Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	Docket No. ET Docket No. 19-138
Use of the 5.850-5.925 GHz Band	)	85 Fed. Reg. 6,841

COMMENTS OF
THE COMPETITIVE ENTERPRISE INSTITUTE

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Introduction

On behalf of the Competitive Enterprise Institute (CEI"), we respectfully submit these comments in response to the Federal Communications Commission s (Commission") Notice of Proposed Rulemaking on the Use of the 5.850-5.925 GHz band (NPRM").[1]

CEI is a nonprofit, nonpartisan public interest organization that focuses on regulatory policy from a pro-market perspective.[2] CEI previously submitted comments to the National Highway Traffic Safety Administration in response to its 2014 advance notice of proposed rulemaking and 2017 notice of proposed rulemaking in which we opposed a contemplated vehicle-to-vehicle, dedicated short-range communications (DSRC") equipage mandate.[3] In addition, we submitted comments to the Office of the Secretary of Transportation in January 2019 on general vehicle-to-everything policy.[4]

This comment letter addresses both the status of DSRC deployments and policy development, and the problems with the existing allocation of the 5.9 GHz band.

The Dismal State of DSRC Deployment and Policy Development

In the NPRM, the Commission requests comments on the state of DSRC-based deployment[.]"[5] As discussed below, it would be charitable to even describe the state of DSRC deployments as trivial," but first we will examine the fundamental flaws to the U.S. Department of Transportation s (USDOT") approach to connected vehicle technologies.

When the National Highway Traffic Safety Administration (NHTSA") finally published the vehicle-to-vehicle communications notice of proposed rulemaking that would have

1. Use of the 5.850-5.925 GHz Band, *Notice of Proposed Rulemaking*, ET Docket No. 19–138, 85 Fed. Reg. 6,841 (Feb. 6, 2020) [hereinafter NPRM].
2. *See* About CEI, https://cei.org/about-cei (last visited Feb. 27, 2020).
3. Comments of the Competitive Enterprise Institute in the Matter of Federal Motor Vehicle Safety Standards; Vehicle-to-Vehicle (V2V) Communications, *Advance Notice of Proposed Rulemaking*, Docket No. NHTSA–2014–0022, 79 Fed. Reg. 49270 (Aug. 20, 2014), *available at* https://www.regulations.gov/document?D=NHTSA-2014-0022-0662; Comments of the Competitive Enterprise Institute in the Matter of Federal Motor Vehicle Safety Standards; V2V Communications, *Notice of Proposed Rulemaking*, Docket No. NHTSA–2016–0126, 82 Fed. Reg. 3,854 at 3,969 (Jan. 12, 2017), *available at* https://www.regulations.gov/document?D=NHTSA-2016-0126-0263.
4. Comments of the Competitive Enterprise Institute in the Matter of V2X Communications, *Request for Comments*, DOT-OST-2018-0210, 83 Fed. Reg. 66,338 (Dec. 26, 2018), *available at* https://www.regulations.gov/document?D=DOT-OST-2018-0210-0013.
5. NPRM, *supra* note 1, at 6,843.

mandated DSRC radio equipage in January 2017, many observers were astounded by the glaring holes in reasoning.

First, NHTSA s proposal was deficient on cost and legal grounds. NHTSA's two-radio" DSRC-exclusive approach relied extensively on roadside equipment (RSE") to provide connectivity to the Security Credential Management System (SCMS").[6] NHTSA estimated nearly 20,000 RSEs would need to be deployed throughout the National Highway System to provide secure nationwide vehicle-to-vehicle (V2V") connectivity.[7] NHTSA then compared estimated future costs of a two-radio DSRC-exclusive approach with a hybrid one-radio" approach that would harness existing communications technologies such as cellular and Wi-Fi.

Yet in considering these costs, NHTSA failed to distinguish between public and private costs. Under the two-radio approach, federal and state funding would need to be provided to deploy a nationwide RSE infrastructure network. In contrast, the one-radio approach would harness existing private infrastructure networks and require private providers and users to bear the costs of V2V.

At a time where state and local transportation infrastructure facilities face large maintenance backlogs, approaching reconstruction needs, and uncertain funding, NHTSA s failure to adequately consider fiscal burdens in its analysis of alternatives is troubling. Further, questions remain as to NHTSA s authority to even regulate the public RSE network.[8]

Second, USDOT s approach to DSRC and cybersecurity and privacy in safety-critical DSRC systems leaves much to be desired and undermines its appeals to safety. As NHTSA noted in the NPRM, it has included no regulatory text for SCMS-based message authentication and instead has a bracked [sic] placeholder for where it would be if this were to be part of a final rule."[9] The agency then went on to say, NHTSA strongly believes in the need for cybersecurity, which is essential to the public acceptance of increasingly computerized vehicle systems, to the safety technology they govern, and to the realization of the safety-enhancement potential they offer."[10]

Despite the years of work by NHTSA and industry groups attempting to address cybersecurity and privacy concerns by way of SCMS-style basic safety message

6. Federal Motor Vehicle Safety Standards; V2V Communications, *Notice of Proposed Rulemaking*, Docket No. NHTSA–2016–0126, 82 Fed. Reg. 3,854 at 3,969 (Jan. 12, 2017) [hereinafter V2V NPRM].
7. *Id.* at 3,975.
8. *See* 49 U.S.C. § 105(c)(1), which limits NHTSA's authority over certain aspects of highway safety, including over the traffic control devices to which some RSEs would connect.
9. V2V NPRM, *supra* note 6, at 3,911.
10. *Id.* at 3,915.

authentication, it still could not determine what such a system would look like or even who would operate and maintain it.[11] Further, the discussion of the issues involved was so broad and vague that NHTSA even entertained the possibility of not requiring message authentication at all.[12]

It is highly unusual for an agency to fail to include proposed regulatory language in its NPRM, as the Administrative Procedure Act as interpreted by the courts requires that a final rule follow a logical outgrowth" from the proposed rule.[13] If cybersecurity protections are essential," as NHTSA alternatively claimed, to the operation and public acceptance of the technologies at issue, then NHTSA s approach in the DSRC mandate represented a dangerous half-baked proposal.

Third, NHTSA's proposal fails to consider anticipated consumer behavior that undermines its benefit/cost analysis. In conceding that it lacked the legal authority to require consumers to update V2V device software and security certificates, NHTSA again damaged its appeals to safety.[14] NHTSA notes that V2V will not work if they are out of certificates or in need of some other kind of update."[15] NHTSA proposes that manufacturers provide telltale lamps or messages to alert consumers that the V2V system has malfunctioned or is disabled.[16]

Yet, the agency did not contemplate consumer responses to these telltales or messages. For instance, the Car Care Council has estimated that [n]early one out of 10 vehicles had the check engine light on."[17] Another survey recently commissioned by Jiffy Lube found that nearly one-third drivers of vehicles with check engine lights displayed waited a month or more before bringing their vehicles in to be serviced.[18] As consumers have become accustomed to excessive automated alerts in their vehicles, many appear to have discounted the warnings altogether.

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11. *See, e.g.,* Comments of Secure/Set in the Matter of Federal Motor Vehicle Safety Standards; V2V Communications, *Notice of Proposed Rulemaking*, Docket No. NHTSA–2016–0126, 82 Fed. Reg. 3,854 (Jan. 12, 2017), at 12, *available at* https://www.regulations.gov/document?D=NHTSA-2016-0126-0117.
12. V2V NPRM, *supra* note 6, at 3,917.
13. *See, e.g.,* Fertilizer Inst. v. EPA, 935 F.2d 1303, 1311 (D.C. Cir. 1991). *See also* Phillip M. Kannan, *The Logical Outgrowth Doctrine in Rulemaking*, 48 ADMIN. L. REV. 213 (1996).
14. V2V NPRM, *supra* note 6, at 3,958.
15. *Id.*
16. *Id.* at 4,016.
17. Car Care Council, "Car Care Events Reveal Need for Increased Maintenance," Car Care Council (Mar. 21, 2012), https://web.archive.org/web/20190530144300/http://www.carcare.org:80/car-care-events-reveal-need-for-increased-maintenance/.
18. SWNS, "Nearly 30% of American drivers have ignored their 'check engine' light for a month or more!" Medium (Jul. 2, 2019), https://medium.com/@pitch_20575/nearly-30-of-american-drivers-have-ignored-their-check-engine-light-for-a-month-or-more-820b6b30b4de.

It can be reasonably anticipated that consumers will respond to a V2V failure telltale or message in a fashion similar to their present response to check engine" telltales. This should be particularly concerning to NHTSA as informed consumers will know that the safety benefits of V2V, and thus the costs of nonfunctioning V2V devices, are projected to be trivial in the initial deployment years. Perceived privacy and cybersecurity risks on the part of consumers would amplify this effect. The agency spilled a significant amount of ink discussing misbehavior rates but very little on what could be termed apathy rates." If consumers do behave in this manner, NHTSA s projected benefits of V2V were significantly overstated.

Fourth, NHTSA's proposal will generate very small benefits even under the most optimistic assumptions. In NHTSA s NPRM, it estimated under optimistic assumptions that benefits would not exceed costs until at least nine years following a nationwide equipage mandate for new vehicles.[19] Independent analysis by the Center for Automotive Research found that by 2058, NHTSA s proposed DSRC mandate—assuming 100 percent vehicle fleet penetration—would reduce total crash fatalities by just 2.3-3.3 percent per year.[20]

Finally, and to most directly address the Commission's question on DSRC deployment readiness, USDOT s pilot field deployments to date do not suggest imminent technological readiness of DSRC nor sizeable and realizable safety benefits. In December 2018, USDOT published the final report of its Connected Vehicle Pilot Deployment Program.[21] It included the following findings:

- "Going into deployment, many of the Pilots were under the impression that the applications were deployment-ready – however this was often not the case."[22]
- "Since this technology cannot be purchased off the shelf yet…"[23]
- "During the implementation phase, both the New York City and Tampa Pilots had to deal with suppliers backing out."[24]
- "Not everyone has the same common understanding of terminology."[25]

19. V2V NPRM, *supra* note 6, at 4,000–01.
20. Center for Automotive Research, *Summary of U.S. DOT Connected Vehicle Regulatory Approach* (Aug. 24, 2014), at 12, *available at* https://drive.google.com/file/d/0B7uiYk-iv-WNSHQ5Vm5WMFVpdXM/view.
21. Intelligent Transportation Systems (ITS) Joint Program Office (JPO), *Connected Vehicle Pilot Deployment Program: Driving Towards Deployment: Lessons Learned from the Design/Build/Test Phase*, Final Report, U.S. Department of Transportation (Dec. 13, 2018), *available at* https://rosap.ntl.bts.gov/view/dot/37681.
22. *Id.* at 8.
23. *Id.* at 10.
24. *Id.*
25. *Id.* at 11.

- "The security credential management system (SCMS) does not currently have a standard Misbehavior Detection and Certificate Revocation List (CRL) distribution mechanism – both of which are essential to maintain the security of the CV infrastructures."[26]
- "During development, the New York City Connected Vehicle Pilot Deployment team identified an issue with the SAE J2945/1 Standard's Certificate Change (CERTCHG) requirement criteria that was potentially putting the privacy of their participants at risk."[27]
- "Though there is no USDOT RSU/OBU standard, all RSUs and OBUs used for deployment should conform to USDOT specifications as closely as possible wherever they exist[.]"[28]

While connected vehicle technology holds great potential in the future, claims that DSRC is readily available for large-scale, near-term deployments that will produce sizeable safety benefits to road users are unsupported by USDOT s own field research.

The 5.9 GHz Band Status Quo Is Untenable

In 1980, the Canadian rock band Rush released their hit single "The Spirit of Radio." The lyrics of the song describe the magical potential of radio technology as "invisible airwaves" that "crackle with life." In the 40 years since, these invisible airwaves have been harnessed to deliver us far more than music and television to the point that most Americans can instantly and wirelessly connect with one another and access the Internet. Yet, for all this incredible progress, current spectrum policy in the United States is not living up to the spirit of radio. Large chunks of valuable spectrum are not crackling with life. The 5.9 GHz band is one such band.

Spectrum has a particular strong inverse correlation between its supply and demand. We are at the dawn of the Internet of things ("IOT") where more types of devices are being connected to the Internet, fueling exponential growth in the number of total devices requiring wireless connections and thus demand for spectrum. The number of connected devices is set to more than quadruple within the next decade.[29]

The supply of spectrum, on the other hand, is inherently finite. More of it cannot be manufactured or grown. Accommodating growing demand can only be accomplished through more efficient use of the existing supply.

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26. *Id.* at 16.
27. *Id.* at 17.
28. *Id.* at 20.
29. Peter Newman, *THE INTERNET OF THINGS 2020*, BUSINESS INSIDER (Mar. 6, 2020), *available at* https://www.businessinsider.com/internet-of-things-report.

As with any economic policy, the question is how to best ensure the supply of scarce resources reach their highest valued use. Of course, there is a lot of subjectivity involved with such a question. However, when the federal government owns a monopoly on the supply of a demanded resource—as it does with spectrum—a complete lack of utilization, barring consideration of externalities, indicates an objective policy failure.

As the Commission notes in the full NPRM, "In the 20 years since the Commission designated the 5.9 GHz band for DSRC use, the band has seen limited deployment" and now lays "largely fallow."[30] Given this prolonged lack of utilization and the absence of any sort of scale DSRC deployment on the horizon, it is entirely appropriate and warranted for the Commission to act and reallocate this spectrum.

CEI's preferred approach on spectrum policy is one that maximizes market principles and property rights. This approach is outlined in great detail in a 2017 CEI *Issue Analysis* entitled, "A Case for Property Rights in the Electromagnetic Spectrum."[31] To quote and summarize:

> Distributing the rights to use spectrum via markets… incentivizes private holders of those rights to make efficient use of their spectrum and to invest and innovate in ways that increase the overall capacity of spectrum to facilitate the use of wireless devices. If a firm can lease excess spectrum to others, this will encourage it to make efficient use of its spectrum because it can profit from leasing out what it does not use.[32]

Under current law, however, the closest the Commission can get to implementing such a vision is through its authority to auction flexible-use spectrum licenses.[33] In November 2017, the Commission inquired into flexible, licensed use of the 5.925-6.425 GHz band.[34]

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30. This is quoting from the full NPRM ordered by the Commission, not the summary published in the Federal Register, at 9, https://ecfsapi.fcc.gov/file/1217200308588/FCC-19-129A1.pdf.
31. Ryan Radia & Joseph Kane, *A Case for Property Rights in the Electromagnetic Spectrum*, COMPETITIVE ENTERPRISE INSTITUTE ISSUE ANALYSIS 2017 NO. 5 (Apr. 2017), *available at* https://cei.org/sites/default/files/Ryan%20Radia%20and%20Joseph%20Kane%20-%20A%20Case%20for%20Property%20Rights%20in%20the%20Electromagnetic%20Spectrum_0.pdf.
32. *Id.* at 2.
33. Linda K. Moore, *Framing Spectrum Policy: Legislative Initiatives*, Congressional Research Service (May 18, 2016), *available at* https://fas.org/sgp/crs/misc/R44433.pdf.
34. The full notice of inquiry is available at https://www.fcc.gov/document/fcc-opens-inquiry-new-opportunities-mid-band-spectrum-0.

In a subsequent July 2018 rulemaking, the Commission stated it would address this band at a later date.[35]

In this NPRM regarding the 5.9 GHz band, the Commission proposes to allocate the upper 30 Megahertz of the band, 5.895-5.925 GHz, for intelligent transportation system ("ITS") operations. The Commission requests comment on "whether alternate spectrum band approaches would better achieve the goal of maximizing the effective and efficient use of the 5.9 GHz band[.]"[36] The Commission should consider combining this 30 Megahertz with the adjacent 5.925-6.425 GHz band and conducting an auction for flexible-use licenses.

With regard to the rest of the 5.9 GHz band, the 45 MHz from 5.850-5.895 GHz, we believe the Commission has proposed to allocate this spectrum in a way that is reasonable in consideration of the existing state of technology and usage of separate bands of spectrum. Despite our preferred approach, spectrum has been previously made available for unlicensed use and has had a significant influence on the evolution of wireless technology.

Unlicensed spectrum has facilitated the development of Wi-Fi, Bluetooth, and unlicensed LTE. Licensed technologies have evolved in conjunction with these technologies. As the Commission notes, Wi-Fi and unlicensed LTE devices allow for licensed commercial wireless service carriers to offload traffic "to relieve congestion when consumer demand is high."[37]

Yet for Wi-Fi to play this compensatory role for licensed commercial wireless services, it cannot be congested itself. The Institute of Electrical and Electronics Engineers contended that Wi-Fi congestion was already becoming a problem four years ago, in 2016.[38] Additional unlicensed capacity is therefore necessary to maintain the growth in demand for licensed wireless services. This is particularly true in anticipation of the aforementioned growth of IOT applications, powered by fifth-generation ("5G") wireless networks.

Unlike DSRC, 5G networks are already being deployed at scale in major American cities. A recent report by the Global System for Mobile Communications Association estimates that roughly half of all wireless connections in North America will be through 5G

35. This cites the full notice of proposed rulemaking at 76, https://www.fcc.gov/document/fcc-expands-flexible-use-mid-band-spectrum.

36. NPRM, *supra* note 1, at 6,841

37. *Id.* at 6,843

38. Terry Ngo, *Why Wi-Fi Stinks—and How to Fix It*, IEEE SPECTRUM (Jun. 28, 2016), *available at* https://spectrum.ieee.org/telecom/wireless/why-wifi-stinksand-how-to-fix-it.

networks by 2025.[39] The Commission is right to ensure sufficient back-up capacity in the unlicensed space exists to account for this imminent and major shift in the licensed wireless market.

Conclusion

We appreciate the opportunity to submit comments to the Commission on this matter and look forward to further participation.

Respectfully submitted,

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39. Jan Stryjak & Stefano Suardi, *The Mobile Economy 2020*, GSMA Intelligency (Mar. 5, 2020), https://www.gsmaintelligence.com/research/?file=735f70a7afbfc8ddb46efd17cafc2330&download.