

To the attention of:

**The Department of Infrastructure,
Transport, Regional Development,
Communications and the Arts
Australian Government**

5G Automotive Association response to the
*Draft Principles for a National Approach to Co-operative Intelligent Transport
Systems (C-ITS) in Australia*

Introduction

The 5G Automotive Association is a global, cross-industry organisation of companies from the automotive, technology, and telecommunications industries (ICT), working together to develop end-to-end solutions for future mobility and transportation services.

Learn more about our work on <https://5gaa.org/publications/>

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5GAA confirms this submission can be made publicly accessible.

5GAA feedback to the *Draft Principles for a National Approach to Co-operative Intelligent Transport Systems (C-ITS) in Australia*

5GAA appreciates the opportunity to respond to the Draft Principles for a National Approach to Co-operative Intelligent Transport Systems (C-ITS) in Australia and will do so by providing a response to the guiding questions raised in the public consultation:

1. *Are principles for a national approach to C-ITS in Australia necessary? And if so, are the draft principles, as articulated, sufficient to inform investment by industry in C-ITS?*

5GAA commends the principle of working together with the industry towards a nationally consistent C-TS environment that aims to support a seamless experience for road users.

5GAA agrees that an environment that delivers C-ITS road safety benefits, higher traffic efficiency and a better driving experience requires high market penetration and interoperability between vehicles, infrastructure and other road users. Harmonised standards are essential to achieve these goals.

Cellular-V2X (C-V2X) is the umbrella term which encapsulates all 3GPP V2X technologies, including both direct (PC5) and mobile network communications (Uu). Initially defined as LTE-V2X in 3GPP Release 14, C-V2X allows vehicles to communicate with each other and the wider transport ecosystem. It includes Vehicle-to-Vehicle (V2V), Vehicle-to-(Roadway) Infrastructure (V2I) and Vehicle-to-Pedestrian (V2P) via direct communications and connectivity to the mobile 4G and 5G networks (V2N). 3GPP continues to innovate and develop further releases to the standard including a clear evolution path to 5G for the direct and network communication modes in a complementary way.

C-V2X presents, in this case, the most appropriate technology choice for C-ITS communications, as it combines both modes of communications in a synergistic and interoperable way. Furthermore, C-V2X has a clear evolution path to 5G (also called 5G New Radio (NR) for both modes of operation mentioned above. Members of 5GAA embrace the arrival to maturity of 5G-V2X as a foreseen worldwide consensus, which relates to automotive-relevant 3GPP 5G technologies. It supports advanced driving and previous message types including basic safety and will deliver service continuity. 5GAA recognises that the evolution of V2X within different regional markets will potentially lead to different deployment options.¹

5GAA supports the idea that 5G will be the ultimate platform to enable C-ITS and the provision of V2X. 5G, which supports high bandwidth and ULL (Ultra Low Latency), will be able to better carry mission-critical communications for safer driving, and further support enhanced V2X connected mobility solutions for advanced safety use cases.

¹ 5GAA, [A Visionary Roadmap for Advanced Driving Use Cases, Connectivity Technologies, and Radio Spectrum Needs](#) (Nov. 2022)

Regarding principle 4, 5GAA notes that harmonization with international approaches is a good public policy choice that lowers market barriers, creates better conditions for upscaling and provides cost-efficiency for manufacturers. At the same time, it is important to carefully assess the regulatory approaches considered to prevent over regulatory burden which can hinder technology innovation and evolution.

While 5GAA commends the proposed policy principles, the report² indicated as informing them is concerning for 5GAA on several points. One of the report findings claims that C-V2X is not a mature enough technology for C-ITS, which has been disproven by both industry and government studies, and government trials and deployments.

Nearly every major automaker in the world has conducted rigorous testing of C-V2X performance by this point. General Motors, Ford, Nissan, Hyundai, and Qualcomm conducted demonstrated maturity of C-V2X at Michigan's Crash Avoidance Metrics Partners LLC facility in 2018-2019.³ After conducting a battery of tests to demonstrate C-V2X performance, the study concluded, among other things, that the technology performs reliably in congested environments.⁴ C-V2X maturity was also concluded by a 5GAA study on V2X Functional and Performance Test Report in 2018⁵, and has been confirmed as the technology of choice in the US Federal Communications Commission Report and Order of November 2020⁶.

Technology companies are increasingly bringing forward C-V2X products designed for the 5.9 GHz band. Over sixty C-V2X devices are already available, from modules to chipsets to OBUs and RSUs.⁷ And in 2021, leading software developers Commsignia, COHDA Wireless, and Marben Products each launched production-ready C-V2X software solutions.⁸

The global adoption of C-V2X is quickly accelerating. Automakers are planning for widespread deployment of C-V2X in North America. Ford has announced plans to deploy C-V2X technology in all new U.S. vehicle models.⁹ Audi has deployed C-V2X in vehicles as part of a

² WSP report Advice on Strategies to Support C-ITS in Australia, Findings, WSP, Department Of Infrastructure, Transport, Regional Development And Communications, March 2022, published at [link](#).

³ Crash Avoidance Metrics Partnership, [Cellular V2X Device-to-Device Communication \(C-V2X\) Project](#), (last visited May 25, 2021)

⁴ Press Release, Qualcomm, [C-V2X performance under congested conditions](#) (Sept. 9, 2020), (study concluded that C-V2X technology shows good communication performance and operates reliably in controlled, mixed real-world traffic and congestion scenarios as dense as 250 vehicles on a 300 meter stretch of roadway)

⁵ 5GAA, [V2X Functional and Performance Test Report; Test Procedures and Results](#) (October 2018)

⁶ FCC Modernizes 5.9 GHz Band to Improve Wi-Fi and Automotive Safety, available at [link](#)

⁷ 5G Automotive Association, Technical Report, [List of C-V2X Devices](#) (November 2021),

⁸ Press Release, Commsignia, [Commsignia's High Performing V2X Software Stack Available with Snapdragon Automotive 5G and 4G Platforms](#) (Feb. 9, 2021); Press Release, Cohda Wireless, [Cohda Wireless Delivers New Global C-V2X Turnkey Solution for Road Safety & Traffic Efficiency with Integration On Qualcomm Snapdragon Automotive 5G & 4G Platforms](#) (Feb. 9, 2021); Press Release, Marben Products, [Marben Completes Validation of C-V2X Stack and Applications on Qualcomm Snapdragon Automotive 4G and 5G Platforms to Accelerate Commercialization by Global Automakers](#) (Feb. 18, 2021)

⁹ See, e.g., Don Butler, [How "Talking" and "Listening" Vehicles Could Make Roads Safer, Cities Better, City of Tomorrow](#) (Jan. 7, 2019)

joint project with the Virginia Department of Transportation, the Virginia Tech Transportation Institute, and others to showcase the technology's ability to improve work zone and intersection safety.¹⁰ Audi estimates that by 2023 there will be 5.3 million vehicles, work zones, railway crossings, bicycles, and other devices that will be able to connect using C-V2X in the United States.¹¹

The global momentum for C-V2X deployment is especially evident in China, where the government allocated the 5905-5925 MHz band exclusively for C-V2X in 2018.¹² General Motors SAIC has launched "market-ready" and "industry-leading" C-V2X in select Buick models in China,¹³ and Chinese automaker FAW Car Company installed C-V2X in its latest intelligent sports utility vehicle."¹⁴ Ford is incorporating C-V2X into its Mustang Mach-E SUV sold in China, while Audi has announced plan to equip its A7 L and A6 L models with both 5G mobile communications and C-V2X technology.¹⁵ Chinese transportation authorities are also ramping up efforts to deploy C-V2X-powered smart infrastructure. Nearly 17,000 RSUs will be deployed in China by the end of 2022, and one analyst projects that deployments will ramp up to 160,000 and nearly 390,000 RSUs by the end of 2025 and 2030, respectively.¹⁶

Taken together, these actions have kickstarted a virtuous cycle of investment, with each C-V2X vehicle launch, smart infrastructure deployment, and product announcement encouraging other stakeholders to take similar steps.

The study also wrongly assumes that "DSRC is prioritized for the European uptake of safety-related use cases". In fact, Commission Delegated Regulation (Eu) No 886/2013 adopted EU specifications for Safety-Related Traffic Information (SRTI), but the exchange of such SRTI messages relies exclusively on the cellular network¹⁷.

In contrast, in 2019, the Council of the European Union's objected against a proposed Delegated Regulation on Cooperative Intelligent Transport Systems (C-ITS) based on ITS-G5/DSRC. "The vast majority of [Member States] expressed concerns of a legal and technological nature"¹⁸ following industry's repeated concerns which culminated when 24

¹⁰ Press Release, Audi, [Audi collaborates to deploy C-V2X communication technology on Virginia roadways](#) (Sept. 29, 2020)

¹¹ *Idem*

¹² Ministry of Industry and Information Technology of the People's Republic of China, MIIT No. 203 regulation (Nov. 2018)

¹³ See Buick, [Buick Debuts V2X Technology and Launches Refreshed GL6 MPV in China](#) (Nov. 11, 2020)

¹⁴ Press Release, Qualcomm, [Fully-Featured Intelligent Electric SUV Flagship Hongqi E-H59 Features Qualcomm C-V2X Solution, Creating Premium Intelligent Connected Driving Experiences](#) (Dec. 11, 2020)

¹⁵ Press Release, Ford, [Ford to Manufacture Mustang Mach-E in China for Local Customers](#) (Jan. 27, 2021); Audi MediaCenter, [Why We are Now Equipping our Vehicles with the new 5G Mobile Communications Standard](#), (Aug. 26, 2021)

¹⁶ ABI Research, [V2X Market Data](#), Table 24 (2021)

¹⁷ For more information please consult [Data for Road Safety Initiative website](#)

¹⁸ [Outcome of the 3706th Council of the European Union meeting](#) (8 July 2019)

5GAA member companies (6 OEMs, 5 MNOs and 13 technology vendors) signed a CEO letter to the European Commission and the Member States in support of C-V2X¹⁹.

2. Over the next 5 years, to what extent does your organisation anticipate moving into a C-ITS role or increasing its involvement in C-ITS?

5GAA is a global cross-industry association dedicated to make C-V2X a reality. 5GAA is active in several world regions, including Asia, Europe, the Middle East, and the United States. 5GAA has participated in other public consultations on the topic of C-ITS in other world regions and is looking forward to being a stakeholder that provides information and advice to public authorities in their policy-making process on intelligent transportation.

5GAA members collaborate together to identify and address all barriers to V2X deployment and accelerate time to market of C-ITS solutions to make connected mobility a reality. You can find all 5GAA technical reports and white papers on 5GAA website²⁰.

3. How might C-ITS impact other vehicle connectivity systems in Australia, including vehicle/original equipment manufacturer (OEM) connectivity, vehicle/cloud connectivity, heavy vehicle telematics systems, mapping systems, etc?

5GAA agrees that an environment that delivers C-ITS benefits requires high market penetration and interoperability between vehicles, infrastructure and other road users.

5GAA member companies have been engaged in numerous ITS projects in Australia to demonstrate deployment readiness of ITS applications to increase road safety and traffic efficiency e.g. the Advanced Connected Vehicles Victoria (ACV2) trial²¹.

We see Australia's national C-ITS approach as a significant step toward achieving these objectives and 5GAA is committed to provide all of the necessary support to make Australia's C-ITS vision a reality.

4. The draft Principles include a focus on cooperation across industry, government, the research sector, and the community: what structures would be necessary to support the development of an Australian C-ITS system?

Efficient C-ITS services are conditional on deployment supported by an eco-system, and 5GAA supports a cooperative approach between public authorities and industry to realise the maximum benefits of C-V2X technology. In this context, we recommend a public-private mechanism that is representative of the diverse industries involved in the delivery of C-ITS services.

5GAA also recommends a deployment-focused approach taking into account the need for viable industry business models, as opposed to a research and innovation approach. C-ITS can

¹⁹ 5GAA CEOs Letter, "[Connected car legislation taking the wrong turn: Europe risks falling behind in 5G](#)" (July 2018)

²⁰ <https://5gaa.org/publications/>

²¹ [ACV2 \(Advanced Connected Vehicles Victoria\) trial](#) (2018-2020)

only be a reality that delivers benefits if commercial deployment takes place, with a direct proportionality between deployment and benefits.

5. *After the Principles, what next steps do you think would be most productive?*

5GAA recommends that Australia makes spectrum available in the 5.9 GHz band for ITS and adopts the needed standards to ensure the right conditions for direct short range communications that have an evolutionary path. As mentioned above, global harmonization is key to achieve scale and the benefits it seeks. To that end those principles should be the basis for a national deployment plans.

Signature

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Date:

10 February 2023

