

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of Comments on 5GAA Petition)
for Waiver to Allow Deployment of Cellular)
Vehicle-To-Everything Technology in the 5.9) **GN Docket No. 18-357**
GHz Band)
)

COMMENTS OF GENERAL MOTORS COMPANY

General Motors Company respectfully submits these comments in response to the Office of Engineering and Technology and Wireless Telecommunications Bureau’s Request for Comments on 5GAA Petition for Waiver to Allow Deployment of Cellular Vehicle-To-Everything on December 6, 2018.¹

I. INTRODUCTION AND SUMMARY

General Motors (“GM”) is committed to a future of zero crashes, zero emissions, and zero congestion. As part of this vision, GM has made significant investments and advances in Vehicle-to-Vehicle (V2V) and Vehicle-to-Everything (V2X) technologies, which have great potential to enhance road safety and save thousands of lives. According to the National Highway Traffic Safety Administration (NHTSA), there were 37,133 deaths in automobile crashes on U.S. roadways in 2017. Continued development and deployment of vehicle connectivity and safety innovations could help to eliminate many of the crashes causing this tragic loss of life.

¹ *Office of Engineering and Technology Requests Comments on 5GAA Petition for Waiver to Allow for Deployment of Cellular Vehicle-To-Everything (CV2X) Technology in the 5.9 GHz Band*, GN Docket No. 18 – 357, DA 18-1231 (December 6, 2018).

Recognizing this lifesaving potential, the FCC has dedicated the 5.9 GHz spectrum band to transportation safety. That spectrum should remain dedicated to transportation safety.

Currently, Dedicated Short Range Communications (DSRC) Service—the technology presently used by GM in its vehicles having V2V capability—is the only fully-developed solution. GM has committed to continuing to deploy V2V on its vehicles and to encourage widespread V2X deployment throughout the industry to promote safety. The more vehicles that deploy a common connectivity technology like DSRC, the more crashes that potentially can be avoided and the more lives that can be saved.

While the Agency should preserve the entire 5.9 GHz band for transportation safety applications, Cellular Vehicle to Everything (C-V2X) technology holds some promise as a potential alternative technological solution. Accordingly, GM believes C-V2X should be provided temporary access to a portion of the 5.9 GHz band to allow further development and testing to demonstrate whether C-V2X can work effectively in field conditions and at scale.

Therefore, GM supports the 5G Automotive Association (5GAA) petition for waiver to allow temporary deployment of C-V2X technology in the upper 20 MHz of the 5.9 GHz band. If C-V2X is proven to work safely in the real world, then, and only then, should the Agency consider changing the rules for the entire band, taking into consideration the impacts on existing deployments based on DSRC.

II. AUTOMAKERS ARE CONTINUING TO INVEST IN AND DEPLOY CONNECTED VEHICLE TECHNOLOGY TO SAVE LIVES

GM was first to deliver V2V capabilities in the U.S. market, deploying DSRC-based V2V on its Cadillac CTS in 2017. In 2018, GM announced it will build V2X on-board units into a high-volume Cadillac crossover beginning in 2023, and expand the deployment to all Cadillac models

thereafter.² GM's planned expansion of V2X communications to all Cadillac vehicles underscores the importance of ensuring that automakers have access to spectrum sufficient to support their growing connected vehicle safety needs. GM's V2X technology currently relies on DSRC. It can communicate between cars, roadway infrastructure, and others sharing the roadway, including heavy duty trucks, bicycles and motorcycles and pedestrians to bring next-generation automotive safety to drivers everywhere. In April 2018, Toyota announced that it would deploy DSRC-based V2V in all Toyota and Lexus vehicles beginning in 2021.³ In addition, as documented by the Department of Transportation in its publication "*Preparing for the Future of Transportation*," over 200 infrastructure communications devices have already been deployed, with over 2,100 additional deployments planned by 2020 in 26 states and 45 cities.⁴

In addition to industry investment and advances in DSRC technologies, C-V2X technology also has begun to emerge and is being developed internationally. GM is a global OEM that must be prepared to deploy different technologies in different countries as they commit to V2X. For example, in China, GM is working with our business partners to prepare for C-V2X deployment as planned by Chinese authorities.

GM believes that, ultimately, the stakeholders, including vehicle manufacturers and appropriate Federal, state and local agencies, should decide which transportation safety technology

² Press Release, "Cadillac to Expand Super Cruise Across Entire Lineup," (June 6, 2018), <http://media.cadillac.com/media/us/en/cadillac/news.detail.html/content/Pages/news/us/en/2018/jun/0606-its-cadillac.html>; Letter from Paul Hemmersbaugh, Chief Counsel and Policy Director, Transportation as a Service, GM to FCC Secretary Marlene H. Dortch, ET Docket No. 13-49 (July 13, 2018) ("GM's V2X technology relies on DSRC and the entire 5.9 GHz band to communicate between cars and roadway infrastructure and to bring next-generation automotive safety to drivers everywhere.")

³ Press Release, "Toyota and Lexus to Launch Technology to Connect Vehicles and Infrastructure in U.S. in 2021" (Apr. 16, 2018), <http://corporatenews.pressroom.toyota.com/releases/toyota+and+lexus+to+launch+technology+connect+vehicles+in+infrastructure+in+u+s+2021.htm>.

⁴ U.S. Department of Transportation, *Automated Vehicles 3.0: Preparing for the Future of Transportation* 14-15 (Oct. 2018), <https://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf>.

is the best path forward in the U.S. If there is clear demand and preference for C-V2X over DSRC, then additional bandwidth in the 5.9 GHz safety spectrum could be opened for C-V2X. Conversely, if there is a greater demand for DSRC, then the full 5.9 GHz band should be maintained for DSRC. However, it is premature for the Commission to pick the winners and losers through the use of its spectrum allocation rules. Most importantly, and regardless of the technology, the entire 5.9 GHz band is necessary for effective transportation safety.

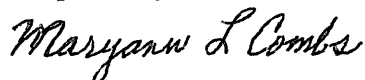
III. COORDINATION ON CURRENT AND FUTURE CONNECTED VEHICLE TECHNOLOGIES FOR SAFETY

As the industry continues to develop lifesaving technology, GM will continue to work with other OEMs, Federal agencies, state and local DOTs, researchers, and others to encourage the implementation of V2X technologies and to continue to develop solutions to save lives. GM is a member of 5GAA and continues to learn about C-V2X technology, while also continuing to invest in DSRC capabilities.

IV. CONCLUSION

To realize the tremendous potential benefits of V2X in the United States, it is critical that the FCC preserve the entire 5.9 GHz safety band for transportation safety. GM supports the 5GAA petition for a limited temporary waiver to allow deployment of C-V2X and to continue moving transportation safety innovations forward to save lives.

Respectfully Submitted,



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