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

In the Matter of	)	
	)	
Unlicensed Use of the 6 GHz Band	)	ET Docket No. 18-295
	)	
Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz	)	GN Docket No. 17-183
	)	

REPLY COMMENTS OF THE DYNAMIC SPECTRUM ALLIANCE

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July 27, 2020

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I. INTRODUCTION AND SUMMARY

The Dynamic Spectrum Alliance ("DSA") [1] is pleased to submit these Reply Comments *In the Matter of Unlicensed Use of the 6 GHz Band, Report and Order and Further Notice of Proposed Rulemaking*. [2] Amongst commenters there was general support for the Commission to (1) permit Very Low Power ("VLP") devices to operate indoors and outdoors throughout the 6 GHz band at a power level of at least 14 dBm of equivalent isotropically radiated power ("EIRP") and (2) increase the Power Spectral Density ("PSD") limit for Low Power Indoor ("LPI") devices from 5 dBm/MHz to 8 dBm/MHz. Additionally, the DSA urges the Commission to maintain its -27 dBm/MHz out-of-band emissions ("OOBE") limit adopted in the *6 GHz Order and Further Notice* to protect services operating in bands immediately above and below the 6 GHz band.

II. THE RECORD OVERWHELMINGLY SUPPORTS PERMITTING VLP DEVICES TO OPERATE THROUGHOUT THE 6 GHZ BAND AT A POWER LEVEL OF AT LEAST 14 dBm EIRP

Multiple commenters support the Commission's proposal to allow VLP devices to operate across the entirety of the 6 GHz band, both indoors and outdoors, without an AFC.[3] Among other things, they recognize this is an important step towards ushering in a new class of devices for consumers. For example, the Consumer Technology Association indicates that "[a]llowing VLP operations across the entire 6 GHz band would enable many exciting new

[1] The Dynamic Spectrum Alliance is a global, cross-industry alliance focused on increasing dynamic access to unused radio frequencies. The membership spans multinational companies, small- and medium-sized enterprises, academic, research, and other organizations from around the world, all working to create innovative solutions that will increase the utilization of available spectrum to the benefit of consumers and businesses alike. A full list of DSA members is available on the DSA's website at www.dynamicspectrumalliance.org/members.

[2] *See* Unlicensed Use of the 6 GHz Band, Report and Order and Further Notice of Proposed Rulemaking, (released April 23, 2020). ("*6 GHz Order and Further Notice*").

[3] *See 6 GHz Order and Further Notice* at ¶ 235.

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innovations that are on the cusp of market entry," such as "important peer-to-peer use cases, where devices connect directly without the need for additional infrastructure" and "immersive AR/VR technologies with wide-ranging use cases."[4] Similarly, the Wi-Fi Alliance expresses strong support for this proposal, noting that the "proposed rules would accommodate seven 160 megahertz channels to support multiple applications," including those that allow "healthcare information technology managers [to] meet the growing connectivity demands presented by both healthcare staff and patients and their families."[5] Public interest organizations also acknowledge that it is crucial for VLP devices "to operate across all four 6 GHz sub-bands, both outdoors and indoors . . . [in order] to ensure that the next-generation of 5G- and Wi-Fi-powered use cases are able to thrive and benefit consumers."[6]

As these and other commenters recognize—and as DSA has explained—these significant consumer benefits cannot be unlocked unless VLP devices are allowed to operate at power levels of at least 14 decibel-milliwatts ("dBm") of EIRP and 1 dBm/MHz PSD.[7] Indeed, the RLAN Coalition explains that "a power limit of no less than 14 dBm EIRP and 1 dBm/MHz PSD" is

[4] Comments of the Consumer Technology Association, ET Docket No. 18-295, GN Docket No. 17-183, at 5-6 (filed June 29, 2020) ("CTA Comments").

[5] Comments of the Wi-Fi Alliance, ET Docket No. 18-295, GN Docket No. 17-183, at 3-9 (filed June 29, 2020) ("Wi-Fi Alliance Comments").

[6] Comments of the New America's Open Technology Institute, Public Knowledge, Consumer Reports, Consumer Federation of America, American Library Association, Schools, Health & Libraries Broadband (SHLB) Coalition, Tribal Digital Village Network, National Hispanic Media Coalition, CoSN – Consortium For School Networking, Benton Institute For Broadband And Society, Next Century Cities, Access Humboldt, X-Lab, ET Docket No. 18-295, GN Docket No. 17-183, at 5 (filed June 29, 2020) ("PISC Coalition Comments").

[7] *See, e.g.*, Comments of Dynamic Spectrum Alliance, ET Docket No. 18-295, GN Docket No. 17-183, at 4-6 (filed June 29, 2020) ("DSA Comments"), CTA Comments at 6-7; Wi-Fi Alliance Comments at 9-13; PISC Coalition Comments at 5; Comments of Facebook, Inc., ET Docket No. 18-295, GN Docket No. 17-183, at 4-6 (filed June 29, 2020) ("Facebook Comments").

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needed "not only because VLP devices can operate outdoors, but also because of the dynamic variability in clutter losses encountered, the impact of itinerancy, body loss variations, dynamic transmit power control, and battery life optimization."[8] Facebook similarly observes that in order for 6 GHz VLP devices "to provide consumers with the service reliability they have come to expect," they "will need to be able to overcome significant variability in body loss[,] [a]nd the best means to do so is to ensure that they can operate at a power level of at least 14 dBm EIRP."[9] Microsoft adds that "14 dBm is the threshold at which the VLP device's throughput would be high enough and latency low enough for [Personal Area Network] users to have reliable highly interactive mixed-reality experience."[10] It is therefore not enough for the Commission to allow VLP devices to utilize the entire 6 GHz band; it must also permit these devices to operate at a power level of at least 14 dBm EIRP to ensure consumers realize the transformative benefits of these devices.

Importantly, and contrary to the assertions of some commenters,[11] allowing VLP devices to operate at a power level of at least 14 dBm will not cause harmful interference to 6 GHz

[8] Comments of Apple Inc. Broadcom Inc., Cisco Systems, Inc., Facebook, Inc., Google LLC, Hewlett Packard Enterprise, Intel Corporation, Microsoft Corporation, NXP Semiconductors, Qualcomm Incorporated, and Ruckus Networks, a Business Segment of CommScope., ET Docket No. 18-295, GN Docket No. 17-183, at 10-22 (filed June 29, 2020) ("RLAN Coalition Comments").

[9] *See* Facebook Comments at 5-6.

[10] Comments of Microsoft Corp., ET Docket No. 18-295, GN Docket No. 17-183, at 7-8 (filed June 29, 2020) ("Microsoft Comments").

[11] *See, e.g.*, Comments of CTIA, ET Docket No. 18-295, GN Docket No. 17-183, at 2-6 (filed June 29, 2020) ("CTIA Comments"); Comments of AT&T, ET Docket No. 18-295, GN Docket No. 17-183, at 7-11 (filed June 29, 2020) ("AT&T Comments"); Comments of Nokia, ET Docket No. 18-295, GN Docket No. 17-183, at 2-3 (filed June 29, 2020) ("Nokia Comments"); Comments of The Utilities Technology Council et al., ET Docket No. 18-295, GN Docket No. 17-183, at 5-9 (filed June 29, 2020).

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licensed services. "Technical analyses both analytical and empirical demonstrate that incumbent 6 GHz band fixed service links, as well as Broadcast Auxiliary Service ("BAS") and Electronic News Gathering ("ENG") operations . . . would face only negligible non-harmful interference risks from VLP devices operating at these power levels."[12] Indeed, the RLAN Coalition's technical demonstrations show "that the likelihood that VLP devices will cause FS links in U-NII-5 and -7 to exceed a conservative -6 dB I/N threshold (which the Commission has recognized is a threshold that does not represent harmful interference) is exceedingly small, even when the assumed number of VLP devices increases."[13]

The same technical analyses also establish that "VLP devices can successfully coexist with mobile BAS operations in U-NII-6 and -8 bands," as well as "other mobile incumbent operations in U-NII-6 and -8 such as CARS (including ENG operations), low-power auxiliary service ("LPAS"), and other short-range broadcast auxiliary operations."[14] Thus, there is no reason for the Commission to hesitate in allowing VLP device operations across the entire 6 GHz band at a power level of at least 14 dBm. Any delay would continue to deny consumers access to these innovative devices and the cutting-edge use cases they will support.

[12] *See* Facebook Comments at 6.

[13] *See* RLAN Coalition Comments at 22.

[14] *Id.* at 23, 28.

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III. THE RECORD PROVIDES AMPLE SUPPORT FOR INCREASING THE PSD LIMIT FOR LPI DEVICES

As DSA and numerous others highlight in their initial comments, increasing the PSD limit for LPI devices from 5 dBm/MHz to 8 dBm/MHz would be an important step for next-generation Wi-Fi in the 6 GHz band and would yield substantial benefits for consumers.

The technical studies in the underlying record and additional technical analysis submitted in response to the *6 GHz Order and Further Notice* confirm that this increased power limit will not cause harmful interference to incumbent operations.[15] This robust technical record further demonstrates that there is no basis to lower the existing PSD limit for LPI devices, and that it is unnecessary to impose automatic frequency coordination ("AFC") or additional testing requirements on LPI devices before adopting a higher power limit. The Commission should, therefore, move forward expeditiously to increase the PSD limit for LPI devices from 5 dBm/MHz to 8 dBm/MHz.

The record in this proceeding underscores the importance of increasing power limits for LPI operations. Numerous parties highlight the significance of, and increased demand for, reliable Wi-Fi connectivity particularly in light of the COVID-19 pandemic.[16] Increasing LPI

[15] *See* DSA Comments at 6-10; Comments of NCTA—The Internet & Television Association, ET Docket No. 18-295, GN Docket No. 17-183, at 2-8 (filed June 29, 2020) ("NCTA Comments"); Microsoft Comments; Comments of Qualcomm Incorporated, ET Docket No. 18-295, GN Docket No. 17-183, at 5-7 (filed June 29, 2020) ("Qualcomm Comments"); RLAN Group Comments; Comments of Wireless Broadband Alliance, ET Docket No. 18-295, GN Docket No. 17-183, at 7-8 (filed June 29, 2020) ("WBA Comments"); Wi-Fi Alliance Comments; PISC Comments.

[16] Comments of National Association of Broadcasters, ET Docket No. 18-295, GN Docket No. 17-183, at 2 (filed June 29, 2020) ("NAB Comments"); Comments of Sirius XM Radio Inc., ET Docket No. 18-295, GN Docket No. 17-183, at 8 (filed June 29, 2020); PISC Comments at 11, 23; DSA Comments at 21; RLAN Group Comments at 57; CTA Comments at 4 (filed June 29, 2020); NCTA Comments at 4.

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PSD levels will allow next-generation Wi-Fi to better meet this increased demand and realize the full potential of opening up the 6 GHz band for unlicensed use. As Microsoft notes, to reap the full benefits of multi-gigabit Wi-Fi delivered over LPI devices "a higher power spectral density is needed."[17] Likewise, NCTA states that, "[s]ufficient Wi-Fi power levels in this band are vital for consumers, industries, and institutions to realize the full value of this 1200 MHz of unlicensed spectrum and see the anticipated benefits of multi-gigabit, high-capacity Wi-Fi in the home, business, hospital, school, and beyond."[18]

As several commenters explain, increasing LPI power levels from a 5 dBm/MHz PSD to 8 dBm/MHz PSD would improve Wi-Fi coverage, throughput, and Wi-Fi network adaptability.[19] As the Commission itself acknowledged in the *6 GHz Order and Further Notice*, increasing the PSD limit "would be useful for many indoor devices that require high data rate transmissions . . ."[20] Indeed, CableLabs has shown that the increase to 8 dBm/MHz PSD would improve Wi-Fi coverage by 45-75 percent, on average, and Wi-Fi throughput by 113-170 percent, on average.[21] In addition, maintaining the existing 5 dBm/MHz PSD limit "impairs the ability of Wi-Fi networks to select a narrower channel to improve connectivity to resolve poor coverage or high congestion scenarios."[22] Thus, while consumers reasonably expect an upgraded next-generation

[17] Microsoft Comments at 6.

[18] NCTA Comments at 4; *see also* PISC Comments at 14 ("In addition, even large enterprises will need robust indoor coverage for factory automation, warehouse fulfillment centers, and other venues where industrial IoT can boost productivity.").

[19] *See, e.g.*, NCTA Comments at 7-10; PISC Comments at 12; RLAN Group Comments at 58.

[20] *See 6 GHz Order and Further Notice* at ¶ 244.

[21] *See* NCTA Comments at 10-11, n.17.

[22] *Id.* at 12-13.

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Wi-Fi experience for Wi-Fi 6E devices operating in the 6 GHz band,[23] commenters have shown that, at a 5 dBm/MHz PSD, consumers would need additional equipment in order to replicate the Wi-Fi experience they have today, which would add costs and increase network complexity.[24]

Moreover, as many commenters underscore,[25] several technical analyses previously submitted by CableLabs and others demonstrate that LPI operations will not cause harmful interference to incumbents even at an 8 dBm/MHz PSD.[26] In the *6 GHz Order and Further Notice*, the Commission credited CableLabs' study of 6 GHz access points at 8 dBm/MHz PSD with FS links as "the best evidence in the record of the impact that unlicensed low-power indoor devices will have on incumbent operations—and it demonstrates that such operations will not cause harmful interference."[27]

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[23] *Id.* at 11.

[24] *See, e.g.*, NCTA Comments at 10 (explaining that "with a Wi-Fi 6E indoor LPI AP restricted to 5 dBm/MHz, a consumer may not get coverage in her basement that she has today with a 5 GHz access point, *and* she may not get gigabit per second speeds where she received them before, . . ."); RLAN Group Comments at 58 ("Unnecessarily limiting Wi-Fi coverage range means that users either cannot access Wi-Fi in certain parts of their home, small office, or school, or that they must purchase, install, and manage additional coverage extenders or access points."); PISC Comments at 13 ("Without a minimally-adequate PSD limit, homes, and businesses will suffer dead zones or require multiple routers and/repeaters.").

[25] *See* PISC Comments at 14; NCTA Comments at 12; Microsoft Comments at 6; WBA Comments at 7; RLAN Group Comments at 59-60.

[26] *See generally* Letter from Rob Alderfer, Vice President of Technology Policy, CableLabs, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 18-295, GN Docket No. 17-183 (filed Mar. 30, 2020) ("CableLabs Mar. 30 Letter"); Letter from Rob Alderfer, Vice President of Technology Policy, CableLabs, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 18-295, GN Docket No. 17-183 (filed Mar. 19, 2020) ("CableLabs Mar. 19 Letter"); Letter from Elizabeth Andrion, Senior Vice President, Regulatory Affairs, Charter Communications, and Rob Alderfer, Vice President of Technology Policy, CableLabs, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 18-295, GN Docket No. 17-183 (filed Feb. 21, 2020); Letter from Elizabeth Andrion, Senior Vice President, Regulatory Affairs, Charter Communications, et al., to Marlene H. Dortch, Secretary, FCC, ET Docket No. 18-295, GN Docket No. 17-183 (filed Jan. 17, 2020); *see also* PISC Comments at 14; NCTA Comments at 12; Microsoft Comments at 6; WBA Comments at 7; RLAN Group Comments at 59-60.

[27] See *6 GHz Order and Further Notice* at ¶ 120 (referencing CableLabs Mar. 19 Letter).

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In the *6 GHz Order and Further Notice* , the Commission requested additional "[a]nalyses that can incorporate realistic environments, including accurate link-level and system level simulations or measurements which take into account the physical layer characteristics of both unlicensed and incumbent devices would be more convincing in determining whether a higher PSD such as 8 dBm/MHz should be adopted."[28] In response, CableLabs conducted "an additional technical study that accounts for physical layer attributes of FS links and looks at the impact to FS link SINR and link availability of introducing Wi-Fi operating at a PSD of 8 dBm/MHz."[29] In particular, CableLabs looked at AT&T "Link 5," which the Commission found to be a more challenging case for LPI Wi-Fi/FS coexistence. CableLabs' additional simulation showed an "extremely low probability of FS SINR dropping below the desired link level," even when conservatively omitting variables regarding FS operations that would further reduce the potential for harmful interference to FS from LPI Wi-Fi at an 8 dBm/MHz PSD.[30] This latest study further confirms that raising the LPI PSD limit to 8 dBm/MHz will not result in harmful interference to FS links.[31]

Given this robust technical record showing no risk of harmful interference to incumbents at the higher PSD limit, there is no basis to impose a new AFC requirement for LPI operations in

[28] *Id.* ¶ 244.

[29] *See* NCTA Comments at 23-25.

[30] *Id.*

[31] Although Nokia submitted a new technical analysis purporting to show a high potential for interference to an FS receiver from LPI operations even at the existing PSD of 5 dBm/MHz, this study appears to be based on unrealistic assumptions (e.g., free path loss and antenna patterns) that skew the results and overstate the potential for interference. *See* Comments of Nokia, ET Docket No. 18-295, GN Docket No. 17-183, at 4-5, Technical Appendix (filed June 29, 2020) ("Nokia Comments").

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order to move to an 8 dBm/MHz PSD, as some commenters insist.[32] Indeed, the Commission has already fully addressed why AFC for LPI operations is unnecessary.[33] Proponents of the AFC requirement simply rehash their prior arguments and fail to explain why the Commission should reach a different conclusion on AFC here. There is similarly no basis for *lowering* the LPI PSD limit as certain commenters propose.[34] At bottom, these are simply improper attempts to misuse the *6 GHz Further Notice* proceeding to seek reconsideration of the *6 GHz Order*, which the Commission should reject.

Other commenters argue that additional testing is required or more time is needed before raising LPI device power limit to 8 dBm/MHz PSD.[35] But these commenters ignore the robust technical record, detailed above, demonstrating that even at this higher PSD limit, LPI operations pose no material risk of harming incumbent operations. Importantly, imposing unnecessary testing requirements would considerably delay the full benefits of the 6 GHz band for consumers. Moreover, as PISC and NCTA underscore, the current contention-based protocol requirement and indoor-use restriction mechanisms adopted by the Commission already further

[32] *See* CTIA Comments at 6-7; Nokia Comments at 4-5.

[33] *See 6 GHz Order and Further Notice* at ¶¶ 96-99.

[34] *See* AT&T Comments at 11 ; Joint Comments of the Telecommunications Subcommittee of the American Petroleum Institute and the Regulatory and Technology Committee of the Energy Telecommunications and Electrical Association, ET Docket No. 18-295, GN Docket No. 17-183, at 4 (filed June 29, 2020).

[35] *See, e.g.*, Comments of Southern Company Services, Inc., ET Docket No. 18-295, GN Docket No. 17-183, at 13 (filed June 29, 2020); NAB Comments at 4; Comments of Alliant Energy Corporate Services, Inc., ET Docket No. 18-295, GN Docket No. 17-183, at 3 (filed June 29, 2020); Comments of Sirius XM Radio Inc., ET Docket No. 18-295, GN Docket No. 17-183, at 15-18 (filed June 29, 2020).

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reduce the risk of harmful interference to incumbents.[36] And the existing Part 15 interference resolution process can resolve any potential instance of harmful interference as it has in other unlicensed bands.[37]

Given the substantial benefits of permitting LPI devices to operate at higher PSD levels, DSA encourages the Commission to promptly increase the PSD limit for LPI operations to 8 dBm/MHz.

IV. THE COMMISSION SHOULD MAINTAIN THE -27 dBm/MHz OUT OF BAND EMISSIONS LIMIT IT ADOPTED IN THE 6 GHz ORDER AND FURTHER NOTICE

The Commission adopted -27 dBm/MHz as the OOBE limit from all 6 GHz unlicensed devices at frequencies below the lowest frequency available in the U-NII-5 band (5.925 GHz) and above the highest frequency available in the U-NII-8 band (7.125 GHz).[38]

The Commission's rationale was:

> "We believe that a limit of -27 dBm/MHz is necessary to protect services outside the U-NII-5 and U-NII-8 bands, including the Intelligent Transportation Service below the U-NII-5 band and federal government operations above the U-NII-8 band."[39]

[36] *See* PISC Comments at 15 ("[T]he sporadic and bursty nature of Wi-Fi transmissions, which is inherent in the contention-based protocol the Commission mandates in the Order, makes the occurrence of harmful interference even less likely."); NCTA Comments at 14-15.

[37] NCTA Comments at 25-27 ("In the unlikely event that harmful interference did occur, the Commission's existing Part 15 rules provide a process through which a licensee can raise and resolve the issue, and there is no reason to believe that the Commission will face different challenges in enforcing its Part 15 rules in the 6 GHz context than it does in other unlicensed bands today.").

[38] *See* 47 U.S.C § 15.407(b)(5) (effective July 27, 2020).

[39] *See 6 GHz Order and Further Notice* at ¶197.

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The Commission carefully considered the protection of Intelligent Transportation System ("ITS") service receivers in developing the OOBE limits for unlicensed devices operating in the 6 GHz band.[40] The technical requirements to protect Dedicated Short-Range Communications ("DSRC") from receiving harmful interference are long established. Given the record developed in 5.9 GHz proceeding, the Commission must also have been aware of the technical requirements for the proposed ITS service.

In the *6 GHz Order and Further Notice*, the Commission did not ask any questions regarding potential changes to OOBE limit with respect to the introduction of VLP devices, [41] mobile standard power access points,[42] or standard power access points operating at greater than 36 dBm EIRP for point-to-point operations[43]. Possibly, it is because the Commission believes the OOBE limits it established for the 6 GHz band to be a settled matter. The 5.9 GHz Band NPRM, that predates the release of the Further Notice, proposes to establish -27 dBm/MHz OOBE limit at or above 5.925 GHz to protect ITS services in the 5.9 GHz band.[44]

Thus, it was surprising then when several parties submitted comments requesting the Commission to limit use of portions of the U-NII-5 band for VLP devices, mobile standard

[40] *See 6 GHz Order and Further Notice* at ¶197, ("We believe that a limit of -27 dBm/MHz is necessary to protect services outside the U-NII-5 and U-NII-8 bands, including the Intelligent Transportation Service below the U-NII-5 band…").

[41] *See 6 GHz Order and Further Notice* at ¶¶233-243.

[42] *See 6 GHz Order and Further Notice* at ¶¶246-251.

[43] *See 6 GHz Order and Further Notice* at ¶¶252-253.

[44] *See Use of the 5.850-5.925 GHz Band*, Notice of Proposed Rulemaking, 34 FCC Rcd 12603 (2019) ("*5.9 GHz Band Proceeding*") at ¶54.

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access points under AFC control, and standard power access points operating above 36 dBm EIRP for point-to-point operations in rural and underserved areas or to require certain technical parameters that are not commercially viable.[45]

In particular, the comments opposing higher power point-to-point unlicensed fixed links in the lower frequency range of the U-NII-5 band seem to ignore the fact that there are licensed fixed links operating over the same frequency range. These fixed links could also be illuminating roadways – and possibly not only in rural areas. Review of the six AT&T scenarios described in the *6 GHz Order and Further Notice*, indicate that this is plausible.[46] Will the Commission have to protect C-V2X from receiving harmful interference from licensed fixed service operations in the U-NII-5 band? The DSA was under the impression that the proposed C-V2X technology was more resilient to interference than DSRC technology, not more fragile.

And if, in fact, C-V2X is an even more fragile technology than DSRC, which it appears to be if an OOBE for VLP devices of -60 dBm/MHz is necessary on the first adjacent channel on the lowest channels in the U-NII-5 band,[47] the Commission should give serious consideration to the DSA's recent ex parte filing where we propose that all ITS safety operations are relocated to

[45] *See* Qualcomm Comments at 8-12, Comments of 5G Automotive Alliance, ET Docket No. 18-295, GN Docket No. 17-183, at 4-12 (filed June 29, 2020) ("5GAA Comments"), Comments of Panasonic Corporation of North America, ET Docket No. 18-295, GN Docket No. 17-183, at 2-4 (filed June 29, 2020), Comments of the Alliance for Automotive Innovation, ET Docket No. 18-295, GN Docket No. 17-183, at 2-10 (filed June 29, 2020) ("AAI Comments").

[46] *See 6 GHz Order and Further Notice* at ¶¶123-132; the original reference is Letter from Michael P. Goggin, AT&T Services, Inc. to Marlene H. Dortch, Secretary, Federal Communications Commission regarding Unlicensed Use of the 6 GHz Band, ET Docket No. 18-295; Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz, GN Docket No. 17-183 (filed November 12, 2019).

[47] *See* AAI Comments at 7-9; 5GAA Comments at 10.

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the 4.9 GHz band.[48] Other voices also believe relocating the vehicular safety portion of ITS to the 4.9 public safety band is the best policy and most cost effective solution for all[49].

At this point C-V2X consists of technical documents, some trials, promises, and a lot of marketing materials. 5GAA spoke of specific related infrastructure investments to date.[50] Unfortunately, the reality of the post-Covid economy is that it is highly unlikely States will have the available resources to buildout ITS infrastructure with the magnitude necessary to fulfill the vision of ITS proponents. Additionally, it is not clear the Federal government will be able to set aside the necessary resources for a large scale ITS buildout, given its other priorities. Vehicle-to-vehicle safety communications may be the only practical remnant of ITS given the financial resources required and available, and vehicle-to-vehicle safety can most effectively be carried out in the 4.9 GHz band.

The Commission adopted -27 dBm/MHz as the required OOBE limit for unlicensed devices below 5.925 GHz with full knowledge of its ongoing 5.9 GHz Proceeding. None of the comments submitted to the Further Notice provide sufficient justification for the Commission to change its 6 GHz OOBE rules for VLP devices, mobile standard power access points under

[48] *See* Comments of the Dynamic Spectrum Alliance, *Use of the 5.850-5.925 GHz Band* ET Docket No. 19-138 at 6, (filed March 9, 2020); Comments of the Dynamic Spectrum Alliance, *Use of the 5.850-5.925 GHz Band*, ET Docket No. 19-138 at 6, (filed April 27, 2020); Letter from Martha Suarez, President of the Dynamic Spectrum Alliance to Marlene H. Dortch, Secretary, Secretary, Federal Communications Commission regarding *Amendment of Part 90 of the Commission's Rules, WP Docket No. 07-100, 6th Further Notice of Proposed Rulemaking and Use of the 5.850-5.925 GHz Band*, *ET Docket No. 19-138* (filed June 11, 2020).

[49] *See, e.g.*, Michael Calabrese and Amir Nasr, "The 5.9 GHz Band: Removing the Roadblock to Gigabit Wi-Fi," Wireless Future Project Issue Brief, New America's Open Technology Institute, at 20-21 (March 2020) at 31-36.

[50] *See* 5GAA Comments at 2.

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AFC-control, and standard power access points operating above 36 dBm EIRP for point-to-point operations in rural and underserved areas.

V. CONCLUSIONS

The Commission should act as soon as possible to authorize VLP devices to operate throughout the 6 GHz band at 14 dBm EIRP and increase the PSD limit of LPI devices from 5 dBm/MHz to 8 dBm/MHz. Additionally, the Commission should maintain its -27 dBm/MHz OOBE limit below the U-NII-5 band for VLP devices, mobile standard power access points under AFC-control, and higher-power standard power access points operating point-to-point in rural and underserved areas.

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