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May 29, 2002

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

RE: IB Docket 01-185 Ex Parte Presentation

Dear Ms. Dortch:

On behalf of Globalstar, L.P. ("GLP"), I am submitting the enclosed technical statement for inclusion in the above-referenced docket. This technical statement responds to questions arising from ex parte presentations previously presented to Commission Staff by GLP and the Official Creditors Committee of Globalstar, L.P.

Specifically, GLP is presenting the following information regarding the design and operation of an ancillary terrestrial component ("ATC") of a Mobile-Satellite Service ("MSS") system using CDMA technology:

- Previous interference studies for operation of an ATC system prepared by GLP were based on two terrestrial component candidates, cdma2000 and IS-95. The technical characteristics of these terrestrial systems are detailed in the technical statement.

- The technical statement provides additional explanation for GLP's conclusion that no interference will be caused to the terrestrial component of an ATC system from transmissions from the MSS spacecraft.

- GLP explains in the technical statement that potential interference from ATC systems operated by two different MSS providers within the same band using CDMA technology would be managed through coordination between the system operators, similar to the coordination that the two operators must conduct for interference from the satellite component.

- GLP has previously stated that an ATC system can avoid interference into adjacent-channel ITFS and MDS systems above 2500 MHz through frequency and physical separation. Additional technical information supporting that conclusion is provided in the enclosed technical statement.

Pursuant to Section 1.1206(b)(1) of the Commission's Rules, this letter and the enclosure are being filed electronically over the Commission's Electronic Comment Filing System. Should there be any questions, please contact the undersigned.

Respectfully submitted,

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Enclosure

cc: Paul Locke

29 May 2002

Response to FCC Questions on Globalstar/Creditors Committee Presentation
Flexibility for Mobile Satellite Service Providers
Ancillary Terrestrial Component
IB Docket No. 01-185

In response to questions from the FCC on material presented in the form of briefing charts on Flexibility for Mobile Satellite Service Providers-Ancillary Terrestrial Component (ATC) (IB Docket No. 01-185), the following information is provided.

Terrestrial Component Characteristics

The interference studies prepared by Globalstar were based on two terrestrial component candidates, cdma2000 and IS-95. The characteristics of the cdma2000 system were excerpted from the FCC Report, "Final Report-Spectrum Study of the 2500-2690 MHz Band, 30 March 2001" in Tables 1 and 2 of Appendix 2.1. The characteristics of the IS-95 system were derived from EIA documents, Recommended Minimum Performance Standards for Base Stations Supporting Dual Mode Wideband Spread Spectrum Cellular Mobile Stations (IS-97A) and Recommended Minimum Performance Standards for Dual Mode Wideband Spread Spectrum Cellular Mobile Stations (IS-98A). The summary Tables of these characteristics that were included in the Globalstar Response to FCC Public Notice DA 02-554 are reproduced below. The ATC terrestrial component base stations and user terminals will meet the out-of-band emission requirements recently set forth in the Report and Order in IB Docket No. 99-67, FCC 02-134 (released May 14, 2002).

Interference from MSS Spacecraft Emissions into Terrestrial Component Terminals

Globalstar indicates in its response to Public Notice DA 02-554 that no interference will be caused to the terrestrial component of an ATC system due to the difference in received signal levels from the terrestrial component base station and the spacecraft transmitter, at the terrestrial component user terminal.

ATC System Characteristics
(cdma2000)

Parameter	**Mobile**	**Base Station**
Carrier Spacing	1.25 MHz	1.25 MHz
Transmitter Power	0.1 W	10 W
Antenna Gain	0 dBi	17 dBi
Antenna Height	1.5 m	40 m
Body Loss	0 dB	----------
Tilt of Antenna	----------	-2.5 degs
Access Technique	CDMA	CDMA
Data Rate Supported	153.6 kbps	153.6 kbps
Modulation Type	QPSK/BPSK	QPSK/BPSK
Receiver Noise Figure	9 dB	5 dB
Receiver Thermal Noise Level In Bandwidth = Data Rate In Receiver Bandwidth	 -155 dBW -134 dBW	 -147 dBW -138 dBW
Eb/No	4.0 dB for 1% FER	6.0 dB for 0.3% FER
Receiver Sensitivity	-134 dBW for 1% FER	-149 dBW for).3% FER
Interference Threshold (Desired Signal @ Sensitivity, I/N=-6 dB and 10% loss in Range)	-140 dBW	-144 dBW
Interference Threshold (Desired Signal @ Receiver Sesitivity=+10 dB, S/(I+N) for a BER of 10^{-3})	-124 dBW	-128 dBW

ATC System Characteristics
(IS 95)

Parameter	**Mobile**	**Base Station**
Carrier Spacing	1.23 MHz	1.23 MHz
Transmitter Power	0.2 - 1.0 W (Class III)	20 W
Antenna Gain	0 dBi	19 dBi
Antenna Height	1.5 m	40 m
Body Loss	0 dB	----------
Tilt of Antenna	----------	-2.5 degs
Access Technique	CDMA	CDMA
Data Rate Supported	9.6 kbps	9.6 kbps
Modulation Type	QPSK	QPSK
Out-of-Channel EIRP >900 kHz offset from center >1.98 MHz offset from center	 -42 dBc/30kHz -54 dBc/30kHz	 -45 dBc/30kHz (>750 kHz from center) -60 dBc/30kHz
Receiver Noise Figure	5-8 dB	5 dB
Receiver Thermal Noise level In Receiver bandwidth	-102.9 dBm	-100.3 dBm
Eb/No for Pe = 1% FER	4.3 dB	4.32 dB
Receiver Sensitivity @ 1% FER	-104 dBm	-117 dBm
Interference Threshold (Desired Signal @ Sensitivity, I/N=-6 dB)	-108.9 dBm	-106.3 dBm
Interference Threshold (Desired Signal @ Signal 10 dB above Sensitivity, S/(I+N) 1% FER)	-93.4 dBm	-90.8 dBm

The Mobile Satellite Service (MSS) spacecraft transmitter power output is restricted by the imposition of a power flux density limit, at the earth's surface, included in Appendix 5 of the ITU Radio Regulations. According to Table 5-2 of Appendix 5, the power flux density from a non-Geostationary Orbit spacecraft is restricted to the following values, dependent on angle of arrival at the terrestrial station:

-126 dBW/m^2/MHz	for $0 \leq \delta \leq 5$ degrees
-126+0.65*(δ-5) dBW/m^2/MHz	for $5 < \delta \leq 25$ degrees
-113 dBW/m^2/MHz	for $25 < \delta \leq 90$ degrees

where δ is the angle of arrival of the signal at the terrestrial station. The power received at the terrestrial component user terminal can be calculated using the following formula:

P_{rx} = PFD + A_{eff} + BW Factor, where

P_{rx} is the power received at the terrestrial user terminal,

PFD is the power flux density due to the spacecraft,

A_{eff} is the effective area of the user terminal antenna,

BW Factor is the correction factor from the reference bandwidth to the receiver bandwidth.

$A_{eff} = G*\lambda^2/4*\pi$ where G is the gain of the user terminal antenna. For 0 dBi gain, G = 1, thus $A_{eff} = \lambda^2/4*\pi$. At 2483.5 MHz, λ is 0.1208 meters and A_{eff} = 0.001161 square meters or -29.35 dB(m^2).

The BW Factor is the ratio of the receiver bandwidth of 1.25 MHz to the reference bandwidth of 1 MHz or 1 dB.

Then,

P_{rx} = -113 dBW/m^2/MHz -29.35 dB(m^2) + 1 dB = -141.35 dBW.

This is 1.35 dB lower than the interference threshold of -140 dBW. The power flux density limit represents the aggregate power from fully loaded MSS spacecraft and thus the actual interference seen by a terrestrial user terminal will be less. Further, the

interference level would also likely be reduced due to shadowing and other propagation effects not reflected in the formula given above.

Coordination among MSS Operators of ATC Terrestrial Component Operation with MSS Operations

In order to prevent interference from terrestrial component ATC operations into the system of another MSS satellite component operator, it will be necessary to limit the emissions of ATC terrestrial component user terminals. This limit would most likely be a power flux density limit at the spacecraft receiver. This limit would be imposed over the range of frequencies used by the ATC terrestrial component terminals. The limit would be mutually agreed to by the terrestrial component and satellite component operators in much the same way as power or power flux density limits are agreed by MSS operators using CDMA, that is, through coordination.

Interference from Terrestrial Component ATC Base Stations into ITFS/MMDS

Since terrestrial component ATC Base Stations could operate at frequencies approaching 2500 MHz, there is the potential for interference from these Base Stations into ITFS/MMDS receivers. This potential interference can be mitigated either by frequency or physical separation of the ATC Base Station and the ITFS/MMDS receiver or by increased filtering and rejection of the ATC Base Station unwanted emissions.

The interference criteria for ITFS/MMDS receivers are given in the FCC Final Report, Spectrum Study of the 2500-2690 MHz Band, March 30 2001. These criteria are shown in Appendix 4.1, Tables 4-A and 4-B. The thresholds in terms of power flux density are -120 dBW/m^2 for 6 MHz channels and -139 dBW/m^2 for 125 kHz channels.

The required separation distance can be found from the following formula:

$R = SQRT(EIRP/(PFD*(BW\ Factor)*4\pi))$, where

EIRP is the EIRP of the ATC Base Station

PFD is the interference threshold of the ITFS/MMDS receiver

BW Factor is (BW Interferer/BW ITFS/MMDS Receiver)

For every 1 MHz of guard band between the ATC carrier and the ITFS/MMDS receiver, the EIRP of the ATC Base Station can be reduced by 40 dB.

In the FCC Report it is stated that adjacent channel interference is attenuated by the ITFS/MMDS receiver by 40 dB per MHz of guard band.

Engineering Certification

I hereby certify under penalty of perjury that I am the technically qualified person responsible for preparation of the engineering information contained in the foregoing; that I am familiar with the information contained therein; and that such information is true and correct to the best of my knowledge and belief.

Signed this 29th day of May 2002.

David E. Weinreich
Spectrum Manager
Globalstar, L.P.