

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

In the Matter of	)	
	)	
Expanding the Economic and Innovation	)	Docket No. 12-268
Opportunities of Spectrum Through	)	
Incentive Auctions	)	

**REPLY COMMENTS OF UNITED STATES CELLULAR CORPORATION**

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United States Cellular Corporation (“USCC”) submits these reply comments in response to the Public Notice released May 17, 2013 in the above-captioned proceeding and the comments filed in response to the Public Notice.<sup>1</sup> In its initial comments, USCC joined a majority of commenters in this proceeding in strongly urging the Commission to adopt a clear, *ex ante* interoperability requirement as part of the 600 MHz band plan. USCC also stressed that, regardless of the specifics of the 600 MHz band plan ultimately adopted, the Commission must ensure that it maximizes the number of paired spectrum blocks offered in the forward auction.

**I. INTRODUCTION AND SUMMARY**

USCC continues to urge the Commission to focus on two primary goals, both of which have received substantial record support, in order to fully realize the public interest benefits made possible by repurposing the 600 MHz band for wireless broadband services. First and foremost, it is essential for the Commission to adopt a clear, *ex ante* interoperability requirement as part of the 600 MHz band plan. Without such a requirement, the largest carriers, who alone can drive device development, would have the ability, as well as the incentive, to create custom-made or “boutique” band classes capable of operating only on their licensed frequencies.

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<sup>1</sup> See *Wireless Telecommunications Bureau Seeks to Supplement the Record on the 600 MHz Band Plan*, Public Notice, DA 13-1157 (WTB May 17, 2013). Unless otherwise noted, comments cited herein are those filed on March 14, 2013 in Docket No. 12-268 in response to the Public Notice.

As aptly demonstrated by the unfortunate experiences of Lower 700 MHz A Block licensees, a lack of interoperability in the 600 MHz band would severely harm the public interest by inhibiting, if not prohibiting, wireless network deployments in the 600 MHz band by all but the largest, already-dominant carriers. For instance, absent interoperability, small and regional carriers would lack any assurances that they would have access to a variety of cutting-edge mobile devices, which today's consumers demand. As a result, it would be difficult for these carriers to justify expending the substantial sums needed to purchase 600 MHz licenses and build out networks. Not only would this decrease competition in the forward auction, and thereby lower auction revenue and risk auction failure, it would further decrease the already precarious state of competition in the wireless industry. And, perhaps most significantly, it would increase the likelihood that many rural areas remain unserved or underserved by wireless broadband providers because small and regional carriers, who would be primarily disadvantaged by a lack of interoperability in the 600 MHz band, are those most likely to serve these areas.

Second, USCC strongly urges the Commission to maximize the amount of paired spectrum made available in the forward auction. Such an approach would benefit all carriers because paired blocks would be consistent with the leading wireless broadband technologies, and thus allow prompt network deployments in the 600 MHz band. Perhaps even more important, maximizing the number of paired spectrum blocks would help to address the current competitive imbalance in the wireless industry because small and regional carriers require adequate paired spectrum in order to expand into new markets, and thereby provide a new source of competition to the incumbent nationwide carriers. With this goal in mind, USCC continues to support a band plan framework modeled after the "Down from 51 hybrid" proposal discussed during the 600

MHz Band Plan Workshop<sup>2</sup> because this framework appears to have the greatest potential to maximize the number of paired spectrum blocks. Along these same lines, USCC strongly urges the Commission to reject any band plan proposals that would unnecessarily restrict the amount of paired spectrum blocks in favor of supplemental downlink-only spectrum.

USCC also stresses that a key to maximizing the number of paired blocks is to permit market variation in the amount of uplink spectrum offered in the forward auction. Otherwise, the Commission would be forced to limit the total amount of repurposed spectrum to the spectrum recovered in the “lowest common denominator” markets. Such an outcome would deprive the public of wireless broadband services they otherwise may have had access to and reduce auction revenue, thereby increasing the likelihood of auction failure. Although some commenters have expressed interference concerns related to broadcasters operating within the uplink pass band in spectrum-constrained markets, the record reveals a general consensus that this interference potential could be successfully mitigated through technical and band plan solutions.

The importance of the Commission’s decisions with respect to the 600 MHz band plan cannot be overstated. For instance, CTIA stressed that “a well-reasoned band plan is essential for the proposed incentive auction to achieve the critical goal of unleashing necessary additional spectrum for mobile broadband.”<sup>3</sup> In addition, the complexity involved in formulating an optimal 600 MHz band plan continues to become more apparent to all involved. However, USCC believes that, by focusing primarily on ensuring interoperability and maximizing the

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<sup>2</sup> See *LEARN Program 600 MHz Band Plan Workshop Illustrations* (May 3, 2013) (“*Workshop Illustrations*”) (available at <http://wireless.fcc.gov/incentiveauctions/learn-program/BandPlanChartforIAWorkshop2.pdf>).

<sup>3</sup> Comments of CTIA – The Wireless Association at 1; see Comments of T-Mobile USA, Inc. at i (“The 600 MHz band plan represents one of the most critical elements in the Incentive Auction – the country’s best near-term opportunity to help satisfy exploding consumer demand for mobile broadband services.”); Comments of Mobile Future at 1 (“A successful incentive auction is critical to maintaining our nation’s global leadership in mobile innovation and to make spectrum available to meet wireless consumer demand, and the design of the 600 MHz band is central to the Commission’s efforts to encourage maximum participation in the auction.”).

amount of paired spectrum, the Commission can successfully develop a plan that realizes the full potential of the 600 MHz band. Perhaps most importantly, the Commission would be able “to ensure competitive wireless network operators and new entrants have a meaningful opportunity to acquire usable spectrum, enhance competition, and provide consumers with viable alternatives to the Bell duopoly.”<sup>4</sup>

## **II. THE COMMISSION SHOULD ADOPT A CLEAR INTEROPERABILITY REQUIREMENT AS PART OF THE 600 MHz BAND PLAN**

In its initial comments, USCC stressed how ensuring interoperability in the 600 MHz band will be essential to achieving the extraordinary potential of this spectrum to greatly expand access to wireless broadband services, particularly in rural and other underserved areas.<sup>5</sup>

Various other commenters likewise strongly urged the Commission to adopt an interoperability requirement for the 600 MHz band.<sup>6</sup>

The many significant public interest benefits directly related to interoperability are beyond dispute.<sup>7</sup> For instance, CCA noted that interoperability is needed “to ensure access to a wide range of devices for competitive carriers.”<sup>8</sup> Similarly, Cellular South explained how the

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<sup>4</sup> Supplemental Comments of Cellular South, Inc. Regarding the 600 MHz Band Plan at 2 (“Comments of Cellular South”).

<sup>5</sup> See Comments of USCC at 4-11.

<sup>6</sup> See, e.g., Supplemental Comments of Competitive Carriers Association Regarding the 600 MHz Band Plan at 6 (“Comments of CCA”) (“[I]t will be critical for the Commission to ensure interoperability across the 600 MHz band...”); Comments of Cellular South at 8 (“[T]he Commission must ensure interoperability in the 600 MHz band.”); Comments of Ericsson at 3 (“There was also broad agreement on the ... importance of addressing interoperability...”); Comments of McBride Spectrum Partners, LLC at 3.

<sup>7</sup> See, e.g., *Promoting Interoperability in the 700 MHz Commercial Spectrum*, Notice of Proposed Rulemaking, 27 FCC Rcd 3521, 3523, n. 5 (2012) (explaining that interoperability of mobile user equipment is necessary “to promote the widest possible deployment of mobile services, ensure the most efficient use of spectrum, and protect and promote competition.”).

<sup>8</sup> Comments of CCA at 6.

“widespread availability of devices is critical to effective deployment in the 600 MHz band, and such device availability depends on interoperability across the band.”<sup>9</sup>

In contrast, absent an interoperability requirement, the largest carriers could, and would have the incentive to, “develop wireless equipment which would support only their licensed blocks,” which would cause smaller carriers to “experience years of delay in gaining initial access to devices, and thereafter perpetually lack the breadth of device options available to the largest competitors.”<sup>10</sup> The need for carriers to timely offer a variety of cutting edge wireless devices in order to compete cannot be overstated. For instance, McBride noted that “[t]oday’s customers demand a choice of the latest in mobile phones and devices.”<sup>11</sup> Similarly, the Rural Telecommunications Group recently explained in another proceeding how “Americans today, especially younger Americans who are more likely to switch between providers, are [] heavily influenced by whether the prospective new carrier of choice offers specific mobile devices operating specific mobile platforms.”<sup>12</sup> As a consequence, regional and “rural carriers, despite any competitive advantages they may have when it comes to price, local coverage and customer service, are skipped over by local consumers because they happen to not sell a specific product and this severely impacts their ability to compete on a level playing field.”<sup>13</sup>

In addition, because it is smaller carriers who cannot independently, or even collectively, drive the device ecosystem, a lack of interoperability in the 600 MHz band – a likely result

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<sup>9</sup> Comments of Cellular South at 8.

<sup>10</sup> Comments of CCA at 6; *see* Comments of Cellular South at 9 (“Unless the Commission takes steps to preserve interoperability in the 600 MHz spectrum, multiple incompatible band specifications could emerge (as they did in the Lower 700 MHz spectrum), reducing the incentive for OEMs to develop devices that are available to all licensees operating in the 600 MHz spectrum.”).

<sup>11</sup> Comments of McBride at 3.

<sup>12</sup> Comments of Rural Telecommunications Group, Inc., WT Docket No. 13-135, p. 9 (June 17, 2013) (“RTG Competition Comments”) (internal citation omitted).

<sup>13</sup> *Id.* at 11.

absent an explicit requirement<sup>14</sup> – would primarily disadvantage these carriers,<sup>15</sup> who are most likely to bid on licenses for, and deploy networks in, rural and other unserved or underserved areas.<sup>16</sup> The propagation characteristics of the 600 MHz band make this spectrum particularly well-suited for wireless broadband services in sparsely-populated areas, where network deployments otherwise often are prohibitively expensive.<sup>17</sup> However, despite these excellent propagation characteristics, absent interoperability and the assurance that a sufficient variety of cutting-edge devices will be available, smaller carriers still could not reasonably justify expending the substantial sums to purchase licenses and build out networks. As a result, ultimately it will be “rural American consumers, many without a meaningful choice of service providers, devices and competitive prices, who suffer.”<sup>18</sup>

Further, it is crucial for the Commission to adopt an interoperability requirement at this stage, prior to the forward auction.<sup>19</sup> As Cellular South explained, doing so “would ensure that deployments in this spectrum do not suffer from the stifling, anti-competitive harms that resulted from Auction 73.”<sup>20</sup> An *ex ante* interoperability requirement also would provide the

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<sup>14</sup> See Comments of USCC at 8-9.

<sup>15</sup> See Comments of McBride at 3 (“The lack of interoperability is an **absolute barrier to entry for small businesses** and puts small businesses at a great competitive disadvantage.”) (emphasis in original).

<sup>16</sup> See RTG Competition Comments at 12 (“[T]here is a small segment of carriers who are denied access to equipment and devices, but often times they are the only carriers available to rural consumers residing in those markets.”).

<sup>17</sup> See Comments of Sprint Nextel Corporation (“Sprint”) at 4 (“600 MHz spectrum will offer operators the ability to achieve wide-area coverage...”); Comments of CCA at 10 (“An operator expanding wireless coverage with low-band spectrum ... will only require half of the number of sites as at higher bands, significantly reducing the initial capital expenditures and ongoing operational expenses.”).

<sup>18</sup> RTG Competition Comments at 14; see NTIA, *Broadband Availability Beyond the Rural/Urban Divide*, *Broadband Brief No. 2*, p. 5 (May 2013) (“[O]nly 15 percent of rural residents had wireless download speeds of 10 Mbps or greater available, compared to 70 percent of urban residents.”); *id.* at 12 (“For wireless download services greater than 6 Mbps, Very Rural communities have approximately half the availability rate of Small Towns, and Small Towns have about half the availability rate of Exurbs (10, 18, and 36 percent, respectively).”).

<sup>19</sup> See Comments of Cellular South at 8 (“Before the auction, the Commission must establish clear rules requiring that all devices operating in the 600 MHz band be capable of operating across the entire band.”).

<sup>20</sup> *Id.*

Commission with greater flexibility in formulating an optimal 600 MHz band plan because the Commission could focus its efforts solely on developing a band plan that maximizes the potential of the 600 MHz spectrum. Moreover, such a requirement is necessary to spur participation in the forward auction by carriers of all sizes, and thus to ensure the success of the incentive auctions.<sup>21</sup> Absent the assurance of interoperability, smaller carriers would face substantial risks that do not affect the large, already-dominant nationwide carriers. This harm is compounded by the fact that many of these smaller carriers will need to rely on outside financing in order to participate in the forward auction. As CIT Group Inc., a bank holding company, explained, “[i]f there is any investor or lender concern as to the timely availability of technology necessary for the initiation of revenue service, that concern will have a detrimental effect on the availability of capital, with a commensurate impact on the financial success of the incentive auction.”<sup>22</sup>

For these reasons, USCC again strongly urges the Commission to adopt a clear, *ex ante* interoperability requirement for the 600 MHz band. Specifically, the Commission should require that: (1) all mobile devices designed to operate on 600 MHz paired spectrum must tune to all 600 MHz paired frequencies; and (2) all 600 MHz networks operating on 600 MHz paired frequencies must permit the use of such devices.<sup>23</sup> Otherwise, as summarized by Cellular South, “the 600 MHz spectrum will face the same sort of reduced consumer choice, absence of roaming

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<sup>21</sup> See Comments of Mobile Future at 4 (“The practical reality is that the Commission’s band plan must attract wireless operators willing to bid billions of dollars to ensure a successful auction, and the Commission should avoid any steps that would reduce the attractiveness or commercial viability of the to-be-auctioned spectrum...”); Comments of McBride at 3 (“Developing a sound business case without interoperability is impossible.”).

<sup>22</sup> Supplemental Comments of CIT Group Inc. at 6.

<sup>23</sup> USCC clarifies that its use of the terms “paired spectrum” and “paired frequencies” refers to how the spectrum blocks are originally allocated and auctioned off. In other words, any subsequent use of the spectrum by a carrier that does not involve both uplink and downlink operations would not alter the regulatory treatment of this spectrum with respect to the proposed interoperability requirement.

opportunities, and limited deployment of next-generation wireless services across the country that we are witnessing today in the Lower 700 MHz spectrum.”<sup>24</sup>

### **III. THE COMMISSION SHOULD UTILIZE A “DOWN FROM 51” FRAMEWORK FOR THE 600 MHz BAND PLAN**

Mirroring the comments and reply comments filed in response to the *Incentive Auction NPRM*, every commenter addressing the issue here supported a 600 MHz band plan which would clear broadcast television stations starting at Channel 51 and expand downward.<sup>25</sup>

#### **A. A “Down from 51” Framework is Superior to the Commission’s Other Band Plan Proposals.**

The record in this proceeding clearly demonstrates that, when compared to the Commission’s other proposals, a “Down from Channel 51 band plan offers several advantages that will benefit consumers and providers alike...”<sup>26</sup> For instance, in contrast to the “split” band

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<sup>24</sup> Comments of Cellular South at 8-9.

<sup>25</sup> See, e.g., Comments of Alcatel-Lucent at 1 (“[T]here is wide support for variations on a ‘Down from 51’ band plan...”); Comments of T-Mobile at 24 (“[T]he Down from 51 Band Plan continues to offer the optimum spectrum configuration for a successful spectrum auction next year and for robust competition in the wireless marketplace in the future.”); Comments of AT&T Inc. at 2 (“[A] consensus has developed around a ‘Down from 51’ band plan... To be sure, different parties propose different variations on that theme, but the basic framework has near universal support.”); Comments of Mobile Future at 1 (“The consensus ‘Down From 51’ band plan proposed by a broad cross-section of wireless providers, broadcasters, and equipment manufacturers maximizes the public interest benefits of the 600 MHz spectrum...”); Comments of Motorola Mobility LLC at 1 (“Motorola Mobility reiterates its support for the previously described ‘Down from Channel 51’ band plan...”); Comments of the Telecommunications Industry Association (“TIA”) at 3 (“The record indicates a broad consensus from a diverse set of stakeholders for the adoption of a ‘Down from 51’ framework...”); Comments of Spectrum Management Consulting Inc. at 1 (“[T]he ‘Down from 51’ band plan remains the best alternative for the incentive auction.”); Comments of Research in Motion Corporation (“RIM”) at 5 (“RIM supports the Commission’s Down from 51 approach...”); Comments of the Consumer Electronics Association (“CEA”) at 10 (“The Commission should reject the proposed alternatives and adopt the widely supported DF51 band plan approach.”).

<sup>26</sup> Comments of Motorola Mobility at 2; see Comments of T-Mobile at 24 (noting that the “Down from 51” band plan would lead to “maximizing the amount of sought-after paired spectrum available for bidding, minimizing guard bands and taking full advantage of the efficiencies associated with a relatively compact configuration...”); Comments of Mobile Future at 6 (“The consensus band plan reflects the collaborative efforts of industry representatives to maximize the amount of licensed paired spectrum available for mobile broadband and minimize technical issues...”); Comments of TIA at 3 (supporting “a ‘Down from 51’ framework that seeks to maximize paired allocations and build guard bands only to meet engineering necessity.”).

proposal emphasized in the *Incentive Auction NPRM*,<sup>27</sup> a “Down from 51” framework would not include broadcast television operations in the duplex gap between the 600 MHz uplink and downlink bands. As a result, it “would reduce the risk of interference by wireless users and broadcast audiences alike.”<sup>28</sup>

Further, compared to the newly-proposed “Down from 51 Reversed” band plan, a “Down from 51” framework would be more “spectrally efficient in that no guard band is required between the 600 MHz band and the 700 MHz band.”<sup>29</sup> Notably, because of the need for this additional guard band, “the Down from 51 Reversed Plan immediately foregoes 10 MHz of spectrum, or a 5x5 MHz channel pairing.”<sup>30</sup> A “Down from 51 Reversed” band plan therefore “would undercut the Commission’s other goals, since it would not maximize the amount of paired spectrum available for auction...”<sup>31</sup>

This reduction in the maximum amount of repurposed spectrum is particularly inappropriate because it would “impair[] the competitiveness of the mobile marketplace.”<sup>32</sup> For instance, as the Commission has previously concluded, “[e]nsuring that sufficient spectrum is

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<sup>27</sup> See *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Notice of Proposed Rulemaking, 27 FCC Rcd 12357, 12402 (2012) (“*Incentive Auction NPRM*”); see also *Workshop Illustrations* (illustrating the “Down from 51 and 36” band plan proposal).

<sup>28</sup> Comments of Mobile Future at 4; see Comments of Alcatel-Lucent at 1-2 (“[C]ommenters favor the Down from 51 approaches in part because they minimize operation of TV Broadcast channels interspersed with wireless services, in contrast to the Commission’s ‘split’ FDD band plan...”); Comments of Motorola Mobility at 2 (“[T]he absence of television broadcast stations in the duplex gap helps eliminate a source of intermodulation products...”); Comments of CEA at 6-7 (“[A]llowing TV broadcast operations within the duplex gap will result in intermodulation products that will cause harmful interference to both broadcast and mobile wireless operations.”).

<sup>29</sup> Comments of AT&T at 7; see Comments of Alcatel-Lucent at 4 (“The Down from 51 Reversed band plan starts at a disadvantage with respect to spectral efficiency because it must have [] guard band separation from 700 MHz uplink...”); Comments of RIM at 6 (“The proposed Down from 51 Reversed Band Plan ... would lead to an inefficient use of valuable spectrum.”); Comments of Spectrum Management Consulting at 2 (“These new plans introduce inefficiencies and waste valuable 600 MHz spectrum by requiring a substantial guard band...”).

<sup>30</sup> Comments of T-Mobile at 11; see Comments of CTIA at 9 (“[T]his band plan would limit the amount of new, licensed spectrum made available by requiring an additional guard band that would not be necessary under a traditional ‘Down from 51’ plan.”).

<sup>31</sup> Comments of CEA at 4; see *Incentive Auction NPRM*, 27 FCC Rcd at 12401 (“[W]e strive to maximize the amount of spectrum we can repurpose...”); *id.* (“We further propose to pair these blocks wherever possible...”).

<sup>32</sup> Comments of Spectrum Management Consulting at 6.

available for incumbent licensees, as well as for entities that need spectrum to enter the market, is critical for promoting competition, investment, and innovation.”<sup>33</sup> As the record demonstrates, a “Down from 51” band plan framework would maximize the amount of 600 MHz spectrum made available to competitive carriers, and thus best promote competition in the wireless industry, which is at its most precarious state in over a decade.<sup>34</sup> As such, it provides a significant advantage over the Commission’s “Down from 51 Reversed” band plan proposal.<sup>35</sup>

Not only could a “Down from 51 Reversed” band plan negatively impact competition in the wireless industry, it could reduce the total amount of spectrum available for the forward auction, and thereby reduce auction revenue and increase the likelihood of auction failure.<sup>36</sup> Commenters also note that the “Down from 51 Reversed” band plan’s additional guard band, which would not be needed in other band plans, could be found to violate the Spectrum Act’s requirement that 600 MHz guard bands be “no larger than is technically reasonable to prevent harmful interference between licensed services outside the guard bands.”<sup>37</sup>

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<sup>33</sup> *Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Fifteenth Report, 26 FCC Rcd 9664, 9820 (2011) (“*Fifteenth Competition Report*”).

<sup>34</sup> *See Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Sixteenth Report, 28 FCC Rcd 3700, 3755-57 (2013) (finding that, from 2003 to year-end 2011, the average concentration of wireless markets increased from 2151 to 2873 and noting that a market exceeding 2500 is considered “highly concentrated”).

<sup>35</sup> *See* Comments of Sprint at 5 (“In order for other operators to effectively compete with these dominant providers – and to produce the innovation, competition and investment the Commission has associated with the 600 MHz band – the Commission should adopt auction rules and a band plan that provide the greatest amount of licensed spectrum to the greatest number of operators.”) (emphasis in original).

<sup>36</sup> *See* Comments of AT&T at 7 (noting that maximizing the amount of spectrum available for licensed use “maximizes forward-auction revenue potential and likelihood of success.”); Comments of CCA at 14 (“Keeping the guard bands to the smallest size necessary to prevent harmful interference will maximize the amount of spectrum available for auction and will lead to increased auction revenues.”); Comments of CEA at 4 (“[A]n inevitable consequence of the DF51R plan would be to reduce the amount of licensed spectrum and the auction proceeds...”); Comments of Spectrum Management Consulting at 6 (“Including a guard band in the 600 MHz band plan creates an artificial and avoidable loss of potential revenue from the spectrum auction.”).

<sup>37</sup> Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, §6407(b); *see* Comments of Mobile Future at 5 (“Adopting a band plan that necessitates more than the minimum number of guard bands would run afoul of the statutory directive...”); Comments of RIM at 7 (“This does not seem ‘technically reasonable’ as required by the Spectrum Act when compared to other band plan options.”) (internal citation omitted); Comments of AT&T at

At the same time, the “Down from 51 Reversed” proposal does not appear to provide any substantial benefits. For instance, AT&T noted that “the Down from 51 Reversed band plan likely overvalues its primary ‘goal of maintaining flexibility to offer different amounts of spectrum in different geographic markets.’”<sup>38</sup> This is because, “[t]o the extent that factors like co-channel interference that could limit market variability matter, they would apply to the ‘Reversed’ band plan just the same.”<sup>39</sup> USCC therefore agrees that the “perceived advantages of this configuration in providing a consistent mobile downlink band across plan variations do not outweigh the amount of spectrum lost for guard bands.”<sup>40</sup> Similarly, T-Mobile noted that, “[g]iven the tremendous value of this low-band spectrum and the intense interest in it from all carriers in the market, and possibly from new players as well, the reduction in available supply of spectrum from the Down from 51 Reversed Plan is potentially very significant.”<sup>41</sup>

If the Commission adopts a “Down from 51 Reversed” band plan despite its various drawbacks and the lack of record support, USCC urges the Commission to ensure that the necessary guard band is sufficiently large to fully protect adjacent Lower 700 MHz A Block operations from harmful interference. Based on USCC’s preliminary analyses and discussions with vendors, the guard band at the upper end of a “Down from 51 Reversed” band plan likely would need to be 10 MHz in order to ensure adequate protection from harmful interference for Lower 700 MHz A Block licensees.

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3-4 (“[B]y requiring one more guard band ... the Down from 51 Reversed band plan would unwisely, and perhaps unlawfully, reduce materially the amount of spectrum available for licensed use...”).

<sup>38</sup> Comments of AT&T at 3.

<sup>39</sup> *Id.*

<sup>40</sup> Comments of RIM at 6; *see* Comments of Motorola Mobility at 3-4 (“Motorola Mobility does not see – and the Notice does not identify – a benefit resulting from reversing the 600 MHz uplink and downlink band that would outweigh the impact of creating a spectrum adjacency of incompatible uplink/downlink operations at 698 MHz.”).

<sup>41</sup> Comments of T-Mobile at 11-12; *see* Comments of CTIA at 11 (“Given the grave spectrum crunch facing the wireless ecosystem and the urgent need for additional licensed spectrum, CTIA cannot support a band plan that would unnecessarily limit the amount of licensed spectrum made available.”).

**B. The Commission Should Adopt a “Down from 51” Band Plan That Maximizes the Number of Paired Spectrum Blocks.**

As noted, a “Down from 51” band plan framework has the potential to maximize the amount of paired spectrum available for auction, but only if the Commission makes a commitment to “allocate excess spectrum to downlink operations only after it has maximized the number of paired blocks in a market.”<sup>42</sup> Notably, this approach would be consistent with the Commission’s expressed intent<sup>43</sup> and the strong preference of a vast majority of commenters in this proceeding.<sup>44</sup> In this regard, USCC notes that the “Down from 51 hybrid” band plan proposal appears to offer the greatest potential to maximize the amount of paired spectrum available for auction.<sup>45</sup> USCC therefore again expresses its support for this band plan framework rather than the other “Down from 51” approaches proposed by the Commission and commenters in this proceeding.<sup>46</sup>

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<sup>42</sup> Comments of Leap Wireless International, Inc. and Cricket Communications, Inc., Docket No. 12-268, p. 6 (Jan. 25, 2013) (“Leap NPRM Comments”); *see* Comments of Ericsson at 4 (noting that its proposed band plan has “the goal of maximizing the amount of paired spectrum, and if not possible, then allocating the remainder spectrum for SDL...”); Comments of Cellular South, Inc., Docket No. 12-268, p. 7 (Jan. 25, 2013) (“Cellular South NPRM Comments”) (“[T]he Commission [should] offer unpaired spectrum *only after* the Commission has paired as many blocks as possible in a market.”) (emphasis in original); Comments of CCA, Docket No. 12-268, p. 13 (Jan. 25, 2013) (“Only after the Commission has paired as many blocks as possible in a market should the Commission offer excess spectrum as an unpaired downlink block.”); Comments of CTIA – The Wireless Association, Docket No. 12-268, p. 20 (Jan. 25, 2013) (the Commission “should not allocate spectrum for supplemental downlink unless no pairing option is feasible”); Comments of T-Mobile USA, Inc., Docket No. 12-268, p. 7 (Jan. 25, 2013) (“[S]upplemental downlink spectrum remains a decidedly inferior option compared to paired spectrum...”).

<sup>43</sup> *See Incentive Auction NPRM*, 27 FCC Rcd at 12401 (“[W]e strive to maximize the amount of spectrum we can repurpose...”); *id.* (“We further propose to pair these blocks wherever possible...”).

<sup>44</sup> *See, e.g.*, Comments of CCA at 15 (“[T]he Commission should seek to maximize the amount of paired spectrum.”); Reply Comments of T-Mobile USA, Inc., Docket No. 12-268, p. 3 (Mar. 12, 2013) (“The initial round comments reflect broad agreement that maximizing the amount of paired spectrum would increase the utility and value of the 600 MHz spectrum.”); Reply Comments of CTIA – The Wireless Association, Docket No. 12-268, p. 18 (Mar. 12, 2013) (“[M]ost commenters noted that the Commission should focus its efforts on enabling paired spectrum and, to the extent possible, symmetrically paired spectrum.”).

<sup>45</sup> *See* Reply Comments of Ericsson, Docket No. 12-268, p. 20 (Mar. 12, 2013) (noting that, assuming sufficient clearing, a benefit of the “Down from 51 hybrid” band plan is that it “[m]aximizes the amount of paired spectrum”).

<sup>46</sup> For instance, Alcatel-Lucent noted that “[w]here the Down from 51 Reversed plan presents greatest concerns ... is in moderately constrained markets. The drop in the much-prized paired spectrum in favor of supplemental downlink blocks (‘SDL’) is particularly precipitous.” Comments of Alcatel-Lucent at 5.

In particular, USCC strongly urges the Commission to reject any band plan proposals that would unnecessarily restrict the amount of paired spectrum in favor of supplemental downlink-only spectrum. If the number of paired spectrum blocks is limited (*e.g.*, 2x25 MHz),<sup>47</sup> it is reasonable to expect that the largest carriers would have both the incentive and ability to acquire most or all of this spectrum, leaving only supplemental downlink spectrum – which has little to no value to most carriers – available to other bidders. USCC therefore joins CCA in urging the Commission to “be attentive to ensuring that sufficient spectrum is made available to competitive carriers, and [] avoid scenarios in which one or two carriers have an opportunity to control the lion’s share of spectrum.”<sup>48</sup>

Not only is this approach necessary to provide smaller carriers reasonable opportunities to participate in the forward auction, it would generally help spur much-needed competition in the wireless industry. As Cellular South stressed, “[i]n order to be competitive, an operator must have both uplink and downlink spectrum.”<sup>49</sup> Similarly, MetroPCS has explained how paired spectrum blocks “are critical to support new entrants into a market” because, “[a]s a new entrant, having both uplink and downlink spectrum is an obvious necessity...”<sup>50</sup> And CCA noted that “paired spectrum has particular value to the competitive community”<sup>51</sup> in part because “[u]plink capability ... is critical to facilitating [network] expansion” by competitive carriers.<sup>52</sup> In

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<sup>47</sup> The band plan proposals of AT&T and Qualcomm would provide for, *at most*, 5 paired spectrum blocks, with all other repurposed spectrum designated solely as supplemental downlink-only blocks. *See* Comments of AT&T; Comments of Qualcomm Incorporated on Public Notice to Supplement the Record on the 600 MHz Band Plan.

<sup>48</sup> Comments of CCA at 15; *see* Comments of Sprint at 7 (“A band plan that facilitates a simple split of competitively-significant low-band spectrum between two dominant incumbents (which together already hold over 80% of such spectrum in the Top 50 U.S. markets) actually subverts competition in the wireless marketplace.”).

<sup>49</sup> Comments of Cellular South at 5.

<sup>50</sup> Comments of MetroPCS Communications, Inc., Docket No. 12-268, p. 21 (Jan. 25, 2013).

<sup>51</sup> Comments of CCA at 15.

<sup>52</sup> *Id.* at 11.

contrast, “a band plan that provides only limited uplink spectrum ... unnecessarily limits the opportunity for competitive use of the band.”<sup>53</sup>

Further, while small and regional carriers require a sufficient amount of paired spectrum in order to compete, most, if not all, of these carriers have little or no use for additional downlink-only spectrum. Unlike the largest nationwide carriers, small and regional carriers lack the extensive spectrum holdings for which supplemental downlink spectrum would be sufficiently beneficial to justify its acquisition. As a result, “an auction that includes significant downlink-only spectrum ... would pose a substantial obstacle to wireless competition by limiting the pool of potential bidders for those downlink-only blocks to incumbents who already control spectrum that can be aggregated with the new downlink-only 600 MHz blocks.”<sup>54</sup>

Forgoing paired spectrum blocks in favor of supplemental downlink spectrum also could harm competition because of the threat to interoperability this would pose. For instance, a large nationwide carrier could develop a new boutique device ecosystem defined by the unique carrier aggregation combinations it creates by pairing this supplemental downlink-only spectrum with uplink spectrum in another frequency band. Notably, such actions could potentially also undermine the existing interoperability of devices in the spectrum bands utilized for the uplink capabilities, such as AWS and PCS.

Clearly, by adopting a 600 MHz band plan that maximizes the number of paired spectrum blocks, the Commission would “take an important step in reducing the high concentration in the wireless industry...”<sup>55</sup> As explained by CCA, the “Incentive Auction provides a fresh

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<sup>53</sup> Comments of Sprint at 7; *see* Comments of Cellular South at 6 (“The auctioning of high-quality 600 MHz spectrum in all or mostly downlink-only blocks would be a disaster for wireless competition...”).

<sup>54</sup> Comments of Cellular South at 7.

<sup>55</sup> Comments of CCA at 15; *see* Comments of Cellular South at 5 (“In order to be competitive, an operator must have both uplink and downlink spectrum.”).

opportunity to stimulate competition and pull the market back from the precipice of duopoly by delivering additional low-frequency band spectrum to the marketplace – provided of course that the Commission adopts an auction structure that allows carriers outside of AT&T and Verizon to acquire this critical input.”<sup>56</sup>

Finally, maximizing the amount of spectrum here is especially important because the excellent propagation characteristics of the 600 MHz band will permit carriers to deploy economically-viable networks in rural areas that otherwise would be prohibitively expensive to serve. However, in order for competitive carriers to “take full advantage of this valuable beachfront spectrum, a significant portion of the auctioned spectrum in each market must provide an uplink capability.”<sup>57</sup> Because of these various and substantial public interest benefits related to paired spectrum, the Commission must strive to formulate a 600 MHz band plan that best maximizes the number of paired spectrum blocks made available in the forward auction.

**C. In Order to Maximize the Amount of Repurposed Spectrum, Particularly Paired Spectrum, the Commission Should Adopt a “Down from 51” Band Plan That Accommodates Market Variation.**

Crucial to maximizing the amount of paired spectrum made available for wireless broadband services is permitting market variation in the amount of uplink spectrum offered in the forward auction.<sup>58</sup> USCC, therefore, is pleased that “the Commission [has] identified the ability to accommodate market variation as an important objective.”<sup>59</sup> As the Commission noted

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<sup>56</sup> Comments of CCA at 11; *see* Comments of Sprint at 5 (“A band plan or auction rules that allows the continued concentration of scarce, competitively-critical low-band spectrum subverts the public interest, diminishes the prospect of sustainable future wireless competition, and constrains the innovation and investment otherwise unleashed in a competitive wireless market.”).

<sup>57</sup> Comments of CCA at 11.

<sup>58</sup> *See* Comments of Alcatel-Lucent at 4 (“[I]n constrained markets, retaining some TV channels above the duplex gap is necessary to maximize band plan efficiency.”).

<sup>59</sup> Ruth Milkman, Chief, Wireless Telecommunications Bureau, FCC, *A Band Plan that Serves the Public Interest* (June 21, 2013) (“*Milkman Blog*”) (available at [www.fcc.gov/blog/band-plan-serves-public-interest](http://www.fcc.gov/blog/band-plan-serves-public-interest)); *see* Comments

in the *Incentive Auction NPRM*, “[b]y establishing a framework that can accommodate variations in the amount of uplink spectrum, [it] can vary the total amount of spectrum available by area, rather than being tied to the minimum amount of spectrum available nationwide.”<sup>60</sup> On the other hand, Ruth Milkman, Chief of the Wireless Telecommunications Bureau, recently cautioned that, if the Commission instead “were to implement a plan that does not accommodate market variation, [it] could be forced to limit the spectrum available in all markets to the relatively small amount available in the most constrained market...”<sup>61</sup> Such an approach could not be reconciled with the Commission’s desire to maximize the amount of spectrum repurposed for wireless broadband services,<sup>62</sup> and it would conflict with the overwhelming record in this proceeding.<sup>63</sup>

A failure to permit market variation within the 600 MHz band plan clearly would harm the public interest. For instance, Ms. Milkman noted that, absent market variation, “[c]onsumers in all the other markets across the country would then be deprived of access to spectrum that could have been repurposed for mobile broadband.”<sup>64</sup> Another consequence would be “less money going to the US Treasury and to FirstNet, the planned mobile broadband network for

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of Verizon and Verizon Wireless (“Verizon”) at 1 (“Verizon agrees with the Commission that accommodating variation in the amount of broadcast spectrum that clears in different markets is an important policy goal...”).

<sup>60</sup> *Incentive Auction NPRM*, 27 FCC Rcd at 12401; see *Milkman Blog* (“By implementing a band plan that supports variation between markets, [the Commission] would not be forced to limit the auction to the amount of spectrum available in the least cleared markets.”).

<sup>61</sup> *Milkman Blog*; see *Incentive Auction NPRM*, 27 FCC Rcd at 12423 (noting that a band plan that does not accommodate market variation “might constrain overall spectrum recovery by limiting the amount of flexible use spectrum to the spectrum that can be recovered in the ‘lowest common denominator’ markets.”).

<sup>62</sup> See *Incentive Auction NPRM*, 27 FCC Rcd at 12041 (“[W]e strive to maximize the amount of spectrum we can repurpose...”); *id.* at 12547 (Statement of Chairman Genachowski) (noting that one of the proceeding’s “core goals” is “[m]aximizing the amount of spectrum freed up for flexible use”).

<sup>63</sup> See, e.g., Comments of CCA at 3 (“The Commission’s paramount objective in developing its band plan should be to maximize the amount of licensed spectrum that is made available to the wireless industry.”); Comments of CTIA at 6 (“[T]he FCC must continue all efforts to obtain as much new wireless broadband spectrum as possible through the incentive auction process.”); Comments of Clearwire Corp. at 11 (“[T]he Commission should choose the most efficient band plan that will allow reallocation of the maximum amount useable of spectrum for a wide range of potential auction participants.”); Comments of Ericsson at 3 (“The comments in the record reveal an overwhelming consensus on the need to maximize the amount of licensed spectrum suitable for mobile wireless service...”).

<sup>64</sup> *Milkman Blog*; see Comments of Alcatel-Lucent at 6 (“[M]arket variability is important to unlocking maximum 600 MHz spectrum nationwide.”).

emergency responders.”<sup>65</sup> And, “[i]n the worst case, the auction might not close because there would be insufficient funds to pay broadcasters to relocate or give up spectrum rights.”<sup>66</sup> USCC agrees with Ms. Milkman that this “would not be an acceptable result for the American public.”<sup>67</sup>

While USCC understands the reasoning behind the Commission’s proposal to keep the 600 MHz downlink band consistent nationwide,<sup>68</sup> the same reasoning does not apply to the uplink band.<sup>69</sup> As T-Mobile noted, the “introduction of television stations into the uplink channels of the Down from 51 Plan should not create material complications for either television broadcasters or broadband providers when sufficient interference protections are provided.”<sup>70</sup> Similarly, Verizon explained that “there are techniques that could be employed to mitigate co-channel interference problems, such as creating geographic separation zones between markets.”<sup>71</sup> Further, “it may be possible to create artificial geographic inflexion points to increase market variation.”<sup>72</sup> As detailed in Alcatel-Lucent’s comments, this approach “would create a ‘fire break’ that could isolate a constrained market, freeing up greater amounts of spectrum in other markets, increasing overall auction revenues and benefitting consumers.”<sup>73</sup>

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<sup>65</sup> *Milkman Blog*; see Comments of Clearwire at 11 (“Maximization of useful spectrum will in turn bring in more revenue for FirstNet, payment of broadcasters, and the US Treasury.”).

<sup>66</sup> *Milkman Blog*.

<sup>67</sup> *Id.*

<sup>68</sup> See *Incentive Auction NPRM*, 27 FCC Rcd at 12401 (“[B]y keeping the downlink spectrum consistent nationwide, we can help ensure as a technical matter that wireless providers will be able to offer mobile devices that can operate across the country, which should minimize device cost and interoperability concerns, and allow for greater economies of scale.”).

<sup>69</sup> See Comments of CTIA at 7 (“[V]ariable amounts of uplink spectrum will be easier to manage than varying amounts of downlink spectrum.”).

<sup>70</sup> Comments of T-Mobile at 3.

<sup>71</sup> Comments of Verizon at 8.

<sup>72</sup> Comments of Alcatel-Lucent at 7.

<sup>73</sup> *Id.*

USCC continues to analyze the optimal means by which to permit market variation, and therefore does not, at this time, endorse specific technical or band plan solutions. However, like other commenters in this proceeding, USCC remains confident that adequate solutions exist. In part, this is because a significant amount of spectrum can be made available in many markets simply by repacking the existing broadcast television stations.<sup>74</sup> Moreover, the significant value of spectrum in the largest markets will greatly incentivize broadcaster participation in the reverse auction.<sup>75</sup> Accordingly, any concerns regarding a highly-variable band plan that are based on a fear that a large number of markets will be spectrum-constrained likely are unfounded, and therefore do not justify removing the substantial public interest benefits that would flow from maximizing the amount of paired spectrum through market variability.<sup>76</sup> In this respect, USCC agrees with CCA that the “Commission should focus on adopting a principal band plan that works for most of the country, and should not allow challenges in outlying areas to scuttle any band plan that otherwise proves to be the best for most Americans.”<sup>77</sup>

The likelihood that the 600 MHz band plan can accommodate sufficient market variation also increases due to the varied nature of broadcast television and wireless broadband signals. For instance, T-Mobile explained that, while broadcast transmitters are “quite powerful, broadcast signals *on the ground* are relatively weak because they seek to provide the largest possible coverage with the fewest number of transmitters, most often a single, high-site

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<sup>74</sup> See the map attached hereto.

<sup>75</sup> See Comments of T-Mobile at 2 (“Based on the already significant amount of spectrum available through repacking alone and the significant value of the spectrum for mobile broadband uses (which should lead to vigorous bidding in a well-designed auction), it is reasonable to expect that 84 MHz will be cleared in most markets.”).

<sup>76</sup> See Comments of Verizon at 8 (“[T]he benefits of maximizing the total amount of repurposed spectrum may outweigh the problems caused by the need to mitigate co-channel interference issues in a few isolated areas.”); Comments of T-Mobile at 2 (“[T]he benefits of offering 70 MHz of paired spectrum in most markets outweigh the costs of less flexibility in those markets where 84 MHz of spectrum is not cleared.”).

<sup>77</sup> Comments of CCA at 12.

transmitter located near the market's center.”<sup>78</sup> On the other hand, “mobile broadband operators employ much smaller transmitters throughout the market and usually include an antenna gain and down-tilt to focus signal strength on the ground surrounding the tower for optimum two-way communications.”<sup>79</sup> These varied signal characteristics should make it more likely that technical solutions can adequately address any interference concerns related to broadcast television stations operating within the uplink pass band of spectrum-constrained markets. In sum, USCC joins Ericsson in emphasizing that “the allocation of valuable spectrum should not be precluded unless technical constraints are insurmountable,”<sup>80</sup> a situation that seems highly unlikely here.

#### **IV. CMA-BASED LICENSING WOULD INCREASE COMPETITION, PROMOTE RURAL DEPLOYMENT, AND BENEFIT ALL CARRIERS**

USCC again strongly urges the Commission to license the 600 MHz band on the basis of Cellular Market Areas (“CMAs”) in order to preserve opportunities for small and regional carriers, as well as new entrants, to provide an important source of competition to the dominant nationwide carriers.<sup>81</sup> If the Commission instead adopts service areas larger than CMAs, it could shut these carriers out of the forward auction because these larger service areas “often include

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<sup>78</sup> Comments of T-Mobile at 8 (emphasis in original).

<sup>79</sup> *Id.*; *see id.* at 9-10 (“[T]he broadcast-broadband coexistence testing performed in the 700 MHz band demonstrates that the actual signal strength of broadcast stations received by near-adjacent broadband channels is relatively weak, and that the actual device performance exceeds the minimum specifications found in the LTE standard, meaning that LTE devices have an enhanced ability to select the desired signal over the undesired intermodulation product.”).

<sup>80</sup> Comments of Ericsson at 11.

<sup>81</sup> *See* Comments of CCA at 8 (“To increase participation among all carriers, but in particular smaller, rural carriers, the FCC should use CMAs when auctioning the 600 MHz band.”); *See* Comments of the Rural Telecommunications Group, Inc., Docket No. 12-268, p. 2 (Jan. 25, 2013) (“RTG NPRM Comments”) (“RTG supports licensing on a CMA basis because smaller license areas would create economic opportunities for small and rural carriers to deploy competitive wireless broadband service in rural areas...”); *Service Rules for Advanced Wireless Service in the 1.7 GHz and 2.1 GHz Bands*, Order on Reconsideration, 20 FCC Rcd 14058, 14065 (2005) (“AWS-1 Recon Order”) (noting that RSA/MSA service areas “provide entry opportunities for smaller carriers, new entrants, and rural telephone companies.”).

densely populated urban areas and typically cover larger geographical areas than the rural areas that rural carriers serve.”<sup>82</sup>

In its comments, CCA provided a compelling real world example which demonstrates how service areas larger than CMAs could preclude auction participation by smaller carriers. Specifically, if the Commission auctioned 600 MHz licenses on the basis of Economic Areas (“EAs”), Bluegrass Wireless, a carrier who has been serving rural parts of Kentucky since 1990, would be forced to bid on four EAs “just to win spectrum to cover the counties within its current service footprint.”<sup>83</sup> As a result, Bluegrass would be foreclosed from participating in the auction because it would be forced “to bid on spectrum that covers approximately six million pops when its core markets cover a much smaller footprint (somewhere closer to 1.2 million pops).”<sup>84</sup>

The increased auction participation as a result of the “use of CMAs also will increase the revenues generated from the incentive auction.”<sup>85</sup> As evidenced by past auctions, when spectrum is offered on a CMA basis, there are more participants, increased bidding activity, and higher revenues.<sup>86</sup> As CCA detailed, during the 700 MHz auction, “blocks of spectrum made available in smaller geographic areas generated more revenue on a MHz-pop basis than larger geographic areas.”<sup>87</sup> CCA also noted that the substantial participation by small or rural carriers in Auction 73, who were predominantly bidding on CMAs, led to an increase in overall auction

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<sup>82</sup> RTG NPRM Comments at 2; *see* Leap NPRM Comments at 4 (“Smaller licenses give smaller carriers better opportunities to obtain financing for new projects, and enable a range of companies to participate in the auction and acquire ‘beachfront’ spectrum, which increases their incentive and ability to innovate.”).

<sup>83</sup> Comments of CCA at 8.

<sup>84</sup> *Id.*

<sup>85</sup> *Id.* at 9.

<sup>86</sup> *See id.* (“With smaller geographic areas, more carriers are able to bid for licenses, and the increased number of bidders leads to higher revenue.”).

<sup>87</sup> *Id.*; *see id.* (“The Upper C Block, auctioned in 12 Regional Economic Area Groups, sold for only \$0.76/MHz-pop. The Lower A Block, auctioned in smaller areas through 176 EAs, sold for \$1.16/MHz-pop. And the Lower B Block, auctioned in even smaller areas, 734 CMAs, sold for \$2.68/MHz-pop.”).

revenue. Specifically, “[i]n addition to the almost \$2 billion competitive carriers paid for licenses in Auction 73, these small entities also bid \$1.2 billion for licenses that larger providers ultimately paid \$1.6 billion to win – driving an additional \$400 million in revenue that most likely wouldn’t have materialized had these carriers not participated and increased bid amounts.”<sup>88</sup>

Perhaps most significantly, the opportunity afforded by CMA-based licensing for smaller carriers to participate in the auction would foster service to rural and other underserved areas, where these carriers often focus their deployment efforts.<sup>89</sup> As the Commission has observed, CMAs “permit entities who are only interested in serving rural areas to acquire spectrum licenses for these areas alone and avoid acquiring spectrum licenses with high population densities that make purchase of license rights too expensive for these types of entities.”<sup>90</sup> CMAs also “represent known area sizes to many business entities, especially small regional and rural providers,”<sup>91</sup> and they “correspond to the needs of many customers, including customers of small regional and rural providers.”<sup>92</sup> Consequently, licensing the 600 MHz band on a CMA-basis would be the most effective means for the Commission to foster the prompt availability of competitive wireless broadband services to rural markets.<sup>93</sup>

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<sup>88</sup> *Id.*

<sup>89</sup> See *Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Television Channels 52-59)*, Report and Order, 17 FCC Rcd 1022, 1061 (2002) (“*Lower 700 MHz R&O*”) (“Licensing a portion of the Lower 700 MHz Band over [CMAs] balances the playing field such that small and rural providers will have an opportunity to participate in the auction and the provision of spectrum-based services.”); *AWS-1 Recon Order*, 20 FCC Rcd at 14064 (“[W]e find that more spectrum should be licensed on an RSA/MSA basis to meet the needs of rural carriers...”).

<sup>90</sup> *Service Rules for Advanced Wireless Service in the 1.7 GHz and 2.1 GHz Bands*, Report and Order, 18 FCC Rcd 25162, 25177 (2003) (“*AWS-1 R&O*”); see *Lower 700 MHz R&O*, 17 FCC Rcd at 1061 (“[CMAs] can be the focus of smaller carriers that do not wish to bid on or provide service to larger regions.”).

<sup>91</sup> *Lower 700 MHz R&O*, 17 FCC Rcd at 1061.

<sup>92</sup> *Id.*

<sup>93</sup> See *AWS-1 R&O*, 18 FCC Rcd at 25177 (“By being smaller, [CMAs] provide entry opportunities for smaller carriers, new entrants, and rural telephone companies. Their inclusion in our band plan will foster service to rural areas and tribal lands and thereby bring the benefits of advanced services to these areas.”).

At the same time, carriers of all sizes would benefit because CMAs would allow for more targeted spectrum acquisitions and result in greater efficiencies for both large and small applicants, while not discriminating in favor of any single business plan.<sup>94</sup> CMAs would allow bidders to acquire precise locations without also acquiring – and excluding other carriers from serving – those additional areas that would otherwise accompany the target locations in a larger license area. For example, large carriers could benefit from the use of CMAs by acquiring additional spectrum in urban areas (where demand is greatest and capacity most constrained) without having to also acquire rural areas they do not intend to serve.<sup>95</sup> On the other hand, bidders who value rural areas could compete for those licenses without competing against bidders who only want urban areas. Because CMA-based licenses would permit carriers of all sizes to avoid also purchasing spectrum in areas where they would not, at least in the near-term, deploy networks, licensing the 600 MHz band using these “smaller geographic blocks [would] avert[] the phenomenon of huge tracts of licensed territory being left unserved.”<sup>96</sup>

Particularly significant here is the fact that CMAs also would help to maximize the amount of interference-free spectrum available for the forward auction. As the Commission recognized, CMAs “could potentially support much greater variation in the amount of reclaimed spectrum from area to area,” and thereby permit the Commission to “license more wireless spectrum that is not encumbered by potential interference with nearby remaining broadcast

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<sup>94</sup> See *AWS-1 Recon Order*, 20 FCC Rcd at 14066 (“RSAs and MSAs allow entities to mix and match rural and urban areas according to their business plans...”); RTG NPRM Comments at 3 (“[S]maller license areas would [] result in greater auction and market efficiency because it would allow bidders to tailor their auction strategy and spectrum acquisitions to meet a wider variety of business plans.”).

<sup>95</sup> See *AWS-1 R&O*, 18 FCC Rcd at 25176-77 (“These local service areas will be optimal for incumbent operators who may need spectrum capacity only in limited areas.”).

<sup>96</sup> *Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands*, Report and Order and Order of Proposed Modification, 27 FCC Rcd 16102, 16122 (2012).

television spectrum.”<sup>97</sup> As the attached map demonstrates, the amount of spectrum that could be cleared through repacking alone varies significantly based on the size of the license areas used. Compared to EA-based licensing, CMAs would greatly increase the number of markets that would have 85 MHz of spectrum, or significantly more, available through repacking alone. Even worse would be licensing the 600 MHz band on the basis of Regional Economic Area Groupings (“REAGs”) because the amount of spectrum available through repacking alone would be nearly nonexistent using these service areas. In fact, four of the six REAG license areas in the continental United States would have no free spectrum whatsoever from repacking alone.

Clearly, under no circumstances should the Commission license any portion of the 600 MHz band on a nationwide or large regional basis. For instance, if the Commission utilizes these large service areas and “only a few broadcasters in one geographic market voluntarily relinquish their spectrum usage rights, [the Commission] would be constrained by that amount of available spectrum as the baseline for offering wireless spectrum in the broader area.”<sup>98</sup> The result would be that the spectrum would “not be put to its highest valued use,”<sup>99</sup> which would undermine both the great potential of this spectrum to expand wireless broadband coverage to vast areas of this nation and the Commission’s statutory obligation to ensure the “efficient and intensive use of electromagnetic spectrum.”<sup>100</sup>

The use of these large service areas also would drastically skew the forward auction in favor of large bidders, effectively foreclosing smaller bidders from participating in the auction.<sup>101</sup>

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<sup>97</sup> *Incentive Auction NPRM*, 27 FCC Rcd at 12411.

<sup>98</sup> *Id.* at 12410.

<sup>99</sup> *Id.*

<sup>100</sup> 47 U.S.C. §309(j)(3)(D).

<sup>101</sup> *See* Leap NPRM Comments at 5 (“Leap urges the Commission not to adopt larger geographic license sizes, which historically have advantaged the largest carriers.”); Cellular South NPRM Comments at 7 (“[C]ompetitive

Not only do small carriers lack the need for large swaths of territory, they lack the financial resources to compete for nationwide or large regional licenses. Thus, the practical effect of having a band plan that includes large market areas is to place a significant portion of the auctioned spectrum in the hands of the few national carriers, who historically have not given priority to small and rural markets.<sup>102</sup> As a consequence, rural deployment of the innovative and advanced types of services made possible by the 600 MHz spectrum would likely be significantly delayed, if not precluded entirely, if the Commission licenses this spectrum on a nationwide or large regional basis.<sup>103</sup>

Although the use of large service areas would substantially disadvantage small and regional carriers, as well as the rural customers they hope to serve, the same would not be true for larger bidders with CMA-based licensing because they could aggregate these licenses by outbidding smaller carriers.<sup>104</sup> In other words, auctioning small license areas benefits all carriers by allowing them to take a building block approach and assemble as much coverage area as is needed.<sup>105</sup> On the other hand, if the initial allocation blocks are overly large, no mechanism exists during a spectrum auction for a bidder to partition geographic areas. Although the Commission proposes to permit 600 MHz band licenses to be subsequently partitioned,

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operators, Designated Entities, and virtually all other new entrants cannot realistically participate in the bidding for the largest geographic license areas.”).

<sup>102</sup> *Fifteenth Competition Report*, 26 FCC Rcd at 9839 (“Generally, as the population density decreases, the under-1 GHz spectrum holdings of the large providers decrease, and those of regional and smaller companies increase.”).

<sup>103</sup> See Comments of CCA at 9 (“[U]sing large geographic areas would give significant and unwarranted advantages to the largest nationwide carriers at the expense of smaller carriers, and would risk leaving behind rural America.”)

<sup>104</sup> See *id.* at 7 (“The Commission should use sufficiently small geographic areas so rural, mid-sized, and regional carriers retain incentives to participate, while allowing larger carriers to aggregate blocks to serve larger geographic areas.”).

<sup>105</sup> See *AWS-1 Recon Order*, 20 FCC Rcd at 14066 (“[W]ith respect to larger carriers, the Commission has said that aggregation at auction of smaller spectrum licenses and blocks may provide bidders with greater flexibility to implement their business plans as compared with a more traditional approach of defining an optimal size.”).

disaggregated or leased,<sup>106</sup> such divestitures have been, and likely will continue to be, the exception rather than the rule. As a consequence, the theoretical availability of these secondary market transactions is unlikely to provide small and regional carriers with timely or adequate access to spectrum. The Commission therefore must structure the forward auction to permit carriers of all sizes to bid directly on licenses rather than be forced to rely on problematic secondary markets, and thus be dependent on large carrier cooperation.<sup>107</sup>

In sum, USCC agrees with CCA that “CMAs strike the right balance and would be an effective geographic unit that would give rural and regional carriers reasonable opportunities to bid, increase the competition in the auction room, thereby increasing auction revenue, and assist in providing competitive opportunities for all carriers, especially smaller carriers, to acquire much-needed low-band spectrum.”<sup>108</sup>

## **V. FINALIZING THE REPACKING METHODOLOGY IS NECESSARY IN ORDER TO FORMULATE AN OPTIMAL 600 MHz BAND PLAN**

USCC agrees with T-Mobile that a primary “challenge of designing a band plan for the 600 MHz band ... is that no one knows in advance precisely how much spectrum will be available for broadband use or exactly what frequency combinations will emerge from the auction.”<sup>109</sup> Although this information cannot be known with certainty until the conclusion of the reverse auction, finalizing the repacking methodology would at least permit the Commission to determine which markets will be spectrum-constrained absent broadcaster participation in the auction, as well as the number of broadcasters who would need to relinquish their spectrum

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<sup>106</sup> See *Incentive Auction NPRM*, 27 FCC Rcd at 12485-86.

<sup>107</sup> See RTG NPRM Comments at 5 (“The redistribution of spectrum throughout geographic areas should not be contingent on large carriers entering into secondary market arrangements with small entities or giving up unused spectrum.”).

<sup>108</sup> Comments of CCA at 10.

<sup>109</sup> Comments of T-Mobile at 20.

rights in these markets in order to achieve a minimum desired spectrum threshold.<sup>110</sup> Without this information, it will continue to be extremely difficult for the Commission, or the industry, to formulate an optimal 600 MHz band plan<sup>111</sup> that both maximizes the amount of spectrum made available for wireless broadband services and adequately addresses the various potential interference scenarios.<sup>112</sup>

USCC therefore joins Verizon in emphasizing that “[p]roviding the repacking information should be the Commission’s priority because it is a prerequisite to making an informed band plan decision.”<sup>113</sup> For instance, T-Mobile noted that, absent “more information about the likelihood of clearing, the Commission could well over- or under-estimate the actual amount of spectrum cleared, which could introduce inefficiencies in band plan design.”<sup>114</sup> As AT&T recognized, “such error would be much more severe than in a standard auction: less or no spectrum would be reallocated for mobile broadband, and less or no funds would be available for construction of the public safety broadband network and for reducing the deficit.”<sup>115</sup>

## **VI. CONCLUSION**

The Commission obviously faces a daunting task in ensuring the success of the incentive auctions, and thereby maximizing the public interest benefits made possible by Congress’ grant of this authority to the Commission. This task is made even more difficult as a result of the

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<sup>110</sup> See Comments of Verizon at 2, 10-11.

<sup>111</sup> See *id.* at 11 (“[B]y establishing the repacking methodology ... the Commission will be providing an important tool that will facilitate the development of the optimal band plan framework.”).

<sup>112</sup> See *id.* at 2 (“The Commission’s process should be to identify potential low-clearing markets, evaluate the co-channel interference challenges they present, and then develop a band plan framework that addresses both the engineering need to avoid (or mitigate) co-channel interference problems and the policy imperative to maximize the amount and value of repurposed spectrum.”); Comments of Ericsson at 3 (“The comments in the record reveal an overwhelming consensus on the need to maximize the amount of licensed spectrum suitable for mobile wireless service and to avoid interference both to and from licensed wireless service...” (internal citation omitted)).

<sup>113</sup> Comments of Verizon at 2.

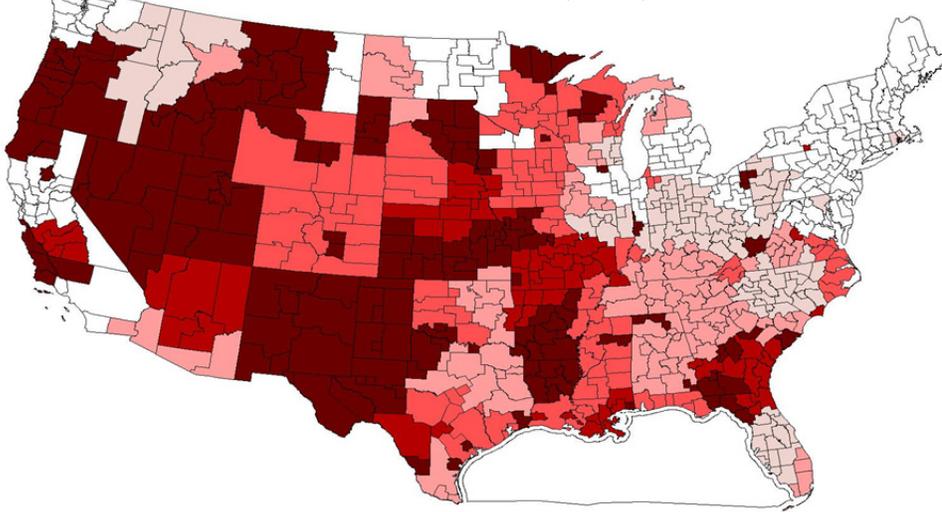
<sup>114</sup> Comments of T-Mobile at 20.

<sup>115</sup> Comments of AT&T at 2.

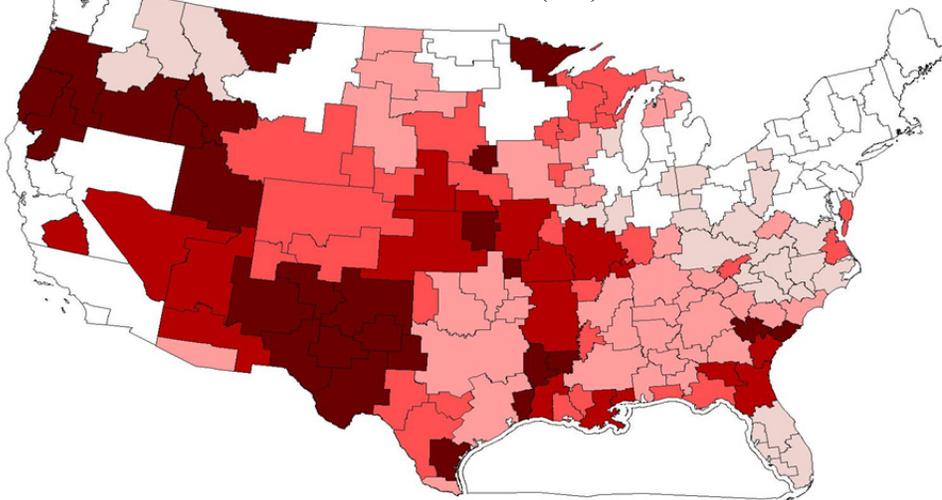


# Estimated MHz Cleared by Repacking Alone

Cellular Market Area (CMA)



Economic Area (EA)



Regional Economic Area Grouping (REAG)

