KA30 MODIFICATION NARRATIVE

Exhibit A
Narrative

ISAT US, Inc. ("ISAT US") hereby seeks to modify its blanket earth station license, Call Sign E140114, to add a new earth station in motion aboard aircraft terminal ("KA30") to provide mobile communications services over Inmarsat's Ka-band satellite system. ISAT US already holds a blanket license for two aeronautical earth stations in motion (ESIMs) terminals manufactured by Honeywell that communicate with the Inmarsat 5F2 and Inmarsat 5F3 satellite networks, see Call Sign E140114, File No. SES-LIC-20141030-00832 ("GX Aero Application") (as modified by File Nos. SES-MFS-20150923-00605 and SES-MOD-20160302-00191). The E140114 license covers operations in the 29.5-30.0 GHz (Earth-to-space) and 19.7-20.2 GHz (space-to-Earth) frequency bands.

The authorization of the KA30 terminal, for a limited number of terminals, is requested to satisfy an immediate operational need of Inmarsat's US Government customers to meet the demands of high-performance applications that cannot be satisfied due to performance limitation of their existing terminals. Inmarsat is working with its U.S. government customers, who intend to field new terminals within three years from the date of commencement of KA30 operations, and Inmarsat will seek to remove the KA30 terminal from the license when this occurs. . The information provided in the underlying application for Call Sign E140114 (and its associated amendments referenced in the preceding paragraph) regarding the Global Xpress satellite system and the sections regarding additional capabilities and commitments (including that ISAT US will maintain a point of contact in the U.S. available on a 24/7 basis) and the discussion supporting the request for waiver of the table of frequency allocation are incorporated by reference,

consistent with Section 25.130(c) of the Commission's rules. Additionally, ISAT US incorporates by reference Exhibits D and E of the GX Aero Application addressing Questions 36 and E17, respectively.

The proposed KA30 aero terminal earth station employs a 30cm diameter circular antenna and will communicate with the U.K.-licensed Inmarsat 5F2 ("I5F2") and Inmarsat 5F3 ("I5F3") satellite networks. The required technical data for the proposed KA30 earth station is provided in the Form 312. 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). Although the Commission's Section 25.115(g)(1)(i) requires measurements from -180 to 180 degrees for the co-polarized signal, the data is only available from the antenna manufacturer for -64 to +64 degrees because the near-field range available for obtaining measurement data was limited to that range. To the extent necessary, ISAT US seeks a waiver of Section 25.115(g)(1)(i) and Section 25.138(a) to allow ISAT US to provide measured data for the co-polarized signals only for -64 to 64 degrees.

As illustrated in the off-axis EIRP spectral density plots in Exhibit B, the proposed earth station meets the performance requirements in Section 25.138(a) under clear sky conditions.[1] In addition, this earth station model will be operated within the -118 dBW/m2/MHz power flux-density at the earth's surface of the I5F2 and I5F3 satellite. Thus, the proposed terminal is able to operate without causing unacceptable interference, consistent with the requirements of Section 25.209(f).[2]

[1] ISAT US provides in Exhibit B the off-axis EIRP density plots in accordance with the consolidated and streamlined requirements for providing such information, as adopted in the Commission's order consolidating and streamlining the Part 25 rules. *See* Comprehensive Review of Licensing and Operating Rules for Satellite Services, Second Report and Order, 30 FCC Rcd 14713 ¶¶ 214-215 (2015).

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

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, ISAT US 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.

The radiation hazard analysis for the KA30 antenna and a discussion of the results are provided in Exhibit C.

The proposed KA30 will be subject to the same national security requirements as described in Exhibit A, Section 4, of the GX Aero Application. That discussion also is incorporated by reference herein.