§ 27.63 [Removed and Reserved]

■ 6. Remove § 27.63.

PART 73—RADIO BROADCAST SERVICES

■ 7. The authority for Part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303, 334, 336 and 339.

■ 8. Amend § 73.45 paragraph (c) introductory text by revising the first two sentences to read as follows:

§ 73.45 AM antenna systems.

* * * * *

(c) Should any changes be made or otherwise occur which would possibly alter the resistance of the antenna system, the licensee must commence the determination of the operating power by a method described in § 73.51(a)(1) or (d). (If the changes are due to the addition of antennas to the AM tower, see § 1.30003.) * * *

* * * * *

■ 9. § 73.316 paragraph (e) is revised to read as follows:

§ 73.316 FM antenna systems.

* * * * *

(e) Where an FM licensee or permittee proposes to mount its antenna on or near an AM tower, as defined in § 1.30002, the FM licensee or permittee must comply with § 1.30003 or § 1.30002, depending on whether the antenna is proposed to be mounted on an AM tower (§ 1.30003) or near an AM tower (§ 1.30002).

■ 10. § 73.685 paragraph (h) is revised to read as follows:

§ 73.685 Transmitter location and antenna system.

* * * * *

(h) Where the TV licensee or permittee proposes to mount its antenna on or near an AM tower, as defined in § 1.30002, the TV licensee or permittee must comply with § 1.30003 or § 1.30002.

■ 11. Amend § 73.875 paragraph (c) introductory text by revising the last sentence to read as follows:

§ 73.875 Modification of transmission systems.

* * * * *

(c) * * * In addition, for applications filed solely pursuant to paragraphs (c)(1) or (2) of this section, where the installation is on or near an AM tower, as defined in § 1.30002, an exhibit demonstrating compliance with § 1.30003 or § 1.30002, as applicable, is also required.

* * * * *

■ 12. Amend § 73.1675 paragraph (c)(1) by revising the last sentence to read as follows:

§ 73.1675 Auxiliary antennas.

* * * * *

(c)(1) * * * Where an FM, TV, or Class A TV licensee or permittee proposes to mount an auxiliary facility on an AM tower, it must also demonstrate compliance with § 1.30003 in the license application.

* * * * *

■ 13. Amend § 73.1690 paragraph (c) introductory text by revising the last sentence to read as follows:

§ 73.1690 Modification of transmission systems.

* * * * *

(c) * * * In addition, except for applications solely filed pursuant to paragraphs (c)(6) or (c)(9) of this section, where the installation is located on or near an AM tower, as defined in § 1.30002, an exhibit demonstrating compliance with § 1.30003 or § 1.30002, as applicable, is also required.

* * * * *

§ 73.1692 [Removed and Reserved]

■ 14. Remove and reserve § 73.1692.

■ 15. Amend § 73.6025 by revising paragraph (c) to read as follows:

§ 73.6025 Antenna system and station location.

* * * * *

(c) Where a Class A TV licensee or permittee proposes to mount its antenna on or near an AM tower, as defined in § 1.30002, the Class A TV licensee or permittee must comply with § 1.30003 or § 1.30002.

* * * * *

PART 74—EXPERIMENTAL RADIO, AUXILIARY, SPECIAL BROADCAST AND OTHER PROGRAM DISTRIBUTIONAL SERVICES

■ 16. The authority for Part 74 continues to read as follows:

Authority: 47 U.S.C. 154, 303, 307, 309, 336 and 554.

■ 17. In § 74.1237, paragraph (e) is revised to read as follows:

§ 74.1237 Antenna location.

* * * * *

(e) Where an FM translator or booster licensee or permittee proposes to mount its antenna on or near an AM tower, as defined in § 1.30002, the FM translator or booster licensee or permittee must comply with § 1.30003 or § 1.30002.

[FR Doc. 2013–24139 Filed 11–4–13; 8:45 am]

BILLING CODE 6712–01–P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 27

[WT Docket Nos. 12–69, 12–332; FCC 13–136]

Promoting Interoperability in the 700 MHz Commercial Spectrum; Requests for Waiver and Extension of Lower 700 MHz Band Interim Construction Benchmark Deadlines

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: In this document, the Federal Communications Commission (Commission) takes certain steps to implement an industry solution to provide interoperable Long Term Evolution (LTE) in the Lower 700 MHz band to improve choice and quality for consumers of mobile services. The Commission revises its Part 27 rules to modify the technical requirements for the Lower 700 MHz D and E blocks to eliminate potential harmful interference while continuing to allow high value use of D and E blocks. Additionally, the Commission proposes to modify AT&T's B and C Block licenses. Finally, the Commission waives the construction requirements for A, B, and E Block licensees and extends the deadlines.

DATES: Effective December 5, 2013.

FOR FURTHER INFORMATION CONTACT: Jennifer Salhus, Wireless Telecommunications Bureau, (202) 418–1310, email *Jennifer.Salhus@fcc.gov*.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Report and Order and Order of Proposed Modification (R&O and Order), WT Docket Nos. 12–69, 12–332; FCC 13–136, adopted October 25, 2013 and released October 29, 2013. The full text of this document is available for inspection and copying during business hours in the FCC Reference Information Center, Portals II, 445 12th Street SW., Room CY–A257, Washington, DC 20554. Also, it may be purchased from the Commission's duplicating contractor at Portals II, 445 12th Street SW., Room CY–B402, Washington, DC 20554; the contractor's Web site, *http://www.bcpiweb.com;* or by calling (800) 378–3160, facsimile (202) 488–5563, or email *FCC@BCPIWEB.com*. Copies of the R&O and Order also may be obtained via the Commission's Electronic Comment Filing System (ECFS) by entering the docket number WT Docket 12–69. Additionally, the complete item is available on the Federal Communications Commission's Web site at *http://www.fcc.gov*.

I. Introduction

1. In the R&O and Order, the Commission takes certain steps to implement an industry solution to provide interoperable LTE service in the Lower 700 MHz band in an efficient and effective manner to improve choice and quality for consumers of mobile services. A number of the principal wireless providers licensed in this band, along with the Competitive Carriers Association, have developed a voluntary industry solution that would resolve the lack of interoperability in this band while allowing flexibility in responding to evolving consumer needs and dynamic and fast-paced technological developments. The amendments to its rules and modifications to licenses proposed herein will 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.

2. The steps the Commission takes here will assist consumers and the economies in rural areas, as well as small and regional businesses that operate there. Additional competition in rural areas is likely to result in lower-priced services, or plan options that are tailored to local communities. Small or regional providers serving rural areas drive economic growth in these rural areas, directly, by investing in their networks and creating jobs, and indirectly, by enabling the growth of other small businesses. But in order to promote competition—and enable small business customers of 700 MHz band licensees to operate successfully in the 21st century—these licensees need to be able to offer service choices. Interoperability of LTE service in the Lower 700 MHz band will remove an unnecessary barrier to the successful operation of businesses that can drive economic growth, promote competitive service, and create jobs in rural America, where 1.3 million people (and approximately 13% of rural road miles) still lack any mobile wireless broadband coverage and over one-third of the population still lacks coverage by more than two mobile broadband providers.

3. As described in more detail below, the Commission launched this proceeding last year to promote interoperability in the Lower 700 MHz band. It sought comment on the core issue of whether providing interoperable LTE service with the use of a unified band class (to achieve interoperability) would result in harmful interference to customers using service on the Lower 700 MHz B and C Blocks and whether, if harmful interference were likely to exist, it reasonably could be mitigated. The Commission expressed its preference for an industry solution for interoperability, but also recognized that, if the industry failed to move in a timely manner toward interoperability, additional regulatory steps might be appropriate to further the public interest. On September 10, 2013, key parties in this proceeding filed letters with the Commission indicating their support for a voluntary industry consensus agreement to resolve the lack of interoperability in the Lower 700 MHz band. In the R&O and Order, the Commission takes the following steps:

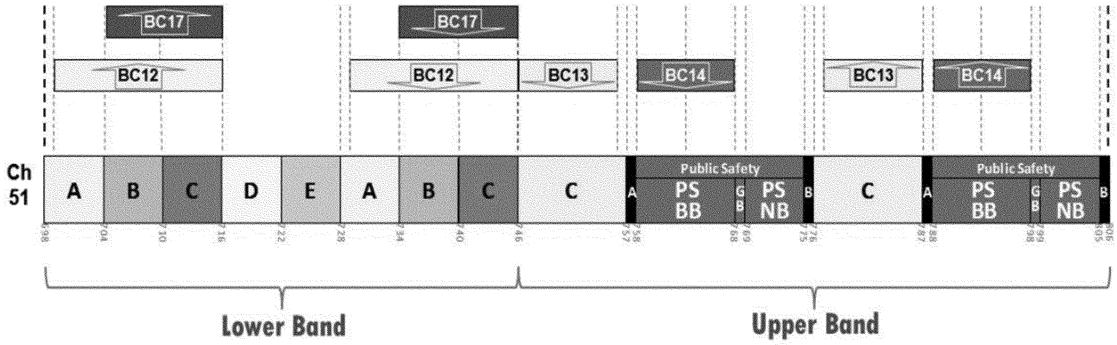
- The Commission revises its Part 27 rules to modify the technical requirements for the Lower 700 MHz D and E Blocks to eliminate potential harmful interference while continuing to allow high value uses of the D and E Blocks. The Commission establishes a process for higher power uses primarily in rural areas if the D/E Block licensee has the consent of affected 700 MHz licensees, or can show no harmful interference.
- The Commission need take no action to address claims of reverse intermodulation interference from adjacent Channel 51 operations to B and C Block operations, because the Commission concludes based on the record that harmful interference from such reverse intermodulation products is unlikely and therefore is not an impediment to implementation of the voluntary industry solution for achieving interoperability.
- Pursuant to section 316 of the Communications Act, the Commission proposes to modify AT&T's B and C Block licenses as outlined herein and in AT&T's commitment letter to effectuate the voluntary industry solution that will resolve the lack of interoperability in the Lower 700 MHz band in an effective and efficient manner.
- The Commission waives the construction requirements for E Block licensees, extending the interim and final deadlines and permitting a showing of population coverage, rather than geographic coverage.
- The Commission waives the construction requirements for A and B Block licensees, extending the interim deadline to December 13, 2016, and removing the interim deadline for certain A Block licensees adjacent to Channel 51 operations.

II. Background

4. *The 700 MHz Band.* As shown in the diagram below, the 700 MHz band (698–806 MHz) is comprised primarily of 70 megahertz of commercial spectrum and 34 megahertz of public safety spectrum. The Commission divided the band into the Lower and Upper 700 MHz bands pursuant to the Balanced Budget Act of 1997, which provided for a transition of this spectrum from broadcast to commercial and public safety wireless use and established a deadline for the auction of the Upper 700 MHz band but not for the auction of the Lower 700 MHz band. That Act also established specific criteria for the mandatory transition to DTV that freed up spectrum for commercial and public safety use.

5. The Lower 700 MHz band spectrum (698–746 MHz), which is the subject of this Report and Order, consists of 48 megahertz of commercial spectrum—three blocks of 12 megahertz each of paired spectrum (Lower A, B, and C Blocks), and two blocks of 6 megahertz each of unpaired spectrum (Lower D and E Blocks). The Lower 700 MHz A Block spectrum is adjacent to Channel 51 (692–698 MHz), which has been allocated for TV broadcast operations at power levels of up to 1000 kW. The Lower 700 MHz A Block is also adjacent to the unpaired Lower 700 MHz E Block, where licensees may operate at power levels up to 50 kW. The Commission first assigned licenses for the Lower 700 MHz band when it auctioned all the licenses in the Lower 700 MHz C and D Blocks in Auction 44 in 2002. Licenses unsold in Auction 44 were subsequently sold in 2003 and 2005 in Auctions 49 and 60.

700 MHz Band and 3GPP Band Classes



6. In 2005, the Digital Transition and Public Safety Act (DTV Act) established a nationwide deadline for the DTV transition that would make 700 MHz spectrum available for commercial and public safety use and mandated that the Commission commence an auction for all the remaining recovered spectrum. Following the enactment of the DTV Act, the Commission auctioned licenses in the Lower 700 MHz A, B, and E Blocks in 2008 as part of Auction 73, which garnered over $19 billion in revenues. The relatively few unsold Lower A and B Block licenses were later sold in Auction 92 in 2011.

7. Although U.S. service providers have, in the past, deployed different mobile wireless network technologies, today the evolution of these technologies is converging on LTE. LTE increases the capacity and speed of wireless networks by redesigning and simplifying the network architecture to transition from the existing combination of circuit and packet switching to an all-IP architecture system. All of the major mobile wireless providers (including those with both GSM and CDMA legacy networks) now offer or plan to deploy LTE. By September 2012, for example, AT&T announced that it had LTE coverage in 63 markets, and had plans to deploy LTE to 80 percent of the U.S. population by the end of 2013.

8. Industry standards for LTE are developed by 3GPP, an international partnership of industry-based telecommunications standards bodies that, among other things, establishes standards for different LTE band classes. A specific band class standard allows LTE operations only in its specified range of frequencies, along with other technical specifications and signaling protocol. In November 2007, prior to Auction 73, the Band Class 12 LTE standard was introduced, consistent with its precedent of establishing a unified band class for each spectrum band.

9. After the conclusion in March 2008 of Auction 73, Motorola initiated steps to have 3GPP establish a new industry standard (later designated as Band Class 17) that would be limited to the Lower 700 MHz B and C Blocks. In proposing Band Class 17, Motorola cited the need to address concerns about high power broadcast transmissions in Channel 51 and the Lower 700 MHz D and E Blocks. As envisioned and ultimately adopted, the Band Class 17 standard allows LTE operations in only the Lower 700 MHz B and C blocks using a specific signaling protocol that would filter out all other frequencies. Although Band Class 17 operates on two of the three blocks common to Band Class 12, Band Class 17 devices use more narrow filters, which have the effect of permitting a smaller range of frequencies to pass through the filter. Such filters provide more attenuation of signals from Lower 700 MHz E Block frequencies, and from Channel 51 television stations, whose frequency band (as depicted above) lies immediately below the Lower 700 MHz A Block. This attenuation is accomplished by using the two paired A Block frequencies as *de facto* guard bands. By contrast, Band Class 12 devices use A Block frequencies for transmissions as well as the B and C Block frequencies. In addition, Band Class 12 and Band Class 17 signaling protocols are not compatible. Therefore, services provided by stations using these two band classes are not interoperable in the Lower 700 MHz band. 3GPP finalized the initial standards and specifications for Band Class 17 five months after its introduction in September 2008.

10. The creation of two non-interoperable band classes has had numerous effects. For example, customers are unable to switch between a licensee deploying its service using Band Class 17 and a licensee that provides its service using Band Class 12 without purchasing a new device (even when the two operators use the same 2G and 3G technologies and bands), and Band Class 12 devices and Band Class 17 devices cannot roam on each other's networks. In September 2009, four Lower 700 MHz A Block licensees filed a petition for rulemaking asking the Commission to impose for this spectrum block an interoperability mandate similar to that imposed in 1981 for the cellular band. In the *Interoperability NPRM,* 77 FR 19575, April 2, 2012, the Commission discussed the importance of interoperability in furthering the public interest, and sought comment on whether taking action to ensure reintegration of the three paired Lower 700 MHz blocks into a single band class would cause harmful interference to LTE operations on the Lower 700 MHz B and C Block licensees if Band Class 12 devices were used. The Commission noted that entities involved in the creation of Band Class 17 during 3GPP proceedings had claimed that it was necessary to create a separate band class for Lower 700 MHz B and C Block licenses to avoid reverse intermodulation interference issues from DTV stations operating on Channel 51 and blocking from high power operations in the E Block, and sought comment, as described above, on whether reintegration of the band pursuant to an interoperability mandate would result in harmful interference. *Interoperability NPRM.* The Commission defines harmful interference in accordance with established Commission rules. *See* 47 CFR 15.3(m). As we discuss below in Sec.III.B.1. with respect to DTV transmissions from Channel 51, an issue concerning reverse intermodulation interference can arise where there is a mix or interaction of Channel 51 transmissions and transmissions from a

wireless device in Lower 700 MHz B and C Blocks. The issue is whether, and the degree to which, the resulting third transmission, or intermodulation product, can occur on frequencies used by the wireless device to receive transmissions. The risk of reverse intermodulation interference to Lower 700 MHz B and C Block licensees because of the existence of Channel 51 operations is separate and distinct from the limitations placed on Lower 700 MHz A Block licensees to protect Channel 51 operations from adjacent channel interference from Lower 700 MHz A Block operations. *See* 47 CFR 27.60(a)(2).

11. On September 10, 2013, key stakeholders involved in this proceeding filed letters with the Commission indicating their support for a voluntary industry consensus agreement to resolve the lack of interoperability in the Lower 700 MHz band. In its letter, AT&T outlines its commitments to help achieve Lower 700 MHz interoperability, including its commitment to begin rolling out interoperable devices within 24 months. DISH similarly outlines its commitments to address interference concerns regarding high powered operations in the E Block spectrum. A coalition of Lower 700 MHz A Block licensees also filed a letter indicating their support for the commitments contained in AT&T's letter as a means to ensure restoration of interoperability in the Lower 700 MHz band.

12. *Channel 51 Broadcast Operations.* As set out earlier in the 700 MHz band plan, Channel 51 broadcast stations are adjacent to the lower portion of the Lower 700 MHz band. Channel 51 stations give rise to one of the two alleged interference issues potentially affecting interoperability—the possibility of reverse intermodulation interference resulting from the interplay of Channel 51 and Lower 700 MHz B and C Block signals. Separate from this issue, and not relevant to the interoperability of service within the Lower 700 MHz band, are questions of adjacent channel interference between Channel 51 and Lower 700 MHz A Block signals. Because of the potential for such adjacent channel interference, Commission rules establish exclusion zones in which Lower A Block operations are prohibited, which are designed to protect Channel 51 stations from possible interference. There are currently 27 full-power Channel 51 broadcast stations, and 6 Class A low-power television operations on Channel 51 in the U.S., including Puerto Rico. Nearly 190 million American consumers live *outside* these exclusion zones, including almost 50 million of the 60 million American consumers living in rural areas. More than 3.2 million square miles, or more than 90 percent of the land area in the U.S. is located outside the exclusion zones, including 2.8 million square miles in rural areas.

III. Discussion

13. As noted above, on September 10, 2013, parties in this proceeding filed letters with the Commission indicating that they have reached agreement on a voluntary industry solution to resolve the lack of interoperability in the Lower 700 MHz band. Here the Commission takes steps to implement this voluntary industry solution, the substantive terms of which the Commission finds to be consistent with the public interest, convenience, and necessity as well as the record in this proceeding for the reasons set forth below. First, and in accordance with the industry consensus, the Commission addresses interference concerns that have been raised as obstacles to the voluntary adoption of interoperability in the Lower 700 MHz band. The Commission finds that the current technical rules governing the D and E Blocks would likely lead to harmful interference to Lower 700 MHz B and C Block licensees and therefore do constitute a barrier to interoperability. The Commission therefore modifies those rules to eliminate that barrier in a manner consistent with the industry solution. In addition, after review of the extensive record in this proceeding, and based on its technical expertise and predictive judgment, the Commission finds that any harmful interference to Lower 700 MHz mobile devices operating on the Lower 700 MHz B and C Blocks as a result of Channel 51 broadcast operations is unlikely. Having addressed the potential interference issues, the Commission proposes to modify AT&T's B and C Block licenses as outlined herein and in AT&T's commitment letter to effectuate the voluntary industry solution and resolve the lack of interoperability in the Lower 700 MHz band in an effective and efficient manner. Implementing the substantive terms of the industry solution to establish a clear path to interoperability in the Lower 700 MHz spectrum is consistent with the Commission's longstanding interest in promoting the interoperability of wireless mobile services (an objective that has been realized for cellular, PCS, AWS, and public safety broadband, and other services) and furthers important public interests, including promoting the widest possible deployment of mobile broadband services, ensuring the most efficient use of spectrum, promoting competition and enhancing consumer choice of wireless services.

14. Finally, in light of its foregoing actions, the Commission modifies the construction requirements for E Block licensees, extending the interim and final deadlines and license terms and permitting licensees to meet a population-based coverage requirement as an alternative to a geographic-based requirement. The Commission also modifies the construction requirements for A and B Block licensees, extending the interim construction benchmark deadline to December 13, 2016 and removing the interim deadline for certain A Block licensees adjacent to Channel 51 operations.

A. Technical Rules for D and E Blocks

15. *Background.* Under § 27.50(c)(7) of the Commission's rules, a licensee authorized to operate in the 710–716, 716–722, or 740–746 MHz bands, or in any unpaired spectrum blocks within the 698–746 MHz band may operate a fixed or base station at an Effective Radiated Power (ERP) of up to 50 kW within its authorized bandwidth. Further, the antenna height for such stations is limited only to the extent required to satisfy the power flux density requirements of § 27.55(b) of the rules, which provide that the power transmitted from a fixed or base station may not exceed 3000 microwatts per square meter on the ground at any distance within 1 km of the stations. By contrast, other fixed or base stations in the Lower 700 MHz band transmitting a signal with an emission bandwidth greater than 1 megahertz, including stations authorized in the Lower 700 MHz A and B Block, are restricted to an ERP of 1,000 to 2,000 watts/MHz and an antenna height of 305 m height above average terrain (HAAT).

16. In 2011, the Commission recognized that high-powered operations in the D and E Blocks could be a source of harmful interference, and conditioned the approval of AT&T's acquisition of Qualcomm's Lower 700 MHz D and E Block spectrum on certain technical requirements designed to ensure that AT&T's operations on the Lower 700 MHz spectrum would not limit the potential of third parties to fully utilize other Lower 700 MHz spectrum. The *AT&T-Qualcomm Order* also prohibited AT&T from using the Qualcomm spectrum for uplink transmissions and imposed a coordination and mitigation condition with respect to possible interference caused by AT&T's use of the Lower 700 MHz D and E Blocks for supplemental downlink to the uplink operations of

other licensees operating in the Lower 700 MHz A, B, and C Blocks.

17. The 3GPP has adopted certain technical specifications for user equipment operating in different 700 MHz bands. 3GPP's specifications for output power and the out-of-band emission (OOBE) specifications for LTE equipment are the same for all commercial paired frequencies in the Lower 700 MHz band. The 3GPP specifications differ, however, with respect to receiver blocking, which is the required ability of a receiver to tolerate a much stronger (Lower 700 MHz E Block) signal spectrally located near the desired signal. The 3GPP-specified requirements for receiver blocking are the same for Band Class 13 and Band Class 14 equipment, but Band Class 12 and Band Class 17 have distinct blocking requirements, due to differences in each band's relative proximity to neighboring high-powered operations in the Lower 700 MHz D and E Blocks.

18. In the *Interoperability NPRM,* the Commission sought comment on whether potential interference from the 700 MHz Lower E Block might be preventing the voluntary adoption of Band Class 12 by Lower B and C block licensees. The *Interoperability NPRM* sought comment on whether there are any measures the Commission could take to address such interference concerns, including whether they could be adequately addressed by adopting technical conditions set forth in the *AT&T-Qualcomm Order.* The Commission sought comment on whether there were changes the Commission could adopt to its rules that would address concerns that Lower 700 MHz B and C Block licensees might experience harmful interference from Lower 700 MHz D and E Block operations and encourage these licensees to voluntarily adopt interoperable devices. The Commission also sought comment on how such modifications would affect the operations and plans of Lower E Block licensees, other than AT&T.

19. On September 10, 2013, AT&T and DISH made ex parte filings as part of the voluntary industry solution in which they set out certain steps to address potential interference concerns from the Lower 700 MHz E Block to the Lower 700 MHz B and C Blocks. DISH states that it shares the Commission's goals of promoting efficient spectrum use of the Lower 700 MHz band and, as part of an industry consensus on interoperability, it is willing to consent to a reduction in power. Specifically, DISH states that, to support the Commission's efforts and objectives, it will consent to a reduction of the ERP of base stations for its Lower 700 MHz E Block licenses to 1,000 watts/MHz in urban areas and 2,000 watts/MHz in rural areas. DISH further states that it currently plans to deploy an LTE network similar to what Lower 700 MHz A, B, C, and D Block operators have deployed today, and to similarly enhance the network as the LTE technology evolves, which would make the above power levels consistent within the band. Finally, DISH asserts that it should retain a limited right to operate at existing ERP limits pursuant to operator-to-operator agreements with other affected licensees or upon a demonstration to the Commission of no harmful interference to other relevant Lower 700 MHz licensees. According to DISH [t]he need to reserve a limited opportunity for high-power operations is particularly important for rural America and the deployment of high-power services to underserved communities. DISH notes that [t]his rural-focused flexibility—dependent upon actual licensee agreement or further FCC action—will provide DISH with the opportunity to better serve underserved communities without adversely affecting the Commission's objective to better utilize the Lower 700 MHz band. In its filing, AT&T states that its commitments to Lower 700 MHz interoperability are premised on requirements that all Lower 700 MHz E Block licensees transmitting a signal with an emission bandwidth greater than 1 megahertz are restricted to an ERP of 1,000 watts to 2,000 watts per megahertz and an antenna height of 305 m HAAT.

20. *Discussion.* Based on the record, the Commission finds that, under the current rules, there is a significant threat of harmful interference from high power transmissions in the Lower 700 MHz D and E Blocks to Band Class 12 devices operating on the Lower 700 MHz B and C Blocks that could jeopardize the viability of interoperability in the band. Consistent with the record in this proceeding and the *AT&T-Qualcomm Order,* the Commission revises the technical rules applicable to the Lower 700 MHz D and E Blocks by reducing the maximum permissible power levels and antenna heights on these blocks. The Commission also modifies its rules to limit all operations in the Lower 700 MHz D and E Blocks to downlink only. The Commission provides that Lower 700 MHz D and E Block licensees may operate particular sites at power levels higher than permitted under the revised rules under certain specified conditions. The Commission finds these changes to be in the public interest because they eliminate likely harmful interference, thereby promoting interoperable LTE operations in the Lower 700 MHz band. Indeed, without these measures, the public would not be able to realize the substantial benefits of mobile broadband deployment and interoperability in the Lower 700 MHz band. The technical changes the Commission adopts today will continue to enable the six megahertz of unpaired Lower 700 MHz E Block spectrum to be put to commercial use while facilitating effective and efficient use of 36 megahertz of the Lower 700 MHz A, B, and C Blocks for mobile broadband services. Dish's current deployment plans and its agreement to these technical rule changes provide further support for such changes.

21. Specifically, the Commission revises its rules to provide that the Lower 700 MHz D and E Block base station transmitting a signal with an emission bandwidth of 1 MHz or less must not exceed 1 kW ERP in non-rural areas or 2 kW ERP in rural areas. In addition, Lower 700 MHz D and E Block base station transmitting a signal with an emission bandwidth greater than 1 MHz must not exceed 1 kW ERP per megahertz in non-rural areas or 2 kW ERP per megahertz in rural areas. Lower 700 MHz D and E Block licensees operating at these maximum permissible ERP are limited to an antenna height of 305 m HAAT. Except pursuant to consent or waiver as described below, the specific revisions to the Commission's rules adopted in this Report and Order that modify the applicable power limits and the antenna height restrictions applicable to Lower 700 MHz D and E Block licenses are consistent with the current rules applicable to the Lower 700 MHz A and B Block licenses and with conditions adopted in the *AT&T-Qualcomm Order* that were placed on all the Lower 700 MHz D Block licenses and those E Block licenses that are held by AT&T. See also 47 CFR 27.50 (Tables 1, 2, 3, and 4). For the reasons set forth in this Report and Order, the Commission's revised rules will apply to all D and E Block licensees, including AT&T, and operate to supersede the conditions adopted in the *AT&T Qualcomm Order* applicable to AT&T's D and E Block operations. The revised rules will supersede the conditions adopted in the *AT&T Qualcomm Order* only after they become final and unappealable. The Commission also limits operations in the Lower 700 MHz D and E Blocks to downlink only. Finally, the Commission finds that it would serve the public

interest to permit a Lower 700 MHz D or E Block licensee to operate particular sites at a higher ERP level up to 50 kW in conjunction with the current power flux density (PFD) limit if the Lower 700 MHz D or E Block licensee enters into operator-to-operator agreements with other affected licensees or, absent agreements with all affected licensees, pursuant to a waiver upon a demonstration to the Commission of no harmful interference to other relevant Lower 700 MHz licensees.

22. As discussed in detail below, the Commission finds that the current technical rules, which permit a 50 kW ERP level in conjunction with a PFD limit, are likely not sufficient to prevent harmful blocking interference into neighboring operations in the Lower 700 MHz bands providing interoperable service. More specifically, based on the record in this proceeding, the Commission concludes first that low-powered two-way mobile broadband LTE service provided on the Lower 700 MHz B and C Blocks using Band Class 12 devices would likely be subject to harmful blocking interference from high-powered Lower 700 MHz D and E Block operations. In evaluating whether a Band Class 12 device is being subjected to harmful interference based on the test data submitted in the record, the Commission assumes 3 dB desense (Receiver desense or desensitization is the amount of receiver sensitivity degradation due to interference relative to the unencumbered receiver sensitivity (the lowest received signal power that a noise limited receiver needs to be functional), measured in dB. For example, a 3 dB desense occurs when the interference power is equal to the receiver's system noise power) as the appropriate threshold, along with considerations of the probability and potential locations of such interference events. In other words, a Band Class 12 device should only be required to receive successfully in the presence of blocking interference, a desired signal 3 dB above the receiver's reference sensitivity (receiver blocking requirements address a receiver's ability to receive at least 95% of the reference throughput at the reference sensitivity, at its assigned channel in the presence of an unwanted interfering signal falling into the device receive band or into the first adjacent 15 megahertz. See Table 7.6.1.1–2, Section 7.6.1 of 3GPP TS 36.104 V9.9.0 (2011–09)). The Commission notes that this approach is consistent with the Commission's analysis in the H Block proceeding. Using 3 dB desense, and based on the test data in the record, the Commission finds that there are likely to be significant areas where a Band Class 12 device would be subjected to harmful blocking interference without a change to its current technical rules. In particular, the Commission finds that the V–COMM Study shows the 3 dB desense of Band Class 12 devices using the Lower 700 MHz B and C Block spectrum occurs when the Lower 700 MHz E Block received signal strength is about -26 dBm. Therefore the Commission concludes that interference to Band Class 12 devices is likely to occur when the interfering signal strengths reach those levels. Moreover, the V–COMM and Hyslop-Kolodzy test data show that received signals of –26 dBm and higher from E Block transmissions are not uncommon. Indeed, the Hyslop-Kolodzy Report shows areas on drive tests where signals were stronger than –16 dBm, which is significantly worse than the –26 dBm threshold. Based on these data and on its technical expertise and predictive judgment, the Commission finds that the current technical rules are not sufficient to protect against harmful interference, because harmful blocking interference is likely to occur in a significant number of instances.

23. The Commission next finds that mitigation techniques for blocking interference from high-powered Lower 700 MHz E Block transmitters are not practical to overcome potentially many instances of harmful interference from the Lower 700 MHz E Block transmitters, would be costly and difficult and could address only some instances of potential harmful interference. If Lower 700 MHz E Block stations were to commence high-powered operations, Lower 700 MHz B and C Block licensees using Band Class 12 devices may need to make many RF network design and optimization modifications to mitigate the high-power E Block interference due to a potentially large number of high-power 700 MHz E Block transmitters, including the possible deployment of sites that otherwise would not be needed. In addition, mitigating interference from high-powered Lower 700 MHz E Block transmitters by co-locating with lower-powered LTE transmitters does not appear to be an effective option in many cases, given that Lower 700 MHz licensees have already either planned or deployed their LTE networks in many cases and that DISH Network has not deployed the vast majority of its Lower 700 MHz E Block transmitters yet. As a practical matter, co-location could be cost effective only with respect to Lower 700 MHz E Block transmitters that exist at the time the LTE network is being designed and built. While co-location on subsequently deployed Lower 700 MHz E Block transmitters is possible, newly co-located LTE transmitters could require costly re-engineering for the rest of the LTE network. As a result, the Commission concludes that modification of the maximum permissible ERP level for the Lower 700 MHz D and E Blocks is needed to lower the probability and decrease the potential instances and locations in which the receive signal strengths of Lower 700 MHz D and E Block licensees could exceed -26 dBm.

24. Similar to other Lower 700 MHz licensees, the Commission further revises its rules to provide that the Lower 700 MHz D and E Block licensees operating at the maximum permissible ERP are limited to an antenna height of 305 m HAAT. The Commission notes that power levels and antenna heights are closely linked: operating less than the maximum permissible ERP would allow a licensee to have a higher HAAT. Fixed or base stations transmitting a signal with an emission bandwidth of 1 MHz or less may operate at antenna heights greater than 305 m HAAT if ERP levels are reduced below 1kW for non-rural areas in accordance with Table 1, or below 2kW ERP for rural areas in accordance with Table 2 of the Commission's rules, § 27.50. Fixed or base stations transmitting a signal with an emission bandwidth greater than 1 MHz may operate at antenna heights greater than 305 m HAAT if ERP levels are reduced below 1kW per megahertz for non-rural areas in accordance with Table 3, or below 2kW per megahertz ERP for rural areas in accordance with Table 4 of the Commission's rules, § 27.50.

25. Finally, consistent with DISH's current plans to deploy an LTE network similar to that deployed by Lower 700 MHz A, B, C, and D Block operators, the Commission finds it in the public interest to modify its rules to impose certain restrictions on all D and E Block operations that are similar to conditions imposed upon AT&T in the *AT&T-Qualcomm Order* in connection with AT&T's use of its Lower 700 MHz D and E Block licenses. In particular, the Commission revises its rules to provide that Lower 700 MHz D and E Block licensees may not use their licenses for uplink transmission and must instead use this spectrum only for downlink transmissions. This change serves the public interest by preventing harmful interference and facilitating interoperability. Because the surrounding blocks are used for

downlink operations, uplink or TDD operations in the E Block will cause harmful interference to mobile receivers in the adjacent bands unless very strict power limits, stringent out of band emission limits, and guard bands are employed on all three blocks.

26. These rule changes reflect the significant developments in the Lower 700 MHz band since the original adoption of the technical rules in 2002. In 2002, the Commission recognized that high power transmissions could cause interference to adjacent channels, especially those that operate at low power levels, but found that the risk of harmful interference from power levels up to 50 kW could be mitigated by limiting permissible power flux density levels for base stations operating in excess of 1kW ERP. At that time, however, the Commission's expectation was that operations at lower power would not be prevalent, and the Commission permitted power levels up to 50 kW in all of the Lower 700 MHz Blocks. Operation at similar power levels would result in signal desired to undesired ratios that would minimize the likelihood of harmful interference. The Lower 700 MHz band was then the home to broadcasters in the midst of a technically complex transition to digital television. In particular, when the Commission adopted these rules in the *Lower 700 MHz Report and Order,* 67 FR 5491, Feb. 6, 2002, it observed that the Lower 700 MHz band will remain principally a television band until the end of the digital transition pursuant to the requirements of the Balanced Budget Act of 1997. In light of the uncertainty regarding the availability and future use of this band, and the expectation that much of the band would be occupied by full-power broadcast stations for an indefinite period of time, the Commission adopted a flexible use approach to allow for fixed and mobile services, along with broadcast and other broadband applications that could include two-way interactive, cellular, and mobile television broadcasting services.

27. Since 2002, significant developments in the Lower 700 MHz band include the active deployment of mobile broadband services in the Lower 700 MHz Band and the fact that it is no longer a TV band. After the Commission adopted the *Lower 700 MHz Report and Order,* Congress passed the Digital Television Transition and Public Safety Act of 2005 (DTV Act), which accelerated the DTV transition by providing a date certain, February 17, 2009, for the end of the transition. The Commission subsequently revised its rules in 2007 pursuant to the DTV Act prior to Auction 73, which included the Lower A, B, and E Blocks. There also have been significant developments since 2007, when, as DISH notes, the Commission declined to adjust the 50 kW power limit applicable to the Lower D and E Blocks. Now six years later, by contrast, the demand for and use of mobile broadband services have grown significantly and continue to increase, and Lower 700 MHz licensees are deploying LTE networks to respond to this demand in spectrum adjacent to the Lower E Block, and there is no longer any high-power broadcast service being provided to consumers on this spectrum. Moreover, the record of this proceeding includes detailed studies of interference effects on the mobile devices now in use in connection with the lower power services that have displaced higher power broadcast operations in the band, which lower power services are more vulnerable to blocking interference from high power E Block transmissions. The Commission has thus changed its position on this matter in light of these intervening developments and the updated information in this record.

28. As indicated above, the Commission also finds that these rule changes are fully consistent with the current plans by the two major licensees of these Blocks and with the voluntary industry solution proposed by stakeholders. Indeed, the Commission finds that these changes to its technical rules also will facilitate the anticipated uses of the Lower 700 MHz D and E Blocks. As stated in its recent *ex parte* filing, DISH Network plans to use its unpaired 700 MHz E Block licenses to deploy an LTE network similar to what Lower 700 MHz A, B, C, and D Block operators have deployed today, and to similarly enhance the networks as the LTE technology evolves. AT&T has indicated that its current plans are to use the unpaired 700 MHz Lower D and E Block licenses it acquired from Qualcomm in December 2011 for LTE video services while also looking at pairing this spectrum with other bands, as a supplemental downlink for mobile LTE. These facts strongly support its conclusion that these modifications will further the public interest.

29. In sum, modifying the power limits and the antenna height restrictions for the Lower 700 MHz D and E Blocks, along with limiting these licenses to downlink transmissions, is necessary to enable Lower 700 MHz interoperability by resolving concerns about interference from high-powered transmissions and enable provisioning of mobile broadband LTE services in the adjacent bands. These changes also will facilitate the plans of the Lower D and E Block licensees to utilize this spectrum to provide commercial services to American consumers.

30. The Commission also finds that, in addition to ensuring interoperability and facilitating use of the D and E Blocks, these rule changes also will facilitate Lower 700 MHz A Block operations because LTE service provided on the A Block would otherwise likely be subject to harmful interference from high-power operations in the Lower 700 MHz E Block. In particular, mobile devices operating near a Lower E Block transmitter but far from their serving LTE base stations face a substantial risk of receiving harmful interference from E Block transmitters. The potential for this interference would exist because of vastly different radio propagation characteristics between the high-powered Lower 700 MHz E Block and lower powered A Block LTE systems, and such interference would result in significant degradation of service to A Block operations in areas close to high-powered E Block transmitters. Accordingly, the harmonized technical rules will facilitate provisioning of mobile broadband LTE services to consumers in all of the paired Lower 700 MHz bands without significant service degradation.

31. The Commission agrees as well with DISH's proposal in its recent *ex parte* filing that it also would serve the public interest to permit particular Lower 700 MHz D or E Block stations to operate under the existing ERP level of up to 50 kW, in conjunction with the existing power flux density (PFD) limit, so long as the licensee obtains consent of all affected licensees. In taking this action, the Commission finds that this flexibility will provide D and E Block licensees with the opportunity to better serve rural and underserved communities without adversely affecting the Commission's objective to more effectively utilize the Lower 700 MHz band. Specifically, the Commission amends § 27.50 to provide that lower 700 MHz D and E Block licensees may operate stations at existing power limits if they are able to obtain the written concurrence of all potentially affected licensees. For purposes of this rule, the Commission finds that potentially affected licensees are all A, B, C, D and E Block licensees licensed within 120 km of the proposed higher powered site. This provision is consistent with the Commission's rule requiring coordination when licensees operate at higher power levels in rural areas. 47 CFR 27.50(c)(5). Prior to operation, Lower 700 MHz D and E

Block licensees must obtain written concurrence from each potentially affected licensee and file a copy of each agreement with the Wireless Telecommunications Bureau via FCC Form 601. The Commission notes that there are fewer than 10 licensees that will file a copy of the agreement via FCC Form 601, and thus its action here does not trigger the Paperwork Reduction Act, 5 CFR 1320.3(c)(4). If a licensee is unable to obtain written concurrence from one or more affected licensees, it may seek a waiver of this rule with respect to a particular transmitter. The waiver request must meet the waiver standard articulated in § 1.925 of the Commission's rules. In assessing whether a waiver grant is warranted, the Commission will determine whether the licensee has made reasonable efforts to obtain the written concurrence of all affected licensees and has shown that operation at higher power from the particular transmitter facility will not cause harmful interference to affected licensees' existing operations. The Commission's determination will take into account a number of factors, including the following: the location of the transmitter, the technology, and the relevant technical parameters of the transmitter facility; the location(s) and technical characteristics of the potentially affected licensees' stations; and any engineering studies demonstrating no harmful interference. The nature of the potential harmful interference suggests that it likely will be more difficult to demonstrate no harmful interference to affected licensees in urban areas than in rural areas. Finally, in order to protect future operations of potentially affected licensees, any waiver granted will be conditioned on causing no harmful interference to future deployments by affected licensees (or obtaining their written concurrence).

32. Consistent with the *AT&T Qualcomm Order,* the Commission also requires that the Lower 700 MHz D and E Block licensees take steps to mitigate the potential for harmful interference from their downlink operations to uplink operations in the A, B, and C Blocks. In particular, the Commission requires D and E Block licensees to take the following measures: (1) Coordinate with A, B, or C Block licensees to mitigate the potential for harmful interference; (2) mitigate interference to A, B, or C Block operations within 30 days after receiving written notice from the affected A, B, or C Block licensees; and (3) ensure that D or E Block transmissions are filtered at least to the extent that the D or E Block transmissions are filtered in markets where the D or E Block licensee holds an A, B, or C Block license, as applicable. Coordination and mitigation steps should include, but are not limited to, the following measures: If a Lower A, B, or C Block licensee deploys a network after the D or E Block deploys a network on its Lower 700 MHz D or E Block spectrum in the same geographic market, the D or E Block licensee will work with the A, B, or C Block licensee to identify sites that will require additional filtering, and will help the A, B, or C Block licensee to identify proper filters. The D or E Block licensee is also required to permit these licensees to collocate on the towers it owns at prevailing market rates. On the other hand, if a Lower A, B, or C Block licensee deploys a network before a D or E Block licensee deploys a network in the same geographic market, the D or E Block licensee will work with the A, B, or C Block licensee to identify sites that will need additional filtering and will purchase and pay for installation of required filters on such sites. For purposes of this condition, deployment of a network shall be the date upon which the network is able to support a commercial mobile voice or data service.

33. The Commission finds that the Commission has authority to adjust the technical requirements for the Lower 700 MHz D and E Blocks as outlined above. Title III of the Act provides the Commission with broad authority to manage spectrum, including allocating and assigning radio spectrum for spectrum based services and modifying spectrum usage conditions in the public interest. The Commission is charged with maintaining control over all the channels of radio transmission in the United States. Section 301 states that [i]t is the purpose of this Act, among other things, to maintain the control of the United States over all the channels of radio transmission; and to provide for the use of such channels, but not the ownership thereof, by persons for limited periods of time, under licenses granted by Federal authority, and no such license shall be construed to create any right, beyond the terms, conditions, and periods of the license. The issuance of a Commission license does not convey any ownership or property interests in the spectrum and does not provide the licensee with any rights that can override the Commission's proper exercise of its regulatory power over the spectrum. As the D.C. Circuit held well before the E Block auction here, Congress specifically applied to licenses acquired by auction this long tradition of Commission authority to change rules governing already-issued licenses.

34. The Commission therefore takes its actions here to revise the technical service rules applicable to the D and E Blocks pursuant to § 303(b) and 303(f) of the Act. Section 316 of the Act grants the Commission broad authority to modify existing licenses if it determines that such action will promote the public interest, convenience, and necessity. The Commission does not disregard the importance of stability in its rules, but the substantial record evidence now compiled in this proceeding concerning both the likely harmful interference from higher power D and E Block operations to the services actually now deployed in the B and C Blocks and the public interest benefits of securing interoperability outweighs this concern. As the demand for mobile broadband continues to grow, it is critical that there is nationwide mobile broadband coverage, including service in rural and underserved areas, competition within the mobile wireless broadband industry that provides consumers (particularly in these isolated areas) with greater selection from among different service offerings and pricing plans, and choice for consumers so that they can more readily change providers in order to avail themselves of competitive alternatives. Revising the technical requirements for Lower 700 MHz D and E Block licenses is a critical part of allowing interoperability and necessary to eliminate the potential for harmful interference to other 700 MHz bands. These changes are thus strongly in the public interest and authorized by Title III.

B. Channel 51

1. Assessment of Likelihood of Reverse Intermodulation Interference

35. *Background.* Channel 51 (692–698 MHz), which has been allocated for TV broadcast operations at power levels up to 1000 kW, lies just below the Lower 700 MHz Band. One of the interference issues raised by some as a possible technical obstacle to interoperability in the Lower 700 MHz band is reverse intermodulation interference from DTV Channel 51 broadcast transmissions to the operations of wireless providers in the Lower 700 MHz B and C Blocks. The issue of reverse intermodulation interference could arise when the Channel 51 signals interact, or mix, with transmissions from a wireless device to create a third transmission, or intermodulation product, that falls on a frequency used by the wireless device for receiving operation.

36. In the *Interoperability NPRM,* the Commission requested that interested parties submit measurements and quantitative analyses regarding the interference risk from adjacent Channel 51 transmissions for Band Class 12 devices operating in the Lower B and C Blocks, asked how the Commission could encourage voluntary industry efforts to find interference solutions, and requested that commenters quantify the costs of implementing any proposed solutions to interference issues.

37. The record includes studies on reverse intermodulation interference to Band Class 12 devices on Lower 700 MHz Blocks B and C from Channel 51 operations. Studies were submitted by a number of Lower 700 MHz A Block licensees (consisting of the V–COMM Study and the Hyslop-Kolodzy Report), to demonstrate that any such interference is unlikely, and if it does occur there are reasonable steps an operator can take to mitigate it. AT&T and Qualcomm filed studies that argue to the contrary (consisting of AT&T submitted studies from Reed and Tripathi, PCTEST, and 7Layers, and Qualcomm's own study. In its recent commitment letter, AT&T states that high power broadcasts currently permitted in Channel 51 and in the Lower 700 MHz E Block create the potential for significant interference problems for LTE deployments.

38. *Discussion.* Based on the extensive record in this proceeding and on its technical and predictive judgment, the Commission concludes that harmful interference to Lower 700 MHz mobile devices operating on the Lower 700 MHz B and C Blocks as a result of Channel 51 broadcast operations is unlikely for a number of reasons. Moreover, the Commission finds that providers can undertake reasonable steps to mitigate the impacts of any interference that might occur from Channel 51 transmissions to LTE Band Class 12 devices. In addition, any issue is likely to be time-limited, as the number of full-power Channel 51 stations decreases over time. The Commission notes as well that, even though AT&T identifies this issue in its September 10 letter, the proposed conditions in its letter and attachment, upon which its commitment of interoperability is based, address only potential E Block interference, and do not include any provisions relating to potential reverse intermodulation interference from Channel 51 broadcast operations.

39. The Commission finds first that reverse intermodulation interference will occur only in the unlikely event of a coincidence of a number of different factors. For Channel 51 broadcast transmission to cause reverse intermodulation interference, all of the following would have to occur at the same time: the Channel 51 broadcast transmission reaches a very strong signal strength threshold received at the LTE mobile device, the LTE device is transmitting and receiving in certain specific frequencies within that carrier, and the mobile device is transmitting at maximum power. The Commission also notes there is a stable set of no more than 27 full-power, licensed broadcast facilities in the U.S., including Puerto Rico, and over time the number of full-power Channel 51 stations will likely decrease principally as a result of the incentive auction proceeding.

40. The Commission's conclusions rely as well on its evaluation of the evidence in the record. The Commission finds that the tests and analyses of the proponents of an interoperability rule are more convincing than the tests and analyses submitted by opponents because, *inter alia,* the proponents used more reasonable testing parameters such as the placement of the LTE carrier frequency and the number of resource blocks. The proponents also tested more devices under more possible interference scenarios which give a more comprehensive picture of the overall device performance, in both lab and field tests. Qualcomm used a commercially-available power amplifier that transmitted at 1930 MHz, which is not as representative of operating in the 700 MHz band as the 700 MHz devices that were used in the other tests.

41. The evidence in the record also shows that the high Channel 51 signal levels that raise the risk of interference occur rarely. For instance, V–COMM's testing shows that the level of a Channel 51 signal strength threshold that would likely cause interference is –13 dBm with 1 dB desense. According to the record, only 8 of 26 Channel 51 full-power, licensed broadcast facilities in the continental U.S. could, using the conservative line-of-sight (LOS) propagation model, theoretically exceed the signal strength threshold of –13 dBm, and these areas are limited to 450 meters or less from the Channel 51 broadcast tower. In addition, V–COMM's drive testing results near actual Channel 51 DTV transmitters show that very high Channel 51 signal strengths, e.g. above –13 dBm, are mostly confined to locations near Channel 51 transmitters. However, to be consistent with the Commission's analysis in the H Block proceeding, the Commission finds that using a 3dB desensitization level is more appropriate in this case. According to lab tests in the record, this requires a Channel 51 signal strength of –9 dBm, or 4 dB stronger than the level used by V–COMM. The drive tests in the record demonstrate that a signal level of –9 dBm is very rare in the field.

42. Accordingly, the Commission concludes that interference allegations based on reverse intermodulation products arising from Channel 51 broadcast operations are not an impediment to implementation of the voluntary industry solution for achieving interoperability.

2. Clearing Channel 51

43. While the Commission finds that the presence of Channel 51 broadcast stations is not an impediment to 700 MHz interoperability, the clearing of Channel 51 broadcast stations can lead to other important public interest benefits by removing certain limitations placed on operations in the adjacent Lower A Block. The Commission has taken a number of steps to limit the potential impact of Channel 51 broadcast operations on the use of Lower 700 MHz band spectrum. In August 2011, the Media Bureau adopted a freeze on both the filing of new applications and the processing of pending applications with respect to operations on Channel 51, in order to permit the Commission to evaluate claims of interference for Lower 700 MHz A Block licensees in planning their network deployments. In addition, the Media Bureau lifted the previous freeze on the filing of petitions for rulemaking by full power television stations seeking to relocate from Channel 51 pursuant to voluntary relocation agreements with Lower 700 MHz A Block licensees. Media Bureau staff has approved, or has under review, agreements to relocate Channel 51 operations or otherwise modify those operations that reduce the possibility of interference.

44. Moreover, in September 2012, the Commission launched, pursuant to the Spectrum Act, the incentive auction process with the aim of repurposing broadcast television spectrum for mobile broadband use. In the *Incentive Auctions NPRM,* 77 FR 69933, Nov. 21, 2012, the Commission sought comment on facilitating requests for channel relocation prior to the auction associated with voluntary agreements between the affected parties. In addition, the Commission clarified that any Channel 51 station that relocates pursuant to a private arrangement, and is subsequently required to relocate a second time because its channel assignment is changed during the auction's repacking process, will be eligible for payment of costs and will

not be disadvantaged in its ability to claim reimbursement.

45. In April 2012, the Commission adopted rules for the sharing of broadcast channels in connection with the incentive auction. The Commission is interested in possibly authorizing one or more channel sharing pilots in order to demonstrate the technical and legal arrangements necessary to implement a successful channel sharing operation. The Commission encourages Channel 51 broadcasters to consider participating in such a pilot and to bring proposals for channel sharing pilots to the Media Bureau for consideration. Although it is likely that Channel 51 clearing issues in connection with the *Incentive Auctions* proceeding will not be resolved and fully implemented for several years, the Commission notes that all of the band plans in the *Incentive Auctions NPRM* and record propose to clear Channel 51, and that the *Incentive Auctions NPRM* seeks comment on the appropriate length of time for television stations to move channels or cease broadcasting after the completion of the incentive auction.

C. Transition to Interoperability

46. *Background.* In the *Interoperability NPRM,* the Commission expressed its preference for an industry solution to the lack of interoperability in the Lower 700 MHz band. The Commission stated that an industry solution would be preferable because it would allow the market greater flexibility in responding to evolving consumer needs and dynamic and fast-paced technological developments. At the same time, the Commission recognized that, if the industry failed to move toward interoperability in a timely manner, additional regulatory steps might be justified.

47. *Discussion.* As noted above, an industry solution that will resolve the lack of interoperability in the Lower 700 MHz band has now been developed. In a letter filed on September 10, 2013, AT&T committed to adopting interoperability upon resolution of interference issues associated with high power broadcast transmissions from the Lower 700 MHz E Block. A coalition of Lower 700 MHz A Block licensees, joined by the Competitive Carriers Association, filed a letter supporting AT&T's commitments as a means to ensure restoration of interoperability. Having resolved the potential interference issues as discussed above, the Commission now takes steps to implement AT&T's voluntary commitments and establish a path to interoperability in the Lower 700 MHz band.

48. Specifically, pursuant to Section 316, the Commission proposes in the Order of Proposed Modification below to modify AT&T's B and C Block licenses to implement its interoperability commitments. AT&T's commitments are premised on final resolution of the E Block interference issues, in accordance with the power and height limitations adopted above. AT&T Sept. 10, 2013 Ex Parte at 6. These commitments relate both to AT&T's deployment of a Multi-Frequency Band Indicator (MFBI) software feature (a network technology that enables interoperability by permitting simultaneous support of both Band Class 12 and Band Class17 devices) and to AT&T's transition to Band Class 12 capable devices. As set out in AT&T's letter:

Deployment of MFBI

(1) AT&T commits to moving forward expeditiously with testing the 3GPP Multi-Frequency Band Indicator software feature as soon as it is made available to AT&T by its RAN vendors. AT&T further agrees to fully deploy the new MFBI software feature in its 700 MHz network within 24 months of September 30, 2013. The end of the 24-month period will also commence the beginning of the device roll-out period.

(2) If AT&T concludes that, despite its best efforts, implementation of the MFBI feature within 24 months as committed to herein will result in significant negative customer impact, AT&T will file a certification, consistent with Commission rules (including but not limited to §§ 1.16, 1.17 and 1.65), so asserting and outlining in specific detail the commercially reasonable steps taken to meet the deadline and the reason for the delay. Any such filing must be made on or before August 31, 2015. With the filing of such a certification, the 24-month deadline for MFBI implementation and the start of the Band 12 capable device roll-out period shall be extended by the period requested in the certification, up to an additional 6 months.

(3) Once MFBI has been fully implemented by AT&T consistent with paragraph 2, AT&T shall provide LTE roaming to carriers with compatible Band 12 devices, consistent with the Commission's rules on roaming.

The Transition

(4) Band 12 capable device shall mean any device that is capable of supporting 3GPP Band Class 12. At this time, AT&T is exploring various Band 12 implementation approaches with its chipset and OEM partners and AT&T reserves the right to pursue the most efficient solutions available based on evolving network and device capabilities on a technology neutral basis.

(5) During the first year of the device roll-out period, 50% of all new unique devices that operate on the paired Lower 700 MHz bands, as identified by unique SKU numbers, introduced by AT&T into its device portfolio will be Band 12 capable devices. Memory or color finish variations on a single device shall not be considered separate unique SKUs. Machine-to-Machine (M-to-M) devices shall not be counted as new unique devices for purposes of this commitment.

(6) During the second year of the device roll-out period, 75% of new unique devices that operate on the paired Lower 700 MHz bands, as identified by unique SKU numbers, introduced by AT&T into its device portfolio will be Band 12 capable devices. Memory or color finish variations on a single device shall not be considered separate unique SKUs. M-to-M devices shall not be counted as new unique devices for purposes of this commitment.

(7) Commencing at the conclusion of the second year of the device roll-out period, all new unique devices that operate on the paired Lower 700 MHz bands introduced by AT&T into its device portfolio will be Band 12 capable devices. In addition, from that time forward, AT&T will agree that its specifications for all new devices that are designed to operate in the paired Lower 700 MHz frequencies, including M-to-M devices, will call for Band 12 capability. However, M-to-M devices shall not be counted as new unique devices for purposes of this commitment.

(8) The commitments outlined above apply to all new unique data-capable devices that connect to or provide connectivity on AT&T's paired Lower 700 MHz FDD network. AT&T's commitment shall not extend to any devices that are uniquely designed to operate on spectrum bands owned and operated by AT&T that are not in the paired Lower 700 MHz bands. AT&T reserves the express right to support devices that do not operate in the paired Lower 700 MHz bands.

(9) To demonstrate progress on its commitments, AT&T shall submit comprehensive written reports and meet with the Commission staff at each of 12 months, 18 months and 24 months from the date of its September 10, 2013 commitment letter that will provide information on AT&T's progress toward meeting these commitments. Additionally, AT&T shall provide

comprehensive written reports at 28 months, 40 months and 46 months to report on progress during the device roll-out period, and it shall file a certification to the Commission at the end of the device roll-out period to certify final completion of these commitments within 30 days.

(10) Fulfillment of these commitments will require the implementation of new functionality in AT&T's paired Lower 700 MHz network as well as collaboration with AT&T's chipset and OEM partners and vendors. AT&T will use its best efforts to proceed diligently to complete the activities necessary to fulfill its commitments. However, if at any time, AT&T encounters obstacles beyond its control that threaten its ability to meet these commitments, or undermine the quality of the service it is providing on its network, AT&T reserves the right to so inform the Commission and seek an extension of time or a waiver as appropriate.

(11) Consistent with these commitments, AT&T anticipates that its focus and advocacy within the 3GPP standards setting process will shift to Band 12 related projects and work streams. More specifically, upon adoption of this commitment, AT&T commits to placing priority within the 3GPP RAN committee on the development of various Band 12 carrier aggregation scenarios. Upon completing implementation of the MFBI feature, AT&T anticipates that its focus on new standards related to the paired Lower 700 MHz spectrum will be almost exclusively on Band 12 configurations, features and capabilities. AT&T reserves the right to seek revisions and updates to Band 17 standards to the extent necessary to support legacy Band 17 devices and continuing Band 17 functionality on its network.

(12) AT&T's commitments to Lower 700 MHz interoperability outlined in its letter are premised on final resolution of the E Block interference issues, which requires the Commission to adopt an Order requiring that all E Block licensees transmitting a signal with an emission bandwidth greater than 1 megahertz are restricted to an ERP of 1,000 to 2,000 watts/MHz and an antenna height of 305 m above average terrain. AT&T anticipates that the Commission will adopt such an Order no later than December 31, 2013. If such an Order is not adopted by the Commission, or if it is adopted but subject to appellate review, AT&T reserves the right to declare these commitments null and void.

49. The Commission finds that implementing the voluntary industry solution for interoperability by adopting AT&T's commitments as modifications would promote the public interest, convenience and necessity. These modifications would establish a clear path toward interoperability for the Lower 700 MHz band. In doing so, they would promote the efficient use of spectrum, the availability of higher quality and lower priced offerings and enhanced choices for customers of all wireless broadband providers, overall timely deployment of nationwide wireless broadband coverage, and the delivery of such service to rural and underserved areas. Its actions in proposing these modifications here are consistent with the Commission's longstanding interest in promoting the interoperability of mobile services (an objective that has been realized for cellular, PCS, AWS, and public safety broadband service), and allow the market greater flexibility in responding to evolving consumer needs and dynamic and fast-paced technological developments. By ensuring that AT&T, the largest license holder of spectrum in the B and C Blocks, transitions to interoperability, the Commission concludes that the steps it takes today will be enough to ensure that the public interest benefits of interoperability are realized while avoiding unnecessary regulatory burdens.

50. The record demonstrates that the existence of two incompatible band classes is a substantial obstacle to the ability of subscribers to switch their service provider to take advantage of higher quality or lower cost service. Conversely, as the Commission has recognized, interoperability directly promotes the ability of consumers to switch * * * at low cost. Accordingly, by establishing a clear path to interoperability, the Commission promotes consumers' ability to choose the higher quality service at affordable prices and thus increased competition.

51. In addition, adopting the industry plan for achieving interoperability will help promote deployment of mobile broadband services and the full and efficient use of Lower 700 MHz spectrum. The record shows that the absence of interoperability has delayed deployment of networks in Lower 700 MHz band spectrum. U.S. Cellular, for example, asserts that, except for its own deployment, ''there has been no comparable deployment of advanced 4G LTE services by Band 12 licensees, including Cavalier Wireless, LLC, Continuum 700 LLC, C Spire Wireless, Vulcan Wireless LLC and others, despite significant efforts to overcome the lack of a Band 12 device ecosystem. Cox TMI Wireless LLC even was forced to abandon its original plans to launch 4G LTE services. Likewise, Cellular South, Inc. d/b/a C Spire Wireless (Cellular South) asserts that the lack of available Band Class 12 devices and the inability of such devices to roam nationwide render the current environment inadequate ''to support commercial deployment of a LTE network on Band 12.'' Cavalier Wireless argues that the lack of interoperability has delayed new wireless broadband deployments, services, and competition in Mississippi, Arkansas, and in rural states across the country.

52. The record indicates that interoperability will promote further build out and deployment of Lower 700 MHz spectrum, with the resulting benefits of competitive mobile broadband service available to consumers. Cellular South, for example, asserts that, upon adoption of an interoperability requirement, it would begin network design, site acquisition, and engaging equipment and device vendors to support the deployment of 4G LTE services. Other parties likewise assert that resolving interoperability would facilitate their deployment of advanced wireless services. The Commission finds that the lack of interoperability and of the development of a Band Class 12 ecosystem has seriously limited development of the Lower 700 MHz band and that 700 MHz interoperability will encourage and enable Lower 700 MHz A Block licensees to further invest in and build out advanced broadband networks. The difficulties of obtaining prompt delivery from vendors of the choices of 4G devices at affordable prices necessary to attract and retain subscribers have discouraged LTE network deployments for smaller new market entrants. The Commission concludes that, by promoting deployment of advanced mobile broadband networks, AT&T's interoperability commitments would serve the public interest by encouraging licensees to deploy networks in the Lower 700 MHz band using the most efficient wireless technology available today.

53. The Commission's actions today also further its statutory mandate to promote nationwide service. Most A Block licensees are small or regional businesses, many of which provide or would be able to provide wireless broadband service to nearly 50 million people in rural areas, where 1.3 million people (and approximately 13% of rural road miles) still lack any such service at all. More than one-third of the population in rural areas still lacks coverage from more than two mobile broadband service providers. Rural low density areas are often low income areas

(per capita income less than $30,000 per year.) Evidence in the record shows that the absence of interoperability has affected these licensees' ability to deploy broadband services in the Lower 700 MHz bands. By eliminating barriers to deployment by small and rural providers, the Commission takes another important step toward fulfilling its mandate to bring these advanced services, so far as possible, to all the people of the United States.

54. In addition, the AT&T license modifications the Commission proposes today in the Order of Proposed Modification below also will help promote reasonable roaming arrangements among 700 MHz providers. As noted above, AT&T commits to providing LTE roaming to carriers with compatible Band 12 devices once AT&T has implemented the MFBI software feature in its network. As a result, the number of technically compatible providers for nationwide LTE roaming partnerships would increase.

D. Performance Requirements and Construction Benchmarks

1. Construction Benchmarks Applicable to Lower 700 MHz E Block

55. *Background.* Section 27.14(g) of the Commission's rules requires EA licensees holding authorizations for Block E in the 722–728 MHz bands to provide signal coverage and offer service over at least 35 percent of the geographic area of their license no later than June 13, 2013, or within four years of initial license grant, if the initial authorization is granted after June 13, 2009. Certain E Block licensees in the band, including DISH, have requested a waiver of § 27.14(g) seeking an extension of the interim construction benchmark deadline to at least two years from the current deadline, stating they have faced challenges related to equipment availability and uncertainty created by the *Interoperability NPRM,* including the possibility that the Commission may ''dramatically reduce maximum operation power in the Lower 700 MHz E Block. As discussed above, DISH outlined its proposal to address interference concerns regarding high-powered operations in the E Block spectrum, contingent on certain Commission actions, including extending relief regarding its Lower 700 MHz E Block buildout requirements.

56. *Discussion.* Today the Commission adopts technical rule changes affecting all Lower 700 MHz E Block licensees to reduce potential interference and facilitate interoperability in the 700 MHz band, and in order to more fully implement the voluntary industry solution, including DISH's commitment, the Commission finds it is in the public interest to provide the same regulatory flexibility to all E Block licensees to promote rapid deployment of mobile broadband services. Accordingly, the Commission takes various actions discussed below. The Commission grants the requests for extension of time or waiver regarding 700 MHz E Block licenses filed by DISH and Kurian only to the extent discussed herein and extend relief to all active Lower 700 MHz band E Block licensees regarding certain buildout requirements. The Commission also provides additional relief on its own motion to all active Lower E Block licensees as discussed below to facilitate implementation of the industry solution. Specifically, for all active Lower 700 MHz E Block licensees, the Commission extends the interim construction benchmark deadline in § 27.14(g) until March 7, 2017 and the end-of-term construction benchmark deadline in § 27.14(g) until March 7, 2021. This additional time will afford licensees a sufficient opportunity to adjust their business plans in light of the technical changes to the band and also provide valuable services to the public in the near term. The Commission also waives the ten-year license period set forth in § 27.13(b) and extends the license term for all active Lower 700 MHz E Block licensees until March 7, 2021.

57. The Commission waives § 27.14(g) for all active Lower E Block licensees in order to permit them to meet a population-based coverage requirement as an alternative to the geographic-based requirement in § 27.14(g). Specifically, the Commission waives the requirement that Lower 700 MHz band E Block licensees must provide signal coverage and offer service over at least 35 percent of the geographic area to meet the interim construction benchmark deadline and provide signal coverage and provide service over at least 70 percent of the geographic area to meet the end-of-term construction benchmark deadline. Under this waiver, all active Lower 700 MHz band E Block licensees may meet their interim construction benchmark deadline by providing signal coverage and offering service to at least 40 percent of its total E Block population, and a licensee's total E Block population shall be calculated by summing the population of each of its license areas in the E Block. Under this waiver, all active Lower 700 MHz band E Block licensees may meet their end-of-the term construction benchmark deadline by providing signal coverage to at least 70 percent of the population in each of its license areas. When filing a notification of construction pursuant to § 1.946(d), licensees must state whether they are using the population-based performance benchmark or the geographic-based performance benchmark to meet the respective interim and end-of-term requirements.

58. The Commission also waives § 27.14(g)(1) to the extent necessary and, accordingly provides that in the event a Lower 700 MHz E Block licensee fails to either provide signal coverage and offer service to either 40 percent of its total E Block population or provide signal coverage or offer service over at least 35 percent of the geographic area by March 7, 2017, the term of that license authorization will be reduced by one year.

59. Finally, the Commission grants a limited waiver of § 27.14(l) to extend the deadline until March 7, 2019, for the filing of the required second status report regarding the licensees' efforts to meet the performance requirements applicable to their authorizations in their respective spectrum bands and the manner in which that spectrum is being utilized.

2. Interim Construction Deadlines for A and B Block Licenses

60. *Background.* As noted above, the Commission adopted performance requirements for the 700 MHz band to promote commercial access to the spectrum that require licensees to provide specified levels of service and certain consequences for failing to meet those requirements within prescribed timeframes. For licensees that fail to meet the applicable interim benchmark, the license term is reduced by two years, which would require that the end-of-term benchmark be met within eight years, and the Commission may take other enforcement action. At the end of the license term, licensees that fail to meet the end-of-term benchmark are subject to a keep what you use rule, which will make unused spectrum available to other potential users.

61. The Commission takes the opportunity in the R&O and Order to address the requests for waiver and extension of the interim construction benchmark deadline filed individually by Lower 700 MHz band A and B Block licensees, which the Wireless Telecommunications Bureau placed on public notice in a separate docket. The Commission also recognizes that the issues raised in this proceeding may substantially affect Lower 700 MHz band licensees that have not specifically sought an extension of the interim

construction benchmark deadline. In light of today's action reducing permissible ERP levels for D and E Blocks and voluntary industry commitments on the record to promote interoperability, the Commission extends the interim construction benchmark deadline for all active 700 MHz band Lower A and B Block licensees until December 13, 2016, and issue a waiver of the interim construction benchmark deadline for certain Lower 700 MHz A Block licensees as described below.

62. Specifically, as their interim construction benchmark deadlines approached, a number of Lower 700 MHz band A and B Block licensees requested a waiver of § 27.14(g) of the rules to provide for an extension of at least two years from the applicable interim construction deadlines. These licensees generally claimed that an extension or a waiver is warranted for reasons including a lack of interoperability in the 700 MHz band. Some of the licensees claimed an extension was warranted because of issues regarding protection of TV Channel 51 stations, and some licensees claimed that high power Lower 700 MHz band E Block operations have affected their ability to meet the deadline.

63. As discussed above, on September 10, 2013, DISH filed a letter stating that it will consent to an ERP reduction of its base stations for its Lower 700 MHz band E Block licenses. AT&T also filed a letter on September 10, 2013, stating that it is committed to supporting interoperability in the Lower 700 MHz band, conditioned on final resolution of the E Block interference issue. As outlined above, AT&T provided a number of commitments to achieve this goal including a staggered rollout period during which AT&T will introduce Band Class 12 capable devices into its device portfolio.

64. *Discussion.* In the extension requests, licensees claim that, due to a lack of available devices, they are unable to offer compelling or competitive advanced mobile services to potential customers and therefore building out such a network by the current interim deadline is not economically viable. Further, licensees state that the fragmentation of the Lower 700 MHz band was unforeseen, making the situation unique and unusual. The Commission finds that today's decision, in conjunction with the voluntary industry commitments on the record, addresses these concerns and will facilitate interoperability and promote rapid deployment of advanced mobile services for consumers. The vast majority of licensees seek an extension of the interim construction benchmark deadline until two years after the Commission concludes the interoperability rulemaking proceeding. Taking into account today's action and the timeline specified by AT&T for roll-out of Band Class 12 capable devices, the Commission finds that an extension until December 13, 2016 will allow licensees to make appropriate business decisions regarding build-out and to meet the interim construction benchmark deadline. The Commission therefore extends the interim construction benchmark deadline in § 27.14(g) until December 13, 2016 for all active Lower 700 MHz band A and B Block licensees, with certain exceptions described below.

65. The Commission finds it in the public interest to waive the interim construction benchmark deadline for certain Lower 700 MHz A Block licensees that must limit their deployments in order to protect incumbent Channel 51 operations. Pursuant to § 27.60, Lower 700 MHz band A Block licensees must provide interference protection to existing U.S. full power DTV and Class A stations operating in the adjacent Channel 51 by maintaining a minimum distance separation (from base station to TV transmitter) of as much as 108 km. Further, § 27.60 specifies a minimum distance separation of 96.5 km between mobile units operating on the A Block adjacent to Channel 51 broadcast stations. A substantial number of Lower 700 MHz A Block licensees argue in requests for extension of the interim construction benchmark deadline that Channel 51 broadcasters have been unwilling to negotiate consent or relocation agreements in advance of the impending incentive auction, leaving affected licensees with no reasonable alternative for providing service to certain areas of their markets before the interim deadline. Based on the record, the Commission finds that, although interoperability is likely to facilitate the provision of service by many licensees with Channel 51 broadcast stations in their license areas, relief from the particular interim construction benchmark deadline is warranted in certain circumstances. The Commission therefore waives, on its own motion, the interim construction benchmark deadline of § 27.14(g) for each Lower 700 MHz band A Block licensee where a 108 km radius around a Channel 51 transmitter overlaps at least a portion of the license's market area (overlap) and either: (1) 30 percent or more of the geographic license area is within that overlap; or (2) less than 30 percent of the geographic license area is within that overlap but more than two-thirds of the population is within that overlap. The Commission finds that such relief is necessary because these licensees either face siting restrictions in a substantial portion of their license areas, or a majority of the market's population is in an area of overlap. Accordingly, these licensees will only be subject to the end-of-term construction benchmark requirement and other status reporting requirements. The Commission expects that many Lower 700 MHz band A Block licensees will provide service in areas unaffected by the existence of Channel 51 and that others will take meaningful steps toward constructing their systems even while broadcasters remain on Channel 51—such as procuring equipment, designing their networks, and securing transmitter sites—so that installation, testing, and deployment can occur rapidly upon relocation of the broadcasters. The Commission notes that 700 MHz band licensees are free to negotiate early relocation agreements with Channel 51 broadcasters to further speed deployment.

66. Finally, for all active Lower 700 MHz band A and B Block licensees, other than licensees subject to a waiver of the interim construction benchmark deadline due to Channel 51 interference protection requirements, as described above, the Commission waive the requirements in § 27.14(l) of the Commission's rules that these licensees file a second status report regarding the licensees' efforts to meet the performance requirements applicable to their authorizations in their respective spectrum bands and the manner in which that spectrum is being utilized. The Commission adopted reporting requirements ''to monitor whether further assessment of the rules or other actions are necessary in the event spectrum is being stockpiled or warehoused, or if it is otherwise not being made available despite existing demand.'' Due to the extended interim construction benchmark deadline, licensees will now file similar information in their notifications of construction in December 2016, shortly after the existing deadlines for the second status report. Therefore, the Commission finds it is in the public interest to reduce filing burdens on the industry and waive the requirement that Lower 700 MHz band A and B Block licensees file a second status report. However, because A Block licensees sufficiently affected by Channel 51 interference protection requirements to

warrant a waiver of the interim construction benchmark deadline will not file interim notifications of construction, the Commission does not waive the § 27.14(l) requirement and these licensees are still required to file a second status report on June 13, 2016, so that the Commission can monitor their buildout progress.

IV. Order of Proposed Modification

67. For the reasons discussed above, the Commission proposes to modify AT&T's B and C Block licenses pursuant to § 316 to implement the commitments contained in AT&T's letter of September 10, 2013 and effectuate the voluntary industry solution that will resolve the lack of interoperability in the Lower 700 MHz band in an effective and efficient manner. Specifically, pursuant to Section 316, the Commission proposes to modify AT&T's B and C Block licenses to implement the following interoperability commitments. These commitments relate both to AT&T's deployment of a Multi-Frequency Band Indicator (MFBI) software feature and to AT&T's transition to Band Class 12 capable devices. For the reasons discussed throughout the R&O and Order, the Commission concludes that it is in the public interest, convenience, and necessity to propose to modify AT&T's B and C Block licenses as follows:

- AT&T must move forward expeditiously with testing the 3GPP Multi-Frequency Band Indicator software feature as soon as it is made available to AT&T by its RAN vendors. AT&T must fully deploy the new MFBI software feature in its 700 MHz network within 24 months of September 30, 2013. The end of the 24-month period will also commence the beginning of the Band 12 capable device roll-out period.
- If AT&T concludes that, despite its best efforts, implementation of the MFBI feature within 24 months will result in significant negative customer impact, AT&T will file a certification, consistent with Commission rules (including but not limited to §§ 1.16, 1.17 and 1.65), so asserting and outlining in specific detail the commercially reasonable steps taken to meet the deadline and the reason for the delay. Any such filing must be made on or before August 31, 2015. With the filing of such a certification, the 24-month deadline for MFBI implementation and the start of the Band 12 capable device roll-out period shall be extended by the period requested in the certification, up to an additional 6 months.
- Once MFBI has been fully implemented by AT&T, AT&T shall provide LTE roaming to carriers with compatible Band 12 devices, consistent with the Commission's rules on roaming.
- Band 12 capable device shall mean any device that is capable of supporting 3GPP Band Class 12. At this time, AT&T is exploring various Band 12 implementation approaches with its chipset and OEM partners and AT&T may pursue the most efficient solutions available based on evolving network and device capabilities on a technology neutral basis.
- During the first year of the device roll-out period, 50% of all new unique devices that operate on the paired Lower 700 MHz bands, as identified by unique SKU numbers, introduced by AT&T into its device portfolio will be Band 12 capable devices. Memory or color finish variations on a single device shall not be considered separate unique SKUs. Machine-to-Machine (M-to-M) devices shall not be counted as ''new unique devices'' for purposes of this commitment.
- During the second year of the device roll-out period, 75% of new unique devices that operate on the paired Lower 700 MHz bands, as identified by unique SKU numbers, introduced by AT&T into its device portfolio will be Band 12 capable devices. Memory or color finish variations on a single device shall not be considered separate unique SKUs. M-to-M devices shall not be counted as new unique devices for purposes of this commitment.
- Commencing at the conclusion of the second year of the device roll-out period, all new unique devices that operate on the paired Lower 700 MHz bands introduced by AT&T into its device portfolio will be Band 12 capable devices. In addition, from that time forward, AT&T must ensure that its specifications for all new devices that are designed to operate in the paired Lower 700 MHz frequencies, including M-to-M devices, will call for Band 12 capability. However, M-to-M devices shall not be counted as new unique devices for purposes of this commitment.
- The commitments outlined above apply to all new unique data-capable devices that connect to or provide connectivity on AT&T's paired Lower 700 MHz FDD network. AT&T's commitment shall not extend to any devices that are uniquely designed to operate on spectrum bands licensed for use by AT&T that are not in the paired Lower 700 MHz bands. AT&T reserves the express right to support devices that do not operate in the paired Lower 700 MHz bands.
- To demonstrate progress on its commitments, AT&T shall submit comprehensive written reports and meet with the Commission staff at each of 12 months, 18 months and 24 months from the date of its September 10, 2013 commitment letter that will provide information on AT&T's progress toward meeting these commitments. Additionally, AT&T shall provide comprehensive written reports at 28 months, 40 months and 46 months to report on progress during the device roll-out period, and it shall file a certification to the Commission at the end of the device roll-out period to certify final completion of these commitments within 30 days.
- Fulfillment of these commitments will require the implementation of new functionality in AT&T's paired Lower 700 MHz network as well as collaboration with AT&T's chipset and OEM partners and vendors. AT&T will use its best efforts to proceed diligently to complete the activities necessary to fulfill its commitments. However, if at any time, AT&T encounters obstacles beyond its control that threaten its ability to meet these commitments, or undermine the quality of the service it is providing on its network, AT&T may so inform the Commission and seek an extension of time or a waiver as appropriate.
- Consistent with these commitments, AT&T anticipates that its focus and advocacy within the 3GPP standards setting process will shift to Band 12 related projects and work streams. AT&T must place priority within the 3GPP RAN committee on the development of various Band 12 carrier aggregation scenarios. Upon completing implementation of the MFBI feature, AT&T anticipates that its focus on new standards related to the paired Lower 700 MHz spectrum will be almost exclusively on Band 12 configurations, features and capabilities. AT&T may seek revisions and updates to Band 17 standards to the extent necessary to support legacy Band 17 devices and continuing Band 17 functionality on its network. As discussed above, AT&T's commitments were premised on final resolution of the E Block interference issues. By this Order, the Commission modifies the E Block technical rules to address the E Block interference issues. AT&T has reserved the right to declare its commitments null and void if those modifications are not adopted by December 31, 2013, or if adopted but subject to appellate review. Because resolution of the E Block interference issue has always been essential to a resolution of the interoperability issue, any order of modification of AT&T's

licenses pursuant to the terms of the foregoing proposal shall become effective only at such time as the changes adopted today to the technical rules applicable to E Block operations become final and unappealable. In the event that AT&T elects to declare its commitments null and void, the Commission continues to retain all its authority under the Communications Act of 1934, as amended, to adopt any rules or further orders in this proceeding necessary or appropriate to promote interoperability in the Lower 700 MHz band.

68. The Commission finds that the proposed license modifications will serve the public interest by establishing a clear path toward interoperability for the Lower 700 MHz band. Resolving the lack of interoperability is an important objective for the Commission and the Commission intends to remain vigilant to ensure that AT&T follows through with its commitments and transitions to interoperability in an efficient manner.

69. The Commission finds that it has the legal authority to adopt these proposed modifications to AT&T's licenses. Section 316 of the Act authorizes the Commission to ''modif[y]'' existing licenses when taking such action will ''promote the public interest, convenience, and necessity.'' Title III provides the Commission with broad authority to manage spectrum and endows the Commission with ''expansive powers'' and a ''comprehensive mandate to 'encourage the larger and more effective use of radio in the public interest.' '' Section 303 of the Act, authorizes the Commission to exercise its authority as ''the public interest, convenience, and necessity requires'' to ''[p]rescribe the nature of the service to be rendered by each class of licensed stations and each station within any class.''

70. The Commission finds that these provisions give it ample authority to adopt the proposed modifications to AT&T's B and C Block licenses, which track AT&T's commitments and which the Commission finds to be in the public interest. Specifically, the Commission finds that, pursuant to its authority under Title III, the proposed modifications described above will ''promote the public interest, convenience, and necessity'' by promoting competition and consumer choice among mobile broadband service providers for innovative services (both initially and in switching to higher quality or lower cost offerings), promoting the widespread deployment of 4G networks (particularly in rural and unserved areas), and strengthening the ability of providers to offer consumers nationwide coverage. Establishing interoperability will remove barriers to infrastructure investment for mobile broadband services and increase spectrum utilization among Lower 700 MHz A Block licensees.

71. In accordance with section 316(a) of the Communications Act, as amended, and § 1.87(a) of the Commission's rules, the Commission will not issue a modification order(s) until AT&T has received notice of the Commission's proposed action and has had an opportunity to protest. The Commission directs the staff to send the R&O and Order by certified mail, return receipt requested to AT&T. Pursuant to section 316(a)(1) of the Act and § 1.87(a) of the Commission's rules, receipt of the R&O and Order by certified mail, return receipt requested, shall constitute notification in writing of its Order of Proposed Modification proposing to modify AT&T's B and C Block licenses and of the grounds and reasons therefor. AT&T shall have until January 15, 2014 to protest such Order of Proposed Modification. For the reasons discussed throughout the R&O and Order, the Commission finds that it will serve the public interest to adopt the voluntary industry solution that will provide interoperability in the Lower 700 MHz band. To effectuate the terms of the industry agreement, the Commission concludes that it is reasonable to allow AT&T until January 15, 2014 to protest the proposed license modifications. To protest the proposed modifications, AT&T must, by January 15, 2014 submit a written statement with sufficient evidence to show that the modification would not be in the public interest. The protest must be filed in the Electronic Comment Filing System (ECFS) under WT Docket No. 12–69 or with the Office of the Secretary, Federal Communications Commission, 445 Twelfth Street SW., Room TW–A235, Washington, DC 20554; and the protesting party must send a copy of the protest via electronic mail to Jennifer Salhus of the Spectrum Competition and Policy Division of the Wireless Telecommunications Bureau at *Jennifer.Salhus@fcc.gov.* Once the protest period has lapsed, AT&T's right to file a protest expires, and the Commission may modify the licenses as noticed.

72. The Commission delegates to the Wireless Telecommunications Bureau the authority to issue a license modification order for AT&T's B and C Block licenses, but the Bureau's delegation of authority does not extend to any modification of AT&T's B and C Block licenses that is materially different from the provisions in paragraphs 67 through 70 above.

73. *Ex Parte Status.* Unless otherwise provided by the Commission or its staff pursuant to § 1.1200(a), a license modification proceeding under Title III of the Communications Act is treated as a restricted proceeding for *ex parte* purposes under § 1.1208 of the Commission's rules. In this case, the license modification proceedings are related to the above-captioned rulemaking proceeding, WT Docket No. 12–69, which is designated as a permit but disclose proceeding under the *ex parte* rules. Due to the interrelated nature of these proceedings, the Commission finds that it is in the public interest to treat the license modification proceedings as permit but disclose proceedings under § 1.1206 of the Commission's rules. Therefore, any *ex parte* presentations that are made with respect to the issues involved in the subject license modification proceedings subsequent to the release of this Order of Proposed Modification will be permissible but must be disclosed in accordance with the requirements of § 1.1206(b) of the Commission's rules. Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation the Commission, was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule § 1.1206(b). For administrative convenience only, any filings related to this Order of Proposed Modification must be filed in WT Docket No. 12–69 and may be filed using the Electronic

Comment Filing System (ECFS), *http://apps.fcc.gov/ecfs/2d.* In proceedings governed by rule § 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (*e.g.,* .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

V. Procedural Matters

A. Final Regulatory Flexibility Analysis

74. As required by the Regulatory Flexibility Act of 1980, as amended (RFA), an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Interoperability NPRM.* The Wireless Telecommunications Bureau (WTB) sought written public comment on the proposals in the *NPRM,* including comment on the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.

75. The Commission finds that it would serve the public interest to analyze the possible significant economic impact of the policy and rule changes in the 700 MHz band on small entities. Accordingly, this FRFA contains an analysis of this impact in connection with the technical rule changes that fall within the scope of the Report and Order.

B. Need for, and Objectives of, the Report and Order

76. The R&O and Order takes steps to implement an industry solution to provide interoperable long term evolution (LTE) service in the Lower 700 MHz band in an efficient and effective manner to improve choice and quality for consumers of mobile services. The public interest benefits of the steps taken in the Report and Order will assist consumers and the economies in rural areas, as well as for small and regional businesses that operate there. Small or regional providers serving rural areas drive economic growth in these rural areas, directly, by investing in their networks and creating jobs, and indirectly, by enabling the growth of other small businesses. But in order to promote competition—and enable small business customers of 700 MHz band licensees to operate successfully in the 21st century—these licensees need to be able to offer service choices, including the potential for nationwide coverage through roaming, comparable to those offered by the national providers. Interoperability of LTE service in the Lower 700 MHz band will remove an unnecessary barrier to the successful operation of businesses that can drive economic growth, promote competitive service, and create jobs in rural America.

77. To effectuate the industry solution, the Report and Order addresses interference concerns that have been raised as possible obstacles to interoperability. It finds that, under the current rules, there is a significant threat of harmful interference from high power transmissions in the Lower 700 MHz D and E Blocks to Band Class 12 devices operating on the Lower 700 MHz B and C Blocks that could jeopardize the viability of interoperability in the band. The Report and Order therefore revises the technical rules applicable to the Lower 700 MHz D and E Blocks by reducing the maximum permissible power levels and antenna heights on these blocks. It also modifies the rules to limit all operations in the Lower 700 MHz D and E Blocks to downlink only. The Report and Order also provides that Lower 700 MHz D and E Block licensees may operate particular sites at power levels higher than permitted under the revised rules under certain specified conditions. The Report and Order finds these changes to be in the public interest because, without them, the public would not be able to realize the substantial benefits of mobile broadband deployment and interoperability in the Lower 700 MHz band. The technical changes the Report and Order adopts will continue to enable the six megahertz of unpaired Lower 700 MHz E Block spectrum to be put to commercial use while facilitating effective and efficient use of 36 megahertz of the Lower 700 MHz A, B, and C Blocks for mobile broadband services.

C. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

78. There were no comments filed that specifically addressed the rules and policies proposed in the IRFA.

D. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Would Apply

79. The RFA directs agencies to provide a description of, and, where feasible, an estimate of, the number of small entities that may be affected by the rules adopted herein. The RFA generally defines the term small entity as having the same meaning as the terms small business, small organization, and small governmental 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 Small Business Administration (SBA).

80. *Small Businesses, Small Organizations, and Small Governmental Jurisdictions.* Our action may, over time, affect small entities that are not easily categorized at present. The Commission therefore describes here, at the outset, three comprehensive, statutory small entity size standards that encompass entities that could be directly affected by the proposals under consideration. As of 2009, small businesses represented 99.9% of the 27.5 million businesses in the United States, according to the SBA. Additionally, a small organization is generally any not-for-profit enterprise which is independently owned and operated and is not dominant in its field. Nationwide, as of 2007, there were approximately 1,621,315 small organizations. Finally, the term small governmental jurisdiction is defined generally as governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand. Census Bureau data for 2007 indicate that there were 89,527 local governmental jurisdictions in the United States. The Commission estimates that, of this total, as many as 88,761 entities may qualify as small governmental jurisdictions. Thus, the Commission estimates that most governmental jurisdictions are small.

81. *Wireless Telecommunications Carrier (Except Satellite)* This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular phone services, paging services, wireless Internet access, and wireless video services. The appropriate size standard under SBA rules is for the category Wireless Telecommunications Carriers. The size standard for that category is that a business is small if it has 1,500 or fewer employees. Under the present and prior categories, the SBA has deemed a wireless business to be small if it had 1,500 or fewer employees. For this category, census data for 2007 show that there were 11,163 firms that operated for the entire year. Of this total, 10,791 firms had

employment of 999 or fewer employees and 372 had employment of 1,000 employees or more. Thus under this category and the associated small business size standard, the Commission estimates that the majority of wireless telecommunications carriers (except satellite) are small entities. Similarly, according to Commission data, 413 carriers reported that they were engaged in the provision of wireless telephony, including cellular service, Personal Communications Services (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, the Commission estimates that the majority of wireless firms can be considered small.

82. *Lower 700 MHz Band Licenses.* The Commission previously adopted criteria for defining three groups of small businesses for purposes of determining their eligibility for special provisions such as bidding credits. The Commission defined a small business as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $40 million for the preceding three years. A very small business is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $15 million for the preceding three years. Additionally, the Lower 700 MHz Service had a third category of small business status for Metropolitan/Rural Service Area (MSA/RSA) licenses—entrepreneur—which is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $3 million for the preceding three years. The SBA approved these small size standards. An auction of 740 licenses (one license in each of the 734 MSAs/RSAs and one license in each of the six Economic Area Groupings (EAGs)) was conducted in 2002. Of the 740 licenses available for auction, 484 licenses were won by 102 winning bidders. Seventy-two of the winning bidders claimed small business, very small business or entrepreneur status and won licenses. A second auction commenced on May 28, 2003, closed on June 13, 2003, and included 256 licenses. Seventeen winning bidders claimed small or very small business status, and nine winning bidders claimed entrepreneur status. In 2005, the Commission completed an auction of 5 licenses in the Lower 700 MHz band. All three winning bidders claimed small business status.

83. In *2007,* the Commission reexamined its rules governing the 700 MHz band in the *700 MHz Second Report and Order.* An auction of A, B and E block 700 MHz licenses was held in 2008. Twenty winning bidders claimed small business status (those with attributable average annual gross revenues that exceed $15 million and do not exceed $40 million for the preceding three years). Thirty three winning bidders claimed very small business status (those with attributable average annual gross revenues that do not exceed $15 million for the preceding three years).

84. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing.* The Census Bureau defines this category as an industry that 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 fewer than 500 employees and 27 had more than 500 employees. Thus, under this size standard, the majority of firms can be considered small.

E. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

85. The Report and Order will not impose any new reporting or recordkeeping requirements on small entities. As described in Section A of this FRFA, to minimize interference and enable interoperability, the Report and Order revises the technical rules applicable to the Lower 700 MHz D and E Blocks by reducing the maximum permissible power levels and antenna heights on these blocks. It also modifies the rules to limit all operations in the Lower 700 MHz D and E Blocks to downlink only. The Report and Order also provides that Lower 700 MHz D and E Block licensees may operate particular sites at power levels higher than permitted under the revised rules under certain specified conditions.

F. Steps Taken To Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

86. The RFA requires an agency to describe any significant, specifically small business 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.

87. The changes to the rules will benefit small or regional wireless providers serving rural areas by facilitating Lower 700 MHz A Block operations because LTE service provided on the A Block would otherwise likely be subject to harmful interference from high-power operations in the Lower 700 MHz E Block. In particular, mobile devices operating near a Lower E Block transmitter but far from their serving LTE base stations face a substantial risk of receiving harmful interference from E Block transmitters. The potential for this interference would exist because of vastly different radio propagation characteristics between the high-powered Lower 700 MHz E Block and lower powered A Block LTE systems, and such interference would result in significant degradation of service to A Block operations in areas close to high-powered E Block transmitters. Accordingly, the changes to the technical rules will facilitate Lower A Block licensees' ability to provision mobile broadband LTE services to consumers in all of the paired Lower 700 MHz bands without significant service degradation.

88. In revising the technical rules for the Lower 700 MHz D and E Blocks, the Commission carefully considered the various benefits identified in the record, and the costs for Lower 700 MHz D and E Block licensees that would be associated with a new rule. The Commission considered alternative actions, including maintaining the current technical rules, but determined that modifying the power limits and antenna height restrictions for the Lower 700 MHz D and E Blocks would

enable Lower 700 MHz interoperability by resolving concerns about interference from high-powered transmissions. The Report and Order provides flexibility for licensees by indicating that Lower 700 MHz D and E Block licensees may operate particular sites at power levels higher than permitted under the revised rules under certain specified conditions.

89. In addition, to minimize the impact of the changes in the technical rules, the Report and Order waives the construction requirements, extending the construction benchmark deadlines for Lower 700 MHz A, B, and E Block licensees. The Report and Order concludes that waiving the construction requirements will allow licensees to make appropriate business decisions regarding build-out and to meet the construction benchmark deadlines.

90. *Report to Congress:* The Commission will send a copy of the Report and Order, including this FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act. In addition, the Commission will send a copy of the Report and Order, including this FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the Report and Order and FRFA (or summaries thereof) will also be published in the **Federal Register**.

G. Paperwork Reduction Act Analysis

91. This document does not contain new or modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104–13. In addition, therefore, it does not contain any new information collection burden for small business concerns with fewer than 25 employees, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107–198, *see* 44 U.S.C. 3506(c)(4).

VI. Ordering Clauses

92. *It is ordered* that pursuant to sections 1, 2, 4(i), 4(j), 301, 302(a), 303(b), 303(e), 303(f), 303(g), 303(r), 304, 307(a), 309(j)(3), and 316(a)(1) of the Communications Act of 1934, as amended, 47 U.S.C. 151, 152, 154(i), 154(j), 301, 302a(a), 303(b), 303(e), 303(f), 303(g), 303(r), 304, 307(a), 309(j)(3), and 316(a)(1), and §§ 1.87 and 1.401 *et seq.* of the Commission's rules, 47 CFR 1.87, 1.401 *et seq.,* the R&O and Order *is adopted.*

93. *It is further proposed,* pursuant to sections 4(i) and 316(a) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 316, and § 1.87 of the Commission's rules, 47 CFR 1.87, that AT&T's 700 MHz B and C Blocks licenses be modified consistent with Section IV (Order of Proposed Modification) of the R&O and Order. Pursuant to section 316(a)(1) of the Communications Act of 1934, as amended, 47 U.S.C. 316(a)(1), and § 1.87(a) of the Commission's rules, 47 CFR 1.87(a), receipt of the R&O and Order by certified mail, return receipt requested, shall constitute notification in writing of our Order of Proposed Modification that proposes to modify AT&T's Lower 700 MHz B and C Block licenses and of the grounds and reasons therefor, and AT&T shall have until January 15, 2014 to protest such Order of Proposed Modification. The Wireless Telecommunications Bureau is delegated authority to issue an order of modification if no protests are filed.

94. *It is further ordered* that the Wireless Telecommunications Bureau *shall send* the R&O and Order by certified mail, return receipt requested to AT&T.

95. *It is further ordered* that the license modification proceeding commenced by the Order of Proposed Modification shall be treated as a permit-but-disclose proceeding under the Commission's *ex parte* rules, 47 CFR 1.1200 *et seq.*

96. *It is further ordered* that pursuant to section 4(i) of the Communications Act, as amended, 47 U.S.C. 154(i), and §§ 1.3, 1.925, and 27.14(g) of Commission's rules, 47 CFR 1.3, 1.925, and 27.14(g), the Commission grants a limited waiver of § 24.14(g) and extends the interim construction benchmark deadline until December 13, 2016, for all active Lower 700 MHz band A and B Block licensees. Accordingly, the pending requests for extension and waiver of § 27.14(g) of the Commission's rules filed by Lower 700 MHz A and B Block are *granted* to the extent described herein and are otherwise *denied.*

97. *It is further ordered* that pursuant to section 4(i) of the Communications Act, as amended, 47 U.S.C. 154(i), and §§ 1.3, 1.925, and 27.14(g) of Commission's rules, 47 CFR 1.3, 1.925, and 27.14(g), the Commission waives, on its motion, the interim construction benchmark deadline in § 27.14(g) of the Commission's rules for each active Lower 700 MHz A Block licensee where a 108 km radius around a Channel 51 transmitter overlaps at least a portion of the license's market area (overlap) and either: (1) 30 percent or more of the geographic license area is within that overlap; or (2) less than 30 percent of the geographic license area is within that overlap but more than two-thirds of the population is within that overlap.

98. *It is further ordered* that pursuant to section 4(i) of the Communications Act, as amended, 47 U.S.C. 154(i), and §§ 1.3, 1.925, and 27.14(l) of Commission's rules, 47 CFR 1.3, 1.925, and 27.14(l), the Commission grants, on its own motion, a waiver of the requirement in § 24.14(l) for all active Lower 700 MHz band A and B Block licensees subject to the extended interim construction benchmark deadline to file a second status report regarding the licensees' efforts to meet the performance requirements applicable to their spectrum authorizations, except that Lower 700 MHz band A block licensees subject to a waiver of the interim construction benchmark deadline because of Channel 51 interference protection requirements shall remain subject to the § 27.14(l) requirement to file a second status report no later than June 13, 2016.

99. *It is further ordered* that pursuant to section 4(i) of the Communications Act, as amended, 47 U.S.C. 154(i), and §§ 1.3, 1.925, and 27.14(g) of Commission's rules, 47 CFR 1.3, 1.925, and 27.14(g), the Commission grants a limited waiver of § 24.14(g) to extend the interim construction benchmark deadline until March 7, 2017, for all active Lower 700 MHz band E Block licensees and, on its motion, extend the end-of-term construction benchmark deadline until March 7, 2021, for all active Lower 700 MHz band E Block licensees. Accordingly, the pending requests for extension and waiver of § 27.14(g) of the Commission's rules filed by Lower 700 MHz band E Block licensees are *granted* to the extent described herein and are otherwise *denied.*

100. *It is further ordered* that pursuant to section 4(i) of the Communications Act, as amended, 47 U.S.C. 154(i), and §§ 1.3, 1.925, and 27.13(b) of Commission's rules, 47 CFR 1.3, 1.925, and 27.13(b), the Commission grants, on its own motion, a waiver of § 24.13(b) and waive the ten year license period and extend the license term until March 7, 2021, for all active Lower 700 MHz E Block licensees.

101. *It is further ordered* that pursuant to section 4(i) of the Communications Act, as amended, 47 U.S.C. 154(i), and §§ 1.3, 1.925, and 27.14(g) of Commission's rules, 47 CFR 1.3, 1.925, and 27.14(g), the Commission grants, on its own motion, a limited waiver of § 24.14(g) to allow all active Lower 700 MHz band E Block licensees to meet their interim construction benchmark deadline by providing signal coverage and offering service to at least 40 percent of its total E Block population (where a licensee's total E Block population shall by calculated by summing the population of each its license areas in the E Block), and to meet their end-of-term construction

benchmark by providing signal coverage to at least 70 percent of the population in each of its license areas, as an alternative to meeting geographic-based performance requirements.

102. *It is further ordered* that pursuant to section 4(i) of the Communications Act, as amended, 47 U.S.C. 154(i), and §§ 1.3, 1.925, and 27.14(g) of Commission's rules, 47 CFR 1.3, 1.925, and 27.14(g), the Commission grants, on its own motion, a limited waiver of § 24.14(g) so that all active Lower 700 MHz band E Block licensees that fail to meet the interim construction benchmark deadline will have the term of that license authorization reduced by one year.

103. *It is further ordered* that pursuant to section 4(i) of the Communications Act, as amended, 47 U.S.C. 154(i), and §§ 1.3, 1.925, and 27.14(l) of Commission's rules, 47 CFR 1.3, 1.925, and 27.14(l), the Commission grants, on its own motion, a limited waiver of the filing requirement in § 27.14(l), to extend the deadline until March 7, 2019, for all active Lower 700 MHz band E Block licensees to file a second status report regarding the licensees' efforts to meet the performance requirements applicable to their spectrum authorizations.

104. *It is further ordered* that part 27 of the Commission's rules *is amended* as set forth, effective December 5, 2013, except as otherwise provided herein.

105. *It is further ordered* that the Final Regulatory Flexibility Analysis hereto IS ADOPTED.

106. *It is further ordered* that the Commission SHALL SEND a copy of the *Report and Order* to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. 801(a)(1)(A).

107. *It is further ordered* that the Commission's Consumer & Governmental Affairs Bureau, Reference Information Center, *shall send* a copy of the Report and Order, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

List of Subjects in 47 CFR Part 27

Communications common carriers, Radio.

Federal Communications Commission.

Marlene H. Dortch,

Secretary.

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR part 27 as follows:

PART 27—MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

■ 1. The authority citation for part 27 continues to read as follows:

Authority: 47 U.S.C. 154, 301, 302(a), 303, 307, 309, 332, 336, 337, 1403, 1404, and 1451 unless otherwise noted.

■ 2. Section 27.2 is amended by adding paragraph (e) to read as follows:

§ 27.2 Permissible communications.

* * * * *

(e) *716–722 MHz and 722–728 MHz bands.* The 716–722 and 722–728 MHz frequencies may not be used for uplink transmission and must be used only for downlink transmissions.

■ 3. Section 27.50 is amended by revising paragraph (c)(7) and adding paragraphs (c)(12) and (13) to read as follows:

§ 27.50 Power limits and duty cycle.

* * * * *

(c) * * *

(7) A licensee authorized to operate in the 710–716 or 740–746 MHz bands may operate a fixed or base station at an ERP up to a total of 50 kW within its authorized, 6 megahertz spectrum block if the licensee complies with the provisions of § 27.55(b). The antenna height for such stations is limited only to the extent required to satisfy the requirements of § 27.55(b).

* * * * *

(12) A licensee authorized to operate in the 716–722 or 722–728 MHz bands may operate a fixed or base station at an ERP up to a total of 50 kW within its authorized, 6 megahertz spectrum block if the licensee complies with the provisions of § 27.55(b), obtains written concurrences from all affected licensees in the 698–746 MHz bands within 120 km of the proposed high power site, and files a copy of each written concurrences with the Wireless Telecommunications Bureau on FCC Form 601. The antenna height for such stations is limited only to the extent required to satisfy the requirements of § 27.55(b).

(13) Licensees authorized to operate in the 716–722 or 722–728 MHz bands must coordinate with licensees with uplink operations in the 698–716 MHz band to mitigate the potential for harmful interference. Licensees authorized to operate in the 716–722 or 722–728 MHz bands must mitigate harmful interference to licensees' uplink operations in the 698–716 MHz band within 30 days after receiving written notice from the affected licensees. A licensee authorized to operate in the 716–722 or 722–728 MHz bands must ensure that 716–728 MHz band transmissions are filtered at least to the extent that the 716–728 MHz band transmissions are filtered in markets where the 716–728 MHz band licensee holds any license in the 698–716 band, as applicable. For purposes of coordination and mitigations measures in paragraphs (i) and (iii) below, network will be deemed ''deployed'' as of the date upon which the network is able to support a commercial mobile or data service. The coordination and mitigation measures should include, but are not limited to, the following:

(i) If a licensee operating in the 698–716 and 728–746 MHz band deploys a network after the 716–722 or 722–728 MHz bands licensee deploys a network on its 716–722 or 722–728 MHz spectrum in the same geographic market, the 716–722 or 722–728 MHz bands licensee will work with the licensee with uplink operations in the 698–716 MHz band to identify sites that will require additional filtering, and will help the licensee operating in the 698–716 and 728–746 MHz bands to identify proper filters;

(ii) The 716–722 or 722–728 MHz bands licensee must permit licensees operating in the 698–716 and 728–746 MHz bands to collocate on the towers it owns at prevailing market rates; and

(iii) If a 698–716 and 728–746 MHz bands licensee deploys a network before a licensee in the 716–722 or 722–728 MHz bands deploys a network in the same geographic market, the 716–722 or 722–728 MHz bands licensee will work with licensees in the 698–716 and 728–746 MHz bands to identify sites that will need additional filtering and will purchase and pay for installation of required filters on such sites.

* * * * *

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