



**UNITED STATES DEPARTMENT OF COMMERCE  
National Telecommunications and  
Information Administration**

Washington, D.C. 20230

July 15, 2003

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 Twelfth Street, S.W.  
Washington, DC 20554

Re: *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, L-Band, and the 1.6-2.4 GHz Bands*, IB Docket No. 01-185, *Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, IB Docket No. 02-364, Report and Order and Notice of Proposed Rulemaking, FCC 03-15

Dear Ms. Dortch:

Enclosed please find an original and four (4) copies of the late-filed Comments of the National Telecommunications and Information Administration, U.S. Department of Commerce, in the above-referenced docket. A copy of the filing in a WordPerfect file is also provided on diskette.

Please direct any questions you may have regarding this letter to the undersigned. Thank you for your cooperation.

Respectfully submitted,

Kathy D. Smith  
Chief Counsel

Enclosures

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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

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JUL 15 2003

Federal Communications Commission  
Office of Secretary

In the Matter of	)	
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Flexibility for Delivery of Communications by	)	IB Docket No. 01-185
Mobile Satellite Service Providers in the 2 GHz	)	
Band, the L-Band, and the 1.6/2.4 GHz Bands	)	
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Review of the Spectrum Sharing Plan Among	)	IB Docket No. 02-364
Non-Geostationary Satellite Orbit Mobile Satellite	)	
Service Systems in the 1.6/2.4 GHz Bands	)	

**COMMENTS OF THE NATIONAL TELECOMMUNICATIONS  
AND INFORMATION ADMINISTRATION**

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July 15, 2003

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## EXECUTIVE SUMMARY

The National Telecommunications and Information Administration (NTIA) supports the Federal Communications Commission (Commission) in its efforts to implement a regulatory framework necessary to permit Mobile Satellite Service (MSS) providers to integrate ancillary terrestrial components into their networks. In this Notice of Proposed Rulemaking (NPRM) the Commission identified the bands 1615.5-1621.35 MHz, 2483.5-2492 MHz, and 2498-2500 MHz (Big Low Earth Orbiting (LEO) bands) as available for other uses. The Commission requested comment on the possibility of permitting use of the Big LEO spectrum to support a non-commercial (e.g., government operated) MSS system.

The Department of Defense (DoD) has a requirement for worldwide mobile-satellite operations. The majority of the MSS spectrum available today for government use is above 3 GHz. The spectrum available below 3 GHz is crowded and contains many regulatory requirements. The bands identified in the NPRM are allocated on a worldwide basis to MSS and are available for use by government earth stations operating with non-government satellite systems and government radiodetermination-satellite systems. The Big LEO bands are not encumbered by high densities of terrestrial transmitters and do not have the regulatory requirements found in other MSS frequency bands currently available for government use. Spectrum available for MSS is scarce, and the Big LEO bands represent possibly the last spectrum resources below 3 GHz that will be available for worldwide use. Due to DoD operational requirements, commercial satellites may not always be able to provide the needed services. Reallocating this spectrum to other radio services would mean the loss of this spectrum for MSS use. Given the increasing demands on spectrum below 3 GHz, obtaining international allocation of other spectrum for MSS is highly unlikely. Allocating spectrum to the government

in the bands identified by the Commission will provide critical mobile warfighter support and time-critical tactical and intelligence system deployment. Furthermore, it could support some of the MSS requirements of the Department of Homeland Security and other situations where federal agencies participate in emergency relief activities. To allow these bands to be available to support government satellite systems would clearly serve the public interest.

Specifically, NTIA recommends that the Commission modify the table of frequency allocations to include government MSS in the bands 1615.5-1621.35 MHz, 2483.5-2492 MHz, and 2498-2500 MHz to satisfy existing and growing government MSS spectrum requirements and to enhance communications for national defense, law enforcement, and emergency relief agencies.

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

In the Matter of	)	
	)	
Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Bands	)	IB Docket No. 01-185
	)	
Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands	)	IB Docket No. 02-364
	)	

**COMMENTS OF THE NATIONAL TELECOMMUNICATIONS  
AND INFORMATION ADMINISTRATION**

The National Telecommunications and Information Administration (NTIA), an Executive Branch agency within the Department of Commerce, is the President's principal adviser on domestic and international telecommunications policy, including policies relating to the nation's economic and technological advancement in telecommunications. Accordingly, NTIA makes recommendations regarding telecommunications policies and presents Executive Branch views on telecommunications matters to the Congress, the Federal Communications Commission (Commission), and the public. NTIA, through the Office of Spectrum Management, is also responsible for managing the federal government's use of the radio frequency spectrum. NTIA respectfully submits the following comments in response to the Commission's Report and Order and Notice of Proposed Rulemaking in the above-captioned proceeding.<sup>1</sup>

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<sup>1</sup> *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, L-Band, and the 1.6-2.4 GHz Bands*, IB Docket No. 01-185, *Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, IB Docket No. 02-364, Report and Order and Notice of Proposed Rulemaking, FCC 03-15, (rel. Feb. 10, 2003) ("MSS Order").

## **I. BACKGROUND**

In the MSS Order, the Commission adopted rules to permit service providers in the 2 GHz Band, L-Band, and the Big Low Earth Orbiting (LEO) bands, to integrate ancillary terrestrial base station transmitters into their networks using assigned mobile satellite service (MSS) frequencies.<sup>2</sup> In response to a petition for rulemaking filed by Iridium Satellite LLC, the Commission also included a Notice of Proposed Rulemaking (NPRM) with the MSS Order, seeking comment on redistributing spectrum in the Big LEO bands between the licensees, Iridium and Globalstar. The NPRM identified portions of the 1610-1626.5 MHz and 2483.5-2500 MHz (Big LEO bands) as being available for other uses. The Commission also requested comment on the possibility of permitting government use of the Big LEO spectrum to support non-commercial MSS systems.<sup>3</sup>

## **II. THE GOVERNMENT HAS A CRUCIAL NEED FOR MSS COMMUNICATIONS BELOW 3 GHZ.**

Currently, the bands available for government MSS include: 235-322, 335.4-399.9, 1525-1559, 1626.5-1660.5, 7250-7375,<sup>4</sup> 7900-8025, 20200-21200, and 43500-45500 MHz. While more than 2 GHz of the spectrum is currently being utilized for Department of Defense (DoD) MSS operations, minimal usable MSS spectrum exists for the DoD to satisfy its missions. The majority of the MSS spectrum available to the government agencies is located above 3 GHz where propagation and foliage penetration losses are higher, while the MSS spectrum below 3 GHz is crowded and contains significant regulatory requirements.

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<sup>2</sup> The 2 GHz Band includes 1990-2025 MHz and 2165-2200 MHz; L-Band includes 1525-1544 MHz and 1545-1559 MHz; and the Big LEO Bands include 1610-1626.5 MHz and 2483.5-2500 MHz.

<sup>3</sup> MSS Order at ¶271.

<sup>4</sup> Nationally this is limited to 7250-7300 MHz by the Table of Frequency Allocations.

Internationally, the bands 235-322 and 335.4-399.9 MHz are heavily utilized for the terrestrial fixed and mobile services. The MSS is required to go through a very difficult No. S9.21 coordination process to be allowed to operate on a non-interference basis to the allocated services.<sup>5</sup> At the conclusion of this coordination process, the MSS is only allowed to operate “on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations.”<sup>6</sup> The high-density use of the bands by the terrestrial services and these regulatory requirements make the MSS use of this spectrum extremely difficult. NTIA believes that, given the increasing demand spectrum below 3 GHz, access to these bands will grow more difficult in the future.

The DoD has a requirement for worldwide mobile-satellite to support military operations.<sup>7</sup> Domestically, in support of homeland security, MSS applications can be used in search and rescue communications, tracking of criminals, disaster management communications, environmental monitoring, vehicle and cargo tracking and industrial monitoring control.<sup>8</sup> To allow spectrum below 3 GHz to be available to support government satellite systems, for operations such as the

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<sup>5</sup> The use of services operating in certain frequency bands is governed by the procedure under No. S9.21, in addition to coordination under other Article S9 provisions of the International Telecommunication Union (ITU). This supplementary procedure is to be applied in cases where a footnote to the Table of Frequency Allocations requires an agreement with an administration. The process involves the ITU publishing a document to all administrations and the administrations either objecting to the assignment(s) based on either space or terrestrial systems or by giving tacit agreement by not replying. The proposed assignment may only be deemed to be in conformity with the Table in the context of the footnote concerned after such agreement has been reached.

<sup>6</sup> See Footnote 5.254 of the Radio Regulations (2001 Edition).

<sup>7</sup> NTIA Special Publication 98-36, *Spectrum Reallocation Report: Response to Title III of the Balanced Budget Act of 1997*, National Telecommunications and Information Administration (Feb. 1998) (“NTIA Special Publication 98-36”) at 2-6.

<sup>8</sup> Memorandum for Karl B. Nebbia, Chairman, Interdepartment Radio Advisory Committee, from Charles Cape, IRAC Representative, Department of Homeland Security (June 10, 2003) at 1 (“DHS IRAC Comments”).

national defense, homeland security, and emergency relief, would clearly serve the public interest.

The MSS bands below 3 GHz are used to support U.S. military operations on a worldwide basis. Tactical and strategic military satellite communications are essential to linking the activities of ground-based, airborne, and shipborne platforms.<sup>9</sup> MSS communication is also a current and growing requirement of the military Command, Control, Communications, and Intelligence. In addition to DoD's identified need for MSS spectrum below 3 GHz that could provide critical mobile warfighter support and time critical tactical and intelligence system deployment,<sup>10</sup> the Department of Homeland Security (DHS) has also stated that like the DoD, they plan to use commercial MSS systems to meet most of their requirements.<sup>11</sup> However, DHS has indicated that it cannot rely on the availability of commercial systems to meet all of its needs for the foreseeable future.<sup>12</sup> It is clear that the government has a crucial need for MSS communications below 3 GHz.

### **III. SPECTRUM IN THE 1610-1626.5 MHZ AND 2483.5-2500 MHZ BANDS CAN BE USED TO SATISFY CURRENT AND FUTURE GOVERNMENT MSS SPECTRUM REQUIREMENTS WHILE PROTECTING INCUMBENT SERVICES.**

The DoD has previously requested spectrum support for satellite systems in the bands 1610-1626.5, 1525-1559, 1626.5-1660.5, and 2483.5-2500 MHz, in which MSS has been limited

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<sup>9</sup> NTIA Special Publication 98-36 at 2-6.

<sup>10</sup> Letter from Badri Younes, Director of Spectrum Management, Office of the Assistant Secretary of Defense for Networks and Information and Integration/Department of Defense, Chief Information Officer to Fredrick R. Wentland, Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration (July 7, 2003) ("ASD/NII Letter").

<sup>11</sup> DHS IRAC Comments at 1.

<sup>12</sup> *Id.*

to non-government space station operations. Based on the technical requirements for spectrum below 3 GHz, DoD requested these specific bands.<sup>13</sup> At that time, NTIA did not believe that the DoD request was supportable based on the national allocation table, national policy, and the indication that the spectrum being requested could not support additional MSS requirements. Specifically, in the bands 1610-1626.5 and 2483.5-2500 MHz, NTIA denied spectrum support based on the lack of an allocation to allow government space stations and the possible future congestion in the bands to support commercial applicants. The other bands available are all above 7250 MHz and cannot technically support all the necessary DoD MSS requirements.

The only bands below 3 GHz available for worldwide MSS use that have low usage by terrestrial systems are 1610-1626.5, 1525-1559, 1626.5-1660.5, and 2483.5-2500 MHz.<sup>14</sup> Based on the current congestion of satellite systems in the bands 1525-1559 and 1626.5-1660.5 MHz, it does not appear to be feasible for government satellite systems to operate in these bands. If additional spectrum below 3 GHz does not become available for government MSS use, these would appear to be the only bands that could be considered to support the necessary requirements. While NTIA had previously told the DoD that the 1610-1626.5 and 2483.5-2500 MHz bands were not suitable for their MSS systems, the use of these bands did not become congested as anticipated and the Commission's NPRM has identified spectrum in these bands as available for other uses.<sup>15</sup>

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<sup>13</sup> MSS spectrum below 3 GHz is needed because atmospheric and foliage penetration losses are relatively low, component are inexpensive, and small, efficient antennas can be used for handheld operations.

<sup>14</sup> DoD has an operational requirement to support military operations on a worldwide basis.

<sup>15</sup> The Commission has revoked the license applications of three MSS system providers. *See Constellation Communications Holdings Inc.*, Memorandum Opinion and Order, DA No. 02-3086 (rel. Nov. 8,

The bands 1610-1626.5 and 2483.5-2500 MHz are already available for government earth stations to operate with non-government space stations.<sup>16</sup> Therefore, the introduction of government MSS satellite systems into these bands would simply be an extension of what the national allocation table currently allows. Although the technical details will have to be determined as to how a government MSS system within the Big LEO bands or specific frequency segments within those bands may operate while protecting the incumbent services (e.g., MSS, radionavigation-satellite service), NTIA believes those details can be worked out to satisfy both government and non-government users.

#### **IV. COMMERCIAL MSS SYSTEMS ARE OFTEN NOT DESIGNED TO MEET STRINGENT DOD OPERATIONAL REQUIREMENTS.**

Due to operational requirements of DoD, commercial satellites may not always be able to provide the needed service.<sup>17</sup> For example, DoD satellite systems will be required to meet their operational requirements in both normal and highly stressed communications environments (e.g., severe multipath, high ambient noise, scintillation, heavy rain, in urban, rural, and forested regions, on board ships and in airborne settings). These DoD systems will be designed with the intent to meet certain performance parameters, including coverage, capacity, access and control, interoperability, types of service, mobile communications, and availability. The Big LEO Bands possess characteristics that make them ideal to meet military communication requirements in a

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2002); *Mobile Communications Holdings, Inc.*, Memorandum Opinion and Order, DA 01-1315 (rel. May 31, 2001); *Satellite Policy Branch Information, Satellite Applications Accepted for Filing*, Public Notice, Report No. SPB-114 (rel. Jan. 15, 1998).

<sup>16</sup> See US Footnote 319 of the Table of Frequency Allocations.

<sup>17</sup> ASD/NII Letter.

wide variety of conditions and scenarios.<sup>18</sup> Commercial satellite systems are not designed to meet the majority of these requirements. Moreover, as demonstrated during Operation Iraqi Freedom, commercial satellites may not always be able to provide the needed service.<sup>19</sup>

Additionally, it is unclear whether in the future any commercial service provider would have the financial incentives to design, launch and operate a mobile satellite system that would meet the DoD's stringent requirements. For example, the government use of a non-government satellite system is likely to be intermittent at best, dictated by the course of geopolitical, emergency or sensitive national security demands rather than pre-planned, agreed upon use. Even if such a commercial system would be available, the exigencies of government use could very well result in the commercial users having little or no access to the system for extended periods of time. Therefore, while the government will continue to utilize commercial satellite systems as much as possible, there is a substantial need for the government to also operate its own MSS systems.

## **V. CONCLUSION**

Over the last ten years, the United States has worked within the national and international fora to achieve allocations for MSS-type operations in the bands below 3 GHz.<sup>20</sup> It is expected that any additional allocations below 3 GHz for the MSS would be very difficult to obtain internationally. Therefore, NTIA believes it is imperative that the Commission preserve

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<sup>18</sup> *Id.*

<sup>19</sup> ASD/NIJ Letter.

<sup>20</sup> In the national implementation in the bands 1610-1626.5, 1930-2010, 2120-2200, and 2483.5-2500 MHz, these allocations do not allow federal government space stations.

these bands below 3 GHz for MSS use for both government and non-government operations.

The DoD's MSS spectrum requirements and the recent developments in the bands below 3 GHz support an additional government MSS spectrum allocation in the bands 1615.5-1621.35 MHz, 2483.5-2492 MHz, and 2498-2500 MHz. The DHS has also indicated that it cannot rely on the availability of commercial systems to meet all of its needs for the foreseeable future. Therefore, NTIA recommends that the Commission allocate spectrum in the bands 1615.5-1621.35 MHz, 2483.5-2492 MHz, and 2498-2500 MHz to satisfy government MSS requirements. Modifying the national frequency allocation table to make these bands available to support MSS requirements for government satellite systems clearly serves the public interest.

Respectfully submitted,



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Communications and Information

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Office of Spectrum Management

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