

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

In the Matter of Application by )  
 )  
SES AMERICOM, INC. ) Call Sign E170089  
 )  
To Amend its Earth Station License )  
Modification to Perform TT&C for ASTRA 1D )

**AMENDMENT**

Pursuant to Section 25.116(a) of the Commission’s rules,<sup>1</sup> SES Americom, Inc. (“SES Americom” or “SES”) hereby amends its pending application to modify its E170089 earth station license.<sup>2</sup> In addition to the changes addressed in the Modification Application, SES seeks authority to allow the E170089 earth station to communicate with the ASTRA 1D spacecraft in order to provide Tracking, Telemetry and Command (“TT&C”) for the satellite, which is located at 73° W.L. (+/- 0.10° east/west station keeping).<sup>3</sup>

SES Americom’s affiliate, SES ASTRA S.A. (“SES ASTRA”), holds an authorization from the Luxembourg Ministry of State, Office of Media and Communications<sup>4</sup> for the ASTRA 1D Ku-band spacecraft. SES ASTRA has requested that SES Americom assist with

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<sup>1</sup> 47 C.F.R. § 25.116(a).

<sup>2</sup> SES Americom, Inc., Call Sign E170089, File No. SES-MFS-20191002-01233, filed Oct. 2, 2019 (the “Modification Application”).

<sup>3</sup> SES previously received special temporary authority to use earth station E110104 to provide TT&C for ASTRA 1D at 73° W.L. *See* SES Americom, Inc., Call Sign E110104, File Nos. SES-STA-20180223-00160, granted March 6, 2018 and SES-STA-20180129-00069, granted February 7, 2018.

<sup>4</sup> Ministère d’État, Service des Médias et des Communications of the Grand Duchy of Luxembourg.

providing TT&C to support the operation of ASTRA 1D at 73° W.L. ASTRA 1D is operating in inclined orbit.

SES is not requesting U.S. market access or any other authorization from the Commission in relation to the non-U.S.-licensed ASTRA 1D spacecraft, and therefore is not providing full technical information about the ASTRA 1D satellite as part of this application.<sup>5</sup> Details regarding the ASTRA 1D TT&C operations are provided in Attachment 1 to this request. SES incorporates by reference the previously filed orbital debris mitigation statement for ASTRA 1D at 73° W.L.<sup>6</sup> As discussed below, communications with ASTRA 1D will not adversely affect the operation of any adjacent satellites.

***Grant of this Application Will Serve the Public Interest.*** Grant of this request is in the public interest because it will facilitate the safe operation of ASTRA 1D at 73.0° W.L.

***No Harmful Interference to Other Spacecraft.*** Apart from AMC-3, located at 72.0° W.L., the nearest satellite to 73° W.L. with overlapping Ku-band operations is ARSAT 1 operated at 71.8° W.L. by Empresa Argentina de Soluciones Satelitales Sociedad Anónima (ARSAT). SES has coordinated operations with ARSAT 1.

***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

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<sup>5</sup> See Waiver Requests, *infra*.

<sup>6</sup> SES Americom, Inc., Call Sign E110104, File No. SES-STA-20180129-00069, Attachment 3.

would not undermine the policy objective of the rule in question and would otherwise serve the public interest.<sup>7</sup>

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 ASTRA 1D, 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 E170089 earth station will be used solely for TT&C, not for commercial operations. Thus, SES is not seeking authority to communicate with ASTRA 1D for purposes of providing U.S. service within the meaning of Section 25.137.

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."<sup>8</sup> Because SES

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<sup>7</sup> *PanAmSat Licensee Corp.*, 17 FCC Rcd 10483, 10492 (Sat. Div. 2002) (footnotes omitted).

<sup>8</sup> 47 C.F.R. § 25.137(a).

Americom is not seeking authority to provide commercial services in the United States, the requested amendment does not raise any concerns about competitive equality.<sup>9</sup>

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 antenna only for the limited purpose of performing TT&C for the satellite located at 73° 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 ASTRA 1D spacecraft.

SES Americom's request is consistent with Commission precedent. 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 market access showing under Section 25.137 or full technical data as required by Section 25.114.<sup>10</sup>

Section 2.106 Footnote NG52. To the extent that reception of telemetry at 11447.5 MHz and 11454.0 MHz constitutes a domestic (*i.e.*, non-international) service, SES Americom respectfully requests a limited waiver of the international-service-only restriction.<sup>11</sup>

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<sup>9</sup> In any event, the ASTRA 1D spacecraft at 73° W.L. is operating under the authority of Luxembourg, 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).

<sup>10</sup> *See, e.g.*, Hawaii Pacific Teleport, L.P., File No. SES-STA-20131030-00914 (Call Sign E030115), granted Nov. 18, 2013 (granting authority for earth station to provide TT&C services to ASTRA 3A operating at 176.85° W.L.); PanAmSat Licensee Corp., File Nos. SES-STA20090922-01211 (Call Sign E4132) & SES-STA-20090922-01212 (Call Sign E040125), both grant-stamped Oct. 16, 2009 (granting authority for earth stations to communicate with foreign-licensed NSS-12 spacecraft for purposes of providing launch and early operations services).

<sup>11</sup> 47 U.S.C. § 2.106 Footnote NG52.

Such a waiver is warranted in the circumstances for the limited purpose of 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.<sup>12</sup>

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 ASTRA 1D in the extended Ku-band are narrow in bandwidth and will comply with the power flux density limits in the Commission’s rules and, thus, will not interfere with FS station operations. Only two earth stations will be used to provide TT&C to ASTRA 1D at 73.0 W.L., and these operations will not be entitled to interference protection from FS facilities.<sup>13</sup> As a result, there will be no significant restrictions placed on the deployment of FS in this band.

Section 25.210(j). The ASTRA 1D satellite is authorized by the Luxembourg Government to operate at 73° W.L. within a +/- 0.1 degrees 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 degrees east/west station keeping box. The Commission has previously waived this rule based

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<sup>12</sup> See, e.g., EchoStar KuX Corporation, 20 FCC Rcd 919 (Int’l Bur. 2004); EchoStar Satellite LLC, 20 FCC Rcd 930 (Int’l Bur. 2004); EchoStar KuX Corporation, 20 FCC Rcd 942 (2004). These decisions granted waivers of the international only restriction in Footnote NG104, which has been replaced by Footnote NG52.

<sup>13</sup> The other TT&C earth station is operated by a third party, United Teleports Inc., Call Sign E160081.

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.”<sup>14</sup>

The facts here fit squarely within this precedent. Allowing ASTRA 1D to be maintained within an increased station keeping volume will not harm other operators. ASTRA 1D’s station keeping volume will not overlap with that of any other satellites. In addition, allowing ASTRA 1D to be flown at 73° 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 ASTRA 1D will be available to provide service. Under these circumstances, grant of any necessary waiver of Section 25.210(j) will serve the public interest.

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.

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<sup>14</sup> See, e.g., *SES Americom, Inc.*, File Nos. SAT-MOD-20080124-00030 & SAT-AMD-20080311-00070, grant-stamped May 19, 2008, Attachment at ¶ 1.

For the foregoing reasons, SES amends the Modification Application to seek authority for the E170089 earth station to communicate with ASTRA 1D in order to provide TT&C for the satellite while it is located at 73° W.L.

Respectfully submitted,

SES AMERICOM, INC.

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## Attachment 1: TT&C Emission Characteristics

### 1. Earth Station Transmission Characteristics

E170089 (Woodbine, MD)

Emission Designator: 800KF9D

Max EIRP: 75.1 dBW

Max EIRP Density: 52.1 dBW/4kHz

### 2. TT&C Frequencies

Telecommand: 14013 MHz (omni) horizontal polarization

Telemetry: 11447.5 MHz (omni) vertical polarization

11454 MHz (omni) vertical polarization

### 3. Part 25.140 Certification

Section 25.140(a)(2). SES Americom certifies that the ASTRA 1D TT&C operations in the Ku-band have been coordinated with ARSAT 1, located at 71.8° W.L. for the telecommand operations, and there is no frequency overlap for the telemetry. There is no frequency overlap with Nimiq 5 located at 72.7° W.L.

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.

### 4. Compliance with PFD limits in 11.45-11.7 GHz

The allowable PFD levels in the 11.45-11.70 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:

1. For angles of arrival between 0 and 5 degrees above the horizontal plane: -150 dBW/m<sup>2</sup> in any 4 kHz band;
2. For angles of arrival  $\delta$  (in degrees) between 5 and 25 degrees above the horizontal plane:  $-150 + (\delta-5)/2$  dBW/m<sup>2</sup> in any 4 kHz band; and
3. For angles of arrival between 25 and 90 degrees above the horizontal plane: -140 dBW/m<sup>2</sup> 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.	5.0	10.0	15.0	20.0	25.0	90.0
Max EIRP, dBW	4.4	4.4	4.4	4.4	4.4	4.4
Gain roll-off at elevation angle, dBi	0	0	0	0	0	0
EIRP at elevation angle, dBW	4.4	4.4	4.4	4.4	4.4	4.4
Carrier bandwidth, MHz	0.20	0.20	0.20	0.20	0.20	0.20
EIRP density at elevation angle dBW/4kHz	-12.6	-12.6	-12.6	-12.6	-12.6	-12.6
Minimum spreading loss, dB/m <sup>2</sup>	-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 <sup>2</sup> /4kHz	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
pfd, dBW/m <sup>2</sup> /4KHz	-175.9	-175.8	-175.7	-175.5	-175.4	-174.7
Margin, dB, relative to 25.208	25.9	28.3	30.7	33	35.4	34.7