

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

In the Matter of	)	
	)	
Amendment of the Commission’s Rules with	)	GN Docket No. 12-354
Regard to Commercial Operations in the 3550-	)	
3650 MHz Band	)	

**COMMENTS OF THE  
TELECOMMUNICATIONS INDUSTRY ASSOCIATION**

The Telecommunications Industry Association (“TIA”)<sup>1</sup> hereby submits comments to the Federal Communications Commission (“Commission”) in the above-captioned proceeding. TIA strongly supports the Commission’s efforts to adopt innovative service rules for the 3.5 GHz band, allowing for increased access to mobile broadband while maintaining appropriate protections for incumbent users.

TIA has long-advocated for realizing the broadly-expressed national policy goal of making more spectrum available for commercial use. Making more spectrum available is essential for industry to keep pace with exploding demand and with the rapid pace of innovation in the ICT marketplace. It will create hundreds of thousands of jobs for Americans while improving U.S. technological competitiveness. It will also enable the mobile industry to meet the demand for high-speed wireless applications, and will help drive the U.S. economy, both near-term and long-term.

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<sup>1</sup> TIA is the leading trade association for the information and communications technology (“ICT”) industry, representing companies that manufacture or supply the products and services used in global communications across all technology platforms. TIA represents its members on the full range of policy issues affecting the ICT industry and forges consensus on industry standards.

In its Further Notice of Proposed Rulemaking (“FNPRM”) in this proceeding, the Commission fulfilled its commitment to seek comment on specific rule text prior to the adoption of a Report and Order for the 3.5 GHz band.<sup>2</sup> TIA’s comments are therefore targeted towards specific areas where the Commission can potentially improve upon the rules proposed in the FNPRM. In general, TIA encourages the Commission to adopt rules that do not stifle progress by introducing undue complications into the relationship between the two newly-proposed commercial license tiers, all while preserving appropriate protections for federal and other incumbent users of the 3.5 GHz band.

**I. The Commission Should Ensure that Priority Access Licensees Receive Protections Commensurate to Their Status.**

In its initial comments, TIA took no specific position regarding a particular access or usage control method.<sup>3</sup> In the FNPRM, the Commission now proposes a three-tier approach – an approach based on the fundamental premise that Priority Access License (“PAL”) users, i.e., Tier 2, will have superior rights in the bands as compared to General Authorized Access (“GAA”) users, i.e., Tier 3. To justify their preferred status, PAL users will be required to comply with stricter regulatory obligations than GAA users.<sup>4</sup>

Unfortunately, while ostensibly guaranteeing that PAL users are protected from harmful interference, some of the Commission’s proposed rules could produce a backwards result that effectively gives GAA users not merely equal, but *superior* rights to PAL users. For example,

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<sup>2</sup> Further Notice of Proposed Rulemaking, *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, rel. Apr. 23, 2014 (“FNPRM”), at ¶ 4.

<sup>3</sup> Comments of the Telecommunications Industry Association, filed Dec. 5, 2013 in GN Docket No. 12-354 (“TIA Licensing PN Comments”), at 3, *available at* <http://apps.fcc.gov/ecfs/document/view?id=7520960797>

<sup>4</sup> See FNPRM Appendix A (proposing 47 CFR §§ 96.7(b) and 96.21(a)) (requiring PAL users to meet citizenship, character, financial, technical, and other criteria, and prove that the public interest, convenience, and necessity will be satisfied).

the Commission plans to provide GAA users with access to unused PAL channels – and not vice-versa – while also reserving 50 percent of all available spectrum for GAA use.<sup>5</sup> This proposed arrangement seems backward if the underlying premise is that PAL users – who must meet more stringent qualifications in applying for spectrum – should have priority.

The problem is further magnified when considered in light of the currently-proposed exclusion zones – i.e., restricting access to 60 percent of the population.<sup>6</sup> Indeed, the FNPRM suggests that in areas where incumbent operations are a significant factor, the Commission may act to authorize GAA operations *before* PAL use, on the basis that PAL users would have quality-of-service expectations.<sup>7</sup> Again, this seems backwards. First, PAL network operators already expect that the 3.5 GHz band will present unique quality-of-service issues compared to traditional, exclusively licensed spectrum. Moreover, PAL networks will typically have a better-defined topology and greater accountability mechanisms vs. GAA operations – a scenario usually helpful to incumbents wary of harmful interference – suggesting that exclusion zone operations should begin with PAL use, not the other way around.

The net effect of the proposed rules, when applied in combination, could reduce the amount of spectrum available for PAL users below the level needed to offer an economically viable service, all while guaranteeing GAA access to at least half the spectrum. This would be a strange outcome indeed. TIA recommends that the Commission consider ways to mitigate the effects of its proposed rules to ensure that PAL users have rights that are “superior” not just as a technical matter of preventing harmful interference – but that more accurately reflect the intuitive understanding of what “priority” in a band should actually mean.

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<sup>5</sup> See FNPRM ¶ 36.

<sup>6</sup> See Notice of Proposed Rulemaking, *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, rel. Dec. 12, 2012 (“NPRM”), at ¶ 6.

<sup>7</sup> FNPRM ¶ 142.

## **II. The Commission Should Update the Exclusion Zones to Account for New Information.**

Reducing the size of the exclusion zones – which cover 60% of the U.S. population as currently proposed<sup>8</sup> – is critically important to ensuring the commercial viability of any service offered in the 3.5 GHz band. In the FNPRM, the Commission proposes to implement the geographic Exclusion Zones proposed in NTIA’s Fast Track Report,<sup>9</sup> while noting that it will reduce the distances in its proposal “if possible.”<sup>10</sup>

Some of the information and data underlying the assumptions in NTIA’s Fast Track Report has since been updated – including accounting for the use of small cells which the four-year-old Fast Track Report did not anticipate. For example, data submitted by Qualcomm suggests that the exclusion zones can potentially be reduced in size by an order of magnitude.<sup>11</sup> Therefore, TIA strongly encourages the Commission to continue its planned dialogue with NTIA on this issue.

## **III. The Commission Should Provide Flexibility Regarding Contained Access Users.**

The Commission’s desire to make special provisions for particular critical services – such as hospitals, public safety organizations, and local governments – is laudable. The proposed rules take a substantial step in promoting such use by allowing these organizations to request up

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<sup>8</sup> See NPRM ¶ 6.

<sup>9</sup> FNPRM ¶ 140.

<sup>10</sup> FNPRM ¶ 141.

<sup>11</sup> See Comments of Qualcomm Incorporated, filed Feb. 20, 2013 at 16-18 & Appendix (“Qualcomm NPRM Comments”), *available at* <http://apps.fcc.gov/ecfs/document/view?id=7022123527>; see also Letter from John W. Kuzin to Marlene Dortch, filed Apr. 15, 2014 (“Qualcomm Apr. 15 Ex Parte Letter”), *available at* <http://apps.fcc.gov/ecfs/document/view?id=7521098388>; Letter from John W. Kuzin to Marlene Dortch, filed Apr. 16, 2014 (“Qualcomm Apr. 16 Ex Parte Letter”), *available at* <http://apps.fcc.gov/ecfs/document/view?id=7521098516>.

to 20 MHz from the SAS.<sup>12</sup> Yet the need to preserve the basic structure of the tiered-access structure is also important, and the proposed rules wisely clarify that except for prohibiting third-party use, Contained Access Facilities (“CAFs”) are still subject to the basic GAA rules, i.e., accepting of harmful interference from PAL users.<sup>13</sup>

It is possible, however, that Contained Access Users may not need all of the 20 MHz (or other amount) initially requested and assigned to them by the SAS. Yet the proposed rule states flatly that such frequencies “shall not be available” for other GAA users within the physical confines of the CAF<sup>14</sup> -- which could over time lead to inefficient use of the band. Rather than adopting such an inflexible rule, TIA recommends that the Commission modify its rule text to allow for an SAS or other interested party to seek a waiver if necessary. This would promote more efficient use of the band – which is, of course, the Commission’s core purpose in adopting a band plan.

#### **IV. The Commission Should Consider Potential Issues Regarding Synchronization.**

The Commission proposes to use dynamically-assigned 10 MHz channels for PAL licensees, rather than fixed channels as were proposed by some commenters.<sup>15</sup> Dynamic channel assignments may raise potential issues regarding synchronization, since all radio base stations – including small cells – require some degree of synchronization, particularly in dynamic applications. This may include frequency synchronization, phase alignment, or time

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<sup>12</sup> See FNPRM ¶ 60.

<sup>13</sup> See *id.*; see also *id.* at Appendix A (proposing 47 CFR § 96.35(b)(2)).

<sup>14</sup> See *id.* at Appendix A (proposing 47 CFR § 96.35(b)).

<sup>15</sup> See, e.g., FNPRM ¶ 32 n. 66 (citing Ericsson et al’s support for fixed assignments).

synchronization.<sup>16</sup> PAL users will need to address these issues when deploying services, and TIA urges the Commission to carefully consider them when adopting final rules.

**V. The Commission Should Modify Proposed Transmit Power Limits to Accommodate the Tolerance Level in the LTE Specification for User Equipment.**

The Commission proposes that the maximum EIRP for End User Devices not exceed 23 dBm in 10 megahertz bandwidth.<sup>17</sup> However, the LTE specification limits overall power to 23 dBm with a tolerance of  $\pm 2$  dB<sup>18</sup> – so it is possible that LTE user equipment could transmit at up to 25 dBm and remain fully compliant with global standards. To avoid the need for modifying or re-engineering devices specifically to comply with U.S.-only power limits, TIA urges the Commission to allow for a maximum power level of 25 dBm, or else to ensure that its rules accommodate the potential 2 dB tolerance in the LTE specification in some other fashion.

**VI. The Commission Should Avoid Imposing Mandatory Receiver Standards.**

The Commission takes note of “signal strength levels of undesired interfering signals in widely-adopted industry standards for receiver performance (e.g., 3GPP LTE) – and then uses these standards as the basis for a proposed rule.<sup>19</sup> It later recognizes that “modern receiver technologies incorporate Surface Acoustic Wave / Bulk Acoustic Wave filters” – and again uses this fact as the basis for a proposed rule.<sup>20</sup>

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<sup>16</sup> See, e.g., Small Cell Forum, *Synchronisation for LTE small cells*, Release 4 (Feb. 2014), available at <http://www.scf.io/en/documents/075 - Synchronisation for LTE small cells.php>; Ericsson, *Synchronization in the Mobile Standards* (2013), available at [http://tf.nist.gov/seminars/WSTS/PDFs/2-2\\_Ericsson\\_Ruffini\\_Sync\\_in\\_MobileStandards\\_ruffini-rev3-tot.pdf](http://tf.nist.gov/seminars/WSTS/PDFs/2-2_Ericsson_Ruffini_Sync_in_MobileStandards_ruffini-rev3-tot.pdf).

<sup>17</sup> FNPRM ¶ 76 & Appendix A (proposing 47 CFR § 96.38(b)).

<sup>18</sup> See, e.g., 3GPP TS 36.101, *Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception*; at § 6.2.2, available at <http://www.3gpp.org/DynaReport/36101.htm> (select any recent version).

<sup>19</sup> FNPRM ¶¶ 85-86.

<sup>20</sup> FNPRM ¶ 143.

TIA urges the Commission not to establish mandatory receiver standards at this time. Although the Commission claims that “[its] rules in this regard are technically neutral,”<sup>21</sup> mandatory receiver standards come with significant potential to impede innovation and flexibility while driving up device costs for consumers. To be sure, issues regarding receiver performance are important to consider, particularly in the context of spectrum sharing scenarios. However, TIA urges the Commission to address these issues through existing industry-led standards processes or through public-private partnerships rather than through prescriptive regulations.

#### **VII. The Commission Should Ensure that the 3.5 GHz Band Plan Accounts for Globally-Designed Devices.**

One of the most promising aspects of deploying mobile broadband in the 3.5 GHz band is the potential for global harmonization. Allocation of globally-harmonized spectrum for mobile broadband reduces the cost of device design and manufacturing, while allowing for more effective international roaming. Manufacturers will therefore endeavor to produce products with 3.5 GHz radios designed for global operations – including in bands allocated overseas which are not necessarily in perfect alignment with those allocated to the CBSD in the United States.

The bands that are the subject of this proceeding encompass two internationally-designated bands for International Mobile Telecommunications (IMT), namely, Band 42 (3400-3600 MHz) and Band 43 (3600-3800 MHz). TIA recommends that the FCC carefully monitor and consider global developments, along with the reality that devices operating in this band will most likely be designed for global operations – including in spectrum other than 3550-3700 MHz. This may require ensuring (if necessary) that the SAS is assigning, and that CBSD users are using, frequencies appropriate for the specific needs of the United States.

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<sup>21</sup> FNPRM ¶ 86.

### **VIII. The Commission Should Apply Its Existing Secondary Market Rules to the 3.5 GHz Band.**

In the FNPRM, the Commission noted its particular interest in modifications to these rules that could reduce transaction costs and allow increased automation of transfer and lease applications – and its interest in the possibility of having a “spectrum exchange” to facilitate a “vibrant and deep market for PAL rights.”<sup>22</sup> TIA believes the Commission should apply its existing secondary market rules to the 3.5 GHz band.<sup>23</sup> Of course, the Commission may continue exploring the concept of a spectrum exchange to complement the agency’s existing regulatory framework, either through further notices in this or other proceedings. Meanwhile, the Commission’s current rules offer a good starting point until a deeper record is developed on a potential spectrum exchange or similar concepts.

### **IX. The Commission Should Not Assume that its 3.5 GHz Band Plan will Provide a Model for Other Bands.**

The 3.5 GHz proceeding represents an opportunity to experiment with new technologies for small cells and spectrum sharing, and the Commission itself describes it as an “innovation band” where it can explore new methods of sharing and promote a diverse array of network technologies.<sup>24</sup> However, although the Commission hopes the rules adopted here will provide a model that can “ultimately be expanded to other bands,” there is reason for pause. Every spectrum band – including the 3.5 GHz band – will present unique opportunities and challenges, and the set of rules proposed in the FNPRM is in many ways an open-ended experiment.

TIA urges the Commission to approach spectrum sharing scenarios in any given band on a case-by-case basis – an approach that balances the potential for making more spectrum

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<sup>22</sup> FNPRM ¶ 135.

<sup>23</sup> TIA Licensing PN Comments at 8.

<sup>24</sup> FNPRM ¶ 2.



available for mobile broadband with the needs of specific incumbent operations already in the band.

## **X. Conclusion**

TIA continues to strongly support the Commission’s efforts in this proceeding. TIA also applauds the Commission for recognizing that any new venture such as this must be an “iterative process.”<sup>25</sup> Indeed, the Report and Order that is eventually adopted in this proceeding will in many ways only represent a starting point – although it will immediately open the door to robust commercial mobile broadband uses of the band. For the foregoing reasons, TIA urges the Commission to adopt policies consistent with the recommendations above.

Respectfully submitted,

**TELECOMMUNICATIONS INDUSTRY ASSOCIATION**

By:     /s/ Danielle Coffey      
Danielle Coffey  
Vice President, Government Affairs

Dileep Srihari  
Director, Government Affairs

Telecommunications Industry Association  
1320 N. Courthouse Road  
Suite 200  
Arlington, VA 22201  
(703)-907-7700

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<sup>25</sup> FNPRM ¶ 4.