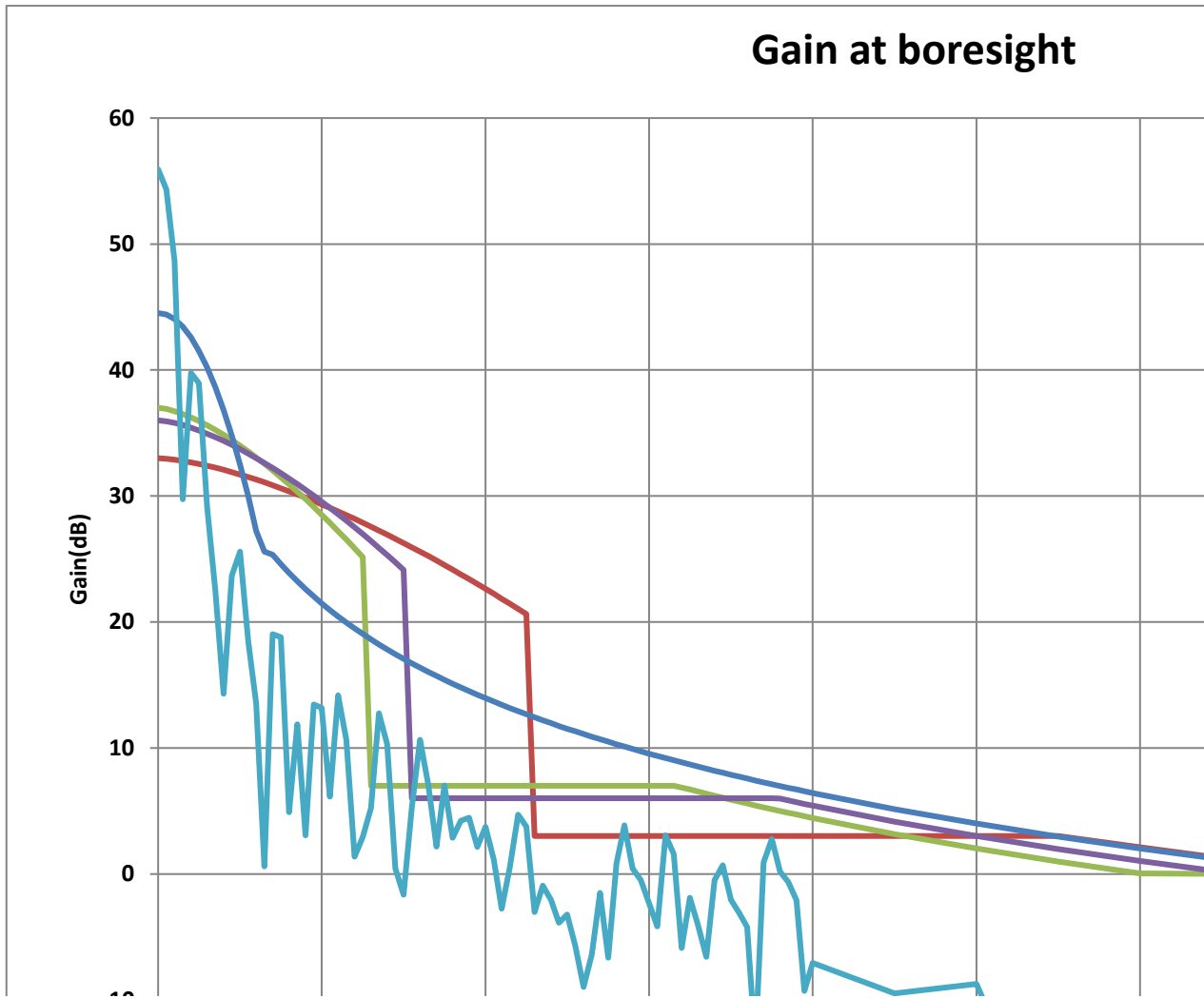


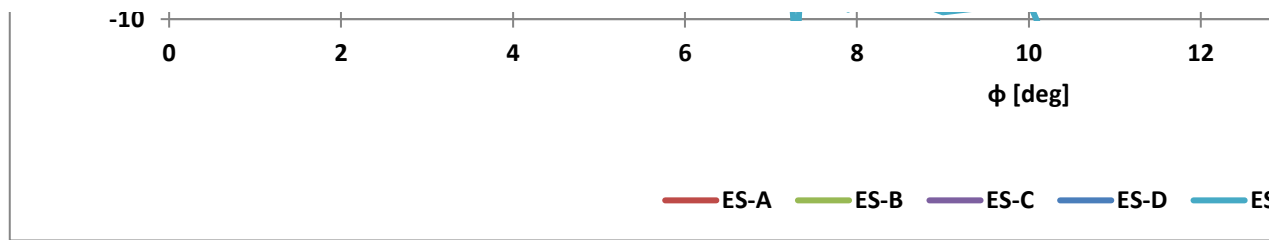
Exhibit 7

Uplink Antenna Patterns

Applicant: **Space Exploration Technologies Corp. (SpaceX)**

Table 1: Ku-band Uplink Patterns





Phi [deg]	Antenna gain				
	ES-A	ES-B	ES-C	ES-D	ES-E
0	33.00	37.00	36.00	44.52	55.93
0.1	32.96	36.91	35.93	44.40	54.34
0.2	32.88	36.73	35.80	44.04	48.66
0.3	32.79	36.51	35.63	43.44	29.73
0.4	32.67	36.24	35.42	42.60	39.76
0.5	32.54	35.94	35.19	41.51	38.95
0.6	32.40	35.61	34.94	40.19	29.1
0.7	32.24	35.24	34.66	38.63	22.46
0.8	32.07	34.85	34.37	36.83	14.3
0.9	31.89	34.44	34.05	34.78	23.68
1	31.70	34.00	33.72	32.50	25.58
1.1	31.50	33.54	33.37	29.98	18.44
1.2	31.30	33.06	33.00	27.21	13.52
1.3	31.08	32.55	32.62	25.58	0.593
1.4	30.85	32.03	32.22	25.35	19.03
1.5	30.62	31.49	31.81	24.60	18.79
1.6	30.38	30.93	31.38	23.90	4.904
1.7	30.13	30.35	30.94	23.24	11.88
1.8	29.87	29.76	30.49	22.62	3.064
1.9	29.61	29.14	30.02	22.03	13.44
2	29.33	28.51	29.55	21.47	13.19
2.1	29.06	27.87	29.05	20.94	6.122
2.2	28.77	27.21	28.55	20.44	14.17
2.3	28.48	26.54	28.04	19.96	10.64
2.4	28.18	25.85	27.51	19.49	1.376
2.5	27.88	25.14	26.98	19.05	2.94
2.6	27.57	7.00	26.43	18.63	5.225
2.7	27.25	7.00	25.88	18.22	12.75
2.8	26.93	7.00	25.31	17.82	10.3
2.9	26.60	7.00	24.73	17.44	0.413
3	26.27	7.00	24.14	17.07	-1.651
3.1	25.93	7.00	6.00	16.72	5.262
3.2	25.58	7.00	6.00	16.37	10.65
3.3	25.23	7.00	6.00	16.04	7.098

3.4	24.88	7.00	6.00	15.71	2.158
3.5	24.51	7.00	6.00	15.40	7.022
3.6	24.15	7.00	6.00	15.09	2.874
3.7	23.78	7.00	6.00	14.80	4.227
3.8	23.40	7.00	6.00	14.51	4.452
3.9	23.02	7.00	6.00	14.22	2.136
4	22.63	7.00	6.00	13.95	3.728
4.1	22.24	7.00	6.00	13.68	1.155
4.2	21.85	7.00	6.00	13.42	-2.763
4.3	21.45	7.00	6.00	13.16	0.545
4.4	21.04	7.00	6.00	12.91	4.693
4.5	20.63	7.00	6.00	12.67	3.759
4.6	3.00	7.00	6.00	12.43	-3.022
4.7	3.00	7.00	6.00	12.20	-0.927
4.8	3.00	7.00	6.00	11.97	-2.058
4.9	3.00	7.00	6.00	11.75	-3.871
5	3.00	7.00	6.00	11.53	-3.216
5.1	3.00	7.00	6.00	11.31	-5.728
5.2	3.00	7.00	6.00	11.10	-8.986
5.3	3.00	7.00	6.00	10.89	-6.392
5.4	3.00	7.00	6.00	10.69	-1.502
5.5	3.00	7.00	6.00	10.49	-6.648
5.6	3.00	7.00	6.00	10.30	0.843
5.7	3.00	7.00	6.00	10.10	3.863
5.8	3.00	7.00	6.00	9.91	0.434
5.9	3.00	7.00	6.00	9.73	-0.503
6	3.00	7.00	6.00	9.55	-2.34
6.1	3.00	7.00	6.00	9.37	-4.163
6.2	3.00	7.00	6.00	9.19	3.061
6.3	3.00	7.00	6.00	9.02	1.589
6.4	3.00	6.86	6.00	8.85	-5.886
6.5	3.00	6.70	6.00	8.68	-1.906
6.6	3.00	6.53	6.00	8.51	-4.1
6.7	3.00	6.37	6.00	8.35	-6.593
6.8	3.00	6.21	6.00	8.19	-0.502
6.9	3.00	6.05	6.00	8.03	0.687
7	3.00	5.89	6.00	7.87	-2.055
7.1	3.00	5.74	6.00	7.72	-3.097
7.2	3.00	5.58	6.00	7.57	-4.221
7.3	3.00	5.43	6.00	7.42	-13.7
7.4	3.00	5.29	6.00	7.27	0.897
7.5	3.00	5.14	6.00	7.12	2.773
7.6	3.00	5.00	5.98	6.98	0.188
7.7	3.00	4.86	5.84	6.84	-0.643
7.8	3.00	4.72	5.70	6.70	-2.082
7.9	3.00	4.58	5.56	6.56	-9.293
8	3.00	4.44	5.42	6.42	-7.065

9	3.00	3.16	4.14	5.14	-9.496
10	3.00	2.02	3.00	4.00	-8.745
11	3.00	0.98	1.96	2.97	-23.6
12	2.11	0.04	1.02	2.02	-12.83
13	1.25	0.00	0.15	1.15	-14.22
14	0.44	0.00	0.00	0.35	-14.8
15	0.00	0.00	0.00	-0.40	-19.9
16	0.00	0.00	0.00	-1.10	-13.98
17	0.00	0.00	0.00	-1.76	-17.01
18	0.00	0.00	0.00	-2.38	-15.4
19	0.00	0.00	0.00	-2.97	-15.97
20	0.00	0.00	0.00	-3.53	-11.29
21	0.00	0.00	0.00	-4.06	-9.263
22	0.00	0.00	0.00	-4.56	-8.007
23	0.00	0.00	0.00	-5.04	-6.06
24	0.00	0.00	0.00	-5.51	-8.876
180	0.00	0.00	0.00	-9.00	-22.9

