

**Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Globalstar Licensee LLC)	Call Sign S2115
GUSA Licensee LLC)	Call Sign E970381
)	File No. SAT-STA-20081215-00231
Modification of Authority to)	
Operate a Mobile Satellite System in the)	
1.6 GHz Frequency Band)	
)	

OPPOSITION OF GLOBALSTAR LICENSEE LLC

I. INTRODUCTION AND SUMMARY.

Pursuant to section 25.154(c) of the Commission's rules, 47 C.F.R. § 25.154(c), Globalstar Licensee LLC ("Globalstar") hereby opposes the Petition to Deny filed by Iridium Satellite LLC ("Iridium") against the above-referenced application.^{1/} Globalstar's application sought a limited waiver of the Commission's October 15, 2008, *Modification Order*^{2/} that would permit Globalstar to continue to provide service under its Mobile Satellite Service ("MSS") space station license (call sign S2115) on the frequencies between 1618.725-1621.35 MHz in specific countries served by

^{1/} See Petition to Deny of Iridium Satellite LLC (filed Jan. 21, 2009) ("*Petition to Deny*"). See also Globalstar Licensee LLC and GUSA Licensee LLC, Request for Waiver and Request for Special Temporary Authority, FCC File No. SAT-STA-20081215-00231 (filed Jan. 21, 2009) ("*Request for Waiver*" and "*Request for STA*").

^{2/} See Globalstar Licensee LLC, Call Sign S2115; GUSA Licensee LLC, Call Sign E970381; Iridium Constellation LLC, Call Sign S2110; Iridium Satellite LLC, Call Sign E960132; Iridium Carrier Services, Call Sign E960622, Modification of Authority to Operate a Mobile Satellite Service System in the 1.6/2.4 GHz Frequency Band, *Order of Modifications*, FCC 08-248 (rel. Oct. 15, 2008) ("*Modification Order*"). On November 14, 2008, Globalstar filed a petition for reconsideration of the *Modification Order*, which remains pending. See Petition for Reconsideration of Globalstar Licensee LLC and GUSA Licensee LLC (filed Nov. 14, 2008) ("*Globalstar Petition for Reconsideration*").

certain of its gateways.^{3/} As Globalstar showed in its application and the Commission itself has recognized,^{4/} the Globalstar system was designed and built and has been operating for the past ten years in reliance on the frequency bands contained in Globalstar's 1995 space station license. By removing Globalstar's authority to continue to provide service outside the United States in the spectrum between 1618.725-1621.35 MHz, the *Modification Order* impairs the ability of Globalstar and its gateway operators to continue to provide the quality and variety of service that their customers require and to accommodate both normal growth and the new broadband services in rural and remote areas that Globalstar will be able to offer when its replacement constellation is in service.

Globalstar has taken extensive measures since the issuance of the *Modification Order* to comply with its terms, as detailed herein. However, as Globalstar has shown in its waiver application and in the underlying license modification proceeding, in certain countries Globalstar and its gateway operators are affected by technical or regulatory constraints, or both, which would impair their ability to provide reliable service absent a waiver. Moreover, some of the steps that are needed for compliance in certain locations – such as regulatory approval for

^{3/} The *Modification Order* was issued following the Commission's November 9, 2007 Order that revised the Big LEO spectrum sharing plan in the United States by reassigning to Iridium's exclusive use certain spectrum previously reserved for CDMA carriers in the United States, including Globalstar. See Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, *Second Order on Reconsideration and Second Report and Order*, 22 FCC Rcd 19733 (2007) ("November 9th Order"). Globalstar has sought review of the *November 9th Order* by the United States Court of Appeals for the D.C. Circuit. See *Globalstar, Inc. v. FCC*, DC Cir. Case No. 08-1046 (petition for review filed Feb. 5, 2008). That appeal is pending.

^{4/} See *Modification Order* at ¶ 41 ("[W]e recognize that Globalstar has built and marketed, and is operating its system, on frequency bands contained in its 1995 license" and that "requiring Globalstar to terminate transmissions in certain parts of the world on frequencies in which it has existing operating agreements may impose undue costs on both Globalstar and the countries accessing the Globalstar space stations.").

channel reassignments – are not within Globalstar’s control. Iridium’s Petition fails to contradict that showing.

Iridium’s Petition also fails to rebut Globalstar’s factual demonstration that granting the limited waiver Globalstar seeks would better serve the public interest than strict adherence to the *Modification Order*’s terms. In particular, Iridium makes no attempt to show that *it* has authority to use the affected frequencies in any of the countries covered by Globalstar’s application, or that it would otherwise be harmed in any way by the limited waiver Globalstar has requested. To the contrary, insistence on Globalstar’s vacating the affected frequencies in the countries covered by the application would mean that those frequencies would go unused for the foreseeable future. Thus, denial of the requested waiver would compromise the quality of Globalstar’s services – and would require that service to customers be cut off in some countries, such as Russia – without any countervailing public interest benefit.

II. GLOBALSTAR’S WAIVER PETITION IS PROCEDURALLY PROPER.

Iridium attempts to avoid Commission consideration of the application on the ground that Globalstar filed it before Globalstar came into full compliance with the *Modification Order*.^{5/} But Iridium misportrays the events leading to the order and ignores Globalstar’s extensive undertakings to implement expeditiously the changes necessitated by the order. Thus, there is no equitable basis to deny favorable action on Globalstar’s request for limited relief.

In the first place, Iridium’s assertion that Globalstar has had a year to adjust its operations to vacate the affected frequencies worldwide is fanciful.^{6/} The *Modification Order* was issued only three months ago, imposing for the first time a requirement that Globalstar make the

^{5/} See *Petition* at 4-8.

^{6/} See *id* at 1-2.

extensive changes to its operations necessary to vacate frequencies used for a decade in its global operations. The Commission first gave notice that it might take such action in May 2008, and Globalstar vigorously opposed that proposal.^{7/} Since it had no reason to know whether the Commission would adopt its proposal over Globalstar's objections, Globalstar was on notice that it needed to comply only three months ago upon release of the *Modification Order*.

The *Modification Order* became effective sixty days after its release, within which time Globalstar filed its waiver request, as the *Modification Order* expressly invited it to do.^{8/} Globalstar accompanied its waiver request with a request for Special Temporary Authority to allow it to continue to operate on the affected frequencies from enumerated gateways "for 180 days or until the Commission acts on [its waiver], whichever is shorter," because of the harm that implementation of the *Modification Order* would cause to Globalstar, its gateway operators, and its customers in a number of countries. Globalstar explained that the practical implications of a cessation of space station operations on the affected frequencies from certain gateways made it essentially impossible for Globalstar to implement the *Modification Order* within 60 days after the

^{7/} See Globalstar Licensee LLC, Call Sign S2115; GUSA Licensee LLC, Call Sign E970381; Iridium Constellation LLC, Call Sign S2110; Iridium Satellite LLC, Call Sign E960132; Iridium Carrier Services, Call Sign E960622 -- *Modification of Authority To Operate a Mobile Satellite System in the 1.6 GHz Frequency Band*, FCC 08-125 (rel. May 7, 2008). See also Protest of Globalstar Licensee LLC and GUSA Licensee LLC (filed June 6, 2008) ("*Globalstar Protest*") at 4 ("The Commission gave no notice at any point in the *Big LEO Spectrum Sharing Proceeding* that it might do more than simply revise the U.S. band plan for Big LEO MSS providers."); Reply of Globalstar to Opposition of Iridium (filed Dec. 1, 2008) at 3-4 (same).

^{8/} See *Modification Order* at ¶ 41. Iridium's suggestion that the application was not filed until after the order had taken effect, see *Petition* at 7, disregards the fact that the 60th day after the release of the order fell on a Sunday, which is treated as a holiday for purposes of filings with the Commission. See 47 C.F.R. § 1.4(j).

order's release without significantly harming the quality of Globalstar's services or, in some cases, requiring that Globalstar terminate service to subscribers.^{9/}

The Commission itself does not ordinarily issue orders modifying authorizations. Rather, that task is routinely delegated to staff. Having chosen to address the issues itself in the *Modification Order*, the Commission explicitly recognized that its decision could cause hardship and invited Globalstar to file for "a waiver or modification of the limitation." Such an invitation is rare in a Commission decision and plainly demonstrates the Commission's awareness that compliance with the order in some areas could be very problematic.

Nonetheless, Globalstar moved promptly to begin the steps necessary to comply with the order. Those steps have been difficult and time consuming – involving modifications to gateway database software, contacts with Globalstar's foreign regulators, and negotiations with Globalstar's independent gateway providers, many of whom possess regulatory authority from their licensing administrations that would need to be modified before their operations could be changed, as well as contractual rights to continue to operate in the affected spectrum. For example, the unaffiliated operator of the Meekatharra, Australia, gateway has filed a comment in this proceeding explaining why it must retain use of channel 8 in Australia.^{10/} With the exception of the three gateways located in Russia, from which Globalstar cannot terminate operations on the affected channels without reducing capacity below the current demand in that country and the surrounding countries they serve, Globalstar has been making substantial efforts to transition its gateways off of the

^{9/} See *Request for Waiver* at 19-20.

^{10/} See Letter from Robert Sakker, Executive Director, Pivotal Group Pty Limited, to Marlene H. Dortch (filed Jan. 21, 2009) ("*Pivotal Letter*"). Iridium Australia Ltd. is authorized to operate satellite phones only between 1620.1 and 1616.5 MHz. See http://www.acma.gov.au/WEB/STANDARD/pc=PC_558. Accordingly, Globalstar's use of its channel 8 cannot interfere with Iridium's service in Australia.

spectrum encompassing channels 8 and 9 as quickly as possible.^{11/} However, as detailed below and in Globalstar's petition, in at least some cases, the steps needed to come into compliance are beyond Globalstar's control, and in any event, vacating the spectrum at issue will cause very significant hardship to Globalstar, the relevant gateway providers, and their customers, without any countervailing benefit to the public interest or to Iridium.

Despite these difficulties, as a result of its further work with its engineers, its gateway operators, and foreign regulatory authorities to address the significant technical and regulatory issues raised by the *Modification Order*, Globalstar is able to narrow its waiver request. In particular, as of this date, Globalstar has been able to assign channels below channel 8 at the Aussaguel, France gateway (which serves the United Kingdom among other countries), and the Manaus and Petrolina, Brazil gateways, all of which are operated by Globalstar affiliates.^{12/} Even that process underscored the complexity of compliance with the order. Because of the inability of the Globalstar system to assign the same access channel to geographically adjacent gateways, the changes in France and Brazil have caused a ripple effect requiring channel adjustments to a number of other gateways that are not covered by Globalstar's request (*e.g.*, all its gateways in Central and South America). Nevertheless, Globalstar has determined that it can operate without using the affected spectrum for at least the next two years without substantial detriment to its services from these particular gateways and accordingly, at this time, no longer requests a waiver of the terms of the *Modification Order* with respect to the countries and regions they serve, including, as noted, the United Kingdom, the subject of Iridium's technical appendix. Globalstar remains of the view that the *Modification Order* is unlawful and not in the public interest for the

^{11/} See Affidavit of Paul A. Monte, attached (filed Feb. 2, 2009) ("*Monte Affidavit*") at 7-10.

^{12/} See *Monte Affidavit* at 9.

reasons stated in its pending petition for reconsideration and may find it necessary to seek additional waivers in the future if the *Modification Order* is not reversed.

In the case of its Russian gateways, as indicated in Globalstar's application, Globalstar cannot cease operations on the spectrum between 1618.725-1621.35 MHz without shutting down service to many of the approximately 40,000 customers in Russia and adjacent areas, including Afghanistan, where Globalstar serves American troops.^{13/} As Globalstar has shown,^{14/} this is because the Russian regulator has authorized Globalstar to use only the spectrum between 1616 and 1621.35 MHz, corresponding to its L-band channels 6-9; without the ability to continue to operate in the upper portion of this spectrum on channels 8 and 9, Globalstar will have insufficient spectrum to provide service to all of its customers. Specifically, this is because the three Russian gateways are geographically adjacent to one another, lying essentially in a row with the Novosibirsk gateway in the middle, and therefore require two separate access channels for the two non-adjacent gateways and a third channel for traffic in the Moscow gateway to meet current demand for service that cannot be satisfied by using the Moscow access channel alone. As Globalstar has noted,^{15/} Iridium is not authorized to provide service in Russia, and Globalstar's continued use of channels 8-9 there cannot prejudice Iridium in any way.

In light of these facts, Iridium's assertion that Globalstar's actions evince a "knowing and willful violation of the terms of its licenses" calling into question Globalstar's qualifications to be a Commission licensee is empty rhetoric.^{16/} From the moment the issue of possible

^{13/} See *Monte Affidavit* at 9-10.

^{14/} See *Waiver Request* at 13-14.

^{15/} *Id.*

^{16/} See *Petition* at 4.

extraterritorial application of the revised US Big LEO band plan was raised, Globalstar has candidly acknowledged the difficulties it would have in conforming its operations to that band plan in countries that have adopted quite different band plans, and it has sought relief as appropriate – as the Commission indicated it should. Globalstar’s inability to date to achieve full compliance with the *Modification Order* pales in comparison to Iridium’s unlawful operation for the past five years, at least, in the spectrum below 1621.35 MHz throughout the world.^{17/} In adopting its Big LEO MSS rules, the Commission stressed that it would “continue to require our licensees to meet both their international obligations and *any national requirements imposed by other licensing administrations regarding operations within their territories.*”^{18/} When it authorized Iridium to operate below 1621.35 MHz for the first time, the Commission reiterated that Iridium’s operations outside of the United States must be on a non-interference basis to any allocated radio services in that spectrum, including in particular radio astronomy users.^{19/} Without seeking relief from those requirements, Iridium has violated and continues to violate this condition throughout the world, operating below 1621.35 MHz in the many countries where it lacks authority to do so and triggering repeated complaints of interference to licensed operations.

^{17/} Iridium began operating worldwide in this spectrum when the International Bureau granted it temporary authority to operate in the Middle East in June 2003. *See, e.g., Modification of Licenses held by Iridium Constellation, LLC and Iridium US LP, Order*, 18 FCC Rcd 11480 (Int’l Bur. 2003). It has continued to do so without interruption since 2004, when the Commission modified the US Big LEO band plan to authorize Iridium to share in the United States the spectrum between 1618.25 and 1621.35 MHz. *See Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, Report and Order, Fourth Report and Order, and Further Notice of Proposed Rulemaking*, 19 FCC Rcd 13386 (2004).

^{18/} 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, *Report and Order*, 9 FCC Rcd 5936 (1994) (“*Big LEO Report and Order*”) at ¶ 211 (emphasis added).

^{19/} *See, e.g., Modification of Licenses held by Iridium Constellation, LLC and Iridium US LP, Order*, 18 FCC Rcd 20023 (Int’l Bur. 2003) at ¶ 16.

Other national administrations have brought these infringements to the Commission's attention.^{20/}

III. IRIDIUM FAILS TO REFUTE GLOBALSTAR'S SHOWING THAT A WAIVER WOULD SERVE THE PUBLIC INTEREST.

Globalstar's application explained why the requested waiver would avert serious hardship to Globalstar, its gateway operators, and its customers in the countries covered by the request, without harming Iridium or undermining any important Commission policy or rule. Other than making certain evidentiary arguments, which we discuss in part IV below, Iridium's Petition does not even acknowledge, let alone refute, Globalstar's strong public interest showing in support of a waiver.

Indeed, Iridium's Petition is silent about one of the most troubling aspects of the *Modification Order* – the fact that neither Iridium nor any entity other than Globalstar is authorized by any national administration to operate on the spectrum between 1618.725 and 1621.35 MHz outside of the United States, and that, absent the requested waiver, the spectrum will go entirely unused in the countries covered by the waiver request.^{21/} Globalstar has pointed out repeatedly, without contradiction, that no other country has revised its Big LEO band plan to

^{20/} See, e.g., Letter from Steve Harding, Office of Communications (filed with the FCC on June 22, 2006) (“Measurements carried out in the U.K. and other CEPT countries have indicated that the Iridium network has continued to operate within the referenced extended frequency band in spite of not having received relevant authorization We remain very concerned that the Iridium system appears not to be operating in accordance with U.K. authorization, international agreements and that operation of Iridium earth stations within the U.K. is not in accordance with the conditions of the relevant statutory authorization.”) (emphasis added); Report of Irregular Infraction, Bundesnetzagentur (filed with the FCC on June 22, 2006) (“The produced unwanted emissions of Iridium into the radio astronomy band 1610-1613.8 MHz cause harmful interference hence disobeying RR 15.10 and 15.11.”) (emphasis added) (attached as Exhibits 1 and 2). By contrast, Globalstar's difficulties in achieving full compliance with the *Modification Order* are not alleged to have caused any interference to Iridium or any other licensed operator.

^{21/} See Monte Affidavit at 10.

authorize Iridium to provide services in the affected frequencies.^{22/} Instead, most other administrations still adhere to Big LEO band plans that are substantially similar to the original CDMA/TDMA band plan the Commission adopted in 1994,^{23/} which both Globalstar and Iridium agreed to implement globally and on which both based the design of their user terminals and their channel assignments. Those initial plans, which Globalstar anticipated would remain in place at least for the duration of its FCC authorization, permit CDMA operations but not TDMA operations in the spectrum between 1618.725 and 1621.35 MHz. Thus, to the best of Globalstar's knowledge, Iridium continues to have no authority to operate in the affected spectrum *anywhere* but in the United States, and accordingly would not be harmed in any way by the requested waiver.^{24/}

Globalstar has suggested that a waiver order could expressly acknowledge Iridium's right to seek revision of the waiver if in the future any of the covered countries change their band plan to authorize Iridium to provide service in the affected spectrum. The Commission could then consider whether the changed circumstances justify revocation of the waiver with respect to that

^{22/} See, e.g., *Request for Waiver* at 18-19. See also *Globalstar Petition for Reconsideration* at 13-14.

^{23/} See, e.g., European Radiocommunications Committee, ERC Decision of 30 June, 1997 on the Harmonized Use of Spectrum For Satellite Personal Communications Services (S-PCS) Operating within the bands 1610-1626.5 MHz, 2485.5-2500 MHz, 1980-2010 MHz and 2170-2200 MHz (adopting a band plan in Europe that is substantially similar to the original US Big LEO band plan). See also 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, *Report and Order*, 9 FCC Rcd 5936 (1994) (adopting the original Big LEO band plan for the United States).

^{24/} See *Monte Affidavit* at 10.

country.^{25/} Iridium never addresses – let alone provides a compelling reason for rejecting – this sound approach.

Iridium’s Petition similarly ignores the impact that a waiver denial would have on the underlying purpose of the Commission’s Big LEO rules – the provision of *global* service by US MSS licensees. As Globalstar showed, the Commission’s express goal in creating the Big LEO service was to enable US-licensed Big LEO carriers to provide services on a global basis. The Commission noted that “the inherently global nature of LEO systems may create additional public interest benefits.”^{26/} The Commission found that, by designing their systems to operate in countries outside of the United States, US Big LEO licensees would be “uniquely positioned to foster social and economic benefits in the United States *and throughout the world.*”^{27/} The “provision of global service by U.S. companies” would “spur a U.S. presence in the world economy by helping to expand markets for U.S.-produced goods and services” and “significantly enhance[]” this country’s “global competitiveness in telecommunications.”^{28/} Finally, the Commission found that US-licensed Big LEO systems “may offer countries unable to participate in state-of-the-art telecommunications development immediate access to a technologically advanced communications infrastructure,” providing for “revolutionary advances in all areas supported by communications,” including “health care, education, emergency communications from small villages, public safety, routine governmental and civic exchanges, industrial

^{25/} *Request for Waiver* at 19.

^{26/} *See id.* at 17 (citing 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 (1994) at ¶ 21).

^{27/} *Request for Waiver* at 17.

^{28/} *Id.*

communications and monitoring, and manufacturing.”^{29/} A denial of Globalstar’s waiver request would run counter to each of these goals by impairing Globalstar’s ability to offer existing services as well as to introduce new, innovative broadband MSS service globally.

IV. GLOBALSTAR HAS PROVIDED MORE THAN SUFFICIENT FACTUAL SUPPORT FOR THE LIMITED RELIEF IT HAS REQUESTED.

Globalstar’s application described the manner in which its system has been designed and deployed in reliance on the Big LEO band plan the Commission established in 1994.^{30/} Because Globalstar’s space station license authorized it to use nine channels on the return link (uplink) at L-band, its global spectrum use plan was designed to require access to all of these channels (subject to any necessary sharing with other CDMA licensees). Globalstar further described the constraints on its use of particular channels at individual gateway locations. These include (1) the need to use different frequencies for access channels at geographically adjacent gateways because of the design of the Globalstar system; (2) encumbrances on specific frequencies that limit their use (in particular the need to protect radio astronomy sites, radionavigation services, GPS, and GLONASS); (3) restrictions imposed by national regulators on the availability of certain frequencies; and (4) the need to assign different channels for different types of services in order to ensure high service quality.^{31/} For each gateway covered by the waiver request, Globalstar discussed how and why these constraints would make it a hardship to vacate the frequencies affected by the *Modification Order*.^{32/} One of Globalstar’s independent gateway

^{29/} *Id.*

^{30/} *Id.* at 4-10.

^{31/} *Id.* See also *Monte Affidavit* at 3.

^{32/} *Request for Waiver* at 10-15.

providers, Pivotel, submitted comments confirming these facts.^{33/} As the Pivotel letter illustrates, in many cases the gateway operator would need to request a change in its operating license, which requires that the licensee apply to the local regulatory authority, followed by a potentially lengthy regulatory proceeding, the outcome of which would not be guaranteed.

Iridium's Petition asserts that this detailed showing fails adequately to substantiate Globalstar's request. That assertion could not be farther from the truth.^{34/}

First, Iridium argues that Globalstar should be required to detail its actual and historic channel loading at each of the gateways covered by the waiver request.^{35/} But the showing that Globalstar has made does not depend on channel loading. As Globalstar made clear, a primary reason why Globalstar must continue to operate on the affected spectrum (comprising channels 8-9 of its system) from the gateways at issue is that its system requires frequency separation between access channels at geographically adjacent gateways.^{36/} Specifically, if the same frequency were assigned as the access channel at two geographically adjacent gateways, *neither*

^{33/} See *Pivotel Letter*. As Pivotel states, "if Globalstar's Request for Waiver is not granted and Globalstar is prohibited from transmitting from its satellites on the spectrum between 1618.725 and 1621.35 [MHz] in the areas covered by the Meekatharra gateway...then Globalstar will be unable to provide sufficient channel capacity to Pivotel's customers. Pivotel will then lack access to sufficient spectrum to continue to provide the services it currently it is providing, let alone add customers and expand its service offerings once Globalstar's second-generation satellite system is deployed." *Id.* at 2.

^{34/} Iridium also contends that the Commission should "reject Globalstar's claims of harm because the company has not provided any technical evidence or affidavits to support these claims." See *Petition* at 11. To the contrary, Globalstar's application contains extensive technical evidence, supported by the affidavit of Anthony Navarra already in the record. See Affidavit of Anthony J. Navarra, attached to Reply of Globalstar to Opposition of Iridium (filed June 23, 2008). Globalstar is filing the attached Affidavit of Paul A. Monte in support of the further factual discussion herein.

^{35/} See *Petition* at 12-13.

^{36/} See *Request for Waiver* at 6.

of the gateways would be able to recognize the signal from a user terminal and service could not be initiated.^{37/} In addition, at Globalstar's 1414 km orbit altitude, a single satellite may be in view of up to 10 gateways simultaneously, and a single satellite beam may be in view of up to five gateways.^{38/} The more gateways that operate on the same frequencies for the same services, the more interference that will be created, diminishing service quality and capacity. As the attached Monte Affidavit demonstrates, these constraints are not a function of channel loading at all.^{39/}

Iridium's sudden interest in channel loading is surprising, given that in proceedings stretching over six years Iridium never provided any evidence of channel loading – past, present, or future – to support its request that the Commission revise the US Big LEO band plan to give it more spectrum. As one commenter observed at the time, “[d]espite the Commission’s explicit request in the *Big LEO Spectrum NPRM* for detailed comments and technical information, Iridium failed to offer any specific data regarding 1) the number of its current and future subscribers; 2) its total system capacity, used and unused; or 3) its customers’ demand for spectrum in the United States versus other parts of the world.”^{40/} Iridium also failed, as requested, “to specify concrete measurements of traffic and unused capacity.”^{41/} It would be inappropriate for the Commission now to require Globalstar to detail its channel loading on a

^{37/} See *Monte Affidavit* at 3.

^{38/} See *Request for Waiver* at 6.

^{39/} See *Monte Affidavit* at 3-4.

^{40/} See Reply Comments of ICO Communications (Holdings) Limited, filed in IB Docket No. 02-364 (Jul. 25, 2003) at 10 (citations omitted).

^{41/} *Id.*

country-by-country basis, where the channel loading at a particular gateway is irrelevant to the showing that Globalstar has made.

The fact that CDMA technology enables multiple CDMA carriers to share the same spectrum is not, as Iridium suggests, inconsistent with Globalstar's showing that it cannot assign the same channels to geographically adjacent gateways.^{42/} Iridium's argument amounts to comparing apples to oranges. As discussed, the need for Globalstar to assign different access channels to adjacent gateways arises from the fact that the gateways would not otherwise be able to recognize signals from user terminals and initiate calls. The issue presented by other CDMA carriers seeking to provide service on the same channels in the same area as Globalstar is entirely different. There, the question is whether Globalstar's and other carriers' gateways in the same region would interfere with one another because they could not separate which calls were intended for Globalstar's system versus those other carriers. That problem is solvable because CDMA technology would enable the carriers, under a coordination agreement, to assign codes so that each carrier's gateway would recognize only the codes assigned to it. That would avoid the carriers interfering with each other, although the carrying capacity of each carrier would be reduced by the presence of the other. The carriers could avoid that reduction in carrying capacity and thus maximize service quality by coordinating their operations to avoid using the same channels at the same time in the same or adjoining areas to the extent possible.^{43/} But neither division of codes nor coordination are solutions to the problem of geographically adjacent gateways within Globalstar's system being unable to use the same access channel.

^{42/} See *Petition* at 14.

^{43/} See *Monte Affidavit* at 4-5.

There is also no substance to Iridium's facile suggestion that, because Globalstar has successfully vacated the affected spectrum in the United States, where it has the most customers, it can do so without difficulty everywhere else in the world.^{44/} There are specific reasons why Globalstar has been able to accommodate the new Big LEO band plan in the United States – though not without impact on its ability to provide services – but cannot do so from the gateways identified in its waiver request. First, as Globalstar has shown, unlike in certain other countries, in the United States it still has at least some access^{45/} to *all seven* of the L-band channels (the spectrum between 1610 and 1618.725 MHz) that remain assigned for its use under the revised US Big LEO band plan. Second, the geographically adjacent Globalstar gateways in Mexico and Central America do not have radio astronomy sites within their coverage areas, as is the case with the gateways identified in the waiver request. Globalstar therefore was able to shift its Clifton, Texas, Sebring, Florida, and Wasilla, Alaska gateways from channels 8 and 9 to channels 7 and 3 (Clifton) and channel 6 (Sebring and Wasilla).^{46/} These moves leave very little margin for growth in the traffic handled by these gateways, but they were at least possible in light of the other L-band spectrum available to Globalstar in North America. Because of the multiple constraints identified in Globalstar's application and reiterated herein, similar steps cannot be taken with respect to the gateways covered by this request without jeopardizing the quality of services Globalstar and its gateway operators can provide or, in the example of Russia, their ability to continue to provide service to all of their customers.

^{44/} See *Petition* at 10.

^{45/} The use of channels 1 and 2 is constrained by the stringent out-of-band emission limits that the Commission has imposed to protect GNSS receivers from interference.

^{46/} See *Request for Waiver* at 10-11.

Iridium's contention that the record is barren on Globalstar's need for specific channel assignments for aviation and simplex data services is also inaccurate.^{47/} Globalstar and others have made numerous submissions demonstrating Globalstar's need for channels above channel 4 on which to provide its aviation service, throughout the rulemaking proceeding that reexamined the US Big LEO band plan.^{48/} The Commission itself acknowledged Globalstar's need to assign discrete channels above channel 4 for its aviation service, citing that need in the *November 9th Order* as a reason for preserving Globalstar's access to the spectrum encompassing its channel 7.^{49/} As Iridium notes,^{50/} Globalstar has indicated that under certain circumstances it may use a channel otherwise assigned to its aviation service for voice or data service. However, Globalstar made clear that such alternate uses occur most notably "during times of emergency when increased demand for Globalstar's services requires Globalstar to focus its capacity on an affected area"^{51/} and thus do not alter the primary assignment of these channels for aviation service. Globalstar specifically explained that, "[d]uring Hurricane Katrina, when demand for Globalstar's services in the Gulf Coast states affected by those storms increased by more than

^{47/} See *Petition* at 13.

^{48/} See, e.g., Joint Comments of L/Q Licensee, Inc. Globalstar, L.P. and Globalstar USA, LLC in IB Docket No. 02-364 (filed July 11, 2003); Joint Reply Comments of L/Q Licensee, Inc., Globalstar, L.P., and Globalstar USA, LLC in IB Docket No. 02-364 (filed July 25, 2003); Reply Comments of Qualcomm Incorporated (filed Sept. 23, 2004, in IB Docket No. 02-364 and ET Docket No. 00-258) at 7-8; Letter from Frank R. Williams, Vice President, SAGEM Avionics, Inc., to Michael K. Powell, Chairman, Federal Communications Commission (filed Sept. 7, 2004); Globalstar LLC Letters dated October 21, October 28 and December 14, 2005, filed in IBFS File Nos. SAT-STA-20050923-00180/00181.

^{49/} See *November 9th Order* at ¶ 18 ("Globalstar contends that it needs Channels 6 and 7 on an unencumbered basis to provide aviation service.").

^{50/} See *Petition* at 13-14.

^{51/} Globalstar *Ex Parte* Filing in IB Docket No. 02-364 (filed Apr. 17, 2006) at 3 (cited in *Petition* at 14 n. 43).

500 percent, Globalstar was required to allocate additional channels – including the channels used for aviation services – to meet the increased demand.^{52/} This temporary repurposing of channels otherwise assigned for aviation services in times of emergency is in no way inconsistent with Globalstar’s repeated demonstration of its need to assign specific channels for specific services.

Finally, Iridium is wrong in asserting that the Commission should ignore Globalstar’s second-generation constellation, which is scheduled for initial launches this year, in considering this waiver request. Iridium’s constant emphasis on the compromised performance of Globalstar’s first-generation satellites is little more than a distraction, since the current state of Globalstar’s satellites is irrelevant to the Commission’s consideration of this waiver. Globalstar will soon have its second-generation satellite constellation in orbit pursuant to an authorization that does not expire until 2013. The first 24 satellites that will comprise Globalstar’s second-generation system are scheduled to be launched beginning only eight months from now.^{53/} The quality of Globalstar’s services thus will soon return to the levels that existed before the S-band downlink on its satellites began to degrade.^{54/} Moreover, Globalstar launched eight replacement satellites in 2007, each of which already is providing robust duplex service. The fact that such services may not be available at all times from all locations because of the condition of Globalstar’s first-generation satellites does not in any way diminish Globalstar’s need for sufficient channel capacity now and in the future. For these reasons, Iridium’s attempt to divert attention to the current degradation of Globalstar’s duplex services at certain times and in certain

^{52/} *Id.* at 2 n. 9.

^{53/} The first of Globalstar’s 48 replacement satellites are nearing assembly, integration, and testing, with the first launch scheduled for September 2009.

^{54/} *See Monte Affidavit* at 7.

areas counsels a short-sighted view that the Commission should reject. Iridium's argument is particularly ironic now that it has been forced to disclose that its own constellation is degrading and provides service less reliable than Iridium previously claimed.^{55/} Unlike Globalstar, Iridium has made no tangible progress toward the construction of a second-generation constellation and likely will face substantial obstacles in securing funding in time to launch satellites by 2013 in today's economic climate.^{56/}

V. THE MODIFICATION ORDER DOES NOT PRECLUDE A WAIVER.

Iridium makes two inapposite procedural arguments in its attempt to prevent consideration of the merits of Globalstar's waiver request. First, Iridium asserts that the *Modification Order* limits any waiver to merely short-term, transitional relief.^{57/} But nothing in that order limits the scope of the Commission's inherent waiver authority, embodied in section 1.3 of its rules, which is not limited to transitional relief. To the contrary, if anything, the order suggests that the Commission recognized the likely need for a waiver, stemming from circumstances that are neither short-term nor transitional: The order recognizes that Globalstar has "built and marketed, and is operating its system, on frequency bands contained in its 1995 license," which license does not expire until 2013, and that "requiring Globalstar to terminate

^{55/} See GHL Acquisition Corp., Schedule 14A, filed with the SEC on Dec. 1, 2008 ("*GHQ SEC Filing*") at 37-38. Iridium's proposed new owner has warned potential investors that, "[a]s [Iridium's] constellation has aged, some of its satellites have experienced individual component failures affecting their coverage and/or transmission capacity" and that Iridium's system has experienced "temporary intermittent losses of signal cutting off calls in progress, preventing completion of calls when made[,] or disrupting the transmission of data." *Id.*

^{56/} The *GHQ SEC Filing* has informed potential investors that Iridium "cannot guarantee it will provide commercially viable service through the transition period" to any second-generation system, and that the second-generation system it hopes one day to launch may not materialize "on time, on budget or at all." *Id.* (emphasis added).

^{57/} See *Petition* at 3.

transmissions in certain parts of the world on frequencies in which it has existing operating agreements may impose undue costs on both Globalstar and the countries accessing the Globalstar space stations.”^{58/} The channel structure implemented to use the frequencies covered by the 1995 license is replicated in Globalstar’s second-generation satellite constellation, which by necessity has been designed to be backward-compatible with the first-generation system. Thus, the circumstances necessitating a waiver will continue with the new constellation.

Tellingly, Iridium cites nothing in the *Modification Order* itself to support its argument that the order narrowed the scope of permissible waivers. Instead, it cites a case involving Sprint Nextel’s operations in the 800 MHz band that bears no similarity to this case.^{59/} Indeed, not even Iridium, in its prior pleadings, appears to have contemplated that any waiver relief here would be temporary or transitional.^{60/}

Iridium also argues that Globalstar application “should not be seen as a serious waiver request” but rather an attempt to seek reconsideration of the Commission’s *November 9th Order* revising the US Big LEO spectrum plan.^{61/} That argument is frivolous. The *November 9th Order* revised the US Big LEO band plan to reassign the spectrum between 1618.725 and 1621.25 MHz

^{58/} See *Modification Order* at ¶ 41.

^{59/} See *Petition* at 15, n. 48 (citing *Improving Public Safety Communications in the 800 MHz Band, Order*, 23 FCC Rcd 15966 (2008) at ¶ 15). The Commission there sought to ensure that the spectrum Sprint had been required to vacate would become available promptly for public safety licensees. *Id.* Here, by contrast, neither Iridium nor any other provider has the authority to use the affected spectrum in the countries covered by the waiver request, and the spectrum will only go unused if Globalstar ceases to operate in it.

^{60/} Iridium stressed in opposing Globalstar’s Protest that the Commission had indicated that it would “entertain a waiver or modification” of the revised band plan “because Globalstar may have difficulty ceasing its space operations in some countries.” See *Opposition of Iridium to License Protest of Globalstar Inc.* (filed June 16, 2008) at 34.

^{61/} See *Petition* at 16-17.

to Iridium for its exclusive use. As noted, Globalstar has complied with that order in its US operations while it seeks judicial review of the order. The *Modification Order* gave extraterritorial effect to the revised US band plan by removing Globalstar's authority to use the affected frequencies anywhere in the world under its space station license. That order specifically indicated that the Commission would "entertain a waiver or modification of the limitation" on space station operations in certain regions outside the United States.^{62/} In attempting to obtain the very relief that the order expressly contemplated, Globalstar cannot plausibly be viewed as seeking reconsideration of the earlier rulemaking decision. As to the *Modification Order* itself, Globalstar has timely sought reconsideration of that order.^{63/}

This application is what it says it is – a request that the Commission waive the limitation in the *Modification Order* with respect to specified countries and regions outside the United States, premised on the fact that the *November 9th Order* and the *Modification Order* remain in effect at this time. Iridium's attempt to conflate the proceedings is unavailing.

Conclusion

For these reasons and those stated in Globalstar's application, the restriction in the *Modification Order* should be waived in part to allow Globalstar to continue to operate its space stations and provide service in the spectrum between 1618.725 and 1621.35 MHz within the coverage areas of the gateways identified herein. As noted herein, Globalstar withdraws its French and Brazilian gateways and their coverage areas from the scope of this waiver request. Globalstar also renews its request that the Commission grant it Special Temporary Authority to

^{62/} See *Modification Order* at ¶ 41.

^{63/} See note 2, *supra*.

continue to use the affected frequencies in the covered gateways pending Commission action on the waiver request.

Respectfully submitted,

/s/ William T. Lake

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*Counsel for Globalstar Licensee LLC and
GUSA Licensee LLC*

February 2, 2009

CERTIFICATE OF SERVICE

I hereby certify that on February 2, 2009, I caused a true and correct copy of the foregoing to be served by first-class mail and electronic mail on the following:

John Giusti, Acting Chief
International Bureau
Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554

Robert Nelson, Chief
Satellite Division, International
Federal Communications Commission
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/s/ Josh L. Roland

**Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Globalstar Licensee LLC)	Call Sign S2115
GUSA Licensee LLC)	Call Sign E970381
)	
Modification of Authority to)	
Operate a Mobile Satellite System in the)	
1.6 GHz Frequency Band)	
)	

AFFIDAVIT OF PAUL A. MONTE

1. My name is Paul A. Monte. I am the Vice President, Engineering and Product Development at Globalstar, Inc. ("Globalstar"). In this capacity, I am responsible for the management of the space station and earth station components of the Globalstar Big LEO Mobile Satellite Service ("MSS") System, as well as the development and launch of new Globalstar products and services. I also am involved in overseeing the design and construction of Globalstar's second-generation satellite constellation, which is scheduled to be launched beginning in September of this year.

2. As one of the principal architects of the original Globalstar space and ground segments, I have been personally involved in the design, development, and launch of the Globalstar System since 1990. Between 1997 and 2005, when I was promoted to my current position, I served as Globalstar's Director of Systems Engineering. Before joining Globalstar, I was Principal Engineer at Space Systems/Loral, where I was responsible for systems analysis and various communications and tactical initiatives. Prior to joining Space Systems/Loral, I worked at Ford

Aerospace as a Senior Research Development Engineer. I hold a Masters Degree in Computer and Information Sciences from the University of California, Santa Cruz.

3. This Affidavit is being submitted in support of Globalstar's February 2, 2009, Opposition to the Petition to Deny filed by Iridium Satellite LLC ("Iridium"). This Affidavit supplements and incorporates by reference the Affidavit of Anthony J. Navarra, which was filed on June 23, 2008, after the FCC originally proposed to modify Globalstar's space station authority in the manner in which it now has done. *See* Affidavit of Anthony J. Navarra, attached to Reply of Globalstar to Opposition of Iridium (filed June 22, 2008).

4. In its filing, Globalstar has sought a limited waiver of the terms of the *Modification Order* to allow it to continue to provide service under its space station license on the frequencies between 1618.725-1621.35 MHz (corresponding to Globalstar channels 8 and 9) in a limited number of countries served by certain of the Globalstar gateways. The waiver is necessitated by the fact that the Globalstar System was designed and constructed and has been operating since it was first launched in a manner that requires access on a global basis to all 11.35 MHz of L-band spectrum between 1610 and 1621.35 MHz that was made available to Globalstar under its 1995 space station authorization, subject to compliance with the specific Big LEO band plans other countries might establish. By modifying Globalstar's space station license to eliminate Globalstar's authority to use the spectrum from 1618.725-1621.35 MHz *outside* as well as inside the United States, the *Modification Order* not only impedes Globalstar's current global operations but also will substantially impede Globalstar's future global growth and its transition to its second-generation ground segment beginning in 2011.

5. Because Globalstar's 1995 space station license provided Globalstar with spectrum that encompassed nine channels for uplink operations in the L-band, Globalstar's global spectrum use plan was designed to make use of all of these channels now and in the future through the projected 15-year life of its second-generation satellite constellation, or 2025. The Globalstar System also was designed to take into account a number of technical, regulatory, and operational constraints on its ability to use some of these channels from particular Globalstar gateways. These constraints include: (1) the system design constraint that Globalstar use different frequencies for access channels at geographically adjacent gateways; (2) encumbrances on Globalstar's spectrum that limit the use of specific frequencies in specific locations (*e.g.*, requirements for the protection of radio astronomy sites, the radionavigation service, GPS, and GLONASS); (3) restrictions imposed by the regulatory authorities in certain countries on the use of certain frequencies within the 1610-1621.35 MHz band; and (4) the need and ability to assign discrete channels to different types of services in order to ensure an acceptable quality of service while balancing the other constraints stated in items (1), (2), and (3).

6. As noted, the principal reason why Globalstar must continue to operate on the spectrum comprising channels 8-9 of its system from the gateways covered by its waiver request is that its system requires frequency separation between access channels at geographically adjacent gateways. If the same frequency were assigned as the access channel at two geographically adjacent gateways, *neither* of the gateways would be able to recognize the signal from a user terminal and service could not be initiated. This basic design element of the Globalstar system makes any changes to the access channel assigned to a particular gateway extremely complex to manage, as it creates ripple effects that run through all of the gateways in a particular region. In

addition, two regulatory constraints limit Globalstar's flexibility in assigning access channels to particular gateways. First, because of the need to protect against interference to the radio astronomy service ("RAS"), Globalstar cannot assign channels 1-3 as access channels at any gateway which includes a RAS site within its coverage area. Second, because of more stringent out-of-band emission requirements imposed on its aviation services than those requirements for other types of Globalstar terminals, the Globalstar System must use an access channel above 4 in order to offer such services, for which there is growing demand. At Globalstar's 1414 km orbit altitude, a single satellite may be within view of as many as 10 gateways simultaneously, while a single satellite beam may be within view of up to five Globalstar gateways. The more gateways that operate on the same frequencies for the same services, the more interference that will be created, diminishing service quality and capacity. These constraints occur between two geographically adjacent Globalstar gateways regardless of the number of customers being served by any individual gateway, and thus are not a function of channel loading.

7. These constraints (Globalstar's system design, the need to protect RAS sites, and more stringent out-of-band emission requirements associated with the provision of aviation service) would be present regardless of whether additional CDMA carriers were operating in the same location, and there is no analogy between the harm that would result if Globalstar were to attempt to assign the same access channel to adjacent gateways and the impact on Globalstar's operations from other potential CDMA providers using the same spectrum. The need for Globalstar to assign different access channels to adjacent gateways arises from the fact that the gateways would not otherwise be able to recognize signals from user terminals and initiate calls. The issue presented by other CDMA systems seeking to provide service in the same area as

Globalstar on the same channels is entirely different. There, the risk is that the Globalstar and other systems' gateways in the same region might interfere with one another because they could not separate which calls were intended for Globalstar's system versus those other systems. That problem is solvable because CDMA technology would enable the systems to use codes with low cross-correlation coefficients so that inter-system interference would be minimized. That would avoid the carriers interfering with each other, although the carrying capacity of each system would be reduced by the presence of the other. The systems could avoid that reduction in carrying capacity and thus maximize service quality by coordinating their operations to avoid using the same channels at the same time in the same or adjoining areas to the extent possible. But neither code coordination nor frequency coordination is a solution to the problem of geographically adjacent gateways within Globalstar's system being unable to use the same access channel.

8. Technical requirements imposed on Globalstar's provision of aviation services, which are set forth in RTCA DO-262 and RTCA DO-228, require that Globalstar provide any such services only above channel 4 of the Globalstar System. This means that Globalstar's access channel for each gateway providing aviation services must be above channel 4. Also, RAS sharing requires that gateways with an RAS site within their coverage area have an access channel above channel 3. This is because Globalstar's aviation services are subject to the requirements that they protect GPS and GLONASS operating in the 1574-1610 MHz band, comply with the more stringent out-of-band emission requirements of on-board aircraft operations, and protect radio astronomy sites operating in the 1610.6-1613.8 MHz band. In order to meet these standards, Globalstar's

aviation services must be assigned to one 1.23 MHz channel above channel 4 in the L-band (*e.g.*, above 1615 MHz).

9. The design of the Globalstar System similarly dictates that frequency separation be used with respect to the 2.5 MHz channel assigned to simplex services to prevent interference. This is done by ensuring that at least 1.25 MHz of the 2.5 MHz channel is dedicated to simplex services and is not used to carry any other traffic to provide the optimal quality of service. This is particularly important for simplex services such as the SPOT Satellite GPS Messenger, which is designed and marketed as a potentially lifesaving device that has already been instrumental in nearly 100 rescues since its inception. For this reason, the Globalstar System requires that its aviation and simplex services be provided on different spectrum. Because of these constraints, as well as the requirement that Globalstar preserve at least one distinct channel for access and another for voice services in high-traffic gateways, its simplex services in a country also are likely to experience deteriorated quality of service as demand increases if Globalstar will no longer have access to spectrum above channel 7 in a that country.

10. These technical and operational constraints that limit Globalstar's ability to use all seven of its remaining channels at the gateways covered by its request for relief apply with equal force to Globalstar's second-generation satellite constellation, which has been designed to be backward compatible with Globalstar's first-generation constellation until all customers can be transitioned to the new equipment. Even after the transition, a certain number of Globalstar's first-generation satellites will remain in the operating constellation for simplex services until their L-band capacity fails or they run out of power

11. Iridium is wrong in suggesting that Globalstar has no need for the channel capacity at issue because of the degradation of Globalstar's duplex services resulting from the S-band anomalies. That degradation is only a short-term problem that has been mitigated in part by the launch of eight spares in 2007 and that will be completely eliminated once Globalstar's second-generation constellation is launched. Although duplex services are currently not available at all times from all locations because of the condition of a number of Globalstar's first-generation satellites, Globalstar has a current need for sufficient channel capacity because of technical and regulatory constraints that can only be addressed through the grant of a waiver (or, of course, reversal of the *Modification Order* on reconsideration). In addition, the first 24 of Globalstar's second-generation satellites are scheduled to be launched beginning in September 2009 – approximately eight months from now. Once those satellites become operational, the Globalstar System will again provide robust duplex services at the level of service that existed before Globalstar's first-generation satellites experienced reduced coverage in the S-band.

12. Soon after the FCC revised the Big LEO MSS band plan by reassigning the spectrum between 1618.725 and 1621.35 MHz from Globalstar to Iridium, Globalstar took concrete steps to comply with the terms of its modified operating authority. Shortly after the *November 9th Order* was released, Globalstar transitioned its operations in North America off of the reassigned spectrum to comply with the revised U.S. band plan the FCC had established. Specifically, Globalstar shifted the channel assignments at its Clifton, Texas, Sebring, Florida, and Wasilla, Alaska, gateways off of channels 8 and 9 so that the Clifton gateway now uses channel 7 and 3, and the Sebring and Wasilla gateways now use channel 6. Although these channel reassignments will make it difficult for Globalstar to expand the services it provides from the

affected gateways once Globalstar's second-generation constellation is launched, they were possible because Globalstar still retains access in North America to all of the spectrum between 1610-1618.725 MHz (Globalstar channels 1-7). As discussed below, there are several reasons why Globalstar does not have the same flexibility to vacate the spectrum between 1618.725 and 1621.35 MHz from the gateways covered by its request for relief without sacrificing service quality, or (in the case of Russia) reducing capacity below current demand.

13. Globalstar has consulted with its independent gateway operators, or IGOs, to determine whether it is possible for them to comply with a revised channel plan without jeopardizing service quality now and in the future, or running afoul of laws and regulations in the countries in which they operate. The principal concerns in the IGOs' gateways are, first, whether the local regulatory administration has made available sufficient L-band channels to accommodate the change, and second, whether the annual licensee fees – which often are frequency-specific – would make it prohibitively expensive to add additional frequencies to the IGOs' licenses. Unlike the FCC, many administrations charge a spectrum use fee that can be quite high. In some cases the formulas for these fees are the same as those used for terrestrial wireless spectrum and are out of reach for Globalstar's IGOs. Some IGOs operate under contracts with the government, which would have to be reviewed and modified to come into compliance with the order. In at least some cases, the steps needed to come into compliance are beyond Globalstar's control. In addition, for the most part, the foreign regulatory administrations do not believe that the United States is entitled to dictate the spectrum that will be available for Big LEO services outside of the United States. Globalstar continues to take commercially reasonable steps to terminate operations in channels 8 and 9 at the other IGO gateways outside the United States.

14. I note that Globalstar has now removed the French and Brazilian gateways from the scope of its request for relief. Globalstar has determined that it can modify its operations from the Globalstar gateways in Aussaguel, France, and Manuas and Petrolia, Brazil to exclude the spectrum between 1618.725 and 1621.35 MHz for the next two years without significantly compromising its service quality. That modification has been achieved as of January 29, 2009. Globalstar accordingly has clarified that it no longer seeks a waiver with respect to those gateways or the countries and regions they serve.

15. By contrast, in the case of the gateways located in Khabarovsk, Moscow, and Novosibirsk, Russia, it is not possible for GlobalTel, the IGO operating on the spectrum between 1618.725 and 1621.35 MHz, to use channels 1 through 5. Specifically, the Russian telecom ministry has authorized GlobalTel to use only the spectrum between 1616 and 1621.35 MHz (which corresponds to Globalstar channels 6–9 in the L-band) in order to protect other services operating in the same or adjacent bands – in particular Russia’s GLONASS system. In light of that limitation, the loss by Globalstar of channels 8 and 9 would leave Globalstar with insufficient spectrum to provide viable service to many of its customers in the regions covered by the Russian gateways. Specifically, because the three Russian gateways are geographically adjacent to one another, lying essentially in a row with the Novosibirsk gateway in the middle, they require two separate access channels for the two non-adjacent gateways and a third channel for traffic in the heavily-loaded Moscow gateway to meet current demand for service that cannot be satisfied by using the Moscow access channel alone. Globalstar therefore cannot operate the gateways with only the two remaining channels. As a result, if Globalstar were to vacate channels 8–9 at the Russian gateways, it would be forced to eliminate service to many

subscribers, including U.S. troops in Afghanistan who are served through those gateways. Iridium is not authorized to provide service in Russia, and therefore if Globalstar service is terminated, these customers will not have access to *any* Big LEO MSS services whatsoever.

16. Finally, to the best of my knowledge, no national administration outside the United States has authorized Iridium or any other MSS provider besides Globalstar to operate on the spectrum between 1618.725 and 1621.35 MHz. Accordingly, Iridium has no authority to operate in the affected spectrum *anywhere* but in the United States. Unless Globalstar's request for relief is granted, it appears that the spectrum will go entirely unused everywhere but in the United States.

I declare under penalty of perjury that the foregoing is true and correct.

/s/ Paul A. Monte
Paul A. Monte

Executed on February 2, 2009

EXHIBIT 1

RECEIVED & INSPECTED
JUN 22 2006
FCC-MAILROOM

Wednesday, 14 June 2006

Ofcom
OFFICE OF COMMUNICATIONS

Federal Communication Commission
International Bureau
445 12th Street, SW
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Stephen Harding
SPG SR2

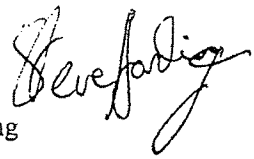
Direct line: 0207 981 3189
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Steve.harding@ofcom.org.uk

Dear Sirs

Please find attached a letter we have recently sent to Iridium Satellite LLC, in regard to use of its terminals within the UK and on-going issues surrounding use of radio spectrum below 1621.35MHz.

Sincerely



Steve Harding

Ofcom

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Wednesday, 14 June 2006

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SPG SRZ

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Dear Olga

Subject – Iridium satellite operations

We indicated in our earlier response to your enquiry to Stephen Carter that we were in the process of sending a formal request to Iridium on the use of the band below 1621.35MHz.

We have now reviewed our letter in light of the additional information provided in your letter.

You have requested that Ofcom grant a temporary authorisation to allow Iridium transmissions in the proposed extended frequencies (1618.25-1621.35 MHz). Unfortunately, for the reasons given below, we are not able to provide such an authorisation.

Ofcom remains of the view that we need to await the outcome of the ongoing studies into the potential harmful interference effects arising from the use of extended frequencies which is being carried out at European level within CEPT WGSE40. We are not prepared to consider a temporary arrangement prior to those findings. As you will be aware, this work is linked to the additional measurement programme being undertaken by the Leeheim satellite monitoring station. We are concerned that harmful interference may be caused to UK radio astronomy services..

Ofcom has liaised with a number of the neighbouring administrations in relation to your request and continues to do so. The information we have obtained indicates that most CEPT administrations have a similar position to that of Ofcom, i.e. they will only take action when the work of PT SE40 has been completed. We are also aware that in one instance, the FCC was notified from a European administration of an interference case from the Iridium satellites.

The intent of the letter that we had prepared before receiving yours was to highlight our ongoing concerns relating to your earlier requests and the subsequent actions undertaken by Iridium.

Ofcom received a request in October 2004, for temporary authorisation for Iridium to operate in the 1618.25-1621.35MHz band. In our reply letter of 19th January 2005 we gave our reasons for not authorising that original request, noting in particular that the sharing situation with the radioastronomy service had not been resolved and that efforts were underway within the CEPT.

In September 2005, Iridium made a further request on the basis that it needed to expand its service to cater for the extra traffic generated by disaster relief communications arising from hurricane Katrina. The request related to use of the extended band until 31st December 2005. A conditional authorisation letter dated 5 October 2005 was sent by Ofcom to Iridium allowing this temporary use due to a specific need for the use of a large density mobile terminals in certain areas, not specifically in the UK. The authorisation was subject to Iridium providing a written acceptance of the conditions related to the grant, but this confirmation was not received by Ofcom; hence we assumed that operation would not be conducted within the extended band. During our meeting in early 2006 at Ofcom, Iridium acknowledged that the acceptance letter had not been sent. As a consequence, the temporary authorisation offered by Ofcom did not come into effect.

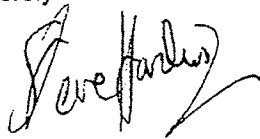
Measurements carried out in the UK and other CEPT countries have indicated that the Iridium network has continued to operate within the referenced extended frequency band in spite of not having received relevant authorisation.

We also note that, in an e-mail message to Jean-Yves Guyomard of the ANFR (see attached text) Iridium's technical representative in the UK, indicated that a request to reduce operation back to the agreed core bands is not possible, and based on unknown "hot spot" events which may arise. This statement would appear to confirm our earlier belief that Iridium is not able to maintain different frequency plans in different regions of the World.

We remain very concerned that the Iridium system appears not to be operating in accordance with UK authorisation, international agreements and that operation of Iridium earth stations within the UK is not in accordance with the conditions of the relevant statutory instrument (The Wireless Telegraphy (Licence Exemption) Regulations 2003 No 2003/74) and associated Ofcom Interface Requirements (IR 2016 - Land mobile satellite systems).

We aim to accommodate the spectrum requirements of operational systems but this must be done in a manner that respects the normal authorisation processes. As a consequence, we request that you provide an assurance that operation of Iridium user equipment within the UK will not involve use of the extended frequencies.

Yours sincerely



Steve Harding

cc. DTI MOD and FCC International Bureau - Satellite Division

Gregory Francis Access Partnership

-----Message d'origine-----

De : mike@accesspartnership.com [mailto:mike@accesspartnership.com]

Envoyé : jeudi 6 avril 2006 19:07

À : Jean-Yves Guyomard

Cc : Colin Thomson

Objet : Cessation of emissions in 1618.25-1621.35 MHz

Dear Jean-Yves

Thank you for hosting the meeting on Monday, which I think was successful.

You asked me to clarify if it would be possible for Iridium to reduce its operating bandwidth from 1618.25 - 1626.5 MHz down to 1621.35 - 1626.5 MHz, so that Leeheim could take measurements in the RAS band using the existing filter.

I have discussed this with staff at Iridium, and must unfortunately report that this would not be possible. The Iridium system is used by a large number of security and emergency response organisations on a global basis, as well as the majority of ocean-going vessels. The original request for additional spectrum (which has been granted in a number of countries) was to provide adequate capacity for "hotspot" traffic. By their nature, it is impossible to plan for such events, and so it would not be possible to reduce the capacity of the network as requested.

I will, of course, assist in any way I can to help locate a suitable filter so that the measurements can take place with little further delay.

EXHIBIT 2



Bundesnetzagentur

Bundesnetzagentur • Monitoring Earth Station Leeheim • D-54560 Riedstadt • Germany

Federal Communication Commission
International Bureau
445 12th Street, SW
WASHINGTON, DC 20554
United States of America

Ihr Zeichen, Ihre Nachricht vom
Votre référence, votre lettre du
Your reference, your letter of

Mein Zeichen, meine Nachricht vom
Ma référence, ma lettre du
My reference, my letter of
511-10

+496158

Leeheim

940 210

22 June 2006

Report of irregularity or infraction

Interfering stations

- 1 Name: Iridium
- 2 Identification/Callsign: HIBLEO-2
- 3 Nationality: USA
- 4 Frequency measured: 1618.25-1621.35 MHz (as from 27 May 2006, H24)
1612.13 MHz (unwanted emission)
- 5 Class of emission: 31K5Q7W (or V7D or V7E)
- 6 Class of station and nature of service: EG, EJ, EU,
CP, CR
- 7 Location: Iridium LEO orbits

Station reporting the irregularity

- 8 Name: Monitoring Earth Station Leeheim
- 9 Identification: Federal Network Agency
- 10 Nationality: German
- 11 Location: 49 N 51, 08 E 24

Bundesnetzagentur für
Elektrizität, Gas,
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<http://www.bundesnetzagentur.de>

Kontoverbindung
Adresse bancaire
Banking connection
Bundeskasse Trier
BBk Trier
BIC: MARKDEF1585
IBAN:
DE 44 585 000 00 00 585 010 03
DE 87 585 000 00 00 585 010 05
DE 33 585 000 00 00 585 010 07

Dienstgebäude
Bureau /Office
Canisiusstr. 21
D-55122 Mainz
Telefax Mainz
+49 61 31 18-56 00

Particulars of the irregularity

- 12 Name of the station in communication with the station committing the irregularity: **mobile earth stations in the Iridium satellite system**
- 13 Call sign of the station in communication with the station committing the irregularity: **not applicable**
- 14 Date and time: **daily, H24**
- 15 Nature of the irregularity: **the produced unwanted emissions of Iridium into the radio astronomy band 1610.6-1613.8 MHz cause harmful interference hence disobeying RR 15.10 and 15.11**
- 16 Information supporting the report: **(1) unwanted emission spectrum measured 01 March 2004, 0728 UTC, at 1612.13 MHz: $-210.5 \text{ dB(Wm}^{-2}\text{Hz}^{-1}) \pm 3\text{dB}$;
(2) spectrogram of occupied bandwidth exceeding the assigned frequency band in Germany as from 27 May 2006, H24**

Particulars of the interfered station

- 17 Name: **Radio Telescope Effelsberg**
- 18 Identification: **Max-Planck-Institute, Germany**
- 19 Frequency assigned: **1610.6-1613.8 MHz**
- 20 Frequency measured at the time of interference: **1610.6-1613.8 MHz**
- 21 Class of emission and bandwidth: **not applicable**
- 22 Receiving location: **50 N 32, 06 E 53**
- 23 Certificate:

I certify that the foregoing report represents, to the best of my knowledge, a complete and accurate account of what took place.

This report became necessary pursuant to 15.39 of the RR since the interference persists in spite of the action taken in accordance with 15.35 of the RR on 30 March 2006.

By direction of the President
Best regards

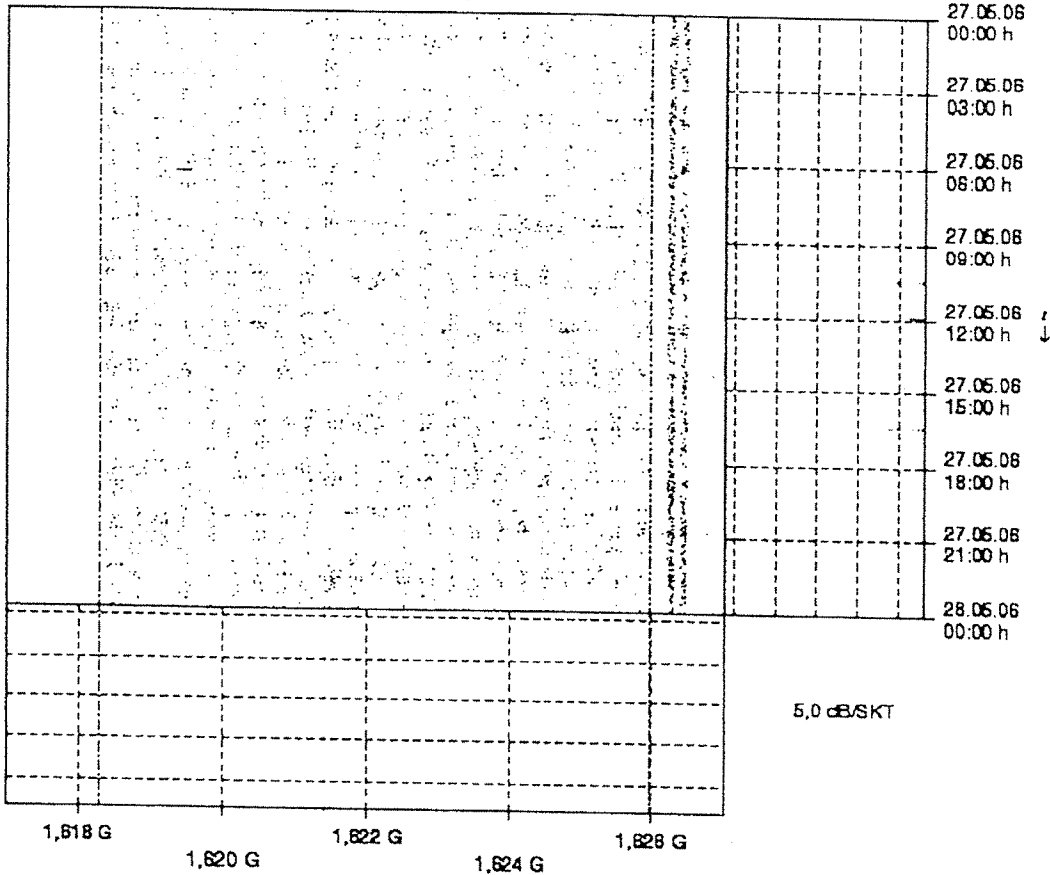
2 Attachments


Markus Schreiber

MONITORING EARTH STATION Leeheim, Germany

Omnidirectional spectrogram of Iridium useful emissions at the lower edge outside the frequency assignment in Germany; times in UTC, G = GHz, occupied band: 1618.25-1626.5 MHz, assigned band in Germany: 1621.35-1626.5 MHz.

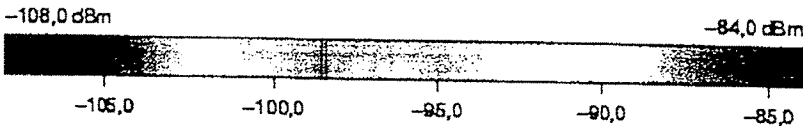
Leeheim, 27.05.2006, Maximalwertspektrogramm



	Pegel	Frequenz	Zeit	Anzahl	Totzeit
M1	-117,0 dBm	1,61833 GHz	00:00:00 h	47	230 ms
M2	-116,5 dBm	1,62600 GHz	00:00:00 h	47	230 ms
A	-0,5 dB	-7,6699 MHz	00:00:00 h		

----- M1 ----- Maximalwerte
 ----- M2 ----- Mittelwerte

Messauftrag: 751
 Auftragsname: B2_26/06_Iridium_1
 Antenne (Pol.): HW 003 ()
 Typ (Richtung): Kegel (Rund)
 Mittenfrequenz: 1,62 GHz
 Bandbreite (Linien): 10,000 MHz (5000)
 Auftragsbeginn: 26.05.2006
 Auftragsende: 29.05.2006
 Pegeloffset: 0,0 dB



Alle Zeitangaben in UTC.

Kommentar:

M1 Untergrenze "Sub-Band 8"; M2 Obergrenze "Sub-Band 30"

MONITORING EARTH STATION Leeheim, Germany

Iridium 66, orbital plane 1, revolution 30902

Spectrum of unwanted emissions in the band allocated to the radio astronomy service

[*] The p.f.d. value is subject to a correction factor related to the monitoring equipment set-up.

NAME/CALLSIGN OF STATION : IRIDIUM
ASSIGNED FREQUENCY :
DESIGNATION OF EMISSION :
ADDITIONAL INFORMATION : IRID.66 07240 E1 13
DATE/TIME OF MEASUREMENT : 040301 0728 UTC

