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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Section 2.106 of	)	ET Docket No. 92-28
the Commission's Rules to	)	RM-7771 PP-29 PP-32
Allocate the 1610-1626.5 MHz	)	RM-7773 PP-30 PP-33
and the 2483.5-2500 MHz Bands	)	RM-7805 PP-31
for Use by the Mobile-Satellite	)	
Service, Including Non-	)	
geostationary Satellites	)	

COMMENTS OF
COMMUNICATIONS SATELLITE CORPORATION

Communications Satellite Corporation (COMSAT), through its COMSAT Mobile Communications division, hereby submits the following comments in response to the above captioned Notice of Proposed Rulemaking and Tentative Decision.[1] COMSAT supports the Commission's proposal to add the mobile-satellite service (MSS) to the current radio determination satellite service (RDSS) allocation in the 1610-1626.5 and 2483.5-2500 MHz bands. Making this spectrum available in the U.S. for geostationary (GEO) and non-geostationary (non-GEO) MSS systems is an important first step toward fulfilling the WARC-92 promise of additional, usable spectrum for MSS. As its next action, the Commission should allocate the bands 1970-2010 MHz and 2160-2200 MHz to MSS in the National Table of Frequency Allocations in order to implement the WARC-92 agreement for global MSS bands.

[1] Amendment of Section 2.106 of the Commission's Rules, Notice of Proposes Rule Making and Tentative Decision, FCC 92-358, ET Docket No. 92-28, Released Sept. 4, 1992 (NPRM)

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The NPRM raises a number of important technical issues regarding the future operation of MSS systems in the former RDSS bands. COMSAT believes that these issues will be addressed in the Commission's Federal Advisory Committee to negotiate proposed technical regulations for the 1610-1625.5 MHz and 2483.5-2500 MHz bands.[2] Consequently, COMSAT will limit its comments to the potential interference to the Global Navigation Satellite Services system (GLONASS) from MSS emissions, the Commission's proposed use of FSS allocations for feederlinks, and the evaluation of radiation hazards from handheld terminals.

I. INTERFERENCE TO GLONASS FROM MSS EMISSIONS

The GLONASS aeronautical navigation system is operated by the Russian Federation for use by civilian aviation of all nations. The system, when completed, will employ a constellation of 3 orbit planes of 8 satellites or 24 medium altitude (19,100 km circular), inclined orbit (64.8 °) satellites.[3] GLONASS operates in a manner very similar to the USAF Global Positioning System (GPS) that is also being used in the United States and throughout the world for civilian position determination services.

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[2] See Public Notice DA 92-1085, CC Docket No. 92-166 (Aug. 7, 1992).

[3] GLONASS-M, was advance published by the Russian Federation via IFRB Special Section AR11/A/807, January 22, 1992, just prior to WARC-92. This publication shows operation in the band 1610.0-1620.6 MHz for use by space and aeronautical stations, with all other characteristics being the same as the "regular" GLONASS in operation today.

COMSAT, as the major owner and user of the Inmarsat system, believes it is desirable to avoid harmful interference to GLONASS because of the importance of this system to the international community and because of the critical safety aspects of this service. However, due to the overlap of the GLONASS receive band at 1602-1616.5 MHz with the proposed RDSS/MSS allocation at 1610-1626.5 MHz, there is the potential for MSS interference into GLONASS receivers. As a result of this concern, COMSAT is conducting its own study of the MSS/GLONASS interference situation.

In the fall of 1992, COMSAT obtained two prototype R-100 GLONASS receivers from 3S-Navigation, Laguna Hills, California, and also rented two Russian-made ASN-16 receivers from Aerodata Flugmesstechnik, GMBH, Braunschweig, in order to make some preliminary measurements of the impact of interference to GLONASS from uplink emissions of handheld mobile terminals operating in the lower portion of the RDSS bands. Our preliminary tests show that the received carrier levels from GLONASS are generally in the range we anticipated from link budget analysis using the published characteristics of GLONASS.[4]

Additional work remains in establishing the detailed interference environment in which GLONASS can operate. The amount of interference a GLONASS receiver can tolerate depends upon the: 1) EIRP of handheld unit; 2) uplink transmission spread spectrum bandwidth; 3) degree of shielding of the GLONASS airborne antenna

[4] See GLONASS Interface Control Document (ICD), RTCA Paper No.518-91/SC159-317).

from ground-based emitters; and 4) slant range between the interference source on the ground and the GLONASS-equipped aircraft.[5]

COMSAT anticipates that the results of our interference measurement program will be available by the first quarter, 1993. COMSAT intends to share the information developed from this data with the members of the Commission's Federal Advisory Committee to Negotiate Proposed Technical Regulations for the 1610-1626.5 and 2483.5-2500 MHz Bands.

II. MSS/LEO FEEDER LINKS IN THE FSS BANDS

COMSAT believes that Radio Regulation No. 2613, in and of itself, will not have an effect on the availability of frequencies in the fixed-satellite service (FSS) bands for MSS low earth orbit (LEO) feeder links, as implied in paragraph 26 of the NPRM. The fundamental factor in determining the availability of frequencies will be the ability of MSS feederlinks to share the band with FSS links. The provisions of RR No. 2613 do provide a basis for non-GEO systems and GEO systems to initiate discussions relative to shared use frequencies. If sharing is technically feasible, then informal coordination can take place to arrive at suitable operating arrangements to keep interference at mutually acceptable levels. If the conclusion of the on-going CCIR LEO/GEO sharing studies show that sharing conditions necessary to protect FSS in

[5] COMSAT has not considered interference from satellite downlinks, which would apply to LEO/MSS networks employing bi-directional operation in the 1610-1626.5 MHz band.

the geostationary orbit would result in severe constraints to either service, then it may be necessary to consider partitioning the band to allow orderly co-existence. We would expect that this will not be necessary.

III. RADIATION LEVELS FROM HANDHELD TERMINALS

In the United States, the Department of Labor's Occupational Safety and Health Administration (OSHA) previously established the radiation protection guide of 10 mW/cm^2, averaged over an 0.1 hour period, for incident electromagnet energies with frequencies from 10 MHz to 100 GHz. Other standards organizations, such as the American National Standards Institute (ANSI), are reviewing this guideline and others in the light of recent health physics research.

COMSAT believes that the FCC should rely on the recommendations of the standards organizations, independent testing laboratories, and appropriate agencies of the Federal Government,

such as the U.S. Food Administration, in the area of establishing the maximum safe RF exposure guidelines for human beings using handheld terminals in the RDSS Bands (1610-1626.6 MHz).

Respectfully submitted,

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Dated: December 4, 1992

CERTIFICATE OF SERVICE

I, Rose M. Javier, hereby certify that the foregoing "Comments" was served by hand, this 4th day of December, 1992, on the following:

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