

**Before the
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
WASHINGTON, DC 20230**

In the Matter of)	
)	
Development of a National Spectrum)	Docket No. 230308-0068
Strategy)	Document ID NTIA-2023-0003

COMMENTS OF IRIDIUM COMMUNICATIONS INC.

Iridium Communications Inc. (“Iridium”) hereby submits this response to the request for comments issued by the National Telecommunications and Information Administration (“NTIA”) on the development and implementation of a National Spectrum Strategy (“Strategy”) for the United States.¹ NTIA’s effort to develop this comprehensive, long-term plan is critical to supporting continued American innovation, leadership in the space economy, and next-generation communications services. The Strategy must recognize the critical role that satellite services play in meeting the national security needs of federal stakeholders and operational requirements of commercial industry, support future spectrum access that reflects the increasing demand for evolving satellite services, endorse robust information sharing between federal agencies to ensure spectrum-based operations can coexist without causing degradation to incumbent services, and acknowledge the need for commercial satellite operators to have sufficient regulatory protection from harmful interference.

I. Introduction

Iridium plays a particularly important role in addressing the demand for spectrum-reliant services as the only commercial satellite communications provider that offers true global, pole-

¹ See *Development of a National Spectrum Strategy*, Request for Comments, NTIA, 88 Fed Reg. 16244 (Mar. 16, 2023) (“RFC”).

to-pole coverage, connecting people, organizations, and assets to and from anywhere, in real time. Iridium’s ubiquitous L-band mobile satellite service (“MSS”) network provides reliable, weather-resilient communications services to regions of the world where terrestrial wireless or wireline networks do not exist or are limited, such as remote land areas, open ocean, airways, the polar regions, and regions where the telecommunications infrastructure has been affected by political conflicts or natural disasters. The Iridium® constellation efficiently routes traffic through a satellite network architecture of 66 operational satellites with in-orbit and ground spares and related ground infrastructure. Iridium’s unique interlinked mesh network architecture routes traffic across its constellation using crosslinks between satellites, minimizing the need for local ground facilities and facilitating the global reach of Iridium’s services—even without a physical presence on the ground.

Iridium is also one of the leading providers of satellite communications services to the U.S. government, principally serving the Department of Defense (“DoD”) and providing mobile satellite products and services to an unlimited number of subscribers across all branches of the U.S. armed forces and other government agencies for a wide variety of applications. The U.S. government, directly and indirectly, continues to be Iridium’s single largest customer.² Iridium plays a critical role in our national defense, providing increased network security to the U.S. government because traffic is routed across Iridium’s satellite constellation before being brought down to earth through a dedicated, secure gateway owned and operated by the U.S. government that is only compatible with the Iridium network. Iridium continues to invest significantly in its network, completing the launch of its second-generation constellation into low earth orbit to

² Iridium Communications Inc., Annual Report (Form 10-K), at 3 (Feb. 16, 2023), <https://bit.ly/3XD371Q>.

replace Iridium's first-generation system, and the launch of its specialty broadband service Iridium Certus[®] in 2019.³ The U.S. government also continues to make significant upgrades to its dedicated gateway to leverage Iridium devices and services, such as Distributed Tactical Communications Services⁴ and Iridium Certus.

II. The Strategy Should Acknowledge the Spectrum Needs of Next-Generation Satellite Services

The development of the Strategy must commit to America's leadership in space-based connectivity by maintaining spectrum capacity for existing, highly efficient satellite communications systems and recognizing the potential need for additional spectrum to foster continued growth. Iridium uses its spectrum extremely efficiently, serving its entire customer base of over two million subscribers in under 9 megahertz of allocated MSS spectrum. Iridium has provided airtime services to the U.S. government since its inception, and, in recent years, has experienced a significant increase in demand for satellite services across its customer base, along with the rest of the satellite industry. Iridium's continued growth is driven by the increasing demand for reliable mobile voice and data communications services beyond the reach of terrestrial wireless systems and the continued development of innovative technology integrating mobile satellite products and services, such as Iridium's recent announcement to enable satellite

³ Iridium Certus is a multi-service suite of products and services, enabled by Iridium's upgraded satellite constellation, that is capable of offering higher quality voice, enterprise-grade broadband functionality, Short Burst Data[®] (or SBD[®]), streaming, push-to-talk (or PTT), and safety services on a global basis. Iridium Certus provides the flexibility to scale device speeds, sizes, and power requirements based on individual end-user needs and allows Iridium's partners to develop specialized broadband, narrowband, and mid-band applications using Iridium's L-band frequencies, which are unaffected by weather conditions.

⁴ Distributed Tactical Communications Services provide beyond line-of-sight, over-the-horizon, and on-the-move one-to-many tactical voice and data communications without the need for any local ground-based infrastructure.

messaging and emergency services in smartphones⁵ and anticipated development of similar applications in the future in other areas like automotive.

The RFC appropriately calls attention to the role of next-generation satellite communications in improving our global competitiveness.⁶ The Strategy should take note that the full capabilities of next-generation satellite systems may need expanded access to spectrum. Even though Iridium’s commercial satellites operate in a highly spectrally-efficient manner, the continued demand for satellite services – and the launch of new constellations – will depend on sufficient access to spectrum capable of supporting next-generation services for federal and commercial users alike. Foreclosing the ability of incumbent satellite operators to access sufficient spectrum for continuously evolving services could inhibit the development of mission-critical national security capabilities as well as innovative new satellite offerings. As NTIA works to identify potential spectrum and include specific bands in the spectrum pipeline, the Strategy should support opportunities to facilitate commercial satellite operator access to additional spectrum for next-generation satellite capabilities.

III. The Strategy Should Endorse Greater Coordination and Information Sharing in Spectrum Management Decisions

More intensive and efficient use of spectrum often requires significant coordination and information sharing between federal agencies and commercial entities, and cooperation between the federal agencies regulating and using the spectrum. As the RFC notes, the key to improving the spectrum management and long-term planning process is to work together openly and transparently in a consistent manner.⁷ While this necessarily includes timely coordination and

⁵ See Press Release, Iridium, *Iridium and Qualcomm Collaborate to Support Satellite Messaging in Smartphones* (Jan. 5, 2023), <http://bit.ly/315FrNB>.

⁶ See RFC at 16245.

⁷ See *id.* at 16246.

additional planning, it may also include the establishment of and adherence to specific processes that facilitate the sharing of classified and top-secret operational information between federal agencies charged with spectrum management decision-making.

Although NTIA and the Federal Communications Commission (“FCC”) have taken significant steps to improve the spectrum management process, including under the Spectrum Coordination Initiative and the updated Memorandum of Understanding on spectrum coordination,⁸ the Strategy offers an opportunity to specifically endorse the establishment of robust processes to share highly-sensitive information that may be necessary to spectrum decision-making efforts. At times, the lack of an established and trusted process to share such information has led Congress to take action, such as mandating that DoD brief federal stakeholders on the impacts of a terrestrial deployment in the L-band at the “highest levels of classification.”⁹ Where necessary, sharing of classified information, including the necessary underlying technical data, should occur as early as possible in the spectrum coordination process. This would enable government agencies to inform NTIA, as the lead agency on behalf of the executive branch on spectrum issues, about whether proposed operations can coexist with critical services without degradation or causing harmful interference to incumbent services.

The Strategy should therefore reflect that information sharing regarding mission-critical services can be facilitated through robust rules, regulations, and processes that require the proper handling of classified information within and between federal agencies. Indeed, such processes may have revealed the full harmful impact of a proposed FCC action that ultimately resulted in NTIA taking the unprecedented step of requesting a stay and petitioning the FCC to reconsider a

⁸ *See id.*

⁹ National Defense Authorization Act for Fiscal Year 2022, Pub. L. No. 117-81, 135 Stat. 1541, 2083 § 1663.

decision because the FCC “failed to adequately consider and give appropriate weight to important and valid executive branch concerns” regarding potential widespread harmful interference to federal users.¹⁰

Federal agencies must in turn treat this information appropriately and respond accordingly. Effective communication between agencies is necessary to inform evidence-based policymaking that relies on technical data and analyses and to allow federal agencies to account for the potential impact to federal and commercial systems of spectrum management decisions made by NTIA and the FCC. Once this information sharing has occurred, executive agencies should commit to working with NTIA in a timely manner to consider and address any actionable data or analysis. This is particularly important for classified information sharing, which may be the only appropriate mechanism for federal agencies to effectively communicate and fully evaluate potential national security concerns.

IV. The Strategy Should Recognize the Need for Sufficient Regulatory Protection for Critical Services Without Degradation or Harmful Interference

The RFC appropriately states that secure and reliable access to spectrum, with sufficient regulatory protection to prevent harmful interference to incumbent operators, is vital to our national security.¹¹ Satellite providers, in particular, are reliant on long-term, stable spectrum allocations and coordination among their spectrum neighbors to provide certainty that these networks can protect each other from harmful interference. As NTIA develops the Strategy, it should make clear that a necessary component of ensuring American leadership in spectrum-based services is the requirement that satellite networks must not be subjected to harmful

¹⁰ Petition for Reconsideration of the National Telecommunications and Information Administration (“NTIA”), IB Docket Nos. 11-109 & 12-340 at 3 (filed May 22, 2020) (“NTIA PFR”).

¹¹ See RFC at 16246.

interference that would endanger the vast federal and commercial user base that relies on satellite communications.

Iridium provides the U.S. government with mission-critical services and equipment, the product of vast amounts of time and investment to design, develop, and upgrade Iridium's network and offerings. Indeed, NTIA has noted that the Iridium satellite network "has supported several federal agencies for nearly twenty years and continues to be a critical resource for many federal users."¹² Iridium first offered satellite services in the L-band in 1999, originally operating in an exclusive spectrum allocation in the 1621.35-1626.5 MHz band and expanding to the 1618.725-1626.5 MHz band on an exclusive basis (Iridium also uses the 1617.775-1618.725 MHz band on a shared basis).¹³ Since that time, the stability of the L-band spectrum environment allowed it to become an irreplaceable part of our nation's communications infrastructure as home to three key services: the Global Positioning System ("GPS"), the National Oceanic and Atmospheric Administration Geostationary Operational Environmental Satellites ("GOES"), which provide weather data directly to users all across the U.S., and MSS satellite communications services provided by companies like Iridium.

¹² NTIA Reply to Ligado Networks LLC's Opposition to Petitions for Reconsideration or Clarification, IB Docket Nos. 11-109 & 12-340, at 10 n.26 (June 8, 2020) ("NTIA Reply to PFR Opposition").

¹³ See *Spectrum and Service Rules for Ancillary Terrestrial Components in the 1.6/2.4 GHz Big LEO Bands*, Second Order on Reconsideration, Second Report and Order, and Notice of Proposed Rulemaking, 22 FCC Rcd 19733, 19737 ¶ 8 (2007) (adopting the L-band plan to provide Iridium with additional exclusive spectrum).

Unfortunately, the L-band regulatory environment has been subjected to regulatory disruption,¹⁴ which NTIA acknowledged would jeopardize mission-critical uses of L-band services and result in a “major economic impact” to the American economy.¹⁵ Congress charged the National Academies of Sciences, Engineering, and Medicine (“NAS”)¹⁶ to complete an independent technical review¹⁷ of L-band interference issues, the result of broad government and industry concern that the FCC did not properly account for the real-world potential for interference in its *Ligado Order*.¹⁸ The NAS findings validate the U.S. government’s opposition, noting that “[a] particular concern is for DoD’s use of commercial Iridium services just below 1626.5 MHz. Ligado uplink emitters near 1627.5 MHz may adversely affect Iridium terminals within up to about 750 meters of such a Ligado uplink emitter.”¹⁹ The findings have also clearly demonstrated how a terrestrial service in the L-band would cause widespread harm to Iridium,²⁰ undermine the public interest, and upset the decades of spectrum stability that has enabled L-band satellite services to become an irreplaceable part of our national infrastructure.

Consistent with NTIA’s conclusion that the NAS Report “offers the Commission an

¹⁴ *Ligado Amendment to License Modification Applications, IBFS File Nos. SES-MOD-20151231-00981, SAT-MOD-20151231-00090, and SAT-MOD-20151231-00091, Order and Authorization, 35 FCC Red 3772 (2020) (“Ligado Order”).*

¹⁵ NTIA PFR at iv (citing Letter from Steven G. Bradbury, DoT Acting Deputy Sec’y and Gen. Counsel, to Peter Tenhula, Deputy Assoc. Adm’r, Office of Spectrum Mgmt., NTIA, IRAC Doc. 44219 (Nov. 22, 2019)).

¹⁶ William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, Pub. L. 116-283, 134 Stat. 3388, 4074 § 1663.

¹⁷ National Academies of Sciences, Engineering, and Medicine, *Analysis of Potential Interference Issues Related to FCC Order 20-48* (2022), <https://doi.org/10.17226/26611> (“NAS Report”).

¹⁸ *See, e.g.*, Memorandum from Thu Luu, Executive Agent for GPS, Department of the Air Force, to IRAC Chairman at 1, 2 (Feb. 14, 2020); *see also* NTIA Reply to Ligado Networks LLC’s Opposition to Petitions for Reconsideration or Clarification, IB Docket Nos. 11-109 & 12-340, at 10 n.26 (June 8, 2020) (noting that “the *Ligado Order* does not sufficiently address the interference issues raised in the petition submitted by Iridium, *et al.* Iridium’s satellite network has supported several federal agencies for nearly twenty years and continues to be a critical resource for many federal users. As with GPS, the

important opportunity to reconsider Ligado’s Authorization,”²¹ the Strategy should recognize the need to protect incumbent L-band satellite services from harmful interference that would be caused by proposed terrestrial operations. Such terrestrial operations would be a fundamental departure from the regulatory environment that has enabled the L-band to become a critical and irreplaceable home to satellite services relied upon by the U.S. government and millions of commercial users and have now been confirmed to result in harmful interference.²²

V. Conclusion

NTIA has recognized that L-band services are “fundamental to the Nation’s economy, national security, and continued technological leadership.”²³ The Strategy provides an important

Commission must properly address Iridium’s interference concerns, especially in light of the critical services provided to the Department of Defense and other federal agencies.”).

¹⁹ *Id.* at 58. This is also consistent with a series of significant technical analyses that Iridium has produced over the course of multiple years. *See* Letter from Bryan N. Tramont, Counsel to Iridium Communications Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission, IB Docket Nos. 12-340 & 11-109; IBFS File Nos. SAT-AMD-20180531-00045, SAT-AMD-20180531-00044, SES-AMD-20180531-00856, SES-MOD-20151231-00981, SAT-MOD-20151231-00090, and SAT-MOD-20151231-00091 (filed Jan. 19, 2022); Update to 2016 Technical Assessment of Ligado User Terminal Interference to Iridium *attached to* Iridium Communications Inc. et al., Petition for Reconsideration, IB Docket Nos. 11-109 & 12-340 (filed May 22, 2020); Technical Analysis of Ligado Interference Impact on Iridium User Link, attached to Letter from Bryan N. Tramont, Counsel to Iridium, to Marlene H. Dortch, Secretary, Federal Communications Commission, IB Docket Nos. 11-109 & 12-340 (filed Sept. 1, 2016); Technical Analysis of Ligado Interference Impact on Iridium Aviation Services, attached to Letter from Bryan N. Tramont, Counsel to Iridium, to Marlene H. Dortch, Secretary, Federal Communications Commission, IB Docket Nos. 11-109 & 12-340 (filed Dec. 14, 2016); Letter from Bryan N. Tramont, Counsel to Iridium, to Marlene H. Dortch, Secretary, Federal Communications Commission, IB Docket Nos. 11-109 & 12-340 (Oct. 2, 2019).

²⁰ *See* Iridium Supplement to Petition for Reconsideration, IB Docket Nos. 11-109 & 12-340 (Dec. 16, 2022).

²¹ Press Release, NTIA, *NTIA Statement on National Academies of Sciences Report* (Sept. 9, 2022), <https://ntia.gov/press-release/2022/ntia-statement-national-academies-sciences-report>.

²² The term “harmful interference” is herein used to describe the results of the NAS Report. In turn, Iridium believes the results of the NAS Report dictate that the FCC must reach the legal conclusion that Ligado’s operations would cause harmful interference under the FCC’s rules.

²³ Letter from Douglas W. Kinkoph, Acting Deputy Assistant Secretary for Communications and Information, NTIA, to Ajit Pai, Chairman, Federal Communications Commission (Dec. 6, 2019).

opportunity to embrace the critical role that L-band satellite services play in meeting the nation's continued leadership in wireless, support spectrum needs of next-generation satellite services, endorse robust information sharing between government agencies, and protect commercial satellite operators providing mission-critical services to the U.S. government from harmful interference.

Respectfully Submitted,

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