



International Bureau

Federal Communications Commission
Washington, DC 20554

February 22, 2005

DA 05-458

Jennifer D. Hindin, Esq.
Wiley Rein & Fielding LLP
1776 K Street, N.W.
Washington, DC 20006

Re: Call Sign: E960132
SES-MOD-20040625-00884
SES-AMD-20040707-00955
Iridium Satellite LLC ("Iridium")

Call Sign: E960622
SES-MOD-20041115-01684
Iridium Carrier Services LLC ("Iridium")

Dear Ms. Hindin:

On June 25, 2004, Iridium filed an application, SES-MOD-20040625-00884, as amended by SES-AMD-20040707-00955, to add a repeater exchange system to its licensed Mobile-Satellite Service ("MSS") earth station E960132. On November 15, 2004, Iridium filed a similar modification application, SES-MOD-20041115-01684, to add a repeater exchange system to its licensed Mobile-Satellite Service ("MSS") earth station E960622. Both earth stations are licensed to operate in the 1616-1626.5 MHz band ("L-band") and to communicate with the Iridium satellite system. The modifications are intended to enhance service where there is no line-of-sight between the satellite and user handset. Pursuant to Section 25.112(a)(1) of the Commission's rules, 47 C.F.R. § 25.112(a)(1), we dismiss both applications as defective because of internal inconsistencies in the power levels provided.

Specifically, the Equivalent Isotropically Radiated Power (EIRP) you provide in the application does not agree with that derived from the accompanying engineering data. In Schedule B, you indicate that the maximum EIRP per carrier is 18.5 dBW (question E48), while total EIRP derived from the "5 Watts Total Input Power at Antenna Flange (E38)" and "0 dBi Transmission Antenna Gain (E41/42)" is 7.0 dBW. Given these inconsistencies, we cannot determine the actual emission power in use.

While we dismiss the application on the above basis, we take this opportunity to apprise you of other concerns we have should you choose to refile the application.

Points of Communications: Your application indicates that the earth stations will be accessing satellites on the "Permitted List." However, the Permitted List includes only geostationary satellites operating in the 3700-4200 MHz, 5925-6425 MHz, 11700-12200 MHz, and 14000-14500 MHz bands. This is inconsistent with the earth stations' L-band operations.

Protection of Aeronautical Radionavigation-Satellite Service: We cannot determine, on the basis of the Test Report's¹ Inter-Modulation plot², whether emissions from the repeater would be consistent with the levels specified in Section 25.216 of the Commission's Rules, 47 C.F.R. § 25.216. Specifically, our studies show that, across the 10.5 MHz of the repeater's passband, there is a possibility that emissions from the repeater of the signals from multiple handsets may produce a cluster of out-of-band emissions³ that have a potential to cause interference into the 1559-1610 MHz protected band. Iridium's test plot⁴ for a two-tone intermodulation ("IM") test, with test tones set approximately at 1620 and 1627 MHz, should show a third order IM product at 1613 MHz and a fifth order IM product at 1606 MHz. However, the choice for 1627 MHz as a test tone is outside of the repeater's operational range, the generated 1613 MHz IM product is outside of the protected band, and all IM products that were generated are apparently hidden in noise due to insufficient dynamic range in the test setup, making them not visible in the display. We conclude that the demonstration is not valid, and that the test should be designed to place any IM products within the RNSS band being protected.

Test Power Output: There is a discrepancy in the output power level between the application and the Test Report. In the application, "Total EIRP for All Carrier (E40)" is filed as 18.5 dBW, which implies a 71 Watt output power to the transmit antenna, whereas in the Test Report, the output power is specified as 5 Watts. Additionally, we note that if considering the repeater's total output power as 7 dBW, and the power being equally distributed (-3 dB) in test tones, along with a 9.2% (-10 dB) duty cycle utilization, the output power of each test tone should be adjusted to -6 dBW when conducting the two-tone IM test. However, as indicated in the Test Report⁵, the power of each test tone was -33 dBW, or 27 dB less than what was expected. Also, it is not clear that the utilization duty cycle can be time-averaged by the receiver being protected. If you choose to refile, you should provide the rationale for using this lower power output for the test as well as the basis for using a 9.2% duty cycle and time-averaging over this duty cycle.

¹ Test Report in Application of Eagle Wireless International Inc. for Equipment Certification, FCC ID LOKJHJLBT05A00021 (granted on Oct. 25, 2003), available at <https://gulfoss2.fcc.gov/prod/oet/cf/eas/reports/GenericSearch.cfm> and referenced in Footnote 3 of Exhibit 4 of both Modification Applications (the Test Report).

² See Figure 3 of the Test Report.

³ A *third* order IM, e.g. $(2A-B) = 2*(1616)-1626 = 1606$ MHz, or a *fifth* order IM, e.g. $(3A-2B) = 3*(1616)-2*(1626) = 1596$ MHz, and a great number of others, may fall into, and cause interference in, the 1559-1610 MHz protected band.

⁴ See Figure 3 of the Test Report.

⁵ See Figure 3 of the Test Report.

Accordingly, pursuant to Section 25.112(a)(1)⁶ of the Commission's rules, 47 C.F.R. § 25.112(a)(1), and Section 0.261 of the Commission's rules on delegations of authority, 47 C.F.R. § 0.261, Iridium's applications to modify E960132 (SES-MOD-20040625-00884, as amended by SES-AMD-20040707-00955) and E960622 (SES-MOD-20041115-01684), ARE DISMISSED as defective without prejudice to refiling.⁷

Sincerely,



Fern J. Jarmulnek
Deputy Chief, Satellite Division

⁶ 47 C.F.R. Section 25.112(a)(1). *See also* Echostar Satellite LLC, *Order on Reconsideration*, DA 04-4056, (released December 27, 2004).

⁷ If Iridium refiles an application identical to the one dismissed, with the exception of supplying the corrected information, it need not pay an application fee. *See* 47 C.F.R. Section 1.1109(d).