EXHIBIT A
WAIVER REQUESTS
RESPONSE TO QUESTION 35

APPLICATION FOR LICENSE

The Boeing Commercial Satellite Services Inc. ("BCSS") hereby respectfully submits this application to operate an earth station at the UAE Embassy in Washington D.C. This earth station would communicate with the Inmarsat-5 ("I5F2") spacecraft, which will be operated at the nominal 55º W.L. orbital location under the authority of the United Kingdom in the 29-29.1 GHz (Earth-to-space) and 19.2-19.3 GHz (space-to-Earth) bands. The spacecraft has previously been approved for service under call sign E120072 and the requisite "market access" information pursuant to Section 25.137 of the Commission's rules can be found in that application.[1]

I. SERVICE DESCRIPTION

BCSS is the preferred reseller of Inmarsat's High Capacity Commercial Ka-Band (HCC). The I5F2 satellite network will employ two large gateway antennas and will provide service to widely-deployed, small user antennas. The gateway antennas will be capable of communicating with the spacecraft throughout the 27.5-30.0 GHz and 17.7-20.2 GHz bands. The gateway antenna will be located in Lino Lakes, Minnesota (the "Lino Lakes Gateway"). The I5F2 satellite will have two identical steerable spot beams that will be pointed at the same location on earth, effectively forming one single beam, and that will be used by the gateway antennas ("Gateway Beam").

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[1] See IBFS File No SES-LIC-20120426-00397

The currently planned coverage of the Gateway Beams is shown in the Attachment A Technical Annex Figure A.2.1. The satellite service will utilize one of the six steerable spot beams ("High Capacity Spot Beams" or "HCP Spot Beams"), configured to 29-29.1 GHz (Earth-to-space) and 19.2-19.3 GHz (space-to-Earth) bands that will be used principally by user antennas. BCSS plans to install an earth station in Washington D.C. The earth station will be comprised of a Paradigm Connect 180 terminal with a 40 watt Block Upconverter (BUC), and a Newtec Modem. The I5F2 satellite will have one steerable spot beams that will provide coverage over Washington D.C. An example of a High Capacity Spot Beam coverage pattern is shown in the Attachment A Technical Annex , Figure A.2.2.

II. WAIVER REQUESTS FOR NON-CONFORMING USE

BCSS seeks authority to use spectrum in the 19.2-19.3 GHz band for Fixed Satellite Service (FSS) point-of-communication from the I5F2 satellite constellation. The 19.2 GHz-19.3 GHz band is allocated on a primary basis to NGSO fixed-satellite service (FSS) users. Pursuant to Section 1.3 of the Commission's rules, [2] BCSS hereby requests a waiver of 47 CFR 2.106 – United States Table of Frequency Allocations, footnote NG165, on a non-conforming basis.[3]

The Commission's Rules may be waived "for good cause shown."[4] In particular, a waiver of the U.S. Table of Allocations to permit non-conforming spectrum uses can be granted "when there is little potential interference into any service authorized under the Table of Frequency Allocations and when the non-conforming operator accepts any interference from authorized services."[5] A waiver is also appropriate where a grant "would not undermine the underlying policy objectives of the rule in question" and would be in the public interest.[6] As explained below, each of these standards is satisfied in this case. See Attachment A Technical Annex of the proposed antenna earth station at the BCSS facility that illustrates that the system can operate the proposed antenna earth station without causing interference to NGSO and

government FSS users. The proposed waiver conform to the Commission's underlying policy considerations and promote efficient spectrum use as well as maximizing the effectiveness in allocating additional frequencies for unique users that otherwise could not be met with spectrum currently allocated on a primary basis to Ka band users. Therefore BCSS requests waivers of the Commission's Ka-band frequency plan and Section 2.106 of the Commission's rules to use certain frequency bands to serve the United States market. BCSS has coordinated the proposed earth stations with terrestrial licensees in the 19.2-19.3 GHz band as demonstrated in Exhibit B, and in the 29.0-29.1 GHz band, as demonstrated in Exhibit C.

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[2] See 47 C.F.R. § 1.3.

[3] 47 CFR 2.106 - Table of Frequency Allocations, footnote NG165

[4] 47 C.F.R. § 1.3; *WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C. Cir. 1969).

[5] *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1166 (D.C. Cir. 1990); *see also Fugro-Chance, Inc.*, 10 FCC Rcd 2860, at ¶ 2 (1995) (waiver of U.S. Table of Frequency Allocations appropriate "when there is little potential for interference into any service authorized under the Table of Frequency Allocations and when the non-conforming operator accepts any interference from authorized services.").

[6] See GE American Communications, Inc., Order and Authorization, 15 FCC Rcd. 3385, 3391, ¶ 14 (Int'l Bur. 1999).

As explained in the Attachment A Technical Annex, BCSS will ensure that its operations do not cause harmful interference into primary and secondary operations in each of these bands. However, BCSS also will accept any harmful interference into its operations caused by primary and secondary users. The subsequent sections address the primary and secondary allocations in each of the band segments identified above, and explain in Attachment A Technical Annex how BCSS will operate on a non-conforming, non-harmful-interference basis in each such band segment.

a. 19.2-19.3 GHz of 18.8-19.3 GHz Band

The 19.2-19.3 GHz portion of the 18.8-19.3 GHz band is allocated for NGSO FSS operations on a primary basis. As demonstrated in the Inmarsat grant under E120072, and discussed below with respect to the 29.0-29.1 GHz band, the I5F2 spacecraft will operate in the 19.2-19.3 GHz portion 18.8-19.3 GHz band while protecting NGSO users. The Commission has permitted GSO FSS operations in the 18.8-19.3 GHz band where an operator has established its ability to operate on a non-interference basis. As a non-conforming user of this frequency band, BCSS will cease operations in the 18.8-19.3 GHz band in the event of any harmful interference into any NGSO FSS operations, and BCSS will accept interference from NGSO FSS operations in this band segment.

b. Secondary GSO FSS Allocations, 29.0-29.1 GHz Frequency Band

The 29.0-29.1 GHz band is allocated to the NGSO FSS on a primary basis and GSO FSS operations on a secondary basis. Technical Annex, Attachment A demonstrates compatibility with NGSO FSS operations in these band segments. The highest interference levels that could occur into NGSO networks from the Inmarsat-5 F2 network are when there is a minimum angle of separation between the two networks. As the NGSO satellite continues to move within its orbit, an angle between the NGSO satellite and the GSO satellite, subtended at the GSO earth station, is created. As long as the GSO earth station does not transmit when the NGSO satellite is within a certain angle, no harmful interference to the NGSO satellite will occur. A similar situation exists on the downlink. The

amount of angular separation required will be dependent on the parameters of the NGSO FSS networks and their interference criteria, O3b Limited, currently is the only NGSO network that has sought authorization to serve the U.S. in this band. BCSS analysis contained in Technical Annex, Attachment A confirms that earth stations are geographically separated and thus will not cause interference to their network.

III. Network Control And Monitoring

BCSS maintains 24-hour-a-day NOC in Herndon VA. See the Technical Annex Attachment A, A.12 Network Monitor and Control for detailed analysis.

IV. U.S. Government Coordination

In accordance with US334, coordination between Federal FSS systems and non-Federal space and terrestrial systems operating in accordance with the United States Table of Frequency Allocations is required. In accordance with Section 25.130(f), the half-power beam width of the antenna downlink is 0.62° at 18 GHz.

V. Conclusion

In summary, the proposed Washington D.C. ground station will be a critical part of a system that will advance the Commission's goals of enhancing competition and promoting the growth and development of cost-effective satellite services, providing innovative new service offerings to users wherever they may be located. Granting this earth station application therefore will advance the objectives of the National Broadband Plan by making innovative and efficient use and reuse of spectrum. BCSS is already creating new high-paying jobs in the communications sector. Accordingly, granting this application will serve the public interest, convenience, and necessity. BCSS respectfully requests that the Commission promptly grant this application.

LIST OF EXHIBITS AND ATTACHMENTS

Attachment A Technical Annex

Attachment B Radiation Hazard Analysis

Attachment C Response to Questions 42a and 42b

Exhibit A Narrative (Waiver Request Response to Questions 35)

Exhibit B Frequency Coordination and Interference Report