

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

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In the Matter of	)	
	)	
TMI Communications and Company, L.P.	)	File No. SES-MOD-20000307-00345
	)	
For Modification of its Blanket	)	
Authorization to operate up to 100,000	)	
Mobile-satellite earth terminals (METs)	)	
Through Canadian –licensed satellite	)	
MSAT-1 at 106.5 degrees W.L., in	)	
Frequency bands 1646.5-1660 MHz	)	
(transmit) and 1545-1558.5 MHz (receive)	)	

**ORDER AND AUTHORIZATION**

**Adopted: December 8, 2000      Released: December 11, 2000**

**By the Chief, Satellite and Radiocommunication Division:**

**I. INTRODUCTION**

1. By this Order, we modify the blanket license held by TMI Communications and Company, L.P. (TMI). The license permits TMI to operate up to 100,000 mobile earth terminals (METs) to provide mobile satellite service (MSS) in the United States via the Canadian-licensed MSAT-1 satellite.<sup>1</sup> This modification permits TMI to operate a new type of MET, a half-duplex, packet-data terminal manufactured by EMS Technologies, Inc. (EMS). This will, in turn, lead to increased competition in the MSS market by making increased service options available to U.S. consumers.

<sup>1</sup> *TMI Communications and Company, L.P.*, 14 FCC Rcd 20798 (1999).

## II. BACKGROUND

2. TMI holds a blanket license to operate up to 100,000 full-duplex METs in portions of the 1545-1558.5 MHz and 1646.5-1660 MHz frequency bands (“the upper L-band”)<sup>2</sup> via the Canadian-licensed MSAT-1 satellite.<sup>3</sup> A portion of these bands is shared on a co-primary basis<sup>4</sup> between commercial MSS and the Federal Government aeronautical mobile satellite service (AMS[R]S).<sup>5</sup> According to Footnote US308 in the Table of Frequency Allocations, MSS operators must be able to provide priority access with “real-time preemption” to provide AMS[R]S.<sup>6</sup> To date, only full-duplex METs have been able to meet this requirement.<sup>7</sup>

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<sup>2</sup> TMI’s operation in the upper L-band is limited to those portions of the 1545-1558.5 and 1646.5-1660 MHz band coordinated for the TMI satellite network in the most recent annual L-band operator-to-operator coordination agreement. In the absence of a continuing annual operator-to-operator coordination agreement, TMI’s operation in the 1545-1558.5 and 1646.5-1660 MHz band will be on a non-interference basis until a future operator-to-operator agreement is concluded. TMI would then have to notify the other four operators in these bands that it will be operating on a non-interference basis and also notify its customers in the United States that its operations are on a non-interference basis.

<sup>3</sup> The Commission has previously found that TMI’s operations in the United States satisfy the criteria set forth in *Amendment of the Commission’s Regulatory Policies to Allow Non-U.S. Licensed Space Stations to Provide Domestic and International Service in the United States*, Report and Order, 12 FCC Rcd 24094 (1997). See *SatCom Systems*, 14 FCC Rcd 20798 (1999), *aff’d sub nom, AMSC v. FCC*, No 99-1513 (D.C. Cir. July 11, 2000).

<sup>4</sup> AMS[R]S is a mobile satellite service using mobile terminals on board aircraft. This service can be used to support domestic and international traffic, including air traffic control. The [R] indicates that the spectrum is used for aeronautical communications related to the safety and regularity of flights primarily along national and international civil air routes.

<sup>5</sup> Allocation of a given frequency band for a particular service on a primary basis entitles operators to protection against harmful interference from other services. Any use of that frequency band for service not allocated requires that the operator not cause harmful interference to authorized users operating in accordance with the Allocation Table and to accept any interference from such authorized users. Services operating on a co-primary basis have equal rights. However, MSS operations in the upper L-band are subject to Footnote US308.

<sup>6</sup> Section 2.106 of the Commission’s Rules, 47 C.F.R. § 2.106, contains the Table of Frequency Allocations. The Table includes footnotes which denote stipulations applicable to both U.S Government and non—Government stations. Footnote US308 states that in the 1549.5-1558.5/1651-1660 MHz band the AMS[R]S requirements that cannot be accommodated in the 1545-1549.5 MHz, 1558.5-1559 MHz, 1646.5-1651 MHz and 1660-1660.5 MHz bands shall have priority access with real-time preemptive capability with respect to communications in the MSS. Note 729A states generally that, notwithstanding other provisions of the Radio Regulations relating to restriction in the use of the bands allocated to AMS[R]S for public correspondence, the bands 1545-1555 MHz and 1646.5-1656.5 MHz may be authorized by administrations for public use with aircraft earth stations.

<sup>7</sup> Full-duplex METs allow data messages to be received and transmitted simultaneously. Thus, a full-duplex MET can receive a signal to shut down to accommodate AMS[R]S when it is transmitting. In contrast, half-duplex METs must finish transmitting before they can receive an incoming message. As a result, the amount of time necessary to preempt service to provide AMS[R]S is longer.

3. On March 7, 2000, TMI applied to modify its license by adding a half-duplex MET manufactured by EMS to provide services.<sup>8</sup> The new METs will operate in a packet-data mode with packet-switched service connections, in which a physical path is not dedicated to a particular connection during a call. Since the connection is based on packet-switching, TMI states that the Data Hub (DH) can order the mobile terminal to cease transmitting at any time by using an appropriate command to accommodate AMS[R]S.<sup>9</sup>

4. According to TMI, the proposed half-duplex METs meet the priority access and real-time preemption requirements since they can be preempted for AMS[R]S spectrum requirements in less than one second.<sup>10</sup> The National Telecommunications and Information Administration (NTIA), which oversees the frequency bands in which Federal Government services may be provided, and the Federal Aviation Administration have indicated that the priority and preemption capabilities of the proposed EMS METs are acceptable.<sup>11</sup> Norcom Networks Corporation (Norcom) filed a petition to deny TMI's application.<sup>12</sup>

### III. DISCUSSION

5. We grant TMI's request to modify its blanket license to operate 100,000 METs in the upper L-band to include the half-duplex packet data terminals manufactured by EMS. As discussed below, we find these METs meet the priority access and real-time preemption requirement set forth in Footnote US308 to the Table of Frequency Allocations.

6. In a letter to the Commission dated August 25, 2000, NTIA, after consultation with the FAA and the U.S. Coast Guard, stated that half-duplex METs would

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<sup>8</sup> TMI states that it is not seeking to increase the 100,000 unit "cap" in its existing license, but merely is seeking to add the EMS-manufactured METs to its existing blanket license.

<sup>9</sup> TMI application, Exhibit 5.

<sup>10</sup> TMI application, Exhibit 3.

<sup>11</sup> The Federal Aviation Administration (FAA) concurred with NTIA. *See* Letter from William T. Hatch, Associate Administrator, Office of Spectrum Management, Department of Commerce, National Telecommunication and Information Administration to Donald Abelson, Chief, International Bureau, FCC (August 25, 2000).

<sup>12</sup> Norcom states that it is a direct competitor of TMI for the provision of packet data MSS in the United States. Norcom owns and operates a ground-based data transport system that provides value-added packet data MSS in the United States and also holds a blanket MET authorization to provide MSS in the upper L-band. Through its wholly-owned subsidiary, Narrowband Telecommunications Research, Inc. Norcom designs and manufactures full-duplex METs for use in the upper L-band.

satisfy Footnote US308's priority access and real-time preemption requirements under the following conditions:<sup>13</sup>

- a. All operating MESs<sup>14</sup> must be capable of ceasing transmission and inhibiting any further transmissions within one second of a command from the network LES, or by cessation of a command signal under all circumstances
- b. Each MES, as a minimum, must be capable of selectively operating on a number of discrete channels within the operating band in order to accommodate the need to possibly modify frequency use due to traffic growth and ongoing intersystem frequency coordination; and
- c. All other requirements for full-duplex operation will apply to half-duplex METs.

7. NTIA and FAA agree that the EMS-manufactured METs meet these requirements.<sup>15</sup> First, the packet-switching technology used by TMI allows TMI to order the mobile terminal to cease transmitting at any time to accommodate AMS[R]S. Second, as TMI states, and NTIA concurs, MSS transmissions on these METs can be preempted for AMS[R]S spectrum requirements in less than one second. Finally, the half-duplex METs otherwise meet the priority access and real-time preemption requirements applied to full-duplex terminals. NTIA states that it has reviewed the TMI application and concludes that the proposed half-duplex terminals meet these criteria.<sup>16</sup>

8. Norcom argues that TMI's application requires a waiver before it can be granted because, for the last seven years, the Commission has consistently applied a policy of requiring holders of blanket MSS MET authorizations to operate full-duplex METs in the upper L-band exclusively. Norcom objects to any waiver of this policy in this case because it contends that TMI has failed to justify special circumstances in support of its waiver request. Norcom also argues that a rulemaking proceeding is required to ensure that any change in policy will be equally applicable to all METs operating in the upper L-band and not just to TMI's. Finally, Norcom states that TMI's

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<sup>13</sup> See note 11, *supra*.

<sup>14</sup> NTIA refers to METs as "MESs", i.e. mobile earth stations. These terms are used interchangeably throughout this Order.

<sup>15</sup> To the extent deemed necessary, TMI requested a waiver of the Footnote US 308. In light of NTIA's August 25, 2000, letter and our finding that TMI's half-duplex terminals satisfy NTIA's requirements, no waiver of Footnote US308 is necessary.

<sup>16</sup> See note 11, *supra*.

modification application should not be granted until all of the EMS-manufactured half-duplex terminals have been type accepted.<sup>17</sup>

9. We conclude that a waiver is not required. The Commission has never prohibited the use of half-duplex METs in the upper L-band. Rather, the Commission has denied applications to operate half-duplex METs in the upper L-band because the half-duplex terminals at issue could not provide priority access and real-time preemption to provide for AMS[R]S.<sup>18</sup> In denying applications for the half-duplex terminals, we have not made any finding that half-duplex terminals could not, under any circumstances, satisfy the priority access and real-time preemption requirements of US308. Indeed, recent technological advances have begun to blur the distinction between full and half-duplex terminals. As NTIA recognizes, there are “new approaches for half-duplex METs” that include “shorter transmission bursts and improved protocols that can simulate full-duplex MES operation.”<sup>19</sup>

10. We also conclude that a rulemaking is not required to grant TMI’s modification request. As set forth above, we generally obtain NTIA concurrence on applications involving shared spectrum. Since NTIA concurs that TMI’s half-duplex METs meet the priority access and real-time preemption requirement of US308, there is no need to delay a grant of TMI’s application pending a potential rulemaking. If Norcom seeks to have the Commission establish technical rules to govern the determination of priority access and real-time preemption, it is free to petition the Commission to do so.

#### IV. CONCLUSION

11. For the reasons set forth above, we find that TMI’s operation of the EMS-manufactured, half-duplex METs in the upper L-band complies with priority access and real-time preemption requirements set forth in US Footnote 308. Accordingly, we find that a grant of TMI’s application will serve the public interest.

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<sup>17</sup> TMI’s blanket license contains conditions regarding the need for type acceptance under Part 87 of the Commission’s rules for aeronautical service. 47 C.F.R. Part 87. For other than aeronautical service, type acceptance is a voluntary procedure pending the outcome of the proceeding in IB Docket No. 99-67. *In the Matter of Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements; Petition of the National Telecommunications and Information Administration to Amend Part 25 of the Commission’s Rules to Establish Emissions Limits for Mobile and Portable Earth Stations Operating in the 1610-1660.5 MHz Band*, 14 FCC Rcd 5871 (1999).

<sup>18</sup> See e.g., *AMSC Subsidiary Corporation*, 10 FCC Rcd 10458 (1995) [AMSC denied authority to operate half-duplex METs because it could take the METs several seconds or more to shut down to accommodate AMS[R]S transmissions]; *Rockwell International Corporation*, 10 FCC Rcd 10952 (1995) [Rockwell denied use of half-duplex METs in upper L-band where maximum time need to shutdown the message channel ranged from 41 to 61 seconds].

<sup>19</sup> See note 11, *supra*.

## V. ORDERING CLAUSES

12. Accordingly, IT IS ORDERED that Application File No. SES-MOD-20000307-00345 IS GRANTED and blanket earth station license of TMI Communications and Company, L.P. to operate up to 100,000 full-duplex METs in the upper L-band via the Canadian licensed MSAT-1 satellite (Call Sign E980179) IS MODIFIED to add the EMS-manufactured half-duplex packet data METs.

13. IT IS FURTHER ORDERED that TMI's operation of the half-duplex METs authorized herein shall be in accordance with the technical specifications set forth in its blanket Radio Station Authorization, and the Commission's rules. All other terms and conditions of TMI's blanket MET authorization remain the same.

14. IT IS FURTHER ORDERED that the total number of METs that TMI may operate under its blanket authorization, as modified herein, shall not exceed the 100,000 total initially authorized.

15. IT IS FURTHER ORDERED that the TMI Communications and Company, L.P. authorization and the license related thereto are subject to compliance with the provisions of the Agreement between TMI and the Department of Justice and the Federal Bureau of Investigation, dated September 10, 1999, which is designed to address national security, law enforcement, and public safety concerns of the Department of Justice and the Federal Bureau of Investigation regarding the modified license granted herein. Nothing in the Agreement of the Implementation Plan is intended to limit any obligation imposed by Federal law or regulation including, but not limited to, 47 U.S. 222(a) and (c)(a) and the Commission's implementing regulations.

16. IT IS FURTHER ORDERED that the following requirements will apply to half-duplex METs operating in the 1646.5-1660 MHz and 1545-1558.5 MHz band:

- a. All operating METs must be capable of ceasing transmission and inhibiting any further transmissions within one second of a command from the network LES, or by cessation of a command signal under all circumstances;
- b. Each MET, as a minimum, must be capable of selectively operating on a number of discrete channels within the operating band in order to accommodate the need to possibly modify frequency use due to traffic growth and ongoing intersystem frequency coordination; and
- c. All other requirements for full-duplex operation will apply to half-duplex METs.

17. IT IS FURTHER ORDERED that, in addition to the requirements set forth in paragraph 16, the METs operated by TMI Communications and Company, L.P. under its existing authorization as modified herein must have the following minimum set of capabilities to ensure compliance with US Footnote 308 to Section 2.106 of the Commission's Rules, 47 C.F.R. 2.106:

- a. All MET transmission shall have a priority assigned to them that preserves the priority and preemptive access given to aeronautical distress and safety-related communications sharing the band;
- b. Each MET shall be assigned access to a unique technical identification number that will be transmitted upon any attempt to gain access to a system;
- c. After a MET has gained access to a system the mobile terminal shall be under the control of a Land Earth Station and shall obtain all channel assignments from it;
- d. All METs that do not continuously monitor a separate signaling channel shall have provisions for signaling within the communications channel;
- e. Each MET shall automatically inhibit its transmissions if it is not correctly receiving a separate signaling channel or signaling within the communications channel from its associated Land Earth Station; and
- f. Each MET shall automatically inhibit its transmission on any or all channels upon receiving a channel-shut-off command on a signaling or communications channel it is receiving from its associated Land Earth Station.

18. IT IS FURTHER ORDERED that, in accordance with US Footnote 308, the operation of TMI Communications and Company, L.P.'s METs in the 1545-1558.5 and 1646.5-1660 MHz, is on a secondary basis to U.S. AMS[R]S requirements of other U.S.-authorized MSS providers operating in the 1545-1559 and 1646.5-1660 MHz bands.

19. IT IS FURTHER ORDERED that TMI Communications and Company, L.P. will be subject to any applicable out-of-band emission standards subsequently incorporated in the Commission's rules for protection of the Global Navigation Satellite Service.

20. IT IS FURTHER ORDERED that the Petition to Deny of Norcom Networks Corporation IS DENIED.

21. The Order is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective upon adoption. 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 30 days of the date of the release of this Order (see 47 C.F.R. § 1.4(b)(2)).

FEDERAL COMMUNICATIONS COMMISSION

Thomas S. Tycz  
Chief  
Satellite and Radiocommunication Division