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INTRODUCTION AND SUMMARY

ITIF appreciates the opportunity to comment on creating greater spectrum abundance for weird space stuff.¹ The Commission correctly assesses that the future space economy will feature myriad spacecraft operations that all require spectrum and that creating a regulatory pathway for operators to access spectrum today enables growth in the sector. The Commission should consider the diverse spectrum requirements of future spacecraft, clarify regulations governing access to existing commercial bands, and make additional spectrum available. These efforts will ensure that a spectrum shortage does not limit American space innovation and competitiveness.

THERE WILL BE DIVERSE SPACECRAFT IN THE FUTURE WITH UNIQUE SPECTRUM NEEDS

The future space economy will likely feature numerous kinds of emergent space operations and novel spacecraft, including orbital data centers, commercial low-earth orbit (LEO) space stations, lunar and deep space missions, and in-space servicing, assembly, and manufacturing (ISAM).² In addition, there will be more large LEO broadband constellations, multi-orbit constellations, and satellites performing rendezvous and

¹ Founded in 2006, ITIF is an independent 501(c)(3) nonprofit, nonpartisan research and educational institute—a think tank. Its mission is to formulate, evaluate, and promote policy solutions that accelerate innovation and boost productivity to spur growth, opportunity, and progress. ITIF’s goal is to provide policymakers around the world with high-quality information, analysis, and recommendations they can trust. To that end, ITIF adheres to a high standard of research integrity with an internal code of ethics grounded in analytical rigor, policy pragmatism, and independence from external direction or bias. For more, see: “About ITIF: A Champion for Innovation,” <https://itif.org/about>; Notice of Proposed Rulemaking, Spectrum Abundance for Weird Space Stuff, SB Docket No. 26-54, FCC, March 26, 2026, <https://docs.fcc.gov/public/attachments/FCC-26-13A1.pdf>, (NPRM).

² Public Notice, Space Bureau Accepts for Filing SpaceX’s Application for Orbital Data Centers, FCC, February 4, 2026, <https://docs.fcc.gov/public/attachments/DA-26-113A1.pdf>; Ellis Scherer, “The United States Needs Permanent Space Stations,” ITIF, February 9, 2026, <https://itif.org/publications/2026/02/09/the-united-states-needs-permanent-space-stations/>; See “Artemis,” NASA, <https://www.nasa.gov/humans-in-space/artemis/>; Notice of Proposed Rulemaking, Facilitating Capabilities for In-Space Servicing, Assembly, and Manufacturing, IB Docket No. 22-272, FCC, February 15, 2025, <https://docs.fcc.gov/public/attachments/FCC-24-21A1.pdf>.

proximity operations (RPO).³ Each of these spacecraft will have different spectrum needs for their specific functions, and the Commission should ensure that spectrum access does not become a roadblock for innovation.

CLEAR RULES GOVERNING ACCESS TO EXISTING SPECTRUM ALLOCATIONS ENHANCE PRODUCTIVITY

The Commission should foster success for the U.S. space economy by clarifying regulations and definitions that govern how space operators can access existing commercial spectrum for telemetry, tracking, and control (TT&C). First, the Commission should refine the definition of TT&C to mean all non-communications space operations including RPO, docking, space station operations, and operations in emergency scenarios.⁴ It should also make clear that this list is non-exhaustive. Only expanding the TT&C definition to include RPO, docking, and space station operations may inadvertently exclude other uses, including future emergent operations, that do not meet the definition. Codifying as broad a definition as possible will maximize the productivity of the TT&C bands by preventing regulations from limiting permissible operations, as has happened before with terrestrial bands.⁵

Second, the Commission should authorize spectrum piggybacking as a rule to give operators another way to use existing commercial allocations. Piggybacking already has strong support and proven feasibility in the ISAM NPRM record and codifying it as part of this proceeding expands the benefits of piggybacking beyond just ISAM operations.⁶ Permitting additional uses within the technical rules of an existing license can only increase the productivity of the spectrum covered by that license.

Finally, the Commission should clarify which existing allocations can support emergent space operations without harming incumbents, requiring new licenses, or making additional spectrum available. In particular, the Commission should authorize standalone TT&C within existing FSS bands because it already frequently authorizes TT&C in those bands without any problems, as the NPRM explains.⁷ The Commission should allow FSS licensees to conduct TT&C, and authorize standalone TT&C without requiring an FSS license. This change will provide another avenue for space operators to more easily use existing commercial spectrum and can work within the existing or updated processing round rules which envision coordination between members of a given processing round or allowing users who do not seek interference protection to operate on a noninterference basis without going through a processing round.

³ See “Satellite statistics: orbits of active sats,” Planet4589.com, <https://planet4589.org/space/stats/oactive.html>, which shows the increase in LEO satellites since 1960; Jason Rainbow, “Dawn of the multi-orbit era,” Space News, March 11, 2024, <https://spacenews.com/dawn-of-the-multi-orbit-era/>; NPRM at 33.

⁴ NPRM at 34.

⁵ See *e.g.*, Second Report and Order, Use of the 5.850-5.925 GHz Band, ET Docket No.19-138, FCC, November 20, 2024, <https://docs.fcc.gov/public/attachments/FCC-24-123A1.pdf>; Report and Order, Transforming the 2.5 GHz Band, WT Docket No. 18-120, FCC, July 10, 2019, <https://docs.fcc.gov/public/attachments/FCC-19-62A1.pdf>.

⁶ NPRM at 28 and 29.

⁷ NPRM at 31.

Similarly, the Commission should allow spectrum access in any allocation where TT&C would not significantly impact existing operations.⁸ Clearer allocation and protection guidelines will streamline the decision-making process for allowing space operations in bands like EESS.⁹ Leveraging as much existing commercial spectrum as possible for weird space stuff will empower U.S. companies and help America maintain its leadership in the global space economy.

DE FACTO LEASING AGREEMENTS AND FLEXIBLE USE UNLOCK MORE SPECTRUM FOR EMERGENT SPACE OPERATIONS

The Commission should permit a version of *de facto* transfer leasing agreements between space operators and SiriusXM and AT&T, the primary license holders in the 2315-2320, 2320-2345, and 2345-2350 MHz bands.¹⁰ Allowing these companies to enter into private leasing agreements, including receiving payments for the spectrum rights, creates the opportunity for spectrum to be made more productive.¹¹ These secondary market transactions would enhance productivity by allowing TT&C operations in bands that are favorable for TT&C and in geographic areas where AT&T and SiriusXM are not uniformly using the spectrum.¹²

The Commission should also enable flexible use of the 2315-2320, 2320-2345, and 2345-2350 MHz bands on a secondary basis, such that lessees can use the spectrum for any operations that comply with the technical rules of those bands.¹³ While the Commission proposes adding a secondary space operation service (SOS) allocation to these bands in the NPRM, allowing any technically compliant use of the bands is a better approach to generate long-term spectrum productivity.¹⁴ TT&C allocations may seem like the best choice in today's environment, but future space operations may not fit TT&C definitions, leading to another situation like the one that the Commission is trying to address.

INTERSATELLITE LINKS FOR TT&C SHOULD NOT REQUIRE ADDITIONAL PAPERWORK

The Commission should allow already-licensed intersatellite links to be used for TT&C without the need to file a modification or obtain additional authorization because it will reduce regulatory drag as intersatellite links become more commonplace.¹⁵ The Commission's experience with authorizing existing licensees to use intersatellite links for TT&C within their licensed band makes this method straightforward and will enable greater usage of commercial spectrum.¹⁶ Intersatellite links are particularly useful for TT&C operations

⁸ NPRM at 36.

⁹ Ibid.

¹⁰ NPRM at 59 and 79.

¹¹ Ibid.

¹² NPRM at 49 and 79.

¹³ NPRM at 73.

¹⁴ Ibid.

¹⁵ NPRM at 84; See "Optical (Laser) Satellite Communication Market Size and Growth," Markets and Markets, January 2026, <https://www.marketsandmarkets.com/Market-Reports/optical-satellite-communication-market-181507372.html>.

¹⁶ NPRM at 86.

because they do not rely on satellites to be in range of a ground station to receive a command.¹⁷ Additionally, the NPRM highlights that an arrangement in which one company provides intersatellite links to partner companies would be feasible under this approach.¹⁸ These partnerships would help drive intersatellite links from being a niche market to an essential part of the space economy.

CONCLUSION

Unleashing commercial innovation will lead to a robust space economy, which is essential to maintain American leadership in space. Spectrum abundance is an essential input to enable new and novel weird space stuff.

Thank you for your consideration.

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¹⁷ See Leandra Bernstein, “Inter-Satellite Links Are Making Space Networks a Reality,” Kratos Space, July 26, 2022, <https://www.kratospace.com/constellations/articles/inter-satellite-links-are-making-space-networks-a-reality>.

¹⁸ NPRM at 87.