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Via E-Mail to Bruce.Walker@hq.doe.gov

November 12, 2019

Mr. Bruce J. Walker
Assistant Secretary
Office of Electricity
Department of Energy
1000 Independence Ave. SW
Washington, DC 20585

Re: **Federal Communications Commission Proposal to Permit Access to the 5925-7125 MHz Band for Unlicensed Devices**

Dear Mr. Walker:

On September 3, 2019, you wrote to Federal Communications Commission (“FCC”) Chairman Pai regarding the FCC’s proposal to permit access to the 5925-7125 MHz (the “6 GHz”) band for unlicensed devices.^{1/} You expressed the Department of Energy’s (“DOE’s”) concern about the impact of the FCC’s proposal on the energy and water industries. Wi-Fi Alliance^{2/} supports rigorous protection of those and other critical incumbent licensed uses of the 6 GHz band. The FCC’s proposal does just that by contemplating that the immediate unlicensed use of the 6 GHz band will be limited to low-power devices operating indoors only, ensuring that there will be no impact on incumbent operations like those of the water and energy industries. Any higher-power use of the 6 GHz band will be subject to fully developed and tested automatic frequency coordination (“AFC”) systems that will prevent unlicensed devices from transmitting on frequencies where those transmissions could cause harmful interference to incumbent operations.

Unlicensed Use of Licensed Spectrum is Not Novel

Your letter says that “[t]he commingling of licensed and unlicensed spectrum use is a novel idea...” It is true that the FCC has proposed to permit unlicensed devices to access the 6 GHz band, spectrum that currently supports licensed operations. But that concept is hardly novel;

^{1/} Letter from Bruce J. Walker, Assistant Secretary, Office of Electricity, U.S. Dep’t of Energy, to Ajit Pai, Chairman, FCC (Sept. 3, 2019). *See Unlicensed Use of the 6 GHz Band*, Notice of Proposed Rulemaking, 33 FCC Rcd 10496 (2018) (“*FCC NPRM*”).

^{2/} Wi-Fi Alliance is a global, non-profit industry association made up of companies that bring you Wi-Fi; our vision is to connect everyone and everything, everywhere. We have over 800 member companies, including many of the largest in the world, and we are responsible for the device certification, standards-setting, regulatory advocacy, and industry-wide collaboration that make the global Wi-Fi ecosystem possible. Our work ensures that Wi-Fi devices and networks provide users the interoperability, security, and reliability they have come to expect.

much of the spectrum on which unlicensed devices operate is designated for use by licensed services today.

The FCC's long history of enabling spectrum sharing is what forms the basis for Wi-Fi and other low-power radio systems. The FCC's rules provide for the operation of these unlicensed devices on a "sufferance" basis, meaning they are required to not cause interference to, and must accept interference from, licensed users of that spectrum.^{3/} The precedent for this sharing is well-established and successful. As noted in the *FCC NPRM*, the FCC's proposal draws from the existing rules applicable to unlicensed devices that already operate in the 5 GHz band.^{4/} Moreover, certain types of unlicensed devices are already permitted to operate across the 6 GHz band.^{5/}

It is through sharing that the FCC ensures that spectrum, one of our most valuable natural resources, is used as efficiently as possible and in the public interest. Such sharing has become absolutely critical as demand for wireless connectivity has soared and there is no longer unused spectrum in the low- and mid-bands. This is particularly important to achieve the Administration's socioeconomic goals of enabling next generation wireless connectivity.^{6/} One of Wi-Fi's greatest strengths is its ability to support the next generation of use cases and services, including those expected from Fifth Generation Wireless ("5G") deployment. But the full potential of the Wi-Fi ecosystem cannot be realized without necessary spectrum access.

AFC-Controlled Devices Will Not Transmit Unless an AFC is Fully Tested and Certified

You expressed concern about the use of AFC in connection with unlicensed operations in the 6 GHz band. Wi-Fi Alliance agrees that AFC-controlled devices must be subject to a rigorous testing and certification regime; no AFC-controlled devices should be allowed to operate in the 6 GHz band until certified by the FCC.

That is why Wi-Fi Alliance has provided the FCC with proposed parameters for AFC systems and recommended that the FCC require that AFC systems demonstrate their ability to fully protect licensed incumbent fixed service links.^{7/} One of the components of AFC certification

^{3/} 47 C.F.R. § 15.5. *See also Revision of Part 15 of the Commission's Rules Regarding Ultra WideBand Transmission Systems*, Report and Order, 17 FCC Rcd 7435 at n.2 (2002) ("noting that "one of the primary operating conditions under [the FCC's unlicensed device rules] are that the operator must accept whatever interference is received and must correct whatever interference is caused").

^{4/} *See FCC NPRM* at ¶ 2.

^{5/} *See* 47 C.F.R. §§ 15.250 and 15.517.

^{6/} *See* Donald J. Trump, U.S. President, Remarks by President Trump on United States 5G Deployment (Apr. 12, 2019) (available at <https://www.whitehouse.gov/briefings-statements/remarks-president-trump-united-states-5g-deployment/>). The Administration's goals are shared by the FCC. *See* FCC, *The FCC's 5G FAST Plan*, <https://www.fcc.gov/5G>.

^{7/} *See* Letter from Alex Roytblat, Senior Director of Regulatory Affairs, Wi-Fi Alliance, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 18-295 (filed Oct. 31, 2019) (laying out detailed requirements for AFC systems and testing to ensure full incumbent protections).

will certainly be testing and evaluation – processes the FCC has recently undertaken with respect to similar geo-location database-driven spectrum access solutions in the 3.5 GHz band.^{8/} Wi-Fi Alliance anticipates that the FCC will observe a similar process for standard power unlicensed device operations in the 6 GHz band subject to AFC. Through that process, it will ensure that such systems are fully tested using performance-based metrics to safeguard licensed incumbents from harmful interference.

Finally, there is no relationship between AFC systems and the requirement that unlicensed devices using certain segments of the 5 GHz band employ Dynamic Frequency Selection (“DFS”). As an initial matter, DFS is a spectrum-sensing mechanism intended to protect radars, while AFC is based on database-driven, geo-location frequency avoidance techniques. Further, the instances of interference to the Terminal Doppler Radar that you note, generally, occurred when the required DFS capability was disabled. While development of 6 GHz AFC systems is ongoing, it is unlikely that standard power devices will be able to initiate operations at all without first communicating with an AFC.

Moreover, your characterization of DFS is incomplete in two other important respects. First, the majority of instances of interference to which you refer are now nearly a decade old; non-compliance issues have been greatly reduced.^{9/} Second, a review of these enforcement actions shows that interference to Terminal Doppler Radar was not caused by low-power Wi-Fi devices. Instead, it was caused by higher-power point-to-point systems. Accordingly, there is no relationship between these devices, AFC systems, and interference in the 5 GHz band caused by high-power devices with non-compliant DFS implementation.

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Access to the 6 GHz band will provide much needed spectrum capacity that will accommodate our country’s growing connectivity demands. Spectrum sharing between licensed and

^{8/} See, e.g., *Wireless Telecommunications Bureau and Office of Engineering and Technology Approve Five Spectrum Access System Administrators to Begin Initial Commercial Deployments in the 3.5 GHz Band*, Public Notice, 34 FCC Rcd 8106 (2019) (explaining ongoing requirements for SAS operators to comply with protection requirements); *Wireless Telecommunications Bureau and Office of Engineering and Technology Conditionally Approve Four Environmental Sensing Capability Operators for the 3.5 GHz Band*, Public Notice, 33 FCC Rcd 1942 (2018) (explaining requirements for ESC operators); *Wireless Telecommunications Bureau and Office of Engineering and Technology Establish Procedure and Deadline for Filing Spectrum Access System Administrator and Environmental Sensing Capability Operator Applications*, Public Notice, 30 FCC Rcd 14170 (2015) (detailing requirements for SAS and ESC operators and the testing which would be required for each).

^{9/} The Commission initiated a total of 53 enforcement actions for potential interference between unlicensed devices and weather radar systems. The majority were completed more than seven years ago and nearly three quarters were completed by the end of 2014. See *FCC, U-NII and TDWR Interference Enforcement*, <https://www.fcc.gov/general/u-nii-and-tdwr-interference-enforcement>. The Commission initially authorized the use of the 5.8 GHz band subject to DFS in 2003. *Revision of Parts 2 and 15 of the Commission’s Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, Report and Order, 18 FCC Rcd 24484 (2003).

unlicensed operations is now necessarily the norm, and the FCC can ensure that shared spectrum use fully protects incumbent operations from harmful interference.

I hope that the foregoing is useful. Wi-Fi Alliance would welcome an opportunity to discuss these matters in greater detail to address any further questions you may have about the use of 6 GHz spectrum for unlicensed devices.

Respectfully submitted,

/s/ Alex Roytlat

WI-FI ALLIANCE

Alex Roytlat

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cc: Hon. Ajit Pai
Hon. Michael O’Rielly
Hon. Brendan Carr
Hon. Jessica Rosenworcel
Hon. Geoffrey Starks
FCC Docket Nos. 18-295 and 17-183, via the FCC Electronic Comment Filing System