Exhibit A – Concept of Operation
09/14/2012

KVH On-Site C-band ESV Testing

Introduction

KVH would like to test their newly designed C-band earth station onboard vessel (ESV) satellite terminal at their main facility in Middletown, RI. The testing would be performed under controlled circumstances at the KVH lab (with visibility to the GSO satellite arc) and in the adjacent parking lot area. The testing would allow KVH to validate that the prototype performance matches theoretical. The testing will also validate the manufacturing procedures, which includes over-the-air testing before product ship. A maximum of three (3) terminals would be tested. The period of testing is twelve months from September 20, 2012 to September 19, 2013. Prior STA has been granted by the OET for this terminal type however additional testing time is required prior to bringing this product to market[1]. The KVH V11 product release has been delayed, due to changes to some of the C-band RF components. The experimental license is required to validate that any RF component changes meet design specifications and that system performances continues to match the performance parameters approved via the FCC C-band license for the V11 antenna. Once the product is released, KVH will apply for a permanent transmission license for the KVH Middletown location. We anticipate that the timing of a permanent license grant will be between 6-12 months from now, so we are covering our transmission activities at this location by requesting this experimental license.

The 24x7 Point of Contact for the KVH testing is Marc Edwards, KVH Program Manager, cell telephone number: 401-835-8488.

Description of ESV Terminal

The C-band ESV terminal is a highly efficient and affordable terminal for use with KVH's global ESV network. The ESV terminal operates in C-band fixed-satellite service (FSS) frequencies, 5.925-6.425 GHz for transmit and 3.7-4.2 GHz for receive. The antenna is a 1 meter parabolic reflector with a rear-fed sub-reflector feed assembly design. The terminal will automatically search for and acquire the designated satellite and maintain precise pointing via automatic control of the azimuth, elevation and polarization angles. The RF equipment is integrated into the base of the terminal and includes a 22 watt SSPA. The data rates transmitted from the terminal will vary from 32 kbits/s to 256 kbits/s. The ESVs will transmit using CRMA spreading[2] over a 10 MHz channel bandwidth.

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[1] See OET STA File No. 0143-EX-ST-2012.
[2] CRMA, or Code Reuse Multiple Access, is a ViaSat proprietary spread spectrum technique, similar to CDMA, used in the ArcLight system.

Three, terminals will be tested at the KVH facilities in Middletown, RI. As a conservative measure, we have performed all analyses for a worse case scenario of full band (5925-6425 MHz transmit) and an expanded satellite arc of 25° west longitude to 135° west longitude. KVH intends to operate on one satellite in this orbital range using only 10 MHz of spectrum.

Details of operating parameters for this test program are shown in Table 1 below:

Technical Operating Parameters

The operational parameters of the C-band ESV are shown in the table below:

Company	KVH
Site Name, State	Middletown, RI
Latitude (NAD83)	41.52166667 N
Longitude (NAD83)	71.29055556 W
Elevation AMSL (ft/m)	124.6/38
Antenna Parameters	
Antenna Diameter (m)	1
Antenna Centerline (ft/m)	8.0/2.4
Antenna Elevation Angles East/West(deg)	23.2/10.8
Range of Satellite Orbital Long. East/West(deg W)	25/135
Range of Azimuths from North (deg) East/West	122.4/251.9
Parameters at Center Freq (GHz)	**6.18 (TX)**
Antenna Gain, Main Beam (dBi)	34.5
15 DB Half Beamwidth (deg)	2.95
3 DB Half Beamwidth (deg)	1.50
Interference Analysis Parameters	
6 GHz Max Interference Power Long Term (dBW/4kHz) (20%)	-154
6 GHz Max Interference Power Short Term (dBW/4kHz) (.0025%)	-131
Transmission Parameters	
Information Rate (kbits/s)	to 256
FEC Rate	1/3
Modulation	DSSS GMSK
Spreading Factor	26
Noise bandwidth (MHz)	9.98
Threshold Eb/No (dB)	2.2
Max Transmitter Power (dBW/4KHz)	-21.5
Max EIRP Main Beam (dBW/4KHz)	47.0
Modulation / Emission Designator (Rx/Tx)	9M98G7D
Frequency Range (MHz)	Transmit
	5925
	6425
HPA Size (W)	22
Output Circuit Losses, including radome loss (dB)	1

Table 1 – C-Band ESV Middletown, RI Operating Parameters

6 GHz Terrestrial Microwave Interference Analysis

The operational parameters of the C-band ESV terminal are shown in Table 1 above. An updated interference analysis, using the Comsearch database, to determine the impact of these tests on the surrounding 6 GHz microwave service was performed on August 30, 2012. The 6 GHz transmission use the CRMA spread spectrum technique developed by ViaSat resulting in a very low transmitted RF power density of -21.5 dBW/4 kHz.

The low RF power density resulted in no potential interference cases. The great circle contour of potential cases is shown in Figure 1 below. The list of resulting potential interference cases is shown in Table 2 below. As can be seen, when over the horizon loss calculations are considered all cases clear.

This means that there is no potential for interference into any surrounding terrestrial systems.

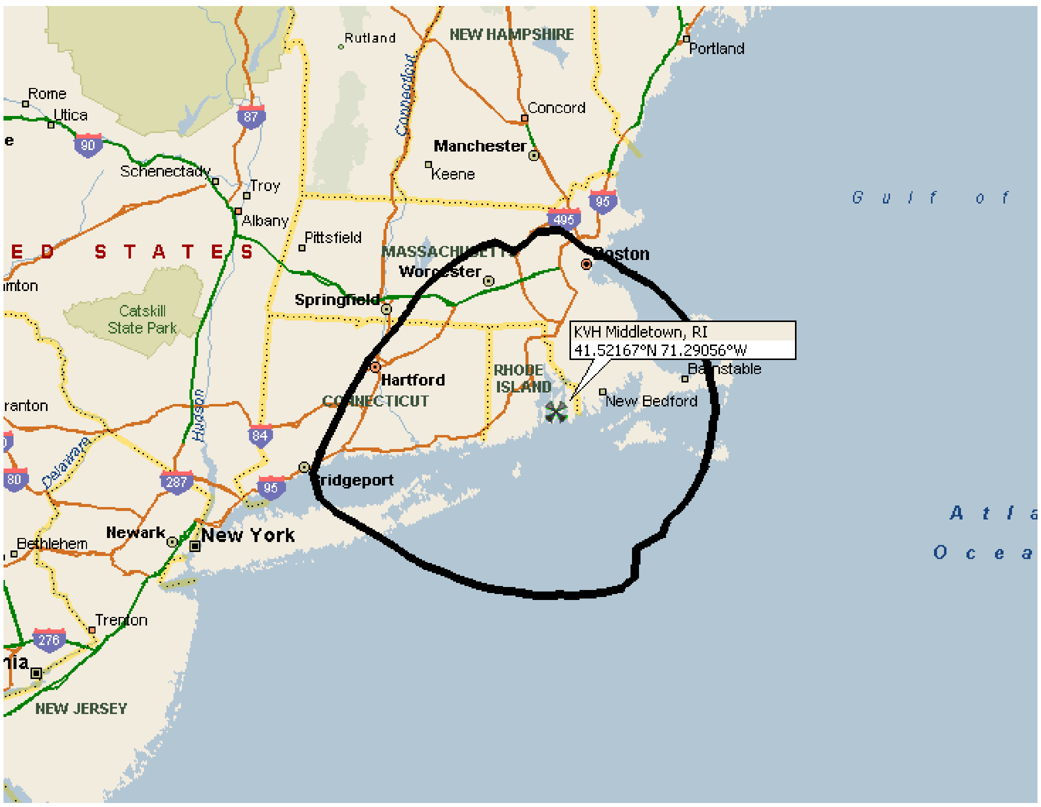

Figure 2 - KVH Middletown, RI Great Circle Contour.
(All potentially affect Fixed Service microwave facilities within this contour were analyzed for potential interference issues.)

08/30/2012

Earth Station Name	MIDDLETOWN, RI
Owner	KVH
Latitude (DMS) (NAD83)	41 31 18.4 N
Longitude (DMS) (NAD83)	71 17 26.6 W
Ground Elevation (ft/m)	124.67 / 38.00 Amsl
Antenna Centerline (ft/m)	29.53 / 9.00 Agl
Antenna Model	C-band ESV
Objectives: Transmit	-154.0 (dBW /4 kHz) Tx Power -21.5 (dBW/4 kHz)

Terrestrial Path	Band (GHz)	Azimuth (Deg)	Dist (km)	Margin (dB)	OH Loss (dB)	Int. Margin (dB)
1. PRUDENTIAL -FROM-BLUE HILLS	6	10.6	93.3	12.2	44.0	-31.8
2. EXETER -FROM-PORTSMOUTH	6	277.9	31.3	0.4	0.0	-0.1
3. EXETER -FROM-PORTSMOUTH	6	277.	31.3	-2.7	0.0	-2.7
4. PORTSMOUTH -FROM-EXETER	6	35.7	4.9	-2.7	0.0	-2.7
5. PORTSMOUTH -FROM-EXETER	6	35.7	4.9	-4.9	0.0	-4.9

(All potential cases fall below the interference objective of -154 dBW/4kHz.)

Table 2 - Earth Station Interference Analysis Report

C-band ESV Antenna Pattern and Off-Axis EIRP Analysis

The data rates transmitted from the terminal will vary from 32 kbits/s to 256 kbits/s. Additionally, the ESVs will transmit using CRMA spreading over a 10 MHz channel bandwidth. The small diameter C-band ESV antenna does not meet the FCC 25.209 antenna pattern, see antenna gain patterns in Figures 3 and 4, however, KVH certifies that the aggregate EIRP levels do not exceed the limits specified for C-band ESVs in Section 25.221 of the Commission's rules. The co-pol off-axis EIRP spectral density levels of the KVH ESV terminal are shown in Figures 5 and 6 below. Note that a calculated worst case aggregate EIRP would occur when N=5 users for a 10 MHz channel. KVH does not intend to use more than three (3) terminals simultaneously during these tests. Table 3 below summarizes the channel power and off-axis EIRP calculations.

10 MHz Channel Calculations		
Power a feed Flange	17.46	W
Power a feed Flange	12.42	dBW
Channel Bandwidth	9.98E+00	MHz
RF Power Density at Flange	-21.6	dBW/4 kHz
RF Power Density at Flange	2.4	dBW/ MHz
Maximum Horizon EIRP Density (@10.8° Elevation Angle)	11.50	dBW/MHz*
Maximum Horizon EIRP	20.80	dBW*
At Angle	10.80	deg
Maximum Number Simultaneous Users N	5	
Worst Case Antenna Gain Exceedance	-11.09	dB
At Angle	-5.88	deg.
For Antenna Pattern	5.85 GHz E	
EIRP Exceedance Limited by Pattern	5.85 GHz E	
At Angle	-5.87500	deg

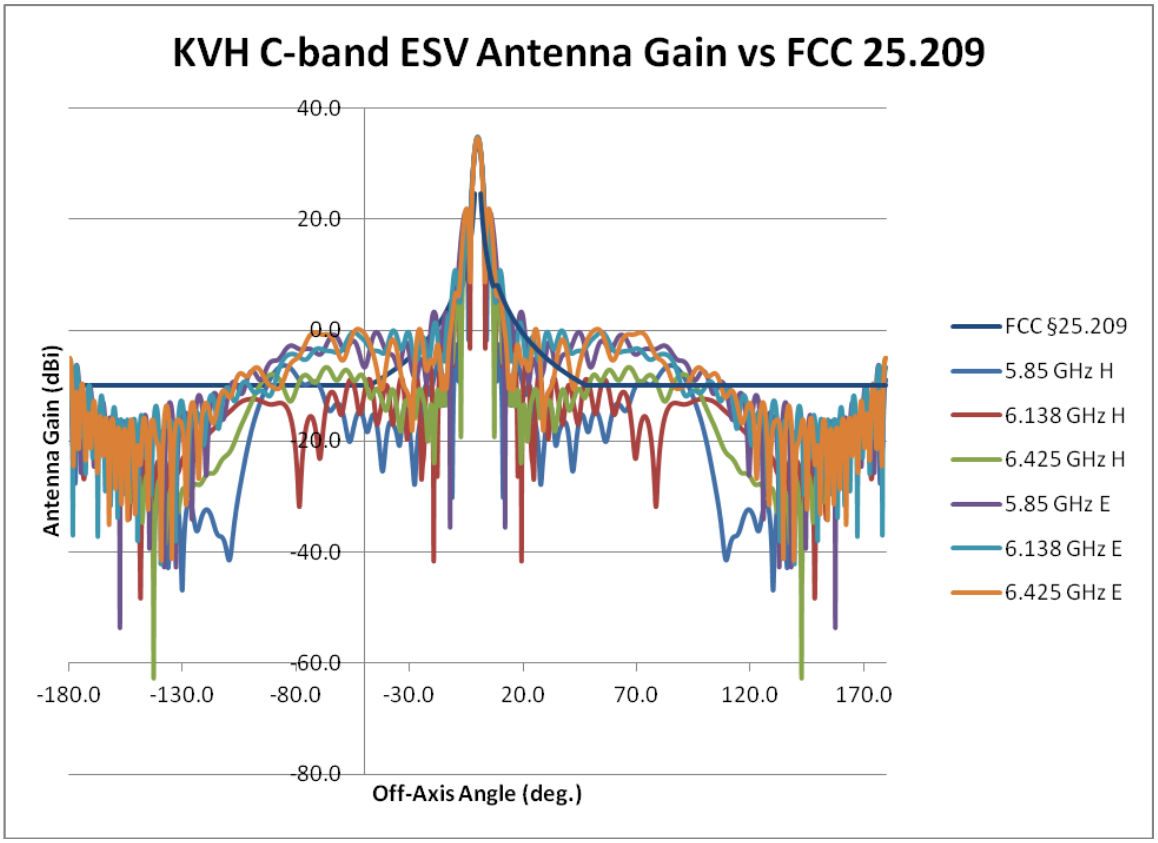

Figure 3 – C-Band ESV Antenna Pattern vs 25.209 mask , +/- 180 degrees

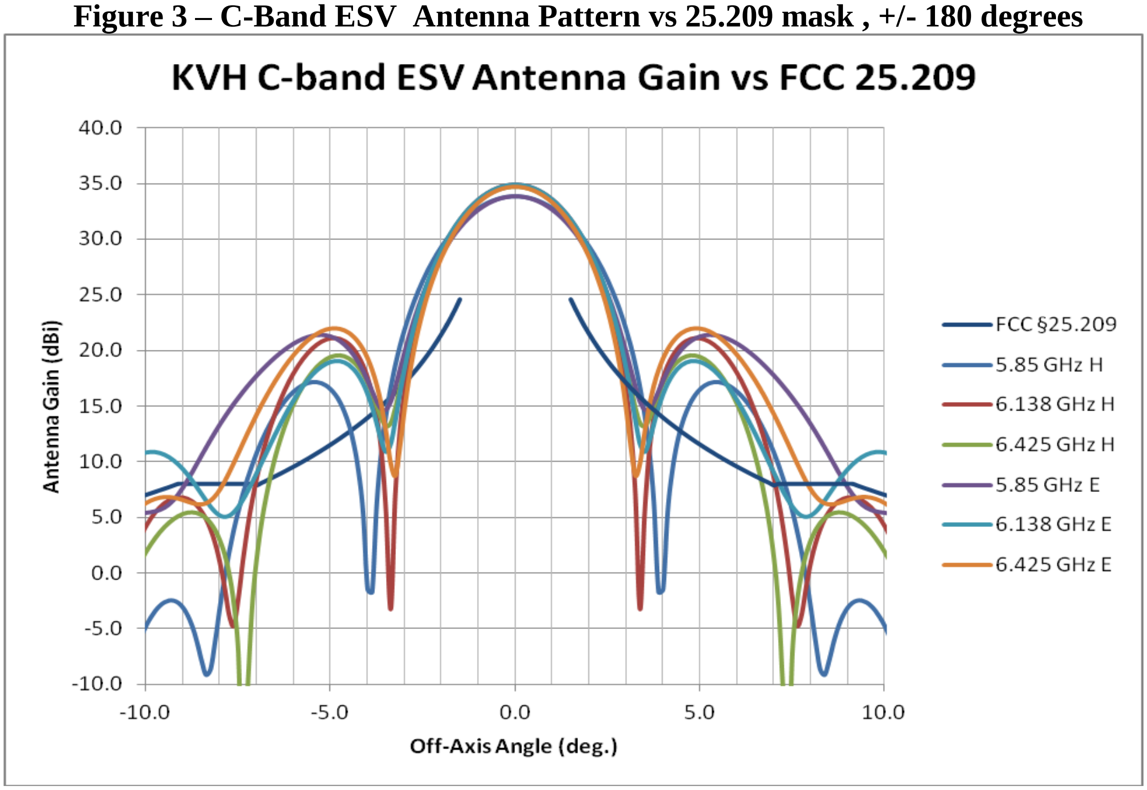

Figure 4– C-band ESV Antenna Pattern vs 25.209 mask , +/- 10 degrees

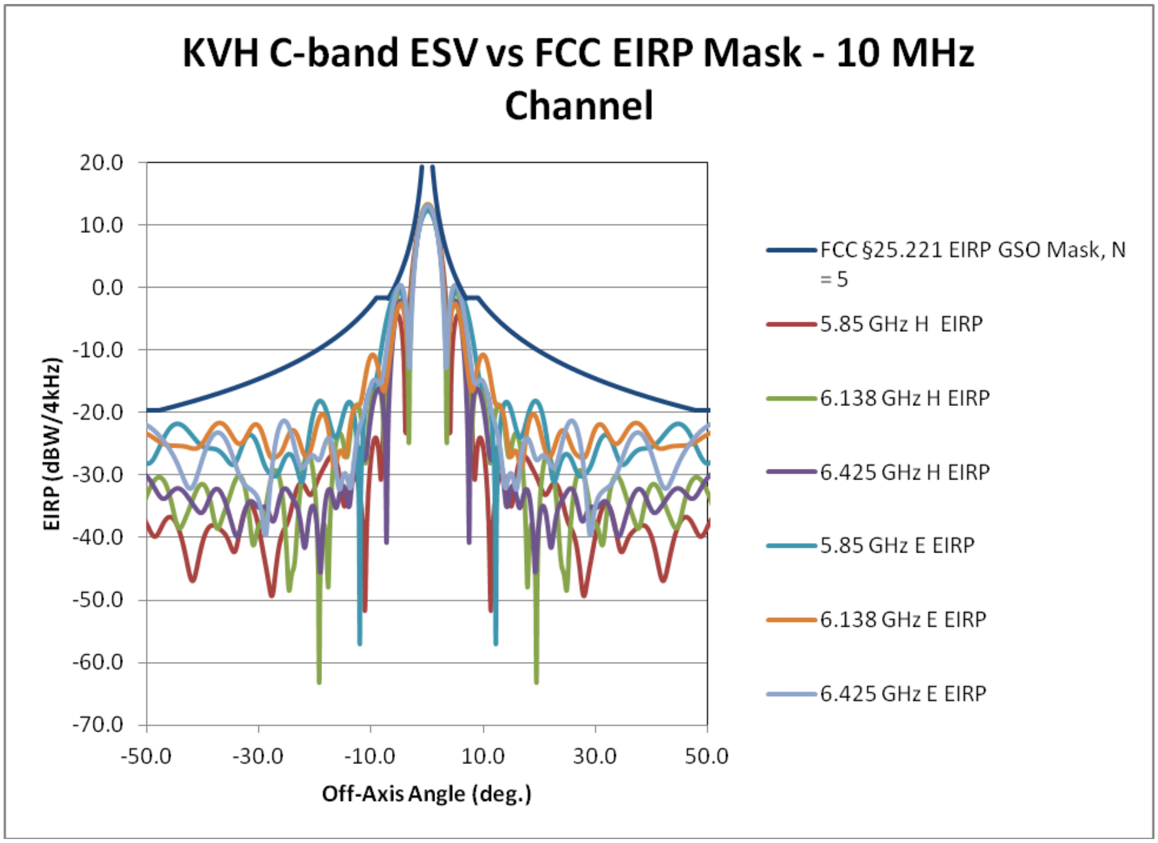

Figure 5 – C-band ESV Antenna EIRP vs 25.221 mask , +/- 180 degrees

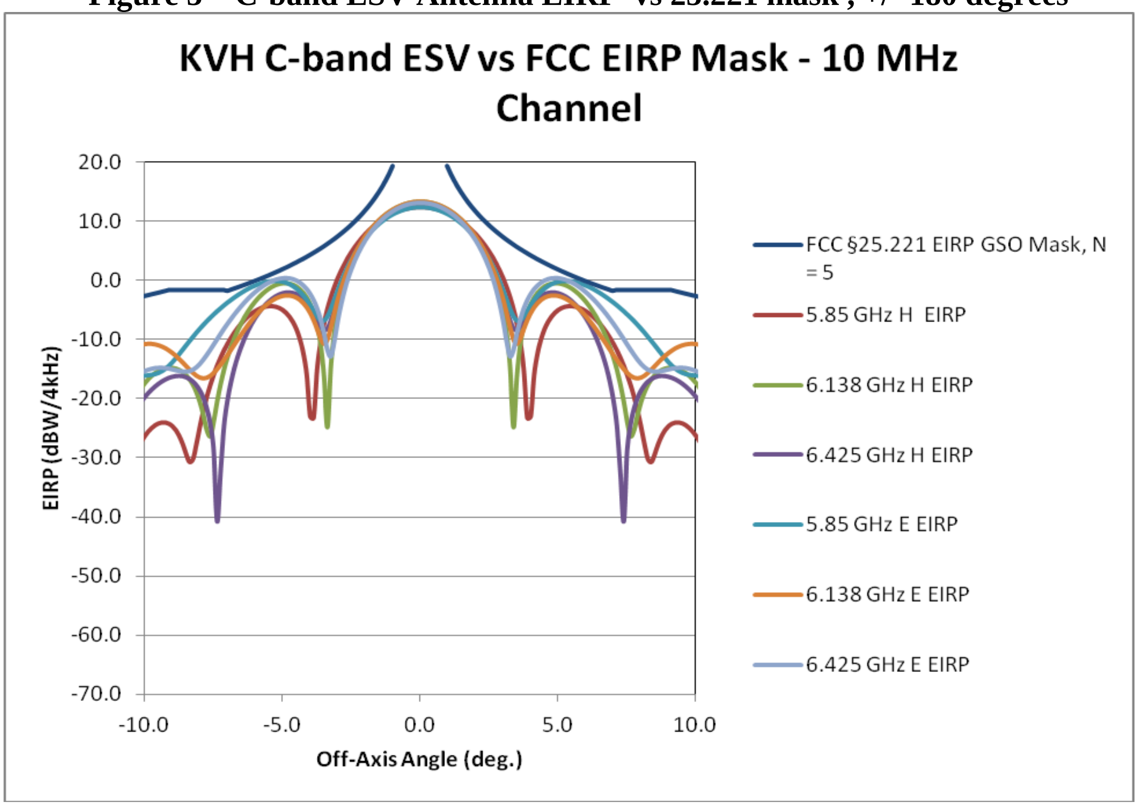

Figure 6 – C-band ESV Antenna EIRP vs 25.221 mask , +/- 10 degrees

Pointing Accuracy

The C-band ESV terminal will utilize a motion stabilized tracking antenna and a direct sequence spread spectrum (DSSS) burst modem manufactured by ViaSat to access the satellite. This approach is well-proven and used by other ESV terminals manufactured by KVH and licensed by the Commission for commercial operation, including the V3 and V7 Ku-band terminals.

The ESV terminal uses a common spreading code and a random access method called code reuse multiple access ("CRMA") to access the satellite. CRMA is closely analogous to the more generally understood code division multiple access (CDMA) multiple access method, but differs in that all terminals use a common spreading code rather than a number of individual codes for each transmitter. Individual bursts are distinguished by time difference of arrival. The use of this spreading technique allows the RF spectral density for each ESV to be significantly lower that typical TDMA systems operating at C-band.

The antenna system utilizes a conical scanning function and rate gyros to stabilize the antenna and keep it pointed properly at the desired satellite. The conscan is currently set to worst case 0.15º from boresight. The dynamic pointing error expected during testing operation is expected to be less than 0.2ºs one sigma. Thus the total expected mean pointing error for each vessel while under way, including both conscan and dynamic error, is 0.35º - but the proposed tests are stationary only, so 0.15º conscan should be the only pointing offset experienced.

During the small percentage of time when conditions cause the antenna pointing error to exceed the specified maximum pointing error limit of .35º, the antenna system will send a message to the modem, and the modem will inhibit transmission until the aggregate conscan plus dynamic pointing error value is back to within 0.15º. The time lag from detection of exceedance of mispointing to time when transmit is inhibited will be less than 100 ms. This error limit of .35º is the declared maximum antenna pointing error as described in §25.222(b)(1)(iv)(A).

As described above, the C-band ESV terminals use a spread spectrum multiple access technique whereby the individual off-axis EIRP density of each ESV terminal is well below the maximum aggregate network limit. Thus, each antenna individually will not generate harmful levels of interference. Figure 7 below shows the ESV off-axis EIRP considering a .35 degree pointing error. As can be seen the EIRP density complies with the Section 25.221 mask for an individual ESV terminal.

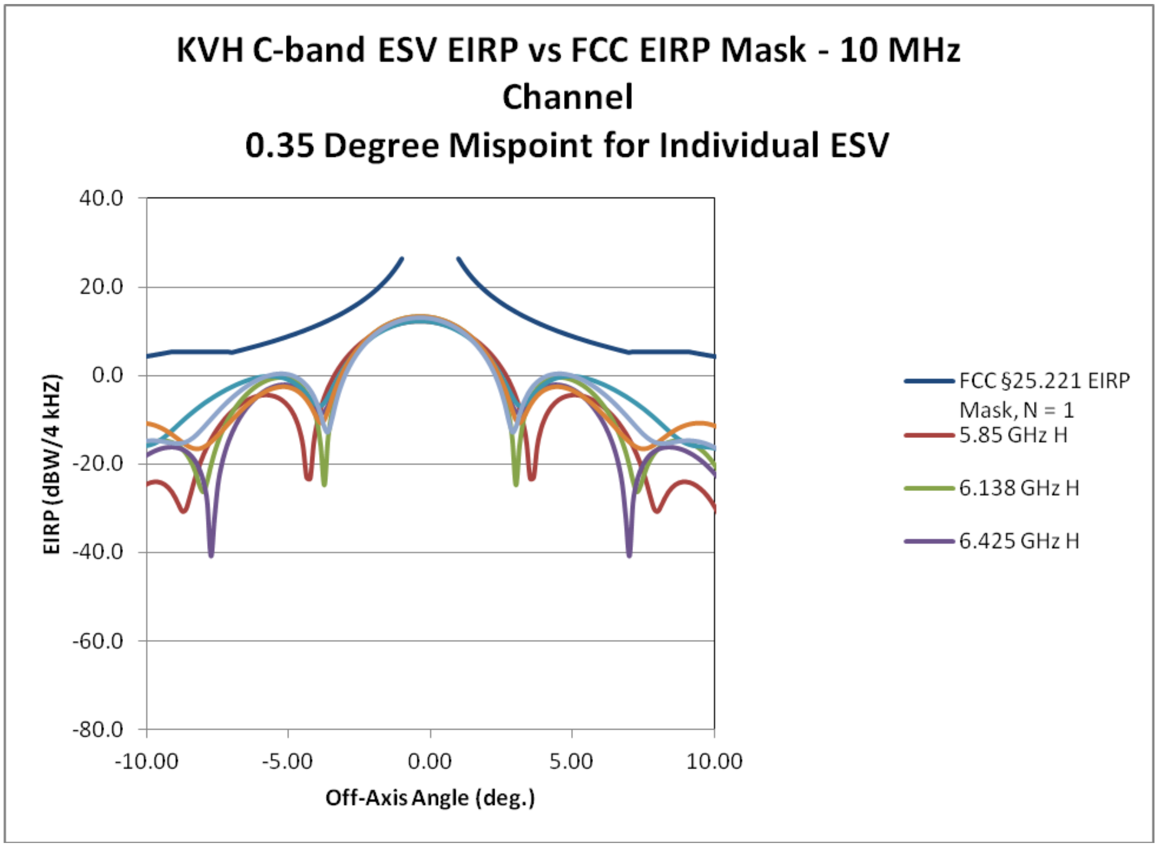

Figure 7 – C-Band ESV Terminal Off-axis EIRP with 1.5 degree pointing error vs 25.221 limit

Protection of Fixed-Satellite Service

As discussed above, KVH's terminals will operate in such a manner that the off-axis EIRP levels are no greater than the levels established for C-band ESV operations, which are consistent with the Commission's two-degree spacing policies. To the extent that any adjacent satellite operator experiences unacceptable interference from KVH's experimental operations, KVH will cease terminal transmissions immediately.

Engineering Certificate

**CERTIFICATION OF PERSON RESPONSIBLE
FOR PREPARING ENGINEERING INFORMATION
SUBMITTED IN THIS APPLICATION FOR
EXPERIMENTAL AUTHORIZATION**

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this Experimental Authorization request. I am familiar with Parts 2, 5, 25, 76, 78, and 101 of the Commission's Rules (47 CFR), that I have either prepared or reviewed the engineering information submitted in this application, and that it is complete and accurate to the best of my knowledge.

By:________________________ Date: 09/14/2012

Kenneth G. Ryan, P.E.
Vice President
Skjei Telecom, Inc.