

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20024

RECEIVED

DEC 23 1998

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

\_\_\_\_\_  
In the Matter of )  
 )  
 )  
Amendment of Parts 2 and 25 of the )  
Commission's Rules to Designate Extended )  
C-Band Spectrum for TT&C Functions of GSO )  
FSS Systems Operating in Bands Above )  
Ku-Band )  
\_\_\_\_\_ )

RM No. 9411

COMMENTS OF  
LOCKHEED MARTIN CORPORATION

Lockheed Martin Corporation ("Lockheed Martin") hereby submits its comments in support of the Petition for Rulemaking in the above-referenced proceeding. Lockheed Martin urges the Commission to expeditiously initiate a rulemaking to designate extended C-band spectrum for use by space stations operating in bands other than the conventional C-band or Ku-band to perform tracking, telemetry and control ("TT&C") operations. Moreover, while the original Petition for Rulemaking requested the designation of extended C-band spectrum only for TT&C functions of geostationary orbit ("GSO") fixed-satellite service ("FSS") systems operating in bands above Ku-band, Lockheed Martin asks the Commission to broaden the proposed designation as described herein.

Lockheed Martin was one of nine Ka-band GSO FSS licensees who filed the original Petition for Rulemaking on August 7, 1997.<sup>1</sup> At that time, there were fourteen FSS systems

<sup>1</sup> The other petitioners were Comm, Inc., EchoStar Satellite Corporation, GE American Communications, Inc., Hughes Communications Galaxy, Inc., KaStar Satellite Communications Corp., Orion Network Systems, Inc., PanAmSat Licensee Corp., and VisionStar, Inc.

No. of Copies rec'd. 074  
List ABCDE

licensed to operate in Ka-band spectrum. Since then, more than thirty applications have been filed seeking authorization to operate GSO and non-geostationary orbit ("NGSO") systems in Ka-band and V-band frequencies. These licensed and proposed systems will provide a wide range of broadband communications services, including bandwidth-on-demand for global internet services, telemedicine, distance learning, and multimedia services. To provide these much-needed satellite communications services, these systems must be able to perform TT&C functions reliably in order to maintain normal spacecraft operations and to recover from anomalous spacecraft events in emergency situations. Designation of extended C-band spectrum for TT&C functions is critical to the deployment of future satellite systems in these bands.

Although existing systems operating in the conventional C-band and the Ku-band have demonstrated the feasibility of performing TT&C operations within these bands, satellites operating in other frequencies may not be able to conduct TT&C functions successfully in their service bands. For example, spectrum in higher frequency bands such as the Ka-band and the V-band is not technically or economically suitable for conducting TT&C operations.<sup>2</sup> The use of extended C-band frequencies for TT&C will allow space station operators to conduct TT&C functions in spectrum proven reliable for such operations, and to employ widely available C-band TT&C equipment. Therefore, the Commission should designate extended C-band TT&C spectrum for dedicated use by systems operating in bands other than the conventional C-band and the Ku-band.

---

<sup>2</sup> See Petition for Rulemaking at 4. There also may be other circumstances when a system operator cannot perform TT&C functions in its proposed service bands, such as when insufficient spectrum exists to accommodate all potential users.

The Petition for Rulemaking requested that a portion of the 3600-3700 MHz downlink band and the 6425-6525 MHz uplink band be designated for TT&C functions. The Commission staff has advised that 50 megahertz of spectrum at 3600-3650 MHz may not be available for TT&C use. In addition, the Commission has advised U.S. satellite applicants to include both the 6425-6525 MHz and the 5875-5925 MHz bands for uplink TT&C operations in recent API and APS4 filings with the ITU. Therefore, the Commission should designate downlink TT&C spectrum in the 3650-3700 MHz band and uplink TT&C spectrum in the 6425-6525 MHz and/or 5875-5925 MHz bands to accommodate the TT&C functions of satellites in bands where TT&C operations cannot be performed successfully.<sup>3</sup>

In addition to designating extended C-band spectrum for TT&C operations, the Commission's rulemaking should address how best to accommodate systems that may utilize these TT&C frequencies. Specifically, the Commission should consider apportioning separate segments of extended C-band TT&C spectrum for use by GSO satellites operating at different frequency bands, as they may be co-located and unable to conduct TT&C operations on the same

---

<sup>3</sup> Lockheed Martin notes that the Commission is currently considering proposals to allocate the 5850-5925 MHz band to the mobile service, *Amendment of Parts 2 and 90 of the Commission's Rules to Allocate the 5.850-5.925 GHz Band to the Mobile Service for Dedicated Short Range Communications of Intelligent Transport Services*, Notice of Proposed Rulemaking, 13 FCC Rcd 14321 (1998). The Commission should consider the impact this proposed allocation may have on the use of these bands for TT&C functions.

In addition, the Commission has recently issued an NPRM seeking comment on a proposal to reallocate the 3650-3700 MHz band for fixed services including Fixed Wireless Access, and to freeze the licensing of earth stations in the band, *Amendment of the Commission's Rules with Regard to the 3650-3700 MHz Government Transfer Band*, Notice of Proposed Rulemaking, ET Docket No. 98-237, (rel. Dec. 18, 1998). The proposals in this NPRM appear to be in direct conflict with the TT&C use of the spectrum contemplated in the instant Petition for Rulemaking. Therefore, the Commission should not adopt any rules in the context of the NPRM that would preclude use of the 3650-3700 MHz band for satellite TT&C operations.

extended C-band frequencies. The Commission should also consider designating separate frequencies in the extended C-band for use by NGSO satellites for launch, transfer orbit and emergency TT&C operations.<sup>4</sup> Such limited TT&C use by NGSO systems should be conducted in a portion of the extended C-band separate from that in which on-orbit TT&C operations of GSO satellites are conducted.

For the reasons stated above, Lockheed Martin supports the Petition for Rulemaking and urges the Commission to designate sufficient spectrum in the 3650-3700 MHz (space-to-Earth) and 6425-6525 MHz and 5875-5925 MHz (Earth-to-space) bands to accommodate TT&C operations of satellite systems operating in bands other than the conventional C-band and the Ku-band. Further, because Ka-band licensees and other applicants must have access to spectrum in which TT&C operations can be reliably conducted, Lockheed Martin requests that the Commission conduct this rulemaking on an expedited basis.

Respectfully submitted,

LOCKHEED MARTIN CORPORATION

Stephen M. Piper  
Vice President and General Counsel  
Lockheed Martin Global Telecommunications  
6801 Rockledge Drive  
Bethesda, MD 20817

  
Gerald C. Musarra  
Vice President, Government and Regulatory  
Affairs  
Lockheed Martin Global  
Telecommunications  
Crystal Square 2, Suite 403  
1725 Jefferson Davis Highway  
Arlington, VA 22202

December 23, 1998

---

<sup>4</sup> For example, Lockheed Martin's proposed LM-MEO System, an NGSO FSS system that will operate in Ka-band and V-band spectrum, has requested to use extended C-band frequencies for TT&C links during launch, early orbit and emergency operations.

## CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing "Comments of Lockheed Martin Corporation" was sent this 23rd day of December, 1998, by first-class mail (except where hand delivery is denoted by an asterisk), to the following persons:

\*Regina Keeney  
Chief, International Bureau  
Federal Communications Commission  
2000 M Street, N.W., Room 830  
Washington, D.C. 20554

\*Mindy Ginsburg  
Deputy Chief, International Bureau  
Federal Communications Commission  
2000 M Street, N.W., Room 821  
Washington, D.C. 20554

\*Thomas S. Tycz  
Chief, Satellite and Radiocommunications  
Division  
International Bureau  
Federal Communications Commission  
2000 M Street, N.W., Room 520  
Washington, D.C. 20554

\*Cecily C. Holiday  
Deputy Chief, Satellite and  
Radiocommunications Division  
International Bureau  
Federal Communications Commission  
2000 M Street, N.W., Room 520  
Washington, D.C. 20554

\*Harold Ng  
International Bureau  
Federal Communications Commission  
2000 M Street, Room 801  
Washington, D.C. 20554

\*John Martin  
Acting Chief, Satellite Engineering Branch  
International Bureau  
Federal Communications Commission  
2000 M Street, N.W., Room 512  
Washington, D.C. 20554

\*Fern Jarmulnek  
Chief, Satellite Policy Branch  
International Bureau  
Federal Communications Commission  
2000 M Street, N.W., Room 518  
Washington, D.C. 20554

\*Jennifer Gilsenan, Esq.  
Satellite Policy Branch  
International Bureau  
Federal Communications Commission  
2000 M Street, N.W., Room 511  
Washington, D.C. 20554

Philip L. Malet, Esq.  
Steptoe & Johnson, L.L.P.  
1330 Connecticut Avenue, N.W.  
Washington, D.C. 20006

David K. Moskowitz, Esq.  
Vice President and General Counsel  
EchoStar Satellite Corporation  
90 Inverness Circle East  
Englewood, CO 80112

Karis A. Hastings, Esq.  
Hogan & Hartson, L.L.P.  
555 13th Street, N.W.  
Washington, D.C. 20004

John P. Janka, Esq.  
Arthur S. Landerholm, Esq.  
Latham & Watkins  
1001 Pennsylvania Avenue, N.W.  
Suite 1300  
Washington, D.C. 20004

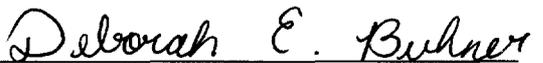
David G. O'Neil, Esq.  
Rini Coran & Lancellotta, P.C.  
1350 Connecticut Avenue, N.W.  
Suite 900  
Washington, D.C. 20036

Thomas J. Keller, Esq.  
Julian L. Shepard, Esq.  
Verner Liipfert Bernhard McPherson  
& Hand, Chartered  
901 15th Street, N.W.  
Suite 700

Washington, D.C. 20005

Joseph A. Godles, Esq.  
Goldberg Godles Wiener & Wright  
1229 19th Street, N.W.  
Washington, D.C. 20036

Michael R. Gardner, Esq.  
Bill Gildea, Esq.  
Harvey Kellman, Esq.  
Law Offices of Michael R. Gardner, P.C.  
1150 Connecticut Avenue, N.W.  
Suite 710  
Washington, D.C. 20036

---

Deborah E. Buhner