

EXHIBIT A EXPERIMENTAL PROGRAM

Request for Experimental License

TracStar Systems, Inc. ("TracStar") hereby requests an Experimental License ("EX") to operate its experimental In-Motion VSAT Antenna Systems implementing various modem technology in mobile systems using fixed satellite service ("FSS") frequencies.

The modem technology is a multiple access technique that allows data transmissions to and from the hub and remote terminals using conventional or spreading modulation techniques.

The capabilities and specifications of each modem system are described in more detail in each modem manual and would take several pages to elaborate.

This facility was previously authorized under call sign WC9XGQ, which was originally granted in 2005 to conduct similar tests and has since expired.

The public interest will be served by grant of this EX because TracStar would be authorized to continue to test operation compliance with other modem vendors.

This experimental facility continues to serve an important role in developing new applications for mobile satellite technology as TracStar conducts further testing of different modem types on mobile platforms, in both government and commercial uses.

Development of mobile satellite technology, such as the IMVS450M Antenna System, is crucial for developing applications to be used for emergency communications for first responders and for other government uses.

Equipment Description

See separate TracStar Systems Technical Brief Document for further description.

Experimental Program

The proposed program of experimentation is designed to allow TracStar to continue to test and verify the performance of its In-Motion VSAT product and make product enhancements as required to meet FCC compliance and to meet market needs.

The hub antenna will typically be located and operational at another facility, but additional test hubs maybe located in the areas not identified in the application form, and other remote test sites may be put into operation within CONUS as required to support limited remote demos and tests.

The mobile terminals will be located within CONUS, primarily located at the TracStar facility in Orlando, FL. Secundarily, some remote testing will take place in the Washington, DC area as needed. TracStar would request ALSAT authority; however, for the purpose of the experiment, the systems will communicate primarily with AMC-6 at 72° W.L.

The test program consists of, but is not necessarily limited to, the following:

- Verification of hub and remote terminal modem and RF performance
- Verification of hub and remote power spectral density masks
- Verification of mobile antenna auto-tracking performance
- Verification of terminal throughput under various load conditions
- Verification of system capacity under various load conditions
- Verification of system network management functions such as uplink power control, network aggregate off-axis EIRP density management, network load congestion control, remote subscriber terminal configuration and maintenance, and commanded transmit inhibit of remote terminals
- Verification of subscriber installation, configuration, antenna pointing aid tools, and transmit inhibit on loss of forward link reception
- General system performance benchmarking and modeling

As part of the experimental program, a number of sub-meter VSAT antennas will be evaluated for use in a mobile environment. While these VSAT antennas do not meet the FCC part 25.209 antenna performance standards, the aggregate off-axis input power density of all of the antennas under test will be controlled such that the FCC part 25.134 antenna input power density limit of -14 dBW/4 kHz will not be exceeded. That is, the antenna input power density for each part 25.209 compliant antenna will be reduced such that it does not exceed $-14 \text{ dBW/4 kHz} - 10 * \log(N)$ where N is the number of simultaneously transmitting antennas.

The antenna input power density for each part 25.209 non-compliant antenna will be similarly reduced such that its input power density does not exceed $-14 \text{ dBW/4 kHz} - 10 * \log(N)$ minus the additional number of dB that its antenna pattern falls short of meeting part 25.209 at the adjacent satellites.

As an example, operating at a chipping rate of 28.8 Mchip/s, a typical spreading rate to be used, the typical maximum antenna input power

density at which any antenna could operate is $10 * \log(2 W) - 10 * \log(14.4 \text{ MHz} / 4 \text{ kHz}) = -35 \text{ dBW} / 4 \text{ kHz}$ and given the small number of terminals to be employed in the experimental program, interference into the adjacent satellites will not be a problem.

Contribution to the State Of The Art

The TracStar product is currently in operation and providing experimental testing services to other users within the satellite community.

Testing under ViaSat's experimental license WD2XAQ allowed TracStar to develop the IMVS450M Antenna System product to the point where it was commercially viable for that application. Government and commercial customers have continued to push for new mobile uses, and TracStar fully expects to be able to make the evolutionary changes required to support these exciting new applications.