

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

In the Matter of )  
 )  
Service Rules for the Advanced Wireless )  
Services H Block – Implementing Section ) WT Docket No. 12-357  
6401 of the Middle Class Tax Relief and Job )  
Creation Act of 2012 Related to the 1915-1920 )  
MHz and 1995-2000 MHz Bands )

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

T-Mobile USA, Inc. (“T-Mobile”) submits these comments in response to the Notice of Proposed Rulemaking issued by the Commission in the above-referenced proceeding,<sup>1/</sup> which proposes rules for Advanced Wireless Services (“AWS”) in the 1915-1920 MHz and 1995-2000 MHz bands (together the “H Block”). T-Mobile applauds the Commission for taking the steps necessary to make additional spectrum available for mobile broadband services. However, the Commission must remain mindful of the well-documented potential for interference from H Block operations to Personal Communications Service (“PCS”) handsets and should adopt appropriately protective technical limits.

**I. INTRODUCTION AND BACKGROUND**

Pursuant to the Middle Class Tax Relief and Job Creation Act of 2012 (“Spectrum Act”),<sup>2/</sup> the Commission proposes to grant new initial licenses for the 1915-1920 MHz band (“Lower H Block”) and the 1995-2000 MHz band (“Upper H Block”) unless doing so would

---

<sup>1/</sup> See *Service Rules for the Advanced Wireless Services H Block—Implementing Section 6401 of the Middle Class Tax Relief and Job Creation Act of 2012 Related to the 1915-1920 MHz and 1995-2000 MHz Bands*, Notice of Proposed Rulemaking, WT Docket No. 12-357, FCC 12-152 (rel. Dec. 17, 2012) (“NPRM”).

<sup>2/</sup> See 47 U.S.C. § 1401 *et seq.* (“Spectrum Act”).

cause harmful interference to commercial mobile service licensees in the 1930-1995 MHz band.<sup>3/</sup> It notes that the Upper H Block would be used for base station operations and the Lower H Block would be used for mobile and other low-power uses.<sup>4/</sup> The Lower H Block is immediately adjacent to the PCS uplink band at 1850-1915 MHz, which is used for mobile transmit/base receive, and only 10 megahertz away from the PCS downlink band at 1930-1995 MHz, which is used for base station transmit/mobile receive. As the Commission recognizes, transmissions from Lower H Block handsets may cause harmful interference to PCS handsets.<sup>5/</sup> It therefore proposes technical and service rules designed to permit optimal use of the H Block without causing harmful interference to PCS handsets.

T-Mobile, a wholly-owned subsidiary of Deutsche Telekom AG, is headquartered in Bellevue, Washington, and offers nationwide wireless voice and data services to individual, business and government customers. It is the fourth largest wireless carrier in the United States and serves approximately 33 million subscribers, and was the first carrier to launch commercial service using auctioned PCS spectrum in 1996. T-Mobile's spectrum holdings are in the PCS and AWS bands. It currently utilizes Universal Mobile Telecommunications System ("UMTS") and Global System for Mobile ("GSM") air interfaces in its PCS spectrum.<sup>6/</sup> T-Mobile shares the Commission's concern that mobile and low-power fixed units operating in the Lower H Block may cause harmful interference to PCS handsets. Accordingly, T-Mobile is pleased to have the opportunity to submit the following Comments.

---

<sup>3/</sup> See *NPRM* ¶ 2; Spectrum Act § 1451.

<sup>4/</sup> See *NPRM* ¶ 33.

<sup>5/</sup> See *id.* ¶¶ 2, 33.

<sup>6/</sup> See T-Mobile Network Technologies, [http://developer.t-mobile.com/site/global/resources/network/technologies/p\\_technologies.jsp](http://developer.t-mobile.com/site/global/resources/network/technologies/p_technologies.jsp) (last visited Feb. 5, 2013).

## II. COMMENTS

### A. In the Absence of Additional Testing, the Commission Should Adopt Strict Limits on OOB and Power for H Block Handsets to Protect Existing PCS Operations.

T-Mobile applauds the Commission's efforts to implement the Spectrum Act and make additional spectrum available for mobile broadband operations. However, as the Spectrum Act itself recognizes, there is a risk of harmful interference to PCS handsets from Lower H Block operations.<sup>7/</sup> In particular, the Commission notes that there is a potential for handsets in the Lower H Block to cause both out-of-band emission ("OOBE") and intermodulation (caused by receiver overload) interference to PCS handsets.<sup>8/</sup> That threat need not cause the Commission to determine that it may not auction the H Block, a possible outcome envisioned by the Spectrum Act.<sup>9/</sup> However, in order for the Commission to avoid that determination, the H Block service rules must provide adequate protection for PCS handsets.

As the *NPRM* notes, this is not the first time the Commission has addressed potential service rules for the H Block.<sup>10/</sup> In its 2004 AWS-2 comments, T-Mobile urged the Commission to apply a -76 dBm/MHz OOB limit and a 200 milliwatt average equivalent isotropically radiated power ("EIRP") limit on H Block handsets.<sup>11/</sup> T-Mobile's proposals were based on a variety of internal technical analyses as well as testing performed by other members of the

---

<sup>7/</sup> See Spectrum Act § 1451; *NPRM* ¶ 41.

<sup>8/</sup> See *NPRM* ¶ 41.

<sup>9/</sup> See Spectrum Act § 1451; *NPRM* ¶ 2.

<sup>10/</sup> See *NPRM* ¶¶ 4-6; see also *Service Rules for Advanced Wireless Services in the 1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz and 2175-2180 MHz Bands*, Notice of Proposed Rulemaking, 19 FCC Rcd 19263 (2004).

<sup>11/</sup> See Comments of T-Mobile USA, Inc., WT Docket No. 04-356 and WT Docket No. 02-353, at 5-10 (filed Dec. 8, 2004).

wireless industry.<sup>12/</sup> T-Mobile is unaware of additional comprehensive studies or analyses regarding the level of protection needed from Lower H Block transmissions since then. Accordingly, T-Mobile continues to believe that, absent additional evidence, the limits it proposed in 2004 remain appropriate and does not believe them to be unduly burdensome. T-Mobile recognizes that technology has advanced since that time (although, as noted below, legacy PCS handsets remain in operation). Therefore, T-Mobile supports additional, industry-directed testing to determine if alternative limits are appropriate. However, until that updated testing occurs, the limits that T-Mobile recommended in 2004 should apply.

**B. The Commission Should Adopt a –76 dBm/MHz OOB Limit and a 200 Milliwatt Average EIRP Limit on H Block Handsets.**

1. *OOBE Limits.*

The Commission proposes to apply an OOB limit of  $43 + 10 \log_{10}(P)$  dB, equivalent to a power spectral density of –13 dBm/MHz, to transmitters in the Lower H Block.<sup>13/</sup> Those are the same limits that the Commission applies to PCS handsets. The Commission, however, recognizes that PCS-industry standards require equipment manufacturers to incorporate stronger OOB suppression capability in PCS mobiles than the rules require.<sup>14/</sup> The Commission also acknowledges that several parties, including Sprint Nextel Corp. (“Sprint”) and Verizon Wireless (“Verizon”), have advocated for a stricter Lower H Block OOB limit of –76 dBm/MHz to

---

<sup>12/</sup> See *id.* at 5-6; see also *e.g.*, Letter from Donald C. Brittingham, Director, Wireless / Spectrum Policy, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 02-353 and WT Docket No. 04-356 (filed Sept. 21, 2005); Letter from Steve B. Sharkey, Director Spectrum and Standards Strategy, Motorola, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 02-353 and WT Docket No. 04-356 (filed Aug. 24, 2005).

<sup>13/</sup> See *NPRM* ¶¶ 47-48.

<sup>14/</sup> See *id.* ¶ 48.

conform to the industry standard, which is also the standard for Code Division Multiple Access (“CDMA”) devices.<sup>15/</sup>

The Commission suggests that less restrictive OOB limits may be appropriate in light of the potential use of Long-Term Evolution (“LTE”) standards in handsets in the future.<sup>16/</sup> It adds that the 3GPP LTE standard for emerging 4G technology allows for a higher level of OOB, generally –50 dBm/MHz in most bands, and that some carriers have urged the use of –40 dBm/MHz for LTE handsets.<sup>17/</sup> However, these less restrictive OOB limits assume the uniform and sole use of LTE in adjacent bands, which is not currently the case, and is not expected to be the case soon in the PCS band. For example, T-Mobile is focusing its efforts on using LTE in its AWS spectrum first,<sup>18/</sup> and will continue to use UMTS and GSM technology in its PCS spectrum for the foreseeable future. The possible use of LTE technology in PCS band and H Block handsets in the future should not enable a more relaxed OOB limit in Lower H Block devices now. The Commission may wish to re-examine the appropriate OOB limits in the future, when carriers have moved to uniform LTE deployments within the PCS band. It is premature, however, for the Commission to permit less restrictive OOB limits today while millions of GSM, UMTS, and CDMA devices still use the PCS band.

Meeting the stricter –76 dBm/MHz OOB limit should not be problematic for H Block licensees, who are expected to employ LTE handsets, in any case. Despite the fact that LTE

---

<sup>15/</sup> See *id.* ¶¶ 48, 50.

<sup>16/</sup> See *id.* ¶ 49.

<sup>17/</sup> See *id.*

<sup>18/</sup> See, e.g., Comments of T-Mobile USA, Inc., WT Docket No. 12-269, at 2-3 (filed Nov. 28, 2012) (reporting that LTE service will be available for T-Mobile’s customers beginning in 2013) (citing T-Mobile Issues and Insights Blog, *Fast Progress on 4G Network Modernization* (June 14, 2012), available at <http://blog.t-mobile.com/2012/06/14/fast-progress-on-4g-network-modernization/> and T-Mobile Release, *T-Mobile USA Announces Reinvigorated Challenger Strategy* (Feb. 23, 2012), available at <http://newsroom.t-mobile.com/articles/ReinvigoratedChallengerStrategy>); see also Comments of T-Mobile USA, Inc., WT Docket No. 12-69, at 3 (filed June 1, 2012).

handsets are not designed at the 3GPP standards level to meet the stricter OOB, they can incorporate power reduction techniques that will enable them to meet the  $-76$  dBm/MHz standard. LTE contains a robust set of power and spectrum emissions control techniques, including device power limits and resource block deactivation, that enable conformity with the  $-76$  dBm/MHz standard while still permitting commercial deployment. Carriers that choose not to deploy such an LTE system could still use existing CDMA technology and meet the  $-76$  dBm/MHz OOB limit.

## 2. *Power Limits.*

The Commission also seeks comment on the appropriate power limit for Lower H Block mobile devices in order to prevent interference to PCS operations.<sup>19/</sup> In 2008, the FCC proposed a 23 dBm/MHz (or 200 milliwatt) EIRP limit on H Block mobile transmitters.<sup>20/</sup> In response, Sprint and Verizon offered the “split” plan now proposed by the FCC – a limit of 30 dBm/MHz (or 1 watt) EIRP in the 1915-1917 MHz band and a limit of 6 dBm/MHz (or 4 milliwatts) EIRP in the 1917-1920 MHz band.<sup>21/</sup>

Until further studies are conducted, T-Mobile continues to recommend use of a 200 milliwatt average EIRP limit for handsets. It should not be difficult for H Block licensees to adhere to a 200 milliwatt average EIRP because, as noted above, T-Mobile expects that such licensees will utilize LTE handsets or other advanced technologies with additional interference mitigation abilities. A uniform EIRP, rather than the unnecessarily complex “split” approach would also be easier to administer across all H Block handsets. Moreover, the split approach, which would require a 6 dBm/MHz limit for the 1917-1920 MHz band is too low; it would

---

<sup>19/</sup> See *NPRM* ¶ 45.

<sup>20/</sup> See *id.*

<sup>21/</sup> See *id.*

require the use of significantly more base stations. By way of example, as the Commission notes in the *NPRM*, AT&T previously proposed a 13 dBm/MHz power limit on the Lower H Block to protect PCS.<sup>22/</sup> In response to this proposal, T-Mobile demonstrated that a 13 dBm/MHz power limit would require 10 times as many base station sites as needed for 30 dBm/MHz, and 4 times as many as needed for 23 dBm/MHz, in order to provide services covering a particular geographic area.<sup>23/</sup> A 6 dBm/MHz level would likewise require more base stations than a 23 dBm/MHz level.

**C. The Commission Should Adopt Clear Service Rules for the H Block, Including Objective “Renewal Showing” Criteria.**

The Commission proposes licensing and operating rules for the H Block. In particular, it proposes licensing the H Block on an Economic Area basis;<sup>24/</sup> a 10-year term for H Block licenses;<sup>25/</sup> buildout rules that would require an H Block licensee to provide signal coverage and offer service to at least 40 percent of the population in each of its licensed areas within 4 years and to at least 70 percent of the population in 10 years;<sup>26/</sup> a separate “renewal showing” for expired licenses;<sup>27/</sup> automatic termination of an H Block license if the licensee does not operate and serve at least one unaffiliated subscriber for a period of 180 days;<sup>28/</sup> permitting partitioning

---

<sup>22/</sup> See *id.* ¶ 43.

<sup>23/</sup> See Letter from Robert A. Calaff, Director, Federal Policy, T-Mobile USA, Inc., to Marlene H. Dortch, Secretary, FCC, WT Docket No. 02-353 and WT Docket No. 04-356, at Attachment at 6 (filed Sept. 15, 2005).

<sup>24/</sup> See *NPRM* ¶¶ 26-31.

<sup>25/</sup> See *id.* ¶¶ 78-79.

<sup>26/</sup> See *id.* ¶¶ 80-88.

<sup>27/</sup> See *id.* ¶¶ 89-92.

<sup>28/</sup> See *id.* ¶ 93.

and disaggregating by H Block licensees;<sup>29/</sup> applying established spectrum leasing policies and rules to the H Block;<sup>30/</sup> and providing small businesses with bidding credits.<sup>31/</sup>

T-Mobile generally supports the proposed service rules, which are consistent with those imposed on today's wireless carriers. However, as T-Mobile expressed in the *WRS Renewals NPRM* proceeding,<sup>32/</sup> it opposes the renewal criteria proposed by the Commission.<sup>33/</sup> In that proceeding, the Commission tentatively concluded that when evaluating renewal showings for Wireless Radio Services licensed on a geographic-area basis, the FCC should consider "a variety of factors including (1) the level and quality of service, (2) whether service was ever interrupted or discontinued, (3) whether service has been provided to rural areas, and (4) any other factors associated with a licensee's level of service to the public."<sup>34/</sup> It also suggested that, in evaluating the level and quality of a licensed service, the Commission should consider "the population served, the area served, the number of subscribers, [and] the services offered."<sup>35/</sup> The *NPRM* and its accompanying rules propose these same factors for an H Block renewal showing.<sup>36/</sup>

---

<sup>29/</sup> See *id.* ¶¶ 94-96.

<sup>30/</sup> See *id.* ¶¶ 97-98.

<sup>31/</sup> See *id.* ¶¶ 105-111.

<sup>32/</sup> See *Amendment of Parts 1, 22, 24, 27, 74, 80, 90, 95, and 101 to Establish Uniform License Renewal, Discontinuance of Operation, and Geographic Partitioning and Spectrum Disaggregation Rules and Policies for Certain Wireless Radio Services*, Notice of Proposed Rulemaking and Order, 25 FCC Rcd 6996 (2010) ("*WRS Renewals NPRM*").

<sup>33/</sup> See Comments of T-Mobile USA, Inc., WT Docket No. 10-112 (filed Aug. 6, 2010) ("T-Mobile WRS Renewals Comments"); see also Reply Comments of T-Mobile USA, Inc., WT Docket No. 10-112 (filed Aug. 23, 2010) (reiterating the arguments in the T-Mobile WRS Renewals Comments, urging the Commission to reject the proposed renewal showing, and suggesting that it instead adopt CTIA's objective proposal whereby licensees would be required to file with their renewal applications a "service certification" and a "compliance certification").

<sup>34/</sup> *WRS Renewals NPRM* ¶ 23.

<sup>35/</sup> *Id.* at Appendix A.

<sup>36/</sup> See *NPRM* ¶ 90, Appendix A.

The Commission’s proposed “renewal showing” for H Block licensees is similarly ambiguous and fails to adequately define an objective standard for license renewals.<sup>37/</sup> For instance, as T-Mobile explained, it is unclear how subscriber data and the licensee’s service offerings will factor into the Commission’s evaluation of whether a licensee is providing a particular – and currently undefined – level and quality of service.<sup>38/</sup> Moreover, the Commission has offered no standard for how it will apply information it receives on “whether service was ever interrupted or discontinued” to a licensee’s renewal evaluation.<sup>39/</sup> Finally, “whether service has been provided to rural areas” is a vague factor as the Commission has not determined how it will define “rural areas” or what specific level or type of service to a rural area is necessary for a renewal showing.<sup>40/</sup> Such criteria, or any other criteria that fails to provide measureable standards, should be rejected by the Commission in favor of reasonable, clear and objective measures that provide licensees with certainty in the renewal process.

### **III. CONCLUSION**

T-Mobile continues to support the Commission’s efforts to bring additional spectrum to the mobile broadband market. The Spectrum Act recognizes that potential interference to PCS handsets may prevent the Commission from auctioning the H Block. That result need not occur if the Commission adopts rules that protect PCS handsets from H Block operations, consistent with the results of previous tests. While T-Mobile does not object to additional testing, unless and until such tests confirm otherwise, the Commission should adopt the OOBE and power limits dictated by those previous tests. The likely use of LTE technology in the H Block should

---

<sup>37/</sup> See T-Mobile WRS Renewals Comments at 1-2.

<sup>38/</sup> See *id.* at 6.

<sup>39/</sup> See *id.* at 6-7.

<sup>40/</sup> See *id.* at 7.

make compliance with stricter emission and power limits feasible. Finally, the Commission should adopt service rules that provide licensees with regulatory certainty as they renew their licenses.

Respectfully submitted,

/s/ Kathleen O'Brien Ham

Howard J. Symons  
Russell H. Fox  
Angela Y. Kung

Kathleen O'Brien Ham  
Steve B. Sharkey  
Christopher Wieczorek

MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND  
POPEO, PC  
701 Pennsylvania Ave., NW  
Suite 900  
Washington, DC 20004  
(202) 434-7300

T-MOBILE USA, INC.  
601 Pennsylvania Avenue, N.W.  
Washington, DC 20004  
(202) 654-5900

*Counsel for T-Mobile USA, Inc.*

February 6, 2013