

ISAT US Inc.
FCC Form 312 Exhibit A

Application to Modify License E150097

I. DESCRIPTION OF MODIFICATION

ISAT US Inc. (“ISAT US”) hereby seeks to modify its Global Xpress (GX) Ka-band blanket earth station license, Call Sign E150097 (“License”), File No. SES-LIC-20150625-00383 (“GX Land Application”) (as modified), to add three new GX Earth station terminal types, Tampa 65, Tampa 95, Tampa 130, which will communicate with the Inmarsat-5 F2 (“I5F2”) and Inmarsat-5 F3 (“I5F3”) satellites. Section II addresses the proposed new earth station terminals. No other changes are requested by this modification application. ISAT US incorporates by reference Exhibits F (response to Question E17 regarding the remote control point) and G (24-hour point of contact)¹ of the GX Land Application, as well as certain other portions of the GX Land Application referenced below.

II. NEW EARTH STATION TERMINALS

This modification application seeks to add three terminal models that are manufactured by Tampa Microwave. These are the Tampa 65, Tampa 95, Tampa 130 terminals, which employ 65 centimeter, 95 centimeter, and 1.3 meter antennae, respectively. The terminals will operate on the same frequencies as the GX Terminals in the current license: 19.7-20.2 GHz (space-to-Earth) and 29.5-30.0 GHz (Earth-to-space). The terminals will operate at fixed or temporary fixed locations and allow professional personnel from organizations from various sectors, initially U.S. government and potentially including in the future media and humanitarian, to quickly deploy a communication network to meet mission needs.

¹ Exhibit G was submitted as a supplement to the GX Land Application on August 14, 2015.

A. Land Terminal Description

This application seeks to license the Tampa 65, Tampa 95, Tampa 130 terminals. The terminals will operate on the same frequencies as the GX Terminals in the current license: 19.7-20.2 GHz (space-to-Earth) and 29.5-30.0 GHz (Earth-to-space). As illustrated in the off-axis EIRP spectral density plots in Exhibit B, the Tampa Microwave terminals meet the performance requirements in Section 25.138 (a) under clear sky conditions. Additionally, each of these terminal types will be operated within the $-118 \text{ dBW/m}^2/\text{MHz}$ power flux-density at the earth's surface of the I5F2 and I5F3 satellite. Thus, the proposed terminals are able to operate without causing unacceptable interference, consistent with the requirements of Section 25.209(f).²

The Commission has deleted the requirement to provide receive earth station patterns in the 19.7-20.2 GHz frequency band (see Sections 25.132 and 25.115). To the extent that the proposed terminal may have minor exceedance at certain off-axis angles, Inmarsat understands and agrees to accept interference from adjacent FSS satellite networks to the extent the relevant receiving antenna performance requirements of Section 25.209 are exceeded.

Radiation hazard analyses for the Tampa Microwave terminals and a discussion of the results are provided in Exhibit C.

The proposed terminals will be subject to the same national security requirements described in Section 4 of the GX Land Application. That discussion is incorporated by reference herein.

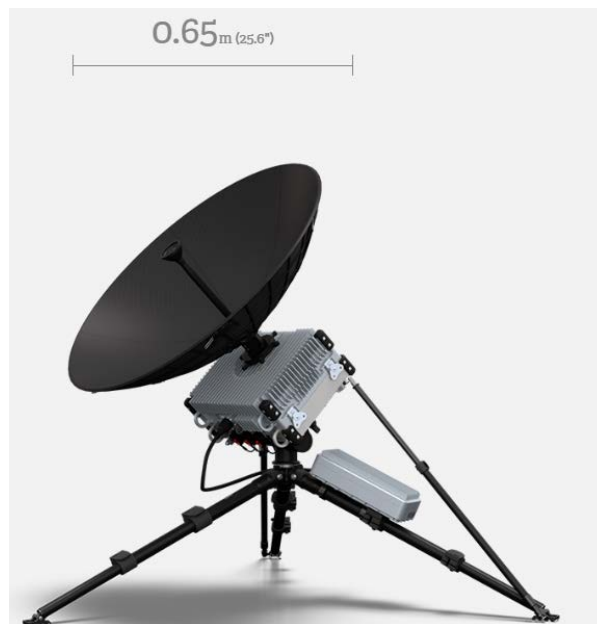
The following sections provide a description of each of the terminal types.

² See Section 25.209(f).

B. Tampa 65 Terminal

The required technical data for the proposed Tampa 65 earth station is provided in the Form 312. This terminal type employs a 65 centimeter antenna and the half-power beamwidth required in Section 25.130(f) is 0.92 degrees. In addition, for blanket licensing of transmitting earth stations in the 29.5-30.0 GHz band, the Commission adopted off-axis EIRP spectral density levels contained in Section 25.138(a). As illustrated in the off-axis EIRP spectral density plots in Exhibit B, the proposed terminal type meets the performance requirements in Section 25.138(a) under clear sky conditions.

Below is an image of the Tampa 65 terminal:



C. Tampa 95 Terminal

The required technical data for the proposed Tampa 95 earth station is provided in the Form 312. This terminal employs a 95 centimeter antenna; and the half-power beamwidth required in Section 25.130(f) is 0.63 degrees. In addition, for blanket licensing of transmitting earth stations in the 29.5-30.0 GHz band, the Commission adopted off-axis EIRP spectral density levels contained in Section 25.138(a). As illustrated in the off-axis EIRP spectral density plots

in Exhibit B, the proposed terminal type meets the performance requirements in Section 25.138(a) under clear sky conditions.

Below is an image of the Tampa 95 terminal:



D. Tampa 130 Terminal

The required technical data for the proposed Tampa 130 earth station is provided in the Form 312. This terminal type utilizes a 1.3 meter antenna; and the half-power beamwidth required in Section 25.130(f) is 0.46 degrees. In addition, for blanket licensing of transmitting earth stations in the 29.5-30.0 GHz band, the Commission adopted off-axis EIRP spectral density levels contained in Section 25.138(a). As illustrated in the off-axis EIRP spectral density plots in Exhibit B, the proposed terminal type meets the performance requirements in Section 25.138(a) under clear sky conditions.

Below is an image of the Tampa 130 terminal:



III. REQUEST FOR WAIVER

ISAT US hereby respectfully requests a partial waiver of Sections 25.115(g) and 25.132(b)(1) of the FCC's rules to the extent the antenna plots in Exhibit B of this application do not cover the entire range of off-axis angles called for in those rule sections. The relevant portions of Sections 25.115 and 25.132 call for plots of maximum co-polarized EIRP density in the plane tangent to the GSO arc at off-axis angles from minus 180° to plus 180°. Exhibit B of this application includes plots covering off-axis angles from minus 170° to plus 170°. These are the plots that were provided by the terminal manufacturer, and ISAT US was unable to receive plots covering the rest of the range called for in Sections 25.115 and 25.132 of the FCC's rules. The plots provided for each antenna show a sharp drop off in EIRP density at angles moving away from the GSO arc, and in each case show that by minus 10° or plus 10°, the EIRP densities are well below the envelope specified in Section 25.209 of the FCC's

rules, and that this performance well below the envelope continues through to minus 170° and plus 170°. As a result of the terminal design and demonstrated performance, there is no reason to expect that that the EIRP density levels would dramatically increase beyond minus 170° or plus 170°. Grant of this partial waiver will help accelerate the approval process of these terminals by not requiring unnecessary and duplicative measurements to be taken by the manufacturer, and thus would serve the public interest.

IV. RESPONSE TO QUESTION 36

ISAT US submits this response to Question 36 of the FCC Form 312 out of an abundance of caution. In 2005, the Commission dismissed a Petition for Declaratory Ruling (the “Petition”) filed by Inmarsat Mobile Networks, Inc.’s affiliate, Inmarsat Global Limited (“Inmarsat Global”), seeking United States market access to provide MSS in the 2 GHz band. Subsequent to Inmarsat Global’s filing, the Commission assigned all 2 GHz spectrum currently allocated for MSS in the United States to two other satellite operators, and thus dismissed Inmarsat Global’s Petition.