

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)
)
Revision of Part 15 of the Commission’s Rules to) ET Docket No. 13-49
Permit Unlicensed National Information)
Infrastructure (U-NII) Devices in the 5 GHz Band)

COMMENTS OF WI-FI ALLIANCE

Wi-Fi Alliance®^{1/} submits these comments in response to the Commission’s Public Notice in the above-referenced proceeding seeking to update and refresh the record regarding the potential for sharing between Unlicensed National Information Infrastructure (“U-NII”) and Dedicated Short Range Communications (“DSRC”) devices in the 5.850-5.925 GHz (“U-NII-4”) band.^{2/} Wi-Fi Alliance strongly supports the Commission’s efforts to evaluate how Wi-Fi® and other unlicensed technologies can use the U-NII-4 band. It urges the Commission to quickly conclude the test plan outlined in the Public Notice and take steps that will allow the Wi-Fi industry and others to unlock the potential of the additional capacity offered by the U-NII-4 band.

I. COMMENTS

Wi-Fi Alliance is a global, non-profit industry association of approximately 700 leading companies from dozens of countries devoted to seamless interoperability. With technology

^{1/} Wi-Fi®, the Wi-Fi logo, the Wi-Fi CERTIFIED logo, Wi-Fi Protected Access® (WPA), WiGig®, the Wi-Fi ZONE logo, the Wi-Fi Protected Setup logo, Wi-Fi Direct®, Wi-Fi Alliance®, WMM®, and Miracast® are registered trademarks of Wi-Fi Alliance. Wi-Fi CERTIFIED™, Wi-Fi Protected Setup™, Wi-Fi Multimedia™, WPA2™, Wi-Fi CERTIFIED Passpoint™, Passpoint™, Wi-Fi CERTIFIED Miracast™, Wi-Fi ZONE™, WiGig CERTIFIED™, Wi-Fi Aware™, Wi-Fi HaLow™, the Wi-Fi Alliance logo and the WiGig CERTIFIED logo are trademarks of Wi-Fi Alliance.

^{2/} *The Commission Seeks to Update and Refresh the Record in the “Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band” Proceeding*, Public Notice, ET Docket No. 13-49 (rel. June 1, 2016) (“Public Notice”).

development, market building, and regulatory programs, Wi-Fi Alliance has enabled widespread adoption of Wi-Fi worldwide, certifying thousands of Wi-Fi products each year. The mission of Wi-Fi Alliance is to provide a highly effective collaboration forum for Wi-Fi matters, grow the Wi-Fi industry, lead industry growth with new technology specifications and programs, support industry-agreed standards, and deliver greater product connectivity through interoperability, testing, and certification.

Wi-Fi Alliance has been an active participant in this proceeding^{3/} and has advocated for additional access to the U-NII-4 band.^{4/} Wi-Fi Alliance earlier encouraged the Commission to adopt consistent rules as quickly as practicable that would provide a contiguous block of spectrum from 5150 MHz to 5925 MHz for the latest generation of Wi-Fi devices to operate.^{5/} Although the Commission noted then that the IEEE 802.11ac standard (*i.e.*, the Wi-Fi standard for use of the 5 GHz band) does not strictly require contiguous spectrum blocks, Wi-Fi Alliance explained that greater consistency in the rules across the 5 GHz band would promote adoption of the standard.^{6/}

Since the Commission initiated this proceeding, use of Wi-Fi and other unlicensed technologies has continued to dramatically expand. More than 12 billion Wi-Fi products have been shipped to date, and more than half of shipments — and increasing every year — are dual-

^{3/} See, e.g., Comments of Wi-Fi Alliance, ET Docket No. 13-49 (filed Aug. 14, 2014); Reply Comments of Wi-Fi Alliance, ET Docket No. 13-49 (filed July 24, 2013); Comments of Wi-Fi Alliance, ET Docket No. 13-49 (filed May 28, 2013) (“Wi-Fi Alliance Comments”). See also *Revision of Part 15 of the Commission’s Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, First Report and Order, 29 FCC Rcd. 4127 (2014) (“First Report and Order”).

^{4/} See Wi-Fi Alliance Comments at 6-7.

^{5/} *Id.* at 6-7.

^{6/} *Id.* at 6 n.21.

band Wi-Fi devices operating in both the 2.4 and 5 GHz bands.^{7/} Wi-Fi now has an installed base of more than 6.8 billion devices.^{8/} By the end of 2019, there is expected to be more than 10 billion devices in households worldwide.^{9/} Global Internet traffic is anticipated to increase by about three times over the next five years, and Wi-Fi, through these billions of devices, will play an important role in driving that growth; it is estimated that Wi-Fi and mobile devices will account for two-thirds of all Internet traffic by 2020.^{10/}

The 5 GHz band has continued to emerge as a critical resource in meeting this growing demand. As a multitude of shared uses, including newer Wi-Fi-enabled Internet of Things devices and Bluetooth Low Energy-powered hearing aids, increasingly crowd the legacy 2.4 GHz band, the availability of the 5 GHz band for unlicensed uses has become even more critical. Permitting unlicensed operations in the U-NII-4 portion of the 5 GHz band would help meet these demands and offer important technical benefits. For example, because the U-NII-4 band is adjacent to other bands already used by unlicensed technologies like Wi-Fi, the same equipment will be able to take advantage of additional capacity and offer higher speeds using wider bandwidths — assisting in meeting the challenges of rapidly growing demand for higher-bandwidth data streams. The IEEE 802.11ac standard, for instance, specifies bandwidths of 20, 40, 80, and 160 megahertz, whereas 802.11n, the most advanced Wi-Fi standard to only use the 2.4 GHz band, only specifies a bandwidth of up to 40 megahertz. Increasing the spectrum

^{7/} *Wi-Fi Device Shipments to Surpass 15 Billion by End of 2016*, WI-FI ALLIANCE NEWSROOM (Jan. 5, 2016), <http://www.wi-fi.org/news-events/newsroom/wi-fi-device-shipments-to-surpass-15-billion-by-end-of-2016> (“Wi-Fi Alliance News”); Wi-Fi, ABI RESEARCH (last visited June 24, 2016), <https://www.abiresearch.com/market-research/product/1022031-wi-fi/>.

^{8/} See Wi-Fi Alliance News.

^{9/} *Id.*

^{10/} *The Zettabyte Era—Trends and Analysis*, CISCO (June 2016), available at <http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/vni-hyperconnectivity-wp.html>.

available for 802.11ac and other unlicensed technologies will therefore help avoid unnecessarily constraining emerging technologies like video streaming that require higher bandwidth.

The Commission should therefore act as quickly as possible to make additional 5 GHz spectrum available for unlicensed operations. The Commission decided in 2014 not to adopt rules for the U-NII-4 band and instead continue technical analyses in conjunction with the National Telecommunications and Information Administration (“NTIA”) and industry stakeholders.^{11/} These technical analyses have taken too long. In August, 2015, the Department of Transportation (“DoT”) released its test plan for identifying the nature of any impact on DSRC operations by unlicensed devices operating in the U-NII-4 band.^{12/} Wi-Fi Alliance supports rigorous testing for the U-NII-4 band, as it has for spectrum in other FCC proceedings.^{13/} Yet, there has been little meaningful follow-up since the DoT issued its test plan. While Wi-Fi Alliance appreciates the need for inter-agency coordination, it applauds the Commission’s decision to conduct its own testing in coordination with DoT and NTIA. Like the authors of the Wi-Fi Innovation Act, Wi-Fi Alliance urges that such testing not be unduly delayed.^{14/} The public interest requires that the Commission create certainty for manufacturers of devices that may potentially operate in the band, providers of innovative services that rely on the higher speeds enabled by the band, and ultimately the millions of Americans (and billions worldwide) who will take advantage of increasingly greater access to unlicensed spectrum.

^{11/} First Report and Order ¶ 10.

^{12/} See Public Notice at 1, 10.

^{13/} See generally Letter from Edgar Figueroa, President and CEO, Wi-Fi Alliance, to Hon. Tom Wheeler, Chairman, FCC, IB Docket No. 13-213 (filed June 3, 2013). See also Letter from Edgar Figueroa, President and CEO, Wi-Fi Alliance, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 15-105 (filed Aug. 14, 2015).

^{14/} See Letter from Senator Marco Rubio, *et al.* to The Honorable Tom Wheeler, Chairman, FCC (June 24, 2016), available at http://www.rubio.senate.gov/public/_cache/files/9e5e0761-3148-4328-9d7e-2a8770121203/508ABB8625DABF56C6C0DE461DA103C9.06.24.2016-letter--5ghz-spectrum.pdf.

The Commission asks about the “the ramifications of any of the sharing techniques relative to indoor as well as outdoor use.”^{15/} Regardless of the amount, and process, by which additional spectrum in the U-NII-4 band is made available for unlicensed use, there should be equal availability for indoor and outdoor operations. Different sharing techniques or technical parameters should not be required of U-NII-4 operations in different types of locations. Wi-Fi is used everywhere, and consumers constantly move with their Wi-Fi-enabled devices between indoor and outdoor locations. Moreover, Wi-Fi signals do not stop at the walls of a business or home. It would therefore be impractical, and contrary to consumer expectations, to have two equipment classes for U-NII-4 devices operating indoors and outdoors.

^{15/} Public Notice at 9.

II. CONCLUSION

Wi-Fi Alliance appreciates the Commission's efforts to determine how sharing between unlicensed operations and DSRC may occur in the U-NII-4 band. Because these efforts are long-overdue, the Commission should proceed expeditiously with conducting the testing necessary to make capacity in the band available for unlicensed operations, benefitting the American public.

Respectfully submitted,



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