

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, DC 20554

Amendment of Parts 1, 2, 22, 24, 27, 90  
and 95 of the Commission's Rules to  
Improve Wireless Coverage Through the  
Use of Signal Boosters

)  
)  
) WT Docket No. 10-4  
)  
)

To: The Commission

**T-MOBILE USA, INC. COMMENTS**

Kathleen O'Brien Ham  
Steve Sharkey  
Eric Hagerson

T-MOBILE USA, INC.  
401 Ninth Street, NW, Suite 550  
Washington, DC 20005  
(202) 654-5900

July 25, 2011

## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	i
INTRODUCTION AND BACKGROUND .....	1
I. SIGNAL BOOSTERS SHOULD BE AUTHORIZED IN A MANNER SIMILAR TO HANDSETS .....	4
A. Signal Boosters Should Be Authorized Pursuant to the Exclusive Licenses Held by the Carriers Whose Signals are being Magnified.....	4
B. Signal Boosters Should be Subject to a Revised FCC Certification Process .....	6
II. RULES AUTHORIZING THE DEPLOYMENT OF SIGNAL BOOSTERS MUST PROTECT INCUMBENT, EXCLUSIVE USE LICENSEES FROM INTERFERENCE.....	8
A. Consumers Should be Required to Register Signal Boosters Before Operating the Devices.....	8
B. A National Clearinghouse Should be Established to Oversee Signal Booster Deployments.....	9
C. Signal Boosters Must Use Interference Prevention Technologies.....	10
D. Signal Boosters Must Be Designed to Permit CMRS Licensees to Shut Down or Modify Their Operations Remotely.....	12
E. Licensees Must Have the Right to Prohibit the Use of Signal Boosters that Degrade Network Performance or Otherwise Cause Interference.....	13
III. THE OPERATION OF EXISTING SIGNAL BOOSTERS THAT DO NOT COMPLY WITH THE NEW RULES SHOULD BE GRANDFATHERED .....	14
CONCLUSION.....	14

## EXECUTIVE SUMMARY

T-Mobile supports the Commission's efforts to facilitate the deployment of well-designed third-party signal boosters that can improve wireless coverage, so long as the rights of incumbent, exclusive use licensees are protected from interference. The Commission should not create a new CB Radio Service that would authorize the deployment of signal boosters. Instead, signal boosters should be permitted pursuant to the authorization of the "host carrier" – the carrier whose signal is being boosted. This approach would be consistent with the treatment of other consumer devices – such as handsets – and would be consistent with decades of precedent.

Moreover, if the Commission determines that the consumer use of signal boosters offered by non-licensee third parties would serve the public interest, the following minimum steps should be taken to ensure that the equipment does not cause more harm than good:

- Consumers must be required to register signal boosters with the host carrier before deployment;
- Signal boosters should be required to use interference prevention technologies, such as automatic gain control and oscillation detection;
- Signal boosters must be designed to allow the incumbent licensee to remotely shut down or modify the operating parameters of the device;
- Licensees must have the right to prohibit the use of signal boosters in certain environments, as well as models that degrade network performance or otherwise cause interference.

In addition, the Commission should ensure that carriers are not liable for the use of these devices on their networks for purposes of E911 location capabilities.

If the Commission allows the use of signal boosters on CMRS spectrum, it also must adopt strict technical requirements designed to prevent interference.

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, DC 20554

Amendment of Parts 1, 2, 22, 24, 27, 90 )  
and 95 of the Commission's Rules to )  
Improve Wireless Coverage Through the ) WT Docket No. 10-4  
Use of Signal Boosters )  
)

To: The Commission

**COMMENTS**

T-Mobile USA, Inc. (“T-Mobile”) responds to the Commission’s *Notice of Proposed Rulemaking* in the above-referenced proceeding.<sup>1</sup> T-Mobile supports the Commission’s efforts to facilitate the deployment of well-designed third-party signal boosters that can improve wireless coverage, so long as the rights of incumbent, exclusive use licensees are protected from interference.

**INTRODUCTION AND BACKGROUND**

T-Mobile agrees with the Commission that “well-designed signal boosters . . . hold great potential to empower consumers in rural and underserved areas to improve their wireless coverage. . . .”<sup>2</sup> As noted by the Commission, the best approach is “to create appropriate incentives for carriers and manufacturers to collaboratively develop robust signal boosters *that do not harm wireless networks.*”<sup>3</sup>

---

<sup>1</sup> *Amendment of Parts 1, 2, 22, 24, 27, 90 and 95 of the Commission’s Rules to Improve Wireless Coverage Through the Use of Signal Boosters*, Notice of Proposed Rulemaking, WT Docket No. 10-4, FCC 11-53 (rel. Apr. 6, 2011) (“*NPRM*”).

<sup>2</sup> *NPRM* at ¶ 1.

<sup>3</sup> *Id.* at ¶ 2 (emphasis added).

T-Mobile recognizes that some consumers want the option to use signal boosters to improve coverage and performance in certain areas and has worked with vendors to identify signal boosters that improve coverage, do not cause harmful interference, and can be shut down remotely if they should create interference. T-Mobile itself, as well as many other CMRS carriers, also offers Wi-Fi and other options that effectively extend network coverage for consumers.

The proceeding arises largely out of a petition for rulemaking filed by signal booster manufacturer Bird Technologies Group (“Bird”) in 2005 and a declaratory ruling filed by CTIA—The Wireless Association (“CTIA”) in 2007.<sup>4</sup> Bird noted that signal boosters could be used to improve coverage, but that the increasing use of boosters without licensee approval was creating increasing interference to networks, including those utilized by public safety.<sup>5</sup> Accordingly, Bird urged the Commission to commence a rulemaking that would: (i) permit the use of signal boosters only with the written consent of the licensee whose signal is being boosted, (ii) require that signal booster locations be tracked to ensure interference could be promptly resolved; (ii) prohibit the deployment of boosters until the licensee can verify installation of the booster in a manner that would not cause interference; and (iv) prohibit the use of mobile signal boosters.<sup>6</sup>

---

<sup>4</sup> Petition for Rule Making, filed by Bird Technologies Group (Aug. 18, 2005); (“Bird Petition”) Petition for Declaratory Ruling, filed by CTIA – The Wireless Association (filed Nov. 2, 2007) (“CTIA Petition”).

<sup>5</sup> Bird Petition at 3, 6-8.

<sup>6</sup> *Id.* at 9-10.

CTIA, in turn, urged the Commission to issue a declaratory ruling that the sale and use of wireless repeaters and boosters without the prior consent of wireless licensees is prohibited.<sup>7</sup>

CTIA attached a White Paper to its Declaratory Ruling request which noted the increasing use of poorly designed boosters that were causing numerous interference issues for licensees.<sup>8</sup>

The record compiled since these filings conclusively demonstrates that unauthorized, poorly designed and/or installed signal boosters are causing significant interference to public safety and commercial wireless networks.<sup>9</sup> The reason for this interference is simple – it is virtually impossible to account for all the possible impacts of signal boosters on a wireless network absent close coordination between the booster manufacturer and the carrier.

Further exacerbating the problems posed by signal boosters is that current models – for the most part – are invisible to the network. Because degraded or malfunctioning signal boosters are often difficult to identify, a signal booster can remain operational – and continue causing interference – for a long period of time. This problem will increase exponentially if widespread deployment of third-party signal boosters is authorized without corresponding technical limits designed to protect licensees, public safety entities, and consumers from interference.

The Commission should proceed cautiously and authorize the sale of signal boosters by third-parties only if they are designed to protect incumbent, exclusive use wireless licensees from interference. T-Mobile is confident, based on its experience with signal booster manufacturers, that such boosters can be designed and, in fact, are available today.

---

<sup>7</sup> CTIA Petition at 10-14.

<sup>8</sup> *Id.* at Attachment 1.

<sup>9</sup>The interference issues associated with signal boosters appears to be particularly problematic in water areas. *See, e.g., NPRM* at ¶ 21.

## **I. SIGNAL BOOSTERS SHOULD BE AUTHORIZED IN A MANNER SIMILAR TO HANDSETS**

The Commission should not create a new CB Radio service to authorize the use of signal boosters.<sup>10</sup> The Commission has long held that subscribers' ability to operate handsets and other transmitters is derived from the authorization "held by the licensee providing service to them."<sup>11</sup> Signal boosters should be treated like handsets and should be subject to a similar certification process.

### **A. Signal Boosters Should Be Authorized Pursuant to the Exclusive Licenses Held by the Carriers Whose Signals are being Magnified**

Congress adopted Section 301 of the Communications Act to eliminate the interference chaos that resulted from unregulated spectrum usage. It states:

No person shall use or operate *any apparatus* for the transmission of energy or communications or signals by radio . . . except in accordance with this Act *and with a license* in that behalf granted under the provisions of the Act.<sup>12</sup>

The Commission has recognized that wireless subscriber handsets transmit energy and, thus, require a license pursuant to Section 301. To avoid the need for individually licensing each handset, the Commission determined that handsets would be covered by the blanket authorization issued to the carrier.<sup>13</sup> This blanket authority extended, however, only to "units which the carrier has agreed to serve."<sup>14</sup> The Commission also determined that the handsets

---

<sup>10</sup> *NPRM* at ¶ 32.

<sup>11</sup> *See* 47 C.F.R. §1.903(c); 47 C.F.R. §22.3(b).

<sup>12</sup> 47 U.S.C. § 301 (emphasis added).

<sup>13</sup> *See Amendment of Sections of Part 21 (now Part 22) of the Commission's rules*, CC Docket No. 79-259, *Report and Order*, 77 FCC 2d 84, ¶ 5 (1980) ("*Part 22 Order*"); *see also* 47 C.F.R. §§ 1.903(c), 22.3(b).

<sup>14</sup> *Part 22 Order*, 77 FCC 2d at 86.

were under the operational control of the carrier and that access to the carrier's network could be denied in the event the handset causes harmful interference or is otherwise not operated in accordance with applicable rules and regulations.<sup>15</sup>

Rather than creating a new CB Radio Service which would deviate from decades-long practice, the Commission should declare that signal boosters will be treated like other third-party devices. Like a handset, a signal booster transmits communications by radio and thus cannot be used without a license.<sup>16</sup> These devices should be "licensed" in the same manner as handsets – pursuant to the blanket authorization held by the carrier.

Adoption of the CB Radio Service proposal would undermine the innovation and growth that is characteristic of the wireless industry. The Commission has long recognized that "regulatory predictability . . . is an important prerequisite for investment."<sup>17</sup> Based on the long history of regulatory predictability associated with exclusive use licenses, CMRS licensees historically have invested significantly in technology that allows more effective use of spectrum. For example, new techniques and technologies have allowed carriers to utilize spectrum that was previously deemed unusable due to noise levels. The creation of a new CB Radio Service within formerly exclusive use spectrum will undermine regulatory predictability and discourage investment. As former FCC Chief Economist Michael L. Katz has stated, the creation of

---

<sup>15</sup> *See id.*

<sup>16</sup> The FCC's Spectrum Enforcement Division has concluded that such devices "may only be installed and operated by licensees." Letter from Joseph P. Casey, Division Chief, Spectrum Enforcement Division, Enforcement Bureau, FCC to Ronald Jakubowski, Chief Engineer, RF Systems, TX RX Systems, Inc. (Jun. 28, 2004). See generally [http://www.google.com/url?sa=t&source=web&cd=9&ved=0CEMQFjAI&url=http%3A%2F%2Fwww.rfsolutions.com%2Fconsumers.pdf&ei=avXwTbSEG4bn0QGhlf3YBA&usg=AFQjCNFFPJjcgRyA74La1BmNduU\\_HjAPew&sig2=FeUVuJS5hGteoTiD7HNk9Q](http://www.google.com/url?sa=t&source=web&cd=9&ved=0CEMQFjAI&url=http%3A%2F%2Fwww.rfsolutions.com%2Fconsumers.pdf&ei=avXwTbSEG4bn0QGhlf3YBA&usg=AFQjCNFFPJjcgRyA74La1BmNduU_HjAPew&sig2=FeUVuJS5hGteoTiD7HNk9Q) (document containing emails from FCC staff indicating that signal boosters can be operated only with the consent of the licensee).

<sup>17</sup> *Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services*, Second Report and Order, 9 FCC Rcd 1411, 1421 (1994).

secondary rights within formerly exclusive use spectrum “would very likely reduce the incentives and ability of CMRS incumbent licensees to innovate and invest. These investment and innovation distortions would harm consumers and economic efficiency.”<sup>18</sup>

In addition, capital markets may be adversely impacted by the creation of new services within formerly exclusive bands. Parties will be less willing to invest in “exclusive use networks” if precedent is established that other uses can be crammed into the formerly exclusive spectrum. These same concerns will potentially undermine the auction process because future auction participants would reduce their valuation of “exclusive use” spectrum based on the precedent that the Commission proposes to establish here – the creation of a new, secondary service that would operate on formerly exclusive spectrum.

**B. Signal Boosters Should be Subject to a Revised FCC Certification Process**

The FCC should require signal booster manufacturers to obtain Part 2 certifications for their devices before they can be sold to consumers.<sup>19</sup> The certification process should ensure that the signal booster complies with all the interference protection requirements ultimately adopted in this proceeding. This approach would be consistent with the treatment of handsets that are offered by third parties for use on CMRS carrier networks.

In order to obtain FCC certification, signal booster manufacturers should be required to submit their devices to an independent lab to verify that they meet all the strict requirements

---

<sup>18</sup> See Michael L. Katz, *Don't Let Short-Term Reforms Interfere with Long-Term Policy Goals* at 6, Attachment to Comments of CTIA, ET Docket No. 03-237 at 18-19 (filed April 5, 2004).

<sup>19</sup> Section 302 of the Act authorizes the Commission to adopt regulations governing the interference potential of devices that emit radiofrequency (“RF”) radiation. 47 U.S.C. § 302. The Commission exercised this authority through the adoption of Part 2 and 15 of its rules which require that intentional radiators – such as signal boosters – be certified as compliant with technical rules designed to prevent interference before they can be marketed or sold to the public. See 47 C.F.R. § 15.201(b); §§ 2.901 *et seq.*

necessary for proper network operation.<sup>20</sup> The results of this testing should then be made available to the FCC upon request.

Manufacturers should be required to use independent labs. For testing products for use on GSM/UMTS networks, these independent labs should be certified by the PCS Type Certification Review Board (“PTCRB”).<sup>21</sup> As the Commission has recognized:

[The] PTCRB is a global organization created by mobile network operators to provide an independent evaluation process where GSM/UMTS type certification can take place. The technical evaluation is based on standards as well the needs of the operators, who determine the requirements for the type certification process. The PTCRB authorizes third party laboratories to conduct testing.<sup>22</sup>

PTCRB-certified labs are required to meet a specific set of requirements demonstrating that the lab has the tools and knowledge to test devices to the PTCRB specified test requirements.<sup>23</sup> The lab is also expected to be independent from any direct connection to a manufacturer.<sup>24</sup>

Without independent testing to verify that signal boosters comply with established technical requirements, low quality signal boosters can be readily deployed in a communications

---

<sup>20</sup> Nextivity’s certification proposal also deserves further consideration. Pursuant to this proposal, the smart booster manufacturer must demonstrate as part of the certification process that it has obtained the approval of relevant CMRS licensees in the area(s) in which the equipment will be used. Nextivity Comments, WT Docket No. 10-4 at 6 (Feb. 5, 2010).

<sup>21</sup> See <http://www.ptcrb.com>. CTIA has been assigned as the administrator for the PTCRB Certification process and is also responsible for the administration of PTCRB-issued International Mobile Equipment Identity numbers. <http://www.ptcrb.com/index.cfm?tab=about>.

<sup>22</sup> *Requests for Waiver of Various Petitioners to Allow the Establishment of 700 MHz Interoperable Public Safety Wireless Broadband Networks*, Order, 25 FCC Rcd 5145, n.101 (2010).

<sup>23</sup> The FCC should direct the PTCRB to adopt new standards based on the technical rules adopted in this proceeding to protect incumbent licensees from interference.

<sup>24</sup> See <http://www.ptcrb.com/index.cfm?tab=about>.

network and severely degrade or disable it. Substantial costs will be incurred by mobile network operators to track down offenders and resolve the issues, and ultimately will be passed on to the customer.

## **II. RULES AUTHORIZING THE DEPLOYMENT OF SIGNAL BOOSTERS MUST PROTECT INCUMBENT, EXCLUSIVE USE LICENSEES FROM INTERFERENCE**

### **A. Consumers Should be Required to Register Signal Boosters Before Operating the Devices**

T-Mobile supports adoption of a registration requirement as an essential element of widespread future signal booster deployment. The record in this proceeding establishes that “signal booster interference is complicated by the lack of information about precisely where the devices are installed.”<sup>25</sup> The Commission thus properly recognizes that “there may be benefits to requiring signal booster operators to register their devices prior to use” and seeks comment on the creation of a national clearinghouse as a means for registering boosters.<sup>26</sup> As signal booster manufacturer Nextivity has noted, boosters “have the potential to [a]ffect the network operations and cause interference to a variety of communication services if . . . deployed without the knowledge and approval of the relevant commercial mobile radio service (CMRS) licensee.”<sup>27</sup>

To improve the ability of licensees to identify potential sources of interference, and more quickly locate signal boosters that cause interference, consumers should be required to register signal boosters with the host carrier before the device is placed into operation. Specifically, signal boosters should be designed so that they cannot operate until they have been registered with the carrier.

---

<sup>25</sup> See *NPRM* at ¶ 64.

<sup>26</sup> See *id.* at ¶¶ 46, 64-66.

<sup>27</sup> Nextivity Comments at 2.

The registration process need not be burdensome and could mirror the process used for numerous consumer products, such as iPods and other consumer electronic devices. As with those devices, the signal booster registration process could be a simple online process that would obtain minimal information from the consumer – the type of device, where it will be used, and contact information for the consumer.

**B. A National Clearinghouse Should be Established to Oversee Signal Booster Deployments**

T-Mobile supports the creation of a national clearinghouse to oversee the signal booster process. Once a device is registered with the host carrier, the registration information should then be shared with the national clearinghouse. Carriers also should have a mechanism to forward all information regarding interference from signal boosters to the clearinghouse. Information gathered by the FCC regarding interference from signal boosters also should be shared with the clearinghouse. This interference information – which should include the model number, location of the device, and method for resolving the interference – would enable the clearinghouse to identify signal boosters models that have a high incidence of interference issues, as well as certain environments that appear especially susceptible to interference.

Based on best practices established by carriers, certain complaint thresholds should be established that would trigger remedial action if exceeded. For example, if numerous carriers are receiving interference complaints regarding a certain signal booster model and these complaints in the aggregate exceed the established complaint threshold, the national clearinghouse should be required to notify all affected carriers, and the carriers should be entitled to deny future registrations involving that particular signal booster model.<sup>28</sup> Similarly, if despite the technical

---

<sup>28</sup> This approach would be similar to how many carriers approach cramming and third-party billing. When the number of complaints for a particular third-party biller exceeds a certain threshold, the carriers suspend the ability of the biller to place future charges on subscriber bills.

rules adopted in this proceeding, the nationwide clearinghouse discovers that interference from boosters deployed in certain environments (*e.g.*, on boats, in marinas, *etc.*) exceeds industry-established thresholds, it should be brought to the attention of carriers who should be entitled to prohibit the use of signal boosters in such environments.

### **C. Signal Boosters Must Use Interference Prevention Technologies**

T-Mobile agrees that signal boosters must be designed to prevent or minimize certain categories of interference. The Commission identifies the following as the primary categories of interference caused by poorly designed, improperly installed, or malfunctioning signal boosters: adjacent channel noise; oscillation; base station receiver overload; interference to public safety; interference with E911 location capabilities.<sup>29</sup> To minimize the potential for such interference, signal boosters must at a minimum incorporate the following:

- Technologies that limit operation to carrier-specific frequencies;
- Maximum power limits;
- Limit on the amount of signal delay;
- Automatic gain control; and
- Oscillation detection.

*Carrier Specific Operation:* The Commission recognizes that “wideband” signal boosters amplify a broad range of frequencies and, as a result, can amplify the signals associated with “all of the carriers providing service in th[e] area.”<sup>30</sup> When such devices are deployed, the performance of networks unassociated with the consumer’s carrier is adversely affected “because

---

<sup>29</sup> See NPRM at ¶¶ 14-21. The FCC acknowledges that signal boosters can cause interference to E911 calls and affect E911 location capabilities. See NPRM at ¶ 19; see also Letter from Ralph A. Haller, National Public Safety Telecommunications Council, to Chairman Julius Genachowski, FCC, WT Docket No. 10-4 (Mar. 29, 2011); Letter from Jeanine Poltronieri, AT&T, to Marlene Dortch, Secretary, FCC, WT Docket No. 10-4 (Mar. 16, 2011). The Commission should ensure that carriers are not liable for the use of these devices on their networks for purposes of E911 location capabilities.

<sup>30</sup> NPRM at ¶ 15.

the booster is amplifying signals or creating noise on the adjacent spectrum block where it is not needed or desired.”<sup>31</sup> To eliminate this problem, signal boosters should be designed to magnify only the signal of the carrier to whom the purchaser is subscribed. Devices with this functionality are already available and, therefore, the requirement should not be excessively burdensome.

Maximum Power Limits: T-Mobile supports the Commission proposal to require all mobile signal boosters to be equipped with dynamic power control that would power down the device when full power operations are not necessary.<sup>32</sup> T-Mobile also supports the proposal to require consumers with fixed signal boosters to coordinate power levels with the licensee providing them service prior to placing the booster in operation.<sup>33</sup> In addition, the Commission should establish a maximum output power for all signal boosters. This maximum power level should be set by carriers or established after study by the recently re-established Technological Advisory Council.<sup>34</sup>

Signal Delay Limits: The introduction of signal boosters offered by third-parties – with little carrier involvement – into a network increases the delay associated with transmitting the call to the base station because the call first must be received, processed, and repeated by the signal booster. The risk of such destructive delay is especially great when the device is being used at the fringes of coverage where the signal is weak, which is precisely where boosters are

---

<sup>31</sup> *Id.*

<sup>32</sup> *See id.* at ¶¶ 53-54.

<sup>33</sup> *Id.* at ¶ 51.

<sup>34</sup> *See* FCC Announces Reestablishment of the Technological Advisory Council, Public Notice, DA 11-1120 (Jun. 8, 2011).

most likely to be deployed. In order to lower the risk of an access failure due to signal booster induced delay, a maximum delay limit should be imposed.

Automatic Gain Control: T-Mobile agrees that, in order to protect CMRS networks from interference, the Commission should require all signal boosters to incorporate automatic gain control.<sup>35</sup> Networks are generally designed around dynamic power control and the insertion of a device without such a capability into the network creates significant problems. This problem has been recognized by at least one signal booster manufacturer that supports adoption of an automatic gain requirement.<sup>36</sup>

Oscillation Detection: T-Mobile supports the Commission proposal to require signal boosters to be designed to automatically self-monitor their operations and shut down if the booster is causing oscillation or otherwise operating outside of technical parameters applicable to the device.<sup>37</sup>

**D. Signal Boosters Must Be Designed to Permit CMRS Licensees to Shut Down or Modify Their Operations Remotely**

As discussed above, T-Mobile supports the Commission's proposal to require that signal boosters be designed to monitor operations and to automatically shut down if they begin to malfunction or violate the technical rules established by the Commission.<sup>38</sup> To ensure that interference issues can be rapidly addressed in situations where the device is causing interference despite operating in conformance with the rules, or in situations where the automatic shut down

---

<sup>35</sup> See *NPRM* at ¶¶ 54.

<sup>36</sup> Nextivity Comments at 5.

<sup>37</sup> *NPRM* at ¶¶ 36-37.

<sup>38</sup> *Id.* at ¶ 36.

capability malfunctions, the Commission should require signal boosters to incorporate technology that permits CMRS licensees to shut down or modify the operation of the device.

This remote shut down capability would be feasible. Based on its work with signal booster manufacturers, T-Mobile is aware that devices are available today that incorporate technology designed to give licensees the ability to terminate the operation of a specific device or group of devices that may be causing interference. Moreover, Wilson Electronics, Inc., a signal booster manufacturer, acknowledged that a rule requiring signal boosters to incorporate “a capability to allow the carriers to shut them off if they cause problems” would not be unreasonable.<sup>39</sup> Absent the ability of carriers to remotely shut down interfering devices, it will be extremely difficult for CMRS licensees to eliminate the interference.

**E. Licensees Must Have the Right to Prohibit the Use of Signal Boosters that Degrade Network Performance or Otherwise Cause Interference**

If the Commission allows the sale of signal boosters by third parties, carriers must have the right to prohibit models that cause interference to their network, and the rules must clearly reflect this right. In particular, any new signal booster rules should establish the right of a CMRS carrier to prohibit the use of the devices when public safety is at issue. For example, T-Mobile has been working with signal booster manufacturers, such as Nextivity, to make devices available to its subscribers. Unique problems associated with the use of signal boosters in multi-unit dwellings have led T-Mobile to consider prohibiting the use of these devices in such locations. Any new rules should preserve a CMRS carrier’s right to shut down a signal booster operating in an environment that is particularly susceptible to interference.

---

<sup>39</sup> Wilson Ex Parte at 2-3 (Sept. 23, 2010).

### **III. THE OPERATION OF EXISTING SIGNAL BOOSTERS THAT DO NOT COMPLY WITH THE NEW RULES SHOULD BE GRANDFATHERED**

T-Mobile agrees with the Commission's tentative conclusion that existing signal boosters should be grandfathered and continued operations permitted on a non-interference basis. The Commission should clarify, however, that carriers retain the right to shut down any grandfathered signal boosters that cause interference to carrier operations or network performance.

#### **CONCLUSION**

The Commission should authorize the use of signal boosters on CMRS spectrum provided strict technical requirements are adopted to prevent interference to wireless licensees. The Commission also should not create a new CB Radio Service that would authorize the deployment of signal boosters. Instead, signal boosters should be permitted only pursuant to the authorization of the host carrier. This approach would be consistent with the treatment of other consumer devices – such as handsets – and would be consistent with longstanding precedent.

Respectfully submitted,

**T-MOBILE USA, INC.**

By: /s/ Kathleen O'Brien Ham  
Kathleen O'Brien Ham  
Steve Sharkey  
Eric Hagerson  
T-Mobile USA, Inc.  
401 Ninth Street, NW, Suite 550  
Washington, DC 20005  
(202) 654-5900

July 25, 2011