

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

DA 95-721

In re Application of	)	File Nos. 3-DSS-AMEND-93
	)	4-DSS-AMEND-95
AMSC SUBSIDIARY CORPORATION	)	
	)	
For Authority to Construct, Launch	)	
and Operate AMSC-1	)	
	)	

**ORDER AND AUTHORIZATION**

Adopted: April 3, 1995

Released: April 4, 1995

By the Chief, International Bureau:

1. AMSC Subsidiary Corporation (AMSC) has filed two requests relating to AMSC-1, the first of three satellites comprising its Mobile Satellite Service (MSS) system.<sup>1</sup> In these requests, AMSC proposes to eliminate use of the 11/13 GHz band for telemetry, tracking and control (TT&C) operations and to use only the 12/14 GHz band for those purposes.<sup>2</sup> More specifically, AMSC seeks authority to use the frequencies 11700.5 MHz, 11701.0 MHz and 14499.5 MHz for TT&C operations during transfer orbit maneuvers, and 11700.5 MHz, 11701.0 MHz, 14000.5 MHz and 14499.5 MHz for TT&C operations when AMSC-1 reaches its proper orbital location.<sup>3</sup> No one opposes the AMSC requests, and we grant them in this order.

2. The Commission previously authorized AMSC to use the 12/14 GHz band for TT&C operations only during AMSC-1's transfer orbit maneuver.<sup>4</sup> Although TT&C operations

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<sup>1</sup> See Memorandum Opinion, Order and Authorization (Licensing Order), 4 F.C.C. Rcd 6041 (1989), rev'd in part, *Aeronautical Radio, Inc. v. FCC*, 928 F.2d 428 (D.C. Cir. 1991); see also Final Decision on Remand, 7 F.C.C. Rcd 266 (1992) (reaffirming grant of MSS license to MSS) aff'd, *Aeronautical Radio, Inc. v. FCC*, 983 F.2d 275 (1993). See also Order and Authorization, File No. 13-DSS-AL-91(3) (March 22, 1991) (granting assignment of MSS authorization from American Mobile Satellite Corporation to AMSC Subsidiary Corporation).

<sup>2</sup> In this Order and Authorization, we use the term "11/13 GHz band" to refer to the frequencies 10.7-11.7 and 12.75-13.25 GHz, and the term "12/14 GHz band" to refer to frequency bands 11.7-12.2 and 14.0-14.5 GHz. Both the 11/13 and 12/14 GHz bands are allocated domestically to the Fixed Satellite Service (FSS).

<sup>3</sup> The transfer orbit maneuver is used to place the satellite at its on-orbit location, i.e., its designated geostationary orbit location, after the satellite is separated from the launch vehicle. The maneuver typically requires worldwide tracking facilities, since during the maneuver the satellite will be located at a wide range of positions above the surface of the earth.

<sup>4</sup> See Memorandum Opinion & Order, 8 F.C.C. Rcd 4040 (1993). The specific frequencies authorized are 12197.75 MHz, 12195.25 MHz, and 14003.5 MHz.

are often authorized in the same bands in which the licensee operates its gateway service, which in this case would be the 11/13 GHz bands,<sup>5</sup> we granted AMSC's earlier request after observing that there are no world-wide TT&C facilities that operate in the 11/13 GHz band. AMSC now seeks an amendment to its earlier authorization to use slightly different frequencies in the 12/14 GHz bands for TT&C operations during the transfer orbit maneuver, *viz.*, 11700.5 MHz, 11701.0 MHz, and 14499.5 MHz. AMSC also seeks authority to conduct TT&C operations on these frequencies and on 14000.5 MHz when AMSC-1 reaches its proper orbital on-station location.<sup>6</sup>

3. AMSC states that a grant of its request will allow it to consolidate both its transfer orbit maneuver and on-orbit TT&C operations in the 12/14 GHz band, thereby reducing the duplication of the TT&C packages aboard the spacecraft, which would reduce the weight of the satellite. This allows more station-keeping fuel to be loaded aboard the satellite, and thereby increases the satellite's life.<sup>7</sup> In addition, AMSC asserts, it will realize substantial savings in the satellite's construction costs. Further, AMSC notes that it would have the option of leasing ground segment TT&C services from an established domestic fixed satellite operator that already is providing such services in the 12/14 GHz bands, thereby potentially further reducing its overall system costs. AMSC adds that its TT&C operations at 12/14 GHz will cause no harmful interference to any existing satellite operations. In particular, AMSC states that GTE Spacenet, which currently operates a satellite at 101 degrees W.L., the orbital location from which AMSC-1 would operate, "has indicated th[is] [AMSC-1] modification will not cause harmful interference to its current satellite operations. Furthermore, AMSC and GTE Spacenet have an understanding that they will attempt to resolve any future problems in that regard." Application at 5-6.<sup>8</sup>

4. AMSC also submits that any future satellites authorized to operate in the 12/14 GHz band are unlikely to be affected by AMSC-1's operations, even if the future satellite were located at 101 degrees W.L. AMSC submits a technical analysis examining whether any of the currently deployed domestic FSS satellites, if moved to 101 degrees W.L., would potentially receive interference from AMSC-1's proposed operations. AMSC concludes that only one satellite, SBS-5, might possibly be adversely affected, and that it is unlikely that SBS-5 will ever

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<sup>5</sup> These bands are the authorized "feeder link" bands for AMSC-1. Feeder links are radio links between an earth station at a fixed location and a satellite, and are used in an MSS system to connect one mobile terminal with another, and to connect the system to terrestrial communication networks. They are distinct from AMSC's "service links," which are the radio links between the satellite and either mobile earth terminals or aeronautical mobile earth terminals. AMSC-1's service links are at 1545-1559/1646.5-1660.5 MHz.

<sup>6</sup> AMSC was granted a waiver of Section 319(d) of the Communications Act of 1934, as amended, 47 U.S.C. § 319(d), to construct the AMSC-1 satellite at its own risk in conformance with this request. *See* Order, 23-DSS-MISC-92 (May 27, 1993).

<sup>7</sup> Station-keeping fuel is used to maintain or adjust the position of a satellite in its orbit.

<sup>8</sup> Subsequently, control of GTE Spacenet was transferred from GTE Corporation to GE American Communications, Inc. *See* Contel Corporation, 9 F.C.C. Rcd 5775 (1994).

be relocated to 101 degrees W.L..<sup>9</sup> AMSC also states that if a future assignee of the 101 degree W.L. orbital location receives unacceptable interference from AMSC-1, AMSC could relocate to either 100 or 102 degrees W.L. Moreover, AMSC adds, all extant domsats could be located at 99, 101, or 103 degrees W.L. without receiving or causing interference from or to AMSC-1 located at either 100 or 102 degrees W.L.

5. AMSC also notes that it is increasingly common to use hybrid domestic fixed satellites which operate in both the 4/6 GHz and 12/14 GHz bands, and generally conduct TT&C only within the 4/6 GHz band. AMSC states that a continuation of this trend will leave the edges of the 12/14 GHz band, where it proposes to locate its TT&C operations, increasingly unused. This, AMSC concludes, adds further to the spectrum efficiency of its proposal and helps assure that the requested authorization will not interfere with future 12/14 GHz band service.

6. With respect to its request for revised frequencies to use during the transfer orbit maneuver, AMSC states that it will coordinate with other satellite operators as necessary to prevent harmful interference to their systems. Further, thirty days prior to launch of AMSC-1, AMSC states that it will notify operators of the satellites that AMSC-1 will pass during the five-day transfer orbit phase. It will also advise operators that AMSC-1 and its ground facilities will not radiate when the satellite is within one degree of another satellite.

7. We grant AMSC's requests. By consolidating TT&C operations in the 12/14 GHz band, AMSC will eliminate the need for 11/13 GHz TT&C equipment, and will be able to lease ground segment TT&C functions from existing operators. These benefits will be reflected in lower costs to customers. Furthermore, AMSC has demonstrated that grant of its proposal would not result in interference to current fixed satellite service operations in the 12/14 GHz band, as evidenced by its agreement with GTE Spacenet. Consequently, we find that a grant of AMSC's request will serve the public interest pursuant to Sections 309 and 319 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 309 and 319. However, we are concerned that AMSC's use of the 12/14 GHz bands for TT&C could affect future fixed satellite service operations at the 101° W.L. orbital location. Therefore, we condition grant of this authorization on AMSC coordinating its TT&C operations with any 12/14 GHz satellite authorized to occupy orbital location 101 degrees W.L., and with the understanding that we will require AMSC to relocate AMSC-1 if AMSC is unsuccessful in completing coordination with these other U.S. satellite licensees.

### Ordering Clauses

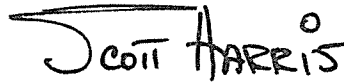
8. Accordingly, IT IS ORDERED that, pursuant to Section 0.261 on delegation of

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<sup>9</sup> SBS-5 is licensed to Hughes Communications Galaxy, Inc., and is operating at 123 degrees W.L. AMSC states that it is unlikely SBS-5 will ever be relocated to 101 degrees W.L. because SBS-5 is not a hybrid satellite, and 101 degrees W.L. is assigned by the Commission for use by hybrid satellites, which normally operate in both C-band (4/6 GHz) and Ku-band (12/14 GHz). AMSC concludes, therefore, that its "use of 12/14 GHz . . . is consistent with the Commission's policy of promoting fungibility in orbital locations." Application at 4.

authority, 47 C.F.R. § 0.261, application File Nos. 3-DSS-AMEND-93 and 4-DSS-AMEND-95 ARE GRANTED, and AMSC is permitted to use the frequencies 11700.5 MHz, 11701.0 MHz and 14499.5 MHz during its transfer orbit maneuvers. AMSC is also permitted to use the frequencies 11700.5 MHz, 11701.0 MHz, 14000.5 MHz and 14499.5 MHz for telemetry, tracking, and control functions from its proper on-station orbital location, 101 degrees, W.L., provided that AMSC successfully coordinates its TT&C operations with licensees of satellites at 101 degrees W.L. operating in the 12/14 GHz bands. If a coordination agreement cannot be reached, AMSC-1 will be required to relocate to another orbital location.

FEDERAL COMMUNICATIONS COMMISSION

A handwritten signature in black ink that reads "Scott Harris". The signature is stylized, with a long horizontal line above the "S" and a small circle above the "i" in "Harris".

Scott Blake Harris  
Chief, International Bureau