

## ATTACHMENT

### TECHNICAL DESCRIPTION

#### Purpose

ViaSat, Inc. (“ViaSat”) plans to open an antenna manufacturing facility in Gwinnett County, Georgia, in which the company will manufacture a variety of satellite earth station terminals ranging from 1.2 meter tracking antennas to 18 meter ground station antennas. In order to test the performance of the antennas manufactured at this facility, ViaSat proposes to construct a test range, which will simulate a satellite signal to be received by the antenna terminals being tested.

#### Description of Test Facility

The proposed testing facility consists of a reference RF signal source antenna (“Reference Signal Antenna”) that will be located at 3095 Satellite Boulevard, Building 800, Duluth, Georgia. The Reference Signal Antenna will be roof-mounted approximately 1.25 miles from the manufacturing site, where the test antennas will be located. The Reference Signal Antenna will be directional and will be pointed approximately due east, at the manufacturing site. Due to the height of the roof mount and the ground profile, the elevation angle of the Reference Signal Antenna will be  $-2$  degrees. The beamwidth of the Reference Signal Antenna varies by frequency and will be approximately per the following formula:

$$17,224.5 / F, \text{ where } F \text{ is the frequency of operation in MHz}^1$$

The Reference Signal Antenna will consist of a 4-foot diameter reflector dish manufactured by Scientific Atlanta, model number 22-4A, fitted with an Agilent transmitter, model number 83751B or equivalent, which will generate a continuous wave (“CW”) test signal. The Reference Signal Antenna is intended to simulate a satellite, and thus, will transmit at the very low radio frequency levels that are normally received from a satellite: between  $-40$  and  $-50$  dBm (100 nanowatts to 10 nanowatts), well below the  $1 \text{ mW/cm}^2$  limit for persons in the General Population/Uncontrolled environment specified in Office of Engineering and Technology (“OET”) Bulletin No. 65.

In each test, the Reference Signal Antenna will transmit the CW test signal to the test antenna. Although the antennas being tested will have both transmit and receive capabilities, performance of transmit capabilities can adequately be tested by observing the receive performance in the transmit band because of the reciprocal nature of the performance in each of the transmit and receive bands. Therefore, ViaSat requests experimental license authority for only the Reference Signal Antenna.

#### Interference to Other Services

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<sup>1</sup> This is a condensed form of  $(70 * \lambda) / D$ , where  $\lambda$  is the wavelength and  $D$  is the diameter of the antenna – 4 ft in this case.

Operation of the Reference Signal Antenna as proposed by this application is not likely to cause interference to any other licensed services or systems. As described above, the CW test signal will be emitted at extremely low power levels. Additionally, due to the narrow beam-width and the horizontal orientation of the CW test signal, the potential for interference is remote.

#### RF Radiation Compliance

The operation of these user terminals will be in full compliance with the Commission's radio frequency (RF) exposure guidelines, pursuant to Table 1 of Section 1.1307(b)(1) which states routine environment evaluation is not required for Experimental Radio Services if the power is less than 100 Watts ERP. The maximum power from these terminals will be 0.000049 Watts ERP. Additionally, these user terminals will be secured from access by the general public and will be operated by experienced test personnel.