

EXHIBIT A: DESCRIPTION OF MODIFICATION AND WAIVER REQUEST

SES Americom, Inc. (“SES Americom” or “SES”), pursuant to Section 25.117 of the Commission’s rules, applies for a modification of the licenses for three gateway earth stations: Brewster, WA (Call Sign E160015),¹ Woodbine, MD (Call Sign E160021),² and South Mountain, CA (Call Sign E160022).³ SES proposes to increase the antenna sizes specified in these licenses, deploying a 9.2 meter antenna instead of a 9.1 meter antenna at the Brewster site,⁴ a 13.2 meter antenna instead of a 9.1 meter antenna at the Woodbine site, and a 9.2 meter antenna instead of a 7.3 meter antenna at the South Mountain site. SES also proposes to reduce the input power for the Woodbine antenna. The proposed changes will not increase the off-axis EIRP density toward the horizon. SES requests any necessary waiver of Section 25.136(a) to permit these gateways to retain their grandfathered status for operations in the 27.5-28.35 GHz (“28 GHz”) band.

Authorizing the requested increases in the antenna sizes and granting any necessary rule waiver will serve the public interest. The use of larger antennas will improve throughput and facilitate coordination between SES and other users. Moreover, because the earth stations’ off-axis EIRP density will not increase, there will be no adverse impact on future 28 GHz band Upper Microwave Flexible Use Service (“UMFUS”) operations.

¹ *SES Americom, Inc.*, Call Sign E160015, File Nos. SES-LIC-20160127-00098 & SES-AMD-20160209-00127, granted July 13, 2016 (“E160015 License”).

² *SES Americom, Inc.*, Call Sign E160021, File No. SES-LIC-20160209-00123, granted July 13, 2016 (“E160021 License”).

³ *SES Americom, Inc.*, Call Sign E160022, File No. SES-LIC-20160209-00124, granted July 13, 2016 (“E160022 License”).

⁴ The E160015 License also includes authority for a 7.3 meter antenna. Because SES does not intend to place a 7.3 meter antenna at this site, it requests removal of this antenna from the license.

The specific requested modifications are described in this exhibit and set forth in the accompanying FCC Form 312, Schedule B. Apart from these changes, SES certifies that the information previously provided to the Commission regarding these earth stations remains complete and accurate.

Background

The Brewster, Woodbine, and South Mountain gateway earth stations are authorized to operate with the SES-15 satellite,⁵ which was launched on May 18, 2017, and will arrive at 129.15° W.L., its authorized orbital location, by the end of December 2017. SES-15 will host 46 Ku-band high-throughput spot beams which will significantly increase the capacity and data rates available to satellite broadband and aeronautical consumers in the United States. In order to support the anticipated demand in the Ku-band, SES-15 is equipped with feeder link spectrum in the Ka-band, including the 28 GHz uplink band.

The Brewster, Woodbine, and South Mountain gateway earth station licenses were granted prior to adoption of the Commission's decision in the Spectrum Frontiers proceeding.⁶ As a result, the earth stations are entitled to grandfathered status in the 28 GHz band pursuant to Section 25.136(a)(2) of the Commission's rules, which specifies that earth stations authorized prior to July 14, 2016 need not provide "any additional interference

⁵ SES Americom's affiliate, SES Satellites (Gibraltar) Limited, has been granted U.S. market access for the SES-15 satellite in Ku- and Ka-band frequencies, including the 28 GHz band. *See SES Satellites (Gibraltar) Limited*, Call Sign S2951, File No. SAT-PPL-20160126-00007, grant-stamped July 12, 2016 ("SES-15 Market Access Grant").

⁶ *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, et al.*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014 (2016) ("Spectrum Frontiers Order").

protection to stations in the Upper Microwave Flexible Use Service.”⁷ The grandfathered status provides SES Americom with critical certainty regarding its investment in the new earth station facilities by making clear that SES Americom will not be required to alter or terminate the earth station operations in the 28 GHz band in order to accommodate any UMFUS terminals that may ultimately be deployed near the earth station sites.

License Modification Request

Subsequent to grant of the E160015, E160021, and E160022 licenses, SES Americom determined that it can better achieve its operational objectives if it uses larger antennas for these gateway earth stations. Increasing the sizes of these three antennas is consistent with SES Americom’s coordination agreement with Iridium relating to operations in the 29.25-29.3 GHz band. In addition, the larger antennas will provide SES with additional throughput, thereby improving service availability.

Technical information regarding the proposed antennas for each site is supplied in the attached FCC Form 312 Schedule B’s, but for the Commission’s convenience, a summary of the relevant changes is provided in the tables below.

⁷ 47 C.F.R. § 25.136(a)(2). *See also* Condition 90364 in the E160015 License, the E160021 License, and the E160022 License (the earth station is considered grandfathered under Section 25.136(a) once that rule takes effect).

Brewster (E160015)	Initial	Modification	
Antenna diameter	9.1	9.2	meters
Gain at 28 GHz	66.4	65.5	dB
Power at antenna flange	371.5	371.5	Watts
Total EIRP for all carriers	92.1	91.2	dBW
Max EIRP density/carrier	41.4	40.5	dBW/4 kHz
Max EIRP density towards horizon	-29.02	-29.02	dBW/4 kHz
Woodbine (E160021)	Initial	Modification	
Antenna diameter	9.1	13.2	meters
Gain at 28 GHz	66.4	68.5	dB
Power at antenna flange	371.5	88.5	Watts
Total EIRP for all carriers	92.1	88.0	dBW
Max EIRP density/carrier	41.4	37.3	dBW/4 kHz
Max EIRP density towards horizon	-29.02	-29.02	dBW/4 kHz
South Mountain (E160022)	Initial	Modification	
Antenna diameter	7.3	9.2	meters
Gain at 28 GHz	64.6	65.5	dB
Power at antenna flange	371.5	371.5	Watts
Total EIRP for all carriers	90.3	91.2	dBW
Max EIRP density/carrier	39.6	40.5	dBW/4 kHz
Max EIRP density towards horizon	-29.02	-29.02	dBW/4 kHz

SES Americom’s initial applications for these earth stations included Comsearch reports covering a range of potential antenna sizes.⁸ In addition, SES Americom presented a worst-case analysis of the potential impact of its planned gateway earth stations with respect to Local Multipoint Distribution Service (“LMDS”) licensees.⁹ The proposed modified antenna parameters are within the envelope described in the Comsearch reports, and the changes described herein will not increase the earth stations’ interference potential with respect to LMDS above the values presented in the prior analysis. Accordingly, no additional coordination should be needed in support of these modification applications.

⁸ See, e.g., Call Sign E160015, File No. SES-LIC-20160127-00098, Exhibit A, Attachment 1.

⁹ See *id.*, Exhibit A at 3-7.

Waiver Request

SES requests any necessary waiver of Section 25.136(a) to allow the Brewster, Woodbine, and South Mountain gateway earth stations to maintain their grandfathered status notwithstanding the antenna size increases proposed herein. Section 25.136(a)(2) expressly confers grandfathered status on any earth station licensed prior to the adoption date of the Spectrum Frontiers Order, and as noted above, the licenses for the Brewster, Woodbine, and South Mountain gateway sites were issued before that date. There is no suggestion in the rule that the Commission intended that a later license modification would disqualify an earth station from eligibility for continued grandfathered status, but neither does the rule make clear that such a modification would have no effect on grandfathering – there is simply no discussion of license modifications in the rule’s provisions. Accordingly, SES seeks a waiver to the extent necessary to ensure that its earth stations retain the protection accorded by grandfathering.

Grant of such a waiver is consistent with Commission policy:

The Commission may waive a rule for good cause shown. Waiver is appropriate if special circumstances warrant a deviation from the general rule and such deviation would better serve the public interest than would strict adherence to the general rule. Generally, the Commission may grant a waiver of its rules in a particular case if the relief requested would not undermine the policy objective of the rule in question and would otherwise serve the public interest.¹⁰

In the Spectrum Frontiers Order, the Commission recognized the importance of satellite operators’ ability to rely on 28 GHz band spectrum for gateway connectivity and the need to protect their capital investment in gateway facilities.¹¹ To that end, the Commission

¹⁰ *PanAmSat Licensee Corp.*, 17 FCC Rcd 10483, 10492 (Sat. Div. 2002) (footnotes omitted).

¹¹ Spectrum Frontiers Order, ¶ 51.

determined that it would “grandfather all existing 28 GHz FSS earth stations authorized as of the adoption date” of the Spectrum Frontiers Order.¹² At the same time, the Commission emphasized its intention to facilitate expanded terrestrial use of 28 GHz frequencies.¹³ As a result, it declined to grant co-primary status to future 28 GHz earth stations on an unrestricted basis.¹⁴

Preserving grandfathering for the SES-15 gateway earth stations at Brewster, Woodbine, and South Mountain is consistent with both these Commission objectives: it safeguards SES Americom’s investment in new earth station facilities without causing any additional impediment to future UMFUS deployments. As discussed above, the gateway earth stations at issue here are needed to support the operations of SES-15, which will improve the capacity and data rates available to U.S. satellite broadband and aeronautical customers, enhancing competition and facilitating achievement of the Commission’s broadband goals. The proposed increase in antenna sizes will bolster the performance and efficiency of these new facilities.

These benefits will be achieved without any adverse effect on spectrum availability for new terrestrial networks. The requested modifications will not increase the earth stations’ off-axis EIRP density. As a result, the footprint surrounding each earth station within which UMFUS deployments would potentially be affected by interference will not expand. In short, the interests of a prospective UMFUS licensee seeking to serve the area near one of these antennas will not be affected by the increase in antenna sizes proposed here.

¹² *Id.*, ¶ 59.

¹³ *Id.*, ¶ 50.

¹⁴ *Id.*

Under these circumstances, grant of any necessary waiver of the rule for grandfathered 28 GHz earth stations is clearly in the public interest. It is also consistent with the Commission's approach to grandfathering in other spectrum. For example, footnote US107 to the U.S. Table of Allocations explicitly carves out increased antenna size as being a permissible change to a grandfathered earth station in the 3600-3650 MHz band.¹⁵

For the foregoing reasons, the proposed changes will serve the public interest by facilitating SES Americom's ability to use the Brewster, Woodbine, and South Mountain gateway earth stations to support delivery of advanced services using the SES-15 satellite. Waiving Section 25.136(a) as needed will protect SES Americom's investment in new operational capabilities without impairing access to spectrum by prospective UMFUS providers.

¹⁵ 47 C.F.R. § 2.106, Footnote US107 (specifying that applications to modify grandfathered earth stations will not be accepted with certain exceptions including "increases in antenna size for interference mitigation purposes").