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

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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

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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]

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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 to[85] – 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

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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:

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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

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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

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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

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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.

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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

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[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

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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

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[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

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[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).

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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 Antenna[122] that attempt to tame booster interference solely through better technology

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[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.

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[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

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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

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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

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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

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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

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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]

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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_lym6b8a7e.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]

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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

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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.

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March 8, 2010

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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