

WAIVER REQUESTS

Pursuant to Section 1.3 of the Commission’s rules, the Commission may waive its rules for good cause shown.¹ “Waiver is appropriate if special circumstances warrant a deviation from the general rule and such deviation would better serve the public interest than would strict adherence to the general rule,” including “more effective implementation of overall policy.”² In determining whether waiver is appropriate, the Commission should “take into account considerations of hardship, equity, or more effective implementation of overall policy.”³ As shown below, there is good cause for the Commission to grant a waiver of Sections 2.106 and 25.157 of the Commission’s rules and, to the extent necessary, the *Ka-band Plan* and various limitations in the Commission’s Schedule S.

1. Waiver of Section 2.106 and the *Ka-band Plan* for Feeder Links

As feeder links for its MSS service, SpaceX intends to use the gateway links in the Ka-band and E-band spectrum already requested as part of its Gen2 FSS system. Some of the Ka-band spectrum is allocated internationally and domestically to the FSS and MSS (i.e., 19.7-20.2 GHz (downlink) and 29.5-30.0 GHz (uplink)).⁴ Domestically, however, the *Ka-band Plan* adopted by the Commission does not include this MSS allocation for these bands,⁵ and the remainder of the Ka-band spectrum licensed to SpaceX is allocated to FSS only. Similarly, most of the E-band spectrum (i.e., 71-74 GHz (downlink) and 81-84 GHz (uplink)) is allocated internationally and

¹ 47 C.F.R. § 1.3. See also *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969); *Ne. Cellular Tel. Co. v. FCC*, 897 F.2d 1164 (D.C. Cir. 1990).

² *GE American Communications, Inc.*, 16 FCC Rcd. 11038, ¶ 9 (IB 2001) (quoting *WAIT Radio*, 418 F.2d at 1159).

³ *WAIT Radio*, 418 F.2d at 1159.

⁴ See 47 C.F.R. § 2.106.

⁵ *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, 32 FCC Rcd. 7809, Appendix B (2017) (“*Ka-band Plan*”).

domestically for both FSS and MSS, but a portion does not include an MSS allocation.⁶ Accordingly, to the extent necessary, SpaceX requests that the Commission waive Section 2.106 and the *Ka-band Plan* to allow designation of these bands for use as MSS feeder links.

Waivers of Commission allocations are generally granted “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.”⁷ Although in this case the allocation in much of this spectrum is consistent with SpaceX’s proposed use, the same approach could be used for waiver of the *Ka-band Plan*—and SpaceX’s request would satisfy its requirements. As a practical matter, there will be no distinction between FSS and MSS operations in these bands, as they will have the same characteristics and SpaceX will use directional gateway antennas in both cases. From a technical perspective, the use of this spectrum for NGSO MSS operations would not be distinguishable from its use for NGSO FSS operations and thus there would be no potential for interference. In addition, SpaceX would agree to operate on a non-interference, non-protected basis.

The Commission has previously granted a similar waiver for the NGSO system operated by O3b Limited (“O3b”), finding that the waiver would serve the public interest in light of the lack of distinction between MSS and FSS operations in the band.⁸ However, the Commission imposed two conditions with this waiver. First, although there are no equivalent power flux-density (“EPFD”) limits that apply to NGSO MSS systems, the Commission conditioned O3b’s waiver on complying with the applicable EPFD limits for FSS operations in the United States in the 19.7-

⁶ See 47 C.F.R. § 2.106.

⁷ *The Boeing Company*, DA 01-3008, ¶ 12 & n.48 (IB & OET rel. Dec. 21, 2001) (citations omitted).

⁸ See *O3b Limited*, 33 FCC Rcd. 5508, ¶¶ 21-22 (2018) (“*O3b Authorization*”), *reconsideration denied*, 35 FCC Rcd. 1631 (2020) (“*O3b Recon. Order*”).

20.2 GHz and 29.5-30.0 GHz bands, even when these operations are conducted within the MSS.⁹ Second, the Commission noted that it has not adopted sharing criteria between NGSO FSS and NGSO MSS systems in the 19.7-20.2 GHz and 29.5-30.0 GHz bands, and accordingly required O3b's NGSO MSS operations in these bands in the United States to be conducted on a non-interference, non-protected basis with respect to other NGSO FSS operations in these bands.¹⁰ In addition, O3b's authorization was "subject to change as the result of future Commission rulemaking decisions, including any that address technical and/or service rules for MSS or MSS feeder link bands."¹¹ SpaceX is willing to accept similar conditions in connection with its waiver requests as well.

2. Waiver of Modified Processing Round Requirement in Section 25.157

Under Section 25.157 of the Commission's rules, applications for authority to launch and operate an NGSO-like system are ordinarily processed under a "modified processing round" framework, which would use a band splitting sharing mechanism to divide spectrum among competing applicants.¹² The primary purpose of the processing round procedure is to prevent one applicant from unreasonably precluding additional entry by other satellite operators in the requested frequency band.¹³ The Commission, however, has waived the processing round requirement and allowed NGSO systems access to the entire frequency band when doing so will not preclude additional entry.¹⁴ SpaceX's proposed 2 GHz MSS system is designed to be robust

⁹ *O3b Authorization* ¶ 21.

¹⁰ *See id.* ¶¶ 21-22.

¹¹ *O3b Recon. Order* ¶ 6.

¹² *See* 47 C.F.R. § 25.157.

¹³ *Amendment of the Commission's Space Station Licensing Rules and Policies*, 18 FCC Rcd. 10760, ¶ 25 (2003).

¹⁴ *See, e.g., Space Imaging, LLC*, 20 FCC Rcd. 11964, ¶ 10 (IB 2005) (waiving processing round requirements for an NGSO-like system because the rule's "purpose . . . of preserv[ing] opportunities for competitive market

and capable of sharing with future networks in a variety of ways, and thus will not prevent future entry by other parties that may seek to provide MSS in the band.

As importantly, a waiver of the processing round rule would further important public interests—namely, the efficient use of spectrum and provision of new and valuable services to the public—in unique and important ways. First, 2 GHz MSS spectrum has been underutilized for an especially long time—indeed, it has been a decade since the spectrum was allocated for this purpose. Accordingly, the public interest in promoting its efficient use for MSS is especially substantial in this case. In addition, SpaceX’s network will allow new users and businesses to share the benefits of mobile connectivity where previously it was unavailable or economically infeasible. As a result, prompt licensing will enable SpaceX to provide not just *another* option, but the *only* option for many critical mobile applications, including those that serve rural America and polar regions. Finally, SpaceX’s demonstrated commitment to launching new NGSO satellite services at an accelerated cadence makes these benefits less speculative and more significant than in the typical case, promising an expedited revitalization of an MSS service that has been allowed to languish for far too long. In short, the sooner the SpaceX 2 GHz MSS system is licensed, the sooner this spectrum can be put to greater use, and the sooner consumers will benefit from newly available satellite connectivity.

Accordingly, as it has done with other NGSO-like systems, the Commission should grant SpaceX’s request for a waiver of the processing round rule.

entry . . . [would] not apply”); *DigitalGlobe, Inc.*, 20 FCC Rcd. 15696, ¶ 8 (IB 2005) (same); *Iridium Constellation LLC*, 31 FCC Rcd. 8675, ¶ 41 (IB & OET 2016) (same).

3. Waiver of Limitations in Schedule S

As required by the Commission's rules,¹⁵ SpaceX has submitted with this application a completed Schedule S, which contains certain technical information in a prescribed form. However, SpaceX has found that it cannot accurately describe its system in certain respects due to limitations in Schedule S itself. Below we discuss three aspects of the 2 GHz MSS system that fall into this category as well as how the Schedule S was completed under these limitations. To the extent necessary, SpaceX requests that the Commission waive these aspects of Schedule S in light of these limitations.¹⁶

First, because SpaceX does not seek to change the orbital characteristics of the satellites that are the subject of this modification, SpaceX is not required to re-submit this information in this application.¹⁷ However, Schedule S requires the submission of orbital information. Accordingly, SpaceX has provided a sample of that data in the electronic version of Schedule S merely to satisfy the validation requirements of that form, but, for the avoidance of doubt, does not seek to alter these already-authorized orbital parameters. As a result, not all aspects of the system will be accurately captured in Schedule S. For example, the "Total Number of Satellites in the Active Constellation" will reflect the number provided in the sample rather than the total number in the 2 GHz MSS system.

Second, Section 25.114(c)(4)(v) requires both the minimum and maximum saturation flux density ("SFD") values for each space station receive antenna that is connected to transponders. The concept of SFD only applies to "bent pipe" satellite systems, and thus is not relevant to the 2

¹⁵ See 47 C.F.R. § 25.114(a)(1).

¹⁶ The Commission has previously granted a similar request where SpaceX implemented a workaround for each of the limitations it identified in Schedule S. See *Space Exploration Holdings, LLC*, 34 FCC Rcd. 12307, ¶ 17 (IB 2019).

¹⁷ See 47 C.F.R. § 25.117(c).

GHz MSS system. However, the Schedule S software does not allow an entry of “not applicable.” Instead, it requires a numerical entry for SFD, which must be different for the maximum and minimum values. In order to accommodate this requirement, SpaceX has entered values of “0” and “-0.1” in Schedule S with respect to these parameters.

Third, beams used by SpaceX satellites will be divided into small channels that, depending on utilization and other factors, may be bonded into channels as large 20 MHz. However, Schedule S only permits entry of a single, static channel plan. Accordingly, SpaceX has provided an example of one possible channel plan on Schedule S.