

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

In re)
)
Petitions Regarding the Use of Signal Boosters)
and Other Signal Amplification Techniques) WT Docket No. 10-4
Used with Wireless Services)
)
)
In the Matter of)
) File No. EB-07-SE-390
Digital Antenna, Inc., Sunrise, Florida)
)
)
)
In the Matter of)
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)
Complaint Against Digital Antenna, Inc. for) EB Docket No. ___
Violations of Section 302 of the)
Communications Act)
_____)

REPLY COMMENTS OF AT&T INC.

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REPLY COMMENTS OF AT&T INC.

AT&T Inc., on behalf of itself and its affiliates (“AT&T”), hereby submits reply comments in response to the Federal Communications Commission’s (“FCC” or “Commission”) Public Notice seeking comment on three Petitions for Rulemaking¹ and two Petitions for

¹ Bird Technologies, Inc., Petition for Rulemaking, WT Docket No. 10-4 (filed Aug. 18, 2005); DAS Forum, Petition for Rulemaking, WT Docket No. 10-4 (filed Oct. 23, 2009); Wilson Electronics, Inc., Petition for Rulemaking, WT Docket No. 10-4 (filed Nov. 3, 2009) (“Wilson Petition”).

Declaratory Ruling² (collectively, “Petitions”) regarding the proper use of signal boosters on frequencies licensed under Parts 22, 24, 27, and 90 of the Commission’s Rules.³

I. INTRODUCTION AND EXECUTIVE SUMMARY

The opening comments in this proceeding reinforce AT&T’s position that immediate Commission action is needed to prevent the unlawful operation, marketing and sale of signal boosters.⁴ A wide spectrum of commenters – including public safety agencies, government agencies, booster manufacturers, and wireless carriers – agree that the significant and growing interference problems caused by signal boosters warrant immediate Commission action.⁵ As AT&T explained in its opening comments, consumers purchase signal boosters in a “self help” attempt to amplify wireless signals and/or extend wireless coverage.⁶ But because the spectrum

² CTIA – The Wireless Association, Petition for Declaratory Ruling, WT Docket No. 10-4 (filed Nov. 2, 2007) (“CTIA Petition”); Jack Daniel Company, Petition for Declaratory Ruling, WT Docket No. 10-4 (filed Sept. 25, 2008).

³ *Petitions Regarding the Use of Signal Boosters and Other Signal Amplification Techniques Used with Wireless Services*, Public Notice, DA 10-14, WT Docket No. 10-4 (Jan. 6, 2010) (“*Public Notice*”).

⁴ For purposes of the instant reply comments, AT&T follows the Commission’s decision to define the term “signal booster” to “include all manner of amplifiers, repeaters, boosters, distributed antenna systems, and in-building radiation systems that serve to amplify CMRS device signals, Part 90 device signals, or extend the coverage area of CMRS providers or Part 90 service licensees.” *Public Notice* at n.1.

⁵ The problem of signal booster interference has grown significantly since CTIA filed its White Paper in May of 2006. Since that time, AT&T met with FCC staff to discuss the issue on numerous occasions, including multiple visits with staff of the Office of Engineering and Technology, the Wireless Telecommunications Bureau, the Enforcement Bureau, the Public Safety and Homeland Security Bureau, and the Consumer and Governmental Affairs Bureau. AT&T submits that the record of the harm that interference from boosters has caused has been extensively documented and the FCC must now address and resolve this issue.

⁶ Comments of AT&T Inc., WT Docket No. 10-4, at 2 (filed Feb. 5, 2010) (“AT&T Comments”).

resource is shared and wireless networks dynamically manage the use of available resources to maximize the experience of all users, the introduction of an uncontrolled transmitter – such as a signal booster – may improve the experience of a single user while simultaneously blocking or impairing thousands of calls by other consumers. Booster manufacturers – and some of their distributors and customers⁷ – support this “self-help” approach and urge the Commission to adopt a regime in which the individual’s right to optimize his or her own signal reception is paramount. In contrast, AT&T and the majority of commenters maintain that such an approach would run counter to longstanding FCC policy and the Commission’s core mission of maximizing efficient use of the nation’s shared spectrum resources to benefit all Americans.

Accordingly, AT&T and many other commenters urge the Commission to issue a Public Notice reminding the public that operation of a signal booster on Commercial Mobile Radio Service (“CMRS”) exclusive-use frequencies requires a license or licensee consent. At the same time, the Commission aggressively should enforce the prohibition on end user operation of a signal booster without a license or licensee consent, both in response to “trouble ticket” complaints and on its own initiative. In an effort to address the signal booster interference problem at its source, commenters further request that the Commission – consistent with the Commission’s recent action in the wireless microphones proceeding – prohibit the marketing and sale of signal boosters to individuals that may not legally operate them. And the Commission should adopt an accelerated docket procedure – as detailed in AT&T’s initial comments – that

⁷ Although the majority of commenters in this docket support the Commission’s longstanding policy requiring a license or licensee consent prior to operating a signal booster, the docket also contains a large number of informal, brief comments from parties who use and sell Wilson signal boosters. These commenters, in the main, support a “self-help” approach and note that signal boosters have enhanced their wireless experience without any discussion of the negative impacts on public safety and other consumers.

allows carriers to file complaints against manufacturers of transmitting equipment that has caused multiple harmful interference events and for such complaints to be addressed within sixty days.

In addition, in light of egregious conduct by a signal booster manufacturer that repeatedly has been informed that its conduct violates Commission rules yet persists in these violations, the Commission should take action in pending enforcement matters. Specifically, the Commission should: (1) issue a Notice of Apparent Liability or a Forfeiture Order in the Letter of Inquiry proceeding initiated against Digital Antenna in 2007; and (2) act on AT&T's complaint and request for investigation against Digital Antenna. AT&T submits that this comprehensive approach will best safeguard the integrity of wireless networks and the high-quality, reliable wireless communications American consumers currently enjoy.

II. PUBLIC SAFETY ENTITIES AND OTHER COMMENTERS WIDELY AGREE THAT THE DANGEROUS INTERFERENCE CAUSED BY SIGNAL BOOSTERS HARMS PUBLIC SAFETY AND COMMERCIAL COMMUNICATIONS.

The record reflects serious concerns about the harmful impact of signal boosters on the nation's wireless communications infrastructure and the need for Commission action. As detailed below, the gravity of this situation has prompted a large number of public safety agencies and organizations from across the country to comment on interference to their systems from signal boosters. Wireless carriers share public safety's concerns and provide additional data about the harmful impact of signal boosters on commercial wireless customers and networks. Even booster manufacturers agree that Commission action is necessary to combat the harmful interference generated by signal boosters.

A. Public Safety and Other Government Entities Urge the Commission to Prohibit the Marketing, Sale and Use of Unauthorized Boosters.

A large number of public safety commenters and other government agencies identify signal boosters as a frequent and recurring source of interference to their communications systems. These public safety commenters document the harms caused by boosters and the financial resources and personnel that public safety dedicates to combating booster interference.⁸ As one public safety commenter explains, signal boosters present a “Public Safety interference fire storm waiting to devour all in its path.”⁹

Numerous public safety commenters identify specific instances in which signal boosters have caused interference, harmed public safety efforts, and drained department resources. The Massachusetts State Police, for example, explain that “[s]ince July of 2004 . . . we have located

⁸ Comments of Massachusetts State Police, WT Docket No. 10-4, at 1-2 (filed Feb. 4, 2010) (“Massachusetts State Police Comments”); Comments of Raymond Grimes, Sheriff-Coroner Department, County of Orange, California, WT Docket No. 10-14, at 1-2 (filed Feb. 4, 2010) (“Orange County Comments”); Comments of City of Phoenix, WT Docket No. 10-4, at 1 (filed Feb. 4, 2010) (“City of Phoenix Comments”); Comments of Phoenix Fire Department, WT Docket No. 10-4, at 1 (filed Feb. 4, 2010) (“Phoenix Fire Department Comments”); Comments of David Clemons, City of Worcester, WT Docket No. 10-4, at 1 (filed Jan. 30, 2010) (“City of Worcester Comments”); Comments of the American Association of State Highway and Transportation Officials, WT Docket No. 10-4, at 3-4 (filed Feb. 5, 2010) (“AASHTO Comments”); Comments of Gregory T. Bunting, St. Lucie County, WT Docket No. 10-4, at 1 (filed Jan. 20, 2010) (“St. Lucie County Comments”); Comments of Cobb County, Georgia E-911, WT Docket No. 10-4, at 1-2 (filed Jan. 19, 2010) (“Cobb County E-911 Comments”); Comments of Cpl. Jason Matthews, Lake County Sheriff’s Office, WT Docket No. 10-4, at 1 (filed Jan. 15, 2010) (“Lake County Comments”); Comments of County of San Bernardino, WT Docket No. 10-4, at 1 (filed Feb. 5, 2010) (“San Bernardino County Comments”); Comments of the National Emergency Number Association, WT Docket No. 10-4, at 1, 3-5 (filed Feb. 5, 2010) (“NENA Comments”); Comments of the Association of Public-Safety Communications Officials-International, WT Docket No. 10-4, at 2-3 (filed Feb. 5, 2010) (“APCO Comments”); Comments of Patrick Becker, Glendale Fire Department, WT Docket No. 10-4, at 1 (filed Feb. 5, 2010) (“Glendale Fire Department Comments”); Comments of the King County, Washington Regional Communications Board, WT Docket No. 10-4, at 1-3 (filed Feb. 5, 2010) (“King County Comments”).

⁹ Cobb County E-911 Comments at 2.

over 60 sources of interference across the state. We have found that 54 of them were caused by signal boosters.”¹⁰ The Orange County, California Sheriff’s Office “understands the negative side of poorly designed and implemented in-building and vehicular booster amplifiers, where we suffer from random and sometimes intense and widespread RF interference from these uncontrolled sources, almost on a weekly basis.”¹¹ Indeed, the “County on an average, can spend around 300 hours per year or more (at a cost to the County of over \$25,000 per year) investigating such complaints, direction-finding the source, gaining access, identifying ownership, requesting shut-off of errant equipment, and escalating complaints to the FCC where necessary.”¹²

The King County, Washington Regional Communications Board cites multiple instances where they have experienced interference from signal boosters.¹³ In one such instance, a signal booster caused interference that resulted in crossed audio and a false “Officer Needs Help” call.¹⁴ Another booster interference situation occurred in San Bernardino County, where an oscillating

¹⁰ Massachusetts State Police Comments at 1.

¹¹ Orange County Comments at 1.

¹² *Id.* at 2 (noting “[m]ost of our 800 MHz RF interference sources in fact, are from non-engineered RF coverage booster devices, unlicensed RF booster devices, RF booster devices in unlawful applications such as providing area-wide coverage enhancement on a channel belonging [to] an FCC licensed service without their express permission, and from vehicular RF signal boosters that are moving targets which are difficult to locate and remedy, potentially causing numerous and random RF interference impacts to various local systems as the vehicle is in motion and in passing proximity to numerous fixed communications sites.”).

¹³ King County Comments at 1-2 (citing interference from a signal booster at a police station that caused significant interference to three of the radio system sites, significantly affecting radio performance, and taking days to find the problem, and interference from a signal booster in oscillation that blocked all 800 MHz public safety communications for ten to twenty square blocks and took hours of troubleshooting to remedy.).

¹⁴ King County Comments at 2.

booster caused a “primary 800 MHz receiver site to suffer harmful interference over a period of a month,” harming first responder radio communications and taking up approximately eighty hours of staff time to identify and resolve the problem.¹⁵

Public safety entities devote substantial financial and human capital to detect and remedy signal booster interference. And tracking down unregulated and unregistered interfering signal boosters often amounts to finding a needle in a haystack. The lack of signal booster registration led the St. Lucie County, Florida, Department of Public Safety to comment on the difficulty in finding and eliminating interference to their systems, which can jeopardize officer safety.¹⁶ The Phoenix Fire Department echoes the concern, claiming that signal boosters “have been the second largest contributor towards interference issues as they are generally deployed without the knowledge or control of the licensed systems that are being ‘enhanced.’”¹⁷ The Cobb County, Georgia, E-911 Communications Bureau had a situation where an unlicensed device was identified at a location where the employees had no knowledge of it.¹⁸ Officials located and unplugged the device, but unfortunately someone plugged it back in, and the Bureau had to repeat the process of finding the source of interference and eliminating it.¹⁹

¹⁵ San Bernardino County Comments at 1.

¹⁶ St. Lucie County Comments at 1 (stating that “[i]n one case we had, the resulting interference was pretty much centered on a single frequency, and thanks to the help from a local AT&T cell tech, we got it located and eliminated. Had we not known the location of the source, it would have been far more difficult to obtain the necessary information and access from the building owner...”).

¹⁷ Phoenix Fire Department Comments at 1; Glendale Fire Department Comments at 1 (commenting in full support of the Phoenix Fire Department’s position, and noting that signal boosters endanger fire department members, law enforcement, and national security).

¹⁸ Cobb County E-911 Comments at 1.

¹⁹ *Id.*

Other commenters express concerns about unlicensed signal boosters installed or operated by untrained people. The City of Phoenix explains that “[m]any cases have been reported in the Phoenix area of ‘off the shelf’ low-cost broadband signal boosters causing harmful interference to wireless carrier and public safety networks. Many times these signal boosters are installed by untrained persons without the required permission of the licensee.”²⁰ In light of public safety’s frustrations with booster interference and the difficulty of locating the interfering devices, the Association of Public-Safety Communications Officials-International (“APCO”) supports recommendations that only licensees or those with licensee consent can install signal boosters.²¹ Similarly, the St. Lucie Public Safety Department explains that “it is critical to Public Safety that these signal boosters be of an approved design, installed by knowledgeable technical people, and registered with the licensee of the system for which it will serve. To allow less is an abdication of our duties to manage the airways in the public interest.”²²

Public safety entities and other government organizations explain how booster interference jeopardizes the safety of public safety workers in the line of duty. The City of Phoenix explains that “[w]hen interference occurs in these urban areas it negatively affects large numbers of public safety users. Also, the wide spread illegal use of signal boosters in a mobile configuration has created an environment of ‘hit and run’ interference which puts our Public

²⁰ City of Phoenix Comments at 1.

²¹ APCO Comments at 2.

²² St. Lucie County Comments at 1.

Safely first responders in jeopardy.”²³ Similarly, AASHTO explains that “[a]llowing the unlicensed distribution and use of broadband amplifiers and repeaters has the very real potential of causing these systems to fail due to interference when needed most.”²⁴

Public safety associations also recognize the threat that signal boosters pose to public safety users.²⁵ NENA, for example, explains that public safety entities are on record regarding signal booster interference to public safety networks and 911 calls, and that case-by-case enforcement after interference occurs has not been sufficient.²⁶ Accordingly, and as detailed below, these commenters urge the Commission to vigorously enforce existing rules and remind the public that the use, sale, and marketing of unauthorized boosters is unlawful.²⁷

B. Wireless Carrier Commenters Also Add to the Already Voluminous Record of Signal Booster Interference Events.

While the frequency and severity of signal booster interference is already a matter of record with the Commission – with severe interference events publicly catalogued as early as a 2006 CTIA White Paper²⁸ – wireless carrier commenters add to the already significant volume of documented interference events.²⁹ AT&T explains in its comments that it has conclusively tied

²³ City of Phoenix Comments at 1; *see also* St. Lucie County Comments at 1; City of Worcester Comments at 1.

²⁴ AASHTO Comments at 4

²⁵ APCO Comments at 2-3; NENA Comments at 1-5.

²⁶ NENA Comments at 3-4.

²⁷ *Id.* at 2; AASHTO Comments at 2-4.

²⁸ *See* CTIA—The Wireless Association®, White Paper on Wireless Repeaters (filed May 1, 2006).

²⁹ AT&T Comments at 29-32; Comments of CTIA—The Wireless Association, WT Docket No. 10-4, at 1-12 (filed Feb. 5, 2010) (“CTIA Comments”); Comments of Sprint Nextel, WT *Footnote continues on next page . . .*

serious network disruptions and interference to multiple signal booster manufacturers.³⁰ In South Florida alone, AT&T has recorded 83 separate incidents triggered by signal boosters since July 2007.³¹ One such incident, involving a signal booster aboard a yacht, caused substantial harmful interference to six AT&T towers in Florida, lasted for 21 hours, and led to 2,795 dropped calls and 81,000 blocked or impaired calls.³² AT&T identifies numerous other incidents where signal boosters have caused substantial damage to wireless service and harmed customers.³³

Verizon Wireless's experience is no different. Verizon Wireless presents data illustrating that harmful interference is caused by signal boosters manufactured by different companies and that many boosters interfering with Verizon Wireless's network are installed by customers of

Docket No. 10-4, at 1, 3-9 (filed Feb. 5, 2010) ("Sprint Nextel Comments"); Comments of Verizon Wireless, WT Docket No. 10-4, at 1-18 (filed Feb. 4, 2010) ("Verizon Wireless Comments"); Comments of United States Cellular Corporation, WT Docket No. 10-4, at 1-7 (filed Feb. 4, 2010) ("US Cellular Comments").

³⁰ AT&T Comments at 30.

³¹ *Id.* AT&T reports that it believes the number of incidents logged with the FCC significantly understates the scope of the booster problem. *Id.*

³² *Id.* at 31.

³³ *Id.* Other examples include: a signal booster aboard a yacht causing severe harmful interference that adversely affected three AT&T cell sites resulting in approximately 3,055 blocked calls over a four-day period; two signal boosters aboard yachts causing severe harmful interference that adversely affected an AT&T cell site, resulting in approximately 3,831 blocked calls over a 3-day period; serious network interference over a three-day period from a signal booster on a ship, causing severe degradation to all three AT&T cell towers in Key West, Florida; a signal booster in oscillation on a yacht causing broad interference to equipment used by AT&T's network and the Broward County Sheriff's Office and Fort Lauderdale Police Department; and over 20 interfering signals at the Fort Lauderdale Boat Show, where many boat owners were unaware they had a booster on board. *Id.*

other carriers.³⁴ In the Pacific Northwest region, Verizon Wireless logged 71 reported incidents of interference from radio frequency devices between January 2006 and July 2009, the vast majority of which were from unauthorized signal boosters.³⁵ Among numerous examples, Verizon Wireless notes an incident in 2009 where a Wilson amplifier installed in a building caused interference to one digital carrier at four cell sites over a seven day period.³⁶

The impact on other carriers' networks has been equally severe. United States Cellular Corporation ("US Cellular") describes a situation where:

[A] high concentration of RV's during an RV rally using boosters caused interference to three surrounding sites. Customers immediately began calling USCC call centers and visiting our retail stores, reporting difficulties making and receiving calls. Working with the local police department and RV rally staff, USCC engineers eliminated the possibility of any authorized boosters in use to be the source of the interference...This RV rally lasted for four days with numerous customer complaints and hundreds of technician hours spent pin-pointing and trying to lessen the harm to the network caused by the interference. As a result of the customer dissatisfaction caused by the loss of network availability, USCC credited free months of service to numerous customers in the affected area.³⁷

³⁴ Verizon Wireless Comments at 6.

³⁵ *Id.* at 7. Verizon also refers to 53 reported incidents of interference from radio frequency devices (primarily unauthorized signal boosters) in the Mountain region, and 9 confirmed incidents of signal booster interference in a six month span in the Georgia/Alabama region. *Id.*

³⁶ *Id.* Other examples include: a 2006 incident in New York City where a signal booster installed in a Manhattan office building interfered with about 200 cell sites including some in New Jersey; a 2009 incident where a Wilson BDA caused interference to a digital carrier on 5 cell sectors at 3 cell sites, causing interference lasting over 6 hours; an incident in Hawaii where three Digital Antenna boosters caused intermittent interference to multiple cell sectors over 8 days; a 2008 incident where a Digital Antenna booster installed on a boat impaired a digital carrier on 3 cell sectors at one cell site causing an estimated loss of 30,000 minutes of use over 7 hours; and an Arizona incident where a Cyfre booster negatively affected 16 cell sites by preventing calls from originating on several sectors over a two-day period. *Id.* at 7-8.

³⁷ US Cellular Comments at 5-6.

US Cellular also identifies other recent instances of interference from unauthorized boosters, resulting in customer complaints, service disruptions, and expenditures of time and money to locate the source.³⁸ Likewise, Sprint Nextel experiences problems when amplified signals from signal boosters on Sprint Nextel's 800 MHz frequencies overload nearby Sprint Nextel base stations, resulting in dropped calls, reduced network capacity, and degradation of service to Sprint Nextel users.³⁹ Sprint Nextel concludes that "[i]nterference to commercial networks harms consumers by increasing costs, decreasing quality, and consuming limited human and financial capital resources."⁴⁰

Wireless carrier commenters agree that identifying and remediating signal booster interference events consumes considerable time and resources. CTIA – The Wireless Association ("CTIA") explains that interference disruptions "require carriers and Public Safety to divert significant resources towards finding and addressing the source of interference to their networks."⁴¹ Sprint Nextel also comments that its "field engineers have spent many hours tracking down and correcting interference problems caused by the poor design or installation of

³⁸ *Id.* at 6-7. Examples include: a malfunctioning amplifier that took out service for a 10 mile radius in which calls could not be processed; 5 boosters causing the drop call rate to increase from less than 1% to over 12%; a booster installed at a business location creating harmful interference that lasted for over a month before US Cellular could convince the owner to turn off the booster; interference from a booster installed on a boat causing unusually high dropped call rates among three cell sites; a booster in an individual's apartment creating strong interference, causing a high dropped call rate with US Cellular having to temporarily decommission service for an entire sector-carrier, and once the booster was turned off, service returned to normal; and, a booster causing interference which an engineer spent four weeks and approximately 60 hours trying to pinpoint. *Id.*

³⁹ Sprint Nextel Comments at 4.

⁴⁰ *Id.* at 8.

⁴¹ CTIA Comments at 5.

signal boosters.”⁴² For Sprint Nextel, when it becomes aware of interference from a signal booster, network teams must literally drive around and search for the source of the interference, boiling down to “an incredibly time-consuming ‘cat and mouse’ game.”⁴³ US Cellular cites one instance where an engineer spent four weeks and approximately 60 hours searching for the source of interference, which was occurring intermittently and made troubleshooting difficult.⁴⁴ Such network problems ultimately tarnish a carrier’s brand and goodwill, leading some consumers to cancel or not renew their service contracts.⁴⁵ To address the competitive harms and diversion of resources caused by signal booster interference, immediate Commission action is needed to enforce existing prohibitions on the operation, marketing, and sale of unauthorized signal boosters.

C. Even Booster Manufacturers Agree that Commission Action Is Needed to Prevent the Harmful Interference Caused by Signal Boosters.

Even booster manufacturers agree that increased Commission enforcement is needed to prevent the harmful interference generated by signal boosters.⁴⁶ Multiple booster manufacturers

⁴² Sprint Nextel Comments at 3.

⁴³ *Id.* at 8.

⁴⁴ US Cellular Comments at 7.

⁴⁵ *Id.* at 5-7 (explaining that US Cellular has received numerous customer complaints and reports of dissatisfaction because of interference from signal boosters, which have forced the carrier to offer concessions such as free months of service); *see* AT&T Comments at 29-32 (citing that “Wireless customers are unable to determine that the interference associated with signal boosters is the reason their service has been degraded – rather, they only know that coverage and reliability for their wireless calls is no longer acceptable.”).

⁴⁶ Comments of GPD Telecom, WT Docket No. 10-4, at 1-2 (filed Feb. 3, 2010) (“GPD Comments”); Comments of Nextivity, WT Docket 10-4, at 2-5, 8 (filed Feb. 3, 2010) (“Nextivity Comments”); Comments of Smart Booster, WT Docket 10-4, at 3, 45, 52 (filed Feb. 4, 2010) (“Smart Booster Comments”); Comments of Scott Alford for RF Industries, WT Docket No. 10-
Footnote continues on next page . . .

acknowledge that boosters can and do cause harmful interference.⁴⁷ GPD Telecom, for example, explains that “the use of BDAs or similar amplification systems can and do cause destructive noise in the donor system.”⁴⁸ Similarly, Nextivity states that “signal boosters also have the potential to effect the network operations and cause interference to a variety of communication services.”⁴⁹ And Smart Booster concludes that “handset boosters can and do cause serious interference when deployed with impunity.”⁵⁰

In light of this risk of harmful interference, booster manufacturer commenters agree that increased Commission regulation and enforcement is necessary. Nextivity, a developer of indoor coverage solutions, believes that voluntary measures are insufficient to ensure protection of CMRS licensees’ interests.⁵¹ Another manufacturer, Smart Booster, concludes that the “handset boosters presently in use should never have been OET certified.”⁵² Accordingly, Smart Booster asks the Commission to revoke the equipment authorizations of over 40 signal boosters currently in the market.⁵³

4, at 4-8 (filed Feb. 5, 2010) (“RFI Comments”); Comments of Bird Technology Group, WT Docket No. 10-4, at 3-4 (filed Feb. 5, 2010) (“Bird Technology Comments”).

⁴⁷ GPD Comments at 1; Nextivity Comments at 2; Smart Booster Comments at 3.

⁴⁸ GPD Comments at 1.

⁴⁹ Nextivity Comments at 2

⁵⁰ Smart Booster Comments at 3

⁵¹ Nextivity Comments at 3.

⁵² Smart Booster Comments at 6; *see also id.* at 51-52 (“[W]e recommend that the FCC: ... require all boosters to have a minimum amount of intelligence...[and] [r]equire that all intelligent boosters have a provision to guarantee that their intelligence is current.”).

⁵³ *Id.* at Exhibit 1.

III. COMMENTERS WIDELY AGREE THAT SETTLED COMMISSION LAW PROHIBITS THE OPERATION OF SIGNAL BOOSTERS BY END USERS WITHOUT A LICENSE OR CARRIER AUTHORIZATION.

The record reflects strong support for a Commission Public Notice reminding the public that operation of a signal booster on CMRS exclusive-use frequencies requires a license or licensee consent. Commenters also urge the Commission to reject Wilson’s and Digital Antenna’s challenges to the FCC’s authority to prohibit operation of signal boosters without a license or carrier authorization. Without increased public awareness and aggressive enforcement of the prohibition on unauthorized signal boosters, many commenters fear that the harms detailed above will continue to multiply.

A. The Record Leaves No Doubt that Signal Boosters Are Transmitters That May Not Be Operated Without a License or Licensee Consent.

Commenters broadly agree that the Commission should affirm that signal boosters are transmitters that may not be operated without a license and must be under licensee control.⁵⁴

⁵⁴ See, e.g., AT&T Comments at 3-5 (explaining that “[s]ignal boosters are transmitters that may not be operated without a license under Section 301 of the Communications Act and must be under licensee control.”); CTIA Comments at 12-15 (explaining that “Section 301 of the Communications Act requires that all transmitting equipment operating on licensed spectrum be licensed by the Commission.”); Verizon Wireless Comments at 9-12 (explaining that “Section 301 of the Communications Act prohibits any person from using or operating any apparatus for the transmission of energy or communications or signals by radio without a license.”); Sprint Nextel Comments at 2 (explaining “that the Communications Act and Commission’s Rules dictate that the use of signal boosters is only permitted on a fixed basis and only with the permission of a wireless licensee.”); US Cellular Comments at 4; Nextivity Comments at 6 (noting that they “fully support the CTIA Petition for Declaratory ruling, and agree that all CMRS signal boosters must be approved by the CMRS licensee prior to any commercial sale.”); Comments of Wireless Communication Association International, Inc., WT Docket No. 10-4 at 4-11 (filed Feb. 5, 2010) (“WCAI Comments”) (asserting that the “Commission should affirm that signal boosters operating in the Wireless Radio Services cannot be used in the United States without the express authorization of the licensee...”); GPD Comments at 1-2 (explaining that “signal boosters should only be used with the full knowledge of the license holder and that the private consumer or commercial entity should be required to obtain written permission from the license holder” and “contend[ing] that only through compliance of current FCC rules, regulation and sound engineering practices will the continued use of Signal Boosters be a benefit to the
Footnote continues on next page . . .

Specifically, commenters highlight that Section 301 prohibits any person from operating an RF transmitting device at any location within the United States “except under and in accordance with . . . a license.”⁵⁵ Commenters also agree⁵⁶ that in implementing Section 301, the Commission developed a CMRS regulatory regime founded on exclusive-use licensing and licensee control. The Commission’s rules: (1) give a CMRS licensee exclusive use of its

public and those entities serving the public good.”); Comments of Michael C. Candell, WT Docket No. 10-4, at 5 (filed Jan. 31, 2010) (“Candell Comments”) (“The Commission has long held that only those individuals or entities actually licensed to a frequency or frequency band or may transmit on those frequencies.”); Comments of Al Nowakowski, WT Docket No. 10-4, at 1 (filed Jan. 27, 2010) (“Nowakowski Comments”) (“urg[ing] the Commission to maintain strict regulation of the use of such ‘boosters’ including a type acceptance requirement and a requirement to obtain explicit written permission from the affected cellular carrier(s) prior to installation of such a device.”); Lake County Comments at 1 (explaining that the “questionable sales tactics by resellers of certain low end versions of these [BDA] devices have caused there [sic] proliferation into many communities, without the knowledge or consent of the carrier” and “[a]s we all know, this is required by the current FCC rules, that are widely ignored by many who market these devices with little or none of this information being passed on to the consumer/operator of these units.”); Comments of the Joint Council on Transit Wireless, WT Docket No. 10-4, at 4 (filed Feb. 5, 2010) (explaining that booster “equipment is installed without the knowledge or approval of the licensee and would seem to be in violation of FCC rules.”); NENA Comments at 2 (explaining that “the Commission should take the petitions as an opportunity to affirm that boosters cannot be operated unless there has been express authorization by a licensee.”); Comments of Motorola, Inc., WT Docket No. 10-4, at 3-4 (filed Feb. 5, 2010) (“Motorola Comments”) (explaining that “[f]undamentally, the Communications Act requires radio transmitting devices to be authorized by [an] FCC license.”); Comments of George R. Potter Jr., WT Docket No. 10-4, at 2 (filed Feb. 5, 2010) (“Potter Comments”) (“agree[ing] completely that any and all signal boosters intended to enhance Commercial Mobile Radio Services require consent of the appropriate CMRS licensee(s).”); APCO Comments at 4 (urging the FCC to issue “rule clarifications to ensure that signal boosters are only deployed by licensees or those with license approval. . .”).

⁵⁵ See 47 U.S.C. § 301; see also *U.S. v. Neset*, 235 F.3d 415, 416 (8th Cir. 2000) (recognizing that, under Section 301, “it is unlawful to transmit radio signals within the United States without a license. . .”).

⁵⁶ See, e.g., AT&T Comments at 3-5; CTIA Comments at 12-15; Verizon Wireless Comments at 9-12; Sprint Nextel Comments at 2-3.

licensed frequencies, 47 C.F.R. §§ 1.903(a), 22.3⁵⁷; (2) make a CMRS provider the licensee of all transmitting devices on its spectrum, 47 C.F.R. §§ 1.903(c), 22.3(b)⁵⁸; and (3) require a CMRS licensee to maintain control over all devices operating on its network, 47 C.F.R. § 22.305.⁵⁹

In practice, these licensing and licensee-control provisions – including the fundamental requirement that signal boosters operate under licensee control – have enabled the Commission to discharge its core duty under the Communications Act to prevent harmful interference and manage the airwaves in the public interest.⁶⁰ Indeed, the Commission – when alerted to the

⁵⁷ Sections 1.903 and 22.3 of the Commission’s rules require an FCC license or other authorization to operate a station within the cellular and PCS services. AT&T Comments at 4. *See* 47 C.F.R. § 1.903(a) (“Stations in the Wireless Radio Services must be used and operated only . . . with a valid authorization granted by the Commission.”); 47 C.F.R. § 22.3 (“Stations in the Public Mobile Services must be used and operated only in accordance with the rules in this part and with a valid authorization granted by the FCC under the provisions of this part”).

⁵⁸ Commenters also agree that the Commission’s rules make a CMRS provider the licensee of all transmitting devices operating within its spectrum, including all devices used by end user customers. Indeed, a subscriber’s authority to operate a device stems directly from the “authorization held by the licensee providing service to them.” 47 C.F.R. § 1.903(c); 47 C.F.R. § 22.3(b) (same). *See, e.g.*, AT&T Comments at 3-5; CTIA Comments at 15; Verizon Wireless Comments at 10-11; Sprint Nextel Comments at 2-3; WCAI Comments at 5; Candell Comments at 5. And while the FCC rules give CMRS licensees “blanket” authority to operate a variety of transmitters in their spectrum – including signal boosters – the rules exclude end-user subscribers from this authorization. 47 C.F.R. § 22.165 (“A licensee may operate additional transmitters at additional locations on the same channel or channel block as its existing system without obtaining prior Commission approval.”).

⁵⁹ Commenters also recognize that the issuance of a CMRS license imposes spectrum stewardship obligations on the license holder. *See, e.g.*, CTIA Comments at 3 (“Unlike wireless handsets, which are under the control of the wireless licensee’s base station, signal boosters cannot be controlled by wireless licensees.”); Verizon Wireless 12-13; WCAI Comments at 7; Candell Comments at 5. Commission rules obligate 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.” 47 C.F.R. § 22.305.

⁶⁰ The FCC confirmed this construction in its *Biennial Review* proceeding, stating that “[i]n 1980, the Commission abolished licensing of individual mobile units in most public land mobile
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existence of unauthorized boosters – consistently has issued Warning Letters that state that a “licensee’s authority to install a [signal booster] does not permit a subscriber to install a [signal booster], unless that subscriber has received explicit authorization from the licensee to do so.”⁶¹

In these cases, the Commission has further warned the signal booster operator that “operation” of the radio transmitting equipment without a valid radio station authorization constituted a violation of Section 301.⁶² Commenters agree that the Commission should continue to

services. The Commission reasoned that individual land mobile units served by a base station are associated with the blanket authorization of that station, and thus subject to that licensee’s exercise of effective operational control.” *Amendment of Part 22 of the Commission’s Rules to Benefit the Consumers of Air-Ground Telecommunications Services, Biennial Regulatory Review - Amendment of Parts 1, 22, and 90*, NPRM, 18 FCC Rcd 8380, ¶ 26 (2003). The Commission’s 1980 order is even more clear on this point. Adopted at a time when the overall number of CMRS end users was relatively small, the order describes the process by which individual end users might seek to take advantage of blanket licensing. The order provided that, in order to take advantage of blanket licensing, a subscriber must “provide evidence to the carrier that the subscriber’s mobile unit is compatible with the carrier’s mobile system,” “use only those mobile units which the carrier has agreed to serve,” and “furnish the type accepted number to the carrier.” *Amendment of Sections of Part 21 (now Part 22) of the Commission’s Rules to Modify Individual Radio Licensing Procedures in the Domestic Public Radio Services (now Public Mobile Radio Services)*, Report and Order, 77 F.C.C. 2d 84, ¶ 7 (1980). Pursuant to this process, the subscriber secured carrier consent to operate its device under blanket licensing by demonstrating that the carrier could control the device, consistent with its obligations as a licensee.

⁶¹ See, e.g., “Warning for Unlicensed Radio Operation,” FCC Case No. EB-09-DT-0375 (Dec. 8, 2009); “Notice of Unlicensed Operation,” FCC Case No. EB-08-NF-0029 (Aug. 20, 2008); “Notice of Unlicensed Operation,” FCC Case No. EB-08-LA-0295 (Oct. 24, 2008); “Warning Notice,” FCC Case No. EB-08-MA-0201 (Nov. 17, 2008); “Warning Notice,” FCC Case No. EB-08-MA-0198 (Nov. 20, 2008); “Notice of Unlicensed Operation,” FCC Case No. EB-09-MA-0195 (Dec. 3, 2009).

⁶² *Id.* When directly challenged on the validity of its rules and its authority to enforce them, the FCC has unequivocally affirmed its enforcement actions. For example, where signal booster manufacturer Digital Antenna took the position, in response to an FCC Letter of Inquiry, that signal boosters may be operated without a license or consent of the licensee, the Commission flatly rejected Digital Antenna’s position. In a Notice of Apparent Liability Letter that followed Digital Antenna’s LOI response, the Commission affirmed its position that signal boosters “may only be used by licensed cellular/PCS providers or by end user customers with the express
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aggressively prosecute similar cases and that additional resources should be dedicated to address this growing problem.⁶³ Moreover, commenters maintain that the growing scale of unauthorized booster operation warrants a general reminder through a Public Notice that unauthorized booster use is illegal and violations will result in enforcement actions.

B. Commenters Strongly Disagree with Wilson’s and Digital Antenna’s Novel Legal Theory that Most Booster Operation Is Lawful.

Given this clear statutory and regulatory precedent, commenters roundly reject Wilson’s and Digital Antenna’s challenges to the FCC’s authority to prohibit operation of signal boosters without a license or carrier authorization. Commenters highlight that Wilson and Digital Antenna rely on novel, and ultimately meritless, constructions of FCC precedent to support their theory that signal boosters do not require a license or licensee consent. Wilson and Digital Antenna have become increasingly aggressive in asserting that FCC rules applicable to signal booster manufacturers – and consistently enforced by the FCC’s own field agents – are *ultra vires* and simply do not apply. Digital Antenna has made outlandish assertions in federal court in defense of false advertising litigation brought against it by AT&T, causing the U.S. District Court for the Southern District of Florida to needlessly question the FCC’s authority in this area. In light of these brazen challenges to the Commission’s authority, the time has come for the FCC to affirm and step up enforcement of its existing rules, and take action in pending enforcement matters involving Digital Antenna.

authorization of the licensed provider.” See *Digital Antenna, Inc., Sunrise, Florida*, Notice of Apparent Liability for Forfeiture and Order, DA 08-1093, ¶ 4 (May 12, 2008).

⁶³ AT&T Comments at 6-7, 35-36; CTIA Comments at 15-16; Verizon Wireless Comments at 11-12.

1. Commenters Agree that the Blanket Licensing Rules Do Not Confer Upon Individual Wireless Customers the Same Spectrum Usage Rights as the Licensee.

Commenters roundly criticize Wilson’s Petition for arriving at a novel and unsupported construction of Section 22.3,⁶⁴ the “blanket licensing rule,” by wrenching the rule from its context and ignoring its purpose.⁶⁵ As AT&T noted in its opening comments, Wilson reads into this Section authority for end users to operate any device of their choosing over a licensed carrier’s spectrum – without licensee consent – so long as the end user takes service from the carrier.⁶⁶ Wilson’s reading, however, is based on taking these words from Section 22.3 in isolation: “[a]uthority for subscribers to operate mobile or fixed stations . . . is included in the authorization held by the licensee providing service to them.”⁶⁷

But Section 22.3 was not adopted in isolation and is properly construed within the context of CMRS exclusive-use licensing and licensee control. Commenters overwhelmingly recognize that within this framework CMRS licensees have exclusive use of their licensed frequencies, act as the licensee of all transmitting devices on their spectrum, and are required to

⁶⁴ Section 1.903 of the Commission’s rules contains similar language.

⁶⁵ As commenters explain, Wilson’s “argument is contrary to . . . Commission precedent, and the structure of the Act.” WCAI Comments at 5. *See also* CTIA Comments at 24 (stating that Wilson’s “interpretation is inconsistent with the existing statute and the Commission’s rules to protect against harmful interference to exclusive license holders.”); Verizon Wireless Comments at 12 (“Wilson’s interpretation of the law contradicts the requirements of other FCC rule sections.”); Sprint Nextel Comments at 2 (concluding that “[n]o rational basis exists for Wilson’s claim.”).

⁶⁶ Wilson Petition at 8, n.24; *see also* Letter from Russell Lukas, Counsel to Wilson Electronics, Inc., to P. Michele Ellison, Chief, Enforcement Bureau, FCC, WT Docket No. 10-4, at 3 (filed Jan. 13, 2010) (“Wilson Letter”).

⁶⁷ 47 C.F.R. § 22.3(b).

maintain control over all devices operating on their networks.⁶⁸ In this context, the blanket licensing rule performs a streamlining function, allowing millions of end users to operate mobile stations – principally wireless handsets – without individual licenses because they are authorized under the carrier’s license and subject to the carrier’s operational control.

Commenters recognize that, even accepting Wilson’s and Digital Antenna’s construction of the blanket licensing rule on its face, Section 22.3 cannot authorize signal booster operation given the technical characteristics of the equipment in question. Wilson’s and Digital Antenna’s signal boosters, like those of many other manufacturers, are broadband devices which operate across a wide swath of frequencies. They do not limit their transmission to the frequencies licensed to the carrier from which a signal booster operator takes service.⁶⁹ Moreover, in the case of mobile signal boosters, as Smart Booster notes, existing products do not limit their transmissions to the licensed frequencies of a particular carrier as they move from market-to-market, among other reasons, because the signal booster has no way of knowing who is licensed to operate on particular frequencies in particular markets.⁷⁰ In addition, a signal booster may be

⁶⁸ See, e.g., AT&T Comments at 4-5, 10-11; US Cellular Comments at 1; CTIA Comments at 7-8, 13-15; WCAI Comments at 7 (stating that the “Commission made clear that the licensee, rather than its subscribers, controls the type of devices connected to the licensee’s network...”).

⁶⁹ See AT&T Comments at 27, n.18 (explaining that repeaters “boost a range of frequencies...Thus, when a non-AT&T cell phone user operates a broadband booster on another carrier’s nearby frequency, harmful interference may be generated on AT&T’s licensed spectrum.”); see also Nextivity Comments at 5 (suggesting that self-installed signal boosters should only be allowed if they only boost signals from one CMRS provider); Comments of CellLynx, WT Docket No. 10-4, at 2 (filed Feb. 4, 2010) (“If a user changes carriers, the product still functions correctly.”).

⁷⁰ Smart Booster Comments at 50.

used to extend coverage of a carrier's network beyond its licensed service area.⁷¹ And unlike mobile handsets, which transmit only in the uplink band, the vast majority of signal boosters transmit in the uplink and the downlink band. For this reason, signal boosters are not comparable to end user equipment, like handsets, but rather to base stations.⁷² A base station is, of course, a "fixed station" as that term is used in Part 22. This highlights the absurdity of Wilson's and Digital Antenna's construction of Section 22.3. If each wireless subscriber had the right to operate a base station at a location of his or her choosing, the exclusive-use licensing regime would be meaningless.

But commenters do not accept Wilson's and Digital Antenna's construction of Section 22.3 on its face. Instead, commenters note that the interrelated nature of the Commission's exclusive-use licensing and licensee control rules renders the Wilson/Digital Antenna construction of 22.3 unsupportable. The Wireless Communications Association International, Inc. ("WCAI"), for example, explains that "[i]f the licensee were unable to control the types of devices connected to the licensee's network, the licensee would not be able to exercise the type

⁷¹ *See id.* at 12 ("The Wilson booster is still fundamentally a broadband amplifier that radiates into the spectrum of licensees other than the one to which a particular consumer subscribes.").

⁷² AT&T Comments at 8-11. *See also* WCAI Comments at 7-11 (noting that if the licensee were unable to control the types of devices connected to its network, subscribers would be allowed to operate any device with a valid equipment certification, including devices prohibited by the licensee due to interference concerns). Currently, GSM carriers have complete operational control over base stations, and through the standardized methods included in the GSM/UMTS specifications wireless carriers have control over end-user devices. This greatly benefits the general wireless community because it enables carriers to detect and shut down problematic base stations and rogue mobile units. None of the signal boosters commercially available, including devices with oscillation detection, offer this type of control and even if a new testing regime is developed it will still lack the control that licensees require.

of control contemplated by Sections 301, 303(f), and 310(d) of the Act.”⁷³ “Instead, [CMRS] subscribers would exercise *de facto* control over the subscriber-operated portion of the network” and “would be allowed to operate pursuant to the service provider’s license any device with a valid equipment certification, including devices that the licensee prohibits on the basis of interference concerns.”⁷⁴ CTIA agrees that “Wilson’s interpretation of the Commission’s rules and relevant authority would effectively eviscerate the Commission’s exclusive-use licensing and licensee operational control regime.”⁷⁵ Further, Verizon Wireless explains that it “[i]s not possible for a licensee to comply with these and other rule requirements if the licensee does not know what equipment is being used on licensed frequencies and where such equipment is being used.”⁷⁶

Moreover, commenters recognize that where the Commission has carved out exceptions to the CMRS exclusive use structure, the exceptions have been the product of a rulemaking. Indeed, the Part 15 rules – which permit limited use of extremely low power devices in exclusive use spectrum – were adopted following a rulemaking.⁷⁷ Permitting signal boosters – which transmit at higher power levels than Part 15 devices – to transmit on exclusive use spectrum would necessarily require rule changes. Indeed, WCAI notes that Wilson’s “reading of the Act and the Commission’s rules would, in effect, make devices used by subscribers in the Wireless

⁷³ WCAI Comments at 7.

⁷⁴ *Id.*

⁷⁵ CTIA Comments at 23-24.

⁷⁶ Verizon Wireless Comments at 13.

⁷⁷ *See, e.g., Revision of Part 15 of the Rules Regarding the Operation of Radio Frequency Devices Without an Individual License*, First Report and Order, 4 FCC Rcd 3493 (1989).

Radio Services, which are well over the Part 15 power limits, eligible for unlicensed operation.”⁷⁸ WCAI then explains that “[h]ad the Commission intended that absurd result, it would have said so expressly in Part 15 of the Commission’s rules. Instead, Rule 15.1(b) provides that ‘[t]he operation of an intentional or unintentional radiator that is not in accordance with the regulations in this [Part 15] *must be licensed* pursuant to the provisions of Section 301’.”⁷⁹ AT&T agrees. Accordingly, the Commission should affirm that operation of a signal booster requires a license or licensee consent.

2. Commenters Agree that the Ongoing *Preserving the Open Internet* Proceeding Provides No Support for Wilson’s Claim that Individual Wireless Customers Possess the Same Spectrum Use Rights as Licensees.

Commenters also urge the Commission to reject Wilson’s reliance on rules not yet adopted – and which may never be adopted – in support of its position that signal booster operation does not require a license or licensee consent. Specifically, Wilson cites the Commission’s ongoing *Preserving the Open Internet* proceeding to support its novel construction of the Communications Act and the Commission’s rules: “It seems likely that the Commission will codify open network principles that will prevent broadband providers from prohibiting users from attaching non-harmful devices to their networks and require them to be transparent about their network management practice.”⁸⁰ But commenters recognize that “the issue of whether the Internet Policy Statement may be applied to wireless networks is an

⁷⁸ WCAI Comments at 7.

⁷⁹ *Id.* at 7-8 (footnote omitted).

⁸⁰ Wilson Petition at 10.

unanswered question, and that no rules have been adopted with respect to network neutrality.”⁸¹

Indeed, “[t]he fact that Wilson presupposes the Commission’s existing requirements may be inconsistent with its proposed net neutrality principles is irrelevant – uncodified principles are no barrier to the enforcement of the Commission’s existing regulations.”⁸²

Even if the Commission adopts rules in that proceeding, there is no way to predict if the content of the rules would harm or help Wilson’s position. In fact, the record being developed in that proceeding – particularly in the context of reasonable network management – emphasizes the need for licensee control over wireless devices to ensure effective network management and prevention of harmful interference.⁸³ If wireless providers lack the power to manage their networks and control the devices on their networks, they will be unable to address the significant performance challenges caused by harmful interference.⁸⁴

⁸¹ CTIA Comments at 25; *see also* AT&T Comments at 11; WCAI Comments at 9.

⁸² CTIA Comments at 26.

⁸³ *See* AT&T Comments at 11-12; CTIA Comments at 25 (“As an initial matter, even the *Internet Policy Statement* and the Commission’s Notice of Proposed Rulemaking regarding net neutrality contemplate authorization only for non-interfering devices.”).

⁸⁴ The FCC itself acknowledged that “wireless networks must be designed to deal with . . . *interference from other devices.*” *Preserving the Open Internet*, Notice of Proposed Rulemaking, GN Docket No. 09-191, WT Docket No. 07-52, FCC No. 09-93, ¶ 172 (rel. Oct. 22, 2009) (emphasis added). Similarly, AT&T explained that “active data sessions and calls must be carefully managed to sustain the level of service quality (and mobility) that customers have come to expect.” Comments of AT&T Inc., GN Docket No. 09-191, at 161 (filed Jan. 14, 2010). AT&T then cautioned that “the Commission has recognized that the interference created by the plethora of wireless devices now in use is one of the most significant interference challenges that has ever been faced” and that “available bandwidth can fluctuate because of interference from transmitters in the area – wireless microphones, for example, or unauthorized wireless boosters or repeaters.” *Id.*

Moreover, commenters highlight that the single example of wireless “open network policies” that Wilson refers to⁸⁵ – the “open platform” conditions attached to the C Block in the 700 MHz auction – actually undercuts Wilson’s conclusion that end users possess ultimate control and authority over what devices may operate on a CMRS network.⁸⁶ As AT&T explained in its initial comments, even in adopting the C Block “open platform” condition, the Commission recognized the importance of the licensee-driven device approval process and refused to allow signal boosters on a C Block licensee’s network without licensee consent. Specifically, the Commission concluded that a C Block licensee “could exclude devices such as signal boosters and repeaters to the extent they are inconsistent with the technical or operational parameters of the network.”⁸⁷ The Commission also emphasized that C Block licensees should “continue to use their own certification standards and processes to approve use of devices . . . on

⁸⁵ Wilson Petition at 10.

⁸⁶ AT&T Comments at 11-12; CTIA Comments at 25 (“[T]he Commission already has spoken to the issue of signal boosters in a net neutrality-like setting. As noted above, in adopting the Upper 700 MHz C Block open platform requirements, the Commission specifically empowered licensees to exclude these devices from their networks, to the extent they are inconsistent with the network’s technical or operational parameters.”); WCAI Comments at 9. Similarly, Digital Antenna’s citation to the *Carterfone* decision provides no legal or policy support for its proposition that wireless carriers lack the operational control to exclude boosters from their networks. *In re the Use of the Carterfone Device in Message Toll Telephone Service*, Decision, 13 F.C.C. 2d 420 (1968). As a legal matter, the principles of *Carterfone* do not apply to wireless. Moreover, because of technical differences in the operation of wireless and wireline networks, attempting to apply *Carterfone* to wireless would undermine the successful wireless regulatory regime and would create harmful interference to the detriment of end users as a whole.

⁸⁷ AT&T Comments at 13. Additionally, the Commission recognized that even the C Block licensee needs to “maintain network control features that permit dynamic management of network operations, including the management of devices operating on the network, and to restrict use of the network to devices compatible with these network control features.” *Id.* See *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Second Report and Order, 22 FCC Rcd 15289, ¶ 223 (2007) (“700 MHz Second Report and Order”).

their networks.”⁸⁸ And, as WCAI points out, “the Commission ... indicated that [the rules proposed in the *Preserving the Open Internet* proceeding] are intended to be *less* restrictive on service providers” than the C Block rules.⁸⁹ In short, the *Preserving the Open Internet* proceeding may never result in adoption of any rules, much less rules supporting Wilson’s position, and therefore offers no basis for non-compliance with the law today.

3. A Recent Order of the U.S. District Court for the Southern District of Florida and Legal Positions Taken by Certain Booster Manufacturers Compel Immediate Commission Action.

The urgent need for FCC action affirming that operation of a signal booster requires a license or licensee consent is heightened by aggressive contrary positions taken by Digital Antenna and Wilson – backed by conduct – that undermine FCC authority. Rather than advocating for a change in the law, Digital Antenna and Wilson are conducting themselves as if persistent challenges to the law – in the face of FCC inaction – are, in and of themselves, sufficient to secure a waiver or reversal. Such a position finds no support in the Administrative Procedures Act or FCC precedent. The Commission should expeditiously confirm that settled law (*i.e.*, that operation of a signal booster requires a license or licensee consent) remains in effect by taking action in pending enforcement matters involving Digital Antenna and issuing a Public Notice affirming its signal booster licensing and licensee consent requirements.

Digital Antenna and Wilson are aware that operation of a signal booster requires a license or licensee consent because the FCC flatly has told them so, on multiple occasions. The history is as follows:

⁸⁸ 700 MHz Second Report and Order, ¶ 223.

⁸⁹ WCAI Comments at 9.

- November 4, 2005. Ray LaForge, Chief of the Audits and Compliance Branch of the Office of Engineering and Technology sends Digital Antenna a letter informing Digital Antenna that its signal booster, the PowerMax, cannot be marketed to the general public under the FCC’s rules and regulations.⁹⁰ Digital Antenna responds that it disagrees,⁹¹ and continues to market its PowerMax to the general public, including representing that no license is required for operation.
- November 5, 2007. Kathryn Berthot, Chief of the Spectrum Enforcement Division of the Enforcement Bureau sends Digital Antenna a Letter of Inquiry asking what steps Digital Antenna has taken to inform its customers that its signal boosters may not be operated without a license.⁹² Digital Antenna responds that its signal booster is not a transmitter.⁹³ On February 4, 2008, Berthot responds that Digital Antenna is in error – signal boosters are transmitters and require a license or licensee consent to operate.⁹⁴ (Before a federal court, Digital Antenna later characterized Ms. Berthot’s statement as “not a final order of the FCC” , and “[a]t best ... a preliminary assessment by a staff member of the FCC.”⁹⁵) Berthot’s construction of FCC requirements is repeated in a Notice of Apparent Liability relating to Digital Antenna’s failure to produce documents.⁹⁶ (Digital Antenna later asserted – before a federal court – that “the

⁹⁰ Letter from Ray LaForge, Chief of the Audits and Compliance Branch, Office of Engineering and Technology, FCC, to Digital Antenna Inc. (Nov. 4, 2005).

⁹¹ Letter from John Jones, Vice President, Digital Antenna Inc., to Ray LaForge, Chief of the Audits and Compliance Branch, Office of Engineering and Technology, FCC (filed Dec. 2, 2005).

⁹² Letter from Kathryn S. Berthot, Chief, Spectrum Enforcement Division, Enforcement Bureau, Federal Communications Commission, to Mr. Anthony Gallagher, President, Digital Antenna, Inc. (Nov. 5, 2007).

⁹³ Notably, Digital Antenna did not respond that operation of its signal boosters was authorized under Section 22.3, the blanket licensing rule. Digital Antenna began offering that justification only after its original rationale was rejected by the Commission.

⁹⁴ Letter from Kathryn S. Berthot, Chief, Spectrum Enforcement Division, Enforcement Bureau, Federal Communications Commission, to Mr. Anthony Gallagher, President, Digital Antenna, Inc. (Feb. 4, 2008).

⁹⁵ See Digital Antenna Inc.’s Proposed Findings of Fact and Conclusions of Law, ¶ 58, AT&T Mobility, LLC. v. Digital Antenna, Inc., Case No. 09-60639-CV-PAS (Oct. 2, 2009) (“Digital Antenna’s Proposed Findings of Fact”).

⁹⁶ *Digital Antenna Inc.*, Notice of Apparent Liability for Forfeiture and Order, 23 FCC Rcd 7600 (2008).

statement in the Notice of Apparent Liability is dicta not relevant to the NAL itself.”⁹⁷) Digital Antenna continues to market its PowerMax to the general public, including representing that no license is required for operation.

- Since 2008, the Enforcement Bureau field agents have been issuing Warning Letters informing signal booster operators that operation of a signal booster requires a license or licensee consent.⁹⁸ FCC Field Agent Michael Mattern testified in false advertising litigation brought by AT&T against Digital Antenna in the U.S. District Court for the Southern District of Florida that the FCC issued three such Warning Letters at a single boat show in Fort Lauderdale, Florida.⁹⁹ AT&T believes representatives of Digital Antenna and Wilson were present and exhibiting at that boat show. Digital Antenna and Wilson continued to market their signal boosters to the general public, including representing that no license is required for operation. (Digital Antenna also later argued to a federal court that the “warning letters do not establish FCC law on this issue” and the letters do “not requir[e] deference by this court.”¹⁰⁰)
- December 8, 2009. Enforcement Bureau field agents issue a Warning Letter to One Call Now, operator of a Wilson signal booster, explaining that operation of a signal booster requires a license or licensee consent.¹⁰¹ Wilson, though not a party to the proceeding, attempts to intervene by filing a letter with the Chief of the Enforcement Bureau arguing that the FCC’s construction of the law is incorrect.¹⁰²
- January 6, 2010. The FCC issues the Public Notice initiating the instant proceeding. The Public Notice itself states: “Generally, signal boosters are treated as licensed transmitting devices . . . the Commission’s rules and policies adopted pursuant to Section

⁹⁷ See Digital Antenna’s Proposed Findings of Fact, ¶ 59.

⁹⁸ See, e.g., “Warning for Unlicensed Radio Operation,” FCC Case No. EB-09-DT-0375 (Dec. 8, 2009); “Notice of Unlicensed Operation,” FCC Case No. EB-08-NF-0029 (Aug. 20, 2008); “Notice of Unlicensed Operation,” FCC Case No. EB-08-LA-0295 (Oct. 24, 2008); “Warning Notice,” FCC Case No. EB-08-MA-0201 (Nov. 17, 2008); “Warning Notice,” FCC Case No. EB-08-MA-0198 (Nov. 20, 2008); “Notice of Unlicensed Operation,” FCC Case No. EB-09-MA-0195 (Dec. 3, 2009).

⁹⁹ See Transcript of Hearing on Motions, Testimony of FCC Field Agent Michael Mattern, at 22, AT&T Mobility, LLC. v. Digital Antenna, Inc., Case No. 09-60639-CV-PAS (Sept. 11, 2009).

¹⁰⁰ See Digital Antenna’s Proposed Findings of Fact, ¶ 55.

¹⁰¹ “Warning for Unlicensed Radio Operation,” FCC Case No. EB-09-DT-0375 (Dec. 8, 2009).

¹⁰² See Wilson Letter at 3.

310(d) require that licensees maintain control over and responsibility for their assigned spectrum . . . Similarly section 1.903 established that stations in wireless services [*i.e.*, signal boosters] may only be operated with an FCC authorization (*i.e.*, license).”¹⁰³

Remarkably, despite clear and repeated statements from the FCC to the contrary, Digital Antenna and Wilson continue to maintain that no license or licensee consent is required to operate a signal booster, and to so inform their customers in advertising, frequently asked questions, and in response to customer service inquiries.¹⁰⁴ Digital Antenna has gone so far as to argue in federal court that:

FCC rules permit mobile subscribers to operate devices that transmit on frequencies assigned to AT&T, so long as the customers are subscribers of AT&T services. Section 22.3 clearly establishes that a user’s right to transmit on a frequency is derivative of AT&T’s license to use the frequency. 47 C.F.R. § 22.3. Because a subscriber’s right to use the frequency is derivative of AT&T’s authorization, subscribers who use devices to transmit on AT&T frequencies do not violate Section 301 of the Communications Act. Subscribers, by virtue of Section 22.3 of the FCC’s rules, have a ‘license’ for purposes of Section 301.¹⁰⁵

Because their violation of FCC requirements occurs openly and persists without FCC response – despite open FCC proceedings concerning such conduct, particularly with respect to Digital Antenna – other signal booster manufacturers have followed suit, flooding the marketplace with advertising and marketing materials misinforming the public that no license or licensee consent

¹⁰³ *Public Notice* at 1, n.2.

¹⁰⁴ For examples of Wilson’s and Digital Antenna’s misrepresentations, *see* AT&T Comments at 19-23. AT&T continues to uncover misrepresentations made by booster manufacturers and their distributors. Since AT&T filed its initial comments, it uncovered a booster distributor advertising an unauthorized Wilson-manufactured “AT&T Cell Phone Amplifier/ Wireless Repeater” that “greatly improves signal strength inside a vehicle when using your AT&T cellphone.” *See* “AT&T Cell Phone Amplifier,” Cellphone-Accessories.com, <http://www.cell-phone-accessories.com/att-antenna-amplifier.html>.

¹⁰⁵ *See* Digital Antenna’s Proposed Findings of Fact, ¶¶ 62-63.

is required for signal booster operation.¹⁰⁶ More simply put, when the FCC has informed the public what its rules require – as in the Public Notice initiating this proceeding – Digital Antenna and Wilson have countered that message and informed the public that the FCC is wrong about the requirements of its own rules.

Digital Antenna’s and Wilson’s misinformation campaign has had a significant negative impact. In its recently issued order in *AT&T Mobility v. Digital Antenna* (AT&T’s false advertising litigation against Digital Antenna), the U.S. District Court for the Southern District of Florida discussed the FCC’s history of communication with Digital Antenna regarding the Commission’s signal booster licensing requirements.¹⁰⁷ While the decision turns on other grounds,¹⁰⁸ the FCC’s failure to take action to halt Digital Antenna’s conduct after informing Digital Antenna that the conduct violates FCC rules was a feature argument made by Digital in an attempt to cause the Court to doubt the FCC’s authority with respect to its own rules. Perhaps more importantly, the lack of action has emboldened signal booster manufacturers to continue misinforming the public about FCC requirements, allowing signal boosters, and the network interference they cause to public safety and commercial systems, to proliferate.

¹⁰⁶ See AT&T Comments at 19-23.

¹⁰⁷ *AT&T Mobility, LLC. v. Digital Antenna, Inc.*, Case No. 09-60639-CV-PAS (S.D. Fla. Feb. 8, 2010).

¹⁰⁸ The Court held that AT&T lacked standing to sue Digital for false advertising because AT&T does not compete with Digital in the mobile cell phone booster market. AT&T does not offer for sale mobile signal boosters because of the Commission’s present rules and the interference concerns expressed by the commenters. The unfortunate result of the ruling is that it has the practical effect of giving booster manufacturers carte blanche to make false advertising claims concerning the legality of booster operations, as no mobile booster manufacturer could challenge a competing manufacturer’s advertising without calling into question its own false claims. The Court’s ruling further demonstrates the need for immediate Commission action to enforce existing prohibitions on the marketing of unauthorized signal boosters.

Immediate FCC action is needed to affirm FCC requirements with respect to signal booster licensing and to halt contrary conduct. AT&T urges the FCC to do so by taking the following actions:

- Issuing a Notice of Apparent Liability or a Forfeiture Order in the Letter of Inquiry proceeding initiated against Digital Antenna in 2007 affirming that operation of a signal booster requires a license or licensee consent, and that Digital Antenna violates FCC rules when it makes contrary representations to its customers and potential customers.
- Acting on AT&T's complaint and request for investigation against Digital Antenna by affirming that operation of a signal booster requires a license or licensee consent and finding that Digital Antenna has violated Section 302(b) of the Communications Act and the Commission's rules through its marketing and sale of signal boosters to consumers who may not lawfully operate such equipment.
- Issuing a Public Notice or Order in this proceeding affirming that operation of a signal booster requires a license or licensee consent.

Such action is necessary to affirm the FCC's authority with respect to signal booster licensing and the validity of the Commission's prior enforcement action, and to halt longstanding and open violations of FCC rules.

IV. COMMENTERS WIDELY AGREE THAT SETTLED COMMISSION LAW PROHIBITS THE MARKETING AND SALE OF UNAUTHORIZED SIGNAL BOOSTERS.

The record reflects strong support for CTIA's request that the Commission affirm that the sale and marketing of signal boosters to consumers who may not legally operate them is itself a violation of FCC rules.¹⁰⁹ Section 302 of the Communications Act empowers the FCC to stop

¹⁰⁹ WCAI Comments at 12 (“When a device manufacturer markets and sells a device for use with a licensee’s network without the consent of the licensee, a device manufacturer violates Sections 301 and 302a of the Act and the Commission’s rules governing the Wireless Radio Services.”); Motorola Comments at 1 (“The Commission should affirm that the sale and use of signal boosters in the Commercial Mobile Radio Services (“CMRS”) without licensee consent is unlawful, and that any interference from booster operations to unaffiliated systems in adjacent bands will not be tolerated.”); Verizon Wireless Comments at 22 (concluding that “[i]n the absence of a declaration by the FCC that signal boosters can only be sold to licensees or those
Footnote continues on next page . . .

interference at its source – the manufacturer – rather than waiting until interfering equipment enters the stream of commerce.¹¹⁰ The Commission very recently has exercised its authority under Section 302 to prevent the marketing and sale of interfering wireless microphones in the 700 MHz band. The Commission should take consistent action in this proceeding to stop the marketing and sale of interfering signal boosters.

As AT&T explained in its opening comments, Section 302(b) prohibits the sale and marketing of devices that “fail to comply with regulations promulgated pursuant to [Section

authorized by licensees, the unlawful sale and use of unauthorized boosters will continue to spread.”); Lake County Comments at 1 (explaining that the “questionable sales tactics by resellers of certain low end versions of these [BDA] devices have caused there [sic] proliferation into many communities, without the knowledge or consent of the carrier” and “[a]s we all know, this is required by the current FCC rules, that are widely ignored by many who market these devices with little or none of this information being passed on to the consumer/operator of these units.”); NENA Comments at 5 (“encourag[ing] the Commission to consider adopting CTIA’s proposal to affirm that the Communications Act and the Commission’s rules prohibit the marketing and sale of signal boosters to end users that lack licenses or licensee authorization.”); Nowakowski Comments at 1 (“suggest[ing] that the sale and use of mobile ‘boosters’ be totally banned, with significant penalties for violations.”); Potter Comments at 3 (“recommend[ing] that the sale, installation and operation of Mobile Power Amplifiers or Handset Amplifiers for use in CMRS be prohibited.”).

¹¹⁰ *Computer Sys. of Am., Inc. v. Data Gen. Corp.*, 921 F.2d 386, 389, n. 5 (1st Cir. 1990) (quoting S.Rep. No. 1276, 1968 U.S. Code Cong. & Admin. News at 2486) (Congress intended Section 302 to “empower the Commission to deal with the interference problem at its root source—the sale by some manufacturers of equipment and apparatus which do not comply with the Commission’s rules.”). The Commission itself has recognized that the “purpose of [Section 302] is to ensure that radio transmitters and other electronic devices meet certain standards to control interference before they reach the market.” *Hawking Tech., Inc.*, Notice of Apparent Liability for Forfeiture, 22 FCC Rcd 7140, ¶ 2 (2007); *Hawking Tech., Inc.*, Forfeiture Order, 24 FCC Rcd 4252, ¶ 1 (2009) (affirming \$50,000 monetary forfeiture for willful and repeated violations of Section 302(b), involving “marketing external radio frequency power amplifiers in a manner that was inconsistent with the terms of Hawking’s equipment authorization and the requirements of Section 15.204(d) of the Rules.”).

302(a)].”¹¹¹ Section 302(a), in turn, empowers the Commission to adopt regulations that “govern[] the interference potential of devices which in their operation are capable of emitting radio frequency energy by radiation, conduction, or other means in sufficient degree to cause harmful interference to radio communications.”¹¹² The Commission has implemented Section 302 by adopting interference-control regulations that: (1) give a CMRS licensee exclusive use of its licensed frequencies;¹¹³ (2) make a CMRS provider the licensee of all transmitting devices on its spectrum, including all devices used by end user customers;¹¹⁴ and (3) require a CMRS licensee to maintain control over all devices operating on its network.¹¹⁵

Signal booster manufacturers market and sell equipment in a manner that ensures systematic violation of all of these rules. Signal boosters are operated without a license and do

¹¹¹ 47 U.S.C. § 302(b) (“No person shall manufacture, import, *sell, offer for sale*, or ship devices or home electronic equipment and systems, or use devices, which fail to comply with regulations promulgated pursuant to this section.”) (emphasis added).

¹¹² 47 U.S.C. § 302(a).

¹¹³ See 47 C.F.R. § 1.903(a) (“Stations in the Wireless Radio Services must be used and operated only . . . with a valid authorization granted by the Commission.”); see also 47 C.F.R. § 22.3 (requiring a valid license to operate cellular stations).

¹¹⁴ A subscriber’s authority to operate a device stems directly from the “authorization held by the licensee providing service to them.” See 47 C.F.R. § 1.903(c); see also 47 C.F.R. § 22.3(b) (same).

¹¹⁵ As explained above, issuance of a CMRS license imposes spectrum stewardship obligations on the license holder. Commission rules obligate 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.” See 47 C.F.R. § 22.305. Consistent with the interference and exclusive-use licensing rules, CMRS licensees have adopted a certification and testing process that a device must satisfy before it is permitted on a wireless carrier’s network. Signal booster manufacturers and retailers generally do not satisfy – or even attempt to satisfy – this process for the use of their signal boosters on CMRS networks. Thus, these companies prevent AT&T and other CMRS licensees from discharging their duty to prevent harmful interference within their licensed spectrum. See *id.*

not limit themselves to a particular carrier's licensed frequencies. Rather, they are broadband devices that operate across frequencies licensed to multiple carriers and, in the case of mobile devices, may be operated in a range of frequencies in particular markets regardless of the identity of the licensee. Moreover, signal boosters may be used to extend coverage of a particular carrier's network into markets where that carrier has no license to operate. And at no time are signal boosters subject to carrier control. If a signal booster malfunctions or goes into oscillation, a carrier must expend significant time and resources to locate and shut down the device (which in many cases is impossible due to the mobile nature of the installation, or lack of cooperation from the user who is convinced – due to industry-wide false advertising practices – that unlicensed and unauthorized mobile booster use is lawful under current Commission rules).

In the Commission's recent wireless microphones decision, the Commission construed Section 302 in a manner that directly addresses this concern – and is precisely the construction requested in the CTIA Petition – and should do the same in this case. In the wireless microphones decision, the Commission exercised its authority under Section 302(b) to prohibit the “manufacture, import, sale, lease, offer for sale or lease, or shipment of low power auxiliary stations for operation in the 700 MHz Band in the United States” based on its finding that wireless microphones “could interfere with public safety and commercial base and mobile receivers.”¹¹⁶ Specifically, wireless microphones violated the Commission's rule, newly promulgated under Section 302(a), prohibiting the operation of wireless microphones in the 700 MHz band to reduce the risk of interference to planned public safety and commercial networks. The Commission's prohibition on *marketing and sale* under 302(b) was, in the Commission's

¹¹⁶ *Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band*, Report and Order and Further Notice of Proposed Rulemaking, FCC 10-16, ¶59 (2010).

language, the “reasonable corollary” of its decision that *operation* of wireless microphones in the 700 MHz band would no longer be permitted to prevent interference, a decision reached under Section 302(a).¹¹⁷

Because the operation of signal boosters violates FCC rules and interferes with public safety and commercial wireless networks, the Commission should exercise its authority to prohibit the sale and marketing of such equipment, as it did in the wireless microphones case. Signal boosters are readily available on the Internet and, as commenters explain, the websites that sell these devices “either say nothing with respect to a purchaser’s authorization to operate the devices, merely represent that the devices sold are ‘FCC type accepted’, or affirmatively state that the devices may be legally operated because they are FCC certified.”¹¹⁸ As AT&T documented in its initial comments, manufacturers and distributors make these claims to intentionally mislead customers into believing that signal booster use is lawful without a license or carrier authorization. Given these facts, commenters are rightfully concerned that “[i]n the absence of a declaration by the FCC that signal boosters can only be sold to licensees or those authorized by licensees, the unlawful sale and use of unauthorized boosters will continue to spread.”¹¹⁹ Accordingly, the Commission should take immediate action to stem the proliferation of interfering signal boosters at its source by confirming that the sale and marketing of signal boosters to consumers not authorized to operate them is prohibited under Section 302(b).

¹¹⁷ *Id.*, ¶ 62 (“This prohibition [on the sale and marketing of wireless microphones] is a reasonable corollary to our decision in this Report and Order to prohibit the operation of low power auxiliary stations in the 700 MHz Band permanently after June 12, 2010, subject to conditions that would require their operation to cease at an earlier date.”).

¹¹⁸ Verizon Wireless Comments at 21-22.

¹¹⁹ *Id.* at 22.

V. PROPOSALS TO DEVELOP SIGNAL BOOSTER STANDARDS AND CERTIFICATION PROCESSES ARE PREMATURE AND INADEQUATE.

Commenters widely agree that the Commission must address the signal booster interference problem by affirming that operation of a signal booster requires a license or licensee consent, and by reeducating the booster industry and the public that operation of such equipment without the required licensing or consent is unlawful. The record also reflects a clear call for the Commission to step up enforcement actions, particularly against manufacturers.¹²⁰ To this end, AT&T has proposed that the Commission adopt an accelerated docket procedure to address complaints against manufacturers regarding equipment involved in multiple interference events.¹²¹ Such a process will enable the Commission to slow down the proliferation of these dangerous, interfering devices and thereby proactively protect the integrity of wireless networks relied on by public safety and consumers, consistent with the public interest.

In contrast, commenters vigorously oppose proposals made by Wilson, the DAS Forum, and Digital Antenna¹²² that attempt to tame booster interference solely through better technology

¹²⁰ CTIA Comments at 28 (“...the Commission should affirm and enforce its existing rules with regard to the unauthorized operation of signal boosters, as this is the best way to ensure that such devices are not used in a manner that erodes licensees’ spectrum rights and impedes commercial and Public Safety wireless service.”); NENA Comments at 2 (stating the Commission should “vigorously enforce existing rules...”); AT&T Comments at 3, 14-16 (“The Commission should aggressively enforce its own settled precedent.”); Bird Technology Comments at 4 (supporting the continued enforcement of Commission rules and regulations); Sprint Nextel Comments at 1, 3-5.

¹²¹ AT&T Comments at 32.

¹²² Wilson Petition at 14 (asserting that the next-generation of boosters “can be robustly designed and marketed with the oscillation detection technology and shutdown logic necessary to prevent interference to wireless networks”); Comments of DAS Forum, WT Docket No. 10-4, at 6 (filed Feb. 5, 2010) (proposing that the booster interference problem is best addressed through the creation of an Industry Code of Conduct for “wireless repeaters”); Comments of Digital Antenna, WT Docket No. 10-4, at 5 (filed Feb. 5, 2010) (supporting Wilson’s request for a rulemaking to “establish standards for certification” of signal boosters).

or the creation of additional certification processes or industry best practices.¹²³ The record is clear that such forward looking actions do nothing to prevent interference from signal “boosters currently in the marketplace or already installed by end users.”¹²⁴ Further, commenters widely agree that the proposed technology enhancements and technology standards – including oscillation-control mechanisms and smart-boosters – are unproven and ineffective. AT&T nevertheless appreciates the end user’s need for better service in certain parts of the country and the consumer appeal of boosters. AT&T submits, however, that ongoing measures by wireless carriers – including substantial infrastructure investments to improve and expand wireless coverage, support for commercial-grade, professionally installed, channelized boosters and development and commercial offering of femtocell devices – offer better paths to improving wireless service.

¹²³ APCO Comments at 3 (stating it disagrees with Wilson and the DAS Forum because “equipment certifications and [the] voluntary industry standard they propose are insufficient to prevent the improper use of signal boosters and the potential for dangerous interference to public safety...”); Verizon Wireless Comments at 14-18 (noting that the “features Wilson touts as preventing interference do not reliably work” and even if design functions did work, boosters still cause signal interference due to overpowering and oscillation); NENA Comments at 2 (agreeing that the Commission should “institute enforceable steps to prevent the marketing and/or sale of signal boosters to customers who lack the appropriate licensee consent or authorization.”); GPD Comments at 2 (stating that it believes an industry Code of Conduct “would be unenforceable and un-measurable and only open the door for broader reckless deployment of signal boosters by commercial and private individuals causing untold harm and loss of revenue...”); RFI Comments at 5 (disagreeing with Wilson’s position that technology correcting oscillation will nullify the potential for interference); Nextivity Comments at 8 (stating its belief that “an industry Code of Conduct is not appropriate means to safeguard the interest of the CMRS licensees and their customers.”); Smart Booster Comments at 13, 18; CTIA Comments at 26-28; US Cellular Comments at 3.

¹²⁴ AT&T Comments at n.74; CTIA Comments at 36. Wilson, a leading advocate of certification, states that it sold over two million boosters since 2001, and 150,000 boosters since late 2006. *See* Wilson Petition at 4.

A. The Oscillation Prevention Mechanisms Advertised by Wilson and other Manufacturers Are Not an Effective Solution to Booster Interference.

Oscillation prevention mechanisms fail to address the myriad ways that boosters cause interference.¹²⁵ Contrary to Wilson’s representations,¹²⁶ while “oscillation does indeed impact these devices, it is not the only potential cause of interference to CMRS networks . . . These devices are continually emitting a broadband, unmodulated carrier. Such carriers will, in the aggregate, increase the noise floor level at network sites.”¹²⁷ As CTIA explains, “[s]ignal boosters, because they are not controlled by the base station, do not operate at the lowest possible power.”¹²⁸ Rather, these “devices are intended to operate at much higher power, which raises the noise floor, harming spectrum efficiency and causing interference that leads to degraded or dropped calls unless the devices are properly installed and overseen by the carrier.”¹²⁹ US Cellular also explains that the:

[B]asic point is that having too many boosters in the same area will inevitably have a negative impact on network performance, including

¹²⁵ Motorola Comments at 4-5; CTIA Comments at 2-3; US Cellular Comments at 3; Verizon Wireless Comments at 15 (“Even if a booster's design features work properly, fixed and mobile signal boosters can and do cause harmful interference to wireless networks. Signal boosters, including the mobile boosters Wilson asks the FCC to approve, generate noise which can render wireless networks completely inoperable in their vicinity. This noise has two distinct manifestations in the wireless network.”); GPD Comments at 1 (“This noise interference presents a raised noise floor[,] subsequent reduction in coverage from the donor site, expenditures of time and money to investigate the increased noise and degradation in service to the customers/users of the system. Without licensee control of the airwaves the Carriers are limited in the ability to serve their customer base.”).

¹²⁶ Wilson Petition at 14 (“The tests demonstrated that handset amplifiers with anti-oscillation technology will not interfere with, and be invisible to, the wireless network.”).

¹²⁷ Motorola Comments at 4-5.

¹²⁸ CTIA Comments at 3.

¹²⁹ *Id.*

dropped calls. If a carrier has to contend with large numbers of boosters not installed in cooperation with the carrier, operating at unknown locations in a given area, it rapidly becomes extremely difficult for the carrier to provide an acceptable level of service.¹³⁰

Said another way, the proliferation of unauthorized signal boosters itself – whether or not such devices are equipped with oscillation control mechanisms – is an interference threat to wireless networks.

Even with respect to oscillation prevention mechanisms, the record suggests that such mechanisms are not fail safe. Verizon Wireless explains that the “features Wilson touts as means of preventing interference do not reliably work. At least four of the interference incidents noted [in Verizon Wireless’ comments] were caused by Wilson BDAs employing ‘Smart Tech’ technology.”¹³¹ Similarly, the Massachusetts State Police comment that while some signal boosters offer automatic gain control circuitry, “it is not an acceptable solution for the correction of self-oscillation.”¹³² Additionally, Motorola explains that “even a properly designed booster can be improperly installed, causing it to self-oscillate and cause interference.”¹³³ In light of this evidence, Wilson’s claim rings hollow that “since Wilson introduced its anti-oscillation technology in late 2006, it has sold more than 150,000 amplifiers with oscillation protection without receiving a single report that an amplifier went into sustained oscillation.”¹³⁴ While a more rigorous FCC certification process and improved technology might complement licensee

¹³⁰ US Cellular Comments at 3.

¹³¹ Verizon Wireless Comments at 14.

¹³² Massachusetts State Police Comments at 2.

¹³³ Motorola Comments at 5.

¹³⁴ Wilson Petition at 14.

consent and control, certification by third parties and improved technologies offer inadequate interference protection and assurance of compatibility.

B. Intelligent Boosters Are Not a Solution to the Booster Interference Problem.

The Commission also should not require the mandatory carrier adoption of “intelligent boosters,” such as those proposed in comments by Smart Booster and Nextivity.¹³⁵ While AT&T supports the efforts of entrepreneurial manufacturers to develop intelligent boosters and to seek carriers voluntarily willing to support them, these proposed technologies do not offer a present-day, comprehensive solution to the booster interference problem. Although the marketing materials for these devices promise that “network[s] will no longer be plagued by outages and dropped calls caused by rogue amplifiers or BDAs,” the Commission must remember that intelligent boosters are a design concept.¹³⁶ Intelligent boosters have not been fully developed, nor have they been properly tested. Indeed, it appears that most of these manufacturers have not even submitted prototypes for carrier testing. Given this reality, the Commission and the wireless industry are unable to gauge their effectiveness. Although AT&T welcomes further development of “intelligent boosters,” the severity and immediacy of the interference problem requires immediate and concrete Commission enforcement actions coupled with carrier oversight and control.

Further, AT&T is concerned about the untenable burden that these devices would impose on wireless providers. Smart Booster, for example, concedes that the success of its equipment

¹³⁵ Specifically, Smart Booster asks the Commission to “[r]equire networks to support intelligent boosters by providing databases appropriately encoded on a compatible memory card in a timely manner.” *See* Smart Booster Comments at 52. Nextivity also promotes its intelligent booster technology, but appropriately states that wireless carriers should retain ultimate control of such devices. *See* Nextivity Comments at 5.

¹³⁶ Smart Booster Comments at 24.

depends on carriers developing – at their own risk and expense – inputs into Smart Booster’s equipment, specifically “memory cards” containing “data bases” of information regarding carrier’s licensed frequencies and tower placement.¹³⁷ Carriers also would have the expense and obligation of updating and maintaining the memory cards and databases. Moreover, the location data needed in these proposed memory cards and databases is tightly protected by carriers due to homeland security and commercial concerns. Although carriers should not be compelled by regulation to support intelligent booster technology, AT&T nevertheless supports the efforts of entrepreneurial manufacturers to develop intelligent boosters and to seek carriers willing to support them.

C. Certification Standards and Industry Best Practices Do Not Provide Wireless Carriers with the Control Necessary to Ensure the Integrity and Optimal Functioning of Their Networks.

Certification proposals and best practices do not provide wireless licensees with the requisite operational control to effectively manage their dynamic networks.¹³⁸ As commenters explain, a “generic equipment authorization decision, even one ostensibly backed by normative standards” cannot “address the myriad ways in which signal boosters can disrupt complex, wide-area wireless network operations.”¹³⁹ Rather, “[i]nstallation, site selection, oscillation avoidance, frequency selection, power levels appropriate for each frequency, and other factors all must be

¹³⁷ The dynamic nature of wireless networks, however, would not allow for such data to be accurate. Real-time adjustments to base stations, including beam tilt, sectorization and frequency assignments make the database of information currently proposed by Smart Booster impractical.

¹³⁸ APCO Comments at 3 (“The equipment certifications and voluntary industry standards they propose are insufficient to prevent the improper use of signal boosters and the potential for dangerous interference to public safety and other important communications networks.”).

¹³⁹ Sprint Nextel Comments at 7.

calibrated to precisely match the wide-area wireless network. Identifying – and addressing – these factors both at installation and over time requires considerable technical expertise.”¹⁴⁰

Likewise, Verizon Wireless “disagrees that device features alone are sufficient to address carrier interference concerns” due to the fact that Verizon Wireless has experienced interference from boosters with new “smart” technology.¹⁴¹ Commenters also criticize the DAS Forum’s overly simplistic proposal for Industry Best Practices, and explain that a “mere reminder of one’s responsibilities would be no guarantee that the owner or installer will abide by such a requirement nor would the wireless licensee maintain any operational control over the device.”¹⁴²

D. Aggressive Wireless Infrastructure Investment and Other Carrier-Approved Network Coverage Solutions Best Satisfy the Public Interest in Reliable Nationwide Wireless Communications.

As demonstrated above, licensees require control over devices on their networks – including signal boosters – to effectively manage network performance. Nevertheless, wireless carriers understand the coverage limitations that wireless users may encounter in certain markets and areas of the county. To address this concern, AT&T and the rest of the wireless industry continue to invest heavily in network build-out and expansion and are developing other coverage solutions that do not harm network integrity.

AT&T and other commenters are devoting substantial financial and human capital to improving and expanding wireless coverage, including adding wireless cell sites and deploying 3G and 4G technologies nationwide. All indicators demonstrate that network investment continues at a tremendous pace, with providers reporting almost \$20 billion in capital investment

¹⁴⁰ *Id.*

¹⁴¹ Verizon Wireless Comments at 14-15.

¹⁴² CTIA Comments at 27; *see also* Verizon Wireless Comments at 14-15.

in the twelve months ending in June 2009.¹⁴³ Moreover, recent reports estimate that 246,000 base stations are connected to the nation's wireless networks.¹⁴⁴

For its part, AT&T added 1,900 cell sites last year to expand its 3G footprint, added 100,000 new circuits to strengthen backhaul, and doubled the number of fiber-served cell sites.¹⁴⁵ These activities are producing clear results. Based on independent, third-party drive test data, AT&T has 98.68% nationwide voice call retainability.¹⁴⁶ For 2010, AT&T plans on “a substantial increase in wireless and backhaul CapEx, which will be about \$2 billion.”¹⁴⁷ Specifically, AT&T plans to deploy 2000 new cell sites, increase radio network controller and additional carrier installations two-fold, increase Ethernet backhaul connections to cell sites ten-fold, and increase fiber-to-the-cell-site deployments three-fold.¹⁴⁸ All told, AT&T plans to double the already-impressive wireless capacity it added last year.¹⁴⁹

¹⁴³ See Reply Comments of CTIA, Gen. Docket No. 09-157, at 9 (filed Nov. 5, 2009). Notably, since the early 1980s, total domestic wireless infrastructure investment has been estimated at \$325 billion. See Mobile Future, “Welcome to the Mobile Future: How Wireless Innovation Is Transforming Our Economy and Our Lives,” at 2 (2009), http://mobfut.3cdn.net/d0dfd4666358164fbc_1ym6b8a7e.pdf.

¹⁴⁴ RCR Wireless, “The Infrastructure Ecosystem,” (March 1, 2010), <http://www.rcrwireless.com/article/20100301/INFRASTRUCTURE/100309989/the-infrastructure-ecosystem>.

¹⁴⁵ AT&T, “4Q2009 Investor Briefing,” at 6 (Jan. 28, 2010), http://www.att.com/Investor/Financial/Earning_Info/docs/4Q_09_IB_FINAL.pdf.

¹⁴⁶ AT&T, Ralph De La Vega, Presentation at 37th UBS Annual Global Media and Communications Conference, at 4 (Dec. 9, 2009), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=28276>.

¹⁴⁷ AT&T, “4Q2009 Earnings Conference Call,” (Jan. 28, 2010), <http://seekingalpha.com/article/185524-at-amp-t-inc-q4-2009-earnings-call-transcript?page=-1>.

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

Other carriers also continue to make sizable investments in their network infrastructure. Verizon Wireless' capital expenditures were \$6.5 billion per year in 2007 and 2008.¹⁵⁰ Looking long-term, Verizon Wireless recently has announced plans to upgrade from 70,000 to 200,000 towers to meet its goal of nationwide LTE deployment.¹⁵¹ Sprint Nextel recently has added 600 cell towers to boost coverage.¹⁵² Small and medium-size carriers also are increasing the size of their service areas. Leap Wireless, for example, recently explained that it “continue[s] to improve [its] network coverage and capacity in many of our existing markets and [we] have deployed a substantial number of the approximately 600 cell sites that we plan to launch by the end of 2010 to enable us to provide improved service areas.”¹⁵³

Additionally, the wireless industry supports the development of non-interfering, carrier-controlled equipment designed to improve coverage. The wireless community supports the use of commercial-grade, professionally-installed, channelized boosters, so long as they receive licensee approval and are ultimately under licensee control. Wireless carriers also are developing, and in some cases offering, femtocells as a coverage solution. Indeed, according to recent press reports, “[f]emtocell technology is experiencing the first signs of maturity, with several tier one operators deploying the technology using a variety of business models.”¹⁵⁴

¹⁵⁰ RCR Wireless, “Nationwide 4G Plan Diverse, and Hopefully Fruitful,” RCR Wireless, at 6 (Jan. 2010), <http://rcr.idigitaledition.com/issues/JANUARY2010/>.

¹⁵¹ *Id.*

¹⁵² *Id.*

¹⁵³ *See* Leap Wireless, Q3 2009 SEC (Form 10Q), at 39 (Nov. 9, 2009).

¹⁵⁴ James Middleton, *Femtocell Tech Maturing* (Feb. 16, 2010), <http://www.telecoms.com/18263/femtocell-tech-maturing>. *See also* Jacqueline Emigh, *CES 2010: David Chambers, Femtocell Gadgets on Their Way to Wireless Households* (Jan. 7, 2010), <http://www.betanews.com/article/CES-2010-Femtocell-gadgets-on-their-way-to-wireless->
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Press reports also indicate that “carriers are showing strong interest by soliciting proposals from femtocell vendors” and that “customer feedback has been positive and there haven’t been any issues with interference between the femtocells and towers.”¹⁵⁵ In light of these and other efforts to enhance and expand wireless coverage, AT&T maintains that there is no need to drastically re-write longstanding FCC rules to enable the particular coverage solutions proposed by signal booster manufacturers.

VI. CONCLUSION

For the foregoing reasons, and based on the substantial evidence in this docket documenting the harm caused by signal boosters, AT&T reiterates its requests that the Commission: (1) issue a Public Notice reminding the public that operation of a signal booster on CMRS exclusive-use frequencies requires a license or licensee consent; (2) aggressively enforce the prohibition on end user operation of a signal booster without a license or licensee consent; (3) affirm – consistent with the CTIA Petition – that the marketing and sale of signal boosters to individuals that may not legally operate them is itself illegal; and (4) create an accelerated docket

households/1262918386 (noting that “Sprint, Verizon, AT&T, and T-Mobile USA have all announced femtocell services...”); ThinkFemtocell, *Review of US Femtocell Market* (Feb. 1, 2009), <http://www.thinkfemtocell.com/Opinion/review-of-us-femtocell-market.html> (explaining that there have been a “flurry of announcements about femtocell product launches in the US” and that “it’s the larger networks setting the pace.”); Verizon Wireless Comments at 6, n.15 (describing a “femto cell product that plugs into a high speed Internet connection and creates a mini base station in the home. This product can be ordered through Verizon Wireless’ online store, and is easily installed by the customer...[it is] integrated into the wireless network in a manner designed not to cause interference to Verizon Wireless or any other licensee.”); Sprint Nextel Comments at 9 (“Sprint Nextel markets Sprint AIRAVE™ femtocells that permit the public to enhance coverage in homes and small offices at an affordable price. Sprint Nextel also has a program of providing in-building coverage to enterprise customers that can range from small offices to Fortune 500 companies.”).

¹⁵⁵ Peter Svensson, *Femtocells Boost Cell Coverage in the Home*, USA Today, April 2, 2008, available at http://www.usatoday.com/tech/wireless/phones/2008-04-02-wireless-femtocells-boost_N.htm.

procedure – as detailed in AT&T’s initial comments – that allows carriers to file complaints against manufacturers of transmitting equipment that has caused multiple harmful interference events and for such complaints to be addressed within sixty days. The Commission should also take action in pending matters involving signal booster manufacturers including: (1) issuing a Notice of Apparent Liability or a Forfeiture Order in the Letter of Inquiry proceeding initiated against Digital Antenna in 2007; and (2) acting on AT&T’s complaint and request for investigation against Digital Antenna.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I, Katy Milner, hereby certify that on this 8th day of March 2010, I caused copies of the foregoing "Reply Comments of AT&T Inc." to be delivered to the following via mail.

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