

§25.226: Blanket licensing provisions for domestic, U.S. VMESs operating with GSO FSS space stations in the 10.95-11.2 GHz, 11.45-11.7 GHz, 11.7-12.2 GHz, and 14.0-14.5 GHz bands.

§25.226(a)(1): A VMES with a transmitter having sidelobe emission \leq the masks, must provide the following:

- a) The various EIRP density antenna patterns with the Envelope superimposed.
- b) A table of EIRP density values associated with the above EIRP patterns.
- c) A table of angular directions that exceed the pattern.

See Appendix-A

§25.226(a)(1)(i)(A): The EIRP Spectral Density emitted in the plane tangent (H) to the GSO arc, as defined in §25.103, shall not exceed the following values:

- 15-25log θ dBW/4 kHz for $1.5^\circ \leq \theta \leq 7^\circ$.
- 6 dBW/4 kHz for $7^\circ < \theta \leq 9.2^\circ$.
- 18-25log θ dBW/4 kHz for $9.2^\circ < \theta \leq 19.1^\circ$.
- 14 dBW/4 kHz for $19.1^\circ < \theta \leq 180^\circ$.

§25.226(a)(1)(ii)(A): Each VMES transmitter shall maintain a pointing error of less than or equal to 0.2° between the orbital location of the target satellite and the axis of the main lobe of the VMES antenna.

See Appendix-B1: Cobham Sea Tel FCC Declaration of Conformity Paragraph-4

See Appendix-B2: Technical Specifications Section 20.10. Stabilized Antenna Pedestal Assembly

§25.226(a)(1)(iii)(A): For VMESs operating under paragraph (a)(1)(ii)(A) of this section, all emissions from the VMES shall automatically cease within 100 milliseconds if the angle between the orbital location of the target satellite and the axis of the main lobe of the VMES antenna exceeds 0.5° , and transmission shall not resume until such angle is less than or equal to 0.2° .

See Appendix-B1: Cobham Sea Tel FCC Declaration of Conformity Paragraph-5

§25.226(a)(4): Applies to VMES using TDMA with contention protocol.

The BloomMobile Comms carrier is a constant carrier with a fulltime dedicated modem at the hub earth station so this does not apply.

§25.226(a)(5): There shall be a point of contact in the United States, with phone number and address, available 24 hours a day, seven days a week, with authority and ability to cease all emissions from the VMESs.

There are two options for getting a shutdown command to the uplink operator:

- 1) NBC Media Traffic Control (MTC) Desk (212) 664-4721 can contact uplink operator either on a personal cell phone or on one (1) of four (4) mobile phones dedicated to and installed in the BloomMobile. The mobile phone numbers are 917-515-6546, 6847, 704-4358, 704-4388.
- 2) A call can be placed over a dedicated satellite Comms link that provides 8 unique dial tone lines. The mechanism that ensures the message to shutdown will always get through is this same Comms link is also used by the antenna tracking system to positively identify the correct satellite and therefore, if this link is ever disabled, the uplink transmitter will automatically shut down with 100 ms of being disabled. The dedicated telephone numbers for this link are 212-402-9668 through 9675.

§25.226(a)(6): For each VMES transmitter, a record of the vehicle location (i.e., latitude/longitude), transmit frequency, channel bandwidth and satellite used shall be time annotated and maintained for a period of not less than one (1) year. Records shall be recorded at time intervals no greater than every five (5) minutes while the VMES is transmitting. The VMES operator shall make this data available upon request to a coordinator, fixed system operator, Fixed-Satellite Service system operator, NTIA, or the Commission within 24 hours of the request.

A dedicated onboard Windows based computer using a custom application automatically collects date & time and location data in the form of latitude and longitude from the same GPS system used by the antenna pointing system.

In addition, this application sends queries to the modulator to retrieve data relating to uplink frequency, symbol rate, FEC, occupied bandwidth and Carrier Off/On status. Due to the nature of the specific hardware required by the BloomMobile, only the SES-3 satellite will ever be used. Data is collected from the GPS system and queries are repeatedly sent to the modulator in 5 minutes intervals. The size of the hard drive is sufficiently large enough to store this data for at least one year.

§25.226(a)(7): In the 10.95-11.2 GHz (space-to-Earth) and 11.45-11.7 GHz (space-to-Earth) frequency bands VMESs shall not claim protection from interference from any authorized terrestrial stations to which frequencies are either already assigned, or may be assigned in the future.

These bands of frequencies will never be used by the BloomMobile.

§25.226(a)(8): A VMES terminal receiving in the 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth) and **11.7-12.2 GHz (space-to-Earth)** bands shall receive protection from interference caused by space stations other than the target space station only to the degree to which harmful interference would not be expected to be caused to an earth station employing an antenna conforming to the referenced patterns defined in §25.209(a) and (b) and stationary at the location at which any interference occurred.

The BloomMobile will only operate in the 11.7 to 12.2 GHz space-to-earth band. The antenna conforms to 25.209(a) and (b) and maintains accurate pointing..

§25.226(a)(9): Each VMES terminal shall automatically cease transmitting upon the loss of synchronization or within 5 seconds upon loss of reception of the satellite downlink signal, whichever is the shorter timeframe.

As stated above, NBC Field Operations has gone to great lengths to meet the specification stated in **§25.226(a)(1)(iii)(A)** that requires the uplink to cease transmitting within 100 MS of losing synchronization with the downlink pilot carrier.

§25.226(b)(1): A VMES applicant proposing to implement a transmitter under paragraph (a)(1) of this section must provide the information required by §25.115(g)(1). An applicant proposing to implement a transmitter under paragraph (a)(1)(ii)(A) of this section must also provide the certifications identified in paragraph (b)(1)(iii) of this section.

All of the plots required by §25.115(g)(1) can be found in Appendix-A. Because the BloomMobile antenna is capable of maintaining a pointing error of less than 0.2° the certifications identified in paragraph (b)(1)(iii) have been included in Appendix-B1.

§25.226(b)(1)(iii): A VMES applicant proposing to implement a transmitter under paragraph (a)(1)(ii)(A) of this section shall provide a certification from the equipment manufacturer stating that the antenna tracking system will maintain a pointing error of less than or equal to 0.2° between the orbital location of the target satellite and the axis of the main lobe of the VMES antenna and that the antenna tracking system is capable of ceasing emissions within 100 milliseconds if the angle between the orbital location of the target satellite and the axis of the main lobe of the VMES antenna exceeds 0.5°.

The manufacturer's certification document related to a less than 0.2° pointing error and if the error is exceeded for any reason, the transmitter will shut down within 100 MS is in Appendix-B1.

§25.226(b)(1)(iv): A VMES applicant proposing to implement a transmitter under paragraph (a)(1)(ii)(B) of this section shall

Not applicable to the BloomMobile because the antenna pointing error does not exceed 0.2°.

§25.226(c)(1): Operations of VMESs in the 14.0-14.2 GHz (Earth-to-space) frequency band within 125 km of the NASA TDRSS facilities on Guam (latitude 13°36'55" N, longitude 144°51'22" E) or White Sands, New Mexico (latitude 32°20'59"N, longitude 106°36'31" W and latitude 32°32'40" N, longitude 106°36'48" W) are subject to coordination with the National Aeronautics and Space Administration (NASA) through the National Telecommunications and Information Administration (NTIA) Interdepartmental Radio Advisory Committee (IRAC). Licensees shall notify the International Bureau once they have completed coordination. Upon receipt of such notification from a licensee, the International Bureau will issue a public notice stating that the licensee may commence operations within the coordination zone in 30 days if no party has opposed the operations.

The BloomMobile is equipped to operate only on NBC leased Ku-band transponders on the SES-3 satellite. Of the six (6) possible transponders, the only one, SES-3/7K, the lowest NBC frequency is affected. Furthermore, NBC News Field Operations is aware of this requirement and will abide by the regulation. To promote awareness of this regulation, the notices shown in Appendix-C have been created and will be permanently posted inside the vehicle in a prominent location that can be seen by the uplink operator.

§25.226(c)(2): When NTIA seeks to provide similar protection to future TDRSS sites that have been coordinated through the IRAC Frequency Assignment Subcommittee process, NTIA will notify the Commission's International Bureau that the site is nearing operational status. Upon public notice from the International Bureau, all Ku-band VMES licensees shall cease operations in the 14.0-14.2 GHz band within 125 km of the new TDRSS site until the licensees complete coordination with NTIA/IRAC for the new TDRSS facility. Licensees shall notify the International Bureau once they have completed coordination for the new TDRSS site. Upon receipt of such notification from a licensee, the International Bureau will issue a public notice stating that the licensee may commence operations within the coordination zone in 30 days if no party has opposed the operations. The VMES licensee then will be permitted to commence operations in the 14.0-14.2 GHz band within 125 km of the new TDRSS site, subject to any operational constraints developed in the coordination process.

NBC will abide by this regulation. None the less, it will have minimum impact on operations because only one (1) of the six (6) NBC fulltime leased transponders, SES-3/7K would be affected. Furthermore, NBC will submit a request with the NASA, NTIA and IRAC for proper frequency coordination but until it's granted, NBC will remain clear of these restricted frequencies when operating within 125 km of the TDRSS facility. Upon coordination, NBC will notify the International Bureau so a public notice can be issued.

§25.226(d)(1): Operations of VMESs in the 14.47-14.5 GHz (Earth-to-space) frequency band in the vicinity of radio astronomy service (RAS) observatories observing in the 14.47-14.5 GHz band are subject to coordination with the National Science Foundation (NSF). The appropriate NSF contact point to initiate coordination is Electromagnetic Spectrum Manager, NSF, 4201 Wilson Blvd., Suite 1045, Arlington VA 22203, fax 703-292-9034, e-mail esm@nsf.gov. Licensees shall notify the International Bureau once they have completed coordination. Upon receipt of the coordination agreement from a licensee, the International Bureau will issue a public notice stating that the licensee may commence operations within the coordination zone in 30 days if no party has opposed the operations

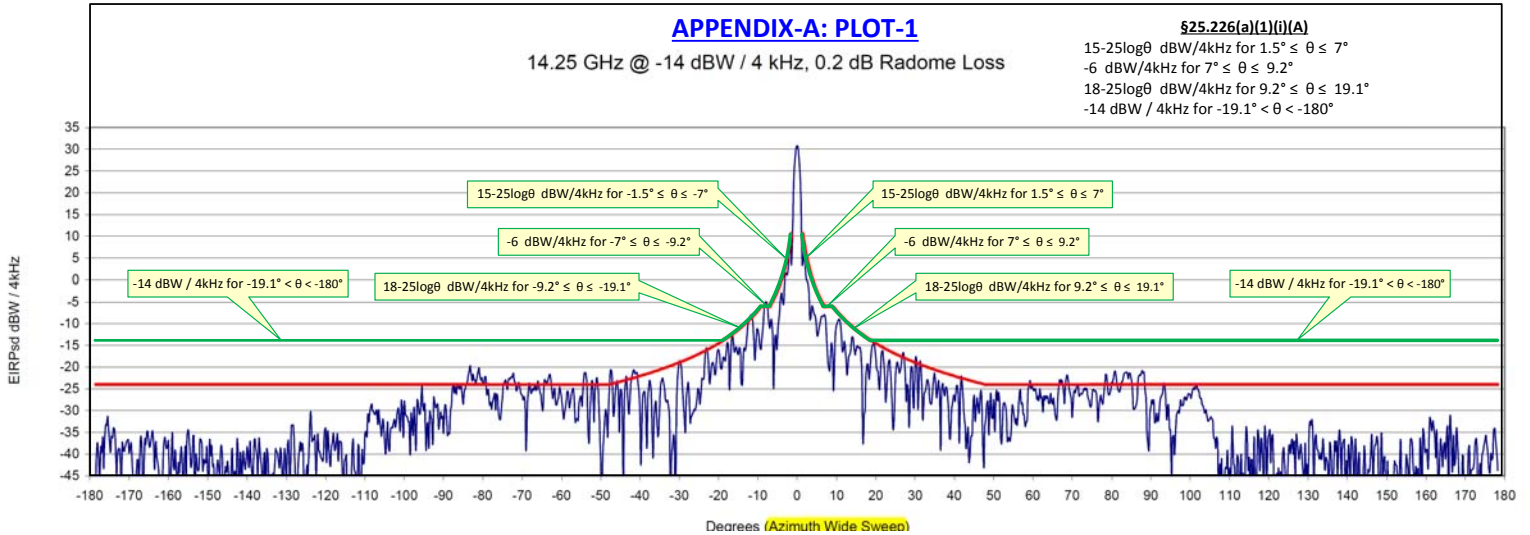
The BloomMobile is configured in a way such that it can only operate on NBC fulltime leased transponders 7K, 11K, 13K, 15K, 17K and 21K. The frequencies of these any of these transponders are more than 65 MHz below the restricted frequencies listed.

Appendix-A: EIRP Spectral Density Patterns

§25.115(g)(1): Plots of EIRP Spectral Density

- (1)(i): Co-pole azimuth $\pm 180^\circ$
- (1)(ii): Co-pole azimuth $\pm 10^\circ$
- (1)(iii): Co-pole elevation 0° to 30°
- (1)(iv): Cross-pole azimuth $\pm 7^\circ$
- (1)(v): Cross-pole elevation $\pm 7^\circ$

§25.115(g) (1)(i): Co-pole azimuth $\pm 180^\circ$



Plot Parameters			Peak Excursions dB		% Over
Input SD	Gain	Cal Factor	1.5° to 7°	7° to 180°	
-14.0	44.99	46.46	-0.5	4.4	8%

(CONTINUED NEXT PAGE)



1.5m EIRPsd Data Table
Co Pol Azimuth, -180 to +180 Degrees @ 1.0 Deg (A)

14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
-178.0	-37.4	-24.0
-177.0	-39.7	-24.0
-176.0	-33.2	-24.0
-175.0	-37.4	-24.0
-174.0	-34.0	-24.0
-173.0	-40.6	-24.0
-172.0	-47.6	-24.0
-171.0	-38.4	-24.0
-170.0	-39.8	-24.0
-169.0	-46.9	-24.0
-168.0	-41.4	-24.0
-167.0	-35.9	-24.0
-166.0	-36.5	-24.0
-165.0	-37.7	-24.0
-164.0	-34.8	-24.0
-163.0	-40.2	-24.0
-162.0	-51.2	-24.0
-161.0	-36.2	-24.0
-160.0	-36.9	-24.0
-159.0	-35.0	-24.0
-158.0	-45.1	-24.0
-157.0	-41.5	-24.0
-156.0	-42.9	-24.0
-155.0	-34.4	-24.0
-154.0	-40.6	-24.0
-153.0	-40.2	-24.0
-152.0	-36.6	-24.0
-151.0	-41.2	-24.0
-150.0	-44.7	-24.0
-149.0	-38.0	-24.0
-148.0	-74.5	-24.0
-147.0	-45.0	-24.0
-146.0	-69.8	-24.0
-145.0	-41.7	-24.0
-144.0	-41.3	-24.0
-143.0	-44.0	-24.0
-142.0	-50.4	-24.0
-141.0	-39.5	-24.0
-140.0	-38.3	-24.0
-139.0	-41.8	-24.0
-138.0	-36.5	-24.0
-137.0	-36.6	-24.0
-136.0	-51.2	-24.0
-135.0	-38.8	-24.0
-134.0	-44.9	-24.0
-133.0	-42.9	-24.0
-132.0	-41.5	-24.0
-131.0	-47.1	-24.0
-130.0	-46.6	-24.0
-129.0	-47.2	-24.0
-128.0	-37.3	-24.0
-127.0	-42.4	-24.0
-126.0	-37.5	-24.0
-125.0	-45.5	-24.0
-124.0	-32.7	-24.0
-123.0	-36.2	-24.0
-122.0	-35.3	-24.0
-121.0	-41.0	-24.0
-120.0	-34.1	-24.0
-119.0	-42.1	-24.0

14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
0.0	30.8	
1.0	16.7	
2.0	4.1	7.5
3.0	-3.5	3.1
4.0	-6.3	-0.1
5.0	-12.4	-2.5
6.0	-9.0	-4.5
7.0	-8.0	-6.1
8.0	-19.9	-6.0
9.0	-16.8	-6.0
10.0	-10.3	-7.0
11.0	-9.9	-8.0
12.0	-14.0	-9.0
13.0	-18.1	-9.8
14.0	-13.0	-10.7
15.0	-16.0	-11.4
16.0	-15.5	-12.1
17.0	-30.8	-12.8
18.0	-19.3	-13.4
19.0	-15.4	-14.0
20.0	-18.0	-14.5
21.0	-25.0	-15.1
22.0	-18.5	-15.6
23.0	-21.3	-16.0
24.0	-25.8	-16.5
25.0	-22.4	-16.9
26.0	-21.3	-17.4
27.0	-16.6	-17.8
28.0	-24.0	-18.2
29.0	-19.9	-18.6
30.0	-19.1	-18.9
31.0	-21.9	-19.3
32.0	-32.3	-19.6
33.0	-23.0	-20.0
34.0	-28.6	-20.3
35.0	-21.4	-20.6
36.0	-23.2	-20.9
37.0	-23.7	-21.2
38.0	-24.8	-21.5
39.0	-36.5	-21.8
40.0	-27.0	-22.1
41.0	-26.7	-22.3
42.0	-23.6	-22.6
43.0	-38.8	-22.8
44.0	-39.1	-23.1
45.0	-26.5	-23.3
46.0	-28.7	-23.6
47.0	-28.9	-23.8
48.0	-31.7	-24.0
49.0	-30.7	-24.0
50.0	-27.5	-24.0
51.0	-27.8	-24.0
52.0	-37.6	-24.0
53.0	-28.8	-24.0
54.0	-36.9	-24.0
55.0	-30.1	-24.0
56.0	-33.4	-24.0
57.0	-28.5	-24.0
58.0	-33.6	-24.0
59.0	-24.3	-24.0

1.5m EIRPsd Data Table
 Co Pol Azimuth, -180 to +180 Degrees @ 1.0 Deg (A)

14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
-118.0	-35.2	-24.0
-117.0	-35.4	-24.0
-116.0	-37.3	-24.0
-115.0	-41.2	-24.0
-114.0	-48.9	-24.0
-113.0	-36.6	-24.0
-112.0	-47.8	-24.0
-111.0	-49.5	-24.0
-110.0	-35.3	-24.0
-109.0	-32.6	-24.0
-108.0	-30.1	-24.0
-107.0	-29.9	-24.0
-106.0	-34.0	-24.0
-105.0	-37.5	-24.0
-104.0	-38.2	-24.0
-103.0	-34.0	-24.0
-102.0	-32.3	-24.0
-101.0	-34.5	-24.0
-100.0	-28.0	-24.0
-99.0	-32.5	-24.0
-98.0	-33.8	-24.0
-97.0	-39.0	-24.0
-96.0	-30.8	-24.0
-95.0	-30.1	-24.0
-94.0	-32.9	-24.0
-93.0	-32.2	-24.0
-92.0	-29.4	-24.0
-91.0	-32.1	-24.0
-90.0	-35.3	-24.0
-89.0	-35.7	-24.0
-88.0	-28.6	-24.0
-87.0	-24.5	-24.0
-86.0	-25.0	-24.0
-85.0	-28.6	-24.0
-84.0	-23.5	-24.0
-83.0	-21.1	-24.0
-82.0	-23.0	-24.0
-81.0	-20.2	-24.0
-80.0	-24.0	-24.0
-79.0	-26.4	-24.0
-78.0	-28.1	-24.0
-77.0	-26.1	-24.0
-76.0	-30.6	-24.0
-75.0	-26.8	-24.0
-74.0	-23.7	-24.0
-73.0	-22.7	-24.0
-72.0	-23.2	-24.0
-71.0	-23.6	-24.0
-70.0	-26.5	-24.0
-69.0	-39.3	-24.0
-68.0	-24.1	-24.0
-67.0	-25.3	-24.0
-66.0	-23.2	-24.0
-65.0	-28.5	-24.0
-64.0	-23.3	-24.0
-63.0	-21.6	-24.0
-62.0	-26.1	-24.0
-61.0	-27.6	-24.0
-60.0	-27.0	-24.0
-59.0	-29.5	-24.0

14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
60.0	-25.0	-24.0
61.0	-27.5	-24.0
62.0	-27.1	-24.0
63.0	-27.6	-24.0
64.0	-28.3	-24.0
65.0	-28.5	-24.0
66.0	-32.2	-24.0
67.0	-23.8	-24.0
68.0	-28.4	-24.0
69.0	-23.4	-24.0
70.0	-31.5	-24.0
71.0	-25.0	-24.0
72.0	-26.2	-24.0
73.0	-24.8	-24.0
74.0	-27.1	-24.0
75.0	-26.9	-24.0
76.0	-25.5	-24.0
77.0	-27.8	-24.0
78.0	-26.6	-24.0
79.0	-24.6	-24.0
80.0	-23.4	-24.0
81.0	-21.0	-24.0
82.0	-25.7	-24.0
83.0	-22.2	-24.0
84.0	-21.2	-24.0
85.0	-22.6	-24.0
86.0	-29.4	-24.0
87.0	-21.9	-24.0
88.0	-21.3	-24.0
89.0	-35.5	-24.0
90.0	-29.0	-24.0
91.0	-32.8	-24.0
92.0	-32.0	-24.0
93.0	-25.9	-24.0
94.0	-32.1	-24.0
95.0	-34.5	-24.0
96.0	-40.2	-24.0
97.0	-29.9	-24.0
98.0	-28.8	-24.0
99.0	-27.6	-24.0
100.0	-26.4	-24.0
101.0	-24.7	-24.0
102.0	-25.2	-24.0
103.0	-28.5	-24.0
104.0	-29.8	-24.0
105.0	-32.0	-24.0
106.0	-36.3	-24.0
107.0	-37.5	-24.0
108.0	-41.4	-24.0
109.0	-43.1	-24.0
110.0	-43.2	-24.0
111.0	-42.1	-24.0
112.0	-40.3	-24.0
113.0	-40.1	-24.0
114.0	-44.2	-24.0
115.0	-41.0	-24.0
116.0	-54.4	-24.0
117.0	-41.5	-24.0
118.0	-36.5	-24.0
119.0	-33.8	-24.0

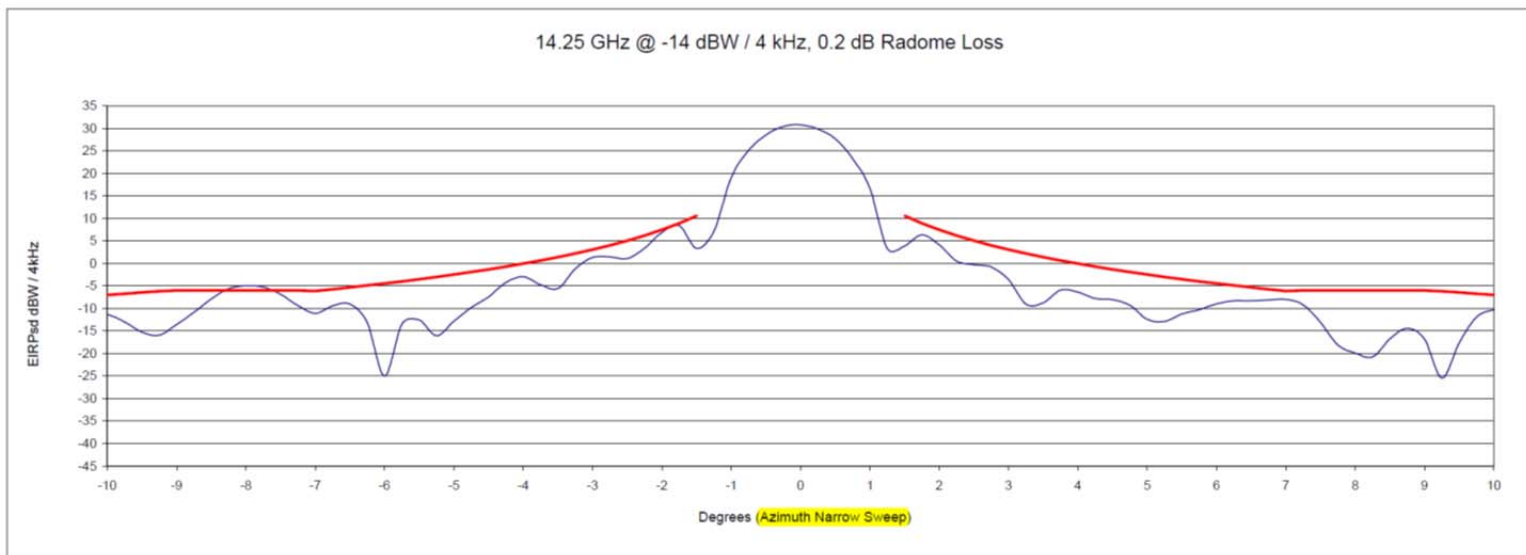
1.5m EIRPsd Data Table
 Co Pol Azimuth, -180 to +180 Degrees @ 1.0 Deg (A)

14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
-58.0	-29.3	-24.0
-57.0	-24.9	-24.0
-56.0	-31.8	-24.0
-55.0	-26.7	-24.0
-54.0	-21.2	-24.0
-53.0	-37.5	-24.0
-52.0	-23.7	-24.0
-51.0	-22.4	-24.0
-50.0	-42.6	-24.0
-49.0	-31.6	-24.0
-48.0	-29.4	-24.0
-47.0	-24.7	-23.8
-46.0	-23.5	-23.6
-45.0	-25.3	-23.3
-44.0	-28.6	-23.1
-43.0	-29.9	-22.8
-42.0	-21.8	-22.6
-41.0	-21.2	-22.3
-40.0	-32.3	-22.1
-39.0	-25.6	-21.8
-38.0	-28.0	-21.5
-37.0	-30.1	-21.2
-36.0	-27.8	-20.9
-35.0	-27.7	-20.6
-34.0	-23.6	-20.3
-33.0	-27.6	-20.0
-32.0	-40.1	-19.6
-31.0	-54.9	-19.3
-30.0	-18.6	-18.9
-29.0	-28.5	-18.6
-28.0	-24.8	-18.2
-27.0	-31.6	-17.8
-26.0	-30.0	-17.4
-25.0	-25.9	-16.9
-24.0	-22.9	-16.5
-23.0	-15.5	-16.0
-22.0	-21.3	-15.6
-21.0	-21.8	-15.1
-20.0	-16.0	-14.5
-19.0	-18.7	-14.0
-18.0	-15.7	-13.4
-17.0	-20.3	-12.8
-16.0	-16.6	-12.1
-15.0	-17.1	-11.4
-14.0	-24.2	-10.7
-13.0	-15.2	-9.8
-12.0	-8.7	-9.0
-11.0	-14.8	-8.0
-10.0	-11.3	-7.0
-9.0	-13.6	-6.0
-8.0	-4.9	-6.0
-7.0	-11.1	-6.1
-6.0	-25.0	-4.5
-5.0	-12.8	-2.5
-4.0	-2.9	-0.1
-3.0	1.3	3.1
-2.0	6.9	7.5
-1.0	19.0	
0.0	30.8	

14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
120.0	-35.7	-24.0
121.0	-35.6	-24.0
122.0	-44.4	-24.0
123.0	-44.1	-24.0
124.0	-41.9	-24.0
125.0	-39.1	-24.0
126.0	-36.6	-24.0
127.0	-35.7	-24.0
128.0	-38.4	-24.0
129.0	-47.2	-24.0
130.0	-48.1	-24.0
131.0	-32.1	-24.0
132.0	-35.5	-24.0
133.0	-41.2	-24.0
134.0	-39.1	-24.0
135.0	-42.2	-24.0
136.0	-44.9	-24.0
137.0	-39.4	-24.0
138.0	-34.4	-24.0
139.0	-37.1	-24.0
140.0	-46.1	-24.0
141.0	-36.1	-24.0
142.0	-36.7	-24.0
143.0	-39.9	-24.0
144.0	-46.8	-24.0
145.0	-60.6	-24.0
146.0	-38.0	-24.0
147.0	-37.9	-24.0
148.0	-48.4	-24.0
149.0	-46.2	-24.0
150.0	-51.5	-24.0
151.0	-47.3	-24.0
152.0	-41.6	-24.0
153.0	-60.5	-24.0
154.0	-50.2	-24.0
155.0	-40.4	-24.0
156.0	-36.9	-24.0
157.0	-45.3	-24.0
158.0	-43.5	-24.0
159.0	-48.0	-24.0
160.0	-38.9	-24.0
161.0	-31.7	-24.0
162.0	-33.9	-24.0
163.0	-43.7	-24.0
164.0	-39.9	-24.0
165.0	-41.2	-24.0
166.0	-34.0	-24.0
167.0	-35.6	-24.0
168.0	-35.9	-24.0
169.0	-51.8	-24.0
170.0	-48.4	-24.0
171.0	-38.2	-24.0
172.0	-43.5	-24.0
173.0	-38.5	-24.0
174.0	-45.2	-24.0
175.0	-37.2	-24.0
176.0	-43.4	-24.0
177.0	-40.8	-24.0
178.0	-40.0	-24.0

§25.115(g) (1)(ii): Co-pole azimuth $\pm 10^\circ$

Cobham SATCOM, Sea Tel Products
1.5 meter EIRPsd, VV Co-Pol, Azimuth, H-Plane (A)



Plot Parameters			Peak Excursions dB	% Over
Input SD	Gain	Cal Factor	1.5° to 7°	
-14.0	44.99	46.46	-0.5	8%

(CONTINUED NEXT PAGE)



1.5m EIRPsd Data Table
 Co Pol Azimuth, -10 to +10 Degrees @ 0.1 deg (A)

14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
-10.0	-11.3	-7.0
-9.9	-12.0	-6.9
-9.8	-12.7	-6.8
-9.7	-13.5	-6.7
-9.6	-14.3	-6.6
-9.5	-15.2	-6.4
-9.4	-15.5	-6.3
-9.3	-15.8	-6.2
-9.2	-15.4	-6.0
-9.1	-14.5	-6.0
-9.0	-13.6	-6.0
-8.9	-12.5	-6.0
-8.8	-11.4	-6.0
-8.7	-10.3	-6.0
-8.6	-9.1	-6.0
-8.5	-7.9	-6.0
-8.4	-7.0	-6.0
-8.3	-6.1	-6.0
-8.2	-5.5	-6.0
-8.1	-5.2	-6.0
-8.0	-4.9	-6.0
-7.9	-5.1	-6.0
-7.8	-5.2	-6.0
-7.7	-5.6	-6.0
-7.6	-6.2	-6.0
-7.5	-6.8	-6.0
-7.4	-7.8	-6.0
-7.3	-8.9	-6.0
-7.2	-9.7	-6.0
-7.1	-10.4	-6.0
-7.0	-11.1	-6.1
-6.9	-10.4	-6.0
-6.8	-9.7	-5.8
-6.7	-9.3	-5.7
-6.6	-9.2	-5.5
-6.5	-9.1	-5.3
-6.4	-10.7	-5.2
-6.3	-12.3	-5.0
-6.2	-15.5	-4.8
-6.1	-20.2	-4.6
-6.0	-25.0	-4.5
-5.9	-20.4	-4.3
-5.8	-15.8	-4.1
-5.7	-13.3	-3.9
-5.6	-12.9	-3.7
-5.5	-12.6	-3.5
-5.4	-14.0	-3.3
-5.3	-15.4	-3.1
-5.2	-15.4	-2.9
-5.1	-14.1	-2.7
-5.0	-12.8	-2.5

14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
0.0	30.8	
0.1	30.4	
0.2	30.0	
0.3	29.4	
0.4	28.5	
0.5	27.7	
0.6	25.9	
0.7	24.2	
0.8	22.0	
0.9	19.4	
1.0	16.7	
1.1	11.3	
1.2	6.0	
1.3	3.4	
1.4	3.7	
1.5	3.9	10.6
1.6	4.9	9.9
1.7	5.9	9.2
1.8	5.9	8.6
1.9	5.0	8.0
2.0	4.1	7.5
2.1	2.7	6.9
2.2	1.3	6.4
2.3	0.4	6.0
2.4	0.0	5.5
2.5	-0.3	5.1
2.6	-0.5	4.6
2.7	-0.7	4.2
2.8	-1.3	3.8
2.9	-2.4	3.4
3.0	-3.5	3.1
3.1	-5.7	2.7
3.2	-7.9	2.4
3.3	-9.0	2.0
3.4	-8.8	1.7
3.5	-8.7	1.4
3.6	-7.6	1.1
3.7	-6.5	0.8
3.8	-6.0	0.5
3.9	-6.2	0.2
4.0	-6.3	-0.1
4.1	-6.9	-0.3
4.2	-7.5	-0.6
4.3	-7.9	-0.8
4.4	-7.9	-1.1
4.5	-8.0	-1.3
4.6	-8.5	-1.6
4.7	-9.0	-1.8
4.8	-9.9	-2.0
4.9	-11.2	-2.3
5.0	-12.4	-2.5

1.5m EIRPsd Data Table
 Co Pol Azimuth, -10 to +10 Degrees @ 0.1 deg (A)

14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
-4.9	-11.6	-2.3
-4.8	-10.4	-2.0
-4.7	-9.3	-1.8
-4.6	-8.4	-1.6
-4.5	-7.4	-1.3
-4.4	-6.1	-1.1
-4.3	-4.9	-0.8
-4.2	-4.0	-0.6
-4.1	-3.5	-0.3
-4.0	-2.9	-0.1
-3.9	-3.7	0.2
-3.8	-4.4	0.5
-3.7	-4.9	0.8
-3.6	-5.3	1.1
-3.5	-5.6	1.4
-3.4	-3.8	1.7
-3.3	-2.1	2.0
-3.2	-0.7	2.4
-3.1	0.3	2.7
-3.0	1.3	3.1
-2.9	1.4	3.4
-2.8	1.4	3.8
-2.7	1.4	4.2
-2.6	1.2	4.6
-2.5	1.1	5.1
-2.4	2.0	5.5
-2.3	2.9	6.0
-2.2	4.1	6.4
-2.1	5.5	6.9
-2.0	6.9	7.5
-1.9	7.5	8.0
-1.8	8.1	8.6
-1.7	7.4	9.2
-1.6	5.3	9.9
-1.5	3.3	10.6
-1.4	4.8	
-1.3	6.3	
-1.2	9.5	
-1.1	14.2	
-1.0	19.0	
-0.9	21.4	
-0.8	23.9	
-0.7	25.8	
-0.6	27.2	
-0.5	28.6	
-0.4	29.3	
-0.3	30.0	
-0.2	30.5	
-0.1	30.6	
0.0	30.8	

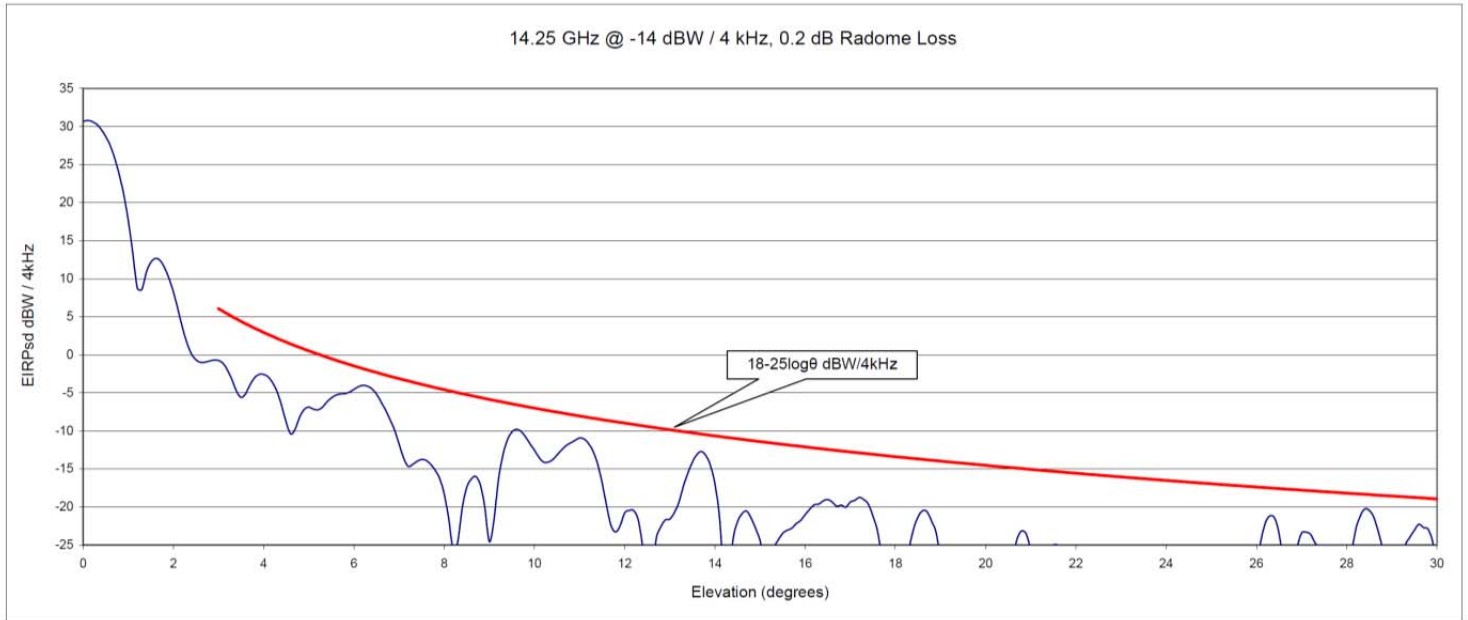
14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
5.1	-12.6	-2.7
5.2	-12.8	-2.9
5.3	-12.5	-3.1
5.4	-11.9	-3.3
5.5	-11.2	-3.5
5.6	-10.8	-3.7
5.7	-10.5	-3.9
5.8	-10.0	-4.1
5.9	-9.5	-4.3
6.0	-9.0	-4.5
6.1	-8.7	-4.6
6.2	-8.4	-4.8
6.3	-8.3	-5.0
6.4	-8.3	-5.2
6.5	-8.3	-5.3
6.6	-8.2	-5.5
6.7	-8.1	-5.7
6.8	-8.1	-5.8
6.9	-8.0	-6.0
7.0	-8.0	-6.1
7.1	-8.5	-6.0
7.2	-9.0	-6.0
7.3	-10.0	-6.0
7.4	-11.6	-6.0
7.5	-13.1	-6.0
7.6	-15.1	-6.0
7.7	-17.1	-6.0
7.8	-18.5	-6.0
7.9	-19.2	-6.0
8.0	-19.9	-6.0
8.1	-20.3	-6.0
8.2	-20.6	-6.0
8.3	-20.0	-6.0
8.4	-18.4	-6.0
8.5	-16.8	-6.0
8.6	-15.8	-6.0
8.7	-14.9	-6.0
8.8	-14.9	-6.0
8.9	-15.9	-6.0
9.0	-16.8	-6.0
9.1	-20.2	-6.0
9.2	-23.7	-6.0
9.3	-23.9	-6.2
9.4	-20.7	-6.3
9.5	-17.6	-6.4
9.6	-15.4	-6.6
9.7	-13.1	-6.7
9.8	-11.6	-6.8
9.9	-11.0	-6.9
10.0	-10.3	-7.0

Cobham SATCOM, Sea Tel Model-6009 Tracking Antenna

1.5m EIRPsd Data Table

Co Pol Elevation, 0 to +30 Degrees @ 0.1 / 0.5 deg (B)

Cobham SATCOM, Sea Tel Products
1.5 meter EIRPsd, VV Co-Pol, Elevation, E-Plane (B)



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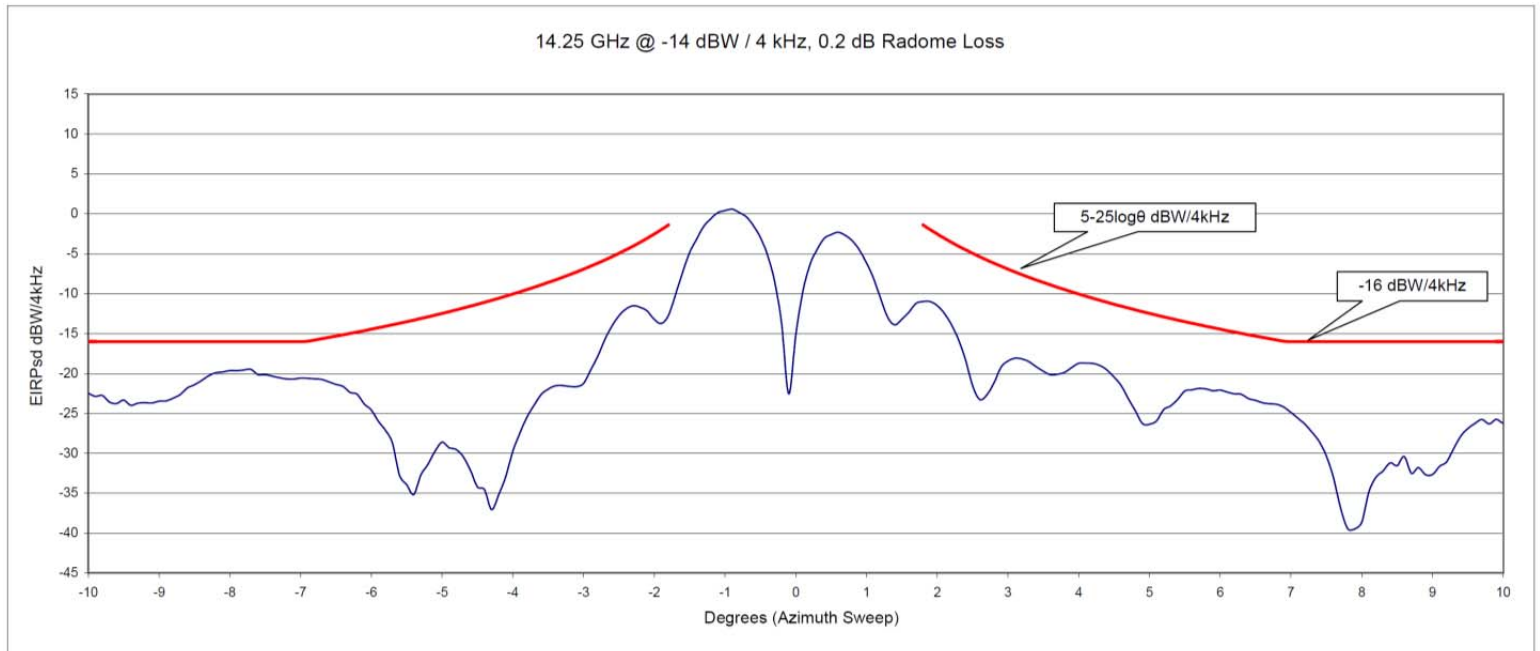
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
0.0	30.7	
0.1	30.8	
0.2	30.7	
0.3	30.3	
0.4	29.6	
0.5	28.7	
0.6	27.5	
0.7	25.8	
0.8	23.7	
0.9	21.1	
1.0	17.7	
1.1	13.3	
1.2	8.8	
1.3	8.6	
1.4	10.8	
1.5	12.2	
1.6	12.7	
1.7	12.4	
1.8	11.5	
1.9	10.1	
2.0	8.3	
2.1	6.0	
2.2	3.6	
2.3	1.6	
2.4	0.1	
2.5	-0.7	
2.6	-1.0	
2.7	-1.0	
2.8	-0.8	
2.9	-0.7	
3.0	-0.7	6.1
3.1	-1.1	5.7
3.2	-2.1	5.4
3.3	-3.3	5.0
3.4	-4.8	4.7
3.5	-5.6	4.4
3.6	-5.1	4.1
3.7	-4.0	3.8
3.8	-3.0	3.5
3.9	-2.6	3.2
4.0	-2.6	2.9
4.1	-2.9	2.7
4.2	-3.7	2.4
4.3	-4.9	2.2
4.4	-6.7	1.9
4.5	-8.9	1.7
4.6	-10.4	1.4

Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
4.7	-9.7	1.2
4.8	-8.1	1.0
4.9	-7.2	0.7
5.0	-6.9	0.5
5.1	-7.1	0.3
5.2	-7.2	0.1
5.3	-6.9	-0.1
5.4	-6.2	-0.3
5.5	-5.7	-0.5
5.6	-5.3	-0.7
5.7	-5.1	-0.9
5.8	-5.1	-1.1
5.9	-4.9	-1.3
6.0	-4.6	-1.5
6.1	-4.2	-1.6
6.2	-4.0	-1.8
6.3	-4.1	-2.0
6.4	-4.5	-2.2
6.5	-5.2	-2.3
6.6	-6.2	-2.5
6.7	-7.2	-2.7
6.8	-8.5	-2.8
6.9	-9.9	-3.0
7.0	-11.7	-3.1
7.1	-13.5	-3.3
7.2	-14.6	-3.4
7.3	-14.4	-3.6
7.4	-14.0	-3.7
7.5	-13.7	-3.9
7.6	-13.9	-4.0
7.7	-14.4	-4.2
7.8	-15.1	-4.3
7.9	-16.3	-4.4
8.0	-18.3	-4.6
8.1	-21.5	-4.7
8.2	-25.6	-4.8
8.3	-24.6	-5.0
8.4	-20.2	-5.1
8.5	-17.4	-5.2
8.6	-16.3	-5.4
8.7	-16.0	-5.5
8.8	-17.1	-5.6
8.9	-20.0	-5.7
9.0	-24.5	-5.9
9.1	-21.9	-6.0
9.2	-16.6	-6.1
9.3	-13.2	-6.2

Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
9.4	-11.2	-6.3
9.5	-10.1	-6.4
9.6	-9.8	-6.6
9.7	-10.0	-6.7
9.8	-10.7	-6.8
9.9	-11.7	-6.9
10.0	-12.5	-7.0
10.0	-12.5	-7.0
10.5	-13.2	-7.5
11.0	-10.9	-8.0
11.5	-16.8	-8.5
12.0	-20.8	-9.0
12.5	-29.4	-9.4
13.0	-21.6	-9.8
13.5	-14.1	-10.3
14.0	-17.0	-10.7
14.5	-22.0	-11.0
15.0	-24.4	-11.4
15.5	-23.5	-11.8
16.0	-21.0	-12.1
16.5	-19.0	-12.4
17.0	-19.4	-12.8
17.5	-21.2	-13.1
18.0	-37.6	-13.4
18.5	-21.3	-13.7
19.0	-26.7	-14.0
19.5	-27.4	-14.3
20.0	-36.8	-14.5
20.5	-29.3	-14.8
21.0	-26.0	-15.1
21.5	-25.1	-15.3
22.0	-28.2	-15.6
22.5	-47.4	-15.8
23.0	-27.9	-16.0
23.5	-37.1	-16.3
24.0	-26.6	-16.5
24.5	-33.8	-16.7
25.0	-27.7	-16.9
25.5	-30.8	-17.2
26.0	-27.6	-17.4
26.5	-23.5	-17.6
27.0	-23.4	-17.8
27.5	-25.1	-18.0
28.0	-33.1	-18.2
28.5	-20.5	-18.4
29.0	-32.2	-18.6
29.5	-23.1	-18.7
30.0	-27.6	-18.9

§25.115(g) (1)(iv): Cross-pole azimuth $\pm 7^\circ$

Cobnam SATCOM, Sea Tel Model-6009 Tracking Antenna
 1.5 meter EIRPsd, HV X-Pol, Azimuth, H-Plane (C)



Plot Parameters			Peak Excursions dB		% Over
Pin sd	Gain	Cal Factor	1.8° to 7°	7° to 180°	
-14	44.99	46.46	-4.64	-3.48	0.00

(CONTINUED NEXT PAGE)



Cobham SATCOM, Sea Tel Model-6009 Tracking Antenna

1.5m EIRPsd Data Table

Cross Pol Azimuth, -10 to +10 Degrees @ 0.1 deg (C)

14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
-10.0	-22.5	-16.0
-9.9	-22.9	-16.0
-9.8	-22.8	-16.0
-9.7	-23.6	-16.0
-9.6	-23.8	-16.0
-9.5	-23.3	-16.0
-9.4	-24.0	-16.0
-9.3	-23.7	-16.0
-9.2	-23.7	-16.0
-9.1	-23.7	-16.0
-9.0	-23.5	-16.0
-8.9	-23.4	-16.0
-8.8	-23.1	-16.0
-8.7	-22.6	-16.0
-8.6	-21.8	-16.0
-8.5	-21.4	-16.0
-8.4	-20.9	-16.0
-8.3	-20.3	-16.0
-8.2	-19.9	-16.0
-8.1	-19.8	-16.0
-8.0	-19.6	-16.0
-7.9	-19.7	-16.0
-7.8	-19.6	-16.0
-7.7	-19.5	-16.0
-7.6	-20.1	-16.0
-7.5	-20.1	-16.0
-7.4	-20.3	-16.0
-7.3	-20.5	-16.0
-7.2	-20.7	-16.0
-7.1	-20.7	-16.0
-7.0	-20.6	-16.0
-6.9	-20.6	-16.0
-6.8	-20.7	-15.8
-6.7	-20.7	-15.7
-6.6	-21.0	-15.5
-6.5	-21.4	-15.3
-6.4	-21.6	-15.2
-6.3	-22.4	-15.0
-6.2	-22.6	-14.8
-6.1	-23.8	-14.6
-6.0	-24.6	-14.5
-5.9	-26.0	-14.3
-5.8	-27.1	-14.1
-5.7	-28.7	-13.9
-5.6	-32.8	-13.7
-5.5	-33.9	-13.5
-5.4	-35.2	-13.3
-5.3	-32.7	-13.1
-5.2	-31.4	-12.9
-5.1	-29.8	-12.7

14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
0.0	-15.1	
0.1	-9.7	
0.2	-6.4	
0.3	-4.5	
0.4	-3.1	
0.5	-2.6	
0.6	-2.3	
0.7	-2.7	
0.8	-3.4	
0.9	-4.5	
1.0	-6.2	
1.1	-8.1	
1.2	-10.6	
1.3	-13.0	
1.4	-13.9	
1.5	-13.2	
1.6	-12.3	
1.7	-11.2	
1.8	-11.0	-1.4
1.9	-11.0	-2.0
2.0	-11.5	-2.5
2.1	-12.5	-3.1
2.2	-13.9	-3.6
2.3	-15.8	-4.0
2.4	-18.3	-4.5
2.5	-21.5	-4.9
2.6	-23.3	-5.4
2.7	-22.7	-5.8
2.8	-21.2	-6.2
2.9	-19.2	-6.6
3.0	-18.4	-6.9
3.1	-18.1	-7.3
3.2	-18.2	-7.6
3.3	-18.5	-8.0
3.4	-19.2	-8.3
3.5	-19.7	-8.6
3.6	-20.2	-8.9
3.7	-20.1	-9.2
3.8	-19.9	-9.5
3.9	-19.3	-9.8
4.0	-18.7	-10.1
4.1	-18.7	-10.3
4.2	-18.7	-10.6
4.3	-19.0	-10.8
4.4	-19.6	-11.1
4.5	-20.5	-11.3
4.6	-21.5	-11.6
4.7	-23.2	-11.8
4.8	-24.7	-12.0
4.9	-26.3	-12.3

Cobham SATCOM, Sea Tel Model-6009 Tracking Antenna

1.5m EIRPsd Data Table

Cross Pol Azimuth, -10 to +10 Degrees @ 0.1 deg (C)

14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
-5.0	-28.6	-12.5
-4.9	-29.3	-12.3
-4.8	-29.5	-12.0
-4.7	-30.4	-11.8
-4.6	-32.1	-11.6
-4.5	-34.2	-11.3
-4.4	-34.6	-11.1
-4.3	-37.1	-10.8
-4.2	-35.2	-10.6
-4.1	-32.9	-10.3
-4.0	-29.8	-10.1
-3.9	-27.5	-9.8
-3.8	-25.5	-9.5
-3.7	-24.0	-9.2
-3.6	-22.6	-8.9
-3.5	-22.0	-8.6
-3.4	-21.5	-8.3
-3.3	-21.5	-8.0
-3.2	-21.6	-7.6
-3.1	-21.7	-7.3
-3.0	-21.2	-6.9
-2.9	-19.6	-6.6
-2.8	-17.9	-6.2
-2.7	-15.7	-5.8
-2.6	-14.1	-5.4
-2.5	-12.8	-4.9
-2.4	-11.9	-4.5
-2.3	-11.5	-4.0
-2.2	-11.7	-3.6
-2.1	-12.2	-3.1
-2.0	-13.2	-2.5
-1.9	-13.7	-2.0
-1.8	-12.7	-1.4
-1.7	-10.1	
-1.6	-7.3	
-1.5	-4.8	
-1.4	-3.1	
-1.3	-1.6	
-1.2	-0.6	
-1.1	0.2	
-1.0	0.4	
-0.9	0.6	
-0.8	0.2	
-0.7	-0.4	
-0.6	-1.5	
-0.5	-3.0	
-0.4	-5.1	
-0.3	-8.5	
-0.2	-13.7	
-0.1	-22.5	
0.0	-15.1	

14.25 GHz @ -14 dBW / 4 kHz		
Angle	EIRPsd	Mask
Degrees	dBW/4kHz	dBW/4kHz
5.0	-26.4	-12.5
5.1	-25.9	-12.7
5.2	-24.5	-12.9
5.3	-24.1	-13.1
5.4	-23.2	-13.3
5.5	-22.2	-13.5
5.6	-22.0	-13.7
5.7	-21.9	-13.9
5.8	-21.9	-14.1
5.9	-22.2	-14.3
6.0	-22.1	-14.5
6.1	-22.3	-14.6
6.2	-22.5	-14.8
6.3	-22.6	-15.0
6.4	-23.2	-15.2
6.5	-23.4	-15.3
6.6	-23.7	-15.5
6.7	-23.8	-15.7
6.8	-23.9	-15.8
6.9	-24.2	-16.0
7.0	-24.9	-16.0
7.1	-25.6	-16.0
7.2	-26.4	-16.0
7.3	-27.4	-16.0
7.4	-28.6	-16.0
7.5	-30.3	-16.0
7.6	-33.1	-16.0
7.7	-36.8	-16.0
7.8	-39.4	-16.0
7.9	-39.5	-16.0
8.0	-38.6	-16.0
8.1	-34.9	-16.0
8.2	-33.0	-16.0
8.3	-32.2	-16
8.4	-31.2	-16
8.5	-31.6	-16
8.6	-30.4	-16
8.7	-32.5	-16
8.8	-31.8	-16
8.9	32.7	-16
9.0	32.7	-16
9.1	31.6	-16
9.2	31.1	-16
9.3	-29.4	-16
9.4	-27.8	-16
9.5	-26.9	-16
9.6	-26.2	-16
9.7	-25.8	-16
9.8	-26.3	-16
9.9	-25.8	-16
10.0	-26.2	-16

Appendix-B1: FCC Declaration of Conformity



Sea Tel Inc.
4030 Nelson Ave., Concord
California, 94520, USA
T: +1 (925) 798-7979
F: +1 (925) 798-7986

FCC Declaration of Conformity

1. Sea Tel, Inc. designs, develops, manufactures and services marine stabilized antenna systems for satellite communication at sea. These products are in turn used by our customers as part of their Ku-band Earth Station on Vessels (ESV) networks.
2. FCC regulation 47 C.F.R. § 25.222 defines the provisions for blanket licensing of ESV antennas operating in the Ku Band. This declaration covers the requirements for meeting § 25.222 (a)(1) by the demonstrations outlined in paragraphs (b)(1)(i) and (b)(1)(iii). The requirements for meeting § 25.222 (a)(3)-(a)(7) are left to the applicant. The paragraph numbers in this declaration refer to the 2009 version of FCC 47 C.F.R. § 25.222.
3. Sea Tel hereby declares that the antennas listed below will meet the off-axis EIRP spectral density requirements of § 25.222 (a)(1)(i) with an N value of 1, when the following Input Power spectral density limitations are met:

*0.6 Meter Ku Band, Models 2406 and USAT-24 are limited to	-21.6 dBW/4kHz
*0.75 Meter Ku Band, Models 3011 and USAT-30 are limited to	-21.6 dBW/4kHz
1.0 Meter Ku Band, Models 4003/4006/4009/4010 are limited to	-16.3 dBW/4kHz
1.0 Meter Ku Band Model 4012 is limited to	-16.6 dBW/4kHz
1.2 Meter Ku Band, Models 4996/5009/5010 are limited to	-14.0 dBW/4kHz
1.5 Meter Ku Band, Models 6006/6009 are limited to	-14.0 dBW/4kHz
2.4 Meter Ku Band, Models 9797 and 9711QOR are limited to	-14.0 dBW/4kHz
4. Sea Tel hereby declares that the antennas referenced in paragraph 3 above, will maintain a stabilization pointing accuracy of better than 0.2 degrees under specified ship motion conditions, thus meeting the requirements of § 25.222 (a)(1)(ii)(A). Those antennas marked with * will maintain a stabilization pointing accuracy of better than 0.3 degrees. The Input Power spectral density limits for these antenna have been adjusted to meet the requirements of § 25.222 (a)(1)(ii)(B).
5. Sea Tel hereby declares that the antennas referenced in paragraph 3 above, will automatically cease transmission within 100 milliseconds if the pointing error should exceed 0.5 degrees and will not resume transmission until the error drops below 0.2 degrees, thus meeting the requirements of § 25.222 (a)(1)(iii).
6. Sea Tel maintains all relevant test data, which is available upon request, to verify these declarations.

A handwritten signature in blue ink, appearing to read "Peter Blaney", written over a light blue circular stamp.

Peter Blaney, Chief Engineer
Sea Tel, Inc
Concord, CA

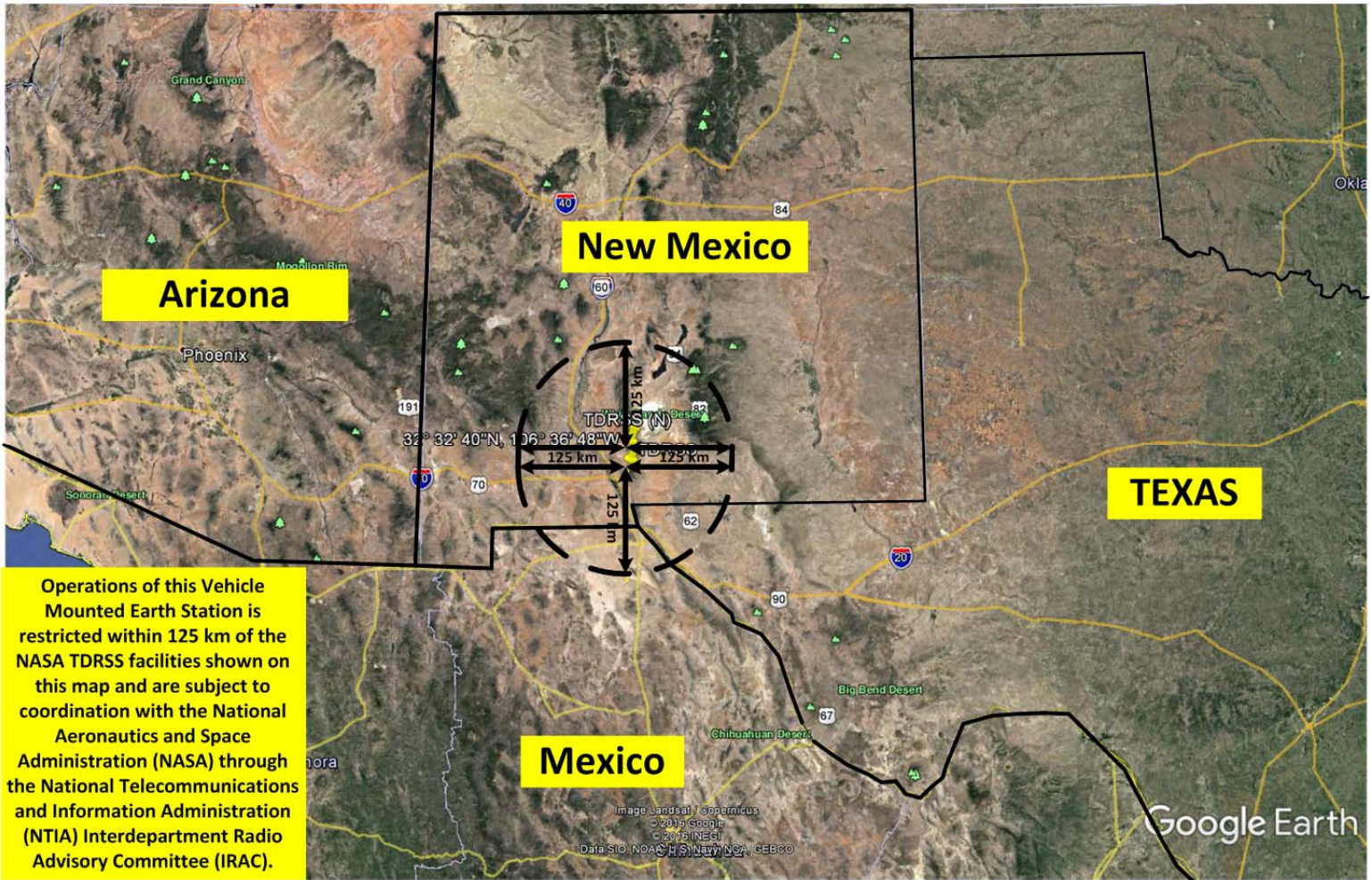
Appendix-B2: 6009-17 Technical Specifications

Installation Manual For Sea Tel 6009-17 Broadband-At-Sea Transmit / Receive System with Selectable Co-Pol or Cross-Pol Receive Page 20-4 states the following:

20.10. Stabilized Antenna Pedestal Assembly

Type:	Three-axis (Level, Cross Level, AZ)
Stabilization:	Torque Mode Servo
Stab Accuracy:	0.1 degrees RMS, 0.2 degrees MAX in presence of specified ship motions (see below).

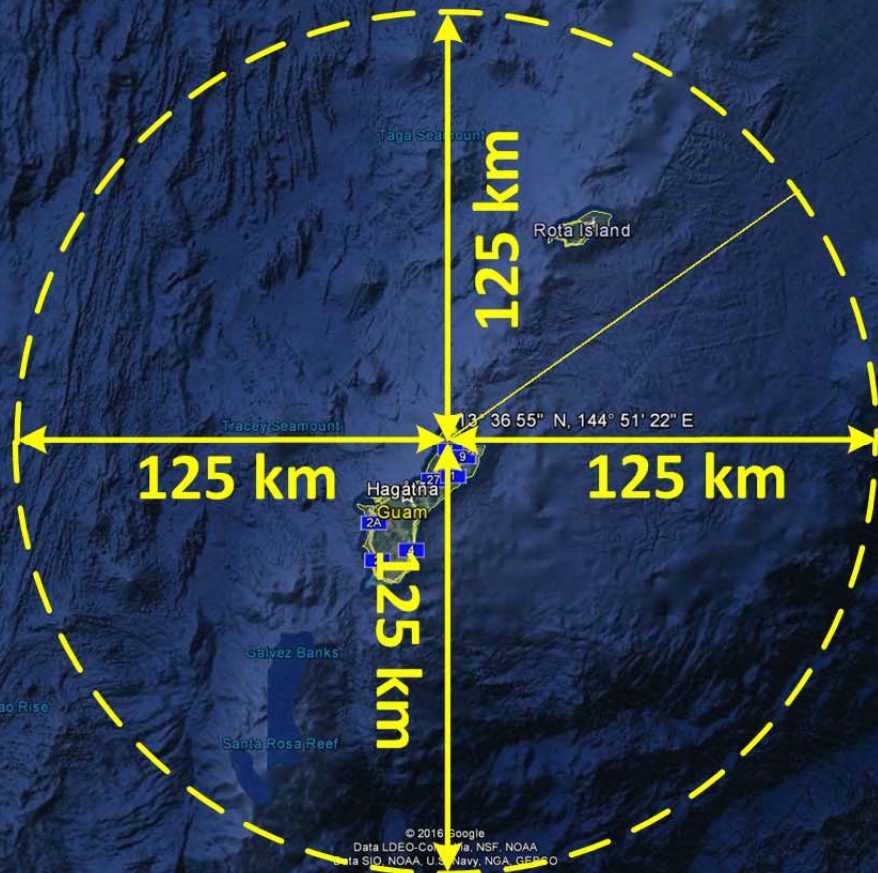
Appendix-C: Restricted Areas of Operation



(CONTINUED NEXT PAGE)



Operations of this Vehicle Mounted Earth Station is restricted within 125 km of the NASA TDRSS facilities shown on this map and are subject to coordination with the National Aeronautics and Space Administration (NASA) through the National Telecommunications and Information Administration (NTIA) Interdepartment Radio Advisory Committee (IRAC).



Google Earth