

Non-Compliant Statement

According to Section 25.212(c)(2) of the Rules and Regulations of the Federal Communications Commission ("Regulations"), in the 5925-6425 MHz band, earth stations with an equivalent diameter of equal to or greater than 4.5m may be routinely licensed if the maximum power density into the antenna does not exceed -2.7dBW/4KHz for digital SCPC carriers. Furthermore, antennas with an equivalent diameter of less than 4.5m are subject to the provisions of Section 25.220 of the Regulations.

The antenna at issue is a C-band Prodelin 1251(2.4m) ("Antenna"). This Antenna is less than 4.5m in diameter. The Antenna does not strictly comply with Section 25.209 of the Regulations. However, pursuant to Section 25.220 (b-c) of the Regulations, an applicant may request the Commission to consider a non-compliant antenna if it can be shown that the operational power density will be below the requirement of Section 25.212(c)(2). Specifically, the earth station operator must provide the power and power density levels that result by reducing the values stated in Section 25.212(c)(2) by the number of decibels that the non-compliant antenna fails to meet the standards of Section 25.209 of the Regulations.

In this case, the proposed Antenna exceeds the patterns of Section 25.209 by approximately 12dB in the $\pm(140^\circ \text{ to } 180^\circ)$ region along the azimuth axis. The Antenna is designed to operate with a maximum EIRP density into the antenna flange of -20.89dBW/4KHz . This is 18.19 dB below the -2.7dBW/4KHz limit. Applying the methodology in Section 25.220 (b-c), the maximum EIRP density at Antenna flange is increased by 12dB to yield,

$$-20.89\text{dBW/4KHz} + 12\text{dB} = -8.89\text{dBW/4KHz}.$$

As calculated, this figure is still below the allowed maximum EIRP density at the Antenna flange of -2.7dBW/4KHz by 6.19 dB.

The applicant agrees to accept any adjacent satellite interference in the 3700-4200 MHz receive band as a result of the performance of the Antenna. Should the use of this Antenna cause interference to other systems; the applicant agrees to terminate transmission upon notice from the Commission.

Appendix A shows a spectral density showing for this Antenna at low, mid, and high band. The antenna gain varies slightly with frequency and so does the spectral density.

Appendix A – Spectral Density Showing

Antenna Manufacturer:	Prodelin	1251	
Antenna Diameter:	2.4	m	
Transmit Frequency:	5.845	GHz	
Antenna Gain (Main Beam):	41.31	dBi	
Max EIRP Density at Flange:	-20.18	dBW/4KHz	
EIRP Density (§25.212(d) Limit):	-2.70	dBW/4KHz	

§25.209(a) CONFORMING ANTENNA			ACTUAL ANTENNA		
Angle (Degrees)	§25.209 Gain (dBi)	EIRP Density (dBW/4KHz)	Actual Gain (dBi)	EIRP Density (dBW/4KHz)	EIRP Margin (dBW/4KHz)
1.25	26.58	23.88	27.31	7.13	-16.75
1.50	24.60	21.90	16.31	-3.87	-25.77
1.75	22.92	20.22	6.31	-13.87	-34.10
2.00	21.47	18.77	17.31	-2.87	-21.65
2.25	20.20	17.50	18.31	-1.87	-19.37
2.50	19.05	16.35	16.81	-3.37	-19.72
2.75	18.02	15.32	13.31	-6.87	-22.19
3.00	17.07	14.37	9.81	-10.37	-24.74
3.25	16.20	13.50	6.81	-13.37	-26.88
3.50	15.40	12.70	7.31	-12.87	-25.57
3.75	14.65	11.95	9.31	-10.87	-22.82
4.00	13.95	11.25	11.31	-8.87	-20.12
4.25	13.29	10.59	11.31	-8.87	-19.46
4.50	12.67	9.97	9.31	-10.87	-20.84
4.75	12.08	9.38	4.81	-15.37	-24.76
5.00	11.53	8.83	-3.69	-23.87	-32.70
5.25	11.00	8.30	-18.69	-38.87	-47.17
5.50	10.49	7.79	-8.69	-28.87	-36.66
5.75	10.01	7.31	-16.69	-36.87	-44.18
6.00	9.55	6.85	-8.69	-28.87	-35.72
6.25	9.10	6.40	-1.69	-21.87	-28.28
6.50	8.68	5.98	-0.44	-20.62	-26.60
6.75	8.27	5.57	-1.69	-21.87	-27.44
7.00	7.87	5.17	-7.44	-27.62	-32.80
7.50	8.00	5.30	-8.69	-28.87	-34.17
10.00	7.00	4.30	-13.69	-33.87	-38.17
15.00	2.60	-0.10	-6.19	-26.37	-26.27
20.00	-0.53	-3.23	-14.69	-34.87	-31.65
25.00	-2.95	-5.65	-18.69	-38.87	-33.22
30.00	-4.93	-7.63	-13.69	-33.87	-26.24
35.00	-6.60	-9.30	-18.69	-38.87	-29.57
40.00	-8.05	-10.75	-21.19	-41.37	-30.62
60.00	-10.00	-12.70	-28.69	-48.87	-36.17
80.00	-10.00	-12.70	-33.69	-53.87	-41.17
100.00	-10.00	-12.70	-15.69	-35.87	-23.17
120.00	-10.00	-12.70	-38.69	-58.87	-46.17
140.00	-10.00	-12.70	-18.69	-38.87	-26.17
160.00	-10.00	-12.70	-18.69	-38.87	-26.17
180.00	-10.00	-12.70	1.310	-18.873	-6.173

Antenna Manufacturer & Model:	Prodelin	1251	
Antenna Diameter:	2.4	m	
Transmit Frequency:	5.425	GHz	
Antenna Gain (Main Beam):	42.35	dBi	
Max EIRP Density at Flange:	-21.22	dBW/4KHz	
EIRP Density (§25.212(d) Limit):	-2.70	dBW/4KHz	

§25.209(a) CONFORMING ANTENNA			ACTUAL ANTENNA		
Angle (Degrees)	§25.209 Gain (dBi)	EIRP Density (dBW/4KHz)	Actual Gain (dBi)	EIRP Density (dBW/4KHz)	EIRP Margin (dBW/4KHz)
1.25	26.58	23.88	27.35	6.13	-17.75
1.50	24.60	21.90	17.35	-3.87	-25.77
1.75	22.92	20.22	11.35	-9.87	-30.10
2.00	21.47	18.77	18.85	-2.37	-21.15
2.25	20.20	17.50	18.85	-2.37	-19.87
2.50	19.05	16.35	16.35	-4.87	-21.22
2.75	18.02	15.32	12.85	-8.37	-23.69
3.00	17.07	14.37	9.35	-11.87	-26.24
3.25	16.20	13.50	8.35	-12.87	-26.38
3.50	15.40	12.70	10.35	-10.87	-23.57
3.75	14.65	11.95	12.35	-8.87	-20.82
4.00	13.95	11.25	12.35	-8.87	-20.12
4.25	13.29	10.59	11.35	-9.87	-20.46
4.50	12.67	9.97	7.35	-13.87	-23.84
4.75	12.08	9.38	0.35	-20.87	-30.26
5.00	11.53	8.83	-12.65	-33.87	-42.70
5.25	11.00	8.30	-6.65	-27.87	-36.17
5.50	10.49	7.79	-12.65	-33.87	-41.66
5.75	10.01	7.31	-12.65	-33.87	-41.18
6.00	9.55	6.85	-2.65	-23.87	-30.72
6.25	9.10	6.40	-0.65	-21.87	-28.28
6.50	8.68	5.98	-1.65	-22.87	-28.85
6.75	8.27	5.57	-7.65	-28.87	-34.44
7.00	7.87	5.17	-12.65	-33.87	-39.05
7.50	8.00	5.30	-4.65	-25.87	-31.17
10.00	7.00	4.30	-2.65	-23.87	-28.17
15.00	2.60	-0.10	-7.65	-28.87	-28.77
20.00	-0.53	-3.23	-10.15	-31.37	-28.15
25.00	-2.95	-5.65	-15.15	-36.37	-30.72
30.00	-4.93	-7.63	-17.65	-38.87	-31.24
35.00	-6.60	-9.30	-20.15	-41.37	-32.07
40.00	-8.05	-10.75	-17.65	-38.87	-28.12
45.00	-10.00	-12.70	-20.15	-41.37	-28.67
60.00	-10.00	-12.70	-30.15	-51.37	-38.67
80.00	-10.00	-12.70	-37.65	-58.87	-46.17
100.00	-10.00	-12.70	-12.65	-33.87	-21.17
120.00	-10.00	-12.70	-27.65	-48.87	-36.17
140.00	-10.00	-12.70	-12.65	-33.87	-21.17
160.00	-10.00	-12.70	-17.65	-38.87	-26.17
180.00	-10.00	-12.70	-5.150	-26.373	-13.673

Antenna Manufacturer & Model:	Prodelin	1251	
Antenna Diameter:	2.4	m	
Transmit Frequency:	6.725	GHz	
Antenna Gain (Main Beam):	42.70	dBi	
Max EIRP Density at Flange:	-21.57	dBW/4KHz	
EIRP Density (§25.212(d) Limit):	-2.70	dBW/4KHz	

§25.209(a) CONFORMING ANTENNA			ACTUAL ANTENNA		
Angle (Degrees)	§25.209 Gain (dBi)	EIRP Density (dBW/4KHz)	Actual Gain (dBi)	EIRP Density (dBW/4KHz)	EIRP Margin (dBW/4KHz)
1.25	26.58	23.88	28.70	7.13	-16.75
1.50	24.60	21.90	12.70	-8.87	-30.77
1.75	22.92	20.22	12.70	-8.87	-29.10
2.00	21.47	18.77	18.70	-2.87	-21.65
2.25	20.20	17.50	18.20	-3.37	-20.87
2.50	19.05	16.35	15.70	-5.87	-22.22
2.75	18.02	15.32	12.70	-8.87	-24.19
3.00	17.07	14.37	9.45	-12.12	-26.49
3.25	16.20	13.50	9.70	-11.87	-25.38
3.50	15.40	12.70	11.70	-9.87	-22.57
3.75	14.65	11.95	13.20	-8.37	-20.32
4.00	13.95	11.25	12.70	-8.87	-20.12
4.25	13.29	10.59	10.20	-11.37	-21.96
4.50	12.67	9.97	2.70	-18.87	-28.84
4.75	12.08	9.38	-12.30	-33.87	-43.26
5.00	11.53	8.83	-3.30	-24.87	-33.70
5.25	11.00	8.30	-1.30	-22.87	-31.17
5.50	10.49	7.79	-4.30	-25.87	-33.66
5.75	10.01	7.31	-4.55	-26.12	-33.43
6.00	9.55	6.85	-0.55	-22.12	-28.97
6.25	9.10	6.40	-1.30	-22.87	-29.28
6.50	8.68	5.98	-5.80	-27.37	-33.35
6.75	8.27	5.57	-19.30	-40.87	-46.44
7.00	7.87	5.17	-11.30	-32.87	-38.05
7.50	8.00	5.30	-8.80	-30.37	-35.67
10.00	7.00	4.30	-2.30	-23.87	-28.17
15.00	2.60	-0.10	-7.30	-28.87	-28.77
20.00	-0.53	-3.23	-9.80	-31.37	-28.15
25.00	-2.95	-5.65	-34.80	-56.37	-50.72
30.00	-4.93	-7.63	-19.80	-41.37	-33.74
35.00	-6.60	-9.30	-14.80	-36.37	-27.07
40.00	-8.05	-10.75	-19.80	-41.37	-30.62
45.00	-10.00	-12.70	-22.30	-43.87	-31.17
60.00	-10.00	-12.70	-27.30	-48.87	-36.17
80.00	-10.00	-12.70	-27.30	-48.87	-36.17
100.00	-10.00	-12.70	-12.30	-33.87	-21.17
120.00	-10.00	-12.70	-27.30	-48.87	-36.17
140.00	-10.00	-12.70	-17.30	-38.87	-26.17
160.00	-10.00	-12.70	-10.30	-31.87	-19.17
180.00	-10.00	-12.70	-4.30	-25.87	-13.17