January 13, 2020

Via Electronic Filing

Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

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

The Edison Electric Institute ("EEI"), the American Gas Association ("AGA"), the American Public Power Association ("APPA"), the American Water Works Association ("AWWA"), the National Rural Electric Cooperative Association ("NRECA"), the Nuclear Energy Institute ("NEI"), and the Utilities Technology Council ("UTC"), each representing their respective critical infrastructure industry ("CII") members, hereby submit into the 6 GHz docket the attached report titled "Impact of Proposed Wi-Fi Operations on Microwave Links At 6 GHz" (the "CII User Study").[1] Electric, gas, and water utilities, oil and gas companies, railroads, wireless carriers, as well as public safety and law enforcement officials, all require interference-free access to the band on a continuous (24/7), low latency, uninterrupted basis to operate key facilities and equipment, and as their main source of communication during emergencies and disasters. Continued, unimpeded access is paramount.

The purpose of the CII User Study is to provide a real-world analysis of the potential impact of unlicensed use of the 6 GHz band on the multitude of CII and public safety providers that currently use the band for essential and mission-critical communications. Unlike other studies submitted in the docket,[2] the CII User Study is based on actual, real-world user data, and not theoretical or hypothetical assumptions concerning the operations of incumbent fixed microwave systems in the band. Specifically, the study is based on the actual and detailed inference impact on the 520 Microwave sites that are operational in the Houston Metropolitan Statistical Area (MSA), as well as "the actual impact of indoor and outdoor Wi-Fi deployments on 2325 point-to-point communications receivers" in the MSA.[3]

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[1] Roberson & Associates, LLC, *Impact of Proposed Wi-Fi Operations on Microwave Links at 6 GHz* (2019) (*the CII User Study*).

[2] *See, e.g.*, Alion Science and Technology, *Analysis of Interference to Electric News Gathering Receivers from Proposed 6 GHz RLAN Transmitters*, (Oct. 2019) (*Alion Report* on behalf of NAB); Roberson and Associates, LLC, *Impact of Proposed High-Power Wi-Fi Operations on Ultra Wide Band Devices at 6 GHz* (Oct. 9, 2019) (*iRobot Technical Study*); Roberson and Associates, LLC, *Further Analysis of Impact of Unlicensed I-NII-5 Devices on RigNet 6 GHz Backhaul Network* (July 11, 2019) (RigNet Study); Nokia, *Coexistence of U-NII Devices with Fixed Links at 6 GHz* (Feb. 15, 2019) (*Nokia Simulation*).

[3] *CII User Study*, at 4.

The Houston MSA is used as a representative MSA because its flat terrain simplifies propagation path loss issues and provides a highly realistic indication of interference levels in a major market. Current applications of fixed point-to-point networks in the Houston MSA also include the entire host of CII users, including energy companies, transportation, telecommunication backhaul, and utility and municipal infrastructure. Due to these factors, the conclusions reached in the CII User Study fairly depict the likely impact of additional, harmful interference in the band in all of the large or mid-sized MSAs in the United States. In addition, the conclusions reached in the CII User Study would also indicate the potential interference to microwave systems in other parts of the country, including rural areas, where the microwave systems that use a lower performance antenna may actually increase the likelihood of interference from unlicensed operations.

The CII User Study, which considers interference from both residential and outdoor Wi-Fi access points and for Wi-Fi adjacent channel emissions, demonstrates that deployment of RLANs as currently proposed in the NPRM would cause all the point-to-point links in the Houston MSA to experience unacceptable levels of interference. The analysis assumes RLAN deployment is based on population density with a ratio of one Wi-Fi access point per person, distributed over multiple U-NII bands, and that the deployment ratio is lower for outdoor RLAN devices and uses a one percent outdoor deployment. The analysis shows that the risk of interference from RLANs is not an isolated issue because to reduce interference to the necessary level, it would be necessary to prohibit U-NII-5 and U-NII-7 operations in approximately 94 percent of the nine-county area of the Houston MSA. Moreover, to avoid interference from adjacent Wi-Fi channels, it would also be necessary to exclude certain Wi-Fi channels. Critically, the potential interference to fixed licenses from indoor operation of RLANs without adequate safeguards is only slightly less severe than outdoor operations.[4] Also, the `Report's preliminary analysis of very low power ("VLP") operations indicates that the potential interference from VLP operations has been significantly under estimated.

In sum, the CII User Study demonstrates the real-world risk from the current Commission proposal to allow unlicensed use of the 6 GHz band, especially to the broad cross-section of the nation's CII and public safety users that depend daily on the 6 GHz band for essential and mission-critical communications. Additionally, the CII User Study, because it is based on a real-world and not merely theoretical analysis, can and should be used to create a practical, nationwide framework for future use of the band that is faithful to the Commission's purposes as stated in the NPRM: to permit unlicensed devices to operate in the band (or parts of it) in furtherance of the deployment of 5G technologies while simultaneously avoiding harmful and potentially disastrous interference to incumbent CII and public safety users.

We look forward to working with the Commission and other stakeholders to ensure that this issue is resolved properly.

[4] *See CII User Study*, at 18.

Respectfully submitted,

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/s/ Kevin Morley
Manager, Federal Relations
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Dated: January 13, 2020

cc: Office of Chairman Ajit Pai
Office of Commissioner Brendan Carr
Office of Commissioner Michael O'Rielly

Office of Commissioner Geoffrey Starks
Office of Commissioner Jessica Rosenworcel
Office of Engineering and Technology