ISAT US Inc.
FCC Form 312 Exhibit A

Application to Modify License E140029

I. DESCRIPTION OF MODIFICATION

ISAT US Inc. ("ISAT US") hereby seeks to modify its Global Xpress (GX) Ka-band blanket maritime ESIM license, Call Sign E140029 ("License"), File No. SES-LIC-20140224-00098 ("GX Maritime Application"), as modified in File Nos. SES-MOD-20151106-00818, SES-AFS-20160211-00130, SES-AFS-20160301-00178, SES-MOD-20161130-00917, SES-MOD-20170817-00928, SES-MOD-20190321-00390, and SEC-MOD-2020073000809. ISAT US requests addition of one new GX Earth station terminal type, the Intellian GX60NX, which will communicate with the Inmarsat-5 F2 ("I5F2") and Inmarsat-5 F3 ("I5F3") satellites. Section II describes the proposed new Earth station terminal. No other changes are requested by this modification application.

ISAT US incorporates by reference the GX Maritime Application and the amendments and modifications captioned above.

II. NEW EARTH STATION TERMINAL DESCRIPTION

This modification application seeks to add the Intellian GX60NX terminal, which employs a 0.65 meter diameter parabolic antenna. The required technical data for the proposed Intellian GX60NX terminal is provided in the Form 312. The half-power beamwidth required to be stated by Section 25.115(a)(9) is 1.1 degrees.

The GX60NX terminal will operate on frequencies common to all other terminals authorized in the current license: 19.7-20.2 GHz (space-to-Earth) and 29.5-30.0 GHz (Earth-to-space). The terminal will operate on board maritime vessels in various sectors, including U.S. government, to quickly deploy and augment communication networks to meet mission needs.

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 25.218(i). As illustrated in the off-axis EIRP spectral density plots in Exhibit B, the proposed terminal type meets the performance requirements in Section 25.218(i) under clear sky conditions.

As illustrated in the off-axis EIRP spectral density plots in Exhibit B, the GX60NX terminal meets the performance requirements in Section 25.209 under clear sky conditions. Additionally, this ESIM terminal type will be operated within the -118 dBW/m^2/MHz power flux-density at the earth's surface of the I5F2 and I5F3 satellites. Thus, the proposed terminal is able to operate without causing unacceptable interference.[1]

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 analysis for the GX60NX terminal and a discussion of the results is provided in Exhibit C.

The proposed terminals will be subject to the same national security requirements described in Section 4 of the GX Maritime Application. That discussion is incorporated by reference herein. Inmarsat has completed US334 coordination with the applicable federal users.

Below are images of the Intellian GX60NX terminal, both inside and outside its radome:

[1] *See* Section 25.209(f).

Height from base to top of radome: 925 mm

Diameter at base of radome (between outer edges): 860 mm

III. ESIM REMOTE CONTROL POINT, 24-HOUR POINT OF CONTACT

The GX60NX terminal will operate in accordance with the applicable requirements for earth stations in motion as listed in Section 25.228. The terminal will comply with the newly adopted rule Sections 25.228(b) (self-monitoring) and 25.228(c) (network control and monitoring center). The terminals self-monitor and detect when there is a loss in the corresponding receive link. Upon detection of such loss of link, the terminal will immediately cease transmissions. This regulatory function is tested on each individual terminal during its first over-the-air test.

Additionally, each individual terminal can be monitored and controlled through a "Hub" at Inmarsat's Lino Lakes Gateway Earth station, call sign E120072. The network will not allow the terminal to transmit should the terminal violate any of the PSD or EIRP limits for the terminal; the Hub is aware of the terminal limitations as per terminal type, and the terminal will only transmit on those assigned slots/carriers the Hub instructs each terminal to use.

Finally, the terminals will comply with the conditions of ESV operations as stated in Section 25.228(e). ISAT US ESIM terminals are controlled through the Inmarsat Network Operations Center in London, and the contact information for this NCMC is on file with the Commission. ISAT US maintains a 24-hour point of contact within the United States with the capability and authority to cause an ESV on a U.S.-registered vessel to cease transmitting if necessary, using the facilities of the Lino Lakes Gateway Earth station. The 24-hour point of contact with the ability to shut down any of the terminals immediately upon notification of

harmful interference is Ananda Mishra, available at 808 638-5820. Contact information for Mr. Mishra and the remote control point is reflected in Form 312 Questions E61-E66.