

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

In the Matter of	)	
	)	
Application of Loft Orbital Solutions Inc.	)	File Nos. SAT-LOA-20190807-00072
for Authority to Launch and Operate a	)	SAT-AMD-20200527-00063
Non-Geostationary Satellite Orbit Space	)	
Station in the Earth-Exploration Satellite	)	
Service	)	

**REPLY OF IRIDIUM CONSTELLATION LLC**

In the above-captioned Application (the “Application”), Loft Orbital Solutions Inc. (“Loft”) seeks a license for a new non-geostationary satellite orbit (“NGSO”) space station, YAM-2, in the Earth-Exploration Satellite Service. Among other things, Loft proposes to operate intersatellite links (“ISLs”) that would transmit from its satellites to satellites in the Globalstar system using frequencies in the 1613.8-1626.5 MHz portion of the Big LEO band. There is no allocation for ISLs in the 1613.8-1626.5 MHz band, and Loft seeks a waiver to permit its operations in the band.

On August 3, 2020, Iridium Constellation LLC (“Iridium”) filed a Petition to Deny (the “Petition”) Loft’s Application. Loft filed an Opposition on August 13, and Iridium hereby replies.

Iridium raised three issues in its Petition. Iridium addresses below Loft’s arguments on each issue.

**Loft internal inconsistencies.** Iridium noted in its Petition that Loft’s Application is internally inconsistent, because Loft’s Schedule S identifies the entire

1613.8-1626.5 MHz band but Loft's legal and technical narratives contain references both to the entire band and to two discrete frequencies within the band, 1615.65 MHz and 1616.88 MHz.<sup>1</sup>

Loft's reference to the 1613.8-1626.5 MHz band is particularly confusing given Loft's proposal to operate ISLs via satellites in the Globalstar system. That band includes some, but not all, of Globalstar's Big LEO frequencies and includes all of Iridium's Big LEO frequencies. Loft provided no explanation for why it identified frequencies that are exclusive to Iridium.<sup>2</sup>

In its Opposition, Loft asserts its intention should have been clear by virtue of the references in its Application to two discrete frequencies.<sup>3</sup> If Loft only had referred to these two frequencies, Iridium would agree. The problem is Loft also referred multiple times to a wider band that has frequencies on which only Iridium is authorized to operate. Presumably by virtue of these references, the Public Notice states without qualification that Loft proposes to operate in the entire "1613.8-1626.5 MHz (transmit-space-to-space)" band.

In any event, Loft now has clarified that its ISL proposal is limited to the discrete 1615.65 MHz and 1616.88 MHz frequencies. In light of this clarification, which Iridium

---

<sup>1</sup> See, e.g., Loft Legal Narrative, p. 17; Loft Technical Narrative, Section 13.

<sup>2</sup> Iridium is mystified by Loft's suggestion there is only a "trivial" difference, see Opposition at n. 10, between Loft operating on two discrete frequencies in the Globalstar part of the Big LEO band and its operating in a range of frequencies that include exclusive Iridium frequencies. Similarly puzzling is Loft's suggestion, see *id.*, that Iridium should have been aware of the inconsistencies in Loft's Application during the lengthy period before the Application appeared on Public Notice and its related suggestion, see *id.*, that Iridium was required to discuss these inconsistencies with Loft informally rather than bringing them to the Commission's attention in a filing.

<sup>3</sup> See Loft Opposition at 3-5.

assumes will be taken into account in any action taken on Loft's Application, Iridium's issue relating to the inconsistencies in the Application has been resolved.<sup>4</sup>

**Loft non-conforming use.** Loft's proposal to operate ISLs in the Big LEO band is a non-conforming use. Iridium asked, therefore, that Loft be required to operate on an unprotected, non-interference basis.<sup>5</sup>

In its Opposition, Loft states it "is fully aware of the requirement that such [non-conforming] operations would be on a non-harmful interference and unprotected basis."<sup>6</sup> Based on this acknowledgment, which Iridium asks be reflected in any action taken on Loft's Application, Iridium's concern on this issue has been resolved.

**Potential for Loft interference to Iridium.** Iridium expressed concern in its Petition with the potential for OOBE from Loft's proposed ISLs to interfere with Iridium's operations. Loft provided no technical analysis in support of the claim in its Application that it could avoid causing harmful interference. Moreover, although Loft stated its modem "meets the international standards governing out-of-channel emissions," it did not identify which international standards it had in mind. Most importantly, the standard Iridium believed Loft was relying on, ITU-R M.1343-1, which

---

<sup>4</sup> Iridium notes that Loft mischaracterized the relief Iridium sought by virtue of the inconsistencies in Loft's Application. By omitting an ellipsis that would have indicated it was combining two separate sentences in Iridium's Petition, *see* Loft Opposition at n. 14, Loft left the impression Iridium was asking that Loft's Application be denied merely because the Application is internally inconsistent. Iridium said no such thing. The passage Loft misquoted, which was in the introduction to Iridium's Petition, sought denial based on the totality of three deficiencies in Loft's Application, of which internal inconsistencies was only one. *See* Petition at 2. In the section that directly addressed these inconsistencies, on the other hand, Iridium stated only that "the Commission should not process Loft's Application until the Application has been amended to state clearly and consistently which frequencies Loft proposes to use for ISLs." Petition at 3.

<sup>5</sup> *See* Petition at 6.

<sup>6</sup> Opposition at n. 12.

the Commission has not incorporated into its rules, addresses only the potential for MSS terminals *on the Earth* to interfere with MSS satellites in space, and therefore is inapplicable to OOBE between satellites in low earth orbit, like Loft's satellite and Iridium's satellites, which are in closer proximity.

Given this lack of specificity, Iridium conducted its own technical analysis, which it provided with its Petition. Iridium's calculations showed that an MSS modem that satisfies the OOBE of ITU-R M.1343-1, and so may be compatible with Iridium when the modem is located on the Earth, nevertheless can interfere with Iridium when the modem is housed on a Loft space station that is in low earth orbit. In particular, Iridium showed that a single YAM-2 transmission could be responsible for an interference-to-noise (I/N) ratio of +4.0 dB at Iridium's satellite receiver, effectively raising the receiver's noise floor and eliminating 5.5 dB of Iridium's user link margin.

Iridium also distinguished the prior grant of an application filed by Astro Digital, which Loft claimed is a precedent for its ISL proposal.<sup>7</sup> Iridium noted that Astro Digital, based on the performance characteristics of the Globalstar modem it would be using, had committed to suppressing OOBE by at least 24 to 32 dB more than specified in Recommendation ITU-R M.1343-1, unlike Loft, which had committed only to meeting the OOBE in the recommendation.<sup>8</sup> A differential of 24 to 32 dB is substantial.

---

<sup>7</sup> Astro Digital U.S., Inc., IBFS File No. SAT-LOA-20170508-00071.

<sup>8</sup> See Astro Digital's Consolidated Opposition and Response, SAT-LOA-20170508-00071 (Oct. 11, 2017), at 5.

In its Opposition, Loft now commits to the same OOB performance level as Astro Digital rather than the less stringent OOB levels specified in Recommendation ITU-R M.1343-1. Loft states it will use the same Globalstar modem and so should be able to achieve the same 24 to 32 dB reduction. Now that Loft has committed to the same OOB levels as Astro Digital, Iridium's concern is resolved.<sup>9</sup>

### CONCLUSION

In light of the additional information provided in Loft's Opposition, and so long as Loft's ISL operations are limited to two frequencies, 1615.65 MHz and 1616.88 MHz; are subject to operation on an unprotected, non-interference basis; and are in line with the 24 to 32 dB reduction in OOB Astro Digital had committed to in its application, Iridium's concerns are resolved.

Respectfully submitted,

### IRIDIUM CONSTELLATION LLC

Maureen C. McLaughlin  
Vice President, Public Policy  
**IRIDIUM CONSTELLATION LLC**  
1750 Tysons Boulevard, Suite 1400  
McLean, VA 22102  
(703) 287-7518

Joseph A. Godles  
**GOLDBERG GODLES WIENER & WRIGHT**  
1025 CONNECTICUT AVENUE, NW  
SUITE 1000  
Washington, DC 20036  
(202) 429-4900  
Its Attorney

August 20, 2020

---

<sup>9</sup> Loft also questions whether Iridium filed its Petition in good faith. See Loft Opposition at n. 3. As is made evident by this Reply, Loft's assertions are baseless. If Loft's Application had been prepared with the degree of clarity its Opposition belatedly provided, and if Loft had committed at the outset to exceed the OOB performance levels of Recommendation ITU-R M.1343-1 by 24 to 32 dB, rather than just meeting those performance levels, there would have been no need for Iridium to file its Petition.

## CERTIFICATE OF SERVICE

I hereby certify that on this 20th day of August, 2020, a copy of the foregoing Reply of Iridium Constellation LLC was sent via electronic mail to the following:

Alex Greenberg  
Loft Orbital Solutions Inc.  
715 Bryant Street, Suite 202  
San Francisco, CA 94107  
alex@loftorbital.com

Tony Lin  
Hogan Lovells US LLP  
555 13th Street, NW  
Washington, D.C. 20004  
tony.lin@hoganlovells.com

/s/ Joseph A. Godles  
Joseph A. Godles