



# HAAS ALERT

January 26th, 2019

BY ELECTRONIC SUBMISSION

Federal Communications Commission

445 12th St., S.W.

Washington, D.C. 20554

DA 18-1231

ATTN: Office of Engineering and Technology and Wireless Telecommunications Bureau

**Re: 5GAA PETITION FOR WAIVER TO ALLOW DEPLOYMENT OF CELLULAR VEHICLE-TO-EVERYTHING (C-V2X) TECHNOLOGY IN THE 5.9 GHZ BAND (GN Docket No. 18-357)**

To the attention of the Office of Engineering and Technology and Wireless Telecommunications Bureau,

I am writing on behalf of HAAS Alert, the leading provider of public safety and fleet vehicle communication Digital Alert technologies. As background, Digital Alert solutions for municipalities and fleets across the U.S. allow for collision prevention (not last second avoidance) on roadways. The primary focus has been on public safety (Police, Fire, and EMS), however, other roadway fleets are beginning to adopt these solutions as well with other providers in the market.

Any technology that has the capability and the potential to help support our First Responders and roadway fleet workers should be given the opportunity to demonstrate its effectiveness to save lives. Within this response, we are advocating our support for the waiver to allow the 5GAA to deploy C-V2X technology on the upper 20 megahertz of the 5.850-5.925 GHz (5.9 GHz) band.

Most companies are technology agnostic when it comes to communication protocols as we respond to market capabilities, however, when looking at public safety and roadway fleet vehicles, it is the exception rather than the majority to have a fleet that already has or requires having DSRC RSUs and OBUs for collision prevention. What is in nearly every vehicle is connected cellular technologies that allows collision prevention solutions that are low cost, quick to implement, and offers these capabilities to large Tier 1 and 2 cities, all the way down to rural communities – no one should be priced out of safety.

Within public safety, the industry has already chosen cellular as its path – with the deployment of multiple preemption cellular technologies across multiple cellular providers, the funding of FirstNet, fleet manufacturer onboard cellular telematics, Computer Aided Dispatch solutions (CADs), AVL, and other technologies – the common theme is cellular. Even NHTSA's most recent RFI on EMS patient response care mentioned the interest of using connected telematics for improved and safer patient transport.

Within public safety, Responder-to-Vehicle communication and Responder-to-Responder communication has proven to be a focus area as the amount of deaths and injuries within First Responders from traffic accidents across Police, Fire, and EMS far exceed any other death and injury rate. This is important to note as cellular technologies within fleets is already here and deployed which is bringing collision rates down, having to wait for RSUs and OBUs to hit the necessary market scale will still be decades. In fact, more and more fleet manufacturers are making C-V2X solutions standard in vehicles without a specific request from the customer.



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As background on HAAS, we have spent over a decade in connected vehicle in-dash mapping at NAVTEQ/HERE Maps and founded HAAS Alert to support public safety fleets to communicate to civilian cars and one another. The core solutions are already in market and within the public safety, are C-V2X based as fleets and automotive OEMs already support this technology which makes it an easy decision for municipalities to enable these collision prevention solutions.

Recently, the Department of Homeland Security awarded HAAS Alert multiple government contracts for work on connected vehicle technology for Police, Fire, and EMS. We were selected by the Detroit Automotive Conference for the Connected Car company award for 2019 through, are a member of Transportation Research Boards Subcommittee for Public Safety, have been recognized and awarded by ITA, NSC, TSR, received support from Fire Apparatus Manufacturer's Association (FAMA) and National Fire Protection Agency Research Division on connected vehicle government and University programs, recipient of the LA Auto top connected car tech awards, have spoken out in regards to public safety C-V2X at congressional meetings, FCC events, Police/Fire/EMS industry events and panels, various Traffic Incident Management associations sponsored by DOTs, and have been creating the movement towards collision prevention in the public safety industry over the last 4 years – in fact, HAAS Alert is the first to focus on bringing automotive and First Responders together for current collision avoidance efforts. To name a few organizations that we are active members of: FAMA technical and Electrical subcommittee, International Association of Fire Chiefs Technical Committee, Principal on NFPA 950/951, contributor to NFPA1901, FirstNet approved vendor, and received NHTSA and Michigan DOT projects for collision prevention solutions. You can read our other DOT submissions on [regulations.gov](https://www.regulations.gov).

We are dedicated to promoting the right solutions for public safety across the U.S. and with the technologies already in market and available. C-V2X is already deployed across the country and has a path towards simple replacement of Uu with PC5 and 5G without disrupting current deployments, and ultimately, without eroding the current collision prevention solutions already being used.

As a solutions provider, companies have to work with what is available to get solutions to market that can start delivering results. DSRC, being IEEE 802.11p based (extension technology based on Wi-Fi 802.11a) and not yet available in most cities at the scale needed to work with, along with the fact that most automotive manufacturers do not ship with DSRC OBUs, taking into consideration the length of time to deploy DSRC – this is not an option for reducing collision today, nor in the near future. As the Booze Allen Hamilton readiness report highlights, outfitting entire cities and vehicles with DSRC technology will take well over 20 years. This is 20 years of 1.25 million global annual vehicle deaths, which is unnecessary.

Additionally, what is missing is the necessary network-based technology needed in order to make the DSRC technology fully work. Booze Allen Hamilton estimated this network implementation to cost more than \$2 billion dollars and does not address maintenance. Consider the amount of cellular towers in the U.S. alone and the challenges large telecoms have with maintaining and improving those towers, it's inconceivable that there would be a RSU deployment at every intersection that would be maintained and paid for by a yet to be identified funding source – let alone backhaul solutions for encryption.

If the above, along with governance and management policies for DSRC had already been completed and deployed, this would be a different position piece. However, since the advent of DSRC, the industry has gone from 2G to the 5G technologies we have today – this is why the focus now on C-V2X solutions are the preferred method for the future. There are multiple studies that show the advantages of C-V2X over DSRC, and again, if this was a conversation 15 years ago, DSRC would be the preferred option, however, with the gains in cellular, it's the appropriate and attainable solution for collision prevention technologies.



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Last year, 3GPP finalized Release 14 which sets to replace the DSRC 802.11p based communication, and in the near term, the organization is readying its Release 16 that will bring about the PC5 functionalities for direct C-V2X versus the network based C-V2X Uu being used today.

C-V2X (Uu and PC5) solutions, 5G, all are easily upgradeable as they are cellular based solutions. Most technology providers in the cellular space, especially for collision prevention, have C-V2X Uu solutions now, and already have PC5 and 5G upgrade plans with customers. This is an easy update for the fleets, cities, and state agencies across fleets, especially those in public safety, that doesn't require a massive overhaul and increased costs with their current solutions already deployed.

Bringing the conversation back to the tangible users of these collision avoidance technologies and the manufacturers and cities that use them, nearly 100% are cellular based, and with that, are all upgradeable to the next wave of standards.

These standards will cover and support the future needs of CAVs, infrastructure such as connected traffic signals and street lights and other V2X solutions. These standards can be extended for years to come and are based on their own protocol. Compare that idea to DSRC, and the extensions of wi-fi based solutions for V2V, and it easily becomes apparent that C-V2X from a technology, scalability, and cost side supports the needs of not only automotive, but fleets and the public safety agencies that already have deployed C-V2X.

Regarding spectrum sharing of DSRC and C-V2X, from a public safety and roadway fleet perspective, dedicated spectrum for guaranteed communications is always preferred. Technically there may be solutions that allow for specific channels to be utilized for both, however, with the rapid expansion of C-V2X already in play, there would need to be further consideration of whether or not sharing equally makes sense in regards to collision prevention.

From a solution provider of collision prevention, the question regarding emerging automated vehicle applications, it is critical that V2V solutions are upgradeable and can be easily completed by the suppliers. The research and efforts put forward by 3GPP on the next Release for C-V2X encompasses CAVs and the continued support for providing upgrades. Suppliers can handle this with ease for the automotive and municipal partners they have and all the cost bearings won't fall on the cities, nor fall on the fleet and public safety agencies that have already deployed their C-V2X solutions for collision prevention.

For public safety and roadway fleets, the decision to move to cellular based systems already happened years ago and it has proven successful for collision prevention and ultimately brought down the amount of deaths and injuries on the roads. Whichever solution may be favored by the DOT, it should: (1) be a communication method that is in market to scale and not just begin to deploy (2) have a method of maintenance and budget that doesn't fall on fleets and city agencies (3) be scalable and upgradeable to support continued evolution of CAVs and our transportation network. Regarding how to evaluate, a selected group from multiple disciplines should be selected (telecom, automotive, academic, solution providers, municipal leads, etc.) to work on the best way to determine the needs and capabilities for these communications not only in the U.S., but aligned internationally as well.



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Keep in mind, roadways weren't built for First Responders, and thus they have taken it upon themselves to build safety solutions around that fact – having First Responders and roadside fleets “start over” with communication methods would only roll back the successful gains the industry has made.

In the spirit of Vision Zero across all states, careful consideration of C-V2X solutions are imperative if we want to stand on a stage 5 years from now and announce a massive reduction in deaths and injuries caused by roadway collisions - this can happen if we make the right technology choices today.

Sincerely,

**CORY J. HOHS**

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