

Federal Communications Commission
445 12th Street,
SW Washington,
D.C. 20554

Subject: In the Matter of Use of the 5.850-5.925 GHz Band, ET Docket No. 19-138 (Reply Comments)

The CAR 2 CAR Communication Consortium (C2C-CC) hereby submits these Reply Comments pursuant to the Commission's Notice of Proposed Rulemaking ("Notice") released on December 17, 2019 in the above-captioned proceeding.¹ C2C-CC requests that the Commission should at this time issue a decision in this proceeding keeping all 75 MHz for V2X as our and others previous comments show the need of 70-100 MHz spectrum to implement the full set of safety related functions of V2X.

Additionally, C2C-CC requests that the frequency regulation do not favor a specific technology for V2X as any potential regulation of technology choice for V2X should be done from a road safety perspective. Congress has without a doubt made US DOT the agency responsible for overseeing motor vehicle safety in the United States.

Also the proposed alignment with the Chinese spectrum and technology decisions seems not justified due to the recent delay of C-V2X deployment in China^{2 3 4} whereas IEEE based V2X (DSRC) has been

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¹ "In the Matter of Use of the 5.850-5.925 GHz Band", Notice of Proposed Rulemaking, ET 19-129 (rel. December 17, 2019). By Public Notice released March 25, 2020, the Commission deadline date for submission of Reply Comments to April 27, 2020 ("Office of Engineering Reply Comment Deadline for Use of the 5.850-5.925 GHz Band Proceeding", Public Notice (Rel. March 25, 2020). Accordingly, these Reply Comments are timely filed.

² "Intelligent Car Innovation and Development Strategy"
https://www.ndrc.gov.cn/xxgk/zcfb/tz/202002/t20200224_1221077.html

³ <https://www.ndrc.gov.cn/xxgk/zcfb/tz/202002/P020200224573058971435.pdf>

⁴ https://mp.weixin.qq.com/s/PvvshCck4UYioCEra_nocg

launched in both US (GM (Cadillac) and State DOTs) and Europe (VW (Golf 8) and C-Roads (EU Member states)).

DISCUSSION

For the question of the spectrum need US DOT, all 50 state DOTs, and the vast majority of commenters all strongly support keeping all 75 MHz with V2X and vehemently oppose the initial proposal. C2C-CC has provided a detailed analysis⁵ of the spectrum needs. It must be noted that the different commenters get to similar results irrespectively of technology assumptions. E.g., US DOT states

“The preservation of the entire 5.9 GHz band for V2X communications offers the Nation an advantage for maintaining and extending leadership in the deployment of innovative V2X applications, including those related to automation. However, these safety innovations and improvements may be lost should the Commission proceed with its proposed reallocation of the 5.9 GHz band. Reducing the spectrum available for V2X communications from 75 MHz to 30 MHz, “...will reduce the utility of V2X by severely limiting the amount and type of messages that can be sent at any one time.”⁶

The proposed regulation appears to favor C-V2X over DSRC. From the comments received and recent developments in China (delay of C-V2X deployment) this appears to result in a significant delay in the rollout of V2X and thereby delay the lifesaving benefits of V2X. A study⁷ performed by the University of Michigan Transportation Institute concludes that implementing connected vehicle technology in 2019 versus:

A 3-year delay of 2022 could prevent 7.4 million-8.1 million crashes; 2.8 million-3.1 million injuries; and 40,717-44,558 deaths.

A 5-year delay of 2024 could prevent 12.6 million-13.6 million crashes; 4.8 million-5.1 million injuries; and 69,556-75,098 deaths.

A 7-year delay of 2026 could prevent 17.9 million-19.1 million crashes, 6.8 million-7.2 million injuries; 99,338-105,746 deaths.

⁵ https://www.car-2-car.org/fileadmin/documents/General_Documents/C2CCC_TR_2050_Spectrum_Needs.pdf

⁶ Comments of National Telecommunications and Information Administration at 2, ET Docket 19-138 (filed March 13, 2020) (“USDOT Comments”)

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<http://umtri.umich.edu/sites/default/files/The%20Cost%20Associated%20with%20Waiting%20to%20Deploy%20DSRC.pdf>

As can be seen from these figures any delay of the deployment of the V2X technology has considerable effects on avoidable crashes, injuries and deaths. Not only the favoring of a technology not yet tested, but also the complete uncertainty to the viability of deploying due to the proposed reducing of spectrum will most likely cost significant delays unless the proposal is withdrawn and the availability of the necessary spectrum in the 5.9 GHz band is confirmed. This position is clearly supported by amongst others the comments from US DOT that in their reply states

“LTE-V2X technology and its standards are not yet complete. The one draft SAE J3161 standard for the upper protocol layers for vehicle safety received only a 29 percent approval by the participating industry members, and the standard has been evolving. ... [T]here is a considerable amount of technical work still to be completed ... yet the FCC defers to industry claims that have not been validated (para. 43 in the draft NPRM).”⁸

In addition, C2C-CC agrees with the questions raised regarding the maturity and future evolutionary path of C-V2X based on LTE-V2X, e.g., amongst others raised by US DOT

“C-V2X [LTE-V2X] appears to be a technology with no evolutionary path to 5G, nor an evolutionary path that would continue to update and improve the performance of the 4G LTE-based technology. It is based on a technology that is essentially stagnant. In contrast, the IEEE 802.11 committee that oversees DSRC standards has a plan in place (and a commitment from industry participants) to develop “next generation” DSRC (also referred to as 802.11 b/d)—and to ensure that future enhancements to DSRC maintain backwards compatibility.”⁹

Alternative frequency bands are not a solution as available technologies for V2X are designed for the 5.9 GHz and re-banding will require redesign and additional testing and cause

⁸ USDOT Comments (Critical Discussion Items) at 2

⁹ USDOT Comments at 7.

additional delays. In addition, other countries already have allocated frequencies in the 5.9 GHz band for V2X in alignment with the World Radio Conference recommendations from ITU-R¹⁰.

C2C-CC shares the concern raised in several comments about the potential interference from Wi-Fi out-of-band emissions to the proposed 30 MHz frequency band, as this in reality will reduce the usable spectrum beyond the 30 MHz.

Considering that the current 75 MHz allocation is needed for deployment of V2X safety, it is difficult to understand that it is proposed to reduce this to 30 MHz and reallocate 45 MHz to WiFi, especially as recently there have been allocated additional 1200 MHz in the 6 GHz range for Wi-Fi.

On behalf of the CAR 2 CAR Communication Consortium

A handwritten signature in black ink, appearing to read 'Niels Peter Skov Andersen', written in a cursive style.

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¹⁰ World Radio Conference 2019 (WRC19) in WRC recommendation 208 in in conjunction with ITS ITU-R recommendation M.2121-0