

**EXHIBIT 1****"Experimental Demonstration using a new Satellite Interactive Multimedia Terminal"**

INTELSAT has developed a two-way Ku-band interactive terminal and system. The terminal is designed to carry Internet and other interactive DTH services (e.g., pay-per-view, near-video on demand), while leveraging on existing DTH and IRD technologies. However, this new technology also may be able to support other applications such as Tele-learning and Tele-medicine.

With the enhanced performance anticipated via TCP/IP spoofing, testing over an actual satellite channel is required to verify the performance.

Due to inadequate communications facilities, some countries cannot access Internet efficiently. Therefore this two-way Ku-band interactive terminal may provide a good communications solution when terrestrial communications facilities are not adequate.

## **EXHIBIT 2**

### **"Experimental Demonstration using a new Satellite Interactive Multimedia Terminal"**

INTELSAT has developed an experimental Ku-band interactive terminal and system for demonstration and testing purposes. The terminal was designed to carry Internet and other interactive DTH services (e.g., pay-per-view, near-video on demand), while leveraging on existing DTH and IRD technologies. However, this new technology also may be able to support other applications such as Tele-learning and Tele-medicine. INTELSAT will have four (4) interactive terminals, as a stand-alone hub station system.

A similar experimental project currently is operating at the INTELSAT Headquarters Building under an FCC STA License No. 0023-EX-ST-1999, that expires on August 1, 1999. The demonstration system that is the subject of this application will have a performance enhancement over the previous experimental system.

#### **System Description.**

INTELSAT will be demonstrating Pay-per-View video services and Internet access (HTTP, FTP, and e-mail) services on its experimental system. All of these services will be demonstrated using a two-way satellite connection from the HUB equipment to small terminals.

INTELSAT will conduct experimental testing and service demonstration of a Ku-band interactive satellite system and related ground terminals. The experimental system consists of a 6.1m Ku-band hub station for which COMSAT has already received an FCC license to operate, plus up to four (4) small (67cm in diameter) Ku-band transmit/receive earth stations. One low-power carrier per station will be transmitted to the INTELSAT 601 satellite located at 325.5 degree East longitude, and it will be received by the 6.1m hub station that is co-located on INTELSAT Headquarters Building premises. In the reverse direction, a digital carrier will be transmitted from the hub station and be received by all four small terminals

The experimental equipment (including antennas and associated terminal equipment) is supplied by Media4, Inc., based in Atlanta, Georgia. The four antennas are manufactured by Prodeline and are 67 cm Ku-band transmit/receive antenna series No. 1671. Additional equipment relating to TCP spoofing is supplied by Mentat, Inc.

This experimental project will provide valuable insight into how the technology and systems that have been developed for the Direct-to-Home (DTH) video industry can be exploited for the implementation of a low-cost, interactive, two-way satellite system.

When operated with a reasonably large hub station and with a medium-to-high satellite eirp in the desired coverage area, a 67cm Ku-band DTH terminal can be modified to be equipped with a 0.5-1 watt solid-state power-amplifier (SSPA) and communicates with the hub station at a data rate of up to 32 kbps. A slight derivative of

the QPSK modulation method further ensures that the transmit sidelobe regrowth of the user terminal signal can be kept at an acceptable level.

The demonstration system, which is the subject of this application, will have a performance enhancement feature over the system currently being demonstrated at INTELSAT Headquarters. Via a technique called TCP/IP spoofing, the response time of Internet Web browsing can be significantly reduced over satellite links. For the demonstration system, it employs Mentat SkyX processors where long latency, high congestion, and asymmetric bandwidth conditions typical of satellite communications can be optimized. By splitting the end-to-end (HUB-to-Client) TCP connection, the segment over the satellite can use a protocol optimized for satellite conditions like TCP/spoofing while the terrestrial segments of the connection continue to use standard TCP.

During the new license period, performance verification and engineering testing with TCP/IP spoofing feature will be further conducted.