

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

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

**RESPONSE OF THE NATIONAL CABLE & TELECOMMUNICATIONS  
ASSOCIATION TO PETITIONS FOR RECONSIDERATION**

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**I. INTRODUCTION AND SUMMARY.**

The Federal Communications Commission (Commission) recently issued an important order that will substantially improve Wi-Fi services for consumers, schools, and businesses across the country.<sup>1</sup> In it, the Commission (1) improved the technical rules in the 5.15-5.25 GHz band (the U-NII-1 band) and (2) harmonized the rules that apply to digitally modulated unlicensed devices operating in the 5.725-5.85 GHz band (the U-NII-3 band). As consumer demand continues to skyrocket, these actions will reduce Wi-Fi congestion and allow innovators to introduce 802.11ac “Gigabit Wi-Fi” technologies within the United States. The changes adopted in the *5 GHz Order* will also simplify the equipment authorization process while protecting incumbent users of nearby bands from harmful interference.

The Commission should be commended for its evidence-based decision-making process and its focus on improving Wi-Fi service while protecting other spectrum users. In particular,

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<sup>1</sup> *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 and Order, 29 FCC Rcd 4127 (2014) (*5 GHz Order*).

the National Cable & Telecommunications Association (NCTA) agrees with the Commission that harmonizing the rules that apply to digitally modulated devices across the U-NII-3 band will both improve Wi-Fi by “decreas[ing] unnecessary complexity in the equipment authorization process” and also “help eliminate potential harmful interference from unlicensed devices to other spectrum users.”<sup>2</sup> NCTA also agrees that the Commission’s changes to the technical rules for operation in the U-NII-1 band will “permit the introduction of a wide-range of new broadband products capable of operating at higher data rates than is now possible.”<sup>3</sup>

Despite strong record support for the Commission’s proposal to harmonize the technical rules for operation in U-NII-3, the Association of Global Automakers, Inc. (AGA) has filed a Petition for Reconsideration of the *5 GHz Order* complaining that the Commission’s decision to adopt consistent rules for digitally modulated unlicensed devices operating in the U-NII-3 band failed properly to consider whether this decision could cause harmful interference to Dedicated Short Range Communications (DSRC) systems operating in the adjacent 5.85-5.925 GHz band (the U-NII-4 band).<sup>4</sup> AGA also asserts that the Commission was required to conduct its own lab tests before harmonizing the rules.

NCTA opposes the AGA Petition and urges the Commission to reject it. The Commission’s decision is strongly supported by the record, which demonstrates that the new rules will not increase the risk of harmful interference to DSRC licensees. The record shows that unlicensed devices already operate in the 25 megahertz ISM band adjacent to U-NII-4 under the Commission’s section 15.247 rules, without prompting any claims of harmful interference by

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<sup>2</sup> *Id.* at 4153, ¶ 94.

<sup>3</sup> *Id.* at 4134, ¶ 24.

<sup>4</sup> Association of Global Automakers, Inc. Petition for Partial Reconsideration, ET Docket No. 13-49 (May 1, 2014) (AGA Petition).

Intelligent Transportation Systems (ITS) licensees. Furthermore, the new Commission rules require digitally modulated U-NII devices to operate under *more restrictive rules* than were previously in place, reducing the out-of-band emissions that unlicensed devices can produce compared to devices operating under the old rules.

AGA's assertion that the Commission was required to conduct its own testing before proceeding is equally wrong. As discussed below, neither the Administrative Procedure Act nor Commission precedent requires the Commission to conduct interference tests before adopting new rules. The Commission may conduct its own tests if it determines that such testing is needed in a particular situation. But the Commission acted properly and within its discretion in not taking that step here. As discussed above, there is no reason for the Commission to suspect that its new, more conservative rules will increase the risk of harmful interference. Neither AGA nor any other party submitted data or testing to the Commission showing that unlicensed devices operating under the more restrictive U-NII rules would counterintuitively increase harmful interference to DSRC licensees.

The record instead shows that the overwhelming majority of commenters favored allowing U-NII devices to operate in these frequencies, and that the few and unsubstantiated claims regarding harmful interference to DSRC were unfounded. Consequently, the Commission, acting squarely within its area of expertise and consistent with its discretion, correctly found that it could adopt new rules to improve Wi-Fi without causing harmful interference to DSRC and without the need for additional testing.

Regarding the new rules for operation in the U-NII-1 band, NCTA supports the request for clarification styled as a petition for reconsideration filed by EchoStar Technologies L.L.C.

(EchoStar).<sup>5</sup> Specifically, NCTA supports EchoStar’s request that the Commission clarify that stationary set-top boxes designed to serve as indoor client devices may operate at a maximum power level of 1 Watt under the Commission’s new rule for indoor U-NII-1 access points set forth at 15.407(a)(1)(ii).<sup>6</sup>

**II. THE COMMISSION SHOULD REJECT THE AGA PETITION BECAUSE THE COMMISSION PROPERLY ADDRESSED CLAIMS OF HARMFUL INTERFERENCE TO DSRC LICENSEES AND PROPERLY REJECTED REQUESTS FOR ADDITIONAL TESTING.**

**A. The Commission Should Reject the AGA Petition because the Commission Properly Considered and Rejected Claims that the New Rules Would Cause Harmful Interference to DSRC Licensees.**

AGA asks the Commission to reconsider its decision to harmonize the rules for digitally modulated unlicensed devices operating between 5.725-5.85 GHz, because it asserts that the Commission improperly failed to “assess and study”<sup>7</sup> whether “additional unlicensed operation of high-powered U-NII devices in the 5 GHz bands adjacent to ITS[] will cause harmful interference to ITS and [DSRC].”<sup>8</sup> The Commission should deny this request, because acting well within its expert role and based on clear record evidence, it properly considered and rejected this argument.

In the *5 GHz NPRM*, the Commission discussed the origins of sections 15.407 and 15.247 of its rules, noting that these “rules permit[ted] manufacturers to examine the different technical requirements for digitally modulated devices in Section 15.247 and the U-NII rules in Section 15.407 to determine which requirements are best suited for a particular 5.7 GHz [unlicensed]

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<sup>5</sup> Petition for Reconsideration of EchoStar Technologies L.L.C., ET Docket No. 13-49 (June 2, 2014) (EchoStar Petition).

<sup>6</sup> *Id.* at 1.

<sup>7</sup> *Id.* at 6.

<sup>8</sup> *Id.* at 2.

digital device.”<sup>9</sup> The Commission recognized that, as a result of the disparity between the section 15.247 rules (which allowed operations up to 5.85 GHz) and the section 15.407 U-NII-3 rules (which allowed operations only up to 5.825 GHz), “manufacturers [we]re opting to certify [unlicensed] devices under Section 15.407 for the U-NII-1, U-NII-2A and U-NII-2C frequency bands, but opting to certify devices operating in the U-NII-3 band under Section 15.247 in order to access more spectrum and use higher [power spectral density] levels.”<sup>10</sup> In other words, the 25 megahertz segment from 5.825-5.85 GHz “[wa]s already available for [unlicensed] devices certified under Section 15.247.”<sup>11</sup> Moreover, the Commission explained in the *5 GHz NPRM* that adopting the more stringent antenna gain and unwanted emission limits from section 15.407 for the new harmonized U-NII-3 rules would “ensure that there is no increase in the potential for interference from unlicensed devices operating [up to 5.85 GHz] under the new combined rules parts.”<sup>12</sup> For these reasons—because unlicensed devices already operated in the spectrum from 5.825-5.85 MHz and because the combined rules would provide *more* protection for adjacent operations—the Commission correctly came to the tentative conclusion that the proposed rule change “would not increase the potential for harmful interference” to adjacent DSRC operations.<sup>13</sup>

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<sup>9</sup> *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, Notice of Proposed Rulemaking, 28 FCC Rcd 1769, 1777, ¶ 23 (2013) (*5 GHz NPRM*).

<sup>10</sup> *Id.* at 1777, ¶ 24.

<sup>11</sup> *Id.* at 1778, ¶ 27.

<sup>12</sup> *Id.* at 1780, ¶¶ 33-34.

<sup>13</sup> *Id.* at 1778, ¶ 27.

In the *5 GHz Order*, the Commission specifically noted the concerns raised by DSRC interests “that devices operating in the U-NII-3 band would place U-NII unwanted emissions into frequency blocks used by [DSRC] Systems at levels that may cause interference.”<sup>14</sup> The Commission ultimately disagreed with AGA about the potential for harmful interference, noting that

[u]nlicensed devices are already allowed to operate within the 5.825-5.85 GHz band under Section 15.247 of our rules *with higher unwanted emission levels than we are adopting for the new combined rule part*. We are simply consolidating the existing rules into a single rule section, which will not increase the risk of harmful interference to DSRC services.<sup>15</sup>

In fact, the Commission concluded in the *5 GHz Order* that harmonizing the section 15.407 and 15.247 rules would both “decrease unnecessary complexity in the equipment authorization process” and actually “help eliminate potential harmful interference from unlicensed devices to other spectrum users,” by eliminating the “incentives for gaming the rules” that arose under the dual rule sets for use of U-NII-3.<sup>16</sup>

Commenters almost unanimously supported the Commission’s proposal. Cable operators,<sup>17</sup> equipment manufacturers,<sup>18</sup> Internet service providers and backhaul wholesalers,<sup>19</sup>

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<sup>14</sup> *5 GHz Order*, 29 FCC Rcd at 4153, ¶ 93.

<sup>15</sup> *Id.* 4153-55, ¶ 94 (emphasis added).

<sup>16</sup> *Id.*

<sup>17</sup> Comments of Comcast Corporation at 24; Comments of the National Cable & Telecommunications Association at 17; Comments of Time Warner Cable Inc. at 9. Unless otherwise noted, all comment citations herein are to comments filed on May 28, 2013 in ET Docket No. 13-49.

<sup>18</sup> Comments of Cisco Systems, Inc. at 42; Comments of Ericsson at 4; Comments of Motorola Mobility at 2.

<sup>19</sup> Comments of Fastback Networks at 2; Comments of First Step Internet, LLC at 3; Comments of SPITwSPOTS, Inc. at 3; Comments of the Wireless Internet Service Providers Association at 12.

industry associations,<sup>20</sup> and IEEE 802<sup>21</sup> all supported the Commission’s proposal to extend the upper edge of U-NII-3. Although several of these commenters are active in both the DSRC and unlicensed communities—including Cisco, the Telecommunications Industry Association, and IEEE 802—and called for further study and testing with respect to unlicensed and DSRC sharing in the U-NII-4 band, *none* expressed any reservations about extending the upper band edge of U-NII-3. Only the SAE International and the joint comments of the Alliance of Automobile Manufacturers and AGA mentioned any concerns about extending U-NII-3.<sup>22</sup> With such overwhelming record support and the absence of any data suggesting that harmful interference could result from the proposed rule changes, the Commission properly decided to add 25 megahertz to U-NII-3.

**B. The Commission Should Reject the AGA Petition because Bench and Field Tests Were Unnecessary and a Reviewing Court Would Likely Defer to the Commission’s Judgment.**

AGA also asserts that the Commission should reconsider the *5 GHz Order* because it failed to conduct “[a]dditional study, including rigorous bench and field testing of U-NII/DSRC interference and potential mitigation techniques . . . to determine whether and how DSRC and expanded 5 GHz U-NII operations can coexist.”<sup>23</sup> The Commission should reject this assertion. The Commission is not required to undertake such tests before making interference decisions. And the Commission’s past orders permitting new, unlicensed users to share spectrum with

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<sup>20</sup> Comments of the Telecommunications Industry Association at 11; Comments of Wi-Fi Alliance at 11.

<sup>21</sup> Comments of IEEE 802 at 26.

<sup>22</sup> Reply Comments of SAE International at 2-3; Reply Comments of Alliance of Automobile Manufacturers, Inc. and the Association of Global Automakers at 29-31.

<sup>23</sup> AGA Petition at 10.

incumbents demonstrate that the Commission has not required such testing in similar circumstances.

As the Commission has explained, there “has never been a requirement under our rules that field testing be carried out prior to allowing a new service to begin operation. All that is required is that the Commission consider the facts on the record and create rules to protect primary users of the spectrum from harmful interference.”<sup>24</sup> Commission precedent in past orders related to unlicensed spectrum is consistent with this finding. For example, the Commission did not require field testing to assess the potential for harmful interference to incumbent spectrum users when it first created the 5 GHz U-NII rules.<sup>25</sup> Similarly, in the proceeding opening the 2.4 GHz band to unlicensed technologies, the Commission allowed spread spectrum systems to use the band without requiring field testing or empirical studies.<sup>26</sup> Here, the Commission has merely determined that certain Part 15 devices can continue to operate adjacent to future DSRC operations in U-NII-4, but should do so under rules that tighten the

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<sup>24</sup> *Amendment of Parts 2 and 25 of the Commission’s Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the KU-Band Frequency Range*, ET Docket No. 98-206, RM-9147, RM-9245, Fourth Memorandum Opinion and Order, 18 FCC Rcd 8428, 8460, ¶ 60 (2003), *petitions for review denied sub. nom. Northpoint Tech., Ltd. v. FCC*, 414 F.3d 61 (D.C. Cir. 2005).

<sup>25</sup> *Amendment of the Commission’s Rules to Provide for Operation of Unlicensed NII Devices in the 5 GHz Frequency Range*, ET Docket No. 96-102, RM-8648, RM-8653, Report and Order, 12 FCC Rcd 1576 (1997); *Amendment of the Commission’s Rules to Provide for Operation of Unlicensed NII Devices in the 5 GHz Frequency Range*, ET Docket No. 96-102, RM-8648, RM-8653, Memorandum Opinion and Order, 13 FCC Rcd 14355 (1998); *Revision of Parts 2 and 15 of the Commission’s Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, ET Docket No. 03-122, RM-10371, Report and Order, 18 FCC Rcd 24484 (2003).

<sup>26</sup> *Authorization of Spread Spectrum and Other Wideband Emissions not Presently Provided for in the FCC Rules and Regulations*, ET Docket No. 03-122, RM-10371, First Report and Order, 101 F.C.C. 2d 419, 426-27, ¶ 24 (1985).

existing unwanted emissions limit. Under these circumstances—which present a far smaller risk of harmful interference than the examples provided above—the Commission need not conduct further bench or field testing.

Moreover, AGA has failed to point to a *single* federal court decision that requires the Commission to conduct field testing before making interference decisions. This is unsurprising, as appellate courts afford the Commission great deference in matters of spectrum policy, including where the Commission makes a reasoned judgment regarding the potential for harmful interference to incumbent operations.<sup>27</sup> As the D.C. Circuit has stated, spectrum management decisions are “precisely the sort that Congress intended to leave to the broad discretion of the Commission, by imposing a broad public convenience, interest, or necessity standard” in the Communications Act.<sup>28</sup>

The appeals courts have repeatedly explained that the highest degree of deference to the Commission’s spectrum policy determinations is appropriate. First, the courts recognize that spectrum management decisions are highly technical and therefore within the core of the agency’s expertise.<sup>29</sup> As the D.C. Circuit wrote in *Globalstar, Inc. v. FCC*, “When the

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<sup>27</sup> See, e.g., *Northpoint Tech., Ltd.*, 414 F.3d at 68 (deferring to the Commission’s expert judgment and concluding that “the Commission had a rational basis for concluding that MVDDS providers could share the 12 GHz bandwidth without causing ‘harmful interference’ to DBS service providers . . . and that the FCC’s decision was not arbitrary, capricious, or contrary to law”); *Am. Radio Relay League, Inc. v. FCC*, 524 F.3d 227, 232 (D.C. Cir. 2008) (upholding the Commission’s determination that unlicensed Access Broadband over Power Line operators could share spectrum with licensed radio operators, notwithstanding that “some cases of harmful interference may be possible”).

<sup>28</sup> *National Ass’n of Regulatory Utility Comm’rs v. FCC*, 525 F.2d 630, 636 (D.C. Cir. 1976).

<sup>29</sup> *Mobile Relay Assocs. v. FCC*, 457 F.3d 1, 8 (D.C. Cir. 2006) (“We uphold the Commission if it makes a ‘technical judgment’ that is supported ‘with even a modicum of reasoned analysis,’ ‘absent highly persuasive evidence to the contrary.’” (quoting *Hispanic Info. & Telecomm. Network v. FCC*, 865 F.2d 1289, 1297-98 (D.C. Cir. 1989))); *Am. Radio Relay League*, 524 F.3d at 233 (noting in a case relating to spectrum management that, “[w]here a

Commission is ‘fostering innovative methods of exploiting the spectrum’ it ‘functions as a policymaker’ and is ‘accorded the greatest deference by a reviewing court.’”<sup>30</sup>

Second, many spectrum management decisions require the Commission to make a predictive judgment, particularly where new technologies—which by definition may not have existed long enough to permit extensive empirical study—are involved.<sup>31</sup> The courts have explained that setting policy for cutting-edge uses of spectrum *requires* such predictive judgments. In these situations, the Commission correctly “conceives of its role in prophetic and managerial terms”—“it must predict the effect and growth rate of technological newcomers on the spectrum while striking a balance between protecting valuable existing uses and making room for these sweeping new technologies.”<sup>32</sup> Rather than second-guessing the Commission’s expert judgments in making such predictions, the courts have found that the Commission’s technical predictive judgments are also “entitled to the deference traditionally accorded decisions

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‘highly technical question’ is involved, ‘courts necessarily must show considerable deference to an agency’s expertise.’” (quoting *MCI Cellular Tel. Co. v. FCC*, 738 F.2d 1322, 1333 (D.C. Cir. 1984)); *AT&T Wireless Servs., Inc. v. FCC*, 365 F.3d 1095, 1099 (D.C. Cir. 2004); *Nat’l Assoc. of Regulatory Util. Comm’n’s*, 525 F.2d at 636 (“[T]he determination of how much band width to allocate to cellular systems is at once a highly technical and somewhat speculative undertaking. . . [that] Congress intended to leave to the broad discretion of the Commission.”).

<sup>30</sup> *Globalstar, Inc. v. FCC*, 564 F.3d 476, 483 (D.C. Cir. 2009) (quoting *Mobile Rely Assocs.*, 457 F.3d at 8 and *Teledesic LLC v. FCC*, 275 F.3d 75, 84 (D.C. Cir. 2001)); *see also* *Telocator Network of Am. v. FCC*, 691 F.2d 525, 538 (D.C. Cir. 1982).

<sup>31</sup> *See Globalstar*, 564 F.3d at 483; *Sioux Valley Rural Television, Inc. v. FCC*, 349 F.3d 667, 679 (D.C. Cir. 2003) (“We can find no fault with the Commission’s decision; the Commission considered the relevant evidence and made a policy judgment concerning the development of a nascent technology. Such decisions are well within the purview of the responsible agency.”); *Telocator*, 691 F.2d at 538 (“[W]hen piloting such a regulatory course, the Commission functions as a policymaker and, inevitably, a seer-roles in which it will be accorded the greatest deference by a reviewing court.”); *Nat’l Assoc. of Regulatory Util. Comm’n’s*, 525 F.2d at 636.

<sup>32</sup> *Teledesic*, 275 F.3d at 84.

regarding spectrum management.”<sup>33</sup> This broad deference accorded to the Commission’s spectrum policy decisions would certainly apply to the Commission’s decision to proceed with consolidating rule parts where the risk of harmful interference is negligible, rather than delay decision for unnecessary bench or field testing.

**III. THE COMMISSION SHOULD GRANT ECHOSTAR’S REQUEST FOR RECONSIDERATION TO CLARIFY THAT STATIONARY INDOOR CLIENT DEVICES MAY OPERATE AT 1 WATT.**

In the *5 GHz Order*, the Commission adopted new technical rules for unlicensed operations in the U-NII-1 band. Specifically, section 15.407(a)(1)(ii) of the Commission’s rules now permits indoor access points operating in the U-NII-1 band to operate at a maximum conducted output power of 1 W provided that the maximum antenna gain does not exceed 6 dBi and the Power Spectral Density (PSD) does not exceed 17 dBm in any 1 megahertz band.<sup>34</sup> For U-NII-1 “mobile and portable” client devices, the Commission’s rules now provide for a maximum conducted output power of 250 mW with an antenna gain limit of 6 dBi and a PSD limit of 11 dBm in any 1 megahertz band.<sup>35</sup>

As EchoStar discusses in its Petition for Reconsideration, the intent of the *5 GHz Order* appears to be that (1) indoor devices may operate at a maximum conducted output power of 1 Watt, and (2) client devices designed for use indoors and outdoors may operate at 250 mW. But the *5 GHz Order* does not specifically discuss the maximum power for a client device that is not mobile or portable and operates only indoors. According to EchoStar, its set-top boxes, which use Wi-Fi to distribute a program-carrying television signal within a subscriber’s home, are

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<sup>33</sup> *Id.*

<sup>34</sup> 47 C.F.R. § 15.407(a)(1)(ii).

<sup>35</sup> *Id.* § 15.407(a)(1)(iv).

stationary client devices designed solely for indoor use.<sup>36</sup> EchoStar seeks clarification that although its set-top boxes technically function as client devices, they may still operate at a maximum power level of 1 Watt under the section 15.407(a)(1)(ii) rule for indoor access points, because they pose no greater threat of harmful interference to incumbent licensees than indoor access points.<sup>37</sup>

NCTA supports EchoStar's request that the Commission clarify that stationary, indoor-only client devices may operate according to the rules for indoor access points set forth in section 15.407(a)(1)(ii). As EchoStar points out, these devices are "functionally identical to an indoor access point,"<sup>38</sup> and, as such, should receive the same regulatory treatment. Allowing such devices to operate at 1 Watt will allow for flexibility in the deployment of indoor, private Wi-Fi networks and will allow for transmission of high-quality signal throughout the home despite signal attenuation due to walls and other clutter. Moreover, devices such as EchoStar's set-top boxes do not operate outdoors and are not designed for mobile or portable use. Such stationary, indoor-only client devices therefore present no additional interference risk to incumbents in the band.

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<sup>36</sup> EchoStar Petition at 1-2.

<sup>37</sup> *Id.* at 2.

<sup>38</sup> *Id.* at 3.

**CONCLUSION.**

For the reasons stated above, the Commission should reject AGA's petition for reconsideration and should clarify that indoor-only client devices may operate at the maximum power level of 1 Watt specified for indoor access points.

Respectfully submitted,

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