

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

In the Matter of)	
)	
LightSquared Technical Working Group Report)	IB Docket No. 11-109
)	
LightSquared License Modification Application, IBFS Files Nos. SAT-MOD-20120928-00160, SAT-MOD-20120928-00161, and SES-MOD- 20121001-00872)	IB Docket No. 12-340
)	
New LightSquared License Modification Applications IBFS File Nos. SES-MOD-20151231- 00981, SAT-MOD-20151231-00090, and SAT- MOD-20151231-00091)	IB Docket No. 11-109; IB Docket No. 12-340
)	
Ligado Amendment to License Modification Applications IBFS File Nos. SES-MOD-20151231- 00981, SAT-MOD-20151231-00090, and SAT- MOD-20151231-00091)	IB Docket No. 11-109
)	

ORDER DENYING MOTION FOR STAY

Adopted: January 19, 2021

Released: January 19, 2021

By the Commission: Commissioners Rosenworcel and Starks dissenting; Commissioner Simington concurring and issuing a statement.

I. INTRODUCTION

1. On April 22, 2020, the Commission authorized Ligado Networks, LLC (Ligado) to deploy a low-power terrestrial nationwide network in the 1526-1536 MHz, 1627.5-1637.5 MHz, and 1646.5-1656.5 MHz portions of its license in the mobile satellite services (MSS) L-band allocation.¹ The *Order* was the culmination of an extensive, multi-year proceeding in which the National Telecommunications and Information Administration (NTIA) actively participated on behalf of several federal agencies²—and had a draft copy of the *Order* starting in October 2019, when Commission staff circulated a draft to NTIA for coordination with the Interdepartment Radio Advisory Committee (IRAC).

2. On May 22, 2020, NTIA petitioned to stay the *Order* pending the Commission’s decision on a contemporaneously filed petition for reconsideration.³ Although NTIA itself concedes that Ligado

¹ *LightSquared Technical Working Group Report, et al.*, Order and Authorization, IB Docket Nos. 11-109 and 12-340, 35 FCC Rcd 3772, 3773, para. 1 (2020) (*Order*).

² See *Order*, 35 FCC Rcd at 3774-83, paras. 3-17, 3831-34, paras. 122-28.

³ Petition for Stay of the National Telecommunications and Information Administration, IB Docket No. 11-109 (filed May 22, 2020) (Stay Petition); see also Petition for Reconsideration or Clarification of the National Telecommunications and Information Administration, IB Docket Nos. 11-109 and 12-340 (filed May 22, 2020) (Petition for Reconsideration).

“does not expect to commence the contemplated service within the next eighteen months,”⁴ NTIA nevertheless asks the Commission to stay the *Order*. We deny the Stay Petition.

II. BACKGROUND

3. The *Order* lays out the full procedural history of this proceeding.⁵ In short: In 2003, following coordination with NTIA, the Commission established rules to permit licensees such as Ligado to operate ancillary terrestrial-based services in their MSS spectrum.⁶ In 2004, a predecessor-in-interest to Ligado was authorized to deploy terrestrial operations in the 1525-1559 MHz band.⁷ In 2005, the Commission affirmed its decision to permit ancillary terrestrial-based operations and addressed all petitions to reconsider the Commission’s 2003 decision.⁸ In 2010, the International Bureau granted Ligado a waiver of certain of the ATC operating terms and conditions.⁹ In 2011, the International Bureau modified Ligado’s authorization, conditioned on Ligado addressing interference concerns raised by the GPS industry.¹⁰ In 2015, Ligado proposed modifications to its license (including operational parameters and emission limits) and agreed to limit its use to the lower 1526-1536 MHz band (creating a significant guard band within its own MSS spectrum) to address potential interference concerns associated with GPS operations in the adjacent Radionavigation-Satellite Service (RNSS) allocation in the 1559-1610 MHz band; Ligado also proposed further conditions, as necessary, to ensure the compatibility of certified aviation GPS receivers with Ligado’s proposed operations.¹¹ In 2018, Ligado amended its license modification applications to include additional operating constraints designed to achieve compatibility with current and future standards developed by the FAA to protect certified aviation receivers,

⁴ Stay Petition at 3 (citing Matt Daneman & Jimm Phillips, *Ligado Deployment Could Come Late Next Year*, *CEO Says*, Communications Daily, Apr. 30, 2020, at 1).

⁵ See *Order*, 35 FCC Rcd at 3774-83, paras. 3-17.

⁶ *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Bands; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, IB Docket Nos. 01-185 and 02-364, Report and Order and Notice of Proposed Rulemaking, 18 FCC Rcd 1962 (2003).

⁷ See *Mobile Satellite Ventures Subsidiary LLC, Application for Minor Modification of Space Station License for AMSC-1, File No. SAT-MOD-20031118-00333, File No. SAT-AMD-20031118-00332, File No. SES-MOD-20031118-01879*, Order and Authorization, 19 FCC Rcd 22144 (IB 2004).

⁸ *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Bands; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, IB Docket Nos. 01-185 and 02-364, Memorandum Opinion and Order and Second Order on Reconsideration, 20 FCC Rcd 4616 (2005).

⁹ See *SkyTerra Application for Modification Authority for an Ancillary Terrestrial Component, File Nos. SAT-MOD-20090429-00047, SAT-MOD-20090429-00046, SES-MOD-20090429-00536, Call Sign AMSC-1, Call Sign S2358, Call Sign E980179*, Order and Authorization, 25 FCC Rcd 3043 (IB Mar. 26, 2010). Ligado sought waiver of certain provisions of the ATC rules (i.e., the power limits for ATC base-station transmissions and base station OOB limits) to substitute the more flexible technical requirements contemplated by the terms of a coordination arrangement it had negotiated with Inmarsat. *Id.* at 3046-47, paras. 9-11.

¹⁰ *LightSquared Subsidiary LLC Request for Modification of its Authority for an Ancillary Terrestrial Component, SAT-MOD-20101118-00239, Call Sign S2358*, Order and Authorization, 26 FCC Rcd 566, 566, para. 1 (IB Jan. 26, 2011) (*2011 Order and Authorization*). The *2011 Order and Authorization* provided that “once the Commission, after consultation with NTIA, concludes that the harmful interference concerns have been resolved,” Ligado could commence terrestrial operations. *Id.* at 587, para. 43.

¹¹ See *Order*, 35 FCC Rcd at 3778-79, paras. 9-10; Letter from Gerard J. Waldron, Counsel to New LightSquared, to Marlene H. Dortch, Secretary, FCC, IB Docket Nos. 12-340 and 11-109, IBFS File Nos. SAT-MOD-20120928-00160, SAT-MOD-20120928-00161, and SES-MOD-20121001-00872 and Attach., Applications, Description of Proposed Modification and Public Interest Statement (filed Dec. 31, 2015).

including a 99.3% reduction in base station power levels.¹² Based on its extensive review of the record, the Commission concluded in April 2020 that grant of Ligado’s authorization, as proposed in 2015 and amended in 2018, with several additional conditions, would be in the public interest.¹³

4. The *Order* adopted a number of measures to address the concerns raised by NTIA and others regarding the potential for harmful interference with GPS. *First*, to address concerns about harmful interference with respect to GPS operating in the adjacent RNSS allocation (1559-1610 MHz), the Commission not only adopted out-of-band emissions requirements for the protection of GPS devices operating within the RNSS allocation but also established a 23-megahertz “guard band” in the MSS allocation to separate Ligado’s low power base stations in the 1526-1536 MHz band from the RNSS allocation to promote co-existence with GPS operations. *Second*, the *Order* requires Ligado to operate at power levels more than 99% lower than had been earlier proposed. *Third*, in addition to these protections, the *Order* imposes a series of stringent conditions to further ensure that concerns of widespread harmful interference from Ligado’s operations were resolved.¹⁴ These conditions involve extensive requirements for Ligado to engage in information exchange and coordination with federal agency GPS users before commencing operations, including disclosure of base station information and technical operating parameters, coordination with federal agencies to identify potentially affected devices, evaluation of whether affected devices would actually experience harmful interference, and development of a repair or replace program to remedy any foreseen harmful interference.¹⁵ The Commission also required that Ligado provide specified GPS device manufacturers “six months advance notice regarding the activation of any base station transmitting in the 1526-1536 MHz band.”¹⁶

5. NTIA timely filed the Stay Petition and Petition for Reconsideration.¹⁷ The arguments in the Stay Petition largely center on the merits of the *Order* and are limited to the issue of potential harmful interference to federal GPS receivers.¹⁸ NTIA argues that the Commission should stay the *Order* because the Commission “relies upon a new and unproven ‘harmful interference’ metric and imposes unworkable conditions while still uncertain whether GPS receivers critical to national security and public safety would experience remediable harmful interference.”¹⁹ NTIA claims that a stay would “harmlessly allow for

¹² See *Order*, 35 FCC Rcd at 3782, paras. 15-16; Letter from Gerard J. Waldron, Counsel to Ligado, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 11-109, and Amendment to License Modification Applications (filed May 31, 2018) (Ligado May 31, 2018 *Ex Parte*).

¹³ *Order*, 35 FCC Rcd at 3783, para. 18.

¹⁴ *Order*, 35 FCC Rcd at 3835-3841, paras 131-155.

¹⁵ *Order*, 35 FCC Rcd at 3838, para. 144. Other conditions adopted in the *Order* ensured the Ligado would be responsive to notifications of any interference complaints, including a 24/7 response requirement and a “stop buzzer” capability enabling it to cease transmissions immediately in the event of a large-scale disruption to GPS. *Id.* at 3838-39, para. 146.

¹⁶ *Order*, 35 FCC Rcd at 3838, para 145. The *Order* became effective upon release. *Order*, 35 FCC Rcd at 3843, para. 164.

¹⁷ NTIA asserts that its Stay Petition incorporates by reference the arguments made in its Petition for Reconsideration. Stay Petition at 3. On December 4, 2020, NTIA filed a request for leave to file with the Commission its “December 2020 Technical Memorandum” to supplement its pending Petition for Reconsideration or Clarification, which it attaches to its request. Letter from Kathy Smith, Chief Counsel, NTIA, to Marlene H. Dortch, Secretary, FCC, IB Docket Nos. 11-109, 12-340 (Dec. 4, 2020). According to NTIA, the Technical Memorandum is intended to “bring to light the ‘broad stock of valuable information and data developed and analyzed by NTIA and an IRAC working group’ referenced” in its Petition for Reconsideration or Clarification. *Id.* at 1 (quoting Petition for Reconsideration at 7).

¹⁸ Stay Petition at 1-2.

¹⁹ Stay Petition at 1-2.

validation of the performance-based interference metric,” while denial of a stay “could result in serious harm to the national security and the public safety.”²⁰

6. Ligado filed an opposition to the Stay Petition on May 29, 2020.²¹ Ligado asserts that NTIA fails to meet its burden to demonstrate that the “extraordinary remedy of a stay” is warranted.²² Ligado argues that: (1) the Petition for Reconsideration is unlikely to prevail on the merits,²³ (2) NTIA effectively concedes that it will suffer no imminent irreparable injury,²⁴ and (3) issuance of a stay would harm both Ligado and the public interest.²⁵ We note that several organizations subsequently have filed comments referencing their support for NTIA’s Stay Petition.²⁶

7. On October 22, 2020, Ligado provided a status report, pursuant to requirements set forth in the *Order*,²⁷ concerning its operations and the steps it has taken to implement certain license conditions.²⁸ Ligado states that, while it has taken some required preliminary steps in preparation for deployment,²⁹ its deployment plans are not finalized.³⁰ In particular, with regard to potential harmful interference to federal GPS receivers, Ligado states that it has been working on a program to facilitate the exchange of information between Ligado and federal agencies and provides copies of letters it had sent to 15 federal agencies, including the Department of Defense (DOD), seeking to engage discussion with each of them about evaluating whether and in what circumstances their GPS devices might experience harmful

²⁰ Stay Petition at 5.

²¹ Ligado Opposition to NTIA’s Petition for Stay, IB Docket No. 11-109 (filed May 29, 2020) (Ligado Opposition). On June 3, 2020, a group of parties filed a letter in support of NTIA’s Stay Petition. Letter from ACR Electronics, Inc., *et al.*, to Marlene H. Dortch, Secretary, FCC, IB Docket Nos. 11-109 and 12-340 (filed June 3, 2020). We note that this filing was made in violation of Section 1.45(d) of the Commission’s rules, which provides that “[r]eplies to oppositions should not be filed and will not be considered.” 47 CFR § 1.45(d).

²² Ligado Opposition at 1 (quoting *Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(B) to Ensure Timely Siting Review and to Preempt Under Section 253 State and Local Ordinances that Classify All Wireless Siting Proposals as Requiring a Variance, et al.*, WT Docket No. 08-165, Order, 25 FCC Rcd 1215, 1218 para. 7 (2010)).

²³ Ligado Opposition at 1-2, 3-5.

²⁴ Ligado Opposition at 2, 5-8.

²⁵ Ligado Opposition at 3, 8-9.

²⁶ *See, e.g.*, Letter from Andrew Roy, Aviation Spectrum Resources Inc. and Max Fenkell, Aerospace Industries Association, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 11-109, at 1 (filed Aug. 24, 2020); Letter from Jeffery R. Gardner, President and Chief Executive Officer, Cal/Amp, IB Docket No. 11-109 at 1 (filed Sept. 21, 2020); Letter from Dan DePowdin, Manager of Forecasting Operations at AccuWeather, Inc. State College, PA, *et al.* to Marlene H. Dortch, FCC, IB Docket No. 11-109 at 1 (filed Sept. 22, 2020); Letter from AccuWeather, Inc., Aerospace Industries Association, *et al.* to the Honorable Ajit Pai, Chairman, the Honorable Jessica Rosenworcel, Commissioner, *et al.*, FCC, IB Docket No. 11-109 (filed Jan. 19, 2021) (AccuWeather, Aerospace Industries *et al.* Jan. 19, 2021 *Ex Parte*).

²⁷ *Order*, 35 FCC Rcd at 3841, para. 154 (commencing six months after the release of the *Order* Ligado must file status reports with the Commission detailing its spectrum use plan for its network deployments).

²⁸ Letter from Valerie Green, Executive Vice President, Ligado Networks, to Marlene H. Dortch, Secretary, FCC (filed Oct. 22, 2020) (Ligado Oct. 22 *Ex Parte*).

²⁹ Ligado Oct. 22 *Ex Parte*, Status Report at 1-5 (e.g., beginning to build a base station database for the aviation community while awaiting collaboration and participation by that community; establishing a toll-free reporting hotline and developing internal processes for responding to any complaints; progress toward building a “stop buzzer” functionality in the network).

³⁰ Ligado Oct. 22 *Ex Parte*, Status Report at 2.

interference from Ligado's operations.³¹ Ligado states, however, that no such information exchange or related evaluation had occurred.³² We also note that Congress recently adopted the National Defense Authorization Act for Fiscal Year 2021 (NDAA), which became law on January 1, 2021, and included several provisions concerning the Commission's *Order*.³³ One provision, Section 1661, prohibits DOD from spending any of the funds authorized to be appropriated to retrofit any GPS device, system, or network to mitigate harmful interference from Ligado's commercial terrestrial operations, while at the same time expressly allowing DOD to conduct "technical or information exchanges" with Ligado and to seek compensation for harmful interference from Ligado's operations.³⁴ Another provision, Section 1664, bars DOD from obligating or expending any funds authorized to be appropriated by the NDAA (or otherwise made available for fiscal year 2021) to comply with the *Order* until DOD first submits to Congressional defense committees an estimate of the extent of costs and range of reimbursable costs that would be incurred as a result of upgrading, repairing, and replacing GPS receivers to address harmful interference from Ligado's operations authorized in the *Order*.³⁵

III. DISCUSSION

8. The Communications Act makes clear that the filing of a petition for reconsideration "shall not excuse any person from complying with or obeying any order, decision, report, or action of the Commission, or operate in any manner to stay or postpone the enforcement thereof, without the special order of the Commission."³⁶ Parties may, however, request a stay of the effectiveness of a Commission order.³⁷ When evaluating a stay request, the Commission considers: (1) whether the requesting party will be irreparably injured without a stay; (2) whether the requesting party has made a strong showing that it is likely to succeed on the merits; (3) whether a stay will substantially injure other interested parties; and (4) whether the public interest supports a stay.³⁸ A stay is an "'intrusion into the ordinary processes of administration and judicial review,' . . . and accordingly 'is not a matter of right, even if irreparable injury might otherwise result'" to the movant.³⁹ The party requesting a stay bears the burden of showing that the circumstances justify an exercise of that discretion.⁴⁰

³¹ Ligado Oct. 22 *Ex Parte*, Status Report at 5-7 & Exhibits A-R.

³² Ligado Oct. 22 *Ex Parte*, Status Report at 6. Ligado also notes that it has sought to initiate discussions with Iridium about addressing any interference concerns). *Id.* at 7-8.

³³ William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, H.R. 6395, 116th Cong. §§ 1661-1664 (2020) (enacted by veto override, Jan. 1, 2021).

³⁴ NDAA, Section 1661.

³⁵ NDAA, Section 1664. The NDAA also includes two other provisions that relate to the Commission's *Order* – Section 1662 (barring DOD from entering into a contract with an entity that engages in commercial terrestrial operations using this band unless the Secretary of Defense certifies to the Congressional defense committees that "such operations do not cause harmful interference" to DOD's GPS devices) and Section 1663 (requiring DOD to seek to enter into an agreement with the National Academies of Sciences, Engineering, and Medicine to conduct an "independent technical review" of the *Order* to the extent that it affects any DOD devices, operations, or activities, and to submit a report and any recommendations to the Senate and House Committees on Armed Services within 270 days). See NDAA, Sections 1662-63.

³⁶ See 47 U.S.C. § 405(a).

³⁷ See 47 CFR § 1.106(n) (noting that "upon good cause shown, the Commission will stay the effectiveness of its order or requirement pending a decision on the petition for reconsideration.").

³⁸ *Nken v. Holder*, 556 U.S. 418, 425-26 (2009); see also *Winter v. Nat'l Res. Def. Council*, 555 U.S. 7, 22 (2008).

³⁹ *Nken*, 556 U.S. at 427 (internal citations omitted).

⁴⁰ *Nken*, 556 U.S. at 433-34.

9. We find that the extraordinary equitable relief of a stay is not warranted. *First*, NTIA itself argues that the harmful interference issue it raises will not likely arise until after Ligado deploys its network. Such deployment will not occur for some time and not before the Commission has an opportunity to rule on the Petition for Reconsideration and to reach a determination as to whether NTIA's claims justify barring this deployment or otherwise modifying its underlying order. Thus, there is no need to issue a stay at this time to prevent any irreparable harm that NTIA claims will occur. *Second*, based on the record, we conclude that NTIA is unlikely to succeed on the merits.⁴¹ Its claim is based primarily on an argument that the *Order* departed from the Commission's established approach to evaluating harmful interference concerns, a claim belied by the words of the *Order* itself. To the extent NTIA contends that the Commission should use the specific 1 dB metric and approach specifically advocated by DOT and others,⁴² the Commission addressed that contention in detail in the *Order*. To the extent NTIA in its Stay Petition is seeking to support its request for a stay based on providing new data or additional testing that NTIA had not previously provided in the record of this proceeding,⁴³ this argument is unlikely to succeed on the merits based on its untimeliness. Finally, the balance of the equities favors denial of a stay, in light of the tangible harm to Ligado from a stay and the public interest in finally bringing its terrestrial service to market.

A. NTIA Has Failed to Show that It Will Suffer Irreparable Harm

10. NTIA fails to demonstrate that, absent a stay, the *Order* would cause irreparable harm, the "single most important prerequisite" for the issuance of a stay.⁴⁴ To establish irreparable harm, a moving party must show that it will suffer injury that is "'both certain and great,' 'actual and not theoretical,' 'beyond remediation,' and 'of such *imminence* that there is a present need for equitable relief to prevent irreparable harm.'"⁴⁵ The Stay Petition fails to make any of these showings.

11. At the outset, we note that NTIA does not establish that *any* harm would be imminent, let alone any irreparable injury. To the contrary, NTIA concedes that "Ligado does not expect to commence the contemplated service within the next 18 months."⁴⁶ Because NTIA's claimed injury springs from harmful interference arising from the operation of Ligado's network, as Ligado points out,⁴⁷ this concession severely undermines NTIA's claim that any harm is imminent.

12. While NTIA raises the possibility that Ligado could deploy earlier than 18 months, we note that the *Order* itself prevents any deployment until some period of time after Ligado has engaged in information exchange and coordination with the U.S. Government and also has provided six months advance notification to GPS device manufacturers. Specifically, Ligado must establish a robust information exchange program between itself and the U.S. Government at least 30 days before

⁴¹ The merits of the Petition for Reconsideration remain pending before the Commission.

⁴² See Petition for Reconsideration at 10 (indicating that testing based on the use and application of a 1 dB C/N0 degradation is "valid and should not be disregarded").

⁴³ We note that in its Petition for Reconsideration, NTIA references certain data that it and other federal agencies had been examining in 2018, but had not submitted to the Commission before the *Order* was adopted, as support for its Petition for Reconsideration, Petition for Reconsideration at 9; Declaration of Edward Drocella, Attach. to Petition for Reconsideration, at 1-2 (discussing certain studies by a technical focus group).

⁴⁴ *Freedom Holdings, Inc. v. Spitzer*, 408 F.2d 112, 114 (2d Cir. 2005) (discussing the requirements for a preliminary injunction—what a court would issue to stay an agency action).

⁴⁵ *Mexichem Specialty Resins, Inc. v. EPA*, 787 F.3d 544, 555 (D.C. Cir. 2015) (internal citations omitted); *Chaplaincy of Full Gospel Churches v. England*, 454 F.3d 290, 297 (D.C. Cir. 2006).

⁴⁶ Stay Petition at 3.

⁴⁷ Ligado Opposition at 6-7. See also *id.* at 2 ("NTIA admits that Ligado's system will not become operational for a period as long as eighteen months").

deployment of a downlink base station in the 1526-1536 MHz band.⁴⁸ This program must include disclosure of base station information and technical operating parameters, coordination with federal agencies to identify potentially affected devices, evaluation of whether affected devices would actually experience harmful interference, and development of a repair or replace program to remedy any foreseen harmful interference.⁴⁹ As Ligado noted in its October 2020 status report, while Ligado has worked on a program to facilitate this initial information exchange or coordination, it had not yet even begun,⁵⁰ and thus no repair or replace program had yet been developed. Moreover, while Section 1661 of the NDAA expressly allows DOD to conduct “technical or information exchanges” with Ligado and be reimbursed by Ligado,⁵¹ it precludes any use of funds authorized to be appropriated thereunder (or otherwise made available for fiscal year 2021) to accomplish the retrofit of any GPS device to mitigate harmful interference from Ligado’s operations, a specific condition in the *Order* for Ligado’s future deployment. Thus, DOD is now precluded from use of any such funds to effectuate that condition. Moreover, Section 1664 requires DOD to submit a certified cost estimate and range of reimbursable costs to the Congressional defense committees *before* DOD can spend appropriated funds on complying with the Commission’s *Order*, including DOD’s funding to take the necessary steps to update, repair, or replace potentially affected federal GPS devices before the launch of Ligado’s terrestrial operations.⁵² Accordingly, as a practical matter Ligado will not be able to proceed in the near term with commencing operations pending the development of these cost estimates, and thus Ligado’s commencement of operations is not imminent. We therefore disagree with the recent filing by several commenters that the NDAA counsels in favor of issuing a stay because, absent a stay, Ligado could move forward with deployments.⁵³ To the contrary, the provisions of the NDAA, such as the prohibition on the use of appropriated funds to comply with the *Order*, further remove the potential for actual or imminent harm that might result to federal GPS users (including DoD) from future deployment by Ligado. The *Order* also requires Ligado to provide six months advance notice to GPS manufacturers (with whom it has entered agreements) prior to activation of any base station transmitting in the 1526-1536 MHz band.⁵⁴ To date, neither the interested GPS manufacturers nor Ligado has indicated that any such notice has been provided. These facts alone indicate that NTIA’s allegation of imminent harm is unavailing.

13. Further, Ligado must take additional steps to position itself for successful deployment. Specifically, Ligado must standardize its spectrum through the 3GPP standards-setting process, negotiate network partnership agreements, and secure \$800 million in the capital markets to fund its infrastructure build-out.⁵⁵ Ligado’s spectrum standardization work alone, only the first step in this process, requires

⁴⁸ *Order*, 35 FCC Rcd at 3838, paras. 144.

⁴⁹ *Order*, 35 FCC Rcd at 3838, paras. 144.

⁵⁰ Ligado Oct. 22 *Ex Parte*, Status Report at 6. Ligado also notes that it has sought to initiate discussions with Iridium about addressing any interference concerns). *Id.* at 7-8.

⁵¹ NDAA Section 1661(b)(1) (providing that the prohibition on expenditure of appropriated funds “shall not apply to any action taken by [DOD] relating to conducting technical or information exchanges with the entity that operates the commercial terrestrial operations” in the 1526-1536 MHz, 1627.5-1637.5 MHz, or 1646.5-1656.5 MHz band).

⁵² NDAA Section 1664 (providing that no funds authorized to be appropriated may be spent by DOD until it “submits to the congressional defense committees an estimate of the extent of covered costs and the range of eligible reimbursable costs associated with harmful interference resulting from” the Order to the DOD’s GPS system).

⁵³ AccuWeather, Aerospace Industries et al. Jan. 19, 2021 *Ex Parte* at 2.

⁵⁴ *Order*, 35 FCC Rcd at 3838, paras. 145.

⁵⁵ See Ligado Opposition at 8; Press Release, Ligado Networks, *Ligado Networks CEO Doug Smith Remarks at the Wireless Infrastructure Association Connect(X) All Access Event* (May 19, 2020), <https://ligado.com/press/ligado-networks-ceo-doug-smith-remarks-wia-connectx-access-event/>. In May 2020, Ligado indicated it had raised around \$100 million toward its financing goal. Press Release, Ligado Networks, *Ligado Raises Over \$100 Million to Build*

(continued....)

extensive conformance testing to meet necessary performance parameters, is not targeted for completion until March 2021.⁵⁶ Considering the significant and costly activities Ligado must complete prior to network testing and deployment, and the lengthy timeline that NTIA apparently concedes, we find that the harmful interference that NTIA claims could be caused by Ligado's commencement of operations is far from imminent, and does not warrant the extraordinary remedy of a stay pending the Commission's consideration of the Petition for Reconsideration "before Ligado's deployment commences."⁵⁷

14. In addition, we disagree with NTIA's claim that there would be irreparable harms arising before Ligado deploys its network as it commences preparation of its terrestrial buildout.⁵⁸ Pointing to the coordination condition in the *Order*, NTIA notes the burdens that government agencies may face to "anticipat[e] which of [their] GPS devices may be 'affected by Ligado's ATC operations' and evaluat[e] 'whether there would be harmful interference from Ligado's operations.'"⁵⁹ NTIA claims these efforts are high cost and time consuming.⁶⁰ But these claims do not support the extraordinary relief sought by NTIA. For one, these alleged harms that NTIA "anticipates" are merely speculative. As we discuss above, Ligado's October 2020 status report indicates that the requisite technical and information exchanges between Ligado and the federal agencies, which could help address whether there would be harmful interference from Ligado's operations, have not yet commenced.⁶¹ Moreover, as noted above, the NDAA restrictions applicable to the DOD's activities necessary for the repair and replace conditions set forth in the Commission's *Order* (including the submission of cost estimate) demonstrate that these alleged harms are not imminent. Nor does NTIA show in its petition that the alleged harms are irreparable, for "[w]here the injuries alleged are purely financial or economic, the barrier to proving irreparable injury is higher still, for it is 'well settled that economic loss does not, in and of itself, constitute irreparable harm.'"⁶²

15. Further, all of the harms that NTIA claims would arise from either the operation of Ligado's network or the commencement of preparation for its terrestrial buildout are speculative in nature, rather than actual. NTIA contends that an allegedly new "performance-based" interference metric relied upon in the *Order* creates a "level of uncertainty" about the amount of harm that "could be caused" to the Department of Defense's inventory of GPS devices by the future deployment of Ligado's network.⁶³ This argument about "uncertainty" about the alleged harm is fundamentally misguided. As the Commission stated in the *Order*, in determining whether there would be harmful interference "we begin with and rely on the Commission's long-standing definition embodied in our rules: 'harmful

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Mission-Critical 5G Networks (May 28, 2020), <https://ligado.com/press/ligado-raises-100-million-build-mission-critical-5g-networks/>.

⁵⁶ 3GPP, New WID Proposal for Introduction of NR Band n24, 3GPP TSG-RAN WG4 Meeting #88e, RP-200844 at 3-4 (June 28-July 3, 2020).

⁵⁷ Stay Petition at 1, 6.

⁵⁸ Stay Petition at 3.

⁵⁹ See, e.g., Stay Petition at 5, n.13 (referencing the condition relating to Ligado's coordination with Federal agency GPS users with respect to Ligado's obligation to repair or replace Federal receivers that experience or are likely to experience harmful interference); see also *id.* at 2, 6.

⁶⁰ Stay Petition at 6 (citing Petition for Reconsideration, section ii(c)); Petition for Reconsideration at 14-15.

⁶¹ We note that the *Order* did not require Ligado to commence the information exchange program of its coordination with federal users until October 22, 2020 (unless deployment occurs earlier). *Order*, 35 FCC Rcd at 3824, para. 101, 3838, para. 144.

⁶² *Mexichem*, 787 F.3d at 555 (quoting *Wisc. Gas v. Fed. Energy Regulatory Com.*, 758 F.2d 669, 674 (D.C. Cir. 1985)).

⁶³ Stay Petition at 4.

interference” and further noted that NTIA and the International Telecommunication Union (ITU) use the same definition.⁶⁴ In other words, NTIA can hardly complain that the Commission has created some newfound uncertainty by relying on a definition of harmful interference that NTIA itself long ago adopted and has long applied. What is more, NTIA observes that the Department of Defense has a large number of GPS devices in its inventory,⁶⁵ but such an observation hardly amounts to a showing of harmful interference—especially when NTIA does not identify even a single military GPS receiver that will experience harmful interference, does not provide an analysis of those military GPS receivers that even “could” experience “harmful interference” as a result of Ligado’s proposed operations, and does not provide even an estimate of the number or percentage of such receivers.⁶⁶ In short, a stay is an extraordinary remedy, and NTIA’s speculative assertions do not meet its burden of demonstrating that its alleged injury is both “certain and great,” and “actual and not theoretical.”⁶⁷

16. Moreover, even though the *Order* did not find significant potential for harmful interference to federal GPS, the *Order* establishes several conditions designed to address federal concerns. Before initiation of service, it requires Ligado to minimize the burden on federal agencies and to establish a process wherein Ligado and the federal agencies work together to ensure that federal agencies’ GPS devices will not experience harmful interference from Ligado’s terrestrial operations.⁶⁸ The *Order* requires that Ligado launch a program to facilitate the exchange of information between it and the U.S. Government by October 22, 2020 (or no less than 30 days prior to the deployment of a downlink base station at 1526-1536 MHz under ATC authority if sooner); Ligado has launched such a program.⁶⁹ The *Order* directs Ligado “to cooperate directly with any U.S. government agency that anticipates that its GPS devices may be affected by Ligado’s ATC operations.”⁷⁰ Ligado must provide base station information to federal agencies prior to commencing operations in the 1526-1536 MHz band, work with an affected agency to identify the devices that could be affected, work with the affected agency to evaluate whether there would be harmful interference from Ligado’s operations, and develop a program to repair or replace any such devices that is consistent with that agency’s programmatic needs, as well as applicable statutes and regulations relating to the ability of those agencies to accept this type of support. As discussed above, the requisite information exchanges between Ligado and the federal agencies have not yet occurred. In the unlikely event this process shows that a U.S. Government GPS device will “experience or [is] likely to experience harmful interference from Ligado’s operations” under the Commission’s (and NTIA’s) long-standing definition of “harmful interference,” Ligado is specifically

⁶⁴ *Order*, 35 FCC Rcd at 3799, para. 49 (quoting 47 CFR § 2.1(c)). We note that Congress in the NDAA recognizes that the critical question involves a determination concerning the potential for Ligado’s operations to cause “harmful interference” to GPS device operations. See, e.g., Sections 1661 (a)-(b); 1164(a) (discussing the potential for Ligado’s operations to cause “harmful interference” to GPS devices); see also Section 1163(b)(2)(A)(1).

⁶⁵ Stay Petition at 3, 6. See Petition for Reconsideration at 1 (noting that the Department of Defense has approximately one million GPS devices in its inventory).

⁶⁶ Stay Petition at 4.

⁶⁷ *Mexichem Specialty Resins, Inc. v. EPA*, 787 F.3d 544, 555 (D.C. Cir. 2015) (internal citations omitted); *Chaplaincy of Full Gospel Churches v. England*, 454 F.3d 290, 297 (D.C. Cir. 2006).

⁶⁸ NTIA misconstrues the Commission’s adoption of conditions as an admission that the Department of Defense’s and other federal agencies’ GPS receivers will experience widespread harmful interference. Stay Petition at 5. The *Order* makes no such concession. The conditions adopted in the *Order* are prophylactic, intended to provide an additional layer of protection to GPS receivers operating far outside the RNSS allocation should the need arise. See, e.g., *Order*, 35 FCC Rcd at 3806, para. 62.

⁶⁹ Ligado Oct. 22 *Ex Parte*, Status Report at 6.

⁷⁰ *Order*, 35 FCC Rcd at 3838, para. 144. Section 1661 of the NDAA contemplates that DOD would conduct technical or information exchanges with Ligado.

obligated to replace or repair that device.⁷¹ Ligado must make available technical experts to support the repair and replacement program.⁷² And in the even still more unlikely event that an affected agency determines that Ligado's operations will cause harmful interference to a specific GPS receiver operating on a military installation and that the GPS receiver is incapable of being fully tested or replaced, Ligado must negotiate with the affected government agency to determine an acceptable received power level over the military installation.⁷³ As Ligado's October 2020 status report and the NDAA indicate, this requisite repair and replace program still awaits development as a condition of Ligado's deployment, again underscoring that there is no imminent irreparable harm that supports granting NTIA's Stay Petition. The conditions established by the Commission in its *Order*, satisfaction of which will be supervised by the Commission,⁷⁴ ensure that Ligado is required to coordinate with U.S. government agencies and ensure, before its system is operational, that no U.S. Government GPS device would suffer any harmful interference.

17. For the foregoing reasons, we conclude that the Stay Petition has failed to demonstrate any imminent, actual irreparable harm resulting from the Commission's *Order*.

B. NTIA Has Failed to Show a Likelihood of Success on the Merits

18. We also find that NTIA has failed to show that it will likely succeed on the merits. Under this element for obtaining a stay, NTIA is required to make a "strong showing" that it is likely to succeed on the merits;⁷⁵ a "mere possibility of relief" is insufficient.⁷⁶ As the D.C. Circuit has recognized, "[w]ithout such a substantial indication of probable success, there would be no justification for . . . intrusion into the ordinary processes of administration and judicial review."⁷⁷ NTIA contends that it is likely to prevail on the merits because the Commission's *Order* "relies on an unproven harmful interference metric and inadequate operational conditions" and because it "disregards executive branch concerns about the risks of interference to federal GPS operations and detailed evidence in support thereof."⁷⁸ To the contrary, the substance of each of these claims, and the evidence supporting them, was extensively addressed in the *Order*.

19. In the *Order*, the Commission clearly explained that its approach for evaluating potential harmful interference to GPS devices⁷⁹ is based on the Commission's long-standing definition for harmful interference—i.e., "[i]nterference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with [the ITU] Radio Regulations."⁸⁰ As the *Order* noted, this is the

⁷¹ *Order*, 35 FCC Rcd at 3838, para. 144.

⁷² *Order*, 35 FCC Rcd at 3838, para. 144. Ligado's program would have to take into account how best to address classified matters, but NTIA offers no more than mere speculation that this cannot be done, or that it must be done during the pendency of the Commission's consideration of the Petition for Reconsideration.

⁷³ *Order*, 35 FCC Rcd at 3825, para. 103.

⁷⁴ 47 U.S.C. §§ 312(b), 503(b).

⁷⁵ *Nken*, 556 U.S. at 426 (quoting *Hilton v. Braunskill*, 481 U.S. 770, 776 (1987)).

⁷⁶ *Nken*, 556 U.S. at 434 (internal citations omitted).

⁷⁷ *Va. Petroleum Jobbers Ass'n v. Fed. Power Comm'n*, 259 F.2d 921, 925 (D.C. Cir. 1958).

⁷⁸ Stay Petition at 3-4.

⁷⁹ As explained in the *Order*, the Commission's approach with respect to certified aviation receivers (a particular subset of GPS receivers) was based on a different approach based on FAA analysis. *Order*, 35 FCC Rcd at 3811, paras. 71-72.

⁸⁰ 47 CFR § 2.1(c).

same definition for harmful interference employed by NTIA and the ITU.⁸¹ When seeking comment on Ligado’s license modification applications in 2016, the Commission expressly cited the Commission’s definition of “harmful interference” and, consistent with this definition, asked for relevant technical information about affected GPS receivers (e.g., receiver category, receiver bandwidth) and their *performance or functioning* (e.g., break lock, loss of tracking, specific effects on location and timing accuracy).⁸² In response to this request, three sets of testing and analyses were submitted into the Commission’s record. Two of these, a report from Roberson and Associates and a report from the National Advanced Spectrum and Communications Test Network,⁸³ examined certain specific performance metrics (e.g., accuracy of position measurements); the third report, prepared by the Department of Transportation, did not examine actual receiver performance but instead focused on the use of a 1-dB carrier-to-noise density ratio (C/N₀) degradation metric and proposed an interference protection criterion that that agency recommended should guide the Commission’s interference analysis and decision.⁸⁴ The Commission examined the record before it and determined that “a performance-based metric approach”—which it noted “more closely aligns with the Commission’s ‘harmful interference’ definition”—is “more reliable” than use of the 1 dB metric approach,⁸⁵ which the Commission explained in the *Order* is not directly correlated with the Commission’s definition of harmful interference and is unreliable and fundamentally flawed in several respects for purposes of evaluating harmful interference in this proceeding.⁸⁶ The Commission then relied on data and analyses in the Roberson and Associates report and National Advanced Spectrum and Communications Test Network report, each of which involved use of a performance-based metric approach. In other words, the Commission did *not* alter its approach in evaluating the potential harmful interference under the Commission’s long-standing definition and did not establish some new metric for evaluating harmful interference that creates a level of uncertainty as alleged by NTIA.⁸⁷

⁸¹ *Order*, 35 FCC Rcd at 3799-805, paras. 47-59.

⁸² *Order*, 35 FCC Rcd at 3791, at para. 35; *Comment Sought on Ligado’s Modification Applications*, IB Docket Nos. 11-109 and 12-340, Public Notice, 31 FCC Rcd 3802, 3809 (IB, OET, WTB 2016) (“We seek specific comment on whether there remain any unresolved concerns of potential harmful interference to GPS receivers and devices should Ligado operate a terrestrial mobile network on the 1526-1536 MHz, 1627.5-1637.5 MHz, and 1646.5-1656.5 MHz MSS L-band frequencies in accordance with the operational parameters in the Applications that reflect the technical parameters set forth in the agreements [with major GPS device manufacturers].”) (*2016 Comment PN*) (citing 47 CFR § 2.1(c)).

⁸³ The National Advanced Spectrum and Communications Test Network is a multi-agency partnership founded by NTIA, the Department of Defense, and the National Institute of Standards and Technology, among other federal agencies. As recounted in the *Order*, the National Advanced Spectrum and Communications Test Network’s purpose is to “improve opportunities for successful spectrum sharing through accurate, reliable, and unbiased measurements and analysis” while “seek[ing] to provide a ‘neutral forum’ for testing, modeling and analysis necessary to inform future spectrum policy and regulations.” *Order*, 35 FCC Rcd at 3792, para. 38.

⁸⁴ *Order* at paras. 37-39; *see id.* at para 40 (noting that an additional 2018 report, the “NPEF Gap Analysis,” which relied on use of the 1 dB metric and approach taken by DOT, was submitted into the record).

⁸⁵ *See Order*, 35 FCC Rcd at 3791-805, paras. 36-59. Nothing in Section 1663 of the NDAA, which directs DOD to contract with the National Academies to conduct an independent technical review of “the two different approaches on which the Commission relied...to evaluate the potential for harmful interference concerns relating to [GPS] devices,” contradicts the Commission’s determination.

⁸⁶ *See Order*, 35 FCC Rcd at 3791-805, paras. 36-59.

⁸⁷ In a recent filing, several commenters have suggested that several provisions of the NDAA counsel in favor of issuing a stay because, absent a stay, Ligado could move forward with deployments, “potentially moot[ing] the Congressional requirement of an independent technical evaluation of Ligado’s proposed network and complicating further remedial efforts.” AccuWeather, Aerospace Industries et al. Jan. 19, 2021 *Ex Parte* at 2. Again, we disagree. The NDAA reaffirmed the “harmful interference” analysis at the heart of the Commission’s decision in the *Order*. The NDAA recognizes that the critical question involves a determination concerning the potential for
(continued....)

20. Further, the Commission made clear that it was not relying exclusively on analysis of the testing in the record but also on other critical evidence in the record. In particular, the Commission underscored its reliance on Ligado's agreements with major GPS device manufacturers and their significant role with respect to GPS devices in the marketplace.⁸⁸ These agreements formed an additional basis for reaching the overall conclusion that co-existence of Ligado's operations (at reduced power levels separated by 23 megahertz from the RNSS allocation where GPS is authorized) and GPS is technically feasible and that harmful interference concerns can be remedied by repairing or replacing filters to the extent particular GPS receivers (such as high-precision receivers) might potentially be exposed to harmful interference.⁸⁹

21. NTIA states, in the Petition for Reconsideration, that it continues to believe that testing "based on the use and application of a 1 dB metric is valid and should not be disregarded."⁹⁰ To the extent that NTIA's argument proceeds from a contention that the 1 dB metric and accompanying analysis and interference protection criterion proposed by DOT or other federal agencies is the appropriate approach for addressing harmful interference concerns, the Commission's *Order* extensively discussed such an approach and rejected it.⁹¹ Accordingly, we find that such a contention, which the Commission has already considered and rejected, would lend no support to NTIA's argument that its Petition for Reconsideration is likely to succeed on the merits.⁹²

22. To the extent that NTIA is now raising a new argument that the Commission should not authorize Ligado's operations without obtaining additional data from NTIA⁹³ or conducting further joint Commission-executive branch or "independent" testing,⁹⁴ its argument flies in the face of well-established

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Ligado's operations to cause "harmful interference" to GPS device operations. *See, e.g.*, Sections 1661 (a)-(b); 1163(b)(2)(A)(1); 1164(a). And, as discussed herein, the provisions of the NDAA further remove any imminence of harm that may result to federal GPS users (including DoD) from future deployment by Ligado.

⁸⁸ *Order*, 35 FCC Rcd at 3786-92, 3812, 3816-17, paras. 25-34, 74, 85-86. The Commission explained Ligado had entered into agreements with major manufacturers of general location and navigation devices (including general non-certified aviation), high-precision, and timing receivers used in the United States (including by the U.S. government) and throughout the world. *Id.* at 3786, para. 27. The Commission also concluded that together these agreements take into account representative GPS devices and categories of those devices in the market today. *Id.* at 3816, para. 85. The Commission also noted its expectation that U.S. government users procuring GPS receivers will benefit from these agreements. *Id.* ("These manufacturers . . . best know their various receivers and how they are designed and perform—including the many devices previously produced and distributed in the marketplace *and those being developed now and for the future.*") (emphasis added).

⁸⁹ *Order*, 35 FCC Rcd at 3817-18, 3841-42, paras. 86, 157-58.

⁹⁰ Petition for Reconsideration at 10.

⁹¹ As the *Order* noted, the question here of affording protection to GPS devices receiving signals far outside the RNSS allocation is different from that in the unique proceeding involving Ultra-Wideband devices. *Order*, 35 FCC Rcd at 3801, para. 51 (quoting *Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems*, ET Docket No. 98-153, First Report and Order, 17 FCC Rcd 7435, 7436-37, paras. 1-2 (2002) (*Ultra-Wideband Order*)). Nor does it involve "second harmonic" interference to GPS and other GNSS services in the 1559-1610 MHz band. *See Order*, 35 FCC Rcd at 3800, para. 51 & n.196. Accordingly, we find NTIA's citations to these examples have been addressed already.

⁹² 47 CFR § 1.106(p)(3); *see also Iowa Network Access Division*, Order on Reconsideration, 33 FCC Rcd 11860, 11864 para. 11 (2018); *Touch-Tel USA, LLC*, Memorandum Opinion and Order, 31 FCC Rcd 12139, 12139 para. 2 (2016).

⁹³ *See* Petition for Reconsideration at 9; Drocella Decl.

⁹⁴ *See* Petition for Reconsideration at 12-13.

Commission policy.⁹⁵ Here, as the *Order* pointed out, consistent with the Memorandum of Understanding between the Commission and NTIA, the Commission and NTIA exchanged information on this proceeding over several years,⁹⁶ and NTIA had numerous opportunities over an extended period to provide additional technical analysis into the record,⁹⁷ including after receiving a draft *Order* in October 2019. It declined to do so. The Commission has long made clear that “[w]e cannot allow [a party] to sit back and hope that a decision will be in its favor and then, when it isn’t, to parry with an offer of more evidence. No judging process in any branch of government could operate efficiently or accurately if such a procedure were allowed.”⁹⁸ What is worse, here NTIA did not even provide additional evidence at the time of filing its Stay Petition—instead it provided cursory conclusions about draft conclusions reached in 2018 and offered the possibility of providing the Commission with additional evidence on this in the future.⁹⁹

23. Nor is NTIA likely to prevail on the merits of its argument that, “in the event interference arises, significant and irreparable harm will result because the conditions presently set forth in the *Ligado Order* largely are ineffective.”¹⁰⁰ NTIA asserts that the conditions adopted in the *Order* are either too burdensome or infeasible for federal agencies to implement.¹⁰¹ This argument fails to explain with any specificity why the comprehensive conditions in the *Order* designed to protect military GPS receivers are inadequate. *Ligado* must: (1) comply with the terms and conditions of its agreements with GPS device manufacturers;¹⁰² (2) constrain its operations (including reducing the power level of its downlink operations in the 1526-1536 MHz band and refrain from using its terrestrial authority in its MSS downlink spectrum from 1545-1555 MHz);¹⁰³ (3) demonstrate equipment certification requirements for mobile terminals used to communicate via *Ligado*’s terrestrial network;¹⁰⁴ (4) engage in advance coordination with GPS manufacturers and establish a toll-free number on its website for the public to

⁹⁵ See 47 CFR § 1.106(c); see also *KAXT, LCC*, Memorandum Opinion and Order, 32 FCC Rcd 9638, 9646 paras. 17-18 (2017); *Lyca Tel, LLC*, Memorandum Opinion and Order, 31 FCC Rcd 12125, 12125 para. 2 n.3 (2016).

⁹⁶ *Order* at 3831-32, para. 122-23 (citing Memorandum of Understanding Between the Federal Communications Commission and the National Telecommunications and Information Administration, at 1 (Jan. 31, 2003), <https://docs.fcc.gov/public/attachments/DOC-230835A2.pdf> (FCC-NTIA MOU)).

⁹⁷ See, e.g., *Order* at 3832, para. 123.

⁹⁸ *Federal-State Joint Board on Universal Service*, CC Docket 96-45, Order, 35 FCC Rcd 2641, 2652, n.90 (2020) (quoting *GLH Communications, Inc.*, Order on Reconsideration, 33 FCC Rcd 5926, 5928-29, para. 8 & nn.27-28 (2018), *aff’d*, 930 F.3d 449 (D.C. Cir. 2019)).

⁹⁹ Petition for Reconsideration at 9, Drocella Decl. On December 4, 2020, NTIA filed a request that the Commission grant its request, pursuant to section 1.106(f), for leave to file with the Commission its “December 2020 Technical Memorandum” to supplement its pending Petition for Reconsideration or Clarification, which it attaches to its request. Letter from Kathy Smith, Chief Counsel, NTIA, to Marlene H. Dortch, Secretary, FCC, IB Docket Nos. 11-109, 12-340 (Dec. 4, 2020); see 47 CFR § 1.106(f). To the extent that NTIA intends the Technical Memorandum to be providing support for its Petition for Stay, which is not clear, we note the delay of over six months since the filing of the Petition for Reconsideration or Clarification. Further, we are under no obligation to consider a supplement filed more than 30 days following public notice of the Commission action. 47 CFR § 1.106(f). We will consider NTIA’s motion for leave to supplement its petition for reconsideration prior to our consideration of that petition.

¹⁰⁰ Stay Petition at 6. NTIA’s admission here that (harmful) interference is not a given raises separate concerns that the claimed injury is not of such imminence as to warrant a stay. See *supra* section II.A.

¹⁰¹ Stay Petition at 6.

¹⁰² *Order*, 35 FCC Rcd at 3836, para. 133.

¹⁰³ *Order*, 35 FCC Rcd at 3836, paras. 134, 136.

¹⁰⁴ *Order*, 35 FCC Rcd at 3837-38, para. 143.

report apparent incidences of interference from Ligado's operations;¹⁰⁵ (5) develop a database of base station information to share with relevant stakeholders including federal agencies;¹⁰⁶ and (6) engage in a variety of other drive testing,¹⁰⁷ monitoring,¹⁰⁸ and reporting¹⁰⁹ requirements. The *Order* also included conditions to ensure that Ligado would be responsive to notifications of any interference complaints, including a 24/7 response requirement and a "stop buzzer" capability enabling it to cease transmissions immediately in the event of a large-scale disruption to GPS.¹¹⁰ All of these conditions, taken together, are designed to help ensure that Ligado's terrestrial operations will not cause harmful interference to GPS users in the first instance and, if any unforeseen harmful interference were to occur, that any widespread harmful interference would be remedied immediately. These conditions place substantial burdens on Ligado, including providing the necessary expertise to help minimize the burdens on federal agencies, all in order to ensure that federal GPS devices are repaired or replaced as necessary, or other appropriate protective actions are taken, so that Ligado's operations do not cause harmful interference to federal GPS devices. NTIA does not provide any specific evidence let alone examples of how the conditions would place an undue burden on federal agencies.

24. NTIA also claims that the Commission "overlook[ed] the classified nature of military GPS use" when it adopted the repair and replacement condition;¹¹¹ but the Commission did no such thing. Rather, the Commission explained that in cases where an affected GPS receiver expected to experience harmful interference from Ligado's operations cannot be repaired or replaced, the Commission would expect Ligado and the affected government agency to negotiate an acceptable received power level over a military installation, which could include limited geographic areas that cannot be served by Ligado.¹¹² NTIA has failed to explain with sufficient specificity how these restrictions are unable to adequately address the classified military GPS use cases. As such, while NTIA's arguments on the merits remain under active consideration, NTIA has not demonstrated in the interim any likelihood of success on its argument that the repair and replacement condition imposed on Ligado is unworkable.

25. NTIA contends that the Commission's *Order* "disregards executive branch concerns about the risks of interference to federal GPS operations."¹¹³ As evidenced in the *Order*, however, the Commission consulted with federal agency stakeholders on multiple occasions throughout the history of this proceeding. In sum, the Commission and NTIA have been exchanging information on potential MSS ATC operations for over 17 years. As discussed in the *Order*, the Commission considered the various submissions by NTIA in this proceeding in 2011, 2012, 2014, and most recently in December 2019 and April 2020.¹¹⁴

26. As the Commission noted, the genesis of this proceeding dates back to 2003 when the Commission coordinated with NTIA on its rulemaking first establishing rules to permit MSS licensees

¹⁰⁵ *Order*, 35 FCC Rcd at 3838-39, paras. 145-46.

¹⁰⁶ *Order*, 35 FCC Rcd at 3839, paras. 144, 147.

¹⁰⁷ *Order*, 35 FCC Rcd at 3839-40, para. 148.

¹⁰⁸ *Order*, 35 FCC Rcd at 3840, para. 149.

¹⁰⁹ *Order*, 35 FCC Rcd at 3840-41, paras. 151-55.

¹¹⁰ *Order*, 35 FCC Rcd at 3838-39, para. 146.

¹¹¹ Stay Petition at 6; *see also* Petition for Reconsideration at 14.

¹¹² *Order*, 35 FCC Rcd at 3824-25, para. 103, n.354.

¹¹³ Stay Petition at 3-4.

¹¹⁴ *See, e.g., Order*, 35 FCC Rcd at 3776-77, 3782-83, 3797-98, 3821-26, 3832-34, paras. 6, 17, 45-46, 97-106, 124-28.

like Ligado to operate ATC stations.¹¹⁵ The Commission and NTIA also coordinated the *2011 Order and Authorization* that resulted in the initiation of this docket.¹¹⁶ The Commission also sought comment on Ligado's 2015 license modification applications and its 2018 amended modification applications.¹¹⁷ And, perhaps most importantly, the Commission provided NTIA with a draft of the *Order* in October 2019. NTIA requested, and was granted, an extension of time to prepare its response to the draft. In response to the IRAC coordination process, NTIA submitted a letter in December 2019 stating that federal agencies have significant concerns regarding the potential impacts of Ligado's proposal,¹¹⁸ but the Commission noted in the *Order* that this letter convey[ed] no new information, data, or arguments" that were not already in the record before the Commission.¹¹⁹ Likewise, the *Order* concluded, NTIA's April 10, 2020 letter and enclosures contained no new technical data for the Commission's consideration, instead relying in substantial part on the 1 dB metric in support of its claims of harmful interference—which the Commission found unpersuasive.¹²⁰

27. The Commission explained in the *Order* that the Communications Act charges the Commission with the licensing and regulation of commercial and private spectrum use, while Congress has delegated to NTIA authority over radio stations "belonging to and operated by the United States."¹²¹ The Commission and NTIA coordinate their respective spectrum management responsibilities pursuant to a Memorandum of Understanding (MOU), with the goal of promoting the efficient use of the radio spectrum in the public interest.¹²² Although the Commission and NTIA endeavor to resolve technical, procedural, and policy differences by consensus, final action by either agency "does not require approval" of the other.¹²³ The Commission consulted with NTIA on several occasions (and at all critical moments) during this process. NTIA concedes that the Commission has fully discharged its consultation obligations pursuant to the MOU.¹²⁴

28. For all these reasons, we find that NTIA is unlikely to succeed on the merits.

¹¹⁵ *Order*, 35 FCC Rcd at 3774, para. 3. The Commission also coordinated with NTIA on the reconsideration of this rulemaking in 2005. *See id.*

¹¹⁶ *Order*, 35 FCC Rcd at 3775-76, para. 5, citing LightSquared Subsidiary LLC Request for Modification of its Authority for an Ancillary Terrestrial Component, SAT-MOD-20101118-00239, Call Sign S2358, Order and Authorization, 26 FCC Rcd 566, 566, para. 1 (IB Jan. 26, 2011) (*2011 Order and Authorization*).

¹¹⁷ *Order*, 35 FCC Rcd at 3779, 3782-83, paras. 11, 15-17. The 2016 Comment PN expressly sought comment on the potential for Ligado's ATC network to cause "harmful interference" (as defined under the Commission's rules) to GPS receivers. *Comment Sought on Ligado's Modification Applications*, IB Docket Nos. 11-109 and 12-340, Public Notice, 31 FCC Rcd 3802, 3809 (IB, OET, WTB 2016) (citing the definition of "harmful interference" in 47 CFR § 2.1(c)).

¹¹⁸ Letter from Douglas W. Kinkoph, Deputy Assistant Secretary for Communications and Information (Acting), National Telecommunications and Information Administration, U.S. Dept. of Commerce, to Ajit Pai, Chairman, FCC, IB Docket No. 11-109 (filed Dec. 6, 2019) (NTIA Dec. 6, 2019 Letter). The letter included three attachments: a 2018 letter to NTIA from the PNT EXCOM and two letters submitted by Department of Defense in 2019.

¹¹⁹ *Order*, 35 FCC Rcd at 3833, para. 126.

¹²⁰ *Order*, 35 FCC Rcd. at 3833-34, para. 126.

¹²¹ *Order*, 35 FCC Rcd at 3831-32, para. 122 (citations omitted).

¹²² FCC-NTIA MOU at 1.

¹²³ FCC-NTIA MOU at 2-3.

¹²⁴ *See* NTIA Reply to Ligado's Opposition to Petitions for Reconsideration or Clarification at 4 (Commission staff "went above and beyond" in complying with the MOU).

C. A Stay Would Harm Other Parties and Be Contrary to the Public Interest

29. The Commission must consider whether a stay would substantially injure other interested parties and whether the public interest supports a stay. Here, the evidence in the record demonstrates that a stay would be contrary to the public interest and would specifically harm Ligado.

30. *A stay would be contrary to the public interest.* A stay pending resolution of the Petition for Reconsideration likely would deter Ligado from taking the initial planning steps needed to position Ligado to begin offering terrestrial-based, 5G and Internet of Things (IoT) service over this spectrum. As set forth in the Commission's *Order*, the public has a great interest in the innovations and economic benefits that will come from a full-featured 5G network within the United States.¹²⁵ As the *Order* noted, based on the record before it, the Commission believed that this next generation of wireless connectivity could generate economic growth and, by Ligado's own accounts, result in up to 8,000 new jobs.¹²⁶ Ligado's novel use of both satellite and terrestrial operations to deploy its network will provide critical connectivity to industrial IoT devices, an underpinning of the broader U.S. digital economy.¹²⁷ In short, the Commission concluded that Ligado's network likely will be a key contributor to the United States' continued leadership in 5G and IoT.¹²⁸ Issuing a stay would unnecessarily delay (if not quash entirely) the competitive and economic benefits the Commission found would result from Ligado's planned deployment.

31. We find unconvincing NTIA's argument that the public interest would be served by issuing a stay so that more testing can be conducted for the Commission's evaluation before authorizing Ligado's terrestrial operations. For one, NTIA's argument ignores the substantial public interest from the foregoing 5G benefits promised by Ligado's speedy deployment, as discussed in the *Order*.¹²⁹ As the Commission has noted previously, "American leadership in 5G is important because 5G networks will power a digital economy of applications and services that themselves will transform our economy, boost economic growth, and improve our quality of life."¹³⁰

32. For another, the Commission already concluded in the *Order* that it had sufficient data and information in the record—including agreements with major GPS device manufacturers and testing submitted by Roberson and Associates as well as National Advanced Spectrum and Communications Test Network—to make the determination to grant Ligado's authorization.¹³¹ This includes the implications of the 2018 amendment to Ligado's application that NTIA points to,¹³² an amendment that significantly decreases power levels and adopts further restrictions on the deployment and operation of Ligado's downlink stations.¹³³

¹²⁵ *Order*, 35 FCC Rcd at 3785-86, para. 23.

¹²⁶ *Order*, 35 FCC Rcd at 3786, para. 24.

¹²⁷ *Order*, 35 FCC Rcd at 3784-85, para. 21.

¹²⁸ *Order*, 35 FCC Rcd at 3785-86, para. 23.

¹²⁹ *Order*, 35 FCC Rcd at 3784-86, paras. 19-24.

¹³⁰ *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, GN Docket No. 18-122, Report and Order and Order of Proposed Modification, 35 FCC Rcd 2343, 2345 para. 4 (2020); *see also id.* ("One important part of advancing U.S. leadership in next generation 5G networks is making additional mid-band spectrum available for 5G services. Mid-band spectrum is essential for 5G buildout due to its desirable coverage, capacity, and propagation characteristics.")

¹³¹ *Order*, 35 FCC Rcd at 3783, para. 18, 3805-06, paras. 60-63, 3811, paras. 71-72, 3816-19, paras. 84-91.

¹³² Petition for Reconsideration at 12.

¹³³ *Order*, 35 FCC Rcd at 3806-07, para. 64.

33. For yet another, we find NTIA's suggestion that further testing would happen quickly because all stakeholders have a strong incentive to conduct additional testing promptly is specious.¹³⁴ Stakeholders had several opportunities prior to the Commission's decision – particularly in 2011,¹³⁵ 2012,¹³⁶ 2013,¹³⁷ 2016,¹³⁸ and 2018¹³⁹-- to submit data in the Commission's record regarding the potential for Ligado's proposed operations to cause "harmful interference" to GPS device operations.¹⁴⁰ It has been more than four years since the Commission made clear that it was seeking "specific relevant technical information about affected GPS receivers (e.g., receiver category, receiver bandwidth) and their performance or functioning (e.g., break lock, loss of tracking, specific effects on location and timing accuracy) that support their assertion that additional measures would be necessary to resolve remaining concerns of potential harmful interference"¹⁴¹ Since then, all of these stakeholders have had a strong incentive to conduct testing, and do so promptly, consistent with the Commission's request for specific and relevant technical information it deemed critical to its evaluation of "harmful interference" concerns relating to Ligado's proposed operations and conditions. Indeed, the Commission did receive two reports that provided the relevant technical information (specifically the Roberson and Associate report and the National Advanced Spectrum and Communications Test Network report). But despite the Commission's request, and despite having the draft text of the Commission's authorization since October 2019, NTIA has apparently failed to conduct or submit any additional testing and only in December submitted a technical report that relies on data to which NTIA has had access for years. We fail to see what new incentive it or others would have to conduct appropriate testing promptly should we grant a stay.

34. *A stay would harm other parties interested in the proceeding.* In evaluating whether a stay is warranted, the Commission also must consider whether such relief would "substantially injure the other parties interested in the proceeding."¹⁴² While NTIA states that no harm would come to Ligado if a stay is ordered,¹⁴³ it makes no attempt to support this assertion other than to state that Ligado's build-out will likely take up to 18 months.¹⁴⁴ Ligado asserts, on the contrary, that a stay would stall work to create a 3GPP-approved band-class for Ligado's spectrum and likely would reduce interest by original

¹³⁴ Stay Petition at 3.

¹³⁵ *Comment Deadlines Established Regarding the LightSquared Technical Working Group Report*, Public Notice, 26 FCC Rcd 9284 (IB 2011).

¹³⁶ *International Bureau Invites Comment on NTIA Letter Regarding LightSquared Conditional Waiver*, Public Notice, 27 FCC Rcd 1596 (IB 2012); *Federal Communications Commission Invites Comment on LightSquared Request to Modify Its ATC Authorization*, Public Notice, 27 FCC Rcd 14290 (IB/OET/WTB 2012).

¹³⁷ *Comments Sought on LightSquared Subsidiary LLC Ex Parte Filing*, Public Notice, 28 FCC Rcd 11764 (IB/OET/OSP/WTB 2013).

¹³⁸ See generally 2016 Comment PN.

¹³⁹ *Satellite Policy Branch Information Space Station Applications Accepted for Filing*, Report No. SAT-01321 (rel. June 8, 2018).

¹⁴⁰ See *Order*, 35 FCC Rcd at 3775-76, para. 5; *2011 Order and Authorization*, 26 FCC Rcd at 586, para. 41 (establishing a working group wherein Ligado would work with the GPS industry, NTIA, and other federal agencies to study the potential for overload interference to GPS devices and to identify any measures necessary to prevent "harmful interference" to GPS).

¹⁴¹ 2016 Comment PN, 31 FCC Rcd at 3809.

¹⁴² See, e.g., *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 et al.*, Order Denying Stay, 11 FCC Rcd at 11756, para. 7.

¹⁴³ Stay Petition at 3.

¹⁴⁴ Stay Petition at 3 (citing Matt Daneman & Jimm Phillips, *Ligado Deployment Could Come Late Next Year*, *CEO Says*, Communications Daily, Apr. 30, 2020, at 1).

equipment manufacturers in developing consumer equipment capable of operating over this spectrum.¹⁴⁵ Because Ligado's network targets large-scale projects, a stay also would cause Ligado to lose major business opportunities.¹⁴⁶ As Ligado explains, issuing a stay likely would have the practical effect of stalling any pre-deployment network planning activities, as well as potentially deter further investment in Ligado.¹⁴⁷ As Ligado notes, Ligado's license modification already has taken several years to resolve; an even longer delay would result in substantial harm to Ligado.¹⁴⁸

IV. ORDERING CLAUSES

35. Accordingly, IT IS ORDERED THAT, pursuant to the authority contained in sections 4(i), 4(j), 155, and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i)-(j), 155, 303(r), this Order Denying Motion for Stay of *LightSquared Technical Working Group Report, et al.*, Order and Authorization, IB Docket Nos. 11-109 and 12-340, 35 FCC Rcd 3772 (2020) IS ADOPTED.

36. It is FURTHER ORDERED that the Stay Petition filed by the National Telecommunications and Information Administration IS DENIED.

37. It is FURTHER ORDERED that this Order Denying Motion for Stay SHALL BE EFFECTIVE upon its release.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

¹⁴⁵ Ligado Opposition at 8.

¹⁴⁶ Ligado Opposition at 8.

¹⁴⁷ Ligado Opposition at 9.

¹⁴⁸ Ligado Opposition at 8.

**STATEMENT OF COMMISSIONER
NATHAN SIMINGTON
CONCURRING**

Re: *LightSquared Technical Working Group Report, et al.*, IB Docket No. 110-109, *et al.*

I concur with today's decision to deny NTIA's petition for stay. I agree with the Commission's determination that, given the facts currently before it, the extraordinary equitable relief of a stay is not warranted. To reach the high bar of a stay, the NTIA must show both imminent, irreparable harm and a strong showing of likely success on the merits. As such, a stay is truly extraordinary relief outside the ordinary course. However, the denial of the petition for stay does not reflect an evaluation of the merits of NTIA's petition for reconsideration.

It harms neither the public interest, nor Ligado's interests, to delay action on the merits of NTIA's petition for reconsideration until, as mandated by Congress, an independent and definitive technical review of the *Ligado Order* is completed by the National Academies of Sciences (NAS). The *Ligado Order* itself prevents any deployment until Ligado has both engaged in information exchange and coordination with the U.S. Government and also provided six months advance notification to GPS device manufacturers. Both the required independent review and the brakes on deployment speak to the absence of imminent, irreparable harm; there is sufficient time to develop a conclusive scientific record on broadly accepted standards and thus to make disinterested, rigorous public policy.

I do not share my colleague's determination that Ligado will certainly succeed on the merits with respect to NTIA's petition for reconsideration. In my view, such certainty is premature because interference criteria relating to device performance have not been conclusively addressed. As there is an opportunity for further testing, including performance-based testing, there remains the possibility of a showing that will greatly bolster the merits of NTIA's petition for reconsideration. Such a showing would also allow the Commission to better evaluate the entire record in this proceeding, including the various other petitions for reconsideration that were filed. It is by doing so that we will adduce the best possible record in the service of disinterested policymaking in the public good.