



January 25, 2019

BY MAIL AND ELECTRONIC SUBMISSION

National Highway Traffic Safety Administration
1200 New Jersey Ave., S.E.
W12-140
Washington, DC 20590
ATTN: Finch Fulton, Deputy Assistant Secretary for Transportation Policy

Re: *V2X Communications (Docket No. DOT-OST-2018-0210)*

Dear Deputy Assistant Secretary Fulton,

CTIA¹ respectfully submits these comments in response to the Notice of Request for Comments issued by the Department of Transportation (“Department”) regarding V2X Communications (the “V2X Request”). CTIA applauds the Department’s efforts to seek input on significant technological and marketplace developments in vehicle communications.

The wireless industry, including wireless carriers, device manufacturers, and application developers, has helped create significant and widely beneficial changes in society, allowing for increased connectivity, productivity, and the spread of information. Today’s 4G LTE networks and tomorrow’s next-generation 5G networks can and will continue to enable a host of transportation innovations that increase safety, efficiency, and access to personal mobility.

¹ CTIA-The Wireless Association® (www.ctia.org) represents the U.S. wireless communications industry and the companies throughout the mobile ecosystem that enable Americans to live a 21st century connected life. The association’s members include wireless carriers, device manufacturers, suppliers as well as apps and content companies. CTIA vigorously advocates at all levels of government for policies that foster continued wireless innovation and investment. The association also coordinates the industry’s voluntary best practices, hosts educational events that promote the wireless industry and co-produces the industry’s leading wireless tradeshow. CTIA was founded in 1984 and is based in Washington, D.C.



Self-driving cars could save almost 22,000 lives and \$447 billion each year.² Wireless connectivity allows vehicles and road infrastructure to share data and apply its insights. Connected vehicles can relay information about road conditions and congestion, and can communicate with nearby infrastructure like traffic signals. 5G technology will increase the scale of V2X opportunities, as discussed below. Both Cellular Vehicle-to-Everything (“C-V2X”) and Dedicated Short-Range Communications (“DSRC”) provide connectivity for vehicles, road users, and transportation infrastructure, and CTIA applauds the Department’s exploration of these various marketplace developments. As discussed below, because the Federal Communications Commission (“FCC”) is currently exploring spectrum usage issues in the 5.9 GHz band, CTIA encourages the Department to continue its collaboration with the FCC on questions of interference and interoperability among C-V2X, DSRC and other communications technologies.

I. WIRELESS TECHNOLOGY PROVIDES SPEED, CAPACITY, AND RELIABILITY FOR AUTOMOTIVE APPLICATIONS.

The U.S. wireless industry is reaching more and more people across the country, and this increased deployment is spurring explosive data usage and growth. Today, 4G LTE technology reaches 99.9% of the U.S. population and 95.5% of U.S. road miles.³ There are now more wireless connections in the U.S. than there are Americans, and over the past two years, U.S. mobile data usage has more than doubled. There are now 126 million data-only devices on U.S. wireless networks, representing a 147% increase in two years. With the deployment of next-generation networks and technologies, these trends are only expected to grow.

Today’s 4G LTE networks currently support V2X capabilities, and industry anticipates those capabilities being enhanced with 5G. Wireless industry standards for 4G-based C-V2X support

² See *Wireless Connectivity Fuels Industry Growth and Innovation in Energy, Health, Public Safety and Transportation*, DELOITTE, at 3 (Jan. 2017) (the “Deloitte 5G Report”), available at: https://www.ctia.org/docs/default-source/default-document-library/deloitte_20170119.pdf.

³ See *FCC Communications Marketplace Report*, Report, FCC GN Docket No. 18-231 *et al.*, FCC 18-181, at Fig. A-29 (rel. Dec. 26, 2018), available at: <https://docs.fcc.gov/public/attachments/FCC-18-181A1.pdf>.



both network-based and direct device-to-device communications for various V2X applications, improving data speed and reliability.⁴

Starting last fall, U.S. wireless carriers launched 5G networks and began aggressive deployment schedules.⁵ 5G technology deployments will increase the scale and impact of C-V2X. 5G networks will be up to 100 times faster than today's 4G LTE networks, providing significant potential for automotive applications. Additionally, 5G will support 100 times more devices than 4G. This improvement will address the vast increase in connected transportation infrastructure, not only from vehicles, but from traffic management and parking applications, and from road users' significant increase in mobile data usage. Finally, 5G will be five times more responsive than 4G. This significant reduction in latency has powerful consequences for connected vehicles. By way of example, it would take 4.6 feet for a car with 4G connectivity to apply its brakes while traveling 50 mph; it would take just one inch for a car with 5G connectivity to do so.⁶

II. CONNECTIVITY OF VEHICLES TO EACH OTHER, TO NEARBY ROAD USERS, AND TO TRANSPORTATION INFRASTRUCTURE WILL EXPAND THE POTENTIAL FOR V2X'S BENEFITS.

⁴ See *Cellular V2X Communications Towards 5G*, 5G AUTOMOTIVE ASSOCIATION ("5GAA"), at 5 (Mar. 2019) ("5GAA Report"), available at: http://www.5gamerica.org/files/9615/2096/4441/2018_5G_Americas_White_Paper_Cellular_V2X_Communications_Towards_5G_Final_for_Distribution.pdf.

⁵ For additional detail on wireless carrier and supplier 5G deployments, see Comments of CTIA, *Developing a Sustainable Spectrum Strategy for America's Future*, Department of Commerce National Telecommunications and Information Administration Docket No. 181130999-8999-01, at 10 (Jan. 22, 2019), available at: https://ctia-my.sharepoint.com/personal/kromagnino_ctia_org/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fkromagnino_ctia_org%2FDocuments%2FShared%20Externally%2F190122%20CTIA%20Comments%20to%20NTIA%20on%20National%20Spectrum%20Strategy%20-%20Copy%2Epdf&parent=%2Fpersonal%2Fkromagnino_ctia_org%2FDocuments%2FShared%20Externally&slid=4a71b99e-a0dd-7000-de01-9ff7930a5578 ("CTIA National Spectrum Strategy Comments").

⁶ See *The Next Generation of Wireless: 5G Leadership in the U.S.*, CTIA, at 10 (2016), available at: https://api.ctia.org/docs/default-source/default-document-library/5g_white-paper_web2.pdf.



Since the National Highway Traffic Safety Administration (“NHTSA”) issued its proposed rulemaking in early 2017 to mandate vehicle-to-vehicle (“V2V”) communications,⁷ stakeholders have made significant progress in auto connectivity standards development and deployment announcements. As the Department acknowledges, the wireless industry has advanced C-V2X standards that cover a variety of use cases. The Third Generation Partnership Program (“3GPP”) issued a 4G LTE-based C-V2X standard in its Release 14 in 2017.⁸ This standard supports both low-latency safety messages and high-bandwidth infotainment applications.⁹ 3GPP expects to update its C-V2X standard for 5G in 2019.¹⁰ In the connected vehicle marketplace, Ford recently announced it would equip its entire passenger vehicle fleet with 5G connectivity by 2022, explaining its intent to leverage the U.S. wireless’s investment by committing to C-V2X communications.¹¹ Innovators are building applications that provide real-time safety alerts and traffic management tools for cities, especially in light of public safety and first responder communications investments that focus on wireless technology.¹² Additionally, automakers have announced DSRC deployment commitments, and they continue to work with wireless carriers to extend and authenticate basic safety messages.¹³ CTIA agrees with the Department

⁷ See *NHTSA Federal Motor Vehicle Safety Standards; V2V Communication*, 82 Fed. Reg. 3854 (Jan. 12, 2017), available at:

https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/v2v_nprm_web_version.pdf.

⁸ See *3GPP Release 14*, available at: http://www.3gpp.org/news-events/3gpp-news/1798-v2x_r14.

⁹ See 5GAA Report at 5.

¹⁰ See *id.* at 18.

¹¹ See Don Butler, *How “Talking” and “Listening” Vehicles Could Make Roads Safer, Cities Better*, FORD MOTOR COMPANY (Jan. 7, 2019), available at: <https://medium.com/@ford/how-talking-and-listening-vehicles-could-make-roads-safer-cities-better-f215c68f376f>.

¹² See e.g., *Startup to Test Alert System in GR* (Dec. 18., 2018), available at: <https://www.grbj.com/articles/92228-startup-to-test-alert-system-in-gr> (describing the wireless “responder-to-vehicle” technology of HAAS Alert to be tested in Grand Rapids, Michigan).

¹³ See *AV 3.0* at 16. See also, *General Motors Ex Parte*, FCC ET Docket No. 13-49 (filed July 13, 2018), available at: <https://ecfsapi.fcc.gov/file/107132653414467/GM%20Ex%20Parte%20Letter%20ET%20Docket%20No.%2013-49.pdf> (outlining General Motors’ automated assistance features and connectivity deployment timelines); *AT&T, Delphi and Ford Debut V2X Advanced Vehicle Communications*, AT&T (Jan. 4, 2017), available at: https://about.att.com/story/att_debuts_v2x_advanced_vehicle_communications.html



that all transportation stakeholders should “continue developing technologies that leverage...spectrum for transportation safety benefits...”¹⁴ Our members are committed to providing robust communications that leverage autonomy for societal benefits.

III. THE FCC IS ADDRESSING SPECTRUM POLICY ISSUES FOR V2X COMMUNICATIONS.

As part of its mission to promote efficient spectrum usage¹⁵, the FCC is assessing the future of V2X communications in various proceedings. Recently, the FCC received input from a broad array of transportation and technology stakeholders on its initial testing of coexistence among DSRC and unlicensed communications.¹⁶ Additionally, the FCC has sought input on a request by 5GAA to allow C-V2X communications in a portion of the 5.9 GHz spectrum band currently reserved for DSRC communications.¹⁷ Finally, 5GAA states in its FCC Waiver Request that it will proceed with a Petition for Rulemaking to request that the FCC consider allowing C-V2X providers access to a larger portion of the 5.9 GHz spectrum band.¹⁸ Taken together, these proceedings show the FCC’s comprehensive effort to evaluate the state of V2X development and corresponding spectrum usage rights. The Department should continue its coordination

(describing how one carrier enhanced vehicle communications in a proof of concept with Ford and Delphi).

¹⁴*Automated Vehicles 3.0: Preparing for the Future of Transportation* at 16 (Oct. 4, 2018), available at: <https://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf>.

¹⁵ For further discussion on the wireless industry’s spectrum strategy goals and priorities, see CTIA National Spectrum Strategy Comments at 8, 35.

¹⁶ See *Office of Engineering & Technology Requests Comment on Phase I Testing of U-NII-4 Devices*, FCC Public Notice, ET Docket No. 13-49 (rel. Oct. 29, 2018), available at: <https://www.fcc.gov/document/fcc-requests-comment-59-ghz-phase-i-testing-data>.

¹⁷ See *Office of Engineering & Technology and Wireless Telecommunications Bureau Seek Comment on 5GAA Petition for Waiver to Allow Deployment of Cellular Vehicle-to-Everything (C-V2X) Technology in the 5.9 GHz Band*, FCC Public Notice, GN Docket No. 18-357 (rel. Dec. 16, 2018), available at: <https://docs.fcc.gov/public/attachments/DA-18-1231A1.pdf>.

¹⁸ See *5GAA Petition for Waiver*, FCC GN Docket No. 18-357, at 5, 22 (filed Nov. 21, 2018), available at: <https://ecfsapi.fcc.gov/file/11212224101742/5GAA%20Petition%20for%20Waiver%20-%20Final%2011.21.2018.pdf>.



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with the FCC on V2X communications generally as the FCC proceeds with its actions consistent with its jurisdictional authority over spectrum policy.

IV. CONCLUSION.

As the steward of our nation's transportation system, the Department has a unique opportunity to ensure continued U.S. leadership in automotive innovation that increases safety, efficiency, and mobility access. V2X communications is a key enabler of these benefits, and the wireless industry will continue to provide the network, device and component resources critical to achieving them.

Respectfully submitted,

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