

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of )
Request for Special Temporary Authority )
Iridium Constellation, LLC ) File No.
For a Mobile Satellite System in the 1.6 GHz ) SAT-STA-20040319-00056
Frequency Band )

ORDER

Adopted: June 9, 2004

Released: June 9, 2004

By the Chief, Satellite Division, International Bureau:

I. INTRODUCTION

1. In this Order, we grant Iridium Constellation, LLC (Iridium) special temporary authority (STA) to operate its satellites in the "Big LEO" mobile-satellite service (MSS) system in the 1620.10-1621.35 MHz frequency band (Globalstar Channel 9) to November 8, 2004 or until levels of usage and U.S. Government requirements no longer justifies the need for the additional spectrum, which ever occurs first. We also grant a STA for Iridium's U.S. earth station license. New Operating Globalstar LLC (Globalstar) opposed Iridium's request for STA. We find, however, that this temporary authorization furthers important public interest requirements by supporting the critical communications needs of U.S. forces in Iraq and the Middle East region.

II. BACKGROUND

2. Iridium holds a license for a Big LEO MSS system that is authorized to operate both uplink and downlink transmissions in the 1621.35-1626.5 MHz frequency band. It also holds a license for the U.S. operations of mobile user terminals that operate in the same band. Iridium contracts with the U.S. Department of Defense (DOD) to provide communications services. Globalstar, another MSS system, is licensed to operate uplinks in the 1610-1621.35 MHz band. Commencing in April 2003, the International Bureau, Satellite Division, granted Iridium a series of STA's and modifications to Iridium's license to allow Iridium to use additional spectrum outside of its initial authorization. These temporary

1 Motorola Satellite Communications, Inc., 10 FCC Rcd 2268 (1995), corrected 10 FCC Rcd 3925 (1995), affirmed in part and modified, 11 FCC Rcd 18502 (1996). "Big LEO" refers to low-Earth orbit (LEO) mobile satellite services above 1 GHz.

2 U.S. Leo Services, Inc., 11 FCC Rcd 20474 (Int. Bur. 1996).

3 See File Nos. SAT-STA-20030414 (grant dated April 11, 2003 and April 14, 2003); SAT-STA-20030425-00074 (granted on April 25, 2003); and SAT-STA-20030502-00077 (granted on May 13, 2003). See also Letter from (continued...)

authorizations allowed Iridium to support the stated communications needs of U.S. forces in Iraq and the Middle East region. There was no evidence that Iridium operations in the 1620.10-1621.35 MHz frequency band would degrade Globalstar's MSS operations. In April and May 2003, Iridium was authorized to temporarily expand its operations into the 1618.85-1621.35 MHz frequency band (Globalstar Channels 8 and 9) to provide communications services to U.S. Government and Coalition forces.<sup>4</sup> In June 2003, Iridium filed an extension of its STA stating that although the demand for service in the Middle East region continued at extraordinarily high levels, demand had subsided somewhat and, as a result, indicated that it would cease operations in the 1618.85-1620.10 MHz frequency band (Channel 8). This request was granted, authorizing Iridium to use 1620.10-1621.35 MHz (Channel 9) only.<sup>5</sup> Referring to the continued need to support communications services for U.S. and Coalition forces, Iridium filed subsequent requests for additional temporary authorizations. Globalstar objected to Iridium's requests, asserting, in sum, that Iridium failed to justify its need for the additional spectrum, and questioning the Commission's authority to modify Iridium's license to provide the requested additional temporary authority to use Channel 9. In October 2003, the Satellite Division authorized Iridium to use the 1620.10-1621.35 MHz band for a four month period to November 14, 2003, or until the levels of usage and U.S. Government requirements no longer justified the need for additional spectrum, whichever occurred first.<sup>6</sup> The Satellite Division also directed Iridium to file monthly status reports demonstrating its continued need for the use of the 1620.10-1621.35 MHz frequency band.<sup>7</sup> Most recently, for the same reasons and subject to the same conditions set for the in the October Order, in December 2003, the Division authorized Iridium to operate on Channel 9 on a temporary basis, up to May 12, 2004 or until use of the additional spectrum was no longer justified.<sup>8</sup> On May 13, 2004, the Satellite Division granted Iridium a 30 day STA to operate in the 1620.10-1621.35 MHz band to June 11, 2004, pending its decision on the instant STA request.<sup>9</sup>

3. On March 19, 2004, Iridium filed the instant request to use Channel 9 for an additional 180 days.<sup>10</sup> In its request, Iridium states that it continues to experience a high demand for essential communications services by U.S. and Coalition forces in the Middle East region. Iridium asserts that the high-level of demand has remained steady for almost one year, and traffic levels during peak times continue to exceed its system's capacity under its original license.<sup>11</sup> Iridium also states that the monthly

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William F. Adler, Vice President, Legal and Regulatory Affairs, Globalstar, LP, to Thomas S. Tycz, Chief, Satellite Division, FCC (May 1, 2003).

<sup>4</sup> File Nos. SAT-STA-20030414 (grant dated April 11, 2003 and April 14, 2003); SAT-STA-20030425-00074 (granted on April 25, 2003); and SAT-STA-20030502-00077 (granted on May 13, 2003).

<sup>5</sup> Iridium Constellation LLC and Iridium US LP, Request for Special Temporary Authorization, *Order*, DA 03-1949 (June 16, 2003).

<sup>6</sup> Modification of Licenses held by Iridium Constellation, LLC and Iridium US LP, *Order*, DA 03-2906, 18 FCC Rcd 20023 (Sat. Div., Int'l Bur. 2003) (*October Modification Order*). On November 14, 2003, the Satellite Division, Policy Branch, granted Iridium an additional 30 days, to December 15, 2003, to operate on Channel 9 pending the Division's decision on its pending STA request, File No. SAT-STA-20031113-00327.

<sup>7</sup> *October Modification Order*, ¶ 9.

<sup>8</sup> Iridium Constellation, LLC, Request for Special Temporary Authority For a Mobile Satellite System in the 1.6 GHz Frequency Band, *Order*, 18 FCC Rcd 25814 (DA 03-3926) (Sat. Div., Int'l Bur. 2003).

<sup>9</sup> Iridium Constellation LLC, Request for Special Temporary Authority, File No. SAT-STA-20040506-00091 (Grant Stamped May 13, 2004).

<sup>10</sup> Iridium Constellation, LLC, Request for Special Temporary Authority for Iridium Constellation LLC to Provide Global Mobile Satellite Service in the 1620.10-1621.35 MHz Frequency Band From May 13, 2004 Through and Including November 8, 2004, File No. SAT-STA-20040319-00056 (filed March 19, 2004) (*Iridium March STA*).

<sup>11</sup> *Iridium March STA* at 4.

status reports it has filed with the Commission demonstrate that the Iridium system consistently has experienced 80% capacity in the Middle East region. Further, Iridium claims that it has not received any indication from the U.S. Government that use of the Iridium system by U.S. Government and Coalition forces will decrease substantially within the next six months.<sup>12</sup> In the event levels of usage and U.S. Government requirements no longer necessitate use of Channel 9, Iridium states it will notify the Commission. Finally, Iridium reiterates that there has been no demonstrated interference between its system and the Globalstar system.<sup>13</sup>

4. The Defense Information Systems Agency (DISA) filed a letter on behalf of the Department of Defense (DOD) in support of Iridium's March STA request.<sup>14</sup> DISA states that U.S. military forces continue to have a significant presence in Iraq and the surrounding region for the support of peace enforcement operations. The Iridium system, DISA states, offers military-level encryption, meeting a key requirement for DOD communications, thus, forces in the region continue to rely on the Iridium satellite system for mobile time sensitive communications.<sup>15</sup> DISA further states that based on ongoing needs assessments, Iridium's use of the additional 1.25 MHz of spectrum continues to positively affect system performance. According to DISA, the rates of use for January, February and March of 2004 were higher than previous time periods and at a level not sustainable prior to the allocation of the additional spectrum. Further, over the 90 days prior to DISA's May 4, 2004 letter, DISA identified an increase in usage with no increase in dropped calls and acquisition failures. Based on DISA's projections, the DOD will require the additional 1.25 MHz of spectrum through 2004. DISA also notes that due to acts of sabotage and terrorism, commercial non-satellite communications in the area have not stabilized sufficiently for DOD usage.<sup>16</sup> DOD's ability to install and activate regional communication alternatives to Iridium are hindered by the continued and increasing threats to U.S. forces and DOD contractors installing fixed terrestrial communications equipment.<sup>17</sup>

5. Globalstar filed a petition to deny Iridium's STA request.<sup>18</sup> As with its prior oppositions, Globalstar objects to Iridium's request on two grounds. First, Globalstar states that Iridium has not demonstrated a need for Channel 9 to serve the Middle East region. Globalstar states that granting Iridium access to the additional spectrum in the Middle East region did not result in Iridium's claimed improvement in service quality.<sup>19</sup> In addition, Globalstar asserts that the Commission has not attempted to reconcile inconsistencies in Iridium's data that might call into question Iridium's alleged need for the additional spectrum. According to Globalstar, the data submitted by Iridium does not show that Iridium's satellites are spectrum limited, but instead that the maximum peak satellite connections dropped during periods when Iridium had access to additional spectrum.<sup>20</sup> Globalstar also argues that Iridium has not explained why not only its overall capacity increased with additional spectrum, but also why its capacity per megahertz increased.<sup>21</sup>

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<sup>12</sup> *Iridium March STA* at 4.

<sup>13</sup> *Iridium March STA* at 5.

<sup>14</sup> Letter to Frederick R. Wentland, Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration from Carl Wayne Smith, General Counsel, Defense Information Systems Agency (May 4, 2004) (*DISA Letter*).

<sup>15</sup> *DISA Letter*, p. 1.

<sup>16</sup> *DISA Letter*, p. 2.

<sup>17</sup> *Id.*

<sup>18</sup> Petition to Deny of New Operating Globalstar LLC, filed April 26, 2004 (*Globalstar Petition*).

<sup>19</sup> *Globalstar Petition* at 3.

<sup>20</sup> *Globalstar Petition* at 3-4.

<sup>21</sup> *Globalstar Petition* at 4.

6. Second, Globalstar states that while it does not dispute the Commission's authority to adopt a band plan for U.S. licensed MSS systems in the Big LEO L-band, it questions the Commission's authority to specify how the systems must operate within the borders of foreign countries. In granting Iridium's prior STA request, the Satellite Division specified that Iridium must operate on a co-equal basis with Globalstar in the Middle East region, and on a non-harmful interference basis to other allocated radio services in the band in areas outside of the Middle East region. In doing so, Globalstar states the Commission has adopted more than a generic band plan for Big LEO systems, as set forth in the Big LEO Report and Order which specified that there would be no band sharing plan to be followed beyond U.S. borders.<sup>22</sup> Accordingly, Globalstar states that the Commission should not again dictate the terms and conditions of Iridium's use of Channel 9 in the Middle East region or elsewhere.<sup>23</sup> Rather, Globalstar requests that the Commission deny Iridium's request for an additional STA to operate on 1620.10-1621.35 MHz band or alternatively, require Iridium to operate in this spectrum on a secondary basis to Globalstar in all areas.<sup>24</sup>

7. Iridium filed an opposition to Globalstar's petition.<sup>25</sup> Iridium responds that the International Bureau has already addressed and dismissed the issues raised by Globalstar in objecting to Iridium's use of the additional spectrum. Contrary to Globalstar's claim, Iridium states it has indeed demonstrated that it is able to provide more efficient and effective service to the Middle East by its use of the 1610.21-1621.35 MHz frequency band. In addition, Iridium states that Globalstar continues to "mischaracterize" the issue regarding the Commission's authority to condition operations of U.S. satellite systems. Globalstar replied to Iridium's Opposition.<sup>26</sup> Globalstar reiterates that Iridium has not established that additional spectrum is necessary, and that neither the information provided by Iridium or DISA counters the analyses provided by Globalstar questioning the level of usage on the Iridium system and the need for the additional spectrum. Globalstar also states that Iridium failed to rebut its analysis concerning the Commission's authority to specify the terms of Iridium's service in the Middle East region.<sup>27</sup>

### III. DISCUSSION

8. *Information Supporting Iridium's Request.* Contrary to Globalstar's assertion, we find that Iridium has demonstrated its continued need for the additional 1.25 MHz of spectrum to handle the increase in system traffic experienced as a result of U.S. military operations in the Middle East region. Globalstar asserts that granting Iridium access to the additional spectrum in the Middle East region alone did not result in Iridium's claimed improvement in service quality.<sup>28</sup> Rather, Globalstar claims Iridium's own system design and network, which cannot be remedied with additional spectrum, limit Iridium's capacity.<sup>29</sup>

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<sup>22</sup> *Globalstar Petition* at 6-7, 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, 9 FCC Rcd 5936, 6018 (1994) (*Big LEO Report and Order*).

<sup>23</sup> *Globalstar Petition* at 3-4.

<sup>24</sup> *Globalstar Petition* at 8.

<sup>25</sup> Iridium Constellation LLC, Opposition to Petition to Deny, Filed May 6, 2004 (*Iridium Opposition*).

<sup>26</sup> Reply of New Operating Globalstar LLC, Filed May 13, 2004 (*Globalstar Reply*).

<sup>27</sup> *Globalstar Reply* at 4.

<sup>28</sup> *Globalstar Petition* at 3.

<sup>29</sup> *Globalstar Petition*, Attachment: Analysis of Iridium's December 18, 2003 Response, at 1.

9. Specifically, Globalstar points to Iridium's system gateway capacity limitations, crosslink capacity limitations, and on-board processing limitations as evidence of limitations in the Iridium system. In addressing concerns with Iridium's gateway and crosslink capacity limitations, Globalstar's analysis presumes that the Iridium system is limited to two operational gateway facilities, each with three antennas, and concludes that the Iridium system has only six operational gateway antennas.<sup>30</sup> Iridium's system, however, has twelve operationally ready gateway antennas.<sup>31</sup> Given that these additional facilities can provide additional capacity when needed by the Iridium system we find Globalstar's analysis, which did not take into account these other gateway facilities, to be deficient.

10. Globalstar also argues that Iridium's satellite on-board processor limits its system capability and capacity. Globalstar points to the "Space-Vehicle Real-Time (SVRT)" design and the "Call Image Recorder (CIR)" of the Iridium system as the two principal limiting factors. Globalstar refers to a statement by Iridium that "in early April 2003 leading up to April 11, 2003, the tremendous regional traffic load had so over loaded the SVRT processor that numerous satellite reboots were occurring."<sup>32</sup> Globalstar, however, fails to acknowledge that Iridium also states that upon receiving temporary authority to use the additional 1.25 MHz of spectrum its satellite performance returned to an acceptable level. This indicates that the additional spectrum granted to Iridium has significantly increased the reliability of the Iridium system and, as a result, a reduction in the number of calls blocked. In any event, if we were to accept Globalstar's claim that greater efficiency might theoretically be achieved in the Iridium system, Globalstar has not established that the public interest would be disserved by granting Iridium's request.

11. Further, Globalstar states that the Commission has not attempted to reconcile inconsistencies in Iridium's data with Iridium's alleged need for the additional spectrum. According to Globalstar, the data submitted by Iridium does not show that Iridium's satellites are spectrum limited, but instead that the maximum peak satellite connections dropped during periods when Iridium had access to additional spectrum.<sup>33</sup> While we find that Iridium's peak satellite connections did drop some time after Iridium started using the additional spectrum, the number of blocked calls was significantly reduced.<sup>34</sup> This suggests that the Iridium system is spectrally limited over the Middle East region and that the continued use of channel 9 will help support vital communications services in this region.

12. Globalstar also questions Iridium's most recent status report. Globalstar asserts that Iridium fails to explain that while its overall capacity may increase with additional spectrum, that its capacity per megahertz would also increase. Specifically, Globalstar points to Iridium's March 2004 report in which Iridium indicates that its peak Erlangs per MHz with 5.15 MHz was about 65 with 100% capacity (in March 2003), but its peak Erlangs per MHz with 7.65 MHz was about 72 with 97% capacity (in May 2003).<sup>35</sup> Iridium states that each Iridium satellite was designed to operate with 10.5 MHz of spectrum, and the assignment of only 5.15 MHz of spectrum reduces the spectrum efficiency of the

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<sup>30</sup> *Id.* at 2.

<sup>31</sup> These include: three operational antennas at its Hawaii gateway facility, three operational antennas at its Tempe, Arizona gateway facility; two operational antennas at its auxiliary gateway facility in Chandler, Arizona; and four operationally ready antennas at its Fucino, Italy gateway facility. See Letter from Peter D. Shields, Counsel for Iridium, to James L. Ball, Chief, International Policy Division, FCC, IB Dkt. No. 02-364, cited in the *Iridium Opposition*, at 4, ft note 10.

<sup>32</sup> *Globalstar Petition*, Attachment, at p. 4.

<sup>33</sup> *Globalstar Petition* at 3-4.

<sup>34</sup> See Technical Annex to Petition to Deny of Globalstar L.P and Globalstar USA LLC, filed Nov. 17, 2003, at p. 4, incorporated by reference by New Operating Globalstar LLC in *Globalstar Petition* at 2, ft. note 4.

<sup>35</sup> *Globalstar Petition* at 4.

system.<sup>36</sup> However, with the temporary assignment of additional spectrum, Iridium states its system becomes more spectrally efficient resulting in higher Erlangs per MHz.<sup>37</sup> We find Iridium's explanation for such increase to be reasonable and thus conclude that Globalstar has not raised a substantial question concerning Iridium's need for the additional spectrum.

13. *Commission's Authority to Grant Iridium's STA Request.* We find, again, that Globalstar's assertions regarding the Commission's authority to grant the STA are incorrect. Although we have addressed and dismissed Globalstar's assertions regarding the Commission's authority in our previous grants of temporary authority for Iridium's operations, in this proceeding Globalstar specifically questions the Commission's ability to specify the terms and conditions of both Iridium's and Globalstar's operations in the Middle East region. Globalstar states that the Commission has "exceeded the limits of its own rule." In making this assertion, Globalstar refers to the Big LEO Report and Order which states:

[W]e do not believe it is appropriate for the United States to impose global band sharing restrictions, that directly impact the ability of other countries to access these systems as they see fit.... Accordingly, we will not mandate a band sharing scheme to be followed beyond U.S. borders.<sup>38</sup>

14. The Commission made this statement, however, in the context of addressing a specific proposal made by some of the parties to the Big LEO proceeding, requesting that the Commission establish a global band segmentation plan. In areas outside of North America, the proposed global band plan would have required CDMA MSS licensees (such as Globalstar) to be limited to operating their systems in the 1610-1619.75 MHz band, and the TDMA MSS licensees (Iridium) to be limited to operating its system in the 1619.75-1626.5 MHz band. The Commission found there was no justification for the proposal, and also stated there was "no evidence ... of imminent coordination conflicts among the applicants beyond U.S. borders."<sup>39</sup> Thus, the Commission concluded it would not impose a "global band sharing plan on U.S. licensees at this time."<sup>40</sup> We find no basis in this prior Commission decision, which was reached under considerably different circumstances, to conclude that the Commission may not "dictate" the terms and conditions of Iridium's temporary authorization, if doing so serves the public interest. Furthermore, we note that Globalstar has not presented any evidence of conflicts among the two systems. Indeed, in granting Iridium's temporary authority, we have repeatedly considered that Globalstar has not demonstrated harmful interference to its system or any significant disruption to its service as a result of Iridium's operations.

15. We find that Iridium's use of the 1620.10-1621.35 MHz band to provide communication services to U.S. forces in the Middle East region satisfies a public interest of great consequence. The continuing threat to U.S. forces in the Middle East region mandates access to reliable communication services. As noted by DISA, conflicts in the region have hindered DOD's ability to install and activate regional communication alternatives. With a temporary authority to use an additional 1.25 MHz of spectrum, Iridium can satisfy this critical need. Globalstar, in turn, has not presented an adequate justification to deny Iridium the ability to meet this need. In light of the serious national interests at stake

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<sup>36</sup> Comments of Iridium Satellite LLC in IB Dkt 02-364, Review of Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Systems in the 1.6/2.4 GHz Band comment filed July 11, 2003, referenced in the *Iridium Opposition* at 4, ft note 9.

<sup>37</sup> *Iridium Opposition* at 4.

<sup>38</sup> *Big LEO Report and Order*, 9 FCC Rcd 5936, at 6019.

<sup>39</sup> *Big LEO Report and Order*, 9 FCC Rcd at 6019.

<sup>40</sup> *Id.*

and the critical communications support Iridium provides to the U.S. forces, we grant Iridium's request for special temporary authorization to operate in the 1620.10-1621.35 MHz band up to November 8, 2004 or until levels of usage and U.S. Government requirements no longer justify the need for the additional spectrum.

16. As with Iridium's prior temporary authorizations, we grant Iridium's request to operate in the 1620.10-1621.35 MHz frequency band on a co-equal basis with Globalstar in the Middle East region, and on a non-harmful interference basis with respect to any other allocated radio service in the band outside of the Middle East region.<sup>41</sup> We continue to expect both Iridium and Globalstar to cooperate to resolve any interference problems that may arise in the Middle East region.

#### IV. CONCLUSION AND ORDERING CLAUSES

17. Based on the foregoing, we find that Iridium has presented extraordinary circumstances warranting a grant of temporary authorization for operations in the 1620.10-1621.35 MHz band. We find that this authorization will serve the public interest by allowing Iridium to provide essential communications services to support vital U.S. Government operations in the Middle East region. This action is taken without prejudice to the Commission's action in the ongoing rulemaking proceeding in IB Docket No. 02-364, Review of Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz. Bands.

18. Accordingly, IT IS ORDERED, that the request for special temporary authorization filed by Iridium Constellation, LLC, File No. SAT-STA-20040319-00056 is GRANTED. Iridium is authorized to operate in the 1620.10-1621.35 MHz frequency band up to November 8, 2004 or until the use of the additional frequencies is not required, whichever occurs first.

19. IT IS FURTHER ORDERED, that the Iridium satellite system shall operate on a co-equal status with the Globalstar satellite system in the 1620.10-1621.35 MHz band within the Middle East region.

20. IT IS FURTHER ORDERED, that in areas outside of the Middle East region the Iridium satellite system must operate in the 1620.10-1621.35 MHz frequency band on a non-harmful interference basis with respect to any other allocated radio service in that band, i.e., Iridium shall not cause harmful interference to, and shall not claim protection from interference caused to it by any other lawfully operating satellites. In the event Iridium is notified of such interference, it must immediately inform the Commission, in writing, of such an event.

21. IT IS FURTHER ORDERED, that Iridium must file a report with the Commission on the first day of each month, commencing July 1, 2004, demonstrating its continued need and use of the 1620.10-1621.35 MHz frequency band. This report must include information regarding system loading and system capacity over the Middle East region, from April 1, 2003 to the date of the report.

22. IT IS FURTHER ORDERED, that Iridium shall maintain the capability of suspending operations in the 1620.10-1621.35 MHz band, upon notice from the Commission, within 24 hours.

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<sup>41</sup> Modification of Licenses Held by Iridium Constellation LC and Iridium, US LP, *Order*, 18 FCC Rcd 20023, 20028 (DA 03-2906) (Sat. Div., Int'l Bur. 2003) and Iridium Constellation LLC, Request for Special Temporary Authority, *Order*, 18 FCC Rcd 25814, 25819 (DA 03-3926) (Sat. Div., Int'l Bur. 2003).

23. This action is taken pursuant to 47 C.F.R. § 0.261; 47 U.S.C. §§ 309(f), 316(a) and 47 U.S.C. § 4(i).

FEDERAL COMMUNICATIONS COMMISSION

Thomas S. Tycz  
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