0.23	6.535				
19:45	237.23	-8.93	15.47	53.67	-8.97	1951358	13.02	276.6	27.9	0.43	-12.047	118.7	17.1	-0.22	6.210				
20:00	237.24	-8.93	15.47	49.91	-8.97	1951427	13.02	274.5	24.7	0.44	-12.361	121.6	19.6	-0.21	5.850				
20:15	237.24	-8.93	15.48	46.16	-8.97	1951496	13.02	272.5	21.5	0.45	-12.631	124.6	22.0	-0.19	5.454				
20:30	237.24	-8.93	15.48	42.40	-8.97	1951566	13.02	270.5	18.3	0.46	-12.857	127.8	24.3	-0.18	5.026				
20:45	237.25	-8.94	15.48	38.64	-8.98	1951635	13.02	268.6	15.1	0.46	-13.036	131.1	26.5	-0.16	4.566				
21:00	237.25	-8.94	15.49	34.89	-8.98	1951704	13.02	266.7	11.8	0.47	-13.169	134.5	28.6	-0.14	4.077				
21:03	237.25	-8.94	15.49	34.14	-8.98	1951718	13.02	266.3	11.2	0.47	-13.189	135.2	29.0	-0.14	3.976				
A 21:15	237.26	-8.94	15.49	31.13	-8.98	1951774	13.02	264.8	8.6	0.47	-13.254	138.2	30.5	-0.13	3.562				
+ 5 21:30	237.26	-8.94	15.49	27.38	-8.98	1951843	13.02	262.9	5.4	0.47	-13.291	141.9	32.4	-0.11	3.021				
9 21:34	237.26	-8.95	15.49	26.37	-8.98	1951862	13.02					143.0	32.8	-0.10	2.873	100.6A	0.4	-0.29	8.304
10 21:45	237.26	-8.95	15.49	23.62	-8.99	1951913	13.02					145.9	34.1	-0.09	2.458	99.1	2.6	-0.30	8.344
12 21:57	237.27	-8.95	15.50	20.62	-8.99	1951968	13.02					149.2	35.3	-0.07	1.993	97.3+	5.0	-0.30	8.359
15 22:00	237.27	-8.95	15.50	19.86	-8.99	1951982	13.02					150.0	35.6	-0.07	1.875	96.9	5.6	-0.30	8.358
16 22:15	237.27	-8.95	15.50	16.11	-8.99	1952052	13.02					154.3	36.9	-0.05	1.274	94.7	8.7	-0.29	8.327
20 22:30	237.28	-8.95	15.50	12.35	-8.99	1952121	13.02					158.8	38.1	-0.02	0.659	92.6	11.7	-0.29	8.251
23 22:45	237.28	-8.96	15.50	8.60	-9.00	1952191	13.02					163.4	39.0	-0.00	0.031	90.4	14.8	-0.29	8.131
27 23:00	237.29	-8.96	15.51	4.84	-9.00	1952260	13.02					168.1	39.7	0.02	-0.607	88.2	17.8	-0.28	7.966
31 23:15	237.29	-8.96	15.51	1.08	-9.00	1952330	13.02					172.9	40.1	0.04	-1.251	85.9	20.9	-0.27	7.757
34 23:30	237.29	-8.96	15.51	357.33	-9.00	1952400	13.03					177.8	40.4	0.07	-1.900	83.6	23.9	-0.27	7.505
38 23:45	237.30	-8.97	15.52	353.57	-9.01	1952469	13.03					182.7	40.4	0.09	-2.550	81.3	26.9	-0.26	7.212
41																			

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 1952539.  
ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/05/30 S/C TO SUN IN AU: 1.02628

-----GEOCENTRIC-----								-----NEW NORCIA-----				-----CEBREROS-----				-----MALARGUE-----				
KOU	UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.
EL	EL	EL	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
HH:MM	MM	DEG	DEG	DEG	DEG	DEG	MM	S	DEG	DEG	MM/S	MM	DEG	DEG	MM/S	MM	DEG	DEG	MM/S	MM
DEG	DEG	DEG	DEG	DEG	DEG	DEG	MM	MM	DEG	DEG	MM/S	MM	DEG	DEG	MM/S	MM	DEG	DEG	MM/S	MM
00:00	237.30	-8.97	15.52	349.82	-9.01	1952539	13.03					187.5	40.1	0.11	-3.198	78.8	29.9	-0.24	6.878	
45 00:15	237.31	-8.97	15.52	346.06	-9.01	1952609	13.03					192.3	39.6	0.14	-3.842	76.2	32.9	-0.23	6.505	
49 00:30	237.31	-8.97	15.52	342.30	-9.01	1952678	13.03					197.0	38.9	0.16	-4.478	73.4	35.9	-0.22	6.095	
52 00:45	237.31	-8.98	15.53	338.55	-9.02	1952748	13.03					201.6	37.9	0.18	-5.105	70.5	38.8	-0.20	5.649	
56 01:00	237.32	-8.98	15.53	334.79	-9.02	1952818	13.03					206.1	36.8	0.20	-5.719	67.4	41.6	-0.18	5.169	
59 01:15	237.32	-8.98	15.53	331.03	-9.02	1952888	13.03					210.4	35.4	0.22	-6.318	64.0	44.4	-0.16	4.657	
62 01:30	237.33	-8.98	15.54	327.28	-9.02	1952958	13.03					214.5	33.9	0.24	-6.899	60.3	47.1	-0.15	4.116	
65																				

01:45	237.33	-8.99	15.54	323.52	-9.03	1953027	13.03		218.4	32.2	0.26	-7.460	56.3	49.7	-0.13	3.547		
68	02:00	237.34	-8.99	15.54	319.77	-9.03	1953097	13.03		222.2	30.3	0.28	-7.998	51.9	52.2	-0.10	2.954	
71	02:15	237.34	-8.99	15.54	316.01	-9.03	1953167	13.03		225.8	28.3	0.30	-8.511	47.1	54.5	-0.08	2.338	
73	02:30	237.34	-9.00	15.55	312.25	-9.03	1953237	13.03		229.2	26.2	0.32	-8.997	41.7	56.7	-0.06	1.703	
75	02:45	237.35	-9.00	15.55	308.50	-9.04	1953307	13.03		232.5	24.0	0.33	-9.453	35.7	58.6	-0.04	1.051	
76	03:00	237.35	-9.00	15.55	304.74	-9.04	1953377	13.03		235.6	21.7	0.35	-9.878	29.2	60.2	-0.01	0.385	
75	03:15	237.36	-9.00	15.55	300.99	-9.04	1953447	13.03		238.7	19.3	0.36	-10.270	22.0	61.6	0.01	-0.292	
74	03:30	237.36	-9.01	15.56	297.23	-9.04	1953517	13.03		241.6	16.8	0.38	-10.628	14.3	62.5	0.03	-0.977	
73	03:45	237.36	-9.01	15.56	293.47	-9.05	1953588	13.03		244.4	14.2	0.39	-10.948	6.3	63.1	0.06	-1.668	
70	04:00	237.37	-9.01	15.56	289.72	-9.05	1953658	13.03		247.1	11.6	0.40	-11.232	358.1	63.2	0.08	-2.361	
67	04:15	237.37	-9.01	15.57	285.96	-9.05	1953728	13.03		249.7	9.0	0.41	-11.476	349.9	62.9	0.11	-3.053	
64	04:30	237.38	-9.02	15.57	282.21	-9.05	1953798	13.03		252.3	6.3	0.41	-11.680	342.0	62.1	0.13	-3.742	
61	04:37	237.38	-9.02	15.57	280.45	-9.06	1953831	13.03		253.5+	5.0	0.42	-11.762	338.4	61.6	0.14	-4.061	
60	04:42	237.38	-9.02	15.57	279.20	-9.06	1953854	13.03		254.3L	4.1	0.42	-11.814	336.0	61.2	0.15	-4.288	
59	04:45	237.38	-9.02	15.57	278.45	-9.06	1953868	13.03						334.5	61.0	0.16	-4.424	
58	05:00	237.39	-9.02	15.57	274.69	-9.06	1953939	13.04						327.7	59.5	0.18	-5.096	
54	05:15	237.39	-9.02	15.58	270.94	-9.06	1954009	13.04						321.4	57.7	0.20	-5.756	
51	05:30	237.39	-9.03	15.58	267.18	-9.07	1954079	13.04						315.7	55.7	0.23	-6.400	
47	05:45	237.40	-9.03	15.58	263.42	-9.07	1954150	13.04						310.5	53.5	0.25	-7.026	
44	06:00	237.40	-9.03	15.58	259.67	-9.07	1954220	13.04						305.9	51.1	0.27	-7.631	
40	06:15	237.41	-9.03	15.59	255.91	-9.07	1954290	13.04						301.7	48.5	0.29	-8.213	
37	06:30	237.41	-9.04	15.59	252.16	-9.08	1954361	13.04						297.8	45.9	0.31	-8.769	
33	06:45	237.41	-9.04	15.59	248.40	-9.08	1954431	13.04						294.3	43.2	0.33	-9.296	
30	07:00	237.42	-9.04	15.60	244.64	-9.08	1954502	13.04						291.1	40.3	0.35	-9.793	
26	07:15	237.42	-9.04	15.60	240.89	-9.08	1954572	13.04						288.0	37.5	0.36	-10.257	
22	07:30	237.43	-9.05	15.60	237.13	-9.09	1954643	13.04						285.2	34.5	0.38	-10.687	
19	07:45	237.43	-9.05	15.60	233.38	-9.09	1954714	13.04						282.5	31.6	0.39	-11.079	
15	08:00	237.44	-9.05	15.61	229.62	-9.09	1954784	13.04						280.0	28.6	0.40	-11.434	
11	08:15	237.44	-9.05	15.61	225.86	-9.09	1954855	13.04						277.5	25.6	0.42	-11.748	
8	08:25	237.44	-9.06	15.61	223.36	-9.09	1954902	13.04						276.0	23.6	0.42		
-11.935	08:30	237.44	-9.06	15.61	222.11	-9.10	1954926	13.04						275.2	22.5	0.43	-12.022	
4	08:39	237.45	-9.06	15.61	219.85	-9.10	1954968	13.04						273.8	20.7	0.43		
-12.166	08:45	237.45	-9.06	15.62	218.35	-9.10	1954996	13.04						272.9	19.5	0.43	-12.253	
	09:00	237.45	-9.06	15.62	214.60	-9.10	1955067	13.04						270.7	16.5	0.44	-12.441	
	09:12	237.45	-9.06	15.62	211.59	-9.10	1955124	13.04		100.6A	-0.1	-0.31	8.846	268.9	14.0	0.44	-12.560	
	09:15	237.46	-9.06	15.62	210.84	-9.10	1955138	13.04		100.2	0.6	-0.31	8.859	268.5	13.4	0.45	-12.585	
	09:30	237.46	-9.07	15.62	207.08	-9.11	1955209	13.04		98.3	3.7	-0.31	8.895	266.3	10.4	0.45	-12.685	
	09:36	237.46	-9.07	15.62	205.58	-9.11	1955237	13.04		97.5+	5.0	-0.31	8.896	265.4	9.1	0.45	-12.712	
	09:45	237.46	-9.07	15.63	203.33	-9.11	1955279	13.04		96.4	6.9	-0.31	8.883	264.2	7.3	0.45	-12.739	
	09:57	237.47	-9.07	15.63	200.32	-9.11	1955336	13.04		94.9	9.5	-0.31	8.839	262.4+	4.9	0.45	-12.750	
	10:00	237.47	-9.07	15.63	199.57	-9.11	1955350	13.04		94.5	10.1	-0.31	8.824	262.0	4.3	0.45	-12.748	
	10:05	237.47	-9.07	15.63	198.32	-9.11	1955374	13.04		93.9	11.2	-0.31	8.793	261.3L	3.3	0.45	-12.741	
	10:15	237.47	-9.07	15.63	195.81	-9.11	1955421	13.05		92.6	13.4	-0.31	8.717					
	10:30	237.48	-9.08	15.63	192.06	-9.12	1955492	13.05		90.7	16.6	-0.30	8.563					
	10:45	237.48	-9.08	15.64	188.30	-9.12	1955563	13.05		88.7	19.8	-0.30	8.362					
	11:00	237.48	-9.08	15.64	184.55	-9.12	1955634	13.05		86.8	23.0	-0.29	8.116					
	11:15	237.49	-9.08	15.64	180.79	-9.12	1955705	13.05		84.7	26.2	-0.28	7.826					
	11:30	237.49	-9.09	15.65	177.03	-9.13	1955776	13.05		82.6	29.4	-0.27	7.492					
	11:45	237.50	-9.09	15.65	173.28	-9.13	1955847	13.05		80.4	32.6	-0.25	7.116					
	12:00	237.50	-9.09	15.65	169.52	-9.13	1955918	13.05		78.0	35.8	-0.24	6.700					
	12:15	237.51	-9.09	15.65	165.77	-9.13	1955990	13.05		75.5	38.9	-0.22	6.245					
	12:30	237.51	-9.10	15.66	162.01	-9.14	1956061	13.05		72.8	42.0	-0.20	5.754					
	12:45	237.51	-9.10	15.66	158.25	-9.14	1956132	13.05		69.9	45.1	-0.19	5.228					
	13:00	237.52	-9.10	15.66	154.50	-9.14	1956203	13.05		66.7	48.1	-0.17	4.671					

13:15	237.52	-9.11	15.67	150.74	-9.14	1956275	13.05	63.2	51.0	-0.14	4.083								
13:30	237.53	-9.11	15.67	146.99	-9.15	1956346	13.05	59.2	53.8	-0.12	3.468								
13:45	237.53	-9.11	15.67	143.23	-9.15	1956417	13.05	54.7	56.6	-0.10	2.828								
14:00	237.53	-9.11	15.67	139.47	-9.15	1956489	13.05	49.7	59.1	-0.08	2.166								
14:15	237.54	-9.12	15.68	135.72	-9.15	1956560	13.05	43.8	61.5	-0.05	1.485								
14:30	237.54	-9.12	15.68	131.96	-9.16	1956632	13.05	37.2	63.6	-0.03	0.788								
14:45	237.55	-9.12	15.68	128.20	-9.16	1956703	13.05	29.6	65.3	-0.00	0.078								
15:00	237.55	-9.12	15.69	124.45	-9.16	1956775	13.05	21.1	66.7	0.02	-0.642								
15:15	237.56	-9.13	15.69	120.69	-9.16	1956846	13.05	11.8	67.6	0.05	-1.368								
15:30	237.56	-9.13	15.69	116.94	-9.17	1956918	13.06	2.0	68.0	0.07	-2.099								
15:45	237.56	-9.13	15.69	113.18	-9.17	1956989	13.06	352.1	67.9	0.10	-2.830								
16:00	237.57	-9.13	15.70	109.42	-9.17	1957061	13.06	342.5	67.2	0.13	-3.559								
16:15	237.57	-9.14	15.70	105.67	-9.17	1957133	13.06	333.6	66.0	0.15	-4.282								
16:30	237.58	-9.14	15.70	101.91	-9.18	1957204	13.06	325.7	64.3	0.18	-4.996								
16:45	237.58	-9.14	15.70	98.16	-9.18	1957276	13.06	318.7	62.3	0.20	-5.699								
17:00	237.58	-9.14	15.71	94.40	-9.18	1957348	13.06	312.5	60.1	0.23	-6.386								
17:15	237.59	-9.15	15.71	90.64	-9.19	1957420	13.06	307.2	57.6	0.25	-7.056								
17:30	237.59	-9.15	15.71	86.89	-9.19	1957492	13.06	302.4	55.0	0.27	-7.704								
17:45	237.60	-9.15	15.72	83.13	-9.19	1957563	13.06	298.3	52.2	0.29	-8.329								
18:00	237.60	-9.15	15.72	79.37	-9.19	1957635	13.06	294.6	49.3	0.32	-8.928								
18:15	237.60	-9.16	15.72	75.62	-9.20	1957707	13.06	291.3	46.3	0.34	-9.498								
18:22	237.61	-9.16	15.72	73.87	-9.20	1957741	13.06	289.8	44.9	0.35	-9.753	104.6A	2.7	-0.26	7.402				
18:30	237.61	-9.16	15.72	71.86	-9.20	1957779	13.06	288.2	43.3	0.36	-10.036	106.0	4.1	-0.26	7.326				
18:35	237.61	-9.16	15.73	70.61	-9.20	1957803	13.06	287.3	42.3	0.36	-10.209	106.8+	5.0	-0.26	7.272				
18:45	237.61	-9.16	15.73	68.11	-9.20	1957851	13.06	285.5	40.2	0.37	-10.541	108.5	6.8	-0.25	7.151				
19:00	237.62	-9.16	15.73	64.35	-9.20	1957923	13.06	282.9	37.1	0.39	-11.010	111.1	9.5	-0.25	6.937				
19:15	237.62	-9.17	15.73	60.59	-9.21	1957995	13.06	280.5	33.9	0.41	-11.442	113.7	12.2	-0.24	6.682				
19:30	237.63	-9.17	15.74	56.84	-9.21	1958068	13.06	278.2	30.7	0.42	-11.833	116.4	14.8	-0.23	6.389				
19:45	237.63	-9.17	15.74	53.08	-9.21	1958140	13.06	276.0	27.5	0.43	-12.184	119.3	17.3	-0.21	6.058				
20:00	237.63	-9.17	15.74	49.33	-9.21	1958212	13.06	274.0	24.3	0.44	-12.491	122.2	19.8	-0.20	5.692				
20:15	237.64	-9.18	15.74	45.57	-9.22	1958284	13.06	271.9	21.1	0.45	-12.755	125.3	22.1	-0.19	5.291				
20:30	237.64	-9.18	15.75	41.81	-9.22	1958356	13.06	270.0	17.9	0.46	-12.973	128.4	24.4	-0.17	4.858				
20:45	237.65	-9.18	15.75	38.06	-9.22	1958429	13.07	268.1	14.7	0.47	-13.145	131.8	26.6	-0.16	4.394				
21:00	237.65	-9.19	15.75	34.30	-9.22	1958501	13.07	266.2	11.5	0.47	-13.271	135.2	28.7	-0.14	3.901				
21:01	237.65	-9.19	15.75	34.05	-9.22	1958506	13.07	266.0	11.3	0.47	-13.277	135.5	28.8	-0.14	3.867				
A 2 21:13	237.65	-9.19	15.76	31.05	-9.23	1958564	13.07	264.5	8.7	0.47	-13.341	138.4	30.4	-0.12	3.452				
+ 5 21:15	237.65	-9.19	15.76	30.55	-9.23	1958573	13.07	264.3	8.3	0.47	-13.349	138.9	30.6	-0.12	3.381				
6 21:28	237.66	-9.19	15.76	27.29	-9.23	1958636	13.07	262.6L	5.5	0.47	-13.378	142.2	32.2	-0.10	2.911				
9 21:30	237.66	-9.19	15.76	26.79	-9.23	1958646	13.07					142.7	32.4	-0.10	2.837				
9 21:31	237.66	-9.19	15.76	26.54	-9.23	1958651	13.07					142.9	32.6	-0.10	2.800	100.9A	0.4	-0.29	8.200
9 21:45	237.66	-9.19	15.76	23.03	-9.23	1958718	13.07					146.7	34.1	-0.08	2.271	98.9	3.2	-0.29	8.248
13 21:54	237.67	-9.19	15.76	20.78	-9.23	1958762	13.07					149.1	35.0	-0.07	1.922	97.6+	5.1	-0.29	8.258
15 22:00	237.67	-9.20	15.76	19.28	-9.23	1958791	13.07					150.8	35.6	-0.06	1.685	96.8	6.3	-0.29	8.255
17 22:15	237.67	-9.20	15.77	15.52	-9.24	1958863	13.07					155.1	36.9	-0.04	1.082	94.6	9.3	-0.29	8.217
20 22:30	237.68	-9.20	15.77	11.76	-9.24	1958936	13.07					159.6	38.0	-0.02	0.464	92.4	12.3	-0.29	8.134
24 22:45	237.68	-9.20	15.77	8.01	-9.24	1959008	13.07					164.2	38.9	0.01	-0.165	90.3	15.4	-0.28	8.006
28 23:00	237.68	-9.21	15.78	4.25	-9.24	1959081	13.07					168.9	39.5	0.03	-0.804	88.1	18.4	-0.28	7.834
31 23:15	237.69	-9.21	15.78	0.50	-9.25	1959154	13.07					173.7	40.0	0.05	-1.449	85.8	21.5	-0.27	7.618
35 23:30	237.69	-9.21	15.78	356.74	-9.25	1959226	13.07					178.6	40.1	0.07	-2.097	83.5	24.5	-0.26	7.360
38 23:45	237.70	-9.21	15.78	352.98	-9.25	1959299	13.07					183.4	40.1	0.10	-2.747	81.1	27.6	-0.25	7.060
42																			

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 1959372.  
 ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/05/31 S/C TO SUN IN AU: 1.02648  
 -----  
 -----GEOCENTRIC----- | -----NEW NORCIA----- | -----CEBREROS ----- | -----MALARGUE -----

KOU --- ---				DEC	ESCS	LONG	LAT	HEIGHT	RTLTL	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	
EL	EL	EL	RA	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	
HH:MM	MM	MM	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	
DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	
00:00	237.70	-9.22	15.79	349.23	-9.26	1959372	13.07			188.3	39.8	0.12	-3.394	78.6	30.6	-0.24	6.720					
46	00:15	237.70	-9.22	15.79	345.47	-9.26	1959444	13.07			193.0	39.3	0.14	-4.037	76.0	33.5	-0.22	6.342				
49	00:30	237.71	-9.22	15.79	341.72	-9.26	1959517	13.07			197.7	38.5	0.17	-4.672	73.2	36.5	-0.21	5.925				
53	00:45	237.71	-9.22	15.80	337.96	-9.26	1959590	13.07			202.2	37.5	0.19	-5.297	70.3	39.4	-0.19	5.474				
56	01:00	237.72	-9.23	15.80	334.20	-9.27	1959663	13.07			206.6	36.3	0.21	-5.909	67.1	42.2	-0.18	4.989				
59	01:15	237.72	-9.23	15.80	330.45	-9.27	1959736	13.07			210.9	35.0	0.23	-6.505	63.7	45.0	-0.16	4.473				
63	01:30	237.72	-9.23	15.80	326.69	-9.27	1959809	13.07			215.0	33.4	0.25	-7.083	60.0	47.7	-0.14	3.927				
66	01:45	237.73	-9.23	15.81	322.93	-9.27	1959882	13.07			218.9	31.7	0.27	-7.640	55.9	50.3	-0.12	3.355				
69	02:00	237.73	-9.24	15.81	319.18	-9.28	1959955	13.08			222.6	29.8	0.29	-8.174	51.5	52.8	-0.10	2.758				
71	02:15	237.74	-9.24	15.81	315.42	-9.28	1960028	13.08			226.2	27.8	0.31	-8.683	46.5	55.1	-0.08	2.139				
73	02:30	237.74	-9.24	15.82	311.67	-9.28	1960101	13.08			229.6	25.7	0.32	-9.164	41.0	57.2	-0.05	1.501				
75	02:45	237.75	-9.25	15.82	307.91	-9.28	1960174	13.08			232.8	23.4	0.34	-9.616	35.0	59.1	-0.03	0.847				
75	03:00	237.75	-9.25	15.82	304.15	-9.29	1960247	13.08			236.0	21.1	0.36	-10.036	28.3	60.7	-0.01	0.179				
75	03:15	237.75	-9.25	15.82	300.40	-9.29	1960321	13.08			239.0	18.7	0.37	-10.422	21.0	62.0	0.02	-0.499				
74	03:30	237.76	-9.25	15.83	296.64	-9.29	1960394	13.08			241.8	16.2	0.38	-10.774	13.2	62.9	0.04	-1.185				
72	03:45	237.76	-9.26	15.83	292.89	-9.29	1960467	13.08			244.6	13.7	0.39	-11.089	5.0	63.4	0.07	-1.876				
70	04:00	237.77	-9.26	15.83	289.13	-9.30	1960541	13.08			247.3	11.0	0.40	-11.366	356.7	63.4	0.09	-2.569				
67	04:15	237.77	-9.26	15.84	285.37	-9.30	1960614	13.08			249.9	8.4	0.41	-11.604	348.5	63.0	0.12	-3.261				
64	04:30	237.77	-9.26	15.84	281.62	-9.30	1960687	13.08			252.5	5.7	0.42	-11.802	340.6	62.2	0.14	-3.948				
61	04:34	237.78	-9.26	15.84	280.62	-9.30	1960707	13.08			253.2+	4.9	0.42	-11.848	338.6	61.9	0.15	-4.130				
60	04:39	237.78	-9.26	15.84	279.36	-9.30	1960731	13.08			254.0L	4.0	0.42	-11.901	336.1	61.5	0.15	-4.357				
59	04:45	237.78	-9.27	15.84	277.86	-9.30	1960761	13.08							333.2	61.0	0.16	-4.629				
57	05:00	237.78	-9.27	15.84	274.10	-9.31	1960834	13.08							326.4	59.5	0.19	-5.299				
54	05:15	237.79	-9.27	15.85	270.35	-9.31	1960908	13.08							320.2	57.6	0.21	-5.956				
50	05:30	237.79	-9.27	15.85	266.59	-9.31	1960981	13.08							314.6	55.6	0.23	-6.597				
47	05:45	237.79	-9.28	15.85	262.84	-9.32	1961055	13.08							309.5	53.3	0.26	-7.220				
43	06:00	237.80	-9.28	15.86	259.08	-9.32	1961128	13.08							304.9	50.9	0.28	-7.822				
40	06:15	237.80	-9.28	15.86	255.32	-9.32	1961202	13.08							300.8	48.3	0.30	-8.400				
36	06:30	237.81	-9.28	15.86	251.57	-9.32	1961276	13.08							297.0	45.6	0.32	-8.951				
33	06:45	237.81	-9.29	15.86	247.81	-9.33	1961350	13.08							293.5	42.9	0.34	-9.474				
29	07:00	237.82	-9.29	15.87	244.06	-9.33	1961423	13.09							290.3	40.1	0.35	-9.965				
25	07:15	237.82	-9.29	15.87	240.30	-9.33	1961497	13.09							287.3	37.2	0.37	-10.424				
22	07:30	237.82	-9.29	15.87	236.54	-9.33	1961571	13.09							284.5	34.2	0.38	-10.847				
18	07:45	237.83	-9.30	15.88	232.79	-9.34	1961645	13.09							281.9	31.3	0.40	-11.234				
14	08:00	237.83	-9.30	15.88	229.03	-9.34	1961719	13.09							279.4	28.3	0.41	-11.582				
11	08:15	237.84	-9.30	15.88	225.28	-9.34	1961793	13.09							276.9	25.2	0.42	-11.891				
7	08:23	237.84	-9.30	15.88	223.27	-9.34	1961832	13.09							275.7	23.6	0.43	-12.158				
-12.038	08:30	237.84	-9.31	15.88	221.52	-9.34	1961867	13.09							274.6	22.2	0.43	-12.158				
3	08:37	237.84	-9.31	15.89	219.77	-9.35	1961901	13.09							273.5	20.8	0.43	-12.382				
-12.268	08:45	237.84	-9.31	15.89	217.76	-9.35	1961941	13.09							272.3	19.2	0.44	-12.382				
09:00	237.85	-9.31	15.89	214.01	-9.35	1962015	13.09							270.1	16.1	0.44	-12.564					
09:09	237.85	-9.31	15.89	211.75	-9.35	1962059	13.09		100.9A	-0.1	-0.31	8.731		268.8	14.3	0.45	-12.651					
09:15	237.85	-9.31	15.89	210.25	-9.35	1962089	13.09		100.1	1.2	-0.31	8.755		267.9	13.1	0.45	-12.701					
09:30	237.86	-9.32	15.90	206.49	-9.35	1962163	13.09		98.2	4.4	-0.31	8.784		265.8	10.0	0.45	-12.794					
09:33	237.86	-9.32	15.90	205.74	-9.36	1962178	13.09		97.8+	5.0	-0.31	8.784		265.3	9.4	0.45	-12.807					
09:45	237.86	-9.32	15.90	202.74	-9.36	1962237	13.09		96.3	7.6	-0.31	8.764		263.6	7.0	0.45	-12.841					
09:55	237.86	-9.32	15.90	200.23	-9.36	1962287	13.09		95.0	9.7	-0.31	8.725		262.2+	5.0	0.45	-12.848					
10:00	237.86	-9.32	15.90	198.98	-9.36	1962312	13.09		94.4	10.8	-0.31	8.697		261.5	4.0	0.45	-12.843					
10:04	237.87	-9.32	15.90	197.98	-9.36	1962331	13.09		93.9	11.6	-0.31	8.671		260.9L	3.2	0.45	-12.836					
10:15	237.87	-9.32	15.90	195.23	-9.36	1962386	13.09		92.5	14.0	-0.30	8.583										

10:30	237.87	-9.33	15.91	191.47	-9.37	1962460	13.09	90.6	17.2	-0.30	8.421		
10:45	237.88	-9.33	15.91	187.71	-9.37	1962534	13.09	88.7	20.4	-0.29	8.214		
11:00	237.88	-9.33	15.91	183.96	-9.37	1962609	13.09	86.7	23.6	-0.28	7.961		
11:15	237.89	-9.33	15.92	180.20	-9.37	1962683	13.09	84.6	26.9	-0.27	7.663		
11:30	237.89	-9.34	15.92	176.45	-9.38	1962758	13.09	82.5	30.1	-0.26	7.323		
11:45	237.89	-9.34	15.92	172.69	-9.38	1962832	13.09	80.3	33.3	-0.25	6.940		
12:00	237.90	-9.34	15.92	168.93	-9.38	1962907	13.10	77.9	36.4	-0.23	6.518		
12:15	237.90	-9.34	15.93	165.18	-9.38	1962981	13.10	75.4	39.6	-0.21	6.058		
12:30	237.91	-9.35	15.93	161.42	-9.39	1963056	13.10	72.7	42.7	-0.20	5.561		
12:45	237.91	-9.35	15.93	157.66	-9.39	1963131	13.10	69.7	45.7	-0.18	5.030		
13:00	237.91	-9.35	15.94	153.91	-9.39	1963205	13.10	66.5	48.7	-0.16	4.468		
13:15	237.92	-9.36	15.94	150.15	-9.39	1963280	13.10	62.9	51.6	-0.14	3.876		
13:30	237.92	-9.36	15.94	146.40	-9.40	1963355	13.10	58.9	54.4	-0.12	3.257		
13:45	237.93	-9.36	15.94	142.64	-9.40	1963430	13.10	54.3	57.1	-0.09	2.613		
14:00	237.93	-9.36	15.95	138.88	-9.40	1963504	13.10	49.1	59.7	-0.07	1.949		
14:15	237.93	-9.37	15.95	135.13	-9.40	1963579	13.10	43.2	62.0	-0.04	1.266		
14:30	237.94	-9.37	15.95	131.37	-9.41	1963654	13.10	36.4	64.1	-0.02	0.567		
14:45	237.94	-9.37	15.96	127.62	-9.41	1963729	13.10	28.6	65.8	0.01	-0.145		
15:00	237.95	-9.37	15.96	123.86	-9.41	1963804	13.10	19.9	67.1	0.03	-0.866		
15:15	237.95	-9.38	15.96	120.10	-9.42	1963879	13.10	10.4	68.0	0.06	-1.593		
15:30	237.96	-9.38	15.96	116.35	-9.42	1963954	13.10	0.4	68.3	0.08	-2.324		
15:45	237.96	-9.38	15.97	112.59	-9.42	1964030	13.10	350.4	68.0	0.11	-3.055		
16:00	237.96	-9.38	15.97	108.83	-9.42	1964105	13.10	340.9	67.2	0.13	-3.782		
16:15	237.97	-9.39	15.97	105.08	-9.43	1964180	13.10	332.1	66.0	0.16	-4.504		
16:30	237.97	-9.39	15.98	101.32	-9.43	1964255	13.10	324.2	64.3	0.18	-5.216		
16:45	237.98	-9.39	15.98	97.57	-9.43	1964330	13.10	317.3	62.2	0.21	-5.916		
17:00	237.98	-9.40	15.98	93.81	-9.43	1964406	13.11	311.3	59.9	0.23	-6.601		
17:15	237.98	-9.40	15.99	90.05	-9.44	1964481	13.11	306.0	57.4	0.26	-7.267		
17:30	237.99	-9.40	15.99	86.30	-9.44	1964557	13.11	301.4	54.7	0.28	-7.912		
17:45	237.99	-9.40	15.99	82.54	-9.44	1964632	13.11	297.4	51.9	0.30	-8.533		
18:00	238.00	-9.41	15.99	78.79	-9.44	1964707	13.11	293.7	49.0	0.32	-9.127		
18:15	238.00	-9.41	16.00	75.03	-9.45	1964783	13.11	290.5	46.0	0.34	-9.692		
18:20	238.00	-9.41	16.00	73.78	-9.45	1964808	13.11	289.5	45.0	0.35	-9.873	104.9A	2.5 -0.26 7.279
18:30	238.00	-9.41	16.00	71.27	-9.45	1964859	13.11	287.5	43.0	0.36	-10.225	106.5 4.4 -0.25 7.181	
18:33	238.01	-9.41	16.00	70.52	-9.45	1964874	13.11	286.9	42.3	0.37	-10.327	107.0+ 4.9 -0.25 7.148	
18:45	238.01	-9.41	16.00	67.52	-9.45	1964934	13.11	284.8	39.9	0.38	-10.724	109.1 7.1 -0.25 7.000	
19:00	238.01	-9.42	16.01	63.76	-9.45	1965010	13.11	282.2	36.7	0.40	-11.187	111.7 9.8 -0.24 6.779	
19:15	238.02	-9.42	16.01	60.00	-9.46	1965086	13.11	279.9	33.6	0.41	-11.612	114.3 12.4 -0.23 6.519	
19:30	238.02	-9.42	16.01	56.25	-9.46	1965161	13.11	277.6	30.4	0.42	-11.998	117.1 15.0 -0.22 6.219	
19:45	238.03	-9.42	16.01	52.49	-9.46	1965237	13.11	275.5	27.2	0.44	-12.341	119.9 17.5 -0.21 5.883	
20:00	238.03	-9.43	16.02	48.74	-9.47	1965313	13.11	273.4	24.0	0.45	-12.642	122.9 19.9 -0.20 5.511	
20:15	238.03	-9.43	16.02	44.98	-9.47	1965389	13.11	271.4	20.7	0.46	-12.899	125.9 22.3 -0.18 5.106	
20:30	238.04	-9.43	16.02	41.22	-9.47	1965465	13.11	269.5	17.5	0.46	-13.110	129.1 24.6 -0.17 4.667	
20:45	238.04	-9.44	16.03	37.47	-9.47	1965541	13.11	267.5	14.3	0.47	-13.275	132.5 26.7 -0.15 4.199	
20:59	238.05	-9.44	16.03	33.96	-9.48	1965612	13.11	265.8	11.3	0.47	-13.387	135.7 28.7 -0.13 3.735	
A 21													
21:00	238.05	-9.44	16.03	33.71	-9.48	1965617	13.11	265.6	11.1	0.47	-13.393	136.0 28.8 -0.13 3.701	
21:11	238.05	-9.44	16.03	30.96	-9.48	1965672	13.11	264.3	8.7	0.48	-13.449	138.6 30.2 -0.12 3.320	
+ 5													
21:15	238.05	-9.44	16.03	29.96	-9.48	1965693	13.11	263.8	7.9	0.48	-13.464	139.6 30.7 -0.11 3.178	
6													
21:27	238.05	-9.44	16.03	26.95	-9.48	1965754	13.11	262.2L	5.3	0.48	-13.486	142.7 32.1 -0.10 2.742	
9													
21:28	238.05	-9.44	16.03	26.70	-9.48	1965759	13.11				142.9	32.3 -0.10 2.705	101.2A 0.5 -0.29 8.075
9													
21:30	238.05	-9.44	16.03	26.20	-9.48	1965769	13.11				143.4	32.5 -0.09 2.630	100.9 0.9 -0.29 8.084
10													
21:45	238.06	-9.45	16.04	22.44	-9.48	1965845	13.11				147.4	34.1 -0.07 2.061	98.8 3.9 -0.29 8.129
13													
21:51	238.06	-9.45	16.04	20.94	-9.49	1965875	13.11				149.1	34.7 -0.06 1.828	97.9+ 5.1 -0.29 8.135
15													
22:00	238.06	-9.45	16.04	18.69	-9.49	1965921	13.12				151.6	35.6 -0.05 1.473	96.6 6.9 -0.29 8.129



09:06	238.24	-9.57	16.17	211.91	-9.61	1969345	13.14	101.2A	-0.1	-0.30	8.595	268.7	14.6	0.45	-12.763
09:15	238.25	-9.57	16.17	209.66	-9.61	1969392	13.14	100.0	1.8	-0.31	8.630	267.4	12.7	0.45	-12.836
09:30	238.25	-9.57	16.18	205.90	-9.61	1969470	13.14	98.1+	5.0	-0.31	8.650	265.2	9.7	0.46	-12.922
09:45	238.26	-9.57	16.18	202.15	-9.61	1969549	13.14	96.2	8.2	-0.31	8.623	263.1	6.7	0.46	-12.962
09:53	238.26	-9.58	16.18	200.14	-9.61	1969590	13.14	95.2	9.9	-0.30	8.589	261.9+	5.1	0.46	-12.965
10:00	238.26	-9.58	16.18	198.39	-9.62	1969627	13.14	94.3	11.4	-0.30	8.549	260.9	3.6	0.46	-12.958
10:03	238.26	-9.58	16.18	197.64	-9.62	1969642	13.14	94.0	12.0	-0.30	8.528	260.5L	3.0	0.46	-12.951
10:15	238.26	-9.58	16.18	194.64	-9.62	1969705	13.14	92.4	14.6	-0.30	8.427				
10:30	238.27	-9.58	16.19	190.88	-9.62	1969783	13.14	90.5	17.8	-0.29	8.258				
10:45	238.27	-9.59	16.19	187.12	-9.62	1969862	13.14	88.6	21.1	-0.28	8.043				
11:00	238.28	-9.59	16.19	183.37	-9.63	1969940	13.14	86.6	24.3	-0.28	7.783				
11:15	238.28	-9.59	16.20	179.61	-9.63	1970019	13.14	84.5	27.5	-0.26	7.478				
11:30	238.28	-9.59	16.20	175.85	-9.63	1970097	13.14	82.4	30.7	-0.25	7.131				
11:45	238.29	-9.60	16.20	172.10	-9.63	1970176	13.14	80.2	33.9	-0.24	6.743				
12:00	238.29	-9.60	16.21	168.34	-9.64	1970254	13.14	77.8	37.1	-0.22	6.314				
12:15	238.30	-9.60	16.21	164.59	-9.64	1970333	13.14	75.2	40.2	-0.21	5.848				
12:30	238.30	-9.60	16.21	160.83	-9.64	1970412	13.15	72.5	43.3	-0.19	5.346				
12:45	238.30	-9.61	16.21	157.07	-9.65	1970490	13.15	69.5	46.3	-0.17	4.811				
13:00	238.31	-9.61	16.22	153.32	-9.65	1970569	13.15	66.3	49.3	-0.15	4.243				
13:15	238.31	-9.61	16.22	149.56	-9.65	1970648	13.15	62.6	52.2	-0.13	3.647				
13:30	238.32	-9.62	16.22	145.81	-9.65	1970727	13.15	58.5	55.1	-0.11	3.024				
13:45	238.32	-9.62	16.23	142.05	-9.66	1970806	13.15	53.9	57.7	-0.08	2.378				
14:00	238.33	-9.62	16.23	138.29	-9.66	1970885	13.15	48.6	60.3	-0.06	1.710				
14:15	238.33	-9.62	16.23	134.54	-9.66	1970964	13.15	42.5	62.6	-0.04	1.025				
14:30	238.33	-9.63	16.24	130.78	-9.66	1971043	13.15	35.5	64.6	-0.01	0.324				
14:45	238.34	-9.63	16.24	127.02	-9.67	1971122	13.15	27.5	66.3	0.01	-0.389				
15:00	238.34	-9.63	16.24	123.27	-9.67	1971201	13.15	18.6	67.6	0.04	-1.111				
15:15	238.35	-9.63	16.24	119.51	-9.67	1971280	13.15	8.9	68.3	0.07	-1.838				
15:30	238.35	-9.64	16.25	115.76	-9.68	1971360	13.15	358.8	68.6	0.09	-2.569				
15:45	238.35	-9.64	16.25	112.00	-9.68	1971439	13.15	348.8	68.2	0.12	-3.299				
16:00	238.36	-9.64	16.25	108.24	-9.68	1971518	13.15	339.2	67.3	0.14	-4.026				
16:15	238.36	-9.65	16.26	104.49	-9.68	1971598	13.15	330.5	66.0	0.17	-4.746				
16:30	238.37	-9.65	16.26	100.73	-9.69	1971677	13.15	322.8	64.2	0.19	-5.456				
16:45	238.37	-9.65	16.26	96.98	-9.69	1971756	13.15	316.0	62.1	0.22	-6.153				
17:00	238.37	-9.65	16.27	93.22	-9.69	1971836	13.15	310.1	59.7	0.24	-6.835				
17:15	238.38	-9.66	16.27	89.46	-9.69	1971916	13.16	304.9	57.2	0.27	-7.497				
17:30	238.38	-9.66	16.27	85.71	-9.70	1971995	13.16	300.4	54.4	0.29	-8.138				
17:45	238.39	-9.66	16.27	81.95	-9.70	1972075	13.16	296.4	51.6	0.31	-8.755				
18:00	238.39	-9.66	16.28	78.19	-9.70	1972155	13.16	292.9	48.7	0.33	-9.344				
18:15	238.39	-9.67	16.28	74.44	-9.71	1972234	13.16	289.7	45.7	0.35	-9.904				
18:18	238.40	-9.67	16.28	73.69	-9.71	1972250	13.16	289.1	45.1	0.35	-10.013	105.1A	2.4	-0.25	7.136
18:30	238.40	-9.67	16.28	70.68	-9.71	1972314	13.16	286.8	42.6	0.37	-10.432	107.1	4.6	-0.25	7.016
18:32	238.40	-9.67	16.28	70.18	-9.71	1972325	13.16	286.4	42.2	0.37	-10.500	107.5+	5.0	-0.25	6.993
18:45	238.40	-9.67	16.29	66.93	-9.71	1972394	13.16	284.1	39.5	0.39	-10.926	109.7	7.4	-0.24	6.828
19:00	238.41	-9.68	16.29	63.17	-9.71	1972474	13.16	281.6	36.4	0.40	-11.383	112.3	10.0	-0.23	6.601
19:15	238.41	-9.68	16.29	59.41	-9.72	1972554	13.16	279.2	33.2	0.42	-11.802	114.9	12.6	-0.22	6.334
19:30	238.42	-9.68	16.30	55.66	-9.72	1972634	13.16	277.0	30.0	0.43	-12.181	117.7	15.2	-0.21	6.029
19:45	238.42	-9.68	16.30	51.90	-9.72	1972714	13.16	274.9	26.8	0.44	-12.518	120.5	17.7	-0.20	5.687
20:00	238.42	-9.69	16.30	48.15	-9.72	1972794	13.16	272.8	23.6	0.45	-12.811	123.5	20.1	-0.19	5.310
20:15	238.43	-9.69	16.30	44.39	-9.73	1972874	13.16	270.9	20.4	0.46	-13.061	126.6	22.5	-0.17	4.899
20:30	238.43	-9.69	16.31	40.63	-9.73	1972954	13.16	268.9	17.1	0.47	-13.265	129.8	24.7	-0.16	4.456
20:45	238.44	-9.69	16.31	36.88	-9.73	1973034	13.16	267.0	13.9	0.48	-13.423	133.2	26.9	-0.14	3.983
20:56	238.44	-9.70	16.31	34.12	-9.73	1973093	13.16	265.6	11.6	0.48	-13.508	135.7	28.3	-0.13	3.618

A 2

3	21:00	238.44	-9.70	16.31	33.12	-9.74	1973115	13.16	265.1	10.7	0.48	-13.533	136.7	28.9	-0.12	3.481				
	21:08	238.44	-9.70	16.31	31.12	-9.74	1973158	13.16	264.1	9.0	0.48	-13.573	138.6	29.9	-0.11	3.203				
5	21:15	238.44	-9.70	16.32	29.36	-9.74	1973195	13.16	263.2	7.5	0.48	-13.597	140.4	30.8	-0.10	2.954				
7	21:25	238.45	-9.70	16.32	26.86	-9.74	1973249	13.16	262.0	5.4	0.48	-13.612	142.9	32.0	-0.09	2.589	101.5A	0.5	-0.28	7.929
9	21:26	238.45	-9.70	16.32	26.61	-9.74	1973254	13.16	261.8L	5.2	0.48	-13.613	143.2	32.1	-0.09	2.552	101.4	0.7	-0.28	7.934
10	21:30	238.45	-9.70	16.32	25.61	-9.74	1973275	13.16					144.2	32.5	-0.09	2.403	100.8	1.5	-0.28	7.952
14	21:45	238.45	-9.71	16.32	21.85	-9.74	1973356	13.16					148.2	34.1	-0.06	1.831	98.6	4.5	-0.28	7.989
15	21:48	238.45	-9.71	16.32	21.10	-9.74	1973372	13.16					149.0	34.4	-0.06	1.714	98.2+	5.1	-0.28	7.991
18	22:00	238.46	-9.71	16.33	18.10	-9.75	1973436	13.17					152.4	35.5	-0.04	1.240	96.5	7.5	-0.28	7.982
21	22:15	238.46	-9.71	16.33	14.34	-9.75	1973517	13.17					156.7	36.8	-0.02	0.633	94.4	10.6	-0.28	7.929
25	22:30	238.46	-9.71	16.33	10.58	-9.75	1973597	13.17					161.2	37.8	-0.00	0.011	92.2	13.6	-0.28	7.832
29	22:45	238.47	-9.72	16.33	6.83	-9.75	1973678	13.17					165.8	38.6	0.02	-0.621	90.0	16.6	-0.27	7.690
32	23:00	238.47	-9.72	16.34	3.07	-9.76	1973759	13.17					170.5	39.2	0.04	-1.261	87.8	19.7	-0.27	7.504
36	23:15	238.48	-9.72	16.34	359.31	-9.76	1973839	13.17					175.3	39.5	0.07	-1.907	85.5	22.7	-0.26	7.274
39	23:30	238.48	-9.73	16.34	355.56	-9.76	1973920	13.17					180.1	39.6	0.09	-2.556	83.2	25.8	-0.25	7.003
43	23:45	238.48	-9.73	16.35	351.80	-9.77	1974001	13.17					184.9	39.5	0.11	-3.204	80.8	28.8	-0.24	6.690

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15  
 ESCS = ANGLE EARTH-S/C-SUN

FREQUENCY IN MHZ: 8468.500  
 DATE: 2013/06/02

ALTITUDE IN KM: 1974082.  
 S/C TO SUN IN AU: 1.02686

GEOCENTRIC									NEW NORCIA				CEBREROS				MALARGUE			
UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTL	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.		
HH:MM:SS	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	

46	00:00	238.49	-9.73	16.35	348.05	-9.77	1974082	13.17					189.7	39.1	0.14	-3.850	78.3	31.8	-0.22	6.338
50	00:15	238.49	-9.73	16.35	344.29	-9.77	1974163	13.17					194.4	38.5	0.16	-4.490	75.6	34.8	-0.21	5.947
53	00:30	238.50	-9.74	16.36	340.53	-9.77	1974244	13.17					199.0	37.7	0.18	-5.121	72.8	37.7	-0.20	5.520
57	00:45	238.50	-9.74	16.36	336.78	-9.78	1974325	13.17					203.4	36.7	0.20	-5.742	69.8	40.6	-0.18	5.058
60	01:00	238.51	-9.74	16.36	333.02	-9.78	1974406	13.17					207.8	35.4	0.22	-6.348	66.6	43.5	-0.16	4.564
63	01:15	238.51	-9.74	16.36	329.27	-9.78	1974487	13.17					211.9	34.0	0.25	-6.939	63.1	46.2	-0.14	4.038
66	01:30	238.51	-9.75	16.37	325.51	-9.79	1974568	13.17					215.9	32.4	0.27	-7.510	59.3	48.9	-0.12	3.484
69	01:45	238.52	-9.75	16.37	321.75	-9.79	1974649	13.17					219.8	30.7	0.29	-8.060	55.1	51.5	-0.10	2.904
71	02:00	238.52	-9.75	16.37	318.00	-9.79	1974730	13.17					223.4	28.8	0.30	-8.586	50.5	53.9	-0.08	2.301
73	02:15	238.53	-9.76	16.38	314.24	-9.79	1974812	13.17					226.9	26.7	0.32	-9.086	45.4	56.2	-0.06	1.676
75	02:30	238.53	-9.76	16.38	310.48	-9.80	1974893	13.18					230.3	24.6	0.34	-9.557	39.7	58.3	-0.04	1.034
75	02:45	238.53	-9.76	16.38	306.73	-9.80	1974974	13.18					233.5	22.3	0.35	-9.999	33.4	60.1	-0.01	0.376
74	03:00	238.54	-9.76	16.39	302.97	-9.80	1975056	13.18					236.6	20.0	0.37	-10.408	26.4	61.6	0.01	-0.295
73	03:15	238.54	-9.77	16.39	299.22	-9.80	1975137	13.18					239.5	17.5	0.38	-10.784	18.9	62.8	0.03	-0.976
71	03:30	238.55	-9.77	16.39	295.46	-9.81	1975219	13.18					242.4	15.0	0.39	-11.124	10.8	63.6	0.06	-1.663
68	03:45	238.55	-9.77	16.39	291.70	-9.81	1975300	13.18					245.1	12.5	0.40	-11.427	2.5	63.9	0.08	-2.355
66	04:00	238.55	-9.77	16.40	287.95	-9.81	1975382	13.18					247.8	9.8	0.41	-11.692	354.0	63.8	0.11	-3.047
62	04:15	238.56	-9.78	16.40	284.19	-9.82	1975464	13.18					250.4	7.2	0.42	-11.918	345.8	63.3	0.13	-3.737
60	04:27	238.56	-9.78	16.40	281.19	-9.82	1975529	13.18					252.4+	5.0	0.43	-12.069	339.4	62.6	0.15	-4.285
59	04:30	238.56	-9.78	16.40	280.44	-9.82	1975545	13.18					252.9	4.5	0.43	-12.103	337.9	62.4	0.16	-4.422
59	04:33	238.56	-9.78	16.40	279.68	-9.82	1975562	13.18					253.4L	3.9	0.43	-12.135	336.4	62.1	0.16	-4.558
56	04:45	238.57	-9.78	16.41	276.68	-9.82	1975627	13.18									330.6	61.0	0.18	-5.098
53	05:00	238.57	-9.79	16.41	272.92	-9.82	1975709	13.18									323.9	59.4	0.20	-5.764
49	05:15	238.58	-9.79	16.41	269.17	-9.83	1975791	13.18									317.8	57.5	0.23	-6.416
46	05:30	238.58	-9.79	16.42	265.41	-9.83	1975873	13.18									312.4	55.3	0.25	-7.052
42	05:45	238.58	-9.79	16.42	261.65	-9.83	1975955	13.18									307.5	53.0	0.27	-7.667
38	06:00	238.59	-9.80	16.42	257.90	-9.83	1976037	13.18									303.0	50.5	0.29	-8.261
35	06:15	238.59	-9.80	16.42	254.14	-9.84	1976119	13.18									299.0	47.8	0.31	-8.830
31	06:30	238.60	-9.80	16.43	250.39	-9.84	1976201	13.18									295.3	45.1	0.33	-9.373
28	06:45	238.60	-9.81	16.43	246.63	-9.84	1976283	13.18									292.0	42.3	0.35	-9.885
24	07:00	238.60	-9.81	16.43	242.87	-9.85	1976366	13.18									288.8	39.5	0.37	-10.367





18:45	238.80	-9.94	16.58	66.33	-9.98	1980288	13.21	283.4	39.2	0.39	-11.144	110.3	7.6	-0.23	6.637	
19:00	238.80	-9.94	16.58	62.58	-9.98	1980373	13.21	280.9	36.0	0.41	-11.595	112.9	10.2	-0.23	6.403	
19:15	238.80	-9.94	16.58	58.82	-9.98	1980457	13.21	278.6	32.8	0.43	-12.007	115.5	12.9	-0.22	6.130	
19:30	238.81	-9.95	16.59	55.07	-9.99	1980542	13.21	276.4	29.6	0.44	-12.379	118.3	15.4	-0.21	5.819	
19:45	238.81	-9.95	16.59	51.31	-9.99	1980627	13.21	274.3	26.4	0.45	-12.710	121.2	17.9	-0.19	5.472	
20:00	238.82	-9.95	16.59	47.55	-9.99	1980712	13.21	272.3	23.2	0.46	-12.996	124.2	20.3	-0.18	5.089	
20:15	238.82	-9.96	16.60	43.80	-9.99	1980797	13.21	270.3	20.0	0.47	-13.239	127.3	22.6	-0.17	4.673	
20:30	238.83	-9.96	16.60	40.04	-10.00	1980882	13.22	268.4	16.8	0.48	-13.436	130.5	24.8	-0.15	4.226	
20:45	238.83	-9.96	16.60	36.28	-10.00	1980967	13.22	266.5	13.6	0.48	-13.586	133.9	27.0	-0.13	3.748	
20:54	238.83	-9.96	16.60	34.03	-10.00	1981018	13.22	265.3	11.6	0.48	-13.654	136.0	28.2	-0.12	3.448	
A 2	21:00	238.83	-9.96	16.60	32.53	-10.00	1981052	13.22	264.6	10.3	0.48	-13.689	137.4	29.0	-0.11	3.243
3	21:06	238.84	-9.97	16.61	31.03	-10.00	1981086	13.22	263.8	9.1	0.49	-13.717	138.9	29.7	-0.11	3.034
+ 5	21:15	238.84	-9.97	16.61	28.77	-10.00	1981137	13.22	262.7	7.1	0.49	-13.745	141.1	30.8	-0.10	2.712
7	21:22	238.84	-9.97	16.61	27.02	-10.01	1981177	13.22	261.8	5.7	0.49	-13.755	142.9	31.6	-0.09	2.456
9	21:24	238.84	-9.97	16.61	26.52	-10.01	1981188	13.22	261.6L	5.2	0.49	-13.756	143.4	31.9	-0.08	2.382
9	21:30	238.84	-9.97	16.61	25.02	-10.01	1981223	13.22				145.0	32.5	-0.08	2.158	
11	21:44	238.85	-9.97	16.61	21.51	-10.01	1981302	13.22				148.7	34.0	-0.06	1.622	
14	21:45	238.85	-9.97	16.61	21.26	-10.01	1981308	13.22				149.0	34.1	-0.06	1.583	
14	22:00	238.85	-9.98	16.62	17.50	-10.01	1981393	13.22				153.2	35.5	-0.04	0.989	
18	22:15	238.85	-9.98	16.62	13.75	-10.02	1981479	13.22				157.5	36.7	-0.01	0.380	
22	22:30	238.86	-9.98	16.62	9.99	-10.02	1981564	13.22				162.0	37.7	0.01	-0.243	
25	22:45	238.86	-9.98	16.63	6.24	-10.02	1981649	13.22				166.6	38.4	0.03	-0.876	
29	23:00	238.87	-9.99	16.63	2.48	-10.02	1981735	13.22				171.3	39.0	0.05	-1.517	
33	23:15	238.87	-9.99	16.63	358.72	-10.03	1981821	13.22				176.1	39.3	0.08	-2.163	
36	23:30	238.87	-9.99	16.64	354.97	-10.03	1981906	13.22				180.8	39.4	0.10	-2.811	
40	23:45	238.88	-10.00	16.64	351.21	-10.03	1981992	13.22				185.6	39.2	0.12	-3.459	
43																

HERSCHEL WORLD MAP PRINTOUT  
 ESCS = ANGLE EARTH-S/C-SUN

CREATED ON 2013/05/15

FREQUENCY IN MHZ: 8468.500  
 DATE: 2013/06/03

ALTITUDE IN KM:  
 S/C TO SUN IN AU:

1982078.  
 1.02704

-----GEOCENTRIC-----									-----NEW NORCIA-----				-----CEBREROS-----				-----MALARGUE-----			
UTC	EL	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.
HH:MM	DEG	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
DEG	DEG	DEG																		
00:00	238.88	-10.00	16.64	347.45	-10.04	1982078	13.22						190.4	38.8	0.15	-4.104	78.1	32.4	-0.22	6.118
47	00:15	238.89	-10.00	16.64	343.70	-10.04	1982164	13.22					195.0	38.2	0.17	-4.742	75.5	35.4	-0.20	5.722
50	00:30	238.89	-10.00	16.65	339.94	-10.04	1982249	13.22					199.6	37.3	0.19	-5.372	72.6	38.4	-0.19	5.289
54	00:45	238.89	-10.01	16.65	336.19	-10.04	1982335	13.22					204.0	36.2	0.21	-5.990	69.6	41.2	-0.17	4.822
57	01:00	238.90	-10.01	16.65	332.43	-10.05	1982421	13.23					208.3	35.0	0.23	-6.594	66.4	44.1	-0.15	4.323
60	01:15	238.90	-10.01	16.66	328.67	-10.05	1982507	13.23					212.4	33.5	0.25	-7.181	62.8	46.8	-0.13	3.793
64	01:30	238.91	-10.02	16.66	324.92	-10.05	1982593	13.23					216.4	31.9	0.27	-7.749	59.0	49.5	-0.11	3.235
67	01:45	238.91	-10.02	16.66	321.16	-10.06	1982680	13.23					220.2	30.1	0.29	-8.295	54.7	52.1	-0.09	2.651
69	02:00	238.92	-10.02	16.67	317.41	-10.06	1982766	13.23					223.8	28.2	0.31	-8.817	50.0	54.5	-0.07	2.045
72	02:15	238.92	-10.02	16.67	313.65	-10.06	1982852	13.23					227.3	26.2	0.33	-9.312	44.8	56.7	-0.05	1.418
73	02:30	238.92	-10.03	16.67	309.89	-10.06	1982938	13.23					230.6	24.0	0.35	-9.779	39.0	58.8	-0.03	0.773
74	02:45	238.93	-10.03	16.68	306.14	-10.07	1983025	13.23					233.8	21.7	0.36	-10.215	32.6	60.6	-0.00	0.113
75	03:00	238.93	-10.03	16.68	302.38	-10.07	1983111	13.23					236.9	19.4	0.38	-10.619	25.5	62.1	0.02	-0.560
74	03:15	238.94	-10.04	16.68	298.62	-10.07	1983198	13.23					239.8	17.0	0.39	-10.989	17.8	63.2	0.04	-1.241
72	03:30	238.94	-10.04	16.69	294.87	-10.08	1983284	13.23					242.6	14.4	0.40	-11.323	9.6	63.9	0.07	-1.929
70	03:45	238.94	-10.04	16.69	291.11	-10.08	1983371	13.23					245.3	11.9	0.41	-11.621	1.2	64.2	0.09	-2.620
68	04:00	238.95	-10.04	16.69	287.36	-10.08	1983457	13.23					248.0	9.2	0.42	-11.879	352.7	64.1	0.12	-3.312
65	04:15	238.95	-10.05	16.69	283.60	-10.08	1983544	13.23					250.6	6.6	0.43	-12.099	344.4	63.5	0.14	-4.001
62	04:24	238.95	-10.05	16.70	281.35	-10.09	1983596	13.23					252.1+	4.9	0.43	-12.211	339.6	62.9	0.16	-4.411
60	04:30	238.96	-10.05	16.70	279.84	-10.09	1983631	13.23					253.1L	3.8	0.43	-12.278	336.5	62.4	0.17	-4.684
59	04:45	238.96	-10.05	16.70	276.09	-10.09	1983718	13.23									329.3	61.0	0.19	-5.359



17:30	239.17	-10.20	16.86	84.52	-10.24	1988217	13.26	298.4	53.9	0.31	-8.640								
17:45	239.17	-10.20	16.86	80.77	-10.24	1988307	13.26	294.6	51.0	0.33	-9.247								
18:00	239.18	-10.20	16.87	77.01	-10.24	1988397	13.27	291.2	48.1	0.35	-9.827								
18:15	239.18	-10.21	16.87	73.26	-10.24	1988487	13.27	288.1	45.0	0.37	-10.377	105.8A	2.4	-0.24	6.789				
18:29	239.19	-10.21	16.87	69.75	-10.25	1988571	13.27	285.5	42.1	0.38	-10.860	108.1+	5.0	-0.24	6.641				
18:30	239.19	-10.21	16.87	69.50	-10.25	1988577	13.27	285.3	41.9	0.39	-10.893	108.3	5.1	-0.23	6.629				
18:45	239.19	-10.21	16.87	65.74	-10.25	1988666	13.27	282.7	38.8	0.40	-11.375	110.9	7.8	-0.23	6.429				
19:00	239.19	-10.22	16.88	61.99	-10.25	1988756	13.27	280.3	35.6	0.42	-11.820	113.5	10.5	-0.22	6.189				
19:15	239.20	-10.22	16.88	58.23	-10.26	1988847	13.27	278.0	32.5	0.43	-12.226	116.2	13.1	-0.21	5.910				
19:30	239.20	-10.22	16.88	54.47	-10.26	1988937	13.27	275.8	29.3	0.45	-12.592	119.0	15.6	-0.20	5.594				
19:45	239.21	-10.22	16.89	50.72	-10.26	1989027	13.27	273.7	26.1	0.46	-12.915	121.8	18.1	-0.19	5.241				
20:00	239.21	-10.23	16.89	46.96	-10.26	1989117	13.27	271.7	22.8	0.47	-13.195	124.8	20.5	-0.17	4.853				
20:15	239.22	-10.23	16.89	43.21	-10.27	1989207	13.27	269.7	19.6	0.48	-13.430	127.9	22.8	-0.16	4.432				
20:30	239.22	-10.23	16.90	39.45	-10.27	1989298	13.27	267.8	16.4	0.48	-13.619	131.2	25.0	-0.14	3.980				
20:45	239.22	-10.24	16.90	35.69	-10.27	1989388	13.27	265.9	13.2	0.49	-13.763	134.6	27.1	-0.12	3.498				
20:52	239.23	-10.24	16.90	33.94	-10.27	1989430	13.27	265.1	11.7	0.49	-13.813	136.2	28.0	-0.12	3.264				
21:00	239.23	-10.24	16.90	31.94	-10.28	1989478	13.27	264.1	10.0	0.49	-13.859	138.1	29.0	-0.11	2.989				
21:04	239.23	-10.24	16.90	30.94	-10.28	1989503	13.27	263.5	9.1	0.49	-13.876	139.1	29.5	-0.10	2.849				
21:15	239.23	-10.24	16.91	28.18	-10.28	1989569	13.27	262.2	6.8	0.49	-13.907	141.8	30.9	-0.09	2.455				
21:19	239.23	-10.24	16.91	27.18	-10.28	1989593	13.27	261.7	5.9	0.49	-13.912	142.9	31.3	-0.08	2.308	102.2A	0.6	-0.27	7.587
21:23	239.23	-10.24	16.91	26.18	-10.28	1989617	13.27	261.2L	5.1	0.49	-13.914	143.9	31.8	-0.08	2.160	101.6	1.4	-0.27	7.606
21:30	239.24	-10.24	16.91	24.43	-10.28	1989659	13.27					145.7	32.6	-0.07	1.897	100.6	2.7	-0.27	7.632
21:41	239.24	-10.25	16.91	21.67	-10.28	1989726	13.27					148.7	33.7	-0.05	1.476	99.0+	5.0	-0.27	7.653
21:45	239.24	-10.25	16.91	20.67	-10.28	1989750	13.27					149.8	34.1	-0.05	1.320	98.4	5.8	-0.27	7.655
22:00	239.24	-10.25	16.92	16.91	-10.29	1989841	13.27					154.0	35.4	-0.03	0.724	96.3	8.8	-0.27	7.633
22:15	239.25	-10.25	16.92	13.16	-10.29	1989931	13.28					158.3	36.6	-0.00	0.113	94.1	11.8	-0.27	7.566
22:30	239.25	-10.26	16.92	9.40	-10.29	1990022	13.28					162.8	37.5	0.02	-0.512	92.0	14.9	-0.26	7.454
22:45	239.26	-10.26	16.92	5.64	-10.30	1990113	13.28					167.4	38.3	0.04	-1.146	89.8	17.9	-0.26	7.298
23:00	239.26	-10.26	16.93	1.89	-10.30	1990204	13.28					172.1	38.8	0.06	-1.787	87.6	21.0	-0.25	7.099
23:15	239.26	-10.26	16.93	358.13	-10.30	1990295	13.28					176.8	39.1	0.09	-2.434	85.3	24.0	-0.24	6.856
23:30	239.27	-10.27	16.93	354.38	-10.30	1990386	13.28					181.6	39.1	0.11	-3.082	83.0	27.1	-0.23	6.572
23:45	239.27	-10.27	16.94	350.62	-10.31	1990477	13.28					186.4	38.9	0.13	-3.729	80.5	30.1	-0.22	6.247

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 1990568.  
 ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/06/04 S/C TO SUN IN AU: 1.02722

-----GEOCENTRIC-----										-----NEW NORCIA-----				-----CEBREROS-----				-----MALARGUE-----			
UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.		
EL	EL	EL	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ		
HH:MM	DEG	DEG	DEG	DEG	DEG			DEG	DEG			DEG	DEG			DEG	DEG				
DEG	DEG	DEG																			
00:00	239.28	-10.27	16.94	346.86	-10.31	1990568	13.28					191.1	38.4	0.15	-4.372	78.0	33.1	-0.21	5.882		
00:15	239.28	-10.28	16.94	343.11	-10.31	1990659	13.28					195.7	37.8	0.18	-5.009	75.3	36.0	-0.19	5.480		
00:30	239.29	-10.28	16.95	339.35	-10.32	1990751	13.28					200.2	36.9	0.20	-5.637	72.4	39.0	-0.18	5.042		
00:45	239.29	-10.28	16.95	335.60	-10.32	1990842	13.28					204.6	35.8	0.22	-6.252	69.4	41.9	-0.16	4.570		
01:00	239.29	-10.29	16.95	331.84	-10.32	1990933	13.28					208.9	34.5	0.24	-6.853	66.1	44.7	-0.14	4.066		
01:15	239.30	-10.29	16.96	328.08	-10.33	1991025	13.28					212.9	33.0	0.26	-7.437	62.5	47.5	-0.13	3.532		
01:30	239.30	-10.29	16.96	324.33	-10.33	1991116	13.28					216.9	31.4	0.28	-8.001	58.6	50.1	-0.11	2.971		
01:45	239.31	-10.29	16.96	320.57	-10.33	1991208	13.28					220.6	29.6	0.30	-8.543	54.3	52.7	-0.08	2.384		
02:00	239.31	-10.30	16.97	316.81	-10.33	1991299	13.28					224.2	27.7	0.32	-9.061	49.6	55.1	-0.06	1.774		
02:15	239.31	-10.30	16.97	313.06	-10.34	1991391	13.29					227.7	25.6	0.34	-9.551	44.2	57.3	-0.04	1.144		
02:30	239.32	-10.30	16.97	309.30	-10.34	1991483	13.29					230.9	23.4	0.35	-10.013	38.3	59.3	-0.02	0.497		
02:45	239.32	-10.31	16.98	305.55	-10.34	1991575	13.29					234.1	21.2	0.37	-10.444	31.7	61.1	0.01	-0.165		
03:00	239.33	-10.31	16.98	301.79	-10.35	1991666	13.29					237.1	18.8	0.38	-10.843	24.5	62.5	0.03	-0.838		
03:15	239.33	-10.31	16.98	298.03	-10.35	1991758	13.29					240.0	16.4	0.40	-11.207	16.7	63.6	0.05	-1.520		
03:30	239.33	-10.31	16.98	294.28	-10.35	1991850	13.29					242.9	13.8	0.41	-11.535	8.4	64.3	0.08	-2.208		

03:45	239.34	-10.32	16.99	290.52	-10.35	1991942	13.29			245.6	11.3	0.42	-11.827	359.8	64.5	0.10	-2.899
67																	
04:00	239.34	-10.32	16.99	286.77	-10.36	1992034	13.29			248.2	8.6	0.43	-12.079	351.3	64.3	0.13	-3.590
64																	
04:15	239.35	-10.32	16.99	283.01	-10.36	1992126	13.29			250.8	6.0	0.44	-12.292	343.0	63.6	0.15	-4.278
61																	
04:20	239.35	-10.32	17.00	281.76	-10.36	1992157	13.29			251.6+	5.1	0.44	-12.354	340.3	63.3	0.16	-4.506
60																	
04:27	239.35	-10.33	17.00	280.00	-10.36	1992200	13.29			252.8L	3.8	0.44	-12.434	336.7	62.7	0.17	-4.824
59																	
04:30	239.35	-10.33	17.00	279.25	-10.36	1992219	13.29							335.1	62.5	0.18	-4.960
58																	
04:45	239.36	-10.33	17.00	275.50	-10.37	1992311	13.29							327.9	61.0	0.20	-5.632
55																	
05:00	239.36	-10.33	17.00	271.74	-10.37	1992403	13.29							321.4	59.3	0.22	-6.293
51																	
05:15	239.36	-10.33	17.01	267.99	-10.37	1992496	13.29							315.5	57.2	0.25	-6.940
48																	
05:30	239.37	-10.34	17.01	264.23	-10.37	1992588	13.29							310.2	55.0	0.27	-7.568
44																	
05:45	239.37	-10.34	17.01	260.47	-10.38	1992680	13.29							305.4	52.6	0.29	-8.177
41																	
06:00	239.38	-10.34	17.02	256.72	-10.38	1992773	13.29							301.1	50.0	0.31	-8.762
37																	
06:15	239.38	-10.35	17.02	252.96	-10.38	1992866	13.29							297.2	47.4	0.33	-9.323
34																	
06:30	239.38	-10.35	17.02	249.20	-10.39	1992958	13.30							293.7	44.6	0.35	-9.855
30																	
06:45	239.39	-10.35	17.03	245.45	-10.39	1993051	13.30							290.4	41.8	0.37	-10.358
26																	
07:00	239.39	-10.35	17.03	241.69	-10.39	1993144	13.30							287.3	38.9	0.38	-10.828
23																	
07:15	239.40	-10.36	17.03	237.94	-10.39	1993237	13.30							284.5	36.0	0.40	-11.264
19																	
07:30	239.40	-10.36	17.04	234.18	-10.40	1993329	13.30							281.8	33.0	0.41	-11.664
15																	
07:45	239.40	-10.36	17.04	230.42	-10.40	1993422	13.30							279.3	30.0	0.43	-12.026
12																	
08:00	239.41	-10.37	17.04	226.67	-10.40	1993515	13.30							276.9	27.0	0.44	-12.349
8																	
08:13	239.41	-10.37	17.04	223.41	-10.41	1993596	13.30							274.8	24.4	0.45	
-12.596	+ 5																
08:15	239.41	-10.37	17.04	222.91	-10.41	1993608	13.30							274.5	23.9	0.45	-12.631
4																	
08:27	239.42	-10.37	17.05	219.91	-10.41	1993683	13.30							272.7	21.5	0.45	
-12.827	L 2																
08:30	239.42	-10.37	17.05	219.16	-10.41	1993702	13.30							272.2	20.9	0.46	-12.872
08:45	239.42	-10.38	17.05	215.40	-10.41	1993795	13.30							270.0	17.9	0.46	-13.069
08:57	239.42	-10.38	17.05	212.39	-10.41	1993869	13.30	102.1A-0.1	-0.29	8.082				268.3	15.4	0.47	-13.196
09:00	239.43	-10.38	17.05	211.64	-10.42	1993888	13.30	101.7	0.6	-0.29	8.096			267.8	14.8	0.47	-13.223
09:15	239.43	-10.38	17.06	207.89	-10.42	1993981	13.30	99.8	3.7	-0.29	8.141			265.7	11.8	0.47	-13.333
09:21	239.43	-10.38	17.06	206.38	-10.42	1994019	13.30	99.1+	5.0	-0.29	8.146			264.8	10.5	0.47	-13.364
09:30	239.43	-10.38	17.06	204.13	-10.42	1994075	13.30	97.9	6.9	-0.29	8.139			263.5	8.7	0.47	-13.397
09:45	239.44	-10.39	17.06	200.37	-10.42	1994168	13.30	96.0	10.1	-0.29	8.089			261.4	5.7	0.47	-13.417
09:49	239.44	-10.39	17.06	199.37	-10.42	1994193	13.30	95.5	11.0	-0.29	8.068			260.8+	4.9	0.47	-13.415
10:00	239.44	-10.39	17.07	196.62	-10.43	1994262	13.30	94.2	13.3	-0.28	7.992			259.2	2.7	0.47	-13.392
10:02	239.44	-10.39	17.07	196.12	-10.43	1994274	13.30	93.9	13.8	-0.28	7.975			258.9L	2.3	0.47	-13.385
10:15	239.45	-10.39	17.07	192.86	-10.43	1994355	13.30	92.3	16.5	-0.28	7.847						
10:30	239.45	-10.40	17.07	189.11	-10.43	1994449	13.31	90.4	19.8	-0.27	7.657						
10:45	239.45	-10.40	17.08	185.35	-10.44	1994542	13.31	88.4	23.0	-0.26	7.420						
11:00	239.46	-10.40	17.08	181.59	-10.44	1994636	13.31	86.4	26.2	-0.25	7.139						
11:15	239.46	-10.40	17.08	177.84	-10.44	1994730	13.31	84.4	29.4	-0.24	6.815						
11:30	239.47	-10.41	17.09	174.08	-10.44	1994824	13.31	82.2	32.6	-0.23	6.448						
11:45	239.47	-10.41	17.09	170.33	-10.45	1994918	13.31	79.9	35.8	-0.21	6.041						
12:00	239.48	-10.41	17.09	166.57	-10.45	1995012	13.31	77.5	39.0	-0.20	5.596						
12:15	239.48	-10.42	17.10	162.81	-10.45	1995106	13.31	74.9	42.1	-0.18	5.113						
12:30	239.48	-10.42	17.10	159.06	-10.46	1995200	13.31	72.1	45.2	-0.16	4.596						
12:45	239.49	-10.42	17.10	155.30	-10.46	1995294	13.31	69.0	48.2	-0.14	4.046						
13:00	239.49	-10.43	17.10	151.54	-10.46	1995388	13.31	65.6	51.2	-0.12	3.465						
13:15	239.50	-10.43	17.11	147.79	-10.47	1995482	13.31	61.8	54.1	-0.10	2.857						
13:30	239.50	-10.43	17.11	144.03	-10.47	1995577	13.31	57.5	56.9	-0.08	2.224						
13:45	239.50	-10.43	17.11	140.28	-10.47	1995671	13.31	52.6	59.5	-0.06	1.569						
14:00	239.51	-10.44	17.12	136.52	-10.47	1995766	13.31	46.9	62.0	-0.03	0.894						
14:15	239.51	-10.44	17.12	132.76	-10.48	1995860	13.31	40.3	64.2	-0.01	0.202						
14:30	239.52	-10.44	17.12	129.01	-10.48	1995955	13.32	32.8	66.2	0.02	-0.504						
14:45	239.52	-10.45	17.13	125.25	-10.48	1996049	13.32	24.2	67.7	0.04	-1.220						

15:15	239.53	-10.45	17.13	117.74	-10.49	1996239	13.32	4.3	69.3	0.09	-2.671								
15:30	239.53	-10.45	17.14	113.98	-10.49	1996334	13.32	353.8	69.3	0.12	-3.401								
15:45	239.54	-10.46	17.14	110.23	-10.49	1996428	13.32	343.7	68.6	0.15	-4.128								
16:00	239.54	-10.46	17.14	106.47	-10.50	1996523	13.32	334.2	67.5	0.17	-4.851								
16:15	239.55	-10.46	17.15	102.72	-10.50	1996618	13.32	325.8	65.9	0.20	-5.565								
16:30	239.55	-10.47	17.15	98.96	-10.50	1996713	13.32	318.4	63.9	0.22	-6.268								
16:45	239.55	-10.47	17.15	95.20	-10.51	1996809	13.32	312.0	61.6	0.25	-6.957								
17:00	239.56	-10.47	17.16	91.45	-10.51	1996904	13.32	306.5	59.1	0.27	-7.629								
17:15	239.56	-10.48	17.16	87.69	-10.51	1996999	13.32	301.7	56.4	0.29	-8.280								
17:30	239.57	-10.48	17.16	83.93	-10.52	1997094	13.32	297.4	53.6	0.32	-8.909								
17:45	239.57	-10.48	17.17	80.18	-10.52	1997190	13.32	293.7	50.7	0.34	-9.512								
18:00	239.57	-10.48	17.17	76.42	-10.52	1997285	13.32	290.4	47.7	0.36	-10.087								
18:14	239.58	-10.49	17.17	72.92	-10.52	1997374	13.33	287.5	44.9	0.38	-10.595	106.2A	2.5	-0.23	6.589				
18:15	239.58	-10.49	17.17	72.67	-10.52	1997381	13.33	287.3	44.7	0.38	-10.631	106.4	2.6	-0.23	6.580				
18:28	239.58	-10.49	17.17	69.41	-10.53	1997463	13.33	284.9	42.0	0.39	-11.076	108.6+	5.0	-0.23	6.438				
18:30	239.58	-10.49	17.17	68.91	-10.53	1997476	13.33	284.5	41.6	0.39	-11.142	108.9	5.4	-0.23	6.414				
18:45	239.59	-10.49	17.18	65.15	-10.53	1997572	13.33	282.0	38.5	0.41	-11.618	111.5	8.1	-0.22	6.207				
19:00	239.59	-10.50	17.18	61.40	-10.53	1997667	13.33	279.6	35.3	0.43	-12.056	114.1	10.7	-0.21	5.961				
19:15	239.60	-10.50	17.18	57.64	-10.54	1997763	13.33	277.3	32.1	0.44	-12.456	116.8	13.3	-0.20	5.677				
19:30	239.60	-10.50	17.19	53.89	-10.54	1997859	13.33	275.2	28.9	0.45	-12.815	119.6	15.8	-0.19	5.354				
19:45	239.60	-10.51	17.19	50.13	-10.54	1997955	13.33	273.1	25.7	0.46	-13.131	122.5	18.2	-0.18	4.996				
20:00	239.61	-10.51	17.19	46.37	-10.54	1998051	13.33	271.1	22.5	0.47	-13.404	125.5	20.6	-0.16	4.603				
20:15	239.61	-10.51	17.20	42.62	-10.55	1998147	13.33	269.2	19.3	0.48	-13.632	128.6	22.9	-0.15	4.178				
20:30	239.62	-10.51	17.20	38.86	-10.55	1998243	13.33	267.3	16.0	0.49	-13.814	131.9	25.1	-0.13	3.721				
20:45	239.62	-10.52	17.20	35.11	-10.55	1998339	13.33	265.4	12.8	0.49	-13.950	135.3	27.1	-0.11	3.235				
20:49	239.62	-10.52	17.20	34.10	-10.55	1998364	13.33	264.9	12.0	0.49	-13.978	136.2	27.7	-0.11	3.101				
A 21:00	239.62	-10.52	17.21	31.35	-10.56	1998435	13.33	263.5	9.6	0.50	-14.038	138.9	29.1	-0.10	2.722				
5 21:02	239.62	-10.52	17.21	30.85	-10.56	1998448	13.33	263.3	9.2	0.50	-14.047	139.4	29.3	-0.09	2.652				
+ 5 21:15	239.63	-10.52	17.21	27.59	-10.56	1998531	13.33	261.6	6.4	0.50	-14.080	142.6	30.9	-0.08	2.185				
8 21:16	239.63	-10.52	17.21	27.34	-10.56	1998537	13.33	261.5	6.2	0.50	-14.081	142.9	31.0	-0.08	2.148	102.5A	0.6	-0.26	7.395
8 21:22	239.63	-10.52	17.21	25.84	-10.56	1998576	13.33	260.7L	4.9	0.50	-14.083	144.4	31.7	-0.07	1.926	101.6	1.8	-0.26	7.423
10 21:30	239.63	-10.53	17.21	23.84	-10.56	1998627	13.33					146.5	32.6	-0.06	1.624	100.5	3.4	-0.26	7.450
12 21:38	239.63	-10.53	17.21	21.83	-10.56	1998679	13.33					148.6	33.4	-0.05	1.317	99.3+	5.0	-0.26	7.464
14 21:45	239.64	-10.53	17.22	20.08	-10.57	1998724	13.33					150.5	34.0	-0.04	1.044	98.3	6.4	-0.26	7.466
16 22:00	239.64	-10.53	17.22	16.32	-10.57	1998820	13.33					154.7	35.4	-0.02	0.446	96.2	9.4	-0.26	7.437
19 22:15	239.64	-10.53	17.22	12.57	-10.57	1998917	13.34					159.1	36.5	0.01	-0.167	94.0	12.5	-0.26	7.363
23 22:30	239.65	-10.54	17.23	8.81	-10.57	1999013	13.34					163.6	37.4	0.03	-0.792	91.9	15.5	-0.26	7.244
26 22:45	239.65	-10.54	17.23	5.06	-10.58	1999110	13.34					168.2	38.1	0.05	-1.427	89.7	18.6	-0.25	7.081
30 23:00	239.66	-10.54	17.23	1.30	-10.58	1999206	13.34					172.9	38.6	0.07	-2.069	87.5	21.6	-0.24	6.875
34 23:15	239.66	-10.55	17.24	357.54	-10.58	1999303	13.34					177.6	38.8	0.10	-2.716	85.2	24.7	-0.23	6.625
37 23:30	239.67	-10.55	17.24	353.79	-10.59	1999400	13.34					182.3	38.8	0.12	-3.363	82.8	27.7	-0.22	6.335
41 23:45	239.67	-10.55	17.24	350.03	-10.59	1999497	13.34					187.1	38.6	0.14	-4.009	80.4	30.7	-0.21	6.004
44																			

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 1999593.  
 ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/06/05 S/C TO SUN IN AU: 1.02741

-----GEOCENTRIC-----										-----NEW NORCIA-----				-----CEBREROS -----				-----MALARGUE -----			
KOU	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.		
UTC	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ		
EL	EL	EL																			
HH:MM	DEG	DEG																			
DEG	DEG	DEG																			
00:00	239.67	-10.56	17.24	346.28	-10.59	1999593	13.34					191.7	38.1	0.16	-4.652	77.8	33.7	-0.20	5.634		
48 00:15	239.68	-10.56	17.25	342.52	-10.60	1999690	13.34					196.3	37.4	0.19	-5.287	75.1	36.7	-0.19	5.226		
51 00:30	239.68	-10.56	17.25	338.76	-10.60	1999787	13.34					200.8	36.5	0.21	-5.912	72.3	39.6	-0.17	4.783		
55 00:45	239.69	-10.56	17.25	335.01	-10.60	1999885	13.34					205.2	35.3	0.23	-6.525	69.2	42.5	-0.15	4.306		
58 01:00	239.69	-10.57	17.26	331.25	-10.60	1999982	13.34					209.4	34.0	0.25	-7.123	65.9	45.3	-0.13	3.798		



12:45	239.89	-10.71	17.41	154.71	-10.74	2004617	13.37	68.9	48.9	-0.13	3.765								
13:00	239.89	-10.71	17.41	150.96	-10.75	2004717	13.37	65.4	51.9	-0.11	3.181								
13:15	239.89	-10.71	17.41	147.20	-10.75	2004818	13.37	61.5	54.7	-0.09	2.569								
13:30	239.90	-10.72	17.42	143.45	-10.75	2004918	13.38	57.1	57.5	-0.07	1.933								
13:45	239.90	-10.72	17.42	139.69	-10.76	2005018	13.38	52.1	60.2	-0.05	1.274								
14:00	239.91	-10.72	17.42	135.93	-10.76	2005119	13.38	46.3	62.6	-0.02	0.597								
14:15	239.91	-10.73	17.43	132.18	-10.76	2005219	13.38	39.6	64.8	0.00	-0.096								
14:30	239.92	-10.73	17.43	128.42	-10.77	2005319	13.38	31.8	66.7	0.03	-0.803								
14:45	239.92	-10.73	17.43	124.67	-10.77	2005420	13.38	23.0	68.2	0.05	-1.520								
15:00	239.92	-10.74	17.44	120.91	-10.77	2005521	13.38	13.2	69.2	0.08	-2.244								
15:15	239.93	-10.74	17.44	117.15	-10.77	2005621	13.38	2.7	69.6	0.11	-2.972								
15:30	239.93	-10.74	17.44	113.40	-10.78	2005722	13.38	352.1	69.5	0.13	-3.701								
15:45	239.94	-10.74	17.45	109.64	-10.78	2005823	13.38	341.9	68.8	0.16	-4.427								
16:00	239.94	-10.75	17.45	105.89	-10.78	2005924	13.38	332.5	67.5	0.18	-5.148								
16:15	239.94	-10.75	17.45	102.13	-10.79	2006025	13.38	324.2	65.8	0.21	-5.860								
16:30	239.95	-10.75	17.46	98.37	-10.79	2006126	13.38	317.0	63.8	0.23	-6.560								
16:45	239.95	-10.76	17.46	94.62	-10.79	2006227	13.38	310.7	61.5	0.26	-7.246								
17:00	239.96	-10.76	17.46	90.86	-10.80	2006328	13.38	305.3	58.9	0.28	-7.914								
17:15	239.96	-10.76	17.47	87.10	-10.80	2006429	13.39	300.6	56.2	0.30	-8.562								
17:30	239.97	-10.77	17.47	83.35	-10.80	2006531	13.39	296.5	53.4	0.33	-9.186								
17:45	239.97	-10.77	17.47	79.59	-10.80	2006632	13.39	292.8	50.4	0.35	-9.785								
18:00	239.97	-10.77	17.48	75.84	-10.81	2006733	13.39	289.5	47.4	0.37	-10.354								
18:13	239.98	-10.77	17.48	72.58	-10.81	2006821	13.39	286.9	44.8	0.38	-10.823	106.7A	2.5	-0.23	6.379				
18:15	239.98	-10.77	17.48	72.08	-10.81	2006835	13.39	286.5	44.4	0.39	-10.893	107.0	2.9	-0.23	6.359				
18:27	239.98	-10.78	17.48	69.08	-10.81	2006916	13.39	284.3	41.9	0.40	-11.300	109.0+	5.1	-0.22	6.225				
18:30	239.98	-10.78	17.48	68.32	-10.81	2006936	13.39	283.8	41.3	0.40	-11.398	109.5	5.6	-0.22	6.187				
18:45	239.99	-10.78	17.49	64.57	-10.82	2007038	13.39	281.3	38.1	0.42	-11.868	112.1	8.3	-0.21	5.975				
19:00	239.99	-10.78	17.49	60.81	-10.82	2007140	13.39	278.9	34.9	0.44	-12.300	114.7	10.9	-0.20	5.723				
19:15	239.99	-10.79	17.49	57.06	-10.82	2007241	13.39	276.7	31.8	0.45	-12.693	117.4	13.5	-0.19	5.432				
19:30	240.00	-10.79	17.50	53.30	-10.83	2007343	13.39	274.6	28.5	0.46	-13.045	120.2	16.0	-0.18	5.105				
19:45	240.00	-10.79	17.50	49.54	-10.83	2007445	13.39	272.5	25.3	0.47	-13.355	123.1	18.4	-0.17	4.741				
20:00	240.01	-10.80	17.50	45.79	-10.83	2007547	13.39	270.6	22.1	0.48	-13.620	126.2	20.7	-0.15	4.343				
20:15	240.01	-10.80	17.50	42.03	-10.84	2007649	13.39	268.6	18.9	0.49	-13.841	129.3	23.0	-0.14	3.913				
20:30	240.02	-10.80	17.51	38.28	-10.84	2007751	13.39	266.7	15.7	0.50	-14.016	132.6	25.2	-0.12	3.452				
20:45	240.02	-10.81	17.51	34.52	-10.84	2007853	13.39	264.8	12.5	0.50	-14.145	136.0	27.2	-0.10	2.962				
20:47	240.02	-10.81	17.51	34.02	-10.84	2007867	13.40	264.6	12.0	0.50	-14.158	136.5	27.5	-0.10	2.895				
21:00	240.02	-10.81	17.51	30.76	-10.84	2007955	13.40	263.0	9.3	0.50	-14.226	139.6	29.1	-0.09	2.446				
21:12	240.03	-10.81	17.52	27.76	-10.85	2008037	13.40	261.5	6.7	0.50	-14.257	142.6	30.6	-0.07	2.015	103.0A	0.4	-0.25	7.187
21:15	240.03	-10.81	17.52	27.01	-10.85	2008057	13.40	261.1	6.1	0.50	-14.260	143.3	30.9	-0.07	1.905	102.5	1.0	-0.26	7.203
21:20	240.03	-10.81	17.52	25.76	-10.85	2008091	13.40	260.5L	5.0	0.50	-14.261	144.6	31.5	-0.06	1.719	101.8	2.0	-0.26	7.226
21:30	240.03	-10.81	17.52	23.25	-10.85	2008160	13.40					147.2	32.5	-0.05	1.342	100.4	4.0	-0.26	7.257
21:35	240.03	-10.82	17.52	22.00	-10.85	2008194	13.40					148.6	33.0	-0.04	1.149	99.6+	5.0	-0.26	7.265
21:45	240.04	-10.82	17.52	19.50	-10.85	2008262	13.40					151.3	34.0	-0.03	0.759	98.2	7.0	-0.26	7.266
22:00	240.04	-10.82	17.53	15.74	-10.86	2008364	13.40					155.5	35.3	-0.01	0.159	96.1	10.1	-0.26	7.229
22:15	240.05	-10.82	17.53	11.98	-10.86	2008467	13.40					159.9	36.4	0.02	-0.456	93.9	13.1	-0.25	7.148
22:30	240.05	-10.83	17.53	8.23	-10.86	2008570	13.40					164.4	37.2	0.04	-1.082	91.8	16.1	-0.25	7.023
22:45	240.05	-10.83	17.54	4.47	-10.87	2008672	13.40					169.0	37.9	0.06	-1.718	89.6	19.2	-0.24	6.853
23:00	240.06	-10.83	17.54	0.72	-10.87	2008775	13.40					173.6	38.3	0.08	-2.360	87.4	22.2	-0.24	6.640
23:15	240.06	-10.84	17.54	356.96	-10.87	2008878	13.40					178.3	38.5	0.11	-3.006	85.1	25.3	-0.23	6.384
23:30	240.07	-10.84	17.55	353.20	-10.87	2008980	13.40					183.1	38.5	0.13	-3.653	82.7	28.3	-0.22	6.087
23:45	240.07	-10.84	17.55	349.45	-10.88	2009083	13.40					187.8	38.2	0.15	-4.299	80.3	31.3	-0.20	5.750



GEOCENTRIC									NEW NORCIA				CEBREROS				MALARGUE			
KOU	UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.
EL	EL	EL	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
HH:MM	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG
00:00	240.07	-10.84	17.55	345.69	-10.88	2009186	13.40						192.4	37.7	0.17	-4.939	77.7	34.3	-0.19	5.375
48 00:15	240.08	-10.85	17.56	341.93	-10.88	2009289	13.40						197.0	37.0	0.20	-5.572	75.0	37.3	-0.18	4.962
52 00:30	240.08	-10.85	17.56	338.18	-10.89	2009392	13.41						201.4	36.0	0.22	-6.196	72.1	40.2	-0.16	4.514
55 00:45	240.09	-10.85	17.56	334.42	-10.89	2009495	13.41						205.7	34.9	0.24	-6.806	69.0	43.1	-0.14	4.032
58 01:00	240.09	-10.86	17.57	330.67	-10.89	2009599	13.41						209.9	33.5	0.26	-7.401	65.7	45.9	-0.12	3.519
62 01:15	240.10	-10.86	17.57	326.91	-10.90	2009702	13.41						213.9	32.0	0.28	-7.978	62.0	48.7	-0.11	2.977
65 01:30	240.10	-10.86	17.57	323.15	-10.90	2009805	13.41						217.7	30.4	0.30	-8.534	58.0	51.3	-0.09	2.408
67 01:45	240.10	-10.87	17.58	319.40	-10.90	2009909	13.41						221.4	28.5	0.32	-9.068	53.5	53.9	-0.06	1.815
70 02:00	240.11	-10.87	17.58	315.64	-10.91	2010012	13.41						225.0	26.6	0.34	-9.577	48.6	56.2	-0.04	1.199
72 02:15	240.11	-10.87	17.58	311.89	-10.91	2010116	13.41						228.3	24.5	0.36	-10.058	43.1	58.4	-0.02	0.565
73 02:30	240.12	-10.88	17.59	308.13	-10.91	2010219	13.41						231.6	22.3	0.37	-10.510	36.9	60.4	0.00	-0.086
74 02:45	240.12	-10.88	17.59	304.37	-10.91	2010323	13.41						234.7	20.0	0.39	-10.930	30.1	62.1	0.03	-0.750
74 03:00	240.12	-10.88	17.59	300.62	-10.92	2010427	13.41						237.7	17.6	0.40	-11.318	22.5	63.5	0.05	-1.426
73 03:15	240.13	-10.88	17.60	296.86	-10.92	2010530	13.41						240.5	15.2	0.41	-11.670	14.4	64.4	0.07	-2.109
71 03:30	240.13	-10.89	17.60	293.11	-10.92	2010634	13.41						243.3	12.6	0.42	-11.987	5.8	65.0	0.10	-2.797
69 03:45	240.14	-10.89	17.60	289.35	-10.93	2010738	13.41						246.0	10.0	0.43	-12.266	357.1	65.0	0.12	-3.487
66 04:00	240.14	-10.89	17.61	285.59	-10.93	2010842	13.41						248.6	7.4	0.44	-12.506	348.4	64.7	0.15	-4.176
63 04:13	240.15	-10.90	17.61	282.34	-10.93	2010932	13.42						250.8+	5.1	0.45	-12.682	341.2	64.0	0.17	-4.770
60 04:15	240.15	-10.90	17.61	281.84	-10.93	2010946	13.42						251.1	4.7	0.45	-12.706	340.1	63.8	0.17	-4.861
60 04:20	240.15	-10.90	17.61	280.59	-10.93	2010981	13.42						252.0L	3.8	0.45	-12.764	337.5	63.5	0.18	-5.088
59 04:30	240.15	-10.90	17.61	278.08	-10.94	2011050	13.42										332.4	62.6	0.20	-5.540
57 04:45	240.15	-10.90	17.61	274.33	-10.94	2011154	13.42										325.3	61.0	0.22	-6.208
53 05:00	240.16	-10.91	17.62	270.57	-10.94	2011259	13.42										318.9	59.1	0.24	-6.864
50 05:15	240.16	-10.91	17.62	266.81	-10.94	2011363	13.42										313.1	57.0	0.27	-7.504
47 05:30	240.17	-10.91	17.62	263.06	-10.95	2011467	13.42										308.0	54.7	0.29	-8.125
43 05:45	240.17	-10.91	17.63	259.30	-10.95	2011572	13.42										303.4	52.2	0.31	-8.726
40 06:00	240.18	-10.92	17.63	255.55	-10.95	2011676	13.42										299.2	49.6	0.33	-9.303
36 06:15	240.18	-10.92	17.63	251.79	-10.96	2011781	13.42										295.5	46.9	0.35	-9.854
32 06:30	240.18	-10.92	17.64	248.03	-10.96	2011885	13.42										292.0	44.1	0.37	-10.376
29 06:45	240.19	-10.93	17.64	244.28	-10.96	2011990	13.42										288.8	41.3	0.38	-10.868
25 07:00	240.19	-10.93	17.64	240.52	-10.97	2012095	13.42										285.9	38.3	0.40	-11.327
22 07:15	240.20	-10.93	17.65	236.77	-10.97	2012200	13.42										283.1	35.4	0.42	-11.752
18 07:30	240.20	-10.94	17.65	233.01	-10.97	2012304	13.42										280.5	32.4	0.43	-12.140
14 07:45	240.20	-10.94	17.65	229.25	-10.98	2012409	13.43										278.0	29.4	0.44	-12.489
11 08:00	240.21	-10.94	17.66	225.50	-10.98	2012514	13.43										275.6	26.4	0.45	-12.799
7 08:08	240.21	-10.94	17.66	223.49	-10.98	2012570	13.43										274.3	24.7	0.46	
-12.948 08:15	240.21	-10.95	17.66	221.74	-10.98	2012619	13.43										273.3	23.3	0.46	-13.068
3 08:22	240.22	-10.95	17.66	219.99	-10.98	2012669	13.43										272.2	21.9	0.47	
-13.179 08:30	240.22	-10.95	17.66	217.98	-10.98	2012725	13.43										271.0	20.3	0.47	-13.295
08:45	240.22	-10.95	17.67	214.23	-10.99	2012830	13.43										268.8	17.2	0.48	-13.479
08:51	240.22	-10.95	17.67	212.73	-10.99	2012872	13.43	102.8A	-0.0	-0.27	7.677					268.0	16.0	0.48	-13.540	
09:00	240.23	-10.95	17.67	210.47	-10.99	2012935	13.43	101.6	1.9	-0.27	7.718					266.7	14.2	0.48	-13.619	
09:15	240.23	-10.96	17.67	206.72	-10.99	2013040	13.43	99.7+	5.0	-0.27	7.748					264.5	11.1	0.49	-13.714	
09:30	240.23	-10.96	17.68	202.96	-11.00	2013146	13.43	97.8	8.2	-0.27	7.731					262.4	8.1	0.49	-13.765	
09:45	240.24	-10.96	17.68	199.20	-11.00	2013251	13.43	96.0	11.4	-0.27	7.666					260.2	5.1	0.49	-13.771	
09:46	240.24	-10.96	17.68	198.95	-11.00	2013258	13.43	95.8	11.6	-0.27	7.660					260.1+	4.9	0.49	-13.770	
09:59	240.24	-10.97	17.68	195.70	-11.00	2013350	13.43	94.2	14.4	-0.27	7.563					258.2L	2.3	0.49	-13.736	
10:00	240.24	-10.97	17.68	195.45	-11.00	2013357	13.43	94.1	14.6	-0.27	7.554									
10:15	240.25	-10.97	17.69	191.69	-11.01	2013462	13.43	92.2	17.8	-0.26	7.395									
10:30	240.25	-10.97	17.69	187.94	-11.01	2013568	13.43	90.3	21.0	-0.25	7.190									



22:00	240.45	-11.12	17.84	15.16	-11.15	2018499	13.47		156.3	35.2	0.00	-0.135		96.0	10.7	-0.25	7.013	
22:15	240.45	-11.12	17.84	11.40	-11.15	2018608	13.47		160.7	36.2	0.03	-0.751		93.9	13.7	-0.25	6.925	
22:30	240.45	-11.12	17.85	7.65	-11.16	2018717	13.47		165.1	37.1	0.05	-1.378		91.7	16.8	-0.24	6.793	
22:45	240.46	-11.12	17.85	3.89	-11.16	2018826	13.47		169.7	37.7	0.07	-2.015		89.5	19.8	-0.23	6.616	
23:00	240.46	-11.13	17.85	0.14	-11.16	2018935	13.47		174.4	38.1	0.09	-2.657		87.3	22.9	-0.23	6.397	
23:15	240.47	-11.13	17.85	356.38	-11.17	2019044	13.47		179.1	38.2	0.12	-3.303		85.0	25.9	-0.22	6.135	
23:30	240.47	-11.13	17.86	352.62	-11.17	2019153	13.47		183.8	38.2	0.14	-3.949		82.6	29.0	-0.21	5.832	
23:45	240.48	-11.14	17.86	348.87	-11.17	2019262	13.47		188.4	37.9	0.16	-4.593		80.2	32.0	-0.19	5.489	

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15  
 ESCS = ANGLE EARTH-S/C-SUN

FREQUENCY IN MHZ: 8468.500  
 DATE: 2013/06/07

ALTITUDE IN KM: 2019371.  
 S/C TO SUN IN AU: 1.02776

GEOCENTRIC									NEW NORCIA				CEBREROS				MALARGUE			
KOU UTC	RA EL	DEC EL	ESCS HH:MM	LONG DEG	LAT DEG	HEIGHT KM	RTLT S	AZ DEG	EL DEG	RRATE KM/S	DOPPL. KHZ	AZ DEG	EL DEG	RRATE KM/S	DOPPL. KHZ	AZ DEG	EL DEG	RRATE KM/S	DOPPL. KHZ	
00:00	240.48	-11.14	17.86	345.11	-11.18	2019371	13.47		193.0	37.3	0.19	-5.232		77.6	35.0	-0.18	5.108			
00:15	240.48	-11.14	17.87	341.36	-11.18	2019481	13.47		197.6	36.6	0.21	-5.864		74.9	37.9	-0.17	4.690			
00:30	240.49	-11.15	17.87	337.60	-11.18	2019590	13.47		202.0	35.6	0.23	-6.484		71.9	40.9	-0.15	4.237			
00:45	240.49	-11.15	17.87	333.84	-11.19	2019699	13.47		206.2	34.4	0.25	-7.092		68.8	43.8	-0.13	3.751			
01:00	240.50	-11.15	17.88	330.09	-11.19	2019809	13.47		210.4	33.1	0.27	-7.684		65.4	46.6	-0.11	3.234			
01:15	240.50	-11.16	17.88	326.33	-11.19	2019918	13.48		214.3	31.5	0.29	-8.257		61.7	49.3	-0.10	2.688			
01:30	240.51	-11.16	17.88	322.58	-11.19	2020028	13.48		218.2	29.8	0.31	-8.810		57.7	51.9	-0.07	2.116			
01:45	240.51	-11.16	17.89	318.82	-11.20	2020138	13.48		221.8	28.0	0.33	-9.339		53.1	54.5	-0.05	1.519			
02:00	240.51	-11.17	17.89	315.06	-11.20	2020247	13.48		225.3	26.0	0.35	-9.843		48.1	56.8	-0.03	0.901			
02:15	240.52	-11.17	17.89	311.31	-11.20	2020357	13.48		228.7	23.9	0.37	-10.319		42.5	59.0	-0.01	0.265			
02:30	240.52	-11.17	17.90	307.55	-11.21	2020467	13.48		231.9	21.7	0.38	-10.766		36.2	60.9	0.01	-0.388			
02:45	240.53	-11.17	17.90	303.80	-11.21	2020577	13.48		234.9	19.4	0.40	-11.181		29.2	62.6	0.04	-1.053			
03:00	240.53	-11.18	17.90	300.04	-11.21	2020687	13.48		237.9	17.0	0.41	-11.563		21.5	63.9	0.06	-1.730			
03:15	240.54	-11.18	17.91	296.28	-11.22	2020797	13.48		240.8	14.6	0.42	-11.910		13.2	64.8	0.09	-2.413			
03:30	240.54	-11.18	17.91	292.53	-11.22	2020907	13.48		243.5	12.0	0.43	-12.220		4.5	65.3	0.11	-3.101			
03:45	240.54	-11.19	17.91	288.77	-11.22	2021017	13.48		246.2	9.4	0.44	-12.493		355.7	65.3	0.13	-3.791			
04:00	240.55	-11.19	17.92	285.02	-11.23	2021128	13.48		248.8	6.8	0.45	-12.727		347.0	64.9	0.16	-4.479			
04:10	240.55	-11.19	17.92	282.51	-11.23	2021201	13.48		250.5	5.0	0.46	-12.861		341.4	64.3	0.17	-4.935			
04:15	240.55	-11.19	17.92	281.26	-11.23	2021238	13.48		251.3	4.1	0.46	-12.921		338.7	64.0	0.18	-5.162			
04:17	240.55	-11.19	17.92	280.76	-11.23	2021253	13.48		251.6	3.7	0.46	-12.944		337.6	63.8	0.19	-5.253			
04:30	240.56	-11.20	17.92	277.50	-11.23	2021348	13.48							331.0	62.7	0.21	-5.838			
04:45	240.56	-11.20	17.93	273.75	-11.24	2021459	13.49							323.9	61.0	0.23	-6.504			
05:00	240.57	-11.20	17.93	269.99	-11.24	2021569	13.49							317.6	59.1	0.25	-7.157			
05:15	240.57	-11.21	17.93	266.24	-11.24	2021680	13.49							312.0	56.9	0.28	-7.794			
05:30	240.57	-11.21	17.94	262.48	-11.24	2021791	13.49							306.9	54.6	0.30	-8.412			
05:45	240.58	-11.21	17.94	258.72	-11.25	2021901	13.49							302.4	52.1	0.32	-9.008			
06:00	240.58	-11.22	17.94	254.97	-11.25	2022012	13.49							298.3	49.4	0.34	-9.581			
06:15	240.59	-11.22	17.95	251.21	-11.25	2022123	13.49							294.6	46.7	0.36	-10.127			
06:30	240.59	-11.22	17.95	247.46	-11.26	2022234	13.49							291.2	43.9	0.38	-10.645			
06:45	240.60	-11.22	17.95	243.70	-11.26	2022345	13.49							288.0	41.0	0.39	-11.131			
07:00	240.60	-11.23	17.96	239.94	-11.26	2022456	13.49							285.1	38.1	0.41	-11.585			
07:15	240.60	-11.23	17.96	236.19	-11.27	2022567	13.49							282.4	35.1	0.42	-12.003			
07:30	240.61	-11.23	17.96	232.43	-11.27	2022679	13.49							279.8	32.1	0.44	-12.385			
07:45	240.61	-11.24	17.97	228.68	-11.27	2022790	13.49							277.3	29.1	0.45	-12.728			
08:00	240.62	-11.24	17.97	224.92	-11.28	2022901	13.50							275.0	26.1	0.46	-13.031			
08:05	240.62	-11.24	17.97	223.67	-11.28	2022938	13.50							274.2	25.1	0.46				
08:15	240.62	-11.24	17.97	221.16	-11.28	2023013	13.50							272.7	23.0	0.47	-13.294			
08:20	240.62	-11.24	17.97	219.91	-11.28	2023050	13.50							271.9	22.0	0.47				
08:30	240.63	-11.25	17.98	217.41	-11.28	2023124	13.50							270.4	20.0	0.48	-13.514			



20:42	240.84	-11.40	18.13	34.12	-11.44	2028645	13.53	264.1	12.4	0.51	-14.529	136.8	26.9	-0.09	2.498
20:45	240.84	-11.40	18.14	33.37	-11.44	2028668	13.53	263.7	11.8	0.52	-14.548	137.5	27.3	-0.08	2.397
20:55	240.84	-11.40	18.14	30.86	-11.44	2028745	13.53	262.5	9.6	0.52	-14.598	139.9	28.6	-0.07	2.051
21:00	240.84	-11.40	18.14	29.61	-11.44	2028783	13.53	261.9	8.6	0.52	-14.615	141.1	29.2	-0.07	1.873
21:06	240.84	-11.41	18.14	28.11	-11.44	2028829	13.53	261.1	7.3	0.52	-14.628	142.6	29.9	-0.06	1.657
21:15	240.85	-11.41	18.14	25.85	-11.44	2028898	13.54	260.0	5.4	0.52	-14.634	144.8	30.9	-0.05	1.327
21:17	240.85	-11.41	18.14	25.35	-11.44	2028913	13.54	259.7+	5.0	0.52	-14.633	145.4	31.1	-0.04	1.252
21:18	240.85	-11.41	18.14	25.10	-11.44	2028921	13.54	259.6L	4.8	0.52	-14.632	145.6	31.2	-0.04	1.215
21:29	240.85	-11.41	18.14	22.35	-11.45	2029005	13.54					148.5	32.4	-0.03	0.797
21:30	240.85	-11.41	18.14	22.10	-11.45	2029013	13.54					148.8	32.5	-0.03	0.758
21:45	240.85	-11.41	18.15	18.34	-11.45	2029128	13.54					152.8	33.9	-0.01	0.171
22:00	240.86	-11.42	18.15	14.59	-11.45	2029243	13.54					157.1	35.1	0.02	-0.432
22:15	240.86	-11.42	18.15	10.83	-11.46	2029358	13.54					161.4	36.1	0.04	-1.050
22:30	240.87	-11.42	18.16	7.07	-11.46	2029473	13.54					165.9	36.9	0.06	-1.678
22:45	240.87	-11.43	18.16	3.32	-11.46	2029589	13.54					170.5	37.5	0.08	-2.315
23:00	240.88	-11.43	18.16	359.56	-11.47	2029704	13.54					175.1	37.8	0.10	-2.957
23:15	240.88	-11.43	18.17	355.81	-11.47	2029819	13.54					179.8	37.9	0.13	-3.603
23:30	240.88	-11.44	18.17	352.05	-11.47	2029935	13.54					184.5	37.8	0.15	-4.248
23:45	240.89	-11.44	18.17	348.29	-11.47	2030050	13.54					189.1	37.5	0.17	-4.891

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 2030166.  
ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/06/08 S/C TO SUN IN AU: 1.02793

GEOCENTRIC								NEW NORCIA				CEBREROS				MALARGUE			
KOU	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.
UTC	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
EL	EL	EL																	
HH:MM	DEG	DEG																	
DEG	DEG	DEG																	
00:00	240.89	-11.44	18.18	344.54	-11.48	2030166	13.54					193.7	36.9	0.20	-5.528	77.5	35.6	-0.17	4.837
00:15	240.90	-11.45	18.18	340.78	-11.48	2030282	13.54					198.2	36.1	0.22	-6.157	74.7	38.6	-0.16	4.414
00:30	240.90	-11.45	18.18	337.03	-11.48	2030397	13.55					202.5	35.1	0.24	-6.776	71.8	41.5	-0.14	3.956
00:45	240.91	-11.45	18.19	333.27	-11.49	2030513	13.55					206.8	33.9	0.26	-7.380	68.6	44.4	-0.12	3.465
01:00	240.91	-11.46	18.19	329.52	-11.49	2030629	13.55					210.8	32.6	0.28	-7.969	65.2	47.2	-0.10	2.944
01:15	240.91	-11.46	18.19	325.76	-11.49	2030745	13.55					214.8	31.0	0.30	-8.539	61.5	49.9	-0.08	2.395
01:30	240.92	-11.46	18.20	322.00	-11.50	2030861	13.55					218.5	29.3	0.32	-9.087	57.3	52.6	-0.06	1.819
01:45	240.92	-11.47	18.20	318.25	-11.50	2030977	13.55					222.2	27.4	0.34	-9.612	52.8	55.1	-0.04	1.220
02:00	240.93	-11.47	18.20	314.49	-11.50	2031093	13.55					225.6	25.4	0.36	-10.112	47.6	57.4	-0.02	0.600
02:15	240.93	-11.47	18.21	310.74	-11.51	2031210	13.55					229.0	23.3	0.37	-10.583	41.9	59.6	0.00	-0.039
02:30	240.94	-11.47	18.21	306.98	-11.51	2031326	13.55					232.1	21.1	0.39	-11.025	35.5	61.5	0.02	-0.693
02:45	240.94	-11.48	18.21	303.22	-11.51	2031442	13.55					235.2	18.8	0.40	-11.435	28.3	63.1	0.05	-1.360
03:00	240.95	-11.48	18.22	299.47	-11.52	2031559	13.55					238.1	16.4	0.42	-11.811	20.5	64.4	0.07	-2.036
03:15	240.95	-11.48	18.22	295.71	-11.52	2031675	13.55					241.0	14.0	0.43	-12.152	12.1	65.2	0.10	-2.720
03:30	240.95	-11.49	18.22	291.96	-11.52	2031792	13.55					243.7	11.4	0.44	-12.456	3.2	65.6	0.12	-3.408
03:45	240.96	-11.49	18.23	288.20	-11.53	2031908	13.56					246.4	8.8	0.45	-12.723	354.3	65.6	0.15	-4.096
04:00	240.96	-11.49	18.23	284.44	-11.53	2032025	13.56					248.9	6.2	0.46	-12.951	345.5	65.0	0.17	-4.783
04:07	240.96	-11.50	18.23	282.69	-11.53	2032080	13.56					250.1+	4.9	0.46	-13.043	341.6	64.6	0.18	-5.102
04:14	240.97	-11.50	18.23	280.94	-11.53	2032134	13.56					251.3L	3.7	0.46	-13.127	337.8	64.1	0.19	-5.420
04:15	240.97	-11.50	18.23	280.69	-11.53	2032142	13.56									337.2	64.1	0.19	-5.465
04:30	240.97	-11.50	18.24	276.93	-11.54	2032259	13.56									329.6	62.7	0.22	-6.139
04:45	240.98	-11.50	18.24	273.18	-11.54	2032376	13.56									322.6	61.0	0.24	-6.803
05:00	240.98	-11.51	18.24	269.42	-11.54	2032493	13.56									316.4	59.0	0.26	-7.452
05:15	240.98	-11.51	18.25	265.66	-11.55	2032610	13.56									310.8	56.8	0.29	-8.086
05:30	240.99	-11.51	18.25	261.91	-11.55	2032727	13.56									305.9	54.4	0.31	-8.700
05:45	240.99	-11.52	18.25	258.15	-11.55	2032844	13.56									301.4	51.9	0.33	-9.292
06:00	241.00	-11.52	18.26	254.40	-11.55	2032961	13.56									297.4	49.2	0.35	-9.861
06:15	241.00	-11.52	18.26	250.64	-11.56	2033079	13.56									293.7	46.5	0.37	-10.402



18:15	241.21	-11.68	18.42	70.36	-11.71	2038789	13.60	284.2	43.4	0.41	-11.701	108.8	3.5	-0.20	5.656		
18:23	241.21	-11.68	18.42	68.36	-11.71	2038853	13.60	282.8	41.8	0.42	-11.966	110.2	5.0	-0.20	5.560		
18:30	241.22	-11.68	18.42	66.60	-11.71	2038910	13.60	281.6	40.3	0.43	-12.189	111.3	6.2	-0.19	5.466		
18:45	241.22	-11.68	18.42	62.85	-11.72	2039030	13.60	279.2	37.1	0.45	-12.641	113.9	8.8	-0.19	5.236		
19:00	241.23	-11.69	18.43	59.09	-11.72	2039151	13.60	277.0	33.9	0.46	-13.054	116.6	11.4	-0.18	4.967		
19:15	241.23	-11.69	18.43	55.34	-11.72	2039272	13.60	274.8	30.7	0.48	-13.427	119.3	14.0	-0.16	4.660		
19:30	241.23	-11.69	18.43	51.58	-11.73	2039393	13.61	272.7	27.5	0.49	-13.759	122.2	16.4	-0.15	4.317		
19:45	241.24	-11.70	18.44	47.82	-11.73	2039514	13.61	270.8	24.3	0.50	-14.048	125.1	18.8	-0.14	3.938		
20:00	241.24	-11.70	18.44	44.07	-11.73	2039635	13.61	268.8	21.1	0.51	-14.292	128.2	21.1	-0.12	3.527		
20:15	241.25	-11.70	18.44	40.31	-11.74	2039756	13.61	266.9	17.9	0.51	-14.492	131.4	23.3	-0.11	3.083		
20:30	241.25	-11.71	18.45	36.56	-11.74	2039877	13.61	265.0	14.7	0.52	-14.645	134.7	25.4	-0.09	2.610		
20:40	241.25	-11.71	18.45	34.05	-11.74	2039958	13.61	263.8	12.5	0.52	-14.721	137.0	26.7	-0.08	2.279		
A 2 20:45	241.26	-11.71	18.45	32.80	-11.74	2039998	13.61	263.2	11.5	0.52	-14.752	138.2	27.3	-0.07	2.109		
3 20:53	241.26	-11.71	18.45	30.80	-11.75	2040063	13.61	262.2	9.7	0.52	-14.789	140.1	28.3	-0.06	1.832		
+ 5 21:00	241.26	-11.71	18.45	29.04	-11.75	2040120	13.61	261.3	8.3	0.52	-14.811	141.8	29.2	-0.06	1.583		
7 21:03	241.26	-11.71	18.45	28.29	-11.75	2040144	13.61	260.9	7.6	0.52	-14.818	142.5	29.5	-0.05	1.475	104.0A	0.6 -0.23 6.542
7 21:15	241.27	-11.72	18.45	25.29	-11.75	2040241	13.61	259.4	5.1	0.52	-14.824	145.6	30.9	-0.04	1.033	102.3	2.9 -0.23 6.601
10 21:16	241.27	-11.72	18.46	25.04	-11.75	2040249	13.61	259.3L	4.9	0.52	-14.823	145.8	31.0	-0.04	0.996	102.1	3.1 -0.23 6.605
11 21:25	241.27	-11.72	18.46	22.79	-11.75	2040322	13.61					148.2	31.9	-0.02	0.655	100.8+	4.9 -0.23 6.628
13 21:30	241.27	-11.72	18.46	21.53	-11.75	2040362	13.61					149.5	32.4	-0.02	0.463	100.1	5.9 -0.23 6.634
14 21:45	241.27	-11.72	18.46	17.78	-11.76	2040484	13.61					153.6	33.8	0.00	-0.126	98.0	8.9 -0.23 6.622
18 22:00	241.28	-11.73	18.46	14.02	-11.76	2040605	13.61					157.8	34.9	0.03	-0.731	95.9	12.0 -0.23 6.565
21 22:15	241.28	-11.73	18.47	10.27	-11.76	2040727	13.61					162.2	35.9	0.05	-1.350	93.7	15.0 -0.23 6.464
25 22:30	241.29	-11.73	18.47	6.51	-11.77	2040849	13.62					166.7	36.7	0.07	-1.979	91.6	18.0 -0.22 6.318
28 22:45	241.29	-11.74	18.47	2.75	-11.77	2040971	13.62					171.2	37.2	0.09	-2.616	89.4	21.1 -0.22 6.129
32 23:00	241.30	-11.74	18.48	359.00	-11.77	2041092	13.62					175.8	37.5	0.12	-3.258	87.2	24.1 -0.21 5.897
36 23:15	241.30	-11.74	18.48	355.24	-11.78	2041214	13.62					180.5	37.6	0.14	-3.903	84.9	27.2 -0.20 5.623
39 23:30	241.30	-11.74	18.48	351.49	-11.78	2041336	13.62					185.1	37.5	0.16	-4.548	82.5	30.2 -0.19 5.308
43 23:45	241.31	-11.75	18.49	347.73	-11.78	2041458	13.62					189.7	37.1	0.18	-5.189	80.0	33.2 -0.18 4.955

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15      FREQUENCY IN MHZ: 8468.500      ALTITUDE IN KM: 2041581.  
ESCS = ANGLE EARTH-S/C-SUN      DATE: 2013/06/09      S/C TO SUN IN AU: 1.02810

-----GEOCENTRIC-----								-----NEW NORCIA-----				-----CEBREROS -----				-----MALARGUE -----				
KOU	UT	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.
EL	EL	EL	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
HH:MM	DEG	DEG	DEG	DEG	DEG	DEG														
DEG	DEG	DEG																		
00:00	241.31	-11.75	18.49	343.97	-11.79	2041581	13.62					194.3	36.5	0.21	-5.825	77.4	36.2	-0.16	4.563	
50 00:15	241.32	-11.75	18.49	340.22	-11.79	2041703	13.62					198.7	35.7	0.23	-6.452	74.6	39.2	-0.15	4.135	
53 00:30	241.32	-11.76	18.50	336.46	-11.79	2041825	13.62					203.0	34.7	0.25	-7.067	71.7	42.1	-0.13	3.673	
56 00:45	241.33	-11.76	18.50	332.71	-11.80	2041947	13.62					207.2	33.5	0.27	-7.669	68.5	45.0	-0.11	3.178	
59 01:00	241.33	-11.76	18.50	328.95	-11.80	2042070	13.62					211.3	32.0	0.29	-8.254	65.0	47.8	-0.09	2.653	
62 01:15	241.34	-11.77	18.51	325.20	-11.80	2042192	13.62					215.2	30.5	0.31	-8.820	61.2	50.5	-0.07	2.100	
65 01:30	241.34	-11.77	18.51	321.44	-11.81	2042315	13.62					218.9	28.7	0.33	-9.365	57.0	53.2	-0.05	1.521	
68 01:45	241.34	-11.77	18.51	317.68	-11.81	2042437	13.63					222.5	26.9	0.35	-9.886	52.4	55.7	-0.03	0.919	
70 02:00	241.35	-11.78	18.52	313.93	-11.81	2042560	13.63					226.0	24.9	0.37	-10.380	47.2	58.0	-0.01	0.297	
72 02:15	241.35	-11.78	18.52	310.17	-11.82	2042683	13.63					229.2	22.8	0.38	-10.847	41.3	60.1	0.01	-0.343	
73 02:30	241.36	-11.78	18.52	306.42	-11.82	2042805	13.63					232.4	20.5	0.40	-11.283	34.8	62.0	0.04	-0.999	
73 02:45	241.36	-11.79	18.53	302.66	-11.82	2042928	13.63					235.4	18.2	0.41	-11.688	27.5	63.6	0.06	-1.666	
72 03:00	241.37	-11.79	18.53	298.90	-11.83	2043051	13.63					238.4	15.8	0.43	-12.058	19.5	64.8	0.08	-2.343	
71 03:15	241.37	-11.79	18.53	295.15	-11.83	2043174	13.63					241.2	13.4	0.44	-12.394	10.9	65.6	0.11	-3.027	
69 03:30	241.38	-11.80	18.54	291.39	-11.83	2043297	13.63					243.9	10.8	0.45	-12.692	1.9	66.0	0.13	-3.714	
67 03:45	241.38	-11.80	18.54	287.64	-11.83	2043420	13.63					246.5	8.2	0.46	-12.953	352.9	65.8	0.16	-4.402	
64 04:00	241.38	-11.80	18.54	283.88	-11.84	2043544	13.63					249.1	5.6	0.47	-13.174	344.1	65.2	0.18	-5.088	
61 04:03	241.39	-11.80	18.54	283.13	-11.84	2043568	13.63					249.6+	5.0	0.47	-13.214	342.4	65.1	0.18	-5.224	

04:10	241.39	-11.81	18.55	281.38	-11.84	2043626	13.63		250.8L	3.8	0.47	-13.300		338.5	64.6	0.20	-5.542		
59	04:15	241.39	-11.81	18.55	280.13	-11.84	2043667	13.63						335.8	64.2	0.20	-5.768		
58	04:30	241.39	-11.81	18.55	276.37	-11.84	2043790	13.63						328.2	62.7	0.23	-6.440		
55	04:45	241.40	-11.81	18.55	272.61	-11.85	2043914	13.64						321.3	61.0	0.25	-7.100		
51	05:00	241.40	-11.82	18.56	268.86	-11.85	2044037	13.64						315.2	59.0	0.27	-7.747		
48	05:15	241.41	-11.82	18.56	265.10	-11.85	2044161	13.64						309.7	56.7	0.30	-8.377		
45	05:30	241.41	-11.82	18.56	261.35	-11.86	2044284	13.64						304.8	54.3	0.32	-8.988		
41	05:45	241.42	-11.83	18.57	257.59	-11.86	2044408	13.64						300.4	51.7	0.34	-9.576		
38	06:00	241.42	-11.83	18.57	253.84	-11.86	2044532	13.64						296.5	49.0	0.36	-10.140		
34	06:15	241.42	-11.83	18.57	250.08	-11.87	2044655	13.64						292.9	46.2	0.38	-10.676		
31	06:30	241.43	-11.84	18.58	246.32	-11.87	2044779	13.64						289.6	43.4	0.40	-11.183		
27	06:45	241.43	-11.84	18.58	242.57	-11.87	2044903	13.64						286.5	40.5	0.41	-11.659		
23	07:00	241.44	-11.84	18.58	238.81	-11.88	2045027	13.64						283.7	37.6	0.43	-12.101		
20	07:15	241.44	-11.85	18.59	235.06	-11.88	2045151	13.64						281.0	34.6	0.44	-12.508		
16	07:30	241.45	-11.85	18.59	231.30	-11.88	2045275	13.64						278.4	31.6	0.46	-12.877		
12	07:45	241.45	-11.85	18.59	227.54	-11.89	2045400	13.65						276.0	28.5	0.47	-13.208		
9	08:00	241.46	-11.86	18.60	223.79	-11.89	2045524	13.65						273.7	25.5	0.48	-13.499		
5	08:01	241.46	-11.86	18.60	223.54	-11.89	2045532	13.65						273.5	25.3	0.48			
-13.517	08:15	241.46	-11.86	18.60	220.03	-11.89	2045648	13.65						271.4	22.5	0.49			
-13.748	08:30	241.47	-11.86	18.60	216.28	-11.90	2045773	13.65						269.2	19.4	0.49	-13.955		
	08:42	241.47	-11.86	18.60	213.27	-11.90	2045872	13.65		103.8A	-0.0	-0.25	7.025		267.5	17.0	0.50	-14.089	
	08:45	241.47	-11.87	18.60	212.52	-11.90	2045897	13.65		103.4	0.6	-0.25	7.042		267.1	16.4	0.50	-14.118	
	09:00	241.47	-11.87	18.61	208.77	-11.90	2046022	13.65		101.5	3.8	-0.25	7.098		264.9	13.3	0.50	-14.238	
	09:06	241.48	-11.87	18.61	207.26	-11.90	2046071	13.65		100.8+	5.0	-0.25	7.107		264.1	12.1	0.51	-14.273	
	09:15	241.48	-11.87	18.61	205.01	-11.91	2046146	13.65		99.7	6.9	-0.25	7.106		262.8	10.3	0.51	-14.313	
	09:30	241.48	-11.88	18.61	201.25	-11.91	2046271	13.65		97.8	10.1	-0.25	7.067		260.7	7.3	0.51	-14.343	
	09:41	241.49	-11.88	18.62	198.50	-11.91	2046362	13.65		96.4	12.5	-0.25	7.008		259.1+	5.1	0.51	-14.337	
	09:45	241.49	-11.88	18.62	197.50	-11.91	2046396	13.65		95.9	13.3	-0.25	6.981		258.5	4.3	0.51	-14.329	
	09:55	241.49	-11.88	18.62	194.99	-11.92	2046479	13.65		94.7	15.4	-0.24	6.897		257.1L	2.3	0.51	-14.294	
	10:00	241.49	-11.88	18.62	193.74	-11.92	2046521	13.65		94.1	16.5	-0.24	6.848						
	10:15	241.50	-11.88	18.62	189.99	-11.92	2046645	13.65		92.2	19.7	-0.24	6.668						
	10:30	241.50	-11.89	18.63	186.23	-11.92	2046770	13.65		90.3	23.0	-0.23	6.443						
	10:45	241.51	-11.89	18.63	182.48	-11.93	2046895	13.66		88.3	26.2	-0.22	6.174						
	11:00	241.51	-11.89	18.63	178.72	-11.93	2047020	13.66		86.3	29.4	-0.21	5.861						
	11:15	241.51	-11.90	18.64	174.96	-11.93	2047146	13.66		84.2	32.6	-0.19	5.506						
	11:30	241.52	-11.90	18.64	171.21	-11.94	2047271	13.66		82.0	35.8	-0.18	5.110						
	11:45	241.52	-11.90	18.64	167.45	-11.94	2047396	13.66		79.7	39.0	-0.17	4.675						
	12:00	241.53	-11.91	18.65	163.70	-11.94	2047522	13.66		77.2	42.2	-0.15	4.203						
	12:15	241.53	-11.91	18.65	159.94	-11.95	2047647	13.66		74.5	45.3	-0.13	3.696						
	12:30	241.54	-11.91	18.65	156.18	-11.95	2047772	13.66		71.6	48.4	-0.11	3.156						
	12:45	241.54	-11.92	18.66	152.43	-11.95	2047898	13.66		68.4	51.4	-0.09	2.586						
	13:00	241.55	-11.92	18.66	148.67	-11.96	2048024	13.66		64.7	54.4	-0.07	1.987						
	13:15	241.55	-11.92	18.66	144.92	-11.96	2048149	13.66		60.6	57.2	-0.05	1.362						
	13:30	241.55	-11.93	18.67	141.16	-11.96	2048275	13.66		55.9	60.0	-0.03	0.715						
	13:45	241.56	-11.93	18.67	137.41	-11.97	2048401	13.67		50.4	62.6	-0.00	0.048						
	14:00	241.56	-11.93	18.67	133.65	-11.97	2048527	13.67		44.0	64.9	0.02	-0.637						
	14:15	241.57	-11.94	18.68	129.89	-11.97	2048653	13.67		36.6	67.0	0.05	-1.336						
	14:30	241.57	-11.94	18.68	126.14	-11.97	2048779	13.67		27.9	68.8	0.07	-2.046						
	14:45	241.58	-11.94	18.68	122.38	-11.98	2048905	13.67		18.0	70.0	0.10	-2.765						
	15:00	241.58	-11.95	18.69	118.63	-11.98	2049031	13.67		7.3	70.7	0.12	-3.488						
	15:15	241.59	-11.95	18.69	114.87	-11.98	2049157	13.67		356.1	70.8	0.15	-4.214						
	15:30	241.59	-11.95	18.69	111.12	-11.99	2049284	13.67		345.1	70.3	0.17	-4.938						
	15:45	241.60	-11.96	18.70	107.36	-11.99	2049410	13.67		334.9	69.2	0.20	-5.659						
	16:00	241.60	-11.96	18.70	103.60	-11.99	2049537	13.67		325.9	67.6	0.23	-6.372						



16:15	241.60	-11.96	18.70	99.85	-12.00	2049663	13.67	318.0	65.6	0.25	-7.074								
16:30	241.61	-11.97	18.71	96.09	-12.00	2049790	13.67	311.3	63.3	0.27	-7.763								
16:45	241.61	-11.97	18.71	92.34	-12.00	2049916	13.68	305.6	60.8	0.30	-8.436								
17:00	241.62	-11.97	18.71	88.58	-12.01	2050043	13.68	300.7	58.1	0.32	-9.089								
17:15	241.62	-11.98	18.72	84.83	-12.01	2050170	13.68	296.4	55.3	0.34	-9.720								
17:30	241.63	-11.98	18.72	81.07	-12.01	2050297	13.68	292.6	52.3	0.37	-10.326								
17:45	241.63	-11.98	18.72	77.31	-12.02	2050423	13.68	289.2	49.3	0.39	-10.905								
18:00	241.64	-11.99	18.73	73.56	-12.02	2050550	13.68	286.2	46.3	0.41	-11.454								
18:08	241.64	-11.99	18.73	71.55	-12.02	2050618	13.68	284.7	44.6	0.42	-11.733	108.3A	2.5	-0.19	5.493				
18:15	241.64	-11.99	18.73	69.80	-12.02	2050678	13.68	283.5	43.1	0.42	-11.970	109.4	3.7	-0.19	5.416				
18:22	241.64	-11.99	18.73	68.05	-12.03	2050737	13.68	282.2	41.7	0.43	-12.199	110.6+	5.0	-0.19	5.329				
18:30	241.64	-11.99	18.73	66.05	-12.03	2050805	13.68	280.9	40.0	0.44	-12.452	111.9	6.4	-0.18	5.220				
18:45	241.65	-12.00	18.74	62.29	-12.03	2050932	13.68	278.5	36.8	0.46	-12.898	114.5	9.0	-0.18	4.984				
19:00	241.65	-12.00	18.74	58.53	-12.03	2051059	13.68	276.3	33.6	0.47	-13.304	117.2	11.6	-0.17	4.710				
19:15	241.66	-12.00	18.74	54.78	-12.04	2051186	13.68	274.2	30.4	0.48	-13.671	120.0	14.1	-0.16	4.398				
19:30	241.66	-12.01	18.74	51.02	-12.04	2051314	13.68	272.1	27.2	0.50	-13.996	122.8	16.5	-0.14	4.049				
19:45	241.67	-12.01	18.75	47.27	-12.04	2051441	13.69	270.2	24.0	0.51	-14.278	125.8	18.9	-0.13	3.667				
20:00	241.67	-12.01	18.75	43.51	-12.05	2051569	13.69	268.2	20.8	0.51	-14.516	128.9	21.2	-0.12	3.251				
20:15	241.68	-12.02	18.75	39.76	-12.05	2051696	13.69	266.4	17.5	0.52	-14.708	132.1	23.3	-0.10	2.803				
20:30	241.68	-12.02	18.76	36.00	-12.05	2051824	13.69	264.5	14.3	0.53	-14.855	135.4	25.4	-0.08	2.327				
20:38	241.68	-12.02	18.76	34.00	-12.06	2051892	13.69	263.5	12.6	0.53	-14.913	137.2	26.5	-0.07	2.061				
20:45	241.69	-12.02	18.76	32.24	-12.06	2051952	13.69	262.6	11.1	0.53	-14.954	138.9	27.3	-0.06	1.822				
20:51	241.69	-12.02	18.76	30.74	-12.06	2052003	13.69	261.9	9.9	0.53	-14.981	140.3	28.1	-0.06	1.614				
21:00	241.69	-12.03	18.76	28.49	-12.06	2052080	13.69	260.8	8.0	0.53	-15.007	142.5	29.2	-0.05	1.293	104.4A	0.6	-0.22	6.322
21:14	241.69	-12.03	18.77	24.98	-12.06	2052199	13.69	259.0+	5.0	0.53	-15.013	146.1	30.7	-0.03	0.778	102.3	3.4	-0.23	6.390
21:15	241.69	-12.03	18.77	24.73	-12.06	2052207	13.69	258.9L	4.8	0.53	-15.012	146.3	30.8	-0.03	0.741	102.2	3.6	-0.23	6.393
21:22	241.70	-12.03	18.77	22.98	-12.07	2052267	13.69					148.1	31.5	-0.02	0.476	101.2+	4.9	-0.23	6.411
21:30	241.70	-12.03	18.77	20.98	-12.07	2052335	13.69					150.3	32.3	-0.01	0.168	100.1	6.5	-0.23	6.419
21:45	241.70	-12.04	18.77	17.22	-12.07	2052463	13.69					154.3	33.6	0.01	-0.423	97.9	9.6	-0.23	6.401
22:00	241.71	-12.04	18.78	13.47	-12.07	2052591	13.69					158.6	34.8	0.04	-1.029	95.8	12.6	-0.22	6.337
22:15	241.71	-12.04	18.78	9.71	-12.08	2052720	13.69					162.9	35.7	0.06	-1.649	93.7	15.6	-0.22	6.229
22:30	241.72	-12.05	18.78	5.95	-12.08	2052848	13.70					167.4	36.5	0.08	-2.278	91.5	18.7	-0.22	6.078
22:45	241.72	-12.05	18.79	2.20	-12.08	2052976	13.70					171.9	37.0	0.10	-2.916	89.3	21.7	-0.21	5.882
23:00	241.73	-12.05	18.79	358.44	-12.09	2053104	13.70					176.5	37.3	0.13	-3.558	87.1	24.8	-0.20	5.644
23:15	241.73	-12.06	18.79	354.69	-12.09	2053233	13.70					181.2	37.3	0.15	-4.202	84.8	27.8	-0.19	5.365
23:30	241.74	-12.06	18.80	350.93	-12.09	2053361	13.70					185.8	37.1	0.17	-4.845	82.4	30.9	-0.18	5.045
23:45	241.74	-12.06	18.80	347.18	-12.10	2053490	13.70					190.4	36.7	0.19	-5.485	79.9	33.9	-0.17	4.685

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 2053618.  
ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/06/10 S/C TO SUN IN AU: 1.02827

-----GEOCENTRIC-----										-----NEW NORCIA-----				-----CEBREROS-----				-----MALARGUE-----			
KOU	UT	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	
EL	EL	EL	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	
HH:MM	MM	DEG	DEG	DEG	DEG	DEG															
DEG	DEG	DEG																			
00:00	241.74	-12.07	18.80	343.42	-12.10	2053618	13.70					194.9	36.1	0.22	-6.119	77.3	36.9	-0.15	4.289		
00:15	241.75	-12.07	18.81	339.66	-12.10	2053747	13.70					199.3	35.3	0.24	-6.743	74.5	39.8	-0.14	3.856		
00:30	241.75	-12.07	18.81	335.91	-12.11	2053876	13.70					203.6	34.2	0.26	-7.356	71.6	42.8	-0.12	3.389		
00:45	241.76	-12.08	18.81	332.15	-12.11	2054005	13.70					207.7	33.0	0.28	-7.955	68.3	45.6	-0.10	2.891		
01:00	241.76	-12.08	18.82	328.40	-12.11	2054133	13.70					211.7	31.5	0.30	-8.537	64.8	48.4	-0.08	2.362		
01:15	241.77	-12.08	18.82	324.64	-12.12	2054262	13.70					215.6	30.0	0.32	-9.099	61.0	51.2	-0.06	1.806		
01:30	241.77	-12.09	18.82	320.89	-12.12	2054391	13.71					219.3	28.2	0.34	-9.640	56.8	53.8	-0.04	1.224		
01:45	241.78	-12.09	18.83	317.13	-12.12	2054520	13.71					222.8	26.3	0.36	-10.156	52.0	56.3	-0.02	0.620		
02:00	241.78	-12.09	18.83	313.37	-12.13	2054650	13.71					226.3	24.3	0.38	-10.646	46.7	58.6	0.00	-0.004		
02:15	241.79	-12.10	18.83	309.62	-12.13	2054779	13.71					229.5	22.2	0.39	-11.108	40.7	60.7	0.02	-0.646		

72	02:30	241.79	-12.10	18.84	305.86	-12.13	2054908	13.71		232.7	20.0	0.41	-11.539		34.0	62.6	0.05	-1.303	
73	02:45	241.79	-12.10	18.84	302.11	-12.14	2055037	13.71		235.7	17.6	0.42	-11.938		26.6	64.1	0.07	-1.971	
72	03:00	241.80	-12.11	18.84	298.35	-12.14	2055167	13.71		238.6	15.2	0.44	-12.303		18.4	65.3	0.09	-2.649	
70	03:15	241.80	-12.11	18.85	294.60	-12.14	2055296	13.71		241.4	12.8	0.45	-12.633		9.7	66.0	0.12	-3.332	
68	03:30	241.81	-12.11	18.85	290.84	-12.15	2055426	13.71		244.1	10.2	0.46	-12.926		0.6	66.3	0.14	-4.019	
66	03:45	241.81	-12.12	18.85	287.08	-12.15	2055555	13.71		246.7	7.6	0.47	-13.180		351.5	66.1	0.17	-4.706	
63	04:00	241.82	-12.12	18.86	283.33	-12.15	2055685	13.71		249.2+	5.0	0.47	-13.395		342.6	65.4	0.19	-5.390	
60	04:07	241.82	-12.12	18.86	281.58	-12.15	2055746	13.71		250.4L	3.7	0.48	-13.482		338.7	64.9	0.20	-5.707	
59	04:15	241.82	-12.12	18.86	279.57	-12.16	2055815	13.71							334.4	64.3	0.21	-6.068	
57	04:30	241.83	-12.13	18.86	275.82	-12.16	2055945	13.72							326.8	62.8	0.24	-6.738	
54	04:45	241.83	-12.13	18.86	272.06	-12.16	2056075	13.72							320.0	61.0	0.26	-7.396	
51	05:00	241.84	-12.13	18.87	268.31	-12.17	2056204	13.72							314.0	58.9	0.28	-8.039	
47	05:15	241.84	-12.14	18.87	264.55	-12.17	2056334	13.72							308.6	56.6	0.31	-8.666	
44	05:30	241.84	-12.14	18.87	260.79	-12.17	2056465	13.72							303.8	54.1	0.33	-9.272	
41	05:45	241.85	-12.14	18.88	257.04	-12.18	2056595	13.72							299.4	51.5	0.35	-9.856	
37	06:00	241.85	-12.15	18.88	253.28	-12.18	2056725	13.72							295.6	48.8	0.37	-10.416	
33	06:15	241.86	-12.15	18.88	249.53	-12.18	2056855	13.72							292.0	46.0	0.39	-10.947	
30	06:30	241.86	-12.15	18.89	245.77	-12.19	2056986	13.72							288.8	43.2	0.41	-11.449	
26	06:45	241.87	-12.16	18.89	242.02	-12.19	2057116	13.72							285.7	40.3	0.42	-11.920	
23	07:00	241.87	-12.16	18.89	238.26	-12.19	2057246	13.72							282.9	37.3	0.44	-12.356	
19	07:15	241.88	-12.16	18.90	234.50	-12.20	2057377	13.73							280.3	34.3	0.45	-12.757	
16	07:30	241.88	-12.17	18.90	230.75	-12.20	2057508	13.73							277.8	31.3	0.46	-13.120	
12	07:45	241.89	-12.17	18.90	226.99	-12.20	2057638	13.73							275.4	28.3	0.48	-13.445	
8	07:58	241.89	-12.17	18.91	223.74	-12.21	2057752	13.73							273.4	25.6	0.48		
-13.694 + 5	08:00	241.89	-12.17	18.91	223.24	-12.21	2057769	13.73							273.1	25.2	0.49	-13.729	
5	08:13	241.89	-12.17	18.91	219.98	-12.21	2057882	13.73							271.1	22.6	0.49		
-13.942 L 1	08:15	241.89	-12.18	18.91	219.48	-12.21	2057900	13.73							270.8	22.2	0.49	-13.972	
	08:30	241.90	-12.18	18.91	215.73	-12.21	2058031	13.73							268.6	19.1	0.50	-14.172	
	08:39	241.90	-12.18	18.92	213.47	-12.21	2058109	13.73		104.2A-0.0	-0.24	6.805			267.3	17.3	0.51	-14.271	
	08:45	241.90	-12.18	18.92	211.97	-12.22	2058162	13.73		103.4	1.2	-0.24	6.837		266.5	16.1	0.51	-14.329	
	09:00	241.91	-12.19	18.92	208.21	-12.22	2058293	13.73		101.5	4.4	-0.24	6.886		264.3	13.1	0.51	-14.442	
	09:03	241.91	-12.19	18.92	207.46	-12.22	2058319	13.73		101.1+	5.0	-0.24	6.890		263.9	12.4	0.51	-14.459	
	09:15	241.91	-12.19	18.92	204.46	-12.22	2058424	13.73		99.7	7.6	-0.24	6.887		262.2	10.0	0.51	-14.510	
	09:30	241.92	-12.19	18.93	200.70	-12.23	2058555	13.73		97.8	10.7	-0.24	6.841		260.1	7.0	0.51	-14.534	
	09:40	241.92	-12.19	18.93	198.20	-12.23	2058643	13.73		96.6	12.9	-0.24	6.785		258.7+	5.0	0.51	-14.525	
	09:45	241.92	-12.19	18.93	196.95	-12.23	2058686	13.73		95.9	13.9	-0.24	6.748		257.9	4.0	0.51	-14.513	
	09:53	241.92	-12.20	18.93	194.94	-12.23	2058756	13.73		95.0	15.6	-0.24	6.680		256.8L	2.4	0.51	-14.484	
	10:00	241.93	-12.20	18.93	193.19	-12.23	2058818	13.73		94.1	17.1	-0.23	6.609						
	10:15	241.93	-12.20	18.94	189.44	-12.24	2058949	13.74		92.2	20.4	-0.23	6.423						
	10:30	241.94	-12.20	18.94	185.68	-12.24	2059080	13.74		90.3	23.6	-0.22	6.192						
	10:45	241.94	-12.21	18.94	181.93	-12.24	2059212	13.74		88.4	26.8	-0.21	5.916						
	11:00	241.95	-12.21	18.95	178.17	-12.25	2059343	13.74		86.3	30.0	-0.20	5.597						
	11:15	241.95	-12.21	18.95	174.41	-12.25	2059475	13.74		84.2	33.2	-0.19	5.236						
	11:30	241.95	-12.22	18.95	170.66	-12.25	2059607	13.74		82.0	36.4	-0.17	4.835						
	11:45	241.96	-12.22	18.96	166.90	-12.26	2059738	13.74		79.7	39.6	-0.16	4.395						
	12:00	241.96	-12.22	18.96	163.15	-12.26	2059870	13.74		77.2	42.8	-0.14	3.919						
	12:15	241.97	-12.23	18.96	159.39	-12.26	2060002	13.74		74.5	45.9	-0.12	3.407						
	12:30	241.97	-12.23	18.97	155.64	-12.27	2060134	13.74		71.5	49.0	-0.10	2.863						
	12:45	241.98	-12.23	18.97	151.88	-12.27	2060266	13.74		68.3	52.0	-0.08	2.289						
	13:00	241.98	-12.24	18.97	148.12	-12.27	2060398	13.75		64.6	55.0	-0.06	1.687						
	13:15	241.99	-12.24	18.98	144.37	-12.28	2060530	13.75		60.4	57.9	-0.04	1.060						
	13:30	241.99	-12.24	18.98	140.61	-12.28	2060663	13.75		55.6	60.6	-0.01	0.411						
	13:45	242.00	-12.25	18.98	136.86	-12.28	2060795	13.75		50.0	63.2	0.01	-0.259						





11:45	242.41	-12.54	19.26	166.36	-12.58	2072698	13.83	79.7	40.2	-0.15	4.119				
12:00	242.41	-12.55	19.27	162.61	-12.58	2072836	13.83	77.2	43.4	-0.13	3.638				
12:15	242.42	-12.55	19.27	158.85	-12.58	2072974	13.83	74.5	46.5	-0.11	3.122				
12:30	242.42	-12.55	19.27	155.10	-12.59	2073113	13.83	71.5	49.6	-0.09	2.574				
12:45	242.43	-12.56	19.28	151.34	-12.59	2073251	13.83	68.2	52.7	-0.07	1.997				
13:00	242.43	-12.56	19.28	147.59	-12.59	2073390	13.83	64.5	55.6	-0.05	1.392				
13:15	242.43	-12.56	19.28	143.83	-12.60	2073528	13.83	60.2	58.5	-0.03	0.762				
13:30	242.44	-12.57	19.29	140.08	-12.60	2073667	13.83	55.3	61.2	-0.00	0.111				
13:45	242.44	-12.57	19.29	136.32	-12.60	2073805	13.83	49.6	63.8	0.02	-0.560				
14:00	242.45	-12.57	19.29	132.56	-12.61	2073944	13.84	42.9	66.1	0.04	-1.247				
14:15	242.45	-12.58	19.30	128.81	-12.61	2074083	13.84	35.0	68.1	0.07	-1.948				
14:30	242.46	-12.58	19.30	125.05	-12.61	2074222	13.84	25.9	69.8	0.09	-2.659				
14:45	242.46	-12.58	19.30	121.30	-12.62	2074361	13.84	15.5	70.9	0.12	-3.378				
15:00	242.47	-12.59	19.31	117.54	-12.62	2074500	13.84	4.2	71.5	0.15	-4.100				
15:15	242.47	-12.59	19.31	113.79	-12.62	2074639	13.84	352.6	71.4	0.17	-4.824				
15:30	242.48	-12.59	19.31	110.03	-12.63	2074778	13.84	341.5	70.7	0.20	-5.546				
15:45	242.48	-12.60	19.32	106.28	-12.63	2074917	13.84	331.4	69.4	0.22	-6.262				
16:00	242.49	-12.60	19.32	102.52	-12.63	2075056	13.84	322.6	67.6	0.25	-6.970				
16:15	242.49	-12.60	19.32	98.76	-12.64	2075196	13.84	315.0	65.5	0.27	-7.667				
16:30	242.50	-12.61	19.33	95.01	-12.64	2075335	13.85	308.6	63.1	0.30	-8.350				
16:45	242.50	-12.61	19.33	91.25	-12.64	2075474	13.85	303.2	60.5	0.32	-9.016				
17:00	242.51	-12.61	19.33	87.50	-12.65	2075614	13.85	298.5	57.7	0.34	-9.661				
17:15	242.51	-12.62	19.34	83.74	-12.65	2075754	13.85	294.4	54.8	0.36	-10.284				
17:30	242.52	-12.62	19.34	79.99	-12.65	2075893	13.85	290.8	51.8	0.39	-10.880				
17:45	242.52	-12.62	19.34	76.23	-12.66	2076033	13.85	287.5	48.8	0.41	-11.449				
18:00	242.52	-12.63	19.34	72.48	-12.66	2076173	13.85	284.6	45.7	0.42	-11.988				
18:06	242.53	-12.63	19.35	70.97	-12.66	2076229	13.85	283.5	44.5	0.43	-12.194	109.1A	2.4	-0.18	5.043
18:15	242.53	-12.63	19.35	68.72	-12.66	2076313	13.85	282.0	42.6	0.44	-12.493	110.6	4.1	-0.17	4.939
18:20	242.53	-12.63	19.35	67.47	-12.67	2076359	13.85	281.1	41.5	0.45	-12.654	111.4+	4.9	-0.17	4.874
18:30	242.53	-12.64	19.35	64.97	-12.67	2076452	13.85	279.5	39.4	0.46	-12.963	113.1	6.7	-0.17	4.732
18:45	242.54	-12.64	19.35	61.21	-12.67	2076592	13.85	277.2	36.2	0.47	-13.397	115.8	9.3	-0.16	4.485
19:00	242.54	-12.64	19.36	57.45	-12.68	2076732	13.85	275.0	33.0	0.49	-13.791	118.4	11.8	-0.15	4.201
19:15	242.55	-12.65	19.36	53.70	-12.68	2076873	13.86	272.9	29.8	0.50	-14.145	121.2	14.3	-0.14	3.879
19:30	242.55	-12.65	19.36	49.94	-12.68	2077013	13.86	270.9	26.6	0.51	-14.457	124.1	16.7	-0.12	3.522
19:45	242.56	-12.65	19.37	46.19	-12.69	2077153	13.86	269.0	23.4	0.52	-14.726	127.1	19.1	-0.11	3.130
20:00	242.56	-12.66	19.37	42.43	-12.69	2077293	13.86	267.1	20.1	0.53	-14.950	130.2	21.3	-0.10	2.706
20:15	242.57	-12.66	19.37	38.68	-12.69	2077434	13.86	265.2	16.9	0.54	-15.128	133.4	23.4	-0.08	2.251
20:30	242.57	-12.66	19.38	34.92	-12.70	2077574	13.86	263.4	13.7	0.54	-15.261	136.8	25.4	-0.06	1.768
20:33	242.57	-12.66	19.38	34.17	-12.70	2077602	13.86	263.0	13.1	0.54	-15.282	137.5	25.8	-0.06	1.668
A 2 20:45	242.58	-12.67	19.38	31.17	-12.70	2077715	13.86	261.5	10.5	0.54	-15.347	140.3	27.3	-0.04	1.258
5 + 5 20:47	242.58	-12.67	19.38	30.67	-12.70	2077733	13.86	261.3	10.1	0.54	-15.355	140.8	27.6	-0.04	1.188
7 20:54	242.58	-12.67	19.38	28.91	-12.70	2077799	13.86	260.4	8.6	0.54	-15.376	142.5	28.4	-0.03	0.940
8 21:00	242.58	-12.67	19.38	27.41	-12.70	2077855	13.86	259.7	7.4	0.54	-15.385	143.9	29.1	-0.03	0.723
11 21:11	242.59	-12.67	19.39	24.66	-12.70	2077958	13.86	258.3+	5.0	0.54	-15.384	146.7	30.3	-0.01	0.317
11 21:12	242.59	-12.67	19.39	24.41	-12.71	2077968	13.86	258.2L	4.8	0.54	-15.383	147.0	30.4	-0.01	0.279
12 21:15	242.59	-12.67	19.39	23.65	-12.71	2077996	13.86					147.7	30.7	-0.01	0.166
12 21:16	242.59	-12.67	19.39	23.40	-12.71	2078005	13.86					148.0	30.8	-0.00	0.128
15 21:30	242.59	-12.68	19.39	19.90	-12.71	2078137	13.86					151.7	32.1	0.01	-0.411
19 21:45	242.60	-12.68	19.39	16.14	-12.71	2078277	13.86					155.8	33.4	0.04	-1.005
23 22:00	242.60	-12.68	19.40	12.39	-12.72	2078418	13.87					160.0	34.5	0.06	-1.613
26 22:15	242.61	-12.69	19.40	8.63	-12.72	2078559	13.87					164.4	35.3	0.08	-2.234
30 22:30	242.61	-12.69	19.40	4.88	-12.72	2078700	13.87					168.8	36.0	0.10	-2.865
33 22:45	242.62	-12.69	19.41	1.12	-12.73	2078841	13.87					173.3	36.4	0.12	-3.502
												89.3	23.0	-0.19	5.394



09:15	242.82	-12.84	19.54	203.39	-12.87	2084822	13.91	99.7	8.8	-0.23	6.455	261.1	9.5	0.53	-14.891
09:30	242.82	-12.84	19.54	199.64	-12.87	2084966	13.91	97.8	12.0	-0.23	6.396	259.0	6.5	0.53	-14.902
09:38	242.82	-12.84	19.54	197.63	-12.87	2085043	13.91	96.9	13.7	-0.22	6.345	257.8+	5.0	0.53	-14.890
09:45	242.83	-12.84	19.55	195.88	-12.88	2085110	13.91	96.0	15.2	-0.22	6.290	256.8	3.6	0.53	-14.868
09:51	242.83	-12.84	19.55	194.38	-12.88	2085168	13.91	95.3	16.4	-0.22	6.234	255.9L	2.4	0.53	-14.842
10:00	242.83	-12.85	19.55	192.13	-12.88	2085254	13.91	94.2	18.4	-0.22	6.137				
10:15	242.84	-12.85	19.55	188.37	-12.88	2085398	13.91	92.3	21.6	-0.21	5.939				
10:30	242.84	-12.85	19.55	184.62	-12.89	2085542	13.91	90.4	24.8	-0.20	5.696				
10:45	242.85	-12.86	19.56	180.86	-12.89	2085686	13.91	88.4	28.0	-0.19	5.408				
11:00	242.85	-12.86	19.56	177.11	-12.89	2085830	13.92	86.4	31.3	-0.18	5.078				
11:15	242.86	-12.86	19.56	173.35	-12.90	2085975	13.92	84.3	34.5	-0.17	4.707				
11:30	242.86	-12.87	19.57	169.59	-12.90	2086119	13.92	82.1	37.7	-0.15	4.296				
11:45	242.87	-12.87	19.57	165.84	-12.90	2086263	13.92	79.8	40.9	-0.14	3.847				
12:00	242.87	-12.87	19.57	162.08	-12.91	2086408	13.92	77.2	44.0	-0.12	3.361				
12:15	242.88	-12.88	19.58	158.33	-12.91	2086552	13.92	74.5	47.1	-0.10	2.842				
12:30	242.88	-12.88	19.58	154.57	-12.91	2086697	13.92	71.5	50.2	-0.08	2.302				
12:45	242.89	-12.88	19.58	150.82	-12.92	2086840	13.92	68.1	53.3	-0.06	1.772				
13:00	242.89	-12.89	19.59	147.06	-12.92	2086982	13.92	64.4	56.2	-0.04	1.215				
13:15	242.90	-12.89	19.59	143.31	-12.92	2087123	13.92	60.1	59.1	-0.02	0.633				
13:30	242.90	-12.89	19.59	139.55	-12.93	2087261	13.92	55.1	61.8	-0.00	0.030				
13:45	242.91	-12.90	19.60	135.80	-12.93	2087399	13.93	49.2	64.3	0.02	-0.593				
14:00	242.91	-12.90	19.60	132.04	-12.93	2087535	13.93	42.4	66.7	0.04	-1.233				
14:15	242.92	-12.90	19.60	128.29	-12.94	2087669	13.93	34.3	68.7	0.07	-1.885				
14:30	242.92	-12.91	19.60	124.53	-12.94	2087802	13.93	24.8	70.3	0.09	-2.549				
14:45	242.93	-12.91	19.61	120.78	-12.94	2087933	13.93	14.1	71.4	0.11	-3.219				
15:00	242.93	-12.91	19.61	117.02	-12.95	2088063	13.93	2.6	71.8	0.14	-3.893				
15:15	242.94	-12.92	19.61	113.27	-12.95	2088192	13.93	350.9	71.6	0.16	-4.569				
15:30	242.94	-12.92	19.62	109.51	-12.95	2088319	13.93	339.7	70.8	0.19	-5.253				
15:45	242.95	-12.92	19.62	105.76	-12.96	2088446	13.93	329.7	69.5	0.21	-5.967				
16:00	242.95	-12.93	19.62	102.00	-12.96	2088572	13.93	321.0	67.6	0.24	-6.673				
16:15	242.96	-12.93	19.62	98.25	-12.96	2088699	13.93	313.6	65.4	0.26	-7.367				
16:30	242.96	-12.93	19.63	94.49	-12.97	2088826	13.94	307.3	63.0	0.28	-8.046				
16:45	242.97	-12.94	19.63	90.74	-12.97	2088953	13.94	302.0	60.3	0.31	-8.708				
17:00	242.98	-12.94	19.63	86.98	-12.97	2089080	13.94	297.4	57.5	0.33	-9.350				
17:15	242.98	-12.94	19.63	83.23	-12.98	2089207	13.94	293.4	54.6	0.35	-9.968				
17:30	242.99	-12.95	19.64	79.47	-12.98	2089335	13.94	289.9	51.6	0.37	-10.560				
17:45	242.99	-12.95	19.64	75.72	-12.98	2089462	13.94	286.7	48.6	0.39	-11.124				
18:00	243.00	-12.95	19.64	71.96	-12.99	2089589	13.94	283.9	45.4	0.41	-11.657				
18:05	243.00	-12.95	19.64	70.71	-12.99	2089632	13.94	283.0	44.4	0.42	-11.827	109.5A	2.4	-0.19	5.409
18:15	243.00	-12.96	19.65	68.21	-12.99	2089717	13.94	281.2	42.3	0.43	-12.157	111.2	4.2	-0.19	5.289
18:20	243.01	-12.96	19.65	66.96	-12.99	2089759	13.94	280.4	41.2	0.44	-12.316	112.0+	5.1	-0.18	5.223
18:30	243.01	-12.96	19.65	64.46	-12.99	2089844	13.94	278.8	39.1	0.45	-12.622	113.7	6.8	-0.18	5.077
18:45	243.01	-12.96	19.65	60.70	-12.99	2089972	13.94	276.5	35.9	0.46	-13.049	116.3	9.4	-0.17	4.826
19:00	243.02	-12.97	19.65	56.95	-13.00	2090099	13.94	274.4	32.7	0.48	-13.438	119.0	12.0	-0.16	4.537
19:15	243.03	-12.97	19.66	53.19	-13.00	2090227	13.94	272.3	29.5	0.49	-13.785	121.8	14.4	-0.15	4.211
19:30	243.03	-12.97	19.66	49.44	-13.00	2090355	13.95	270.4	26.3	0.50	-14.091	124.7	16.8	-0.14	3.849
19:45	243.04	-12.98	19.66	45.68	-13.01	2090483	13.95	268.4	23.1	0.51	-14.353	127.7	19.1	-0.12	3.454
20:00	243.04	-12.98	19.66	41.93	-13.01	2090611	13.95	266.5	19.9	0.52	-14.571	130.8	21.3	-0.11	3.026
20:15	243.05	-12.98	19.67	38.17	-13.01	2090739	13.95	264.7	16.7	0.52	-14.743	134.0	23.4	-0.09	2.568
20:30	243.05	-12.98	19.67	34.42	-13.02	2090867	13.95	262.8	13.5	0.53	-14.869	137.4	25.4	-0.07	2.082
20:31	243.05	-12.98	19.67	34.17	-13.02	2090875	13.95	262.7	13.2	0.53	-14.876	137.6	25.6	-0.07	2.049
20:45	243.06	-12.99	19.67	30.66	-13.02	2090995	13.95	261.0	10.3	0.53	-14.949	140.9	27.3	-0.06	1.569
20:51	243.06	-12.99	19.67	29.16	-13.02	2091046	13.95	260.3	9.0	0.53	-14.968	142.4	28.0	-0.05	1.357
21:00	243.06	-12.99	19.68	26.91	-13.02	2091123	13.95	259.1	7.1	0.53	-14.981	144.6	29.0	-0.04	1.032
												105.5A	0.6	-0.22	6.253
												104.2	2.4	-0.22	6.306

9	21:10	243.07	-12.99	19.68	24.41	-13.03	2091208	13.95	257.9+	5.0	0.53	-14.977	147.1	30.1	-0.02	0.662	102.8	4.4	-0.22	6.345	
11	21:11	243.07	-12.99	19.68	24.15	-13.03	2091217	13.95	257.8L	4.8	0.53	-14.975	147.4	30.2	-0.02	0.625	102.6	4.6	-0.22	6.348	
11	21:13	243.07	-12.99	19.68	23.65	-13.03	2091234	13.95					147.9	30.4	-0.02	0.549	102.4+	5.0	-0.22	6.353	
12	21:15	243.07	-12.99	19.68	23.15	-13.03	2091251	13.95					148.4	30.6	-0.02	0.474	102.1	5.4	-0.23	6.357	
12	21:30	243.08	-13.00	19.68	19.40	-13.03	2091379	13.95					152.4	32.0	0.00	-0.105	100.0	8.4	-0.23	6.365	
16	21:45	243.08	-13.00	19.68	15.64	-13.03	2091508	13.95					156.5	33.2	0.02	-0.700	97.8	11.4	-0.22	6.327	
19	22:00	243.09	-13.00	19.69	11.89	-13.04	2091636	13.95					160.7	34.3	0.05	-1.309	95.7	14.4	-0.22	6.246	
23	22:15	243.09	-13.01	19.69	8.13	-13.04	2091765	13.95					165.0	35.1	0.07	-1.931	93.6	17.4	-0.22	6.120	
27	22:30	243.10	-13.01	19.69	4.38	-13.04	2091893	13.96					169.5	35.8	0.09	-2.561	91.5	20.5	-0.21	5.950	
30	22:45	243.10	-13.01	19.69	0.63	-13.05	2092022	13.96					174.0	36.2	0.11	-3.198	89.3	23.5	-0.20	5.738	
34	23:00	243.11	-13.02	19.70	356.87	-13.05	2092150	13.96					178.5	36.3	0.14	-3.838	87.0	26.6	-0.19	5.483	
37	23:15	243.12	-13.02	19.70	353.12	-13.05	2092279	13.96					183.0	36.3	0.16	-4.480	84.7	29.6	-0.18	5.188	
41	23:30	243.12	-13.02	19.70	349.36	-13.06	2092408	13.96					187.6	36.0	0.18	-5.119	82.3	32.7	-0.17	4.853	
44	23:45	243.13	-13.03	19.71	345.61	-13.06	2092537	13.96					192.1	35.5	0.20	-5.754	79.8	35.7	-0.16	4.479	
48																					

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15  
 ESCS = ANGLE EARTH-S/C-SUN

FREQUENCY IN MHZ: 8468.500  
 DATE: 2013/06/13

ALTITUDE IN KM: 2092666.  
 S/C TO SUN IN AU: 1.02876

-----GEOCENTRIC-----									-----NEW NORCIA-----				-----CEBREROS -----				-----MALARGUE -----			
KOU	UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.
EL	EL	EL	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
HH:MM	DEG	DEG	DEG	DEG	DEG	DEG														
DEG	DEG	DEG																		
00:00	243.13	-13.03	19.71	341.85	-13.06	2092666	13.96						196.5	34.8	0.23	-6.381	77.2	38.7	-0.14	4.069
51	00:15	243.14	-13.03	19.71	338.10	-13.07	2092795	13.96					200.7	33.9	0.25	-6.999	74.3	41.6	-0.13	3.624
54	00:30	243.14	-13.04	19.71	334.34	-13.07	2092924	13.96					204.9	32.8	0.27	-7.603	71.3	44.6	-0.11	3.146
57	00:45	243.15	-13.04	19.72	330.59	-13.07	2093053	13.96					209.0	31.5	0.29	-8.193	68.0	47.4	-0.09	2.637
60	01:00	243.15	-13.04	19.72	326.83	-13.08	2093182	13.96					212.9	30.0	0.31	-8.764	64.4	50.2	-0.07	2.098
63	01:15	243.16	-13.05	19.72	323.08	-13.08	2093312	13.97					216.6	28.4	0.33	-9.315	60.4	52.9	-0.05	1.534
66	01:30	243.17	-13.05	19.72	319.32	-13.08	2093441	13.97					220.2	26.6	0.35	-9.844	56.0	55.5	-0.03	0.945
68	01:45	243.17	-13.05	19.73	315.57	-13.08	2093570	13.97					223.7	24.7	0.37	-10.347	51.0	58.0	-0.01	0.335
70	02:00	243.18	-13.06	19.73	311.81	-13.09	2093700	13.97					227.0	22.7	0.38	-10.824	45.4	60.3	0.01	-0.294
71	02:15	243.18	-13.06	19.73	308.06	-13.09	2093829	13.97					230.2	20.5	0.40	-11.271	39.1	62.3	0.03	-0.940
72	02:30	243.19	-13.06	19.74	304.31	-13.09	2093959	13.97					233.3	18.3	0.41	-11.687	32.0	64.1	0.06	-1.599
71	02:45	243.19	-13.07	19.74	300.55	-13.10	2094089	13.97					236.2	15.9	0.43	-12.071	24.1	65.5	0.08	-2.268
70	03:00	243.20	-13.07	19.74	296.80	-13.10	2094218	13.97					239.1	13.5	0.44	-12.420	15.4	66.6	0.10	-2.946
69	03:15	243.20	-13.07	19.74	293.04	-13.10	2094348	13.97					241.8	11.0	0.45	-12.733	6.1	67.2	0.13	-3.628
67	03:30	243.21	-13.07	19.75	289.29	-13.11	2094478	13.97					244.5	8.5	0.46	-13.009	356.7	67.2	0.15	-4.312
64	03:45	243.22	-13.08	19.75	285.53	-13.11	2094608	13.97					247.1	5.9	0.47	-13.246	347.3	66.8	0.18	-4.995
62	03:50	243.22	-13.08	19.75	284.28	-13.11	2094651	13.97					247.9+	5.0	0.47	-13.316	344.3	66.6	0.18	-5.222
61	03:59	243.22	-13.08	19.75	282.03	-13.11	2094729	13.97					249.4L	3.4	0.48	-13.432	339.0	66.0	0.20	-5.629
59	04:00	243.22	-13.08	19.75	281.78	-13.11	2094738	13.97									338.5	65.9	0.20	-5.674
59	04:15	243.23	-13.08	19.75	278.02	-13.12	2094868	13.98									330.3	64.6	0.22	-6.346
56	04:30	243.23	-13.09	19.76	274.27	-13.12	2094998	13.98									322.9	62.9	0.25	-7.008
52	04:45	243.24	-13.09	19.76	270.51	-13.12	2095129	13.98									316.3	60.9	0.27	-7.658
49	05:00	243.24	-13.09	19.76	266.76	-13.13	2095259	13.98									310.5	58.7	0.29	-8.292
46	05:15	243.25	-13.10	19.77	263.00	-13.13	2095389	13.98									305.4	56.3	0.32	-8.908
42	05:30	243.26	-13.10	19.77	259.25	-13.13	2095520	13.98									300.8	53.8	0.34	-9.503
39	05:45	243.26	-13.10	19.77	255.50	-13.14	2095650	13.98									296.7	51.1	0.36	-10.075
35	06:00	243.27	-13.11	19.77	251.74	-13.14	2095781	13.98									293.0	48.3	0.38	-10.620
32	06:15	243.27	-13.11	19.78	247.99	-13.14	2095911	13.98									289.6	45.5	0.39	-11.138
28	06:30	243.28	-13.11	19.78	244.23	-13.15	2096042	13.98									286.5	42.6	0.41	-11.625
25	06:45	243.28	-13.12	19.78	240.48	-13.15	2096173	13.98									283.6	39.6	0.43	-12.080
21	07:00	243.29	-13.12	19.78	236.72	-13.15	2096303	13.99									280.9	36.6	0.44	-12.500
17	07:15	243.29	-13.12	19.79	232.97	-13.16	2096434	13.99									278.3	33.6	0.46	-12.884
14	07:30	243.30	-13.13	19.79	229.21	-13.16	2096565	13.99									275.9	30.6	0.47	-13.230





19:00	243.56	-13.28	19.91	56.50	-13.31	2102658	14.03	273.8	32.5	0.48	-13.666	119.6	12.0	-0.15	4.291					
19:15	243.57	-13.28	19.92	52.75	-13.31	2102792	14.03	271.8	29.3	0.50	-14.008	122.4	14.5	-0.14	3.962					
19:30	243.57	-13.28	19.92	48.99	-13.31	2102926	14.03	269.8	26.1	0.51	-14.308	125.3	16.8	-0.13	3.597					
19:45	243.58	-13.29	19.92	45.24	-13.32	2103061	14.03	267.9	22.8	0.52	-14.565	128.3	19.1	-0.11	3.198					
20:00	243.58	-13.29	19.92	41.48	-13.32	2103195	14.03	266.0	19.6	0.52	-14.777	131.4	21.3	-0.10	2.767					
20:15	243.59	-13.29	19.93	37.73	-13.32	2103329	14.03	264.2	16.4	0.53	-14.944	134.6	23.4	-0.08	2.307					
20:30	243.60	-13.30	19.93	33.97	-13.33	2103463	14.03	262.3	13.2	0.53	-15.064	138.0	25.4	-0.06	1.818					
A 2 20:43	243.60	-13.30	19.93	30.72	-13.33	2103580	14.03	260.8	10.5	0.54	-15.131	141.1	27.0	-0.05	1.373					
+ 5 20:45	243.60	-13.30	19.93	30.22	-13.33	2103598	14.03	260.5	10.1	0.54	-15.138	141.5	27.2	-0.05	1.303					
5 20:49	243.60	-13.30	19.93	29.22	-13.33	2103634	14.03	260.0	9.2	0.54	-15.150	142.5	27.7	-0.04	1.161	105.8A	0.8	-0.21	6.042	
6 21:00	243.61	-13.30	19.93	26.46	-13.33	2103732	14.03	258.7	6.9	0.54	-15.165	145.2	28.9	-0.03	0.764	104.2	2.9	-0.22	6.104	
9 21:09	243.61	-13.30	19.94	24.21	-13.34	2103813	14.04	257.5+	5.0	0.54	-15.158	147.5	29.9	-0.02	0.430	102.9	4.7	-0.22	6.137	
11 21:10	243.61	-13.30	19.94	23.96	-13.34	2103822	14.04	257.4L	4.8	0.54	-15.156	147.7	30.0	-0.01	0.393	102.8+	4.9	-0.22	6.140	
11 21:15	243.61	-13.31	19.94	22.71	-13.34	2103867	14.04					149.0	30.5	-0.01	0.204	102.1	5.9	-0.22	6.151	
13 21:30	243.62	-13.31	19.94	18.96	-13.34	2104001	14.04					153.0	31.9	0.01	-0.376	100.0	8.9	-0.22	6.153	
16 21:45	243.62	-13.31	19.94	15.20	-13.34	2104136	14.04					157.1	33.1	0.03	-0.972	97.9	11.9	-0.22	6.110	
20 22:00	243.63	-13.31	19.95	11.45	-13.35	2104271	14.04					161.3	34.1	0.06	-1.582	95.8	14.9	-0.21	6.023	
23 22:15	243.64	-13.32	19.95	7.69	-13.35	2104405	14.04					165.6	34.9	0.08	-2.204	93.6	18.0	-0.21	5.892	
27 22:30	243.64	-13.32	19.95	3.94	-13.35	2104540	14.04					170.0	35.5	0.10	-2.834	91.5	21.0	-0.20	5.718	
31 22:45	243.65	-13.32	19.95	0.18	-13.36	2104675	14.04					174.5	35.9	0.12	-3.471	89.3	24.1	-0.19	5.501	
34 23:00	243.65	-13.33	19.96	356.43	-13.36	2104810	14.04					179.0	36.0	0.15	-4.110	87.1	27.1	-0.19	5.242	
38 23:15	243.66	-13.33	19.96	352.67	-13.36	2104945	14.04					183.6	36.0	0.17	-4.751	84.8	30.2	-0.17	4.942	
41 23:30	243.66	-13.33	19.96	348.92	-13.37	2105080	14.04					188.1	35.7	0.19	-5.389	82.4	33.2	-0.16	4.603	
44 23:45	243.67	-13.34	19.96	345.16	-13.37	2105215	14.04					192.5	35.2	0.21	-6.022	79.8	36.2	-0.15	4.226	
48																				

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15  
 ESCS = ANGLE EARTH-S/C-SUN

FREQUENCY IN MHZ: 8468.500  
 DATE: 2013/06/14

ALTITUDE IN KM: 2105350.  
 S/C TO SUN IN AU: 1.02892

-----GEOCENTRIC-----									-----NEW NORCIA-----				-----CEBREROS-----				-----MALARGUE-----			
KOU	UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTL	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.
EL	EL	EL	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
HH:MM	DEG	DEG	DEG	DEG	DEG	DEG			DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
00:00	243.68	-13.34	19.97	341.41	-13.37	2105350	14.05					196.9	34.4	0.24	-6.647	77.2	39.2	-0.13	3.812	
51 00:15	243.68	-13.34	19.97	337.66	-13.38	2105486	14.05					201.1	33.5	0.26	-7.262	74.3	42.2	-0.12	3.364	
54 00:30	243.69	-13.35	19.97	333.90	-13.38	2105621	14.05					205.3	32.4	0.28	-7.865	71.3	45.1	-0.10	2.882	
57 00:45	243.69	-13.35	19.97	330.15	-13.38	2105756	14.05					209.3	31.1	0.30	-8.451	68.0	48.0	-0.08	2.370	
60 01:00	243.70	-13.35	19.98	326.39	-13.39	2105892	14.05					213.2	29.6	0.32	-9.019	64.3	50.7	-0.06	1.830	
63 01:15	243.70	-13.36	19.98	322.64	-13.39	2106027	14.05					216.9	27.9	0.34	-9.567	60.3	53.5	-0.04	1.263	
66 01:30	243.71	-13.36	19.98	318.88	-13.39	2106163	14.05					220.5	26.1	0.36	-10.092	55.8	56.0	-0.02	0.673	
68 01:45	243.72	-13.36	19.99	315.13	-13.40	2106299	14.05					223.9	24.2	0.37	-10.592	50.8	58.5	-0.00	0.061	
70 02:00	243.72	-13.37	19.99	311.37	-13.40	2106434	14.05					227.2	22.2	0.39	-11.064	45.1	60.8	0.02	-0.570	
71 02:15	243.73	-13.37	19.99	307.62	-13.40	2106570	14.05					230.4	20.0	0.41	-11.507	38.7	62.8	0.04	-1.216	
71 02:30	243.73	-13.37	19.99	303.87	-13.41	2106706	14.05					233.4	17.8	0.42	-11.919	31.4	64.6	0.07	-1.875	
71 02:45	243.74	-13.38	20.00	300.11	-13.41	2106842	14.06					236.4	15.4	0.44	-12.298	23.3	66.0	0.09	-2.545	
70 03:00	243.74	-13.38	20.00	296.36	-13.41	2106978	14.06					239.2	13.0	0.45	-12.642	14.5	67.0	0.11	-3.222	
68 03:15	243.75	-13.38	20.00	292.60	-13.42	2107114	14.06					241.9	10.5	0.46	-12.951	5.1	67.5	0.14	-3.904	
66 03:30	243.76	-13.39	20.00	288.85	-13.42	2107250	14.06					244.6	7.9	0.47	-13.221	355.5	67.5	0.16	-4.587	
64 03:45	243.76	-13.39	20.01	285.09	-13.42	2107386	14.06					247.1	5.3	0.48	-13.454	346.1	67.0	0.19	-5.268	
61 03:47	243.76	-13.39	20.01	284.59	-13.42	2107404	14.06					247.5+	5.0	0.48	-13.482	344.9	66.9	0.19	-5.359	
61 03:56	243.77	-13.39	20.01	282.34	-13.42	2107486	14.06					249.0L	3.4	0.48	-13.599	339.5	66.4	0.20	-5.766	
59 04:00	243.77	-13.39	20.01	281.34	-13.43	2107522	14.06									337.2	66.1	0.21	-5.946	
58 04:15	243.77	-13.40	20.01	277.58	-13.43	2107659	14.06									329.1	64.7	0.23	-6.616	
55 04:30	243.78	-13.40	20.01	273.83	-13.43	2107795	14.06									321.7	63.0	0.26	-7.276	
52 04:45	243.78	-13.40	20.02	270.07	-13.44	2107931	14.06									315.2	60.9	0.28	-7.923	
49 05:00	243.79	-13.41	20.02	266.32	-13.44	2108068	14.06									309.5	58.7	0.30	-8.554	
45																				





68	03:15	244.31	-13.70	20.25	292.18	-13.73	2120465	14.15			242.0	10.0	0.47	-13.158		4.1	67.8	0.15	-4.169	
66	03:30	244.32	-13.70	20.25	288.42	-13.73	2120607	14.15			244.6	7.4	0.48	-13.425		354.4	67.8	0.17	-4.851	
63	03:44	244.32	-13.71	20.26	284.92	-13.74	2120739	14.15			247.0+	5.0	0.48	-13.638		345.5	67.3	0.19	-5.486	
61	03:45	244.32	-13.71	20.26	284.67	-13.74	2120749	14.15			247.2	4.8	0.48	-13.652		344.9	67.3	0.20	-5.531	
59	03:54	244.32	-13.71	20.26	282.41	-13.74	2120834	14.15			248.7L	3.2	0.49	-13.770		339.5	66.7	0.21	-5.937	
58	04:00	244.33	-13.71	20.26	280.91	-13.74	2120891	14.15								336.0	66.2	0.22	-6.206	
55	04:15	244.33	-13.71	20.26	277.16	-13.74	2121033	14.15								327.9	64.8	0.24	-6.874	
51	04:30	244.34	-13.72	20.26	273.40	-13.75	2121176	14.15								320.6	63.0	0.27	-7.532	
48	04:45	244.34	-13.72	20.27	269.65	-13.75	2121318	14.15								314.2	61.0	0.29	-8.176	
45	05:00	244.35	-13.72	20.27	265.90	-13.75	2121460	14.15								308.5	58.7	0.31	-8.805	
41	05:15	244.36	-13.73	20.27	262.14	-13.76	2121603	14.15								303.5	56.2	0.33	-9.414	
38	05:30	244.36	-13.73	20.27	258.39	-13.76	2121745	14.15								299.0	53.6	0.35	-10.002	
34	05:45	244.37	-13.73	20.28	254.63	-13.76	2121888	14.16								295.0	50.9	0.37	-10.566	
31	06:00	244.37	-13.74	20.28	250.88	-13.77	2122031	14.16								291.4	48.1	0.39	-11.104	
27	06:15	244.38	-13.74	20.28	247.12	-13.77	2122174	14.16								288.1	45.2	0.41	-11.613	
24	06:30	244.39	-13.74	20.28	243.37	-13.77	2122316	14.16								285.1	42.3	0.43	-12.092	
20	06:45	244.39	-13.75	20.29	239.61	-13.78	2122459	14.16								282.3	39.3	0.44	-12.537	
17	07:00	244.40	-13.75	20.29	235.86	-13.78	2122602	14.16								279.6	36.3	0.46	-12.948	
13	07:15	244.40	-13.75	20.29	232.11	-13.78	2122745	14.16								277.1	33.3	0.47	-13.322	
9	07:30	244.41	-13.76	20.29	228.35	-13.79	2122888	14.16								274.7	30.3	0.48	-13.658	
6	07:45	244.42	-13.76	20.30	224.60	-13.79	2123031	14.16								272.4	27.2	0.49	-13.955	
-14.009	07:48	244.42	-13.76	20.30	223.85	-13.79	2123060	14.16								272.0	26.6	0.50		
2	08:00	244.42	-13.76	20.30	220.84	-13.79	2123174	14.16								270.2	24.2	0.50	-14.211	
-14.242	08:02	244.42	-13.76	20.30	220.34	-13.79	2123193	14.16								269.9	23.8	0.50		
	08:15	244.43	-13.77	20.30	217.09	-13.80	2123318	14.17								268.0	21.1	0.51	-14.425	
	08:26	244.43	-13.77	20.30	214.34	-13.80	2123423	14.17		106.0A	0.1	-0.22	6.323			266.4	18.9	0.52	-14.555	
	08:30	244.43	-13.77	20.30	213.33	-13.80	2123461	14.17		105.5	0.9	-0.22	6.348			265.9	18.1	0.52	-14.596	
	08:45	244.44	-13.77	20.31	209.58	-13.80	2123604	14.17		103.6	4.1	-0.23	6.413			263.8	15.0	0.52	-14.724	
	08:49	244.44	-13.77	20.31	208.58	-13.80	2123642	14.17		103.1+	4.9	-0.23	6.423			263.2	14.2	0.52	-14.751	
	09:00	244.45	-13.78	20.31	205.83	-13.81	2123748	14.17		101.7	7.2	-0.23	6.432			261.7	12.0	0.52	-14.808	
	09:15	244.45	-13.78	20.31	202.07	-13.81	2123891	14.17		99.9	10.4	-0.23	6.403			259.5	9.0	0.53	-14.848	
	09:30	244.46	-13.78	20.31	198.32	-13.81	2124035	14.17		98.0	13.5	-0.22	6.328			257.4	6.0	0.53	-14.843	
	09:35	244.46	-13.78	20.32	197.07	-13.81	2124082	14.17		97.4	14.6	-0.22	6.292			256.7+	5.1	0.53	-14.831	
	09:45	244.46	-13.79	20.32	194.56	-13.82	2124178	14.17		96.2	16.7	-0.22	6.206			255.3	3.1	0.52	-14.793	
	09:49	244.46	-13.79	20.32	193.56	-13.82	2124216	14.17		95.7	17.6	-0.22	6.166			254.7L	2.3	0.52	-14.773	
	10:00	244.47	-13.79	20.32	190.81	-13.82	2124322	14.17		94.4	20.0	-0.21	6.038							
	10:15	244.48	-13.79	20.32	187.05	-13.82	2124465	14.17		92.5	23.2	-0.21	5.825							
	10:30	244.48	-13.80	20.32	183.30	-13.83	2124609	14.17		90.6	26.4	-0.20	5.568							
	10:45	244.49	-13.80	20.33	179.55	-13.83	2124753	14.17		88.7	29.6	-0.19	5.267							
	11:00	244.49	-13.80	20.33	175.79	-13.83	2124897	14.18		86.7	32.8	-0.17	4.924							
	11:15	244.50	-13.81	20.33	172.04	-13.84	2125041	14.18		84.6	36.0	-0.16	4.540							
	11:30	244.50	-13.81	20.33	168.28	-13.84	2125185	14.18		82.4	39.2	-0.15	4.118							
	11:45	244.51	-13.81	20.34	164.53	-13.84	2125329	14.18		80.0	42.4	-0.13	3.658							
	12:00	244.52	-13.82	20.34	160.77	-13.85	2125473	14.18		77.5	45.6	-0.11	3.163							
	12:15	244.52	-13.82	20.34	157.02	-13.85	2125617	14.18		74.7	48.7	-0.09	2.634							
	12:30	244.53	-13.82	20.34	153.27	-13.85	2125761	14.18		71.6	51.8	-0.07	2.075							
	12:45	244.53	-13.83	20.35	149.51	-13.86	2125906	14.18		68.2	54.8	-0.05	1.488							
	13:00	244.54	-13.83	20.35	145.76	-13.86	2126050	14.18		64.3	57.8	-0.03	0.874							
	13:15	244.55	-13.83	20.35	142.00	-13.86	2126194	14.18		59.9	60.7	-0.01	0.238							
	13:30	244.55	-13.84	20.35	138.25	-13.87	2126339	14.19		54.6	63.4	0.01	-0.420							
	13:45	244.56	-13.84	20.36	134.49	-13.87	2126483	14.19		48.5	65.9	0.04	-1.095							
	14:00	244.56	-13.84	20.36	130.74	-13.87	2126628	14.19		41.1	68.2	0.06	-1.785							
	14:15	244.57	-13.84	20.36	126.99	-13.88	2126773	14.19		32.4	70.1	0.09	-2.487							

14:30	244.58	-13.85	20.37	123.23	-13.88	2126917	14.19	22.2	71.6	0.11	-3.197								
14:45	244.58	-13.85	20.37	119.48	-13.88	2127062	14.19	10.7	72.5	0.14	-3.914								
15:00	244.59	-13.85	20.37	115.72	-13.89	2127207	14.19	358.5	72.8	0.16	-4.633								
15:15	244.59	-13.86	20.37	111.97	-13.89	2127352	14.19	346.3	72.4	0.19	-5.351								
15:30	244.60	-13.86	20.38	108.21	-13.89	2127497	14.19	335.1	71.3	0.21	-6.067								
15:45	244.61	-13.86	20.38	104.46	-13.90	2127642	14.19	325.2	69.7	0.24	-6.775								
16:00	244.61	-13.87	20.38	100.71	-13.90	2127787	14.20	316.9	67.7	0.26	-7.474								
16:15	244.62	-13.87	20.38	96.95	-13.90	2127932	14.20	309.8	65.3	0.29	-8.160								
16:30	244.62	-13.87	20.39	93.20	-13.91	2128077	14.20	303.9	62.7	0.31	-8.831								
16:45	244.63	-13.88	20.39	89.44	-13.91	2128222	14.20	298.9	60.0	0.34	-9.483								
17:00	244.64	-13.88	20.39	85.69	-13.91	2128368	14.20	294.6	57.1	0.36	-10.114								
17:15	244.64	-13.88	20.39	81.93	-13.92	2128513	14.20	290.8	54.1	0.38	-10.720								
17:30	244.65	-13.89	20.40	78.18	-13.92	2128659	14.20	287.5	51.1	0.40	-11.301								
17:45	244.65	-13.89	20.40	74.43	-13.92	2128804	14.20	284.5	48.0	0.42	-11.852								
18:00	244.66	-13.89	20.40	70.67	-13.93	2128950	14.20	281.8	44.9	0.44	-12.371								
18:02	244.66	-13.90	20.40	70.17	-13.93	2128969	14.20	281.4	44.4	0.44	-12.438	110.6A	2.2	-0.17	4.776				
18:15	244.67	-13.90	20.40	66.92	-13.93	2129095	14.20	279.3	41.7	0.46	-12.857	112.7	4.5	-0.16	4.613				
18:18	244.67	-13.90	20.40	66.17	-13.93	2129124	14.20	278.8	41.0	0.46	-12.950	113.2+	5.0	-0.16	4.572				
18:30	244.67	-13.90	20.41	63.16	-13.93	2129241	14.20	277.0	38.5	0.47	-13.307	115.3	7.1	-0.16	4.389				
18:45	244.68	-13.90	20.41	59.41	-13.94	2129387	14.21	274.8	35.3	0.49	-13.719	117.9	9.6	-0.15	4.126				
19:00	244.68	-13.91	20.41	55.65	-13.94	2129532	14.21	272.7	32.1	0.50	-14.092	120.6	12.1	-0.14	3.825				
19:15	244.69	-13.91	20.41	51.90	-13.94	2129678	14.21	270.7	28.9	0.51	-14.424	123.4	14.5	-0.12	3.488				
19:30	244.70	-13.91	20.42	48.15	-13.95	2129824	14.21	268.8	25.6	0.52	-14.713	126.3	16.9	-0.11	3.117				
19:45	244.70	-13.92	20.42	44.39	-13.95	2129970	14.21	266.9	22.4	0.53	-14.959	129.4	19.1	-0.10	2.712				
20:00	244.71	-13.92	20.42	40.64	-13.95	2130116	14.21	265.0	19.2	0.54	-15.160	132.5	21.3	-0.08	2.276				
20:15	244.71	-13.92	20.42	36.88	-13.96	2130262	14.21	263.2	16.0	0.54	-15.316	135.8	23.3	-0.06	1.810				
20:26	244.72	-13.93	20.42	34.13	-13.96	2130369	14.21	261.9	13.7	0.55	-15.401	138.2	24.8	-0.05	1.451				
20:30	244.72	-13.93	20.43	33.13	-13.96	2130408	14.21	261.4	12.8	0.55	-15.425	139.1	25.3	-0.05	1.317				
20:40	244.72	-13.93	20.43	30.63	-13.96	2130506	14.21	260.1	10.7	0.55	-15.472	141.5	26.5	-0.03	0.973				
20:44	244.73	-13.93	20.43	29.62	-13.96	2130545	14.21	259.7	9.9	0.55	-15.485	142.4	27.0	-0.03	0.833	106.5A	0.8	-0.20	5.632
20:45	244.73	-13.93	20.43	29.37	-13.96	2130554	14.21	259.5	9.7	0.55	-15.488	142.7	27.1	-0.03	0.798	106.4	1.0	-0.20	5.639
21:00	244.73	-13.93	20.43	25.62	-13.97	2130701	14.21	257.7	6.5	0.55	-15.504	146.4	28.7	-0.01	0.256	104.2	4.0	-0.20	5.720
21:05	244.73	-13.94	20.43	24.37	-13.97	2130749	14.21	257.1	5.5	0.55	-15.499	147.6	29.3	-0.00	0.070	103.5+	5.0	-0.20	5.737
21:07	244.74	-13.94	20.43	23.87	-13.97	2130769	14.21	256.8+	5.0	0.55	-15.496	148.1	29.5	0.00	-0.005	103.3	5.4	-0.20	5.743
21:08	244.74	-13.94	20.43	23.62	-13.97	2130779	14.22	256.7L	4.8	0.55	-15.494	148.4	29.6	0.00	-0.042	103.1	5.6	-0.20	5.745
21:15	244.74	-13.94	20.43	21.87	-13.97	2130847	14.22					150.2	30.2	0.01	-0.307	102.1	6.9	-0.20	5.757
21:30	244.74	-13.94	20.44	18.11	-13.97	2130993	14.22					154.1	31.6	0.03	-0.889	100.0	9.9	-0.20	5.749
21:45	244.75	-13.94	20.44	14.36	-13.98	2131140	14.22					158.2	32.7	0.05	-1.487	97.9	12.9	-0.20	5.697
22:00	244.76	-13.95	20.44	10.60	-13.98	2131286	14.22					162.4	33.7	0.07	-2.098	95.8	16.0	-0.20	5.600
22:15	244.76	-13.95	20.44	6.85	-13.98	2131433	14.22					166.7	34.4	0.10	-2.719	93.7	19.0	-0.19	5.460
22:30	244.77	-13.95	20.45	3.09	-13.99	2131579	14.22					171.1	35.0	0.12	-3.349	91.6	22.1	-0.19	5.277
22:45	244.77	-13.96	20.45	359.34	-13.99	2131726	14.22					175.6	35.3	0.14	-3.985	89.4	25.1	-0.18	5.051
23:00	244.78	-13.96	20.45	355.59	-13.99	2131873	14.22					180.1	35.4	0.16	-4.623	87.2	28.2	-0.17	4.784
23:15	244.79	-13.96	20.45	351.83	-14.00	2132019	14.22					184.5	35.3	0.19	-5.261	84.8	31.2	-0.16	4.476
23:30	244.79	-13.97	20.46	348.08	-14.00	2132166	14.22					189.0	35.0	0.21	-5.896	82.4	34.2	-0.15	4.129
23:45	244.80	-13.97	20.46	344.32	-14.00	2132313	14.23					193.4	34.4	0.23	-6.526	79.9	37.3	-0.13	3.745

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 2132460.  
ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/06/16 S/C TO SUN IN AU: 1.02922

GEOCENTRIC									NEW NORCIA				CEBREROS				MALARGUE			
KOU	UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.
EL	EL	EL	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
HH:MM	DEG	DEG																		
DEG	DEG	DEG																		
00:00	244.80	-13.97	20.46	340.57	-14.01	2132460	14.23						197.7	33.6	0.25	-7.147	77.2	40.2	-0.12	3.325

00:15	244.81	-13.98	20.46	336.82	-14.01	2132607	14.23		201.9	32.7	0.27	-7.758	74.4	43.2	-0.10	2.870		
55	00:30	244.82	-13.98	20.47	333.06	-14.01	2132754	14.23		205.9	31.5	0.30	-8.355	71.3	46.1	-0.08	2.383	
58	00:45	244.82	-13.98	20.47	329.31	-14.02	2132901	14.23		209.9	30.2	0.32	-8.935	67.9	49.0	-0.07	1.866	
61	01:00	244.83	-13.99	20.47	325.55	-14.02	2133048	14.23		213.7	28.6	0.34	-9.498	64.2	51.8	-0.05	1.321	
63	01:15	244.83	-13.99	20.47	321.80	-14.02	2133196	14.23		217.4	27.0	0.36	-10.039	60.1	54.5	-0.03	0.751	
66	01:30	244.84	-13.99	20.48	318.04	-14.03	2133343	14.23		220.9	25.2	0.37	-10.556	55.5	57.1	-0.01	0.157	
68	01:45	244.85	-14.00	20.48	314.29	-14.03	2133490	14.23		224.3	23.2	0.39	-11.049	50.4	59.5	0.02	-0.457	
69	02:00	244.85	-14.00	20.48	310.54	-14.03	2133638	14.23		227.5	21.2	0.41	-11.513	44.5	61.8	0.04	-1.089	
70	02:15	244.86	-14.00	20.48	306.78	-14.04	2133785	14.24		230.7	19.0	0.42	-11.948	37.8	63.8	0.06	-1.736	
71	02:30	244.86	-14.01	20.49	303.03	-14.04	2133933	14.24		233.7	16.8	0.44	-12.351	30.3	65.5	0.08	-2.396	
70	02:45	244.87	-14.01	20.49	299.27	-14.04	2134080	14.24		236.6	14.4	0.45	-12.721	21.9	66.8	0.11	-3.066	
69	03:00	244.88	-14.01	20.49	295.52	-14.05	2134228	14.24		239.4	12.0	0.46	-13.057	12.7	67.8	0.13	-3.742	
67	03:15	244.88	-14.02	20.49	291.76	-14.05	2134376	14.24		242.1	9.5	0.47	-13.356	3.0	68.2	0.16	-4.422	
65	03:30	244.89	-14.02	20.50	288.01	-14.05	2134523	14.24		244.7	6.9	0.48	-13.617	353.2	68.1	0.18	-5.103	
63	03:41	244.89	-14.02	20.50	285.26	-14.05	2134632	14.24		246.6+	5.0	0.49	-13.784	346.2	67.7	0.20	-5.601	
61	03:45	244.90	-14.02	20.50	284.26	-14.06	2134671	14.24		247.2	4.3	0.49	-13.840	343.7	67.5	0.20	-5.782	
60	03:51	244.90	-14.03	20.50	282.75	-14.06	2134730	14.24		248.2L	3.3	0.49	-13.918	340.0	67.1	0.21	-6.052	
59	04:00	244.90	-14.03	20.50	280.50	-14.06	2134819	14.24						334.8	66.4	0.23	-6.456	
57	04:15	244.91	-14.03	20.50	276.75	-14.06	2134967	14.24						326.7	64.9	0.25	-7.122	
54	04:30	244.91	-14.03	20.51	272.99	-14.07	2135115	14.24						319.5	63.1	0.28	-7.777	
51	04:45	244.92	-14.04	20.51	269.24	-14.07	2135263	14.24						313.1	61.0	0.30	-8.418	
48	05:00	244.93	-14.04	20.51	265.49	-14.07	2135411	14.25						307.5	58.6	0.32	-9.044	
44	05:15	244.93	-14.04	20.51	261.73	-14.08	2135559	14.25						302.6	56.1	0.34	-9.650	
41	05:30	244.94	-14.05	20.51	257.98	-14.08	2135708	14.25						298.2	53.5	0.36	-10.235	
37	05:45	244.94	-14.05	20.52	254.22	-14.08	2135856	14.25						294.2	50.8	0.38	-10.795	
34	06:00	244.95	-14.05	20.52	250.47	-14.09	2136004	14.25						290.7	48.0	0.40	-11.329	
30	06:15	244.96	-14.06	20.52	246.71	-14.09	2136153	14.25						287.4	45.1	0.42	-11.834	
27	06:30	244.96	-14.06	20.52	242.96	-14.09	2136301	14.25						284.4	42.1	0.44	-12.308	
23	06:45	244.97	-14.06	20.53	239.21	-14.10	2136449	14.25						281.6	39.2	0.45	-12.749	
20	07:00	244.97	-14.07	20.53	235.45	-14.10	2136598	14.25						279.0	36.2	0.47	-13.155	
16	07:15	244.98	-14.07	20.53	231.70	-14.10	2136747	14.25						276.5	33.1	0.48	-13.525	
13	07:30	244.99	-14.07	20.53	227.94	-14.11	2136895	14.26						274.2	30.1	0.49	-13.856	
9	07:45	244.99	-14.08	20.54	224.19	-14.11	2137044	14.26						271.9	27.1	0.50	-14.148	
5	07:46	244.99	-14.08	20.54	223.94	-14.11	2137054	14.26						271.7	26.9	0.50		
-14.166	+ 5	08:00	245.00	-14.08	20.54	220.43	-14.11	2137193	14.26					269.7	24.0	0.51	-14.399	
2	08:01	245.00	-14.08	20.54	220.18	-14.11	2137203	14.26						269.5	23.8	0.51		
-14.414	L 1	08:15	245.00	-14.08	20.54	216.68	-14.12	2137342	14.26					267.5	21.0	0.52	-14.608	
	08:24	245.01	-14.09	20.54	214.43	-14.12	2137431	14.26		106.3A	0.2	-0.22	6.128	266.2	19.1	0.52	-14.713	
	08:30	245.01	-14.09	20.54	212.93	-14.12	2137491	14.26		105.5	1.5	-0.22	6.165	265.4	17.9	0.52	-14.774	
	08:45	245.02	-14.09	20.55	209.17	-14.12	2137640	14.26		103.6	4.6	-0.22	6.226	263.3	14.9	0.53	-14.897	
	08:47	245.02	-14.09	20.55	208.67	-14.12	2137659	14.26		103.4+	5.0	-0.22	6.230	263.0	14.5	0.53	-14.910	
	09:00	245.02	-14.09	20.55	205.42	-14.13	2137789	14.26		101.8	7.7	-0.22	6.239	261.2	11.9	0.53	-14.976	
	09:15	245.03	-14.10	20.55	201.66	-14.13	2137938	14.26		100.0	10.9	-0.22	6.206	259.1	8.9	0.53	-15.011	
	09:30	245.03	-14.10	20.55	197.91	-14.13	2138087	14.26		98.1	14.1	-0.22	6.126	256.9	5.9	0.53	-15.001	
	09:35	245.04	-14.10	20.56	196.66	-14.13	2138137	14.26		97.5	15.1	-0.22	6.089	256.2+	4.9	0.53	-14.988	
	09:45	245.04	-14.10	20.56	194.16	-14.14	2138236	14.26		96.3	17.2	-0.21	5.999	254.8	3.0	0.53	-14.947	
	09:48	245.04	-14.11	20.56	193.40	-14.14	2138266	14.26		95.9	17.9	-0.21	5.968	254.4L	2.4	0.53	-14.931	
	10:00	245.05	-14.11	20.56	190.40	-14.14	2138385	14.27		94.5	20.5	-0.21	5.827					
	10:15	245.05	-14.11	20.56	186.65	-14.14	2138535	14.27		92.6	23.7	-0.20	5.609					
	10:30	245.06	-14.11	20.56	182.89	-14.15	2138684	14.27		90.7	26.9	-0.19	5.347					
	10:45	245.07	-14.12	20.57	179.14	-14.15	2138833	14.27		88.8	30.1	-0.18	5.042					
	11:00	245.07	-14.12	20.57	175.38	-14.15	2138983	14.27		86.8	33.3	-0.17	4.695					
	11:15	245.08	-14.12	20.57	171.63	-14.16	2139132	14.27		84.7	36.5	-0.15	4.308					
	11:30	245.08	-14.13	20.57	167.88	-14.16	2139282	14.27		82.5	39.7	-0.14	3.882					

11:45	245.09	-14.13	20.58	164.12	-14.16	2139432	14.27	80.1	42.9	-0.12	3.419								
12:00	245.10	-14.13	20.58	160.37	-14.17	2139581	14.27	77.6	46.1	-0.10	2.921								
12:15	245.10	-14.14	20.58	156.61	-14.17	2139731	14.27	74.8	49.2	-0.08	2.390								
12:30	245.11	-14.14	20.58	152.86	-14.17	2139881	14.28	71.7	52.3	-0.06	1.829								
12:45	245.11	-14.14	20.59	149.11	-14.18	2140031	14.28	68.3	55.4	-0.04	1.239								
13:00	245.12	-14.15	20.59	145.35	-14.18	2140181	14.28	64.4	58.3	-0.02	0.624								
13:15	245.13	-14.15	20.59	141.60	-14.18	2140331	14.28	59.8	61.2	0.00	-0.014								
13:30	245.13	-14.15	20.59	137.84	-14.19	2140481	14.28	54.5	63.9	0.02	-0.672								
13:45	245.14	-14.16	20.60	134.09	-14.19	2140631	14.28	48.3	66.4	0.05	-1.348								
14:00	245.14	-14.16	20.60	130.34	-14.19	2140781	14.28	40.8	68.7	0.07	-2.038								
14:15	245.15	-14.16	20.60	126.58	-14.20	2140931	14.28	31.8	70.6	0.10	-2.740								
14:30	245.16	-14.17	20.60	122.83	-14.20	2141081	14.28	21.4	72.0	0.12	-3.450								
14:45	245.16	-14.17	20.61	119.07	-14.20	2141232	14.28	9.6	72.9	0.15	-4.166								
15:00	245.17	-14.17	20.61	115.32	-14.21	2141382	14.29	357.1	73.1	0.17	-4.884								
15:15	245.18	-14.18	20.61	111.56	-14.21	2141532	14.29	344.8	72.6	0.20	-5.601								
15:30	245.18	-14.18	20.61	107.81	-14.21	2141683	14.29	333.6	71.4	0.22	-6.315								
15:45	245.19	-14.19	20.62	104.06	-14.22	2141834	14.29	323.8	69.8	0.25	-7.021								
16:00	245.19	-14.19	20.62	100.30	-14.22	2141984	14.29	315.5	67.7	0.27	-7.718								
16:15	245.20	-14.19	20.62	96.55	-14.22	2142135	14.29	308.6	65.3	0.30	-8.401								
16:30	245.21	-14.20	20.62	92.79	-14.23	2142286	14.29	302.8	62.7	0.32	-9.069								
16:45	245.21	-14.20	20.63	89.04	-14.23	2142436	14.29	297.9	59.9	0.34	-9.718								
17:00	245.22	-14.20	20.63	85.29	-14.23	2142587	14.29	293.7	57.0	0.37	-10.345								
17:15	245.22	-14.21	20.63	81.53	-14.24	2142738	14.29	290.0	54.0	0.39	-10.948								
17:30	245.23	-14.21	20.63	77.78	-14.24	2142889	14.30	286.7	50.9	0.41	-11.524								
17:45	245.24	-14.21	20.64	74.02	-14.24	2143040	14.30	283.8	47.8	0.43	-12.071								
18:00	245.24	-14.22	20.64	70.27	-14.25	2143191	14.30	281.1	44.7	0.45	-12.586								
18:01	245.24	-14.22	20.64	70.02	-14.25	2143201	14.30	281.0	44.5	0.45	-12.619	110.9A	2.1	-0.16	4.583				
18:15	245.25	-14.22	20.64	66.51	-14.25	2143342	14.30	278.7	41.5	0.46	-13.067	113.2	4.5	-0.16	4.405				
18:18	245.25	-14.22	20.64	65.76	-14.25	2143372	14.30	278.2	40.9	0.47	-13.159	113.7+	5.0	-0.15	4.363				
18:30	245.26	-14.22	20.64	62.76	-14.25	2143493	14.30	276.4	38.3	0.48	-13.513	115.8	7.1	-0.15	4.177				
18:45	245.26	-14.23	20.64	59.01	-14.26	2143644	14.30	274.2	35.1	0.49	-13.920	118.4	9.7	-0.14	3.910				
19:00	245.27	-14.23	20.65	55.25	-14.26	2143796	14.30	272.1	31.9	0.51	-14.288	121.2	12.1	-0.13	3.606				
19:15	245.27	-14.23	20.65	51.50	-14.26	2143947	14.30	270.2	28.7	0.52	-14.615	124.0	14.5	-0.12	3.266				
19:30	245.28	-14.24	20.65	47.74	-14.27	2144098	14.30	268.3	25.4	0.53	-14.899	126.9	16.9	-0.10	2.892				
19:45	245.29	-14.24	20.65	43.99	-14.27	2144250	14.30	266.4	22.2	0.54	-15.140	129.9	19.1	-0.09	2.484				
20:00	245.29	-14.24	20.66	40.24	-14.27	2144401	14.31	264.5	19.0	0.54	-15.336	133.0	21.3	-0.07	2.045				
20:15	245.30	-14.25	20.66	36.48	-14.28	2144553	14.31	262.7	15.8	0.55	-15.486	136.3	23.3	-0.06	1.577				
20:25	245.30	-14.25	20.66	33.98	-14.28	2144654	14.31	261.5	13.7	0.55	-15.561	138.5	24.6	-0.04	1.250				
A 2 20:30	245.30	-14.25	20.66	32.73	-14.28	2144705	14.31	260.9	12.6	0.55	-15.590	139.7	25.2	-0.04	1.082				
3 + 5 20:39	245.31	-14.25	20.66	30.48	-14.28	2144796	14.31	259.8	10.7	0.55	-15.631	141.8	26.3	-0.03	0.773				
6 20:42	245.31	-14.25	20.66	29.72	-14.28	2144826	14.31	259.4	10.1	0.55	-15.640	142.5	26.6	-0.02	0.668	106.9A	1.0	-0.19	5.443
6 20:45	245.31	-14.25	20.66	28.97	-14.28	2144856	14.31	259.1	9.5	0.55	-15.648	143.2	27.0	-0.02	0.561	106.4	1.5	-0.19	5.464
10 21:00	245.32	-14.26	20.67	25.22	-14.29	2145008	14.31	257.2	6.3	0.55	-15.659	146.9	28.6	-0.00	0.018	104.3	4.5	-0.20	5.540
11 21:03	245.32	-14.26	20.67	24.47	-14.29	2145038	14.31	256.8	5.7	0.55	-15.655	147.7	28.9	0.00	-0.093	103.9+	5.1	-0.20	5.550
12 21:06	245.32	-14.26	20.67	23.72	-14.29	2145069	14.31	256.5+	5.1	0.55	-15.650	148.4	29.2	0.01	-0.205	103.4	5.7	-0.20	5.558
12 21:07	245.32	-14.26	20.67	23.47	-14.29	2145079	14.31	256.3L	4.9	0.55	-15.648	148.7	29.3	0.01	-0.243	103.3	5.9	-0.20	5.560
14 21:15	245.32	-14.26	20.67	21.47	-14.29	2145160	14.31					150.7	30.1	0.02	-0.546	102.2	7.4	-0.20	5.572
17 21:30	245.33	-14.26	20.67	17.71	-14.29	2145311	14.31					154.7	31.4	0.04	-1.129	100.1	10.4	-0.20	5.559
21 21:45	245.34	-14.27	20.67	13.96	-14.30	2145463	14.31					158.8	32.5	0.06	-1.727	98.0	13.4	-0.19	5.503
24 22:00	245.34	-14.27	20.68	10.20	-14.30	2145615	14.31					163.0	33.5	0.08	-2.338	95.9	16.5	-0.19	5.402
28 22:15	245.35	-14.27	20.68	6.45	-14.30	2145767	14.32					167.3	34.2	0.10	-2.960	93.8	19.5	-0.19	5.257
31 22:30	245.35	-14.28	20.68	2.70	-14.31	2145919	14.32					171.7	34.7	0.13	-3.590	91.6	22.6	-0.18	5.070
35 22:45	245.36	-14.28	20.68	358.94	-14.31	2146071	14.32					176.1	35.0	0.15	-4.224	89.5	25.6	-0.17	4.840





09:34	245.63	-14.42	20.79	196.52	-14.45	2152705	14.36	97.7	15.4	-0.21	5.902				255.9+	5.0	0.54	-15.137	
09:45	245.63	-14.43	20.79	193.76	-14.46	2152818	14.36	96.4	17.7	-0.21	5.801				254.3	2.8	0.53	-15.090	
09:47	245.63	-14.43	20.79	193.26	-14.46	2152839	14.36	96.2	18.2	-0.20	5.780				254.0L	2.4	0.53	-15.079	
10:00	245.64	-14.43	20.79	190.01	-14.46	2152973	14.36	94.6	20.9	-0.20	5.624								
10:15	245.65	-14.43	20.79	186.25	-14.46	2153127	14.36	92.7	24.2	-0.19	5.403								
10:30	245.65	-14.44	20.80	182.50	-14.47	2153282	14.37	90.9	27.4	-0.18	5.137								
10:45	245.66	-14.44	20.80	178.75	-14.47	2153437	14.37	88.9	30.6	-0.17	4.828								
11:00	245.66	-14.44	20.80	174.99	-14.47	2153591	14.37	86.9	33.8	-0.16	4.477								
11:15	245.67	-14.45	20.80	171.24	-14.48	2153746	14.37	84.8	37.0	-0.14	4.086								
11:30	245.68	-14.45	20.81	167.48	-14.48	2153901	14.37	82.6	40.2	-0.13	3.657								
11:45	245.68	-14.45	20.81	163.73	-14.48	2154056	14.37	80.2	43.4	-0.11	3.191								
12:00	245.69	-14.46	20.81	159.98	-14.49	2154211	14.37	77.7	46.6	-0.10	2.691								
12:15	245.70	-14.46	20.81	156.22	-14.49	2154366	14.37	74.9	49.7	-0.08	2.157								
12:30	245.70	-14.46	20.82	152.47	-14.49	2154521	14.37	71.8	52.8	-0.06	1.594								
12:45	245.71	-14.47	20.82	148.71	-14.50	2154676	14.37	68.4	55.8	-0.04	1.003								
13:00	245.71	-14.47	20.82	144.96	-14.50	2154831	14.38	64.4	58.8	-0.01	0.386								
13:15	245.72	-14.47	20.82	141.21	-14.50	2154987	14.38	59.8	61.7	0.01	-0.253								
13:30	245.73	-14.48	20.83	137.45	-14.51	2155142	14.38	54.5	64.4	0.03	-0.913								
13:45	245.73	-14.48	20.83	133.70	-14.51	2155297	14.38	48.1	66.9	0.06	-1.589								
14:00	245.74	-14.48	20.83	129.94	-14.51	2155453	14.38	40.4	69.1	0.08	-2.279								
14:15	245.75	-14.49	20.83	126.19	-14.52	2155608	14.38	31.3	71.0	0.11	-2.981								
14:30	245.75	-14.49	20.83	122.44	-14.52	2155764	14.38	20.5	72.5	0.13	-3.691								
14:45	245.76	-14.49	20.84	118.68	-14.52	2155919	14.38	8.4	73.3	0.16	-4.406								
15:00	245.76	-14.50	20.84	114.93	-14.53	2156075	14.38	355.7	73.4	0.18	-5.122								
15:15	245.77	-14.50	20.84	111.17	-14.53	2156231	14.38	343.3	72.8	0.21	-5.838								
15:30	245.78	-14.50	20.84	107.42	-14.53	2156386	14.39	332.1	71.6	0.23	-6.550								
15:45	245.78	-14.51	20.85	103.67	-14.54	2156542	14.39	322.4	69.8	0.26	-7.254								
16:00	245.79	-14.51	20.85	99.91	-14.54	2156698	14.39	314.2	67.7	0.28	-7.949								
16:15	245.80	-14.51	20.85	96.16	-14.54	2156854	14.39	307.4	65.2	0.31	-8.629								
16:30	245.80	-14.52	20.85	92.40	-14.55	2157010	14.39	301.8	62.6	0.33	-9.294								
16:45	245.81	-14.52	20.86	88.65	-14.55	2157166	14.39	296.9	59.8	0.35	-9.940								
17:00	245.81	-14.52	20.86	84.90	-14.55	2157322	14.39	292.8	56.9	0.37	-10.564								
17:15	245.82	-14.53	20.86	81.14	-14.56	2157478	14.39	289.2	53.8	0.40	-11.163								
17:30	245.83	-14.53	20.86	77.39	-14.56	2157634	14.39	286.0	50.8	0.42	-11.735								
17:45	245.83	-14.53	20.87	73.63	-14.56	2157790	14.40	283.1	47.7	0.43	-12.278								
18:00	245.84	-14.54	20.87	69.88	-14.57	2157946	14.40	280.5	44.5	0.45	-12.789								
18:01	245.84	-14.54	20.87	69.63	-14.57	2157957	14.40	280.3	44.3	0.45	-12.822	111.4A	2.1	-0.16	4.388				
18:15	245.85	-14.54	20.87	66.13	-14.57	2158103	14.40	278.0	41.3	0.47	-13.266	113.7	4.6	-0.15	4.207				
18:17	245.85	-14.54	20.87	65.63	-14.57	2158124	14.40	277.7	40.9	0.47	-13.326	114.1+	4.9	-0.15	4.178				
18:30	245.85	-14.54	20.87	62.37	-14.57	2158259	14.40	275.8	38.1	0.49	-13.706	116.3	7.2	-0.14	3.975				
18:45	245.86	-14.55	20.87	58.62	-14.58	2158415	14.40	273.6	34.9	0.50	-14.109	118.9	9.7	-0.13	3.705				
19:00	245.87	-14.55	20.88	54.87	-14.58	2158572	14.40	271.6	31.7	0.51	-14.472	121.7	12.2	-0.12	3.398				
19:15	245.87	-14.55	20.88	51.11	-14.58	2158728	14.40	269.6	28.5	0.52	-14.794	124.5	14.5	-0.11	3.055				
19:30	245.88	-14.56	20.88	47.36	-14.59	2158885	14.40	267.7	25.3	0.53	-15.073	127.4	16.9	-0.09	2.677				
19:45	245.88	-14.56	20.88	43.60	-14.59	2159042	14.40	265.9	22.1	0.54	-15.309	130.4	19.1	-0.08	2.267				
20:00	245.89	-14.56	20.89	39.85	-14.59	2159198	14.40	264.0	18.8	0.55	-15.500	133.6	21.2	-0.06	1.826				
20:15	245.90	-14.57	20.89	36.10	-14.60	2159355	14.41	262.2	15.7	0.55	-15.645	136.8	23.2	-0.05	1.356				
20:23	245.90	-14.57	20.89	34.09	-14.60	2159439	14.41	261.3	14.0	0.56	-15.704	138.6	24.2	-0.04	1.094				
A 1 20:30	245.90	-14.57	20.89	32.34	-14.60	2159512	14.41	260.4	12.5	0.56	-15.744	140.2	25.1	-0.03	0.859				
3 20:38	245.91	-14.57	20.89	30.34	-14.60	2159595	14.41	259.4	10.8	0.56	-15.778	142.1	26.1	-0.02	0.583				
+ 5 20:40	245.91	-14.57	20.89	29.84	-14.60	2159616	14.41	259.2	10.4	0.56	-15.785	142.6	26.3	-0.02	0.513	107.2A	1.1	-0.19	5.263
6 20:45	245.91	-14.57	20.89	28.59	-14.60	2159669	14.41	258.6	9.3	0.56	-15.797	143.8	26.9	-0.01	0.337	106.5	2.0	-0.19	5.297
7 21:00	245.92	-14.58	20.90	24.83	-14.61	2159826	14.41	256.7	6.2	0.56	-15.803	147.5	28.5	0.01	-0.208	104.3+	5.0	-0.19	5.368
10 21:06	245.92	-14.58	20.90	23.33	-14.61	2159888	14.41	256.0L	4.9	0.56	-15.792	149.0	29.1	0.02	-0.432	103.5	6.2	-0.19	5.384









17:45	247.07	-15.18	21.31	72.90	-15.21	2188717	14.60	281.7	47.4	0.45	-12.656										
18:00	247.07	-15.19	21.31	69.15	-15.21	2188882	14.60	279.2	44.2	0.47	-13.159										
18:01	247.07	-15.19	21.31	68.89	-15.21	2188894	14.60	279.0	44.0	0.47	-13.191	112.4A	2.2	-0.14	4.026						
18:15	247.08	-15.19	21.31	65.39	-15.22	2189048	14.60	276.8	41.0	0.48	-13.627	114.7	4.6	-0.14	3.838						
18:17	247.08	-15.19	21.31	64.89	-15.22	2189070	14.60	276.5	40.6	0.48	-13.687	115.0+	5.0	-0.13	3.808						
18:30	247.09	-15.19	21.31	61.64	-15.22	2189214	14.60	274.6	37.8	0.50	-14.059	117.3	7.2	-0.13	3.599						
18:45	247.09	-15.20	21.31	57.88	-15.22	2189380	14.61	272.5	34.6	0.51	-14.453	119.9	9.7	-0.12	3.323						
19:00	247.10	-15.20	21.32	54.13	-15.23	2189546	14.61	270.5	31.4	0.52	-14.806	122.6	12.1	-0.11	3.010						
19:15	247.11	-15.20	21.32	50.38	-15.23	2189712	14.61	268.6	28.2	0.54	-15.119	125.5	14.5	-0.09	2.661						
19:30	247.11	-15.21	21.32	46.62	-15.23	2189878	14.61	266.7	24.9	0.54	-15.389	128.4	16.8	-0.08	2.279						
19:45	247.12	-15.21	21.32	42.87	-15.24	2190044	14.61	264.9	21.7	0.55	-15.615	131.4	19.0	-0.07	1.864						
20:00	247.13	-15.21	21.33	39.12	-15.24	2190210	14.61	263.1	18.5	0.56	-15.796	134.6	21.1	-0.05	1.419						
20:15	247.13	-15.22	21.33	35.36	-15.24	2190376	14.61	261.3	15.3	0.56	-15.932	137.9	23.1	-0.03	0.945						
20:21	247.14	-15.22	21.33	33.86	-15.25	2190443	14.61	260.6	14.1	0.57	-15.973	139.2	23.8	-0.03	0.748						
A 2	20:30	247.14	-15.22	21.33	31.61	-15.25	2190543	14.61	259.5	12.2	0.57	-16.022	141.3	24.9	-0.02	0.444					
4	20:35	247.14	-15.22	21.33	30.36	-15.25	2190598	14.61	258.9	11.1	0.57	-16.041	142.4	25.5	-0.01	0.272	108.0A	1.0	-0.17		
4.920	20:45	247.15	-15.22	21.33	27.85	-15.25	2190709	14.61	257.7	9.0	0.57	-16.065	144.8	26.6	0.00	-0.081	106.6	3.0	-0.18	4.986	
7	20:55	247.15	-15.23	21.33	25.35	-15.25	2190820	14.62	256.4	6.9	0.57	-16.068	147.3	27.7	0.02	-0.443	105.1+	4.9	-0.18	5.033	
10	21:00	247.15	-15.23	21.33	24.10	-15.26	2190875	14.62	255.8	5.9	0.57	-16.062	148.5	28.2	0.02	-0.628	104.4	5.9	-0.18	5.049	
11	21:04	247.15	-15.23	21.34	23.10	-15.26	2190920	14.62	255.3L	5.1	0.57	-16.053	149.5	28.6	0.03	-0.777	103.9	6.7	-0.18	5.059	
12	21:15	247.16	-15.23	21.34	20.35	-15.26	2191042	14.62				152.3	29.6	0.04	-1.195	102.3	8.9	-0.18	5.068		
15	21:30	247.17	-15.23	21.34	16.59	-15.26	2191208	14.62				156.3	30.8	0.06	-1.779	100.3	11.9	-0.18	5.043		
18	21:45	247.17	-15.24	21.34	12.84	-15.27	2191375	14.62				160.3	31.9	0.08	-2.378	98.2	14.9	-0.18	4.973		
22	22:00	247.18	-15.24	21.34	9.09	-15.27	2191541	14.62				164.5	32.8	0.11	-2.990	96.1	17.9	-0.17	4.860		
25	22:15	247.19	-15.24	21.35	5.33	-15.27	2191708	14.62				168.8	33.4	0.13	-3.611	94.0	21.0	-0.17	4.704		
29	22:30	247.19	-15.25	21.35	1.58	-15.28	2191874	14.62				173.1	33.9	0.15	-4.239	91.9	24.0	-0.16	4.505		
32	22:45	247.20	-15.25	21.35	357.82	-15.28	2192041	14.62				177.4	34.1	0.17	-4.872	89.7	27.0	-0.15	4.264		
36	23:00	247.21	-15.25	21.35	354.07	-15.28	2192208	14.62				181.8	34.1	0.19	-5.506	87.5	30.1	-0.14	3.982		
39	23:15	247.21	-15.26	21.35	350.32	-15.29	2192374	14.63				186.2	33.9	0.22	-6.139	85.2	33.1	-0.13	3.661		
42	23:30	247.22	-15.26	21.36	346.56	-15.29	2192541	14.63				190.5	33.5	0.24	-6.768	82.7	36.2	-0.12	3.301		
46	23:45	247.23	-15.26	21.36	342.81	-15.29	2192708	14.63				194.8	32.9	0.26	-7.390	80.2	39.2	-0.10	2.905		
49																					

HERSCHEL WORLD MAP PRINTOUT      CREATED ON 2013/05/15      FREQUENCY IN MHZ: 8468.500      ALTITUDE IN KM: 2192875.  
ESCS = ANGLE EARTH-S/C-SUN      DATE: 2013/06/20      S/C TO SUN IN AU: 1.02981

-----GEOCENTRIC-----										-----NEW NORCIA-----				-----CEBREROS -----				-----MALARGUE -----			
KOU	UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTL	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	
EL	EL	EL	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	
HH:MM	MM	DEG	DEG	DEG	DEG	DEG			DEG	DEG			DEG	DEG			DEG	DEG			
DEG	DEG	DEG																			
00:00	247.23	-15.27	21.36	339.06	-15.30	2192875	14.63						199.0	32.0	0.28	-8.003	77.5	42.2	-0.09	2.473	
52	00:15	247.24	-15.27	21.36	335.30	-15.30	2193042	14.63					203.0	31.0	0.30	-8.604	74.6	45.2	-0.07	2.009	
55	00:30	247.25	-15.27	21.37	331.55	-15.30	2193209	14.63					207.0	29.8	0.33	-9.191	71.5	48.1	-0.05	1.513	
58	00:45	247.25	-15.28	21.37	327.80	-15.31	2193376	14.63					210.8	28.4	0.35	-9.761	68.0	50.9	-0.03	0.988	
61	01:00	247.26	-15.28	21.37	324.04	-15.31	2193543	14.63					214.5	26.8	0.37	-10.311	64.3	53.7	-0.02	0.436	
63	01:15	247.26	-15.29	21.37	320.29	-15.31	2193710	14.63					218.1	25.1	0.38	-10.839	60.0	56.4	0.00	-0.140	
66	01:30	247.27	-15.29	21.37	316.53	-15.32	2193877	14.64					221.5	23.3	0.40	-11.343	55.2	59.0	0.03	-0.738	
67	01:45	247.28	-15.29	21.38	312.78	-15.32	2194045	14.64					224.8	21.4	0.42	-11.821	49.8	61.4	0.05	-1.355	
69	02:00	247.28	-15.30	21.38	309.03	-15.32	2194212	14.64					228.0	19.3	0.43	-12.271	43.6	63.7	0.07	-1.990	
69	02:15	247.29	-15.30	21.38	305.27	-15.33	2194379	14.64					231.1	17.1	0.45	-12.690	36.4	65.6	0.09	-2.638	
69	02:30	247.30	-15.30	21.38	301.52	-15.33	2194546	14.64					234.0	14.8	0.46	-13.078	28.3	67.3	0.12	-3.298	
69	02:45	247.30	-15.31	21.39	297.77	-15.33	2194714	14.64					236.8	12.5	0.48	-13.431	19.2	68.5	0.14	-3.966	
67	03:00	247.31	-15.31	21.39	294.01	-15.34	2194881	14.64					239.6	10.0	0.49	-13.750	9.4	69.3	0.16	-4.639	
66	03:15	247.32	-15.31	21.39	290.26	-15.34	2195049	14.64					242.2	7.5	0.50	-14.032	359.1	69.5	0.19	-5.315	
63	03:30	247.32	-15.32	21.39	286.51	-15.34	2195216	14.64					244.8+	5.0	0.51	-14.276	348.8	69.2	0.21	-5.991	
61	03:42	247.33	-15.32	21.39	283.50	-15.35	2195350	14.65					246.8L	2.9	0.51	-14.444	340.9	68.5	0.23	-6.530	







02:00	247.92	-15.62	21.59	308.68	-15.65	2210483	14.75		228.1	18.8	0.44	-12.437		43.4	64.1	0.08	-2.192		
69	02:15	247.93	-15.62	21.59	304.93	-15.65	2210654	14.75		231.1	16.6	0.46	-12.853		36.1	66.1	0.10	-2.840	
69	02:30	247.94	-15.63	21.59	301.17	-15.65	2210826	14.75		234.0	14.4	0.47	-13.237		27.8	67.7	0.12	-3.500	
68	02:45	247.94	-15.63	21.60	297.42	-15.66	2210998	14.75		236.9	12.0	0.48	-13.587		18.6	68.9	0.15	-4.167	
67	03:00	247.95	-15.63	21.60	293.67	-15.66	2211170	14.75		239.6	9.6	0.49	-13.901		8.5	69.6	0.17	-4.840	
65	03:15	247.96	-15.64	21.60	289.91	-15.66	2211342	14.75		242.2	7.1	0.50	-14.179		358.1	69.8	0.20	-5.515	
63	03:27	247.96	-15.64	21.60	286.91	-15.67	2211479	14.75		244.3+	5.0	0.51	-14.375		349.7	69.6	0.21	-6.055	
61	03:30	247.96	-15.64	21.60	286.16	-15.67	2211514	14.75		244.8	4.5	0.51	-14.420		347.7	69.4	0.22	-6.190	
60	03:39	247.97	-15.64	21.60	283.91	-15.67	2211617	14.75		246.3L	3.0	0.51	-14.545		341.7	69.0	0.23	-6.593	
59	03:45	247.97	-15.64	21.60	282.41	-15.67	2211686	14.75							337.9	68.5	0.24	-6.861	
58	04:00	247.98	-15.65	21.61	278.65	-15.67	2211858	14.76							329.0	67.2	0.27	-7.525	
55	04:15	247.98	-15.65	21.61	274.90	-15.68	2212030	14.76							321.1	65.4	0.29	-8.181	
52	04:30	247.99	-15.65	21.61	271.15	-15.68	2212202	14.76							314.2	63.4	0.31	-8.824	
49	04:45	248.00	-15.66	21.61	267.39	-15.68	2212374	14.76							308.1	61.1	0.33	-9.453	
45	05:00	248.00	-15.66	21.62	263.64	-15.69	2212546	14.76							302.9	58.6	0.36	-10.064	
42	05:15	248.01	-15.66	21.62	259.88	-15.69	2212718	14.76							298.3	56.0	0.38	-10.655	
39	05:30	248.02	-15.67	21.62	256.13	-15.69	2212891	14.76							294.2	53.2	0.40	-11.223	
35	05:45	248.02	-15.67	21.62	252.38	-15.70	2213063	14.76							290.5	50.4	0.42	-11.766	
32	06:00	248.03	-15.67	21.62	248.62	-15.70	2213235	14.77							287.2	47.5	0.43	-12.281	
28	06:15	248.04	-15.68	21.63	244.87	-15.70	2213408	14.77							284.1	44.6	0.45	-12.767	
25	06:30	248.04	-15.68	21.63	241.12	-15.71	2213580	14.77							281.3	41.6	0.47	-13.222	
21	06:45	248.05	-15.68	21.63	237.36	-15.71	2213753	14.77							278.6	38.6	0.48	-13.642	
18	07:00	248.06	-15.69	21.63	233.61	-15.71	2213925	14.77							276.1	35.6	0.50	-14.027	
14	07:15	248.06	-15.69	21.64	229.86	-15.72	2214098	14.77							273.8	32.5	0.51	-14.375	
11	07:30	248.07	-15.70	21.64	226.10	-15.72	2214271	14.77							271.5	29.5	0.52	-14.684	
7	07:38	248.08	-15.70	21.64	224.10	-15.72	2214363	14.77							270.3	27.9	0.53		
-14.833	07:45	248.08	-15.70	21.64	222.35	-15.73	2214443	14.77							269.3	26.5	0.53	-14.954	
3	07:53	248.08	-15.70	21.64	220.35	-15.73	2214535	14.77							268.1	24.8	0.53		
-15.081	08:00	248.09	-15.70	21.64	218.60	-15.73	2214616	14.77							267.1	23.4	0.54	-15.182	
	08:13	248.09	-15.70	21.64	215.34	-15.73	2214766	14.78		108.1A	0.3	-0.19	5.270		265.3	20.8	0.54	-15.346	
	08:15	248.09	-15.71	21.64	214.84	-15.73	2214789	14.78		107.9	0.7	-0.19	5.284		265.0	20.4	0.54	-15.368	
	08:30	248.10	-15.71	21.65	211.09	-15.74	2214962	14.78		106.0	3.8	-0.19	5.368		262.9	17.3	0.55	-15.512	
	08:36	248.10	-15.71	21.65	209.59	-15.74	2215031	14.78		105.2+	5.1	-0.19	5.388		262.1	16.1	0.55	-15.557	
	08:45	248.11	-15.71	21.65	207.34	-15.74	2215135	14.78		104.1	6.9	-0.19	5.405		260.8	14.3	0.55	-15.612	
	09:00	248.11	-15.72	21.65	203.58	-15.74	2215307	14.78		102.3	10.1	-0.19	5.396		258.8	11.3	0.55	-15.669	
	09:15	248.12	-15.72	21.65	199.83	-15.75	2215480	14.78		100.5	13.2	-0.19	5.341		256.7	8.4	0.56	-15.681	
	09:30	248.13	-15.72	21.65	196.07	-15.75	2215653	14.78		98.7	16.4	-0.19	5.239		254.6	5.4	0.55	-15.650	
	09:32	248.13	-15.72	21.65	195.57	-15.75	2215676	14.78		98.5	16.8	-0.18	5.222		254.3+	5.0	0.55	-15.642	
	09:44	248.13	-15.73	21.66	192.57	-15.75	2215815	14.78		97.1	19.4	-0.18	5.102		252.6L	2.7	0.55	-15.581	
	09:45	248.13	-15.73	21.66	192.32	-15.75	2215826	14.78		96.9	19.6	-0.18	5.091						
	10:00	248.14	-15.73	21.66	188.57	-15.76	2216000	14.78		95.1	22.8	-0.17	4.898						
	10:15	248.15	-15.73	21.66	184.81	-15.76	2216173	14.78		93.3	26.0	-0.17	4.661						
	10:30	248.15	-15.74	21.66	181.06	-15.76	2216346	14.79		91.4	29.2	-0.16	4.380						
	10:45	248.16	-15.74	21.67	177.31	-15.77	2216519	14.79		89.5	32.4	-0.14	4.058						
	11:00	248.17	-15.74	21.67	173.55	-15.77	2216692	14.79		87.5	35.7	-0.13	3.694						
	11:15	248.17	-15.75	21.67	169.80	-15.77	2216866	14.79		85.5	38.9	-0.12	3.291						
	11:30	248.18	-15.75	21.67	166.05	-15.78	2217039	14.79		83.2	42.1	-0.10	2.851						
	11:45	248.19	-15.75	21.67	162.29	-15.78	2217213	14.79		80.9	45.3	-0.08	2.374						
	12:00	248.19	-15.76	21.68	158.54	-15.78	2217386	14.79		78.3	48.4	-0.07	1.864						
	12:15	248.20	-15.76	21.68	154.79	-15.79	2217560	14.79		75.5	51.6	-0.05	1.323						
	12:30	248.21	-15.76	21.68	151.03	-15.79	2217733	14.80		72.4	54.7	-0.03	0.752						
	12:45	248.21	-15.77	21.68	147.28	-15.79	2217907	14.80		68.9	57.7	-0.01	0.155						
	13:00	248.22	-15.77	21.68	143.53	-15.80	2218080	14.80		64.8	60.7	0.02	-0.466						
	13:15	248.23	-15.77	21.69	139.77	-15.80	2218254	14.80		60.1	63.6	0.04	-1.109						



EL HH:MM DEG	EL MM DEG	EL DEG DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ
00:00	248.52	-15.92	21.78	338.37	-15.94	2225766	14.85						199.5	31.2	0.30	-8.379	77.7	43.1	-0.07	2.091
52																				
00:15	248.52	-15.92	21.78	334.62	-15.95	2225942	14.85						203.5	30.2	0.32	-8.976	74.8	46.1	-0.06	1.623
55																				
00:30	248.53	-15.93	21.78	330.87	-15.95	2226118	14.85						207.4	28.9	0.34	-9.558	71.7	49.0	-0.04	1.123
58																				
00:45	248.54	-15.93	21.79	327.11	-15.95	2226293	14.85						211.2	27.5	0.36	-10.122	68.2	51.9	-0.02	0.595
61																				
01:00	248.55	-15.93	21.79	323.36	-15.96	2226469	14.85						214.9	26.0	0.38	-10.667	64.4	54.7	-0.00	0.040
63																				
01:15	248.55	-15.94	21.79	319.60	-15.96	2226645	14.85						218.4	24.3	0.40	-11.189	60.1	57.4	0.02	-0.538
65																				
01:30	248.56	-15.94	21.79	315.85	-15.96	2226821	14.86						221.8	22.4	0.41	-11.687	55.2	59.9	0.04	-1.138
67																				
01:45	248.57	-15.94	21.79	312.10	-15.97	2226997	14.86						225.0	20.4	0.43	-12.159	49.6	62.4	0.06	-1.757
68																				
02:00	248.57	-15.95	21.80	308.34	-15.97	2227173	14.86						228.2	18.4	0.45	-12.601	43.2	64.6	0.08	-2.392
69																				
02:15	248.58	-15.95	21.80	304.59	-15.97	2227349	14.86						231.2	16.2	0.46	-13.014	35.8	66.5	0.11	-3.040
69																				
02:30	248.59	-15.95	21.80	300.84	-15.98	2227525	14.86						234.1	13.9	0.47	-13.394	27.4	68.1	0.13	-3.700
68																				
02:45	248.59	-15.96	21.80	297.08	-15.98	2227701	14.86						236.9	11.6	0.49	-13.740	17.9	69.3	0.15	-4.367
66																				
03:00	248.60	-15.96	21.81	293.33	-15.99	2227878	14.86						239.6	9.1	0.50	-14.051	7.7	70.0	0.18	-5.039
65																				
03:15	248.61	-15.96	21.81	289.58	-15.99	2228054	14.86						242.2	6.6	0.51	-14.325	357.1	70.1	0.20	-5.713
62																				
03:25	248.61	-15.96	21.81	287.07	-15.99	2228171	14.86						243.9+	4.9	0.51	-14.487	350.1	69.9	0.22	-6.162
61																				
03:30	248.61	-15.97	21.81	285.82	-15.99	2228230	14.87						244.8	4.1	0.52	-14.562	346.6	69.7	0.23	-6.386
60																				
03:36	248.62	-15.97	21.81	284.32	-15.99	2228301	14.87						245.8L	3.0	0.52	-14.646	342.6	69.4	0.24	-6.654
59																				
03:45	248.62	-15.97	21.81	282.07	-16.00	2228407	14.87										336.8	68.7	0.25	-7.055
57																				
04:00	248.63	-15.97	21.81	278.32	-16.00	2228583	14.87										327.9	67.3	0.27	-7.718
54																				
04:15	248.63	-15.98	21.82	274.56	-16.00	2228759	14.87										320.0	65.5	0.30	-8.372
51																				
04:30	248.64	-15.98	21.82	270.81	-16.01	2228936	14.87										313.1	63.4	0.32	-9.013
48																				
04:45	248.65	-15.98	21.82	267.06	-16.01	2229112	14.87										307.2	61.1	0.34	-9.639
45																				
05:00	248.65	-15.99	21.82	263.30	-16.01	2229289	14.87										302.0	58.6	0.36	-10.247
42																				
05:15	248.66	-15.99	21.83	259.55	-16.02	2229466	14.87										297.5	55.9	0.38	-10.835
38																				
05:30	248.67	-15.99	21.83	255.80	-16.02	2229642	14.87										293.4	53.2	0.40	-11.400
35																				
05:45	248.67	-16.00	21.83	252.04	-16.02	2229819	14.88										289.8	50.4	0.42	-11.940
31																				
06:00	248.68	-16.00	21.83	248.29	-16.03	2229996	14.88										286.5	47.5	0.44	-12.452
28																				
06:15	248.69	-16.00	21.83	244.54	-16.03	2230173	14.88										283.5	44.5	0.46	-12.935
24																				
06:30	248.69	-16.01	21.84	240.78	-16.03	2230349	14.88										280.7	41.5	0.47	-13.385
21																				
06:45	248.70	-16.01	21.84	237.03	-16.04	2230526	14.88										278.1	38.5	0.49	-13.802
17																				
07:00	248.71	-16.01	21.84	233.28	-16.04	2230703	14.88										275.6	35.5	0.50	-14.183
14																				
07:15	248.72	-16.02	21.84	229.52	-16.04	2230880	14.88										273.2	32.5	0.51	-14.527
10																				
07:30	248.72	-16.02	21.84	225.77	-16.05	2231057	14.88										271.0	29.4	0.53	-14.833
7																				
07:37	248.73	-16.02	21.85	224.02	-16.05	2231140	14.88										269.9	28.0	0.53	
-14.962	+ 5																			
07:45	248.73	-16.02	21.85	222.02	-16.05	2231234	14.89										268.8	26.4	0.53	-15.098
3																				
07:51	248.73	-16.02	21.85	220.51	-16.05	2231305	14.89										267.9	25.1	0.54	
-15.193	L 2																			
08:00	248.74	-16.03	21.85	218.26	-16.05	2231412	14.89										266.6	23.3	0.54	-15.322
08:11	248.74	-16.03	21.85	215.51	-16.05	2231542	14.89	108.5A	0.4	-0.18	5.109					265.1	21.1	0.55	-15.460	
08:15	248.74	-16.03	21.85	214.51	-16.06	2231589	14.89	108.0	1.2	-0.18	5.138					264.5	20.3	0.55	-15.505	
08:30	248.75	-16.03	21.85	210.75	-16.06	2231766	14.89	106.1	4.3	-0.18	5.218					262.4	17.3	0.55	-15.644	
08:34	248.75	-16.03	21.85	209.75	-16.06	2231813	14.89	105.6+	5.1	-0.19	5.231					261.9	16.4	0.55	-15.674	
08:45	248.76	-16.04	21.86	207.00	-16.06	2231943	14.89	104.3	7.4	-0.19	5.251					260.4	14.2	0.56	-15.741	
09:00	248.76	-16.04	21.86	203.25	-16.07	2232121	14.89	102.4	10.5	-0.19	5.237					258.3	11.2	0.56	-15.793	
09:15	248.77	-16.04	21.86	199.49	-16.07	2232298	14.89	100.6	13.7	-0.18	5.178					256.2	8.3	0.56	-15.802	
09:30	248.78	-16.05	21.86	195.74	-16.07	2232475	14.89	98.9	16.8	-0.18	5.072					254.1	5.3	0.56	-15.767	
09:32	248.78	-16.05	21.86	195.24	-16.07	2232499	14.89	98.6	17.3	-0.18	5.054					253.8+	4.9	0.56	-15.75	

10:45	248.81	-16.06	21.87	176.97	-16.09	2233363	14.90	89.7	32.9	-0.14	3.873								
11:00	248.82	-16.07	21.87	173.22	-16.09	2233541	14.90	87.7	36.1	-0.12	3.506								
11:15	248.82	-16.07	21.88	169.47	-16.10	2233719	14.90	85.6	39.3	-0.11	3.101								
11:30	248.83	-16.07	21.88	165.71	-16.10	2233897	14.90	83.4	42.5	-0.09	2.657								
11:45	248.84	-16.08	21.88	161.96	-16.10	2234074	14.90	81.1	45.7	-0.08	2.179								
12:00	248.84	-16.08	21.88	158.21	-16.11	2234252	14.91	78.5	48.9	-0.06	1.667								
12:15	248.85	-16.08	21.89	154.45	-16.11	2234430	14.91	75.7	52.0	-0.04	1.124								
12:30	248.86	-16.09	21.89	150.70	-16.11	2234608	14.91	72.6	55.1	-0.02	0.552								
12:45	248.87	-16.09	21.89	146.95	-16.12	2234786	14.91	69.1	58.2	0.00	-0.047								
13:00	248.87	-16.09	21.89	143.19	-16.12	2234964	14.91	65.0	61.1	0.02	-0.669								
13:15	248.88	-16.10	21.89	139.44	-16.12	2235142	14.91	60.2	64.0	0.05	-1.313								
13:30	248.89	-16.10	21.90	135.69	-16.13	2235321	14.91	54.5	66.7	0.07	-1.975								
13:45	248.89	-16.10	21.90	131.93	-16.13	2235499	14.91	47.5	69.2	0.09	-2.653								
14:00	248.90	-16.11	21.90	128.18	-16.13	2235677	14.91	39.0	71.5	0.12	-3.343								
14:15	248.91	-16.11	21.90	124.43	-16.14	2235855	14.92	28.6	73.3	0.14	-4.043								
14:30	248.91	-16.11	21.90	120.67	-16.14	2236034	14.92	16.4	74.5	0.17	-4.750								
14:45	248.92	-16.12	21.91	116.92	-16.14	2236212	14.92	2.7	75.0	0.19	-5.460								
15:00	248.93	-16.12	21.91	113.17	-16.15	2236391	14.92	348.8	74.8	0.22	-6.171								
15:15	248.93	-16.12	21.91	109.41	-16.15	2236569	14.92	335.9	73.8	0.24	-6.879								
15:30	248.94	-16.13	21.91	105.66	-16.15	2236748	14.92	324.8	72.2	0.27	-7.582								
15:45	248.95	-16.13	21.92	101.91	-16.16	2236926	14.92	315.6	70.2	0.29	-8.276								
16:00	248.95	-16.13	21.92	98.15	-16.16	2237105	14.92	308.0	67.8	0.32	-8.958								
16:15	248.96	-16.14	21.92	94.40	-16.16	2237284	14.93	301.8	65.1	0.34	-9.627								
16:30	248.97	-16.14	21.92	90.65	-16.17	2237462	14.93	296.7	62.3	0.36	-10.277								
16:45	248.97	-16.14	21.92	86.89	-16.17	2237641	14.93	292.4	59.4	0.39	-10.908								
17:00	248.98	-16.15	21.93	83.14	-16.17	2237820	14.93	288.6	56.4	0.41	-11.515								
17:15	248.99	-16.15	21.93	79.38	-16.18	2237999	14.93	285.3	53.3	0.43	-12.097								
17:30	249.00	-16.15	21.93	75.63	-16.18	2238178	14.93	282.4	50.1	0.45	-12.651								
17:45	249.00	-16.16	21.93	71.88	-16.18	2238357	14.93	279.8	47.0	0.47	-13.175								
18:00	249.01	-16.16	21.93	68.12	-16.19	2238536	14.93	277.4	43.8	0.48	-13.666	113.6A	2.1	-0.12	3.527				
18:15	249.02	-16.17	21.94	64.37	-16.19	2238715	14.94	275.1	40.6	0.50	-14.122	116.1	4.7	-0.12	3.317				
18:17	249.02	-16.17	21.94	63.87	-16.19	2238739	14.94	274.8	40.2	0.50	-14.181	116.4+	5.0	-0.12	3.287				
18:30	249.02	-16.17	21.94	60.62	-16.19	2238894	14.94	273.0	37.4	0.51	-14.542	118.7	7.2	-0.11	3.070				
18:45	249.03	-16.17	21.94	56.86	-16.20	2239073	14.94	270.9	34.2	0.53	-14.923	121.3	9.7	-0.10	2.784				
19:00	249.04	-16.18	21.94	53.11	-16.20	2239252	14.94	269.0	30.9	0.54	-15.264	124.1	12.1	-0.09	2.463				
19:15	249.04	-16.18	21.95	49.36	-16.20	2239432	14.94	267.1	27.7	0.55	-15.564	126.9	14.4	-0.07	2.107				
19:30	249.05	-16.18	21.95	45.60	-16.21	2239611	14.94	265.3	24.5	0.56	-15.821	129.8	16.6	-0.06	1.717				
19:45	249.06	-16.19	21.95	41.85	-16.21	2239790	14.94	263.5	21.3	0.57	-16.034	132.9	18.8	-0.05	1.296				
20:00	249.06	-16.19	21.95	38.10	-16.21	2239970	14.94	261.7	18.1	0.57	-16.202	136.0	20.8	-0.03	0.845				
20:15	249.07	-16.19	21.95	34.34	-16.22	2240149	14.94	259.9	15.0	0.58	-16.325	139.3	22.7	-0.01	0.366				
20:17	249.07	-16.19	21.95	33.84	-16.22	2240173	14.94	259.7	14.5	0.58	-16.338	139.8	23.0	-0.01	0.300				
A 2																			
20:29	249.08	-16.20	21.96	30.84	-16.22	2240317	14.95	258.2	12.0	0.58	-16.398	142.5	24.4	0.00	-0.105	109.1A	1.3	-0.16	4.440
4																			
20:30	249.08	-16.20	21.96	30.59	-16.22	2240329	14.95	258.1	11.8	0.58	-16.402	142.7	24.5	0.00	-0.139	108.9	1.5	-0.16	4.448
5																			
20:31	249.08	-16.20	21.96	30.34	-16.22	2240341	14.95	258.0	11.6	0.58	-16.405	143.0	24.6	0.01	-0.174	108.8	1.6	-0.16	
4.456																			
20:45	249.08	-16.20	21.96	26.84	-16.22	2240508	14.95	256.3	8.7	0.58	-16.433	146.3	26.2	0.02	-0.668	106.8	4.4	-0.16	4.542
8																			
20:48	249.09	-16.20	21.96	26.09	-16.22	2240544	14.95	255.9	8.0	0.58	-16.433	147.0	26.5	0.03	-0.776	106.3+	4.9	-0.16	4.556
9																			
21:00	249.09	-16.20	21.96	23.08	-16.23	2240688	14.95	254.5	5.6	0.58	-16.417	150.0	27.7	0.04	-1.218	104.7	7.3	-0.16	4.593
12																			
21:03	249.09	-16.20	21.96	22.33	-16.23	2240724	14.95	254.1L	4.9	0.58	-16.408	150.7	28.0	0.05	-1.330	104.2	7.9	-0.16	4.598
13																			
21:15	249.10	-16.21	21.96	19.33	-16.23	2240868	14.95					153.8	29.0	0.06	-1.787	102.6	10.2	-0.16	4.600
15																			
21:30	249.11	-16.21	21.96	15.58	-16.23	2241047	14.95					157.7	30.2	0.08	-2.373	100.5	13.2	-0.16	4.562
19																			
21:45	249.11	-16.21	21.97	11.82	-16.24	2241227	14.95					161.7	31.2	0.11	-2.973	98.5	16.2	-0.16	4.481
22																			
22:00	249.12	-16.22	21.97	8.07	-16.24	2241407	14.95					165.9	32.0	0.13	-3.584	96.4	19.3	-0.15	4.357
26																			
22:15	249.13	-16.22	21.97	4.32	-16.24	2241587	14.95					170.1	32.6	0.15	-4.204	94.3	22.3	-0.15	4.190
29																			
22:30	249.13	-16.22	21.97	0.56	-16.25	2241767	14.96					174.3	33.0	0.17	-4.831	92.2	25.4	-0.14	3.980



09:00	249.42	-16.36	22.06	202.92	-16.39	2249366	15.01	102.6	10.9	-0.18	5.071			257.9	11.2	0.56	-15.924			
09:15	249.43	-16.37	22.07	199.17	-16.39	2249548	15.01	100.8	14.1	-0.18	5.007			255.8	8.2	0.56	-15.929			
09:30	249.44	-16.37	22.07	195.41	-16.40	2249730	15.01	99.0	17.3	-0.17	4.897			253.7	5.3	0.56	-15.890			
09:31	249.44	-16.37	22.07	195.16	-16.40	2249743	15.01	98.9	17.5	-0.17	4.888			253.5+	5.1	0.56	-15.886			
09:43	249.44	-16.37	22.07	192.16	-16.40	2249888	15.01	97.5	20.0	-0.17	4.765			251.8L	2.8	0.56	-15.821			
09:45	249.44	-16.37	22.07	191.66	-16.40	2249913	15.01	97.2	20.4	-0.17	4.742									
10:00	249.45	-16.38	22.07	187.91	-16.40	2250095	15.01	95.4	23.6	-0.16	4.542									
10:15	249.46	-16.38	22.07	184.15	-16.41	2250277	15.01	93.6	26.9	-0.15	4.297									
10:30	249.46	-16.38	22.08	180.40	-16.41	2250459	15.01	91.8	30.1	-0.14	4.010									
10:45	249.47	-16.39	22.08	176.65	-16.41	2250642	15.01	89.9	33.3	-0.13	3.681									
11:00	249.48	-16.39	22.08	172.89	-16.42	2250824	15.02	87.9	36.5	-0.12	3.311									
11:15	249.48	-16.39	22.08	169.14	-16.42	2251006	15.02	85.8	39.7	-0.10	2.903									
11:30	249.49	-16.40	22.08	165.39	-16.42	2251189	15.02	83.6	42.9	-0.09	2.457									
11:45	249.50	-16.40	22.09	161.63	-16.43	2251371	15.02	81.3	46.1	-0.07	1.976									
12:00	249.50	-16.40	22.09	157.88	-16.43	2251554	15.02	78.7	49.3	-0.05	1.462									
12:15	249.51	-16.41	22.09	154.13	-16.43	2251737	15.02	75.9	52.5	-0.03	0.917									
12:30	249.52	-16.41	22.09	150.37	-16.44	2251919	15.02	72.8	55.6	-0.01	0.343									
12:45	249.52	-16.41	22.10	146.62	-16.44	2252102	15.02	69.2	58.6	0.01	-0.257									
13:00	249.53	-16.42	22.10	142.87	-16.44	2252285	15.03	65.1	61.6	0.03	-0.880									
13:15	249.54	-16.42	22.10	139.11	-16.45	2252468	15.03	60.3	64.5	0.05	-1.524									
13:30	249.55	-16.42	22.10	135.36	-16.45	2252650	15.03	54.5	67.2	0.08	-2.187									
13:45	249.55	-16.43	22.10	131.61	-16.45	2252833	15.03	47.4	69.7	0.10	-2.865									
14:00	249.56	-16.43	22.11	127.85	-16.46	2253016	15.03	38.7	71.9	0.13	-3.555									
14:15	249.57	-16.43	22.11	124.10	-16.46	2253199	15.03	28.1	73.7	0.15	-4.255									
14:30	249.57	-16.44	22.11	120.35	-16.46	2253382	15.03	15.5	74.9	0.18	-4.961									
14:45	249.58	-16.44	22.11	116.59	-16.47	2253566	15.03	1.5	75.4	0.20	-5.670									
15:00	249.59	-16.44	22.11	112.84	-16.47	2253749	15.04	347.4	75.1	0.23	-6.380									
15:15	249.59	-16.45	22.12	109.09	-16.47	2253932	15.04	334.4	74.0	0.25	-7.086									
15:30	249.60	-16.45	22.12	105.33	-16.48	2254115	15.04	323.3	72.3	0.28	-7.787									
15:45	249.61	-16.45	22.12	101.58	-16.48	2254299	15.04	314.2	70.2	0.30	-8.480									
16:00	249.61	-16.46	22.12	97.83	-16.48	2254482	15.04	306.8	67.8	0.32	-9.160									
16:15	249.62	-16.46	22.13	94.07	-16.49	2254666	15.04	300.8	65.1	0.35	-9.826									
16:30	249.63	-16.46	22.13	90.32	-16.49	2254849	15.04	295.7	62.2	0.37	-10.474									
16:45	249.64	-16.47	22.13	86.57	-16.49	2255033	15.04	291.5	59.3	0.39	-11.102									
17:00	249.64	-16.47	22.13	82.81	-16.50	2255216	15.05	287.8	56.3	0.41	-11.706									
17:15	249.65	-16.47	22.13	79.06	-16.50	2255400	15.05	284.6	53.2	0.43	-12.285									
17:30	249.66	-16.48	22.14	75.31	-16.50	2255583	15.05	281.7	50.0	0.45	-12.836									
17:45	249.66	-16.48	22.14	71.55	-16.51	2255767	15.05	279.1	46.9	0.47	-13.356									
18:00	249.67	-16.49	22.14	67.80	-16.51	2255951	15.05	276.8	43.7	0.49	-13.843	114.0A	2.1	-0.12	3.345					
18:15	249.68	-16.49	22.14	64.05	-16.51	2256135	15.05	274.5	40.5	0.51	-14.296	116.5	4.7	-0.11	3.132					
18:17	249.68	-16.49	22.14	63.55	-16.51	2256159	15.05	274.2	40.0	0.51	-14.354	116.9+	5.0	-0.11	3.101					
18:30	249.68	-16.49	22.15	60.29	-16.52	2256319	15.05	272.4	37.3	0.52	-14.712	119.1	7.2	-0.10	2.882					
18:45	249.69	-16.50	22.15	56.54	-16.52	2256503	15.05	270.4	34.0	0.53	-15.089	121.8	9.6	-0.09	2.594					
19:00	249.70	-16.50	22.15	52.79	-16.52	2256687	15.05	268.5	30.8	0.55	-15.426	124.5	12.0	-0.08	2.270					
19:15	249.70	-16.50	22.15	49.03	-16.53	2256871	15.06	266.6	27.6	0.56	-15.722	127.3	14.3	-0.07	1.911					
19:30	249.71	-16.51	22.15	45.28	-16.53	2257055	15.06	264.8	24.4	0.57	-15.975	130.3	16.6	-0.05	1.519					
19:45	249.72	-16.51	22.16	41.53	-16.53	2257239	15.06	263.0	21.2	0.57	-16.184	133.3	18.7	-0.04	1.096					
20:00	249.73	-16.51	22.16	37.77	-16.54	2257423	15.06	261.2	18.0	0.58	-16.348	136.5	20.7	-0.02	0.643					
20:15	249.73	-16.52	22.16	34.02	-16.54	2257608	15.06	259.5	14.8	0.58	-16.467	139.8	22.6	-0.01	0.162					
20:16	249.73	-16.52	22.16	33.77	-16.54	2257620	15.06	259.3	14.6	0.58	-16.473	140.0	22.7	-0.00	0.129					
A 2 20:27	249.74	-16.52	22.16	31.02	-16.54	2257755	15.06	258.0	12.3	0.59	-16.529	142.5	24.1	0.01	-0.241	109.4A	1.3	-0.15	4.267	
4 20:30	249.74	-16.52	22.16	30.27	-16.54	2257792	15.06	257.7	11.7	0.59	-16.540	143.2	24.4	0.01	-0.344	109.0	1.9	-0.15		
4.290 20:45	249.75	-16.52	22.16	26.51	-16.55	2257976	15.06	255.9	8.6	0.59	-16.567	146.8	26.0	0.03	-0.874	106.8	4.8	-0.16	4.380	
9																				

9	20:46	249.75	-16.52	22.16	26.26	-16.55	2257989	15.06	255.8	8.3	0.59	-16.567	147.0	26.1	0.03	-0.910	106.7+	5.0	-0.16	4.384
12	21:00	249.75	-16.53	22.17	22.76	-16.55	2258161	15.06	254.0	5.4	0.59	-16.547	150.4	27.5	0.05	-1.425	104.8	7.7	-0.16	4.427
13	21:02	249.75	-16.53	22.17	22.26	-16.55	2258185	15.06	253.8+	5.0	0.59	-16.541	150.9	27.7	0.05	-1.500	104.5	8.1	-0.16	4.429
13	21:03	249.75	-16.53	22.17	22.01	-16.55	2258198	15.07	253.7L	4.8	0.59	-16.538	151.2	27.8	0.05	-1.538	104.3	8.3	-0.16	4.431
16	21:15	249.76	-16.53	22.17	19.01	-16.55	2258345	15.07					154.2	28.9	0.07	-1.995	102.7	10.7	-0.16	4.429
19	21:30	249.77	-16.53	22.17	15.25	-16.56	2258530	15.07					158.1	30.0	0.09	-2.581	100.6	13.7	-0.16	4.388
23	21:45	249.77	-16.54	22.17	11.50	-16.56	2258714	15.07					162.2	31.0	0.11	-3.181	98.6	16.7	-0.15	4.303
26	22:00	249.78	-16.54	22.18	7.75	-16.56	2258899	15.07					166.3	31.7	0.13	-3.793	96.5	19.7	-0.15	4.175
30	22:15	249.79	-16.54	22.18	3.99	-16.57	2259084	15.07					170.5	32.3	0.16	-4.413	94.4	22.7	-0.14	4.004
33	22:30	249.79	-16.55	22.18	0.24	-16.57	2259269	15.07					174.7	32.7	0.18	-5.039	92.3	25.8	-0.13	3.791
36	22:45	249.80	-16.55	22.18	356.49	-16.57	2259453	15.07					179.0	32.8	0.20	-5.668	90.2	28.8	-0.13	3.537
40	23:00	249.81	-16.55	22.18	352.73	-16.58	2259638	15.07					183.3	32.8	0.22	-6.298	87.9	31.9	-0.11	3.243
43	23:15	249.81	-16.56	22.19	348.98	-16.58	2259823	15.08					187.6	32.5	0.25	-6.926	85.6	34.9	-0.10	2.910
46	23:30	249.82	-16.56	22.19	345.23	-16.58	2260008	15.08					191.8	32.0	0.27	-7.549	83.2	38.0	-0.09	2.539
50	23:45	249.83	-16.56	22.19	341.47	-16.59	2260193	15.08					196.0	31.3	0.29	-8.164	80.7	41.0	-0.08	2.132

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15  
 ESCS = ANGLE EARTH-S/C-SUN

FREQUENCY IN MHZ: 8468.500  
 DATE: 2013/06/24

ALTITUDE IN KM: 2260378.  
 S/C TO SUN IN AU: 1.03038

GEOCENTRIC									NEW NORCIA				CEBREFROS				MALARGUE				
UTC	EL	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	
HH:MM	DEG	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	
00:00	249.84	-16.57	22.19	337.72	-16.59	2260378	15.08						200.0	30.4	0.31	-8.770	78.0	44.0	-0.06	1.692	
53	00:15	249.84	-16.57	22.19	333.97	-16.59	2260563	15.08					204.0	29.4	0.33	-9.362	75.1	47.0	-0.04	1.219	
56	00:30	249.85	-16.57	22.20	330.21	-16.60	2260749	15.08					207.8	28.1	0.35	-9.939	71.9	49.9	-0.03	0.715	
58	00:45	249.86	-16.58	22.20	326.46	-16.60	2260934	15.08					211.6	26.7	0.37	-10.499	68.4	52.8	-0.01	0.184	
61	01:00	249.86	-16.58	22.20	322.71	-16.60	2261119	15.08					215.2	25.1	0.39	-11.038	64.5	55.6	0.01	-0.373	
63	01:15	249.87	-16.58	22.20	318.95	-16.61	2261304	15.09					218.6	23.4	0.41	-11.555	60.1	58.3	0.03	-0.954	
65	01:30	249.88	-16.59	22.21	315.20	-16.61	2261490	15.09					222.0	21.5	0.43	-12.047	55.2	60.9	0.06	-1.556	
67	01:45	249.88	-16.59	22.21	311.45	-16.61	2261675	15.09					225.2	19.6	0.44	-12.512	49.5	63.3	0.08	-2.175	
68	02:00	249.89	-16.59	22.21	307.69	-16.62	2261861	15.09					228.3	17.5	0.46	-12.948	42.9	65.5	0.10	-2.811	
68	02:15	249.90	-16.60	22.21	303.94	-16.62	2262046	15.09					231.3	15.3	0.47	-13.354	35.2	67.4	0.12	-3.460	
68	02:30	249.90	-16.60	22.21	300.19	-16.62	2262232	15.09					234.1	13.0	0.49	-13.727	26.5	69.0	0.15	-4.118	
67	02:45	249.91	-16.60	22.22	296.43	-16.63	2262418	15.09					236.9	10.7	0.50	-14.067	16.7	70.1	0.17	-4.785	
66	03:00	249.92	-16.61	22.22	292.68	-16.63	2262603	15.09					239.6	8.2	0.51	-14.371	6.1	70.7	0.19	-5.455	
64	03:15	249.93	-16.61	22.22	288.93	-16.63	2262789	15.10					242.2	5.7	0.52	-14.638	355.1	70.7	0.22	-6.127	
62	03:19	249.93	-16.61	22.22	287.93	-16.63	2262839	15.10					242.9+	5.1	0.52	-14.703	352.2	70.7	0.22	-6.306	
61	03:30	249.93	-16.61	22.22	285.17	-16.64	2262975	15.10					244.8L	3.2	0.53	-14.867	344.4	70.2	0.24	-6.798	
59	03:45	249.94	-16.62	22.22	281.42	-16.64	2263161	15.10									334.5	69.1	0.26	-7.464	
56	04:00	249.95	-16.62	22.23	277.67	-16.64	2263347	15.10									325.6	67.6	0.29	-8.124	
53	04:15	249.95	-16.62	22.23	273.91	-16.65	2263533	15.10									317.9	65.7	0.31	-8.774	
50	04:30	249.96	-16.63	22.23	270.16	-16.65	2263719	15.10									311.1	63.5	0.33	-9.410	
47	04:45	249.97	-16.63	22.23	266.41	-16.65	2263905	15.10									305.3	61.2	0.36	-10.032	
44	05:00	249.97	-16.63	22.24	262.65	-16.66	2264091	15.10									300.3	58.6	0.38	-10.635	
41	05:15	249.98	-16.64	22.24	258.90	-16.66	2264277	15.11									295.8	55.9	0.40	-11.218	
37	05:30	249.99	-16.64	22.24	255.15	-16.66	2264464	15.11									291.9	53.1	0.42	-11.777	
34	05:45	250.00	-16.64	22.24	251.39	-16.67	2264650	15.11									288.4	50.2	0.44	-12.311	
31	06:00	250.00	-16.65	22.24	247.64	-16.67	2264836	15.11									285.2	47.3	0.45	-12.816	
27	06:15	250.01	-16.65	22.25	243.89	-16.67	2265023	15.11									282.2	44.4	0.47	-13.292	
24	06:30	250.02	-16.65	22.25	240.13	-16.68	2265209	15.11									279.5	41.4	0.49	-13.736	
20	06:45	250.02	-16.66	22.25	236.38	-16.68	2265396	15.11									276.9	38.3	0.50	-14.145	
17	07:00	250.03	-16.66	22.25	232.63	-16.68	2265582	15.11									274.5	35.3	0.51	-14.519	
13	07:15	250.04	-16.66	22.26	228.87	-16.69	2265769	15.12									272.2	32.3	0.53	-14.856	
9	07:30	250.04	-16.67	22.26	225.12	-16.69	2265956	15.12									270.0	29.2	0.54	-15.154	
6																					





19:30	250.38	-16.83	22.36	44.96	-16.85	2274984	15.18	264.4	24.3	0.57	-16.144	130.7	16.5	-0.05	1.305		
19:45	250.38	-16.83	22.36	41.21	-16.85	2275174	15.18	262.6	21.1	0.58	-16.349	133.8	18.6	-0.03	0.879		
20:00	250.39	-16.83	22.37	37.45	-16.86	2275363	15.18	260.8	17.9	0.58	-16.510	137.0	20.6	-0.02	0.424		
20:14	250.40	-16.84	22.37	33.95	-16.86	2275540	15.18	259.1	14.9	0.59	-16.618	140.0	22.4	0.00	-0.025		
A 1 20:15	250.40	-16.84	22.37	33.70	-16.86	2275553	15.18	259.0	14.7	0.59	-16.625	140.3	22.5	0.00	-0.058		
2 20:25	250.40	-16.84	22.37	31.20	-16.86	2275679	15.18	257.8	12.6	0.59	-16.676	142.5	23.7	0.01	-0.394	109.8A	1.4 -0.14 4.076
4 20:29	250.40	-16.84	22.37	30.20	-16.86	2275730	15.18	257.4	11.8	0.59	-16.691	143.4	24.2	0.02	-0.531	109.2	2.1 -0.15
4.107 5 20:30	250.40	-16.84	22.37	29.95	-16.86	2275743	15.18	257.2	11.6	0.59	-16.694	143.7	24.3	0.02	-0.566	109.1	2.3 -0.15 4.114
5 20:44	250.41	-16.84	22.37	26.44	-16.87	2275920	15.18	255.6	8.7	0.59	-16.717	147.0	25.8	0.04	-1.061	107.1+	5.0 -0.15 4.196
9 20:45	250.41	-16.84	22.37	26.19	-16.87	2275932	15.18	255.4	8.5	0.59	-16.717	147.2	25.9	0.04	-1.097	106.9	5.2 -0.15 4.200
9 21:00	250.42	-16.85	22.37	22.44	-16.87	2276122	15.18	253.6	5.4	0.59	-16.694	150.9	27.4	0.06	-1.649	104.8	8.2 -0.15 4.243
12 21:02	250.42	-16.85	22.37	21.94	-16.87	2276147	15.18	253.4+	4.9	0.59	-16.687	151.4	27.5	0.06	-1.724	104.6	8.6 -0.15 4.245
13 21:03	250.42	-16.85	22.37	21.69	-16.87	2276160	15.18	253.2L	4.7	0.59	-16.683	151.6	27.6	0.06	-1.761	104.4	8.8 -0.15 4.246
13 21:15	250.43	-16.85	22.38	18.69	-16.87	2276312	15.19					154.7	28.7	0.08	-2.219	102.8	11.1 -0.15 4.242
16 21:30	250.43	-16.85	22.38	14.93	-16.88	2276502	15.19					158.6	29.8	0.10	-2.806	100.7	14.1 -0.15 4.197
19 21:45	250.44	-16.86	22.38	11.18	-16.88	2276692	15.19					162.6	30.7	0.12	-3.406	98.7	17.1 -0.15 4.108
23 22:00	250.45	-16.86	22.38	7.43	-16.88	2276882	15.19					166.7	31.5	0.14	-4.018	96.6	20.1 -0.14 3.976
26 22:15	250.45	-16.86	22.39	3.67	-16.89	2277072	15.19					170.9	32.0	0.16	-4.637	94.5	23.2 -0.13 3.802
30 22:30	250.46	-16.87	22.39	359.92	-16.89	2277262	15.19					175.1	32.4	0.19	-5.263	92.4	26.2 -0.13 3.586
33 22:45	250.47	-16.87	22.39	356.17	-16.89	2277452	15.19					179.4	32.5	0.21	-5.892	90.3	29.3 -0.12 3.328
37 23:00	250.47	-16.87	22.39	352.41	-16.90	2277643	15.19					183.7	32.4	0.23	-6.521	88.1	32.3 -0.11 3.031
40 23:15	250.48	-16.88	22.39	348.66	-16.90	2277833	15.20					187.9	32.1	0.25	-7.147	85.8	35.4 -0.10 2.695
43 23:30	250.49	-16.88	22.40	344.91	-16.90	2278023	15.20					192.1	31.6	0.28	-7.769	83.4	38.4 -0.08 2.321
47 23:45	250.50	-16.88	22.40	341.15	-16.91	2278214	15.20					196.2	30.9	0.30	-8.383	80.8	41.4 -0.07 1.912

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 2278404.  
ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/06/25 S/C TO SUN IN AU: 1.03052

-----GEOCENTRIC-----										-----NEW NORCIA-----				-----CEBREROS -----				-----MALARGUE -----			
UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTLT	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.		
HH:MM	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ		
DEG	DEG	DEG																			
00:00	250.50	-16.89	22.40	337.40	-16.91	2278404	15.20					200.3	30.0	0.32	-8.986	78.1	44.4	-0.05	1.469		
53 00:15	250.51	-16.89	22.40	333.65	-16.91	2278595	15.20					204.2	29.0	0.34	-9.577	75.2	47.4	-0.04	0.994		
56 00:30	250.52	-16.89	22.40	329.89	-16.92	2278786	15.20					208.0	27.7	0.36	-10.152	72.0	50.3	-0.02	0.489		
58 00:45	250.52	-16.90	22.41	326.14	-16.92	2278976	15.20					211.7	26.3	0.38	-10.709	68.5	53.2	0.00	-0.044		
61 01:00	250.53	-16.90	22.41	322.39	-16.92	2279167	15.20					215.3	24.7	0.40	-11.245	64.6	56.0	0.02	-0.603		
63 01:15	250.54	-16.90	22.41	318.63	-16.93	2279358	15.21					218.8	23.0	0.42	-11.760	60.2	58.7	0.04	-1.184		
65 01:30	250.54	-16.91	22.41	314.88	-16.93	2279549	15.21					222.1	21.1	0.43	-12.249	55.2	61.3	0.06	-1.787		
66 01:45	250.55	-16.91	22.42	311.13	-16.93	2279740	15.21					225.3	19.1	0.45	-12.711	49.4	63.7	0.09	-2.407		
67 02:00	250.56	-16.91	22.42	307.37	-16.94	2279931	15.21					228.3	17.0	0.47	-13.144	42.7	65.9	0.11	-3.043		
68 02:15	250.56	-16.92	22.42	303.62	-16.94	2280122	15.21					231.3	14.9	0.48	-13.547	34.9	67.8	0.13	-3.692		
67 02:30	250.57	-16.92	22.42	299.87	-16.94	2280313	15.21					234.2	12.6	0.49	-13.917	26.0	69.4	0.15	-4.351		
67 02:45	250.58	-16.92	22.42	296.12	-16.95	2280504	15.21					236.9	10.2	0.50	-14.253	16.0	70.5	0.18	-5.016		
65 03:00	250.59	-16.93	22.43	292.36	-16.95	2280695	15.22					239.6	7.8	0.52	-14.554	5.2	71.1	0.20	-5.686		
63 03:15	250.59	-16.93	22.43	288.61	-16.95	2280887	15.22					242.2	5.3	0.52	-14.817	354.1	71.0	0.23	-6.357		
61 03:17	250.59	-16.93	22.43	288.11	-16.95	2280912	15.22					242.5+	5.0	0.53	-14.850	352.6	71.0	0.23	-6.447		
61 03:28	250.60	-16.93	22.43	285.36	-16.96	2281053	15.22					244.4L	3.1	0.53	-15.015	344.7	70.6	0.25	-6.938		
59 03:30	250.60	-16.93	22.43	284.86	-16.96	2281078	15.22								343.3	70.4	0.25	-7.027			
59 03:45	250.61	-16.94	22.43	281.10	-16.96	2281270	15.22								333.4	69.3	0.27	-7.692			
56 04:00	250.61	-16.94	22.44	277.35	-16.96	2281461	15.22								324.5	67.7	0.30	-8.350			
53 04:15	250.62	-16.94	22.44	273.60	-16.97	2281653	15.22								316.8	65.8	0.32	-8.998			
50 04:30	250.63	-16.95	22.44	269.84	-16.97	2281844	15.22								310.2	63.6	0.34	-9.632			
47 04:45	250.63	-16.95	22.44	266.09	-16.97	2282036	15.22								304.4	61.2	0.36	-10.251			
44 05:00	250.64	-16.95	22.44	262.34	-16.98	2282228	15.23								299.4	58.6	0.38	-10.852			





03:00	251.26	-17.25	22.64	292.05	-17.27	2299352	15.34		239.6	7.3	0.52	-14.759		4.3	71.4	0.21	-5.939		
63																			
03:14	251.26	-17.25	22.64	288.54	-17.27	2299537	15.34		242.0+	5.0	0.53	-15.003		353.8	71.4	0.23	-6.565		
61																			
03:15	251.26	-17.25	22.64	288.29	-17.27	2299550	15.34		242.2	4.9	0.53	-15.019		353.1	71.3	0.23	-6.609		
61																			
03:26	251.27	-17.25	22.64	285.54	-17.27	2299695	15.34		244.1L	3.0	0.54	-15.186		345.0	70.9	0.25	-7.100		
59																			
03:30	251.27	-17.25	22.64	284.54	-17.28	2299748	15.34							342.2	70.7	0.26	-7.278		
58																			
03:45	251.28	-17.26	22.64	280.79	-17.28	2299945	15.34							332.2	69.5	0.28	-7.942		
55																			
04:00	251.28	-17.26	22.65	277.03	-17.28	2300143	15.34							323.4	67.9	0.30	-8.598		
53																			
04:15	251.29	-17.26	22.65	273.28	-17.29	2300341	15.35							315.7	65.9	0.33	-9.244		
50																			
04:30	251.30	-17.27	22.65	269.53	-17.29	2300539	15.35							309.2	63.6	0.35	-9.876		
46																			
04:45	251.30	-17.27	22.65	265.77	-17.29	2300737	15.35							303.5	61.2	0.37	-10.493		
43																			
05:00	251.31	-17.27	22.66	262.02	-17.30	2300935	15.35							298.6	58.6	0.39	-11.091		
40																			
05:15	251.32	-17.28	22.66	258.27	-17.30	2301133	15.35							294.3	55.8	0.41	-11.669		
37																			
05:30	251.33	-17.28	22.66	254.51	-17.30	2301331	15.35							290.5	53.0	0.43	-12.222		
33																			
05:45	251.33	-17.28	22.66	250.76	-17.31	2301529	15.35							287.0	50.1	0.45	-12.750		
30																			
06:00	251.34	-17.29	22.67	247.01	-17.31	2301728	15.36							283.9	47.2	0.47	-13.250		
26																			
06:15	251.35	-17.29	22.67	243.25	-17.31	2301926	15.36							281.0	44.2	0.49	-13.719		
23																			
06:30	251.35	-17.29	22.67	239.50	-17.31	2302125	15.36							278.3	41.2	0.50	-14.156		
19																			
06:45	251.36	-17.30	22.67	235.75	-17.32	2302323	15.36							275.8	38.2	0.52	-14.559		
16																			
07:00	251.37	-17.30	22.67	231.99	-17.32	2302522	15.36							273.5	35.1	0.53	-14.926		
12																			
07:15	251.37	-17.30	22.68	228.24	-17.32	2302720	15.36							271.2	32.1	0.54	-15.255		
9																			
07:30	251.38	-17.31	22.68	224.49	-17.33	2302919	15.36							269.0	29.1	0.55	-15.546		
5																			
07:31	251.38	-17.31	22.68	224.24	-17.33	2302932	15.36							268.8	28.8	0.55			
-15.564	+ 5																		
07:45	251.39	-17.31	22.68	220.73	-17.33	2303118	15.36							266.8	26.0	0.56	-15.797		
2																			
07:46	251.39	-17.31	22.68	220.48	-17.33	2303131	15.36							266.7	25.8	0.56			
-15.812	L 1																		
08:00	251.40	-17.31	22.68	216.98	-17.33	2303317	15.37							264.7	23.0	0.57	-16.006		
08:03	251.40	-17.31	22.68	216.23	-17.34	2303357	15.37		109.9A	0.5	-0.15	4.332		264.3	22.4	0.57	-16.043		
08:15	251.40	-17.32	22.69	213.23	-17.34	2303516	15.37		108.4	2.9	-0.16	4.415		262.7	19.9	0.57	-16.174		
08:25	251.41	-17.32	22.69	210.73	-17.34	2303649	15.37		107.2+	5.0	-0.16	4.462		261.3	17.9	0.58	-16.262		
08:30	251.41	-17.32	22.69	209.47	-17.34	2303715	15.37		106.6	6.0	-0.16	4.477		260.6	16.9	0.58	-16.299		
08:45	251.42	-17.32	22.69	205.72	-17.34	2303914	15.37		104.8	9.1	-0.16	4.493		258.6	13.9	0.58	-16.380		
09:00	251.42	-17.33	22.69	201.97	-17.35	2304113	15.37		103.0	12.2	-0.16	4.464		256.5	11.0	0.58	-16.418		
09:15	251.43	-17.33	22.69	198.21	-17.35	2304313	15.37		101.2	15.4	-0.16	4.388		254.5	8.0	0.58	-16.413		
09:30	251.44	-17.33	22.70	194.46	-17.35	2304512	15.37		99.4	18.5	-0.15	4.266		252.4+	5.1	0.58	-16.364		
09:41	251.44	-17.33	22.70	191.71	-17.36	2304658	15.38		98.2	20.9	-0.15	4.148		250.8L	3.0	0.58	-16.300		
09:45	251.44	-17.34	22.70	190.71	-17.36	2304711	15.38		97.7	21.7	-0.15	4.100							
10:00	251.45	-17.34	22.70	186.95	-17.36	2304911	15.38		95.9	24.9	-0.14	3.888							
10:15	251.46	-17.34	22.70	183.20	-17.36	2305110	15.38		94.1	28.1	-0.13	3.634							
10:30	251.47	-17.35	22.71	179.45	-17.37	2305310	15.38		92.3	31.3	-0.12	3.336							
10:45	251.47	-17.35	22.71	175.69	-17.37	2305510	15.38		90.4	34.5	-0.11	2.998							
11:00	251.48	-17.35	22.71	171.94	-17.37	2305709	15.38		88.5	37.8	-0.09	2.619							
11:15	251.49	-17.36	22.71	168.19	-17.38	2305909	15.38		86.4	41.0	-0.08	2.203							
11:30	251.49	-17.36	22.71	164.44	-17.38	2306109	15.38		84.2	44.2	-0.06	1.750							
11:45	251.50	-17.36	22.72	160.68	-17.38	2306309	15.39		81.9	47.4	-0.04	1.262							
12:00	251.51	-17.37	22.72	156.93	-17.39	2306509	15.39		79.4	50.6	-0.03	0.742							
12:15	251.51	-17.37	22.72	153.18	-17.39	2306709	15.39		76.6	53.7	-0.01	0.191							
12:30	251.52	-17.37	22.72	149.42	-17.39	2306909	15.39		73.4	56.8	0.01	-0.387							
12:45	251.53	-17.38	22.73	145.67	-17.40	2307110	15.39		69.9	59.9	0.04	-0.991							
13:00	251.54	-17.38	22.73	141.92	-17.40	2307310	15.39		65.7	62.9	0.06	-1.617							
13:15	251.54	-17.38	22.73	138.16	-17.40	2307510	15.39		60.7	65.8	0.08	-2.264							
13:30	251.55	-17.39	22.73	134.41															

14:45	251.58	-17.40	22.74	115.64	-17.42	2308714	15.40	357.8	76.3	0.23	-6.405								
15:00	251.59	-17.40	22.75	111.89	-17.43	2308915	15.40	343.0	75.8	0.25	-7.112								
15:15	251.60	-17.41	22.75	108.14	-17.43	2309116	15.40	329.9	74.5	0.28	-7.814								
15:30	251.61	-17.41	22.75	104.38	-17.43	2309317	15.41	319.0	72.6	0.30	-8.511								
15:45	251.61	-17.41	22.75	100.63	-17.44	2309518	15.41	310.3	70.3	0.33	-9.197								
16:00	251.62	-17.42	22.75	96.88	-17.44	2309720	15.41	303.3	67.7	0.35	-9.871								
16:15	251.63	-17.42	22.76	93.12	-17.44	2309921	15.41	297.7	65.0	0.37	-10.530								
16:30	251.63	-17.42	22.76	89.37	-17.45	2310122	15.41	292.9	62.1	0.40	-11.171								
16:45	251.64	-17.43	22.76	85.62	-17.45	2310324	15.41	289.0	59.0	0.42	-11.790								
17:00	251.65	-17.43	22.76	81.86	-17.45	2310525	15.41	285.5	56.0	0.44	-12.386								
17:15	251.65	-17.43	22.77	78.11	-17.46	2310727	15.42	282.5	52.8	0.46	-12.956								
17:30	251.66	-17.44	22.77	74.36	-17.46	2310929	15.42	279.8	49.7	0.48	-13.497								
17:45	251.67	-17.44	22.77	70.60	-17.46	2311130	15.42	277.3	46.5	0.50	-14.007								
18:00	251.68	-17.44	22.77	66.85	-17.47	2311332	15.42	275.0	43.3	0.51	-14.484	115.3A	2.1	-0.09	2.683				
18:15	251.68	-17.45	22.77	63.10	-17.47	2311534	15.42	272.9	40.1	0.53	-14.926	117.9	4.6	-0.09	2.462				
18:17	251.68	-17.45	22.78	62.60	-17.47	2311561	15.42	272.6	39.7	0.53	-14.982	118.2+	5.0	-0.09	2.429				
18:30	251.69	-17.45	22.78	59.34	-17.47	2311736	15.42	270.8	36.9	0.54	-15.331	120.4	7.1	-0.08	2.202				
18:45	251.70	-17.45	22.78	55.59	-17.48	2311938	15.42	268.9	33.7	0.56	-15.697	123.1	9.5	-0.07	1.905				
19:00	251.70	-17.46	22.78	51.84	-17.48	2312140	15.42	267.0	30.4	0.57	-16.023	125.9	11.9	-0.06	1.573				
19:15	251.71	-17.46	22.78	48.08	-17.48	2312342	15.43	265.2	27.2	0.58	-16.307	128.7	14.2	-0.04	1.207				
19:30	251.72	-17.46	22.79	44.33	-17.49	2312545	15.43	263.4	24.0	0.59	-16.549	131.6	16.4	-0.03	0.809				
19:45	251.72	-17.47	22.79	40.58	-17.49	2312747	15.43	261.7	20.8	0.59	-16.746	134.7	18.4	-0.01	0.379				
20:00	251.73	-17.47	22.79	36.82	-17.49	2312949	15.43	259.9	17.7	0.60	-16.899	137.9	20.4	0.00	-0.079				
20:12	251.74	-17.47	22.79	33.82	-17.50	2313111	15.43	258.5	15.1	0.60	-16.988	140.5	21.9	0.02	-0.466				
A 1 20:15	251.74	-17.47	22.79	33.07	-17.50	2313152	15.43	258.2	14.5	0.60	-17.006	141.2	22.3	0.02	-0.565				
3 20:20	251.74	-17.48	22.79	31.82	-17.50	2313219	15.43	257.6	13.5	0.60	-17.032	142.3	22.9	0.03	-0.733	110.6A	1.3	-0.13	3.617
3.673 5 20:27	251.74	-17.48	22.79	30.07	-17.50	2313314	15.43	256.7	12.0	0.60	-17.059	143.9	23.7	0.03	-0.972	109.6	2.6	-0.13	
6 20:30	251.75	-17.48	22.80	29.32	-17.50	2313354	15.43	256.4	11.4	0.60	-17.068	144.6	24.0	0.04	-1.076	109.2	3.2	-0.13	3.693
8 20:39	251.75	-17.48	22.80	27.07	-17.50	2313476	15.43	255.3	9.5	0.60	-17.083	146.7	25.0	0.05	-1.393	107.9+	4.9	-0.13	3.745
9 20:45	251.75	-17.48	22.80	25.56	-17.50	2313557	15.43	254.6	8.2	0.60	-17.084	148.1	25.6	0.06	-1.609	107.1	6.1	-0.13	3.771
13 21:00	251.76	-17.48	22.80	21.81	-17.51	2313760	15.44	252.7	5.2	0.60	-17.053	151.8	27.0	0.08	-2.163	105.0	9.0	-0.13	3.806
13 21:01	251.76	-17.48	22.80	21.56	-17.51	2313773	15.44	252.6+	5.0	0.60	-17.050	152.0	27.1	0.08	-2.200	104.9	9.2	-0.13	3.806
13 21:02	251.76	-17.48	22.80	21.31	-17.51	2313787	15.44	252.5L	4.8	0.60	-17.046	152.3	27.2	0.08	-2.238	104.7	9.4	-0.13	3.807
16 21:15	251.77	-17.49	22.80	18.06	-17.51	2313962	15.44					155.6	28.3	0.10	-2.735	103.0	12.0	-0.13	3.797
20 21:30	251.77	-17.49	22.80	14.30	-17.51	2314165	15.44					159.5	29.4	0.12	-3.322	100.9	15.0	-0.13	3.744
23 21:45	251.78	-17.49	22.81	10.55	-17.52	2314368	15.44					163.5	30.3	0.14	-3.923	98.9	18.0	-0.13	3.648
27 22:00	251.79	-17.50	22.81	6.80	-17.52	2314571	15.44					167.5	31.0	0.16	-4.534	96.8	21.0	-0.12	3.509
30 22:15	251.79	-17.50	22.81	3.04	-17.52	2314774	15.44					171.7	31.5	0.18	-5.154	94.8	24.0	-0.12	3.327
34 22:30	251.80	-17.50	22.81	359.29	-17.53	2314977	15.44					175.9	31.8	0.20	-5.778	92.7	27.1	-0.11	3.104
37 22:45	251.81	-17.51	22.82	355.54	-17.53	2315181	15.45					180.1	31.9	0.23	-6.406	90.5	30.1	-0.10	2.840
40 23:00	251.82	-17.51	22.82	351.79	-17.53	2315384	15.45					184.3	31.8	0.25	-7.033	88.3	33.2	-0.09	2.537
44 23:15	251.82	-17.51	22.82	348.03	-17.54	2315587	15.45					188.5	31.4	0.27	-7.657	86.0	36.2	-0.08	2.195
47 23:30	251.83	-17.52	22.82	344.28	-17.54	2315791	15.45					192.7	30.9	0.29	-8.276	83.6	39.3	-0.06	1.816
50 23:45	251.84	-17.52	22.82	340.53	-17.54	2315994	15.45					196.7	30.2	0.31	-8.886	81.1	42.3	-0.05	1.402

HERSCHEL WORLD MAP PRINTOUT CREATED ON 2013/05/15 FREQUENCY IN MHZ: 8468.500 ALTITUDE IN KM: 2316198.  
ESCS = ANGLE EARTH-S/C-SUN DATE: 2013/06/27 S/C TO SUN IN AU: 1.03080

-----GEOCENTRIC-----										-----NEW NORCIA-----				-----CEBROS-----				-----MALARGUE-----			
KOU	UTC	RA	DEC	ESCS	LONG	LAT	HEIGHT	RTL	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	AZ	EL	RRATE	DOPPL.	
EL	EL	EL	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	
HH:MM	MM	MM	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	
DEG	DEG	DEG	DEG	DEG	DEG	DEG	KM	S	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	DEG	DEG	KM/S	KHZ	
00:00	251.84	-17.52	22.83	336.77	-17.55	2316198	15.45					200.7	29.3	0.34	-9.486	78.4	45.3	-0.03	0.955		
53 00:15	251.85	-17.53	22.83	333.02	-17.55	2316402	15.45					204.6	28.2	0.36	-10.073	75.5	48.3	-0.02	0.476		
56 00:30	251.86	-17.53	22.83	329.27	-17.55	2316606	15.45					208.4	26.9	0.38	-10.644	72.3	51.2	0.00	-0.033		



12:15	252.19	-17.68	22.94	152.86	-17.71	2326271	15.52	76.8	54.1	0.00	-0.098								
12:30	252.19	-17.69	22.94	149.11	-17.71	2326479	15.52	73.7	57.3	0.02	-0.678								
12:45	252.20	-17.69	22.94	145.36	-17.71	2326686	15.52	70.1	60.3	0.05	-1.283								
13:00	252.21	-17.69	22.95	141.60	-17.72	2326894	15.52	65.9	63.3	0.07	-1.910								
13:15	252.21	-17.70	22.95	137.85	-17.72	2327102	15.52	60.9	66.2	0.09	-2.557								
13:30	252.22	-17.70	22.95	134.10	-17.72	2327310	15.53	54.8	68.9	0.11	-3.222								
13:45	252.23	-17.70	22.95	130.34	-17.73	2327518	15.53	47.2	71.5	0.14	-3.900								
14:00	252.24	-17.71	22.95	126.59	-17.73	2327726	15.53	37.7	73.6	0.16	-4.590								
14:15	252.24	-17.71	22.96	122.84	-17.73	2327934	15.53	25.9	75.3	0.19	-5.288								
14:30	252.25	-17.71	22.96	119.08	-17.74	2328142	15.53	11.8	76.4	0.21	-5.992								
14:45	252.26	-17.72	22.96	115.33	-17.74	2328350	15.53	356.4	76.6	0.24	-6.698								
15:00	252.26	-17.72	22.96	111.58	-17.74	2328559	15.53	341.5	76.0	0.26	-7.403								
15:15	252.27	-17.72	22.97	107.82	-17.74	2328767	15.54	328.4	74.6	0.29	-8.104								
15:30	252.28	-17.73	22.97	104.07	-17.75	2328976	15.54	317.6	72.7	0.31	-8.799								
15:45	252.28	-17.73	22.97	100.32	-17.75	2329184	15.54	309.0	70.4	0.34	-9.484								
16:00	252.29	-17.73	22.97	96.56	-17.75	2329393	15.54	302.2	67.7	0.36	-10.156								
16:15	252.30	-17.74	22.97	92.81	-17.76	2329602	15.54	296.6	64.9	0.38	-10.812								
16:30	252.31	-17.74	22.98	89.06	-17.76	2329811	15.54	292.0	62.0	0.41	-11.450								
16:45	252.31	-17.74	22.98	85.30	-17.76	2330020	15.54	288.1	59.0	0.43	-12.067								
17:00	252.32	-17.75	22.98	81.55	-17.77	2330229	15.55	284.8	55.9	0.45	-12.660								
17:15	252.33	-17.75	22.98	77.80	-17.77	2330438	15.55	281.8	52.7	0.47	-13.227								
17:30	252.33	-17.75	22.99	74.04	-17.77	2330647	15.55	279.1	49.6	0.49	-13.765								
17:45	252.34	-17.76	22.99	70.29	-17.78	2330856	15.55	276.7	46.4	0.51	-14.272								
18:00	252.35	-17.76	22.99	66.54	-17.78	2331066	15.55	274.4	43.2	0.52	-14.745	115.8A	2.1	-0.09	2.414				
18:15	252.35	-17.76	22.99	62.78	-17.78	2331275	15.55	272.3	40.0	0.54	-15.184	118.3	4.6	-0.08	2.189				
18:17	252.36	-17.76	22.99	62.28	-17.78	2331303	15.55	272.1	39.5	0.54	-15.239	118.6+	5.0	-0.08	2.156				
18:30	252.36	-17.77	23.00	59.03	-17.79	2331485	15.55	270.3	36.7	0.55	-15.585	120.9	7.1	-0.07	1.926				
18:45	252.37	-17.77	23.00	55.28	-17.79	2331694	15.56	268.4	33.5	0.56	-15.948	123.5	9.5	-0.06	1.627				
19:00	252.38	-17.77	23.00	51.52	-17.79	2331904	15.56	266.6	30.3	0.58	-16.270	126.3	11.9	-0.05	1.292				
19:15	252.38	-17.78	23.00	47.77	-17.80	2332114	15.56	264.8	27.1	0.59	-16.550	129.1	14.1	-0.03	0.924				
19:30	252.39	-17.78	23.00	44.02	-17.80	2332324	15.56	263.0	23.9	0.59	-16.788	132.1	16.3	-0.02	0.523				
19:45	252.40	-17.78	23.01	40.27	-17.80	2332534	15.56	261.2	20.7	0.60	-16.981	135.1	18.3	-0.00	0.091				
20:00	252.40	-17.79	23.01	36.51	-17.81	2332744	15.56	259.5	17.5	0.61	-17.130	138.3	20.3	0.01	-0.369				
20:11	252.41	-17.79	23.01	33.76	-17.81	2332898	15.56	258.2	15.2	0.61	-17.211	140.7	21.7	0.03	-0.724				
A 1	252.41	-17.79	23.01	32.76	-17.81	2332954	15.56	257.7	14.4	0.61	-17.234	141.6	22.1	0.03	-0.856				
2	252.41	-17.79	23.01	32.01	-17.81	2332996	15.56	257.4	13.8	0.61	-17.249	142.3	22.5	0.03	-0.957	111.0A	1.3	-0.12	3.354
3	252.42	-17.79	23.01	30.01	-17.81	2333108	15.56	256.4	12.1	0.61	-17.281	144.1	23.4	0.04	-1.229	109.9	2.9	-0.12	
3.417	252.42	-17.79	23.01	29.01	-17.81	2333164	15.57	255.9	11.3	0.61	-17.292	145.0	23.8	0.05	-1.368	109.3	3.6	-0.12	3.444
6	252.42	-17.79	23.02	27.25	-17.81	2333262	15.57	255.1	9.8	0.61	-17.304	146.7	24.6	0.06	-1.615	108.3+	5.0	-0.12	3.484
8	252.42	-17.80	23.02	25.25	-17.82	2333374	15.57	254.2	8.2	0.61	-17.304	148.6	25.4	0.07	-1.903	107.2	6.5	-0.12	3.518
10	252.43	-17.80	23.02	21.50	-17.82	2333585	15.57	252.3+	5.1	0.61	-17.271	152.2	26.8	0.09	-2.457	105.1	9.4	-0.13	3.549
13	252.43	-17.80	23.02	21.00	-17.82	2333613	15.57	252.1L	4.7	0.61	-17.263	152.7	27.0	0.09	-2.533	104.8	9.8	-0.13	3.549
14	252.44	-17.80	23.02	17.75	-17.82	2333795	15.57					156.0	28.1	0.11	-3.030	103.1	12.4	-0.13	3.536
17	252.45	-17.81	23.02	13.99	-17.83	2334006	15.57					159.9	29.1	0.13	-3.618	101.0	15.4	-0.12	3.479
20	252.45	-17.81	23.03	10.24	-17.83	2334216	15.57					163.9	30.0	0.15	-4.219	99.0	18.4	-0.12	3.379
24	252.46	-17.81	23.03	6.49	-17.83	2334427	15.57					167.9	30.7	0.17	-4.830	97.0	21.4	-0.11	3.237
27	252.47	-17.82	23.03	2.73	-17.84	2334638	15.58					172.1	31.2	0.19	-5.449	94.9	24.4	-0.11	3.052
30	252.47	-17.82	23.03	358.98	-17.84	2334848	15.58					176.3	31.5	0.22	-6.073	92.8	27.5	-0.10	2.825
34	252.48	-17.82	23.03	355.23	-17.84	2335059	15.58					180.5	31.6	0.24	-6.700	90.7	30.5	-0.09	2.558
37	252.49	-17.82	23.04	351.47	-17.85	2335270	15.58					184.6	31.4	0.26	-7.326	88.5	33.6	-0.08	2.252
40	252.49	-17.83	23.04	347.72	-17.85	2335482	15.58					188.8	31.1	0.28	-7.949	86.2	36.6	-0.07	1.907
44	252.50	-17.83	23.04	343.97	-17.85	2335693	15.58					192.9	30.6	0.30	-8.566	83.8	39.7	-0.05	1.526
47	252.51	-17.83	23.04	340.21	-17.86	2335904	15.58					197.0	29.8	0.32	-9.175	81.2	42.7	-0.04	1.110
50																			





10:15	252.80	-17.97	23.14	182.58	-17.99	2344856	15.64	94.5	28.9	-0.11	3.069			
10:30	252.81	-17.97	23.14	178.82	-18.00	2345071	15.64	92.7	32.1	-0.10	2.766			
10:45	252.82	-17.98	23.15	175.07	-18.00	2345286	15.65	90.8	35.4	-0.09	2.421			
11:00	252.82	-17.98	23.15	171.32	-18.00	2345502	15.65	88.8	38.6	-0.07	2.037			
11:15	252.83	-17.98	23.15	167.56	-18.01	2345717	15.65	86.8	41.8	-0.06	1.615			
11:30	252.84	-17.99	23.15	163.81	-18.01	2345932	15.65	84.7	45.0	-0.04	1.157			
11:45	252.85	-17.99	23.16	160.06	-18.01	2346148	15.65	82.3	48.2	-0.02	0.665			
12:00	252.85	-17.99	23.16	156.30	-18.01	2346363	15.65	79.8	51.4	-0.00	0.141			
12:15	252.86	-18.00	23.16	152.55	-18.02	2346579	15.65	77.0	54.6	0.01	-0.413			
12:30	252.87	-18.00	23.16	148.80	-18.02	2346795	15.66	73.9	57.7	0.04	-0.994			
12:45	252.87	-18.00	23.16	145.04	-18.02	2347011	15.66	70.3	60.8	0.06	-1.600			
13:00	252.88	-18.01	23.17	141.29	-18.03	2347226	15.66	66.1	63.7	0.08	-2.228			
13:15	252.89	-18.01	23.17	137.54	-18.03	2347442	15.66	61.0	66.6	0.10	-2.876			
13:30	252.89	-18.01	23.17	133.78	-18.03	2347659	15.66	54.9	69.4	0.13	-3.541			
13:45	252.90	-18.02	23.17	130.03	-18.04	2347875	15.66	47.2	71.9	0.15	-4.220			
14:00	252.91	-18.02	23.18	126.28	-18.04	2348091	15.66	37.4	74.1	0.17	-4.909			
14:15	252.92	-18.02	23.18	122.52	-18.04	2348307	15.67	25.3	75.7	0.20	-5.607			
14:30	252.92	-18.03	23.18	118.77	-18.05	2348524	15.67	10.8	76.8	0.22	-6.310			
14:45	252.93	-18.03	23.18	115.02	-18.05	2348740	15.67	355.1	76.9	0.25	-7.015			
15:00	252.94	-18.03	23.19	111.27	-18.05	2348957	15.67	339.9	76.2	0.27	-7.719			
15:15	252.94	-18.04	23.19	107.51	-18.06	2349174	15.67	326.8	74.8	0.30	-8.419			
15:30	252.95	-18.04	23.19	103.76	-18.06	2349391	15.67	316.2	72.8	0.32	-9.112			
15:45	252.96	-18.04	23.19	100.01	-18.06	2349607	15.67	307.8	70.4	0.35	-9.794			
16:00	252.97	-18.05	23.20	96.25	-18.07	2349824	15.68	301.1	67.7	0.37	-10.464			
16:15	252.97	-18.05	23.20	92.50	-18.07	2350042	15.68	295.6	64.9	0.39	-11.118			
16:30	252.98	-18.05	23.20	88.75	-18.07	2350259	15.68	291.1	61.9	0.42	-11.754			
16:45	252.99	-18.06	23.20	84.99	-18.08	2350476	15.68	287.3	58.9	0.44	-12.368			
17:00	252.99	-18.06	23.20	81.24	-18.08	2350693	15.68	284.0	55.8	0.46	-12.958			
17:15	253.00	-18.06	23.21	77.49	-18.08	2350911	15.68	281.1	52.6	0.48	-13.522			
17:30	253.01	-18.07	23.21	73.73	-18.09	2351128	15.69	278.5	49.4	0.50	-14.057			
17:45	253.01	-18.07	23.21	69.98	-18.09	2351346	15.69	276.1	46.3	0.52	-14.560			
18:00	253.02	-18.07	23.21	66.23	-18.09	2351564	15.69	273.9	43.0	0.53	-15.031	116.2A	2.1 -0.07 2.118	
18:15	253.03	-18.08	23.22	62.47	-18.10	2351781	15.69	271.8	39.8	0.55	-15.466	118.7 4.6 -0.07 1.890		
18:17	253.03	-18.08	23.22	61.97	-18.10	2351810	15.69	271.5	39.4	0.55	-15.521	119.1+ 4.9 -0.07 1.857		
18:30	253.04	-18.08	23.22	58.72	-18.10	2351999	15.69	269.8	36.6	0.56	-15.863	121.3 7.1 -0.06 1.625		
18:45	253.04	-18.08	23.22	54.97	-18.10	2352217	15.69	267.9	33.4	0.57	-16.222	124.0 9.5 -0.05 1.323		
19:00	253.05	-18.09	23.22	51.21	-18.11	2352435	15.69	266.1	30.2	0.59	-16.541	126.7 11.8 -0.03 0.986		
19:15	253.06	-18.09	23.23	47.46	-18.11	2352654	15.70	264.3	27.0	0.60	-16.817	129.6 14.1 -0.02 0.615		
19:30	253.06	-18.09	23.23	43.71	-18.11	2352872	15.70	262.5	23.8	0.60	-17.051	132.5 16.2 -0.01 0.212		
19:45	253.07	-18.09	23.23	39.95	-18.12	2353090	15.70	260.8	20.6	0.61	-17.241	135.6 18.3 0.01 -0.222		
20:00	253.08	-18.10	23.23	36.20	-18.12	2353309	15.70	259.0	17.4	0.62	-17.386	138.8 20.2 0.02 -0.684		
20:10	253.08	-18.10	23.23	33.70	-18.12	2353454	15.70	257.9	15.3	0.62	-17.458	140.9 21.4 0.04 -1.007		
A 2 20:15	253.08	-18.10	23.24	32.45	-18.12	2353527	15.70	257.3	14.3	0.62	-17.486	142.1 22.0 0.04 -1.172		
3 20:16	253.09	-18.10	23.24	32.20	-18.12	2353542	15.70	257.2	14.1	0.62	-17.491	142.3 22.1 0.04 -1.206	111.4A 1.4 -0.11 3.065	
3 20:25	253.09	-18.10	23.24	29.95	-18.12	2353673	15.70	256.1	12.2	0.62	-17.528	144.3 23.2 0.05 -1.512	110.1 3.1 -0.11	
3.137 + 5 20:30	253.09	-18.10	23.24	28.69	-18.12	2353746	15.70	255.5	11.2	0.62	-17.541	145.5 23.7 0.06 -1.685	109.4 4.1 -0.11 3.170	
6 20:35	253.09	-18.11	23.24	27.44	-18.13	2353819	15.70	254.9	10.1	0.62	-17.549	146.6 24.2 0.07 -1.862	108.7+ 5.0 -0.11 3.198	
7 20:45	253.10	-18.11	23.24	24.94	-18.13	2353965	15.70	253.7	8.1	0.62	-17.549	149.0 25.2 0.08 -2.221	107.3 6.9 -0.11 3.239	
10 21:00	253.11	-18.11	23.24	21.19	-18.13	2354183	15.71	251.9+	5.0	0.62	-17.512	152.7 26.6 0.10 -2.777	105.2 9.9 -0.12 3.266	
13 21:02	253.11	-18.11	23.24	20.69	-18.13	2354213	15.71	251.7L	4.6	0.62	-17.504	153.2 26.8 0.10 -2.852	104.9 10.3 -0.12 3.266	
14 21:15	253.11	-18.11	23.24	17.43	-18.13	2354402	15.71					156.4 27.9 0.12 -3.350	103.2 12.8 -0.12 3.249	
17 21:30	253.12	-18.12	23.25	13.68	-18.14	2354621	15.71					160.3 28.9 0.14 -3.938	101.1 15.8 -0.11 3.189	
20 21:45	253.13	-18.12	23.25	9.93	-18.14	2354840	15.71					164.3 29.8 0.16 -4.539	99.1 18.8 -0.11 3.086	
24														



08:19	253.42	-18.26	23.35	211.29	-18.28	2364186	15.77	108.3+	5.0	-0.13	3.641	260.8	18.9	0.60	-16.946					
08:30	253.43	-18.26	23.35	208.54	-18.28	2364350	15.77	106.9	7.2	-0.13	3.673	259.3	16.7	0.60	-17.026					
08:45	253.44	-18.26	23.35	204.79	-18.28	2364573	15.77	105.1	10.3	-0.13	3.677	257.3	13.7	0.61	-17.097					
09:00	253.44	-18.27	23.36	201.03	-18.29	2364796	15.78	103.4	13.4	-0.13	3.635	255.2	10.8	0.61	-17.125					
09:15	253.45	-18.27	23.36	197.28	-18.29	2365020	15.78	101.6	16.6	-0.13	3.548	253.2	7.8	0.61	-17.110					
09:30	253.46	-18.27	23.36	193.53	-18.29	2365243	15.78	99.9	19.7	-0.12	3.415	251.1+	4.9	0.60	-17.051					
09:40	253.46	-18.27	23.36	191.02	-18.29	2365392	15.78	98.7	21.9	-0.12	3.301	249.7L	3.0	0.60	-16.988					
09:45	253.46	-18.28	23.36	189.77	-18.30	2365467	15.78	98.2	22.9	-0.11	3.237									
10:00	253.47	-18.28	23.37	186.02	-18.30	2365690	15.78	96.4	26.1	-0.11	3.015									
10:15	253.48	-18.28	23.37	182.27	-18.30	2365914	15.78	94.6	29.3	-0.10	2.750									
10:30	253.49	-18.29	23.37	178.51	-18.30	2366138	15.79	92.8	32.5	-0.09	2.443									
10:45	253.49	-18.29	23.37	174.76	-18.31	2366362	15.79	91.0	35.8	-0.07	2.096									
11:00	253.50	-18.29	23.37	171.01	-18.31	2366586	15.79	89.0	39.0	-0.06	1.709									
11:15	253.51	-18.29	23.38	167.25	-18.31	2366810	15.79	87.0	42.2	-0.05	1.284									
11:30	253.51	-18.30	23.38	163.50	-18.32	2367035	15.79	84.9	45.4	-0.03	0.824									
11:45	253.52	-18.30	23.38	159.75	-18.32	2367259	15.79	82.6	48.6	-0.01	0.330									
12:00	253.53	-18.30	23.38	155.99	-18.32	2367484	15.79	80.0	51.8	0.01	-0.196									
12:15	253.53	-18.31	23.39	152.24	-18.33	2367708	15.80	77.2	55.0	0.03	-0.751									
12:30	253.54	-18.31	23.39	148.49	-18.33	2367933	15.80	74.1	58.1	0.05	-1.334									
12:45	253.55	-18.31	23.39	144.73	-18.33	2368158	15.80	70.5	61.2	0.07	-1.941									
13:00	253.56	-18.32	23.39	140.98	-18.34	2368382	15.80	66.3	64.2	0.09	-2.570									
13:15	253.56	-18.32	23.40	137.23	-18.34	2368607	15.80	61.2	67.1	0.11	-3.219									
13:30	253.57	-18.32	23.40	133.47	-18.34	2368832	15.80	55.0	69.8	0.14	-3.884									
13:45	253.58	-18.33	23.40	129.72	-18.35	2369058	15.80	47.1	72.3	0.16	-4.562									
14:00	253.58	-18.33	23.40	125.97	-18.35	2369283	15.81	37.2	74.5	0.19	-5.252									
14:15	253.59	-18.33	23.41	122.21	-18.35	2369508	15.81	24.6	76.1	0.21	-5.949									
14:30	253.60	-18.34	23.41	118.46	-18.36	2369734	15.81	9.7	77.1	0.24	-6.651									
14:45	253.60	-18.34	23.41	114.71	-18.36	2369959	15.81	353.6	77.2	0.26	-7.355									
15:00	253.61	-18.34	23.41	110.96	-18.36	2370185	15.81	338.3	76.4	0.29	-8.058									
15:15	253.62	-18.35	23.42	107.20	-18.37	2370411	15.81	325.2	74.9	0.31	-8.756									
15:30	253.63	-18.35	23.42	103.45	-18.37	2370636	15.82	314.7	72.8	0.33	-9.447									
15:45	253.63	-18.35	23.42	99.70	-18.37	2370862	15.82	306.5	70.4	0.36	-10.128									
16:00	253.64	-18.36	23.42	95.94	-18.38	2371088	15.82	299.9	67.7	0.38	-10.796									
16:15	253.65	-18.36	23.42	92.19	-18.38	2371314	15.82	294.6	64.8	0.41	-11.448									
16:30	253.65	-18.36	23.43	88.44	-18.38	2371541	15.82	290.2	61.8	0.43	-12.081									
16:45	253.66	-18.37	23.43	84.68	-18.38	2371767	15.82	286.5	58.8	0.45	-12.692									
17:00	253.67	-18.37	23.43	80.93	-18.39	2371993	15.82	283.3	55.7	0.47	-13.279									
17:15	253.68	-18.37	23.43	77.18	-18.39	2372220	15.83	280.4	52.5	0.49	-13.840									
17:30	253.68	-18.38	23.44	73.42	-18.39	2372447	15.83	277.9	49.3	0.51	-14.372									
17:45	253.69	-18.38	23.44	69.67	-18.40	2372673	15.83	275.5	46.1	0.53	-14.872									
18:00	253.70	-18.38	23.44	65.92	-18.40	2372900	15.83	273.3	42.9	0.54	-15.339									
18:01	253.70	-18.38	23.44	65.67	-18.40	2372915	15.83	273.2	42.7	0.54	-15.369	116.8A	2.2	-0.06	1.786					
18:15	253.70	-18.38	23.44	62.16	-18.40	2373127	15.83	271.3	39.7	0.56	-15.770	119.1	4.6	-0.06	1.569					
18:17	253.70	-18.39	23.44	61.66	-18.40	2373157	15.83	271.0	39.3	0.56	-15.825	119.5+	4.9	-0.05	1.535					
18:30	253.71	-18.39	23.45	58.41	-18.41	2373354	15.83	269.3	36.5	0.57	-16.164	121.7	7.1	-0.05	1.300					
18:45	253.72	-18.39	23.45	54.66	-18.41	2373581	15.83	267.4	33.3	0.58	-16.519	124.4	9.4	-0.04	0.996					
19:00	253.72	-18.39	23.45	50.90	-18.41	2373808	15.84	265.6	30.0	0.60	-16.834	127.2	11.8	-0.02	0.656					
19:15	253.73	-18.40	23.45	47.15	-18.42	2374036	15.84	263.8	26.8	0.61	-17.107	130.0	14.0	-0.01	0.283					
19:30	253.74	-18.40	23.46	43.40	-18.42	2374263	15.84	262.1	23.7	0.61	-17.337	133.0	16.1	0.00	-0.122					
19:45	253.75	-18.40	23.46	39.64	-18.42	2374491	15.84	260.3	20.5	0.62	-17.523	136.0	18.2	0.02	-0.557					
20:00	253.75	-18.41	23.46	35.89	-18.43	2374718	15.84	258.6	17.3	0.63	-17.665	139.2	20.1	0.04	-1.021					
20:09	253.76	-18.41	23.46	33.64	-18.43	2374855	15.84	257.6	15.4	0.63	-17.728	141.2	21.2	0.05	-1.312					
A 2																				
20:14	253.76	-18.41	23.46	32.39	-18.43	2374931	15.84	257.0	14.4	0.63	-17.756	142.3	21.8	0.05	-1.478	111.7A	1.4	-0.10	2.754	
3																				
20:15	253.76	-18.41	23.46	32.14	-18.43	2374946	15.84	256.9	14.2	0.63	-17.761	142.5	21.9	0.05	-1.511	111.6	1.6	-0.10	2.762	

3	20:24	253.76	-18.41	23.46	29.89	-18.43	2375083	15.84	255.8	12.3	0.63	-17.797	144.5	22.9	0.06	-1.817	110.3	3.3	-0.10
2.833	+	5																	
6	20:30	253.77	-18.41	23.47	28.38	-18.43	2375174	15.85	255.1	11.0	0.63	-17.812	145.9	23.6	0.07	-2.026	109.4	4.5	-0.10
7	20:33	253.77	-18.41	23.47	27.63	-18.43	2375219	15.85	254.7	10.4	0.63	-17.817	146.6	23.9	0.08	-2.131	109.0+	5.0	-0.10
10	20:45	253.77	-18.42	23.47	24.63	-18.44	2375402	15.85	253.3	8.0	0.63	-17.817	149.4	25.1	0.09	-2.562	107.3	7.4	-0.10
13	20:59	253.78	-18.42	23.47	21.13	-18.44	2375614	15.85	251.6+	5.1	0.63	-17.781	152.8	26.4	0.11	-3.081	105.4	10.1	-0.10
14	21:00	253.78	-18.42	23.47	20.88	-18.44	2375630	15.85	251.5	4.9	0.63	-17.776	153.1	26.5	0.11	-3.119	105.3	10.3	-0.10
14	21:01	253.78	-18.42	23.47	20.63	-18.44	2375645	15.85	251.4L	4.7	0.63	-17.772	153.3	26.5	0.11	-3.156	105.2	10.5	-0.10
17	21:15	253.79	-18.42	23.47	17.12	-18.44	2375858	15.85					156.9	27.7	0.13	-3.692	103.3	13.2	-0.10
21	21:30	253.80	-18.43	23.48	13.37	-18.45	2376086	15.85					160.7	28.7	0.15	-4.281	101.2	16.2	-0.10
21	21:45	253.80	-18.43	23.48	9.62	-18.45	2376314	15.85					164.7	29.5	0.17	-4.882	99.2	19.2	-0.10
24	22:00	253.81	-18.43	23.48	5.86	-18.45	2376543	15.85					168.7	30.2	0.19	-5.493	97.2	22.2	-0.09
27	22:15	253.82	-18.44	23.48	2.11	-18.46	2376771	15.86					172.8	30.7	0.22	-6.112	95.1	25.3	-0.09
31	22:30	253.82	-18.44	23.48	358.36	-18.46	2377000	15.86					177.0	30.9	0.24	-6.734	93.1	28.3	-0.08
34	22:45	253.83	-18.44	23.49	354.61	-18.46	2377228	15.86					181.1	30.9	0.26	-7.359	90.9	31.4	-0.07
37	23:00	253.84	-18.45	23.49	350.85	-18.46	2377457	15.86					185.3	30.8	0.28	-7.983	88.7	34.4	-0.06
41	23:15	253.84	-18.45	23.49	347.10	-18.47	2377686	15.86					189.4	30.4	0.30	-8.604	86.5	37.5	-0.04
44	23:30	253.85	-18.45	23.49	343.35	-18.47	2377915	15.86					193.5	29.8	0.33	-9.218	84.1	40.5	-0.03
47	23:45	253.86	-18.46	23.50	339.59	-18.47	2378144	15.87					197.5	29.1	0.35	-9.824	81.5	43.5	-0.02
50																			