Technical Appendix

Model AL-7107-Ka Ka-band 2.2m Antenna ("Orbit-2.2")

I. Section 25.138 Ka-band Off-Axis EIRP Plots

II. Ka-band Antenna Gain Plots & Tabular Data

III. Forward & Return Link Budgets

IV. Radiation Hazard Study

V. Section 25.138 Declaration of Conformity

VI. Comsearch Frequency Coordination Reports

I. Ka-band Off-Axis EIRP Patterns

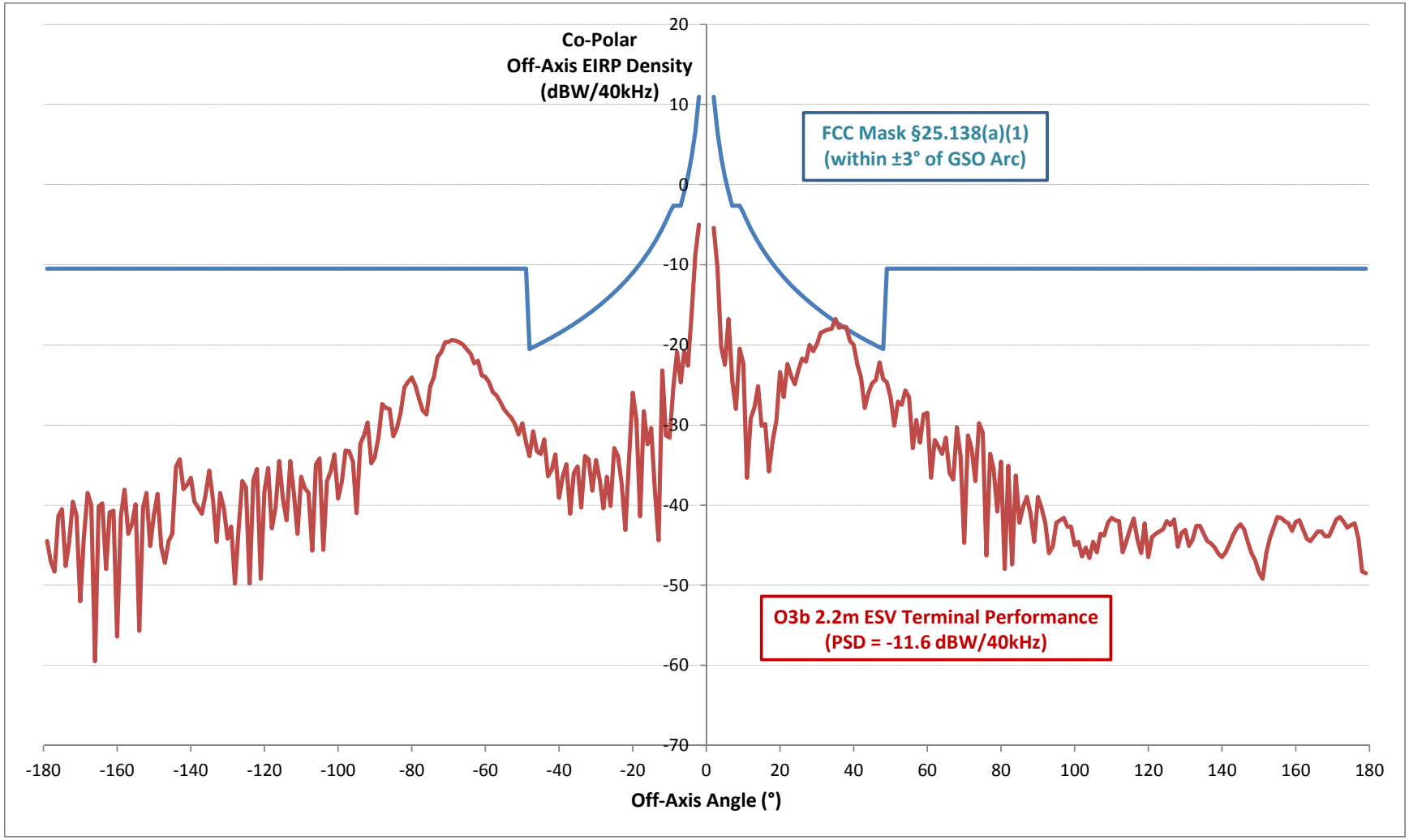


Figure A1-5: 2.2m ESV Terminal Off-Axis Co-Polar EIRP Density in Azimuth Plane

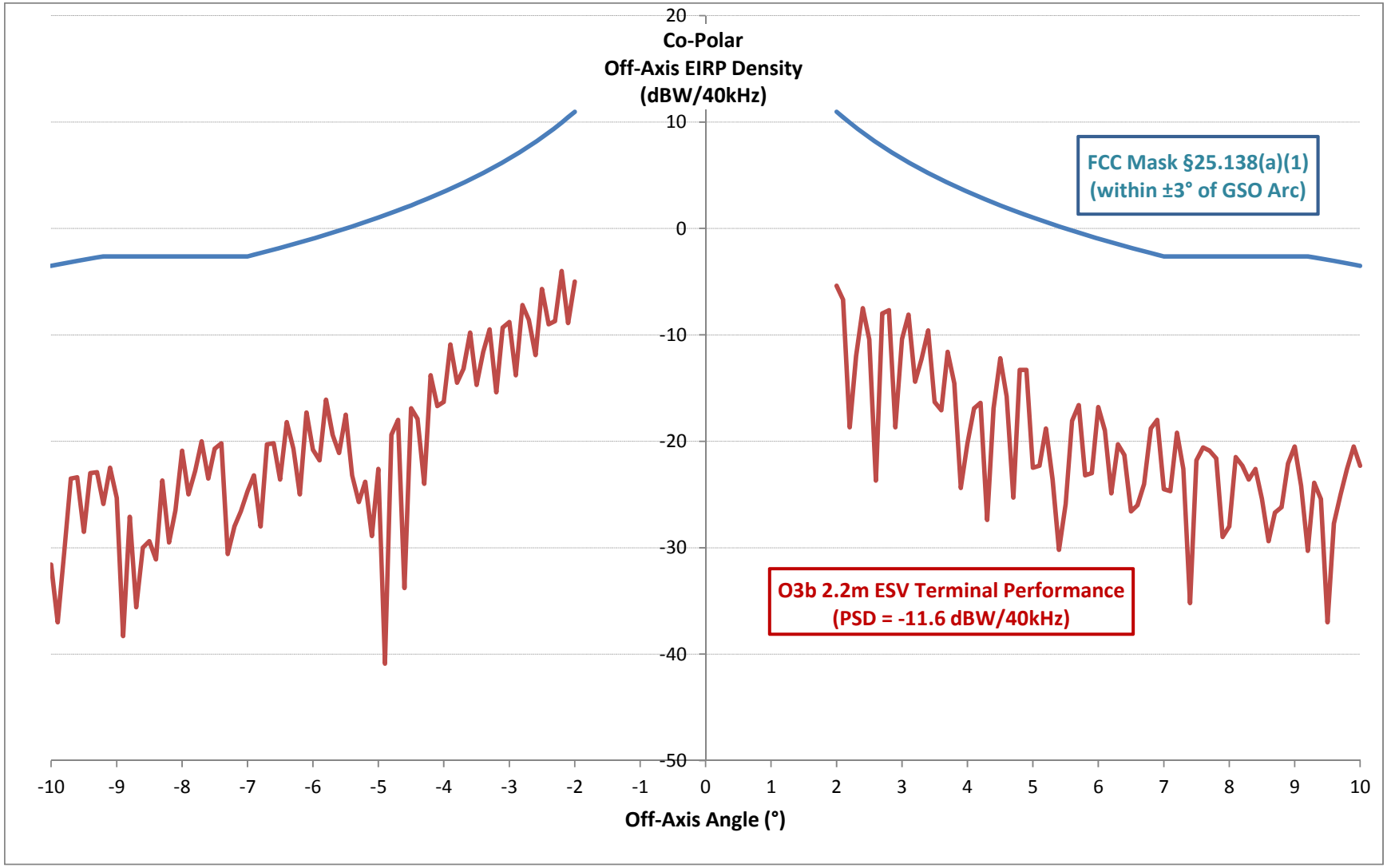


Figure A1-6: 2.2m ESV Terminal Off-Axis Co-Polar EIRP Density in Azimuth Plane

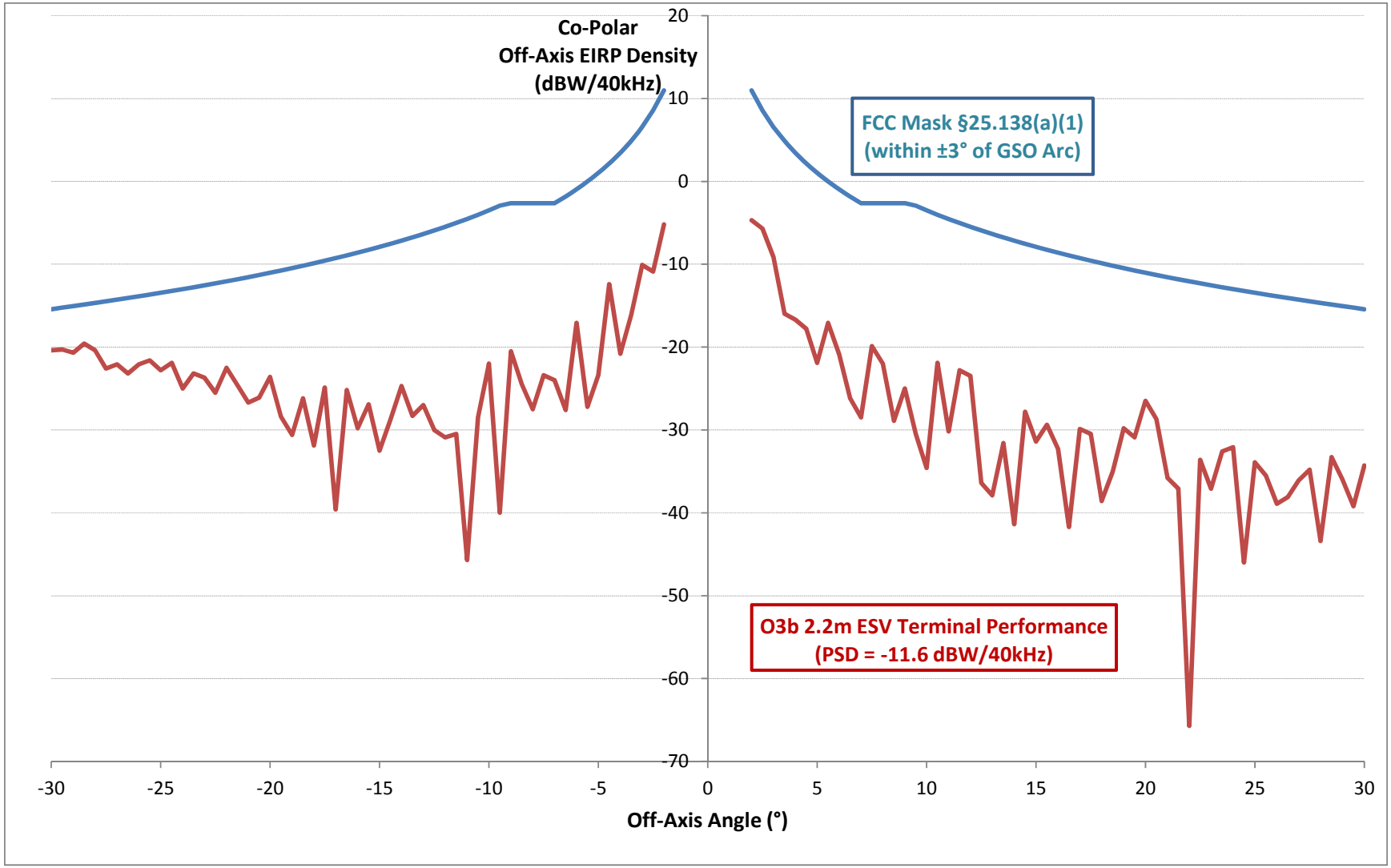


Figure A1-7: 2.2m ESV Terminal Off-Axis Co-Polar EIRP Density in Elevation Plane

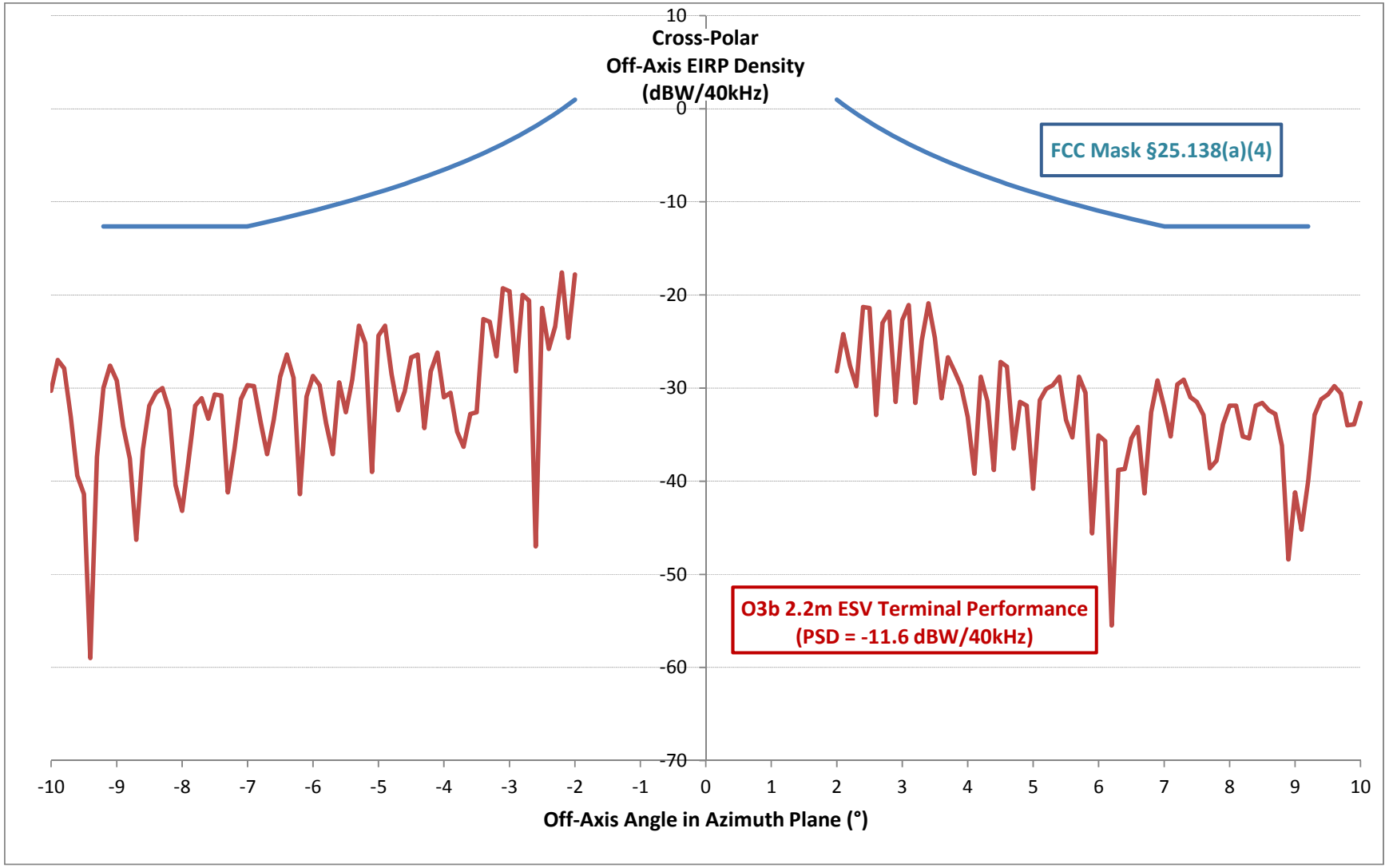


Figure A1-8: 2.2m ESV Terminal Off-Axis Cross-Polar EIRP Density in Azimuth Plane

II. Ka-band Antenna Gain Plots & Tabular Data

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -180º to +180º @ 1.0º increment

27.55 GHz Antenna Pattern in Co-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-179.0	-20.9	0.0	-20.9
-178.0	-26.7	0.0	-26.7
-177.0	-26.5	0.0	-26.5
-176.0	-18.2	0.0	-18.2
-175.0	-20.9	0.0	-20.9
-174.0	-21.1	0.0	-21.1
-173.0	-23.3	0.0	-23.3
-172.0	-25.7	0.0	-25.7
-171.0	-22.9	0.0	-22.9
-170.0	-24.2	0.0	-24.2
-169.0	-22.5	0.0	-22.5
-168.0	-21.9	0.0	-21.9
-167.0	-27.9	0.0	-27.9
-166.0	-26.2	0.0	-26.2
-165.0	-19.5	0.0	-19.5
-164.0	-18.2	0.0	-18.2
-163.0	-21.6	0.0	-21.6
-162.0	-27.5	0.0	-27.5
-161.0	-25.5	0.0	-25.5
-160.0	-24.3	0.0	-24.3
-159.0	-17.4	0.0	-17.4
-158.0	-20.6	0.0	-20.6
-157.0	-18.7	0.0	-18.7
-156.0	-17.8	0.0	-17.8
-155.0	-26.4	0.0	-26.4
-154.0	-17.1	0.0	-17.1
-153.0	-22.6	0.0	-22.6
-152.0	-19.3	0.0	-19.3
-151.0	-14.8	0.0	-14.8
-150.0	-18.1	0.0	-18.1
-149.0	-16.6	0.0	-16.6
-148.0	-22.1	0.0	-22.1
-147.0	-24.1	0.0	-24.1
-146.0	-15.1	0.0	-15.1
-145.0	-18.9	0.0	-18.9
-144.0	-16.7	0.0	-16.7
-143.0	-14.5	0.0	-14.5
-142.0	-14.8	0.0	-14.8
-141.0	-14.2	0.0	-14.2
-140.0	-19.3	0.0	-19.3
-139.0	-16.6	0.0	-16.6
-138.0	-13.8	0.0	-13.8
-137.0	-24.9	0.0	-24.9
-136.0	-17.6	0.0	-17.6
-135.0	-15.6	0.0	-15.6
-134.0	-19.6	0.0	-19.6
-133.0	-19.4	0.0	-19.4
-132.0	-17.1	0.0	-17.1
-131.0	-18.8	0.0	-18.8
-130.0	-18.5	0.0	-18.5
-129.0	-14.9	0.0	-14.9
-128.0	-16.7	0.0	-16.7
-127.0	-21.7	0.0	-21.7
-126.0	-16.7	0.0	-16.7
-125.0	-15.8	0.0	-15.8
-124.0	-15.7	0.0	-15.7
-123.0	-19.9	0.0	-19.9
-122.0	-19.6	0.0	-19.6
-121.0	-17.4	0.0	-17.4
-120.0	-21.6	0.0	-21.6

27.55 GHz Antenna Pattern in Co-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.1		
1.0	17.2		
2.0	11.5	21.5	-10.0
3.0	3.6	17.1	-13.4
4.0	5.9	13.9	-8.1
5.0	-2.8	11.5	-14.3
6.0	-0.4	9.5	-10.0
7.0	3.3	7.9	-4.6
8.0	-2.5	8.0	-10.5
9.0	-5.5	8.0	-13.5
10.0	-13.8	7.0	-20.8
11.0	-7.5	6.0	-13.4
12.0	-4.9	5.0	-10.0
13.0	-15.4	4.2	-19.5
14.0	-9.2	3.3	-12.6
15.0	-5.3	2.6	-7.9
16.0	-7.2	1.9	-9.1
17.0	-7.2	1.2	-8.4
18.0	-6.8	0.6	-7.4
19.0	-5.7	0.0	-5.7
20.0	-23.1	-0.5	-22.6
21.0	-16.5	-1.1	-15.4
22.0	-6.1	-1.6	-4.5
23.0	-7.9	-2.0	-5.8
24.0	-10.1	-2.5	-7.6
25.0	-11.5	-2.9	-8.6
26.0	-12.1	-3.4	-8.7
27.0	-12.1	-3.8	-8.3
28.0	-11.4	-4.2	-7.2
29.0	-6.3	-4.6	-1.8
30.0	-6.5	-4.9	-1.6
31.0	-5.2	-5.3	0.1
32.0	-4.3	-5.6	1.4
33.0	-5.8	-6.0	0.2
34.0	-3.4	-6.3	2.9
35.0	-4.9	-6.6	1.7
36.0	-2.9	-6.9	4.0
37.0	-3.0	-7.2	4.2
38.0	-6.1	-7.5	1.4
39.0	-5.1	-7.8	2.7
40.0	-7.4	-8.1	0.7
41.0	-8.9	-8.3	-0.5
42.0	-9.3	-8.6	-0.7
43.0	-12.5	-8.8	-3.7
44.0	-10.4	-9.1	-1.3
45.0	-11.0	-9.3	-1.7
46.0	-5.2	-9.6	4.4
47.0	-9.5	-9.8	0.3
48.0	-8.9	-10.0	1.2
49.0	-13.7	-10.0	-3.7
50.0	-14.0	-10.0	-4.0
51.0	-9.4	-10.0	0.6
52.0	-7.4	-10.0	2.6
53.0	-7.9	-10.0	2.1
54.0	-8.9	-10.0	1.1
55.0	-13.3	-10.0	-3.3
56.0	-14.7	-10.0	-4.7
57.0	-11.3	-10.0	-1.3
58.0	-11.6	-10.0	-1.6
59.0	-11.8	-10.0	-1.8

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -180º to +180º @ 1.0º increment

-119.0	-20.4	0.0	-20.4
-118.0	-26.4	0.0	-26.4
-117.0	-20.8	0.0	-20.8
-116.0	-18.3	0.0	-18.3
-115.0	-18.6	0.0	-18.6
-114.0	-20.2	0.0	-20.2
-113.0	-19.3	0.0	-19.3
-112.0	-20.9	0.0	-20.9
-111.0	-20.2	0.0	-20.2
-110.0	-19.0	0.0	-19.0
-109.0	-14.5	0.0	-14.5
-108.0	-20.8	0.0	-20.8
-107.0	-21.5	0.0	-21.5
-106.0	-19.2	0.0	-19.2
-105.0	-18.4	0.0	-18.4
-104.0	-18.0	0.0	-18.0
-103.0	-21.0	0.0	-21.0
-102.0	-24.7	0.0	-24.7
-101.0	-15.1	0.0	-15.1
-100.0	-18.9	0.0	-18.9
-99.0	-26.4	0.0	-26.4
-98.0	-14.1	0.0	-14.1
-97.0	-13.6	0.0	-13.6
-96.0	-12.9	0.0	-12.9
-95.0	-16.6	0.0	-16.6
-94.0	-17.7	0.0	-17.7
-93.0	-17.7	0.0	-17.7
-92.0	-12.0	0.0	-12.0
-91.0	-14.7	0.0	-14.7
-90.0	-16.2	0.0	-16.2
-89.0	-13.8	0.0	-13.8
-88.0	-18.2	0.0	-18.2
-87.0	-13.4	0.0	-13.4
-86.0	-12.2	0.0	-12.2
-85.0	-12.3	-10.0	-2.3
-84.0	-16.9	-10.0	-6.9
-83.0	-19.5	-10.0	-9.5
-82.0	-15.3	-10.0	-5.3
-81.0	-12.5	-10.0	-2.5
-80.0	-10.7	-10.0	-0.7
-79.0	-11.3	-10.0	-1.3
-78.0	-10.5	-10.0	-0.5
-77.0	-11.5	-10.0	-1.5
-76.0	-12.6	-10.0	-2.6
-75.0	-11.3	-10.0	-1.3
-74.0	-10.8	-10.0	-0.8
-73.0	-8.3	-10.0	1.7
-72.0	-8.2	-10.0	1.8
-71.0	-8.7	-10.0	1.3
-70.0	-7.8	-10.0	2.2
-69.0	-6.9	-10.0	3.1
-68.0	-5.8	-10.0	4.2
-67.0	-6.2	-10.0	3.8
-66.0	-5.3	-10.0	4.7
-65.0	-8.9	-10.0	1.1
-64.0	-8.1	-10.0	1.9
-63.0	-8.5	-10.0	1.5
-62.0	-9.6	-10.0	0.4
-61.0	-7.2	-10.0	2.8
-60.0	-10.1	-10.0	-0.1
-59.0	-10.8	-10.0	-0.8
-58.0	-10.1	-10.0	-0.1
-57.0	-11.1	-10.0	-1.1

60.0	-16.5	-10.0	-6.5
61.0	-17.9	-10.0	-7.9
62.0	-15.2	-10.0	-5.2
63.0	-13.0	-10.0	-3.0
64.0	-17.3	-10.0	-7.3
65.0	-19.7	-10.0	-9.7
66.0	-11.2	-10.0	-1.2
67.0	-17.3	-10.0	-7.3
68.0	-14.5	-10.0	-4.5
69.0	-14.8	-10.0	-4.8
70.0	-13.2	-10.0	-3.2
71.0	-16.2	-10.0	-6.2
72.0	-19.1	-10.0	-9.1
73.0	-13.4	-10.0	-3.4
74.0	-19.3	-10.0	-9.3
75.0	-25.5	-10.0	-15.5
76.0	-16.4	-10.0	-6.4
77.0	-16.4	-10.0	-6.4
78.0	-21.0	-10.0	-11.0
79.0	-22.0	-10.0	-12.0
80.0	-24.3	-10.0	-14.3
81.0	-20.9	-10.0	-10.9
82.0	-26.0	-10.0	-16.0
83.0	-18.1	-10.0	-8.1
84.0	-24.0	-10.0	-14.0
85.0	-25.7	-10.0	-15.7
86.0	-21.1	0.0	-21.1
87.0	-22.6	0.0	-22.6
88.0	-19.0	0.0	-19.0
89.0	-20.0	0.0	-20.0
90.0	-23.1	0.0	-23.1
91.0	-20.8	0.0	-20.8
92.0	-21.3	0.0	-21.3
93.0	-19.9	0.0	-19.9
94.0	-22.3	0.0	-22.3
95.0	-23.9	0.0	-23.9
96.0	-25.8	0.0	-25.8
97.0	-26.1	0.0	-26.1
98.0	-19.2	0.0	-19.2
99.0	-25.3	0.0	-25.3
100.0	-17.6	0.0	-17.6
101.0	-17.5	0.0	-17.5
102.0	-24.6	0.0	-24.6
103.0	-27.6	0.0	-27.6
104.0	-27.9	0.0	-27.9
105.0	-20.0	0.0	-20.0
106.0	-23.9	0.0	-23.9
107.0	-25.1	0.0	-25.1
108.0	-21.1	0.0	-21.1
109.0	-21.3	0.0	-21.3
110.0	-27.9	0.0	-27.9
111.0	-21.3	0.0	-21.3
112.0	-22.8	0.0	-22.8
113.0	-15.5	0.0	-15.5
114.0	-21.9	0.0	-21.9
115.0	-20.5	0.0	-20.5
116.0	-18.7	0.0	-18.7
117.0	-18.2	0.0	-18.2
118.0	-21.3	0.0	-21.3
119.0	-16.7	0.0	-16.7
120.0	-27.9	0.0	-27.9
121.0	-21.5	0.0	-21.5
122.0	-17.6	0.0	-17.6

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -180º to +180º @ 1.0º increment

-56.0	-9.1	-10.0	0.9
-55.0	-13.6	-10.0	-3.6
-54.0	-11.4	-10.0	-1.4
-53.0	-14.3	-10.0	-4.3
-52.0	-13.3	-10.0	-3.3
-51.0	-18.3	-10.0	-8.3
-50.0	-12.7	-10.0	-2.7
-49.0	-15.6	-10.0	-5.6
-48.0	-15.3	-10.0	-5.3
-47.0	-19.3	-9.8	-9.5
-46.0	-13.8	-9.6	-4.2
-45.0	-17.5	-9.3	-8.1
-44.0	-23.2	-9.1	-14.1
-43.0	-22.2	-8.8	-13.4
-42.0	-22.2	-8.6	-13.6
-41.0	-20.6	-8.3	-12.3
-40.0	-15.6	-8.1	-7.6
-39.0	-22.7	-7.8	-14.9
-38.0	-16.5	-7.5	-9.0
-37.0	-15.8	-7.2	-8.6
-36.0	-19.3	-6.9	-12.3
-35.0	-18.5	-6.6	-11.9
-34.0	-22.3	-6.3	-16.0
-33.0	-20.6	-6.0	-14.7
-32.0	-23.6	-5.6	-18.0
-31.0	-18.1	-5.3	-12.9
-30.0	-15.0	-4.9	-10.1
-29.0	-18.0	-4.6	-13.4
-28.0	-16.6	-4.2	-12.4
-27.0	-17.3	-3.8	-13.5
-26.0	-17.3	-3.4	-13.9
-25.0	-20.0	-2.9	-17.0
-24.0	-17.3	-2.5	-14.8
-23.0	-15.7	-2.0	-13.7
-22.0	-15.4	-1.6	-13.8
-21.0	-16.3	-1.1	-15.2
-20.0	-18.9	-0.5	-18.4
-19.0	-12.6	0.0	-12.7
-18.0	-18.1	0.6	-18.7
-17.0	-14.3	1.2	-15.5
-16.0	-17.5	1.9	-19.4
-15.0	-17.7	2.6	-20.3
-14.0	-25.8	3.3	-29.1
-13.0	-6.8	4.2	-11.0
-12.0	-4.1	5.0	-9.2
-11.0	-7.6	6.0	-13.6
-10.0	-5.5	7.0	-12.5
-9.0	-3.5	8.0	-11.5
-8.0	-4.1	8.0	-12.1
-7.0	1.8	7.9	-6.1
-6.0	-10.6	9.5	-20.2
-5.0	2.7	11.5	-8.9
-4.0	5.3	13.9	-8.7
-3.0	8.9	17.1	-8.2
-2.0	11.7	21.5	-9.8
-1.0	21.0		
0.0	52.1		

123.0	-20.4	0.0	-20.4
124.0	-21.7	0.0	-21.7
125.0	-25.7	0.0	-25.7
126.0	-24.9	0.0	-24.9
127.0	-19.6	0.0	-19.6
128.0	-27.9	0.0	-27.9
129.0	-25.8	0.0	-25.8
130.0	-22.0	0.0	-22.0
131.0	-20.6	0.0	-20.6
132.0	-21.8	0.0	-21.8
133.0	-24.8	0.0	-24.8
134.0	-23.8	0.0	-23.8
135.0	-23.4	0.0	-23.4
136.0	-23.1	0.0	-23.1
137.0	-21.8	0.0	-21.8
138.0	-19.0	0.0	-19.0
139.0	-23.1	0.0	-23.1
140.0	-23.6	0.0	-23.6
141.0	-21.1	0.0	-21.1
142.0	-26.3	0.0	-26.3
143.0	-18.5	0.0	-18.5
144.0	-27.9	0.0	-27.9
145.0	-21.1	0.0	-21.1
146.0	-23.5	0.0	-23.5
147.0	-19.7	0.0	-19.7
148.0	-24.1	0.0	-24.1
149.0	-23.3	0.0	-23.3
150.0	-22.0	0.0	-22.0
151.0	-27.9	0.0	-27.9
152.0	-23.3	0.0	-23.3
153.0	-21.9	0.0	-21.9
154.0	-23.1	0.0	-23.1
155.0	-17.8	0.0	-17.8
156.0	-27.9	0.0	-27.9
157.0	-27.0	0.0	-27.0
158.0	-23.3	0.0	-23.3
159.0	-27.2	0.0	-27.2
160.0	-14.9	0.0	-14.9
161.0	-22.5	0.0	-22.5
162.0	-22.3	0.0	-22.3
163.0	-19.8	0.0	-19.8
164.0	-16.6	0.0	-16.6
165.0	-20.0	0.0	-20.0
166.0	-22.5	0.0	-22.5
167.0	-21.2	0.0	-21.2
168.0	-24.4	0.0	-24.4
169.0	-27.3	0.0	-27.3
170.0	-20.9	0.0	-20.9
171.0	-21.2	0.0	-21.2
172.0	-27.9	0.0	-27.9
173.0	-20.3	0.0	-20.3
174.0	-19.1	0.0	-19.1
175.0	-27.9	0.0	-27.9
176.0	-24.3	0.0	-24.3
177.0	-20.9	0.0	-20.9
178.0	-24.6	0.0	-24.6
179.0	-19.3	0.0	-19.3

Orbit Communication Systems Ltd.

AL AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -10º to +10º @ 0.1º increment

27.55 GHz Antenna Pattern in Co-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-5.5	7.0	-12.5
-9.9	-2.7	7.1	-9.8
-9.8	-1.9	7.2	-9.1
-9.7	-2.3	7.3	-9.6
-9.6	-3.4	7.4	-10.9
-9.5	-7.4	7.6	-15.0
-9.4	-12.0	7.7	-19.7
-9.3	-7.2	7.8	-14.9
-9.2	-3.0	8.0	-11.0
-9.1	-2.7	8.0	-10.7
-9.0	-3.5	8.0	-11.5
-8.9	-5.9	8.0	-13.9
-8.8	-4.3	8.0	-12.3
-8.7	-2.8	8.0	-10.8
-8.6	-2.5	8.0	-10.5
-8.5	-4.0	8.0	-12.0
-8.4	-6.4	8.0	-14.4
-8.3	-5.4	8.0	-13.4
-8.2	-2.3	8.0	-10.3
-8.1	-0.7	8.0	-8.7
-8.0	-4.1	8.0	-12.1
-7.9	-13.6	8.0	-21.6
-7.8	-11.4	8.0	-19.4
-7.7	-5.4	8.0	-13.4
-7.6	-3.3	8.0	-11.3
-7.5	-2.8	8.0	-10.8
-7.4	-5.8	8.0	-13.8
-7.3	-0.4	8.0	-8.4
-7.2	2.1	8.0	-5.9
-7.1	2.3	8.0	-5.7
-7.0	1.8	7.9	-6.1
-6.9	3.5	8.0	-4.6
-6.8	4.7	8.2	-3.5
-6.7	4.0	8.3	-4.4
-6.6	3.5	8.5	-5.0
-6.5	2.0	8.7	-6.7
-6.4	-2.2	8.8	-11.1
-6.3	-8.2	9.0	-17.2
-6.2	-3.4	9.2	-12.6
-6.1	-2.3	9.4	-11.7
-6.0	-10.6	9.5	-20.2
-5.9	-2.3	9.7	-12.0
-5.8	2.0	9.9	-8.0
-5.7	0.1	10.1	-10.0
-5.6	-15.2	10.3	-25.5
-5.5	-2.1	10.5	-12.6
-5.4	0.5	10.7	-10.2
-5.3	-2.9	10.9	-13.8
-5.2	-0.4	11.1	-11.5
-5.1	2.5	11.3	-8.8
-5.0	2.7	11.5	-8.9
-4.9	2.0	11.7	-9.7
-4.8	2.3	12.0	-9.7
-4.7	3.1	12.2	-9.1
-4.6	2.1	12.4	-10.4
-4.5	-0.8	12.7	-13.5
-4.4	-4.1	12.9	-17.0
-4.3	-2.3	13.2	-15.5
-4.2	1.8	13.4	-11.6
-4.1	4.1	13.7	-9.6

27.55 GHz Antenna Pattern in Co-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.1		
0.1	51.5		
0.2	49.3		
0.3	45.4		
0.4	40.0		
0.5	34.1		
0.6	27.7		
0.7	26.5		
0.8	28.4		
0.9	26.9		
1.0	17.2		
1.1	18.3		
1.2	21.0		
1.3	17.0		
1.4	9.5		
1.5	11.5	24.6	-13.1
1.6	11.8	23.9	-12.1
1.7	15.9	23.2	-7.4
1.8	17.6	22.6	-5.0
1.9	16.0	22.0	-6.0
2.0	11.5	21.5	-10.0
2.1	5.0	20.9	-16.0
2.2	-2.4	20.4	-22.8
2.3	3.1	20.0	-16.9
2.4	4.5	19.5	-15.0
2.5	3.5	19.1	-15.6
2.6	3.0	18.6	-15.6
2.7	0.0	18.2	-18.2
2.8	-1.5	17.8	-19.3
2.9	3.2	17.4	-14.2
3.0	3.6	17.1	-13.4
3.1	6.1	16.7	-10.6
3.2	8.7	16.4	-7.7
3.3	8.2	16.0	-7.9
3.4	2.7	15.7	-13.0
3.5	-9.8	15.4	-25.2
3.6	-1.7	15.1	-16.8
3.7	-15.1	14.8	-29.9
3.8	3.8	14.5	-10.7
3.9	7.5	14.2	-6.7
4.0	5.9	13.9	-8.1
4.1	0.5	13.7	-13.2
4.2	-3.8	13.4	-17.3
4.3	-0.4	13.2	-13.5
4.4	0.6	12.9	-12.3
4.5	-0.2	12.7	-12.9
4.6	-1.1	12.4	-13.5
4.7	-0.4	12.2	-12.6
4.8	0.3	12.0	-11.6
4.9	-0.5	11.7	-12.2
5.0	-2.8	11.5	-14.3
5.1	-7.4	11.3	-18.7
5.2	-12.3	11.1	-23.4
5.3	-7.4	10.9	-18.3
5.4	-6.5	10.7	-17.2
5.5	-12.7	10.5	-23.2
5.6	-4.9	10.3	-15.2
5.7	0.5	10.1	-9.6
5.8	1.6	9.9	-8.3
5.9	1.3	9.7	-8.4

Orbit Communication Systems Ltd.

AL AL-7107-Ka, 2.15 m Antenna, Pattern Data Table

Co-pol Azimuth LHCP, -10º to +10º @ 0.1º increment

-4.0	5.3	13.9	-8.7
-3.9	8.3	14.2	-5.9
-3.8	10.2	14.5	-4.3
-3.7	8.1	14.8	-6.7
-3.6	-3.7	15.1	-18.8
-3.5	0.3	15.4	-15.1
-3.4	0.8	15.7	-15.0
-3.3	3.2	16.0	-12.9
-3.2	8.3	16.4	-8.0
-3.1	8.4	16.7	-8.3
-3.0	8.9	17.1	-8.2
-2.9	11.4	17.4	-6.0
-2.8	11.7	17.8	-6.1
-2.7	8.7	18.2	-9.5
-2.6	3.7	18.6	-14.9
-2.5	0.6	19.1	-18.5
-2.4	5.5	19.5	-14.0
-2.3	7.7	20.0	-12.2
-2.2	5.0	20.4	-15.5
-2.1	6.0	20.9	-15.0
-2.0	11.7	21.5	-9.8
-1.9	11.6	22.0	-10.4
-1.8	10.1	22.6	-12.5
-1.7	8.1	23.2	-15.1
-1.6	-0.9	23.9	-24.8
-1.5	12.8	24.6	-11.8
-1.4	18.1		
-1.3	20.0		
-1.2	22.0		
-1.1	22.9		
-1.0	21.0		
-0.9	13.3		
-0.8	11.8		
-0.7	11.6		
-0.6	22.9		
-0.5	33.0		
-0.4	40.6		
-0.3	46.2		
-0.2	49.7		
-0.1	51.6		
0.0	52.1		

6.0	-0.4	9.5	-10.0
6.1	-8.4	9.4	-17.7
6.2	-12.9	9.2	-22.1
6.3	-4.6	9.0	-13.6
6.4	-3.7	8.8	-12.6
6.5	-6.6	8.7	-15.3
6.6	-4.0	8.5	-12.5
6.7	-3.4	8.3	-11.8
6.8	-0.1	8.2	-8.3
6.9	2.6	8.0	-5.4
7.0	3.3	7.9	-4.6
7.1	3.4	8.0	-4.6
7.2	2.9	8.0	-5.1
7.3	-0.1	8.0	-8.1
7.4	-9.9	8.0	-17.9
7.5	-3.9	8.0	-11.9
7.6	-0.8	8.0	-8.8
7.7	-2.3	8.0	-10.3
7.8	-6.9	8.0	-14.9
7.9	-4.7	8.0	-12.7
8.0	-2.5	8.0	-10.5
8.1	0.2	8.0	-7.8
8.2	1.1	8.0	-6.9
8.3	-0.5	8.0	-8.5
8.4	-2.3	8.0	-10.3
8.5	-3.3	8.0	-11.3
8.6	-5.3	8.0	-13.3
8.7	-8.0	8.0	-16.0
8.8	-5.6	8.0	-13.6
8.9	-3.9	8.0	-11.9
9.0	-5.5	8.0	-13.5
9.1	-9.4	8.0	-17.4
9.2	-12.0	8.0	-20.0
9.3	-9.3	7.8	-17.1
9.4	-4.0	7.7	-11.7
9.5	-3.6	7.6	-11.2
9.6	-5.2	7.4	-12.6
9.7	-14.3	7.3	-21.7
9.8	-8.1	7.2	-15.3
9.9	-9.3	7.1	-16.4
10.0	-13.8	7.0	-20.8

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation LHCP, -30º to +30º @ 0.5º increment

27.55 GHz Antenna Pattern in Co-pol El LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-30.0	-7.7	-4.9	-2.8
-29.5	-10.1	-4.7	-5.3
-29.0	-11.7	-4.6	-7.1
-28.5	-11.5	-4.4	-7.1
-28.0	-10.6	-4.2	-6.5
-27.5	-12.3	-4.0	-8.3
-27.0	-7.9	-3.8	-4.2
-26.5	-9.9	-3.6	-6.3
-26.0	-18.1	-3.4	-14.8
-25.5	-14.0	-3.2	-10.8
-25.0	-16.3	-2.9	-13.4
-24.5	-8.9	-2.7	-6.2
-24.0	-10.4	-2.5	-7.9
-23.5	-8.1	-2.3	-5.8
-23.0	-14.6	-2.0	-12.5
-22.5	-7.0	-1.8	-5.2
-22.0	-5.5	-1.6	-4.0
-21.5	-6.2	-1.3	-4.9
-21.0	-16.3	-1.1	-15.2
-20.5	-8.9	-0.8	-8.1
-20.0	-3.3	-0.5	-2.8
-19.5	0.2	-0.3	0.4
-19.0	1.4	0.0	1.4
-18.5	-2.0	0.3	-2.3
-18.0	-3.3	0.6	-4.0
-17.5	-19.1	0.9	-20.0
-17.0	-23.4	1.2	-24.6
-16.5	-14.1	1.6	-15.6
-16.0	-12.5	1.9	-14.4
-15.5	-8.0	2.2	-10.2
-15.0	-21.1	2.6	-23.7
-14.5	-7.3	3.0	-10.2
-14.0	-15.0	3.3	-18.3
-13.5	-10.9	3.7	-14.7
-13.0	-8.5	4.2	-12.6
-12.5	-11.0	4.6	-15.6
-12.0	-7.1	5.0	-12.1
-11.5	-19.4	5.5	-24.9
-11.0	-7.7	6.0	-13.7
-10.5	-10.5	6.5	-17.0
-10.0	-7.4	7.0	-14.4
-9.5	-18.5	7.6	-26.0
-9.0	-11.2	8.1	-19.4
-8.5	-2.5	8.8	-11.2
-8.0	-8.2	9.4	-17.6
-7.5	-2.7	10.1	-12.8
-7.0	-4.8	10.9	-15.7
-6.5	-1.7	11.7	-13.4
-6.0	-4.8	12.5	-17.3
-5.5	-10.7	13.5	-24.2
-5.0	4.5	14.5	-10.0
-4.5	4.3	15.7	-11.4
-4.0	-7.1	16.9	-24.0
-3.5	3.3	18.4	-15.1
-3.0	11.3	20.1	-8.8
-2.5	12.5		
-2.0	7.4		
-1.5	14.8		
-1.0	20.6		
-0.5	36.4		
0.0	52.1		

27.55 GHz Antenna Pattern in Co-pol El LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.1		
0.5	37.5		
1.0	18.1		
1.5	8.1		
2.0	7.4		
2.5	10.0		
3.0	-5.1	20.1	-25.1
3.5	13.9	18.4	-4.5
4.0	11.3	16.9	-5.7
4.5	4.3	15.7	-11.4
5.0	7.0	14.5	-7.6
5.5	-9.1	13.5	-22.5
6.0	-2.0	12.5	-14.5
6.5	0.4	11.7	-11.3
7.0	1.4	10.9	-9.5
7.5	-6.3	10.1	-16.4
8.0	-8.1	9.4	-17.5
8.5	-14.4	8.8	-23.2
9.0	-9.8	8.1	-18.0
9.5	-3.8	7.6	-11.4
10.0	-7.2	7.0	-14.2
10.5	-5.0	6.5	-11.5
11.0	-3.1	6.0	-9.1
11.5	-2.1	5.5	-7.6
12.0	-1.4	5.0	-6.5
12.5	-2.1	4.6	-6.7
13.0	-9.0	4.2	-13.1
13.5	-10.8	3.7	-14.5
14.0	-13.5	3.3	-16.8
14.5	-9.4	3.0	-12.3
15.0	-12.9	2.6	-15.5
15.5	-11.6	2.2	-13.8
16.0	-22.1	1.9	-24.0
16.5	-14.3	1.6	-15.9
17.0	-19.8	1.2	-21.1
17.5	-19.9	0.9	-20.8
18.0	-21.5	0.6	-22.1
18.5	-10.7	0.3	-11.0
19.0	-10.7	0.0	-10.7
19.5	-17.7	-0.3	-17.4
20.0	-27.3	-0.5	-26.8
20.5	-19.3	-0.8	-18.5
21.0	-15.4	-1.1	-14.3
21.5	-15.5	-1.3	-14.2
22.0	-13.1	-1.6	-11.6
22.5	-17.6	-1.8	-15.8
23.0	-27.5	-2.0	-25.4
23.5	-22.0	-2.3	-19.7
24.0	-22.0	-2.5	-19.5
24.5	-25.2	-2.7	-22.4
25.0	-13.5	-2.9	-10.5
25.5	-17.5	-3.2	-14.3
26.0	-16.0	-3.4	-12.7
26.5	-18.1	-3.6	-14.6
27.0	-14.1	-3.8	-10.3
27.5	-23.1	-4.0	-19.1
28.0	-20.7	-4.2	-16.5
28.5	-22.3	-4.4	-17.9
29.0	-26.0	-4.6	-21.4
29.5	-18.3	-4.7	-13.6
30.0	-15.8	-4.9	-10.9

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation LHCP, -10º to +10º @ 0.1º increment

27.55 GHz Antenna Pattern in Co-pol El LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-7.4	7.0	-14.4
-9.9	-5.2	7.1	-12.3
-9.8	-3.2	7.2	-10.4
-9.7	-3.9	7.3	-11.2
-9.6	-16.0	7.4	-23.5
-9.5	-18.5	7.6	-26.0
-9.4	-9.5	7.7	-17.2
-9.3	-6.1	7.8	-13.9
-9.2	-6.2	7.9	-14.1
-9.1	-8.1	8.0	-16.1
-9.0	-11.2	8.1	-19.4
-8.9	-8.5	8.3	-16.8
-8.8	-8.4	8.4	-16.8
-8.7	-16.2	8.5	-24.7
-8.6	-8.6	8.6	-17.2
-8.5	-2.5	8.8	-11.2
-8.4	-1.0	8.9	-9.9
-8.3	-0.1	9.0	-9.1
-8.2	-0.2	9.2	-9.4
-8.1	-1.6	9.3	-10.9
-8.0	-8.2	9.4	-17.6
-7.9	-20.8	9.6	-30.4
-7.8	-11.8	9.7	-21.5
-7.7	-7.2	9.8	-17.1
-7.6	-4.9	10.0	-14.8
-7.5	-2.7	10.1	-12.8
-7.4	-0.9	10.3	-11.2
-7.3	0.1	10.4	-10.4
-7.2	-1.5	10.6	-12.1
-7.1	-8.1	10.7	-18.8
-7.0	-4.8	10.9	-15.7
-6.9	-6.2	11.0	-17.2
-6.8	-10.0	11.2	-21.2
-6.7	-5.3	11.3	-16.6
-6.6	-2.0	11.5	-13.5
-6.5	-1.7	11.7	-13.4
-6.4	-0.7	11.8	-12.6
-6.3	0.6	12.0	-11.4
-6.2	-0.7	12.2	-12.9
-6.1	-3.8	12.4	-16.1
-6.0	-4.8	12.5	-17.3
-5.9	-7.6	12.7	-20.3
-5.8	-10.2	12.9	-23.1
-5.7	-9.4	13.1	-22.5
-5.6	-10.4	13.3	-23.7
-5.5	-10.7	13.5	-24.2
-5.4	-3.1	13.7	-16.8
-5.3	1.4	13.9	-12.5
-5.2	3.1	14.1	-11.0
-5.1	4.3	14.3	-10.0
-5.0	4.5	14.5	-10.0
-4.9	5.1	14.7	-9.7
-4.8	4.6	15.0	-10.3
-4.7	1.0	15.2	-14.2
-4.6	-5.9	15.4	-21.3
-4.5	4.3	15.7	-11.4
-4.4	8.2	15.9	-7.7
-4.3	9.5	16.2	-6.7
-4.2	8.4	16.4	-8.0
-4.1	4.6	16.7	-12.1

27.55 GHz Antenna Pattern in Co-pol El LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.1		
0.1	51.4		
0.2	49.1		
0.3	45.3		
0.4	40.9		
0.5	37.5		
0.6	33.3		
0.7	25.1		
0.8	8.3		
0.9	15.5		
1.0	18.1		
1.1	20.4		
1.2	18.9		
1.3	11.4		
1.4	9.6		
1.5	8.1		
1.6	12.9		
1.7	15.5		
1.8	14.8		
1.9	10.5		
2.0	7.4		
2.1	8.5		
2.2	12.2		
2.3	13.7		
2.4	12.9		
2.5	10.0		
2.6	5.9		
2.7	-6.7		
2.8	2.4		
2.9	3.9		
3.0	-5.1	20.1	-25.1
3.1	0.0	19.7	-19.7
3.2	0.8	19.4	-18.5
3.3	5.6	19.0	-13.5
3.4	11.4	18.7	-7.3
3.5	13.9	18.4	-4.5
3.6	13.3	18.1	-4.8
3.7	9.7	17.8	-8.1
3.8	7.9	17.5	-9.6
3.9	10.3	17.2	-6.9
4.0	11.3	16.9	-5.7
4.1	9.9	16.7	-6.8
4.2	8.4	16.4	-8.0
4.3	8.3	16.2	-7.8
4.4	7.8	15.9	-8.1
4.5	4.3	15.7	-11.4
4.6	1.3	15.4	-14.1
4.7	1.3	15.2	-13.9
4.8	3.0	15.0	-12.0
4.9	4.9	14.7	-9.9
5.0	7.0	14.5	-7.6
5.1	8.5	14.3	-5.8
5.2	9.2	14.1	-4.9
5.3	7.4	13.9	-6.5
5.4	1.9	13.7	-11.8
5.5	-9.1	13.5	-22.5
5.6	-1.9	13.3	-15.2
5.7	-3.2	13.1	-16.3
5.8	-2.1	12.9	-15.0
5.9	-0.8	12.7	-13.6

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table

Co-pol Elevation LHCP, -10º to +10º @ 0.1º increment

-4.0	-7.1	16.9	-24.0
-3.9	6.5	17.2	-10.7
-3.8	9.5	17.5	-8.0
-3.7	9.6	17.8	-8.2
-3.6	7.2	18.1	-10.9
-3.5	3.3	18.4	-15.1
-3.4	-6.4	18.7	-25.2
-3.3	-5.5	19.0	-24.5
-3.2	-9.3	19.4	-28.6
-3.1	4.1	19.7	-15.6
-3.0	11.3	20.1	-8.8
-2.9	13.2		
-2.8	12.3		
-2.7	9.7		
-2.6	10.4		
-2.5	12.5		
-2.4	14.0		
-2.3	14.4		
-2.2	13.2		
-2.1	10.6		
-2.0	7.4		
-1.9	2.6		
-1.8	4.5		
-1.7	11.7		
-1.6	14.6		
-1.5	14.8		
-1.4	12.8		
-1.3	19.3		
-1.2	22.9		
-1.1	22.9		
-1.0	20.6		
-0.9	21.8		
-0.8	25.2		
-0.7	29.7		
-0.6	33.4		
-0.5	36.4		
-0.4	41.2		
-0.3	46.4		
-0.2	49.9		
-0.1	51.7		
0.0	52.1		

6.0	-2.0	12.5	-14.5
6.1	-9.6	12.4	-21.9
6.2	-3.8	12.2	-16.0
6.3	0.8	12.0	-11.2
6.4	0.9	11.8	-10.9
6.5	0.4	11.7	-11.3
6.6	-0.1	11.5	-11.6
6.7	1.7	11.3	-9.7
6.8	3.9	11.2	-7.3
6.9	4.0	11.0	-7.0
7.0	1.4	10.9	-9.5
7.1	-7.7	10.7	-18.5
7.2	-13.2	10.6	-23.8
7.3	-7.6	10.4	-18.0
7.4	-10.2	10.3	-20.5
7.5	-6.3	10.1	-16.4
7.6	-7.4	10.0	-17.3
7.7	-5.3	9.8	-15.2
7.8	-5.1	9.7	-14.8
7.9	-7.2	9.6	-16.8
8.0	-8.1	9.4	-17.5
8.1	-14.1	9.3	-23.4
8.2	-21.8	9.2	-31.0
8.3	-11.8	9.0	-20.9
8.4	-10.6	8.9	-19.5
8.5	-14.4	8.8	-23.2
8.6	-5.7	8.6	-14.3
8.7	-5.2	8.5	-13.8
8.8	-4.5	8.4	-12.9
8.9	-7.6	8.3	-15.8
9.0	-9.8	8.1	-18.0
9.1	-6.9	8.0	-14.9
9.2	-7.9	7.9	-15.8
9.3	-14.8	7.8	-22.6
9.4	-9.2	7.7	-16.8
9.5	-3.8	7.6	-11.4
9.6	-1.7	7.4	-9.1
9.7	-0.7	7.3	-8.0
9.8	-1.1	7.2	-8.3
9.9	-3.1	7.1	-10.2
10.0	-7.2	7.0	-14.2

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
X-pol Azimuth LHCP, -10º to +10º @ 0.1º increment

27.55 GHz Antenna Pattern in X-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-5.5	-2.0	-3.5
-9.9	-6.1	-2.0	-4.1
-9.8	-10.9	-2.0	-8.9
-9.7	-7.3	-2.0	-5.3
-9.6	-5.9	-2.0	-3.9
-9.5	-6.2	-2.0	-4.2
-9.4	-7.6	-2.0	-5.6
-9.3	-8.9	-2.0	-6.9
-9.2	-9.1	-2.0	-7.1
-9.1	-11.5	-2.0	-9.5
-9.0	-12.7	-2.0	-10.7
-8.9	-16.5	-2.0	-14.5
-8.8	-9.2	-2.0	-7.2
-8.7	-7.0	-2.0	-5.0
-8.6	-6.5	-2.0	-4.5
-8.5	-5.5	-2.0	-3.5
-8.4	-5.3	-2.0	-3.3
-8.3	-7.4	-2.0	-5.4
-8.2	-7.1	-2.0	-5.1
-8.1	-5.8	-2.0	-3.8
-8.0	-2.3	-2.0	-0.3
-7.9	-3.1	-2.0	-1.1
-7.8	-3.9	-2.0	-1.9
-7.7	-7.0	-2.0	-5.0
-7.6	-12.5	-2.0	-10.5
-7.5	-5.4	-2.0	-3.4
-7.4	-2.5	-2.0	-0.5
-7.3	-0.8	-2.0	1.2
-7.2	-2.9	-2.0	-0.9
-7.1	-6.5	-2.0	-4.5
-7.0	-17.8	-2.1	-15.7
-6.9	-14.8	-2.0	-12.8
-6.8	-8.8	-1.8	-7.0
-6.7	-4.3	-1.7	-2.6
-6.6	-2.2	-1.5	-0.7
-6.5	-3.4	-1.3	-2.0
-6.4	-3.5	-1.2	-2.3
-6.3	-2.8	-1.0	-1.8
-6.2	-1.3	-0.8	-0.4
-6.1	-1.5	-0.6	-0.9
-6.0	-3.1	-0.5	-2.6
-5.9	-7.9	-0.3	-7.6
-5.8	-3.9	-0.1	-3.8
-5.7	-1.8	0.1	-1.9
-5.6	-0.4	0.3	-0.7
-5.5	-0.3	0.5	-0.8
-5.4	-4.5	0.7	-5.2
-5.3	-9.8	0.9	-10.7
-5.2	-18.0	1.1	-19.1
-5.1	-11.0	1.3	-12.3
-5.0	-5.0	1.5	-6.5
-4.9	-5.0	1.7	-6.8
-4.8	-9.3	2.0	-11.2
-4.7	-14.5	2.2	-16.7
-4.6	-8.0	2.4	-10.4
-4.5	-7.9	2.7	-10.6
-4.4	-9.6	2.9	-12.5
-4.3	-3.7	3.2	-6.9
-4.2	-0.4	3.4	-3.9
-4.1	-1.0	3.7	-4.7

27.55 GHz Antenna Pattern in X-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	22.5		
0.1	23.4		
0.2	25.1		
0.3	25.9		
0.4	25.2		
0.5	22.9		
0.6	16.7		
0.7	0.6		
0.8	8.6		
0.9	13.4		
1.0	14.4		
1.1	11.5		
1.2	-2.5		
1.3	6.1		
1.4	9.2		
1.5	6.5		
1.6	1.6		
1.7	4.3		
1.8	4.4	12.6	-8.2
1.9	-1.1	12.0	-13.2
2.0	-6.2	11.5	-17.7
2.1	-10.1	10.9	-21.0
2.2	-6.5	10.4	-16.9
2.3	-1.4	10.0	-11.4
2.4	-1.8	9.5	-11.3
2.5	-5.7	9.1	-14.8
2.6	-12.7	8.6	-21.3
2.7	-12.6	8.2	-20.8
2.8	-10.4	7.8	-18.2
2.9	-12.6	7.4	-20.0
3.0	-19.9	7.1	-27.0
3.1	-13.8	6.7	-20.5
3.2	-15.8	6.4	-22.2
3.3	-14.4	6.0	-20.5
3.4	-8.0	5.7	-13.7
3.5	-11.9	5.4	-17.3
3.6	-18.5	5.1	-23.6
3.7	-10.7	4.8	-15.5
3.8	-4.9	4.5	-9.4
3.9	-8.3	4.2	-12.5
4.0	-27.9	3.9	-31.9
4.1	-9.6	3.7	-13.3
4.2	-7.6	3.4	-11.1
4.3	-10.3	3.2	-13.4
4.4	-15.2	2.9	-18.1
4.5	-16.7	2.7	-19.4
4.6	-20.5	2.4	-23.0
4.7	-11.9	2.2	-14.1
4.8	-16.7	2.0	-18.7
4.9	-14.6	1.7	-16.4
5.0	-11.9	1.5	-13.5
5.1	-11.3	1.3	-12.6
5.2	-16.3	1.1	-17.4
5.3	-10.8	0.9	-11.7
5.4	-9.1	0.7	-9.7
5.5	-12.0	0.5	-12.5
5.6	-13.0	0.3	-13.3
5.7	-7.7	0.1	-7.8
5.8	-7.6	-0.1	-7.5
5.9	-9.2	-0.3	-8.9

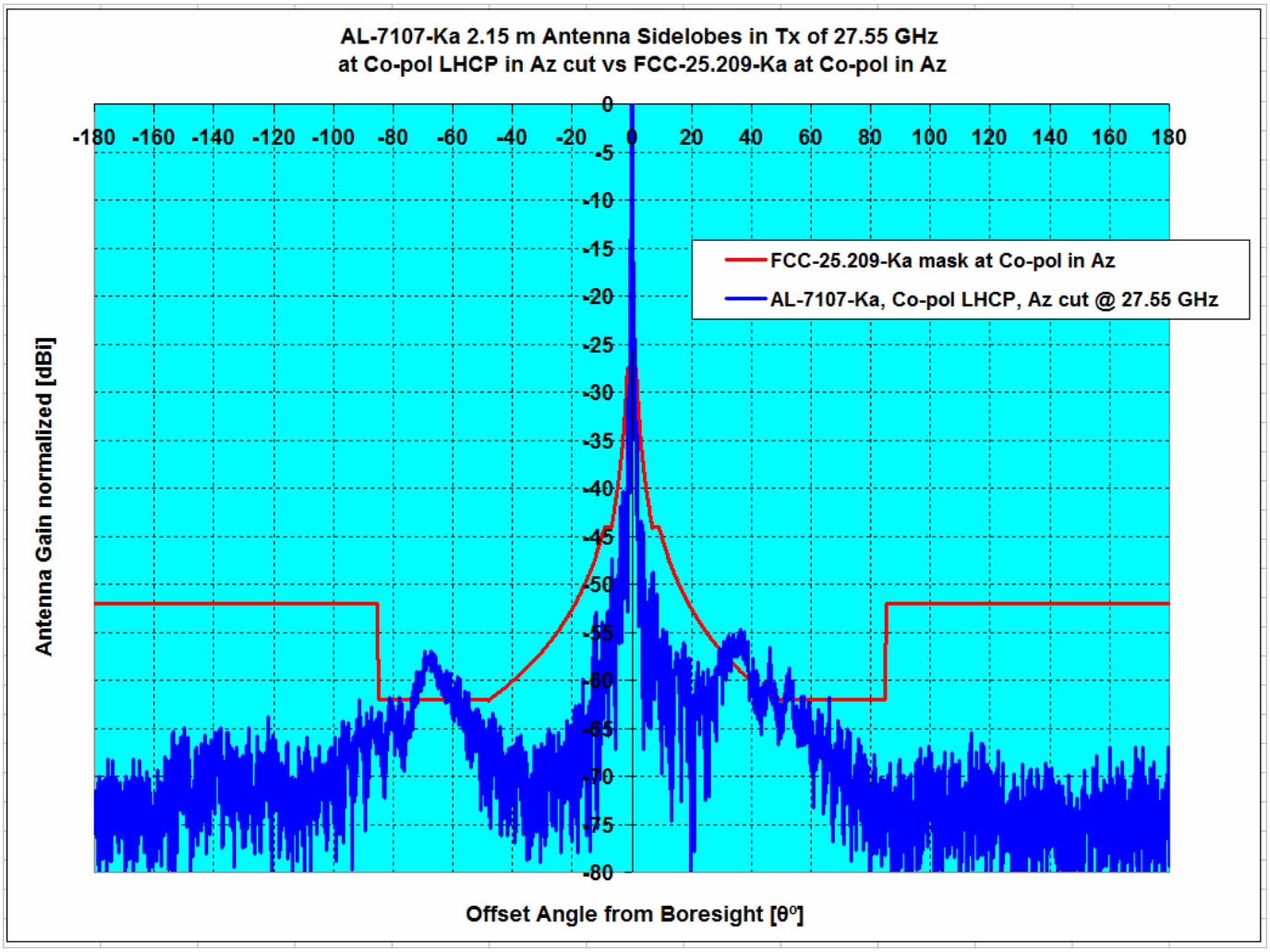
Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
X-pol Azimuth LHCP, -10º to +10º @ 0.1º increment

-4.0	-2.3	3.9	-6.3
-3.9	-4.6	4.2	-8.8
-3.8	0.6	4.5	-3.9
-3.7	2.0	4.8	-2.8
-3.6	1.2	5.1	-3.9
-3.5	-0.7	5.4	-6.1
-3.4	-3.2	5.7	-8.9
-3.3	-4.5	6.0	-10.5
-3.2	-6.9	6.4	-13.2
-3.1	-12.8	6.7	-19.6
-3.0	-9.6	7.1	-16.7
-2.9	-2.9	7.4	-10.3
-2.8	-2.5	7.8	-10.3
-2.7	-6.0	8.2	-14.2
-2.6	-5.5	8.6	-14.2
-2.5	-5.5	9.1	-14.5
-2.4	-7.3	9.5	-16.8
-2.3	-1.4	10.0	-11.3
-2.2	-0.4	10.4	-10.9
-2.1	-5.2	10.9	-16.1
-2.0	-4.0	11.5	-15.5
-1.9	-4.3	12.0	-16.3
-1.8	-4.5	12.6	-17.1
-1.7	-1.1		
-1.6	0.1		
-1.5	2.9		
-1.4	4.0		
-1.3	1.3		
-1.2	4.8		
-1.1	9.3		
-1.0	10.6		
-0.9	10.6		
-0.8	4.5		
-0.7	14.0		
-0.6	22.9		
-0.5	27.1		
-0.4	28.7		
-0.3	28.3		
-0.2	26.8		
-0.1	24.0		
0.0	22.5		

6.0	-17.3	-0.5	-16.8
6.1	-24.0	-0.6	-23.3
6.2	-11.3	-0.8	-10.5
6.3	-6.8	-1.0	-5.9
6.4	-8.9	-1.2	-7.7
6.5	-8.2	-1.3	-6.8
6.6	-7.2	-1.5	-5.7
6.7	-5.3	-1.7	-3.7
6.8	-5.4	-1.8	-3.6
6.9	-6.0	-2.0	-4.0
7.0	-8.9	-2.1	-6.8
7.1	-7.2	-2.0	-5.2
7.2	-9.3	-2.0	-7.3
7.3	-12.0	-2.0	-10.0
7.4	-12.2	-2.0	-10.2
7.5	-11.8	-2.0	-9.8
7.6	-8.7	-2.0	-6.7
7.7	-5.7	-2.0	-3.7
7.8	-5.7	-2.0	-3.7
7.9	-7.2	-2.0	-5.2
8.0	-6.5	-2.0	-4.5
8.1	-5.3	-2.0	-3.3
8.2	-6.4	-2.0	-4.4
8.3	-8.3	-2.0	-6.3
8.4	-8.2	-2.0	-6.2
8.5	-8.3	-2.0	-6.3
8.6	-9.7	-2.0	-7.7
8.7	-12.1	-2.0	-10.1
8.8	-11.7	-2.0	-9.7
8.9	-13.8	-2.0	-11.8
9.0	-19.1	-2.0	-17.1
9.1	-21.8	-2.0	-19.8
9.2	-17.2	-2.0	-15.2
9.3	-13.4	-2.0	-11.4
9.4	-13.2	-2.0	-11.2
9.5	-8.4	-2.0	-6.4
9.6	-7.6	-2.0	-5.6
9.7	-6.6	-2.0	-4.6
9.8	-9.8	-2.0	-7.8
9.9	-15.0	-2.0	-13.0
10.0	-11.3	-2.0	-9.3

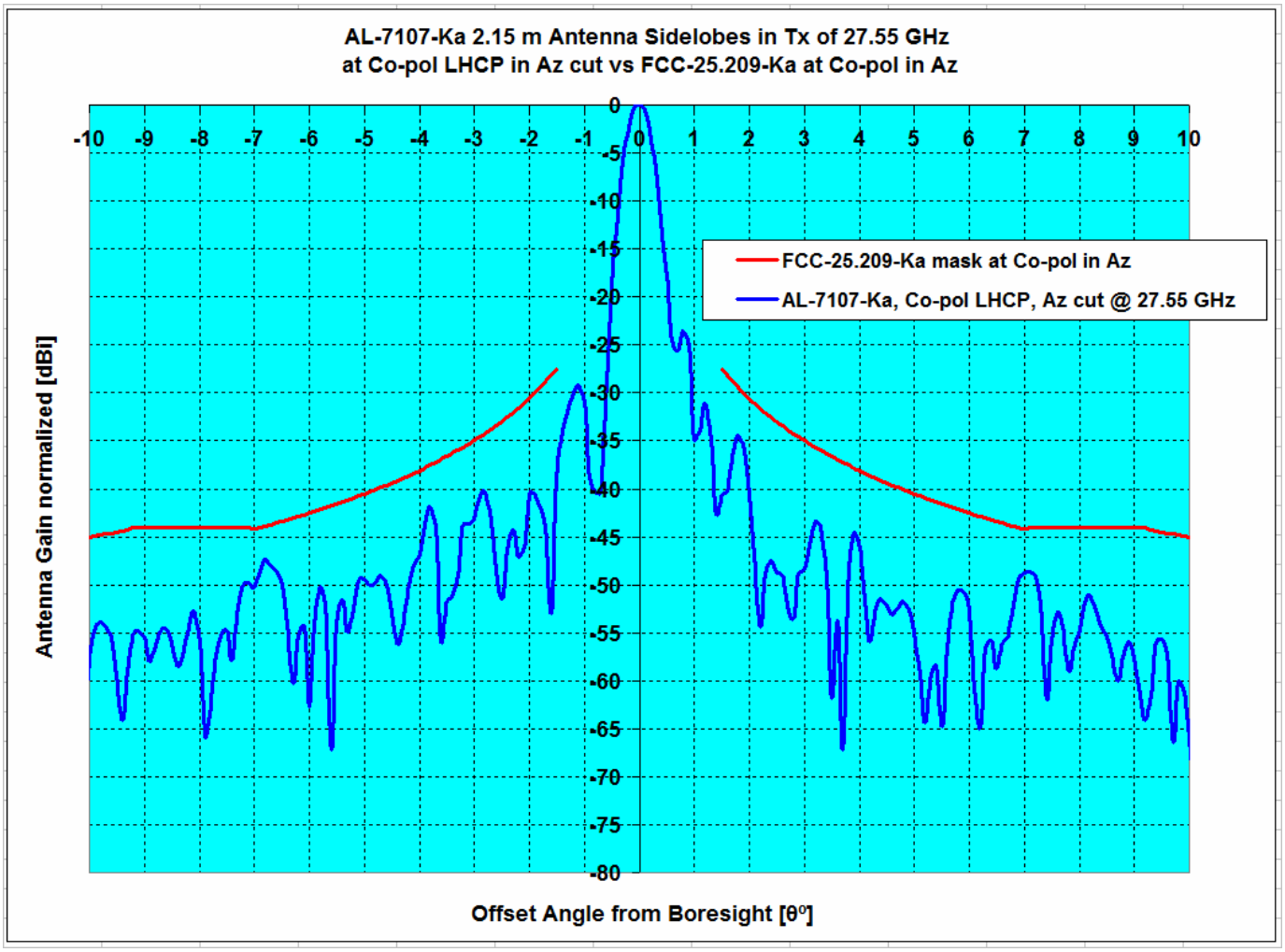
Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Azimuth LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.5°≤θ≤7°	7°≤θ≤180°	1.5°≤θ≤7°	7°≤θ≤180°
FCC-25.209-Ka, Co-pol Az, vs AL-7107-Ka	Az , LHCP	27.55	52.06	-3.48	5.11	0.00%	8.04%

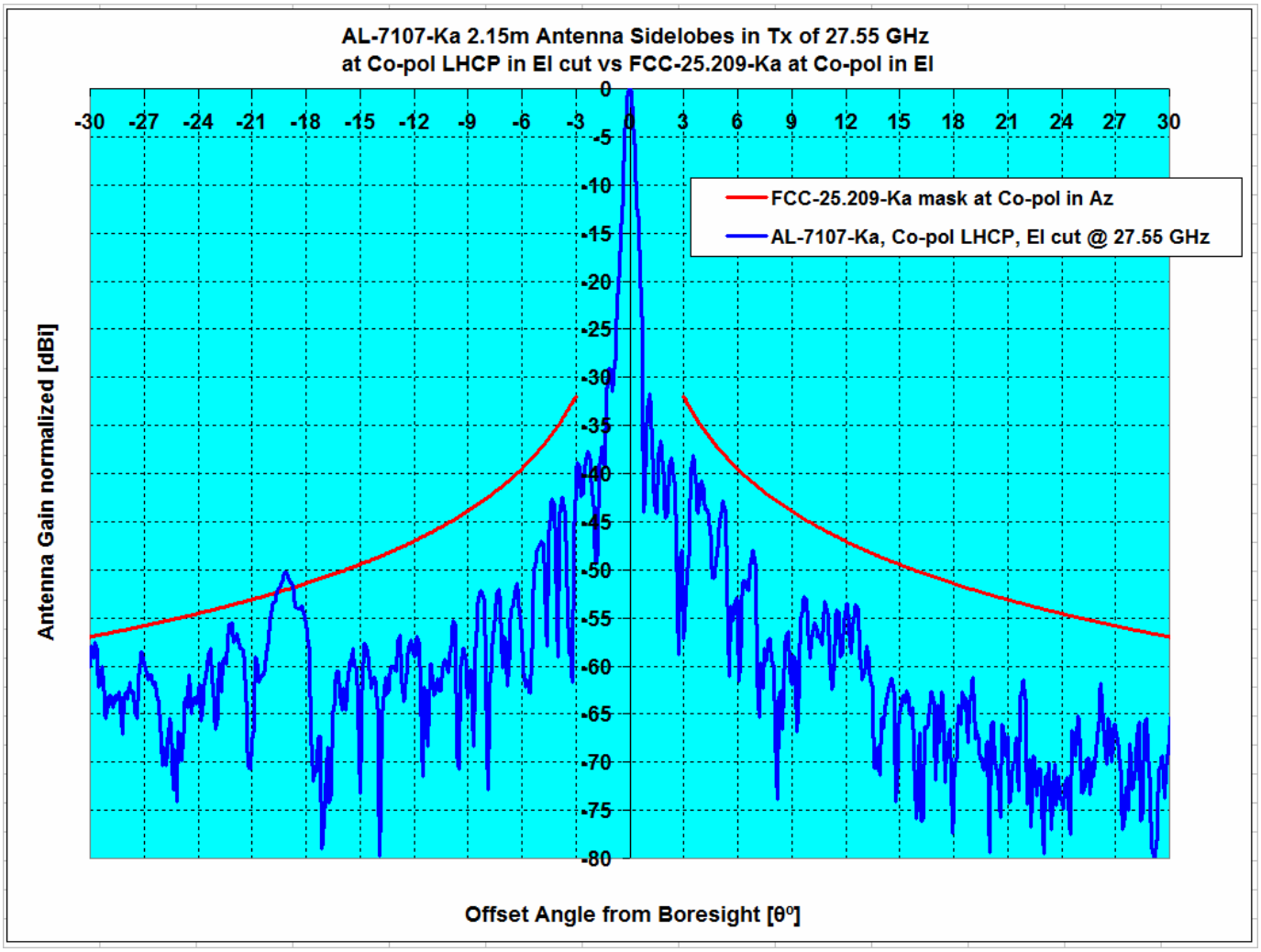
Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Azimuth LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.5°≤θ≤7°	7°≤θ≤180°	1.5°≤θ≤7°	7°≤θ≤180°
FCC-25.209-Ka, Co-pol Az, vs AL-7107-Ka	Az , LHCP	27.55	52.06	-3.48	5.11	0.00%	8.04%

Orbit Communication Systems Ltd.

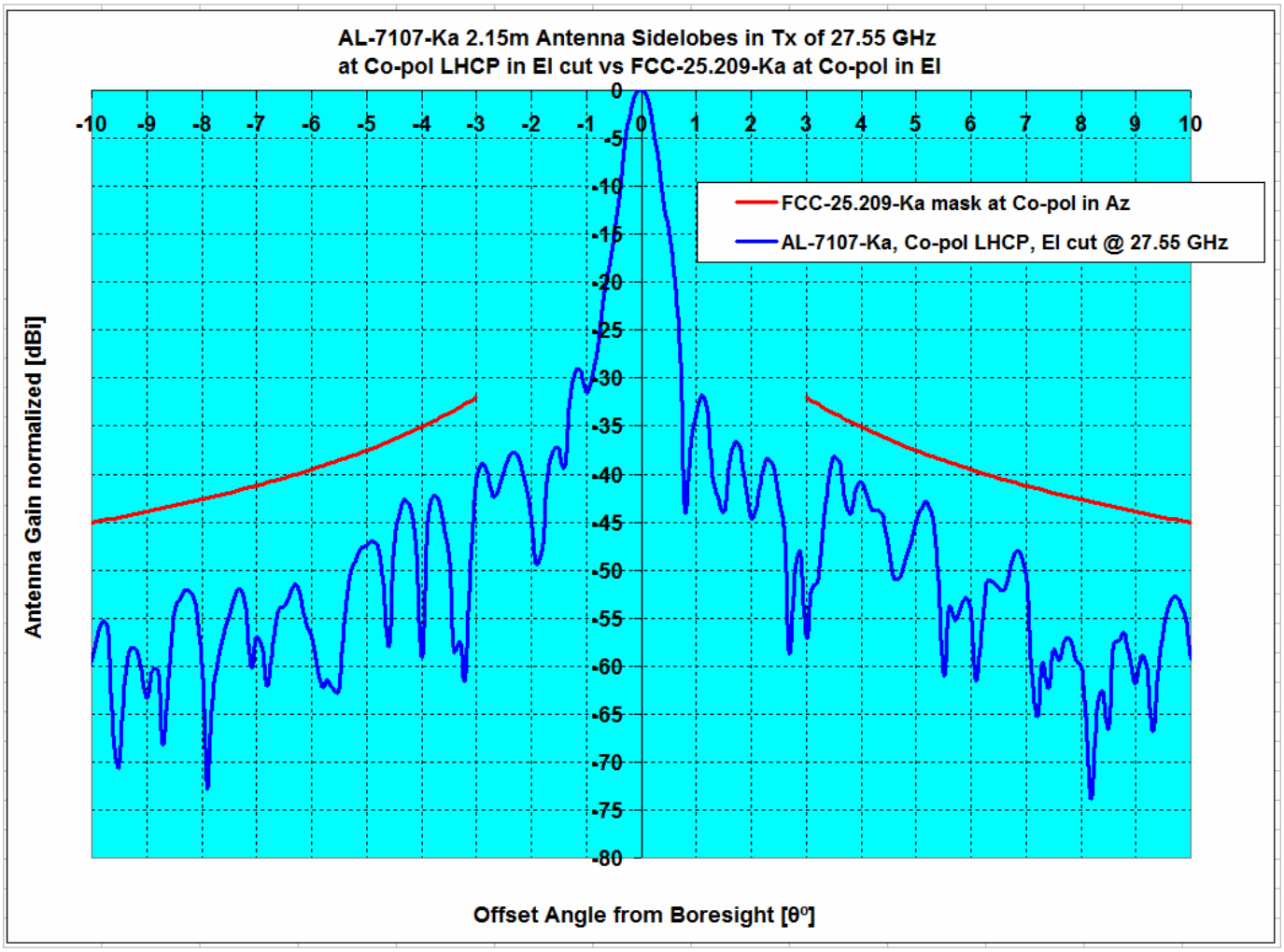
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Elevation LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	3°≤θ≤7°	7°≤θ≤30°	3°≤θ≤7°	7°≤θ≤30°
FCC-25.209-Ka, Co-pol El, vs AL-7107-Ka	El , LHCP	27.55	52.06	-4.46	1.83	0.00%	1.66%

Orbit Communication Systems Ltd.

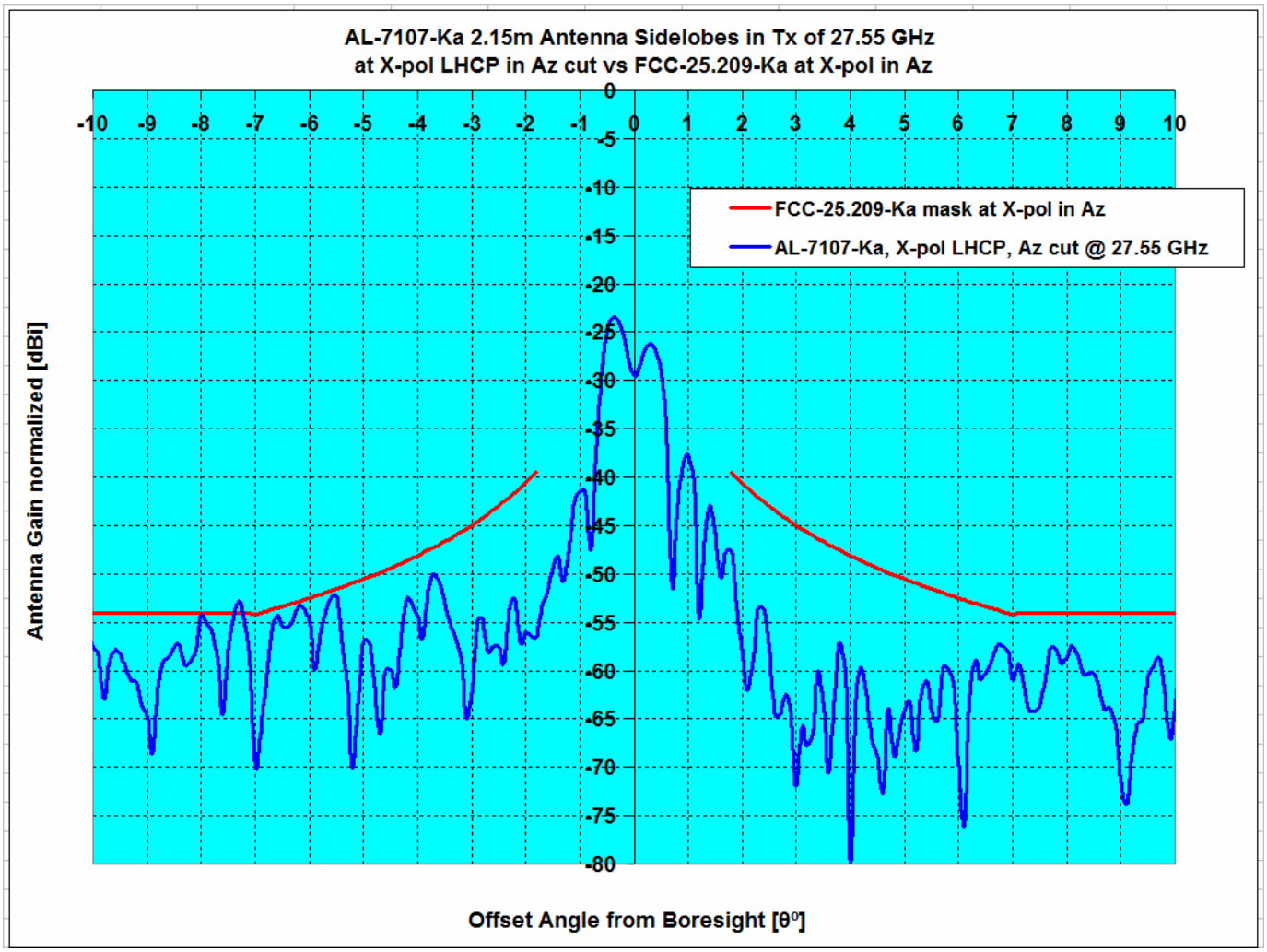
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Elevation LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	3°≤θ≤7°	7°≤θ≤30°	3°≤θ≤7°	7°≤θ≤30°
FCC-25.209-Ka, Co-pol El, vs AL-7107-Ka	El , LHCP	27.55	52.06	-4.46	1.83	0.00%	1.66%

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern, X-pol, Azimuth LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.8°≤θ≤7°	1.8°≤θ≤9.2°	1.8°≤θ≤7°	1.8°≤θ≤9.2°
FCC-25.209-Ka, X-pol Az, vs AL-7107-Ka	Az , LHCP	27.55	52.06	-0.44	1.22	0.00%	0.60%

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -180º to +180º @ 1.0º increment

27.55 GHz Antenna Pattern in Co-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-179.0	-20.9	0.0	-20.9
-178.0	-26.7	0.0	-26.7
-177.0	-26.5	0.0	-26.5
-176.0	-18.2	0.0	-18.2
-175.0	-20.9	0.0	-20.9
-174.0	-21.1	0.0	-21.1
-173.0	-23.3	0.0	-23.3
-172.0	-25.7	0.0	-25.7
-171.0	-22.9	0.0	-22.9
-170.0	-24.2	0.0	-24.2
-169.0	-22.5	0.0	-22.5
-168.0	-21.9	0.0	-21.9
-167.0	-27.9	0.0	-27.9
-166.0	-26.2	0.0	-26.2
-165.0	-19.5	0.0	-19.5
-164.0	-18.2	0.0	-18.2
-163.0	-21.6	0.0	-21.6
-162.0	-27.5	0.0	-27.5
-161.0	-25.5	0.0	-25.5
-160.0	-24.3	0.0	-24.3
-159.0	-17.4	0.0	-17.4
-158.0	-20.6	0.0	-20.6
-157.0	-18.7	0.0	-18.7
-156.0	-17.8	0.0	-17.8
-155.0	-26.4	0.0	-26.4
-154.0	-17.1	0.0	-17.1
-153.0	-22.6	0.0	-22.6
-152.0	-19.3	0.0	-19.3
-151.0	-14.8	0.0	-14.8
-150.0	-18.1	0.0	-18.1
-149.0	-16.6	0.0	-16.6
-148.0	-22.1	0.0	-22.1
-147.0	-24.1	0.0	-24.1
-146.0	-15.1	0.0	-15.1
-145.0	-18.9	0.0	-18.9
-144.0	-16.7	0.0	-16.7
-143.0	-14.5	0.0	-14.5
-142.0	-14.8	0.0	-14.8
-141.0	-14.2	0.0	-14.2
-140.0	-19.3	0.0	-19.3
-139.0	-16.6	0.0	-16.6
-138.0	-13.8	0.0	-13.8
-137.0	-24.9	0.0	-24.9
-136.0	-17.6	0.0	-17.6
-135.0	-15.6	0.0	-15.6
-134.0	-19.6	0.0	-19.6
-133.0	-19.4	0.0	-19.4
-132.0	-17.1	0.0	-17.1
-131.0	-18.8	0.0	-18.8
-130.0	-18.5	0.0	-18.5
-129.0	-14.9	0.0	-14.9
-128.0	-16.7	0.0	-16.7
-127.0	-21.7	0.0	-21.7
-126.0	-16.7	0.0	-16.7
-125.0	-15.8	0.0	-15.8
-124.0	-15.7	0.0	-15.7
-123.0	-19.9	0.0	-19.9
-122.0	-19.6	0.0	-19.6

27.55 GHz Antenna Pattern in Co-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.1		
1.0	17.2		
2.0	11.5	21.5	-10.0
3.0	3.6	17.1	-13.4
4.0	5.9	13.9	-8.1
5.0	-2.8	11.5	-14.3
6.0	-0.4	9.5	-10.0
7.0	3.3	7.9	-4.6
8.0	-2.5	8.0	-10.5
9.0	-5.5	8.0	-13.5
10.0	-13.8	7.0	-20.8
11.0	-7.5	6.0	-13.4
12.0	-4.9	5.0	-10.0
13.0	-15.4	4.2	-19.5
14.0	-9.2	3.3	-12.6
15.0	-5.3	2.6	-7.9
16.0	-7.2	1.9	-9.1
17.0	-7.2	1.2	-8.4
18.0	-6.8	0.6	-7.4
19.0	-5.7	0.0	-5.7
20.0	-23.1	-0.5	-22.6
21.0	-16.5	-1.1	-15.4
22.0	-6.1	-1.6	-4.5
23.0	-7.9	-2.0	-5.8
24.0	-10.1	-2.5	-7.6
25.0	-11.5	-2.9	-8.6
26.0	-12.1	-3.4	-8.7
27.0	-12.1	-3.8	-8.3
28.0	-11.4	-4.2	-7.2
29.0	-6.3	-4.6	-1.8
30.0	-6.5	-4.9	-1.6
31.0	-5.2	-5.3	0.1
32.0	-4.3	-5.6	1.4
33.0	-5.8	-6.0	0.2
34.0	-3.4	-6.3	2.9
35.0	-4.9	-6.6	1.7
36.0	-2.9	-6.9	4.0
37.0	-3.0	-7.2	4.2
38.0	-6.1	-7.5	1.4
39.0	-5.1	-7.8	2.7
40.0	-7.4	-8.1	0.7
41.0	-8.9	-8.3	-0.5
42.0	-9.3	-8.6	-0.7
43.0	-12.5	-8.8	-3.7
44.0	-10.4	-9.1	-1.3
45.0	-11.0	-9.3	-1.7
46.0	-5.2	-9.6	4.4
47.0	-9.5	-9.8	0.3
48.0	-8.9	-10.0	1.2
49.0	-13.7	-10.0	-3.7
50.0	-14.0	-10.0	-4.0
51.0	-9.4	-10.0	0.6
52.0	-7.4	-10.0	2.6
53.0	-7.9	-10.0	2.1
54.0	-8.9	-10.0	1.1
55.0	-13.3	-10.0	-3.3
56.0	-14.7	-10.0	-4.7
57.0	-11.3	-10.0	-1.3

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -180º to +180º @ 1.0º increment

-121.0	-17.4	0.0	-17.4
-120.0	-21.6	0.0	-21.6
-119.0	-20.4	0.0	-20.4
-118.0	-26.4	0.0	-26.4
-117.0	-20.8	0.0	-20.8
-116.0	-18.3	0.0	-18.3
-115.0	-18.6	0.0	-18.6
-114.0	-20.2	0.0	-20.2
-113.0	-19.3	0.0	-19.3
-112.0	-20.9	0.0	-20.9
-111.0	-20.2	0.0	-20.2
-110.0	-19.0	0.0	-19.0
-109.0	-14.5	0.0	-14.5
-108.0	-20.8	0.0	-20.8
-107.0	-21.5	0.0	-21.5
-106.0	-19.2	0.0	-19.2
-105.0	-18.4	0.0	-18.4
-104.0	-18.0	0.0	-18.0
-103.0	-21.0	0.0	-21.0
-102.0	-24.7	0.0	-24.7
-101.0	-15.1	0.0	-15.1
-100.0	-18.9	0.0	-18.9
-99.0	-26.4	0.0	-26.4
-98.0	-14.1	0.0	-14.1
-97.0	-13.6	0.0	-13.6
-96.0	-12.9	0.0	-12.9
-95.0	-16.6	0.0	-16.6
-94.0	-17.7	0.0	-17.7
-93.0	-17.7	0.0	-17.7
-92.0	-12.0	0.0	-12.0
-91.0	-14.7	0.0	-14.7
-90.0	-16.2	0.0	-16.2
-89.0	-13.8	0.0	-13.8
-88.0	-18.2	0.0	-18.2
-87.0	-13.4	0.0	-13.4
-86.0	-12.2	0.0	-12.2
-85.0	-12.3	-10.0	-2.3
-84.0	-16.9	-10.0	-6.9
-83.0	-19.5	-10.0	-9.5
-82.0	-15.3	-10.0	-5.3
-81.0	-12.5	-10.0	-2.5
-80.0	-10.7	-10.0	-0.7
-79.0	-11.3	-10.0	-1.3
-78.0	-10.5	-10.0	-0.5
-77.0	-11.5	-10.0	-1.5
-76.0	-12.6	-10.0	-2.6
-75.0	-11.3	-10.0	-1.3
-74.0	-10.8	-10.0	-0.8
-73.0	-8.3	-10.0	1.7
-72.0	-8.2	-10.0	1.8
-71.0	-8.7	-10.0	1.3
-70.0	-7.8	-10.0	2.2
-69.0	-6.9	-10.0	3.1
-68.0	-5.8	-10.0	4.2
-67.0	-6.2	-10.0	3.8
-66.0	-5.3	-10.0	4.7
-65.0	-8.9	-10.0	1.1
-64.0	-8.1	-10.0	1.9
-63.0	-8.5	-10.0	1.5
-62.0	-9.6	-10.0	0.4
-61.0	-7.2	-10.0	2.8
-60.0	-10.1	-10.0	-0.1
-59.0	-10.8	-10.0	-0.8
58.0	-11.6	-10.0	-1.6
59.0	-11.8	-10.0	-1.8
60.0	-16.5	-10.0	-6.5
61.0	-17.9	-10.0	-7.9
62.0	-15.2	-10.0	-5.2
63.0	-13.0	-10.0	-3.0
64.0	-17.3	-10.0	-7.3
65.0	-19.7	-10.0	-9.7
66.0	-11.2	-10.0	-1.2
67.0	-17.3	-10.0	-7.3
68.0	-14.5	-10.0	-4.5
69.0	-14.8	-10.0	-4.8
70.0	-13.2	-10.0	-3.2
71.0	-16.2	-10.0	-6.2
72.0	-19.1	-10.0	-9.1
73.0	-13.4	-10.0	-3.4
74.0	-19.3	-10.0	-9.3
75.0	-25.5	-10.0	-15.5
76.0	-16.4	-10.0	-6.4
77.0	-16.4	-10.0	-6.4
78.0	-21.0	-10.0	-11.0
79.0	-22.0	-10.0	-12.0
80.0	-24.3	-10.0	-14.3
81.0	-20.9	-10.0	-10.9
82.0	-26.0	-10.0	-16.0
83.0	-18.1	-10.0	-8.1
84.0	-24.0	-10.0	-14.0
85.0	-25.7	-10.0	-15.7
86.0	-21.1	0.0	-21.1
87.0	-22.6	0.0	-22.6
88.0	-19.0	0.0	-19.0
89.0	-20.0	0.0	-20.0
90.0	-23.1	0.0	-23.1
91.0	-20.8	0.0	-20.8
92.0	-21.3	0.0	-21.3
93.0	-19.9	0.0	-19.9
94.0	-22.3	0.0	-22.3
95.0	-23.9	0.0	-23.9
96.0	-25.8	0.0	-25.8
97.0	-26.1	0.0	-26.1
98.0	-19.2	0.0	-19.2
99.0	-25.3	0.0	-25.3
100.0	-17.6	0.0	-17.6
101.0	-17.5	0.0	-17.5
102.0	-24.6	0.0	-24.6
103.0	-27.6	0.0	-27.6
104.0	-27.9	0.0	-27.9
105.0	-20.0	0.0	-20.0
106.0	-23.9	0.0	-23.9
107.0	-25.1	0.0	-25.1
108.0	-21.1	0.0	-21.1
109.0	-21.3	0.0	-21.3
110.0	-27.9	0.0	-27.9
111.0	-21.3	0.0	-21.3
112.0	-22.8	0.0	-22.8
113.0	-15.5	0.0	-15.5
114.0	-21.9	0.0	-21.9
115.0	-20.5	0.0	-20.5
116.0	-18.7	0.0	-18.7
117.0	-18.2	0.0	-18.2
118.0	-21.3	0.0	-21.3
119.0	-16.7	0.0	-16.7
120.0	-27.9	0.0	-27.9

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -180º to +180º @ 1.0º increment

-58.0	-10.1	-10.0	-0.1
-57.0	-11.1	-10.0	-1.1
-56.0	-9.1	-10.0	0.9
-55.0	-13.6	-10.0	-3.6
-54.0	-11.4	-10.0	-1.4
-53.0	-14.3	-10.0	-4.3
-52.0	-13.3	-10.0	-3.3
-51.0	-18.3	-10.0	-8.3
-50.0	-12.7	-10.0	-2.7
-49.0	-15.6	-10.0	-5.6
-48.0	-15.3	-10.0	-5.3
-47.0	-19.3	-9.8	-9.5
-46.0	-13.8	-9.6	-4.2
-45.0	-17.5	-9.3	-8.1
-44.0	-23.2	-9.1	-14.1
-43.0	-22.2	-8.8	-13.4
-42.0	-22.2	-8.6	-13.6
-41.0	-20.6	-8.3	-12.3
-40.0	-15.6	-8.1	-7.6
-39.0	-22.7	-7.8	-14.9
-38.0	-16.5	-7.5	-9.0
-37.0	-15.8	-7.2	-8.6
-36.0	-19.3	-6.9	-12.3
-35.0	-18.5	-6.6	-11.9
-34.0	-22.3	-6.3	-16.0
-33.0	-20.6	-6.0	-14.7
-32.0	-23.6	-5.6	-18.0
-31.0	-18.1	-5.3	-12.9
-30.0	-15.0	-4.9	-10.1
-29.0	-18.0	-4.6	-13.4
-28.0	-16.6	-4.2	-12.4
-27.0	-17.3	-3.8	-13.5
-26.0	-17.3	-3.4	-13.9
-25.0	-20.0	-2.9	-17.0
-24.0	-17.3	-2.5	-14.8
-23.0	-15.7	-2.0	-13.7
-22.0	-15.4	-1.6	-13.8
-21.0	-16.3	-1.1	-15.2
-20.0	-18.9	-0.5	-18.4
-19.0	-12.6	0.0	-12.7
-18.0	-18.1	0.6	-18.7
-17.0	-14.3	1.2	-15.5
-16.0	-17.5	1.9	-19.4
-15.0	-17.7	2.6	-20.3
-14.0	-25.8	3.3	-29.1
-13.0	-6.8	4.2	-11.0
-12.0	-4.1	5.0	-9.2
-11.0	-7.6	6.0	-13.6
-10.0	-5.5	7.0	-12.5
-9.0	-3.5	8.0	-11.5
-8.0	-4.1	8.0	-12.1
-7.0	1.8	7.9	-6.1
-6.0	-10.6	9.5	-20.2
-5.0	2.7	11.5	-8.9
-4.0	5.3	13.9	-8.7
-3.0	8.9	17.1	-8.2
-2.0	11.7	21.5	-9.8
-1.0	21.0		
0.0	52.1		

121.0	-21.5	0.0	-21.5
122.0	-17.6	0.0	-17.6
123.0	-20.4	0.0	-20.4
124.0	-21.7	0.0	-21.7
125.0	-25.7	0.0	-25.7
126.0	-24.9	0.0	-24.9
127.0	-19.6	0.0	-19.6
128.0	-27.9	0.0	-27.9
129.0	-25.8	0.0	-25.8
130.0	-22.0	0.0	-22.0
131.0	-20.6	0.0	-20.6
132.0	-21.8	0.0	-21.8
133.0	-24.8	0.0	-24.8
134.0	-23.8	0.0	-23.8
135.0	-23.4	0.0	-23.4
136.0	-23.1	0.0	-23.1
137.0	-21.8	0.0	-21.8
138.0	-19.0	0.0	-19.0
139.0	-23.1	0.0	-23.1
140.0	-23.6	0.0	-23.6
141.0	-21.1	0.0	-21.1
142.0	-26.3	0.0	-26.3
143.0	-18.5	0.0	-18.5
144.0	-27.9	0.0	-27.9
145.0	-21.1	0.0	-21.1
146.0	-23.5	0.0	-23.5
147.0	-19.7	0.0	-19.7
148.0	-24.1	0.0	-24.1
149.0	-23.3	0.0	-23.3
150.0	-22.0	0.0	-22.0
151.0	-27.9	0.0	-27.9
152.0	-23.3	0.0	-23.3
153.0	-21.9	0.0	-21.9
154.0	-23.1	0.0	-23.1
155.0	-17.8	0.0	-17.8
156.0	-27.9	0.0	-27.9
157.0	-27.0	0.0	-27.0
158.0	-23.3	0.0	-23.3
159.0	-27.2	0.0	-27.2
160.0	-14.9	0.0	-14.9
161.0	-22.5	0.0	-22.5
162.0	-22.3	0.0	-22.3
163.0	-19.8	0.0	-19.8
164.0	-16.6	0.0	-16.6
165.0	-20.0	0.0	-20.0
166.0	-22.5	0.0	-22.5
167.0	-21.2	0.0	-21.2
168.0	-24.4	0.0	-24.4
169.0	-27.3	0.0	-27.3
170.0	-20.9	0.0	-20.9
171.0	-21.2	0.0	-21.2
172.0	-27.9	0.0	-27.9
173.0	-20.3	0.0	-20.3
174.0	-19.1	0.0	-19.1
175.0	-27.9	0.0	-27.9
176.0	-24.3	0.0	-24.3
177.0	-20.9	0.0	-20.9
178.0	-24.6	0.0	-24.6
179.0	-19.3	0.0	-19.3

Orbit Communication Systems Ltd.

AL AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -10º to +10º @ 0.1º increment

27.55 GHz Antenna Pattern in Co-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-2.9	7.0	-9.9
-9.9	-2.7	7.1	-9.8
-9.8	-2.1	7.2	-9.3
-9.7	-6.0	7.3	-13.3
-9.6	-8.3	7.4	-15.7
-9.5	-6.8	7.6	-14.4
-9.4	-14.7	7.7	-22.4
-9.3	-6.0	7.8	-13.8
-9.2	-3.8	8.0	-11.8
-9.1	-4.8	8.0	-12.8
-9.0	-10.7	8.0	-18.7
-8.9	-24.0	8.0	-32.0
-8.8	-19.9	8.0	-27.9
-8.7	-13.1	8.0	-21.1
-8.6	-13.2	8.0	-21.2
-8.5	-16.3	8.0	-24.3
-8.4	-11.2	8.0	-19.2
-8.3	-6.2	8.0	-14.2
-8.2	-2.1	8.0	-10.1
-8.1	-1.1	8.0	-9.1
-8.0	-3.6	8.0	-11.6
-7.9	-7.5	8.0	-15.5
-7.8	-2.4	8.0	-10.4
-7.7	0.1	8.0	-7.9
-7.6	1.4	8.0	-6.6
-7.5	-0.3	8.0	-8.3
-7.4	-7.4	8.0	-15.4
-7.3	-6.5	8.0	-14.5
-7.2	-0.8	8.0	-8.8
-7.1	0.1	8.0	-7.9
-7.0	0.2	7.9	-7.7
-6.9	2.9	8.0	-5.1
-6.8	3.8	8.2	-4.3
-6.7	3.3	8.3	-5.0
-6.6	1.5	8.5	-7.0
-6.5	-0.3	8.7	-8.9
-6.4	-0.4	8.8	-9.3
-6.3	-3.9	9.0	-12.9
-6.2	-11.2	9.2	-20.4
-6.1	-12.6	9.4	-21.9
-6.0	-3.2	9.5	-12.7
-5.9	1.1	9.7	-8.6
-5.8	1.8	9.9	-8.1
-5.7	-3.2	10.1	-13.3
-5.6	-4.1	10.3	-14.4
-5.5	1.9	10.5	-8.6
-5.4	2.5	10.7	-8.2
-5.3	-4.2	10.9	-15.1
-5.2	-4.5	11.1	-15.6
-5.1	1.1	11.3	-10.2
-5.0	2.1	11.5	-9.4
-4.9	2.4	11.7	-9.3
-4.8	2.8	12.0	-9.2
-4.7	3.7	12.2	-8.5
-4.6	3.9	12.4	-8.6
-4.5	2.7	12.7	-9.9
-4.4	1.1	12.9	-11.8
-4.3	0.5	13.2	-12.7
-4.2	2.6	13.4	-10.8
-4.1	3.9	13.7	-9.8

27.55 GHz Antenna Pattern in Co-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.0		
0.1	51.3		
0.2	49.0		
0.3	44.7		
0.4	38.8		
0.5	32.1		
0.6	26.0		
0.7	27.0		
0.8	28.5		
0.9	25.7		
1.0	17.7		
1.1	16.9		
1.2	19.7		
1.3	14.8		
1.4	5.7		
1.5	9.9	24.6	-14.7
1.6	10.5	23.9	-13.4
1.7	15.7	23.2	-7.5
1.8	16.4	22.6	-6.2
1.9	14.3	22.0	-7.8
2.0	7.4	21.5	-14.0
2.1	3.9	20.9	-17.1
2.2	0.1	20.4	-20.4
2.3	-3.9	20.0	-23.9
2.4	1.8	19.5	-17.7
2.5	3.1	19.1	-15.9
2.6	3.7	18.6	-14.9
2.7	2.3	18.2	-15.9
2.8	1.0	17.8	-16.8
2.9	2.4	17.4	-15.0
3.0	3.7	17.1	-13.4
3.1	7.2	16.7	-9.5
3.2	9.0	16.4	-7.4
3.3	8.4	16.0	-7.6
3.4	2.8	15.7	-12.9
3.5	-9.1	15.4	-24.5
3.6	-3.9	15.1	-19.0
3.7	-4.2	14.8	-19.0
3.8	4.2	14.5	-10.3
3.9	7.3	14.2	-6.9
4.0	5.9	13.9	-8.1
4.1	-0.4	13.7	-14.0
4.2	-2.7	13.4	-16.1
4.3	1.2	13.2	-11.9
4.4	0.2	12.9	-12.8
4.5	-1.8	12.7	-14.5
4.6	-2.3	12.4	-14.7
4.7	0.2	12.2	-12.0
4.8	1.2	12.0	-10.8
4.9	0.7	11.7	-11.0
5.0	-1.8	11.5	-13.3
5.1	-10.5	11.3	-21.8
5.2	-14.5	11.1	-25.6
5.3	-6.9	10.9	-17.8
5.4	-9.7	10.7	-20.4
5.5	-11.1	10.5	-21.6
5.6	-4.5	10.3	-14.8
5.7	-1.3	10.1	-11.4
5.8	0.8	9.9	-9.1
5.9	0.5	9.7	-9.3

Orbit Communication Systems Ltd.
AL AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -10º to +10º @ 0.1º increment

-4.0	5.9	13.9	-8.1
-3.9	8.7	14.2	-5.5
-3.8	9.3	14.5	-5.2
-3.7	6.5	14.8	-8.3
-3.6	-2.3	15.1	-17.4
-3.5	0.8	15.4	-14.6
-3.4	2.6	15.7	-13.1
-3.3	3.9	16.0	-12.2
-3.2	8.1	16.4	-8.2
-3.1	8.9	16.7	-7.8
-3.0	9.1	17.1	-7.9
-2.9	11.6	17.4	-5.9
-2.8	11.5	17.8	-6.3
-2.7	9.1	18.2	-9.1
-2.6	1.7	18.6	-16.9
-2.5	-9.9	19.1	-29.0
-2.4	2.5	19.5	-17.0
-2.3	5.9	20.0	-14.0
-2.2	3.2	20.4	-17.2
-2.1	1.2	20.9	-19.7
-2.0	10.2	21.5	-11.3
-1.9	10.9	22.0	-11.1
-1.8	10.6	22.6	-12.0
-1.7	9.7	23.2	-13.5
-1.6	4.7	23.9	-19.2
-1.5	10.9	24.6	-13.7
-1.4	16.9		
-1.3	19.0		
-1.2	20.5		
-1.1	20.8		
-1.0	17.6		
-0.9	16.4		
-0.8	19.9		
-0.7	20.1		
-0.6	26.0		
-0.5	34.9		
-0.4	41.8		
-0.3	46.8		
-0.2	50.1		
-0.1	51.7		
0.0	52.0		

6.0	-2.3	9.5	-11.9
6.1	-12.6	9.4	-22.0
6.2	-8.1	9.2	-17.3
6.3	-5.1	9.0	-14.1
6.4	-3.2	8.8	-12.0
6.5	-1.7	8.7	-10.4
6.6	-4.0	8.5	-12.5
6.7	-2.4	8.3	-10.7
6.8	0.4	8.2	-7.8
6.9	3.3	8.0	-4.7
7.0	3.9	7.9	-4.0
7.1	3.9	8.0	-4.1
7.2	2.5	8.0	-5.5
7.3	-2.0	8.0	-10.0
7.4	-8.4	8.0	-16.4
7.5	-2.9	8.0	-10.9
7.6	-1.2	8.0	-9.2
7.7	-3.3	8.0	-11.3
7.8	-12.9	8.0	-20.9
7.9	-4.0	8.0	-12.0
8.0	0.0	8.0	-8.0
8.1	1.1	8.0	-6.9
8.2	0.3	8.0	-7.7
8.3	-2.2	8.0	-10.2
8.4	-5.8	8.0	-13.8
8.5	-7.2	8.0	-15.2
8.6	-4.7	8.0	-12.7
8.7	-6.7	8.0	-14.7
8.8	-4.9	8.0	-12.9
8.9	-2.8	8.0	-10.8
9.0	-2.8	8.0	-10.8
9.1	-6.1	8.0	-14.1
9.2	-13.9	8.0	-21.9
9.3	-10.9	7.8	-18.7
9.4	-5.2	7.7	-12.9
9.5	-4.5	7.6	-12.1
9.6	-10.9	7.4	-18.3
9.7	-16.2	7.3	-23.5
9.8	-7.3	7.2	-14.5
9.9	-5.5	7.1	-12.6
10.0	-8.4	7.0	-15.4

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation RHCP, -30º to +30º @ 0.5º increment

27.55 GHz Antenna Pattern in Co-pol El RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-30.0	-7.7	-4.9	-2.8
-29.5	-10.1	-4.7	-5.3
-29.0	-11.7	-4.6	-7.1
-28.5	-11.5	-4.4	-7.1
-28.0	-10.6	-4.2	-6.5
-27.5	-12.3	-4.0	-8.3
-27.0	-7.9	-3.8	-4.2
-26.5	-9.9	-3.6	-6.3
-26.0	-18.1	-3.4	-14.8
-25.5	-14.0	-3.2	-10.8
-25.0	-16.3	-2.9	-13.4
-24.5	-8.9	-2.7	-6.2
-24.0	-10.4	-2.5	-7.9
-23.5	-8.1	-2.3	-5.8
-23.0	-14.6	-2.0	-12.5
-22.5	-7.0	-1.8	-5.2
-22.0	-5.5	-1.6	-4.0
-21.5	-6.2	-1.3	-4.9
-21.0	-16.3	-1.1	-15.2
-20.5	-8.9	-0.8	-8.1
-20.0	-3.3	-0.5	-2.8
-19.5	0.2	-0.3	0.4
-19.0	1.4	0.0	1.4
-18.5	-2.0	0.3	-2.3
-18.0	-3.3	0.6	-4.0
-17.5	-19.1	0.9	-20.0
-17.0	-23.4	1.2	-24.6
-16.5	-14.1	1.6	-15.6
-16.0	-12.5	1.9	-14.4
-15.5	-8.0	2.2	-10.2
-15.0	-21.1	2.6	-23.7
-14.5	-7.3	3.0	-10.2
-14.0	-15.0	3.3	-18.3
-13.5	-10.9	3.7	-14.7
-13.0	-8.5	4.2	-12.6
-12.5	-11.0	4.6	-15.6
-12.0	-7.1	5.0	-12.1
-11.5	-19.4	5.5	-24.9
-11.0	-7.7	6.0	-13.7
-10.5	-10.5	6.5	-17.0
-10.0	-7.4	7.0	-14.4
-9.5	-18.5	7.6	-26.0
-9.0	-11.2	8.1	-19.4
-8.5	-2.5	8.8	-11.2
-8.0	-8.2	9.4	-17.6
-7.5	-2.7	10.1	-12.8
-7.0	-4.8	10.9	-15.7
-6.5	-1.7	11.7	-13.4
-6.0	-4.8	12.5	-17.3
-5.5	-10.7	13.5	-24.2
-5.0	4.5	14.5	-10.0
-4.5	4.3	15.7	-11.4
-4.0	-7.1	16.9	-24.0
-3.5	3.3	18.4	-15.1
-3.0	11.3	20.1	-8.8
-2.5	12.5		
-2.0	7.4		
-1.5	14.8		
-1.0	20.6		
-0.5	36.4		
0.0	52.1		

27.55 GHz Antenna Pattern in Co-pol El RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.1		
0.5	37.5		
1.0	18.1		
1.5	8.1		
2.0	7.4		
2.5	10.0		
3.0	-5.1	20.1	-25.1
3.5	13.9	18.4	-4.5
4.0	11.3	16.9	-5.7
4.5	4.3	15.7	-11.4
5.0	7.0	14.5	-7.6
5.5	-9.1	13.5	-22.5
6.0	-2.0	12.5	-14.5
6.5	0.4	11.7	-11.3
7.0	1.4	10.9	-9.5
7.5	-6.3	10.1	-16.4
8.0	-8.1	9.4	-17.5
8.5	-14.4	8.8	-23.2
9.0	-9.8	8.1	-18.0
9.5	-3.8	7.6	-11.4
10.0	-7.2	7.0	-14.2
10.5	-5.0	6.5	-11.5
11.0	-3.1	6.0	-9.1
11.5	-2.1	5.5	-7.6
12.0	-1.4	5.0	-6.5
12.5	-2.1	4.6	-6.7
13.0	-9.0	4.2	-13.1
13.5	-10.8	3.7	-14.5
14.0	-13.5	3.3	-16.8
14.5	-9.4	3.0	-12.3
15.0	-12.9	2.6	-15.5
15.5	-11.6	2.2	-13.8
16.0	-22.1	1.9	-24.0
16.5	-14.3	1.6	-15.9
17.0	-19.8	1.2	-21.1
17.5	-19.9	0.9	-20.8
18.0	-21.5	0.6	-22.1
18.5	-10.7	0.3	-11.0
19.0	-10.7	0.0	-10.7
19.5	-17.7	-0.3	-17.4
20.0	-27.3	-0.5	-26.8
20.5	-19.3	-0.8	-18.5
21.0	-15.4	-1.1	-14.3
21.5	-15.5	-1.3	-14.2
22.0	-13.1	-1.6	-11.6
22.5	-17.6	-1.8	-15.8
23.0	-27.5	-2.0	-25.4
23.5	-22.0	-2.3	-19.7
24.0	-22.0	-2.5	-19.5
24.5	-25.2	-2.7	-22.4
25.0	-13.5	-2.9	-10.5
25.5	-17.5	-3.2	-14.3
26.0	-16.0	-3.4	-12.7
26.5	-18.1	-3.6	-14.6
27.0	-14.1	-3.8	-10.3
27.5	-23.1	-4.0	-19.1
28.0	-20.7	-4.2	-16.5
28.5	-22.3	-4.4	-17.9
29.0	-26.0	-4.6	-21.4
29.5	-18.3	-4.7	-13.6
30.0	-15.8	-4.9	-10.9

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation RHCP, -10º to +10º @ 0.1º increment

27.55 GHz Antenna Pattern in Co-pol El RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-3.4	7.0	-10.4
-9.9	-1.4	7.1	-8.5
-9.8	-0.5	7.2	-7.7
-9.7	-3.0	7.3	-10.3
-9.6	-6.4	7.4	-13.9
-9.5	-13.5	7.6	-21.1
-9.4	-11.8	7.7	-19.5
-9.3	-9.4	7.8	-17.2
-9.2	-9.8	7.9	-17.7
-9.1	-11.4	8.0	-19.4
-9.0	-5.8	8.1	-14.0
-8.9	-3.0	8.3	-11.3
-8.8	-4.3	8.4	-12.7
-8.7	-6.5	8.5	-15.1
-8.6	-9.7	8.6	-18.3
-8.5	-5.5	8.8	-14.3
-8.4	-3.9	8.9	-12.8
-8.3	-3.6	9.0	-12.7
-8.2	-4.8	9.2	-13.9
-8.1	-6.9	9.3	-16.2
-8.0	-10.3	9.4	-19.7
-7.9	-9.7	9.6	-19.3
-7.8	-13.4	9.7	-23.1
-7.7	-13.0	9.8	-22.8
-7.6	-8.3	10.0	-18.2
-7.5	-4.2	10.1	-14.3
-7.4	-1.1	10.3	-11.4
-7.3	-1.1	10.4	-11.5
-7.2	-3.6	10.6	-14.2
-7.1	-10.5	10.7	-21.2
-7.0	-3.8	10.9	-14.7
-6.9	-1.1	11.0	-12.2
-6.8	-6.5	11.2	-17.7
-6.7	-3.8	11.3	-15.2
-6.6	-2.8	11.5	-14.3
-6.5	-2.0	11.7	-13.7
-6.4	-0.2	11.8	-12.0
-6.3	1.5	12.0	-10.5
-6.2	0.3	12.2	-11.9
-6.1	-1.7	12.4	-14.1
-6.0	-3.7	12.5	-16.3
-5.9	-4.3	12.7	-17.1
-5.8	-5.8	12.9	-18.7
-5.7	-4.4	13.1	-17.5
-5.6	-7.1	13.3	-20.4
-5.5	-7.5	13.5	-21.0
-5.4	-4.6	13.7	-18.3
-5.3	0.2	13.9	-13.7
-5.2	2.5	14.1	-11.6
-5.1	3.6	14.3	-10.7
-5.0	3.9	14.5	-10.6
-4.9	4.8	14.7	-9.9
-4.8	4.7	15.0	-10.3
-4.7	1.1	15.2	-14.1
-4.6	-9.1	15.4	-24.5
-4.5	4.1	15.7	-11.6
-4.4	8.3	15.9	-7.6
-4.3	9.1	16.2	-7.1
-4.2	8.6	16.4	-7.8
-4.1	4.1	16.7	-12.6

27.55 GHz Antenna Pattern in Co-pol El RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.0		
0.1	51.3		
0.2	49.1		
0.3	45.4		
0.4	41.3		
0.5	37.9		
0.6	33.8		
0.7	24.7		
0.8	11.9		
0.9	19.3		
1.0	21.1		
1.1	22.6		
1.2	20.8		
1.3	12.7		
1.4	8.4		
1.5	9.1		
1.6	12.7		
1.7	16.7		
1.8	16.5		
1.9	12.2		
2.0	9.5		
2.1	9.3		
2.2	11.3		
2.3	13.6		
2.4	13.0		
2.5	10.6		
2.6	8.7		
2.7	4.2		
2.8	-2.9		
2.9	4.7		
3.0	2.6	20.1	-17.5
3.1	-5.6	19.7	-25.3
3.2	3.9	19.4	-15.5
3.3	3.4	19.0	-15.6
3.4	9.3	18.7	-9.4
3.5	13.2	18.4	-5.2
3.6	13.6	18.1	-4.5
3.7	11.7	17.8	-6.1
3.8	7.4	17.5	-10.1
3.9	9.4	17.2	-7.8
4.0	12.3	16.9	-4.7
4.1	12.0	16.7	-4.7
4.2	10.3	16.4	-6.1
4.3	8.6	16.2	-7.6
4.4	7.9	15.9	-8.0
4.5	5.9	15.7	-9.7
4.6	3.4	15.4	-12.0
4.7	3.1	15.2	-12.1
4.8	4.8	15.0	-10.2
4.9	4.8	14.7	-10.0
5.0	5.6	14.5	-8.9
5.1	7.0	14.3	-7.3
5.2	8.0	14.1	-6.1
5.3	7.9	13.9	-6.0
5.4	4.1	13.7	-9.6
5.5	-6.3	13.5	-19.8
5.6	-6.8	13.3	-20.1
5.7	-4.7	13.1	-17.8
5.8	-3.8	12.9	-16.7
5.9	-1.1	12.7	-13.9

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table

Co-pol Elevation RHCP, -10º to +10º @ 0.1º increment

-4.0	-2.6	16.9	-19.5
-3.9	7.7	17.2	-9.5
-3.8	9.9	17.5	-7.6
-3.7	9.7	17.8	-8.1
-3.6	7.9	18.1	-10.2
-3.5	4.9	18.4	-13.5
-3.4	-6.5	18.7	-25.2
-3.3	-0.8	19.0	-19.8
-3.2	-3.2	19.4	-22.5
-3.1	3.1	19.7	-16.6
-3.0	11.2	20.1	-8.8
-2.9	13.3		
-2.8	13.0		
-2.7	10.3		
-2.6	10.3		
-2.5	12.9		
-2.4	13.9		
-2.3	14.1		
-2.2	11.9		
-2.1	9.4		
-2.0	7.4		
-1.9	6.0		
-1.8	6.2		
-1.7	12.3		
-1.6	15.9		
-1.5	16.4		
-1.4	14.5		
-1.3	18.9		
-1.2	23.2		
-1.1	23.7		
-1.0	21.1		
-0.9	20.3		
-0.8	24.8		
-0.7	28.8		
-0.6	32.8		
-0.5	35.8		
-0.4	40.3		
-0.3	45.9		
-0.2	49.8		
-0.1	51.7		
0.0	52.0		

6.0	-2.3	12.5	-14.8
6.1	-3.9	12.4	-16.3
6.2	-1.4	12.2	-13.6
6.3	1.4	12.0	-10.6
6.4	1.5	11.8	-10.3
6.5	2.3	11.7	-9.4
6.6	1.7	11.5	-9.8
6.7	2.5	11.3	-8.9
6.8	4.3	11.2	-6.8
6.9	4.9	11.0	-6.1
7.0	3.4	10.9	-7.5
7.1	-2.8	10.7	-13.5
7.2	-11.8	10.6	-22.4
7.3	-12.0	10.4	-22.4
7.4	-8.4	10.3	-18.7
7.5	-5.0	10.1	-15.1
7.6	-3.9	10.0	-13.8
7.7	-4.6	9.8	-14.4
7.8	-5.2	9.7	-14.9
7.9	-7.5	9.6	-17.1
8.0	-4.3	9.4	-13.7
8.1	-2.9	9.3	-12.2
8.2	-7.4	9.2	-16.6
8.3	-12.0	9.0	-21.0
8.4	-6.8	8.9	-15.7
8.5	-5.5	8.8	-14.2
8.6	-7.0	8.6	-15.7
8.7	-9.0	8.5	-17.5
8.8	-12.3	8.4	-20.6
8.9	-13.9	8.3	-22.1
9.0	-14.1	8.1	-22.3
9.1	-13.8	8.0	-21.8
9.2	-8.7	7.9	-16.6
9.3	-10.0	7.8	-17.8
9.4	-24.4	7.7	-32.0
9.5	-10.5	7.6	-18.0
9.6	-5.1	7.4	-12.5
9.7	-1.6	7.3	-9.0
9.8	-1.1	7.2	-8.3
9.9	-1.8	7.1	-8.9
10.0	-3.4	7.0	-10.4

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
X-pol Azimuth RHCP, -10º to +10º @ 0.1º increment

27.55 GHz Antenna Pattern in X-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-7.5	-2.0	-5.5
-9.9	-10.8	-2.0	-8.8
-9.8	-12.5	-2.0	-10.5
-9.7	-17.0	-2.0	-15.0
-9.6	-15.1	-2.0	-13.1
-9.5	-16.9	-2.0	-14.9
-9.4	-14.4	-2.0	-12.4
-9.3	-11.3	-2.0	-9.3
-9.2	-10.0	-2.0	-8.0
-9.1	-6.8	-2.0	-4.8
-9.0	-6.3	-2.0	-4.3
-8.9	-7.0	-2.0	-5.0
-8.8	-8.6	-2.0	-6.6
-8.7	-12.8	-2.0	-10.8
-8.6	-18.3	-2.0	-16.3
-8.5	-16.7	-2.0	-14.7
-8.4	-23.6	-2.0	-21.6
-8.3	-17.1	-2.0	-15.1
-8.2	-12.3	-2.0	-10.3
-8.1	-8.8	-2.0	-6.8
-8.0	-6.7	-2.0	-4.7
-7.9	-7.9	-2.0	-5.9
-7.8	-7.6	-2.0	-5.6
-7.7	-7.2	-2.0	-5.2
-7.6	-6.6	-2.0	-4.6
-7.5	-6.7	-2.0	-4.7
-7.4	-6.3	-2.0	-4.3
-7.3	-4.3	-2.0	-2.3
-7.2	-4.9	-2.0	-2.9
-7.1	-6.0	-2.0	-4.0
-7.0	-7.6	-2.1	-5.5
-6.9	-6.7	-2.0	-4.7
-6.8	-6.1	-1.8	-4.3
-6.7	-7.5	-1.7	-5.9
-6.6	-8.8	-1.5	-7.3
-6.5	-7.3	-1.3	-5.9
-6.4	-5.3	-1.2	-4.2
-6.3	-3.7	-1.0	-2.7
-6.2	-5.4	-0.8	-4.6
-6.1	-7.7	-0.6	-7.1
-6.0	-11.9	-0.5	-11.4
-5.9	-5.2	-0.3	-4.9
-5.8	-3.4	-0.1	-3.3
-5.7	-5.3	0.1	-5.4
-5.6	-11.3	0.3	-11.6
-5.5	-8.2	0.5	-8.7
-5.4	-6.9	0.7	-7.6
-5.3	-8.6	0.9	-9.5
-5.2	-16.6	1.1	-17.7
-5.1	-15.9	1.3	-17.2
-5.0	-8.2	1.5	-9.7
-4.9	-8.2	1.7	-9.9
-4.8	-12.2	2.0	-14.1
-4.7	-11.8	2.2	-14.0
-4.6	-8.2	2.4	-10.6
-4.5	-8.2	2.7	-10.9
-4.4	-9.6	2.9	-12.5
-4.3	-14.6	3.2	-17.8
-4.2	-15.3	3.4	-18.7
-4.1	-5.6	3.7	-9.3

27.55 GHz Antenna Pattern in X-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	20.3		
0.1	18.8		
0.2	9.9		
0.3	22.2		
0.4	25.1		
0.5	25.2		
0.6	22.3		
0.7	15.0		
0.8	2.0		
0.9	1.8		
1.0	6.9		
1.1	10.7		
1.2	10.9		
1.3	6.8		
1.4	1.6		
1.5	4.0		
1.6	1.8		
1.7	-3.6		
1.8	-3.2	12.6	-15.8
1.9	-0.1	12.0	-12.2
2.0	0.6	11.5	-10.9
2.1	0.0	10.9	-10.9
2.2	-7.1	10.4	-17.5
2.3	-12.0	10.0	-22.0
2.4	-4.2	9.5	-13.7
2.5	-3.3	9.1	-12.4
2.6	-5.4	8.6	-14.1
2.7	-13.2	8.2	-21.4
2.8	-3.2	7.8	-11.0
2.9	-0.4	7.4	-7.9
3.0	-2.3	7.1	-9.3
3.1	-8.6	6.7	-15.3
3.2	-9.9	6.4	-16.3
3.3	-7.8	6.0	-13.9
3.4	-14.7	5.7	-20.4
3.5	-9.0	5.4	-14.4
3.6	-4.8	5.1	-9.9
3.7	-8.9	4.8	-13.7
3.8	-16.2	4.5	-20.7
3.9	-9.4	4.2	-13.6
4.0	-7.6	3.9	-11.6
4.1	-9.7	3.7	-13.3
4.2	-10.0	3.4	-13.4
4.3	-9.7	3.2	-12.8
4.4	-8.6	2.9	-11.6
4.5	-8.4	2.7	-11.1
4.6	-7.8	2.4	-10.2
4.7	-5.6	2.2	-7.8
4.8	-4.8	2.0	-6.8
4.9	-8.8	1.7	-10.5
5.0	-18.5	1.5	-20.1
5.1	-23.8	1.3	-25.1
5.2	-17.5	1.1	-18.6
5.3	-11.1	0.9	-12.0
5.4	-7.9	0.7	-8.6
5.5	-7.3	0.5	-7.8
5.6	-7.3	0.3	-7.6
5.7	-4.7	0.1	-4.8
5.8	-3.5	-0.1	-3.4
5.9	-7.4	-0.3	-7.1

Orbit Communication Systems Ltd.

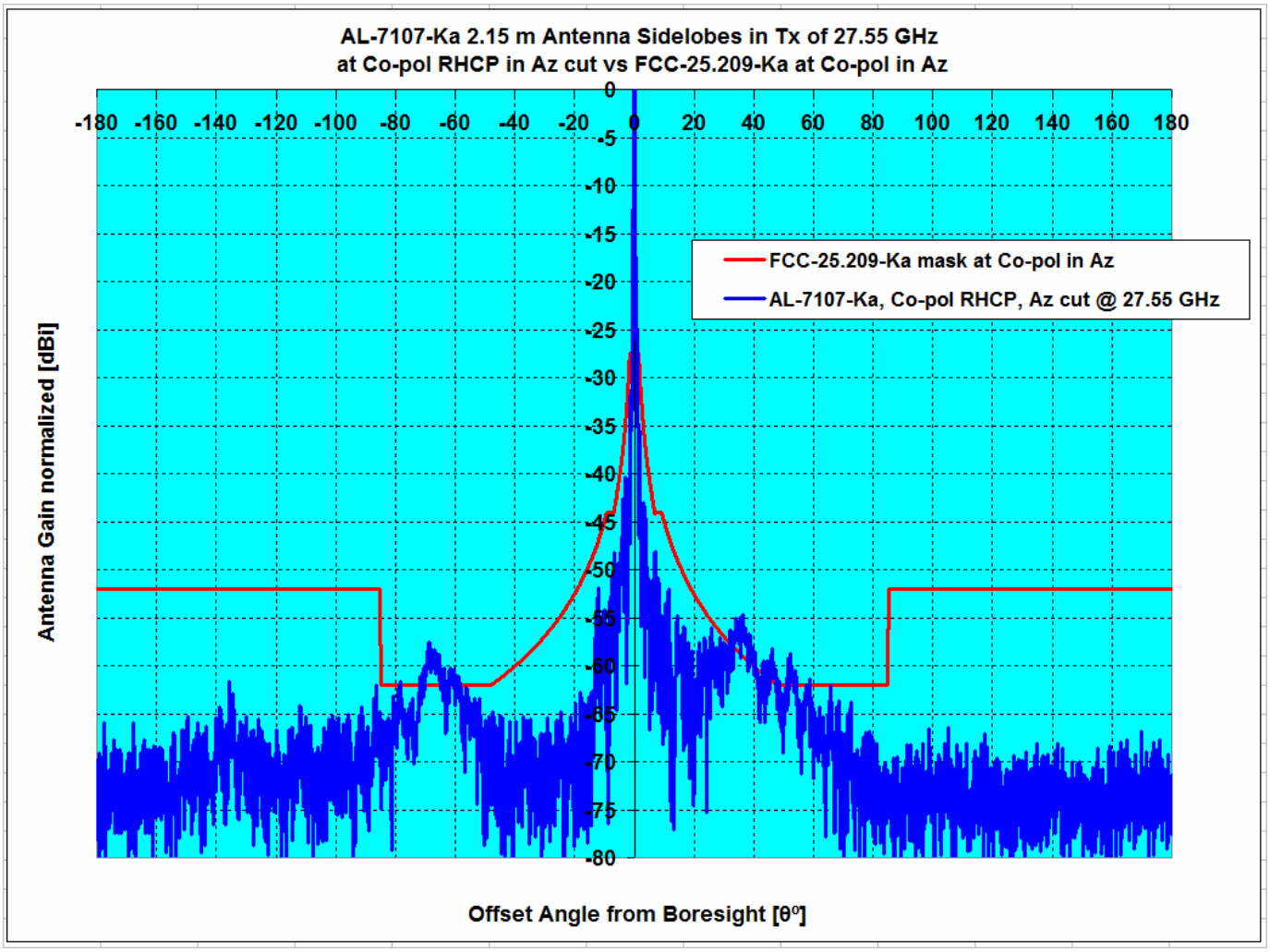
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
X-pol Azimuth RHCP, -10º to +10º @ 0.1º increment

-4.0	-3.7	3.9	-7.7
-3.9	-5.3	4.2	-9.5
-3.8	-8.3	4.5	-12.8
-3.7	-2.1	4.8	-6.9
-3.6	-1.0	5.1	-6.1
-3.5	-1.9	5.4	-7.3
-3.4	-6.9	5.7	-12.6
-3.3	-4.4	6.0	-10.4
-3.2	-1.3	6.4	-7.7
-3.1	-4.7	6.7	-11.4
-3.0	-15.0	7.1	-22.1
-2.9	-6.9	7.4	-14.3
-2.8	-10.5	7.8	-18.3
-2.7	-8.6	8.2	-16.8
-2.6	-3.4	8.6	-12.1
-2.5	-3.7	9.1	-12.7
-2.4	-3.6	9.5	-13.1
-2.3	0.9	10.0	-9.1
-2.2	2.0	10.4	-8.5
-2.1	1.6	10.9	-9.3
-2.0	1.6	11.5	-9.9
-1.9	-5.5	12.0	-17.6
-1.8	-2.5	12.6	-15.1
-1.7	4.6		
-1.6	5.8		
-1.5	7.3		
-1.4	10.5		
-1.3	9.8		
-1.2	5.8		
-1.1	11.3		
-1.0	15.3		
-0.9	16.1		
-0.8	16.5		
-0.7	19.7		
-0.6	23.8		
-0.5	26.5		
-0.4	27.2		
-0.3	26.1		
-0.2	21.4		
-0.1	15.8		
0.0	20.3		

6.0	-8.9	-0.5	-8.4
6.1	-11.4	-0.6	-10.8
6.2	-15.9	-0.8	-15.1
6.3	-18.3	-1.0	-17.4
6.4	-15.0	-1.2	-13.8
6.5	-14.3	-1.3	-12.9
6.6	-9.6	-1.5	-8.1
6.7	-7.4	-1.7	-5.8
6.8	-7.8	-1.8	-6.0
6.9	-10.7	-2.0	-8.7
7.0	-11.6	-2.1	-9.5
7.1	-13.1	-2.0	-11.1
7.2	-20.8	-2.0	-18.8
7.3	-17.3	-2.0	-15.3
7.4	-16.6	-2.0	-14.6
7.5	-17.2	-2.0	-15.2
7.6	-10.0	-2.0	-8.0
7.7	-8.6	-2.0	-6.6
7.8	-10.9	-2.0	-8.9
7.9	-14.2	-2.0	-12.2
8.0	-15.8	-2.0	-13.8
8.1	-17.5	-2.0	-15.5
8.2	-19.2	-2.0	-17.2
8.3	-17.6	-2.0	-15.6
8.4	-13.7	-2.0	-11.7
8.5	-18.4	-2.0	-16.4
8.6	-25.2	-2.0	-23.2
8.7	-13.8	-2.0	-11.8
8.8	-15.0	-2.0	-13.0
8.9	-8.7	-2.0	-6.7
9.0	-6.3	-2.0	-4.3
9.1	-5.3	-2.0	-3.3
9.2	-6.9	-2.0	-4.9
9.3	-7.0	-2.0	-5.0
9.4	-10.6	-2.0	-8.6
9.5	-6.7	-2.0	-4.7
9.6	-5.5	-2.0	-3.5
9.7	-4.5	-2.0	-2.5
9.8	-5.9	-2.0	-3.9
9.9	-11.6	-2.0	-9.6
10.0	-12.6	-2.0	-10.6

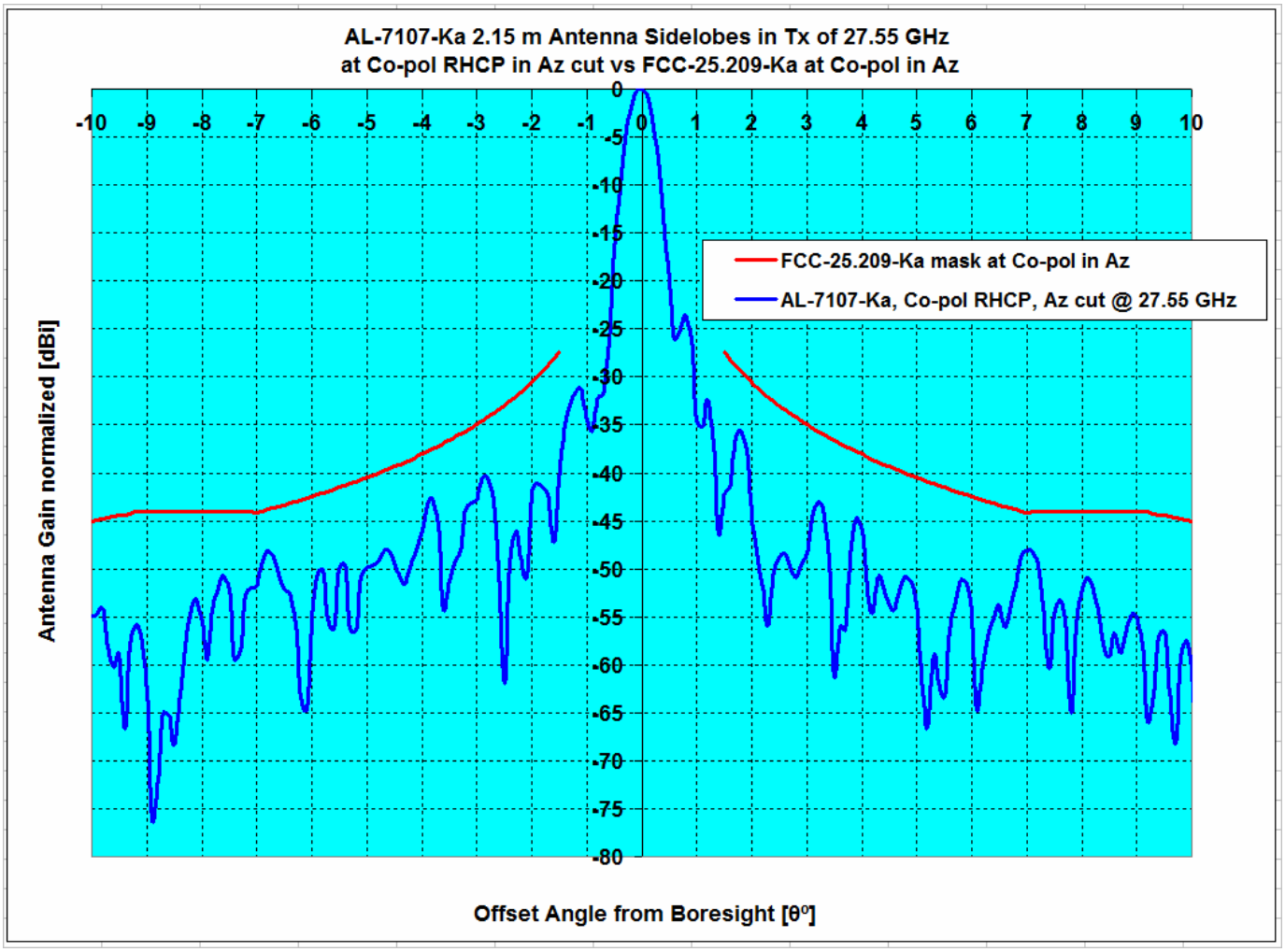
Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Azimuth RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.5°≤θ≤7°	7°≤θ≤180°	1.5°≤θ≤7°	7°≤θ≤180°
FCC-25.209-Ka, Co-pol Az, vs AL-7107-Ka	Az , RHCP	27.55	52.02	-3.99	4.44	0.00%	6.55%

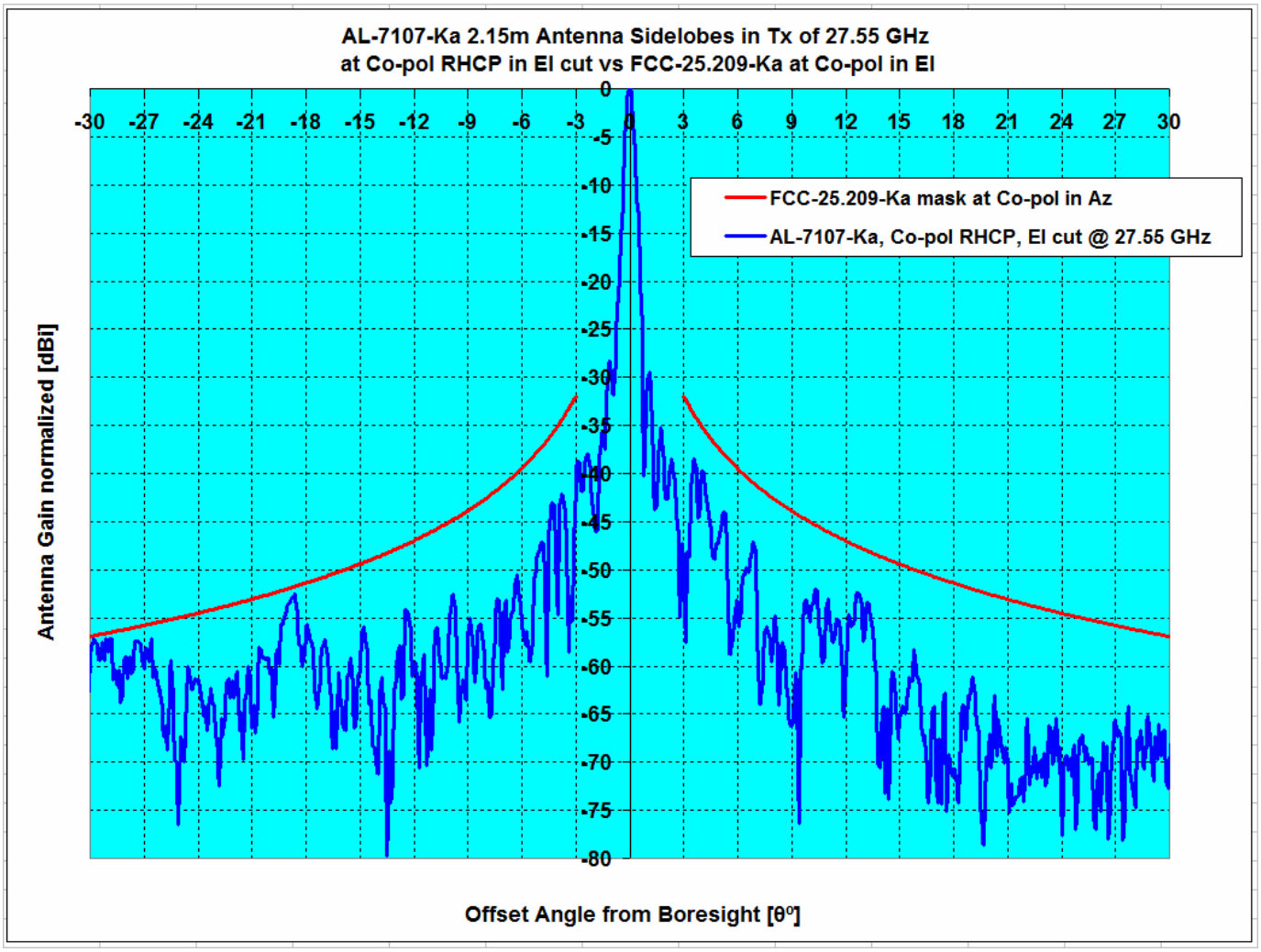
Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Azimuth RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.5°≤θ≤7°	7°≤θ≤180°	1.5°≤θ≤7°	7°≤θ≤180°
FCC-25.209-Ka, Co-pol Az, vs AL-7107-Ka	Az , RHCP	27.55	52.02	-3.99	4.44	0.00%	6.55%

Orbit Communication Systems Ltd.

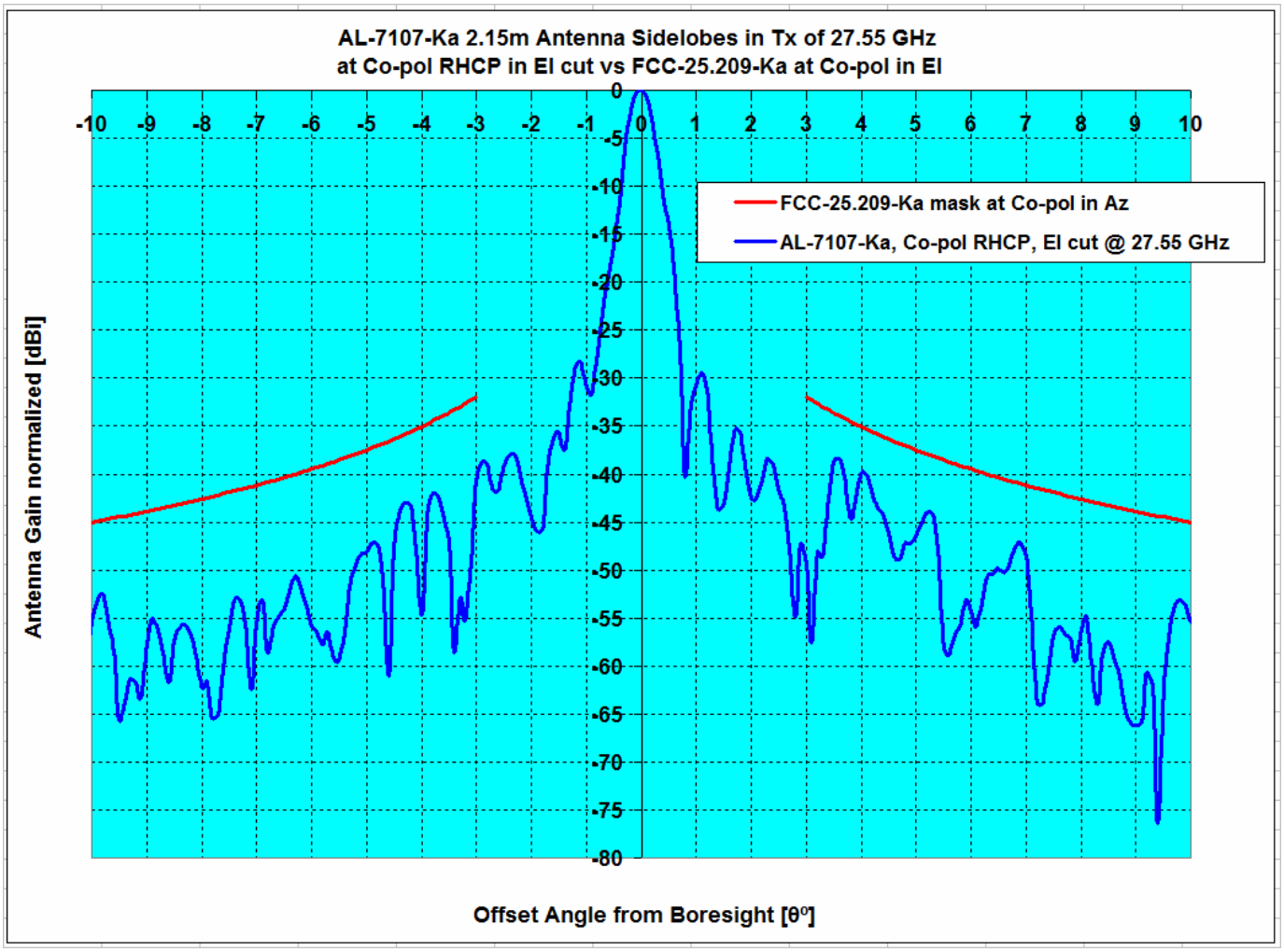
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Elevation RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	3°≤θ≤7°	7°≤θ≤30°	3°≤θ≤7°	7°≤θ≤30°
FCC-25.209-Ka, Co-pol El, vs AL-7107-Ka	El , RHCP	27.55	52.02	-4.53	-0.33	0.00%	0.00%

Orbit Communication Systems Ltd.

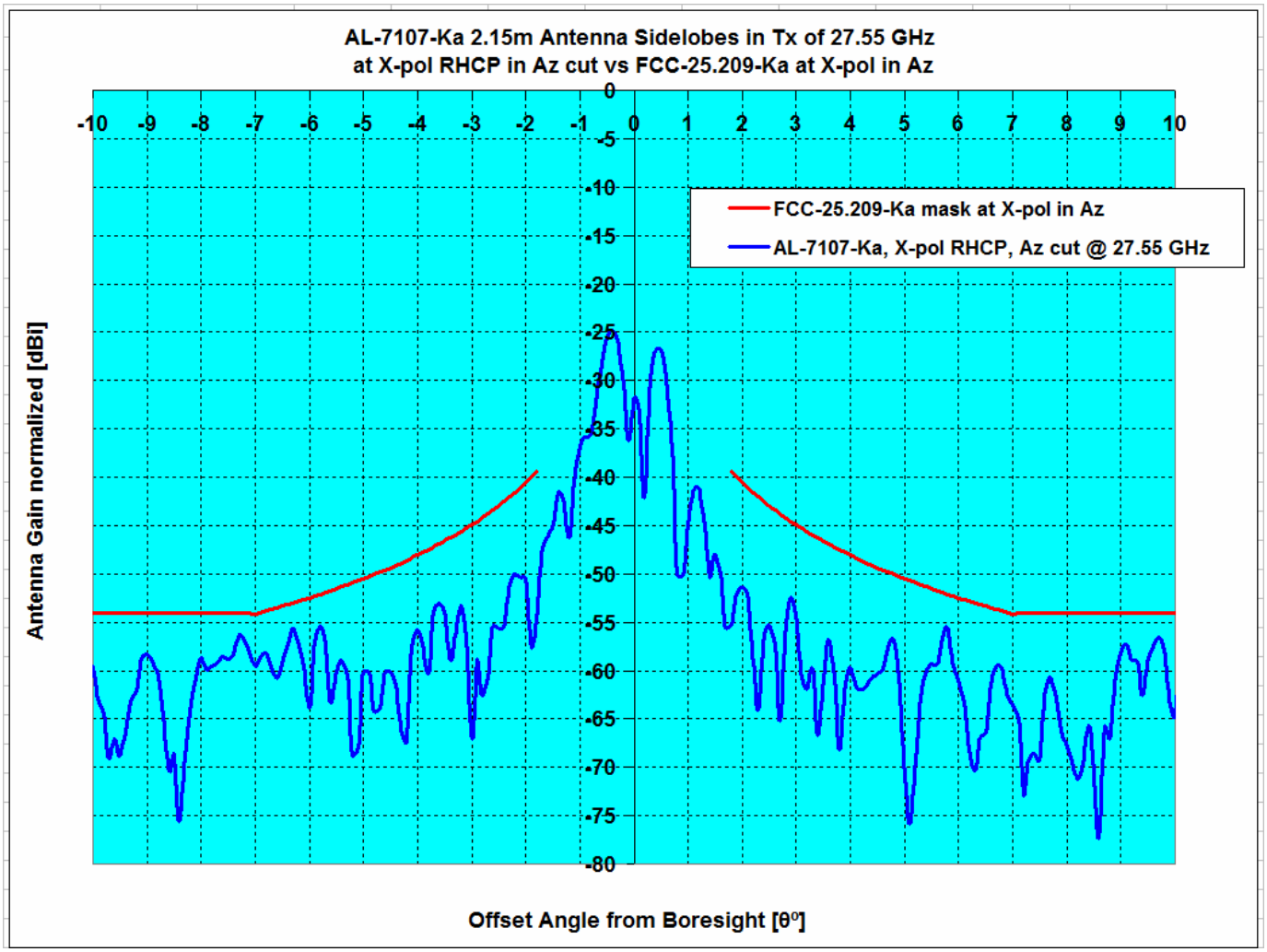
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Elevation RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	3°≤θ≤7°	7°≤θ≤30°	3°≤θ≤7°	7°≤θ≤30°
FCC-25.209-Ka, Co-pol El, vs AL-7107-Ka	El , RHCP	27.55	52.02	-4.53	-0.33	0.00%	0.00%

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern, X-pol, Azimuth RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.8°≤θ≤7°	1.8°≤θ≤9.2°	1.8°≤θ≤7°	1.8°≤θ≤9.2°
FCC-25.209-Ka, X-pol Az, vs AL-7107-Ka	Az , RHCP	27.55	52.02	-2.70	-2.32	0.00%	0.00%

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -180º to +180º @ 1.0º increment

28,30 GHz Antenna Pattern in Co-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-179.0	-23.3	0.0	-23.3
-178.0	-25.3	0.0	-25.3
-177.0	-18.7	0.0	-18.7
-176.0	-27.6	0.0	-27.6
-175.0	-18.5	0.0	-18.5
-174.0	-27.5	0.0	-27.5
-173.0	-21.8	0.0	-21.8
-172.0	-24.4	0.0	-24.4
-171.0	-18.7	0.0	-18.7
-170.0	-27.6	0.0	-27.6
-169.0	-25.5	0.0	-25.5
-168.0	-19.5	0.0	-19.5
-167.0	-20.6	0.0	-20.6
-166.0	-20.1	0.0	-20.1
-165.0	-25.7	0.0	-25.7
-164.0	-27.6	0.0	-27.6
-163.0	-26.7	0.0	-26.7
-162.0	-22.4	0.0	-22.4
-161.0	-22.7	0.0	-22.7
-160.0	-22.7	0.0	-22.7
-159.0	-25.5	0.0	-25.5
-158.0	-22.9	0.0	-22.9
-157.0	-27.6	0.0	-27.6
-156.0	-23.9	0.0	-23.9
-155.0	-16.8	0.0	-16.8
-154.0	-23.9	0.0	-23.9
-153.0	-26.7	0.0	-26.7
-152.0	-18.6	0.0	-18.6
-151.0	-14.8	0.0	-14.8
-150.0	-13.9	0.0	-13.9
-149.0	-15.8	0.0	-15.8
-148.0	-27.6	0.0	-27.6
-147.0	-18.7	0.0	-18.7
-146.0	-17.5	0.0	-17.5
-145.0	-21.6	0.0	-21.6
-144.0	-17.3	0.0	-17.3
-143.0	-18.9	0.0	-18.9
-142.0	-16.5	0.0	-16.5
-141.0	-12.3	0.0	-12.3
-140.0	-15.7	0.0	-15.7
-139.0	-22.2	0.0	-22.2
-138.0	-24.1	0.0	-24.1
-137.0	-17.5	0.0	-17.5
-136.0	-20.8	0.0	-20.8
-135.0	-20.9	0.0	-20.9
-134.0	-25.3	0.0	-25.3
-133.0	-25.5	0.0	-25.5
-132.0	-27.6	0.0	-27.6
-131.0	-27.6	0.0	-27.6
-130.0	-23.4	0.0	-23.4
-129.0	-19.0	0.0	-19.0
-128.0	-27.6	0.0	-27.6
-127.0	-23.5	0.0	-23.5
-126.0	-18.5	0.0	-18.5
-125.0	-27.6	0.0	-27.6
-124.0	-18.9	0.0	-18.9
-123.0	-27.0	0.0	-27.0
-122.0	-16.5	0.0	-16.5
-121.0	-20.3	0.0	-20.3
-120.0	-23.3	0.0	-23.3

28,30 GHz Antenna Pattern in Co-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.4		
1.0	17.1		
2.0	10.6	21.5	-10.9
3.0	0.4	17.1	-16.6
4.0	-7.9	13.9	-21.8
5.0	-1.2	11.5	-12.7
6.0	-10.1	9.5	-19.6
7.0	0.0	7.9	-7.9
8.0	-2.9	8.0	-10.9
9.0	-10.0	8.0	-18.0
10.0	-3.5	7.0	-10.5
11.0	-1.5	6.0	-7.5
12.0	-3.5	5.0	-8.5
13.0	-5.5	4.2	-9.7
14.0	-13.6	3.3	-17.0
15.0	-8.0	2.6	-10.6
16.0	-16.4	1.9	-18.3
17.0	-26.4	1.2	-27.6
18.0	-14.3	0.6	-14.9
19.0	-8.3	0.0	-8.3
20.0	-16.9	-0.5	-16.4
21.0	-18.1	-1.1	-17.1
22.0	-5.9	-1.6	-4.3
23.0	-8.0	-2.0	-6.0
24.0	-10.2	-2.5	-7.7
25.0	-14.9	-2.9	-12.0
26.0	-8.9	-3.4	-5.5
27.0	-7.3	-3.8	-3.5
28.0	-8.6	-4.2	-4.4
29.0	-7.5	-4.6	-2.9
30.0	-8.4	-4.9	-3.4
31.0	-6.4	-5.3	-1.1
32.0	-5.4	-5.6	0.2
33.0	-3.9	-6.0	2.1
34.0	-5.5	-6.3	0.8
35.0	-8.1	-6.6	-1.5
36.0	-4.5	-6.9	2.4
37.0	-7.6	-7.2	-0.4
38.0	-5.0	-7.5	2.5
39.0	-7.1	-7.8	0.7
40.0	-8.0	-8.1	0.1
41.0	-10.5	-8.3	-2.2
42.0	-9.4	-8.6	-0.9
43.0	-11.2	-8.8	-2.3
44.0	-10.3	-9.1	-1.2
45.0	-8.9	-9.3	0.4
46.0	-6.7	-9.6	2.8
47.0	-9.2	-9.8	0.6
48.0	-15.2	-10.0	-5.1
49.0	-13.9	-10.0	-3.9
50.0	-12.6	-10.0	-2.6
51.0	-10.9	-10.0	-0.9
52.0	-10.3	-10.0	-0.3
53.0	-13.6	-10.0	-3.6
54.0	-14.2	-10.0	-4.2
55.0	-22.1	-10.0	-12.1
56.0	-17.3	-10.0	-7.3
57.0	-15.4	-10.0	-5.4
58.0	-15.6	-10.0	-5.6
59.0	-19.4	-10.0	-9.4

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -180º to +180º @ 1.0º increment

-119.0	-20.2	0.0	-20.2
-118.0	-22.4	0.0	-22.4
-117.0	-21.3	0.0	-21.3
-116.0	-22.3	0.0	-22.3
-115.0	-20.2	0.0	-20.2
-114.0	-19.3	0.0	-19.3
-113.0	-27.3	0.0	-27.3
-112.0	-25.8	0.0	-25.8
-111.0	-16.7	0.0	-16.7
-110.0	-19.2	0.0	-19.2
-109.0	-18.1	0.0	-18.1
-108.0	-14.4	0.0	-14.4
-107.0	-22.5	0.0	-22.5
-106.0	-26.4	0.0	-26.4
-105.0	-22.3	0.0	-22.3
-104.0	-22.2	0.0	-22.2
-103.0	-23.8	0.0	-23.8
-102.0	-22.4	0.0	-22.4
-101.0	-27.3	0.0	-27.3
-100.0	-16.1	0.0	-16.1
-99.0	-15.0	0.0	-15.0
-98.0	-17.8	0.0	-17.8
-97.0	-19.5	0.0	-19.5
-96.0	-11.1	0.0	-11.1
-95.0	-14.1	0.0	-14.1
-94.0	-17.9	0.0	-17.9
-93.0	-19.2	0.0	-19.2
-92.0	-15.9	0.0	-15.9
-91.0	-14.9	0.0	-14.9
-90.0	-14.9	0.0	-14.9
-89.0	-15.3	0.0	-15.3
-88.0	-20.4	0.0	-20.4
-87.0	-13.3	0.0	-13.3
-86.0	-14.4	0.0	-14.4
-85.0	-14.4	-10.0	-4.4
-84.0	-15.1	-10.0	-5.1
-83.0	-14.6	-10.0	-4.6
-82.0	-13.1	-10.0	-3.1
-81.0	-16.5	-10.0	-6.5
-80.0	-10.3	-10.0	-0.3
-79.0	-10.0	-10.0	0.0
-78.0	-9.9	-10.0	0.1
-77.0	-12.9	-10.0	-2.9
-76.0	-12.9	-10.0	-2.9
-75.0	-11.4	-10.0	-1.4
-74.0	-11.7	-10.0	-1.7
-73.0	-11.0	-10.0	-1.0
-72.0	-8.9	-10.0	1.1
-71.0	-8.3	-10.0	1.7
-70.0	-6.4	-10.0	3.6
-69.0	-6.4	-10.0	3.6
-68.0	-4.3	-10.0	5.7
-67.0	-6.6	-10.0	3.4
-66.0	-6.1	-10.0	3.9
-65.0	-7.0	-10.0	3.0
-64.0	-7.3	-10.0	2.7
-63.0	-8.4	-10.0	1.6
-62.0	-9.1	-10.0	0.9
-61.0	-9.8	-10.0	0.2
-60.0	-8.9	-10.0	1.1
-59.0	-10.2	-10.0	-0.2
-58.0	-11.1	-10.0	-1.1
-57.0	-14.7	-10.0	-4.7

60.0	-17.8	-10.0	-7.8
61.0	-26.4	-10.0	-16.4
62.0	-20.4	-10.0	-10.4
63.0	-12.8	-10.0	-2.8
64.0	-19.5	-10.0	-9.5
65.0	-12.2	-10.0	-2.2
66.0	-20.0	-10.0	-10.0
67.0	-18.8	-10.0	-8.8
68.0	-25.8	-10.0	-15.8
69.0	-16.0	-10.0	-6.0
70.0	-24.6	-10.0	-14.6
71.0	-25.0	-10.0	-15.0
72.0	-23.0	-10.0	-13.0
73.0	-15.9	-10.0	-5.9
74.0	-20.0	-10.0	-10.0
75.0	-19.5	-10.0	-9.5
76.0	-21.6	-10.0	-11.6
77.0	-20.9	-10.0	-10.9
78.0	-27.6	-10.0	-17.6
79.0	-23.2	-10.0	-13.2
80.0	-27.0	-10.0	-17.0
81.0	-26.4	-10.0	-16.4
82.0	-22.3	-10.0	-12.3
83.0	-27.5	-10.0	-17.5
84.0	-22.5	-10.0	-12.5
85.0	-27.6	-10.0	-17.6
86.0	-18.4	0.0	-18.4
87.0	-25.3	0.0	-25.3
88.0	-23.9	0.0	-23.9
89.0	-27.6	0.0	-27.6
90.0	-23.1	0.0	-23.1
91.0	-22.6	0.0	-22.6
92.0	-25.5	0.0	-25.5
93.0	-27.6	0.0	-27.6
94.0	-27.6	0.0	-27.6
95.0	-21.9	0.0	-21.9
96.0	-20.2	0.0	-20.2
97.0	-21.6	0.0	-21.6
98.0	-19.0	0.0	-19.0
99.0	-23.9	0.0	-23.9
100.0	-27.2	0.0	-27.2
101.0	-22.1	0.0	-22.1
102.0	-18.8	0.0	-18.8
103.0	-23.2	0.0	-23.2
104.0	-27.6	0.0	-27.6
105.0	-27.6	0.0	-27.6
106.0	-27.6	0.0	-27.6
107.0	-21.8	0.0	-21.8
108.0	-21.0	0.0	-21.0
109.0	-23.5	0.0	-23.5
110.0	-27.6	0.0	-27.6
111.0	-20.2	0.0	-20.2
112.0	-27.6	0.0	-27.6
113.0	-27.6	0.0	-27.6
114.0	-21.8	0.0	-21.8
115.0	-21.3	0.0	-21.3
116.0	-24.5	0.0	-24.5
117.0	-25.8	0.0	-25.8
118.0	-23.8	0.0	-23.8
119.0	-22.4	0.0	-22.4
120.0	-23.4	0.0	-23.4
121.0	-20.5	0.0	-20.5
122.0	-26.9	0.0	-26.9

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -180º to +180º @ 1.0º increment

-56.0	-15.3	-10.0	-5.3
-55.0	-14.7	-10.0	-4.7
-54.0	-16.3	-10.0	-6.3
-53.0	-14.3	-10.0	-4.3
-52.0	-18.2	-10.0	-8.2
-51.0	-15.7	-10.0	-5.7
-50.0	-18.2	-10.0	-8.2
-49.0	-14.3	-10.0	-4.3
-48.0	-14.6	-10.0	-4.6
-47.0	-20.8	-9.8	-11.0
-46.0	-17.9	-9.6	-8.3
-45.0	-19.1	-9.3	-9.8
-44.0	-16.5	-9.1	-7.5
-43.0	-17.2	-8.8	-8.3
-42.0	-16.8	-8.6	-8.2
-41.0	-10.7	-8.3	-2.4
-40.0	-27.6	-8.1	-19.5
-39.0	-17.2	-7.8	-9.4
-38.0	-16.3	-7.5	-8.8
-37.0	-20.2	-7.2	-13.0
-36.0	-15.6	-6.9	-8.7
-35.0	-22.8	-6.6	-16.2
-34.0	-18.4	-6.3	-12.1
-33.0	-25.3	-6.0	-19.3
-32.0	-16.2	-5.6	-10.5
-31.0	-16.0	-5.3	-10.8
-30.0	-20.2	-4.9	-15.2
-29.0	-20.2	-4.6	-15.7
-28.0	-19.2	-4.2	-15.1
-27.0	-21.7	-3.8	-17.9
-26.0	-11.8	-3.4	-8.4
-25.0	-18.8	-2.9	-15.9
-24.0	-17.6	-2.5	-15.1
-23.0	-19.8	-2.0	-17.7
-22.0	-17.5	-1.6	-15.9
-21.0	-22.7	-1.1	-21.6
-20.0	-24.2	-0.5	-23.7
-19.0	-17.9	0.0	-17.9
-18.0	-17.0	0.6	-17.6
-17.0	-14.6	1.2	-15.8
-16.0	-24.2	1.9	-26.1
-15.0	-27.6	2.6	-30.2
-14.0	-10.3	3.3	-13.6
-13.0	-14.8	4.2	-19.0
-12.0	-7.3	5.0	-12.3
-11.0	-10.9	6.0	-16.9
-10.0	-7.9	7.0	-14.9
-9.0	-17.0	8.0	-25.0
-8.0	-11.4	8.0	-19.4
-7.0	-0.8	7.9	-8.7
-6.0	-1.1	9.5	-10.7
-5.0	5.0	11.5	-6.6
-4.0	9.5	13.9	-4.5
-3.0	4.9	17.1	-12.1
-2.0	12.5	21.5	-9.0
-1.0	20.8		
0.0	52.4		

123.0	-21.4	0.0	-21.4
124.0	-27.6	0.0	-27.6
125.0	-21.1	0.0	-21.1
126.0	-27.6	0.0	-27.6
127.0	-27.6	0.0	-27.6
128.0	-27.6	0.0	-27.6
129.0	-23.1	0.0	-23.1
130.0	-23.0	0.0	-23.0
131.0	-19.2	0.0	-19.2
132.0	-27.6	0.0	-27.6
133.0	-25.8	0.0	-25.8
134.0	-26.2	0.0	-26.2
135.0	-22.5	0.0	-22.5
136.0	-22.1	0.0	-22.1
137.0	-25.2	0.0	-25.2
138.0	-22.2	0.0	-22.2
139.0	-27.6	0.0	-27.6
140.0	-24.7	0.0	-24.7
141.0	-24.0	0.0	-24.0
142.0	-27.2	0.0	-27.2
143.0	-26.3	0.0	-26.3
144.0	-23.6	0.0	-23.6
145.0	-26.1	0.0	-26.1
146.0	-27.6	0.0	-27.6
147.0	-27.6	0.0	-27.6
148.0	-26.3	0.0	-26.3
149.0	-23.5	0.0	-23.5
150.0	-25.5	0.0	-25.5
151.0	-27.6	0.0	-27.6
152.0	-27.6	0.0	-27.6
153.0	-22.1	0.0	-22.1
154.0	-27.6	0.0	-27.6
155.0	-27.6	0.0	-27.6
156.0	-26.4	0.0	-26.4
157.0	-27.6	0.0	-27.6
158.0	-27.6	0.0	-27.6
159.0	-23.9	0.0	-23.9
160.0	-22.1	0.0	-22.1
161.0	-19.4	0.0	-19.4
162.0	-18.4	0.0	-18.4
163.0	-25.6	0.0	-25.6
164.0	-20.1	0.0	-20.1
165.0	-23.4	0.0	-23.4
166.0	-21.0	0.0	-21.0
167.0	-27.6	0.0	-27.6
168.0	-22.7	0.0	-22.7
169.0	-23.9	0.0	-23.9
170.0	-18.5	0.0	-18.5
171.0	-22.5	0.0	-22.5
172.0	-23.6	0.0	-23.6
173.0	-22.5	0.0	-22.5
174.0	-27.6	0.0	-27.6
175.0	-27.6	0.0	-27.6
176.0	-27.2	0.0	-27.2
177.0	-27.2	0.0	-27.2
178.0	-23.6	0.0	-23.6
179.0	-23.9	0.0	-23.9

Orbit Communication Systems Ltd.

AL AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -10º to +10º @ 0.1º increment

28.30 GHz Antenna Pattern in Co-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-7.9	7.0	-14.9
-9.9	-7.5	7.1	-14.6
-9.8	-7.3	7.2	-14.5
-9.7	-6.2	7.3	-13.6
-9.6	-10.2	7.4	-17.7
-9.5	-7.7	7.6	-15.3
-9.4	-3.9	7.7	-11.6
-9.3	-1.9	7.8	-9.7
-9.2	-2.5	8.0	-10.5
-9.1	-6.7	8.0	-14.7
-9.0	-17.0	8.0	-25.0
-8.9	-11.6	8.0	-19.6
-8.8	-13.7	8.0	-21.7
-8.7	-15.7	8.0	-23.7
-8.6	-14.7	8.0	-22.7
-8.5	-15.2	8.0	-23.2
-8.4	-14.5	8.0	-22.5
-8.3	-27.6	8.0	-35.6
-8.2	-15.5	8.0	-23.5
-8.1	-13.2	8.0	-21.2
-8.0	-11.4	8.0	-19.4
-7.9	-5.7	8.0	-13.7
-7.8	-4.5	8.0	-12.5
-7.7	-4.8	8.0	-12.8
-7.6	-4.4	8.0	-12.4
-7.5	-5.4	8.0	-13.4
-7.4	-4.0	8.0	-12.0
-7.3	-1.9	8.0	-9.9
-7.2	-5.1	8.0	-13.1
-7.1	-10.7	8.0	-18.7
-7.0	-0.8	7.9	-8.7
-6.9	1.4	8.0	-6.6
-6.8	2.7	8.2	-5.5
-6.7	4.1	8.3	-4.2
-6.6	4.3	8.5	-4.2
-6.5	2.5	8.7	-6.1
-6.4	-0.1	8.8	-9.0
-6.3	-1.7	9.0	-10.7
-6.2	0.4	9.2	-8.8
-6.1	1.4	9.4	-8.0
-6.0	-1.1	9.5	-10.7
-5.9	-0.8	9.7	-10.5
-5.8	0.9	9.9	-9.0
-5.7	0.3	10.1	-9.8
-5.6	-5.1	10.3	-15.4
-5.5	-5.4	10.5	-15.9
-5.4	2.2	10.7	-8.5
-5.3	2.3	10.9	-8.6
-5.2	-5.1	11.1	-16.2
-5.1	-0.3	11.3	-11.6
-5.0	5.0	11.5	-6.6
-4.9	5.3	11.7	-6.4
-4.8	1.6	12.0	-10.3
-4.7	-2.7	12.2	-14.9
-4.6	4.3	12.4	-8.1
-4.5	6.4	12.7	-6.3
-4.4	4.7	12.9	-8.3
-4.3	0.3	13.2	-12.9
-4.2	-5.9	13.4	-19.3
-4.1	1.0	13.7	-12.7

28.30 GHz Antenna Pattern in Co-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.4		
0.1	51.9		
0.2	49.6		
0.3	45.6		
0.4	40.0		
0.5	34.3		
0.6	28.3		
0.7	29.1		
0.8	30.4		
0.9	27.7		
1.0	17.1		
1.1	19.1		
1.2	19.7		
1.3	14.1		
1.4	10.6		
1.5	10.4	24.6	-14.2
1.6	12.5	23.9	-11.4
1.7	16.5	23.2	-6.7
1.8	16.4	22.6	-6.3
1.9	13.5	22.0	-8.6
2.0	10.6	21.5	-10.9
2.1	5.3	20.9	-15.7
2.2	-3.7	20.4	-24.2
2.3	7.1	20.0	-12.8
2.4	8.6	19.5	-10.9
2.5	7.4	19.1	-11.7
2.6	4.7	18.6	-13.9
2.7	-1.5	18.2	-19.8
2.8	-9.7	17.8	-27.5
2.9	-2.4	17.4	-19.9
3.0	0.4	17.1	-16.6
3.1	4.8	16.7	-11.9
3.2	5.2	16.4	-11.2
3.3	2.7	16.0	-13.3
3.4	0.3	15.7	-15.4
3.5	-4.6	15.4	-20.0
3.6	-1.8	15.1	-16.9
3.7	5.0	14.8	-9.8
3.8	5.1	14.5	-9.4
3.9	0.1	14.2	-14.1
4.0	-7.9	13.9	-21.8
4.1	-2.9	13.7	-16.5
4.2	-5.2	13.4	-18.6
4.3	0.5	13.2	-12.7
4.4	2.8	12.9	-10.2
4.5	4.0	12.7	-8.7
4.6	4.5	12.4	-7.9
4.7	3.2	12.2	-9.0
4.8	-6.3	12.0	-18.3
4.9	-4.0	11.7	-15.7
5.0	-1.2	11.5	-12.7
5.1	-6.6	11.3	-17.9
5.2	-2.6	11.1	-13.7
5.3	-0.6	10.9	-11.5
5.4	-4.5	10.7	-15.2
5.5	-5.2	10.5	-15.7
5.6	0.1	10.3	-10.2
5.7	1.1	10.1	-9.1
5.8	1.4	9.9	-8.5
5.9	-1.1	9.7	-10.8

Orbit Communication Systems Ltd.

AL AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -10º to +10º @ 0.1º increment

-4.0	9.5	13.9	-4.5
-3.9	12.0	14.2	-2.2
-3.8	10.5	14.5	-4.0
-3.7	0.9	14.8	-13.9
-3.6	7.0	15.1	-8.1
-3.5	10.2	15.4	-5.2
-3.4	8.9	15.7	-6.8
-3.3	4.9	16.0	-11.2
-3.2	7.7	16.4	-8.6
-3.1	8.8	16.7	-7.9
-3.0	4.9	17.1	-12.1
-2.9	6.6	17.4	-10.9
-2.8	9.6	17.8	-8.2
-2.7	8.5	18.2	-9.7
-2.6	1.6	18.6	-17.0
-2.5	-4.6	19.1	-23.7
-2.4	-0.9	19.5	-20.4
-2.3	6.5	20.0	-13.5
-2.2	7.1	20.4	-13.4
-2.1	7.4	20.9	-13.6
-2.0	12.5	21.5	-9.0
-1.9	12.9	22.0	-9.2
-1.8	7.2	22.6	-15.4
-1.7	8.8	23.2	-14.4
-1.6	9.7	23.9	-14.2
-1.5	4.7	24.6	-19.9
-1.4	17.3		
-1.3	19.9		
-1.2	20.4		
-1.1	21.2		
-1.0	20.8		
-0.9	16.1		
-0.8	11.8		
-0.7	10.5		
-0.6	18.5		
-0.5	30.7		
-0.4	39.7		
-0.3	45.8		
-0.2	49.9		
-0.1	51.9		
0.0	52.4		

6.0	-10.1	9.5	-19.6
6.1	-3.1	9.4	-12.5
6.2	-0.2	9.2	-9.3
6.3	0.3	9.0	-8.7
6.4	2.0	8.8	-6.8
6.5	2.0	8.7	-6.7
6.6	0.6	8.5	-7.9
6.7	-0.4	8.3	-8.7
6.8	0.7	8.2	-7.5
6.9	1.3	8.0	-6.7
7.0	0.0	7.9	-7.9
7.1	-2.4	8.0	-10.4
7.2	-10.1	8.0	-18.1
7.3	-6.8	8.0	-14.8
7.4	-1.8	8.0	-9.8
7.5	-1.8	8.0	-9.8
7.6	-4.5	8.0	-12.5
7.7	-6.0	8.0	-14.0
7.8	-6.1	8.0	-14.1
7.9	-3.7	8.0	-11.7
8.0	-2.9	8.0	-10.9
8.1	-5.1	8.0	-13.1
8.2	-9.7	8.0	-17.7
8.3	-4.4	8.0	-12.4
8.4	-6.2	8.0	-14.2
8.5	-6.3	8.0	-14.3
8.6	-6.4	8.0	-14.4
8.7	-4.5	8.0	-12.5
8.8	-5.4	8.0	-13.4
8.9	-7.9	8.0	-15.9
9.0	-10.0	8.0	-18.0
9.1	-7.4	8.0	-15.4
9.2	-5.8	8.0	-13.8
9.3	-4.6	7.8	-12.4
9.4	-6.5	7.7	-14.2
9.5	-12.0	7.6	-19.6
9.6	-9.3	7.4	-16.8
9.7	-4.9	7.3	-12.3
9.8	-3.7	7.2	-11.0
9.9	-3.3	7.1	-10.4
10.0	-3.5	7.0	-10.5

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation LHCP, -30º to +30º @ 0.5º increment

28.30 GHz Antenna Pattern in Co-pol El LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-30.0	-8.9	-4.9	-4.0
-29.5	-8.2	-4.7	-3.5
-29.0	-11.1	-4.6	-6.6
-28.5	-9.4	-4.4	-5.1
-28.0	-10.5	-4.2	-6.4
-27.5	-11.4	-4.0	-7.4
-27.0	-14.6	-3.8	-10.8
-26.5	-11.7	-3.6	-8.2
-26.0	-13.1	-3.4	-9.7
-25.5	-11.1	-3.2	-7.9
-25.0	-7.1	-2.9	-4.1
-24.5	-6.9	-2.7	-4.2
-24.0	-6.2	-2.5	-3.7
-23.5	-16.4	-2.3	-14.1
-23.0	-19.0	-2.0	-17.0
-22.5	-9.0	-1.8	-7.2
-22.0	-5.7	-1.6	-4.1
-21.5	-5.0	-1.3	-3.7
-21.0	-13.8	-1.1	-12.7
-20.5	-5.7	-0.8	-4.9
-20.0	-6.0	-0.5	-5.5
-19.5	-1.6	-0.3	-1.3
-19.0	-1.6	0.0	-1.6
-18.5	-2.8	0.3	-3.1
-18.0	-14.4	0.6	-15.0
-17.5	-23.5	0.9	-24.4
-17.0	-15.1	1.2	-16.4
-16.5	-14.3	1.6	-15.9
-16.0	-18.3	1.9	-20.2
-15.5	-13.5	2.2	-15.8
-15.0	-9.1	2.6	-11.7
-14.5	-17.0	3.0	-19.9
-14.0	-2.1	3.3	-5.4
-13.5	-6.7	3.7	-10.5
-13.0	-9.7	4.2	-13.9
-12.5	-11.8	4.6	-16.4
-12.0	-6.5	5.0	-11.5
-11.5	-6.0	5.5	-11.5
-11.0	-13.0	6.0	-19.0
-10.5	-10.3	6.5	-16.8
-10.0	-6.5	7.0	-13.5
-9.5	-6.6	7.6	-14.2
-9.0	-2.8	8.1	-10.9
-8.5	-8.5	8.8	-17.2
-8.0	-2.4	9.4	-11.8
-7.5	-10.0	10.1	-20.2
-7.0	-2.0	10.9	-12.9
-6.5	-5.7	11.7	-17.4
-6.0	-1.1	12.5	-13.7
-5.5	-1.6	13.5	-15.1
-5.0	1.5	14.5	-13.1
-4.5	1.5	15.7	-14.2
-4.0	2.9	16.9	-14.0
-3.5	4.7	18.4	-13.7
-3.0	10.6		
-2.5	9.4		
-2.0	8.1		
-1.5	17.9		
-1.0	21.1		
-0.5	35.7		
0.0	52.4		

28.30 GHz Antenna Pattern in Co-pol El LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.4		
0.5	38.0		
1.0	16.8		
1.5	9.7		
2.0	5.4		
2.5	10.1		
3.0	7.5		
3.5	8.5	18.4	-9.9
4.0	13.0	16.9	-4.0
4.5	-1.0	15.7	-16.6
5.0	7.3	14.5	-7.2
5.5	-12.4	13.5	-25.9
6.0	-1.8	12.5	-14.4
6.5	0.9	11.7	-10.8
7.0	-1.8	10.9	-12.7
7.5	-12.0	10.1	-22.1
8.0	-14.6	9.4	-24.0
8.5	-1.5	8.8	-10.3
9.0	-2.8	8.1	-11.0
9.5	-9.7	7.6	-17.3
10.0	-0.2	7.0	-7.2
10.5	-4.7	6.5	-11.1
11.0	-8.1	6.0	-14.1
11.5	-13.2	5.5	-18.6
12.0	-13.1	5.0	-18.1
12.5	-5.9	4.6	-10.5
13.0	-4.3	4.2	-8.4
13.5	-8.9	3.7	-12.6
14.0	-17.5	3.3	-20.8
14.5	-12.7	3.0	-15.7
15.0	-12.0	2.6	-14.6
15.5	-15.1	2.2	-17.4
16.0	-18.5	1.9	-20.3
16.5	-16.7	1.6	-18.2
17.0	-15.4	1.2	-16.7
17.5	-22.5	0.9	-23.5
18.0	-13.5	0.6	-14.1
18.5	-17.0	0.3	-17.3
19.0	-12.1	0.0	-12.1
19.5	-12.8	-0.3	-12.6
20.0	-18.1	-0.5	-17.6
20.5	-12.0	-0.8	-11.2
21.0	-26.3	-1.1	-25.3
21.5	-26.9	-1.3	-25.6
22.0	-18.6	-1.6	-17.1
22.5	-12.9	-1.8	-11.1
23.0	-16.0	-2.0	-14.0
23.5	-15.0	-2.3	-12.7
24.0	-21.6	-2.5	-19.1
24.5	-19.9	-2.7	-17.2
25.0	-15.4	-2.9	-12.4
25.5	-19.2	-3.2	-16.1
26.0	-27.6	-3.4	-24.2
26.5	-19.8	-3.6	-16.2
27.0	-20.5	-3.8	-16.7
27.5	-15.7	-4.0	-11.7
28.0	-14.3	-4.2	-10.1
28.5	-17.6	-4.4	-13.2
29.0	-17.5	-4.6	-13.0
29.5	-15.3	-4.7	-10.6
30.0	-24.6	-4.9	-19.7

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation LHCP, -10º to +10º @ 0.1º increment

28.30 GHz Antenna Pattern in Co-pol El LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-6.5	7.0	-13.5
-9.9	-5.3	7.1	-12.4
-9.8	-7.3	7.2	-14.5
-9.7	-12.0	7.3	-19.3
-9.6	-7.5	7.4	-15.0
-9.5	-6.6	7.6	-14.2
-9.4	-10.3	7.7	-18.0
-9.3	-12.4	7.8	-20.2
-9.2	-5.1	7.9	-13.0
-9.1	-2.8	8.0	-10.8
-9.0	-2.8	8.1	-10.9
-8.9	-5.3	8.3	-13.6
-8.8	-14.1	8.4	-22.5
-8.7	-9.5	8.5	-18.0
-8.6	-5.6	8.6	-14.3
-8.5	-8.5	8.8	-17.2
-8.4	-6.1	8.9	-15.0
-8.3	-3.3	9.0	-12.3
-8.2	-1.8	9.2	-10.9
-8.1	-1.4	9.3	-10.7
-8.0	-2.4	9.4	-11.8
-7.9	-4.4	9.6	-14.0
-7.8	-10.6	9.7	-20.3
-7.7	-12.2	9.8	-22.1
-7.6	-12.1	10.0	-22.1
-7.5	-10.0	10.1	-20.2
-7.4	-4.2	10.3	-14.4
-7.3	-0.7	10.4	-11.1
-7.2	1.7	10.6	-8.8
-7.1	1.9	10.7	-8.9
-7.0	-2.0	10.9	-12.9
-6.9	-14.1	11.0	-25.2
-6.8	-0.9	11.2	-12.1
-6.7	-0.4	11.3	-11.8
-6.6	-4.8	11.5	-16.3
-6.5	-5.7	11.7	-17.4
-6.4	-2.0	11.8	-13.8
-6.3	-1.0	12.0	-13.1
-6.2	0.0	12.2	-12.2
-6.1	-0.6	12.4	-13.0
-6.0	-1.1	12.5	-13.7
-5.9	0.3	12.7	-12.4
-5.8	1.5	12.9	-11.4
-5.7	0.3	13.1	-12.8
-5.6	-0.9	13.3	-14.2
-5.5	-1.6	13.5	-15.1
-5.4	-4.1	13.7	-17.8
-5.3	0.1	13.9	-13.8
-5.2	3.6	14.1	-10.5
-5.1	3.5	14.3	-10.8
-5.0	1.5	14.5	-13.1
-4.9	-0.7	14.7	-15.4
-4.8	-0.4	15.0	-15.4
-4.7	1.2	15.2	-14.0
-4.6	2.0	15.4	-13.5
-4.5	1.5	15.7	-14.2
-4.4	3.1	15.9	-12.8
-4.3	5.7	16.2	-10.4
-4.2	7.0	16.4	-9.4
-4.1	6.3	16.7	-10.3

28.30 GHz Antenna Pattern in Co-pol El LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.4		
0.1	51.7		
0.2	49.3		
0.3	45.2		
0.4	40.9		
0.5	38.0		
0.6	33.6		
0.7	24.4		
0.8	16.4		
0.9	17.4		
1.0	16.8		
1.1	19.0		
1.2	16.6		
1.3	7.2		
1.4	9.1		
1.5	9.7		
1.6	14.0		
1.7	14.6		
1.8	10.6		
1.9	6.2		
2.0	5.4		
2.1	6.5		
2.2	10.9		
2.3	11.6		
2.4	10.9		
2.5	10.1		
2.6	7.0		
2.7	-3.3		
2.8	-9.3		
2.9	-2.2		
3.0	7.5		
3.1	9.7		
3.2	7.5		
3.3	1.4		
3.4	4.6		
3.5	8.5	18.4	-9.9
3.6	9.7	18.1	-8.4
3.7	9.0	17.8	-8.8
3.8	9.2	17.5	-8.3
3.9	12.3	17.2	-4.9
4.0	13.0	16.9	-4.0
4.1	12.7	16.7	-4.0
4.2	12.9	16.4	-3.5
4.3	12.6	16.2	-3.6
4.4	9.1	15.9	-6.9
4.5	-1.0	15.7	-16.6
4.6	-7.0	15.4	-22.4
4.7	-1.9	15.2	-17.1
4.8	4.2	15.0	-10.8
4.9	6.8	14.7	-8.0
5.0	7.3	14.5	-7.2
5.1	6.7	14.3	-7.6
5.2	4.8	14.1	-9.3
5.3	1.3	13.9	-12.6
5.4	-1.9	13.7	-15.6
5.5	-12.4	13.5	-25.9
5.6	-5.0	13.3	-18.3
5.7	0.0	13.1	-13.1
5.8	-1.3	12.9	-14.3
5.9	-6.0	12.7	-18.7

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation LHCP, -10º to +10º @ 0.1º increment

-4.0	2.9	16.9	-14.0
-3.9	-1.8	17.2	-19.0
-3.8	5.8	17.5	-11.7
-3.7	7.7	17.8	-10.1
-3.6	7.0	18.1	-11.0
-3.5	4.7	18.4	-13.7
-3.4	0.9		
-3.3	0.6		
-3.2	0.5		
-3.1	1.5		
-3.0	10.6		
-2.9	14.0		
-2.8	14.1		
-2.7	12.0		
-2.6	8.0		
-2.5	9.4		
-2.4	10.8		
-2.3	12.3		
-2.2	12.8		
-2.1	11.1		
-2.0	8.1		
-1.9	7.1		
-1.8	5.3		
-1.7	8.7		
-1.6	15.0		
-1.5	17.9		
-1.4	16.7		
-1.3	15.9		
-1.2	21.3		
-1.1	22.6		
-1.0	21.1		
-0.9	22.1		
-0.8	25.1		
-0.7	29.3		
-0.6	33.2		
-0.5	35.7		
-0.4	40.4		
-0.3	46.0		
-0.2	49.9		
-0.1	52.0		
0.0	52.4		

6.0	-1.8	12.5	-14.4
6.1	-1.0	12.4	-13.4
6.2	-1.6	12.2	-13.8
6.3	-2.7	12.0	-14.7
6.4	-2.0	11.8	-13.8
6.5	0.9	11.7	-10.8
6.6	3.8	11.5	-7.7
6.7	3.5	11.3	-7.9
6.8	2.2	11.2	-9.0
6.9	-0.5	11.0	-11.5
7.0	-1.8	10.9	-12.7
7.1	-6.2	10.7	-16.9
7.2	-2.1	10.6	-12.7
7.3	1.2	10.4	-9.3
7.4	-0.4	10.3	-10.6
7.5	-12.0	10.1	-22.1
7.6	-7.3	10.0	-17.3
7.7	-5.2	9.8	-15.1
7.8	-10.2	9.7	-19.9
7.9	-22.4	9.6	-31.9
8.0	-14.6	9.4	-24.0
8.1	-12.6	9.3	-21.9
8.2	-8.3	9.2	-17.5
8.3	-6.0	9.0	-15.0
8.4	-2.6	8.9	-11.5
8.5	-1.5	8.8	-10.3
8.6	-4.8	8.6	-13.4
8.7	-4.8	8.5	-13.3
8.8	-4.6	8.4	-13.0
8.9	-2.5	8.3	-10.8
9.0	-2.8	8.1	-11.0
9.1	-7.6	8.0	-15.6
9.2	-11.6	7.9	-19.5
9.3	-9.0	7.8	-16.8
9.4	-8.8	7.7	-16.5
9.5	-9.7	7.6	-17.3
9.6	-18.5	7.4	-25.9
9.7	-5.2	7.3	-12.5
9.8	-2.0	7.2	-9.2
9.9	0.0	7.1	-7.1
10.0	-0.2	7.0	-7.2

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
X-pol Azimuth LHCP, -10º to +10º @ 0.1º increment

28.30 GHz Antenna Pattern in X-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-15.9	-2.0	-13.9
-9.9	-15.9	-2.0	-13.9
-9.8	-14.2	-2.0	-12.2
-9.7	-15.2	-2.0	-13.2
-9.6	-15.9	-2.0	-13.9
-9.5	-14.2	-2.0	-12.2
-9.4	-13.6	-2.0	-11.6
-9.3	-12.0	-2.0	-10.0
-9.2	-10.0	-2.0	-8.0
-9.1	-6.9	-2.0	-4.9
-9.0	-5.1	-2.0	-3.1
-8.9	-4.4	-2.0	-2.4
-8.8	-5.7	-2.0	-3.7
-8.7	-7.2	-2.0	-5.2
-8.6	-9.3	-2.0	-7.3
-8.5	-8.9	-2.0	-6.9
-8.4	-7.8	-2.0	-5.8
-8.3	-7.1	-2.0	-5.1
-8.2	-9.5	-2.0	-7.5
-8.1	-11.9	-2.0	-9.9
-8.0	-11.6	-2.0	-9.6
-7.9	-9.8	-2.0	-7.8
-7.8	-8.4	-2.0	-6.4
-7.7	-9.4	-2.0	-7.4
-7.6	-12.9	-2.0	-10.9
-7.5	-10.3	-2.0	-8.3
-7.4	-6.0	-2.0	-4.0
-7.3	-4.1	-2.0	-2.1
-7.2	-5.1	-2.0	-3.1
-7.1	-5.0	-2.0	-3.0
-7.0	-3.3	-2.1	-1.1
-6.9	-0.9	-2.0	1.0
-6.8	-0.7	-1.8	1.1
-6.7	-2.7	-1.7	-1.1
-6.6	-9.5	-1.5	-8.1
-6.5	-7.1	-1.3	-5.8
-6.4	-6.9	-1.2	-5.7
-6.3	-11.1	-1.0	-10.1
-6.2	-15.5	-0.8	-14.7
-6.1	-11.7	-0.6	-11.0
-6.0	-12.3	-0.5	-11.8
-5.9	-11.9	-0.3	-11.6
-5.8	-9.1	-0.1	-9.1
-5.7	-8.2	0.1	-8.3
-5.6	-13.6	0.3	-13.9
-5.5	-21.4	0.5	-21.9
-5.4	-10.1	0.7	-10.8
-5.3	-4.1	0.9	-5.0
-5.2	-2.2	1.1	-3.3
-5.1	-2.2	1.3	-3.6
-5.0	-8.1	1.5	-9.6
-4.9	-7.5	1.7	-9.3
-4.8	-2.9	2.0	-4.9
-4.7	-3.6	2.2	-5.8
-4.6	-10.3	2.4	-12.8
-4.5	-11.7	2.7	-14.4
-4.4	-13.9	2.9	-16.8
-4.3	-3.8	3.2	-7.0
-4.2	-0.2	3.4	-3.7
-4.1	-0.8	3.7	-4.5

28.30 GHz Antenna Pattern in X-pol Az LHCP

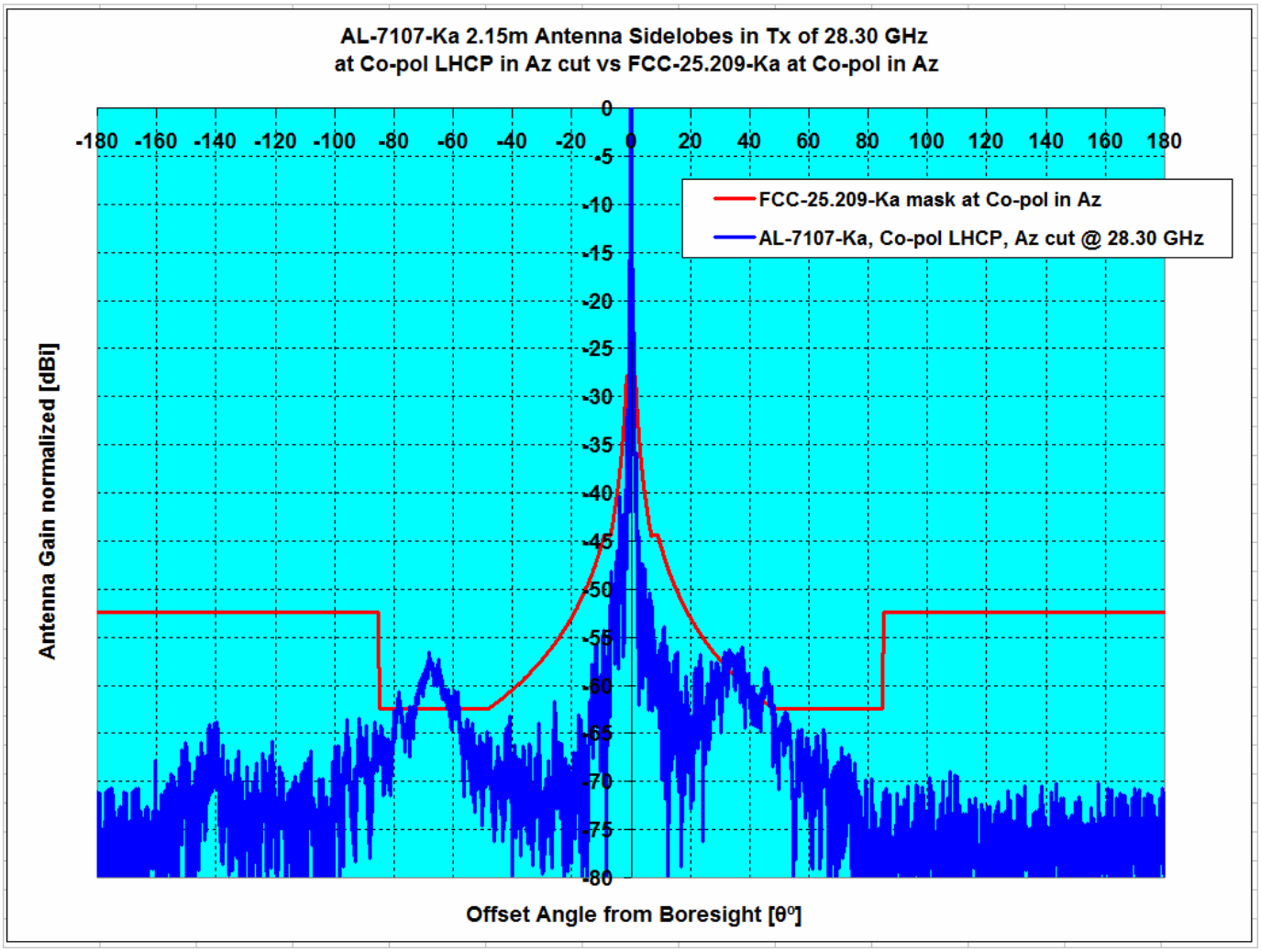
Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	17.6		
0.1	16.5		
0.2	22.3		
0.3	25.9		
0.4	26.5		
0.5	24.6		
0.6	21.0		
0.7	11.6		
0.8	9.1		
0.9	14.4		
1.0	15.9		
1.1	14.5		
1.2	8.8		
1.3	5.2		
1.4	6.4		
1.5	5.0		
1.6	5.7		
1.7	6.6		
1.8	4.6	12.6	-8.0
1.9	-1.0	12.0	-13.0
2.0	-6.4	11.5	-17.8
2.1	-3.9	10.9	-14.9
2.2	-0.6	10.4	-11.1
2.3	-1.2	10.0	-11.1
2.4	-5.3	9.5	-14.8
2.5	-5.9	9.1	-14.9
2.6	-5.6	8.6	-14.3
2.7	-6.7	8.2	-14.9
2.8	-4.5	7.8	-12.3
2.9	-5.3	7.4	-12.7
3.0	-8.9	7.1	-16.0
3.1	-5.7	6.7	-12.4
3.2	-6.1	6.4	-12.4
3.3	-8.7	6.0	-14.7
3.4	-7.1	5.7	-12.8
3.5	-8.1	5.4	-13.5
3.6	-9.6	5.1	-14.7
3.7	-3.0	4.8	-7.8
3.8	-4.3	4.5	-8.8
3.9	-12.7	4.2	-16.9
4.0	-13.7	3.9	-17.7
4.1	-7.5	3.7	-11.2
4.2	-10.3	3.4	-13.7
4.3	-14.6	3.2	-17.7
4.4	-9.5	2.9	-12.4
4.5	-9.7	2.7	-12.4
4.6	-9.2	2.4	-11.6
4.7	-7.6	2.2	-9.8
4.8	-7.8	2.0	-9.8
4.9	-8.2	1.7	-9.9
5.0	-7.3	1.5	-8.8
5.1	-10.2	1.3	-11.5
5.2	-12.6	1.1	-13.7
5.3	-13.1	0.9	-14.0
5.4	-14.1	0.7	-14.8
5.5	-11.9	0.5	-12.4
5.6	-10.6	0.3	-10.9
5.7	-10.7	0.1	-10.8
5.8	-10.0	-0.1	-9.9
5.9	-9.7	-0.3	-9.4

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
X-pol Azimuth LHCP, -10º to +10º @ 0.1º increment

-4.0	-7.2	3.9	-11.1
-3.9	-10.8	4.2	-15.0
-3.8	-5.1	4.5	-9.6
-3.7	-4.8	4.8	-9.6
-3.6	-3.7	5.1	-8.8
-3.5	-2.1	5.4	-7.5
-3.4	-2.7	5.7	-8.4
-3.3	-6.1	6.0	-12.2
-3.2	-6.2	6.4	-12.6
-3.1	-0.7	6.7	-7.4
-3.0	-2.1	7.1	-9.1
-2.9	-11.9	7.4	-19.4
-2.8	-7.9	7.8	-15.7
-2.7	-5.8	8.2	-14.0
-2.6	-8.0	8.6	-16.6
-2.5	-7.8	9.1	-16.8
-2.4	-12.0	9.5	-21.5
-2.3	-9.2	10.0	-19.2
-2.2	-3.7	10.4	-14.1
-2.1	-7.8	10.9	-18.7
-2.0	-6.2	11.5	-17.7
-1.9	-3.6	12.0	-15.7
-1.8	-9.9	12.6	-22.5
-1.7	2.3		
-1.6	6.1		
-1.5	6.4		
-1.4	5.5		
-1.3	5.5		
-1.2	9.1		
-1.1	12.7		
-1.0	15.1		
-0.9	14.9		
-0.8	8.5		
-0.7	15.8		
-0.6	24.9		
-0.5	29.3		
-0.4	31.0		
-0.3	30.5		
-0.2	28.6		
-0.1	23.9		
0.0	17.6		

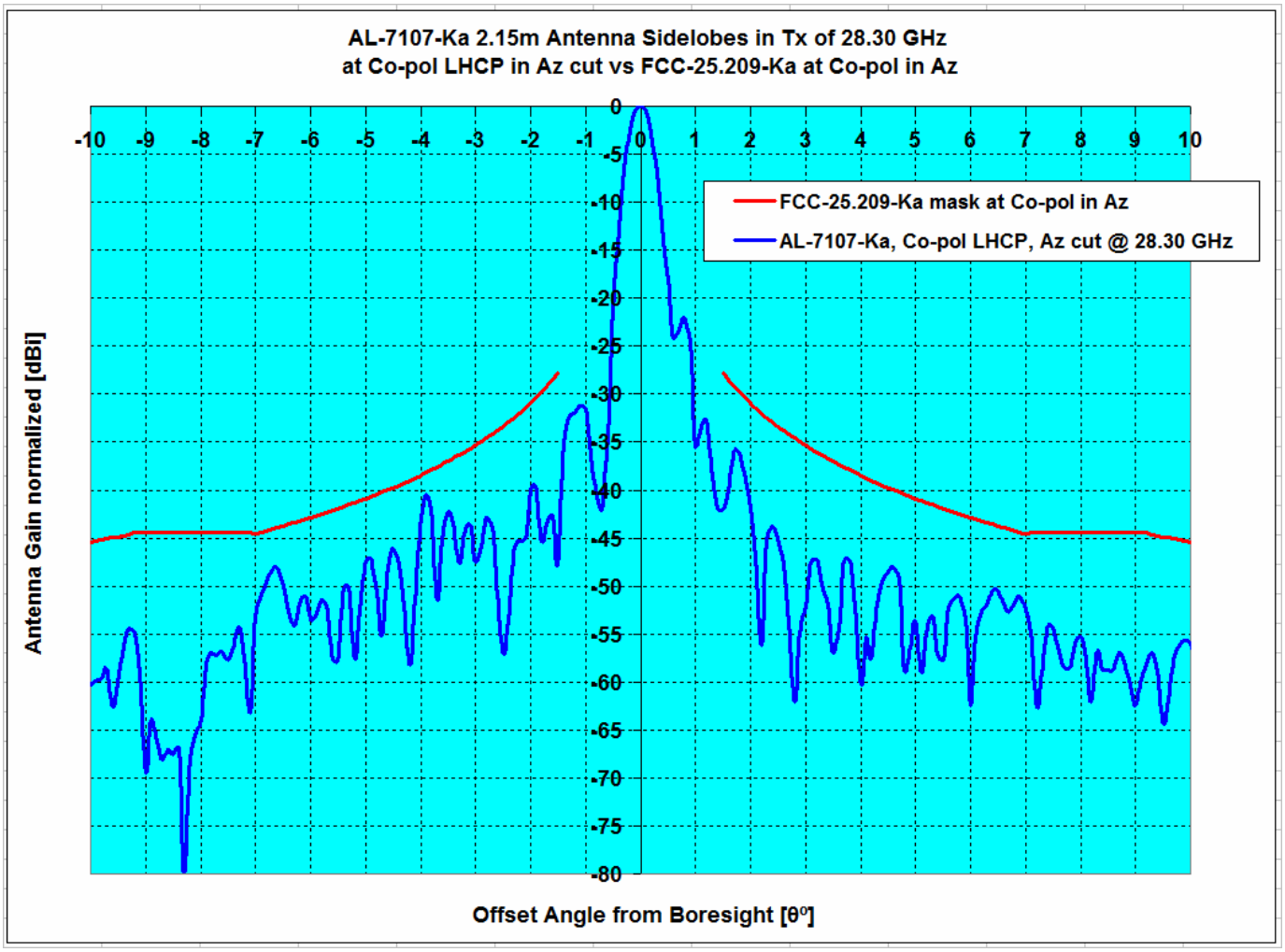
6.0	-11.5	-0.5	-11.0
6.1	-13.7	-0.6	-13.0
6.2	-11.1	-0.8	-10.3
6.3	-8.8	-1.0	-7.9
6.4	-9.2	-1.2	-8.0
6.5	-13.6	-1.3	-12.3
6.6	-17.9	-1.5	-16.4
6.7	-20.2	-1.7	-18.5
6.8	-18.2	-1.8	-16.4
6.9	-18.3	-2.0	-16.3
7.0	-12.0	-2.1	-9.8
7.1	-8.4	-2.0	-6.4
7.2	-8.3	-2.0	-6.3
7.3	-8.1	-2.0	-6.1
7.4	-12.2	-2.0	-10.2
7.5	-13.0	-2.0	-11.0
7.6	-13.6	-2.0	-11.6
7.7	-17.3	-2.0	-15.3
7.8	-18.7	-2.0	-16.7
7.9	-8.7	-2.0	-6.7
8.0	-6.2	-2.0	-4.2
8.1	-7.1	-2.0	-5.1
8.2	-10.4	-2.0	-8.4
8.3	-11.8	-2.0	-9.8
8.4	-12.6	-2.0	-10.6
8.5	-12.7	-2.0	-10.7
8.6	-11.7	-2.0	-9.7
8.7	-16.3	-2.0	-14.3
8.8	-11.0	-2.0	-9.0
8.9	-7.4	-2.0	-5.4
9.0	-7.6	-2.0	-5.6
9.1	-9.7	-2.0	-7.7
9.2	-14.1	-2.0	-12.1
9.3	-18.5	-2.0	-16.5
9.4	-17.1	-2.0	-15.1
9.5	-15.4	-2.0	-13.4
9.6	-14.7	-2.0	-12.7
9.7	-14.3	-2.0	-12.3
9.8	-13.7	-2.0	-11.7
9.9	-17.6	-2.0	-15.6
10.0	-26.1	-2.0	-24.1

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Azimuth LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.5°≤θ≤7°	7°≤θ≤180°	1.5°≤θ≤7°	7°≤θ≤180°
FCC-25.209-Ka, Co-pol Az, vs AL-7107-Ka	Az , LHCP	28.30	52.43	-2.23	5.85	0.00%	6.94%

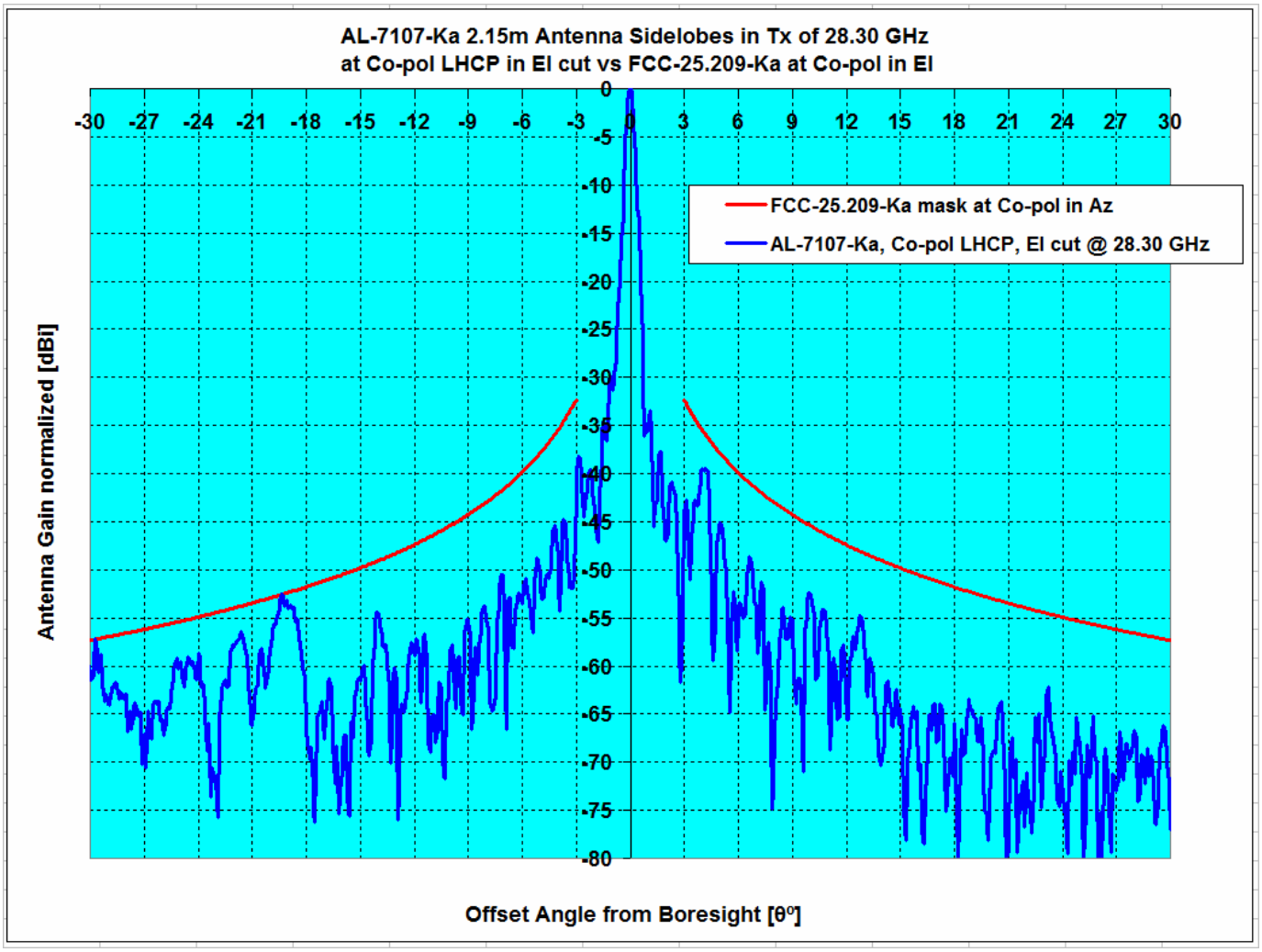
Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Azimuth LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.5°≤θ≤7°	7°≤θ≤180°	1.5°≤θ≤7°	7°≤θ≤180°
FCC-25.209-Ka, Co-pol Az, vs AL-7107-Ka	Az , LHCP	28.30	52.43	-2.23	5.85	0.00%	6.94%

Orbit Communication Systems Ltd.

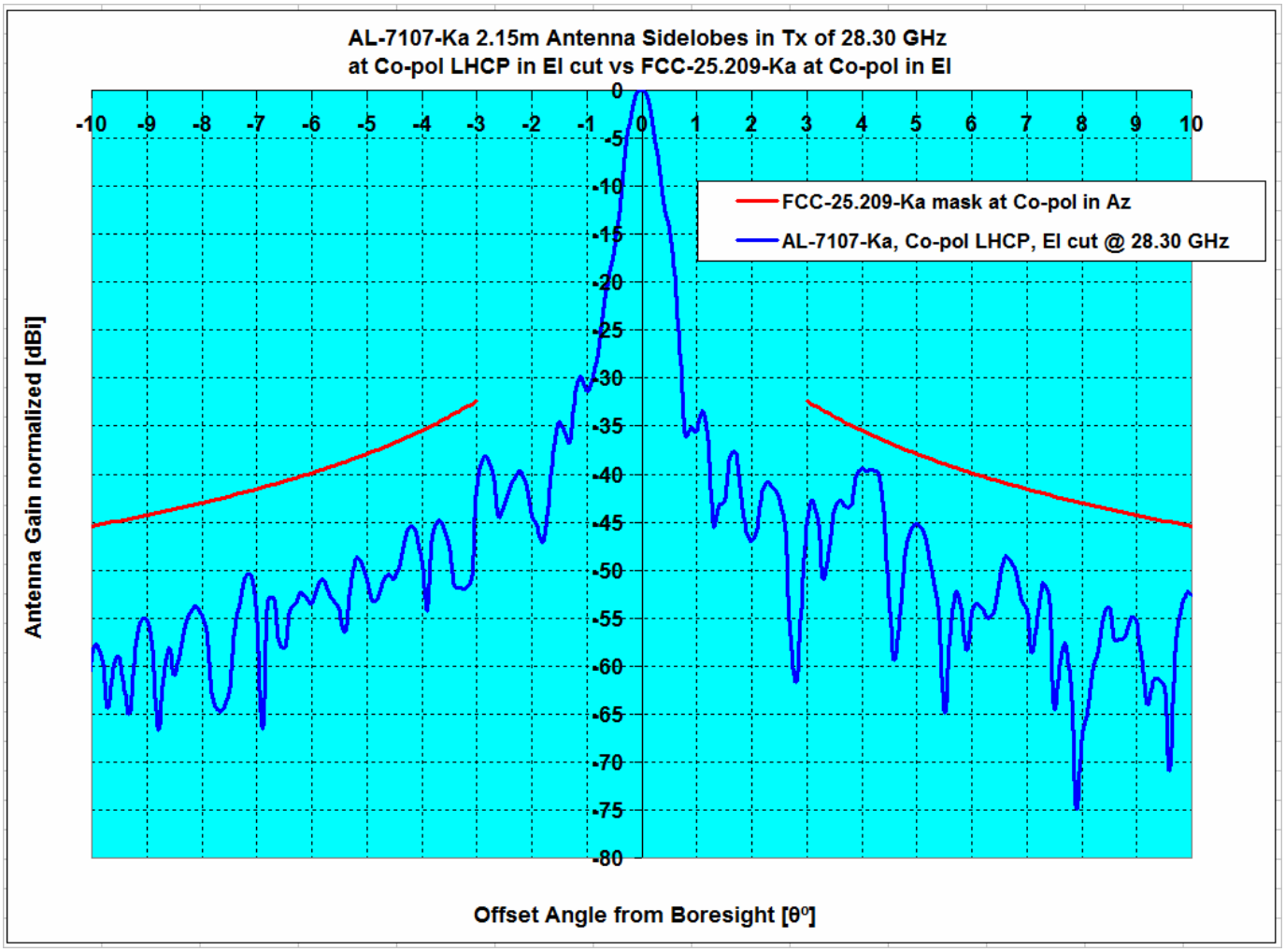
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Elevation LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	3°≤θ≤7°	7°≤θ≤30°	3°≤θ≤7°	7°≤θ≤30°
FCC-25.209-Ka, Co-pol El, vs AL-7107-Ka	El , LHCP	28.30	52.43	-3.53	0.07	0.00%	0.18%

Orbit Communication Systems Ltd.

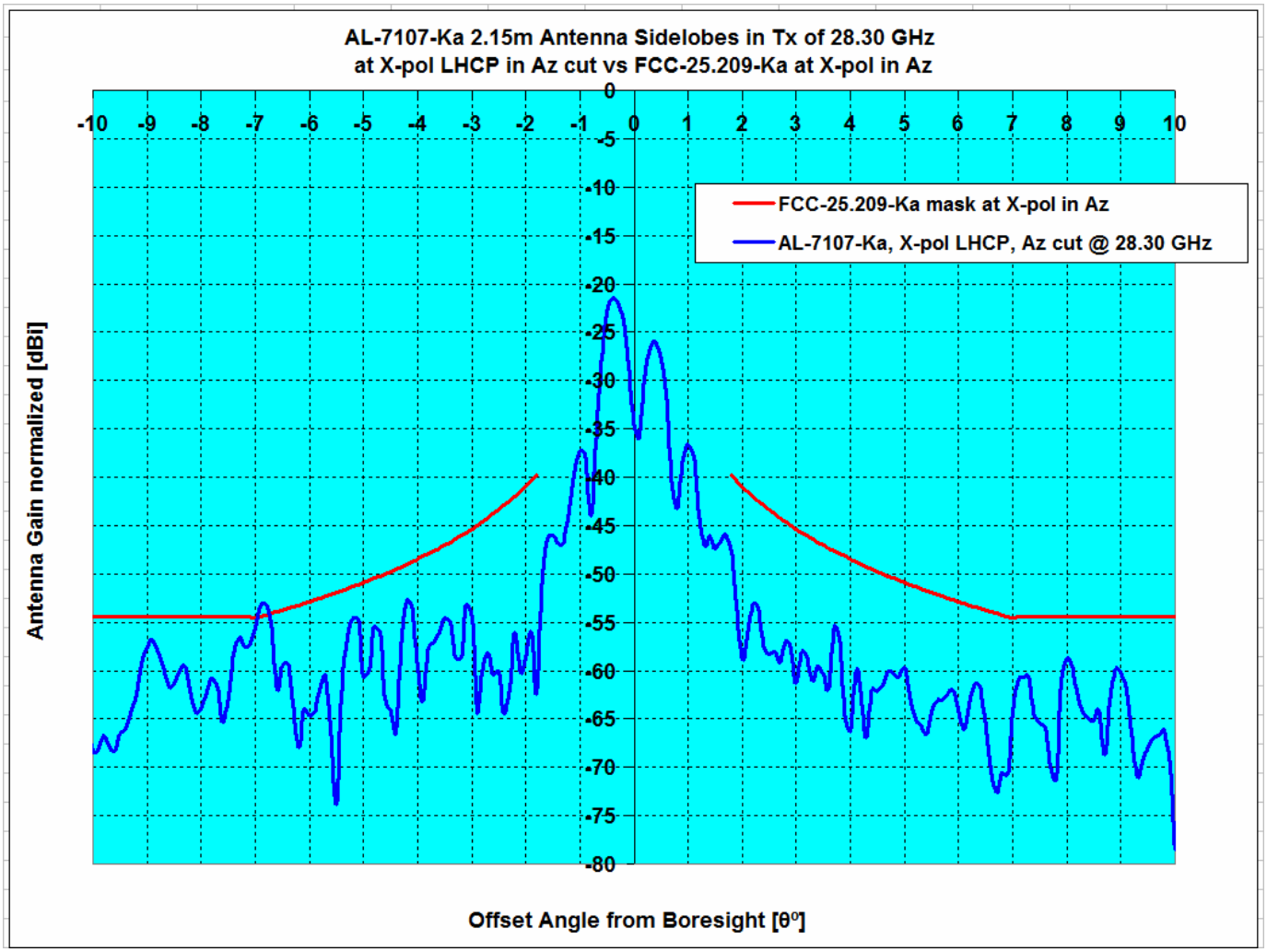
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Elevation LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	3°≤θ≤7°	7°≤θ≤30°	3°≤θ≤7°	7°≤θ≤30°
FCC-25.209-Ka, Co-pol El, vs AL-7107-Ka	El , LHCP	28.30	52.43	-3.53	0.07	0.00%	0.18%

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern, X-pol, Azimuth LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.8°≤θ≤7°	1.8°≤θ≤9.2°	1.8°≤θ≤7°	1.8°≤θ≤9.2°
FCC-25.209-Ka, X-pol Az, vs AL-7107-Ka	Az , LHCP	28.30	52.43	1.06	1.06	1.89%	1.20%

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -180º to +180º @ 1.0º increment

28,30 GHz Antenna Pattern in Co-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-179.0	-23.3	0.0	-23.3
-178.0	-25.3	0.0	-25.3
-177.0	-18.7	0.0	-18.7
-176.0	-27.6	0.0	-27.6
-175.0	-18.5	0.0	-18.5
-174.0	-27.5	0.0	-27.5
-173.0	-21.8	0.0	-21.8
-172.0	-24.4	0.0	-24.4
-171.0	-18.7	0.0	-18.7
-170.0	-27.6	0.0	-27.6
-169.0	-25.5	0.0	-25.5
-168.0	-19.5	0.0	-19.5
-167.0	-20.6	0.0	-20.6
-166.0	-20.1	0.0	-20.1
-165.0	-25.7	0.0	-25.7
-164.0	-27.6	0.0	-27.6
-163.0	-26.7	0.0	-26.7
-162.0	-22.4	0.0	-22.4
-161.0	-22.7	0.0	-22.7
-160.0	-22.7	0.0	-22.7
-159.0	-25.5	0.0	-25.5
-158.0	-22.9	0.0	-22.9
-157.0	-27.6	0.0	-27.6
-156.0	-23.9	0.0	-23.9
-155.0	-16.8	0.0	-16.8
-154.0	-23.9	0.0	-23.9
-153.0	-26.7	0.0	-26.7
-152.0	-18.6	0.0	-18.6
-151.0	-14.8	0.0	-14.8
-150.0	-13.9	0.0	-13.9
-149.0	-15.8	0.0	-15.8
-148.0	-27.6	0.0	-27.6
-147.0	-18.7	0.0	-18.7
-146.0	-17.5	0.0	-17.5
-145.0	-21.6	0.0	-21.6
-144.0	-17.3	0.0	-17.3
-143.0	-18.9	0.0	-18.9
-142.0	-16.5	0.0	-16.5
-141.0	-12.3	0.0	-12.3
-140.0	-15.7	0.0	-15.7
-139.0	-22.2	0.0	-22.2
-138.0	-24.1	0.0	-24.1
-137.0	-17.5	0.0	-17.5
-136.0	-20.8	0.0	-20.8
-135.0	-20.9	0.0	-20.9
-134.0	-25.3	0.0	-25.3
-133.0	-25.5	0.0	-25.5
-132.0	-27.6	0.0	-27.6
-131.0	-27.6	0.0	-27.6
-130.0	-23.4	0.0	-23.4
-129.0	-19.0	0.0	-19.0
-128.0	-27.6	0.0	-27.6
-127.0	-23.5	0.0	-23.5
-126.0	-18.5	0.0	-18.5
-125.0	-27.6	0.0	-27.6
-124.0	-18.9	0.0	-18.9
-123.0	-27.0	0.0	-27.0
-122.0	-16.5	0.0	-16.5
-121.0	-20.3	0.0	-20.3
-120.0	-23.3	0.0	-23.3

28,30 GHz Antenna Pattern in Co-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.4		
1.0	17.1		
2.0	10.6	21.5	-10.9
3.0	0.4	17.1	-16.6
4.0	-7.9	13.9	-21.8
5.0	-1.2	11.5	-12.7
6.0	-10.1	9.5	-19.6
7.0	0.0	7.9	-7.9
8.0	-2.9	8.0	-10.9
9.0	-10.0	8.0	-18.0
10.0	-3.5	7.0	-10.5
11.0	-1.5	6.0	-7.5
12.0	-3.5	5.0	-8.5
13.0	-5.5	4.2	-9.7
14.0	-13.6	3.3	-17.0
15.0	-8.0	2.6	-10.6
16.0	-16.4	1.9	-18.3
17.0	-26.4	1.2	-27.6
18.0	-14.3	0.6	-14.9
19.0	-8.3	0.0	-8.3
20.0	-16.9	-0.5	-16.4
21.0	-18.1	-1.1	-17.1
22.0	-5.9	-1.6	-4.3
23.0	-8.0	-2.0	-6.0
24.0	-10.2	-2.5	-7.7
25.0	-14.9	-2.9	-12.0
26.0	-8.9	-3.4	-5.5
27.0	-7.3	-3.8	-3.5
28.0	-8.6	-4.2	-4.4
29.0	-7.5	-4.6	-2.9
30.0	-8.4	-4.9	-3.4
31.0	-6.4	-5.3	-1.1
32.0	-5.4	-5.6	0.2
33.0	-3.9	-6.0	2.1
34.0	-5.5	-6.3	0.8
35.0	-8.1	-6.6	-1.5
36.0	-4.5	-6.9	2.4
37.0	-7.6	-7.2	-0.4
38.0	-5.0	-7.5	2.5
39.0	-7.1	-7.8	0.7
40.0	-8.0	-8.1	0.1
41.0	-10.5	-8.3	-2.2
42.0	-9.4	-8.6	-0.9
43.0	-11.2	-8.8	-2.3
44.0	-10.3	-9.1	-1.2
45.0	-8.9	-9.3	0.4
46.0	-6.7	-9.6	2.8
47.0	-9.2	-9.8	0.6
48.0	-15.2	-10.0	-5.1
49.0	-13.9	-10.0	-3.9
50.0	-12.6	-10.0	-2.6
51.0	-10.9	-10.0	-0.9
52.0	-10.3	-10.0	-0.3
53.0	-13.6	-10.0	-3.6
54.0	-14.2	-10.0	-4.2
55.0	-22.1	-10.0	-12.1
56.0	-17.3	-10.0	-7.3
57.0	-15.4	-10.0	-5.4
58.0	-15.6	-10.0	-5.6
59.0	-19.4	-10.0	-9.4

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -180º to +180º @ 1.0º increment

-119.0	-20.2	0.0	-20.2
-118.0	-22.4	0.0	-22.4
-117.0	-21.3	0.0	-21.3
-116.0	-22.3	0.0	-22.3
-115.0	-20.2	0.0	-20.2
-114.0	-19.3	0.0	-19.3
-113.0	-27.3	0.0	-27.3
-112.0	-25.8	0.0	-25.8
-111.0	-16.7	0.0	-16.7
-110.0	-19.2	0.0	-19.2
-109.0	-18.1	0.0	-18.1
-108.0	-14.4	0.0	-14.4
-107.0	-22.5	0.0	-22.5
-106.0	-26.4	0.0	-26.4
-105.0	-22.3	0.0	-22.3
-104.0	-22.2	0.0	-22.2
-103.0	-23.8	0.0	-23.8
-102.0	-22.4	0.0	-22.4
-101.0	-27.3	0.0	-27.3
-100.0	-16.1	0.0	-16.1
-99.0	-15.0	0.0	-15.0
-98.0	-17.8	0.0	-17.8
-97.0	-19.5	0.0	-19.5
-96.0	-11.1	0.0	-11.1
-95.0	-14.1	0.0	-14.1
-94.0	-17.9	0.0	-17.9
-93.0	-19.2	0.0	-19.2
-92.0	-15.9	0.0	-15.9
-91.0	-14.9	0.0	-14.9
-90.0	-14.9	0.0	-14.9
-89.0	-15.3	0.0	-15.3
-88.0	-20.4	0.0	-20.4
-87.0	-13.3	0.0	-13.3
-86.0	-14.4	0.0	-14.4
-85.0	-14.4	-10.0	-4.4
-84.0	-15.1	-10.0	-5.1
-83.0	-14.6	-10.0	-4.6
-82.0	-13.1	-10.0	-3.1
-81.0	-16.5	-10.0	-6.5
-80.0	-10.3	-10.0	-0.3
-79.0	-10.0	-10.0	0.0
-78.0	-9.9	-10.0	0.1
-77.0	-12.9	-10.0	-2.9
-76.0	-12.9	-10.0	-2.9
-75.0	-11.4	-10.0	-1.4
-74.0	-11.7	-10.0	-1.7
-73.0	-11.0	-10.0	-1.0
-72.0	-8.9	-10.0	1.1
-71.0	-8.3	-10.0	1.7
-70.0	-6.4	-10.0	3.6
-69.0	-6.4	-10.0	3.6
-68.0	-4.3	-10.0	5.7
-67.0	-6.6	-10.0	3.4
-66.0	-6.1	-10.0	3.9
-65.0	-7.0	-10.0	3.0
-64.0	-7.3	-10.0	2.7
-63.0	-8.4	-10.0	1.6
-62.0	-9.1	-10.0	0.9
-61.0	-9.8	-10.0	0.2
-60.0	-8.9	-10.0	1.1
-59.0	-10.2	-10.0	-0.2
-58.0	-11.1	-10.0	-1.1
-57.0	-14.7	-10.0	-4.7

60.0	-17.8	-10.0	-7.8
61.0	-26.4	-10.0	-16.4
62.0	-20.4	-10.0	-10.4
63.0	-12.8	-10.0	-2.8
64.0	-19.5	-10.0	-9.5
65.0	-12.2	-10.0	-2.2
66.0	-20.0	-10.0	-10.0
67.0	-18.8	-10.0	-8.8
68.0	-25.8	-10.0	-15.8
69.0	-16.0	-10.0	-6.0
70.0	-24.6	-10.0	-14.6
71.0	-25.0	-10.0	-15.0
72.0	-23.0	-10.0	-13.0
73.0	-15.9	-10.0	-5.9
74.0	-20.0	-10.0	-10.0
75.0	-19.5	-10.0	-9.5
76.0	-21.6	-10.0	-11.6
77.0	-20.9	-10.0	-10.9
78.0	-27.6	-10.0	-17.6
79.0	-23.2	-10.0	-13.2
80.0	-27.0	-10.0	-17.0
81.0	-26.4	-10.0	-16.4
82.0	-22.3	-10.0	-12.3
83.0	-27.5	-10.0	-17.5
84.0	-22.5	-10.0	-12.5
85.0	-27.6	-10.0	-17.6
86.0	-18.4	0.0	-18.4
87.0	-25.3	0.0	-25.3
88.0	-23.9	0.0	-23.9
89.0	-27.6	0.0	-27.6
90.0	-23.1	0.0	-23.1
91.0	-22.6	0.0	-22.6
92.0	-25.5	0.0	-25.5
93.0	-27.6	0.0	-27.6
94.0	-27.6	0.0	-27.6
95.0	-21.9	0.0	-21.9
96.0	-20.2	0.0	-20.2
97.0	-21.6	0.0	-21.6
98.0	-19.0	0.0	-19.0
99.0	-23.9	0.0	-23.9
100.0	-27.2	0.0	-27.2
101.0	-22.1	0.0	-22.1
102.0	-18.8	0.0	-18.8
103.0	-23.2	0.0	-23.2
104.0	-27.6	0.0	-27.6
105.0	-27.6	0.0	-27.6
106.0	-27.6	0.0	-27.6
107.0	-21.8	0.0	-21.8
108.0	-21.0	0.0	-21.0
109.0	-23.5	0.0	-23.5
110.0	-27.6	0.0	-27.6
111.0	-20.2	0.0	-20.2
112.0	-27.6	0.0	-27.6
113.0	-27.6	0.0	-27.6
114.0	-21.8	0.0	-21.8
115.0	-21.3	0.0	-21.3
116.0	-24.5	0.0	-24.5
117.0	-25.8	0.0	-25.8
118.0	-23.8	0.0	-23.8
119.0	-22.4	0.0	-22.4
120.0	-23.4	0.0	-23.4
121.0	-20.5	0.0	-20.5
122.0	-26.9	0.0	-26.9

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -180º to +180º @ 1.0º increment

-56.0	-15.3	-10.0	-5.3
-55.0	-14.7	-10.0	-4.7
-54.0	-16.3	-10.0	-6.3
-53.0	-14.3	-10.0	-4.3
-52.0	-18.2	-10.0	-8.2
-51.0	-15.7	-10.0	-5.7
-50.0	-18.2	-10.0	-8.2
-49.0	-14.3	-10.0	-4.3
-48.0	-14.6	-10.0	-4.6
-47.0	-20.8	-9.8	-11.0
-46.0	-17.9	-9.6	-8.3
-45.0	-19.1	-9.3	-9.8
-44.0	-16.5	-9.1	-7.5
-43.0	-17.2	-8.8	-8.3
-42.0	-16.8	-8.6	-8.2
-41.0	-10.7	-8.3	-2.4
-40.0	-27.6	-8.1	-19.5
-39.0	-17.2	-7.8	-9.4
-38.0	-16.3	-7.5	-8.8
-37.0	-20.2	-7.2	-13.0
-36.0	-15.6	-6.9	-8.7
-35.0	-22.8	-6.6	-16.2
-34.0	-18.4	-6.3	-12.1
-33.0	-25.3	-6.0	-19.3
-32.0	-16.2	-5.6	-10.5
-31.0	-16.0	-5.3	-10.8
-30.0	-20.2	-4.9	-15.2
-29.0	-20.2	-4.6	-15.7
-28.0	-19.2	-4.2	-15.1
-27.0	-21.7	-3.8	-17.9
-26.0	-11.8	-3.4	-8.4
-25.0	-18.8	-2.9	-15.9
-24.0	-17.6	-2.5	-15.1
-23.0	-19.8	-2.0	-17.7
-22.0	-17.5	-1.6	-15.9
-21.0	-22.7	-1.1	-21.6
-20.0	-24.2	-0.5	-23.7
-19.0	-17.9	0.0	-17.9
-18.0	-17.0	0.6	-17.6
-17.0	-14.6	1.2	-15.8
-16.0	-24.2	1.9	-26.1
-15.0	-27.6	2.6	-30.2
-14.0	-10.3	3.3	-13.6
-13.0	-14.8	4.2	-19.0
-12.0	-7.3	5.0	-12.3
-11.0	-10.9	6.0	-16.9
-10.0	-7.9	7.0	-14.9
-9.0	-17.0	8.0	-25.0
-8.0	-11.4	8.0	-19.4
-7.0	-0.8	7.9	-8.7
-6.0	-1.1	9.5	-10.7
-5.0	5.0	11.5	-6.6
-4.0	9.5	13.9	-4.5
-3.0	4.9	17.1	-12.1
-2.0	12.5	21.5	-9.0
-1.0	20.8		
0.0	52.4		

123.0	-21.4	0.0	-21.4
124.0	-27.6	0.0	-27.6
125.0	-21.1	0.0	-21.1
126.0	-27.6	0.0	-27.6
127.0	-27.6	0.0	-27.6
128.0	-27.6	0.0	-27.6
129.0	-23.1	0.0	-23.1
130.0	-23.0	0.0	-23.0
131.0	-19.2	0.0	-19.2
132.0	-27.6	0.0	-27.6
133.0	-25.8	0.0	-25.8
134.0	-26.2	0.0	-26.2
135.0	-22.5	0.0	-22.5
136.0	-22.1	0.0	-22.1
137.0	-25.2	0.0	-25.2
138.0	-22.2	0.0	-22.2
139.0	-27.6	0.0	-27.6
140.0	-24.7	0.0	-24.7
141.0	-24.0	0.0	-24.0
142.0	-27.2	0.0	-27.2
143.0	-26.3	0.0	-26.3
144.0	-23.6	0.0	-23.6
145.0	-26.1	0.0	-26.1
146.0	-27.6	0.0	-27.6
147.0	-27.6	0.0	-27.6
148.0	-26.3	0.0	-26.3
149.0	-23.5	0.0	-23.5
150.0	-25.5	0.0	-25.5
151.0	-27.6	0.0	-27.6
152.0	-27.6	0.0	-27.6
153.0	-22.1	0.0	-22.1
154.0	-27.6	0.0	-27.6
155.0	-27.6	0.0	-27.6
156.0	-26.4	0.0	-26.4
157.0	-27.6	0.0	-27.6
158.0	-27.6	0.0	-27.6
159.0	-23.9	0.0	-23.9
160.0	-22.1	0.0	-22.1
161.0	-19.4	0.0	-19.4
162.0	-18.4	0.0	-18.4
163.0	-25.6	0.0	-25.6
164.0	-20.1	0.0	-20.1
165.0	-23.4	0.0	-23.4
166.0	-21.0	0.0	-21.0
167.0	-27.6	0.0	-27.6
168.0	-22.7	0.0	-22.7
169.0	-23.9	0.0	-23.9
170.0	-18.5	0.0	-18.5
171.0	-22.5	0.0	-22.5
172.0	-23.6	0.0	-23.6
173.0	-22.5	0.0	-22.5
174.0	-27.6	0.0	-27.6
175.0	-27.6	0.0	-27.6
176.0	-27.2	0.0	-27.2
177.0	-27.2	0.0	-27.2
178.0	-23.6	0.0	-23.6
179.0	-23.9	0.0	-23.9

Orbit Communication Systems Ltd.

AL AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -10º to +10º @ 0.1º increment

28.30 GHz Antenna Pattern in Co-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-7.6	7.0	-14.6
-9.9	-5.8	7.1	-12.9
-9.8	-5.4	7.2	-12.6
-9.7	-5.6	7.3	-12.9
-9.6	-7.9	7.4	-15.3
-9.5	-7.5	7.6	-15.0
-9.4	-4.7	7.7	-12.4
-9.3	-3.2	7.8	-11.0
-9.2	-3.7	8.0	-11.7
-9.1	-11.3	8.0	-19.3
-9.0	-7.9	8.0	-15.9
-8.9	-4.8	8.0	-12.8
-8.8	-4.8	8.0	-12.8
-8.7	-7.1	8.0	-15.1
-8.6	-7.1	8.0	-15.1
-8.5	-3.9	8.0	-11.9
-8.4	-3.3	8.0	-11.3
-8.3	-3.7	8.0	-11.7
-8.2	-3.1	8.0	-11.1
-8.1	-4.1	8.0	-12.1
-8.0	-4.5	8.0	-12.5
-7.9	-6.3	8.0	-14.3
-7.8	-6.2	8.0	-14.2
-7.7	-4.6	8.0	-12.6
-7.6	-3.4	8.0	-11.4
-7.5	-6.4	8.0	-14.4
-7.4	-9.0	8.0	-17.0
-7.3	-4.0	8.0	-12.0
-7.2	-9.0	8.0	-17.0
-7.1	-5.1	8.0	-13.1
-7.0	2.0	7.9	-5.9
-6.9	4.7	8.0	-3.4
-6.8	5.7	8.2	-2.5
-6.7	6.2	8.3	-2.1
-6.6	5.1	8.5	-3.4
-6.5	3.3	8.7	-5.4
-6.4	-0.5	8.8	-9.4
-6.3	-3.3	9.0	-12.3
-6.2	-0.9	9.2	-10.1
-6.1	-1.0	9.4	-10.4
-6.0	-4.3	9.5	-13.8
-5.9	-3.7	9.7	-13.5
-5.8	-1.3	9.9	-11.2
-5.7	-1.0	10.1	-11.1
-5.6	-5.5	10.3	-15.8
-5.5	-7.3	10.5	-17.8
-5.4	-1.1	10.7	-11.8
-5.3	-1.2	10.9	-12.1
-5.2	-4.1	11.1	-15.2
-5.1	2.4	11.3	-8.9
-5.0	3.7	11.5	-7.8
-4.9	1.0	11.7	-10.8
-4.8	-5.1	12.0	-17.1
-4.7	-1.6	12.2	-13.8
-4.6	4.5	12.4	-8.0
-4.5	6.5	12.7	-6.2
-4.4	4.6	12.9	-8.3
-4.3	-3.9	13.2	-17.1
-4.2	-6.0	13.4	-19.4
-4.1	5.3	13.7	-8.4

28.30 GHz Antenna Pattern in Co-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.5		
0.1	51.7		
0.2	49.0		
0.3	44.4		
0.4	38.4		
0.5	32.9		
0.6	27.8		
0.7	28.5		
0.8	29.2		
0.9	25.2		
1.0	9.5		
1.1	19.5		
1.2	19.3		
1.3	9.4		
1.4	9.2		
1.5	7.1	24.6	-17.5
1.6	12.4	23.9	-11.5
1.7	16.2	23.2	-7.0
1.8	15.0	22.6	-7.6
1.9	10.9	22.0	-11.1
2.0	10.9	21.5	-10.6
2.1	9.4	20.9	-11.6
2.2	2.6	20.4	-17.9
2.3	6.0	20.0	-13.9
2.4	7.7	19.5	-11.8
2.5	7.9	19.1	-11.1
2.6	6.9	18.6	-11.7
2.7	1.3	18.2	-16.9
2.8	-2.8	17.8	-20.6
2.9	-0.8	17.4	-18.2
3.0	2.0	17.1	-15.0
3.1	5.6	16.7	-11.1
3.2	6.0	16.4	-10.4
3.3	2.8	16.0	-13.3
3.4	-0.4	15.7	-16.1
3.5	-7.4	15.4	-22.8
3.6	0.9	15.1	-14.2
3.7	4.8	14.8	-10.0
3.8	4.0	14.5	-10.5
3.9	-5.4	14.2	-19.6
4.0	-7.8	13.9	-21.8
4.1	-3.9	13.7	-17.6
4.2	-5.9	13.4	-19.4
4.3	1.3	13.2	-11.9
4.4	3.7	12.9	-9.2
4.5	4.8	12.7	-7.9
4.6	5.3	12.4	-7.1
4.7	2.7	12.2	-9.5
4.8	-6.1	12.0	-18.1
4.9	-5.5	11.7	-17.2
5.0	-4.7	11.5	-16.3
5.1	-5.9	11.3	-17.2
5.2	-1.6	11.1	-12.7
5.3	-2.5	10.9	-13.4
5.4	-9.1	10.7	-19.8
5.5	-4.3	10.5	-14.8
5.6	0.9	10.3	-9.4
5.7	1.5	10.1	-8.6
5.8	0.8	9.9	-9.1
5.9	-2.0	9.7	-11.7

Orbit Communication Systems Ltd.

AL AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -10º to +10º @ 0.1º increment

-4.0	10.4	13.9	-3.5
-3.9	11.5	14.2	-2.7
-3.8	9.6	14.5	-4.9
-3.7	0.5	14.8	-14.3
-3.6	7.7	15.1	-7.4
-3.5	9.9	15.4	-5.5
-3.4	7.7	15.7	-8.0
-3.3	2.3	16.0	-13.7
-3.2	7.0	16.4	-9.4
-3.1	7.9	16.7	-8.8
-3.0	6.8	17.1	-10.3
-2.9	9.1	17.4	-8.3
-2.8	10.4	17.8	-7.4
-2.7	8.1	18.2	-10.2
-2.6	-2.0	18.6	-20.6
-2.5	-4.2	19.1	-23.3
-2.4	-2.6	19.5	-22.1
-2.3	4.6	20.0	-15.3
-2.2	5.7	20.4	-14.8
-2.1	8.7	20.9	-12.2
-2.0	12.3	21.5	-9.1
-1.9	12.1	22.0	-9.9
-1.8	6.3	22.6	-16.3
-1.7	9.8	23.2	-13.4
-1.6	10.3	23.9	-13.6
-1.5	4.3	24.6	-20.3
-1.4	15.9		
-1.3	18.2		
-1.2	18.6		
-1.1	19.3		
-1.0	18.1		
-0.9	17.6		
-0.8	21.2		
-0.7	20.3		
-0.6	21.9		
-0.5	33.9		
-0.4	41.4		
-0.3	47.0		
-0.2	50.5		
-0.1	52.2		
0.0	52.5		

6.0	-9.2	9.5	-18.7
6.1	-3.5	9.4	-12.9
6.2	0.9	9.2	-8.3
6.3	1.4	9.0	-7.6
6.4	1.9	8.8	-7.0
6.5	0.8	8.7	-7.8
6.6	-0.7	8.5	-9.2
6.7	-0.8	8.3	-9.1
6.8	0.1	8.2	-8.1
6.9	0.5	8.0	-7.5
7.0	-0.4	7.9	-8.3
7.1	-3.0	8.0	-11.0
7.2	-13.3	8.0	-21.3
7.3	-8.3	8.0	-16.3
7.4	-4.0	8.0	-12.0
7.5	-4.6	8.0	-12.6
7.6	-6.5	8.0	-14.5
7.7	-4.5	8.0	-12.5
7.8	-2.2	8.0	-10.2
7.9	-1.5	8.0	-9.5
8.0	-1.8	8.0	-9.8
8.1	-3.8	8.0	-11.8
8.2	-11.1	8.0	-19.1
8.3	-7.2	8.0	-15.2
8.4	-4.4	8.0	-12.4
8.5	-4.2	8.0	-12.2
8.6	-5.0	8.0	-13.0
8.7	-5.0	8.0	-13.0
8.8	-6.4	8.0	-14.4
8.9	-7.9	8.0	-15.9
9.0	-9.1	8.0	-17.1
9.1	-9.8	8.0	-17.8
9.2	-10.7	8.0	-18.7
9.3	-17.4	7.8	-25.2
9.4	-14.6	7.7	-22.3
9.5	-6.6	7.6	-14.2
9.6	-5.1	7.4	-12.6
9.7	-4.8	7.3	-12.1
9.8	-5.0	7.2	-12.2
9.9	-5.4	7.1	-12.5
10.0	-5.8	7.0	-12.8

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation RHCP, -30º to +30º @ 0.5º increment

28.30 GHz Antenna Pattern in Co-pol El RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-30.0	-8.9	-4.9	-4.0
-29.5	-8.2	-4.7	-3.5
-29.0	-11.1	-4.6	-6.6
-28.5	-9.4	-4.4	-5.1
-28.0	-10.5	-4.2	-6.4
-27.5	-11.4	-4.0	-7.4
-27.0	-14.6	-3.8	-10.8
-26.5	-11.7	-3.6	-8.2
-26.0	-13.1	-3.4	-9.7
-25.5	-11.1	-3.2	-7.9
-25.0	-7.1	-2.9	-4.1
-24.5	-6.9	-2.7	-4.2
-24.0	-6.2	-2.5	-3.7
-23.5	-16.4	-2.3	-14.1
-23.0	-19.0	-2.0	-17.0
-22.5	-9.0	-1.8	-7.2
-22.0	-5.7	-1.6	-4.1
-21.5	-5.0	-1.3	-3.7
-21.0	-13.8	-1.1	-12.7
-20.5	-5.7	-0.8	-4.9
-20.0	-6.0	-0.5	-5.5
-19.5	-1.6	-0.3	-1.3
-19.0	-1.6	0.0	-1.6
-18.5	-2.8	0.3	-3.1
-18.0	-14.4	0.6	-15.0
-17.5	-23.5	0.9	-24.4
-17.0	-15.1	1.2	-16.4
-16.5	-14.3	1.6	-15.9
-16.0	-18.3	1.9	-20.2
-15.5	-13.5	2.2	-15.8
-15.0	-9.1	2.6	-11.7
-14.5	-17.0	3.0	-19.9
-14.0	-2.1	3.3	-5.4
-13.5	-6.7	3.7	-10.5
-13.0	-9.7	4.2	-13.9
-12.5	-11.8	4.6	-16.4
-12.0	-6.5	5.0	-11.5
-11.5	-6.0	5.5	-11.5
-11.0	-13.0	6.0	-19.0
-10.5	-10.3	6.5	-16.8
-10.0	-6.5	7.0	-13.5
-9.5	-6.6	7.6	-14.2
-9.0	-2.8	8.1	-10.9
-8.5	-8.5	8.8	-17.2
-8.0	-2.4	9.4	-11.8
-7.5	-10.0	10.1	-20.2
-7.0	-2.0	10.9	-12.9
-6.5	-5.7	11.7	-17.4
-6.0	-1.1	12.5	-13.7
-5.5	-1.6	13.5	-15.1
-5.0	1.5	14.5	-13.1
-4.5	1.5	15.7	-14.2
-4.0	2.9	16.9	-14.0
-3.5	4.7	18.4	-13.7
-3.0	10.6		
-2.5	9.4		
-2.0	8.1		
-1.5	17.9		
-1.0	21.1		
-0.5	35.7		
0.0	52.4		

28.30 GHz Antenna Pattern in Co-pol El RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.4		
0.5	38.0		
1.0	16.8		
1.5	9.7		
2.0	5.4		
2.5	10.1		
3.0	7.5		
3.5	8.5	18.4	-9.9
4.0	13.0	16.9	-4.0
4.5	-1.0	15.7	-16.6
5.0	7.3	14.5	-7.2
5.5	-12.4	13.5	-25.9
6.0	-1.8	12.5	-14.4
6.5	0.9	11.7	-10.8
7.0	-1.8	10.9	-12.7
7.5	-12.0	10.1	-22.1
8.0	-14.6	9.4	-24.0
8.5	-1.5	8.8	-10.3
9.0	-2.8	8.1	-11.0
9.5	-9.7	7.6	-17.3
10.0	-0.2	7.0	-7.2
10.5	-4.7	6.5	-11.1
11.0	-8.1	6.0	-14.1
11.5	-13.2	5.5	-18.6
12.0	-13.1	5.0	-18.1
12.5	-5.9	4.6	-10.5
13.0	-4.3	4.2	-8.4
13.5	-8.9	3.7	-12.6
14.0	-17.5	3.3	-20.8
14.5	-12.7	3.0	-15.7
15.0	-12.0	2.6	-14.6
15.5	-15.1	2.2	-17.4
16.0	-18.5	1.9	-20.3
16.5	-16.7	1.6	-18.2
17.0	-15.4	1.2	-16.7
17.5	-22.5	0.9	-23.5
18.0	-13.5	0.6	-14.1
18.5	-17.0	0.3	-17.3
19.0	-12.1	0.0	-12.1
19.5	-12.8	-0.3	-12.6
20.0	-18.1	-0.5	-17.6
20.5	-12.0	-0.8	-11.2
21.0	-26.3	-1.1	-25.3
21.5	-26.9	-1.3	-25.6
22.0	-18.6	-1.6	-17.1
22.5	-12.9	-1.8	-11.1
23.0	-16.0	-2.0	-14.0
23.5	-15.0	-2.3	-12.7
24.0	-21.6	-2.5	-19.1
24.5	-19.9	-2.7	-17.2
25.0	-15.4	-2.9	-12.4
25.5	-19.2	-3.2	-16.1
26.0	-27.6	-3.4	-24.2
26.5	-19.8	-3.6	-16.2
27.0	-20.5	-3.8	-16.7
27.5	-15.7	-4.0	-11.7
28.0	-14.3	-4.2	-10.1
28.5	-17.6	-4.4	-13.2
29.0	-17.5	-4.6	-13.0
29.5	-15.3	-4.7	-10.6
30.0	-24.6	-4.9	-19.7

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation RHCP, -10º to +10º @ 0.1º increment

28.30 GHz Antenna Pattern in Co-pol El RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-13.2	7.0	-20.2
-9.9	-9.8	7.1	-16.9
-9.8	-7.0	7.2	-14.2
-9.7	-5.9	7.3	-13.2
-9.6	-5.0	7.4	-12.5
-9.5	-4.2	7.6	-11.8
-9.4	-4.6	7.7	-12.3
-9.3	-9.3	7.8	-17.1
-9.2	-12.8	7.9	-20.7
-9.1	-7.4	8.0	-15.4
-9.0	-3.0	8.1	-11.2
-8.9	-3.0	8.3	-11.3
-8.8	-5.9	8.4	-14.3
-8.7	-11.7	8.5	-20.2
-8.6	-8.2	8.6	-16.8
-8.5	-12.3	8.8	-21.1
-8.4	-17.1	8.9	-26.0
-8.3	-10.0	9.0	-19.1
-8.2	-4.8	9.2	-13.9
-8.1	-2.5	9.3	-11.8
-8.0	-3.1	9.4	-12.5
-7.9	-6.0	9.6	-15.6
-7.8	-15.5	9.7	-25.2
-7.7	-7.6	9.8	-17.5
-7.6	-5.6	10.0	-15.6
-7.5	-9.0	10.1	-19.2
-7.4	-17.5	10.3	-27.7
-7.3	-5.6	10.4	-16.0
-7.2	-1.2	10.6	-11.7
-7.1	0.8	10.7	-9.9
-7.0	0.0	10.9	-10.9
-6.9	-11.1	11.0	-22.1
-6.8	-1.7	11.2	-12.9
-6.7	1.8	11.3	-9.5
-6.6	-0.8	11.5	-12.4
-6.5	-7.3	11.7	-19.0
-6.4	-4.8	11.8	-16.6
-6.3	-3.0	12.0	-15.0
-6.2	-1.1	12.2	-13.2
-6.1	-0.5	12.4	-12.9
-6.0	-0.7	12.5	-13.2
-5.9	-0.5	12.7	-13.2
-5.8	0.8	12.9	-12.1
-5.7	-1.2	13.1	-14.3
-5.6	-2.5	13.3	-15.8
-5.5	-0.3	13.5	-13.8
-5.4	-2.6	13.7	-16.3
-5.3	-0.7	13.9	-14.6
-5.2	3.1	14.1	-11.0
-5.1	4.1	14.3	-10.2
-5.0	2.0	14.5	-12.5
-4.9	-1.1	14.7	-15.9
-4.8	-2.8	15.0	-17.7
-4.7	-0.2	15.2	-15.4
-4.6	0.9	15.4	-14.5
-4.5	1.2	15.7	-14.5
-4.4	1.3	15.9	-14.7
-4.3	2.6	16.2	-13.5
-4.2	4.7	16.4	-11.7
-4.1	4.7	16.7	-11.9

28.30 GHz Antenna Pattern in Co-pol El RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.5		
0.1	51.7		
0.2	49.0		
0.3	44.5		
0.4	40.8		
0.5	37.4		
0.6	32.0		
0.7	15.3		
0.8	21.5		
0.9	20.7		
1.0	19.8		
1.1	20.0		
1.2	15.5		
1.3	4.7		
1.4	10.1		
1.5	9.2		
1.6	14.0		
1.7	14.5		
1.8	12.1		
1.9	8.2		
2.0	6.5		
2.1	8.3		
2.2	10.1		
2.3	9.6		
2.4	10.0		
2.5	10.1		
2.6	6.9		
2.7	0.1		
2.8	-11.8		
2.9	1.8		
3.0	6.7		
3.1	6.2		
3.2	3.7		
3.3	6.9		
3.4	7.8		
3.5	9.6	18.4	-8.8
3.6	9.7	18.1	-8.4
3.7	8.8	17.8	-9.0
3.8	11.3	17.5	-6.2
3.9	13.5	17.2	-3.8
4.0	13.3	16.9	-3.7
4.1	12.3	16.7	-4.4
4.2	12.4	16.4	-4.0
4.3	10.5	16.2	-5.6
4.4	2.9	15.9	-13.0
4.5	-9.0	15.7	-24.7
4.6	1.6	15.4	-13.8
4.7	5.1	15.2	-10.1
4.8	6.9	15.0	-8.1
4.9	6.4	14.7	-8.4
5.0	4.9	14.5	-9.6
5.1	3.6	14.3	-10.7
5.2	0.9	14.1	-13.2
5.3	-7.8	13.9	-21.7
5.4	-10.3	13.7	-24.0
5.5	-3.6	13.5	-17.1
5.6	-3.0	13.3	-16.3
5.7	-5.1	13.1	-18.2
5.8	-5.2	12.9	-18.1
5.9	-2.3	12.7	-15.0

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation RHCP, -10º to +10º @ 0.1º increment

-4.0	2.3	16.9	-14.7
-3.9	-1.5	17.2	-18.8
-3.8	4.2	17.5	-13.3
-3.7	6.0	17.8	-11.8
-3.6	5.0	18.1	-13.1
-3.5	3.0	18.4	-15.4
-3.4	-1.3		
-3.3	-2.7		
-3.2	-3.1		
-3.1	-3.9		
-3.0	9.3		
-2.9	13.7		
-2.8	13.8		
-2.7	11.3		
-2.6	7.7		
-2.5	10.1		
-2.4	12.4		
-2.3	13.7		
-2.2	13.8		
-2.1	11.6		
-2.0	7.8		
-1.9	6.6		
-1.8	5.2		
-1.7	8.6		
-1.6	15.4		
-1.5	17.9		
-1.4	16.7		
-1.3	16.2		
-1.2	21.8		
-1.1	22.9		
-1.0	20.1		
-0.9	21.5		
-0.8	25.3		
-0.7	29.5		
-0.6	32.8		
-0.5	35.1		
-0.4	40.2		
-0.3	46.4		
-0.2	50.2		
-0.1	52.2		
0.0	52.5		

6.0	-2.3	12.5	-14.9
6.1	-3.4	12.4	-15.7
6.2	-1.9	12.2	-14.1
6.3	-1.2	12.0	-13.3
6.4	-0.6	11.8	-12.4
6.5	0.6	11.7	-11.1
6.6	2.8	11.5	-8.7
6.7	2.5	11.3	-8.8
6.8	0.4	11.2	-10.7
6.9	-3.1	11.0	-14.2
7.0	-13.4	10.9	-24.3
7.1	-4.7	10.7	-15.5
7.2	-2.2	10.6	-12.8
7.3	-4.6	10.4	-15.0
7.4	-9.1	10.3	-19.4
7.5	-3.8	10.1	-13.9
7.6	-2.8	10.0	-12.8
7.7	-7.1	9.8	-16.9
7.8	-3.9	9.7	-13.6
7.9	-3.4	9.6	-13.0
8.0	-5.0	9.4	-14.4
8.1	-5.6	9.3	-14.9
8.2	-4.2	9.2	-13.4
8.3	-3.0	9.0	-12.0
8.4	-2.7	8.9	-11.6
8.5	-8.0	8.8	-16.8
8.6	-8.9	8.6	-17.5
8.7	-11.7	8.5	-20.2
8.8	-27.5	8.4	-35.9
8.9	-14.1	8.3	-22.4
9.0	-7.5	8.1	-15.7
9.1	-2.2	8.0	-10.2
9.2	-1.2	7.9	-9.1
9.3	-2.0	7.8	-9.8
9.4	-4.1	7.7	-11.8
9.5	-3.5	7.6	-11.1
9.6	-0.4	7.4	-7.9
9.7	1.6	7.3	-5.7
9.8	2.0	7.2	-5.3
9.9	1.1	7.1	-6.0
10.0	-0.3	7.0	-7.3

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
X-pol Azimuth RHCP, -10º to +10º @ 0.1º increment

28.30 GHz Antenna Pattern in X-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-9.3	-2.0	-7.3
-9.9	-8.7	-2.0	-6.7
-9.8	-8.5	-2.0	-6.5
-9.7	-6.1	-2.0	-4.1
-9.6	-6.5	-2.0	-4.5
-9.5	-5.1	-2.0	-3.1
-9.4	-5.5	-2.0	-3.5
-9.3	-5.9	-2.0	-3.9
-9.2	-5.7	-2.0	-3.7
-9.1	-4.4	-2.0	-2.4
-9.0	-6.1	-2.0	-4.1
-8.9	-6.6	-2.0	-4.6
-8.8	-8.0	-2.0	-6.0
-8.7	-5.1	-2.0	-3.1
-8.6	-3.5	-2.0	-1.5
-8.5	-3.1	-2.0	-1.1
-8.4	-3.8	-2.0	-1.8
-8.3	-4.8	-2.0	-2.8
-8.2	-3.9	-2.0	-1.9
-8.1	-4.3	-2.0	-2.3
-8.0	-6.6	-2.0	-4.6
-7.9	-10.0	-2.0	-8.0
-7.8	-8.3	-2.0	-6.3
-7.7	-5.9	-2.0	-3.9
-7.6	-5.4	-2.0	-3.4
-7.5	-4.7	-2.0	-2.7
-7.4	-2.1	-2.0	-0.1
-7.3	-1.2	-2.0	0.8
-7.2	-1.8	-2.0	0.2
-7.1	-4.0	-2.0	-2.0
-7.0	-5.1	-2.1	-3.0
-6.9	-4.6	-2.0	-2.7
-6.8	-3.8	-1.8	-2.0
-6.7	-3.2	-1.7	-1.6
-6.6	-4.2	-1.5	-2.8
-6.5	-8.1	-1.3	-6.8
-6.4	-15.0	-1.2	-13.9
-6.3	-13.3	-1.0	-12.3
-6.2	-17.2	-0.8	-16.4
-6.1	-13.1	-0.6	-12.4
-6.0	-6.4	-0.5	-5.9
-5.9	-4.5	-0.3	-4.2
-5.8	-6.7	-0.1	-6.6
-5.7	-17.8	0.1	-17.9
-5.6	-7.0	0.3	-7.3
-5.5	-5.0	0.5	-5.5
-5.4	-6.0	0.7	-6.7
-5.3	-11.0	0.9	-11.8
-5.2	-4.7	1.1	-5.8
-5.1	-1.6	1.3	-3.0
-5.0	-1.7	1.5	-3.2
-4.9	-3.9	1.7	-5.6
-4.8	-23.8	2.0	-25.8
-4.7	-4.9	2.2	-7.1
-4.6	-2.5	2.4	-4.9
-4.5	-4.3	2.7	-7.0
-4.4	-2.8	2.9	-5.7
-4.3	-1.8	3.2	-4.9
-4.2	-6.6	3.4	-10.0
-4.1	-5.2	3.7	-8.8

28.30 GHz Antenna Pattern in X-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	27.6		
0.1	26.8		
0.2	28.6		
0.3	30.1		
0.4	29.6		
0.5	27.3		
0.6	21.9		
0.7	13.7		
0.8	4.1		
0.9	9.6		
1.0	14.8		
1.1	14.1		
1.2	7.5		
1.3	2.3		
1.4	7.3		
1.5	6.0		
1.6	2.0		
1.7	0.4		
1.8	-5.0	12.6	-17.6
1.9	-14.1	12.0	-26.1
2.0	-6.6	11.5	-18.1
2.1	-5.6	10.9	-16.5
2.2	-10.6	10.4	-21.1
2.3	-10.5	10.0	-20.4
2.4	-3.6	9.5	-13.1
2.5	-3.5	9.1	-12.5
2.6	-7.4	8.6	-16.0
2.7	-0.5	8.2	-8.8
2.8	0.7	7.8	-7.1
2.9	-0.6	7.4	-8.1
3.0	-7.4	7.1	-14.5
3.1	-10.7	6.7	-17.4
3.2	-10.9	6.4	-17.3
3.3	-16.5	6.0	-22.5
3.4	-8.2	5.7	-14.0
3.5	-10.0	5.4	-15.4
3.6	-11.0	5.1	-16.1
3.7	-9.5	4.8	-14.2
3.8	-12.1	4.5	-16.6
3.9	-9.7	4.2	-14.0
4.0	-6.8	3.9	-10.7
4.1	-7.3	3.7	-11.0
4.2	-10.3	3.4	-13.7
4.3	-10.7	3.2	-13.9
4.4	-11.3	2.9	-14.2
4.5	-9.8	2.7	-12.5
4.6	-5.9	2.4	-8.3
4.7	-7.0	2.2	-9.2
4.8	-11.5	2.0	-13.5
4.9	-14.1	1.7	-15.8
5.0	-12.7	1.5	-14.2
5.1	-10.1	1.3	-11.4
5.2	-11.4	1.1	-12.5
5.3	-12.0	0.9	-12.9
5.4	-6.1	0.7	-6.8
5.5	-5.3	0.5	-5.8
5.6	-6.1	0.3	-6.4
5.7	-11.5	0.1	-11.6
5.8	-12.9	-0.1	-12.8
5.9	-14.1	-0.3	-13.8

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table

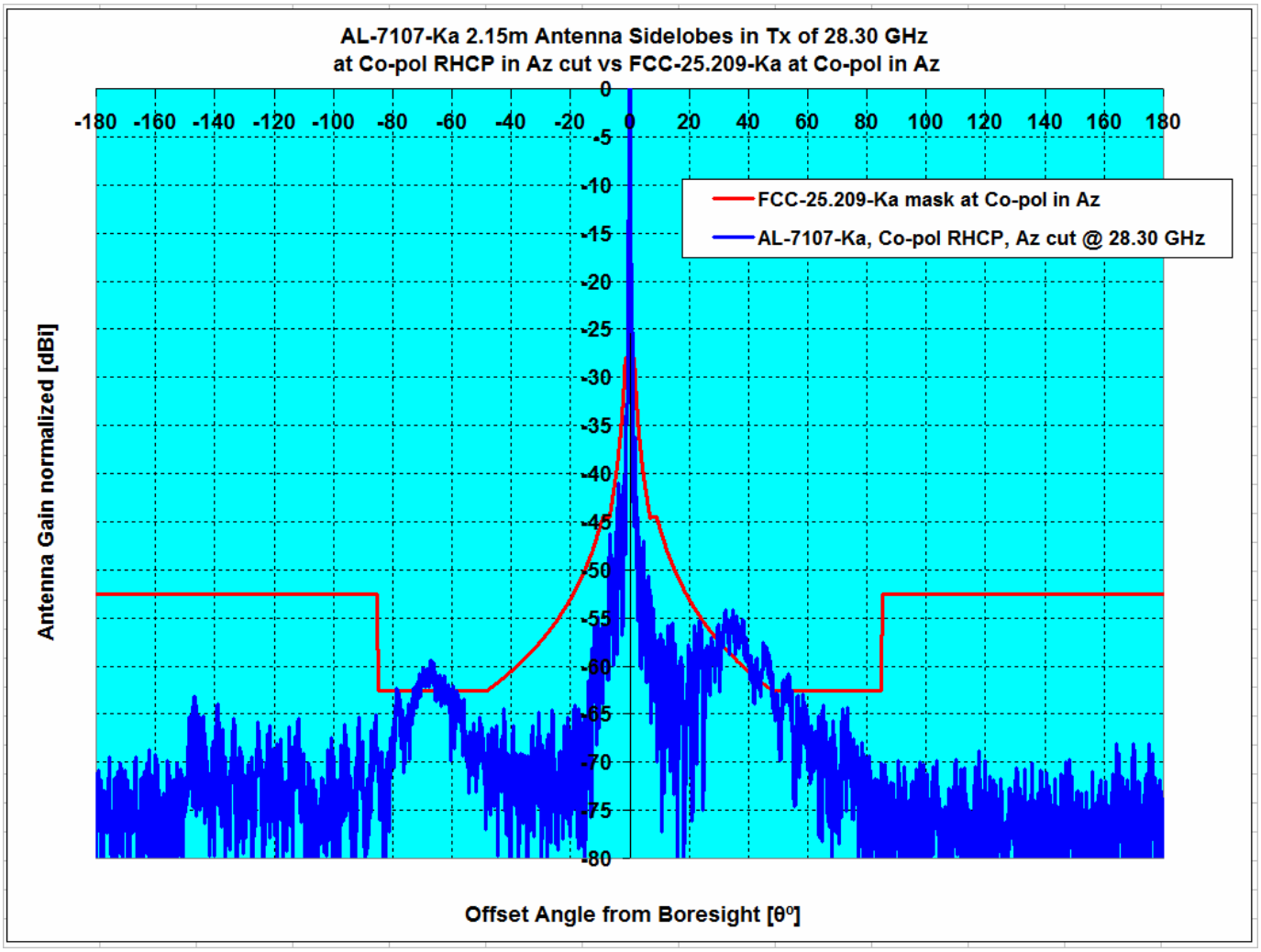
X-pol Azimuth RHCP, -10º to +10º @ 0.1º increment

-4.0	1.1	3.9	-2.8
-3.9	1.1	4.2	-3.1
-3.8	-3.0	4.5	-7.6
-3.7	-3.1	4.8	-7.9
-3.6	-2.0	5.1	-7.1
-3.5	-5.7	5.4	-11.1
-3.4	-7.8	5.7	-13.5
-3.3	-5.6	6.0	-11.7
-3.2	-9.8	6.4	-16.2
-3.1	-9.4	6.7	-16.1
-3.0	-3.0	7.1	-10.0
-2.9	-2.9	7.4	-10.4
-2.8	-5.3	7.8	-13.1
-2.7	-5.9	8.2	-14.1
-2.6	-4.4	8.6	-13.0
-2.5	-7.0	9.1	-16.0
-2.4	-3.0	9.5	-12.5
-2.3	1.5	10.0	-8.5
-2.2	2.5	10.4	-8.0
-2.1	3.9	10.9	-7.0
-2.0	2.9	11.5	-8.6
-1.9	-8.9	12.0	-20.9
-1.8	4.3	12.6	-8.3
-1.7	8.1		
-1.6	8.9		
-1.5	9.8		
-1.4	9.9		
-1.3	5.5		
-1.2	8.0		
-1.1	13.9		
-1.0	14.8		
-0.9	14.7		
-0.8	19.2		
-0.7	24.2		
-0.6	26.9		
-0.5	28.3		
-0.4	27.5		
-0.3	22.3		
-0.2	21.8		
-0.1	26.9		
0.0	27.6		

6.0	-18.3	-0.5	-17.9
6.1	-17.1	-0.6	-16.4
6.2	-18.1	-0.8	-17.3
6.3	-13.9	-1.0	-12.9
6.4	-8.8	-1.2	-7.6
6.5	-8.2	-1.3	-6.9
6.6	-9.3	-1.5	-7.8
6.7	-8.8	-1.7	-7.1
6.8	-7.5	-1.8	-5.7
6.9	-6.2	-2.0	-4.2
7.0	-7.3	-2.1	-5.1
7.1	-9.2	-2.0	-7.2
7.2	-10.4	-2.0	-8.4
7.3	-12.8	-2.0	-10.8
7.4	-14.5	-2.0	-12.5
7.5	-11.3	-2.0	-9.3
7.6	-8.7	-2.0	-6.7
7.7	-6.6	-2.0	-4.6
7.8	-5.0	-2.0	-3.0
7.9	-5.3	-2.0	-3.3
8.0	-6.1	-2.0	-4.1
8.1	-6.8	-2.0	-4.8
8.2	-8.3	-2.0	-6.3
8.3	-11.3	-2.0	-9.3
8.4	-12.9	-2.0	-10.9
8.5	-12.3	-2.0	-10.3
8.6	-10.0	-2.0	-8.0
8.7	-6.7	-2.0	-4.7
8.8	-5.6	-2.0	-3.6
8.9	-9.5	-2.0	-7.5
9.0	-9.6	-2.0	-7.6
9.1	-8.7	-2.0	-6.7
9.2	-9.6	-2.0	-7.6
9.3	-10.6	-2.0	-8.6
9.4	-11.9	-2.0	-9.9
9.5	-14.4	-2.0	-12.4
9.6	-13.1	-2.0	-11.1
9.7	-8.2	-2.0	-6.2
9.8	-9.6	-2.0	-7.6
9.9	-22.1	-2.0	-20.1
10.0	-10.8	-2.0	-8.8

Orbit Communication Systems Ltd.

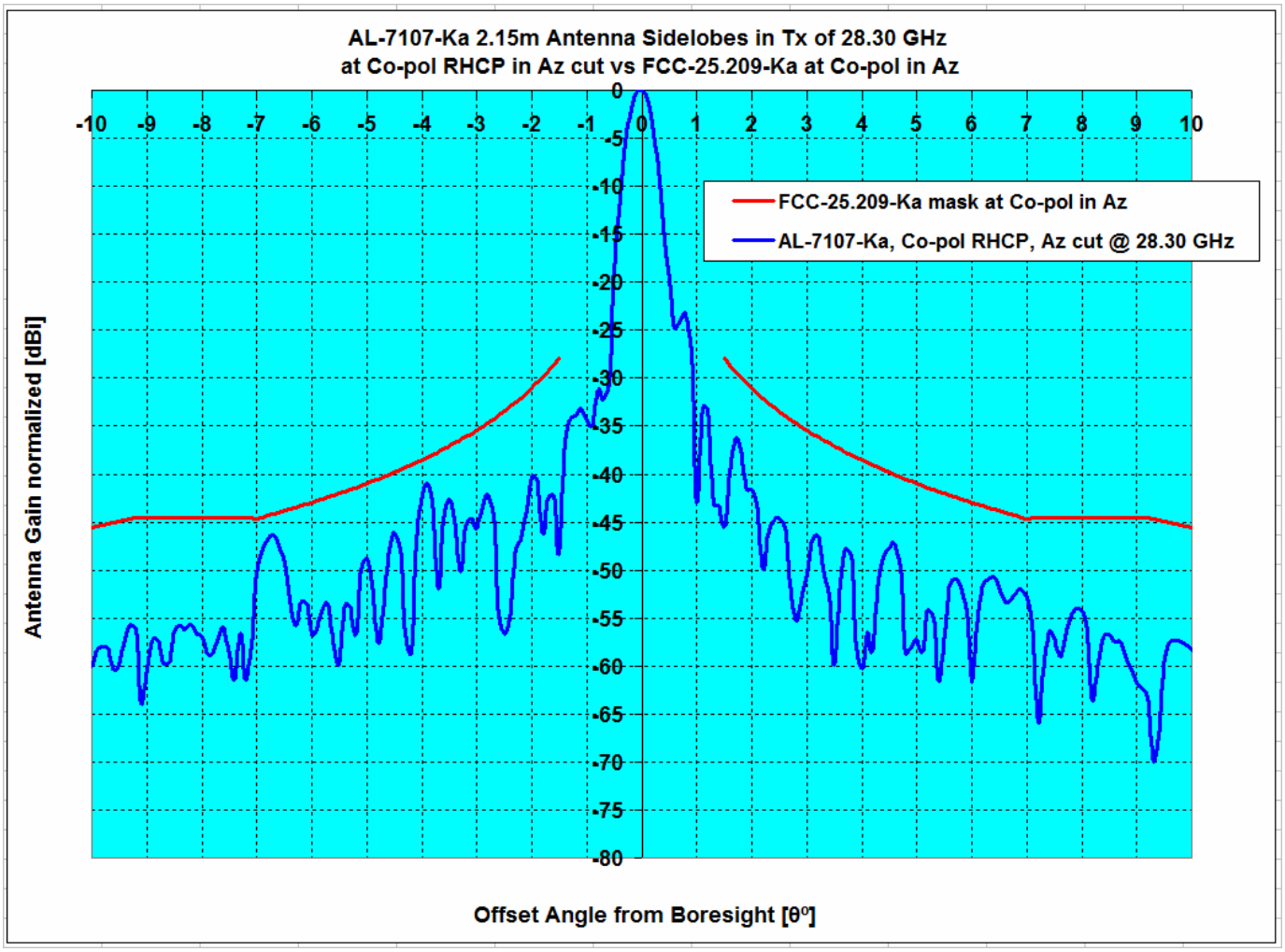
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Azimuth RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.5°≤θ≤7°	7°≤θ≤180°	1.5°≤θ≤7°	7°≤θ≤180°
FCC-25.209-Ka, Co-pol Az, vs AL-7107-Ka	Az , RHCP	28.30	52.51	-2.13	4.92	0.00%	7.22%

Orbit Communication Systems Ltd.

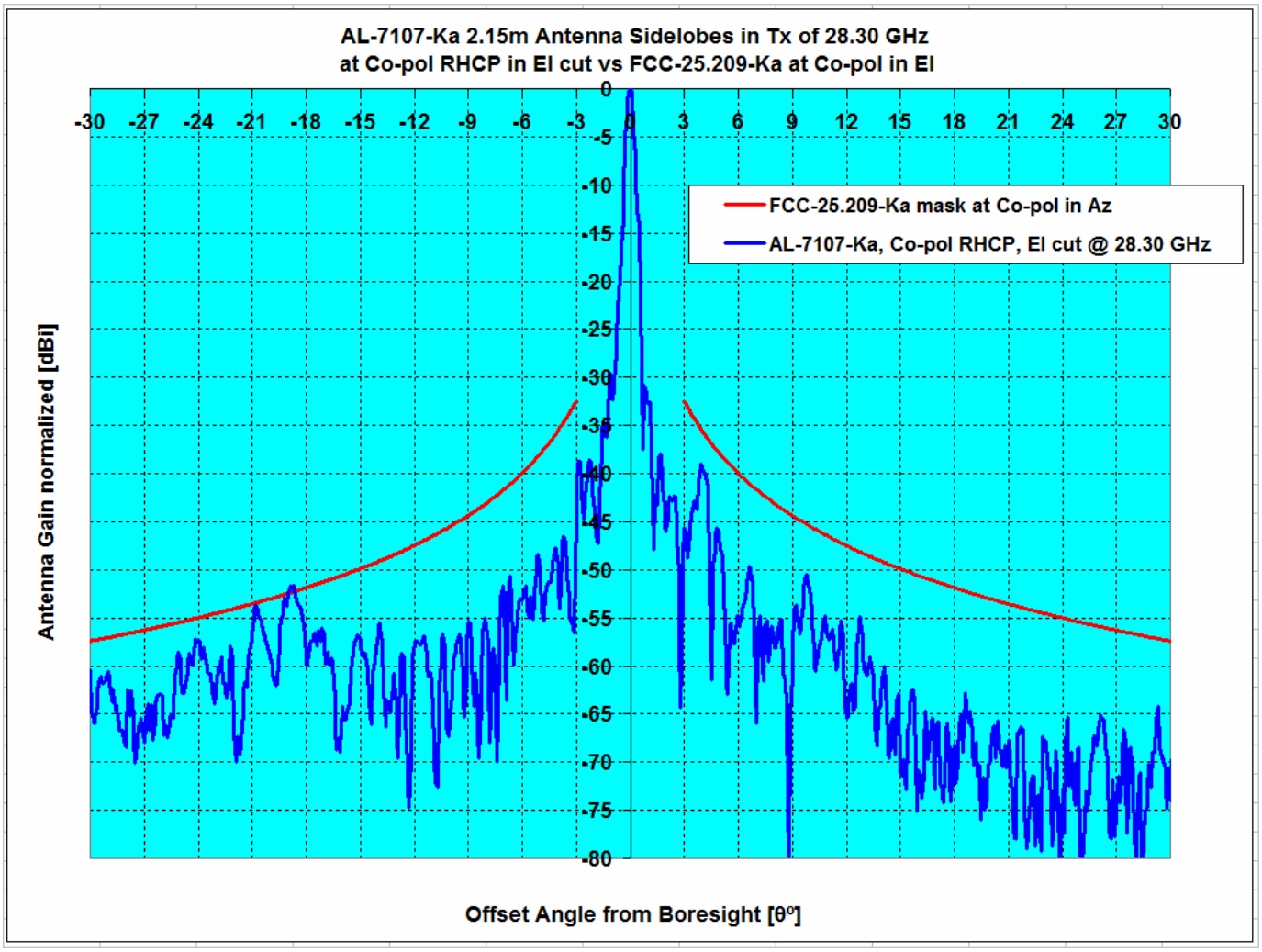
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Azimuth RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.5°≤θ≤7°	7°≤θ≤180°	1.5°≤θ≤7°	7°≤θ≤180°
FCC-25.209-Ka, Co-pol Az, vs AL-7107-Ka	Az , RHCP	28.30	52.51	-2.13	4.92	0.00%	7.22%

Orbit Communication Systems Ltd.

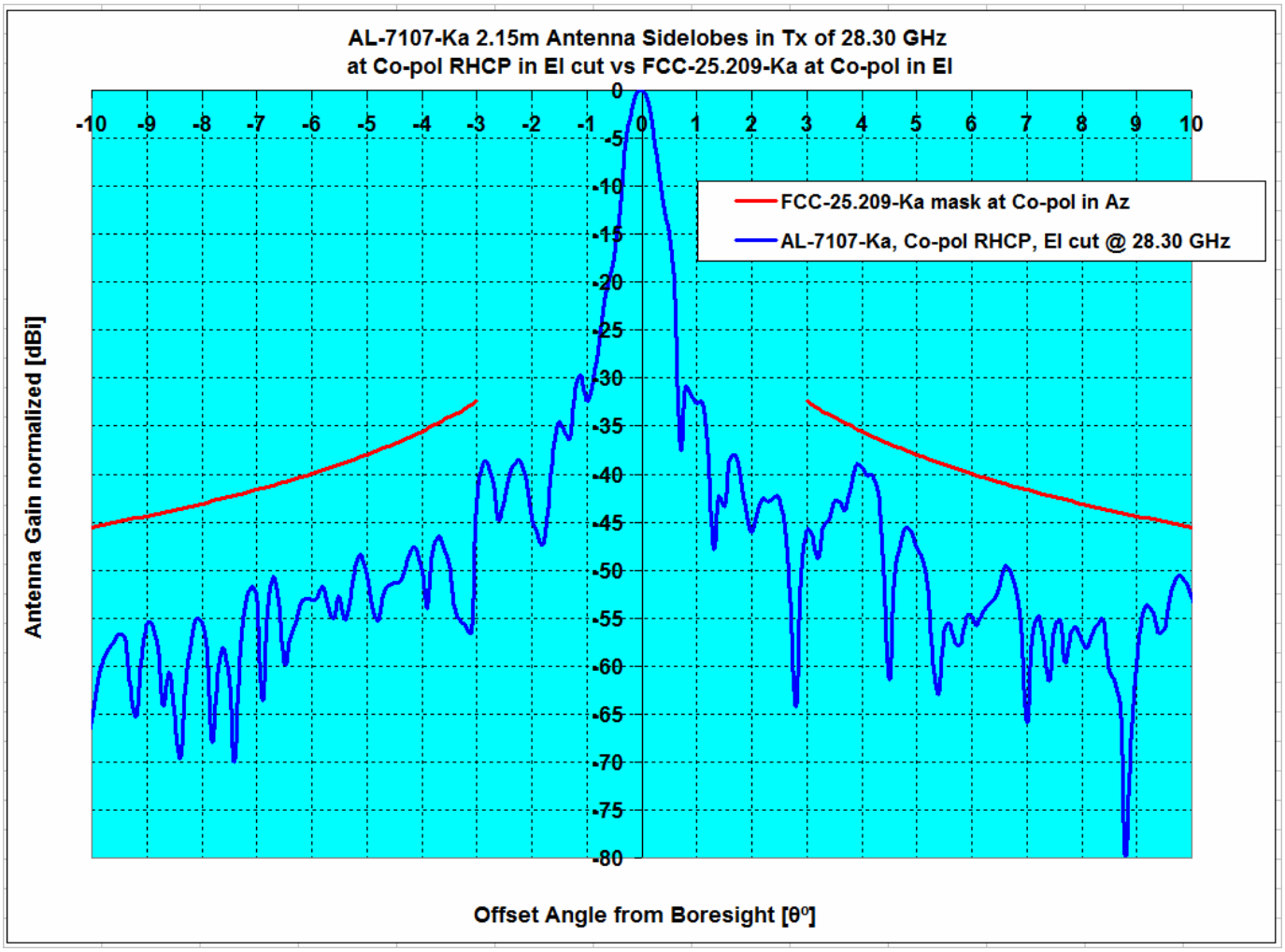
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Elevation RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	3°≤θ≤7°	7°≤θ≤30°	3°≤θ≤7°	7°≤θ≤30°
FCC-25.209-Ka, Co-pol El, vs AL-7107-Ka	El , RHCP	28.30	52.51	-3.67	0.77	0.00%	0.55%

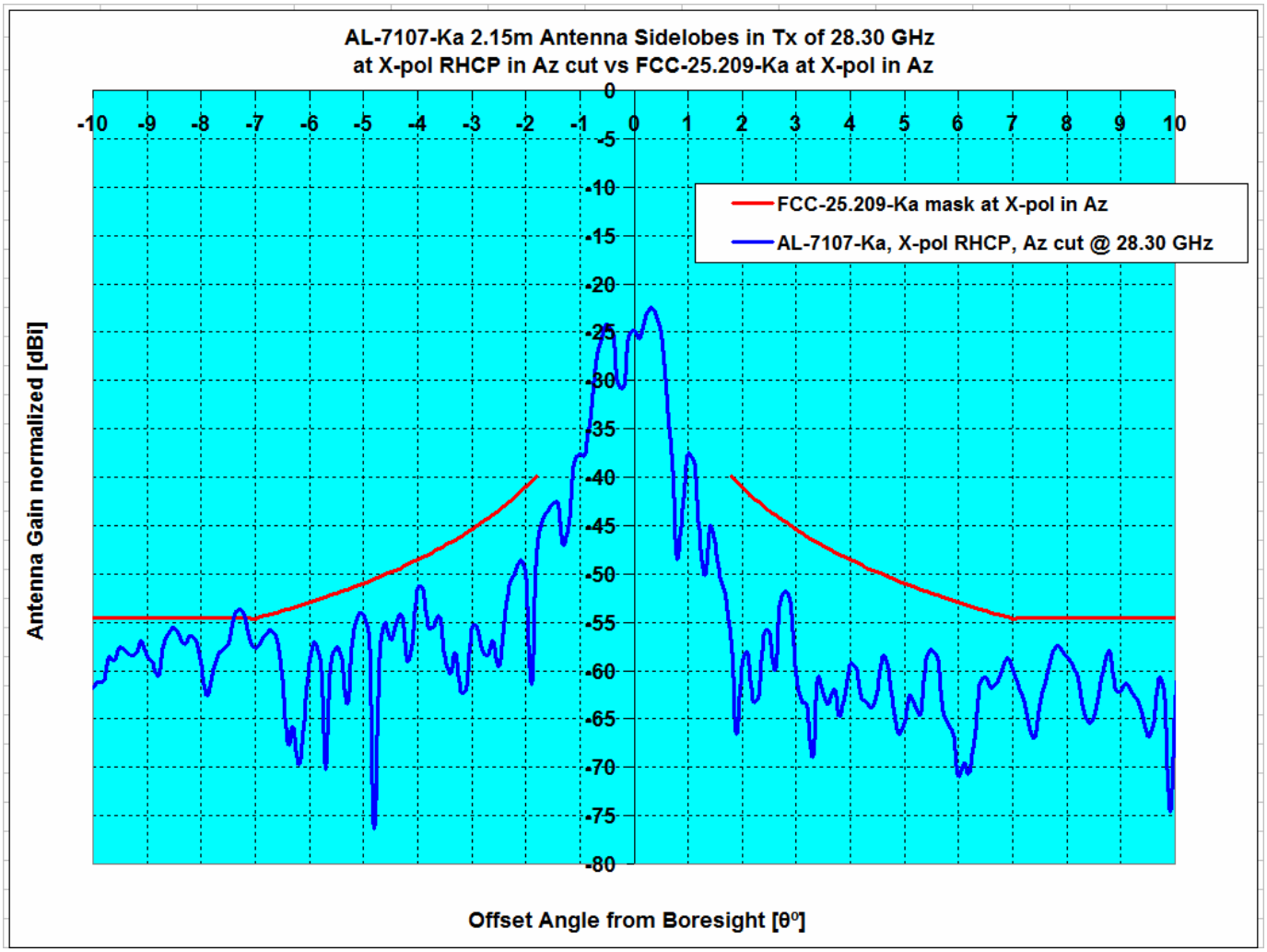
Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Elevation RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	3°≤θ≤7°	7°≤θ≤30°	3°≤θ≤7°	7°≤θ≤30°
FCC-25.209-Ka, Co-pol El, vs AL-7107-Ka	El , RHCP	28.30	52.51	-3.67	0.77	0.00%	0.55%

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern, X-pol, Azimuth RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.8°≤θ≤7°	1.8°≤θ≤9.2°	1.8°≤θ≤7°	1.8°≤θ≤9.2°
FCC-25.209-Ka, X-pol Az, vs AL-7107-Ka	Az , RHCP	28.30	52.51	-1.58	0.81	0.00%	1.20%

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -180º to +180º @ 1.0º increment

29.15 GHz Antenna Pattern in Co-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-179.0	-25.9	0.0	-25.9
-178.0	-18.2	0.0	-18.2
-177.0	-20.5	0.0	-20.5
-176.0	-25.0	0.0	-25.0
-175.0	-27.4	0.0	-27.4
-174.0	-27.4	0.0	-27.4
-173.0	-26.9	0.0	-26.9
-172.0	-27.4	0.0	-27.4
-171.0	-23.9	0.0	-23.9
-170.0	-25.9	0.0	-25.9
-169.0	-18.2	0.0	-18.2
-168.0	-20.5	0.0	-20.5
-167.0	-25.0	0.0	-25.0
-166.0	-27.4	0.0	-27.4
-165.0	-27.4	0.0	-27.4
-164.0	-26.9	0.0	-26.9
-163.0	-27.4	0.0	-27.4
-162.0	-19.4	0.0	-19.4
-161.0	-20.8	0.0	-20.8
-160.0	-27.0	0.0	-27.0
-159.0	-26.0	0.0	-26.0
-158.0	-27.4	0.0	-27.4
-157.0	-19.8	0.0	-19.8
-156.0	-27.4	0.0	-27.4
-155.0	-27.4	0.0	-27.4
-154.0	-20.7	0.0	-20.7
-153.0	-22.6	0.0	-22.6
-152.0	-15.2	0.0	-15.2
-151.0	-19.3	0.0	-19.3
-150.0	-17.7	0.0	-17.7
-149.0	-27.4	0.0	-27.4
-148.0	-25.8	0.0	-25.8
-147.0	-24.5	0.0	-24.5
-146.0	-15.8	0.0	-15.8
-145.0	-15.5	0.0	-15.5
-144.0	-20.2	0.0	-20.2
-143.0	-20.2	0.0	-20.2
-142.0	-21.6	0.0	-21.6
-141.0	-20.2	0.0	-20.2
-140.0	-16.0	0.0	-16.0
-139.0	-20.2	0.0	-20.2
-138.0	-20.6	0.0	-20.6
-137.0	-20.5	0.0	-20.5
-136.0	-23.7	0.0	-23.7
-135.0	-15.0	0.0	-15.0
-134.0	-15.9	0.0	-15.9
-133.0	-27.4	0.0	-27.4
-132.0	-25.2	0.0	-25.2
-131.0	-22.1	0.0	-22.1
-130.0	-16.0	0.0	-16.0
-129.0	-16.1	0.0	-16.1
-128.0	-18.9	0.0	-18.9
-127.0	-15.9	0.0	-15.9
-126.0	-15.0	0.0	-15.0
-125.0	-22.5	0.0	-22.5
-124.0	-19.5	0.0	-19.5
-123.0	-20.8	0.0	-20.8
-122.0	-25.3	0.0	-25.3
-121.0	-20.6	0.0	-20.6
-120.0	-26.0	0.0	-26.0

29.15 GHz Antenna Pattern in Co-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.6		
1.0	15.7		
2.0	10.0	21.5	-11.5
3.0	9.1	17.1	-8.0
4.0	-4.1	13.9	-18.1
5.0	-10.4	11.5	-21.9
6.0	0.3	9.5	-9.2
7.0	-14.1	7.9	-21.9
8.0	-5.4	8.0	-13.4
9.0	-3.3	8.0	-11.3
10.0	-5.3	7.0	-12.3
11.0	-15.6	6.0	-21.5
12.0	-3.1	5.0	-8.1
13.0	-6.7	4.2	-10.9
14.0	-12.7	3.3	-16.0
15.0	-17.4	2.6	-20.0
16.0	-23.4	1.9	-25.3
17.0	-16.6	1.2	-17.9
18.0	-14.4	0.6	-15.0
19.0	-19.6	0.0	-19.6
20.0	-10.9	-0.5	-10.3
21.0	-15.4	-1.1	-14.3
22.0	-4.5	-1.6	-3.0
23.0	-3.7	-2.0	-1.7
24.0	-5.9	-2.5	-3.4
25.0	-11.3	-2.9	-8.3
26.0	-7.7	-3.4	-4.3
27.0	-7.5	-3.8	-3.7
28.0	-13.5	-4.2	-9.3
29.0	-8.8	-4.6	-4.3
30.0	-7.2	-4.9	-2.3
31.0	-5.8	-5.3	-0.5
32.0	-9.8	-5.6	-4.2
33.0	-5.0	-6.0	0.9
34.0	-10.9	-6.3	-4.6
35.0	-9.4	-6.6	-2.8
36.0	-5.1	-6.9	1.9
37.0	-6.4	-7.2	0.8
38.0	-9.6	-7.5	-2.1
39.0	-9.4	-7.8	-1.6
40.0	-9.6	-8.1	-1.5
41.0	-12.3	-8.3	-4.0
42.0	-11.1	-8.6	-2.5
43.0	-11.7	-8.8	-2.9
44.0	-9.0	-9.1	0.1
45.0	-9.2	-9.3	0.1
46.0	-9.5	-9.6	0.1
47.0	-7.6	-9.8	2.2
48.0	-14.1	-10.0	-4.1
49.0	-10.6	-10.0	-0.6
50.0	-13.3	-10.0	-3.3
51.0	-21.6	-10.0	-11.6
52.0	-16.7	-10.0	-6.7
53.0	-14.1	-10.0	-4.1
54.0	-16.3	-10.0	-6.3
55.0	-19.5	-10.0	-9.5
56.0	-26.5	-10.0	-16.5
57.0	-23.2	-10.0	-13.2
58.0	-19.6	-10.0	-9.6
59.0	-25.0	-10.0	-15.0

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -180º to +180º @ 1.0º increment

-119.0	-26.2	0.0	-26.2
-118.0	-24.0	0.0	-24.0
-117.0	-26.3	0.0	-26.3
-116.0	-22.1	0.0	-22.1
-115.0	-27.4	0.0	-27.4
-114.0	-22.4	0.0	-22.4
-113.0	-17.6	0.0	-17.6
-112.0	-19.9	0.0	-19.9
-111.0	-17.4	0.0	-17.4
-110.0	-17.3	0.0	-17.3
-109.0	-27.4	0.0	-27.4
-108.0	-24.7	0.0	-24.7
-107.0	-25.2	0.0	-25.2
-106.0	-20.2	0.0	-20.2
-105.0	-20.5	0.0	-20.5
-104.0	-19.9	0.0	-19.9
-103.0	-20.1	0.0	-20.1
-102.0	-16.2	0.0	-16.2
-101.0	-23.3	0.0	-23.3
-100.0	-17.0	0.0	-17.0
-99.0	-20.0	0.0	-20.0
-98.0	-27.4	0.0	-27.4
-97.0	-23.7	0.0	-23.7
-96.0	-27.4	0.0	-27.4
-95.0	-19.7	0.0	-19.7
-94.0	-19.6	0.0	-19.6
-93.0	-22.6	0.0	-22.6
-92.0	-20.0	0.0	-20.0
-91.0	-18.8	0.0	-18.8
-90.0	-21.7	0.0	-21.7
-89.0	-27.2	0.0	-27.2
-88.0	-18.7	0.0	-18.7
-87.0	-15.9	0.0	-15.9
-86.0	-13.3	0.0	-13.3
-85.0	-13.3	-10.0	-3.3
-84.0	-15.3	-10.0	-5.3
-83.0	-20.2	-10.0	-10.2
-82.0	-20.2	-10.0	-10.2
-81.0	-12.7	-10.0	-2.7
-80.0	-12.8	-10.0	-2.8
-79.0	-10.3	-10.0	-0.3
-78.0	-9.3	-10.0	0.7
-77.0	-16.7	-10.0	-6.7
-76.0	-14.2	-10.0	-4.2
-75.0	-14.6	-10.0	-4.6
-74.0	-10.9	-10.0	-0.9
-73.0	-10.2	-10.0	-0.2
-72.0	-6.9	-10.0	3.1
-71.0	-6.7	-10.0	3.3
-70.0	-5.8	-10.0	4.2
-69.0	-6.8	-10.0	3.2
-68.0	-4.7	-10.0	5.3
-67.0	-4.6	-10.0	5.4
-66.0	-5.1	-10.0	4.9
-65.0	-6.4	-10.0	3.6
-64.0	-4.8	-10.0	5.2
-63.0	-6.9	-10.0	3.1
-62.0	-7.4	-10.0	2.6
-61.0	-9.4	-10.0	0.6
-60.0	-10.4	-10.0	-0.4
-59.0	-11.1	-10.0	-1.1
-58.0	-11.5	-10.0	-1.5
-57.0	-15.0	-10.0	-5.0

60.0	-22.4	-10.0	-12.4
61.0	-25.4	-10.0	-15.4
62.0	-24.5	-10.0	-14.5
63.0	-27.4	-10.0	-17.4
64.0	-18.1	-10.0	-8.1
65.0	-19.8	-10.0	-9.8
66.0	-27.4	-10.0	-17.4
67.0	-19.9	-10.0	-9.9
68.0	-25.1	-10.0	-15.1
69.0	-21.3	-10.0	-11.3
70.0	-20.3	-10.0	-10.3
71.0	-19.9	-10.0	-9.9
72.0	-16.1	-10.0	-6.1
73.0	-15.1	-10.0	-5.1
74.0	-17.3	-10.0	-7.3
75.0	-17.4	-10.0	-7.4
76.0	-19.9	-10.0	-9.9
77.0	-27.4	-10.0	-17.4
78.0	-20.4	-10.0	-10.4
79.0	-27.4	-10.0	-17.4
80.0	-21.5	-10.0	-11.5
81.0	-22.2	-10.0	-12.2
82.0	-23.5	-10.0	-13.5
83.0	-23.1	-10.0	-13.1
84.0	-26.5	-10.0	-16.5
85.0	-27.4	-10.0	-17.4
86.0	-25.4	0.0	-25.4
87.0	-21.5	0.0	-21.5
88.0	-19.6	0.0	-19.6
89.0	-25.7	0.0	-25.7
90.0	-18.6	0.0	-18.6
91.0	-25.0	0.0	-25.0
92.0	-26.8	0.0	-26.8
93.0	-27.4	0.0	-27.4
94.0	-18.2	0.0	-18.2
95.0	-25.1	0.0	-25.1
96.0	-22.6	0.0	-22.6
97.0	-24.3	0.0	-24.3
98.0	-25.3	0.0	-25.3
99.0	-27.3	0.0	-27.3
100.0	-19.9	0.0	-19.9
101.0	-21.8	0.0	-21.8
102.0	-24.4	0.0	-24.4
103.0	-22.8	0.0	-22.8
104.0	-22.2	0.0	-22.2
105.0	-19.6	0.0	-19.6
106.0	-24.5	0.0	-24.5
107.0	-23.1	0.0	-23.1
108.0	-23.4	0.0	-23.4
109.0	-24.9	0.0	-24.9
110.0	-23.0	0.0	-23.0
111.0	-24.6	0.0	-24.6
112.0	-19.7	0.0	-19.7
113.0	-24.1	0.0	-24.1
114.0	-25.2	0.0	-25.2
115.0	-22.9	0.0	-22.9
116.0	-23.2	0.0	-23.2
117.0	-27.1	0.0	-27.1
118.0	-25.0	0.0	-25.0
119.0	-27.0	0.0	-27.0
120.0	-27.4	0.0	-27.4
121.0	-26.7	0.0	-26.7
122.0	-21.1	0.0	-21.1

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -180º to +180º @ 1.0º increment

-56.0	-15.1	-10.0	-5.1
-55.0	-14.6	-10.0	-4.6
-54.0	-15.9	-10.0	-5.9
-53.0	-11.4	-10.0	-1.4
-52.0	-11.8	-10.0	-1.8
-51.0	-15.5	-10.0	-5.5
-50.0	-15.8	-10.0	-5.8
-49.0	-16.5	-10.0	-6.5
-48.0	-20.7	-10.0	-10.7
-47.0	-27.4	-9.8	-17.6
-46.0	-14.0	-9.6	-4.4
-45.0	-15.7	-9.3	-6.4
-44.0	-12.7	-9.1	-3.6
-43.0	-18.4	-8.8	-9.6
-42.0	-16.2	-8.6	-7.6
-41.0	-17.4	-8.3	-9.0
-40.0	-16.9	-8.1	-8.9
-39.0	-22.9	-7.8	-15.1
-38.0	-22.0	-7.5	-14.5
-37.0	-18.9	-7.2	-11.7
-36.0	-14.3	-6.9	-7.4
-35.0	-18.4	-6.6	-11.8
-34.0	-15.6	-6.3	-9.3
-33.0	-16.2	-6.0	-10.2
-32.0	-17.3	-5.6	-11.6
-31.0	-19.6	-5.3	-14.3
-30.0	-14.8	-4.9	-9.9
-29.0	-18.2	-4.6	-13.7
-28.0	-19.4	-4.2	-15.2
-27.0	-21.4	-3.8	-17.6
-26.0	-21.2	-3.4	-17.8
-25.0	-10.8	-2.9	-7.8
-24.0	-19.7	-2.5	-17.2
-23.0	-18.1	-2.0	-16.1
-22.0	-19.3	-1.6	-17.8
-21.0	-19.3	-1.1	-18.2
-20.0	-18.0	-0.5	-17.5
-19.0	-20.8	0.0	-20.8
-18.0	-19.2	0.6	-19.8
-17.0	-18.9	1.2	-20.2
-16.0	-8.8	1.9	-10.7
-15.0	-22.5	2.6	-25.1
-14.0	-12.8	3.3	-16.2
-13.0	-10.9	4.2	-15.1
-12.0	-12.0	5.0	-17.1
-11.0	-6.4	6.0	-12.4
-10.0	-3.1	7.0	-10.1
-9.0	-8.1	8.0	-16.1
-8.0	-7.7	8.0	-15.7
-7.0	-2.7	7.9	-10.5
-6.0	0.8	9.5	-8.8
-5.0	-8.5	11.5	-20.0
-4.0	-5.6	13.9	-19.6
-3.0	7.9	17.1	-9.2
-2.0	4.7	21.5	-16.7
-1.0	17.2		
0.0	52.6		

123.0	-25.5	0.0	-25.5
124.0	-22.2	0.0	-22.2
125.0	-19.5	0.0	-19.5
126.0	-27.4	0.0	-27.4
127.0	-24.9	0.0	-24.9
128.0	-21.7	0.0	-21.7
129.0	-25.5	0.0	-25.5
130.0	-21.6	0.0	-21.6
131.0	-26.1	0.0	-26.1
132.0	-27.4	0.0	-27.4
133.0	-27.4	0.0	-27.4
134.0	-25.8	0.0	-25.8
135.0	-27.1	0.0	-27.1
136.0	-26.9	0.0	-26.9
137.0	-27.4	0.0	-27.4
138.0	-21.9	0.0	-21.9
139.0	-24.9	0.0	-24.9
140.0	-22.5	0.0	-22.5
141.0	-20.8	0.0	-20.8
142.0	-27.4	0.0	-27.4
143.0	-25.8	0.0	-25.8
144.0	-27.4	0.0	-27.4
145.0	-27.4	0.0	-27.4
146.0	-24.8	0.0	-24.8
147.0	-23.5	0.0	-23.5
148.0	-27.4	0.0	-27.4
149.0	-23.6	0.0	-23.6
150.0	-23.9	0.0	-23.9
151.0	-27.1	0.0	-27.1
152.0	-26.7	0.0	-26.7
153.0	-22.1	0.0	-22.1
154.0	-27.4	0.0	-27.4
155.0	-18.6	0.0	-18.6
156.0	-27.4	0.0	-27.4
157.0	-27.4	0.0	-27.4
158.0	-27.4	0.0	-27.4
159.0	-25.5	0.0	-25.5
160.0	-25.5	0.0	-25.5
161.0	-20.0	0.0	-20.0
162.0	-26.2	0.0	-26.2
163.0	-20.2	0.0	-20.2
164.0	-24.1	0.0	-24.1
165.0	-27.4	0.0	-27.4
166.0	-24.5	0.0	-24.5
167.0	-27.4	0.0	-27.4
168.0	-27.4	0.0	-27.4
169.0	-27.4	0.0	-27.4
170.0	-27.0	0.0	-27.0
171.0	-26.5	0.0	-26.5
172.0	-27.4	0.0	-27.4
173.0	-27.4	0.0	-27.4
174.0	-22.7	0.0	-22.7
175.0	-24.8	0.0	-24.8
176.0	-23.7	0.0	-23.7
177.0	-27.4	0.0	-27.4
178.0	-27.4	0.0	-27.4
179.0	-23.9	0.0	-23.9

Orbit Communication Systems Ltd.

AL AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -10º to +10º @ 0.1º increment

29.15 GHz Antenna Pattern in Co-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-3.1	7.0	-10.1
-9.9	-1.1	7.1	-8.2
-9.8	0.0	7.2	-7.2
-9.7	-0.9	7.3	-8.2
-9.6	-3.1	7.4	-10.6
-9.5	-5.3	7.6	-12.9
-9.4	-4.9	7.7	-12.6
-9.3	-3.9	7.8	-11.7
-9.2	-7.4	8.0	-15.4
-9.1	-21.4	8.0	-29.4
-9.0	-8.1	8.0	-16.1
-8.9	-10.1	8.0	-18.1
-8.8	-15.8	8.0	-23.8
-8.7	-13.9	8.0	-21.9
-8.6	-12.0	8.0	-20.0
-8.5	-10.7	8.0	-18.7
-8.4	-11.6	8.0	-19.6
-8.3	-22.0	8.0	-30.0
-8.2	-11.0	8.0	-19.0
-8.1	-8.0	8.0	-16.0
-8.0	-7.7	8.0	-15.7
-7.9	-5.5	8.0	-13.5
-7.8	-4.3	8.0	-12.3
-7.7	-1.4	8.0	-9.4
-7.6	-0.2	8.0	-8.2
-7.5	-1.4	8.0	-9.4
-7.4	-1.9	8.0	-9.9
-7.3	0.6	8.0	-7.4
-7.2	1.2	8.0	-6.8
-7.1	0.6	8.0	-7.4
-7.0	-2.7	7.9	-10.5
-6.9	1.6	8.0	-6.5
-6.8	4.5	8.2	-3.7
-6.7	4.1	8.3	-4.2
-6.6	0.3	8.5	-8.2
-6.5	-0.8	8.7	-9.4
-6.4	1.1	8.8	-7.7
-6.3	2.0	9.0	-7.0
-6.2	2.1	9.2	-7.1
-6.1	1.7	9.4	-7.7
-6.0	0.8	9.5	-8.8
-5.9	-4.8	9.7	-14.5
-5.8	-9.4	9.9	-19.4
-5.7	-9.5	10.1	-19.6
-5.6	-11.1	10.3	-21.4
-5.5	-4.8	10.5	-15.3
-5.4	-6.1	10.7	-16.8
-5.3	-11.4	10.9	-22.3
-5.2	-0.5	11.1	-11.6
-5.1	0.5	11.3	-10.8
-5.0	-8.5	11.5	-20.0
-4.9	0.6	11.7	-11.1
-4.8	3.9	12.0	-8.1
-4.7	3.7	12.2	-8.5
-4.6	-0.2	12.4	-12.7
-4.5	2.0	12.7	-10.7
-4.4	6.2	12.9	-6.7
-4.3	6.8	13.2	-6.4
-4.2	3.1	13.4	-10.3
-4.1	-6.1	13.7	-19.8

29.15 GHz Antenna Pattern in Co-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.6		
0.1	52.1		
0.2	49.8		
0.3	45.8		
0.4	41.1		
0.5	36.3		
0.6	30.2		
0.7	30.3		
0.8	30.7		
0.9	27.6		
1.0	15.7		
1.1	16.3		
1.2	13.9		
1.3	11.0		
1.4	16.1		
1.5	15.6	24.6	-9.0
1.6	17.2	23.9	-6.7
1.7	17.8	23.2	-5.4
1.8	15.5	22.6	-7.1
1.9	11.3	22.0	-10.7
2.0	10.0	21.5	-11.5
2.1	3.6	20.9	-17.4
2.2	1.7	20.4	-18.7
2.3	6.1	20.0	-13.9
2.4	5.7	19.5	-13.8
2.5	5.5	19.1	-13.5
2.6	2.4	18.6	-16.2
2.7	-0.1	18.2	-18.3
2.8	5.3	17.8	-12.5
2.9	7.2	17.4	-10.2
3.0	9.1	17.1	-8.0
3.1	9.3	16.7	-7.4
3.2	5.0	16.4	-11.4
3.3	-8.7	16.0	-24.8
3.4	-5.4	15.7	-21.1
3.5	-8.2	15.4	-23.6
3.6	4.0	15.1	-11.1
3.7	6.1	14.8	-8.7
3.8	3.6	14.5	-10.9
3.9	-6.5	14.2	-20.8
4.0	-4.1	13.9	-18.1
4.1	0.1	13.7	-13.6
4.2	2.2	13.4	-11.2
4.3	1.7	13.2	-11.4
4.4	0.7	12.9	-12.2
4.5	-1.2	12.7	-13.8
4.6	-4.5	12.4	-17.0
4.7	-4.3	12.2	-16.5
4.8	-2.6	12.0	-14.5
4.9	-7.5	11.7	-19.3
5.0	-10.4	11.5	-21.9
5.1	-4.9	11.3	-16.2
5.2	-5.1	11.1	-16.2
5.3	0.3	10.9	-10.6
5.4	3.7	10.7	-7.0
5.5	2.2	10.5	-8.3
5.6	-1.1	10.3	-11.4
5.7	-5.4	10.1	-15.5
5.8	-6.4	9.9	-16.3
5.9	-2.4	9.7	-12.1

Orbit Communication Systems Ltd.
AL AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth LHCP, -10º to +10º @ 0.1º increment

-4.0	-5.6	13.9	-19.6
-3.9	6.4	14.2	-7.8
-3.8	11.2	14.5	-3.3
-3.7	11.7	14.8	-3.1
-3.6	8.0	15.1	-7.1
-3.5	-3.3	15.4	-18.7
-3.4	6.3	15.7	-9.4
-3.3	7.0	16.0	-9.0
-3.2	5.1	16.4	-11.2
-3.1	6.4	16.7	-10.3
-3.0	7.9	17.1	-9.2
-2.9	6.3	17.4	-11.1
-2.8	9.1	17.8	-8.7
-2.7	11.5	18.2	-6.7
-2.6	10.4	18.6	-8.3
-2.5	5.3	19.1	-13.8
-2.4	-2.4	19.5	-21.9
-2.3	-3.5	20.0	-23.5
-2.2	4.1	20.4	-16.4
-2.1	2.6	20.9	-18.3
-2.0	4.7	21.5	-16.7
-1.9	10.5	22.0	-11.5
-1.8	9.6	22.6	-13.0
-1.7	3.7	23.2	-19.6
-1.6	4.3	23.9	-19.6
-1.5	3.1	24.6	-21.5
-1.4	15.0		
-1.3	18.8		
-1.2	19.0		
-1.1	19.0		
-1.0	17.2		
-0.9	11.0		
-0.8	15.9		
-0.7	14.0		
-0.6	23.0		
-0.5	32.8		
-0.4	39.9		
-0.3	45.8		
-0.2	49.9		
-0.1	52.1		
0.0	52.6		

6.0	0.3	9.5	-9.2
6.1	-0.4	9.4	-9.7
6.2	1.4	9.2	-7.8
6.3	0.7	9.0	-8.3
6.4	1.7	8.8	-7.2
6.5	3.3	8.7	-5.4
6.6	4.2	8.5	-4.3
6.7	3.2	8.3	-5.2
6.8	1.1	8.2	-7.1
6.9	-3.6	8.0	-11.6
7.0	-14.1	7.9	-21.9
7.1	-2.0	8.0	-10.0
7.2	-1.5	8.0	-9.5
7.3	-3.8	8.0	-11.8
7.4	-8.8	8.0	-16.8
7.5	-6.5	8.0	-14.5
7.6	-4.2	8.0	-12.2
7.7	-1.8	8.0	-9.8
7.8	-3.3	8.0	-11.3
7.9	-6.4	8.0	-14.4
8.0	-5.4	8.0	-13.4
8.1	-2.0	8.0	-10.0
8.2	-2.9	8.0	-10.9
8.3	-2.0	8.0	-10.0
8.4	-2.3	8.0	-10.3
8.5	-5.0	8.0	-13.0
8.6	-11.5	8.0	-19.5
8.7	-15.8	8.0	-23.8
8.8	-13.6	8.0	-21.6
8.9	-4.8	8.0	-12.8
9.0	-3.3	8.0	-11.3
9.1	-3.1	8.0	-11.1
9.2	-6.1	8.0	-14.1
9.3	-3.4	7.8	-11.1
9.4	-1.0	7.7	-8.6
9.5	-1.4	7.6	-8.9
9.6	-1.7	7.4	-9.2
9.7	-6.2	7.3	-13.6
9.8	-12.8	7.2	-20.0
9.9	-14.5	7.1	-21.6
10.0	-5.3	7.0	-12.3

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation LHCP, -30º to +30º @ 0.5º increment

29.15 GHz Antenna Pattern in Co-pol El LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-30.0	-7.6	-4.9	-2.7
-29.5	-9.3	-4.7	-4.5
-29.0	-9.0	-4.6	-4.5
-28.5	-7.4	-4.4	-3.1
-28.0	-9.3	-4.2	-5.1
-27.5	-13.4	-4.0	-9.4
-27.0	-12.8	-3.8	-9.1
-26.5	-12.4	-3.6	-8.8
-26.0	-7.6	-3.4	-4.2
-25.5	-7.8	-3.2	-4.7
-25.0	-13.4	-2.9	-10.4
-24.5	-5.6	-2.7	-2.8
-24.0	-8.2	-2.5	-5.7
-23.5	-14.3	-2.3	-12.0
-23.0	-14.6	-2.0	-12.5
-22.5	-18.2	-1.8	-16.4
-22.0	-16.2	-1.6	-14.6
-21.5	-6.2	-1.3	-4.9
-21.0	-6.2	-1.1	-5.1
-20.5	-6.1	-0.8	-5.3
-20.0	-2.2	-0.5	-1.7
-19.5	-0.5	-0.3	-0.3
-19.0	-0.5	0.0	-0.5
-18.5	-2.6	0.3	-2.9
-18.0	-5.4	0.6	-6.0
-17.5	-12.2	0.9	-13.1
-17.0	-11.4	1.2	-12.6
-16.5	-11.3	1.6	-12.8
-16.0	-19.4	1.9	-21.3
-15.5	-11.4	2.2	-13.6
-15.0	-4.8	2.6	-7.4
-14.5	-10.5	3.0	-13.5
-14.0	-4.3	3.3	-7.7
-13.5	-9.2	3.7	-12.9
-13.0	-6.5	4.2	-10.6
-12.5	-4.3	4.6	-8.9
-12.0	-15.5	5.0	-20.5
-11.5	-5.2	5.5	-10.7
-11.0	-6.8	6.0	-12.8
-10.5	-6.6	6.5	-13.1
-10.0	-9.6	7.0	-16.6
-9.5	-4.5	7.6	-12.1
-9.0	-5.3	8.1	-13.4
-8.5	-10.2	8.8	-19.0
-8.0	-2.9	9.4	-12.4
-7.5	-7.3	10.1	-17.4
-7.0	1.0	10.9	-9.8
-6.5	1.0	11.7	-10.7
-6.0	1.3	12.5	-11.2
-5.5	-0.8	13.5	-14.3
-5.0	3.8	14.5	-10.7
-4.5	4.6	15.7	-11.0
-4.0	10.0	16.9	-6.9
-3.5	8.8	18.4	-9.6
-3.0	-1.5		
-2.5	11.3		
-2.0	11.7		
-1.5	18.8		
-1.0	22.6		
-0.5	34.4		
0.0	52.6		

29.15 GHz Antenna Pattern in Co-pol El LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.6		
0.5	37.1		
1.0	18.1		
1.5	10.2		
2.0	10.3		
2.5	6.9		
3.0	1.1		
3.5	12.4	18.4	-6.0
4.0	14.0	16.9	-2.9
4.5	2.9	15.7	-12.8
5.0	10.3	14.5	-4.3
5.5	2.8	13.5	-10.7
6.0	-3.4	12.5	-16.0
6.5	2.4	11.7	-9.3
7.0	-4.1	10.9	-15.0
7.5	-11.7	10.1	-21.8
8.0	-7.8	9.4	-17.2
8.5	-7.8	8.8	-16.5
9.0	-7.6	8.1	-15.7
9.5	-5.3	7.6	-12.9
10.0	1.0	7.0	-6.0
10.5	-8.9	6.5	-15.3
11.0	-5.1	6.0	-11.0
11.5	-6.7	5.5	-12.1
12.0	-10.0	5.0	-15.0
12.5	-2.5	4.6	-7.1
13.0	-3.9	4.2	-8.1
13.5	-8.1	3.7	-11.8
14.0	-19.9	3.3	-23.2
14.5	-14.1	3.0	-17.0
15.0	-12.9	2.6	-15.5
15.5	-23.7	2.2	-25.9
16.0	-25.9	1.9	-27.8
16.5	-11.2	1.6	-12.8
17.0	-14.8	1.2	-16.1
17.5	-15.9	0.9	-16.8
18.0	-12.5	0.6	-13.2
18.5	-11.1	0.3	-11.4
19.0	-26.4	0.0	-26.5
19.5	-10.5	-0.3	-10.3
20.0	-15.3	-0.5	-14.8
20.5	-15.6	-0.8	-14.8
21.0	-14.4	-1.1	-13.4
21.5	-16.2	-1.3	-14.8
22.0	-16.7	-1.6	-15.2
22.5	-14.3	-1.8	-12.5
23.0	-18.5	-2.0	-16.4
23.5	-15.9	-2.3	-13.6
24.0	-20.1	-2.5	-17.6
24.5	-26.6	-2.7	-23.9
25.0	-22.3	-2.9	-19.3
25.5	-20.3	-3.2	-17.2
26.0	-21.3	-3.4	-17.9
26.5	-18.1	-3.6	-14.5
27.0	-19.6	-3.8	-15.8
27.5	-20.4	-4.0	-16.4
28.0	-22.4	-4.2	-18.3
28.5	-23.5	-4.4	-19.2
29.0	-22.5	-4.6	-17.9
29.5	-21.3	-4.7	-16.5
30.0	-18.5	-4.9	-13.6

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation LHCP, -10º to +10º @ 0.1º increment

29.15 GHz Antenna Pattern in Co-pol El LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-9.6	7.0	-16.6
-9.9	-17.7	7.1	-24.8
-9.8	-11.4	7.2	-18.6
-9.7	-3.5	7.3	-10.8
-9.6	-2.1	7.4	-9.5
-9.5	-4.5	7.6	-12.1
-9.4	-10.7	7.7	-18.4
-9.3	-12.1	7.8	-19.9
-9.2	-9.6	7.9	-17.5
-9.1	-10.0	8.0	-18.0
-9.0	-5.3	8.1	-13.4
-8.9	-3.8	8.3	-12.1
-8.8	-2.5	8.4	-10.9
-8.7	-2.0	8.5	-10.5
-8.6	-3.3	8.6	-11.9
-8.5	-10.2	8.8	-19.0
-8.4	-8.5	8.9	-17.4
-8.3	-7.6	9.0	-16.6
-8.2	-5.2	9.2	-14.4
-8.1	-4.4	9.3	-13.7
-8.0	-2.9	9.4	-12.4
-7.9	-2.1	9.6	-11.6
-7.8	-1.8	9.7	-11.5
-7.7	-2.6	9.8	-12.4
-7.6	-5.3	10.0	-15.3
-7.5	-7.3	10.1	-17.4
-7.4	-7.0	10.3	-17.2
-7.3	-8.7	10.4	-19.1
-7.2	-12.2	10.6	-22.8
-7.1	-4.4	10.7	-15.2
-7.0	1.0	10.9	-9.8
-6.9	2.1	11.0	-8.9
-6.8	-0.1	11.2	-11.3
-6.7	-7.6	11.3	-18.9
-6.6	0.9	11.5	-10.6
-6.5	1.0	11.7	-10.7
-6.4	-1.6	11.8	-13.4
-6.3	-7.1	12.0	-19.1
-6.2	-2.5	12.2	-14.7
-6.1	-0.2	12.4	-12.5
-6.0	1.3	12.5	-11.2
-5.9	-0.1	12.7	-12.9
-5.8	-2.4	12.9	-15.3
-5.7	0.6	13.1	-12.5
-5.6	1.5	13.3	-11.8
-5.5	-0.8	13.5	-14.3
-5.4	-4.5	13.7	-18.2
-5.3	-6.0	13.9	-19.9
-5.2	-6.5	14.1	-20.6
-5.1	0.6	14.3	-13.7
-5.0	3.8	14.5	-10.7
-4.9	3.7	14.7	-11.0
-4.8	4.1	15.0	-10.8
-4.7	4.6	15.2	-10.6
-4.6	5.7	15.4	-9.7
-4.5	4.6	15.7	-11.0
-4.4	-1.7	15.9	-17.6
-4.3	3.0	16.2	-13.2
-4.2	8.4	16.4	-8.0
-4.1	10.1	16.7	-6.6

29.15 GHz Antenna Pattern in Co-pol El LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.6		
0.1	51.8		
0.2	49.1		
0.3	44.3		
0.4	39.7		
0.5	37.1		
0.6	32.5		
0.7	22.0		
0.8	10.3		
0.9	6.1		
1.0	18.1		
1.1	19.5		
1.2	12.7		
1.3	9.6		
1.4	11.9		
1.5	10.2		
1.6	13.7		
1.7	13.7		
1.8	11.3		
1.9	10.3		
2.0	10.3		
2.1	12.7		
2.2	13.9		
2.3	12.6		
2.4	9.6		
2.5	6.9		
2.6	0.5		
2.7	-7.7		
2.8	-1.3		
2.9	3.1		
3.0	1.1		
3.1	0.5		
3.2	9.8		
3.3	12.5		
3.4	13.5		
3.5	12.4	18.4	-6.0
3.6	10.5	18.1	-7.6
3.7	11.3	17.8	-6.5
3.8	13.0	17.5	-4.5
3.9	13.5	17.2	-3.7
4.0	14.0	16.9	-2.9
4.1	13.7	16.7	-3.0
4.2	12.4	16.4	-4.0
4.3	8.2	16.2	-8.0
4.4	2.3	15.9	-13.6
4.5	2.9	15.7	-12.8
4.6	4.6	15.4	-10.8
4.7	6.3	15.2	-8.9
4.8	7.5	15.0	-7.5
4.9	9.7	14.7	-5.0
5.0	10.3	14.5	-4.3
5.1	8.1	14.3	-6.2
5.2	1.7	14.1	-12.4
5.3	-2.9	13.9	-16.8
5.4	2.9	13.7	-10.8
5.5	2.8	13.5	-10.7
5.6	-1.2	13.3	-14.5
5.7	-5.2	13.1	-18.3
5.8	-3.3	12.9	-16.2
5.9	-1.1	12.7	-13.9

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AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation LHCP, -10º to +10º @ 0.1º increment

-4.0	10.0	16.9	-6.9
-3.9	6.3	17.2	-10.9
-3.8	-10.6	17.5	-28.1
-3.7	6.6	17.8	-11.2
-3.6	9.2	18.1	-8.9
-3.5	8.8	18.4	-9.6
-3.4	7.1		
-3.3	1.2		
-3.2	-4.8		
-3.1	3.4		
-3.0	-1.5		
-2.9	9.3		
-2.8	14.5		
-2.7	15.4		
-2.6	13.3		
-2.5	11.3		
-2.4	12.8		
-2.3	13.8		
-2.2	13.9		
-2.1	13.2		
-2.0	11.7		
-1.9	9.8		
-1.8	7.7		
-1.7	11.8		
-1.6	15.8		
-1.5	18.8		
-1.4	18.3		
-1.3	13.1		
-1.2	20.5		
-1.1	23.5		
-1.0	22.6		
-0.9	21.9		
-0.8	25.1		
-0.7	27.9		
-0.6	31.9		
-0.5	34.4		
-0.4	39.2		
-0.3	45.7		
-0.2	50.0		
-0.1	52.2		
0.0	52.6		

6.0	-3.4	12.5	-16.0
6.1	-9.0	12.4	-21.4
6.2	-8.7	12.2	-20.9
6.3	-4.5	12.0	-16.5
6.4	0.8	11.8	-11.0
6.5	2.4	11.7	-9.3
6.6	1.9	11.5	-9.6
6.7	-0.2	11.3	-11.5
6.8	-2.0	11.2	-13.2
6.9	-6.0	11.0	-17.1
7.0	-4.1	10.9	-15.0
7.1	-0.8	10.7	-11.5
7.2	-1.0	10.6	-11.6
7.3	-2.8	10.4	-13.2
7.4	-3.9	10.3	-14.2
7.5	-11.7	10.1	-21.8
7.6	-5.7	10.0	-15.7
7.7	-1.5	9.8	-11.4
7.8	-1.8	9.7	-11.5
7.9	-3.7	9.6	-13.3
8.0	-7.8	9.4	-17.2
8.1	-10.5	9.3	-19.8
8.2	-27.1	9.2	-36.3
8.3	-10.9	9.0	-19.9
8.4	-5.2	8.9	-14.1
8.5	-7.8	8.8	-16.5
8.6	-12.7	8.6	-21.4
8.7	-9.5	8.5	-18.0
8.8	-8.7	8.4	-17.1
8.9	-7.6	8.3	-15.9
9.0	-7.6	8.1	-15.7
9.1	-12.3	8.0	-20.3
9.2	-16.6	7.9	-24.5
9.3	-20.1	7.8	-27.9
9.4	-10.2	7.7	-17.8
9.5	-5.3	7.6	-12.9
9.6	-2.7	7.4	-10.1
9.7	-0.2	7.3	-7.5
9.8	1.6	7.2	-5.7
9.9	2.1	7.1	-5.0
10.0	1.0	7.0	-6.0

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
X-pol Azimuth LHCP, -10º to +10º @ 0.1º increment

29.15 GHz Antenna Pattern in X-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-10.4	-2.0	-8.4
-9.9	-9.1	-2.0	-7.1
-9.8	-11.5	-2.0	-9.5
-9.7	-11.2	-2.0	-9.2
-9.6	-10.6	-2.0	-8.6
-9.5	-8.6	-2.0	-6.6
-9.4	-9.9	-2.0	-7.9
-9.3	-8.2	-2.0	-6.2
-9.2	-7.5	-2.0	-5.5
-9.1	-5.4	-2.0	-3.4
-9.0	-6.6	-2.0	-4.6
-8.9	-6.9	-2.0	-4.9
-8.8	-8.2	-2.0	-6.2
-8.7	-11.3	-2.0	-9.3
-8.6	-14.3	-2.0	-12.3
-8.5	-10.0	-2.0	-8.0
-8.4	-8.8	-2.0	-6.8
-8.3	-12.3	-2.0	-10.3
-8.2	-15.4	-2.0	-13.4
-8.1	-18.6	-2.0	-16.6
-8.0	-16.6	-2.0	-14.6
-7.9	-16.9	-2.0	-14.9
-7.8	-20.4	-2.0	-18.4
-7.7	-17.4	-2.0	-15.4
-7.6	-11.9	-2.0	-9.9
-7.5	-9.7	-2.0	-7.7
-7.4	-10.0	-2.0	-8.0
-7.3	-12.4	-2.0	-10.4
-7.2	-6.7	-2.0	-4.7
-7.1	-2.1	-2.0	-0.1
-7.0	-0.2	-2.1	1.9
-6.9	-0.8	-2.0	1.2
-6.8	-3.2	-1.8	-1.4
-6.7	-8.4	-1.7	-6.8
-6.6	-11.1	-1.5	-9.6
-6.5	-10.6	-1.3	-9.3
-6.4	-9.6	-1.2	-8.5
-6.3	-18.9	-1.0	-17.9
-6.2	-15.4	-0.8	-14.6
-6.1	-11.1	-0.6	-10.5
-6.0	-11.2	-0.5	-10.8
-5.9	-17.2	-0.3	-17.0
-5.8	-22.1	-0.1	-22.0
-5.7	-16.6	0.1	-16.7
-5.6	-9.7	0.3	-10.0
-5.5	-5.5	0.5	-6.0
-5.4	-2.7	0.7	-3.4
-5.3	-1.1	0.9	-2.0
-5.2	-3.2	1.1	-4.3
-5.1	-16.4	1.3	-17.7
-5.0	-5.2	1.5	-6.7
-4.9	-1.5	1.7	-3.3
-4.8	-3.9	2.0	-5.9
-4.7	-9.9	2.2	-12.1
-4.6	-5.1	2.4	-7.6
-4.5	-3.6	2.7	-6.2
-4.4	-6.0	2.9	-8.9
-4.3	-8.2	3.2	-11.3
-4.2	-6.3	3.4	-9.7
-4.1	-2.4	3.7	-6.1

29.15 GHz Antenna Pattern in X-pol Az LHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	23.4		
0.1	20.7		
0.2	24.2		
0.3	28.3		
0.4	29.1		
0.5	28.1		
0.6	24.4		
0.7	17.2		
0.8	1.4		
0.9	10.6		
1.0	14.3		
1.1	14.1		
1.2	12.7		
1.3	13.1		
1.4	12.9		
1.5	11.1		
1.6	7.5		
1.7	5.6		
1.8	3.2	12.6	-9.4
1.9	0.6	12.0	-11.5
2.0	-0.1	11.5	-11.5
2.1	1.3	10.9	-9.7
2.2	2.3	10.4	-8.2
2.3	0.8	10.0	-9.1
2.4	-2.4	9.5	-11.9
2.5	-7.9	9.1	-16.9
2.6	-6.7	8.6	-15.3
2.7	-3.6	8.2	-11.8
2.8	-5.5	7.8	-13.3
2.9	-8.3	7.4	-15.7
3.0	-4.3	7.1	-11.4
3.1	-6.3	6.7	-13.0
3.2	-8.8	6.4	-15.2
3.3	-7.8	6.0	-13.9
3.4	-6.4	5.7	-12.1
3.5	-5.9	5.4	-11.3
3.6	-2.8	5.1	-7.9
3.7	-4.1	4.8	-8.9
3.8	-8.8	4.5	-13.3
3.9	-6.5	4.2	-10.7
4.0	-4.4	3.9	-8.3
4.1	-7.6	3.7	-11.3
4.2	-12.4	3.4	-15.8
4.3	-10.9	3.2	-14.0
4.4	-11.2	2.9	-14.1
4.5	-9.0	2.7	-11.7
4.6	-5.9	2.4	-8.3
4.7	-6.2	2.2	-8.4
4.8	-7.9	2.0	-9.9
4.9	-9.3	1.7	-11.0
5.0	-7.5	1.5	-9.0
5.1	-8.9	1.3	-10.2
5.2	-9.5	1.1	-10.6
5.3	-14.1	0.9	-15.0
5.4	-21.2	0.7	-21.9
5.5	-10.5	0.5	-11.0
5.6	-8.1	0.3	-8.4
5.7	-12.3	0.1	-12.5
5.8	-12.7	-0.1	-12.6
5.9	-11.6	-0.3	-11.3

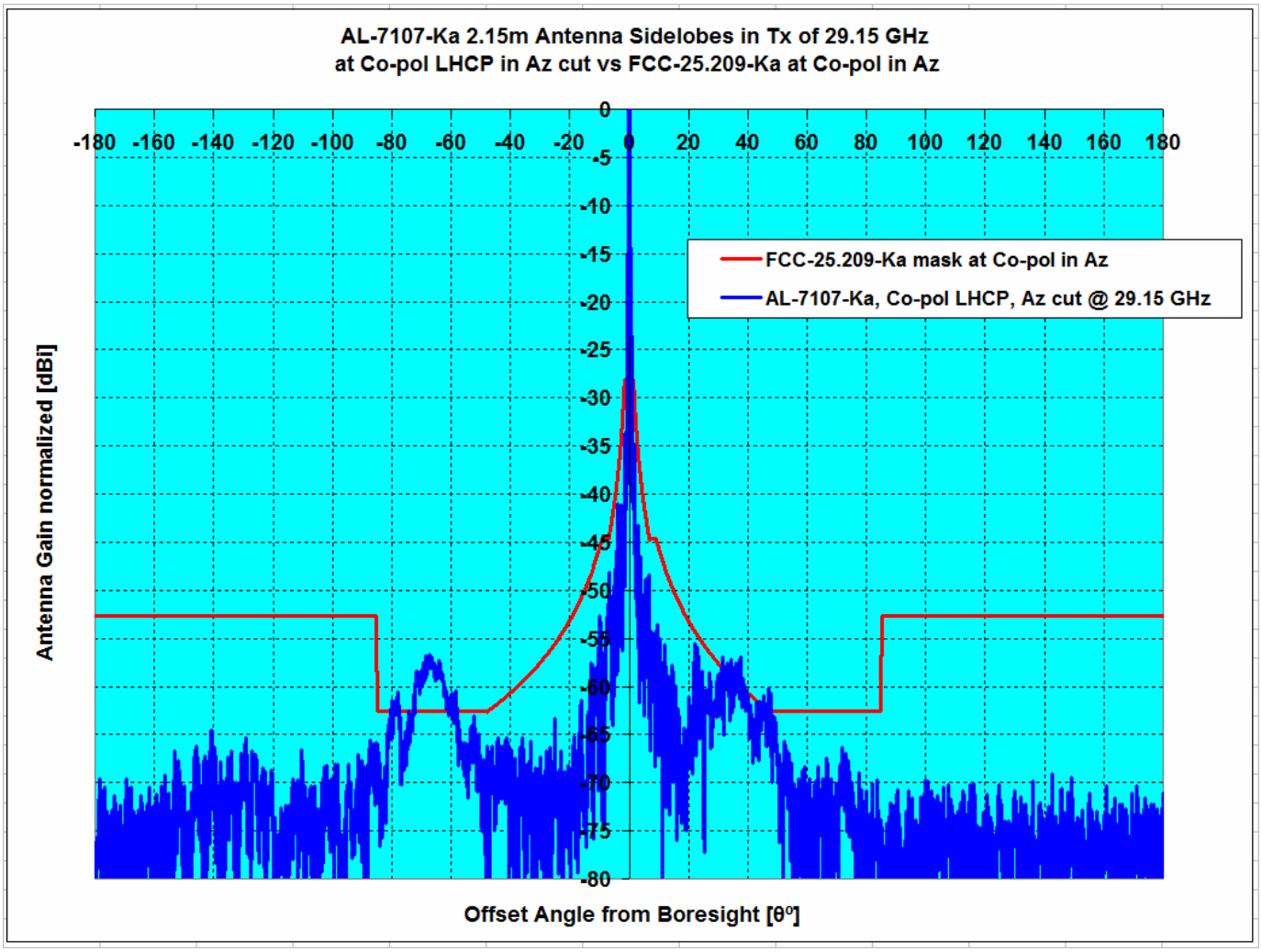
Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
X-pol Azimuth LHCP, -10º to +10º @ 0.1º increment

-4.0	-3.3	3.9	-7.3
-3.9	-7.5	4.2	-11.7
-3.8	-13.7	4.5	-18.2
-3.7	-22.0	4.8	-26.8
-3.6	-8.9	5.1	-14.0
-3.5	-4.1	5.4	-9.5
-3.4	-1.8	5.7	-7.5
-3.3	-0.9	6.0	-6.9
-3.2	-4.4	6.4	-10.8
-3.1	-12.1	6.7	-18.8
-3.0	-5.9	7.1	-13.0
-2.9	-5.1	7.4	-12.6
-2.8	-6.9	7.8	-14.8
-2.7	-14.4	8.2	-22.6
-2.6	-9.1	8.6	-17.7
-2.5	-4.8	9.1	-13.9
-2.4	-5.5	9.5	-15.0
-2.3	-22.3	10.0	-32.3
-2.2	-11.2	10.4	-21.6
-2.1	-10.6	10.9	-21.5
-2.0	-5.6	11.5	-17.0
-1.9	-1.6	12.0	-13.7
-1.8	-2.8	12.6	-15.5
-1.7	2.7		
-1.6	7.4		
-1.5	9.8		
-1.4	11.1		
-1.3	11.8		
-1.2	12.2		
-1.1	12.9		
-1.0	13.5		
-0.9	13.5		
-0.8	10.7		
-0.7	14.4		
-0.6	23.9		
-0.5	28.6		
-0.4	30.3		
-0.3	30.1		
-0.2	27.9		
-0.1	24.5		
0.0	23.4		

6.0	-12.1	-0.5	-11.6
6.1	-13.2	-0.6	-12.5
6.2	-16.7	-0.8	-15.9
6.3	-22.3	-1.0	-21.3
6.4	-14.3	-1.2	-13.1
6.5	-13.3	-1.3	-11.9
6.6	-14.7	-1.5	-13.2
6.7	-8.5	-1.7	-6.8
6.8	-5.3	-1.8	-3.5
6.9	-5.2	-2.0	-3.3
7.0	-7.0	-2.1	-4.9
7.1	-11.6	-2.0	-9.6
7.2	-12.8	-2.0	-10.8
7.3	-13.2	-2.0	-11.2
7.4	-13.2	-2.0	-11.2
7.5	-15.0	-2.0	-13.0
7.6	-16.4	-2.0	-14.4
7.7	-11.0	-2.0	-9.0
7.8	-13.0	-2.0	-11.0
7.9	-14.6	-2.0	-12.6
8.0	-19.7	-2.0	-17.7
8.1	-19.4	-2.0	-17.4
8.2	-15.2	-2.0	-13.2
8.3	-15.8	-2.0	-13.8
8.4	-14.0	-2.0	-12.0
8.5	-12.8	-2.0	-10.8
8.6	-11.0	-2.0	-9.0
8.7	-12.2	-2.0	-10.2
8.8	-16.4	-2.0	-14.4
8.9	-17.8	-2.0	-15.8
9.0	-21.4	-2.0	-19.4
9.1	-16.9	-2.0	-14.9
9.2	-17.7	-2.0	-15.7
9.3	-16.1	-2.0	-14.1
9.4	-20.0	-2.0	-18.0
9.5	-24.9	-2.0	-22.9
9.6	-24.1	-2.0	-22.1
9.7	-13.0	-2.0	-11.0
9.8	-10.5	-2.0	-8.5
9.9	-8.9	-2.0	-6.9
10.0	-9.6	-2.0	-7.6

Orbit Communication Systems Ltd.

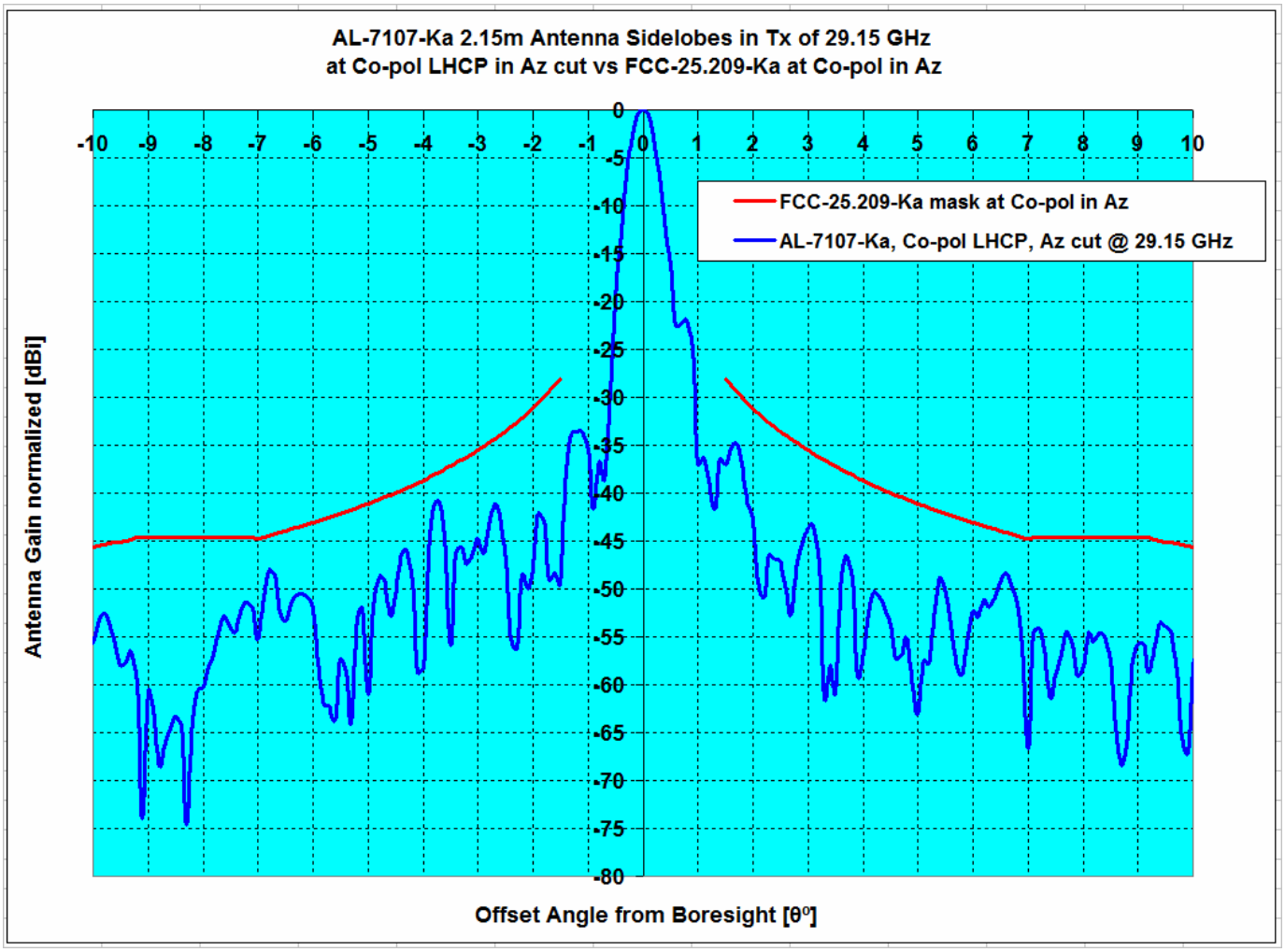
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Azimuth LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.5°≤θ≤7°	7°≤θ≤180°	1.5°≤θ≤7°	7°≤θ≤180°
FCC-25.209-Ka, Co-pol Az, vs AL-7107-Ka	Az , LHCP	29.15	52.63	-3.12	5.91	0.00%	5.71%

Orbit Communication Systems Ltd.

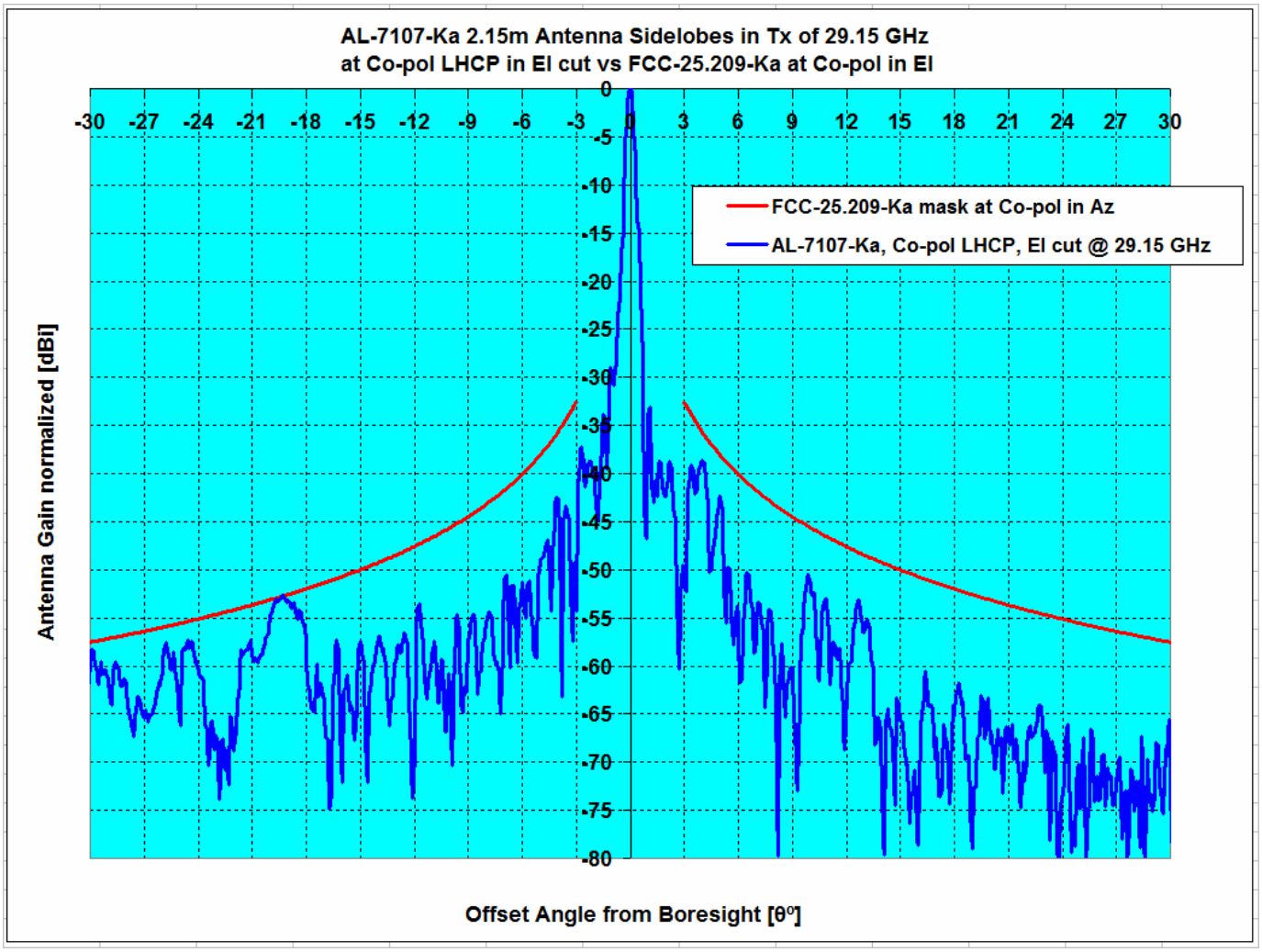
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Azimuth LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.5°≤θ≤7°	7°≤θ≤180°	1.5°≤θ≤7°	7°≤θ≤180°
FCC-25.209-Ka, Co-pol Az, vs AL-7107-Ka	Az , LHCP	29.15	52.63	-3.12	5.91	0.00%	5.71%

Orbit Communication Systems Ltd.

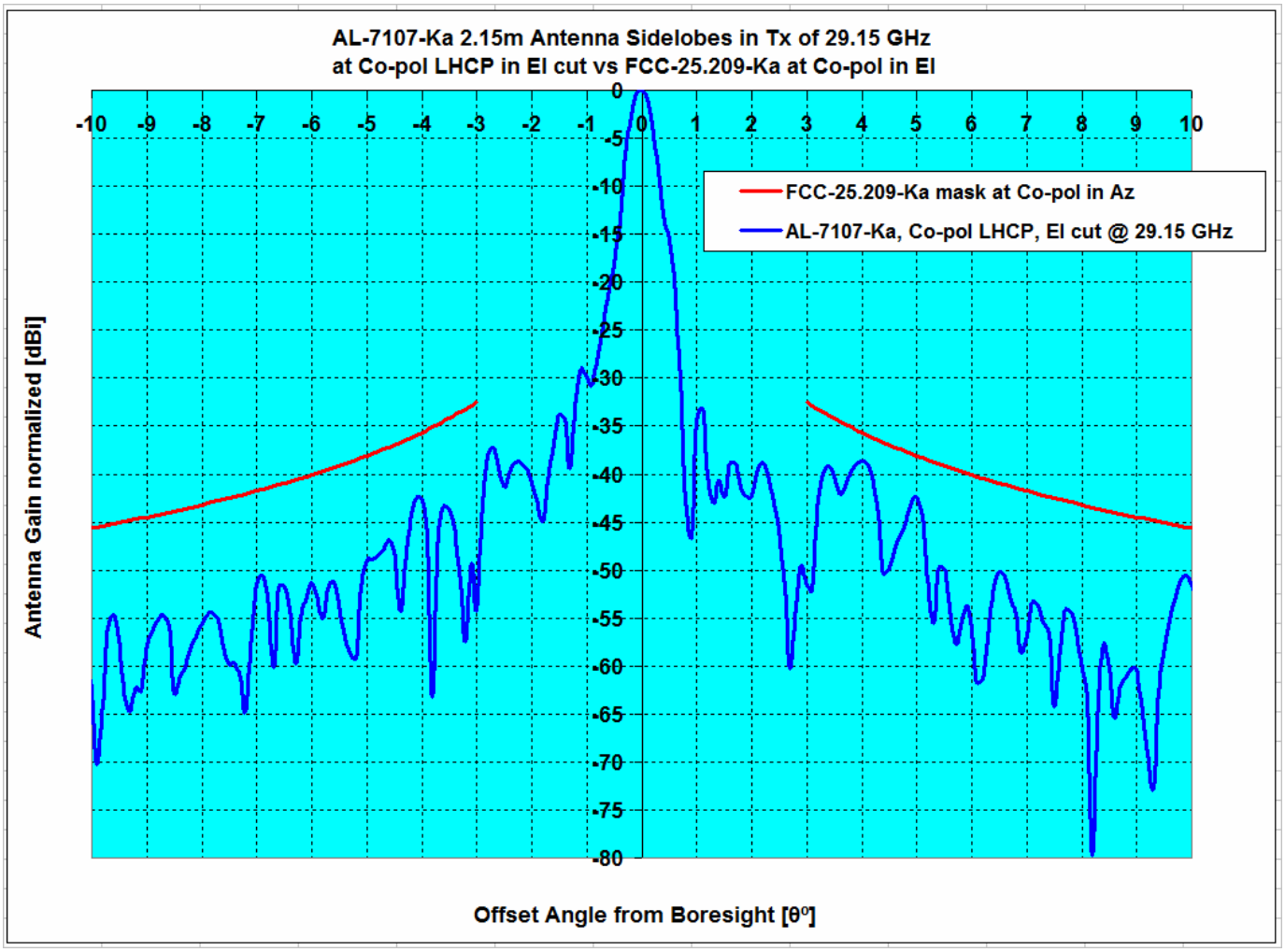
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Elevation LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	3°≤θ≤7°	7°≤θ≤30°	3°≤θ≤7°	7°≤θ≤30°
FCC-25.209-Ka, Co-pol El, vs AL-7107-Ka	El , LHCP	29.15	52.63	-2.92	0.16	0.00%	0.37%

Orbit Communication Systems Ltd.

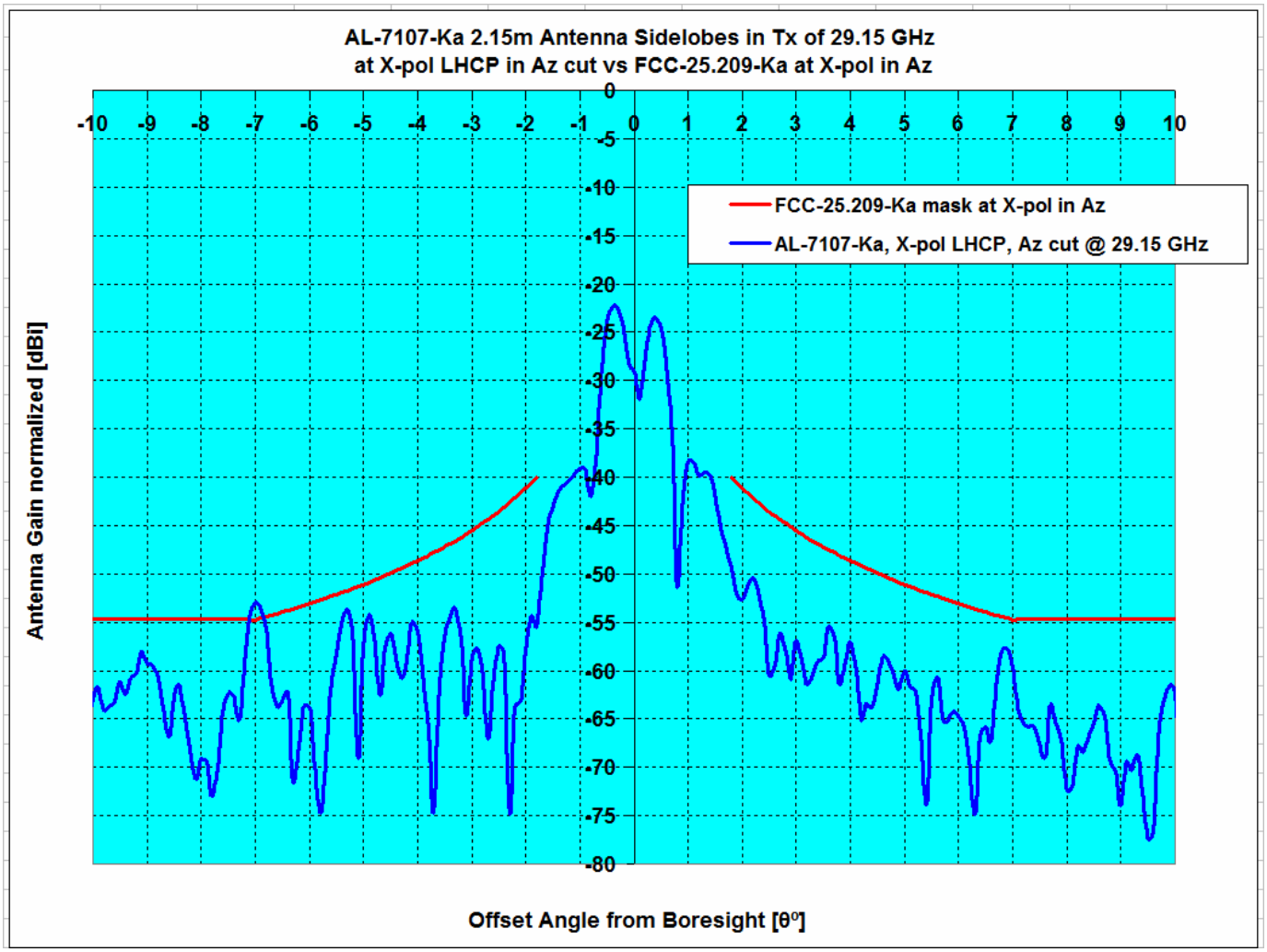
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Elevation LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	3°≤θ≤7°	7°≤θ≤30°	3°≤θ≤7°	7°≤θ≤30°
FCC-25.209-Ka, Co-pol El, vs AL-7107-Ka	El , LHCP	29.15	52.63	-2.92	0.16	0.00%	0.37%

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern, X-pol, Azimuth LHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.8°≤θ≤7°	1.8°≤θ≤9.2°	1.8°≤θ≤7°	1.8°≤θ≤9.2°
FCC-25.209-Ka, X-pol Az, vs AL-7107-Ka	Az , LHCP	29.15	52.63	1.89	1.89	1.89%	1.20%

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -180º to +180º @ 1.0º increment

29.15 GHz Antenna Pattern in Co-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-179.0	-25.9	0.0	-25.9
-178.0	-18.2	0.0	-18.2
-177.0	-20.5	0.0	-20.5
-176.0	-25.0	0.0	-25.0
-175.0	-27.4	0.0	-27.4
-174.0	-27.4	0.0	-27.4
-173.0	-26.9	0.0	-26.9
-172.0	-27.4	0.0	-27.4
-171.0	-23.9	0.0	-23.9
-170.0	-25.9	0.0	-25.9
-169.0	-18.2	0.0	-18.2
-168.0	-20.5	0.0	-20.5
-167.0	-25.0	0.0	-25.0
-166.0	-27.4	0.0	-27.4
-165.0	-27.4	0.0	-27.4
-164.0	-26.9	0.0	-26.9
-163.0	-27.4	0.0	-27.4
-162.0	-19.4	0.0	-19.4
-161.0	-20.8	0.0	-20.8
-160.0	-27.0	0.0	-27.0
-159.0	-26.0	0.0	-26.0
-158.0	-27.4	0.0	-27.4
-157.0	-19.8	0.0	-19.8
-156.0	-27.4	0.0	-27.4
-155.0	-27.4	0.0	-27.4
-154.0	-20.7	0.0	-20.7
-153.0	-22.6	0.0	-22.6
-152.0	-15.2	0.0	-15.2
-151.0	-19.3	0.0	-19.3
-150.0	-17.7	0.0	-17.7
-149.0	-27.4	0.0	-27.4
-148.0	-25.8	0.0	-25.8
-147.0	-24.5	0.0	-24.5
-146.0	-15.8	0.0	-15.8
-145.0	-15.5	0.0	-15.5
-144.0	-20.2	0.0	-20.2
-143.0	-20.2	0.0	-20.2
-142.0	-21.6	0.0	-21.6
-141.0	-20.2	0.0	-20.2
-140.0	-16.0	0.0	-16.0
-139.0	-20.2	0.0	-20.2
-138.0	-20.6	0.0	-20.6
-137.0	-20.5	0.0	-20.5
-136.0	-23.7	0.0	-23.7
-135.0	-15.0	0.0	-15.0
-134.0	-15.9	0.0	-15.9
-133.0	-27.4	0.0	-27.4
-132.0	-25.2	0.0	-25.2
-131.0	-22.1	0.0	-22.1
-130.0	-16.0	0.0	-16.0
-129.0	-16.1	0.0	-16.1
-128.0	-18.9	0.0	-18.9
-127.0	-15.9	0.0	-15.9
-126.0	-15.0	0.0	-15.0
-125.0	-22.5	0.0	-22.5
-124.0	-19.5	0.0	-19.5
-123.0	-20.8	0.0	-20.8
-122.0	-25.3	0.0	-25.3
-121.0	-20.6	0.0	-20.6
-120.0	-26.0	0.0	-26.0

29.15 GHz Antenna Pattern in Co-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.6		
1.0	15.7		
2.0	10.0	21.5	-11.5
3.0	9.1	17.1	-8.0
4.0	-4.1	13.9	-18.1
5.0	-10.4	11.5	-21.9
6.0	0.3	9.5	-9.2
7.0	-14.1	7.9	-21.9
8.0	-5.4	8.0	-13.4
9.0	-3.3	8.0	-11.3
10.0	-5.3	7.0	-12.3
11.0	-15.6	6.0	-21.5
12.0	-3.1	5.0	-8.1
13.0	-6.7	4.2	-10.9
14.0	-12.7	3.3	-16.0
15.0	-17.4	2.6	-20.0
16.0	-23.4	1.9	-25.3
17.0	-16.6	1.2	-17.9
18.0	-14.4	0.6	-15.0
19.0	-19.6	0.0	-19.6
20.0	-10.9	-0.5	-10.3
21.0	-15.4	-1.1	-14.3
22.0	-4.5	-1.6	-3.0
23.0	-3.7	-2.0	-1.7
24.0	-5.9	-2.5	-3.4
25.0	-11.3	-2.9	-8.3
26.0	-7.7	-3.4	-4.3
27.0	-7.5	-3.8	-3.7
28.0	-13.5	-4.2	-9.3
29.0	-8.8	-4.6	-4.3
30.0	-7.2	-4.9	-2.3
31.0	-5.8	-5.3	-0.5
32.0	-9.8	-5.6	-4.2
33.0	-5.0	-6.0	0.9
34.0	-10.9	-6.3	-4.6
35.0	-9.4	-6.6	-2.8
36.0	-5.1	-6.9	1.9
37.0	-6.4	-7.2	0.8
38.0	-9.6	-7.5	-2.1
39.0	-9.4	-7.8	-1.6
40.0	-9.6	-8.1	-1.5
41.0	-12.3	-8.3	-4.0
42.0	-11.1	-8.6	-2.5
43.0	-11.7	-8.8	-2.9
44.0	-9.0	-9.1	0.1
45.0	-9.2	-9.3	0.1
46.0	-9.5	-9.6	0.1
47.0	-7.6	-9.8	2.2
48.0	-14.1	-10.0	-4.1
49.0	-10.6	-10.0	-0.6
50.0	-13.3	-10.0	-3.3
51.0	-21.6	-10.0	-11.6
52.0	-16.7	-10.0	-6.7
53.0	-14.1	-10.0	-4.1
54.0	-16.3	-10.0	-6.3
55.0	-19.5	-10.0	-9.5
56.0	-26.5	-10.0	-16.5
57.0	-23.2	-10.0	-13.2
58.0	-19.6	-10.0	-9.6
59.0	-25.0	-10.0	-15.0

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -180º to +180º @ 1.0º increment

-119.0	-26.2	0.0	-26.2
-118.0	-24.0	0.0	-24.0
-117.0	-26.3	0.0	-26.3
-116.0	-22.1	0.0	-22.1
-115.0	-27.4	0.0	-27.4
-114.0	-22.4	0.0	-22.4
-113.0	-17.6	0.0	-17.6
-112.0	-19.9	0.0	-19.9
-111.0	-17.4	0.0	-17.4
-110.0	-17.3	0.0	-17.3
-109.0	-27.4	0.0	-27.4
-108.0	-24.7	0.0	-24.7
-107.0	-25.2	0.0	-25.2
-106.0	-20.2	0.0	-20.2
-105.0	-20.5	0.0	-20.5
-104.0	-19.9	0.0	-19.9
-103.0	-20.1	0.0	-20.1
-102.0	-16.2	0.0	-16.2
-101.0	-23.3	0.0	-23.3
-100.0	-17.0	0.0	-17.0
-99.0	-20.0	0.0	-20.0
-98.0	-27.4	0.0	-27.4
-97.0	-23.7	0.0	-23.7
-96.0	-27.4	0.0	-27.4
-95.0	-19.7	0.0	-19.7
-94.0	-19.6	0.0	-19.6
-93.0	-22.6	0.0	-22.6
-92.0	-20.0	0.0	-20.0
-91.0	-18.8	0.0	-18.8
-90.0	-21.7	0.0	-21.7
-89.0	-27.2	0.0	-27.2
-88.0	-18.7	0.0	-18.7
-87.0	-15.9	0.0	-15.9
-86.0	-13.3	0.0	-13.3
-85.0	-13.3	-10.0	-3.3
-84.0	-15.3	-10.0	-5.3
-83.0	-20.2	-10.0	-10.2
-82.0	-20.2	-10.0	-10.2
-81.0	-12.7	-10.0	-2.7
-80.0	-12.8	-10.0	-2.8
-79.0	-10.3	-10.0	-0.3
-78.0	-9.3	-10.0	0.7
-77.0	-16.7	-10.0	-6.7
-76.0	-14.2	-10.0	-4.2
-75.0	-14.6	-10.0	-4.6
-74.0	-10.9	-10.0	-0.9
-73.0	-10.2	-10.0	-0.2
-72.0	-6.9	-10.0	3.1
-71.0	-6.7	-10.0	3.3
-70.0	-5.8	-10.0	4.2
-69.0	-6.8	-10.0	3.2
-68.0	-4.7	-10.0	5.3
-67.0	-4.6	-10.0	5.4
-66.0	-5.1	-10.0	4.9
-65.0	-6.4	-10.0	3.6
-64.0	-4.8	-10.0	5.2
-63.0	-6.9	-10.0	3.1
-62.0	-7.4	-10.0	2.6
-61.0	-9.4	-10.0	0.6
-60.0	-10.4	-10.0	-0.4
-59.0	-11.1	-10.0	-1.1
-58.0	-11.5	-10.0	-1.5
-57.0	-15.0	-10.0	-5.0
60.0	-22.4	-10.0	-12.4
61.0	-25.4	-10.0	-15.4
62.0	-24.5	-10.0	-14.5
63.0	-27.4	-10.0	-17.4
64.0	-18.1	-10.0	-8.1
65.0	-19.8	-10.0	-9.8
66.0	-27.4	-10.0	-17.4
67.0	-19.9	-10.0	-9.9
68.0	-25.1	-10.0	-15.1
69.0	-21.3	-10.0	-11.3
70.0	-20.3	-10.0	-10.3
71.0	-19.9	-10.0	-9.9
72.0	-16.1	-10.0	-6.1
73.0	-15.1	-10.0	-5.1
74.0	-17.3	-10.0	-7.3
75.0	-17.4	-10.0	-7.4
76.0	-19.9	-10.0	-9.9
77.0	-27.4	-10.0	-17.4
78.0	-20.4	-10.0	-10.4
79.0	-27.4	-10.0	-17.4
80.0	-21.5	-10.0	-11.5
81.0	-22.2	-10.0	-12.2
82.0	-23.5	-10.0	-13.5
83.0	-23.1	-10.0	-13.1
84.0	-26.5	-10.0	-16.5
85.0	-27.4	-10.0	-17.4
86.0	-25.4	0.0	-25.4
87.0	-21.5	0.0	-21.5
88.0	-19.6	0.0	-19.6
89.0	-25.7	0.0	-25.7
90.0	-18.6	0.0	-18.6
91.0	-25.0	0.0	-25.0
92.0	-26.8	0.0	-26.8
93.0	-27.4	0.0	-27.4
94.0	-18.2	0.0	-18.2
95.0	-25.1	0.0	-25.1
96.0	-22.6	0.0	-22.6
97.0	-24.3	0.0	-24.3
98.0	-25.3	0.0	-25.3
99.0	-27.3	0.0	-27.3
100.0	-19.9	0.0	-19.9
101.0	-21.8	0.0	-21.8
102.0	-24.4	0.0	-24.4
103.0	-22.8	0.0	-22.8
104.0	-22.2	0.0	-22.2
105.0	-19.6	0.0	-19.6
106.0	-24.5	0.0	-24.5
107.0	-23.1	0.0	-23.1
108.0	-23.4	0.0	-23.4
109.0	-24.9	0.0	-24.9
110.0	-23.0	0.0	-23.0
111.0	-24.6	0.0	-24.6
112.0	-19.7	0.0	-19.7
113.0	-24.1	0.0	-24.1
114.0	-25.2	0.0	-25.2
115.0	-22.9	0.0	-22.9
116.0	-23.2	0.0	-23.2
117.0	-27.1	0.0	-27.1
118.0	-25.0	0.0	-25.0
119.0	-27.0	0.0	-27.0
120.0	-27.4	0.0	-27.4
121.0	-26.7	0.0	-26.7
122.0	-21.1	0.0	-21.1

Orbit Communication Systems Ltd.
AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -180º to +180º @ 1.0º increment

-56.0	-15.1	-10.0	-5.1
-55.0	-14.6	-10.0	-4.6
-54.0	-15.9	-10.0	-5.9
-53.0	-11.4	-10.0	-1.4
-52.0	-11.8	-10.0	-1.8
-51.0	-15.5	-10.0	-5.5
-50.0	-15.8	-10.0	-5.8
-49.0	-16.5	-10.0	-6.5
-48.0	-20.7	-10.0	-10.7
-47.0	-27.4	-9.8	-17.6
-46.0	-14.0	-9.6	-4.4
-45.0	-15.7	-9.3	-6.4
-44.0	-12.7	-9.1	-3.6
-43.0	-18.4	-8.8	-9.6
-42.0	-16.2	-8.6	-7.6
-41.0	-17.4	-8.3	-9.0
-40.0	-16.9	-8.1	-8.9
-39.0	-22.9	-7.8	-15.1
-38.0	-22.0	-7.5	-14.5
-37.0	-18.9	-7.2	-11.7
-36.0	-14.3	-6.9	-7.4
-35.0	-18.4	-6.6	-11.8
-34.0	-15.6	-6.3	-9.3
-33.0	-16.2	-6.0	-10.2
-32.0	-17.3	-5.6	-11.6
-31.0	-19.6	-5.3	-14.3
-30.0	-14.8	-4.9	-9.9
-29.0	-18.2	-4.6	-13.7
-28.0	-19.4	-4.2	-15.2
-27.0	-21.4	-3.8	-17.6
-26.0	-21.2	-3.4	-17.8
-25.0	-10.8	-2.9	-7.8
-24.0	-19.7	-2.5	-17.2
-23.0	-18.1	-2.0	-16.1
-22.0	-19.3	-1.6	-17.8
-21.0	-19.3	-1.1	-18.2
-20.0	-18.0	-0.5	-17.5
-19.0	-20.8	0.0	-20.8
-18.0	-19.2	0.6	-19.8
-17.0	-18.9	1.2	-20.2
-16.0	-8.8	1.9	-10.7
-15.0	-22.5	2.6	-25.1
-14.0	-12.8	3.3	-16.2
-13.0	-10.9	4.2	-15.1
-12.0	-12.0	5.0	-17.1
-11.0	-6.4	6.0	-12.4
-10.0	-3.1	7.0	-10.1
-9.0	-8.1	8.0	-16.1
-8.0	-7.7	8.0	-15.7
-7.0	-2.7	7.9	-10.5
-6.0	0.8	9.5	-8.8
-5.0	-8.5	11.5	-20.0
-4.0	-5.6	13.9	-19.6
-3.0	7.9	17.1	-9.2
-2.0	4.7	21.5	-16.7
-1.0	17.2		
0.0	52.6		

123.0	-25.5	0.0	-25.5
124.0	-22.2	0.0	-22.2
125.0	-19.5	0.0	-19.5
126.0	-27.4	0.0	-27.4
127.0	-24.9	0.0	-24.9
128.0	-21.7	0.0	-21.7
129.0	-25.5	0.0	-25.5
130.0	-21.6	0.0	-21.6
131.0	-26.1	0.0	-26.1
132.0	-27.4	0.0	-27.4
133.0	-27.4	0.0	-27.4
134.0	-25.8	0.0	-25.8
135.0	-27.1	0.0	-27.1
136.0	-26.9	0.0	-26.9
137.0	-27.4	0.0	-27.4
138.0	-21.9	0.0	-21.9
139.0	-24.9	0.0	-24.9
140.0	-22.5	0.0	-22.5
141.0	-20.8	0.0	-20.8
142.0	-27.4	0.0	-27.4
143.0	-25.8	0.0	-25.8
144.0	-27.4	0.0	-27.4
145.0	-27.4	0.0	-27.4
146.0	-24.8	0.0	-24.8
147.0	-23.5	0.0	-23.5
148.0	-27.4	0.0	-27.4
149.0	-23.6	0.0	-23.6
150.0	-23.9	0.0	-23.9
151.0	-27.1	0.0	-27.1
152.0	-26.7	0.0	-26.7
153.0	-22.1	0.0	-22.1
154.0	-27.4	0.0	-27.4
155.0	-18.6	0.0	-18.6
156.0	-27.4	0.0	-27.4
157.0	-27.4	0.0	-27.4
158.0	-27.4	0.0	-27.4
159.0	-25.5	0.0	-25.5
160.0	-25.5	0.0	-25.5
161.0	-20.0	0.0	-20.0
162.0	-26.2	0.0	-26.2
163.0	-20.2	0.0	-20.2
164.0	-24.1	0.0	-24.1
165.0	-27.4	0.0	-27.4
166.0	-24.5	0.0	-24.5
167.0	-27.4	0.0	-27.4
168.0	-27.4	0.0	-27.4
169.0	-27.4	0.0	-27.4
170.0	-27.0	0.0	-27.0
171.0	-26.5	0.0	-26.5
172.0	-27.4	0.0	-27.4
173.0	-27.4	0.0	-27.4
174.0	-22.7	0.0	-22.7
175.0	-24.8	0.0	-24.8
176.0	-23.7	0.0	-23.7
177.0	-27.4	0.0	-27.4
178.0	-27.4	0.0	-27.4
179.0	-23.9	0.0	-23.9

Orbit Communication Systems Ltd.

AL AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -10º to +10º @ 0.1º increment

29.15 GHz Antenna Pattern in Co-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-0.6	7.0	-7.6
-9.9	0.3	7.1	-6.8
-9.8	0.3	7.2	-6.9
-9.7	-0.9	7.3	-8.3
-9.6	-2.9	7.4	-10.3
-9.5	-4.9	7.6	-12.5
-9.4	-5.2	7.7	-12.9
-9.3	-7.7	7.8	-15.5
-9.2	-14.0	8.0	-22.0
-9.1	-9.9	8.0	-17.9
-9.0	-5.1	8.0	-13.1
-8.9	-4.5	8.0	-12.5
-8.8	-8.0	8.0	-16.0
-8.7	-14.3	8.0	-22.3
-8.6	-10.8	8.0	-18.8
-8.5	-5.9	8.0	-13.9
-8.4	-4.6	8.0	-12.6
-8.3	-7.4	8.0	-15.4
-8.2	-8.6	8.0	-16.6
-8.1	-9.0	8.0	-17.0
-8.0	-8.1	8.0	-16.1
-7.9	-5.5	8.0	-13.5
-7.8	-1.8	8.0	-9.8
-7.7	0.2	8.0	-7.8
-7.6	0.9	8.0	-7.1
-7.5	0.5	8.0	-7.5
-7.4	1.0	8.0	-7.0
-7.3	1.8	8.0	-6.2
-7.2	0.6	8.0	-7.4
-7.1	-4.9	8.0	-12.9
-7.0	-7.0	7.9	-14.9
-6.9	2.9	8.0	-5.1
-6.8	4.5	8.2	-3.6
-6.7	3.3	8.3	-5.1
-6.6	-1.4	8.5	-9.9
-6.5	1.7	8.7	-7.0
-6.4	3.5	8.8	-5.3
-6.3	3.9	9.0	-5.2
-6.2	3.8	9.2	-5.4
-6.1	3.7	9.4	-5.7
-6.0	2.4	9.5	-7.1
-5.9	-2.3	9.7	-12.1
-5.8	-12.0	9.9	-21.9
-5.7	-11.6	10.1	-21.7
-5.6	-14.6	10.3	-24.9
-5.5	-11.1	10.5	-21.6
-5.4	-14.2	10.7	-24.9
-5.3	-1.1	10.9	-12.0
-5.2	1.1	11.1	-10.0
-5.1	-1.5	11.3	-12.8
-5.0	-3.2	11.5	-14.7
-4.9	3.2	11.7	-8.5
-4.8	4.4	12.0	-7.6
-4.7	1.6	12.2	-10.6
-4.6	-5.3	12.4	-17.8
-4.5	0.6	12.7	-12.0
-4.4	6.2	12.9	-6.7
-4.3	7.0	13.2	-6.1
-4.2	2.6	13.4	-10.8
-4.1	-15.4	13.7	-29.1

29.15 GHz Antenna Pattern in Co-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.8		
0.1	52.1		
0.2	49.5		
0.3	45.1		
0.4	40.0		
0.5	35.5		
0.6	29.5		
0.7	29.6		
0.8	30.4		
0.9	27.5		
1.0	16.6		
1.1	17.2		
1.2	13.8		
1.3	11.1		
1.4	16.2		
1.5	14.7	24.6	-9.9
1.6	16.2	23.9	-7.7
1.7	17.9	23.2	-5.4
1.8	15.7	22.6	-6.9
1.9	10.4	22.0	-11.6
2.0	9.5	21.5	-12.0
2.1	5.3	20.9	-15.6
2.2	1.1	20.4	-19.3
2.3	4.7	20.0	-15.3
2.4	6.2	19.5	-13.3
2.5	7.4	19.1	-11.7
2.6	5.2	18.6	-13.4
2.7	0.1	18.2	-18.1
2.8	5.1	17.8	-12.7
2.9	7.0	17.4	-10.4
3.0	9.4	17.1	-7.7
3.1	9.7	16.7	-7.0
3.2	7.8	16.4	-8.6
3.3	-0.1	16.0	-16.2
3.4	-15.6	15.7	-31.3
3.5	-4.3	15.4	-19.7
3.6	2.9	15.1	-12.2
3.7	4.4	14.8	-10.4
3.8	2.0	14.5	-12.5
3.9	-6.2	14.2	-20.5
4.0	-7.7	13.9	-21.6
4.1	-1.3	13.7	-15.0
4.2	2.6	13.4	-10.8
4.3	3.0	13.2	-10.1
4.4	2.7	12.9	-10.2
4.5	1.9	12.7	-10.8
4.6	-0.8	12.4	-13.2
4.7	-9.6	12.2	-21.8
4.8	-4.0	12.0	-16.0
4.9	-7.7	11.7	-19.4
5.0	-8.2	11.5	-19.7
5.1	-3.4	11.3	-14.7
5.2	-5.4	11.1	-16.5
5.3	-3.8	10.9	-14.7
5.4	0.5	10.7	-10.2
5.5	1.5	10.5	-9.0
5.6	-0.4	10.3	-10.7
5.7	-4.5	10.1	-14.6
5.8	-12.0	9.9	-21.9
5.9	-4.9	9.7	-14.6

Orbit Communication Systems Ltd.

AL AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Azimuth RHCP, -10º to +10º @ 0.1º increment

-4.0	0.7	13.9	-13.2
-3.9	7.8	14.2	-6.5
-3.8	11.0	14.5	-3.5
-3.7	11.0	14.8	-3.8
-3.6	6.6	15.1	-8.5
-3.5	0.4	15.4	-15.0
-3.4	5.7	15.7	-10.0
-3.3	5.0	16.0	-11.0
-3.2	0.5	16.4	-15.8
-3.1	5.9	16.7	-10.8
-3.0	7.1	17.1	-10.0
-2.9	7.6	17.4	-9.8
-2.8	11.6	17.8	-6.2
-2.7	13.1	18.2	-5.1
-2.6	11.1	18.6	-7.5
-2.5	5.0	19.1	-14.0
-2.4	-2.4	19.5	-21.9
-2.3	0.2	20.0	-19.8
-2.2	4.2	20.4	-16.3
-2.1	1.1	20.9	-19.8
-2.0	6.1	21.5	-15.4
-1.9	11.3	22.0	-10.7
-1.8	9.9	22.6	-12.7
-1.7	3.5	23.2	-19.7
-1.6	6.7	23.9	-17.2
-1.5	4.8	24.6	-19.8
-1.4	14.5		
-1.3	19.0		
-1.2	19.5		
-1.1	18.9		
-1.0	16.0		
-0.9	6.8		
-0.8	18.4		
-0.7	18.4		
-0.6	19.7		
-0.5	32.4		
-0.4	40.3		
-0.3	46.3		
-0.2	50.3		
-0.1	52.3		
0.0	52.8		

6.0	-0.5	9.5	-10.1
6.1	0.9	9.4	-8.5
6.2	2.2	9.2	-7.0
6.3	1.8	9.0	-7.2
6.4	0.2	8.8	-8.7
6.5	1.2	8.7	-7.5
6.6	3.2	8.5	-5.3
6.7	2.6	8.3	-5.8
6.8	0.6	8.2	-7.6
6.9	-3.0	8.0	-11.1
7.0	-14.4	7.9	-22.3
7.1	-4.2	8.0	-12.2
7.2	-1.5	8.0	-9.5
7.3	-3.0	8.0	-11.0
7.4	-6.5	8.0	-14.5
7.5	-5.2	8.0	-13.2
7.6	-4.1	8.0	-12.1
7.7	-1.8	8.0	-9.8
7.8	-3.3	8.0	-11.3
7.9	-6.7	8.0	-14.7
8.0	-13.7	8.0	-21.7
8.1	-5.8	8.0	-13.8
8.2	-6.5	8.0	-14.5
8.3	-5.4	8.0	-13.4
8.4	-4.3	8.0	-12.3
8.5	-6.0	8.0	-14.0
8.6	-11.0	8.0	-19.0
8.7	-20.2	8.0	-28.2
8.8	-15.9	8.0	-23.9
8.9	-8.1	8.0	-16.1
9.0	-5.2	8.0	-13.2
9.1	-8.4	8.0	-16.4
9.2	-10.2	8.0	-18.2
9.3	-6.5	7.8	-14.3
9.4	-3.6	7.7	-11.3
9.5	-3.7	7.6	-11.3
9.6	-4.8	7.4	-12.2
9.7	-6.5	7.3	-13.8
9.8	-9.0	7.2	-16.2
9.9	-11.9	7.1	-19.0
10.0	-7.7	7.0	-14.7

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation RHCP, -30º to +30º @ 0.5º increment

29.15 GHz Antenna Pattern in Co-pol El RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-30.0	-7.6	-4.9	-2.7
-29.5	-9.3	-4.7	-4.5
-29.0	-9.0	-4.6	-4.5
-28.5	-7.4	-4.4	-3.1
-28.0	-9.3	-4.2	-5.1
-27.5	-13.4	-4.0	-9.4
-27.0	-12.8	-3.8	-9.1
-26.5	-12.4	-3.6	-8.8
-26.0	-7.6	-3.4	-4.2
-25.5	-7.8	-3.2	-4.7
-25.0	-13.4	-2.9	-10.4
-24.5	-5.6	-2.7	-2.8
-24.0	-8.2	-2.5	-5.7
-23.5	-14.3	-2.3	-12.0
-23.0	-14.6	-2.0	-12.5
-22.5	-18.2	-1.8	-16.4
-22.0	-16.2	-1.6	-14.6
-21.5	-6.2	-1.3	-4.9
-21.0	-6.2	-1.1	-5.1
-20.5	-6.1	-0.8	-5.3
-20.0	-2.2	-0.5	-1.7
-19.5	-0.5	-0.3	-0.3
-19.0	-0.5	0.0	-0.5
-18.5	-2.6	0.3	-2.9
-18.0	-5.4	0.6	-6.0
-17.5	-12.2	0.9	-13.1
-17.0	-11.4	1.2	-12.6
-16.5	-11.3	1.6	-12.8
-16.0	-19.4	1.9	-21.3
-15.5	-11.4	2.2	-13.6
-15.0	-4.8	2.6	-7.4
-14.5	-10.5	3.0	-13.5
-14.0	-4.3	3.3	-7.7
-13.5	-9.2	3.7	-12.9
-13.0	-6.5	4.2	-10.6
-12.5	-4.3	4.6	-8.9
-12.0	-15.5	5.0	-20.5
-11.5	-5.2	5.5	-10.7
-11.0	-6.8	6.0	-12.8
-10.5	-6.6	6.5	-13.1
-10.0	-9.6	7.0	-16.6
-9.5	-4.5	7.6	-12.1
-9.0	-5.3	8.1	-13.4
-8.5	-10.2	8.8	-19.0
-8.0	-2.9	9.4	-12.4
-7.5	-7.3	10.1	-17.4
-7.0	1.0	10.9	-9.8
-6.5	1.0	11.7	-10.7
-6.0	1.3	12.5	-11.2
-5.5	-0.8	13.5	-14.3
-5.0	3.8	14.5	-10.7
-4.5	4.6	15.7	-11.0
-4.0	10.0	16.9	-6.9
-3.5	8.8	18.4	-9.6
-3.0	-1.5		
-2.5	11.3		
-2.0	11.7		
-1.5	18.8		
-1.0	22.6		
-0.5	34.4		
0.0	52.6		

29.15 GHz Antenna Pattern in Co-pol El RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.6		
0.5	37.1		
1.0	18.1		
1.5	10.2		
2.0	10.3		
2.5	6.9		
3.0	1.1		
3.5	12.4	18.4	-6.0
4.0	14.0	16.9	-2.9
4.5	2.9	15.7	-12.8
5.0	10.3	14.5	-4.3
5.5	2.8	13.5	-10.7
6.0	-3.4	12.5	-16.0
6.5	2.4	11.7	-9.3
7.0	-4.1	10.9	-15.0
7.5	-11.7	10.1	-21.8
8.0	-7.8	9.4	-17.2
8.5	-7.8	8.8	-16.5
9.0	-7.6	8.1	-15.7
9.5	-5.3	7.6	-12.9
10.0	1.0	7.0	-6.0
10.5	-8.9	6.5	-15.3
11.0	-5.1	6.0	-11.0
11.5	-6.7	5.5	-12.1
12.0	-10.0	5.0	-15.0
12.5	-2.5	4.6	-7.1
13.0	-3.9	4.2	-8.1
13.5	-8.1	3.7	-11.8
14.0	-19.9	3.3	-23.2
14.5	-14.1	3.0	-17.0
15.0	-12.9	2.6	-15.5
15.5	-23.7	2.2	-25.9
16.0	-25.9	1.9	-27.8
16.5	-11.2	1.6	-12.8
17.0	-14.8	1.2	-16.1
17.5	-15.9	0.9	-16.8
18.0	-12.5	0.6	-13.2
18.5	-11.1	0.3	-11.4
19.0	-26.4	0.0	-26.5
19.5	-10.5	-0.3	-10.3
20.0	-15.3	-0.5	-14.8
20.5	-15.6	-0.8	-14.8
21.0	-14.4	-1.1	-13.4
21.5	-16.2	-1.3	-14.8
22.0	-16.7	-1.6	-15.2
22.5	-14.3	-1.8	-12.5
23.0	-18.5	-2.0	-16.4
23.5	-15.9	-2.3	-13.6
24.0	-20.1	-2.5	-17.6
24.5	-26.6	-2.7	-23.9
25.0	-22.3	-2.9	-19.3
25.5	-20.3	-3.2	-17.2
26.0	-21.3	-3.4	-17.9
26.5	-18.1	-3.6	-14.5
27.0	-19.6	-3.8	-15.8
27.5	-20.4	-4.0	-16.4
28.0	-22.4	-4.2	-18.3
28.5	-23.5	-4.4	-19.2
29.0	-22.5	-4.6	-17.9
29.5	-21.3	-4.7	-16.5
30.0	-18.5	-4.9	-13.6

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation RHCP, -10º to +10º @ 0.1º increment

29.15 GHz Antenna Pattern in Co-pol El RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-3.3	7.0	-10.3
-9.9	-4.4	7.1	-11.5
-9.8	-3.0	7.2	-10.2
-9.7	-0.4	7.3	-7.7
-9.6	0.3	7.4	-7.2
-9.5	-3.4	7.6	-11.0
-9.4	-10.7	7.7	-18.4
-9.3	-6.7	7.8	-14.5
-9.2	-7.8	7.9	-15.7
-9.1	-18.8	8.0	-26.9
-9.0	-7.4	8.1	-15.5
-8.9	-6.0	8.3	-14.3
-8.8	-8.7	8.4	-17.1
-8.7	-1.9	8.5	-10.4
-8.6	0.3	8.6	-8.4
-8.5	-1.6	8.8	-10.3
-8.4	-9.7	8.9	-18.6
-8.3	-18.5	9.0	-27.6
-8.2	-13.1	9.2	-22.3
-8.1	-11.2	9.3	-20.4
-8.0	-6.3	9.4	-15.7
-7.9	-4.0	9.6	-13.6
-7.8	-1.9	9.7	-11.6
-7.7	-1.2	9.8	-11.0
-7.6	-4.6	10.0	-14.6
-7.5	-16.5	10.1	-26.6
-7.4	-13.3	10.3	-23.5
-7.3	-14.6	10.4	-25.0
-7.2	-18.3	10.6	-28.9
-7.1	-8.4	10.7	-19.1
-7.0	-1.1	10.9	-12.0
-6.9	1.7	11.0	-9.3
-6.8	0.6	11.2	-10.6
-6.7	-2.9	11.3	-14.2
-6.6	-0.3	11.5	-11.8
-6.5	1.4	11.7	-10.3
-6.4	-0.8	11.8	-12.7
-6.3	-7.1	12.0	-19.2
-6.2	-4.2	12.2	-16.3
-6.1	-1.9	12.4	-14.3
-6.0	0.3	12.5	-12.3
-5.9	0.8	12.7	-12.0
-5.8	-2.4	12.9	-15.3
-5.7	-1.2	13.1	-14.3
-5.6	0.9	13.3	-12.4
-5.5	-1.2	13.5	-14.6
-5.4	-6.9	13.7	-20.6
-5.3	-5.7	13.9	-19.6
-5.2	-4.6	14.1	-18.7
-5.1	-0.9	14.3	-15.2
-5.0	1.8	14.5	-12.8
-4.9	2.9	14.7	-11.8
-4.8	1.8	15.0	-13.2
-4.7	2.1	15.2	-13.1
-4.6	3.9	15.4	-11.5
-4.5	3.3	15.7	-12.3
-4.4	-0.5	15.9	-16.4
-4.3	2.1	16.2	-14.0
-4.2	7.1	16.4	-9.3
-4.1	8.9	16.7	-7.8

29.15 GHz Antenna Pattern in Co-pol El RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	52.8		
0.1	52.0		
0.2	49.4		
0.3	44.9		
0.4	40.5		
0.5	37.4		
0.6	32.8		
0.7	20.2		
0.8	20.0		
0.9	17.8		
1.0	15.9		
1.1	18.4		
1.2	13.8		
1.3	6.6		
1.4	9.9		
1.5	6.3		
1.6	12.1		
1.7	12.2		
1.8	10.0		
1.9	11.6		
2.0	12.6		
2.1	13.7		
2.2	14.1		
2.3	13.3		
2.4	12.1		
2.5	8.9		
2.6	0.2		
2.7	-0.8		
2.8	-1.3		
2.9	-2.3		
3.0	0.1		
3.1	-0.3		
3.2	8.4		
3.3	11.8		
3.4	12.3		
3.5	11.0	18.4	-7.4
3.6	9.2	18.1	-8.9
3.7	11.0	17.8	-6.8
3.8	13.0	17.5	-4.5
3.9	13.2	17.2	-4.0
4.0	13.0	16.9	-3.9
4.1	12.3	16.7	-4.3
4.2	9.3	16.4	-7.1
4.3	1.3	16.2	-14.9
4.4	2.1	15.9	-13.9
4.5	3.2	15.7	-12.4
4.6	4.4	15.4	-11.1
4.7	5.5	15.2	-9.7
4.8	6.1	15.0	-8.9
4.9	9.0	14.7	-5.7
5.0	9.5	14.5	-5.0
5.1	7.3	14.3	-7.0
5.2	-1.8	14.1	-15.9
5.3	-5.5	13.9	-19.4
5.4	-1.0	13.7	-14.6
5.5	-3.5	13.5	-16.9
5.6	-6.9	13.3	-20.2
5.7	-11.7	13.1	-24.8
5.8	-6.6	12.9	-19.5
5.9	-6.7	12.7	-19.4

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
Co-pol Elevation RHCP, -10º to +10º @ 0.1º increment

-4.0	8.6	16.9	-8.3
-3.9	5.5	17.2	-11.7
-3.8	-10.7	17.5	-28.2
-3.7	4.8	17.8	-13.0
-3.6	8.2	18.1	-9.8
-3.5	8.0	18.4	-10.4
-3.4	6.7		
-3.3	2.0		
-3.2	-7.6		
-3.1	4.0		
-3.0	0.9		
-2.9	6.5		
-2.8	13.5		
-2.7	14.7		
-2.6	12.7		
-2.5	10.2		
-2.4	13.5		
-2.3	14.5		
-2.2	14.4		
-2.1	13.6		
-2.0	10.8		
-1.9	7.1		
-1.8	5.9		
-1.7	9.3		
-1.6	16.0		
-1.5	19.4		
-1.4	19.7		
-1.3	13.8		
-1.2	17.5		
-1.1	22.7		
-1.0	22.5		
-0.9	20.9		
-0.8	24.4		
-0.7	28.0		
-0.6	31.0		
-0.5	32.7		
-0.4	38.2		
-0.3	45.4		
-0.2	50.0		
-0.1	52.3		
0.0	52.8		

6.0	-11.2	12.5	-23.7
6.1	-11.2	12.4	-23.5
6.2	-9.0	12.2	-21.2
6.3	-2.4	12.0	-14.4
6.4	1.3	11.8	-10.6
6.5	2.0	11.7	-9.6
6.6	0.3	11.5	-11.2
6.7	-1.8	11.3	-13.1
6.8	-4.7	11.2	-15.8
6.9	-10.5	11.0	-21.5
7.0	-3.9	10.9	-14.8
7.1	-0.2	10.7	-10.9
7.2	0.0	10.6	-10.5
7.3	-1.1	10.4	-11.5
7.4	-4.5	10.3	-14.8
7.5	-14.5	10.1	-24.7
7.6	-4.3	10.0	-14.3
7.7	-2.1	9.8	-11.9
7.8	-1.6	9.7	-11.3
7.9	-2.3	9.6	-11.9
8.0	-4.1	9.4	-13.5
8.1	-8.0	9.3	-17.3
8.2	-7.7	9.2	-16.8
8.3	-4.6	9.0	-13.7
8.4	-5.7	8.9	-14.6
8.5	-9.0	8.8	-17.8
8.6	-7.2	8.6	-15.8
8.7	-5.2	8.5	-13.8
8.8	-6.9	8.4	-15.3
8.9	-9.5	8.3	-17.8
9.0	-13.3	8.1	-21.5
9.1	-13.3	8.0	-21.3
9.2	-8.8	7.9	-16.7
9.3	-9.2	7.8	-17.0
9.4	-7.8	7.7	-15.5
9.5	-2.8	7.6	-10.3
9.6	0.3	7.4	-7.1
9.7	2.8	7.3	-4.5
9.8	3.2	7.2	-4.1
9.9	3.2	7.1	-3.9
10.0	0.6	7.0	-6.4

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
X-pol Azimuth RHCP, -10º to +10º @ 0.1º increment

29.15 GHz Antenna Pattern in X-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
-10.0	-8.3	-2.0	-6.3
-9.9	-9.1	-2.0	-7.1
-9.8	-8.2	-2.0	-6.2
-9.7	-7.6	-2.0	-5.6
-9.6	-6.4	-2.0	-4.4
-9.5	-5.9	-2.0	-3.9
-9.4	-4.5	-2.0	-2.5
-9.3	-4.0	-2.0	-2.0
-9.2	-4.4	-2.0	-2.4
-9.1	-6.7	-2.0	-4.7
-9.0	-9.4	-2.0	-7.4
-8.9	-12.6	-2.0	-10.6
-8.8	-13.0	-2.0	-11.0
-8.7	-12.2	-2.0	-10.2
-8.6	-12.6	-2.0	-10.6
-8.5	-11.1	-2.0	-9.1
-8.4	-8.3	-2.0	-6.3
-8.3	-5.8	-2.0	-3.8
-8.2	-6.4	-2.0	-4.4
-8.1	-8.6	-2.0	-6.6
-8.0	-13.5	-2.0	-11.5
-7.9	-10.7	-2.0	-8.7
-7.8	-8.3	-2.0	-6.3
-7.7	-6.8	-2.0	-4.8
-7.6	-9.2	-2.0	-7.2
-7.5	-8.0	-2.0	-6.0
-7.4	-4.0	-2.0	-2.0
-7.3	-2.8	-2.0	-0.8
-7.2	-3.7	-2.0	-1.7
-7.1	-1.7	-2.0	0.3
-7.0	-0.7	-2.1	1.4
-6.9	-0.6	-2.0	1.4
-6.8	-2.2	-1.8	-0.4
-6.7	-4.6	-1.7	-2.9
-6.6	-4.2	-1.5	-2.7
-6.5	-1.7	-1.3	-0.4
-6.4	-1.5	-1.2	-0.4
-6.3	-3.9	-1.0	-2.9
-6.2	-9.4	-0.8	-8.6
-6.1	-21.5	-0.6	-20.8
-6.0	-14.5	-0.5	-14.1
-5.9	-15.6	-0.3	-15.3
-5.8	-10.2	-0.1	-10.1
-5.7	-7.3	0.1	-7.4
-5.6	-5.6	0.3	-5.9
-5.5	-11.7	0.5	-12.2
-5.4	-17.1	0.7	-17.8
-5.3	-8.1	0.9	-9.0
-5.2	-6.5	1.1	-7.6
-5.1	-15.0	1.3	-16.3
-5.0	-6.9	1.5	-8.4
-4.9	-1.8	1.7	-3.5
-4.8	-0.6	2.0	-2.6
-4.7	-2.2	2.2	-4.4
-4.6	-10.8	2.4	-13.2
-4.5	-15.9	2.7	-18.6
-4.4	-6.1	2.9	-9.0
-4.3	0.2	3.2	-3.0
-4.2	2.9	3.4	-0.6
-4.1	2.5	3.7	-1.2

29.15 GHz Antenna Pattern in X-pol Az RHCP

Angle	Gain	Mask	Over Mask
Degrees	dBi	dBi	dB
0.0	27.0		
0.1	25.2		
0.2	30.7		
0.3	32.9		
0.4	32.9		
0.5	30.6		
0.6	25.6		
0.7	19.5		
0.8	12.4		
0.9	2.2		
1.0	12.6		
1.1	12.2		
1.2	6.8		
1.3	7.0		
1.4	8.4		
1.5	8.4		
1.6	7.1		
1.7	2.9		
1.8	-9.5	12.6	-22.1
1.9	-8.6	12.0	-20.6
2.0	-10.9	11.5	-22.4
2.1	-5.3	10.9	-16.2
2.2	-3.0	10.4	-13.4
2.3	-1.9	10.0	-11.9
2.4	-2.3	9.5	-11.8
2.5	-4.0	9.1	-13.0
2.6	-1.5	8.6	-10.2
2.7	1.5	8.2	-6.7
2.8	2.1	7.8	-5.8
2.9	-1.4	7.4	-8.8
3.0	-6.7	7.1	-13.8
3.1	-6.6	6.7	-13.3
3.2	-9.0	6.4	-15.4
3.3	-15.3	6.0	-21.3
3.4	-26.9	5.7	-32.6
3.5	-16.8	5.4	-22.2
3.6	-18.3	5.1	-23.4
3.7	-11.1	4.8	-15.9
3.8	-12.2	4.5	-16.7
3.9	-22.3	4.2	-26.5
4.0	-8.7	3.9	-12.6
4.1	-3.5	3.7	-7.1
4.2	-4.9	3.4	-8.3
4.3	-5.8	3.2	-8.9
4.4	-4.7	2.9	-7.6
4.5	-4.6	2.7	-7.3
4.6	-10.0	2.4	-12.4
4.7	-17.0	2.2	-19.2
4.8	-17.3	2.0	-19.3
4.9	-16.0	1.7	-17.8
5.0	-13.1	1.5	-14.6
5.1	-11.2	1.3	-12.5
5.2	-10.8	1.1	-11.9
5.3	-5.5	0.9	-6.4
5.4	-4.1	0.7	-4.8
5.5	-5.9	0.5	-6.4
5.6	-9.5	0.3	-9.8
5.7	-15.7	0.1	-15.8
5.8	-21.3	-0.1	-21.2
5.9	-15.3	-0.3	-15.0

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AL-7107-Ka, 2.15 m Antenna, Pattern Data Table
X-pol Azimuth RHCP, -10º to +10º @ 0.1º increment

-4.0	-2.4	3.9	-6.4
-3.9	-9.7	4.2	-14.0
-3.8	-1.3	4.5	-5.8
-3.7	-1.5	4.8	-6.3
-3.6	-8.4	5.1	-13.5
-3.5	-8.4	5.4	-13.8
-3.4	-8.8	5.7	-14.5
-3.3	-25.0	6.0	-31.0
-3.2	-7.7	6.4	-14.1
-3.1	-8.3	6.7	-15.0
-3.0	-20.3	7.1	-27.3
-2.9	-4.5	7.4	-12.0
-2.8	-2.2	7.8	-10.0
-2.7	-5.8	8.2	-14.0
-2.6	-21.5	8.6	-30.1
-2.5	-11.9	9.1	-21.0
-2.4	-1.9	9.5	-11.4
-2.3	3.4	10.0	-6.6
-2.2	4.5	10.4	-6.0
-2.1	3.6	10.9	-7.3
-2.0	1.2	11.5	-10.3
-1.9	-8.5	12.0	-20.5
-1.8	2.8	12.6	-9.9
-1.7	8.9		
-1.6	11.0		
-1.5	11.5		
-1.4	11.1		
-1.3	7.3		
-1.2	7.7		
-1.1	14.0		
-1.0	16.0		
-0.9	17.1		
-0.8	20.5		
-0.7	25.0		
-0.6	28.2		
-0.5	29.2		
-0.4	27.3		
-0.3	17.7		
-0.2	25.0		
-0.1	28.3		
0.0	27.0		

6.0	-13.5	-0.5	-13.0
6.1	-10.5	-0.6	-9.9
6.2	-7.2	-0.8	-6.4
6.3	-7.2	-1.0	-6.2
6.4	-8.3	-1.2	-7.1
6.5	-6.8	-1.3	-5.5
6.6	-4.7	-1.5	-3.2
6.7	-4.1	-1.7	-2.5
6.8	-4.3	-1.8	-2.5
6.9	-7.2	-2.0	-5.2
7.0	-10.1	-2.1	-8.0
7.1	-15.4	-2.0	-13.4
7.2	-17.5	-2.0	-15.5
7.3	-25.5	-2.0	-23.5
7.4	-22.7	-2.0	-20.7
7.5	-14.2	-2.0	-12.2
7.6	-9.4	-2.0	-7.4
7.7	-8.8	-2.0	-6.8
7.8	-14.8	-2.0	-12.8
7.9	-17.2	-2.0	-15.2
8.0	-9.8	-2.0	-7.8
8.1	-11.2	-2.0	-9.2
8.2	-14.2	-2.0	-12.2
8.3	-17.6	-2.0	-15.6
8.4	-14.6	-2.0	-12.6
8.5	-11.6	-2.0	-9.6
8.6	-11.2	-2.0	-9.2
8.7	-11.6	-2.0	-9.6
8.8	-12.0	-2.0	-10.0
8.9	-10.5	-2.0	-8.5
9.0	-9.7	-2.0	-7.7
9.1	-13.5	-2.0	-11.5
9.2	-10.9	-2.0	-8.9
9.3	-11.3	-2.0	-9.3
9.4	-13.4	-2.0	-11.4
9.5	-21.7	-2.0	-19.7
9.6	-23.6	-2.0	-21.6
9.7	-22.0	-2.0	-20.0
9.8	-19.0	-2.0	-17.0
9.9	-12.0	-2.0	-10.0
10.0	-11.9	-2.0	-9.9

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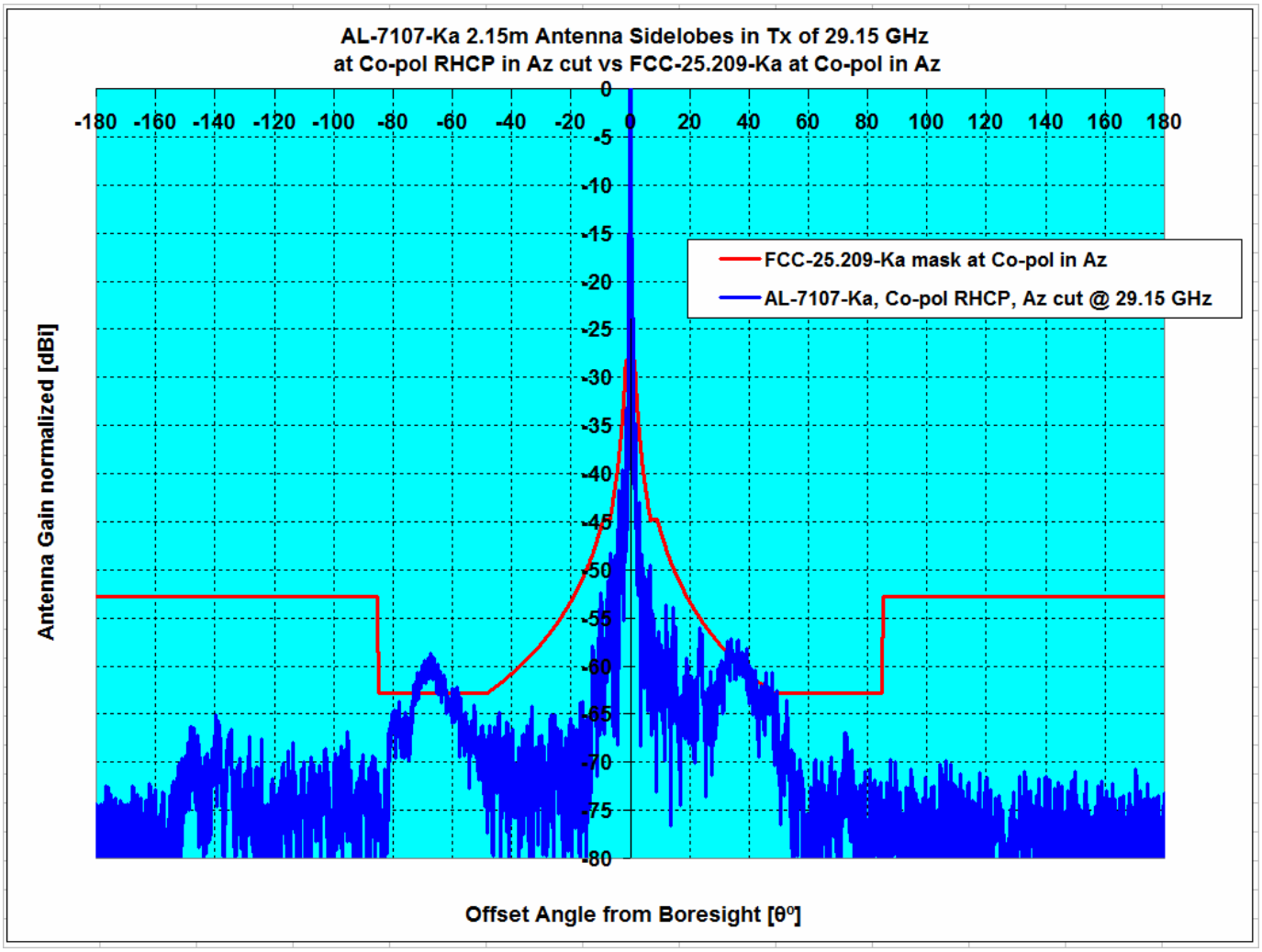
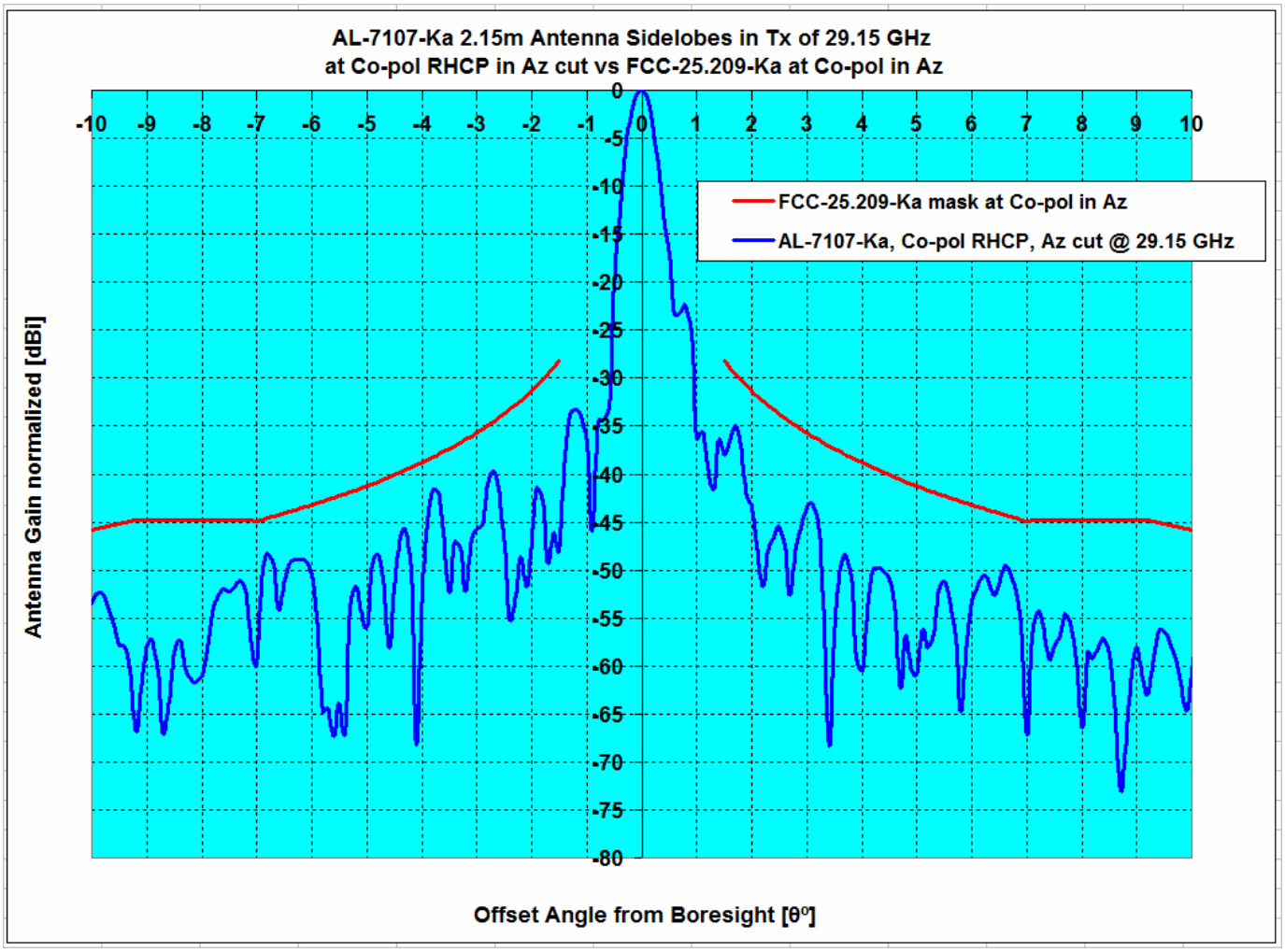
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Azimuth RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.5°≤θ≤7°	7°≤θ≤180°	1.5°≤θ≤7°	7°≤θ≤180°
FCC-25.209-Ka, Co-pol Az, vs AL-7107-Ka	Az , RHCP	29.15	52.77	-3.52	4.12	0.00%	4.65%

Orbit Communication Systems Ltd.

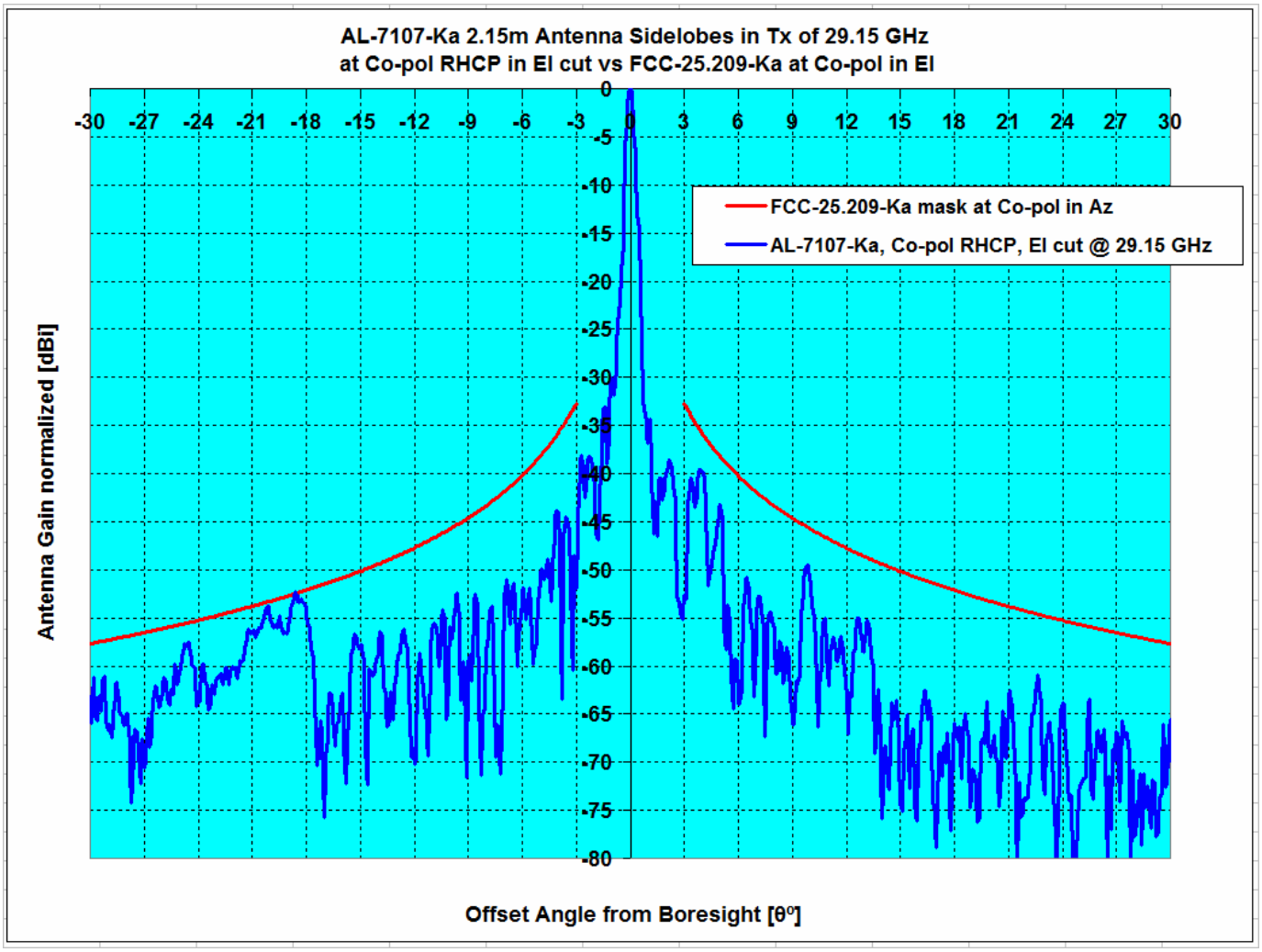
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Azimuth RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.5°≤θ≤7°	7°≤θ≤180°	1.5°≤θ≤7°	7°≤θ≤180°
FCC-25.209-Ka, Co-pol Az, vs AL-7107-Ka	Az , RHCP	29.15	52.77	-3.52	4.12	0.00%	4.65%

Orbit Communication Systems Ltd.

AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Elevation RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	3°≤θ≤7°	7°≤θ≤30°	3°≤θ≤7°	7°≤θ≤30°
FCC-25.209-Ka, Co-pol El, vs AL-7107-Ka	El , RHCP	29.15	52.77	-3.94	0.16	0.00%	0.18%

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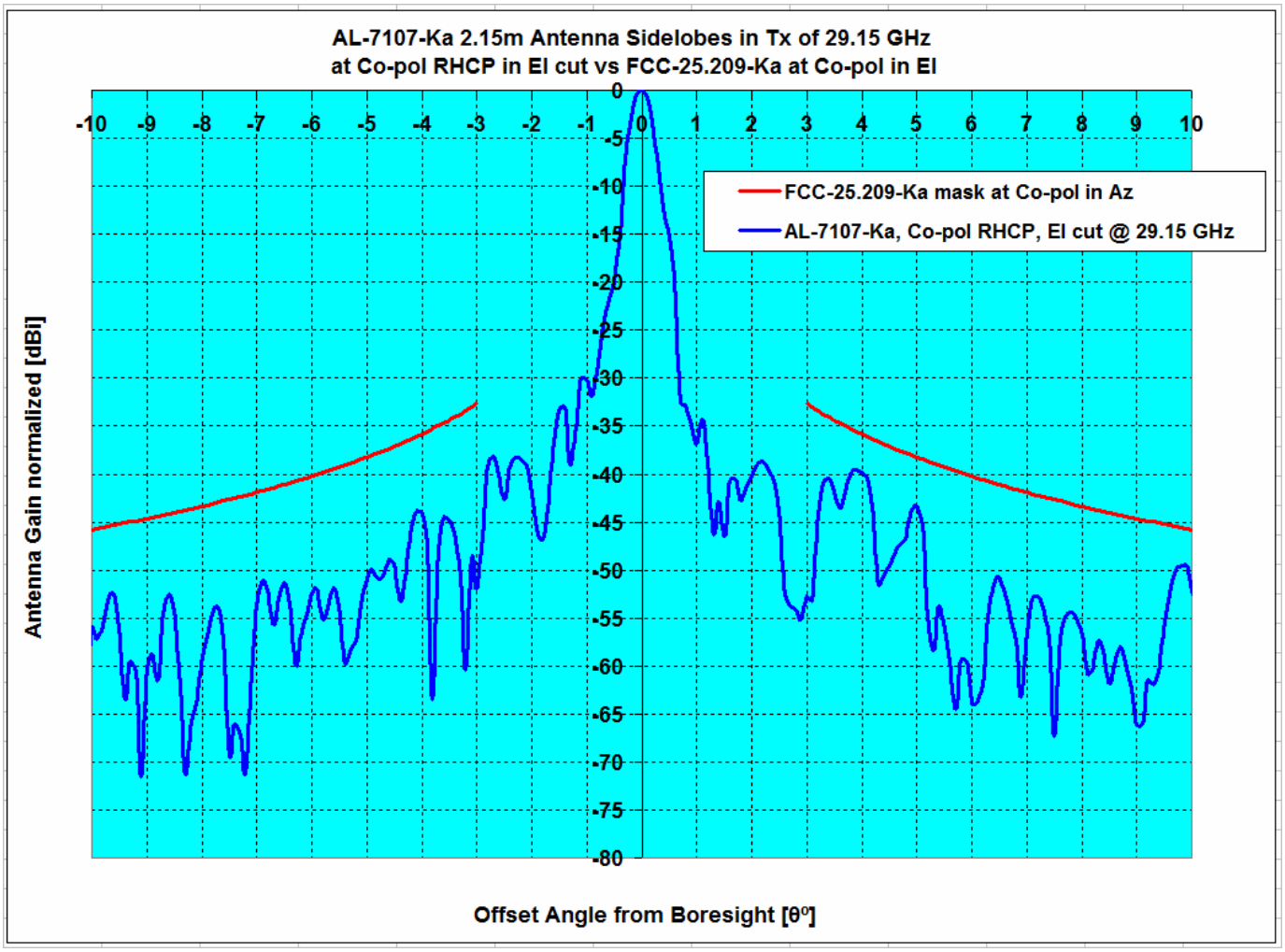
AL-7107-Ka, 2.15 m Antenna, Pattern, Co-pol, Elevation RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	3°≤θ≤7°	7°≤θ≤30°	3°≤θ≤7°	7°≤θ≤30°
FCC-25.209-Ka, Co-pol El, vs AL-7107-Ka	El , RHCP	29.15	52.77	-3.94	0.16	0.00%	0.18%

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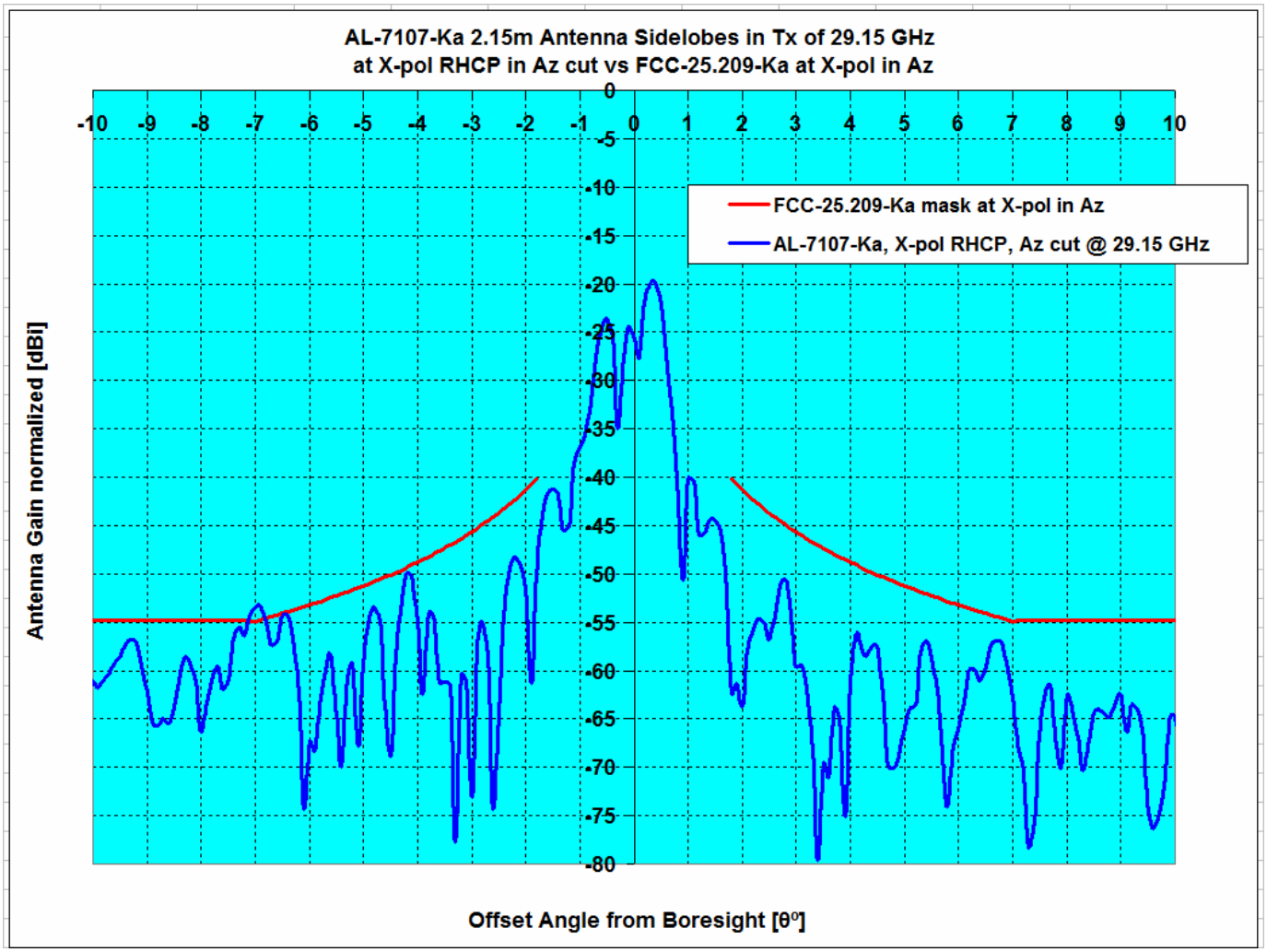
AL-7107-Ka, 2.15 m Antenna, Pattern, X-pol, Azimuth RHCP



Description	Plane, CirP	Frequency	Ant. Gain	Peak Excursions dB		Over Mask %	
Pattern Rule vs Antenna System	Type	GHz	dBi	1.8°≤θ≤7°	1.8°≤θ≤9.2°	1.8°≤θ≤7°	1.8°≤θ≤9.2°
FCC-25.209-Ka, X-pol Az, vs AL-7107-Ka	Az , RHCP	29.15	52.77	1.40	1.40	1.89%	1.81%

III. Forward & Return Link Budgets

Region Center

O3b Networks Link Analysis - Tier 2 Service for

ECM Link Budget Rpt - 12/01/2015		Tier 2	Tier 2
Parameters	Unit	**Clear Sky**	
Ground parameters		**Teleport**	**Telco**
Location		Vernon/U.S.A.	Offshore/Gulf of Mexico
Latitude	(deg)	34.16	27.30
Longitude (East)	(deg)	260.71	-90.14
E/S Range to SV	(km)	9965.86	9757.80
E/S Elevation to SV	(deg)	32.81	35.87
E/S Altitude	(m)	0.00	5.00
SV Beam Identifier	(#)	TBD	
Telco Offset to Beam Center	(km)	0.50	
Modulation Parameters		**Return**	
Enter Reciever	Type	MEOLink	
Percentage of Bandwidth	(%)	17%	
Allocated Bandwidth	(MHz)	36.0000	
Channel Symbol Rate	(Msps)	30.0000	
Channel Modulation Type		16APSK	
Channel FEC Rate		0.83086	
Channel Throughput	(Mbps)	98.7160	
Uplink		**Return**	
E/S Carrier Frequencies	(MHz)	28,865.0000	
E/S Tx HPA Power Level	(W)	40.0	
E/S Tx OBO	(dB)	-9.0	
E/S Tx Antenna Gain (1.8m)	(dB)	52.3	
E/S Tx EIRP	(dBW)	56.6	
E/S Tx RF Link Availability	(%)	Clear	
E/S Tx Spreading Loss	(dB)	-151.0	
Satellite		**Return**	
SV Rx G/T	(dB/K)	6.1	
SV Tx OBO	(dB)	-22.3	
SV Tx EIRP Per Channel/Carrier	dBW	27.0	
Downlink		**Return**	
E/S Rx Carrier Frequency	(MHz)	19,065.0000	
E/S Rx Rf Link Availability	(%)	Clear	
E/S Rx Antenna Gain (7.3m)	(dBi)	62.3	
E/S Rx Effective G/T	(dB/K)	40.6	
Total Link		**Return**	
Carrier/Noise Bandwidth	(dB)	14.8	
Carrier/Noise Uplink	(dB)	13.4	
Carrier/Noise Downlink	(dB)	22.4	
Carrier/Intermodulation Im (C/Im)	(dB)	23.3	
(C/N)- Total Actual (Es/No)	(dB)	11.1	
(C/N)-Total Required	(dB)	12.7	
(Eb/No)-Total Actual	(dB)	5.9	
(Eb/No)-Total Required	(dB)	7.5	
Excess Margin	(dB)	**-1.6**	
Fade Margin	(dB)	**13.4**	

O3b Networks Link Analysis

ECM Link Budget Rpt - 12/01/2015		Tier 2	Tier 2
Parameters	Unit	**Rain Up**	
Ground parameters		**Teleport**	**Telco**
Location		Vernon/U.S.A.	Offshore/Gulf of Mexico
Latitude	(deg)	34.16	27.30
Longitude (East)	(deg)	260.71	-90.14
E/S Range to SV	(km)	9965.86	9757.80
E/S Elevation to SV	(deg)	32.81	35.87
E/S Altitude	(m)	0.00	5.00
SV Beam Identifier	(#)	TBD	
Telco Offset to Beam Center	(km)	0.50	
Modulation Parameters		**Return**	
Enter Reciever	Type	MEOLink	
Percentage of Bandwidth	(%)	17%	
Allocated Bandwidth	(MHz)	36.0000	
Channel Symbol Rate	(Msps)	30.0000	
Channel Modulation Type		8PSK	
Channel FEC Rate		0.74704	
Channel Throughput	(Mbps)	66.5679	
Uplink		**Return**	
E/S Carrier Frequencies	(MHz)	28,865.0000	
E/S Tx HPA Power Level	(W)	40.0	
E/S Tx OBO	(dB)	-2.0	
E/S Tx Antenna Gain (1.8m)	(dB)	52.28	
E/S Tx EIRP	(dBW)	63.61	
E/S Tx RF Link Availability	(%)	99.041%	
E/S Tx Spreading Loss	(dB)	-151.0	
Satellite		**Return**	
SV Rx G/T	(dB/K)	6.1	
SV Tx OBO	(dB)	-24.4	
SV Tx EIRP Per Channel/Carrier	dBW	24.9	
Downlink		**Return**	
E/S Rx Carrier Frequency	(MHz)	19,065.0000	
E/S Rx Rf Link Availability	(%)	Clear	
E/S Rx Antenna Gain (7.3m)	(dBi)	62.3	
E/S Rx Effective G/T	(dB/K)	40.6	
Total Link		**Return**	
Carrier/Noise Bandwidth	(dB)	14.8	
Carrier/Noise Uplink	(dB)	11.2	
Carrier/Noise Downlink	(dB)	20.2	
Carrier/Intermodulation Im (C/Im)	(dB)	21.2	
(C/N)- Total Actual (Es/No)	(dB)	9.0	
(C/N)-Total Required	(dB)	8.5	
(Eb/No)-Total Actual	(dB)	5.5	
(Eb/No)-Total Required	(dB)	5.0	
Excess Margin	(dB)	**0.50**	
Fade Margin	(dB)	**11.2**	

O3b Networks Link Analysis

ECM Link Budget Rpt - 12/01/2015		Tier 2	Tier 2
Parameters	Unit	**Rain Dn**	
Ground parameters		**Telco**	**Telco**
Location		Vernon/U.S.A.	Offshore/Gulf of Mexico
Latitude	(deg)	34.16	27.30
Longitude (East)	(deg)	260.71	-90.14
E/S Range to SV	(km)	9965.86	9757.80
E/S Elevation to SV	(deg)	32.81	35.87
E/S Altitude	(m)	0.00	5.00
SV Beam Identifier	(#)	TBD	
Telco Offset to Beam Center	(km)	0.50	
Modulation Parameters		**Return**	
Enter Reciever	Type	MEOLink	
Percentage of Bandwidth	(%)	16.67%	
Allocated Bandwidth	(MHz)	36.0000	
Channel Symbol Rate	(Msps)	30.0000	
Channel Modulation Type		8PSK	
Channel FEC Rate		0.75	
Channel Throughput	(Mbps)	66.57	
Uplink		**Return**	
E/S Carrier Frequencies	(MHz)	28,865.0000	
E/S Tx HPA Power Level	(W)	40.0	
E/S Tx OBO	(dB)	-9.0	
E/S Tx Antenna Gain (1.8m)	(dB)	52.28	
E/S Tx EIRP	(dBW)	56.61	
E/S Tx RF Link Availability	(%)	Clear	
E/S Tx Spreading Loss	(dB)	-151.0	
Satellite		**Return**	
SV Rx G/T	(dB/K)	6.09	
SV Tx OBO	(dB)	-22.25	
SV Tx EIRP Per Channel/Carrier	dBW	27.03	
Downlink		**Return**	
E/S Rx Carrier Frequency	(MHz)	19,065.0000	
E/S Rx Rf Link Availability	(%)	99.712%	
E/S Rx Antenna Gain (7.3m)	(dBi)	62.31	
E/S Rx Effective G/T	(dB/K)	36.79	
Total Link		**Return**	
Carrier/Noise Bandwidth	(dB)	14.8	
Carrier/Noise Uplink	(dB)	13.39	
Carrier/Noise Downlink	(dB)	12.59	
Carrier/Intermodulation Im (C/Im)	(dB)	23.33	
(C/N)- Total Actual (Es/No)	(dB)	8.98	
(C/N)-Total Required	(dB)	8.48	
(Eb/No)-Total Actual	(dB)	5.48	
(Eb/No)-Total Required	(dB)	4.98	
Excess Margin	(dB)	**0.50**	
Fade Margin	(dB)	**11.2**	

Region Center

O3b Networks Link Analysis - Tier 2 Service for

ECM Link Budget Rpt - 12/01/2015		Tier 2	Tier 2
Parameters	Unit	**Clear Sky**	
Ground parameters		**Teleport**	**Telco**
Location		Offshore/Gulf of Mexico	Vernon/U.S.A.
Latitude	(deg)	27.30	34.16
Longitude (East)	(deg)	-90.14	260.71
E/S Range to SV	(km)	9757.80	9965.86
E/S Elevation to SV	(deg)	35.87	32.81
E/S Altitude	(m)	5.00	0.00
SV Beam Identifier	(#)	TBD	
Telco Offset to Beam Center	(km)	0.21	
Modulation Parameters		**Return**	
Enter Reciever	Type	MEOLink	
Percentage of Bandwidth	(%)	25%	
Allocated Bandwidth	(MHz)	54.0000	
Channel Symbol Rate	(Msps)	45.0000	
Channel Modulation Type		16APSK	
Channel FEC Rate		0.83086	
Channel Throughput	(Mbps)	148.0741	
Uplink		**Return**	
E/S Carrier Frequencies	(MHz)	29,048.0000	
E/S Tx HPA Power Level	(W)	500.0	
E/S Tx OBO	(dB)	-13.0	
E/S Tx Antenna Gain (7.3m)	(dB)	65.6	
E/S Tx EIRP	(dBW)	65.8	
E/S Tx RF Link Availability	(%)	Clear	
E/S Tx Spreading Loss	(dB)	-150.8	
Satellite		**Return**	
SV Rx G/T	(dB/K)	6.0	
SV Tx OBO	(dB)	-9.8	
SV Tx EIRP Per Channel/Carrier	dBW	39.6	
Downlink		**Return**	
E/S Rx Carrier Frequency	(MHz)	19,248.0000	
E/S Rx Rf Link Availability	(%)	Clear	
E/S Rx Antenna Gain (1.8m)	(dBi)	48.2	
E/S Rx Effective G/T	(dB/K)	24.8	
Total Link		**Return**	
Carrier/Noise Bandwidth	(dB)	16.5	
Carrier/Noise Uplink	(dB)	20.8	
Carrier/Noise Downlink	(dB)	17.4	
Carrier/Intermodulation Im (C/Im)	(dB)	21.0	
(C/N)- Total Actual (Es/No)	(dB)	12.0	
(C/N)-Total Required	(dB)	12.7	
(Eb/No)-Total Actual	(dB)	6.8	
(Eb/No)-Total Required	(dB)	7.5	
Excess Margin	(dB)	**-0.7**	
Fade Margin	(dB)	**14.2**	

O3b Networks Link Analysis

ECM Link Budget Rpt - 12/01/2015		Tier 2	Tier 2
Parameters	Unit	**Rain Up**	
Ground parameters		**Teleport**	**Telco**
Location		Offshore/Gulf of Mexico	Vernon/U.S.A.
Latitude	(deg)	27.30	34.16
Longitude (East)	(deg)	-90.14	260.71
E/S Range to SV	(km)	9757.80	9965.86
E/S Elevation to SV	(deg)	35.87	32.81
E/S Altitude	(m)	5.00	0.00
SV Beam Identifier	(#)	TBD	
Telco Offset to Beam Center	(km)	0.21	
Modulation Parameters		**Return**	
Enter Reciever	Type	MEOLink	
Percentage of Bandwidth	(%)	25%	
Allocated Bandwidth	(MHz)	54.0000	
Channel Symbol Rate	(Msps)	45.0000	
Channel Modulation Type		8PSK	
Channel FEC Rate		0.66420	
Channel Throughput	(Mbps)	88.7792	
Uplink		**Return**	
E/S Carrier Frequencies	(MHz)	29,048.0000	
E/S Tx HPA Power Level	(W)	500.0	
E/S Tx OBO	(dB)	-4.0	
E/S Tx Antenna Gain (7.3m)	(dB)	65.63	
E/S Tx EIRP	(dBW)	74.76	
E/S Tx RF Link Availability	(%)	99.816%	
E/S Tx Spreading Loss	(dB)	-150.8	
Satellite		**Return**	
SV Rx G/T	(dB/K)	6.0	
SV Tx OBO	(dB)	-9.8	
SV Tx EIRP Per Channel/Carrier	dBW	39.6	
Downlink		**Return**	
E/S Rx Carrier Frequency	(MHz)	19,248.0000	
E/S Rx Rf Link Availability	(%)	Clear	
E/S Rx Antenna Gain (1.8m)	(dBi)	48.2	
E/S Rx Effective G/T	(dB/K)	24.8	
Total Link		**Return**	
Carrier/Noise Bandwidth	(dB)	16.5	
Carrier/Noise Uplink	(dB)	14.6	
Carrier/Noise Downlink	(dB)	17.4	
Carrier/Intermodulation Im (C/Im)	(dB)	21.0	
(C/N)- Total Actual (Es/No)	(dB)	7.7	
(C/N)-Total Required	(dB)	7.2	
(Eb/No)-Total Actual	(dB)	4.7	
(Eb/No)-Total Required	(dB)	4.2	
Excess Margin	(dB)	**0.50**	
Fade Margin	(dB)	**9.9**	

O3b Networks Link Analysis

ECM Link Budget Rpt - 12/01/2015		Tier 2	Tier 2
Parameters	Unit	**Rain Dn**	
Ground parameters		**Telco**	**Telco**
Location		Offshore/Gulf of Mexico	Vernon/U.S.A.
Latitude	(deg)	27.30	34.16
Longitude (East)	(deg)	-90.14	260.71
E/S Range to SV	(km)	9757.80	9965.86
E/S Elevation to SV	(deg)	35.87	32.81
E/S Altitude	(m)	5.00	0.00
SV Beam Identifier	(#)	TBD	
Telco Offset to Beam Center	(km)	0.21	
Modulation Parameters		**Return**	
Enter Reciever	Type	MEOLink	
Percentage of Bandwidth	(%)	25.00%	
Allocated Bandwidth	(MHz)	54.0000	
Channel Symbol Rate	(Msps)	45.0000	
Channel Modulation Type		8PSK	
Channel FEC Rate		0.66	
Channel Throughput	(Mbps)	88.78	
Uplink		**Return**	
E/S Carrier Frequencies	(MHz)	29,048.0000	
E/S Tx HPA Power Level	(W)	500.0	
E/S Tx OBO	(dB)	-13.0	
E/S Tx Antenna Gain (7.3m)	(dB)	65.63	
E/S Tx EIRP	(dBW)	65.76	
E/S Tx RF Link Availability	(%)	Clear	
E/S Tx Spreading Loss	(dB)	-150.8	
Satellite		**Return**	
SV Rx G/T	(dB/K)	6.01	
SV Tx OBO	(dB)	-9.82	
SV Tx EIRP Per Channel/Carrier	dBW	39.63	
Downlink		**Return**	
E/S Rx Carrier Frequency	(MHz)	19,248.0000	
E/S Rx Rf Link Availability	(%)	99.287%	
E/S Rx Antenna Gain (1.8m)	(dBi)	48.19	
E/S Rx Effective G/T	(dB/K)	21.94	
Total Link		**Return**	
Carrier/Noise Bandwidth	(dB)	16.5	
Carrier/Noise Uplink	(dB)	20.83	
Carrier/Noise Downlink	(dB)	9.01	
Carrier/Intermodulation Im (C/Im)	(dB)	21.00	
(C/N)- Total Actual (Es/No)	(dB)	7.68	
(C/N)-Total Required	(dB)	7.18	
(Eb/No)-Total Actual	(dB)	4.68	
(Eb/No)-Total Required	(dB)	4.19	
Excess Margin	(dB)	**0.49**	
Fade Margin	(dB)	**9.9**	

IV. Radiation Hazard Study

Radiation Hazard Study

The study in this section analyzes the potential RF human exposure levels caused by the Electro Magnetic (EM) fields of an Orbit AL-7107-Ka, 2.2 m antenna, "OceanTrx7" operating with a maximum power at the flange of 40 Watts. The mathematical analysis performed below complies with the methods described in the FCC Office of Engineering and Technology (OET) Bulletin No. 65 (1985 rev. 1997) R&O 96-3 26 in "Evaluating Compliance with FCC Guidelines for Human Exposure to RF EM Fields, OET Bulletin 65 (Edition 97-01), Supplement B, FCC Office of Engineering & Technology, November 1997".

Maximum Permissible Exposure

There are two separate levels of exposure limits. The first applies to persons in the general population who are in an uncontrolled environment. The second applies to trained personnel in a controlled environment. According to 47 C.F.R. § 1.1310, the Maximum Permissible Exposure (MPE) limits for frequencies above 1.5 GHz are as follows:

- General Population / Uncontrolled Exposure: 1.0 mW/cm^2
- Occupational / Controlled Exposure: 5.0 mW/cm^2

The purpose of this study is to determine the power flux density levels for the earth station under study as compared with the MPE limits. This comparison is done in each of the following regions:

1. Far-field region
2. Near-field region
3. Transition region
4. The region between the feed and the antenna surface
5. The main reflector region
6. The region between the antenna edge and the ground

Input Parameters

The following input parameters were used in the calculations:

Input Parameter	**Value**	**Unit**	**Symbol**
Antenna Diameter	2.15	m	D
Antenna Transmit Gain	52.5	dBi	G
Transmit Frequency	28,300.0	MHz	f
Antenna Feed Flange Diameter	8.0	cm	d
Power Input to the Antenna	40.0	Watts	P

Calculated Parameters

The following values were calculated using the above input parameters and the corresponding formula:

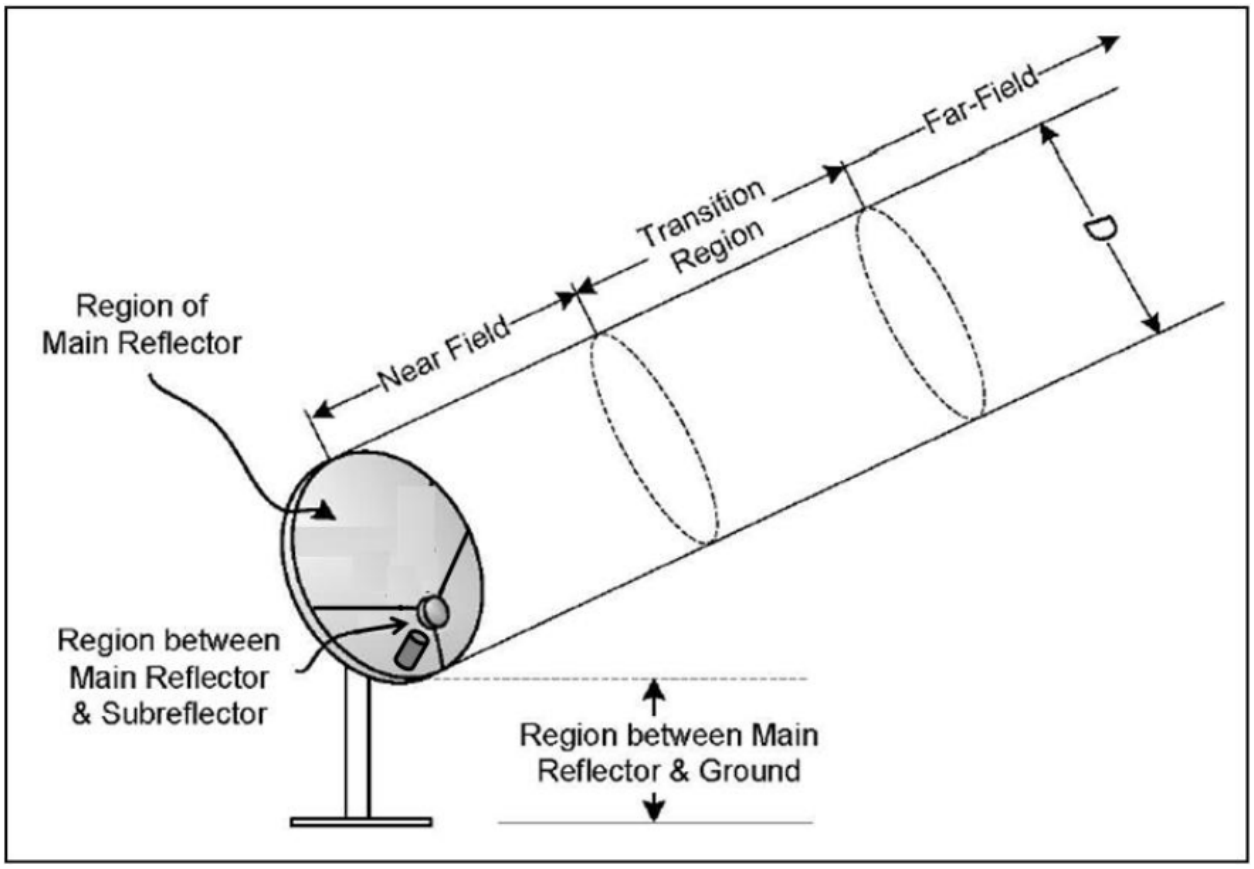
Aperture Efficiency

The aperture efficiency (η) of the antenna is the ratio of the effective aperture area (derived from the peak gain) to the physical aperture area. For the input parameters given above this is calculated to be 43.8 %.

Behavior of EM Fields as a Function of Distance

The behavior of the characteristics of EM fields varies depending on the distance from the radiating antenna. These characteristics are analyzed in three primary regions: the near-field region, the far-field region and the transition region. Of interest also are the region between the antenna main reflector and the subreflector, the region of the main reflector area and the region between the main reflector and ground. These various regions of interest are shown in Figure 1 below.

Figure 1. Electro-Magnetic Fields as a Function of Distance



For parabolic aperture antennas with circular cross sections, such as the antenna under study, the near-field, far-field and transition region distances are calculated as follows:

Calculated Parameter	Value	Unit	Symbol	Formula
Near-Field Distance	109.0	m	R_{nf}	$D^2/(4\lambda)$
Distance to Far-Field	261.6	m	R_{ff}	$0.6D^2/\lambda$
Distance of Transition Region	109.0	m	R_t	$R_t = R_{nf}$

The distance in the transition region is between the near and far fields. Thus, $R_{nf} \leq R_t \leq R_{ff}$. However, the power density in the transition region will not exceed the power density in the near-field. Therefore, for purposes of the present analysis, the distance of the transition region can equate the distance to the near-field.

Power Flux Density Calculations

The power flux density is considered to be at a maximum through the entire length of the near-field. This region is contained within a cylindrical volume with a diameter, D, equal to the diameter of the antenna. In the transition region and the far-field, the power density decreases inversely with the square of the distance. The following equations are used to calculate power density in these regions:

Calculated Parameter	Value	Unit	Symbol	Formula
Power Density in the Near-Field	1.93	mW/cm^2	S_{nf}	$16\eta P/(\pi D^2)$
Power Density in the Far-Field	0.83	mW/cm^2	S_{ff}	$gP/(4\pi R_{ff}^2)$
Power Density in the Transition Region	1.93	mW/cm^2	S_t	$S_{nf} \times R_{nf}/R_t$

The region between the main reflector and the subreflector is confined to within a conical shape defined by the feed assembly. The most common feed assemblies are waveguide flanges. This energy is determined as follows using the area of the feed aperture:

Calculated Parameter	Value	Unit	Symbol	Formula
Power Density at the Feed Flange	3183.1	mW/cm^2	S_{fa}	4P/A

The power density in the main reflector is determined similarly to the power density at the feed flange, except that the area of the main reflector is used.

Calculated Parameter	Value	Unit	Symbol	Formula
Power Density at the Main Reflector	4.41	mW/cm^2	$S_{surface}$	4P/A

The power density between the reflector and ground, assuming uniform illumination of the reflector surface, is calculated as follows:

Calculated Parameter	Value	Unit	Symbol	Formula
Power Density between Reflector and Gnd	1.10	mW/cm^2	$S_{surface}$	P/A

Summary of Calculations

Table 1 below summarizes the calculated power flux density values for each region. In a controlled environment, the only regions that exceed FCC limitations are the regions between the main reflector and the sub-reflector as well as the main reflector region. These regions are only accessible by trained technicians who, as a matter of procedure, turn off transmit power before performing any work in these areas.

Table 1. Power Flux Density for Each Region

Calculated Parameter	Unit	Exposure Limit	Exposure Limit
Power Densities	mW/cm^2	Uncontrolled Environment ≤ 1 mW/cm^2	Controlled Environment ≤ 5 mW/cm^2
Far Field Calculation	0.83	Satisfies FCC MPE	Satisfies FCC MPE
Near Field Calculation	1.93	Exceeds limitations	Satisfies FCC MPE
Transition Region	1.93	Exceeds limitations	Satisfies FCC MPE
Region between Main & Subreflector	3183.1	Exceeds limitations	Exceeds limitations
Main Reflector Region	4.41	Exceeds limitations	Satisfies FCC MPE
Region between Main & Reflector & Gnd	1.10	Exceeds limitations	Satisfies FCC MPE

In conclusion, the results show that the antenna, in a controlled environment, and under the proper mitigation procedures, meets the guidelines specified in § 1.1310 of the Regulations.

V. FCC Declaration of Conformity

DECLARATION OF ORBIT COMMUNICATION LTD

Model "AL-7107-Ka OrBand" (Ka-band)

(At this stage, the analysis done is based on simulations / computations of the antenna)

I, Guy Naym, Director R&D Satcom Systems, hereby declare, that the following statements are true and correct:

1. Orbit Communication Ltd. Designs, develops and manufactures marine stabilized antenna systems for satellite communications at sea.

2. The Model "AL-7107-Ka" (Ka-band) meets the shape of the off-axis EIRP spectral density mask provided for in 47 CFR Section 25.138.

3. Anyone using the Model "AL-7107-Ka" (Ka-band) antenna will comply with U.S. Federal Communications Commission (FCC) off-axis EIRP spectral density limits provided that, the transmit power density at the antenna input is kept below -11.58 dBW/40KHz (0.07 Watts/40KHz) of occupied bandwidth (limited at 29.1 GHz by Az, Co-pol).

4. Orbit Communication Ltd "AL-7107-Ka" (Ka-band) Marine Stabilized System will maintain a stabilization tracking accuracy of better than 0.2 degrees under specified ship motion conditions. The internal controller software continuously monitor the instantaneous antenna tracking error and will cease the Tx of the BUC within 100ms (using M&C of the BUC) if an unexpected even occurs that causes the tracking error to exceed 0.5 degrees. Transmissions will not restart until the tracking error is less than 0.2 degrees of the target satellite.

5. Orbit Communication Ltd maintains all relevant test & analyzed data, which is available upon request.

Executed on December 13, 2012

Guy Naym

Director R&D SatCom Systems

Orbit Communication Ltd

Orbit Communication Ltd. 8D Hatzoran St. P.O.B. 8657, Netanya 42504, Israel, Tel: +(972) 9 892 2777, Fax: +(972) 9 885 5944 www.orbit-cs.com

VI. Comsearch Frequency Coordination Reports

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
RigNet SatCom, Inc.
SHENZI, GM
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
December 28, 2015

TABLE OF CONTENTS

1. CONCLUSIONS

An interference study considering all existing, proposed and prior coordinated microwave facilities within the coordination contours of the proposed earth station demonstrates that this site will operate satisfactorily with the common carrier microwave environment. Further, there will be no restrictions of its operation due to interference considerations.

2. SUMMARY OF RESULTS

A number of great circle interference cases were identified during the interference study of the proposed earth station. Each of the cases, which exceeded the interference objective on a line-of-sight basis, was profiled and the propagation losses estimated using NBS TN101 (Revised) techniques. The losses were found to be sufficient to reduce the signal levels to acceptable magnitudes in every case.

3. SUPPLEMENTAL SHOWING

Pursuant to Part 25.203(c) of the FCC Rules and Regulations, the satellite earth station proposed in this application was coordinated by Comsearch using computer techniques and in accordance with Part 25 of the FCC Rules and Regulations.

Coordination data for this earth station was sent to the below listed carriers with a letter dated 12/14/2015.

Company
Comsearch

4. EARTH STATION COORDINATION DATA

This section presents the data pertinent to frequency coordination of the proposed earth station that was circulated to all carriers within its coordination contours.

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 http://www.comsearch.com

Date: 12/28/2015
Job Number: 151214COMSGE05

Administrative Information

Status	ENGINEER PROPOSAL
Call Sign	
Licensee Code	RIGNET
Licensee Name	RigNet SatCom, Inc.

Site Information — SHENZI, GM

Venue Name	
Latitude (NAD 83)	27° 18' 2.2" N
Longitude (NAD 83)	90° 8' 6.0" W
Climate Zone	B
Rain Zone	1
Ground Elevation (AMSL)	0.0 m / 0.0 ft

Link Information

Satellite Type	Medium Earth Orbit
Mode	TR - Transmit-Receive
Modulation	Digital
Minimum Elevation Angle	10.0°
Azimuth Range	0.0° to 360°
Antenna Centerline (AGL)	60.96 m / 200.0 ft

Antenna Information		Receive - FCC32		Transmit - FCC32	
Manufacturer		Orbit		Orbit	
Model		AL-7107		AL-7107	
Gain / Diameter		48.8 dBi / 2.2 m		54.5 dBi / 2.2 m	
3-dB / 15-dB Beamwidth		0.05° / 0.10°		0.10° / 0.20°	
Max Available RF Power	(dBW/4 kHz)			-22.0	
	(dBW/MHz)			2.0	
Maximum EIRP	(dBW/4 kHz)			32.5	
	(dBW/MHz)			56.5	
	(dBW)				
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
	Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%

Frequency Information	Receive 18.0 GHz	Transmit 28.0 GHz
Emission / Frequency Range (MHz)	5M12G7D - 216MG7D / 17700.0 - 18600.0 5M12G7D - 216MG7D / 18800.0 - 19300.0	5M12G7D - 216MG7D / 27600.0 - 28400.0 5M12G7D - 216MG7D / 28600.0 - 29100.0
Max Great Circle Coordination Distance	220.1 km / 136.7 mi	124.9 km / 77.6 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 http://www.comsearch.com

Coordination Values	**SHENZI, GM**			
Licensee Name	RigNet SatCom, Inc.			
Latitude (NAD 83)	27° 18' 2.2" N			
Longitude (NAD 83)	90° 8' 6.0" W			
Ground Elevation (AMSL)	0.0 m / 0.0 ft			
Antenna Centerline (AGL)	60.96 m / 200.0 ft			
Antenna Model	Orbit 2.2 meter			
Antenna Mode	Receive 18.0 GHz		Transmit 28.0 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power			-22.0 (dBW/4 kHz)	

			Receive 18.0 GHz		Transmit 28.0 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	89.94	-10.00	151.60	-10.00	100.00
5	0.00	85.00	-10.00	151.60	-10.00	100.00
10	0.00	80.06	-10.00	151.60	-10.00	100.00
15	0.00	75.12	-10.00	151.60	-10.00	100.00
20	0.00	70.18	-10.00	151.60	-10.00	100.00
25	0.00	65.25	-10.00	151.60	-10.00	100.00
30	0.00	60.32	-10.00	151.60	-10.00	100.00
35	0.00	55.40	-10.00	151.60	-10.00	100.00
40	0.00	50.49	-10.00	151.60	-10.00	100.00
45	0.00	45.60	-10.00	151.60	-10.00	100.00
50	0.00	40.72	-10.00	151.60	-10.00	100.00
55	0.00	35.88	-9.67	152.80	-9.67	100.00
60	0.00	31.07	-8.48	157.00	-8.48	100.00
65	0.00	26.33	-7.15	161.80	-7.15	100.00
70	0.00	21.69	-5.67	167.20	-5.67	100.00
75	0.00	17.25	-3.98	173.30	-3.98	100.00
80	0.00	13.19	-2.04	177.60	-2.04	100.00
85	0.00	10.01	0.18	186.50	0.18	105.20
90	0.00	8.72	2.63	197.70	2.63	113.70
95	0.00	10.07	4.97	209.60	4.97	121.20
100	0.00	13.28	6.17	216.20	6.17	124.90
105	0.00	17.35	5.30	211.30	5.30	122.20
110	0.00	21.80	3.06	199.80	3.06	115.10
115	0.00	26.44	0.59	188.30	0.59	106.70
120	0.00	31.18	-1.68	179.00	-1.68	100.00
125	0.00	35.99	-3.57	174.70	-3.57	100.00
130	0.00	40.84	-5.15	169.00	-5.15	100.00
135	0.00	45.72	-6.50	164.20	-6.50	100.00
140	0.00	50.61	-7.67	160.00	-7.67	100.00
145	0.00	55.52	-8.68	156.30	-8.68	100.00
150	0.00	60.44	-9.56	153.20	-9.56	100.00
155	0.00	65.37	-10.00	151.60	-10.00	100.00
160	0.00	70.30	-10.00	151.60	-10.00	100.00
165	0.00	75.24	-10.00	151.60	-10.00	100.00
170	0.00	80.18	-10.00	151.60	-10.00	100.00
175	0.00	85.12	-10.00	151.60	-10.00	100.00
180	0.00	90.06	-10.00	151.60	-10.00	100.00
185	0.00	95.00	-10.00	151.60	-10.00	100.00

COMSEARCH

Earth Station Data Sheet

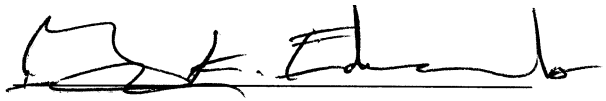
19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 http://www.comsearch.com

Coordination Values	**SHENZI, GM**			
Licensee Name	RigNet SatCom, Inc.			
Latitude (NAD 83)	27° 18' 2.2" N			
Longitude (NAD 83)	90° 8' 6.0" W			
Ground Elevation (AMSL)	0.0 m / 0.0 ft			
Antenna Centerline (AGL)	60.96 m / 200.0 ft			
Antenna Model	Orbit 2.2 meter			
Antenna Mode	Receive 18.0 GHz		Transmit 28.0 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power			-22.0 (dBW/4 kHz)	

			Receive 18.0 GHz		Transmit 28.0 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	99.94	-10.00	151.60	-10.00	100.00
195	0.00	104.88	-10.00	151.60	-10.00	100.00
200	0.00	109.82	-10.00	151.60	-10.00	100.00
205	0.00	114.75	-10.00	151.60	-10.00	100.00
210	0.00	119.68	-9.56	153.20	-9.56	100.00
215	0.00	124.60	-8.68	156.30	-8.68	100.00
220	0.00	129.51	-7.67	160.00	-7.67	100.00
225	0.00	134.40	-6.50	164.20	-6.50	100.00
230	0.00	139.28	-5.15	169.00	-5.15	100.00
235	0.00	144.12	-3.57	174.70	-3.57	100.00
240	0.00	148.93	-1.68	179.00	-1.68	100.00
245	0.00	153.67	0.63	188.50	0.63	106.80
250	0.00	158.31	3.23	200.60	3.23	115.70
255	0.00	162.75	5.71	213.60	5.71	123.50
260	0.00	166.81	6.86	220.10	6.86	115.50
265	0.00	169.99	5.67	213.40	5.67	106.60
270	0.00	171.28	3.17	200.30	3.17	100.00
275	0.00	169.93	0.57	188.20	0.57	100.00
280	0.00	166.72	-1.74	178.70	-1.74	100.00
285	0.00	162.65	-3.74	174.10	-3.74	100.00
290	0.00	158.20	-5.48	167.80	-5.48	100.00
295	0.00	153.56	-7.00	162.40	-7.00	100.00
300	0.00	148.82	-8.35	157.50	-8.35	100.00
305	0.00	144.01	-9.55	153.20	-9.55	100.00
310	0.00	139.16	-10.00	151.60	-10.00	100.00
315	0.00	134.28	-10.00	151.60	-10.00	100.00
320	0.00	129.39	-10.00	151.60	-10.00	100.00
325	0.00	124.48	-10.00	151.60	-10.00	100.00
330	0.00	119.56	-10.00	151.60	-10.00	100.00
335	0.00	114.63	-10.00	151.60	-10.00	100.00
340	0.00	109.70	-10.00	151.60	-10.00	100.00
345	0.00	104.76	-10.00	151.60	-10.00	100.00
350	0.00	99.82	-10.00	151.60	-10.00	100.00
355	0.00	94.88	-10.00	151.60	-10.00	100.00

5. CERTIFICATION

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE FREQUENCY COORDINATION DATA CONTAINED IN THIS APPLICATION, THAT I AM FAMILIAR WITH PARTS 101 AND 25 OF THE FCC RULES AND REGULATIONS, THAT I HAVE EITHER PREPARED OR REVIEWED THE FREQUENCY COORDINATION DATA SUBMITTED WITH THIS APPLICATION, AND THAT IT IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: 

Gary K. Edwards
Senior Manager
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147

DATED: December 28, 2015

Ka-Band Earth Station – Gulf of Mexico

Frequency Coordination Report

28 GHz

Prepared on Behalf of
RigNet SatCom, Inc.

December 29, 2015

COMSEARCH
A CommScope Company

Table of Contents

1. Summary of Results

On behalf of RigNet SatCom, Inc., Comsearch performed a coordination notice for all existing and proposed terrestrial licenses within the coordination contours of their proposed Ka-Band earth station in the Gulf of Mexico, which will transmit at 28 GHz[1]. Prior-notification letters were sent to the licensees and a copy of the notification data is provided in section four of this report. The earth station coordination was finalized on December 28, 2015.

No objections were received from any of the incumbent 28 GHz licensees.

2. 28 GHz Common Carrier and LTTS Coordination

In accordance with FCC Rules and Regulations, the Ka-Band earth station in the Gulf of Mexico was prior-coordinated by Comsearch. A notification letter and datasheet for this earth station were sent to the following 28 GHz common carrier fixed microwave licensee on December 14, 2015. This licensee is authorized to operate temporary fixed operations from 27.5 to 29.5 GHz on a nationwide basis.

Licensee	Authorized Geographic Area
Verizon	Continental US

A notification letter and datasheets for the Ka-Band earth station in the Gulf of Mexico were also sent to the following 28 GHz local television transmission licensee on December 14, 2015. This licensee is authorized to operate temporary fixed operations from 27.5 to 29.5 GHz on a nationwide basis.

Licensee	Authorized Geographic Area
Information Super Station, LLC	Continental US

No objections were received from the common carrier or local television transmission service incumbents.

[1] The proposed earth station will operate in the 27.6 – 29.1 GHz portion of the Ka-Band.

3. 28 GHz LMDS Coordination

The proposed earth station will operate on frequencies that overlap Block A of 28 GHz LMDS services. The total frequency allocation for Block A of the LMDS spectrum appears below.

Block A: 27.500-28.350 GHz
29.100-29.250 GHz
31.075-31.225 GHz

No active LMDS services were found within the coordination contour of the Gulf of Mexico earth station.

4. Earth Station Coordination Data

This section presents the data pertinent to the proposed Ka-Band earth station in the Gulf of Mexico. This data was circulated to all incumbent licensees in the shared 28 GHz frequency ranges.

Date:	12/14/2015
Job Number:	<PCNJobCode>

Administrative Information	
Status	ENGINEER PROPOSAL
Call Sign	<PCNCallSign>
Licensee Code	RIGNET
Licensee Name	RigNet SatCom, Inc.

Site Information	**SHENZI, GM**
Venue Name	
Latitude (NAD 83)	27° 18' 2.2" N
Longitude (NAD 83)	90° 8' 6.0" W
Climate Zone	B
Rain Zone	1
Ground Elevation (AMSL)	0.0 m / 0.0 ft

Link Information	
Satellite Type	Medium Earth Orbit
Mode	TR - Transmit-Receive
Modulation	Digital
Minimum Elevation Angle	10.0°
Azimuth Range	0.0° to 360°
Antenna Centerline (AGL)	60.96 m / 200.0 ft

Antenna Information		**Receive - FCC32**		**Transmit - FCC32**
Manufacturer		Orbit		Orbit
Model		AL-7107		AL-7107
Gain / Diameter		48.8 dBi / 2.2 m		54.5 dBi / 2.2 m
3-dB / 15-dB Beamwidth		0.05° / 0.10°		0.10° / 0.20°
Max Available RF Power	(dBW/4 kHz)			-22.0
	(dBW/MHz)			2.0
Maximum EIRP	(dBW/4 kHz)			32.5
	(dBW/MHz)			56.5
Interference Objectives:	Long Term 20%	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz
	Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz 0.0025%

Frequency Information	**Receive 18.0 GHz**	**Transmit 28.0 GHz**
Emission / Frequency Range (MHz)	5M12G7D - 216MG7D / 17700.0 - 18600.0	5M12G7D - 216MG7D / 27600.0 - 28400.0
	5M12G7D - 216MG7D / 18800.0 - 19300.0	5M12G7D - 216MG7D / 28600.0 - 29100.0
Max Great Circle Coordination Distance	220.1 km / 136.7 mi	124.9 km / 77.6 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi

Coordination Values	**SHENZI, GM**		
Licensee Name	RigNet SatCom, Inc.		
Latitude (NAD 83)	27° 18' 2.2" N		
Longitude (NAD 83)	90° 8' 6.0" W		
Ground Elevation (AMSL)	0.0 m / 0.0 ft		
Antenna Centerline (AGL)	60.96 m / 200.0 ft		
Antenna Model	Orbit 2.2 meter		
Antenna Mode	Receive 18.0 GHz		Transmit 28.0 GHz
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz 20%
Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz 0.0025%
Max Available RF Power		-22.0 (dBW/4 kHz)	

			Receive 18.0 GHz		Transmit 28.0 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	89.94	-10.00	151.60	-10.00	100.00
5	0.00	85.00	-10.00	151.60	-10.00	100.00
10	0.00	80.06	-10.00	151.60	-10.00	100.00
15	0.00	75.12	-10.00	151.60	-10.00	100.00
20	0.00	70.18	-10.00	151.60	-10.00	100.00
25	0.00	65.25	-10.00	151.60	-10.00	100.00
30	0.00	60.32	-10.00	151.60	-10.00	100.00
35	0.00	55.40	-10.00	151.60	-10.00	100.00
40	0.00	50.49	-10.00	151.60	-10.00	100.00
45	0.00	45.60	-10.00	151.60	-10.00	100.00
50	0.00	40.72	-10.00	151.60	-10.00	100.00
55	0.00	35.88	-9.67	152.80	-9.67	100.00
60	0.00	31.07	-8.48	157.00	-8.48	100.00
65	0.00	26.33	-7.15	161.80	-7.15	100.00
70	0.00	21.69	-5.67	167.20	-5.67	100.00
75	0.00	17.25	-3.98	173.30	-3.98	100.00
80	0.00	13.19	-2.04	177.60	-2.04	100.00
85	0.00	10.01	0.18	186.50	0.18	105.20
90	0.00	8.72	2.63	197.70	2.63	113.70
95	0.00	10.07	4.97	209.60	4.97	121.20
100	0.00	13.28	6.17	216.20	6.17	124.90
105	0.00	17.35	5.30	211.30	5.30	122.20
110	0.00	21.80	3.06	199.80	3.06	115.10
115	0.00	26.44	0.59	188.30	0.59	106.70
120	0.00	31.18	-1.68	179.00	-1.68	100.00
125	0.00	35.99	-3.57	174.70	-3.57	100.00
130	0.00	40.84	-5.15	169.00	-5.15	100.00
135	0.00	45.72	-6.50	164.20	-6.50	100.00
140	0.00	50.61	-7.67	160.00	-7.67	100.00
145	0.00	55.52	-8.68	156.30	-8.68	100.00
150	0.00	60.44	-9.56	153.20	-9.56	100.00
155	0.00	65.37	-10.00	151.60	-10.00	100.00
160	0.00	70.30	-10.00	151.60	-10.00	100.00
165	0.00	75.24	-10.00	151.60	-10.00	100.00
170	0.00	80.18	-10.00	151.60	-10.00	100.00
175	0.00	85.12	-10.00	151.60	-10.00	100.00
180	0.00	90.06	-10.00	151.60	-10.00	100.00
185	0.00	95.00	-10.00	151.60	-10.00	100.00

Coordination Values	**SHENZI, GM**			
Licensee Name	RigNet SatCom, Inc.			
Latitude (NAD 83)	27° 18' 2.2" N			
Longitude (NAD 83)	90° 8' 6.0" W			
Ground Elevation (AMSL)	0.0 m / 0.0 ft			
Antenna Centerline (AGL)	60.96 m / 200.0 ft			
Antenna Model	Orbit 2.2 meter			
Antenna Mode	Receive 18.0 GHz		Transmit 28.0 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power		-22.0 (dBW/4 kHz)		

			Receive 18.0 GHz		Transmit 28.0 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	99.94	-10.00	151.60	-10.00	100.00
195	0.00	104.88	-10.00	151.60	-10.00	100.00
200	0.00	109.82	-10.00	151.60	-10.00	100.00
205	0.00	114.75	-10.00	151.60	-10.00	100.00
210	0.00	119.68	-9.56	153.20	-9.56	100.00
215	0.00	124.60	-8.68	156.30	-8.68	100.00
220	0.00	129.51	-7.67	160.00	-7.67	100.00
225	0.00	134.40	-6.50	164.20	-6.50	100.00
230	0.00	139.28	-5.15	169.00	-5.15	100.00
235	0.00	144.12	-3.57	174.70	-3.57	100.00
240	0.00	148.93	-1.68	179.00	-1.68	100.00
245	0.00	153.67	0.63	188.50	0.63	106.80
250	0.00	158.31	3.23	200.60	3.23	115.70
255	0.00	162.75	5.71	213.60	5.71	123.50
260	0.00	166.81	6.86	220.10	6.86	115.50
265	0.00	169.99	5.67	213.40	5.67	106.60
270	0.00	171.28	3.17	200.30	3.17	100.00
275	0.00	169.93	0.57	188.20	0.57	100.00
280	0.00	166.72	-1.74	178.70	-1.74	100.00
285	0.00	162.65	-3.74	174.10	-3.74	100.00
290	0.00	158.20	-5.48	167.80	-5.48	100.00
295	0.00	153.56	-7.00	162.40	-7.00	100.00
300	0.00	148.82	-8.35	157.50	-8.35	100.00
305	0.00	144.01	-9.55	153.20	-9.55	100.00
310	0.00	139.16	-10.00	151.60	-10.00	100.00
315	0.00	134.28	-10.00	151.60	-10.00	100.00
320	0.00	129.39	-10.00	151.60	-10.00	100.00
325	0.00	124.48	-10.00	151.60	-10.00	100.00
330	0.00	119.56	-10.00	151.60	-10.00	100.00
335	0.00	114.63	-10.00	151.60	-10.00	100.00
340	0.00	109.70	-10.00	151.60	-10.00	100.00
345	0.00	104.76	-10.00	151.60	-10.00	100.00
350	0.00	99.82	-10.00	151.60	-10.00	100.00
355	0.00	94.88	-10.00	151.60	-10.00	100.00

5. Contact Information

For questions or information regarding the 28 GHz Frequency Coordination Report, please contact:

Contact person:	Joanna Lynch
Title:	Manager, Spectrum & Data Solutions
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