

BEFORE THE
Federal Communications Commission
WASHINGTON, D.C. 20554

In the Matter of)
)
Iridium Constellation LLC) File No. SAT-MOD-20121207-00211
) Call Sign S2110
Application for Modification of Non-Geostationary)
Mobile-Satellite Service Authorization)

To: Chief, Satellite Division
International Bureau

PETITION TO DENY, DISMISS OR DEFER, IN PART

HNS License Sub, LLC (“Hughes”), by counsel and pursuant to Section 25.154 of the Commission’s Rules (47 C.F.R. § 25.154), hereby petitions to deny, dismiss or defer, in part, the above-captioned application of Iridium Constellation LLC (“Iridium”), filed on December 7, 2012.¹ The application (“Iridium MOD Application”) is the latest in a series of license modification requests that Iridium has submitted seeking to alter its current non-geostationary mobile-satellite service (“NGSO MSS”) “Big LEO” authorization to permit it either to co-locate satellites within the Iridium satellite network “as the functional equivalent of one satellite,”² or as in this case, to maintain a satellite (SV023) which has suspended mission operations “approximately 300 kilometers behind operational satellite SV094 in a parking orbit

¹ The application appeared on the International Bureau’s “Accepted for Filing” Public Notice released on Friday, December 21, 2012. See Public Notice, “Policy Branch Information: Satellite Space Applications Accepted for Filing,” Report No. SAT-00920, released December 21, 2012.

² Iridium Modification Application, File No. SAT-MOD-20120813-00128, at 1.

at approximately 778 kilometers, its current mission altitude, instead of the nominal 645-kilometer orbit.”³

Hughes urges the Commission to reject, or to dismiss without prejudice, the portion of this modification application requesting access to the 29.25-29.3 GHz piece of the 29.1-29.3 GHz NGSO MSS band for telemetry, tracking and control (“TT&C”). The uplink spectrum at 29.1-29.3 GHz that is used by Iridium overlaps with the broader 29.25-29.5 GHz frequency band that is available for use by both high-density and low-density uplinks of geostationary-orbit fixed-satellite service (“GSO FSS”) networks. Iridium has not provided the required coordination showing that a second in-orbit satellite in the proposed configuration can be operated successfully with co-frequency GSO FSS networks at 29.25-29.3 GHz. Any increase in the sensitivity of Iridium’s NGSO MSS feeder uplinks to GSO FSS transmissions in the 29.25-29.5 GHz band would be inconsistent with the terms upon which Iridium was granted access to this portion of the band. Accordingly, the portion of the Iridium MOD Application seeking expanded access to the 29.25-29.3 GHz band cannot be considered until this requirement has been met.⁴

STATEMENT OF INTEREST

As the Commission is aware, Hughes operates gateway earth stations and user terminals in the 29.25-29.5 GHz band as part of its Ka-band broadband GSO FSS network.⁵ Accordingly, Hughes is an interested party with respect to this application, which proposes a

³ Iridium MOD Application at 3.

⁴ Hughes emphasizes that its request for denial, dismissal or deferral is limited to the 29.25-29.3 GHz segment of the broader 29.1-29.3 GHz band that Iridium seeks to use for MSS feeder links.

⁵ See HNS License Sub, LLC, Call Signs E060445 and E110149 and associated file numbers. The ultimate parent corporation of HNS License Sub, LLC is EchoStar Corporation.

modified use of the 29.1-29.3 GHz band that overlaps with the Hughes uplink band in the 50 MHz segment from 29.25-29.3 GHz.⁶

DISCUSSION

When Iridium was granted initial authorization to operate feeder links for its L-band system in the Ka-band spectrum at 29.25-29.3 GHz, this operation was premised on Iridium's assurance that its earth stations would be able to use the 29.25-29.3 GHz band segment on a shared basis with GSO FSS earth stations by following "the guidelines set forth in ITU-R Recommendation S.1419, 'Interference Mitigation Techniques to Facilitate Coordination Between non-GSO MSS Feeder links and GSO FSS networks in the bands 19.3-19.7 GHz and 29.1-29.5 GHz.'"⁷ The referenced ITU guidelines rely, in part, on spatial separation of gateway earth stations used by the two types of satellite networks.⁸ The Commission found that coordination on such basis between NGSO MSS feeder link stations and GSO FSS networks was deemed feasible in the Ka-band rulemaking proceedings leading to designation of the 29.25-29.5 GHz band for ubiquitous GSO FSS earth stations. This conclusion was based on avoidance of main-beam coupling using the techniques described in Recommendation ITU-R S.1419, which was referenced in and annexed to the 2007 Iridium Amendment.⁹

⁶ Because the spectrum overlap and Iridium's past participation in proceedings in which Hughes has sought to modify its authority in the 29.25-29.5 GHz Ka-band spectrum are a matter of public record at the Commission, this is a circumstance in which the Bureau may take official notice that Hughes is a "party of interest." See 47 C.F.R. § 25.154(a)(4). Factual allegations contained herein concerning potential interference to Hughes' user and gateway Earth stations are appropriately supported by a technical declaration. *Id.*

⁷ Iridium Amendment, File No. SES-AMD-20070309-00334, at 1 (Filed March 9, 2007).

⁸ The requisite separation distance is 225 kilometers for typical antennas, but as few as 60 kilometers for high-gain/highly-directional antennas. See ITU-R Recommendation S.1419, Section 3 at 2.

⁹ See, e.g., *Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands*, Second Order in Reconsideration in IB Docket No. 98-172, 17 FCC

Hughes has based its own authorized use of the 29.25-29.5 GHz band for gateway earth stations and user terminal operations upon these spectrum sharing techniques and the Commission's explicit endorsement of them in its *Second Order on Reconsideration* in IB Docket No. 98-172 (permitting ubiquitous deployment of GSO FSS earth stations in the 29.25-29.5 GHz band subject to coordination with NGSO MSS feeder link operations).¹⁰ Accordingly, Hughes has consistently acknowledged its obligations to coordinate with feeder link licensees such as Iridium under the FCC's Rules.¹¹ In its earth station applications and deployments for the SPACEWAY 3 and EchoStar XVII satellite networks, Hughes avoids operation in the 29.25-29.3 GHz band within 225 kilometers of Iridium's Arizona earth station complex where access to the full 29.1-29.3 GHz feeder link band is authorized.

Recently, however, Iridium has called into question its own continued adherence to the spectrum sharing mechanisms underpinning the Commission's Ka-band rulemaking proceedings and its 2007 earth station application amendment that led to Iridium's authority to access the 29.25-29.3 GHz segment.¹² In particular, Iridium has argued that the sidelobe signal characteristics of Hughes earth stations might interfere with NGSO MSS feeder link reception without regard to separation distances.¹³ Iridium makes this claim even though these emissions were never raised as an issue in the proceedings that led to Iridium being granted access to the

Rcd 24248, 24259-61 (2002); *Local Multipoint Distribution Service and Fixed-Satellite Services*, Memorandum Opinion and Order in CC Docket No. 92-297, 16 FCC Rcd 11436, 11439-40 (2001).

¹⁰ *Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands*, 17 FCC Rcd at 24259-61.

¹¹ See, e.g., Hughes Opposition to "Emergency Petition to Dismiss or Deny," FCC IBFS File No. SES-MFS-20120426-00395, at 4 (filed June 4, 2012).

¹² See, e.g., Emergency Petition to Dismiss or Deny of Iridium Satellite LLC, FCC IBFS File Nos. SES-MFS-20120322-00290 and SES-AFS-20120426-00396, at 5.

¹³ *Id.*

29.25-29.3 GHz band segment in the first instance. Iridium also has asserted for the first time that the aggregate impact of Hughes earth stations will have a distinct adverse impact on its operations – a particularly odd contention to put forward concerning a band where ubiquitous deployment of user FSS terminals now has been permitted for more than five years.

Iridium's allegations raise fundamental questions regarding Iridium's own capability to operate successfully under the existing FCC rules and associated ITU recommendations that govern spectrum sharing in the 29.25-29.3 GHz band segment.¹⁴ Only concerns regarding its ability to operate on a harmful-interference-free basis under the existing rules would appear to have motivated Iridium to file objections that seek the abrogation of the settled Ka-band rulemaking decisions and licensing actions made during the last decade.

Now, Iridium seeks to exacerbate the situation with its proposed modification to co-locate both an operational satellite and an in-orbit spare in Plane 2, Slot 2 of its NGSO network. While Iridium will no longer be operating using its mission frequencies with the spare satellite in a parking orbit, it would continue to utilize the spacecraft's TT&C feeder link frequencies in the 19.4-19.6 GHz (space-to-Earth) and 29.1-29.3 GHz (Earth-to-space) bands. When two Iridium satellites are in close formation, they will require more feeder link bandwidth because spectrum reuse is not an option – the network control center will be required either to use different portions of the band to transmit to each satellite simultaneously, or will need to increase the amount of time a channel is in use in order to transmit to each satellite sequentially. This will further strain sharing with GSO FSS networks in the 29.25-29.5 GHz band.

¹⁴ *See, e.g.*, 47 C.F.R. §§ 25.203(k) & 25.258.

Against this backdrop, Iridium has failed to cooperate fully to coordinate its system with Hughes, as required under the Commission's Rules.¹⁵ In particular, Iridium has failed to provide any information or technical analysis to demonstrate that its system can successfully share this spectrum with other satellite systems that have been authorized for operation in the band,¹⁶ including Hughes Ka-band GSO FSS network. To satisfy this regulatory requirement, Iridium must make an affirmative showing that includes appropriate simulations showing that its expanded spectrum use will neither cause harmful interference to nor suffer harmful interference from other band users.¹⁷ Iridium's mere assertion that its request "poses no interference risk," without any explanation, is insufficient.

Further, Iridium offers only a minimal public interest justification for the authority it seeks, arguing that "[g]rant will serve the public interest by minimizing the amount of fuel that SV023 expends and extending the satellite's operational life."¹⁸ While preserving satellite fuel is a not-insignificant benefit to Iridium itself, this relative advantage to a single operator must yield to the needs of other users sharing the same spectrum in order to preserve their ability to operate under the Commission's Rules.

Further action on the Iridium MOD Application should be deferred until the applicant engages in the required coordination and provides the necessary demonstration of compatibility. In the alternative, the Commission could either dismiss or defer action on the

¹⁵ 47 C.F.R. § 25.258(a).

¹⁶ 47 C.F.R. § 25.258(c).

¹⁷ *Id.* Hughes notes that from the outset, Iridium has asserted with respect to Section 25.258 that it is "committed to complying with the Commission's rules and policies, [and] to coordinating with all services and systems with which it is required to coordinate" *Iridium LLC*, 16 FCC Rcd 13778, 13782 (¶ 10) (IB 2001), *quoting* Consolidated Opposition and Response of Iridium LLC at 2 (filed February 2, 1998).

¹⁸ Iridium MOD at 4.

portion of the application relating to use of the 29.25-29.3 GHz portion of the TT&C band pending this further demonstration. Iridium's authorization was limited in the past, prior to 2007, to the spectrum at 29.1-29.25 GHz; Iridium could presumably operate within this part of the band for transmissions to its in-orbit spare satellite.

CONCLUSION

For each of the foregoing reasons, Hughes urges the Bureau to deny Iridium's modification application to the extent that it seeks to use the 29.25-29.3 GHz band, or to dismiss this portion of the application without prejudice or, at a minimum, to defer action on this part of the application pending the submission of additional technical information to address the current deficiencies. To date, Iridium has failed to make the necessary showing that it can coordinate its spectrum use with co-frequency GSO FSS networks in this band.

Respectfully submitted,

HNS LICENSE SUB, LLC

By: *s/ Stephen D. Baruch*
Stephen D. Baruch
David S. Keir

Lerman Senter PLLC
2000 K Street, NW, Suite 600
Washington, DC 20006-1809
(202) 429-8970

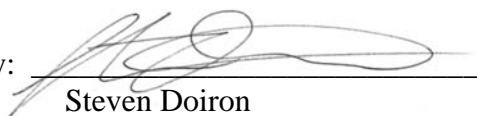
January 22, 2012

Its Attorneys

TECHNICAL CERTIFICATION

I, Steven Doiron, hereby declare, under penalty of perjury, that I am the technically qualified person responsible for the engineering information contained in the foregoing “Petition to Deny, Dismiss or Defer, In Part,” that I am familiar with Part 25 of the Commission's Rules, and that I have either prepared or reviewed the engineering information contained therein and found it to be complete and accurate.

By:



Steven Doiron
Senior Director, Regulatory Affairs
Hughes Network Systems, LLC

Dated: January 22, 2013

CERTIFICATE OF SERVICE

I, Sharon A. Krantzman, do hereby certify that on this 22nd day of January 2013, I sent a copy of the foregoing "Petition to Deny, Dismiss or Defer, In Part" via first-class mail to:

Donna Bethea Murphy
Vice President, Regulatory Engineering
Iridium Satellite LLC
1750 Tysons Boulevard
Suite 1400
McLean, Virginia 22102

s/ Sharon Krantzman

Sharon Krantzman