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March 17, 2004

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Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, D.C. 20554

Re: **Notice of Ex Parte Presentation**, 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.

Dear Ms. Dortch:

On March 16, 2004, Gino Picasso, Mark Adams, and Patricia Mahoney of Iridium Satellite, LLC ("Iridium") and Tom Dombrowsky and I, as counsel for Iridium, met with the following International Bureau staff persons to discuss the rebalancing of the current Big LEO spectrum band plan: Richard Engelman, Steven Spaeth, Tom Tycz, Howard Griboff, Breck Blalock, Kimberly Cook, Jennifer Gorny, Paul Locke, Richard Tseng, and William Bell. Also in attendance on behalf of Iridium was engineering consultant Bill Chapman of GCI.

In the meeting, Iridium made a presentation that is summarized in the attached document. This document also was distributed at the meeting. In addition, during the course of the meeting, Iridium reviewed the points raised in its comments and reply comments filed with the Commission in the above-referenced proceeding on July 11, 2003 and July 25, 2003, respectively.

Pursuant to Section 1.1206(b)(2) of the Commission's rules, 47 C.F.R. §1.1206(b)(2) (*incorporating* 47 C.F.R. §1.49), a copy of this letter and the attached document are being filed electronically for inclusion in the above-noted docket. Please feel free to contact me if you have any questions regarding this matter.

Sincerely,

/s/ Peter D. Shields  
Peter D. Shields  
Counsel for Iridium Satellite, LLC

Attachment



**IRIDIUM**

ONE SYSTEM, GLOBALLY.

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# Big LEO Plan

16 March 2004

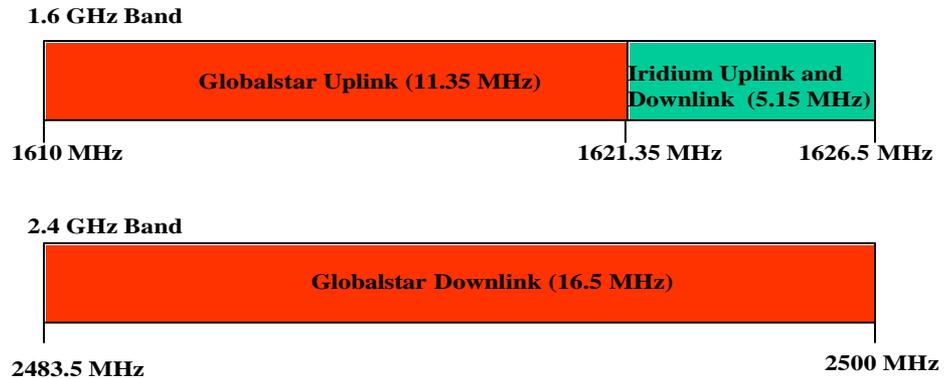
# Iridium Spectrum Crisis

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***Iridium supported more than 1.5 times the minutes of use than Globalstar in the first half of 2003 with less than 1/5 of the spectrum***

***Insufficient spectrum is severely impacting Iridium's Service***

## Current Band Plan



The CDMA uplink and downlink spectrum was to be shared among Globalstar, Odyssey, Ellipso and Constellation; however only Globalstar remains

# Iridium Spectrum Crisis

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## Iridium Facts

- Iridium has conclusively shown
  - The Iridium System was designed and constructed to operate over 10.5 MHz supporting **FULL RATE** voice and data channels
  - Iridium is severely spectrum constrained
  - Iridium is **significantly** more spectrally efficient than Globalstar
  - Iridium's need for spectrum continues to grow rapidly
  - Iridium has demonstrated continuous need since April 2003 through *Special Temporary Authorizations*

## Globalstar Fiction

- Globalstar claims it is efficiently using and therefore needs 27.85 MHz
  - Globalstar claims it must segregate spectrum use by application
  - Globalstar claims it must segregate spectrum use by gateway and geography
  - Globalstar claims it is severely hampered by interferers in the S-band and RAS in the L-band
  - Globalstar claims it is more spectrally efficient than Iridium
  - Globalstar contends that Iridium does not need additional spectrum

# Iridium Facts

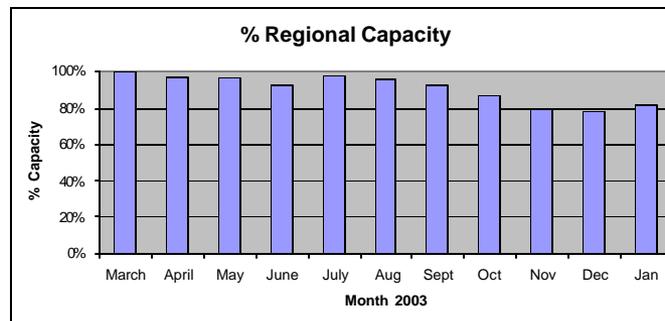
## *Iridium Growth and Spectrum Depletion*

- **July 2002** – Iridium notified the Commission that it had a near-term need for additional spectrum
- **Jan. 2003** – Iridium filed spectrum report detailing lack of capacity for current users

% Utilization (5.15 MHz)	2001	2002	2003
Days Experiencing => 80%	9	200	340
Days Experiencing => 100%	0	0	274

- **25 Fold Regional Minute Growth 2001 – 2002**
- **380% Minute growth in Western US May 2001 – May 2002**
- **April 2003 – Spectrum Shortage Causes Capacity Crisis. Iridium Operates under STA to accommodate traffic.**
  - **2003: Over 250 Days experienced 5.15 MHz spectrum overloading**
  - **2003: Over 170 Days over 50% utilization in Western US**

- **Middle East Regional Capacity Utilization with 6.4 MHz (STA Spectrum)**



# Iridium Facts (Cont'd)

## *Iridium Service Quality*

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- Iridium constructed to support 10.5 MHz
  - Licensed to operate at only 5.15 MHz
    - Iridium has been constrained to use half rate voice channels
      - Degraded Voice Quality
      - Limited Vocoder Options
    - Iridium has been constrained to use half rate data channels
      - Limits effective user data rates
      - Limits data service options
- Spectrum Induced Performance Degradation
  - Increased Iridium call drop rates
    - Nominal Iridium Drop Rate: Approx. 10%
    - Spectrum Depleted Conditions: 36%
  - Increased Iridium User Acquisition Failures
    - Spectrum Depleted Conditions: 100K+ Failures per Day
- Commission Promised to Revisit Spectrum Allocation

# Iridium Facts (Cont'd)

## *Iridium Efficiency*

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- Iridium supported more than 1.5 times the minutes of use than Globalstar in the first half of 2003 with less than 1/5 of the spectrum
- The Iridium system supported over 10 million minutes per month in Spring 2003
  - Apples-to-apples Spectrum Efficiency Comparison (Same region, same time period)
    - Iridium supported over 10 million minutes per month with an average 6.87 MHz spectrum (1,464,038 minutes/MHz)
    - Globalstar was challenged to support 1.2 million minutes per month with 17.5 MHz spectrum (68,571 minutes/MHz)\*

**Iridium's spectrum efficiency is 21 times greater than that of Globalstar**

# Globalstar Claims

## *Efficient use of 27.85 MHz*

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*Globalstar claims its system is highly efficient and is using all 27.85 MHz, but Iridium is inefficient and unable to justify a need for more than 5.15MHz*

- **Globalstar's Wasteful Use of Spectrum**

- Globalstar has inefficiently segregated the use of spectrum for differing applications
  - Globalstar claims that segregated spectrum (with no spectrum overlap) is needed for each of these services:
    - ATC (2.5MHz); Aviation (5MHz); Remote Telemetry/Simplex Services (5MHz); Generic Voice/Data (12.5MHz)
- Globalstar has also inefficiently segregated spectrum geographically
  - Currently the gateways in Italy, Turkey, Saudi Arabia, and Russia all utilize different channels

- **Iridium's Efficient Spectrum Use**

- Iridium uses the same spectrum for all of its services
  - Aviation, Remote Telemetry, Simplex Services, Messaging, Short Burst Data and Generic Voice/Data
- Iridium uses the same spectrum for all geographies
- As noted, Iridium has demonstrated 21 times greater spectrum efficiency than Globalstar

***By segregating applications and geographies, Globalstar wastes spectrum with extremely low utilization and unnecessarily inefficient channel allocations***

# Globalstar Claims

## *Spectral Limitations*

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- Dubious Spectral Limitations
  - Canada example
- Globalstar cites vague and unsubstantiated limitations from Radio Astronomers and ISM interferers
  - Microwave Oven Usage
  - Garage Door Openers
  - Small number of Radio Astronomy Sites with infrequent observation times

***In light of (1) the extremely low level emissions of these devices, (2) the infrequency of usage, and (3) the obvious indoor and geographic separations, Globalstar's claims are clearly specious***

# Balanced Plan Serves The Public Interest

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- Achieves Competition
  - Equal division of spectrum
  - Allows Iridium to support full rate voice and data channels, which Globalstar has enjoyed from inception
- Provides Sufficient Spectrum for All
  - Meet current and growing demands
- Allows both systems to innovate and introduce new services
- Improves Big-LEO Spectrum Efficiency
  - Eliminates wasted spectrum
- Achieves FCC's Original Intent