

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

COMMENTS OF MOTOROLA SOLUTIONS, INC.

Motorola Solutions, Inc. (“Motorola Solutions”) hereby files these Comments on the Petitions for Reconsideration of the Federal Communications Commission’s (“Commission”) First Report and Order revising the Unlicensed National Information Infrastructure (“U-NII”) rules for devices operating in the 5.150-5.925 GHz (“5 GHz”) band.¹ Specifically, Motorola Solutions supports the petitioners requesting that the Commission reconsider the revised out-of-band emissions (“OOBE”) limits adopted for the 5.725-5.850 MHz U-NII-3 band. As various petitioners explained, the more stringent Section 15.407 OOBE limits would have significant negative consequences for wireless Internet service providers (“WISPs”) around the country without concomitant public interest benefits.

I. INTRODUCTION

Motorola Solutions has been an active participant in this proceeding and commends the Commission’s efforts to encourage innovation and expanded unlicensed use of the 5 GHz U-NII spectrum. As explained in its Petition for Partial Reconsideration, Motorola Solutions supports the majority of the actions taken in the First Report and Order, including the expanded utility of

¹ See 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 (2013) (“First Report and Order”).

the U-NII-1 band, adoption of sensible security requirements for U-NII devices and protections for Terminal Doppler Weather Radar (“TDWR”) and other radar systems, and—for the most part—the clarification and consolidation the rules applicable to the expanded 5.725-5.850 GHz U-NII-3 band. The sole issue raised in Motorola Solutions’ Petition was the transition schedule adopted by the Commission for implementing the revisions to the U-NII-3 band. Because of the significant challenges and limited benefits involved in adapting its 5 GHz WLAN products to the stricter OOB rules of Section 15.407, Motorola Solutions asked the Commission to reconsider its implementation schedule and provide additional time for manufacturers to market devices certified under Section 15.247.

II. THE COMMISSION SHOULD RECONSIDER THE OOB LIMITS ADOPTED FOR U-NII-3 DEVICES.

Motorola Solutions supports the requests of the several parties that urged the Commission to reconsider the OOB limits adopted for U-NII-3 devices in the First Report and Order, and instead allow U-NII-3 devices to continue operating under the less stringent OOB limits of Section 15.247 indefinitely.² These petitions address essentially the same flaw in the newly adopted U-NII-3 rules as Motorola Solutions did: namely, that reengineering 5 GHz WLAN infrastructure devices to comply with the more stringent out-of-band emissions limits of Section 15.407 would be burdensome for manufacturers and service providers, requiring significant time and money, while reducing product performance in the process. Although Motorola Solutions initially sought grandfathering of devices previously certified under Section 15.247 and an extended transition period for compliance with the new rules, the alternative of reconsidering the

² See Petition for Partial Reconsideration of the Wireless Internet Service Providers Association, ET Docket No. 13-49 (filed June 2, 2014) (“WISPA Petition”); Petition for Partial Reconsideration of JAB Wireless, Inc., ET Docket No. 13-49 (filed June 2, 2014) (“JAB Petition”); Petition for Reconsideration of Cambium Networks, Ltd., ET Docket No. 13-49 (filed June 2, 2014); Petition for Partial Reconsideration of Mimosa Networks, Inc., ET Docket No. 13-49 (filed June 2, 2014) (“Mimosa Petition”).

substantive OOB limit altogether would be a more effective solution that also would better serve Americans who rely upon WISPs for their home Internet service while creating little likelihood of harmful interference to services in adjacent bands.³

The existing Section 15.247 rules have facilitated the development of a thriving WISP community in the U-NII-3 band, whose operations could be rendered both economically and technically unfeasible unless the Commission reconsiders the Section 15.407 OOB limits. As Cambium Networks explained in its Petition, “the Section 15.247 technical rules have enabled Cambium and others to develop equipment that enables cost-effective deployments of long-range communications links in rural areas WISPs and others can provide broadband access in these areas because of the availability of these long-distance equipment products.”⁴

Unfortunately, compliance with the stringent OOB limits adopted in the First Report and Order could nullify these advancements. The Commission suggests three mechanisms for 5 GHz manufacturers and network operators to comply with the new OOB limits: implementation of new filters, reducing transmitter power, or decreasing antenna gain,⁵ however each of these options would cause a significant increases in cost or decreases in service quality that would injure rural consumers that rely upon WISP services, as well as public safety and enterprise users of 5 GHz technologies.

³ To be clear, by supporting the petitions filed by Cambium, Mimosa, JAB and WISPA, Motorola Solutions is not withdrawing its support for its own petition for reconsideration. Should the Commission reject the recommendations to re-impose the Section 15.247 OOB limits for devices operating in the U-NII-3 band, Motorola Solutions urges the Commission to consider and adopt the extended transition period recommended its petition.

⁴ Cambium Petition at 6-7.

⁵ First Report and Order at ¶ 119.

Cambium explains in its Petition that implementing tighter filters would be prohibitively expensive for WISPs.⁶ The company states that “[d]epending on the current MSRP of a product, each piece of equipment will cost rural WISPs up to four times what that same piece of equipment costs today.”⁷ Such increases in equipment cost inevitably would drive up the cost of broadband service for rural consumers relying upon WISP services. And while the Commission alternatively suggested that “the stringent emissions limits can be met by reducing power or decreasing antenna gain,” as Mimosa explains, this suggestion “ignores the realities of fixed wireless broadband deployment in sparsely populated areas” and “would likely diminish the distances achieved and the reliability of fixed point-to-point systems. As the WISPA conjectured, it may be that the “Commission failed . . . to appreciate the magnitude, efficacy, or cost of these equipment modifications and the devastating consequences on rural Americans who will, over time, lose broadband service.”⁸

Moreover, as the Petitioners explain, there is no countervailing public interest benefit to requiring U-NII-3 technology to comply with the stricter OOB limits. Mimosa Networks stated that in addition to the detrimental impact on 5 GHz WLAN operation, another problem with the Commission’s decision to impose restrictive OOB limits on fixed U-NII-3 devices “is that the stringent requirements adopted by the Commission seek to address a problem that appears not to exist.”⁹ There was no evidence in the record of harmful interference to TDWR or any other systems caused by rules-compliant operations pursuant to the OOB limits of Section 15.247. Indeed, the Commission implicitly recognized that operations pursuant to these limits are

⁶ Cambium Petition at 7-8.

⁷ *Id.* at 7.

⁸ WISPA Petition at 3.

⁹ Mimosa Petition at 6.

acceptable when it grandfathered devices that have already been installed and operating. The only reason cited for the adoption of the more stringent limit is the desire to have a unified OOB limit across the U-NII-3 and U-NII-2 bands, a justification that does not stand up to the significant hardship that will be faced by 5 GHz band equipment manufacturers, WISPs, and the many rural consumers that rely upon their services.

III. THE ASSOCIATION OF GLOBAL AUTOMAKERS DOES NOT STATE VALID GROUNDS FOR RECONSIDERATION.

The Commission should not grant the Petition for Partial Reconsideration of Association of Global Automakers (“Global”), as the Association fails to articulate grounds to justify reconsideration.¹⁰ In its Petition, Global asserts that the introduction of new unlicensed devices to the spectrum adjacent to the 5.9 GHz band could cause harmful interference to the Intelligent Transportation Systems (“ITS”) planned to be deployed in that band.¹¹ However, despite Global’s unsupported assertion that “[t]he record in this rulemaking proceeding contains extensive evidence of the potential for harmful interference [Dedicated Short Range Communications],”¹² Global offers no specific articulation of the interference risk.

It is not surprising that Global was unable to articulate a valid interference concern. As Global recognizes, despite digital WLAN devices having been operational in the band for years under technical criteria largely similar to those adopted for the U-NII-3 band in the First Report and Order, “there have been no interference problems in this radio spectrum to date.”¹³ The actions taken in U-NII-3 band by the First Report and Order, which were largely in the vein of

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

¹¹ *Id.* at 4-5.

¹² *Id.* at 5.

¹³ *Id.* at 6.

streamlining and harmonizing the Section 15.407 and Section 15.247 rules, did not materially disadvantage the auto industry or the ITS community in any way. There is no justification for additional laboratory testing when real world deployments of digitally modulated 5.725-5.850 MHz equipment are already operational. This and any other unjustified calls for delay should be rejected.

IV. THE COMMISSION SHOULD PROVIDE THE CLARITY REQUESTED BY ECHOSTAR.

The Commission should grant the clarification requested by EchoStar Technologies L.L.C. (“ETC”) related to the maximum permitted power level of indoor, Wi-Fi enabled set-top boxes. In its Petition for Reconsideration, EchoStar Technologies points out a potential lack of clarity in the First Report and Order related to the special case of stationary indoor client devices.¹⁴ As EchoStar points out, despite technically being client devices, its Wi-Fi enabled set top boxes are used much differently than a conventional portable PC or mobile device. Set top boxes typically are rarely moved once installed, are only used indoors, and are never operated while in motion. Moreover, because the set top boxes have to transmit high definition video and audio to other devices throughout the house, they require flexibility to operate at the maximum power levels permitted for indoor unlicensed devices in the same band. Indeed, as ETC explains, “the box is functionally identical to an indoor access point, and the interference considerations are the same for both.”¹⁵ Therefore, the Commission should clarify that such indoor-only, stationary devices should be permitted to operate with up to 1 Watt of power in the U-NII-1 band, despite nominally being client devices.

¹⁴ See Petition for Reconsideration of EchoStar Technologies L.L.C., ET Docket No. 13-49 (filed June 2, 2014).

¹⁵ *Id.* at 3.

V. CONCLUSION

Motorola Solutions broadly supports the Commission's efforts to promote expanded unlicensed use of the 5 GHz band. The majority of the actions taken in the First Report and Order were sensible incremental steps toward the realization of the full potential of this important band. However, the Commission should reconsider the overly stringent OOB limits applied to U-NII-3 devices under Section 15.407 and instead revert to the sensible limits previously imposed under Section 15.247. Moreover, Motorola Solutions urges the Commission to continue to move swiftly and with purpose on further steps to rationalize the 5 GHz band for unlicensed use.

Respectfully submitted,

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