March 9, 2020

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
Washington D.C.

In the matter of
Use of the 5.850 – 5.925 GHz Band ET Docket No. 19-138

Ms. Marlene Dortch
Secretary, Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Dear Ms. Dortch,

The Institute for Policy Innovation (IPI) is a non-profit public policy research organization, founded in 1987. We follow policy issues related to economic growth, which includes the regulation of technology and communications policy. We have commended the Commission for opening the 5.9 GHz proceeding, and encourage the Commission to take appropriate steps to put this neglected spectrum to its most valuable use.

The following comments are submitted by the Institute for Policy Innovation (IPI), and may be attributed to Dan Garretson, Research Fellow. Dan has 20 years of experience providing thought leadership and consulting to private and public sector leaders on telematics, autonomous vehicles, and tolling issues. He's worked with numerous private sector companies, the White House OSTP, and the US DOT on strategic planning issues and authored multiple publications assessing adoption strategies and challenges.

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DSRC: An idea whose time has passed

Last year, FCC chairman Ajit Pai proposed releasing portions of the 5.9 GHz spectrum band allocated exclusively for so-called Dedicated Short-Range Communications (DSRC) uses. To say this move is controversial would be an understatement. Numerous companies, industry groups, and lawmakers have come out on both sides. Opponents, in fact, characterize it as an issue of life and death, "[jeopardizing] the significant transportation safety benefits that the

allocation of this Band was meant to foster" and "undercutting the potential to prevent many of the 37,000 traffic fatalities each year." Oh, please.

It's worth sorting through what's really at stake here by evaluating two central propositions of the pro-DSRC community. The first is that wireless communication and coordination by vehicles with other vehicles, infrastructure, devices, etc. (AKA, vehicle to everything (or V2X) technologies) is critical to achieving the potential safety benefits from connected and autonomous vehicles. And the second is that the DSRC spectrum in the 5.9 GHz band is the only acceptable option for implementing wireless V2X technologies. But both claims are, at best, overstatements and, at worst, patently false.

Taking them in turn, is it really true that wireless connectivity is critical to improving the safety of today's cars and trucks? While it might be fair to say such connectivity would be helpful, the truth is that the potential safety benefits of new technologies will largely come in other ways. Standalone autonomy (that is, systems that don't rely on network connectivity), in particular, will be the biggest driver (no pun intended) of potential safety benefits over the coming decades. From simple assistive systems such as adaptive cruise control and lane following technologies that are already improving automotive safety to ever improving self-driving capabilities that hold the promise of complete robotic control of the vehicle, the vast majority of the benefits will come from technologies that put the driving in the hands of systems that are faster, more reliable, and able to access and process much more information than human drivers.

These systems will certainly benefit from wirelessly delivered maps, road hazard alerts, and maybe even communications from other vehicles, infrastructure, and people. But it will ultimately be critical that the vehicle itself be able to sense and interpret road hazards and, on its own, respond to current conditions, even when communications links are either down or simply unavailable because the external road hazard (vehicle, infrastructure, pedestrian, etc.) isn't capable of delivering its own safety message.

Let's assume for the moment, though, that, notwithstanding the above, vehicle connectivity really is critical to the potential safety benefits. Well then, all we need is to have a) well-defined and tested communications protocols, b) extensively defined use cases and algorithms for coordinating V2X interactions in an enormous range of hazardous situations, and c) nearly universal connectivity in vehicles and infrastructure (and potentially the rest of the X, as well, including pedestrians, bicyclists, etc.). In short, good luck with that: the benefits from vehicle connectivity are still a long way (that is, multiple decades) off.

But isn't it still better to be safe than sorry, one might ask? We don't want to give up this spectrum for other uses and then find that we really do need vehicle connectivity to improve vehicle safety. The reality is, though, that DSRC is absolutely not the only option.

The focus on DSRC emerged in an environment where any other option simply couldn't deliver on the demands anticipated for wireless connectivity, particularly around network bandwidth and latency. Many of the identified safety-critical use cases rely on rapidly connecting devices and exchanging large amounts of data (basic safety messages delivered 10 times per second, for example, among potentially 10s of vehicles) in a relatively limited range (e.g., in the vicinity of a busy intersection). Today's 4G cellular networks are much faster than connectivity options of a couple of decades ago but, the argument goes, are still not up to the task.

But the reality is that, even if true, that's irrelevant. It is widely anticipated that 5G networks will have the requisite responsiveness and bandwidth to effectively handle safety-critical connected vehicle use cases, particularly when paired with the increasingly capable onboard systems

automakers and technology providers are developing. And these networks are already being deployed by some providers, and all U.S. national wireless carriers have announced 5G deployments.

In short, vehicle connectivity is not the lynchpin for vehicle safety that the proponents of DSRC would have you believe. Furthermore, to the extent that it is critical at all, there are rapidly emerging alternatives that will more-than-adequately meet the nation's V2X connectivity needs that don't rely on continuing to tie up spectrum that could be more immediately and effectively used by other technology providers.

As proponents of freeing up the 5.9 GHz spectrum for non-transportation uses have pointed out, the continued restrictions have "impeded wireless and automotive innovation and undermines the consumer good" and have "failed to provide any real-world automotive safety benefits" while leaving the band "unused in the vast majority of the country the vast majority of the time."

It's time to move on.

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Dan Garretson is a Partner at Concentre where he leads data and analytics strategy work for transportation and technology clients. He was previously Knowledge Manager for McKinsey & Co.’s Automotive, Aerospace, and Defense Sector and the Founding Partner at Pinyon Labs, where he consulted to the US DOT and the White House OSTP on strategic planning issues (including, in particular, potential deployment scenarios for DSRC technology) and authored multiple publications assessing adoption strategies and challenges. Mr. Garretson has 20 years of experience providing thought leadership and consulting to private and public sector leaders on telematics, autonomous vehicles, and tolling issues. Dan Garretson has a B.S. in Physics from the California Institute of Technology, and a Ph.D. in Theoretical Astrophysics from Harvard University.