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The Honorable Brendan Carr
Chair
Federal Communications Commission (FCC)
45 L Street NE
Washington, D.C., 20554

Re: Comments of the Progressive Policy Institute on Modernizing Spectrum Sharing for Satellite Broadband - SB Docket No. 25-157

The Progressive Policy Institute (PPI) is pleased to provide comments to the Federal Communications Commission (FCC) on the Notice of Proposed Rulemaking on Modernizing Spectrum Sharing for Satellite Broadband ("NPRM") in docket No. 25-157. PPI is a catalyst for policy innovation and political reform based in Washington, D.C., with offices in Brussels, Berlin, and the United Kingdom. Its mission is to create radically pragmatic ideas for moving America beyond ideological and partisan deadlock.

Executive Summary

The FCC is conducting a review of the current spectrum sharing rules that allow both Geostationary Satellite Orbit (GSO) and Non-Geostationary Satellite Orbit (NGSO) to provide service to customers without unacceptably interfering with each other. This review is timely as NGSO constellations — particularly broadband constellations in low-Earth orbit (LEO) — are being adopted by more and more Americans. LEO broadband constellations are capacity-limited by the current spectrum sharing regime, which is overly protective of GSO systems. There have been a series of technological advancements for both GSO and NGSO operators since the original rules came into effect, which allow for more efficient sharing of the spectrum bands in question (the 10.7-12.7, 17.3-18.6, and 19.7-20.2 GHz bands). As the FCC moves towards a new proposed rule — or possibly an updated final rule, should the record provide sufficient basis for doing so — the Commission must take care to avoid permitting unacceptable interference for GSO systems while updating the relevant equivalent power-flux density limits (EPFD) limits to provide additional capacity to NGSO systems and enable efficient utilization of valuable spectrum resources. Updated EFPD rules that provide additional capacity for NGSO systems would be extremely helpful in closing the digital divide, as LEO broadband systems can reach households that are impractical for other technologies to reach.

Spectrum is a Valuable Resource — and the FCC Must Ensure That it is Allocated Efficiently

A 2023 Presidential Memo referred to spectrum as "among our Nation's most important national resources" and released a policy memo during his Administration calling for "efficient and effective spectrum use by both agencies and non-Federal users."[1] That memo is still in effect. Spectrum is vital to an ever-increasing number of important applications across modern society, from the internet and cellular connectivity to national security, public safety, and medical care. However, as demand for spectrum increases, it is vital to use the resource as efficiently as possible.

Technological innovation has advanced in parallel with demand for spectrum, both broadly speaking and as it pertains to the NGSO and GSO systems operating in the 10.7-12.7, 17.3-18.6, and 19.7-20.2 GHz bands. The two most pertinent advancements are the evolution of LEO satellite broadband constellations and the widespread adoption of Adaptive Coding and Modulation (ACM) technology among GSO operators. LEO satellite technology has changed dramatically since the LEO constellations of the 1990s. Being able to offer high-speed broadband from LEO satellites is a recent feat in itself, enabled by modifications to constellation and satellite design. Improvements to antennas, satellite-to-satellite links, and system management techniques are leading examples.[2] These advancements allow LEO satellite providers to serve customers more efficiently and with less latency. Widespread adoption of ACM technology among GEO operators has been a game-changer, too. ACM allows for dynamic management of data throughput, maximizing capacity, and minimizes the impact of interference.[3]

Despite technological progress, there has not been a fresh look at EFPD limits, which are decades old. There are studies ongoing in preparation for the World Radio Conference 2027 (WRC-27), but revisiting EFPD limits did not make the WRC-27 agenda. However, nations have the flexibility to set their own EFPD limits as satellites are able to modulate their power levels depending on what part of the world they are orbiting over. This means there is no reason to wait for WRC-27 to start studying whether updates to EFPD limits in the United States are warranted.

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[1] Executive Office of the President, "Modernizing United States Spectrum Policy and Establishing a National Spectrum Strategy," November 17, 2023, https://www.federalregister.gov/documents/2023/11/17/2023-25627/modernizing-united-states-spectrum-policy-and-establishing-a-national-spectrum-strategy.

[2] "Tech Innovations Establish Profitable Path For LEO Satellite Constellations," *Telesat*, January 25, 2024. https://www.telesat.com/blog/tech-innovations-establish-profitable-path-for-leo-satellite-constellations/.

[3] Fabian Ogenyi, et al., "A Comprehensive Review of Adaptive Modulation and Coding Techniques for Spectrum Efficiency and Interference Mitigation in Satellite Communication," *KIU Journal of Science Engineering and Technology*, February 2025, https://www.researchgate.net/publication/388612927_A_comprehensive_review_of_adaptive_modulation_and_coding_techniques_for_spectrum_efficiency_and_interference_mitigation_in_satellite_communication.

The NPRM invited comments on how satellite technology and operations have changed since EPFD limits were developed and adopted. It is clear that there has been substantial change since the adoption of these limits and a revisit of the spectrum sharing regime is warranted on that basis alone, even before taking into consideration the societal impacts of changes to this regime.

The Impact of Additional NGSO Capacity and Affordability

EFPD limits matter because they are one of the factors that affect how much capacity LEO satellite broadband operators are able to offer in a given area. It is clear that Americans are hungry for LEO satellite broadband connectivity. For example, SpaceX, the best known provider in the United States, has had to institute waitlists for certain areas because customer demand exceeds capacity. Those waitlisted areas have fluctuated over time.[4]

LEO satellite broadband is critical to closing the digital divide as it is able to serve Americans who have not been reached by broadband before. This is particularly true for rural customers who cannot practically be served by fiber broadband for cost or terrain reasons.[5] Access to the internet is vital to an increasing number of civic activities and industries, from education to agriculture to disaster response.

Estimates of the costs of the digital divide, ranging from reports that have found the rural digital divide costs the economy $47 billion and 360,000 jobs annually to a USDA study that found the digital divide's impact on the agricultural industry costs $18-23 billion per year.[6,7] Expanding capacity for LEO satellite broadband operators, which excel at connecting rural customers will help spur additional economic growth.

Beyond connecting the unconnected, there are also benefits to promoting competition in the broadband market with the addition of LEO satellite broadband. While LEO satellite broadband service is only capable of serving a limited number of users per square mile,[8] providing the option to consumers in all areas — urban, suburban, and rural alike — could help lower prices

[4] Michael Kan, "Starlink's Waitlist Expands in the US, Spreading East," *PCMag*, February 26, 2025, https://www.pcmag.com/news/starlinks-waitlist-expands-in-the-us-spreading-east.
[5] Sarah Thacker, "Bridging the Digital Divide with LEO Satellites," *Broadband Breakfast*, June 10, 2024, https://broadbandbreakfast.com/bridging-the-digital-divide-with-leo-satellites/.
[6] Lorien Zhao, "How the Digital Divide Affects America's Rural Small Businesses," *Federal Reserve Bank of Cleveland*, September 7, 2023, https://www.clevelandfed.org/publications/notes-from-the-field/2023/nftf-20230907-how-the-digital-divide-affects-americas-rural-small-businesses.
[7] "A Case for Rural Broadband," *American Broadband Initiative*, April 2019, https://www.usda.gov/sites/default/files/documents/case-for-rural-broadband.pdf.
[8] Shira Ovide, "Elon Musk's Starlink Internet Works Great If Hardly Anyone Uses It," *Washington Post*, July 18, 2025, https://www.washingtonpost.com/technology/2025/07/18/starlink-internet-satellite-speed-elon-musk/.

and spur quality improvements for all broadband providers.[9] This is particularly relevant given that about thirty percent of Americans only have access to one broadband provider.[10]

More competition should hel p reduce the number of underserved Americans who currently have some access to the Internet, but at speeds that do not support modern applications.[11] Additional capacity, which could be made available if EFPD limits are updated, would further assist unserved and underserved households in acquiring broadband services that work for the modern day.

GSOs Cannot be Victimized by this Proceeding

While the benefits of increased NGSO capacity are clear, as have been laid out in the prior section, it is vital to note that GSOs fill an important role, too. They are commonly used for weather data, broadcast TV, and some low-speed data communication. Because GSOs orbit at the same rate as the Earth, they are highly reliable at providing continuous service.[12] Revisions to EFPD limits must be carefully considered to ensure that expanding NGSO capacity is possible without causing unacceptable interference to GSOs in the short- and long-term.

The FCC appears to be undertaking such a carefully considered and deliberative effort to revisit EFPD limits. Updated limits would unlock additional capacity through more efficient spectrum sharing. This NPRM should be carried forward into a new proposed rule — or final rule, should the record provide sufficient basis — that governs this regime.

/s/ Mary Guenther_____

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[9] Sarah Thacker, “Bridging the Digital Divide with,”.
[10] U.S. Federal Communications Commission, *2024 Communications Marketplace Report* (2024), https://docs.fcc.gov/public/attachments/FCC-24-136A1.pdf.
[11] Harrison Saunders, “What are Unserved and Underserved Populations?,” *Fierce Network*, May 15, 2024, https://www.fierce-network.com/broadband/what-are-unserved-and-underserved-populations.
[12] “GEO, MEO, and LEO,” Via Satellite, Accessed July 24, 2025, https://www.satellitetoday.com/content-collection/ses-hub-geo-meo-and-leo/.