

**Before the
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
Washington, D.C. 20230**

In the Matter of)
Development of a National Spectrum Strategy) Docket No. 230308–0068
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COMMENTS OF THE ALLIANCE FOR AUTOMOTIVE INNOVATION

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I. INTRODUCTION AND SUMMARY

The Alliance for Automotive Innovation (“Auto Innovators”),¹ which represents the automotive ecosystem in the U.S., including automakers, suppliers, and technology companies, appreciates the opportunity to comment on the National Telecommunications and Information Administration’s (“NTIA”) Request for Comments on the Development of a National Spectrum Strategy (“RFC”).² The RFC presents an excellent opportunity to rethink spectrum policy and assist industry in promoting innovation. The U.S. automotive industry is on the verge of an unprecedented transformation in personal mobility – a revolution that relies on access to spectrum for cutting-edge use cases focused on a cleaner, safer, and smarter future.

The various technologies facilitating this transformation – including automation, electrification, advanced safety features, innovative services, applications for drivers and passengers, and new mobility models – are enabled and/or enhanced through adequate access to

¹ Auto Innovators is the singular, authoritative, and respected voice of the automotive industry. Focused on creating a safe and transformative path for personal mobility, Auto Innovators represents the manufacturers that produce nearly 98 percent of cars and light trucks sold in the United States. Members of Auto Innovators also include original equipment suppliers, technology companies, and others within the automotive ecosystem. The automotive industry is the nation’s largest manufacturing sector and contributes \$1.1 trillion to the United States economy and represents approximately 5.5 percent of the country’s GDP. As a significant engine for our nation’s economy, the automotive sector is responsible for nearly 10 million jobs and \$650 billion in paychecks.

² *Development of a National Spectrum Strategy*, Request for Comments, 88 Fed. Reg. 16,244 (Mar. 16, 2023), <https://www.govinfo.gov/content/pkg/FR-2023-03-16/pdf/2023-05406.pdf> (“RFC”).

spectrum. This transformation is driven in large part, moreover, by Auto Innovators' goal to resolve the ongoing traffic safety crisis in the U.S. Indeed, projected roadway fatalities in 2022 are expected to remain at an extremely elevated level, as 31,785 people died in traffic crashes in the first nine months of the year.³ Accordingly, the National Spectrum Strategy (the "Strategy") should seek to manage spectrum access in a manner that promotes innovation across and throughout the entire economy, including within the automotive industry. Moreover, given the safety, environmental, and economic benefits of leadership in the auto industry, it is critical that the U.S. remain at the forefront of innovation. To accomplish this goal, additional spectrum must be allocated for various automotive technologies.

In developing the Strategy, Auto Innovators urges NTIA to account for four operational considerations specific to the auto industry. *First*, unlike other spectrum users, automotive original equipment manufacturers ("OEMs") are regulated by multiple federal agencies, making interagency coordination and collaboration on the Strategy critical to the success of new technology. *Second*, automotive OEMs face particularly long and complex production cycles, meaning that it can take years to bring new technology to market as compared to typical mobile devices, and vehicles themselves are on the road for many more years than typical consumer electronics that are in use. Accordingly, a predictable and consistent spectrum environment is vital to ensure that existing and emerging technologies can be integrated and updated in vehicles over their full life cycles. *Third*, the auto industry is intently focused on both the safety of its vehicles and the accompanying integrated technology. There is little room for technological

³ U.S. traffic fatalities started to rise in the third quarter of 2020, as "Americans continue to drive more than during the height of the pandemic. . . ." Press Release, NHTSA Estimates for First Nine Months of 2022 Suggest Roadway Fatalities Beginning to Level Off After Two Years of Dramatic Increases, NHTSA (Jan. 9, 2023), <https://www.nhtsa.gov/press-releases/nhtsa-estimates-traffic-deaths-2022-third-quarter#:~:text=The%20National%20Highway%20Traffic%20Safety,the%20same%20time%20in%202021.>

errors or lag times brought about by harmful interference. *Fourth*, and finally, automotive OEMs and their suppliers build for the global market, making international harmonization of frequencies for automotive technologies critical. Auto Innovators encourages NTIA to look for ways to harmonize spectrum across borders to create economies of scale.

II. THE AUTO INDUSTRY’S SPECTRUM NEEDS ARE EXPANDING RAPIDLY.

In developing the Strategy, Auto Innovators encourages NTIA to account for the fact that the current spectrum supply for automotive technologies is lagging behind the pace of innovative new use cases that enhance transportation safety, sustainability, and convenience. As the RFC points out, “[s]ufficient access to spectrum is vital to . . . transportation” and “[i]ncreased spectrum access will also advance U.S. innovation, connectivity, and competition, create high-paying and highly skilled jobs, and produce improvements to the overall quality of life.”⁴ Auto Innovators agrees – spectrum needs for automobiles are growing exponentially. The RFC asks about the particular use cases that will require additional spectrum in the short, medium, and long term.⁵ Innovative and cutting-edge automobile use cases will require further spectrum to both bring new technologies to market and ensure that existing technology can reach more consumers. Indeed, the automotive industry is now faced with a rapidly growing demand for spectrum as technology evolves. Vehicles can already incorporate several novel spectrum-reliant technologies and services.

Moreover, many of these wireless technologies have the potential to make roadways safer amid an American traffic safety crisis. Indeed, the move towards advanced driver assistance systems and autonomous vehicle technology is motivated in large part by a focus on increasing roadway safety and reducing vehicle fatalities. In January 2023, the National Highway Traffic

⁴ RFC at 16,245.

⁵ *Id.* at 16,245-46.

Safety Administration (“NHTSA”) released its projected traffic fatalities for 2022, estimating that 31,785 people died in traffic crashes in the first nine months of the year. This number represents a leveling off after years of dramatic increase, but traffic fatalities remain at an extremely elevated level.⁶ Auto Innovators encourages NTIA to consider how allocating spectrum for automotive technologies as part of the Strategy can help to address the U.S. traffic safety crisis.

V2X. As Auto Innovators has noted in previous Federal Communications Commission (“FCC” or “Commission”) filings, vehicle-to-everything (“V2X”) technologies can harness the power of spectrum to provide a multitude of safety benefits, including prevention of non-line-of-sight automotive accidents; alerting drivers to the presence of vulnerable road users, including pedestrians, bicyclists, and public safety personnel; red light notifications; weather alerts; vehicle-to-vehicle safety communications; and vehicle-to-infrastructure communications.⁷ The automotive industry and state departments of transportation already are prepared to deploy cellular vehicle-to-everything (“C-V2X”) onboard units and roadside units in the 5.895-5.925 GHz band now,⁸ and several pending C-V2X waiver requests are currently under review by the

⁶ Press Release, NHTSA Estimates for First Nine Months of 2022 Suggest Roadway Fatalities Beginning to Level Off After Two Years of Dramatic Increases, NHTSA (Jan. 9, 2023), <https://www.nhtsa.gov/press-releases/nhtsa-estimates-traffic-deaths-2022-third-quarter#:~:text=The%20National%20Highway%20Traffic%20Safety,the%20same%20time%20in%202021.>

⁷ Comments of the Alliance for Automotive Innovation, ET Docket No. 19-138, at 5 (filed Sept. 12, 2022); Alliance for Automotive Innovation Reply to Oppositions to Petition for Reconsideration, ET Docket No. 19-138, at 6-7 (filed Aug. 2, 2021); Reply Comments of the Alliance for Automotive Innovation, ET Docket No. 19-138, at 7-8, 13-14 (filed July 2, 2021).

⁸ See *Wireless Telecommunications Bureau and Public Safety and Homeland Security Bureau Seek Comment on a Request For Waiver of Intelligent Transportation System Rules to Use C-V2X Technology in the 5.895-5.925 GHz Band*, ET Docket No. 19-138, Public Notice, DA 22-611 (rel. Jun. 7, 2022), <https://www.fcc.gov/document/wtb-pshsb-seek-comment-its-rule-waiver-use-c-v2x-59ghz-band>; *Public Safety and Homeland Security Bureau Seeks Comment on Waiver Requests from Intelligent Transportation System Licensees to Use C-V2X Technology in the 5.895-5.925 GHz Band*, ET Docket No. 19-138, Public Notice, DA 22-617 (rel. Jun. 7, 2022), <https://www.fcc.gov/document/pshsb-seeks-comment-waiver-requests-use-c-v2x>.

Interdepartment Radio Advisory Committee.⁹ Auto Innovators urges swift action on these waiver requests, which will allow automakers, technology suppliers, and state departments of transportation to deploy critical safety technologies on American roads. Additionally, 5G C-V2X – the next generation of C-V2X technology – will provide additional safety features.¹⁰

Keyless entry. Spectrum is needed for keyless cars and keyless vehicle entry systems that rely on ultra-wideband spectrum (3.1-10.6 GHz). This technology increases vehicle security and accessibility for drivers and passengers.¹¹

Mobile radars. As Auto Innovators and the FCC have recognized, spectrum-enabled vehicle radar systems operating in the 60 GHz band can monitor for children inadvertently left in the car, and provide seatbelt reminders, air bag deployment control, gesture control, and even anti-theft capabilities.¹²

Hands-free capabilities. Wireless spectrum, such as Bluetooth frequencies in the 2.4 GHz band,¹³ enables hands-free calling technologies and allows drivers and passengers to listen to their favorite music or podcasts during long road trips.¹⁴ Additionally, hands-free driving requires uninterrupted access to L-band global navigation satellite signals (“GNSS”). Ongoing threats of GNSS spectrum interference continue to present safety risks to the auto industry.

⁹ See *Interdepartment Radio Advisory Committee (IRAC)*, NTIA, <https://ntia.gov/page/interdepartment-radio-advisory-committee-irac> (last visited Apr. 14, 2023).

¹⁰ *Cellular v2x*, Qualcomm, <https://www.qualcomm.com/research/5g/cellular-v2x> (last visited Apr. 14, 2023).

¹¹ See, e.g., *What's the deal with Ultra Wideband?*, BMW, <https://www.bmw.com/en/innovation/bmw-digital-key-plus-ultra-wideband.html> (last visited Apr. 2, 2023).

¹² Comments of the Alliance for Automotive Innovation, ET Docket No. 21-264, at 2 (filed Sept. 20, 2021) (citing *Amendment of Section 15.255 of the Commission's Rules*, ET Docket No. 21-264, Notice of Proposed Rulemaking, FCC 21-183, ¶¶ 8-9, nn.21, 25 (rel. July 14, 2021), <https://www.fcc.gov/document/fcc-seeks-enable-state-art-radar-sensors-60-ghz-band-0> (“60 GHz Band NPRM”).

¹³ *Learn about Bluetooth: Bluetooth Technology Overview*, Bluetooth, <https://www.bluetooth.com/learn-about-bluetooth/tech-overview/> (last visited Apr. 4, 2023).

¹⁴ See, e.g., *SYNC Technology*, Ford, <https://www.ford.com/technology/sync/> (last visited Apr. 4, 2023).

Wireless EV charging. Wireless power transfer technologies can also charge electric vehicles (“EVs”), doing away with the need to plug in. Such technologies can advance the goal “towards mass production for [EVs] . . . to make a significant reduction in the emissions, especially greenhouse gases.”¹⁵ Wireless charging will help promote consumer adoption of EVs, since quick, hands-free charging allows consumers to charge their cars more easily at home or around town without the hassle of finding an available wired connection.¹⁶

To best promote consumer welfare, there should be regulatory policies set in place to ensure coexistence among the different technologies, including those mentioned in the use cases listed above to avoid harmful interference and malfunction. Such policies may, for example, include enforcement of in-band power/EIRP emission limits and out-of-band emissions restrictions/masks. In addition, the automotive industry will need more access to spectrum to promote and deploy new wireless technology to meet consumer demands for the next generation of vehicles with applications such as those listed above. As NTIA develops the Strategy, it should keep automotive uses in mind. Delivering on automotive spectrum needs will help create more connected vehicles, safer roads, and more sustainable transportation infrastructure throughout the country.

III. AUTOMOTIVE OEMS AND TECHNOLOGY SUPPLIERS ARE FACING AN URGENT SPECTRUM PIPELINE PROBLEM.

To assist NTIA in determining what the spectrum pipeline should address, Auto Innovators can point to numerous spectrum use cases in need of additional bandwidth. The RFC asks about developing a spectrum pipeline, and why the current amount of spectrum available for

¹⁵ Letter from Jesse Schneider, CEO/CTO ZEV-Station, LLC, Chair SAE Wireless Power Transfer & Alignment, SAE J2954 Task Force, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 19-226, at 1 (filed May 15, 2021).

¹⁶ Letter from Scott Blake Harris, Counsel to WiTricity Corporation, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 19-226 (filed June 11, 2021).

cutting-edge technologies “will be insufficient to deliver current or future services or capabilities of concern to stakeholders.”¹⁷ Currently, automotive OEMs and suppliers are grappling with a dearth of spectrum for several important wireless technologies.

The automotive industry requires additional spectrum to both fully realize the promise of V2X and to develop next-generation V2X technologies. As explained above, V2X technologies enable an array of traffic safety benefits for drivers, cyclists, and pedestrians alike, and both automotive OEMs and state departments of transportation are poised to roll out onboard units and roadside units.¹⁸ While the Commission has allocated 30 megahertz of spectrum for basic C-V2X technologies, this allotment does not support more advanced use cases, such as cooperative sensor sharing between vehicles, that would have been possible with the 75 megahertz that the agency initially reserved.¹⁹ As Auto Innovators and others have repeatedly noted, the 30-megahertz allotment for C-V2X is insufficient bandwidth to meet the industry’s

¹⁷ RFC at 16,245.

¹⁸ A growing number of public and private C-V2X operators are filing petitions for waiver to begin planned deployments. *See, e.g.*, Continental Automotive Systems, Inc. Request for Waiver of 5.9 GHz Rules to Permit Initial Deployments of C-V2X Technology, ET Docket No. 19-138 (filed Jan. 23, 2023); New Jersey Department of Transportation Request for Waiver of the 5.9 GHz Band Rules to Permit Deployments of C-V2X Technology, ET Docket No. 19-138 (filed Sept. 12, 2022); Locomotion, Inc. Request for Waiver of the 5.9 GHz Band Rules to Permit Deployments of C-V2X Technology, ET Docket No. 19-138 (filed Oct. 24, 2022); Utah Department of Transportation et al. Request for Waiver of the 5.9 GHz Band Rules to Permit Initial Deployments of C-V2X Technology, ET Docket No. 19-138 (filed Dec. 13, 2021); Ohio Department of Transportation/Drive Ohio Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of C-V2X Technology, ET Docket No. 19-138 (filed June 10, 2022); New York City Department of Transportation Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of C-V2X Technology, ET Docket No. 19-138 (filed July 1, 2022); City of Arlington, Texas Request for Waiver of the 5.9 GHz Band Rules to Permit Deployments of C-V2X Technology, ET Docket No. 19-138 (filed July 26, 2022); North Central Texas Council of Governments Request for Waiver of the 5.9 GHz Band Rules to Permit Deployments of C-V2X Technology, ET Docket No. 19-138 (filed July 28, 2022); Texas Department of Transportation Request for Waiver of the 5.9 GHz Band Rules to Permit Deployments of C-V2X, ET Docket No. 19-138 (filed July 28, 2022); The Regents of the University of Michigan Request for Waiver of the 5.9 GHz Band Rules to Permit Deployments of C-V2X Technology, ET Docket No. 19-138 (filed Aug. 10, 2022); The Hawaii Department of Transportation Request for Waiver of the 5.9 GHz Band Rules to Permit Deployments of C-V2X Technology, ET Docket No. 19-138 (filed Aug. 11, 2022).

¹⁹ *Amendment of Parts 2 and 90 of the Commission’s Rules to Allocate the 5.850-5.925 GHz Band to the Mobile Service for Dedicated Short Range Communications of Intelligent Transportation Services*, Report and Order, 14 FCC Rcd 18221 (1999), <https://www.fcc.gov/document/intelligent-transportation-services>.

full range of spectral needs.²⁰ Moreover, there is no spectrum currently allocated for next generation C-V2X, or 5G C-V2X.²¹

The automotive industry also lacks sufficient spectrum for wireless charging, which will help assist in more rapid production and deployment of EVs. While Toyota, Ford, BMW, and Nissan have previously urged the FCC to adopt power limits to accommodate high-power wireless power transfer systems for EV charging in the 79-90 kHz band, there is still no spectrum provided for such wireless EV charging.²² As wireless charging companies have previously explained, no EV effort, “no matter how well-financed, will work by pushing on a string. However badly automakers want to sell EVs, their investment will only pay off if American consumers want to buy them—and wireless charging is essential to achieving consumer acceptance at scale.”²³ Providing spectrum for wireless charging will boost the EV market and move the automotive industry towards a cleaner and more sustainable future.

²⁰ “. . . V2X requires 75 megahertz—or more—of spectrum to unlock the full array of benefits for the American people. The current 30-megahertz allotment for V2X is insufficient to support advanced use cases and prevents technological evolution to more data-intensive functions, such as complex interactions and cooperative driving.” Comments of the Alliance for Automotive Innovation, ET Docket No. 19-138, at 9-10 (filed June 2, 2021); *see also* Comments of the U.S. Department of Transportation, ET Docket No. 19-138, at 2 (filed Mar. 13, 2020) (“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. Such a restriction will also hamper the future development of cooperative automated driving systems, given their expected spectrum needs.”); *id.* at 32; *id.* at App’x C (titled “Loss of Benefits—More than 30 MHz needed to achieve V2I and Other V2X Benefits”); Comments of General Motors, LLC, ET Docket No. 19-138, at 8 (filed Mar. 9, 2020) (noting that V2X applications designed to aid vulnerable road users in urban areas, such as pedestrians and bicyclists, stand to be limited or lost entirely if they have only 20 or 30 megahertz in which to operate); Comments of the Ford Motor Company, ET Docket No. 19-138, at 8-9 (filed Mar. 9, 2020) (“. . . [A] minimum of an additional 40 MHz in the 5.9 GHz band will be needed soon for advanced [Intelligent Transport Systems (“ITS”)] applications” featuring larger payloads and multi-way data exchanges such as sensor sharing, intent/trajectory sharing, vulnerable road user safety, and platooning for trucking).

²¹ *See Cellular V2X*, Qualcomm, <https://www.qualcomm.com/research/5g/cellular-v2x> (last visited Mar. 4, 2023).

²² Letter from James H. Baker and Elizabeth R. Park, Counsel for Toyota Motor North America, Inc., Ford Motor Company, BMW of North America, LLC, and Nissan North America, Inc., to Marlene H. Dortch, Secretary, FCC, ET Docket No. 19-226 (filed July 6, 2021).

²³ Letter from Scott Blake Harris, Counsel to WiTricity Corporation, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 19-226, at 2 (filed June 11, 2021).

It is also crucial that the automotive industry obtain dedicated spectrum for both 60 GHz radar and ultra-wideband-enabled safety features that currently utilize unlicensed frequencies. For example, mobile automotive radar use of the 60 GHz band will help the automotive industry meet its commitment to make rear seat reminder systems²⁴ standard equipment on nearly all passenger vehicles sold in the United States by the 2025 model year.²⁵ And freeing up ultra-wideband spectrum for keyless access will make automobiles both more secure from theft and easier for owners to access. Both of these spectrum uses will help industry take further steps on the road to smarter, safer cars.

As NTIA further develops the Strategy, Auto Innovators encourages the agency to collaborate with the FCC to provide more licensed non-federal spectrum for these and other automotive uses. Indeed, more spectrum for novel automotive technologies will further U.S. leadership and competitiveness in transportation innovation.

IV. NTIA'S STRATEGY SHOULD ACCOUNT FOR THE OPERATIONAL CONSIDERATIONS UNIQUE TO AUTOMOTIVE OEMS AND THEIR SUPPLIERS.

Auto Innovators urges NTIA to account for the operational considerations unique to the automotive market in developing the Strategy. Specifically, Auto Innovators wishes to highlight four critical points. *First*, automotive OEMs are subject to regulation by multiple federal agencies, making communication and collaboration with these regulators vital to the success of new and existing connected technologies. *Second*, the automotive industry faces particularly long and complex production cycles, and vehicles are in operation far longer than conventional consumer electronic devices, making a predictable spectrum environment imperative for the

²⁴ See, e.g., *About Rear Seat Reminder*, Chevrolet, <https://www.chevrolet.com/support/vehicle/security/rear-seat-reminder>.

²⁵ Letter from Scott D. Delacourt, Counsel for the Alliance for Automotive Innovation, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 21-264 (filed Dec. 20, 2021); see also Letter from Hilary Cain, VP, Technology, Innovation and Mobility Policy, Alliance for Automotive Innovation, ET Docket No. 21-264 (filed Apr. 3, 2023).

continued development and investment in automotive technologies. *Third*, automotive safety and security technologies must be reliable, meaning that they must be insulated from the threat of harmful interference. *Fourth*, and lastly, international spectrum harmonization across automotive technologies is particularly critical for automotive OEMs and their suppliers, which build for the global market.

A. Automotive OEMs Are Regulated by Several Federal Agencies, Making Coordination and Collaboration in Developing the Strategy Vital.

The RFC asks which entities NTIA should coordinate with as part of its planning process for the Strategy.²⁶ Auto Innovators encourages NTIA to collaborate with not only the FCC, but also the Department of Transportation (“DOT”) and the Environmental Protection Agency (“EPA”) to ensure that DOT, EPA, and FCC subject matter expertise are reflected in any spectrum allocation decisions.

DOT – through NHTSA – issues Federal Motor Vehicle Safety Standards for vehicle components and technologies.²⁷ As the agency with congressional authority to administer the nationwide Intelligent Transportation Systems program, DOT is active in the FCC’s 5.9 GHz band spectrum proceeding.²⁸ DOT is also engaged in autonomous vehicle research and guidance development, “partnering with a broad coalition of industry, academic, states and local, safety advocacy, and transportation stakeholders to support the safe development, testing, and integration of automated vehicle technologies.”²⁹ The EPA, meanwhile, regulates greenhouse gas emissions for both cars and motorcycles, and provides guidance on EVs and vehicle

²⁶ RFC at 16,246.

²⁷ See, e.g., 49 C.F.R. §§ 571.1-500; *Laws Administered by NHTSA*, NHTSA, <https://www.nhtsa.gov/laws-regulations/statutory-authorities> (last visited Apr. 3, 2023).

²⁸ See, e.g., *Recent FCC Public Notices on the 5.9 GHz Safety Band*, DOT (last updated July 6, 2022), <https://www.transportation.gov/safety-band/recent-fcc-public-notice>.

²⁹ See *USDOT Automated Vehicles Activities*, DOT (last updated Mar. 28, 2022), <https://www.transportation.gov/AV>.

sustainability.³⁰ Interagency coordination in the planning process for the Strategy will ensure that all federal agencies with relevant expertise can provide input on how particular spectrum allocation decisions will impact industry and society more broadly. Accordingly, Auto Innovators urges NTIA to coordinate with all federal agencies that have relevant subject matter expertise in industries impacted by spectrum allocation decisions, particularly where spectrum is used for technologies that can enhance safety and security.

B. Automotive OEMs and Their Suppliers Must Navigate Long and Complex Vehicle Production Cycles, and Design Flexible Technology that Can Be Retrofitted onto Older Vehicle Models.

Auto Innovators urges NTIA to account for both the lengthy and complex production cycle that automotive OEMs and their suppliers undergo to deliver new vehicles and technologies to market, as well as the fact that the vehicles themselves are on the road for far longer than a conventional consumer electronic device is in use. As Auto Innovators explained in previous FCC filings, it typically takes several years to bring new technology to market in a production vehicle, and up to ten (10) years to phase in the technology across the entire product portfolio.³¹ The same is not true of a wireless router, cellphone, or other wireless device, all of which are updated on a nearly annual basis. Additionally, vehicles are on the road far longer than a mobile device is in use. According to a 2022 study by S&P Global Mobility, the average lifespan of a car in the U.S. is 12.2 years.³² Therefore, connected vehicular technology is designed to account for a reasonably foreseeable long-term spectrum environment.

³⁰ 40 C.F.R. §§ 86.1-1999.

³¹ Comments of the Alliance for Automotive Innovation, ET Docket No. 22-137, at 6 (filed June 27, 2022); Comments of the Alliance for Automotive Innovation, GN Docket No. 21-140, at 3 (filed June 7, 2021).

³² Press Release, Average Age of Vehicles in the US Increases to 12.2 years, according to S&P Global Mobility, IHS Markit (May 23, 2022), https://news.ihsmarkit.com/prviewer/release_only/id/5018053.

Given these characteristics, which are unique to the automotive market, new connected technologies cannot be integrated into vehicles and delivered to consumers overnight. Rather, new technologies must be able to rely on a reasonably foreseeable spectrum environment given elongated production cycles, and the reality that many such connected technologies will be used in the same vehicle for ten years or more. Therefore, it is imperative that the Strategy ensure a consistent spectrum environment for the automotive industry and its technology suppliers.

C. The Automotive Industry Is Focused on Ensuring the Safety and Efficacy of Its Onboard Technologies.

The RFC asks questions about a number of licensing approaches for allocating spectrum identified for repurposing, including “exclusive-use licensing; predefined sharing (static or predefined sharing of locations, frequency, time); and dynamic sharing (real-time or near real-time access, often with secondary use rights). . . .”³³ Auto Innovators emphasizes that the automotive industry prioritizes the safety of its drivers, passengers, and other road users, meaning that its vehicles and technologies must operate effectively. Accordingly, any licensing approach involving spectrum sharing with other use cases must guarantee adequate protection from harmful interference to vehicular spectrum technology performing safety and security functions, particularly V2X technology, vehicular radar systems, and keyless vehicle entry systems.

As Auto Innovators has previously noted, “[r]educed communications ranges [caused by interference] could mean that delivery of critical safety warnings is delayed, which would give a driver less time to react to traffic or road hazards.”³⁴ Safeguarding connected devices from

³³ RFC at 16,246.

³⁴ Comments of the Alliance for Automotive Innovation, ET Docket No. 19-138, at 5-6 (filed July 22, 2021).

harmful interference on board vehicles is therefore central to protecting vehicle occupants from hazardous situations.

D. Automotive OEMs Build for a Global Market, and International Harmonization Is Vital for Securing U.S. Leadership in Innovation and Economies of Scale.

The RFC asks whether the Strategy should “prioritize for repurposing spectrum bands that are internationally harmonized and that can lead to economies of scale in network equipment and devices. . . .”³⁵ Auto Innovators encourages NTIA to embrace this approach where feasible, as automakers build for the international market. V2X deployments are already underway across the globe, with sizeable investments in technological infrastructure and in-vehicle deployments involving over a dozen automakers. Indeed, China and more than two dozen European countries have begun V2X deployments, and “further delay in the U.S. that impedes the ability to incorporate C-V2X into America’s roadway ecosystem is inconsistent with our government’s leadership goal.”³⁶ Automakers and technology suppliers are also deploying or plan to deploy onboard radar safety systems³⁷ and wireless charging technology for EVs in Europe.³⁸ Accordingly, Auto Innovators encourages NTIA to repurpose spectrum bands with the goal of international harmonization, as doing so will fuel global innovation and create economies of scale, while helping to further American technological leadership.

³⁵ RFC at 16,246.

³⁶ Comments of Qualcomm Incorporated, ET Docket No. 19-138, at 5 (filed July 28, 2022).

³⁷ *Radar sensors for automotive*, infineon, <https://www.infineon.com/cms/en/product/sensor/radar-sensors/radar-sensors-for-automotive/> (last visited Apr. 4, 2023); Spencer Chin, *Vayyar Imaging unveils 60 GHz radar-on-chip*, Fierce Electronics (Jan. 8, 2020, 2:12 P.M.), <https://www.fierceelectronics.com/electronics/vayyar-imaging-unveils-60-ghz-radar-chip>.

³⁸ Press Release, WiTricity and ABT e-Line to Bring Wireless EV Charging to the Streets of Europe, WiTricity (Mar. 23, 2023), <https://witricity.com/newsroom/press-releases/witricity-and-abt-e-line-to-bring-wireless-ev-charging-to-the-streets-of-europe/>.

V. CONCLUSION

Auto Innovators urges NTIA to develop the Strategy in a manner that promotes innovation throughout the U.S. economy, and particularly in the automotive industry, which is experiencing burgeoning spectrum demands as the result of an array of new technologies. These technologies have the potential to increase roadway safety and efficiency, and promote environmental sustainability. However, this growing demand for spectrum within the industry will require additional bandwidth in the short term for a variety of automotive technologies. Finally, Auto Innovators urges NTIA to consider the unique operational considerations in the automotive manufacturing market – including regulation by multiple federal agencies, lengthy production timelines, the industry’s particular focus on the safety and efficacy of its technologies, and manufacturing focused on the global market – when developing the Strategy.

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