

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of)
Lynk Global, Inc.) IBFS File No.: SAT-LOA-20210511-00064
Application to deploy and operate space stations) Call Sign: S3087
filed under the FCC streamlined small space)
station authorization process, 47 CFR § 25.122)

ORDER AND AUTHORIZATION

Adopted: September 16, 2022

Released: September 16, 2022

By the Chief, International Bureau:

I. INTRODUCTION

1. In this Order and Authorization we grant, with conditions, the application of Lynk Global, Inc. (Lynk) to construct, deploy, and operate non-geostationary orbit (NGSO) satellites in low-Earth orbit (LEO). Lynk plans to provide satellite connectivity for user terminals currently operating as part of terrestrial Global System for Mobile Communications (GSM) and Long Term Evolution (LTE) cellular services. Specifically, we grant, with conditions, the application for operations for ten satellites, identified as Lynk Towers 1 through 10, which would operate using frequencies in portions of the 617-960 MHz (space-to-Earth) and 663-915 MHz (Earth-to-space) bands with earth stations outside the United States. Lynk is also authorized to operate feeder links and conduct in-band telemetry, tracking, and command (TT&C) operations with the satellites using the 20.1-20.2 GHz (space-to-Earth) and 29.9-30.0 GHz (Earth-to-space) bands, contingent on completion of coordination with other Ka-band systems. Lynk is also authorized to conduct TT&C operations using the 2200-2290 MHz (space-to-Earth) and 2025-2110 MHz (Earth-to-space) bands for emergency backup operations, contingent on completion of coordination with Federal systems. In connection with this grant, we address the Petition to Deny filed by Iridium Constellation LLC (Iridium), the informal objection filed by Hughes Network Systems, LLC (Hughes), and the comments filed by Inmarsat Inc. (Inmarsat), Kuiper Systems LLC (Kuiper), and the National Radio Astronomy Observatory (NRAO).

II. BACKGROUND

2. Application. Lynk requests authority to deploy ten NGSO satellites that will provide connectivity for typical end user handsets operating with GSM and LTE and using frequencies already used for terrestrial cellular services in the 617-960 MHz frequency range.1 Lynk proposes to operate an initial satellite network that would enable only text message communications in countries in which Lynk has obtained agreements with mobile network operators (MNOs) and requisite regulatory authorities to

1 Lynk Global, Inc., IBFS File No. SAT-LOA-20210511-00064 (Lynk Application), Narrative at 2. Lynk initially classified both its service links and feeder links as mobile-satellite service (MSS) operations. However, following comments filed by Iridium Constellation, LLC, Lynk requested that the Commission instead classify its feeder links as fixed-satellite service (FSS) operations and that the application be considered revised accordingly. See Lynk Global, Inc., Consolidated Response at 10-11 (filed Oct. 22, 2021) (Lynk Reply).

provide service.² Lynk states that its system would consist of (1) communications between Lynk's satellites and fixed earth stations at specific locations both within and outside of the United States for feeder links and TT&C, and (2) service links connecting off-the-shelf cellular devices with Lynk's satellites using ultra high frequency (UHF) bands.³ Lynk states that it is not seeking access to any UHF bands to operate in the United States at this time.⁴

3. Of the ten satellites for which Lynk seeks authorization in this application, Lynk deployed and began operating the first satellite, Lynk Tower 1, in April 2022 pursuant to experimental authority.⁵ Lynk Tower 1 was deployed to an altitude of approximately 515 kilometers, inclination of 97.4 degrees, and Local Time of Descending Node (LTDN) of 11:00 EST.⁶ Lynk has stated that it intends to launch three more satellites in 2022,⁷ and six additional satellites in 2023,⁸ though the launch schedule is subject to change.⁹ To date, Lynk has conducted operations with Lynk Tower 1 under experimental authority.¹⁰

4. *Oppositions and Other Comments.* Before Lynk's application was placed on public notice, NRAO commented in opposition to grant of the application.¹¹ Lynk's application was subsequently placed on public notice.¹² In response, Iridium filed a Petition to Deny.¹³ Also in response

² Lynk Global, Inc., Response to FCC's Request For Information at 14 (filed Aug. 27, 2021) (Lynk Response to FCC's Request). To date, Lynk states that it has signed commercial agreements with 11 MNOs around the globe. See Letter from Shawn Marcum, Director of Legal and Regulatory Affairs, Lynk, to Marlene H. Dortch, Secretary, FCC at 3 (dated June 3, 2022) (June 3 Ex Parte).

³ Lynk Application, Technical Annex at 2.

⁴ Lynk Application, Narrative at 11.

⁵ See ELS File No. 0656-EX-CN-2021 (granted Nov. 19, 2021); Letter from Shawn Marcum, Director of Legal and Regulatory Affairs to Lynk, to Marlene H. Dortch, Secretary, FCC at 1 (dated Apr. 12, 2022) (April 12 Ex Parte).

⁶ See Letter from Shawn Marcum, Director of Legal and Regulatory Affairs, Lynk, to Marlene H. Dortch, Secretary, FCC at 1 (dated Aug. 17, 2022) (August 17 Letter).

⁷ See *id.* Lynk has received experimental authority to operate Lynk Towers 2, 3, and 4. See ELS File No. 0113-EX-CN-2022 (granted May 25, 2022) (granting experimental authority for Lynk Towers 3 and 4); ELS File No. 1117-EX-CN-2021 (granted May 23, 2022) (granting experimental authority for Lynk Tower 2).

⁸ See August 17 Letter at 1.

⁹ Lynk Application, Technical Annex at 4; Narrative at 8.

¹⁰ See ELS File No. 0656-EX-CN-2021 (granting experimental authority for Lynk Tower 1); see also Lynk Application, Narrative at 3, 19.

¹¹ National Radio Astronomy Observatory, Objection (NRAO Objection). Because it was filed prior to the public notice period, we will treat NRAO's pleading as an informal objection rather than a petition to deny. See 47 CFR § 25.154(b).

¹² *Public Notice*, Satellite Policy Branch Information, Report No. SAT-01577 (Sept. 10, 2021). The proceeding was also designated as "permit-but-disclose." *Public Notice*, Satellite Policy Branch Information, Report No. SAT-01562 (June 25, 2021).

¹³ Iridium Constellation LLC, Petition to Deny (Iridium Petition).

to the public notice, Hughes filed an informal objection,¹⁴ and Inmarsat and Kuiper filed comments regarding Lynk's application.¹⁵

III. DISCUSSION

5. After review of the record, we conclude that grant of Lynk's application to construct, deploy, and operate ten satellites, namely Lynk Towers 1 through 10, as conditioned, will serve the public interest. Below we discuss the various issues raised by Lynk's application – including eligibility under the small satellite process, the Petition to Deny filed by Iridium, and the informal objections and comments filed in the proceeding. We also discuss and adopt conditions to address potential interference concerns with the authorized operations.

6. In connection with its request, Lynk seeks waivers of the U.S. Table of Frequency Allocations, section 2.106 of the Commission's rules and the Ka-band plan,¹⁶ and waiver of the Commission's rule requiring submission of certain technical information in Form 312, Schedule S.¹⁷ A waiver is appropriate only if both (1) special circumstances warrant a deviation from the general rule, and (2) such deviation better serves the public interest.¹⁸ Generally, the Commission may waive any rule if there is good cause to do so and, in making this determination, may take into account considerations such as hardship, equity, or more effective implementation of overall policy on an individual basis.¹⁹ We address Lynk's waiver requests below.

7. *Benefits of Proposed Service.* We agree with Lynk that it is in the public interest to begin making its services accessible with the goal of providing connectivity in remote areas during emergencies, contingent upon obtaining appropriate approval in the relevant jurisdiction and contingent

¹⁴ Hughes Network Systems, LLC, Objection (Hughes Objection). Although Hughes' pleading was titled "Petition to Deny," we will consider it an informal objection because it lacks an affidavit required by our rules. 47 CFR § 25.154(a)(4), (b)(1).

¹⁵ Comments of Inmarsat Inc. (Inmarsat Comments); Comments of Kuiper Systems LCC (Kuiper Comments). An additional party, Omnispace, LLC (Omnispace), submitted filings in this proceeding to discuss 3GPP's standardization of non-terrestrial 5G network operations and how "[e]mbracing 3GPP standards and encouraging non-terrestrial operations in the S-band... offer[] a better strategy for overcoming traditional barriers to deploying mass-market services that integrate satellite and terrestrial networks than ad hoc proposals to operate non-terrestrial networks in spectrum bands reserved for terrestrial uses." See Letter from Mindel De La Torre, Chief Regulatory and International Strategy Officer, Omnispace, to Marlene H. Dortch, Secretary, FCC (dated May 24, 2022). Omnispace further requests that we exclude consideration of service link spectrum from any decisions on the Lynk application. See Letter from Mindel De La Torre, Chief Regulatory and International Strategy Officer, Omnispace, to Marlene H. Dortch, Secretary, FCC (dated Aug. 29, 2022). We decline to require 3GPP standards or exclude consideration of service link spectrum in this instance, as we are granting Lynk limited authority to operate a small number of satellites within our current regulatory framework, conditioned in a manner that will not result in harmful interference to other operators or existing terrestrial networks, as discussed in more detail below.

¹⁶ 47 CFR § 2.106.

¹⁷ See 47 CFR § 25.114(c).

¹⁸ *NetworkIP, LLC v. FCC*, 548 F.3d 116, 125-128 (D.C. Cir. 2008) (citing *Northeast Cellular Telephone Co.*, 897 F.2d 1164, 1166 (1990)).

¹⁹ 47 CFR § 1.3. See *Northeast Cellular*, 897 F.2d at 1166 ("[A] waiver is appropriate only if special circumstances warrant a deviation from the general rule and such deviation will serve the public interest. The agency must explain why deviation better serves the public interest and articulate the nature of the special circumstances to prevent discriminatory application and to put future parties on notice as to its operation"); *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969) ("The agency's discretion to proceed in difficult areas through general rules is intimately linked to the existence of a safety valve procedure for consideration of an application for exemption based on special circumstances.").

upon completion of coordination with other operators.²⁰ Lynk has provided information that demonstrates that, with the operations authorized by this license, it would be able to provide limited but useful connectivity in some areas.²¹

8. *Eligibility for Small Satellite Licensing.* We conclude that Lynk is eligible to be licensed at this time pursuant to the small satellite process based on the information provided in the Lynk application.²² The Commission's rules outline the requirements that an operator must meet in order to apply for a license pursuant to the small satellite streamlined licensing procedure.²³ Lynk specifies in its application that its proposed operations meet the Commission's section 25.122 eligibility requirements.²⁴

9. Section 25.122(c)(10) of the Commission's rules specifies that operations must be compatible with existing operations in the authorized frequency bands and not materially constrain future space station entrants from using the authorized frequency bands.²⁵ Hughes argues that Lynk does not indicate how or whether it could share the relevant spectrum with other satellite operators.²⁶ With respect to its Ka-band operations, Lynk states that only a modest amount of Ka-band spectrum is required for its small satellite system – and that during any given communications session, up to 50 MHz out of the requested 100 MHz may be used for uplink and downlink, and that Lynk will have ample room to move operations and reconfigure its operations around the world in the requested Ka-band frequencies to accommodate current and future operators.²⁷ Lynk further states that its communications with its Ka-band earth stations will be periodic, and under a scenario involving deployment of all ten space stations, operations during all available passes would not exceed 270 minutes per day, or 18.75% of the time.²⁸ Lynk also indicates that it can coordinate its Ka-band operations in advance as well as dynamically in near real-time depending on the preference of the operators with whom it is coordinating.²⁹ For emergency backup operations in the S-band, Lynk suggests that it can easily share the requested spectrum for similar reasons, and states that use of the S-band links will be limited to when a satellite is not under sufficient control for utilization of the primary Ka-band TT&C system.³⁰ Taking these factors into consideration, we find that for purposes of satisfying the small satellite processing criteria, and as

²⁰ See Lynk Reply at 5. Hughes argues that there is a lack of public interest justification because Lynk would need many more satellites to provide a usable service and that the instant application is a proof of concept. See Hughes Network Systems, LLC Reply at 4 (Hughes Reply); Letter from J.G. Harrington, Counsel to Hughes, to Marlene H. Dortch, Secretary, FCC (dated Feb. 24, 2022) (Hughes February 24 Ex Parte).

²¹ See Letter from Shawn Marcum, Director of Legal and Regulatory Affairs, Lynk, to Marlene H. Dortch, Secretary, FCC (dated Apr. 21, 2022), Attachment A (demonstrating the average number of overpasses per day at MNO partner locations for one, two, or ten satellites).

²² See *Streamlining Licensing Procedures for Small Satellites*, 34 FCC Rcd 13080, 13082, paras. 10, 16 (2019) (*Small Satellite Report and Order*).

²³ 47 CFR § 25.122.

²⁴ Lynk Application, Narrative at 3-6, 8-9, 19; Technical Annex at 2, 5, 9, 11, 15, 20, 22, 25, 29, 32, 36-37; ODAR at 10, 12, 15.

²⁵ 47 CFR § 25.122(c)(10). See also 47 CFR § 25.122(d) (requiring that applicants provide in narrative format a description of the means by which the requested frequency spectrum could be shared with both current and future operators, thereby not materially constraining other operations in the requested frequency bands).

²⁶ Hughes Opposition at 3.

²⁷ Lynk Application, Technical Annex at 6.

²⁸ *Id.*

²⁹ *Id.* at 7.

³⁰ *Id.* at 7-9. As discussed below, S-band operations are limited to emergency backup TT&C.

conditioned, Lynk will be compatible with existing operations in the Ka- and S-band frequencies, and will not materially constrain future space station operators.³¹

10. As to use of the UHF band, Hughes argues that Lynk does not indicate how or whether it could share the relevant spectrum with other satellite operators, and that because the record does not address the impact of interference with a fully-deployed Lynk system and other systems that might offer services in the relevant terrestrial bands, granting Lynk's application could result in the Commission granting a *de facto* monopoly (or duopoly if AST&Science, LLC's (AST&Science) application is also granted).³² Lynk's application specifies, however, that even in areas where Lynk has reached agreements with MNOs, Lynk's access will be directed by the MNO partners, who will have the ability to contract with multiple satellite operators to utilize the spectrum for which the MNOs hold terrestrial licenses.³³ Lynk also notes that Lynk can "adjust" the locations of cells created by the service beams to support any "new entrants" that may come after Lynk.³⁴ Moreover, to prevent the creation of a monopoly or duopoly, we adopt the condition that Lynk shall not acquire or enjoy the exclusive right of handling telecommunications using satellite connectivity in bands allocated to terrestrial mobile services for communication to or from the United States, its territories or possessions, and any other country or territory by reason of any concession, contract, understanding, or working arrangement to which Lynk or any persons or companies controlling or controlled by Lynk are parties.³⁵ Accordingly, we conclude that Lynk can satisfy the small satellite criteria for its operations in the UHF bands as well, as conditioned, and reject Hughes' arguments on this point. We next address operations in the requested frequency bands in more detail, including how Lynk will address the potential for interference to authorized users.

11. *Use of Terrestrial Wireless UHF Frequencies.* This authorization will enable Lynk to provide service under limited circumstances and includes specific conditions that Lynk proposed in order to ensure operations do not cause interference. With respect to use of the UHF bands, Lynk will provide service outside of the United States with at most ten satellites only where Lynk has obtained both agreements with MNOs and requisite regulatory authority to provide satellite service.³⁶ Lynk's satellites will only be capable of intermittent coverage, as Lynk states that its satellites will provide service to at most 6% of the world and for no more than 90 minutes non-consecutively per day in any particular location.³⁷ This grant is conditioned on Lynk conducting operations on an unprotected, non-interference basis with respect to authorized services in and adjacent to the subject bands, including any affected operations in the United States.³⁸ Given these limits and conditions, and contrary to Hughes' various arguments, we find it unnecessary to deny or defer action on the Lynk application until the Commission can conduct a rulemaking or related proceeding to determine whether the Commission should adopt rules

³¹ We discuss further specific conditions related to sharing in these frequency bands.

³² Letter from Jennifer A. Manner, Senior Vice President, Regulatory Affairs, Hughes, to Marlene H. Dortch, Secretary, FCC at 1 (dated June 28, 2022) (Hughes June 28 Ex Parte)

³³ See Letter from Shawn Marcum, Director of Legal and Regulatory Affairs, Lynk, to Marlene H. Dortch, Secretary, FCC (dated Mar. 21, 2022), Attachment B at 7 (March 21 Ex Parte).

³⁴ See *id.* at 49.

³⁵ See 47 U.S.C. § 765g.

³⁶ Lynk Response to FCC's Request at 14. Lynk states that it has signed commercial agreements with 11 MNOs around the globe to date. See June 3 Ex Parte at 3.

³⁷ See Lynk Response to FCC's Request at 6-7.

³⁸ See ITU RR 4.4; Lynk Reply at 4 ("Lynk clearly acknowledges . . . that its proposed operations are not generally allocated in the UHF frequency bands and that Lynk's operations will necessarily be conducted on a non-protected, non-interference basis.") (footnote omitted).

of general applicability to permit use of terrestrial wireless frequencies for satellite communications and how such services should be regulated.³⁹

12. We also find that Lynk has shown how it will avoid causing harmful interference to terrestrial operators, including non-participating MNOs, in adjacent geographic areas.⁴⁰ Hughes cites to AST&Science's pending application with the Commission as an example of other operators seeking to provide the same type of service, which according to Hughes supports the need for a rulemaking before grant of this application.⁴¹ We are persuaded by Lynk's explanation that under its proposal, it will only be able to deploy beams on frequencies that are dictated by the MNO partner in the contract, which will optimize MNO network performance and limit interference.⁴² In reaching this determination, we consider that the MNO partner is subject to the interference rules of the foreign regulatory administration. Lynk further explains that it plans to deploy MNO partner-customer spectrum using either (1) spectral orthogonality using latent spectrum or (2) geospatial orthogonality using less deployed spectrum, both without interference.⁴³ Lynk also demonstrates that, should it utilize overlapping co-channel cells for spectrum deployment, which it is not targeting to use, there will be less than a 0.00036% chance of harmful interference.⁴⁴ In calculating the risk of harmful interference with use of overlapping co-channel cells, Lynk considered varying geospatial dimensions, time dimensions, and frequency dimensions.⁴⁵

13. We grant this application regardless of whether Lynk is providing a "commercial" service with these ten satellites. Hughes argues that Lynk is proposing a system that will not support commercial operations, and so its application should be treated as a developmental or experimental application rather than a regular license application.⁴⁶ However, there is nothing in our rules that prevents a largely developmental or experimental system from receiving part 25 authorization. In particular, we have established that the streamlined small satellite process is "not limited to commercial or non-commercial applications."⁴⁷

14. We consider only the instant application before us, a grant of ten satellites that will provide service outside of the United States, in making this evaluation since that is the only application before the Commission from Lynk. Hughes further expresses concern that, while Lynk's current application does not request use of its satellites to provide supplemental wireless coverage in the United States, Lynk will eventually request such use,⁴⁸ and Lynk provided insufficient information regarding

³⁹ See Hughes Objection at 1, 4; Hughes February 24 Ex Parte. As we discuss, we find that Lynk is able to operate its ten small satellites for service outside the United States within our current regulatory framework which includes authority to impose license conditions.

⁴⁰ Hughes argues that Lynk has not sufficiently shown that its service will not cause harmful interference to terrestrial wireless service. See Hughes Objection at 3; Hughes Reply at 2-3; Hughes June 28 Ex Parte at 2.

⁴¹ Hughes Objection at 1 n. 1, 3 n. 7.

⁴² See March 21 Ex Parte, Attachment B at 9. Lynk also states that this is so for any other space cell tower operator under contract with an MNO. We do not consider this claim herein. See *infra* para. 14.

⁴³ See March 21 Ex Parte, Attachment B at 52.

⁴⁴ See *id.* at 20-32, 52.

⁴⁵ See *id.* at 20-32.

⁴⁶ See Letter from Jennifer A. Manner, Senior Vice President, Regulatory Affairs, Hughes, to Marlene H. Dortch, Secretary, FCC (dated Jul. 22, 2022).

⁴⁷ See *Small Satellite Report and Order*, 34 FCC Rcd at 13080, para. 11.

⁴⁸ Hughes Objection at 2; Hughes Reply at 2.

ultimate deployment plans.⁴⁹ However, we consider Lynk's operation of ten satellites to be a fully deployed system.

15. We note that our approval for Lynk to use frequencies in portions of the UHF bands is limited to transmissions with earth stations outside the United States, and is based on a consideration of the specific facts and circumstances of this case. We issue this decision without prejudice to action on any applications to provide similar service in the United States. Further, we note that nothing in this decision is intended to prejudge whether it is in the public interest to permit the provision of similar services within the United States, such as the pending AST&Science application. Also, since the AST&Science application remains pending, we will not address the merits of that application here or assume grant of that application.

16. Given this limited scope of authority granted herein, we conclude that a rulemaking regarding the use of terrestrial wireless frequencies for satellite communications outside of the United States is not necessary before we can grant Lynk's application. To the extent that Lynk seeks to operate additional satellites or operate in additional frequency bands to or in the United States in the future, we note that such requests, including any associated waiver requests or petitions for rulemaking, will be addressed in future proceedings and that other interested parties will be free to comment at that time, and we issue this decision without prejudice to any such proceedings. We also note that the Commission has not reached any conclusions on whether or how to authorize such operations, including any proposed service in UHF or other frequency bands into or in the United States. Any investments made toward such operations assume the risk that the operations may not be authorized or may be subject to additional conditions or requirements as a result of Commission actions.

17. *Use of S-band for Emergency TT&C.* In the S-band, Lynk states that it will only be communicating with earth stations outside of the United States located in latitudes greater than 30 degrees North or South, and such communications will occur at most nine minutes every three days or 0.21% of the time.⁵⁰ Lynk may only conduct operations in the 2025-2110 MHz (Earth-to-space) and 2200-2290 MHz (space-to-Earth) bands on an emergency backup basis because use of the 2025-2110 MHz (Earth-to-space) and 2200-2290 MHz (space-to-Earth) frequency bands for space operations is limited to Federal operations in the U.S. Table of Frequency Allocations. The 2025-2110 MHz band is also allocated for non-Federal Fixed and Mobile use and licensed for Television Broadcast Auxiliary Service, the Cable Television Relay Service, and the Local Television Transmission Service.⁵¹ Lynk is required to continue to carefully evaluate the potential for interference and to immediately cease operations should it become aware that it is causing harmful interference to other operators.

18. *Use of Ka-band for Feeder Links and TT&C.* Kuiper argues that Lynk has not provided sufficient information regarding how it will manage co-frequency interference in the Ka-band and regarding its ground infrastructure in the Ka-band to illustrate that current and future operators will not be

⁴⁹ Hughes Objection at 3.

⁵⁰ Lynk Application, Narrative at 9, 14-15. See Appendix A for a complete list of coordinated S-band earth stations.

⁵¹ In the band 2025-2110 MHz, Television translator relay stations, on a secondary basis to other stations in the Television Broadcast Auxiliary Service, see 47 CFR § 2.106 n.NG118, and non-Federal Earth-to-space and space-to-space transmissions may be authorized in the space research and Earth exploration-satellite services, *id.* n.US347. Additionally, in the band 2025-2035 MHz, geostationary operational environmental satellite (GOES) earth stations in the space research and Earth exploration-satellite services may be authorized on a coequal basis for Earth-to-space transmissions for tracking, telemetry, and telecommand at Honolulu, HI (21° 21' 12" N, 157° 52' 36" W); Seattle, WA (47° 34' 15" N, 122° 33' 10" W); and Wallops Island, VA (37° 56' 44" N, 75° 27' 42" W).

materially constrained by Lynk's small satellite operations.⁵² Kuiper also requests that Lynk provide details regarding its ground infrastructure for communications in the Ka-band.⁵³

19. We determine that Lynk has provided sufficient information regarding the technical and sharing capabilities of the operations contemplated in the instant application, particularly in light of the conditions imposed by this authorization. Lynk will be conducting limited feeder link operations and performing TT&C operations on a non-interference and unprotected basis with respect to other satellite operators, including FSS operators. Operations are not permitted unless successfully coordinated with other systems, and given the limited scope of proposed operations, we believe coordination may be achievable. As of the date of this grant, Lynk states that it has entered an agreement with one Ka-band earth station, located in Hawaii.⁵⁴ With respect to the concerns raised by Iridium that Lynk's Ka-band operations should not be classified as MSS, Lynk will use feeder links transmitted between fixed earth stations and Lynk's satellites as necessary to operate the Lynk system, a use that can be considered as both FSS and feeder links for the MSS.⁵⁵

20. We adopt a condition, similar to one which Lynk proposed, requiring that prior to the initiation of operations in the Ka-band, Lynk must certify that the earth station with which it is operating has completed coordination with non-Federal MSS or FSS operators in the frequency bands for Lynk's TT&C and feeder link operations, or Lynk must have a showing approved by the Commission that it will not cause harmful interference to any non-Federal MSS or FSS systems authorized to operate in the frequency bands, including but not limited to licensees and grantees of U.S. market access in NGSO FSS processing rounds. In addition, we include a standard condition, pursuant to Footnote US 334 to the Table of Allocations, requiring completion of coordination with Federal operations prior to commencement of operations in the Ka-band.⁵⁶

21. With respect to this grant, we decline to impose general conditions requested by Kuiper regarding the sharing of technical data with other operators or requiring entry into private coordination agreements, other than coordination described in the condition for use of the Ka-band.⁵⁷ In granting use of spectrum, we expect that all operators will make a good faith effort to coordinate with co-frequency licensees and will share the information necessary to share spectrum while avoiding interference. Since Lynk has committed to coordinating with co-frequency operators in good faith,⁵⁸ we find such conditions unnecessary. However, we do include a condition requiring Lynk to coordinate physical operations of spacecraft with any operator using similar orbits, for the purpose of eliminating collision risk and minimizing operational impacts.

⁵² Kuiper Comments at 2-3.

⁵³ *Id.* at 3.

⁵⁴ See June 3 Ex Parte at 2; IBFS File No. SES-MOD-20220720-00783.

⁵⁵ Iridium Petition at 4-5 (contending that Lynk is ineligible to access Ka-band MSS spectrum because Lynk's proposed satellite system, which Iridium characterizes as a satellite system serving its users via terrestrial mobile frequencies and via terrestrial mobile devices, is not an MSS system, but that Lynk appears to meet the requirements for FSS operations). MSS is a radiocommunication service (1) between mobile earth stations and one or more space stations, or between space stations used by this service; or (2) between mobile earth stations by means of one or more space stations. See 47 CFR § 2.1. The Commission's rules note that this service may also include feeder links necessary for the operation of the MSS. See *id.* Lynk's proposed service involves communication between mobile user terminals that will function as earth stations when operating with the Lynk satellites, and therefore, will operate in the MSS. The fact that the particular frequencies in which the mobile terminals operate are not allocated for the MSS does not alter the fact that the service is MSS.

⁵⁶ See June 3 Ex Parte at 2.

⁵⁷ See Kuiper Comments at 4.

⁵⁸ Lynk Reply at 12.

22. *Protection of Radio Astronomy Operations.* The 617-960 MHz frequency bands are generally allocated to fixed services and mobile services.⁵⁹ In both Region 2 of the International Table of Frequency Allocations and the U.S. Table of Frequency Allocations, the adjacent 608-614 MHz band is allocated to radio astronomy.⁶⁰ We recognize that protection from interference is essential to the advancement of radio astronomy and associated measurements.⁶¹ We also recognize the importance of protection of Radio Quiet Zones to optimize the environment in which radio astronomy observations are carried out, particularly at the most advanced and costly modern facilities.⁶² Section 1.924(a) of the Commission's rules requires that the NRAO be notified of any proposed construction and operation of a new or modified station at a permanent fixed location within the National Radio Quiet Zone.⁶³ If the NRAO objects to the proposed facility, on behalf of itself or the Naval Radio Research Observatory, the Commission, pursuant to section 1.924(a)(3) of its rules, "will, after consideration of the record, take whatever action is deemed appropriate."⁶⁴

23. NRAO objects to Lynk's proposed use of these frequency bands. NRAO contends that the segregation between allocations to the MSS (space-to-Earth) and allocations to the MS or radio astronomy service permits elimination of potential interference from terrestrial sources by geographic coordination, allowing cosmic radio waves at those frequencies to be observed.⁶⁵ Per NRAO's calculations, radio astronomy operations need 70-90 dB of isolation from Lynk's downlinks in the static case with 0 dBi radio astronomy gain, even in the far off-axis limit of the Lynk downlink beam.⁶⁶

24. We are persuaded that there are technical means by which Lynk can avoid harm to radio astronomy operations, as discussed in Lynk's reply. Lynk states that its system design provides at least 180 dB total isolation to protect radio astronomy operations from out of band emissions, a value greater than the 70-90 dB that NRAO calculated is necessary.⁶⁷ Lynk states that its system will achieve this degree of separation due to its system's use of an analog front end, digital filters, and a waveform generator, and considering that the nearest band to potential Lynk operations allocated to radio astronomy is 608-614 MHz, which is 3 MHz below the lowest downlink frequency for which Lynk could potentially offer service.⁶⁸ We condition this grant on Lynk operating consistent with these technical specifications. Furthermore, this grant does not authorize communications in the 617-960 MHz frequency band with any earth stations in the United States.

25. We also note that radio astronomy as a service frequently makes use of observations (passive) in bands not allocated to the radio astronomy service. This practice is a result of scientifically valuable signals being subject to the Doppler Effect and shifted in frequency outside radio astronomy-allocated bands, and is facilitated by the modified radio frequency environment within such Zones.

⁵⁹ See 47 CFR § 2.106, International Table of Frequency Allocations.

⁶⁰ The U.S. Table of Frequency Allocations also allocates this band to land mobile (medical telemetry and medical telecommand). 47 CFR § 2.106.

⁶¹ ITU-R RA.769-2.

⁶² ITU-R RA.2259-1. A Radio Quiet Zone is meant to be any recognized geographic area within which the usual spectrum management procedures are modified for the specific purpose of reducing or avoiding interference to radio telescopes, thereby maintaining the required standards for quality and availability of observational data. *Id.*

⁶³ 47 CFR § 1.924(a).

⁶⁴ 47 CFR § 1.924(a)(3).

⁶⁵ NRAO Objection at 2-3.

⁶⁶ *Id.* at 3.

⁶⁷ See Lynk Reply at 14-15.

⁶⁸ *Id.* at 14-15.

Furthermore, the United States provides funding for radio astronomy observatories in partnership with other administrations. We condition this grant on Lynk avoiding space-to-Earth transmissions into Radio Quiet Zones throughout the frequency range authorized in this grant and on a global basis consistent with protection measures necessary for individual Radio Quiet Zones.⁶⁹

26. *Waiver of Section 2.106 and the Ka-band Plan.* In response to Iridium,⁷⁰ Lynk requests, to the extent necessary, a waiver for use of the 617-960 MHz bands for MSS operations. Although Lynk does not intend to operate in these frequencies in the United States and its territories or possessions, in this instance we grant this request for waiver of the U.S. Table of Frequency Allocations, section 2.106, to the extent necessary, recognizing that Lynk's operations are not permitted to cause harmful interference to stations in the U.S. authorized in accordance with the Table of Allocations. Specifically, we point to Lynk's statements regarding its ability to ensure that harmful interference will not occur across country borders, and we condition Lynk's authorization consistent with these statements. To minimize the possibility of harmful interference to operators in bordering countries, we impose a condition requiring that Lynk only operate in the granted UHF bands within the borders of a country with which Lynk has obtained an agreement with one or more MNOs and authorization from the appropriate regulatory administration(s).⁷¹ Lynk must also comply with the power flux-density (PFD) limits of the jurisdiction to which Lynk is transmitting and must comply with any limits agreed upon with border countries. In the absence of such agreed values, Lynk may not operate its satellite beams in a given area unless it will meet a field strength limit at the border of no more than 40 dBuV/m. To the extent a beam from the Lynk space stations will go outside the borders of the authorizing country, coordination must be completed with the regulatory authority of that border country, and Lynk must obtain documentation verifying successful completion of that coordination prior to commencing operations. Given these operating parameters and the conditions to this authorization, find that waiver of the U.S. Table of Allocations, to the extent necessary, is warranted.

27. We also consider whether Lynk can operate in each requested band under Article 4.4 of the ITU Radio Regulations. Under Article 4.4, a frequency in derogation of the ITU Radio Regulations can only be assigned to a station on the express condition that such a station, when using such a frequency assignment, shall not cause harmful interference to, and shall not claim protection from harmful interference caused by, a station operating in accordance with the ITU Radio Regulations. Based upon information provided in Lynk's application, and with compliance with the conditions imposed in this Order, we conclude that Lynk should be able to operate the satellites in the UHF frequencies on an

⁶⁹ See Lynk Reply at 14-15. As part of the coordination of this authorization with the National Telecommunications Information Administration (NTIA), the National Science Foundation (NSF) noted ongoing efforts and technology development to reduce satellite optical reflectivity. Lynk may contact the National Science Foundation Spectrum Management Unit (esm@nsf.gov) for more information.

⁷⁰ See also NRAO Objection at 2 (arguing that Lynk's proposed operations in the 617-960 MHz bands are improper because Lynk seeks to operate in the MSS in the frequency range 617-960 MHz, where there are allocations to the MS rather than the MSS). Iridium contends that Lynk's proposal to use terrestrial mobile spectrum on its satellites is a non-conforming use for which Lynk does not meet the Commission's requirements under the *Small Satellite Report and Order*. Iridium Petition at 5-6; see *Small Satellite Report and Order*, 34 FCC Rcd at 13126, para. 116 ("If an applicant were to request authorization for a non-conforming operation, that applicant would be required to submit a request for a waiver of the Table of Allocations, section 2.106..."). Iridium argues that Lynk did not seek a waiver for this use, did not "engage[] contemporaneously in activities to work toward modification of the International Table of Allocations at the [International Telecommunication Union] ITU," and did not address the Commission's expectation that "[non-conforming] uses under part 25 would be extremely limited." Iridium Petition at 6 (citing *Small Satellite Report and Order*, 34 FCC Rcd at 13126, para. 116. Grant of Lynk's application is limited to operations in the UHF authorized for communications with earth stations outside the United States only. In any event, we are persuaded that Lynk's work toward modification of the International Table of Allocations at the ITU addresses Iridium's concerns. See Lynk Reply at 8-9.

⁷¹ See April 12 Ex Parte at 2-3.

unprotected, non-harmful interference basis outside the United States. Lynk states that its cells are limited to the geographies where Lynk's partner MNOs have authorized Lynk to use their spectrum, and that these cells will only cover specific locations where MNO partners seek coverage expansion via use of beams from Lynk's satellites and will not cover areas outside authorized geographies.⁷²

28. Lynk also requests a waiver for use of the 2025-2110 MHz band for emergency backup TT&C operations (Earth-to-space) and for use of the 2200-2290 MHz band for emergency backup TT&C operations (space-to-Earth) to communicate with earth stations that will be located outside the United States and in latitudes greater than 30 degrees North or South.⁷³ We grant this request for waiver, to the extent necessary, because we find that Lynk's operations as conditioned by this authorization will not cause harmful interference to stations authorized in accordance with the U.S. Table of Frequency Allocations, section 2.106.⁷⁴ The 2025-2110 MHz and 2200-2290 MHz frequency bands are allocated internationally for space operations. The 2025-2110 MHz band is also allocated for non-Federal Fixed and Mobile use and licensed for Television Broadcast Auxiliary Service, the Cable Television Relay Service, and the Local Television Transmission Service.⁷⁵ We condition Lynk's operations in the 2025-2110 MHz and 2200-2290 MHz bands on completion of coordination with any potentially affected Federal operators.⁷⁶ Lynk is also required to continue to carefully evaluate the potential for interference and to immediately cease operations should it become aware that it is causing harmful interference to other operators.

29. We further condition these bands for use only for emergency backup TT&C operations,⁷⁷ which should only be in rare and short-term instances. Because conditions requested by NTIA contemplate that these operations will only be undertaken in the most extraordinary circumstances, we have adopted a specific condition to ensure that adequate Ka-band earth station support capabilities are available prior to any satellites, beyond those already authorized for experimental operations in the S-band, being integrated into a launch vehicle.

30. In addition, Lynk requests a waiver of the Commission's Ka-band plan in the 20.1-20.2 GHz (space-to-Earth) and 29.9-30.0 GHz (Earth-to-space) frequency bands to operate feeder links and to conduct in-band TT&C operations.⁷⁸ The 20.1-20.2 GHz and 29.9-30.0 GHz bands are allocated to the FSS and MSS on a primary basis.⁷⁹ Geostationary orbit (GSO) FSS operations are conducted on a primary basis and NGSO FSS operations are secondary with respect to GSO FSS operations in both requested frequency bands.⁸⁰ Lynk also provides equivalent power flux-density (EPFD) analyses for these bands using EPFD limits set for NGSO FSS systems to demonstrate how Lynk will protect GSO

⁷² Lynk Reply at 7-8.

⁷³ Lynk Application, Narrative at 14-15.

⁷⁴ See *supra* para. 17.

⁷⁵ See *supra* n. 51.

⁷⁶ See Lynk Application, Narrative at 14-16 (acknowledging that potential use of the 2025-2110 MHz and 2200-2290 MHz bands would be coordinated with Federal agencies).

⁷⁷ See *id.* at 10.

⁷⁸ See *id.* at 17.

⁷⁹ 47 CFR § 2.106.

⁸⁰ *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 7809, 7813, para. 9 (2017).

FSS networks.⁸¹ Given that Lynk will operate in these frequency bands only from fixed locations, we consider its waiver request unnecessary as its operation of feeder links for MSS can be treated as FSS.⁸²

31. Inmarsat contends that, because satellites authorized pursuant to the streamlined small satellite process operate on a non-interference basis relative to regularly-authorized part 25 satellites operating in the same service, the Commission should impose explicit conditions requiring Lynk to operate in the Ka-band on a non-interference basis to protect GSO FSS operations.⁸³ These conditions would set PFD and EPFD limits in the 20.1-20.2 GHz and 29.9-30.0 GHz bands, require Lynk to cooperate with other NGSO operators to ensure that all authorized operations in the 19.7-20.2 GHz band jointly comport with the applicable limits for aggregate EPFD in the space-to-Earth direction, and require Lynk to operate in the 20.1-20.2 GHz and 29.9-30 GHz frequency bands on a non-interference and unprotected basis with respect to FSS operations in these bands.⁸⁴

32. In its reply, Lynk agrees to accept the set of four conditions posited by Inmarsat.⁸⁵ We agree with Inmarsat that such conditions will ensure that GSO FSS operations are protected, and accordingly adopt slightly modified versions of those conditions in this grant.⁸⁶ We also require Lynk to complete coordination with any affected Federal operators prior to initiating operations in the 20.1-20.2 GHz (space-to-Earth) frequency band.⁸⁷ Moreover, we adopt a condition requiring that prior to the initiation of operations in the Ka-band, Lynk must certify that any earth stations with which Lynk will operate have been licensed, and that Lynk has completed coordination with other non-Federal MSS and FSS systems operating in the Ka-band, or that Lynk has made a showing, approved by the Commission, that it will not cause harmful interference to any non-Federal MSS and FSS systems in the Ka-band.

33. *Waiver of Schedule S Requirements.* Lynk also requests waiver of the Commission's rule outlining the information that space station applicants must include in the Form 312, Schedule S.⁸⁸ Lynk clarifies that certain operational parameters for the Ka-band, S-band, and UHF band as listed in the Schedule S, namely the Antenna Rotational Error and Polarization Alignment Relative to the Equatorial Plane, are filled in but are not applicable. Lynk also provided a single center frequency in each band in the Schedule S, although Lynk will configure the center frequency to fall anywhere in the requested frequency range for Ka-band and S-band operations, depending on coordination, and will conform to whichever center frequencies are selected by an MNO partner in a given service area for UHF band

⁸¹ Lynk Response to FCC's Request at 20-38.

⁸² See also Inmarsat Comments at 1 (noting that the Commission has previously recognized that the type of service under which an operator is authorized, whether MSS or FSS, is not relevant to the interference potential to the GSO FSS satellite networks using these bands).

⁸³ *Id.* at 1-2 (citing *Small Satellite Report and Order*, 34 FCC Rcd at 13112, para. 92).

⁸⁴ *Id.* at 2.

⁸⁵ Lynk Reply at 11; see also Lynk Application, Narrative at 17-18 (agreeing to a similar set of conditions to those proposed by Inmarsat).

⁸⁶ Inmarsat recommends the following as a fourth condition for Lynk's Ka-band operations: "Operations in the 29.9-30.0 GHz frequency bands are on a secondary basis with respect to GSO FSS operations." Inmarsat Comments at 2. We adopt a slightly revised condition, regarding operations in the 20.1-20.2 GHz and 29.9-30 GHz frequency bands, which requires all operations to be conducted on a secondary basis with respect to other satellite operations in these bands authorized under part 25 of the Commission's rules, consistent with the approach outlined in our streamlined small satellite proceeding. See *infra* condition 33(d); *Small Satellite Report and Order*, 34 FCC Rcd at 13112, para. 92.

⁸⁷ 47 CFR § 2.106, n.US334.

⁸⁸ See Lynk Application, Narrative at 18.

operations.⁸⁹ Given that Lynk has provided all of the information required by section 25.114(c) within its application,⁹⁰ we find that a waiver is warranted.

IV. ORDERING CLAUSES

34. Accordingly, IT IS ORDERED that the Application filed by Lynk Global, Inc. is GRANTED, with conditions, as set forth in this Order, pursuant to section 309(a) of the Communications Act of 1934, as amended, 47 U.S.C. § 309(a). Lynk Global, Inc. is AUTHORIZED to construct, deploy, and operate ten non-geostationary orbit satellites in accordance with the technical specifications set forth in its application and in compliance with the Commission's rules, unless waived herein, and subject to the following conditions:

- a. Lynk is authorized to operate in the following bands: 617-960 MHz (space-to-Earth) (outside the United States); 663-915 MHz (Earth-to-space) (outside the United States); 20.1-20.2 GHz (space-to-Earth); 29.9-30.0 GHz (Earth-to-space); 2025-2110 MHz (Earth-to-space) (outside the United States); and 2200-2290 MHz (space-to-Earth) (outside the United States).
- b. Operations in the 617-960 MHz and 663-915 MHz bands must be on an unprotected, non-interference basis with respect to other authorized services.
- c. Operations in the 2025-2110 MHz and 2200-2290 MHz bands must be on an unprotected, non-interference basis with respect to other authorized services.
- d. Operations in the 20.1-20.2 GHz and 29.9-30.0 GHz frequency bands shall be conducted on a secondary basis with respect to other satellite operations in these bands authorized under part 25 of the Commission's rules.
- e. Lynk may only conduct TT&C operations in the 2025-2110 MHz and 2200-2290 MHz bands on an emergency backup basis, and such communications will occur at most nine minutes every three days or 0.21% of the time. Except for operations already coordinated with NTIA and authorized in ELS File Nos. 0656-EX-CN-2021, 1117-EX-CN-2021, and 0113-EX-CN-2022, Lynk is required to successfully coordinate with NTIA prior to any operations in the 2200-2290 MHz frequency band. No operations in the 2200-2290 MHz frequency band are permitted with ground stations in the United States and Possessions (US&P). The coordination request must identify the duration of the emergency and what measures are being taken to remedy the emergency situation. NTIA will consider the request by Lynk for access to the 2200-2290 MHz for ground stations located outside of US&P on a case-by-case coordinated basis with appropriate EMC analysis to NTIA (ravery@ntia.doc.gov), the Air Force Spectrum Management Office (AFSMO) (jimmy.nguyen@us.af.mil), National Aeronautics and Space Administration (NASA) (john.e.zuzek@nasa.gov) and the Department of Commerce (DOC) (edna.prado@noaa.gov) to ensure compatibility of operations with the Federal government.
- f. Except for satellites operating under experimental licenses already coordinated with NTIA in the 2200-2290 MHz frequency band as specified in ELS File Nos. 0656-EX-CN-2021, 1117-EX-CN-2021, and 0113-EX-CN-2022, in order to ensure availability of non-emergency TT&C operations, Lynk may not integrate any satellite into a launch vehicle prior to satisfying the requirements of j and k below for at least one Ka-band earth station.

⁸⁹ See Lynk Application, Technical Annex at 14-15, 22, 30-31.

⁹⁰ See Lynk Application, Narrative at 18.

g. Emergency backup transmissions in the 2025-2110 MHz and 2200-2290 MHz frequency bands may only be made to/from Federal earth stations or earth stations coordinated with NASA, AFSMO, DOC/National Oceanic and Atmospheric Administration (NOAA), and the Department of the Navy (DON). A list of coordinated non-Federal earth stations is attached in Appendix A. Lynk shall provide the FCC with an updated list of coordinated non-Federal earth stations within ten business days following any changes to this list.⁹¹ Prior to adding an earth station located 161 km (100 mi.) or less from US&P to the list, Lynk must coordinate any emergency backup TT&C operations with the local broadcasting coordinator(s) in the adjacent US&P market(s). If there is no local coordinator in the relevant US&P market, Lynk must coordinate with all Television Broadcast Auxiliary Service, Cable Television Relay Service, and Local Television Transmission Service, and TV Translator Relay station licensees within 161 km (100 mi.) of the proposed earth station.

h. Operations the 20.1-20.2 GHz and 29.9-30.0 GHz bands are authorized up to the applicable PFD and EPFD limits contained in Section 25.208, 47 CFR § 25.208, and Articles 21 and 22, as well as Resolution 76 of the ITU Radio Regulations, if coordinated with other operators.

i. Lynk must cooperate with other NGSO operators in order to ensure that all authorized operations, including in the 20.1-20.2 GHz band, jointly comport with the applicable limits for aggregate EPFD in the space-to-Earth direction (EPFD down) contained in Article 22 of the ITU Radio Regulations, as well as Resolution 76 of the ITU Radio Regulations.

j. Prior to commencing operations in the 20.1-20.2 GHz (space-to-Earth) and 29.9-30.0 GHz (Earth-to-space) bands, Lynk must certify that the earth station with which it is operating has completed coordination with non-Federal MSS or FSS operators in the frequency bands for Lynk's TT&C and feeder link operations, or Lynk must have a showing approved by the Commission that it will not cause harmful interference to any non-Federal MSS or FSS systems authorized to operate in the frequency bands, including but not limited to licensees and grantees of U.S. market access in NGSO FSS processing rounds.

k. For space-to-Earth operations in the 20.1-20.2 GHz band, Lynk must complete coordination with U.S. Federal systems, in accordance with footnote US334 to the United States Table of Frequency Allocations, 47 CFR § 2.106, prior to conducting such operations. The use of space-to-Earth operations must be in accordance with any signed coordination agreement with U.S. Federal operators. Two weeks prior to the start of any operations in the 20.1-20.2 GHz band, contact information for a 24/7 point of contact for the resolution of any harmful interference shall be provided to Jimmy Nguyen, Email: Jimmy.Nguyen@us.af.mil.

l. Lynk shall not acquire or enjoy the exclusive right of handling telecommunications using satellite connectivity in bands allocated to terrestrial mobile services for communication to or from the United States, its territories or possessions, and any other country or territory by reason of any concession, contract, understanding, or working arrangement to which Lynk or any persons or companies controlling or controlled by Lynk are parties.

m. Lynk must maintain for any satellite in sun synchronous orbit, the LTDN of 11:00 EST for Lynk Tower 1, 9:30 EST for Lynk Towers 2-4, and between 9:30 and 15:30 EST

⁹¹ See June 3 Ex Parte at 2.

for Lynk Towers 5-10 time values to not be in-phase with Federal agencies satellite systems.⁹² In the event of any changes to the LTDN from the values specified in this condition, Lynk must notify the Commission of the updated values no later than 30 days prior to launch.

n. Lynk must use an analog front end, digital filters, and a waveform generator so as to maintain at least 180 dB total isolation to protect radio astronomy operations in the 608-614 MHz band from Lynk's transmissions in the 617-960 MHz (space-to-Earth) band.⁹³

o. Lynk's operations must comply with the emission limitations set forth in section 25.202(f) of the Commission's rules.

p. Lynk must coordinate physical operations of spacecraft with any operator using similar orbits, for the purpose of eliminating collision risk and minimizing operational impacts. The orbital parameters specified in this grant are subject to change based on such coordination.

q. Upon receipt of a conjunction warning from the 18th Space Control Squadron or other source, Lynk must review and take all possible steps to assess the collision risk, and mitigate collision risk if necessary. As appropriate, steps to assess and mitigate should include, but are not limited to: contacting the operator of any active spacecraft involved in such warning; sharing ephemeris data and other appropriate operational information with any such operator; and modifying spacecraft attitude and/or operations.

r. Operations by Lynk in the UHF band require specific authorization from the appropriate administration(s) where any mobile terminals are located. Operations of the Lynk space stations in the UHF bands must be limited to within the borders of a country with which Lynk has obtained an agreement with one or more MNOs and authorization from the appropriate regulatory administration. Lynk must comply with the PFD limits of the jurisdiction to which Lynk is transmitting and must comply with any limits agreed upon with border countries. In the absence of such agreed values, Lynk may not operate its satellite beams in a given area unless it will meet a field strength limit at the border of no more than 40 dBuV/m. To the extent a beam from the Lynk space stations will go outside the borders of the authorizing country, coordination must be completed with the regulatory authority of that border country and Lynk must obtain documentation verifying successful completion of that coordination prior to commencing operations.

s. Prior to commencing operations with the space stations authorized herein, Lynk must file with the Commission the information required by section 25.172 of the Commission's rules, 47 CFR § 25.172.

t. Within 30 days after deployment of each satellite pursuant to this authorization, Lynk must file a notification with the Commission specifying its apogee and perigee altitudes and orbital inclination.

u. Unless extended by the Commission for good cause shown, this authorization will become null and void in the event the Lynk space stations are not constructed and launched in accordance with the schedule set forth in section 25.164 of the Commission's rules,⁹⁴ as follows:

⁹² See August 17 Letter at 1-2.

⁹³ See Lynk Reply at 14-15.

⁹⁴ As noted above, the Lynk Tower 1 space station is already in-orbit and operating pursuant to experimental authorization.

- i. In the event that four additional Lynk space stations, in addition to Lynk Tower 1, have not been launched, placed into the assigned orbit, and begun operations in accordance with this grant by **September 16, 2023**,⁹⁵ Lynk must post a surety bond in satisfaction of 47 CFR §§ 25.165(a)(1) & (b) no later than **October 16, 2023**, and thereafter maintain on file a surety bond requiring payment in the event of a default in an amount, at minimum, determined according to the formula set forth in 47 CFR § 25.165(a)(1); and
- ii. Lynk must launch four additional space stations, place them into the assigned orbit, and operate five space stations, including Lynk Tower 1, in accordance with this grant no later than **September 16, 2028**.
- v. The license term is six years and will begin on 3 a.m. EST on the date that Lynk certifies to the Commission that the operations of Lynk Tower 1 fully conform to the terms and conditions of this authorization.⁹⁶ Lynk must also file certification that the Lynk Towers 2 through 10 space stations have been successfully placed into orbit and its operations fully conform to the terms and conditions of this authorization within five business days of placing each of the Lynk Towers 2 through 10 space stations into operation.

35. Lynk Global, Inc. must timely provide the Commission with the information required for Advance Publication, Coordination, and Notification of the frequency assignment(s) for this constellation, including due diligence information, pursuant to Articles 9 and 11 of the ITU Radio Regulations. This authorization may be modified, without prior notice, consistent with the coordination of the frequency assignment(s) with other Administrations. *See* 47 CFR § 25.111(b). Lynk Global, Inc. is responsible for all cost-recovery fees associated with the ITU filings. 47 CFR § 25.111(d).

36. IT IS FURTHER ORDERED that this grant is subject to modification to bring the Lynk space stations into conformance with any rules or policies adopted by the Commission in the future.

37. IT IS FURTHER ORDERED that the request of Lynk Global, Inc. for a waiver of the section 2.106 regarding the 617-960 MHz (space-to-Earth) and 663-915 MHz (Earth-to-space) frequency bands IS GRANTED.

38. IT IS FURTHER ORDERED that the request of Lynk Global, Inc. for a waiver of the Commission's Ka-band plan regarding use of the 20.1-20.2 GHz (space-to-Earth) and 29.9-30.0 GHz (Earth-to-space) frequency bands IS DISMISSED.

39. IT IS FURTHER ORDERED that the request of Lynk Global, Inc. for a waiver of section 2.106 regarding the 2200-2290 MHz (space-to-Earth) and 2025-2110 MHz (Earth-to-space) frequency bands IS GRANTED.

40. IT IS FURTHER ORDERED that the request of Lynk Global, Inc. for a waiver of section 25.114(c) regarding the information that space station applicants must include in the Schedule S IS GRANTED.

⁹⁵ We note that since this application is being processed under the rules for streamlined licensing of small satellites, the requirement for Lynk to post a surety bond in accordance with 47 CFR § 25.165(a)(1) & (b) is deferred by one year following the date of grant in accordance with the grace period adopted in FCC 19-81. *See* 47 CFR 25.165(a).

⁹⁶ The Commission's rule states that the license term will begin on 3 a.m. EST on the date when the licensee notifies the Commission that operations of an initial space station are compliant with the license terms and conditions and that the space station has been placed into its authorized orbit and has begun operating. 47 CFR § 25.121(d)(3). Since Lynk Tower 1 is already in orbit and operating pursuant to a part 5 experimental license, that component of the notification has already been satisfied as of the date of this grant, and therefore the license term for this part 25 license authorization will begin when Lynk certifies that the operations of Lynk Tower 1 fully conform to the terms and conditions of this grant.

41. IT IS FURTHER ORDERED that the Petition to Deny filed by Iridium Constellation LLC IS DENIED.

42. IT IS FURTHER ORDERED that Lynk Global, Inc. is afforded 30 days from the date of release of this Order to decline this authorization as conditioned. Failure to respond within that period will constitute formal acceptance of the authorization as conditioned.

43. IT IS FURTHER ORDERED that this Order is issued pursuant to section 0.261 of the Commission's Rules, 47 CFR § 0.261. Petitions for reconsideration under section 1.106 or applications for review under section 1.115 of the Commission's Rules, 47 CFR §§ 1.106 and 1.115, may be filed within 30 days of the date of public notice of this Order.

FEDERAL COMMUNICATIONS COMMISSION

Thomas P. Sullivan
Chief
International Bureau

APPENDIX A
S-BAND EARTH STATION LOCATIONS: COORDINATED WITH FEDERAL AGENCIES⁹⁷

1. Torri Brianche, Italy
2. Dublin, Ireland
3. Awarua Invercargill, New Zealand
4. Shetland, UK
5. Kandy, Sri Lanka
6. Blönduós, Iceland

⁹⁷ See June 3 Ex Parte at 2.