

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of Application of	)	
	)	
SES AMERICOM, INC.	)	File No. SAT-RPL-_____
	)	
For Authority to Launch the SES-11 Replacement	)	
Satellite and Operate it in the Ku-band at 104.95° W.L.	)	

APPLICATION OF SES AMERICOM, INC.

SES Americom, Inc. (“SES Americom,” doing business as “SES”) hereby applies for authority under the Communications Act of 1934, as amended, and the Federal Communications Commission’s regulations thereunder, to launch the SES-11 spacecraft and operate it in the conventional Ku-band spectrum at 104.95° W.L., where it will supplement and ultimately replace the Ku-band capacity of AMC-15. Construction of SES-11 is nearing completion, and SES currently expects to launch the spacecraft in the 4th quarter of 2016. SES seeks action on this application consistent with that schedule.

In addition to its conventional Ku-band payload, SES-11 has a conventional C-band payload that will be operated pursuant to a license from the Gibraltar Regulatory Authority (“GRA”). An affiliate of SES Americom, SES Satellites (Gibraltar) Ltd. (“SES Gibraltar”) is contemporaneously filing a petition for U.S. market access for the SES-11 conventional C-band capacity, which will replace SES Gibraltar’s AMC-18 spacecraft. SES-11 also has a payload capable of operating in certain Ka-band spectrum. That payload is described herein, but SES is not seeking operating authority in the Ka-band frequencies.

A completed FCC Form 312 is attached, and technical information relating to the proposed spacecraft is provided on Schedule S¹ and in narrative form pursuant to Section 25.114 of the Commission's Rules.

I. INTRODUCTION

SES is legally and technically qualified to operate the SES-11 Ku-band payload as proposed herein. Grant of this application will serve the public interest by ensuring continuity of service for U.S. customers at the nominal 105° W.L. orbital location.

A. SES Background

SES Americom is a pioneer and leading provider of satellite capacity in the United States. SES Americom has its headquarters in Princeton, New Jersey, and together with its affiliates provides U.S. and international satellite capacity through a fleet of over 50 geosynchronous communications satellites. SES Americom (then known as RCA American Communications, Inc.) launched its first domestic communications satellite in December 1975. Today, SES Americom and its affiliates operate over two dozen satellites with coverage of the United States, providing satellite capacity for broadcast and cable video distribution, VSAT data networks, remote communications, and government agencies.

Broadcasters, cable systems and video programmers use SES satellites to distribute programming and for specialized satellite newsgathering services. SES established one of the first cable satellite "neighborhoods" more than 20 years ago, and today continues to

¹ In completing the Schedule S, SES has relied on the most recent Schedule S instructions. Consistent with those instructions, in cases where the Schedule S software requests information that space station applicants are no longer required to provide, SES has omitted data elements, or where necessary to permit validation of the Schedule S file, has entered a "1" as a placeholder. SES specifies that these "1" data entries are outside the scope of the certifications herein regarding accuracy of the information provided with this petition.

distribute cable television programming for the major cable networks. Virtually every U.S. cable and Direct Broadcast Satellite household receives some of its programming via the SES fleet. SES also has one of the largest satellite “neighborhoods” for the U.S. radio programming industry.

Dozens of specialized satellite-based communication networks have been designed, installed, maintained and serviced by SES for government organizations as diverse as the Department of State, NASA, NOAA, and the U.S. Armed Forces.² The company’s satellites are also used to help provide basic voice, data and Internet communications to remote areas. As the demand increases for high-quality telecommunications, SES technical experts continue to develop innovative and cost-effective solutions to address customers’ evolving needs.

SES has operated the AMC-15 Ku/Ka-band hybrid satellite at the nominal 105° W.L. orbital location since 2005, and the satellite’s license term extends through May of 2020.³ Prior to that, the AMC-2 spacecraft operated at 105° W.L. in the Ku-band for approximately two years,⁴ as a follow-on to the GSTAR 4 spacecraft, which commenced operation in late 1990.⁵

² Government services are provided by SES Americom’s wholly-owned subsidiary, SES Government Solutions, Inc.

³ See Call Sign S2180, File Nos. SAT-MOD-20030214-00011 *et al.*, grant-stamped Aug. 18, 2004.

⁴ See *SES Americom, Inc., Application for Special Temporary Authority to Operate AMC-2 at 105° W.L.*, Order and Authorization, 18 FCC Rcd 13143 (Sat. Div. 2003).

⁵ See *GTE Spacenet Corporation*, Order, 7 FCC Rcd 5569 (Dom. Facil. Div. 1992); *GTE Spacenet Corporation*, Order and Authorization, 3 FCC Rcd 6986 (1988). The Commission approved the transfer of control of GTE Spacenet Corporation to SES Americom in 1994. See *Contel Corporation*, Order and Authorization, 9 FCC Rcd 5775 (Com. Car. Bur. 1994).

B. SES-11 Spacecraft

SES requests a license to launch SES-11 and operate it in the Ku-band in order to ensure continuity of service for customers at the nominal 105° W.L. orbital location. SES is not seeking Commission authority to operate SES-11 in new frequencies or service areas.⁶ SES will utilize SES-11 to continue to provide a range of video, broadband and data services, including direct-to-home services, to users primarily in North America, Central America, and the Caribbean. As with other satellites in the SES Americom fleet, SES will commercialize the satellite capacity on SES-11 on a non-common carrier basis by negotiating contracts individually with its customers.

SES-11 is under construction with a planned launch date in the 4th quarter of this year. SES requests Commission action on this application consistent with that schedule.

II. GRANT OF AUTHORITY FOR SES-11 WILL SERVE THE PUBLIC INTEREST AND IS CONSISTENT WITH COMMISSION PRECEDENT

Authorizing operation of the SES-11 spacecraft at the nominal 105° W.L. orbital location will permit SES to provide service continuity and is fully consistent with Commission precedent.

A. SES Is Entitled to a Replacement Expectancy at 105° W.L.

The Commission has expressly recognized a replacement expectancy for geostationary (“GSO”) satellite operators:

⁶ SES seeks a license to operate SES-11 only in the conventional Ku-band frequencies currently used by AMC-15. As discussed above, SES is also seeking authority to launch, but not a license to operate, the conventional C-band and Ka-band payloads on SES-11. SES Gibraltar is separately requesting Commission authority to serve the U.S. using the Gibraltar-licensed conventional C-band payload aboard SES-11. SES is not seeking operating authority for the SES-11 Ka-band payload.

Given the huge costs of building and operating GSO space stations, we have found that there should be some assurance that operators will be able to continue to serve their customers. Therefore, the Commission has stated that, when an orbit location remains available for a U.S. satellite with the technical characteristics of the proposed replacement satellite, it will generally authorize the replacement satellite at the same location.⁷

The Commission has also made clear that a replacement satellite need not be identical to the current spacecraft:

We do not require replacement satellites to be technically *identical* to the existing satellite. We recognize that next-generation satellites will incorporate satellites with technical advancements made since the previous generation satellite was launched. We do not intend to change this policy, which facilitates state-of-the-art systems. Rather, we will continue to assess only whether operations of the replacement satellite will be consistent with our international coordination obligations pursuant to regulations promulgated by the International Telecommunication Union.⁸

As noted above, AMC-15 currently operates in the Ku-band frequencies at 105° W.L., giving SES a replacement expectancy for those frequencies at that orbital location. The frequencies remain available for use by SES, and operation of SES-11 will conform to the Commission's international coordination obligations. The deployment of SES-11 will allow SES to use a state-of-the-art satellite to ensure long-term continuity of service for customers now

⁷ *Amendment of the Commission's Space Station Licensing Rules and Policies*, First Report and Order and Further Notice of Proposed Rulemaking, 18 FCC Rcd 10760, 10854-55 (2003) ("*First Space Station Reform Order*") (footnotes omitted). In its most recent decision in the Part 25 reform proceeding, the Commission adopted changes to its rules to codify its processing policy with respect to replacement satellites. See *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, Second Report and Order, IB Dkt No. 12-267, FCC 15-167 (rel. Dec. 17, 2015) ("*Part 25 Second Order*") at ¶ 131 & Section 25.158(a)(2).

⁸ See *First Space Station Reform Order* at 10857 (emphasis in original; footnotes omitted).

using AMC-15. This is exactly what the Commission's long-standing replacement expectancy policy is designed to promote.

B. Dual Licensing of SES-11 Is Consistent with Commission Precedent

There is also ample precedent for granting U.S. authority for the launch and Ku-band operations of SES-11 while the C-band payload is subject to a Gibraltar license. The Commission has repeatedly authorized such dual licensing arrangements.

The Commission's initial analysis of dual licensing came in response to a proposal that the MSAT-1 satellite be operated under joint U.S. and Canadian authority. In that decision, the International Bureau stated that:

We do not foresee any insurmountable difficulties with respect to AMSC's proposal for joint U.S.-Canadian licensing and coordination responsibility for MSAT-1. While this is the first time the Commission has been asked to 'share' a satellite with another licensing administration, there appears to be nothing in the international Radio Regulations that would preclude such an arrangement.⁹

Subsequent to that ruling, the Commission has approved dual licensing in a number of cases. For example, the Commission has routinely licensed U.S. payloads on satellites where another payload is to be operated under foreign authority.¹⁰ These arrangements

⁹ *AMSC Subsidiary Corp.*, Order and Authorization, 13 FCC Rcd 12316 (IB 1998) ("AMSC Order") at ¶ 17.

¹⁰ See, e.g., *Lockheed Martin Corp.*, Order and Authorization, 20 FCC Rcd 14558 (Sat. Div. 2005) (authorizing launch and operation of a radionavigation payload onboard the Canadian-licensed Anik-F1R satellite); *PanAmSat Licensee Corp.*, Order and Authorization, 18 FCC Rcd 19680 (Sat. Div. 2003) ("Galaxy 13/Horizons I Order") (authorizing launch and C-band operation of Galaxy 13, which also carries a Japanese-licensed Horizons I Ku-band payload); *EchoStar Satellite Corp.*, Order and Authorization, 18 FCC Rcd 15862 (Sat. Div. 2003) ("EchoStar 9/Telstar 13 Order") (authorizing the EchoStar 9 Ku- and Ka-band spacecraft and noting that the satellite also included the Telstar 13 C-band payload to be operated by Loral under authority granted by Papua New Guinea).

allow satellites to be efficiently designed with multiple payloads on a single spacecraft bus. Dual licensing permits the various payloads to be operated pursuant to different administrations' International Telecommunication Union ("ITU") filings,¹¹ which ensures that customer traffic can be effectively protected from harmful interference.

Grant of a U.S. license for the SES-11 Ku-band payload is consistent with these policies. The Commission's practice in dual licensing situations is to enter into an exchange of letters with the other licensing administration to ensure a mutual understanding regarding spacecraft operations.¹² SES respectfully requests that the Commission commence discussions with the Gibraltar Regulatory Authority to develop the terms and conditions for dual-licensed operation of SES-11.

III. THE COMMISSION SHOULD GRANT ANY NECESSARY RULE WAIVERS FOR SES-11

SES seeks limited waivers of the Commission's rules in connection with this application for SES-11 launch and operating authority. Grant of these requested waivers 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

¹¹ See *Intelsat License LLC*, Call Sign S2854, File No. SAT-RPL-20120216-00018 ("Intelsat NSS-7 Application"), Narrative at 3 (noting that the Dutch administration has effective priority in the C-band, while the U.S. has priority in certain Ku-band frequencies at 20° W.L.).

¹² See, e.g., *Galaxy 13/Horizons I Order*, 18 FCC Rcd at 19685-88 (exchange of letters with Ministry of Public Management, Home Affairs, Posts and Telecommunications of Japan); *EchoStar 9/Telstar 13 Order*, 18 FCC Rcd at 15871-74 (exchange of letters with Papua New Guinea Radiocommunications and Telecommunications Technical Authority).

would not undermine the policy objective of the rule in question and would otherwise serve the public interest.¹³

SES-11 substantially complies with the Commission's rules, but certain waivers are appropriate given the frequencies used and the technical characteristics of the spacecraft. The Commission has granted similar waivers in other cases. As shown below, SES-11 will allow SES to continue and expand its services at the nominal 105° W.L. orbital location, and grant of the requested waivers will therefore serve the public interest.

Section 25.210(i)(1): First, SES seeks any necessary waiver of Section 25.210(i)(1), which sets a 30 dB minimum for cross-polarization isolation performance in the primary coverage area of a satellite using FSS frequencies.¹⁴ The design specification for SES-11 in the FSS frequency bands provides for a minimum cross-polarization isolation of 30 dB, and that level is exceeded in most of the coverage area. However, the worst-case levels are below 30 dB in some beams.

The Commission has recently determined that the FSS cross-polarization requirement is no longer necessary,¹⁵ and Section 25.210(i)(1) will therefore be deleted when the *Part 25 Second Order* takes effect. Moreover, the Commission has routinely granted waivers of Section 25.210(i)(1) based on a finding that the primary effect of any increased interference is on the satellite operator itself,¹⁶ which can manage the interference internally. SES confirms that

¹³ *PanAmSat Licensee Corp.*, 17 FCC Rcd 10483, 10492 (Sat. Div. 2002) (footnotes omitted).

¹⁴ 47 C.F.R. § 25.201(i)(1).

¹⁵ See *Part 25 Second Order* at ¶¶ 331-333.

¹⁶ See, e.g., *New Skies Satellites N.V.*, Call Sign S2828, File No. SAT-PPL-20110620-00112, grant-stamped Mar. 15, 2012, Attachment at 2 (waiving Section 25.210(i) for SES-4 based on a finding that shortfalls in the cross-polarization isolation performance “will not produce a significant increase in interference, except to the space station itself, and will not adversely affect any other operator.”).

the cross-polarization isolation performance of the SES-11 communications payload will not increase interference to adjacent satellites, and the self-interference impact will be managed by SES. Accordingly, if Section 25.210(i)(1) is still in effect when the Commission acts on this application, granting a waiver of the rule for SES-11 is consistent with applicable precedent.

Section 25.165(a), Performance Bond: Section 25.165(a) generally requires that a performance bond be posted within 30 days of issuance of a satellite license, but exempts replacement satellites from this obligation.¹⁷ SES is seeking a license for SES-11 to operate only in the Ku-band frequencies for which AMC-15, the satellite it is replacing, is licensed, and is therefore not subject to a bond requirement.

The presence of a Ka-band payload on the spacecraft that includes frequencies not used by AMC-15 in the Ka-band¹⁸ should not alter that conclusion. Again, SES is not seeking authority to operate the Ka-band payload on SES-11 at 105° W.L., so SES-11 will be operating solely “in the same frequency bands” for which AMC-15 is authorized and will therefore qualify as a “replacement satellite” for purposes of the Commission’s bond requirement.¹⁹

If the bond rule is deemed applicable here, a waiver is clearly appropriate. The Commission has observed that the bond was adopted to discourage speculative applications for satellite licenses that would block use of scarce spectrum and orbital resources by other parties who are ready and able to move forward to introduce service.²⁰ Because SES is not seeking an

¹⁷ 47 C.F.R. § 25.165(a).

¹⁸ The AMC-15 Ka-band payload operates in the 18.6-18.8 GHz, 19.7-20.2 GHz, 28.4-28.6 GHz, and 29.5-30.0 GHz frequencies; the Ka-band payload on SES-11 is capable of operations in the 18.3-19.3 GHz, 19.7-20.2 GHz, 28.35-29.1 GHz, and 29.25-30.0 GHz bands.

¹⁹ See 47 C.F.R. § 25.165(e).

²⁰ *ATCONTACT Communications, LLC*, Opinion, FCC 10-100, at ¶ 42 (rel. June 3, 2010).

operating license in the Ka-band, the authorization for SES-11 will have no preclusive effect on deployment of Ka-band networks by other prospective operators.

Similarly, the proposal to place SES-11 at a slight offset from the AMC-15 orbital location should not make SES-11 subject to a bond payment requirement. As discussed above, SES-11 will replace both the Ku-band frequencies on the AMC-15 satellite located at 105.05° W.L. and the C-band frequencies on the AMC-18 satellite located at 104.95° W.L. Because AMC-15 is likely to remain in its current position for a period of time after deployment of SES-11, SES has decided to move SES-11 into the location that will be vacated by AMC-18.

The Commission has adopted a change to Section 25.165(e) to make clear that replacement satellites located within +/- 0.15 degrees of the existing satellites will be exempt from the bond requirement,²¹ concluding that this change would “provide additional flexibility to licensees seeking to replace existing space stations without significantly affecting the interference environment.”²² Grant of any necessary waiver pending effectiveness of the revised language of Section 25.165(e) is therefore consistent with Commission policy.

Section 25.210(f), Full Frequency Reuse: Section 25.210(f) of the Commission’s rules requires FSS space stations using the Ka-band frequencies to “employ state-of-the-art full frequency reuse” through either orthogonal polarizations within the same beam or the use of multiple beams.²³ The SES-11 Ka-band payload is not capable of simultaneously using more than one polarization in either the uplink or downlink frequencies.

²¹ See *Part 25 Second Order* at ¶ 340.

²² *Id.*

²³ 47 C.F.R. § 25.210(f).

A waiver of the rule is consistent with Commission standards and would not undermine the purpose of the rule. The full frequency reuse requirement is intended to ensure efficient use of spectrum, but the Commission has waived the rule in a number of cases, including where permitting the non-compliant operations would not block deployment of a compliant spacecraft.²⁴ Because SES is not seeking an operating license for the SES-11 Ka-band payload, grant of a waiver here will not block deployment of a compliant Ka-band spacecraft and is therefore consistent with Commission precedent.

Section 2.106, Footnote NG165: The Table of Allocations in Section 2.106 and the associated footnotes include limitations on the use of some of the frequency bands that will be included on SES-11. SES seeks any necessary waiver of footnote NG165, which specifies that FSS use of the 18.8-19.3 GHz band is limited to systems in non-geostationary satellite orbits.

The Commission has permitted spectrum uses that do not conform to the Table of Allocations “when there is little potential for any service authorized under the U.S. Table of Frequency Allocations and when the non-conforming operator accepts any interference from authorized services.”²⁵ In this case, SES is not seeking authority to operate in the 18.8-19.3 GHz frequencies. Furthermore, the attached Technical Appendix demonstrates compatibility between the SES-11 Ka-band payload and NGSO systems currently and previously authorized by the

²⁴ See, e.g., *Columbia Communications Corporation*, Memorandum Opinion, Order and Authorization, 7 FCC Rcd 122, 123 (1991) (Commission views full frequency reuse waiver request favorably “as long as the non-compliant satellite is making some use of the orbit/spectrum resource which otherwise would not be used, and as long as such use does not preclude the use of the resource by a satellite which meets the Commission’s full frequency reuse requirements.”).

²⁵ *O3b Limited*, DA 16-99 (Sat. Div. and OET Policy and Rules Div., rel. Jan. 29, 2016) at 2-3 (footnote omitted).

Commission.²⁶ Under these circumstances, grant of any necessary waiver of Section 2.106 and footnote NG165 is consistent with Commission precedent and would not undermine the purpose of the rule.

IV. CONCLUSION

For the foregoing reasons, SES seeks authority to launch the SES-11 spacecraft and to operate it in the conventional Ku-band spectrum at 104.95° W.L. Grant of this application will serve the public interest, convenience, and necessity by allowing SES to provide follow-on capacity to ensure service continuity at the nominal 105° W.L. orbital location.

Respectfully submitted,

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²⁶ See Technical Appendix, Annex 1, Section 1.1.3.3.