Request for Special Temporary Authority

Pursuant to Section 5.61 of the Commission's rules, 47 C.F.R. § 5.61, New ICO Satellite Services G.P. ("SES") submits this request for an experimental special temporary authorization ("STA") to conduct tests using a mobile earth terminal ("MET") over a period of five months. These tests will be conducted as part of the larger in-orbit and end-to-end testing of the ICO Global Communications (Holdings) Limited (together with its subsidiaries, "ICO") medium-earth-orbit ("MEO") mobile satellite service ("MSS") system. The requested experimental authorization will permit the resumption of testing using the ICO F-2 satellite, in order to facilitate future efforts to launch and operate a larger MEO constellation for service outside the United States.

I. Background

The ICO MEO constellation of 12 satellites is authorized by the United Kingdom. In 2001, the Commission granted ICO a "letter of intent" authorization to provide MSS in the 2 GHz band using its MEO satellite system.[1] The first satellite in the constellation, F-1, was launched in March 2000 but was destroyed in a launch vehicle failure. A second satellite, F-2, was launched on June 19, 2001, and successfully placed into orbit. In 2005, the Commission granted ICO's request to modify this authorization to substitute a geostationary satellite for provision of MSS to the United States, so that ICO will not provide MSS to the United States using its MEO system, including its F-2 satellite.[2] The ICO MEO system, however, remains authorized under U.K. regulations and is fully coordinated with U.S.-licensed satellites.

On October 25, 2006, SES submitted an application for experimental authority to conduct in-orbit and end-to-end testing of the ICO MEO MSS system for a period of five months.[3] In that application, SES requested authority for testing using transmit/receive earth stations located at Brewster, Washington that are authorized to provide tracking, telemetry and command ("TT&C") communications for the ICO MEO MSS system.[4]

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[1] *See ICO Services Limited,* 16 FCC Rcd 13762 (IB/OET 2001) ("*ICO Authorization Order*").

[2] *See ICO Satellite Service, G.P.*, 20 FCC Rcd 9797 (IB 2005).

[3] SES Americom, Inc. Request for Special Temporary Authority, OET File No. 0798-EX-ST-2006 (Oct. 25, 2006).

[4] SES holds the five earth station authorizations pursuant to a series of assignment authorizations. The original licensee, U.S. Electrodynamics, Inc. ("USEI"), was granted conditional authorizations in 1999 and 2000 to use 11 MHz of spectrum in the 5 GHz and 7 GHz band for TT&C communications not related to commercial operations. *See U.S. Electrodynamics, Inc.*,14 FCC Rcd 9809 (IB, 1999) ("*Initial TT&C Order*"); *U.S. Electrodynamics, Inc.*,15 FCC Rcd 8610 (IB/OET 2000) ("*Modification Order*"). In 2000, the Commission approved the assignment of USEI earth station authorizations to ATC Teleports, Inc., including the five Brewster authorizations. *See* FCC Public Notice, *Satellite Communications Services Information; Re: Actions Taken*, Report No. SES-00173 (Apr. 12, 2000). ATC Teleports, Inc. later changed its name to Verestar, Inc. In 2005, the Commission granted Verestar, Inc.'s applications to assign the five earth station authorizations to SES. *See Applications of Verestar, Inc. (Debtor-In-Possession) for Consent to Assignment of Licenses to SES Americom, Inc.*, 19 FCC Rcd 22750 (IB/WTB 2005).

The stations are currently authorized to use the 5150-5250 MHz (uplink) frequencies and 6975-7075 MHz (downlink) frequencies for TT&C communications not related to commercial operations. The planned in-orbit payload testing is intended to verify the performance of the satellite payload, including 2 GHz repeaters and the related antenna subsystem. End-to-end testing would emulate the carrier of the MET's send/receive capabilities in order to validate the complete service link and feeder link radio paths of connectivity that would normally take place between the MET and the gateway earth station.

In conjunction with SES' requested testing using the Brewster gateway earth stations, ICO submits this application to obtain authority to test an MET at the Brewster, Washington location. The proposed tests will involve the transmission of signals from and to an MET in a portion of the 2 GHz MSS bands (*i.e.,* 2000-2015 MHz and 2180-2200 MHz). The MET would employ an omni-directional antenna, mounted on the back of a vehicle. The MET would operate within a 100 meter radius of the fixed Brewster gateway earth stations authorized to provide TT&C communications to the ICO MEO MSS system.

The Commission previously granted an experimental STA permitting MET testing in conjunction with in-orbit and end-to-end testing of the ICO MEO system. That program was designed to verify the function of handset and portable transceiver prototypes, and to test the interoperability of those terminals with the Brewster gateway earth stations.[5] As noted above, the earth station facilities at Brewster, Washington continue to serve as an ICO satellite access node ("SAN") for TT&C purposes, pursuant to FCC conditional authorizations. These present and past uses of the Brewster facility for ICO operations make it the most appropriate facility for conducting the proposed tests.

II. Experimental STA Request (Proposed Time and Dates)

In this application, ICO requests an experimental STA to resume and complete MET testing begun in 2001 from the site of the Brewster, Washington earth station facilities. Specifically, ICO seeks to perform MET tests planned, but not completed following the ICO F-2 launch, over a period of five months.

III. Description and Purpose of Proposed STA Operation

A. In-Orbit Testing

The overall purpose of the experiment is to ascertain the proper function of the forward-link (2 GHz downlink to earth stations) and the return-link (2 GHz uplink to satellite) through all available 2 GHz spot-beams. The planned in-orbit payload testing is

[5] ICO USA Service Group Application for New or Modified Radio Station Under Part 5 of FCC Rules - Experimental Radio Service (Other than Broadcast), OET File No. 0007-EX-PL-1998 (granted June 10, 1999).

intended to verify the performance of the satellite payload operating in conjunction with an MET.[6]

The proposed tests will involve the transmission of signals from and to an MET in a portion of the 2 GHz MSS bands (*i.e.*, 2000-2015 MHz and 2180-2200 MHz). Accordingly, there is a need for temporary access to the 2 GHz spectrum for in-orbit testing purposes.

B. End-to-End Testing

End-to-end testing will allow a full assessment of the end-to-end performance of the ICO MEO system, using the requested experimental MET for the 2 GHz portion of the test and the requested SES Americom Brewster earth station experimental authority for the 5/7 GHz feeder function. In this manner, the Brewster SAN will use both 5/7 GHz and 2 GHz carriers to create a complete testing loop. Multiple test carriers will be transmitted at frequencies in the 5 GHz feeder uplink band between 5186–5212 MHz from the Brewster SAN, and multiple test carriers will be transmitted to an MET in the 2 GHz downlink band between 2180-2200 MHz to emulate a complete forward transmission. Multiple test carriers also will be transmitted from an MET in the 2 GHz uplink band between 2000-2015 MHz, and a similar set of test carriers will be transmitted in the 7 GHz feeder downlink band between 7017–7043 MHz to the Brewster SAN. This end-to-end testing will evaluate the carrier of the MET link's send/receive capabilities in order to validate the complete service link and feeder link radio paths of connectivity that would normally take place between the MET and the ICO SAN.

IV. Need for Testing; Non-commercial Use; Limited Test Period

The sole purpose of these experimental STA applications is to test and integrate relevant components of the ICO MEO system. The tests will resume and complete validation and end-to-end testing of spacecraft hardware and payload operations, and will assist ICO in developing ICO user terminals that are interoperable with its North America and global MSS systems. Successful completion of the testing phase will facilitate future launch and operation of the larger MEO constellation outside of the United States, as authorized by the United Kingdom.

These tests will not permit the use of 2 GHz MSS frequencies to provide commercial MSS to the public, and are not intended to facilitate commercial use of the MEO system to provide MSS to the United States. ICO does not intend to use the experimental mobile terminal, or Brewster earth station, for any permanent MSS, or feeder link, operations. The Brewster site, however, can be more rapidly provisioned for the proposed tests than other potential test sites, and it is the location most readily accessible to the various personnel involved in conducting the tests.

[6] These tests include, for example, measurement of C-band (7 GHz down-link) satellite EIRP as a function of saturation flux density at the satellite service link receiver (2 GHz uplink), payload gain transfer, effective satellite spot beam antenna patterns and satellite C-band cross-polarization isolation (the feeder link transponder operates with dual polarization).

The proposed testing is scheduled for a five-month period commencing upon Commission approval. ICO requests expeditious grant of this application to allow it to commence and complete testing as soon as possible to avoid any possible overlap with other authorized uses of 2 GHz MSS frequencies, which are scheduled to commence in the latter half of 2007.

V. Demonstration of Compliance with Regulatory Requirements

Attached as Exhibit 1 is a study performed by Comsearch, a frequency coordination contractor, demonstrating that 2 GHz transmit operations at the Brewster site will not cause harmful interference to authorized radio communications services in the vicinity of Brewster, including broadcasting services. Finally, the only other party authorized to use 2 GHz MSS frequencies to provide MSS in the United States, TMI Communications and Company, Limited Partnership, is not scheduled to launch its satellite until November 2007.[7]

[7] *See TMI Communications and Company, Limited Partnership*, 19 FCC Rcd 12603, 12623 (2004).