Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Revision of Part 15 of the Commission's	)	ET Docket No. 13-49
Rules to Permit Unlicensed National	)	
Information Infrastructure (U-NII)	)	
Devices in the 5 GHz Band	)	

To: The Commission

PETITION FOR RECONSIDERATION

May 6, 2016

James Arden Barnett, Jr., Esq.
Ian D. Volner, Esq.
Peter S. Frechette, Esq.
Cristina I. Vessels, Esq.
Venable LLP
575 7th Street, NW
Washington, D.C. 20004

Attorneys for the Association of Global Automakers, Inc.

Ari Q. Fitzgerald, Esq.
Wesley B. Platt, Esq.
Hogan Lovells LLP
Columbia Square
555 13th Street, NW
Washington, D.C. 20004

Attorneys for the Alliance of Automobile Manufacturers

TABLE OF CONTENTS

SUMMARY

The Federal Communications Commission's ("FCC" or "Commission") Memorandum Opinion and Order ("*MO&O*") in this proceeding[1] modified Section 15.407 of the Commission's rules to increase by an unacceptable factor of 7,038 the level of out-of-band emissions ("OOBE") that can occur in the 5850-5925 MHz ("5.9 GHz") Dedicated Short Range Communications ("DSRC") band. In this Joint Petition for Reconsideration, the Association of Global Automakers ("Global Automakers") and the Alliance of Automobile Manufacturers (the "Alliance") respectfully request reconsideration of that decision

Global Automakers represents international motor vehicle manufacturers, original equipment suppliers, and other automotive-related trade associations. The Alliance is an association of twelve motor vehicle manufacturers. The public, as well as the members of the Global Automakers and the Alliance, will be severely harmed by the FCC's decision in the *MO&O* to offer an increased standard out-of-band emission ("OOBE") requirement for all U-NII-3 (5.725-5.85 GHz) devices regardless of their potential to cause interference to adjacent band DSRC operations. Since the purpose of the DSRC service is to preserve "safety-of-life," the *MO&O* inadvertently, but definitely, endangers the safety of the public and the very purpose of DSRC.

In reliance upon the FCC's prior spectrum allocation and service rules for the 5.9 GHz band, the members of Global Automakers and the Alliance have engaged in extensive

[1] *Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, ET Docket No. 13-49, Memorandum Opinion & Order (Mar. 2, 2016); Unlicensed—National Information Infrastructure, Order on Reconsideration, 81 Fed. Reg. 19,896 (Apr. 6, 2016) ["*MO&O*"].

and costly research and development of DSRC systems, and have participated actively in this rulemaking, filing comments, reply comments, and *ex parte* statements. Global Automakers filed a petition for partial reconsideration of the FCC's First Report and Order ("*First R&O*")[2] in this proceeding, asking the FCC to engage in testing to determine whether the technical rules it imposed on 5.725-5.85 GHz U-NII-3 operations in that decision were sufficient to protect DSRC operations.[3]

In the *MO&O*, the FCC decided to make accommodations in the U-NII-3 rules for all manufacturers of U-NII-3 equipment, stating that its rule changes "will still provide a *level* of interference protection to adjacent band services."[4] However, this "level" of interference protection was not evaluated or examined at all with regard to adjacent band DSRC operations, thereby undermining the automotive industry's multi-year and multi-million dollar investment. Global Automakers and the Alliance respectfully request that the FCC revise Section 15.407 to reinstate the OOBE limits established in the *First R&O* for 5.725-5.85 GHz non-fixed point-to-point ("non-P2P") devices, while maintaining the more-relaxed OOBE limits established in the *MO&O* for fixed point-to-point ("P2P") systems.[5] Global Automakers and the Alliance respectfully maintain that the "relaxation"

---

[2] *In the Matter of Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, ET Docket No. 13-49, First Report & Order (Apr. 1, 2014) [hereinafter "*First R&O*"].

[3] *See* Global Automakers, Petition for Reconsideration, ET Docket No. 13-29 (filed May 1, 2014) ("Global Automakers Petition").

[4] *MO&O* at ¶ 16 (emphasis added).

[5] The term "P2P" as used in these comments takes its meaning from Section 15.407(a)(3) and the term "non-P2P" as used in these comments refers to devices that fall within the exclusion set forth in such Section.

of the rule, in its application to non-P2P devices, is arbitrary, capricious, and was adopted without reasonable opportunity for affected parties to be heard.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Revision of Part 15 of the Commission's	)	ET Docket No. 13-49
Rules to Permit Unlicensed National	)	
Information Infrastructure (U-NII)	)	
Devices in the 5 GHz Band	)	

To: The Commission

PETITION FOR RECONSIDERATION

The Association of Global Automakers, Inc. ("Global Automakers") and the Alliance of Automobile Manufacturers (the "Alliance"), by their attorneys and pursuant to Section 405 of the Communications Act of 1934, as amended (the "Act"), 47 U.S.C. § 405, and Section 1.429 of the Federal Communication Commission's ("FCC" or "Commission") Rules, 47 C.F.R. § 1.429, hereby respectfully request that the Commission reconsider its Memorandum Opinion and Order ("*MO&O*"), released March 2, 2016 and published in the Federal Register on April 6, 2016, in this proceeding.[6]

I. STATEMENT OF INTEREST

Title 47 of the C.F.R., § 1.429(a), permits "any interested person" to petition for the reconsideration of a final Commission action. The *MO&O* constitutes a final action in an FCC rulemaking proceeding. Global Automakers and the Alliance are interested parties

[6] *In the Matter of Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, ET Docket No. 13-49, Memorandum Opinion & Order (Mar. 2, 2016); Unlicensed—National Information Infrastructure, Order on Reconsideration, 81 Fed. Reg. 19,896 (Apr. 6, 2016) ["*MO&O*"].

because their members utilize the 5.85–5.925 GHz ("5.9 GHz") band for Dedicated Short Range Communications ("DSRC") and the *MO&O* expands unlicensed use of the adjacent band in a manner that harms their interests. Global Automakers is actively involved in this rulemaking proceeding. It has filed comments and reply comments jointly with the Alliance.[7] Global Automakers and the Alliance have also participated in *ex parte* presentations with the Commission in response to the Commission's notice of proposed rulemaking.[8] After the issuance of the First Report and Order ("*First R&O*"),[9] Global Automakers filed a petition for partial reconsideration[10] and later a reply to oppositions to Global Automakers' petition for partial reconsideration.[11]

II. REQUEST FOR RELIEF

Title 47 of the C.F.R., § 1.429(c), requires that a petition "[s]tate with particularity the respects in which petitioner believes the action taken should be changed." Global Automakers and the Alliance's positions in this matter are well known to the

[7] *Id.* at 43–45 (listing parties that filed comment and reply comments); Comments of the Alliance of Automobile Manufacturers, Inc. and the Association of Global Automakers, Inc., ET Docket No. 13-49 (May 28, 2013) ["Global Automakers Comments"]; Reply Comments of the Alliance of Automobile Manufactures, Inc. and the Association of Global Automakers, Inc., ET Docket No. 13-49 (Jul. 24, 2013) ["Global Automakers Reply Comments"].

[8] *Id.* at 45 (listing parties that filed *ex parte* statements).

[9] *In the Matter of Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, ET Docket No. 13-49, First Report & Order (Apr. 1, 2014) ["*First R&O*"].

[10] Petition for Partial Reconsideration of the Association of Global Automakers, Inc., ET Docket No. 13-49 (May 1, 2014) ["Petition for Partial Reconsideration"].

[11] Reply to Oppositions to Petition for Partial Reconsideration of the Association of Global Automakers, Inc., ET Docket No. 13-49 (Sept. 2, 2014) ["Reply to Oppositions to Petition for Partial Reconsideration"].

Commission.[12] In the wake of the *MO&O*, Global Automakers and the Alliance respectfully request the Commission to revise Section 15.407 to maintain the Section 15.407 out-of-band emissions ("OOBE") limits established in the *First R&O* for non-fixed point-to-point ("non-P2P") systems operating in 5.725-5.85 GHz as identified in Section 15.407(a)(3) of the FCC's rules. Global Automakers and the Alliance have suggested a rule revision for the Commission to consider as Exhibit A. The FCC should also consider a Power Flux Density limit on the ground or roadway for point-to-point ("P2P") operations. The Commission has used rules like this in other bands.[13]

Global Automakers and the Alliance specifically request that the FCC reconsider its decision to greatly relax the OOBE limit for all unlicensed devices operating in 5.725-5.85 GHz because this rule change will likely allow harmful interference to DSRC operations in the 5.9 GHz band. The recent rule change fundamentally diverges from the OOBE rule and supporting conclusions for unlicensed 5.725-5.85 GHz operations set forth in the *First R&O*. Instead of "using a more stringent unwanted emissions requirement,"[14] the result of the *MO&O* was to lessen the protection afforded to 5.9 GHz DSRC by expanding the allowable range and strength of out-of-band interference for all categories of devices.

The new rules adopted in the *MO&O* are not the product of thoughtful public comment, but are rather an amalgamation of *ex parte* ideas, adopted by the Commission without meaningful notice or consideration. This, by its very nature, is arbitrary and

[12] Petition for Partial Reconsideration.

[13] Global Automakers and the Alliance reserve commentary on any new P2P systems that are mounted at lower heights than traditional P2P systems.

[14] *First R&O*, *supra* note 6.

capricious. The Commission did not deny, in any of its orders, that protection of the DSRC is imperative. There was no basis for the Commission's "slight" relaxation of the rules protecting adjacent-band DSRC in the *MO&O*; as the discussion and figures below show, there is nothing "slight" about the change adopted in the *MO&O*.[15] The Commission has not, and cannot, justify its conclusion that protection of the 5.9 GHz band is achieved by the rule adopted in the *MO&O*.

The Commission has not engaged in any serious consideration of the facts, nor has it conducted a cost-benefit analysis of the impact the *MO&O* would have on life and limb, over half a billion dollars invested in research and development, and the anticipated savings of $202 billion in annual costs from avoided non-impaired single-vehicle and multi-vehicle collisions.[16] At this stage, DSRC systems have advanced beyond testing, and allowing even momentary interruptions would be disastrous to the efficacy of this investment.

Meanwhile, the Commission cannot rely solely on Section 15.5 of its rules to ensure that unlicensed operations in the 5.725-5.85 GHz band do not cause harmful interference to DSRC operations. Section 15.5 imposes an independent obligation on unlicensed device operators not to cause harmful interference to other operations, including DSRC.[17] In practice, however, Section 15.5 is often of limited utility. Determining which unlicensed

---

[15] *See infra* Figure 1.

[16] U.S. Department of Transportation, Federal Highway Administration, *Crash Data Analyses for Vehicle-to-Infrastructure Communications for Safety Applications*, FHWA-HRT-11-040 (McLean, VA: November 2012). This statistic is based on assumptions including full deployment and 100 percent effectiveness of applications. *See also* U.S. Government Accountability Office, *Intelligent Transportation Systems: Vehicle-to-Infrastructure Technologies Expected to Offer Benefits, but Development Challenges Exist*, GAO-15-775 (Sept. 2015), at 35 ["GAO 2015 Report"].

[17] *See* 47 C.F.R. § 15.5.

device is the source of harmful interference—let alone getting it to cease its non-harmful emissions—would prove extremely challenging. Thus, the Commission's operational limits must also be designed to ensure that interference is not caused to adjacent band, safety-of-life DSRC service.

III. RELEVANT FACTS AND REGULATORY BACKGROUND

Global Automakers represents international motor vehicle manufacturers, original equipment suppliers, and other automotive-related trade associations.[18] The Alliance is an association of motor vehicle manufacturers.[19] In 1999, the FCC allocated 75 MHz of the 5 GHz spectrum, 5.85–5.925 GHz, for improving highway safety and efficiency through a variety of DSRC applications.[20] Since then, relying on the assumption that the FCC would keep the 5.9 GHz band free from harmful interference, Global Automakers' and the Alliance's members and governmental bodies have invested hundreds of millions of dollars

[18] Global Automakers' automobile manufacturer members include: American Honda Motor Co., Aston Martin Lagonda of North America, Inc., Ferrari North America, Inc., Hyundai Motor America, Isuzu Motors America, Inc., Kia Motors America, Inc., Maserati North America, Inc., McLaren Automotive Ltd., Nissan North America, Inc., Suzuki Motor of America, Inc., and Toyota Motor North America, Inc. Its supplier members include: Delphi Corporation, Denso International America, Inc., Robert Bosch GmbH, NXP Semiconductors USA, Inc., and Sirius XM. *See* Global Automakers, *Members*, http://www.global automakers.org/members (last accessed May 2, 2016).

[19] The Alliance's members include BMW group, Fiat Chrysler Automobiles, Ford Motor Company, General Motors Company, Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche, Toyota, Volkswagen Group of America, and Volvo Car USA. *See* The Alliance of Automobile Manufactures, Members, http://www.auto alliance.org/members (last accessed May 2, 2016).

[20] Press Release, *FCC Allocates Spectrum in 5.9 GHz Range for Intelligent Transportation System Uses* (Oct. 21, 1999), *available at* http://transition.fcc.gov/Bureaus/Engineering_ Technology/News_Releases/1999/nret9006.html.

and considerable resources into the development of critically important DSRC systems.[21] That development testing has taken time. Now though, after years of development, testing, and fine-tuning to ensure public safety, thousands of vehicles equipped with connected vehicle technology systems are on the verge of going to market.

To reiterate: the automotive industry has moved beyond the early testing stage of developing the DSRC systems created to operate within the 5.9 GHz band. The technology is now ready for public use.

These DSRC-based systems include vehicle-to-vehicle ("V2V"), vehicle-to-infrastructure ("V2I"), vehicle-to-pedestrian ("V2P") and vehicle-to-everything ("V2X") communications. They will significantly improve motor vehicle and traffic safety—potentially addressing up to 80% of non-impaired light-vehicle accidents.[22] The record in this proceeding demonstrates the strong potential for interference to DSRC from unlicensed adjacent band operations.[23] Comments submitted in this proceeding have highlighted that action by the FCC that results in expanded unlicensed usage of the bands immediately adjacent to the 5.9 GHz band could cause harmful interference to DSRC systems, would gravely impair pivotal advancements in road safety, and would undermine nearly two decades of research and development.[24]

---

[21] *See* Global Automakers Comments at 26 n.96.

[22] *See* NHTSA, *Fact Sheet: Improving Safety and Mobility Through Vehicle-to-Vehicle Communication Technology* (Feb. 3, 2014), www.nhtsa.gov/pdf/V2V_fact_sheet-02032014.pdf. In a subsequent report, the GAO listed the figure of preventing non-impaired collisions as 81%. GAO 2015 Report at 35.

[23] *See* Global Automakers Comments; Global Automakers Reply Comments; Petition for Partial Reconsideration; Reply to Oppositions to Petition for Partial Reconsideration.

[24] Global Automakers Reply Comments at 4–13; Global Comments at 3; *see also* Comments of Motorola Mobility LLC, ET Docket No. 13-49, at 7 (May 28, 2013);

Prior to the *First R&O*, the Commission's rules distinguished between unlicensed fixed point-to-point ("P2P") systems (which were allowed the greater flexibility under the old technical rules) and unlicensed non-P2P systems (which were subject to stricter technical rules). The *First R&O* consolidated the unwanted emissions regulations, eliminating the distinctions between the systems, but applying the "more stringent" set of rules across the board.[25] However, the Commission, in its *MO&O*, has now relaxed the unwanted emissions rules for all unlicensed operations in the 5.725-5.85 GHz band without analyzing the important distinctions between the various systems.

Instead of "apply[ing] more restrictive unwanted emissions limits"[26] the FCC has now done exactly the opposite. The *MO&O* produced—without adequate public comment—a new relaxed OOBE limit for all unlicensed 5.725-5.85 operations, irrespective of the important distinctions between P2P and non-P2P devices.

IV. THE *MO&O'S* NEW OOBE LIMITS SHOULD BE REVISED

If maintained, the MO&O's "relaxation" of the previously applicable OOBE limits would be devastating to Global Automakers' and the Alliance's interests. Instead, the FCC should consider a revised rule, such as proposed in Exhibit A, that would preserve flexibility

---

Comments of the National Cable & Telecommunications Association, ET Docket No. 13-49, at 19 (May 28, 2013).

[25] *See, e.g.*, *First R&O* ¶ 114 ("The unwanted emission limits in Section 15.407 are somewhat more restrictive than those in Section 15.247. Because unwanted emission can be reduced without affecting the utility of the device, and because using the more stringent unwanted emissions requirement will ensure that there is no increase in the potential for harmful interference from unlicensed devices operating under the new combined rule parts, we proposed in the NPRM that the more restrictive limits in Section 15.407 be required for digitally modulated devices.").

[26] *First R&O*, ¶ 119.

for traditional P2P systems (the intended beneficiaries of the rule change), but restore protection for the 5.9 GHz band in a straight-forward manner by returning to the *First R&O's* OOBE rules for non-P2P systems.

The FCC has greatly expanded the scope of the *First R&O* in the "slightly" relaxed rules of the *MO&O*. The FCC should now issue a revised rule whereby only 5.725-5.85 GHz P2P systems are allowed the greater flexibility of the *MO&O* OOBE limits, but non-P2P systems are subject to the quieter *First R&O* OOBE limits. With traditional, P2P systems using high-elevation antenna placement and rural off-road antenna tower locations, the power in the narrow P2P beam typically stays high above the ground, away from cars and even roadside units ("RSUs").[27] This results in less interference to DSRC systems. Thus, the relaxation of the rule, can at least be said to have a rational foundation in its application to traditional P2P systems. The same cannot be said, however, with respect to non-P2P systems, including omnidirectional systems, in which case the *MO&O* rule change arbitrarily tolerates unacceptable interference. A discussion of the current rule's evolution establishes this fact.

A. REGULATORY PROGRESSION

Prior to the *First R&O*, devices operating in the 5.725-5.85 GHz band could be certified under either 47 C.F.R. § 15.247 (digitally modulated devices or "15.247 devices") or 47 C.F.R. § 15.407 (U-NII-3 or "15.407 devices"). 15.407 devices had an absolute unwanted emission limit of -17 dBm/MHz within 10 MHz of the band edge and -27

[27] However, the FCC should also consider a Power Flux Density limit on the ground or roadway for P2P operations to protect DSRC from harmful interference that may result from P2P systems that are mounted at lower heights than traditional P2P systems.

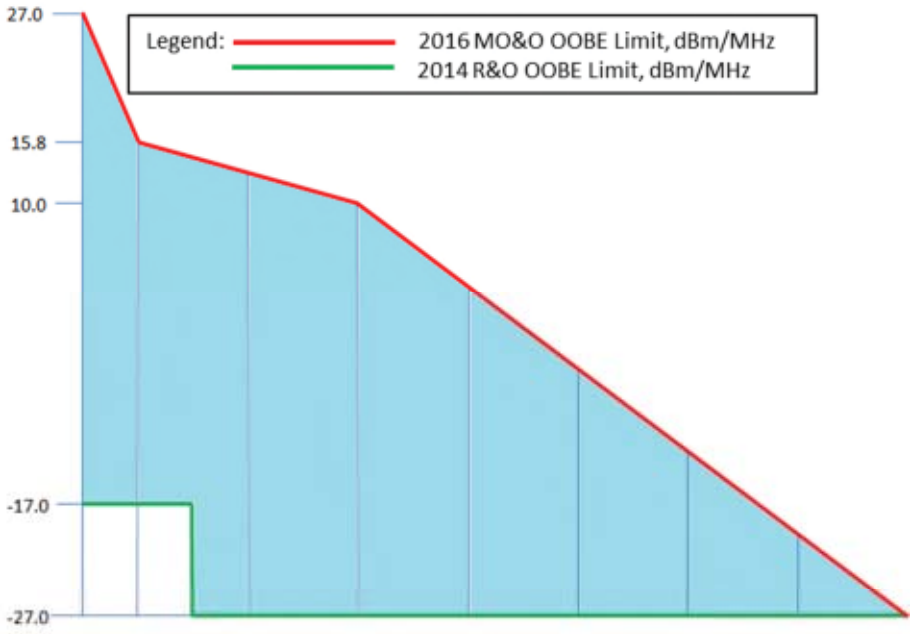
dBm/MHz beyond 10 MHz of the band edge. 15.247 devices were distinguished for the purpose of maximum antenna gain and maximum radiated power, and thus unwanted emissions based on whether they were fixed P2P devices or not. Within Section 15.247, P2P devices were allowed unlimited antenna gain and radiated power, whereas non-P2P devices had to reduce conducted power by 1 dB for every 1 dB that antenna gain exceeded 6 dBi. Under Section 15.247, unwanted emissions had to be at least 20 dB below in-band emissions.[28] This was a *relative* OOBE limit, in contrast to the *absolute* OOBE limit for 15.407 devices (*i.e.*, U-NII-3). It is important to note that the distinction between fixed P2P and non-P2P devices for purposes of limiting radiated power, combined with a relative OOBE limit, implicitly creates a distinction between those devices for purposes of limiting absolute OOBE. In particular, P2P 15.247 devices had no absolute radiated power density limit, and thus no absolute OOBE density limit, while the non-P2P 15.247 devices had a maximum radiated power density limit, and thus an absolute OOBE density limit.

In the *First R&O*, the Commission consolidated Sections 15.247 (for digitally modulated devices) and 15.407 into a new Section 15.407, in which the OOBE limit was identical to the old 15.407, *i.e.* an absolute limit of -17 dBm/MHz for the first 10 MHz and -27 dBm/MHz beyond 10 MHz from the band edge. While the rules continued to distinguish between P2P and non-P2P devices for purposes of maximum antenna gain and radiated power, there was no longer a distinction between those devices with respect to maximum OOBE.

[28] Unwanted emissions must be at least 30 dB below in-band emissions, if peak conducted power is measured according to the alternate measurement procedure in Section 15.247(b)(3).

With the *MO&O*, in order to accommodate the concerns regarding P2P devices, the Commission dramatically relaxed the Section 15.407 OOBE limits. Figure 1 compares the *MO&O* OOBE limits to the *First R&O* OOBE limits as they apply to the 5.85-5.925 GHz DSRC band. Note that both sets of limits are absolute. Figure 1 also shows that in DSRC Channel 172, which carries a special "safety-of-life" use designation, the OOBE can reach +24.3 dBm under the *MO&O* limits, compared to only -9.6 dBm under the *First R&O* limits. That is an increase of 33.9 dBm, which means that the unwanted emission power has been relaxed by a factor of approximately 2,440 compared to the *First R&O* limit.

Similarly, in DSRC Channel 174, the OOBE can reach +21.5 dBm under the *MO&O* limits, compared to only -17 dBm under the *First R&O* limits, an increase of 38.5 dB, or 7,038 times as much power. It is not possible to reconcile these orders-of-magnitude increases with the Commission's description of the *MO&O* as a "slight relaxation" of the 5.725-5.85 GHz OOBE limits. Figure 1 shows that every DSRC channel faces increased worst-case OOBE interference under the *MO&O*, as compared to the *First R&O*.



DSRC Channel Number -->	Ch. 172	Ch. 174	Ch. 176	Ch. 178	Ch. 180	Ch. 182	Ch. 184
Permitted OOBE power (dBm/channel):	24.3	21.5	16.8	9.4	2.0	-5.4	-12.8
Top 2016 MO&O, Bottom 2014 R&O	-9.6	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0
Additional OOBE 2016:	33.9	38.5	33.8	26.4	19.0	11.6	4.2
Top in dB, Bottom as a linear factor	2440x	7038x	2408x	438x	80x	15x	3x

Figure 1: Comparing OOBE limits: 2014 R&O vs. 2016 MO&O

It is difficult to illustrate the relative OOBE limits under Section 15.247 in Figure 1, since by definition those limits are a function of in-band transmit power. Nevertheless, it is possible to compare worst-case interference under the Section 15.247 rules and *MO&O*. Under the Section 15.247 rules, a non-P2P device was limited to 36 dBm total radiated power. Assuming a 20 MHz IEEE 802.11 channel, the in-band power was limited to 23 dBm/MHz and the relative OOBE limit was 3 dBm/MHz, or total interference power of 13 dBm in a 10 MHz DSRC channel. Figure 1 shows that under the *MO&O*, this same device can emit 24.3 dBm total interference power into the 10 MHz DSRC Channel 172, an 11.3 dB increase over the 15.247 limit.

Furthermore, the 15.247 device could only emit this worst-case interference if it utilizes the maximum allowed transmit power; for any reduction in actual transmit power the device's worst-case interference was also reduced proportionally. Further, channels with bandwidths wider than 20 MHz, as assumed in the example above, would have lower in-band power spectral density and thus lower relative out-of-band power into DSRC channels under the original Section 15.247 rules. By contrast, the worst-case emission under the *MO&O* is available to *any* U-NII-3 device regardless of the power it actually transmits in-band. Figure 1 shows that the *MO&O* limits are also higher than the Section 15.247 limits for DSRC channels 174 and 176 (*i.e.*, higher than 13 dBm/10 MHz for an IEEE 802.11 device transmitting at a 20 MHz bandwidth). We note, as the Commission has noted, that higher OOBE limits are often associated with reduced equipment cost, so U-NII-3 non-P2P device suppliers will generally have an incentive to take advantage of the new, relaxed OOBE limits.

Under the *MO&O*, the allowed OOBE interference power in DSRC Channels 172, 174, and 176 actually *exceeds* the in-band transmit power DSRC devices will use under prevailing industry standards.[29] DSRC transmission at the industry standard will be 15 dBm in Channel 172. A DSRC receiver requires at least 7 dB signal-to-interference-and-noise ratio ("SINR") in order to decode the DSRC packet, assuming QPSK modulation and rate ½ coding. Given that a U-NII-3 non-P2P device may emit 24.3 dBm in Channel 172, the SINR requirement implies that at the DSRC receiver the interference must

[29] *See On-Board System Requirements for V2V Safety Communications*, SAE J2945/1, SAE International, DSRC Committee (Mar. 3, 2016). These DSRC transmit power levels are chosen to satisfy application requirements without unnecessarily loading a DSRC channel at longer distances. DSRC transmissions will use even lower power under some congested channel scenarios.

experience at least 24.3 – 15 + 7 = 16.3 dB *higher* attenuation than the DSRC signal. In a free space propagation channel, this attenuation implies that the interferer must be at least 6.5 times *farther* away from the DSRC receiver than the DSRC transmitter is from the DSRC receiver. This is illustrated in Figure 2.

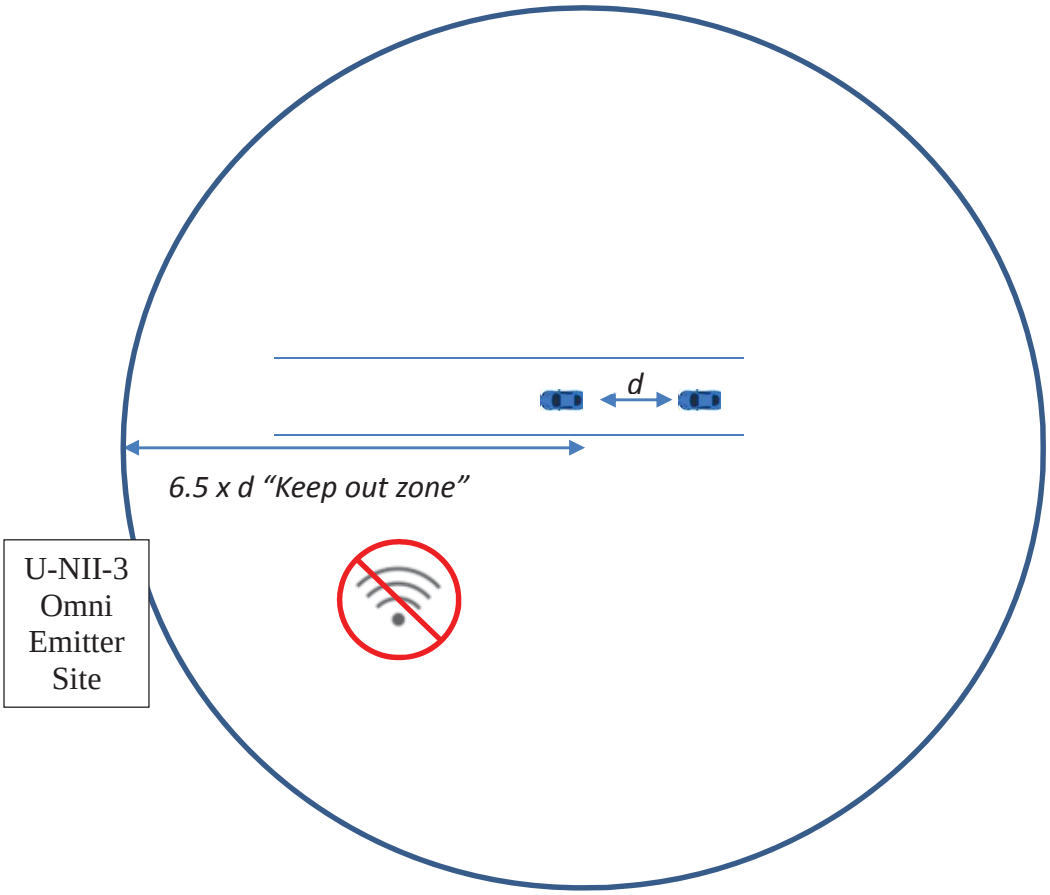


Figure 2:

Wi-Fi interferes with DSRC V2V reception if within 6.5 times the V2V distance

Thus, as an example, a Wi-Fi interferer within 30 meters of a DSRC receiver prevents any DSRC reception from another vehicle even in a bumper-to-bumper alignment. Similarly, the industry and DOT goal of a V2V communication distance of 300 meters,

which can easily be achieved without interference, will be thwarted by a worst case U-NII-3 non-P2P interferer within 1950 meters.[30]

By contrast, a worst case U-NII-3 non-P2P interferer under the *First R&O* limit imparts -9.6 dBm into Channel 172, which means the interfering signal can experience 17.6 dB *less* attenuation than the DSRC signal at the DSRC receiver before it interferes with reception (-9.6 – 15 + 7 = -17.6 dB). The "keep out zone" is thus 0.13 times the V2V distance, which while still problematic in some scenarios, is dramatically less harmful than interference under the *MO&O*.

B. REQUESTED FCC RECONSIDERATION

Given that the relaxed OOBE in the *MO&O* was motivated by the desire to accommodate the needs of P2P devices operating in the 5.725-5.85 GHz band, and that the primary contributors of interference to DSRC operations will be non-P2P devices, a rational solution—and one founded in the record—would be to subject P2P devices to the *MO&O* OOBE limits and subject non-P2P devices to the *First R&O* (and original U-NII-3) OOBE limits. This would restore the distinction between the two device types that was implicit in the Section 15.247 rules, which was the result of a distinction between devices for maximum transmit power and the specification of OOBE in relative terms.[31]

---

[30] Note that this analysis ignores the contribution of the noise floor to SINR and is thus conservative. Further, it ignores the fact that the cars in Figure 2 may also be receiving DSRC messages from other, more distant vehicles, than the singular ones depicted in the figure. Also, it ignores NLOS links, which change the keep-out criteria illustrated in the figure.

[31] The revision of the rule we propose works so long as the P2P systems remain traditional, using high elevation antenna placement and rural off-road antenna tower location, so the narrow main beam in the P2P link stays high above the ground and does not illuminate elevated DSRC roadside receivers and vehicles on elevated roads. The concern is that

The new OOBE limits set forth in the *MO&O* should also be revised because they are not supported by the record in this proceeding[32] and, as a result, are arbitrary and capricious under the Administrative Procedures Act ("APA").[33] An agency action to change its policy is arbitrary and capricious if the agency does not adequately explain its reasons, [34] the agency abuses its discretion, or the agency's action is "otherwise not in accordance with law."[35] Here, the Commission simply treated all 5.725-5.85 GHz systems the same without evaluating or examining their likely effects on DSRC operations—even though parties expressed concern throughout the proceeding that relaxing the 5.725-5.85 GHz OOBE limits would allow harmful interference to adjacent band DSRC operations.[36] Meanwhile, the proposals that led to the FCC's decision were reasonably interpreted by those parties as applying *only* to P2P devices,[37] and it is both insufficient and false for the

---

inexpensive high-power unlicensed P2P systems, even those installed by individuals, can easily be mounted on roof tops (relatively low to the ground), and noise from these systems will reach roadside receivers and the street. Further, there is no database for where these unlicensed P2P systems reside, so any post-vehicle-collision investigation of noise source location could be difficult.

[32] *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009) ("An agency may not . . . depart from a prior policy *sub silentio* or simply disregard rules that are still on the books.").

[33] *See Air Line Pilots Ass'n v. U.S. Dept. of Transp.*, 3 F.3d 449, 453 (D.C. Cir. 1993) (remanding agency decision because it was internally inconsistent, arbitrary, and capricious); *Gen. Chem. Corp. v. United States*, 817 F.2d 844, 846 (D.C. Cir. 1987) (finding agency action arbitrary and capricious because it was "internally inconsistent and inadequately explained").

[34] *Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 981 (2005).

[35] 5 U.S.C. § 706(2)(A); *see Nat'l Ass'n of Regulatory Util. Comm'r. v. Interstate Commerce Comm'n*, 41 F.3d 721, 726–27 (D.C. Cir. 1994).

[36] *See, e.g.*, Global Automakers Petition; Comments of the Alliance and Global Automakers, ET Docket No. 13-49, Technical App. at 22-24 (filed May 28, 2013).

[37] *See* Letter from Catherine Wang and Timothy Bransford, Counsel to Ubiquiti Networks, Inc., to Marlene H. Dortch, Secretary, FCC, ET Docket No. 13-49 (filed July 2, 2015); Letter from Wireless Internet Service Providers Association *et al.*, to Marlene H. Dortch,

FCC to suggest that DSRC operators are no worse off now than under the previous Section 15.247.[38] Instead, the Commission should tailor its approach as requested to avoid endangering safety-of-life DSRC operations in a way that is both unnecessary and contrary to the record in this proceeding.

At the very least, the FCC should seek public comment specifically on the newly "relaxed" *MO&O* rules. Administrative agencies are required to provide the public with adequate notice of a proposed rule followed by a meaningful opportunity to comment on the rule's content.[39] Although the APA sets the minimum degree of public participation the agency must permit, "[matters] of great importance, or those where the public submission of facts will be either useful to the agency or a protection to the public, should naturally be accorded more elaborate public procedures."[40] Indeed, whether there has been a full and fair opportunity for public review may depend on whether, "given a new opportunity to comment, commenters would not have their first occasion to offer new and different criticisms" of a proposed rule.[41] In this case, it appears that the relaxed OOBE limits were imposed without adequate public notice and input, requiring that the public be afforded a meaningful opportunity to now comment and submit their criticisms of the new rules.

Secretary, FCC, ET Docket No. 13-49 (filed Oct. 22, 2015); Letter from Wireless Internet Service Providers Association *et al.*, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 13-49 (filed Nov. 4, 2015).

[38] *See, e.g., MO&O* ¶ 23. The previous Section 15.247 did not cover P-to-MP devices of the type that will likely be deployed widely for outdoor Wi-Fi use in the U-NII-3 band.

[39] 5 U.S.C. § 553.

[40] *Id.* § 553 (b)–(c).

[41] *BASF Wyandotte Corp. v. Costle*, 598 F.2d 637, 642 (1st Cir.1979); *see also Fertilizer Inst., v. EPA*, 935 F. 2d 1303, 1311 (1991).

CONCLUSION

The multi-year, multi-million dollar investments made towards the development of DSRC safety-of-life systems should not be summarily curtailed. Accordingly, Global Automakers and the Alliance respectfully request that the Commission reconsider its decision to relax the OOBE limits applicable to unlicensed 5.725-5.85 GHz systems. Global Automakers and the Alliance respectfully request that the Commission consider the counter-proposal offered in this petition and attached as Exhibit A. The Commission should also consider a Power Flux Density limit for P2P operations.

Respectfully submitted,

ASSOCIATION OF
GLOBAL AUTOMAKERS, INC.

By: /s/ James A. Barnett, Jr.
James Arden Barnett, Jr., Esq.
Ian D. Volner, Esq.
Peter S. Frechette, Esq.
Cristina I. Vessels, Esq.

Its Attorneys

Venable LLP
575 7th Street, NW
Washington, D.C. 20004
Tel.: (202) 344-4000

THE ALLIANCE OF
AUTOMOBILE
MANUFACTURERS

By: /s/ Ari Q. Fitzgerald
Ari Q. Fitzgerald, Esq.
Wesley B. Platt, Esq.

Its Attorneys

Hogan Lovells LLP
Columbia Square
555 13th Street, NW
Washington, D.C. 20004

DATE: May 6, 2016

EXHIBIT A

To amend Section 15.407(b)(4) of Title 47 of the C.F.R.

47 C.F.R. § 15.407(b)(4) is amended:

(1) In subsection (b)(4)(i), by inserting "from fixed point-to-point operations as defined in Section 15.407(a)(3)"

(2) By inserting as a new subsection (b)(4)(ii), "For transmissions from operations not defined as fixed point-to-point operations under Section 15.407(a)(3), all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBM/MHz."

(3) In subsection (b)(4)(ii), by striking "(ii)" and inserting "(iii)"

* * *

For clarity, the 47 C.F.R. § 15.407(b)(4) so amend would read:

(4) For transmitters operating in the 5.725–5.85 GHz band:

(i) All emissions **[from fixed point-to-point operations as defined in Section 15.407(a)(3)]** shall be limited to a level of -27 dBm at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge."

[(ii) For transmissions from operations not defined as fixed point-to-point operations under Section 15.407(a)(3), all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBM/MHz.]

~~(ii)~~ **[(iii)]** Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.