

**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) ET Docket No. 13-49
Infrastructure (U-NII) Devices in the 5 GHz Band)

**REPLY COMMENTS OF PCIA – THE WIRELESS INFRASTRUCTURE
ASSOCIATION AND THE HETNET FORUM**

I. INTRODUCTION

PCIA – The Wireless Infrastructure Association and the HetNet Forum, a membership section of PCIA (“PCIA”)¹ respectfully submits these reply comments in response to the Federal Communications Commission’s (“FCC” or “Commission”) Notice of Proposed Rulemaking seeking comments on amending Part 15 of its rules regarding operation of Unlicensed National Information Infrastructure (“U-NII”) devices in the 5 GHz band.² PCIA commends the Commission on its action to facilitate unlicensed use in the 5 GHz band because Wi-Fi and other unlicensed technologies, which provide traffic “offloading” from wireless service providers’ cellular networks, are among the promising solutions to the looming data crunch. PCIA supports the Commission in its efforts to mitigate the wireless data crunch by freeing up additional contiguous spectrum in the 5 GHz band for unlicensed use while ensuring that it does not cause

¹ PCIA is the national trade association representing the wireless infrastructure industry. PCIA’s members develop, own, manage, and operate towers, rooftop wireless sites, and other facilities for the provision of all types of wireless, telecommunications, and broadcasting services. PCIA and its members partner with communities across the nation to effect solutions for wireless infrastructure deployment that are responsive to the unique sensitivities and concerns of each community.

The HetNet Forum, formerly The DAS Forum, is a membership section of PCIA dedicated to the advancement of heterogeneous wireless networks.

² See *In re* Revision of Part 15 of the Commission’s Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band, *Notice of Proposed Rulemaking*, 28 FCC Rcd 1769 (2013) (“NPRM”).

any harmful interference to licensed carriers.³ PCIA also cautions the Commission against adopting costly interference mitigation techniques that may stifle competition and hamper investment, potentially delaying the service innovation and quality that consumers demand.

II. UNLICENSED SPECTRUM SHARING IN THE 5 GHZ BAND CAN HELP MEET RISING DEMAND FOR WIRELESS DATA

Consumer demand for wireless services fosters competition, spurs innovation, and results in greater choice. According to Pew Research Center, fifty-five percent of adults access Internet on their mobile phones, while thirty-one percent who use their phones as their primary access to the Internet.⁴ The number of mobile devices is expected to greatly increase in the next five years, growing from 424 million in 2012 to 775 million in 2017.⁵ Mobile data traveling across cellular networks increased fifty-six percent from 2011 to 2012 and it is expected to grow approximately 850 percent by 2017.⁶ This exponential growth could result in increased traffic and dropped calls as well as decreased speed on available licensed cellular networks if spectrum and infrastructure resources cannot match the demand.⁷ However, offloading can and does play a significant role in

³ See Comments of Cisco Systems, Inc., ET Docket No. 13-49, at 6 (May 28, 2013) (“Cisco Comments”) (facilitating the use of wider channels in the 5 GHz band and reforming outdated rules is necessary for Wi-Fi expansion); Comments of Motorola Solutions, Inc., ET Docket No. 13-49, at 1 (May 28, 2013) (“MSI Comments”) (removing regulatory barriers and utilizing wider channels in the 5 GHz band is essential to development of unlicensed technologies); Comments of Qualcomm, Inc., ET Docket No. 13-49, at ii (May 28, 2013) (providing a “wider contiguous swath” of spectrum in the 5 GHz band is in line with the Commission’s objectives to ease spectrum crunch).

⁴ Joanna Brenner, *Pew Internet: Mobile*, PEW RESEARCH CENTER (June 6, 2013) (“Pew Internet”), <http://pewinternet.org/Commentary/2012/February/Pew-Internet-Mobile.aspx>.

⁵ See Cisco Comments at 12.

⁶ See Comments of PCIA – The Wireless Infrastructure Association and The HetNet Forum, WT Docket No. 13-135, at 3 (June 17, 2013) (“Competition Report Comments”).

⁷ See Pew Internet (finding that seventy-two percent of cell owners experience dropped calls at least occasionally. Additionally, seventy-seven percent of mobile phone users stated that they experience slow download speeds).

addressing rising demand. According to a Cisco study, forty-seven percent of the United States' mobile data traffic was offloaded in 2012, while 66 percent will be offloaded in 2017.⁸

PCIA agrees with commenters who point out that this growth presents new challenges to delivering high-speed, high-quality wireless services as the traffic on cellular networks increases. Licensed spectrum for commercial mobile broadband is the preferred option because exclusive access to spectrum provides certainty that fosters investment in wireless services deployment. Nonetheless, wireless service providers continue to deploy Wi-Fi and other unlicensed spectrum technologies because they are effective at alleviating network congestion.

With increasing consumer demand, carriers are coming up with creative solutions to the spectrum crunch by deploying Heterogeneous Networks (“HetNets”) to meet capacity and coverage challenges.⁹ These localized and customizable solutions can deliver seamless connectivity to licensed and unlicensed services indoors, outdoors, even underground.¹⁰ For example, AT&T plans to deploy 40,000 small cells and 1,000 DAS by 2015.¹¹ In fact, AT&T will increase its Wi-Fi footprint significantly as the carrier engages in deployment of small cells and in-building systems that will all be Wi-Fi enabled.¹² Other telecommunications providers are also utilizing the benefits of Wi-Fi and other unlicensed technologies to create a network of new

⁸ CISCO, *VNI Mobile Forecast Highlights, 2012-2017* (Step 1: United States, Step 2: Network Connections, select Offload Traffic), http://www.cisco.com/web/solutions/sp/vni/vni_mobile_forecast_highlight/index.html#~Country (last visited May 22, 2013).

⁹ “Heterogeneous network” is a term used to describe the combination of “macro”, or large, infrastructure such as monopoles with small cells and distributed antenna systems. By integrating the two types of infrastructure together, carriers are able to target geographic areas to increase network capacity.

¹⁰ See Competition Report Comments at 9.

¹¹ *AT&T: 40,000 Small Cells*, DAILY WIRELESS, <http://www.dailywireless.org/2012/11/07/65675/> (last visited June 17, 2013).

¹² See Tammy Parker, *AT&T: Wi-Fi Will Be in All of Our Small Cell Deployments*, FIERCE BROADBAND WIRELESS (Jan. 9, 2013), <http://www.fiercebroadbandwireless.com/story/att-wi-fi-will-be-all-our-small-cell-deployments/2013-01-09#ixzz2ZzAGXJJj>.

connectivity options for their customers.¹³ In 2012 alone, Comcast increased from 5000 access points to 25,000.¹⁴ The small cell market is expected to grow at a five-year CAGR of sixty-eight percent from 2011–2016 to \$2.3 billion.¹⁵ Use of unlicensed spectrum in the 5 GHz band will play an important role in facilitating the expansion of broadband connectivity and mitigating traffic issues on licensed cellular data networks.

In addition to offloading mobile data traffic, products with Wi-Fi capability will continue to enter the market. In 2012, manufacturers sold 1.5 billion Wi-Fi enabled devices.¹⁶ Furthermore, 802.11ac or “Gigabit Wi-Fi” enabled devices, which operate solely in the 5 GHz band, are entering the market and delivering significantly faster speeds with less potential for interference.¹⁷ The Commission also recognizes the wireless growth and the potential of Wi-Fi.¹⁸ The commercial benefits of Wi-Fi are pervasive: Wi-Fi enabled devices are everywhere from phones to cars—there are even Wi-Fi enabled treadmills.¹⁹ The number of Wi-Fi enabled devices continues to grow, and the record demonstrates the breadth of the applications for this technology. Automotive applications are expected to grow 109 percent while the health and

¹³ See National Cable & Telecommunications Association, ET Docket No. 13-49, at 3 (May 28, 2013) (“In less than two years, cable operators have deployed more than 150,000 Wi-Fi access points throughout the country in both urban and rural areas, and more access points are being deployed every day.”); Comments of Comcast, ET Docket No. 13-49, at 2 (May 28, 2013) (“Comcast today includes 5 GHz radios in every new Wi-Fi access point in its network – and virtually every new consumer device is now 5 GHz capable.”) (“Comcast Comments”); Comments of Time-Warner Cable Inc., ET Docket No. 13-49, at 4 (May 28, 2013) (“From their inception in 2011, TWC’s Wi-Fi networks have expanded to more than 10,000 access points by the end of 2012, and have grown to more than 15,000 access points to date, with plans to more than double this amount by year-end 2013 alone.”).

¹⁴ Comcast Comments at 5.

¹⁵ See Competition Report Comments at 9, *citing* RAYMOND JAMES & ASSOCIATES, GROWING BIG NETWORKS WITH SMALL CELLS: RAMIFICATIONS FOR THE SUPPLY CHAIN 1 (Nov. 20, 2012) (“Raymond James Report”).

¹⁶ See Comcast Comments at 1.

¹⁷ Tony Bradley, *802.11ac 'Gigabit Wi-Fi': What You Need to Know*, PC WORLD (Apr. 27, 2012), http://www.pcworld.com/article/254616/802_11ac_gigabit_wi-fi_what_you_need_to_know.html.

¹⁸ See NPRM ¶ 15 (highlighting the growing consumer demand for broadband and ability of Wi-Fi to meet some of this demand).

¹⁹ See Cisco Comments at 10.

medical applications are expected to grow thirty-nine percent by 2016.²⁰ In health industries alone, sales of Wi-Fi technology is expected to reach almost five billion dollars by 2014.²¹ These growing numbers suggest that Wi-Fi will have an important role to play alongside licensed data networks.

Finally, PCIA cautions the Commission against implementing costly interference mitigation techniques to the extent possible because additional mechanisms could add “complexity and cost” to an already highly-functional, competitive, and low-cost marketplace.²² The Commission should carefully weigh the costs and benefits of its mitigation proposals, such as geo-location, to ensure that such interference mitigation capabilities do not stand in the way of progress and innovation within 5 GHz band.

²⁰ *Id.* at 11.

²¹ *See* Comments of Association for the Advancement of Medical Instrumentation (AAMI), ET Docket No. 13-49, at 3 (May 28, 2013).

²² MSI Comments at 2; *see also* Comments of Ericsson, ET Docket No. 13-49, at 3 (May 28, 2013) (“Ericsson recommends that the need for a geo-location database-oriented approach to spectrum management be studied further, but such study should not delay adding to the inventory of U-NII spectrum at 5 GHz or change existing rules.”).

III. CONCLUSION

Development of comprehensive rules governing unlicensed spectrum use in the 5 GHz band is an important step toward meeting consumer demand and alleviating network congestion on cellular data networks. PCIA supports the Commission in its efforts to provide additional spectrum for unlicensed use to support connectivity challenges while keeping in mind that any costly mitigation techniques can stand in the way of progress and innovation.

Respectfully submitted,

PCIA – THE WIRELESS
INFRASTRUCTURE ASSOCIATION
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