

ViaSat, Inc.  
Request for Special Temporary Authority

## **Attachment A**

### **Description of Request for Special Temporary Authority**

ViaSat, Inc. (“ViaSat”) hereby requests special temporary authority (“STA”), to operate a 7.3 m meter Model VA-73-KA transmit/receive antenna operating in the Ka-band in Milford, Utah for purposes of antenna testing and performance verification. ViaSat requests authority commencing on October 25, 2010 for a period of 30 days.

ViaSat intends to use this antenna as both a traffic gateway and as a TT&C communications point for its VIASAT-1 satellite, which is scheduled for launch during the second quarter of 2011. ViaSat has completed construction of this gateway antenna and requests STA to test the performance of the antenna and related radio frequency components with currently operating Ka-band satellites prior to the launch of VIASAT-1. The public interest will be served by the grant of this STA because it will allow ViaSat to conclude testing of the antenna to ensure the integrity of the ground network that will support the launch of VIASAT-1 next year.

This antenna complies with the antenna performance specifications in Section 25.209 and, during normal operations, it will comply with the off-axis EIRP performance levels set forth in Section 25.138 of the Commission’s rules. The antenna gain patterns required pursuant to Section 25.138(d) were generated based on an identical model antenna tested on the manufacturer’s test range. These patterns are included as Attachment B. These patterns illustrate that the proposed antenna also complies with Section 25.209. Note that cross-pol patterns are not included in Attachment B. Cross-pol patterns will be generated as part of the antenna testing during the STA and will be submitted with the application for the full gateway earth station license.

Two types of testing will be performed during the period of the STA – antenna pattern performance verification, and RF subsystem performance verification.

In order to perform the antenna pattern verification, a CW carrier will be transmitted from the antenna while it is moved in the azimuth and elevation planes. The testing will use a CW carrier (NON), and the resulting off-axis EIRP density levels will exceed the values in Section 25.138 during these limited tests. However, these tests will be conducted under the supervision of the satellite operator who will provide a suitable test frequency that has been cleared with the adjacent satellite operators for the type of testing operations proposed here.

The RF subsystem testing will transmit carriers that simulate the actual traffic that will be transmitted by the gateway earth station when in normal operation. As can be seen in the pattern plots in Schedule B, off-axis EIRP density levels are well below those of Section 25.138.

Therefore, the proposed operations will not cause harmful interference into adjacent satellites. Moreover, the PFD levels emitted by the spacecraft points of communication during these tests will comply with the limit in Section 25.138(a)(6).

ViaSat submits a radiation hazard analysis performed pursuant to the methodology set forth in OET Bulletin 65, attached hereto as Attachment C. The analysis indicates that harmful levels will not be present in areas occupied by the general population and that the antenna system does not present a risk to trained personnel in the immediate vicinity of the antenna.

ViaSat respectfully requests STA to operate this antenna pursuant to the following parameters:

Location of Earth Station Site:

Latitude: 38°27'43.80" N, Longitude: 112°59'07.58" W (NAD-83)

Points of Communication:

WildBlue 1 at 111.1 (Canadian)  
 ANIK F2 at 111.1 (Canadian)  
 AMC-16 at 85 (U.S.)  
 AMC-15 at 105 (U.S.)

Frequency (GHz)	Polarization	Emission	T/R mode	Max EIRP/Carrier	Max EIRP Density (/40 kHz)	Modulation/ Services
29.5-30.0	RHCP	52M1G7D	Tx	86	54.85	M <sub>ary</sub> -PSK / Data
29.5-30.0	LHCP	52M1G7D	Tx	86	54.85	M <sub>ary</sub> -PSK / Data

Max Gains: 65.39 dBi @ 29.1 GHz                      65.52 dBi @ 30.0 GHz

Maximum total input power at antenna flange: 110.7 Watts

Maximum aggregate output EIRP for all carriers: 86 dBW

Frequency Coordination:

Frequency	Satellite Arc		Elevation		Azimuth		Max EIRP Density toward Horizon (dBW/40 kHz)
	East Limit	West Limit	East Limit	West Limit	East Limit	West Limit	
29.5-30.0 GHz	85W	111.1W	35.87	38.49	154.57	191.07	-17.15