

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

In the Matter of)
)
Modification of Parts 2 and 15 of the)
Commission’s Rules for unlicensed devices and) ET Docket No. 03-201
equipment approval)
)
_____)

COMMENTS OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

The Telecommunications Industry Association (“TIA”) hereby submits its comments in response to the Further Notice of Proposed Rulemaking (“FNPRM”)¹ in the above-captioned docket. TIA has 600 member companies that manufacture or supply the products and services used in global communications. TIA represents its members on the full range of public policy issues affecting the information and communications technology industry and forges consensus on industry standards. Among their numerous lines of business, TIA member companies design, produce, and deploy unlicensed wireless equipment and devices in conformity with Part 15 of the FCC’s rules.

TIA supports the Commission’s minimally regulatory, market-based approach to unlicensed wireless embodied in Part 15 of the FCC’s rules. The Part 15 unlicensed model has proved to be a successful alternative to exclusive-use licensing that has promoted innovation and efficient spectrum use, even in spectrum bands considered congested and challenging. In light of

¹ *Modification of Parts 2 and 15 of the Commission’s Rules for unlicensed devices and equipment approval*, Memorandum Opinion and Order and Further Notice of Proposed Rulemaking, FCC 07-117, ET Docket No. 03-201 (rel. June 22, 2007). For purposes of these comments, this decision is referred to interchangeably as the “*Memorandum Opinion and Order*” and the “*FNPRM*” depending on the portion of the decision being discussed.

this success, the Commission should reject CellNet’s proposal to fundamentally alter the Part 15 regime by imposing duty cycle or other spectrum etiquette requirements.² The proposed requirements would turn Part 15 on its head by requiring protection of the new class of “incumbent unlicensed devices”³ at the expense of new and innovative uses, including low-cost rural broadband access solutions. In addition, the requirements would significantly constrain design flexibility and increase the cost of unlicensed equipment. The costs of such tradeoffs exceed the promised benefit of interference reduction, particularly in the 915 MHz band, which the Commission has concluded is efficiently used despite crowding.⁴

Moreover, there is no basis for imposing such requirements on the 2.4 and 5.8 GHz bands. The 2.4 GHz band is prospering under the existing Part 15 regime. The Commission only recently has made 5.8 GHz available for unlicensed use.⁵ In light of ongoing efforts to design and deploy unlicensed equipment in the 5.8 GHz band under current rules, it is premature to change the applicable regulatory framework. Accordingly, the Commission should deny

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² CellNet Petition for Limited Reconsideration, ET Docket No. 03-201, 8 (filed Oct. 7, 2004) (“CellNet Petition”). Although the CellNet Petition was dismissed in a subsequent Memorandum Opinion and Order in ET Docket 03-201, *Memorandum Opinion and Order*, ¶ 17, the duty cycle and spectrum etiquette proposals in the FNPRM are based on the CellNet Petition, as developed through subsequent filings. See *FNPRM*, ¶¶ 22-27.

³ CellNet Petition, 7.

⁴ *Modification of Parts 2 and 15 of the Commission’s Rules for unlicensed devices and equipment approval*, Report and Order, FCC 04-165, ET Docket No. 03-201, ¶ 54 (rel. July 12, 2004) (“*Report and Order*”) (“We decline to impose any type of spectrum etiquette for the Part 15 bands that are the subject of this proceeding because they are already heavily used. We believe that design flexibility has helped industry to develop efficient sharing and modulation schemes.”)

⁵ See *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*, Report and Order, FCC 03-287 (rel. Nov. 18, 2003) (making an additional 255 MHz of spectrum in the 5 GHz range available for unlicensed use).

requests to impose duty cycle or other spectrum etiquette requirements in the absence of any problem warranting such a remedy.

I. THE COMMISSION SHOULD NOT CHANGE ITS SUCCESSFUL POLICY OF REGULATORY FLEXIBILITY FOR UNLICENSED SERVICES

The FCC's minimally regulatory Part 15 regime for unlicensed services has spurred innovation and efficient spectrum use. Accordingly, the Commission should subject calls for modification of the regime to considerable scrutiny. In the case of CellNet's duty cycle or other spectrum etiquette proposals, that high standard has not been satisfied.

The Part 15 regime is premised on a number of key policy trade-offs. The Commission allows access to spectrum for unlicensed use without competitive bidding. However, unlicensed use is secondary to primary, licensed use,⁶ meaning that unlicensed users must accept interference from, but cannot interfere with, licensed users with primary spectrum rights. In addition, unlicensed users must operate at very low power.⁷ But, the Commission affords unlicensed users considerable design flexibility. And while unlicensed users are secondary to licensed users, they stand on equal footing with respect to one another.

This minimally regulatory approach has yielded considerable benefits in the form of improved spectrum efficiency and increased innovation. When the Commission reviewed and fine-tuned Part 15 in 2004, its stated goal was to *remove* unnecessary regulation and *increase* flexibility.⁸ The Commission has noted that Part 15 creates spectrum access opportunities for a

⁶ 47 C.F.R. § 15.5(b).

⁷ 47 C.F.R. § 15.209(a).

⁸ *See Report and Order*, ¶¶ 1-2 (“The increased flexibility in our technical rules for unlicensed devices will encourage and facilitate an environment that stimulates investment and innovation in broadband technology and services. The changes adopted herein also remove unnecessary regulatory impediments to the deployment of advanced technologies for unlicensed wireless networking.”)

variety of devices,⁹ flexible rules facilitate equipment design,¹⁰ and increased design complexity has the potential to increase the cost of unlicensed devices.¹¹ The agency also has indicated a particular interest in the relationship between the flexible Part 15 regime and the emergence of digitally modulated wireless networking equipment used for low cost rural broadband access solutions.¹² Indeed, providing additional flexibility requested by Wireless Internet Service Providers (“WISPs”) to advance the Commission’s broadband goals and serve rural America was the central objective of the 2004 *Report and Order*.¹³

CellNet’s duty cycle and other spectrum etiquette proposals conflict with and undermine the successful Part 15 approach. While CellNet characterizes its proposal as consistent with the Commission’s Part 15 rules, the proposal would alter the regime in fundamental ways. As an initial matter, CellNet’s proposal would replace an interference regime treating all unlicensed users as secondary users of equal standing with a “first-in-time” approach. Instead of requiring unlicensed users to protect licensed users only – as Part 15 does – CellNet would require

⁹ See *Memorandum Opinion and Order*, ¶ 21 (“our goal is to ensure that the different types of unlicensed devices that operate in a band have an opportunity for spectrum access”).

¹⁰ See *Report and Order*, ¶ 54 (“design flexibility has helped industry to develop efficient sharing and modulation schemes.”)

¹¹ See *Id.*, ¶ 53 (noting Pegasus’ concern that “the increased design complexity needed to implement a spectrum etiquette would hinder the continued introduction of low-cost devices designated to operate in the [unlicensed] bands.”)

¹² See *id.*, ¶ 1 (“WISPs use unlicensed devices to provide broadband service for rural and underserved areas, and also to provide an alternative broadband service in metropolitan areas. The increased flexibility in our technical rules for unlicensed devices will encourage and facilitate an environment that stimulates investment and innovation in broadband technology and services.”)

¹³ *Id.* (“These rule changes will allow device manufacturers to develop expanded applications for unlicensed devices and will allow unlicensed device operators, including wireless Internet Service Providers (WISPs) greater flexibility to modify or substitute parts as long as the overall system operation is unchanged.”)

protection of all users of a particular band,¹⁴ including the new class of “incumbent unlicensed devices.”¹⁵ Such an approach favors existing uses and designs and frustrates innovation, contrary to the objectives of Part 15. In addition, the proposal increases, rather than reduces, regulatory restrictions. Adding duty cycle or other spectrum etiquette requirements would increase design complexity and – as the Commission has noted – design costs.

Remarkably, the proposed restrictions are targeted to the very devices whose development the Commission sought to encourage and advance in its 2004 *Report and Order*. The proposed duty cycle and other spectrum etiquette proposals apply only to digitally modulated devices¹⁶ and target wireless broadband networking equipment¹⁷ – the equipment used by WISPs to serve rural America. Accordingly, the Commission should reject the proposal as inconsistent not only with its *Report and Order*, but also with the Commission’s statutory duty to promote broadband access for all Americans,¹⁸ and its frequent statements regarding the importance of this aspect of the FCC’s mission.¹⁹

¹⁴ CellNet Petition, 8 (urging the FCC to “promptly confirm, in a public notice, the obligation of all operators of unlicensed devices authorized under Part 15 to avoid harmful interference to license *and unlicensed devices* operating in the band.”) (emphasis added).

¹⁵ *Id.*, 7 (asking the FCC to confirm that “newly designed unlicensed devices must be appropriately engineered to avoid interference to *incumbent unlicensed devices*.”) (emphasis added).

¹⁶ *Id.*, 8.

¹⁷ See Reply of CellNet Technology, Inc., ET Docket No. 03-201, ¶ 3 (filed Dec. 16, 2004) (“CellNet Reply”).

¹⁸ 47 U.S.C. § 157 (“§ 706”) (“The Commission . . . shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans.”)

¹⁹ See, e.g., *Cable Modem Order*, 17 FCC Rcd at 4801 (“[C]onsistent with statutory mandates, the Commission’s primary policy goal is to ‘encourage the ubiquitous availability of broadband to all Americans.’”) (quoting *Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities, Universal Service Obligations of Broadband Providers*, 17 FCC Rcd 3019 (¶ 3) (2002) (the “*Wireline Broadband NPRM*”)); *Wireline Broadband Order*, 20 FCC Rcd at 14894-95 (¶ 78) (“[Section 706] make[s] clear that the Commission must encourage

II. THE PROPOSED REQUIREMENTS WOULD SIGNIFICANTLY CONSTRAIN DESIGN FLEXIBILITY WHILE HAVING LITTLE IMPACT ON THE INTERFERENCE ENVIRONMENT IN THE 915 MHZ BAND

Duty cycle or other spectrum etiquette proposals would impose significant design constraints on unlicensed devices while affording little interference mitigation. The power limits and lack of interference protection afforded to unlicensed devices already act as significant design constraints. Additional restrictions will add to the design challenges, as well as to costs of cordless phones, wireless broadband networking gear, and other equipment. With respect to the 915 MHz band, the benefit in terms of interference abatement – if any – does not justify these costs.

CellNet’s proposal would significantly increase the constraints already imposed by the Part 15 operating parameters. CellNet attempts to minimize the impact of its proposed duty cycle requirement on device power and – as a necessary result – signal range, by suggesting the existing Part 15 rules are not a substantial limitation on design options. For example, CellNet characterizes operating at the full power authorized by Part 15 – 1 watt – as operating at “high power”²⁰ with “unbridled emissions.”²¹ In fact, 1 watt is a relatively low power level at which to provide certain applications – *e.g.*, broadband access – when compared to the power used to offer such services in licensed bands and, as CellNet concedes, this power level is authorized by the Commission’s rules.²² The proposed duty cycle would have the practical effect of lowering the Part 15 power levels considerably. Motorola estimates that the proposed duty cycle would

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the deployment of advanced telecommunications capability to all Americans by removing barriers . . .”).

²⁰ CellNet Petition, 7.

²¹ CellNet Reply, 3.

²² See CellNet Petition, ¶ 5 (seeking restrictions on devices that “operate at the maximum

reduce the transmit power of its Canopy equipment by 10 dB,²³ reducing its utility as a rural broadband access solution. Moreover, because of the proposed linear relationship between duty cycle and authorized transmit power, the proposal would seriously disfavor equipment operating on longer duty cycles,²⁴ introducing a policy preference for a particular equipment design – short duty cycles – that did not previously exist under Part 15.

Other spectrum etiquette proposals also constrain innovation in device design. While “listen-before-talk” protocols are conceptually possible,²⁵ the fact remains that no unlicensed device in the field currently operates pursuant to such protocols in the 915 MHz band. Developing such protocols would require an investment of time and resources that – as explained below – is not justified in light of the minimal potential for any interference reduction benefit. While the feasibility of such protocols is not known at this time, the fact that their adoption would increase design complexity and cost is accepted as a given.

Imposing new regulatory requirements that increase the complexity and cost of unlicensed devices is particularly unwarranted in the heavily used 915 MHz band. CellNet again skews the discussion by describing the interference environment at 915 MHz as though unlicensed devices were the only devices operating in the band. In fact, in addition to accepting interference from other unlicensed devices – as Part 15 requires – unlicensed devices operating in the 915 MHz band must protect licensed Industrial Scientific and Medical (“ISM”), federal

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permitted power limits”) (emphasis added).

²³ Opposition of Motorola, Inc. to CellNet Petition for Reconsideration, ET Docket No. 03-201, 3 (filed Dec. 6, 2004).

²⁴ See *FNPRM*, ¶ 22 (“the maximum permitted power would range from 30 dBm (1 Watt) when there is a continuous silent interval of at least 90% between transmissions, down to 0 dBm (0.001 Watt) when there is no silent interval between transmissions”).

²⁵ *Id.*, ¶ 23 (seeking comment on “listen-before-talk” protocols).

government radiolocation, federal government fixed and mobile, Location and Monitoring Service (“LMS”) (subject to some limitations), and amateur radio operations.²⁶

Despite this crowded environment, the minimally regulatory Part 15 regime has enabled considerable innovation. For example, cordless phone manufacturers have designed low cost, reliable phones that operate in this environment and consumers have responded by purchasing millions of such devices. Moreover, new “2.4 GHz” and “5.8 Ghz” cordless phones that use the 915 MHz band for one direction of transmission continue to rapidly be introduced into the market. The success of cordless phone manufacturers at 915 MHz is due in no small part to the FCC’s “safe harbor” pursuant to which Part 15 devices operating within certain parameters are deemed not to interfere with licensed LMS operations.²⁷ Layering additional regulations on the 915 MHz band will constrain the design flexibility of cordless phone and other equipment manufacturers, decreasing the utility of the band and imperiling future innovation.

Moreover, as the Commission has previously concluded, imposing a spectrum etiquette would have little positive impact on the interference environment at 915 MHz. Recognition that 915 MHz is heavily encumbered and new regulations would have little prospect of increasing spectrum efficiency were major factors in the Commission’s rejection of a spectrum etiquette in 2004. In that *Report and Order*, the Commission concluded:

We decline to impose any type of spectrum etiquette for the Part 15 bands that are the subject of this proceeding because they are already heavily used. We believe that design flexibility has helped industry to develop efficient sharing and modulation schemes. It appears that the existing regulations have resulted in very efficient use of available unlicensed spectrum.²⁸

The 915 MHz band has become only more congested since 2004. Moreover, the Commission

²⁶ See *Memorandum Opinion and Order*, ¶ 5.

²⁷ See 47 C.F.R. § 90.361.

²⁸ *Report and Order*, ¶ 54.

again rejected a spectrum etiquette only four months ago.²⁹ Because CellNet has provided no basis for revisiting these decisions, its duty cycle and other spectrum etiquette proposals should be denied once again.

III. THE 2.4 AND 5.8 GHZ BANDS ARE PROSPERING UNDER THE EXISTING REGULATORY REGIME

Additional regulation is not needed to spur intense, innovative use of the 2.4 and 5.8 GHz bands. These bands are examples of the success of the existing Part 15 regime, unencumbered by duty cycle or other spectrum etiquette requirements. In fact, intensive use to the point of crowding of the 2.4 GHz band was a key driver of the push to open of the 5.8 GHz band for unlicensed use. Having reached a hard fought compromise with the incumbent federal users of the 5.8 GHz band allowing for the protection of incumbent, licensed services while opening the band for unlicensed use, the Commission should not introduce new constraints before adequate time has been allowed to evaluate the success of the current Part 15 framework.

The fact that the Commission is seeking comment on duty cycle and spectrum etiquette proposals for the 2.4 GHz and 5.8 GHz bands highlights the danger of tampering with the existing unlicensed regime. CellNet's proposal is directed to a discrete concern related to protecting its equipment and operations in the 915 MHz band. The weight of the record opposed even this narrow proposal in 2004.³⁰ Nothing in the record developed since that time suggests a problem outside the 915 MHz band – or within the 915 MHz band – in need of a remedy. To the contrary, the Commission's minimally regulatory approach to Part 15 unlicensed service has been a success, increasing spectrum efficiency and innovation. In light of the demonstrated

²⁹ *Memorandum Opinion and Order*, ¶ 17.

³⁰ *Report and Order*, ¶ 53 (“Most parties commenting on this issue believe that a spectrum etiquette would be undesirable in the unlicensed bands because it would tend to limit development.”)

success of the Part 15 unlicensed model as an alternative to exclusive-use licensing, the Commission should affirm the existing rules and deny requests for significant modifications.

CONCLUSION

For the foregoing reasons, the Commission should deny requests to alter its Part 15 rules by imposing duty cycle or other spectrum etiquette requirements. With respect to the 915 MHz band, the cost of such requirements is not warranted in light of the minimal potential interference benefits in a crowded band the Commission has concluded is efficiently used. With respect to 2.4 and 5.8 GHz, the bands are prospering under the existing Part 15 approach. The Commission should not tamper with success by adding new regulatory requirements in the absence of any demonstrated need.

Respectfully Submitted,

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