The Center for Auto Safety
Your Independent Voice for Auto Safety, Quality, & Fuel Economy
1825 Connecticut Ave. NW Suite 330 Washington DC 20009
www.autosafety.org

March 5, 2020

The Honorable Ajit Pai, Chairman
Federal Communications Commission
445 12th Street, SW
Washington, DC 2055

Submitted electronically via FCC.gov

Dear Chairman Pai:

The Center for Auto Safety ("the Center") appreciates the opportunity to comment on the Commission's request for comments on Notice of Proposed Rulemaking – ET Docket No. 19-138, *Use of the 5.850-5.925 GHz Band*.[1]

The Center, founded in 1970, is an independent, member supported, non-profit consumer advocacy organization dedicated to improving vehicle safety, quality, and fuel economy. On behalf of our members, and all drivers, passengers, and pedestrians nationwide, the Center continues to support an exclusive non-commercialized, dedicated safety bandwidth that will allow vehicles to communicate with other vehicles, pedestrians, and infrastructure in a manner that has the potential to drastically reduce fatalities and injuries on American roads as soon as it is deployed.

The Center reiterates its opposition to reallocation of the 5.9 GHz band (5.850-5.925 GHz) that has been reserved by Congress for use by Dedicated Short Range Communications (DSRC). As you know, DSRC is an enabling service component of the Intelligent Transportation System (ITS). DSRC is designed to enable vehicle-related communications while preserving user privacy at no cost to the user. The Center remains opposed to reallocation of the currently dedicated automotive safety spectrum as previously documented in its February 25, 2019 response to the Department of Transportation Request for Comment DOT-OST-2018-0210, V2X Communication, incorporated here by reference.[2] Spectrum reallocation would inevitably further delay and imperil deployment of life-saving ITS technologies.

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[1] 85 Fed. Reg. 6841, *Use of the 5.850-5.95 GHz Brand*; FCC-CIRC1912-YY, Notice of Proposed Rulemaking – ET Docket No. 19-138, https://docs.fcc.gov/public/attachments/DOC-360940A1.pdf

[2] Letter to Secretary Chao, RE: Request for Comment DOT-OST-2018-0210, V2X Communication, https://www.regulations.gov/contentStreamer?documentId=DOT-OST-2018-0210-0124&attachmentNumber=1&contentType=pdf

No compelling technical or commercial rationale has been presented for acting now to reallocate any portion of the reserved safety spectrum, much less a majority of the reserved spectrum, for uses other than its intended use for transportation and automotive safety. While the straw man of Cellular Vehicle to Everything (C-V2X) technology has been erected as a potential use of the reallocated spectrum, in fact there is no need for reallocation of the reserved spectrum to enable use of 5G technology for automotive safety applications, including its potential C-V2X application,[3] nor is there any assurance that reallocated spectrum would be used for that purpose,[4] nor is there any evidence presented that C-V2X would in any way provide performance superior to DSRC for automotive safety. Finally, there is no assurance that 5G-enabled C-V2X will provide user privacy and be free of cost, and every reason to expect the contrary.

The NPRM states, "The 5.9 GHz band, once expected to support widespread deployment of systems that would improve efficiency and promote safety within the Nation's transportation infrastructure, has not lived up to its potential. The promise of ubiquitous vehicle-to-vehicle and vehicle-to-infrastructure communications in this band has never materialized, while vehicle manufacturers increasingly are using a multitude of other radio frequency based and other technologies to deliver tangible safety benefits."[5] This statement suggests without any evidence that alternatives to DSRC implementation have demonstrated superior life-saving capabilities. In fact, DSRC deployments in at least 25 states are daily providing proof of DSRC capabilities in the reserved 5.9 GHz band.[6] It's also important to acknowledge that these successes are in spite of government actions that have inhibited DSRC proliferation.

The life-saving potential of DSRC technology has been significantly constrained by both government actions and inaction. In 2015, Congress requested testing regarding the operation of unlicensed devices in the band to ensure they would not interfere with V2X technologies. The results of the first of three planned tests were released in 2019, the other two tests have not yet been completed. The FCC itself has discouraged incorporation of life-saving DSRC technology in production automobiles.[7] In 2018, two FCC Commissioners wrote a letter to Toyota, which

[3] "… the draft NPRM does not discuss the emergence of Wi-Fi 6, based on IEEE 802.11ax. This new Wi-Fi innovation has the ability to bond non-contiguous bandwidth to produce larger channels—up to 160 MHz channels. With the introduction of these technologies on the market, the USDOT questions the industry's insistence that unlicensed broadband requires large swaths of mid-band spectrum to be reallocated away from current licensed users, which results in a critical impact to their lives, their operations, and their business models," Concerns with Draft FCC NPRM: Use of the 5.850-5.925 GHz Band [ET Docket No. 19-138], https://www.transportation.gov/sites/dot.gov/files/docs/research-and-technology/359811/preliminary-technical-assessment-fcc-59-ghz-nprm-05dec2019-final.pdf

[4] Supra, FCC-CIRC1912-YY, INTRODUCTION section 7 "…commenters expressed support for various options—including continuing exclusive use for DSRC (and for conducting further testing),20 promoting the use of C-V2X in the band,21 or requesting that the band be made available for unlicensed operations with no further testing.",

[5] Supra, FCC-CIRC1912-YY, INTRODUCTION section 1.

[6] Operational Connected Vehicle Deployments in the U.S., DOT, https://www.transportation.gov/research-and-technology/operational-connected-vehicle-deployments-us

[7] Letter FCC Commissioners O'Reilly and Rosenworcel to Lentz, May 10 2018, https://transition.fcc.gov/Daily_Releases/Daily_Business/2018/db0510/DOC-350655A1.pdf

was planning to deploy V2X technology in all of its vehicles starting in 2021, to suggest that the FCC could re-channelize the 5.9 GHz band, significantly delaying the deployment of V2X, which was reportedly a factor in Toyota's decision to abandon its plans for early deployment of DSCR technology.[8] Nothing in the literature or in the NRPM demonstrates the proposed spectrum reallocation will provide equivalent or potential life-saving utility to that already shown by DSRC pilot implementations . FCC statements to the contrary continue to mislead and inhibit additional investment in DSRC technology.

With regard to sharing the spectrum with unlicensed WiFi emitters, preliminary testing has clearly shown degradation of DSRC communications due to cross-channel interference.[9] Those tests also showed that the Packet Error Rate, a metric related to V2X capability, is further degraded by increasing vehicle density. The literature does not contain any empirical data on the full impact of spectrum sharing on DSRC-based V2X communication in realistic traffic scenarios with many vehicles but it is reasonable to expect severe impacts on the integrity of V2X safety messages caused by WiFi-induced cross-channel communication.

It is also important to reference the growth of the WiFi market as a reference for the gestation period of a new communication technology. It took over 30 years between initial experiments and commercial use of WiFi technology, and an additional one or two decades before it could be considered mature with initial deployment of wireless 5G technology.[10] In comparison with WiFi technology development and deployment, DSRC development in the 5.9 GHz band has been very fast; this in spite of governmental attempts to inhibit its deployment. NHTSA's refusal to establish safety criteria for DSRC and its reliance on industry standards has further impeded DSRC progress. FCC's eagerness to compound NHTSA's lack of previous action is confounding. The taxonomy for V2X communications embodied in SAE J3216 is still under development at SAE as of this writing. Without applicable standards, DSRC development in the 5.9 GHz band is very high risk for developers. Arguments that development of applications for the 5.9 GHz band using DSRC technology have been too slow do not stand up to fact checking.

Letter from Committee on Transportation and Infrastructure to Chairman Pai, January 22 2020, "On December 19, 2019, the FCC announced a temporary freeze on acceptance and processing of 5.9 GHz license applications.9 Additionally, the Committee understands that the FCC has been sitting on approximately 500 applications for DSRC Roadside Unit licenses."

[8] UPDATE 1-Toyota abandons plan to install U.S connected vehicle tech by 2021, https://news.yahoo.com/1-toyota-abandons-plan-install-221158957.html

[9]Vehicle-to-Vehicle Communications Research Project (V2V-CR)
DSRC and Wi-Fi Baseline Cross-channel Interference Test and Measurement Report December 2019, https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/v2v-cr_dsrc_wifi_baseline_cross-channel_interference_test_report_pre_final_dec_2019-121219-v1-tag.pdf

[10] In 1971 ALOHAnet connected the Hawaiian islands with a UHF wireless packet network; and it was 14 years before the FCC released the 2.4 GHz ISM band for unlicensed use. Six years later, in 1991, the precursor to the 802.11 standard was invented. It was another 6 years, 1997, before the 802.11 protocol was released. 2 years more, in 1999 before the 802.11b protocol was released. The 802.11g protocol was released 4 years later, in 2003 and 802.11n not until 2009. Additional standards and market development have followed. See https://www.cablefree.net/wireless-technology/history-of-wifi-technology/

In fact, DSRC implementation based on the 5.9 GHz band allocated in 1999, and operational less than 18 years later, has been rapid indeed compared to historical precedents.

The Center endorses the letter sent from the House of Representatives Committee on Transportation and Infrastructure to Chairman Pai and other FCC commissioners on January 22, 2020 detailing the need and rationale for preservation of the existing 5.9 GHz frequency band for the exclusive use of transportation safety applications.[11] Moreover, the Center reminds the Commission of the position the Center joined in the joint road-safety group letter from October 28, 2019, highlighting "the potential to save thousands of lives if the dedicated spectrum is maintained for its original use."[12]

The Center opposes the reallocation of any portion of the 5.9 GHz band reserved for transportation safety use to any other purpose. Development of DSRC-based technology is rapid and robust, however, it is paced by the availability of FCC licenses rather than technology development or market growth. This artificial barrier should be removed by prompt issuance of licenses currently pending and expeditious handling of license applications sure to come. We also believe that NHTSA should develop standards and requirements so that life-saving V2X technology can be available in infrastructure and production vehicles as soon as possible. To be clear, such standards must prioritize safety messaging over commercialization.

Thank you for the opportunity to present our views in opposition to the reallocation of the 5.9 GHz band and for your consideration of this matter.

Sincerely yours,

Jason Levine
Executive Director

cc: Secretary Elaine Chao, U.S. Department of Transportation
Deputy Administrator James Owens, National Highway Traffic Safety Administration

[11] https://transportation.house.gov/imo/media/doc/2020-01-22%20Full%20TI%20Letter%20to%20FCC.pdf
[12] https://www.nsc.org/Portals/0/Documents/NewsDocuments/2019/Safety%20Groups%20Letter%20to%20FCC%20on%205.9%20GHz%20Band.pdf?ver=2019-10-28-134643-113