The cellular mode of the terminals will comply with all applicable 47 C.F.R. Part 22 regulations and the particulars of operation are not specifically addressed below except where indicated. For the MES mode:

a) Frequency of operation: Transmit band of 1610 to 1621.35 MHz, Receive band of 2483.5 to 2500 MHz. **Globalstar™ terminals are designed with the capability to operate in the entire 1610 - 1626.5 MHz band; however, in the US these MESs will operate only in the 1610 - 1621.35 MHz range, consistent with Globalstar™ 's FCC license.** Any references in this application to the 1610- 1626.5 MHz band apply to the MES capability only.

b) Antenna Polarization: Left hand circular

c) Emission Designator: 1M23G7W

d) Maximum EIRP: The maximum EIRP is dictated by the maximum available transmitter power for a particular radio and its peak antenna gain. As a conservative estimate, no factor is taken for time averaging of the variation in output power due to data rate changes and power control commands. The EIRP density is the EIRP divided by the channel bandwidth of 1.23 MHz and further corrected for the required 4 kHz bandwidth.

e) Maximum EIRP Density

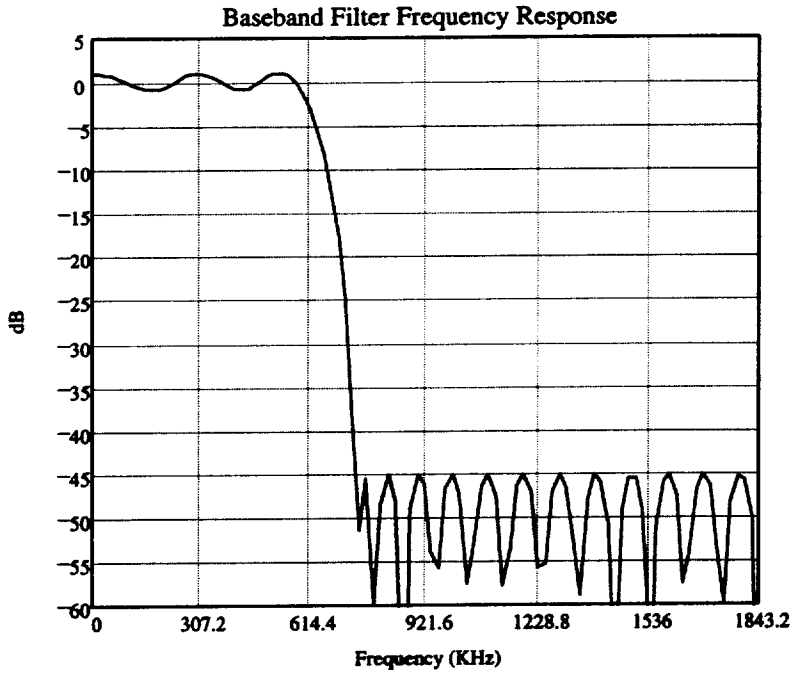
Globalstar™ Mode

Radio Type and Mode	Max Tx Power Available (dBW)	Peak Antenna Gain (dBic or dBi)	Max EIRP (dBW)	(e) Max EIRP Density (dBW/4 kHz)
Handheld	-2.0	3.5	1.5	-23.4
Vehicular	4.0	3.0	7.0	-17.9
Fixed	4.0	3.0	7.0	-17.9

Cellular Mode

Radio Type and Mode	Max Tx Power Available (dBW)	Peak Antenna Gain (dBic or dBi)	Max EIRP (dBW)	(e) Max EIRP Density (dBW/4 kHz)
Handheld- AMPS	-0.4	2.0	1.6	1.6
Vehicular- AMPS	-0.4	2.0	1.6	1.6
Handheld- IS-95 CDMA	-0.4	2.0	1.6	-23.3
Vehicular- IS-95 CDMA	-0.4	2.0	1.6	-23.3

f) Description of Modulation: The Globalstar™ MES transmitter utilizes direct sequence spreading at a chip rate of 1.2288 MHz. Baseband filtering is implemented as shown in the figure below. In phase and quadrature signals are combined to form OQPSK modulation.



Baseband Filter Frequency Response

Power is continuous for 9600, 4800, and 2400 bps modes and is spread by a direct sequence with chip rate 1.2288 MHz. The output power changes in accordance with the data rate for the frame.

FCC Form 422
Exhibit 2 - Qualcomm Application

QUALCOMM Incorporated (hereinafter referred to as QUALCOMM), founded in 1985 is one of the fastest growing Companies in the Communications business in the United States. QUALCOMM specializes in the design, development, manufacture, and service, of advanced telecommunications systems for a wide range of consumer, government, and industrial applications. QUALCOMM's headquarters is located are San Diego, California, which is one of the fastest growing technology areas in the United States. QUALCOMM has field offices in many parts of the United States, and also in several countries around the world. QUALCOMM's CDMA-based wireless technology is being considered for implementation in a growing list of countries around the world.

A. Applicant's Qualifications

QUALCOMM is a current FCC licensee for the OmniTRACS system, and is a Partner in the Loral QUALCOMM Licensee, Inc. (LQL) Partnership which holds the FCC license for the construction and operation of the "Globalstar" low-earth orbit mobile satellite system operating at e L- and S-band frequencies. QUALCOMM is a pioneer in the area of wireless communications as well as other high technology fields. It has developed, licensed, and manufactured, a wide range of innovative communications systems and products, including fixed- and mobile- satellite communications systems, government telecommunications systems and services, commercial video applications, and VLSI components.

QUALCOMM pioneered OmniTRACS, the first two-way mobile satellite communications system designed to meet the service requirements of the trucking, marine, rail and other businesses. OmniTRACS uses a hybrid spread spectrum technique based on frequency hopping and direct sequence CDMA, in one of the largest commercial applications of spread spectrum technology. QUALCOMM is providing OmniTRACS service to approximately 200,000 vehicles in the United States. The OmniTRACS service is also being offered in many other countries and regions, including Europe (EUTELTRACS)~ Brazil and Mexico.

Utilizing core contract support of the Defense Advanced Research Projects Agency (DARPA), and its own internal R&D funds, QUALCOMM has developed the video compression and signal processing systems. This technology, in conjunction with the electronic projector technology developed by the Electron Dynamics Division of Hughes Aircraft Company, forms the basis for the commercial electronic cinema product.

The main thrust of QUALCOMM's efforts during the last few years have been focused on developing, testing and manufacturing the wireless infrastructure and subscriber products for use in terrestrial cellular, PCS, wireless local loop (WLL), and low-earth orbit mobile satellite services. The QUALCOMM technology, which has also been licensed to a very large and diverse group of manufacturers worldwide, is based on the application of CDMA technology to mobile environment with several innovative, patented ideas to achieve high capacity and lower cost. The TIA has adopted its IS-95 digital cellular standard based on the QUALCOMM CDMA technology. The CDMA technologies developed by QUALCOMM for various wireless applications have been documented in the ITU literature. QUALCOMM's CDMA technology has been adopted by several major cellullar, PCS and WLL service providers around the world. Among those are AirTouch Communications, U.S. West, NYNEX, GTE, Bell Atlantic, Ameritech, Sprint Spectrum, PCS PrimeCo, and NextWave

QUALCOMM joined with Loral Corporation, a major aerospace company, in developing "Globalstar" a low-earth orbit mobile satellite system. QUALCOMM's CDMA technology is at the heart of the Globalstar system. The FCC granted a license for Globalstar in early 1994. The Globalstar strategic partners include such well known communications companies as AirTouch Communications, Vodafone, France Telecom, Alcatel, Hyundai, DACOM, Daimler Aerospace, Finmeccanica and Space Systemsl Loral. QUALCOMM is developing the ground system (gateways, subscriber equipment, network control center) for the Globalstar network.

B. The Globalstar CDMA System & Gateway Earth Station:

The Globalstar net work consists of a constellation of 48 low-earth orbit satellites (1400 Km altitude) in 6 orbital planes providing global coverage. Each satellite has 16 service beams and the spectrum is fully reused among all beams. The system provides voice and data communications up to peak data rates of 9.6 Kb/s.

The Globalstar Air Interface uses a modified form of IS-95 (the U.S. terrestrial digital cellular standard) to support Code Division Multiple Access. CDMA was selected for Globalstar because it represents a proven technology that can provide a bandwidth efficient modulation scheme for satellite communications. It is relatively interference tolerant both from the standpoint of generation of interference to other services and tolerating outside interference. There is a level of security inherent in the modulation scheme. CDMA is able to provide good voice quality while operating at relatively low RF power levels.

Path diversity combats fades and blockage - Probably one of the most important aspects of CDMA is associated with the way Globalstar uses CDMA. Diversity combining is used to provide continuous communications even under conditions where a path to one satellite is totally blocked. The Globalstar system can operate with relatively low link margins and still provide a high link availability.

CDMA supports spectrum sharing - There are other useful and interesting aspects of CDMA. In CDMA two or more systems can occupy the same frequency-power space. Separation of the intelligence is accomplished by demodulating the PN spreading sequence. This supports band sharing by more than one system. There is another useful aspect of CDMA. Since CDMA is basically a system whose capacity is limited by self generated interference, the limit is a soft limit. Unlike bandwidth limited systems like Time Division Multiple Access (TDMA) or Frequency Division Multiple Access (FDMA), CDMA allows the predicted capacity limit to be exceeded with soft degradation occurring.

The Globalstar network connects users located anywhere in the coverage areas to any point in the terrestrial wireless or wireline networks via earth stations known as Gateways (also referred to as "feederlink earth stations"). Users are linked to the gateways via the Globalstar constellation. The Gateways are connected to the terrestrial wireline and wireless networks. Therefore, Gateways play a critical role in linking Globalstar users to the desired destination.

C. The Proposed Experiments:

The Globalstar constellation of satellites are planned for launch early in 1998. Pre production ground stations (Gateways) are currently being constructed and will be completed 1997/98. As part of the pre operational program , the User Terminals (phones) are required to be field tested to validate the performance prior to the start of service. Experimental user terminals to be manufactured and operated under this authorization, will be used throughout the USA to validate their RF performance parameters in conjunction with those of the Gateway and satellite constellation. The tests are intended to validate:

- antenna performance characteristics
- tracking performance characteristics
- transmitter performance characteristics
- receiver performance characteristics
- radiating pattern characteristics
- reliability, maintainability and availability
- Overall Globalstar system performance

D. Conclusion:

Grant of this application will permit Qualcomm to conduct a thorough pre operational validation of the user terminals and perform thorough Globalstar system level tests in conjunction with the Gateways & Satellites constellation. This test program is essential to the success of the Globalstar network operation and enables this service to commence satisfactorily as authorized by the Commission in its grant of the Globalstar license to Loral QUALCOMM Licensee, Inc.

Experimental Phone Types:

The MES designs are currently under development by QUALCOMM, the principle manufacturer of the Globalstar™ MES. In production they may be fabricated by a third party manufacturer. The type of antenna will vary depending on the radio application. Apart from the cellular mode, there will be three different MES radio types corresponding to these applications: handheld portable, vehicular, and fixed radios. The radio type, service offered, frequency band of operation, and applicable antenna type is indicated below, including the cellular & GSM mode. The experimental license is being requested to cover the Globalstar/cellular services and will not cover the GSM mode. The dual phones manufactured by Telital and Ericsson provide both Globalstar and GSM service but will only be operated in Globalstar mode for the purposes of this experimental phase taking place in the US:

Radio Type	Radio Designator	Services Offered	Frequency Bands (MHz)[1]	Antenna Designation
Handheld	Single mode	-Globalstar™	-Tx: 1610-1626.5 Rx: 2483.5-2500	-GS TX,GS RX
Handheld	Dual Mode	-Globalstar -GSM Cellular	-Tx: 1610-1626.5 Rx: 2483.5-2500 -Tx/Rx; 890 - 960	-GS TX, GS RX - GSM Cellular
Handheld	Dual Mode	-Globalstar™	-Tx: 1610-1626.5 Rx: 2483.5-2500	-GS TX,GS RX
Handheld	Tri-mode	-Globalstar™ -IS-95 (CDMA and AMPS)	-Tx: 1610-1626.5 Rx: 2483.5-2500 -Tx/Rx: 824-894	-GS TX,GS RX -CDMA/AMPS
Vehicular	Not Applicable	-Globalstar™ -IS-95 (CDMA and AMPS)	-Tx: 1610-1626.5 Rx: 2483.5-2500 -Tx/Rx: 824-894	-GS TX,GS RX -CDMA/AMPS
Vehicular	Not Applicable	-Globalstar™	-Tx: 1610-1625.5 Rx: 2483.5-2500	-GS TX,GS RX
Fixed	Not Applicable	-Globalstar™	-Tx: 1610-1626.5 Rx: 2483.5-2500	-GS TX,GS RX

[1] Tx - transmit band, Rx - receive band