

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Policies Regarding Mobile Spectrum Holdings	)	WT Docket No. 12-269
	)	
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions	)	Docket No. 12-268
	)	

**REPORT AND ORDER**

**Adopted: May 15, 2014**

**Released: June 2, 2014**

By the Commission: Chairman Wheeler and Commissioner Rosenworcel issuing separate statements; Commissioner Clyburn approving in part, concurring in part and issuing a statement; Commissioners Pai and O’Reilly dissenting and issuing separate statements.

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## I. INTRODUCTION

1. Every American should be able to enjoy the benefits of a competitive mobile wireless marketplace. Competition among mobile wireless providers leads to lower prices, more innovation, and greater investment. Competition, however, depends critically upon the availability of suitable spectrum as a necessary input in the provision of mobile wireless services. Rules are needed to facilitate access to necessary inputs if competition, and the benefits it provides, are to be enjoyed by all. Today, 92 percent of non-rural consumers, but only 37 percent of rural consumers, are covered by at least four 3G or 4G mobile wireless providers' networks.<sup>1</sup> The policies that we adopt today aim to address this discrepancy and ensure that all Americans, regardless of whether they live in an urban, suburban, or rural area, can enjoy the benefits that competition provides.

2. Spectrum is a necessary input in the provision of mobile wireless services, including mobile broadband. Skyrocketing consumer demand for high-speed data is increasing providers' need for spectrum at an unprecedented rate. Consumers today expect mobile broadband at home, at work, and while on the go. To meet this increasing consumer demand, service providers need access to more spectrum. Accordingly, in recent years, we have made substantially more spectrum available for the provision of mobile wireless services. And we have two large auctions planned in the near future: Advanced Wireless Services-3 ("AWS-3"), which will auction 65 megahertz of high-band spectrum; and

<sup>1</sup> Estimates based on census block analysis of provider coverage maps, using ©2013-2014 Mosaik Solutions, LLC., January 2014 CoverageRight. 4G is defined as deployed HSPA+, LTE, or WIMAX air interface technologies. Population and area data are from the 2010 Census, and include the United States (50 states plus the District of Columbia) and Puerto Rico.

the 600 MHz Incentive Auction, which is a once-in-a-generation opportunity to auction significant amounts of greenfield low-band spectrum.

3. Especially in light of these two upcoming auctions, we must ensure that our policies and rules facilitate access to spectrum in a manner that promotes competition. Specifically, we must update the spectrum screen used in our competitive review of secondary market spectrum acquisitions to reflect the current suitability and availability of spectrum for the provision of mobile telephony/broadband services. As mentioned above, the growth in consumer demand for mobile broadband has led to a growing need for spectrum. But not all spectrum is created equal. Spectrum below 1 GHz has, compared to spectrum above 1 GHz, distinct propagation advantages for network deployment over long distances, while also reaching deep into buildings and urban canyons. High-band spectrum is more plentiful and possesses certain technical advantages allowing for the transmission of large amounts of information. In this sense, spectrum below 1 GHz may be thought of as “coverage” spectrum, and high-band spectrum may be thought of as “capacity” spectrum. While other cost-related factors exist, ensuring that multiple providers are able to access a sufficient amount of low-band spectrum is a threshold requirement for extending and improving service in both rural and urban areas.

4. In this Report and Order, we update our spectrum screen and establish the following rules for our upcoming auctions of high- and low-band spectrum in light of the growing demand for spectrum, the differences between spectrum bands, and in accordance with our desire to preserve and promote competition. Specifically, we:

- Update our spectrum screen for our competitive review of proposed secondary market transactions to reflect current suitability and availability of spectrum for mobile wireless services.
  - Add to our spectrum screen:
    - 40 megahertz of AWS-4;
    - 10 megahertz of H Block;
    - 65 megahertz of AWS-3, when it becomes available on a market-by-market basis;
    - 12 megahertz of BRS;
    - 89 megahertz of EBS; and
    - The total amount of 600 MHz spectrum auctioned in the Incentive Auction.
  - Subtract from our spectrum screen:
    - 12.5 megahertz of SMR; and
    - 10 megahertz that was the Upper 700 MHz D Block.
- Establish a market-based spectrum reserve of up to 30 megahertz in the Incentive Auction in each license area that is designed to ensure against excessive concentration in holdings of low-band spectrum while including safeguards to ensure that all bidders bear a fair share of the cost of the Incentive Auction.
- Adopt limits on secondary market transactions of 600 MHz spectrum licenses for six years post-auction.
- Decline to adopt auction-specific limits for AWS-3.
- Treat certain further concentrations of below-1-GHz spectrum as an enhanced factor in our case-by-case analysis of the potential competitive harms posed by individual transactions.

5. We conclude that, together, these actions advance the public interest by helping to ensure that American consumers can enjoy the benefits of a competitive wireless marketplace, regardless of

whether they live in urban, suburban, or rural areas. These actions will furnish opportunities for additional access to spectrum to all providers, while adopting measures to protect against the risk that further concentration of spectrum, particularly low-band spectrum, would have significant effects on competition in the marketplace in the foreseeable future. Indeed, we find that the policies we adopt today will preserve and promote competitive choices, enabling all Americans to enjoy the benefits that a competitive wireless marketplace can bring.

## II. BACKGROUND

### A. Statutory Authority

6. The Communications Act requires the Commission to examine closely the impact of spectrum aggregation on competition, innovation, and the efficient use of spectrum to ensure that spectrum is assigned in a manner that serves the public interest, convenience, and necessity.<sup>2</sup> In particular, Section 309(j)(3) of the Communications Act provides that, in designing systems of competitive bidding, the Commission must (1) “include safeguards to protect the public interest in the use of the spectrum,” and must seek to promote various objectives, including (2) “promoting economic opportunity and competition and ensuring that new and innovative technologies are readily accessible to the American people by avoiding excessive concentration of licenses and by disseminating licenses among a wide variety of applicants,” (3) encouraging rapid deployment “including . . . in rural areas,” and (4) promoting “efficient and intensive use” of spectrum.<sup>3</sup> Additionally, under the Communications Act, when reviewing a proposed license assignment or transfer application, the Commission must determine whether the applicant has demonstrated that the proposed assignment or transfer of control of licenses will serve the public interest, convenience, and necessity.<sup>4</sup> Section 309(j)(3)(B) is forward-looking, and requires the Commission to rely upon its predictive judgment to proactively guard against potential harms.<sup>5</sup> In Section 6404 of the Spectrum Act,<sup>6</sup> Congress reaffirmed the extent of the Commission’s existing (and well established) authority in future auctions and under future market conditions “to adopt

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<sup>2</sup> See Communications Act of 1934, Pub. L. No. 73-416, 48 Stat. 1064 (codified, as amended, in scattered sections of 47 U.S.C.) (“*Communications Act*”); 47 U.S.C. § 309(j)(3)(B) (stating that the FCC must seek to “promot[e] economic opportunity and competition and ensur[e] that new and innovative technologies are readily accessible to the American people by avoiding excessive concentration of licenses and by disseminating licenses among a wide variety of applicants . . . .”); 47 U.S.C. § 309(j)(3)(D) (stating that the Commission must seek to promote “efficient and intensive use of electromagnetic spectrum.”); 47 U.S.C. § 303(c) (stating in relevant part that the Commission must “[a]ssign bands of frequencies to the various classes of stations”); 47 U.S.C. § 303(b) (stating in relevant part that the Commission must, as the public interest, convenience, or necessity requires, “prescribe the nature of the service to be rendered by each class of licensed stations and each station within any class . . . .”); 47 U.S.C. § 303(r) (stating in relevant part that the Commission must “[m]ake such rules and regulations and prescribe such restrictions and conditions . . . as may be necessary to carry out the provisions of this chapter . . . .”); 47 U.S.C. § 310(d) (requiring a Commission finding that the public interest will be served before any station license or construction permit may be transferred or assigned). See generally Applications of Cellco Partnership d/b/a Verizon Wireless and SpectrumCo LLC and Cox TMI, LLC for Consent to Assign AWS-1 Licenses, *Mem. Op. and Order*, 27 FCC Rcd 10698 ¶ 47 (2012) (“*Verizon Wireless-SpectrumCo Order*”); Application of AT&T Inc. and Qualcomm Incorporated, *Order*, 26 FCC Rcd 17589, 17601-02 ¶ 30 (2011) (“*AT&T-Qualcomm Order*”).

<sup>3</sup> *Communications Act*, § 309(j)(3) codified at 47 U.S.C. § 309(j)(3).

<sup>4</sup> See *Communications Act*, § 310(d) codified at 47 U.S.C. § 310(d).

<sup>5</sup> See 47 U.S.C. § 309(j)(3)(B). See generally H.R. Rep. 103-111, 1993 WL 181528 at 254 (1993) (cautioning the Commission against applying “any particular antitrust test in order to avoid concentration of licenses” and encouraging the Commission to adopt a “common sense” approach in exercising its duty to avoid excessive concentration of licenses).

<sup>6</sup> Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. 112-96, Title VI, §§ 6001-6703 (Feb. 22, 2012) (codified in scattered sections of 47 U.S.C.) (“*Spectrum Act*”).

and enforce rules of general applicability, including rules concerning spectrum aggregation that promote competition.”<sup>7</sup>

### B. History of Spectrum Aggregation Limits

7. Title III of the Communications Act requires the Commission to assign frequencies for radio stations “as public convenience, interest, or necessity requires,” to “generally encourage the larger and more effective use of radio in the public interest,” and to “[m]ake such rules and regulations and prescribe such restrictions, not inconsistent with law, as may be necessary to carry out the provisions of this chapter.”<sup>8</sup> Our competitive analysis, “which has always formed a vital part of this public interest mandate, is informed by, but not limited to, traditional antitrust principles.”<sup>9</sup> As the courts have made clear, “. . . the competitive consequences of proposals before the FCC ‘must be read in the light of the special considerations that have influenced Congress to make specific provision for the particular industry.’”<sup>10</sup> As noted above, those specific provisions include Section 309(j)(3) of the Communications Act in designing systems of competitive bidding, and Section 310(d)’s public interest mandate with respect to secondary market transactions.

8. Our authority to adopt “rules concerning spectrum aggregation that promote competition”<sup>11</sup> is longstanding.<sup>12</sup> In particular, avoiding undue aggregation of spectrum in particular geographic markets has long been a bedrock principle of our wireless policy. Since the advent of commercial mobile services in the early 1980s, the Commission has consistently considered and adopted policies designed to prevent undue concentration of spectrum licenses necessary to provide those services, and thereby to further consumer welfare by promoting the competitive provision of those services. The tools that the Commission has used to achieve its overall policy goals have changed over time, depending on the marketplace characteristics at specific points in time. Over the years, those tools have included the cellular cross-interest rule, the Personal Communications Service (“PCS”) spectrum aggregation limit, the PCS cross-ownership rule, the Commercial Mobile Radio Services (“CMRS”) spectrum cap, and the current case-by-case review.<sup>13</sup>

9. *Cellular Service.* In 1981, the Commission established the rules for the licensing of 800 MHz cellular radiotelephone (“cellular”) service. In doing so, it acknowledged the D.C. Circuit’s concern that the Commission’s 40 megahertz allocation plan, which had initially provided for only one licensee per market, led to assertions with “significant plausibility” that “AT&T will operate most, if not all, of the cellular systems eventually put in operation.”<sup>14</sup> The court had upheld that allocation five years earlier,

<sup>7</sup> *Spectrum Act* § 6404 codified at 47 U.S.C. § 309(j)(17)(b). Section 6404 of the *Spectrum Act* also provides that the Commission may not prevent a person from participating in a system of competitive bidding, provided that the person complies with all qualifications and bidding procedures. See 47 U.S.C. § 309(j)(17)(b).

<sup>8</sup> 47 U.S.C. §§ 303(c), 303(g), 303(r).

<sup>9</sup> *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10710 ¶ 29 (2012).

<sup>10</sup> *United States v. FCC*, 652 F.2d 72, 86, 88 (D.C. Cir. 1980) (en banc), quoting *FCC v. RCA Communications, Inc.*, 346 U.S. 86 (1953).

<sup>11</sup> 47 U.S.C. § 309(j)(17)(B).

<sup>12</sup> See *United States v. Storer Broadcasting Co.*, 351 U.S. 192 (1956).

<sup>13</sup> See Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services, WT Dkt. No. 11-186, *Sixteenth Report*, 28 FCC Rcd 3700, 3778-82 ¶¶ 103-06, FCC 13-34 (2013) (“*16th Mobile Wireless Competition Report*”).

<sup>14</sup> See An Inquiry Into the Use of the Bands 825-845 MHz and 870-890 MHz for Cellular Communications Systems; and Amendment of Parts 2 and 22 of the Commission’s Rules Relative to Cellular Communications Systems, *Report and Order*, CC Dkt. No. 79-318, 86 FCC 2d 469, 472 ¶ 6 (rel. May 4, 1981) (“*1981 Cellular Communications Systems Order*”) (quoting *NARUC v. FCC*, 525 F.2d 630, 636 (D.C. Cir. 1976)).

“strongly influenced by the position of the Justice Department,” while also upholding the allocation only “at this time” and imposing on the Commission a “duty of continual supervision” that “includes being on the lookout for possible anticompetitive effects.”<sup>15</sup> Consistent with that mandate, the Commission changed its policy, and instead sought to create head-to-head competition by licensing cellular spectrum to two service providers, one of which was the incumbent wireline provider, in each geographic area.<sup>16</sup> In 1991, the Commission issued the cellular cross-interest rule, which prohibited any entity with an attributable interest in one licensee, from having a material ownership interest in the other licensee.<sup>17</sup>

10. *PCS Cap, PCS Cross-Ownership Rule, and PCS Set Asides.* The Commission subsequently determined in the early 1990s that the duopolistic nature of the cellular-services marketplace rendered it less than fully competitive.<sup>18</sup> Accordingly, in 1993, as it established rules for making additional spectrum available in the Broadband PCS band, the Commission adopted two PCS spectrum caps that limited the amount of spectrum that a service provider could hold in individual markets.<sup>19</sup> Specifically, PCS licensees were prohibited from holding an ownership interest in frequency blocks that totaled more than 40 megahertz and served the same geographic area.<sup>20</sup> In addition, a cellular licensee was prohibited from holding a license of more than 10 megahertz of broadband PCS spectrum if the PCS

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<sup>15</sup> *NARUC v. FCC*, 525 F.2d at 638.

<sup>16</sup> See *1981 Cellular Communications Systems Order*, 86 FCC 2d at 478 ¶¶ 18-19. The geographic markets that were licensed for cellular service were Metropolitan Statistical Areas (“MSAs”) and Rural Service Areas (“RSAs”). See Amendment of Part 22 of the Commission's Rules to Provide for the Filing and Processing of Applications for Unserved Areas in the Cellular Service and to Modify Other Cellular Rules, *First Report and Order and Mem. Opin. and Order on Recons.*, 6 FCC Rcd 6185, 6228 ¶ 104 (1991) (“*Cellular First Report and Order*”).

<sup>17</sup> See *Cellular First Report and Order*, 6 FCC Rcd at App. D, 6248 (setting forth final rule). The rule initially was codified at 47 C.F.R. § 22.902(b)(5), but subsequently was moved, without revision, to 47 C.F.R. § 22.942. See Revision of Part 22 of the Commission's Rules Governing the Public Mobile Services, *Report and Order*, 9 FCC Rcd 6513, 6574 (1994).

<sup>18</sup> See Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *First Report*, 10 FCC Rcd 8844, 8845 ¶ 4 (1995).

<sup>19</sup> See Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Thirteenth Report*, 24 FCC Rcd 6185, 6220 ¶ 65 (2009) (“[T]he Commission has progressively increased the amount of spectrum available for the provision of CMRS. For example, beginning in the mid-1990s, the allocation of 120 megahertz of spectrum to broadband PCS and the assignment of broadband PCS spectrum licenses through auction ended the cellular duopoly by facilitating the entry of new mobile telephone service providers.”); Amendment of the Commission's Rules to Establish New Personal Communications Services, *Second Report and Order*, 8 FCC Rcd 7700, 7728 ¶ 108 (1993) (“*Broadband PCS Second Report and Order*”) (stating that through the PCS cross-ownership rule, the Commission sought to “strike[ ] an appropriate balance between fostering broad participation in PCS and ensuring that cellular operators do not exert undue market power.”).

<sup>20</sup> See *Broadband PCS Second Report and Order*, 8 FCC Rcd at 7728 ¶ 61, 7745 ¶¶ 106-07; *Final Rule*, New Personal Communications Services, 59 FR 32830, 32837, 32856-57 (1994).

cense area would significantly overlap with the cellular license area.<sup>21</sup> This PCS cap and the PCS cross-ownership rule were eliminated in 1996 in favor of a modified CMRS spectrum cap.<sup>22</sup>

11. The Commission has also exercised its authority under Section 309(j) to reserve certain spectrum for a limited class of auction bidders. In auctions conducted from 1996 to 1999, the Commission initially made available licenses for 40 out of 120 megahertz of PCS spectrum through bidding open only to small “entrepreneurs.”<sup>23</sup> The Commission defined “entrepreneurs” as bidders with gross revenues of less than \$125 million in each of the previous two years and total assets of less than \$500 million at the time the auction application was filed.<sup>24</sup> The Commission sought to promote auction participation by these entrepreneurs by allowing them to make installment payments for awarded licenses. Starting in 2000, the Commission determined that licenses for certain of these blocks would remain restricted to entrepreneurs in Auction 35 and in subsequent auctions, while others would no longer be restricted.<sup>25</sup> Accordingly, from 2000 through the most recent Broadband PCS auction in 2008, a subset of the PCS licenses that was initially restricted to entrepreneurs continued to be so restricted.<sup>26</sup>

12. *CMRS Spectrum Cap.* In 1994, the Commission instituted a new spectrum limit that prohibited a provider of commercial mobile radio service from holding attributable interests in CMRS licenses – defined to include broadband PCS, cellular, and certain Specialized Mobile Radio (“SMR”) licenses –exceeding 45 megahertz in any licensed geographic service area.<sup>27</sup> As implemented, the

<sup>21</sup> See *Broadband PCS Second Report and Order*, 8 FCC Rcd at 7728 ¶ 61, 7745 ¶¶ 106-07; *Final Rule*, New Personal Communications Services, 59 FR 32830, 32837, 32856-57 (1994). Under this PCS/cellular cross-ownership cap, post-auction divestiture was permitted if the overlap in geographic areas between the provider’s existing cellular license and the PCS license to be acquired was between 10 to 20 percent of the population in the PCS license (less than 10 percent population did not count towards the cap). See *Amendment of the Commission’s Rules to Establish New Personal Communications Services*, 9 FCC Rcd 4957, 5013 ¶ 144 (“*Broadband PCS Reconsideration Order*”) (establishing and setting forth new rule at 47 CFR § 24.229).

<sup>22</sup> On November 8, 1995, the United States Court of Appeals for the Sixth Circuit held that the Commission had not adequately justified the attribution element of the PCS/cellular cross interest rule and PCS spectrum cap rule, and, without vacating the rules, remanded them to the Commission for further proceedings. See *Cincinnati Bell v. FCC*, 69 F.3d 752, 760 (6<sup>th</sup> Cir. 1995). On remand, the Commission eliminated the PCS spectrum cap and the PCS/cellular cross-interest rule but retained the CMRS spectrum cap with a new, flexible 20 percent attribution threshold (*i.e.*, an attribution trigger of 20 percent accompanied by new waiver and post-auction divestiture procedures built into the rule). See Amendment of Parts 20 and 24 of the Commission’s Rules—Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap, WT Dkt. No. 96-59, *Report and Order*, 11 FCC Rcd 7824, 7879-80, ¶ 117 (1996) (“*PCS Remand Order*”); *Final Rule*, 61 FR 33859-01 (eff. July 31, 1996).

<sup>23</sup> See Implementation of Section 309(j) of the Communications Act – Competitive Bidding, PP Dkt. No. 93-253, *Sixth Report and Order*, 11 FCC Rcd 136, 136 n.1 (1995) (defining the “C Block” as consisting of 493 30-MHz Basic Trading Area (“BTA”) licenses); Implementation of Section 309(j) of the Communications Act – Competitive Bidding, *Fifth Report and Order*, PP Dkt. No. 93–253, 9 FCC Rcd 5532 (1994), *recons. Fifth Mem. Opin. and Order*, 10 FCC Rcd 403, *erratum*, 60 Fed.Reg. 5333 (1995) (establishing the C and F frequency blocks as broadband PCS “entrepreneur” blocks). These auctions were: Auction 5 (1996), Auction 10 (1996), Auction 11 (1996), and Auction 22 (1999).

<sup>24</sup> See 47 C.F.R. § 24.709(a).

<sup>25</sup> See Amendment of the Commission’s Rules Regarding Installment Payment Financing for Personal Communications Services (PCS) Licensees, *Sixth Report and Order and Order on Recons.*, 15 FCC Rcd 16266, 16267-68, ¶ 2, 27 (2000) (“*Auction 35 Order*”).

<sup>26</sup> These auctions were: Auction 35 (2000), Auction 58 (2005), Auction 71 (2007), and Auction 78 (2008).

<sup>27</sup> See Implementation Of Sections 3(N) and 332 of the Communications Act, Regulatory Treatment of Mobile Services, *Third Report and Order*, 9 FCC Rcd 7988, 8108 ¶ 258 (1994) (“*CMRS Third Report and Order*”) (citing Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, Title VI § 6002(b), 107 Stat. 312 (1993)); see also *Final Rule*, Implementation of Sections 3(n) and 332 of the Communications Act—Regulatory Treatment of Mobile (continued....)

Commission attributed all controlling interests and many non-controlling interests, including in most cases equity ownership of 20 percent or more. In 1999, the Commission modified the CMRS spectrum cap by, among other things, adopting a 55 megahertz spectrum aggregation limit for licensees serving RSAs.<sup>28</sup> In 2001, in response to the growth of competition in the provision of mobile wireless services in the 1990s,<sup>29</sup> the Commission initiated a transition away from the CMRS spectrum cap in favor of case-by-case review by scheduling the cap for elimination as of January 1, 2003.<sup>30</sup> In doing so, it recognized that “our oversight of CMRS spectrum aggregation [has] traditionally relied on prophylactic rules of general applicability.”<sup>31</sup> At that time, the Commission identified “mobile telephony” as the relevant market, and found a “substantial continuing decline in concentration in most local CMRS markets.”<sup>32</sup> While it concluded in that context that the competitive objectives of the spectrum cap “can now be better achieved in the context of secondary market transactions through case-by-case review, properly performed,” the Commission also noted that “to the extent that the initial distribution of spectrum through auction is an issue in the future, that is also amenable to case-by-case review” – but “in the sense that we can shape the initial distribution through the service rules adopted with respect to specific auctions.”<sup>33</sup> The Commission thus recognized the potential future need for imposing *ex ante* limits in connection with individual auctions.

13. *Case-by-Case Review.* In analyzing the *Cingular-AT&T Wireless* transaction in 2004, the Commission for the first time articulated its framework for a case-by-case review of spectrum aggregation (and market share concentration, if appropriate).<sup>34</sup> In that context and in its analysis of subsequent

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Services, 59 FR 59953 (Nov. 21, 1994). This CMRS spectrum cap coexisted with the PCS cap and the PCS cross-ownership Rule from its effective date in January 1995 until the PCS cap and PCS cross-ownership Rule were eliminated in 1996 in favor of a modified CMRS spectrum cap. See Amendment of Parts 20 and 24 of the Commission’s Rules, *Report and Order*, 11 FCC Rcd 7824, 7879-80 ¶ 117 (1996) (“*Remand Order*”); Final Rule, 61 FR 33859-01 (eff. July 31, 1996).

<sup>28</sup> See 1998 Biennial Regulatory Review—Spectrum Aggregation Limits for Wireless Telecommunications Carriers, *Report and Order*, 15 FCC Rcd 9219, 9269-70 ¶ 117 (1999).

<sup>29</sup> See *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd at 3774 ¶ 94 (discussing the effects of PCS-based competition in the 1990s).

<sup>30</sup> See 2000 Biennial Regulatory Review Spectrum Aggregation Limits for Commercial Radio Servs., WT Dkt. No. 01-14, *Report and Order*, 16 FCC Rcd 22668, 22710-11 ¶ 93 (2001) (“*CMRS Cap Sunset Order*”). At the same time, the Commission concluded that the cellular cross-interest rule was no longer necessary in urban markets, noting that with the deployment of PCS and digital SMR services 40 of the 50 most populous MSAs had six nationwide providers. *Id.* ¶ 86. The Commission later determined to eliminate the cellular cross-interest rule in rural markets as well, based on a determination that “our Section 310(d) case-by-case review” for transactions “is currently the better approach,” and a desire not to “impede market forces that could drive financing and development of new services in rural and underserved areas.” *Facilitating the Provision of Spectrum-Based Services to Rural Areas and Promoting Opportunities for Rural Telephone Companies To Provide Spectrum-Based Services, Report and Order and Further Notice of Proposed Rule Making*, 19 FCC Rcd 19078, 19113-17 ¶¶ 63-70 (2004).

<sup>31</sup> *CMRS Cap Sunset Order*, 16 FCC Rcd at 22670 ¶ 3.

<sup>32</sup> *Id.* ¶¶ 30, 32.

<sup>33</sup> *Id.* ¶ 54.

<sup>34</sup> See Applications of AT&T Wireless Inc. and Cingular Wireless Corporation For Consent To Transfer of Control of Licenses and Authorizations, *Mem. Opin. and Order*, 19 FCC Rcd 21522, 21525 ¶ 4 (2004) (“*Cingular-AT&T Wireless Order*”) (“[F]or the first time in this sector, we articulate and apply our public interest standard by undertaking a case-by-case analysis of a large transaction without the presence of a bright-line rule related to spectrum aggregation.”). In addition, for proposed transactions, such as the *Cingular-AT&T Wireless* transaction, that would change horizontal market concentration in any local market, the screen also identified markets where changes in market concentration resulting from the transaction, as measured by the Herfindahl-Hirschman Index

(continued....)



proposed transactions, the Commission applied an initial screen to help identify for case-by-case review local markets where changes in spectrum holdings resulting from the transaction may be of particular concern.<sup>35</sup> In its application of a spectrum screen to the *Cingular-AT&T Wireless* transaction, the Commission included cellular, PCS, and SMR spectrum for a total of approximately 200 megahertz of spectrum, and established a screen “trigger” of 70 megahertz, or approximately one-third of the total suitable and available spectrum.<sup>36</sup> In 2008, the Commission articulated that its case-by-case review also would apply to the initial licensing of spectrum post-auction.<sup>37</sup> In the past decade, in its application of the spectrum screen to various secondary market transactions, the Commission has determined that additional bands of spectrum were suitable and available for use and should be included in the spectrum screen.<sup>38</sup> In addition, the Commission has indicated that it would not limit its analysis of potential competitive harms to solely those markets identified by the initial screen, when encountering other factors that may bear on the public interest inquiry.<sup>39</sup>

14. For example, the Commission has placed a significant emphasis on increased below-1-GHz spectrum concentration as a factor in its case-by-case review because below-1 GHz spectrum possesses favorable propagation characteristics and is relatively scarce as compared to higher

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 (“HHI”), may be of particular concern. *See, e.g., Cingular-AT&T Wireless Order*, 19 FCC Rcd at 21568 ¶ 106; Applications of AT&T Inc. and Cellco Partnership d/b/a/ Verizon Wireless, *Mem. Opin. and Order*, 25 FCC Rcd 8704, 8724-25 ¶ 42 (2010) (“*AT&T-Verizon Wireless Order*”) (stating that the initial screen criteria identifies, for further case-by-case market analysis, those markets in which, post-transaction the HHI would be greater than 2,800 and the change in HHI would be 100 or greater, or the change in HHI would be 250 or greater, regardless of the level of the HHI).

<sup>35</sup> *See, e.g., Cingular-AT&T Wireless Order*, 19 FCC Rcd at 21568-69 ¶ 109; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10716 ¶ 48; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17602 ¶ 31; Applications of AT&T Inc. and Centennial Communications Corp. For Consent to Transfer Control of Licenses, Authorizations, and Spectrum Leasing Arrangements, WT Dkt. No. 08-246, *Mem. Opin. and Order*, 24 FCC Rcd 13915, 13938 ¶ 50 (2009) (“*AT&T-Centennial Order*”).

<sup>36</sup> *See Cingular-AT&T Wireless Order*, 19 FCC Rcd at, 21568-69 ¶¶ 106-12.

<sup>37</sup> *See Applications of Union Telephone Company and Cellco Partnership d/b/a Verizon Wireless Applications for 700 MHz Band Licenses, Auction No. 73, Order*, 23 FCC Rcd 16787, 16791-92 ¶ 9, 16796 ¶ 18 (2008) (stating that “we intend to apply prospectively our standard competitive analysis to spectrum acquired via auction as well as via transactions”).

<sup>38</sup> *See Application of AT&T Inc. and Dobson Communications Corp. for Consent to Transfer Control of Licenses and Authorizations, WT Dkt. No. 07-153, Mem. Opin. and Order*, 22 FCC Rcd 20295, 20314 ¶ 31 (2007) (“*AT&T-Dobson Order*”) (adding 700 MHz); Applications of Sprint Nextel Corporation and Clearwire Corporation for Transfer of Control of Licenses and Authorizations, *Mem. Opin. and Order*, 23 FCC Rcd 17570, 17591-92 ¶ 53, 17596-99 ¶¶ 62-70 (adding Broadband Radio Service (BRS) and Advanced Wireless Services in the 1710-1755 and 2110-2155 MHz band (AWS-1) where available); Applications of AT&T Mobility Spectrum LLC, New Cingular Wireless PCS, LLC, Comcast Corporation, Horizon Wi-Com, LLC, Nextwave Wireless, Inc., and San Diego Gas & Electric Company for Consent to Assign and Transfer Licenses, *Mem. Opin. and Order*, 27 FCC Rcd 16459, 16470-71 ¶ 31 (2012) (“*AT&T WCS Order*”) (adding Wireless Communications Services (“WCS”).

<sup>39</sup> *See, e.g., Applications of SoftBank Corp., Starburst II, Inc., Sprint Nextel Corp. and Clearwire Corp.*, IB Dkt. No. 12-343, 28 FCC Rcd 9642, 9656 ¶ 35 (2013) (“*SoftBank-Sprint Order*”); *AT&T WCS Order*, 27 FCC Rcd at 16467 ¶ 21 (recognizing the proposition that the “Commission is not . . . limited in its consideration of potential competitive harms solely to markets identified by its initial screen and analyzing the national market, in addition to considering 10 local markets identified by the screen, because the proposed acquisition would be in a substantial majority of local markets across the country); *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10716 ¶ 48; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17609-10 ¶¶ 49-50 (recognizing that up to three markets could be triggered by the screen, but considering more broadly AT&T’s post-transaction below-1 GHz holdings because, *inter alia*, of the record in that proceeding and the substantial holdings that the provider would then hold below 1 GHz).

band spectrum.<sup>40</sup> In the *AT&T-Qualcomm Order*, the Commission determined that AT&T, post transaction, would hold a significant proportion of the available spectrum suitable for the provision of mobile wireless services, particularly approximately one-third or more of below-1-GHz spectrum, which “has technical attributes important for other competitors to meaningfully expand their provision of mobile broadband services or for new entrants to have a potentially significant impact on competition.”<sup>41</sup> Indeed, AT&T had previously recognized the benefits from extended rural coverage and “superior in-building and in-home service” arising from access to spectrum below 1 GHz.<sup>42</sup> These post-transaction spectrum holdings raised competitive concerns that could be mitigated only by specific conditions.<sup>43</sup> Moreover, in its last three annual Mobile Wireless Competition Reports, the Commission has focused on the importance to competitors of the superior propagation characteristics of spectrum below 1 GHz, stating that “[g]iven these different spectrum characteristics [of low- and high-band spectrum], a licensee’s particular mix of spectrum holdings may affect its ability to provide efficient mobile wireless services.”<sup>44</sup>

15. In addition to evaluating the likely competitive effects of increased below-1-GHz spectrum aggregation, the Commission also has examined issues related to aggregation of higher-band spectrum. For example, in the *Verizon Wireless-SpectrumCo* transaction, which concerned the acquisition of near-nationwide greenfield AWS-1 spectrum, the Commission found that public interest harms were likely, and in conditioning its approval on buildout and other requirements designed to mitigate these public interest harms, observed that “[i]f providers are unable to expand capacity or deploy 4G technologies, this may reduce quality and consumer choice . . . .”<sup>45</sup> In its review of the *AT&T WCS* transaction, the Commission raised concerns that, given the near nationwide acquisition of WCS spectrum by AT&T in these transactions, rivals would be foreclosed or costs raised in numerous local markets resulting in price increases.<sup>46</sup> However, the lack of a well-developed WCS ecosystem and the general availability of other bands for the provision of mobile broadband services led the Commission to find that public interest harms were unlikely.<sup>47</sup>

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<sup>40</sup> See *AT&T-Qualcomm Order*, 26 FCC Rcd at 17609-11 ¶ 49 (“Based on the record in this proceeding – and the Commission’s analysis in the Fifteenth Annual Mobile Wireless Competition Report – we find that it is prudent to inquire about the potential impact of AT&T’s aggregation of spectrum below 1 GHz as part of the Commission’s case-by-case analysis.”). See generally Applications of AT&T Inc., Cellco Partnership d/b/a Verizon Wireless, Grain Spectrum, LLC, and Grain Spectrum II, LLC, *Mem. Opin. and Order*, WT Dkt. No. 13-56, 28 FCC Rcd 12878, 12888 ¶ 22 (“As in recent Commission precedent involving below 1 GHz spectrum, we examine more closely the below 1 GHz spectrum holdings post-transaction.”) (*AT&T-Verizon Wireless-Grain Order*); Applications of AT&T, Inc. and Atlantic Tele-Network, Inc., WT Dkt. No. 13-54, *Mem. Opin. and Order*, 28 FCC Rcd 13670, 13690-13701 ¶¶ 42-56 (2013) (undertaking market-by-market analysis organized in state-bounded clusters) (*AT&T-ATN Order*”).

<sup>41</sup> See *AT&T-Qualcomm Order*, 26 FCC Rcd at 17611 ¶ 51; see generally *AT&T-Verizon Wireless-Grain Order*, 28 FCC Rcd at 12894-12897 ¶¶ 41-45; *AT&T-ATN Order*, 28 FCC Rcd at 13690-701 ¶¶ 42-56.

<sup>42</sup> *AT&T-Qualcomm Order*, 26 FCC Rcd at 17610-11 ¶ 49, n.141.

<sup>43</sup> See *id.* at 17611 ¶ 51.

<sup>44</sup> Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless Including Commercial Mobile Services, WT Dkt. No. 09-66, *Fourteenth Report*, 25 FCC Rcd 11407, 11573 ¶ 274 (2010) (“*14<sup>th</sup> Mobile Wireless Competition Report*”); see also Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless Including Commercial Mobile Services, WT Dkt. No. 10-133, *Fifteenth Report*, 26 FCC Rcd 9664, 9837 ¶ 297 (2011) (“*15<sup>th</sup> Mobile Wireless Competition Report*”); *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd at 3793 ¶ 127.

<sup>45</sup> *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10725 ¶ 72.

<sup>46</sup> See *AT&T WCS Order*, 27 FCC Rcd at 16473 ¶ 37.

<sup>47</sup> See *id.*

16. *Mobile Spectrum Holdings Rulemaking.* In September 2012, the Commission initiated this proceeding to review the mobile spectrum holdings policies that currently apply to both secondary market transactions and auctions.<sup>48</sup> Intending to take a fresh look at all facets of its rules concerning spectrum aggregation, the Commission sought comment on whether the Commission should, in the context of both auctions and transactions, retain or modify its current case-by-case approach to evaluating mobile spectrum holdings, adopt proposed bright-line limits on spectrum aggregation, reevaluate the spectrum bands included in any evaluation of mobile spectrum holdings, and distinguish between different bands of spectrum.<sup>49</sup> The Commission indicated that, during the pendency of this proceeding, the Commission would continue to apply its current case-by-case approach to evaluate mobile spectrum holdings in secondary market transactions and initial spectrum licensing after auctions.<sup>50</sup> The Commission also sought comment on its mobile spectrum holdings policies in the context of the Incentive Auction and the AWS-3 service-rules proceeding.<sup>51</sup>

### III. PRESERVING AND PROMOTING COMPETITION IN THE MOBILE WIRELESS MARKETPLACE

#### A. Overview

17. The Commission has long recognized that “spectrum is an input in CMRS markets,” and that “the state of control over the spectrum input is a relevant factor” in its competitive analysis.<sup>52</sup> Ensuring that sufficient spectrum is available for multiple existing mobile service providers as well as potential entrants is crucial to promoting consumer choice and competition throughout the country, including in rural areas, and is similarly crucial to fostering innovation in the marketplace.<sup>53</sup> For these reasons, Congress directed the Commission to proactively “include safeguards to protect the public interest” when specifying the classes and characteristics of licenses and permits to be issued by competitive bidding,<sup>54</sup> and to “promot[e] economic opportunity and competition and ensur[e] that new

<sup>48</sup> See Policies Regarding Mobile Spectrum Holdings, WT Dkt. No. 12-269, *Notice of Proposed Rulemaking*, 27 FCC Rcd 11710 (2012) (“*Mobile Spectrum Holdings NPRM*”).

<sup>49</sup> See *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11711 ¶ 2.

<sup>50</sup> See *id.*

<sup>51</sup> See Expanding the Economic and Innovation Opportunities of Spectrum through Incentive Auctions, *Notice of Proposed Rulemaking*, Dkt. No. 12-268, 27 FCC Rcd 12357, 12484 ¶ 384 (2012) (seeking comment on what, if anything, the Commission should do to meet the statutory requirements of section 309(j)(3)(B) and promote the goals of the Incentive Auction) (“*Incentive Auction NPRM*”); Amendment of the Commission’s Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands, WT Dkt. No. 13-185, *Notice of Proposed Rulemaking and Order on Recons.*, 28 FCC Rcd 11479, 11582 ¶ 122 (2013) (“*AWS-3 NPRM*”) (seeking comment on whether the acquisition of each of the various bands identified in this proceeding for potential AWS-3 spectrum should be subject to the same general mobile spectrum holding policies applicable to frequency bands that the Commission has found to be suitable and available for mobile telephony/broadband services).

<sup>52</sup> *CMRS Cap Sunset Order*, 16 FCC Rcd at 22679-80 ¶ 27.

<sup>53</sup> See 47 U.S.C. § 309(j)(3)(B) (demonstrating the congressional determination that economic opportunity and competition will result when the Commission avoids excessive concentration of licenses); see also *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10716 ¶ 47 (citing 15<sup>th</sup> *Mobile Wireless Competition Report*, 26 FCC Rcd at 9820 ¶ 266; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17601-02 ¶ 30; *Cingular-AT&T Wireless Order*, 19 FCC Rcd at 21569 ¶ 109; Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC For Consent to Transfer Control of Licenses, Authorizations, and Spectrum Manager and *De Facto* Transfer Leasing Arrangements and Petition for Declaratory Ruling that the Transaction is Consistent with Section 310(b)(4) of the Communications Act, WT Dkt. No. 08-95, *Mem. Opin. and Order and Declaratory Ruling*, 23 FCC Rcd 17444, 17481-82 ¶ 75 (2008) (“*Verizon Wireless-ALLTEL Order*”).

<sup>54</sup> See 47 U.S.C. § 309(j)(3).

and innovative technologies are readily accessible to the American people by avoiding excessive concentration of licenses[.]”<sup>55</sup> This mandate was informed by the principle that consumers are best served by a marketplace with rules that enable and ensure competition, and that access to necessary inputs such as spectrum is a key element of such competition. As the Commission has found, in order for there to be robust competition, multiple competing service providers must have access to or hold sufficient spectrum to be able to enter a marketplace or expand output rapidly in response to any price increase or reduction in quality, or other change that would harm consumer welfare.<sup>56</sup> Consistent with the Commission’s statutory mandate, the fundamental goal that has guided its policies regarding mobile spectrum holdings has been the preservation and promotion of competition, which in turn, enables consumers to make choices among numerous service providers and leads to lower prices, improved quality, and increased innovation.<sup>57</sup>

18. Since the Commission’s last comprehensive review of its mobile spectrum holdings policies more than a decade ago, the marketplace for mobile wireless services has evolved significantly – both in consumer demand for services and market structure – as has the role of low-band spectrum for coverage purposes and high-band spectrum for capacity purposes in the deployment of providers’ networks. As late as 2001, as the Commission recognized in the *CMRS Cap Sunset Order*, consumers primarily demanded reliable mobile voice services; today consumers demand access to high-quality mobile broadband services at myriad locations at any time of day, and for extended periods of use – “anywhere, anytime.” As providers deploy next-generation mobile networks, the engineering properties and deployment capabilities of the mix of particular spectrum bands in providers’ holdings have become increasingly important,<sup>58</sup> particularly as multi-band phones allow users to take advantage of the different properties of different spectrum bands. Moreover, while the mobile wireless marketplace a decade ago consisted of six near-nationwide providers and a substantial number of regional and small providers, since then, there has been a significant degree of consolidation resulting in a market with four nationwide providers and a smaller number of regional and more local service providers.

19. Reflecting this evolution in the mobile wireless marketplace, the Commission, in recent years, has considered in more detail the technical distinctions among spectrum bands used to deploy next-generation mobile networks. These considerations largely have been undertaken in the context of our

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<sup>55</sup> See 47 U.S.C. § 309(j)(3)(B); see also *supra* note 2 (listing statutory duties and powers of the Commission). We observe that Section 309(j)(3)(B) is broader than a standard antitrust review and is forward-looking, requiring the Commission to proactively guard against factors that potentially could harm consumers in the future. See 47 U.S.C. § 309(j)(3)(B). See generally H.R. REP. 103-111, 1993 WL 181528 at \*254 (1993) (cautioning the Commission against applying “any particular antitrust test in order to avoid concentration of licenses” and encouraging the Commission to adopt a “common sense” approach in exercising its duty to avoid excessive concentration of licenses).

<sup>56</sup> See, e.g., *AT&T WCS Order*, 27 FCC Rcd at 16467 ¶ 20; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10716 ¶ 48; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17601-02 ¶ 30.

<sup>57</sup> See generally *supra* Section II.B. (listing the benefits of competition that followed the Commission’s implementation of various spectrum holding policies). Our public interest evaluation necessarily encompasses the “broad aims of the Communications Act,” which include, among other things, a deeply rooted preference for preserving and enhancing competition in relevant markets, accelerating private sector deployment of advanced services, and generally managing the spectrum in the public interest. See, e.g., *AT&T WCS Order*, 27 FCC Rcd at 16464 ¶ 11; *AT&T-Centennial Order*, 24 FCC Rcd at 13928 ¶ 28; *Verizon Wireless-ALLTEL Order*, 23 FCC Rcd at 17461 ¶ 27; *Sprint-Clearwire Order*, 23 FCC Rcd at 17580 ¶ 20.

<sup>58</sup> See Letter from Trey Hanbury, Hogan Lovells, Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 1, 2014, Attachment Declaration of Mark McDiarmid, Vice President of Radio Network Engineering and Development at T-Mobile, filed Apr. 1, 2014 at ¶ 9 (“T-Mobile Apr. 1, 2014 *Ex Parte*”) (“McDiarmid Decl.”); see also *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd at 3789 ¶ 119 (“Spectrum bands vary in their propagation characteristics, and service providers may make use of different bands depending on the nature of the service, geography, density, or other factors in their network build-out.”).

Annual Mobile Wireless Competition Reports, as well as our case-by-case analysis of transactions.<sup>59</sup> Commenters have argued that we should address these issues in a rulemaking to provide increased clarity and certainty.<sup>60</sup> We agree. Accordingly, we adopt mobile spectrum holdings policies in this rulemaking that address how the differences among spectrum bands may affect our overall competitive analysis of spectrum acquisitions and therefore our decision making for both auctions and secondary market transactions.

20. In adopting these policies, we are mindful that the statutory framework established by Congress for mobile wireless services and implemented by the Commission,<sup>61</sup> with its reliance on competition as the primary driver of consumer benefits, has fostered substantial economic growth and consumer benefits for our nation. Among other goals, Congress has directed us as well to promote the “efficient and intensive use of the electromagnetic spectrum” and avoid an “excessive concentration of licenses” in the design of systems of competitive bidding, as well as to review transactions to ensure that they serve the public interest.<sup>62</sup>

21. Consistent with the evolution of the marketplace and the Commission’s statutory directives and policy goals, and in light of the evolution of wireless services demanded by consumers, we must ensure that multiple service providers have access to spectrum in the foreseeable future. Existing marketplace conditions, including concerns about the potential for anticompetitive behavior, inform our predictive judgment but are not determinative as to whether we need to act. For the reasons stated below, the mobile spectrum holdings policies we adopt today are necessary to preserve and promote consumer choice and competition among multiple service providers, promote the efficient and intensive use of spectrum, maximize economic opportunity, and foster the deployment of innovative technologies.

#### **B. Evolution of the Mobile Wireless Marketplace**

22. Starting in the early 1990s, digital technologies were deployed in the wireless marketplace that were more efficient and offered improved service quality over the existing analog technologies deployed in the cellular bands at the time.<sup>63</sup> These improvements in operating efficiency and quality, combined with the presence of new entrants and lower prices, facilitated the growth and development of a more competitive mobile wireless marketplace, with increased investment, innovation, and network expansion by both new entrants and existing service providers.<sup>64</sup> By 1998, for example, 87 percent of the U.S. population was covered by three or more mobile wireless providers, and 54 percent by five or more providers.<sup>65</sup> Cumulative investment in the industry more than tripled from \$19 billion to

<sup>59</sup> See generally *14<sup>th</sup> Mobile Wireless Competition Report*, 25 FCC Rcd 11407, ¶¶ 268-83; *15<sup>th</sup> Mobile Wireless Competition Report*, 26 FCC Rcd 9664, ¶¶ 289-307; *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd 3700, ¶¶ 119-35.

<sup>60</sup> See, e.g., CTIA Comments at 6; CCIA Comments at 2; Verizon Wireless Comments at 1.

<sup>61</sup> See *supra* note 2 (listing the statutory duties and powers of the Commission).

<sup>62</sup> See 47 U.S.C. § 309(j)(3)(B); 47 U.S.C. § 309(j)(3)(D); 47 U.S.C. § 303(b); 47 U.S.C. § 303(r); 47 U.S.C. § 310.

<sup>63</sup> The Broadband PCS A and B block licenses were assigned on the basis of 51 Major Trading Areas (“MTAs”) and the Broadband PCS C through F block licenses were assigned on the basis of 493 Basic Trading Areas (BTAs). In the United States, these bands are not tied to specific technologies, so providers can choose which network technologies to deploy on which bands. See *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd at 3960 App. A, ¶ 1; *Spectrum Act* at § 6401(b) (requiring the Commission to allocate certain spectrum for commercial use and to assign new initial licenses for its use subject to flexible use service rules within three years of enactment).

<sup>64</sup> See *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd at 3774 ¶ 94; see also *Ex Parte* Submission of the United States Department of Justice, FCC, GN Dkt. No. 09-51, filed Jan. 4, 2010, at 17 (“*DOJ Broadband Plan Comment*”) (“As a result of this new entry, mobile wireless users saw a substantial increase in the variety of pricing plans, lower per-minute prices, the introduction of newer generations of technology, and new features and functionality (texting, Internet access, smartphones).”).

<sup>65</sup> See *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd at 3774 ¶ 94.

more than \$70 billion from 1994 to 2000, and for the same time period the number of cell sites more than quadrupled, from 18,000 to more than 80,000.<sup>66</sup> Further, marketplace dynamics continued to evolve, with multiple providers of wireless services offering new pricing plans, and smaller and more powerful handsets, thus facilitating the mass-market acceptance of mobile wireless services.<sup>67</sup>

23. During the past decade, provider supply and consumer demand for wireless services has exploded, with the industry focus changing from the provision of mobile voice services to the provision of mobile broadband services. The rapid adoption of smartphones, as well as tablet computers and the widespread use of mobile applications, combined with the increasing deployment of high-speed 3G and now 4G technologies, is driving significantly more intensive use of mobile networks. In 2013, a single smartphone generated 48 times more mobile data traffic than a feature phone, and average smartphone usage grew 50 percent in 2013.<sup>68</sup> The adoption of smartphones increased from 27 percent to 54 percent of U.S. subscribers from December 2010 to December 2012.<sup>69</sup> In addition, global mobile data traffic grew 81 percent in 2013, and is anticipated to grow eleven-fold between 2013 and 2018.<sup>70</sup> Moreover, the percentage of adults and children living in wireless-only households has increased from approximately three percent in 2003 to approximately 38 percent (adults) and 45 percent (children) by June 2013.<sup>71</sup> Consequently, service providers generally need access to more spectrum to meet the increasing demand for mobile broadband, which consumes far greater amounts of bandwidth than did mobile phones just a short time ago.<sup>72</sup> Indeed, a 2012 study by the Council of Economic Advisors found that “the spectrum currently allocated to wireless is not sufficient to handle the projected growth in demand, even with technological improvements allowing for more efficient use of existing spectrum and significant investment in new facilities.”<sup>73</sup>

24. The wireless industry has also undergone significant consolidation during the past decade. In 2003, at the sunset of the spectrum cap, there were six facilities-based wireless service providers that analysts then described as nationwide: AT&T Wireless, Sprint PCS, Verizon Wireless, T-Mobile, Cingular Wireless, and Nextel.<sup>74</sup> Since that time, the number of nationwide facilities-based wireless service providers has decreased by a third from six to four – Verizon Wireless, AT&T, Sprint,

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<sup>66</sup> *See id.*

<sup>67</sup> *See id.*

<sup>68</sup> Average smartphone usage increased to 529 MB per month in 2013 from 353 MB per month in 2012). *See* Cisco White Paper, Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2013-2018, Executive Summary, Feb. 2014, *available at* [http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white\\_paper\\_c11-520862.pdf](http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.pdf).

<sup>69</sup> *See* comScore 2013 Mobile Future in Focus (2013), *available at* [http://www.comscore.com/Insights/Presentations\\_and\\_Whitepapers/2013/2013\\_Mobile\\_Future\\_in\\_Focus](http://www.comscore.com/Insights/Presentations_and_Whitepapers/2013/2013_Mobile_Future_in_Focus).

<sup>70</sup> *See* Cisco White Paper, Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2013-2018, Executive Summary, Feb. 2014, *available at* [http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white\\_paper\\_c11-520862.pdf](http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.pdf).

<sup>71</sup> *See* Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, January-June 2013, Center for Disease Control, released December, 2013, *available at* <http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201312.pdf>.

<sup>72</sup> *See* Connecting America: The National Broadband Plan at 77 (Mar. 16, 2010) *available at* <http://www.broadband.gov/plan/>.

<sup>73</sup> Council of Economic Advisors, The Economic Benefits of New Spectrum for Wireless Broadband at 5 (Feb. 2012), *available at* [http://www.whitehouse.gov/sites/default/files/cea\\_spectrum\\_report\\_2-21-2012.pdf](http://www.whitehouse.gov/sites/default/files/cea_spectrum_report_2-21-2012.pdf).

<sup>74</sup> *See* Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, WT Dkt. No. 04-111, *Ninth Report*, 19 FCC Rcd 20597, 20613 ¶ 36 (2004) (“*9<sup>th</sup> Annual CMRS Competition Report*”).

and T-Mobile.<sup>75</sup> In addition, there have been several significant spectrum-only transactions, such as *AT&T-Qualcomm* (2011),<sup>76</sup> *Verizon Wireless-SpectrumCo* (2012),<sup>77</sup> and *AT&T WCS* (2012),<sup>78</sup> that have resulted in increased spectrum aggregation among the remaining providers.

25. Concentration in the market share of the major providers has also increased during that time period. As of December 2003, the top six facilities-based nationwide providers accounted for approximately 79 percent of total mobile wireless subscribers in the country.<sup>79</sup> By December 2013, the top four facilities-based nationwide providers had increased their combined market share to 97 percent of all subscribers.<sup>80</sup> Moreover, Verizon Wireless and AT&T together accounted for 68 percent of the nation's subscribers as of year-end 2013, compared to 51 percent in 2004.<sup>81</sup> Some regional and local service providers have achieved significant market shares within particular local markets, often the most rural markets, but they typically rely on roaming agreements with nationwide facilities-based providers to extend the geographic reach of their networks.

26. The Commission has “ample latitude to adapt its rules and policies to the demands of changing circumstances.”<sup>82</sup> In light of these trends and current spectrum aggregations, we must examine whether changes in our mobile spectrum holdings policies are necessary to facilitate the robust competition that leads to lower prices, improved quality, and greater innovation. To provide this expanded range of services, all providers must have the opportunity for access to significantly more spectrum in order to preserve and promote competition in the marketplace. The benefits of competition among wireless providers in the past have been amply documented in our annual wireless competition reports. For example, in recent years, service providers have offered various pricing plans, ranging from tiered usage-based data pricing with overage charges (Verizon Wireless, AT&T) to unlimited data pricing (Sprint), and in 2012, both Verizon Wireless and AT&T launched shared data plans for smartphones and other mobile data devices, and T-Mobile reintroduced an unlimited smartphone data pricing option.<sup>83</sup>

### C. Ensuring that All Americans Benefit from Mobile Wireless Competition

27. The record in this proceeding addresses multiple aspects of competition in the mobile wireless marketplace, as well as potential effects on consumers. We consider this record in light of our statutory mandate, which includes promoting the “efficient and intensive use of the electromagnetic spectrum” and avoiding an “excessive concentration of licenses” in the design of systems of competitive bidding, as well as in our secondary market transaction reviews.<sup>84</sup> Based upon the record before us, we

<sup>75</sup> See *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd 3736-37 ¶ 26.

<sup>76</sup> *AT&T-Qualcomm Order*, 26 FCC Rcd 17589.

<sup>77</sup> *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd 10698.

<sup>78</sup> *AT&T WCS Order*, 27 FCC Rcd 16459.

<sup>79</sup> See *9<sup>th</sup> Annual CMRS Competition Report*, 19 FCC Rcd at 20697 ¶ 74, A-2, Table 1, A-8, Table 4.

<sup>80</sup> See UBS Investment Research, *US Wireless 411: Version 51*, Mar. 18, 2014, Figure 21 at 14.

<sup>81</sup> See UBS Investment Research, *US Wireless 411: Version 51*, Mar. 18, 2014, Figure 21 at 14; *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless*, WT Dkt. No. 05-71, *Tenth Report*, 20 FCC Rcd 15908, 15993 Table 1, Table 4 (2005).

<sup>82</sup> *Agape Church, Inc. v. FCC*, 738 F.3d 397, 408 (D.C. Cir. 2013) (quoting *Rust v. Sullivan*, 500 U.S. 173, 186-87 (1991)).

<sup>83</sup> See *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd 3797 ¶ 138. Further, prepaid service providers, Leap (now merged with AT&T) and MetroPCS (now merged with T-Mobile), recently added new prepaid service offerings, including additional handsets to their line-ups, and new higher-tier pricing plans. *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd at 3810 ¶ 159.

<sup>84</sup> See 47 U.S.C. § 309(j)(3)(B); 47 U.S.C. § 309(j)(3)(D); 47 U.S.C. § 310.

find that the spectrum aggregation limits we adopt today are needed to advance our statutory objectives under Section 309(j), to promote competition, and to avoid competitive harms.<sup>85</sup>

28. The Commission's competition-related decision making is designed to advance the public interest by preserving and promoting competition that benefits consumers.<sup>86</sup> Specific competitors may prefer one proposed policy to another, but the Commission must consider the totality of the circumstances and choose policies that are most likely to allow competition to flourish for the public benefit. Accordingly, we recognize the important tradeoffs in the policy decision at hand.<sup>87</sup> Policies that would limit the ability of major providers to acquire additional spectrum licenses may limit their ability to provide new services or serve new customers. At the same time, policies that would allow these service providers to acquire all or substantially all of the spectrum licenses to be auctioned in the near future, particularly spectrum licenses being auctioned in the Incentive Auction, or that would allow further concentration in below-1-GHz spectrum in secondary market transactions without enhanced scrutiny, would raise significant competitive issues.

29. The Commission has examined these tradeoffs as part of its wholesale review of its spectrum aggregation policies.<sup>88</sup> In 2001, prior to the explosive growth in demand for wireless broadband and the increase in concentration among wireless providers described above, the Commission "recognize[d] the possibility that significant additional consolidation of control over spectrum could have serious anticompetitive effects."<sup>89</sup> In the course of our current review, several parties, including the Antitrust Division of the Department of Justice ("DOJ"), have expressed specific concerns about potential threats to competition in the mobile wireless marketplace, and in particular, the need for access to spectrum as a critical factor to ensure competition in the future.<sup>90</sup> Based upon current marketplace conditions, DOJ concludes that mobile wireless providers possess "the ability and, in some cases, the incentive to exercise at least some degree of market power, particularly given that there is already significant nationwide concentration in the wireless industry."<sup>91</sup> DOJ therefore recommends that "the Commission should consider the potential that the acquisition of specific blocks of spectrum may have to foreclose or raise the costs of competitors in its policies on spectrum acquisition."<sup>92</sup>

30. Other commenters have argued that the Commission's spectrum policy should focus only on addressing specific risks to competition in the downstream mobile wireless services marketplace, and that absent such risks, any limitations on successful providers' ability to gain access to spectrum will limit innovation, reduce efficiency, and ultimately harm consumers.<sup>93</sup> For example, Verizon Wireless argues that "[t]he goal of a spectrum aggregation policy with respect to competition is to ensure that aggregation

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<sup>85</sup> See *Melcher v. FCC*, 134 F.3d 1143, 1151 (D.C. Cir. 1998).

<sup>86</sup> See 47 U.S.C. 309(j).

<sup>87</sup> For a description of the tradeoff between policies that limit what the largest providers can acquire at auction and policies that apply no such limits, including a discussion of policies adopted in other countries, see Peter Cramton, Evan Kwerel, Gregory Rosston, Andrzej Skrzypacz, "Using Spectrum Auctions to Enhance Competition in Wireless Services," 54 J. L. & Econ S167 (2011); see also Klemperer, Paul (2004) *Auctions: Theory and Practice*. Princeton, N.J.: Princeton University Press.

<sup>88</sup> See *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11751 ¶ 42.

<sup>89</sup> *CMRS Cap Sunset Order*, 16 FCC Rcd at 22696 ¶ 55.

<sup>90</sup> See *Ex Parte* Submission of the United States Department of Justice, WT Dkt. No. 12-269, filed Apr. 11, 2013 at 8 ("DOJ Apr. 11, 2013 *Ex Parte*").

<sup>91</sup> *Id.*

<sup>92</sup> *Id.* at 11.

<sup>93</sup> See AT&T Comments, Attachment A, Mark A. Israel and Michael L. Katz, *Economic Analysis of Public Policy Regarding Mobile Spectrum Holdings*, at ¶¶ 5-7 ("Katz & Israel Decl.").



does not reach a level at which competitors are unable to expand output enough to provide a competitive constraint on other carriers.”<sup>94</sup> Similarly, AT&T contends that competition provides a strong discipline on the market, and that intervention by the Commission should focus on correcting marketplace failures.<sup>95</sup>

31. *Advantages of Different Types of Spectrum Holdings.* Commenters in this proceeding consistently recognize that different frequencies possess different characteristics for the provision of mobile wireless services.<sup>96</sup> Their agreement on the fundamentals of spectrum notwithstanding, commenters draw highly divergent policy conclusions from these differences.<sup>97</sup>

32. The Massachusetts Department of Telecommunications and Cable, CCA, Rural Wireless Association (“RWA”, formerly Rural Telecommunications Group), Sprint, and T-Mobile maintain that low-band spectrum provides superior coverage over larger geographic areas.<sup>98</sup> In addition, DOJ concludes that low-band spectrum has superior propagation through adverse climates and terrains, and through walls of buildings, compared to high-band spectrum.<sup>99</sup> As a result, DOJ, CCA, T-Mobile, Sprint, Bluegrass Cellular, NTCA, CellCom, NTELOS, RWA, the Rural Broadband Policy Group, Utilities Telecom Council, the Massachusetts Department of Telecommunications and Cable and an AGCO-led consortium of 26 rural stakeholders in health, education, banking, manufacturing, agriculture and other sectors argue that low-band spectrum is better suited for in-building penetration and building out wireless

<sup>94</sup> Verizon Wireless Reply, Exhibit 1, Reply Declaration of Allan L. Shampine, Ph.D., at ¶ 19 (“Shampine Decl.”).

<sup>95</sup> See AT&T Comments, Katz & Israel Decl. at ¶¶ 14-15.

<sup>96</sup> See, e.g., AT&T Comments at 10; Verizon Wireless Comments at 29; Sprint Comments at 7; T-Mobile Comments at 14.

<sup>97</sup> See Letter from David L. Lawson, Sidley Austin LLP, Counsel for AT&T, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed June 13, 2013 (“AT&T June 13, 2013 *Ex Parte*”); Attachment 2, Michael L. Katz, Philip A. Haile, Mark A. Israel, and Andres V. Lerner, *Comments on Appropriate Spectrum Aggregation Policy with Application to the Upcoming 600 MHz Auction*, at 2 (June 13, 2013) (“Katz, Haile, Israel & Lerner Supp. Reply Decl.”); Verizon Wireless Reply, Shampine Reply Decl. at ¶ 5; Verizon Reply Comments, Exhibit 2, Declaration of William H. Stone, Executive Director of Network Strategy, Verizon, at ¶ 4 (“Stone Decl.”); Letter from Mintz Levin Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, Dkt. No. WT 12-269, filed Mar. 12, 2013 (“T-Mobile Mar. 12, 2013 *Ex Parte*”), Attachment, Jonathan B. Baker, *Spectrum Auction Rules That Foster Mobile Wireless Competition* (Mar. 12, 2013) at 14-15 (“Baker Mar. 2013”); Letter from David L. Lawson, Sidley Austin LLP, Counsel for AT&T, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Mar. 14, 2014 (“AT&T Mar. 14, 2014 *Ex Parte*”), Attachment 2, Jeffrey H. Reed and Nishith D. Tripathi, *The Value of Spectrum A Response to Dr. Kostas Liopoulos’ Paper* (Mar. 13, 2013) at 2-3 (“Reed & Tripathi 2014”) (describing some favorable technical characteristics of high-band spectrum); DOJ Apr. 11, 2013 *Ex Parte* at 1, 12-13. See also CCA Comments at 11 (“Spectrum below 1 GHz is an especially critical input for new entrants.”); CCIA Comments at 15 (“Unlike carriers with high-frequency spectrum, carriers with low-frequency spectrum do not have to build a dense and costly coverage network from day one. Instead, carriers with low-frequency spectrum can limit their economic overhead, deploy a thin coverage network when traffic is low, and then increase capacity on an incremental and planned basis as customer traffic approaches the limit of the initial coverage build.”); Free Press at 2 (asserting that providers require a mix of spectrum to provide cost-effective service); Mobile Future Comments at 13 (contending that no band is always superior – nor inferior – to others and that network operators make business decisions regarding which spectrum bands to use based on a mix and match of technical requirements and purposes).

<sup>98</sup> See Letter from Bob Ferguson, Attorney General of Washington, to Tom Wheeler, Chairman, FCC, WT Dkt. 12-269, filed Feb. 4, 2014, at 2 (“Atty. Gen. of WA Feb 4, 2014 *Ex Parte*”); *Ex Parte* Submission of the Massachusetts Department of Telecommunications and Cable Concerning 600 MHz Incentive Auction, WT Dkt. No. 12-269, filed Mar. 28, 2014 at 6 (“MA DOT Mar. 28, 2014 *Ex Parte*”); CCA Comments at 7; Letter from Caressa D. Bennet, General Counsel, RWA, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 10, 2014 at 2 (“RWA Apr. 10, 2014 *Ex Parte*”); Sprint Comments at 7; T-Mobile Comments at 14-15.

<sup>99</sup> See DOJ Apr. 11, 2013 *Ex Parte* at 13.

systems, particularly in rural areas, which are less densely populated.<sup>100</sup> Indeed, the Attorney General of Washington State argues, “low-frequency spectrum is especially important for wireless access and coverage in buildings and rural areas.”<sup>101</sup> Similarly, RWA argues, “Low-band spectrum has inherent technological superiority for providing coverage in rural markets,” and that, “[L]ow band spectrum is a more cost-effective and operationally efficient medium to deliver wireless broadband to rural consumers when compared to higher frequency spectrum.”<sup>102</sup> NTCA argues that, “Spectrum below 1 GHz allows for better coverage across large geographic areas and is inherently technically superior to spectrum above 1 GHz. . . . Rural areas simply lack the population density to support the multiple towers necessary to offer a reasonable wireless product using high-band spectrum.”<sup>103</sup> Further, NTELOS argues that “there are certain advantages that low-band spectrum provide that cannot be easily replicated by other technological means.”<sup>104</sup> Likewise, CCA argues that “‘work-around’ technologies such as small cells are not an adequate replacement for low-band spectrum and, in many cases, simply are not feasible, especially in areas that are less densely populated.”<sup>105</sup>

33. According to a number of parties, network build-out costs associated with low-band spectrum are often significantly less than for high-band spectrum.<sup>106</sup> Professor Jon M. Peha argues that while issues such as wireless backhaul and femtocell hotspots will be important for cellular systems in the foreseeable future, “it is access to spectrum for wide-area coverage that is likely to be in shortest supply for a carrier that wants to compete in a given market.”<sup>107</sup> Similarly, Sprint argues that “[a] carrier’s ‘particular mix’ of spectrum has a direct and substantial effect on its costs to deploy and operate a network – which in turn critically influences its ability to ‘swiftly and efficiently’ provide a new service or expand service in response to a competitor’s attempted exercise of market power.”<sup>108</sup> Sprint further

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<sup>100</sup> See *id.* at 12; Letter from Steven K. Berry, President and CEO, CCA, WT Dkt. No. 12-269, to Marlene H. Dortch, Secretary, FCC, filed Apr. 9, 2014 at 2 (“CCA Apr. 9, 2014 *Ex Parte*”); T-Mobile Reply at 10; Sprint Comments at 3; Letter from Ron Smith, President, Bluegrass Cellular, Inc., to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 10, 2014 (“Bluegrass Cellular Apr. 10, 2014 *Ex Parte*”); Letter from Jill Canfield, Assistant General Counsel, NTCA, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 10, 2014 (“NTCA Apr. 10, 2014 *Ex Parte*”); Letter from New-Cell, Inc. d/b/a Cellcom, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 11, 2014 (“New-Cell Apr. 11, 2014 *Ex Parte*”); Letter from James A. Hyde, President, NTELOS, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 10, 2014 (“NTELOS Apr. 10, 2014 *Ex Parte*”); RWA Apr. 10, 2014 *Ex Parte*; Letter from Edyael Casaperalta, Coordinator, Rural Broadband Group, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 23, 2014 (“RBG Apr. 10, 2014 *Ex Parte*”); MA DOT Mar. 28, 2014 *Ex Parte* at 6; Letter from David G. Webster, AGCO Corp., et al., to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 23, 2014 (“AGCO Apr. 23, 2014 *Ex Parte*”).

<sup>101</sup> Atty. Gen. of WA Feb. 4, 2014 *Ex Parte* at 2.

<sup>102</sup> RWA Apr. 10, 2014 *Ex Parte* at 2-3.

<sup>103</sup> NTCA Apr. 10, 2014 *Ex Parte* at 2-3.

<sup>104</sup> NTELOS Apr. 10, 2014 *Ex Parte* at 2.

<sup>105</sup> CCA Apr. 9, 2014 *Ex Parte* at 2.

<sup>106</sup> See AT&T June 13, 2013 *Ex Parte*, Katz, Haile, Israel & Lerner Supp. Reply Decl. at ¶¶ 2, 42; Verizon Wireless Reply, Stone Decl. at ¶ 7 (“Spectrum below 1 GHz has greater propagation capabilities and therefore, may require less infrastructure to deploy. Undeniably, in rural areas, where wireless network is not capacity limited, low-band spectrum systems, would be more economical.”); Jon M. Peha, *Bringing Weight to the Spectrum Screen: A Response to AT&T (revised)*, WT Dkt. No. 12-269, filed Apr. 3, 2013 at 4 (“Peha Supp. Decl.”); T-Mobile Mar. 12, 2013 *Ex Parte*, Baker Mar. 2013 at 15; CCIA Comments at 15.

<sup>107</sup> Peha Comments at 4.

<sup>108</sup> Letter from Lawrence R. Krevor, Vice President, Sprint, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Feb. 11, 2014 at 11 (“Sprint Feb. 11, 2014 *Ex Parte*”); see also Letter from Lawrence R. Krevor, Vice President, Sprint, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed April 7, 2014 at 5-14 (“Sprint

(continued....)

argues that this mix, and in particular the benefits that accrue to holding low-band spectrum, “significantly affect the non-price rivalry between carriers, most prominently seen in the differences in coverage and in-building penetration facilitated by low-band spectrum.”<sup>109</sup> Similarly, T-Mobile provides an analysis by its chief engineer, who explains that low-band spectrum confers significant technical advantages as compared to higher frequency bands,<sup>110</sup> and that as a result, “operating exclusively with higher-frequency spectrum requires disproportionately large capital expenditures (CAPEX).”<sup>111</sup>

34. Commenters also point out that high-band spectrum offers its own distinct advantages in certain situations. For example, as Sprint observes, high-band spectrum is better suited to increasing network capacity, as opposed to coverage, in highly populated urban areas, where mobile wireless demand tends to be more concentrated.<sup>112</sup> In addition, an engineering analysis submitted by AT&T contends that higher frequencies pose fewer challenges related to intercell interference, and that the large, contiguous blocks of spectrum more typically found in the higher frequencies allow for more-efficient deployment of advanced technologies, such as Long Term Evolution (“LTE”) and Multiple Input Multiple Output (“MIMO”) systems.<sup>113</sup> The AT&T analysis argues that, “MIMO performance would generally be better at a higher band than at a lower band, which would tend to increase the value of high-band spectrum relative to low-band spectrum in a multipath-rich environment.”<sup>114</sup>

35. Commenters disagree on the competitive significance of low- and high-band spectrum holdings. DOJ expresses concern that because of the superior propagation characteristics of low-band spectrum, a service provider’s holdings of such spectrum may be an important factor in determining its “ability to compete in offering coverage across a broad service area, including its ability to provide coverage efficiently in rural areas.”<sup>115</sup> DOJ also recognizes the value of such spectrum for providing service with superior in-building penetration.<sup>116</sup> T-Mobile argues that the different characteristics of low- and high-band spectrum bands make them complements in providing mobile wireless services, and that, given the unique advantages of low-band spectrum for build-out, a service provider with only or primarily high-band spectrum may be forced to engage in “targeted services” in which it will offer lower-quality services with less coverage.<sup>117</sup> Sprint, in its recent filing, also argues that, for purposes of determining the relative utility of different spectrum bands for mobile broadband deployment, the Commission should

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Apr. 7, 2014 *Ex Parte*)” (arguing that higher frequency bands have significantly higher overall development costs) (Letter dated Apr. 4, 2014).

<sup>109</sup> Sprint Feb. 11, 2014 *Ex Parte* at 11-12.

<sup>110</sup> See Letter from Trey Hanbury, Counsel to T-Mobile USA, Inc., to Marlene H. Dortch, Secretary, FCC, WT Dkt. No 12-269, filed April 1, 2014 at 8-20 (“T-Mobile Apr. 1, 2014 *Ex Parte*”).

<sup>111</sup> T-Mobile Apr. 1, 2014 *Ex Parte* at 20.

<sup>112</sup> See Sprint Feb. 11, 2014 *Ex Parte* at 19 (“The propagation characteristics of higher-frequency spectrum also offer certain competitive advantages in specific circumstances. The greater attenuation of these signals permits greater frequency re-use, allowing more cell-splitting in very dense urban areas producing greater capacity for more customers in a small area.”).

<sup>113</sup> See AT&T Reply, Attachment A, Jeffrey H. Reed and Nishith D. Tripathi, *The Value of Spectrum A Response to Professor Jon M. Peha’s Paper* (Jan. 7, 2013) at 7-10 (“Reed & Tripathi Jan. 2013”).

<sup>114</sup> AT&T Reply, Reed & Tripathi Jan. 2013 at 10.

<sup>115</sup> DOJ Apr. 11, 2013 *Ex Parte* at 13-14.

<sup>116</sup> See *id.* at 13.

<sup>117</sup> T-Mobile Mar. 12, 2013 *Ex Parte*, Baker Mar. 2013 at 17.

group spectrum bands into three different segments – below-1-GHz, 1-2.2 GHz, and 2.3-2.7 GHz – that can be differentiated based on physical and economic characteristics.<sup>118</sup>

36. In contrast, AT&T and Verizon Wireless both argue that a provider with spectrum deemed suitable by the Commission for mobile service can compete effectively regardless of which spectrum it holds.<sup>119</sup> Further, AT&T and Verizon Wireless assert that the market price of spectrum will reflect the fact that higher-frequency spectrum costs more to build out, thus compensating for whatever competitive advantages one band might have over another.<sup>120</sup> In response to DOJ’s concern that superior propagation of low-band spectrum may be an important factor in determining competition, AT&T argues that “no simple rule can account for all factors that may be important in conducting a public-interest assessment of a proposed transaction.”<sup>121</sup> AT&T and Verizon Wireless also maintain that although high-band spectrum may require more build-out of cell sites than low-band spectrum to provide equivalent coverage, current marketplace conditions cannot justify differential treatment of low-band spectrum.<sup>122</sup>

37. In separate *ex parte* presentations, both Sprint and T-Mobile present objections to the argument that providers without access to the low-band spectrum may compete effectively by acquiring high-band spectrum at lower costs, and then tailoring their network deployments accordingly. Sprint argues that “even where low-band and high-band deployment can be said to ‘cover’ the same area, the quality of coverage is not the same. Customers using the low-band spectrum receive significantly better coverage in coffee shops, apartment buildings, and in residential basements – the type of indoor nomadic use that comprises an increasing percentage of overall mobile usage.”<sup>123</sup> According to a declaration by T-Mobile’s chief engineer, the use of higher frequency spectrum presents engineering and economic challenges that this provider would not face had it also been able to incorporate low frequency spectrum in the provision of its services.<sup>124</sup> The T-Mobile declaration maintains that “a dearth of low-band spectrum imposes constraints on the ability of a wireless carrier to cost-effectively serve customers across multiple operating environments” and that **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]** “the more balanced mix of lower-and higher-band spectrum that the two dominant carriers enjoy today.”<sup>125</sup>

38. As support for its conclusions, the T-Mobile declaration shares findings from studies utilizing the network planning methodologies the provider uses in building its network of how it could deploy 700 MHz Band spectrum recently acquired from Verizon Wireless.<sup>126</sup> T-Mobile reports that the

<sup>118</sup> See Letter from Lawrence R. Krevor, Vice President, Sprint Corporation, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 5, 2014 (“Sprint May 5, 2015 *Ex Parte*”), Attachment, Differences Between Frequencies Do Not End at 1 GHz: the Screen Must Account for Differences Between Mid- and High-Band Spectrum, WT Dkt. No. 12-269 (“Sprint Frequency Differences May 2014”).

<sup>119</sup> See AT&T Comments at 36, 46; Verizon Wireless Comments at 4.

<sup>120</sup> See AT&T and Verizon Wireless argue that the differences in build-out costs between high-band and low-band spectrum will generally be reflected in different prices for spectrum and that the total cost of expansion using different spectrum bands tends to be equal. See AT&T Comments, Katz & Israel Decl. at 92; AT&T Reply, Reed & Tripathi Jan. 2013 at ¶ 22; AT&T June 13, 2013 *Ex Parte*, Katz, Haile, Israel & Lerner June 2013 at ¶¶ 5, 30, 42; see also CLIP Comments at 13.

<sup>121</sup> AT&T June 13, 2013 *Ex Parte*, Attachment 1, Michael L. Katz, Philip A. Haile, Mark A. Israel, and Andres V. Lerner, *Comment on the Submission of the U.S. Department of Justice Regarding Auction Participation Restrictions*, at 7 (June 13, 2013) (“Katz, Haile, Israel & Lerner Supp. Reply Decl.”).

<sup>122</sup> See generally AT&T June 13, 2013 *Ex Parte*, Katz, Haile, Israel & Lerner Supp. Reply Decl. at 42.

<sup>123</sup> Sprint Apr. 7, 2014 *Ex Parte* at 13.

<sup>124</sup> See T-Mobile Apr. 1, 2014 *Ex Parte*, McDiarmid Decl. at 5, 12-13.

<sup>125</sup> *Id.* at 3, 5.

<sup>126</sup> See *id.* at 9-13.

studies showed improvements in its “in-building residential coverage, where low-band spectrum allowed us to move from a baseline of [BEGIN HIGHLY CONFIDENTIAL] [END HIGHLY CONFIDENTIAL] in the urban core, and from [BEGIN HIGHLY CONFIDENTIAL]

[END HIGHLY CONFIDENTIAL] across the economic area, even as we quadrupled our targeted in-building signal strength and cut the number of base stations nearly in half compared to the total number of AWS base stations deployed.”<sup>127</sup> T-Mobile’s declaration further explains that other means to improve its indoor coverage, such as small cell technology, are often not cost-effective.<sup>128</sup> Importantly, lack of access to low-band spectrum may directly impact the ability of providers to serve their customers by providing the coverage consumers expect.<sup>129</sup> Indeed, T-Mobile reports that [BEGIN HIGHLY CONFIDENTIAL]

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39. In response to these arguments, AT&T argues that “all providers must deal with penetration loss in steel and reinforced concrete buildings, but high frequency spectrum has the advantage in penetrating such buildings because it is more likely to penetrate windows”; and that Sprint has acknowledged that “the lower the frequency, the more likely it is to lose penetration” through windows.<sup>131</sup> However, CCA states that such cases are the exception rather than the rule and happen in “limited and unusual circumstances – certain types of building materials, sized properly and configured in precisely the right orientation, can allow high-frequency signals to achieve higher in-building penetration than low-band signals” and that AT&T mischaracterizes “the results of numerous studies that have agreed that penetration losses generally increase with increasing frequency.”<sup>132</sup> AT&T also takes issue with claims by both T-Mobile and Sprint that a provider relying on high frequency spectrum must construct many more cell sites. It claims that notwithstanding its use of lower frequency spectrum AT&T has more cell sites than Sprint in each of the top ten CMAs and about 150 more cell sites than T-Mobile in the Dallas-Fort Worth CMA.<sup>133</sup>

40. In addition, Sprint and T-Mobile are joined by the Attorney General of Washington State, the Chairman of the Louisiana Public Service Commission, the Massachusetts Department of Telecom and Cable, RWA, Bluegrass Cellular, and Carolina West Wireless in arguing the propagation characteristics of low-band spectrum make it particularly relevant to policies designed to promote competition in rural areas.<sup>134</sup> Indeed, the Chairman of the Louisiana Public Service Commission argues, “Low-frequency spectrum is especially important for wireless access in rural areas.”<sup>135</sup> In this regard, the Competitive Carriers Association noted that the World Bank, the Organization for Economic Cooperation

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<sup>127</sup> *Id.* at 3.

<sup>128</sup> *See id.* at 14 (“[I]f small cell backhaul is available, and often it is not, the monthly cost is many times more than macrocell backhaul when viewed on the basis of cost per square mile of coverage.”).

<sup>129</sup> *See id.* at 25.

<sup>130</sup> T-Mobile Apr. 1, 2014 *Ex Parte*, McDiarmid Decl. at 4.

<sup>131</sup> Letter from David L. Lawson, Sidley Austin LLP, Counsel for AT&T, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 7, 2014 at 5-6 (“AT&T-Lawson May 7, 2014 *Ex Parte*”) (citing Sprint Apr. 7, 2014 *Ex Parte* at 22-23).

<sup>132</sup> CCA May 12, 2014 *Ex Parte* at 2-3.

<sup>133</sup> *See id.* at 8-10 and Attachment A (Reed-Tripathi Response, The Value of Spectrum: A Further Response to Sprint), at 22-23.

<sup>134</sup> *See* MA DOT Mar. 28, 2014 *Ex Parte* at 6; RWA Apr. 10, 2014 *Ex Parte*; Bluegrass Cellular Apr. 10, 2014 *Ex Parte*; Letter from Slayton Steward, Chief Executive Officer, Carolina West Wireless, Inc., to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 11, 2014.

<sup>135</sup> Letter from Eric F. Skrmetta, Chairman, Louisiana Public Service Commission, filed Jan. 14, 2014 at 1 (“LA PSC Jan 14, 2014 *Ex Parte*”).

and Development (“OECD”), and the International Telecommunications Union (“ITU”) have recognized the significance of low-band spectrum holdings, particularly for promoting rural deployment.<sup>136</sup>

41. *Raising Rivals’ Costs and Foreclosure.* In 2001, while not observing specific evidence of foreclosure by wireless providers of their competitors’ access to spectrum, the Commission nonetheless recognized that “it is at least a threshold possibility that because the supply of suitable spectrum is limited, firms in CMRS markets might choose to overinvest in spectrum in order to deter entry, depending on the costs of doing so.”<sup>137</sup> Various commenters in this proceeding address the potential for harm to consumers as a result of anticompetitive actions by the largest providers in the market, in particular actions related to raising rivals’ costs and foreclosure.<sup>138</sup> In certain situations, a dominant firm may raise rivals’ costs by a variety of means, including input monopolization.<sup>139</sup> As rivals’ costs are raised, the competitiveness of the marketplace is likely to diminish. Foreclosure can occur when competitors have an incentive and ability to acquire an input not only to put it to their own use, but also to withhold it from their rivals.<sup>140</sup> While there is general consensus among commenters that increased concentration of an essential input, in this case, spectrum, could in theory lead to anti-competitive effects in downstream markets,<sup>141</sup> commenters disagree about the relative risk that such strategies would be utilized in today’s wireless marketplace,<sup>142</sup> the costs associated with such a strategy, and whether low-band spectrum is sufficiently distinct from high-band spectrum to form the basis for a successful strategy to raise rivals’ costs or foreclose competition.<sup>143</sup>

<sup>136</sup> See CCA Comments at 28 (citing The World Bank, International Bank for Reconstruction and Development, “Information and Communications for Development 2012: Maximizing Mobile;” OECD, “Laying the Foundation for the Internet Economy: Access to the Internet via a High-Speed Infrastructure;” OECD Digital Economy Paper No. 201 (2012)).

<sup>137</sup> *CMRS Cap Sunset Order*, 16 FCC Rcd at 22691-92 ¶ 44.

<sup>138</sup> See, e.g., Letter from Caressa D. Bennet, General Counsel, RWA, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 9, 2013 (“RWA May 9, 2013 *Ex Parte*”).

<sup>139</sup> See Thomas G. Krattenmaker and Steven C. Salop, “Anticompetitive Exclusion: Raising Rivals’ Costs to Achieve Power over Price,” 96 Yale J.L. 209, 234-238 (1986) (discussing cost increases to competitors that are foreclosed and thus forced to use less-efficient inputs); see also C. Scott Hemphill & Tim Wu, “Parallel Exclusion,” 122 Yale L.J. 1182, 1203-04 (2013) (discussing the anticompetitive effects of “overbuying an input”). See generally Elizabeth Granitz and Benjamin Klein, “Monopolization by Raising Rivals’ Costs: The Standard Oil Case,” 39 J.L. & Econ. I (1996); Steven C. Salop and David T. Scheffman, “Cost-Raising Strategies,” 36 J. Indus. Econ. 19 (1987).

<sup>140</sup> The value of spectrum to a particular provider includes not only revenue from the use of the spectrum (“use value”), but also value from foreclosing rivals’ access to the spectrum (“foreclosure value”). See DOJ Apr. 11, 2013 *Ex Parte* at 10-11; T-Mobile Mar. 12, 2013 *Ex Parte*, Baker Mar. 2013 at 4 n.5. Note that to harm consumer welfare, first, foreclosure must be successful in that either the input (*i.e.* spectrum) is withheld from rivals or the price of it raised such that rivals’ costs are raised to the extent that it has a significant effect on downstream prices. Second, the efficiency gains to the foreclosing firm must be less than the harm to competition such that overall, welfare decreases.

<sup>141</sup> See Letter from Mintz Levin, Counsel for T-Mobile, WT Dkt. No. 12-269, filed Aug. 2, 2013 (“T-Mobile Aug. 2, 2013 *Ex Parte*”), Attachment, Jonathan B. Baker, *Further Comments on Spectrum Auction Rules that Foster Mobile Wireless Competition* (Aug. 2, 2013) (“Baker Aug. 2013”) at 1; AT&T June 13, 2013 *Ex Parte*, Katz, Haile, Israel & Lerner June 2013 at 3-4; T-Mobile Mar. 12., 2013 *Ex Parte*, Baker Mar. 2013 at 3-4.

<sup>142</sup> Compare AT&T Comments, Katz & Israel Decl. at ¶ 27 with DOJ Apr. 11, 2013 *Ex Parte* at 9-12.

<sup>143</sup> See AT&T Reply Comments, Attachment B, Mark A. Israel and Michael L. Katz, *Economic Analysis of Public Policy Regarding Mobile Spectrum Holdings* at ¶¶ 42-55 (“Katz & Israel Reply Decl.”); AT&T Reply, Exhibit B, Reply Declaration of Michael L. Katz, Philip A. Haile, Mark A. Israel, and Andres V. Lerner, Spectrum Aggregation Policy, Spectrum-Holdings-Based Bidding Credits, and Unlicensed Spectrum (Mar. 12, 2013), Dkt. No. 12-268 at 12-14 (“Katz, Haile, Israel & Lerner Reply Decl., Dkt. 12-268”); Sprint Apr. 7, 2014 *Ex Parte* at 1-17; T-Mobile Apr. 1, 2014 *Ex Parte* at 20-25.

42. AT&T and Verizon Wireless argue that while anticompetitive behavior to raise rivals' cost or foreclose competition is theoretically possible, the risk of such action is virtually nonexistent, as marketplace conditions will make it irrational for any firm to pursue such strategies.<sup>144</sup> Specifically, AT&T and Verizon Wireless argue that a firm would have to ensure that no other existing spectrum holder sells or leases spectrum to a potential entrant.<sup>145</sup> Further, they claim that while the costs of such anticompetitive strategies would be borne by a few, the benefits would be enjoyed by all existing providers, thus reducing the pay-off and effectively precluding such strategies from occurring.<sup>146</sup> Finally, AT&T and Verizon Wireless argue that the Commission's build-out requirements would impose additional, preclusive costs on such strategies without requiring as much intervention in the market.<sup>147</sup>

43. In contrast, DOJ expresses concern that larger service providers may possess the incentive and ability to foreclose or raise the costs of smaller service providers by obtaining the spectrum that their smaller rivals or potential rivals need to compete.<sup>148</sup> DOJ remarks that "[i]n a highly concentrated industry with large margins between the price and incremental cost of existing wireless broadband services, the value of keeping spectrum out of competitors' hands could be very high."<sup>149</sup> DOJ explains that "when market power is *not* an issue," it would normally expect the highest use value for new spectrum to come from the highest bidders.<sup>150</sup> Absent compelling evidence that the largest incumbent providers are already using their existing spectrum licenses efficiently and their networks are still capacity-constrained, the highest bidder may be relying on the profits from foreclosure strategy and is not necessarily the bidder that will "generate the greatest benefits to consumers."<sup>151</sup> DOJ concludes that the Commission should "consider the potential that the acquisition of specific blocks of spectrum may have to foreclose or raise the costs of competitors in its policies on spectrum acquisition"<sup>152</sup> and advises that "[t]he Commission's policies, particularly regarding auction of new low-frequency spectrum, can potentially improve the competitive landscape by preventing the leading carriers from foreclosing their rivals from access to low-frequency spectrum."<sup>153</sup> Similarly, T-Mobile suggests that the incentive and ability to foreclose generally would be expected to increase with a firm's market share and with aggregate market concentration,<sup>154</sup> and further, that excessive aggregation of low-band spectrum by large

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<sup>144</sup> See AT&T Comments, Katz & Israel Decl. at ¶¶ 27-32; Verizon Wireless Sept. 18, 2013 *Ex Parte*, Marx Sept. 2013, Dkt. No. 12-268 at ¶¶ 54-58, 65-76.

<sup>145</sup> See AT&T Comments, Katz & Israel Decl. at ¶ 30; Letter from Tamara Preiss, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, Apr. 3, 2014 at 2.

<sup>146</sup> See AT&T Comments, Katz & Israel Decl. at ¶ 31; Verizon Wireless Sept. 18, 2013 *Ex Parte*, Marx Sept. 2013, Dkt. No. 12-268 at ¶¶ 65-66.

<sup>147</sup> See AT&T Comments, Katz & Israel Decl. at ¶ 32; Verizon Wireless Sept. 18, 2013 *Ex Parte*, Marx Sept. 2013, Dkt. No. 12-268 at ¶ 60.

<sup>148</sup> See DOJ Apr. 11, 2013 *Ex Parte* at 10-11 ("[D]ue to the scarcity of spectrum, the Department is concerned that carriers may have incentives to acquire spectrum for purposes other than efficiently expanding their own capacity or services.").

<sup>149</sup> *Id.* at 11.

<sup>150</sup> *Id.* at 10.

<sup>151</sup> *Id.* ("[T]he private value for incumbents in a given locale includes not only the revenue from the use of the spectrum but also any benefits gained by preventing rivals from improving their services and thereby eroding the incumbents' existing business.").

<sup>152</sup> *Id.* at 11.

<sup>153</sup> *Id.* at 14.

<sup>154</sup> See generally T-Mobile Mar. 12, 2013 *Ex Parte*, Baker Mar. 2013 at 3 (stating that when spectrum ownership is concentrated, firms may be able to exercise market power in the provision of downstream services that use wireless

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incumbents to foreclose rivals could limit the ability of these rivals to act as competitive constraints.<sup>155</sup> Likewise, RWA; Bluegrass Cellular; Writers Guild of America, West (“WGA”); the Utilities Telecom Council and NTCA believe that spectrum aggregation could lead to the foreclosure of competition.<sup>156</sup>

44. **Discussion.** In our review of the evolution of the mobile wireless marketplace, its current state, and the potential future effects on consumers, we are required to consider a number of concerns to advance the public interest. In particular, Section 309(j) requires the Commission to balance a number of specific statutory objectives including competition, diversity and the avoidance of excessive concentration in designing its rules regarding spectrum licenses and the competitive bidding assignment process.<sup>157</sup> In doing so, the Commission must “decide how much precedence particular policies will be granted when several are implicated in a single decision.”<sup>158</sup> Bearing this in mind, we find that, under the totality of circumstances, the public interest will be advanced by the decisions we make today, namely: reaffirming the current case-by-case review of proposed transactions, with continued use of a spectrum screen triggered at aggregations of approximately one third or more of the spectrum suitable and available for mobile telephony/broadband; updating the spectrum screen to include spectrum currently suitable and available for mobile telephony/broadband; treating certain levels of increased aggregations of below-1-GHz spectrum as an enhanced factor during case-by-case review of secondary market transactions involving below-1-GHz spectrum; and establishing a market-based spectrum reserve in the upcoming 600 MHz auction.

45. There are three independent bases for our conclusion, each of which we find warrants the policies we adopt today: (1) the importance of access to low-band spectrum to promote variety in licensees and the advancement of rural deployment as directed by Section 309(j), (2) the benefits to consumers associated with robust competition among multiple providers having access to low-band spectrum, and (3) the potential for competitive harm if we do not provide safeguards to mitigate against the possibility of providers raising rivals’ costs or foreclosing competition by denying competitors access to low-band spectrum. In accordance with our statutory mandate under 47 U.S.C. 309(j), we adopt policies to ensure that the spectrum we are auctioning will be used to promote robust competition and to limit the potential for future excessive concentration of low-band spectrum holdings.

46. Our findings are compelled by the changing circumstances posed by the marketplace today: increased consolidation, the growth in demand for mobile broadband, and the significance of the upcoming 600 MHz auction. First, we recognize that the mobile wireless marketplace has undergone considerable consolidation, both in terms of number of firms and relative market shares, as well as increased concentration of low-band spectrum. Recent acquisitions have exacerbated this

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spectrum as an input and that when spectrum is auctioned the foreclosure value that large incumbents place on spectrum acquisitions can distort allocations and downstream competition).

<sup>155</sup> See *id.* at 4.

<sup>156</sup> See RWA Comments at i (“[E]ach new FCC spectrum auction [should] include reasonable spectrum caps that prevent incumbent players from . . . foreclosing existing and new market entrants . . . .”); Bluegrass Cellular Apr. 10, 2014 *Ex Parte* at 2 (“Bluegrass may be foreclosed from participation in the incentive auction if the FCC does not establish a reasonable, up-front spectrum aggregation limit for the auction”); Letter from Michael Forsey, Counsel to the WGA, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Sep. 13, 2013 (“WGA Sept. 13, 2013 *Ex Parte*”) attaching “WGAW Position on Wireless Spectrum” at 2 (noting with approval that the DOJ has urged the Commission to prevent larger providers from foreclosing access to low-band spectrum in the upcoming auction); NTCA Apr. 10, 2014 *Ex Parte* at 2; Letter from Brett Kilbourne, Utilities Telecom Council, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 23, 2014 at 2 (“UTC Apr. 23, 2014 *Ex Parte*”).

<sup>157</sup> See *Fresno Mobile Radio, Inc. v. FCC*, 165 F.3d 965, 971 (D.C. Cir. 1999); accord, *Rural Cellular Association v. FCC*, 588 F.3d 1095, 1103 (D.C. Cir. 2009); *U.S. AirWaves, Inc. v. FCC*, 232 F.3d 224, 234 (D.C. Cir. 2000).

<sup>158</sup> *Melcher v. FCC*, 134 F.3d at 1154.



concentration.<sup>159</sup> While limited amounts of low-band spectrum might theoretically be acquired in secondary market transactions, as noted below the vast bulk of that spectrum has already been acquired. In considering secondary-market acquisitions, the Commission is barred by the Communications Act from considering “whether the public interest, convenience, and necessity might be served by the transfer” to any other party outside the application presented.<sup>160</sup> There is also significantly less low-band spectrum than there is high-band spectrum: after our decisions today, there will be 134 megahertz of spectrum below 1 GHz suitable and available for the provision of mobile broadband services and 446.5 megahertz of suitable and available spectrum above 1 GHz. Concentration in spectrum holdings by service providers of low-band spectrum has become particularly pronounced, with Verizon Wireless and AT&T together having aggregated more than 90 percent of all cellular spectrum.<sup>161</sup> Generally speaking, Verizon Wireless and AT&T each were the beneficiaries from their predecessors in interest of one of the two initial cellular licenses that were granted to an incumbent local exchange carrier and a new entrant in the 1980s, and have since further increased their spectrum holdings within this band. In addition, these two service providers together currently hold approximately 72 percent of 700 MHz spectrum.<sup>162</sup> By comparison, variation in spectrum holdings of higher-frequency spectrum in the range of 1 to 2 GHz is more evenly distributed: of the PCS spectrum, Verizon Wireless holds 16 percent, AT&T holds 29 percent, Sprint holds 28 percent and T-Mobile holds 22 percent; of the AWS-1 spectrum, Verizon Wireless holds 37 percent, AT&T holds 13 percent, and T-Mobile holds 42 percent.<sup>163</sup>

47. Second, our findings are informed by the skyrocketing consumer demand for mobile broadband. Today, consumers are demanding more data at higher speeds, while at home, at work, and in transit. Sprint argues that “[c]ustomers using low-band spectrum receive significantly better coverage in coffee shops, apartment buildings, and in residential basements – the type of indoor nomadic use that comprises an increasing percentage of overall mobile usage.”<sup>164</sup> We find that to provide this level of service in the marketplace to the benefit of consumers, providers will need to deploy more spectrum that can provide both coverage and in-building penetration, as well as spectrum that can provide the increased throughput for mobile broadband applications. In the next few decades, the demands on wireless networks and the need for access to spectrum will continue to increase.

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<sup>159</sup> See generally *AT&T-Verizon Wireless-Grain Order*, 28 FCC Rcd at 12888 ¶ 22; *AT&T-ATN Order*, 28 FCC Rcd at 13690-13701 ¶¶ 42-56; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17609-11 ¶ 49.

<sup>160</sup> 47 U.S.C. § 310(d).

<sup>161</sup> See *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd at 3793 ¶ 129. Verizon Wireless holds approximately 48 percent and AT&T holds approximately 45 percent of cellular spectrum. Among other transactions that led to the aggregation of the cellular band by these two providers, AT&T acquired McCaw Cellular and was subsequently acquired by Cingular (a joint venture of the wireless units of Southwestern Bell Corporation (later SBC) and BellSouth); Verizon Wireless acquired AirTouch (formerly PacTel Wireless) and BellAtlantic Wireless. See Letter from Sean Spivey, Assistant General Counsel, CCA to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Dec. 5, 2013 (“CCA Dec. 5, 2013 *Ex Parte*”), Attachment, CCA, *A Framework for Sustainable Competition in the Digital Age: Fostering Connectivity, Innovation, and Consumer Choice* at 11.

<sup>162</sup> Based on internal FCC staff analysis of the FCC’s Universal Licensing System (“ULS”), including 70 megahertz of currently suitable and available 700 MHz spectrum, and accounting for the recently approved assignment of lower 700 MHz A block licenses from Verizon Wireless to T-Mobile. Applications of T-Mobile USA, Inc. and Cellco Partnership d/b/a Verizon Wireless for Approval of Assignments and Exchange Of Lower 700 MHz, Advanced Wireless Service, and Personal Communications Service Licenses, ULS File No. FN0006090675, Ex. 1, Description of the Transactions and Public Interest Statement at 5 (Jan. 31, 2014) (“*T-Mobile-Verizon Wireless Public Interest Statement*”).

<sup>163</sup> Based on internal FCC staff analysis of ULS. In addition, AT&T holds over 90 percent of the WCS spectrum, and Sprint holds approximately 90 percent of the BRS spectrum, and approximately 70 percent of the Educational Broadband Service (EBS) spectrum.

<sup>164</sup> Sprint Apr. 7, 2014 *Ex Parte* at 13.

48. Third, our findings are based on the recognition that the 600 MHz spectrum that will be made available in the Incentive Auction will be the last offering of a significant amount of nationwide greenfield low-band spectrum for the foreseeable future. This is particularly important because of the very different characteristics of low-band spectrum. There is a large frequency gap between the below-1-GHz spectrum (in the 700 and 800 MHz bands now largely held by the leading providers, and the 600 MHz Incentive Auction spectrum) and the remaining spectrum currently suitable and available for mobile broadband use, beginning with the AWS-1 band at 1710 MHz. Low-band spectrum possesses distinct propagation advantages for network deployment, particularly in rural areas and indoors.<sup>165</sup> As a result, the auction of spectrum below 1 GHz presents a once-in-a-generation opportunity to promote competition as specifically required by Section 309(j). Based upon current trends in consumer demand for mobile broadband services, we conclude that the decisions we make here will have a significant impact on the extent to which competition may flourish for years to come.

49. Verizon Wireless and AT&T challenge the proposition that there are technical disadvantages to high-band spectrum, but their challenge is only a limited one. As Verizon's Executive Director for Network Strategy recognizes, "[s]pectrum below 1 GHz has greater propagation capabilities and therefore may require less infrastructure to deploy."<sup>166</sup> AT&T's Chairman and CEO has cited as "one of the beauties" of 700 MHz spectrum that in some areas it "propagates like a bandit," thereby requiring "fewer cell sites to get a good quality signal."<sup>167</sup> In its application to acquire T-Mobile, AT&T similarly argued that T-Mobile customers would enjoy higher service quality because of "improved coverage, including superior in-building and in-home service," arising not only from the denser grid but also from "access to 850 MHz spectrum."<sup>168</sup>

50. These views of the advantages of low-band spectrum are consistent with the Commission's experience. They are also well documented by the record. T-Mobile's Vice President for Radio Network Engineering and Development, for example, sets forth the well-established theoretical free space path-loss formula. Under this formula, path loss is proportional to the square of distance as well as the square of the frequency.<sup>169</sup> Thus, in simplified terms, when comparing one frequency that is twice as high as another (*e.g.*, AWS vs. cellular), "the energy received using the higher frequency signal is just 25% of the energy using the lower frequency signal."<sup>170</sup> While empirical adjustments for the theoretical formula are normally made to account for real world effects (such as terrain, antenna height, clutter, land use, weather, diffraction, and reflections),<sup>171</sup> drive test studies of real world network designs suggest that such standard adjustments may even understate the actual propagation advantage of low-band spectrum.<sup>172</sup> Low-band signals also generally penetrate buildings better than high-band signals. As a

<sup>165</sup> Estimates of average building penetration loss advantage of low-band spectrum is 2 dB to 4 dB better compared to high-band spectrum. See T-Mobile Apr. 1, 2014 *Ex Parte*, McDiarmid Decl. 4, 8; see also Sprint Feb. 11, 2014 *Ex Parte*, Sprint Weighted Spectrum Screen Feb. 2014 at 10-12.

<sup>166</sup> Verizon Wireless Reply, Stone Decl. at ¶ 7.

<sup>167</sup> AT&T's Randall Stephenson on the Network's Strength, CNN Money (July 18, 2012), available at <http://tech.fortune.cnn.com/2012/07/18/randall-stephenson-att/>.

<sup>168</sup> Applications of AT&T, Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations, ULS File No. 0004669383, Description of the Transaction, Public Interest Showing, and Related Demonstrations at 44 (April 21, 2011) ("*AT&T-T-Mobile Public Interest Statement*"). See also *id.* ("better in-building penetration").

<sup>169</sup> See T-Mobile Apr. 1, 2014 *Ex Parte*, McDiarmid Decl. at ¶ 24.

<sup>170</sup> *Id.* ¶ 7.

<sup>171</sup> See *id.* ¶ 24.

<sup>172</sup> See *id.* ¶¶ 14-15, 17, and 27. AT&T argues that these propagation disadvantages of high band spectrum can be somewhat mitigated by antenna gain. AT&T Reply, Reed-Tripathi Jan. 2013 at 14. This argument ignores the reduced vertical gain associated with greater horizontal gain, leading to diminished coverage of multi-story

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study commissioned for Ofcom found, the physical properties of such spectrum “provide a benefit disproportionate to its quantity,” and “[t]he range advantage of lower frequency spectrum is particularly pronounced for indoor users and for rural environments.”<sup>173</sup> These two advantages are significant, given the increasing reliance on wireless devices within buildings<sup>174</sup> and our statutory mandate to promote the benefits of competitive coverage in rural areas.

51. The limited efforts by AT&T and Verizon Wireless to minimize the force of this recognized RF engineering principle are not persuasive. They argue that both high-band and low-band spectrum can address *capacity* needs, but they do not rebut the superiority of low-band spectrum in addressing *coverage* needs, or the superior competitive advantage of having both.<sup>175</sup> While it is certainly true that coverage is not the sole consideration in network design, it is one of the fundamental requirements of a high quality network. T-Mobile’s marketing surveys as well as other evidence in the record – including AT&T’s own marketing efforts<sup>176</sup> – make clear the importance attached to competitive coverage by consumers and providers alike.<sup>177</sup> AT&T notes that it has at least a comparable number of cell sites as compared to Sprint and T-Mobile,<sup>178</sup> but this comparison says little about the respective propagation characteristics of high- and low-band spectrum, or the ability of these two competitors to match AT&T’s coverage breadth and depth (as opposed to its number of cell sites) at comparable cost when limited largely to the use of high-band spectrum today.

52. The remaining arguments of AT&T and Verizon Wireless suggest only minor qualifications to this basic propagation principle. AT&T argues that “propagating farther” is actually a disadvantage in small-cell environments because it creates greater in-network interference.<sup>179</sup> Putting aside the likelihood that even the vast majority of indoor locations will continue to be served by outdoor macro transmitters for the foreseeable future,<sup>180</sup> this argument ignores basic principles of interference

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buildings and creating more dead spots when users are not located in the main antenna beam which has maximum gain. Moreover, the nominal extra gain of high-band antenna is marginal compared to the superior low-frequency propagation advantage. Sprint Apr. 7, 2014 *Ex Parte* at 24 & n.83. Also, beam forming is the smart antenna technology that provides higher relative signal-to-interference-plus-noise ratios (SINRs) compared to conventional antennas. However, there is no clear evidence that such gain is significant between high-band and low-band beam forming deployments to come even close to negating the significant propagation advantage of low-band spectrum.

<sup>173</sup> Real Wireless, *Techniques for Increasing the Capacity of Wireless Broadband Networks: UK, 2012-2030* (April 2012), at 7, 38. See also McDiarmid ¶¶ 13-14 (including results of Dallas network design study comparing coverage availability in both residential and commercial buildings for AWS and 700 MHz deployments); Sprint Apr. 7, 2014 *Ex Parte* at 22-23.

<sup>174</sup> See Sprint Apr. 7, 2014 *Ex Parte* at 22.

<sup>175</sup> See Letter from Thomas J. Sugrue, Senior Vice President, Government Affairs, T-Mobile, to Chairman Genachowski and Commissioners McDowell, Clyburn, Rosenworcel, and Pai, FCC, WT Dkt. No. 12-269, filed May 7, 2013 at 4-5 (“T-Mobile May 7, 2013 *Ex Parte*”).

<sup>176</sup> See Sprint Apr. 7, 2014 *Ex Parte* at 14-16.

<sup>177</sup> In response to T-Mobile’s marketing surveys, AT&T asserts that coverage issues **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]** See AT&T-Lawson May 7, 2014 *Ex Parte* at 12. But T-Mobile’s monthly churn rate of 3.5% -- or 42% of its customers every year – is over twice that of AT&T (at only 1.5%). See 16<sup>th</sup> *Mobile Wireless Competition Report* ¶ 257.

<sup>178</sup> See AT&T Mar. 14, 2014 *Ex Parte* at 5.

<sup>179</sup> See AT&T Mar. 14, 2014 *Ex Parte*, Reed-Tripathi Mar. 2014 at 3.

<sup>180</sup> Sprint Apr. 7, 2014 *Ex Parte* at 23-24. Small cell technologies may show promise in making use of otherwise unavailable spectrum. However, they are deployed at higher cost, including backhaul connectivity, and still face challenges such as call handoff. T-Mobile Apr. 11, 2014 *Ex Parte*, McDiarmid Decl. at ¶¶ 18-23.

management such as antenna down-tilts, orientations, power reductions, and other practices.<sup>181</sup> AT&T also cites the benefits of fewer duplexers as well as more efficient MIMO systems with high-band spectrum.<sup>182</sup> We conclude that such minor factors cannot outweigh the clear propagation disadvantages of high-band spectrum, given that 30-megahertz duplexers for the 600 MHz Band likely will be feasible to support multiple licensees and that equipment manufacturer field tests indicate that 2x2 MIMO performance is similar between low-band and high-band spectrum.<sup>183</sup>

53. Verizon Wireless also concedes that “[a]n advantage of low-band spectrum due to its better propagation characteristics is in-building coverage.”<sup>184</sup> However, it notes that “if such coverage is received mainly through small building apertures (e.g., doors and windows), higher frequencies *may* provide better penetration due to shorter wavelengths, which make it *possible* for the signal to fit through smaller apertures of the buildings.”<sup>185</sup> Whatever the ability of high frequency spectrum to penetrate windows may be, these theoretical possibilities do not alter the basic point, as Verizon Wireless recognizes, that “low-band spectrum generally provides better in-building coverage.”<sup>186</sup> AT&T argues that it is the ratio of desired to undesired signal levels that matters, not the lower absolute in-building signal levels of high-band spectrum, and that this ratio “could be quite similar.”<sup>187</sup> But AT&T provides no reason to assume that the ratio would be similar in buildings, and there is good reason to believe that it would not be so where the environments inside buildings are mostly noise-limited, which favors low-band spectrum.<sup>188</sup> In addition, in-building coverage is highly dependent on the uplink where the device transmission power is limited, thus highlighting the propagation and average building penetration advantage of low-band spectrum.<sup>189</sup>

54. In short, our experience, consistent with the substantial record evidence that includes theoretical and empirical RF propagation models, actual network design and measurement studies, and customer surveys, is that – while other factors may affect the value of spectrum (both low-band and high-band) – low-band spectrum has significantly greater propagation advantages both in wide-area coverage and in serving the growing number of wireless uses within buildings. In addition, providers with both low-band and high-band spectrum have greater flexibility and capability to vigorously compete in the marketplace to better serve consumers.

55. Though there is substantial support in the record for distinguishing between low-band and high-band spectrum based on propagation characteristics, as discussed above, we find that the record does not support such categorical distinctions between three different spectrum groupings – below-1-GHz, 1-

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<sup>181</sup> See Sprint Apr. 7, 2014 *Ex Parte* at 19.

<sup>182</sup> See AT&T Mar. 14, 2014 *Ex Parte*, Reed-Tripathi Mar. 2014 at 8-9.

<sup>183</sup> See Sprint Apr. 7, 2014 *Ex Parte* at 19 & n.62. Higher order MIMO potentially offers additional capacity and reliability benefits at the expense of higher deployment and maintenance costs, but these benefits are marginal compared to the low-band propagation advantage.

<sup>184</sup> Verizon Wireless Reply, Stone Decl. at ¶ 13.

<sup>185</sup> *Id.* (emphases added); see also AT&T-Lawson May 7, 2014 *Ex Parte* at 13-14.

<sup>186</sup> Verizon Wireless Comments, Stone Decl. at ¶ 13. See also Ofcom, Application of spectrum liberalization and trading to the mobile sector (Sept. 2007) at 48; Sprint Apr. 7, 2014 *Ex Parte* at 23; Sprint May 5, 2014 *Ex Parte* at 9-11 & n.29.

<sup>187</sup> AT&T Mar. 14, 2014 *Ex Parte*, Reed-Tripathi Mar. 2014 at 14.

<sup>188</sup> T-Mobile’s network design studies comparing low-frequency deployment versus high-band deployment corroborate this prediction. See T-Mobile Apr. 1, 2014 *Ex Parte*, McDiarmid Decl. at ¶¶ 14-17. See also Sprint May 5, 2014 *Ex Parte* at 12.

<sup>189</sup> See generally Sprint May 5, 2014 *Ex Parte* at 5-6.

2.2 GHz, and 2.3-2.7 GHz – as recently advocated by Sprint.<sup>190</sup> Sprint argues that “large natural gaps” similarly exist between each of these three spectrum categories as calculated using the highest uplink frequency of the first grouping (849 MHz) compared to the lowest uplink frequency of the second grouping (1710 MHz), and the highest uplink frequency of the second grouping (1920 MHz) compared to the lowest uplink frequency of the 2.5 GHz band (2502 MHz).<sup>191</sup> We disagree. First, to be consistent, Sprint should compare 1920 MHz to the lowest uplink frequency of the 2.3 GHz band, which would result in a smaller gap. Second, even using Sprint’s choices for uplink frequencies, the ratios of these gaps are significantly different, even if the absolute amounts of the gaps are similar.<sup>192</sup> Third, the bands used for commercial mobile services in the second and third groupings (*i.e.*, between 1.7 GHz and 2.7 GHz) approximate contiguity to a far greater extent than the bands in the first grouping, which ends at the 900 MHz Band, and bands in the second grouping, which begins with the 1.7 GHz band.

56. *Variety of Licensees and Rural Deployment.* Under Section 309(j), Congress mandated that we design auctions to “include safeguards to protect the public interest in the use of the spectrum,” including the objectives to disseminate licenses “among a wide variety of applicants” and to promote deployment of new technologies, products, and services to “those residing in rural areas.”<sup>193</sup> The limited restrictions we impose today on spectrum holdings will promote both of these statutory policies. A variety of licensees is particularly important in light of the lack of competitive offerings in rural America today. Currently, 92 percent of non-rural consumers, but only 37 percent of rural consumers, are covered by at least four 3G or 4G mobile wireless providers’ networks.<sup>194</sup>

57. Increasing the number of providers who have access to low-band spectrum can increase the competitive offerings of mobile wireless service for consumers, particularly in rural areas.<sup>195</sup> Today, two nationwide providers control the vast majority of low-band spectrum, and this disparity makes it difficult for rural consumers to have access to the competition and choice that would be available if more wireless competitors also had access to low-band spectrum. Low-band spectrum, given its unique propagation characteristics, can serve as a foundation for expansion of an existing network or a new or upcoming service providers’ network deployment as it builds a customer base to support further growth.<sup>196</sup> As DOJ, CCA, T-Mobile, Sprint, Bluegrass Cellular, NTCA, CellCom, NTELOS, RWA, and the Massachusetts Department of Telecommunications and Cable argue, low-band spectrum is particularly well suited to deployment in rural areas.<sup>197</sup> Moreover, Sprint, T-Mobile, the Attorney General

<sup>190</sup> See Sprint May 5, 2014 *Ex Parte* at 5-6.

<sup>191</sup> See *id.* at 5-6.

<sup>192</sup> Differences in radio signal propagation characteristics are highly dependent on the ratio of the transmission frequencies. The ratio of the uplink frequency in the second grouping to the uplink frequency in the first grouping is approximately 2.0 (1710/849), but the ratio between uplink frequencies in the third grouping compared to the second grouping is only approximately 1.3 (2502/1920), which is significantly different.

<sup>193</sup> See 47 U.S.C. § 309(j)(a)-(b).

<sup>194</sup> Estimates based on census block analysis of provider coverage maps, using ©2013-2014 Mosaik Solutions, LLC., January 2014 CoverageRight. 4G is defined as deployed HSPA+, LTE, or WIMAX air interface technologies. Population and area data are from the 2010 Census, and include the United States (50 states plus the District of Columbia) and Puerto Rico.

<sup>195</sup> See Letter from Steven K. Berry, President and CEO, CCA, WT Dkt. No. 12-269, to Marlene H. Dortch, Secretary, FCC, filed May 12, 2014 at 9-10 (“CCA May 12, 2014 *Ex Parte*”) (arguing that the proposed rules create opportunities for a wide variety of applicants).

<sup>196</sup> See T-Mobile Apr. 1, 2014 *Ex Parte*, McDiarmid Decl. at 22 (“The unique propagation characteristics of low-band spectrum also confer advantages in increased flexibility in placing equipment, which can reduce costs, accelerate deployment, and increase coverage.”).

<sup>197</sup> See DOJ Apr. 11, 2013 *Ex Parte* at 12; CCA Apr. 9, 2014 *Ex Parte* at 2; T-Mobile Reply at 10; Sprint Comments at 3; Bluegrass Apr. 10, 2014 *Ex Parte*; NTCA Apr. 10, 2014 *Ex Parte*; New-Cell Apr. 11, 2014 *Ex Parte*; NTELOS (continued....)

of Washington State, the Chairman of the Louisiana Public Service Commission, the Massachusetts Department of Telecom and Cable, RWA, Bluegrass Cellular, and Carolina West Wireless argue that access to low-band spectrum is critical to promote competition in rural areas. We agree. We find that our spectrum holdings policies will promote variety in licensees and deployment of new technologies to those residing in rural areas.

58. *Benefits to Consumers from Promotion of Competition in Mobile Wireless Markets.* Rigorous competition among providers having access to low-band spectrum will result in significant benefits that may be realized by consumers. While we cannot predict with absolute certainty future marketplace conditions, under our Title III mandate, the question we consider is whether there is a rational basis for finding that our limited restrictions “would enhance the possibility of achieving” our public interest goals, including preserving and promoting competition in this marketplace.<sup>198</sup> Moreover, as the Supreme Court has emphasized, “the possible benefits of competition do not lend themselves to detailed forecast.”<sup>199</sup> The superior propagation of spectrum below-1-GHz means that larger geographic areas may be served more cost effectively through use of fewer transmitters.<sup>200</sup> The top two nationwide providers, which have approximately 73 percent of the low-band spectrum,<sup>201</sup> cover 52 percent and 48 percent of the total land area with 4G service in the United States.<sup>202</sup> The two smaller nationwide providers hold approximately 15 percent of the low-band spectrum<sup>203</sup> and cover only 12 percent and 9 percent of the land area with 4G service in the United States.<sup>204</sup> As such, below-1-GHz spectrum is likely to be necessary for existing providers that wish to expand their coverage in rural areas, as well as new providers that may wish to provide a niche service in rural markets.<sup>205</sup> Moreover, facilitating access by multiple providers to below-1-GHz spectrum can provide more competition in the provision of roaming

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Apr. 10, 2014 *Ex Parte*; RWA Apr. 10, 2014 *Ex Parte*; MA DOT Mar. 28, 2014 *Ex Parte* at 6. While many factors go into determining the quality of wireless service, access to a sufficient amount of low-band spectrum is a threshold requirement for extending and improving service in rural as well as urban areas. In that regard, we disagree with assertions that our actions cannot facilitate deployment of advanced networks in rural areas. *But see* Letter from John Mayo, Professor of Economics, Business and Public Policy, Ex. Dir., Georgetown Center for Business and Public Policy, Georgetown University McDonough School of Business, WT Dkt. No. 12-269, filed May 5, 2014, Attachment, Anna-Maria Kovacs, *Regulation in Financial Translation: Will the Incentive Auction Increase Mobile-Broadband Competition in Rural America?* (“Kovacs May 2014”) (asserting that limits on participation in the Incentive Auction would be unlikely to incent entry into rural areas).

<sup>198</sup> *FCC v. Nat’l Citizens Comm. for Broad.*, 436 U.S. 775, 796-97 (1978).

<sup>199</sup> *Id.* at 796-97, quoting *FCC v. RCA Communications, Inc.*, 346 U.S. 86, 96 (1953).

<sup>200</sup> Estimates of the relative rural cell service areas of the Lower 700 MHz band compared to the BRS band varied from 2.7x to 14x according to AT&T and Sprint, respectively. *See* AT&T Mar. 14, 2014 *Ex Parte*, Reed & Tripathi Mar. 2014 at 20; *see also* Sprint Feb. 11, 2014 *Ex Parte* at 22.

<sup>201</sup> Based on internal FCC staff analysis of ULS.

<sup>202</sup> Estimates based on census block analysis of provider coverage maps, using ©2013-2014 Mosaik Solutions, LLC., January 2014 CoverageRight. 4G is defined as deployed Evolved High Speed Packet Access (HSPA+), LTE, or Worldwide Interoperability for Microwave Access (WIMAX) air interface technologies. Population and area data are from the 2010 Census, and include the United States (50 states plus the District of Columbia) and Puerto Rico.

<sup>203</sup> Based on internal FCC staff analysis of ULS.

<sup>204</sup> Estimates based on census block analysis of provider coverage maps, using ©2013-2014 Mosaik Solutions, LLC., January 2014 CoverageRight. 4G is defined as deployed HSPA+, LTE, or WIMAX air interface technologies. Population and area data are from the 2010 Census, and include the United States (50 states plus the District of Columbia) and Puerto Rico.

<sup>205</sup> *See generally* NTCA Apr. 10, 2014 *Ex Parte* at 3-4 (explaining that rural carriers have a particular need for low-band spectrum).

services as more providers are able to provide coverage in rural areas.<sup>206</sup> Facilitating such access to below-1-GHz spectrum also can further other important public interest objectives, such as in-building access to 911 services and improvement in the compatibility of mobile devices with hearing aids.<sup>207</sup> Similar to other countries that have adopted rules limiting access to low-band spectrum for incumbent providers,<sup>208</sup> we recognize the consumer benefits that stem from multiple providers being able to utilize the unique and highly valuable characteristics of low-band spectrum.

59. In addition, we believe that holding a mix of spectrum bands is advantageous to providers and that consumers benefit when multiple providers have access to a mix of spectrum bands. As we have stated in our Annual Mobile Wireless Competition Reports, “[A] provider is best positioned if it holds complementary spectrum bands, *i.e.*, both higher and lower frequency bands.”<sup>209</sup> The continually evolving marketplace makes having a mix of low- and high-band spectrum more important for the deployment of robust high quality networks by multiple service providers, which in turn can increase competition, drive down prices, and ensure continued innovation and investment. In planning their network buildout, service providers consider many factors, including the cost of the spectrum licenses, the type of spectrum, coverage and quality requirements which affect the capital and operating costs of the network infrastructure, as well as the time and regulatory requirements.<sup>210</sup> We find that a service provider holding a mix of low- and high-band spectrum licenses would have greater flexibility and would be better able to optimize its network costs for a given quality level, thus promoting the efficient and intensive use of spectrum.<sup>211</sup> Consumers of wireless services benefit from multiple providers having access to a mix of

<sup>206</sup> See Letter from Trey Hanbury, Hogan Lovells, Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 5, 2014, at 7 (“T-Mobile May 5, 2014 *Ex Parte*”).

<sup>207</sup> See *id.* at 6-8.

<sup>208</sup> In auctions to make available spectrum from the transition to digital television, regulatory authorities in some countries have considered limits on the amount of spectrum below 1 GHz that may be acquired by any one provider. In particular, Germany and the United Kingdom have implemented this approach. Federal Network Agency, decisions of the President’s chamber of the Federal network Agency for Electricity, Gas, Telecommunications, Post and railway of 12 October 2009, on combining the Award of Spectrum in the Bands 790 to 862 MHz, 1710 to 1725 MHz and 1805 to 1820 MHz with Proceedings to Award Spectrum in the Bands 1.8 GHz, 2 GHz and 2.6 GHz for Wireless Access for the Provision of Telecommunications services, at 6 (2009).

<sup>209</sup> See 16<sup>th</sup> Mobile Wireless Competition Report, 28 FCC Rcd at 3789 ¶ 119. We note that “complementary” in this sense should not be confused with the economic definition of inputs that are complements.

<sup>210</sup> See T-Mobile Apr. 1, 2014 *Ex Parte*, McDiarmid Decl. at 3 and 7.

<sup>211</sup> See 16<sup>th</sup> Mobile Wireless Competition Report, 28 FCC Rcd at 3789, 3792-93, 3796 ¶¶ 119, 127, 135 (“[S]pectrum resources in different frequency bands have distinguishing features that can make some frequency bands more valuable or better suited for particular purposes. From a competitive perspective, given these complementary characteristics, a provider is best positioned if it holds both low and higher frequency spectrum. Holding a mix of frequency ranges may be optimal from the perspective of providing the greatest service quality at low cost.”); see also *Baker March 2013 Study* at 16. We note that T-Mobile recently had announced that, upon Commission approval of its application, it would begin deploying 4G LTE this year in the new 700 MHz A Block spectrum—its first deployment on below-1 GHz spectrum—and that by the end of 2014 it will have increased LTE coverage from 210 million subscribers to 250 million subscribers. See T-Mobile Celebrates 1<sup>st</sup> Anniversary of LTE Rollout By Launching Major Network Upgrade Program, T-Mobile News Release, March 13, 2014, <http://newsroom.t-mobile.com/phoenix.zhtml?c=251624&p=irol-newsarticle&ID=1908666> (last visited April 3, 2014). On April 22, 2014, the Commission approved the application of Verizon Wireless and T-Mobile to assign and exchange Lower 700 MHz A Block licenses, AWS-1 licenses, and PCS licenses. See *Public Notice*, Wireless Telecommunications Bureau Action, Rep. No. 9537B, at 13 (Apr. 23, 2014); ULS File No. 0006090675. In the public interest statement filed with this application, the applicants made clear that T-Mobile’s acquisition of Lower 700 MHz A Block licenses would provide its customers with improved in-building coverage and that consumers in suburban and rural areas will benefit from the increased reach of low-band spectrum resources. See T-Mobile-Verizon Wireless Public Interest Statement, ULS File No. 0006090675 at 5; see also T-Mobile Apr. 1, 2014 *Ex Parte*, McDiarmid Decl. at ¶ 7.

spectrum bands. The benefits to consumers from competition between multiple providers and increased deployment to rural areas outweigh the costs of the limited restrictions described below. Accordingly, we find our public interest goal of promoting consumer welfare would be advanced by the policies we adopt today.

60. *Potential for Competitive Harm from Increased Aggregation of Spectrum.* We also find that in the absence of additional below-1-GHz spectrum on a nationwide basis, there is a substantial likelihood of competitive harm if providers that currently lack sufficient access to such spectrum cannot acquire it. Under Section 309(j), we have mandates to promote competition, promote efficient use of spectrum, and avoid the excessive concentration of licenses.<sup>212</sup> As indicated above and in the engineering analyses provided by Sprint, T-Mobile and other commenters, low-band spectrum is less costly to deploy and provides higher coverage quality.<sup>213</sup> The leading providers have most of the low-band spectrum available today.<sup>214</sup> If they were to acquire all or substantially all of the remaining low-band spectrum, they would benefit independently of any deployment of this newly acquired spectrum to the extent that their rivals are denied its use. Without access to this low-band spectrum, their rivals would be less able to provide a competitive alternative.<sup>215</sup> Deploying high-band spectrum is more costly, more time-consuming, and more subject to variation given the increased number of cell sites required for deployment to achieve similar service quality and the accompanying need for cell tower siting authorizations and zoning approvals.<sup>216</sup> As noted above, it is also far less effective in providing for the growing demand for in-building use, which as we have recently noted now involves 56 percent of all wireless calls and 80 percent of smartphone usage.<sup>217</sup> Although alternative methods to increase rural and in-building coverage to serve additional customers are available, such as adding towers, splitting cells, or acquiring roaming rights on other networks, these substitute inputs are not nearly as cost effective and likely would increase costs.<sup>218</sup>

61. Along with an attenuated ability to increase output or service quality in response to price increases, providers that lack access to low-band spectrum may lack the ability quickly to expand coverage or provide new or innovative services, which would have a significant impact on competition in

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<sup>212</sup> See 47 U.S.C § 309(j).

<sup>213</sup> See Sprint Apr. 7, 2014 *Ex Parte* at 8-9; T-Mobile Apr. 1, 2014 *Ex Parte*, McDiarmid Decl. at 3-4, 13-14.

<sup>214</sup> See *supra* ¶ 46.

<sup>215</sup> See *Verizon Wireless–Spectrum Co Order* 27 FCC Red 10698, 10727, n. 188 (“If Verizon Wireless were to unilaterally increase its prices post-transactions, then a fraction of Verizon Wireless’s customers would be expected to switch to a substitute service provider. To the extent that Verizon Wireless’s rivals may be spectrum-constrained, without access to additional spectrum, then their ability to offer service to these additional customers may be limited. Thus, if Verizon Wireless’s rivals are unable to offer a comparable competitive service in a sufficiently large number of local markets, these rivals would be less effective in disciplining any national price increase by Verizon Wireless.”); see also, DOJ Apr. 11, 2013 *Ex Parte* at 19. See generally, Thomas G. Krattenmaker and Steven C. Salop, “Anticompetitive Exclusion: Raising Rivals’ Costs to Achieve Power over Price,” 96 Yale L.J. 209 (1986), at 253-66.

<sup>216</sup> See AT&T June 13, 2013 *Ex Parte*, Katz, Haile, Israel & Lerner Supp. Reply Decl at ¶ 42 (“A spectrum cap . . . fails to capture the full cost of entry or expansion for an entrant or smaller firm. Even if a firm holds extensive low-frequency spectrum, high-frequency spectrum sold at a lower price (to reflect the greater buildout costs) can facilitate entry, and a screen targeted at lower-frequency spectrum in particular cannot capture this fact.”). Sprint estimated that the overall service provider costs, even after accounting for the spectrum costs difference, would still be significantly higher for high-band only deployments compared to low-band deployments. See Sprint Apr. 7, 2014 *Ex Parte* at 4, 12.

<sup>217</sup> See Wireless E911 Location Accuracy Requirements, *Third Further Notice of Proposed Rulemaking*, FCC 14-13 (rel. Feb. 21, 2014), at ¶ 29.

<sup>218</sup> See T-Mobile Apr. 1, 2014 *Ex Parte*, McDiarmid Decl. at ¶¶ 18-22.



the mobile wireless marketplace. Sprint argues, “[A] firm denied access to the category of spectrum with the greatest utility for its planned network design simply cannot rely upon another spectrum category to enter a market or expand output swiftly and effectively in response to one or more firms’ attempt to exercise market power.”<sup>219</sup> We agree that a service provider that is limited to high-band spectrum holdings would face challenges to provide services as robust as those offered by providers holding a mix of low- and high-band spectrum.<sup>220</sup> As consumers increasingly demand mobile broadband service with greater coverage and signal quality, ensuring a robustly competitive mobile wireless marketplace in the future will likely depend upon more than two service providers in any area having access to both low- and high-band spectrum to better achieve and optimize rapid network coverage and robust capacity.<sup>221</sup> Providers without access to that mix of spectrum that would allow them flexibility to optimize their networks must incur more costly means of expansion and will be unable to compete as robustly or constrain price increases by providers that do have such access.<sup>222</sup> The consumer harms from the raising of rivals’ costs from increased concentration of low-band spectrum outweigh the potential benefits of unlimited spectrum aggregation. Accordingly, we find that the limited restrictions we adopt today will reasonably balance our goals of promoting competition, ensuring the efficient use of spectrum, and avoiding an excessive concentration of licenses in accord with Section 309(j).

62. *Foreclosure.* We agree with the Antitrust Division of the DOJ, one of our nation’s expert antitrust agencies:<sup>223</sup> there is a risk of foreclosure in downstream wireless markets. Today’s mobile wireless marketplace is characterized by factors that, according to DOJ, increase the potential for anticompetitive conduct, including high market concentration, highly concentrated holdings of low-band spectrum, high margins, and high barriers to entry.<sup>224</sup> These risk factors increase the incentive and ability for a provider with low-band spectrum to bid for the spectrum in an attempt to stifle competition that may arise if multiple licensees were to hold low frequency spectrum. As a result, such a provider might be the highest bidder in a spectrum auction, not because it will put the spectrum to its highest use, but because it is motivated to engage in a foreclosure strategy.

<sup>219</sup> Sprint Apr. 7, 2014 *Ex Parte* at 5.

<sup>220</sup> Robust service that may be characterized by greater area coverage, fewer dropped calls, better in-building reliability, or faster data delivery speeds, or any combination of these characteristics. See T-Mobile Apr. 1, 2014 *Ex Parte*, McDiarmid Decl. at 3.

<sup>221</sup> See, e.g., *AT&T WCS Order*, 27 FCC Rcd at 16467 ¶ 20; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10716 ¶ 48; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17601-02 ¶ 30.

<sup>222</sup> See generally T-Mobile Mar. 12, 2013 *Ex Parte*, Baker Mar. 2013 at 18, n.29; DOJ Apr. 11, 2013 *Ex Parte* at 14 (noting that Verizon Wireless and AT&T have the vast majority of low frequency spectrum, resulting in “the two smaller nationwide carriers [Sprint and T-Mobile] having somewhat diminished ability to compete, particularly in rural areas where the cost to build out coverage is higher with high-frequency spectrum.”).

<sup>223</sup> See *NARUC v. FCC*, 525 F.2d 630, 638-39 (D.C. Cir. 1976) (indicating that the court’s view of competitive effect of original cellular allocation was “strongly influenced by the position of the Justice Department”); *Melcher v. FCC*, 134 F.3d 1143, 1151 (D.C. Cir. 1998) (upholding Commission’s competition judgment that relied in part on “predictive comments from the Department of Justice”).

<sup>224</sup> See DOJ Apr. 11, 2013 *Ex Parte* at 11 (“In a highly concentrated industry with large margins between price and incremental cost of existing wireless broadband services, the value of keeping spectrum out of competitors’ hands could be very high.”); see also *Ex Parte* Submission of the United States Department of Justice, WT Dkt. No. 12-269, filed May 14, 2014 at 2 (“DOJ May 14, 2014 *Ex Parte*”); T-Mobile Mar. 12, 2013 *Ex Parte*, Baker Mar. 2013 at 5-6; Sprint Reply, Attachment, Stanley M. Besen, Serge Moresi, Steven C. Salop, *Why Restricting participation in Spectrum Auctions Can Increase Bidder Participation, Increase Auction Revenues, and Increase Competition in Wireless Markets*, at 8 (“Besen, Moresi, and Salop Mar. 2013, Dkt. No. 12-268”) at 8. See generally C. Scott Hemphill and Tim Wu, “Parallel Exclusion,” 122 *Yale L.J.* 1182, 1203-04 (2013) (discussing the anticompetitive effects of “overbuying an input”); Thomas G. Krattenmaker and Steven C. Salop, “Anticompetitive Exclusion: Raising Rivals’ Costs to Achieve Power over Price,” 96 *Yale L.J.* 209 (1986) (discussing exclusionary rights and potential anticompetitive effects).

63. We find unpersuasive, particularly as applied to the specific limits that we are adopting today, various arguments by AT&T and Verizon Wireless that the possibility of future limits on the ability of providers to compete should not be considered in our evaluation of whether to limit their acquisition of low-band spectrum given current market conditions. This is a forward-looking rulemaking that must consider the potential for competitive harms in the future. AT&T's argument that "there are no areas in which foreclosure is a relevant concern and differences in low- and high-band spectrum propagation are relevant"<sup>225</sup> is belied by the engineering analyses discussed above. There are obvious and unavoidable differences between low- and high-band spectrum that are relevant to our mobile spectrum holdings policies. Further, given the high level of concentration of low-band spectrum in the hands of only two providers, we disagree with AT&T and Verizon Wireless that the risk of a foreclosure strategy would be low because it would be "irrational." Accordingly, we agree with the DOJ that we should consider the potential for foreclosure when evaluating our mobile spectrum holding policies.<sup>226</sup> As indicated above, low-band spectrum has particular competitive significance<sup>227</sup> and a mix of spectrum holdings provides distinct advantages to providers' ability to compete in the marketplace.

64. We also disagree with AT&T's argument that any potential for competitive harm from concentrated spectrum holdings will be addressed by market prices reflecting the total cost of deploying with different bands, such that the greater costs associated with high-band spectrum will result in lower prices for it, "offsetting the higher cost of expansion."<sup>228</sup> Initially, these arguments, as presented, are theoretical and speculative, and not necessarily predictive of actual pricing in spectrum markets in the future. AT&T does not attempt to show that low- and high-band bands are priced to reflect such an offset, and we have no reason to believe that this is so. In fact, there is substantial evidence in the record that AT&T's equilibrium pricing model does not apply in the marketplace for acquiring wireless spectrum. As a threshold matter, the model ignores the likelihood of foreclosure.<sup>229</sup> But it also ignores that this particular market is very illiquid. Unlike a fluid and active commodities market, spectrum is made available for initial licensing at irregular times and in irregular amounts.<sup>230</sup> The secondary market for spectrum licenses in any geographic area has very few buyers and sellers.<sup>231</sup> Providers often hold onto spectrum for decades for a number of reasons, including the value they may assign to keeping spectrum out of the hands of potential competitors. As Sprint argues, spectrum "is acquired over long periods of time at discrete and irregular intervals; and the lock-in effects associated with deploying in any one band make switching bands extraordinarily costly and extremely unlikely."<sup>232</sup> This lack of liquidity necessarily limits the accuracy of spectrum pricing.

65. We also note that spectrum transactions occur with imperfect information regarding the costs and timing of deployment, neither of which is entirely within a provider's control.<sup>233</sup> Thus, while

<sup>225</sup> AT&T June 13, 2013 *Ex Parte*, Katz, Haile, Israel & Lerner June 2013 at 30.

<sup>226</sup> DOJ May 14, 2014 *Ex Parte* at 2 (stating that the DOJ believes, based upon the likelihood of foreclosure, "it is essential to maintain vigilance against any lessening of the intensity of competitive forces, or reduction in the number of effective competitors, in the wireless industry.").

<sup>227</sup> *See id.* (finding that "low-frequency spectrum remains a competitively critical input").

<sup>228</sup> AT&T Reply, Katz and Israel Decl. at ¶ 22. *See also* AT&T June 13, 2013 *Ex Parte*, Katz, Haile, Israel & Lerner June 2013 at ¶ 47 (arguing that it is a "fundamental economic tenet that the arbitrage possibilities cannot persist"); AT&T Reply, Katz, Haile, Israel, and Lerner Reply Decl. at ¶ 11, Dkt. No. 12-268 (discussing the power of markets in determining equilibrium prices).

<sup>229</sup> *See* T-Mobile Mar. 12, 2013 *Ex Parte*, Baker Mar. 2013 at 16-17.

<sup>230</sup> *See* Sprint Apr. 7, 2014 *Ex Parte* at 7.

<sup>231</sup> *See* Peha Supp. Decl. at 7.

<sup>232</sup> Sprint Apr. 7, 2014 *Ex Parte* at 13-14.

<sup>233</sup> *See id.* at 14.

providers that value high-band spectrum less than low-band spectrum will offer to pay relatively less for high-band spectrum, this does not mean that spectrum markets will accurately price spectrum to fully reflect deployment costs, particularly low-band spectrum that is relatively scarce. In any event, the record contains substantial evidence that the disadvantages of high band spectrum resulting from poor in-building coverage and increased obstacles today to siting of new wireless facilities are more than mere cost disadvantages.<sup>234</sup> As AT&T itself has recognized, building new cell sites is not only difficult and expensive but also “—most importantly – prone to multi-year delays.”<sup>235</sup> Given “real-world customer imperatives that place a premium on timely deployment of services to the public, wireless carriers are hardly indifferent” to the unique propagation characteristics associated with low-band spectrum.<sup>236</sup> Accordingly, we acknowledge that there are many factors that may determine the price of spectrum, and we find that we cannot rely on price differentials alone to address competitive concerns.

66. We also reject AT&T’s and Verizon Wireless’s argument that the Commission must prove a significant reduction of downstream competition will occur in the future in order to limit their acquisition of spectrum. There is no basis for this standard in the Communications Act, and these parties do not offer any such basis. As discussed above, Congress mandated the Commission to act prospectively to promote competition and protect the public interest.<sup>237</sup> Our spectrum policy is based upon a broad public interest standard that requires us to promote competitive policies that range beyond antitrust laws, including our Section 309(j) mandate to “promot[e] economic opportunity and competition” and ensure ready accessibility to wireless broadband technologies “by avoiding excessive concentration of licenses.” Moreover, in expressly preserving the Commission’s authority to adopt rules concerning spectrum aggregation that promote competition, Congress did not indicate that the Commission’s ability to do so was in any way tied to a standard of proof of foreclosure in the future, a standard that has never been utilized in the past to justify limiting spectrum holdings or any other Commission rules. Accordingly, we reject AT&T’s and Verizon Wireless’s argument that proof of future foreclosure is needed to limit their possible acquisition of all or substantially all of the remaining low-band spectrum. Our conclusion, which accords with the DOJ’s, is that there is a risk of foreclosure.<sup>238</sup> In light of this risk and balancing the inherent tradeoffs, we find that the limited restrictions we enact today are a reasonable balance of the Section 309(j) and public interest factors that form our statutory mandate, including the goals to promote competition, disseminate licenses among a wide variety of applicants, ensure high quality service to those in rural areas and avoid the excessive concentration of licenses, while also promoting the efficient and intensive use of the spectrum.<sup>239</sup>

#### D. Conclusion

67. For the reasons set forth above, spectrum is a limited and essential input for the provision of mobile wireless telephony and broadband services, and ensuring access to, and the availability of, sufficient spectrum is critical to promoting the competition that drives innovation and investment. The

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<sup>234</sup> See T-Mobile May 7, 2013 *Ex Parte* at 4. See also T-Mobile Apr. 1, 2014 *Ex Parte*, McDiarmid Decl. at ¶¶ 32-33.

<sup>235</sup> *AT&T-T-Mobile, Public Interest Statement*, ULS File No. 0004669383 at 27, 46-47.

<sup>236</sup> See Sprint Apr. 7, 2014 *Ex Parte* at 14.

<sup>237</sup> See 47 U.S.C. § 309(j).

<sup>238</sup> See DOJ May 14, 2014 *Ex Parte* at 2 (“A foreclosure strategy is not merely theoretical – specific facts about the wireless industry, such as high market concentration, high margins, and scarce critical inputs, make anticompetitive foreclosure more likely.”).

<sup>239</sup> For reasons fully explained below discussing the specific actions we are taking, we reject AT&T’s assertion that the actions that we take today to fulfill our statutory duties are arbitrary and capricious. See Letter from Peter D. Keisler, Sidley Austin LLP, Counsel for AT&T, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 7, 2014, at 5 (“AT&T-Keisler May 7, 2014 *Ex Parte*”).

Communications Act has long required the Commission to examine closely the impact of spectrum aggregation on competition, innovation, and the efficient use of spectrum to ensure that spectrum is allocated and assigned in a manner that serves the public interest, convenience and necessity, and avoids the excessive concentration of licenses.<sup>240</sup> In recent years, the Commission has considered in more detail and largely in the context of our case-by-case analysis of secondary market transactions how distinctions among spectrum bands affect competition in the provision of next-generation mobile broadband services.<sup>241</sup>

68. In today's marketplace, in many service areas currently suitable and available below-1-GHz spectrum is disproportionately concentrated in the hands of larger nationwide service providers: the two largest providers hold 73 percent of the low-band spectrum.<sup>242</sup> Particularly in the context of the once-in-a-generation Incentive Auction, we find that there is a reasonably foreseeable risk of not achieving our various Section 309(j) goals whether or not leading providers are motivated by foreclosure strategies. We conclude that if we do not act at this time to ensure the highest use of low-band spectrum, the competitive choices available to wireless consumers will likely be substantially less attractive. We therefore find it essential to establish clear and transparent policies that will preserve and promote competition in the future, promote the efficient use of spectrum, ensure competitive mobile broadband service in rural areas, and avoid an excessive concentration of licenses. We find that excessive concentration in the allocation of relatively scarce below-1-GHz spectrum, given ever increasing consumer demand for more bandwidth-intensive services, would substantially harm the public interest and indeed, would create a significant risk in the future of an insufficient number of service providers with a network capable of satisfying consumer demand.

69. We find that the promotion of competition, variety of licensees, rural coverage, and consumer choice in the mobile marketplace, as well as in the future, crucially depends upon multiple providers having access to the low-band spectrum they need to operate and vigorously compete.<sup>243</sup> We also find that we must consider the potential for anticompetitive results if the concentrated holdings of below-1-GHz spectrum are not addressed. We cannot ignore the possibility of diminished competition in the future, both from rivals' costs being raised and from foreclosure. Further, we find that the burden that some providers may experience by limits on their ability to acquire increasing amounts of below-1-GHz spectrum, when tailored to the minimum we believe necessary to promote competition as described below, will be outweighed by the public interest benefits that will flow from the preservation and promotion of robust and sustainable competition. By adopting clear and transparent spectrum aggregation limits, we aim to ensure that American consumers have meaningful choices among multiple service providers in the future.<sup>244</sup>

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<sup>240</sup> See 47 U.S.C. § 309(j)(3)(B); 47 U.S.C. § 309(j)(3)(D).

<sup>241</sup> See *AT&T-Qualcomm Order*, 26 FCC Rcd 17589; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd 10698 ¶ 47; *AT&T WCS Order*, 27 FCC Rcd 16459; *AT&T-Verizon Wireless-Grain Order*, 28 FCC Rcd at 12892-97 ¶¶ 36-45 (finding competitive concerns in two of the markets in which AT&T acquired Lower 700 MHz B Block spectrum); *AT&T-ATN Order*, 28 FCC Rcd at 13689-701 ¶¶ 39-56.

<sup>242</sup> Based on internal FCC staff analysis of ULS.

<sup>243</sup> See DOJ Apr. 11, 2013 *Ex Parte* at 1 (“[R]ules that ensure the smaller nationwide networks, which currently lack substantial low-frequency spectrum, have an opportunity to acquire such spectrum could improve the competitive dynamic among nationwide carriers and benefit consumers.”); CCA Dec. 5, 2013 *Ex Parte* at 2 (quoting DOJ Apr. 11, 2013 *Ex Parte*); Letter from Trey Hanbury, Hogan Lovells, Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Sept. 24, 2013 at 2 (“[R]easonable spectrum-aggregation limits promote competition by limiting the ability of dominant incumbents to prevent competitors from gaining access to the resources they need to compete.”) (“T-Mobile Sept. 24, 2013 *Ex Parte*”).

<sup>244</sup> See DOJ Apr. 11, 2013 *Ex Parte* at 8; Peha Supp. Decl. at 3; T-Mobile Mar. 12, 2013 *Ex Parte* at 4.

#### IV. CHANGES TO THE SPECTRUM SCREEN

70. In this section, we evaluate which bands should be included in the spectrum screen. First, we retain the current standard for whether particular bands should be included in the spectrum screen - “suitable” and “available” in the near term for the provision of mobile telephony/broadband services.<sup>245</sup> Further, for the reasons discussed below, we determine that the following spectrum should be added to the spectrum screen: the 600 MHz band (at the conclusion of the Incentive Auction), Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz spectrum bands (AWS-4), H Block, additional BRS spectrum, the majority of the EBS spectrum, and the AWS-3 band (on a market-by-market basis as it becomes “available”). We also determine that we should not include the Upper 700 MHz D Block and a certain amount of the SMR spectrum, both of which previously have been included.

##### A. Standard for Inclusion of Bands

71. When assessing spectrum aggregation in its review of wireless transactions,<sup>246</sup> the Commission evaluates the current spectrum holdings of the acquiring firm that are “suitable” and “available” in the near term for the provision of mobile telephony/broadband services.<sup>247</sup> Suitability is determined by whether the spectrum is capable of supporting mobile service given its physical properties and the state of equipment technology, whether the spectrum is licensed with a mobile allocation and corresponding service rules, and whether the spectrum is committed to another use that effectively precludes its uses for mobile services.<sup>248</sup> Spectrum is considered “available” if it is “fairly certain that it will meet the criteria for suitable spectrum in the near term, an assessment that can be made at the time the spectrum is licensed or at later times after changes in technology or regulation that affect the consideration.”<sup>249</sup>

72. The Commission has previously determined that the following bands, or portions thereof, meet this definition of “suitable” and “available” and should be included in the spectrum screen: cellular, broadband PCS, SMR, 700 MHz band spectrum, Advanced Wireless Services in the 1710-1755 and 2110-2155 MHz band (“AWS-1,” on a market-by-market basis), Broadband Radio Service spectrum

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<sup>245</sup> “Mobile telephony/mobile broadband services” is the current product market definition. As discussed in Section VI below, we retain this product market definition, particularly in light of the general agreement on the record that modification is not necessary.

<sup>246</sup> See, e.g., *SoftBank-Sprint Order*, 28 FCC Rcd at 9642 ¶ 39; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10719 ¶ 59.

<sup>247</sup> See, e.g., *SoftBank-Sprint Order*, 28 FCC Rcd at 9642 ¶ 39; *AT&T WCS Order*, 27 FCC Rcd at 16469-70 ¶ 29.

<sup>248</sup> See *AT&T-Qualcomm Order*, 26 FCC Rcd at 17605-06 ¶ 38; *AT&T-Centennial Order*, 24 FCC Rcd at 13935 ¶ 43.

<sup>249</sup> *AT&T-Qualcomm Order*, 26 FCC Rcd at 17605-06 ¶ 38; *AT&T-Verizon Wireless Order*, 25 FCC Rcd at 8723-24 ¶ 39; *AT&T-Centennial Order*, 24 FCC Rcd at 13935 ¶ 43. Previously, the Commission considered the spectrum to be a relevant input if it met the criteria for suitable spectrum in the near term or within two years. See, e.g., *Verizon Wireless-ALLTEL Order*, 23 FCC Rcd at 17490-91 ¶ 98; *AT&T-Dobson Order*, 22 FCC Rcd at 20323-24 ¶ 56. Prior to 2010, the *DOJ/FTC Merger Guidelines* used a two-year time frame for the entry to be considered timely for determining a significant market impact. See Horizontal Merger Guidelines, issued by the U.S. Department of Justice and the Federal Trade Commission, at § 3.2 (Apr. 2, 1992, revised Apr. 8, 1997) (“1997 DOJ/FTC Merger Guidelines”). In 2010, the DOJ released the new *DOJ/FTC Horizontal Merger Guidelines*, which removed the two-year period for timeliness of availability. Under these new guidelines, the relevant section states that “in order to deter the competitive effects of concern, entry must be rapid enough.” See Horizontal Merger Guidelines, issued by the U.S. Department of Justice and the Federal Trade Commission at § 9.1. (Aug. 19, 2010) (“2010 DOJ/FTC Merger Guidelines”). Accordingly, we consider spectrum to be a relevant input if it meets the criteria for suitable spectrum in the near term.

(“BRS,” on a market-by-market basis), and WCS spectrum.<sup>250</sup> As discussed in Section III.C above, frequency bands below 1 GHz have certain propagation characteristics that make them well suited for rural coverage and in-building coverage in densely-populated urban areas, whereas the frequency bands above 1 GHz generally are better suited for increasing network capacity. Regardless of these different characteristics, all bands are considered suitable and available for the provision of mobile telephony/broadband services under our definition.

73. In the *Mobile Spectrum Holdings NPRM*, the Commission sought comment on whether to continue to consider spectrum based on the suitability and availability standard or whether to consider other factors.<sup>251</sup> The Commission asked for any legal, economic, and engineering justifications to support existing or modified criteria to determine the suitability and availability standard.<sup>252</sup> The Commission also sought comment on the application of the relevant factors to particular spectrum bands and which spectrum bands should be included in the Commission’s spectrum analysis.<sup>253</sup>

74. Four commenters, Free Press, AT&T, Verizon Wireless, and RWA, support retaining the current standard.<sup>254</sup> T-Mobile, the only commenter to propose a different standard, proposes including in the spectrum screen only spectrum that actually is available for use “either presently or in the imminently foreseeable future,” citing AWS-1 spectrum as an example of spectrum that was not available when it was first licensed.<sup>255</sup>

75. Based on the record before us, we retain the current definition. We find that the current suitable and available standard has worked well to identify new spectrum to be included in the spectrum screen, and the record does not provide persuasive evidence to support modifying the current suitability and availability standard. We disagree with T-Mobile that we should modify the standard for considering spectrum “available.” As discussed above, we consider spectrum available if we are fairly certain that it will meet the criteria for suitable spectrum in the “near term.” Any narrower definition such as “actually” or “imminently” available as suggested by T-Mobile would preclude relevant spectrum from being accounted for in our analysis of spectrum aggregation as we review secondary market wireless transactions.<sup>256</sup> We next turn to evaluating which particular spectrum bands should be included in the spectrum screen.

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<sup>250</sup> See *Cingular-AT&T Wireless Order*, 19 FCC Rcd at 21560-61 ¶ 81 (including approximately 200 megahertz of cellular, PCS, and SMR spectrum); *AT&T-Dobson*, 22 FCC Rcd at 20314 ¶ 31 (adding 80 megahertz of 700 MHz spectrum); *Sprint-Clearwire Order*, 23 FCC Rcd at 17570, 17591-92, 17596-99 ¶¶ 53, 62-70 (adding 55.5 megahertz of BRS spectrum and 90 megahertz of AWS-1 spectrum where available in particular markets); *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10721 ¶ 63 n.151 (clarifying the inclusion of the 10 megahertz PCS G Block); *AT&T WCS Order*, 27 FCC Rcd at 16470-71 ¶ 31 (adding 20 megahertz of WCS spectrum).

<sup>251</sup> See *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11722 ¶ 27.

<sup>252</sup> See *id.*

<sup>253</sup> See *id.* at 11723 ¶ 28.

<sup>254</sup> Free Press Comments at 19; AT&T Comments at 36; Verizon Wireless Comments at 18; Sprint Comments at 13; RWA Comments at 5.

<sup>255</sup> T-Mobile Reply at 17. See also Sprint Feb. 11, 2014 *Ex Parte* Sprint Weighted Spectrum Screen Feb. 2014 at 13 (noting that the Commission’s suitable and available standard does not take into account economic or technical factors “that would warrant modifying the criteria we use to determine the suitability and availability of spectrum.”).

<sup>256</sup> See, e.g., in the *AT&T-Dobson Order*, the Commission found that in light of recent developments in the spectrum band, spectrum suitable for the provision of mobile telephony services included 80 megahertz of 700 MHz band spectrum (in the 698-806 MHz band) nationwide, and therefore should be added to the screen, *id.*, 22 FCC Rcd at 20314 ¶ 31.

**B. 600 MHz Band**

76. **Background.** Later in this Order, we discuss in detail the upcoming Incentive Auction to license the 600 MHz Band.<sup>257</sup> Through the Incentive Auction, we will facilitate the voluntary return of spectrum usage rights, reorganize the broadcast television bands, and offer a portion of ultra-high frequency (“UHF”) spectrum in a “forward auction” of new, flexible-use licenses to provide mobile broadband services in the 600 MHz Band.<sup>258</sup>

77. In the *Incentive Auction Report and Order*, we adopt a 600 MHz Band Plan, which is designed to support a wide range of mobile broadband network technologies and is best suited for the rapid deployment of networks.<sup>259</sup> For instance, we will license the 600 MHz Band in paired uplink and downlink bands, to be used for frequency division duplex (FDD) operations.<sup>260</sup> We will license the 600 MHz Band in 5 megahertz blocks, beginning at channel 51 (698 MHz) and expanding downward.<sup>261</sup> In addition, we will license the 600 MHz Band in Partial Economic Areas (“PEAs”), finding that PEAs permit entry by providers that contemplate offering wireless broadband service on a localized basis, yet may be aggregated by providers that plan to provide service on a larger geographic scale.<sup>262</sup>

78. In addition, in the *Incentive Auction Report and Order*, we adopt a 39-month transition period for broadcasters that are assigned new channels in the “repacking process.”<sup>263</sup> Specifically, the transition period will include (1) the three-month period beginning upon the release of the Channel Reassignment Public Notice, during which broadcasters will complete and file their construction permit applications, followed by (2) a 36-month period consisting of varied construction deadlines (the Broadcast Construction Period).<sup>264</sup>

79. Though many commenters assume that the 600 MHz Band will be suitable for mobile broadband, few discuss when to add the 600 MHz Band to the spectrum screen. AT&T and Sprint assert that the band should be added once the service rules are finalized and the auction is conducted.<sup>265</sup>

80. **Discussion.** As set forth in the *Incentive Auction Report and Order*, we find that the 600 MHz Band is suitable for the provision of mobile telephony/mobile broadband services. In that *Report*

<sup>257</sup> See Spectrum Act, §§ 6402, codified at 47 U.S.C. § 309(j)(8)(G), 6403, 47 U.S.C. § 1452; Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions, *Notice of Proposed Rulemaking*, 268, 27 FCC Rcd 12357, 12368 ¶¶ 25-26 (2012) (“*Incentive Auction NPRM*”). The *Incentive Auction NPRM* provided an overview of broadcast television and other services that occupy the broadcast television bands, the Commission’s historical efforts to meet America’s spectrum needs and Congress’s call for more broadband spectrum in the Spectrum Act, and the statute’s Incentive Auction provisions. See *id.* ¶¶ 11-34.

<sup>258</sup> See *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Dkt. No. 12-268, FCC No. 14-50, (adopted May 15, 2014) Section I (“*Incentive Auction Report and Order*”).

<sup>259</sup> See *id.* Sections II & III.A.

<sup>260</sup> See *id.*

<sup>261</sup> See *id.* Section III.A.

<sup>262</sup> See *id.*

<sup>263</sup> The 39-month transition period also applies to winning UHF-to-VHF and high-VHF-to-low-VHF bidders.

*Id.* Section V.C.

<sup>264</sup> *Id.* In addition, the Commission has adopted rules to allow low power TV and TV translator stations to continue operations until the 600 MHz wireless licensee provides advance notification that it intends to commence operations. *Id.* Section V.D.

<sup>265</sup> See Sprint Feb. 11, 2014 *Ex Parte*, Sprint Weighted Spectrum Screen Feb. 2014 at 27; AT&T Mar. 14, 2014 *Ex Parte*, Reed & Tripathi Mar. 2014 at 26-27. See also Mobile Future Comments at 11-12 (600 MHz spectrum should be included once service rules are adopted and auction date is set).

*and Order* adopted today, we establish rules to implement the Incentive Auction and to govern the use of the 600 MHz Band for the provision of mobile wireless services.<sup>266</sup> Moreover, we adopt a band plan that facilitates wireless broadband deployment operations.<sup>267</sup>

81. We also find that the 600 MHz Band is available for the provision of mobile telephony/mobile broadband services. In the *Incentive Auction Report and Order*, we establish a clear framework for transitioning incumbent broadcasters from the 600 MHz Band within 39 months of the close of the auction and expect most new licensees to have access to the 600 MHz spectrum well before then.<sup>268</sup> At the end of the 39-month Broadcast Transition Period, all stations must cease operating on their pre-auction channels regardless of whether they have completed construction of the facilities for their post-auction channel. Given this concrete transition framework, the relative clarity regarding the availability of this spectrum, and the importance of this band to the mobile wireless marketplace going forward, we anticipate that the spectrum cleared at auction is likely to begin having a competitive impact very shortly after the auction ends. As a result, we will consider the 600 MHz Band to be available upon the release of the *Channel Reassignment PN*<sup>269</sup> after conclusion of the Incentive Auction. We note that we considered the 700 MHz band to be available a year and a half before the spectrum would be cleared of broadcast incumbents with the digital television (DTV) transition and therefore available for mobile service on a nationwide basis even though that was prior to the final auction of the band.<sup>270</sup> Further, when the Commission added WCS to the spectrum screen in 2012, it cited to AT&T's statements that AT&T will take substantial steps to deploy LTE in the band in the next three years.<sup>271</sup> Therefore, we consider the 600 MHz Band to be available upon the release of the *Channel Reassignment PN*, and will include it in the spectrum screen at that time. The amount of repurposed 600 MHz Band spectrum added to the spectrum screen will be equal to the total megahertz amount of spectrum repurposed for flexible use wireless licenses.<sup>272</sup>

### C. Advanced Wireless Service

82. In 2006, the Commission auctioned a total of 90 megahertz of AWS-1 spectrum licenses in the 1.7 and 2.1 GHz bands.<sup>273</sup> In the 2008 *Sprint-Clearwire Order*, the Commission determined that AWS-1 spectrum should be added to the spectrum screen in those markets where that spectrum is available for use in the provision of mobile telephony/broadband services, based on the status of relocation of federal incumbents in the 1.7 GHz band.<sup>274</sup>

<sup>266</sup> See *Incentive Auction Report and Order*, FCC No. 14-50, at Section s III.A & VI.B.

<sup>267</sup> See *id.* Section III.A.

<sup>268</sup> See *id.* at Sections I and V.C. In the *Incentive Auction Report and Order*, the Commission has delegated authority to the Media Bureau to establish a set of deadlines within the Broadcast Construction Period and to assign deadlines after the completion of the Incentive Auction to all stations that are reassigned to a new channel in the repacking process and all winning UHF-to-VHF and high-VHF-to-low-VHF bidders. The deadlines may vary by region, by the complexity of construction tasks, or by other factors the Media Bureau finds appropriate. *Id.* Section V.C.

<sup>269</sup> *Id.* Section V.C.

<sup>270</sup> See *AT&T-Dobson Order*, 22 FCC Rcd 20295, 20314 ¶¶ 31.

<sup>271</sup> See *AT&T WCS Order*, 27 FCC Rcd at 16470-71, 16475-76 ¶¶ 31, 43.

<sup>272</sup> See *infra* Section V.B.

<sup>273</sup> See *16th Mobile Wireless Competition Report*, 28 FCC Rcd at 3775 ¶ 96. Advanced Wireless Service does not refer to a specific band, but rather is a "flexible use" service designation that enables a wide variety of high-bandwidth terrestrial wireless applications, including voice and data (such as Internet browsing, message services, and full-motion video) content. The AWS bands, as discussed *infra*, comprise of spectrum bands in and around 2 GHz.

<sup>274</sup> See *Sprint-Clearwire Order*, 23 FCC Rcd at 17584 ¶ 29; see also *id.* at 17596, 17599 ¶¶ 61, 72.



83. Since that time, the Commission has adopted mobile wireless service rules for three additional AWS bands: (1) 40 megahertz of spectrum in the 2000-2020 MHz and 2180-2200 MHz bands (“AWS-4”);<sup>275</sup> (2) 10 megahertz of spectrum between 1915-1920 MHz and 1995-2000 MHz (“H Block”);<sup>276</sup> and (3) 65 megahertz of spectrum between 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz (“AWS-3”).<sup>277</sup> We consider below whether these three bands should be included in the spectrum screen.

### 1. AWS-4 Spectrum

84. **Background.** In April 2011, the Commission added fixed and mobile allocations to the 2000-2020 MHz and 2180-2200 MHz bands (together, “AWS-4”).<sup>278</sup> In December 2012, the Commission adopted licensing, operating, and technical rules for stand-alone terrestrial mobile wireless operations in the AWS-4 band.<sup>279</sup> The Commission also concluded that it would assign the AWS-4 spectrum to the incumbent Mobile Satellite Service (“MSS”) operators in order to make this spectrum available efficiently and quickly for flexible, terrestrial use, such as mobile broadband.<sup>280</sup> In addition, the Commission made other determinations in the *AWS-4 Report and Order* to facilitate mobile broadband use of the AWS-4 band, including pairing the 2000-2020 MHz uplink band with the 2180-2200 MHz downlink band<sup>281</sup> and adopting two paired 10x10 megahertz blocks, to be operated with consistent (*i.e.*, non-variable) duplex spacing,<sup>282</sup> to encourage technologies that utilize wider bandwidth to encourage the adoption of and use of next generation technologies, such as LTE.<sup>283</sup>

85. Regarding the relocation of incumbents in the AWS-4 band, the Commission noted that Sprint already completed the relocation of Broadcast Auxiliary Service (“BAS”) licensees from the entire 35 megahertz at 1990-2025 MHz, which includes the lower portion of the AWS-4 band (2000-2020 MHz).<sup>284</sup> With respect to the upper portion of the AWS-4 band (2180-2200 MHz), the Commission

<sup>275</sup> Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands, WT Dkt. No. 12-70, *Report and Order and Order of Proposed Modification*, 27 FCC Rcd 16102 (2012) (“*AWS-4 Report and Order*”).

<sup>276</sup> Service Rules for 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, *Report & Order*, WT Dkt. No. 12-257, 28 FCC Rcd 9483, 9488, 9495 ¶¶ 9, 25 (2013) (“*H Block Report and Order*”).

<sup>277</sup> See Amendment of the Commission’s Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands, WT Dkt. No. 13-185, *Report and Order*, FCC 14-31 (rel. Mar. 31, 2014) (“*AWS-3 Report and Order*”).

<sup>278</sup> See Fixed and Mobile Services in the Mobile Satellite Service Bands at 1525-1559 MHz and 1626.5-1660.5 MHz, 1610-1626.5 MHz and 2483.5-2500 MHz, and 2000-2020 MHz and 2180-2200 MHz, ET Dkt. No. 10-142, *Report and Order*, 26 FCC Rcd 5710, 5710 ¶ 2 (2011).

<sup>279</sup> The Commission indicated that its actions would remove regulatory barriers to mobile broadband use of this spectrum and would provide a stable regulatory regime in which broadband deployment can rapidly occur. See *AWS-4 Report and Order*, 27 FCC Rcd at 16103 ¶ 1.

<sup>280</sup> See *id.* at 16104 ¶ 2.

<sup>281</sup> See *id.* at 16116 ¶¶ 33-34. On December 20, 2013, the Wireless Telecommunications Bureau granted DISH’s request, subject to certain conditions, for flexibility to elect to use 2000-2020 MHz for either uplink or downlink operations. See DISH, Petition for Waiver of Sections 27.5(j) and 27.53(h)(2)(ii) and Request for Extension of Time, WT Dkt. No. 13-225, *Mem. Op. and Order*, 28 FCC Rcd 16787 (WTB 2013). One of the conditions requires DISH to file its uplink or downlink election, which shall apply to all AWS-4 licenses, as soon as commercially practicable but no later than 30 months after the December 20, 2013 release date of the Bureau’s order.

<sup>282</sup> See *AWS-4 Report and Order*, 27 FCC Rcd at 16118-19 ¶¶ 41-42.

<sup>283</sup> See *id.* at 16118-19 ¶ 42.

<sup>284</sup> See *id.* at 16209 ¶¶ 292-93.

observed that there are fixed microwave incumbents that still need to be relocated as part of the process the Commission set forth when it reallocated the 2160-2200 MHz band from fixed microwave services to “emerging technologies” (e.g., PCS, AWS).<sup>285</sup> The Commission adopted relocation rules for licensees of AWS-4 authority that are similar to rules that have governed the relocation of incumbent licensees by AWS-1 licensees and other terrestrial wireless licensees.<sup>286</sup>

86. In the *AWS-4 Report and Order*, the Commission took additional actions to strike a balance in ensuring the efficient use of both the AWS-4 band and the 1995-2000 MHz band (upper half of H Block) that is adjacent to the AWS-4 uplink band. In particular, the Commission established limited technical restrictions on AWS-4 operations in 2000-2005 MHz (the lowest five megahertz of the AWS-4 uplink band) that would require AWS-4 licensees to accept some limited interference from operations in the 1995-2000 MHz band and would impose more stringent out-of-band emission (“OOBE”) limits and power limits on these licensees to protect future operations in 1995-2000 MHz.<sup>287</sup> In addition, the Commission adopted rules that allow for these technical restrictions on AWS-4 operations in 2000-2005 MHz to be modified by commercial agreements with future 1995-2000 MHz band licensees, providing greater flexibility to use 2000-2005 MHz to any operators that obtain licenses for both AWS-4 and H Block.<sup>288</sup>

87. Further, the Commission found that, given that pendency of the *Mobile Spectrum Holdings* proceeding, it would not address the narrower issue of how to assess AWS-4 spectrum holdings for purposes of spectrum concentration analyses.<sup>289</sup>

88. AT&T, Verizon Wireless, and Mobile Future assert that the Commission should include 40 megahertz of AWS-4 spectrum in the spectrum screen based on the release of the *AWS-4 Report and Order* to facilitate the deployment of mobile broadband services in the band.<sup>290</sup> DISH contends that the Commission should include only 35 of the 40 megahertz of AWS-4 spectrum in the screen, asserting that the lower 5 megahertz (2000-2005 MHz) is not suitable and available for mobile broadband because of the technical limitations adopted in the *AWS-4 Order*.<sup>291</sup> US Cellular (“USCC”) argues that because the AWS-4 spectrum band operates under legal and interference constraints the Commission should wait to

<sup>285</sup> *Id.* at 16210-11 ¶ 296. *See also* 47 C.F.R. § 101.69.

<sup>286</sup> *See AWS-4 Report and Order*, 27 FCC Rcd at 16214 ¶¶ 304-06. In general, licensees of AWS-4 authority are required to coordinate their frequency usage with all potentially affected co-channel and adjacent channel fixed service (FS) incumbents operating in the 2180-2200 MHz band prior to initiating operations from any base or fixed station. If interference would occur, the licensee of AWS-4 authority can initiate a mandatory negotiation period (two-years for non-public safety, three-years for public safety) during which each party must negotiate in good faith for the purpose of agreeing to terms under which the FS licensees would: (1) relocate their operations to other fixed microwave bands or other media; or alternatively (2) accept a sharing arrangement with the licensee of AWS-4 authority that may result in an otherwise impermissible level of interference to the FS operations. *See* 47 C.F.R. §§ 27.1131, 27.1160, 101.82. *See also* 47 C.F.R. §§ 101.69, 101.73. If no agreement is reached during the mandatory negotiation period, the licensee of AWS-4 authority can initiate involuntary relocation procedures. *See* 47 C.F.R. § 101.75.

<sup>287</sup> *See AWS-4 Report and Order*, 27 FCC Rcd at 16111, 16132-33 ¶¶ 18, 72.

<sup>288</sup> *AWS-4 Report and Order*, 27 FCC Rcd at 16111, 16132-33 ¶¶ 18, 72.

<sup>289</sup> *See id.* at 16193 ¶ 243.

<sup>290</sup> AT&T Reply at 16; Verizon Wireless Reply at 9; Mobile Future Comments at 11. *See also* RWA Reply at 12; Letter from Maggie McCready, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Dec. 20, 2013 at 1 (“Verizon Wireless Dec. 20, 2013 *Ex Parte*”); Verizon Wireless Mar. 14, 2014 *Ex Parte* at 1; Reed & Tripathi Mar. 2014 at 26.

<sup>291</sup> *See* Letter from Jeffrey H. Blum, Senior Vice President and Deputy General Counsel, DISH, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Feb. 22, 2013 at 1. *See also* Leap Reply at 8-9.

include it in the spectrum screen.<sup>292</sup> Sprint maintains that it may be ready for inclusion as soon as equipment is available.<sup>293</sup>

89. **Discussion.** We agree with AT&T and Verizon Wireless that the 40 megahertz of spectrum in the AWS-4 band is suitable and available for the provision of mobile/telephony broadband services, and therefore should be included in the spectrum screen. In the *AWS-4 Report and Order*, the Commission adopted licensing, operating, and technical rules for stand-alone terrestrial mobile wireless operations in the AWS-4 band, which already included an allocation for mobile use, and took other actions to remove regulatory barriers to mobile broadband use of the AWS-4 band, as described above.<sup>294</sup> The Commission also determined that it would assign AWS-4 licenses to DISH, as the incumbent MSS operator in that spectrum, and established a concrete, proven process for efficient relocation of incumbent operations from 2180-2200 MHz.<sup>295</sup> In light of these Commission actions, we find that the 40 megahertz in the AWS-4 band should be included in the spectrum screen going forward.

90. We disagree with DISH's assertion that we should include only 35 out of the 40 megahertz of AWS-4 spectrum because of the stringent technical restrictions placed on AWS-4 operations in 2000-2005 MHz to protect adjacent operations in the upper portion of the H Block (1995-2000 MHz). We note that, subsequent to DISH's filings in this proceeding, the Commission concluded its auction of H Block licenses, with DISH, the holder of all AWS-4 licenses, having acquired all H Block licenses as well.<sup>296</sup> Given the flexibility provided in the *AWS-4 Report and Order* allowing these technical restrictions on AWS-4 operations in 2000-2005 MHz to be modified by commercial agreements between licensees of the AWS-4 band and the H Block, and the fact that DISH now holds all AWS-4 and H Block licenses, we conclude that any potential interference issues between 2000-2005 MHz and 1995-2000 MHz should be sufficiently resolved so that we should count 2000-2005 MHz in the spectrum screen along with the other 35 megahertz of AWS-4 spectrum.<sup>297</sup>

## 2. H Block

91. **Background.** In the Spectrum Act, Congress provides that by February 23, 2015, the Commission shall allocate the H Block bands – 1915-1920 MHz and 1995-2000 MHz – for commercial use and assign licenses through a system of competitive bidding.<sup>298</sup> In June 2013, the Commission adopted service rules for the band, including pairing the two 5 megahertz blocks, establishing Economic Areas (EAs) as the license area, and generally adopting Part 27 flexible use rules.<sup>299</sup> The Commission declined to address the issue of whether the acquisition of H Block spectrum should be subject to the mobile spectrum holdings policies that apply to frequency bands that meet the suitable and available standard, in light of the pending mobile spectrum holdings rulemaking.<sup>300</sup> On February 27, 2014, the

<sup>292</sup> See USCC Reply at 3.

<sup>293</sup> See Sprint Feb. 11, 2014 *Ex Parte* at 26-27.

<sup>294</sup> See *AWS-4 Report and Order*, 27 FCC Rcd at 16102 ¶ 1.

<sup>295</sup> See *id.* at 16209, 16214 ¶¶ 292-93, 304-06.

<sup>296</sup> See Public Notice, Wireless Telecommunications Bureau Grants H Block (1915-1920 MHz and 1995-2000 MHz) Licenses, DA 14-548 (WTB rel. Apr. 29, 2014) (“*H Block Licensing Public Notice*”).

<sup>297</sup> Under the terms of a waiver granted by the Wireless Telecommunications Bureau, subject to certain conditions, DISH can elect to use 2000-2020 MHz for either uplink or downlink operations, which also should mitigate any concerns regarding whether 2000-2005 MHz can be used for mobile wireless services. See DISH Network Corporation, Petition for Waiver of Sections 27.5(j) and 27.53(h)(2)(ii) and Request for Extension of Time, WT Dkt. No. 13-225, DA 13-2409, *Mem. Op. and Order*, 2013 WL 6705897, ¶ 20 (WTB 2013).

<sup>298</sup> See Spectrum Act § 6401(b), codified at 47 U.S.C. § 1451(b).

<sup>299</sup> See *H Block Report and Order*, 28 FCC Rcd at 9488, 9495 ¶¶ 9, 25.

<sup>300</sup> See *id.* at 9556 ¶ 191.

Commission concluded its auction of H Block licenses, with DISH placing the winning bids on all 176 licenses across the nation.<sup>301</sup> On April 29, 2014, the Wireless Telecommunications Bureau granted DISH's application for these licenses.<sup>302</sup>

92. In their comments filed prior to the start of the H Block auction, Verizon Wireless and RWA support including the H Block spectrum in the screen at the time the long form applications are filed post-auction.<sup>303</sup> AT&T and Sprint also support including the band in the screen.<sup>304</sup> No commenters oppose including the H Block spectrum in the screen.

93. **Discussion.** We find that the H Block spectrum is suitable and available for the provision of mobile/telephony broadband services, and therefore should be counted in the spectrum screen. In the *H Block Report and Order*, the Commission explained that through the adoption of service rules for this band, we increase the nation's supply of spectrum for flexible-use services, including mobile broadband, and in particular would extend the widely deployed broadband PCS band used by numerous providers to offer mobile service across the United States. The Commission also found that, consistent with the technical rules it adopted, the use of both the 1915-1920 MHz band and the 1995-2000 MHz band can occur without causing harmful interference to broadband PCS downlink operations at 1930-1995 MHz. In light of these conclusions, along with the recent completion of the H Block auction and the fact that incumbent licensees in these bands previously were cleared by UTAM, Inc. and by Sprint, we find that the H Block should be included in the spectrum screen going forward.

### 3. AWS-3 Bands

94. **Background.** On March 31, 2014, we adopted rules for spectrum in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz bands (collectively, "AWS-3") that make available an additional 65 megahertz of commercial spectrum for the provision of mobile broadband services.<sup>305</sup> We indicated that we will assign AWS-3 licenses by competitive bidding, offering five megahertz and ten megahertz blocks.<sup>306</sup> Congress states in the Spectrum Act that the Commission shall grant new initial licenses for these bands by February 23, 2015.<sup>307</sup>

95. In the *AWS-3 Report and Order*, we indicated that the AWS-3 spectrum will be licensed in two groupings: (1) a pairing of the 2155-2180 MHz band for downlink/base station operations with the 1755-1780 MHz band for uplink/mobile operations and (2) an unpaired 1695-1710 MHz band for uplink/mobile operations. In the *AWS-3 Report and Order*, we made available the 1695-1710 MHz and 1755-1780 MHz bands on a shared basis with Federal incumbents. Over time many incumbent users will

<sup>301</sup> See Public Notice, Auction of H Block Licenses in the 1915-1920 MHz and 1995-2000 MHz Bands Closes, DA 14-279 (WTB, rel. Feb. 28, 2014).

<sup>302</sup> See *H Block Licensing Public Notice*, DA 14-548.

<sup>303</sup> See RWA Reply at 11; Letter from Caressa Bennet, Esq., Bennet & Bennet, PLLC, Counsel for RWA, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed June 21, 2013 at 4; Letter from Tamara Preiss, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, Sept. 24, 2013 at 4 (Verizon Wireless Sept. 24, 2013 *Ex Parte*); Letter from Tamara Preiss, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Mar. 14, 2014 at 1 ("Verizon Wireless Mar. 14, 2014 *Ex Parte*").

<sup>304</sup> See Sprint Feb. 11, 2014 *Ex Parte*, Sprint Weighted Spectrum Screen Feb. 2014 at 27; AT&T Mar. 14, 2014 *Ex Parte*, Reed & Tripathi Mar. 2014 at 27.

<sup>305</sup> See *AWS-3 Report and Order*, FCC 14-31, at ¶¶ 1 n.1, 59. We indicated that we will address service rules for the 2020-2025 MHz band separately in a subsequent item.

<sup>306</sup> See, e.g., *AWS-3 Report and Order*, FCC 14-31, at ¶ 2.

<sup>307</sup> See Spectrum Act, § 6401(b).

relocate out of these bands, and a limited number of protected federal operations at specific sites will remain in both bands indefinitely.<sup>308</sup>

96. Federal agencies sharing or relocating from bands eligible for reimbursement (*i.e.* 1695-1710 MHz and 1755-1780 MHz bands) must submit a Transition Plan that generally describes an agency's plan for "the implementation by such entity of the relocation or sharing arrangement"<sup>309</sup> including estimated relocation or sharing related costs and timelines.<sup>310</sup>

97. For the 1695-1710 MHz and 1755-1780 MHz bands, AWS-3 licensees must protect certain Federal incumbents indefinitely and must protect other Federal incumbents temporarily until those incumbents relocate to a different band.<sup>311</sup> AWS-3 licensees must coordinate with Federal incumbents in these bands prior to beginning operation. In the *AWS-3 Report and Order*, the Commission directed the Wireless Telecommunications Bureau to work with the National Telecommunications and Information Administration ("NTIA") staff to develop a joint FCC and NTIA public notice with information on coordination procedures in the 1695-1710 MHz and 1755-1780 MHz bands.<sup>312</sup>

98. In the *AWS-3 Report and Order*, the Commission determined that the *Mobile Spectrum Holdings* rulemaking is the most appropriate context in which to resolve whether the AWS-3 bands should be included in the spectrum screen used in the Commission's competitive review of secondary market transactions.<sup>313</sup>

99. Few commenters in the record address whether the AWS-3 band currently meets the suitable and available standard and therefore should be included in the screen at this time. Sprint proposes to include the band once the service rules are adopted and the auction closes.<sup>314</sup>

100. **Discussion.** We find that the AWS-3 bands (1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz) are suitable for the provision of mobile telephony/mobile broadband services. We note that in the recent *AWS-3 Report and Order*, we amended the Allocation Table to include a mobile, non-Federal allocation for the 1695-1710 MHz and 1755-1780 MHz bands, which already applied to the 2155-2180 MHz band.<sup>315</sup> In addition, in the *AWS-3 Report and Order*, we found that licensing AWS-3 bands in a combination of 5 and 10 megahertz blocks aligns well with a variety of wireless broadband technologies, including LTE, Wideband Code Division Multiple Access (WCDMA), HSPA, and LTE-advanced.<sup>316</sup> We also concluded in the *AWS-3 Report and Order* that pairing uplink/mobile transmit operations in the 1755-1780 MHz band with downlink operations in the 2155-2180 MHz band would be compatible with similar operations in the adjacent AWS-1 band, effectively creating a combined 140

<sup>308</sup> See, e.g., *AWS-3 Report and Order*, FCC 14-31, at ¶ 2, App. A US91.

<sup>309</sup> *Id.* ¶ 223 (quoting 47 U.S.C. § 923(h)(1)).

<sup>310</sup> See *id.* ¶¶ 10, 223 (citing 47 U.S.C. § 923 (h)(1)). The plans that the agencies submitted to NTIA and the Technical Panel must contain information about the frequencies used, emission bandwidth, system use, geographic service area, timeline for sharing, timeline for transition, and estimated cost of relocation or sharing. See *id.* at ¶ 223.

<sup>311</sup> For a description of AWS-3 licensees' obligations with respect to Federal incumbent operations in the 1695-1710 MHz and 1755-1780 MHz bands, see, e.g., *id.* at Section III.E (Federal/Non-Federal Coordination), and App. A, Final Rules, 47 C.F.R. §§ 2.106, US note 88, 27.1134(c) (1695-1710 MHz), US note 91, 27.1134(f) (1755-1780 MHz band).

<sup>312</sup> See *id.* at ¶ 221.

<sup>313</sup> See *id.* ¶ 129.

<sup>314</sup> See Sprint Feb. 11, 2014 *Ex Parte* at 27. See also Mobile Future Comments at 11-12 (include (1915-1920 MHz, 1995-2000 MHz, and 2155-2180 MHz once the Commission adopts service rules and announces date of auction).

<sup>315</sup> See *AWS-3 Report and Order*, FCC 14-31, at ¶¶ 200-02, 207-09.

<sup>316</sup> See *id.* ¶ 52.

megahertz band.<sup>317</sup> Further, we observed that no regulation would prohibit licensees from pairing the unpaired 1695-1710 MHz uplink band with another present or future licensed downlink band.<sup>318</sup> Given the anticipated use of the AWS-3 bands for mobile broadband service, either as an extension of the AWS-1 band or potentially in combination with other AWS bands, we conclude that the AWS-3 bands are suitable for the provision of mobile telephony/mobile broadband service.

101. We also find that the AWS-3 bands should be considered available for mobile telephony/mobile broadband services on a market-by-market basis in the future, given that the timing of that access will depend on the nature of the Federal operations affecting each particular market. Commercial operators will have access to the 1755-1780 MHz and 1695-1710 MHz bands outside of areas where federal operations are protected during their transition,<sup>319</sup> inside areas where federal operations are protected during their transition if successfully coordinated with the Federal incumbent, in areas in which the Federal incumbents have relocated pursuant to their Transition Plan, and inside areas in which Federal incumbents are protected indefinitely if successfully coordinated with the Federal incumbent.<sup>320</sup> Accordingly, given that the effect of Federal incumbent operations on the timing and scope of commercial operations will vary from market to market, we determine that the 1755-1780 MHz and 1695-1710 MHz bands will become available on a market-by-market basis in the future. In addition, consistent with the paired offering of the 2155-2180 MHz band with the 1755-1780 MHz band, we will count the 2155-2180 MHz band as available for purposes of the spectrum screen at the same time we count the 1755-1780 MHz band in the particular market, consistent with our approach to the paired AWS-1 band.<sup>321</sup>

102. We note that the timing and the extent of access by commercial licensees to the 1755-1780 MHz and 1695-1710 MHz bands in particular markets will depend, in part, on the timelines to be set in the Transition Plans for relocating Federal incumbents, which will be made publicly available. In light of the importance of this band in adding capacity spectrum for mobile wireless providers to deploy next-generation networks, and the timelines to be set in the Transition Plans for different systems in different markets, we will count the 1755-1780 MHz and 1695-1710 MHz bands in the spectrum screen in a particular market once all relocating Federal incumbent systems in that market are within three years of completing relocation, according to the Transition Plans. We note that the timing and the extent of access by commercial licensees to these AWS-3 bands also will depend on successful coordination with federal systems during the transition process and the Federal systems that will not be relocating from these bands. However, given that the nature and timing of the coordination will be the subject of two-party private discussions between commercial licensees and Federal incumbents and will vary from market to market, from licensee to licensee, and from system to system, we will not base the timing of when we count AWS-3 spectrum to be available in a particular market on the status of coordination with non-relocating Federal incumbents.<sup>322</sup> We note that we will count the 2155-2180 MHz band in the spectrum screen for a

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<sup>317</sup> See *id.* ¶¶ 42, 44, 45.

<sup>318</sup> See *id.* ¶ 29.

<sup>319</sup> We note that the *AWS-3 Report and Order* requires licensees to coordinate any operations in 1755-1780 MHz on a nationwide basis, unless the Commission announces revisions and details in a joint FCC/NTIA public notice. See *id.* ¶ 220.

<sup>320</sup> See *id.* ¶¶ 219-20.

<sup>321</sup> For the AWS-1 paired band, the Commission did not consider as available the 2110-2155 MHz downlink portion, which was not encumbered by Federal licensees, until the encumbered 1710-1755 MHz uplink portion was available. See *Sprint-Clearwire Order*, 23 FCC Rcd at 17584 ¶ 29, see also *id.*, at 17596, 17599 ¶¶ 61, 72.

<sup>322</sup> We note that, in the context of the Commission's competitive review of a proposed spectrum acquisition, the applicants or interested parties can make arguments regarding how the status of coordination with non-relocating Federal incumbents in a particular market should affect the Commission's case-by-case review of the proposed acquisition in that market.

particular market at the same time we count the 1755-1780 MHz and 1695-1710 MHz bands in that market, for the reasons indicated above.

#### D. Big LEO Bands

103. **Background.** Verizon Wireless asserts that the Commission should add to the spectrum screen 19.275 megahertz of Big LEO (MSS) spectrum (2483.5-2495 MHz and 1610-1617.775 MHz) in which the Commission's rules permit an Ancillary Terrestrial Component ("ATC")<sup>323</sup> of the MSS system.<sup>324</sup> Among other things, Verizon Wireless notes that Globalstar Inc. ("Globalstar") has filed a petition to enhance terrestrial use of the Big LEO band, with short- and long-term terrestrial service deployment plans.<sup>325</sup>

104. On November 1, 2013, the Commission adopted a Notice of Proposed Rulemaking seeking comment on modified ATC rules that would allow Globalstar to deploy a low power broadband network with equipment that would use its licensed spectrum at 2483.5-2495 MHz under certain technical criteria and spectrum in the adjacent 2473-2483.5 MHz band pursuant to the applicable technical rules for unlicensed operations in that band.<sup>326</sup> The Commission indicated that it would address in a separate proceeding Globalstar's proposal to deploy a higher power terrestrial service (LTE technology) in both the S band (2483.5-2495 MHz) and L band (1610-1617.775 MHz) over the longer term.<sup>327</sup>

105. **Discussion.** We decline to add to the spectrum screen Big LEO MSS spectrum in the 2483.5-2495 MHz and 1610-1617.775 MHz ranges. As an initial matter, we note that Globalstar's ATC authority to operate terrestrial base stations and mobile terminals using this spectrum under the authority of a waiver granted in 2008<sup>328</sup> was suspended in 2010.<sup>329</sup> In addition, while Globalstar has proposed rule changes to permit short-term and long-term terrestrial deployment in that spectrum, none of these proposed changes have been acted on by the Commission. The Commission is considering in a pending rulemaking on the ATC rules for the 2483.5-2495 MHz spectrum whether to permit low power broadband networks, similar to Wi-Fi.<sup>330</sup> The Commission has not sought comment on Globalstar's proposed rule changes that would permit LTE technology in the 2483.5-2495 MHz and 1610-1617.775 MHz ranges.

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<sup>323</sup> ATC are terrestrial base stations and mobile terminals licensed to the operator of an MSS system for provision of radio communication services offered together with MSS, re-using frequencies assigned for the licensee's MSS operations. *See* Terrestrial Use of the 2473-2495 MHz Band for Low-Power Mobile Broadband Networks; Amendments to Rules for the Ancillary Terrestrial Component of Mobile Satellite Service Systems, IB Dkt. No. 13-213, Notice of Proposed Rulemaking, 28 FCC Rcd 15351, 15352, n. 1 (2013) (*MSS Low-Power Mobile Broadband Networks NPRM*).

<sup>324</sup> *See* Verizon Wireless Comments at 21-22.

<sup>325</sup> *See id.*

<sup>326</sup> *See MSS Low-Power Mobile Broadband Networks NPRM*, 28 FCC Rcd 15351 ¶ 1.

<sup>327</sup> *See id.* at 15352 ¶ 2.

<sup>328</sup> Globalstar Licensee LLC, Application for Modification of License for Operation of Ancillary Terrestrial Component Facilities, *Order and Authorization*, FCC 08-254, 23 FCC Rcd 15975 (2008). *See also* Globalstar LLC Request for authority to implement an ancillary terrestrial component for the Globalstar Big LEO Mobile Satellite Service System, *Order and Authorization*, DA 06-121, 21 FCC Rcd 398 (IB 2006); Globalstar Licensee LLC, Modification of Authority to Implement an Ancillary Terrestrial Component, *Order and Authorization*, 23 FCC Rcd 15056 (2008).

<sup>329</sup> *See* Globalstar Licensee LLC Application for Modification of License to Extend Dates for Coming into Compliance with Ancillary Terrestrial Component Rules, DA 10-1740, *Order*, 25 FCC Rcd 13114 (IB, WTB, OET, 2010) (denying a request by Globalstar for a 16-month extension to come into compliance with the Commission's ATC "gating criteria.").

<sup>330</sup> *See MSS Low-Power Mobile Broadband Networks NPRM*, 28 FCC Rcd at 15363 ¶ 31.

106. In light of these circumstances, we decline to add this Big LEO MSS spectrum to the spectrum screen at this time. We distinguish this decision from our determination to add to the spectrum screen the AWS-4 band (2000-2020 MHz and 2180-2200 MHz), for which we have taken a number of actions to make the band suitable and available for mobile telephony/mobile broadband. Specifically, for the AWS-4 band, the Commission has added a mobile allocation, adopted licensing rules for stand-alone terrestrial mobile wireless operations, and assigned the spectrum to the incumbent MSS operator, DISH.<sup>331</sup>

#### E. BRS/EBS Bands

107. **Background.** The 194 megahertz in the 2496-2690 MHz band (2.5 GHz) comprises (1) 73.5 megahertz licensed to commercial operators in the BRS band; (2) 112.5 megahertz licensed to eligible educational institutions or non-profit educational organizations in the EBS band; and (3) 8 megahertz licensed to BRS or EBS as guard bands dividing the lower, middle, and upper band segments of the 2.5 GHz.<sup>332</sup> The Commission established the current 2.5 GHz band plan in 2004, with a process for licensees to transition from the existing band configuration to the new band plan.<sup>333</sup> In 1996 and again in 2009, the Commission auctioned BRS licenses in Basic Trading Areas (“BTAs”), and the licensees are required to protect incumbent site-based BRS licensees.<sup>334</sup> The Commission assigned EBS licenses solely on a site-by-site basis. The last opportunity for educators to apply for new EBS licenses was in 1995. In 2004, most site-based EBS licenses were converted to geographic service area licenses with a circular service area with a 35-mile radius centered around the station’s reference coordinates.<sup>335</sup>

108. In 2008, in the *Sprint-Clearwire Order*, the Commission decided to include in the spectrum screen 55.5 megahertz of BRS spectrum in the upper band segment, in those markets in which the transition to the new band plan was complete.<sup>336</sup> The Commission observed that 2.5 GHz licensees had made substantial progress in the prior few years in transitioning to the new band plan, finalizing the WiMAX standards, developing equipment, and formulating their plans for using the 2.5 GHz band to

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<sup>331</sup> *AWS-4 Report and Order*, 27 FCC Rcd at 16104 ¶ 2.

<sup>332</sup> See Amendment of Parts 1, 21, 73, 74, and 101 of the Commission’s Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational, and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands, *Report and Order and Further Notice of Proposed Rulemaking*, 19 FCC Rcd 14165 (2004) (*BRS/EBS Report and Order*). The rules for the middle band segment permit legacy video systems or cellularized communications to operate in 6 megahertz channels. The rules for the lower and upper band segments, which are subdivided in 5.5 megahertz channels, are optimized for cellularized communications. The guard bands are subdivided into 0.333 megahertz channels.

<sup>333</sup> See *BRS/EBS Report and Order*, 19 FCC Rcd 14165; Amendment of Parts 1, 21, 73, 74, and 101 of the Commission’s Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational, and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands, *Order on Recons. and Fifth Mem. Op. and Order and Third Mem. Op. and Order and Second Report and Order*, 21 FCC Rcd 5606 (2006). See also Amendment of Parts 1, 21, 73, 74 and 101 of the Commission’s Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational, and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands, *Third Order on Recons. and Sixth Mem. Op. and Order and Fourth Mem. Op. and Order and Second Further Notice of Proposed Rulemaking and Declaratory Ruling*, 23 FCC Rcd 5992 (2008); *Fifth Mem. Op. and Order and Third Further Notice of Proposed Rulemaking and Declaratory Ruling*, 24 FCC Rcd 12558 (2009).

<sup>334</sup> See, e.g., Auction of Broadband Radio Service (BRS) Licenses Scheduled for October 27, 2009 Comment Sought on Competitive Bidding Procedures for Auction 86, Public Notice, AU Dkt. No. 09-56, 24 FCC Rcd 4605 (WTB 2009). See also 47 C.F.R. § 27.1206(a)(2).

<sup>335</sup> See *BRS/EBS Report and Order*, 19 FCC Rcd at 14189-90 ¶ 54.

<sup>336</sup> See *Sprint-Clearwire Order*, 23 FCC Rcd at 17596-99 ¶¶ 62-70. See also *Verizon Wireless-ALLTEL Order*, 23 FCC Rcd at 17478 ¶ 65. In 2008, 377 out of 493 markets completed the transition. Currently, 486 BTAs have transitioned.



provide service.<sup>337</sup> The Commission declined to include in the spectrum screen the 12 megahertz of BRS spectrum in the middle band segment (“MBS”) due to concerns of interference from legacy high-power video operations, stating it lacked sufficient information “to determine the extent to which MBS is in fact available for mobile telephony/broadband services.”<sup>338</sup> The Commission also declined to include in the spectrum screen the BRS Channel-1 (2496-2502 MHz), which is not contiguous to the 55.5 megahertz of BRS spectrum that was included, finding that the Channel does not fit into the contemplated WiMAX deployment plans.<sup>339</sup> Further, the Commission excluded from the screen the 8 megahertz of guard bands because they are secondary to adjacent-channel operations and they are too narrow to be used unless they were all aggregated in a market.<sup>340</sup>

109. The Commission currently does not include in the screen any EBS spectrum, which is licensed to eligible educational entities who can lease spectrum to commercial operators subject to the requirement, *inter alia*, to reserve at least five percent of digital transmission capacity for educational purposes.<sup>341</sup> When the Commission added certain BRS spectrum to the screen in the *Sprint-Clearwire Order*, it declined to include EBS spectrum in the screen, observing that “the primary purpose of EBS is to further the educational mission of accredited public and private schools, colleges and universities providing a formal educational and cultural development to enrolled students through video, data, or voice transmissions.”<sup>342</sup> The Commission noted that, while educational licensees are allowed to lease their excess capacity to commercial operators, leasing is subject to various special requirements designed to maintain the primary educational character of services provided using EBS spectrum.<sup>343</sup> In addition, the Commission recognized that other elements of the EBS licensing regime, such as its solely site-specific character, with the absence of any licensee in various unassigned EBS “white spaces,” complicate use of this spectrum for commercial purposes.<sup>344</sup> Further, the Commission indicated that it was sensitive to the concerns raised by EBS licensees that potential divestitures, in response to spectrum aggregation concerns relating to competition among commercial services, could disproportionately harm EBS licensees.<sup>345</sup>

110. In the context of Commission’s review of transactions filed subsequent to the *Sprint-Clearwire Order*, the Commission declined to add EBS or additional BRS spectrum to the spectrum screen, finding either that the circumstances had not sufficiently changed from its determination in the *Sprint-Clearwire Order* or that the instant rulemaking proceeding is a more appropriate place to evaluate this issue.<sup>346</sup> In the context of reviewing the *SoftBank-Sprint-Clearwire* transaction, however, the Commission did consider arguments on the record regarding the competitive effect of Sprint obtaining 100 percent stock ownership in and *de facto* control of Clearwire’s BRS and EBS spectrum holdings, finding competitive harm unlikely.<sup>347</sup>

<sup>337</sup> See *Sprint-Clearwire Order*, 23 FCC Rcd at 17598 ¶ 65.

<sup>338</sup> *Id.* at 17598 ¶ 67.

<sup>339</sup> See *id.* at 17598 ¶ 68.

<sup>340</sup> See *id.* at 17598 ¶ 67.

<sup>341</sup> See *BRS/EBS Report and Order*, 19 FCC Rcd at 14233-34 ¶¶ 179-81. See also 47 C.F.R. §§ 27.1203(b), 27.1214.

<sup>342</sup> *Sprint-Clearwire Order*, 23 FCC Rcd at 17599 ¶ 71.

<sup>343</sup> See *id.*

<sup>344</sup> See *id.*

<sup>345</sup> See *id.*

<sup>346</sup> See *AT&T-Qualcomm Order*, 26 FCC Rcd at 17607 ¶ 41; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10721 ¶ 63; *AT&T WCS Order*, 27 FCC Rcd at 16471 ¶ 32; *SoftBank-Sprint Order*, 28 FCC Rcd at 9659 ¶ 42.

<sup>347</sup> See *SoftBank-Sprint Order*, 28 FCC Rcd at 9664, 9665-67 ¶¶ 53, 58-61.

111. In the *Mobile Spectrum Holdings NPRM*, the Commission sought comment on whether to modify the amount of spectrum included in the spectrum screen. In seeking comment on factors to consider when determining which spectrum bands are to be included in the spectrum screen, the Commission noted that providers are now incorporating additional spectrum bands into their networks, including the 2.5 GHz band, enabling the provision of additional competitive mobile voice and data services.<sup>348</sup>

112. AT&T and Verizon Wireless contend that the Commission should add the remaining BRS spectrum and all or most of the EBS spectrum to the spectrum screen.<sup>349</sup> They assert that the strongest indication that this spectrum is suitable and available for the provision of mobile telephony/mobile broadband is that Clearwire (now wholly owned by Sprint),<sup>350</sup> the largest holder of BRS spectrum, currently provides mobile broadband service nationwide and has plans for LTE deployment.<sup>351</sup> In support of its position, Verizon Wireless cites to Clearwire's statement prior to the *SoftBank-Sprint-Clearwire* transaction regarding its broadband offerings, "Clearwire stated that it has 'approximately 140 MHz of spectrum on average across [its] national spectrum footprint' and had deployed 'a capacity-rich 4G mobile broadband network' that relies upon BRS licenses and excess capacity leases from other BRS and EBS licensees' across much of the country."<sup>352</sup> Verizon Wireless also points to Sprint's subsequent post-transaction announcement of its plans for the 2.5 MHz spectrum to increase the capacity and speed on Sprint's network.<sup>353</sup>

<sup>348</sup> See *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11722-23 ¶ 28.

<sup>349</sup> AT&T Comments at 36; Verizon Wireless Comments at 22-23 (advocates adding an additional 132 megahertz, consisting of the remaining 21 megahertz of BRS spectrum and 111 megahertz (95%) of EBS spectrum, for a total of 188 megahertz). Verizon Wireless Comments at 22-23; Verizon Wireless Sept. 24, 2013 *Ex Parte* at 1; AT&T Mar. 14, 2014 *Ex Parte*, Reed & Tripathi Mar. 2014 at 26-27. See also USCC Comments at 3 (noting it is probable the Commission will consider BRS available in all markets); NTCH Comments at 5 (supports inclusion of BRS spectrum in the screen); Mobile Future Comments at 8-9.

<sup>350</sup> See *SoftBank-Sprint Order*, 28 FCC Rcd at 9643 ¶ 2.

<sup>351</sup> See AT&T Comments at 36-38; Verizon Wireless Comments at 23-24; Letter from Leora Hochstein, Executive Director, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Mar. 4, 2013, at 1-2 ("Verizon Wireless Mar. 4, 2013 *Ex Parte*") (meets suitable and available standard); Letter from Tamara Preiss, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 8, 2013 at 1 ("Verizon Wireless Apr. 8, 2013 *Ex Parte*") (citing FCC staff white paper); Letter from Tamara Preiss, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 24, 2013 at 1-2 ("Verizon Wireless Apr. 26, 2013 *Ex Parte*") at 1-2; Letter from Kathleen Grillo, Senior Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Mar. 5, 2014, see generally, Attachment, "The Evolution of the 2.5 GHz Band and Its Success for Mobile Broadband Demand a Spectrum Screen Refresh" ("Verizon Wireless Mar. 5, 2014 *Ex Parte*") ("The Evolution of the 2.5 Band"); Verizon Wireless Mar. 14, 2014 *Ex Parte* at 1.

<sup>352</sup> Verizon Wireless Sept. 24, 2013 *Ex Parte* at 2 (citing Clearwire Corp. Form 10-K, at 14 (Feb. 16, 2012) (for period ending Dec. 31, 2011); Globalstar, Inc. Petition for Rulemaking to Reform the Commission's Regulatory Framework for Terrestrial Use of the Big LEO MSS Band, RM-11685, Clearwire Comments at 7 (filed Jan. 14, 2013)).

<sup>353</sup> Verizon Wireless Sept. 24, 2013 *Ex Parte* at 2 ("Deutsche Bank recently reported, based on an interview with Sprint's CEO, that Sprint's 'primary long-term strategy is to compete on network quality by leveraging its 2.5 GHz spectrum.' According to Deutsche Bank, 'Sprint believes that its 2.5 GHz licenses will enable it to achieve much faster network speeds than all of its peers by 2016 due to its ability to deploy the widest channels.'") (citing News Release, Sprint Nextel, Sprint to Acquire 100 Percent Ownership of Clearwire for \$2.97 per Share (Dec. 17, 2012) (emphasis added), [http://newsroom.sprint.com/article\\_display.cfm?article\\_id=2477](http://newsroom.sprint.com/article_display.cfm?article_id=2477); see also *id.* at 2 n.7 (quoting Sprint CEO Dan Hesse as saying that "[t]oday's transaction marks yet another significant step in Sprint's improved

(continued....)

113. AT&T and Verizon Wireless also assert that the factors the Commission relied upon to exclude some BRS spectrum and all EBS spectrum from the screen no longer are applicable due to the current state of deployment in the band. In particular, Verizon Wireless asserts that there is no basis for the Commission to treat spectrum leased by EBS licensees and used for commercial mobile services differently from any other spectrum used for commercial mobile services.<sup>354</sup> AT&T points out that the Commission attributes “spectrum leases for cellular, SMR, PCS, and 700 MHz spectrum to *both* the lessor and the lessee.”<sup>355</sup> Moreover, AT&T and Verizon Wireless disagree that EBS spectrum should be excluded because they are licensed on a site-specific basis and have white spaces, citing to cellular spectrum as also having those characteristics, but being included in the screen.<sup>356</sup> Further, AT&T and Verizon Wireless note that the Commission could exclude from the screen five percent of EBS spectrum based on the Commission’s capacity use requirements, though they assert that such requirements are satisfied by the commercial lessee offering the same mobile broadband service to the EBS lessor’s students as is offered to consumers generally.<sup>357</sup>

114. In addition, AT&T and Verizon Wireless contend that BRS MBS is no longer subject to significant operational constraints from incumbent high-powered video operations and therefore the 12 megahertz of MBS spectrum should be added to the screen.<sup>358</sup> Moreover, they argue that the Commission should count BRS Channel 1 because it is in fact being used by Sprint to provide mobile broadband services, notwithstanding potential interference issues with adjacent MSS operators.<sup>359</sup> Although the J and K guard bands are assigned in small increments and are secondary to high-powered video-systems in the MBS, Verizon Wireless and AT&T argue they can be combined to provide wireless broadband service.<sup>360</sup> They both also point out that the transition to a new band plan is now essentially complete.<sup>361</sup>

115. Sprint maintains that the Commission should continue to exclude EBS and the remaining BRS spectrum, asserting that the Commission’s original concerns due to its unique characteristics remain valid.<sup>362</sup> In its initial comment, Sprint argues that BRS-1 remains encumbered by MSS, BAS, and fixed microwave licensees, as well as with operators of industrial, scientific, and medical (“ISM”) devices.<sup>363</sup> Furthermore, Sprint maintains that the peripheral spectral location of BRS-1 and the channel’s adjacency to EBS frequencies have made it difficult to incorporate the channel into their wireless broadband

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competitive position and . . . Sprint is uniquely positioned to maximize the value of Clearwire’s spectrum and efficiently deploy it to increase Sprint’s network capacity”).

<sup>354</sup> See Verizon Wireless Comments at 24; Verizon Wireless Mar. 5, 2014 *Ex Parte*, *Evolution of the 2.5 GHz Band* at 8-9.

<sup>355</sup> AT&T Comments at 40 (citing Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, *Second Report and Order*, *Order on Recons.*, and *Second Further Notice of Proposed Rulemaking*, 19 FCC Rcd 17507, ¶ 25 n.62 (2004) (emphasis in the original).

<sup>356</sup> See AT&T Comments at 41; Verizon Wireless Mar. 5, 2014 *Ex Parte*, *Evolution of the 2.5 GHz Band* at 10.

<sup>357</sup> Verizon Wireless Mar. 5, 2014 *Ex Parte*, *Evolution of the 2.5 GHz Band* at 9; AT&T Reply at 20-21.

<sup>358</sup> See Verizon Wireless Comments at 26; Verizon Wireless Reply at 12; AT&T Reply at 18-19.

<sup>359</sup> See AT&T Comments at 39-40; AT&T Reply at 19-20; Verizon Wireless Comments at 26; Verizon Wireless Reply at 26; Verizon Wireless Mar. 5, 2014 *Ex Parte*, *Evolution of the 2.5 GHz Band* at 10.

<sup>360</sup> See Verizon Wireless Reply at 12; AT&T Reply at 20.

<sup>361</sup> See AT&T Comments at 38-39; Verizon Wireless Comments at 23-24.

<sup>362</sup> See Sprint Comments at 8, nn.14, 26; see also CCA Comments at 15; RWA Comments at 5; NTCH Comments at 5-6 (opposes inclusion of EBS spectrum only due to dedicated use for educational purposes); Public Knowledge (BRS and EBS should not count at all for the screen due to poor propagation qualities). See also Leap Reply at 9-10; Clearwire Reply, generally.

<sup>363</sup> See Sprint Reply at 23.

operations.<sup>364</sup> Sprint opposes including the J and K guard bands at 2568-2572 MHz and 2614-2618 MHz in the spectrum screen based on the fact their purpose is to be a buffer zone to protect adjacent operations from interference, they are assigned in small increments, and are limited to operations on a secondary basis.<sup>365</sup> Sprint initially also supported the exclusion of the MBS because the Commission's rules permit the use of this spectrum for high-site, high-power video operations.<sup>366</sup> However, more recently, Sprint has taken the position that the MBS channels comply with the suitable and available standard, and therefore it does not object to including the F4 and E4 channels (2602-2616 MHz) in the screen.<sup>367</sup>

116. As for EBS, Sprint maintains that the Commission should continue to exclude this spectrum based on the educational purpose of EBS licenses and the fact that commercial operators like Sprint face certain challenges in relying on leasing this spectrum to deploy its network.<sup>368</sup> If the Commission does choose to count EBS in its screen, however, Sprint asserts that these factors justify a weighting mechanism that would discount EBS spectrum in the screen. Sprint's EBS weighting plan is part of a broader weighting proposal based on the propagation characteristics of different spectrum bands.<sup>369</sup>

117. With regard to EBS, Sprint states the Commission should "adopt additional corrective factors" to account for "unique encumbrances carrier-lessees face in deploying it."<sup>370</sup> First, Sprint argues EBS should be discounted due to lease obligations that are subject to special restrictions designed to maintain the educational character of the service. Second, Sprint argues that the Commission should assess and exclude amounts of unlicensed white space in licensed areas. Third, Sprint states that EBS should be discounted to reflect that EBS spectrum can only be effectively used for mobile broadband where it can be aggregated to larger channels. AT&T opposes Sprint's EBS weighting proposal arguing it is arbitrary to apply special discounts for EBS spectrum and not for other bands that face similar issues.<sup>371</sup> Verizon Wireless opposes the 16.5 percent white space discount proposed by Sprint, arguing it would undercount EBS spectrum in the largest markets, particularly in the top 10 markets.<sup>372</sup>

118. **Discussion.** As discussed above, access by multiple providers to a mix of low-band and high-band spectrum is essential for ensuring the robust competition that drives lower prices, higher quality and increased innovation. Given that high-band spectrum can be important for providers to increase capacity to meet consumers' demand for mobile broadband, we have closely reviewed the record and the state of deployment in the 2.5 GHz band to determine whether additional spectrum in the 2.5 GHz band should be included in the screen as suitable and available for mobile telephony/mobile broadband services. We find that it is necessary to modify the amount of 2.5 GHz spectrum we currently include in the screen to reflect today's marketplace realities. Specifically, for the reasons discussed below, we will

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<sup>364</sup> *See id.*

<sup>365</sup> *See id.* at 23-24.

<sup>366</sup> *See id.* at 24.

<sup>367</sup> *See* Sprint Feb. 11, 2014 *Ex Parte*, Sprint Weighted Spectrum Screen Feb. 2014 at 27.

<sup>368</sup> *See* Sprint Reply at 24-28.

<sup>369</sup> *See generally* Sprint Feb. 11, 2014 *Ex Parte*, Sprint Weighted Spectrum Screen Feb. 2014. For additional details on Sprint's proposal to weight spectrum, *see* Section VI.G.

<sup>370</sup> Sprint Feb. 11, 2014 *Ex Parte*, Sprint Weighted Spectrum Screen Feb. 2014 at 31. *Id.* at 28-36. Public Knowledge proposes a sliding scale approach with the strictest limits below 1 GHz, lesser restrictions for 1 GHz to 2 GHz, and least restrictions above 2 GHz, if the Commission includes any BRS spectrum in the screen. Public Knowledge Feb. 7, 2013 *Ex Parte* at 2.

<sup>371</sup> *See* AT&T Mar. 14, 2014 *Ex Parte* at 6-8, *Reed & Tripathi Mar. 2014* at 27-28.

<sup>372</sup> *See* Letter from Tamara Preiss, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 6, 2014 at 3 ("Verizon Wireless May 6, 2014 *Ex Parte*").

update the spectrum screen to increase the amount of 2.5 GHz spectrum from 55.5 megahertz to 156.5 megahertz. We will add the 12 megahertz in the two MBS BRS channels, as well as 89 megahertz of EBS spectrum, which represents most of the EBS spectrum, adjusted to reflect white space and education use elements. We will continue to exclude the six megahertz in BRS Channel 1 and the guard bands.

119. As an initial matter, we observe that Sprint now has full control of Clearwire's holdings of approximately 120 megahertz of 2.5 GHz spectrum in 90 of the top 100 U.S. markets,<sup>373</sup> and that Sprint has announced its intent to integrate this spectrum throughout its network to provide mobile broadband service.<sup>374</sup> Sprint recently announced its next generation service "Sprint Spark," an enhanced LTE network, which it plans to deploy over the next three years using its SMR, PCS, and 2.5 GHz spectrum, with high-speed capability of 50-60 megabits per second, and technical feasibility to deliver "more than 2 Gigabits per second (Gbps) per sector of over-the-air speed."<sup>375</sup> Sprint is in the process of converting Clearwire's legacy WiMAX sites to Sprint's LTE network, and expects to have "approximately 100 million 2.5 GHz LTE POPs deployed by the end of 2014."<sup>376</sup> We find that based upon how the 2.5 GHz band is being used today, and will be used in the near term, the majority of the band is suitable and available for mobile telephony/mobile broadband services.

120. With respect to BRS spectrum, we find that, in addition to the 55.5 megahertz currently counted in the screen, we should include 12 megahertz of BRS MBS spectrum. We recognize that legacy video operations in the MBS, once considered a significant impediment to the deployment of cellularized operations in the MBS, are now no longer a barrier to deploying mobile broadband service in the vast majority of markets. We note that Sprint recently has acknowledged that BRS MBS channels are "more routinely available" for mobile broadband use.<sup>377</sup> Accordingly, we include the 12 megahertz of BRS MBS spectrum in the screen.

121. However, we will continue to exclude the 6 megahertz BRS Channel 1 (2496-2502 MHz). The proponents of including BRS Channel 1 in the screen have not demonstrated any material change in circumstances since 2008 with respect to that channel. Moreover, we acknowledge Sprint's concern that BRS Channel 1 is not contiguous with the other BRS channels and therefore is not conducive to the provision of mobile telephony/mobile broadband service.

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<sup>373</sup> See Phil Goldstein, *Sprint's Hesse: Spark tri-mode LTE service could eventually provide real-world speeds of 150-180 Mbps*, *Fierce Wireless*, Dec. 10, 2013, available at <http://www.fiercewireless.com/story/sprints-hesse-spark-tri-mode-lte-service-could-eventually-provide-real-worl/2013-12-10> (noting that Sprint CEO Dan Hesse "said Sprint could eventually use 60 MHz 2.5 GHz channels using carrier aggregation, since Sprint controls 120 MHz of 2.5 GHz spectrum in 90 of the top 100 U.S. markets. In two years, that could produce real-world speeds of 150-180 Mbps."). See also *SoftBank-Sprint Order*, 28 FCC Rcd at 9665-66 ¶ 60.

<sup>374</sup> See *Sprint Q4 2013 Earnings Conference Call*, Feb. 11, 2014, Statement of Steve Elfman, President of Network, Technology and Operations, transcript avail. at <http://seekingalpha.com/article/2011071-sprint-ceo-discusses-q4-2013-results-earnings-call-transcript> ("But our approach will be to really densify and really, in the urban areas first, to be able to get the speed and the capacity in those areas. But now the goal is to build out 2.5 and use that 120 megahertz across the nation."). See also Phil Goldstein, *Sprint CFO: Softbank deal lets us take Clearwire spectrum nationwide*, *Fierce Wireless*, July 30, 2013, avail. at <http://www.fiercewireless.com/story/sprint-cfo-softbank-deal-lets-us-take-clearwire-spectrum-nationwide/2013-07-30> (Sprint Chief Financial Officer Joe Euteneuer stated "the best way to [take full advantage of the 2.5 GHz spectrum] is to have it fully integrated with the rest of your spectrum capabilities. And to do that you really need to put it on every tower.").

<sup>375</sup> Sprint Spark, <http://newsroom.sprint.com/presskits/sprint-spark.htm> (Sprint Spark, currently available in 18 markets, uses Sprint's 800 MHz and 2.5 GHz spectrum bands).

<sup>376</sup> *Sprint Q4 2013 Earnings Conference Call*, Feb. 11, 2014, Statement of Steve Elfman, President of Network, Technology and Operations, transcript available. at <http://seekingalpha.com/article/2011071-sprint-ceo-discusses-q4-2013-results-earnings-call-transcript>.

<sup>377</sup> See Sprint Feb. 11, 2014 *Ex Parte*, Sprint Weighted Spectrum Screen Feb. 2014 at 27.

122. With respect to EBS spectrum, we decline to continue our policy of excluding all EBS spectrum. We agree with AT&T and Verizon Wireless that leasing in and of itself does not preclude the spectrum from meeting the suitable and available standard. We note that Sprint (and previously Clearwire) oftentimes included EBS spectrum in its statements on how it expects to further enhance the quality of its network. Indeed, as noted above, Sprint now touts its 2.5 GHz holdings of approximately 120 megahertz (including a significant portion of EBS spectrum), with its substantial size and harmonization internationally, as an asset that can enhance Sprint's service offerings in the near term.<sup>378</sup> We do not find that the differences in propagation characteristics between the 2.5 GHz band and lower frequency spectrum should result in our continued exclusion of the 2.5 GHz band from the spectrum screen for purposes of our competitive review. Nor do we agree with Sprint that the aggregation of 20 megahertz of this band is a necessary precursor to counting EBS in the screen. The benefit of contiguous holdings in a band is not a factor unique to EBS spectrum that warrants excluding EBS holdings from the screen in cases where such contiguity is not achieved.

123. Although we find that EBS spectrum generally is suitable and available for mobile telephony/mobile broadband services, we agree with Sprint that there are certain factors unique to EBS that warrant not including all of the EBS spectrum in the screen. We will continue to exclude the five percent of the EBS capacity that is reserved for educational uses. The Commission remains committed to EBS spectrum serving educational purposes. Originally, the 2500-2690 MHz band was allocated for ITFS service and "established to provide formal education and cultural development in aural and visual form to students enrolled in accredited public and private schools, colleges and universities."<sup>379</sup> The Commission continues to support the education mission of accredited public and private schools, colleges, and universities providing a formal educational and cultural development to enrolled students through video, data, or voice transmissions.<sup>380</sup> The Commission consistently has found that "the EBS service provides critical educational services such as web-based and streaming video for instruction in adult literacy and basic skills, emergency medical and fire services, law enforcement, and corrections."<sup>381</sup> Therefore, as a starting point, we will include 95 percent, or approximately 107 megahertz, of EBS spectrum in the screen.

124. Next, we consider the issue of unassigned EBS white space. With EBS spectrum licensed on a site-specific basis, certain areas exist where the Commission has not assigned a license to an educational entity. And no educational entity has been able to apply for a license for an EBS white space since 1995. Therefore, no commercial wireless provider has ever had the opportunity to lease EBS spectrum in that area. We agree with Sprint that white spaces can present certain obstacles for providing reliable, wide-area coverage.<sup>382</sup> We distinguish this situation from "white spaces" that may exist in other bands such as the cellular band, in contrast to AT&T's assertions. In the cellular band, commercial providers initially had the opportunity to acquire geographic area licenses to serve any part of the country.<sup>383</sup> For more than two decades, they have had access to site-based licenses under the Commission's cellular unserved area rules,<sup>384</sup> and more recently, they also have been able to utilize the

<sup>378</sup> See Phil Goldstein, *Sprint's Hesse: Spark tri-mode LTE service could eventually provide real-world speeds of 150-180 Mbps*, *Fierce Wireless*, Dec. 10, 2013, avail. at <http://www.fiercewireless.com/story/sprints-hesse-spark-tri-mode-lte-service-could-eventually-provide-real-worl/2013-12-10>.

<sup>379</sup> *BRS/EBS Report and Order*, 19 FCC Rcd at 14221 ¶ 149.

<sup>380</sup> See *15th Mobile Wireless Competition Report*, 26 FCC Rcd at 9827-28 ¶ 281, n.851; *Verizon Wireless-Cellco*, 23 FCC Rcd at 17479 ¶ 67 (citing 47 C.F.R. § 27.1203(b)).

<sup>381</sup> *BRS/EBS Report and Order*, 19 FCC Rcd at 14222 ¶ 152.

<sup>382</sup> See Sprint Feb. 11, 2014 *Ex Parte*, Sprint Weighted Spectrum Screen Feb. 2014 at 32.

<sup>383</sup> See generally *1981 Cellular Communications Systems Order*, 86 FCC 2d 469.

<sup>384</sup> See, e.g., 47 C.F.R. § 22.949. The Commission is considering revisions to its licensing model for the cellular Service in a pending proceeding. See Amendment of Parts 1 and 22 of the Commission's Rules with Regard to the

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secondary market to obtain cellular licenses. By contrast, commercial providers have had no opportunity to gain access to spectrum in the EBS white space area. We find it reasonable to discount for white space when including EBS spectrum in the screen.

125. Given the complexity of calculating a white space discount on a market-by-market basis, Sprint proposes a uniform, nationwide EBS white space discount for administrative practicability and regulatory certainty.<sup>385</sup> Sprint calculated that across all EBS channels, an average of approximately 16.5 percent of the population is located in EBS white space and therefore proposes to use a 16.5 percent discount.<sup>386</sup> We agree that a nationwide discount is the best option for applying a white space discount for EBS spectrum and find Sprint's proposal reasonable. While as Verizon Wireless notes, using a nationwide average may in some instances undercount EBS white space in some markets and overcount EBS white space in other markets, we find that using an average across all markets is a reasonable method, which balances administrative efficiency with the complexity of a precise market-by-market calculation. Thus, after taking the discount into consideration, of the initial 107 megahertz of EBS spectrum, we will include 89 megahertz of EBS spectrum in the screen.<sup>387</sup> As discussed in Section VI.G below, we decline to further weight EBS spectrum, or other spectrum bands, based on propagation characteristics.<sup>388</sup>

#### F. Upper 700 MHz D Block

126. **Background.** In the *AT&T-Dobson Order*, the Commission found that in light of then recent developments in the 700 MHz band, 80 megahertz of 700 MHz band spectrum (in the 698-806 MHz band) nationwide should be added to the screen, including the 10 megahertz of commercial spectrum in the Upper 700 MHz D Block (758-763 MHz, 788-793 MHz), adjacent to public safety broadband spectrum (763-768 MHz, 793-798 MHz).<sup>389</sup> Subsequently, pursuant to the Spectrum Act, Congress provided for the deployment of a nationwide interoperable public safety broadband network in the 700 MHz band, including reallocating the Upper 700 MHz D Block from a commercial spectrum block to public safety use.<sup>390</sup> On September 7, 2012, the Public Safety and Homeland Security Bureau adopted a *Report and Order* to reallocate the Upper 700 MHz D Block for "public safety services."<sup>391</sup>

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Cellular Service, Including Changes in Licensing of Unserved Area, WT Dkt. No. 12-40, *Notice of Proposed Rulemaking and Order*, 27 FCC Rcd 1745 (2012).

<sup>385</sup> See Sprint Feb. 11, 2014 *Ex Parte*, Sprint Weighted Spectrum Screen Feb. 2014 at 33-34.

<sup>386</sup> See *id.* Sprint conducted its study by overlaying 5.5 million census block locations containing population with existing EBS license contours. Sprint reports that the amount of nationwide white space population varies on a channel by channel basis from 14.5 percent to 18.5 percent and that the nationwide percentage of population in EBS white space is lower in the Top 100 CMAs (6.8 percent) and actual population in EBS white spaces varies depending on the market and channel. See *id.* at 34, n.54.

<sup>387</sup> We note that Commission has an open proceeding considering possible next steps regarding EBS white spaces. Amendment of Parts 1, 21, 73, 74, and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational, and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands, *et. al.*, WT Dkt. No. 03-66, *et. al.*, *Third Order on Recons. and Sixth Mem. Op. Order and Fourth Mem. Op. and Order and Second Further Notice of Proposed Rulemaking and Declaratory Ruling*, 23 FCC Rcd 5992, 6063 ¶ 187 (2008). Depending on its resolution, it may well make sense to revisit the 16.5 percent discount factor.

<sup>388</sup> We also disagree with Sprint that if we decide to count a substantial amount of EBS spectrum without applying spectrum weighting factors based on propagation characteristics, we also should consider adding to the screen the "lightly-licensed" 3650-3700 MHz band and the unlicensed 2.4 and 5 GHz bands. Sprint May 5, 2014 *Ex Parte*, Sprint Frequency Differences May 2014 at 20. Given that this issue is raised very recently by Sprint's filing, we do not have any record to consider the suitability and availability of such spectrum in the screen.

<sup>389</sup> See *AT&T-Dobson Order*, 22 FCC Rcd at 20312-13 ¶ 30.

<sup>390</sup> See Spectrum Act §§ 6001-6303, 6413 (codified at 47 U.S.C. §§ 1401-1443, 1457). See also 47 U.S.C. §§ 1411(a), 1421(a), 1424(a). FirstNet's license also includes the 768-769/798-799 MHz band, which the Commission

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127. Congress established FirstNet as an independent authority within the NTIA, and required the Commission to grant a license to FirstNet for the use of both the existing public safety broadband spectrum (763-768/793-798 MHz) and the Upper 700 MHz D Block.<sup>392</sup> On November 15, 2012, the Public Safety and Homeland Security Bureau granted FirstNet the license prescribed by statute, under call sign WQQE234.<sup>393</sup>

128. In the *Mobile Spectrum Holdings NPRM*, the Commission notes that the Upper 700 MHz D Block is being reallocated for public safety and sought comment on whether and how the spectrum and the existing public safety broadband spectrum may be relevant to its spectrum analysis in the event the spectrum is leased to a commercial licensee pursuant to Section 6101 of the *Spectrum Act*.<sup>394</sup> Public interest groups and small and regional wireless providers support exclusion of the Upper 700 MHz D Block from the screen.<sup>395</sup> Sprint also supports its exclusion, but notes that the Commission might reconsider its decision to exclude the spectrum if there is commercial sharing of the Upper 700 MHz D Block.<sup>396</sup>

129. **Discussion.** In light of Congress' reallocation of the Upper 700 MHz D Block spectrum (758-763 MHz, 788-793 MHz) for public safety use – and the subsequent steps taken by the Commission and the Public Safety and Homeland Security Bureau to effectuate the reallocation and licensing of this spectrum for public safety – we find that the 10 megahertz previously designated as the Upper 700 MHz D Block is no longer suitable and available for the provision of mobile telephony/mobile broadband services. Therefore, going forward, we will exclude from the spectrum screen that 10 megahertz (758-763 MHz, 788-793 MHz) that currently is part of the screen, along with the adjacent public safety broadband spectrum that is also now licensed to FirstNet (763-768 MHz, 793-798 MHz), which was not previously counted in the initial spectrum screen.

130. We note that, under the Spectrum Act, FirstNet is permitted to provide access to the 20 megahertz of Public Safety Broadband spectrum to commercial entities through certain “covered leasing agreements.”<sup>397</sup> We will not add to the screen any of this spectrum merely because FirstNet has entered into leasing arrangements contemplated by the Act. Deployment of this spectrum is essential to the critical statutory goal of deploying a nationwide interoperable public safety broadband network, and we want to provide equal incentives to all commercial operators to partner with FirstNet to make this goal a reality.

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has designated as a “guard band” that spectrally separates the broadband and narrowband segments of the 700 MHz public safety band.

<sup>391</sup> Implementing Public Safety Broadband Provisions of the Middle Class Tax Relief and Job Creation Act of 2012, Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band, Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, PS Dkt. Nos. 12-94, 06-229, and WT Dkt. No. 06-150, *Report and Order*, 27 FCC Rcd 10953 (“PSHSB 2012”).

<sup>392</sup> See 47 U.S.C. § 1421(a). Congress tasked FirstNet with establishing and overseeing “a nationwide, interoperable public safety broadband network” operated in this spectrum by taking “all actions necessary to ensure the building, deployment, and operation of the . . . network.” *Id.* §§ 1422(a), 1426(b).

<sup>393</sup> See Universal Licensing System, License Call Sign WQQE234 (Nov. 15, 2012).

<sup>394</sup> See *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11723 ¶ 29.

<sup>395</sup> See CCA Comments at 14; CCA Reply at 12; Mobile Future Comments at 8, n.18; Free Press Comments at 19; USCC Comments at 4-5; Leap Reply at 9; CCIA Comments at 9.

<sup>396</sup> See Sprint Comments at 10, n.18

<sup>397</sup> See U.S.C. § 6208(a)(2).



### G. SMR Bands

131. In 2004, the Commission adopted a new band plan for the 800 MHz band to “address the [then] ongoing and growing problem of interference to public safety communications in the 800 MHz band.”<sup>398</sup> The interference problem was caused “by a fundamentally incompatible mix of two types of communications systems: cellular-architecture multi-cell systems ... and high-site non-cellular systems.”<sup>399</sup> To provide immediate relief, the Commission implemented technical standards that defined unacceptable interference in the 800 MHz band, while also reconfiguring the band to separate commercial wireless systems from public safety and other high site systems.<sup>400</sup> Pursuant to the band reconfiguration, the Commission eliminated the interleaving of public safety and commercial channels in the 800 MHz band and separated cellularized multi-cell and non-cellularized high-site systems within the band.<sup>401</sup>

132. Under the reconfiguration plan, Nextel (now Sprint) was required to vacate the 806-817 MHz and the 851-862 MHz band segments and relocate to 817-824/862-869 MHz.<sup>402</sup> The Commission had designated the upper portion of the 800 MHz band (817-824 MHz/862-869 MHz) for Enhanced Specialized Mobile Radio (ESMR) systems and designated the lower portion of the 800 MHz band (806-815 MHz/851-860 MHz) for use by public safety, Critical Infrastructure Industries (CII), and other non-cellular systems.<sup>403</sup>

133. In the *Mobile Spectrum Holdings NPRM*, the Commission asked whether to modify the amount of SMR spectrum included in the spectrum screen, specifically asking whether all 26.5 megahertz should continue to be considered suitable and available for the provision of mobile telephony/broadband services.<sup>404</sup> The Commission sought comment on whether to reduce the amount of suitable SMR spectrum from 26.5 megahertz to 14 megahertz to reflect the portion of SMR spectrum through which

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<sup>398</sup> Improving Public Safety Communications in the 800 MHz Band; Consolidating the 800 and 900 MHz Industrial/Land Transportation and Business Pool Channels; Amendment of Part 2 of the Commission’s Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems; Petition for Rule Making of the Wireless Information Networks Forum Concerning the Unlicensed Personal Communications Service; Petition for Rule Making of UT Starcom, Inc., Concerning the Unlicensed Personal Communications Service; Amendment of Section 2.106 of the Commission’s Rules to Allocate Spectrum at 2 GHz for use by the Mobile Satellite Service; WT Dkt. No. 02-55, ET Dkt. No. 00-258, RM-9498, RM-10024, ET Dkt. No. 95-18, *Report and Order, Fifth Report and Order, Fourth Mem. Op. and Order*, 19 FCC Rcd 14969, 14971 ¶ 1 (2004) (“800 MHz Reconfiguration Report and Order”).

<sup>399</sup> *800 MHz Reconfiguration Report and Order*, 19 FCC Rcd at 14972 ¶ 2.

<sup>400</sup> *See id.* at 14976-78, 15024-80 ¶¶ 8-12, 192-209. High site systems serve a geographical area with one, or a few, base stations with high antenna elevations, whereas cellular-architecture low site systems use multiple base stations with low antenna elevations. *See id.* at 14972 ¶ 2; 47 C.F.R. § 90.7.

<sup>401</sup> *See id.* at 14981 ¶ 18.

<sup>402</sup> *See id.* at 149842 ¶ 23. *See also* Improving Spectrum Efficiency Through Flexible Channel Spacing and Bandwidth Utilization for Economic Area-Based Specialized Mobile Radio Licensees, Request for Declaratory Ruling that the Commission Rules Authorize Greater than 25 MHz Bandwidth Operations in the 817-824/862-869 MHz Band, WT Dkt. Nos. 12-64, 11-110, *Report and Order*, 27 FCC Rcd 6489 (2012) (amending Section 90.209 of the Commission’s rules to allow EA-based 800 MHz SMR licensees operating in the 813.5-824/858.5-869 MHz portion of the 800 MHz band to provide wireless services across aggregated channels, without unnecessary bandwidth or channelization limitations).

<sup>403</sup> *See 800 MHz Reconfiguration Report and Order*, 19 FCC Rcd at 14978 ¶ 11. The new BAS channel plan consists of seven twelve-megahertz channels and two 500-kilohertz data return link (DRL) channels. *Third Report and Order*, 18 FCC Rcd 23638, 23666 ¶ 55.

<sup>404</sup> *See Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11723 ¶ 29.

mobile broadband service can be provided.<sup>405</sup> Several industry stakeholders, such as public interest groups, and small and regional wireless providers support reducing the amount of SMR spectrum included in the screen from 26.5 to 14 megahertz.<sup>406</sup> AT&T asserts that removal of 12.5 megahertz of SMR spectrum is premature at this time, stating that almost all providers continue to use legacy spectrum for voice service.<sup>407</sup>

134. **Discussion.** Based on the record in this proceeding, we find that not all of the current 26.5 megahertz of SMR spectrum that is included in the screen continues to meet the suitable and available standard. Specifically, we eliminate from inclusion in the screen 7.5 megahertz in the 800 MHz Band because, after the Commission reconfigured the band, that spectrum is no longer licensed for commercial, cellularized operations.<sup>408</sup> We also eliminate the remaining 5 megahertz in the 900 MHz band that is narrowly-channelized in 125 kHz blocks and not adjacent to the remaining 14 megahertz of SMR spectrum that is licensed for and considered suitable and available for the provision of mobile telephony/mobile broadband services.<sup>409</sup> Therefore, going forward, we find only 14 megahertz of SMR spectrum is suitable and available for the provision of mobile telephony/mobile broadband services and will be included in the screen.

## V. LICENSING THROUGH COMPETITIVE BIDDING

135. We conclude that it is in the public interest, for auctions, to replace the current case-by-case approach of evaluating long form applications of winning bidders with a determination of whether a band-specific spectrum holding limit should apply *ex ante* to the licensing of particular bands through competitive bidding. In this Order, we find that the Commission should determine what if any spectrum holding limitations should affect the licensing of particular bands through competitive bidding before the relevant competitive bidding process begins for that band. We determine certain guidelines that the Commission will consider in making such determinations prior to the beginning of the competitive bidding process for a particular band, which generally will be made in the service rulemakings for those bands, enabling the Commission to take into account all relevant objectives specific to the bands in question and competitive bidding process. Given the proximity of the AWS-3 auction and Incentive Auction, we make determinations regarding whether to adopt, in the context of this rulemaking, any mobile spectrum holdings limits for the licensing of these bands through competitive bidding. In particular, based on the record in this proceeding and in the two service rulemakings, as well as the statutory goals set forth in the Communications Act and the Spectrum Act, we reserve spectrum in the forward auction for the 600 MHz Band licenses in order to ensure against excessive concentration in holdings of below-1-GHz spectrum, and we decline to adopt any mobile spectrum holding limits for the licensing of the AWS-3 bands through competitive bidding.

### A. Ex Ante Application of Mobile Spectrum Holding Limits to the Licensing of Spectrum Bands through Competitive Bidding

136. **Background.** As noted above, in eliminating the CMRS spectrum cap in 2001 for secondary market transactions, the Commission noted that “we can shape the initial distribution through the service rules adopted with respect to specific auctions.”<sup>410</sup> In 2008, the Commission announced that its case-by-case review of spectrum acquisitions in the secondary market would apply to the initial

<sup>405</sup> See *id.* (citing *AT&T-Qualcomm Order*, 26 FCC Rcd at 17607 ¶ 42).

<sup>406</sup> See CCA Comments at 14; CCA Reply at 12; Free Press Comments at 19; Sprint Comment at 10, n.17; Leap Reply at 9; CCIA Comments at 9-10.

<sup>407</sup> See AT&T Reply at 22.

<sup>408</sup> See *800 MHz Reconfiguration Report and Order*, 19 FCC Rcd at 14978 ¶ 11.

<sup>409</sup> See 47 C.F.R. § 90.617(f).

<sup>410</sup> *CMRS Sunset Order*, 16 FCC Rcd at 22696 ¶ 54.

licensing of spectrum post-auction.<sup>411</sup> In the *Mobile Spectrum Holdings NPRM*, the Commission sought comment on general approaches to address mobile spectrum policies at auction, including whether to retain its current case-by-case approach or adopt a bright-line limit.<sup>412</sup> The Commission also sought comment on the costs and benefits of applying a case-by-case approach to initial licenses acquired at auction and whether it affords participants sufficient certainty to determine whether they would be allowed to hold a given license post-auction.<sup>413</sup>

137. T-Mobile, Sprint, and CCA support replacing the current case-by-case approach with upfront limits to provide potential bidders greater certainty, clarity, and predictability as to which licenses they could acquire and retain.<sup>414</sup> They contend that such certainty would encourage auction participation by facilitating business planning and efforts to obtain financing and thus avoid market distortion and limit transaction costs.<sup>415</sup> The Internet Innovation Alliance (IIA) asserts that the current “unpredictability of how the FCC may apply its spectrum screen analysis makes it more challenging for companies to invest and do business.”<sup>416</sup> The DOJ and T-Mobile add that upfront rules would ease administrative costs by eliminating the burden on Commission resources to review all the winning bidders’ post-auction applications.<sup>417</sup> T-Mobile also contends that case-by-case review of post-auction license applications undermines the Commission’s pro-competition goals to the extent it allows the seller to choose which bands to sell and to whom.<sup>418</sup> T-Mobile also asserts that it would be impractical to unwind and rerun an auction if a proposed spectrum acquisition is found post-auction to be anti-competitive.<sup>419</sup>

138. Conversely, AT&T supports retaining the case-by-case approach, arguing that bidders will acquire the same amount of certainty under “a well-defined safe harbor as part of an overall system of case-by-case review.”<sup>420</sup> Moreover, AT&T contends that if a winning bidder’s spectrum holdings are determined to “threaten competition,” a case-by-case approach should provide the licensees with the flexibility to choose which spectrum to divest in order to remedy the harm.<sup>421</sup>

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<sup>411</sup> See Union Telephone Company and Cellco Partnership d/b/a Verizon Wireless Applications for 700 MHz Band Licenses, Auction No. 73, *Order*, 23 FCC Rcd 16787, 16791, 16796 ¶¶ 9, 18 (2008) (stating that “we intend to apply prospectively our standard competitive analysis to spectrum acquired via auction as well as via transactions”).

<sup>412</sup> See *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11719-20 ¶¶ 18, 20.

<sup>413</sup> See *id.* at 11719-20 ¶ 19.

<sup>414</sup> See T-Mobile Comments at 8; T-Mobile Reply at 12-13; T-Mobile Mar. 12, 2013 *Ex Parte*, Baker Mar. 2013 at 8; T-Mobile May 7, 2013 *Ex Parte* at 7-8; Sprint Comments at 10, 12-13; DOJ Apr. 11, 2013 *Ex Parte* at 22-23; T-Mobile Aug. 2, 2013 *Ex Parte*, Baker Aug. 2013 at 9; Sprint Comments at 10-11; Sprint Reply at 16-17; Letter from Trey Hanbury, Hogan Lovells, Counsel for CCA, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 24, 2014, at 1 (“CCA Apr. 24, 2014 *Ex Parte*”).

<sup>415</sup> See T-Mobile Mar. 12, 2013 *Ex Parte* at 1, Baker Mar. 2013 at 6, 8, 12-13; T-Mobile May 7, 2013 *Ex Parte* at 7-8, Sprint Comments at 10-11.

<sup>416</sup> Letter from Rick Boucher, Former Congressman and Honorary Chairman, IIA, *et. al.*, to Chairman Julius Genachowski and Commissioners McDowell, Clyburn, Rosenworcel, and Pai, WT Dkt. No. 12-269, filed Nov. 21, 2012, at 2 (“IIA Nov. 21, 2012 *Ex Parte*”).

<sup>417</sup> See DOJ Apr. 11, 2013 *Ex Parte* at 21-22 (the Commission should weigh the time and resources needed for a case-by case analysis versus implementing a more “easily administered rule”); T-Mobile May 7, 2013 *Ex Parte* at 7-8.

<sup>418</sup> See T-Mobile Mar. 12, 2013 *Ex Parte*, Baker Mar. 2013 at 8; T-Mobile Reply at 13-14.

<sup>419</sup> See T-Mobile Mar. 12, 2013 *Ex Parte*, Baker Mar. 2013 at 8; T-Mobile Reply at 13-14.

<sup>420</sup> AT&T June 13, 2013 *Ex Parte*, Katz, Haile, Israel & Lerner at 16. See also CCIA Comments at 17-18.

<sup>421</sup> See AT&T Comments at 11; see also Verizon Wireless Comments at 14-16 (spectrum caps “inherently inflexible” and “overbroad”); Public Knowledge Reply at 4-8 (supports retaining the flexibility of a case-by-case with a weighted spectrum modification).

139. **Discussion.** We conclude that it is in the public interest to replace our post-auction case-by-case analysis of the licensing of spectrum bands through competitive bidding with a determination of whether a band-specific mobile spectrum holding limit is necessary to carry out the duties under the Communications Act and, if so, to establish an *ex ante* application of that limit to the competitive bidding for that band.<sup>422</sup> As noted above, the Commission specifically suggested such an approach in its 2001 order eliminating the CMRS spectrum cap.<sup>423</sup> We agree with T-Mobile and Sprint that upfront, clear determination, instead of case-by-case analysis post-auction, would provide potential bidders with greater certainty in the auction process regarding how much spectrum they would be permitted to acquire at auction. Providing such certainty is consistent with Section 309(j)(3)(E) of the Communications Act, which emphasizes the need for clear bidding rules “to ensure that interested parties have a sufficient time to develop business plans, assess marketplace conditions, and evaluate the availability of equipment for the relevant services.”<sup>424</sup>

140. We find, based on our experience in applying a post-auction case-by-case competitive review to the licensing applications of winning bidders, that, to the extent that the Commission adopts a mobile spectrum holding limit for the licensing of a particular band through competitive bidding, applying the limit *ex ante* would provide greater certainty and efficiency in the process of licensing through competitive bidding, which would be particularly important for complex auctions like the Incentive Auction. In particular, upfront, bright-line determinations would streamline the post-auction review of license applications, which should allow winning bidders to receive their licenses more quickly and proceed to deploy service using the acquired spectrum. Moreover, the application of a mobile spectrum holding limit *ex ante* would avoid certain challenges in trying to remedy concerns after post-auction competitive review. If the Commission were to make a finding post-auction that the acquisition of spectrum by a winning bidder would be likely to cause competitive harm, it could compel abandonment of the license application or divestiture of the license won at auction, which could create incentives for bidder behavior that would undermine the goals of the auction. Alternatively, divestiture of another license from the bidder’s pre-auction spectrum holdings, which would be a possibility under AT&T’s recommended approach,<sup>425</sup> might not address the Commission’s competitive concerns with aggregation of the spectrum made available at auction, especially if the spectrum the winning bidder would propose to divest does not have similar characteristics of the spectrum acquired in the auction.

141. Thus, we find that, for competitive review of spectrum licenses acquired through competitive bidding, the benefits of a bright-line *ex ante* application of a mobile spectrum holding limit to the competitive bidding for those licenses outweigh any costs associated with any perceived loss of flexibility that the existing post-auction review might afford. We note that a case-by-case review of spectrum licenses acquired through secondary markets continues to be appropriate, as discussed below.

142. We find that the determination of whether to apply any mobile spectrum holding limits to the licensing of a particular band through competitive bidding, and if so the scope of such limits and policies, should be clearly specified sufficiently in advance of the auction. This approach would afford a prospective bidder sufficient time to develop a bidding strategy based on the mobile spectrum holdings determination adopted for an upcoming auction, while allowing the Commission to consider the unique circumstances of each spectrum band auction when making its determination.

143. We would evaluate a number of factors in considering whether to adopt a mobile spectrum holdings limit for the licensing of a particular band through competitive bidding and, if so, what

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<sup>422</sup> In subsequent secondary market transactions, the licenses acquired at auction will be included in the application of our revised spectrum screen when the spectrum is deemed suitable and available for inclusion in the screen.

<sup>423</sup> See *supra* ¶ 12.

<sup>424</sup> 47 U.S.C. § 309(j)(3)(E).

<sup>425</sup> See AT&T Comments in Dkt. No. 12-268 at 79.

type of limit to apply. As an initial matter, our evaluation will encompass the “broad aims of the Communications Act,” which include, among other things, preserving and enhancing competition in relevant markets, accelerating private sector deployment of advanced services, and generally managing the spectrum in the public interest.<sup>426</sup> Our determination will help carry out our duties under the Communications Act, serving the public interest. Our public interest analysis in this context also may entail assessing whether a particular auction specific policy will affect the quality of communications services or result in the provision of new or additional services to consumers.<sup>427</sup> Moreover, we must consider any other statutory goals and directives applicable to a particular spectrum band being licensed by competitive bidding.<sup>428</sup>

144. As we have previously stated, spectrum is an essential input in the provision of mobile wireless services, and ensuring that sufficient spectrum is available for incumbent licensees as well as potential entrants is critical to promoting robust competition and innovation in the marketplace.<sup>429</sup> We will consider whether the acquisition at auction of licenses to use a significant portion of spectrum by one or more providers would potentially harm the public interest by reducing the likelihood that multiple service providers would have access to sufficient spectrum to compete robustly in the provision of mobile telephony/mobile broadband service. This determination will be based on several factors, including total amount of spectrum to be assigned, characteristics of the spectrum to be assigned, timing of when the spectrum could be used for mobile telephony/mobile broadband services, the specific rights being granted to licensees of the spectrum, and the extent to which competitors have opportunities to gain access to alternative bands that would serve the same purpose as the spectrum licenses at issue.

145. In the following sections, we apply these guidelines to determine whether to adopt mobile spectrum holdings limits for the upcoming Incentive Auction and the AWS-3 auction and, if so, what the appropriate limits should be.

#### **B. 600 MHz Band Incentive Auction**

146. For the Incentive Auction, we establish a market-based spectrum reserve of up to 30 megahertz in each license area designed to ensure against excessive concentration in holdings of low-band spectrum – a reserve that includes safeguards to ensure that all bidders bear a fair share of the cost of the Incentive Auction. The market-based reserve balances the need to meet the requirements for concluding the Incentive Auction with the competition goals discussed above.

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<sup>426</sup> See, e.g., *AT&T WCS Order*, 27 FCC Rcd 16459, 16464 ¶ 11; *AT&T-Centennial Order*, 24 FCC Rcd at 13928 ¶ 28.

<sup>427</sup> See, e.g., *AT&T WCS Order*, 27 FCC Rcd at 16464 ¶ 11; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10752 ¶ 143; *AT&T-Centennial Order*, 24 FCC Rcd at 13928 ¶ 28; *Verizon Wireless-ALLTEL Order*, 23 FCC Rcd at 17461 ¶ 27; *Sprint-Clearwire Order*, 23 FCC Rcd at 17580 ¶ 20.

<sup>428</sup> For instance, the conclusion of any auction of eligible frequencies reallocated from Federal use to non-Federal use or from Federal use to shared use is contingent on the cash proceeds attributable to such spectrum reaching 110 percent of the total estimated relocation or sharing costs provided to the Commission by NTIA. Spectrum Act § 6401(b)(3), codified at 47 U.S.C. § 1451(b)(3) (proceeds to cover 110 percent of Federal relocation or sharing costs) citing 47 U.S.C. § 309(j)(16)(B).

<sup>429</sup> See, e.g., *AT&T WCS Order*, 27 FCC Rcd at 16467 ¶ 20; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10716 ¶ 47; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17601-02 ¶ 30; *Verizon Wireless-ALLTEL Order*, 23 FCC Rcd at 17481-82 ¶ 75; *Cingular-AT&T Wireless Order*, 19 FCC Rcd at 21569 ¶ 109; see also *15<sup>th</sup> Mobile Wireless Competition Report*, 26 FCC Rcd at 9820-21 ¶ 266.

## 1. Background

147. *Statutory Authority for the Incentive Auction.* The Incentive Auction is a new tool authorized by Congress to help the Commission meet the Nation's accelerating spectrum needs.<sup>430</sup> In the Spectrum Act, Congress authorized the Commission to reorganize the UHF band<sup>431</sup> so that the television stations that will remain on the air after the Incentive Auction occupy a smaller portion of the band, thereby freeing up a portion of the band for new wireless uses.<sup>432</sup> In the Incentive Auction, television broadcasters will have the unique financial opportunity in the "reverse auction" phase to return licensed broadcast spectrum usage rights in exchange for payments.<sup>433</sup> By facilitating the voluntary return of spectrum usage rights and reorganizing the broadcast television bands, the Commission will recover a portion of spectrum for a "forward auction" of new, flexible-use licenses to use that spectrum for mobile broadband services.<sup>434</sup> In the Spectrum Act, Congress required that no broadcast television spectrum could be repurposed unless the proceeds of the forward auction are sufficient to meet certain identified costs and expenses including, among other things, the total amount of compensation required to pay winning reverse auction bidders, and the estimated relocation costs for which the FCC must make reimbursements.<sup>435</sup>

148. In the *Mobile Spectrum Holdings NPRM*, the Commission sought comment on whether to adopt limits on the amount of spectrum that entities could acquire in the context of spectrum auctions mandated by the Spectrum Act.<sup>436</sup> In the *Incentive Auction NPRM*, the Commission sought comment on what, if anything, it should do to meet the statutory requirements of section 309(j)(3)(B) and promote the goals of the Incentive Auction.<sup>437</sup> For instance, the Commission noted that "section 309(j)(3)(B)'s directive to avoid excessive concentration of licenses might militate in favor of a rule that permits any single participant in the auction to acquire no more than one-third of all 600 MHz Band spectrum being auctioned in a given licensed area."<sup>438</sup>

149. *Incentive Auction Report and Order.* In the *Incentive Auction Report and Order* adopted today, we establish rules to implement the Incentive Auction and to govern the use of the 600 MHz Band for mobile broadband.<sup>439</sup> In particular, we adopt a "600 MHz Band Plan" for new services in the

<sup>430</sup> See Spectrum Act §§ 6402, codified at 47 U.S.C. § 309(j)(8)(G), 6403, codified at 47 U.S.C. § 1452; *Incentive Auction NPRM*, 27 FCC Rcd at 12368 ¶¶ 25-26.

<sup>431</sup> The current UHF band consists of spectrum from 470-608 MHz (UHF channels 14-36) and 614-698 MHz (UHF channels 38-51), divided into six megahertz channels that are primarily licensed to broadcast television service. See *Incentive Auction NPRM*, 27 FCC Rcd at 12362-66 ¶¶ 12-22.

<sup>432</sup> See Spectrum Act § 6403(b)(1) (requiring the FCC, in order to "mak[e] available spectrum to carry out the forward auction," to "evaluate the broadcast television spectrum," and authorizing it, "subject to international coordination . . . ," to "make such reassignments of television channels as the Commission considers appropriate" and "reallocate such portions of such spectrum as the Commission determines are available.").

<sup>433</sup> See Spectrum Act § 6403(a)(1) (mandating "a reverse auction to determine the amount of compensation that each broadcast television licensee would accept in return for voluntarily relinquishing some or all of its broadcast television spectrum usage rights in order to make spectrum available for assignment through a system of competitive bidding under subparagraph (G) of section 309(j)(8) of the Communications Act of 1934, as added by section 6402.").

<sup>434</sup> See Spectrum Act § 6403(c)(1)(A) (requiring the FCC to conduct a "forward auction" to assign licenses for the use of spectrum reallocated from broadcast television as part of the Incentive Auction).

<sup>435</sup> See *Incentive Auction NPRM*, 27 FCC Rcd at 12370-71 ¶ 32 (citing Spectrum Act § 6403(c)(2)).

<sup>436</sup> See *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11720 ¶ 21.

<sup>437</sup> See *Incentive Auction NPRM*, 27 FCC Rcd at 12484 ¶ 384.

<sup>438</sup> *Id.*

<sup>439</sup> See *Incentive Auction Report and Order*, FCC No. 14-50, at Section I.

reorganized UHF spectrum, with specific paired uplink and downlink bands, comprising of five megahertz “building blocks.” We adopt PEAs as the licensing area for the 600 MHz Band.<sup>440</sup>

150. The amount of repurposed spectrum depends on the outcome of the reverse and forward auction components of the Incentive Auction. The reverse and forward auctions will be integrated in a series of stages. Each stage will consist of a reverse auction and a forward auction bidding process. Prior to the first stage, the initial spectrum clearing target will be determined based on broadcasters’ collective willingness to relinquish spectrum usage rights at the opening prices offered to them. The first stage reverse auction bidding rounds will determine the total amount of incentive payments necessary in connection with the initial clearing target. The forward auction bidding process will follow. If the final stage rule described below is satisfied, the forward auction bidding will continue until there is no excess demand for 600 MHz Band licenses. If the final stage rule is not satisfied, additional stages will be run, with progressively lower spectrum targets in the reverse auction and less spectrum available in the forward auction until the rule is satisfied.

151. The final stage rule is a reserve price with two components, both of which must be satisfied. The first component requires that the prices for licenses in the forward auction meet or exceed a certain price benchmark to assure that prices generally reflect competitive market values for comparable spectrum licenses.<sup>441</sup> The second component of the final stage rule requires that the proceeds of the forward auction be sufficient to meet expenses set forth in the Spectrum Act<sup>442</sup> and any Public Safety Trust Fund amounts needed for FirstNet. If the requirements of both components of the reserve price are met, then the final stage rule is satisfied.<sup>443</sup>

152. In the *Incentive Auction Report and Order*, we indicate that, in the coming months, we will solicit public input on final auction procedures by Public Notice (“*Incentive Auction Comment PN*”).<sup>444</sup> This Public Notice will include specific proposals on crucial auction design issues such as opening prices, television channel assignment optimization, how much market variation to accommodate in the 600 MHz Band Plan, and benchmarks for implementing the final stage rule. Well in advance of the auction, also by public notice, the Commission will resolve these implementation issues and provide detailed explanations and instructions for potential auction participants (“*Incentive Auction Procedures PN*”).<sup>445</sup>

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<sup>440</sup> See *id.* Sections II and III.A.

<sup>441</sup> The first component consists of alternative conditions, depending on the clearing target for the particular stage in which it is being applied. The alternative formulations recognize that per-unit market prices for spectrum licenses may decline consistent with an increase in supply. The price and spectrum clearing benchmarks will be established by the Commission in the *Incentive Auction Procedures PN*, after an opportunity for additional comment.

<sup>442</sup> The Spectrum Act requires that the forward auction generate proceeds sufficient to pay winning bidders in the reverse auction and cover relevant administrative costs of the auction and an estimate of relocation costs subject to reimbursement. See Spectrum Act § 6403(c)(2).

<sup>443</sup> We note that the first and second components are not cumulative: the auction need not raise sufficient proceeds to satisfy the first *plus* the second.

<sup>444</sup> See *Incentive Auction Report and Order*, FCC No. 14-50, at Section IV.B.

<sup>445</sup> In this regard, we note that we do not modify the Wireless Telecommunications Bureau’s well-established authority to adopt final auction procedures through a pre-auction public notice process. See 47 C.F.R. § 0.131(c). Compared to our typical spectrum auctions, many aspects of the broadcast television spectrum Incentive Auction are unique, and in this particular proceeding we intend to establish certain procedures by Commission vote. The Wireless Telecommunications Bureau may continue to establish final auction procedures in this proceeding concerning those matters that it typically handles under existing delegations of authority. See *Incentive Auction Report and Order*, FCC No. 14-50, Sections I and IV.B.

## 2. The Need for a Market-Based Spectrum Reserve

153. As noted above, the forward auction component of the Incentive Auction represents the last opportunity in the foreseeable future for providers to acquire licenses for below-1-GHz spectrum at auction. Two nationwide providers, AT&T and Verizon Wireless, hold approximately 73 percent of all suitable and available below-1-GHz spectrum.<sup>446</sup> Given the importance of multiple providers, including rural and regional providers,<sup>447</sup> having access to below-1-GHz spectrum for deployment and competition, we conclude that a clear mobile spectrum holdings policy for the Incentive Auction is necessary to increase access opportunities to the 600 MHz Band. We find that it is appropriate to adopt a market-based spectrum reserve for entities that do not currently hold a significant amount of below-1-GHz spectrum.

154. Specifically, we will reserve on a contingent basis, licenses covering up to 30 megahertz of spectrum for bidders with spectrum holdings, at the deadline for filing a short-form application to participate in the forward auction, of less than 45 megahertz, on a population-weighted basis, of suitable and available below-1-GHz spectrum in a PEA.<sup>448</sup> All bidders, including those unable to bid on reserved licenses, will be able to bid on the unreserved licenses. As set out in Section V.B.4 below, we specify the *maximum* amount of spectrum that will be reserved in each market for eligible entities (“reserve-eligible” entities) in the forward auction under the various band plan scenarios identified in the *Incentive Auction Report and Order*, but the actual amount of spectrum reserved will depend on the demand by reserve-eligible bidders when the auction reaches a trigger (the “spectrum reserve trigger”). We find that this approach balances a number of the key statutory directives, including promoting competition, facilitating the deployment of advanced services by making spectrum available for flexible use, and sharing the costs of the Incentive Auction on a fair and equitable basis.

155. **Record.** In response to the *Incentive Auction NPRM*, a number of commenters assert that the Commission should adopt limits on the amount of 600 MHz Band spectrum for which each bidder can acquire licenses in the Incentive Auction in any market. For example, T-Mobile proposes that each bidder should be prohibited from acquiring 600 MHz Band spectrum licenses at the Incentive Auction that would result in that bidder, post-auction, holding more than one-third of the suitable and available below-1-GHz spectrum.<sup>449</sup> T-Mobile proposes, as an exception to this prohibition, each bidder could acquire at least one 5x5 megahertz block of 600 MHz Band spectrum.<sup>450</sup> USCC proposes to limit an

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<sup>446</sup> Based on internal FCC staff analysis of ULS. In our analysis, in making the changes to the spectrum screen as discussed in Section IV, 134 megahertz of below-1-GHz spectrum are suitable and available for the provision of mobile wireless services.

<sup>447</sup> See Letter from Charlie Morris, Executive Director, Northcentral Arkansas Development Council, Inc., to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 28, 2014, at 2 (“600 MHz spectrum is particularly well-suited for service in rural America”).

<sup>448</sup> See *infra* Sections V.B.3 and V.B.4.

<sup>449</sup> See T-Mobile Comments at 10-12, 16-18; T-Mobile Comments in Dkt. No. 12-268 at 27-31; T-Mobile May 7, 2013 *Ex Parte* at 7; Letter from Trey Hanbury, Hogan Lovells, US LLP, Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Jun. 21, 2013 at 1-2 (“T-Mobile June 21, 2013 *Ex Parte*”); Letter from Trey Hanbury, Hogan Lovells, US LLP, Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Sept. 26, 2013 at 1 (“T-Mobile Sept. 26, 2013 *Ex Parte*”). See also Letter from Harold Feld, Senior Vice President, Public Knowledge to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 14, 2014, at 2 (adopt auction specific rule to address 600 MHz spectrum).

<sup>450</sup> See, e.g., T-Mobile June 21, 2013 *Ex Parte* at 1, n.1 & Attachment 1 (diagram explaining rule); Letter from Trey Hanbury, Hogan Lovells, Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed July 31, 2013 at 1-2 (“T-Mobile July 31, 2013 *Ex Parte*”), Attachment, Gregory Rosston and Andrzej Skrzypacz, A Dynamic Market Rule for the Broadcast Incentive Auction: Ensuring Spectrum Limits Do Not Reduce Spectrum Clearance—(relying on actual bids rather than predictions of expected behavior, allows the free market to determine (continued....))



entity from acquiring no more than 25 percent of the 600 MHz Band spectrum made available in the forward auction in any licensed area.<sup>451</sup> Certain commenters suggest that the Commission could consider setting aside 600 MHz Band spectrum to promote competition.<sup>452</sup> More recently, T-Mobile, DISH, C Spire, Sprint, and Public Knowledge filed in support of a spectrum reserve, stating it would advance the goals of section 309(j).<sup>453</sup> In addition, a number of rural providers have indicated that adopting reasonable, up-front spectrum aggregation limits for the Incentive Auction would give such providers an opportunity to acquire low-band spectrum that is very desirable for deploying advanced wireless services to rural areas.<sup>454</sup>

156. Other commenters oppose any limits on the amount of 600 MHz Band spectrum any single service provider could win in the Incentive Auction.<sup>455</sup> AT&T argues that the Commission should reject proposals to impose *ex ante* limits on the spectrum that particular providers can obtain through this auction, and that if a winning bidder's acquisition of new spectrum would bring its total holdings in a market to a level that is determined to threaten competition, that licensee should be free to choose which spectrum it will divest to remedy the anticompetitive harm.<sup>456</sup> Verizon Wireless argues that in light of the highly competitive nature of the wireless industry and the robust bidding to be expected in the forward auction, any rule that restricts bidding would suppress demand and fail to ensure that spectrum is put to its best and most productive use.<sup>457</sup>

157. In addition, AT&T asserts that if the spectrum reserve is designed to encourage rural deployment, then the Commission should reserve 600 MHz Band licenses only in rural markets.<sup>458</sup> Moreover, AT&T argues that reserving 600 MHz Band licenses in rural markets would not facilitate deployment of wireless broadband networks in rural areas because in many cases the largest providers would not be limited from bidding in PEAs in rural service areas based on their existing below-1-GHz

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if spectrum aggregation limits will raise sufficient revenues); T-Mobile Sept. 24, 2013 *Ex Parte* Attachment at 5 (DMR would prevent market distortions and increase auction revenues); T-Mobile Sept. 26, 2013 *Ex Parte* at 5.

<sup>451</sup> See USCC Comments at 32 in Dkt. No. 12-268. See, e.g., RWA Reply at 9 (limit an entity to 25 percent total spectrum and 40 percent below-1-GHz spectrum either at auction or in the secondary market); CCA Comments at 11-13 (adopt a 25 percent below-1-GHz screen, retain the current approximately one-third total screen, and introduce a threshold that applies on a nationwide basis).

<sup>452</sup> See MA DOT Mar. 28, 2013 *Ex Parte* at 11-12.

<sup>453</sup> See Letter from Trey Hanbury, Hogan Lovells, LLC, filed on behalf of T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 2, 2014 at 1 (“T-Mobile May 2, 2014 *Ex Parte*”); Letter from Jeffrey H. Blum, Senior Vice President & Deputy General Counsel, DISH, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 28, 2014; Letter from Trey Hanbury, Hogan Lovells, LLC, filed on behalf of C Spire, DISH, USCC, Sprint, and T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 28, 2014 at 1-2 (“Competitive Carrier Apr. 28, 2014 *Ex Parte*”); Letter from John Bergmayer, Senior Staff Attorney, Public Knowledge, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 30, 2014 at 1-2 (“Public Knowledge Apr. 30, 2014 *Ex Parte*”). See also Letter from members of Public Interest Spectrum Coalition (PISC), to Tom Wheeler, Chairman, FCC, WT Dkt. No. 12-269, filed May 8, 2014 at 1 (support reserve spectrum, but stating the approach does not go far enough to truly promote competition) (“PISC May 8, 2014 *Ex Parte*”).

<sup>454</sup> See, e.g., Bluegrass Cellular Apr. 10, 2014 *Ex Parte*; Carolina West Wireless Apr. 11, 2014 *Ex Parte*.

<sup>455</sup> See, e.g., AT&T Comments in Dkt. No. 12-268 at 79-80; Verizon Wireless Comments in Dkt. No. 12-268 at 38-43; Mobile Future Comments in Dkt. No. 12-268 at 10-12.

<sup>456</sup> See AT&T Comments in Dkt. No. 12-268 at 79.

<sup>457</sup> See Verizon Wireless Comments in Dkt. No. 12-268 at 39.

<sup>458</sup> See AT&T May 9, 2014 *Ex Parte* at 2.

holdings.<sup>459</sup> ACT contends that unnecessary restrictions could slow down the build-out of wireless infrastructure by the national providers as well as regional providers such as USCC and C Spire.<sup>460</sup>

158. Other parties assert that the Commission should not apply restrictions on the number of 600 MHz Band licenses each bidder can acquire in a given market. For example, Communications Workers of America (CWA) argues that under any amount of spectrum made available in the forward auction, providers should be able to acquire a 10 x 10 block.<sup>461</sup> The Rainbow PUSH Coalition, the National Urban League, and the National Association for the Advancement of Colored People (“NAACP”) support unrestricted participation in the auction to promote participation of minority and women owned businesses.<sup>462</sup>

159. **Discussion.** In reaching our decisions, we must consider a number of statutory directives applicable to the Incentive Auction, including promoting competition, making spectrum available for flexible use, meeting proceeds requirements, and facilitating deployment of advanced services. With respect to promoting competition in the mobile wireless marketplace, we observe that any of the types of limits discussed on the record – spectrum caps based on a provider’s existing below-1-GHz holdings, equal spectrum caps for all bidders, or reserved spectrum – have the potential to promote competition by ensuring that in the near future, more providers would hold a sufficient mix of spectrum to compete robustly. We find that our market-based spectrum reserve for the Incentive Auction has distinct advantages over the other approaches with respect to the other statutory directives.

160. First, the spectrum reserve gives mobile service providers significant latitude to bid on spectrum licenses they need in each area to meet their network requirements, including providers who are unable to bid for reserved spectrum in a particular PEA. Rules that would restrict the larger providers to no more than a 5x5 megahertz block of 600 MHz Band spectrum do not adequately consider the needs of those providers for additional spectrum to meet the demand of their subscribers in the longer term. Nor do such rules adequately consider that efficient deployment of services using the 600 MHz Band spectrum would likely rely on ensuring that the larger as well as smaller nationwide providers having a stake in the development of equipment for the band. Spectrum caps also could affect to a certain extent mobile broadband providers’ flexibility to expand services to meet increasing consumer needs.<sup>463</sup>

161. Second, proposals that would set an individual spectrum cap on the amount of 600 MHz Band spectrum for which each provider could acquire licenses have greater risk of decreasing forward

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<sup>459</sup> See AT&T-Keisler May 7, 2014 *Ex Parte* at 9.

<sup>460</sup> See Letter from E. Whitley Herndon, Policy Counsel, ACT to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 7, 2014 at 1 (“ACT May 7, 2014 *Ex Parte*”).

<sup>461</sup> See Letter from Debbie Goldman, Telecommunications Policy Director, CWA, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 8, 2014 at 1 (“CWA May 8, 2014 *Ex Parte*”).

<sup>462</sup> See Letter from Reverend Jesse L. Jackson Sr., Founder and President, Rainbow PUSH Coalition, to Chairman, Thomas Wheeler, FCC, WT Dkt. No. 12-269, filed May 6, 2014 at 1; Letter from Marc H. Morial, President and Chief Executive Officer, National Urban League, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 7, 2014, at 1-2; Letter from Hilary O. Shelton, Director, NAACP Washington Bureau and Senior Vice President for Policy and Advocacy, to Chairman Thomas Wheeler, FCC, WT Dkt. No. 12-269, filed May 6, 2014, at 1.

<sup>463</sup> See Letter from Tamara Preiss, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, July 17, 2013 (“Verizon Wireless July 17, 2013 *Ex Parte*”); Letter from Joan Marsh, Vice President, Federal Regulatory AT&T, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed June 13, 2013 *Ex Parte*; AT&T Comments at 30, Katz & Israel Decl. at 6-7; AT&T Reply, Katz & Israel Reply Decl. at 36-37; Verizon Wireless Reply at 15; Verizon Wireless Comments, Shampine Decl. at 22; Letter from Maggie McCready, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Jan. 27, 2014 at 1-2 (“Verizon Wireless Jan. 27, 2014 *Ex Parte*”); see also EOBC Comments, Eisenach Decl. in Dkt. No. 12-268 at 14-16.

auction proceeds, and thus endangering our ability to repurpose spectrum, because it likely would lessen competition between the largest wireless providers for spectrum in amounts greater than the cap would permit. AT&T, Verizon Wireless, and other commenters raise concerns regarding the potential effect of a mobile spectrum holdings limit on participation and proceeds generated by the Incentive Auction.<sup>464</sup> Verizon Wireless, AT&T, and Mobile Future also assert that the experience of other countries in recent auctions has shown that a mobile spectrum holdings limit significantly depresses auction revenues.<sup>465</sup> In response to concerns about a reduction in auction proceeds, T-Mobile argues that a modest limit on AT&T and Verizon Wireless is not likely to lead to much revenue loss and could even increase revenue compared to an entirely unrestricted auction, and that the gains from a more competitive auction outcome must be balanced against any revenue effects.<sup>466</sup> Sprint, T-Mobile, and CCA state that European auctions

<sup>464</sup> See AT&T Comments at 33; AT&T Reply, Katz & Israel Reply Decl. at 38; Letter from Richard J. Bodorff, Wiley Rein, LLP, Counsel for EOBC, to Marlene H. Dortch, Secretary, FCC, filed Mar. 4, 2013 at 3 (“EOBC Mar. 4, 2013 *Ex Parte*”); AT&T June 13, 2013 *Ex Parte*, Katz, Haile, Israel & Lerner Supp. Reply at 5-10; Letter from Gary L. Phillips, General Attorney & Assoc. General Counsel, AT&T, to Marlene H. Dortch, Secretary, FCC, Dkt. No. 12-268, filed Oct. 31, 2013 (“AT&T Oct. 31, 2013 *Ex Parte*”), Attachment, Phillip A. Haile, Maya Meidan, Jonathan M. Orszag, The Impact on Federal Revenues from Limiting Participation in the FCC 600 MHz Spectrum Auction, at 19-23 (“Haile, Meidan, & Orszag, Oct. 2013, Dkt. No. 12-268”); AT&T Reply, Katz, Haile, Israel, & Lerner Decl., Dkt. No. 12-268 at 20-28; Verizon Wireless Jan. 27, 2014 *Ex Parte* at 1. For example, AT&T asserts that the results of a study by Haile, Meidan, and Orszag indicate that restrictions on participation, particularly T-Mobile’s proposal of a one-third cap on below-1-GHz spectrum holdings, would likely reduce auction revenues by billions of dollars, and that these losses would be unlikely to be offset by increased auction participation or increased bidding budgets by other bidders. AT&T Oct. 31, 2013 *Ex Parte*, Haile, Meidan & Orszag Oct. 2013, Dkt. No. 12-268, at 4, 23 (combining data on past FCC auctions with insights from an approach to revenue forecasting as in Jeremy Bulow, Jonathan Levin, and Paul Milgrom, “Winning Play in Spectrum Auctions” (2009), Stanford Working Paper). See also Letter from Tamara Preiss, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-268, filed Sept. 18, 2013 (“Verizon Wireless Sept. 18, 2013 *Ex Parte*, Dkt. No. 12-268”) Attachment, Leslie M. Marx, *Economic Analysis of Proposals that Would Restrict Participation in the Incentive Auction* (Sept. 18, 2013) at 1,4 (“Marx Sept 2013, Dkt. No. 12-268”) (explaining how the simulation results show that bidding restrictions in past FCC auctions would have lowered auction revenues); (submitted under name John W. Mayo) (“Mayo May 3, 2013 *Ex Parte*”), Robert J. Shapiro, Douglas Holtz-Eakin, & Coleman Bazelon, *The Economic Implications of Restricting Spectrum Purchases in the Incentive Auctions* (Apr. 30, 2013) at 6, 13 (“Shapiro, Holtz-Eakin, & Bazelon Apr. 2013”) (asserting, based on an analysis of 5 previous spectrum auctions in the U.S., that limits on auction participation could reduce auction revenues by as much as 40 percent if 102 megahertz of spectrum were repurposed (or up to \$12 billion)). See also Letter from Julie Kearney, Vice President, Regulatory Affairs, CEA, and Preston Padden, Executive Dir., EOBC, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Nov. 4, 2013 (“CEA/EOBC Nov. 4, 2013 *Ex Parte*”), Attachment, Fred B. Campbell, *Maximizing the Success of the Incentive Auction*, at i (“Campbell Nov. 2013”) (arguing that restrictions on the participation of large firms in previous FCC spectrum auctions reduced auction revenue, delayed the provision of new wireless services, and failed to substantially benefit wireless competition).

<sup>465</sup> See e.g. Letter from John Spalter, Chairman, Mobile Future, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed July 31, 2013 (“Mobile Future July 31, 2013 *Ex Parte*”), attached Robert Earle & David Sosa, *Spectrum Auctions Around the World: An Assessment of International Experiences with Auction Restrictions* (July 2013) at 10-15 (“Earle & Sosa July 2013”); Letter from Tamara Preiss, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Nov. 8, 2013 at 2-3 (“Verizon Wireless Nov. 8, 2013 *Ex Parte*”); AT&T June 13, 2013 *Ex Parte*, Katz, Haile, Israel, & Lerner Supp. Reply Decl. at 13-15.

<sup>466</sup> See Letter from Trey Hanbury, Hogan Lovells, LLP, Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Dec. 6, 2013 (“T-Mobile Dec. 6, 2013 *Ex Parte*”), Attachment, Peter Cramton, *The Revenue Impact of Competition Policy in the FCC Incentive Auction* (Dec. 2013) at 2, 13 (“Cramton Dec. 2013”). See also CCIA, Feb. 19, 2013 *Ex Parte* Letter, Attachment, Martyn Roetter & Alan Pearce, Information Age Economics, *The Impact of Bidding Eligibility Conditions on Spectrum Auction Revenues* (Feb. 2013) at 3, 24 (“Roetter & Pearce Feb. 2013”) (arguing that introducing well-designed bidding eligibility restrictions into auctions will not adversely affect the revenues they generate); Sprint Mar. 12, 2013 *Ex Parte*, Besen, Moresi & Salop, Mar. 2013, Dkt. No. 12-268 at 11 (asserting that well-designed mobile spectrum holding limits on auctions – for instance, (continued....))

and most recently the Canadian auction, which applied mobile spectrum holdings limits, resulted in increased revenues or did not diminish revenues.<sup>467</sup>

162. In evaluating the record, we conclude that a number of factors are likely to have an impact on forward auction proceeds, and thus on our ability to make incentive payments to broadcasters that voluntarily relinquish some or all of their spectrum usage rights,<sup>468</sup> including the amount of spectrum being auctioned, the size of the licenses available, the alternative spectrum bands available, and buildout obligations. Overall, auction proceeds appear to be related to the level of competition among bidders for the spectrum being auctioned, which depends on all the above factors. In this case, we conclude that our market-based spectrum reserve, particularly in the amounts and under the rules we adopt today, is unlikely to reduce competition among bidders and in fact, will encourage competition among bidders wanting at least 20 megahertz of spectrum, as compared to other potential approaches to mobile spectrum holdings limits that could be applied to the Incentive Auction. Indeed, under the market-based spectrum reserve, every bidder will have the opportunity to bid for, and win, at least half of the 600 MHz Band spectrum in each market, and at some levels of spectrum made available in the forward auction, significantly more than half.

163. Third, we conclude that our approach would not reduce participation in the auction by large providers to a level that would reduce the amount of spectrum that can be repurposed by the Incentive Auction.<sup>469</sup> The reserved spectrum amount would be contingent upon (and subject to a

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through set-asides – may better promote participation (and hence generate more revenues) in the forward auction than the absence of such limits).

<sup>467</sup> See, e.g., Letter from Trey Hanbury, Hogan Lovells, US LLP, Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Sept. 9, 2013 (“T-Mobile Sept. 9, 2013 *Ex Parte*”), Peter Cramton, *The Rationale for Spectrum Limits and Their Impact on Auction Outcomes*, Sept. 2013, at 1, 12 (“Cramton Sept. 2013”) (arguing that experience from the United States and around the world shows that spectrum limits, when properly applied, are an effective tool for promoting competition and consumer welfare); Letter from Rebecca Murphy Thompson, General Counsel, CCA, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Sept. 4, 2013 (“CCA Sept. 4, 2013 *Ex Parte*”); Letter from Rafi Martina, Counsel, Legal and Government Affairs, Sprint, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed July 29, 2013 (“Sprint July 29, 2013 *Ex Parte*”), Attachment, Martin Cave & William Webb, *Spectrum Limits and Auction Revenue: the European Experience* (July 29, 2013) at 23 (“Cave & Webb July 2013”) (recommending that serious consideration be given to the use of a cautiously and carefully designed spectrum aggregation limit to achieve the desired goal of maintaining competition); Letter from Trey Hanbury, Hogan Lovells, US LLP, Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Oct. 28, 2013 at 1-3 (“T-Mobile Oct. 28, 2013 *Ex Parte*”). See also CCA Sept. 4, 2013 *Ex Parte* (supports rules used in European auctions such as Netherlands, Canada, and New Zealand); Sprint Reply, Besen, Moresi & Salop Mar. 2013, Dkt. No. 12-268 at 6, n.16; Letter from Trey Hanbury, Hogan Lovells, US LLP, Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed April 3, 2014 (“T-Mobile Apr. 3, 2014 *Ex Parte*”), Attachment, Peter Cramton, *Lessons from the Canadian 700 MHz Auction* (Apr. 2014) (“Cramton Apr. 2014”).

<sup>468</sup> The Spectrum Act requires that the forward auction generate proceeds sufficient to pay winning bidders in the reverse auction and cover relevant administrative costs of the auction and an estimate of relocation costs subject to reimbursement. See Spectrum Act § 6403(c)(2). The reserve price we adopt in the Incentive Auction R&O requires, among other things, that the forward auction proceeds cover such costs, as well as any Public Safety Trust Fund amounts needed for FirstNet.

<sup>469</sup> See AT&T June 13, 2013 *Ex Parte* at 5; Verizon Wireless Sept. 18, 2013 *Ex Parte*, Marx Sept. 2013, Dkt. No. 12-268 at 36-44 (Marx argues that pursuant to a simulated auction model, a policy in which the Commission excludes two bidders or materially reduces AT&T’s and Verizon Wireless’s participation in the auction could cause a two-sided auction to fail by reducing the quantity of spectrum reallocated and reducing the amount of revenue raised.); see Verizon Wireless Jan. 27, 2014 *Ex Parte* at 1.

reduction based on) the demand expressed in the forward auction by reserve-eligible bidders.<sup>470</sup> If there is insufficient demand for reserved spectrum licenses, the amount of reserved spectrum would be reduced.

164. Our approach differs in multiple ways from the “set-aside” policies opposed by Mobile Future, which argues that the set aside preferences adopted in the PCS auction held in the 1990s failed to increase small business participation in the auction or long term competitive benefits in the wireless marketplace.<sup>471</sup> However, the set-aside policy for PCS had the very different purpose of encouraging participation of very small businesses in the PCS auction, and included a substantial installment payment program available for set-aside licenses, which placed the Commission in a position of creditor.<sup>472</sup> In contrast, the market-based spectrum reserve that we adopt today would ensure that entities that acquire reserved spectrum would pay their fair share of the costs of the Incentive Auction.

165. We also are not persuaded that the Commission should apply such limits equally to all bidders, regardless of their current holdings, as has been the case in countries like New Zealand. Given the high concentration of below-1-GHz spectrum in the U.S., and the importance of a mix of low- and high- band spectrum holdings to all providers to increase their ability to compete robustly, the most appropriate mobile spectrum holdings limit for the 600 MHz Band in the U.S. is one that takes into account the existing low-band holdings of providers. The types of limits adopted in other countries, including New Zealand, have reflected the distribution of below-1-GHz spectrum existing before their auctions. In countries in which the distribution of low-band spectrum prior to the auction was relatively asymmetric, as is the case with the U.S., mobile spectrum holdings limits took into account the existing low-band spectrum holdings of bidders (*e.g.*, UK, Germany). The distribution of below-1-GHz spectrum in other countries adopting “equal” limits has often been very symmetric among the nationwide providers.<sup>473</sup>

166. In addition, we disagree with assertions by Verizon Wireless and Mobile Future that setting limits on the amount of spectrum that could be acquired at the Incentive Auction would be a departure from the norm around the world. They assert that no country has found that below-1-GHz spectrum is a necessary input to be an effective competitor. They note that even the United Kingdom (UK), which adopted a system of spectrum packages for new entrants and a below-1-GHz limit for incumbents, found that a new entrant could be an effective competitor with a spectrum package of only above-1-GHz spectrum.<sup>474</sup>

167. In fact setting limits on the amount of low-band spectrum that could be acquired at 4G auctions is a well-established trend around the world – particularly in Europe, where many European Union countries with large economies (Gross Domestic Product (GDP) > U.S. \$200 billion) have adopted mobile spectrum holdings limits in auctions of low-band spectrum for 4G services. In making these

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<sup>470</sup> See *infra* Section V.B.4.

<sup>471</sup> See Mobile Future July 31, 2013 *Ex Parte*, Earle & Sosa July 2013 at 7-10.

<sup>472</sup> See *Auction 35 Order*, 15 FCC Rcd at 16267-68 ¶ 27.

<sup>473</sup> For example, in New Zealand, where the limits were not based on existing holdings, the symmetric distribution of this spectrum depended in part on prior more restrictive action, when the regulator forced divestiture of low band spectrum from incumbents as part of the license renewal process. *Renewal of 800/900 Cellular Rights*, Radio Spectrum Management, Ministry of Business, Innovation and Employment, Government of New Zealand, available at <http://www.rsm.govt.nz/cms/policy-and-planning/projects/recently-completed-work/cellular-rights?searchterm=900>; *New Cellular Network Given Access to the Airwaves*, Radio Spectrum Management, Ministry of Business, Innovation and Employment, Government of New Zealand, May 15, 2008, available at <http://www.rsm.govt.nz/cms/policy-and-planning/projects/recently-completed-work/cellular-rights/media-statements/new-cellular-network-given-access-to-the-airwaves-minister-for-communications-media-statement-published-15-may-2008>.

<sup>474</sup> See *Assessment of Future Mobile Competition and Award of 800 MHz and 2.6 GHz*, Ofcom, July 14, 2012, at 35-38.

determinations, European regulators have emphasized the importance of low-band spectrum to mobile wireless providers (e.g., Germany, Netherlands).<sup>475</sup> In addition, while the UK did not find that below-1-GHz spectrum was a necessary input to be an effective competitor, three out of four of their spectrum packages for new entrants included below-1-GHz spectrum.<sup>476</sup> Moreover, given the size and geographic diversity of the U.S., below-1-GHz spectrum might be even more important for U.S. providers as part of a mix of spectrum.

168. We also find that our market-based spectrum reserve is more likely to achieve our purposes more effectively than proposals by CCA and DISH to offer bidding credits based on the level of spectrum holdings.<sup>477</sup> On balance, applying bidding credits based on spectrum holdings as opposed to reserving licenses for providers without significant below-1-GHz spectrum would not address the Commission's competitive concerns with aggregation of the spectrum made available at auction. We note that in the *Incentive Auctions Report and Order* the Commission adopted the bidding credits for the forward auction applicable to small businesses.<sup>478</sup> The Commission also stated it will initiate a separate proceeding to examine its designated entity ("DE") rules generally.<sup>479</sup>

169. Our market-based spectrum reserve also better serves our goals than the T-Mobile proposal for a Dynamic Market Rule ("DMR"), which builds on its one-third limit, but adds a provision to gradually relax the limit if revenue targets are not met.<sup>480</sup> In response, AT&T argues that the proposal

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<sup>475</sup> See, e.g., Letter from Trey Hanbury, Hogan Lovells, US LLP, Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Dec. 12, 2013 ("T-Mobile Dec. 12, 2013 *Ex Parte*").

<sup>476</sup> See *Assessment of Future Mobile Competition and Award of 800 MHz and 2.6 GHz*, Ofcom, July 14, 2012, at 4.

<sup>477</sup> CCA Comments in Dkt. No. 12-268 at 11-12; DISH Reply in Dkt. No. 12-268 at 12-13. We note that in the *Incentive Auction Report and Order*, we are adopting business size standards and associated bidding credits for small businesses, consistent with the 700 MHz Band. Specifically, for the purpose of the forward auction, we have defined a small business as an entity with average annual gross revenues for the preceding three years not exceeding \$40 million, and a very small business as an entity with average annual gross revenues for the preceding three years not exceeding \$15 million. For the 600 MHz Band, small businesses will be provided with a bidding credit of 15 percent and very small businesses with a bidding credit of 25 percent, consistent with the standardized schedule in Part 1 of our Rules. See *Incentive Auction Report and Order*, FCC No. 14-50, at Section IV.C.1.

<sup>478</sup> See *Incentive Auction Report and Order*, FCC No. 14-50, at Section IV.C.1.

<sup>479</sup> The Commission also declined MMTC's request to modify or eliminate the attributable material relationship ("AMR") rule in the *Incentive Auction Report and Order*. *Incentive Auction Report and Order*, FCC No. 14-50 at Section IV.C.1; see Letter from Jacqueline Clary, Senior Counsel and John W. Jones Fellow, MMTC, to Marlene H. Dortch, Secretary, FCC, Dkt. No. 12-268 et al., filed Mar. 14, 2014, Attachment, S. Jenell Trigg and Jeneba Jalloh Ghatt, *Digital Déjà vu: A Road Map for Promoting Minority Ownership in the Wireless Industry* at 32 ("Trigg and Ghatt *Ex Parte*") (advocating that the Commission eliminate the AMR rule to increase DE participation in upcoming auctions because wholesaling and leasing arrangements have become standard and important industry practices). As discussed in the *Incentive Auction Report and Order*, the Wireless Telecommunications Bureau recently released a public notice seeking comment on Grain Management's request for clarification or waiver of the AMR rule. *Incentive Auction Report and Order*, FCC No. 14-50, at Section IV.C.1 (citing *Wireless Telecommunications Bureau Seeks Comment on Request for Clarification or Waiver of the Commission's "Attributable Material Relationship" Rule*, WT Dkt. No. 05-211, GN Dkt. Nos. 12-268, 13-185, Public Notice, DA 14-414 (WTB rel. Mar. 27, 2014)). We intend to act on that request in the near term.

<sup>480</sup> See T-Mobile Jun. 21, 2013 *Ex Parte* at 1 & Attachment. See also Letter from Trey Hanbury, Hogan Lovells, US LLP, Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed July 18, 2013 at 2 ("T-Mobile July 18, 2013 *Ex Parte*"); Letter from Trey Hanbury, Hogan Lovells, US LLP, Counsel for T-Mobile, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed July 26, 2013 at 1 ("T-Mobile July 26, 2013 *Ex Parte*"), Attachment 1, Dynamic Market Model; T-Mobile July 31, 2013 *Ex Parte* at 1-2, Rosston & Skrzypacz July 2013 (relying on actual bids rather than predictions of expected behavior, allows the free market to determine if spectrum aggregation limits will raise sufficient revenues); T-Mobile Sept. 26, 2013 *Ex Parte* at 1-3 (responding to

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would lead to revenue losses due to the restriction on bidder participation and that the dynamic spectrum caps could cause failure of a clearing target that would have been met if no restrictions were in place, and the added complexity and incentives created for strategic bidding would threaten to distort auction outcomes.<sup>481</sup> We find that our market-based spectrum reserve would achieve the same goals – balancing the need for reserved spectrum with the need to facilitate repurposing spectrum through the Incentive Auction– with less complexity. As discussed in the *Incentive Auction Report and Order*, avoiding undue complexity would increase the likelihood of a successful Incentive Auction.<sup>482</sup>

170. In addition, we disagree with AT&T that, to the extent we establish a spectrum reserve, it should be applied only in rural areas.<sup>483</sup> As discussed in Section III above, our purpose in establishing a spectrum reserve for the 600 MHz Band is not only to encourage competition in rural areas but also competition in urban areas, where in-building access to mobile wireless services is increasingly important to consumers. Moreover, contrary to AT&T’s assertions, the fact that AT&T may be able to bid on reserved spectrum in many rural areas where it does not hold approximately one-third or more of below-1-GHz spectrum is not an indication that our market-based spectrum reserve will not be effective, but rather an indication that the reserve is designed to provide opportunities for providers with less than approximately one-third of below-1-GHz in particular areas, including AT&T, to enhance their networks to provide benefits to consumers, including in rural areas.<sup>484</sup>

171. We note that our decision to adopt a 600 MHz Band spectrum reserve and to establish the amounts of reserved spectrum specified below is based on the current marketplace structure of the mobile wireless service industry. If significant changes in the marketplace structure occur or a proposed transaction is filed with the Commission in the future affecting the top four nationwide providers and their spectrum holdings, we will revisit our decisions here regarding the reserved spectrum provisions for the 600 MHz Band that we adopt today.<sup>485</sup> We will review as well whether changes should be made to any other decisions in this Report and Order. We also plan to consider in a Further Notice of Proposed Rulemaking possible changes to certain auction rules relating to joint bidding arrangements and strategies in the Incentive Auction. In order to allow the Commission to evaluate how certain bidding arrangements might affect the Incentive Auction, potential bidders will need to file well before the normal deadlines some of the information currently required in auction and license application forms.

### 3. Qualification to Bid on Reserved Licenses

172. CCA and USCC argue that qualification to bid on reserved spectrum should be based on a “dual eligibility requirement” in which qualification to bid on reserved spectrum would be based on holdings both in a single PEA and on a nationwide basis.<sup>486</sup> Specifically, they propose that entities should

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Verizon Wireless’s and AT&T’s opposition to T-Mobile’s proposal). T-Mobile Sept. 24, 2013 *Ex Parte* at 5 (DMR would prevent market distortions and increase auction revenues).

<sup>481</sup> See Letter from David Lawson, Sidley Austin, LLP, Counsel for AT&T, WT Dkt. No. 12-269, filed Aug. 13, 2013, (“AT&T Aug. 13, 2013 *Ex Parte*”), Attachment, Yeon-Koo Che & Philip A. Haile, Comments on T-Mobile’s “Dynamic Market Rule” Proposal (Aug. 13, 2013) at 4 (“Che & Haile Aug. 2013”); Verizon Wireless Sept. 18, 2013 *Ex Parte*, Marx Sept. 2013, Dkt. No. 12-268, at 2.

<sup>482</sup> See generally, *Incentive Auction Report and Order*, FCC No. 14-50.

<sup>483</sup> See AT&T May 9, 2014 *Ex Parte* at 2.

<sup>484</sup> See AT&T-Keisler May 7, 2014 *Ex Parte* at 9.

<sup>485</sup> The Commission has “ample latitude to adapt its rules and policies to the demands of changing circumstances.” *Agape Church, Inc. v. FCC*, 738 F.3d 397, 408 (D.C. Cir. 2013) (quoting *Rust v. Sullivan*, 500 U.S. 173, 186-87 (1991)).

<sup>486</sup> See Letter from Rebecca Murphy Thompson, General Counsel, CCA, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 1, 2014, at 2 (“CCA May 1, 2014 *Ex Parte*”); Letter from Grant Spellmeyer, Vice President, Federal Affairs & Public Policy, USCC, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269,

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qualify to bid on reserved spectrum unless they hold (a) more than one-third of below-1-GHz spectrum on a population-weighted nationwide basis and (b) more than one-third of below-1-GHz on a population-weighted basis in a PEA.<sup>487</sup> Alternatively, USCC proposes that the Commission allow wireless providers to bid on reserved spectrum if the provider serves less than two percent of “wireless devices” nationwide, without additional qualifications based on below-1-GHz holdings.<sup>488</sup> Further, USCC indicates that it supports a spectrum reserve for the Incentive Auction only to the extent that it would qualify to bid on reserved spectrum in all of its core markets.<sup>489</sup>

173. We also note that, in the context of commenters arguing for other types of mobile spectrum holdings limits, they advocated for various thresholds to distinguish when the limits would apply. These proposals range in nature: both CCA and USCC support a limit of 25 percent,<sup>490</sup> while RWA proposes a limit of 40 percent,<sup>491</sup> and T-Mobile proposes a limit of one third.<sup>492</sup>

174. **Discussion.** As discussed above, the need to facilitate access by multiple providers to below-1-GHz spectrum is the basis for our adoption of a market-based spectrum reserve for the Incentive Auction and, accordingly, we find that a provider’s existing below-1-GHz holdings in a particular PEA should be the threshold basis for determining whether the provider qualifies to bid on reserved spectrum.

175. In particular, to qualify to bid on reserved licenses in a PEA, an entity must not have an attributable interest in 45 megahertz or more, on a population-weighted basis, of below-1-GHz spectrum that is suitable and available for the provision of mobile telephony/mobile broadband services in that PEA, at the deadline for filing a short-form application to participate in the Incentive Auction.<sup>493</sup> The 45 megahertz of below-1-GHz spectrum approximates one-third of the 134 megahertz of below-1-GHz

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filed Apr. 28, 2014 at 1-2 (“USCC Apr. 28, 2014 *Ex Parte*”); Letter from Leighton T. Brown, Holland & Knight, Counsel for USCC, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 7, 2014, Attachment at 3 (“USCC May 7, 2014 *Ex Parte*”); Letter from Rebecca Murphy Thompson, General Counsel, CCA, Jill Canfield, NTCA and RBA, and Tara B. Shostek, RWA, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed April 23, 2014 at 1. *See also*, Competitive Carriers Apr. 24, 2014 *Ex Parte* at 2 (supports dual eligibility requirement).

<sup>487</sup> *See* CCA Apr. 24, 2014 *Ex Parte* at 2; Letter from Rebecca Murphy Thompson, General Counsel, CCA, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 2, 2014, at 2 & n.4 (explaining proposed nationwide weighted average formula) (“CCA May 2, 2014 *Ex Parte*”); CCA May 1, 2014 *Ex Parte* at 2; USCC May 7, 2014 *Ex Parte*, Attachment at 3 (if a carrier holds more than one-third nationwide holdings, then apply a market-by-market analysis to determine eligibility to bid on market based reserve).

<sup>488</sup> *See* Letter from Grant Spellmeyer, Vice President, Federal Affairs and Public Policy, USCC, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 12, 2014 at 2 (“USCC May 12, 2014 *Ex Parte*”).

<sup>489</sup> *See* Letter from Grant Spellmeyer, Vice President, Federal Affairs & Public Policy, USCC, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 9, 2014 (“USCC May 9, 2014 *Ex Parte*”).

<sup>490</sup> CCA Comments at 11-13; USCC Comments at 32.

<sup>491</sup> Letter from Daryl A. Zakov, Counsel for RWA, to Marlene H. Dortch, Secretary, FCC, filed Jun. 21, 2013, Attachment at 6 (citing DOJ Apr. 11, 2013 *Ex Parte* at 8).

<sup>492</sup> T-Mobile Comments at 16-18. *See also* PISC May 8, 2014 *Ex Parte* at 1.

<sup>493</sup> We note that in our calculation of below-1-GHz spectrum holdings, we include not only the entity’s licensed spectrum, on a county-by-county basis, but also all long-term spectrum leasing arrangements, with spectrum being attributed to both the lessee and lessor. *See, e.g., SoftBank-Sprint Order*, IB Dkt. No. 12-343, 28 FCC Rcd at 9660-61 ¶ 44; Application of Sprintcom, Inc. and Alaska Digitel, LLC for Long-Term *De Facto* Transfer Spectrum Leasing Arrangement, *Mem. Op. and Order*, 24 FCC Rcd 435, DA 09-116 (WTB 2009) (“*Sprintcom-Alaska Digitel Order*”). Further, we include in our calculations only the below-1-GHz spectrum that the Commission currently considers to be “suitable” and “available,” in the modified spectrum screen adopted today, and thus, no 600 MHz Band spectrum is included, as although it is suitable, it is not considered available until the conclusion of the Incentive Auction.



spectrum that we count in the modified total spectrum screen we adopt today.<sup>494</sup> We will measure an entity's spectrum holdings on a county-by-county basis within a PEA,<sup>495</sup> and then construct a total county-population-weighted below-1-GHz spectrum holding for each entity within the PEA.<sup>496</sup> As discussed below, even if a non-nationwide provider holds approximately one-third or more of the suitable and available below-1-GHz spectrum in a given market, it will not be precluded from bidding on reserved spectrum licenses in any market.

176. We observe that the 45 megahertz threshold (approximately one-third of total below-1-GHz spectrum) to identify those who can bid on reserved licenses is consistent with the approximately one-third threshold for total spectrum that we use to identify those holdings in local markets that may raise particular competitive concerns in the context of secondary market transactions, as discussed below.<sup>497</sup> The approximately one-third threshold is, based on our experience in numerous transactions over the last decade, an effective analytical tool in the secondary market context.<sup>498</sup> Similarly, we conclude that a threshold of approximately one-third is an effective line of demarcation to identify those entities that currently lack significant below-1-GHz spectrum holdings and would likely benefit from access to the reserved spectrum. In particular, we find that this threshold would help to ensure that multiple providers are able to access a sufficient amount of low-band spectrum, which would facilitate the extension and improvement of service in both rural and urban areas, to the benefit of consumers.

177. We disagree with AT&T that the one-third threshold for qualification to bid on reserved spectrum has no connection to our concern regarding below-1-GHz concentration. In particular, AT&T argues that the threshold would arbitrarily permit a provider with 32.99 percent of below-1-GHz spectrum at the time of the Incentive Auction to acquire 600 MHz Band licenses without limit, which could increase that provider's overall below-1-GHz holdings post-auction to a level higher than those providers who were precluded from bidding on reserved spectrum.<sup>499</sup> On the contrary, while it is necessary to adopt a bright-line threshold for purposes of implementing a spectrum reserve for the auction, our mobile spectrum holdings policies for secondary markets would consider any concerns about below-1-GHz concentration in the scenario described by AT&T. A provider that acquires reserved 600 MHz Band

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<sup>494</sup> See Section IV.

<sup>495</sup> We note that, in the context of secondary market transactions review, we typically measure a provider's holdings in a particular CMA based on the maximum spectrum holdings in any one county within that CMA. See, e.g., Applications of GCI Communication Corp., ACS Wireless License Sub, Inc., ACS of Anchorage License Sub, Inc., And Unicom, Inc. for Consent to Assign Licenses to The Alaska Wireless Network, LLC, WT Dkt. No. 12-187, 28 FCC Rcd at 10433, 10450 ¶ 421 (2013) ("*Alaska Wireless Order*"); *AT&T WCS Order*, 27 FCC Rcd at 16470 ¶ 29; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10719 ¶ 59. Unlike the screen we use for reviewing transactions, the qualification for bidding on reserved spectrum is a bright-line test, and PEAs are generally larger in geographic scope than the CMAs we use for competitive review of transactions. Given those distinctions, we find that measuring a bidder's below-1-GHz spectrum holdings amount in a given PEA, based on the highest below-1-GHz holding amount in any one county within a PEA, would not be appropriate.

<sup>496</sup> To determine whether an entity is qualified to bid on reserved spectrum, its below-1-GHz spectrum holdings are calculated by summing (PEA county spectrum holdings x PEA county population (using U.S. Census 2010 population data)), and then dividing that sum by the total population of the PEA. We note that in our calculations, we include licensed spectrum, on a county-by-county basis, as well as all long-term spectrum leasing arrangements, with leased spectrum being attributed to both the lessee and lessor. In those PEAs where there are existing long-term commercial leases, as we attribute the leased spectrum to both the lessee and lessor, we increase the total below-1-GHz spectrum amount included by the (population-weighted) amount of the lease so that service providers' holdings are not overstated.

<sup>497</sup> See *infra* Section VI.D.

<sup>498</sup> See, e.g., *SoftBank-Sprint Order*, 28 FCC Rcd at 9660-61 ¶ 44.

<sup>499</sup> See AT&T-Keisler May 7, 2014 *Ex Parte* at 5.

licenses at the Incentive Auction and holds approximately one-third or more of below-1-GHz spectrum post-auction would be subject to the secondary market restrictions and enhanced factor in case-by-case review described below.

178. We also disagree with AT&T's assertions that the Commission should exclude from the 134 megahertz of below-1-GHz spectrum the 12 megahertz of spectrum of unpaired Lower 700 MHz D and E blocks because it is used for supplemental downlinks only and must be paired with mid-to high spectrum for two-way mobile broadband network.<sup>500</sup> In addition, we find that there is insufficient technical evidence to support AT&T's claim that the Lower 700 MHz D and E blocks could only be bonded with high-band spectrum rather than cellular or 600 MHz Band spectrum. We note that carrier aggregation or supplemental downlink is currently possible with different bands below 1 GHz such as between Band 12 (Lower 700 MHz A, B, and C blocks) and Band 5 (cellular).<sup>501</sup>

179. *Non-Nationwide Providers.* We recognize, however, that the application of our 45 megahertz holding threshold may have substantial effects on non-nationwide providers that could outweigh the intended benefits.<sup>502</sup> In many areas, regional and local service providers offer consumers additional choices in the areas they serve and provide some constraint on the ability of nationwide providers to act in anticompetitive ways to the detriment of consumers.<sup>503</sup> Although nationwide providers generally set prices on a national basis, there can be significant variation in discounts, service quality, and extent of coverage at the local level. Non-nationwide providers are also important sources of competition in rural areas, where multiple nationwide service providers may have less incentive to offer high quality services.<sup>504</sup> Today, 92 percent of non-rural consumers, but only 37 percent of rural consumers are covered by at least four 3G or 4G mobile wireless providers' networks and more than 1.3 million people in rural areas have no mobile broadband access.<sup>505</sup> Smaller providers in such areas are likely to be more dependent upon the efficiencies gained from the unique propagation benefits of 600 MHz spectrum because they are less able to subsidize their deployment costs by revenues accrued in more densely populated areas where a nationwide subscriber base provides them with greater scale economies.<sup>506</sup> Promoting competition by non-nationwide providers also advances the statutory goals of avoiding excessive concentration of licenses, disseminating licenses among a wide variety of applicants, and encouraging rapid deployment of new wireless broadband technologies to all Americans, including those residing in rural areas.<sup>507</sup>

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<sup>500</sup> See *id.* at 10.

<sup>501</sup> See LTE Release 11, 3GPP TR 36.850 V11.1.0 2013-07 at 7. <http://www.3gpp.org/DynaReport/36850.htm>.

<sup>502</sup> In the *16<sup>th</sup> Mobile Wireless Competition Report*, the Commission observed that there are four nationwide providers in the U.S. with networks that cover a majority of the population and land area of the country – Verizon Wireless, AT&T, Sprint, and T-Mobile. See *16<sup>th</sup> Annual Competition Report*, 28 FCC Rcd at 3736-37 ¶ 26. For purposes of the instant *Report and Order*, we refer to other providers – with networks that are limited to regional and local areas – as “non-nationwide providers.”

<sup>503</sup> See BlueGrass Cellular Apr. 10, 2014 *Ex Parte* at 1; CCA Apr. 9, 2014 *Ex Parte* at 1-2.

<sup>504</sup> See Letter from Kathleen O'Brien Ham, Vice President, Federal Regulatory Affairs, T-Mobile, Jeffrey Blum Senior Vice President and Deputy General Counsel, DISH, Eric B. Graham, Senior Vice President- Strategic Relations, C-Spire, Caressa Bennet, General Counsel, RWA, et.al., to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Mar. 25, 2014 at 3 (“smaller competitive carriers may have a significant need for additional spectrum to meet high demand in an area where other carriers have failed to deploy, or to address challenges faced with deploying in a particularly hard to serve area.”) NCTA Apr. 10, 2014 *Ex Parte* at 2.

<sup>505</sup> *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd at 3945 ¶ 392.

<sup>506</sup> CCA Apr. 9, 2014 *Ex Parte* at 1-2.

<sup>507</sup> See 47 U.S.C. § 309(j)(3)(A) and (B).

180. As noted above, the opportunity to acquire and deploy greenfield 600 MHz spectrum afforded by our Incentive Auction will not be replicated in the foreseeable future. Access to this spectrum will be critical not only for efficient deployment of existing wireless services, but also to the ability to remain competitive in service and device offerings in next generation networks.<sup>508</sup> Consistent with our established policy to promote variety in licensees and to “promote access to spectrum and facilitate capital formation for entities seeking to serve rural areas or improve service in rural areas,”<sup>509</sup> we will permit bidding on 600 MHz reserve spectrum by regional and local service providers in all PEAs, including those where such a provider holds more spectrum than our 45 megahertz holding threshold of the available low-band spectrum. We establish a bright-line rule to address these issues for the same reasons set forth above for generally adopting bright line rules on spectrum aggregation issues for our 600 MHz Incentive Auction.<sup>510</sup> Non-nationwide service providers enhance competitive choices for consumers in the mobile wireless marketplace, and help promote deployment in rural areas.<sup>511</sup> They also present a significantly lower risk of effectively denying access of low band spectrum to competitors in order to foreclose competition or to raise rivals’ costs because of their relative lack of resources. Accordingly, we conclude that non-nationwide service providers should be eligible to bid on reserved spectrum in all markets nationwide.<sup>512</sup>

181. In sum, to qualify to bid on reserved licenses in a PEA, an entity must not hold an attributable interest in 45 megahertz or more of below-1-GHz spectrum in a PEA, as described above, or must be a non-nationwide provider. We will revise the short-form application to provide for a certification by an applicant intending to bid on reserved spectrum that it meets the qualification criteria. If any entity plans to file a pre-auction divestiture application to come into compliance with the below-1-GHz holdings threshold, it will have to file in sufficient time to qualify by the short-form application deadline.

#### 4. Market-Based Amount of Reserved Spectrum

182. **Background.** Recently, various parties have advocated for different levels of reserved and unreserved spectrum to be made available in the Incentive Auction. For example, CCA proposes setting the reserve at 40 megahertz if the total available spectrum is 70 megahertz and limiting the unreserved spectrum to 30 megahertz.<sup>513</sup> Sprint, T-Mobile, USCC, C Spire, and DISH support allocating more reserved spectrum than unreserved spectrum, and setting an odd amount of unreserved spectrum to

<sup>508</sup> See CCA May 12, 2014 *Ex Parte* at 9 & n.41. (“Creating opportunities for competitive carriers to acquire low-band spectrum will attract investment by carriers who might otherwise decide not to participate.”); CCA Apr. 24, 2014 *Ex Parte* at 2; CCA Apr. 9, 2014 *Ex Parte* at 1-2; NTCA Apr. 10, 2014 *Ex Parte* at 1-2.

<sup>509</sup> Facilitating the Provision of Spectrum-Based Services to Rural Areas and Promoting Opportunities for Rural Telephone Companies to Provide Spectrum-Based Services, *Report and Order and Further Notice of Proposed Rulemaking*, WT Dkt. Nos. 02-381, 01-14, and 03-202, 19 FCC Rcd 19078, 19174 ¶ 71 (2004).

<sup>510</sup> See *supra* Section V.A. We note that the policies adopted below will apply for post-auction secondary market transactions involving 600 MHz licenses. See *infra* Sections V.B.5., VI.

<sup>511</sup> See DOJ Apr. 11, 2013 *Ex Parte* at 8 & n.15 (“In some local areas, smaller carriers may also offer alternatives that consumers value; for instance, in some rural areas, a local carrier operating with low-frequency spectrum may offer particularly strong coverage.”)

<sup>512</sup> Given that our determination that non-nationwide service providers should be qualified to bid on reserved spectrum in all markets nationwide, we do not need to address alternate proposals by CCA and USCC that would provide the same relief to such providers. See CCA May 1, 2014 *Ex Parte*; USCC May 12, 2014 *Ex Parte*.

<sup>513</sup> See CCA Apr. 24, 2014 *Ex Parte* at 2.

maximize bidding for that spectrum.<sup>514</sup> Public Knowledge proposes generally reserving no less than 40 megahertz of spectrum,<sup>515</sup> and PISC proposes to limit unreserved to 20 to 30 megahertz.<sup>516</sup>

183. AT&T asserts that a spectrum reserve does not leave a minimum of four blocks for bidders that are not qualified for reserved spectrum and would result in AT&T or Verizon Wireless, or both, deploying a 600 MHz network across a “fragmented, uneconomic, and inefficient 600 MHz footprint.”<sup>517</sup> AT&T further asserts that no bidder should be able to acquire 30 megahertz of reserved spectrum in a market under any circumstances.<sup>518</sup>

184. **Discussion.** Because we will not know the exact number of blocks licensed or their frequencies until the Incentive Auction concludes, the 600 MHz Band Plan in the *Incentive Auction Report and Order* adopts a set of band plan scenarios that comprise the 600 MHz Band Plan, one of which will serve as the ultimate Band Plan for the 600 MHz Band.<sup>519</sup> Consistent with this approach, we specify in the chart below the *maximum* amount of licensed spectrum that will be reserved in each market for eligible entities (“reserve-eligible” entities) in a forward auction for each indicated amount of licensed spectrum at initial stage spectrum clearing targets.<sup>520</sup> If the auction does not close in the initial stage, the maximum amount of reserved licensed spectrum in each individual market in subsequent stages will be the smaller of: (1) the maximum amount of reserved spectrum in the previous stage, or (2) the amount that the reserve-eligible bidders demand at the end of the previous stage.<sup>521</sup> Correspondingly, the amount of spectrum that an unreserved bidder may acquire in subsequent stages will depend on the amount that the bidder demanded at the end of the previous stage. As described below, the actual amount of spectrum reserved will depend on the demand by reserve-eligible bidders when the auction reaches a trigger (the “spectrum reserve trigger”). Because the actual amount of reserved spectrum depends on auction participation, we call this a “market-based spectrum reserve.”

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<sup>514</sup> See CCA Apr. 24, 2014 *Ex Parte* at 2. See also CCA May 1, 2014 *Ex Parte* at 2 (supports adopting of an odd number of unreserved licenses); PISC May 8, 2014 *Ex Parte* at 2-3.

<sup>515</sup> Public Knowledge Apr. 30, 2014 *Ex Parte* at 1-2.

<sup>516</sup> Letter from Michael Calabrese, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 12, 2014 (“PISC May 12, 2014 *Ex Parte*”); PISC May 8, 2014 *Ex Parte* at 2-3.

<sup>517</sup> AT&T May 9, 2014 *Ex Parte* at 1. AT&T argues that in circumstances in which a reserve limits AT&T or Verizon Wireless to acquiring a 5 x 5 block, a spectrum reserve would limit auction participation because “a 10x10 MHz allocation is necessary to achieve minimal economic and technical efficiencies in an LTE deployment.” AT&T Apr. 16, 2014 *Ex Parte* at 2. See also AT&T-Keisler May 7, 2014 *Ex Parte* at 1-2. T-Mobile responds that 10x10 megahertz blocks of the 600 MHz Band “are not required for effective mobile deployment.” T-Mobile May 5, 2014 *Ex Parte*.

<sup>518</sup> AT&T May 9, 2014 *Ex Parte* at 2.

<sup>519</sup> See *Incentive Auction Report and Order*, FCC No. 14-50, at Section III.A. & Appendix C, Technical Appendix.

<sup>520</sup> A spectrum clearing target will include licensed spectrum and guard bands; the chart above refers only to the amount of licensed spectrum included in each target because only licensed spectrum is relevant to determination of the reserve. Each stage of the Incentive Auction will consist of a reverse auction and a forward auction bidding process. Prior to the first stage, we will determine the initial spectrum clearing target. We will run additional stages if necessary.

<sup>521</sup> For example, if the initial clearing target is 100 megahertz, the maximum reserve will be 30 megahertz in the initial and subsequent stages. By contrast, if the initial spectrum clearing target is 60 megahertz, the maximum reserve in the initial and subsequent stages will be 20 megahertz. In either case, if the auction fails to close at the initial stage, the maximum reserved spectrum in each PEA at the second stage will be the smaller of the maximum reserve or the amount that reserve-eligible bidders demand at the end of the first stage in that market.

Licensed Spectrum In the Initial Clearing Target (in megahertz)	100*	90	70	60	50	40
Minimum Unreserved Spectrum	70	60	40	40	40	30
Maximum Reserved Spectrum	30	30	30	20	10	10

\*The maximum amount of reserved licensed spectrum is 30 megahertz for initial clearing targets with more than 100 megahertz of licensed spectrum.

185. In determining how much reserved and unreserved spectrum will be available, we balance a number of the key statutory directives, including promoting competition, facilitating the deployment of advanced services by making spectrum available for flexible use, and sharing the costs of the Incentive Auction on a fair and equitable basis. For the reasons explained above, we find that access to licenses for sufficient spectrum in the 600 MHz Band by providers that do not already hold licenses for significant amounts of below-1-GHz spectrum is important to the preservation and promotion of competition in the mobile wireless marketplace now and in the future. At the same time, however, we recognize that the structure of the Incentive Auction presents unique challenges to the adoption of a spectrum reserve for reserve-eligible bidders. In particular, because the Incentive Auction will rely on market forces to determine the amount of spectrum licenses that will be made available in the forward auction, we need to ensure that all bidders in the forward auction bear a fair share of the clearing costs identified in the reverse auction and the other costs specified in the Incentive Auction final stage rule.<sup>522</sup>

186. Accordingly, unlike the set-asides for the PCS C and F Blocks in the 1990s,<sup>523</sup> the amount of reserved spectrum in the Incentive Auction will depend upon bidding in the forward auction. We specify a *maximum* amount of reserved spectrum in the chart above, but the *actual* amount of spectrum available only to reserve-eligible bidders will be determined at a spectrum reserve trigger that fairly distributes the responsibility for satisfying the costs of the Incentive Auction among all bidders.

187. Specifically, we will set the spectrum reserve trigger at the point when the final stage rule<sup>524</sup> is satisfied, so that the *actual* amount of reserved spectrum will be based on the quantity demanded by reserve-eligible bidders in each individual market at that point in the forward auction. The amount of reserved spectrum will be the smaller of: (1) the maximum amount of reserved spectrum for that stage, or (2) the amount demanded by reserve-eligible bidders at the trigger. We intend, after opportunity for comment in the Incentive Auction Comment PN, to clarify that reserve-eligible bidders will not be able to acquire more than 20 megahertz of reserved spectrum in a market unless there is another bidder for reserved spectrum in that market. Until the spectrum reserve trigger is met, bidding for licenses in the forward auction will not distinguish between licenses for reserved and unreserved spectrum. Accordingly, all bidders will compete for generic licenses in each area – with a single price applying in each area to all the licenses in a category of generic licenses – up to the point at which the spectrum reserve trigger is reached.

<sup>522</sup> *Incentive Auction Report and Order*, FCC No. 14-50, at Section IV.

<sup>523</sup> See Implementation of Section 309(j) of the Communications Act – Competitive Bidding, *Sixth Report and Order*, PP Dkt. No. 93-253, 11 FCC Rcd 136, 136 (1995); Implementation of Section 309(j) of the Communications Act – Competitive Bidding, *Fifth Report and Order*, PP Dkt. No. 93-253, 9 FCC Rcd 5532 (1994), *recons. Fifth Mem. Opin. and Order*, 10 FCC Rcd 403, *erratum*, 60 Fed.Reg. 5333 (1995).

<sup>524</sup> When bidding in the forward auction satisfies the final stage rule, the then current stage in the auction becomes the final stage of the Incentive Auction, which sets the total amount of licensed spectrum offered in the forward auction. One component of the final stage rule requires that the proceeds of the forward auction be sufficient to meet mandatory expenses set forth in the Spectrum Act and any Public Safety Trust Fund amounts needed in connection with FirstNet. *Incentive Auction Report and Order*, FCC No. 14-50, Section IV.

188. Below we explain in greater detail the rationale underlying the specific maximum amounts of reserved spectrum at the different levels of total licensed spectrum made available in the forward auction. In addition, we set forth additional details regarding the operation of the market-based mechanism for reducing the amount of reserved spectrum based on demand by reserve-eligible bidders at the time a spectrum reserve trigger is reached.

189. *Maximum Amount of Reserved Spectrum.* We set the maximum amount of reserved spectrum at 30 megahertz for most of the potential amounts of total licensed spectrum made available in the forward auction. Setting the maximum amount of reserved spectrum at a consistent amount across most levels of total licensed spectrum will, among other things, facilitate the repurposing of more spectrum in the 600 MHz Band, because it provides the opportunity, and creates incentives, for *all* auction participants to bid aggressively to acquire more spectrum licenses as the total amount of available spectrum increases.

190. A 30 megahertz maximum spectrum reserve at most band clearing scenarios also benefits competition and consumers by giving reserve-eligible bidders the assurance that, after the spectrum reserve trigger is reached, they will have a greater opportunity to purchase licenses in the 600 MHz Band for the reasons explained above.<sup>525</sup> At the same time, our initial maximum reserve amounts ensure that a majority of licenses at the beginning of the forward auction will be available for bidding by all participants under all circumstances. In the *Incentive Auction Report and Order*, we determined that the 600 MHz Band will be licensed in 10 megahertz (5x5 paired) blocks.<sup>526</sup> Some providers have advocated that 20 megahertz of contiguous spectrum is particularly valuable for the deployment of next-generation networks.<sup>527</sup> A maximum of 30 megahertz of reserved spectrum could permit at least two reserve-eligible bidders to acquire 600 MHz spectrum licenses for deployment of next-generation networks, with one of the bidders potentially acquiring 20 megahertz of reserved spectrum for such deployment. Moreover, a maximum of 30 megahertz of reserved spectrum, an odd number of 10-megahertz blocks, will facilitate competition among bidders seeking to acquire 20 megahertz.<sup>528</sup> In addition, at most levels of total licensed spectrum made available in the forward auction, a maximum of 30 megahertz of reserved spectrum will leave a significant amount of unreserved spectrum available, for which all bidders will have the opportunity to compete.

191. Accordingly, a maximum spectrum reserve of 30 megahertz for most levels of total available spectrum licenses, on balance, will make additional low-band spectrum available to multiple providers; ensure that all bidders have an opportunity to acquire a stake in the 600 MHz ecosystem that

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<sup>525</sup> See *supra* Section V.B.2. See generally Section V.B.4.

<sup>526</sup> See *Incentive Auction Report and Order*, FCC No. 14-50, at Section III.A.

<sup>527</sup> See Applications of AT&T Inc., Leap Wireless International, Inc., Cricket License Co., LLC and Leap LicenseCo, Inc. For Consent To transfer Control and Assign Licenses and Authorizations, WT Dkt. 13-193, *Mem. Op. and Order*, 29 FCC Rcd 2735, 2752 ¶ 39 (WTB 2014) (“*AT&T-Leap Order*”); Declaration of Mark McDiarmid, T-Mobile-MetroPCS Application, WT Dkt. No. 12-301 (filed Oct. 18, 2012) ¶ 7; Stone Supplemental Declaration, Verizon Wireless-SpectrumCo Joint Opposition, WT Dkt. No. 12-4 (filed Mar. 2, 2012) ¶ 8; AT&T Apr. 16, 2014 *Ex Parte*. We note that AT&T argues that “a 10x10 MHz allocation is necessary to achieve minimal economic and technical efficiencies in an LTE deployment.” AT&T Apr. 16, 2014 *Ex Parte* at 2. See also AT&T-Keisler May 7, 2014 *Ex Parte* at 1-2. T-Mobile responds that 10x10 megahertz blocks of the 600 MHz Band “are not required for effective mobile deployment.” T-Mobile May 5, 2014 *Ex Parte*. Most recently, AT&T has indicated that the mobile spectrum holding policies the Commission adopts herein for the Incentive Auction “would give AT&T a fair opportunity to expand its LTE footprint in all markets.” See Letter from Joan Marsh, Vice President, Federal Regulatory, AT&T, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed May 14, 2014, at 2 (“AT&T May 14, 2014 *Ex Parte*”).

<sup>528</sup> Cramton asserts that if two providers bid on an even number of spectrum blocks there is a tendency to split the spectrum equally to minimize bidding costs. Peter Cramton, *Auction Revenues and Competition Policy in the 600 MHz Auction* (May 2014) at 2.

will be critical in the future; and facilitate competitive bidding. However, if the amount of licensed spectrum at the initial stage target is less than 70 megahertz, maintaining a maximum of 30 megahertz of reserved spectrum would not be in the public interest. Maintaining that amount of reserved spectrum would potentially reduce the amount of unreserved spectrum to 20 or even 10 megahertz, which we deem to be too low to provide all bidders with an adequate opportunity to acquire licenses in the 600 MHz Band.

192. *Market-Based Spectrum Reserve.* Under the market-based spectrum reserve rule, the amount of reserved spectrum in each individual PEA will be set at the level demanded by reserve-eligible entities at the time the spectrum reserve trigger is satisfied, up to the maximum amount of reserved spectrum at the beginning of the stage. Once the spectrum reserve is established, bidders will bid separately for generic reserved and unreserved spectrum licenses, with reserve-eligible bidders able to bid for spectrum in either category, and the other bidders able to bid only for the unreserved spectrum. For instance, if the spectrum reserve trigger is met in a stage with a maximum of 30 megahertz of reserved spectrum, if reserve-eligible bidders demand only 20 megahertz in a given PEA at those prices when the trigger is met, then 20 megahertz will be reserved.

193. The market-based reserve rule would not prevent unreserved bidders from acquiring the minimum initial stage amount of unreserved spectrum specified in the chart above in subsequent stages of the auction, provided they bid actively on that amount of spectrum throughout the auction, beginning in the first stage. For example, if an unreserved bidder demands 20 megahertz throughout the initial stage (including the extended round) but the stage fails, that bidder will be eligible to bid for 20 megahertz in the next stage. In this way, we address concerns expressed by AT&T and Verizon Wireless that the imposition of auction-specific limits would reduce the amount of available spectrum notwithstanding their demonstrated demand or allow T-Mobile and Sprint to acquire spectrum at a significant discount.<sup>529</sup> We anticipate that bidding in the most urban areas is likely to be the most intense, with the highest bids, and thus that the spectrum reserve trigger mechanism we ultimately adopt will mean that reserved spectrum in those areas will sell only at substantial prices.

194. The market-based reserve rule we adopt balances the need to meet the requirements for concluding the Incentive Auction with the competition goals discussed above. Setting an appropriate spectrum reserve trigger for determining how much spectrum will be allotted for reserve-eligible bidders will ensure that all bidders, those eligible to bid on reserved spectrum and other bidders, contribute a fair share to the clearing costs identified in the reverse auction and the other costs specified in the Incentive Auction final stage rule. The market-based spectrum reserve leverages competition across both reserved and unreserved spectrum to provide all bidders with the incentive to bid aggressively and repurpose larger rather than smaller amounts of spectrum. Further, the contingent nature of the reserve will create reserves only in PEAs where there is sufficient demand at the point where the spectrum reserve trigger is reached. This will ensure spectrum is reserved only where there is demand at market-based prices and increase the likelihood that the auction will close at a higher spectrum target.

195. In the coming months, the Commission will solicit public input in the *Incentive Auction Comment PN* on procedures for implementing certain auction-related decisions made in the *Incentive Auction Report and Order*. Among other things, the *Comment PN* will seek comment on how to establish the details of a spectrum reserve trigger based on the final stage rule, in order to fairly distribute the responsibility for satisfying the costs of the reverse auction among all bidders. Among other things, we will consider whether the trigger should be based solely on prices or revenues in the “major markets” and, if so, how to identify such markets. The *Procedures PN* will adopt the details of our spectrum reserve trigger at the same time that we establish final auction procedures and resolve crucial auction design

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<sup>529</sup> See, e.g., Verizon Wireless Mar. 4, 2014 *Ex Parte* at 1-2; AT&T June 13, 2013 *Ex Parte* at 4; Letter from Leora Hochstein, Executive Director, Federal Regulatory Affairs, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Apr. 30, 2014, at 1-2 (“Verizon Wireless Apr. 30, 2014 *Ex Parte*”).

issues, including the benchmarks required to implement the final stage rule, opening prices, and how much market variation to accommodate in the 600 MHz Band Plan.

### 5. Holding Period for 600 MHz Band Licenses

196. As discussed above, our adoption of a market-based spectrum reserve for the Incentive Auction is based on a consideration of a number of statutory directives applicable to the Incentive Auction, including promoting competition, making spectrum available for flexible use, meeting proceeds requirements, and facilitating deployment of advanced services. Because the incentives of entities participating in an auction are affected not only by the rules applicable to the initial licensing through auction but also by the rules applicable to secondary market transactions involving those licenses, we consider these same statutory objectives in assessing whether any restrictions on secondary market transactions involving 600 MHz Band licenses are necessary. We find that such restrictions are necessary in certain circumstances, as discussed below. We note that these secondary market restrictions for 600 MHz Band licenses will not apply to exchanges of equal amounts of 600 MHz Band spectrum in the same market.

197. First, we recognize that our goal in adopting the spectrum reserve – facilitating access to 600 MHz Band licenses in order to ensure against excessive concentration in holdings of low-band spectrum – could be undermined if entities that would not be permitted to acquire reserved 600 MHz Band licenses in the auction are permitted to acquire them after the auction through secondary markets. The risk of undermining our goals for competition and the Incentive Auction must be balanced, however, against the Commission’s general policy of promoting flexibility in secondary markets transactions. We find that precluding secondary market transactions of 600 MHz Band licenses for six years, which represents the interim buildout period for 600 MHz licenses,<sup>530</sup> strikes the appropriate balance to preserve the integrity of our market-based spectrum reserve while still permitting some flexibility in secondary markets transactions. Accordingly, we conclude that, for a period of six years, entities that acquired reserved spectrum licenses in the Incentive Auction cannot assign or transfer those licenses to, or enter into long-term leases regarding those licenses with, entities that would not have been in compliance with the reserve-eligible entity requirements on the date the short form application was due for the Incentive Auction. We agree with CCA that our post-auction policy for reserved spectrum licenses would promote competitive access to spectrum and expand choices for consumers.<sup>531</sup>

198. In addition, we note that our decision to adopt a holding period reflects our continuing efforts to avoid excessive concentration of licenses not only as a result of the Incentive Auction, but also to ensure that secondary market transactions do not frustrate the underlying public interest goals of our mobile spectrum holdings policies for this band.<sup>532</sup> Aggregation of 600 MHz Band spectrum by means of secondary market transactions has the potential to further exacerbate our concerns about below-1-GHz spectrum license concentration, which must be balanced against the Commission’s general policy of promoting flexibility in secondary market transactions. Accordingly, we will prohibit any transfer, assignment, or long-term leasing of any 600 MHz Band licenses (including unreserved 600 Band licenses) for a period of six years post-auction that would result in the acquiring entity holding approximately one-third or more of suitable and available below-1-GHz spectrum post-transaction.<sup>533</sup>

199. Both AT&T and Verizon Wireless assert that they would be less likely to participate in the Incentive Auction if we adopt a holding period on 600 MHz Band license transactions post-auction,<sup>534</sup>

<sup>530</sup> See *Incentive Auction Report and Order*, FCC 14-50, at Section VI.B.2.

<sup>531</sup> CCA May 12, 2014 *Ex Parte* at 10.

<sup>532</sup> See 47 U.S.C. § 309(j)(3)(B); 47 U.S.C. § 309(j)(3)(D); 47 U.S.C. § 303(b); 47 U.S.C. § 303(r); 47 U.S.C. § 310.

<sup>533</sup> Given that this limit is a bright-line prohibition, the acquiring entity’s below-1-GHz spectrum holdings will be determined by a population-weighted methodology.

<sup>534</sup> Verizon Wireless May 6, 2014 *Ex Parte* at 2; AT&T-Keisler May 7, 2014 *Ex Parte* at 6.



and Verizon Wireless asserts that such restrictions would suppress the value of the 600 MHz licenses.<sup>535</sup> We disagree. We find that a holding period is likely to increase incentives for entities to participate in the Incentive Auction by bidders that seek to provide facilities-based services to consumers in this band.

200. AT&T also argues that the restrictions on secondary market transactions of 600 MHz Band licenses, as they understand to have been under consideration by the Commission, would prevent AT&T from filling in gaps in its 600 MHz Band holdings.<sup>536</sup> Moreover, AT&T argues that such restrictions are not related to concerns regarding low-band spectrum aggregation because such restrictions would preclude assignment of 600 MHz Band licenses to an entity post-auction even when such assignment would not cause the entity to exceed one-third of below-1-GHz spectrum.<sup>537</sup> We note that the restrictions that we set forth above would not prevent any entity from acquiring unreserved 600 MHz licenses if the entity would not exceed the one-third level post-auction.<sup>538</sup>

#### 6. Further Implementation Issues

201. We will seek comment in the *Incentive Auction Comment PN* on any further implementation issues that may affect our market-based spectrum reserve, and whether and if so how the policies and rules we adopt today should apply or be adjusted based on any auction details that might be relevant to the process (*e.g.*, auctioning impaired spectrum blocks). We will resolve any relevant further implementation in the *Incentive Auction Procedures PN*.

#### 7. Legal Authority

202. **Introduction.** In this section we address arguments by some commenters that the application of a mobile spectrum holdings limitation to the Incentive Auction would be inconsistent with our statutory authority and, in particular, section 6404 of the Spectrum Act as well as the notice requirements of the Administrative Procedure Act (“APA”).<sup>539</sup> As discussed below, we conclude that our adoption of a market-based spectrum reserve is consistent with our authority under the Spectrum Act and our well established Title III spectrum management authority, including our specific mandate to promote competition, opportunity, and access to new and innovative technologies in the marketplace for mobile telephony and broadband services.<sup>540</sup> We note that the Spectrum Act both provides the Commission with authority to “implement and enforce [that Act] as if . . . a part of the Communications Act,”<sup>541</sup> and makes clear that “[n]othing in [Spectrum Act § 6403(b) with respect to incentive auctions] shall be construed to . . . expand or contract the authority of the Commission, except as otherwise expressly provided.”<sup>542</sup> We also explain how, consistent with the APA, the Commission provided adequate notice of the action we take today.

<sup>535</sup> Verizon Wireless Apr. 30, 2014 *Ex Parte* at 2; Verizon Wireless May 6, 2014 *Ex Parte* at 2.

<sup>536</sup> AT&T-Keisler May 7, 2014 *Ex Parte* at 2.

<sup>537</sup> *Id.* at 6.

<sup>538</sup> We also note that most recently AT&T has indicated that the market-based spectrum reserve that the Commission adopts herein for the Incentive Auction “would give AT&T a fair opportunity to expand its LTE footprint in all markets.” See AT&T May 14, 2014 *Ex Parte* at 2.

<sup>539</sup> 5 U.S.C. § 553.

<sup>540</sup> See 47 U.S.C. § 309(j)(3)(B) (stating that in designing competitive bidding systems, the FCC shall seek to “promot[e] economic opportunity and competition and ensur[e] that new and innovative technologies are readily accessible to the American people by avoiding excessive concentration of licenses.”); see also 47 U.S.C. § 309(j)(17)(B)(preserving the Commission’s “authority . . . to adopt and enforce rules of general applicability, including rules concerning spectrum aggregation that promote competition.”).

<sup>541</sup> Spectrum Act § 6003(a), *codified at* 47 U.S.C. § 1403(a).

<sup>542</sup> Spectrum Act § 6403(i)(1), *codified at* 47 U.S.C. § 1452(i)(1).

203. **Background.** Section 6404 of the Spectrum Act, codified at 47 U.S.C. § 309(j)(17), provides that the Commission may not “prevent” a person who is otherwise qualified from “participating in a system of competitive bidding” under Section 309(j). However, Section 6404 further provides that “[n]othing in [the foregoing restriction] affects any authority the Commission has to adopt and enforce rules of general applicability,” including without limitation “rules concerning spectrum aggregation that promote competition.”<sup>543</sup> AT&T and Verizon Wireless have asserted that the Spectrum Act “clearly forecloses . . . ‘auction specific’ rules . . . that would affect the ability of AT&T and others to participate in Commission auctions.”<sup>544</sup> AT&T and Verizon Wireless also interpret the statutory phrase “rules of general applicability” to mean rules that are not auction-specific.<sup>545</sup> In their view, our authority is limited to requirements “under which a successful bidder would be responsible, at the conclusion of an auction in which it acquired spectrum, for undertaking divestitures or otherwise bringing itself into compliance with the total spectrum aggregation limits.”<sup>546</sup> AT&T and Verizon Wireless argue that subparagraph (A) of section 309(j)(17) “clearly forecloses . . . ‘auction-specific’ rules . . . that would affect the ability of AT&T and others to participate in Commission auctions.”<sup>547</sup> AT&T argues that the Commission lacks statutory authority to adopt the spectrum reserve.<sup>548</sup> AT&T asserts that Congress’s intention in enacting subparagraph (B) Section 309(j)(17) “was not to limit” subparagraph (A) or to “undermine the express prohibitions of subsection (A).”<sup>549</sup> Certain commenters in the Incentive Auction proceeding support the position of AT&T and Verizon Wireless.<sup>550</sup>

204. Other commenters present countervailing arguments. Sprint contends that Congress, in adopting section 6404 of the Spectrum Act, specifically reaffirmed the Commission’s authority to adopt spectrum holdings policies that limit the amount of spectrum a provider can acquire at auction.<sup>551</sup> Sprint also asserts that legislative provisions that would have weakened or eliminated the Commission’s discretion to adopt pro-competitive rules were proposed and not adopted.<sup>552</sup> T-Mobile contends that the Commission has authority to adopt and apply *ex ante* prohibitions to auctions because a spectrum cap that

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<sup>543</sup> Spectrum Act § 6404 *codified at* 47 U.S.C. § 309(j)(17). Subparagraph (A) provides that “the Commission may not prevent a person” who is otherwise qualified “from participating in a system of competitive bidding” under section 309(j). *See* 47 U.S.C. § 309(j)(17)(A). Subparagraph (B) clarifies that “[n]othing in subparagraph (A) affects any authority the Commission has to adopt and enforce rules of general applicability, including rules concerning spectrum aggregation that promote competition.” *See* 47 U.S.C. § 309(j)(17)(B).

<sup>544</sup> AT&T Reply at 41. *See* Verizon Wireless Comments in Dkt. No. 12-268 at 43 (“Under the statute, any rule could affect, as most, a company’s overall spectrum holdings after the auction and not its bidding during the auction.”).

<sup>545</sup> *See* AT&T Reply at 40 (“rules that apply specifically and uniquely to auctions and that affect the ability of one or more carriers to participate in one or more auctions” are not “rules of general applicability” within the meaning of subsection (B).); Verizon Wireless Comments in Dkt. No. 12-268 at 43.

<sup>546</sup> AT&T Comments at 42; *see* Verizon Wireless Comments in Dkt. No. 12-268 at 43.

<sup>547</sup> AT&T Reply at 40. *See* Verizon Wireless Comments in Dkt. No. 12-268 at 43 (“Under the statute, any rule could affect, at most, a company’s overall spectrum holdings after the auction and not its bidding during the auction.”).

<sup>548</sup> *See* AT&T-Keisler May 7, 2014 *Ex Parte* at 2-3.

<sup>549</sup> *Id.* at 3-4.

<sup>550</sup> Mobile Future states that “the Spectrum Act . . . prohibits the Commission from excluding from the forward auction any entity that complies with Commission procedures and other requirements that are established to protect the auction process, and is otherwise qualified to hold FCC licenses.” Mobile Future Comments in Dkt. No. 12-268 at 11. CEA states that excluding otherwise qualified bidders would violate the Spectrum Act. CEA Comments in Dkt. No. 12-268 at 14.

<sup>551</sup> Sprint Comments in Dkt. No. 12-268 at 7-8.

<sup>552</sup> *Id.*

would apply to all potential bidders at auction is a rule of general applicability.<sup>553</sup> T-Mobile asserts that a band-specific limit would be a rule of general applicability even if it affected only a few parties because a rule need not have industry-wide effect to be considered generally applicable, so long as the limit is based on a genuine classification like the amount of spectrum any provider could hold.<sup>554</sup> CCA states that “establish[ing] objective qualifications of general applicability to ensure that the broadcast incentive auction is competitive and fair. . . . would be consistent with section 6404 of the recently adopted Spectrum Act [because] that provision preserves the Commission’s right to establish objective, neutral qualifications and eligibility criteria that apply generally to all potential bidders . . . .”<sup>555</sup> Cellular South asserts that the Spectrum Act provides that the Commission’s existing authority to adopt and enforce rules of general enforceability shall remain “unimpeded.”<sup>556</sup>

205. Focusing on a single paragraph of the Incentive Auction NPRM, AT&T argues that the Commission has not satisfied the APA’s notice requirements because it “has never formally put the public on notice that it was considering a quite different rule” than a single rule that AT&T claims that the Commission proposed.<sup>557</sup> According to AT&T, the Commission failed to propose a rule that would prevent AT&T and Verizon Wireless from bidding for 600 MHz reserved spectrum “while imposing no limitations or exclusions at all on other bidders.”<sup>558</sup> AT&T further argues that the “Commission ‘note[d] that under current spectrum aggregation policies, the Commission would apply its spectrum screen and undertake its competitive analysis only after the auction.’”<sup>559</sup> AT&T asserts that “the proposed auction-participation rules could not have been anticipated . . . and therefore such rules . . . would violate the APA’s notice requirement.”<sup>560</sup>

206. **Discussion.** We find that our adoption of reserved spectrum for the Incentive Auction is fully consistent with our authority under Title III and the Spectrum Act. The market-based spectrum reserve that we adopt are “rules of general applicability” that fall under the Spectrum Act’s savings clause codified at 47 U.S.C. § 309(j)(17)(B).<sup>561</sup> The term “rule of general applicability” is a term of art; it has an established meaning under the Administrative Procedure Act. “In the absence of contrary indication, we assume that when a statute uses . . . a term [of art], Congress intended it to have its established meaning.”<sup>562</sup> The established meaning of the term “rule of general applicability” is a rule that is not party-specific, that is, not a “rule of particular applicability.”<sup>563</sup> It is to be contrasted with, for example, a

<sup>553</sup> T-Mobile Comments in Dkt. No. 12-268 at 29; T-Mobile Comments at 11-12; T-Mobile Reply at 15.

<sup>554</sup> T-Mobile Comments at 12.

<sup>555</sup> CCA Comments in Dkt. No. 12-268 at 5.

<sup>556</sup> Cellular South Comments in Dkt. No. 12-268 at 4.

<sup>557</sup> AT&T-Keisler May 7, 2014 *Ex Parte* at 11.

<sup>558</sup> *Id.* at 12.

<sup>559</sup> *Id.* at 11.

<sup>560</sup> *Id.* at 12.

<sup>561</sup> See 47 U.S.C. § 309(j)(17)(B)(preserving the Commission’s “authority . . . to adopt and enforce rules of general applicability, including rules concerning spectrum aggregation that promote competition.”).

<sup>562</sup> *McDermott Int’l, Inc. v. Wilander*, 498 U.S. 337, 342 (1991). See also *Morissette v. U.S.*, 342 U.S. 246, 263 (1952) (“[W]here Congress borrows terms of art in which are accumulated the legal tradition and meaning of centuries of practice, it presumably knows and adopts the cluster of ideas that were attached to each borrowed word in the body of learning from which it was taken and the meaning its use will convey to the judicial mind unless otherwise instructed[.]”).

<sup>563</sup> 5 U.S.C. § 551(4) (defining “rule” as “the whole or a part of an agency statement of *general or particular applicability* and future effect designed to implement, interpret, or prescribe law or policy or describing the organization, procedure, or practice requirements of an agency”) (emphasis added).

named telephone company's rate of return.<sup>564</sup> The rule that we adopt today would be triggered by the amount of an entity's below-1-GHz spectrum holdings; depending upon the particular geographic market, eligibility to bid for the reserved spectrum may vary. And the mere fact that, in a particular PEA, a specific person would not be so eligible does not render the rule one of particular applicability. Even a general rule must have potential particular effect – otherwise every rule would be ineffective. For similar reasons, it need not apply on an industry-wide basis, or apply to all Commission auctions. Because the rule that we adopt applies to any entity that has the general characteristics identified in the rule, the rule is not party-specific.

207. In addition, by expressly stating that “[n]othing in subparagraph (A) affects any authority the Commission has to adopt and enforce . . . rules concerning spectrum aggregation that promote competition[,]” Section 309(j)(17)(B) preserves the Commission’s long-standing authority under Title III of the Communications Act to adopt “rules concerning spectrum aggregation that promote competition.”<sup>565</sup> Over the past three decades that the Commission has licensed mobile wireless spectrum, Title III authority has been the basis for several restrictions that the Commission has adopted regarding spectrum aggregation, including *ex ante* limitations.<sup>566</sup> The Court of Appeals for the District of Columbia Circuit has affirmed that Title III grants the Commission “expansive authority” to regulate mobile wireless licenses, and that authority includes our power to regulate spectrum concentration in mobile wireless markets.<sup>567</sup>

208. Verizon Wireless asserts that “[u]nder [section] 6404, the Commission may establish a rule on ‘spectrum aggregation’ if it is (i) of ‘general applicability’ and (ii) needed to ‘promote competition.’”<sup>568</sup> Verizon Wireless appears to base its argument that an *ex ante* prohibition would violate the Spectrum Act upon a factual analysis that an *ex ante* restriction would “harm[] competition by failing to ensure that spectrum is assigned to the bidder that will put it to its highest and best use.”<sup>569</sup> We

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<sup>564</sup> *American Broadcast Companies, Inc. v. FCC*, 682 F.2d 25, 31 (D.C. Cir. 1982) (observing that the Administrative Procedure Act “distinguishes between rules of ‘general applicability’ and rules of ‘particular applicability’” and concluding that FCC decision approving an increase in a named telephone company’s rate of return was a rule of particular applicability).

<sup>565</sup> See 47 U.S.C. § 309(j)(17)(B). We note that no commenter has challenged the Commission’s baseline authority under Title III to make rules concerning spectrum aggregation that promote competition, which as noted above has been well established over the course of many years; the only issue raised is what limitation, if any, new section 309(j)(17) places on that existing authority.

<sup>566</sup> See *Inquiry Into the Use of the Bands 825-845 MHz and 870-890 MHz for Cellular Communications Systems; and Amendment of Parts 2 and 22 of the Commission’s Rules Relative to Cellular Communications Systems*, 86 FCC2d 469 (1981) (making one 20 megahertz block available to the local wireline providers and setting aside the remaining other 20 megahertz to other applicants); *In the Matter of Amendment of the Commission’s Rules to Establish New Personal Communications Services*, 8 FCC Rcd 7700 (1993) (*PCS Order*) (imposing a 40 MHz PCS-specific cap on a total of 120 megahertz of spectrum allocated for 2 GHz PCS services); *PCS Order*, 8 FCC Rcd at 7745-56 (¶¶ 105-106) (providing that incumbent cellular providers would be eligible to hold only one of the three 10 megahertz PCS blocks being allocated in each market where competitive concerns existed); Implementation of Sections 3(n) and 332 of the Communications Act, GN Dkt. No. 93-252, *Third Report and Order*, 9 FCC Rcd 7988, 8100-8117 (rel. Sept. 23, 1994) (establishing a 45 megahertz spectrum cap for Commercial Mobile Radio Services to ensure access to spectrum and to thus facilitate development of competitive markets for wireless services).

<sup>567</sup> See generally *Cellco Partnership v. FCC*, 700 F.3d 534, 542 (DC Cir. 2012) (internal citations omitted) (stating that where the Commission “relies on particular delegations of authority in Title III[,]” it possesses “expansive powers” and a “comprehensive mandate to ‘encourage the larger and more effective use of radio in the public interest.’”). See also, e.g., 47 U.S.C. § 309(j)(3)(B) (stating that in designing competitive bidding systems, the FCC shall seek to “promot[e] economic opportunity and competition and ensur[e] that new and innovative technologies are readily accessible to the American people by avoiding excessive concentration of licenses.”).

<sup>568</sup> See Verizon Wireless Reply in Dkt. 12-268 at 20.

<sup>569</sup> See *id.*

disagree with Verizon Wireless's position. As discussed above, the market-based spectrum reserve that we adopt furthers our mandate under Title III to promote competition, opportunity, and access to new and innovative technologies in the marketplace for mobile telephony and mobile broadband services.<sup>570</sup>

209. Because the rules we adopt today fall squarely under the historical authority of the Commission under Title III as preserved by subparagraph (B), the new prohibition created in subparagraph (A) is not applicable. In other words, we interpret Section 6404 to preserve the Commission's authority to adopt rules of general applicability regarding spectrum aggregation, without regard to whether such rules prevent participation in a system of competitive bidding.

210. Even if subparagraph (A) were to apply to an *ex ante* reservation of spectrum, the market-based spectrum reserve that we adopt today does not violate that provision because it would not "prevent" any entity "from participating" in a "system of competitive bidding." Supreme Court precedent compels us to interpret these terms according to their ordinary meaning.<sup>571</sup> The ordinary meaning of "prevent" is "to stop someone from doing something,"<sup>572</sup> and the ordinary meaning of "participate" is "to take part" or "to have a part or a share in something."<sup>573</sup> Thus, the ordinary meaning of the phrase "prevent . . . from participating," in context, is that the Commission may not stop a person who is otherwise qualified from taking part in a system of competitive bidding. We note that AT&T and Verizon Wireless do not explain why the statutory language must be interpreted to prohibit the FCC from "affecting" – *i.e.*, having any impact whatsoever on -- an otherwise qualified person's auction participation, as opposed to "preventing" their participation.

211. The term "a system of competitive bidding" is also a term of art that refers broadly to the process for granting licenses through competitive bidding, including, identifying classes of licenses to be assigned by auction, specifying eligibility and other characteristics of such licenses, and designing the methodologies to be used for competitive bidding for particular licenses.<sup>574</sup> Thus, participation in a "system of competitive bidding" does not mean that every entity must be able to participate in the bidding for every single license or spectrum block that may be available in an auction.

212. The market-based spectrum reserve we adopt today, in fact, will permit all bidders to bid for some spectrum licenses in every market, while reserving certain spectrum blocks for providers with existing holdings of below-1-GHz spectrum of less than 45 megahertz. Indeed, in a single PEA, under every band scenario there will be at least as much unreserved as reserved spectrum, and in some scenarios from two to three times as much. In fact, our action will satisfy our statutory mandate to promote very

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<sup>570</sup> See 47 U.S.C. § 309(j)(3)(B).

<sup>571</sup> See *Engine Mfrs. Assn. v. South Coast Air Quality Management Dist.*, 541 U.S. 246, 252 (2004) ("Statutory construction must begin with the language employed by Congress and the assumption that the ordinary meaning of that language accurately expresses the legislative purpose.").

<sup>572</sup> Macmillan Online Dictionary, available at [http://www.macmillandictionary.com/dictionary/american/prevent#prevent\\_9](http://www.macmillandictionary.com/dictionary/american/prevent#prevent_9); accord Webster's New World College Dictionary ("to stop or keep (*from* doing something)."), available at <http://www.yourdictionary.com/prevent>.

<sup>573</sup> Merriam-Webster Online Dictionary, available at <http://www.merriam-webster.com/dictionary/participate>.

<sup>574</sup> See 47 U.S.C. § 309(j)(3) (design of "systems of competitive bidding" must include a "methodology" prescribed by regulation for each "class" of licenses granted through the "system," including, *inter alia*, "area designations and bandwidth assignments that promote . . . an equitable distribution of licenses and services among geographic areas"); see also Spectrum Act § 6001 (defining an incentive auction as "a system of competitive bidding under [new § 309(j)(8)(G)]."). See, e.g., *Facilitating the Provision of Spectrum Based Services to Rural Areas*, 18 FCC Rcd 20802 ¶ 3 (2003) (in designing a "system of competitive bidding," the Commission uses a service-by-service approach that may require "various sizes of geographic service areas for spectrum licenses in order to encourage participation in spectrum auctions").

broad participation in our systems of competitive bidding by current providers of mobile services and potential entrants into the wireless data and telephony marketplace.<sup>575</sup>

213. In arguing that Congress did not intend for subparagraph (B) to limit or undermine the prohibition contained in subparagraph (A), AT&T effectively rewrites the statute.<sup>576</sup> As noted above, the plain language of the statute preserves the Commission's long-standing authority under Title III of the Communications Act including to adopt "rules concerning spectrum aggregation that promote competition."<sup>577</sup> The Commission has exercised that authority in adopting myriad policies for specific auctions, including the PCS spectrum cap, the PCS/cellular cross-ownership limit, set-asides in PCS auctions, and the CMRS spectrum cap.<sup>578</sup> Because, as noted above, the market-based spectrum reserve that we adopt will permit all bidders to bid for some spectrum licenses in every market, we reject AT&T's assertion that the market-based spectrum reserve would prevent participation in the Incentive Auction

214. We also reject AT&T's arguments that the Commission in practical effect would create "two auctions."<sup>579</sup> Under Section 6403(c) of the Spectrum Act, we will conduct a "forward auction" of all of "the spectrum that the Commission reallocates" from broadcasters.<sup>580</sup> This is a single, integrated auction for all PEAs and all frequency blocks, with one final-stage rule that will determine whether the auction concludes. In accordance with Section 6402 of the Spectrum Act, which authorizes the Commission to encourage licensees to relinquish spectrum usage rights, the Commission, to create demand for broadcast spectrum and thereby encourage relinquishment of licenses, will conduct the forward auction under the provisions of Section 309(j)(3), which permits the Commission to design such systems of competitive bidding.<sup>581</sup> As part of that design, Section 309(j) charges the Commission to put in place "safeguards" to, among other things, avoid excessive concentration of licenses and "other procedures" to ensure that small businesses, rural telephone companies, and minority- and female-owned businesses are given the opportunity to participate in the provision of spectrum-based services.<sup>582</sup> The market-based spectrum reserve that we adopt today is one of these auction design safeguards and procedures.

215. Finally, we determine that it is clear from the plain text of Section 309(j)(B)(17) that the Commission has the authority to adopt the market-based spectrum reserve in its design of a system of competitive bidding.<sup>583</sup> Accordingly, we conclude that the market-based spectrum reserve that we adopt today does not prevent any person from participating in our system of competitive bidding in a manner contrary to the Spectrum Act.<sup>584</sup>

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<sup>575</sup> See *supra* V.B. (setting forth our statutory duty to promote competition, opportunity, and access).

<sup>576</sup> AT&T-Keisler May 7, 2014 *Ex Parte* at 3-4.

<sup>577</sup> See 47 U.S.C. § 309(j)(17)(B).

<sup>578</sup> See *supra* Section II.B.

<sup>579</sup> AT&T-Keisler May 7, 2014 *Ex Parte* at 1.

<sup>580</sup> See Spectrum Act § 6403(c)(1)(A) codified at 47 U.S.C. § 1452.

<sup>581</sup> See Spectrum Act §§ 6402, codified at 47 U.S.C. § 309(j)(8)(G); 47 U.S.C. § 309(j)(3).

<sup>582</sup> See 47 U.S.C. § 309(j)(3)(B); 47 U.S.C. § 309(j)(4)(D).

<sup>583</sup> Even assuming for the sake of argument that there is any validity to AT&T's interpretation of the statute, that interpretation at best evidences only an ambiguity in the statute, in which case the Commission's interpretation is entirely proper and reasonable. See *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984).

<sup>584</sup> We do not mean to suggest that if the rules we adopt today had particular effect on any party that they would not be rules of general applicability. See T-Mobile Comments in WT Dkt. No. 12-269 at 12 ("... it is well-established that a rule is of general applicability even if its effect is limited to only a subset of entities within an industry sector.").

216. With regard to AT&T's arguments that the Commission did not provide adequate notice under the APA, AT&T incorrectly characterizes the Commission's inquiry and its arguments are unavailing. First, contrary to AT&T's assertion, the Commission inquired about an *ex ante* restriction in the Incentive Auctions NPRM, observing that "section 309(j)(3)(B)'s direction to avoid excessive concentration of licenses might militate in favor of a rule that permits any single participant in the auction to acquire no more than one-third of all 600 MHz spectrum being auctioned in a given license area."<sup>585</sup> The rule that we adopt today is a "variatio[n] of that approach," on which we also sought comment.<sup>586</sup> It would prevent providers in certain circumstances from bidding on reserved 600 MHz spectrum in some PEAs in the Incentive Auction. However, all providers will be permitted to bid on more than one-third of the available spectrum in any PEA. In addition, AT&T ignores many other statements that the Commission made in the *Mobile Spectrum Holdings NPRM*. The Commission specifically asked about adoption of a bright-line limits approach in the *Mobile Spectrum Holdings NPRM*, including limits on holdings below 1 GHz and band-specific limits.<sup>587</sup> Applying a 600 MHz limit applicable only to bidders with significant holdings below 1 MHz also is a logical outgrowth of issues identified in the NPRM.<sup>588</sup> Where the Commission asked about a one-third limit, it did so "[a]s [an] example."<sup>589</sup> For all these reasons, we reject AT&T's arguments that the Commission did not provide adequate APA notice of the rules we adopt today.

217. In sum, we find that the market-based spectrum reserve we adopt today is consistent with the Spectrum Act and with our general authority under Title III and was adequately noticed under the APA.

### C. AWS-3 Auction

218. As discussed in detail below, we decline to adopt mobile spectrum holdings limits for the AWS-3 auction. As noted elsewhere, however, we will add AWS-3 spectrum to the spectrum screen on a market-by-market basis depending on the status of federal relocation.

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<sup>585</sup> *Incentive Auctions NPRM*, 27 FCC Rcd at 12484 ¶ 384 citing *AT&T-Qualcomm Order*, 26 FCC Rcd at 17602 ¶ 31 ("the Commission recently has begun to look more closely at spectrum holdings below 1 GHz, which enable firms to significantly reduce the costs of building and maintaining a network compared to higher-band spectrum, as well as spectrum that is specifically suited for the provision of mobile broadband services."); see also *United Steelworkers of America, AFL-CIO-CLC v. Marshall*, 647 F.2d 1189, 1221 (D.C. Cir.) ("[A] final rule may properly differ from a proposed rule . . . when the record evidence warrants the change."), *cert. denied*, 453 U.S. 913 (1981).

<sup>586</sup> *Incentive Auctions NPRM*, 27 FCC Rcd at 12484 ¶ 384.

<sup>587</sup> See *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11726 ¶ 35 ("We seek comment on whether our policies regarding mobile spectrum holdings should include separate consideration of spectrum in different frequency bands, e.g., below or above 1 GHz. Would a separate spectrum threshold limit for spectrum holdings below 1 GHz . . . advance the goals of promoting wireless competition, innovation, investments and broadband deployment in rural areas?"); *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11720 ¶ 21 (asking "whether we should consider applying a band-specific spectrum limit in the context of any band-specific service rules that we adopt prior to an auction.").

<sup>588</sup> See *Omnipoint Corp. v. FCC*, 78 F.3d 620, 631-32 (D.C. Cir. 1996) (FCC acted well within the requirements of the logical outgrowth standard in modifying rather than eliminating the affiliation exception in the final C block auction rules for wireless broadband PCS in response to suggestions of commenters that addressed the Commission's stated concerns in the Notice).

<sup>589</sup> *Incentive Auctions NPRM*, 27 FCC Rcd at 12484 ¶ 384 (asking whether the Commission should adopt a threshold that recognizes the different characteristics of different spectrum bands); *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11725 ¶ 34 ("The one-third threshold currently used in our case-by-case review envisions at least three competitors having access to approximately the same amount of suitable spectrum for providing mobile wireless broadband service. Whether we use the threshold in a case-by-case review or as a bright-line limit, is one-third the appropriate threshold level, or should the threshold be higher in rural areas?").

219. **Background.** In the *Mobile Spectrum Holdings NPRM*, the Commission sought comment on whether to adopt limits on the amount of spectrum that entities could acquire in the context of spectrum auctions mandated by the Spectrum Act.<sup>590</sup> In the *AWS-3 NPRM*, the Commission sought comment on whether and how to address the mobile spectrum holdings issues to meet our statutory requirements pursuant to section 309(j)(3)(B) and our goals for the AWS-3 bands.<sup>591</sup>

220. In the *AWS-3 Report and Order*, we made available an additional 65 megahertz of commercial spectrum for the provision of mobile broadband services, to be assigned by competitive bidding in five megahertz and ten megahertz blocks.<sup>592</sup> The Commission stated that it would defer considering whether any mobile spectrum holdings policies should apply to the upcoming AWS-3 auction until we resolved the broader policy considerations applicable in this proceeding.<sup>593</sup>

221. In the *AWS-3 Report and Order*, we noted that USCC supports adopting a 25 percent limit on the amount of AWS-3 spectrum any one auction participant may acquire in a single PEA to promote competition and diversity of license holders in the band, which USCC asserts would encourage interoperability and roaming opportunities.<sup>594</sup> We also noted that Mobile Future and Verizon Wireless oppose any auction-specific limits for the AWS-3 bands.<sup>595</sup> In particular, Verizon Wireless opposes USCC's proposal, claiming that USCC's proposed AWS-3 spectrum limit is unnecessary to prevent a lack of interoperability.<sup>596</sup> In the *AWS-3 Report and Order*, we observed that parties commenting on spectrum holdings issues in the AWS-3 rulemaking raise issues with broader applicability to the instant *Mobile Spectrum Holdings* rulemaking.<sup>597</sup> As such, we found the *Mobile Spectrum Holdings* rulemaking to be the most appropriate context in which to resolve whether any mobile spectrum holdings policies should apply to the upcoming AWS-3 auction.<sup>598</sup> In view of our finding in the *AWS-3 Report and Order*, we are incorporating into the record of the instant proceeding the AWS-3 comments cited in this paragraph.

222. **Discussion.** We find that, on balance, it is not in the public interest to adopt a band-specific mobile spectrum holdings limit for the AWS-3 auction. Nothing in the record indicates that without such a limitation, opportunities for access to spectrum with similar characteristics would be significantly constrained.<sup>599</sup> In particular, we emphasize the availability of a substantial amount of

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<sup>590</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11720 ¶ 21.

<sup>591</sup> Amendment of the Commission's Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands, WT Dkt. No. 13-185, *Notice of Proposed Rulemaking and Order on Recons.*, 28 FCC Rcd 11479, 11528 ¶ 122 (2013) ("*AWS-3 NPRM*").

<sup>592</sup> See *AWS-3 Report and Order*, FCC 14-31, at ¶ 2.

<sup>593</sup> *Id.* ¶ 129.

<sup>594</sup> See *id.* ¶ 128, n.379 (citing USCC Comments in GN Dkt. No. 13-185 at 52).

<sup>595</sup> See *AWS-3 Report and Order*, FCC 14-31, at ¶ 128, n.380 (citing Mobile Future Comments in GN Dkt. No. 13-185 at 14); Verizon Wireless Reply in GN Dkt. No. 13-185 at 6-7.

<sup>596</sup> See *AWS-3 Report and Order*, FCC 14-31, at ¶128, n.381 (citing Verizon Wireless Reply in GN Dkt. No. 13-185 at 6-7). Verizon Wireless asserts that any interoperability concerns could be addressed through the adoption of a band plan. *Id.* We note that in the *AWS-3 Report and Order*, we addressed concerns associated with interoperability and imposed certain interoperability obligations. See *id.* ¶¶ 225-31.

<sup>597</sup> For example, we note that USCC proposes that as a general matter no auction applicant be allowed to acquire more than 25 percent of the wireless spectrum available for auction in any licensed area. USCC Comments at 8; USCC Reply at 7-8.

<sup>598</sup> *AWS-3 Report and Order*, FCC 14-31, at ¶ 129.

<sup>599</sup> AT&T Apr. 16, 2014 *Ex Parte* at 1 (supports conducting AWS-3 auction without mobile spectrum holding limits).



comparable high-band spectrum to competitors and the significant existing holdings of multiple providers of comparable spectrum. In addition, as discussed above, with rising demand for mobile broadband services, increasing network capacity is important to all providers, and above-1-GHz spectrum is particularly suitable for such needs.<sup>600</sup> The 65 megahertz of AWS-3 spectrum that the Commission plans to auction have the potential to allow for greater network capacity for all providers to meet this demand.

223. We note that multiple providers currently have access to bands comparable to AWS-3. In the *AWS-3 Report and Order*, we observed that pairing uplink/mobile transmit operations in the 1755-1780 MHz band with downlink operations in the 2155-2180 MHz band effectively creates an extension of the adjacent 90 megahertz of the AWS-1 band.<sup>601</sup> In addition, the record shows that bands with proximate frequencies and well-developed ecosystems, such as AWS-1 and the 130 megahertz of PCS spectrum, are largely substitutable.<sup>602</sup> Thus, between AWS-1 and PCS, there is 220 megahertz of comparable spectrum already being utilized today. Moreover, each of the four nationwide providers holds a significant amount of this spectrum.<sup>603</sup> DISH's AWS-4 and H Block spectrum, a combined 50 megahertz, is additional mid-band spectrum with potential uses similar to that of AWS-3 spectrum. This is unlike the case with the 600 MHz Band, which has fewer "coverage band" substitutes (700 MHz and 800 MHz). Moreover, in contrast to bands comparable to AWS-3, the bands comparable to the 600 MHz Band are held by a limited number of service providers. Accordingly, while it is necessary to adopt a 600 MHz Band specific spectrum holding policy, such an approach is not necessary for the AWS-3 auction.

224. Considering all these factors, we decline to adopt a mobile spectrum holdings limit for the AWS-3 auction. We note that, as discussed in Section IV.C.3 in this Order, we will add AWS-3 spectrum to the screen on a market-by-market basis in the future.

## VI. SECONDARY MARKET TRANSACTIONS

### A. Introduction

225. As noted above, spectrum is a limited and essential input for the provision of mobile wireless telephony/broadband services, and ensuring access to, and the availability of, sufficient spectrum – in particular, a mix of low- and high-band spectrum – is crucial to preserving and promoting competition, investment, and innovation in the mobile wireless marketplace. Consumer choice in today's mobile wireless marketplace, as well as in the future, depends crucially upon multiple service providers having access to sufficient spectrum that they need to operate and robustly compete. The Commission articulated its framework for a case-by-case review for the first time in analyzing the *Cingular-AT&T Wireless* transaction in 2004.<sup>604</sup> In particular, in that context and in its analysis of subsequent proposed transactions, the Commission used an initial screen to help identify for case-by-case review local markets where changes in spectrum holdings resulting from the transaction may be of particular concern.<sup>605</sup> As set

<sup>600</sup> See, e.g., Sprint Feb. 11, 2014 *Ex Parte* at 19; AT&T Mar. 14, 2014 *Ex Parte* at 2.

<sup>601</sup> See *AWS-3 Report and Order*, FCC 14-31, at ¶¶ 42, 44, 45. See also *AWS-3 Report and Order*, FCC 14-31, at ¶ 229 and App. A, 47 C.F.R. § 27.75 (Mobile and portable stations that operate on any portion of frequencies in the paired 1755-1780 MHz and 2155-2180 MHz band must be capable of operating on all frequencies in the paired 1710-1780 MHz and 2110-2180 MHz band, using the same air interfaces that the equipment utilizes on any frequencies in the paired 1710-1780 MHz and 2110-2180 MHz band).

<sup>602</sup> See, e.g., Sprint April 4, 2014 *Ex Parte* at 6.

<sup>603</sup> No licensee holds more than 25 percent of the combined MHz-POPs in the PCS and AWS-1 spectrum between 1 GHz and 2.5 GHz. *16th Mobile Wireless Competition Report*, 28 FCC Rcd at 3716-17.

<sup>604</sup> See *Cingular-AT&T Wireless Order*, 19 FCC Rcd 21522, 21542-46 ¶ 40-43.

<sup>605</sup> See, e.g., *Cingular-AT&T Wireless Order*, 19 FCC Rcd at 21568-69 ¶ 109; *Alaska Wireless Order*, 28 FCC Rcd at 10449-50 ¶ 38; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10719 ¶ 59; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17602 ¶ 31; *AT&T-Centennial Order*, 24 FCC Rcd at 13938 ¶ 50. For transactions that result in the acquisition of wireless business units and customers or change the number of firms in any market, we also apply an

(continued....)

out in various transactions orders, however, the Commission has not limited its consideration of potential competitive harms solely to markets identified by its initial screen, if it encounters other factors,<sup>606</sup> such as increased aggregation of below-1-GHz spectrum,<sup>607</sup> that may bear on the public interest inquiry.

226. In this section, we consider whether we should continue with our current approach of case-by-case review for secondary market transactions or should instead adopt bright-line limits. We then consider the appropriate product and geographic market definitions. Further, we discuss the level at which the spectrum holdings threshold should be set. We then discuss whether and how differences in spectrum frequencies should be evaluated in the Commission's analysis of proposed secondary market transactions, as well as consider whether to adopt a "nationwide" spectrum screen. Finally, we discuss competitive factors to be considered in the Commission's review of secondary market transactions, and remedies the Commission may require if public interest harms are found.

227. We find that it is in the public interest to retain our current case-by-case review for secondary market transactions. We will also retain our current product and geographic market definitions. We will continue to apply the spectrum screen on a county-by-county basis to identify those CMAs where an entity would hold approximately one-third or more of the total spectrum that is suitable and available for the provision of mobile telephony/broadband services post-transaction,<sup>608</sup> and will evaluate these markets for any competitive harms. Further, we will continue to evaluate the likely competitive effects of increased aggregation of below-1-GHz spectrum, and in particular, will pay specific attention to those markets in which a proposed transaction would result in a service provider holding approximately one-third or more of suitable and available below-1-GHz spectrum post-transaction. Moreover, we find that it is in the public interest not to limit our analysis of potential competitive harms to solely those markets identified by the initial screen, if we encounter other factors that may bear on the public interest inquiry. By adopting these mobile spectrum holdings policies today, we will ensure that American consumers have meaningful choices among multiple service providers now and into the foreseeable future.

#### B. Case-by-Case Review vs. Bright Line Limits

228. **Background.** When it established the CMRS spectrum cap in 1994, the Commission anticipated that the rule would promote competition, would be easy to administer, and would provide greater certainty than case-by-case analysis because it would provide "entities who are making acquisitions with greater assurance than a case-by-case approach that if they fall under the cap, the Commission will approve the acquisition."<sup>609</sup> In 2001, when it decided to move from the CMRS spectrum cap to case-by-case review, the Commission determined that the benefits of a more flexible approach for reviewing secondary market transactions outweighed the increased certainty and administrative convenience of a bright line limit.<sup>610</sup> Thus, since the *Cingular-AT&T Wireless Order*, the Commission has used an initial screen to help identify for further competitive analysis those local markets

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initial screen based on the size of the post-transaction HHI of market concentration and the change in the HHI. See *Cingular-AT&T Wireless Order*, 19 FCC Rcd at 21564-65 ¶ 96.

<sup>606</sup> See, e.g., *SoftBank-Sprint Order*, 28 FCC Rcd at 9656 ¶ 35; *AT&T WCS Order*, 27 FCC Rcd at 16467 ¶ 21; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10716 ¶ 48; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17610-11 ¶¶ 49-50.

<sup>607</sup> See, e.g., *AT&T-Qualcomm Order*, 26 FCC Rcd at 17609-10 ¶ 49.

<sup>608</sup> See, e.g., *Alaska Wireless Order*, 28 FCC Rcd at 10450 ¶ 42; *AT&T WCS Order*, 27 FCC Rcd at 16469-70 ¶ 29; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10719 ¶ 59.

<sup>609</sup> Implementation of Sections 3(N) and 332 of the Telecommunications Act, Regulatory Treatment of Mobile Services, GN Dkt. No. 93-252, PR Dkt. Nos. 93-144, 89-553, *Third Report and Order*, 9 FCC Rcd 7988, 8104-05 ¶¶ 250-51.

<sup>610</sup> *CMRS Cap Sunset Order*, 16 FCC Rcd at 22693-94 ¶ 50.

where an entity would hold approximately one-third or more of the total spectrum suitable and available for the provision of mobile telephony/broadband services post-transaction.<sup>611</sup>

229. In the *Mobile Spectrum Holdings NPRM*, the Commission observed that the case-by-case approach to proposed transactions review affords the Commission flexibility to consider the unique circumstances of a proposed transaction and the changing needs of the mobile wireless marketplace generally, and to tailor remedies to the specific harm and circumstances.<sup>612</sup> At the same time, however, the Commission noted that case-by-case review is both time- and resource-intensive, and has been criticized for creating uncertainty as to whether a particular transaction will be approved.<sup>613</sup> The Commission sought comment on the costs and benefits of its case-by-case review and whether the review of proposed transactions could be more transparent, predictable, or better tailored to promote its goals.<sup>614</sup> The Commission asked if bright-line limits, similar to the CMRS spectrum cap eliminated in 2003,<sup>615</sup> would better serve the public interest.<sup>616</sup>

230. The majority of commenters – including AT&T, Verizon Wireless, Sprint, T-Mobile, Public Knowledge and CCA – support the continued use of case-by-case review of secondary market transactions instead of a bright-line limit, primarily due to the flexibility of case-by-case review in evaluating the likely competitive effects of a secondary market transaction.<sup>617</sup> In contrast, RWA, Free Press, and NTCH support bright line limits because they argue that the Commission’s use of a case-by-case approach has led to excessive consolidation and competitive harm.<sup>618</sup>

231. **Discussion.** We find that it is in the public interest to continue to use our initial spectrum screen and case-by-case analysis to evaluate the likely competitive effects of increased spectrum aggregation through secondary market transactions, rather than to adopt a bright-line limit. We observe that the fundamental principles that the Commission articulated in eliminating the spectrum cap in favor of a case-by-case approach to transactions review continue to apply today. In particular, the “flexibility to reach the appropriate decision in each case, on the basis of the particular circumstances of that case” outweighs the greater regulatory certainty associated with a bright-line limit.<sup>619</sup> Moreover, in the context of transactions review, we are concerned that *ex ante* limits on spectrum aggregation may prevent transactions that are in the public interest.<sup>620</sup> We have found that in reviewing secondary market

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<sup>611</sup> See, e.g., *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10716 ¶ 48; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17602 ¶ 31; *Cingular-AT&T Wireless Order*, 19 FCC Rcd at 21552 ¶ 58.

<sup>612</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 17719 ¶ 18.

<sup>613</sup> *Id.*

<sup>614</sup> *Id.*

<sup>615</sup> See *CMRS Cap Sunset Order*, 16 FCC Rcd at 22695-96 ¶ 54.

<sup>616</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11720 ¶ 20.

<sup>617</sup> See e.g., AT&T Comments at 12-13; Verizon Wireless Reply at 7; Sprint Comments at 2-4; T-Mobile Comments at 13; Public Knowledge Comments at 15; CCA Comments at 9; CCIA Comments at 9; MetroPCS Comments at 5; TIA Comments at 3 (rejecting spectrum caps); Mobile Future Comments at 5; CTIA Comments at 5-6; Clearwire Comments at 4-5; see also Tech Freedom Comments at 9-11 (supporting a “rule of reason” case-by-case analysis and opposing spectrum caps but arguing that the Commission’s spectrum screen incorrectly uses spectrum holdings as a surrogate for market power.). We note that Sprint, while supporting a case-by-case analysis of total spectrum holdings, also supports the application of a cap on acquisition of below-1-GHz spectrum in the secondary market. Sprint Comments at 9.

<sup>618</sup> See Free Press Comments at 3; RWA Comments at 3; NTCH Comments at 3.

<sup>619</sup> *CMRS Cap Sunset Order*, 16 FCC Rcd at 22693-94 ¶ 50.

<sup>620</sup> See *id.*

transactions, the complex technical, strategic, and economic factors that determine the likely competitive effects of increased spectrum aggregation require a case-by-case assessment.

232. We distinguish our decision to retain case-by-case review for spectrum acquisitions through transactions from our determination above that any mobile spectrum holding limit applied to auctions should be a bright-line rule. The unique circumstances typically associated with spectrum auctions, particularly the time constraints and the need for certainty for each bidder regarding which licenses it would be permitted to acquire at the auction, make case-by-case analysis challenging in the auction context.<sup>621</sup>

### C. Market Definitions

233. In this section, we consider whether to modify the current market definitions that the Commission uses in its competitive analysis for proposed secondary market transactions. We conclude that it is in the public interest to retain the current product market definition and the current geographic market definition.

#### 1. Relevant Product Market

234. **Background.** In its recent transaction orders,<sup>622</sup> the Commission has determined that the relevant product market is a combined “mobile telephony/broadband services” product market that comprises mobile voice and data services, including mobile voice and data services provided over advanced broadband wireless network (mobile broadband services).<sup>623</sup> The Commission adopted the current product market definition in 2008 in the *Sprint-Clearwire Order*, noting that the revision was due to “the substantial ongoing developments in the evolution of the provision of wireless services, especially the increasing prominence of mobile broadband services[.]”<sup>624</sup> The combined product market encompassed the previous product market definition of “mobile telephony services” while emphasizing “the recent significant mobile broadband advances to better reflect this component of emerging, next-generation wireless services.”<sup>625</sup> The Commission also recognized the risks of defining product markets too narrowly for rapidly evolving markets and services such as mobile broadband.<sup>626</sup>

235. In the *Mobile Spectrum Holdings NPRM*, the Commission sought comment on whether the product market definition should be modified to reflect differentiated service offerings, devices and

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<sup>621</sup> See *supra* Section V.

<sup>622</sup> See *SoftBank-Sprint Order*, 28 FCC Rcd at 9657 ¶ 37; *AT&T WCS Order*, 27 FCC Rcd at 16468 ¶ 24; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10717 ¶ 53; *AT&T-Centennial Order*, 24 FCC Rcd at 13932 ¶ 37.

<sup>623</sup> Previously, the Commission found that there are separate relevant product markets for interconnected mobile voice services and mobile data services, and also for residential services and enterprise services. It nevertheless analyzed all of these product markets under the combined market for “mobile telephony service.” See Applications of Cellco Partnership D/B/A Verizon Wireless and Rural Cellular Corporation, WT Dkt. No. 07-208, *Order*, 23 FCC Rcd 12463, 12483-84 ¶ 21 (2008) (“*Verizon-RCC Order*”); *AT&T-Dobson Order*, 22 FCC Rcd at 20308 ¶ 21; Applications of Midwest Wireless Holdings, L.L.C. and Alltel Communications, Inc., WT Dkt. No. 05-339, *Order*, 21 FCC Rcd 11526, 11541 ¶ 26 (2006) (“*ALLTEL-Midwest Wireless Order*”); *Sprint-Nextel Order*, 20 FCC Rcd at 13983 ¶ 38; Applications of Western Wireless Corporation and Alltel Corporation, WT Dkt. No. 05-50, *Order*, 20 FCC Rcd 13053, 13068 ¶ 29 (2005) (“*ALLTEL-Western Wireless Order*”); *Cingular-AT&T Wireless Order*, 19 FCC Rcd at 21558 ¶ 74.

<sup>624</sup> See *Sprint -Clearwire Order*, 23 FCC Rcd at 17586-87 ¶¶ 38-40; see also *Verizon Wireless-ALLTEL Order*, 23 FCC Rcd at 17469-70 ¶ 45.

<sup>625</sup> *Sprint-Clearwire Order*, 23 FCC Rcd at 17586 ¶ 38. See also *AT&T-Leap Order*, 29 FCC Rcd at 2747-48 ¶ 26.

<sup>626</sup> *Sprint-Clearwire Order*, 23 FCC Rcd at 17586-87 ¶ 39.

contract features, for instance, or whether smaller sub-markets should be defined within a larger market. The Commission also sought comment on the costs and benefits of any potential modifications.<sup>627</sup>

236. The record supports maintaining the current product market definition. For example, Sprint, CCIA, and WGA support maintaining the current product market definition.<sup>628</sup> AT&T argues that as spectrum is fungible between voice and data services, and that mobile wireless services are increasingly sold in packages, that markets should be defined based on all wireless services.<sup>629</sup>

237. **Discussion.** We agree with the majority of the commenters who advocate retaining the current product market definition. We do not find sufficient evidence in the record to support a change in the current product market definition. We find that the current product market definition, “mobile telephony/broadband services,” continues to encompass the mobile voice and data services that are provided today, and is sufficiently flexible to reflect emerging, next-generation wireless services. We did not find evidence in the record to convince us that the current definition has been defined too broadly or too narrowly for purposes of our competitive analysis.<sup>630</sup> As set out in prior transactions, the product market we define encompasses differentiated services (*e.g.*, voice-centric or data-centric), devices (*e.g.*, feature phone, smartphone, tablet, etc.), and contract features (*e.g.*, prepaid vs. postpaid)<sup>631</sup> While such distinctions may suggest the possibility of smaller markets nested within that larger product market, we find it unnecessary to define such smaller product markets in order to analyze the potential competitive effects of secondary market transactions. We will continue to consider these aspects of product differentiation, as appropriate, when we analyze the competitive effects of the proposed secondary market transaction within the markets we define. Therefore, we find it is in the public interest to retain the current product market definition.

## 2. Relevant Geographic Market

238. **Background.** In its recent transactions orders, the Commission has found that the relevant geographic markets for certain wireless transactions generally are local, while also evaluating a transaction’s competitive effects at the national level where a transaction exhibits certain national characteristics that provide cause for concern.<sup>632</sup> Because most consumers use their mobile telephony/broadband services at or close to where they live, work, and shop, they purchase mobile telephony/broadband services from service providers that offer and market services locally.<sup>633</sup> Service sold in distant locations is generally not a good substitute for service near a consumer’s home or work.<sup>634</sup>

<sup>627</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11721-22 ¶ 25.

<sup>628</sup> See Sprint Comments at 13; RWA Comments at 5; CCIA Comments at 20; *see also* WGA Comments at 9-10; Free Press Comments at 19 (both recommending a focus on the mobile data submarket).

<sup>629</sup> AT&T Comments, Katz & Israel Decl. at ¶ 73.

<sup>630</sup> See *T-Mobile-MetroPCS Order*, 28 FCC Rcd at 2331-32 ¶¶ 26-28 (WTB declining to consider “value wireless services” as a separate market).

<sup>631</sup> See, *e.g.*, *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10717 ¶ 53 n.119; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17603 ¶ 33; *AT&T-Verizon Wireless Order*, 25 FCC Rcd at 8721 ¶ 35; *AT&T-Centennial Order*, 24 FCC Rcd at 13932 ¶ 37.

<sup>632</sup> See, *e.g.*, *Alaska Wireless Order*, 28 FCC Rcd at 10447-48 ¶ 36; *SoftBank-Sprint Order*, 28 FCC Rcd at 9657 ¶ 38; *AT&T WCS Order*, 27 FCC Rcd at 16468 ¶ 24; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10717 ¶ 54.

<sup>633</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11724 ¶ 31. See, *e.g.*, *SoftBank-Sprint Order*, 28 FCC Rcd at 9657 ¶ 38; *AT&T WCS Order*, 27 FCC Rcd at 16469 ¶ 26; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10718 ¶ 56; *see also* 16<sup>th</sup> *Mobile Wireless Competition Report*, 28 FCC Rcd at 3735 ¶¶ 22-23.

<sup>634</sup> See, *e.g.*, *Alaska Wireless Order*, 28 FCC Rcd at 10448 ¶ 37; *AT&T WCS Order*, 27 FCC Rcd at 16469 ¶ 26; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10718 ¶ 56.

In addition, service providers compete at the local level in certain dimensions, including coverage and service quality.<sup>635</sup>

239. However, as the Commission has previously recognized, two key competitive variables – monthly prices and service plan offerings – do not vary for most providers across most geographic markets.<sup>636</sup> The four nationwide mobile telephony/broadband service providers, AT&T, Verizon Wireless, Sprint, and T-Mobile, as well as some other providers set the same rates for a given plan everywhere and advertise nationally.<sup>637</sup> In addition, certain key elements in the provision of mobile wireless services, such as the development of mobile broadband equipment and devices, are done largely on a national level.<sup>638</sup> In the *Mobile Spectrum Holdings NPRM*, the Commission sought comment on the appropriate geographic market definition to use when evaluating a licensee’s mobile spectrum holdings, under either its current case-by-case analysis or if bright-line limits were adopted.<sup>639</sup>

240. Sprint, WGA, Free Press, and CIA support maintaining the status quo – *i.e.* retaining a local market definition and evaluating transactions at the national level.<sup>640</sup> The DOJ states that it is “appropriate both to identify local markets and to identify the nature of nationwide competitive effects affecting local markets,” noting that a single transaction could require analysis at the local, regional, and national level.<sup>641</sup> In contrast, AT&T asserts that the relevant geographic market in terms of spectrum aggregation should be local only because spectrum is deployed at the local level.<sup>642</sup>

241. **Discussion.** We find for purposes of evaluating the competitive effects of proposed transactions, we will continue to use local geographic markets, but also will analyze potential national effects as appropriate. We continue to find that most consumers use their mobile telephony/broadband services at or close to where they live, work, and shop, in support of our decision that local markets are the relevant geographic markets in which to analyze the potential for competitive harms as a result of certain wireless transactions. As discussed, however, certain elements of the provision of mobile wireless services are national in scope, including key variables such as pricing, development of equipment, and service plan offerings, and nothing in the record suggests that the basis for this finding has changed. We also will continue therefore to analyze the potential competitive effects of those wireless transactions that exhibit national characteristics, such as increased spectrum aggregation in many local markets across the country with the implication that harms that may occur at the local level collectively could have nationwide competitive effects.

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<sup>635</sup> See, e.g., *Alaska Wireless Order*, 28 FCC Rcd at 10448 ¶ 37; *AT&T WCS Order*, 27 FCC Rcd at 16469 ¶ 26; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10718 ¶ 56. We note that nationwide coverage may be one of those dimensions, but consumers may still be choosing among locally marketed providers on that basis.

<sup>636</sup> See, e.g., *AT&T WCS Order*, 27 FCC Rcd at 16469 ¶ 27; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10718 ¶ 57; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17604-05 ¶¶ 34-37.

<sup>637</sup> See, e.g., *AT&T WCS Order*, 27 FCC Rcd at 16469 ¶ 27; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10718-19 ¶ 57; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17604-05 ¶ 35.

<sup>638</sup> See, e.g., *AT&T WCS Order*, 27 FCC Rcd at 16469 ¶ 27; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10718 ¶ 57; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17604-05 ¶ 35.

<sup>639</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11724-25 ¶ 32.

<sup>640</sup> See Sprint Comments at 13; WGA Comments at 10-11; Free Press Comments at 14-15, n.32; CCIA Comments at 20. Further, we note that RWA supports the evaluation of spectrum aggregation at the county level. RWA Comments at 6.

<sup>641</sup> DOJ Apr. 11, 2013 *Ex Parte* at 20-21.

<sup>642</sup> AT&T Comments at 10, 77, 79, Katz & Israel Decl. at ¶¶ 54-56.

#### D. Applicable Spectrum Holdings Threshold

242. **Background.** In 2004 the Commission established a spectrum screen threshold of approximately one-third of suitable and available spectrum that would be held by the acquiring entity post-transaction.<sup>643</sup> The Commission emphasized that a market may contain more than three viable competitors even where one entity controls approximately one-third of suitable and available spectrum, noting that some providers at that time were competing successfully with less than one-third of suitable and available spectrum.<sup>644</sup> In the *Mobile Spectrum Holdings NPRM*, the Commission sought comment on whether one-third is still the appropriate threshold generally, and whether a higher threshold should apply in rural areas.<sup>645</sup>

243. A number of commenters, including T-Mobile, CCA, Verizon Wireless, and CLIP, support maintaining an approximate one-third threshold for the total spectrum screen, asserting that the approximate one-third threshold continues to be an effective level.<sup>646</sup> RWA and NTCH suggest reducing the spectrum screen threshold below one-third.<sup>647</sup> RWA contends that a one-fourth threshold, applied at the county level, “will ensure that American consumers benefit from the competitive presence of at least four carriers.”<sup>648</sup> NTCH advocates for a 20 percent threshold because this threshold would allow the four nationwide providers to each have 20 percent of spectrum in a given market and would leave 20 percent for smaller providers.<sup>649</sup>

244. AT&T asserts that the Commission should increase the current screen threshold, though they do not provide a specific increased level.<sup>650</sup> AT&T contends that historically the Commission’s consideration of approximately one-third as an appropriate limitation reflects prior stages of the wireless marketplace where there was less competition and less available spectrum.<sup>651</sup>

245. Free Press asserts that part of the Commission’s case-by-case review should include a threshold based on a “spectrum share HHI,” which would measure changes in spectrum concentration.<sup>652</sup> Verizon Wireless responds that there is no economic theory linking concentration of an input, as measured by the spectrum share HHI, with prices or competitive outcomes in the output market.<sup>653</sup> AT&T argues against applying an HHI analysis to the spectrum transactions, arguing that neither the

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<sup>643</sup> *Cingular-AT&T Order*, 19 FCC Rcd at 21568-69 ¶ 109 (noting that the 70 megahertz screen applied in that Order represented “a little more than one-third of the total bandwidth available for mobile telephone today . . . .”)

<sup>644</sup> *Id.* at 21568-69 ¶ 109.

<sup>645</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11725 ¶ 33-34.

<sup>646</sup> See, e.g., T-Mobile Comments at 9-14; CCA Comments at 12; Verizon Wireless Comments at 38; CLIP Comments at 7.

<sup>647</sup> See RWA Comments at 3; NTCH Comments at 6.

<sup>648</sup> RWA Comments at 7.

<sup>649</sup> NTCH Comments at 6.

<sup>650</sup> See AT&T Comments at 6, 35, 48-54; AT&T Reply at 7-13. See also Verizon Wireless Comments at 37 (asserting that, while the screen threshold could reasonably be set at a higher level, it should not be set any lower).

<sup>651</sup> See AT&T Comments at 6, 49, 53. AT&T asserts that data show that competition still flourishes even when one firm holds more than one-third of available spectrum. AT&T Comments at 49 (contending that typically there are at least four providers in those markets). See also AT&T Comments, Katz & Israel Decl. at 39-48.

<sup>652</sup> Free Press Comments at 15-16. As part of Free Press’ proposed multi-stage spectrum screen, the Commission would apply a presumption that any transfer that would increase spectrum-share HHI by 100 or more points in local markets that already or would exhibit spectrum-share HHIs above 2,500 would not be in the public interest.

<sup>653</sup> Verizon Wireless Comments, Shampine Reply Decl. at 11.

Department of Justice nor the Federal Trade Commission applies the HHI screen to inputs,<sup>654</sup> and that such analysis “has no grounding in the facts or antitrust theory.”<sup>655</sup>

246. **Discussion.** We will retain the approximately one-third threshold for applying our initial spectrum screen. Based on our experience in applying this threshold in numerous transactions over the last decade, we have found it to be an effective analytical tool in helping to identify individual markets where a proposed transaction may raise particular competitive concerns.<sup>656</sup> We note that a majority of commenters support maintaining an approximately one-third threshold for the total spectrum screen.<sup>657</sup>

247. As the Commission observed when it initially established the spectrum screen, we find that even where one entity holds approximately one-third of suitable and available spectrum, a market may contain more than three viable competitors. In other words, contrary to the rationales offered by RWA and NTCH for reducing the threshold,<sup>658</sup> our goal is not to equalize the amount of spectrum held by each competitor in each market. On the other hand, increasing the threshold, as advocated by AT&T, would not be in the public interest.<sup>659</sup> Given the need to meet rising consumer demand for mobile services, in terms of both coverage and capacity, we disagree with AT&T’s assertion that providers no longer need a substantial share of spectrum to compete given the state of today’s marketplace.<sup>660</sup>

248. We also disagree with AT&T’s assertion that the Commission can increase the spectrum screen threshold because the costs of “false positive” errors – chilling innovation and investment, and an inefficient use of the Commission’s resources – outweigh the costs of “false negative” errors because spectrum acquisitions that would harm competition would be remedied by other Federal agencies (*e.g.*, United States Department of Justice).<sup>661</sup> As the Commission previously has stated in the context of orders addressing proposed transactions, our competitive analysis, which forms an important part of the public interest evaluation, is informed by, but not limited to, traditional antitrust principles.<sup>662</sup>

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<sup>654</sup> AT&T Reply at 42.

<sup>655</sup> *Id.* at 6.

<sup>656</sup> We note that in our application of the screen, we include not only the entity’s licensed spectrum, on a county-by-county basis, but also all long term spectrum leasing arrangements, with spectrum being attributed to both the lessee and lessor. *See e.g. SoftBank-Sprint Order*, IB Dkt. No. 12-343, 26 FCC Rcd 9642, 9660 ¶ 44 (2013); *Sprintcom-Alaska Digital Order*, 24 FCC Rcd at 441-42 ¶ 13-15.

<sup>657</sup> *See, e.g.*, T-Mobile Comments at 9-14; CCA Comments at 12; Verizon Wireless Comments at 38; CLIP Comments at 7.

<sup>658</sup> *See* RWA Comments at 7; NTCH Comments at 6.

<sup>659</sup> *See* AT&T Comments at 6, 35, 48-54, AT&T Reply at 7-13.

<sup>660</sup> *See* AT&T Reply at 11-12.

<sup>661</sup> *See* AT&T Comments, Katz & Israel Decl. at 47-48.

<sup>662</sup> *See, e.g., SoftBank-Sprint Order*, 28 FCC Rcd at 9651-52 ¶ 25; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10710 ¶ 29. The Commission and the DOJ each have independent authority to examine the competitive impacts of proposed communications mergers and transactions involving transfers of Commission licenses, but the standards governing the Commission’s competitive review differ somewhat from those applied by the DOJ. *See, e.g., SoftBank-Sprint Order*, 28 FCC Rcd at 9651-52 ¶ 25; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17599-600 ¶ 25; *AT&T-Verizon Wireless Order*, 25 FCC Rcd at 8717 ¶ 24. *See* DOJ Apr. 11, 2013 *Ex Parte* at 4-5. (“[T]he Department [of Justice] and the FCC, utilizing their respective expertise and statutory authority, work in complement. . . . For instance, the Commission possesses technical expertise in technology and spectrum, and the Department has broad expertise in analyzing how markets are structured and the dynamics of how they function. Under the federal antitrust laws, the Department’s responsibilities include enforcing laws that prohibit transactions or conduct that substantially lessen competition or tend to create a monopoly. At the same time, the Commission has a statutory framework vital for managing the nation’s scarce spectrum resources . . . making it possible for the Commission to more broadly serve the ‘public interest, convenience and necessity. . . .’”).



249. In addition, we decline to adopt a spectrum screen threshold based on spectrum share HHIs, as suggested by Free Press.<sup>663</sup> We find that to do so would mark a substantial departure from our traditional approach that is not supported by the record. We do not believe the record demonstrates the efficacy of applying an HHI analysis to an input market, and believe establishing such a requirement would be burdensome and create substantial uncertainty.

250. We note that no commenters addressed whether we should establish a higher spectrum screen threshold for rural markets.<sup>664</sup> We decline to do so. In rural areas there are significant benefits to consumers of facilitating access by multiple providers to sufficient spectrum, such that they are able to provide an effective competitive constraint.<sup>665</sup> To the extent there are unique considerations in a particular rural market such that spectrum aggregation above the spectrum screen is in the public interest, our case-by-case analysis provides the Commission the flexibility to approve such a transaction.<sup>666</sup>

251. Accordingly, we will continue to apply an approximately one-third spectrum screen threshold in our review of secondary market spectrum acquisitions. Specifically, the modified spectrum screen we adopt today would include 580.5 megahertz of spectrum, with a trigger of 194 megahertz,<sup>667</sup> or approximately one-third of the suitable and available spectrum.

#### E. Operation of the Spectrum Screen

252. In this section, we evaluate how the screen will be applied going forward in our case-by-case review of secondary market transactions. As set out in various transactions orders, the Commission has not limited its consideration of potential competitive harms solely to markets identified by its initial screen, if it encounters other factors that may bear on the public interest inquiry.<sup>668</sup> For example, the Commission has considered below-1-GHz concentration,<sup>669</sup> and concentration within a particular spectrum band,<sup>670</sup> including a band that was not at the time included in the spectrum screen.<sup>671</sup> In the

<sup>663</sup> Free Press Comments at 15-16.

<sup>664</sup> *But see*, RTG June 21, 2013 *Ex Parte* at i-ii (advocating, among other things, a 40 percent cap on below-1-GHz spectrum, arguing that it would be “especially important for those Americans who live, work or travel in rural markets where there is already a diminished level of choice”). *See also* CCA Apr. 9, 2014 *Ex Parte* at 1.

<sup>665</sup> *See* CCA Apr. 9, 2014 *Ex Parte* at 2 (“Reasonable limits on spectrum aggregation also help ensure that smaller carriers and those operating in more rural areas have access to the right mix of spectrum resources—both inside their home markets and outside of them, too.”); NTCA Reply at 3 (“A 25% spectrum aggregation limit for spectrum below 1 GHz would provide opportunities for smaller rural carriers to offer advanced mobile broadband services to their customers.”).

<sup>666</sup> *See, e.g.*, Facilitating the Provision of Spectrum-Based Services to Rural Areas and Promoting Opportunities for Rural Telephone Companies To Provide Spectrum-Based Services, WT Dkt. No. 02-381, *Report and Order and Further Notice of Proposed Rule Making*, 19 FCC Rcd 19078, 19113-18 ¶¶ 63-72 (2004) (eliminating the cellular cross interest rule for RSAs that the Commission had retained in the *CMRS Spectrum Cap Sunset Order*, 16 FCC Rcd at 22708-10 ¶¶ 88-92).

<sup>667</sup> The spectrum screen is triggered where the Applicants would have, on a county-by-county basis, an attributable interest in 194 megahertz or more of spectrum where both AWS-1 and BRS/EBS spectrum are available in the particular market. If AWS-1 and/or BRS/EBS spectrum are not available in that market, these bands are not counted for purposes of applying the spectrum screen trigger in that market.

<sup>668</sup> *See, e.g.*, *SoftBank-Sprint Order*, 28 FCC Rcd at 9656 ¶ 35; *AT&T WCS Order*, 27 FCC Rcd at 16467 ¶ 21; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10716 ¶ 48; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17609-10 ¶¶ 49-50.

<sup>669</sup> *AT&T-Qualcomm Order*, 26 FCC Rcd at 17609-11 ¶¶ 48-51.

<sup>670</sup> *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10717 ¶ 50 (considering Verizon Wireless’s AWS-1 holdings post-transaction); *AT&T WCS Order*, 27 FCC Rcd at 16473 ¶ 37 (considering AT&T’s WCS holdings post-transaction).

*Mobile Spectrum Holdings NPRM*, the Commission sought comment on establishing a higher burden of proof for the approval of proposed transactions that would exceed the relevant spectrum threshold.<sup>672</sup>

253. Several commenters, including CCA and T-Mobile, argue that post-transaction spectrum holdings that would exceed the screen should trigger a rebuttable presumption that the transaction at issue is not in the public interest.<sup>673</sup> Other commenters, including Verizon Wireless and Sprint, respond that it is not necessary to impose a higher burden or presumption against approval of transactions that exceed the screen.<sup>674</sup> Sprint contends that “where a transaction exceeds the spectrum screen, the Commission should preserve the flexibility it has under its current screen rules and policies to assess the specific facts and circumstances without prejudice or a heightened burden of proof.”<sup>675</sup>

254. Several other commenters, including AT&T, Verizon Wireless, CLIP, and Mobile Future, argue that the Commission should return to its initial intent to establish a “safe harbor” in which no further Commission review is necessary in markets where, post-transaction, an entity’s holdings would not exceed the spectrum screen threshold.<sup>676</sup> These commenters assert that a safe harbor will promote predictability in secondary market transaction review, which in turn will foster investment and market efficiency. In addition, USCC contends that acquisitions by small and mid-size providers that do not trigger the screen should be entitled to expedited review.<sup>677</sup>

255. Other commenters assert that a safe harbor for transactions that are below the screen threshold is unwarranted and would eliminate the Commission’s ability to consider other competitive factors.<sup>678</sup> For example, CCA argues that a safe harbor would leave the Commission “unable to assess other competitive dimensions of spectrum transactions that may not be captured simply by measuring spectrum aggregation levels, such as subscriber counts, network deployment, access to advanced devices and equipment, or any unique barriers to entry or other special characteristics of a given local market.”<sup>679</sup>

256. **Discussion.** We will continue to review on a case-by-case basis those markets in which an entity would exceed the initial spectrum screen if the transaction as proposed were approved. We decline to establish a rebuttable presumption, and agree with Sprint and Verizon Wireless that a rebuttable presumption for spectrum holdings above the initial screen would unnecessarily limit the Commission’s flexibility.<sup>680</sup> Further, we affirm the Commission’s conclusions that our consideration of potential competitive harms resulting from a proposed spectrum acquisition in the secondary market should not be limited solely to markets identified by the initial screen, if we encounter other factors that may bear on

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<sup>671</sup> *SoftBank-Sprint Order*, 28 FCC Rcd at 9656 ¶ 35 (considering Sprint’s EBS holdings post-transaction).

<sup>672</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11720-21 ¶ 22.

<sup>673</sup> See, e.g., CCA Comments at 2-3; CCA Reply at 14-17; T-Mobile Reply at 17.

<sup>674</sup> See, e.g., Verizon Wireless Comments at 13, Shampine Decl. at ¶ 11; Verizon Wireless Reply at 16-17; Sprint Reply at 18.

<sup>675</sup> Sprint Reply at 18.

<sup>676</sup> See, e.g., Mobile Future Comments at 4-5; CLIP Comments at 8; AT&T Comments at 21-22; Verizon Wireless Comments at 9-10; Verizon Reply at 7-8.

<sup>677</sup> USCC Comments at 6.

<sup>678</sup> CCA Reply at 17; Free Press Reply at 5; T-Mobile Reply at 18-19; MetroPCS Comments at 17-18; Public Knowledge Reply at 8.

<sup>679</sup> CCA Reply at 17.

<sup>680</sup> See Sprint Reply at 18; Verizon Wireless Comments at 13.

our public interest inquiry.<sup>681</sup> For instance, we have specifically analyzed the potential competitive effects of aggregation of spectrum below 1 GHz. We find, in light of current marketplace conditions, that access by multiple service providers to sufficient spectrum below 1 GHz will preserve and promote competition in the mobile wireless marketplace to the benefit of American consumers, and therefore find that further significant aggregation of below-1-GHz spectrum holdings in secondary market transactions will be subject to enhanced review in our case-by-case competitive evaluation, as discussed below.<sup>682</sup>

257. While we recognize that a safe harbor would provide greater certainty to applicants, just as a bright-line limit would provide greater certainty, we find that in the context of secondary market transactions, it is in the public interest to maintain flexibility to consider any factors presented that may bear on our review. Moreover, in the absence of such flexibility, the Commission's review of future proposed transactions would be limited by its understanding of technology and industry practices at the time it adopted the specific thresholds. We find that our articulation of factors that we will consider in our case-by-case analysis as set forth below provides sufficient clarity to potential applicants, while maintaining flexibility for the Commission to consider changes in technology and industry practices in the rapidly-evolving mobile wireless marketplace.

258. We distinguish our decision not to adopt a safe harbor for case-by-case review of spectrum acquisitions through transactions from our determination above that any mobile spectrum holdings limit applied to auctions should be a bright-line rule. The unique circumstances typically associated with spectrum auctions, particularly the time constraints and the need for certainty for each bidder regarding which licenses it would be permitted to acquire at the auction, make case-by-case analysis challenging in the auction context.

#### F. Nationwide Screen

259. **Background.** In recent transactions, the Commission has found that the relevant geographic markets for certain wireless transactions generally are local, but also has evaluated a proposed transaction's competitive effects at the national level where a transaction exhibits certain national characteristics that provide cause for concern.<sup>683</sup> In the *Mobile Spectrum Holdings NPRM*, the Commission sought comment on whether, in addition to the spectrum screen applied on a county-by-county basis in helping to identify local markets of particular competitive concern, it should also adopt a separate screen that would be applied on a nationwide basis.<sup>684</sup>

260. CCA proposes that the Commission should establish a nationwide screen "somewhat below the level that would correspond to one-third of the spectrum deemed 'suitable and available' for mobile broadband."<sup>685</sup> CCA indicates, though, that further development of the record is necessary to determine the appropriate trigger for the national screen, but that it should be below the approximately one-third local screen to avoid being redundant.<sup>686</sup>

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<sup>681</sup> See, e.g., *SoftBank-Sprint Order*, 28 FCC Rcd at 9656 ¶ 35; *AT&T WCS Order*, 27 FCC Rcd at 16467 ¶ 21; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10716 ¶ 48; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17609-10 ¶¶ 49-50.

<sup>682</sup> See *infra* Section VI.H.

<sup>683</sup> See, e.g., *Alaska Wireless Order*, 28 FCC Rcd at 10447-48 ¶ 36; *SoftBank-Sprint Order*, 28 FCC Rcd at 9657 ¶ 38; *AT&T WCS Order*, 27 FCC Rcd at 16468 ¶ 25; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10718 ¶ 54.

<sup>684</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11724-25 ¶ 32.

<sup>685</sup> CCA Comments at 13. See also NTCA Reply at 3.

<sup>686</sup> CCA Comments at 13.

261. AT&T and CLIP respond that there is no need to evaluate spectrum on a nationwide basis.<sup>687</sup> They argue that a nationwide screen trigger set at the same level as a local trigger is redundant because it would not identify any new markets beyond the local markets that exceed the screen.<sup>688</sup> In addition, they assert that a nationwide screen trigger set at a lower level than the local trigger would have irrational effects, as nationwide providers might forego spectrum acquisitions in certain local markets that would have net public benefits and might give up spectrum in markets that are costly to serve.<sup>689</sup>

262. Other commenters contend that the Commission should continue to consider nationwide implications of spectrum concentration as a factor in its case-by-case review, as well as evaluate spectrum concentration on a local level.<sup>690</sup> WGA, for example, argues that it is important that the Commission continue to examine local and national effects of spectrum aggregation.<sup>691</sup> CCIA also supports the continued analysis of local and national competition on a case-by-case analysis.<sup>692</sup> Similarly, DOJ asserts that “the same transaction can require competitive analysis in both local markets and regional or national markets to ensure competition is fully protected.”<sup>693</sup>

263. **Discussion.** We decline to establish a separate screen as a means to evaluate spectrum holdings at the nationwide level. We agree with AT&T and CLIP that a nationwide screen would either be redundant or create irrational incentives for providers to divest or to forego acquisition of spectrum in markets in which there would be a net public benefit from such an acquisition. However, as certain elements of the provision of mobile wireless services are national in scope, including key variables such as pricing, development of equipment, and service plan offerings, we will continue to analyze the potential competitive effects of those secondary market transactions that exhibit national characteristics.<sup>694</sup> Increased spectrum aggregation in many local markets across the country may imply that harms that occur at the local level collectively could have nationwide competitive effects.<sup>695</sup> As set out elsewhere in this Order, we find that it is in the public interest to continue to define local geographic markets but also to analyze potential national effects as appropriate.

#### G. Distinguishing among Spectrum Bands for Transactions Review

264. In recent years, the Commission has considered below-1-GHz spectrum concentration as a factor in its review of spectrum acquisitions in the secondary market.<sup>696</sup> In the *Mobile Spectrum Holdings NPRM*, the Commission sought comment on whether it should adopt a separate screen for below-1-GHz spectrum under which an entity that would hold, post-transaction, approximately one-third

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<sup>687</sup> AT&T Comments, Katz-Israel Decl. at 54-57. See also AT&T Comments at 61-62; CLIP Comments at 11-12 (arguing that proxies such as MHz POPS or population-weighted average megahertz, when analyzed at the national level, “are too rough to enhance the local analysis.”).

<sup>688</sup> AT&T Comments at 78.

<sup>689</sup> AT&T Comments at 77-79; CLIP Comments at 11-12.

<sup>690</sup> WGA at 10-11; Free Press Comments at 14-15 note 32; CCIA Comments at 20.

<sup>691</sup> WGA Comments at 11.

<sup>692</sup> CCIA Comments at 19.

<sup>693</sup> DOJ Apr. 11, 2013 *Ex Parte* at 21 (footnote omitted).

<sup>694</sup> See *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10719 ¶¶ 58; *AT&T WCS Order*, 26 FCC Rcd at 16469 ¶¶ 27-28; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17604-05 ¶ 35.

<sup>695</sup> See *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10719 ¶¶ 58; *AT&T WCS Order*, 26 FCC Rcd at 16469 ¶¶ 27-28; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17604-05 ¶ 35.

<sup>696</sup> *AT&T-Qualcomm Order*, 26 FCC Rcd 17609-10 ¶ 49 (noting the more favorable propagation characteristics of lower frequency spectrum, the Commission determined that it was “prudent to inquire about the potential impact of AT&T’s aggregation of spectrum below 1 GHz as part of the Commission’s case-by-case analysis.”)

or more of the relevant spectrum below 1 GHz in a geographic market would be subject to a more detailed competitive review in that market.<sup>697</sup> The Commission also sought comment on whether, alternatively, it should establish a bright-line limit for spectrum holdings below 1 GHz, whether it should assign different weights to each of the spectrum bands as part of its case-by-case review, or whether it should take any other action to recognize distinctions between spectrum bands in its competitive review of proposed transactions.<sup>698</sup>

265. We decline to adopt a separate screen or bright-line limit for below-1-GHz spectrum holdings, or a set of weighting factors for each spectrum band included in our initial spectrum screen, for the reasons discussed below. We do establish that post-transaction below-1-GHz spectrum holdings will be an enhanced factor under our case-by-case review, as explained below.

### 1. Below-1-GHz Limit

266. **Background.** Several commenters, including T-Mobile, Sprint, RWA, and CCA, assert that the Commission should supplement the total spectrum screen applied to transactions with a screen or a bright-line limit for below-1-GHz spectrum, ranging from 25 percent to 40 percent.<sup>699</sup> These commenters contend that transaction review policies that focus on concentration of below-1-GHz spectrum are necessary because such spectrum is limited and its favorable propagation characteristics result in lower deployment costs for providers. Further, DOJ maintains that a service provider's holdings in low-band spectrum may determine its ability to compete effectively in offering a broad service area, including its ability to provide coverage efficiently in rural areas and avail itself of superior in-building penetration capabilities.<sup>700</sup> Opposing a separate evaluation of below-1-GHz spectrum, several parties, including Verizon Wireless, AT&T, CLIP, and Mobile Future, argue that there is no evidence that below-1-GHz spectrum offers advantages over other spectrum that warrant different treatment as part of the Commission's analysis of a provider's spectrum holdings.<sup>701</sup>

267. **Discussion.** As discussed above, we adopt a market-based spectrum reserve for the Incentive Auction and to set limitations on the assignment or transfer of 600 MHz licenses after the Incentive Auction.<sup>702</sup> These actions will help to ensure that multiple providers are able to access a sufficient amount of low-band spectrum, which will facilitate the extension and improvement of service in both rural and urban areas, to the benefit of consumers. In light of these actions, we conclude that it is not necessary at this time to adopt a separate screen or cap applicable to our evaluation of the assignment or transfer of below-1-GHz spectrum. Nonetheless, we will continue to evaluate below-1-GHz holdings as a factor in our case-by-case review of such transactions, consistent with the Commission's precedent in the past few years. Moving forward, post-transaction below-1-GHz spectrum holdings will become an enhanced factor in our competitive evaluation, as discussed below, and therefore, we will apply particular focus to our review of this factor as we evaluate the likelihood of potential competitive harms.

### 2. Spectrum Weighting

268. **Background.** Several commenters, including Sprint, Professor Jon Peha, Public Knowledge, Free Press, and CCIA, assert that the Commission should weight spectrum bands to reflect the extent to which spectrum at that frequency yields lower costs for the deployment and operation of

<sup>697</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11726 ¶ 36.

<sup>698</sup> *Id.* at 11726-27 ¶¶ 36-37.

<sup>699</sup> See T-Mobile Comments at 17 (one-third screen); Sprint Comments at 10 (one-third cap); RWA Comments at 8 (40 percent cap); CCA Comments at 11 (25 percent screen).

<sup>700</sup> See DOJ April 11, 2013 *Ex Parte* at 13-14.

<sup>701</sup> Verizon Wireless Reply at 27; AT&T Comments at 63; Mobile Future Comments at 13; CLIP Comments at 13-14.

<sup>702</sup> See *supra* Section V.

equipment.<sup>703</sup> Other approaches to weighting raised on the record include using price data from spectrum auctions and secondary market transactions.<sup>704</sup> Several other commenters, including AT&T, Verizon Wireless, and CLIP, contend that spectrum weighting would distort the Commission's analysis of the competitive effect of proposed transactions and is otherwise impractical to implement.<sup>705</sup>

269. On February 7, 2014, Sprint submitted a proposal ("*Sprint Spectrum Weighting Proposal*") that would weight spectrum based on the cost to deploy and operate using a particular band, arguing that low-band spectrum is typically significantly more cost-effective to deploy than higher-frequency spectrum.<sup>706</sup> Sprint argues that its proposed weighting recognizes the varying utility of different bands across urban, suburban and rural environments, and accounts for the existing spectrum holdings of a provider.<sup>707</sup> Sprint further asserts that the spectrum screen must account for the propagation characteristics of different frequency bands and their effectiveness in satisfying consumer demand in varying network operating environments to be an accurate and useful tool in assessing the likely competitive effects of increased spectrum aggregation.<sup>708</sup> Sprint further argues that a properly weighted spectrum screen would recognize that the downstream market encourages providers to have a mix of differentiated low-, mid-, and high-band spectrum inputs.<sup>709</sup>

270. As part of its proposal, Sprint attached a study by Dr. Kostas Liopiros, who asserts that the propagation characteristics of a particular band serve as the most significant factor affecting the cost to deploy and operate that spectrum in a wireless network.<sup>710</sup> Sprint's study proposes weighting factors for each band in urban, suburban, and rural environments<sup>711</sup> based on different assumptions and models of how signal frequencies propagate in different environments.<sup>712</sup> The study then blends factors for urban, suburban, and rural environments into one set of factors by choosing population density ranges to define these three types of environments and reflecting the nationwide distribution of population in these environments.<sup>713</sup>

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<sup>703</sup> See Sprint Comments at 11; Public Knowledge Comments at 5-15; Public Knowledge Reply at 5; Free Press Comments at 11; CCIA Comments at 10; see also WGA Comments at 4, 9; Leap Reply at 5-6. Public Knowledge also suggests that spectrum held by providers with substantial existing spectrum holdings or spectrum that has not yet been built out be weighted more heavily. See Letter from Harold Feld, Legal Director, Public Knowledge, to Marlene Dortch, Secretary, FCC, WT Dkt. No. 12-4, filed Apr. 30, 2012, at 3.

<sup>704</sup> See Public Knowledge Comments at 14-16; Sprint Comments at 12 (citing Prof. Cramton Declaration submitted by T-Mobile in the VZW-SpectrumCo proceeding, WT Dkt. No. 12-4); Sprint Reply at 17.

<sup>705</sup> AT&T Comments at 61-73; Verizon Wireless Comments at 28-37; CLIP Comments at 13-14.

<sup>706</sup> Sprint Feb. 11, 2014 *Ex Parte*, Sprint Spectrum Weighting Proposal Feb. 2014.

<sup>707</sup> *Id.* at iii.

<sup>708</sup> *Id.* at 3.

<sup>709</sup> *Id.* at 17.

<sup>710</sup> *Id.* at 18; *Appendix*.

<sup>711</sup> *Id.* at 22, Table 1. In rural areas, the weighting factor for Lower 700 MHz is 14 times the factor for BRS. In suburban areas, the weighting factor for Lower 700 MHz is 7 times the factor for BRS. In urban areas, the weighting factor for Lower 700 MHz is 2.5 times the factor for BRS.

<sup>712</sup> *Id.* at 22. For rural areas, the study uses a "free space" propagation model that includes an assumption of no obstructions to the signal. For suburban areas, the study uses the "Hata" propagation model, which relies on measurements of radio signal propagation in Japan. For urban areas, the study uses the free space propagation model for signal propagation from the base station to the edge of buildings, and then applies the in-building signal attenuation losses largely relying on a study of in-building propagation measurements in Canada in 2011. *Id.* at 8-13.

<sup>713</sup> *Id.* at 18-19.

271. AT&T, in its response, challenges the concept of spectrum weighting based on deployment costs, as well as a number of the engineering decisions and assumptions upon which the *Sprint Spectrum Weighting Proposal* is based.<sup>714</sup> In particular, AT&T challenges the assumptions regarding the extent to which companies are building out their systems for coverage rather than capacity,<sup>715</sup> the technical capabilities of spectrum in the provision of mobile wireless services,<sup>716</sup> and the relevance of service providers' existing resources.<sup>717</sup> AT&T concludes generally that these assumptions improperly increase the Sprint model's deployment costs of high-band spectrum versus low-band spectrum, generally by indicating that providers using high-band spectrum would need to build more facilities than would actually be required, and that spectrum weighting based upon these assumptions is therefore skewed.<sup>718</sup> Verizon Wireless argues that Sprint chooses to rely on just two spectrum characteristics to justify its proposal – propagation characteristics and deployment costs – and various other characteristics, including the interference environment of a particular spectrum band, the spectrum's capacity potential, the spectrum bands that are already incorporated into a provider's equipment, and the uses to which a provider plans to put the spectrum will all directly affect the value of a spectrum band.<sup>719</sup> Verizon Wireless further asserts that the value of particular spectrum bands will vary greatly over time.<sup>720</sup>

272. Sprint responds by arguing that the “[p]hysical limitations of frequency transmissions – to say nothing of advantages of incumbency, economies of scale, lock-in effects, thin markets, uneven and unsteady advances in technology, deployment costs, and operating expenses – mean that different bands are not freely substitutable.”<sup>721</sup> Sprint asserts that “[u]pdating the spectrum screen to recognize that all spectrum bands are not created equal,” would “promote competition, stimulate innovation, and ensure that wireless subscribers enjoy a vibrant wireless marketplace for years to come.”<sup>722</sup> In a very recent *ex parte* filing, Sprint has offered an additional proposal of a three-tiered weighting system in which high-, mid-, and low-band spectrum would be weighted by factors of 0.5, 1, and 1.5, respectively,<sup>723</sup> arguing that adding 2.5 GHz to the spectrum screen on an unweighted basis would not identify potentially anticompetitive transactions, while flagging for additional review transactions that pose little competitive concern.<sup>724</sup>

273. Utopian Wireless argues that “[i]f anything, such discretionary evaluation [as spectrum weighting] should only be done on a case-by-case basis where the spectrum screen is actually being

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<sup>714</sup> AT&T Mar. 14, 2014 *Ex Parte*.

<sup>715</sup> AT&T Mar. 14, 2014 *Ex Parte*, Attachment A, Declaration of Michael L. Katz, Philip A. Haile, Mark A. Israel, and Andres V. Lerner (Mar. 13, 2014) (“Katz et al Mar. 13, 2014 Decl.”) at 7-8.

<sup>716</sup> AT&T Mar 14, 2014 *Ex Parte* at 3-4 (citing *Comparison of Radio Propagation Characteristics at 700 and 2,500 MHz Pertaining to Macrocellular Coverage*, Ottawa (April 2011) at 24-25, available at [https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/smse-005-11-bell-apndix3.pdf/\\$FILE/smse-005-11-bell-apndix3.pdf](https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/smse-005-11-bell-apndix3.pdf/$FILE/smse-005-11-bell-apndix3.pdf)).

<sup>717</sup> AT&T Mar. 14, 2014 *Ex Parte*, Katz et al Mar. 13, 2014 Decl. at 8.

<sup>718</sup> AT&T Mar. 14, 2014 *Ex Parte* at 4-5.

<sup>719</sup> Verizon Wireless Mar. 10, 2014 *Ex Parte* at 2-3.

<sup>720</sup> *Id.* at 3.

<sup>721</sup> Sprint Apr. 7, 2014 *Ex Parte* at iii.

<sup>722</sup> *Id.*

<sup>723</sup> Sprint May 5, 2014 *Ex Parte*.

<sup>724</sup> *Id.* at 1. Sprint further argues that while it would exceed the spectrum screen in markets covering the majority of the U.S. population, the two firms “exhibiting the greatest potential for market dominance would gain significant headroom for further acquisitions.” *Id.*

applied to transactions and specific subject spectrum bands can be studied and carefully evaluated from an engineering, technical and public interest standpoint in the particular transaction proceeding."<sup>725</sup>

274. **Discussion.** We find that, in principle, spectrum weighting has the potential to enhance our competitive analysis of proposed spectrum acquisitions. However, we conclude that, at this time, we cannot justify, on the basis of the record, adopting specific weighting factors for each spectrum band. Nor can we justify adopting the revised three-tiered weighting system Sprint proposed in its recent *ex parte* filing, particularly given that Sprint does not explain how the “simplified” weights are based on Sprint’s prior proposals or other evidence.<sup>726</sup> Nonetheless, we observe that the data submitted on the record does demonstrate that there are significant differences in deployment costs between low-band and high-band spectrum, and, as discussed below,<sup>727</sup> we are able to consider those differences as a key factor in our case-by-case analysis moving forward.

275. We find that to establish specific weighting factors for each spectrum band based on band-specific signal propagation characteristics raises certain issues, including the underlying assumptions that are appropriate to make.<sup>728</sup> Further, we find that establishing specific weighting factors based on other factors, such as the “value” of the spectrum, also raises certain issues as prices paid at auction vary significantly over time based on a variety of factors not necessarily related to the characteristics of the spectrum being auctioned.<sup>729</sup>

276. We find that treating below-1-GHz spectrum concentration as an enhanced factor in our case-by-case analysis is a better approach at this time because we are able to distinguish between the characteristics of different frequency bands without imposing a weighting schema that may fail to accurately reflect their competitive significance. Based upon the record in this proceeding, we conclude that adopting a spectrum weighting schema would not be in the public interest at this time.

277. Sprint claims that “[by] treating all available commercial spectrum as equally useful . . . errors inherent in the FCC’s revised screen would result in a detailed competitive analysis of, or even prevent, acquisitions that present no particular competitive risk (*i.e.*, false positives) yet allow several anti-competitive acquisitions (*i.e.*, false negatives),” and further claims that “Verizon and T-Mobile could

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<sup>725</sup> Letter from Rudolph J. Geist, Chairman and CEO, Utopian Wireless, to Marlene H. Dortch, Secretary, FCC, WT Dkt. Nos. 12-268 and 12-269, filed May 1, 2014 at 2 (“Utopian May 1, 2014 *Ex Parte*”).

<sup>726</sup> Sprint Feb. 11, 2014 *Ex Parte*. Indeed, Sprint’s modified factors do not appear to be consistent with averaging across three spectrum ranges the band-specific weights previously proposed by Sprint.

<sup>727</sup> See *infra* Section VI.H.

<sup>728</sup> For instance, in rural areas, Sprint’s assumption that obstructions will have no effect on signal path loss does not take into account the likely attenuation of signals due to trees and terrain, and likely overestimates the difference in deployment costs as 14 times greater for the BRS band than the lower 700M Hz band in rural areas. Sprint Spectrum Weighting *Ex Parte*, Table 1 at 22. In contrast, AT&T’s assumptions regarding the deployment of “4 transmit antennas and 4 receive antennas at the eNodeB” for the BRS band likely underestimates that deployment in the BRS band only requires at most 2.7 times the number of sites than deployment in the 700 MHz band in rural areas. AT&T March 14, 2014 *Ex Parte*, Attachment at 20.

<sup>729</sup> For example, though Sprint attempts to factor in spectrum acquisition costs in its comparison of the total costs of providing service using high-band spectrum with the total costs of providing service using low-band spectrum, it does not explain how it determined the “[t]ypical prices to access 20 megahertz of spectrum, which could be used to provide 4G LTE.” See Sprint Apr. 7, 2014 *Ex Parte* at 9. Indeed, Sprint acknowledges some of the challenges in estimating acquisition costs for particular spectrum bands. See Sprint Apr. 7, 2014 *Ex Parte* at 9 & n.38 (noting that “estimates for rural spectrum are necessarily difficult based on the very limited number of rural spectrum transactions” but also asserting that “spectrum licensing costs represent such a small percentage of the overall ten-year net present expense.”) AT&T asserts that the numbers Sprint assumed for acquisition costs for different bands are not reasonable. See AT&T-Lawson May 7, 2014 *Ex Parte* at 7-8.



merge without triggering the screen in over 92% of US counties....<sup>730</sup> These concerns are unfounded. Contrary to Sprint's assertions, the revised screen would not "prevent" any transactions; it is a screen, not a cap, and the Commission retains the authority to approve proposed transactions that are in the public interest, even if those transactions trigger the spectrum screen.<sup>731</sup> Nor, contrary to Sprint's assertions, would the revised screen "allow anti-competitive acquisitions;" it is a screen, not a safe harbor, and the Commission retains the authority to deny proposed transactions that are not in the public interest, even if they do not trigger the spectrum screen. With regard to transactions that include operating businesses including customers, the Commission's case-by-case review would include an HHI analysis,<sup>732</sup> independent of the spectrum screen, to determine if a transaction were in the public interest.

278. Sprint argues that it is "inconsistent" for the Commission to justify a market-based spectrum reserve for 600 MHz spectrum but to decline to adopt spectrum weighting.<sup>733</sup> As discussed above, the Commission is required, among other things, to avoid excessive concentration of licenses by disseminating licenses among a wide variety of applicants.<sup>734</sup> We have also noted the Department of Justice's concerns about foreclosure,<sup>735</sup> and the special concerns associated with the greenfield spectrum.<sup>736</sup> While these concerns support the establishment of a market-based spectrum reserve, as well as a general distinction between below-1-GHz and above-1-GHz spectrum, they do not support an assignment of specific weighting factors to individual spectrum bands, based on the record to date.

#### H. Factors Considered in Competitive Analysis

279. **Background.** In its evaluation of proposed secondary market transactions, the Commission broadly assesses whether and to what extent proposed acquisitions of wireless spectrum could affect downstream competition in the mobile telephony/broadband services marketplace.<sup>737</sup> In particular, the Commission's competitive analysis of wireless transactions focuses initially on those markets identified by the screen where the acquisition of customers and/or spectrum would result in significant concentration of either or both, and thereby could lead to competitive harm.<sup>738</sup> As discussed above, however, the Commission has not limited its consideration of potential competitive harms solely to markets identified by its initial screen if it encounters other factors that may bear on the public interest inquiry.<sup>739</sup> Specifically, the Commission has considered concentration of below-1-GHz holdings,<sup>740</sup> and concentration of spectrum within a specific band.<sup>741</sup>

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<sup>730</sup> Sprint May 5, 2014 *Ex Parte* at 3-4. We do not, as Sprint claims, "treat[] all commercial spectrum as equally useful." Although we do not adopt spectrum weighting based upon Sprint's calculation of "the competitive impact of the respective bands," we have modified the spectrum screen to reflect relevant limitations, for example, white spaces in the EBS service, discounting that spectrum by approximately 16.5 percent. *See supra* Section IV.E.

<sup>731</sup> Moreover, Sprint acknowledges that its spectrum holdings would be below the screen trigger by, on average, approximately six megahertz. *See* Sprint May 5, 2014 *Ex Parte* at 4-5.

<sup>732</sup> *See supra* n.34.

<sup>733</sup> Sprint May 1, 2014 *Ex Parte* at 2.

<sup>734</sup> *Communications Act*, § 309(j)(3) codified at 47 U.S.C. § 309(j)(3).

<sup>735</sup> DOJ Apr. 11, 2013 *Ex Parte* at 10-11.

<sup>736</sup> *See supra* ¶ 15 (citing *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10725 ¶ 72). We note that the greenfield spectrum at issue in the *Verizon Wireless-SpectrumCo Order* was AWS-1 spectrum, not low-band spectrum.

<sup>737</sup> *See Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10721-22 ¶ 64.

<sup>738</sup> *See, e.g., SoftBank-Sprint Order*, 28 FCC Rcd at 9656 ¶ 34.

<sup>739</sup> *See, e.g., SoftBank-Sprint Order*, 28 FCC Rcd at 9656 ¶ 35; *AT&T WCS Order*, 27 FCC Rcd at 16467 ¶ 21; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10716 ¶ 48; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17609-10 ¶¶ 49-50.

280. In its transactions analyses, the Commission has considered various other factors that help to predict the likelihood of competitive harm post-transaction. These competitive variables include, but are not limited to: the total number of rival service providers; the number of rival firms that can offer competitive nationwide service plans; the coverage by technology of the firms' respective networks; the rival firms' market shares; the combined entity's post-transaction market share and how that share changes as a result of the transaction; the amount of spectrum suitable for the provision of mobile telephony/broadband services controlled by the combined entity; and the spectrum holdings of each of the rival service providers.<sup>742</sup> We note that it is important to recognize that many transactions are more than spectrum transfers; they involve the disappearance of a separate business enterprise as an ongoing potential competitive constraint and source of innovations in services and marketing.

281. In the *Mobile Spectrum Holdings NPRM*, the Commission asked if it should adopt guidelines setting forth the factors that will be considered during any review of a licensee's mobile spectrum holdings or delegate authority to the Wireless Telecommunications Bureau to do so.<sup>743</sup> Several commenters, including CCA, Free Press, and Professor Jon Peha, assert that the Commission should consider the extent to which an entity proposing to acquire spectrum needs that spectrum to compete, as well as that entity's level of utilization of its existing spectrum holdings.<sup>744</sup> AT&T responds that the Commission's judgment regarding efficient spectrum use by a provider is not preferable to the market disciplines that ensure efficient spectrum use (e.g., cost of capital, spectrum acquisition).<sup>745</sup> Other potential factors raised by commenters for consideration in our case-by-case review include the concentration of spectrum in a particular band;<sup>746</sup> the level of special access competition in the market,<sup>747</sup> and opportunities for designated entities.<sup>748</sup>

282. **Discussion.** The Commission retains the authority to consider all factors that could affect the likely competitive impact of proposed transactions, and declines to adopt a formal set of guidelines at this time. For instance, we do not find sufficient evidence in the record to support the adoption of the specific standards advocated by commenters regarding spectrum utilization or spectrum weighting. Nonetheless, we retain the right to consider such factors in specific future transactions, as the Commission has "encouraged the use of secondary market transactions ... to transition unused spectrum to more efficient use and allow network providers to obtain access to needed spectrum for broadband deployment."<sup>749</sup> In addition, parties are free to bring such matters to the Commission's attention. Further, we affirm our continued use of the factors considered in the Commission's case-by-case analyses

(Continued from previous page)

<sup>740</sup> See *AT&T-Qualcomm Order*, 26 FCC Rcd at 17610-11 ¶ 49.

<sup>741</sup> See *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10722 ¶ 64.

<sup>742</sup> See, e.g., *Alaska Wireless Order*, 28 FCC Rcd at 10454-56 ¶¶ 51-55; *AT&T WCS Order*, 27 FCC Rcd at 16472 ¶ 34; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10725-26 ¶ 72.

<sup>743</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11719 ¶ 18.

<sup>744</sup> See CCA Comments at 17-18; MetroPCS Comments at 13-16; Free Press Comments at 16-17; Public Knowledge Comments at 14-16.

<sup>745</sup> See AT&T Comments at 73-77; AT&T Comments, Katz/Israel Declaration at 70-72.

<sup>746</sup> See MetroPCS Comments at 15-16.

<sup>747</sup> See CCA Comments at 17-18.

<sup>748</sup> See also MMTc Mar. 14, 2014 *Ex Parte*, Trigg and Ghatt at 29. ("The secondary markets policy also helps the FCC meet its obligation to promote efficient spectrum use of a scarce commodity among a wide range of competitors, including" minority-owned business enterprises ("MBEs.")). For discussion of bidding credits, see *Incentive Auction Report and Order*, FCC No. 14-50, at Section IV.C.

<sup>749</sup> See *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10715 ¶ 46 (citing Connecting America: The National Broadband Plan at 83, Recommendation 5.7 (rel. Mar. 16, 2010)).

to date of the potential competitive impacts of further concentration of spectrum in particular markets, as discussed above.<sup>750</sup> With respect to concentration of spectrum in a particular band, we note that in the *Verizon Wireless-SpectrumCo Order*, the Commission observed that that aggregation of spectrum within a specific band may by itself raise competitive issues, citing the potential for competitive harm due to concentration of AWS-1 spectrum.<sup>751</sup> We continue to hold the view that band concentration may be a relevant factor to consider in the Commission's case-by-case analysis, and recognize that changes in technology and the marketplace may result in band-specific concentrations warranting increased scrutiny.

283. In addition, and as discussed at length above, certain frequencies possess distinct characteristics for the provision of mobile wireless services,<sup>752</sup> and a service provider is best positioned if it holds spectrum licenses for both low- and high-band spectrum.<sup>753</sup> We also find that spectrum holdings by service provider in the limited low- (*i.e.*, below-1-GHz) bands have become particularly concentrated.<sup>754</sup> We have concerns about the potential effects of further concentration of below-1-GHz spectrum on competition and innovation in the mobile wireless services marketplace. Contrary to the urgings of some parties, we decide not to adopt a separate below-1-GHz screen or cap at this time. Building on the Commission's precedent in the past few years,<sup>755</sup> however, we will treat certain further concentration of below-1-GHz spectrum as an enhanced factor in our case-by-case analysis of the potential competitive harms posed by individual transactions, as described below.

284. We currently consider a variety of factors in our case-by-case analysis of spectrum acquisition through transactions—including, but not limited to the total number of rival service providers; the number of rival firms that can offer competitive service plans; the coverage by technology of the firms' respective networks; the rival firms' market shares; the amount of spectrum suitable for the provision of mobile telephony/broadband services controlled by the combined entity; the spectrum holdings of each of the rival service providers; the acquisition of below-1-GHz spectrum nationwide; and concentration in a particular band with an important ecosystem.

285. In analyzing spectrum acquisitions based on these factors, we generally determine, based on the totality of the circumstances, whether there is an increased ability or incentive for the acquiring firm to successfully raise prices or otherwise engage in anti-competitive behavior.<sup>756</sup> We then employ a balancing test weighing any potential public interest harms against any potential public interest benefits,<sup>757</sup> and the applicants bear the burden of proving, by a preponderance of the evidence, that the proposed transaction, on balance, will serve the public interest.<sup>758</sup>

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<sup>750</sup> See, e.g., *Alaska Wireless Order*, 28 FCC Rcd at 10454-56 ¶¶ 51-55; *AT&T WCS Order*, 27 FCC Rcd at 16472 ¶ 34; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10725-26 ¶ 72.

<sup>751</sup> See *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10726 ¶ 74 (The Commission noted that the AWS-1 spectrum at issue in that transaction was "crucial for certain rivals' LTE deployment and broadband growth" and Verizon Wireless would have held almost half of all AWS-1 spectrum in many areas.).

<sup>752</sup> See Section III.C; see also, e.g., *16th Mobile Wireless Competition Report*, 28 FCC Rcd at 3789-93 ¶¶ 119-27. See also *15th Mobile Wireless Competition Report*, 26 FCC Rcd at 9832-39 ¶¶ 289-304, *14th Mobile Wireless Competition Report*, 25 FCC Rcd at 11570-75 ¶¶ 268-80.

<sup>753</sup> See *16th Mobile Wireless Competition Report*, 28 FCC Rcd at 3789 ¶ 119.

<sup>754</sup> See *16th Mobile Wireless Competition Report*, 28 FCC Rcd at 3783, 3786-87 ¶¶ 111, 116-18; RWA Comments at 8-9.

<sup>755</sup> See *AT&T-Qualcomm Order*, 26 FCC Rcd at 17609-11 ¶ 49.

<sup>756</sup> See, e.g., *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10724-27 ¶¶ 70-78; *AT&T-Leap Order*, 29 FCC Rcd at 2767-68 ¶¶ 75-76.

<sup>757</sup> See, e.g., *SoftBank-Sprint Order*, 28 FCC Rcd at 9650, ¶ 23; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10710, ¶ 28; *AT&T-Qualcomm Order*, 26 FCC Rcd 17589, 17598-99 ¶ 23.

<sup>758</sup> See *supra* note 757.

286. In implementing this approach going forward, we anticipate that any entity that would end up with more than one third of below-1-GHz spectrum as a result of a proposed transaction would facilitate our case-by-case review with a detailed demonstration regarding why the public interest benefits outweigh harms. When the other factors we ordinarily consider indicate a low potential for competitive or other public interest harm, the acquisition of below-1-GHz spectrum resulting in holdings of approximately one-third or more of such spectrum will not preclude a conclusion that a proposed transaction, on balance, furthers the public interest. Absent that, however, any transaction that would result in an entity holding approximately one-third or more of suitable and available below-1-GHz spectrum will more likely be found to cause competitive harm in our case-by-case review.

287. Consistent with our overall concerns about the potential public interest harms regarding the concentration of below-1-GHz spectrum, we anticipate that we likely would have even greater concerns where the proposed transaction would result in an assignee or transferee that already holds approximately one-third or more of below-1-GHz spectrum in a market acquiring additional below-1-GHz spectrum in that market, especially with regard to paired low-band spectrum. In these cases, the demonstration of the public interest benefits of the proposed transaction would need to clearly outweigh the potential public interest harms associated with such additional concentration of below-1-GHz spectrum, irrespective of other factors. For instance, applicants could provide a particularly detailed showing in such cases that they currently are maximizing the use of their spectrum and how the proposed transaction is necessary to maintain, enhance, or expand services provided to consumers. We believe such a showing would be required to achieve our goal of ensuring that the ability of rival service providers to offer a competitive response to any price increase or to offer new innovative services is not eliminated or significantly lessened.

288. For these reasons, we find that considering additional below-1-GHz spectrum concentration as an enhanced factor in our review of secondary market transactions will help ensure that further concentration of such spectrum will not have adverse competitive effects either in particular local markets or on a broader regional or national level.

289. In addition, although we decline to adopt specific weighting factors for each band, or for groups of bands, we recognize that differences between spectrum bands can be relevant to a determination of the public interest in the context of reviewing transactions. We will consider such differences in our case-by-case review of specific transactions. For example, applications involving small amounts of high-band spectrum, particularly EBS spectrum, likely would present limited potential for public interest harms.

## I. Remedies

290. **Background.** When necessary to prevent competitive harm, or to help ensure the realization of potential benefits promised for a transaction, the Commission may adopt transaction-specific remedies to ensure that the proposed transaction is in the public interest. In the past decade, the Commission has required divestiture of certain licenses,<sup>759</sup> commitments regarding roaming availability

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<sup>759</sup> See *AT&T-Verizon Wireless Order*, 25 FCC Rcd at 8718 ¶ 25; *AT&T-Centennial Order*, 24 FCC Rcd at 13929 ¶ 30; *Verizon Wireless-ALLTEL Order*, 23 FCC Rcd at 17463-64 ¶ 29; *Sprint-Clearwire Order*, 23 FCC Rcd at 17581-82 ¶ 22; *Cingular-AT&T Wireless Order*, 19 FCC Rcd at 21545-46 ¶ 43.

and rates,<sup>760</sup> interference protections,<sup>761</sup> accelerated build-out requirements and commitments,<sup>762</sup> limitations on management agreements,<sup>763</sup> various customer transition conditions,<sup>764</sup> as well as firewalls.<sup>765</sup>

291. In the *Mobile Spectrum Holdings NPRM*, the Commission sought comment on the remedies, including divestitures, that would be appropriate for the Commission to require to prevent competitive harm resulting from spectrum acquisitions.<sup>766</sup> In particular, the Commission sought comment on whether different approaches or types of divestitures would best serve the Commission's goals,<sup>767</sup> and whether we should adopt different criteria for divestiture based on whether the spectrum to be divested is from lower or upper frequency bands or is immediately "useable" by another licensee.<sup>768</sup> In addition, we sought comment on the extent to which we should remedy the potential harms posed by a transaction by placing other conditions, such as, for example, requirements to offer leasing, roaming or collocation, in conjunction with, or in lieu of, requiring divestitures.<sup>769</sup>

292. AT&T suggests that remedial action generally be taken only to prevent likely foreclosure, and be limited to divestiture of spectrum in the area where the purchaser's spectrum exceeds the screen.<sup>770</sup> AT&T further argues that the divesting party be permitted to determine what to divest and to whom.<sup>771</sup> In contrast, CCIA contends that the Commission should consider a "clustered approach" which requires divestitures of population centers to allow a prospective purchaser to offer a viable service and to minimize or prevent piecemeal divestiture.<sup>772</sup> CCIA suggests that Commission should ensure that divested spectrum is immediately "useable."<sup>773</sup> RWA and NTCA assert that any provider that seeks to avoid divestiture should be required to commit to offering data roaming and interoperable devices to its consumers.<sup>774</sup> AT&T contends that the Commission should not impose any conditions unrelated to spectrum aggregation concerns.<sup>775</sup>

293. **Discussion.** Based upon the record in this proceeding, we believe it is unnecessary to change our existing approach to protecting and promoting the public interest, including competition, through the application of transaction-specific remedies. Our case-by-case analysis allows the

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<sup>760</sup> See *Verizon Wireless-ALLTEL Order*, 23 FCC Rcd at 17546-47 ¶ 233; *AT&T-Qualcomm Order*, 26 FCC Rcd at 17613-14 ¶¶ 56-57, 17616-18 ¶¶ 61-68; *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10742-43 ¶¶ 120-21.

<sup>761</sup> See *AT&T-Qualcomm Order*, 26 FCC Rcd at 17613-14 ¶¶ 56-57, 17616-18 ¶¶ 61-68.

<sup>762</sup> *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10743 ¶ 121.

<sup>763</sup> See, e.g., *AT&T-Dobson Order*, 22 FCC Rcd at 20339 ¶ 96; *AT&T-Centennial Order*, 24 FCC Rcd at 13961-62 ¶ 113.

<sup>764</sup> See, e.g., *AT&T-ATN Order*, 28 FCC Rcd at 13722 ¶ 98; *AT&T-Leap Order*, 29 FCC Rcd at 2804 ¶ 169.

<sup>765</sup> See, e.g., *AT&T Centennial Order*, 24 FCC Rcd at 13980 ¶ 163; *Alaska Wireless Order*, 28 FCC Rcd at 10465 ¶ 77.

<sup>766</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11730 ¶ 44.

<sup>767</sup> *Id.*

<sup>768</sup> *Id.* at 11731 ¶ 45.

<sup>769</sup> *Id.* at 11731 ¶ 46.

<sup>770</sup> AT&T Comments at 57-58.

<sup>771</sup> AT&T Comments at 57-59, Katz-Israel Decl. ¶ 113-14.

<sup>772</sup> CCIA Comments at 22.

<sup>773</sup> *Id.* at 21.

<sup>774</sup> NTCA Reply at 4; RWA Comments at 10-12.

<sup>775</sup> AT&T Comments at 59-61.

Commission to carefully tailor remedies that address and ameliorate public interest harms or alternatively ensure that proposed public interest benefits are realized by consumers. We do not believe, and the record does not indicate, that the narrowly-tailored, fact-specific remedies the Commission has required in recent transactions have discouraged transactions that generally are in the public interest, and we do not conclude that any greater specificity with regard to remedies would significantly affect parties' willingness to enter into transactions. We find that the public interest benefits and public interest harms often are specific to each transaction, and that limiting possible remedies *ex ante* would undercut the benefits of case-by-case review, that is, the tailoring of the review, and remedies, to the specific circumstances of any given transaction. We do not see any evidence in the record that the use of tailored remedies has inhibited competitiveness-enhancing transactions, and we find that there are the pro-competitive effects of the Commission's policies on remediation. We decline to limit possible remedial action as AT&T suggests. The Commission's public interest analysis, which considers the near and long-term competitive effects of spectrum aggregation,<sup>776</sup> and which may have an impact beyond the local markets involved<sup>777</sup> should not be limited to a particular geographic location or spectrum band in proposing remedies to protect the public interest.

## VII. ATTRIBUTION OF INTERESTS IN LICENSE HOLDINGS

294. In this section, we set forth some bright line rules to attribute interests in determining spectrum holdings for purposes of calculating a party's relevant spectrum holding amounts before competitive bidding and for purposes of applying our initial spectrum screen to secondary market transactions.

295. **Background.** The Commission's attribution rules determine which of a licensee's spectrum interests count toward a licensee's mobile spectrum holdings.<sup>778</sup> The Commission has used various thresholds to determine ownership. In the cellular/PCS cross-ownership rule, the rules provided that partnership and other ownership interests and any stock interest amounting to 20 percent or more of the equity or outstanding stock of a cellular licensee were attributable.<sup>779</sup> The Commission also adopted a 20 percent threshold for its CMRS spectrum cap.<sup>780</sup> In *Cincinnati Bell*, the U.S. Court of Appeals for the Sixth Circuit remanded the 35 megahertz cellular/PCS cross-ownership cap and held that the 20 percent rule was arbitrary because the Commission failed to show that a 20 percent ownership interest conferred the ability to control the licensee.<sup>781</sup>

296. In the *Broadband PCS Second Report and Order*, the Commission eliminated section 24.204 and amended section 24.229 to eliminate the cellular/PCS cross-ownership rule and the PCS spectrum cap. The Commission therefore determined that the issue of whether to modify the attribution standard for section 24.204(d) was moot.<sup>782</sup> The Commission adopted a 45 megahertz CMRS spectrum cap in section 20.6.<sup>783</sup> It reaffirmed the 20 percent attribution standard for purposes of the 45 megahertz CMRS cap.<sup>784</sup> In doing so, the Commission stated that "even an entity that does not have *de facto* or *de*

<sup>776</sup> See *Verizon Wireless-SpectrumCo Order*, 27 FCC Rcd at 10716 ¶ 47.

<sup>777</sup> See, e.g., *Id.* at 10716 ¶ 48.

<sup>778</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11729 ¶ 40.

<sup>779</sup> 47 C.F.R. § 24(204)(d)(2)(ii) (adopted in *Broadband PCS Second Report and Order*, 8 FCC Rcd 7700; eliminated by *Remand Order*, 11 FCC Rcd 7824 (1996)).

<sup>780</sup> 47 C.F.R. § 20.6(d)(2). (eliminated as of Jan. 1, 2003).

<sup>781</sup> *Cincinnati Bell Telephone Company vs. FCC*, 69 F.3d 752 (6<sup>th</sup> Cir. 1995).

<sup>782</sup> *Broadband PCS Second Report and Order*, 11 FCC Rcd at 7880 ¶ 117.

<sup>783</sup> *Id.* at 7869 ¶ 94 (overview ¶ 4).

<sup>784</sup> *Id.* at 7880 ¶ 117.

*jure* control but owns a 20 percent or more interest in a licensee would have sufficient influence to reduce competition and should be subject to the CMRS spectrum aggregation limit.<sup>785</sup> The Commission noted that “[H]istorically, we have included for attribution purposes those ownership and other interests that convey a degree of control or ‘influence’ to their holder sufficient to warrant limitation.”<sup>786</sup> The Commission stated that the 20 percent attribution threshold, as opposed to the lower five or ten percent ownership benchmarks applicable in the cable and broadcast multiple ownership context, should apply for purposes of the CMRS spectrum cap “in order to encourage capital investment and business opportunities in CMRS.”<sup>787</sup> The Commission affirmed its previous determination that the 20 percent threshold would “allow a wide variety of players (*i.e.*, PCS, cellular and SMR providers) to enter the marketplace while still preventing anticompetitive practices that would have harmful effects on consumers.”<sup>788</sup>

297. When reviewing proposed transactions on a case-by-case basis, the Commission generally has considered all equity ownership interests of ten percent or more to be attributable, but it also has the flexibility to examine equity and non-equity ownership and other interests that do not meet the ten percent equity interest threshold, as the Commission deems those interests relevant.<sup>789</sup>

298. In the *Mobile Spectrum Holdings NPRM*, the Commission proposed to codify the attribution threshold and sought comment on proposed section 20.21 of the Commission’s Rules, which would apply to mobile spectrum holdings. Pursuant to the proposal, all controlling interest and non-controlling interests of ten percent or more would be attributable.<sup>790</sup> In addition, non-controlling interests of less than ten percent would be attributable if the Commission determined that the interest confers *de facto* control, including but not limited to partnership and other ownership interests and any stock interest in a licensee.<sup>791</sup> The Commission also sought comment on whether to include a specific waiver provision if it codified the rule.<sup>792</sup> In addition, consistent with its current practice, the Commission proposed to attribute long-term *de facto* transfer leasing arrangements and long-term spectrum manager leasing arrangements to the lessees, lessors, sublessees, and sublessors.<sup>793</sup>

299. Several commenters suggest increasing the attributable threshold. CCA and Clearwire support a 25 percent threshold, consistent with the foreign ownership threshold<sup>794</sup> and AT&T suggests a 20 percent threshold.<sup>795</sup> Verizon Wireless contends that the Commission’s existing approach “has generally worked well,” but that the Commission should consider increasing the ten percent standard (*e.g.* to 20 percent), upon certification that the interest does not convey “an ability to control or influence” the

<sup>785</sup> *Id.* at 7880 ¶ 118.

<sup>786</sup> *Id.* (citing *See Attribution Notice*, 10 FCC Rcd at 3609; *see also* 47 C.F.R. § 20.6(d)(9) (attributing certain management agreements)). “Influence” has been viewed as “an interest that is less than controlling, but through which the holder is likely to induce a licensee or permittee to take actions to protect the investment.” *Broadband PCS Second Report and Order*, 11 FCC Rcd at 7880 ¶ 118 (citing *Attribution Notice*, 10 FCC Rcd at 3609-10).

<sup>787</sup> *Broadband PCS Second Report and Order*, 11 FCC Rcd at 7881 ¶ 119.

<sup>788</sup> *Id.*

<sup>789</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11729 ¶ 41. In the *Sprint- Clearwire Order*, the Commission declined to attribute interests below ten percent. 23 FCC Rcd at 17601-02 ¶ 78. *See also Cingular-AT&T Wireless Order*, 19 FCC Rcd at 21624 ¶¶ 265-66 (requiring to divest partial ownership interests of less than ten percent).

<sup>790</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11735-36 Appendix A.

<sup>791</sup> *Id.*

<sup>792</sup> *Id.*

<sup>793</sup> *Id.* *See also Trigg and Ghatt Ex Parte* at 28 (describing spectrum leasing arrangements as “a vital component of business models utilized by MBEs”).

<sup>794</sup> CCA Comments at 14, 16; CCA Reply at 14; Clearwire Comments at 7.

<sup>795</sup> AT&T Comments at 79-81, AT&T Reply at 47-48.

use of the spectrum.<sup>796</sup> RWA states that a ten percent attribution threshold is appropriate, but notes that an ownership interest of less than ten percent should be attributed if *de facto* control exists.<sup>797</sup> CCIA and Public Knowledge favor a case-by-case approach to determining applicable attribution limits.<sup>798</sup> Sprint and CCIA caution that if the Commission decides to adopt attribution rules, they should not discourage alternative spectrum arrangements, such as spectrum sharing.<sup>799</sup> CCA supports counting interests that are competitively significant.<sup>800</sup> Verizon Wireless supports eliminating the limited partnership attribution policy, stating that such interests do not convey control of the licensee's spectrum operations.<sup>801</sup> Verizon Wireless also states that leased spectrum holdings should be attributed to the lessees, but not the licensee.<sup>802</sup>

300. **Discussion.** We find insufficient evidence in the record to support any modifications to our current practices for attribution. The Commission has developed its current practices over the years through its case-by-case review of secondary market transactions and related transfer of control applications. Therefore, we find that retaining the current ten percent attribution threshold will serve the public interest. Accordingly, all controlling interests and non-controlling interests of ten percent or more would be attributable.<sup>803</sup> In addition, interests of less than ten percent would be attributable if the interest confers *de facto* control, including but not limited to partnership and other ownership interests and any stock interest in a licensee.<sup>804</sup> We also codify these rules for purposes of determining spectrum holdings amounts before an auction. We find that codifying the rules will provide additional transparency and clarity for applicants and prospective auction participants. We also conclude that the general waiver standard provided in Section 1.925 of the Commission's rules provides sufficient guidance for applicants seeking to waive of these attribution rules.<sup>805</sup>

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<sup>796</sup> Verizon Wireless Comments at 41.

<sup>797</sup> RWA Comments at 10.

<sup>798</sup> CCIA Comments at 22-24; Public Knowledge Reply at 10. *See also* MetroPCS Comments at 18.

<sup>799</sup> Sprint Reply at 28-29; CCIA Comments at 24-25.

<sup>800</sup> Letter from Matthew A. Brill, Latham & Watkins, LLP, Counsel for CCA, to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 12-269, filed Feb. 15, 2013, Attachment, Policies Regarding Mobile Spectrum Holdings at 12.

<sup>801</sup> Verizon Wireless Comments at 41.

<sup>802</sup> *Id.*

<sup>803</sup> This standard is consistent with that adopted by Congress in defining ownership interests for purposes of the affiliation definition in the Communications Act. 47 U.S.C. § 153(2). It also provides greater flexibility than the five percent attribution threshold for the Commission's media ownership rules, which have been designed to include as cognizable interests not only those conferring control but also those likely to result in potential influence over the operations of a competing licensee. See 47 C.F.R. §§ 73.3555 note 2a; 76.501 note 2(a); Reexamination of the Commission's Rules and Policies Regarding the Attribution of Ownership Interests in Broadcast, Cable Television and Newspaper Entities, *Report and Order*, 97 F.C.C.2d 997 (1984). For similar reasons, the Commission has adopted a five percent (or, in some cases, ten percent) threshold for purposes of identifying those individual foreign ownership interests requiring specific Commission approval, for common carrier licensees proposing to exceed the aggregate foreign ownership limits set forth in 47 U.S.C. § 310(b). Review of Foreign Ownership Policies for Common Carrier and Aeronautical Radio Licensees under Section 310(b)(4) of the Communications Act of 1934, as Amended, *Second Report and Order*, 28 FCC Rcd 5441, 5766-79 ¶¶ 44-67 (2013). Our established 10 percent standard also appropriately reflects the evolution of the wireless industry, as discussed in Section III.B *supra*, since the establishment of the CMRS spectrum cap, when there was a need to promote "the role that existing infrastructure and technologies can play in speeding the deployment" of service. *See Broadband PCS Second Report and Order*, 11 FCC Rcd at 7881-83 ¶¶ 118-23.

<sup>804</sup> *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd at 11735-36 Appendix A.

<sup>805</sup> 47 C.F.R. § 1.95.



301. Consistent with our current practice, we also attribute long-term *de facto* transfer leasing arrangements and long-term spectrum manager leasing arrangements to the lessor and the lessee, including sublessors and sublessees.<sup>806</sup> We are not persuaded by Verizon Wireless's argument that leased spectrum should not be attributed to the licensee. Pursuant to Section 310(d) of the Communications Act, the licensee continues to be responsible for ensuring compliance with applicable Commission policies and rules during the term of its license, notwithstanding the existing lease. Spectrum leasing arrangements are arrangements between a licensed entity and a third-party entity in which the licensee leases certain of its spectrum usage rights in the licensed spectrum to the third-party entity, the spectrum lessee.<sup>807</sup> Leasing provides lessees the flexibility to lease a small or large quantity of spectrum for short or longer time periods depending on their business needs.<sup>808</sup> We will attribute only the long-term spectrum leasing arrangements, with limited exceptions, to both lessee and lessor.<sup>809</sup>

302. The attribution rule set forth in Appendix B will apply to determine partial ownership and other interests in spectrum holdings for purposes of: (1) applying a mobile spectrum holding limit to the licensing of spectrum through competitive bidding; and (2) applying the initial spectrum screen to secondary market transactions.<sup>810</sup>

## VIII. PROCEDURAL MATTERS

### A. Final Regulatory Flexibility Analysis

303. The Regulatory Flexibility Act (RFA)<sup>811</sup> requires that agencies prepare a regulatory flexibility analysis for notice-and-comment rulemaking proceedings, unless the agency certifies that "the rule will not have a significant economic impact on a substantial number of small entities."<sup>812</sup> Accordingly, we have prepared a Final Regulatory Flexibility Analysis (FRFA) concerning the possible impact of the rule changes contained in the *Report and Order* on small entities. The FRFA is set forth in Appendix A.

### B. Paperwork Reduction Act Analysis

304. The Report and Order contains new or modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new or modified information collection requirements contained in this proceeding. In addition, we note that pursuant to the Small

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<sup>806</sup> Long-term *de facto* transfer leasing arrangements are defined as arrangements that have individual terms, or series of combined terms, of more than one year. 47 C.F.R. § 1.19003.

<sup>807</sup> See Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, WT Dkt. No. 00-230, *Report and Order and Further Notice of Proposed Rulemaking*, 18 FCC Rcd 20604, 24817 ¶ 44 (2003) (*Secondary Markets First Report and Order*). See also *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd at 3782-83 ¶ 109.

<sup>808</sup> *16<sup>th</sup> Mobile Wireless Competition Report*, 28 FCC Rcd at 3782-83 ¶ 109 (citing *Secondary Markets First Report and Order*, 18 FCC Rcd 24817 ¶ 44 (2003)).

<sup>809</sup> See e.g. *SoftBank-Sprint Order*, 28 FCC Rcd at 9660-61 ¶ 44; Application of SprintCom, Inc. and Alaska Digital, LLC for Long-Term De Facto Transfer Spectrum Leasing Arrangement, *Mem. Op. and Order*, DA 09-116, 24 FCC Rcd 435 (WTB 2009).

<sup>810</sup> See *infra* Appendix B. Consistent with our current practice, if, after applying our initial screen, our analysis of a particular market reveals concerns with respect to attribution due to a particular organizational or financial relationship, we may evaluate such relationships in the context of the relevant secondary market transaction.

<sup>811</sup> See 5 U.S.C. § 601 *et seq.* The RFA has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857.

<sup>812</sup> 5 U.S.C. § 605(b).

Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4), we previously sought specific comment on how the Commission might further reduce the information collection burden for small business concerns with fewer than 25 employees.

305. In this present document, we have assessed the effects of modifying reporting rules, and find that doing so does not change the burden on small businesses with fewer than 25 employees.

**C. Further Information**

306. For additional information on this proceeding, contact Amy Brett of the Spectrum and Competition Policy Division, Wireless Telecommunications Bureau, at (202) 418-1310 or Amy.Brett@fcc.gov or Daniel Ball of the Spectrum and Competition Policy Division, Wireless Telecommunications Bureau, at (202) 418-1310 or Daniel.Ball@fcc.gov.

**IX. ORDERING CLAUSES**

307. ACCORDINGLY, IT IS ORDERED, pursuant to sections 1, 4(i), 201, 301, 303, 307, 308, 309, 310, 316, and 332 of the Communications Act of 1934, as amended, and sections 6003, 6401, 6402, 6403, and 6404 of the Middle Class Tax Relief Act of 2012, Pub. L. No. 112-96, 126 Stat. 156, 47 U.S.C. §§ 151, 154(i), 201, 301, 303, 307, 308, 309, 310, 316, 332, 1403, 451, and 1452, that this Report and Order IS HEREBY ADOPTED.

308. IT IS FURTHER ORDERED that the rules adopted herein WILL BECOME EFFECTIVE 60 days after the date of publication in the *Federal Register*, except for those rules and requirements which contain new or modified information collection requirements that require approval by the Office of Management and Budget (“OMB”) under the Paperwork Reduction Act (PRA) and WILL BECOME EFFECTIVE after the Commission publishes a notice in the *Federal Register* announcing such approval and the relevant effective date.

309. IT IS FURTHER ORDERED that, pursuant to Section 801(a)(1)(A) of the Congressional Review Act, 5 U.S.C. § 801(a)(1)(A), the Commission SHALL SEND a copy of this *Report and Order* to Congress and to the Government Accountability Office.

310. IT IS FURTHER ORDERED that the Commission’s Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this *Report and Order*, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch  
Secretary

## APPENDIX A

## List of Commenters\*

<b>Commenters</b>	<b>Abbreviation</b>
Ad Hoc Telecommunications Users Committee	Ad Hoc
AT&T	AT&T
Clearwire	Clearwire
Communications Liberty and Innovation Project	CLIP
Competitive Carriers Association	CCA
Computer & Communication Industry Association	CCIA
Consumer Electronics Association and Expanding Opportunities for Broadcasters Coalition*	CEA
CTIA – The Wireless Association	CTIA
Free Press	Free Press
Internet Innovation Alliance	IIA
MetroPCS Communications,	MetroPCS
Mobile Future	Mobile Future
NTCH	NTCH
Public Knowledge	Public Knowledge
Rural Wireless Associations/ Rural Telecommunications Group	RWA
Sprint Nextel	Sprint
TechFreedom	TechFreedom
Telecommunications Industry Association	TIA
T-Mobile USA	T-Mobile
United States Cellular	USCC
Verizon, Verizon Wireless	Verizon Wireless
Writers Guild of America, West	WGA
<b>Reply Commenters</b>	
AT&T	AT&T
Clearwire	Clearwire
Communications Liberty and Innovation Project	CLIP
Competitive Carriers Association	CCA
Free Press	Free Press
Leap Wireless International and Cricket Communications	Leap
Mobile Future	Mobile Future
National Telecommunications Cooperative Association	NTCA
Public Knowledge	Public Knowledge
Rural Wireless Associations/ Rural Telecommunications Group	RWA
Sprint Nextel	Sprint
T-Mobile USA	T-Mobile
United States Cellular	USCC
Verizon, Verizon Wireless	Verizon Wireless

\* For a list of Commenters and Reply Commenters in Dkt. No. 12-268, see *Incentive Auction Report and Order*, Appendix A.

**APPENDIX B****Final Rules**

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 CFR part 20 as follows:

**PART 20 – COMMERCIAL MOBILE SERVICES**

1. The authority citation for Part 20 continues to read as follows:  
Authority: 47 U.S.C. 154, 160, 201, 251-254, 301, 303, 316, and 332 unless otherwise noted.  
Section 20.12 is also issued under 47 U.S.C. 1302.
2. Part 20 – COMMERCIAL MOBILE SERVICES is amended by adding section 20.22 to read as follows:

**§ 20.22 Rules Governing Mobile Spectrum Holdings**

(a) Applicants for mobile wireless licenses for commercial use, for assignment or transfer of control of such licenses, or for long-term *de facto* transfer leasing arrangements as defined in § 1.9003 of Subpart X of Part 1 of these rules and long-term spectrum manager leasing arrangements as identified in § 1.9020(e)(1)(ii) must demonstrate that the public interest, convenience, and necessity will be served thereby. The Commission will evaluate any such license application consistent with the policies set forth in Policies Regarding Mobile Spectrum Holdings, *Report and Order*, FCC 14-63, WT Docket No. 12-269, adopted May 15, 2014.

(b) **Attribution of Interests.** The following criteria will apply to attribute partial ownership and other interests in spectrum holdings for purposes of: (1) applying a mobile spectrum holding limit to the licensing of spectrum through competitive bidding; and (2) applying the initial spectrum screen to secondary market transactions.

(1) Controlling interests shall be attributable. Controlling interest means majority voting equity ownership, any general partnership interest, or any means of actual working control (including negative control) over the operation of the licensee, in whatever manner exercised.

(2) Non-controlling interests of 10 percent or more in spectrum shall be attributable. Interests of less than 10 percent in spectrum shall be attributable if such interest confers *de facto* control, including but not limited to partnership and other ownership interests and any stock interest in a licensee.

(3) The following interests in spectrum shall also be attributable to holders:

(i) Officers and directors of a licensee shall be considered to have an attributable interest in the entity with which they are so associated. The officers and directors of an entity that controls a licensee or applicant shall be considered to have an attributable interest in the licensee.

(ii) Ownership interests that are held indirectly by any party through one or more intervening corporations will be determined by successive multiplication of the ownership percentages for each link in the vertical ownership chain and application of the relevant attribution benchmark to the resulting product, except that if the ownership percentage for an interest in any link in the chain exceeds 50 percent or represents actual control, it shall be treated as if it were a 100 percent interest. (For example, if A owns 20% of B, and B owns 40% of licensee C, then A's interest in licensee C would be 8%. If A owns 20% of B, and B owns

51% of licensee C, then A's interest in licensee C would be 20% because B's ownership of C exceeds 50%).

(iii) Any person who manages the operations of a licensee pursuant to a management agreement shall be considered to have an attributable interest in such licensee if such person, or its affiliate, has authority to make decisions or otherwise engage in practices or activities that determine, or significantly influence, the nature or types of services offered by such licensee, the terms upon which such services are offered, or the prices charged for such services.

(iv) Any licensee or its affiliate who enters into a joint marketing arrangement with another licensee or its affiliate shall be considered to have an attributable interest in the other licensee's holdings if it has authority to make decisions or otherwise engage in practices or activities that determine or significantly influence the nature or types of services offered by the other licensee, the terms upon which such services are offered, or the prices charged for such services.

(v) Limited partnership interests shall be attributed to limited partners and shall be calculated according to both the percentage of equity paid in and the percentage of distribution of profits and losses.

(vi) Debt and instruments such as warrants, convertible debentures, options, or other interests (except non-voting stock) with rights of conversion to voting interests shall not be attributed unless and until converted or unless the Commission determines that these interests confer *de facto* control.

(vii) Long-term *de facto* transfer leasing arrangements as defined in § 1.9003 of Subpart X of Part 1 of these rules and long-term spectrum manager leasing arrangements as identified in § 1.9020(e)(1)(ii) that enable commercial use shall be attributable to lessees, lessors, sublessees, and sublessors for purposes of this section.

**(c) 600 MHz Band Holdings.**

(1) The Commission will reserve licenses for up to 30 megahertz of the 600 MHz Band, offered in the Incentive Auction authorized by Congress pursuant to 47 U.S.C. § 309(j)(8)(G), for otherwise qualified bidders who do not hold an attributable interest in 45 megahertz or more of the total 134 megahertz of below-1-GHz spectrum which consists of the cellular (50 megahertz), the 700 MHz (70 megahertz), and the SMR (14 megahertz) spectrum in a Partial Economic Area (PEA), as calculated on a county by county population-weighted basis, utilizing 2010 U.S. Census data. The amount of reserved and unreserved 600 MHz Band licenses will be determined based on the market-based spectrum reserve set forth in Policies Regarding Mobile Spectrum Holdings, *Report and Order*, FCC 14-63, WT Docket No. 12-269, adopted May 15, 2014, as well as subsequent Public Notices. Nothing in this subsection (c)(1) will limit, or may be construed to limit, an otherwise qualified bidder that is a non-nationwide provider of mobile wireless services from bidding on any reserved or unreserved license offered in the Incentive Auction.

(2) For a period of six years, after initial licensing, no 600 MHz Band license, regardless of whether it is reserved or unreserved, may be transferred, assigned, partitioned, disaggregated, or long term leased to any entity that, after consummation of the transfer, assignment, or leased on a long term basis, would hold an attributable interest in one-third or more of the total suitable and available below-1-GHz spectrum as calculated on a county by county population-weighted basis in the relevant license area, utilizing 2010 U.S. Census data.

(3) For a period of six years, after initial licensing, no 600 MHz Band reserved license may be transferred, assigned, partitioned, disaggregated, or leased on a long term basis to an entity that was not qualified to bid on that reserved spectrum license under subsection (c)(1) of this section at the time of the Incentive Auction short-form application deadline.

## APPENDIX C

## Final Regulatory Flexibility Act Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),<sup>1</sup> an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notice of Proposed Rulemaking*.<sup>2</sup> The Wireless Telecommunications Bureau (WTB) sought written public comment on the proposals in the *Notice*, including comment on the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.<sup>3</sup>

2. We believe that it would serve the public interest to analyze the possible significant economic impact on small entities of the policy and rule changes in the Mobile Spectrum Holdings Report and Order. Accordingly, this FRFA contains an analysis of this impact in connection with the adoption in the Report and Order of mobile spectrum holdings rule changes meant to protect and promote competition for the benefit of consumers, while facilitating greater transparency and predictability to better allow service providers to make investment and transactional decisions.

**A. Need for, and Objectives of, the Report and Order**

3. The Commission is under a Congressional mandate to manage spectrum to promote economic opportunity, competition, innovation, and service accessibility. In the wake of recent industry trends, both in service evolution and marketplace structure, the Commission has revisited its mobile spectrum holdings rules and policies. We adopt several mobile spectrum holdings policies today: entering the spectrum screen into FCC rules; specifying which spectrum blocks are included in the spectrum screen; replacing case-by-case, post-auction spectrum screen analysis with consideration of auction specific spectrum limits; and reserving a certain amount of 600 MHz spectrum in order to ensure against excessive concentration in holdings of below-1-GHz spectrum. These policies will promote consumer choice and competition among multiple service providers, and consistent with our statutory mandate, will promote the efficient and intensive use of scarce spectrum as well as maximizing economic opportunity and the deployment of innovative technologies. By acting today, we seek to minimize the risk of the lessening of competition in the future due to the likelihood that an insufficient number of service providers would have access to the mix of low- and high-band spectrum needed to ensure robust competition in the mobile wireless marketplace.

**B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA**

4. There were no comments filed that specifically addressed the rules and policies proposed in the IRFA.

**C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Would Apply**

5. The RFA directs agencies to provide a description of, and, where feasible, an estimate of, the number of small entities that may be affected by the rules adopted herein.<sup>4</sup> The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>5</sup> In addition, the term “small business” has the same meaning as

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<sup>1</sup> See 5 U.S.C. § 603. The RFA, see 5 U.S.C. § 601 – 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

<sup>2</sup> See *Mobile Spectrum Holdings NPRM*, 27 FCC Rcd 11737-52, App. B.

<sup>3</sup> See 5 U.S.C. § 604.

<sup>4</sup> 5 U.S.C. § 604(a)(3).

<sup>5</sup> 5 U.S.C. § 601(6).

the term “small business concern” under the Small Business Act.<sup>6</sup> A “small business concern” is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).<sup>7</sup>

6. **Small Businesses, Small Organizations, and Small Governmental Jurisdictions.** Our action may, over time, affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three comprehensive, statutory small entity size standards.<sup>8</sup> First, nationwide, there are a total of approximately 27.5 million small businesses, according to the SBA.<sup>9</sup> In addition, a “small organization” is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”<sup>10</sup> Nationwide, as of 2007, there were approximately 1,621,315 small organizations.<sup>11</sup> Finally, the term “small governmental jurisdiction” is defined generally as “governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.”<sup>12</sup> Census Bureau data for 2011 indicate that there were 89,476 local governmental jurisdictions in the United States.<sup>13</sup> We estimate that, of this total, as many as 88,506 entities may qualify as “small governmental jurisdictions.”<sup>14</sup> Thus, we estimate that most governmental jurisdictions are small.

7. **Cellular Licensees.** The SBA has developed a small business size standard for small businesses in the category “Wireless Telecommunications Carriers (except satellite).”<sup>15</sup> Under that SBA category, a business is small if it has 1,500 or fewer employees.<sup>16</sup> The census category of “Cellular and Other Wireless Telecommunications” is no longer used and has been superseded by the larger category “Wireless Telecommunications Carriers (except satellite).” The Census Bureau defines this larger category to include “establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum

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<sup>6</sup> 5 U.S.C. § 601(3) (incorporating by reference the definition of “small-business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

<sup>7</sup> 15 U.S.C. § 632.

<sup>8</sup> See 5 U.S.C. §§ 601(3)–(6).

<sup>9</sup> See SBA, Office of Advocacy, “Frequently Asked Questions,” <http://www.sba.gov/sites/default/files/sbfaq.pdf> (showing figures are from 2009).

<sup>10</sup> 5 U.S.C. § 601(4).

<sup>11</sup> INDEPENDENT SECTOR, THE NEW NONPROFIT ALMANAC & DESK REFERENCE (2010).

<sup>12</sup> 5 U.S.C. § 601(5).

<sup>13</sup> U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES: 2011, Table 427 (2007).

<sup>14</sup> The 2007 U.S. Census data for small governmental organizations are not presented based on the size of the population in each such organization. There were 89,476 small governmental organizations in 2007. If we assume that county, municipal, township and school district organizations are more likely than larger governmental organizations to have populations of 50,000 or less, the total of these organizations is 52,125. If we make the same assumption about special districts, and also assume that special districts are different from county, municipal, township, and school districts, in 2007 there were 37,381 special districts. Therefore, of the 89,476 small governmental organizations documented in 2007, as many as 88,506 may be considered small under the applicable standard. This data may overestimate the number of such organizations that has a population of 50,000 or less. *Id.* at Tables 427, 426 (Data cited therein are from 2007).

<sup>15</sup> 13 C.F.R. § 121.201, NAICS code 517210.

<sup>16</sup> *Id.*

licenses and provide services using that spectrum, such as cellular phone services, paging services, wireless Internet access, and wireless video services.”<sup>17</sup>

8. In this category, the SBA has deemed a wireless telecommunications carrier to be small if it has fewer than 1,500 employees.<sup>18</sup> For this category of carriers, Census data for 2007, which supersede similar data from the 2002 Census, shows 1,383 firms in this category.<sup>19</sup> Of these 1,383 firms, only 15 (approximately 1%) had 1,000 or more employees.<sup>20</sup> While there is no precise Census data on the number of firms in the group with fewer than 1,500 employees, it is clear that at least the 1,368 firms with fewer than 1,000 employees would be found in that group. Thus, at least 1,368 of these 1,383 firms (approximately 99%) had fewer than 1,500 employees. Accordingly, the Commission estimates that at least 1,368 (approximately 99%) had fewer than 1,500 employees and, thus, would be considered small under the applicable SBA size standard.

9. **Wireless Telecommunications Carriers (except satellite).** This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular phone services, paging services, wireless Internet access, and wireless video services.<sup>21</sup> The appropriate size standard under SBA rules is for the category Wireless Telecommunications Carriers. The size standard for that category is that a business is small if it has 1,500 or fewer employees.<sup>22</sup> For this category, census data for 2007 show that there were 11,163 establishments that operated for the entire year.<sup>23</sup> Of this total, 10,791 establishments had employment of 999 or fewer employees and 372 had employment of 1,000 employees or more.<sup>24</sup> Thus under this category and the associated small business size standard, the Commission estimates that the majority of wireless telecommunications carriers (except satellite) are small entities that may be affected by our proposed action.<sup>25</sup>

10. **2.3 GHz Wireless Communications Services.** This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission defined “small business” for the wireless communications services (“WCS”) auction as an entity with average gross revenues of \$40 million for each of the three preceding years, and a “very small business” as an entity

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<sup>17</sup> U.S. Census Bureau, Industry Statistics Portal, “Wireless Telecommunications Carriers (Except Satellite),” 2007 NAICS Definitions, NAICS 517210, available at <http://www.census.gov/econ/isp/sampler.php?naicscode=517210&naicslevel=6#>.

<sup>18</sup> 13 C.F.R. § 121.201, NAICS Code 517210.

<sup>19</sup> U.S. Census Bureau, American Fact Finder, 2007 Economic Census, Industry Series, Industry Statistics by Employment Size, NAICS code 517210 (rel. Nov. 19, 2010), available at <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>.

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

<sup>21</sup> U.S. Census Bureau, Industry Statistics Portal, “Wireless Telecommunications Carriers (Except Satellite),” 2007 NAICS Definitions, available at <http://www.census.gov/econ/isp/sampler.php?naicscode=517210&naicslevel=6#>.

<sup>22</sup> 13 C.F.R. § 121.201, NAICS code 517210.

<sup>23</sup> U.S. Census Bureau, 2007 Economic Census, Subject Series: Information, Table 5, “Establishment and Firm Size: Employment Size of Firms for the United States: 2007,” NAICS Code 517210 (issued Nov. 2010), available at [http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN\\_2007\\_US\\_51SSSZ2&prodType=table](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ2&prodType=table).

<sup>24</sup> *Id.* Available census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is for firms with “100 employees or more.” *Id.*

<sup>25</sup> *See id.*



with average gross revenues of \$15 million for each of the three preceding years.<sup>26</sup> The SBA approved these definitions.<sup>27</sup> The Commission conducted an auction of geographic area licenses in the WCS service in 1997. In the auction, seven bidders that qualified as very small business entities won 31 licenses, and one bidder that qualified as a small business entity won a license.

11. **1670-1675 MHz Services.** This service can be used for fixed and mobile uses, except aeronautical mobile.<sup>28</sup> An auction for one license in the 1670-1675 MHz band was conducted in 2003. The Commission defined a “small business” as an entity with attributable average annual gross revenues of not more than \$40 million for the preceding three years, which would thus be eligible for a 15 percent discount on its winning bid for the 1670-1675 MHz band license.<sup>29</sup> Further, the Commission defined a “very small business” as an entity with attributable average annual gross revenues of not more than \$15 million for the preceding three years, which would thus be eligible to receive a 25 percent discount on its winning bid for the 1670-1675 MHz band license.<sup>30</sup> The winning bidder was not a small entity.

12. **3650-3700 MHz Band Licensees.** In March 2005, the Commission released an order providing for the nationwide, non-exclusive licensing of terrestrial operations, utilizing contention-based technologies, in the 3650 MHz band (*i.e.*, 3650–3700 MHz).<sup>31</sup> As of April 2010, more than 1270 licenses have been granted and more than 7433 sites have been registered. The Commission has not developed a definition of small entities applicable to 3650–3700 MHz band nationwide, non-exclusive licensees. However, we estimate that the majority of these licensees are Internet Access Service Providers (ISPs) and that most of those licensees are small businesses.

13. **Wireless Telephony.** Wireless telephony includes cellular, personal communications services, and specialized mobile radio telephony carriers. As noted, the SBA has developed a small business size standard for Wireless Telecommunications Carriers (except Satellite).<sup>32</sup> Under the SBA small business size standard, a business is small if it has 1,500 or fewer employees.<sup>33</sup> Census data for 2007 shows that there were 1,383 firms in the Wireless Telecommunications Carriers (except Satellite) category that operated that year.<sup>34</sup> Of those 1,383, 1,368 had fewer than 100 employees, and 15 firms had more than 100 employees.<sup>35</sup> Thus under this category and the associated small business size standard, the majority of firms can be considered small. According to Trends in Telephone Service data, 434 carriers reported that they were engaged in wireless telephony.<sup>36</sup> Of these, an estimated 222 have 1,500 or fewer employees and 212 have more than 1,500 employees.<sup>37</sup> Therefore, approximately half of these entities

<sup>26</sup> Amendment of the Commission’s Rules to Establish Part 27, the Wireless Communications Service (WCS), GN Dkt. No. 96-228, *Report and Order*, 12 FCC Rcd 10785, 10879 ¶ 194 (1997).

<sup>27</sup> See Letter from Aida Alvarez, Administrator, SBA, to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, FCC (Aug. 10, 1999) (*Alvarez Letter 1999*).

<sup>28</sup> 47 C.F.R. § 2.106; *see generally* 47 C.F.R. §§ 27.1–.70.

<sup>29</sup> Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1GHz Bands, WT Dkt. No. 02-353, *Report and Order*, 18 FCC Rcd 25162, 25220 ¶149 (2003).

<sup>30</sup> *Id.*

<sup>31</sup> The service is defined in section 90.1301 *et seq.* of the Commission’s Rules, 47 C.F.R. § 90.1301 *et seq.*

<sup>32</sup> 13 C.F.R. § 121.201, NAICS code 517210.

<sup>33</sup> *Id.*

<sup>34</sup> U.S. Census Bureau, 2007 Economic Census, Sector 51, 2007 NAICS code 517210 (rel. Oct. 20, 2009), available at <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>.

<sup>35</sup> *Id.*

<sup>36</sup> See FCC, *Trends in Telephone Service*, Table 5.3 (2008).

<sup>37</sup> See *id.*

can be considered small. Similarly, according to Commission data, 413 carriers reported that they were engaged in the provision of wireless telephony, including cellular service, Personal Communications Service (PCS), and Specialized Mobile Radio (SMR) Telephony services.<sup>38</sup> Of these, an estimated 261 have 1,500 or fewer employees and 152 have more than 1,500 employees.<sup>39</sup> Consequently, the Commission estimates that approximately half or more of these firms can be considered small. Thus, using available data, we estimate that the majority of wireless firms can be considered small.

14. **Broadband Personal Communications Service.** The broadband PCS spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission initially defined a “small business” for C- and F-Block licenses as an entity that has average gross revenues of \$40 million or less in the three previous years.<sup>40</sup> For F-Block licenses, an additional small business size standard for “very small business” was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than \$15 million for the preceding three years.<sup>41</sup> These small business size standards, in the context of broadband PCS auctions, have been approved by the SBA.<sup>42</sup> No small businesses within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that claimed small business status in the first two C-Block auctions. A total of 93 bidders that claimed small and very small business status won approximately 40 percent of the 1,479 licenses in the first auction for the D, E, and F Blocks.<sup>43</sup> On April 15, 1999, the Commission completed the re-auction of 347 C-, D-, E-, and F-Block licenses in Auction No. 22.<sup>44</sup> Of the 57 winning bidders in that auction, 48 claimed small business status and won 277 licenses.

15. On January 26, 2001, the Commission completed the auction of 422 C and F Block Broadband PCS licenses in Auction No. 35. Of the 35 winning bidders in that auction, 29 claimed small business status.<sup>45</sup> Subsequent events concerning Auction 35, including judicial and agency determinations, resulted in a total of 163 C and F Block licenses being available for grant. On February 15, 2005, the Commission completed an auction of 242 C-, D-, E-, and F-Block licenses in Auction No. 58. Of the 24 winning bidders in that auction, 16 claimed small business status and won 156 licenses.<sup>46</sup> On May 21, 2007, the Commission completed an auction of 33 licenses in the A, C, and F Blocks in Auction No. 71.<sup>47</sup> Of the 14 winning bidders in that auction, six claimed small business status and won

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

<sup>39</sup> See *id.*

<sup>40</sup> See Amendment of Parts 20 and 24 of the Commission’s Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap, WT Dkt. No. 96-59, GN Dkt. No. 90-314, *Report and Order*, 11 FCC Rcd 7824, 7850–52 ¶¶ 57–60 (1996) (*PCS Report and Order*); see also 47 C.F.R. § 24.720(b).

<sup>41</sup> See *PCS Report and Order*, 11 FCC Rcd at 7852 ¶ 60.

<sup>42</sup> See *Alvarez Letter 1999*.

<sup>43</sup> See D, E and F Block Auction Closes, *Public Notice*, DA 97-81 (rel. Jan. 15, 1997).

<sup>44</sup> See C, D, E, and F Block Broadband PCS Auction Closes, Winning Bidders of 302 Licenses Announced, *Public Notice*, 14 FCC Rcd 6688 (WTB 1999). Before Auction No. 22, the Commission established a very small standard for the C Block to match the standard used for F Block. Amendment of the Commission’s Rules Regarding Installment Payment Financing for Personal Communications Services (PCS) Licensees, WT Dkt. No. 97-82, *Fourth Report and Order*, 13 FCC Rcd 15743, 15768 ¶ 46 (1998).

<sup>45</sup> See C and F Block Broadband PCS Auction Closes, Winning Bidders Announced, *Public Notice*, 16 FCC Rcd 2339 (2001).

<sup>46</sup> See Broadband PCS Spectrum Auction Closes, Winning Bidders Announced for Auction No. 58, *Public Notice*, 20 FCC Rcd 3703 (2005).

<sup>47</sup> See Auction of Broadband PCS Spectrum Licenses Closes, Winning Bidders Announced for Auction No. 71, *Public Notice*, 22 FCC Rcd 9247 (2007).

18 licenses.<sup>48</sup> On August 20, 2008, the Commission completed the auction of 20 C-, D-, E-, and F-Block Broadband PCS licenses in Auction No. 78.<sup>49</sup> Of the eight winning bidders for Broadband PCS licenses in that auction, six claimed small business status and won 14 licenses.<sup>50</sup>

16. AWS Services (1710–1755 MHz and 2110–2155 MHz bands (AWS-1); 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz bands (AWS-2); 2155–2175 MHz band (AWS-3)). For the AWS-1 bands, the Commission has defined a “small business” as an entity with average annual gross revenues for the preceding three years not exceeding \$40 million, and a “very small business” as an entity with average annual gross revenues for the preceding three years not exceeding \$15 million.<sup>51</sup> In 2006, the Commission conducted its first auction of AWS-1 licenses.<sup>52</sup> In that initial AWS-1 auction, 31 winning bidders identified themselves as very small businesses.<sup>53</sup> Twenty-six of the winning bidders identified themselves as small businesses.<sup>54</sup> In a subsequent 2008 auction, the Commission offered 35 AWS-1 licenses.<sup>55</sup> Four winning bidders identified themselves as very small businesses, and three of the winning bidders identified themselves as a small business.<sup>56</sup> For AWS-2 and AWS-3, although we do not know for certain which entities are likely to apply for these frequencies, we note that the AWS-1 bands are comparable to those used for cellular service and personal communications service. The Commission has not yet adopted size standards for the AWS-2 bands but has proposed to treat both AWS-2 similarly to broadband PCS service and AWS-1 service due to the comparable capital requirements and other factors, such as issues involved in relocating incumbents and developing markets, technologies, and services.<sup>57</sup>

17. On March 31, 2014, we adopted rules for spectrum in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz bands (collectively, “AWS-3”) that make available an additional sixty-five megahertz of commercial spectrum for the provision of mobile broadband services.<sup>58</sup> We indicated that

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<sup>48</sup> *Id.*

<sup>49</sup> See Auction of AWS-1 and Broadband PCS Licenses Closes, Winning Bidders Announced for Auction 78, *Public Notice*, 23 FCC Rcd 12749 (WTB 2008).

<sup>50</sup> *Id.*

<sup>51</sup> See Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands, WT Dkt. No. 02-353, *Report and Order*, 18 FCC Rcd 25162, App. B (2003), *modified by* Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands, WT Dkt. No. 02-353, *Order on Recons.*, 20 FCC Rcd 14058, App. C (2005).

<sup>52</sup> See Auction of Advanced Wireless Services Licenses Scheduled for June 29, 2006, Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments and Other Procedures for Auction No. 66, AU Dkt. No. 06-30, *Public Notice*, 21 FCC Rcd 4562 (2006) (*Auction 66 Procedures Public Notice*).

<sup>53</sup> See Auction of Advanced Wireless Services Licenses Closes, Winning Bidders Announced for Auction No. 66, *Public Notice*, 21 FCC Rcd 10521 (2006) (*Auction 66 Closing Public Notice*).

<sup>54</sup> See *id.*

<sup>55</sup> See Auction of AWS-1 and Broadband PCS Licenses Rescheduled for August 13, 2008, *Public Notice*, 23 FCC Rcd 7496, 7498 (2008). Auction 78 also included an auction of broadband PCS licenses.

<sup>56</sup> See Auction of AWS-1 and Broadband PCS Licenses Closes, Winning Bidders Announced for Auction 78, Down, *Public Notice*, 23 FCC Rcd 12749 (2008).

<sup>57</sup> Service Rules for Advanced Wireless Services in the 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz Bands et al., *Notice of Proposed Rulemaking*, 19 FCC Rcd 19263, App. B (2005); Service Rules for Advanced Wireless Services in the 2155–2175 MHz Band, *Notice of Proposed Rulemaking*, 22 FCC Rcd 17035, App. (2007); Service Rules for Advanced Wireless Services in the 2155-2175 MHz Band, *Further Notice of Proposed Rulemaking*, 23 FCC Rcd 9859, App. B (2008).

<sup>58</sup> See Amendment of the Commission’s Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands, WT Dkt. No. 13-185, *Report and Order*, FCC 14-31 (rel. Mar. 31,

(continued....)

we will assign AWS-3 licenses by competitive bidding, offering five megahertz and ten megahertz blocks.<sup>59</sup> The Spectrum Act states that the Commission shall grant new initial licenses for these bands by February 23, 2015.<sup>60</sup>

18. In December 2012, the Commission adopted licensing, operating, and technical rules for stand-alone terrestrial mobile wireless operations in the AWS-4 spectrum.<sup>61</sup> The Commission concluded that it would assign the AWS-4 spectrum to the incumbent Mobile Satellite Service (MSS) operators in order to make this spectrum available efficiently and quickly for flexible, terrestrial use, such as mobile broadband.<sup>62</sup> The Commission also determined that it would assign AWS-4 licenses to DISH, as the incumbent MSS operator in that spectrum, and established a concrete, proven process for efficient relocation of incumbent operations from 2180-2200 MHz.<sup>63</sup>

19. In June 2013, the Commission implemented the Spectrum Act provisions pertaining to the H Block by adopting service rules for the band, including pairing the two 5 megahertz blocks establishing EAs as the license area, and generally adopting Part 27 flexible use rules.<sup>64</sup> On February 27, 2014 the Commission concluded its auction of H Block licenses, with DISH placing the winning bids on all 176 licenses across the nation.<sup>65</sup>

20. **Lower 700 MHz Band Licenses.** The Commission previously adopted criteria for defining three groups of small businesses for purposes of determining their eligibility for special provisions such as bidding credits.<sup>66</sup> The Commission defined a “small business” as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years.<sup>67</sup> A “very small business” is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years.<sup>68</sup> Additionally, the Lower 700 MHz Service had a third category of small business status for Metropolitan/Rural Service Area (“MSA/RSA”) licenses —“entrepreneur”— which is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues

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2014) (*AWS-3 Report and Order*). We indicated that we will address service rules for the 2020-2025 MHz band separately in a subsequent item. *AWS-3 Report and Order*, FCC 14-31, at ¶ 1 n.1.

<sup>59</sup> See *AWS-3 Report and Order*, FCC 14-31, at ¶ 2.

<sup>60</sup> Middle Class Tax Relief and Job Creation Act of 2012. Pub.L. 112-96, Title VI, §§ 6001- 6703, 6401(b) (Feb. 22, 2012) (*codified in scattered sections of 47 U.S.C.*) (“*Spectrum Act*”).

<sup>61</sup> Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands, WT Dkt. No. 12-70, *Report and Order and Order of Proposed Modification*, 27 FCC Rcd 16102 (2012) (*AWS-4 Report and Order*). The Commission indicated that its actions would remove regulatory barriers to mobile broadband use of this spectrum and would provide a stable regulatory regime in which broadband deployment can rapidly occur. *AWS-4 Report and Order*, 27 FCC Rcd at 16103 ¶ 1.

<sup>62</sup> *AWS-4 Report and Order*, 27 FCC Rcd at 16104 ¶ 2.

<sup>63</sup> *AWS-4 Report and Order*, 27 FCC Rcd at 16209, 16214 ¶¶ 292-93, 304-06.

<sup>64</sup> Service Rules for 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, *Report & Order*, WT Dkt. No. 12-257, 28 FCC Rcd 9483, 9488, 9495 ¶¶ 9, 25 (2013) (*H Block Report and Order*).

<sup>65</sup> See Auction of H Block Licenses in the 1915-1920 MHz and 1995-2000 MHz Bands Closes, *Public Notice*, DA 14-279 (WTB, rel. Feb. 28, 2014).

<sup>66</sup> See Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Television Channels 52-59), GN Dkt. No. 01-74, *Report and Order*, 17 FCC Rcd 1022, 1087-88 ¶ 172-73 (2002) (*Channels 52-59 Report and Order*).

<sup>67</sup> See *id.*, 17 FCC Rcd at 1087-88 ¶ 172.

<sup>68</sup> See *id.*

that are not more than \$3 million for the preceding three years.<sup>69</sup> The SBA approved these small size standards.<sup>70</sup> An auction of 740 licenses was conducted in 2002 (one license in each of the 734 MSAs/RSAs and one license in each of the six Economic Area Groupings (EAGs)). Of the 740 licenses available for auction, 484 licenses were won by 102 winning bidders. Seventy-two of the winning bidders claimed small business, very small business, or entrepreneur status and won a total of 329 licenses.<sup>71</sup> A second auction commenced on May 28, 2003, closed on June 13, 2003, and included 256 licenses.<sup>72</sup> Seventeen winning bidders claimed small or very small business status and won 60 licenses, and nine winning bidders claimed entrepreneur status and won 154 licenses.<sup>73</sup> In 2005, the Commission completed an auction of 5 licenses in the lower 700 MHz band (Auction 60). All three winning bidders claimed small business status.

21. In 2007, the Commission reexamined its rules governing the 700 MHz band in the *700 MHz Second Report and Order*.<sup>74</sup> An auction of A, B and E block licenses in the Lower 700 MHz band was held in 2008.<sup>75</sup> Twenty winning bidders claimed small business status (those with attributable average annual gross revenues that exceed \$15 million and do not exceed \$40 million for the preceding three years).<sup>76</sup> Thirty three winning bidders claimed very small business status (those with attributable average annual gross revenues that do not exceed \$15 million for the preceding three years).<sup>77</sup> In 2011, the Commission conducted Auction 92, which offered 16 lower 700 MHz band licenses that had been made available in Auction 73 but either remained unsold or were licenses on which a winning bidder defaulted.<sup>78</sup> Two of the seven winning bidders in Auction 92 claimed very small business status, winning a total of four licenses.<sup>79</sup>

22. **Upper 700 MHz Band Licenses.** In the *700 MHz Second Report and Order*, the Commission revised its rules regarding Upper 700 MHz licenses.<sup>80</sup> On January 24, 2008, the Commission commenced Auction 73 in which several licenses in the Upper 700 MHz band were available for licensing: 12 Regional Economic Area Grouping licenses in the C Block, and one nationwide license in the D Block.<sup>81</sup> The auction concluded on March 18, 2008, with three winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed \$15 million for the preceding three years) and winning five licenses.

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<sup>69</sup> See *id.*, 17 FCC Rcd at 1088 ¶ 173.

<sup>70</sup> See *Alvarez Letter 1999*.

<sup>71</sup> See Lower 700 MHz Band Auction Closes, Winning Bidders Announced, *Public Notice*, 17 FCC Rcd 17272 (WTB 2002).

<sup>72</sup> See Lower 700 MHz Band Auction Closes, Winning Bidders Announced, *Public Notice*, 18 FCC Rcd 11873 (WTB 2003).

<sup>73</sup> See *id.*

<sup>74</sup> Service Rules for the 698-746, 747-762 and 777-792 MHz Band, WT Dkt. No. 06-150, *Second Report and Order*, 22 FCC Rcd 15289 (2007) (*700 MHz Second Report and Order*).

<sup>75</sup> See Auction of 700 MHz Band Licenses Closes, *Public Notice*, 23 FCC Rcd 4572 (WTB 2008).

<sup>76</sup> See Auctions Summary, Auction 73, 700 MHz Band, available at [http://wireless.fcc.gov/auctions/default.htm?job=auCTION\\_summary&id=73](http://wireless.fcc.gov/auctions/default.htm?job=auCTION_summary&id=73).

<sup>77</sup> *Id.*

<sup>78</sup> See Auctions Summary, Auction 92, 700 MHz Band, available at [http://wireless.fcc.gov/auctions/default.htm?job=auCTION\\_summary&id=92](http://wireless.fcc.gov/auctions/default.htm?job=auCTION_summary&id=92).

<sup>79</sup> *Id.*

<sup>80</sup> See *700 MHz Second Report and Order*, 22 FCC Rcd 15289.

<sup>81</sup> See Auction of 700 MHz Band Licenses Closes, *Public Notice*, 23 FCC Rcd 4572, 4573 (WTB 2008).

23. Pursuant to the Spectrum Act, Congress provided for the deployment of a nationwide public safety broadband network in the 700 MHz band, including reallocating the Upper 700 MHz D Block from a commercial spectrum block to public safety use.<sup>82</sup> On September 7, 2012, the Public Safety and Homeland Security Bureau adopted a *Report and Order* to reallocate the D Block for “public safety services.”<sup>83</sup> Congress established FirstNet as an independent authority within the National Telecommunications and Information Administration (NTIA), and required the Commission to grant a license to FirstNet for the use of both the existing public safety broadband spectrum (763-768/793-798 MHz) and the Upper D Block.<sup>84</sup> On November 15, 2012, the Public Safety and Homeland Security Bureau granted FirstNet the license prescribed by statute, under call sign WQQE234.<sup>85</sup>

24. **700 MHz Guard Band Licenses.** In 2000, the Commission adopted the *700 MHz Guard Band Report and Order*, in which it established rules for the A and B block licenses in the Upper 700 MHz band, including size standards for “small businesses” and “very small businesses” for purposes of determining their eligibility for special provisions such as bidding credits.<sup>86</sup> A small business in this service is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years.<sup>87</sup> Additionally, a very small business is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years.<sup>88</sup> SBA approval of these definitions is not required.<sup>89</sup> An auction of these licenses was conducted in 2000.<sup>90</sup> Of the 104 licenses auctioned, 96 licenses were won by nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses was held in 2001. All eight of the licenses auctioned were sold to three bidders. One of these bidders was a small business that won a total of two licenses.<sup>91</sup>

25. **Specialized Mobile Radio.** The Commission adopted small business size standards for the purpose of determining eligibility for bidding credits in auctions of SMR geographic area licenses in

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<sup>82</sup> See *Spectrum Act* §§ 6001-6303, 6413 (codified at 47 U.S.C. §§ 1401-1443, 1457). See *id.* §§ 1411(a), 1421(a), 1424(a). FirstNet’s license also includes the 768-769/798-799 MHz band, which the Commission has designated as a “guard band” that spectrally separates the broadband and narrowband segments of the 700 MHz public safety band.

<sup>83</sup> See Implementing Public Safety Broadband Provisions of the Middle Class Tax Relief and Job Creation Act of 2012, PS Dkt. Nos. 12-94, 06-229; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, WT Dkt. No. 06-150, *Report and Order*, 27 FCC Rcd 10953 (2012).

<sup>84</sup> *Spectrum Act* §§ 6201(a), 6202 and 6204(a); see also *id.* § 6001(2) (defining “700 MHz D Block spectrum”) and (14) (defining “existing public safety broadband spectrum”). Congress tasked FirstNet with establishing and overseeing “a nationwide, interoperable public safety broadband network” operated in this spectrum by taking “all actions necessary to ensure the building, deployment, and operation of the . . . network.” *Id.* §§ 1422(a), 1426(b).

<sup>85</sup> See Universal Licensing System, License Call Sign WQQE234 (Nov. 15, 2012).

<sup>86</sup> See Service Rules for the 746-764 MHz Bands, and Revisions to Part 27 of the Commission’s Rules, *Second Report and Order*, 15 FCC Rcd 5299 (2000) (*700 MHz Guard Band Report and Order*).

<sup>87</sup> See *id.*, 15 FCC Rcd at 5343 ¶¶ 106-08.

<sup>88</sup> See *id.*

<sup>89</sup> See *id.*, 15 FCC Rcd at 5344 ¶ 108 n.246 (“For the 746-764 MHz and 776-794 MHz bands, the Commission is exempt from 15 U.S.C. § 632, which requires Federal agencies to obtain SBA approval before adopting small business size standards”).

<sup>90</sup> See 700 MHz Guard Bands Auction Closes, Winning Bidders Announced, *Public Notice*, 15 FCC Rcd 18026 (2000).

<sup>91</sup> See 700 MHz Guard Bands Auction Closes, Winning Bidders Announced, *Public Notice*, 16 FCC Rcd 4590 (WTB 2001).

the 800 MHz and 900 MHz bands. The Commission defined a “small business” as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$15 million for the preceding three years.<sup>92</sup> The Commission defined a “very small business” as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$3 million for the preceding three years.<sup>93</sup> The SBA has approved these small business size standards for both the 800 MHz and 900 MHz SMR Service.<sup>94</sup> The first 900 MHz SMR auction was completed in 1996. Sixty bidders claiming that they qualified as small businesses under the \$15 million size standard won 263 licenses in the 900 MHz SMR band. In 2004, the Commission held a second auction of 900 MHz SMR licenses and three winning bidders identifying themselves as very small businesses won 7 licenses.<sup>95</sup> The auction of 800 MHz SMR licenses for the upper 200 channels was conducted in 1997. Ten bidders claiming that they qualified as small or very small businesses under the \$15 million size standard won 38 licenses for the upper 200 channels.<sup>96</sup> A second auction of 800 MHz SMR licenses was conducted in 2002 and included 23 Basic Economic Area (“BEA”) licenses. One bidder claiming small business status won five licenses.<sup>97</sup>

26. The auction of the 1,053 800 MHz SMR licenses for the General Category channels was conducted in 2000. Eleven bidders who won 108 licenses for the General Category channels in the 800 MHz SMR band qualified as small or very small businesses.<sup>98</sup> In an auction completed in 2000, a total of 2,800 Economic Area licenses in the lower 80 channels of the 800 MHz SMR service were awarded.<sup>99</sup> Of the 22 winning bidders, 19 claimed small or very small business status and won 129 licenses. Thus, combining all four auctions, 41 winning bidders for geographic licenses in the 800 MHz SMR band claimed to be small businesses.

27. In addition, there are numerous incumbent site-by-site SMR licensees and licensees with extended implementation authorizations in the 800 and 900 MHz bands. We do not know how many firms provide 800 MHz or 900 MHz geographic area SMR pursuant to extended implementation authorizations, nor how many of these providers have annual revenues not exceeding \$15 million. One firm has over \$15 million in revenues. In addition, we do not know how many of these firms have 1,500 or fewer employees.<sup>100</sup> We assume, for purposes of this analysis, that all of the remaining existing extended implementation authorizations are held by small entities, as that small business size standard is approved by the SBA.

28. **1.4 GHz Band Licensees.** The Commission conducted an auction of 64 1.4 GHz band licenses in the paired 1392-1395 MHz and 1432-1435 MHz bands, and in the unpaired 1390-1392 MHz

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<sup>92</sup> 47 C.F.R. §§ 90.810, 90.814(b), 90.912.

<sup>93</sup> *Id.*

<sup>94</sup> *See Alvarez Letter 1999.*

<sup>95</sup> *See 900 MHz Specialized Mobile Radio Service Spectrum Auction Closes, Winning Bidders Announced, Public Notice*, 19 FCC Rcd 3921 (WTB 2004).

<sup>96</sup> *See Correction to Public Notice DA 96-586 FCC Announces Winning Bidders in the Auction of 1020 Licenses to Provide 900 MHz SMR in Major Trading Areas, Public Notice*, 18 FCC Rcd 18367 (WTB 1996).

<sup>97</sup> *See Multi-Radio Service Auction Closes, Winning Bidders Announced, Public Notice*, 17 FCC Rcd 1446 (WTB 2002).

<sup>98</sup> *See 800 MHz Specialized Mobile Radio (SMR) Service General Category (851-854 MHz) and Upper Band (861-865 MHz) Auction Closes, Winning Bidders Announced, Public Notice*, 15 FCC Rcd 17162 (2000).

<sup>99</sup> *See 800 MHz SMR Service Lower 80 Channels Auction Closes, Winning Bidders Announced, Public Notice*, 16 FCC Rcd 1736 (2000).

<sup>100</sup> *See generally* 13 C.F.R. § 121.201, NAICS code 517210.

band in 2007.<sup>101</sup> For these licenses, the Commission defined “small business” as an entity that, together with its affiliates and controlling interests, had average gross revenues not exceeding \$40 million for the preceding three years, and a “very small business” as an entity that, together with its affiliates and controlling interests, has had average annual gross revenues not exceeding \$15 million for the preceding three years.<sup>102</sup> Neither of the two winning bidders claimed small business status.<sup>103</sup>

29. **Broadband Radio Service and Educational Broadband Service.** Broadband Radio Service systems, previously referred to as Multipoint Distribution Service (“MDS”) and Multichannel Multipoint Distribution Service (“MMDS”) systems, and “wireless cable,” transmit video programming to subscribers and provide two-way high speed data operations using the microwave frequencies of the Broadband Radio Service (“BRS”) and Educational Broadband Service (“EBS”) (previously referred to as the Instructional Television Fixed Service (“ITFS”)).<sup>104</sup> In connection with the 1996 BRS auction, the Commission established a “small business” as an entity that had annual average gross revenues of no more than \$40 million in the previous three years.<sup>105</sup> The BRS auctions resulted in 67 successful bidders obtaining licensing opportunities for 493 Basic Trading Areas (“BTAs”). Of the 67 auction winners, 61 met the definition of a small business. BRS also includes licensees of stations authorized prior to the auction. At this time, we estimate that of the 61 small business BRS auction winners, 48 remain small business licensees. In addition to the 48 small businesses that hold BTA authorizations, there are approximately 392 incumbent BRS licensees that are considered small entities.<sup>106</sup> After adding the number of small business auction licensees to the number of incumbent licensees not already counted, we find that there are currently approximately 440 BRS licensees that are defined as small businesses under either the SBA or the Commission’s rules. In 2009, the Commission conducted Auction 86, which resulted in the licensing of 78 authorizations in the BRS areas.<sup>107</sup> The Commission offered three levels of bidding credits: (i) a bidder with attributed average annual gross revenues that exceed \$15 million and do not exceed \$40 million for the preceding three years (small business) will receive a 15 percent discount on its winning bid; (ii) a bidder with attributed average annual gross revenues that exceed \$3 million and do not exceed \$15 million for the preceding three years (very small business) will receive a 25 percent discount on its winning bid; and (iii) a bidder with attributed average annual gross revenues that do not exceed \$3 million for the preceding three years (entrepreneur) will receive a 35 percent discount on its winning bid.<sup>108</sup> Auction 86 concluded in 2009 with the sale of 61 licenses.<sup>109</sup> Of the ten winning bidders,

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<sup>101</sup> See Auction of 1.4 GHz Band Licenses Scheduled for February 7, 2007, *Public Notice*, 21 FCC Rcd 12393 (WTB 2006); Auction of 1.4 GHz Band Licenses Closes, Winning Bidders Announced for Auction No. 69, *Public Notice*, 22 FCC Rcd 4714 (2007) (*Auction No. 69 Closing PN*).

<sup>102</sup> *Auction No. 69 Closing PN*, Attachment C.

<sup>103</sup> See *Auction No. 69 Closing PN*.

<sup>104</sup> Amendment of Parts 21 and 74 of the Commission’s Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service, MM Dkt. No. 94-131, *Report and Order*, 10 FCC Rcd 9589, 9593 ¶ 7 (1995).

<sup>105</sup> *Id.* at 9670-73, ¶¶ 190-92.

<sup>106</sup> 47 U.S.C. § 309(j). Hundreds of stations were licensed to incumbent MDS licensees prior to implementation of Section 309(j) of the Communications Act of 1934, 47 U.S.C. § 309(j). For these pre-auction licenses, the applicable standard is SBA’s small business size standard of 1500 or fewer employees.

<sup>107</sup> Auction of Broadband Radio Service (BRS) Licenses, Scheduled for October 27, 2009, Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments, and Other Procedures for Auction 86, *Public Notice*, 24 FCC Rcd 8277 (2009).

<sup>108</sup> *Id.* at 8296 ¶ 73.

<sup>109</sup> Auction of Broadband Radio Service Licenses Closes, Winning Bidders Announced for Auction 86, *Public Notice*, 24 FCC Rcd 13572 (2009).



two bidders that claimed small business status won four licenses; one bidder that claimed very small business status won three licenses; and two bidders that claimed entrepreneur status won six licenses.

30. In addition, the SBA's Cable Television Distribution Services small business size standard is applicable to EBS. There are presently 2,032 EBS licensees. All but 100 of these licenses are held by educational institutions. Educational institutions are included in this analysis as small entities.<sup>110</sup> Thus, we estimate that at least 1,932 licensees are small businesses. Since 2007, Cable Television Distribution Services have been defined within the broad economic census category of Wired Telecommunications Carriers; that category is defined as follows: "This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies."<sup>111</sup> For these services, the Commission uses the SBA small business size standard for the category "Wireless Telecommunications Carriers (except satellite)," which is 1,500 or fewer employees.<sup>112</sup> To gauge small business prevalence for these cable services we must, however, use the most current census data. According to Census Bureau data for 2007, there were a total of 955 firms in this previous category that operated for the entire year.<sup>113</sup> Of this total, 939 firms employed 999 or fewer employees, and 16 firms employed 1,000 employees or more.<sup>114</sup> Thus, the majority of these firms can be considered small.

#### **D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities**

31. The Report and Order implements several rule and policy modifications: (1) codifying the Commission's policies for attributing spectrum holdings for certain purposes; (2) including in the initial spectrum screen applied to the Commission's review of transactions the AWS-4 band, AWS H Block, additional BRS spectrum, most of the EBS spectrum and the AWS-3 band (on a market-by-market basis); (3) replacing the current application of the mobile spectrum screen in case-by-case analysis of post-auction applications with a determination for each auction of whether to apply mobile spectrum holding limits to that auction; and (4) reserving a certain amount of 600 MHz spectrum (to be determined by a market-based mechanism during the Incentive Auction) for qualified bidders. These modifications should have minimal, if any reporting, recordkeeping or compliance impact on small entities, which tend to have relatively small spectrum holdings and rarely engage in the sort of large mergers and spectrum acquisitions that would trigger the spectrum screen and competitive scrutiny. All four rule modifications are intended to provide a clear framework for the Commission's competitive review of spectrum acquisitions in auctions and secondary markets – a framework that focuses, among other things, on facilitating access by multiple providers, including small entities, to a mix of low-band and high-band spectrum. Rule modification 3 is intended to facilitate access to 600 MHz spectrum for the entry and expansion of multiple providers, including small entities.

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<sup>110</sup> The term "small entity" within SBREFA applies to small organizations (nonprofits) and to small governmental jurisdictions (cities, counties, towns, townships, villages, school districts, and special districts with populations of less than 50,000). 5 U.S.C. §§ 601(4)–(6). We do not collect annual revenue data on EBS licensees.

<sup>111</sup> U.S. Census Bureau, 2007 NAICS Definitions, 517110 Wired Telecommunications Carriers, (partial definition), available at <http://www.census.gov/cgi-bin/sssd/naics/naicsrch>.

<sup>112</sup> 13 C.F.R. § 121.201, NAICS code 517210.

<sup>113</sup> U.S. Census Bureau, 2007 Economic Census, Subject Series: Information, Table 5, "Establishment and Firm Size: Employment Size of Firms for the United States: 2007," NAICS code 5171102 (issued Nov. 2010), available at [http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN\\_2007\\_US\\_51SSSZ2&prodType=table](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ2&prodType=table).

<sup>114</sup> *Id.*

**E. Steps Taken to Minimize Significant Economic Impact on Small Entities and Significant Alternatives Considered**

32. The rule modifications the Commission implements in this Report and Order are intended to promote competition in the provision of mobile services by, among other measures, facilitating access to spectrum by multiple providers, including small entities. The Commission has done so by imposing a minor new regulatory requirement on small firms, namely that such firms (and others) certify their qualification to bid on the reserved 600 MHz spectrum. After careful review, we have determined that imposing this qualification to bid on reserved spectrum, is necessary to help preserve spectrum for small entities. This certification process saves time and resources for small entities making them better equipped to compete in spectrum auctions.

**F. Report to Congress**

33. The Commission will send a copy of the Report and Order, including this FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act.<sup>115</sup> In addition, the Commission will send a copy of the Report and Order, including this FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the Report and Order and FRFA (or summaries thereof) will also be published in the *Federal Register*.<sup>116</sup>

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<sup>115</sup> See 5 U.S.C. § 801(a)(1)(A).

<sup>116</sup> See 5 U.S.C. § 604(b).

**STATEMENT OF  
CHAIRMAN THOMAS E. WHEELER**

Re: *Policies Regarding Mobile Spectrum Holdings, Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, WT Docket No. 12-269, Docket No. 12-268.

I'm an unabashed believer in competition. And I'm committed to this proceeding because it begins and ends with one basic idea – how best to preserve and promote competition to the benefit of all Americans.

I am also a believer in the Incentive Auction that Congress has established and that will be held in mid-2015. The approach we are voting on today marks a critical turning point in our work towards the Incentive Auction. I am confident that the wireless industry, including providers of all sizes, will rally around this rules package and make clear that they want to participate aggressively in this auction. With this consensus on a path forward, we can turn our attention to making clear to the broadcast industry that this is a once-in-a-lifetime opportunity and there are companies ready to spend real money at auction.

We have been working hard to develop pro-competition and pro-consumer rules to promote a healthy, competitive mobile marketplace with clear rules of the road regarding spectrum aggregation.

Without spectrum, mobile carriers can't compete. But not all spectrum frequencies are created equal. Spectrum below 1 GHz, known as "low-band" spectrum, has physical properties that increase the reach of mobile networks over long distances at far less cost than spectrum above 1 GHz, and are better suited for transmitting wireless signals through walls. High-band spectrum has more bandwidth, meaning that it carries data well, but it doesn't travel as well over distances or through walls.

For consumers, the mobile spectrum holdings rules we adopt today will mean more competition in more markets. All American consumers, regardless of where they live, should enjoy the benefits that competition can bring: more choices of wireless providers, lower prices, and higher quality mobile services.

There are three interrelated parts to the Mobile Spectrum Holdings rules we adopt today. Many parties have focused on just one piece of the package; yet, all of the pieces work together.

First, we increase our spectrum screen to reflect spectrum that is currently suitable and available for mobile broadband.

Second, we clarify that we will continue to look closely at low-band spectrum transactions in our competitive review of proposed transactions.

Third, we set clear pre-auction rules regarding spectrum aggregation for our upcoming auctions.

In the upcoming AWS-3 auction of high-band spectrum, any bidder will be able to win any amount of spectrum it is willing to pay for. And any spectrum a bidder wins, it can keep. We will not require any divestitures, regardless of whether the adjusted total spectrum screen is triggered.

In the upcoming Incentive Auction, we adopt reasonable spectrum aggregation rules to promote competition, with all bidders vying to win spectrum at a fair market price, as explicitly authorized by the Spectrum Act. There has been much focus on this aspect of the rules, so let me be clear about what it means.

Every bidder, regardless of size or spectrum holdings, will be able to bid on spectrum in every market throughout the country.

Let me repeat, every bidder, regardless of size or spectrum holdings, will be able to bid on spectrum in every market throughout the country.

We are also adopting a rule that establishes a “market-based reserve” for bidders that do not currently hold significant amounts of low-band spectrum in specific markets, provided that “reserve bidders” pay their fair share of auction costs. When the Incentive Auction commences, all bidders will be bidding and competing against each other for all blocks of spectrum. Given the value of this spectrum, we expect a fulsome bidding process. When the auction reaches the “spectrum reserve trigger” point – which includes fully funding FirstNet – wireless providers without significant low-band holdings in a license area will bid on “reserved” spectrum blocks. Put another way, we are adopting a limited rule that says the biggest holders of low-band spectrum can’t run the table, as long as there is sufficient demand for reserved spectrum.

Here is the bottom line: for the first time ever we have established a viable spectrum reserve for competitors in every market nationwide. Most importantly, this reserve will make sure that consumers are more likely to benefit directly from increased competition in all parts of the country – rural, suburban and urban areas included.

Again, this is about bringing the benefits of competition to consumers and this market based reserve will deliver on our core objective: better service, more choices, and ongoing innovation.

Thank you to the Wireless Telecommunications Bureau and the Office of General Counsel for their work on this item.

**STATEMENT OF  
COMMISSIONER MIGNON L. CLYBURN  
APPROVING IN PART; CONCURRING IN PART**

Re: *Policies Regarding Mobile Spectrum Holdings, Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, WT Docket No. 12-269, Docket No. 12-268.

There are many aspects of this Order I fully support. I am glad we are updating the Commission's policies on measuring how spectrum aggregation impacts competition in the wireless industry. Our last comprehensive review of these policies occurred more than a decade ago and, since then, significant developments have impacted the structure of the market for mobile wireless services.

Most significant are dramatic increases in the demand for wireless services, especially mobile broadband, and the reduction in the number of service options for consumers particularly in rural areas. Today, 92 percent of consumers have access to four providers offering 3G or 4G services. But in rural markets that figure stands at only 37 percent. So I believe that it is imperative that we develop policies that address this discrepancy and ensure that all Americans, regardless of where they live, enjoy the benefits that competition can provide.

It is also time for our spectrum management policies to account for the engineering differences between spectrum below and above-1 GHz. The Commission has been commenting on these differences in annual competition reports, since 2010, and I am glad we have taken a more careful look at both sides of the issue and have finally made a decision. The record is replete with evidence that, because spectrum below-1 GHz has superior signal propagation characteristics, it has distinct network deployment advantages for carriers who want to deploy in rural areas and indoor locations. Therefore, I commend the decision to treat certain levels of increased aggregations of below-1 GHz spectrum, as an enhanced factor, during case-by-case review of transactions involving such spectrum.

I also strongly support the rule that would reserve up to 30 megahertz of spectrum, for the 600 MHz auction. It would condition eligibility to bid on, among other factors, whether a carrier holds less than 45 MHz of below-1 GHz spectrum on a population weighted average in a particular local market. There is no question we have the statutory authority to allocate spectrum licenses in a manner that promotes competition, for the Communications Act instructs the FCC, to "avoid[ ] excessive concentration of licenses," and to "disseminate[ ] licenses among a wide variety of applicants, including small businesses." The plain language of the Middle Class Tax Relief and Job Creation Act reaffirms the Commission's authority to, and I quote: "adopt rules of general applicability, including rules, concerning spectrum aggregation, that promote competition." Such a spectrum allocation rule would also be consistent with our precedent. As the Order explains, since the 1980s, the Commission has often adopted policies designed to prevent undue concentration of spectrum licenses necessary to provide those services.

There are a number of factors that suggest we should apply such a rule to spectrum made available in the incentive auction. Below-1 GHz spectrum is particularly valuable for deploying wireless services in a more cost effective manner. Currently, there is substantial consolidation of below-1 GHz spectrum in the hands of just a few, nationwide carriers. The upcoming 600 MHz auction could allow these same carriers to increase this advantage over their competitors. And there is unlikely to be another auction, in the near future, that would permit their competitors to acquire below-1 GHz spectrum.

That is why I am also glad that, in setting the unreserved/ reserved amounts in the forward auction, we are doing so with a local market approach. In the annual mobile services reports, I always focus on the number of people who live in rural markets with two or fewer wireless providers. In last year's report, that number stood at 7.7 million. I believe closely examining the relevant aspects of a local

market's competitive structure helps to ensure that our policies are best able to promote more competition in rural markets.

I must say, however, that there are aspects of this Order I have problems with. These are the amounts of unreserved/reserved spectrum in the scenarios when we recover 60 MHz and 50 MHz of broadcast spectrum. In the draft Order the Chairman originally circulated, the split of unreserved to reserved spectrum in these scenarios would have been 30/30 and 30/20, respectively. Much to my dismay, those original proposals were changed to 40/20 and 40/10.

In short, I preferred the original proposals. A number of wireless carriers told my Office they want the opportunity to acquire 20 megahertz of spectrum in the incentive auction. By allocating 30 megahertz of spectrum for unreserved spectrum, we would have created an incentive for these companies to compete intensely to acquire that 20 megahertz of spectrum.

And encouraging competition between the strongest providers, in a market, has repeatedly proved effective for increasing auction revenues. Take our neighbors to the north who most recently took a similar approach in an auction. Canada reserved some licenses for bidders other than the dominant three carriers. It resulted in a very successful 700 MHz auction and those rules forced the largest carriers to bid against each other for the blocks of unreserved licenses. The ensuing bidding war generated the most revenue ever raised by a wireless auction in Canada.

By shifting to 40 megahertz of unreserved spectrum in the 60 and 50 megahertz recovery scenarios, we are encouraging the top two carriers in every local market to each acquire their coveted 20 megahertz of spectrum without having to aggressively compete against each other. This approach, I believe, fails to promote the most efficient allocation of spectrum. It will not, I fear, provide incentive for wireless carriers to bid higher, which in turn, would encourage more broadcasters to relinquish their spectrum in the reverse auction. It is also taking, from the reserved category, valuable spectrum that smaller carriers would have had a better opportunity to acquire in order to remain competitive and provide existing customers with better service and options.

My doubts and my fears force me to partially concur on this section of the item. But I believe it is important that we have spectrum aggregation rules that can be applied in the 600 MHz auction. Therefore, a compromise here was necessary in order to achieve a majority vote on the aspects of the Order that make reserved spectrum available.

I thank Roger Sherman, Jim Schlichting, Joel Taubenblatt, Michael Janson, and Bill Richardson for their detailed briefings and commend Nese Guendelsberger, Kate Matraves, and the other staff members, who worked hard to produce an item with very creative proposals. And I want to once again acknowledge the excellent work, of my wireless legal advisor, Louis Peraertz.

**STATEMENT OF  
COMMISSIONER JESSICA ROSENWORCEL**

Re: *Policies Regarding Mobile Spectrum Holdings, Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, WT Docket No. 12-269, Docket No. 12-268.

It has been nearly a dozen years since the Commission conducted its last major review of our approach to spectrum holdings. Think about that. Twelve years ago a flip phone was state of the art. Color displays on any phone were new and novel. And cameras had not yet invaded all of our wireless devices. It was a long time ago. A fresh look is not only in order, it is overdue.

So today we take up the task of updating our policies for spectrum holdings. We are guided by Section 309(j) of the Communications Act, which directs the agency to promote economic opportunity and competition.

But we do not act in a vacuum. Because our rules for spectrum holdings are intertwined with our upcoming efforts to identify new spectrum for wireless broadband. As part of these efforts, in the Middle Class Tax Relief and Job Creation Act, Congress directed the Commission to conduct a series of new spectrum auctions. And as part of these auctions, we have a solemn duty. We are entrusted by Congress with the responsibility to ensure that the proceeds from these auctions are sufficient to support a nationwide, interoperable, wireless broadband network for public safety. It has been more than a dozen years since the horror of 9/11. Too much time has passed and too many lives were lost for us to fall short of our promise, at long last, to provide interoperable communications to our first responders.

I believe that our efforts today honor this responsibility. We update our spectrum screen—the prism through which we review transactions. In doing so, we acknowledge that carriers now use more spectrum than ever before to provide wireless broadband service. But we also acknowledge that transactions involving valuable low-frequency spectrum merit enhanced scrutiny. At the same time, we adopt policies to guide bidding in our upcoming auctions. Our new rules make sure that everyone is welcome to bid and everyone will have a fair shot. But our approach also ensures that we meet our special responsibilities to our nation's first responders.

Consequently, this Report and Order has my support. So I want to thank the Chairman for his work with my office to reach this result—and for his commitment to public safety.

**DISSENTING STATEMENT OF  
COMMISSIONER AJIT PAI**

Re: *Policies Regarding Mobile Spectrum Holdings, Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, WT Docket No. 12-269, Docket No. 12-268.

When the Commission launched this proceeding, I held out the hope that we would remedy the widely acknowledged defects in our approach to evaluating spectrum holdings.<sup>1</sup> There are a few flashes of that in this order. One critical flaw was that our previous spectrum screen consistently understated competition in the wireless marketplace by failing to account for all spectrum suitable and available for mobile broadband. So I welcome our decision in this order to include in that screen the Broadband Radio Service and Educational Broadband Service spectrum that is being used today to provide 4G service across the country. I also appreciate the order's determination that there is no basis for imposing bidding restrictions in the upcoming AWS-3 auction.

But these narrow acknowledgements of marketplace realities are exceptions rather than the rule. The primary objective of this decision seems to be reengineering the wireless market to reflect the Commission's vision of how it should be structured. Rather than choosing competition, we restrict it. Rather than embracing the free market, which has sparked constant innovation in wireless services over the last two decades, the Commission places its faith in centralized economic planning. Rather than relying on private carriers to decide which spectrum is most suited to their needs (or business models), the Commission decides for them.

This order also represents a missed opportunity. We adopted the Notice of Proposed Rulemaking with the promise of providing needed transparency and predictability to secondary market transactions. But here, we offer only a black box. Indeed, we make the problem worse than before by adopting a vague and undefined "enhanced review" standard for transactions involving below 1 GHz spectrum.

This begs the question: Of the 2,100 transfers of low-frequency spectrum that have occurred since 2007, how many would have survived this "enhanced review"? How many would have been proposed in the first place had the prospect of "enhanced review" been lurking? No one knows. And that's a problem for all players in the market, big and small, because everyone from Coase to Congress knows that we all benefit from a vibrant secondary market. It allows spectrum to flow to its highest valued use, thereby maximizing consumer welfare.

Moreover, this order takes the unprecedented step of specifically warning against any major transactions among the top four national carriers. It goes so far as to ham-handedly state that if any such transactions are even *proposed*—and I know, you know, we all know what the item has in mind here—then the Commission might declare "no soup for you!" and retract any and all preferences being handed out. That's not letting consumer preferences drive the marketplace or objectively reviewing the specific facts of a particular deal. That's not even leveraging the power of the government to regulate by "raised eyebrow." That's the public sector preemptively deciding who in the private sector should be able to compete and on what terms, whatever the marketplace realities.

Perhaps worst of all, this order endangers the success of the broadcast incentive auction. As I stated when we launched this proceeding, the FCC should not limit competitors' ability to compete. We should not pick winners and losers. The inevitable effect of a policy that restricts participation is less spectrum repurposed for mobile broadband, less funding for national priorities, a higher budget deficit, and an increased chance of a failed incentive auction.

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<sup>1</sup> See *Policies Regarding Mobile Spectrum Holdings*, Notice of Proposed Rulemaking, 27 FCC Rcd 12357 (2012) (Concurring Statement of Commissioner Ajit Pai), available at <http://go.usa.gov/8x4w>.



That last point bears further explanation: Restricting participation in the incentive auction needlessly jeopardizes its success. The Spectrum Act sets out the twin goals of repurposing spectrum for commercial broadband and raising \$27.95 billion for critical national priorities—namely public safety and deficit reduction.<sup>2</sup> One key to achieving these goals is to maximize participation in the forward auction. This would incentivize broadcasters to relinquish spectrum voluntarily, and it would drive revenue towards Congress’s funding priorities. Restricting bidding puts all of this at risk. Remember, for our upcoming auctions, we need bidders to bring *billions* of dollars to the table. We can’t afford to engage in ideologically-motivated experiments.

This is not a partisan view. Seventy-eight Democrats in the U.S. House of Representatives recently wrote the Commission and made these same points. As they put it, “For the auction to be a success, the Commission should maximize participation by both broadcasters incited to relinquish their spectrum rights and bidders seeking to buy those rights.”<sup>3</sup> “In fact,” they went on to say, “inviting as many bidders as possible to compete in an open and fair auction *on equal terms* will allow for the full market price for spectrum to be realized and, in turn, lead to higher compensation to incent greater broadcaster participation resulting in more spectrum for the auction.” Republican leaders of the House Committee on Energy and Commerce similarly wrote that bidding restrictions operate “to the detriment of auction participation, [and] revenue” and “distort the outcome.”<sup>4</sup>

On the other side of Capitol Hill, a bipartisan group of Senators—including Senators John Cornyn, Charles Schumer, John Thune, and Sherrod Brown—recently wrote to the Commission.<sup>5</sup> They urged us to “reconsider any rules that will limit participation.” They wrote that “bidding restrictions will have the effect of disincentivizing broadcaster participation because of concerns about reduced returns” and “could result not only in less spectrum being put back into the market to be used efficiently, but also less revenue generated by the auction.”

Indeed, there has long been a bipartisan consensus that the FCC should maximize net revenues and let market forces sort out who wins and who loses. Senator Schumer has urged the FCC to “maximize participation by broadcasters and bidders alike” and stated that “limit[ing] participation . . . would simply . . . reduce the amount of spectrum offered for auction as well as the revenue that would be generated in return.”<sup>6</sup> Senator Thune has told the FCC that “its primary focus needs to be on how to maximize participation in the upcoming incentive auction . . . not how to limit . . . participation.”<sup>7</sup> Representative John Dingell and others have written that “[a]ll carriers should have a meaningful opportunity to bid for spectrum” and have urged the FCC to reject policies “that will jeopardize the ability of the auction to generate winning bids” to fund national priorities.<sup>8</sup>

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<sup>2</sup> A successful auction will deliver not just the \$7 billion in funding Congress specified for the First Responder Network Authority but also the \$135 million it marked for state and local public safety officials, the \$300 million it identified for the research and development of wireless public safety communications, the \$115 million it sought for the deployment of Next Generation 911, and over \$20 billion to pay down the national debt. *See* Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, § 6413, 126 Stat. 156, 236 (2012) (Spectrum Act).

<sup>3</sup> Letter from Representative John Barrow et al. to Honorable Thomas Wheeler, Chairman, FCC (Apr. 11, 2014), *available at* <http://go.usa.gov/83ee>.

<sup>4</sup> Letter from Representative Fred Upton et al. to Honorable Thomas Wheeler, Chairman, FCC (May 2, 2014), *available at* <http://go.usa.gov/83tx>.

<sup>5</sup> Letter from Senator John Cornyn et al. to Honorable Thomas Wheeler, Chairman, FCC (May 14, 2014).

<sup>6</sup> Letter from Senator Charles Schumer to Honorable Thomas Wheeler, Chairman, FCC (Nov. 20, 2013).

<sup>7</sup> Statement of Senator John Thune before the U.S. Senate Committee on Commerce, Science, and Transportation, “Crafting a Successful Incentive Auction: Stakeholders’ Perspectives” (Dec. 10, 2013), *available at* <http://go.usa.gov/84eP>.

<sup>8</sup> Letter from Honorable John Dingell to Honorable Mignon Clyburn, Acting Chairwoman, FCC (July 16, 2013).

Others outside of Congress have reached the same conclusion. The Communications Workers of America has argued that “an open competition is the best way to serve the public interest” and “maximize[] auction proceeds.”<sup>9</sup> The Rainbow PUSH Coalition urges the Commission to adopt “rules that allow for full, unrestricted participation by all interested companies willing to bid for spectrum needed to provide mobile broadband to consumers.”<sup>10</sup> The National Urban League similarly advocates for rules that “maximize participation.”<sup>11</sup>

But the Commission rejects all of this counsel. In so doing, there is little doubt that the restrictions imposed will substantially reduce the revenues raised by the incentive auction. Congress itself recognized, when it first authorized the Commission to conduct spectrum auctions, that “limit[ing] participation in any given competitive bidding procedure” creates “a significant possibility that licenses will be issued for bids that fall short of the true market value of the license.”<sup>12</sup>

Experience confirms this intuition. Studies show that the FCC’s prior decisions to impose bidding restrictions have substantially reduced revenues, led to significant delays in spectrum being put to use by consumers, and, perhaps worst of all, imposed these costs without producing any long-term benefits for wireless competition.<sup>13</sup> Indeed, analyses have concluded that our previous experiments with bidding restrictions “were ineffective in achieving the FCC’s social policy goals.”<sup>14</sup> According to the Congressional Budget Office, previous bidding restrictions delayed the deployment of up to 20 percent of the auctioned spectrum by up to a decade.<sup>15</sup> Data also show that our previous restrictions reduced auction revenues by up to 61 percent,<sup>16</sup> and the losses in consumer welfare were calculated to be \$70 billion.<sup>17</sup>

The international experience reveals a similar story. Studies of bidding restrictions imposed by governments around the world show that those efforts failed to achieve the goal of creating a utopian wireless marketplace and imposed severe costs along the way, including reduced auction revenues, swaths of fallow spectrum, and delayed deployments of new services to consumers.<sup>18</sup> For example,

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<sup>9</sup> Letter from Larry Cohen, President, CWA, to Honorable Mignon Clyburn, Chairwoman, FCC (Oct. 29, 2013), available at <http://go.usa.gov/84vj>.

<sup>10</sup> Letter from Reverend Jesse L. Jackson, Sr., Founder & President, Rainbow Push Coalition, to Honorable Thomas Wheeler, Chairman, FCC (May 6, 2014).

<sup>11</sup> Letter from Mark H. Morial, President and CEO, National Urban League, to Honorable Thomas Wheeler, Chairman, FCC (May 7, 2014), available at <http://go.usa.gov/8xsW>.

<sup>12</sup> See, e.g., Omnibus Budget Reconciliation Act of 1993, Report of the Committee on the Budget, House of Representatives, to Accompany H.R. 2264, A Bill to Provide for Reconciliation Pursuant to Section 7 of the Concurrent Resolution of the Budget for Fiscal Year 1994, at 257 (May 25, 1993) (OBRA Report).

<sup>13</sup> See, e.g., Robert Earle, Ph.D. and David W. Sosa, Ph.D., Spectrum Auctions Around the World: An Assessment of International Experiences with Auction Restrictions (July 2013) (Spectrum Auctions Around the World), available at [http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/2013\\_Earle\\_Sosa\\_SpectrumAuctionsWorldwide.pdf](http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/2013_Earle_Sosa_SpectrumAuctionsWorldwide.pdf); see also Fred B. Campbell, Maximizing the Success of the Incentive Auction (Nov. 2013) (Maximizing the Success of the Incentive Auction), available at <http://cbt.org/wp-content/uploads/2014/01/auction-whitepaper-10-31-2013-FINAL.pdf>.

<sup>14</sup> Spectrum Auctions Around the World at 9.

<sup>15</sup> See Congressional Budget Office, Small Bidders in License Auctions for Wireless Personal Communications Services (Oct. 2005), available at <http://go.usa.gov/82qT>.

<sup>16</sup> See, e.g., Maximizing the Success of the Incentive Auction at i, iii, 13.

<sup>17</sup> See, e.g., Thomas W. Hazlett, Roberto E. Muñoz, and Diego B. Avanzini, What Really Matters in Spectrum Allocation Design, 10 Nw. J. Tech. & Intell. Prop. 93 (2012).

<sup>18</sup> See, e.g., Spectrum Auctions Around the World; Mobile Future, The Case for Inclusive Spectrum Auction Rules (Sept. 2013) (The Case for Inclusive Spectrum Auction Rules), available at <http://mobilefuture.org/wp->

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analyses of bidding restrictions and set-asides imposed in the U.K., Germany, Canada, and India, to name just a few, resulted in the spectrum selling for 27 to 75 percent less than expected.<sup>19</sup> But at least those licenses sold. Restrictions have also resulted in up to 58 percent of available spectrum going unsold,<sup>20</sup> with numerous legislatures launching inquiries into the disappointing results.

But we now trod down this same path,<sup>21</sup> and we do so with arbitrary restrictions that are sure to produce anomalous results. Here are just a few examples.

*First*, the order will permit one of any number of companies to acquire every single 600 MHz license in every market, even though the order claims that the restrictions are needed to prevent any one firm from running the table.<sup>22</sup>

*Second*, the restrictions set forth in the order are not rationally related to the purported objective of “ensur[ing] against excessive concentration in holdings of low-band spectrum.”<sup>23</sup> For example, let’s assume that 70 MHz of spectrum will be sold through the incentive auction. A company that holds 40 MHz of low-band spectrum in a given market (“Company A”) would be able to purchase all 70 MHz in that market, thus increasing its total holdings to 110 MHz. On the other hand, a company that holds 45 MHz of spectrum (“Company B”) would only be able to purchase 40 MHz in that market, thus increasing its total holdings to 85 MHz. This raises the basic question: does allowing one company to hold 110 MHz of low-band spectrum constitute “excessive concentration”? If the answer to this question is yes, then Company A should not be allowed to hold that much spectrum. And if the answer to this question is no, then Company B should be permitted to hold 110 MHz of spectrum, not just Company A.

*Third*, and relatedly, the order permits a provider to participate in the 600 MHz auction and acquire far more than 1/3 of all low-band spectrum. Yet, if that same provider attempts to acquire that same amount of low-band spectrum in the secondary market, the order subjects the acquisition to “enhanced scrutiny” and case-by-case review. What rational basis is there for applying an enhanced level of review to one of those acquisitions and no scrutiny to the other?

*Fourth*, the order’s set-asides ignore high-band spectrum altogether. This means that a company that holds 44 MHz of low-band spectrum and large swaths of high-band holdings in the same market can acquire as much additional low-band spectrum as it wants. But a competitor that has just 45 MHz of low-band spectrum and no high-band holdings in that market would be restricted from bidding for certain blocks of spectrum. Would anyone seriously maintain that the latter company’s spectrum position poses a greater competitive threat than the former’s?

*Fifth*, the order leans heavily on the need to spur deployment in rural areas as a justification for these restrictions. But the rules we adopt aren’t tailored to that goal. They will take effect in a number of

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content/uploads/2013/09/Website-The-Case-for-Inclusive-Spectrum-Auction-Rules-Refile.pdf; Paul Beaudry and Martin Masse, Lessons Learned: Canada’s Experience with Set-Asides and Caps in Spectrum Auctions (Apr. 2014).

<sup>19</sup> See, e.g., The Case for Inclusive Spectrum Auction Rules (explaining that restrictions reduced revenues below projections by 30 percent in the U.K., 27 to 45 percent in Germany, 30 percent in Canada, and 75 percent in India).

<sup>20</sup> See, e.g., *id.* (discussing how auction restrictions resulted in only 130 MHz of 190 MHz of available spectrum being sold in the Netherlands, and only 42 percent of the available spectrum in India).

<sup>21</sup> Cf. George Santayana, *The Life of Reason* at 284 (1905) (“Those who cannot remember the past are condemned to repeat it.”).

<sup>22</sup> See, e.g., *Report and Order* at para. 60.

<sup>23</sup> *Report and Order* at para. 4.

urban markets (where capacity, not coverage, is most needed) and will not even apply in large swaths of rural America.<sup>24</sup>

*Finally*, the order's broad prohibition on the transfer of 600 MHz spectrum only compounds these errors.<sup>25</sup> By prohibiting anyone from transferring a 600 MHz license to someone with more than a certain amount of low-band holdings for *six years* (remember—six years ago we were just getting used to smartphones), the item depresses the value of all 600 MHz licenses. It forces bidders to factor in the risk that their business plans, or consumer preferences, may change, and it restricts the chance that spectrum will flow to its highest and best use.

The arbitrariness of these results dovetails with the caprice evident from piecing the rules together. The item contains a lengthy discussion of how the 45-MHz line is the “threshold basis for determining” whether a provider qualifies to bid on reserved spectrum and is an “effective line of demarcation.”<sup>26</sup> It also posits that such a threshold is necessary “to ensure that multiple providers are able to access a sufficient amount of low-band spectrum.”<sup>27</sup> But all that analysis is simply tossed aside when it might apply to any carrier other than AT&T or Verizon. Apparently non-nationwide providers offer the unique ability to “offer consumers additional choices” and “provide some constraint on the ability of nationwide providers to act in anticompetitive ways”<sup>28</sup>—rather tepid assertions that lack evidentiary support and are undercut by the order's implicit acknowledgment that the record simply does not support a finding of market power for *any* carrier.

So what compels the Commission to adopt these rules? Certainly not the Spectrum Act, which left the FCC's authority to adopt “rules of general applicability” regarding spectrum aggregation limits intact but warned us not to “prevent a person from participating” in an auction.<sup>29</sup> In fact, I have serious doubts that this order complies with this provision. We target two specific companies and made late changes to our rules—I was not provided a final version of the item until 11:50 p.m. the night before the vote and it was a substantially different document with substantively revised reasoning than the one that was previously circulated—to ensure that the rules do not apply to a single company other than those two. I doubt a court would hesitate to call this anything other than “individual action . . . masquerading as a general rule.”<sup>30</sup>

Nor does the Communications Act require us to adopt such limits. The Act requires us to promote the “efficient and intensive use of the electromagnetic spectrum,”<sup>31</sup> which the Commission has repeatedly interpreted to mean that “Congress intended ‘to ensure that scarce spectrum is put to its highest

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<sup>24</sup> To be sure, the order attempts to bolster the proffered rural justification by determining that “access to a sufficient amount of low-band spectrum is a threshold requirement for extending and improving service in rural as well as urban areas.” *Report and Order* at note 197; *see also id.* at para. 3. But the Commission's novel theory about the “threshold” nature of this spectrum cannot be squared with real world experience, which shows that carriers are deploying networks and competing both in the United States and in countries such as Germany, Italy, Spain, and France with little or no low-band spectrum. *See, e.g.,* The Case for Inclusive Spectrum Auction Rules at 14-15 (discussing providers that are competing around the world using high-band spectrum and concluding that these deployments “undercut the assertions in this country that holding sub-1 GHz spectrum is a competitive necessity”).

<sup>25</sup> *See Report and Order* at paras. 196–200.

<sup>26</sup> *See id.* at paras. 174, 176.

<sup>27</sup> *See id.* at para. 176.

<sup>28</sup> *See id.* at para. 179.

<sup>29</sup> *See* Spectrum Act § 6404(a) (amending the Communications Act by adding 47 U.S.C. § 309(j)(17)(A)).

<sup>30</sup> *Committee for Effective Cellular Rules v. FCC*, 53 F.3d 1309, 1320 (D.C. Cir. 1995) (quotation marks omitted).

<sup>31</sup> 47 U.S.C. § 309(j)(3)(D).

and best use.”<sup>32</sup> Or as the FCC has explained in the past: “[C]ompetitive markets are the most direct and reliable means for ensuring that consumers receive the benefits described in the Communications Act.”<sup>33</sup> And while Congress wanted the FCC to remain “sensitive to the need to maintain opportunities for small business,” it was not concerned with protecting “well-heeled firms” and did “not intend that this objective dominate the Commission’s decision-making,” as it does here.<sup>34</sup>

Nor does our precedent drive us in this direction. Our cases state that we restrict participation in an auction “only when open eligibility would pose a significant likelihood of substantial harm to competition in specific markets and when an eligibility restriction would be effective in eliminating that harm.”<sup>35</sup>

How does this order satisfy this standard? It doesn’t. And it doesn’t even try. For good reason: The Commission could never meet that standard here. The evidence shows that no providers have been foreclosed from access to low-frequency spectrum.<sup>36</sup> To the contrary, the two national providers that benefit most from these new set-asides chose to sit out the FCC’s last low-band auction altogether, while more than one hundred bidders actively participated and acquired substantial sub-1 GHz holdings. When these two providers have chosen to participate, they’ve proven that they are large, well-funded corporations and savvy competitors that can dominate the bidding.<sup>37</sup> For the Commission to so aggressively tilt the playing field in the absence of market failure is caprice classic.<sup>38</sup>

Indeed, rather than face this fact, the *Incentive Auction Order* asserts that restricting participation is the same thing as open eligibility;<sup>39</sup> that can’t be right. Just last year, the FCC said that under open eligibility “the Commission does not exclude any potential applicants because of the amount of spectrum

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<sup>32</sup> See *Amendment of the Commission’s Rules Regarding the 37.0–38.6 GHz and 38.6–40.0 GHz Bands*, Notice of Proposed Rulemaking, 19 FCC Rcd 8232, 8237, n.29 (2004) (quoting H.R. Conf. Rep. No. 105-217, 143 Cong. Rec. H6173 (daily ed. July 29, 1997)).

<sup>33</sup> *Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission’s Rules to Redesignate the 27.5–29.5 GHz Frequency Band*, 12 FCC Rcd 12545, 12614, para. 157 (1997); cf. *Implementation of Sections 3(n) and 332 of the Communications Act -- Regulatory Treatment of Mobile Services*, GN Dkt. No. 93-252, Second Report and Order, 9 FCC Rcd 1411, 1420, para. 1994 (“Success in the marketplace . . . should be driven by technological innovation, service quality, competition-based pricing decisions, and responsiveness to consumer needs—and not by strategies in the regulatory arena.”).

<sup>34</sup> See OBRA Report at 254–55.

<sup>35</sup> See, e.g., *Service Rules for Advanced Wireless Services in the 2000–2020 MHz and 2180–2200 MHz Bands*, WT Dkt. Nos. 12-70, 04-356, ET Dkt. No. 10-142, Report and Order and Order of Proposed Modification, 27 FCC Rcd 16102, 16193, para. 241 (2012); see also *Service Rules for the 698–746, 747–762 and 777–792 MHz Bands*, WT Dkt. No. 06-150, Second Report and Order, 22 FCC Rcd 15289, 15383-84, para. 256 (2007) (*700 MHz Second Report and Order*).

<sup>36</sup> During our last auction of low-band spectrum, the Commission carefully considered and rejected the theory that large carriers would foreclose access to low-band spectrum in the absence of restrictions. See *700 MHz Second Report and Order*, 22 FCC Rcd at 15384, paras. 256–57. That determination proved correct, and this order offers no basis for distinguishing that precedent.

<sup>37</sup> See FCC Advanced Wireless Services Auction No. 66, Summary, <http://go.usa.gov/8jbC>.

<sup>38</sup> See, e.g., *Home Box Office Home Box Office, Inc. v. FCC*, 567 F.2d 9 (D.C. Cir. 1977) (“[A] ‘regulation perfectly reasonable and appropriate in the face of a given problem may be highly capricious if that problem does not exist.’” (quoting *City of Chicago v. FPC*, 458 F.2d 731, 742 (D.C. Cir. 1971)); see also *National Fuel Gas Supply Corp. v. FERC*, 468 F.3d 831, 843 (D.C. Cir. 2006) (“Professing that an order ameliorates a real industry problem but then citing no evidence demonstrating that there is in fact an industry problem is not reasoned decision-making.” (citing *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 42–43 (1983))).

<sup>39</sup> *Expanding Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Dkt. No. 12-268, Report and Order, FCC 14-50, at paras. 748–53 (2014) (*Incentive Auction Order*).

they already control.”<sup>40</sup> The order tries to brush this precedent aside by saying that our words “might not have been precise.”<sup>41</sup> But there’s nothing imprecise about such precedents.<sup>42</sup> They’re just not consistent with what the Commission chooses to do here. Both law and policy require us to acknowledge and justify our change of heart.<sup>43</sup>

Nor does sound economic theory compel this result. The order contains no finding of anticompetitive practices or market failure. And it does not even attempt to show that competitors would be unable to obtain low-band spectrum in an open auction.

In fact, the only basis the order offers for imposing restrictions is the Commission’s “predictive judgment.” That raises the question: When it comes to spectrum policy, how predictive has our judgment been? About as accurate as Dionne Warwick’s psychic friends. The ledger in this regard includes the PCS bankruptcies in the 1990s; the belief that we could lure a new national provider into the market if we tailored our 700 MHz Upper C Block open platform requirements to a particular business model; and numerous other auctions where we were wrong about such basic facts as who would show up, how much participants would bid, or both. I don’t take much comfort in this type of predictive judgment, and neither have the courts.<sup>44</sup>

In the end, I hope that these errors will be harmless, and that they won’t undermine the success of the incentive auction or impede pro-consumer secondary market transactions. There are ways we can and should promote competition in the wireless market, including removing barriers to infrastructure deployment and freeing up additional spectrum for commercial use. I look forward to continuing to work with my colleagues on those issues. But on this item, I must respectfully dissent.

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<sup>40</sup> *Expanding Access to Broadband and Encouraging Innovation through Establishment of an Air-to-Ground Mobile Broadband Secondary Service for Passengers Aboard Aircraft in the 14.0-14.5 GHz Band*, GN Dkt. No. 13-114, Notice of Proposed Rulemaking, 28 FCC Rcd 6765, 6785, para. 67, n.101 (2013); *see also 700 MHz Second Report and Order*, 22 FCC Rcd at 15382–85, paras. 252–59 (applying the “significant likelihood of substantial competitive harm” test when determining whether the Commission should prevent, not just closed classes of entities, but “large wireless carriers” from participating); *Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, 18 FCC Rcd 25162, 25188–90, paras. 64–68 (2003) (discussing “eligibility restrictions” and “spectrum aggregation limits” without drawing any substantive distinction between the two).

<sup>41</sup> *Incentive Auction Order* at para. 752.

<sup>42</sup> Notably, the item does not cite to any prior auction where the Commission has adopted auction-specific bidding restrictions yet claimed that it was adopting an open eligibility standard.

<sup>43</sup> *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502 (2009) (“[T]he requirement that an agency provide reasoned explanation for its action would ordinarily demand that it display awareness that it is changing position. An agency may not, for example, depart from a prior policy *sub silentio*[.]”).

<sup>44</sup> *See, e.g., Cincinnati Bell Telephone Co. v. FCC*, 69 F.3d 752, 760 (6th Cir. 1995) (declining to defer to the FCC’s “‘predictive judgment’ as to the possible future behavior of future marketplace entrants”).

**DISSENTING STATEMENT OF  
COMMISSIONER MICHAEL P. O'RIELLY**

Re: *Policies Regarding Mobile Spectrum Holdings, Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, WT Docket No. 12-269, Docket No. 12-268.

Today's order effectively replaces our centuries-old belief in the American free market system, as embodied in the Commission's auction process, with one that seeks to produce a specific outcome to benefit a select few. I am sure some will assert that this market manipulation is all in the "public interest," but I can't agree with such an argument or the resulting outcome.

At the heart of the item is an enormous thumb the agency places on the scale of future secondary market transactions involving low-band spectrum and, most concerning, the upcoming Broadcast Incentive Auction. Substituting the proven success of market-based spectrum allocation with the Commission's subjective judgment goes against the spirit and, more importantly, the letter of the law. It also will result in consumer-harming inefficiencies, and could readily lead to a failed Incentive Auction. Accordingly, I strongly dissent.

The Spectrum Act directs the Commission to set up a market mechanism to determine the highest valued use of the 600 MHz band.<sup>1</sup> A free and unfettered market is critical to the Incentive Auction. It will determine whether broadcast or wireless broadband is the best economic use of this spectrum and it will allocate new licenses among wireless providers. The revenues raised should also fund the First Responder Network Authority, the Next Generation 911 program and deficit reduction, among other Congressional priorities. With revenue so intrinsic to success, the statute specifically prohibits the Commission from excluding certain parties from participating in the auction, but it allows rules of general applicability for spectrum aggregation to guard against undue spectrum concentration in any market.<sup>2</sup> The language in the law was a hard-fought compromise. It was intended to prevent the exact circumstances now contained in the order: specifically targeting the two largest nationwide wireless providers. The item blatantly disregards the statute and sadly adopts the concept that the ends justify the means.

Throughout this rulemaking process, some companies have insisted that the Commission tip the scales in their favor in the upcoming Incentive Auction. We are told that the government must use this opportunity to correct a "historical accident" that has resulted in some providers claiming they need more low-band spectrum. And the order falls for this argument by effectively creating a set-aside within the Incentive Auction for these parties. Specifically, the item states that once the final stage rule is met, any bidder that is a nationwide service provider and holds 45 megahertz or more of spectrum below 1 GHz will be precluded from bidding on a certain amount of "reserved" spectrum. In contrast, the non-restricted bidders are free to bid on all available spectrum—reserved and non-reserved—regardless of their total spectrum holdings.

But what some call correcting a "historical accident,"<sup>3</sup> I call corporate welfare for certain multinational companies with large market capitalizations and access to global capital markets. In some

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<sup>1</sup> Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, §§ 6402, 6403, 126 Stat. 156, 224-230 (2012).

<sup>2</sup> *Id.* § 6404, 126 Stat. at 230.

<sup>3</sup> *See, e.g.*, Letter from Tom Wheeler, Chairman, Federal Communications Commission, to Tammy Duckworth, Member, U.S. House of Representatives (Apr. 17, 2014); Kate Tummarrello, *FCC Chief Defends Plan to Limit Large Carriers in Auction*, THE HILL, Apr. 17, 2014, <http://thehill.com/policy/technology/203822-fcc-chief-defends-limits-in-airwave-auction>.

cases, the companies also have strong backing by foreign governments. Why, with so much riding on the success of this auction, would the Commission add to the complexity and risk lowering auction revenues in order to allow a favored few to buy this spectrum at below-market rates? If this set-aside is so critical to wireless competition, why may it only be triggered if the Commission hits a certain revenue target?

Over the years, wireless providers have made deliberate and strategic decisions regarding when they should and should not participate in various auctions (including low-band spectrum auctions), when and where to invest and build, whether to focus on urban or rural markets, and what mergers or secondary market transactions to enter into. Where the various companies are today is a direct result of such decisions, not by accident. Some companies now want a spectrum subsidy to acquire the same kind of low-band spectrum that they passed on previously in favor of high-band frequencies.

Free market spectrum auctions award licenses to those who value the spectrum the most and will put it to its greatest use. In attempting to equalize outcomes between competitors, unintended consequences may result and consumers may not receive the benefits of the best the marketplace has to offer. Even if these set-asides do not tank the Incentive Auction, we will never know the full opportunity cost of these decisions, *i.e.*, the counterfactual. How much money could the auction have raised without intervention? Would non-favored companies, if allowed to bid freely and win, have provided consumers with superior products or services? We will never know the extent, but those societal losses are real. Today's action also penalizes American consumers who subscribe to the wireless providers confined to unreserved spectrum. Why should those consumers endure slower Internet speeds due to network congestion to satisfy an arbitrary policy goal?

There can be no justification for going down this path of picking winners and losers in the auction process. If the concern is spectrum concentration in a market, the spectrum screen addresses that issue. If rural markets are the top concern, as some claim, then why distort the highly competitive urban markets? If the concern is warehousing, that can be addressed through our build-out rules that require licensees to invest in a network and serve customers by a date certain. If the claim is competitive foreclosure, show me the evidence, not abstract theoretical possibilities.

I hope that we will reverse course and hold a free and open auction in which all parties can compete for spectrum licenses equally. But as we go forward, licensees who obtain "reserved" spectrum should not look to me for any type of special relief, including any extensions of build-out deadlines or sign off when they seek permission to "flip" their licenses.