EXHIBIT A

EXPERIMENTAL PROGRAM

Request for STA

ViaSat, Inc. ("ViaSat") files this request for a new experimental license to authorize the experimental VSAT facility that was previously authorized under call sign WD2XAQ[1]. Due to an administrative oversight, ViaSat inadvertently failed to renew this authorization and thus, it expired on January 1, 2007. ViaSat has ceased operations of this facility. Simultaneously with this application, ViaSat is seeking special temporary authority to allow testing on this facility while this application for long-term authority remains pending.

Equipment Description

The first generation ArcLight VSAT product was designed to utilize a standard DVB-S forward channel from the hub earth station to the remote VSAT earth stations. The DVB-S forward channel could be operated at a variety of data rates up to 54 MHz of occupied bandwidth.

The second (and current) generation of ArcLight product uses a direct sequence spread spectrum forward channel. The forward link encapsulates Internet Protocol (IP) data and modulates it using phase shift keying and a spreading sequence to occupy up to 36 MHz of bandwidth. Optionally, low chipping rates may be used to enable half-transponder operation. The current range of supported data rates for the forward link is 512 kbit/s to 10 Mbit/s.

As part of this experimental program, ViaSat also plans to develop a new version of the forward channel modulator that adds the capability to transmit fully compliant DVB-S2 signals in either spread or unspread mode.

The return channel from the remote VSAT earth stations will continue to utilize the same code reuse multiple access (CRMA) direct sequence spread spectrum technology as the current generation product, but additional data rates and capabilities will be tested. The VSATs will be able to access the return channel using a number of different data rates – 32, 64, 128, 256, 512, and even 1024 kbit/s. The chip rate may be varied to allow the data to be spread to lower the power spectral density to enable operation from very small aperture mobile terminals. The return channel employs GMSK constant envelope phase shift keyed modulation and data is Forward Error Correction (FEC) encoded using a rate 1/3 Turbo-like FEC.

The return channel multiple access architecture is random access where IP data is encapsulated into ATM cells. A unique preamble is utilized for each permutation of data rate and packet size defined in the system. In this CRMA scheme, the same spreading code is used for each transmission by VSATs operating at a given return channel data rate. The correlators at the hub station then separate each burst by time of arrival.

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[1] *See* File No. 0251-EX-PL-2002, modified by File No. 0030-EX-ML-2003, renewed by Filed No. 0026-EX-RR-2005.

Normally, the forward and reverse channels would have to occupy different frequencies on the satellite. At typical forward channel data rates and high return channel chip rates, a separate transponder would be required for each direction. However, ViaSat has invented a self-interference cancellation technique where by the forward and return channels may operate at the same frequency at the same time within the satellite transponder. At the hub, the canceller keeps a copy of the transmitted forward link signal in memory and matches the time, phase, and amplitude of the transmitted forward link carrier as it is received at the hub and effectively cancels it by 25 dB or more. This then allows the receiver at the hub to successfully demodulate the inbound signals from the remote VSATs.

Because the composite power spectral density of the return link carriers is very low with respect to the forward link, and because the G/T of the VSAT antennas is small, there is little interference from return link carriers to the forward link signal being received by the remote VSATS.

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 be 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 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 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 MHz / 4 kHz) = -35 dBW/ 4 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.

Experimental Program

The proposed program of experimentation is designed to allow ViaSat to continue to test and verify the performance of its ArcLight VSAT product and make product enhancements as required to meet market needs.

The hub antenna will typically be located and operational at ViaSat's Carlsbad, CA facility, but additional test hubs will be located in the areas identified in the application form, and other test hubs may be put into operation within CONUS as required to support limited demos and tests. The mobile terminals will be located within CONUS.

ViaSat requests ALSAT authority; however, the experimental facility will communicate primarily with AMC-6 at 72º W.L., with NSS-7 at 22º W.L. being used for automated satellite handover testing.

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

Contribution To The State Of The Art

The ArcLight product is currently in operation and providing service to business jet users via ARINC's SKYLink^{SM} service. Testing under ViaSat's experimental license WD2XAQ allowed ViaSat to develop the ArcLight 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 ViaSat fully expects to be able to make the evolutionary changes required to support these exciting new applications. Once successfully tested and ready for deployment, the ArcLight product offers several key advantages over existing VSAT products.

- By using direct sequence spread spectrum and GMSK modulation on the return links, the terminal size and cost can be reduced without increasing the risk of causing harmful interference to other satellite systems.
- The high spreading rates supported by the system can reduce uplink power spectral density significantly and thereby enable mobile operation of sub meter class antennas without risk of causing harmful interference to adjacent satellite operators even if precise antenna is not maintained.
- Antenna pointing aids and uplink power control are built into the product to help insure that the subscriber terminals are correctly pointed and that they operate with only the minimum necessary power. Failsafe mechanisms are built in to the subscriber terminal to insure that is ceases transmission when the equipment malfunctions or when the terminal's antenna is mispointed.
- The code reuse multiple access (CRMA) direct sequence spread spectrum return links share the low delay features of conventional TDM/TDMA random access VSATs in that data is sent as soon as it is received, but is implemented in such a way as to allow the system operator and the user added flexibility in the number of data rates that can be supported without increasing the cost and complexity of the subscriber terminal.
- CRMA also reduces the complexity and cost of the hub station because with all transmission sharing a common spreading code, only a single correlator is needed for each chipping rate.
- The integrated self-interference cancellation at the hub station using ViaSat's patented PCMA technology allows for a tremendous reduction in the satellite bandwidth required to operate the network. Previously VSAT to hub links at the high chipping rates the ArcLight system can employ would have resulted in seriously bandwidth limited operation on the satellite transponder – much of the transponder power would have gone unused. Using the PCMA hub canceller, the high power forward link to the VSATs can now share the same bandwidth with the low power VSAT return links.