

From: Daryl Hunter

To: Behnam Ghaffari

Date: April 19, 2007

Subject:

FCC File No. 0044-EX-ML-2006

---

Message:

Re: FCC File No. 0044-EX-ML-2006

Below please find complete details of the experiment.

The purpose of the experimental program is to determine compliance to antenna pattern regulatory sidelobe envelope requirements (e.g., 47 CFR 25.209) by measuring antenna radiation patterns. This is a common procedure used in the satellite earth station antenna industry for medium-to-large satellite communication earth station antennas when antenna range measurements are not practical; see for example the following:

Electronics Industries Association standard EIA-411-A, "Electrical and Mechanical Characteristics of Earth Station Antennas for Satellite Communications," paragraph 6.2.5.

INTELSAT SSOG 210, "Earth Station Verification Tests," paragraph 4.2.

47 CFR 25.132, "Verification of earth station antenna performance standards," paragraph (c); these are the same as on-site tests, except that we want to conduct preliminary tests at our manufacturing facility (and it is impractical for us to use our calibrated test range for this particular antenna).

In this test, the antenna under test ("AUT") is ViaSat's 9.1m diameter Ka-band reflector antenna. The AUT transmits a low power CW signal to a geosynchronous satellite at a frequency assigned by the satellite operator. The satellite receives the signal, and re-transmits it back to a separate ground station antenna (the "cooperating earth station"). While the AUT is transmitting, it is slewed in its azimuth axis from -10 deg to +10 deg. w.r.t. the main beam. The cooperating earth station (which is stationary) records the received signal on a spectrum analyzer. The process is then repeated for the AUT elevation axis. When testing is complete the antenna transmitter is turned off. Details of this particular proposed test are as follows:

EIRP: ☐ 46.6 dBW (Antenna gain = 66.6 dB; TX power = -20 dBW [=10 mW])

HPA: ☐ None; low power synthesized signal generator used.

Transmit freq.: ☐ Within the band 28.35 – 30.0 GHz (AUT); exact frequency assigned by satellite operator at time of test.

Receive freq.: ☐ Within the band 18.3 – 20.2 GHz (for cooperating earth station)

Modulation: ☐ None (CW only)

Polarization: ☐ Circular