

**BEFORE THE U.S. DEPARTMENT OF TRANSPORTATION
WASHINGTON, D.C. 20590**

In the Matter of)	
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V2X Communications)	Docket No. DOT-OST—2018–0210
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COMMENTS OF THE SMALL UAV COALITION

The Small UAV Coalition¹ hereby submits comments in response to the Request for Comment in the above-captioned proceeding (*V2X RFC*).² At its core, the *V2X RFC* seeks comment on how a spectrum policy from the 1990s can best be adapted to accommodate technological changes that in many regards have overtaken the command-and-control approach that determined the allocation of the 5.9 GHz band for a specific service, Intelligent Transportation System (ITS) with a specific technology, Dedicated Short Range Communications (DSRC).³ The Small UAV Coalition provides these comments to urge that the Department of Transportation (DOT) to consider whether the public policy adopted in 1999 remains the most viable path forward or whether the better course would be to consider how a flexible regime that allows for sharing and co-existence in the 5.9 GHz band.⁴ Consistent with comments filed in the National Telecommunications and Information Administration (NTIA), the Small UAV Coalition respectfully suggests that the DOT, working in conjunction with the Federal Communications Commission (FCC), work on developing solutions focused on exploiting opportunities for sharing and exploring opportunities for DSRC and C-V2X to co-exist in the 5.9 GHz band.⁵

¹ A full list of members can be found at <http://www.smalluavcoalition.org/members/>.

² V2X Communications, Dept. of Transportation, Docket No. DOT-OST-2018-0210, 83 Fed.Reg. 66338 (Dec. 26, 2018) (“*V2X RFC*”).

³ *Amendment of Parts 2 and 90 of the Commission’s Rules to Allocate the 5.850-5.925 GHz Band to the Mobile Service for Dedicated Short Range Communications of Intelligent Transportation Services*, ET Docket No. 98-95, Report and Order, 14 FCC Rcd 18221 (1999); 47 C.F.R. §§ 90.350 – 90.383.

⁴ *V2X RFC* at 66338.

⁵ In the Small UAV’s NTIA comments, we urged that the National Spectrum Strategy promote interoperability. It is the Small UAV Coalition’s understanding that while interoperability may not be possible because of the different standards DSRC and C-V2X have been developed under, the Coalition nonetheless believes co-existence is a promising path of exploration. [Insert cite to White Paper on Connected Vehicle Pooled Fund Study].

Sharing Opportunities Should Be Explored to Promote V2X Opportunities

The *V2X RFC* notes that DOT, the FCC, and NTIA have been exploring the possibilities of allowing sharing in the 5.9 GHz band and further notes that work is ongoing.⁶ The Small UAV Coalition would encourage these federal stakeholders to expand the scope of that inquiry to include Cellular V2X (“C-V2X”). As the Small UAV Coalition explained in recently-filed comments before the NTIA,⁷ developments in software access systems (SAS), which coordinate access in real time, and the development of dynamic spectrum sensing technologies, allow devices using spectrum in shared bands to communicate critical information to facilitate coordination.⁸ The 5G Automotive Association (5GAA) has proposed a sharing structure for the 5.9 GHz band in a position paper submitted to the European Union.⁹ The 5GAA proposes a three-step process in which stakeholders would begin testing of their technologies on separate channels within the 5.9 GHz band and would progress to full sharing across the band. This would be achieved by employing dynamic spectrum channel assignment technologies that utilize spectrum interference mitigation mechanisms (such as detect-and-vacate sensing). Both the C-V2X and DSRC technologies would need to develop these capabilities and could do so in conjunction with one another as they move towards full sharing of the 5.9 GHz band.¹⁰ While the Small UAV Coalition does not necessarily advocate for this specific proposal, the proposal demonstrates that it merits exploring technical solutions that would allow multiple technologies to co-exist in this band.¹¹ As spectrum sharing continues to evolve, it would be a mistake to forego such opportunities as that would risk underutilization of the 5.9 GHz spectrum. For this reason, the Small UAV Coalition would encourage DOT, the FCC, and NTIA to explore alternatives to exclusive use of the 5.9 GHz band by dedicated short-range communications (DSRC). By exploring sharing opportunities in the band, DOT can better realize its goal as outlined in the *V2X RFC*.¹²

A Path to Co-Existence Can Help Future-Proof Emerging V2X Technologies

Similarly, the DOT, along with its federal partners at the FCC and NTIA, should explore a pathway to co-existence of DSRC and C-V2X technologies. As a general matter, the Coalition supports efforts to promote interoperability. In this instance, however, because of the development path of DSRC and C-V2X it may not be possible, from a technical and economic standpoint, to achieve interoperability, at least in the near-term. As such, the Coalition urges DOT to consider policies that promote co-existence of these technologies in the 5.9 GHz band. As DOT notes in the *V2X RFC*, one of the goals the Department hopes to achieve is “ensur[ing] that the safety and mobility benefits of connected vehicles are achieved without interfering with the rapid technological innovations occurring in both the automotive and telecommunications

⁶ *V2X RFC* at 66339.

⁷ *Developing a Sustainable Spectrum Strategy for America’s Future*, National Telecommunications and Information Administration, Docket No. 181130999–8999–01, 83 Fed. Reg. 65640 (Dec. 21, 2018) (*National Spectrum Strategy RFC*).

⁸ *Google Predicts CBRS Will Be Ready by Summer; Sees New Paradigm for Sharing*, Communications Daily, 39 Comm. Daily 11, available at <https://communicationsdaily.com/article/view?s=275724&id=565012> (Jan. 16, 2019).

⁹ *Coexistence of C-V2X and ITS-G5 at 5.9GHz*

¹⁰ *Id.*

¹¹ *V2X RFC* at 66399.

¹² *V2X RFC* at 66338 (stating the Department seeks comment on how it can “best ensure that the safety and mobility benefits of connected vehicles are achieved without interfering with the rapid technological innovations occurring in both the automotive and telecommunications industries.”).

industries.”¹³ Providing both DSRC and C-V2X an opportunity to develop in this band will ensure that the opportunities that both technologies present can develop. Both DSRC and C-V2X are developing safety and security applications that will help reduce the frequency and severity of crashes through communications transmissions between all aspects of the driving experience. DSRC, which has been under development for more than a decade, is thoroughly tested, but it has limitations in terms of transmission speed and capacity.¹⁴ C-V2X offers greater speed and capacity as well as reduced latency, but final testing remains to be completed.¹⁵ C-V2X’s reliance on a well-established cellular infrastructure and a standards path that charts its way to exploiting 5G opportunities means, however, this is a technology that should not be foreclosed by regulatory haste.¹⁶ Affording C-V2X an opportunity to be tested to demonstrate that it can complement DSRC’s applications and affording DSRC an opportunity to be further enhanced by C-V2X’s capabilities, provides a technologically-neutral path that will further promote the safety goals enumerated by the DOT.

The European Union (EU), which is also considering the opportunities presented by the 5.9 GHz band, recently released a draft Delegated Regulation regarding the deployment and operational use of cooperative ITS (C-ITS).¹⁷ The Draft Regulations acknowledges “the pace of technological progress” and seeks to “ensure that future technologies can be integrated into the hybrid communications mix,” which includes C-V2X.¹⁸ The EU includes this provision in recognition of the opportunities C-V2X and 5G technologies present to maximize the benefits by leveraging the distinct advantages the technologies present.¹⁹

Foreclosing opportunities may stunt these opportunities and lock into place technologies that restrict the full potential for enhanced safety that the intelligent transportation system offers. As the DOT considers its approach to the 5.9 GHz band, it should acknowledge the value co-existence between DSRC and C-V2X play in advancing the full safety and economic benefits of V2X in this band.

Conclusion

The Small UAV Coalition appreciates this opportunity to emphasize the broader point that flexibility embodied in sharing and complementary strategies will better serve not only efforts to promote V2X opportunities, but opportunities for emerging technologies generally. As

¹³ *V2X RFC* at 66338.

¹⁴ *Basic Infrastructure Message Development and Standards Support for Connected Vehicles Applications: C-V2x/DSRC White Paper*, Southwest Research Institute, at 27 (2018).

¹⁵ *Id.*

¹⁶ *Id.* at 34 (“In the next few years, the potential speed advantages proposed by C-V2X, offering data rates at 20 Gbps download / 10 Gbps upload speeds with 1 ms latency, may prove crucial to gathering data at the speed necessary to prevent crashes. Cellular communication has been in use for years and it’s[sic] uses continue to expand which is evident by the recent C-V2X extension in 3GPP standards releases.”).

¹⁷ Draft Commission Delegated Regulation (EU), Supplementing Directive 2010/40/EU of the European Parliament and of the Council with Regard to the Deployment and Operational Use of Cooperative Intelligent Transportation Systems, available at https://ec.europa.eu/info/law/better-regulation/initiative/.../090166e5c08e86e9_en, (Jan. 11, 2019).

¹⁸ *Id.* at 5, 8 (As described in the Draft Regulation, the “hybrid communications” approach includes two types of technologies, ITS-G5 (the European equivalent to DSRC) and cellular 3G/4G and LTE-V2X (the European equivalent of C-V2X).

¹⁹ *Id.* at 5.

the Small UAV Coalition has stated in proceedings before other agencies, in order for these technologies to realize their full potential, and thus provide their full economic benefits, it is important that companies be able to innovate in a flexible spectrum regime, free of burdensome and artificial boundaries.

Respectfully submitted,

Small UAV Coalition

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