Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Wireless Telecommunications Bureau Public	)	
Notice Regarding the Use of Signal Boosters	)	WT Docket No. 10-4
and Other Signal Amplification Techniques	)	
Used With Wireless Services	)	

REPLY COMMENTS OF CINCINNATI BELL WIRELESS LLC

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REPLY COMMENTS OF CINCINNATI BELL WIRELESS LLC

Cincinnati Bell Wireless LLC ("CBW") hereby submits these reply comments in response to the Wireless Telecommunication Bureau's ("WTB") Public Notice regarding the use of signal boosters and other amplification techniques used with wireless services.[1] CBW has been prompted to submit reply comments in this proceeding to establish that regional wireless operators like CBW and their customers are negatively affected by the unlicensed or "self help" installation and use of wireless signal boosters. Further, because of the increasing level of interference CBW has experienced due to the proliferation of signal boosters in the market, CBW also files these reply comments in concurrence with others who ask the Commission to affirm that 1) the use of a signal booster requires an FCC license or the express consent of a licensee and 2) the sale and marketing of signal booster to unlicensed or unauthorized parties is illegal.[2]

[1] Wireless Telecommunications Bureau Seeks Comment on Petitions Regarding the Use of Signal Boosters and Other Signal Amplification Techniques Used With Wireless Services, Public Notice, DA 10-14 (Jan. 6, 2010), and Public Notice, DA 10-266 (Feb. 18, 2010), extending deadline for filing reply comment to March 8, 2010.
[2] See e.g., Petition for Declaratory Ruling of CTIA – The Wireless Association® ("CTIA"), WT Docket 10-4 (Nov. 2, 2007); Comments of AT&T Inc., WT Docket 10-4 (Feb. 5, 2010); Comments of CTIA, WT Docket 10-4 (Feb. 5, 2010); Comments of Verizon Wireless, WT Docket 10-4 (Feb. 4, 2010); and Comments of the Wireless Communications Association International, Inc. ("WCIA"), WT Docket 10-4 (Feb. 5, 2010).

BACKGROUND

CBW is an Ohio limited liability company which holds licenses for Broadband PCS, AWS and 700 MHz services covering the greater Cincinnati and Dayton, Ohio metropolitan areas as well as several counties in northern Kentucky and Indiana. As a regional wireless provider, CBW competes with five national providers—AT&T, Verizon, T-Mobile, Sprint and Cricket— and approximately 20 prepaid wireless providers to provide retail service to over 500,000 subscribers using GSM and 3G technologies. The CBW wireless network consists of approximately 450 macro cell sites, 60 CBW-managed repeaters, and several hundred picocell sites. The repeaters and picocell sites are primarily used to enhance in-building coverage in office building and campus environments and to mitigate the unauthorized installation of signal boosters by customers.

REPLY COMMENTS

As identified in the comments filed by AT&T, CTIA, Verizon, WCIA and others, harmful interference from signal boosters is an increasing impediment to effective delivery of wireless services to consumers. Like other carriers, CBW has found that the unauthorized operation of signal boosters harms the operation of the wireless network and hampers CBW's ability to manage interference caused by improperly installed and/or malfunctioning signal boosters.

To date, CBW has experienced interference from a number of different kinds of boosters for very different reasons. Today, CBW operates its GSM network using two different frequency blocks in the 1900 MHz band, utilizing both the A and E Blocks on the same serving cell. One type of booster CBW has encountered is designed to work on only one but not both of CBW's licensed spectrum bands. Because a booster which operates on only one band is not capable of working with the CBW network frequency plan, the booster results in the disruption

of service to the CBW customer who installed the device as well as to other CBW users nearby. Still other signal boosters pass the entire frequency band, amplifying not only the signals of the intended carrier's network but also the signals from other carriers. In such instances, the signal booster may degrade or totally interfere with the unintended carriers' service. Specifically, CBW has encountered several booster installations where a directional donor antenna is deployed and the booster amplifies signals from a distant cell site of the CBW network that was not intended to serve the area targeted by the installer. Since this cell has undefined neighbor relationships to other cells in this area, service is either unusable or unstable within the range of the booster. Finally, CBW fears the effects of signal boosters to its deployment of 3G services in both the AWS and PCS bands in the near future. CBW will implement inter-frequency handoff between the two bands but, because very few boosters can support this mode of operation, service will be disrupted to the operators of self-help boosters and nearby customers without warning.

In installation after installation, Cincinnati Bell's experience indicates that careful engineering and design of the booster system is required to avoid harmful interference to other users and other licensees. Thus, CBW contends that signal boosters must be under the control of the licensee through direct management to properly operate the signal boosters and manage their potential for interference. The licensee must have a means for controlling the gains, antenna orientations, frequency bands and frequency blocks of operation, the geographic location of the booster, and the ability to shut off interfering or malfunctioning equipment remotely. To this end, CBW has entered into agreements to install and operate over 60 signal boosters at various customer locations. The size and complexity of these installations range from simple installations covering areas of less than 1000 square feet to very complex installations covering areas over 500,000 square feet. These enhancements are often offered to customers at no

additional cost or, alternatively, they are heavily subsidized by CBW. All of these systems require regular maintenance and operational support to prevent unintended interference with cell sites in the area and with other carriers' operations. Such support consists of onsite preventive maintenance checks, remote monitoring of the booster, and ongoing monitoring of the serving cell site of each system for an increase in up-link noise. It is essential for CBW to know the exact location, antenna configuration, carried traffic, and link budget for each of these systems to maintain cell site and network performance. Even with these efforts, however, harmful interference occurs and corrective actions must be taken. Without CBW's direct control of these systems, CBW would be unable to resolve the interference quickly and effectively, inevitably resulting in service interruptions to its customers. More recently, however, the cost and complexity of maintaining these repeater systems has prompted CBW to limit the use of CBW-managed signal boosters in new in-building environments in favor of licensed picocell and unlicensed UMA technologies.

CBW finds that it spends an inordinate amount of time and resources tracking the cause of network interference to unlicensed signal boosters and working with the end users who have installed these boosters to get such devices removed and to identify and implement an alternative solution. Most recently, CBW calculated that it spent in excess of forty (40) hours to identify a single unlicensed booster as the source of network interference. It then took as many as eighty (80) hours more to identify the location and operator of the equipment and to negotiate an alternative solution to the continued unauthorized operation of the equipment. In all, a CBW engineer spent approximately three full weeks determining that the cause of actual network interference was an unlicensed signal booster and negotiating a fix for the customer. CBW also estimates that it is able to physically locate approximately two unauthorized boosters active on its network every quarter which are causing actual network interference. However, because

CBW experiences elevated noise levels and interference at particular sites throughout the network, CBW believes there are many, many more unauthorized boosters active on the network that it does not locate. If the Commission were to affirm that the unauthorized use of signal boosters was illegal and work closely with carriers to enforce its existing rules, CBW could spend its limited resources more efficiently to optimize its network for the benefit of all customers rather than by attempting to track down the ever growing number of unlicensed boosters being installed on the network. Further, if the Commission also confirms that it is illegal to market and sell signal boosters to unlicensed or unauthorized parties, such action will halt to proliferation of such devices on the network and lessen the interference such devices will cause to the wireless network in the future.

CONCLUSION

For the forgoing reasons, CBW requests that the Commission affirm the use of signal boosters in exclusively-licensed spectrum without a license or without the express authorization of a licensee is unlawful and that the marketing and sale of signal boosters to unauthorized parties is illegal.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing Reply Comments of Cincinnati Bell Wireless LLC were sent this 8th day of March, 2010, by US Mail to the following parties:

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