

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20544**

In the Matter of)	
)	
Unlicensed Use of the 6 GHz Band)	ET Docket No. 18-295
)	
Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz)	GN Docket No. 17-183
)	

COMMENTS OF CONSUMER TECHNOLOGY ASSOCIATION

Consumer Technology Association[®] (CTA)¹ supports the Federal Communications Commission’s (FCC) work to promote innovation in the 6 GHz band.² The Commission’s decision to open the 6 GHz band to unlicensed operations stands as one of the most important spectrum policy achievements of the last decade, positioning the United States as the global leader of Wi-Fi innovation. Now it is time to build on that success. After five years of real-world experience, the Commission can make three simple changes to refine the 6 GHz rules to reflect how these technologies are used in practice and remove unnecessary limitations. The Commission should modestly increase power for low-power indoor (LPI) devices, permit external antennas for LPI access points, and permit LPI devices on cruise ships. The United States pioneered opening the 6 GHz band and is home to many of the companies developing the 6 GHz ecosystem. The suggested regulatory improvements will expand the consumer and

¹ As North America’s largest technology trade association, CTA[®] is the tech sector. Our members are the world’s leading innovators—from startups to global brands—helping support more than 17 million American jobs. CTA owns and produces CES[®]—the most powerful tech event in the world.

² *Unlicensed Use of the 6 GHz Band; Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, Fourth Report and Order and Third Further Notice of Proposed Rulemaking, FCC 26-1, ET Docket No. 18-295, GN Docket No. 17-183 (rel. Jan. 30, 2026) (*Third FNPRM*).

economic benefits of 6 GHz Wi-Fi, encourage more investment in American businesses, and help maintain the United States' global wireless leadership.

I. THE 6 GHZ BAND DRIVES AMERICAN INNOVATION.

Unlicensed operations in the 6 GHz band deliver meaningful benefits to American consumers and businesses. The band supports Wi-Fi 6E and Wi-Fi 7 technologies that deliver faster speeds, lower latency, and significantly greater network capacity than earlier Wi-Fi generations. These improvements fuel the connectivity necessary for modern digital life. Homes rely on 6 GHz Wi-Fi for streaming, gaming, telework, and Internet of Things (IoT) devices. Businesses depend on it for cloud collaboration and virtual meetings. Major venues, like arenas and stadia, use 6 GHz Wi-Fi to deliver high-performance connectivity to many fans at once. Wi-Fi 7 powered the 2026 Super Bowl at Levi's Stadium, giving tens of thousands of fans fast, reliable Wi-Fi to share photos and videos in real time.³ Today, more than 5000 Wi-Fi device models support 6 GHz operation, and adoption continues to expand quickly across the consumer and enterprise markets.⁴ This growing 6 GHz ecosystem is expected to generate substantial economic benefits, with studies estimating that the full 6 GHz band could produce approximately \$1.19 trillion in economic value by 2027.⁵

³ Claus Hetting, *How Levi's Stadium Is Redefining Connectivity for the World's Biggest Events with 6 GHz Wi-Fi 7 and AFC*, WiFi NOW (Feb. 11, 2026), <https://wifinowglobal.com/news-blog/how-levis-stadium-is-redefining-connectivity-for-the-worlds-biggest-events-with-6-ghz-wi-fi-7-and-afc/> ("Our goal was to deliver a Wi-Fi service so good that fans don't notice they're not at home, and we've achieved that.").

⁴ Claus Hetting, *Massive Market Adoption: 5000+ Wi-Fi Devices Now Support 6 GHz, 1200+ Support Wi-Fi 7, Intel Says*, WiFi NOW (Apr. 22, 2025), <https://wifinowglobal.com/news-and-blog/massive-market-adoption-5000-wi-fi-devices-now-support-6-ghz-1230-support-wi-fi-7-intel-says/>.

⁵ See Raúl Katz et al., *Economic Loss if the Top 700 Megahertz of the 6 GHz Band is Repurposed for Licensed Use: A Two Part Analysis* at 56–57, Telecom Advisory Services (May 2025), <https://wififorward.org/wp-content/uploads/2025/05/Economic-Loss-if-the-Top-700-Megahertz-of-the-6-GHz-Band-is-Repurposed-for-Licensed-Use-A-Two-Part-Analysis.pdf>.

The innovation is only beginning. Supporting the next wave of technologies, 6 GHz Wi-Fi provides the capacity needed for emerging applications like augmented reality (AR) and virtual reality (VR). As FCC Chairman Brendan Carr noted during a conversation with CTA’s Executive Chair and CEO Gary Shapiro at CES 2026, “Everything you’re seeing right here [at CES], from AR to VR, is gonna benefit from these increased enhancements that we’re doing in the 6 GHz band.”⁶ The 6 GHz band also offers a natural platform for artificial intelligence applications that depend on moving large volumes of data quickly and reliably. The rapid growth of the 6 GHz ecosystem underscores the importance of this spectrum.

II. THE COMMISSION SHOULD ADOPT A SMALL INCREASE IN LPI POWER LEVELS.

When the FCC adopted the framework for LPI operations in 2020, it selected a low power limit as an initial baseline for LPI access points.⁷ Five years of deployment have demonstrated that this power level was conservative. LPI operations at a higher power level can coexist with incumbents in the band. The FCC should now increase the maximum permitted power levels for LPI access points and client devices by 3 dB to deliver meaningful improvements in coverage and performance.

Compared to the current power limit, this change will increase indoor Wi-Fi coverage by up to 75 percent.⁸ Increased coverage is especially important in large environments, such as multi-story homes, multi-dwelling units, schools, hospitals, and office buildings. An

⁶ *FCC Chair Brendan Carr on Technology Policy and Innovation*, at 5:06, C-SPAN (Jan. 8, 2026), <https://www.c-span.org/program/public-affairs-event/fcc-chair-brendan-carr-on-technology-policy-and-innovation/671228> (Chairman Carr and Gary Shapiro Fireside Chat).

⁷ *See Unlicensed Use of the 6 GHz Band; Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, Report and Order and Further Notice of Proposed Rulemaking, 35 FCC Rcd. 3852, 3902 ¶ 132 (2020) (*First Report and Order*).

⁸ Comments of NCTA – The Internet and Television Association at 10, ET Docket No. 18-295, GN Docket No. 17-183 (filed June 29, 2020).

improvement in coverage will support greater connectivity with less equipment, reducing costs both for operators and consumers and simplifying network deployments.

Increased LPI power will also improve performance, especially for narrower channels. The current low power spectral density (PSD) limit unnecessarily caps power for narrower channels. Although the FCC allows LPI devices to transmit up to 30 dBm of total power across the entire channel, its rules also include a 5 dBm *per megahertz* cap that limits narrower channels to much lower power levels—about 18 dBm for 20-megahertz channels and 21 dBm for 40-megahertz channels. A higher PSD limit therefore increases the power available for these narrower channels—about 21 dBm for 20-megahertz channels and 24 dBm for 40-megahertz channels. When narrower channels are able to use higher powers, network operators can better manage congestion, improve performance at the edge of the network, and better support narrow-band applications, such as IoT sensors.⁹

The record shows that these benefits can be achieved without an increased risk to other services operating in the 6 GHz band.¹⁰ And, because the LPI device ecosystem is already

⁹ See Comments of Apple Inc., Broadcom Inc., Cisco Systems, Inc., Facebook, Inc., Google LLC, Hewlett Packard Enterprise, Intel Corporation, Microsoft Corporation, NXP Semiconductors, Qualcomm Incorporated, Ruckus Networks, a Business Segment of CommScope at 58–59, ET Docket No. 18-295, GN Docket No. 17-183 (filed June 29, 2020).

¹⁰ See CableLabs, *6 GHz Low Power Indoor (LPI) Wi-Fi / Fixed Service Coexistence Study*, attached to Letter from Rob Alderfer, Vice President of Technology Policy, CableLabs, to Marlene H. Dortch, Sec’y, FCC, ET Docket No. 18-295, GN Docket No. 17-183 (filed Dec. 20, 2019); CableLabs, *Low Power Indoor (LPI) Wi-Fi Will Not Cause Harmful Interference or Impact Availability of 6 GHz Fixed Service (FS) Incumbents*, attached to Letter from Elizabeth Andrion, Senior Vice President, Regulatory Affairs, Charter Communications, Brian M. Josef, Executive Director, Regulatory Affairs, Comcast Corporation, Rob Alderfer, Vice President, Technology Policy, CableLabs, to Marlene H. Dortch, Sec’y, FCC, ET Docket No. 18-295, GN Docket No. 17-183 (filed Jan. 17, 2020); CableLabs, *30 dBm Low Power Indoor (LPI) Wi-Fi Will Not Cause Harmful Interference to Broadcast Auxiliary Systems (BAS) in 6 GHz*, attached to Letter from Elizabeth Andrion, Senior Vice President of Regulatory Affairs, Charter Communications, and Rob Alderfer, Vice President of Technology Policy, CableLabs to Marlene H. Dortch, Sec’y, FCC, ET Docket No. 18-295, GN Docket No. 17-183 (filed Feb. 21, 2020).

mature, these benefits may be able to be realized quickly and at scale through firmware updates to existing devices. Because the change poses no meaningful interference risk while delivering clear benefits for consumers and innovation, the Commission should move forward with increasing the LPI PSD limit by 3 dB.

III. THE COMMISSION SHOULD PERMIT EXTERNAL ANTENNAS FOR LPI ACCESS POINTS IN LOW-RISK SCENARIOS.

To maximize the benefits of 6 GHz Wi-Fi, the Commission should allow LPI devices to use external antennas in certain contained environments, such as cruise ships, trains, and underground mining facilities, where the risk of harmful interference to incumbents is low.

The FCC required LPI access points to have integrated antennas to help ensure that LPI devices do not operate outdoors.¹¹ In practice, this rule restricts companies' ability to install access points in many important indoor scenarios. External antennas allow network operators to direct wireless signals more precisely in certain physical layouts, including narrow corridors, long passageways, or constrained spaces. External antennas also allow network operators to separate the antenna from the rest of the access point when faced with space constraints. For instance, the operator can place a thin antenna panel on the ceiling and hide the rest of the access point above a ceiling tile.

These environments also present very low risk of harmful interference to incumbents. The thick metal bodies of cruise ships and trains effectively block wireless signals. Likewise, for mining facilities and underground trains, LPI signals are blocked by the surrounding earth. Because the risk to existing 6 GHz users is minimal, the FCC should remove this overly

¹¹ See *First Report and Order* ¶ 107 (explaining that integrated antennas would prevent users from “substituting higher gain directional antennas and [thereby] make the [LPI] devices less capable or suitable for outdoor use.”).

restrictive design limitation, freeing equipment makers to design 6 GHz solutions that serve more customers in a wider range of environments.

IV. THE COMMISSION SHOULD PERMIT LPI ON CRUISE SHIPS.

CTA supports the Commission's proposal to allow LPI operations on cruise ships.¹² Over 21 million Americans are projected to travel on cruise ships in 2026,¹³ and the market continues to grow, with annual revenue projected to grow from \$3.7 billion in 2024 to nearly \$7.6 billion by 2030.¹⁴ As cruise travel's importance to the U.S. tourism economy continues to grow, passengers and crew expect the same high-quality wireless connectivity they rely on at home and in hotels. Thousands of cruise ship passengers and crew members rely on wireless connectivity for communications, entertainment, work, and safety. This dense operating environment results in significant wireless traffic congestion.

Allowing LPI operations on cruise ships would significantly improve onboard connectivity while presenting minimal risk to incumbent services. The FCC's original reasoning behind prohibiting LPI devices on boats does not apply to cruise ships. In its 2020 order, the FCC banned LPI operations on boats because boats generally do not provide the signal blocking that buildings do, increasing the risk to radio astronomy and earth exploration satellite service operations.¹⁵ However, cruise ships are more akin to hotels or resorts than regular boats. Cruise ships have thick metal hulls and thermally efficient windows that block wireless signals and do

¹² *Third FNPRM* ¶ 176.

¹³ Aixa Diaz, *21.7 Million Americans Projected to Cruise Next Year, Setting New Record*, AAA NEWSROOM (Oct. 20, 2025), <https://newsroom.aaa.com/2025/10/aaa-cruise-forecast-2026/>.

¹⁴ Bill Davenport, *Choppy Wi-Fi Waters: FCC Action Could Improve Cruise Ship Connectivity*, CISCO BLOGS (Apr. 14, 2025), <https://blogs.cisco.com/gov/cruise-ship-connectivity-fcc>.

¹⁵ *See First Report and Order* ¶ 212.

not increase the risk of harmful interference to incumbents.¹⁶ The Commission should therefore permit LPI operations on cruise ships to meet growing connectivity demands.

V. CONCLUSION

As Chairman Carr observed at CES, “U.S. leadership in spectrum is part and parcel of our geopolitical leadership. When we free up spectrum, the world takes notice. Jobs come here. Innovators come here.”¹⁷ By continuing to support the 6 GHz band, the Commission can ensure that American businesses remain at the forefront of the global wireless economy. Common-sense updates—such as modestly increasing LPI power, allowing LPI access points to use external antennas, and permitting LPI operations on cruise ships—will ensure the 6 GHz band remains a powerful engine of innovation in the United States.

Respectfully submitted,

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¹⁶ See Comments of Cisco Systems, Inc. at 8, GN Docket Nos. 25-133 and 17-183, ET Docket No. 18-295 (filed Apr. 11, 2025).

¹⁷ Chairman Carr and Gary Shapiro Fireside Chat, at 5:18.