Comments of the

Motor & Equipment Manufacturers Association (MEMA)

In Support of Petitions for Reconsideration

ET Docket No. 19-138

August 2, 2021

The Motor & Equipment Manufacturers Association (MEMA) submits these reply comments in support of the Petition for Reconsideration from the Alliance for Automotive Innovation ("AFAI"), and the Petition for Partial Reconsideration from the 5G Automotive Association ("5GAA") of the unlicensed U-NII-4 band Out-of-Band Emissions ("OOBE") limits adopted in the 5.9 GHz First Report and Order.

At the outset, MEMA urges the Commission to be guided by two fundamental principles in this proceeding: (1) any actions the Commission takes in response to the Petitions for Reconsideration must provide the automotive industry regulatory certainty that they can develop and deploy life-saving ITS technologies subject to clear and fixed rules, and (2) that these rules permit life-saving ITS technologies to safely operate without the risk of harmful interference. The Commission can satisfy the former by granting AFAI's Petition, provided that the current ability of C-V2X operations in the upper 30 MHz is not impacted, while granting 5GAA's Petition is necessary to ensure ITS operations can operate without harmful interference.

I. The Commission Should Reconsider Its Decision to Reallocate the Lower 45 MHz To Unlicensed Wi-Fi Use, While Permitting C-V2X Operations

MEMA has consistently supported retaining the full 75 MHz in the 5.9 GHz Band for ITS operations for the reasons MEMA and other stakeholders have submitted in this docket—and it still does. Keeping the lower 45 MHz of the 5.9 GHz Band for ITS operations is the only realistic option that would allow the full suite of life-saving ITS technologies currently in development to be deployed in the near term. The *possibility* of locating additional spectrum for ITS operations elsewhere will not—nor will that ever resolve the international harmonization problems, among others, created by the First Report and Order. Accordingly, MEMA supports the AFAI Petition to reconsider the allocation of the lower 45 MHz of the ITS Band for unlicensed Wi-Fi use, provided that granting AFAI's Petition does not impact the ability of C-V2X to operate within the upper 30 MHz. Put differently, the automotive industry needs both regulatory certainty *and* the full 75 MHz of the Band for ITS technologies to flourish.

II. The Commission Must Grant 5GAA's Petition to Ensure ITS Applications Can Reliably Operate Without Harmful Interference

The Wi-Fi Industry commenters opposing 5GAA's Petition seek to downplay 5GAA's unrefuted interference analysis as merely a "worst case scenario" that should not

require reconsideration of the power limits adopted in the First Report and Order.[1] But the fundamental issue the Wi-Fi industry, and unfortunately, the Commission, fail to appreciate is that ITS technologies are developed *precisely* to prevent the worst-case scenario—fatal car accidents. But just as importantly, accidents can occur in all-too-common situations, such as someone running a red light during rush hour at a blind corner—where a coffee shop with a Wi-Fi hotspot is located. Put differently, the scenarios the Wi-Fi Industry dismiss as "worst case scenarios" are in fact everyday occurrences. And this is the key point: unless ITS applications can consistently and safely operate during peak-usage conditions—when reliability is most critical—they will fail their fundamental purpose: saving lives.[2]

Accordingly, given the critical role ITS technology can play to drastically reduce the tens of thousands of traffic fatalities and millions of injuries annually, MEMA respectfully submits that the power limits adopted in the First Report and Order must be reconsidered for the following two independent reasons. First, the Commission's decisions are not based on real-world data that ITS applications can safely operate, and are thus arbitrary and capricious. Second, stakeholders were not provided adequate notice that the Commission would adopt a different measurement procedure—RMS—that results in a fundamentally different power limit than proposed by the Commission.

A. The Commission's OOBE Limits Are Not Supported by Any Real-World Data, And Are Thus Arbitrary and Capricious

MEMA respectfully submits that the Commission should revise the OOBE limits for indoor unlicensed U-NII-4 devices because, as 5GAA's Petition demonstrates, those limits will routinely cause harmful interference to C-V2X operations, and thus make these safety-of-life applications inherently unreliable. Such an outcome will defeat the whole purpose of further ITS deployment and violate the Communications Act and the Commission's rules in the process.

Relevant here, Section 301 of the Communications Act, as implemented by the Commission's Part 15 rules, prohibits unlicensed devices that would harmfully interfere with licensed uses. Specifically, Section 15.5(b) of the Commission's Rules states unequivocally that "[o]peration of an [unlicensed] intentional ... radiator is subject to the conditions that ***no*** harmful interference is caused ... ."[3] "[H]armful interference" is defined as any "emission, radiation or induction that *endangers* the functioning of a radio navigation service or of **other safety services** or seriously degrades, obstructs or repeatedly interrupts a radio communications service operating in accordance with this chapter."[4] Therefore, "any" device that emits radiation that "endangers"—that is, puts at risk—a licensed use constitutes "harmful interference" and is categorically prohibited by the Commission's existing Part 15 rules.

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[1] *See*, *e.g.*, OTI and PK Opposition at 7, available at https://ecfsapi.fcc.gov/file/10722269769892/OTI%20and%20PK%20Opposition%20to%20Petitions%20for%20Reconsideration%205.9%20GHz.pdf.

[2] Indeed, unreliable ITS applications may cause even more fatalities by giving drivers a false sense of security that they will be warned, only to be prevented by harmful interference from unlicensed devices.

[3] 47 C.F.R. §15.5(b) (emphasis added).

[4] *Id.* §15.3(m) (emphasis added).

As 5GAA's technical analysis demonstrates, when the U-NII-4 OOBE limits in the 5.9 GHz First Report and Order are subjected to an analysis of their impact on C-V2X operations, they are shown to cause harmful interference to C-V2X. Indeed, 5GAA submitted a detailed technical analysis showing that these U-NII-4 OOBE levels will significantly reduce the range of C-V2X communications by more than 50% at intersections. And this is entirely consistent with the DoT's extensive data and testing, which established that it is unlikely that "***any* level of consistent and reliable BSM transmission will occur due to adjacent channel interference**" now that ITS will be surrounded by unlicensed spectrum—with error rates of up to 80 percent in real world traffic conditions.[5] And to put a finer point on it, the BSM was designed to tolerate only a 10 percent packet error rate, such that it is a near certainty that even basic ITS operations will suffer from harmful interference during everyday traffic scenarios. Simply put, this is what the unrebutted data shows.[6]

In contrast, the Commission justifies its decisions on an *absence of data*—specifically that there was supposedly no evidence of harmful interference between U-NII-3 devices and the limited number of DSRC deployments. In other words, the Commission simultaneously attempts to justify reallocating the lower 45 MHz by concluding DSRC has been "thinly" deployed, but then relies on the absence of real-world data to conclude that C-V2X will not face harmful interference. Indeed, the sum total of the Commission's stated rationale for its decision here is that "the Commission previously affirmed that the U-NII-3 OOBE limits protect DSRC operations, and those limits have proven to be effective for the protection of incumbent operations in the 5.9 GHz band." First Report and Order, ¶ 83 (citing *Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (UNII) Devices in the 5 GHz Band*, First Report and Order, 29 FCC Rcd 4127 (2014)). Remarkably, however, there is no data or interference analysis in the 2014 Order either. The Commission therefore is making one unsupported decision based on a previous unsupported decision.

MEMA thus agrees with 5GAA that this is not reasoned decision making, and that the First Report and Order violates the Administrative Procedures Act (APA) as result. Specifically, to comply with the APA, an agency must "articulate a **satisfactory explanation** for its action including a rational connection between the facts found and the choice made."[7] Indeed, the Commission simply stated that it was "not persuaded" by concerns—which hardly amounts to an explanation, let alone a satisfactory one. Simply put, the Commission fails to engage, let alone rebut, the data and conclusions contained in the interference analyses submitted by the Parties and referenced above. When

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[5] *See Impairing Traffic Safety from Changes in the Safety Band, Introduction of Interference from Unlicensed Users*, U.S. Department of Transportation at 38, available at https://www.transportation.gov/sites/dot.gov/files/2020-03/Rechannelization%20Inteference-01AUGUST2019_FINAL_0.pdf.

[6] One should expect a similar level of susceptibility to interference between DSRC and C-V2X technologies, and thus the DoT's data and analysis bolsters the conclusions reached by 5GAA's study.

[7] *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (quoting *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168 (1962)) (emphasis added); *see also Verizon Tel. Cos. v. FCC*, 374 F.3d 1229, 1235 (D.C. Cir. 2004) ("omissions render the Commission's decision arbitrary and capricious, not the product of reasoned decisionmaking.").

interference with safety-of-life applications is at stake, MEMA respectfully submits that the Commission must conduct a more searching inquiry, or at the very least, proceed only incrementally. Unless and until there is compelling real-world data to prove that no harmful interference will occur, prudence dictates that the Commission adopt 5GAA's proposal.

As it stands, however, it is undisputed that harmful interference will occur to ITS operations. In these circumstances, the Commission's Part 15 rules, which are necessary to implement and protect licensed uses under Section 301, prohibit proceeding with the Commission's adopted power limits given the known adjacent channel interference issues. On this basis alone, 5GAA's Petition should be granted.

B. The Commission Failed to Provide Adequate Notice in Violation of The Administrative Procedures Act

MEMA respectfully submits that the First Report and Order independently violates the APA because the Commission failed to provide adequate notice that it was contemplating a fundamentally different measurement procedure to assess permissible interference levels. Fair notice is necessarily a critical part of notice-and-comment rulemaking, and this the Commission did not provide as it relates to its decision to ultimately adopt power limits measured by RMS average levels.

Under relevant precedent, the standard is whether all interested parties "*should have* anticipated" the final rule.[8] That is, the question "is one of fair notice":[9] whether "persons are sufficiently **alerted** to *likely alternatives* so that they know whether their interests are at stake."[10] In other words, "general notice that a new standard will be adopted affords the parties scant opportunity for comment"—the "agency's obligation is more demanding."[11]

Here, in its NPRM, the Commission simply proposed "that U-NII-4 devices be permitted to operate at the same power levels as U-NII-3 devices. We seek comment on this proposal or whether we should adopt different power levels?" NPRM, ¶ 53. That is the sum total of the relevant "notice" the Commission provided. Critically, at no point did the Commission seek comment on, let alone alert interested parties, that it was contemplating adopting a fundamentally different measurement procedure.

Ultimately, what the Commission effectively adopted in the First Report and Order were substantially increased power limits for U-NII-4 devices by allowing OOBE levels to be measured using an RMS detector—compared to a peak detector. This results in unlicensed equipment having 10 to 20 dB of additional relief. In fact, this standard allows

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8 *Northeast Maryland Waste Disposal Authority v. EPA*, 358 F.3d 936, 952 (D.C. Cir. 2004) (per curiam) (emphasis added) (internal quotation marks omitted); see also Council Tree Communications v. FCC, 619 F.3d 235, 256 (3d Cir. 2010) ("[E]ven if some sophisticated observers would have seen the connection between the stricter compliance that had been noticed and the lower standards eventually announced, the proper question under the APA was whether the agency had provided notice to all 'interested parties.' . . . [T]he inferential notice purportedly provided . . . did not satisfy that standard." (quoting Wagner Electric Corp. v. Volpe, 466 F.2d 1013, 1019 (3d Cir. 1972)))

9 *Long Island Care at Home, Ltd. v. Coke*, 551 U.S. 158, 174 (2007)

10 *Time Warner Cable Inc. v. FCC*, 729 F.3d 137, 170 (2d Cir. 2013) (internal quotation marks omitted).

11 *Horsehead Resource Development Co., Inc. v. Browner*, 16 F.3d 1246, 1268 (D.C. Cir. 1994).

emissions that are 30 to 40 dB higher than even what U-NII-3 devices are allowed to emit at the 5895 MHz frequency today—and which was the standard originally proposed by the Commission.

As noted above, however, the protection afforded to ITS applications during peak-usage is critically important to their overall reliability. But at no point did the Commission provide notice or seek comment on this fundamentally different approach to measuring OOBE limits. The result, therefore, is that OOBE limits for U-NII-4 will be fundamentally different—and result in more harmful interference—than anything proposed by the Commission.

For this reason alone, the power limits adopted by the Commission in the First Report and Order were done so in violation of the APA. MEMA therefore urges the Commission to grant 5GAA's petition and revise the power limits for unlicensed devices accordingly.

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Respectfully submitted,

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