

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
SES Americom, INC.	)	
	)	
Application for Modification of Satcom SN-4	)	File Nos. SAT-MOD-20050325-00075
Fixed Satellite Space Station License	)	SAT-STA-20050531-00112
	)	
Application for Special Temporary	)	Call Sign: KS49
Authorization to provide Ku-band service	)	
Over water areas of International	)	
Telecommunication Union Region 1	)	

**Order and Authorization**

Adopted: **June 28, 2005**

Released: **June 28, 2005**

By the Chief, Satellite Division, International Bureau

**I. INTRODUCTION**

1. By this Order, we modify SES Americom, Inc's (SES Americom's) authorization for its in-orbit C/Ku-band hybrid satellite, Satcom SN-4, operating at the 172° E.L. orbital location, to change the coverage area by repointing the satellite northward, thereby facilitating service in the Ku-band over international waters. At the same time, we grant SES Americom's request for waiver of Section 25.114(d)(3)'s requirement to provide antenna gain contours in its application and grant, with conditions, its request for a waiver of Section 25.210(j)'s<sup>1</sup> East/West 0.05 degree station-keeping tolerance. We also grant SES Americom's request for authority to deorbit Satcom SN-4 following the launch of the AMC-23 spacecraft. Grant of SES Americom's modification request will allow it to continue to provide additional competitive satellite services.

**II. BACKGROUND**

2. SES Americom is authorized to operate Satcom SN-4 at 172° E.L. in the 3700-4200 MHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth), 5925-6425 MHz (Earth-to-space), and 14.0-14.5 GHz (Earth-to-space) frequency bands. Its license expires June 18, 2006.<sup>2</sup> SES has filed a request to re-orient Satcom SN-4 so that its antenna is oriented northward, resulting in changes to the service area contours of the spacecraft. Following re-orientation of the spacecraft, SES Americom's customer plans on using the 11.7-12.2 GHz capacity to provide service to aircraft operating within the spacecraft's coverage area, including the airspace over water within International Telecommunication Union (ITU) Region 1.<sup>3</sup> SES

<sup>1</sup> 47 C.F.R. § 25.210(j).

<sup>2</sup> See SES Americom, Inc., Application for Modification of Space Station Authorization, DA 04-1581, *Order and Authorization*, 19 FCC Rcd. 20,377 (rel. May 27, 2004) ("*SN-4 Modification Order*") (granting SES Americom's request to modify its authorization to operate the Satcom SN-4 satellite at the nominal 172° E. L. orbit location).

<sup>3</sup> For the purpose allocation of frequencies, the ITU has divided the world into three Regions. See 47 CFR § 2.104 (figure 1 is a map of the world with designations of respective ITU Regions included in the CFR for informational purposes only). ITU Region 1 includes Europe, Africa, territories of the former USSR in Asia, as well as portions of the Arctic, Atlantic and Pacific Oceans.

Americom also requested modification of the Satcom SN-4 authorization to permit the spacecraft to operate with an East/West station-keeping tolerance of 0.1 degrees for the remainder of its license term. With this request, SES Americom has submitted a request to waive Section 25.210(j), which specifies an East/West station-keeping tolerance of 0.05 degrees. SES Americom also seeks approval of its end-of-life disposal plans for the Satcom SN-4 spacecraft. SES Americom proposes to deorbit to an altitude with an initial perigee no less than 150 km above the geostationary satellite orbit.

3. The application appeared on public notice on April 1, 2005.<sup>4</sup> The Boeing Company filed a letter supporting grant of the application.<sup>5</sup> No other comments were filed.

### III. DISCUSSION

4. SES Americom requests to reorient its spacecraft such that its pattern is focused to more northern latitudes. SES Americom indicates that the proposed change will not result in a material change in the interference environment for the adjacent satellite systems. SES Americom has provided an analysis indicating a possible increase of 0.3 dB in interference to an adjacent satellite from its proposed modifications. No comments were received opposing this level of interference into adjacent systems and we find that this level of interference is not likely to be unacceptable to neighboring systems. We will therefore grant SES Americom's request to repoint its antenna northward in accordance with the technical specifications set forth in its application.

5. SES Americom also requests a waiver of Section 25.114(d)(3), which specifies the requirements for antenna beam contours.<sup>6</sup> SES Americom asserts that we granted a waiver in the prior modification order and that the issues involved in this application are the same as those involved in the previous grant. We find that the issues here are in fact the same as those previously addressed in the *SN-4 Modification Order*. Accordingly, we grant the waiver for the same reasons as those articulated in our prior order.<sup>7</sup>

6. SES Americom seeks authority to operate the Satcom SN-4 satellite in the 11.7-12.2 GHz band for space-to-Earth Fixed Satellite Service (FSS) operations, including service over water in ITU Region 1. While ITU Region 2 contains an FSS space-to-Earth allocation in the 11.7-12.2 GHz band, ITU Region 1 does not contain such an allocation. In ITU Region 1, the 11.7-12.2 GHz band is allocated on a co-primary basis to the fixed service, broadcasting, broadcasting satellite service (BSS) and the mobile, except aeronautical mobile, service in the ITU Table of Frequency Allocations.

7. Additionally, Section 4.4 of the ITU Radio Regulations states that "Administrations of Member States shall not assign to a station any frequency in derogation of the Table of Frequency Allocations in this Chapter or other provisions of these Regulations, except on the express condition that such a station, when using such a frequency assignment, shall not cause harmful interference to, and shall not claim protection from harmful interference caused by, a station operating in accordance with the provisions of the Constitution, the Convention and these Regulations." SES Americom indicates that its proposed use is consistent with the ITU principle of Section 4.4, and therefore SES Americom should be able to provide service in the space-to-Earth direction in the 11.7-12.2 GHz band over water areas in ITU Region 1 on a non-harmful interference basis to all services operating in that ITU Region. Thus, SES Americom seeks a waiver of Section 2.106 of the Commission's rules to permit its proposed FSS space-

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<sup>4</sup> Report No. SAT-00281.

<sup>5</sup> Letter from Carlos Nalda, Counsel for the Boeing Company, to Marlene H. Dortch, Secretary, FCC, dated March 29, 2005.

<sup>6</sup> *SN-4 Modification Order*.

<sup>7</sup> *Id.* at paras 5-8

to-Earth operations in the 11.7-12.2 GHz band over water in ITU Region 1.

8. SES Americom asserts that its proposed operations are within the power limits established for ITU Region 2 FSS operations for protection of ITU Region 1 BSS and terrestrial fixed services. In addition, SES Americom states that there are no ITU Region 1 BSS spacecraft currently operational or expected to be operational within 9° of Satcom SN-4 during its anticipated operational time frame.

9. We conclude that authorization of this service does not require a waiver of Section 2.106, because the United States Table of Frequency Allocations generally governs services provided to stations operating in the United States and the insular areas listed in Section 2.105 (a) footnotes, 2, 3, and 4.<sup>8</sup> SES Americom's plans to provide service to the United States in ITU Region 2, using frequencies consistent with the United States Table of Frequency Allocations, therefore for Region 2 services a waiver is not required. In the case of service to ITU Region 1, the service area in which SES Americom seeks to operate is outside the United States and any of its territories or possessions, and therefore a waiver of Section 2.106 is not required.<sup>9</sup>

10. SES Americom has also requested modification of the Satcom SN-4 authorization to permit the spacecraft to operate with an East/West station-keeping tolerance of 0.1 degrees for the remainder of its license term. SES Americom has submitted a request to waive Section 25.210(j) which specifies an East/West station-keeping tolerance of 0.05 degrees. SES Americom has provided an analysis indicating that the larger station-keeping box will have negligible impact on the interference environment to adjacent satellites. In addition, SES Americom asserts that no other spacecraft is operating or plans to operate during the remainder of the Satcom SN-4 license term with a station-keeping volume that would overlap with that of Satcom SN-4. Finally, SES Americom also states that operation with the increased station-keeping tolerance will allow SES Americom to conserve fuel, which will extend the useful life of the satellite, allowing for continuity of services.

11. The Commission may grant a waiver for good cause shown.<sup>10</sup> Waiver is appropriate if (1) special circumstances warrant a deviation from the general rule, and (2) such deviation would better serve the public interest than would strict adherence to the general rule.<sup>11</sup> Generally, the Commission may grant a waiver of its rules in a particular case only if the relief requested would not undermine the policy objective of the rule in question, and would otherwise serve the public interest.<sup>12</sup> In considering requests for non-conforming spectrum uses, the Commission has indicated that it would generally grant such waivers "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."<sup>13</sup>

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<sup>8</sup> 47 C.F.R. § 2.105, footnote 2, 3 and 4.

<sup>9</sup> Application to Modify Authorization for Intelsat 805 to Allow the Provision of Fixed-Satellite Service Between Non-U.S. Points in the 12.7-12.75 GHz Frequency Band, *Order and Authorization*, 19 FCC Rcd. 2775, para 8 (rel. February 18, 2004) (holding that a waiver of Section 2.106 is not required for similar reasons). Although we have considered the International Table of Frequency Allocations in our decision-making here, that table is included in the Code of Federal Regulations for informational purposes only, *see* 47 C.F.R. § 2.104(a), and, therefore, no waiver of the International Table is required.

<sup>10</sup> 47 C.F.R. § 1.3. *See also* *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969) (*WAIT Radio*); *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1166 (D.C. Cir. 1990) (*Northeast Cellular*).

<sup>11</sup> *See Northeast Cellular*, 897 F.2d at 1166.

<sup>12</sup> *See WAIT Radio*, 418 F.2d at 1157.

<sup>13</sup> *Fugro-Chance, Inc., Order and Authorization*, 10 FCC Rcd 2860, 2860 ¶ 2 (Int'l Bur. 1995) (authorizing non-conforming MSS in the C-band); *see also* *Motorola Satellite Communications, Inc., Order and Authorization*, 11 FCC Rcd 13952, 13956 ¶ 11 (Int'l Bur. 1996) (authorizing service to fixed terminals in bands allocated to the

12. Section 25.210(j) of the rules requires that space stations operated in the geostationary satellite orbit be maintained within 0.05 degrees of their assigned orbital longitude in the East/West direction, unless specifically authorized by the Commission to operate with a different longitudinal tolerance.<sup>14</sup> In a previous order denying a similar request without prejudice, the Satellite Division (“Division”) noted the information that a licensee may wish to provide in support of any future requests for increased East/West longitudinal station-keeping tolerances. In particular, the Division indicated the licensee should provide information regarding the identity of known satellites located at, or planned to be located at, the location proposed by the licensee, or assigned a location in the vicinity such that the station-keeping volume of the respective satellites might overlap. The Division further indicated that the licensee need not address every filing with the ITU that met the criteria, but should assess and address any systems reflected in ITU filings that are in operation or that the licensee believed may be progressing toward launch, *e.g.* by the appearance of the system on a launch vehicle manifest. The Division stated that, in the event an overlap is indicated, the licensee should identify the measures it would take to avoid in-orbit collisions with such satellites.<sup>15</sup>

13. In this case, SES Americom has stated that it does not have any basis to anticipate that any satellite will operate within Satcom SN-4’s station-keeping volume through the remainder of Satcom SN-4’s license term. SES Americom has also provided an interference analysis showing negligible impact on interference to adjacent satellites. As a result, SES Americom states that no satellites will be adversely impacted by the increased station-keeping volume.

14. We agree with SES Americom that increasing the station-keeping volume of the Satcom SN-4 spacecraft will not adversely affect the operations of other spacecraft, and would conserve fuel for future operations. We note that while SES Americom’s research indicates that no spacecraft are planned for or are currently operating within the station-keeping volume of Satcom SN-4, however, it is theoretically possible that a future spacecraft will be launched or moved into such a position. We, therefore, will grant SES Americom’s waiver and modification request to operate Satcom SN-4 with 0.1° East/West tolerance subject to no other spacecraft being located within the station-keeping volume of Satcom SN-4. Should such a spacecraft be launched or relocated into the station-keeping volume of Satcom SN-4, SES Americom will be required to maintain 0.05° East/West station-keeping, or coordinate its operations with that of the other spacecraft.

15. SES Americom also requests authority to perform tracking, telemetry and control functions necessary to remove the Satcom SN-4 satellite from orbit upon retirement of the satellite. SES Americom proposes to raise the apogee and perigee of the spacecraft to a minimum of 150 km above the geostationary satellite orbit, with subsequent fuel depletion maneuvers further raising the spacecraft altitude. We find the proposed disposal of Satcom SN-4, which was launched on April 12, 1991, to be consistent with Commission rules<sup>16</sup> and the public interest.<sup>17</sup> Therefore, we grant SES Americom

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mobile-satellite service); Geostar Positioning Corp., *Order and Authorization*, 4 FCC Rcd 4538, para. 7 (1989)(authorizing service to radiodetermination satellite service terminals in a band allocated to the fixed satellite service).

<sup>14</sup> See 47 C.F.R. § 25.210(j)

<sup>15</sup> See *XM RADIO INC.*, Application for Minor Modification to Relocate Satellite Digital Audio Radio Service (SDARS) Satellites, DA 05-180, *Order and Authorization*, 20 FCC Rcd. 1620 at para 29, (rel. Jan 26, 2005) (“XM 3 and 4 Order”)

<sup>16</sup> Although SES Americom’s minimum perigee increase is less than that specified in our rules for newer spacecraft, the Satcom SN-4 satellite is “grandfathered.” See 47 C.F.R. § 25.283(d).

<sup>17</sup> We note that recent studies suggest that minimization of the eccentricity of the disposal orbit, and performing maneuvers such that the spacecraft’s disposal orbit has a sun-pointing perigee, may substantially enhance the long-term stability of the disposal orbit, and, therefore, the extent to which the spacecraft remains removed from the geostationary satellite orbit altitude. We therefore urge SES Americom and other licensees disposing of

authority for end-of-life TT&C operations for Satcom SN-4 consistent with the request in SES Americom's application<sup>18</sup>

#### IV. ORDERING CLAUSES

16. SES Americom's application, File No. SAT-MOD-20050325-00075, to modify its current authorization to operate the Satcom SN-4 satellite at 172° E.L. orbital location, IS GRANTED. Accordingly, SES Americom is authorized to change the coverage area of the SN-4 spacecraft, Call Sign KS49, by repointing the satellite northward, and to operate its Satcom SN-4 (Call Sign KS49) satellite at the 172° E.L. orbital location using the 3700 - 4200 MHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth), 5925-6425 MHz (Earth-to-space), and 14.0-14.5 GHz (Earth-to-space) frequency bands in accordance with the terms, conditions, and technical specifications set forth in its application, this Order and the Federal Communications Commission's Rules.

17. IT IS FURTHER ORDERED that SES Americom's request to waive 47 C.F.R. § 25.210(j) IS GRANTED as described herein. Accordingly, SES Americom may operate Satcom SN-4 with 0.1° East/West tolerance station-keeping subject to no other spacecraft being located within the station-keeping volume of Satcom SN-4. Should such a spacecraft be launched or relocated into the station-keeping volume of Satcom SN-4, SES Americom will be required to maintain 0.05° East/West station-keeping, or coordinate its operations with that of the other spacecraft.

18. IT IS FURTHER ORDERED that the request for waiver of Section 25.114(d)(3), filed by SES Americom IS GRANTED.

19. IT IS FURTHER ORDERED that SES Americom's Applications for Extension of Special Temporary Authority, File Nos. SAT-STA-20050531-00112 IS GRANTED.

20. IT IS FURTHER ORDERED that SES Americom IS GRANTED authority to conduct Tracking, Telemetry and Control transmissions in connection with end-of-life disposal of the SN-4 satellite in accordance with the terms, conditions, and technical specifications set forth in its application.

21. SES Americom is afforded thirty days to decline this authorization as conditioned. Failure to respond within this period will constitute formal acceptance of the authorization as conditioned.

22. This Order is effective upon release. Petitions for Reconsideration under Section 1.106 or applications for review under Section 1.115 of the Commission's rules, 47 C.F.R. §§ 1.106, 1.115, may be filed within thirty days of the date of the release of this Order (see 47 C.F.R. § 1.4(b) (2)).

#### FEDERAL COMMUNICATIONS COMMISSION

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geostationary spacecraft to consider such measures, if compatible with other operational constraints, when developing end-of-life operational plans.

<sup>18</sup> This action supercedes the condition placed on Satcom SN-4 at paragraph 13 of the *SN-4 Modification Order*.