

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

**REPLY TO OPPOSITION**

HNS License Sub, LLC (“Hughes”), by counsel and pursuant to Section 25.154(d) of the Commission’s Rules (47 C.F.R. § 25.154(d)), hereby replies to the “Opposition of Iridium Constellation LLC” (“Iridium Opposition”) filed on February 6, 2013 in the above-captioned application modification proceeding. In the pending application (“Iridium MOD Application”), Iridium seeks to modify its current non-geostationary mobile-satellite service (“NGSO MSS”) “Big LEO” authorization to permit it to keep a spare satellite (SV023) “in a parking orbit at approximately 778 kilometers, its former mission altitude, rather than in the typical spare satellite storage orbit.”<sup>1</sup>

In its “Petition to Deny, Dismiss or Defer, In Part,” filed on January 22, 2013, Hughes urged the Bureau to deny, or to dismiss without prejudice, the portion of this modification application requesting access to the 29.25-29.3 GHz segment of the 29.1-29.3 GHz NGSO

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<sup>1</sup> Opposition of Iridium Constellation LLC, FCC File No. SAT-MOD-20121207-00211, at 1 (filed February 6, 2013) (“Iridium Opposition”), *citing* Iridium MOD Application.

MSS band for telemetry, tracking and control (“TT&C”).<sup>2</sup> Alternatively, Hughes urged the Bureau, at a minimum, to defer action on this discrete portion of the application pending the submission of additional technical information to address the current deficiencies. In addition, Hughes noted that Iridium had failed to articulate any clear public interest benefits that would otherwise support favorable action on its request.<sup>3</sup>

**I. Iridium Has Failed to Address the Spectrum Sharing Issue Raised in Hughes Petition and To Provide an Appropriate Technical Showing.**

In its Opposition, Iridium asserts that its gateways “do not activate TT&C feeder links with spare satellites such as SV023 while simultaneously communicating with mission satellites, meaning that SV023’s proposed positioning will not increase *bandwidth* requirements in the 29.25-29.3 GHz band shared with GSO FSS networks.”<sup>4</sup> This statement, however, does not address the impact of transmitting sequentially on the same channel, without increasing the actual bandwidth employed. Whether two carriers are used, one for each satellite, or a single carrier is used to carry twice the amount of TT&C traffic, does not materially alter the circumstances with respect to interference sensitivity. The potential impact to NGSO MSS operations is a combination of both the transmit power and the amount of time that the frequency band is in use, as Iridium itself has made clear in its own filings in other proceedings.<sup>5</sup> The consequence of transmitting TT&C commands to two satellites in the same

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<sup>2</sup> The NGSO MSS feeder link uplink spectrum at 29.1-29.3 GHz that is used by Iridium overlaps with the 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.

<sup>3</sup> Hughes Petition at 6.

<sup>4</sup> Iridium Opposition at 1 (emphasis added).

<sup>5</sup> See Reply of Iridium Satellite LLC, FCC File No. SES-MOD-20120403-00326, at 3 (filed July 11, 2012).

area via a single Ka-band channel is effectively a doubling of the amount of time that TT&C information is transmitted in that particular bandwidth. This, in turn, doubles the probability of the type of short-duration in-line interference event that Iridium has claimed could harm its system.

More fundamentally, Iridium has simply failed to comply with Sections 25.203(k) and 25.258 of the Commission's Rules by demonstrating that its operations will continue conform to the established operating environment for NGSO FSS and GSO FSS earth and space stations licensed to use the band.<sup>6</sup> Given the issues that Iridium has raised highlighting its potential difficulty in sharing with the GSO FSS in this band,<sup>7</sup> the burden is on Iridium to demonstrate conclusively by means of a detailed technical showing that any planned alterations in its spectrum use in the 29.1-29.3 GHz feeder link band will not undermine the established Ka-band sharing environment, and that Iridium's new interference concerns do not arise from its own operational changes, including the repositioning of multiple satellites in close formation within the Iridium NGSO MSS constellation, as proposed in the Iridium MOD Application.<sup>8</sup> To date, Iridium has not offered a clear response to this question.

As Hughes has previously detailed on several occasions, when Iridium obtained its initial authorization to operate Ka-band feeder links at 29.25-29.3 GHz for its L-band NGSO MSS system, such operation was premised on Iridium's unqualified assurance that its earth stations would be able to use the band on a shared, non-harmful-interference basis with GSO

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<sup>6</sup> See 47 C.F.R. § 25.203(k) and § 25.258.

<sup>7</sup> See, e.g., Emergency Petition to Dismiss or Deny of Iridium Satellite LLC, FCC File Nos. SES-MFS-20120322-00290, SES-AFS-20120426-00396 (filed June 22, 2012).

<sup>8</sup> Hughes Petition at 5-6.

FSS earth stations.<sup>9</sup> Coordination between NGSO MSS feeder link stations and GSO FSS networks was deemed feasible in the Ka-band rulemaking proceedings, which resulted in designation of the 29.25-29.5 GHz band for ubiquitous GSO FSS earth stations.<sup>10</sup>

Because Iridium's recent actions have called into question its continued adherence to the spectrum sharing mechanisms underpinning the Commission's Ka-band rulemaking proceedings and because the Commission's Rules require modified operations to maintain compliance with the established spectrum sharing environment and all existing coordination agreements,<sup>11</sup> Iridium must be called upon now to reaffirm its compliance with these long-settled norms of operation within the 29.25-29.3 GHz band. Iridium should be required to submit a detailed technical showing that the changes in its operations proposed in the Iridium MOD Application would not increase the sensitivity of its network to harmful interference from other Ka-band licensees or cause interference to other spectrum users.

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<sup>9</sup> See Hughes' Petition at 6. Iridium has indicated from the outset that operational compatibility would be achieved by following "the guidelines set forth in ITU-R Recommendation S.1419." Iridium Amendment, FCC File No. SES-AMD-20070309-00334, at 1 (filed March 9, 2007), *citing* 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."

<sup>10</sup> 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 Rcd 24248, 24259-61 (2002) (premising co-frequency sharing between NGSO FSS TT&C and GSO FSS on the avoidance of main-beam coupling using the techniques outlined in Recommendation ITU-R S.1419). Iridium specifically referenced ITU-R S.1419 in its 2007 Amendment, and included a copy of this document as an attachment to that application.

<sup>11</sup> See, e.g., 47 C.F.R. § 25.203(k) and § 25.258.

## **II. Iridium Has Failed to Demonstrate Convincingly that Its Requested Modification Will Serve the Public Interest.**

Iridium also argues that there is a substantial public interest dimension supporting the expanded spectrum use that it proposes arising from fuel savings that will be allowed by its proposed mode of operation.<sup>12</sup> While Hughes did not discount these benefits in its Petition, it argued that they cannot override a detrimental impact on the current Ka-band sharing environment.<sup>13</sup> Having previously raised the issue of a potential impact upon the Iridium system from Hughes' continued operation of its GSO FSS system in a manner that is entirely consistent with its license and FCC rules and policies, any Iridium proposal to alter its network must include an affirmative demonstration that grant of the relief requested would not have the potential to undermine the public interest benefits provided by Hughes and other licensed spectrum users operating in the shared bands.<sup>14</sup> Economic benefits accorded to one licensee cannot come at the expense of settled spectrum sharing rules and policies and the legitimate operations of Commission licensees established thereunder.

## **III. Conclusion**

For all of the foregoing reasons, as articulated here and in its Petition, Hughes respectfully urges the Bureau to deny or dismiss the portion of the Iridium MOD Application seeking to expand its NGSO MSS feeder link use of the 29.25-29.3 GHz band, or at least to

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<sup>12</sup> Iridium Opposition at 4.

<sup>13</sup> Hughes Petition at 6.

<sup>14</sup> The line of cases in which the Commission has sensibly found that "design decisions should be left to each space station licensee" is inapposite here as the issues raised by the Iridium Application relate to spectrum use not system design. *Cf.* Iridium Opposition at 4, *citing DigitalGlobe, Inc.*, 20 FCC Rcd 15696, 15700 (¶ 9) (Sat. Div. 2005).

defer action on this change until Iridium has updated its application to include the affirmative technical demonstration of conformity with the existing Ka-band sharing environment that is required under the Commission's Rules.

Respectfully submitted,

By: *s/ Stephen D. Baruch*

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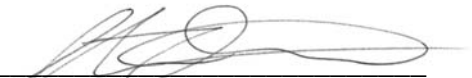
February 19, 2013

*Attorneys for HNS License Sub, LLC*

## **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 "Reply to Opposition," 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: February 19, 2013

**CERTIFICATE OF SERVICE**

I, Sharon A. Krantzman, do hereby certify that on this 19<sup>th</sup> day of February 2013, I sent a copy of the foregoing "Reply to Opposition" via first-class mail to:

Donna Bethea Murphy  
Vice President, Regulatory Engineering  
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*s/ Sharon A. Krantzman*

Sharon Krantzman