



PUBLIC NOTICE

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OFFICE OF ENGINEERING AND TECHNOLOGY REQUESTS COMMENT ON PHASE I TESTING OF PROTOTYPE U-NII-4 DEVICES

ET Docket No. 13-49

Comment Date: November 28, 2018

Reply Date: December 13, 2018

The Commission's Office of Engineering and Technology (OET) is requesting comment on the report for Phase I of tests performed to evaluate potential sharing solutions between the proposed Unlicensed National Information Infrastructure (U-NII) devices and Dedicated Short Range Communications (DSRC) operations in the 5850-5925 MHz (U-NII-4) frequency band. The attached report provides a detailed summary of the testing methodology, measurements, and observations.

On June 1, 2016, the Office of Engineering and Technology (OET) issued a Public Notice¹ to refresh the record in the Commission's pending proceeding that is evaluating the potential for unlicensed national infrastructure (U-NII) devices to share the 5850-5925 MHz frequency band with Dedicated Short Range Communications (DSRC) systems operating under the Intelligent Transportation Service (ITS).² The *U-NII-4 Public Notice* described a three-phase Test Plan, invited comment on the tests for Phase I of the plan³, and solicited the submittal of prototype U-NII-4 devices for testing. Prototype devices were submitted to the FCC Laboratory and are described below.⁴

Five parties—Cisco, Qualcomm, KEA Tech, Broadcom, and CAV technologies—submitted a total of nine devices in response to the *U-NII-4 Public Notice* for Phase I testing. In

¹ *The Commission Seeks to Update and Refresh the Record in The "Unlicensed National Information Infrastructure (U-NII) Devices in The 5 GHz Band" Proceeding*, ET Docket No. 13-49, Public Notice, 31 FCC Rcd 6130 (2016) (*U-NII-4 Public Notice*).

² DSRC uses short-range wireless communication links to facilitate information transfer between appropriately equipped vehicles and appropriately equipped roadside systems ("vehicle to infrastructure" or "V2I") and between appropriately equipped vehicles ("vehicle to vehicle" or "V2V"). See *Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, ET Docket No. 13-49, Notice of Proposed Rulemaking, 28 FCC Rcd 1769, 1797-98, paras. 92-93 (2013) (*NPRM*).

³ The plan proposed in the U-NII-4 Public Notice suggested three phases of testing: Phase I – FCC lab testing, Phase II - basic field tests with a few vehicles at a DoT facility, and Phase III - additional field tests with many more vehicles, more test devices, and real-world scenarios.

⁴ All the prototype devices submitted for evaluation are for use as Wireless Local Area Network (WLAN) devices and based on the IEEE 802.11 protocol. The test plan thus only focuses on the evaluation of such technologies.

addition, Qualcomm, Cisco, KEA, Broadcom, and DoT submitted DSRC devices to use for the testing program.

The prototypes were designed to prevent interference by detecting DSRC signals and then either vacating the spectrum entirely or sharing a portion of the spectrum with non-safety related communications using techniques similar to Wi-Fi sharing. We performed approximately 1,450 individual tests (more than one million data points collected), the results of which are summarized in the report.

As summarized in the report, we found the prototype devices reliably detected DSRC signals. The report includes the results of the evaluation of the Wi-Fi sharing techniques since one of the proposed band sharing methods would require re-channelization of the DSRC spectrum. In brief, the test results show that the prototype U-NII-4 devices were able to detect a co-channel DSRC signal and implement post detection steps as claimed by the submitters. This Phase I test report was peer reviewed and the information is included in the record. The report was also coordinated with the NTIA and DoT.

We recognize there have been a number of developments since the three-phase test plan was announced in 2016—such as the introduction of new technologies for autonomous vehicles, the evolution of the Wi-Fi standards, the development of cellular vehicle-to-everything (C-V2X) technology, and the limited deployment of DSRC in discrete circumstances. We invite comment on how any of these factors or others should impact our evaluation of the test results, our three-phase test plan, or our pending proceeding on unlicensed use in the 5.9 GHz band.

Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://apps.fcc.gov/ecfs/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.

- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

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Parties should also send a copy of their filings to Mathew Hussey, Office of Engineering and Technology, Federal Communications Commission, Room 7-A162, 445 12th Street, S.W., Washington, D.C. 20554, or by e-mail to Mathew.Hussey@fcc.gov.

By the Chief, Office of Engineering and Technology

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