

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

In the Matter of Application by)
)
SES AMERICOM, INC.) Call Signs KA288 and E050287
)
For Special Temporary Authority to)
Communicate with NSS-6 to Perform)
TT&C During and After Relocation to 86.8° W.L.)

REQUEST FOR SPECIAL TEMPORARY AUTHORITY

By this application, SES Americom, Inc. (“SES Americom” or “SES”) respectfully requests earth station special temporary authority (“STA”) for a period of 180 days to permit SES to use its KA288 and E050287 earth stations to communicate with the NSS-6 spacecraft using extended and conventional Ku-band frequencies to provide Tracking, Telemetry and Command (“TT&C”): (1) during the planned relocation of the spacecraft from its current position at 95° E.L. to 86.8° W.L.; and (2) to maintain the satellite at 86.8° W.L. +/- 0.10° east/west station keeping.

SES Americom’s affiliate, New Skies Satellites B.V. (“NSS BV”), holds an authorization from Radiocommunications Agency Netherlands¹ for the NSS-6 Ku-band spacecraft. NSS BV has requested that SES Americom assist with providing TT&C to support the planned relocation of NSS-6 to 86.8° W.L. NSS-6 will operate at the 86.8° W.L. orbital location.

SES is not requesting U.S. market access or any other authorization from the Commission in relation to the non-U.S.-licensed NSS-6 spacecraft operations at 86.8° W.L., and

¹ Agentschap Telecom.

therefore is not providing full technical information about the NSS-6 satellite as part of this application.² Details regarding the NSS-6 TT&C operations, including the certifications required under Section 25.140 of the Commission's rules, are provided in the attachments to this request. A basic technical description of the satellite's proposed operations and an updated orbital debris mitigation statement for NSS-6 are provided in Attachments 2 and 3 for the Commission's information.³ As discussed below, communications with NSS-6 will not adversely affect the operation of other satellites.

Grant of this request is in the public interest as the requested TT&C authority will facilitate the safe operation of NSS-6 as it drifts to and is located at 86.8° W.L.

No Harmful Interference to Other Spacecraft. TT&C transmissions during drift of NSS-6 will be on a non-harmful interference basis. The drift of the spacecraft will be coordinated with other satellite operators consistent with industry practice.⁴

The only satellites capable of overlapping Ku-band operations within two degrees of 86.8° W.L. are AMC-2, AMC-16 and SES-2, all of which are operated by SES Americom. SES will coordinate the operation of these satellites with NSS-6 to ensure there is no interference.

² See Waiver Requests, *infra*.

³ The information for NSS-6 specified under Section 25.114(d)(14) of the Commission's rules is already on file with the Commission, and SES incorporates that information by reference herein. See *Panasonic Avionics Corp.*, Call Sign E100089, File No. SES-MFS-20150609-00349, Technical Appendix, Annex A-6, Part D; Letters from Carlos M. Nalda, Counsel to Panasonic Avionics Corp., to Marlene H. Dortch, Secretary, Federal Communications Commission, File No. SES-MFS-20150609-00349 *et al.*, dated Jan. 7, 2016 and Feb. 10, 2016.

⁴ The 24/7 point of contact for the proposed NSS-6 operations is the SES Payload Management Operations Centre (PMOC) in Woodbine, MD, 1 410 970 7580; e-mail: PMOC@ses.com.

Waiver Requests. SES requests limited waivers of the Commission's requirements in connection with the instant request. Grant of these 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 would not undermine the policy objective of the rule in question and would otherwise serve the public interest.⁵

Sections 25.137 and 25.114. SES requests a waiver of Section 25.137 and the other Commission rules cross-referenced therein. SES seeks authority in connection with providing TT&C for NSS-6, a foreign-licensed spacecraft. Section 25.137 requires that applicants proposing to use U.S.-licensed earth stations to communicate with foreign-licensed spacecraft demonstrate that the Commission's policies for U.S. market access are satisfied. Section 25.137 also incorporates by reference other requirements for Commission-licensed space stations, including the obligation to file detailed technical information as specified in Section 25.114.

Waiving Section 25.137 is consistent with the purpose of the rule, which was intended to address situations in which a non-U.S.-licensed satellite is to be used to serve the United States. Here, the KA288 and E050287 earth stations will be used solely for TT&C, not for commercial operations. Thus, SES is not seeking authority to communicate with NSS-6 for purposes of providing U.S. service from 86.8° W.L. within the meaning of Section 25.137.

⁵ *PanAmSat Licensee Corp.*, 17 FCC Rcd 10483, 10492 (Sat. Div. 2002) (footnotes omitted).

To the extent the Commission disagrees, SES requests a waiver of the market access and other requirements imposed in Section 25.137. Grant of a waiver will not undermine the objectives of these requirements. The market access test described in the rule is intended to ensure that U.S.-licensed systems have “effective competitive opportunities.”⁶ Because SES Americom is not seeking authority to provide commercial services in the United States, the requested modification does not raise any concerns about competitive equality.⁷

Strict adherence with Section 25.114’s requirements for detailed technical information is also unnecessary and would be unduly burdensome. SES Americom is proposing to use the KA288 and E050287 earth stations only for the limited purpose of performing TT&C for the satellite as it drifts to and is temporarily located at 86.8° W.L., and the relevant technical characteristics of those transmissions are provided below. The transmissions to the spacecraft will be conducted on a non-harmful interference basis. In these circumstances, no valid purpose would be served by requiring a complete description of the NSS-6 spacecraft.

SES Americom’s request is consistent with Commission precedent, and the Commission granted a similar request for both antennas to support relocation of ASTRA 3A.⁸ In similar cases in which limited communications by U.S. earth stations with a foreign-licensed satellite were proposed, the Commission has granted operational authority without requiring a

⁶ 47 C.F.R. § 25.137(a).

⁷ In any event, the NSS-6 spacecraft at 86.8° W.L. will be operating under the authority of The Netherlands, a WTO member country, and therefore is exempt from the requirement to make a showing of effective competitive opportunities. 47 C.F.R. § 25.137(a)(2).

⁸ SES Americom, Inc., (Call Sign E050287) File No. SES-STA-20161110-00884, granted Nov. 30, 2016; SES Americom, Inc., (Call Sign KA288) File No. SES-STA-20160527-00465, granted June 14, 2016.

market access showing under Section 25.137 or full technical data as required by Section 25.114.⁹

Section 2.106 Footnote NG52. To the extent that reception of telemetry at 11198 MHz and 11199.5 MHz constitutes a domestic (*i.e.*, non-international) service, SES Americom respectfully requests a limited waiver of the international-service-only restriction.¹⁰ Such a waiver is warranted in the circumstances for the limited purpose of performing TT&C. As the Commission has recognized, TT&C operations generally require uplink and downlink capability from the same earth station. For this reason, the Commission has previously granted waivers of the international service restriction to enable TT&C to be performed in the U.S. using the extended Ku-band frequencies.¹¹

Grant of the requested waiver would not undermine the purpose of the restriction, which is to ensure that earth station deployments in the extended Ku-band do not negatively impact the deployment of fixed service (“FS”) in the same band or cause interference to such operations. The telemetry downlink signals from NSS-6 in the extended Ku-band are narrow in bandwidth and will comply with the power flux density limits in the Commission’s rules and,

⁹ See, e.g., Hawaii Pacific Teleport, L.P., File No. SES-STA-20131030-00914 (Call Sign E030115), granted Nov. 18, 2013 (authorizing earth station to provide TT&C services to ASTRA 3A operating at 176.85° W.L.); PanAmSat Licensee Corp., File Nos. SES-STA-20090922-01211 (Call Sign E4132) & SES-STA-20090922-01212 (Call Sign E040125), both grant-stamped Oct. 16, 2009 (authorizing earth stations to communicate with foreign-licensed NSS-12 spacecraft for purposes of providing launch and early operations services).

¹⁰ 47 U.S.C. § 2.106 Footnote NG52.

¹¹ See, e.g., EchoStar KuX Corporation, 20 FCC Rcd 919 (Int’l Bur. 2004) (“*EchoStar 83W Order*”); EchoStar Satellite LLC, 20 FCC Rcd 930 (Int’l Bur. 2004) (“*EchoStar109W Order*”); EchoStar KuX Corporation, 20 FCC Rcd 942 (2004) (“*EchoStar 121W Order*”). These decisions granted waivers of the international only restriction in Footnote NG104, which has been replaced by Footnote NG52.

thus, will not interfere with FS station operations. Moreover, only two U.S. earth stations will be used to perform TT&C in the extended Ku-band.¹² As a result, there will be no significant restrictions placed on the deployment of FS in this band.

Section 25.210(j). The NSS-6 satellite is authorized by Radiocommunications Agency Netherlands to operate at 86.8° W.L. within a +/- 0.10° east/west station keeping box. To the extent necessary, SES respectfully requests a waiver of Section 25.210(j) of the Commission's rules, which requires geostationary space stations to be operated within a +/- 0.05° east/west station keeping box. The Commission has previously waived this rule based on a finding that allowing an increased station keeping volume would "not adversely affect the operations of other spacecraft and would conserve fuel for future operations."¹³

The facts here fit squarely within this precedent. Allowing NSS-6 to be maintained within an increased station keeping volume will not harm other operators. NSS-6's station keeping volume will not overlap with that of any other satellites. The closest satellite operating near the 86.8° W.L. orbital location is Tupac Katari 1 located at 87.2° W.L., which is 0.3 degrees away from the outside of the proposed NSS-6 orbital box. In addition, allowing NSS-6 to be flown at 86.8° W.L. in an expanded east-west station keeping volume of +/-0.1 degrees will result in fuel savings for the spacecraft. This will prolong the time during which NSS-6 will be available to provide service. Under these circumstances, grant of any necessary waiver of Section 25.210(j) will serve the public interest.

¹² See *EchoStar 83W Order*, at ¶ 16 ("The Commission has waived this [international only] requirement where the number of potential earth stations in a particular service is inherently small."); *EchoStar 109W Order*, at ¶ 16 (same); *EchoStar 121W Order*, at ¶ 17 (same).

¹³ See, e.g., *SES Americom, Inc.*, File Nos. SAT-MOD-20080124-00030 & SAT-AMD-20080311-00070, grant-stamped May 19, 2008, Attachment at ¶ 1.

SES hereby certifies that no party to this application is subject to a denial of federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. § 862.

For the foregoing reasons, SES respectfully requests special temporary authority to communicate with NSS-6 for a period of up to 180 days to provide TT&C during relocation of the satellite and once it is on station, as described herein. Grant of the requested authority will promote safe operation of the satellite during and after its relocation.

Respectfully submitted,

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Attachment 1: TT&C Emission Characteristics

1. Earth Station Transmission Characteristics

KA288 and E050287

Emission Designator: 1M00F9D

Max EIRP: 73.00 dBW

Max EIRP Density: 49.10 dBW/4kHz

2. TT&C Frequencies¹

Telecommand	14496.0 MHz	Vertical polarization via global horn; horizontal polarization via omni in case of emergency
	14499.0 MHz	Vertical polarization via global horn; horizontal polarization via omni in case of emergency
Telemetry	11198.0 MHz	Horizontal polarization via global horn; vertical polarization via omni in case of emergency
	11199.5 MHz	Horizontal polarization via global horn; vertical polarization via omni in case of emergency

¹ In compliance with Section 25.202(g)(1) of the Commission's rules, the proposed TT&C operations will cause no greater interference and require no greater protection from harmful interference than communications traffic in these bands.

Attachment 2: NSS-6 at 86.8° W.L.

1. **Orbital Location**

86.8° W.L. +/- 0.1° east-west station keeping and +/-0.1° north-south station keeping

2. **Section 25.140 Certifications**

Section 25.140(a)(3)(ii). SES Americom certifies that the downlink EIRP density for its operations in the conventional and extended Ku-bands will not exceed 17 dBW/4kHz for analog transmissions and that the associated uplink operation will not exceed applicable EIRP density envelopes in Section 25.218 unless the non-routine uplink and/or downlink operation is coordinated with operators of authorized co-frequency space stations at assigned locations within six degrees of the orbital location of the proposed space station.

3. **Compliance with PFD limits in 11.45-11.7 GHz**

The allowable PFD levels in the 10.95-11.2 GHz bands (per 4 kHz) are defined in Section 25.208(b)(1) of the Commission's rules for all conditions, including clear sky, and for all methods of modulation as follows:

For angles of arrival between 0 and 5 degrees above the horizontal plane:

-150 dBW/m² in any 4 kHz band;

For angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane:

-150 + $(\delta-5)/2$ dBW/m² in any 4 kHz band; and

For angles of arrival between 25 and 90 degrees above the horizontal plane:

-140 dBW/m² in any 4 kHz band.

In order to demonstrate such compliance, the PFD levels for the telemetry carriers are calculated below. It can be seen from the results that compliance with the PFD levels has been achieved.

TM Beam						
Elevation angle, deg	5	10	15	20	25	90
Max. EIRP, dBW	11.5	11.5	11.5	11.5	11.5	11.5
Gain roll-off at elevation angle, dBi	0	0	0	0	0	0
Carrier bandwidth, MHz	0.2	0.2	0.2	0.2	0.2	0.2
EIRP density at elevation angle, dBW/4kHz	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Minimum spreading loss, dB/m ²	-163.3	-163.2	-163.1	-162.9	-162.8	-162.1
25.208(a) pfd limit (10.95-11.2 and 11.45-11.7 MHz), dBW/m ² /4kHz	-150	-147.5	-145	-142.5	-140	-140
pfd, dBW/m ² /4KHz	-168.8	-168.6	-168.5	-168.4	-168.3	-167.5
Margin, dB, relative to 25.208	18.8	21.1	23.5	25.9	28.3	27.5

4. TT&C Contour Maps

The antenna gain contours for the TT&C omni beam operations are not included because the contours at 8 dB below peak fall entirely beyond the edge of the visible Earth.¹

¹ See 47 C.F.R. § 25.114(c)(4)(vi)(A).

Attachment 3: Orbital Debris Mitigation Statement

The information for NSS-6 specified under Section 25.114(d)(14) of the Commission's rules is already on file with the Commission,¹ and SES incorporates that information by reference herein. SES hereby submits the following supplemental information regarding orbital debris mitigation:

Spacecraft Hardware Design: SES has assessed and limited the amount of debris released in a planned manner during normal operations of NSS-6 at 86.8° W.L. No debris is generated during normal on-station operations, and the spacecraft will be in a stable configuration. The satellite will maintain an E-W stationkeeping tolerance within +/- 0.1 degrees.

Safe Flight Profiles: SES seeks authority to provide TT&C service for NSS-6 at the 86.8° W.L. orbital location and on-station operations require station-keeping within the +/- 0.1 degree N-S and +/- 0.1 degree E-W control box, thereby ensuring adequate collision avoidance distance from other satellites in geosynchronous orbit. The closest satellite operating near the 86.8° W.L. orbital location is Tupac Katari 1 located at 87.2° W.L., which is 0.3 degrees away from the outside of the proposed NSS-6 orbital box. SES is not aware of any other FCC- or non-FCC licensed spacecraft that are operational or planned to be deployed at 86.8° W.L. or to nearby orbital locations such that there would be an overlap with the requested stationkeeping volume of NSS-6. Furthermore, SES is not aware of any other system with an overlapping station-keeping volume with NSS-6 that is either in orbit or progressing towards launch. Based on the preceding, it is concluded that physical coordination of the NSS-6 satellite with another party is not required at the present time. SES is seeking the necessary waivers to operate the satellite with a relaxed stationkeeping volume.

¹ See *Panasonic Avionics Corp.*, Call Sign E100089, File No. SES-MFS-20150609-00349, Technical Appendix, Annex A-6, Part D; Letters from Carlos M. Nalda, Counsel to Panasonic Avionics Corp., to Marlene H. Dortch, Secretary, Federal Communications Commission, File No. SES-MFS-20150609-00349 *et al.*, dated Jan. 7, 2016 and Feb. 10, 2016.