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VIA ELECTRONIC DELIVERY

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

Re: *Ex Parte* Written Presentation: IB Docket No. 01-185

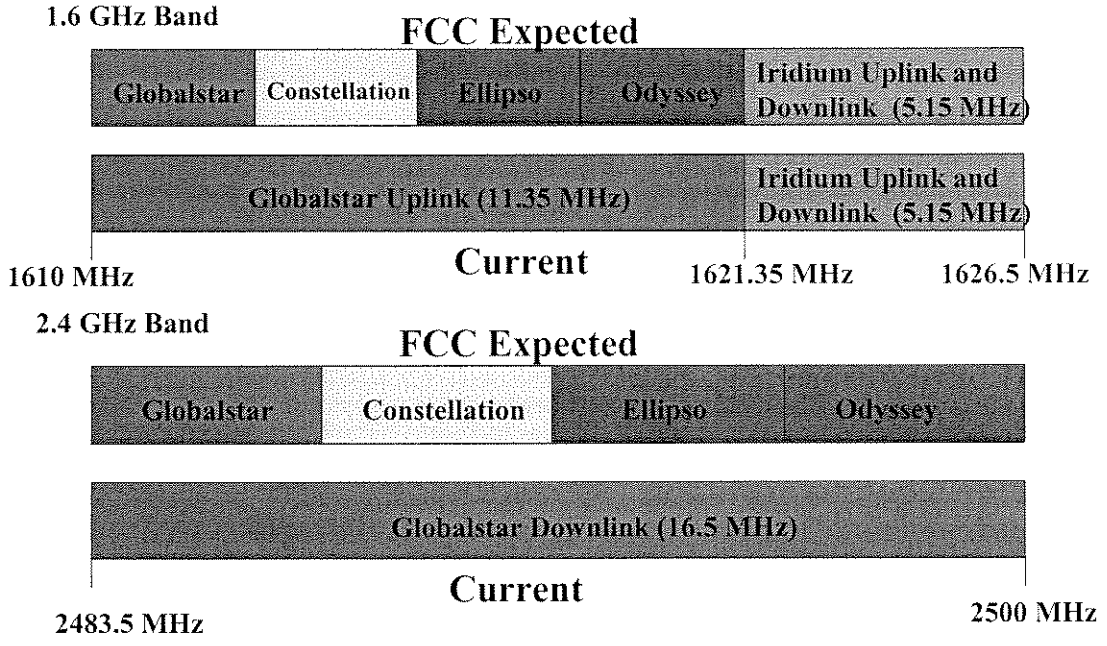
Dear Ms. Dortch:

Iridium Satellite LLC ("Iridium"), by its attorneys, files this written *ex parte* presentation to request that the Federal Communications Commission ("FCC" or "Commission") defer deciding whether to allow mobile satellite service ("MSS") licensees to provide ancillary terrestrial services ("ATC") in the 1610-1626.5/2483.5-2500 MHz bands (the "Big LEO" or "1.6/2.4 GHz" bands) until the agency rectifies the spectrum inequity between Big LEO operators that has arisen due to the failure of several of the original licensees.

I. EXECUTIVE SUMMARY

Iridium urges the Commission to correct the flaws in the current Big LEO spectrum band plan prior to authorizing Big LEO MSS operators to provide ATC. The current plan, established a decade ago, anticipated that all Big LEO operators would have roughly proportional spectrum rights. Today, however, Globalstar occupies 27.85 MHz of spectrum that the Commission intended to be shared among four operators. In contrast, Iridium operates in a mere 5.15 MHz of spectrum. Moreover, as depicted below, the spectrum available to Globalstar is "paired"—*i.e.*, Globalstar uplinks in 11.35 MHz of spectrum in the 1.6 GHz band and downlinks in 16.5 MHz of spectrum in the 2.4 GHz band—while Iridium must uplink and downlink within its 5 MHz spectrum block.

BIG LEO BANDS
Allocations and Assignments



Under this existing band plan, Iridium will not benefit from—and, in fact, would be severely disadvantaged by—a decision to permit Big LEO MSS operators to offer ATC. Neither Iridium, nor any other satellite operator, could offer ATC in a commercially viable manner with only 5.15 MHz of spectrum. In fact, as demonstrated in a recent Petition for Rulemaking, Iridium requires more than this amount to satisfy growing demand for its MSS offerings. Globalstar, in contrast, has access to almost 28 MHz of spectrum for MSS and could deploy commercially viable terrestrial services in a fraction of that spectrum.

To avoid this anti-competitive outcome, Iridium urges the Commission to recognize that readjustment of the Big LEO spectrum and adoption of an ATC policy that permits competition between the two remaining licensees are inextricably linked decisions that should be taken simultaneously. Specifically, the agency should postpone adoption of an ATC policy until it rectifies the current spectrum inequity. The Commission's failure to do so would exacerbate the

competitive imbalance caused by the existing band plan's disproportionate frequency assignments.

In furtherance of the objective of ensuring sound spectrum management, Iridium believes the Commission should promptly issue a Notice of Proposed Rulemaking to explore how best to ensure a sound Big LEO band plan. Iridium thus offers several band plan revisions for the Commission's consideration that would level the playing field for Big LEO operators to provide both MSS and ATC as well as allow the FCC to reclaim much-needed spectrum for other uses. Each of the proposals seeks to establish a sound competitive and technological framework for the future.

II. BACKGROUND

The current Big LEO spectrum imbalance derives from the Commission's decade-old decision to accommodate multiple operators in limited spectrum. The 1992 World Administrative Radio Conference ("WARC") allocated internationally the 1610-1625.5 MHz and 2483.5-2500 MHz bands for MSS operations. The following year, the Commission conformed its rules to the WARC allocation,[1] and, shortly thereafter, initiated a processing round for assignment of the Big LEO spectrum to interested parties. Five companies filed applications by the cut-off date seeking to operate low earth orbit MSS systems in the 1.6/2.4 GHz bands. TRW, Inc. ("TRW"), Constellation Communications, Inc. ("Constellation"), Mobile Communications Holdings, Inc. ("MCHI"), and Loral/Qualcomm Partnership, L.P. ("Globalstar") proposed to construct systems using code division multiple access ("CDMA") technology. Iridium's predecessor, Motorola Satellite Communications, Inc. ("Motorola"), planned a highly spectral efficient system using time division multiple access ("TDMA") technology.

At the time, the Commission concluded that licensing all five proposed Big LEO systems as expeditiously as possible would provide numerous public interest benefits, including "economic growth" and U.S. leadership in "developing and

[1] Amendment of Section 2.106 of the Commission's Rules To Allocate The 1610-1626.5 MHz and the 2483.5-2500 MHz Bands For Use By The Mobile-Satellite Service, Including Non-Geostationary Satellites, ET Docket No. 92-28, *Report and Order*, 9 FCC Rcd 536 (1993).

implementing satellite technology."[2] To achieve these benefits, the Commission adopted service rules and a band plan that resolved mutual exclusivity among the proposed Big LEO systems. The agency designated the 1621.35-1626.5 MHz band for frequency division multiple access ("FDMA") and TDMA operations and the 1610-1621.35 MHz and 2483.5-2500 MHz bands for CDMA operations.[3] For that reason, the Commission anticipated that four CDMA operators would share 11.35 MHz of uplink spectrum and 16.5 MHz of downlink spectrum. Iridium, the sole TDMA system, would have exclusive access to the remaining 5.15 MHz, but would be required to offer both its uplinks and downlinks in contiguous, non-"paired" spectrum. Pursuant to this band plan, the FCC licensed all five proposed Big LEO systems.

Cognizant of the spectrum advantage that a CDMA operator would enjoy in the "unlikely" event it was the sole surviving CDMA licensee, the Commission proposed to fix any such future inequity by reassigning 3.15 MHz of CDMA spectrum in the 1.6 GHz band to FDMA/TDMA operations upon a showing of need.[4] This proposed spectrum reallocation would result in a near equitable sharing of the 1.6 GHz band—8.25 MHz for the remaining CDMA operator and 8.3 MHz for the sole FDMA/TDMA operator. The proposal, however, did not recognize the inequitable distribution of the entire Big LEO 2.4 GHz spectrum to a single CDMA operator. Citing uncertain inter-service sharing constraints present at the time,[5] the Commission deferred a decision about readjustment of the Big LEO band plan.[6]

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[2] 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, CC Docket No. 92-166, *Report and Order*, 9 FCC Rcd 5936, 5939-41 (1994) ("*Big LEO Order*"); *on reconsideration, Memorandum Opinion and Order*, 11 FCC Rcd 12861 (1996).

[3] *Big LEO Order*, 9 FCC Rcd at 5955.

[4] 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, CC Docket No. 92-166, *Notice of Proposed Rulemaking*, 9 FCC Rcd 1094, 1112 (1994).

[5] *Big LEO Order*, 9 FCC Rcd at 5961. The possible inter-service sharing constraints involved coordination of BIG LEO systems with radioastronomy service ("RAS"), possible relocation of the Russian Global Navigation Satellite System ("GLONASS") to the 1.6 GHz band, and the impact of foreign-licensed MSS systems.

[6] *Id.*

Since the adoption of the Big LEO band plan and the issuance of licenses, the world has changed in ways that even the most prescient observers could never have imagined. As Chairman Powell observed in recent testimony before the Senate Commerce Committee, as a result of the telecommunications industry's implosion, "nearly 500,000 people in the United States alone have lost their jobs and approximately $2 trillion of market value has been lost in the last two years."[7] In this difficult economic environment, MCHI and Constellation lost their Big LEO licenses for failure to construct and operate on a timely basis.[8] Another Big LEO licensee, TRW, requested cancellation of its license in 1998.[9] Although Iridium and Globalstar both have constructed and now operate Big LEO systems, these companies experienced bankruptcy in the process. Iridium emerged from bankruptcy in December 2000 and now provides MSS service to tens of thousands of private and governmental users worldwide, including the U.S. Department of Defense.

In the instant proceeding, the Commission is considering "extending to Big LEO MSS licensees the opportunity to incorporate terrestrial operations within the Big LEO MSS bands into their respective MSS networks."[10] The Commission initiated this rulemaking in response to petitions from New ICO Global Communications (Holdings), Ltd. ("ICO"), a 2 GHz MSS licensee, and Motient Services, Inc. ("Motient"), an MSS licensee operating at 1.5 GHz, to provide ancillary terrestrial services ("ATC") in the 2 GHz and L-bands, respectively.

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[7] U.S. Senate, Committee on Commerce, Science, and Transportation, Summary Written Statement of Michael K. Powell, Chairman, Federal Communications Commission, on "Financial Turmoil in the Telecommunications Marketplace: Maintaining the Operations of Essential Communications" (July 30, 2002) at i, *available at* http://hraunfoss.fcc.gov/edocs-public/attachment/DOC-224797A1.pdf (last visited Nov. 29, 2002).

[8] *See* Mobile Communications Holdings, Inc., *Memorandum Opinion and Order*, 16 FCC Rcd 11766 (2001), *reconsideration denied* Mobile Communications Holdings, Inc., *Memorandum Opinion and Order*, 17 FCC Rcd 11898 (2002); Constellation Communications Holdings, Inc., *Memorandum Opinion and Order*, DA 02-3086 (rel. Nov. 8, 2002).

[9] *Public Notice,* Satellite Policy Branch Information Satellite Applications Accepted for Filing, Report No. SPB-114 at 3 (Jan. 15, 1998).

[10] Flexibility For Delivery Of Communications By Mobile Satellite Service Providers In The 2 GHz Band, The L-Band, And The 1.6/2.4 GHz Band, IB Docket No. 01-185, *Notice of Proposed Rulemaking*, 16 FCC Rcd 15532, 15564 (2001) ("*ATC NPRM*").

III. THE COMMISSION SHOULD RECTIFY INEQUITIES IN THE PRIMARY SPECTRUM BAND PLAN AT 1.6/2.4 GHZ BEFORE IT DETERMINES ANCILLARY TERRESTRIAL RIGHTS

The Commission should rectify the existing spectrum imbalance in the *primary* band plan before providing Big LEO licensees additional flexibility to offer *ancillary* terrestrial services. As noted above, the current band plan is flawed and no longer comports with the FCC's equitable intentions. Moreover, Iridium has insufficient spectrum to offer ATC under the current band plan and could serve many more customers if granted access to additional Big LEO spectrum. As explained below, authorizing ATC without adjusting the band plan would harm Iridium, provide a competitive advantage in the form of a windfall to Globalstar and would run contrary to sound spectrum policy.

A. Iridium Cannot Provide ATC In Its Current Big LEO Spectrum

Neither Iridium, nor any other satellite operator, can provide ATC in 5.15 MHz of Big LEO spectrum-the amount currently assigned to Iridium's MSS system. As was documented clearly in Iridium's Petition for Rulemaking, Iridium's ability to meet growing demand for expansion of its current services is taxing its system capacity even without contemplating ATC.[11] In fact, in some spot beams during peak demand hours, Iridium faces extremely high levels of capacity utilization. Moreover, its system architecture is fully contained within 5.15 MHz of contiguous spectrum, without any frequency separation between uplink and downlink transmissions. As such, ancillary terrestrial communications traffic would be exceedingly difficult to provide in this limited spectrum allocation.

Iridium requires additional spectrum to integrate and to deploy the ATC services the Commission now envisions for all MSS operators. In 1994, Iridium consented to the Commission's spectrum band plan for MSS services and developed a spectrally efficient system. When the band plan was established, neither Iridium nor the Commission contemplated that this spectrum would be made available for ancillary terrestrial services. Although it is within the Commission's authority to change spectrum policy and permit ATC in MSS bands, Iridium will not benefit

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[11] *See Petition for Rulemaking, Amendment Of Parts 2.106, 25.143, And 25.202 Of The Commission's Rules To Require Operation Of LEO MSS Systems Using TDMA/FDMA Techniques In The 1615.5-1626.5 MHz Frequency Bands*, IB 02-181 (filed July 26, 2002) at page 10.

from that decision unless it obtains access to additional spectrum. Accordingly, to give effect to a Commission decision to allow ATC, the FCC must simultaneously revise the existing band plan in a manner that offers Iridium additional spectrum access.

In fact, Iridium requires even more than its existing 5.15 MHz of spectrum to provide its primary MSS offerings. As noted *supra*, Iridium filed a "Petition for Rulemaking" on July 26, 2002 requesting amendment of the Big LEO band plan to permit Iridium to expand its operations into an additional 6 MHz of MSS spectrum immediately below its current assignment.[12] Although grant of the relief requested in Iridium's petition would enable Iridium to meet the current and increasing demand for existing and new communications services in both the United States and abroad, mere commencement of the rulemaking will not provide an equal opportunity for all MSS systems to provide ATC. Instead, the Commission must readjust the Big LEO spectrum plan before it permits ATC in the Big LEO bands.

B. Commission Failure to Readjust Big LEO Spectrum Prior To An ATC Decision Would Severely Injure Iridium

Unleashing ATC services within the Big LEO band prior to revisiting obsolete band plan decisions would substantially bias the already tenuous competitive balance between the two Big LEO operators in favor of Globalstar. The initial Big LEO allocation decision clearly contemplated that there would be several CDMA-based MSS providers in the spectrum that Globalstar alone uses. A Commission decision to allow ancillary services in any portion of this spectrum will affirmatively damage Iridium by aggravating the competitive imbalance resulting from Globalstar's current spectrum windfall.

Unlike Iridium, Globalstar currently has sufficient spectrum to offer both MSS and ATC services upon Commission approval. Unexpectedly free from CDMA-based competition, Globalstar has access to more than 27 MHz of frequency-separated, paired spectrum. Certainly, a licensee with almost 28 MHz of spectrum would have a substantial advantage over a licensee holding slightly more than 5 MHz of spectrum when attempting to provide ancillary services of any type.

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[12] *Id.*

Currently, Iridium is providing global mobile satellite services with the allocated 5.15 MHz of spectrum. As has been documented in its Petition for Rulemaking, Iridium already faces periods of heavy capacity utilization which exhausts much of its current spectrum allocation. Similarly, terrestrial services encompassed by the ATC concept require a reasonable level of spectrum to provide for a commercially attractive and technically supportable service. Within the technical framework under consideration for ATC, a significant degree of satellite/terrestrial coordination is required to achieve an effective ancillary service. This coordination demands frequency agility between the satellite and terrestrial resource which can only be accomplished if adequate spectrum is available. Iridium is effectively denied the ability to utilize ATC services if it is constrained to the current 5.15 MHz since it is impractical to provide both satellite and terrestrial services in a coordinated manner within that narrow frequency allocation. The terrestrial/satellite interference due to the inability to coordinate services and usage would prevent either service from being successfully delivered.

Consequently, if the Commission does not provide additional spectrum to Iridium, any flexibility authority for Big LEO licensees to deploy ATC would accrue only to a single party. This result plainly conflicts with the Commission's intent for the band.[13] It also bestows upon Globalstar a competitive advantage that flies in the face of clear Commission policies to treat competitors in a substantially similar fashion. For example, as the FCC has developed and adopted rules governing Commercial Mobile Radio Services ("CMRS"), it has consistently attempted to provide each regulated entity with a level competitive playing field on which to establish its business.[14] Iridium asserts that the Commission must ensure that flexible use of MSS spectrum is readily achievable for all affected parties, rather than reserving such rights only for particular entities that were provided a spectrum windfall due to the failures of other licensees.

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[13] *ATC NPRM*, 16 FCC Rcd at 15533.

[14] Implementation Of Sections 3(n) and 332 Of The Communications Act Regulatory Treatment of Mobile Services, GN Docket No. 93-252, *Second Report and Order*, 9 FCC Rcd 1411 (1994) ("*CMRS Second Report and Order*"); Implementation Of Sections 3(n) and 332 Of The Communications Act, GN Docket No. 93-252, PR Docket No. 93-144, PR Docket No. 89-553, *Third Report and Order*, 9 FCC Rcd 7988 (1994) ("*CMRS Third Report and Order*"); Amendment Of The Commission's Rules To Permit Flexible Service Offerings In The Commercial Mobile Radio Service, WT Docket No. 96-6, *First Report and Order and Further Notice of Proposed Rulemaking*, 11 FCC Rcd 8965 (1996) ("*CMRS Flex Decision*").

C. Sound Spectrum Policy Dictates That the Commission Clearly Define Big LEO Spectrum Rights Prior to Granting Ancillary Terrestrial Rights

Sound spectrum policy requires the FCC to review the Big LEO band plan prior to granting ancillary terrestrial rights to the remaining two Big LEO licensees. One of the fundamental principles of spectrum management is to establish precise rights for the underlying license to use spectrum. Indeed, clearly defining spectrum rights is one of the key elements recently recommended by the Commission's Spectrum Policy Task Force.[15] The Spectrum Policy Report states that "the Commission must clearly define ... basic spectrum rights parameters for all licenses and unlicensed spectrum use[rs]," including "[d]esignated frequency range and bandwidth" and "[g]eographic scope of right to operate."[16]

The FCC developed the current 1.6/2.4 GHz Big LEO band plan in 1994 to accommodate five different operators, each with rights to use roughly the same amount of spectrum. The Commission granted rights to 27.85 MHz of spectrum to Globalstar and three other CDMA licensees based upon the assumption that the four CDMA licensees would share this spectrum. Under such circumstances, Iridium's grant of 5.15 MHz of spectrum was intended to be roughly proportionate to the spectrum authorized to its competitors. Now, however, Iridium has access to less than one-fifth the amount of spectrum available to Globalstar. The time has come for the Commission to follow through with its promise to readjust the band plan and eliminate this glaring inequity.

IV. THE FCC SHOULD PROMPTLY ESTABLISH AN EQUITABLE BIG LEO BAND PLAN

Iridium strongly urges the Commission to adopt one of the following band plans or defer any action on ATC pending the outcome of any Further Notice of Proposed Rulemaking it deems necessary to implement an equitable Big LEO band plan. These proposed band plans are intended to ensure that all covered systems have adequate spectrum resources to continue offering existing services and to take

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[15] *Report*, Spectrum Policy Task Force, Federal Communications Commission, ET Docket No. 02-135, (rel. Nov. 15, 2002) ("Spectrum Policy Report").

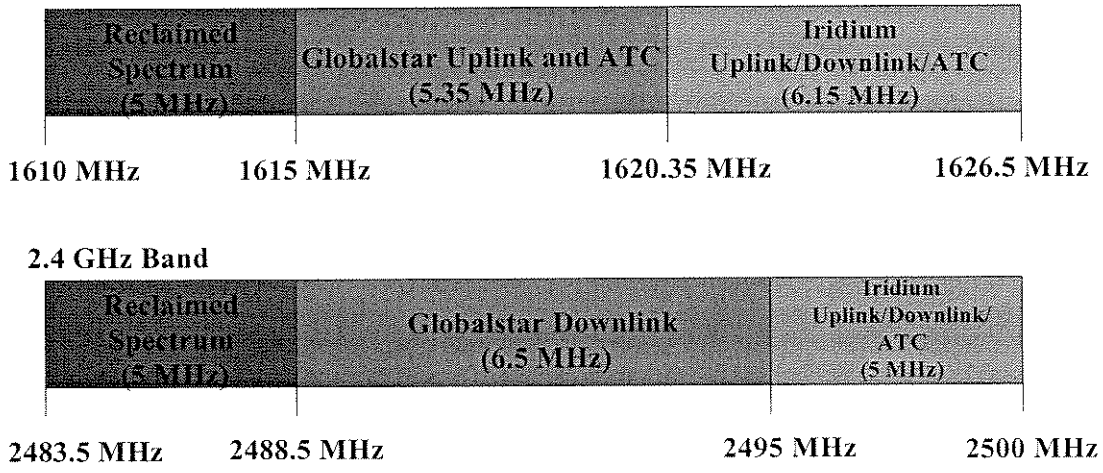
[16] Spectrum Policy Report at 18.

advantage of the additional flexibility that ATC offers. They thus rectify the flaws of the existing Big LEO band plan and distribute the available spectrum more fairly between the two remaining licensees.

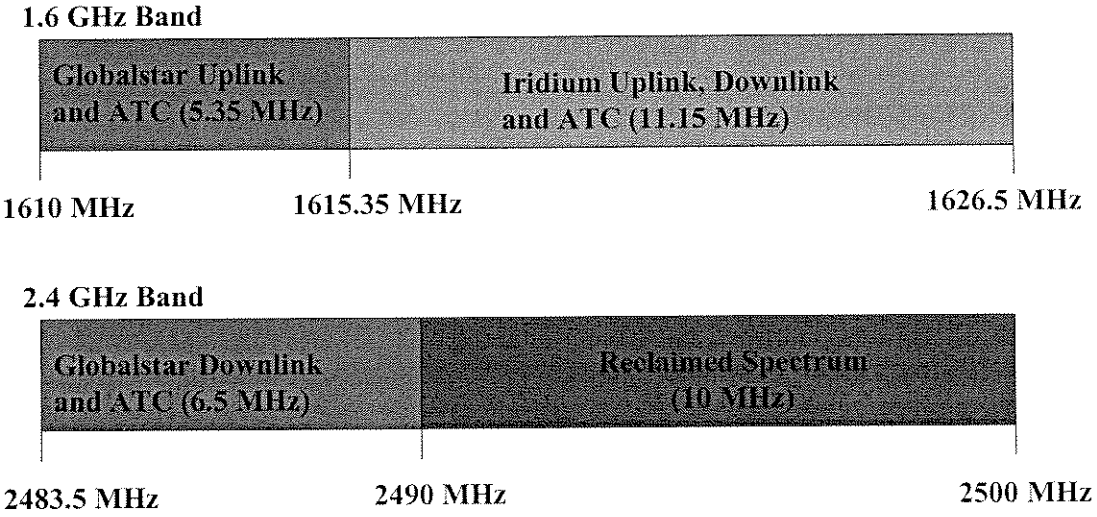
A. The Commission Should An Equitable Band Plan

As illustrated below, the Commission could appropriately balance the Big LEO band by allocating an additional 6 MHz of spectrum either within the 2.4 GHz or the 1.6 GHz band to Iridium and by reclaiming 10 MHz of spectrum for other spectrum users. Iridium's system capabilities are limited currently by a lack of access to spectrum. Indeed, if any MSS system was limited to 5.15 MHz of spectrum, it would be unable to provide MSS and ATC services to the public. Therefore, without access to additional spectrum, Iridium will not be in a position to provide ATC services technically or economically.

BIG LEO BANDS
New Band Plan A



BIG LEO BANDS
New Band Plan B



Unlike the existing band plan, either of these new band plans would permit *both* GlobalStar and Iridium to reap the potential benefits of ATC. They would also ameliorate capacity constraints on the Iridium system.

These revised band plans also enable the Commission to reclaim 10 MHz of needed spectrum below 3 GHz. As noted in its recent allocation of 90 MHz of spectrum for advanced wireless services, the Commission is engaged in a continuing effort to identify additional spectrum below 3 GHz.[17] Moreover, the recent *Spectrum Policy Report* recognizes that "both industry and Commission projections for spectrum use have significantly and consistently underestimated the need for additional spectrum and the public's utilization of new technologies and

[17] 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 Wireless Services, Including Third Generation Wireless Systems, ET Docket No. 00-258, *Second Report and Order*, FCC 02-304, ¶ 52 (rel. Nov. 15, 2002).

applications."[18] The additional 10 MHz of spectrum made available under either of these band plans presents a unique opportunity for the Commission to reclaim underutilized spectrum and fulfill more urgent spectrum needs. This spectrum can easily be reallocated and authorized for a variety of needed services, a result certainly in the public interest.

B. The Commission Has Authority in this Proceeding to Adopt a Revised Band Plan

The Commission has already established a legal foundation to adopt an equitable band plan—such as those proposed by Iridium—simultaneously with an ATC decision in the context of this rulemaking proceeding. First, the FCC predicted nearly a decade ago that it would reassign Big LEO spectrum "in the context of a rulemaking proceeding" if "only one CDMA licensee goes forward."[19] Second, in establishing the instant rulemaking, the Commission expressly recognized that it might need to modify the Big LEO band plan to facilitate the provision of integrated terrestrial services.[20] Thus, the FCC also sought comment on "any particular interference or other technical issues that the Commission would be required to address with respect to TDMA systems in possibly considering a proposal to permit Big LEO operations to integrate terrestrial operators into their specific networks…."[21]

In response, Iridium indicated in its initial comments that it cannot offer a commercially viable ATC without "access to sufficient spectrum to do so."[22] Iridium further establishes herein that it cannot establish an ATC system in its current allocation of 5.15 MHz that would operate without causing interference to its existing satellite infrastructure. As a result, because modification of the Big LEO band plan is essential to Iridium's ability to offer ATC in a technically

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[18] Spectrum Policy Report, p. 12 (noting the "dramatic increase in overall demand for spectrum-based services and devices . . .").

[19] *Big LEO Order*, 9 FCC Rcd at 5959-61.

[20] *ATC NPRM*, 16 FCC Rcd at 15564-65.

[21] *Id. at* 15564.

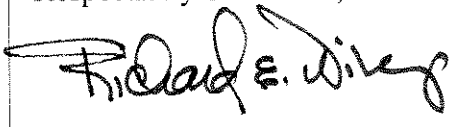
[22] Comments of Iridium Satellite LLC, at 4, IB Docket No. 01-185, ET Docket No. 95-18 (filed Oct. 22, 2001).

proficient and commercially viable manner, the Commission must either take such action in this proceeding or defer an ATC decision in the Big LEO bands pending further public comment on equitable band plan proposals.

V. CONCLUSION

The current situation provides the Commission with an opportunity to repair the outdated spectrum band plan for the Big LEO MSS systems, recover 10 MHz of needed spectrum, and level the competitive market for satellite services by moving quickly to adopt a fair band plan, such as those proposed by Iridium. A policy decision approving ATC in the Big LEO bands prior to reassignment of Big LEO spectrum would be an unacceptable regulatory "solution" that is custom-tailored for one, uniquely situated MSS licensee operating across a disproportionately wide range of frequencies in the 1.6/2.4 GHz frequency bands. Therefore, absent prior or simultaneous adoption of Iridium's proposed band plans or some other equitable plan, the Commission must defer the grant of ATC authority in the 1.6/2.5 GHz band.

Respectfully Submitted,



Richard E. Wiley
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