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FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 0, 1, 2, 15, 27, 73, and 74

[GN Docket No. 12-268; FCC 14-50]

Expanding the Economic and Innovation Opportunities of Spectrum through Incentive Auctions

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: In this document the Commission adopts rules to implement the broadcast television spectrum incentive auction. Our central objective in designing this incentive auction is to harness the economics of demand for spectrum in order to allow market forces to determine its highest and best use, which will benefit consumers of telecommunications services.

DATES: Effective **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]** except for amendments to §§ 1.2105(a)(2)(xii) and (c)(6); 1.2204(a), (c), (d)(3), and (d)(5); 1.2205(c) and (d); 1.2209; 2.1033(c)(19)(iii); 15.713(b)(2)(iv); 15.713(h)(10); 27.14(k) and (t)(6); 27.17(c); 27.19(b) and (c); 73.3700(b)(1)(i) through (v), (b)(2)(i) and (ii), (b)(3), (b)(4)(i) and (ii), and (b)(5); 73.3700(c); 73.3700(d); 73.3700(e)(2) through (6); 73.3700(f); 73.3700(g); 73.3700(h)(4) and (6); 74.602(h)(5)(ii) and (iii); and 74.802(b)(2), which contain new or modified information collection requirements that are not effective until approved by the Office of Management and Budget. The Federal Communications Commission will publish a document in the Federal Register announcing the effective date for those sections.

FOR FURTHER INFORMATION CONTACT: Paul Malmud, Wireless Telecommunications Bureau, Broadband Division, at (201) 418-0006 or by email to

Paul.Malmud@fcc.gov. For additional information concerning the Paperwork Reduction Act information collection requirements contained in this document, contact Cathy Williams at (202) 418-2918, or via the Internet at PRA@fcc.gov.

SUPPLEMENTARY INFORMATION: The full text of this document is available for inspection and copying during normal business hours in the FCC Reference Information Center, Room CY-A257, 445 12th Street, SW, Washington, DC 20554. The complete text may be purchased from the Commission's duplicating contractor, Best Copy and Printing, Inc. (BCPI), Portals II, 445 12th Street, SW, Room CY-B402, Washington, DC 20554, (202) 488-5300, facsimile (202) 488-5563, or via e-mail at fcc@bcpiweb.com. The complete text is also available on the Commission's Website at http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0602/FCC-14-50A1.pdf. Alternative formats (computer diskette, large print, audio cassette, and Braille) are available by contacting Brian Millin at (202) 418-7426, TTY (202) 418-7365, or via e-mail to bmillin@fcc.gov.

I. INTRODUCTION

1. This Order (See Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions, FCC 14-50, GN Docket No. 12-268 (rel. June 2, 2014)), adopts rules to implement the broadcast television spectrum incentive auction, which the Federal Communications Commission ("FCC" or "Commission") proposed in Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions 77 FR 69934, Nov. 21, 2012 ("NPRM"). The incentive auction is a new tool authorized by Congress to help the Commission meet the Nation's accelerating spectrum needs as set forth in the Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, sections 6402, 6403, 125 Stat. 156 (2012) ("Spectrum Act").

II. THE REORGANIZED UHF BAND

A. Band Plan for the New 600 MHz Band

1. All-Paired, Down From 51 Band Plan

2. We adopt the 600 MHz Band Plan with paired uplink and downlink bands, which will enhance the value of the 600 MHz Band, consistent with our central goal for the incentive auction. Commenters overwhelmingly support this approach. The few commenters who oppose using paired spectrum blocks support adopting a TDD-only band plan, which does not require separate uplink and downlink spectrum bands. We are unpersuaded that the benefits these commenters assert for allowing TDD technology in the 600 MHz Band—broad global adoption, improved spectrum efficiency, and more dynamic use of communications channels—are sufficiently advantageous to adopt an unpaired, TDD framework for the 600 MHz Band. For example, although TDD operations do not require a duplex gap, TDD operations use five to 10 percent of their spectrum capacity as overhead for time domain duplex guard time intervals, and therefore, are not necessarily more efficient than FDD operations. Further, T-Mobile states that TDD has link budget constraints, resulting in less uplink coverage at the cell edge than an FDD system. Based on our examination of the record, FDD is better suited for the 600 MHz Band at the present time in light of current technology, the Band's propagation characteristics, and potential interference issues present in the Band. Therefore, we decline to adopt a TDD-based band plan.

3. We also decline to allow a mix of TDD and FDD use in the 600 MHz Band, because, as several commenters indicate, allowing both FDD and TDD operations in the 600 MHz Band would require additional guard bands and increase the potential for harmful interference both within and outside the Band. We emphasize that our determination regarding the suitability of an unpaired, TDD framework is limited to the decision before us. Different

characteristics of other bands, or advances in technology, may make an unpaired, TDD-compatible framework appropriate in other circumstances.

4. Although most commenters support our decision to offer paired spectrum blocks, the record diverges on how to offer spectrum blocks if we can repurpose more than 84 megahertz, i.e., how to offer 600 MHz licenses below channel 37. Some commenters suggest that it would be beneficial to offer downlink-only blocks because of the asymmetrical nature of broadband traffic patterns. Other commenters note that offering downlink-only blocks creates an easy way to accommodate market variation (i.e., offering different amounts of spectrum in different geographic areas) by varying the amount of downlink offered in a given market. Although we recognize that broadband traffic patterns are currently asymmetrical and offering downlink-only blocks is one way to accommodate market variation, we agree with other commenters that the benefits of offering paired spectrum blocks are greater than the benefits of offering downlink-only blocks in the 600 MHz Band. Further, although some argue that offering downlink-only blocks would mitigate antenna performance issues by creating two separate bands, such an approach would reduce the overall spectrum utility as a result of the necessary frequency separation.

5. In order to repurpose this spectrum, we must enhance the spectrum's value to potential bidders, as well as serve the public interest, and we find that offering paired blocks rather than downlink-only blocks best achieves these goals. To effectively use 600 MHz downlink-only blocks, a provider must not only have available uplink spectrum to pair it with, but that spectrum ideally should be below 1 GHz in order to take advantage of the superior propagation characteristics of the 600 MHz Band that allow for increased coverage. At the same time, some commenters state that aggregating 600 MHz spectrum with another band below 1 GHz presents technical challenges; consequently, in practice, wireless providers may choose to

aggregate 600 MHz downlink-only blocks with a high spectrum band, thus negating some of the coverage benefits of the 600 MHz Band that would be realized from using paired 600 MHz blocks. Further, we agree with commenters that argue that paired blocks are more valuable than downlink-only blocks to new entrants. Recent auctions also suggest that paired spectrum is more valuable to bidders than unpaired blocks.

6. We also agree with commenters that assert that offering downlink-only blocks in the 600 MHz auction may undermine competition. Because providers must pair downlink-only blocks with existing spectrum holdings, new entrants would not be able to use downlink-only blocks, thus limiting their utility. In contrast, offering paired spectrum blocks will benefit all potential 600 MHz Band licensees. We also agree with commenters that assert that paired blocks will facilitate the deployment of networks by smaller carriers and new entrants by allowing them to obtain much-needed low frequency, paired spectrum.

7. Further, offering downlink-only blocks would further complicate the auction design without a commensurate benefit. As explained above, downlink-only blocks are less valuable than paired blocks to bidders, and offering both paired and unpaired blocks would introduce additional differences among licenses in the forward auction and increase the amount of time the auction takes to close. As discussed in the NPRM, the Commission expressed the desire to offer generic blocks in order to reduce the time and, therefore, the cost, of bidder participation.

8. Finally, our all-paired band plan generally has nationally consistent blocks and guard bands, which will promote interoperability. In contrast, offering downlink-only blocks could exacerbate interoperability concerns by separating the 600 MHz Band into two bands. If we license both unpaired and paired blocks, we would expect that the industry standards body would create separate bands for the paired blocks and unpaired blocks, as it has done previously. If the 600 MHz Band were split into two separate bands, then some devices could support part, but not

all, of the Band. Further, US Cellular raises concerns over the potential for wireless carriers using downlink-only blocks to configure their networks so as to create barriers to roaming. Limiting the auction to paired blocks will help to ameliorate these concerns. It will also promote international harmonization, and in particular, should help to address cross-border issues with Canada and Mexico.

9. "Down from 51" Approach. We conclude that the "Down from 51" approach we adopt, with contiguous uplink and downlink bands starting at channel 51, will provide greater technical certainty because of its technical advantages over other options and, therefore, will enhance the value of the 600 MHz Band for bidders and serve the public interest. In particular, a contiguous band plan will reduce the antenna bandwidth for 600 MHz devices, which in turn will reduce the cost and complexity of such devices. As a result, we decline to adopt any of the band plans in which the uplink and downlink bands are "split" (the uplink and downlink bands are not adjacent to one another) because the antenna bandwidth would be much greater.

10. Further, by placing the 600 MHz uplink band next to the 700 MHz uplink band and adopting generally consistent technical rules for the 600 MHz and 700 MHz Bands, we improve spectrum efficiency. This continuity should also speed deployment of the 600 MHz Band and make it easier to develop devices for it. Further, placing the uplink pass band at the upper end of the 600 MHz Band limits the potential effects of both harmonic interference and intermodulation interference. Starting the 600 MHz uplink band at channel 51 also clears television operations out of channel 51, which should help spur deployment of the 700 MHz lower A Block. This approach will provide greater certainty to Wireless Medical Telemetry Service ("WMTS") operators regarding their operating environment as well, and will likely result in greater spectrum efficiency than placing uplink operations adjacent to channel 37. This approach also simplifies the incentive auction design, which is critical to its overall success. We therefore adopt the

"Down from 51" approach and decline to adopt the "Down from 51 Reversed" band plan, in which the downlink band would begin after a guard band at channel 51 (698 MHz), followed by a duplex gap, and then the uplink band.

11. Very few commenters criticize the Down from 51 approach that we adopt in our 600 MHz Band Plan. DISH complains that the Down from 51 band plans that commenters propose limit paired spectrum to the portion of the 600 MHz Band above channel 37, thereby restricting "the amount of spectrum realistically available for smaller operators." The approach we are adopting, however, involves paired spectrum only, including below channel 37, so it increases the amount of spectrum available for all wireless providers. We decline to adopt J. Pavlica's proposal to first license to wireless broadband providers the VHF channels in the 54-72 MHz and the 174-216 MHz bands (channels 2, 3, 4, 7, 8, 9, 10, 11, 12, and 13). UHF spectrum above 300 MHz is better suited for wireless broadband service because of its propagation characteristics as well as its shorter wavelengths, which allow for smaller radio components including antennas and filters. In addition, the Spectrum Act limits the Commission's ability to repack the VHF channels, which would hamper our ability to repack efficiently if we were to adopt Pavlica's band plan.

2. 5+5 MHz, Interchangeable Spectrum Blocks

12. We adopt the proposal to license in five megahertz blocks, which commenters overwhelmingly support, because these "building blocks" will allow for the greatest amount of flexibility and efficiency in the 600 MHz Band Plan. Specifically, we find that five megahertz blocks: (1) are the most compatible with current and emerging technologies; (2) may be easily aggregated to form larger blocks; (3) will maximize the number of licensed blocks in each market; and (4) will allow for diverse participation in the auction.

13. We agree with commenters that five megahertz building blocks are most compatible

with current wireless technologies. For example, numerous commenters state that five megahertz building blocks are most compatible with several current and emerging wireless broadband technologies, including LTE, LTE-Advanced, High Speed Packet Access + ("HSPA+"), and W-CDMA. Further, because many current wireless broadband technologies operate with five megahertz blocks or blocks that are multiples of five megahertz, this block size facilitates aggregation. Commenters also support our view that five megahertz building blocks will maximize the number of licensed blocks in each market. Finally, licensing in five megahertz building blocks will allow auction participation by small, midsize, regional, and national carriers. As Leap notes, using the smaller five megahertz bandwidth blocks will promote flexibility and allow auction participation by diverse carriers, particularly smaller carriers who may not need such large swaths of spectrum.

14. We decline to license the 600 MHz spectrum using six megahertz blocks, a proposal which no commenters support, and which several commenters oppose. Using six megahertz blocks would strand spectrum and reduce the number of new 600 MHz licenses because most FDD technologies support five megahertz blocks. Similarly, using six megahertz blocks might lead to inefficient use of the spectrum as each six megahertz block would typically accommodate only one active five megahertz LTE channel. Converting six megahertz channels into 5+5 megahertz 600 MHz licenses could, in contrast, create extra blocks to license. As explained further below, because we adopt a 600 MHz Band Plan with paired uplink and downlink bands, we also decline to adopt Sprint's proposal to license the spectrum using ten megahertz blocks to accommodate its band plan proposal for TDD operations.

15. We also adopt the proposal to incorporate "remainder" spectrum, i.e., any excess spectrum remaining after converting six megahertz television channels to paired, 5+5 megahertz 600 MHz licenses, into the 600 MHz Band guard bands to help prevent harmful interference

between licensed services. A majority of commenters supports this approach. As discussed below, we find that including these remainders in the guard bands is the best approach to support a straightforward auction design and help bolster innovation and investment by unlicensed devices in the guard band spectrum. We agree with Google and Microsoft that "[s]oliciting separate bids for the remaining small spectrum slivers in the simultaneous forward and reverse auction will introduce needless complexity to the auction process."

16. In our 600 MHz Band Plan, we create interchangeable, "generic"[1] categories of spectrum blocks by establishing guard bands and technical rules to ensure a like operating environment among different blocks.

17. Creating spectrum blocks that are as functionally and technically interchangeable as possible enhances substitutability among blocks. Offering interchangeable spectrum blocks allows us to conduct bidding for generic blocks, assigning specific frequencies later, which will speed up the forward auction bidding process. Commenters generally support the proposal to offer interchangeable blocks but emphasize the importance of making them truly interchangeable. Some commenters suggest that we group the spectrum blocks into different classes and treat each class as a separate category. As explained below, we adopt rules that will allow us to group generic blocks into separate categories of licenses for purposes of the forward auction bidding.

18. We also conclude that it is important for wireless providers to be able to aggregate 600 MHz Band spectrum blocks. The ability to aggregate spectrum by obtaining multiple spectrum blocks in the same service area, or licenses in multiple service areas, affords potential

[1] In referring to "generic licenses" we are not referring to the actual licenses that will be assigned to winning bidders, but to standardized blocks of spectrum which will be used to represent quantities of licenses for a time during the bidding process. We emphasize that licensees will ultimately be assigned a license with a specific frequency assignment, and to the extent that bidders desire a specific frequency to meet their particular business plans, winning bidders will have the opportunity to bid for specific frequency blocks before they are assigned their licenses.

bidders significant flexibility to meet their coverage and capacity needs in accordance with their business plans. Commenters overwhelmingly support allowing licensees to aggregate spectrum blocks. Specifically, they encourage us to create an auction process that allows bidders to aggregate contiguous frequency blocks within a service area or across geographic areas using a variety of auction design mechanisms, such as assignment round rules. Under our rules, licensees will be able to aggregate 600 MHz Band spectrum in the forward auction, as well as after the auction. As a result of these rules, wireless providers have the ability to aggregate spectrum to meet their business needs.

3. Geographic Area Licensing

19. We adopt the proposal to implement a geographic licensing approach. We conclude that a geographic licensing approach is well-suited for the types of fixed and mobile services that will likely be deployed in this band. In addition, geographic area licensing is consistent with the licensing approach adopted for similar spectrum bands that support mobile broadband services.

20. Further, we adopt Partial Economic Areas ("PEAs"), which are a combination of Metropolitan Statistical Areas ("MSAs") and Rural Statistical Areas ("RSAs") (collectively MSAs and RSAs are referred to as Cellular Market Areas ("CMAs")), as the service area for the 600 MHz Band licenses. PEAs offer a compromise between Economic Areas ("EAs") and CMAs because they are smaller than EAs, yet "nest" (or fit) within EAs, and can be easily aggregated into larger areas, such as Major Economic Areas ("MEAs") and Regional Economic Areas ("REAs" or "REAGs"). And like CMAs, PEAs divide urban and rural areas into separate service areas. In short, this approach will encourage entry by providers that contemplate offering wireless broadband service on a localized basis, yet at the same time will not preclude carriers that plan to provide service on a much larger geographic scale. As a result, licensing by PEAs will best promote entry into the market by the broadest range of potential wireless service

providers without unduly complicating the auction. As CCA notes, PEAs "address concerns regarding the unusual complexity of this particular auction while also retaining many of the benefits of small license areas."

21. Commenters agree that PEAs should: (1) nest within EAs; (2) reduce the number of service areas (as compared to the 734 CMAs); (3) reflect Metropolitan Statistical Areas ("MSAs"); and (4) be constructed from counties. CCA, NTCA, and RWA argue in favor of using the MSA boundaries that the Commission uses for its current CMA boundaries, updated with 2010 U.S. Census data for each county, because these boundaries have been "employed in numerous previous auctions, including Auctions 73 (700 MHz), 78 (AWS-1), and 92 (Lower 700 MHz)." On the other hand, Verizon argues that we should adopt its proposal, which uses more recent MSAs, because they are "a much more accurate division of rural and urban areas." (See Letter from Tamara Preiss, Vice President, Verizon, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 12-268 (filed Mar. 20, 2014) (Verizon PEA Proposal))

22. We adopt the PEA boundaries contained in the Joint PEA Proposal (See Letters from C. Sean Spivey, Assistant General Counsel for CCA, Jill Canfield, Assistant General Counsel for NTCA, Caressa Bennet, General Counsel for RWA, and John A. Prendergast, Counsel to Blooston Rural Carriers, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 12-268 (filed Mar. 11, 2014 and Mar. 20, 2014) (Joint PEA Proposal)). This approach will promote the simplicity and speed of the incentive auction, as well as our competitive goals. Specifically, the Joint PEA Proposal encourages broad participation by utilizing the MSA boundaries that the Commission currently uses. Because these boundaries may more closely fit many wireless providers' existing footprints, they should provide a greater opportunity for wireless providers to acquire spectrum licenses in their service areas. As Blooston notes, the Verizon PEA Proposal has "little in common with geographic areas where rural and competitive carriers currently offer

wireless service." In addition, Blooston argues that using the MSAs in the Joint PEA Proposal could increase service to rural areas as compared to Verizon's proposal. Further, while the Joint PEA Proposal provides service areas small enough for smaller carriers to support, the number of total service areas is low enough to reduce the time necessary to complete the incentive auction. With respect to larger carriers, the Joint PEA Proposal "nests" within the EAs so it may facilitate spectrum aggregation during the auction and in the secondary market.

23. We decline to adopt the Verizon PEA Proposal. First, rather than defining the boundaries for all PEAs, Verizon only defines those areas relating to MSAs. Verizon clearly intended to provide the Commission with flexibility to consider a range of alternatives with respect to rural areas. However, implementing Verizon's PEA proposal, while respecting general principles of nesting within EAs and limiting the number of licenses in the auction, would create inefficient service areas for non-MSA-based service areas. Further, adopting the Verizon PEA Proposal may diminish competitive carrier participation in the forward auction. We disagree with Verizon that adopting the Joint PEA Proposal will lead to outdated service areas that are not based on objective criteria. The Joint PEA Proposal creates PEA service areas by utilizing 2010 U.S. Census population and county boundary data; consequently, it takes into account current population data for the counties that are included in each PEA. The PEA boundaries in the Joint PEA Proposal also are based on objective criteria. We further decline to adopt the Verizon Alternative PEA Proposal, which modifies the Joint PEA Proposal "by adding specified counties to the PEAs representing some of the top markets." (See Letter from Tamara Preiss, Vice President, Verizon, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 12-268 (filed Apr. 29, 2014)). Verizon's proposed modifications to the Joint PEA Proposal also have the potential to diminish competitive carrier participation in the forward auction.

24. Although most commenters support PEAs as an alternative or compromise solution,

the nationwide wireless carriers prefer EAs as the license size for the 600 MHz Band, and the smaller and/or rural carriers prefer CMAs. We decline to adopt EAs or CMAs as the licensing scheme for the 600 MHz Band. As discussed above, we need to create interchangeable spectrum blocks in order to permit substitutability among the spectrum blocks (i.e., "generic blocks") in the forward auction. To accomplish this goal, we can adopt only one license size for the entire 600 MHz Band and cannot offer a mix of license sizes as we have done in previous auctions. Under the PEA approach, there are 416 service areas, which is significantly fewer than the 734 CMA service areas, but more than the 176 EAs. This will reduce the exposure risk to the nationwide carriers as compared to CMAs. In addition, PEAs nest into EAs, MEAs, and REAGs, so that nationwide carriers can aggregate licenses to create the service area they desire, allowing them to take advantage of economies of scale. PEAs separate out the urban and rural areas, which should provide for greater auction participation by rural providers and allow them to bid on a geographic area license that better matches their service area.

25. We also decline to adopt broadcast Designated Market Areas ("DMAs"), nationwide, REAG, or MEA licensing approaches. Some commenters suggest that the Commission consider matching licensing areas to broadcast DMAs to simplify auction procedures by aligning the geographic areas of the forward and reverse auctions. We agree with commenters that assert that DMAs are not appropriate because they do not match wireless service footprints or existing FCC wireless service area designations. Further, we find that DMAs, like EAs, do not sufficiently address the needs of smaller and rural wireless providers, given the number of licenses we would make available. The Commission also sought comment on using nationwide and REAG service areas, but no commenters support using these service areas, and some commenters actively oppose them. T-Mobile recommends that the Commission license by MEAs – a service area size larger than EAs – because the economically efficient size

of wireless service is substantially larger than individual EAs, and MEAs will reduce transaction costs and help wireless companies achieve economies of scale. T-Mobile notes that smaller licenses, such as PEAs, are manageable and would not create a significant exposure risk under certain conditions. For the reasons discussed above, using smaller, PEA service areas strikes the appropriate balance and will allow both smaller and larger wireless carriers to obtain licenses that best align with their respective business plans.

26. Licensing Outside the Continental United States. The Commission sought comment on licensing of the 600 MHz Band outside the continental United States and in the Gulf of Mexico. For Alaska, Copper Valley Wireless supports licensing Alaska on a CMA basis. RWA (formerly RTG) initially recommended that we license using Alaska Boroughs, which divide the state based on population density, and in any case, use service areas no larger than CMAs. Subsequently, RWA (along with CCA, NTCA, and Blooston) filed the Joint PEA Proposal, which proposes to divide Alaska into four PEAs. Recognizing that Alaska faces uniquely challenging operating conditions for deploying and operating networks, adopting the Joint PEA Proposal endorsed by smaller and rural carrier associations should best address these concerns. The Alaskan PEA boundaries closely approximate the CMA boundaries in Alaska that providers support. We note that to the extent bidders are interested in providing service in Alaska using smaller service areas than PEAs, they may use both pre- and post-auction mechanisms (such as bidding as a consortium and/or partitioning spectrum in a service area) to create the specific area they wish to serve.

27. For the Gulf of Mexico, we will follow the established policy and license the Gulf as a separate license that will be comprised of the water area of the Gulf of Mexico starting 12 nautical miles from the U.S. Gulf Coast and extending outward. Similarly, we will license Guam, the Northern Mariana Islands, Puerto Rico, the United States Virgin Islands, and

American Samoa as we have in previous auctions, which is consistent with the Joint PEA Proposal.

28. Statutory Requirements. We conclude that our action satisfies the Spectrum Act requirement that the Commission consider assigning licenses that cover geographic areas of a variety of different sizes. Based on the extensive record developed in this proceeding, we have carefully considered assigning licenses using a variety of different geographic area sizes. As stated above, however, we cannot offer a mix of license sizes as we have done in previous auctions without endangering our goal of repurposing spectrum through this auction: using one license size (PEAs) is essential to creating interchangeable spectrum blocks, which in turn are critical elements of the 600 MHz Band Plan developed to promote a successful incentive auction. We note that various mechanisms are available to carriers that wish to serve larger or smaller geographic areas.

29. We also conclude that licensing the 600 MHz Band on a PEA basis is consistent with the requirements of section 309(j) because it will promote spectrum opportunities for carriers of different sizes, including small businesses and rural telephone companies. Just as larger carriers can aggregate EAs into larger geographic areas, PEAs are small enough to allow bidders to acquire a limited coverage area—often only a few counties—which should enable small businesses and rural carriers to compete with larger carriers in these areas. Further, if bidders want to acquire licenses for smaller geographic areas, they can make use of the partitioning and disaggregation rules. Although the use of smaller geographic service areas, such as CMAs, could potentially encourage participation by smaller providers and support greater variation in the amount of repurposed spectrum from area to area, on balance offering licenses for a large number of very small geographic service areas would be inconsistent with our auction design goals of simplicity and speed. First, we must use fewer service areas because the time

necessary to close the incentive auction increases dramatically as the number of licenses increases. As discussed above, we are designing the forward auction for speed. Further, more service areas could complicate potential bidders' efforts to plan for, and participate in, the auction for related licenses, potentially affecting the success of the auction. More service areas could also complicate subsequent service deployment.

4. Market Variation

30. The 600 MHz Band Plan we adopt can accommodate market variation in order to avoid restricting the amount of repurposed spectrum that is available in most areas nationwide. We intend to offer a uniform number of 600 MHz spectrum licenses in most markets across the country, but the 600 MHz Band Plan will enable us to offer some impaired spectrum blocks, or alternatively, fewer spectrum blocks, in constrained markets where less spectrum is available. We find that accommodating market variation is necessary. If the 600 MHz Band Plan could not accommodate some market variation, we would be forced to limit the amount of spectrum offered across the nation to what is available in the most constrained market (the "least common denominator"), even if more spectrum could be made available in the vast majority of the country. By allowing for market variation in our 600 MHz Band Plan, we can ensure that broadcasters have the opportunity to participate in the reverse auction in markets where interest is high. As a result, more spectrum can be made available nationwide in the forward auction.

31. We recognize that there are certain advantages to having a generally consistent band plan. In particular, limiting the amount of market variation will limit the amount of potential co- and adjacent channel interference between television and wireless services in nearby areas ("inter-service interference"). Furthermore, limiting the amount of variation will help licensees achieve economies of scale when deploying their 600 MHz networks. Therefore, we will accommodate market variation to a limited extent only. In no case will we offer <u>more</u> spectrum

in an area than the amount we decide to offer in most markets nationwide. Rather, we will offer the same amount of spectrum nationwide in all areas where sufficient spectrum is available. In constrained markets where less spectrum is available, we will offer impaired blocks or fewer blocks than we offer in most markets nationwide.

32. The decision to accommodate market variation raises a number of issues, including how to prevent inter-service interference consistent with the requirements of the Spectrum Act, how much market variation to accommodate under different spectrum recovery scenarios, where to place television stations in the 600 MHz Band if necessary in constrained markets, and whether and how to offer impaired spectrum blocks in the forward auction. Here, we explain the process by which we will resolve these issues and establish rules and auction procedures related to inter-service interference. Specifically, following this Order, we plan to issue an order that establishes the methodology for preventing inter-service interference. That methodology will govern post-auction co- or adjacent-channel operation of television and wireless services, including operation of new 600 MHz licensees in these areas (i.e., additional rules for licensees that hold impaired 600 MHz licenses). We will issue that order concurrent with issuing the Incentive Auction Comment Public Notice ("Comment PN") inviting comment on final, specific auction procedures. This approach will ensure that potential bidders in both the forward and reverse auctions have a clear understanding about how we will protect against inter-service interference in the 600 MHz Band, and have an opportunity to comment on how such protection should be taken into consideration in the auction process.

33. The Comment PN will seek comment on aspects of market variation and inter-service interference that affect the incentive auction, such as how much market variation to accommodate under different spectrum recovery scenarios, where to place television stations in the 600 MHz Band in constrained markets, if necessary, and whether and how to auction

impaired spectrum blocks. We will resolve these issues in the Incentive Auction Procedures Public Notice ("Procedures PN"). The approach we adopt will appropriately balance the costs and benefits of having a nationwide band plan versus accommodating market variation.

34. Although we defer establishing the methodology by which we will prevent inter-service interference so that we can do so based on a fully developed record with meaningful public input, we provide guidance on several matters in this Order. First, to prevent inter-service interference to television stations, 600 MHz licensees with impaired licenses may be required to operate within smaller boundaries than the entire area for which they hold a license. We will provide forward auction bidders with sufficient information both before and after the incentive auction to determine whether they are bidding on, or hold, an impaired license. Licensees with impaired licenses will be limited to operation within the boundaries permitted under the inter-service interference rules we adopt ("permitted boundaries"). Thus, for example, licensees with impaired licenses will be allowed to operate at the power and out-of-band emission ("OOBE") limits authorized by our technical rules only to the permitted boundaries of the impaired licenses, even if the actual boundaries of their license areas extend further. Likewise, such licensees will be required to meet the build-out requirements only for the area they are permitted to serve within each license area.

35. Second, television stations operating on a co- or adjacent channel to a new 600 MHz licensee in a nearby market will be limited in their ability to expand their facilities following the incentive auction. In these markets, some broadcasters will be operating adjacent to or co-channel to wireless licensees. Such television licensees will not be permitted to expand their noise-limited service contours if doing so would increase the potential for interference to a wireless licensee's service area. We recognize that there may be extraordinary circumstances beyond the control of a television licensee in which it must involuntarily relocate its facilities or

cannot replicate its service area on its new channel after the repacking process without expanding its contour in the direction of the wireless license area. Because this type of modification would affect both the television licensee and the wireless licensee, we expect these cases will need to be evaluated on a case-by-case basis, and will carefully consider requests for waiver of our rules in such situations. We encourage television and wireless licensees to work cooperatively to find an equitable solution should this situation arise.

5. Guard Bands

36. As permitted by section 6407(a), we incorporate guard bands into our 600 MHz Band Plan to prevent harmful interference between licensed services. Commenters strongly support the use of such guard bands. We adopt a guard band between television and wireless operations that ranges from seven megahertz to 11 megahertz, depending on the amount of spectrum cleared, as discussed below. We adopt a uniform duplex gap of 11 megahertz for every clearing scenario, and uniform three megahertz guard bands to protect against interference between licensed WMTS services on channel 37 and adjacent wireless services. The Spectrum Act specifically authorizes the FCC to implement band plans with guard bands, subject to a "technically reasonable" restriction. We interpret the statute to affirm the Commission's discretion to employ guard bands in exercising its spectrum management authority. Establishing these guard bands not only protects against harmful interference between the 600 MHz service and adjacent licensed services, but also helps to ensure that the 600 MHz spectrum blocks that we offer in the forward auction are as interchangeable as possible, consistent with our auction goals. Guard bands also will bolster innovation and investment by unlicensed devices. In that regard, section 6407(c) of the Spectrum Act specifically authorizes "the use of such guard bands for unlicensed use."

37. As discussed above, the incentive auction presents the unique challenge of not

knowing in advance how much spectrum will be repurposed, and the 600 MHz Band Plan we adopt is therefore flexible enough to accommodate different spectrum recovery scenarios. The guard bands are tailored to the technical properties of the 600 MHz Band under each scenario. In some scenarios, converting six megahertz television channels to paired five megahertz blocks would leave "remainders" of spectrum smaller than six megahertz. Auctioning these remainders would be inconsistent with our decision to license the 600 MHz Band in paired five megahertz spectrum blocks, and would needlessly complicate the auction design. Accordingly, such remainders are incorporated into the guard bands. As a result, the guard band between television and 600 MHz downlink varies in size to some extent under different spectrum recovery scenarios.

38. Guard band size is subject to the statutory "technically reasonable" restriction we address below. Importantly, it also is limited by our goals for the incentive auction. The statute requires that the forward auction proceeds cover the costs of incentive payments to clear broadcasters from the 600 MHz Band and other identified costs. The amount of spectrum available to generate such proceeds decreases with increases in guard band size. In other words, the bigger the guard bands, the less spectrum we can offer for sale in the forward auction. Alternatively, we could seek to repurpose more spectrum, but that would require clearing more broadcasters, increasing the costs of incentive payments without increasing the amount of spectrum available in the forward auction to generate the necessary proceeds. Thus, in sizing the guard bands, we must be mindful of the objective of repurposing spectrum for new, flexible uses, which can be fulfilled only if the forward auction generates sufficient proceeds. Decreases in the amount of licensed spectrum available in the forward auction also may undermine competition among licensed providers in the 600 MHz Band, another important policy objective. The guard bands we establish in the 600 MHz Band Plan factor in all of these considerations.

39. The guard bands meet the statutory requirement that guard bands be "no larger than is technically reasonable to prevent harmful interference between licensed services outside the guard bands." We interpret "harmful interference" consistent with our rules, which define harmful interference as interference that "seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service." Courts have held that the use of the statutory term "reasonable" "opens a rather large area for the free play of agency discretion." In contrast, the term "necessary" has been read to refer to something "required to achieve a desired goal." In that regard, we reject suggestions that the statute requires the Commission to restrict guard bands to the minimum size necessary to prevent harmful interference. Congress knows how to draft provisions of this kind, and did not use such language in section 6407. Rather, it left determination of the appropriate size of the guard bands to prevent harmful interference to the Commission's "reasonable" technical judgment. Establishing "technically reasonable" guard bands is thus not only a matter that Congress left to the Commission's discretion, but also the type of predictive judgment that lies at the core of the agency's expertise.

40. The record supports our conclusion that the guard bands we adopt are technically reasonable to prevent harmful interference. With respect to the guard band between television and wireless operations, which may be from seven to 11 megahertz depending on the spectrum recovery scenario, most commenters support a size within that range. With regard to the duplex gap, which is 11 megahertz, a number of device manufacturers and wireless carriers support a size of 10 to 12 megahertz. Incorporating the "remainder" spectrum into the guard band between television and wireless operations enhances the protection against harmful interference to licensed services. The three megahertz guard band in our Band Plan between WMTS on channel 37 and 600 MHz operations likewise is supported by examination of the record.

41. Guard bands employ frequency separation to protect against harmful interference

between licensed services outside the guard bands; the degree of protection generally increases with the amount of separation. The extent to which frequency separation reduces the potential for interference between a transmitter and a receiver can be measured by a well-established relationship among transmitted power spectral density, receiver selectivity, and frequency separation between transmitter and receiver. In the case of television and the 600 MHz downlink, the two specific interference cases are a television transmitter to a mobile broadband device, and a mobile broadband base station to a television receiver. Frequency dependent rejection ("FDR") values for these two cases at different degrees of frequency separation show significant differences in likely interference. Taken together, the results of these two interference cases corroborate our decision that the technically reasonable guard band size between television and the 600 MHz downlink is seven to 11 megahertz, depending on the particular band plan scenario.

42. Transmit and receive filters often contribute significantly to interference protection, and accordingly we also consider the capabilities of mobile device filters in the case of television and the 600 MHz downlink. The transition band, or separation needed for significant filter rejection, can be as small as seven megahertz with reasonable cost, complexity, and size, but increasing the transition band size up to 11 megahertz reduces the filter cost, complexity, and size and enables a greater variety of filter technologies to be considered. Consideration of this determination together with our FDR analysis confirms that a guard band size between television and wireless operations of seven to 11 megahertz is technically reasonable.

43. With respect to the duplex gap, many FDD technologies, including FD-LTE, allow simultaneous transmission and reception. Because the transmitter and receiver are co-located, however, there is a potential for self-interference (i.e., harmful interference within the device). For this reason, the FDD device contains a receive and a transmit filter designed to operate

together to reduce the likelihood of such interference. The two filters depend on frequency separation, often referred to as the "duplex gap," to operate properly. Factors that affect the impact of frequency separation are the transmitter's Out of Band Emissions ("OOBE") and filter capability. With regard to the former, a duplex gap of up to 11 megahertz, depending on the spectrum recovery scenario, is reasonable to prevent third order intermodulation products adjacent to the transmit signal from overlapping the frequency region of the receive signal. With regard to filter capability, in order to be as large as the achievable transition band, and considering the high rejection needed to prevent self-interference, the duplex gap should be at least 11 megahertz. Consideration of these two factors together confirms that the duplex gap in our 600 MHz Band Plan, which is 11 megahertz, is technically reasonable to prevent harmful interference.

44. We reject arguments that the Commission should establish larger guard bands to facilitate their use by unlicensed devices. For the reasons discussed above, doing so would threaten our ability to meet our goals in the incentive auction. Moreover, guard bands larger than those incorporated in our 600 MHz Band Plan would not satisfy the requirements of section 6407(b). The statutory "technically reasonable" restriction was a compromise between one legislative proposal that would have required all repurposed spectrum to be licensed and other proposals that would have designated or reallocated repurposed spectrum specifically for unlicensed use. That compromise permits the establishment of guard bands, and the use of such guard bands for unlicensed use, but requires that the guard bands be no larger than the Commission determines is technically reasonable for the specific purpose of preventing harmful interference between licensed services outside the guard bands. Thus, we reject suggestions that section 6407(c) implicitly requires us to size guard bands to facilitate unlicensed use without regard to their effect in preventing harmful interference. Such arguments would effectively

negate Congress's express directive in section 6407(b) regarding "size of guard bands." We also reject NCTA's argument that the duplex gap is not a "guard band" and, therefore, need not be sized in accordance with section 6407(b).

6. Band Plan Technical Considerations

a. Pass Band Size and Mobile Filter Considerations

45. The 600 MHz Band Plan we adopt has at most a 60 megahertz pass band size, which can be accommodated by using multiple filters. The specific size of the pass band for the 600 MHz Band Plan depends on the amount of spectrum we can ultimately make available in the forward auction. Based on the results of our technical analysis, we agree with the commenters that assert that the maximum pass band size for current technology is roughly four percent of the center frequency for a single filter. However, we also agree with commenters who point out that this need not limit the 600 MHz Band Plan pass band size, as multiple duplexers can be used. Therefore, filter pass band size is not a limit on the pass band size for our 600 MHz Band Plan.

b. Mobile Antenna Considerations

46. We will not limit the amount of paired spectrum we make available because of mobile antenna concerns. We agree with Ericsson, T-Mobile and others that although more paired spectrum in a single band decreases antenna performance to some extent, it is better nonetheless to make more paired spectrum available. For example, the propagation of the 600 MHz Band is such that even if repurposing a large amount of spectrum has a coverage impact, the coverage would still be as good as the 700 or 800 MHz Bands. The relatively small potential costs of degradation in antenna performance are outweighed by the utility of repurposing spectrum. Further, these issues can be addressed using a tunable antenna or other antenna technologies. Therefore, we will not limit the amount of paired spectrum we make available because of mobile antenna concerns.

c. Intermodulation Interference

47. We will not limit the amount of spectrum available in the forward auction based on intermodulation interference concerns. We find that with appropriate frequency separation, placing television stations in the duplex gap will not cause harmful interference, should we decide to do so to accommodate market variation. We also agree with Alcatel-Lucent that a technically reasonable duplex gap, which we adopt as part of our 600 MHz Band Plan, will prevent in-band third order intermodulation products from falling in the downlink pass band.

d. Harmonic Interference

48. Any potential harmonic interference created in the 600 MHz Band can be effectively mitigated so that it does not result in harmful interference. The risk of mobile-to-mobile harmful interference through harmonic interference is minimal. In addition, although we recognize that harmful interference within a device could occur in a carrier aggregation scenario, we agree with commenters who suggest that this potential can be mitigated in various ways. Therefore, we find that we do not need to limit the amount of spectrum we offer in the 600 MHz Band due to the potential for harmonic interference.

7. Specific Band Plan Scenarios

49. Below we discuss in detail the specific 600 MHz Band Plan scenarios we may use in the forward auction. These range from offering two sets of paired blocks to 12 sets of paired blocks, in the configurations shown above. In addition, we discuss the number of licensed blocks we can offer based on the amount of repurposed spectrum, and the size of the guard bands, including the duplex gap, under each of these scenarios.

50. We note that we do not offer a scenario for fewer than two sets of paired blocks or more than 12 sets of paired blocks because the costs outweigh the benefits of offering only one set of paired blocks, given that we would need to clear five television channels in this scenario.

Further, we decline to create scenarios for more than 12 sets of paired blocks, i.e., using more than a 144 megahertz clearing target.

51. Specifically, we do not offer scenarios with 13 or more sets of paired blocks, due to the inefficiencies associated with the position of channel 37 (used for RAS and WMTS) in the 600 MHz Band. To offer 14 sets of paired blocks, we would need to place one downlink block above channel 37 and the rest of the downlink blocks below channel 37, resulting in an additional duplexer to support only this one block. Therefore, in this case the costs outweigh the benefits of placing only one downlink block above channel 37.

a. Two Sets of Paired Blocks (42 megahertz repurposed)

52. Under this scenario, we create two sets of paired blocks from 42 megahertz of repurposed spectrum. We establish an 11 megahertz duplex gap, which is large enough to ensure there is no overlap of third order intermodulation products between transmit and receive channels, and allows for a feasible transition band for the transmit and receive filters. We also use an 11 megahertz guard band between the 600 MHz downlink and television operations, which provides reasonable rejection and allows for an achievable transition bandwidth in the mobile filters. This scenario requires 10 megahertz filter pass bands and 31 megahertz of antenna bandwidth, which no commenters suggest present technical difficulties.

b. Three Sets of Paired Blocks (48 megahertz repurposed)

53. The Band Plan scenario for three sets of paired blocks will be used if we have 48 megahertz of repurposed spectrum. Under this scenario, we establish an 11 megahertz duplex gap, which is large enough to ensure there is no overlap of third order intermodulation products between transmit and receive channels, and allows for a feasible transition band for the transmit and receive filters. We create a seven megahertz guard band between the downlink band and television operations, which provides reasonable rejection and allows for a feasible transition

bandwidth. This scenario requires 15 megahertz filter pass bands and 41 megahertz of antenna bandwidth, which no commenters suggest present technical difficulties.

c. Four Sets of Paired Blocks (60 megahertz repurposed)

54. Under this scenario, we create four sets of paired blocks from 60 megahertz of repurposed spectrum. We create an 11 megahertz duplex gap, which is large enough to ensure there is no overlap of third order intermodulation products between transmit and receive channels, and allows for a feasible transition band for the transmit and receive filters. We also create a nine megahertz guard band between the downlink band and television operations, which provides reasonable rejection and allows for a feasible transition bandwidth. This scenario requires 20 megahertz filter pass bands and 51 megahertz of antenna bandwidth, which no commenters suggest present technical difficulties.

d. Five Sets of Paired Blocks (72 megahertz repurposed)

55. The Band Plan scenario for five sets of paired blocks will be used if we have 72 megahertz of repurposed spectrum. Under this scenario, we establish an 11 megahertz duplex gap, which is required in this case to ensure there is no overlap of third order intermodulation products between transmit and receive channels and allow for a transition bandwidth that can be supported by all mobile filter technologies. We establish an 11 megahertz guard band between the downlink band and television operations, which provides reasonable rejection and allows for a feasible transition bandwidth. This scenario requires 25 megahertz filter pass bands and 61 megahertz of antenna bandwidth, which no commenters suggest present significant technical difficulties.

e. Six Sets of Paired Blocks (78 megahertz repurposed)

56. Under this scenario, we create six sets of paired blocks from 78 megahertz of repurposed spectrum. We create an 11 megahertz duplex gap, which, as discussed above, is

required to ensure there is no overlap of third order intermodulation products between transmit and receive channels and allow for a transition bandwidth that can be supported by all mobile filter technologies. We establish a seven megahertz guard between the downlink band and television operations, which provides reasonable rejection and allows for a feasible transition bandwidth. This scenario has a 30 megahertz pass band in the uplink and downlink bands.

57. Some commenters suggest we should limit paired spectrum to 25 megahertz pass bands (i.e., five sets of paired blocks) due to mobile filter limitations. However, we reject this limitation because we recognize that technology improves over time and 30 megahertz mobile filter pass bands may become feasible, and, the 600 MHz Band could be implemented with multiple filters (duplexers) if necessary.

58. This scenario requires 71 megahertz of antenna bandwidth, which is somewhat above the approximately 60 megahertz limit some commenters propose for the 600 MHz Band. As discussed above, we reject this limit and agree with T-Mobile that any performance degradation will be small (less than 1 dB) and can be mitigated by using tunable antennas or other technologies.

59. Finally, some commenters suggest the uplink pass band should be limited to 25 megahertz due to the potential for harmonic interference with the BRS/EBS band. As discussed above, the likelihood of such interference is low, and it does not prevent use of the spectrum; it only limits the potential for carrier aggregation with the BRS/EBS band. This potential limitation is outweighed by the benefit of making more spectrum available, and as a result, we determine that we should not limit the size of the paired bands if enough repurposed spectrum is available.

f. Seven Sets of Paired Blocks (84 megahertz repurposed)

60. The Band Plan scenario for seven sets of paired blocks will be used if we have 84

megahertz of repurposed spectrum. Under this scenario, we establish an 11 megahertz duplex gap, which, as discussed above, will ensure there is no overlap of third order intermodulation products between transmit and receive channels, and allow for a transition bandwidth that can be supported by all mobile filter technologies. We create a three megahertz guard band between the mobile downlink and WMTS services in channel 37, which as discussed above, will minimize the likelihood of harmful interference to WMTS devices. We also note that this three megahertz guard band combined with channel 37 forms an effective nine megahertz guard band between the downlink band and television operations, which, as discussed above, provides reasonable rejection and allows for a feasible transition bandwidth.

61. This scenario has a 35 megahertz pass band in both the uplink and downlink bands, and requires 81 megahertz of antenna bandwidth in a static approach. As discussed above, this configuration exceeds the pass band sizes and antenna bandwidth limits proposed by some commenters to address mobile filter, antenna bandwidth, and/or harmonic interference concerns. For the reasons discussed above, we decline to limit the amount of paired spectrum we will offer in the forward auction, should we have enough repurposed spectrum available.

g. Eight Sets of Paired Blocks (108 megahertz repurposed)

62. Under this scenario, we create nine sets of paired blocks from 108 megahertz of repurposed spectrum. We create an 11 megahertz duplex gap, which will ensure there is no overlap of third-order intermodulation products between transmit and receive channels, and allow for a feasible transition bandwidth. Under this scenario, we establish two three megahertz guard bands between the mobile downlink band and WMTS services in channel 37 (both above and below channel 37), which will minimize the likelihood of harmful interference to WMTS devices. We also establish an 11 megahertz guard band between the downlink band and television operations, which provides reasonable rejection and allows for a feasible transition

bandwidth, as discussed above.

63. This scenario has a 40 megahertz pass band in the uplink band, and two pass bands in the downlink band (30 megahertz above channel 37 and 10 megahertz below channel 37), which will require implementing two to three duplexers. Under a two duplexer approach, the band would be split into 30+30 megahertz and 10+10 megahertz. Although a 30+30 megahertz duplexer exceeds the 25 megahertz pass band discussed above, alternate technologies such as lithium niobate may allow for larger pass bands (up to 36 megahertz). Although lithium niobate offers lower Q values and therefore potentially larger transition bands, as can be seen in the diagram below, the 30+30 megahertz filter would be 33 megahertz from television operations, allowing a very large transition band for this filter; while the 10+10 megahertz duplexer would need an 11 megahertz transition bandwidth, which is feasible today. Alternatively, this scenario could be implemented using three duplexers, with two duplexers in the 30+30 megahertz portion. Under either a two or three duplexer approach, the duplex spacing of the lower 10+10 megahertz portion would be different from the upper 30+30 megahertz portion. This does not present an implementation challenge; in the past 3GPP has approved a band with different duplex spacing for different blocks within the band.

64. In addition to creating a 40 megahertz pass band in the uplink band, this configuration requires 103 megahertz of antenna bandwidth in a static approach, but only 73 megahertz in a tunable approach. As discussed above, this configuration exceeds the pass band sizes proposed by some commenters to address mobile filter, antenna bandwidth, and/or harmonic interference concerns. For the reasons discussed above, and in the Order, we decline to limit the amount of paired spectrum we will offer in the forward auction, should we have enough repurposed spectrum available.

h. Nine Sets of Paired Blocks (114 megahertz repurposed)

65. The Band Plan scenario for nine sets of paired blocks will be used if we have 114 megahertz of repurposed spectrum. As discussed above, we establish an 11 megahertz duplex gap to ensure there is no overlap of third order intermodulation products between transmit and receive channels, and allow for a feasible transition bandwidth. In this scenario, we create two three megahertz guard bands between the mobile downlink and WMTS services in channel 37, both above and below channel 37, which will minimize the likelihood of harmful interference to WMTS devices. We establish a seven megahertz guard band between the downlink band and television operations, which provides reasonable rejection and allows for a feasible transition bandwidth.

66. This scenario has a 45 megahertz pass band in the uplink band and two pass band in the downlink band (25 megahertz above channel 37 and 20 megahertz below channel 37), which can be implemented with two duplexers, 25+25 megahertz and 20+20 megahertz, within the capabilities of current mobile filter technology. This plan requires 88 megahertz of antenna bandwidth using a tunable antenna, and may have some degradation. As discussed above, this configuration exceeds the pass band sizes and antenna bandwidth limits proposed by some commenters to address mobile filter, antenna bandwidth, and/or harmonic interference concerns. For the reasons discussed above, we decline to limit the amount of paired spectrum we will offer in the forward auction, should we have enough repurposed spectrum available.

i. Ten Sets of Paired Blocks (126 megahertz repurposed)

67. Although commenters focus on how to configure a band plan for 120 megahertz of repurposed spectrum or less, we provide scenarios for more than 120 megahertz should we have sufficient repurposed spectrum and decide to offer more than 120 megahertz in the forward auction. As discussed above, we note that we have not yet determined our initial clearing target,

so we may not necessarily offer these scenarios in the forward auction.

68. Under this scenario, we create 10 sets of paired blocks from 126 megahertz of repurposed spectrum. As discussed above, we create an 11 megahertz duplex gap in this case to ensure there is no overlap of third order intermodulation products between transmit and receive channels, and allow for a feasible transition bandwidth. In this scenario, we create two three megahertz guard bands between the mobile downlink band and WMTS services in channel 37 (both above and below channel 37), which as discussed in the Order, will minimize the likelihood of harmful interference to WMTS devices. We also create a nine megahertz guard band between the downlink band and television operations, which provides reasonable rejection and allows for a feasible transition bandwidth for all filter technologies, as discussed above.

69. This scenario has a 50 megahertz pass band in the uplink band, and two pass bands in the downlink band (30 megahertz below channel 37 and 20 megahertz above channel 37), which, as in the 108 megahertz scenario above, could be implemented with two or three duplexers. This scenario requires 93 megahertz of antenna bandwidth assuming a tunable antenna, and may have some degradation. As discussed above, this configuration exceeds the pass band sizes and antenna bandwidth limits proposed by some commenters to address mobile filter, antenna bandwidth, and/or harmonic interference concerns. For the reasons discussed above, and in the Order, we decline to limit the amount of paired spectrum we will offer in the forward auction, should we have enough repurposed spectrum available

j. Eleven Sets of Paired Blocks (138 megahertz repurposed)

70. The Band Plan scenario for 11 sets of paired blocks will be used if we have 138 megahertz of repurposed spectrum. In this scenario, we create an 11 megahertz duplex gap, which will ensure there is no overlap of third order intermodulation products between transmit and receive channels, and allow for a feasible transition bandwidth. In this scenario, we establish

two three megahertz guard bands between the mobile downlink band and WMTS services in channel 37 – both above and below channel 37 – which, as discussed above, will minimize the likelihood of harmful interference to WMTS devices. We also create an 11 megahertz guard band between the downlink band and television operations, which, as discussed above, provides reasonable rejection and allows for a feasible transition bandwidth.

71. This scenario has a 55 megahertz pass band in the uplink band, and two pass bands in the downlink band (40 megahertz and 15 megahertz), which would most likely be implemented with three duplexers. This scenario requires 98 megahertz of antenna bandwidth assuming a tunable antenna, and may have some degradation. As discussed above, this configuration exceeds the pass band sizes and antenna bandwidth limits proposed by some commenters to address mobile filter, antenna bandwidth, and/or harmonic interference concerns. For the reasons discussed above, we decline to limit the amount of paired spectrum we will offer in the forward auction, should we have enough repurposed spectrum available.

k. Twelve Sets of Paired Blocks (144 megahertz repurposed)

72. The Band Plan scenario for 12 sets of paired blocks will be used if we have 144 megahertz of repurposed spectrum. In this scenario, we create an 11 megahertz duplex gap, which will ensure there is no overlap of third order intermodulation products between transmit and receive channels, and allow for a feasible transition bandwidth. In this scenario, we establish two three megahertz guard bands between the mobile downlink band and WMTS services in channel 37 – both above and below channel 37 – which, as discussed above, will minimize the likelihood of harmful interference to WMTS devices. We also create a seven megahertz guard band between the downlink band and television operations, which, as discussed above, provides reasonable rejection and allows for a feasible transition bandwidth.

73. This scenario has a 60 megahertz pass band in the uplink band, and two pass bands

in the downlink band (50 megahertz and 10 megahertz), which would most likely be implemented with three duplexers. This scenario requires 103 megahertz of antenna bandwidth assuming a tunable antenna, and may have some degradation. As discussed above, this configuration exceeds the pass band sizes and antenna bandwidth limits proposed by some commenters to address mobile filter, antenna bandwidth, and/or harmonic interference concerns. For the reasons discussed above, we decline to limit the amount of paired spectrum we will offer in the forward auction, should we have enough repurposed spectrum available.

B. Repacking the Broadcast Television Bands

74. Repacking involves reorganizing television stations in the broadcast television bands so that the stations that remain on the air after the incentive auction occupy a smaller portion of the UHF band, thereby freeing up a portion of that band for new wireless uses. In repacking, the Commission will exercise its longstanding spectrum management authority, as it has in prior actions such as the digital television transition, as well as the specific grant of authority in the Spectrum Act. The Spectrum Act imposes express requirements on that exercise of authority; in particular, it makes repacking "subject to international coordination along the border with Mexico and Canada" and requires "all reasonable efforts to preserve, as of the date of the enactment of this Act, the coverage area and population served of each broadcast television licensee, as determined using the methodology described in OET Bulletin 69."

75. The selection of winning reverse auction bids will depend in part on the Commission's ability to assign television channels to the stations that are not relinquishing their spectrum usage rights. Because participation in the reverse auction is voluntary, the option for active bidders to stay in their pre-auction band must remain available. To ensure this option is available, the feasibility of assigning a channel in the pre-auction band must be checked for each non-participating station and each active bidder before each auction round. The reverse auction

and the repacking process are, therefore, interdependent; for the incentive auction to succeed, they must work together.

76. Speed is critical to the successful implementation of the incentive auction. If the reverse auction bidding takes an unreasonably long time to complete because of the time required to determine whether there is an appropriate channel for each station that has not relinquished its spectrum usage rights, then the viability of the auction as a whole will be threatened. Our repacking methodology, therefore, must be capable of analyzing complex technical issues in a timely manner, that is, fast enough not to unduly slow down the bidding process. Certainty also is vital: because the reverse auction outcome depends on repacking decisions, the results of the repacking process cannot be tentative or indefinite after the auction is complete.

1. Repacking Process Overview

77. The implementation of the repacking process is driven by the Spectrum Act's express requirements, as well as by auction design considerations. During the reverse auction bidding process, it will undertake a "repacking feasibility check" to ensure that each station that will remain on the air after the incentive auction is reassigned to a channel that satisfies the statutory preservation mandate. After the final stage rule is satisfied and bidding stops (but before the incentive auction concludes), channel assignments will be optimized and finalized. This approach will enable rapid evaluation of bids during the reverse auction and will provide certainty that a channel that complies with the requirements imposed by the Spectrum Act and our rules is available for every station that remains on the air following the incentive auction.

78. Prior to the commencement of the reverse auction, the staff will determine the coverage area and population served as of February 22, 2012 (the date of the enactment of the Spectrum Act) of every television station whose coverage area and population served the

Commission will make all reasonable efforts to preserve in the repacking process, using the methodology described in the Office of Engineering and Technology Bulletin No. 69 ("OET-69"). With respect to certain facilities the Commission is exercising discretion to protect it will determine the coverage area and population served as of dates appropriate to those facilities. Based on this data, the staff will develop constraint files for each station using the approach set forth in the Repacking Data PN (See Incentive Auction Task Force Releases Information Related to the Incentive Auction Repacking, ET Docket 13-26, GN Docket No. 12-268, Public Notice, 28 FCC Rcd 10370 (2013)), with some exceptions. Specifically, an "interference-paired" file will be produced that includes, for each station, a list of all the other television stations that could not be assigned to operate on the same channel or on an adjacent channel with each particular station. Additionally, a "domain" file will be produced that includes, for each station, a list of all the channels to which the station could be assigned considering "fixed constraints," that is, incumbents in the bands other than domestic television stations that are entitled to interference protection at fixed geographic locations and on specific channels. The two files, collectively the "constraint files," will be used to check the feasibility of assigning permissible channels to stations that will remain on the air. The constraint files will enable the repacking methodology to rapidly evaluate during the reverse auction bidding process whether a channel could feasibly (that is, consistent with the preservation mandate of the Spectrum Act) be assigned to each station in light of the other stations that must also be assigned channels at that point during the auction.

79. The Commission adopted the approach to developing constraint files proposed in the Repacking Data PN, except that the determination of coverage area and population served, as required by the Spectrum Act, will not be calculated based on a single channel, or "proxy" channel, in each band. Instead, the Commission will calculate the coverage of a station and the

interference between stations on every possible channel that could be assigned to the station during the repacking process. Further, the data inputs and assumptions that appear in the Repacking Data PN will be updated to reflect the decisions adopted in this Order.

80. During the initialization step of the reverse auction, the initial "clearing target" for how much television spectrum will be repurposed through the reverse auction and the repacking process will be determined based on broadcast stations' collective willingness to relinquish spectrum usage rights at the opening prices announced by the Commission. The clearing target will dictate the total number of remaining channels available for the repacking process.

81. At the start of the reverse auction bidding process, broadcast stations will fall into two general categories: non-participating stations that will remain on the air after the incentive auction, and participating stations that may or may not remain on the air (including stations that may elect to change bands from UHF to VHF or high VHF to low VHF), depending on the reverse auction outcome. The repacking feasibility checker will ensure that every non-participating station can be assigned a television channel in its pre-auction band. Each time a participating station drops out of the auction, the repacking feasibility checker will determine whether a channel is available for each individual station that continues to participate in the bidding. The bidding will continue within a stage until every station has either dropped out of the auction or had its bid accepted. Final channel assignments will not be made during the bidding stage.

82. After the bidding in the reverse auction ends, the forward auction bidding will begin. As the forward auction bidding proceeds, whether the final stage rule is met will be evaluated. If the rule has not been satisfied, a new stage of the auction will commence with a lower spectrum clearing target. If the rule has been satisfied, the channel assignments for each station that will remain on the air will be optimized to ensure an efficient post-incentive auction

channel assignment scheme, taking into consideration factors such as minimizing relocation costs. The Commission will seek comment on the details of the channel assignment optimization in the Comment PN.

2. Implementing the Statutory Preservation Mandate

a. "All Reasonable Efforts"

83. The Spectrum Act gives the Commission broad discretion to "make such reassignments of television stations that the Commission considers appropriate" "[f]or purposes of making available spectrum to carry out the forward auction." Congress imposed a qualification on this general mandate: "the Commission must make all reasonable efforts to preserve, as of the date of the enactment of this Act, the coverage area and population served of each broadcast television licensee, as determined using the methodology described in OET Bulletin No. 69 of the Office of Engineering and Technology of the Commission."

84. The Commission interprets our "all reasonable efforts" obligation in light of the statutory context. Thus, in determining what is "reasonable," the Commission should take into account the other objectives in the Spectrum Act, including the goal of repurposing spectrum—an objective which clearly militates in favor of an efficient repacking method. This reading is consistent with the rest of the Spectrum Act. Section 6403(a)(1), for example, directs the Commission to "conduct a reverse auction … in order to make spectrum available for assignment through a system of competitive bidding." It is also consistent with Congressional intent. The Commission therefore finds that the statute requires that it use all reasonable efforts to preserve each station's coverage area and population served without sacrificing the goal of using market forces to repurpose spectrum for new, flexible uses.

85. Accordingly, the Commission rejects NAB's contention that § 6403(b)(2) of the Spectrum Act is a "hold harmless" provision that requires the Commission to identify

"extraordinary" or "truly exceptional" circumstances before altering a station's coverage area and population served. The Commission notes that courts have interpreted the phrases "all reasonable efforts" or "every reasonable effort" to "require[] that a party make every reasonable effort, not every conceivable one." Congress included the term "reasonable" in the statute because it anticipated that broadcasters' interests would not be the only interests that the Commission would have to consider in the repacking process. Had Congress instead intended to ensure the primacy of broadcasters' interests over all others, as NAB and others contend, Congress could have so specified. It did not. Instead, it required the Commission to make "all reasonable efforts" to preserve their coverage areas and populations served, a qualification that requires of the Commission a certain level of effort rather than a particular outcome. Accordingly, the Commission does not believe the statute requires us to precisely and strictly preserve broadcasters' coverage areas and populations served without considering the other objectives in the Spectrum Act.

86. Nor does the legislative history support broadcasters' interpretation of § 6403(b)(2). Comcast claims that "[d]uring markup, Congress specifically rejected alternate language that could have allowed the auction and repacking process to permanently reduce broadcasters' existing coverage, as long as the process resulted in 'substantially similar' coverage." Comcast's argument misses the mark. The cited legislative history informs our reading of "coverage area and population served" in section 6403(b)(2). The Commission interpreted those terms to require efforts to preserve service to those viewers who had access to a station's signal within its protected coverage area as of February 22, 2012—an outcome that is consistent with Congress' rejection of the term "substantially similar coverage." By contrast, "the reasonableness requirement [in § 6403(b)(2)] by its plain terms is a measure of effort – i.e., the actions taken to achieve a goal – and not of the outcome itself." As CEA explained in its comments, "[t]he

question is not whether the Commission will protect broadcasters"; rather, "[t]he question is whether the Commission is obligated to protect all of the existing levels of service without considering the impact on the goal of spectrum clearing." The Commission agrees with CEA that the answer to that question "is plainly no."

87. The Commission clarifies, however, that it is not adopting a "balancing approach" that weighs the objective of preserving coverage area and population served against the Spectrum Act's general objective of repurposing spectrum. Rather, the other objectives in the Spectrum Act inform our assessment of the degree of effort required to protect the coverage areas and populations served of broadcast licensees, that is, whether we have satisfied the "all reasonable efforts" mandate. This approach is consistent with the Supreme Court's directive that "[s]tatutory construction … is a holistic endeavor" such that "[a] provision that may seem ambiguous in isolation is often clarified by the remainder of the statutory scheme." By way of example, efforts that would preserve broadcasters' coverage areas and populations served, but would prevent us from repurposing spectrum, would not be "reasonable" in the larger context of the Spectrum Act. The Commission, therefore reject Comcast's view that §6403(b)(2) requires us to "focus exclusively on preserving the integrity of broadcasters' existing coverage area and population served."

88. Similarly, by taking into account the other objectives in the Spectrum Act, the Commission is not "pretend[ing] that the word 'all' does not exist in the phrase 'all reasonable efforts.'" "All" as used in §6403(b)(2) modifies "reasonable"; it measures quantity of effort, but does not affect the degree of effort required by the statute. "All" therefore requires only that we make every reasonable effort to preserve broadcasters' coverage area. Under our reading of the statute, the Commission could not satisfy its statutory obligation if it undertook only one of several reasonable actions to preserve broadcasters' coverage areas and populations served.

"All," however, has no bearing on whether any particular effort is "reasonable" and thus does not require the Commission to ignore the other objectives of the Spectrum Act when conducting the repacking process.

b. OET-69 and TVStudy

89. OET Bulletin No. 69, which is titled "Longley-Rice Methodology for Evaluating TV Coverage and Interference," provides guidance on the implementation and use of the Longley-Rice propagation methodology for evaluating television coverage and interference. The methodology described in OET-69 predicts a television station's coverage area and population served, both of which the Commission must make all reasonable efforts to preserve under the Spectrum Act. OET-69 specifically states that a computer program is necessary to implement the methodology. That computer program takes certain inputs, including population data, geographical terrain data, and data about stations' transmission facilities, and applies the methodology described in OET-69 to generate a station's predicted coverage area and population served. The computer program that implements OET-69 thus produces "output"—or more specifically, a description of a station's predicted coverage area and population served within its noise-limited contour.

90. The Commission will use TVStudy, the updated computer program that implements the methodology described in OET Bulletin No. 69, in the incentive auction. As discussed, TVStudy's capability to create and use a uniform nationwide grid for analysis of coverage area and population served is essential to the repacking process. In addition, the software previously used to implement OET-69 cannot support the incentive auction because it cannot undertake, in a timely fashion, the volume of interference calculations necessary to ensure that all stations that will remain on the air following the auction are assigned channels in accordance with the provisions of the Spectrum Act. Further, the proposed updates to the input values used in

applying the OET-69 methodology allow for a more accurate analysis of each station's coverage area and population served as of the date of the enactment of the Spectrum Act and eliminate the use of input values that are now obsolete. Thus, with one exception that is explained, the Commission adopted the updated input values proposed in the TVStudy PN (Office of Engineering and Technology Releases and Seek Seeks Comment on Updated OET-69 Software, ET Docket No. 13-26, GN Docket No. 12-268, Public Notice, 28 FCC Rcd 950 (2013)).[2] It finds that using TVStudy with updated input values to implement OET-69 will support the unique requirements of the incentive auction while satisfying our statutory obligation to make "all reasonable efforts" to preserve television stations' coverage area and population served as of February 22, 2012. The Commission finds that the Spectrum Act not only permits us to use TVStudy, but—because the statute requires the Commission to make all reasonable efforts to preserve broadcast stations' coverage areas and populations served as of February 2012—requires us to update the software and data inputs necessary to implement the methodology set forth in OET-69 to predict coverage as of that date as accurately as possible.

91. The Longley-Rice methodology described in OET-69 divides the area within a digital television station's noise-limited contour into approximately square "grid cells" to evaluate signal strength, or coverage, and any interference. The computer program previously used to implement the OET-69 methodology generates station-specific grid calculations based on each station examined. More specifically, the earlier software creates a new and unique grid for each station centered on the station's transmitting facilities. Signal strength and potential

[2] Updated versions of TVStudy were announced by public notice in April, July, August, and September 2013. See Office of Engineering and Technology Releases Updated TVStudy Software, ET Docket No. 13-26, GN Docket No. 12-268, Public Notice, 28 FCC Rcd 5520 (2013); Repacking Data PN, 28 FCC Rcd 10370; Office of Engineering and Technology Releases Updated TVStudy Software, ET Docket No. 13-26 and GN Docket No. 12-268, Public Notice, 28 FCC Rcd 12327 (2013); Office of Engineering and Technology Releases TVStudy Version 1.2.8 and Announces Future Updates Will Be Posted to the Web, ET Docket No. 13-26 and GN Docket No. 12-268, Public Notice, 28 FCC Rcd 12979 (2013). The most up-to-date version of TVStudy is posted at http://data.fcc.gov/download/incentive-auctions/OET-69/.

interference from other stations are calculated for each cell in that particular grid. Because each grid is unique to each station, however, no two station grids are typically the same, and signal strength and interference calculations for one station cannot be used to calculate coverage and interference for another station, even where they cover the same or portions of the same geographic area. The cell-level data are not consistent from one station to another. Moreover, the earlier computer software lacks the capability to save grid calculations. Given these two limitations (i.e., the lack of uniform grid cells and the inability to save calculations), the earlier computer software would have to re-create an individual station's grid each and every time it has to analyze a possible channel assignment in the repacking process. In other words, an individual station's grid may have to be re-created thousands of times before a determination is made as to which channel a station may be assigned following the auction.

92. In contrast, TVStudy has the capability to apply the OET-69 methodology to calculate signal strength and evaluate interference using a single, common grid of cells common to all television stations. Based on the data derived from the common grid, TVStudy can undertake pairwise interference analyses of every station that will remain on the air after the incentive auction and generate data that identifies combinations of stations that can (or cannot) co-exist on the same channel or adjacent channels. These data are used to generate the constraint files that will be employed in the repacking process. Further, unlike the earlier software, much of the cell-level data produced by TVStudy are cached, or saved. Hence, the repacking methodology need not re-create a station's unique grid each time it examines a possible channel assignment, and the numerous interference calculations can be run in a much shorter period of time. These attributes of TVStudy (i.e., the common grid and caching) are essential to the timely analysis of feasible channel assignments.

93. The Commission concludes that the statutory language allows the Commission to

update the computer software and input values used to implement the OET-69 methodology while adhering to the methodology described in OET Bulletin No. 69. The statutory language is ambiguous, and it is reasonable to read it narrowly. Indeed, the Commission finds unreasonable NAB's interpretation, which would compel the Commission to rely on outdated computer software and data to implement that methodology. Accordingly, the Commission interprets the statutory phrase "methodology described in OET Bulletin No. 69" to refer to the particular procedures for evaluating television coverage and interference that are provided for in that bulletin, not the computer software or input values used to apply that methodology in any given case. The Commission's interpretation is consistent with the common meaning of the word "methodology." Distinguishing between a "methodology" and the "software" and "inputs" used for applying that methodology also is consistent with the ordinary meaning of the latter words, as well as with common understanding. Courts have recognized similar distinctions between administrative methodologies and the computer programs and data inputs used to apply them. Likewise, evaluating TV coverage and interference using the methodology described in OET-69 requires a computer program and data inputs, but they are tools for applying the evaluation procedure, not the procedure itself.

94. Even though computer software and certain inputs that are necessary to implement OET-69 are referred to in OET-69, the Commission finds they are not part of the OET-69 "methodology." Examination of OET-69 itself bears out this distinction. OET-69 characterizes the computer program as a tool for applying the Longley-Rice propagation model, explaining that "[a] computer is needed … because of the large number of reception points that must be individually examined." OET-69 also makes clear that the computer program for applying OET-69 is subject to change—for example, it refers to "the computer program now used by the Media Bureau to evaluate applications … as well as predecessors of that program," and to "[t]he Fortran

code currently used by the Media Bureau to evaluate new proposals" — and provides instructions on how to use different computer programs to apply the Longley-Rice model. Indeed, OET-69 contemplates that others will utilize their own computer programs to implement the OET-69 methodology and provides suggestions for obtaining information on using the Longley-Rice model in doing so. The Commission's bureaus have used different computer programs to implement OET-69. In contrast, the methodology itself has remained the same through multiple versions of OET Bulletin No. 69 (other than corrections and updated Internet references). The Commission further notes that the rules distinguish between "the procedure set forth in OET Bulletin No. 69" and the inputs for applying it; for example, in evaluating post-digital TV transition allotments, the rules require the use of "the 2000 census population data" when calculating interference pursuant to the methodology in OET-69. Thus, the Commission agrees with CTIA and others that TVStudy is merely an updated tool for implementing the methodology in OET-69. Likewise, the updated input values that the Commission adopted are not part of the OET-69 methodology within the meaning of the statute.

95. While NAB argues that the statutory phrase "methodology described in OET Bulletin 69" is "a term of art that was well established in 2012" to include the present software and input values, NAB cannot point to a single instance of the FCC using, let alone defining, that phrase prior to enactment of the Spectrum Act. NAB does identify a number of decisions in which the Commission characterized use of specific Census and terrain data and treatment of "flagged" results as part of a "methodology." However, only one of those decisions referred specifically to OET-69. In that decision, the Commission did not define or describe the OET-69 "methodology" but rather used the term "methodology" colloquially to refer to inputs associated with application processing. Accordingly, the Commission rejects NAB's argument.

96. In addition to being consistent with the statutory language, our interpretation furthers

the statutory requirement to "make all reasonable efforts to preserve, as of the date of enactment of this Act [February 22, 2012], the coverage area and population served of each broadcast television licensee" by allowing us to update the computer program and input values for applying the OET-69 methodology. For example, updated inputs like the 2010 U.S. Census data more accurately reflect the latest population changes, which show an increase in population nationwide of approximately ten percent between 2000 and 2010, as well as changes in population distribution. Use of 2000 Census data, as NAB urges, would preserve television service as of year 2000 rather than as of the date of enactment of the Spectrum Act. Had Congress intended to prevent any updates to the software and input values used to implement the OET-69 methodology, it could have expressly directed the FCC to use the methodology described in OET-69, including the February 6, 2004 version of one of the Commission's computer programs implementing that methodology and the inputs used as of that date. Instead, Congress required "all reasonable efforts" to preserve each station's coverage area and population served as of February 22, 2012, a mandate that necessitates the use of updated software and inputs with greater utility and accuracy. In light of this mandate, the Commission disagrees with NAB that Congress was interested not in "the realities of population growth" but in "reduc[ing] coercive pressure on stations to give up their licenses." The Commission cannot conclude that Congress intended to require us to maintain and somehow adapt an obsolete computer program that relies on inaccurate data—particularly given the threat that doing so could leave some viewers without television service.

97. The Commission's reading is also consistent with other relevant statutory obligations and with Commission precedent. It has a well-established duty under the Administrative Procedure Act ("APA") to "analyze … new data" when faced with existing data that "are either outdated or inaccurate." NAB's interpretation of section 6403(b)(2) is in direct conflict with our

duty under the APA; it would require us to ignore new Census data despite significant population changes between 2000 and 2010, more accurate and updated terrain data, and corrected technical information. Consistent with its APA and other statutory obligations, the FCC has consistently relied on updated, accurate data and procedures when possible. In the Satellite Home Viewer Improvement Act of 1999 ("SHVIA"), for example, Congress directed the Commission to "take all actions necessary … to develop and prescribe by rule a point-to-point predictive model for reliably and presumptively determining the ability of individual locations to receive signals [of Grade B intensity]." In implementing that statutory mandate, the Commission adjusted the Longley-Rice methodology for UHF stations but left VHF calculations essentially unchanged. The D.C. Circuit upheld that decision, finding that the Commission acted reasonably because its chosen methodology increased the accuracy of the model. NAB tries to distinguish SHVIA on the basis that it expressly requires the Commission to "establish procedures for the continued refinement of the application of the model by the use of additional data as it becomes available"—a provision which the Spectrum Act lacks. The Commission is not persuaded. The underlying purpose of SHVIA was to identify "unserved households" eligible for the rebroadcast of distant network signals— an inherently pro-consumer objective. Similarly, in the Spectrum Act, Congress required us to make "all reasonable efforts" to preserve coverage area and population served as of February 22, 2012 – an obligation that depends heavily on having accurate data for that date. The Commission cannot fulfill the statutory mandate using outdated data. The 2000 Census data that NAB advocates using fails to reflect the increase in predicted population served that 85 percent of stations have experienced since that time.

98. NAB also objects that the proposed updates "are unlawful because they do not preserve broadcast licensees' coverage areas and populations served as predicted on February 22, 2012" — predictions which it asserts necessarily depend on calculations pursuant to OET-69, as

it was implemented on that date. On the contrary, the Commission read the date in section 6403(b)(2) to modify the preservation mandate, not the reference to OET-69. In other words, we read the statute to require us to preserve the actual coverage areas and populations served by broadcast stations on February 22, 2012, not (as NAB contends) to preserve the coverage areas and populations served as calculated by using the input values and the version of the computer program implementing OET-69 in use by one of the Commission's bureaus on February 22, 2012. Use of the outdated computer program and input values would not fulfill our statutory mandate to preserve the "coverage area and population served" as of February 22, 2012, but rather the service provided long before the Spectrum Act's enactment.

99. The Commission disagrees with NAB that TVStudy redefines or reduces the coverage area of a significant number of stations in comparison with the earlier version of the OET-69 computer program. OET took care in designing and developing TVStudy to ensure that it faithfully implements the OET-69 methodology, provides results that closely match those of the earlier computer software (notwithstanding updates that improve accuracy), and avoids bias that would systematically reduce broadcast stations' coverage areas and populations served. In support of its position, NAB, for example, predicts that station KMAX-TV in Sacramento, California, would suffer a 15 percent loss in the population served if we use TVStudy rather than the earlier OET software. However, OET's analysis using TVStudy predicts that KMAX-TV will experience an eight percent increase in population served. Further, OET's analysis using TVStudy and the updated inputs adopted in this Order shows that 88 percent of full service stations will experience an increase in population served, while only 12 percent show some decrease.

100. NAB also asserts that TVStudy departs from the OET-69 methodology because it considers LPTV stations and TV translators in its evaluation of service and interference analysis.

NAB is correct that TVStudy has the capability of studying the interference from LPTV and TV translators. However, NAB is incorrect in assuming that that option will be used in the repacking process.

101. In addition, NAB claims OET "failed to conduct any cost-benefit analysis for its proposed changes." According to NAB, "[t]he proposed changes to OET-69 and the attendant uncertainty w[ill] drive up the costs for broadcast licensees, as they scramble to acquaint themselves with the new methodology, without any countervailing benefit." That is demonstrably not the case. The benefits of using TVStudy clearly outweigh the costs. The use of TVStudy and the updated input values is essential to the repacking process and to fulfilling the statutory preservation mandate.

102. Moreover, NAB's criticisms of OET's efforts to provide support for TVStudy are baseless. Copies of TVStudy have been made available to the public continuously since its original release in February 2013. The TVStudy software was released in a form allowing it to be easily installed and run on inexpensive, commonly available consumer computers. While OET has corrected minor errors and improved the functionality of TVStudy since its original release, OET has informed the public of these updates by releasing Public Notices, or (as announced in September 2013) through updates on the Commission's website. Commission staff have provided and continue to provide ongoing support to users seeking to implement and utilize TVStudy, including participating in an online discussion forum (list-serve) open to the public. As the developer of TVStudy, OET has provided support to users of the software by responding to inquiries on the listserve. Thus, broadcasters have had ample opportunity to evaluate and familiarize themselves with the updated software and input values. Accordingly, contrary to NAB's claims, there should be no uncertainty associated with the use of TVStudy.

103. NAB complains that TVStudy contains "scores of soft switches," which contain

variables or inputs that can lead to different predictions of coverage area and population served depending on how the switches are set. Most of these switches reflect variables that are not meant to be changed from their default values, were included in the software to maximize flexibility, and have not changed since the original release of TVStudy. In the TVStudy PN, OET tentatively defined the eight soft switches for the inputs that the Commission adopted. The release of this Order finalizes the variables or inputs associated with the key soft switches. In addition, a Public Notice released by OET concurrently with the Order provides guidance regarding how to set the switches for the remaining variables or inputs.

104. As interested parties continue to work with TVStudy, there may be further opportunities for OET to correct minor errors in, or to improve the functionality of, the software, consistent with this Order. Accordingly, OET may continue to make improvements and other changes to TVStudy after release of this Order that are necessary and appropriate to correct minor errors or improve functionality, provided such changes are consistent with this Order. However, the Commission recognizes the importance of finalizing TVStudy well in advance of the auction. The Commission directed OET to finalize TVStudy no later than the release of the Procedures PN. It also directed OET to release a detailed summary of baseline coverage area and population served by each television station to be protected in the repacking process, and to provide an opportunity for additional public input.

105. NAB further argues that it is "arbitrary and capricious" for the Commission to utilize TVStudy only in the incentive auction context. According to NAB, if the Commission adopts TVStudy, "the result would be that on the very same day that the auction is commenced using [TVStudy], a person or entity could file an application for a new television station, yet be required by the Commission to use the [old software]." This assertion lacks merit because the Commission has not yet addressed whether TVStudy will be used for purposes other than the

repacking process. The Commission notes that, contrary to NAB's assumption, the Commission does not always use the same computer software to implement OET-69. The Commission's bureaus have used different software programs to implement OET-69: the Media Bureau has used tv_process to process applications for new stations and modifications, OET has used "FLR" for large-scale projects, like the DTV transition, and the International Bureau has used "V-Soft Probe" for international coordination efforts. Each type of software provides a different utility that serves the purposes for which it is used (i.e., licensing, interference and international coordination).

106. NAB and other broadcasters also raise procedural objections that lack merit. Because the Commission adopted TVStudy and updated input values in this Order, NAB's claim that the Commission itself must approve the use of TVStudy and updated input values is moot. NAB also complains that the comment cycle was too short. The Commission disagrees. The TVStudy PN allowed 45 days for comments and an additional 15 days for reply comments. In addition, parties have had additional time to work with the updated software and inputs (and to submit ex parte filings) since the comment period closed. While NAB claims that "formal" notice and comment procedures were required instead of Public Notices, the purpose of the APA's notice and comment requirement has been fully satisfied by OET's issuance of the TVStudy PN and its publication in the Federal Register. The Commission has a robust record on the issues raised in the TVStudy PN and it has taken the comments and ex parte filings into account in adopting the use of TVStudy and the updated values in this Order.

107. Use of 2010 U.S. Census Data. Having addressed the broadcasters' statutory and other arguments that the Commission cannot use updated software or input values in applying the OET-69 methodology, the Commission turn to the specific updates to the input values associated with TVStudy proposed in the TVStudy PN. First, the Commission adopted use of

the latest available population data from the 2010 U.S. Census. The old software used population data from the 2000 U.S. Census or earlier. According to the 2010 U.S. Census, the country's population has grown 9.7 percent since the 2000 Census, an increase of 27.3 million people. In addition, the distribution of the population across the country has shifted.

108. NAB argues that the Commission should continue to use 2000 Census data, claiming that its preliminary analysis of TVStudy with 2010 population data shows that 14 percent of broadcast licensees will experience a decrease in predicted population served. Though our evaluation of TVStudy shows a similar apparent reduction, it also shows that *88* percent of full-service broadcasters will experience an increase in predicted population served. Moreover, while NAB contends that "[t]hese changes are contrary to the Commission's statutory obligation to preserve 'population served,'" NAB fails to acknowledge that using 2010 Census data, the most recent population data available, does not result in actual population loss but rather an accurate representation of a broadcast station's population served as of 2010. In other words, broadcast stations experiencing a "loss" in predicted population served were, in fact, serving a smaller population on February 22, 2012, than predicted using 2000 Census data because the 2000 Census data is outdated.

109. Use of One Arc-Second Terrain Elevation Data. The Commission adopted use of terrain elevation data with a nominal resolution of one arc-second (approximately 30 meters) in most areas of the country. The one arc-second dataset, which is derived from smaller scale topographic maps with more granular elevation data than datasets used by earlier implementations of the OET-69 methodology, will allow for more accurate calculation of the effect of terrain on propagation of television signals. The U.S. Geological Survey ("USGS") maintains a database with this terrain information, which is updated on a two-month cycle to integrate newly available and improved data. The earlier software used to implement OET-69

relied on a terrain elevation database of three arc-second resolution (approximately 90 meters). The USGS no longer distributes, maintains, or supports a three arc-second database, which also has a history of errors and no mechanism to check the validity of those errors or to correct them. The Commission finds no reason to continue using an obsolete database when there is an expert federal agency that offers up-to-date and more precise terrain data.

110. NAB opposes this change and argues that OET-69 expressly requires use of a three arc-second database. The Commission acknowledges that OET-69 mentions that "the FCC computer program is linked to a terrain elevation database with values every three arc-seconds of latitude and longitude." This is a descriptive statement about an input database, however, not a prescriptive element of the OET-69 methodology. The Commission does not interpret the description of an input linked to the earlier software as a methodological requirement or a restriction against updating that software to incorporate more precise, accurate, and current data.

111. NAB further maintains that switching from three to one arc-second terrain data will result in predicted losses in population served for 85.1 percent of all broadcast stations – results that NAB argues "simply cannot be squared with Congress's directive to preserve broadcast licensees' service populations, as calculated using the version of OET-69 in effect on February 22, 2012." NAB did not provide any analytical information to support its calculations. By contrast, our analysis predicts that about one-half of the stations examined will maintain or slightly improve population coverage in comparison to what would have been predicted using the three arc-second terrain data, while one-half are predicted to experience a slight decrease in coverage. Further, staff analysis shows that the results using the one arc-second terrain database are more accurate than those of the three arc-second database.

112. Antenna Beam Tilt Values. The Commission adopted use of actual beam tilt data, as those data are specified by the licensees and shown in the Commission's Consolidated Database

System ("CDBS"), instead of an across-the-board-assumed downtilt figure. This will allow for a more accurate depiction of the predicted coverage of, and interference from, each television station. As the TVStudy PN recognized, the computer program previously used to implement the OET-69 methodology ignores this input from CDBS and instead uses the same electrical beam tilt for every location, regardless of the actual beam tilt value, which can result in a coverage projection that may effectively "miss" some of the population served. In contrast, TVStudy uses the actual amount of electrical downtilt as specified by the broadcast licensees in CDBS, generating a more accurate model of coverage and interference effects and therefore better implementing the methodology in OET-69.

113. Coordinates, Depression Angles, and Incorrect Data. Instead of continuing to truncate or round geographic coordinates to the nearest second, as was the practice in earlier versions of software implementing OET-69, the Commission adopted use of full-precision data in coverage and population served projections. By increasing the precision of geographic coordinates, TVStudy eliminates rounding errors and provides at least three additional orders of precision. NAB opposes this change because it estimates that it will decrease predicted population served for 37.3 percent of stations and increase predicted population served for 38.1 percent of stations. The Commission finds NAB's argument unpersuasive; there is no technical or computational basis to intentionally reduce the numerical precision of the geographic coordinates used to calculate station coverage and population served as of February 22, 2012. The FCC has a well-established statutory obligation to address known inaccuracies in existing data. Therefore, the Commission adopted the proposal set forth in the TVStudy PN.

114. For the same reasons, the Commission adopted the TVStudy PN proposal to correct the previous software's error in calculating depression angles. Some versions of the computer program previously used to implement OET-69 erroneously calculated depression angles based

on the antenna height above ground, rather than the height above mean sea level, which, as the TVStudy Public Notice recognized, can cause the radiated power toward the cell under study to be incorrectly calculated. This can result in an incorrect representation of a station's coverage area and population served.

115. The TVStudy PN also recognized that there may be instances where the information entered into the FCC's broadcast station database, CDBS, may not be fully accurate. This could lead to incorrect results when the values in that database are used to predict coverage and interference. While OET sought comment on methods to detect and correct inaccurate data, the commenting parties did not address this issue. As discussed, full power and Class A stations will be required to certify the accuracy of the information in CDBS prior to the incentive auction.

116. Longley-Rice Error Warnings or "Flags" Treatment. The Commission declined to adopt an alternative treatment of results that are flagged as "unusable or dubious" by the Longley-Rice algorithm underlying the OET-69 methodology. Currently, the assumption is that the cells with such warning flags have coverage, even if surrounding cells are predicted to lack coverage or are subject to interference.

117. The Commission is not persuaded that a change in the underlying assumption of error warnings or "flags" is necessary or appropriate at this time. As noted in the TVStudy PN, error warnings have been treated differently depending on context. For example, the presence of an error "flag" is ignored in applying the methodology of OET Bulletin Nos. 72 and 73. That assumption is consistent with the purpose of OET-72 and OET-73, which were designed to identify whether service is available at a specific location (household). OET-69 is designed to predict service availability within a station's coverage area generally, at points that are not specific households but are intended to be representative of a surrounding area or cell. The assumption of coverage in that context is consistent with the Commission's traditional

assumption that service is available throughout a station's coverage area and that broadcasters locate and configure their transmitters to maximize coverage. Thus, despite the fact that the current treatment of error warnings may overestimate coverage areas, the Commission finds no compelling reason to change our treatment of the Longley-Rice error flags at this time. Further, it does not believe that assuming service for cells with error flags will significantly impact our ability to efficiently repack television stations, because this assumption does not increase the coverage area that the Commission must make all reasonable efforts to preserve. Accordingly, the Commission will continue to assume coverage where Longley-Rice error warnings appear.

118. On May 8, 2014, NAB filed a 129-page submission purporting to demonstrate that TVStudy "produce[s] flawed results" by comparing TVStudy and "the existing OET-69 software." Despite the fact that OET first publicly released TVStudy over 15 months ago, NAB filed on the eve of the Sunshine period, limiting analysis of its submission and depriving interested parties of an opportunity for comment. Nonetheless, analysis indicates that NAB's submission is flawed. First, NAB used the wrong legacy software for its comparison. NAB maintains that "the version of OET-69 in existence on February 22, 2012 (understood to include OET Bulletin 69 and its implementing software)" must be used in the repacking process. NAB does not specify which of the legacy software programs for applying the OET-69 methodology in use as of that date it believes must be used. If Congress had intended to require the use of particular software, however, presumably it would have required the use of OET's "FLR" software (which has been publicly available on OET's website for years), as the statute refers specifically to OET as the originator of OET-69. Yet NAB apparently used a version of the Media Bureau's application processing software for its comparisons to TVStudy. Second, NAB used the wrong input values for its comparison. NAB maintains that it used "the settings OET actually proposes to use." NAB used such settings selectively, however, skewing the results of

its comparison. For example, NAB maintains that use of TVStudy results in a loss of population served for approximately 52 percent of stations studied, yet NAB failed to update Census data reflecting an increase in the U.S. population between 2000 and 2010. OET's analysis using the settings OET proposed to use (and that we adopted in this Order) results in a population increase for 85 percent of full power stations. Third, NAB is mistaken that TVStudy must be flawed because it does not replicate the results produced by earlier software for applying OET-69. The various legacy software programs used by the Commission's different bureaus do not always produce identical results: identical results are unnecessary when the software is being used for different purposes. TVStudy is not designed to produce the identical results produced by earlier software, although it does produce very similar results. TVStudy is configured differently from earlier software so that it can support the repacking process using the most up-to-date and accurate information and technical evaluation capabilities and, therefore, necessarily does not produce exactly the same results.

c. Preserving Coverage Area

119. The Commission adopted the proposal to interpret the statutory term "coverage area" consistent with the definition of "service area" in OET-69 and § 73.622(e) of the Commission's rules with regard to full power stations. Accordingly, the Commission will consider a full power station's coverage area to be the geographic area within its noise- limited F(50,90) contour where the signal strength is predicted to exceed the noise-limited service level. Consistent with the methodology in OET-69, areas within a station's noise-limited contour where its signal strength is below the noise-limited signal strength level, which typically occurs due to terrain obstructions or other propagation factors, will not be considered to be part of the station's coverage area. The coverage areas of full power stations that operate distributed transmission systems ("DTS") using multiple transmitters will be determined in accordance with the definition of authorized service

area and method for determining DTS "authorized service areas" in 47 CFR 73.626(b), (c) and (d) of the rules. Further, it is appropriate to use a DTS station's authorized service area as currently set forth in our rules as the definition of the coverage of such stations. While OET-69 does not specifically address DTS stations, the Commission finds that considering a DTS station's service area to be the combined coverage of its transmitters, as limited by the maximum distances specified in the rules, is consistent with that methodology.

120. As proposed in the NPRM, the Commission will make all reasonable efforts to preserve Class A stations' protected contours. The Commission disagrees with commenters who argue that we must protect the entire area covered by Class A stations' signals, i.e., the noise-limited contour within which viewers may be able to receive the signal. Because our rules only protect Class A stations' protected contours from interference, defining their coverage areas as their noise-limited contours would provide these stations with greater interference protection after the repacking process than they enjoy today. In the absence of an explicit statutory directive, the Commission finds no basis to do so. Our approach makes our interpretation of the statutory term "coverage area" consistent for full power and Class A stations, both of which will enjoy protection in the repacking process for the same area that now receives interference protection under our rules.

121. In preserving a station's coverage area, the Commission will replicate that station's contour on its new channel. As noted earlier, OET-69 sets forth the methodology for determining the contours that define the boundaries of a station's coverage area. As proposed in the NPRM, the Commission adopted the "equal area" approach for replicating the area within the station's existing contour as closely as possible using the station's existing antenna pattern. Assuming a station maintains its other existing technical parameters, i.e., location, antenna height and antenna pattern, the Commission will permit the station to adjust its power on the new

channel until the geographic area within the station's noise-limited or protected contour (depending on whether the station is full power or Class A) is equal to the area within the station's original contour on its pre-auction channel. This approach will allow stations to preserve their existing coverage areas using antennas that are practical to build, so that stations will be able to actually construct their new facilities.

122. The Commission adopted the proposal to protect in the repacking process the existing coverage areas of stations operating under a waiver of the antenna height above average terrain ("HAAT") or antenna height limits. The Commission will also protect the existing coverage areas of stations that operate under a waiver of effective radiated power ("ERP") limits. In addition, the Commission will make all reasonable efforts to preserve the existing coverage areas of stations that operate above the HAAT and/or ERP limits pursuant to §73.622(f)(5), except that such operations will not be protected to the extent that they exceed the maximum power limits specified in the Commission's rules without regard to HAAT. Stations licensed pursuant to a waiver of the applicable ERP limit will be permitted to continue operations at power levels up to the existing authorized ERP.

123. To the extent that a broadcaster participates in the auction through a UHF-to-VHF or a high-VHF-to-low-VHF bid, the Commission will make all reasonable efforts to preserve its coverage area and population served. However, because these stations will be relocating to a different band, the Commission anticipates that it may be difficult for them to maintain their antenna pattern on the new channel. Accordingly, as discussed, the Commission will allow successful UHF-to-VHF and high-VHF-to-low-VHF bidders to request alternative facilities that may result in increases in their coverage areas, as long as the increases do not cause interference to other stations.

124. Although broadcasters generally support our decision to permit stations assigned to

new channels to continue to use their existing antenna patterns with power adjustments, the Affiliates Associations contend that the Commission should not consider a station's signal to be receivable at all locations within its noise-limited contour, thereby ignoring terrain losses. They argue that because the effect of terrain on signal reception is the sine qua non of the OET-69 model, ignoring terrain losses and assuming that a station's signal is receivable at all locations within its noise-limited contour would eviscerate the statutory requirement to preserve coverage areas using the OET-69 methodology. They acknowledge that there inevitably will be some changes in coverage area due to channel reassignments, but contend that the Commission can only satisfy the preservation mandate in the statute if it limits such changes to no more than 0.5 percent. The Affiliates Associations alternately propose that the Commission allow stations "flexibility in specifying alternative facilities that increase a station's coverage area if that is necessary to fully preserve the coverage area and population served of a station following repacking."

125. While we agree that the goal of the repacking process should be preservation of stations' pre-repacking coverage areas, the Commission emphasize that, as the Affiliates Associations acknowledge, it may not be physically practical or possible for some stations to build modified facilities that result in less than a 0.5 percent change in the geographic area served within the original contour. Because radio signals propagate differently on different frequencies, the signal of a station reassigned to a different channel will generally not be receivable in precisely the same locations within a station's contour as it was in its original channel. Instead, there may be signal losses due to terrain in different areas within the contour. Such losses are unavoidable, so exact replication of coverage within a station's contour is not always attainable under the laws of physics. The Commission also notes that the Affiliates Associations have mischaracterized the proposal to preserve stations' coverage areas in the

repacking process. The Commission is not assuming that "coverage area" includes all of the area within a station's contour (i.e., that a station's signal is receivable at all locations within the contour). Rather, the Commission will adhere to the OET-69 methodology, which considers variations in signal availability resulting from terrain losses, when determining the "coverage area" and "population served" that must be preserved in the repacking process. Thus, the Commission will not include areas where a signal is not receivable due to terrain losses in the coverage area to be preserved.

126. The Commission declines to adopt the proposals advanced by the Affiliates Associations. First, it does not interpret the Spectrum Act to prohibit anything greater than a de minimis change in a station's coverage area. Rather, as discussed, the Commission agree with T-Mobile that "the reasonableness requirement [in §6403(b)(2)] by its plain terms is a measure of effort—i.e., the actions taken to achieve a goal—and not of the outcome itself." Hence, the demand that the outcome of the repacking process be no more than a 0.5 percent change in the geographic area served, finds no support in the statute.

127. Nor does the Spectrum Act require us to expand stations' contours to account for terrain losses. The Commission adopted the "equal area" approach for replicating the area within a station's contour using the station's existing antenna pattern. This approach is designed to allow a station to use its existing facilities, allowing for some adjustments, to serve the same geographic area on the channel to which it is reassigned in the repacking process. The Affiliates Associations support our approach, but seem to demand that we go even further by expanding a station's contour to compensate for terrain losses resulting from propagation differences on the reassigned channel are predicted to reduce the coverage area within the contour. While not entirely clear, the Affiliates Associations seem to demand that the Commission preserve the same square kilometers of coverage, not a station's actual coverage area prior to repacking.

Such an approach finds no support in the Spectrum Act, which specifically directs us make "all reasonable efforts to preserve … the coverage area … of each broadcast television licensee, as determined using the methodology described in OET Bulletin 69." Consistent with our approach to preserving population served, the Commission interprets the statute to direct us to make all reasonable efforts to protect the geographic area that a station actually served as of February 22, 2012. This approach, which is consistent with our efforts to replicate coverage areas during the digital transition, is designed to ensure that after the repacking process, broadcasters will continue to reach the same viewers, and that viewers will continue to have access to the same stations. Expanding contours, as the Affiliates Associations' request, would thus be inconsistent with the statute, because it would not maintain the status quo; to the contrary, it would expand the geographic area that a station actually serves. The Affiliates Associations' proposal could provide the station with a "windfall" in the form of new viewers or, require us to undertake costly efforts to extend interference protection to areas with no viewers. The Commission does not believe that either of these outcomes was intended by the Spectrum Act.

128. Second, expanding contours in the repacking process is not practical or realistic, because it would compromise the repacking process and, ultimately, the success of the auction. Allowing contour extensions during the repacking process will make it more difficult to repack stations efficiently. The Commission would face the same problem if we were to prohibit any channel reassignment that resulted in anything greater than a de minimis change in the geographic area served. Reducing the number of potential channels significantly limits the Commission's flexibility to assign channels in the repacking process, increasing the potential costs of clearing the spectrum and decreasing the likelihood of a successful auction outcome. The Commission interpreted the statute to require that we make all reasonable efforts to preserve each station's coverage area and population served without sacrificing the goal of a successful

incentive auction. The Commission adopted a number of measures that will effectively address broadcasters' concerns without compromising the auction. Under these circumstances, the Commission need not adopt the proposals advanced by the Affiliates Associations to meet the statutory mandate.

129. Third, broadcasters' concerns regarding the potential for substantial new terrain losses are exaggerated. The majority of UHF stations will be assigned to channels that are lower in the band than their original channels, because under the 600 MHz Band Plan the Commission will be seeking to repurpose UHF spectrum contiguously from channel 51 down, meaning that stations being reassigned to new channels within the UHF band generally will be assigned to channels lower in the band. Such stations are likely to experience decreases rather than increases in coverage lost to terrain within their contours due to the superior propagation characteristics of their lower frequencies.

130. Finally, the Commission adopted a number of measures to effectively address the Affiliates Associations' concerns. For those stations that may experience a loss of coverage due to terrain, it adopted several measures that will allow them to remedy such losses. Specifically, broadcasters will be able to file initial construction permit applications that expand their coverage area by up to one percent, as long as they do not cause new interference to any other station. In addition, if a station is dissatisfied with its new channel assignment due to terrain losses, it may seek alternative transmission facilities on a different channel, provided a channel is available and the alternative facilities meet all existing technical and interference requirements and serve the public interest. Further, if a licensee wishes to provide service to a specific area that had service on its pre-auction channel but lacks service on its new channel, it could use DTS, for example, to provide that coverage. This approach will allow us fulfill our statutory duty to make "all reasonable efforts" to preserve broadcast licensees' coverage area and

population served, as required by section 6403(b)(2) of the Spectrum Act.

d. Preserving Population Served

131. As proposed in the NPRM, the Commission interprets the statutory term "population served" to mean the persons who reside within a station's coverage area at locations where service is not subject to interference from another station or stations, as specified in OET-69 and §73.616(e). Commenters do not specifically address the NPRM proposal, although they express views on how the Commission should make all reasonable efforts to preserve each station's population served in the repacking process. The Commission will consider a station's "population served" to be the population within the station's coverage area, as that term is defined above, less any portions of the areas where interference from other stations is present as of February 22, 2012. Also, the Commission adopted Option 2, proposed in the NPRM, to fulfill the statutory mandate to preserve "population served" as of February 22, 2012. Thus, it will preserve service to the same specific viewers for each eligible station, and no individual channel reassignment, considered alone, will reduce another station's population served on February 22, 2012 by more than 0.5 percent. This approach is consistent with the standard for evaluating interference from new or modified television operations in §73.616(e) of the rules. As noted, the 0.5 percent level is considered to be no interference at integer precision.

132. Option 2 will best fulfill our mandate to make "all reasonable efforts" to preserve broadcast licensees' populations served as of the date of enactment of the Spectrum Act, for the following reasons. First, the Commission agrees with NAB and other broadcasters that § 6403(b)(2) of the Spectrum Act's charge that we "make all reasonable efforts to preserve … the population served of each broadcast television licensee" directs us to protect service to the specific viewers who had access to a station's signal as of February 22, 2012. Interpreting the preservation mandate to refer to existing viewers as of this date seems most consistent with the

statutory language and legislative history, as well as Commission precedent. The statute's use of the word "preserve" suggests that the goal is to maintain the status quo, not to replace some viewers with others. That interpretation is reinforced by Congress's rejection of a bill that would have established a goal of substantial equivalence rather than preservation, as well as another bill that would have required the FCC to preserve "interference levels with respect to [each] licensee's signal" rather than population served. Further, the Commission historically has been concerned with avoiding disruption of service to existing viewers. Thus, while Option 1 would provide greater efficiencies because it takes into account overall reductions in interference that result when broadcast stations relinquish all of their spectrum usage rights, the Commission declined to adopt it because it would not preserve service to existing viewers as of February 22, 2012.

133. Second, Option 2 best satisfies our auction design needs. Specifically, Option 2 can accommodate pairwise interference analyses. Option 1 would require analysis of interference relationships on an aggregate rather than a pairwise basis. While Option 3 permits greater new interference than Option 2 (i.e., two percent per station versus 0.5 percent per station), it is unduly restrictive because it does not allow any "replacement" interference, making repacking less efficient. Accordingly, Option 2 provides the most protection to television stations' existing populations served consistent with our auction design needs.

134. Even though NAB recommends the adoption of Option 2 as the standard for "all reasonable efforts," it also urges the Commission to cap the amount of total additional interference at one percent, and allow no new interference to stations that are currently experiencing ten percent or more interference within their service areas. According to NAB, these interference caps are necessary because, while an individual station can only cause a maximum addition of 0.5 percent interference under Option 2, "stations repacked during the

incentive auction process … would likely receive interference from multiple stations" which, in the aggregate, could "lead to significant viewer losses." Contemporaneously with the release of this Order, OET, and the Wireless, Media, and International Bureaus will be releasing a Public Notice inviting comment on a staff analysis of the potential impact of aggregate interference on television stations as a result of the repacking process. The Commission will defer a decision on NAB's proposal until the record is fully developed on the requested cap. The Commission will resolve the issue in a subsequent Order that will be released no later than the release of the Comment PN, and well in advance of the incentive auction.

3. Facilities to Be Protected

135. The Commission concludes that protecting certain facilities in addition to those the statute requires it to protect will serve the public interest. The Commission also explains its decision not to extend protection to certain other categories of facilities.

a. Mandatory Protection of Full Power and Class A Facilities

136. Section 6403(b)(2) of the Spectrum Act directs the Commission, in making any reassignments or reallocations under Section 6403(b)(1)(B), to "make all reasonable efforts to preserve, as of the date of enactment of [the] Act, the coverage area and population served of each broadcast television licensee." A "broadcast television licensee" is defined as the "licensee of—(A) a full-power television station; or (B) a low-power television station that has been accorded primary status as a Class A television licensee" under Section 73.6001(a) of the Commission's rules. The Commission adopts the tentative conclusion that Section 6403(b)(2) mandates all reasonable efforts to preserve the "coverage area and population served" reflected in full power and Class A facilities (1) licensed as of February 22, 2012, the date of enactment of the Spectrum Act; or (2) for which an application for a license to cover was on file as of February 22, 2012. The Commission also adopts the tentative conclusion that the scope of

mandatory protection under Section 6403(b)(2), which is limited to "broadcast television licensees," defined by the Spectrum Act as full power and Class A stations only, excludes LPTV and TV translator stations. The Commission interprets this mandate to apply to full power and Class A broadcasters that do not participate in the reverse auction and full power and Class A broadcasters that participate in the reverse auction but do not submit a winning bid. The Commission also interprets this statutory mandate to apply to full power and Class A broadcasters that submit a winning bid to move from a UHF to a VHF channel or from a high VHF to a low VHF channel.

137. To ensure a stable, accurate database, and to facilitate the repacking process, all full power and Class A television stations will be required to verify and certify to the accuracy of the information contained in CDBS with respect to their protected facilities. Prior to the start of the incentive auction, the Media Bureau will issue a Public Notice announcing each station's protected facility. All full power and Class A stations will be required to submit a form (to be developed by the Media Bureau following the release of this Order) specifying any changes to the information contained in CDBS and certifying to the accuracy of the information in CDBS or provided on the form for their protected facility. The Commission delegates authority to the Media Bureau to announce by Public Notice the deadline and procedures for filing the form.

138. The Commission concludes that Section 6403(b)(2) requires all reasonable efforts to preserve only facilities that were in operation as of February 22, 2012. The full power and Class A facilities that were in operation as of February 22, 2012 are facilities that were licensed on that date or for which an application for a license to cover an authorized construction permit was on file.

139. The Commission rejects claims that Section 6403(b)(2) mandates protection of facilities authorized in construction permits as of February 22, 2012. While facilities authorized

in a construction permit are protected from interference under Commission rules, the grant of a construction permit standing alone does not authorize operation of those facilities.

b. Discretionary Preservation

140. Although the Commission interprets the Spectrum Act to mandate that it protect only facilities that were in operation as of February 22, 2012, it adopts the tentative conclusion in the NPRM that the Spectrum Act does not preclude us from exercising discretion to protect additional facilities beyond this statutory floor. That authority is encompassed within the Commission's broad spectrum management authority under the Communications Act.

141. As set forth more fully below, the Commission concludes that the public interest is best served by extending protection to certain categories of facilities that were not licensed or the subject of a pending license to cover application as of February 22, 2012. More specifically, the Commission will protect: (1) the small number of new full power television stations that were authorized, but not constructed or licensed, as of February 22, 2012; (2) full power facilities authorized in outstanding construction permits issued to effectuate a channel substitution for a licensed station; (3) modified facilities of full power and Class A stations that were authorized by construction permits granted on or before April 5, 2013, the date the Media Bureau issued a freeze on the processing of certain applications; and (4) Class A facilities authorized by construction permits to implement Class A stations' mandated transition to digital operations. Except in very limited circumstances discussed below, the Commission will limit discretionary protection to these categories.

142. The Commission generally will limit its discretionary protection to facilities in the preceding categories that are licensed (which in this Section of the Order encompasses both licensed facilities and those subject to a pending license to cover application), by the Pre-Auction Licensing Deadline to be announced by the Media Bureau. The Commission delegates authority

to the Media Bureau to issue a Public Notice specifying the Pre-Auction Licensing Deadline. The Commission anticipates that the Public Notice will give stations at least 90 days prior notice of this deadline.

(i) New Full Power Stations

143. As proposed in the NPRM, the Commission will exercise its discretion to protect the new full power television stations that were authorized by construction permits, but not yet licensed, as of February 22, 2012.

(ii) Channel Substitution Construction Permits

144. The Commission will exercise its discretion to protect facilities authorized in construction permits issued to a licensed station to effectuate a substitution of a new channel for its licensed channel (a "channel substitution") that are licensed by the Pre-Auction Licensing Deadline rather than their facilities licensed on February 22, 2012. The fact that these channel substitution allotments were protected in the Table prior to enactment of the Spectrum Act further weighs in favor of protecting the corresponding authorized facilities.

145. Seven of the channel substitutions the Commission is electing to protect result in a station moving from a VHF to a UHF channel, which will encumber additional UHF spectrum by adding a new station to the band. If any of these stations participates in the reverse auction, it will have the opportunity to relinquish its newly allotted UHF channel through a UHF-to-VHF bid.

146. The Commission will protect channel substitution construction permits only if they are licensed by the Pre-Auction Licensing Deadline. The Commission finds that preserving a facility for the channel licensed and operating on February 22, 2012 (as required by the Spectrum Act) as well as an authorized facility for a different channel that remains unbuilt would limit its repacking flexibility without offering sufficient countervailing public interest benefits.

147. The Commission will protect the substitute channel facilities of former channel 51 licensees if they are licensed by the Pre-Auction Licensing Deadline. Because rulemaking petitions seeking to relocate stations from channel 51 are still permitted to be filed, they are not subject to the Media Bureau's April 5, 2013 freeze on the filing of certain facilities modifications, which is discussed in the following Section. Accordingly, the Commission will not impose the requirement discussed in the next Section that these facilities modifications need to be authorized in a construction permit by April 5, 2013 in order to qualify for protection.

(iii) Facility Modifications

148. The Commission concludes that it will serve the public interest to extend discretionary protection to the facilities of full power and Class A stations authorized in construction permits that were granted on or before April 5, 2013 (the date on which the Media Bureau issued a Public Notice, the Freeze PN imposing limitations on the filing and processing of certain applications by full power and Class A television stations in light of the forthcoming auction and the need to plan for the repacking process See Media Bureau Announces Limitations on the Filing and Processing of Full Power and Class A Television Station Modification Applications, Effective Immediately, and Reminds Stations of Spectrum Act Preservation Mandate, Public Notice, 28 FCC Rcd 4364 (2013) (Freeze PN)), provided that the facilities are licensed by the Pre-Auction Licensing Deadline.

149. Applications that were pending on April 5, 2013 that complied with the filing limitations set forth in the Freeze PN, or were amended to comply, as well as later-filed applications that comply with the filing limitations, will continue to be routinely processed by Commission staff. To the extent that such applications are granted, the facilities will be protected in the repacking process, provided they are licensed by the Pre-Auction Licensing Deadline.

150. While the Freeze PN remains in effect, the Commission directs the Media Bureau to begin processing facilities modifications and displacement applications that were on file but were not granted by April 5, 2013 and were not amended to comply with the filing limitations set forth in the Freeze PN. The Commission emphasizes, however, that any such facilities, even if authorized and subsequently licensed by the Pre-Auction Licensing Deadline, will not be protected in the repacking process. However, the Commission directs the Media Bureau to process these applications, rather than instructing that they be dismissed, to afford as much flexibility to these applicants as possible.

(iv) Class A Television Stations Transitioning to Digital Service

151. As explained in the NPRM, Congress authorized the incentive auction in the midst of the Class A television digital transition; the deadline for Class A stations to operate on a digital-only basis is not until September 1, 2015. The Commission will exercise its discretion to protect Class A stations' initial digital facilities that were not initially licensed until after February 22, 2012, including those that were not authorized until after the Freeze PN, provided they are licensed by the Pre-Auction Licensing Deadline.

152. In order to qualify for protection, Class A digital facilities must be licensed by the Pre-Auction Licensing Deadline. Class A stations that have not completed the transition to digital service as of that deadline will receive protection only of their licensed analog facilities, to the extent protected in this Order. The Commission clarifies that it is not modifying the deadline for Class A stations to convert to digital service in this Order. Licensees are free to wait until the September 2015 deadline to complete their digital transition, but will receive repacking protection only for their analog facilities consistent with the provisions of this Order.

(v) Additional Cases

153. World Trade Center Stations. The Commission will afford discretionary protection to stations affected by the destruction of the World Trade Center and will not require certain authorized facilities for these stations to be licensed by the Pre-Auction Licensing Deadline. The Commission will permit each of these stations to elect protection of either: (1) their licensed Empire State Building facilities or (2) facilities at One World Trade Center (1WTC), the primary building of the new World Trade Center complex, that are authorized in a construction permit. The deadline for these stations to elect the facility to be protected in the repacking process is the Pre-Auction Licensing Deadline. To be eligible for protection under the second option, stations must obtain a construction permit for the 1WTC facilities by the Pre-Auction Licensing Deadline. Such facilities, however, are not required to be licensed by the Pre-Auction Licensing Deadline in order to be protected.

154. Stations Reallocated Pursuant to Section 331 of the Communications Act. The Commission will exercise its discretion to protect the facilities for new full power television stations on channel 2 at Wilmington, Delaware and channel 3 at Middletown Township, New Jersey that were allotted in 2013 pursuant to a court order. Although the Wilmington station is now licensed, the Middletown Township facility is not. The Commission will not require this station to be licensed by the Pre-Auction Licensing Deadline in order to be protected in the repacking process.

155. KTNC-TV, Channel 14, Concord, California. TTBG, the licensee of KTNC-TV, channel 14, Concord, California, constructed and had an application for a license to cover on file for its authorized channel 14 facility prior to February 22, 2012, but was operating at reduced power on that date (and continues to do so) due to its inability to satisfy a condition pertaining to non-interference to land mobile stations. The Commission will exercise its discretion to protect

the facilities in TTBG's pending channel 14 license application, even if they are not fully operational and the station has not received a license by the Pre-Auction Licensing Deadline.

156. KHTV-CD, Los Angeles, California. The Commission will not protect stations that are eligible for a Class A license but that did not file an application for such license until after February 22, 2012, even if the application is granted before the auction. For the reasons discussed in detail below, however, the Commission makes one exception for KHTV-CD, Los Angeles, California.

c. Non-Final License Revocation or Downgrade Proceedings.

157. The Commission clarifies that any licensee of facilities that is eligible for protection in the repacking process as set forth in this Order that is the subject of a non-final license validity proceeding or downgrade order will be protected until the proceeding or order becomes final and non-reviewable. Specifically, this treatment will apply to the facilities of licensees who have been downgraded from Class A to LPTV status, and to the facilities of full power and Class A licensees with expired, cancelled, or revoked licenses.

d. Facilities That Will Not Receive Discretionary Protection

158. The Commission will not exercise its discretion to extend protection in the repacking process beyond the facilities discussed above. Below, the Commission specifically addresses its decision not to afford protection to pending rulemaking petitions to move from a VHF to a UHF channel, out-of-core Class A-Eligible LPTV stations, LPTV and TV translator stations, and special temporary authority and experimental authorizations.

(i) Pending Channel Substitution Rulemaking Petitions

159. Section 6403(g)(1)(B) of the Spectrum Act provides that the Commission "may not" reassign a television licensee from a VHF to a UHF channel from the enactment date of the Spectrum Act until the completion of the incentive auction "unless (i) such reassignment will not

decrease the total amount of [UHF] spectrum made available for reallocation . . . or (ii) a request from such licensee for the reassignment was pending at the Commission on May 31, 2011." The Commission declines to exercise its discretion to protect the facilities requested in pending VHF-to-UHF channel substitution rulemaking requests. This includes the facilities addressed in Amendment of Section 73.622(i), Post-Transition Table of DTV Allotments, Television Broadcast Stations (Cleveland, Ohio), Notice of Proposed Rulemaking, 26 FCC Rcd 14280 (Vid. Div. 2011).

160. The Commission disagrees with commenters who assert that Section 6403(g)(1)(B) compels the Commission to process and grant channel substitution rulemaking requests that were pending on May 31, 2011. The statute grants the Commission the discretion to reassign a licensee from VHF to UHF if either of the two statutory conditions in this provision is satisfied, but it does not mandate such reassignment. Having determined that Section 6403(g)(1)(B) does not compel grant of the pending VHF-to-UHF petitions, the Commission directs the Media Bureau to dismiss any of these petitions if issuance of an NPRM would not be appropriate. This would be the case, for example, if the proposed facility would result in an impermissible loss of existing service or the petition fails to make a showing as to why a channel change would serve the public interest. The Commission further directs the Media Bureau to hold in abeyance any remaining petitions or related rulemakings proceedings and to process them once the Media Bureau lifts the filing freezes now in place, unless the petition is withdrawn.

(ii) Out-of-Core Class A-Eligible LPTV Stations

161. With one exception, the Commission will not protect stations that are eligible for a Class A license but that did not file an application for such license until after February 22, 2012, even if the application is granted before the auction. These stations are not entitled to mandatory preservation because their Class A facilities were not licensed or the subject of a pending Class

A license application as of February 22, 2012. Moreover, the Commission declines to extend discretionary protection to LPTV stations that has not filed an application for a Class A license as of February 22, 2012. Although the Commission will not protect such stations in the repacking process, it will provide them with an advanced opportunity to locate a new channel. Specifically, if such station obtains a Class A license but is displaced in the repacking process, it may file a displacement application during one of the filing opportunities for alternate channels. The Commission will, however, exercise its discretion to protect one station in this category – KHTV-CD, Los Angeles, California, licensed to Venture Technologies Group, LLC.

(iii) LPTV and TV Translator Stations

162. The Commission declines to extend repacking protection to LPTV and TV translator stations. As discussed below, the Commission adopts measures to mitigate the potential impact of the auction and repacking process on LPTV and TV translator stations, including adopting special procedures for displaced stations to select a new channel among the limited number of channels that will remain following the repacking process. The Commission will also initiate a rulemaking proceeding after the release of this Order to consider further actions to provide regulatory relief to displaced LPTV and TV translator stations.

163. Protection of LPTV and TV translator stations in the repacking process is not mandated by Section 6403(b)(2). The protection provision applies only to "each broadcast television licensee," which is defined as the "licensee of—(A) a full-power television station; or (B) a low-power television station that has been accorded primary status as a Class A television licensee" under Section 73.6001(a) of the Commission's rules. There is no basis in the text of section 6403(b)(2) or the pertinent statutory definitions to conclude that low power stations that have not been accorded Class A status are entitled to the protections afforded by Section 6403(b)(2).

164. Section 6403(b)(5) provides that nothing in Section 6403 shall be construed to "alter the spectrum usage rights of low power television stations." This provision simply clarifies the meaning and scope of Section 6403; it does not limit the Commission's spectrum management authority.

165. The Commission likewise declines to exercise its discretionary authority to protect replacement digital low power TV translator stations authorized pursuant to Section 74.787(a)(5) of the Commission's rules ("digital replacement translators" or "DRTs"). As discussed below, however, in order to mitigate the potential impact of the repacking process on DRTs, the Commission will afford DRT displacement applications priority over other LPTV and TV translator displacement applications in cases of mutual exclusivity. Moreover, in connection with the rulemaking proceeding the Commission intends to initiate relating to the potential displacement of LPTV and TV translator stations, the Commission will consider whether to create a new replacement translator service for stations that experience losses in their pre-auction service areas.

166. Finally, the Commission adopts its proposal in the NPRM not to extend interference protection to LPTV or TV translator stations vis-à-vis Class A television stations in the repacking process. Section 336(f)(7)(B) of the Communications Act prevents the Commission from approving a modification of a Class A license "unless the . . . licensee shows" that its proposal would not cause interference to low power television or translator facilities authorized or proposed before "the application for . . . modification of such a license . . . was filed." The Commission does not interpret this language, which grants LPTV and TV translator stations protection against changes to facilities proposed by Class A licensees, to restrict the Commission in implementing the previously unanticipated broadcast television spectrum incentive auction and repacking process authorized by Congress in the Spectrum Act.

(iv) Special Temporary Authority and Experimental Authorizations

167. Several commenters argue that Section 6403(b)(2) requires the Commission to protect not only licensed facilities as of February 22, 2012, but also any other facilities that were being used to serve viewers on that date, including facilities operating pursuant to experimental authorizations or Special Temporary Authority ("STA"). The Commission disagrees. STAs and experimental authorizations are, as their names indicate, interim, provisional, and non-permanent in nature. These authorizations also are secondary to all other authorized and licensed users, including secondary services such as the LPTV service. The Commission also declines to exercise its discretionary authority to protect such facilities.

4. International Coordination

168. The FCC is moving quickly to coordinate 600 MHz spectrum usage with Canada and Mexico and is fully complying with its obligation to ensure that spectrum reassignments and reallocations taken by the Commission are coordinated with Canada and Mexico.

169. NAB asserts in its comments on the NPRM that the Spectrum Act "requires coordination as a precondition to repacking." In a 24-page document filed on the eve of the Sunshine period (thus preventing in-depth analysis and depriving interested parties of an opportunity for comment), NAB and other broadcasters claim that, "the FCC must conclude new agreements with Canada and Mexico before conducting the incentive auction" and that, to repack stations as part of the incentive auction, we must negotiate a "new, pre-approved table of allotments with Canada and Mexico." We disagree with NAB that we must complete such coordination before the auction or the repacking process, either as a legal or a practical matter. As a legal matter, the statutory language does not impose a temporal requirement regarding coordination; rather, consistent with the ordinary meaning of the phrase "subject to," we interpret

the statute to mean that any reassignments or reallocations the Commission makes are governed or affected by coordination. Thus, the statute affords the FCC discretion in determining how to implement the coordination process, including the timing of that process. NAB argues to the contrary in its latest filing because agreements were reached in advance of the DTV transition, and Congress presumably was aware of that precedent when it adopted the Spectrum Act. NAB mischaracterizes the precedent of the DTV transition, and places more weight on it than it will bear. International coordination is an ongoing process; in the case of the DTV transition, coordination of some TV stations continued past the DTV transition deadline. Even if Congress could be assumed to share the NAB's subjective view of the DTV transition, however, the statutory language hardly can be stretched to require the Commission to conduct the incentive auction coordination on a schedule similar to the DTV coordination, given that international coordination by its nature involves negotiation with sovereign nations whose actions the FCC cannot control. For all of these reasons, we agree with CTIA and Verizon that preapproval by Canada and Mexico of all reassignments and reallocations is not required by the Spectrum Act.

170. Further, we disagree with NAB that as a practical matter the Commission must complete coordination, including assignment of specific channel allotments, in order to carry out the repacking process. What is required to undertake the repacking process is a mutual understanding with Canada and Mexico as to how the repacking in the United States will be conducted to protect border stations in all countries from interference, and how any possible repacking could be conducted in Canada and Mexico should either of those countries ever determine that they might want to undertake such a process. Based on the incentive auction coordination discussions to date, the mutual benefit to Canada, Mexico, and the United States to find more spectrum to meet the burgeoning demand for wireless broadband, and our shared history of cooperative spectrum coordination, we expect to reach arrangements with Canada and

Mexico that will enable us to carry out the repacking process in a manner that is fully consistent with the requirements of the statute and our goals for the auction.

171. While NAB claims that the Spectrum Act requires the Commission to conduct the incentive auction coordination the same way it conducted the DTV coordination, it also asserts that the amount of time required for the DTV coordination will make it impossible for the FCC to do so prior to the incentive auction and the repacking process. Contrary to NAB's arguments, the incentive auction is not the DTV transition: unlike the former, the latter involved a time-consuming television station-by-television station coordination. While NAB is correct that the coordination process can take time, the FCC, as explained above, has already been engaged with Canada and Mexico on incentive auction coordination for years.

172. As the foregoing discussion clearly demonstrates, NAB's suggestion that the Commission is waiting until after the incentive auction and the repacking process to begin coordination, or that it is "planning to reach agreements with Canada and Mexico only after the auction," is simply wrong. The Commission is making an all-out effort to reach arrangements. NAB's further suggestion that coordination must not be ongoing because broadcasters have not been briefed on it is also wrong. The Commission regards the confidentiality of the ongoing government-to-government incentive auction coordination discussions as critical to their ultimate success.

173. The Commission noted in the NPRM that "modified domestic rules might be necessary in order to comply with any future agreements with Canada and Mexico regarding use of the 600 MHz Band." In addition to cross-border spectrum sharing arrangements, the Commission sought comment in the NPRM on possible changes to FCC rules. While the FCC received comments regarding the arrangements, discussed above, it received none regarding possible rule changes. We have determined that minor changes to section 27.57(b) are required

to include the spectrum band to be auctioned and to make the rule applicable to wireless services. Therefore, we adopt these changes.

C. Unlicensed Operations

174. The Commission will allow TV white space (TVWS) devices to operate on any unused television channels following the incentive auction. The Commission also intends to designate, after additional notice and opportunity for public input, one unused channel in the remaining television band in each area for shared use by wireless microphones and TVWS devices. In addition to access to these unused channels in the television bands, the Commission will designate the 600 MHz Band guard bands for unlicensed use nationwide and will allow unlicensed use of channel 37 in locations that are not being used for the Radio Astronomy Service (RAS) or Wireless Medical Telemetry Service (WMTS). Such use will be subject to the completion of a rulemaking proceeding that the Commission will initiate after the release of this Order to consider changes to our existing part 15 rules to further facilitate the use of TVWS devices in the remaining television spectrum and flexible unlicensed use in the 600 MHz Band guard bands and on channel 37 (600 MHz and TVWS Part 15 Proceeding). In order to provide certainty to all potential bidders and to participants in the unlicensed device ecosystem, the Commission intends to conclude that rulemaking prior to the incentive auction.

1. Discussion

175. The Commission is taking a number of actions to make available a significant amount of spectrum for unlicensed use in the post-auction television bands, the 600 MHz Band guard bands, and on channel 37, some of it on a nationwide basis. In total, it will make between 20 and 34 megahertz of spectrum newly available for unlicensed use, including for use by unlicensed broadband devices. This new spectrum for unlicensed use will be in addition to the TV white space channels that will exist after the incentive auction. These actions will help to

create certainty for the unlicensed industry, thereby promoting greater innovation in new devices and services, including increased access for broadband services across the country.

2. Television Bands

176. The Commission anticipates that there will be at least one channel in the UHF band in all areas that is not assigned to a television station in the repacking process. As is the case today, these white space channels will be necessary to avoid interference between primary broadcast stations in the final channel assignment process. Although it also anticipates that there will be fewer unused television channels in the repacked television bands, the Commission believes that at least one of them should be available for shared use by wireless microphones and unlicensed devices. The Commission therefore intends, after additional notice and an opportunity for comment, to designate one television channel in each area for such shared use. It also agrees with commenters who argued that television channels that remain unused by broadcast television stations after the incentive auction should not be designated exclusively for wireless microphones, and instead should also be made available for potential use by unlicensed TVWS devices. Accordingly, in addition to the channel designated for shared use by wireless microphones and unlicensed devices, the Commission will make any other television channels unused by broadcast television stations after the incentive auction available for TVWS device use (to the extent consistent with the applicable technical rules) as well as wireless microphone use except at those specified times and locations where wireless microphone users have registered their operations for interference protection in the TV bands databases. In taking this approach, the Commission seeks to strike a balance between the interests of all users of the television bands, including secondary broadcast stations as well as TVWS devices and wireless microphones, for access to the UHF TV spectrum.

3. Guard Bands

177. The 600 MHz Band Plan includes guard bands to prevent harmful interference between licensed services outside the guard bands. Under the Spectrum Act, these bands may be no larger than technically reasonable to prevent harmful interference to licensed services. Consistent with the Spectrum Act, the 600 MHz Band Plan the Commission adopts provides for a guard band between television spectrum and 600 MHz downlinks, a guard band between 600 MHz uplinks and downlinks (a duplex gap), and guard bands between 600 MHz downlinks and channel 37, to protect licensed services from harmful interference. The Commission will not know until the conclusion of the incentive auction which specific 600 MHz Band Plan scenario it will employ, including the specific sizes of the guard bands. Depending on the amount of spectrum recovered in the auction, guard band spectrum will total at least 14 megahertz, and as much as 28 megahertz. As an example, if the Commission clears 84 megahertz of spectrum, there will be a three megahertz guard band between channel 37 and the 600 MHz Band downlink band, and an 11 megahertz duplex gap between 600 MHz Band uplink and downlink bands (a total of 14 megahertz). If the Commission clears 126 megahertz of spectrum, there will be two three megahertz guard bands adjacent to channel 37, an 11 megahertz duplex gap, and a nine megahertz guard band between the 600 MHz Band downlink band and television licensees (a total of 26 megahertz).

178. Permitting unlicensed operations in the 600 MHz Band guard bands will make additional spectrum available for unlicensed devices nationwide. The record provides significant support for this action. Unlicensed devices complement licensed services and serve a wide range of consumer needs. Commenters have suggested that an 11 MHz guard band, which the Commission is adopting for the duplex gap (and the lower guard band under at least one clearing scenario), would be usable for broadband unlicensed devices.

179. While the Commission's part 15 rules for unlicensed use provide an appropriate and reliable framework for permitting low power uses on an unlicensed basis, a further record is necessary to establish the technical standards to govern such use. The appropriate assumptions for the technical analyses will be considered in the forthcoming 600 MHz and TVWS part 15 proceeding. Consistent with the Spectrum Act, unlicensed use of the guard bands will be subject to the Commission's ultimate determination that such use will not cause harmful interference to licensed services. At this juncture, the Commission is confident that unlicensed devices can operate in the duplex gap under existing TVWS rules without causing such interference. The Commission tentatively concludes that devices operating at a level of 40 mW and having a bandwidth of six megahertz will be viable in this spectrum. It intend to adopt technical rules governing unlicensed use of the 600 MHz Band guard bands in the 600 MHz and TVWS part 15 proceeding prior to the incentive auction to address concerns about the potential impact on auction bids.

4. Channel 37

180. The Commission also will permit unlicensed operations in channel 37, subject to the development of the appropriate technical parameters for such operations as part of our 600 MHz and TVWS Part 15 Proceeding in order to protect the WMTS and RAS from harmful interference. Unlicensed operations on channel 37 will be authorized in locations that are sufficiently removed from WMTS users and RAS sites to protect those incumbent users from harmful interference.

181. The Commission recognizes the importance of WMTS to patient care, and will remain mindful of this critical function when developing these technical parameters. It also recognizes the concerns of WMTS equipment manufacturers and users about the potential for unlicensed operations on channel 37 to cause harmful interference to the WMTS. Parties

disagree on the appropriate interference analysis methodology (e.g., I/N ratio and signal attenuation factors) as well as the ability of the TV bands databases to provide adequate protection to the WMTS. The Commission will consider these issues as part of our 600 MHz and TVWS Part 15 Proceeding, with the objective of developing reliable technical requirements that will permit unlicensed operations, while protecting the WMTS and RAS from harmful interference.

182. Subject to the adoption of appropriate technical rules, authorizing the use of channel 37 for unlicensed operations will make additional spectrum available for unlicensed devices on a nationwide basis, thereby advancing our goal of promoting innovation in new unlicensed devices. This will make an additional six megahertz of spectrum available for unlicensed devices in areas of the country that are not in close proximity to hospitals or other medical facilities that use WMTS equipment, or to RAS sites. It is appropriate to revisit the Commission's previous decision to prohibit unlicensed operation on channel 37. The repurposing of spectrum for wireless services will reduce the number of channels available for TVWS use, and channel 37 could provide additional spectrum for such use in those areas where it is not used for the WMTS and RAS. Channel 37 spectrum could be combined with guard bands on one or both sides of channel 37, if the amount of recovered spectrum requires the use of such guard bands, to provide a larger band for unlicensed use. Also, since the time the Commission made its decision to prohibit unlicensed use of channel 37, it has designated multiple TV bands database administrators, has had extensive experience working with their databases, and has a high degree of confidence that they can reliably protect fixed operations. The fixed locations where the WMTS is used are already registered in the American Society for Healthcare Engineering (ASHE) of the American Hospital Association database, and this data could be added to the TV bands databases. WMTS operations could be protected by establishing

minimum distance separations as is done to protect other fixed operations, such as TV stations, wireless microphones and receive sites. The TV bands databases should be capable of handling the large number of registered WMTS sites easily, and this data can be updated on a frequent basis to ensure that new and changed WMTS registrations are quickly reflected in the TV bands databases. If spectrum adjacent to channel 37 continues to be allocated for and used by broadcast television services, this approach would also benefit TVWS equipment manufacturers and users by allowing the Commission to consider as part of the 600 MHz and TVWS Part 15 Proceeding modification of the out-of-band emission limits on channels 36 through 38 that were designed to protect the WMTS. TVWS equipment manufacturers have had to avoid operation on channels 35 and 39 to comply with the limits.

183. With regard to the RAS, there are a limited number of sites to protect, and their locations could be included in a database in the same manner as the sites of other protected services, such as the Offshore Radiotelephone Service, the Private Land Mobile Radio Service and Commercial Mobile Radio Service ("PLMRS/CMRS"), and certain other receive-only sites. The Commission intends to explore in the 600 MHz and TVWS Part 15 Proceeding whether it would be appropriate to adopt rules to prohibit operation of unlicensed devices within a certain distance from the sites and require unlicensed device operators to access the database to determine whether channel 37 is available for their use at a given location. In addition, the Commission intends to seek comment on whether to adopt any other technical requirements necessary to protect the RAS, such as power and antenna height limits.

D. Other Services

1. Channel 37 Services

184. Channel 37 (608-614 MHz) is allocated for both RAS and Land Mobile Service (the latter being limited to WMTS). The Commission declines to relocate WMTS stations or RAS

observatories from channel 37 and concludes that it cannot do so in accordance with the provisions of the Spectrum Act. The Commission's 600 MHz Band Plan includes three megahertz guard bands between channel 37 and any adjacent wireless broadband services. The Commission will establish coordination zones around existing RAS facilities so that any such wireless broadband services can be deployed to cover the broadest area possible with minimal impact to RAS observatories.

a. Statutory Limit on Relocation Costs

185. The Commission has concluded that the Spectrum Act limits its authority to relocate incumbent RAS and WMTS users from channel 37 because the total costs of relocating all such users would exceed $300 million. The Spectrum Act directs the FCC to "evaluate the broadcast television spectrum" and to "make such reassignments of television channels as the Commission considers appropriate." The Spectrum Act also provides the Commission with authority to "implement and enforce" this provision of that Act "as if . . . a part of the Communications Act." However, § 6403(b)(4) of the Spectrum Act, which is entitled "[p]ayment of relocation costs," restricts that discretion in certain respects. Section 6403(b)(4)(A)(iii) requires the Commission to reimburse, from the TV Broadcaster Relocation Fund, the costs reasonably incurred by "a channel 37 incumbent user, in order to relocate to other suitable spectrum," provided that "all such users can be relocated," and that "the total relocation costs of such users do not exceed $300,000,000." The Commission interprets "such users" to refer to all channel 37 users; that is, all RAS and WMTS incumbents. The Commission thus concludes that §6403(b)(4) prohibits the Commission from relocating any channel 37 incumbent user, unless the Commission can move all of the channel 37 incumbents (i.e., all of the RAS and WMTS incumbents) to suitable spectrum for $300 million or less.

186. Examination of the record reflects that the cost of relocating all of the RAS and WMTS incumbents from channel 37 would far exceed $300 million. NSF estimates that relocation costs for RAS would likely not exceed $1 million per site to design, build, and implement new receivers and feed horns or no more than $13 million total. As of January 13, 2014, there were more than 121,000 registered WMTS devices in use at more than 2,300 locations. Furthermore, most WMTS devices that operate on channel 37 are designed to operate only within that spectrum and cannot simply be retuned. Thus, relocation to different spectrum would require redesign and replacement of the equipment. The record reflects that the replacement costs of WMTS devices, on average, are between $6,000 and $10,000 each. The WMTS Coalition states that a conservative estimate of relocation costs, without factoring in additional costs such as for engineering and installation, would be almost $2 billion. The consensus among commenters is that WMTS operations would be too costly to relocate: no commenter has provided any estimate that places costs within the $300,000,000 statutory limit. Considering the number of registered devices and the average cost estimates provided for equipment replacement alone, the cost of WMTS relocation could easily approach one billion dollars or more. The Commission therefore concludes that WMTS cannot be relocated within the constraints specified in the statute. Because the statute requires that both RAS and WMTS be relocated from channel 37, and because the estimated costs of relocating WMTS far exceeds the statutory limit, the Commission concludes that none of the channel 37 incumbents will be relocated and both WMTS and RAS will continue to operate on channel 37 following the incentive auction.

b. Interference Protections for Incumbent Services

187. The introduction of wireless broadband operations on adjacent channels could be problematic for RAS and WMTS on channel 37 unless appropriate mitigation measures are

taken. RAS is a receive-only service that uses highly sensitive receivers to examine and study radio waves of cosmic origin. There are twelve RAS telescopes that have been using channel 37 or plan to use channel 37 in the near future. Of these, ten comprise the National Radio Astronomy Observatory's ("NRAO's") Very Long Baseline Array ("VLBA"), which are distributed in several locations in the United States and its territories. The remaining two telescopes are characterized as single dish instruments. The Commission protects RAS from in-band harmful interference by imposing field strength limits on WMTS and requiring coordination of WMTS use within certain distances of RAS observatories. In addition, TVWS devices are prohibited from operating on channel 37 and on any other channel within 2.4 kilometers of protected radio observatories.

188. WMTS is used for remote monitoring of patients' vital signs and other important health parameters (e.g., pulse and respiration rates) inside medical facilities. Health care institutions are required to register their locations and coordinate their spectrum use through the ASHE, the designated frequency coordinator, prior to commencing operation. This process minimizes the potential of WMTS users from causing interference to, and receiving interference from other WMTS devices.

189. The Commission adopted certain interference protection measures. Under the 600 MHz Band Plan it adopted, operations adjacent to channel 37 will remain as television or be limited to wireless downlink, or both, depending on the incentive auction outcome. Limiting new wireless operations to downlink adjacent to channel 37 eliminates the possibility of mobile devices, which can operate anywhere, transmitting on nearby frequencies in close proximity to RAS and WMTS installations. This in turn reduces the potential of interference from mobile devices to the incumbent services.

190. The 600 MHz Band Plan also incorporates guard bands to prevent harmful

interference between 600 MHz broadband wireless service and the licensed services on channel 37 which is supported by examination of the record. Wireless broadband base stations operate at higher power than mobile devices and pose a harmful interference risk if operated adjacent to channel 37 in locations near WMTS sites. A three megahertz guard band on either side of channel 37 is technically reasonable to provide protection from OOBE and overload interference to WMTS from adjacent wireless broadband services. This guard band will ensure that OOBE from nearby wireless base stations do not significantly raise the noise floor in channel 37, which otherwise could impact a receiver's ability to reliably detect and demodulate desired signals. In addition, this guard band will prevent harmful interference caused by overload in the adjacent channels. Such interference could force active components in WMTS receivers into compression resulting in desensitization. The analysis in the Technical Appendix of the Report and Order corroborates our conclusion.

191. If the auction clears less than 84 megahertz of spectrum, the spectral environment around channel 37 will remain the same, with channels 36 and 38 available for television operations. Consistent with current rules, which do not provide any specific protections for channel 37 incumbents beyond the digital television (DTV) out-of-band emission (OOBE) limits, the Commission will not implement guard bands between channel 37 and adjacent television operations in that case. The WMTS community argues that an increased number of television stations could be assigned to channels 36 and 38 in the repacking process, and that WMTS operations located near a DTV transmitting antenna will experience a reduction in useable spectrum of more than 20 percent, effectively reducing system capacity for WMTS operations. The need to relocate stations to channels 36 or 38 will depend on the results of the auction. If stations are relocated to these channels, the extent of any potential interference to WMTS will depend in large part on the locations of the stations. Under certain scenarios channels 36 or 38

would not be used at all for television service. Some stations currently operating on channels 36 or 38 may choose to participate in the auction or be reassigned to other channels in the repacking process, making channel 37 more usable for WMTS in some locations. While the Commission is sensitive to the desire to minimize any detrimental impact on WMTS, under the current circumstances, WMTS will not receive enhanced protection if additional stations are added to channels 36 or 38 as a result of the repacking process.

192. RAS poses different interference concerns than WMTS. The Commission's current rules do not specify protection levels for radio astronomy sites. The RAS has been able to function successfully on channel 37 due to the relatively stable spectral environment associated with television operations on adjacent channels and the flexibility the Commission has had in locating television stations far away (both geographically and spectrally) from RAS locations. Because of the extreme sensitivity of the RAS receivers, wireless operations near channel 37 could cause harmful interference following the auction. However, a collateral benefit of our decision to establish guard bands to prevent harmful interference to WMTS from adjacent wireless operations also provides protection to RAS. In other words, because the guard bands for WMTS provide frequency separation from wireless services, the physical separation necessary for wireless services to protect RAS from harmful interference decreases significantly.

193. Recognizing the value of providing as much flexibility as possible to new 600 MHz Band licensees, the Commission is not adopting any specific constraints on wireless fixed and base station locations operating in the 600 MHz downlink band, but instead will require any new 600 MHz licensee to coordinate with National Science Foundation (NSF) prior to commencing operations at permanent fixed locations near RAS observatories. Requiring coordination will provide the necessary certainty to RAS observatories that their sites will be protected. Specifically, the Commission will require such coordination for stations within 25 kilometers of

a VLBA installation. Staff analysis to support these separation distances is detailed in the Technical Appendix of the Report and Order. Because the RAS observatories are generally located in remote locations, the Commission does not expect dense wireless deployment near those sites. Thus, this requirement does not present a significant burden to 600 MHz wireless licensees' network because the number of necessary coordination is expected to be minimal. In addition, many observatories are also protected by terrain features (e.g., nearby mountains) that block wireless signals, making coordination, in most cases, a simpler process.

194. The Commission notes that the only two single dish radio astronomy installations that operate in channel 37 are the Green Bank, WV and Arecibo, PR observatories. The Commission's rules already require specific procedures for wireless operations near those locations. The Commission also notes that in many cases, geographic features that protect RAS sites will block wireless system signals. Consistent with §1.924, the Commission will require wireless licensees to provide the following information: identification of the geographical coordinates of the antenna location (NAD-83 datum), the antenna height, antenna directivity (if any), type of emission, and effective isotropic radiated power. The Commission strongly encourages the parties to cooperate so as not to unreasonably frustrate the operations of RAS or wireless operations.

2. Television Fixed Broadcast Auxiliary Stations

195. As discussed above, we will continue to license fixed BAS on a secondary basis in the television bands following the incentive auction. As a result of the incentive auction and repacking process, however, BAS operators will be required to vacate the 600 MHz Band no later than the end of the Post-Auction Transition Period. Following the issuance of the Channel Reassignment Public Notice ("Channel Reassignment PN"), BAS operations will have significant advance notice of the channels they may need to vacate, which will assist them in

advance planning for that process.

196. Notification Procedures for Operations in the 600 MHz Band and the Post-Auction Television Bands. We agree with CTIA that requiring BAS to discontinue operations and/or relocate is necessary to produce fully available spectrum to meet the growing demand for wireless services. Therefore, while we will continue to license fixed BAS on a secondary basis in the UHF spectrum that remains allocated and assigned to full power television services nationwide, we will require all fixed BAS stations to cease operating and relocate from the 600 MHz Band no later than the end of the Post-Auction Transition Period (i.e., 39 months after issuance of the Channel Reassignment PN). Additionally, before the end of this transition period, if a new 600 MHz licensee intends to commence operations, the 600 MHz licensee must provide 30 days' advance notice to the BAS operator that it intends to commence operations and that the BAS station is likely to cause harmful interference to those operations. The BAS operator must cease operating on that channel within 30 days of receiving notice. The few commenters addressing fixed BAS relocation issues are generally supportive of this notification approach. The notice from the 600 MHz licensee to the BAS licensee must take the form of a letter, by certified mail, return receipt requested. A 30-day notice period will serve the public interest by both protecting BAS operations and speeding the deployment of new broadband wireless services.

197. In addition, as a secondary service, BAS may not cause interference to repacked television stations. Should a repacked broadcast television licensee in the 600 MHz Band or the repacked UHF Band experience harmful interference from a BAS licensee, the BAS licensee must, pursuant to the Commission's rules, immediately cease operations and may not resume operations until the interference problem is resolved.

198. Operations in the Guard Bands. We also will require that BAS operations on

channels that include frequencies that will be reserved for guard bands pursuant to this Order cease operations on those channels. As discussed above, the 600 MHz Band includes guard bands (including the duplex gap), and consistent with the Commission's proposal in the NPRM, we will permit only low power operations in those bands. We will establish specific rules for low power operations in the guard bands in the 600 MHz and TVWS Part 15 Proceeding. All BAS operations in spectrum reserved for guard bands will be required to cease operating on that spectrum no later than the end of the Post-Auction Transition Period (i.e., 39 months after the issuance of the Channel Reassignment PN).

3. Low Power Auxiliary Stations (LPAS) and Unlicensed Wireless Microphones

199. Low power auxiliary station ("LPAS") operations, which are currently authorized only for broadcast and certain related entities, are intended for uses such as wireless microphones, cue and control communications, and synchronization of TV camera signals (referenced collectively as "wireless microphones"). The Commission's rules provide for licensed LPAS operations on unused television channels on a secondary, non-exclusive basis. The Commission also currently permits certain unlicensed operations of wireless microphones (including related devices) in the television bands pursuant to a limited waiver of Part 15 rules.

200. The Commission discussed wireless microphone operations in the television bands, where it provide additional opportunities for access to available channels following the incentive auction, and in the 600 MHz Band guard bands, where it will permit microphone users to operate, subject to the forthcoming rules for low power operations in those bands. In addition, as discussed, during the post-auction transition period the Commission will allow wireless microphone users to continue to operate in the repurposed spectrum pursuant to certain conditions. The Commission also will be initiating a proceeding in the next few months to

address the needs of wireless microphone users over the longer term, both through revisions to our rules concerning use of the television bands and through promotion of opportunities using spectrum outside of the television bands.

a. Operations in the Post-Auction Television Bands

201. Under current rules, the television channels available for wireless microphones include two unused channels (when available) in the UHF band near channel 37, where unlicensed TVWS device operations currently are prohibited, as well as any other channels available at locations that are separated from television stations by specified separation distances. The number of these other channels varies depending on location, and often may include channels that also can be used by unlicensed TVWS devices. Licensed LPAS operators may obtain protection from interference from TVWS devices on those channels by reserving them at specified locations and times of operation in the TV bands databases. In addition, certain qualifying unlicensed wireless microphone operators also can obtain interference protection from TVWS devices at specified times by registering with the Commission, enabling them to have their operations included within the TV bands databases.

202. The Commission takes several steps in this proceeding to ensure that the reduced amount of television spectrum that remains following the incentive auction can continue to accommodate wireless microphone operations, along with other uses of this spectrum, in an efficient and effective manner. First, the Commission revised its rules for co-channel operations to expand the areas where wireless microphones may be used in the television bands. Second, although there may no longer be two unused television channels available for wireless microphones following the incentive auction, the Commission intends to designate one television channel that is not assigned to a television station in the repacking process for use by both wireless microphones and unlicensed TVWS devices. In addition, the Commission will propose

further steps in the near term in the 600 MHz and TVWS Part 15 Proceeding to make improvements to the registration system in the TV bands databases. These steps will provide licensed LPAS operators a more timely and effective means to obtain needed protection from unlicensed TVWS device operations on any of the available television channels. On balance, the Commission concludes that the changes it is making best serve to address the important needs of wireless microphone users as well as other users that seek access to the broadcast spectrum that remains available for use following repacking.

203. Co-channel Operations. To ensure that wireless microphones users have access to as many television channels as possible following the repacking process, the Commission revised its rules for co-channel operations in two ways. These revisions will provide wireless microphones with access to additional television channels in particular locations without raising interference concerns to television licensees. Such additional access may be particularly important in those locations where most television channels are occupied by broadcasters and wireless microphone users seek access to several channels.

204. First, the Commission reduced the current co-channel separation distances applicable to wireless microphone operations in the television bands. The current rule, which was adopted prior to the transition to digital television, was designed to protect analog television reception and, therefore, is outdated. Further, the distances the rule specifies in many cases may be greater than necessary to protect against interference because it does not account for variations in power or antenna height that reduce the size of some stations' service areas. The Commission revised the rule to permit wireless microphones to operate at distances as close as four kilometers from a television station's predicted service contour (including digital or analog full power, Class A, and LPTV stations).

205. The Commission's action aligns the separation distance rules for wireless

microphones with those for unlicensed personal/portable TVWS devices, which operate at similar power levels. Personal/portable TVWS devices are permitted to operate with a maximum power of 100 milliwatts and must operate at least four kilometers outside the protected service contour of co-channel television stations (digital or analog), a distance based on a power level of four watts (4,000 milliwatts). Most wireless microphones typically operate at power levels of less than 50 milliwatts. For analog wireless microphones, even if there were as many as 16 operating simultaneously in a six megahertz TV channel, more than the typical six to eight microphone range for most existing technologies, the total transmitted power within a six megahertz channel will not exceed 800 milliwatts, five times less than the power on which the four kilometer separation distance required for personal/portable TVWS devices is based. Even were sixteen wireless microphones on a six megahertz channel to operate at up to 250 milliwatts, as permitted for licensed LPAS operators, the total transmitted power still would not exceed four watts (4,000 milliwatts). The Commission concludes that based on its technical analysis that a four kilometer separation distance between wireless microphones and a television station's protected service contour will protect television reception from interference.

206. Second, to enable licensed LPAS operators to access additional co-channel spectrum, the Commission also will permit licensees to operate even closer to television stations than the revised separation distances, provided that any such operations are coordinated with the television licensees. Based on the record before us, the Commission concludes that the best approach is to permit licensed LPAS users, including newly eligible licensees, to obtain access to additional television channels at a given location through the coordination process. Requiring coordination with broadcasters effectively addresses the concerns of those commenters, including NAB, that oppose or express concern about revising the rules to provide for closer co-channel operations, based on the potential for interference to television operations. The

Commission notes that many of the licensed LPAS operators, including both broadcasters and many users that would now be eligible for licenses, already coordinate with each other to share spectrum.

207. Designating Channels for Wireless Microphones. The Commission anticipates that there will be at least one television channel in all areas of the United States that is not assigned to a television station in the repacking process. As is the case today, such "white space" channels will be necessary to avoid interference between primary broadcast stations in the final channel assignment process. Although the Commission anticipates that there will be fewer such unused television channels in the repacked television bands, it intends, after additional notice and an opportunity for comment, to designate one of these television channels in each area for shared use by wireless microphone and unlicensed devices. Accordingly, in addition to the channel designated for shared wireless microphone and unlicensed TVWS device use, the Commission will make any other unused television channels following the incentive auction available for shared wireless microphone and TVWS device use (to the extent consistent with the applicable technical rules), except at those specified times and locations where wireless microphone users have registered their operations for interference protection in the TV bands databases.

208. The Commission will not continue to designate any television channels unused by television stations exclusively for the use of wireless microphones. The steps taken concerning wireless microphone operations in the repacked television bands, taken together with other steps to accommodate wireless microphone uses, represent a balanced approach to addressing the needs of wireless microphone users and the other users that seek access to the more limited television spectrum that is likely to remain available for use following the incentive auction.

209. Given the Commission's decision to no longer designate two unused television channels, where available, exclusively for wireless microphones, it plans to take steps to improve

the operation of the TV bands databases to enable licensed LPAS operations to obtain more immediate protection from interference from TVWS devices on any available television channels at the times and locations that these wireless microphone users need. The Commission plans to address how best to make these improvements in the 600 MHz and TVWS Part 15 Proceeding.

b. Operations in the Guard Bands

210. The Commission will allow unlicensed devices to operate in the guard bands, including the duplex gap. To make additional spectrum outside of the repacked television bands available for wireless microphone uses, it also will permit wireless microphone devices to operate in the 600 MHz Band guard bands on an unlicensed, unprotected basis provided that they comply with the technical requirements the Commission will adopt for low power device operations in these guard bands in the 600 MHz and TVWS Part 15 Proceeding.

211. In addition to permitting unlicensed wireless microphone operations in the guard bands, the Commission will permit certain wireless microphones operations in a portion of the duplex gap on a licensed basis. Broadcasters and cable programming networks contend that without the continued availability of unused television channels for interference-free wireless microphone operations, they will have difficulty providing certain programming, including emergency information, on which their ability to provide vital information to first responders and the public depends. Without access to some guard band spectrum for this purpose, there may be areas in the country where there would be little if any certain access to UHF band spectrum for wireless microphone operations on a protected basis. Accordingly, the Commission concludes that the public interest will be served by allowing broadcasters and cable programming networks using wireless microphones on a licensed basis in a portion of the duplex gap to obtain interference protection from unlicensed devices at specified times and locations, on an as-needed basis. In the 600 MHz and TVWS Part 15 Proceeding, the Commission will examine how best

to provide access to a portion of the duplex gap by licensed wireless microphone users, while also ensuring that unlicensed users of the duplex gap can make use of this spectrum to provide broadband services. The Commission anticipates that the duplex gap would be partitioned such that six megahertz would be available for unlicensed broadband devices to operate under the existing TVWS rules for 40 mW personal/portable devices, and four megahertz adjacent to the 600 MHz Band downlinks would be available for licensed wireless microphone operations.

212. In taking this approach in the guard bands, the Commission seeks to promote unlicensed operations generally while also providing access to spectrum for wireless microphone uses, consistent with the requirement that operations in the guard bands do not cause interference to, and serve to prevent interference to licensed services outside of the guard bands.

E. Allocations

213. The Commission adopts fixed and mobile allocations to the Table of Allocations on a co-primary basis with broadcast television. Specifically, it will add fixed and mobile services to the Table of Allocations for UHF channels 21-36 (512-608 MHz) and 38-51 (614-698 MHz), but not for UHF channels 14-20 (470-512 MHz) (also known as the "T-Band") or for VHF channels 2-13 (54-72, 76-88, and 174-216 MHz). The Commission concludes that its action addresses the practical requirements of the incentive auction and the concerns raised by broadcasters and other parties. The Commission retains the allocations for Channel 37 for the RAS and the Land Mobile Service for WMTS.

214. Adding fixed and mobile services to the Table of Allocations for UHF channels 21-36 and 38-51 is necessary to address the practical requirements of the incentive auction and the UHF band transition that follows it. The assignment, licensing and use of frequencies must be in accordance with the Table, yet the Commission cannot know in advance of the incentive auction which frequencies will be repurposed for new uses in which geographic areas because that

depends on the outcome of the incentive auction. Further, by adding fixed and mobile services to the Table of Allocations for all of the frequencies that could be repurposed prior to the incentive auction, it will assure forward auction bidders that the frequencies on which they bid will be available for new, flexible uses without the need to conduct additional allocation proceedings post-auction that could risk delaying the transition and the introduction of new services.. In addition, following the incentive auction, co-primary fixed/mobile/broadcasting allocations will allow users that currently operate on such frequencies on either a primary or secondary basis—including full power, Class A and LPTV stations, TV translator stations, BAS stations, and LPAS—to continue operating for an interim period on frequencies that will be repurposed during the course of the UHF band transition, as well as to allow LPTV and TV translator stations to continue to operate on such frequencies during the reorganization of the UHF band.

215. To clearly identify where broadcast television and mobile wireless services will be permitted, the Commission will later modify the Table of Allocations promptly to reflect the outcome of the incentive auction. Specifically, the Commission hereby delegate authority to the Chief of the Office of Engineering and Technology to take such actions as are necessary to modify the Table of Allocations to be consistent with the outcome of the incentive auction—e.g., to remove the co-primary fixed and mobile allocations from segments of the UHF band that will remain available only for television broadcast service on a nationwide basis. Our foregoing delegation to OET also includes authority to modify the Table to add a footnote indicating that fixed and mobile services are authorized only in band segments and in geographic areas specified in Part 27.

III. THE INCENTIVE AUCTION PROCESS

216. Consistent with the Commission's practice in past spectrum license auctions, we

adopt rules in the Order that will allow subsequent determination of specific final auction procedures. Following the Order, a pre-auction process will precede the bidding process for the incentive auction. This pre-auction process will determine both the specific final auction procedures, based on additional public input, and the auction participants, through an application process. The process will be initiated by the release of the Comment PN, which will solicit public input on final incentive auction procedures, and which will include specific proposals for crucial auction components such as opening prices. Thereafter, the Procedures PN will specify final procedures, including dates, deadlines, and other final details of the application and bidding processes. The rules we adopt in the Order provide for the ability to refine aspects of the reverse and forward auctions if the record developed in response to the Comment PN during the pre-auction process reflects the need to do so. The Wireless Bureau has delegated authority with respect to the administration of spectrum license auctions, including both the reverse auction component of incentive auctions under the new Part 1 rules adopted in the Order and the forward auction component of incentive auctions pursuant to the Part 1 rules as modified by the Order.

217. The Commission's practice of finalizing auction procedures in the pre-auction process provides adequate time for participants to both comment on the final procedures and to develop business plans in advance of the auction. This approach has worked well, and a similar one is all the more necessary for the incentive auction due to its novelty and complexity. Maintaining flexibility in the implementation of final procedures is a prudent approach to assuring that the incentive auction will take place in a timely manner and fulfill the goals we have established by the Order.

A. Overview and Integration of the Reverse and Forward Auctions

218. The incentive auction will consist of a reverse and a forward auction. The reverse auction portion of the broadcast television spectrum incentive auction will collect information

about the price at which broadcast television licensees would be willing to voluntarily relinquish some or all of their spectrum usage rights. The forward auction portion of the incentive auction will identify the prices that potential users of repurposed broadcast television spectrum would pay for new licenses to use the spectrum. This information, together with information from the reverse auction and subject to meeting the requirements for repurposing spectrum through the incentive auction, will determine the winning bidders for new flexible use licenses and the prices those bidders will pay for the spectrum licenses.

219. 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, and stages will be run until it becomes clear that the overall proceeds requirements for the incentive auction can be satisfied. Prior to the first stage, the initial spectrum clearing target will be determined. Then the first stage of the reverse auction will be run to determine the total amount of incentive payments to broadcasters required to meet that spectrum target. The first stage of the forward auction bidding process will follow the reverse auction bidding process for the first stage. If the proceeds of the forward auction are sufficient to satisfy the final stage rule during the first stage, the forward auction bidding process will continue until there is no excess demand for licenses, and then the incentive auction will close. If the rule is not satisfied, however, a second stage of the incentive auction will be run with a smaller spectrum clearing target in the reverse auction and fewer spectrum licenses available in the forward auction. If the final stage rule again is not met during the second stage, additional stages will be run, with progressively smaller spectrum clearing targets in the reverse auction and fewer licenses available in the forward auction, until the requirements of the rule are satisfied.

220. Here, we address how the reverse and forward auction bidding processes will be integrated through the spectrum clearing target, the stage structure, and the final stage rule. As

with other components of the incentive auction, we adopt rules here to enable us to implement these components, and will establish final, specific procedures based on more public input during the pre-auction process.

1. Initial Spectrum Clearing Target.

221. The initial clearing target—the maximum amount of spectrum sought to be cleared of television stations and repurposed through the incentive auction—will be determined before commencement of the reverse and forward auction bidding processes. In this "initialization step," each participating broadcaster will indicate its willingness to accept the opening price for various bid options. A bidder that accepts a price for a relinquishment option, whether the opening price or any other price offer in the reverse auction, makes a binding commitment to accept the relinquishment option if the auction system selects that bid as a winning bid. The opening price will be the highest price offer that the broadcaster could receive for a bidding option. The initial clearing target will correspond to one of the spectrum recovery scenarios in our 600 MHz Band Plan. The initial clearing target will be as high as possible given the number of broadcasters participating in the reverse auction and their willingness to bid at their opening prices, considering the parameters established for the repacking process and the amount of market variation to be accommodated.

222. Consistent with our goal of allowing market forces to determine the highest and best use of spectrum, we choose to determine the initial clearing target based on information provided to the Commission by broadcast television licensees in the initialization step.

223. Broadcast television licensees' responses to opening prices will determine which licensees participate in the reverse auction for which bid options. A licensee entitled to protection in the repacking process that does not file an application to participate in the reverse auction, as well as any applicant declining to accept an opening price for any option—that is,

declining to participate in the reverse auction—will be designated for assignment of a television channel in its pre-auction or home band. Thus, at the conclusion of the initialization step, the Commission will know, at a minimum, which television stations need to be assigned channels in their home bands in the repacking process, and can set the initial spectrum clearing target accordingly. The Commission will use optimization techniques to determine the amount of spectrum that can be cleared or repurposed based on the feasibility of assigning channels to non-participating stations that are entitled to protection in the repacking process, as well as to participating stations that are willing only to move to a lower band.

2. Stage Structure.

224. In the Order we conclude that the incentive auction will be conducted in a series of stages. Each stage will be associated with a spectrum clearing target for bidding in the reverse auction and a corresponding license inventory for bidding in the forward auction. The clearing target and license inventory will be reduced from stage to stage, if the final stage rule is not satisfied. We adopt this structure in large part to facilitate bidder participation. Unlike alternatives in which the reverse auction bidding process would be run for all possible clearing targets before the forward auction bidding process, or vice versa, the stage structure does not require bidders in either side of the auction to provide more bid information than is needed for the auction to close. Further, bidders in each side of the auction will receive some information about conditions on the other side, facilitating their bidding decisions. In addition, stopping the incentive auction at the earliest stage in which the final stage rule is met avoids prolonging the bidding processes unnecessarily, consistent with our recognition that speed is important to a successful auction outcome. The stage structure also provides a workable framework for determining the greatest amount of spectrum that can be cleared while satisfying the final stage rule. Because the reverse and forward auction bidding processes will be conducted for a common

benchmark amount of cleared spectrum in each stage, the auction mechanism will be able to compare the incentive payments required to clear a given amount of spectrum to the forward auction proceeds available to pay for such clearing.

225. Commenters agree that the stage structure we adopt will facilitate and encourage auction participation by broadcast television licensees. They note the informational advantages of a staged approach, including the importance of price discovery to participants. We disagree with one commenter that running the reverse auction in full for all clearing targets (a "single-pass") before the forward auction commences would simplify participation for reverse auction bidders. On the contrary, the single-pass proposal would deprive broadcast television licensees of any information about the forward auction and require them to reveal more information than necessary during the reverse auction bidding. Nor are we persuaded that the need to conduct forward auction bidding between the reverse auction bidding process in each stage would impose a significant burden on participating broadcasters, particularly given that the stage structure might avoid the need for multiple stages, thereby concluding the entire auction more quickly.

226. Some wireless carriers contend that the single-pass approach would provide the greatest level of certainty for forward auction participants, thereby enhancing participation in the forward auction. We recognize that wireless carriers need time for planning and information regarding auction inventories in order to assess auction strategies and obtain financing. We note, however, that uncertainty about the number of spectrum licenses that will be available is inherent in the incentive auction, and affects parties on both sides of the auction process. In that regard, the 600 MHz Band Plan is designed to provide potential forward auction participants with as much information as possible prior to the incentive auction so that they may prepare for the various contingencies that may unfold during the bidding. With respect to specific concerns about time available to prepare for the auction, we further note that we will establish the specific

timing, including the lag, if any, between auction stages and between the reverse and forward auction bidding processes within a stage, in the pre-auction process. We conclude that the stage structure, which shares information about supply and demand with forward and reverse auction participants at the same time, is the optimal integration method for this incentive auction because it will facilitate broadcaster participation and serve as an effective means of determining whether the final stage rule can be satisfied at various spectrum clearing target levels.

227. Once the initial spectrum clearing target is determined, establishing the initial target for the first stage of the incentive auction, the reverse auction bidding process will begin. In that process, reverse auction bidders will be asked, in a series of bidding rounds, whether they are willing to accept progressively lower prices for the bid options. This bidding process will determine the total amount of the incentive payments that broadcast television licensees will require in order to voluntarily relinquish spectrum usage rights that will permit clearing of enough television channels to meet the initial clearing target. Generally, the prices for a bid option will descend from round to round until a station's voluntary relinquishment of rights becomes necessary to meet the spectrum clearing target.

228. Although each stage generally will be associated with a single clearing target, during the first stage of the auction the target may be reduced or modified in certain areas if we implement a "dynamic reserve price," under which bidders would be asked if they are willing to accept lower prices in areas without bidding competition (that is, areas where there is not active bidding by more stations than needed to meet the initial clearing target). If stations in such areas do not accept reduced prices and cannot be assigned a channel in the television bands, then they may be assigned a channel in the repurposed spectrum. Alternatively, the clearing target may have to be adjusted to make channels available for those stations. Details of the operation of any dynamic reserve price would be established in the Procedures PN after an opportunity for

comment.

229. Once the reverse auction bidding process has ended, the amount of the incentive payments required to achieve the spectrum clearing target will be known, as will any impairments to that target, and the auction system will announce the inventory of licenses available for bidding in the forward auction. Then the forward auction bidding process will be conducted to determine how much bidders are willing to pay for the inventory of licenses corresponding to the initial clearing target. The final stage rule for the incentive auction will be continuously evaluated during the forward auction bidding process. If the final stage rule is satisfied, then the incentive auction will end with the first stage. Bidding will continue in the forward auction, however, until there is no excess demand for licenses. If the final stage rule is not satisfied, the incentive auction will proceed to a second stage.

230. In a second stage, the spectrum clearing target in the reverse auction would be smaller than in the first stage. Likewise, the license inventory in the forward auction would be smaller than in the first stage. Reducing the spectrum clearing target will increase the likelihood of satisfying the final stage rule because less spectrum will need to be cleared and, therefore, fewer broadcasters will require incentive payments and prices in the reverse auction will generally fall. If the final stage rule is not satisfied in the second stage, then additional stages would be run with smaller clearing targets in the reverse auction and license inventories in the forward auction, until the final stage rule is satisfied.

3. Final Stage Rule.

231. The earliest auction stage that meets the "final stage rule" will be the final stage of the auction. The final stage rule is a reserve price with two components. The current auction stage (and associated clearing target) will be designated as the "final stage" if the requirements of both components are met. In the pre-auction process, we will consider whether to apply the

final stage rule solely to "major markets" and, if so, how to identify such markets. This approach could significantly speed up the determination of whether the final stage rule is satisfied. After the final stage rule is satisfied, bidding will continue in the forward auction until there is no excess demand for licenses.

232. The first component of the rule will be satisfied by the average price per MHz-pop for licenses in the forward auction or the total proceeds associated with those licenses, depending on the amount of spectrum cleared in that stage. The term "MHz-pop" is defined as the product derived from multiplying the number of megahertz associated with a license by the population ("pop" or "pops") of the license's service area.

233. Specifically, the first component of the reserve price will be satisfied if, for a given stage of the auction:

- the average price per MHz-pop for licenses in the forward auction meets a price benchmark that will be set by the Commission in the pre-auction process (this version of the first component will apply when the clearing target for the given stage of the auction is at or below the Commission's specified spectrum clearing benchmark),

  or

- the total proceeds associated with licenses in the forward auction exceed the product of the price benchmark, the spectrum clearing benchmark, and the total number of pops for those licenses. That is, if $p is the benchmark average price per MHz-pop, and Q is the spectrum clearing benchmark, the alternative version of the first component will be satisfied if the total proceeds from the licenses are at least $p times Q times the total pops in those licenses. The alternative version of the first component will apply only when the spectrum clearing target for a

given stage of the auction is above the Commission's spectrum clearing benchmark.

The price and spectrum clearing benchmarks will be established by the Commission in the Procedures PN, after an opportunity for additional comment.

234. The second component of the final stage rule requires that, under either of the prongs of the first component, the proceeds of the forward auction also must be sufficient to meet the clearing costs identified in the reverse auction, the other expenses set forth in section 6403(c)(2) of the Spectrum Act, and any Public Safety Trust Fund amounts still needed in connection with FirstNet after the close of the H Block and AWS-3 auctions. 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 Spectrum Act establishes the priority for making payments or deposits from the Public Safety Trust Fund as amounts are deposited into the Fund, including to fund FirstNet, but does not mandate additional deposits. See Spectrum Act § 6413(b). Section 6413(b) specifies that the first $7.135 billion of the proceeds from auctions authorized under the Spectrum Act and deposited into the Fund will be used for FirstNet-related purposes. If the requirements of both components are met, then the final stage rule is satisfied.

235. The final stage rule advances our goal of allowing market forces to determine the highest and best use of spectrum. The approach described above will allow the incentive auction to determine the best balance of spectrum cleared and spectrum license prices attained through competition, while ensuring that the auction meets the statutory requirements. The first component's alternative conditions are designed to address the unique nature of the incentive auction, in particular, the fact that we will not know how much spectrum will be available for the forward auction when establishing the price and spectrum benchmarks before the auction. This

approach recognizes that if the incentive auction repurposes a relatively large amount of spectrum for flexible uses, per-unit market prices may be expected to decline consistent with the increase in available supply. The alternative formulation allows the first component to be satisfied in a stage with a high spectrum clearing target based on the total proceeds of the forward auction, even if the per-MHz-pop price is less than the benchmark price.

236. We establish the final stage rule pursuant to the underlying auction provisions in the Communications Act, which direct the Commission to establish methods for requiring a reserve price unless it determines that it is not in the public interest to do so. An objective common to all FCC auctions of spectrum licenses is that auction prices generally reflect competitive market values for comparable spectrum licenses. The reserve price approach described in the Order will serve the public interest and this goal. The first component of the final stage rule's reserve price ensures that the forward auction recovers "a portion of the value of the public spectrum resource," as required by 309(j)(3)(C) of the Communications Act. Our approach based on the specific price and spectrum clearing benchmarks aims to assure that prices for licenses in the forward auction reflect competitive values without reducing the amount of spectrum repurposed for new, flexible-use licenses. We will base the benchmark average per-unit price on factors including, but not limited to, prices received in auctions of comparable spectrum licenses. The Procedures PN will determine the specific parameters of the final stage rule after further notice and comment in the pre-auction process.

237. The second component of the final stage rule's reserve price ensures that the forward auction recovers the clearing costs and other expenses identified by the Spectrum Act. We will assess the satisfaction of these statutory expenses in the aggregate. We also include FirstNet funding in the second component of the reserve price, consistent with section 309(j)(3)'s express command that in designing our auction rules we "seek to promote the purposes specified in

[section 1 of the Communications Act]." Those purposes include "promoting safety of life and property through the use of . . . radio communications." See 47 U.S.C. § 151. Among the funding priorities identified in the Spectrum Act, including other public safety-related priorities, ensuring the build-out of FirstNet uniquely clearly furthers this purpose, as confirmed by examination of the public safety provisions of the Spectrum Act, which is part of the same overall statutory scheme. Congress specifically directed the Commission to reallocate spectrum to and license FirstNet, instructed the Commission to "take all actions necessary to facilitate the transition of the existing public safety broadband spectrum to [FirstNet]," and authorized the Commission to "take any action necessary to assist [FirstNet] in effectuating its duties and responsibilities" under the Spectrum Act. See Spectrum Act §§ 6201(a), 6201(c), 6213.

238. We also note that the auctions authorized by the Spectrum Act, including incentive auctions, are the sole source of federal funding identified by Congress for FirstNet. At this time, there are no additional incentive auctions planned prior to the end of fiscal year 2022. Thus, unless FirstNet funding is part of the final stage rule for the broadcast television spectrum incentive auction, full funding of the Public Safety Trust Fund ("PSTF") for FirstNet may be deferred indefinitely. We are optimistic that the proceeds from the H Block and AWS-3 auctions will be sufficient to fully fund amounts for FirstNet. Nonetheless, we include PSTF funding for FirstNet as part of the final stage rule to address the possibility that such amounts will not be fully funded from the proceeds of those earlier auctions, and pursuant to the explicit public safety goals set forth above. For the reasons explained above, we disagree with commenters that contend the Commission should not apply a final stage rule or conditions beyond the expenses enumerated in the Spectrum Act. We read section 6403(c)(2) of the Spectrum Act as simply requiring that the incentive auction recover the expenses specified therein, i.e., payments to the reverse auction winning bidders, the Commission's administrative expenses, and the estimated

costs of relocation. We do not construe the Spectrum Act to repeal the Commission's broad authority under section 309(j)(3) to promote the public safety goals outlined in section 1 of the Communications Act, which is the basis for our inclusion of FirstNet support in the final stage rule.

239. Once the final stage rule is satisfied, and bidding has continued in the forward auction until there is no excess demand for licenses, winners of generic licenses in the forward auction will participate in an assignment round for specific frequency assignment. Final prices for forward auction licenses will be set in the assignment round. Results of the final stage of the reverse auction will determine which broadcasters will relinquish which spectrum usage rights and how much of the auction proceeds they will receive in exchange. Stations that will remain on the air will proceed to the final channel assignment process.

B. Reverse Auction

1. Pre-Auction Process

a. Eligibility

240. The Commission limits reverse auction participation to the licensees of full power and Class A television stations that the Commission will protect in the repacking process. For each station, the rights eligible for voluntary relinquishment will be the same as those associated with the facilities that the Commission will protect in the repacking process absent relinquishment of those rights.

(i) Licensees Eligible to Participate

241. The Commission will limit reverse auction participation to licensees of commercial and NCE full power and Class A stations. Limiting reverse auction eligibility in this manner comports with the plain language of the Spectrum Act as well as the policies underlying it. Section 6403(a)(1) directs the Commission to conduct "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…" The Spectrum Act defines "broadcast television licensee" as "the licensee of (A) a full-power television station; or (B) a low-power television station that has been accorded primary status as a Class A television licensee…" The Commission finds that the Act extends reverse auction eligibility to NCE licensees of full power and Class A stations. Licensees of LPTV and TV translator stations will not be eligible to participate in the reverse auction.

242. The Commission interprets "licensee" to mean "the holder of a … station license," as it is defined in the Communications Act. In order for a broadcaster to be a reverse auction eligible "licensee," it must hold a license for the full power or Class A station it wishes to offer at auction on or before the Pre-Auction Licensing Deadline. Thus, the small number of entities that held construction permits but not licenses for new full power television stations as of February 22, 2012 must obtain licenses for these stations on or before the Pre-Auction Licensing Deadline in order to be eligible to participate in the reverse auction.

(ii) Spectrum Usage Rights That Will Be Eligible for Relinquishment

243. The Commission will recognize for voluntary relinquishment in the reverse auction those spectrum usage rights associated with facilities entitled to repacking protection, including those that the Commission must protect under the Spectrum Act and those that the Commission will afford discretionary protection. In all but a few cases, a facility must be licensed by the Pre-Auction Licensing Deadline in order for the spectrum usage rights covered by that facility to be recognized for relinquishment. With one exception, as discussed above, the Commission will not protect LPTV stations that were eligible for a Class A license but that did not file an application for such license until after February 22, 2012. Although such entities may hold Class

A licenses before the Pre-Auction Licensing Deadline, their facilities will not be protected in the repacking process, and thus the spectrum usage rights covered by such facilities will not be recognized for relinquishment.

244. The Commission interprets the term "spectrum usage rights" in the Spectrum Act to mean the rights of a broadcaster to use spectrum pursuant to a station's license. The Commission concludes that STAs and experimental licenses do not qualify as "spectrum usage rights." Under its interpretation, spectrum usage rights may include a licensee's existing or prospective licensed rights to use spectrum. The Spectrum Act does not specify a date by which a broadcaster must secure its spectrum usage rights in order to be able to relinquish them at auction, and the Commission does not believe the statute requires that these rights be licensed by a specific date. The Commission will recognize for relinquishment, even if they are not licensed by the Pre-Auction Licensing Deadline, the facilities authorized in a construction permit to modify the existing license of: (1) a station affected by the destruction of the World Trade Center that seeks to relocate to the new 1 World Trade Center site if the station elects to protect such facility in the repacking process; and (2) the station allotted to channel 3 at Middletown Township, New Jersey pursuant to a court order. All other facilities must be licensed by the Pre-Auction Licensing Deadline for the usage rights covered by that facility to be recognized for relinquishment. The rights eligible for relinquishment will include those reflected in permits granted by the April 5, 2013 issuance of the Media Bureau's Freeze PN, so long as the relevant facilities are licensed by the Pre-Auction Licensing Deadline. Class A licensees that received initial authorizations for their digital facilities prior to April 5, 2013 are subject to the Freeze PN, while such licensees obtaining initial digital authorizations after this date are not.

(iii) Pending Renewal and Enforcement Proceedings

245. The Commission will allow a broadcaster with a pending enforcement matter or a pending license renewal application (even if the petition to deny period has not expired) that raises an enforcement issue to participate in the reverse auction, on condition that such a broadcaster who no longer would hold any broadcast licenses upon acceptance of a license relinquishment bid agrees that a share of its reverse auction proceeds be placed by the Commission in escrow to cover potential forfeiture costs. Reverse auction bidders that hold multiple broadcast licenses and will continue to hold at least one Commission license upon acceptance of their bids will remain subject to any pending license renewal, as well as any enforcement action against the station offered at auction. Such participants will be required to acknowledge this continuing liability in their pre-auction application.

246. To implement this policy, if a broadcaster indicates in its pre-auction application that (1) it might place one or more license relinquishment bids, and (2) it would not control any other broadcast stations if its bid or bids were accepted, then the Commission will review its records to determine whether any outstanding enforcement matters exist pertaining to the broadcaster's stations, including complaints for which a proceeding has not yet been initiated and violations disclosed during the license renewal process. If appropriate, the Commission will dispose of pending enforcement matters prior to the reverse auction, such as in cases that do not require further inquiry and can be dismissed or resolved with the issuance of an admonishment or the execution of a consent decree.

247. The Commission delegates authority to the Wireless Telecommunications, Media, and Enforcement Bureaus to include information about any pending enforcement matters against a reverse auction applicant that cannot be resolved before the reverse auction when notifying an applicant of its eligibility to participate in the auction. Along with that notice, the Bureaus will

indicate the amount of reverse auction proceeds that will be placed in escrow should the broadcaster submit a winning license relinquishment bid. This sum will represent the maximum amount necessary to cover a potential forfeiture based on enforcement matters existing at that time. The escrow agreement will terminate: (1) at the later of (i) two years after the date on which the licensee relinquishes the station's license, or (ii) after the resolution of a complaint filed to collect a forfeiture; or (2) when all of the escrow funds are distributed. At termination of the escrow agreement, any funds remaining in the account will be remitted to the reverse auction winner. The broadcaster must agree to the escrow arrangement in order to participate in the reverse auction. More detailed procedures and the exact form of the escrow agreement will be discussed in the Procedures PN.

(iv) Relinquishment of Expired or Revoked Licenses and Downgraded Class A Licenses

248. The Commission will not allow a station to participate in the reverse auction if its license has expired, is subject to a revocation order (collectively a "license validity proceeding"), or is for a Class A station that is subject to a downgrade order, provided the license validity proceeding or Class A downgrade order has become final and non-reviewable by a date prior to commencement of the auction that will be specified in the Procedures PN. If the license invalidity determination becomes final between the time the Commission certifies a broadcaster's eligibility to participate in the reverse auction and commencement of reverse auction bidding, then it will exclude the broadcaster from participating in the reverse auction. If such a proceeding or order has not become final and non-reviewable by that date, the Commission will allow the licensee to voluntarily relinquish its spectrum usage rights in the reverse auction. Should the licensee submit a winning bid, the Commission will place its reverse auction proceeds in escrow using the procedures outlined above pending the final outcome of the

proceeding or order. If the decision becomes final and non-reviewable, then the money held in escrow will be deposited with the other reverse auction proceeds. In the event that a winning bidder subject to a pending license validity proceeding or Class A downgrade order prevails in its appeal, the Commission will release from escrow to the licensee its reverse auction payment less any forfeiture that may result.

b. Bid Options

249. Section 6403(a)(2) of the Spectrum Act requires the Commission to make available three voluntary relinquishment options to eligible full power and Class A broadcast television licensees: (1) "all usage rights with respect to a particular television channel without receiving in return any usage rights with respect to another television channel . . ." (license relinquishment bid); (2) "all usage rights with respect to an ultra-high frequency television channel in return for receiving usage rights with respect to a very high frequency television channel . . ." (UHF-to-VHF bid); and (3) "usage rights in order to share a television channel with another licensee" (channel sharing bid).

(i) License Relinquishment Bid

250. The Commission will offer a license relinquishment bid option as required by the statute regardless of whether it may lead to a loss of service or specific programming.

(ii) UHF-to-VHF Bid

251. In addition to allowing bids to move from a UHF to a VHF channel as required by the Spectrum Act, the Commission adopts refinements to the UHF-to-VHF bid option that will allow bidders to limit their bid to the high VHF band or the low VHF band. A bidder will not be able to specify the exact channel in the high- or low-VHF band to which it will be reassigned.

252. In addition, the Commission adopts the proposal to afford favorable consideration to post-incentive auction requests for waivers of the VHF power and height limits for winning

UHF-to-VHF bidders that may be necessary to resolve coverage problems on their new channels. The Commission declines, however, to establish a rebuttable presumption that such waivers are in the public interest. The Commission will consider such waiver requests on a case-by-case basis after completion of the repacking process. The Commission will afford such requests favorable consideration and grant them where possible. Also, the Commission will not adopt WLFM, LLC's request that a licensee which agrees to surrender a UHF channel in return for operation on VHF channel 6 be given additional flexibility to use Axcera's Bandwidth Enhancement Technology.

(iii) Channel Sharing Bid

253. This bid option allows broadcasters to relinquish "usage rights in order to share a television channel with another licensee." Under the Commission's rules, a full power television station must locate its transmitter at a site from which it can place a principal community contour over its entire community of license. The Commission will allow a channel sharing bidder (i.e., a sharee) to change its community of license in cases where it cannot satisfy the community of license signal requirement operating from the host (i.e., the sharer) transmitter site, provided that the sharee chooses a new community of license that, at a minimum, meets the same allotment priorities as its current community.

254. A bidder may not make a community of license change that will result in a change in its DMA. Second, a sharee may change its current community of license only in cases where it cannot satisfy the community of license signal requirement operating from the host (i.e., the sharer) transmitter site. A channel sharee will be asked to indicate in its pre-auction application whether it can meet its community of license requirements from the proposed sharer's site. An applicant that indicates its inability to do so must provide the name of the new community of license it proposes to select if its channel sharing bid is accepted, and certify in the application

that the new community meets the same, or a higher, allotment priority as its current community. Finally, the Commission clarifies that it will allow VHF-to-UHF channel sharing bids.

(iv) Additional Bid Options

255. In the NPRM, the Commission sought comment on additional bid options not specified in the Spectrum Act—specifically whether to offer reverse auction participants other possibilities, such as enabling high VHF stations to move to a low VHF channel, or more broadly, it asked for comment on potential ways to incorporate bidding in exchange for accepting such broadcast limitations as additional interference or a smaller service area.

256. In the Order we conclude that we will offer an option for high VHF stations to move to low VHF channels, and as with UHF-to-VHF bids, we will afford favorable consideration to post-incentive auction requests for waivers of the VHF power and height limits for winning high-VHF-to-low-VHF bidders that may be necessary to resolve coverage problems on their new channels. This option expands the set of stations that will have the option of moving to a low VHF station, and in so doing, may facilitate greater efficiency in repacking existing VHF stations and repurposing 600 MHz spectrum. While the Spectrum Act prohibits the Commission from involuntarily reassigning a station from a high to a low VHF channel as part of the repacking process, by offering this bid option, we create a mechanism by which high VHF stations may volunteer to be reassigned, as well as an incentive for doing so. Although the Spectrum Act does not specifically list high-VHF-to-low-VHF bids as one of the reverse auction bid options, it does not preclude the Commission from adopting this additional bid option pursuant to its broad spectrum management authority.

257. The reverse auction bidding options afforded by the Spectrum Act, together with allowing broadcasters moving from a UHF channel to specify a high or low VHF channel and allowing broadcasters to move from a high to a low VHF channel, provide meaningful options

for broadcasters that will achieve the goals of the auction. With respect to any additional bid options beyond going off the air, channel sharing, or moving to a lower band, we conclude that, whatever merits any particular option might have for any particular licensee, the complexity created for auction participants would outweigh potential benefits and, therefore, we decline to adopt other proposed bid options. The record as a whole supports this conclusion.

c. Confidentiality and Prohibition of Certain Communications

(i) Confidentiality

258. We will take all reasonable steps necessary to protect the confidentiality of Commission-held data of broadcast television licensees participating in the reverse auction. Section 6403(a)(3) of the Spectrum Act requires the Commission to "take all reasonable steps necessary to protect the confidentiality of Commission-held data of a licensee participating in the reverse auction . . . including withholding the identity of such licensee until the [spectrum] reassignments and reallocations (if any) . . . become effective, as described in subsection (f)(2)." See Spectrum Act § 6403(a)(3). We will protect the confidential information of all reverse auction applicants, whether or not the Commission determines that their applications are complete and in compliance with our rules. In addition, we will continue to protect confidential information pertaining to unsuccessful bids until two years after the effective date. Furthermore, in the event that there is no effective date, we will continue to protect confidential information pertaining to the reverse auction until two years after the completion of the reverse auction. We also amend the Commission's FOIA disclosure rules to accommodate the confidentiality rules that we adopt today. We note that the Commission may disclose confidential information if it is required to do so by law, such as by court order.

259. For the purpose of the statutory confidentiality requirement, we interpret the protections afforded to broadcast television licensees "participating" in the reverse auction more

broadly in order to facilitate broadcaster participation. For the purpose of the statutory requirement that at least two competing licensees "participate" in the reverse auction, we will consider a broadcast television licensee to be a participant only if its application is found to be complete and in compliance with our application rules. See Spectrum Act § 6402. The difference in our interpretation of the terms "participate" (section 6402) and "participating" (section 6403(a)(3)) arises from the difference between the underlying purpose of each provision. Whereas section 6402 ensures a minimum level of competition in the reverse auction, a purpose which weighs in favor of including only those applicants that will be permitted to submit bids in the reverse auction, section 6403(a)(3) promotes broadcaster participation by ensuring that licensees' identities will not be revealed until after the auction, a purpose which weighs in favor of protecting any applicant whether or not it is permitted to submit bids in the auction. In any event, we exercise our discretion to treat such information as confidential consistent with the principle that disclosure of this information would likely "cause substantial harm to the competitive position of the person from whom the information was obtained." See Examination of Current Policy Concerning the Treatment of Confidential Information Submitted to the Commission, Report and Order, 13 FCC Rcd 24816, 24819, para. 4 (1998).

260. From the time a broadcast television licensee applies to participate in the reverse auction until the spectrum reassignments and reallocations become effective, we will deem the following information confidential and subject to protection by the Commission: the name of the applicant licensee; the licensee's channel number, call sign, facility identification number, and network affiliation; and any other information that may reasonably be withheld to protect the identity of the licensee, as determined by the Commission. We note that other than a broadcast television licensee's actual identity, any particular information about an individual characteristic of a licensee may or may not facilitate identification of the licensee. We will protect non-

identifying information to the extent that it may reasonably be withheld to protect the identity of the licensee, as determined by the Commission. When the spectrum reassignments and reallocations become effective, the Commission will disclose the identities of the winning bidders and their winning bid amounts. Until two years after the effective date, the Commission will continue to protect the above-referenced confidential information pertaining to any unsuccessful bid. In the event that there is no effective date, we will continue to protect confidential information pertaining to the reverse auction until two years after the completion of the reverse auction; however, the Commission may release data aggregating confidential information if needed to explain the outcome of the auction—e.g., the aggregate share of proceeds unsuccessfully sought by reverse auction bidders.

261. These additional steps are necessary and are reasonable under the circumstances to protect the confidentiality of licensee data. Participants in the reverse auction will submit bids to exit an ongoing business, or to make significant changes to that business (e.g., by changing the channels on which they operate or agreeing to share a channel). Section 6403(a)(3) of the Spectrum Act recognizes the potential competitive sensitivities of the information that such existing licensee bidders provide to the Commission in this context.

262. A few commenters, worried that disclosing broadcaster participation could negatively impact broadcasters, suggest that the Commission maintain the confidentiality of broadcaster identities beyond the effective date, or even in perpetuity. We conclude that delaying the release of confidential information regarding unsuccessful bids until two years after the effective date will permit sufficient time to pass to ameliorate the potential competitive harms identified by commenters, and should facilitate broadcaster participation. Two years after the incentive auction, after substantial market changes have occurred and as the post-auction relocation process nears completion, competitors, investors, and others will be less likely to

make assumptions based solely on a particular broadcast television licensee's participation in the reverse auction or the bid amounts that it submitted at that time. Moreover, the record contains no evidence contradicting this conclusion.

263. We will not keep confidential the identities of unsuccessful reverse auction participants in perpetuity since protecting the identities of unsuccessful bidders in perpetuity would not be a "reasonable step" necessary to protect the confidentiality of participating broadcasters' data. In determining what steps to protect participants' information are "reasonable" to take, we also consider the other objectives of the Spectrum Act, including the goal of using market forces to repurpose spectrum for mobile broadband—an objective that requires public trust in the auction process, and therefore militates in favor of transparency into the process. Particularly given the novelty and complexity of this new system of competitive bidding, it is imperative that we eventually release as much information as possible about the bids and the bidding process, and the Commission routinely releases bidding information after auctions to allow for such analysis to take place. The bidding information that we release will allow winning bidders, unsuccessful bidders, and other interested third parties to review and test the auction results bid-by-bid. By committing to releasing this information in the future, we hope to facilitate participation in the auction by providing assurance that the process will be fair and in accordance with Commission rules. Although it is appropriate to delay the opportunity for such analysis given the unique circumstances here, it would not be reasonable to prevent this analysis entirely. Further, the full transparency of the auction process should not be delayed for a lengthier period of time given the public interest in transparency and public trust and confidence in the auction system. Delaying the availability of specific bidding information for two years is a reasonable step necessary to protect participants' confidentiality in light of the circumstances, including our interest in promoting broadcaster participation in the reverse auction and the public

interest in transparency.

264. We amend our FOIA disclosure rules to accommodate the confidentiality rules that we adopt in the Order. Specifically, the information that is protected by the confidentiality rules described above will be added to the list of materials accepted by the Commission on a confidential basis. See 47 CFR 0.457(d)(1). Thus, if reverse auction applicants are satisfied with the scope of the protection afforded by these confidentiality rules, it will be unnecessary for them to submit a request for non-disclosure. We also amend 47 CFR 0.457(d) of our rules to include such records in the list of those not routinely available for public inspection. Because the Spectrum Act was enacted after the OPEN FOIA Act of 2009, FOIA exemption three is inapplicable to such records. As such, we will permit disclosure of such records under FOIA only pursuant to a "persuasive showing" under 47 CFR 0.457(d). Given the legislative judgment reflected in the Spectrum Act, we would not expect such a showing to succeed unless it included a demonstration either that the relevant time period for protection of the confidential information has passed or that nondisclosure of the particular data sought is otherwise beyond the "reasonable steps necessary" to protect the confidentiality of Commission-held data of a reverse auction participant. It is also appropriate to adopt a rule to implement FOIA's exemption for confidential trade secrets and commercial or financial information for the purposes of the reverse auction; however, we tailor the amendment to the Commission's FOIA disclosure rules to conform to the scope of the confidentiality rules that we adopt here.

265. In this context, any response by a reverse auction participant within the relevant time period will be exempted from our ex parte rules to the extent necessary to protect the licensee's confidentiality. Ordinarily, FOIA request proceedings are subject to our permit-but-disclose procedures. However, we may modify the applicable ex parte rules by order, letter, or public notice. In this unique context, where the party's identity itself has been treated as confidential,

such a modification is warranted. See Media Bureau Issues Limited Modification to Ex Parte Requirements for Broadcasters Filing Notices in the Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions Proceeding, GN Docket No. 12-268, Public Notice, DA 14-268 (2014).

266. We note that the confidentiality rules that we adopt impose restrictions on the Commission's disclosure of certain information during certain time periods. We decline to extend the confidentiality requirements that we adopt here beyond the Commission to applicants and parties to the auction. The Commission's confidentiality obligations, along with the rule prohibiting certain communications and auction procedures regarding available information, will provide ample protection to the identities and other confidential information of reverse auction participants. We do not wish to burden auction participants with additional communications prohibitions or other confidentiality requirements after the spectrum reassignments and reallocations—if any—become effective, particularly given that any such restrictions would provide only a minimal benefit to the unsuccessful reverse auction participants—namely, protection from the educated guesses of other auction participants.

267. The confidentiality rules do not prohibit a broadcast television licensee from disclosing before the auction the mere fact that it intends to participate in the auction, or, after the auction, the results of its participation. However, other rules independently may prohibit certain communications relating to auction participation. In particular, pursuant to the rule prohibiting certain communications described below, beginning on the reverse auction application filing deadline and until a public notice announces the results of the incentive auction, all full power and Class A broadcast television licensees are prohibited from directly or indirectly disclosing incentive auction applicants' bids or bidding strategies to any forward auction applicant or to any other full power or Class A broadcast television licensee, subject to

certain specific exceptions.

268. Given the importance of the confidentiality protections to promote broadcaster participation in the reverse auction, we decline to adopt the proposal in the NPRM to render information publicly released by a licensee about its participation in the reverse auction no longer confidential and therefore no longer subject to protection by the Commission. However, we caution licensees that although the confidential information that they file with the Commission in their pre-auction applications will not be made available publicly while the confidentiality rule applies, documents that are filed through the Commission's Electronic Comment Filing System ("ECFS") and other FCC databases are publicly available.

269. The Commission noted in the NPRM that participants in the reverse auction may have legal obligations to disclose information that the Commission may be required to keep confidential. We decline to design the competitive bidding rules solely to avoid disclosure obligations imposed by other governmental entities. . Neither we, nor the commenters, have the power to determine parties' precise obligations under rules enforced by other agencies.

(ii) Prohibition of Certain Communications

270. In the Order we conclude that beginning at the deadline for submitting applications to participate in the reverse auction and until the results of the incentive auction have been announced by public notice, all full power and Class A broadcast television licensees (collectively "covered television licensees") are prohibited from communicating directly or indirectly any incentive auction applicant's bids or bidding strategies to any other covered television licensee or to any forward auction applicant, subject to certain exceptions described below. For the purposes of the rule that we adopt here, we will apply the same definition of forward auction "applicant" that applies to the rule for spectrum license auctions generally. See 47 CFR 1.2105(c)(7)(i). Generally, "covered television licensees" include all broadcast

television licensees that are or could become eligible to participate in the reverse auction, as well as all channel sharers. The rule that we adopt here is intended to reinforce existing antitrust laws, facilitate detection of collusive conduct, and assure incentive auction participants that the auction process will be fair and objective.

271. The rule applies solely to communications that directly or indirectly disclose an incentive auction applicant's bids or bidding strategies to any covered television licensee or to any forward auction applicant. The prohibition applies during a limited period of time, and we anticipate that the rule will serve our purposes with minimal intrusion into broadcasters' routine business practices, since covered television licensees may structure their business practices as needed to avoid violations, such as by instituting internal controls with respect to any information about incentive auction applicants' bids and bidding strategies.

272. This provision prohibits certain communications between covered television licensees, not just reverse auction applicants. Given the Commission's statutory obligation to protect the identities of reverse auction participants, it is not practicable to limit the prohibition to communications between reverse auction applicants, since doing so would require disclosing their identities. See Spectrum Act § 6403(a)(3). Nor is the rule limited to communications between covered television licensees within the same geographic area. Reverse auction participants will compete on a national basis for the limited funds that forward auction participants will contribute for new flexible-use licenses, and, due in part to the consequences that the repacking of broadcast television licensees may have across multiple geographic areas, all reverse auction participants will compete with each other for the auction system to accept their offers to relinquish spectrum usage rights. Thus, it is appropriate to limit communications between covered television licensees on a national level.

273. To promote a fair and competitive auction, the prohibition against communicating

information regarding incentive auction applicants' bids and bidding strategies will apply across the reverse and forward auctions. Therefore, the rule prohibits specified communications between a covered television licensee and a forward auction applicant.

274. This prohibition across the reverse and forward auctions applies regardless of the geographic license areas where forward auction applicants intend to bid. As noted above, the results of the reverse auction for one participant may have effects across multiple geographic areas. This restriction will inhibit the ability of covered television licensees and forward auction applicants to form side agreements that could have anticompetitive effects and could alter the outcome of the incentive auction.

275. With respect to covered television licensees, the prohibition includes all controlling interests in the licensee, and all directors, officers, and governing board members of the licensee. This approach is analogous to the definition of "applicant" that applies to spectrum license auctions and that was proposed for purposes of the rule prohibiting certain communications in the reverse auction. That is, for purposes of this rule, such parties will be considered to be the covered television licensee based on their relationship with such a licensee. The prohibition includes the controlling interests, directors, officers, and governing board members of a covered television licensee as of the deadline for submitting applications to participate in the reverse auction, and any additional such parties at any subsequent point prior to the date when the prohibition ends. For example, if a covered television licensee appoints a new officer after the application deadline, that new officer would be subject to the prohibition.

276. Controlling interests include individuals or entities with positive or negative de jure or de facto control of the licensee. De jure control includes holding 50 percent or more of the voting stock of a corporation or holding a general partnership interest in a partnership. Ownership interests that are held indirectly by any party through one or more intervening

corporations may 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 meets or exceeds 50 percent or represents actual control, it may be treated as if it were a 100 percent interest. De facto control is determined on a case-by-case basis. Examples of de facto control include constituting or appointing 50 percent or more of the board of directors or management committee; having authority to appoint, promote, demote, and fire senior executives that control the day-to-day activities of the licensee; or playing an integral role in management decisions.

277. Members of the licensee's governing board are included in recognition that NCE stations and certain other stations may be operated by non-profit entities. Members of a governing board may be apprised of incentive auction applicants' bids and bidding strategies, and they should not be permitted to communicate such information to other covered television licensees or to forward auction applicants unless an exception to the prohibition applies.

278. We note that the list of parties deemed to be the covered television licensee is not an exclusive list of parties that might engage in prohibited communications on behalf of a licensee. While communications by a listed party will necessarily be attributed to the associated covered television licensee, whether any potentially prohibited communications by other associated parties (or employees) are attributed to a licensee would be a fact-based determination. Specifically, a covered television licensee may not use agents or other conduits to convey information to any other covered television licensee or to any forward auction applicant that would otherwise be prohibited if communicated by the covered television licensee.

279. We adopt two exceptions to this rule prohibiting certain communications. First, covered television licensees that share a common controlling interest, director, officer, or

governing board member as of the deadline for submitting applications to participate in the reverse auction may communicate with each other regarding incentive auction applicants' bids and bidding strategies without violating the prohibition. Similarly, if a controlling interest, director, officer, or governing board member of a covered television licensee is also a controlling interest, director, officer, or holder of any 10 percent or greater ownership interest in a forward auction applicant, communications between the covered television licensee and the forward auction applicant will qualify for this exception. An overly broad prohibition restricting communications between a broadcast television licensee and its controlling interests during the reverse auction could unduly restrict bidders' flexibility. This exception to the prohibition recognizes various interrelationships that may exist between covered television licensees and permits communications between such licensees that will facilitate strategic decisions regarding multiple licensees in real time as various contingencies unfold during the auction. Thus, the exception will allow such licensees to participate more fully, particularly in a multiple-round auction, such as a descending clock auction.

280. We note that this first exception only applies to controlling interests, directors, officers, and governing board members of a covered television licensee as of the deadline for submitting applications to participate in the reverse auction, and to controlling interests, directors, officers, and holders of any 10 percent or greater ownership interest in a forward auction applicant as of the deadline for submitting short-form applications to participate in the forward auction. Consequently, if a covered television licensee appoints a new officer after the application deadline, that new officer would be subject to the rule and not included within the exception.

281. Under the second exception, all parties to a channel sharing agreement disclosed on a reverse auction application may communicate with each other about reverse auction applicants'

(but not any forward auction applicants') bids and bidding strategies. Allowing such communications will encourage channel sharing relationships, allowing potential channel sharers to fully engage as various options are presented during the auction process. The exception to the prohibition for parties to a channel sharing agreement will apply only if the agreement has been executed prior to the reverse auction application filing deadline and has been disclosed on the application. Allowing channel sharing negotiations to commence during the auction as one commenter suggests presents too high of a risk of agreements to reduce competition in response to auction conditions.

282. We decline to adopt any exceptions based on the existence of other particular types of agreements or arrangements between covered television licensees, such as local marketing agreements ("LMAs"), joint sales agreements ("JSAs"), shared services agreements ("SSAs"), network affiliation agreements, or any other similar cooperative arrangements. As described above, covered television licensees with such agreements may continue to communicate during the relevant time period so long as their communications do not directly or indirectly disclose incentive auction applicants' bids or bidding strategies.

283. We also decline to adopt an exception based on any pre-auction agreement, other than a channel sharing agreement, disclosed on an application to participate in the reverse auction. While our rules apply an exception for disclosed agreements in our typical spectrum license auctions, the reverse auction warrants a different approach. In the reverse auction, participants are relinquishing spectrum usage rights, not seeking licenses, and there is not the same need for agreements to reduce entry barriers for smaller firms and promote competition.

284. We reject one commenter's argument that the NPRM failed to include sufficient information to allow that commenter to comment on how to apply the Commission's anti-collusion rules in the context of the reverse auction. The Commission both discussed the

proposed prohibition at length and included the language of a proposed rule to 47 CFR 1.2205. Furthermore, the proposed rule and the associated discussion were based on the Commission's existing rule for spectrum license auctions, with respect to which there is ample precedent. The purpose of the NPRM was precisely to solicit comment on whether the reverse auction context warrants any changes to the Commission's established rule.

285. Any party that makes or receives a communication regarding an incentive auction applicant's bids or bidding strategies that may violate this rule must report such communication in writing to the Commission immediately, and in no case later than five business days after the communication occurs. The obligation to make a report continues until the report is made and a failure to make a timely report constitutes a continuing violation. Parties must adhere to any applicable antitrust laws, including any additional communications restrictions. Where specific instances of collusion in the competitive bidding process are alleged, the Commission may conduct an investigation or refer such complaints to DOJ for investigation. Parties who are found to have violated the antitrust laws or the Commission's rules in connection with participation in the auction process may, among other things, be subject to forfeiture of their winning bid incentive payments and revocation of their licenses, where applicable, and may be prohibited from participating in any other auctions.

d. Two Competing Participants Requirement

286. Under section 6402 of the Spectrum Act, the Commission cannot accept the relinquishment of spectrum usage rights unless at least two competing licensees participate in the reverse auction. In the NPRM, the Commission proposed to incorporate this requirement into the competitive bidding rules for the broadcast television spectrum reverse auction and sought comment on the parameters of the rule.

287. In the Order we conclude that "two competing licensees participate" in the reverse auction portion of the broadcast television spectrum incentive auction if more than one broadcast television licensee's pre-auction application is found to be complete and in compliance with the application rules, and if at least two such licensees are not commonly controlled. Our conclusion is based on two supporting conclusions. First, we conclude that a broadcast television licensee will be a "participant" if it has submitted a pre-auction application to be able to bid in the reverse auction that is found to be complete and in compliance with the application rules. The fact that an applicant has the ability to submit a bid in the reverse auction as designed under our rules, regardless of whether it ultimately chooses to do so, is sufficient to satisfy the "participation" component of this statutory requirement. The knowledge that another party might bid will create competitive pressure for a second bidder to accept lower incentive payments than it would absent any competition.

288. Second, we conclude that for purposes of the Broadcast Television Incentive Auction, any broadcast television licensees that participate in the reverse auction and that are not commonly controlled will "compete" with one another. Regardless of their pre-auction geographic or channel location, all participants in the reverse auction will compete to receive incentive payments from the same limited source—the aggregate proceeds of the forward auction. Moreover, where repacking one station may have widespread effects across geographic areas with possible nationwide band plan implications, participants will affect and compete with licensees far beyond their contour, DMA, or channel. This competition for the forward auction proceeds satisfies the Spectrum Act's requirement that at least two competing licensees participate in the reverse auction. The comments submitted in the record support our interpretation.

289. We note that the two competing participants requirement applies to any reverse auction component of an incentive auction conducted under section 6402 of the Spectrum Act, including the broadcast television spectrum incentive auction. As the two competing participants requirement is a "generic" provision applicable to any incentive auction conducted under section 6402 of the Spectrum Act, the Commission may apply this requirement differently in other reverse auctions, depending upon the particular eligibility criteria, auction design, and other circumstances involved in such reverse auctions.

e. Information and Certifications Required in Application to Participate

290. In the NPRM, we proposed to require submission of a pre-auction application by entities interested in participating in the reverse auction. We sought comment on proposed rules regarding the contents of the pre-auction application, on what information applicants should be required to provide, what certifications they should be required to make regarding their qualifications to participate, and the appropriate party to consider as the applicant.

291. In the Order we adopt the proposal to require potential bidders to submit a pre-auction application to establish their eligibility to participate in the reverse auction. This requirement balances the need to collect essential information with administrative efficiency. The pre-auction application due dates and filing information will be forthcoming in the Procedures PN.

292. We will require that each auction applicant submit information to establish its identity, information concerning the relevant license(s) and associated spectrum usage rights, and information regarding the parties with ownership interest in the applicant. Additionally, an applicant that is proposing to share a channel with another station must confirm that the proposed arrangement will not violate the Commission's media ownership rules and must provide

information concerning the channel sharing arrangement, including a copy of the executed channel sharing agreement.

293. We seek to make participation in the reverse auction as easy as possible for broadcasters. However, the need for sufficient and up-to-date information regarding broadcast television licensees that may make binding bids to relinquish spectrum usage rights leads us to decline various suggestions to further streamline or simplify the pre-auction application process. Information required by the Commission in other contexts is not necessarily sufficient for the reverse auction. Any attempt to rely on other filings would necessitate requiring potential participants to confirm that all information on file with the Commission is current and, if necessary, update any information that is outdated. Even then, such updates may not obviate the need for an auction application.

294. We decline to require applicants to provide a two year program history log in order to help the Commission consider the ramifications of accepting a particular relinquishment bid, as one commenter suggests. We also decline to adopt suggestions to require applicants to provide additional information about their ownership interests for the purpose of determining the potential impact of the incentive auction on broadcast ownership diversity. We recognize the importance of diversity in broadcast ownership and support efforts to maintain such diversity. The suggested requirement, however, would go beyond the scope of information necessary to determine whether an applicant is qualified to participate in the reverse auction or to implement the Commission's auction rules.

295. We will require an applicant to make certain certifications on its pre-auction application as to its legal, technical, and other qualifications and eligibility to participate in the reverse auction, including a certification as to the applicant's compliance with the national security restriction in section 6004 of the Spectrum Act. Requiring a certification of an

applicant's qualifications will help to ensure that applicants submit accurate information. Applicants making false certifications to the Commission expose themselves to liability. Applicants should take care to review their licenses and the information in their pre-auction applications before making the required certifications and be prepared to document their review confirming that they meet the applicable requirements, if necessary.

296. We note that for spectrum license auctions, the Commission typically releases an interactive auction tutorial. The tutorial typically demonstrates the Commission's web-based auction application. Consistent with prior practice, we anticipate offering a similar type of tutorial for the incentive auction so that potential participants have the opportunity to become familiar with the auction application system prior to the pre-auction application deadline.

(i) Applicant

297. The Commission proposed in the NPRM that the applicant identified on the pre-auction application for the reverse auction must be the licensee. The Order adopts this approach, under which, a corporate parent would not be able to file one application for licenses held by different licensee subsidiaries; however, a licensee holding multiple licenses would only be required to file one application for all such licenses for which it wishes to submit bids in the reverse auction. Requiring the applicant to be the licensee will promote accountability and transparency since the licensee is the entity that holds the spectrum usage rights that may be relinquished in the reverse auction. This decision is consistent with the Spectrum Act's use of the term "broadcast television licensee."

298. For broadcast television licensees that would relinquish spectrum usage rights in exchange for an incentive payment and subsequently share a channel with another broadcaster, the Commission will only require that the sharee(s)—the station(s) that would relinquish their

frequencies in order to move to the sharers' frequencies—apply to participate in the reverse auction. We note that more than two stations may share a channel.

299. It is unnecessary for the sharer to submit an application to participate in the reverse auction with respect to the shared station unless it intends to submit its own bid. We will, however, require prospective sharers to provide any necessary certifications with respect to the channel sharing agreement in addition to sharees. It is reasonable and not unduly burdensome to require sharers to make such certifications because, as Commission licensees, they are required to comply with all applicable Commission rules and regulations, including the rules we adopt in the Order concerning channel sharing arrangements. Further, as a sharer voluntarily enters into a channel sharing arrangement, it is reasonable to require a sharer to make certifications in exchange for the ability to share a channel with another broadcaster. Moreover, the benefit of requiring a sharer to make certifications that are designed to ensure compliance with the Commission's rules and regulations concerning channel sharing arrangements outweighs the unlikely risk of potentially deterring broadcaster participation in the reverse auction.

(ii) Spectrum Usage Rights to Be Offered

300. In the NPRM, the Commission proposed to require information in the pre-auction application concerning the license(s) and associated spectrum usage rights that may be offered in the reverse auction. In the Order we adopt the proposal to require reverse auction applicants to specify which license(s) and associated spectrum usage rights they might offer in the reverse auction. We further require that a reverse auction applicant shall provide any information needed to assure that the offered relinquishment pursuant to the application is consistent with any applicable Commission rules or action to enforce its rules. Such information may include but is not limited to anything related to ownership of, or an enforcement action concerning, the license(s) identified in the application to participate. The Commission needs this information in

order to evaluate bids and run the various repacking algorithms. In addition, the Commission can utilize the information to assist in identifying auction participants offering spectrum usage rights subject to a pending license renewal application or an enforcement action, which may subject participants to liabilities that will have to be addressed before such participants can relinquish their licenses in exchange for an incentive payment.

(iii) Ownership Information

301. In the NPRM, the Commission proposed to require a potential bidder to include in its pre-auction application its ownership information as set forth in 47 CFR 1.2112(a) of the rules, and for NCE stations, information regarding the licensee's governing board and any educational institution or governmental entity with a controlling interest in the station, if applicable. For the purpose of the incentive auction, the Commission needs to be informed of an applicant's ownership structure for several reasons, including: (1) to confirm that the applicant is who it claims to be and actually has rights to the license(s) it may offer to relinquish; and (2) to implement the prohibition of certain communications. Thus, in the Order we adopt the proposed rule requiring a reverse auction applicant to include in its pre-auction application its ownership information as set forth in 47 CFR 1.2112(a) of the Commission's rules.

302. In recognition that NCE stations and certain other stations may be operated by non-profit entities, we will require a non-profit licensee to submit information regarding its governing board and to identify any educational institution or governmental entity with a controlling interest in the applicant, if applicable. The ownership information we currently have on file under our existing broadcast television rules is inadequate for the purposes of evaluating an applicant's eligibility to participate in the broadcast television spectrum reverse auction and for implementing the competitive bidding rules. We cannot utilize information on file in an applicant's most recent Form 323 or 323-E without, at a minimum, requiring the applicant to

review and update the information. Moreover, as those forms were not designed to collect information for competitive bidding purposes, the forms may be over- and/or under-inclusive for auction purposes, even if an applicant's form is up-to-date. While we appreciate that broadcast television licensees are familiar with these forms and the information required, more streamlined ownership information is warranted solely for the purpose of the reverse auction.

(iv) Channel Sharing Agreement

303. In the NPRM, the Commission sought comment on what information regarding channel sharing agreements it should require in order to assess an applicant's eligibility to participate in the reverse auction. We will require a channel sharing applicant to provide sufficient information and certifications to enable the Commission to evaluate and accept a channel-sharing bid. This includes, for example, a channel sharing applicant submitting an executed copy of the channel sharing agreement, and certifying whether it can meet its community of license requirements from the proposed sharer's site, and if not, that the new community of license proposed meets the same, or a higher, allotment priority as its current community.

304. Ordinarily, the Commission does not involve itself in private contractual agreements between stations. While channel sharing agreements should be developed through private negotiations, public interest considerations demand that the Commission impose certain basic requirements on the terms and conditions of channel sharing agreements. Therefore, we will require a channel sharing applicant to certify that the channel sharing agreement is consistent with all relevant Commission rules and policies, and that the applicant accepts any risk that the implementation of the channel sharing agreement may not be feasible for any reason, including any conflict with requirements for operation on the shared channel.

305. As channel sharing agreements will contain information that identifies broadcast television licensees participating in the reverse auction, the Commission will take all reasonable steps necessary to maintain the confidentiality of such agreements in accordance with section 6403(a)(3) of the Spectrum Act and the rules adopted in this proceeding. Thus, we do not anticipate that parties will be discouraged from participating in the reverse auction by these requirements. Further, it is reasonable to require a channel sharing applicant to submit an executed copy of its channel sharing agreement as an indication of its good faith and intent to follow through with the channel sharing arrangement in the event the Commission accepts its channel sharing bid.

(v) National Security Certification

306. Section 6004 of the Spectrum Act specifies that "a person who has been, for reasons of national security, barred by any agency of the Federal Government from bidding on a contract, participating in an auction, or receiving a grant" may not participate in a system of competitive bidding that is required to be conducted by Title VI of the Spectrum Act. This national security restriction applies to the broadcast television spectrum reverse and forward auctions since Title VI requires the Commission to conduct both auctions. In the NPRM, the Commission proposed that a reverse auction applicant be required to certify, under penalty of perjury, that it and all of the related individuals and entities required to be disclosed on the pre-auction application are not persons who have "been, for reasons of national security, barred by any agency of the Federal Government from bidding on a contract, participating in an auction, or receiving a grant." For purposes of this certification, the Commission proposed to define "person" as an individual, partnership, association, joint-stock company, trust, or corporation. It also proposed to define "reasons of national security" to mean matters relating to the national defense and foreign relations of the United States.

307. The Order adopts these proposals. The definitions of "person" and "reasons of national security" the Commission adopts are consistent with how those terms are used in other federal programs and are a reasonable interpretation of those terms in section 6004. See, e.g., 47 U.S.C. § 153(39); 18 U.S.C. App. 3 § 1(b). All of the related individuals and entities required to be disclosed on a potential bidder's pre-auction application are "persons" subject to this statutory participation restriction. Where the applicant is a legal entity rather than an individual, it has been the Commission's practice to consider the legal entity's controlling interests, holders of partnership and ownership interests, certain shareholders, and officers and directors to be applicants by extension. Including these related individuals and entities within the definition of "person" is entirely consistent with the intent of the national security restriction. Indeed, if such related individuals and entities were not considered "persons," parties that are statutorily prohibited from participating in the reverse auction could circumvent the national security restriction simply through the creation of a separate entity to act as the "applicant."

308. As with other required certifications, a reverse auction applicant's failure to include the required national security certification by the applicable filing deadline would render its pre-auction application unacceptable for filing, and its application to participate in the reverse auction would be dismissed with prejudice.

f. Procedures for Processing Pre-Auction Application

309. In the NPRM, the Commission proposed to process applications to participate in the reverse auction in a manner similar to the processing of applications to participate in spectrum license auctions. More specifically, the Commission proposed that no application would be accepted if, by the initial deadline, the applicant had failed to make the required certifications. Applicants would be afforded an opportunity to cure defects identified by the Commission after an initial review of the application to participate. If an applicant fails to make necessary

corrections before a resubmission deadline, its application would be dismissed.

310. The Commission further proposed that the applicant must amend or modify the application as promptly as possible, and in any event within five business days, whenever the information furnished in a pending pre-auction application is no longer substantially accurate and complete in all significant respects. Certain minor changes would be permitted subject to a deadline specified by public notice, but major changes to the pre-auction application would not be permitted. Major amendments would include, but would not be limited to, changes in ownership of the applicant or the licensee that would constitute a substantial assignment or transfer of control. In addition, major amendments would include changes to any of the required certifications and the addition or removal of licenses or authorizations identified on the pre-auction application for which the applicant intends to submit bids. Minor amendments would include any changes that are not major, such as correcting typographical errors and supplying or correcting information requested by the Commission to support the certifications made in the application. Finally, to protect the confidentiality of the identities of all reverse auction participants, the Commission proposed to notify the applicants individually as to the status of their applications and whether they are qualified bidders, i.e., are qualified to participate in the reverse auction.

311. The Order adopts these proposals. The process has proven effective in the Commission's experience with spectrum license auctions. Pre-auction application processing provides an opportunity to address concerns regarding information provided by applicants, and helps to assure their eligibility to participate, without unduly limiting participation by qualified parties. Based on our experience with spectrum license auctions, requiring the submission of an application to participate is important for a number of reasons, including ensuring that the information the Commission relies on is up-to-date. Limiting permissible changes in the

ownership of auction applicants likewise assures that the Commission's review of applicant qualifications remains valid over the course of the auction.

312. One commenter suggests that any otherwise-eligible broadcast television licensee who initially opted not to participate in the reverse auction ought to be able to enter the "ongoing" reverse auction without first applying to participate. We decline to adopt that suggestion. Allowing broadcast television licensees who have not applied to participate in the reverse auction, and thus have not been vetted by Commission staff, to enter the "ongoing" auction presents an unwarranted risk that ineligible parties might bid in the auction and would add unnecessary complexity to the reverse auction design.

2. Bidding Process

313. The format for reverse auction bidding in each stage will be a descending clock auction incorporating multiple bidding rounds. We address the basic structure of our chosen descending clock auction design in terms of three basic elements: (i) bid collection procedures that determine how bids are gathered using a descending clock auction format; (ii) assignment procedures that evaluate bids sequentially, taking into account interference potential, to determine which bids for relinquishment are accepted; and (iii) pricing procedures that determine the payment that a broadcaster relinquishing spectrum usage rights will receive. Below, we address these three elements from the perspective of a single television station bidding in a single stage of the auction.

a. Bid Collection Procedures: Descending Clock Format

314. In the NPRM, the Commission discussed two basic reverse auction bid collection procedures. The first was a single round mechanism and the second was a multiple round procedure—a descending clock auction. The NPRM also discussed an additional bid collection procedure—"intra-round bidding"—that would enable bidders to indicate a specific price,

between the opening and closing prices in a round, below which a bid option would not be acceptable.

315. The Order adopts a descending clock auction format for the reverse auction, and bidders will have the option of making intra-round bids. However, the rules do provide the necessary flexibility to vary aspects of the reverse auction bidding process if it becomes necessary to do so because of circumstances that develop during the pre-auction process. In each round, bidders will be faced with relatively simple choices of determining whether they are still willing to accept the current prices for bid options. Observing the sequence of prices over multiple rounds will give bidders an indication of relative values for the different bid options, which will help them refine and feel more confident in their bidding decisions. This process of price discovery will be particularly helpful in the context of this first-time-ever incentive auction, in which there will be no historical results to guide bidder expectations. In contrast, a single round sealed-bid format would require bidders to make price commitments in advance of any information revealed through the auction process. Moreover, under a multiple round approach the bidder may never have to reveal its lowest acceptable price, unlike in a single round auction in which a bidder would indicate, at one time, the lowest prices at which it would accept various bid options.

316. Under the descending clock format, in each round a participating broadcaster will be presented a price for a bid option and will indicate whether it is willing to accept the option at that price. A bidder may see a price for more than one option, but whether a bidder can accept a price for more than one option at a time will be determined in the Procedures PN. Generally, each station will see a price that takes into account objective factors, such as location and potential for interference with other stations, that affect the availability of channels in the repacking process and, therefore, the value of a station's bid to voluntarily relinquish spectrum

usage rights. Thus, a station with a high potential for interference will be offered a price that is higher than a station with less potential for interference to other stations. Setting prices in this manner will encourage stations with more interference potential to remain active in the reverse auction bidding longer, increasing the efficiency of the repacking process by reducing the likelihood that such stations will have to be assigned channels, thereby blocking other stations with less interference potential. This, in turn, will reduce the overall cost of clearing spectrum and increase the likelihood of a successful auction.

317. We will determine the factors to be used in setting prices in the Procedures PN based on additional, more focused public input. We will also determine in the Procedures PN the mechanism for applying such factors, and will consider, among other things, whether to utilize optimization techniques. We emphasize that we do not intend to set prices to reflect the potential market or enterprise value of stations, as opposed to their impact on the repacking process. Possible factors include the number of stations that a station would interfere with and block from being assigned channels, the population the station covers, or a combination of such factors. We must make all reasonable efforts to preserve the population served of protected stations that will remain on the air, making population served one of the major constraints on the availability of channels in the repacking process.

318. We are not persuaded that using such factors will deter broadcasters from participating in the reverse auction. No station will be compensated less than the total price that it indicates it is willing to accept. Thus, we also reject any suggestion that using such factors in setting price offers is contrary to the Spectrum Act.

319. Generally, the prices for bid options will start high and descend for each station, as long as the station's acceptance of a chosen bid option is not needed to meet the current spectrum clearing target. Each round will last for a pre-set period of time. The Procedures PN will address

the timing of rounds and how price decrements will be determined after an opportunity for comment.

320. We will also provide participating broadcasters with the optional flexibility of "intra-round bidding." With intra-round bidding, a bidder will be able to indicate the lowest price at which it is willing to accept an option. In addition to giving bidders more control over the bidding process, intra-round bidding will speed the pace of the reverse auction, consistent with our auction design goals, by allowing relatively large round-to-round reductions in prices, but also allowing bidders to identify the precise points at which they want to change bid options or drop out of the auction.

b. Bid Assignment Procedures: Determining Which Bids Are Accepted

321. Bid assignment procedures determine which stations receive payments in exchange for relinquishing rights. In addition to considering price information, the bid assignment procedures in the reverse auction must ensure that the stations that drop out of the bidding can feasibly be assigned channels in the repacking process. The NPRM identified two general approaches to bid assignment. The first approach, referred to as integer programming, would consider all the relevant information at once and try to find the optimal solution. Rather than considering all aspects of the problem at one time, the second option would use an iterative or "sequential" approach. Under the latter approach, when a station decides the price offered for a given bid option is too low and it wishes to drop out of the bidding for that option, the auction system would evaluate the impact of that station's decision, and would determine how assigning that station a channel in a band it considers acceptable would affect the feasibility of assigning channels to the stations that remain active in the bidding at the current prices. Based on that

evaluation, determinations would be made as to which bids to accept provisionally at the current prices.

322. The Order adopts bid assignment procedures that will evaluate the feasibility of assigning television channels to stations generally using a sequential approach. The sequential approach using a feasibility checker in each round can be run very quickly, which is important to the success of a descending clock auction format. The Procedures PN may incorporate some optimization methods into the sequential process after additional public comment, if doing so would improve performance of the feasibility checker and not unduly slow the reverse auction bidding process. Also, the repacking methodology will use an integer programming optimization process at various other points in the auction process.

323. Under the sequential approach, at each point in the bidding process at which a station drops out and must be assigned a channel in its home band, the repacking methodology will determine whether doing so precludes assigning a channel to any of the stations that remain active in the bidding. If so, the station for which no channel is available will be provisionally selected to receive a payment in exchange for relinquishing rights. Only stations that can still feasibly be assigned a channel in their home bands will remain active in the bidding as prices decline. The bidding rounds will continue until every station has dropped out of the bidding and been provisionally assigned a channel in its home band or has been selected to receive a payment to relinquish its rights because no feasible channel could be found for it in the reorganized band. At that point, final channel assignments will be established through the use of optimization techniques. The statutory mandate to "make all reasonable efforts to preserve . . . the coverage area and population served of each broadcast television licensee" will be incorporated into this feasibility analysis. See Spectrum Act § 6403(b)(2).

c. Procedures to Determine Payments

324. The NPRM addressed ways of determining the payments that broadcasters would receive in exchange for relinquishing rights under various bid options, including a methodology referred to as "threshold" pricing, which would determine the payment to a winning bidder based on the price at the point the repacking methodology determined that it could no longer find a feasible channel for the bidder's station in its home band because another station had dropped out of the bidding and had to be assigned a channel. The Order adopts threshold pricing to determine payments in the descending clock auction. Under this pricing approach, a bidder's payment for a relinquishment option generally will be based on the price for the option when another bidder—whose exit from the auction triggers acceptance of the winning bidder's bid, as described above—drops out of the bidding. This payment will be at least as high as the last price the winning bidder agreed to accept for the relinquishment option.

325. A threshold pricing approach will simplify bidding strategy and facilitate broadcaster participation. Under this approach, payments are based on the actions of competing bidders, discouraging bidders from strategically distorting their own bids in an effort to increase their payments. Instead, it encourages a straightforward bidding strategy, in which a bidder indicates that it is willing to accept a price as long as the price is at least as great as the value the bidder ascribes to the bid option. If the bidder drops out before the price reaches its value, the bidder may pass up an opportunity to relinquish rights at a profitable price. If the bidder continues to bid after the price passes its value, it may be selected as a winning bidder, but receive a payment below its value. Since a bidder's drop-out price determines the point at which it exits the auction, but not its payment amount if it wins, the bidder cannot gain by strategically distorting its drop-out price in order to affect its winning payment, as it might with a pay-as-bid approach. The general principle of basing payments on the drop-out behavior of competing bidders is frequently

used in auctions because of the strong incentives the approach gives bidders to bid straightforwardly.

d. Additional Bidding Procedures

326. In addition to bid collection, bid assignment, and bid payment procedures, we adopt rules proposed in the NPRM for additional reverse auction bidding procedures. The Procedures PN will announce final decisions on the reverse auction bidding procedures, following further consideration of the record, including public input received in response to an additional opportunity for comment. Among the rules we adopt is a rule that provides for opening or reserve prices. Before any party applies to participate in the auction, the Comment PN will seek comment on the methodology for determining opening prices—the maximum amounts that will be offered to each potentially eligible broadcast licensee for each bidding option in the reverse auction—and the Procedures PN will announce this methodology.

327. We also could adopt a dynamic version of reserve prices, a variation on reserve prices that would set dynamic maximum prices based on bidding in the auction. Under this rule, the amounts offered will be calculated for each licensee based on specific factors that affect the value of its voluntary relinquishment of spectrum usage rights. Thereafter, a licensee interested in potentially exercising any of the bid options will file a pre-auction application to participate in the reverse auction. Qualified applicants for the reverse auction will then indicate, in the initialization step, the relinquishment options they would be willing to accept at the opening prices. Parties addressing opening and reserve prices generally express concern that prices be high enough to attract broadcaster participation, and these rules will facilitate the Commission's ability to do so. In particular, using dynamic reserve prices could address the risk that setting the opening prices too high will prevent the auction from repurposing spectrum by establishing a

mechanism that will allow price offers to be reduced in non-competitive areas based on bids in other areas.

328. We also adopt a rule expressly providing that a bid in the reverse auction is an unconditional, irrevocable offer by the bidder to fulfill the terms of the bid. That is, a bidder that indicates it is willing to accept a price for a bid option is obligated to relinquish those rights at that price, if the bid is selected by the auction system as a winning bid. Such a provision is fundamental to the incentive auction process in order to ensure that broadcasters will bid truthfully in the reverse auction and to provide certainty to forward auction bidders. We decline to adopt opposing proposals that would allow reverse auction bidders to revoke bids after making them. Accordingly, a bidder will have a binding obligation to fulfill the terms of a winning bid.

C. Forward Auction

1. Pre-Auction Process

a. Competitive Bidding Authority

329. The Spectrum Act mandates that the Commission shall conduct a forward auction to assign licenses to authorize the use of repurposed spectrum as part of an incentive auction of broadcast television spectrum. See Spectrum Act § 6403(c)(1). The Spectrum Act did not revise section 309(j)(1) of the Communications Act, which requires the Commission to use competitive bidding to assign licenses when "mutually exclusive applications are accepted for any initial license," subject to the Commission's obligation in the public interest to avoid mutual exclusivity in application and licensing proceedings and subject to specified exemptions not applicable here. See 47 U.S.C. §§ 309(j)(1)–(2), (j)(6)(E).

330. In the NPRM, the Commission sought comment on how to apply the section 309(j)(1) requirement of mutual exclusivity in the context of the broadcast television spectrum forward auction. Inherent in the forward auction are a number of features that distinguish it from

past spectrum license auctions. First, the Spectrum Act expressly ties the success of the reverse auction to generation of specified "minimum proceeds" from the forward auction. See Spectrum Act § 6403(c)(2). As a result, forward auction bids cannot be used to assign flexible-use wireless licenses unless the sum of all forward auction bids is sufficient to meet the costs and expenses identified by the Spectrum Act, as determined in part by the reverse auction. Second, at the outset of the reverse and forward auctions, there is a conflict between the current use of UHF band spectrum by reverse auction bidders (existing broadcast television licensees) and the future use of any portion of the spectrum by forward auction bidders (new flexible-use licensees), which only the conduct of both the reverse and the forward auctions can resolve. These interdependencies make it unclear at the outset of the forward auction exactly how many (if any) blocks of repurposed spectrum will ultimately be made available in any given market.

331. We interpret our competitive bidding authority under section 309(j)(1) in light of these features of the broadcast television spectrum incentive auction mandated by the Spectrum Act, and in a manner that is consistent with, and that will give full effect to, that mandate. Accordingly, we conclude that the Commission has authority in the section 6403 forward auction to conduct competitive bidding if it accepts any application(s) seeking to bid on initial 600 MHz flexible-use licenses, and any application(s) seeking to bid in the reverse auction. Our determination does not preclude finding other bases for our competitive bidding authority under section 309(j)(1). The Spectrum Act requires that "at least two competing licensees participate in the reverse auction." See Spectrum Act § 6402. This additional requirement will be satisfied if more than one broadcast television licensee's pre-auction application is found to be complete and in compliance with the application rules, and if at least two such licensees are not commonly controlled. We reject the suggestion that more than one forward auction bidder must make a bid on specific available reallocated spectrum to satisfy section 309(j)(1) of the Communications

Act. We conclude that our interpretation best accords with canons of statutory construction requiring that statutes be read in light of their purpose, and that normally the specific governs the general.

332. In section 6403, Congress directed in plain language that the Commission "shall conduct a forward auction" for spectrum reallocated from broadcast use. See Spectrum Act § 6403(c)(1). With respect to other frequency bands specifically subject to auction pursuant to the Spectrum Act, Congress referred more generally to the use of "a system of competitive bidding under section 309(j)." See Spectrum Act § 6103(a)(2). We need not address here how to apply section 309(j)(1) in other contexts, but the intention of Congress in section 6403 is clear. We also construe that mandate as reflecting a recognition of the special features of the incentive auction. These include the interdependence of the reverse and forward auctions and our resulting inability to make determinations at the outset about whether and in what markets requests for interchangeable channels exceed supply, due to the mutually exclusive uses of the spectrum presented by existing licensees and any parties licensed based on the forward auction; and the contingency of the success of the reverse auction on the proceeds to be derived from permitting the forward auction to proceed, making our acceptance of forward auction bids dependent on the sum of all forward auction bids. We thus also conclude that our interpretation of the statutory scheme is "necessary to effectively implement" the incentive auction mandate established by Congress. See Benkelman Tel. Co., 220 F.3d 601, 605–06 (D.C. Cir. 2000).

b. Bidding Credits

333. The Commission proposed in the NPRM to adopt the same small business size standards for the forward auction component of the incentive auction as it adopted for the adjacent 700 MHz Band. The Commission also proposed to extend any rules and policies adopted in the spectrum over Tribal lands proceeding, including those related to Tribal land

bidding credits, to any licenses that may be issued through competitive bidding in the forward auction.

334. Certain commenters requested that we modify our existing rules regarding bidding credits specifically for the incentive auction. As our designated entity rules include generally applicable provisions regarding size-based eligibility and corresponding bidding preference, we decline to adopt modifications specific to the incentive auction. Instead, we will initiate a separate proceeding to examine our designated entity ("DE") program generally. Our goal is to resolve that DE proceeding early enough to allow all parties to account for any changes to the DE rules while planning for the incentive auction.

335. Pending the outcome of the DE proceeding, which will allow the Commission to develop a more complete record, we today adopt the same business size standards and associated bidding credits for small businesses as the Commission did for the 700 MHz Band. In the DE proceeding, we will revisit and consider changing these business size standards and bidding credits. Specifically, for the purpose of the forward auction, we will define 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. We adopt these size standards and associated bidding credits in light of the similarities with wireless licenses already assigned in the 700 MHz Band, based on the record established to date and our existing designated entity rules. Due to their proximity, these bands have similar propagation characteristics. In addition, the technical rules we adopt for the 600 MHz Band are based on the rules for 700 MHz spectrum, with specific additions or modifications designed to protect certain

incumbent licensees and unlicensed users. In light of these similarities, licensees utilizing the 600 MHz Band may face issues and costs similar to licensees utilizing the 700 MHz Band, including issues and costs related to developing markets, technologies, and services. Accordingly, at this time it is appropriate to adopt the same size standards and associated bidding credits for the 600 MHz Band as the Commission adopted for the 700 MHz Band.

336. We set the revenue threshold (i.e., bidding credit eligibility) at $40 million for small businesses and $15 million for very small businesses, and we decline to adopt at this time additional tiers or larger bidding credits than those proposed in the NPRM. Commenters in this proceeding have not presented specific and data supported grounds to warrant adopting for the 600 MHz Band additional tiers or larger bidding credits than those adopted for the 700 MHz Band. As with licenses offered recently in AWS and the 700 MHz Band, a significant number of licenses offered in the forward auction will be for small geographic areas and will provide small businesses with ample opportunities to win licenses with the two bidding credits (i.e., 15 percent and 25 percent) we adopt in the Order. Due to the similar physical characteristics and similar regulatory treatment of the 600 MHz and 700 MHz Bands, we expect the capital requirements for services in the 600 MHz Band to be very similar to those for 700 MHz services.

337. We also decline to adopt at this time proposals to adopt a scale of bidding credits for the 600 MHz Band based on an entity's spectrum holdings in a particular geographic area in lieu of credits based on small business size. These proposals fundamentally involve issues of spectrum aggregation policy because the commenters advocate them to achieve the same purposes as the Commission traditionally has sought to achieve through spectrum aggregation policies. Spectrum aggregation issues are addressed in a separate proceeding.

338. We also decline to adopt at this time new rural bidding credits for the 600 MHz Band in addition to the small bidding credits for the 600 MHz Band. The record in this

proceeding does not provide a sufficient basis to revisit prior determinations on this subject matter. Further, the record does not support at this time adopting new bidding credits based on past service to rural areas.

339. Further, we decline to issue a Further NPRM in this proceeding regarding an Overcoming Disadvantages Preference, as one commenter requests. As part of the DE proceeding, the Commission will likely consider whether any revisions made to the designated entity rules, including any preference for overcoming disadvantages, should apply to auctions, including the broadcast television spectrum incentive auction.

340. We decline proposals by commenters to act in this proceeding to modify or eliminate the attributable material relationship ("AMR") rule, in the Order. We expect to generally re-examine the AMR rule, as well as other potential changes to the designated entity program, as part of the DE proceeding. In light of that proceeding, and limited record support applicable solely to the 600 MHz Band, we therefore decline to modify the AMR rule at this time. In the DE proceeding we will seek comment on how any revisions to the designated entity rules should apply to the incentive auction.

341. Finally, we adopt the NPRM proposal to extend any rules and policies adopted in the spectrum over Tribal lands proceeding, including those related to Tribal land bidding credits, to any licenses that may be issued through competitive bidding in the forward auction. Thus, we defer the application of any rules and policies for facilitating access to spectrum and the provision of service to Tribal lands to the Tribal lands proceeding. Because that proceeding is specifically focused on promoting greater use of spectrum over Tribal lands, it is better suited than the instant proceeding to reach conclusions on that issue.

c. Prohibition of Certain Communications

342. In the NPRM, the Commission sought comment on how to determine which parties

are "competing" in the forward auction for the purposes of enforcing the existing communications prohibition, whether to prohibit reverse auction applicants from communicating with forward auction applicants regarding the substance of their bids or bidding strategies, and whether the prohibition should apply to communications with all broadcast television licensees as opposed to only those licensees that submit applications to participate in the reverse auction.

343. The Order applies to forward auction applicants the Commission's existing Part 1 rule prohibiting certain communications. Under this rule, after the short-form application filing deadline, all applicants for licenses in any of the same geographic license areas are prohibited from cooperating or collaborating with respect to, discussing with each other, or disclosing to each other in any manner the substance of their own, or each other's, or any other competing applicants' bids or bidding strategies until after the down payment deadline, unless such applicants are members of a bidding consortium or other joint bidding arrangement identified on the bidder's short-form application, subject to certain specified exceptions. Two forward auction applicants are "competing" for the purposes of this prohibition if they apply for licenses in any of the same geographic license areas, regardless of whether the licenses are for specific frequencies or generic blocks. Thus, this prohibition applies only to forward auction applicants that apply for licenses in the same geographic license area, and not to those that apply only in different geographic license areas.

344. In addition, beginning on the short-form application filing deadline for the forward auction and until the results of the incentive auction have been announced by public notice, all forward auction applicants are prohibited from communicating directly or indirectly any incentive auction applicant's bids or bidding strategies to any covered television licensee, comprising generally all broadcast television licensees that are or could become eligible to participate in the reverse auction and all channel sharers. Applying the prohibition across the

reverse and forward auctions will promote a fair and competitive auction. This restriction will inhibit the ability of forward auction applicants and covered television licensees to form side agreements, which could have anticompetitive effects and could alter the outcome of the incentive auction.

345. Under this restriction, forward auction applicants are prohibited from communicating with all covered television licensees regarding incentive auction applicants' bids and bidding strategies, not just those broadcast television licensees that actually apply to participate in the reverse auction. Given the Commission's statutory obligation to protect the identities of reverse auction participants, it is not practicable to limit the prohibition to communications with reverse auction applicants because doing so would require disclosing the identities of those reverse auction applicants to the forward auction applicants. This prohibition restricting communications across the reverse and forward auctions is not limited by geographic area. Given that the results of the reverse auction for one participant may have effects across multiple geographic areas, it is appropriate to prohibit forward auction applicants from communicating prohibited information to any covered television licensee, regardless of the broadcast television licensee's geographic location.

346. We adopt one exception to the rule prohibiting forward auction applicants from communicating with any covered television licensee regarding incentive auction applicants' bids or bidding strategies. In recognition of the practical realities of business ownership and management and to allow strategic coordination within a single enterprise during the incentive auction, if a controlling interest, director, officer, or holder of any 10 percent or greater ownership interest in a forward auction applicant is also a controlling interest, director, officer, or governing board member of a covered television licensee, the forward auction applicant and the covered television licensee may communicate with each other regarding incentive auction

applicants' bids and bidding strategies without violating the prohibition. Controlling interests include individuals or entities with positive or negative de jure or de facto control of the licensee. As with respect to the reverse auction, this exception for overlapping interests only applies to controlling interests, directors, officers, and governing board members of a covered television licensee as of the deadline for submitting applications to participate in the reverse auction, and it only applies to controlling interests, directors, officers, and holders of any 10 percent or greater ownership interest in a forward auction applicant as of the deadline for submitting short-form applications to participate in the forward auction. We emphasize that this exception applies only to a forward auction applicant's discussions with a covered television licensee, and does not apply to a forward auction applicant's discussions with a competing forward auction applicant. Additionally, the prohibition across the reverse and forward auctions applies as of the deadline for submitting short-form applications to participate in the forward auction, and applies to any additional included parties at any subsequent point prior to when the prohibition ends. Thus, if, for example, a forward auction applicant appoints a new officer after the short-form application deadline, that new officer would be subject to the prohibition, but would not be included within this exception.

347. We decline to adopt a general exception allowing forward auction applicants to communicate with covered television licensees regarding incentive auction applicants' bids and bidding strategies so long as agreements between the relevant parties are disclosed to the Commission.

348. For the purposes of the new rule that we adopt here, we will apply the same definition of forward auction "applicant" that applies to the rule for spectrum license auctions generally, and that will apply to communications between forward auction applicants. See 47 CFR 1.2105(c)(7)(i). That definition provides that the term "applicant" includes all controlling

interests in the entity submitting the short-form application, as well as all holders of partnership and other ownership interests and any stock interest amounting to 10 percent or more of the entity, or outstanding stock, or outstanding voting stock of the entity, and all officers and directors of the entity. We decline to amend the definition of "applicant" so that the prohibition would apply only to controlling equity interest holders, as opposed to 10 percent interest holders. Ten percent interest holders may easily become conduits of information, and as a result, we will continue to apply the prophylactic prohibition of certain communications to such interest holders in order to prevent anticompetitive communications.

349. Consistent with the approach we have taken in spectrum license auctions generally, forward auction applicants may continue to communicate with covered television licensees and competing forward auction applicants regarding matters wholly unrelated to the incentive auction. We rely on existing precedent regarding the types of communications that rise to the level of prohibited communications under the rules. We emphasize that the rules prohibiting certain communications are limited in scope and only prohibit disclosure of information that affects, or has the potential to affect, bids and bidding strategies. Forward auction applicants may structure their auction participation as needed to avoid violating the rules, such as by instituting internal controls with respect to information about bids and bidding strategies. For instance, although it would not outweigh specific evidence of prohibited communications, a forward auction applicant could reduce the possibility of a violation by preventing employees with information about bids and bidding strategies from communicating such information to other employees who are engaging in unrelated negotiations with competing forward auction applicants or with covered television licensees.

350. The new rules prohibiting certain communications across the reverse and forward auctions apply until the results of the incentive auction have been announced by public notice.

Allowing communications between forward auction applicants and covered television licensees after the announcement of auction results will facilitate the UHF band transition. The existing Part 1 rule prohibiting certain communications between competing forward auction applicants applies until after the down payment deadline. Applying the prohibition to communications between forward auction applicants for the limited additional time period from the effective date until after the down payment deadline will protect the outcome of the auction and will impose only a minimum additional burden on forward auction applicants.

351. Any party that makes or receives a prohibited communication regarding bids or bidding strategies shall report such communication in writing to the Commission immediately, and in no case later than five business days after the communication occurs. See 47 CFR 1.2105(c)(6). A failure to make a timely report constitutes a continuing violation. Parties must adhere to any applicable antitrust laws, including any additional communications restrictions. Where specific instances of collusion in the competitive bidding process are alleged, the Commission may conduct an investigation or refer such complaints to DOJ for investigation. Parties who are found to have violated the antitrust laws or the Commission's rules in connection with participation in the auction process may be subject to forfeiture of their upfront payment, down payment, or full bid amount and revocation of their license(s), and may be prohibited from participating in future auctions.

d. National Security Certification

352. In accordance with the NPRM, we revise the recently adopted national security certification to extend its applicability to auctions "in which any spectrum usage rights for which licenses are being assigned were made available under [47 U.S.C. § 309(j)(8)(G)(i)]." See Spectrum Act § 6004(b)(2). As the Commission will conduct the forward auction under its general competitive bidding rules and the forward auction is subject to the national security

restriction in section 6004 of the Spectrum Act, forward auction applicants must certify as to their compliance with the national security restriction in 47 CFR 1.2105(a), as amended. As with other required certifications, a forward auction applicant that fails to certify, under penalty of perjury, that it and all of the related individuals and entities required to be disclosed on the short-form application are not "person[s] who [have] been, for reasons of national security, barred by any agency of the Federal Government from bidding on a contract, participating in an auction, or receiving a grant" by the applicable filing deadline would render its short-form application unacceptable for filing, and its application would be dismissed with prejudice. See Spectrum Act § 6004.

2. Bidding Process

a. Bid Collection Procedures: Auction Format, Generic License Categories, Etc.

353. The NPRM proposed to collect bids using one of two multiple round auction format options: a simultaneous multiple round ("SMR") ascending auction, which typically has been used for spectrum license auctions, or an ascending clock auction. Under the clock auction format, the auction system would announce a price for the licenses in each category within a geographic area and a bidder would indicate the number of licenses it was interested in at that price in that category. In a clock auction, the Commission proposed to permit intra-round bidding, in which a bidder could indicate a specific price at which its demand for licenses in a category would change, instead of simply accepting or rejecting the clock price. The Commission also asked about providing for package bidding, which would allow bidders to bid on all-or-nothing packages of licenses. The Commission noted that extended bidding could be implemented if proceeds were insufficient to meet the requirements to close the auction.

354. Noting that auction design has evolved since the existing Part 1 rules for competitive

bidding with respect to spectrum licenses were adopted, the Commission also proposed to revise the rules, in part to provide explicitly for auction procedures directly addressing bid collection.

355. For the forward auction, in the Order we adopt an ascending clock auction to collect bids for categories of generic licenses, to be followed by a separate assignment mechanism to assign frequency-specific licenses. In referring to "generic licenses" we are not referring to the actual licenses that will be assigned to winning bidders, but to standardized blocks of spectrum that will be sued to represent quantities of licenses for a time during the bidding process. We also adopt the proposal for extended round bidding under certain circumstances. In addition, we adopt the proposed Part 1 rule revision with respect to bid collection procedures to update our rules and create a consistent framework for addressing these procedures in reverse and forward auctions. The bid collection procedures we adopt for the forward auction are not inconsistent with the Commission's existing competitive bidding rules. We find, however, that the revised rules provide greater clarity with respect to the options likely to be used. For example, as revised in this proceeding, 47 CFR 1.2103(b)(1)(ii) expressly provides for procedures allowing for, among other things, bids for a number of generic items in one or more categories of items. We make a corresponding revision expressly providing that an application may identify categories of licenses on which the applicant wishes to bid.

356. Because the components of the auction are interrelated, a more expeditious forward auction benefits reverse auction bidders as well as forward auction bidders, and lowers participation costs for all. Conducting bidding for generic licenses has the potential to significantly speed up the clock rounds of the forward auction bidding process, since bidders will not need to bid iteratively across rounds on several substitutable license blocks, as they would if they were bidding for frequency-specific licenses. The clock auction format we adopt easily incorporates bidding for categories of generic licenses, and because it has multiple rounds, will

allow bidders to observe changes in relative prices for different types of licenses and across different geographic areas, and to adjust their bidding strategies accordingly.

357. Although commenters generally support bidding for generic licenses, some caution that the blocks of spectrum within a license category must be truly fungible, or at least sufficiently similar. While we agree that it is important for licenses in a category to be similar, they need not be entirely interchangeable, as the assignment round will take into account specific bidder preferences for licenses within a category. We recognize that we may need to consider a number of factors, such as proximity to television stations or guard bands, in order to define whether particular licenses are "similar enough" to be included in a single bidding category. During the pre-auction process, in response to the Comment PN, potential bidders will be able to provide input on specific standards for categories of generic licenses.

358. The ascending clock auction format will proceed in a series of rounds, with bidding being conducted simultaneously for all licenses available in the auction. Section 1.2103(b)(1)(i), as revised in this proceeding, provides for collecting bids in a single round or in multiple rounds. The initial price for generic licenses in a category and geographic area will be the minimum opening bid. Hence, in the initial round, a bidder will indicate how many generic licenses in a category in an area it demands at the minimum opening bid price. Bidding rounds will be open for predetermined periods of time, during which bidders will indicate their demands for licenses at the clock prices associated with the current round. Bidders will be subject to activity and eligibility rules that govern the pace at which they participate in the auction. Activity and eligibility rules, as with other detailed procedures and mechanisms, will be established in the Procedures PN.

359. In each geographic area, the clock price for a license category will increase from round to round if bidders indicate total demand that exceeds the number of licenses available in

the category. The clock rounds will continue until, for all categories of licenses in all geographic areas, the number of licenses demanded does not exceed the supply of available licenses. At that point, those bidders indicating demand for a license in a category at the final clock price will be deemed winning bidders, contingent upon the incentive auction process closing after the current stage of the forward auction. In the context of the forward auction, we use the term "provisional winner" to indicate that winning bid status depends upon the final stage rule of the incentive auction being satisfied. The clock auction will not assign explicit provisionally winning bid status, as in an SMR auction, to indicate a standing high bid.

360. We will incorporate intra-round bidding into the ascending clock auction. Intra-round bidding will allow a bidder not willing to accept the next round's clock price to indicate a point between the previous round's price and the next clock price at which its demand for licenses in the category changes. Intra-round bidding will allow the auction to proceed more quickly, by making it possible to use relatively large clock price increments without running the risk that a large jump in price will overshoot bidders' demands for licenses in a category.

361. We do not intend to incorporate package bidding procedures into the forward auction because of the additional complexity that package bidding would introduce into the auction. Package bidding procedures would permit bidding on all-or-nothing groups of licenses as well as on individual items within those groups. The forward auction will offer multiple blocks of licenses in multiple categories in many hundreds of geographic areas. To permit bidders to bid on combinations of those licenses would considerably complicate the bidding process and the procedures to determine clock prices and winning bids and it could bring unnecessary complexity into an already complex auction.

362. An alternative to package bidding on which the Comment PN will seek input may strike a compromise between the larger carriers' interests in ensuring a minimum scale of

operations in urban areas and smaller bidders' interests in smaller markets. Under this alternative, the Commission would create an aggregation of the largest PEA licenses. A bidder could indicate interest in the aggregated PEAs or in individual PEAs not included in the aggregation. Unlike package bidding formats that would give a bidder the option of placing an all-or-nothing package bid on a group of licenses or bidding separately on the licenses comprising the package, bids would not be accepted for the individual PEAs included in the aggregation of PEAs.

363. Section 1.2103(b)(1)(v), as revised in this proceeding, provides for collecting bids in any needed additional stage or stages following an initial single or multiple round auction, such as an extended bidding round or an assignment stage for generic items. We may conduct an extended round of bidding after the clock bidding rounds to increase the likelihood that the auction will conclude at the end of the current stage, thereby avoiding the need to move to another stage in which less spectrum would be available for licensing in the forward auction. If, at the end of the clock bidding rounds, the proceeds raised are insufficient to satisfy the final stage rule, but are within some range of the required amount, an extended bidding round would allow the provisionally winning bidders to indicate willingness to accept higher prices to close the gap. The specific circumstances, including the range of proceeds, that will trigger an extended bidding round will be discussed in more detail and established in the pre-auction process. Any such subsequent bidding will not by itself change the set of provisional license winners.

b. Bid Assignment Procedures: Determining Winning Bidders and Assigning Frequency-Specific Licenses

364. The Commission proposed in the NPRM to revise its existing rules, in part, to provide explicitly for auction procedures directly addressing bid assignment procedures. In the

Order we adopt a two-step assignment procedure for the forward auction: the clock rounds will first determine that a bidder will win one or more generic licenses in a category, and an assignment mechanism subsequently will determine specific frequency assignments. This two-step process will give bidders the benefits of price discovery in the clock rounds, permitting them to shift bidding strategies as the relative prices of different categories of licenses change, while still realizing the speed advantages of bidding for generic licenses. Knowing that the assignment mechanism will enable them to express preferences for frequency-specific licenses, bidders will be able to bid more confidently for generic licenses in the clock rounds. We also revise the Part 1 rule concerning bid assignment procedures to create a consistent framework for addressing these procedures in the reverse and forward auctions. The assignment procedures likely to be used in the forward auction are consistent with the Commission's existing competitive bidding rule. We find, however, that the revised rule provides greater clarity with respect to the options likely to be used. For example, as revised in this proceeding, 47 CFR 1.2103(b)(2) expressly authorizes an auction in which the assignment of winning bids is based on a variety of factors in addition to the submitted bid amount, including but not limited to bids submitted in a separate competitive bidding process, such as an auction to establish incentive payments for the relinquishment of spectrum usage rights—i.e., the reverse auction.

365. During the first step of the assignment procedure, the clock rounds will end in a stage with bidders winning generic licenses in each category of licenses in each geographic area, contingent on the final stage rule being satisfied. If the final stage rule is satisfied, the second step of the assignment procedure will assign specific frequencies to the winning bidders through the special assignment mechanism. If the rule is not satisfied in a stage of the forward auction, then the special assignment mechanism will not be run in that stage.

366. The assignment mechanism will consist of a single bidding round, or a series of

separate bidding rounds, in which bidders will bid for priority in selecting bands or for a preferred frequency within a geographic area. The winning clock price could include a payment determined in an extended round of bidding. The frequency preferences of the bidders willing to pay the highest premiums will be honored, to the extent technically possible. The payment rule for the assignment round will be determined in the Procedures PN.

367. The use of a competitive bidding round will give bidders an opportunity to indicate their preferences for specific frequencies, facilitating the assignment of specific frequencies to the highest-valuing users. Although suggested by several commenters, an administrative, random, or quasi-random assignment process would not have this advantage of taking users' particular preferences into account and thus may undermine the efficiency of the ultimate license assignments. We therefore decline to adopt those proposals.

c. Procedures to Determine Payments

368. In the NPRM, the Commission proposed to revise the existing Part 1 competitive bidding rules to provide explicitly for procedures to determine payments through the extended and assignment rounds.

369. In the Order we determine that the final prices winning bidders in the forward auction will pay for spectrum licenses will be based on the final clock prices for generic licenses, modified by any additional payments determined in an extended round aimed at satisfying the final stage rule and in the assignment round to assign frequency-specific licenses. The assignment round will serve important auction goals by allowing bidding on generic licenses during the clock rounds, thereby expediting the forward auction bidding process. Likewise, the extended bidding round may help to expedite the incentive auction by giving forward auction bidders the opportunity to satisfy the final stage rule and thereby avoid the need to run another stage of the auction.

370. We also revise the Commission's Part 1 rules governing payment determination procedures. Although the procedures in the forward auction will be consistent with the existing competitive bidding rule, 47 CFR 1.2103(b)(3), as revised in this proceeding, highlights the need for auction design to address payment rules and does so in terms that can be used consistently across Commission competitive bidding, including the forward auction component of incentive auctions and standard spectrum license auctions.

d. Additional Bidding Procedures

371. As noted in the NPRM, the Commission's existing Part 1 competitive bidding rules include, in addition to provisions regarding bid collection, bid assignment, and bid payment procedures, additional competitive bidding mechanisms for sequencing or grouping licenses offered; reserve prices, minimum opening bids and minimum or maximum bid increments; stopping or activity rules; and payments in the event of bid withdrawal, default, or disqualification. Noting that the rules did not exhaustively list all potential bidding mechanisms, the Commission proposed to revise the list of options set forth in section 1.2103. It further proposed to revise its rules for stopping an auction to permit it to terminate multiple round auctions within a reasonable time and in accordance with the goals, statutory requirements, and rules for the incentive auction, including the reserve price or prices.

372. In the Order we adopt the proposal to revise the Commission's competitive bidding rules with respect to auction design options and competitive bidding mechanisms. The Order makes clarifying edits to the text of the proposed rules set forth in the NPRM without changing their substance. We also change the rule regarding the contents of applications to participate in the forward auction regarding the identification of categories of licenses on which the applicant wishes to bid and with respect to certifications the application must include. Likewise, we modify the language of the rule regarding upfront payments so that it can be applied to

circumstances in which an applicant identifies categories of licenses on which it wishes to bid rather than particular licenses, we move language regarding bid apportionment previously contained in 47 CFR 1.2103 to 1.2104, and we update cross-references contained in other sections as needed. These revisions are essential to assuring consistency in the framework for the reverse and forward auctions.

373. Many of the auction procedures and mechanisms addressed in the revised rules will be the subject of more fully informed discussion during the upcoming pre-auction process. The Commission's rules provide for the applicable procedures to be finalized in the pre-auction process, including procedures for bid withdrawal, procedures for modifying bids during the auction, and potential liabilities for bid withdrawal.

3. Deletion of Outdated 1.2102(c)

374. In the NPRM, the Commission proposed deleting 47 CFR 1.2102(c), a list specifically exempting from competitive bidding identified services, such as UHF Television. Footnote 423 of the NPRM should have read "propose to delete," rather than "delete" given the procedural context. Further, given the statutory limitations on competitive bidding, the footnote should have noted that "the services" listed in 47 CFR 1.2102(c) "are subject to competitive bidding" and exceptions therefrom "under current law."

375. In the Order, we delete 47 CFR 1.2102(c), which was adopted prior to the Balanced Budget Act of 1997, mandating the use of competitive bidding in circumstances where it was previously discretionary, while also adopting specified exemptions from that mandate. The Commission codified the statute's current categorical exemption in 47 CFR 1.2102(b). One commenter contends that the proposed deletion would subject Part 90 Private Land Mobile services to competitive bidding notwithstanding the exemption from competitive bidding provided by the Communications Act, specifically section 309(j)(2). See 47 U.S.C. § 309(j)(2).

However, that argument overlooks the fact that 47 CFR 1.2102(b) separately codifies the protections afforded under section 309(j)(2) of the Communications Act. Thus, the proposed deletion would not change the extent to which the Part 90 licensees are subject to competitive bidding. Instead, it simply brings the Commission's rules into accord with the statute. Another commenter expresses concern about the effect on the exemption from competitive bidding of Personal Radio Services under Part 95 if 47 CFR 1.2102(c)(8) is deleted. However, since 47 CFR 1.2102(c) has been superseded by revisions to sections 309(j)(1) and (2) of the Communications Act, the deletion of 47 CFR 1.2102(c) will not change the extent to which services, including Part 95 Personal Radio Services, are subject to competitive bidding under the current statute.

IV. THE POST-INCENTIVE AUCTION TRANSITION

A. Auction Completion and Effective Date of the Repacking Process

376. The Spectrum Act directs that no reassignments or reallocations may become effective until the completion of the reverse auction and the forward auction. See Spectrum Act § 6403(f)(2). In addition, no reassignments or reallocations of broadcast television spectrum may become effective unless the proceeds of the forward auction exceed the sum specified in Spectrum Act § 6403(c)(2). After the reverse and forward auctions are "complet[e]," the "effective" date of any spectrum reassignments and reallocations signals the end of the statutory confidentiality requirement for reverse auction participants, as well as the beginning of the Commission's authority to borrow up to $1 billion from the U.S. Treasury to accelerate relocation payments to broadcasters and MVPDs for repacking expenses. See Spectrum Act §§ 6403(f)(2), (a)(3), (d)(3). In addition, the FCC must make any relocation reimbursements from the TV Broadcaster Relocation Fund ("Reimbursement Fund") within three years of the completion of the forward auction. See Spectrum Act §§ 6403(b)(4)(D), (d)(4).

377. In the Order we adopt the proposal from the NPRM that the reverse and forward auctions will each be "complete" within the meaning of the Spectrum Act when a public notice announces that each auction, respectively, has ended. In addition, the reassignments and reallocations will be "effective" for purposes of the statute when the Media and Wireless Bureaus release the Channel Reassignment PN specifying the new channel assignments and technical parameters of any stations that are assigned new channels in the repacking process or that become winning bidders in the reverse auction to change channels. This approach is consistent with the common meaning of the terms complete and effective, with the typical practice of issuing a public notice announcing the results of each auction as soon as the results have been finalized, and with the practical requirements of the UHF band transition. We anticipate that the public announcements regarding completion of the reverse auction, completion of the forward auction, and the effective date of the reassignments and reallocations will occur simultaneously and may be combined in one public notice, if practicable.

378. We decline to adopt broadcasters' suggestion to delay the completion of the forward auction until after broadcast stations reassigned to new channels in the repacking process file applications for construction permits to change channels and forward auction licenses have been issued. Broadcasters assert that this approach would allow them more time to finish relocating before the end of the three-year deadline for collecting relocation reimbursements from the Reimbursement Fund. Although we recognize that the three-year deadline for reimbursements will be challenging, the rules that we adopt today for administration of the Reimbursement Fund, which provide for payments to broadcasters and MVPDs based on their estimated costs, will help to ameliorate concerns about that deadline. Moreover, we conclude that the term "completion," used in section 6403(b)(4)(D) in the context of conducting the forward auction, cannot reasonably be interpreted to refer to when repacked broadcasters file construction permit

applications.

379. The approach suggested by broadcasters also would have a number of negative consequences for the UHF band transition. The Spectrum Act directs that no reassignments or reallocations may become effective until the completion of the reverse auction and the forward auction, so we would have to require broadcasters to file applications for construction permits to change channels before the reassignments and reallocations become effective, injecting uncertainty into the UHF band transition. In addition, delaying the effective date would delay the Commission's ability to borrow $1 billion from the U.S. Treasury to expedite the reimbursement process. We do not believe that Congress intended to delay the Commission's access to the $1 billion loan because the very purpose of the loan is to expedite the availability of relocation funds. Further, delaying the effective date would prolong the statutory requirement that the Commission protect the confidentiality of the identities of reverse auction participants, thereby delaying the Commission's ability to release publicly the identities of the winning reverse auction bidders—a necessary prerequisite to the release of the channel reassignment information that broadcasters will need in order to file their applications for construction permits.

B. Processing of Bid Payments

380. In accordance with section 309(j)(8)(G)(i) of the Communications Act, the Commission will share with successful bidders that voluntarily relinquish licensed spectrum usage rights a portion of the forward auction proceeds "based on the value of [their] relinquished rights as determined in [a] reverse auction." Section 6403(c) of the Spectrum Act provides that the amount of the proceeds that the Commission will share with a broadcast television licensee will not be less than the amount of the licensee's winning bid in the reverse auction. The Commission proposed in the NPRM to incorporate these statutory requirements into the competitive bidding rules for the reverse auction and sought comment on timing and procedures

for auction proceeds disbursements.

381. The Commission must disburse winning bid payments by forward auction participants in compliance with statutory requirements. We will determine whether the final stage rule for the incentive auction is satisfied and reallocations and reassignments may proceed based on the winning bids in the forward auction. Payments that bidders then make to honor those bids must be distributed, specifically to fund: (1) payments to broadcasters relinquishing spectrum usage rights; (2) specified FCC administrative costs; (3) relocation costs to be funded through the Reimbursement Fund; and (4) the Public Safety Trust Fund ("PSTF"). See Spectrum Act §§ 6402, 6403(c)(2). The Spectrum Act does not specify a timetable for the distribution of auction proceeds, though it specifies some deadlines before which particular distributions must occur. See generally Spectrum Act § 6402; see also id. § 6403(d)(4).

382. One of the conditions of the final stage rule is that sufficient proceeds are recovered to meet statutory minimum requirements plus any amount necessary to fund the PSTF for FirstNet. We note that auction proceeds are comprised only of the payments of winning bids for spectrum licenses by participants in the forward auction. Upfront or pre-auction deposits or payments are applied toward liabilities incurred in the auction, returned to unsuccessful bidders, or applied toward the amount of winning bids and, therefore, do not provide a separate component of auction proceeds. See 47 U.S.C. § 309(j)(8)(C); 47 CFR 1.2106(d), (e).

383. We will share auction proceeds with broadcasters relinquishing spectrum usage rights as soon as practicable following the successful conclusion of the incentive auction, as suggested by several wireless carriers and trade groups. However, we will not adopt a rigid deadline for disbursing those proceeds. In all spectrum license auctions, the Commission disburses auction proceeds only after spectrum licenses associated with winning bids have been granted, absent express statutory direction to do otherwise. That is, only after the Commission

grants a spectrum license to a winning bidder does the Commission disburse any payments made in connection with the license to the FCC's administrative account or to the Treasury. The Commission does not disburse the upfront or down payments from winning bidders who default on their post-auction obligations prior to the issuance of their licenses. Furthermore, the Commission has granted spectrum licenses post-auction on a rolling basis, as license applications filed by winning bidders are ready to be granted. Any single application may cover up to all of the licenses won by the applicant and the associated winning bids may be in any amount, i.e., there is no fixed correlation between the number of applications and the number of licenses granted or the amount of related payments. Thus, amounts become available for distribution on a rolling basis over time and at intervals tied to the licensing process. Given these facts, a specific deadline for sharing proceeds is not feasible.

384. The Spectrum Act does not permit us to make reimbursement payments to relocated broadcasters before completion of the forward auction using funds collected as down payments from bidders in the forward auction, as suggested by one commenter. Section 6403(b)(4)(A) of the Spectrum Act directs the Commission to reimburse broadcasters "from amounts made available under [section 6403(d)(2)]," which includes two categories of "amounts": (1) "[a]ny amounts borrowed under [section 6403(d)(3)(A)]," and (2) "any amounts in the [Reimbursement Fund] that are not necessary for reimbursement of the general fund of the Treasury for such borrowed amounts." Neither source of funding will be available to the Commission until the forward auction is complete. With regard to the first category, under section 6403(d)(3)(A), the Commission has no borrowing authority until "the date when any reassignments or reallocations under [section 6403(b)(1)(B)] become effective, as provided in [section 6403(f)(2)]." Section 6403(f)(2) in turn provides that "no reassignments or reallocations under [section 6403(b)(1)(B)] shall become effective until the completion of the reverse auction . . . and the forward auction."

Thus, the statute prohibits reimbursements from the first category prior to the completion of the forward auction. With regard to the second category, there will be no auction proceeds to be deposited in the Reimbursement Fund prior to completion of the forward auction. The Spectrum Act provides that deposits and upfront payments from "successful bidders" constitute auction proceeds, but such "successful bidders" will not exist prior to the completion of the forward auction. See Spectrum Act § 6402. Cf. 47 U.S.C. § 309(j)(8)(C)(ii). Therefore, we do not have authority under the Spectrum Act to issue reimbursement payments to relocated broadcasters prior to the completion of the forward auction.

385. We are committed to disbursing auction proceeds as promptly as possible while meeting all of our statutory responsibilities. We do not interpret the Spectrum Act to require or prohibit prioritizing any particular initial distributions of auction proceeds over others. We note, however, that payments deposited in the Reimbursement Fund must repay any Treasury loan before funding additional relocation reimbursements. See Spectrum Act § 6403(d)(2). We expect that payments to broadcasters relinquishing spectrum usage rights will be among the first disbursements once amounts become available for distribution. This approach addresses one commenter's contention that broadcasters should not bear financial risks stemming from any forward auction licensing delays or forward auction bidder defaults.

386. With respect to relevant procedural matters, we also adopt the Commission's proposed rule incorporating the statutory requirements in section 309(j)(8)(G)(i) of the Communications Act and section 6403(c) of the Spectrum Act concerning incentive payments into our competitive bidding rules. In addition, we adopt the Commission's proposal to require successful bidders in the reverse auction to submit additional information to facilitate incentive payments. We note that the Commission's existing Part 1 competitive bidding rules will govern the post-forward auction process, including the submission of bid payments and long-form

applications. See 47 CFR 1.2107. Specific details concerning forward auction bid payments and long-form filing requirements, including related deadlines, will be set forth in a public notice.

387. As mentioned in the NPRM, we envision that the information would be submitted on standardized incentive payment forms similar to the Automated Clearing House ("ACH") forms unsuccessful bidders in typical spectrum license auctions use to request refunds of their deposits and upfront payments. This information collection is necessary to facilitate incentive payments and should not be burdensome to successful bidders. Specifically, without further instruction and bank account information from successful bidders, the Commission would not know where to send the incentive payments. The Commission intends to follow winning reverse auction bidders' payment instructions as set forth on their respective standardized incentive payment forms to the extent permitted by applicable law.

388. We will disburse payments to the licensee that is the reverse auction applicant when sharing proceeds from the auction. This approach will ensure that the person who legally holds the license receives forward auction proceeds in return for relinquishing spectrum usage rights. This decision is consistent with the Spectrum Act, which repeatedly refers to sharing forward auction proceeds with licensees.

389. The Commission did not receive comments directly addressing whether to modify its red light procedures in connection with the incentive auction. As a result, we are not modifying those procedures at this time.

C. Transition Procedures for Television Stations and Reimbursement Procedures for Television Stations and MVPDs

390. Implementing the results of the incentive auction will be a complex and challenging undertaking for broadcasters. No broadcaster will be required to change the location of its transmission facility, but operation on a new channel will require modifications to existing

facilities, ranging from relatively minor adjustments to more substantial changes depending on various factors. After the auction concludes and the results of the repacking process are announced, stations changing channels must be able to transition to their new channels in a manner that will minimize disruption to their viewers as well as other stations, wireless operators, and multichannel video programming distributors (MVPDs). In addition, the Spectrum Act specifies that reimbursements from the Fund must occur within three years of the completion of the forward auction, and this finite period necessitates a prompt and efficient reimbursement process.

1. License Modification Procedures

a. Construction Permit Application Filing Requirements

391. The Commission will modify the licenses of stations assigned new channels in the reverse auction or repacking process pursuant to Section 316 of the Communications Act and Section 6403(h) of the Spectrum Act. It will not use a codified Table of Allotments or rulemaking procedures to implement post-auction channel changes, and will classify construction permit applications for post-auction channels as minor changes. Unlike major change applications, minor change applications are not subject to local public notice requirements or a 30-day petition to deny filing window. The Commission delegates authority to the Media and Wireless Telecommunications Bureaus to release the Channel Reassignment PN upon the conclusion of the auction specifying the new channel assignments and technical parameters of any stations that are assigned new channels in the repacking process or that submit winning bids to change channels in the reverse auction. Stations that are reassigned in the repacking process or that submit winning UHF-to-VHF or high-VHF-to-low-VHF bids will be required to file minor change applications for construction permits using FCC Form 301, 301-CA, or 340. These initial minor change applications for construction permits, including

applications that propose alternative transmission facilities, will be exempt from filing fees. See 47 CFR 1.1116(a). However, an applicant requesting any additional modification will be subject to the appropriate fee. After the Commission completes the repacking and channel substitution process, the Media Bureau will resume using the current rulemaking process to make new channel allotments and will a proceeding to amend Section 73.622 of the rules to reflect all new full power channel assignments in a revised Table.

392. Issues that would be considered through the use of rulemaking and major change application procedures, such as preservation of service to existing viewers and compliance with interference and other technical rules, will be addressed through the repacking methodology used to generate new channel assignments. Use of a rulemaking process also would be burdensome, cause delays, and would be inconsistent with the goal of expeditiously implementing the results of the auction and repacking process. The use of minor change applications will help facilitate an expeditious post-auction transition because they can be processed more quickly than major changes.

393. Stations will be required to file minor change applications during a three-month filing window that will begin upon the release of the Channel Reassignment PN. This filing deadline will apply to all stations that are reassigned to a new channel in the repacking process or via a winning UHF-to-VHF or high-VHF-to-low-VHF bid, even if they wish to apply for an alternate channel or expanded facilities as discussed below. This period will provide stations with significantly more time to prepare their applications than the 45-day deadline that typically follows the conclusion of a channel change rulemaking proceeding. A longer filing period is appropriate because stations that are assigned new channels in the repacking process will have no prior input into the choice of channel. While stations may need more time to prepare their applications than is typically afforded for voluntary channel changes, a three-month filing period

will be adequate because the technical facilities stations must apply for will be specified in the Channel Reassignment PN and, consequently, the amount of engineering work stations will need to do before filing their applications will be limited. Stations unable to meet the three-month deadline for submission of their minor change application will have the option to seek a waiver no later than 30 days prior to the deadline. Any stations that are granted a waiver of the construction permit application deadline nonetheless will be required to complete their transition pursuant to the process and by the deadlines established below. The fact that a station intends to file for an alternate channel or expanded facility as set forth below would not constitute "good cause" for failing to meet the three-month filing deadline, except in those instances where it is impossible for the station to apply for the facility assigned in the repacking process. This could occur, for example, if a station is unable to construct the facility specified in the Channel Reassignment PN on the tower on which it is operating at the time the Public Notice is released. Because of the finite reimbursement period established in the Spectrum Act and the deadlines under which stations will be required to complete their transitions, stations are strongly encouraged to submit their applications by the three-month deadline, if possible.

394. Stations reassigned to different channels within their existing band will have the flexibility to propose transmission facilities in their initial construction permit applications that would slightly extend their coverage contour, as defined by the technical parameters specified in the Channel Reassignment PN. The Commission's repacking methodology will preserve stations' existing antenna azimuth patterns and locations (i.e., their geographic coordinates and antenna height). However, some stations may need to request a slightly different antenna pattern or slightly different location than specified in the Channel Reassignment PN that necessarily may result in a slightly larger coverage contour in some directions. Such deviations may be necessary, for example, because the original antenna model is not available on the reassigned

channel or because the dimensions of the new antenna necessitate a slightly different mounting location on a tower. Also, some stations reassigned to a different channel within their band may experience some loss in coverage area due to propagation differences between channels.

395. Accordingly, stations may propose transmission facilities in their initial construction permit applications that will increase their coverage contour if such facilities: (1) are necessary to achieve the coverage contour specified in the Channel Reassignment PN or to address loss of coverage area resulting from their new channel assignment; (2) will not extend a full power station's noise limited contour or a Class A station's protected contour by more than one percent in any direction; and (3) will not cause new interference, other than a rounding tolerance of 0.5 percent, to any other station. In proposing facilities under this option, stations will be required to use a manufactured antenna that has a pattern that closely conforms to the coverage area based on the technical parameters in the Channel Reassignment PN. A one percent coverage contour increase is de minimis and providing this flexibility will assist broadcasters in engineering their facilities and quickly transitioning to their new channels. Stations reassigned to a channel within the same band that wish to extend their contour area by more than one percent may do so as discussed below.

396. Due to antenna pattern variations between UHF and VHF antennas and between high VHF and low VHF antennas, some stations moving from the UHF to the VHF band or from the high VHF to the low VHF band may not be able to obtain an antenna that replicates the coverage contour reflected in the Channel Reassignment PN. Accordingly, stations moving to or between the VHF bands may specify an antenna that would result in a larger coverage contour than that resulting from the technical parameters specified in the Channel Reassignment PN, as long as the proposed facility will not cause new interference, other than a rounding tolerance of 0.5 percent, to any other station.

397. The Commission also will provide expedited processing for certain applications if a station's application meets all three of the following requirements: (1) it does not seek to expand the coverage area, as defined by the technical parameters specified in the Channel Reassignment PN, in any direction; (2) it seeks authorization for facilities that are no more than five percent smaller than those specified in the Channel Reassignment PN with respect to predicted population served; and (3) it is filed within the three-month deadline for submission of minor change applications. The Commission adopted the same expedited processing procedure with the same criteria during the DTV transition, which enabled the Media Bureau to quickly process a large percentage of the post-transition digital construction permit applications it received after adopting the post-transition Table of Allotments. Stations that propose transmission facilities in their initial construction permit applications that extend the coverage contour specified in the Channel Reassignment PN will not qualify for expedited processing.

b. Alternate Channel and Expanded Facilities Opportunities

398. Stations assigned to new channels in the repacking process as well as winning UHF-to-VHF and high-VHF-to-low-VHF bidders will have an opportunity to seek an alternate channel. Stations moving from a UHF to a VHF channel will not be permitted to request an alternate UHF channel. Allowing such requests would be directly contrary to the premise of UHF-to-VHF bids. For the same reason, stations submitting winning UHF-to-VHF bids that specify the high-VHF band or the low-VHF band, and stations submitting winning high-VHF-to-low-VHF bids, will not be permitted to request a channel outside of their assigned band. In some cases, a broadcaster may determine that a different channel will be more desirable or will make the transition process simpler and less costly. Stations assigned to new channels and winning UHF-to-VHF and high-VHF-to-low-VHF bidders may also apply for construction permits for "expanded facilities" on their new channels. "Expanded facilities" are those that propose a

change in height above average terrain, effective radiated power, or transmitter location that (i) would be considered a minor change under the Commission's rules; and (ii) in the case of a station reassigned to another channel within its existing band, would result in a change in such station's contour beyond one percent in any direction from the coverage area defined by the technical parameters specified in the Channel Reassignment PN. As a practical matter, stations' ability to identify an available alternate channel or to expand their facilities may be limited as a result of the repacking process. In general, if an application for an alternate channel or expanded facilities is granted, the deadline in the construction permit for the alternate channel or expanded facilities will be the same as the deadline in the station's initial construction permit. The Commission will consider granting longer construction periods for alternate channels or expanded facilities in situations where extenuating circumstances justify such an extension.

399. In view of the anticipated scarcity of available broadcast spectrum to accommodate proposals for alternate channels and expanded facilities following the repacking process, the Commission will give a filing priority to certain stations, including any station that demonstrates that it is unable to construct facilities that meet the technical parameters specified in the Channel Reassignment PN, or the permissible contour coverage variance discussed above, for reasons beyond its control. These stations will be required to demonstrate in a request for a waiver of the three-month filing deadline for initial construction permit applications that it was not possible to file an application that was in compliance with the technical parameters in the Channel Reassignment PN or with the flexibility to propose alternative transmission facilities discussed above, which require that a station apply for its new channel at its current transmission site. The Commission delegates authority to the Media Bureau to define other categories of stations that may be eligible for a filing priority due to extraordinary circumstances beyond a station's control. Stations qualifying for a priority may request either an alternate channel or expanded

facilities on their newly assigned channel. As is the case with all major and minor modification applications, stations filing for alternate channels or expanded facilities will be required to demonstrate that their proposals meet all existing technical and interference requirements and would serve the public interest. Moreover, modification applications filed by Class A stations will not be accepted if they fail to comply with the interference protection rules for Class A stations. A second filing opportunity will be offered to all other stations that are assigned new channels in the repacking process or that are winning UHF-to-VHF or high-VHF-to-low-VHF bidders to file for alternate channels or expanded facilities. Consistent with the Media Bureau's past practice in lifting filing freezes, applications filed during the first filing opportunity would be treated as cut-off as of the end of that filing period, and would be entitled to interference protection from subsequently filed applications.

400. A station seeking an alternate channel must submit a construction permit application on FCC Form 301, 301-CA, or 340. Some priority stations will not have an opportunity to submit an application for a construction permit during the initial three-month filing window. The initial construction permit applications of these stations for alternate channels or expanded facilities will not be subject to filing fees. An applicant requesting any additional modification, however, will be subject to the appropriate fee. Non-priority stations seeking alternate channels or expanded facilities will be subject to applicable filing fees. Unlike new channel assignments generated by the Commission in the repacking process, these alternate channel requests will be initiated by licensees without the benefit of the Commission's repacking methodology. Thus, applications for alternate channels will be considered major change applications and thus will be subject to local public notice requirements and a 30-day petition to deny filing window. Applications for expanded facilities on the channel assigned to a station in the Channel Reassignment PN are limited to minor changes.

401. The Commission delegates authority to the Media Bureau to issue public notices announcing filing opportunities for alternate channels and expanded facilities applications and specifying appropriate processing guidelines, including the standards to qualify for priority filing, "cut-off" protections, and means to avoid or resolve mutual exclusivity between applications. As discussed above, LPTV stations that were eligible for a Class A license but did not file an application for a Class A license until after February 22, 2012 will not be protected in repacking. If such a station obtains a Class A license and is displaced in the repacking process, it may file a displacement application during one of the filing opportunities for alternate channels. Except as indicated here, existing displacement rules will apply to such applications. See 47 CFR 73.3572(a)(4) and 74.787(a)(4). The Commission delegates authority to the Media Bureau to determine whether such stations should be permitted to file for new channels along with priority stations or in the second filing opportunity. The Commission anticipates that the first filing opportunity to be established by the Media Bureau will open after the staff substantially completes its processing of initial minor change construction permit applications following the release of the Channel Reassignment PN. After all stations that are reassigned new channels in the repacking process and successful UHF-to-VHF and high-VHF-to-low-VHF bidders have been given an opportunity to apply for alternate channels or expanded facilities, the Commission anticipates that the Media Bureau will lift other filing freezes now in place.

c. Channel Sharing Stations

402. The term "sharee" refers to a station that relinquishes its frequency to move to the frequency of a "sharer" station. More than two stations may share a channel. Thus, although there would be only one sharer in each channel sharing relationship, there could be multiple sharees. The licensees of channel sharing stations (i.e., both the sharer station and the sharee station(s)) will be required to submit license applications within three months after the sharee

stations receive their auction proceeds. The Commission delegates authority to the Media Bureau to amend FCC Forms 302 and 302-CA prior to the commencement of the auction to add a category for the licensing of shared channels. As discussed below, sharee stations will be required to terminate operations on their pre-auction channels by this deadline. This same deadline will apply regardless of whether the sharer station is assigned a new channel in the repacking process. While channel sharing stations that are reassigned to a new channel will be afforded a construction period before they must transition to their reassigned channel, there is no basis to delay the commencement of shared operations or the clearing of the sharee's channel. In the event the sharer station is assigned a new channel in the repacking process, all sharing stations will be required to jointly file a Form 301 minor change construction permit application consistent with requirements in the Construction Permit Application Filing Requirements Section. The Commission delegates authority to the Media Bureau to amend FCC Forms 301, 301-CA, and 340 prior to the commencement of the auction to add a category for the licensing of shared channels. Upon grant of such license applications, Commission staff will issue each station in a sharing arrangement a new license indicating "shared" status through the use of an "S," designating the shared channel as the operating frequency for each station, specifying each station's class of service (i.e., commercial full power, NCE, or Class A), and indicating a sharee station's new community of license where appropriate.

2. Construction Schedule and Deadlines

403. The Commission concluded that the record in the proceeding shows the need for a post-incentive auction transition timetable that is flexible for broadcasters and that minimizes disruption to viewers. At the same time, the transition schedule must provide certainty to wireless providers and be completed as expeditiously as possible. With these goals in mind, the Commission adopted a 39-month transition period (the Broadcast Transition Period) for

broadcasters that are assigned new channels in the repacking process and winning UHF-to-VHF and high-VHF-to-low-VHF bidders. The Broadcast Transition Period will include (1) the three-month period beginning upon the release of the Channel Reassignment PN, during which broadcasters will complete and file their construction permit applications (stations eligible for reimbursement from the Reimbursement Fund also will be required to file their estimated cost forms by this deadline) followed by (2) a 36-month period consisting of varied construction deadlines (the Broadcast Construction Period).

404. Post-auction, the Media Bureau, on delegated authority, will establish a set of construction deadlines during the Broadcast Construction Period. While some stations will be given 36 months to complete construction, other stations will be given shorter deadlines. 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.

405. The Commission adopted a three-month deadline from the receipt of auction proceeds by winning license relinquishment bidders and channel sharing "sharee" bidders to terminate operations on their pre-auction channels (a "sharee" station is a full power or Class A television station that agrees to relinquish its channel and share with another station (the sharer) pursuant to a channel sharing bid in the reverse auction). The Commission offered stations the flexibility to seek a single extension of their construction deadlines and to operate temporary facilities during construction. Although it will consider extensions of stations' individual construction deadlines for new post-auction channels, the Commission stated that no station with a new channel assignment will be permitted to operate on its pre-auction channel after the end of the Broadcast Construction Period. This approach will provide sufficient flexibility to both

broadcasters and the Commission to ensure a successful, expeditious transition, while minimizing disruption to consumers and providing appropriate certainty to the wireless industry.

a. Construction Period for Stations with New Channel Assignments

406. The Commission adopted a 36-month Broadcast Construction Period that will begin upon the filing deadline for construction permit applications for new channel assignments (i.e., three months after the release of the Channel Reassignment PN). The Commission concluded that a phased construction schedule, with the assignment of varying construction deadlines within this 36-month period, is most likely to ensure a successful transition for all broadcasters. Accordingly, the Commission delegated authority to the Media Bureau to establish a set of deadlines within the Broadcast Construction Period 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. Regardless of a station's individual construction schedule, no station will be permitted to continue to operate on its pre-auction channel beyond the end of the Broadcast Construction Period. Any station that has not completed construction by the end of the Broadcast Construction Period must go dark on its pre-auction channel and cease operations until it finishes construction of its new facilities. In addition, as soon as a station begins operating on its post-auction channel, it must terminate operations on its pre-auction channel.

407. The Commission directed the Media Bureau, as soon as possible after the filing of construction permit applications, to announce both the phased construction schedule and stations' construction deadlines in a public notice (any permit issued before the Media Bureau establishes the pertinent construction deadlines will be conditioned on the Media Bureau's

subsequent adoption of such deadlines; as soon as a station's deadline is determined, the Media Bureau will reissue the station's authorization with the construction deadline). The Commission stated that it expects that the Media Bureau will work with the Wireless Telecommunications Bureau to coordinate the construction deadlines of stations transitioning to new channels, taking into account the needs of forward auction winners and their construction plans.

408. The Commission was persuaded by the record that establishing a single deadline by which all stations must complete construction is infeasible. The Commission concluded that the flexibility to evaluate and address all of the relevant variables through a phased construction schedule based on the actual outcome of the auction will be critical to the success of the transition. This approach will enable the Media Bureau to take each of the above factors, as well as any others that may be relevant, into account.

409. The Commission also concluded that the proposal in the NPRM to complete the entire post-auction transition within 18 months would not provide sufficient time for all stations to complete the transition process. The Commission agreed with commenters that a universal 18-month transition deadline would not adequately take into account the many factors that will have to be considered when determining station construction deadlines. The Commission found that a longer construction period is necessary to ensure a smooth channel transition for all stations.

410. The Commission found that a 36-month Broadcast Construction Period will provide sufficient time to complete a phased transition of all stations assigned to new channels. The Commission concluded that 36 months is the appropriate maximum time period for stations to complete construction after they request permits for their post-auction facilities. Moreover, adopting a construction period that closely coincides with the three-year period established in the

Spectrum Act to reimburse broadcasters for their repacking expenses will best ensure that stations are successfully reimbursed for their reasonably incurred expenses.

411. The Commission concluded that it is not necessary to afford all reassigned broadcasters 36 months or longer to construct post-auction facilities. The Commission recognized that some stations will face significant challenges in completing the post-auction transition to their new facilities but stated that the Media Bureau will take such challenges into account when assigning individual construction deadlines. The Commission found that adopting a lengthier post-auction transition period could depress forward-auction participation or the value of investments made by forward auction winners. The Commission stressed that the end of the Broadcast Construction Period will mark the latest date on which broadcasters will be permitted to cease operations on their pre-auction channels. Moreover, as discussed below, license relinquishment bidders and sharee stations that are parties to winning channel sharing bids will be required to cease operations within three months of receiving their auction proceeds. Thus, it is likely that many full power and Class A stations will vacate spectrum repurposed for flexible wireless use well before the end of the Broadcast Construction Period.

b. Winning Bidders for License Relinquishment and Channel Sharing

412. The Commission will require that all winning license relinquishment bidders terminate operations on their pre-auction channels within three months of receipt of their reverse auction proceeds. The Commission will allow these stations to seek special temporary authority or waiver of the operating rules, including its rules on minimum operating hours, in order to facilitate the final termination of their operations. In addition, the Commission adopted a three-month deadline from receipt of reverse auction proceeds for sharee stations that are party to a winning channel sharing bid to terminate operations on their pre-auction channel and transition

to their shared channel (sharee stations must comply with the consumer and MVPD notification requirements set forth in the Report and Order and will be required to notify the Commission of the termination of operations on their pre-auction channel pursuant to the established procedures). The Commission expects that the termination of operations of the sharee's pre-auction channel and transition to a shared channel will occur on the same day and thus not result in any gap in service. Because these stations will not have to construct new facilities in order to effectuate their channel change, three months is sufficient for them to cease operations on their pre-auction channels. This deadline will apply regardless of whether or not the sharer station to which the sharee station is transitioning is reassigned to a new channel in the repacking process. If a sharer station is reassigned to a new channel, all broadcasters with shared status will be required to cease operations on the sharer's pre-auction channel and transition to the new channel in accordance with the phased post-auction transition procedures adopted in the Report and Order and the construction permit issued for the new channel (winning channel sharing bidders whose shared channel is reassigned in the repacking process will be required to share on the sharer's pre-auction channel prior to construction of their newly assigned channel).

413. The Commission will permit stations terminating operations to submit a waiver request pursuant to 47 CFR 1.3 of the rules (such waiver requests must be filed electronically in CDBS as a request for a legal Special Temporary Authority, provide the requisite waiver showing and include a proposed termination date, not to exceed three additional months; stations should file such requests as soon as it becomes apparent that they will not be able to meet the three-month termination deadline). In addition, no winning license relinquishment or channel sharing bidder will be granted a waiver beyond the end of the Broadcast Construction Period. The staff will view requests for up to three additional months to terminate operations most

favorably, and the Commission anticipates that requests for any additional time will be unlikely to meet the waiver standard.

c. Additional Flexibility for Stations with New Channel Assignments

414. The Commission will permit stations assigned new channels in the repacking process and winning UHF-to-VHF and high-VHF-to-low-VHF bidders to seek a single extension of up to six months of their original construction deadlines. Although a construction deadline may be extended beyond the end of the Broadcast Construction Period, stations may not operate their pre-auction channels after that date (stations that are still constructing after the end of the Broadcast Construction Period will have to go dark on their pre-auction channels while they complete construction of their new channel facilities).

415. The Commission will evaluate requests for extensions using procedures similar to those used during the DTV transition, based on criteria tailored to the types of construction stations will need to undertake during the post-auction transition. Stations anticipating the need for an extension will be required to submit an extension application no less than 90 days before the expiration of their construction permit and demonstrate that, despite all reasonable efforts, they are unable to complete construction of their new facilities on time due to circumstances that were either unforeseeable or beyond their control (extension requests must be filed electronically in CDBS using FCC Form 337). The following circumstances may justify an extension of a station's construction deadline: (1) weather-related delays, including a tower location in a weather-sensitive area; (2) delays in construction due to the unavailability of equipment or a tower crew; (3) tower lease disputes; (4) "unusual technical challenges," such as a top-mounted or side-mounted antenna or the need to coordinate channel changes with another station; or (5) delays faced by broadcast stations that must obtain government approvals, such as land use or

zoning approvals, or that are subject to competitive bidding requirements prior to purchasing equipment or services. The Commission will permit licensees to rely on other circumstances to support an extension only if the licensee is able to show that the circumstance was unforeseeable or beyond its control and that it took all reasonable efforts to resolve the issue.

416. The Commission will permit stations to rely on "financial hardship" as a criterion for seeking an extension of time only in limited circumstances. In the past, the Commission has allowed stations to support an extension request based on a showing that "the cost of meeting the minimum build-out requirements exceeds the station's financial resources." In this case, because stations will be eligible for an initial allocation of estimated construction costs, stations should not have to rely significantly on self-financing or outside financing for their construction. In addition, a station transitioning to a new channel as a result of a winning UHF-to-VHF or high-VHF-to-low-VHF bid will have access to auction proceeds to fund new construction. Accordingly, the Commission will allow stations that are subject to an active bankruptcy or receivership proceeding to seek an extension based on financial hardship, provided that the station makes an adequate showing that it has filed requests to proceed with construction in the relevant court proceedings. The existence of such proceedings, and the restrictions that may be imposed on the use of funds, justify allowing such stations to seek additional time to complete construction, if necessary. Any other station that seeks an extension of time based on financial hardship must demonstrate that, although it is not subject to an active bankruptcy or receivership proceeding, rare and exceptional financial circumstances nevertheless warrant granting additional time to complete construction of their facilities. Stations will be allowed, if granted, only a single extension of up to six months beyond their original construction deadline before being subject to the Commission's stricter tolling provisions. The Commission rejected calls to

use its stricter "tolling" criteria to any extension requests finding that use of extension criteria for the first extension request is appropriate.

417. The Commission will also allow stations to operate with temporary facilities while they complete construction (stations seeking an STA must satisfy the notice and filing requirements of rules and file an electronic request through CDBS). Absent an STA, no station will be permitted to operate on its pre-auction channel past the station's individual construction deadline, and the Commission will not grant STAs to operate on pre-auction channels past the end of the Broadcast Construction Period. The Commission will allow stations, on a case-by-case basis, to seek STAs for technical solutions that are similar to those permitted during the DTV transition, will examine all such requests to determine whether they would serve the public interest, and will require that all STAs not cause impermissible interference to other broadcast or wireless licensees. All STAs granted in connection with the post-auction transition will be for a maximum of 180 days, the amount of time provided under the Communications Act and the Commission's rules for STA requests. In addition, the Media Bureau will reserve the right to modify or cancel an STA at any time without prior notice at its sole discretion

418. The Commission also notes that the license of any station that is dark for any consecutive 12-month period expires at the end of that period, except that the Commission can extend or reinstate such license "to promote equity and fairness." Stations with new channel assignments that remain dark for any consecutive 12-month period may seek an extension or reinstatement of their license and a waiver of the pertinent Commission rules. In considering such requests, the Commission will take into account the extent to which a station has been involuntarily forced to remain dark as a result of the repacking process and whether, in light of the facts presented, equity and fairness dictate a license extension or reinstatement and a waiver.

3. Consumer Education

419. The Commission will require that all "transitioning stations" air viewer notifications for a minimum of 30 days prior to the date that the station will terminate operations on its pre-auction channel ("transitioning stations" are defined as full power and Class A television stations that are: 1) reassigned to new channels by the Commission, 2) successful UHF-to-VHF and high-VHF-to-low-VHF bidders, 3) successful license relinquishment bidders, or 4) parties to a successful channel sharing bid; channel sharer stations will be required to participate in consumer education only if they are reassigned to a new channel in the repacking process). The Commission will provide stations with flexibility to target their messages to their specific situations in order to minimize public confusion and the effect of any service disruptions.

420. Transitioning stations that operate on a commercial basis will be required to air a mix of Public Service Announcements (PSAs) and crawls. Such stations must air at least one transition PSA and run at least one transition crawl in every quarter of every day for 30 days prior to the date that the station terminates operations on its pre-auction channel. Further, one of the required PSAs and one of the required crawls must be run during primetime hours each day. Crawls must run during programming for no less than 60 consecutive seconds across the bottom or top of the viewing area and be provided in the same language as a majority of the program carried by the station. Crawls must include the date that the station will terminate operations on its pre-auction channel, inform viewers of the need to rescan if the station has received a new channel assignment, and explain how viewers may obtain more information by telephone or online. PSAs must have a duration of at least 15 seconds, and each PSA must provide, at a minimum, the same information as required for crawls. For stations relocating to new channels, PSAs also must provide instructions to both over-the-air and multichannel video programming viewers regarding how to continue watching the station. In addition, the Commission requires

that transition PSAs be closed-captioned. Stations are encouraged to include any other details about their transition that they believe to be important in their notifications, and stations are free to air additional notifications regarding the transition that they deem beneficial to their viewers.

421. Noncommercial educational (NCE) full power stations may choose to comply with notification requirements either through the framework for commercial stations or by airing 60 seconds per day of on-air consumer education PSAs for 30 days prior to termination of operations on their pre-auction channel. NCE stations choosing the alternate plan will have the discretion to choose the timeslots for these PSAs. The NCE transition PSAs must include the same information as noted above and must be closed-captioned. NCE stations electing this alternative are expected to air these PSAs in addition to, and not in lieu of, PSAs on other issues of importance to their local communities.

422. The Commission will not impose periodic reporting requirements on transitioning stations finding that such requirements will not be necessary during the forthcoming transition given the less extensive nature of the consumer education requirements being adopted. Instead, the Commission will require that stations transitioning to a new channel place a certification of compliance with consumer notification requirements in their online public files within 30 days after beginning operations on their post-auction channels. In the case of winning license relinquishment bidders, stations must include the certification in their notifications of discontinuation of service.

423. The Commission directs the Consumer and Governmental Affairs Bureau (CGB), working in coordination with the Media Bureau and the Wireless Telecommunications Bureau, to develop a comprehensive consumer outreach plan to enhance consumer awareness regarding the transition. These efforts should be coordinated with stakeholder groups' outreach efforts. For example, CGB should consider updating the Commission's existing call center capabilities

to offer consumer assistance on such matters as rescanning and other means to resolve potential reception issues. The Commission also directs CGB to encourage the development of third-party call centers, such as one that might be established by a group of Transitioning Stations working together. In addition, CGB should examine the possibility of providing additional information and guidance to consumers on how to prepare for the transition through the Commission's website (www.fcc.gov). For example, the staff could post maps online to inform consumers regarding the station signals that will be affected by the transition, as it did during the DTV transition. CGB also should endeavor, where staff and resources are available, to conduct in-person outreach at the most relevant consumer events.

4. Notice to MVPDs

424. The Commission will require all transitioning stations to provide notice to relevant multichannel video program distributors (MVPDs) that: (1) no longer will be required to carry the station because it will cease operations or because of the relocation of a channel sharing sharee station; (2) currently carry and will continue to be obligated to carry a station that will change channels; or (3) will become obligated to carry a station due to a channel sharing relocation. The required notice must be provided in the form of a letter notification and include the following information: (1) date and time of any channel changes; (2) pre-auction and post-transition channel assignments; (3) modification, if any, to antenna position, location, or power levels; (4) stream identification information for channel sharing stations; and (5) engineering staff contact information. Should any of this information change during the station's transition, an amended notification must be sent. For cable systems, the letter must be addressed to the system's official address of record provided in the cable system's most recent filing in the Cable Operations and Licensing System (COALS) Form 322. For all other MVPDs, the letter must be addressed to the official corporate address registered with their State of incorporation.

425. Further, stations are required to provide notice within the following time frames: (1) for successful license relinquishment bidders, not less than 30 days prior to terminating operations; (2) for channel sharing sharee stations, not less than 30 days prior to terminating operations of the sharee's pre-auction channel; (3) for all channel sharing stations (i.e., both the sharer station and sharee station(s)), not less than 30 days prior to initiation of operations on the sharer channel; and (4) for all other stations transitioning to a new channel, including stations that are assigned to new channels in the repacking process and successful UHF-to-VHF and high-VHF-to-low-VHF bidders, not less than 90 days prior to the date on which they will begin operations on their reassigned channel. In addition, should a station's anticipated transition date change due to an unforeseen delay or change in transition plan, the station must send a further notice to affected MVPDs informing them of the new anticipated transition date. The Commission rejects longer notice periods finding that it is not likely that stations will know that far in advance when construction will be completed and operation on a new channel will begin. In addition, the adopted timeframes, as well as the requirement to notify MVPDs of any change to anticipated transition dates, will provide ample time for MVPDs to make the necessary changes to their systems.

426. The Commission waived the 30-day advance notice requirement in 47 CFR 76.1603(c) with respect to deletions from a cable system's channel line up resulting from a successful license relinquishment bid. Instead, the Commission requires MVPDs to provide such notice as soon as practical.

5. Reimbursement of Relocation Costs

427. The Spectrum Act requires the Commission to reimburse broadcast television licensees for costs "reasonably incurred" in relocating to new channels assigned in the repacking process and MVPDs for costs reasonably incurred in order to continue to carry the signals of

stations relocating to new channels as a result of the repacking process or a winning reverse auction bid. As explained in the NPRM, Congress specified that these reimbursements be made from the TV Broadcaster Relocation Fund (the Reimbursement Fund), and that the amount available for reimbursement of relocation costs is $1.75 billion. In addition, under the Spectrum Act, the Commission must make all reimbursements within three years after completion of the forward auction (the Reimbursement Period). The Commission delegates rulemaking authority to the Media Bureau to address additional aspects of the reimbursement process at the appropriate time.

a. Television Station Licensees and MVPDs Eligible for Reimbursement

428. With respect to broadcasters, the Commission adopts the tentative conclusion that the reimbursement mandate applies only to full power and Class A television licensees that are involuntarily reassigned to new channels in the repacking process pursuant to Section 6403(b)(1)(B)(i). The Commission will not reimburse winning reverse auction bidders (i.e., winning UHF-to-VHF, high-VHF-to-low-VHF, or channel sharing bidders) for voluntary frequency changes. This interpretation is both consistent with the language of Section 6403(b)(4) and reasonable, in that successful reverse auction bidders can be expected to cover any relocation costs stemming from their successful bids out of auction proceeds. As proposed in the NPRM, sharer stations that participate in a channel sharing arrangement will be eligible for reimbursement only if they are reassigned to a new channel in the repacking process. Moreover, consistent with the proposal in the NPRM, and as required by Section 6403(b)(4)(A)(i), the Commission will reimburse any station formerly on channel 51 that must relocate again because its new channel is reassigned in the repacking process, even if it previously relocated from channel 51 pursuant to a private agreement.

429. Stations that are not reassigned to a new channel will not be eligible for reimbursement. Section 6403(b)(4)(A)(i) expressly mandates reimbursement only for television licensees "that [are] reassigned under [Section 6403(b)(1)(B)(i)]" in the repacking process, and does not require reimbursement for stations that are not reassigned to new channels. Some commenters argue that the Commission has discretionary authority to reimburse such broadcasters. Even assuming that the Commission has such authority, it declines to exercise it. In light of the limited amount of money Congress made available to reimburse broadcasters and MVPDs for relocation costs, the Commission will limit reimbursements to those provided for by the Spectrum Act. The Commission notes that, in some cases, stations that are not reassigned to new channels but that sustain expenses due to the repacking process may be reimbursed indirectly. The Commission notes, however, that in such a situation only the reassigned station would be eligible to seek reimbursement from the Reimbursement Fund for any such costs. For example, where multiple stations share a tower, a reassigned station that makes changes may be required to cover certain expenses incurred by other tower occupants. In such circumstances, the Commission will consider a claim from the reassigned station for reimbursement of such costs, so long as the reassigned broadcaster has a contractual obligation to pay these expenses through a contract entered into on or before the release date of this Order. Parties may receive such reimbursement with respect to contracts entered into after that date if they can show good cause for such reimbursement. The Commission also notes that there may be instances in which a non-reassigned station may benefit indirectly from a reimbursement to a reassigned station.

430. MVPDs will be eligible for reimbursement when they reasonably incur costs in order to continue to carry broadcast stations that are reassigned as a result of the auction. The Commission anticipates that the vast majority of MVPD carriage expenses will be due to channel changes made by broadcast stations that an MVPD already carried prior to the auction.

Moreover, the Commission anticipates that most MVPD carriage costs will result from broadcasters being reassigned to new channels, and not from a successful channel sharing bid. In the case of an involuntary channel reassignment or a winning UHF-to-VHF or high-VHF-to-low-VHF bid, an MVPD that already carried the station in question will need to accommodate its new channel assignment. In the case of most channel sharing arrangements where the MVPD likely already carries the sharer station, the Commission expects that the MVPD's transition costs will be relatively inexpensive because it will not be required to accommodate a new channel assignment. However, there may be a limited number of situations in which an MVPD incurs a new carriage obligation due to the relocation of a sharee station. The Commission concludes that MVPDs that must fulfill any such new carriage obligations will be eligible for reimbursement of their reasonably incurred costs, just as they will be eligible for reasonably incurred costs to continue carrying other reassigned stations and winning bidders. The Spectrum Act does not expressly mandate reimbursement for costs to continue to carry stations that submit winning high-VHF-to-low-VHF bids. However, the Commission concluded above that the Spectrum Act does not preclude the Commission from adopting this additional bid option, and similarly concludes that the Spectrum Act does not preclude it from reimbursing MVPDs for the reasonably incurred costs to continue carrying winning high-VHF-to-low-VHF bidders.

431. The Commission interprets Section 6403(b)(4)(A)(ii)(III), which mandates reimbursement of MVPDs' costs "in order to continue to carry" a broadcaster that relinquishes its spectrum to share with another licensee, to cover costs an MVPD reasonably incurs so that a broadcaster continues to be carried on an MVPD service after the auction, regardless of whether that particular MVPD or a different one previously carried the station. Although the statute does not directly address this issue, Section 6403(a)(4) guarantees that a channel sharee that had carriage rights before the auction will have the carriage rights that apply at its new shared

location rather than its original location. Since Congress expressly preserved channel sharing broadcasters' carriage rights at their new locations regardless of whether an individual MVPD's carriage obligations are changed, it is reasonable to infer that Congress intended for MVPDs to be eligible for reimbursement when they incur costs in accommodating those rights. As NCTA explains, reading the statute as "precluding reimbursement of a cable operator acting to fulfill the broadcaster's right to carriage would create an asymmetry" that would penalize MVPDs. The Commission agrees with NCTA that such an outcome would be contrary to Congress' intent.

b. Reimbursement Process

432. The Commission's goals in developing a reimbursement process are threefold. First, the process must be as simple and straightforward as possible to minimize the costs associated with reimbursement as well as the burdens on both affected parties and the Commission. Second, the process must be prompt and efficient in light of the three-year statutory deadline for issuing reimbursements. Third, the process must be fair: it must cover broadcasters' and MVPDs' eligible costs reasonably incurred and maximize the funds available for reimbursement by avoiding waste, fraud, and abuse.

433. The Commission adopts a reimbursement process that provides initial allocations of funds to broadcasters and MVPDs based on their estimated costs. The funds will be available for draw down as the broadcasters and MVPDs incur expenses, followed by a subsequent allocation to the extent necessary. As discussed more fully below, all entities seeking reimbursement will be required to provide an estimate of their eligible costs following the release of the Channel Reassignment PN. The Media Bureau will review the estimates based on the Catalog of Eligible Expenses being developed by the Bureau. Eligible entities will be issued an initial allocation from the Reimbursement Fund equal to a set percentage of their estimated eligible costs. Prior to the end of the three-year Reimbursement Period, entities will provide information regarding their

actual and remaining estimated costs and will be issued a final allocation, if appropriate, to cover the remainder of their eligible costs. If an overpayment is discovered after the end of the Reimbursement Period, entities will be required to return the excess to the Commission.

434. Reimbursement Period. As discussed above, the Spectrum Act requires the Commission to make all required reimbursements no later than three years after completion of the forward auction. The Commission concludes above that the forward auction will be "complete" when a public notice announces that the auction has ended. Accordingly, all required reimbursements must be made within three years of the date of that announcement. The Commission will not issue any reimbursements before completion of the forward auction.

435. Estimated Versus Actual Cost Approach. The Commission will issue all eligible broadcasters and MVPDs an initial allocation of funds based on estimated costs, which will be available for draw down (from individual accounts in the U.S. Treasury) as the entities incur expenses, followed by a subsequent allocation to the extent necessary. Although the process established is similar to an approach based on advance payments, the Commission has concluded that such advances would not be permissible under Title 31 of the United States Code and applicable U.S. Treasury regulations and guidance thereunder. Specifically, in order to comply with U.S. Treasury requirements, the Commission must allocate funds to designated individual accounts within the U.S. Treasury that will be available for draw down as broadcasters and MVPDs incur eligible expenses. Under this approach, consistent with an advance payment approach, entities will be able to use federal funds initially to pay their expenses as they are incurred. The process the Commission adopts allows it to comply with its statutory obligations both to reimburse costs reasonably incurred under Section 6403(b)(4)(A) and to provide entities with the funds to implement their relocation changes within the statutory three-year

reimbursement period under Section 6403(b)(4)(D). In addition, it preserves the integrity of the Fund by reducing the likelihood of waste, fraud, and abuse.

436. Submission of Estimated Costs. No later than three months following release of the Channel Reassignment PN, all broadcasters and MVPDs that are eligible for reimbursement will be required to file a form providing an estimate of their channel relocation costs. These forms will be due at the same time that broadcasters assigned new channels must file their construction permit applications to implement the channel reassignments. Entities must update the form if circumstances change substantially. For example, such an updated form would be required if entities later become aware of substantial expenses that were not identified on the initial form or if they make a subsequent determination that money from the Reimbursement Fund should be expended for equipment or other expenses different from those outlined in the initial estimated cost form. The estimated cost forms, along with the submissions discussed below, will be filed with the Commission electronically and will be publicly available. Entities requesting confidential treatment of information included in either form should submit a request under Section 0.459 of the Commission's rules. Even if some forms or documents are confidential, the Media Bureau will make public the amounts distributed from the Reimbursement Fund to each broadcaster and MVPD. MVPDs must review the Channel Reassignment PN to determine whether stations they currently carry are changing channels. If an entity that did not file an estimated cost form becomes aware of an expense eligible for reimbursement after the three-month deadline, it may file a late estimated cost form together with an explanation of why the form could not be timely filed. The Commission will consider any late-filed forms on a case-by-case basis.

437. On the estimated cost form, eligible broadcasters will provide an estimate of the costs they expect to reasonably incur to change channels, and MVPDs will estimate the costs

they expect to reasonably incur to accommodate new channel assignments. The estimated cost form for television stations will reference the final Catalog of Eligible Expenses, which will contain a list of many, but not necessarily all, of the modifications a station may have to make in order to change its channel, as well as the predetermined estimate of the cost, or range of costs, for equipment and other expenses associated with those modifications. Similarly, the estimated cost form for MVPDs will contain a list of many, but not necessarily all, of the cable or satellite system changes an MVPD may be required to make to accommodate new station channel assignments, as well as the predetermined estimate of the cost or cost range for most of those changes. For equipment or other changes for which there is a predetermined cost estimate, stations and MVPDs may select either the predetermined cost estimate or provide their own individualized estimate if they believe the predetermined estimate does not fully account for their specific circumstances. Entities that reject the predetermined estimate as too low will be required to justify the higher cost. For any expenses for which there is not a predetermined cost estimate, the station or MVPD will be required to provide an individualized cost estimate. The Commission will require entities that provide such individualized cost estimates to submit supporting evidence and to certify that the estimate is made in good faith.

438. Regardless of whether they are claiming predetermined cost estimates or their own individualized estimated costs, each broadcaster and MVPD will be required to certify, inter alia, that: (1) it believes in good faith that it will reasonably incur all of the estimated costs that it claims as eligible for reimbursement on the estimated cost form, (2) it will use all money received from the Reimbursement Fund only for expenses it believes are eligible for reimbursement, (3) it will comply with all policies and procedures relating to allocations, draw downs, payments, obligations, and expenditures of money from the Reimbursement Fund, (4) it will maintain detailed records, including receipts, of all costs eligible for reimbursement actually

incurred, and (5) it will file all required documentation of its relocation expenses as instructed by the Media Bureau.

439. After the estimated cost forms have been submitted, the Media Bureau will review them. For entities that choose to provide their own cost estimate (i.e., either a cost estimate higher than the predetermined cost estimate or an individualized cost estimate for an expense for which the Commission does not provide a predetermined cost estimate), the Bureau will review the required justification for the estimate and may accept it or substitute a different amount for purposes of calculating the initial allocation. Regardless of the basis for the estimate, the Bureau may determine, based on its reasonableness review of an estimated cost form and any submitted documentation, that a station or MVPD should receive a different allocation from that claimed on the form.

440. Initial Allocation Stage. Once the Media Bureau completes its review, it will issue an initial allocation from the Reimbursement Fund to the broadcaster or MVPD, which will be available to the entity to draw down as expenses are incurred. The issuance of an initial allocation from the Reimbursement Fund based on these estimates does not create an obligation on the part of the Commission to pay the entity's total estimated or actual relocation costs. Subject to timing constraints on allocations from the Fund that are discussed below, the Commission intends to issue NCE broadcasters initial allocations equivalent to up to 90 percent of their estimated costs eligible for reimbursement, and all other broadcasters and MVPDs initial allocations equivalent to up to 80 percent of their estimated costs eligible for reimbursement. The Commission will issue initial allocations to NCEs equivalent to a higher percentage of their estimated costs due to their unique funding constraints. For other broadcasters and MVPDs, a slightly smaller initial allocation will be sufficient to permit them to fund construction or other reimbursable costs until a subsequent allocation phase, when all stations and MVPDs can request

an additional allocation from the Reimbursement Fund if necessary to cover the remainder of their costs eligible for reimbursement. It is appropriate to withhold at least 10 percent (for NCEs) or at least 20 percent (for other stations and for MVPDs) of estimated costs until a subsequent allocation phase. The Commission concludes that this approach should ensure that broadcasters and MVPDs do not face an undue financial burden while also reducing the possibility that the Commission allocate more funds than necessary to cover actual relocation expenses.

441. The amount available to be issued as initial allocations will depend, in part, on the total amount of repacking expenses reported on the estimated cost forms. In addition, the timing of initial allocations will depend on when money in the Reimbursement Fund becomes legally available for obligation to eligible entities. The Spectrum Act authorizes the Commission to borrow up to $1 billion from the U.S. Treasury, upon the effectiveness of any reassignments or reallocations under Section 6403(b)(1)(B), to use toward reimbursement of relocation expenses, but the Commission must reimburse the Treasury for any amounts borrowed as funds are deposited into the Reimbursement Fund from forward auction proceeds. Thus, the amount available for initial allocations from the Reimbursement Fund may be limited initially to $1 billion. The remainder of the $1.75 billion will not be legally available for allocation until at least some wireless licenses have been granted to forward auction winners and sufficient forward auction proceeds are deposited into the Reimbursement Fund. If necessary, the initial allocations of funds to broadcasters and MVPDs will be made in tranches as funds become legally available.

442. Final Allocation Stage. Upon completing construction or other changes that are eligible for reimbursement, or by a specific deadline prior to the end of the of the Reimbursement Period to be announced by the Media Bureau, whichever is earlier, all stations and MVPDs that received an initial allocation from the Reimbursement Fund must provide the

Commission with information and documentation regarding their actual expenses incurred, plus any remaining estimated expenses for entities that have not yet completed their transition. After reviewing this information, the Media Bureau will determine whether the broadcaster or MVPD incurred or will incur eligible relocation costs that are not covered by the initial allocations from the Reimbursement Fund and issue a final allocation, if appropriate, to the broadcaster or MVPD. If any allocated funds remain in an entity's Treasury account in excess of the entity's actual costs determined to be eligible for reimbursement, those funds will revert back to the Reimbursement Fund. The Media Bureau will provide additional details on the filing and process requirements, including filing deadlines, for this final allocation stage in a subsequent public notice.

443. Final Accounting Stage. Any entities that have not completed their transition by the deadline announced by the Media Bureau during the final allocation stage must submit their final expense documentation to the Commission shortly after completing their transition and regardless of whether this occurs after the Reimbursement Period. This documentation will contain actual costs for all eligible expenses and will serve as a final accounting of all actual expenses incurred to complete the transition. The Media Bureau will provide additional details on the filing and process requirements, including filing deadlines, for this final accounting stage in a subsequent public notice.

444. Reimbursement Contractor and Delegation of Authority. The Commission directs the Media Bureau to engage a contractor to assist in the reimbursement process and administration of the Reimbursement Fund. The Commission notes that commenters who address the issue of whether it should hire a third-party to assist with administering reimbursements generally are supportive, so long as administrative costs are carefully controlled. The Commission concludes that the costs associated with administering the Reimbursement

Fund are appropriately included in the Commission's overall costs to "mak[e] any reassignments or reallocations" under Section 6403(b)(1)(B). Accordingly, administrative costs will not be deducted from the Reimbursement Fund. The Commission delegates authority to the Media Bureau to engage a third-party contractor to assist in the reimbursement process, which will be overseen by the Bureau.

445. The Commission also delegates authority to the Media Bureau to create one or more forms to be used by entities to claim reimbursement from the Reimbursement Fund, as well as to report on entities' use of money disbursed from the Fund and the status of their construction efforts, and for any other Reimbursement Fund-related purposes. The Commission also delegates authority to the Media Bureau to establish the timing and calculate the amount of the allocations to eligible entities from the Reimbursement Fund, develop a final Catalog of Eligible Expenses, and make other determinations regarding eligible costs and the reimbursement process. Finally, the Commission delegates authority to the Media Bureau to adopt the necessary policies and procedures relating to allocations, draw downs, payments, obligations, and expenditures of money from the Reimbursement Fund in order to protect against waste, fraud, and abuse and in the event of bankruptcy. Given the importance of maintaining the integrity of the Fund, the Media Bureau will consult with the Office of General Counsel and the Office of the Managing Director in acting pursuant to this delegation.

c. Expenses Eligible for Reimbursement

446. The Commission cannot, at this juncture, forecast all types of reasonable expenses. The appropriate scope of "costs reasonably incurred" necessarily will have to be decided on a case-by-case basis. Moreover, as discussed above, the Commission delegates authority to the Media Bureau to make reimbursement determinations and to finalize the Catalog of Eligible

Expenses. All claimed expenses are subject to review by the Media Bureau to ensure that each expense is reasonable.

447. Costs Reasonably Incurred. The Commission interprets the Spectrum Act's mandate to reimburse "costs reasonably incurred" to require that the Commission reimburse costs that are reasonable to provide facilities comparable to those that a broadcaster or MVPD had prior to the auction that are reasonably replaced or modified following the auction, as a result of the repacking process, in order to allow the broadcaster to operate on a new channel or to allow the MVPD to carry the signal of a broadcaster on a new channel. The Commission will permit broadcasters and MVPDs to be compensated for both "hard" expenses, such as new equipment and tower rigging, and "soft" expenses, including legal and engineering services. The Commission will allow reimbursement for modification or replacement of facilities on the post-auction channel consistent with the technical parameters identified in the Channel Reassignment PN. Specifically, the Commission will permit broadcasters to be reimbursed for eligible costs reasonably incurred in constructing transmission facilities for channels assigned in the repacking process if such facilities do not extend the coverage area by more than one percent in any direction based on the technical parameters for the channel assignment specified in the Channel Reassignment PN. The Commission reserves the right to require broadcasters to take reasonable steps to mitigate costs and share resources where possible, as such efforts may save overall Reimbursement Fund resources or contribute to more efficient use of the broadcast spectrum. The standard the Commission adopts, which ties reimbursement to facilities comparable to those in use prior to the auction, will ensure that entities can continue to operate facilities post-auction that are similar to those in operation pre-auction. For example, a full power or Class A station presently using distributed transmission system (DTS) technology will be eligible for

reimbursement for a DTS. A DTV DTS employs multiple synchronized transmitters spread around a station's service area, rather than a single transmitter.

448. Equipment Upgrades. As a general matter, the Commission expects stations and MVPDs to obtain the lowest-cost equipment that most closely replaces their existing equipment. The Commission does not anticipate providing reimbursement for optional features beyond those already present. However, the Commission also expects that some stations and MVPDs will not be able to replace older, legacy equipment with equipment that is comparable in terms of functionality and cost because of advances in technology and because manufacturers often cease supporting old equipment when newer products become available. If the cost to replace certain equipment is reasonably incurred as a result of the repacking process, the Commission intends to reimburse for the cost of that equipment and recognize that this equipment necessarily may include improved functionality. The Commission does not, however, anticipate providing reimbursement for new, optional features in equipment unless the station or MVPD documents that the feature is already present in the equipment that is being replaced. For example, a station whose current antenna or other facilities contain components enabling the transmission of ATSC Mobile/Handheld signals and that reasonably incurs the cost to replace this equipment may claim reimbursement for replacement equipment with mobile capability. A station that does not have mobile capability, however, may not claim reimbursement for the cost of adding that capability in its replacement equipment. Eligible stations and MVPDs may elect to purchase optional equipment capability or make other upgrades at their own cost, but only the cost of the equipment without optional upgrades is a reimbursable expense.

449. Alternate Channels and Expanded Facilities. The Commission will reimburse costs associated with requests for an alternate channel assignment or expanded facilities for eligible stations that receive priority processing, as described below. Such stations will be able to apply

for, and receive reimbursement for eligible costs associated with constructing alternate channels or expanded facilities modifications. In the case of priority stations, such costs are "reasonably incurred . . . in order for the licensee to relocate its television service" to another channel because, absent construction of the alternate channel or expanded facility, such stations will be unable to relocate their service. Stations that apply for priority processing will not be required to file an estimated cost form within three months after the release of the Channel Reassignment PN, as other stations eligible for reimbursement must do. Instead, they must file an estimated cost form within 30 days of receiving a construction permit for an alternate channel or expanded facilities, as set forth in the Alternate Channels and Expanded Facilities Opportunities Section.

450. The Commission will not provide additional reimbursement to other, non-priority stations that apply for an alternate channel or expanded facilities; the Commission will reimburse these stations only for the eligible costs of relocating to the channel and facilities specified in the Channel Reassignment PN. In the case of non-priority stations, costs related to alternate channels or expanded facilities are not "reasonably incurred . . . in order for the licensee to relocate its television service" to another channel. Such stations will be able to continue to serve their coverage area and population served on the channel and pursuant to the technical parameters assigned in the repacking process without having to rely on an alternate channel or expanded facilities. For example, non-priority stations that wish to move to an alternate channel or to construct expanded facilities may incur certain costs twice during the post-auction transition process, such as the cost of completing an engineering study or preparation of a Form 301; however, the Commission will reimburse such duplicative costs only once. Even if they intend to apply for alternate channels or expanded facilities, these stations will be required to file an estimated cost form based on the facility specified in the Channel Reassignment PN three months after the release of the PN. Stations will receive up to 80 or 90 percent (depending on

the type of station) of their estimated expenses. Ultimately, these stations will be required to make a showing that any costs for which they are seeking reimbursement are not greater than those they would have incurred if they had constructed the facility originally assigned. If a station can show that it would have incurred a particular cost regardless of the facility being constructed, and the Media Bureau determines that the cost is "reasonably incurred," the cost will be eligible for reimbursement.

451. Interim Facilities. Stations that are assigned a new channel in the repacking process may need to use interim facilities to avoid prolonged periods off the air during the transition. The use of interim facilities may be appropriate in the following situations, among others: (1) a station may need an additional transmitter or antenna for interim use on either its pre- or post-auction channel; (2) a station with a top mounted antenna may need to run a side mounted antenna; (3) a station with an antenna at "X" feet on a tower may need to operate at "Y" feet temporarily; (4) a station may need to operate with an antenna mounted on a different tower while it finishes mounting final facilities on its current tower or a new tower; (5) a station may need to operate on a different channel with different facilities than its final channel or facilities; or (6) a station may need to use its auxiliary or back-up facility as its main facility while it finishes final facilities. Some stations currently have licensed auxiliary facilities or own backup equipment that may be used for interim operations post-auction, while others may need to purchase or rent equipment or facilities. The Commission will treat interim facilities as a relocation expense eligible for reimbursement and will reimburse costs for such facilities that are reasonably incurred in order for a station to meet its construction deadline or to avoid prolonged periods off the air while repacking changes are made. This includes reimbursement for costs reasonably incurred by stations that receive permission to operate, on an interim basis, on a channel relinquished by a winning reverse auction bidder. The Commission will also reimburse

for the costs to replace or modify existing interim facilities where such costs are reasonably incurred to accommodate a new channel assignment.

452. Non-Recurring Signal Delivery Costs. The Commission also provides guidance on reimbursement for the cost of establishing delivery of a good quality signal to an MVPD in cases where signal delivery is affected by post-auction channel changes. Under its rules, whether an MVPD or broadcast station is responsible for the initial and ongoing cost of delivering a good quality broadcast signal to a cable headend or a satellite receive facility depends on whether the station is carried pursuant to must-carry requirements or a retransmission consent agreement. As a general matter, winning bidders are not eligible for reimbursement of their transition expenses, including any costs they incur to deliver their signal to an MVPD. However, as stated above, MVPDs will be eligible for reimbursement of their reasonably incurred costs in order to continue to carry broadcast stations that are reassigned as a result of the auction. Reimbursable MVPD expenses include the reasonable costs to set up delivery of a signal that the MVPD is required to carry under its must-carry rules or by retransmission consent contracts, regardless of whether the station is a winning bidder or is involuntarily reassigned to a new channel in the repacking process.

453. Specifically, if a station is carried pursuant to must-carry requirements, it is required to bear delivery costs and, if it is involuntarily reassigned to a new channel, will be eligible for reimbursement of any non-recurring costs to set up delivery to the cable headend or satellite receive facility that is comparable to the delivery method used prior to the transition. If an MVPD carries a station pursuant to its must-carry rules, the MVPD will be eligible for reimbursement for any non-recurring costs associated with setting up delivery of the station's signal from the headend or receive facility to its subscribers, because MVPDs may reasonably incur such costs in order to continue to carry stations relocating as a result of a winning reverse

auction bid. If a station is carried pursuant to a retransmission consent agreement, the issue of which party is responsible for delivery costs likely will be governed by the relevant contract. If, under the contract, the MVPD is responsible, it will be eligible for reimbursement of the non-recurring costs to set up delivery. If, under the contract, the broadcast station is responsible for delivery costs, it will be eligible for reimbursement of the non-recurring cost to set up delivery to the headend or receive facility if it was reassigned involuntarily. Further, the MVPD will be eligible for reimbursement of any non-recurring costs associated with setting up delivery of the signal from the headend or receive facility to its subscribers.

454. Lost Revenues. As discussed above, the Spectrum Act prohibits reimbursement for "lost revenues." The Commission defines "lost revenues" for purposes of reimbursement to include revenues that a station or MVPD loses as a direct or ancillary result of the reverse auction or the repacking process. For example, the Commission will not reimburse a station's loss of advertising revenues while it is off the air implementing a channel change resulting from the repacking process. In addition, the Commission will not reimburse any refunds a station is required to make for payments for airtime as a result of being off the air in order to implement a channel change. The Commission notes that stations can plan in advance for or mitigate the effects of temporary interruptions in service by, for example, alerting advertisers beforehand, declining to accept advance payments for airtime during relevant post-auction periods, and offering make-ups after the station returns to the air in lieu of refunds of advance payments. Similarly, with respect to MVPDs, the Commission will not provide reimbursement for lost advertising revenues or subscriber fees for any period of time a television station carried by the MVPD is off the air because of channel changes resulting from the reverse auction or repacking process.

d. Measures to Prevent Waste, Fraud, and Abuse

455. The Commission takes several additional actions to prevent waste, fraud, and abuse with respect to the Reimbursement Fund. The Commission adopts requirements for entities seeking reimbursement to provide a justification when their estimated costs exceed predetermined cost estimates. The Commission also requires entities to document their actual expenses and will conduct audits of, data validations for, and site visits to entities that receive disbursements from the Reimbursement Fund. In addition, to ensure transparency with respect to the Reimbursement Fund, the Commission will make available to the public estimated and actual cost information, as well as information regarding Reimbursement Fund disbursements. These measures accommodate the need to reimburse eligible broadcasters and MVPDs promptly, to impose rigorous accountability requirements, and to ensure transparency regarding the amount of money disbursed to eligible entities.

456. Documentation Requirements. The Commission establishes several requirements to ensure that disbursements based on estimated costs do not exceed actual costs. As discussed above, eligible broadcasters and MVPDs will be required to submit an estimated cost form and all actual cost information in order to receive any allocations from the Reimbursement Fund. These forms will include certifications that must be made by an owner or officer of the company under penalty of perjury under 18 U.S.C. 1001 in order to ensure that money from the Reimbursement Fund will be used only for eligible costs.

457. The Commission also requires eligible entities to submit detailed records documenting their actual costs, including all relevant invoices and receipts. In addition, the Commission requires broadcasters and MVPDs to submit progress reports, on a regular basis, to show how the disbursed money has been spent and what portion of their construction is complete. Further, the Commission adopts a document retention requirement for any entity

seeking reimbursement. Although records of expenditures will have been submitted as a condition of receiving reimbursement, each entity must retain all relevant documents (e.g., records documenting the type of equipment a reassigned broadcaster replaced with new equipment) for a period ending 10 years after the date it receives its final payment from the Reimbursement Fund.

458. Audits, Data Validations, and Site Visits. The Commission concludes that audits, data validations, and site visits are essential tools in preventing waste, fraud, and abuse, and that use of these measures will maximize the amount of money available for reimbursement. Accordingly, the Commission, or a third-party audit firm on behalf of the Commission, may conduct audits of entities receiving disbursements from the Reimbursement Fund, and these audits may occur both during and following the three-year Reimbursement Period. Entities receiving money from the Reimbursement Fund must make available all relevant documentation upon request from the Commission or its contractor.

459. In addition to audits, the Commission prescribes data validations, which can be a more efficient way of verifying the accuracy of a disbursement. Data validations will allow the Media Bureau to ensure quickly the validity of specific claims on an entity's cost form so as to adequately protect the Reimbursement Fund while not inhibiting an entity's construction process. The Bureau can select specific claims for validation, and then a broadcaster or MVPD will be required to provide additional documentation or explanation to verify its claim for a particular type of equipment or service before it can be reimbursed for it. The Bureau or an authorized contractor also may conduct site visits to confirm that equipment paid for from the Reimbursement Fund has been deployed. Although the statutory reimbursement period is limited to three years, the Commission expects that the Media Bureau or a third-party auditor will continue to validate expenses after that period ends and, where appropriate, recover any

money that should be returned, consistent with the Commission's obligation to recover improper payments. If any of these investigatory measures reveals evidence of intentional fraud, the Commission will refer the matter to its Inspector General's office or to law enforcement for criminal investigation, as appropriate.

e. Service Rule Waiver in Lieu of Reimbursement

460. The Commission concludes that broadcasters seeking to take advantage Section 6403(b)(4)(B) may submit a request for a waiver of any of its service rules, including a request to use a transmission technology other than the ATSC standard. This interpretation is supported by the language of Section 6403(b)(4)(B), which does not make reference to any specific service rules eligible for a waiver, instead referencing them generally.

461. The Commission delegates authority to the Media Bureau to evaluate and act on these service rule waiver requests on a case-by-case basis. The Commission directs the Bureau to apply its general waiver standard when considering such requests. The Media Bureau should consider the applicant's agreement to forego relocation costs as one factor weighing in favor of a waiver grant. The Commission also directs the Bureau to ensure that the applicant will protect against interference and provide at least one broadcast television program stream at no charge to the public, as required by Section 6403(b)(4)(B). The Commission notes that it has previously provided guidance on what constitutes "broadcasting," although it does not foreclose alternative showings demonstrating compliance with the Section 6403(b)(4)(B) requirement that the waiver recipient will "provide[] at least 1 broadcast television program stream on such spectrum at no charge to the public." See 47 U.S.C. 153(6); In re Subscription Video, 2 FCC Rcd 1001, 1006, para. 41 (1987). Delegating discretion to the Media Bureau to evaluate and act on waiver requests in accordance with these parameters is in line with the discretion afforded under Section 6403(b)(4)(B) to grant waivers "as [the Commission] considers appropriate."

462. The Commission declines to grant waivers solely upon request without further analysis, as is advocated by some commenters. In evaluating a waiver request, the Media Bureau will need to determine whether the request meets the Commission's general waiver standard and complies with the statutory requirements pertaining to interference protection and the provision of one broadcast television program stream at no charge to the public. This will require a case-specific analysis of each waiver request and makes commenters' suggested approach unworkable.

463. The Commission also declines to permit stations that are not eligible for reimbursement to operate pursuant to a service rule waiver under Section 6403(b)(4)(B). Section 6403(b)(4)(B) expressly limits the availability of waivers to stations that request them in lieu of reimbursement of relocation costs. As discussed in this Order and under the plain reading of the Spectrum Act, only full power and Class A television stations assigned new channels in the repacking process, pursuant to Section 6403(b)(1)(B)(i), are eligible for reimbursement under Section 6403(b)(4)(A). Therefore, permitting a licensee to receive a service rule even if the station is not reassigned to a new channel in the repacking process, as advocated by some commenters, is both inconsistent with and outside the scope of the Spectrum Act. The Commission's decision, however, does not foreclose broadcasters from seeking waiver of its rules for stations that are not assigned new channels in the repacking process under its general waiver authority. For example, the Media Bureau has granted requests by several broadcast television licensees for authority to operate experimental digital facilities in order to evaluate the performance of non-ATSC transmission standards. Nothing in this Order is intended to modify the scope of these experimental authorizations or exclude these licensees, if otherwise eligible, from seeking a waiver under Section 6403(b)(4)(B)). Accordingly, only full power and Class A stations that are assigned new channels in the repacking process, and consequently are eligible

for reimbursement, will be permitted to operate pursuant to a waiver granted under Section 6403(b)(4)(B). A full power or Class A station in a channel sharing arrangement may apply for a waiver under Section 6403(b)(4)(B) in cases where the sharer station has been assigned a new channel in the repacking process and is therefore eligible for reimbursement. The Commission adopts its proposal in the NPRM to require each licensee that is subject to a channel sharing arrangement and operates pursuant to a service rule waiver under Section 6403(b)(4)(B) to provide one broadcast television program stream at no charge to the public.

464. The Media Bureau will accept waiver requests filed pursuant to Section 6403(b)(4)(B) during a 30 day window commencing upon the date that the Channel Reassignment PN is released. Licensees may request that a waiver be granted on either a temporary or a permanent basis. A licensee will have 10 days following the grant of a waiver by the Media Bureau to notify the Media Bureau whether it accepts the terms of the waiver.

465. A licensee that is granted and accepts the terms of a waiver under Section 6403(b)(4)(B) will not qualify for reimbursement, regardless of the duration of the waiver. Once a licensee accepts the terms of its waiver under Section 6403(b)(4)(B), a licensee will not later become eligible for reimbursement if its waiver no longer is effective because, for example, it expires, it is canceled for failure to comply with any terms or conditions of waiver, or the licensee voluntarily chooses to broadcast in accordance with current Commission rules. However, licensees are required to meet all requirements for obtaining reimbursement established by the Commission, such as filing a timely estimated cost form, until they are granted and accept the terms of their waiver. Compliance with such reimbursement-related requirements is necessary to ensure timely reimbursement in the event a station's waiver request is denied or the station declines to accept the terms of a waiver grant. If a waiver request is granted and the station accepts the terms of the grant, the station will no longer be subject to reimbursement-

related requirements. Furthermore, unless otherwise instructed by the Media Bureau, licensees that are granted and accept the terms of a waiver under Section 6403(b)(4)(B) or licensees with a pending waiver application must comply with all filing and notification requirements, construction schedules, and other post-auction deadlines, established in this Order.

f. Other Reimbursement Issues

466. Reimbursement Limit. The Commission disagrees with commenters who argue that the $1.75 billion Reimbursement Fund serves as a limit on the Commission's repacking authority. While the Commission's goal in administering the Reimbursement Fund will be to reimburse all eligible costs reasonably incurred, the statute on its face does not condition the Commission's repacking authority on its ability to do so. Rather, Section 6403(b)(4)(A) requires only that the Commission "reimburse costs reasonably incurred" by eligible broadcasters and MVPDs "from amounts available" in the Fund. By contrast, Congress authorized reimbursement of the relocation costs of channel 37 incumbent users "provided that all such users can be relocated and that the total relocation costs of such users do not exceed $300,000,000." Congress's determination not to similarly tie reimbursement of broadcaster relocation costs to the total amount of those costs supports its reading of Section 6403(b)(4)(A). Congress explicitly placed other financial conditions on the Commission in the Spectrum Act as well, such as establishing a minimum proceeds requirement for the forward auction. Congress did not, however, require that that the forward auction proceeds be sufficient to cover the total relocation costs that might be eligible for reimbursement. On the contrary, it required that such proceeds be sufficient to cover, inter alia, "the estimated costs for which the Commission is required to make reimbursements under subsection (b)(4)(A)." (Spectrum Act Section 6403(c)(2)(B)(iii). See, e.g., Wolverine Power Co. v. FERC, 963 F.2d 446, 451 (D.C. Cir. 2010) ("Congress knew how to draft an enforcement provision applicable to a 'licensee' but not a 'person.' Accordingly, we

believe that, in enacting section 31(c), Congress meant what it said.”)). As noted below, however, the Commission has no reason to believe that $1.75 billion will be insufficient to cover broadcasters’ total relocation costs. The Commission will seek to minimize repacking costs, and stay within the $1.75 billion Congress provided, by optimizing channel assignments at the conclusion of the auction.

467. The Commission also rejects assertions that the reverse auction will not be “voluntary” within the meaning of the statute if broadcasters might incur out-of-pocket relocation costs. As directed by the Spectrum Act, incentive auction participation for broadcasters will be “voluntary.” Spectrum Act Section 6403(a). However, the Spectrum Act also grants the Commission broad authority to reorganize the broadcast television spectrum in order to carry out the incentive auction, subject to the “all reasonable efforts” mandate. Spectrum Act Section 6403. Participation in repacking is not voluntary; to the contrary, the Spectrum Act expressly precludes broadcasters from exercising rights that would otherwise be available to them under Section 316 to “protest” license modifications made pursuant to Section 6403(b). Spectrum Act Section 6403(h). As discussed above, the Commission does not interpret the Spectrum Act to insulate broadcasters from any and all uncertainty in the repacking process in derogation of the statute’s other objectives. Likewise, the Commission does not interpret the statute to require it to insulate broadcasters from the mere possibility of out-of-pocket expenses in order to ensure that their choice of whether or not to participate in the reverse auction is voluntary. Nor is there any evidence in the record to suggest that such a possibility would have a coercive effect.

468. The Commission also concludes that conditioning the closing of the auction on the sufficiency of the Reimbursement Fund to cover all reimbursable relocation costs or delaying the closing of the auction until the Fund is determined to be sufficient to cover all such costs would

jeopardize other objectives in the Spectrum Act. As set forth above, the repacking approach the Commission adopts provides speed and certainty by finalizing the channel assignment for each station that will remain on the air only after the final stage rule is satisfied and bidding stops (but before the incentive auction concludes). By imposing another constraint on repacking that is not authorized by the statute, NAB's proposed "hold-harmless" policy would impinge on the speed and certainty required for successful implementation of the incentive auction and would prevent an efficient final channel assignment scheme. In addition, contrary to some commenters' arguments, the Commission cannot provide additional funding in order to guarantee that all broadcasters are fully reimbursed. Section 6402 of the Spectrum Act expressly provides for a deposit of no more than $1.75 billion into the Reimbursement Fund. Providing additional funding would be contrary to the express language of the Spectrum Act.

469. In addition, it will not be possible for the Commission to estimate the precise amount of relocation costs until all eligible broadcasters and MVPDs submit their individual estimates three months after the Channel Reassignment PN is issued. Before that, the Commission will not know which reassigned stations will have to replace equipment rather than reusing it, or to what extent MVPDs will incur expenses associated with fulfilling the carriage rights of reassigned broadcasters. Nor will there be any basis to estimate the number of stations that will forego cost reimbursement by taking advantage of the flexible use waiver option under Section 6403(b)(4)(B) of the Spectrum Act.

470. The Commission emphasizes that it has no reason, at this time, to believe that the Fund will be insufficient to cover all eligible relocation costs. Moreover, the Commission plans to take appropriate measures to disburse funds from the Reimbursement Fund as fairly and efficiently as possible. As indicated above, after the final stage rule is satisfied and the bidding stops, the Commission intends to optimize the final broadcast channel assignments to minimize

relocation costs. The Commission also notes that reassigned broadcasters will have the opportunity, post-optimization, to seek an alternate channel in the interest of minimizing relocation costs. The Commission has discussed at length above the various measures it adopts to ensure that the Reimbursement Fund is used as efficiently as possible, and addresses below cost mitigation measures that also may help to reduce demands on the Reimbursement Fund. If future developments suggest that $1.75 billion will be insufficient to cover all eligible costs, the Commission delegates authority to the Media Bureau to develop a prioritization scheme for reimbursement claims.

471. Equipment Repurposing. All entities seeking reimbursement from the Reimbursement Fund should reuse their own equipment, to the extent possible, rather than obtaining new equipment paid for by the Reimbursement Fund. To the extent eligible broadcasters and MVPDs seek reimbursement for new equipment, they must provide a justification when submitting their estimated cost form as to why it is reasonable under the circumstances to purchase new equipment rather than modify their corresponding current equipment in order to change channels or to continue to carry the signal of a broadcaster that changes channels. The Commission also encourages winning reverse auction bidders to repurpose their equipment to the extent possible. In addition, the Commission encourages reassigned broadcasters to seek out previously used equipment no longer needed by other stations, and to make any equipment that is no longer needed available for use by another entity.

472. Unlike the DTV transition, in which there was little demand for used analog equipment, following the incentive auction broadcasters could obtain used digital equipment, either on the secondary market or through an equipment swap, that is significantly less expensive than new equipment. In addition to cost savings, repurposing equipment could help address any potential equipment shortages. A reassigned broadcaster that cannot retune its transmitter to

accommodate its new channel position may be able, for example, to sell the transmitter directly to another broadcaster or to an entity that purchases used equipment for resale. A broadcaster also may be able to purchase a previously used transmitter that works on its newly assigned channel. In addition, broadcasters in the same geographic region may consider swapping equipment that is no longer needed or usable on their newly assigned channels. The Commission recognizes that there may be significant costs associated with transporting used equipment and that cost savings may be achievable only if appropriate used equipment is available locally. The Commission encourages broadcasters and MVPDs that cannot sell or swap unneeded equipment to consider donating it to an educational institution or other charitable organization. As described above, the Commission will use site visits to validate that entities that received reimbursement for purchasing new equipment actually have deployed that new equipment.

473. Equipment Sharing. The Commission encourages broadcasters to consider ways in which they may save expenses by sharing equipment. For example, it may be possible for broadcasters to share an antenna or other facilities in a manner that reduces the participating stations' overall relocation costs or contributes to more efficient use of the broadcast spectrum. In particular, the Commission encourages broadcasters to consider whether joint use of a broadband antenna would be possible and would represent an overall cost savings as compared to the purchase of separate antennas for each of the participating stations.

474. Bulk Purchasing. At this time, the Commission declines to arrange for the bulk purchase of equipment or services or to oversee any such effort. The record does not provide clear information regarding whether bulk purchasing would provide substantial benefits, in part because certain equipment, such as antennas, must be specialized for particular channels, locations, and coverage areas and because many broadcasters have existing relationships with equipment vendors. It may be useful for broadcasters and MVPDs to consider whether these

kinds of arrangements could generate cost savings and result in more efficient use of the $1.75 billion Reimbursement Fund.

D. Transition Procedures for Other Services and Unlicensed Operations

1. LPTV and TV Translator Stations

475. The Commission modified its displacement rules with respect to operating LPTV and TV translator stations that are displaced as a result of the incentive auction or the repacking process. After the release of the Channel Reassignment PN and after eligible full power and Class A television stations have an opportunity to file construction permit applications for their new facilities, including an alternate channel or an expanded facility, the Media Bureau will announce a limited window for operating LPTV and TV translator stations to submit displacement applications. This filing window will be open only to operating stations that (1) are displaced by a full power or Class A television station as a result of the incentive auction or the repacking process, (2) will cause interference to or receive interference from frequencies repurposed for new, flexible use by a 600 MHz Band wireless licensee, or (3) are licensed on frequencies that will serve as part of the 600 MHz Band guard bands. The Commission delegated authority to the Media Bureau to announce the terms of the limited displacement window consistent with the approach outlined above.

476. The Commission rejected calls to allow displacement relief applications to be filed at any time without requiring stations to wait for a window finding that accepting displacement applications during a limited window will ensure that all affected stations are given an equal opportunity to obtain a new channel and will avoid the "race to the courthouse" that occurs with first-come, first-served filing opportunities.

477. The Commission found that the public interest would be served by allowing LPTV and TV translator stations with mutually exclusive displacement applications to explore

engineering solutions or agree on a settlement to resolve the mutual exclusivity. The Commission delegates authority to the Media Bureau to announce the terms of the engineering solution or settlement opportunity that will be provided to mutually exclusive displacement applications filed by LPTV or TV translator stations as a result of the auction or repacking process, consistent with the Commission's existing rules, including the monetary limits on settlement payments and reporting requirements. This approach will expedite the displacement process and prevent processing delays that could result in stations having to go silent. Should no resolution of mutually exclusive applications occur through an engineering solution or settlement, the Commission grants a selection priority to the licensees of any displaced DRTs. This means that the DRT displacement application will be processed first and, if granted, will result in the dismissal of all pending displacement applications that are mutually exclusive with it. The Commission concludes that DRT displacement applications should be given priority over mutually exclusive displacement applications filed for LPTV and other TV translator stations in order to help preserve the existing services of full power stations. Should two or more stations remain mutually exclusive after the application of the selection priority, the Commission will use an auction as a last resort to resolve remaining displacement groups.

478. The Commission rejected a proposal to grant a selection priority to the displacement applications filed by TV translator stations that are operating on an NCE basis and are eligible to receive a community service grant from the Corporation for Public Broadcasting finding that many LPTV stations and other TV translator stations also have important public service missions, and there was not evidence that Congress intended for CPB-Qualified TV translators to receive preferential treatment over other low power stations. Further, stations are permitted to change their designation from "low power television" to "translator" without prior Commission

approval; thus, stations could change their designation to gain the selection priority if the Commission granted the proposal.

479. In addition, the Commission declined to adopt the proposal in the NPRM to provide a selection priority to displacement applications filed by stations that offer the only local, over-the-air television service in their market and the proposal made by some commenters to prioritize stations that provide network service to their community. The Commission's longstanding policy has been to avoid involvement in the format and other content choices of licensees based on First Amendment concerns, and the Commission concluded that adoption of these proposals would be inconsistent with that policy.

480. The Commission announced that it intended to initiate the a rulemaking proceeding (the LPTV/TV Translator Proceeding) shortly after the release of the Report and Order to consider additional measures that may help alleviate the consequences of LPTV and TV translator station displacements resulting from the incentive auction and the repacking process, and that it intended to issue a Report and Order prior to the commencement of the incentive auction. First, the LPTV/TV Translator Proceeding will consider whether to modify the current September 1, 2015 deadline for LPTV stations to convert to digital service. Second, the LPTV/TV Translator Proceeding will consider whether to permit LPTV and TV translator stations to participate in channel sharing arrangements after the conclusion of the reverse auction. Third, the Commission will consider in the LPTV/TV Translator Proceeding whether to create a new digital replacement translator service for stations that experience losses in their pre-auction service areas. Fourth, the Commission will explore ways of maximizing the number of channels available to LPTV and TV translator stations in the remaining television bands. Finally, the Commission will invite input on any other measures it should consider to further mitigate the impact of the auction and repacking process on low power stations.

481. The Commission declined to adopt several other proposals finding that these proposals either are not feasible at this time or would conflict with the other goals of the incentive auction. The Commission rejected the proposal to set aside channels 2-4 for the exclusive use of LPTV or TV translator stations finding that such a set-aside would eliminate available channels that otherwise could be assigned to full power and Class A stations and would require relocating a number of full power and Class A stations to different channels and would also be inconsistent with the goal to allow market forces to determine the highest and best use of spectrum. The Commission also rejected a proposal to provide displaced LPTV stations with cable carriage rights at their new location or channel pointing out that no commenter maintains that such action would be within the Commission's statutory authority and, regardless, the Commission declined to grant carriage rights beyond those required under the Communications Act.

482. The Commission concluded that new 600 MHz wireless licensees must provide LPTV and TV translator stations advance notification if they intend to commence operations in areas of their geographic licenses where there is a likelihood of receiving harmful interference from an LPTV or TV translator station. After receiving such notification, the LPTV or TV translator station must cease operations or reduce power in order to eliminate the potential for harmful interference to the operations of the 600 MHz licensee.

483. The 600 MHz Band licensee must provide notice to the LPTV or TV translator licensee in the form of a letter, by certified mail, return receipt requested. The notice must indicate the date that the 600 MHz Band licensee intends to commence operations, and must be delivered to the LPTV or TV translator licensee not less than 120 days in advance of that date. The LPTV or TV translator licensee must cease operating or reduce power before the commencement date set forth in the notice. This obligation will apply even if the LPTV or TV

translator station has submitted a displacement application that has not been granted. LPTV and TV translator stations may continue operating on channels in the 600 MHz Band until a licensee wireless licensee commences operations pursuant to the notification process the Commission is adopting. The Commission concluded that it is appropriate to adopt more definitive channel clearing obligations for LPTV and TV translator than were implemented in the 700 MHz transition in order to ensure that new 600 MHz Band licensees will have prompt and efficient access to their spectrum. This approach will provide certainty to new licensees, helping to ensure the success of the auction and a smooth transition.

484. The Commission will require that LPTV and TV translator stations operating on channels that include frequencies repurposed for 600 MHz Band guard band use (including the duplex gap) cease operations on those frequencies. The Commission rejected a proposal that LPTV stations be allowed to continue operating on any channels allocated as guard bands finding that the 600 MHz Band Plan designates spectrum to serve as guard bands, and consistent with its proposal in the NPRM, only low power device operations will be permitted in those bands and make this spectrum available for innovative unlicensed use nationwide. In order to fully transition this spectrum for unlicensed use on a nationwide basis, on a nationwide basis, all LPTV and TV translator licensees operating in spectrum repurposed for 600 MHz Band guard band use will be required to cease operating on that spectrum no later than the end of the post-auction transition period (i.e., 39 months after the issuance of the Channel Reassignment PN). In addition, as set forth above, an LPTV or TV translator licensee operating in spectrum reserved for the guard bands will be required to cease operating prior to that date if any 600 MHz Band licensee has notified them that their operations would be likely to cause harmful interference in areas where the wireless licensee intends to commence operations. LPTV stations that currently

operate on channels that include frequencies that are repurposed as 600 MHz Band guard bands will be eligible to file an application for a new channel in the displacement window.

2. Television Fixed Broadcast Auxiliary Stations

485. The Commission will continue to license fixed BAS on a secondary basis in the television bands following the incentive auction. As a result of the incentive auction and repacking process, BAS operators will be required to vacate the 600 MHz Band no later than the end of the post-auction transition period. Following the issuance of the Channel Reassignment PN, BAS operations will have significant advance notice of the channels they may need to vacate, which will assist them in advance planning for that process.

486. Notification Procedures for Operations in the 600 MHz Band and the Post-Auction Television Bands. The Commission will continue to license fixed BAS on a secondary basis in the UHF spectrum that remains allocated and assigned to full power television services nationwide, it will require all fixed BAS stations to cease operating and relocate from the 600 MHz Band no later than the end of the post-auction transition period (i.e., 39 months after issuance of the Channel Reassignment PN). Additionally, before the end of this transition period, if a new 600 MHz licensee intends to commence operations, the 600 MHz licensee must provide 30 days' advance notice to the BAS operator that it intends to commence operations and that the BAS station is likely to cause harmful interference to those operations. The BAS operator must cease operating on that channel within 30 days of receiving notice. The notice from the 600 MHz licensee to the BAS licensee must take the form of a letter, by certified mail, return receipt requested. A 30-day notice period will serve the public interest by both protecting BAS operations and speeding the deployment of new broadband wireless services.

487. In addition, as a secondary service, BAS may not cause interference to repacked television stations. Should a repacked broadcast television licensee in the 600 MHz Band or the

repacked UHF Band experience harmful interference from a BAS licensee, the BAS licensee must, pursuant to the Commission's rules, immediately cease operations and may not resume operations until the interference problem is resolved.

488. Operations in the Guard Bands. The Commission also will require that BAS operations on channels that include frequencies that will be reserved for guard bands pursuant to this Order cease operations on those channels. The 600 MHz Band includes guard bands (including the duplex gap), and consistent with the Commission's proposal in the NPRM, we will permit only low power operations in those bands. All BAS operations in spectrum reserved for guard bands will be required to cease operating on that spectrum no later than the end of the post-auction transition period (i.e., 39 months after the issuance of the Channel Reassignment PN).

3. Television White Space (TVWS) and Unlicensed Device Operations

489. Operations in the Post-Auction Television Bands. The Commission will continue to allow television white space (TVWS) devices to operate under the current part 15 rules in the spectrum that remains allocated and assigned for TV broadcast services following the incentive auction. The Commission notes that, as the television bands are repacked, there are likely to be fewer available channels for TVWS devices in this spectrum and it intends to designate one unused TV channel in each area for shared use by TVWS devices and wireless microphones.

490. Operations in the 600 MHz Band Guard Bands. The Commission will initiate a separate 600 MHz and TVWS Part 15 Proceeding in the near term to develop the technical parameters for unlicensed operations in the spectrum that, the incentive auction, will serve as 600 MHz Band guard bands—specifically, the bands between broadcast television and wireless services, the duplex gap, and bands adjacent to channel 37.

491. Operations on Unused Television Channels Currently Designated for Wireless Microphones. The Commission will no longer require that up to two unused channels in any area be designated exclusively for wireless microphone operations. It will, however, continue to prohibit TVWS devices from operating on these channels until our rules to improve our TV bands databases to provide for more immediate protection of registered wireless microphone operations become effective, after which time TVWS devices potentially could operate on any of these channels. The Commission also intends to designate one television channel for shared use by wireless microphones and TVWS devices.

492. Operations in the 600 MHz Band. The Commission will permit the continued operation of TVWS devices on repurposed spectrum except in those areas in which a 600 MHz Band licensee commences operations. After obtaining their licenses the Commission expects that 600 MHz Band licensees will be commencing operations at different places at different times depending on their business plans and other factors. The Commission is persuaded by those that unequivocally oppose unlicensed use of this repurposed spectrum following the incentive auction. Since TVWS devices can operate only on channels identified in the TV bands databases, these databases can serve to ensure that unlicensed operations will no longer occur on a channel on which a licensee has commenced service. When a 600 MHz Band licensee plans to commence operations on frequencies that include channels available for unlicensed operations under the rules for TVWS devices, that licensee can notify any of the TV bands database Administrators when and where it plans to commence operations. Through these actions, the TV bands databases would be updated and would preclude unlicensed operations in those areas.

4. Low Power Auxiliary Station and Unlicensed Wireless Microphones

493. The Commission is adopting several rule changes that address operations of licensed Low Power Auxiliary Station (LPAS) and unlicensed wireless microphones in the post-auction

television bands, as well as the operation of these devices in the 600 MHz Band guard bands once the technical rules are established in a separate rulemaking. Wireless microphone operators today rely on UHF band spectrum to provide important broadcasting and production services, as well as other services, and will need some time to transition many of their operations to other spectrum bands. Accordingly, the Commission will allow wireless microphone operations in the post-auction television bands, 600 MHz Band guard bands, and the 600 MHz Band spectrum repurposed for wireless services during the post-auction transition. The transition period will be helpful in addressing the important needs of wireless microphone users in the near term as future technologies are developed for accommodating their needs through a combination of more efficient use of post-auction television band spectrum as well as use of spectrum outside of the current UHF television band.

494. Operations in the Post-Auction Television Bands. Licensed LPAS and unlicensed wireless microphone operations may continue to operate on available unused television channels under the revised rules for co-channel operations. The Commission notes that, with the post-auction transition and the repacking of television stations (including relocated full power stations, LPTV, and BAS), the particular channels available for wireless microphone users may change, and these users will need to adjust their operations accordingly. In addition, the Commission intends to designate one television channel following the auction for shared use by wireless microphones and TVWS devices, and note that on any of the television channels available for TVWS devices, wireless microphone users can obtain protection from interference from TVWS devices by registering in the TV bands databases.

495. Operations in the 600 MHz Band Guard Bands. The Commission also will allow wireless microphone users to operate on the spectrum established for 600 MHz Band guard bands (including the duplex gap) to the extent that those channels are available for use under the

revised separation distance rules for co-channel operation with TV broadcast stations. Wireless microphone users generally will be permitted to operate on an unlicensed basis in the guard bands, while broadcasters and cable programming networks operating wireless microphones on a licensed basis will be permitted to obtain interference protection from unlicensed devices in a portion of the duplex gap at specified times and locations, on an as-needed basis. Wireless microphone use in the guard bands will be subject to any rule revisions that the Commission later adopts in the planned 600 MHz and TVWS Part 15 Proceeding, which will develop rules for unlicensed and other low power operations in the guard bands that protect licensed operations outside of the guard bands.

496. Operations on Unused Television Channels Currently Designated for Wireless Microphones. The Commission will no longer continue to designate up to two unused television channels in any area exclusively for wireless microphone operations, although it does intend to designate one unused television channel for shared use by wireless microphone and TVWS devices. To help ensure that licensed wireless microphone operators can obtain access to available television channels they need free of interference from TVWS devices, in our planned 600 MHz and TVWS Part 15 Proceeding, the Commission will be seeking comment on ways we can update the rules for TV bands databases to provide for more immediate reservation of unused and available channels in the television bands. However, for some period of time following the incentive auction, the two channels currently available exclusively for wireless microphones may, depending on the particular location, continue to be unused by either broadcasters or 600 MHz Band licensees. To the extent that one or both of these channels remain available for wireless microphones in particular locations, we will continue to prohibit TVWS devices from operating on these channels until the Commission's rules improve our TV bands database registration process (providing for more immediate protection from interference

by TVWS devices) become effective. After that time, any available channels could be used by either wireless microphones or TVWS devices.

497. Operations in the 600 MHz Band. Winning forward auction bidders will not have been granted their 600 MHz Band licenses immediately following the incentive auction, and may not commence operations for some period of time. In addition, as wireless microphone users and manufacturers point out, many wireless microphone users have recently incurred substantial costs associated with buying new UHF band wireless microphone equipment following their relocation outside of the 700 MHz Band. The Commission finds that during the post-auction transition period the public interest will be served by allowing wireless microphone operations in the repurposed spectrum.

498. The Commission will permit wireless microphone users to continue to operate in the 600 MHz Band during the post-auction transition period subject to certain conditions designed to protect the 600 MHz licensees' primary rights to make full use of their licensed spectrum. Specifically, for this transition period, to the extent that either licensed LPAS or unlicensed wireless microphone users operate in the 600 MHz Band, consistent with their secondary or unlicensed status they will not be entitled to any interference protection from operations of the primary 600 MHz licensees. The Commission also requires that wireless microphone users cease any operations in the 600 MHz Band if their operations cause harmful interference to any 600 MHz licensee's operations. Finally, the Commission established a hard date by which all wireless microphone operations must be transitioned out of the 600 MHz Band, requiring that all such operations cease no later than the end of the post-auction transition period (i.e., 39 months after the issuance of the Channel Reassignment PN). The Commission finds that establishing a hard date by which all licensed and unlicensed microphone operations must cease operations provides needed certainty and clarity that wireless microphone operators cannot continue

operations in spectrum assigned to wireless licensees and helps ensure that wireless providers can operate without interference.

499. In taking these actions, the Commission seeks to accommodate the needs of wireless microphone users in the near term, providing some necessary time for transitioning operations out of the repurposed 600 MHz Band, while the Commission protect the primary rights of 600 MHz licensees. Considering the various types of wireless microphone users, and the various types of wireless microphone devices in use today (including devices that can only operate on particular frequencies in the UHF band), some time is needed in order to obtain new equipment and transition wireless microphone users off of the frequencies that are being repurposed for 600 MHz Band service, whether to other available frequencies in the UHF band (i.e., the post-auction television bands or the 600 MHz Band guard bands) or to spectrum outside of the UHF band.

V. POST-TRANSITION REGULATORY ISSUES

A. Broadcast Issues

1. Media Ownership Rules and Diversity

a. Media Ownership Rules

500. The Commission will grandfather existing station combinations previously approved by the Commission that otherwise would no longer comply with the media ownership rules as a result of the reverse auction. See Review of the Commission's Regulations Governing Television Broadcasting, MM Docket No. 91-221, Report and Order, 14 FCC Rcd 12903, 12932–33, para. 64 (1999) (holding that, if an entity acquires a duopoly under the Commission's current local television ownership rule, "it will not later be required to divest if the number of operating television voices within the market falls below eight or if the two merged stations subsequently are both ranked among the top four stations in the market; however, a duopoly may not automatically be transferred to a new owner if the market does not satisfy the eight voice/top

four-ranked standard"). Absent a waiver of the rules, however, the Commission will not accept channel sharing bids in the reverse auction that would cause a media ownership rule violation by a party to the channel sharing arrangement based on the rules and facts as they exist at the time the application to participate in the auction is filed. Specifically, the Commission will not accept channel sharing bids that would trigger a violation of the local television multiple ownership rule, the newspaper/broadcast cross-ownership rule, or the radio/television cross-ownership rule by a channel sharing partner. The Commission will accept reverse auction bids that would trigger a violation of the national television multiple ownership rule, which limits a broadcaster's national audience reach to 39 percent, subject to a "UHF Discount" attributing only 50 percent of the TV households in a DMA to UHF stations. Such a violation potentially could be caused by the relocation of a sharee station if the contour of the station newly overlaps or encompasses any other media outlets in which the licensee of the station has an attributable ownership interest. Because the licensee in this situation would exercise control over the triggering of a potential violation of the Commission's rules and because the licensee would have the ability to determine prior to the auction that such a violation would occur, grandfathering would be inappropriate and contrary to the public interest. The Commission does not believe this limitation on grandfathering will unduly discourage reverse auction participation. In addition, the Commission agrees with commenters that it is appropriate to keep its grandfathering policy simple to avoid unnecessary disruption to the broadcast industry.

501. The Commission rejects arguments that grandfathering should not be permitted because it would "irreparably harm" ownership diversity. While the Commission acknowledges concerns about the potential impact of the auction on broadcast ownership diversity, it concludes that grandfathering existing combinations that have been approved is justified in these unique circumstances. The Commission structures transitional procedures as appropriate in light of the

specific rule changes at issue, whether the changes could have been anticipated when the combinations were acquired, reliance on existing rules, and the nature and degree of disruption that would be caused by requiring immediate divestitures. Broadcasters have made substantial long-term investments in their station combinations in reliance on Commission approval of their station acquisitions and its multiple ownership rules. It would be inequitable if owners of existing combinations were negatively affected if circumstances that they could not have anticipated and could not control subsequently change such that the combination no longer complies with the rules. For similar reasons, the Commission rejects NHMC's proposal that it review every combination "on a case-by-case basis, upon completion of the auction process" to assess whether the combination serves the Commission's public interest goals, including promoting ownership diversity, in the post-auction environment. NHMC's proposal would undermine the certainty regarding the auction and the repacking processes that is critical to the overall success of the incentive auction.

502. Upon the sale of a grandfathered station combination, the Commission will require the new owner to comply with the media ownership rules in place at the time of the transaction or obtain a waiver. The Commission rejects Tribune's proposal to allow grandfathered combinations to be sold intact because it is inconsistent with prior FCC practice, and is are not persuaded that it should depart from current policy here.

b. Diversity of Media Ownership

503. As an initial matter, the Commission emphasizes that all qualified broadcasters will have an opportunity to enter the reverse auction. Consistent with the Spectrum Act, auction participation will be voluntary: no broadcasters will be compelled to participate. The Commission concurs with commenters about the importance of outreach regarding the incentive auction to broadcasters, including those owned by minorities or females. As noted above, the

Commission has conducted numerous workshops and other direct outreach efforts to help broadcasters, including those that are minority- or female-owned, make informed business decisions about whether and how to participate in the reverse auction. As broadcast representatives have emphasized repeatedly, access to capital is an ongoing challenge for minority and female broadcasters. Voluntary participation in the reverse auction, via a channel sharing, UHF-to-VHF, or high-VHF-to-low-VHF bid, offers a significant and unprecedented opportunity for these owners to raise capital that may enable them to stay in the broadcasting business and strengthen their operations. The Commission considers fostering minority and female ownership of broadcast stations an important goal, and its efforts to promote such ownership will continue after the auction and the repacking process.

504. The Commission rejects suggestions to assess the impact of the auction on minority and female ownership levels by collecting from all auction participants the same ownership information it already collects through its biennial ownership report forms. Although measuring the impact of the auction on broadcast ownership diversity is important, the additional data collection efforts proposed would replicate existing efforts and thus impose an unnecessary burden. Its required biennial ownership reports provide extensive information about the ownership structure of each commercial broadcast licensee, including information about minority and female ownership status. The collection of data biennially and the use of a uniform "as of" date give the Commission successive "snapshots" of the status of minority and female ownership in the industry on a fixed, periodic schedule. This information provides a basis for analyzing ownership trends within the broadcast industry.

2. Channel Sharing Operating Rules

505. The Commission will require all channel sharing agreements (CSAs) to include certain key provisions. Specifically, in addition to the existing requirement regarding access to

shared channel capacity, CSAs must contain provisions outlining each licensee's rights and responsibilities in the following areas: (1) access to facilities, including whether each licensee will have unrestrained access to the shared transmission facilities; (2) allocation of bandwidth within the shared channel; (3) operation, maintenance, repair, and modification of facilities, including a list of all relevant equipment, a description of each party's financial obligations, and any relevant notice provisions; and (4) termination or transfer/assignment of rights to the shared licenses, including the ability of a new licensee to assume the existing CSA. While channel sharing partners will be required to address these matters in their CSAs, they may craft provisions as they choose, based on marketplace negotiations, subject to pertinent statutory requirements and the Commission's rules and regulations. CSAs also must include a provision affirming compliance with the channel sharing requirements in the Report and Order, the Channel Sharing Report and Order, and the Commission's rules. The Commission reserved the right to review CSA provisions and require modification of any that do not comply with these requirements or the Commission's rules.

506. The Commission announced that, should a channel sharing station's license be terminated due to voluntary relinquishment, revocation, failure to renew, or any other circumstance, the remaining channel sharing station or stations will continue to have rights to their portion(s) of the shared channel. The rights to the terminated portion of the shared channel will revert to the Commission for reassignment. The Commission will condition the final award of the rights to the terminated portion of the shared channel on the new channel sharing licensee agreeing to the terms of the existing CSA. If the new channel sharing licensee and the remaining channel sharing station(s) agree to renegotiate the terms of the existing CSA, the agreement may be amended, subject to Commission approval. If the negotiations to amend the agreement are unsuccessful, the remaining station or stations may continue to operate while the channel

remains a "shared" allocation and subject to reassignment. The Commission will allow rights under a CSA to be assigned or transferred, subject to the requirements of Section 310 of the Communications Act, the rules, and the requirement that the assignee or transferee comply with the applicable CSA.

507. The Commission declined to adopt a rule that would make channel sharing licensees jointly responsible for compliance with specific rules. The Commission received no comment in response to the inquiry in the NPRM regarding whether requiring joint responsibility with respect to certain technical requirements is necessary or appropriate, and the record in this proceeding does not support a change to the existing policy.

508. The Commission adopted rules to govern NCE stations operating on reserved channels that choose to channel share. Specifically, an NCE licensee operating on a reserved channel, whether it relinquishes its channel in order to share a non-reserved channel or agrees to share its reserved channel with a commercial station, will retain its NCE status and must continue to comply with the rules applicable to NCE licensees. In either case, the NCE station's portion of the shared channel (which, at a minimum, must enable the broadcast of one SD programming stream) will continue to be reserved for NCE-only use. Further, a reserved-channel NCE sharing station may assign its license only to a qualified NCE entity. Similarly, if a reserved-channel NCE sharing station's license is relinquished or terminated, only another entity meeting the NCE eligibility criteria will be considered for reassignment of the license.

509. The Commission adopted rules governing the power levels at which stations may operate and the applicable MVPD carriage rights when both a full power and a Class A station participate in a channel sharing agreement by allowing a Class A station to operate under the Part 73 rules governing power levels and interference if it shares a full power television station's

channel. Similarly, a full power station sharing a Class A station's channel must operate under the Part 74 power level and interference rules.

510. The Commission interpreted the Spectrum Act to entitle a Class A station that channel shares with a full power sharer only to those carriage rights to which a Class A station would be entitled at the shared location were it not sharing. The Commission also clarified that a full power sharee, whether a commercial or NCE station, that channel shares with a Class A licensee will have the same carriage rights at the channel sharing location that a non-channel sharing full power station would have at that location. In addition, low power stations, including Class A stations, lack statutory mandatory carriage rights on DBS systems, and that lack of such rights will continue when a Class A station channel shares with a full power station.

511. The Commission noted that, as a result of channel sharing with a Class A station and operating with the Class A station's reduced power level, a full power station may find it needs to use alternative means, such as fiber or microwave, to deliver a good quality signal to a cable system headend it previously could reach with its over-the-air signal. This change, however, will not affect its right to demand carriage throughout its market. Similarly, NCE stations that share with a Class A station will retain the ability to cure their signal and secure must-carry rights, but only with respect to headends located within 50 miles of their communities of license, or located within their noise limited service contours – the same rights they possess today.

B. 600 MHz Band Technical and Service Rules

1. Technical Rules

a. Out-of-Band Emission Limits

512. Four interference scenarios exist that relate to OOBE limits: (1) interference to adjacent 600 MHz Block operations; (2) interference to adjacent Lower 700 MHz Band

operations; (3) interference to television operations; and (4) interference to channel 37 operations.

513. Interference to Adjacent 600 MHz Block Operations. We adopt 47 CFR 27.53(g) of the Commission's rules, which includes OOBE attenuation of $43+10*\log_{10}(P)$ dB and the associated measurement procedure, to address interference between adjacent blocks within the 600 MHz Band, and between 600 MHz Band spectrum and adjacent bands. This OOBE limit is commonly employed in other commercial wireless services bands and it has generally been found to be adequate in preventing harmful interference to adjacent spectrum blocks operations. Additionally, it is beneficial to maintain comparable emissions limits among commercial bands with similar services so as not to disadvantage one band over another.

514. Interference to Adjacent Lower 700 MHz Band Operations. The upper end of the 600 MHz Band uplink band is adjacent to the lower portion of the Lower 700 MHz Band, which is also being used for mobile uplink operations. As discussed above, the interference environment between these two bands will be similar to interference within either band and the OOBE limits we are adopting will protect adjacent Lower 700 MHz Band because their operations are harmonized.

515. Interference to Television Operations. Under the 600 MHz Band Plan, the lower end of the 600 MHz Band downlink band will likely be adjacent to broadcast television operations, with a guard band between the two services. Most parties commenting on this issue support the Commission's proposal to adopt the Lower 700 MHz Band OOBE requirements. However, IEEE 802 and the Wi-Fi Alliance express concern that emissions from 600 MHz Band uplinks may cause interference to nearby television receivers and that the Commission should regulate the OOBE limits of all newly licensed devices (e.g., mobile broadband handsets) to ensure that we protect all authorized devices. Under the 600 MHz Band Plan, mobile uplink operations are

not adjacent to television broadcast spectrum and will therefore not interfere with television receivers.

516. Based on our technical analysis, this OOBE requirement, in conjunction with the guard bands we establish, will prevent harmful interference to television and channel 37 operations. Accordingly, the proposed OOBE limits for the 600 MHz Band, with a required guard band, will address interference to all television operations. We note that in the event that a specific incidence of harmful interference occurs, we may impose stricter emissions limits as a remedy. By applying the same OOBE limits as currently exist between the Lower 700 MHz Band and television stations, 600 MHz Band licensees will provide similar protection as exists today.

517. Interference to Channel 37 Operations. Depending on the total amount of spectrum made available for flexible use, we may permit either television stations, and/or 600 MHz Band base stations to operate adjacent to channel 37 operations. Television stations currently operate adjacent to channel 37 without any guard bands at very high power, with no reported problems, which indicates that the television stations' OOBE and power limits are sufficient to protect channel 37 operations. Both of these current limits are higher than those adopted for the 600 MHz Band. The 600 MHz Band OOBE and power limits coupled with three megahertz guard bands will provide as much or more protection to channel 37 operations than they currently receive from television operations. Therefore, these limits are sufficient to protect against harmful interference to existing channel 37 operations.

518. Some commenters argue that we should adopt more stringent emission limits to protect WMTS operations in channel 37. Specifically, they express concern that the reallocation of the 600 MHz Band for fixed and mobile services will result in a large number of mobile devices and/or base stations operating in close proximity of WMTS operations on adjacent

channels, which will result in significant interference to WMTS operations. To address possible interference from mobile devices to WMTS operations, these commenters propose that we apply the spectral mask for TV white space devices to transmitters operating on channels adjacent to WMTS. In the alternative, WMTS Coalition suggests we restrict all mobile uplink transmissions to bands well removed from channel 37. In our Band Plan scenarios, the mobile uplink band will not be adjacent to WMTS operations; as a result, mobile devices should not cause harmful interference to WMTS operations.

519. To address possible harmful interference from base stations, commenters suggest we either prohibit base stations from operating within a specific range of WMTS systems, coordinate base station operations with adjacent WMTS systems and limit the maximum allowable field strength of base station emissions, or consider creating a guard band between channel 37 WMTS operations and wireless broadband operations. To protect Radio Astronomy facilities from wireless downlinks into Radio Astronomy observations, NAS-CORF proposes OOBE limits below $43+10*\log_{10}(P)$ dB.

520. We also note that Sony recommends that we clearly define transmission masks for all operations under the new 600 MHz Band, including both television and wireless data, and for both base stations and mobile devices. The Commission's transmission masks for existing spectrum bands and the associated measurement procedures are clearly defined in its "Emission Limits" rules.

521. As discussed above, we adopt a three megahertz guard band between 600 MHz base stations and channel 37 services. Further, we adopt a band plan that has generally large separations between 600 MHz mobile stations and channel 37 services, and require 600 MHz licensees to coordinate with NSF when radio astronomy observatories are near their operations. Given these considerations, the proposed OOBE limits for the 600 MHz Band will mitigate

potential harmful interference to channel 37 operations. If a specific incidence of harmful interference occurs, we may impose stricter emissions limits as a remedy.

b. Power Limits

522. For 600 MHz Band downlink operations, the Commission proposed to limit fixed and base station power for downlink operations in non-rural areas to 1000 watts ERP for emission bandwidths less than 1 MHz and to 1000 watts per 1 MHz ERP for emission bandwidths greater than one megahertz, and to double these limits to 2000 watts or 2000 watts/MHz ERP in rural areas, provided advance notice is given. In addition, the Commission proposed not to apply the power flux density requirements of section 27.55(b) to the 600 MHz Band because there is no provision for high powered (50 kW) stations within the 600 MHz Band. In the 600 MHz Band uplink band, the Commission proposed to adopt the same power limit of three watts ERP for both portables and mobiles that apply to the Lower 700 MHz Band and prohibit higher-powered control station operations, which are allowed in the Lower 700 MHz Band. Commenters overwhelmingly support our adopting the proposed power limits for the 600 MHz Band. We adopt these proposed limits, which will help ensure robust service in the 600 MHz Band while also helping to minimize harmful interference into other bands. These power limits are also commonly employed in other commercial wireless services bands and it has generally been found to be adequate in preventing harmful interference to adjacent spectrum blocks operations.

c. Base Station Antenna Height Restrictions

523. In the NPRM, the Commission proposed to apply the Lower 700 MHz Band flexible base station antenna height rules to 600 MHz Band base stations. See 47 CFR 27.50(c). Consistent with the Commission's proposal, specific antenna height restriction for 600 MHz Band base stations are not necessary. The general requirement to not endanger air navigation

and the effective height limitations implicitly resulting from our co-channel interference rules obviate the need for specific antenna height restrictions for 600 MHz Band licensees. Further, commenters addressing this issue support this proposal. Thus, we will not require specific antenna height restrictions for 600 MHz Band base stations.

d. Co-Channel Interference Between 600 MHz Band Wireless Broadband Systems

524. We adopt the 700 MHz Band co-channel interference requirements, limiting field strength levels at the edge of a license area to 40 dBμV/m for the 600 MHz Band to protect adjacent wireless broadband systems from one another. See 47 CFR 27.55(a). The 700 MHz Band requirements are appropriate because of the 700 MHz Band's similar propagation and interference characteristics. Commenters support this approach. Thus we adopt the proposed co-channel interference levels and expand 47 CFR 27.55(a)(2) of the Commission's rules to include the 600 MHz Band.

e. Interoperability Rule

525. We adopt an interoperability requirement for the 600 MHz Band. Specifically, we require that user equipment certified to operate in any portion of the 600 MHz Band must be capable of operating throughout the 600 MHz Band. Although the 600 MHz Band Plan promotes interoperability by creating a single paired band rather than multiple bands, it does not guarantee that interoperability will naturally occur, particularly since, as a technical matter, multiple filters may be needed depending on how much spectrum is repurposed.

526. Commenters overwhelmingly support the principle of interoperability. Many commenters agree that the Commission should mandate an interoperability requirement while others suggest that the Commission could encourage interoperability through a carefully organized band plan. US Cellular proposes that the Commission should "require that: (1) all

mobile devices designed to operate on 600 MHz paired spectrum must tune to all 600 MHz paired frequencies; and (2) all 600 MHz networks operating on 600 MHz paired frequencies must permit the use of such devices." US Cellular also suggests that, in the event that we offer nationwide downlink-only blocks, any interoperability requirement should apply to downlink-only spectrum as well. Verizon Wireless, however, states that "the Commission should not adopt any interoperability requirement but should instead facilitate interoperability by adopting a well-conceived band plan that minimizes interference issues." It also raises concerns that mandating interoperability will have a negative impact on investment and reduce the value of auctioned spectrum by increasing device complexity, size and cost.

527. Historically, the Commission has supported promoting interoperability. Beginning with the licensing of cellular spectrum, the Commission has opined that consumer equipment should be capable of operating over the entire range of cellular spectrum as a means to "ensure full coverage in all markets and compatibility on a nationwide basis." More recently, a group of small and rural wireless licensees in the Lower 700 MHz Band asserted that the larger wireless carriers had been involved in developing restrictive band classes for 700 MHz mobile equipment, which limited their ability to provide roaming to their customers, delayed the deployment of networks in rural areas, and limited smaller wireless carriers from fully utilizing their spectrum, and urged the Commission to initiate a rulemaking to address interoperability issues in the 700 MHz Band. Subsequently, the Commission took certain steps to implement an industry solution to provide interoperable service in the Lower 700 MHz Band in an efficient and effective manner to improve choice and quality for consumers of mobile services. In reviewing the voluntary solution that would resolve the lack of interoperability in this band, the Commission determined that the voluntary solution would serve the public interest by enabling consumers, especially in rural areas, to enjoy the benefits of greater competition and more choices, and by encouraging

efficient use of spectrum, investment, job creation, and the development of innovative mobile broadband services and equipment.

528. To comply with the interoperability requirement we adopt for the 600 MHz Band, user equipment certified to operate in any portion of the 600 MHz Band must be capable of operating, using the same technology that the licensee has elected to use, throughout the entire 600 MHz Band. While we adopt a band plan that promotes interoperability by creating a single paired band, the unique nature of the incentive auction amplifies the need for certainty and clear rules. Given that we may repurpose more spectrum for flexible use than can be supported by a single filter, promoting interoperability through our band plan is insufficient to ensure interoperability for this band. Thus, we make clear that our interoperability requirement applies to the entire 600 MHz Band, regardless of how many band classes may be created by standards-setting bodies to cover this spectrum assigned for flexible-use licenses (i.e., devices must support the entire 600 MHz Band, regardless of whether services are provided over one 5+5 megahertz block, or multiple spectrum blocks). The benefits of requiring interoperability to promote rapid deployment of the 600 MHz Band, particularly in rural areas, outweigh any potential costs relating to increased device complexity.

529. The Commission's experience with deployment in the Lower 700 MHz Band highlights the need for clear ex ante interoperability rules to promote rapid deployment in the 600 MHz Band, particularly in rural areas. Although Verizon Wireless notes that the Commission chose to defer to voluntary industry initiatives in promoting interoperability in the PCS band, it did so only because "the industry is now working aggressively to complete several voluntary interoperability standards for PCS in a timely manner." The record reflects no such assurances here. We further note that there may be increased complexity of 600 MHz devices independent of any interoperability requirement depending on the amount of spectrum we can

repurpose for 600 MHz Band services. As Verizon readily acknowledges, clearing a large swath of spectrum would inevitably increase device complexity but that repurposing a large amount of spectrum for new wireless use "would be a good 'problem' to have." Because it is essential to promote rural broadband deployment and ensure that consumers have rapid access to 600 MHz Band services, the public interest will be best served by requiring interoperability in the 600 MHz Band, and therefore adopt an interoperability requirement.

530. The 600 MHz Band Plan we adopt today also ensures that we will clear broadcast television stations from channel 51, which will serve as the top edge of the 600 MHz uplink band. Commenters strongly support clearing channel 51 of broadcast television operations to minimize interference to 700 MHz A Block operations, and urge us to consider early relocation of channel 51. Under our 600 MHz Band Plan, pursuant to each of the band plan scenarios we set forth, we will offer the first spectrum block at channel 51. Further, we note that our decisions today on repacking and reimbursement support early, voluntary relocation of channel 51.

f. Other Technical Issues

531. In addition to the specific technical issues addressed above, the Commission proposed to apply several part 27 rules to the 600 MHz Band: equipment authorization, RF safety, frequency stability, antennas structures; air navigation safety, and disturbance of AM broadcast station antenna patterns. See 47 CFR 27.51, 27.52, 27.54, 27.56, 27.63. The Commission reasoned that because the 600 MHz Band will be licensed as a part 27 service, these rules should apply to all licensees, including those who acquire licenses through partitioning or disaggregation. No commenters oppose this proposal. Accordingly, because we are licensing the 600 MHz Band under our part 27 regulatory framework and these rules generally apply to all

part 27 services, we will apply these additional part 27 rules to 600 MHz Band licensees.[3]

2. Service Rules

a. Flexible Use, Regulatory Framework, and Regulatory Status

(i) Flexible Use

532. We adopt the Commission's proposal to license the 600 MHz Band under flexible-use service rules, in accordance with the Spectrum Act's direction that new initial licenses for spectrum voluntarily relinquished through incentive auction be subject to flexible-use service rules. Accordingly, 600 MHz Band licensees may use the licensed, 600 MHz Band spectrum for any use permitted by the Table of Allocations, provided that the licensee complies with the applicable service rules. Adopting flexible-use service rules, moreover, is consistent with prior Congressional and Commission actions that promote allocating spectrum for flexible use.

(ii) Regulatory Framework

533. In accordance with Congress's direction that new initial licenses made available through incentive auctions be subject to flexible use service rules, we will license the 600 MHz Band under part 27. We received no comments on this proposal. The part 27 rules provide a broad and flexible regulatory framework for licensing spectrum, enabling the spectrum to be used for a wide variety of broadband services, thereby promoting innovation and efficient use.

(iii) Regulatory Status

534. We adopt the proposal to apply 47 CFR 27.10 of our rules to the 600 MHz Band. Under this flexible regulatory approach, 600 MHz Band licensees may provide common carrier, non-common carrier, private internal communications or any combination of these services, so long as the provision of service otherwise complies with applicable service rules. This broad

[3] The Commission recently deleted 47 CFR 27.63. Rules governing disturbance of AM broadcast station antenna patterns are now contained in Subpart BB of Part 1.

licensing framework is likely to achieve efficiencies in the licensing and administrative process and will provide flexibility to the marketplace, thus encouraging licensees to develop new and innovative services. Moreover, by applying this requirement to 600 MHz Band licensees, they will receive the same regulatory treatment as other part 27 licensees subject to this rule. Although no commenters directly address this issue, commenters do support increased regulatory flexibility generally. This approach is in the public interest and its benefits outweigh any potential costs.

535. We remind potential applicants that an election to provide service on a common carrier basis requires that the elements of common carriage be present; otherwise the applicant must choose non-common carrier status. If a potential licensee is unsure of the nature of its services and whether classification as common carrier is appropriate, it may submit a petition with its application, or at any time, requesting clarification and including service descriptions for that purpose.

536. Consistent with the Commission's proposal in the NPRM, we adopt for the 600 MHz Band the part 27 requirement that if a licensee elects to change the service or services it offers such that its regulatory status would change, it must notify the Commission and must do so within 30 days of making the change. A change in the licensee's regulatory status will not require prior Commission authorization, provided the licensee is in compliance with the foreign ownership requirements of section 310(b) of the Communications Act that apply as a result of the change. We note, however, that a different time period (other than 30 days) may apply, as determined by the Commission, where the change results in the discontinuance, reduction, or impairment of the existing service.

b. License Restrictions

(i) Eligibility

537. We adopt the proposed open eligibility standard. Commenters that support our adoption of open eligibility for the 600 MHz Band do so largely on the basis that large, diverse participation will foster innovation, competition, spectrum reclamation and maximization of spectrum use. Open eligibility for the 600 MHz Band is consistent with our statutory mandate to promote the development and rapid deployment of new technologies, products, and services; economic opportunity and competition; and the efficient and intensive use of the electromagnetic spectrum. Therefore, the potential benefits of open eligibility for the 600 MHz Band outweigh any potential costs.

538. Open eligibility is a threshold matter in determining access to spectrum. Our adoption of open eligibility in no way restricts or preempts other statutory requirements that may limit access to spectrum, such as foreign ownership and character qualifications. In that regard, we take this opportunity to clarify that adopting open eligibility for the 600 MHz Band is not inconsistent with the spectrum aggregation rules we establish in the MSH Report and Order (See Policies Regarding Mobile Spectrum Holdings, FCC 14-63, WT Docket No. 12-269 (rel. June 2, 2014)).

539. The Commission's precedent regarding open eligibility for bidding at auction for mobile wireless licenses generally has focused on whether it was necessary to restrict the eligibility of a firmly established regulatory class of entities. In contrast, our focus in adopting a mobile spectrum holdings limit in the MSH Report and Order is on a class of entities that, through their substantial existing holdings of below-1-GHz spectrum and potential acquisition of a significant portion of the 600 MHz Band in a particular geographic area, could hamper competition in the mobile wireless service market. This is a transient, open class of entities –

any entity could enter or exit this class based solely on the amount of its below-1-GHz spectrum holdings in a particular geographic area or the geographic scope of its coverage. The Commission previously has recognized this type of distinction, between open eligibility and the CMRS spectrum cap (until its elimination in 2001) or other CMRS spectrum aggregation limits. Here, although it is not necessary to restrict auction eligibility of a closed class of entities, we do find it necessary to apply a limit on the amount of 600 MHz spectrum that can be acquired at the forward auction by any entity with substantial existing holdings of below-1-GHz spectrum in a particular geographic area., depending upon the geographic scope of its coverage. Though we acknowledge that on occasion the Commission's description of the scope of its open eligibility standard might not have been precise, we take the opportunity to clarify that mobile spectrum holding limitations are not eligibility restrictions to which the open eligibility standard applies.

540. In addition, even if the mobile spectrum holdings limit we adopt in the MSH Report and Order were to be considered a restriction on open eligibility, this limit meets the standard that open eligibility would pose a significant likelihood of substantial harm to competition in specific markets and an eligibility restriction would be effective in eliminating that harm.

541. In sum, we see no record evidence that would persuade us that our approach is inconsistent with our past framework for assessing eligibility matters and, in any event, we clarify our open eligibility approach going forward.

(ii) Foreign Ownership

542. In order to fulfill our statutory obligations under section 310 of the Communications Act, all 600 MHz Band applicants and licensees shall be subject to the provisions of 47 CFR 27.12 of the Commission's rules. All such entities are subject to section 310(a), which prohibits licenses from being "granted to or held by any foreign government or the representative thereof." In addition, any applicant or licensee that would provide a common carrier, aeronautical en

route, or aeronautical fixed service would also be subject to the foreign ownership and citizenship requirements of section 310(b).

543. No parties comment on the Commission's proposal to require all 600 MHz Band applicants and licensees to provide the same foreign ownership information in their filings, regardless of the type of service the licensee would provide using its authorization. Applicants for this Band should not be subject to different obligations in reporting their foreign ownership based on the type of service authorization requested in the application and the benefits of a uniform approach outweigh any potential costs. Therefore, we will require all 600 MHz Band applicants and licensees to provide the same foreign ownership information, which covers both sections 310(a) and 310(b), regardless of which wireless communications service they propose to provide in the Band. We expect, however, that we would be unlikely to deny a license to an applicant requesting to provide services exclusively that are not subject to section 310(b), solely because its foreign ownership would disqualify it from receiving a license if the applicant had applied for authority to provide section 310(b) services. However, if any such licensee later desires to provide any services that are subject to the restrictions in section 310(b), we would require that licensee to apply to the Commission for an amended license, and we would consider issues related to foreign ownership at that time.

c. License Term, Performance Requirements, Renewal Criteria, and Permanent Discontinuance of Operations

(i) License Term

544. In recognition of the Post-Auction Transition Period that will occur after the completion of the incentive auction, we adopt an initial license term of 12 years for 600 MHz Band licenses, and a term of 10 years for any subsequent license renewals. In addition, in the event that a license is partitioned or disaggregated, any partitionee or disaggregatee will be

authorized to hold its license for the remainder of the partitioner or disaggregator's license term, consistent with the existing part 27 rule. Accordingly, we modify 47 CFR 27.13 and 27.15 of the Commission's rules to reflect these determinations.

545. The Communications Act does not require a specific term for non-broadcast spectrum licenses. The Commission has typically adopted 10-year license terms for part 27 services, but has also found, as in the case of AWS-1 licenses and AWS-3 licenses, a longer initial term to be in the public interest. Further, commenters generally support at least a 10-year license term. Given the complexities and timing of clearing broadcast operations in this Band, we agree with US Cellular that a longer initial license term is appropriate. Consequently, adopting a 12-year initial license term is in the public interest and the associated benefits outweigh any potential costs.

546. A 12-year license initial term will provide wireless licensees with sufficient time to plan and launch operations. As explained above, following the incentive auction, broadcast television licensees will have, at most, 39 months to transition off channels that are repurposed for flexible use licenses sold at the forward auction. While we expect that during that period, 600 MHz Band wireless licensees can plan and begin building operations, they will not have unfettered access to the repurposed spectrum won at the forward auction until broadcast television licensees have ceased operating on those channels. Extending the Commission's typical license term by two years, to provide an initial license term of 12 years for the 600 MHz Band licenses, is the best way to accommodate the necessary broadcast transition while retaining the proper incentives for 600 MHz Band licensees to rapidly deploy wireless services in the Band.

547. We decline to adopt alternative proposals by US Cellular. With respect to its proposal for 15-year initial license terms, we observe that the Post-Auction Transition Period

begins prior to wireless providers' receiving their licenses. Therefore, a 12-year initial term adequately compensates for this transition, but a 15-year initial term would be unnecessarily long. With respect to US Cellular's proposal that we adopt a 10-year license term, but do not commence the initial license term until broadcast television licensees have ceased operating on the repurposed spectrum, such a plan would create uncertainty, would be difficult to administer, and would be difficult for licensees and other interested parties to monitor and implement. In addition, because these broadcast television licensees are transitioning off the repurposed spectrum on a rolling basis, we see no need to delay 600 MHz Band licensees' access until all broadcast operations in the 600 MHz Band cease. Moreover, we must issue 600 MHz Band licenses promptly in order to fund the TV Broadcaster Relocation Fund that will be used to compensate relocating broadcast operations. Delaying the start of the initial wireless license term until broadcast operations have been cleared could delay wireless deployment and undermine the regulatory incentives that our policies are intended to foster.

(ii) Performance Requirements

548. We establish performance requirements to promote the productive use of spectrum, to encourage licensees to provide service to customers in a timely manner, and to promote the provision of innovative services in unserved areas, particularly rural areas. Over the years, the Commission has tailored performance and construction requirements with an eye to the unique characteristics of individual frequency bands and the types of services expected, among other factors. The performance requirements we adopt for the 600 MHz Band are consistent with those the Commission has adopted for similar spectrum bands, while taking into account certain exceptional circumstances related to the conduct of the incentive auction, including the timing for the transition of this spectrum from broadcast use to flexible wireless use. These requirements will ensure that the 600 MHz Band spectrum is put to use expeditiously while

providing 600 MHz Band licensees with flexibility to deploy services according to their business plans. Specifically, we adopt the following:

- 600 MHz Band interim build-out requirement: Within six (6) years of initial license grant, a licensee shall provide reliable signal coverage and offer wireless service to at least forty (40) percent of the population in each of its license areas.
- 600 MHz Band final build-out requirement: Within twelve (12) years of initial license grant (or at the end of the license term), a licensee shall provide reliable signal coverage and offer wireless service to at least seventy-five (75) percent of the population in each of its license areas.

549. We also adopt the following penalties for failing to meet the build-out benchmarks:

- Failure to meet 600 MHz Band interim build-out requirement: Where a licensee fails to meet the interim build-out requirement in any license area, the final build-out requirement and initial license term for that license shall be accelerated by two years (from 12 to 10).
- Failure to meet 600 MHz Band final build-out requirement: Where a licensee fails to meet the final build-out requirement for any license area, its authorization for that license area shall terminate automatically without further Commission action, and the licensee will be unable to regain the license.

550. We explain below the rationale for and public benefits of imposing these performance requirements. Those benefits outweigh any perceived costs of adopting performance benchmarks and penalties for failure to meet those requirements. We also discuss below how we will measure build-out in the Gulf of Mexico.

551. Population-Based Benchmark, per PEA License Area. Supported by a number of comments in the record, we adopt the proposal to use objective, population-based interim and

final construction benchmarks, which will be measured per license area. Requiring 600 MHz Band licensees to meet these performance benchmarks will promote rapid deployment of new broadband services to the American public, and at the same time provide licensees with certainty regarding their construction obligations. We agree with CCA and MetroPCS that, for the 600 MHz Band, measuring build-out by percentage of population served "provides a clear metric that will promote efficient deployment."

552. We are not persuaded by arguments that our build-out requirements must be geography-based, or include a geographic component, in order to ensure that less densely populated, often rural, communities have timely access to the most advanced mobile broadband services. We agree that it is important to promote rapid broadband deployment in rural areas. In fact, section 309(j)(4)(B) of the Communications Act requires that the Commission "include performance requirements, such as appropriate deadlines and penalties for performance failures, to ensure prompt delivery of service to rural areas." Adopting relatively small, PEA service areas, and requiring licensees to meet challenging population-based benchmarks in each individual license area separately, strikes an appropriate balance between providing flexibility to 600 MHz Band licensees to deploy their networks in a cost-effective manner and assertively promoting deployment of service to less densely populated areas. Therefore, we reject commenters' proposals to measure build-out geographically or through a combination of population and geography. Our decision to require population-based benchmarks in this Band does not foreclose our ability to impose geographic-based benchmarks in other spectrum bands that may warrant different considerations.

553. Further, we reject Verizon's request that we measure compliance with the interim benchmark in the aggregate, i.e., by summing the population of all of a licensee's authorizations in the 600 MHz Band. Creating benchmarks on a per-license basis, rather than in the aggregate,

is consistent with our build-out requirements in other, similar spectrum bands. In addition, measuring benchmarks on a per-license basis is consistent with our determination to license service on a geographic basis and holds a licensee accountable for meeting performance obligations for all of the licenses (including partitioned licenses) that it holds. Thus, a per-license approach allows for more flexibility and certainty. For example, should a licensee partition some of a 600 MHz Band license area, a percentage-based approach would apply to each partitioned license. In contrast, it is not clear how the responsibility for meeting benchmarks for partitioned and disaggregated licenses would be handled under Verizon's proposal.

554. Interim Benchmark. Requiring an interim milestone is supported by the record and serves the public interest. A 40 percent build-out per license area benchmark is consistent with the interim benchmarks established in other bands and similar to various proposals suggested by commenters. Verizon proposes adopting a build-out requirement of 40 percent of the population within four years. US Cellular suggests we require licensees to meet the interim build-out benchmark by covering 35 percent of the population within five years. Setting the interim benchmark of 40 percent at six years addresses commenters' concerns over taking into account the broadcast transition.

555. Several commenters ask that we base our build-out benchmarks on the date that the broadcast repacking is completed and the 600 MHz Band is cleared. We decline to do so. Instead, the interim build-out benchmark is six years from the grant of the license, which should adequately account for the Post-Auction Transition Period. Given that no broadcast television licensee will be permitted to operate on its pre-auction channel after the 39-month Post-Auction Transition Period regardless of whether they have completed construction and have begun operating on their new channel, 600 MHz Band licensees should have sufficient time to deploy

their networks to meet the interim benchmark. In addition, wireless licensees can make use of the spectrum (for testing, etc.) in coordination with broadcast television licensees during the 39-month transition period. Further, setting a date certain that is tied to initial grant of the 600 MHz Band license will provide greater certainty to 600 MHz Band licensees, their investors, and other interested parties. This does not mean, however, that a 600 MHz Band licensee must wait for the entire broadcast transition to be completed; a 600 MHz Band licensee can begin operating in a specific license area as soon as the broadcast television licensees have ceased operations in that license area.

556. We disagree with the few commenters that argue that interim construction benchmarks are unnecessary because licensees already have commercial incentives to rapidly deploy their networks. While such commercial incentives may exist in many market areas, the per-license approach will help to ensure that build-out progresses appropriately in all license areas. Some commenters also assert that benchmarks unfairly favor large carriers and incumbents because they are able to spread the economic construction cost over a greater number of subscribers than smaller carriers and new entrants. We disagree. The Commission noted in the NPRM that the propagation characteristics of the 600 MHz Band should allow for robust coverage at a lower cost than some other comparable bands. The interim benchmark we adopt in this Order will provide all licensees with an ability to scale networks in a cost efficient manner while also ensuring that the vast majority of the population will have access to wireless broadband services expeditiously.

557. Further, we reject the proposal of commenters who advocate a "substantial service" standard at the end of the license term as the only measurement of performance. Our purpose is to ensure that timely and robust build-out occurs in this Band, and for the reasons enumerated above, concrete interim and final build-out benchmarks will best facilitate meeting this goal.

Further, we note that in recent decisions, the Commission has replaced the substantial service standard with specific interim and final build-out requirements.

558. Penalty for Failure to Meet the Interim Benchmark. As the Commission has done in similar spectrum bands, where a wireless licensee fails to meet its interim build-out requirement, we accelerate both the time frame to meet the final build-out benchmark and the length of the license term by two years. Several commenters agree that if a licensee fails to meet the interim build-out requirement, we should accelerate the time frame for a licensee's meeting the final build-out requirement, with some of those same commenters advocating for acceleration of the license term as well. Because the initial license term is 12 years, if a licensee fails to meet the interim benchmark, it must complete its final build-out requirement within 10 years, when its license term also expires.

559. Final Benchmark. Within 12 years of the initial license grant (or 10 years if the interim benchmark is not met), a licensee shall provide reliable coverage and offer wireless service to at least 75 percent of the population in each of its license areas. Establishing a final build-out benchmark that coincides with the end of the initial license term is consistent with how the Commission has formulated performance requirements in other spectrum bands. Because we have set the interim benchmark at six years and we have created a 12-year initial license term, Verizon's suggestion that we establish a seven-year final build-out requirement is unduly accelerated and we therefore decline to adopt it. In addition, the Post-Auction Transition Period renders infeasible Cavell, Mertz's suggestion that a 600 MHz Band wireless licensee be required to construct its new facilities within a year-and-a-half. Under the circumstances, a 12-year construction milestone provides a reasonable timeframe for a licensee to deploy its network and offer widespread service, provided it meets its interim benchmark. Licensees that do not meet the six-year interim benchmark must accelerate their final build out by two years to meet the

final benchmark by the end of their shortened, 10-year license term.

560. Penalty for Failure to Meet the Final Benchmark. Where a licensee fails to meet the final build-out requirement in any PEA, its authorization for each PEA in which it fails to meet the requirement shall terminate automatically without further Commission action, and the licensee will be prohibited from regaining the license. Automatic license termination with the inability to regain the license is a common remedy for failure to build out part 27 licenses. Terminating only the specific licenses where a licensee fails to meet the final benchmark will not directly affect a licensee's customers in other license areas. Further, as WGAW points out, cancellation of the license will free up spectrum to an entity that will more likely develop it. We decline to adopt a "keep-what-you-use" approach or "use it or lease it" or "use it or share it" as penalties for failure to meet construction requirements as some commenters suggest, because these proposals may encourage less robust build-out by a licensee that decides not to build out to the final benchmark – particularly in rural areas.

561. As a general matter, we expect that 600 MHz Band licensees will meet the performance requirements because of the serious consequences associated with non-compliance, including automatic license cancellation. Further, we expect that licensees' deployment will generally exceed the levels set forth in the benchmarks, and that these build-out requirements generally represent a floor – not a ceiling. As for US Cellular's assertion that automatic termination is too punitive, the Commission has previously explained and we state again that automatic termination is not overly punitive or unfair if robust build-out is to be accomplished. It is noteworthy that the Commission has applied this approach to nearly all geographically-licensed wireless services. Further, the Commission has rejected the argument, and we do so again here, that an automatic termination penalty would deter capital investment, observing that the wireless industry has invested billions of dollars and has flourished under this paradigm in

other spectrum bands. For the same reason, an automatic termination penalty will have little effect on auction participation, as suggested by US Cellular. Finally, we do not agree with US Cellular that automatic termination harms the public because, even if a customer loses service from a provider when it loses spectrum rights for a particular license area, alternative providers may be available. We also expect that a future licensee may ultimately be able to serve more customers for that license area.

562. Compliance Procedures. Having received no comments on the issue, we adopt the proposal in the NPRM to apply to the 600 MHz Band the compliance procedures under 47 CFR 1.946(d) of the Commission's rules. Specifically, this rule states that licensees must demonstrate compliance with their performance requirements by filing a construction notification within 15 days of the relevant milestone certifying that they have met the applicable performance benchmark. Additionally, consistent with other part 27 services, we require that each construction notification include electronic coverage maps and supporting documentation, which must be truthful and accurate and must not omit material information that is necessary for the Commission to determine compliance with its performance requirements.

563. We emphasize that electronic coverage maps must accurately depict the boundaries of each license area in the licensee's service territory. If a licensee does not provide reliable signal coverage to an entire PEA, its map must accurately depict the boundaries of the area or areas within each PEA not being served. Each licensee also must file supporting documentation certifying the type of service it is providing for each PEA within its service territory and the type of technology used to provide such service. Supporting documentation must include the assumptions used to create the coverage maps, including the propagation model and the signal strength necessary to provide reliable service with the licensee's technology.

564. The licensee must use the most recently available decennial U.S. Census data at the

time of measurement to meet the population-based build-out requirements. Specifically, a licensee must base its claims of population served on areas no larger than the Census Tract level. To the extent the Census Tract (or other acceptable identifier) extends beyond the boundaries of a license area, a licensee with authorizations for such areas may only include the population within the Census Tract (or other acceptable identifier) towards meeting the performance requirement of a single, individual license. This requirement tracks the Commission's action requiring broadband service providers to report "snapshots" of broadband service at the Census Tract level twice each year by completing FCC Form 477.

565. Performance Requirements of Impaired Licenses. As discussed above, we plan to offer "impaired" licenses in the forward auction, i.e., licenses that contain impairments, or areas within the license area where a wireless licensee may not be able to provide service because it would interfere with a broadcast television licensee's coverage area, or conversely, those license areas in which a wireless provider may receive harmful interference from remaining television operations in or near the 600 MHz Band. It is important to apply the same performance requirements to all 600 MHz Band wireless licensees to ensure rapid build-out, but we recognize that licensees holding impaired licenses may not be able to build out their entire license area due to the impairments within a particular geographic service area. Thus, for those licensees, 47 CFR 27.14 will similarly apply, but a licensee with a geographic service area that includes any impairments may meet the build-out benchmarks by providing reliable signal coverage and offering service to the relevant percentages of population in the service area that is not impaired. To the extent this applies to a licensee's particular impaired license, at the relevant construction benchmarks, a licensee must provide with its construction notification an explanation of why it cannot serve its entire license area and/or meet its performance requirements within the entire license area. The submission must be truthful and accurate and must not omit material

information that is necessary for the Commission to determine whether the licensee could have reasonably met its performance requirements for its entire license area.

566. Gulf of Mexico. Having received no comments on Gulf of Mexico performance requirements, and recognizing that we are licensing wireless service in the Gulf as a specified PEA, we adopt the same coverage requirements as set forth above, with one exception: we will calculate "population" pursuant to the approach taken in Small Ventures USA, LP and Cellco Partnership d/b/a Verizon Wireless Request for Waiver and Applications for Assignment of 700 MHz C Block License, WT Docket No. 12-373, Memorandum Opinion and Order, 28 FCC Rcd 6569 (2013). In that order, the Wireless Bureau recognized that using the conventional Census Tract methodology for determining population in the Gulf of Mexico would be infeasible because the Gulf consists of a body of water with non-permanent, mobile residents. Consistent with that order, we allow a Gulf of Mexico licensee to use all off-shore platforms, including production, manifold, compression, pumping and valving platforms as a proxy for population in the Gulf of Mexico for purposes of meeting build-out obligations. Thus, in lieu of measuring its build-out obligations based on population, a licensee serving the Gulf of Mexico shall within six years provide reliable signal coverage and offer wireless service to at least 40 percent of all off-shore platforms in its license area and within 12 years (or at the end of the license term), provide reliable signal coverage and offer wireless service to at least 75 percent of all off-shore platforms in its license area in the Gulf of Mexico. All penalties and other compliance procedures we adopt, excluding those discussing the methodology for meeting population-based build-out requirements, shall apply to a 600 MHz Band licensee with respect to its Gulf of Mexico license.

(iii) Renewal Criteria

567. Pursuant to section 308(b) of the Communications Act, we will require 600 MHz Band licensees seeking license renewal to file renewal applications; below, we specify the

information that renewal applicants must provide to enable the Commission to assess whether renewal is warranted and in the public interest. In addition, where a license is not renewed, the associated spectrum will be returned to the Commission and made available for assignment. Filing competing applications against license renewal applications is not permitted.

568. We apply to 600 MHz Band licensees the same renewal showing requirements we recently adopted for the AWS-3 Band. Specifically, a 600 MHz Band licensee's renewal showing must provide a detailed description of its provision of service during the entire license period and discuss: (1) the level and quality of service provided (including the population served, the area served, the number of subscribers, and the services offered); (2) the date service commenced, whether service was ever interrupted, and the duration of any interruption or outage; (3) the extent to which service is provided to rural areas; (4) the extent to which service is provided to qualifying tribal land as defined in 47 CFR 1.2110(f)(3)(i) of the Commission's rules; and (5) any other factors associated with the level of service to the public. Accordingly, we hereby modify 47 CFR 27.14 of the Commission's rules to apply these renewal showing criteria to the 600 MHz Band.

569. The renewal requirements we establish for 600 MHz Band licensees are in the public interest and their benefits outweigh any likely costs. In recent years, the Commission has refined its license renewal policies—beginning with the 700 MHz First Report and Order, and most recently in the AWS-3 Report and Order. (See Service Rules for the 698–806 MHz Band and Revision of the Commission's Rules Regarding Enhanced 911 Emergency Calling Systems, Hearing Aid-Compatible Telephones, and Public Safety Spectrum Requirements, 72 FR 27688 (2007) (700 MHz First Report and Order); Commercial Operations in the 1695–1710 MHz, 1755–1780 MHz, and 2155–2180 MHz Bands, 79 FR 32366 (2014) (AWS-3 Report and Order)). Through these actions, the Commission has refined its license renewal policies—

beginning with the 700 MHz First Report and Order in 2007, and most recently in the AWS-3 Report and Order. Through these actions, the Commission established that licensees must demonstrate that they are providing adequate levels of service over the course of their license terms, and here we act consistently with that policy. Consequently, we agree with those commenters who support adopting renewal criteria for the 600 MHz Band that are based on those criteria adopted in the 700 MHz First Report and Order and that were similarly followed in the AWS-4 Report and Order (Service Rules for Advanced Wireless Services in the 2000–2020 MHz and 2180–2200 MHz Bands, 78 FR 8230 (2013)) the H Block Report and Order (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 and1995–2000 MHz Bands, 78 FR 50214 (2013)) and the AWS-3 Report and Order. These renewal requirements will provide licensees certainty regarding the factors that the Commission will consider during the renewal process, thereby facilitating investment decisions regarding broadband rollout. Further, adopting clear requirements address US Cellular's concern that the renewal process not be unnecessarily burdensome to licensees or that the process not deter investment.

570. In adopting these criteria, we decline to adopt at this time US Cellular's proposal to categorically provide licensees a renewal expectancy if they meet their performance requirements. US Cellular claims that renewal expectancies, based solely on performance requirements, would provide certainty to licensees and investors. As the Commission has consistently stated, performance and renewal showings are distinct; they serve different purposes and, if not met, the Commission may apply different penalties. A performance showing provides a snapshot in time of the level of a licensee's service, whereas a renewal showing provides information regarding the level and types of service provided over the course of a license term.

Where a licensee meets the applicable performance requirements, but fails to provide continuity of service (by, for example, repeatedly discontinuing operations between required performance showings for periods of less than 180 days), the Commission could find that renewal would be contrary to the public interest. Where a licensee fails to meet its interim build-out requirement and becomes subject to a two-year acceleration of both its final build-out requirement and its license term, its final performance showing might merely reflect a snapshot in time of compliance with the performance requirements. By contrast, its renewal application must provide a timeline of its provision of service, the percentage of the license-area population covered, and types of service provided over the course of the license term, including any efforts to meet the interim build-out requirement.

571. For subsequent license terms, licensees are likely—absent extraordinary circumstances—to obtain license renewal if they submit satisfactory showings demonstrating that they have maintained or exceeded the level of coverage and service required at the final build-out benchmark (during the initial license term) and otherwise comply with Commission rules and policies and the Communications Act.

572. Finally, we reject US Cellular's proposal that we permit competing renewal applications. Rather, we agree with Verizon that the Commission need not permit competing renewal applications or comparative hearings to evaluate an application for license renewal. The renewal requirements we adopt in this Order will provide Commission staff with ample information to determine whether license renewal would serve the public interest. The public interest would be ill-served by permitting the filing of potentially time-consuming and costly competing applications.

(iv) Permanent Discontinuance of Operations

573. Section 1.955(a)(3) of the Commission's rules will apply to 600 MHz Band

licensees because the benefits of applying this rule outweigh any potential costs of doing so. Notably, we received no comments on the permanent discontinuance proposals. Therefore, a licensee's 600 MHz Band authorization will automatically terminate, without specific Commission action, if service is "permanently discontinued."

574. In accordance with the proposal in the NPRM, for providers that identify their regulatory status as common carrier or non-common carrier, we define "permanently discontinued" as a period of 180 consecutive days during which the licensee does not provide service to at least one subscriber that is not affiliated with, controlled by, or related to, the provider in the individual license area (or smaller service area in the case of a partitioned license). We adopt a different approach for wireless licensees that use their licenses for private, internal communications, however, because such licensees generally do not provide service to unaffiliated subscribers. For such private, internal communications, we define "permanent discontinuance" as a period of 180 consecutive days during which the licensee does not operate. Finally, as the Commission has previously explained, the operation of so-called channel keepers, e.g., devices that transmit test signals, tones, and/or color bars, do not constitute "operation" under 47 CFR 1.955(a)(3) or the Commission's other permanent discontinuance rules.

575. A licensee will not be subject to the discontinuance rules until the date it must meet its interim build-out requirement, thereby negating the possibility that a licensee will lose its license if it chooses to construct early, but may discontinue operations before the interim build-out benchmark date. The permanent discontinuance rules will apply thereafter, to include any subsequent license renewal term.

576. This approach is consistent with the discontinuance rules applied to similar wireless services. Using this approach for the 600 MHz Band also strikes the appropriate balance between affording licensees operational flexibility and ensuring that licensed spectrum is

efficiently utilized.

577. Furthermore, in accordance with 47 CFR 1.955(a)(3) of the Commission's rules, if a licensee permanently discontinues service, the licensee must notify the Commission of the discontinuance within 10 days by filing FCC Form 601 or 605 and requesting license cancellation. As explained above, even if the licensee fails to notify the Commission, an authorization will automatically terminate without specific Commission action if service is permanently discontinued.

d. Secondary Markets

(i) Qualifications under Section 6004

578. The Commission previously adopted rule 47 CFR 27.12(b), which restricts entities from holding licenses if they have been barred by a federal agency for reasons of national security, in accordance with section 6004 of the Spectrum Act. Because that rule implements a statutory provision that applies to all spectrum bands covered under the Spectrum Act, 47 CFR 27.12(b) also applies to the 600 MHz Band. Further, we received no comments opposing or supporting applying Section 6004 to secondary market transactions that include 600 MHz Band licenses. Thus, consistent with the purpose of the statute, we require applicants to certify in an application seeking approval of a secondary market transaction involving 600 MHz Band licenses that neither the applicants nor any party to the application are persons barred from participating in an auction under Section 6004 of the Spectrum Act.

(ii) Partitioning and Disaggregation

579. We adopt the part 27 partitioning and disaggregation rules for the 600 MHz Band. Very few commenters discuss partitioning and disaggregation, but those who do support this approach. Permitting partitioning and disaggregation is in the public interest, and based on our examination of the record, the associated benefits would outweigh any potential costs. We agree

with Verizon that applying these rules "promotes a robust secondary market in spectrum" and "facilitates acquisition of spectrum rights by smaller carriers who may serve small, targeted markets," thus allowing for new entrants and promoting competition. Further, permitting disaggregation and partitioning will help facilitate investment and rapid deployment in the 600 MHz Band, while giving licensees flexibility to use the spectrum to meet changing market demand. As the Commission noted when it first adopted partitioning and disaggregation rules, allowing this type of flexibility can facilitate the efficient use of spectrum, and expedite provision of services in areas that might not otherwise receive service in the near term.

580. As proposed in the NPRM, and consistent with the treatment of other part 27 services, a partitionee or disaggregatee will hold its license for the remainder of the partitioner's or disaggregator's license term. In addition, any 600 MHz Band licensee that is a party to a partitioning or disaggregation arrangement (or combination of both) must independently meet the applicable 600 MHz Band technical rules and regulatory requirements, including performance and renewal requirements. As the Commission has previously observed, this approach should facilitate efficient spectrum usage and prevent licensees from avoiding construction obligations by participating in secondary market transactions, while still providing operators with the flexibility to design their networks according to their operation and business needs.

(iii) Spectrum Leasing

581. We adopt the same spectrum leasing policies and rules that apply to other part 27 services. Commenters that discuss spectrum leasing support the proposals made in the NPRM and agree that adopting spectrum leasing rules will promote the public interest. For example, CTIA notes that "the Commission's leasing policies have brought licensees much-needed flexibility in managing their networks, and have enabled innovative service and market entry by

new competitors." Our secondary markets policies are designed to promote more efficient, innovative, and dynamic use of the spectrum, expand the scope of available wireless services and devices, enhance economic opportunities for accessing spectrum, and promote competition among providers. Likewise, allowing spectrum leasing in the 600 MHz Band will serve these same purposes. In other part 27 services spectrum leasing policies generally follow the same approach as the partitioning and disaggregation policies for the band." Thus, our decision to permit spectrum leasing in the 600 MHz Band is consistent with our determination to permit partitioning and disaggregation in the 600 MHz Band and with our existing part 27 spectrum leasing policies.

e. Other Operating Requirements

582. Although we primarily adopt rules for the 600 MHz Band under part 27 of the Commission's rules, we also require 600 MHz Band licensees to comply with certain other rule parts that pertain generally to wireless communication services. This approach will maintain general consistency among various wireless communications services. We received no comments on the NPRM proposal. Section 27.3 of the Commission's rules lists some of the rule parts applicable to wireless communications services licensees. In addition, other FCC rules may apply to 600 MHz Band licensees, including those that apply only to certain licensees, depending on the specific type of service or services that a particular licensee provides. Thus, it is appropriate to apply 47 CFR 27.3, as well as similar rules applicable to wireless communications service licensees, to 600 MHz Band licensees. In so doing, we will maintain consistency among various wireless communications services—including the 600 MHz Band—which will best serve the public interest. For these same reasons, the benefits of this approach outweigh any potential costs.

VI. PROCEDURAL MATTERS

A. Final Regulatory Flexibility Analysis

583. As required by the Regulatory Flexibility Act of 1980, as amended (RFA), an Initial Regulatory Flexibility Analysis ("IRFA") was incorporated in the Notice of Proposed Rule Making ("Notice" or "NPRM"). The Commission sought written public comment on the proposals in the Notice, including comment on the IRFA. Because we amend the rules in this Order, we have included this Final Regulatory Flexibility Analysis ("FRFA") which conforms to the RFA.

1. Need for, and Objectives of, the Report and Order

584. In 2012, Congress mandated that the Commission conduct an incentive auction of broadcast television spectrum as set forth in the Middle Class Tax Relief and Job Creation Act of 2012 ("Spectrum Act"). Congress's passage of the Spectrum Act set the stage for this proceeding and further expanded the Commission's ability to facilitate technological and economic growth. The Spectrum Act authorizes the Commission to conduct incentive auctions in which licensees may voluntarily relinquish their spectrum usage rights in order to permit the assignment by auction of new initial licenses subject to flexible use service rules, in exchange for a portion of the resulting auction proceeds. Section 6403 of the Spectrum Act requires the Commission to conduct an incentive auction of the broadcast television spectrum and includes specific requirements and safeguards for the required auction.

585. The incentive auction will have three major pieces: (1) a "reverse auction" in which full power and Class A broadcast television licensees submit bids to voluntarily relinquish certain broadcast rights in exchange for payments; (2) a reorganization or "repacking" of the broadcast television bands in order to free up a portion of the ultra-high frequency ("UHF") band for other uses; and (3) a "forward auction" of licenses for flexible use of the newly available

spectrum.

586. In order to implement this congressional mandate to conduct an incentive auction of broadcast television spectrum, the Order adopts an auction design framework and rules for competitive bidding to govern the reverse auction, and modifies the Commission's general competitive bidding rules in Part 1 in order to conduct the related forward auction for new spectrum licenses. The other major component of the incentive auction, the repacking process, will help to determine which reverse auction bids will be accepted. In addition, consistent with the Commission's typical approach to spectrum license auctions, the adopted rules and Part 1 rule revisions provide a general framework to guide the development of the detailed procedures and deadlines needed to conduct the auction. A public notice process will allow both the Commission and interested parties to focus on and provide input regarding discrete details of the auction design and the auction procedures.

587. In the 600 MHz Band Plan that the Commission adopts, existing channel 37 operations remain allocated for use by radio astronomy and medical telemetry equipment. Depending on the amount of spectrum recovered from the repacking process, the 600 MHz downlink band could be situated on one or both sides of channel 37. For any band plan configurations where wireless downlink blocks are adjacent to channel 37 services, the Commission adopts technically reasonable guard bands between the blocks and channel 37. This band plan will allow for maximum flexibility in clearing spectrum while sufficiently protecting incumbent services and new wireless operations.

588. To encourage entry by providers, including small providers, that contemplate offering wireless broadband service on a localized basis, yet at the same time not precluding carriers that plan to provide service on a much larger geographic scale, the Commission will license the 600 MHz Band on the basis of Partial Economic Areas ("PEAs"), a subdivision of

Economic Areas ("EAs") created by grouping areas using Metropolitan Statistical Area ("MSA") boundaries, updated with 2010 U.S. Census data for each county. The Commission concludes that licensing on a PEA basis will best promote entry into the market by the broadest range of potential wireless service providers without unduly complicating the auction, thereby promoting competition. Moreover, the Commission concludes that licensing using PEAs throughout the country strikes the appropriate balance and will allow both smaller and larger wireless carriers to obtain licenses that best align with their respective business plans. In addition, because the MSA boundaries may more closely fit many wireless providers' existing footprints—in particular, smaller, non-nationwide providers—adopting this geographic licensing approach should provide a greater opportunity for all wireless providers to acquire spectrum licenses in their service areas.

589. To enable repacking of the broadcast spectrum, it is critical that the Commission determine how to preserve the coverage area and population served of full power and Class A stations as required by the Spectrum Act. Accordingly, the Commission adopts rules on engineering and other technical aspects of the repacking process, in particular Congress's mandate in section 6403(b)(2) of the Spectrum Act that it make all reasonable efforts to preserve the coverage area and population served of full power and Class A television stations in the repacking.

590. The broadcast television spectrum incentive auction and the associated repacking process could impact both the coverage area and the population served of full power and Class A television stations. If a station is assigned to a different channel, its technical facilities must be modified to preserve its coverage area because radio signals propagate differently on different frequencies. These varying propagation characteristics also mean that a new channel assignment may change the areas within a station's noise-limited service area affected by terrain loss. Channel reassignments, and stations going off the air as a result of the reverse auction, also may

change the interference relationships between stations, which in turn affect population served. Stations going off the air can eliminate existing interference to the stations that remain on the air. Likewise, new channel assignments generally will eliminate interference that the reassigned stations are now causing or receiving. At the same time, new channel assignments create a potential for new interference between nearby stations on the same channel or an adjacent channel. The Commission adopts a repacking methodology that takes in account all of these impacts in order to carry out Congress's mandate in section 6403(b)(2) of the Spectrum Act.

591. The Commission recognizes that low power television ("LPTV") and television translator ("TV translator") stations may be impacted by repacking. These stations are not permitted to participate in the reverse auction. Moreover, these stations have only secondary interference protection rights and will not be protected during repacking. Many of these stations may be displaced from their current operating channel. To ease the burden on these stations, the Commission will allow displaced LPTV and TV translator stations to have the opportunity to submit a displacement application and propose a new operating channel. The Commission also will allow LPTV and TV translator stations to explore engineering solutions or agree on a settlement to resolve mutually exclusive displacement applications. In cases where stations do not resolve mutually exclusive displacement applications, the Commission will grant selection priority to the licensees of any displaced digital replacement translators ("DRTs"), and only after this priority will the Commission use an auction to resolve remaining displacement groups. The Commission also intends to initiate a rulemaking proceeding to consider additional means to mitigate the potential impact of the incentive auction and the repacking process on LPTV and TV translator stations.

592. Following the conclusion of the incentive auction, the transition to the reorganized UHF band will be as rapid as possible without causing unnecessary disruption.

Television stations that voluntarily turn in their licenses or agree to channel share must transition from their pre-auction channels within three months of receiving their reverse auction payments. The time required for stations reassigned to a new channel to modify their facilities will vary, so the Commission will tailor their construction deadlines to their situations. Consistent with Congress's mandate, the Commission establishes procedures to reimburse costs reasonably incurred by stations that are involuntarily reassigned to new channels, as well as by multichannel video programming distributors ("MVPDs") to continue to carry stations reassigned to new channels. Other incumbents must also transition from the repurposed 600 MHz Band, including the guard bands. The Commission establishes procedures and deadlines for the transition of the following services: LPTV and TV translator stations; Broadcast Auxiliary Services ("BAS"); television white space devices; low power auxiliary stations ("LPAS") and unlicensed wireless microphones; and wireless assist video devices.

593. In addition to repurposing UHF spectrum for new licensed uses, the Commission makes a significant amount of spectrum available for unlicensed use, a large portion of it on a nationwide basis. To prevent harmful interference between licensed services, the 600 MHz Band Plan includes a number of guard bands, which the Commission intends to make available for use by unlicensed devices. Moreover, the Commission will allow unlicensed use of channel 37, subject to the development of the appropriate technical parameters to protect the incumbent Wireless Medical Telemetry Service ("WMTS") and Radio Astronomy Service ("RAS") from harmful interference, and allow television white space devices as well as wireless microphones to operate on any unused television channels in a market following the incentive auction. The Commission also intends to designate one unused channel in each area following the repacking process for use by wireless microphones and television white space devices.

594. The Commission also adopts measures to facilitate wireless microphone use of

available spectrum in the reorganized UHF band. With regard to the 600 MHz Band, the Commission will allow broadcasters and cable programming networks to operate licensed wireless microphones in a portion of the duplex gap. In addition, the Commission will permit other wireless microphones to operate in the guard bands on an unlicensed basis. The Commission will initiate a proceeding to adopt technical standards to govern these uses. With regard to the remaining television spectrum, while there may no longer be two unused channels for wireless microphones in markets where those channels are currently used for that purpose, the Commission intends to designate one unused channel in each area following the auction for use by wireless microphones and television white space devices. The Commission also revises the rules for co-channel operations in the post-auction television bands to expand the areas where wireless microphones may operate. The Commission will initiate a proceeding in the near future to find additional spectrum for wireless microphone users in other spectrum bands in order to help address their long-term needs.

2. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

595. No commenters directly responded to the IRFA. However, a number of commenters raised concerns about the impact on small businesses of various auction design issues. We have nonetheless addressed these concerns in the FRFA.

3. Description and Estimate of the Number of Small Entities to Which the Rules Will Apply

596. The RFA directs the Commission to provide a description of and, where feasible, an estimate of the number of small entities that will be affected by the adopted rules, if adopted. The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," small organization," and "small government jurisdiction." In addition, the

term “small business” has the same meaning as the term “small business concern” under the Small Business Act. 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 SBA.

597. Television Broadcasting. This economic census category “comprises establishments primarily engaged in broadcasting images together with sound. These establishments operate television broadcasting studios and facilities for the programming and transmission of programs to the public.” The SBA has created the following small business size standard for Television Broadcasting firms: those having $14 million or less in annual receipts. The Commission has estimated the number of licensed commercial television stations to be 1,388. In addition, according to Commission staff review of the BIA Advisory Services, LLC’s Media Access Pro Television Database on March 28, 2012, about 950 of an estimated 1,300 commercial television stations (or approximately 73 percent) had revenues of $14 million or less. We therefore estimate that the majority of commercial television broadcasters are small entities.

598. We note, however, that in assessing whether a business concern qualifies as small under the above definition, business (control) affiliations must be included. Our estimate, therefore, likely overstates the number of small entities that might be affected by our action because the revenue figure on which it is based does not include or aggregate revenues from affiliated companies. In addition, an element of the definition of “small business” is that the entity not be dominant in its field of operation. We are unable at this time to define or quantify the criteria that would establish whether a specific television station is dominant in its field of operation. Accordingly, the estimate of small businesses to which rules may apply does not exclude any television station from the definition of a small business on this basis and is therefore possibly over-inclusive to that extent.

599. In addition, the Commission has estimated the number of licensed noncommercial educational ("NCE") television stations to be 396. These stations are non-profit, and therefore considered to be small entities.

600. There are also 2,414 LPTV stations, including Class A stations, and 4,046 TV translator stations. Given the nature of these services, we will presume that all of these entities qualify as small entities under the above SBA small business size standard.

601. Cable Television Distribution Services. Since 2007, these 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." The SBA has developed a small business size standard for this category, which is: all such firms having 1,500 or fewer employees. Census data for 2007 shows that there were 3,188 firms that operated for the duration of that year. Of those, 3,144 had fewer than 1000 employees, and 44 firms had more than 1000 employees. Thus under this category and the associated small business size standard, the majority of such firms can be considered small.

602. Cable Companies and Systems. The Commission has also developed its own small business size standards, for the purpose of cable rate regulation. Under the Commission's rules, a "small cable company" is one serving 400,000 or fewer subscribers, nationwide. Industry data indicate that, of approximately 1,100 cable operators nationwide, all but 10 are small under this size standard. In addition, under the Commission's rules, a "small system" is a cable system serving 15,000 or fewer subscribers. Industry data indicate that, of 6,635 systems nationwide,

5,802 systems have fewer than 10,000 subscribers, and an additional 302 systems have 10,000-19,999 subscribers. Thus, under this second size standard, most cable systems are small.

603. Cable System Operators. The Communications Act of 1934, as amended, also contains a size standard for small cable system operators, which is "a cable operator that, directly or through an affiliate, serves in the aggregate fewer than 1 percent of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed $250,000,000." The Commission has determined that an operator serving fewer than 677,000 subscribers shall be deemed a small operator, if its annual revenues, when combined with the total annual revenues of all its affiliates, do not exceed $250 million in the aggregate. Industry data indicate that, of 1,100 cable operators nationwide, all but ten are small under this size standard. We note that the Commission neither requests nor collects information on whether cable system operators are affiliated with entities whose gross annual revenues exceed $250 million, and therefore we are unable to estimate more accurately the number of cable system operators that would qualify as small under this size standard.

604. Direct Broadcast Satellite ("DBS") Service. DBS service is a nationally distributed subscription service that delivers video and audio programming via satellite to a small parabolic "dish" antenna at the subscriber's location. DBS, by exception, is now included in the SBA's broad economic census category, Wired Telecommunications Carriers, which was developed for small wireline firms. Under this category, the SBA deems a wireline business to be small if it has 1,500 or fewer employees. To gauge small business prevalence for the DBS service, the Commission relies on data currently available from the U.S. Census for the year 2007. According to that source, there were 3,188 firms that in 2007 were Wired Telecommunications Carriers. Of these, 3,144 operated with less than 1,000 employees, and 44 operated with more than 1,000 employees. However, as to the latter 44 there is no data available that shows how

many operated with more than 1,500 employees. Based on this data, the majority of these firms can be considered small. Currently, only two entities provide DBS service, which requires a great investment of capital for operation: DIRECTV and EchoStar Communications Corporation ("EchoStar") (marketed as the DISH Network). Each currently offers subscription services. DIRECTV and EchoStar each report annual revenues that are in excess of the threshold for a small business. Because DBS service requires significant capital, we believe it is unlikely that a small entity as defined by the SBA would have the financial wherewithal to become a DBS service provider.

605. Cable and Other Subscription Programming. This industry comprises establishments primarily engaged in operating studios and facilities for the broadcasting of programs on a subscription or fee basis. The broadcast programming is typically narrowcast in nature (e.g., limited format, such as news, sports, education, or youth-oriented). These establishments produce programming in their own facilities or acquire programming. The programming material is usually delivered to a third party, such as cable systems or direct-to-home satellite systems, for transmission to viewers. The SBA size standard for this industry establishes as small any company in this category which receives annual receipts of $35.5 million or less. Based on U.S. Census data for 2007, in that year 659 establishments operated for the entire year. Of that 659, 197 operated with annual receipts of $10 million a year or more. The remaining 462 establishments operated with annual receipts of less than $10 million. Based on this data, the Commission estimates that the majority of establishments operating in this industry are small.

606. Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing. The Census Bureau defines this category as follows: "This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless

communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment." The SBA has developed a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, which is: all such firms having 750 or fewer employees. According to Census Bureau data for 2007, there were a total of 939 establishments in this category that operated for part or all of the entire year. Of this total, 912 had less than 500 employees and 17 had more than 1000 employees. Thus, under that size standard, the majority of firms can be considered small.

607. Audio and Video Equipment Manufacturing. The SBA has classified the manufacturing of audio and video equipment under in NAICS Codes classification scheme as an industry in which a manufacturer is small if it has less than 750 employees. Data contained in the 2007 U.S. Census indicate that 492 establishments operated in that industry for all or part of that year. In that year, 488 establishments had fewer than 500 employees; and only 1 had more than 1000 employees. Thus, under the applicable size standard, a majority of manufacturers of audio and video equipment may be considered small.

608. Wireless Telecommunications Carriers (except satellite). The Census Bureau defines this category as follows: "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." The appropriate size standard under SBA rules is for the category Wireless Telecommunications Carriers (except Satellite). The size standard for that category is that a business is small if it has 1,500 or fewer employees. For this category, census data for 2007

show that there were 1,383 firms that operated for the entire year. Of this total, 1,368 firms had employment of 999 or fewer employees and 15 had employment of 1000 employees or more. Similarly, according to Commission data, 413 carriers reported that they were engaged in the provision of wireless telephony, including cellular service, PCS, and Specialized Mobile Radio ("SMR") Telephony services. Of these, an estimated 261 have 1,500 or fewer employees and 152 have more than 1,500 employees. 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.

609. Manufacturers of unlicensed devices. In the context of this FRFA, manufacturers of Part 15 unlicensed devices that are operated in the UHF-TV band (channels 14-51) for wireless data transfer fall into the category of Radio and Television and Wireless Communications Equipment Manufacturing. The Census Bureau defines this category as follows: "This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment." The SBA has developed the small business size standard for this category as firms having 750 or fewer employees. According to Census Bureau data for 2007, there were a total of 939 establishments in this category that operated for the entire year. Of this total, 912 had less than 500 employees and 17 had more than 1000 employees. Thus, under that size standard, the majority of firms can be considered small.

610. Personal Radio Services/Wireless Medical Telemetry Service ("WMTS"). Personal radio services provide short-range, low power radio for personal communications, radio signaling, and business communications not provided for in other services. The Personal Radio

Services include spectrum licensed under Part 95 of our rules. These services include Citizen Band Radio Service ("CB"), General Mobile Radio Service ("GMRS"), Radio Control Radio Service ("R/C"), Family Radio Service ("FRS"), Wireless Medical Telemetry Service ("WMTS"), Medical Implant Communications Service ("MICS"), Low Power Radio Service ("LPRS"), and Multi-Use Radio Service ("MURS"). There are a variety of methods used to license the spectrum in these rule parts, from licensing by rule, to conditioning operation on successful completion of a required test, to site-based licensing, to geographic area licensing. Under the RFA, the Commission is required to make a determination of which small entities are directly affected by the rules adopted. Since all such entities are wireless, we apply the definition of Wireless Telecommunications Carriers (except Satellite), pursuant to which a small entity is defined as employing 1,500 or fewer persons. For this category, census data for 2007 show that there were 1,383 firms that operated for the entire year. Of this total, 1,368 firms had employment of 999 or fewer employees and 15 had employment of 1000 employees or more. Thus under this category and the associated small business size standard, the Commission estimates that the majority of personal radio service and WMTS providers are small entities.

611. However, we note that many of the licensees in these services are individuals, and thus are not small entities. In addition, due to the mostly unlicensed and shared nature of the spectrum utilized in many of these services, the Commission lacks direct information upon which to base a more specific estimation of the number of small entities under an SBA definition that might be directly affected by our action.

612. Radio Astronomy. The Commission has not developed a definition for radio astronomy. However the SBA has established a category into which Radio Astronomy fits, which is: All Other Telecommunications. This industry "comprises establishments primarily

engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation. This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems. Establishments providing Internet services or voice over Internet protocol ("VoIP") services via client-supplied telecommunications connections are also included in this industry." The size standard for all establishments engaged in this industry is that annual receipts of $30 million or less establish the firm as small. Based on data in the 2007 U.S. Census, in 2007 there were 2,623 establishments that operated for the entire year in the All Other Telecommunications category. Of those, 145 establishments operated with annual receipts of more than $10 million per year. The remaining 2,478 establishments operated with annual receipts of less than $10 million per year. Based on this data, the Commission estimates that the majority of establishments in the All Other Telecommunications category are small.

613. Motion Picture and Video Production. The Census Bureau defines this category as follows: "This industry comprises establishments primarily engaged in producing, or producing and distributing motion pictures, videos, television programs, or television commercials." The SBA has developed a small business size standard for this category, which is: all such businesses having $30 million dollars or less in annual receipts. Census data for 2007 show that there were 9,478 establishments that operated that year. Of that number, 9,128 had annual receipts of $24,999,999 or less, and 350 had annual receipts ranging from not less than $25,000,000 to $100,000,000 or more. Thus, under this size standard, the majority of such businesses can be considered small entities.

614. Fixed Microwave Services. Microwave services include common carrier, private-

operational fixed, and broadcast auxiliary radio services. At present, there are approximately 31,549 common carrier fixed licensees and 89,633 private and public safety operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services. Microwave services include common carrier, private-operational fixed, and broadcast auxiliary radio services. They also include the Local Multipoint Distribution Service ("LMDS"), the Digital Electronic Message Service ("DEMS"), and the 24 GHz Service, where licensees can choose between common carrier and non-common carrier status. The Commission has not yet defined a small business with respect to microwave services. For purposes of the RFA, the Commission will use the SBA's definition applicable to Wireless Telecommunications Carriers (except satellite)—i.e., a business is small if it has 1,500 or fewer employees. For this category, census data for 2007 show that there were 1,383 firms that operated for the entire year. Of this total, 1,368 firms had employment of 999 or fewer employees and 15 had employment of 1000 employees or more. Thus under this category and the associated small business size standard, the majority of firms can be considered small. The Commission notes that the number of firms does not necessarily track the number of licensees. The Commission estimates that virtually all of the Fixed Microwave licensees (excluding broadcast auxiliary licensees) would qualify as small entities under the SBA definition.

615. 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")). In connection with the 1996 BRS auction, the Commission established a

small business size standard as an entity that had annual average gross revenues of no more than $40 million in the previous three calendar years. 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. We previously estimated that of the 61 small business BRS auction winners, based on our review of licensing records, 48 remain small business licensees. In addition to the 48 small businesses that hold BTA authorizations, there are approximately 86 incumbent BRS licensees that are considered small entities (18 incumbent BRS licensees do not meet the small business size standard). After adding the number of small business auction licensees to the number of incumbent licensees not already counted, there are currently approximately 133 BRS licensees that are defined as small businesses under either the SBA or the Commission's rules. In 2009, the Commission conducted Auction 86, the sale of 78 licenses in the BRS areas. The Commission established three small business size standards that were used in Auction 86: (i) an entity with attributed average annual gross revenues that exceeded $15 million and do not exceed $40 million for the preceding three years was considered a small business; (ii) an entity with attributed average annual gross revenues that exceeded $3 million and did not exceed $15 million for the preceding three years was considered a very small business; and (iii) an entity with attributed average annual gross revenues that did not exceed $3 million for the preceding three years was considered an entrepreneur. Auction 86 concluded in 2009 with the sale of 61 licenses. Of the 10 winning bidders, 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. We note that, as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent

the number of small businesses currently in service.

616. In addition, the SBA's placement of Cable Television Distribution Services in the category of Wired Telecommunications Carriers is applicable to cable-based educational broadcasting services. Since 2007, Wired Telecommunications Carriers have been 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." Establishments in this industry use the wired telecommunications network facilities that they operate to provide a variety of services, such as wired telephony services, including VoIP services; wired (cable) audio and video programming distribution; and wired broadband Internet services. By exception, establishments providing satellite television distribution services using facilities and infrastructure that they operate are included in this industry. The SBA has developed a small business size standard for this category, which is: all such firms having 1,500 or fewer employees. Census data for 2007 shows that there were 3,188 firms that operated for the duration of that year. Of those, 3,144 had fewer than 1000 employees, and 44 firms had more than 1000 employees. Thus under this category and the associated small business size standard, the majority of such firms can be considered small. In addition to Census data, the Commission's Universal Licensing System indicates that as of July 2013, there are 2,236 active EBS licenses. The Commission estimates that of these 2,236 licenses, the majority are held by non-profit educational institutions and school districts, which are by statute defined as small businesses.

617. Radio Broadcasting. The SBA defines a radio broadcast station as a small business if such station has no more than $35.5 million in annual receipts. Business concerns

included in this industry are those "primarily engaged in broadcasting aural programs by radio to the public." According to review of the BIA Publications, Inc. Master Access Radio Analyzer Database as of November 26, 2013, about 11,331 (or about 99.9 percent) of 11,341 commercial radio stations have revenues of $35.5 million or less and thus qualify as small entities under the SBA definition. The Commission notes, however, that, in assessing whether a business concern qualifies as small under the above definition, business (control) affiliations must be included. This estimate, therefore, likely overstates the number of small entities that might be affected, because the revenue figure on which it is based does not include or aggregate revenues from affiliated companies.

618. In addition, an element of the definition of "small business" is that the entity not be dominant in its field of operation. The Commission is unable at this time to define or quantify the criteria that would establish whether a specific radio station is dominant in its field of operation. Accordingly, the estimate of small businesses to which rules may apply does not exclude any radio station from the definition of a small business on this basis and therefore may be over-inclusive to that extent. Also, as noted, an additional element of the definition of "small business" is that the entity must be independently owned and operated. The Commission notes that it is difficult at times to assess these criteria in the context of media entities and the estimates of small businesses to which they apply may be over-inclusive to this extent.

4. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

619. The projected reporting, recordkeeping, and other compliance requirements resulting from the Order will apply to all entities in the same manner. The Commission believes that applying the same rules equally to all entities in this context promotes fairness. The Commission does not believe that the costs and/or administrative burdens associated with the

rules will unduly burden small entities. The revisions the Commission adopts should benefit small entities by giving them more information, more flexibility, and more options for gaining access to valuable wireless spectrum. Additionally, the reverse auction should benefit small entities that participate by providing a substantial infusion of income in exchange for spectrum usage rights, which broadcasters can use for new content and services. Similarly, by allowing unlicensed use in certain parts of the repurposed 600 MHz Band, the Commission will provide certainty and allow small entity equipment manufacturers to offer new services.

620. Auction Application Requirements. Similar to previous spectrum license auctions, all applicants wishing to participate in either the reverse or forward auction will be required to file pre-auction applications using the Commission's online electronic auction application system. Winning bidders in the forward auction will be required to file applications using the Commission's Universal Licensing System (ULS). For potential reverse auction bidders, the Commission requires submission of an application establishing their eligibility to participate, including license information and associated spectrum usage rights, certification of various qualifications, and information regarding station ownership. Applicants that are party to a channel sharing agreement must certify compliance with the Commission's media ownership rules, provide a copy of the executed agreement, and make other required certifications. No applications to participate in the reverse auction will be accepted if the applicant has failed to make these certifications by the initial deadline. Applicants will be provided a limited opportunity to cure certain minor defects and to resubmit a corrected application to participate. After the resubmission period has ended, an application to participate may be amended or modified to make minor changes or correct minor errors in the application to participate. Minor amendments may be subject to a deadline specified by public notice. Major amendments cannot be made to an application to participate after the initial filing deadline.

621. Prohibition on Certain Communications. Participants in both the reverse and the forward auction are required to report any potential violations of the Commission's prohibition on certain communications relating to the auction process. The Order extends existing rules applicable to participants in the forward auction that prohibit certain communications among certain forward auction participants to cover communications between forward auction participants and potential reverse auction applicants. The Order adopts new rules providing that, beginning with the deadline for submitting applications and until the Commission releases the results of the incentive auction, all full power and Class A broadcast television licensees are prohibited from communicating any applicant's bids or bidding strategies to any other full power or Class A broadcast television licensee or to any forward auction applicant. This prohibition extends to controlling interests, directors, officers, and members of a governing board, with exceptions for parties to a disclosed channel sharing agreement and where the parties share common control. This rule requires all violations to be reported immediately, and may subject parties to further investigation by the Commission or the Department of Justice.

622. National Security Certifications. To satisfy section 6004 of the Spectrum Act, reverse auction applicants, forward auction applicants, and forward auction winning bidders must file certifications of their compliance with the national security restrictions as set forth in 47 CFR 1.2204(c)(6) and 1.2105(a), as amended, and 47 CFR 27.12(b). This requirement extends to transactions in the secondary market: in any secondary market transaction applications involving 600 MHz Band licenses, applicants must certify to the Commission that neither they nor any party to the applications are persons barred from participating in an auction under this provision of the Spectrum Act. As such, in order to comply with this requirement, all reverse auction, forward auction, and secondary market applicants may require legal services to ensure compliance with section 6004 of the Spectrum Act.

623. Repacking. The Commission exercises its discretion to protect certain full power and Class A facilities in addition to those for which the statute mandates protection. The Commission generally limits its discretionary protection to facilities that are licensed by the Pre-Auction Licensing Deadline to be announced by the Media Bureau. Similarly, in order for a broadcaster to be a reverse auction eligible licensee, it must hold a license for the full power or Class A station it wishes to offer at auction on or before the Pre-Auction Licensing Deadline. To ensure a stable, accurate database, and to facilitate the repacking process, all full power and Class A television stations are required to verify and certify to the accuracy of the information contained in the Commission's Consolidated Database System ("CDBS") with respect to their protected facilities. Prior to the start of the incentive auction, the Media Bureau will issue a Public Notice announcing each station's protected facility. All full power and Class A stations will be required to submit a form (to be developed by the Media Bureau) specifying any changes to the information contained in CDBS and certifying to the accuracy of the information in CDBS or provided on the form for their protected facility. Stations affected by the destruction of the World Trade Center may elect which of their facilities to be protected. The deadline for these stations to elect the facility to be protected is the Pre-Auction Licensing Deadline.

624. Broadcast License Modification. Once the reverse and forward auctions are complete and results from the repacking process are announced, full power and Class A stations assigned new channels must file minor change applications for construction permits using FCC Form 301, 301-CA, or 340. Stations have a three-month filing window, as opposed to the shorter standard period, to file these minor change applications or to seek a waiver for additional time. In these initial minor change applications, stations may propose transmission facilities that slightly extend their coverage contour under certain conditions. After the deadline for filing for these initial minor change applications, the Media Bureau will announce a filing window during

which stations may propose expanded facilities, which are limited to minor changes, or alternate channel assignments, which will be considered major change applications and subject to the standard requirements. The licensee of each channel sharee station and channel sharer station must file an application for a license for the shared channel using FCC Form 302-DTV or 302-CA within three months of the date that the channel sharee station licensee receives its incentive payment. Compliance with these filing requirements may require stations to obtain legal, and, in the case of a construction permit application, engineering services.

625. Broadcast Transition Deadlines. A winning license relinquishment bidder must comply with the notification and cancellation procedures in 47 CFR 73.1750 and terminate operations on its pre-auction channel within three months of the date that the licensee receives its incentive payment. The licensee of a channel sharee station must comply with the notification and cancellation procedures in 47 CFR 73.1750 and terminate operations on its pre-auction channel within three months of the date that the licensee receives its incentive payment. The time allowed for full power and Class A stations reassigned to new channels to modify their facilities will vary. The Media Bureau will establish construction deadlines for such stations. A station reassigned to a new channel must cease operating on its pre-auction channel once such station begins operating on its post-auction channel or by the deadline specified in its construction permit for its post-auction channel, whichever occurs earlier, and in no event later than the end of the post-auction transition period, which is the 39-month period commencing upon the public release of the public notice specifying the new channel assignments and technical parameters of any broadcast television stations that are reassigned to new channels ("Post-Auction Transition Period"). A station may seek a single extension of up to six months of its original construction deadline. The extension request must be filed electronically in CDBS using FCC Form 337 no less than 90 days before the expiration of the construction permit.

Licensees needing additional time beyond such a single extension of time to complete construction shall be subject to the tolling provisions in 47 CFR 73.3598. Stations may request Special Temporary Authority ("STA") to operate with temporary facilities while they complete construction.

626. Consumer Education Outreach. As consumers will need to be informed if stations they view will be changing channels, the Commission will require all Transitioning Stations (i.e., full power and Class A stations moving to new channels or relinquishing their licenses) to air notifications for a minimum of 30 days prior to the date that the station will terminate operations on its pre-auction channel. These notifications will be a mix of PSAs and crawls, and must meet certain duration requirements. Transitioning stations that operate on a noncommercial educational ("NCE") basis have the option to instead air 60 seconds per day of on-air consumer education PSAs, in variable timeslots, for 30 days prior to the station's termination of operations on its pre-auction channel. Licensees of Transitioning Stations, except for license relinquishment stations, must place a certification of compliance with these requirements in their online public file within 30 days after beginning operations on their post-auction channels. License relinquishment stations must include the certification in their notification of discontinuation of service pursuant to 47 CFR 73.1750. Small entities may need legal and engineering services to comply with these requirements.

627. MVPD Notification. The Commission requires Transitioning Stations to provide notice to those MVPDs that: (1) no longer will be required to carry the station because it will cease operations or because of the relocation of a channel sharing sharee station; (2) currently carry and will continue to be obligated to carry a station that will change channels; or (3) will become obligated to carry a station due to a channel sharing relocation. The required notice must be provided in the form of a letter notification and contain the following information: (1)

date and time of any channel changes; (2) pre-auction and post-transition channel assignments; (3) modification, if any, to antenna position, location, or power levels; (4) stream identification information for channel sharing stations; and (5) engineering staff contact information. Should any of this information change during the station's transition, an amended notification must be sent. Transitioning Stations must provide notice within the following time frames: (1) for successful license relinquishment bidders, not less than 30 days prior to terminating operations; (2) for channel sharing sharee stations, not less than 30 days prior to terminating operations of the sharee's pre-auction channel; (3) for all channel sharing stations (i.e., both the sharer station and sharee station(s)), not less than 30 days prior to initiation of operations on the sharer channel; and (4) for all other stations transitioning to a new channel, including stations that are assigned to new channels in the repacking process and successful UHF-to-VHF and high-VHF-to-low-VHF bidders, not less than 90 days prior to the date on which they will begin operations on their reassigned channel. In addition, should a station's anticipated transition date change due to an unforeseen delay or change in transition plan, the station must send a further notice to affected MVPDs informing them of the new anticipated transition date.

628. Broadcaster Relocation Reimbursement. The Order adopts a reimbursement process for eligible broadcasters and MVPDs. Within three months of the Media and Wireless Telecommunications Bureaus releasing the Channel Reassignment PN eligible broadcasters and MVPDs are required to submit an estimated cost form providing an estimate of reasonably incurred relocation costs as well as required certifications. Upon completing construction or other reimbursable changes, or by a specific deadline prior to the end of the Reimbursement Period to be established by the Media Bureau, whichever is earlier, all broadcast television station licensees and MVPDs that received an initial allocation from the TV Broadcaster Relocation Fund must provide the Commission with information and documentation, including

invoices and receipts, regarding their actual expenses incurred as of a date to be determined by the Media Bureau. After completing all construction or reimbursable changes, broadcast television station licensees and MVPDs that have received money from the TV Broadcaster Relocation Fund will be required to submit final expense documentation containing a list of estimated expenses and actual expenses as of a date to be determined by the Media Bureau. Forms will include certifications that must be made by an owner or officer of the company under penalty of perjury under 18 U.S.C. § 1001. Broadcast television station licensees and MVPDs that receive payment from the TV Broadcaster Relocation Fund are required to submit progress reports at a date and frequency to be determined by the Media Bureau. Each broadcast television station licensee and MVPD that receives payment from the TV Broadcaster Relocation Fund is required to retain all relevant documents pertaining to construction or other reimbursable changes for a period ending not less than 10 years after the date on which it receives final payment from the TV Broadcaster Relocation Fund. Further, the Commission or its authorized contractor will conduct audits of, data validations for, and site visits to entities that receive disbursements from the TV Broadcaster Relocation Fund, both during and following the three year Reimbursement Period. All relevant documentation must be provided to the Commission or its authorized contractor upon request. Small entities seeking reimbursement may require legal, engineering, or accounting services in order to comply with these recordkeeping and filing requirements.

629. Service Rule Waiver. Section 6403(b)(4)(B) of the Spectrum Act provides that broadcast licensees can, in lieu of reimbursement of relocation costs, receive a waiver of the Commission's rules to permit flexible use of their spectrum, subject to certain conditions. Such waiver requests will be evaluated on a case-by-case basis by the Media Bureau. Eligible broadcast licensees must file waiver requests during a 30-day window commencing upon the

date that the Channel Reassignment PN is released. Eligible broadcast licensees will have ten days to notify the Commission whether it accepts the Commission's grant of the waiver. Licensees who accept a granted waiver will not qualify for reimbursement. Until the Commission grants and the licensee accepts the terms of a waiver, the licensee must still meet all requirements for obtaining reimbursement, including filing a timely estimated cost form. A licensee that is granted and accepts the terms of the waiver or a licensee with a pending waiver application must comply will all filing and notification requirements, construction schedules, and other post-auction transition deadlines. Broadcast licensees that intend to file for a waiver may require legal, engineering, or accounting services as well.

630. Displacement of LPTV and TV translator stations and Relinquishment of Broadcast Auxiliary Station ("BAS") Channels. Licensees of operating LPTV and TV translator stations that are displaced by a broadcast television station or a wireless service provider or whose channel is reserved as a guard band are permitted to submit an application for displacement relief in a restricted filing window to be announced by the Media Bureau by public notice. LPTV and TV translator stations, the majority of which are small entities, will be affected by this transition. Stations may require legal or engineering services in order to make the required filings. In addition, TV STL, TV relay station, or TV translator relay station (BAS) licensees in the 600 MHz Band will be required to cease operations or relocate from the 600 MHz Band no later than the end of the Post-Auction Transition Period. BAS licensees may require legal or engineering services in order to make the required filings.

631. Channel Sharing Operating Rules. The Commission requires all Channel Sharing Agreements ("CSAs") to include certain provisions outlining each licensee's rights and responsibilities, as well as other requirements, which must be filed with the station's reverse auction application. Additionally, all CSAs must include a provision affirming compliance with

the requirements in this Order, the Channel Sharing Report and Order (See 77 FR 30423 (2012)), and Commission rules. The Commission may review CSA provisions and require modifications to meet these requirements. These provisions are meant to help avoid disputes that could interrupt service and to ensure that each licensee is able to fulfill its independent obligation to comply with all pertinent statutory requirements and Commission rules. Since many broadcasters interested in CSAs may be small businesses, small entities may need legal, engineering, or other technical services to draft a CSA that complies with these contractual requirements.

632. Notification of Commencement of Wireless Operations. A wireless licensee assigned to frequencies in the 600 MHz Band must provide notice to LPTV and TV translator stations of its intent to commence wireless operations, and the likelihood of receiving harmful interference from the LPTV or TV translator station to such operations within the wireless licensee's licensed geographic service area. The new wireless licensees must: (i) notify the LPTV or TV translator station in the form of a letter, via certified mail, return receipt requested; (ii) indicate the date the new wireless licensee intends to commence operations in areas where there is a likelihood of receiving harmful interference from the LPTV or TV translator station; and (iii) send such notification not less than 120 days in advance of the commencement date. A wireless licensee assigned to frequencies in the 600 MHz Band must notify the BAS licensee of its intent to commence wireless operations and the likelihood of harmful interference from the BAS licensee to those operations within the wireless licensee's licensed geographic service area. The wireless licensee must: (i) notify the licensee of the TV STL, TV relay station, or TV translator relay station in the form of a letter, via certified mail, return receipt requested; and (ii) send such notification not less than 30 days in advance of the approximate date of commencement of such operations. 600 MHz Band licensees may require legal and engineering services to comply with

these requirements.

633. Wireless Technical and Service Rules. In general, the Commission adopts service rules contained in Part 27 of the Commission's rules. The Commission adopted technical rules for the 600 MHz Band similar to the Lower 700 MHz Band, contained in Part 27 of the Commission's rules, including out-of-band emission ("OOBE") limits, antenna height limits, co-channel interference limits, and slightly modified power limits. In order to promote interoperability across the 600 MHz Band, all user equipment certified for this band must be capable of operating throughout the band. In order to comply with these rules, 600 MHz Band licensees may require engineering and legal services.

634. Coordination with RAS Observatories. Coordination requirements apply prior to the commencement of operation of base and fixed stations in the 600 MHz Band in proximity to certain RAS observatories. 600 MHz Band licensees may require legal and engineering services to comply with this requirement.

635. Performance Requirements. All 600 MHz licensees will be required to file a construction notification and certify that they have met the applicable performance benchmarks. In particular, licensees of the 600 MHz Band must demonstrate that they meet certain build-out requirements at two performance benchmarks. If a licensee fails to meet the interim benchmark, its final benchmark and license term accelerate by two years; failing to meet the final benchmark results in automatic termination of the license. Due to the possibility that some licenses will have impaired areas, while the same build out benchmarks apply, a licensee may meet its requirement by providing coverage to population in non-impaired service areas. Licensees who hold licenses with impaired areas must provide an explanation to the Commission why they cannot serve the entire license area or meet the performance requirement at the relevant construction benchmark. These entities may require legal, engineering, or survey

services in order to comply with all reporting, recordkeeping, and other requirements.

636. Other Regulatory Matters. In order to renew a license, 600 MHz licensees will be required to file a license renewal application and make the necessary showings to qualify for renewal of the license. In addition, a 600 MHz licensee must notify the Commission of certain changes. Specifically, notification is required by licensees if they change their regulatory status, their foreign ownership status, or if they permanently discontinue service. A 600 MHz Band licensee that permanently discontinues service must notify the Commission of the discontinuance within 10 days by filing FCC Form 601 or 605 requesting license cancellation. 600 MHz Band licensees may require legal and engineering services to comply with these requirements.

5. Steps taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

637. The RFA requires an agency to describe any significant alternatives that it has considered in developing its approach, which may include the following four alternatives (among others): "(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities."

638. Facilities Protected in the Repacking. The Spectrum Act mandates all reasonable efforts to preserve the "coverage area and population served" of full power and Class A facilities licensed as of the date of the Spectrum Act's enactment. The Commission interprets the Spectrum Act to allow it to afford discretionary protection to several additional categories of facilities. While some commenters suggest that the Commission afford protection to other

facilities, including LPTV and TV translator stations, the Commission determines that the Spectrum Act does not mandate such protection, and affording discretionary protection to such stations would not be consistent with the goals of the Spectrum Act. LPTV and TV translator stations are secondary to full power stations, and affording these stations protection would severely limit recovery of spectrum and frustrate the purpose of the Spectrum Act. The Commission understands the potential impact of the incentive auction on LPTV and TV translator stations, among others, and will take steps to mitigate such impact.

639. Reverse Auction Participation. The Commission permits voluntary participation generally to all licensees of commercial and NCE full power and Class A stations, and provides several options for spectrum usage rights that a participant may bid to relinquish. Allowing options such as channel sharing, UHF-to-VHF moves, and high-VHF-to-low-VHF moves will encourage participation by small entities, which may stand to receive substantial proceeds while continuing to broadcast. In addition, the Commission will offer a license relinquishment bid option regardless of whether it may lead to a loss of service. This will allow voluntary participation by all eligible licensees, and remove obstacles that small entities may face in deciding whether to participate.

640. Confidentiality. Information regarding the identity of reverse auction applicants will be protected from disclosure for a period of time. To comport with the Spectrum Act's requirements, the Commission will protect the confidentiality of Commission-held data on broadcast television licensees participating in the reverse auction, regardless of whether their applications are complete and in compliance with the Commission's rules. Confidential information pertaining to unsuccessful bids will continue to be protected until two years after the effective date of spectrum reassignments and reallocations. When the spectrum reassignments and reallocations become effective, the Commission will disclose the identities of

the winning bidders and their winning bid amounts. The Commission further amends its FOIA disclosure rules to accommodate the confidentiality rules adopted. While some commenters urge the Commission to protect reverse auction participant identities in perpetuity, the Commission determines that doing so would not be a reasonable step necessary to protect broadcaster data. The Commission determines that adopting the two year confidentiality rule best balances protections for broadcasters with the transparency needed to maintain public trust in the auction process.

641. Forward Auction Participation. To assist small entities in competitive bidding in the forward auction, the Order adopts an open eligibility standard as mandated in section 6404 of the Spectrum Act to further broad participation in the incentive auction. In addition, the same small business size standards that were adopted in the 700 MHz Band were adopted for the 600 MHz Band, as well as bidding credits that are set forth in the standardized schedule in Part 1 of the Commission's rules. Specifically, the Order defines 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. The Commission also provides small businesses with a bidding credit of 15 percent and very small businesses with a bidding credit of 25 percent for the 600 MHz Band. The Commission will initiate a separate proceeding to review its Part 1 designated entity rules. In addition, the Commission adopts PEA geographic license sizes that will encourage entry by providers, including small providers, that contemplate offering wireless broadband service on a localized basis, yet at the same time not precluding carriers that plan to provide service on a much larger geographic scale. While some small and rural wireless carriers urge the Commission to license, wholly or in part, on a CMA basis, the Commission concludes that licensing using PEAs throughout the country strikes the appropriate balance and will allow

both smaller and larger wireless carriers to obtain licenses that best align with their respective business plans. Further, licensing markets using a variety of sizes (for example, mixing EAs and CMAs) would conflict with the Commission's goal of offering spectrum blocks as interchangeable as possible in order to speed up the forward auction bidding process.

642. Band Plan Matters. While the Commission will not know which specific 600 MHz Band Plan scenario will be employed until the conclusion of the incentive auction, each scenario includes guard bands to prevent harmful interference between licensed services. Specifically, the guard bands will protect against interference between uplink and downlink wireless services, between wireless services and broadcast television services, and between wireless services and RAS and WMTS services operating on channel 37, if enough spectrum is repurposed. The Commission concludes that these guard bands are technically reasonable, and will help prevent harmful interference to entities of all sizes operating adjacent to repurposed spectrum. Further, by adopting a fully-paired band plan rather than licensing some spectrum blocks as supplemental downlink, smaller carriers and new entrants will be able to obtain much-needed low frequency, paired spectrum.

643. Repacking of the Television Band. The Commission intends to optimize any final channel assignments to minimize relocation costs for eligible broadcasters and MVPDs. The Spectrum Act caps the TV Broadcaster Relocation Fund at $1.75 billion and requires the Commission to make any reimbursements within three years of the completion of the forward auction. Because eligible broadcasters and MVPDs will be eligible for an initial allocation based on estimated costs, they should not have to rely significantly on self-financing or outside financing. Further, delaying the "close" of the forward auction until after reassigned stations file construction permits, as some broadcasters suggest, does not reasonably comport with the statutory mandate.

644. Partitioning, Disaggregation, and Leasing. The Commission concludes that providing flexibility in the secondary markets, by allowing licensees to partition, disaggregate, and/or lease spectrum, helps smaller carriers acquire the specific spectrum rights that they need to serve small, targeted markets. As in other bands, this flexibility can facilitate the efficient use of spectrum, promote competition, and expedite provision of services in areas that might not otherwise receive service in the near term.

6. Federal Rules that May Duplicate, Overlap, or Conflict with the Rules

645. None.

7. Report to Congress

646. The Commission will send a copy of the Order, including this FRFA, in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act. A copy of the Order and FRFA (or summaries thereof) will also be published in the Federal Register.

8. Report to Small Business Administration

647. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of this Order, including this FRFA, to the Chief Counsel for Advocacy of the SBA.

B. Paperwork Reduction Act Analysis

648. This document 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 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.

649. We have assessed the effects of the policies adopted in the Order with regard to information collection burdens on small business concerns, and find that these policies will benefit many companies with fewer than 25 employees by providing them with options for voluntarily relinquishing broadcast spectrum usage rights or for gaining access to valuable repurposed spectrum. In addition, we have described impacts that might affect small businesses, which includes most businesses with fewer than 25 employees, in the FRFA.

C. Delegation to Correct Rules

650. We delegate authority to the Wireless Telecommunications Bureau, Media Bureau, International Bureau, and Office of Engineering and Technology, as appropriate, to make corrections to the rules that are adopted in this Order as necessary to conform them to the text of this Order. We note that any entity that disagrees with a rule correction made on delegated authority will have the opportunity to file an Application for Review by the full Commission.

VII. ORDERING CLAUSES

651. It is ordered, pursuant to the authority found in Sections 1, 4, 301, 303, 307, 308, 309, 310, 316, 319, 325(b), 332, 336(f), 338, 339, 340, 399b, 403, 534, and 535 of the Communications Act of 1934, as amended, and sections 6004, 6402, 6403, 6404, and 6407 of Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156, 47 U.S.C. 151, 154, 301, 303, 307, 308, 309, 310, 316, 319, 325(b), 332, 336(f), 338, 339, 340, 399b, 403, 534, 535, 1404, 1452, and 1454, the Report and Order in GN Docket No. 12-268 is adopted.

652. It is further ordered that the Commission's rules are hereby amended.

653. 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 under the Paperwork Reduction Act and will become effective after the Commission publishes a notice in the Federal Register announcing such approval and the relevant effective date.

654. It is further ordered that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, shall send a copy of the Order in GN Docket No. 12-268, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

655. It is further ordered that the Commission shall send a copy of the Order in GN Docket No. 12-268 in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act, see 5 U.S.C. 801(a)(1)(A).

List of Subjects

47 CFR Part 0

Reporting and recordkeeping requirements.

47 CFR Parts 1, 2, 15, 27, 73, and 74

Administrative practice and procedure, Communications common carriers, Radio, Telecommunications.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch,
Secretary.

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR parts 0, 1, 2, 15, 27, 73, and 74 as follows:

PART 0—COMMISSION ORGANIZATION

1. The authority citation for part 0 continues to read as follows:

Authority: Sec. 5, 48 Stat. 1068, as amended; 47 U.S.C. 155, 225, unless otherwise noted.

2. Section 0.457 is amended by adding paragraph (d)(1)(ix) to read as follows:

§ 0.457 Records not routinely available for public inspection.

* * * * *

(d) * * *

(1) * * *

(ix) Confidential Broadcaster Information, as defined in § 1.2206(d) of this chapter, submitted by a broadcast television licensee in a broadcast television spectrum reverse auction conducted under section 6403 of the Middle Class Tax Relief and Job Creation Act of 2012 (Pub. L. No. 112-96) (the "Spectrum Act"), or in the application to participate in such a reverse auction, is not routinely available for public inspection until the reassignments and reallocations under section 6403(b)(1)(B) of the Spectrum Act become effective or until two years after public notice that the reverse auction is complete and that no such reassignments and reallocations shall become effective. In the event that reassignments and reallocations under section 6403(b)(1)(B) of the Spectrum Act become effective, Confidential Broadcaster Information pertaining to any unsuccessful reverse auction bid or pertaining to any unsuccessful application to participate in such a reverse auction will not be routinely available for public inspection until two years after the effective date.

* * * * *

PART 1—PRACTICE AND PROCEDURE

3. The authority citation for part 1 is revised to read as follows:

Authority: 15 U.S.C. 79 et seq.; 47 U.S.C. 151, 154(i), 154(j), 155, 157, 225, 227, 303(r), 309, 1403, 1404, 1451, and 1452.

4. Section 1.2101 is revised to read as follows:

§ 1.2101 Purpose.

The provisions of §§ 1.2101 through 1.2114 implement section 309(j) of the Communications Act of 1934, as added by the Omnibus Budget Reconciliation Act of 1993 (Pub. L. 103–66) and subsequent amendments.

§ 1.2102 [Amended]

5. Section 1.2102 is amended by removing and reserving paragraph (c).

6. Section 1.2103 is revised to read as follows:

§ 1.2103 Competitive bidding design options.

(a) Public notice of competitive bidding design options. Prior to any competitive bidding for initial licenses, public notice shall be provided of the detailed procedures that may be used to implement auction design options.

(b) Competitive bidding design options. The public notice detailing competitive bidding procedures may establish procedures for collecting bids, assigning winning bids, and determining payments, including without limitation:

(1) Procedures for collecting bids. (i) Procedures for collecting bids in a single round or in multiple rounds.

(ii) Procedures allowing for bids for specific items, bids for generic items in one or more categories of items, or bids for one or more aggregations of items.

(iii) Procedures allowing for bids that specify a price, indicate demand at a specified price, or provide other information as specified by competitive bidding policies, rules, and procedures.

(iv) Procedures allowing for bids that are contingent on specified conditions, such as other bids being accepted or for packages of licenses being awarded.

(v) Procedures to collect bids in one or more stages, including procedures for transitions between stages.

(vi) Procedures for whether, when, and how bids may be modified during the auction.

(2) Procedures for assigning winning bids. (i) Procedures that take into account one or more factors in addition to the submitted bid amount, including but not limited to the amount of bids submitted in separate competitive bidding.

(ii) Procedures to assign specific items to bidders following bidding for quantities of generic items.

(iii) Procedures to incorporate public interest considerations into the process for assigning winning bids.

(3) Procedures for determining payments. Procedures to determine the amount of any payments made to or by winning bidders consistent with other auction design choices.

7. Section 1.2104 is amended by revising paragraphs (e) and (j) to read as follows:

§ 1.2104 Competitive bidding mechanisms.

* * * * *

(e) Stopping procedures. Before or during an auction, procedures may be established regarding when bidding will stop for a round, a stage, or an entire auction, in order to terminate the auction within a reasonable time and in accordance with public interest considerations and the goals, statutory requirements, rules, and procedures for the auction, including any reserve price or prices.

* * * * *

(j) Bid apportionment—(1) Apportioned license bid. The Commission may specify a method for apportioning a bid among portions of the license (i.e., portions of the license's service area or bandwidth, or both) when necessary to compare a bid on the original license or portions thereof with a bid on a corresponding reconfigured license for purposes of the Commission's rules or procedures, such as to calculate a bid withdrawal or default payment obligation in connection with the bid.

(2) Apportioned package bid. The apportioned package bid on a license is an estimate of the price of an individual license included in a package of licenses in an auction with combinatorial (package) bidding. Apportioned package bids shall be determined by the Commission according to a methodology it establishes in advance of each auction with combinatorial bidding. The apportioned package bid on a license included in a package shall be used in place of the amount of an individual bid on that license when the bid amount is needed to determine the size of a designated entity bidding credit (see § 1.2110(f)(1) and (f)(2)), a new entrant bidding credit (see § 73.5007 of this chapter), a bid withdrawal or default payment obligation (see § 1.2104(g)), a tribal land bidding credit limit (see § 1.2110(f)(3)(iv)), or a size-based bidding credit unjust enrichment payment obligation (see § 1.2111(d), (e)(2), and (e)(3)), or for any other determination required by the Commission's rules or procedures.

8. Section 1.2105 is amended by revising paragraphs (a)(2)(i), (a)(2)(xii), and (c)(6), and adding paragraph (c)(8) and notes 1 and 2 to paragraph (c) to read as follows:

§ 1.2105 Bidding application and certification procedures; prohibition of certain communications.

(a) * * *

(2) * * *

(i) Identification of each license, or category of licenses, on which the applicant wishes to bid.

* * * * *

(xii) For auctions required to be conducted under Title VI of the Middle Class Tax Relief and Job Creation Act of 2012 (Pub. L. No. 112-96) or in which any spectrum usage rights for which licenses are being assigned were made available under 47 U.S.C. 309(j)(8)(G)(i), certification under penalty of perjury that the applicant and all of the person(s) disclosed under paragraph (a)(2)(ii) of this section are not person(s) who have been, for reasons of national security, barred by any agency of the Federal Government from bidding on a contract, participating in an auction, or receiving a grant. For the purposes of this certification, the term "person" means an individual, partnership, association, joint-stock company, trust, or corporation, and the term "reasons of national security" means matters relating to the national defense and foreign relations of the United States.

* * * * *

(c) * * *

(6) A party that makes or receives a communication prohibited under paragraphs (c)(1) or (8) of this section shall report such communication in writing immediately, and in any case no later than five business days after the communication occurs. A party's obligation to make such a report continues until the report has been made. Such reports shall be filed as directed in public notices detailing procedures for the bidding that was the subject of the reported communication. If no public notice provides direction, the party making the report shall do so in writing to the Chief of the Auctions and Spectrum Access Division, Wireless Telecommunications Bureau, by the most expeditious means available, including electronic transmission such as email.

* * * * *

(8) Prohibition of certain communications for the broadcast television spectrum incentive auction conducted under section 6403 of the Middle Class Tax Relief and Job Creation Act of 2012 (Pub. L. No. 112-96).

(i) For the purposes of the prohibition described in paragraphs (c)(8)(ii) and (iii) of this section, the term forward auction applicant is defined the same as the term applicant is defined in paragraph (c)(7) of this section, and the terms full power broadcast television licensee and Class A broadcast television licensee are defined the same as those terms are defined in § 1.2205(a)(1).

(ii) Except as provided in paragraph (c)(8)(iii) of this section, in the broadcast television spectrum incentive auction conducted under section 6403 of the Middle Class Tax Relief and Job Creation Act of 2012 (Pub. L. No. 112-96), beginning on the short-form application filing deadline for the forward auction and until the results of the incentive auction are announced by public notice, all forward auction applicants are prohibited from communicating directly or indirectly any incentive auction applicant's bids or bidding strategies to any full power or Class A broadcast television licensee.

(iii) The prohibition described in paragraph (c)(8)(ii) of this section does not apply to communications between a forward auction applicant and a full power or Class A broadcast television licensee if a controlling interest, director, officer, or holder of any 10 percent or greater ownership interest in the forward auction applicant, as of the deadline for submitting short-form applications to participate in the forward auction, is also a controlling interest, director, officer, or governing board member of the full power or Class A broadcast television licensee, as of the deadline for submitting applications to participate in the reverse auction.

Note 1 to Paragraph (c): For the purposes of paragraph (c), "controlling interests" include individuals or entities with positive or negative de jure or de facto control of the licensee. De jure control includes holding 50 percent or more of the voting stock of a corporation or holding a

general partnership interest in a partnership. Ownership interests that are held indirectly by any party through one or more intervening corporations may 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 meets or exceeds 50 percent or represents actual control, it may be treated as if it were a 100 percent interest. De facto control is determined on a case-by-case basis. Examples of de facto control include constituting or appointing 50 percent or more of the board of directors or management committee; having authority to appoint, promote, demote, and fire senior executives that control the day-to-day activities of the licensee; or playing an integral role in management decisions.

Note 2 to Paragraph (c): The prohibition described in paragraph (c)(8)(ii) of this section applies to controlling interests, directors, officers, and holders of any 10 percent or greater ownership interest in the forward auction applicant as of the deadline for submitting short-form applications to participate in the forward auction, and any additional such parties at any subsequent point prior to the announcement by public notice of the results of the incentive auction. Thus, if, for example, a forward auction applicant appoints a new officer after the short-form application deadline, that new officer would be subject to the prohibition in paragraph (c)(8)(ii) of this section, but would not be included within the exception described in paragraph (c)(8)(iii).

9. Section 1.2106 is amended by revising paragraph (a) to read as follows:

§ 1.2106 Submission of upfront payments.

(a) Applicants for licenses subject to competitive bidding may be required to submit an upfront payment. In that event, the amount of the upfront payment and the procedures for submitting it will be set forth in a public notice. Any auction applicant that has previously been in default on any Commission license or has previously been delinquent on any non-tax debt owed to any

Federal agency must submit an upfront payment equal to 50 percent more than the amount that otherwise would be required. No interest will be paid on upfront payments.

* * * * *

10. Section 1.2114 is amended by revising paragraph (e) to read as follows:

§ 1.2114 Reporting of eligibility event.

* * * * *

(e) Public notice of application. Applications under this section will be placed on an informational public notice on a weekly basis (see § 1.933(a)).

* * * * *

11. Part 1 subpart Q is amended by adding §§ 1.2200 through 1.2209 under added undesignated center heading "Broadcast Television Spectrum Reverse Auction" as follows:

Subpart Q—Competitive Bidding Proceedings

* * * * *

Broadcast Television Spectrum Reverse Auction

Sec.

1.2200 Definitions.
1.2201 Purpose.
1.2202 Competitive bidding design options.
1.2203 Competitive bidding mechanisms.
1.2204 Applications to participate in competitive bidding.
1.2205 Prohibition of certain communications.
1.2206 Confidentiality of Commission-held data.
1.2207 Two competing participants required.
1.2208 Public notice of auction completion and auction results.
1.2209 Disbursement of incentive payments.

Broadcast Television Spectrum Reverse Auction

§ 1.2200 Definitions.

For purposes of §§ 1.2200 through 1.2209:

(a) Broadcast television licensee. The term broadcast television licensee means the licensee of

(1) A full-power television station, or

(2) A low-power television station that has been accorded primary status as a Class A television licensee under § 73.6001(a) of this chapter.

(b) Channel sharee. The term channel sharee means a broadcast television licensee that relinquishes all spectrum usage rights with respect to a particular television channel in order to share a television channel with another broadcast television licensee.

(c) Channel sharer. The term channel sharer means a broadcast television licensee that shares its television channel with a channel sharee.

(d) Channel sharing bid. The term channel sharing bid means a bid to relinquish all spectrum usage rights with respect to a particular television channel in order to share a television channel with another broadcast television licensee.

(e) Forward auction. The term forward auction means the portion of an incentive auction of broadcast television spectrum described in section 6403(c) of the Spectrum Act.

(f) High-VHF-to-low-VHF bid. The term high-VHF-to-low-VHF bid means a bid to relinquish all spectrum usage rights with respect to a high very high frequency ("VHF") television channel (channels 7 through 13) in return for receiving spectrum usage rights with respect to a low VHF television channel (channels 2 through 6).

(g) License relinquishment bid. The term license relinquishment bid means a bid to relinquish all spectrum usage rights with respect to a particular television channel without receiving in return any spectrum usage rights with respect to another television channel.

(h) NCE station. The term NCE station means a noncommercial educational television broadcast station as defined in § 73.621 of this chapter.

(i) Reverse auction. The term reverse auction means the portion of an incentive auction of broadcast television spectrum described in section 6403(a) of the Spectrum Act.

(j) Reverse auction bid. The term reverse auction bid includes a license relinquishment bid, a UHF-to-VHF bid, a high-VHF-to-low-VHF bid, a channel sharing bid, and any other reverse auction bids permitted.

(k) Spectrum Act. The term Spectrum Act means Title VI of the Middle Class Tax Relief and Job Creation Act of 2012 (Pub. L. No. 112-96).

(l) UHF-to-VHF bid. The term UHF-to-VHF bid means a bid to relinquish all spectrum usage rights with respect to an ultra-high frequency ("UHF") television channel in return for receiving spectrum usage rights with respect to a high VHF television channel or a low VHF television channel.

§ 1.2201 Purpose.

The provisions of §§ 1.2200 through 1.2209 implement section 6403 of the Spectrum Act, which requires the Commission to conduct 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 of the Spectrum Act.

§ 1.2202 Competitive bidding design options.

(a) Public notice of competitive bidding design options. Prior to conducting competitive bidding in the reverse auction, public notice shall be provided of the detailed procedures that may be used to implement auction design options.

(b) Competitive bidding design options. The public notice detailing competitive bidding procedures for the reverse auction may establish procedures for collecting bids, assigning winning bids, and determining payments, including without limitation:

(1) Procedures for collecting bids. (i) Procedures for collecting bids in a single round or in multiple rounds.

(ii) Procedures for collecting bids for multiple reverse auction bid options.

(iii) Procedures allowing for bids that specify a price for a reverse auction bid option, indicate demand at a specified price, or provide other information as specified by competitive bidding policies, rules, and procedures.

(iv) Procedures allowing for bids that are contingent on specified conditions, such as other bids being accepted.

(v) Procedures to collect bids in one or more stages, including procedures for transitions between stages.

(vi) Procedures for whether, when, and how bids may be modified during the auction.

(2) Procedures for assigning winning bids. (i) Procedures that take into account one or more factors in addition to bid amount, such as population coverage or geographic contour, or other relevant measurable factors.

(ii) Procedures to evaluate the technical feasibility of assigning a winning bid.

(A) Procedures that utilize mathematical computer optimization software, such as integer programming, to evaluate bids and technical feasibility, or that utilize other decision routines, such as sequentially evaluating bids using a ranking based on specified factors.

(B) Procedures that combine computer optimization algorithms with other decision routines.

(iii) Procedures to incorporate public interest considerations into the process for assigning winning bids.

(3) Procedures for determining payments. (i) Procedures to determine the amount of any incentive payments made to winning bidders consistent with other auction design choices.

(ii) The amount of proceeds shared with a broadcast television licensee will not be less than the amount of the licensee's winning bid in the reverse auction.

§ 1.2203 Competitive bidding mechanisms.

(a) Public notice of competitive bidding procedures. Detailed competitive bidding procedures shall be established by public notice prior to the commencement of the reverse auction, including without limitation:

(1) Sequencing. The sequencing with which the reverse auction and the related forward auction assigning new spectrum licenses will occur.

(2) Reserve price. Reserve prices, either disclosed or undisclosed, so that higher bids for various reverse auction bid options would not win in the reverse auction. Reserve prices may apply individually, in combination, or in the aggregate.

(3) Opening bids and bid increments. Maximum or minimum opening bids, and by announcement before or during the reverse auction, maximum or minimum bid increments in dollar or percentage terms.

(4) Activity rules. Activity rules that require a minimum amount of bidding activity.

(b) Binding obligation. A bid is an unconditional, irrevocable offer by the bidder to fulfill the terms of the bid. The Commission accepts the offer by identifying the bid as winning. A bidder has a binding obligation to fulfill the terms of a winning bid. A winning bidder will relinquish spectrum usage rights pursuant to the terms of any winning bid by the deadline set forth in § 73.3700(b)(4) of this chapter.

(c) Stopping procedures. Before or during the reverse auction, procedures may be established regarding when bidding will stop for a round, a stage, or an entire auction, in order to terminate

the auction within a reasonable time and in accordance with public interest considerations and the goals, statutory requirements, rules, and procedures for the auction, including any reserve price or prices.

(d) Auction delay, suspension, or cancellation. By public notice or by announcement during the reverse auction, the auction may be delayed, suspended, or cancelled in the event of a natural disaster, technical obstacle, network disruption, evidence of an auction security breach or unlawful bidding activity, administrative or weather necessity, or for any other reason that affects the fair and efficient conduct of the competitive bidding. The Commission has the authority, at its sole discretion, to resume the competitive bidding starting from the beginning of the current or some previous round or cancel the competitive bidding in its entirety.

§ 1.2204 Applications to participate in competitive bidding.

(a) Public notice of the application process. All applications to participate must be filed electronically. The dates and procedures for submitting applications to participate in the reverse auction shall be announced by public notice.

(b) Applicant. The applicant identified on the application to participate must be the broadcast television licensee that would relinquish spectrum usage rights if it becomes a winning bidder. In the case of a channel sharing bid, the applicant will be the proposed channel sharee.

(c) Information and certifications provided in the application to participate. An applicant may be required to provide the following information in its application to participate in the reverse auction:

(1) The following identifying information:

(i) If the applicant is an individual, the applicant's name and address. If the applicant is a corporation, the name and address of the corporate office and the name and title of an officer or director. If the applicant is a partnership, the name, citizenship, and address of all general

partners, and, if a general partner is not a natural person, then the name and title of a responsible person for that partner, as well. If the applicant is a trust, the name and address of the trustee. If the applicant is none of the above, it must identify and describe itself and its principals or other responsible persons;

(ii) Applicant ownership and other information as set forth in § 1.2112(a); and

(iii) List, in the case of a non-profit entity, the name, address, and citizenship of each member of the governing board and of any educational institution or governmental entity with a controlling interest in the applicant, if applicable.

(2) The identity of the person(s) authorized to take binding action in the bidding on behalf of the applicant.

(3) For each broadcast television license for which the applicant intends to submit reverse auction bids:

(i) The identity of the station and its television channel;

(ii) Whether it is a full-power or Class A television station;

(iii) If the license is for a Class A television station, certification under penalty of perjury that it is and will remain in compliance with the ongoing statutory eligibility requirements to remain a Class A station;

(iv) Whether it is an NCE station and, if so, whether it operates on a reserved or non-reserved channel;

(v) The types of reverse auction bids that the applicant may submit;

(vi) Whether the license for the station is subject to a non-final revocation order, has expired and is subject to a non-final cancellation order, or if for a Class A station is subject to a non-final downgrade order and, if the license is subject to such a proceeding or order, then an

acknowledgement that the Commission will place all of its auction proceeds into escrow pending the final outcome of the proceeding or order; and

(vii) Any additional information required to assess the spectrum usage rights offered.

(4) For each broadcast television license for which the applicant intends to submit a license relinquishment bid:

(i) Whether it will control another broadcast station if it becomes a winning bidder and terminates operations; and

(ii) If it will control another broadcast station, an acknowledgement that it will remain subject to any pending license renewal, as well as any enforcement action, against the station offered; or

(iii) If it will not control another broadcast station, an acknowledgement that the Commission will place a share of its auction proceeds into escrow to cover any potential forfeiture costs associated with any pending license renewal or any pending enforcement action against the station offered.

(5) For each broadcast television license for which the applicant intends to submit a channel sharing bid:

(i) The identity of the channel sharer and the television channel the applicant has agreed to share;

(ii) Any required information regarding the channel sharing agreement, including a copy of the executed channel sharing agreement;

(iii) Certification under penalty of perjury that the channel sharing agreement is consistent with all Commission rules and policies, and that the applicant accepts any risk that the implementation of the channel sharing agreement may not be feasible for any reason, including any conflict with requirements for operation on the shared channel;

(iv) Certification under penalty of perjury that its operation from the shared channel facilities will not result in a change to its Designated Market Area;

(v) Certification under penalty of perjury that it can meet the community of license coverage requirement set forth in § 73.625(a) of this chapter from the shared channel facilities or, if not, that the new community of license for its shared channel facilities either meets the same or a higher allotment priority as its current community; or, if no community meets the same or higher allotment priority, provides the next highest priority;

(vi) Certification under penalty of perjury that the proposed channel sharing arrangement will not violate the multiple ownership rules, set forth in § 73.3555 of this chapter, based on facts at the time the application is submitted; and

(vii) Certification by the channel sharer under penalty of perjury with respect to the certifications described in paragraphs (c)(3)(iii), (c)(5)(iii), and (c)(5)(vi) of this section.

(6) Certification under penalty of perjury that the applicant and all of the person(s) disclosed under paragraph (c)(1) of this section are not person(s) who have been, for reasons of national security, barred by any agency of the Federal Government from bidding on a contract, participating in an auction, or receiving a grant. For the purposes of this certification, the term "person" means an individual, partnership, association, joint-stock company, trust, or corporation, and the term "reasons of national security" means matters relating to the national defense and foreign relations of the United States.

(7) Certification that the applicant agrees that it has sole responsibility for investigating and evaluating all technical and marketplace factors that may have a bearing on the bids it submits in the reverse auction.

(8) Certification that the applicant agrees that the bids it submits in the reverse auction are irrevocable, binding offers by the applicant.

(9) Certification that the individual submitting the application to participate and providing the certifications is authorized to do so on behalf of the applicant, and if such individual is not an

officer, director, board member, or controlling interest holder of the applicant, evidence that such individual has the authority to bind the applicant.

(10) Certification that the applicant is in compliance with all statutory and regulatory requirements for participation in the reverse auction, including any requirements with respect to the license(s) identified in the application to participate.

(11) Such additional information as may be required.

(d) Application processing. (1) Any timely submitted application to participate will be reviewed for completeness and compliance with the Commission's rules. No untimely applications to participate shall be reviewed or considered.

(2) Any application to participate that does not contain all of the certifications required pursuant to this section is unacceptable for filing, cannot be corrected subsequent to the application filing deadline, and will be dismissed with prejudice.

(3) Applicants will be provided a limited opportunity to cure specified defects and to resubmit a corrected application to participate. During the resubmission period for curing defects, an application to participate may be amended or modified to cure identified defects or to make minor amendments or modifications. After the resubmission period has ended, an application to participate may be amended or modified to make minor changes or correct minor errors in the application to participate. Minor amendments may be subject to a deadline specified by public notice. Major amendments cannot be made to an application to participate after the initial filing deadline. Major amendments include, but are not limited to, changes in ownership of the applicant that would constitute an assignment or transfer of control, changes to any of the required certifications, and the addition or removal of licenses identified on the application to participate for which the applicant intends to submit reverse auction bids. Minor amendments

include any changes that are not major, such as correcting typographical errors and supplying or correcting information as requested to support the certifications made in the application.

(4) Applicants that fail to correct defects in their applications to participate in a timely manner as specified by public notice will have their applications to participate dismissed with no opportunity for resubmission.

(5) Applicants shall have a continuing obligation to make any amendments or modifications that are necessary to maintain the accuracy and completeness of information furnished in pending applications to participate. Such amendments or modifications shall be made as promptly as possible, and in no case more than five business days after applicants become aware of the need to make any amendment or modification, or five business days after the reportable event occurs, whichever is later. An applicant's obligation to make such amendments or modifications to a pending application to participate continues until they are made.

(e) Notice to qualified and non-qualified applicants. Each applicant will be notified as to whether it is qualified or not qualified to participate in the reverse auction.

§ 1.2205 Prohibition of certain communications.

(a) Definitions. (1) For the purposes of this section, a full power broadcast television licensee, or a Class A broadcast television licensee, shall include all controlling interests in the licensee, and all officers, directors, and governing board members of the licensee.

(2) For the purposes of this section, the term forward auction applicant is defined the same as the term applicant is defined in § 1.2105(c)(7).

(b) Certain communications prohibited. (1) Except as provided in paragraph (b)(2) of this section, in the broadcast television spectrum incentive auction conducted under section 6403 of the Spectrum Act, beginning on the deadline for submitting applications to participate in the reverse auction and until the results of the incentive auction are announced by public notice, all

full power and Class A broadcast television licensees are prohibited from communicating directly or indirectly any incentive auction applicant's bids or bidding strategies to any other full power or Class A broadcast television licensee or to any forward auction applicant.

(2) The prohibition described in paragraph (b)(1) of this section does not apply to the following:

(i) Communications between full power or Class A broadcast television licensees if they share a common controlling interest, director, officer, or governing board member as of the deadline for submitting applications to participate in the reverse auction;

(ii) Communications between a forward auction applicant and a full power or Class A broadcast television licensee if a controlling interest, director, officer, or holder of any 10 percent or greater ownership interest in the forward auction applicant, as of the deadline for submitting short-form applications to participate in the forward auction, is also a controlling interest, director, officer, or governing board member of the full power or Class A broadcast television licensee, as of the deadline for submitting applications to participate in the reverse auction; and

(iii) Communications regarding reverse auction applicants' (but not forward auction applicants') bids and bidding strategies between parties to a channel sharing agreement executed prior to the deadline for submitting applications to participate in the reverse auction and disclosed on a reverse auction application.

(c) Duty to report potentially prohibited communications. A party that makes or receives a communication prohibited under paragraph (b) of this section shall report such communication in writing immediately, and in any case no later than five business days after the communication occurs. A party's obligation to make such a report continues until the report has been made.

(d) Procedures for reporting potentially prohibited communications. Reports under paragraph (c) of this section shall be filed as directed in public notices detailing procedures for bidding in the incentive auction. If no public notice provides direction, the party making the report shall do so

in writing to the Chief of the Auctions and Spectrum Access Division, Wireless Telecommunications Bureau, by the most expeditious means available, including electronic transmission such as email.

(e) Violations. A party who is found to have violated the antitrust laws or the Commission's rules in connection with its participation in the competitive bidding process, in addition to any other applicable sanctions, may be subject to forfeiture of its winning bid incentive payment and revocation of its licenses, where applicable, and may be prohibited from participating in future auctions.

Note 1 to § 1.2205: References to "full power broadcast television licensees" and "Class A broadcast television licensees" are intended to include all broadcast television licensees that are or could become eligible to participate in the reverse auction, including broadcast television licensees that may be parties to a channel sharing agreement.

Note 2 to § 1.2205: For the purposes of this section, "controlling interests" include individuals or entities with positive or negative de jure or de facto control of the licensee. De jure control includes holding 50 percent or more of the voting stock of a corporation or holding a general partnership interest in a partnership. Ownership interests that are held indirectly by any party through one or more intervening corporations may 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 meets or exceeds 50 percent or represents actual control, it may be treated as if it were a 100 percent interest. De facto control is determined on a case-by-case basis. Examples of de facto control include constituting or appointing 50 percent or more of the board of directors or management committee; having authority to appoint, promote, demote,

and fire senior executives that control the day-to-day activities of the licensee; or playing an integral role in management decisions.

Note 3 to § 1.2205: The prohibition described in § 1.2205(b)(1) applies to controlling interests, officers, directors, and governing board members of a full power or Class A broadcast television licensee as of the deadline for submitting applications to participate in the reverse auction, and any additional such parties at any subsequent point prior to the announcement by public notice of the results of the incentive auction. Thus, if, for example, a full power or Class A broadcast television licensee appoints a new officer after the application deadline, that new officer would be subject to the prohibition in § 1.2205(b)(1), but would not be included within the exceptions described in §§ 1.2205(b)(2)(i) and (ii).

§ 1.2206 Confidentiality of Commission-held data.

(a) The Commission will take all reasonable steps necessary to protect all Confidential Broadcaster Information for all reverse auction applicants from the time the broadcast television licensee applies to participate in the reverse auction until the reassignments and reallocations under section 6403(b)(1)(B) of the Spectrum Act become effective or until two years after public notice that the reverse auction is complete and that no such reassignments and reallocations shall become effective.

(b) In addition, if reassignments and reallocations under section 6403(b)(1)(B) of the Spectrum Act become effective, the Commission will continue to take all reasonable steps necessary to protect Confidential Broadcaster Information pertaining to any unsuccessful reverse auction bid and pertaining to any unsuccessful application to participate in the reverse auction until two years after the effective date.

(c) Notwithstanding paragraphs (a) and (b) of this section, the Commission may disclose Confidential Broadcaster Information if required to do so by law, such as by court order.

(d) Confidential Broadcaster Information includes the following Commission-held data of a broadcast television licensee participating in the reverse auction:

(1) The name of the applicant licensee;

(2) The licensee's channel number, call sign, facility identification number, and network affiliation; and

(3) Any other information that may reasonably be withheld to protect the identity of the licensee, as determined by the Commission.

§ 1.2207 Two competing participants required.

The Commission may not enter into an agreement for a licensee to relinquish spectrum usage rights in exchange for a share of the proceeds from the related forward auction assigning new spectrum licenses unless at least two competing licensees participate in the reverse auction.

§ 1.2208 Public notice of auction completion and auction results.

Public notice shall be provided when the reverse auction is complete and when the forward auction is complete. With respect to the broadcast television spectrum incentive auction conducted under section 6403 of the Spectrum Act, public notice shall be provided of the results of the reverse auction, forward auction, and repacking, and shall indicate that the reassignments of television channels and reallocations of broadcast television spectrum are effective.

§ 1.2209 Disbursement of incentive payments.

A winning bidder shall submit the necessary financial information to facilitate the disbursement of the winning bidder's incentive payment. Specific procedures for submitting financial information, including applicable deadlines, will be set out by public notice.

12. Section 1.9005 is amended by adding paragraph (kk) to read as follows:

§ 1.9005 Included services.

* * * * *

(kk) The 600 MHz band (part 27 of this chapter).

PART 2—FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

13. The authority citation for part 2 continues to read as follows:

Authority: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

14. Section 2.106 is amended by revising page 28 as follows:

§ 2.106 Table of Frequency Allocations.

* * * * *

456-459 FIXED MOBILE 5.286AA 5.271 5.287 5.288			456-459 5.287 US64 US288	456-460 FIXED LAND MOBILE 5.287 US64 US288 NG32 NG112 NG124 NG148	Public Mobile (22) Maritime (80) Private Land Mobile (90) MedRadio (95I)
459-460 FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	459-460 FIXED MOBILE 5.286AA MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209	459-460 FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	459-460		
460-470 FIXED MOBILE 5.286AA Meteorological-satellite (space-to-Earth) 5.287 5.288 5.289 5.290			460-470 Meteorological-satellite (space-to-Earth) 5.287 US73 US209 US288 US289	460-462.5375 FIXED LAND MOBILE US209 US289 NG124	Private Land Mobile (90)
				462.5375-462.7375 LAND MOBILE US289	Personal Radio (95)
				462.7375-467.5375 FIXED LAND MOBILE 5.287 US73 US209 US288 US289 NG124	Maritime (80) Private Land Mobile (90)
				467.5375-467.7375 LAND MOBILE 5.287 US288 US289	Maritime (80) Personal Radio (95)
				467.7375-470 FIXED LAND MOBILE US73 US288 US289 NG124	Maritime (80) Private Land Mobile (90)
470-790 BROADCASTING 5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 5.311A 5.312	470-512 BROADCASTING Fixed Mobile 5.292 5.293	470-585 FIXED MOBILE BROADCASTING 5.291 5.298	470-608	470-512 FIXED LAND MOBILE BROADCASTING NG5 NG14 NG66 NG115 NG149	Public Mobile (22) Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H) Private Land Mobile (90)
	512-608 BROADCASTING 5.297	585-610 FIXED MOBILE BROADCASTING RADIONAVIGATION 5.149 5.305 5.306 5.307		512-608 FIXED MOBILE BROADCASTING NG5 NG14 NG115 NG149	Wireless Communications (27) Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)
	608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)	610-890 FIXED MOBILE 5.313A 5.317A BROADCASTING 5.149 5.305 5.306 5.307 5.311A 5.320	608-614 LAND MOBILE (medical telemetry and medical telecommand) RADIO ASTRONOMY US74 US246		Personal Radio (95)
	614-698 BROADCASTING Fixed Mobile 5.293 5.309 5.311A		614-698	614-698 FIXED MOBILE BROADCASTING NG5 NG14 NG115 NG149	Wireless Communications (27) Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)

15. Section 2.1033 is amended by adding paragraph (c)(19)(iii) to read as follows:

§ 2.1033 Application for certification.

(c) * * *

(19) * * *

(iii) 600 MHz band shall include a statement indicating compliance with § 27.75 of this chapter.

* * * * *

PART 15—RADIO FREQUENCY DEVICES

16. The authority citation for part 15 continues to read as follows:

Authority: 47 U.S.C. 154, 302a, 303, 304, 307, 336, 544a, and 549.

17. Section 15.707 is amended by redesignating paragraph (a) as (a)(1) and adding paragraph (a)(2) to read as follows:

§ 15.707 Permissible channels of operation.

(a)(1) * * *

(2) TVBD operations in 600 MHz band. TVBDs may operate on frequencies in the 600 MHz Band as defined in part 27 of this chapter in areas where 600 MHz Band licensees have not commenced operations.

* * * * *

18. Section 15.713 is amended by adding paragraphs (b)(2)(iv) and (h)(10) to read as follows:

§ 15.713 TV bands database.

(b) * * *

(2) * * *

(iv) 600 MHz band operations under part 27 of this chapter in areas where the licensee has commenced operations.

* * * * *

(h) * * *

(10) 600 MHz band operations under part 27 of this chapter in areas where the licensee has commenced operations.

(i) License area of the 600 MHz band licensee, as defined under part 27 of this chapter;

(ii) Identification of the frequencies on which the part 27 600 MHz wireless licensee has commenced operations;

(iii) Call sign.

PART 27—MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

19. The authority citation for part 27 is revised to read as follows:

Authority: 47 U.S.C. 154, 301, 302a, 303, 307, 309, 332, 336, 337, 1403, 1404, 1451, and 1452, unless otherwise noted.

20. Section 27.1 is amended by adding paragraph (b)(14) to read as follows:

§ 27.1 Basis and purpose.

* * * * *

(b) * * *

(14) Spectrum in the 470-698 MHz UHF band that has been reallocated and redesignated for flexible fixed and mobile use pursuant to section 6403 of the Spectrum Act. The specific frequencies and number of channel blocks will be determined in light of further proceedings pursuant to Docket No. 12-268 and the rule will be updated accordingly pursuant to a future public notice.

* * * * *

21. Section 27.4 is amended by adding the definitions "600 MHz service", "Post-auction transition period", and "Spectrum Act" in alphanumerical order to read as follows:

§ 27.4 Terms and definitions.

600 MHz service. A radiocommunication service licensed pursuant to this part for the frequency bands specified in § 27.5(l).

* * * * *

Post-auction transition period. The 39-month period commencing upon the public release of the Channel Reassignment Public Notice as defined in § 73.3700(a) of this chapter.

* * * * *

Spectrum Act. The term Spectrum Act means Title VI of the Middle Class Tax Relief and Job Creation Act of 2012 (Pub. L. No. 112-96).

* * * * *

22. Section 27.5 is amended by adding paragraph (l) to read as follows:

§ 27.5 Frequencies.

* * * * *

(l) 600 MHz band. In accordance with the terms and conditions established in Docket No. 12-268, pursuant to section 6403 of the Spectrum Act, paired channel blocks of 5+5 megahertz are available for assignment on a Partial Economic Area basis. The specific frequencies and number of channel blocks will be determined in light of further proceedings pursuant to Docket No. 12-268 and the rule will be updated accordingly pursuant to a future public notice.

23. Section 27.6 is amended by adding paragraph (l) to read as follows:

§ 27.6 Service areas.

* * * * *

(l) 600 MHz band. Service areas for the 600 MHz band are based on Partial Economic Areas (PEAs), as defined by Public Notice: "Wireless Telecommunications Bureau Provides Details About Partial Economic Areas," DA 14-759, dated June 2, 2014. The service areas of PEAs that border the U.S. coastline of the Gulf of Mexico extend 12 nautical miles from the U.S. Gulf coastline. The service area of the Gulf of Mexico PEA that comprises the water area of the Gulf of Mexico extends from 12 nautical miles off the U.S. Gulf coast outward into the Gulf. Maps of the PEAs and the Federal Register notice that established the 416 PEAs are available for public inspection and copying at the Reference Center, Room CY A-257, 445 12th St., SW., Washington, DC 20554. These maps and data are also available on the FCC Web site at: http://www.fcc.gov/oet/info/maps/areas/. The specific title, reference number, and date of the public notice will be determined in light of further proceedings pursuant to Docket No. 12-268 and the rule will be updated accordingly.

24. Section 27.11 is amended by adding paragraph (k) to read as follows:

§ 27.11 Initial authorization.

* * * * *

(k) 600 MHz band. Initial authorizations for the 600 MHz band will be based on Partial Economic Areas (PEAs), as specified in § 27.6(1), and, shall be paired channels that each consist of a 5 megahertz channel block in the 600 MHz downlink band, paired with a 5 megahertz channel block in the 600 MHz uplink band. The specific frequencies and number of channel blocks will be determined in light of further proceedings pursuant to Docket No. 12-268 and the rule will be updated accordingly pursuant to a future public notice.

25. Section 27.13 is amended by adding paragraph (l) to read as follows:

§ 27.13 License period.

* * * * *

(l) 600 MHz band. Authorizations for the 600 MHz band will have an initial term not to exceed twelve years from the date of issuance and ten years from the date of any subsequent license renewal.

26. Section 27.14 is amended by revising the first sentence of paragraphs (a), (f), (k) and adding paragraph (t) to read as follows:

§ 27.14 Construction requirements; Criteria for renewal.

(a) AWS and WCS licensees, with the exception of WCS licensees holding authorizations for the 600 MHz band, Block A in the 698-704 MHz and 728-734 MHz bands, Block B in the 704-710 MHz and 734-740 MHz bands, Block E in the 722-728 MHz band, Block C, C1 or C2 in the 746-757 MHz and 776-787 MHz bands, Block A in the 2305-2310 MHz and 2350-2355 MHz bands, Block B in the 2310-2315 MHz and 2355-2360 MHz bands, Block C in the 2315-2320 MHz band, and Block D in the 2345-2350 MHz band, and with the exception of licensees holding AWS authorizations in the 1915-1920 MHz and 1995-2000 MHz bands, the 2000-2020 MHz and 2180-2200 MHz bands, or 1695-1710 MHz, 1755-1780 MHz and 2155-2180 MHz bands, must, as a performance requirement, make a showing of "substantial service" in their license area within the prescribed license term set forth in § 27.13. * * *

* * * * *

(f) Comparative renewal proceedings do not apply to WCS licensees holding authorizations for the 600 MHz band, 698-746 MHz, 747-762 MHz, and 777-792 MHz bands or licensees holding AWS authorizations for the 1915-1920 MHz and 1995-2000 MHz bands or the 2000-2020 MHz

and 2180-2200 MHz bands, or the 1695-1710 MHz, or the 1755-1780 MHz and 2155-2180 MHz bands. * * *

* * * * *

(k) Licensees holding WCS or AWS authorizations in the spectrum blocks enumerated in paragraphs (g), (h), (i), (q), (r), (s), and (t) of this section, including any licensee that obtained its license pursuant to the procedures set forth in paragraph (j) of this section, shall demonstrate compliance with performance requirements by filing a construction notification with the Commission, within 15 days of the expiration of the applicable benchmark, in accordance with the provisions set forth in § 1.946(d) of this chapter. * * *

* * * * *

(t) The following provisions apply to any licensee holding an authorization in the 600 MHz band:

(1) A licensee shall provide reliable signal coverage and offer service within six (6) years from the date of the initial license to at least forty (40) percent of the population in each of its license areas ("Interim Buildout Requirement").

(2) A licensee shall provide reliable signal coverage and offer service within twelve (12) years from the date of the initial license to at least seventy-five (75) percent of the population in each of its license areas ("Final Buildout Requirement").

(3) If a licensee fails to establish that it meets the Interim Buildout Requirement for a particular licensed area, then the Final Buildout Requirement (in this paragraph (t)) and the license term (as set forth in § 27.13(l)) for each license area in which it fails to meet the Interim Buildout Requirement shall be accelerated by two (2) years (from twelve (12) to ten (10) years).

(4) If a licensee fails to establish that it meets the Final Buildout Requirement for a particular license area, its authorization for each license area in which it fails to meet the Final Buildout Requirement shall terminate automatically without Commission action, and the licensee will be ineligible to regain it if the Commission makes the license available at a later date.

(5) To demonstrate compliance with these performance requirements, licensees shall use the most recently available decennial U.S. Census Data at the time of measurement and shall base their measurements of population served on areas no larger than the Census Tract level. The population within a specific Census Tract (or other acceptable identifier) will be deemed served by the licensee only if it provides reliable signal coverage to and offers service within the specific Census Tract (or other acceptable identifier). To the extent the Census Tract (or other acceptable identifier) extends beyond the boundaries of a license area, a licensee with authorizations for such areas may include only the population within the Census Tract (or other acceptable identifier) towards meeting the performance requirement of a single, individual license. For the Gulf of Mexico license area, the licensee shall demonstrate compliance with these performance requirements, using off-shore platforms, including production, manifold, compression, pumping and valving platforms as a proxy for population in the Gulf of Mexico.

(6) An applicant for renewal of a license covered by this paragraph (t) must make a renewal showing, independent of its performance requirements, as a condition of each renewal. The showing must include a detailed description of the applicant's provision of service during the entire license period and address:

(i) The level and quality of service provided by the applicant (including the population served, the area served, the number of subscribers, the services offered);

(ii) The date service commenced, whether service was ever interrupted, and the duration of any interruption or outage;

(iii) The extent to which service is provided to rural areas;

(iv) The extent to which service is provided to qualifying tribal land as defined in § 1.2110(f)(3)(i) of this chapter; and

(v) Any other factors associated with the level of service to the public.

27. Section 27.15 is amended by revising the first sentence in paragraph (d)(1)(i); revising paragraph (d)(1)(iii); revising the first sentence in paragraph (d)(2)(i); and revising paragraph (d)(2)(iii) to read as follows:

§ 27.15 Geographic partitioning and spectrum disaggregation.

* * * * *

(d) * * *

(1) * * *

(i) Except for WCS licensees holding authorizations for the 600 MHz band, Block A in the 698-704 MHz and 728-734 MHz bands, Block B in the 704-710 MHz and 734-740 MHz bands, Block E in the 722-728 MHz band, or Blocks C, C1, and C2 in the 746-757 MHz and 776-787 MHz bands; and for licensees holding AWS authorizations in the 1915-1920 MHz and 1995-2000 MHz bands, the 2000-2020 MHz and 2180-2200 MHz bands; or the 1695-1710 MHz, 1755-1780 MHz and 2155-2180 MHz bands the following rules apply to WCS and AWS licensees holding authorizations for purposes of implementing the construction requirements set forth in § 27.14. * * *

* * * * *

(iii) For licensees holding authorizations for the 600 MHz band, AWS authorizations in the 1915-1920 MHz and 1995-2000 MHz bands, or the 2000-2020 MHz and 2180-2200 MHz bands, or the 1695-1710 MHz, 1755-1780 MHz and 2155-2180 MHz bands, the following rules apply for purposes of implementing the construction requirements set forth in § 27.14. Each party to a geographic partitioning must individually meet any service-specific performance requirements (i.e., construction and operation requirements). If a partitioner or partitionee fails to meet any service-specific performance requirements on or before the required date, then the consequences for this failure shall be those enumerated in §27.14(q) for 2000-2020 MHz and 2180-2200 MHz licenses, those enumerated in § 27.14(r) for 1915-1920 MHz and 1995-2000 MHz licenses, and those enumerated in § 27.14(s) for 1695-1710 MHz, 1755-1780 MHz and 2155-2180 MHz licenses, and those enumerated in § 27.14(t) for 600 MHz band licenses.

(2) * * *

(i) Except for WCS licensees holding authorizations for the 600 MHz band, Block A in the 698–704 MHz and 728–734 MHz bands, Block B in the 704–710 MHz and 734–740 MHz bands, Block E in the 722–728 MHz band, or Blocks C, C1, or C2 in the 746–757 MHz and 776–787 MHz bands; and for licensees holding AWS authorizations in the 1915-1920 MHz and 1995-2000 MHz bands, the 2000-2020 MHz and 2180-2200 MHz bands or the 1695-1710 MHz, 1755-1780 MHz and 2155-2180 MHz bands; the following rules apply to WCS and AWS licensees holding authorizations for purposes of implementing the construction requirements set forth in § 27.14. * * *

* * * * *

(iii) For licensees holding authorizations for the 600 MHz band, AWS authorizations in the 1915-1920 MHz and 1995-2000 MHz bands, or the 2000-2020 MHz and 2180-2200 MHz bands,

or the 1695-1710 MHz, 1755-1780 MHz and 2155-2180 MHz bands, the following rules apply for purposes of implementing the construction requirements set forth in § 27.14. Each party to a spectrum disaggregation must individually meet any service-specific performance requirements (i.e., construction and operation requirements). If a disaggregator or a disaggregatee fails to meet any service-specific performance requirements on or before the required date, then the consequences for this failure shall be those enumerated in § 27.14(q) for 2000-2020 MHz and 2180-2200 MHz licenses, those enumerated in § 27.14(r) for 1915-1920 MHz and 1995-2000 MHz licenses, those enumerated in § 27.14(s) for 1695-1710 MHz, 1755-1780 MHz and 2155-2180 MHz licenses, and those enumerated in § 27.14(t) for 600 MHz band licenses.

28. Section 27.17 is amended by revising the section heading and paragraphs (a) introductory text, (a)(1), (b), and (c) to read as follows:

§ 27.17 Discontinuance of service in the 600 MHz band and the 1695-1710 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2155-2180 MHz, and 2180-2200 MHz bands.

(a) Termination of authorization. A 600 MHz band authorization and an AWS authorization in the 1695-1710 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2155-2180 MHz, and 2180-2200 MHz bands will automatically terminate, without specific Commission action, if the licensee permanently discontinues service either during the initial license term or during any subsequent license term, as follows:

(1) After the interim buildout deadline as specified in § 27.14(r), (s), or (t) as applicable (where the licensee meets the Interim Buildout Requirement), or after the accelerated Final Buildout Requirement (where the licensee failed to meet the Interim Buildout Requirement).

* * * * *

(b) For licensees with common carrier or non-common carrier regulatory status that hold 600 MHz band authorizations or AWS authorizations in the 1695-1710 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2155-2180 MHz, and 2180-2200 MHz bands, permanent discontinuance of service is defined as 180 consecutive days during which a licensee does not provide service to at least one subscriber that is not affiliated with, controlled by, or related to the licensee in the individual license area. For licensees with private, internal communications regulatory status that hold 600 MHz band authorizations or AWS authorizations in the 1695-1710 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2155-2180 MHz, and 2180-2200 MHz bands, permanent discontinuance of service is defined as 180 consecutive days during which a licensee does not operate.

(c) Filing requirements. A licensee that holds a 600 MHz band authorization or an AWS authorization in the 1695-1710 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2155-2180 MHz, and 2180-2200 MHz bands, that permanently discontinues service as defined in this section must notify the Commission of the discontinuance within 10 days by filing FCC Form 601 or 605 requesting license cancellation. An authorization will automatically terminate, without specific Commission action, if service is permanently discontinued as defined in this section, even if a licensee fails to file the required form requesting license cancellation.

29. Section 27.19 is added to read as follows:

§ 27.19 Requirements for operation of base and fixed stations in the 600 MHz downlink band in close proximity to Radio Astronomy Observatories.

(a) Licensees must make reasonable efforts to protect the radio astronomy observatory at Green Bank, WV, Arecibo, PR, and those identified in § 15.712(h)(3) of this chapter as part of the Very Long Baseline Array (VLBA) from interference.

(b) 600 MHz band base and fixed stations in the 600 MHz downlink band within 25 kilometers of VLBA observatories are subject to coordination with the National Science Foundation (NSF) prior to commencing operations. The appropriate NSF contact point to initiate coordination is Electromagnetic Spectrum Manager, NSF, 4201 Wilson Blvd., Suite 1045, Arlington VA 22203, fax 703-292-9034, e-mail esm@nsf.gov.

(c) Any licensee that intends to operate base and fixed stations in the 600 MHz downlink band in locations near the Radio Astronomy Observatory site located in Green Bank, Pocahontas County, West Virginia, or near the Arecibo Observatory in Puerto Rico, must comply with the provisions in § 1.924 of this chapter.

30. Section 27.50 is amended by revising paragraphs (c) introductory text, (c)(5) introductory text, (c)(9), (c)(10), and the headings to Tables 1 through 4 to read as follows:

§ 27.50 Power limits and duty cycle.

* * * * *

(c) The following power and antenna height requirements apply to stations transmitting in the 600 MHz band and the 698–746 MHz band:

* * * * *

(5) Licensees, except for licensees operating in the 600 MHz downlink band, seeking to operate a fixed or base station located in a county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, and transmitting a signal at an ERP greater than 1000 watts must:

* * * * *

(9) Control and mobile stations in the 698–746 MHz band are limited to 30 watts ERP.

(10) Portable stations (hand-held devices) in the 600 MHz uplink band and the 698–746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

* * * * *

Table 1 to § 27.50—Permissible Power and Antenna Heights for Base and Fixed Stations in the 757–758 and 775–776 MHz Bands and for Base and Fixed Stations in the 600 MHz, 698–757 MHz, 758–763 MHz, 776–787 MHz and 788–793 MHz Bands Transmitting a Signal With an Emission Bandwidth of 1 MHz or Less

* * * * *

Table 2 to § 27.50—Permissible Power and Antenna Heights for Base and Fixed Stations in the 600 MHz, 698–757 MHz, 758–763 MHz, 776–787 MHz and 788–793 MHz Bands Transmitting a Signal With an Emission Bandwidth of 1 MHz or Less

* * * * *

Table 3 to § 27.50—Permissible Power and Antenna Heights for Base and Fixed Stations in the 600 MHz, 698–757 MHz, 758–763 MHz, 776–787 MHz and 788–793 MHz Bands Transmitting a Signal With an

Emission Bandwidth Greater than 1 MHz

* * * * *

Table 4 to § 27.50—Permissible Power and Antenna Heights for Base and Fixed Stations in the 600 MHz, 698–757 MHz, 758–763 MHz, 776–787 MHz and 788–793 MHz Bands Transmitting a Signal With an Emission Bandwidth Greater than 1 MHz

* * * * *

31. Section 27.53 is amended by revising paragraph (g) to read as follows:

§ 27.53 Emission limits.

* * * * *

(g) For operations in the 600 MHz band and the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

* * * * *

32. Section 27.55 is amended by revising paragraph (a)(2) to read as follows:

§ 27.55 Power strength limits.

(a) * * *

(2) 600 MHz, 698–758, and 775–787 MHz bands: 40 dBμV/m.

* * * * *

33. Section 27.57 is amended by revising paragraph (b) to read as follows:

§ 27.57 International coordination.

* * * * *

(b) Wireless operations in the 512-608 MHz, 614-763 MHz, 775-793 MHz, and 805-806 MHz bands are subject to current and future international agreements between the United States and Canada and the United States and Mexico. Unless otherwise modified by international treaty, licenses must not cause interference to, and must accept harmful interference from, television broadcast operations in Mexico and Canada, where these services are co-primary in the band.

* * * * *

34. Section 27.75 is amended by adding paragraph (a)(2) to read as follows:

§ 27.75 Basic interoperability requirement.

* * * * *

(a) * * *

(2) Mobile and portable stations that operate on any portion of frequencies in the 600 MHz band must be capable of operating on all frequencies in the 600 MHz band using the same air interfaces that the equipment utilizes on any frequencies in the 600 MHz band.

* * * * *

35. Add subpart N to part 27 to read as follows:

Subpart N—600 MHz Band

Sec.

27.1300 600 MHz band subject to competitive bidding.
27.1301 Designated entities in the 600 MHz band.

§ 27.1300 600 MHz band subject to competitive bidding.

As required by section 6403(c) of the Spectrum Act, applications for 600 MHz band initial licenses are subject to competitive bidding. The general competitive bidding procedures set forth in 47 CFR part 1, subpart Q will apply unless otherwise provided in this subpart.

§ 27.1301 Designated entities in the 600 MHz band.

Eligibility for small business provisions:

(a) Small business. (1) A small business is an entity that, together with its affiliates, its controlling interests, the affiliates of its controlling interests, and the entities with which it has an attributable material relationship, has average gross revenues not exceeding $40 million for the preceding three (3) years.

(2) A very small business is an entity that, together with its affiliates, its controlling interests, the affiliates of its controlling interests, and the entities with which it has an attributable material relationship, has average gross revenues not exceeding $15 million for the preceding three (3) years.

(b) Bidding credits. A winning bidder that qualifies as a small business as defined in this section or a consortium of small businesses may use the bidding credit specified in § 1.2110(f)(2)(iii) of this chapter. A winning bidder that qualifies as a very small business as defined in this section or a consortium of very small businesses may use the bidding credit specified in § 1.2110(f)(2)(ii) of this chapter.

PART 73—RADIO BROADCAST SERVICES

36. The authority citation for part 73 continues to read:

Authority: 47 U.S.C. 154, 303, 334, 336, and 339.

37. Section 73.3700 is revised to read as follows:

§ 73.3700 Post-Incentive Auction Licensing and Operation.

(a) Definitions—(1) Broadcast television station. For purposes of this section, broadcast television station means full power television stations and Class A television stations.

(2) Channel reassignment public notice. For purposes of this section, Channel Reassignment Public Notice means the public notice to be released upon the completion of the broadcast television spectrum incentive auction conducted under section 6403 of the Spectrum Act specifying the new channel assignments and technical parameters of any broadcast television stations that are reassigned to new channels.

(3) Channel sharee station. For purposes of this section, channel sharee station means a broadcast television station for which a winning channel sharing bid, as defined in § 1.2200(d) of this chapter, was submitted.

(4) Channel sharer station. For purposes of this section, channel sharer station means a broadcast television station that shares its television channel with a channel sharee.

(5) Channel sharing agreement (CSA). For purposes of this section, channel sharing agreement or CSA means an executed agreement between the licensee of a channel sharee station or stations and the licensee of a channel sharer station governing the use of the shared television channel.

(6) High-VHF-to-Low-VHF station. For purposes of this section, High-VHF-to-Low-VHF station means a broadcast television station for which a winning high-VHF-to-low-VHF bid, as defined in § 1.2200(f) of this chapter, was submitted.

(7) License relinquishment station. For purposes of this section, license relinquishment station means a broadcast television station for which a winning license relinquishment bid, as defined in § 1.2200(g) of this chapter, was submitted.

(8) MVPD. For purposes of this section, MVPD means a person such as, but not limited to, a cable operator, a multichannel multipoint distribution service, a direct broadcast satellite service, or a television receive-only satellite program distributor, who makes available for purchase, by subscribers or customers, multiple channels of video programming as set forth in section 602 of the Communications Act of 1934 (47 U.S.C. 522).

(9) Pre-auction channel. For purposes of this section, pre-auction channel means the channel that is licensed to a broadcast television station on the date that the Channel Reassignment Public Notice is released.

(10) Predetermined cost estimate. For purposes of this section, predetermined cost estimate means the estimated cost of an eligible expense as generally determined by the Media Bureau in a catalog of expenses eligible for reimbursement.

(11) Post-auction channel. For purposes of this section, post-auction channel means the channel specified in the Channel Reassignment Public Notice or a channel authorized by the Media Bureau in a construction permit issued after the date that the Channel Reassignment Public Notice is released under the procedures set forth in paragraph (b) of this section.

(12) Reassigned station. For purposes of this section, a reassigned station means a broadcast television station that is reassigned to a new channel in the Channel Reassignment Public Notice, not including channel sharing stations, UHF-to-VHF stations, or High-VHF-to-Low-VHF stations.

(13) Reimbursement period. For purposes of this section, reimbursement period means the period ending three years after the completion of the forward auction pursuant to section 6403(b)(4)(D) of the Spectrum Act.

(14) Spectrum Act. The term Spectrum Act means Title VI of the Middle Class Tax Relief and Job Creation Act of 2012 (Pub. L. No. 112-96).

(15) Transitioning station. For purposes of this section, a transitioning station means a:

(i) Reassigned station,

(ii) UHF-to-VHF station,

(iii) High-VHF-to-Low-VHF station,

(iv) License relinquishment station, or

(v) A channel sharee or sharer station.

(16) TV broadcaster relocation fund. For purposes of this section, the TV Broadcaster Relocation Fund means the fund established by section 6403(d)(1) of the Spectrum Act.

(17) UHF-to-VHF station. For purposes of this section, UHF-to-VHF station means a television station for which a winning UHF-to-VHF bid, as defined in § 1.2200(l) of this chapter, was submitted.

(b) Post-auction licensing—(1) Construction permit applications. (i) Licensees of reassigned stations, UHF-to-VHF stations, and High-VHF-to-Low-VHF stations must file a minor change application for a construction permit for the channel specified in the Channel Reassignment Public Notice using FCC Form 301, 301-CA, or 340 within three months of the release date of the Channel Reassignment Public Notice. Licensees that are unable to meet this filing deadline may request a waiver of the deadline no later than 30 days prior to the deadline.

(ii) A licensee of a reassigned station that is reassigned from one channel to a different channel within its existing band will be permitted to propose transmission facilities in its construction permit application that will extend its coverage contour, as defined by the technical parameters specified in the Channel Reassignment Public Notice, if such facilities:

(A) Are necessary to achieve the coverage contour specified in the Channel Reassignment Public Notice or to address loss of coverage area resulting from the new channel assignment;

(B) Will not extend a full power television station's noise limited contour or a Class A television station's protected contour by more than one percent in any direction; and

(C) Will not cause new interference, other than a rounding tolerance of 0.5 percent, to any other broadcast television station.

(iii) The licensee of a UHF-to-VHF station or High-VHF-to-Low-VHF station will be permitted to propose transmission facilities in its construction permit application that will extend its

coverage contour, as defined by the technical parameters specified in the Channel Reassignment Public Notice, if the proposed facility will not cause new interference, other than a rounding tolerance of 0.5 percent, to any other broadcast television station.

(iv) The licensee of a reassigned station, a UHF-to-VHF station, or a High-VHF-to-Low-VHF station that, for reasons beyond its control, is unable to construct facilities that meet the technical parameters specified in the Channel Reassignment Public Notice, or the permissible contour coverage variance from those technical parameters specified in paragraph (b)(1)(ii) or (iii) of this section, may request a waiver of the construction permit application deadline specified in paragraph (b)(1)(i) of this section no later than 30 days prior to the deadline. If its waiver request is granted, the licensee will be afforded an opportunity to submit an application for a construction permit pursuant to paragraph (b)(2)(i) or (ii) of this section in a priority filing window to be announced by the Media Bureau by public notice.

(v) Construction permit applications filed pursuant to paragraph (b)(1)(i) of this section will be afforded expedited processing if the application:

(A) Does not seek to expand the coverage area, as defined by the technical parameters specified in the Channel Reassignment Public Notice, in any direction;

(B) Seeks authorization for facilities that are no more than five percent smaller than those specified in the Channel Reassignment Public Notice with respect to predicted population served; and

(C) Is filed within the three-month deadline specified in paragraph (b)(1)(i) of this section.

(vi) Delegation of authority. The Commission delegates authority to the Chief, Media Bureau to establish construction periods for reassigned stations, UHF-to-VHF stations, and High-VHF-to-Low-VHF stations.

(2) Applications for alternate channels and expanded facilities—(i) Alternate channels. The licensee of a reassigned station, a UHF-to-VHF station, or a High-VHF-to-Low-VHF station will be permitted to file a major change application for a construction permit for an alternate channel on FCC Form 301, 301-CA, or 340 during a filing window to be announced by the Media Bureau by public notice, provided that:

(A) The licensee of a UHF-to-VHF station cannot request an alternate UHF channel;

(B) The licensee of a UHF-to-VHF station that specified the high-VHF band or the low-VHF band in its UHF-to-VHF bid cannot request a VHF channel outside of the assigned band; and

(C) The licensee of a High-VHF-to-Low-VHF station cannot request an alternate high-VHF channel.

(ii) Expanded facilities. The licensee of a reassigned station, a UHF-to-VHF station, or a High-VHF-to-Low-VHF station will be permitted to file a minor change application for a construction permit on FCC Form 301, 301-CA, or 340 during a filing window to be announced by the Media Bureau by public notice, in order to request a change in the technical parameters specified in the Channel Reassignment Public Notice with respect to height above average terrain (HAAT), effective radiated power (ERP), or transmitter location that would be considered a minor change under §§ 73.3572(a)(1) and (2) or 74.787(b) of this chapter.

(iii) Delegation of authority. The Commission delegates authority to the Chief, Media Bureau to:

(A) Announce filing opportunities for alternate channels and expanded facilities applications and specifying appropriate processing guidelines, including the standards to qualify for priority filing, cut-off protections, and means to avoid or resolve mutual exclusivity between applications; and

(B) Establish construction periods for permits authorizing alternate channels or expanded facilities.

(3) License applications for channel sharing stations. The licensee of each channel sharee station and channel sharer station must file an application for a license for the shared channel using FCC Form 302-DTV or 302-CA within three months of the date that the channel sharee station licensee receives its incentive payment pursuant to section 6403(a)(1) of the Spectrum Act.

(4) Deadlines to terminate operations on pre-auction channels. (i) The licensee of a license relinquishment station must comply with the notification and cancellation procedures in § 73.1750 and terminate operations on its pre-auction channel within three months of the date that the licensee receives its incentive payment pursuant to section 6403(a)(1) of the Spectrum Act.

(ii) The licensee of a channel sharee station must comply with the notification and cancellation procedures in § 73.1750 and terminate operations on its pre-auction channel within three months of the date that the licensee receives its incentive payment pursuant to section 6403(a)(1) of the Spectrum Act.

(iii) All reassigned stations, UHF-to-VHF stations, and High-VHF-to-Low-VHF stations must cease operating on their pre-auction channel once such station begins operating on its post-auction channel or by the deadline specified in its construction permit for its post-auction channel, whichever occurs earlier, and in no event later than the end of the post-auction transition period as defined in § 27.4 of this chapter.

(5) Applications for additional time to complete construction—(i) Delegation of authority. Authority is delegated to the Chief, Media Bureau to grant a single extension of time of up to six months to licensees of reassigned stations, UHF-to-VHF stations, and High-VHF-to-Low-VHF stations to complete construction of their post-auction channel upon demonstration by the

licensee that failure to meet the construction deadline is due to circumstances that are either unforeseeable or beyond the licensee's control. Licensees needing additional time beyond such a single extension of time to complete construction shall be subject to the tolling provisions in § 73.3598.

(ii) Circumstances that may justify an extension of the construction deadline of a licensee of a reassigned station, a UHF-to-VHF station, or a High-VHF-to-Low-VHF station include but are not limited to:

(A) Weather-related delays, including a tower location in a weather-sensitive area;

(B) Delays in construction due to the unavailability of equipment or a tower crew;

(C) Tower lease disputes;

(D) Unusual technical challenges, such as the need to construct a top-mounted or side-mounted antenna or the need to coordinate channel changes with another station; and

(E) Delays faced by licensees that must obtain government approvals, such as land use or zoning approvals, or that are subject to competitive bidding requirements prior to purchasing equipment or services.

(iii) A licensee of a reassigned station, UHF-to-VHF station, or High-VHF-to-Low-VHF station may rely on "financial hardship" as a criterion for seeking an extension of time if it is subject to an active bankruptcy or receivership proceeding, provided that the licensee makes an adequate showing that it has filed requests to proceed with construction in the relevant court proceedings. Any other licensee that seeks an extension of time based on financial hardship must demonstrate that, although it is not subject to an active bankruptcy or receivership proceeding, rare and exceptional financial circumstances warrant granting additional time to complete construction.

(iv) Applications for additional time to complete construction must be filed electronically in CDBS using FCC Form 337 no less than 90 days before the expiration of the construction permit.

(c) Consumer education for transitioning stations. (1) Transitioning stations that operate on a commercial basis will be required to air at least one Public Service Announcement (PSA) and run at least one crawl in every quarter of every day for 30 days prior to the date that the station terminates operations on its pre-auction channel. One of the required PSAs and one of the required crawls must be run during prime time hours (for purposes of this section, between 8:00 pm and 11:00 pm in the Eastern and Pacific time zones, and between 7:00 pm and 10:00 pm in the Mountain and Central time zones) each day.

(2) Transitioning stations that operate on a noncommercial educational (NCE) basis have the option to either:

(i) Comply with the requirements of paragraph (c)(1) of this section; or

(ii) Air 60 seconds per day of on-air consumer education PSAs, in variable timeslots, for 30 days prior to the station's termination of operations on its pre-auction channel.

(3) Transition crawls. (i) Each crawl must run during programming for no less than 60 consecutive seconds across the bottom or top of the viewing area and be provided in the same language as a majority of the programming carried by the transitioning station.

(ii) Each crawl must include the date that the station will terminate operations on its pre-auction channel; inform viewers of the need to rescan if the station has received a new post-auction channel assignment; and explain how viewers may obtain more information by telephone or online.

(4) Transition PSAs. (i) Each PSA must have a duration of at least 15 seconds.

(ii) Each PSA must be provided in the same language as a majority of the programming carried by the transitioning station; include the date that the station will terminate operations on its pre-auction channel; inform viewers of the need to rescan if the station has received a new post-auction channel assignment; explain how viewers may obtain more information by telephone or online; and for stations with new post-auction channel assignments, provide instructions to both over-the-air and MVPD viewers regarding how to continue watching the television station; and be closed-captioned.

(5) Licensees of transitioning stations, except for license relinquishment stations, must place a certification of compliance with the requirements in paragraph (c) of this section in their online public file within 30 days after beginning operations on their post-auction channels. Licensees of license relinquishment stations must include the certification in their notification of discontinuation of service pursuant to § 73.1750.

(d) Notice to MVPDs. (1) Licensees of transitioning stations must provide notice to MVPDs that:

(i) No longer will be required to carry the station because it will cease operations or because of the relocation of a channel sharee station;

(ii) Currently carry and will continue to be obligated to carry a station that will have a new post-auction channel assignment; or

(iii) Will become obligated to carry a station due to the relocation of a channel sharee station.

(2) The notice to MVPDs must be provided in the form of a letter notification and must contain the following information:

(i) Date and time of any channel changes;

(ii) Pre-auction and post-auction channels;

(iii) Modification (if any) to antenna position, location or power levels;

(iv) Stream identification information for channel sharing stations; and

(v) Engineering staff contact information.

(3) Should any of the information in (d)(2) of this section change during the time that the station is transitioning from its pre-auction to its post-auction channel, an amended notification must be sent.

(4) For cable systems, the notification letter must be addressed to the system's official address of record provided in the cable system's most recent filing in the Commission's Cable Operations and Licensing System (COALS) Form 322. For all other MVPDs, the notification letter must be addressed to the official corporate address registered with their State of incorporation.

(5) Notification letters must be sent within the following time frames:

(i) For license relinquishment stations, not less than 30 days prior to terminating operations;

(ii) For channel sharee stations, not less than 30 days prior to terminating operations of the pre-auction channel;

(iii) For channel sharee and channel sharer stations, not less than 30 days prior to initiation of operations on the shared channel; and

(iv) For reassigned stations, UHF-to-VHF stations, and High-VHF-to-Low-VHF stations, not less than 90 days prior to the date on which they will begin operations on their post-auction channel.

(v) If a station's anticipated transition date changes due to an unforeseen delay or change in transition plan, the licensee must send a further notice to affected MVPDs informing them of the new anticipated transition date.

(e) Reimbursement rules—(1) Entities eligible for reimbursement. The Commission will reimburse relocation costs reasonably incurred only by:

(i) The licensees of full power and Class A broadcast television stations that are reassigned under section 6403(b)(1)(B)(i) of the Spectrum Act, including channel sharer stations that are reassigned to a new channel in the Channel Reassignment Public Notice; and

(ii) MVPDs in order to continue to carry the signal of a full power or Class A broadcast television station that is:

(A) Described in paragraph (e)(1)(i) of this section;

(B) A UHF-to-VHF station;

(C) A High-VHF-to-Low-VHF station; or

(D) A channel sharee station.

(2) Estimated costs. (i) No later than three months following the release of the Channel Reassignment Public Notice, all broadcast television station licensees and MVPDs that are eligible to receive payment of relocation costs will be required to file an estimated cost form providing an estimate of their reasonably incurred relocation costs.

(ii) Each broadcast television station licensee and MVPD that submits an estimated cost form will be required to certify, inter alia, that:

(A) It believes in good faith that it will reasonably incur all of the estimated costs that it claims as eligible for reimbursement on the estimated cost form;

(B) It will use all money received from the TV Broadcaster Relocation Fund only for expenses it believes in good faith are eligible for reimbursement;

(C) It will comply with all policies and procedures relating to allocations, draw downs, payments, obligations, and expenditures of money from the TV Broadcaster Relocation Fund;

(D) It will maintain detailed records, including receipts, of all costs eligible for reimbursement actually incurred; and

(E) It will file all required documentation of its relocation expenses as instructed by the Media Bureau.

(iii) If a broadcast television station licensee or MVPD seeks reimbursement for new equipment, it must provide a justification as to why it is reasonable under the circumstances to purchase new equipment rather than modify its corresponding current equipment in order to change channels or to continue to carry the signal of a broadcast television station that changes channels.

(iv) Entities that submit their own cost estimates, as opposed to the predetermined cost estimates provided in the estimated cost form, must submit supporting evidence and certify that the estimate is made in good faith.

(3) Final Allocation Deadline. (i) Upon completing construction or other reimbursable changes, or by a specific deadline prior to the end of the Reimbursement Period to be established by the Media Bureau, whichever is earlier, all broadcast television station licensees and MVPDs that received an initial allocation from the TV Broadcaster Relocation Fund must provide the Commission with information and documentation, including invoices and receipts, regarding their actual expenses incurred as of a date to be determined by the Media Bureau (the "Final Allocation Deadline").

(ii) If a broadcast television station licensee or MVPD has not yet completed construction or other reimbursable changes by the Final Allocation Deadline, it must provide the Commission with information and documentation regarding any remaining eligible expenses that it expects to reasonably incur.

(4) Final accounting. After completing all construction or reimbursable changes, broadcast television station licensees and MVPDs that have received money from the TV Broadcaster Relocation Fund will be required to submit final expense documentation containing a list of estimated expenses and actual expenses as of a date to be determined by the Media Bureau. Entities that have finished construction and have submitted all actual expense documentation by the Final Allocation Deadline will not be required to file at the final accounting stage.

(5) Progress reports. Broadcast television station licensees and MVPDs that receive payment from the TV Broadcaster Relocation Fund are required to submit progress reports at a date and frequency to be determined by the Media Bureau.

(6) Documentation requirements. (i) Each broadcast television station licensee and MVPD that receives payment from the TV Broadcaster Relocation Fund is required to retain all relevant documents pertaining to construction or other reimbursable changes for a period ending not less than 10 years after the date on which it receives final payment from the TV Broadcaster Relocation Fund.

(ii) Each broadcast television station licensee and MVPD that receives payment from the TV Broadcaster Relocation Fund must make available all relevant documentation upon request from the Commission or its contractor.

(7) Delegation of authority. The Commission delegates authority to the Chief, Media Bureau, to adopt the necessary policies and procedures relating to allocations, draw downs, payments, obligations, and expenditures of money from the TV Broadcaster Relocation Fund in order to protect against waste, fraud, and abuse and in the event of bankruptcy, to establish a catalog of expenses eligible for reimbursement and predetermined cost estimates, review the estimated cost forms, issue initial allocations for costs reasonably incurred pursuant to section 6403(b)(4) of the

Spectrum Act, set filing deadlines and review information and documentation regarding progress reports, final allocations, and final accountings, and issue final allocations to reimburse for costs reasonably incurred pursuant to section 6403(b)(4) of the Spectrum Act.

(f) Service rule waiver—(1) Waiver requests. (i) A broadcast television station licensee described in paragraph (e)(1)(i) of this section may file a request with the Chief, Media Bureau for a waiver of the Commission's service rules pursuant to section 6403(b)(4)(B) of the Spectrum Act during a 30-day window commencing upon the date that the Channel Reassignment Public Notice is released.

(ii) A broadcast television station licensee may request that a waiver be granted on a temporary or permanent basis.

(2) A licensee will have 10 days following a grant of the waiver to notify the Commission whether it accepts the terms of the waiver.

(3) A licensee is required to meet all requirements for receiving payment of relocation costs under section 6403(b)(4) of the Spectrum Act established by the Commission, including the requirements of paragraph (e) of this section, until its waiver request is granted and the licensee accepts the terms of the waiver.

(4) A licensee that is granted and accepts the terms of the waiver or a licensee with a pending waiver application must comply with all filing and notification requirements, construction schedules, and other post-auction transition deadlines set forth in paragraphs (b), (c), and (d) of this section.

(g) Low Power TV and TV translator stations. (1) Licensees of operating low power TV and TV translator stations that are displaced by a broadcast television station or a wireless service provider or whose channel is reserved as a guard band as a result of the broadcast television

spectrum incentive auction conducted under section 6403 of the Spectrum Act shall be permitted to submit an application for displacement relief in a restricted filing window to be announced by the Media Bureau by public notice. Except as otherwise indicated in this section, such applications will be subject to the rules governing displacement applications set forth in §§ 73.3572(a)(4) and 74.787(a)(4) of this chapter.

(2) In addition to other interference protection requirements set forth in the rules, when requesting a new channel in a displacement application, licensees of operating low power TV and TV translator stations will be required to demonstrate that the station would not cause interference to the predicted service of broadcast television stations on:

(i) Pre-auction channels;

(ii) Channels assigned in the Channel Reassignment Public Notice; or

(iii) Alternative channels or expanded facilities broadcast television station licensees have applied for pursuant to paragraph (b)(2) of this section.

(3) Mutually exclusive displacement applications. Licensees of low power TV and TV translator stations that file mutually exclusive displacement applications will be permitted to resolve the mutual exclusivity through an engineering solution or settlement agreement. If no resolution of mutually exclusive displacement applications occurs, a selection priority will be granted to the licensee of a displaced digital replacement translator.

(4) Notification and termination provisions for displaced low power TV and TV translator stations. (i) A wireless licensee assigned to frequencies in the 600 MHz band under part 27 of this chapter must notify low power TV and TV translator stations of its intent to commence wireless operations and the likelihood of receiving harmful interference from the low power TV

or TV translator station to such operations within the wireless licensee's licensed geographic service area.

(ii) The new wireless licensees must:

(A) Notify the low power TV or TV translator station in the form of a letter, via certified mail, return receipt requested;

(B) Indicate the date the new wireless licensee intends to commence operations in areas where there is a likelihood of receiving harmful interference from the low power TV or TV translator station; and

(C) Send such notification not less than 120 days in advance of the commencement date.

(iii) Low power TV and TV translator stations may continue operating on frequencies in the 600 MHz band assigned to wireless licensees under part 27 of this chapter until the wireless licensee commences operations as indicated in the notification sent pursuant to this paragraph.

(iv) After receiving notification, the low power TV or TV translator licensee must cease operating or reduce power in order to eliminate the potential for harmful interference before the commencement date set forth in the notification.

(v) Low power TV and TV translator stations that are operating on the UHF spectrum that is reserved for guard band channels as a result of the broadcast television incentive auction conducted under section 6403 of the Spectrum Act may continue operating on such channels until the end of the post-auction transition period as defined in § 27.4 of this chapter, unless they receive notification from a new wireless licensee pursuant to the requirements of paragraph (g)(4) of this section that they are likely to cause harmful interference in areas where the wireless licensee intends to commence operations, in which case the requirements of paragraph (g)(4) of this section will apply.

(h) Channel sharing operating rules. (1) Each broadcast television station licensee that is a party to a CSA shall continue to be licensed and operated separately, have its own call sign, and be separately subject to all of the Commission's obligations, rules, and policies applicable to the television service.

(2) Channel sharing between full power television and Class A television stations. (i) A CSA may be executed between licensees of full power television stations, between licensees of Class A television stations, and between licensees of full power and Class A television stations.

(ii) A Class A channel sharee station licensee that is a party to a CSA with a full power channel sharer station licensee must comply with the rules of part 73 governing power levels and interference, and must comply in all other respects with the rules and policies applicable to Class A television stations, as set forth in §§ 73.6000 et seq.

(iii) A full power channel sharee station licensee that is a party to a CSA with a Class A channel sharer station licensee must comply with the rules of part 74 of this chapter governing power levels and interference.

(iv) A Class A channel sharee station may qualify only for the cable carriage rights afforded to "qualified low power television stations" in § 76.56(b)(3) of this chapter.

(3) Channel sharing between commercial and noncommercial educational television stations. (i) A CSA may be executed between commercial and NCE broadcast television station licensees.

(ii) The licensee of an NCE station operating on a reserved channel under § 73.621 that becomes a party to a CSA, either as a channel sharee station or as a channel sharer station, will retain its NCE status and must continue to comply with § 73.621.

(iii) If the licensee of an NCE station operating on a reserved channel under § 73.621 becomes a party to a CSA, either as a channel sharee station or as a channel sharer station, the portion of the shared television channel on which the NCE station operates shall be reserved for NCE-only use.

(iv) The licensee of an NCE station operating on a reserved channel under § 73.621 that becomes a party to a CSA may assign or transfer its shared license only to an entity qualified under § 73.621 as an NCE television licensee.

(v) If the licensee of an NCE station operating on a reserved channel under § 73.621 becomes a party to a CSA and its license is relinquished or terminated, only another entity meeting the eligibility criteria of § 73.621 will be considered for reassignment of the shared license.

(4) Required CSA provisions. (i) CSAs must contain provisions outlining each licensee's rights and responsibilities regarding:

(A) Access to facilities, including whether each licensee will have unrestrained access to the shared transmission facilities;

(B) Allocation of bandwidth within the shared channel;

(C) Operation, maintenance, repair, and modification of facilities, including a list of all relevant equipment, a description of each party's financial obligations, and any relevant notice provisions; and

(D) Termination or transfer/assignment of rights to the shared licenses, including the ability of a new licensee to assume the existing CSA.

(ii) CSAs must include provisions:

(A) Affirming compliance with the channel sharing requirements in paragraph (h)(4) of this section, the Incentive Auction Report and Order, Docket No. 12-268 (FCC 14-50), and the Channel Sharing Report and Order, 27 FCC Rcd 4616 (2012); and

(B) Requiring that each channel sharing licensee shall retain spectrum usage rights adequate to ensure a sufficient amount of the shared channel capacity to allow it to provide at least one Standard Definition (SD) program stream at all times.

(5) If a channel sharee or channel sharer station's license is terminated, the licensees of the remaining channel sharing station or stations will continue to have rights to their portion(s) of the shared channel. The rights to the terminated portion of the shared channel will revert to the Commission for reassignment. The final award of the rights to the terminated portion of the shared channel will be conditioned on a new channel sharing licensee agreeing to the terms of the existing CSA. If the new channel sharing licensee and the licensees of the remaining channel sharing station or stations agree to renegotiate the terms of the existing CSA, the agreement may be amended, subject to Commission approval. If the negotiations to amend the agreement are unsuccessful, the remaining station or stations will be permitted to continue to operate while the channel remains a shared allocation and subject to reassignment.

(6) If the rights under a CSA are transferred or assigned, the assignee or the transferee must comply with the terms of the CSA. If the transferee or assignee and the licensees of the remaining channel sharing station or stations agree to amend the terms of the existing CSA, the agreement may be amended, subject to Commission approval.

(7) Preservation of carriage rights. A channel sharee station that possessed carriage rights under section 338, 614, or 615 of the Communications Act of 1934 (47 U.S.C. 338; 534; 535) on November 30, 2010, shall have, at its shared location, the carriage rights under such section that would apply to such station at the shared location if it were not sharing a channel.

38. Section 73.6012 is revised to read as follows:

§ 73.6012 Protection of Class A TV, low power TV and TV translator stations.

An application to change the facilities of an existing Class A TV station will not be accepted if it fails to protect other authorized Class A TV, low power TV and TV translator stations and applications for changes in such stations filed prior to the date the Class A application is filed, pursuant to the requirements specified in §74.707 of this chapter. The protection of other authorized low power TV and TV translator stations and applications for changes in such stations shall not apply in connection with any application filed by a Class A TV station pursuant to § 73.3700(b)(1).

39. Section 73.6019 is revised to read as follows:

§ 73.6019 Digital Class A TV station protection of low power TV, TV translator, digital low power TV and digital TV translator stations.

An application for digital operation of an existing Class A TV station or to change the facilities of a digital Class A TV station will not be accepted if it fails to protect authorized low power TV, TV translator, digital low power TV and digital TV translator stations in accordance with the requirements of §74.793 (b) through (d) and (h) of this chapter. This protection must be afforded to applications for changes filed prior to the date the digital Class A station is filed. The protection of other authorized low power TV, TV translator, digital low power TV and digital TV translator stations shall not apply in connection with any application filed by a Class A TV station pursuant to § 73.3700(b)(1).

PART 74—EXPERIMENTAL RADIO, AUXILIARY, SPECIAL BROADCAST AND OTHER PROGRAM DISTRIBUTIONAL SERVICES

40. The authority citation for part 74 continues to read as follows:

Authority: 47 U.S.C. 154, 303, 307, 309, 336 and 554.

41. Section 74.602 is amended by adding paragraph (h)(5) and (6) to read as follows:

§74.602 Frequency assignment.

* * * * *

(h) * * *

(5) (i) The licensee of a TV STL, TV relay station, or TV translator relay station that operates on frequencies in the 600 MHz band assigned to wireless licensees under part 27 of this chapter must cease operations on those frequencies no later than the end of the post-auction transition period as defined in § 27.4 of this chapter. The licensee of a TV STL, TV relay station, or TV translator relay station may be required to cease operations on a date earlier than the end of the post-auction transition period if it receives a notification pursuant to paragraph (h)(5)(ii) of this section.

(ii) A wireless licensee assigned to frequencies in the 600 MHz band under part 27 of this chapter must notify the licensee of a TV STL, TV relay station, or TV translator relay station of its intent to commence wireless operations and the likelihood of harmful interference from the TV STL, TV relay station, or TV translator relay station to those operations within the wireless licensee's licensed geographic service area.

(A) The wireless licensee must:

(1) Notify the licensee of the TV STL, TV relay station, or TV translator relay station in the form of a letter, via certified mail, return receipt requested; and

(2) Send such notification not less than 30 days in advance of the approximate date of commencement of such operations.

(B) The licensee of the TV STL, TV relay station, or TV translator relay station must cease the subject operation within 30 days of receiving the notification pursuant to this section.

(iii) By the end of the post-auction transition period, all TV STL, TV relay station and TV translator relay station licensees must modify or cancel their authorizations and vacate the 600 MHz band. Applications for TV STL, TV relay and TV translator relay stations in the 600 MHz band will not be accepted for filing on or after the end date for the post-auction transition period.

(6) The licensee of a TV STL, TV relay station, or TV translator relay station that operates on the UHF spectrum that is reserved for guard band channels as a result of the broadcast television incentive auction conducted under section 6403 of the Middle Class Tax Relief and Job Creation Act of 2012 (Pub. L. No. 112-96) must cease operations on those frequencies no later than the end of the post-auction transition period as defined in § 27.4 of this chapter. The licensee of a TV STL, TV relay station, or TV translator relay station may be required to cease operations on a date earlier than the end of the post-auction transition period if it receives a notification pursuant to paragraph (h)(5)(ii) of this section.

42. Section 74.802 is amended by revising paragraph (b) and adding paragraph (f) to read as follows:

§74.802 Frequency assignment.

* * * * *

(b)(1) Operations in the bands allocated for TV broadcasting are limited to locations at least 4 kilometers outside the protected contours of co-channel TV stations shown in the following table. These contours are calculated using the methodology in §73.684 of this chapter and the R-6602 curves contained in §73.699 of this chapter.

Type of station	Protected contour		
	Channel	Contour (dBu)	Propagation curve
Analog: Class A TV, LPTV, translator and booster	Low VHF (2-6)	47	F(50,50)
	High VHF (7-13)	56	F(50,50)

	UHF (14-51)	64	F(50,50)
Digital: Full service TV, Class A TV, LPTV, translator and booster	Low VHF (2-6)	28	F(50,90)
	High VHF (7-13)	36	F(50,90)
	UHF (14-51)	41	F(50,90)

(2) Low power auxiliary stations may operate closer to co-channel TV broadcast stations than the distances specified in paragraph (b)(1) of this section provided that their operations are coordinated with TV broadcast stations that could be affected by the low power auxiliary station operation. Coordination must be completed prior to operation of the low power auxiliary station.

* * * * *

(f) Operations in 600 MHz band assigned to wireless licensees under part 27 of this chapter. A low power auxiliary station that operates on frequencies in the 600 MHz band assigned to wireless licensees under part 27 of this chapter must cease operations on those frequencies no later than the end of the post-auction transition period as defined in § 27.4 of this chapter. During the post-auction transition period, low power auxiliary stations will operate on a secondary basis to licensees of part 27 of this chapter, *i.e.*, they must not cause to and must accept harmful interference from these licensees.

43. Section 74.870 is amended by revising paragraph (i) to read as follows:

§74.870 Wireless video assist devices.

* * * * *

(i) Operations in 600 MHz band assigned to wireless licensees under part 27 of this chapter. A wireless video assist device that operates on frequencies in the 600 MHz band assigned to wireless licensees under part 27of this chapter must cease operations on those frequencies no later than the end of the post-auction transition period as defined in § 27.4 of this chapter. During the post-auction transition period, wireless video assist devices will operate on a secondary basis

to licensees of part 27 of this chapter, *i.e.*, they must not cause to and must accept harmful interference from these licensees.

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