Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

Iridium Satellite Earth Station Modification Applications	)	File Nos. SES-MOD-20050927-01329/01330; Call Signs E960132/E960622
Special Temporary Authority	)	File Nos. SES-STA-20050930-01349/01350; Call Signs 60132/E960622
Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands	)	IB Docket No. 02-364

PETITION TO DENY

Globalstar LLC ("Globalstar") hereby requests that the Commission deny the above-captioned applications filed by Iridium Satellite, LLC ("Iridium") seeking to modify its mobile satellite earth station license to permit it to operate terrestrial antennas or repeaters designed to repeat and amplify the signals of Iridium's Mobile Satellite Service ("MSS") space stations and mobile earth stations/terminals ("METs").[1/] As discussed below, the applications (1) appear to seek authority to operate on frequencies in which Iridium is not licensed to provide service, and (2) fail to address the threat of interference that operation of the devices will cause to Globalstar's licensed MSS services in frequency

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1/ Iridium Applications for Satellite Earth Station Modification, File Nos. SES-MOD-20050927-01329/01330; Call signs E960132/E960622 (Filed Sept. 27, 2005).

bands exclusively assigned to Globalstar and in bands in which Iridium and Globalstar are required to coordinate their operations.

In the applications, Iridium states that the devices will be capable of operating in the 1616-1626.5 MHz frequency band and that "the proposed equipment operates only on those frequencies within the 1.6 GHz band that are assigned to the Iridium MSS system."[2/] However, the applications and accompanying technical disclosures suggest that Iridium may intend to operate throughout the 1616-1626.5 MHz band.[3/] Although Iridium is authorized to operate in the 1621.35-1626.5 MHz band on an exclusive basis pursuant to its MSS authorization[4/] and in the 1618.25-1621.35 MHz band on a co-primary basis under the Commission's 2004 Order in IB Docket No. 02-364,[5/] Iridium's earth stations are not permitted to transmit below 1618.25 MHz. As a result, the applications appear to request authority to operate on frequencies for which Iridium is not licensed to provide service.

In addition to seeking authority to operate in the 1616-1618.25 MHz band in which Iridium is not licensed, the applications also fail to demonstrate that Iridium's proposed operations will not cause harmful interference to Globalstar's licensed services. First, although the applications do include a technical showing that purports to demonstrate that

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2/ *Id.*

3/ *Id.*

4/ Order and Authorization, *Application of U.S. Leo Services, Inc.*, 11 FCC Rcd 20474 ¶ 17 (1996).

5/ Report and Order, Fourth Report and Order and Further Notice of Proposed Rulemaking, *Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, 19 FCC Rcd 13356, 13367 ¶ 44 (2004).

Iridium will meet the out-of-band emissions limits necessary to protect the radionavigation satellite service in the 1559-1610 MHz band, they fail to provide any technical showing that the proposed operations will not cause harmful interference to Globalstar's licensed operations in the 1610-1621.35 MHz band.

Specifically, if Iridium's new repeaters operate outside Globalstar's allocated frequency bands of 1610-1621.35 MHz, it is sufficient to suppress each Iridium carrier's out-of-band emissions by 22.36 dB as shown in Table 1 in the Appendix. However, as the same table shows, operation of Iridium repeaters co-frequency in Globalstar's frequency channels, such as in the frequency range 1616-1621.35 MHz, will cause the harmful interference from Iridium into Globalstar to greatly exceed (by 22.36 dB) Globalstar's allowable 3% degradation of service quality. Table 2 in the appendix shows the level of interference from Iridium carriers with peak EIRP level for Iridium *mobile users* (not repeaters) at a traffic level slightly higher than the current Iridium traffic load. This shows that interference from Iridium users into Globalstar is below the 3% allowable degradation. However, Table 3 in the Appendix shows the effect of the same traffic level of Iridium *repeaters* (not mobile users) into Globalstar. The increased EIRP of Iridium repeaters causes Iridium's interference to exceed Globalstar's allowable 3% degradation in service quality by about 12 dB, a very significant increase.

Second, the peak EIRP level requested by Iridium for its repeater fails to meet the footnote 5.364 requirement[6/] of –15 dBW/4 kHz where Aeronautical Radio Navigation

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6/ Footnote 5.364 (formerly 731E), which is incorporated into the U.S. Table of Frequency Allocations (47 C.F.R. § 2.106), applies to "mobile earth stations" operating in the 1610-1626.5 MHz band. It provides that such earth stations shall not produce an EIRP

System systems are present or –3 dBW/4kHz where such systems are not present. This in itself is a disqualifying factor.

Third, before it may grant Iridium's application, the Commission must require a demonstration by Iridium that the out-of-band RF emission from the amplifier equipment in any 1 Hz of the frequency band falling within the Globalstar frequency allocation of 1610-1621.35 MHz is suppressed by at least 22.36 dB relative to its peak value.[7/] The emission levels proposed in the application, unmitigated by frequency separation and filtering for out-of-band emissions, are far in excess of those approved by the Commission and present a strong likelihood of causing interference, not only to Globalstar, but also to other licensees operating in adjacent spectrum.

Finally, although Iridium originally filed its application for the repeater exchange system in June 2004 and has filed a new application and several requests for special temporary authority ("STA") since then, Iridium has never approached Globalstar to coordinate its proposed use of the 1618.25-1621.35 MHz frequency band, Iridium recently took Globalstar to task for a similar omission.[8/]

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density in excess of –15 dB (W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. 5.366 (to which No. 4.10 applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean EIRP density of a mobile earth station shall not exceed –3 dB (W/4 kHz).

[7/] *See* Appendix, Table 1.

[8/] *See* Letter to Marlene S. Dortch from R. Michael Senkowski, dated October 19, 2005, File Nos. SAT-STA-20050923-00180/00181. The Commission has specifically required coordination of use of the 1618.25-1621.35 MHz band segment. 19 FCC Rcd at 13380-81 ¶¶ 53-57.

In addition to requesting that the above-referenced applications be denied, Globalstar also asks that the Commission deny any further extension of Iridium's STA to operate the proposed devices, which was first granted on July 8, 2004 and subsequently extended six times, most recently on September 30, 2005.[9/] The original STA was based upon prior applications for authority to operate the proposed devices that were ultimately dismissed because Iridium failed to provide required technical information and demonstrate compliance with Commission's rules for METs.[10/] It is impossible to glean from Iridium's application or the Bureau's grant thereof any rationale for extending the STA repeatedly once the underlying application was dismissed.

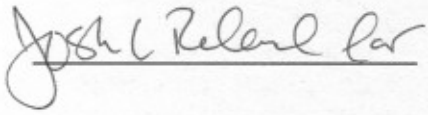
As discussed above, the current STA is based upon pending applications that seek authority to operate in frequencies for which Iridium is not licensed and has failed to undertake any required coordination with Globalstar's operations. Since the underlying applications on their face are not grantable because they request authority to operate in spectrum for which Iridium is not authorized to operate, the Commission should refuse to grant any further requests for extension of the STA. At a minimum, any future grants of special temporary authority should expressly limit Iridium's operations to the 1621.35-1626.5 MHz band.

9/ Iridium Application for Special Temporary Authority, File No. SES-STA-20040524-00717, filed May 24, 2004 (granting the original request for STA from July 8, 2004 through September 8, 2004); Grant of Authority, *Iridium Application for Extension of Special Temporary Authority*, File No. SES-STA-20050930-01349/01350 (Sept. 30, 2005). The latest extension appears to have been inadvertently granted for 90 days from October 1 to December 31, 2005, rather than 60 days from October 1 to November 30.

10/ *See* Letter from Scott Kotler, Chief, System Analysis Branch, Satellite Division, International Bureau, to Jennifer D. Hindin, Counsel to Iridium (DA 05-1548) (May 27,

For all of the foregoing reasons, Globalstar requests that the Commission (1) deny the above-referenced applications and (2) deny any further requests by Iridium to extend the special temporary authority to operate the proposed devices to the extent that Iridium seeks to operate outside the 1621.35-1626.5 MHz band.

Respectfully Submitted,



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November 14, 2005

2005) (dismissing Iridium's repeater applications, File Nos. SES-MOD-20050408-00401, SES-MOD-20050408-00402).

APPENDIX

Table 1: Interference from Iridium Repeaters at capacity into Globalstar (shows effects of in-band interference, as well as required OOB emissions suppression if only OOB interference)

Iridium repeater: interference into Globalstar		
Frequency	1618	MHz
Number of Iridium beams per Globalstar beam	3	
Number of Iridium carriers in 1.23 MHz at capacity	88.553	
Average Iridium transmit power per carrier	18.5	dBW
Typical range at 40 deg. Elev.	1952	km
Path loss	-162.43	dB
Interf. density per beam from Iridium users rcvd at Globalstar sat. in	-185.36	dBW/Hz
At Globalstar satellite		
Rcv antenna gain	16	dB
Typical self interference density	-193	dBW/Hz
Typical self interference plus thermal noise density	-192.485031	dBW/Hz
Allowable % degradation due to external interference	3%	
Allowable total interf. (for 3% degradation of self-interf.plus noise)	-192.36	dBW/Hz
Allowable external interf.	-207.71	dBW/Hz
OOB emission suppression of Iridium carriers	22.36	dB

Table 2: Interference calculation from Iridium users (when system is lightly loaded) with peak EIRP into Globalstar

Iridium mobile users: interference into Globalstar		
Frequency	1618	MHz
Number of Iridium beams per Globalstar beam	3	
Number of Iridium carriers in 1.23 MHz	8	
Average Iridium transmit power per carrier	6	dBW
Typical range at 40 deg. Elev.	1952	km
Path loss	-162.43	dB
Interf. density per beam from Iridium users rcvd at Globalstar sat. input	-208.30	dBW/Hz
At Globalstar satellite		
Rcv antenna gain	16	dB
Typical self interference density	-193	dBW/Hz
Typical self interference plus thermal noise density	-192.49	dBW/Hz
Allowable % degradation due to external interference	3%	
Allowable total interf. (for 3% degradation of self-interf.plus noise)	-192.36	dBW/Hz
Allowable external interf.	-207.71	dBW/Hz
OOB emission suppression of Iridium carriers	-0.59	dB

Table 3: Interference calculation from Iridium repeaters (when system is lightly loaded) with peak EIRP into Globalstar

Iridium repeater: interference into Globalstar		
Frequency	1618	MHz
Number of Iridium beams per Globalstar beam	3	
Number of Iridium carriers in 1.23 MHz	8	
Average Iridium transmit power per carrier	18.5	dBW
Typical range at 40 deg. Elev.	1952	km
Path loss	-162.43	dB
Interf. density per beam from Iridium users rcvd at Globalstar sat. in	-195.80	dBW/Hz
At Globalstar satellite		
Rcv antenna gain	16	dB
Typical self interference density	-193	dBW/Hz
Typical self interference plus thermal noise density	-192.49	dBW/Hz
Allowable % degradation due to external interference	3%	
Allowable total interf. (for 3% degradation of self-interf.plus noise)	-192.36	dBW/Hz
Allowable external interf.	-207.71	dBW/Hz
OOB emission suppression of Iridium carriers	11.91	dB

CERTIFICATE OF SERVICE

I, Josh L. Roland, do hereby certify that a copy of the foregoing Petition To Deny filed by Globalstar LLC was served by hand on November 14, 2005, on the following parties (marked with an asterisk (*)) or first class United States mail, postage prepaid:

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