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

In the Matter of	)	
	)	
Amendment of Parts 1, 2, 22, 24, 27, 90 of the	)	WT Docket No. 10-4
Commission's Rules to Improve Wireless	)	
Coverage Through the Use of Signal Boosters	)	
	)	

REPLY COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®

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August 24, 2011

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CTIA – The Wireless Association® ("CTIA") respectfully submits these reply comments in response to the Federal Communications Commission's ("FCC" or "Commission") above-captioned Notice of Proposed Rulemaking ("NPRM").[1]

I. INTRODUCTION AND SUMMARY

CTIA is encouraged by the efforts of Verizon Wireless and Wilson Electronics Inc. ("Wilson") to develop requirements for the design, operation, and, where necessary, installation of signal boosters in a manner that will protect carriers' networks against harmful interference.[2] Industry-led efforts such as the Joint Proposal will allow interested stakeholders to participate in the creation of effective solutions to address signal booster interference issues. CTIA recommends that further evaluation and analysis of the requirements for consumer signal boosters be conducted through the ATIS incubator process, which can ensure that signal boosters

[1] The FCC's Notice of Proposed Rulemaking defines the term "signal booster" as "intended to include all manner of amplifiers, repeaters, boosters, distributed antenna systems, and in-building radiation systems that serve to amplify signals for subscriber-based services between a device and the network", excluding femtocells. Amendment of Parts 1, 2, 22, 24, 27, 90 and 95 of the Commission's Rules to Improve Wireless Coverage Through the Use of Signal Boosters, Notice of Proposed Rulemaking, FCC 11-53 at n. 14 (Apr. 6, 2011) ("NPRM"). In these Comments, CTIA adopts the Commission's definition of "signal booster."

[2] Letter from John T. Scott, Attorney for Verizon Wireless and Russel D. Lukas, Attorney for Wilson Electronics, Inc. to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 10-4 (filed July 25, 2011) ("Joint Proposal").

used by consumers operate without causing harmful interference across various carriers' networks.

An industry-based solution is the proper way to address the issues of signal booster interference. As CTIA has stated, the Commission lacks the authority to license signal boosters for use in licensed spectrum under the "citizens band radio service" provision of the Communications Act.[3] Rather than attempting to create a regulatory framework for signal boosters based on questionable legal authority, CTIA encourages the Commission to allow the industry to develop certification standards for signal boosters without regulatory intervention.

II. CTIA APPLAUDS THE EFFORTS OF VERIZON WIRELESS AND WILSON ELECTRONICS TO IDENTIFY AN INDUSTRY-BASED SOLUTION TO RESOLVE THE PROBLEM OF HARMFUL INTERFERENCE FROM SIGNAL BOOSTERS.

The Joint Proposal offers a framework for creating regulations for the design, operation, and installation of signal boosters. CTIA agrees with the suggestion in the Joint Proposal to separate signal boosters into three categories—Carrier Installed Boosters, Certified Engineered and Operated ("CEO") Boosters, and Consumer Boosters—each with different requirements.[4] CTIA's specific recommendations regarding the three categories of signal boosters are below.

A. The FCC Need Not Create Additional Regulations or Requirements for Carrier Installed Boosters.

CTIA agrees with the Joint Proposal's recommendation not to subject Carrier Installed Boosters to the requirements for Consumer Boosters or CEO Boosters. The Joint Proposal defines Carrier Installed Boosters as signal boosters installed by FCC licensees to operate

[3] Comments of CTIA—The Wireless Association®, WT Docket No. 10-4, at 9-11 (filed July 25, 2011) ("CTIA Comments"). 47 C.F.R. § 307(e)(1).

[4] Joint Proposal at 1.

exclusively on the licensee's frequencies.[5] The Joint Proposal does not recommend any specific requirements for this type of signal booster.[6] This recommendation is logical because systems installed by carriers are engineered to operate only on frequency bands licensed to the carrier and engineered to be integrated into the carrier's own network in a manner that will not cause harmful interference.[7] Further, this Joint Proposal recommendation conforms to current industry practices. The FCC does not need to create additional regulations or requirements for Carrier Installed Boosters.

B. CTIA Supports the Treatment of CEO Boosters in the Joint Proposal.

The Joint Proposal sets out a separate category for CEO Boosters— signal boosters which are "larger, higher powered signal boosters designed for large offices, campuses, and similar settings that require professional installation and close carrier coordination."[8] The Joint Proposal recommends that standards for CEO Boosters be developed by industry participants, that CEO Booster installers be certified according to the determined standards, and that CEO Booster installation be coordinated with licensees.[9]

CTIA generally supports these recommendations for CEO Boosters. A major benefit of the Joint Proposal is that it allows interested parties to participate in the development of

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5 Joint Proposal at 1, 3.

6 Joint Proposal at 1, 3.

7 Comments of Verizon Wireless, WT Docket No. 10-4, at 5 (filed July 25, 2011) ("Verizon Comments"); *See also* Comments of the Wireless Communications Association International, Inc., WT Docket No. 10-4, at 4 (filed July 25, 2011) ("WCAI Comments") ("Because licensees have something valuable to lose (their licenses), they have strong incentives to comply with the Commission's rules. They also have strong economic incentives to avoid harmful interference to their own systems and the systems of other licensees. These incentives promote rules compliance and good stewardship of the spectrum.").

8 Joint Proposal at 1.

9 Joint Proposal at 2-3.

standards for CEO Boosters. Stakeholders—including industry trade associations, manufacturers, installers, and licensed carriers—can collaborate to make sure that the certification process includes all the necessary elements to prevent harmful interference. This industry-based collaboration will help mitigate the risk of harmful interference from unlicensed signal boosters. With appropriate standards in place, CTIA believes that the Joint Proposal represents a viable solution for the operation of CEO Boosters without risking harmful interference to wireless networks.

C. The Joint Proposal Provides a Framework for Developing Consumer Booster Requirements and CTIA Recommends Further Testing and Study of Consumer Booster Requirements Through the ATIS Incubator Process.

CTIA applauds Verizon Wireless and Wilson for crafting a framework to identify and suggest requirements for Consumer Boosters. The Joint Proposal defines Consumer Boosters as "small fixed and mobile signal boosters that can be purchased, installed, and used by consumers."[10] The Joint Proposal suggests detailed parameters for numerous mandatory components of Consumer Boosters, including power limits, equivalent isotropically radiated power ("EIRP") limits, antenna requirements, emission limits, automatic gain control, wide-band signal design, anti-oscillation protection, in-band noise and base station overload limits, among other things.[11] These suggestions significantly advance the discussion of the proper requirements for signal boosters. However, at this point it is not possible to determine whether the specific parameters and elements suggested by Verizon Wireless and Wilson will be acceptable or appropriate for all wireless carriers and the various technologies and network

[10] Joint Proposal at 1.

[11] Joint Proposal at 2-3, Attachment 1-8.

architectures deployed. CTIA submits that further evaluation and analysis must be undertaken prior to widespread deployment of Consumer Boosters.

Given the gravity of the interference issues documented throughout the record in this proceeding,[12] the technical requirements for Consumer Boosters should be comprehensively vetted with the carriers. For this purpose, CTIA suggests using the ATIS incubator process. The ATIS incubator will give the wireless industry a process for resolving technical and operating issues through testing and study, which would enable the development of technology-neutral standards for Consumer Boosters. ATIS has a strong reputation and over 25 years experience working with the wireless industry to successfully resolve critical issues. Using the ATIS incubator process, Consumer Booster parameters and elements can be operationalized across various carriers' networks without the threat of disruptive and harmful interference.

CTIA recognizes that action needs to be taken on the issue of harmful interference from signal boosters as soon as possible. Industry stakeholders would be able to work with ATIS to define an agreeable, expedited timeframe in which to develop standards. Once standards are developed by ATIS, an organization such as The 3rd Generation Partnership Project ("3GPP") would adopt the standards in a timely fashion. It would be unnecessary for the FCC to promulgate rules for the operation of signal boosters as the industry itself would bear responsibility for reaching an optimal solution.

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[12] *See e.g.*, Comments of United States Cellular Corporation, WT Docket No. 10-4, at 5-6 (Feb. 4, 2010); Comments of AT&T Inc., WT Docket No. 10-4, at 30-31 (Feb. 5, 2010); Comments of Verizon Wireless, WT Docket No. 10-4, at 5-6 (Feb. 4, 2010); Comments of the Cobb County E911 Communications Bureau, WT Docket No. 10-4, at 2 (Jan. 15, 2010); Comments of Massachusetts State Police, WT Docket No. 10-4, at 1-2 (filed Feb. 4, 2010); Comments of the County of San Bernardino County Information Services Department Telecommunications Services Division, WT Docket No. 10-4, at 1 (Feb. 5, 2010); NPRM at 6, ¶ 13.

In addition, CTIA suggests that the Commission give careful consideration to particular issues that can be explored further in the ATIS incubator process. Specifically, issues regarding Consumer Boosters' E911 features, the Bluetooth registration option, and the remote shut-off capabilities would benefit from further evaluation in the ATIS incubator process.

The Commission has noted that Consumer Boosters can address coverage gaps in rural areas and in-building environments and can improve the public's ability to connect to 911,[13] but the Commission must balance these benefits against Consumer Boosters' negative potential impact on location accuracy.[14] As detailed throughout the record, signal boosters can introduce significant delay that dramatically alters the measured time-of-arrival and therefore detracts from the ability of an E911 system to locate the caller.[15] Consumer Boosters can also impact handset-based E911 systems, which rely on GPS to generate location information for a caller.[16] It is critical that the detrimental impact of Consumer Boosters on E911 location accuracy be minimized. Given the Commission's strong interest in improving location accuracy, the ATIS incubator process could help determine what technical features should be required to make

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13 NPRM at ¶ 1.

14 The Commission is currently taking steps to make certain that mobile communications technology enables public safety personnel to obtain accurate information regarding the location of the caller. *Se Wireless E911 Location Accuracy Requirements; E911 Requirements for IP-Enabled Service Providers*, PS Docket No. 07-114, WC Docket No. 05-196, Further Notice of Proposed Rulemaking and Notice of Inquiry, FCC 10-177 (2010).

15 Comments of True Position, Inc., WT Docket No. 10-4 at 2-3 (filed July 25, 2011); Comments of the Telecommunications Industry Association, WT Docket No. 10-4, at 6 (filed July 25, 2011) ("TIA Comments"); CTIA Comments at 4; Comments of Blooston Licensees, WT Docket No. 10-4, at 6-7 (filed July 25, 2011).

16 Handset-based E911 systems rely on GPS and therefore require visibility of the GPS satellite to provide accurate location information. Signal boosters may allow 911 calls to be placed from areas with no satellite visibility and therefore no precise location information. *See* TIA Comments at 6.

certain that the Consumer Boosters are able to provide accurate location information to the Public Safety Answering Point.

The ATIS incubator process also could examine questions about the registration option discussed in the Joint Proposal. The Joint Proposal provides that consumers must register their Consumer Boosters by contacting their CMRS service provider, but "[a]s an alternative to registration, a Bluetooth connection and registration can be made between the mobile device and the booster unit …."[17] The Bluetooth registration option currently is a new and untested idea. Accordingly, the ATIS incubator process could help determine exactly how this registration process would work. Via the ATIS incubator process, handset manufacturers could collaborate with other industry stakeholders to assess optimal technical configurations. The ATIS incubator process would help ensure that the Bluetooth registration option is a practical and effective solution for consumers.

Remote shut-off capability of Consumer Boosters is another key function for review by the ATIS incubator group. The Joint Proposal specifies that the licensee would have the "ability to maintain and shut down interfering units as required."[18] This is a critical feature that would enable licensees to rapidly address interference issues if a Consumer Booster caused interference despite operating in conformance with the technical standards,[19] or if the automatic shut-off

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[17] Joint Proposal Attachment at 7-8.

[18] Joint Proposal at 7; Verizon Wireless Comments at 7.

[19] For a CMRS provider to carry out its responsibility to prevent interference caused by devices on their networks, the provider must be able to remotely shut-off a Consumer Booster that is interfering with its network, even if the Consumer Booster is operating in compliance with the technical parameters. 47 C.F.R. § 1.903(c); 47 C.F.R. § 22.3(b) (same) (making a CMRS provider the licensee of all transmitting devices operating within its spectrum, including all devices used by end user customers); 47 C.F.R. § 22.305 (obligating licensees to prevent network interference caused by devices on their networks: "Station licensees are responsible for the proper operation and maintenance of their stations, and for compliance with FCC rules.").

capabilities malfunctioned. The Joint Proposal further suggests that Consumer Boosters include an "Uplink Power Off Mode," whereby a Consumer Booster not receiving mobile device transmission could turn off the booster's uplink transmitter,[20] and a "Transmit Power Off Mode," where the Consumer Booster's uplink and downlink transmitters would be turned off when the Consumer Booster cannot otherwise meet the requirements for operation.[21] While they are valuable features, these remote shut-off capabilities have not been fully tested. Accordingly, CTIA recommends that ATIS, with input from industry stakeholders and handset manufacturers, undertake the study of Consumer Boosters' remote shut-off capabilities to guarantee that they function as intended in a variety of circumstances.

III. INTERFERENCE-FREE SIGNAL BOOSTER OPERATION IS BEST ADDRESSED THROUGH AN INDUSTRY-BASED SOLUTION, AS THE FCC LACKS LEGAL AUTHORITY TO LICENSE SIGNAL BOOSTERS BY RULE IN EXCLUSIVE-USE SPECTRUM.

As CTIA and other parties demonstrated, the Commission cannot stretch its authority under Section 307(e) to license the use of signal boosters. Title III of the Communications Act does not permit the Commission to adopt rules that would license customers to use wireless boosters in exclusive-use spectrum.[22] Moreover, opening comments in response to the NPRM reinforce CTIA's position that the Commission lacks the authority to license signal boosters

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[20] The Uplink Power Off Mode would require that a "Consumer Booster that do[es] not receive mobile device transmissions at their uplink input port after a maximum of 15 minutes must either: a.) turn off the booster's uplink transmitter, or (b) limit its uplink noise power output level to -70 dBm/MHz, or (c) reduce its Uplink Noise Power limit to 10 dB below the Uplink Noise Power Limit specified in the section below…". Joint Proposal Attachment at 3.

[21] Joint Proposal Attachment at 3-4.

[22] CTIA incorporates by reference its arguments regarding legal authority in its July 25, 2011 Comments. Moreover, signal boosters are not eligible for "blanket licensing" under Section 1.903(c) of the Commission's rules. Granting a signal booster user the right to transmit on exclusive-use spectrum without licensee consent would involve creating a new license right, without the issuance of a new license, in violation of Section 301.

using the citizens band radio service provision of Section 307(e).[23] The comments of Verizon Wireless highlight a number of legal impediments to licensing individuals by rule to operate signal boosters, noting that such action would: (1) limit the rights of licensees to use auctioned spectrum by granting new licenses on the same spectrum to third parties; (2) constitute a compensable breach of the implied contract between the Commission and the existing licensee; and (3) constitute an unlawful taking of property of the existing licensees.[24] Additionally, the Wireless Communications Association International, Inc. ("WCAI"), for example, recognizes that "the Commission's proposal to allow end user operation of signal boosters without licensee consent and control would contradict the statutory scheme by effectively shifting control of transmitters to end users."[25]

Still, a limited number of commenters nevertheless contend that use of signal boosters should be licensed by Part 95 rules pursuant to Section 307(e).[26] Wilson, for example, offers the untenable position that Section 307(e) gives the Commission "unbridled rulemaking authority"

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23 *See, e.g.,* CTIA Comments at 5-11; WCAI Comments at 1-4; Verizon Wireless Comments at 18.

24 Verizon Wireless Comments at 18.

25 WCAI Comments at 2 (citations omitted). Indeed, the recent incident involving the shutdown of wireless service by the Bay Area Rapid Transit ("BART") system, and the Commission's investigation into the matter, raises a host of policy and operational issues the agency must address if it is to support an environment in which non-licensees are able to "extend" carriers' licensed networks through the use of signal boosters. *See, e.g.*, Brendan Sasso, "FCC Probes San Francisco Agency for Disrupting Cell Service," Hillicon Valley, Aug. 15, 2011, *available at* http://thehill.com/blogs/hillicon-valley/technology/176959-fcc-probes-san-francisco-agency-for-disrupting-cell-service?utm_campaign=HilliconValley&utm_source=twitterfeed&utm_medium=twitter.

26 *See, e.g.*, Comments of Wilson Electronics, Inc., WT Docket No. 10-4, at 3-8 (filed July 25, 2011) ("Wilson Comments"); Comments of Public Knowledge and The New America Foundation, WT Docket No. 10-4, at 4 (filed July 29, 2011) ("Public Knowledge and The New America Foundation Comments"); Comments of CelLynx, Inc., WT Docket No. 10-4, at 2 (filed July 25, 2011) ("CelLynx Comments").

to authorize the operation of signal boosters without individual licenses.[27] Such a broad reading of Section 307(e), however, is inconsistent with the overall statutory scheme of the Commission's rules and must be rejected.

Section 307(e) provides only that the Commission "may by rule authorize the operation of radio stations without individual licenses" in certain enumerated radio services, such as the citizens band radio service, if the Commission determines that such authorization "serves the public interest, convenience, and necessity."[28] Wilson's attempt to read this exception in a far-reaching manner to include any new service the Commission desires, such as signal boosters, strains a reasonable interpretation of the Commission's authority. While the Commission does have statutory authority to define "citizens band radio service," that authority is necessarily limited. The Commission may not define the term in a way that would conflict with the Communications Act as a whole. Instead, the Commission's definition must be "based on a permissible construction of the statute."[29]

Wilson's proposed reading of Section 307(e) violates the rules of statutory construction. As WCAI points out, "statutory constructions should be strictly construed lest the exception swallow the rule."[30] The Commission cannot simply define "signal booster radio service" as a type of "citizens band radio service." Strict construction of Section 307(e) would, at most, provide the Commission authority to designate new citizen's band radio services that were substantially similar to those citizen's band radio services that existed when the statute was

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27 Wilson Comments at 4.

28 47 U.S.C. § 307(e).

29 CTIA Comments at 9. *See also Chevron USA, Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 843 (1984).

30 WCAI Comments at 3. *See also* 82 C.J.S. Statutes § 371.

enacted.[31] Anything more would "enable the Commission to ignore the general rule requiring licensing and upend the statutory scheme."[32]

On its face, a signal booster radio service is fundamentally different from what Congress envisioned when it granted the Commission the power to authorize the operation of radio stations without individual licenses in the citizens band radio service.[33] Including signal boosters within the definition of "citizens band radio service" would extend the classification well beyond the parameters that Congress envisioned when enacting Section 307(e). As a result, the Commission cannot construe the provisions of Section 307(e) to license signal boosters as a new service in the citizens band radio service.

Other commenters offer policy justifications for licensing signal boosters pursuant Section 307(e), but are silent as the Commission's legal authority to do so.[34] Public Knowledge and The New America Foundation, for example, argue that mobile wireless boosters under Section 307(e) would be the most beneficial option for the public.[35] The Commission, however, can only exercise authority delegated to it by statute. The record not only confirms that Section 307(e) does not provide the Commission with the requisite authority to license the use of signal boosters, it also highlights a number of other legal impediments to such action, as explained

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31 *See* WCAI Comments at 3.

32 *Id*.

33 As previously explained, when Congress enacted this provision, the Commission had already extensively defined and regulated the citizens band radio service. *See* CTIA Comments at 10 ("The citizens band radio service was a "private, two-way, short distance voice communications service for personal or business activities." It operated on forty channels in the 26.96-27.41 MHz band and authorized licensees to, among other things, discuss personal or business activities, report emergencies, and seek traveler assistance."). Moreover, these services were subject to stringent restrictions designed to limit their potential for interference.

34 *See, e.g.,* Comments of Public Knowledge and The New America Foundation; Comments of CelLynx.

35 Comments of Public Knowledge and The New America Foundation at 4.

above. Moreover, as T-Mobile USA, Inc. argues, "adoption of the CB Radio Service proposal would undermine the innovation and growth that is characteristic in the wireless industry."[36] Indeed, licensing the use of signal boosters within exclusive use spectrum will only serve to undermine regulatory predictability and discourage investment.

Rather than attempting to create a regulatory framework for signal boosters based on questionable legal authority, CTIA urges the Commission to allow industry to develop certification standards for boosters without regulatory intervention. Industry resolution of consumer booster standards is the appropriate approach to development of booster requirements and standards.

IV. CONCLUSION

CTIA commends the action taken by industry stakeholders to advance the effort to develop technical and design features that prevent harmful interference from unauthorized signal boosters. Industry-based collaborative efforts will lead to the prompt creation of an operating solution for the wireless industry, signal booster manufacturers, public safety, and consumers.

[36] Comments of T-Mobile USA, Inc., WT Docket No. 10-4, at 5 (filed July 25, 2011).

The Commission should support these efforts instead of seeking to license signal boosters by rule based on unsound legal authority.

Respectfully submitted,

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