

## **Exhibit A**

### **Application to Modify License E140029**

#### **I. DESCRIPTION OF MODIFICATION**

ISAT US, Inc. (“ISAT US”), a subsidiary of Inmarsat Global Ltd. (“Inmarsat”), hereby seeks to modify its Global Xpress (“GX”) Ka-band maritime blanket earth station license, Call Sign E140029 (“License”), File No. SES-LIC-20140224-00098 (“GX Maritime Application”) (as modified by File Nos. SES-MOD-20151106-00818 and SES-MOD-20161130-00917), to add a new GX Earth station terminal type (“EM Solutions Cobra”) that will communicate with the Inmarsat-5 F2 (“I5F2”) and Inmarsat-5 F3 (“I5F3”) satellites. Section II addresses the proposed new Earth station terminal. No other changes are requested by this modification application. ISAT US incorporates by reference Exhibits E (response to Question E17 regarding the remote control point) and (24-hour point of contact) of the GX Maritime Application, as well as certain other portions of the GX Maritime Application referenced below.

#### **II. EM SOLUTIONS COBRA EARTH STATION TERMINAL**

This modification application seeks to add the EM Solutions Cobra model terminal that is manufactured by EM Solutions. The terminal 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) and employ the same capabilities as described in Section 3.3 of Exhibit A of the GX Maritime Application. The terminal model has a circular 1m antenna and the half-power beamwidth required in Section 25.130(f) is 0.8 degrees. The terminal will add to the option of terminals available to meet the needs of maritime users.

The required technical data for the EM Cobra 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).

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

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). The EM Solutions Cobra terminal generally conforms to the relevant antenna performance patterns in Section 25.209. Inmarsat acknowledges that there are minor exceedance at certain off-axis angles for the EM Solutions Cobra terminal, and 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 EM Solutions Cobra antenna and a discussion of the results are provided in Exhibit C.

The proposed EM Solutions Cobra Terminal will be subject to the same national security requirements described in Section 4 of Exhibit A of the GX Maritime Application. That discussion is incorporated by reference herein. Inmarsat has completed US334 coordination with the applicable Federal users.

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<sup>1</sup> See Section 25.209(f).

### **III. RESPONSE TO QUESTION 36**

ISAT US, Inc. 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.<sup>2</sup>

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<sup>2</sup> Use of Returned Spectrum in the 2 GHz Mobile Satellite Service Frequency Bands, 20 FCC Rcd 19696 (2005); Inmarsat Global Limited, Petition for Declaratory Ruling to Provide Mobile Satellite Service to the United States Using the 2 GHz and Extended Ku-Bands, 20 FCC Rcd 19409 (2005).