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Satellite Division
International Bureau

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

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DEC 22 2005

Federal Communications Commission
Office of Secretary

In the Matter of)
)
Iridium Satellite LLC and)
Iridium Carrier Services LLC)
Mobile Earth Station Modification Applications)
)
Special Temporary Authority)

File Nos. SES-MOD-20050927-01329
and SES-MOD-20050927-01330

File Nos. SES-STA-20050930-01349
and SES-STA-20050930-01350

OPPOSITION TO PETITION TO DENY

Pursuant to Section 25.154(c) of the Commission's rules, 47 C.F.R. § 25.154(c), Iridium Satellite LLC and Iridium Carrier Services LLC (collectively, "Iridium") oppose the petition ("Petition") of Globalstar LLC ("Globalstar") to deny the above-captioned modification applications ("Applications") seeking authorization to add amplifier equipment to the mobile satellite service ("MSS") handsets authorized under Iridium's existing blanket mobile earth terminal ("MET") licenses. To address Globalstar's interference concerns, Iridium will implement minor modifications to the proposed equipment to ensure that the operating power of the equipment will be no higher than that of an Iridium handset. These modifications will be reflected in an amendment submitted concurrently with this filing. As a result of these minor modifications, the proposed equipment will not create any greater risk of harmful interference

than an ordinary Iridium handset. Accordingly, the Commission should reject the Petition and grant the Applications immediately.¹

I. IRIDIUM IS NOT SEEKING ANY CHANGES IN THE FREQUENCIES AUTHORIZED UNDER ITS EXISTING MSS AND MET LICENSES

As an initial matter, Globalstar misconstrues the scope of Iridium's request for modification. Iridium is seeking to operate amplifier equipment on frequencies *already assigned* to its MSS system, and not on additional or different frequencies. As stated in the Applications, "the proposed equipment operates only on those frequencies within the 1.6 GHz band that are assigned to the Iridium MSS system."² Although the FCC Forms 312 included in the Applications specify a frequency range from 1616 MHz to 1626.5 MHz, this specification was intended merely to conform to the terms of Iridium's existing blanket MET licenses, which authorize MSS handsets "*capable of operating in the 1616-1626.5 MHz frequency band.*"³ The frequencies that actually will be used by both the proposed equipment and the Iridium METs, will be limited to those assigned to the Iridium MSS system and, to the extent applicable, coordinated with Globalstar. The Applications do not seek any changes to the frequencies authorized under Iridium's existing MSS and MET licenses. Moreover, the Applications do not

¹ In its Petition, Globalstar also requests that the Commission deny any further extension of Iridium's special temporary authority ("STA") to operate the proposed equipment, but Iridium has no pending request to extend its STA. Iridium notes, however, that it has been operating the proposed equipment on a limited basis under the STA for more than a year without receiving any interference complaints from Globalstar or any other licensee.

² Iridium Satellite LLC Application, File No. SES-MOD-20050927-01329, Exhibit 3 at 2-3 (Sept. 27, 2005); Iridium Carrier Services LLC Application, File No. SES-MOD-20050927-01330, Exhibit 4 at 2 (Sept. 27, 2005).

³ *Application of U.S. Leo Services, Inc.*, 11 FCC Rcd 20474, ¶ 17 (Int'l Bur. 1996) (emphasis added).

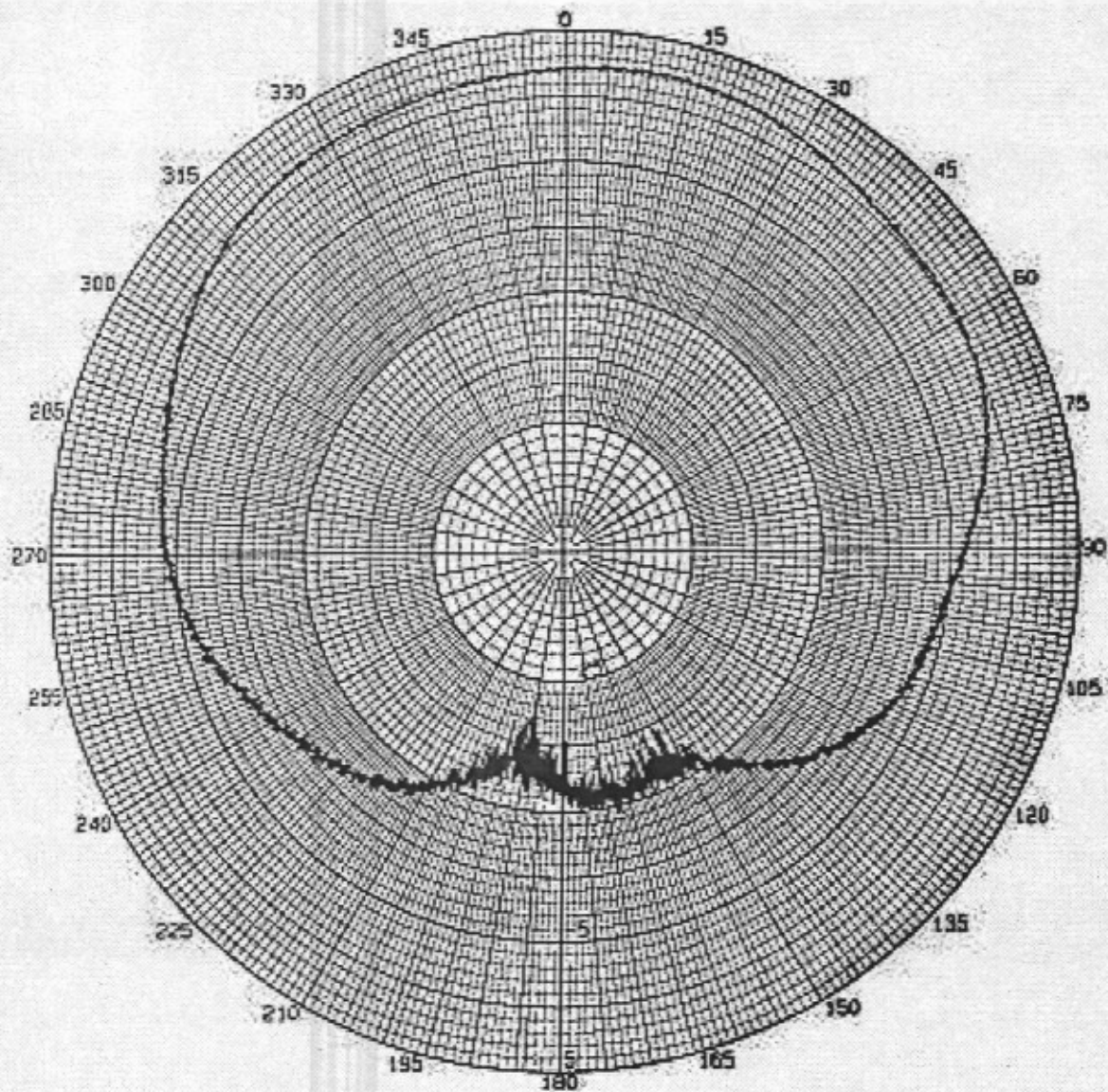
propose to operate the proposed equipment on frequencies in the 1618.25-1621.35 MHz band that have not been coordinated with Globalstar.

II. THE PROPOSED EQUIPMENT WILL NOT CAUSE HARMFUL INTERFERENCE TO GLOBALSTAR

Through a combination of power set-up procedures and modified antenna design, the peak effective isotropic radiated power ("EIRP") of the proposed equipment will be lower than that of an ordinary Iridium handset. The power and EIRP levels for the proposed equipment set forth in the Applications represent the maximum levels that the equipment was capable of transmitting, without accounting for cable losses and assuming the original antenna design. In practice, cable losses between the indoor repeater units and the outdoor antennas are taken into account, and adjustment of the transmit power of the proposed equipment prior to installation ensures that the maximum transmitted power will be appropriately reduced. Specifically, the maximum power delivered to the antenna input of the proposed equipment will be adjusted prior to installation so as to not exceed +7.8 dBW, regardless of the cable length between the indoor repeater units and the outdoor antennas.

Additionally, the outdoor transmit antenna of the proposed equipment will be modified to be more omni-directional so that its peak gain will be no greater than +2.5 dBi, a 3.5 dB reduction from that of the originally proposed antenna design. The radiation pattern of the proposed antenna is almost identical to that of an Iridium handset and is shown in Figure 1 below.

Figure 1 – Typical Radiation Pattern of the Proposed Modified Antenna



The combination of these factors will reduce the maximum EIRP from the proposed equipment (spread evenly over one, two or three Iridium carriers), to a level no greater than

+10.3 dBW, an 8.2 dB reduction from the level assumed by Globalstar (*i.e.*, 18.5 dBW). In comparison, the peak EIRP of an Iridium handset is 11.95 dBW per carrier.⁴

Iridium concurrently is amending the Applications to reflect the reduced power, antenna gain, and EIRP levels of the proposed equipment. Consequently, as a result of both the modified antenna design and the installation procedures for the proposed equipment, the proposed equipment will be even more benign, from an interference perspective, than an ordinary Iridium handset.

III. THE PROPOSED EQUIPMENT MEETS THE MEAN EIRP DENSITY LIMIT SPECIFIED IN FOOTNOTE 5.364 OF THE ALLOCATIONS TABLE

Contrary to Globalstar's contention, the proposed equipment meets the mean power density limit specified in footnote 5.364 of the Table of Frequency Allocations.⁵ Footnote 5.364 provides that a "mobile earth station operating ... in this [1610-1626.5 MHz] band shall not produce a *peak* e.i.r.p. density in excess of -15 dBW/4 kHz in the part of the band used by [aeronautical radionavigation] systems."⁶ For mobile earth stations operating in the part of the 1610-1626.5 MHz band not used by aeronautical radionavigation system, Footnote 5.364 specifies a "*mean* e.i.r.p. density" limit of -3 dBW/4 kHz.⁷

A search of the Universal Licensing System database does not disclose the assignment of any aeronautical radionavigation licenses in the 1618.25-1626.5 MHz band where the Iridium MSS system is authorized to operate. Thus, the peak power density limit of -15 dBW/4 kHz,

⁴ See FCC Radio Authorization issued to Iridium Carrier Services LLC (File No. SES-LIC-19960116-00005; Call Sign E960622) (granted Oct. 30, 1996).

⁵ See 47 C.F.R. § 2.106, International Footnote 5.364.

⁶ *Id.*

⁷ *Id.* (emphasis added).

which applies only to the part of the 1610-1626.5 MHz band used by aeronautical radionavigation systems, does not appear to apply to any Iridium equipment operating in that band. Consequently, the only limit specified in footnote 5.364 that could apply here is the mean EIRP density limit of -3 dBW/4 kHz.⁸ Table 1 of the attached Appendix demonstrates that the proposed equipment, with the modifications discussed in Section II above, meets this limit, even in the worst case when it is transmitting simultaneously into all four TDMA time slots in the same Iridium channel.

IV. CONCLUSION

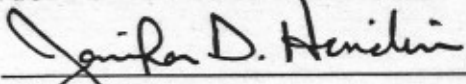
Iridium filed the Applications more than a year ago and has taken more than adequate measures to ensure that the proposed equipment will not cause harmful interference to other licensed services. Both the U.S. military and public safety organizations have expressed an urgent need for new products, such as the proposed equipment, that would enhance MSS communications. Any further delay in the grant of the Applications would deprive Iridium

⁸ In the unlikely event that the peak EIRP density limit of -15 dBW/4 kHz applies, Iridium requests a waiver of that limit. A waiver would be appropriate because the proposed equipment will be installed primarily, if not exclusively, in fixed locations and therefore would present a substantially lower, if any, risk of interference to aeronautical radionavigation operations than would mobile earth stations subject to footnote 5.364 requirements.

customers of innovative equipment that would enhance their communications capabilities during critical military operations and public safety missions. Based upon the foregoing, Iridium urges the Commission immediately to reject the Petition and to grant the Applications.

Respectfully submitted,

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December 22, 2005

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APPENDIX

Table 1 - Calculation of Mean Transmit EIRP per 4 kHz

Line #	Parameter	Value	Units	Comments
1	Instantaneous Iridium transmit EIRP per carrier for SatMAX repeater	10.3	dBW	SatMAX equipment set up to ensure that the max. power at the Tx antenna does not exceed +7.8 dBW; Antenna peak gain = +2.5 dBi.
2	Max. number of simultaneous Tx time slots in same Iridium channel	4		Each Iridium TDMA frame has 4 Tx and 4 Rx time slots.
3	% of time that transmissions occur in the Iridium TDMA frame	36.8%		Each Tx time slot is 8.28 ms. 4 time slots = 33.12 ms. Frame duration is 90 ms.
4	Mean Iridium transmit EIRP per carrier	6.0	dBW	
5	Mean Iridium transmit EIRP per 4kHz	-3.0	dBW/4kHz	5.364 limit is -3 dBW/4kHz

CERTIFICATE OF SERVICE

I, Christopher E. Ryan, do hereby certify that on December 22, 2005, a copy of the foregoing **OPPOSITION** was served by electronic mail or, as indicated below, by U.S. mail upon the following:

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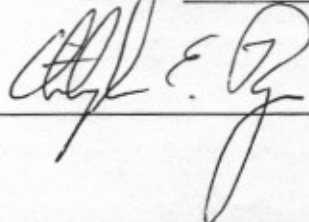
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