

Before The  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

In the Matter of	)	
	)	
Review of the Spectrum Sharing Plan	)	
Among Non-Geostationary Satellite Orbit	)	IB Docket No. 02-364
Mobile Satellite Service Systems in the	)	
1.6/2.4 GHz Bands	)	
	)	
Amendment of Part 2 of the Commission's	)	
Rules to Allocate Spectrum Below 3 GHz	)	
for Mobile and Fixed Services to Support	)	
the Introduction of New Advanced	)	ET Docket No. 00-258
Wireless Services, including Third	)	
Generation Wireless Systems	)	
_____	)	

**REPLY TO OPPOSITION OF  
IRIDIUM SATELLITE, LLC**

Pursuant to Section 1.429 of the Commission's Rules (47 C.F.R. § 1.429), Globalstar LLC ("GLLC" or "Globalstar") hereby replies to the Opposition filed by Iridium Satellite, LLC to GLLC's Petition for Reconsideration of the Report and Order, Fourth Report and Order and Further Notice of Proposed Rulemaking, FCC 04-134 (released July 16, 2004) ("Order").<sup>1</sup>

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<sup>1</sup> GLLC is filing a separate Consolidated Reply to the oppositions to its Petition filed by the Wireless Communications Association International, Inc., Sprint Corporation, Nextel Communications, Inc., the Rural BRS Advocacy Group and BellSouth Corporation and its subsidiaries. Those oppositions only concern the use of the Big LEO S-band downlink; Iridium's opposition concerns use of the Big LEO L-band uplink.

**I. RECONSIDERATION OF THE COMMISSION'S ORDER IS ESSENTIAL TO IMPROVE THE PARAMETERS FOR SPECTRUM-SHARING IN THE BIG LEO L-BAND.**

In the Order, the Commission granted Iridium access to additional spectrum in the Big LEO L-band by mandating that Iridium and Globalstar share the 1618.25-1621.35 MHz band segment. However, the Commission failed to adopt any “traffic rules” for sharing even though the record in this docket suggests that minimal coordination parameters would better promote the efficient use of L-band spectrum. Without such minimal parameters, the L-band sharing process will be more difficult to manage, contrary to the Commission’s goal that spectrum sharing should promote efficient use of the L-band spectrum. See Order, ¶ 45.

GLLC proposed three modifications to the Order to ensure that the L-band spectrum is used efficiently. Because the Commission found that Iridium needs additional spectrum only to alleviate sporadic and geographically-based demand, GLLC proposed that the Commission require Iridium to demonstrate an actual need for additional L-band spectrum in the United States before gaining access the shared 3.1 MHz. Furthermore, GLLC recommended that Iridium gain access to additional spectrum only on a CDMA channel-by-channel basis, i.e., use of Channel 9 (1619.955-1621.35 MHz) before any portion of Channel 8 (1618.725-1619.955 MHz). And, GLLC requested that the lower boundary of shared spectrum be moved from 1618.25 MHz to 1618.725 MHz, to coincide with Globalstar’s CDMA channels.

As GLLC pointed out, coordinated use of the 1618.25-1621.35 MHz band segment will generally require geographic and/or frequency separation of the two

systems' users. The record in this proceeding establishes that Globalstar needs access to all nine CDMA channels now while Iridium does not have sufficient subscriber traffic in the United States to require access to any portion of the additional 3.1 MHz.<sup>2</sup> If the Iridium system is more fully loaded at some point, then use of the additional 3.1 MHz may result in incidents of interference. Avoiding such incidents through GLLC's proposals would promote efficient use of the spectrum.

Iridium generally objects to GLLC's proposals on procedural grounds, claiming that GLLC's Petition is barred by the Commission's rules because it presents "new" facts and arguments and reargues the issues in this proceeding.

GLLC's Petition is procedurally proper. Correcting errors and omissions in, and improving the effectiveness of, the Commission's decisions are valid subjects for reconsideration.<sup>3</sup> This proceeding was initiated ostensibly to determine whether the boundary between the CDMA and TDMA Big LEO systems should be moved.<sup>4</sup>

The Commission did not indicate that co-primary sharing of L-band was a real

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<sup>2</sup> The International Bureau has issued an Order stating that the L-band sharing rule went into effect on September 8, 2004. See Iridium Constellation LLC, DA 04-2869 (released Sept. 3, 2004). But, GLLC's spectrum analysis shows no current use of the 1618.25-1621.35 MHz band segment by Iridium. See Tech. App.

<sup>3</sup> See, e.g., Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands, 11 FCC Rcd 12861, ¶ 1 (1996) (using requests for reconsideration to continue "the development of a regulatory structure conducive to the rapid and successful deployment of global" MSS systems).

<sup>4</sup> Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, Notice of Proposed Rulemaking, 18 FCC Rcd 1962, ¶¶ 265-266 (2003).

possibility, and, it seemed unlikely to do so, because the Commission concluded in 1994, based on the Big LEO Negotiated Rulemaking, that CDMA and TDMA systems cannot share spectrum co-frequency, co-coverage.<sup>5</sup> Given that the Commission adopted a sharing rule without having fully developed a record on the issue, it is not surprising that the rule can be improved by an iterative process.

More specifically, Iridium claims that GLLC's introduction of link budgets to demonstrate the interference environment between Globalstar and Iridium should be procedurally barred as "new" analyses or "new twists to the same set of facts." Opp., at 6-8. On the contrary, there is nothing "new" in the sense that Iridium uses the word about a demonstration of the interference potential between Globalstar and Iridium. The potential for interference between CDMA and TDMA systems has been known since the Big LEO Negotiated Rulemaking in 1993. The link budget was submitted to address the absence of a sharing analysis in the Order.

Iridium also complains that GLLC has impermissibly attempted to reargue GLLC's position that Iridium has not demonstrated sufficient need for additional spectrum, "despite the Commission's findings to the contrary." Opp., at 9-10. GLLC, in fact, did not attempt to reargue that issue because the Commission agreed with Globalstar's factual showing. See Order, ¶ 47. Iridium simply has not demonstrated a need for additional spectrum. Iridium did not seek reconsideration

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<sup>5</sup> See Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands, Notice of Proposed Rulemaking, 9 FCC Rcd 1094, 1101-02 (1994).

or an appeal of the Commission's factual finding, and so, has conceded its accuracy. GLLC's improvements to L-band sharing are intended to foster a reasonable, measured implementation of the Commission's decision to require sharing.

It should be noted that Iridium does not object to GLLC's proposed rules for L-band sharing based on any identified harm to Iridium or to the public interest in efficient use of spectrum. By objecting to GLLC's proposal on procedural grounds, Iridium is implicitly endorsing a rule that is, as yet, flawed rather than a fully vetted rule that better serves the public interest goal of spectrum efficiency. Iridium's objection demonstrates exactly the point Globalstar has made throughout this proceeding: Iridium has no real need for more spectrum and has pressed its positions in this rulemaking solely to handicap Globalstar's access to spectrum. The Commission refused to sanction Iridium's strategy (see Order, ¶ 47), but failed to fine-tune a sustainable rule on sharing. The Commission must get that rule right, and therefore must consider fully GLLC's proposed modifications and the reasons justifying those modifications.

## **II. GLLC'S PROPOSED MODIFICATIONS PROMOTE THE PUBLIC INTEREST IN SOUND SPECTRUM MANAGEMENT.**

Iridium offers three substantive objections to GLLC's proposed modifications to the L-band sharing rule. None of them in any way refutes the technical and public interest reasons for adopting GLLC's proposals.

Iridium objects first to the proposal requiring it to demonstrate a need for access to CDMA channels in stages, claiming that the Commission has already accepted its showing of need. Opp., at 10-12. To the contrary, in Paragraph 47 of

the Order, the Commission found that Iridium had demonstrated nothing more than a sporadic and geographically-based need for additional spectrum based on the evidence submitted by Globalstar and the evidence that Iridium rehashes in its Opposition. Having found that Iridium did not make a persuasive case of need for additional spectrum, the Commission must craft a rule based on this finding. GLLC's proposal properly reflects the Commission's findings on the record.

Second, Iridium argues that GLLC has never demonstrated a need for "unencumbered spectrum" above 1616 MHz to justify changing the sharing boundary to 1618.725 MHz from 1618.25 MHz, to coincide with the frequency boundary of CDMA Channel 7. Opp., at 12-13. Iridium claims that Globalstar never had access to "unencumbered spectrum" and cannot expect it now. But, from the time of its licensing until the Order, Globalstar has had access to 5.35 MHz of spectrum unencumbered by non-CDMA interference sources. Globalstar was designed to share spectrum with other CDMA systems, and always expected to do so. Sharing spectrum with a TDMA system constitutes recognition of a different interference source that has an impact on the usability of the spectrum and must be managed in the same way that Globalstar must manage protection for the Radio-Astronomy Service and GPS and GLONASS in the 1610-1616 MHz band segment. The evidence supporting Globalstar's need for unencumbered spectrum is in the record,<sup>6</sup> and the Commission must take that evidence into account.

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<sup>6</sup> The Commission has requested further comment on that issue in this docket. See GLLC, Comments (Sept. 8, 2004), and Reply Comments (Sept. 23, 2004).

Iridium claims that Globalstar's fears are groundless that Iridium would load 1618.25-1621.35 MHz before using its exclusive 5.15 MHz. Opp., at 12-13.

According to Iridium, its system loading pattern automatically avoids overloading any one channel. Iridium's explanation simply confirms Globalstar's concern about harmful interference arising from Iridium's inability to control which frequencies are used at any particular time and within any particular region. Moreover, Iridium's loading pattern is inefficient because it spreads users throughout the spectrum rather than using only the spectrum that demand requires.

Finally, Iridium wrongly suggests (Opp., 13-14) that the Commission's failure to adopt traffic rules for L-band sharing is consistent with two prior decisions mandating spectrum-sharing. In the Big LEO rulemaking, the Commission separated the CDMA and TDMA systems in L-band by frequency; and, the CDMA systems developed a spectrum-sharing plan in the context of the Above 1 GHz MSS Negotiated Rulemaking, which the Commission acknowledged in the Big LEO Rules Order.<sup>7</sup> In the 2 GHz Mobile Satellite Service ("MSS") proceeding, the Commission refused to adopt the spectrum-sharing approach advocated by Globalstar;<sup>8</sup> rather, it adopted a spectrum-splitting approach, in which each licensee was assigned a proportional amount of spectrum and authority to operate in other licensees' band

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<sup>7</sup> See Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands, 9 FCC Rcd 5936, ¶¶ 60-61 (1994) ("Big LEO Rules Order").

<sup>8</sup> See The Establishment of Policies and Service Rules for the Mobile-Satellite Service in the 2 GHz Band, 15 FCC Rcd 16127, 16142, ¶ 26 (2000).

segments on a non-interference basis.<sup>9</sup> Thus, in both those services, contrary to Iridium's characterization, there *were* available "traffic rules" for dissimilar systems to share spectrum and to avoid harmful interference. GLLC's proposals for L-band in its Petition are based on the facts in this record concerning current and future spectrum usage by the Globalstar and Iridium systems.

Moreover, both the Big LEO and 2 GHz MSS orders dealt with new licensees of unconstructed and nonoperational systems. In this case, Globalstar and Iridium are operational systems with subscribers, *and* a history of demand and usage projections over their systems. The Commission requested that both systems provide such data on demand and growth for the record. Globalstar complied with specific data, but Iridium did not. Iridium provided vague generalities, declining to reveal the specific information that the Commission requested. To fill the void, Globalstar provided as much detail on the Iridium system as it was able to glean from Iridium's generic statements and Globalstar's own research and analysis. The factual record developed by Globalstar and accepted by the Commission showed that Iridium does not need access to additional spectrum at this time or for the immediate future.<sup>10</sup> The traffic rules proposed by GLLC for L-band sharing are fully consistent with the data in the record on Globalstar's and Iridium's spectrum

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<sup>9</sup> See id. at 16138-40.

<sup>10</sup> For example, Iridium claimed to need access to additional spectrum to provide voice and data services at higher data rates. But, there has been no indication (see [www.iridium.com](http://www.iridium.com)) that Iridium is now offering increased data rates in the U.S. with the newly available spectrum.

usage and needs, and the Commission is bound to make findings based on the record in *this* proceeding, not the Big LEO MSS record from 1993-1994, or the 2 GHz MSS record from 2000.

### **III. THE RULES ADOPTED IN THE ORDER RESULT IN A MODIFICATION OF GLOBALSTAR'S LICENSE UNDER § 316.**

Section 316 of the Communications Act provides a straightforward mechanism for the Commission to determine whether proposed modifications to licensed facilities are in the public interest by conducting a proceeding in which the Commission gives the licensee notice of at least 30 days and an opportunity for a hearing on the issue. GLLC explained in its Petition why the Commission erred in refusing to recognize the hearing rights granted to Globalstar by Section 316. In its Opposition, Iridium repeats the arguments made by the Commission in the Order, and offers no new insight into this issue. See Opp., at 14-17.

Iridium does make one absurd claim regarding the language implementing Section 304 of the Communications Act included in all Big LEO licenses. Opp., at 17-18. Iridium claims that a licensee's waiver of the claim to use of any frequency as against the regulatory power of the United States, as required by 47 U.S.C. § 304, eliminates any hearing rights following involuntary modifications under Section 316 of the Act. Obviously, if Iridium were correct, Section 316 would be meaningless. To the contrary, even if a licensee has no *ownership* rights to perpetual use of the frequencies (the subject of Section 304), it does have a due process right (the subject of Section 316) to require the Commission to justify the public interest reasons for involuntary license modifications. Indeed, modifications

of authorized frequencies, such as the modification of Iridium's frequencies in the Order, are the *sine qua non* of Section 316 actions. Even the waiver language cited by Iridium in the Globalstar license refers to the 30-day notice requirement.<sup>11</sup> Iridium's argument is simply frivolous.

#### IV. CONCLUSION

For the reasons set forth in GLLC's Petition and above, the Commission must reconsider CDMA-TDMA sharing in the Big LEO L-band and adopt measures to improve use of the spectrum. And, the Commission must conduct a hearing pursuant to Section 316 to review modifications of the Globalstar license.

Respectfully submitted,

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Date: November 10, 2004

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<sup>11</sup> See Loral/Qualcomm Partnership, L.P., 10 FCC Rcd 2333, 2337 (Int'l Bur. 1995).

November 9, 2004

Technical Appendix  
Globalstar LLC Reply to Opposition of Iridium Satellite LLC  
IB Docket No. 02-364

Iridium is still under-utilizing spectrum

Measurements made in November 2004 at Globalstar's Clifton, Texas, gateway demonstrate that Iridium is still under-utilizing Big LEO L-band spectrum. Iridium has had the authority to share the 1618.25-1621.35 MHz band segment since September 8, 2004. Therefore, one would expect that Iridium carriers would start to appear in these frequencies (corresponding to CDMA Channels 7-9). However, as of November 2, 2004, no Iridium carriers have been observed in these frequencies, and in fact, very few Iridium carriers have been observed even in Iridium's exclusive frequencies, 1621.35-1626.5 MHz (corresponding to CDMA Channels 10-13).

Figures 1 and 2 show, using different frequency resolutions, typical spectrum usage of Iridium as seen at the Clifton gateway after passing through Globalstar satellites and being downconverted to C-band feederlink frequencies. Figure 3 shows a similar usage of Iridium in Globalstar Channels 10-13 (but not in Channels 7-9) as seen in a different beam on a different gateway antenna. In all cases, the translated frequencies corresponding to CDMA Channels 7 through 9 are seen to be free of narrowband carriers, while the ranges corresponding to CDMA Channels 10-13 are sparsely populated with Iridium carriers.

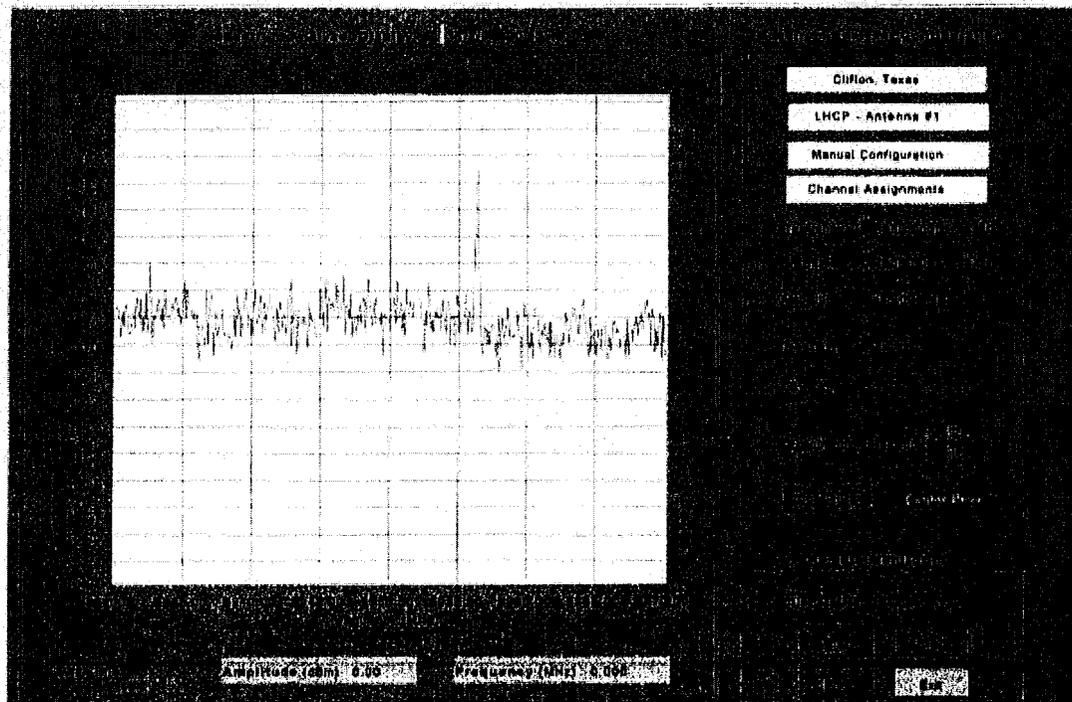


Figure 1: Iridium carriers seen at the upper edge of channel 13; none in channels 7-9.

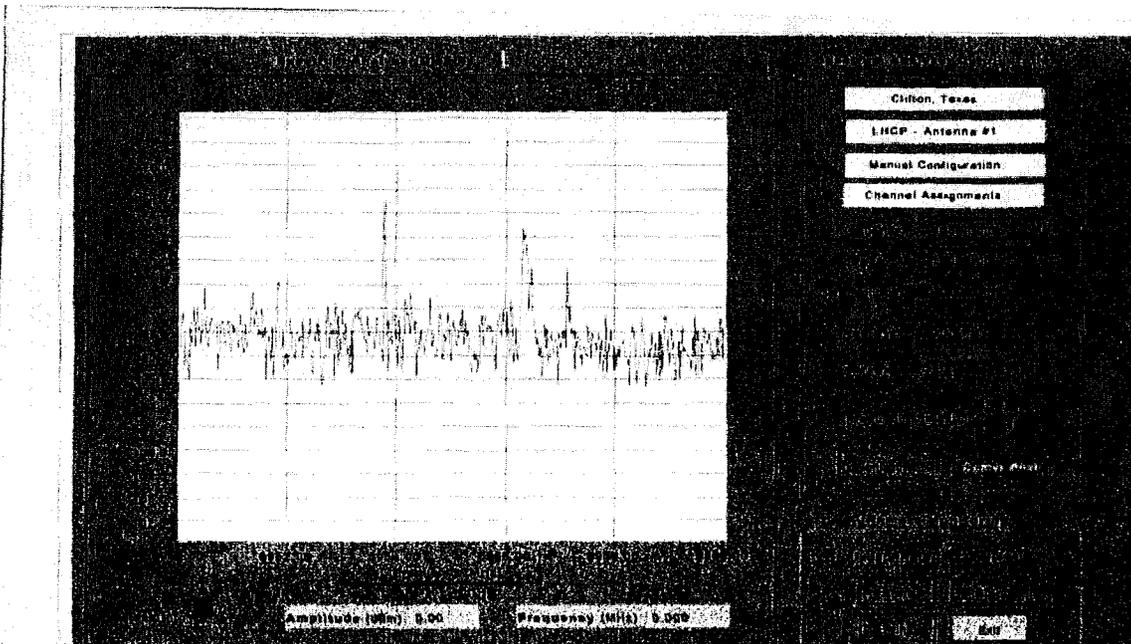


Figure 2: Zooming in on Iridium carrier seen in channels 12-13 (same beam as Figure 1).

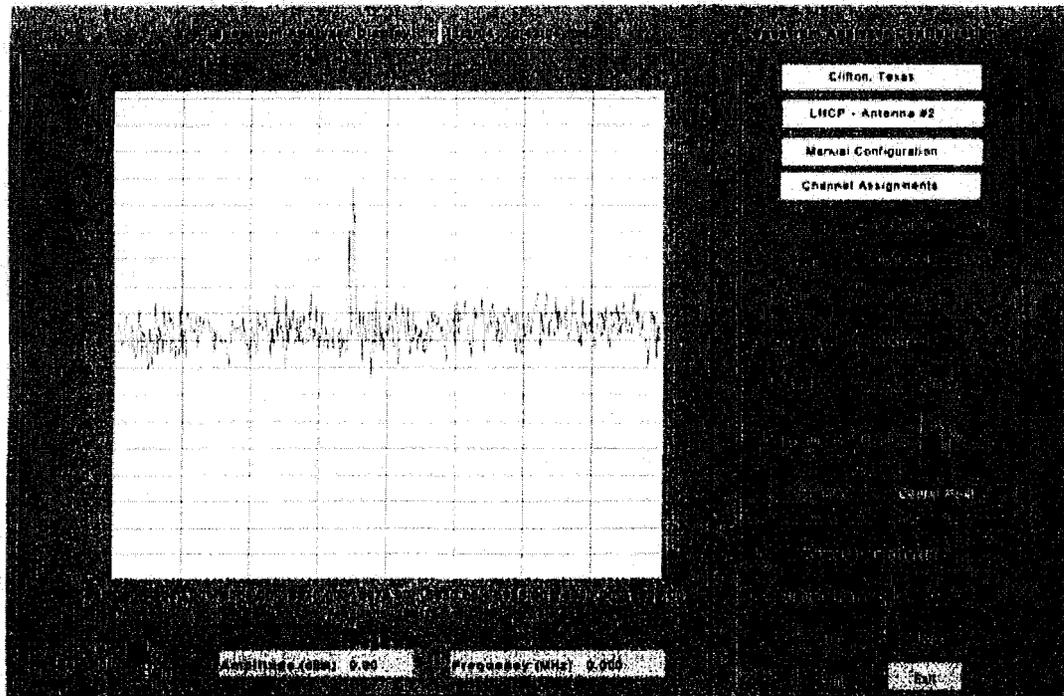


Figure 3: Looking at Iridium carriers in a different Globalstar beam; again no carriers in channels 7-9.

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 "Technical Appendix"; that I am familiar with the relevant sections of the FCC's Rules, the rules adopted and proposals set forth in the "Report and Order, Fourth Report and Order, and Further Notice of Proposed Rulemaking" (FCC 04-134) in IB Docket No. 02-364 and ET Docket No. 00-258, and the information contained in the foregoing Technical Appendix; and that information in the Technical Appendix is true and correct to the best of my knowledge and belief.

Signed this 9th day of November 2004.



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Paul A. Monte  
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## CERTIFICATE OF SERVICE

I, William D. Wallace, hereby certify that I have on this 10th day of November, 2004, caused to be served true and correct copies of the foregoing "Reply to Opposition of Iridium Satellite, LLC" upon the following persons via hand delivery (indicated with an asterisk (\*)) or first-class, United States mail, postage prepaid:

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