

REQUESTED WAIVERS

Spaceflight, Inc. ("Spaceflight") respectfully requests the waivers shown below in connection with this application. The Commission has the authority to waive its rules when good cause is shown and the public interest would be served.¹ Good cause may be found when "particular facts would make strict compliance inconsistent with the public interest."² To satisfy the public interest requirement, "the waiver cannot undermine the purposes of the rule, and there must be a stronger public interest benefit in granting the waiver than in applying the rule."³

As demonstrated below, Spaceflight's requests for waiver satisfies these criteria.

I. NON-CONFORMING USE OF FREQUENCIES

Spaceflight requests a waiver of Sections 2.102(a) and 2.106 of the Commission's rules in order to permit it to operate on the following frequency or frequency bands for which its operations would constitute a non-conforming use with the Table of Frequency Allocations:

¹ See *WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C. Cir. 1969), *aff'd*, 459 F.2d 1203 (D.C. Cir. 1972), *cert. denied*, 409 U.S. 1027 (1972).

² *Northeast Cellular*, 897 F.2d at 1166; *see also ICO Global Communications v. FCC*, 428 F.3d 264, 269 (quoting *Northeast Cellular*); *WAIT Radio*, 418 F.2d at 1157-59; *Deere & Company Request for Limited Waiver of Part 15 Rules for Fixed White Space Device*, Order, 31 FCC Rcd 2131, 2134, ¶ 8 (OET 2016) ("*Deere Order*") (quoting *Northeast Cellular*).

³ *Deere Order*, 31 FCC Rcd at 2134, ¶ 8; *see also WAIT Radio*, 418 F.2d at 1157 (stating that even though the overall objectives of a general rule have been adjudged to be in the public interest, it is possible that application of the rule to a specific case may not serve the public interest if an applicant's proposal does not undermine the public interest policy served by the rule); *Kyma Medical Technologies Ltd.*, Order, 31 FCC Rcd 9705, 9707, ¶ 5 (OET 2016).

- (i) 402.9 MHz (receive);
- (ii) 1260 MHz (transmit) (Xona Hosted Payload)
- (iii) 1616.25 MHz (one-way space to space link with Globalstar constellation);
- (iv) 2025-2110 MHz (receive);
- (v) 2200-2290 MHz (transmit);
- (vi) 2456-2478 MHz (receive); and
- (vii) 8025-8400 MHz (transmit)

While most of the proposed operations are consistent with international allocations under the Rules and Regulations of the International Telecommunication Union (“ITU Rules”), for those that are not, Spaceflight also requests waiver of Section 25.112(a)(3) of the Commission’s rules.

In addition to the Commission’s general public interest standard for waiver requests, specifically with regard to waiver requests to permit non-conforming uses, the Commission has stated many times that it “may grant a waiver of the Table of Frequency Allocations for non-conforming uses of spectrum when there is little potential for interference into any service authorized under the Table of Frequency Allocations and when the non-conforming operator accepts any interference from

authorized services.”⁴ That standard has been applied both to permit operations that do not conform to the U.S. Table of Allocations and those that also do not conform to ITU Rules.⁵

In accordance with the Commission’s standard, Spaceflight demonstrates in Sections V.B and V.C of the Application Narrative and, with respect to the Xona payload, in the Interference Analysis Results for Xona Alpha Mission (Exhibit 3) that there is little potential for interference to authorized services. Furthermore, Spaceflight and its customer, Xona accept any interference to its operations on non-conforming use frequencies from authorized services.

As described in Section I of the Application Narrative, Spaceflight’s Sherpa missions, including the AC1 mission that is the subject of this Application, serve the public interest by providing a vital bridge between traditional launch services and satellite services, in this case both through the deployment of individual satellite customers and the hosting of other services on the Sherpa vehicle. Unfortunately, there is as of yet no frequencies specifically dedicated to services like Spaceflight’s Sherpa. The limited UHF spectrum that can be used for such missions on a conforming use basis cannot provide the data rates that are necessary to support the mission, particularly

⁴ *Application for Modification of License to Authorize a Second-Generation NGSO MSS Constellation by Iridium Constellation LLC*, Order and Authorization, 31 FCC Rcd 8676 (IB 2016)(“*Iridium Order and Authorization*”). See also, *Applications by Orbcomm License Corp. For Authority to Modify its Non-Voice, Non-Geostationary Satellite System et al.*, Order and Authorization, 23 FCC Rcd 4804, 4809, para. 15 (IB/OET 2008)

⁵ See *Iridium Order and Authorization* at paras 21-22. As in that case, there is no reason to view Spaceflight’s application as a “place holder” for a future ITU allocation.

given the coordination constraints imposed on use of those frequencies. Thus, Spaceflight must rely upon the frequencies specified in this Request.⁶

Specifically with regard to the proposed use of 1260 MHz for the Xona Hosted Payload, the recent executive order (E.O. 13905) on “Strengthening National Resilience through Responsible Use of Positioning, Navigation, and Timing (PNT) Services” calls for the responsible use of PNT services in critical infrastructure, which includes profiling the risks of current PNT use and the provision of independent sources of PNT where required. Xona’s planned PNT service provides an independent solution for the critical infrastructure referenced in this executive order and Xona will be testing this service during this mission. The use of current civil GPS frequencies (1575.42 MHz, 1227.60 MHz, and 1176 MHz) was deemed not appropriate for Xona’s service for two reasons: 1) these frequencies are already heavily populated by four Global Navigation Satellite System (GNSS) constellations with no certain prospect that a fifth constellation would be able to operate on a non-interference basis, and 2) in order to fulfill the call for independent services, frequency diversity for global PNT solutions ensures that interference with any one frequency does not create a single point of failure for critical infrastructure. With ITU Resolution 606 (WRC-2000), the RNSS band near 1200 MHz was expanded to include frequencies from 1215 to 1300 MHz. Three of the four global GNSS (Galileo, GLONASS, and BeiDou) currently operate in the 1240 to 1300 MHz

⁶ Spectrum requirements for the Xona payload are addressed in the Xona Hosted Payload Mission Description at Exhibit 3.

band and Xona is asking for a waiver to broadcast their demonstration signals at 1260 MHz within the range recognized by the ITU for RNSS services.

II. POSTING OF SURETY BOND

Spaceflight requests a waiver of Section 25.165(a) of the Commission's rules so that it will not be required to post a surety bond as required under that provision.

The Commission's bond requirements have been developed to prevent licensees from warehousing valuable spectrum for an extended number of years without following through on their system plans. Thus, the Commission has explained:

"The Commission has established milestone and bond requirements to deter warehousing by satellite operators before a proposed space station has been launched and begun operations. In this instance, warehousing refers to the retention of preemptive rights to use spectrum and orbital resources by an entity that does not intend to bear the cost and risk of constructing, launching, and operating an authorized space station, is not fully committed to doing so, or finds out after accepting the license that it is unable to fulfill the associated obligations."⁷

By contrast, none of the spectrum rights requested by Spaceflight are sought to be awarded on an exclusive basis. A grant of authorization to Spaceflight would not preclude other applicants from seeking comparable spectrum authorizations.

Warehousing is quite simply not a concern here.

⁷ Part 25 Streamlining Second Report and Order, 30 FCC Rcd at 14735, ¶ 53 (citing, e.g., TMI Communications and Company, Limited Partnership and TerreStar Networks Inc., Application for Review and Request for Stay, Memorandum Opinion and Order, 19 FCC Rcd 12603, 12604, para. 2 (2004); PanAmSat Licensee Corp., Application for Authority to Construct, Launch, and Operate a Ka-Band Communications Satellite System in the Fixed-Satellite Service at Orbital Locations 58° W.L. and 125° W.L., Memorandum Opinion and Order, 16 FCC Rcd 11534, 11537-38, ¶ 12 (2001)).

Second, while the Commission found in the context of small satellite applications that the lack of a warehousing concern does not completely remove the public interest benefits of bond requirements, it also found that the anticipated time period for implementation and overall length of time that individual satellites are expected to operate are relevant considerations. Thus, while the typical NGSO grant is for fifteen years⁸ and specifies a six-year period for implementation of just half of the satellites authorized,⁹ the Commission adjusted its bond requirements for small satellite operators due to the shortened anticipated life of the satellites and anticipated period for implementation. As explained by the Commission in proposing a one-year grace period for small satellite operators to meet milestone requirements before a bond would be required, the Commission stated:

“First, most small satellite operators have a comparatively short window between filing of their application and deployment of their satellites. Applicants for small satellite short-duration missions frequently deploy and begin operations with their satellites within one year or less of obtaining a Commission license. In these instances, once satellites are authorized, there is little opportunity for the applicant to warehouse spectrum that it does not intend to use. Second, as described above, we propose that the estimated on-orbit lifetime of the individual satellites that may be authorized will be five years or less, and that licenses granted under the streamlined process may not be renewed or extended.”¹⁰

⁸ 47 C.F.R. § 25.121(a)(1).

⁹ 47 C.F.R. § 25.164 (b)(1).

¹⁰ In the Matter of Streamlining Licensing Procedures for Small Satellites, Notice of Proposed Rulemaking, 33 FCC Rcd 4152, ¶ 51 (2019). The ultimate rule adopted by the Commission for small satellites provides that individual satellites must have a lifetime from deployment of six years or less. 47 C.F.R. § 25.123(b)(2).

Here, even by contrast to small satellite operations, much less the typical NGSO constellation, the mission life for the AC1 is not anticipated to last more than one year. Further, it is by a single spacecraft.¹¹

A third highly relevant consideration that underlies the Commission's bond requirements is the Commission's concern not to impose a cost that is disproportionate to the overall cost of the missions being licensed.¹² When addressing this concern, the Commission stated: "we note that the cost of maintaining a \$3 million or \$5 million final bond during satellite construction is nominal in comparison with the cost to implement licensed space stations, which generally cost several hundred million dollars each to launch and operate."¹³ For NGSO constellations with costs to construct and launch measured in the billions, a \$5 million bond fee might indeed be viewed as "nominal." But for this kind of Spaceflight mission, such a fee would be excessive and would represent an enormous additional cost of doing business that is nowhere near proportionate to such costs required of NGSO constellations.

A fourth factor that Spaceflight urges the Commission to take into account is the fact that deployment and other on-orbit services ("OOS") are currently licensed by the

¹¹ While Spaceflight anticipates seeking a modification of license to the grant herein requested to add a second mission to include a second hosted Xona payload, even that would make up just two spacecraft, with the first likely launched (and thus the milestone met) before the modification of license to grant authority for a second spacecraft would be acted upon.

¹² See *In the Matter of Amendment of the Commission's Space Station Licensing Rules and Policies, First Order on Reconsideration and Fifth Report and Order*, 19 FCC Rcd 12637, ¶¶ 28-31 (2004).

¹³ *In the Matter of Comprehensive Review of Licensing and Operating Rules for Satellite Services, Second Report and Order*, 30 FCC Rcd 14713, ¶ 60 (2016).

Commission on an STA or experimental authorization basis for which no bonds are required. It would place Spaceflight at a disadvantage *vis a vis* competitors if they were permitted to continue to operate under STAs or experimental authorizations without bond requirements.

Ultimately, it is Spaceflight's hope that the manner by which OOS are authorized will reflect their unique requirements and that, the Commission will determine whether and, if so, under what conditions to assess bond requirements for OOS.¹⁴ In the interim, however, Spaceflight urges that bond requirements developed for missions and constellations an order of magnitude different in length, warehousing potential, and cost from Spaceflight's missions, such as the one that is the subject of this Application, not be imposed. While Spaceflight agrees with the Commission staff that, given the regularity of Spaceflight's deployment missions, it is time for it to move from STAs to operating licenses, that very regularity does not suggest that a bond is necessary to ensure that Spaceflight continues its missions.

III. MODIFIED PROCESSING ROUND RULES

Spaceflight requests waiver of Sections 25.156 and 25.157 of the Commission's rules, which provide for the processing of "NGSO-like satellite systems" under a modified processing round framework. Spaceflight requests instead that this

¹⁴ Spaceflight would not object to a condition making its grant subject to any bond requirement that may be ultimately developed for deployment and other OOS missions.

Application be processed pursuant to the first-come, first-served procedure adopted for “GSO-like satellite systems” under Section 25.158 of the Commission’s rules.

The Commission has waived the modified processing round requirement and allowed NGSO satellite systems to be processed on a first-come, first-served basis on multiple occasions.¹⁵ As the Commission explained in *Swarm*, “[t]he purpose of the processing round procedure is to prevent one applicant from unreasonably precluding additional entry by other operators in the requested frequency band.”¹⁶ Because the nature of Swarm’s proposed use, in particular its use of only a fraction of the relevant spectrum, would not preclude other operators from using the same spectrum, the Commission found good cause for waiving its processing round rules.¹⁷

Similarly in the *Space Imaging, LLC Order* the Commission waived its processing round requirements, concluding that authorizing Space Imaging to operate in its requested EESS frequency bands would not preclude other NGSO operators from operating in those bands because EESS NGSO operators are generally capable of sharing spectrum in the same frequency.¹⁸ Subsequent waivers have been granted to

¹⁵ See, e.g., *Swarm Technologies, Inc., Memorandum Opinion, Order and Authorization*, 34 FCC Rcd 9469, ¶ 16 (2019) (“*Swarm*”); *Spire Global, Inc. SAT-LOA-20151123-00078* (granted Oct. 14, 2016) (“*Spire*”); *Planet Labs, Inc., SAT-LOA20130626-00087* (granted Dec. 3, 2013) (“*Planet*”); *Skybox Imaging, Inc., SAT-LOA-20120322-00058* (granted Sep. 20, 2012) (“*Skybox*”); *Space Imaging, LLC, Declaratory Order and Order and Authorization*, 20 FCC Rcd 11694, 11968 (2005) (“*Space Imaging Order*”);

¹⁶ *Swarm* at ¶16.

¹⁷ *Id.*

¹⁸ See *Space Imaging, LLC, Declaratory Order and Order and Authorization*, 20 FCC Rcd 11694, 11968 (2005) (“*Space Imaging Order*”).

other EESS operators, each premised on a showing that such operators would be capable of sharing with current and future NGSO systems operating in the same frequency bands.¹⁹

Spaceflight's spectrum use would be limited both in time and location. Spaceflight is capable of both sharing the spectrum on which it proposes to operate and operating on a non-interference basis. A grant of Spaceflight's requested authorization would not preclude later grants of applications for the same spectrum for which authorization is herein requested. The underlying basis of the processing round rules would not be served by applying them under these circumstances.

IV. Schedule S

As the altitude for the Sherpa-AC1 is still to be determined, Spaceflight provides representative information in the Schedule S for the operation of the Sherpa-AC1 at 525 km. If and to the extent required, Spaceflight requests a waiver of Section 25.114(c) of the Commission's rules to the extent that to accommodate such launch flexibility its Schedule S submission does not fully conform to that rule.

¹⁹ See *BlackSky, Spire, Planet, Skybox*.

For the reasons stated herein, Spaceflight respectfully submits that good cause has been shown for the waiver of each of the Commission rules for which such waiver is requested herein.