



6712-01

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 1, 2, 27 and 90

[PS Docket Nos. 12-94, 06-229, WT Docket No. 06-150; FCC 13-137]

Consolidated Service Rules for the 758-769 and 788-799 MHz Bands

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: The Federal Communications Commission (Commission) adopts a Second Report and Order that establishes consolidated service rules for the 758-769 and 788-799 MHz bands, the 700 MHz spectrum licensed to the First Responder Network Authority (FirstNet) for purposes of establishing a nationwide public safety broadband network. The Second Report and Order also lifts the suspension on the certification of equipment for operation in this band and directs the Office of Engineering and Technology to commence such certification, consistent with the service rules adopted therein.

DATES: Effective [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

FOR FURTHER INFORMATION CONTACT: Erika Olsen, Senior Legal Counsel, Public Safety and Homeland Security Bureau, (202) 418-2868 or erika.olsen@fcc.gov; Brian Hurley, Attorney Advisor, Public Safety and Homeland Security Bureau, (202) 418-2220 or brian.hurley@fcc.gov.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Second Report and Order, FCC 13-137; PS Docket Nos. 12-94, 06-229, WT Docket No. 06-150; adopted and released October 28, 2013. The full text of this document is available for public inspection during regular business hours in the FCC Reference Center, Room CY-A257, 445 12th Street SW, Washington, DC 20554, or online at <http://www.fcc.gov/document/700-mhz-public-safety-broadband-service-rules-report-and-order>. This document will also be available via ECFS at <http://fjallfoss.fcc.gov/ecfs/>. Documents will be available electronically in ASCII, Microsoft Word, and/or Adobe Acrobat. The complete text may be purchased from the Commission's copy contractor, 445 12th Street, SW, Room CY-B402, Washington, DC 20554. Alternative formats are available for people with disabilities (Braille, large print, electronic files, audio format), by sending an e-mail to fcc504@fcc.gov or calling the Commission's Consumer and

Governmental Affairs Bureau at (202) 418-0530 (voice), (202) 418-0432 (TTY).

PAPERWORK REDUCTION ACT OF 1995

This document contains no new or modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13.

I. INTRODUCTION

1. In the Second Report and Order (Second R&O) we adopt consolidated rules, primarily technical service rules, for the 758-769/788-799 MHz band, which is licensed to the First Responder Network Authority (FirstNet) on a nationwide basis. We also direct the Office of Engineering and Technology (OET) to accept and process applications for equipment certification in this band consistent with the newly consolidated rules. Our adoption of the Second R&O will further “facilitate the transition” of spectrum to FirstNet to enable its deployment of a nationwide public safety broadband network as prescribed by statute. We also focus on these technical matters in order to expedite the availability of equipment for use in this band, which will fulfill “the imminent need” FirstNet cites “for authorized equipment to meet the needs of jurisdictions that may deploy early” in its licensed spectrum.

2. The rules we adopt today will provide a necessary foundation for FirstNet’s operations and expedite the availability of equipment for use in this band. As noted below, in light of the urgent need to resume our process for certifying equipment for use in promoting more effective public safety operations in this band, and because that process cannot be resumed in the absence of governing technical service rules, we find good cause to make the Second R&O effective immediately upon publication in the Federal Register.

II. BACKGROUND

3. The Middle Class Tax Relief and Job Creation Act of 2012, enacted February 22, 2012, provides for the deployment of a nationwide public safety broadband network in the 700 MHz band. The Act established FirstNet as an independent authority within the National Telecommunications and Information Administration (NTIA), and required the Commission to grant a license to FirstNet for the use of both the existing public safety broadband spectrum (763-768/793-798 MHz) and the spectrally

adjacent D Block (758-763/788-793 MHz), a commercial spectrum block that the statute required the Commission to reallocate for public safety use. The Act charges FirstNet with the responsibility for establishing and overseeing “a nationwide, interoperable public safety broadband network” operated in this spectrum by taking “all actions necessary to ensure the building, deployment, and operation of the . . . network, in consultation with Federal, State, tribal, and local public safety entities, the Director of NIST, the Commission, and the public safety advisory committee [that section 6205 of the Act requires FirstNet to establish].” Among its more specific duties, FirstNet is responsible for issuing Requests for Proposals (RFPs) and entering into contracts for the construction, operation and management of the network on a nationwide basis, using funds allocated for these purposes under the Act.

4. The Act also established within the Commission a Technical Advisory Board for First Responder Interoperability (Interoperability Board) charged with the development of recommended minimum technical requirements to ensure nationwide interoperability for the public safety broadband network based on “commercial standards for Long Term Evolution (LTE) service.” On May 22, 2012, the Interoperability Board submitted its recommendations to the Commission, and on June 21, 2012, the Commission approved the transmittal of these recommendations to FirstNet. The Act requires FirstNet to incorporate the recommendations into its RFPs “without materially changing” them.

5. On September 7, 2012, the Public Safety and Homeland Security Bureau adopted, on delegated authority, a Report and Order implementing the clear statutory directive requiring the Commission to reallocate the D Block for “public safety services.” The Bureau also deleted a number of Commission rules that were plainly inconsistent with this revised allocation, including the rules establishing, providing license authority with respect to, and governing operations under the “Public Safety Broadband License” that had previously been established for the existing public safety broadband spectrum. On November 15, 2012, the Bureau granted FirstNet the license prescribed by statute, under call sign WQQE234.

6. The Commission released a Notice of Proposed Rulemaking (NPRM) on March 8, 2013, seeking comment on additional measures to implement its statutory responsibilities regarding deployment

of the public safety broadband network. The NPRM sought comment on the adoption of consolidated technical service rules for the network; on the exercise of the Commission's statutory responsibilities as they relate to oversight of FirstNet's operations; and on transition matters for the various classes of incumbent operations in the spectrum licensed to FirstNet. The Commission also sought comment on the scope of its authority as it relates to these proposals, particularly in light of the statutory delegation to FirstNet of the responsibility to develop "the technical and operational requirements of the network."

7. FirstNet filed comments on the NPRM on August 2, 2013, after the comment cycle had completed. While not addressing for the most part the substantive rules at issue, FirstNet urged the Commission to "act quickly to amend its technical service rules to enable FirstNet to expedite the deployment of [its network]." FirstNet also expressed support for "swift Commission action to begin accepting and processing equipment authorizations" in its licensed spectrum, particularly in light of imminent public safety network deployments planned therein. On August 28, the Public Safety and Homeland Security Bureau published a notice in the Federal Register providing an additional seven days for public comment on FirstNet's filing, 78 FR 53124, Aug. 28, 2013. The few comments received in response were supportive of these views.

III. SECOND REPORT AND ORDER

8. In the Second R&O, we adopt consolidated technical service rules to facilitate FirstNet's efforts in deploying a nationwide public safety broadband network in the 700 MHz band. The adoption of these rules will also enable the Commission to certify for operation in the spectrum licensed to FirstNet. This will expedite the availability of equipment for operation in this band, which FirstNet and numerous other commenters identify as an urgent priority given the near-term deployments planned in this spectrum.

9. In the NPRM we sought comment, including specific data and information, on the costs and benefits of each proposal set forth and of any potential alternatives to such proposals. The few commenters that addressed the potential costs associated with consolidating technical service rules under part 90 anticipate that such costs will be minimal. Such comments are unsurprising, given that the rules

proposed for consolidation are already codified in Commission rules and largely track the service rules that apply to commercial LTE services in neighboring bands. Accordingly, we proceed with the consolidation of technical rules based on the record before us.

A. Consolidating the Rules That Govern the Nationwide Public Safety Broadband Network

10. In the NPRM, the Commission observed that “rules governing 700 MHz commercial wireless spectrum, including the D Block, are codified primarily in part 27 (“Miscellaneous Wireless Communications Services”), while rules governing the existing public safety broadband spectrum generally fall under part 90.” The Commission proposed, as a general matter, to modify its rules so as to merge the requirements governing both band segments into a unified set of part 90 rules. FirstNet and many other commenters expressed support for this general approach, and none opposed it. Accordingly, in the Second R&O we adopt a unified set of part 90 rules to govern FirstNet’s licensed spectrum.

1. A Foundation of Technical Service Rules for the Network

11. We first consider the Commission’s proposed modifications to the part 27 technical service rules governing the D Block and parallel part 90 rules governing the public safety broadband spectrum (763-768/793-798 MHz). The Commission proposed such modifications to unify under a common set of rules a number of technical requirements, many of them substantively similar or identical to one another, that govern the two respective segments of FirstNet’s licensed spectrum. The Commission also sought comment on the merits of these technical requirements as applied to the combined spectrum allocation licensed to FirstNet. In this section, we consider each requirement in turn.

a. Power Limits

12. Power Limits. In the NPRM, the Commission proposed to modify § 90.542(a) of its rules to bring the D Block frequencies within its purview and to delete as redundant the parallel provisions of § 27.50(b). The Commission also sought comment on whether the power limits established in § 90.542(a) remain appropriate for the combined public safety broadband allocation, and on the relative costs and benefits of any proposed alternatives. In addition, the Commission sought comment on whether the

operational parameters of Long Term Evolution (LTE) technology call for the placement of more restrictive limits on the power output of portable (i.e., hand-held) devices operated in the public safety broadband allocation.

13. Comments. Most commenters that addressed the issue support maintaining the power and antenna height limits set forth in § 90.542(a) and extending the reach of this provision to the D Block. Harris supports this general approach, but argues that the rule’s reduced base station power limits for antennas above 305 meters in height above average terrain (HAAT) “may not reflect the economic realities of building out [the network] in rural areas” and that “[f]lexibility should be allowed for implementation of a cost effective network . . . but free of rules that may force higher site densities based on regulation rather than need.” To that end, Harris contends that “a single set of maximum power limits should be established and the licensee should be offered flexibility to determine specific operating parameters for each RF site” within these limits. Verizon opposes Harris’s proposal, observing that the rule “already allow[s] operations in rural areas at power levels that are twice that of higher density areas.” Verizon further argues that more restrictive power limits on transmissions from antennas above 305 meters HAAT should remain in place “to protect not only nearby commercial 700 MHz operations, but other FirstNet and narrowband public safety operations as well.”

14. A number of commenters also argue that the power limits currently in place for portable devices are consistent with the operational parameters of LTE and should not be restricted further. Motorola Solutions explains that the power limits established under § 90.542, unlike those specified by LTE standards, are expressed in terms of “effective radiated power” (ERP) and thus account for antenna gains and losses. Motorola Solutions further argues that the Commission should continue to permit “high gain/high powered operations” in this band, because “higher power LTE devices improve spectral efficiency and coverage range, especially in rural areas with large inter-site distances and low user density.” Meanwhile, General Dynamics contends that further restricting the permissible power output of hand-held devices operated in the public safety broadband allocation “would negate some manufacturers’ research and development investment-to-date” in higher-power LTE devices and “could greatly impact

ongoing system-level engineering trades for the emerging [network] being designed by the FirstNet.”

15. Discussion. As the Commission observed in the NPRM, power limits play an important role in minimizing the potential for radiofrequency (RF) transmissions to create harmful interference for operations in co-channel and adjacent spectrum bands. Identical power limits are already in place for the public safety broadband spectrum and D Block, and the majority of commenters support the consolidation of these existing requirements under § 90.542. Moreover, as AT&T observes, the proposed consolidated limits are those that already “apply to 700 MHz commercial wireless services,” which include LTE services. We thus find that the proposed limits are reasonable for FirstNet’s licensed spectrum, which will be used to deploy a nationwide LTE broadband network for first responders. Also, while recognizing the need to afford FirstNet flexibility to implement its network in a cost-effective manner, we decline to reformulate the rule as Harris proposes to sever the relationship between base station power limit and antenna height above average terrain. We first observe that FirstNet has not sought any modification of the restrictions currently in place, which are already calibrated to provide maximum flexibility to operators consistent with protecting both adjacent and co-channel operations from interference. We also note Verizon’s observation that the rules in place already provide for higher-power transmissions in rural areas, which should enable sites to be deployed less densely in areas where it may be particularly costly to build out the network. Accordingly, we consolidate the power limits for FirstNet’s licensed spectrum under § 90.542(a) as proposed. Moreover, as we find no support in the record for further restricting the permissible power output of hand-held devices operated in this spectrum to reflect the operational parameters of LTE technology, we will retain the 3 watt ERP limit the rule currently prescribes for hand-held (i.e., portable) devices.

16. Power Strength Limits (Power Flux Density). In the NPRM, the Commission proposed consolidating under § 90.542(b) of its rules the power flux density limits that govern the respective segments of FirstNet’s licensed spectrum. The Commission then sought comment on whether the limit set forth, namely 3000 microwatts per square meter ($\mu\text{w}/\text{m}^2$) on the ground within 1000 meters of the base of an antenna for any signal transmitted in excess of 1000 watts ERP, remains appropriate. Finally,

it sought comment on the costs and benefits of the proposed rule consolidation and of any possible alternatives.

17. Comments. Several commenters support the proposed consolidation of existing power flux density limits under § 90.542(b). One such commenter, Motorola Solutions, explains that “[i]n the 800 MHz band, the 3000 $\mu\text{w}/\text{m}^2$ limit has proven to be an effective compromise between service and interference prevention,” one that “does not prevent interference in all cases [but] is an effective standard to trigger the initiation of mitigation work.” Harris, on the other hand, argues that limiting the power flux density only of signals transmitted in excess of 1000 watts ERP “is counterproductive to minimizing harmful interference.” Harris explains that even lower ERP transmissions from a FirstNet base station could, “by a combined effect of the site antenna directivity and ERP,” produce a power flux density that is sufficient to create a serious potential for interference with public safety narrowband operations in the surrounding area. Harris explains that co-location of broadband and narrowband sites can mitigate this problem but that “site densities for LTE are expected to be higher necessitating the need for broadband-only sites.” Accordingly, Harris recommends extending rule to cover base station transmissions at any level of ERP.

18. Discussion. Power flux density limits help mitigate the potential for a base station’s transmissions to create interference for adjacent-band users in the immediate area. We agree with Motorola Solutions that the limits currently in place provide for interference mitigation without unduly constraining service. We further observe that no public safety narrowband licensee or other public safety commenter argued that the proposed PFD limits are insufficiently restrictive to protect narrowband or other operations from interference. We will therefore consolidate the existing PFD limits as proposed. In doing so, we acknowledge Harris’s argument that FirstNet’s placement and configuration of sites within its network may affect the probability that adjacent narrowband users may encounter harmful interference from its base station transmissions. We would expect that FirstNet will carefully coordinate its site deployments with adjacent narrowband licensees and adjust its operations as appropriate to mitigate any problems that may arise. The Commission may also consider adoption of a more restrictive PFD limit for

this spectrum in the future should circumstances warrant.

b. Emission Limits

19. In the NPRM the Commission sought comment on proposals to unify under § 90.543 of our rules the out-of-band emission (OOBE) limits that govern the public safety broadband spectrum allocation, as expanded to include the D Block. First, the Commission proposed consolidating into § 90.543(e) the provisions restricting emissions from the public safety broadband allocation into the adjacent 700 MHz public safety narrowband segment (769-775/799-805 MHz). It then proposed consolidating into § 90.543(f) the limits on emissions from the public safety broadband allocation into the 1559-1610 MHz band, which supports the operation of Global Positioning System (GPS) L1 receivers, and to retain the explicit language in § 90.543(f) that the rule applies to emissions “including harmonics.” Finally, it sought comment on whether limits codified in § 27.53(d)(3) on emissions from the D Block into frequencies below 758 MHz, between 775 and 788 MHz, and above 806 MHz should be extended to apply to the public safety broadband spectrum. For each of these proposals, the Commission also sought comment on any possible alternatives and on the respective costs and benefits of each.

20. Comments. All commenters that addressed this issue support retaining appropriate limits on emissions from the public safety broadband allocation into adjacent spectrum bands, and the majority of these commenters endorse the specific proposals issued in the NPRM.

21. A number of commenters emphasize the need for appropriate rules limiting emissions from the public safety broadband allocation into the adjacent narrowband spectrum. Motorola Solutions supports the proposed consolidation of the existing limits on such emissions, noting that it “strongly opposes any reduction in the protection afforded to public safety narrowband systems.” AT&T supports the proposed rule consolidation as one that would “apply to the national public safety broadband spectrum the same requirements applicable to commercial wireless service.” Harris argues that the protection of adjacent narrowband systems “require[s] special attention by the [C]ommission” given the incompatibility of broadband technologies with these systems, which are “used for existing critical communications.” Harris believes that the proposed limit on emissions into the narrowband spectrum

would not adequately protect these existing systems from interference from LTE operations.

Accordingly, it proposes a more robust set of protections under which limits on emissions into the narrowband spectrum would vary based on the nature (e.g., base vs. mobile) of both the transmitter and the receiver of the out-of-band signal.

22. With respect to the 1559-1610 MHz band, commenters acknowledge the importance of protecting GPS L1 receivers operated there from interference. General Dynamics states that the protection of GPS operations “is viewed with great importance,” while Motorola Solutions observes that “GPS is a critically important service to public safety as well as a wide range of consumer, enterprise and government applications.” While commenters generally support the proposed consolidation under § 90.543(f) of the existing rules limiting emissions from the public safety broadband allocation into the 1559-1610 MHz band, parties disagree on whether that provision should retain the phrase “including harmonics.” General Dynamics contends that this phrase “is necessary to ensure that the rules are unambiguous about restrictions that are placed on harmonics of intended transmissions” and that the cost impact of its inclusion would be “minimal.” Ericsson, on the other hand, contends that the provision in question would apply to harmonics emissions even in the absence of explicit wording to that effect, making such wording “not necessary.”

23. Finally, a number of commenters support the proposed extension to the public safety broadband spectrum of existing limits imposed on emissions from the D Block into neighboring commercial spectrum bands. General Dynamics observes that “public safety systems based on LTE technology will have to co-exist with commercial services operating in adjacent spectrum” and that adopting the proposed rule would merely “ensure consistency” with emission limitations already imposed on 700 MHz public safety narrowband operations. General Dynamics further contends that the proposed limits “are relatively straightforward to achieve by fixed, mobile and portable stations” and that adoption of the proposal thus “will not impose any additional cost on public safety station equipment.” AT&T also supports the proposal, observing that its adoption would harmonize the requirements applicable to this band with those that apply to 700 MHz commercial wireless services.

24. Discussion. Out-of-band emissions limits play a critical role in minimizing inter-band interference. As several commenters recognize, the limits established under § 90.543(e) have been calibrated to prevent public safety broadband operations from interfering with operations in the adjacent public safety narrowband spectrum. Moreover, while Harris explains that its alternative proposal “is based on 3GPP standard practice for evaluating co-location and co-existence of commercial deployments,” the rule as written is aligned with the rules applicable to 700 MHz commercial bands. We accordingly modify § 90.543(e) to include within its purview the D Block portion of FirstNet’s spectrum. In doing so, we emphasize that this provision merely establishes a baseline of protection, one which FirstNet may opt to strengthen as it moves forward with its deployment and engages in its required consultations with State and local governments. Accordingly, while we decline to adopt more stringent out-of-band emissions limits of the sort Harris proposes, we encourage FirstNet to work cooperatively with adjacent-channel narrowband licensees to ensure that their respective operations are adequately protected.

25. Section 90.543(f), which limits emissions from the public safety broadband spectrum into the 1559-1610 MHz band, protects critical GPS operations from interference. Accordingly, with the support of many commenters, we incorporate the D Block into this provision. We further observe that no commenters provided a compelling reason to delete the phrase “including harmonics” from this provision, while one argues that such deletion could create unnecessary ambiguity. We therefore retain the original wording of the part 90 provision.

26. Finally, we observe that many commenters support the Commission’s proposed adoption of a part 90 provision limiting emissions from the public safety broadband allocation into neighboring commercial spectrum bands, and none oppose the proposal. The adoption of this proposal would further align the technical service rules for this band with those established for commercial 700 MHz LTE operations. Moreover, the one commenter to address the cost implications of the proposal argues that it would create no cost burden. We accordingly adopt the proposal.

c. Field Strength Limits

27. In the NPRM, the Commission sought comment on whether a field strength limit should be established for the expanded public safety broadband allocation to limit interference between the FirstNet radio access network (RAN) and any State Networks deployed in the same band. The Commission then sought comment more specifically on whether to adopt for this band the field strength limit of 40 dBuV/M specified in § 27.55(a)(2) for 700 MHz commercial wireless spectrum, or whether an alternative limit would be more appropriate. The Commission also sought comment on the costs and benefits of the various options.

28. Comments. Commenters were divided on whether the Commission should adopt a field strength limit for FirstNet’s licensed spectrum. Motorola Solutions supports the adoption of the proposed 40 dBuV/M limit “[g]iven the likelihood that there will be more than one network operating in [this spectrum.]” However, it also notes that 40 dBuV/M represents a “relatively high” field strength limit that is “sufficient to cause interference,” so “deployments near service area boundaries [will] require licensee coordination.” AT&T contends that a field strength limit should be adopted “to mitigate the potential for harmful interference between the nationwide network and any State networks,” and it proposes adoption of the 40 dBuV/M limit already specified “for 700 MHz commercial wireless services” in § 27.55(a)(2). General Dynamics and TIA also support using the 40 dBuV/M limit set forth in § 27.55(a)(2).

29. Some commenters, however, oppose the Commission’s adoption of a field strength limit for FirstNet’s licensed spectrum. Harris contends that any State Networks deployed in this spectrum must “function logically [with FirstNet’s network] as a single RAN,” making field strength limits “not necessary for this spectrum.” Ericsson similarly argues that such limits are unnecessary given the expectation that FirstNet “will work in a cooperative way to ensure that harmful interference is not an issue through coordination and site engineering.” Alcatel-Lucent also opposes adoption of such a limit “at this time.”

30. Discussion. Although FirstNet is licensed on a nationwide basis, we acknowledge the importance of minimizing interference between the FirstNet network and any “State Network” deployed

in the same spectrum. The statutory scheme under which State Networks may be deployed, however, includes several provisions that serve to promote the operational integration of such networks with FirstNet's nationwide deployment. A State electing to deploy its own network must submit an interoperability plan for the Commission's approval; apply to NTIA to lease spectrum capacity from FirstNet upon demonstrating that will have the technical capabilities to operate its network, have the ability to maintain ongoing interoperability with FirstNet, and provide a comparable quality of service; and pay any user fees associated with its use of FirstNet's core network. These provisions, among others, already contemplate a significant amount of advance coordination of State Network operations with those of FirstNet. We therefore do not find it necessary at this time to adopt a field strength limit for RANs operated in FirstNet's licensed spectrum.

d. Interference Coordination

31. The Commission sought comment in the NPRM on whether FirstNet or other broadband operators in its licensed spectrum should be required to engage in interference coordination of some kind, either with 700 MHz commercial licensees or with incumbent public safety narrowband licensees.

32. Comments. While several commenters acknowledge the importance of protecting co-channel and spectrally adjacent operations from mutual interference, many oppose the adoption of formal requirements for FirstNet or other public safety broadband operators to coordinate with either 700 MHz commercial or incumbent public safety narrowband licensees. APCO "cautions the Commission to refrain from adopting any unnecessary procedures or requirements that would have the effect of introducing additional complexity on network planning with little or no corresponding benefit." Motorola Solutions raises similar concerns and suggests that interference coordination procedures be "implemented as a design guideline" rather than a binding rule. Ericsson meanwhile suggests that, while the Commission "is wise to consider coordinating interference issues" between incumbent narrowband operators and FirstNet, these two constituencies are "highly motivated" to coordinate with one another even in the absence of any formal requirements. AT&T also opposes the adoption of formal coordination requirements but recommends that the Commission adopt for the public safety broadband allocation the informal

coordination procedures codified for commercial operations under § 27.64.

33. Alone among commenters, the Commonwealth of Virginia (Virginia) argues “that coordination requirements must be put in place to protect incumbent narrowband operations” such as its own. In support of its position, Virginia explains that its network “has already experienced harmful interference from the testing of a 700 MHz LTE system in Virginia by a manufacturer,” an outcome it deems “unacceptable for public safety communications.”

34. Discussion. We agree with commenters that assert the importance of coordination among spectrally and geographically adjacent network operators to protect against mutual interference. At the same time, we observe once again that the statute creating FirstNet imposes on it a number of consultative obligations, including obligations to consult with state and local governments as it designs and implements its network. In addition, FirstNet’s desire to attract public safety customers and potential commercial partners is likely to create incentives for additional coordination beyond what is statutorily required, which are different in kind and degree from those of a manufacturer conducting tests. Accordingly, we do not find it necessary at this time to adopt any formal requirements that FirstNet coordinate its operations with either incumbent narrowband or 700 MHz commercial operators. We will continue, however, to exercise our spectrum management and licensing responsibilities as necessary to ensure that properly authorized radio communications are protected from harmful interference, and we encourage all parties to work together to minimize the potential for interference.

e. International Considerations

35. In the NPRM, the Commission proposed to remove the D Block from the reach of § 27.57(b) and place it within the purview of § 90.533, which sets forth substantively identical requirements concerning international coordination. Ericsson and General Dynamics, the only parties to address the issue, support this proposed rule consolidation. Accordingly, we adopt the proposal.

f. 700 MHz Public Safety Guard Band

36. In the NPRM, the Commission observed that FirstNet’s license includes the 768-769/798-799 MHz band, which is designated as a guard band under Commission rules to minimize the potential for

interference between the broadband and narrowband segments of the 700 MHz public safety band. Observing that the transfer of the broadband spectrum to FirstNet does nothing to mitigate these concerns, the Commission proposed to maintain the designation of this spectrum as a guard band and keep in place all associated restrictions on its use. The Commission sought comment on this proposal, and on whether the possibility of broadband operations eventually being permitted in the narrowband segment should have any impact on this analysis.

37. Comments. A number of commenters support preserving the designation of the 768-769/798-799 MHz band as a guard band, at least during the early stages of public safety broadband network development. FirstNet recommends that “[a]t this time” the Commission “enable the guard band to continue serving as a ‘buffer’ between public safety broadband and narrowband spectrum.” Harris agrees and further argues that “the existing expanded public safety broadband allocation should be deployed and subsequent evaluation of real-world harmful interference should be evaluated before the guard band is allowed to be used.” Motorola Solutions similarly contends that “[t]he interference concerns that led to the establishment of the guard band have not been mitigated” and that “[t]he Commission should take no actions with respect to the guard band that would jeopardize the continued interference-free availability of the public safety narrowband spectrum.” The Commonwealth of Virginia also asserts that “a continued guard band is a necessity.”

38. Some commenters, however, suggest that this spectrum could be suitable for limited use, if only within specified parameters. Motorola Solutions envisions use of the band for “localized public safety applications” including “low power mobile/portable applications that would enhance public safety communications while posing little risk of interference to adjacent band systems.” NPSTC meanwhile argues that designating this spectrum as a “home” for narrowband vehicular repeaters currently operated in the public safety broadband spectrum could serve as a cost-effective strategy for managing the relocation of these operations. FirstNet also cautions that “[its] plans could necessitate a change in the status of the public safety guard bands” to accommodate some operations therein.

39. Finally, a few commenters contend that FirstNet should retain control over the operational

parameters of all spectrum licensed to it, including the 768-769/798-799 MHz band. APCO argues that FirstNet’s statutory responsibilities “extend to the guard bands” and that the Commission should accordingly “remove the existing guard band restrictions and instead leave to FirstNet’s discretion as to how to address any potential interference issues.” Similarly, Ericsson “supports allowing FirstNet discretion on its use as long as these bands function as guard bands to protect narrowband operations.”

40. Discussion. As an initial matter, we observe that the Commission holds authority to adopt regulations aimed at preventing public safety broadband network operations from creating interference for users in adjacent bands. The operational restrictions that currently attach to the 768-769 and 798-799 MHz “guard band” were adopted to mitigate interference between users in the broadband and narrowband segments of the public safety band, and no commenter has challenged the Commission’s observation that these underlying concerns remain valid. In addition, FirstNet itself recommends that the band “continue serving as a ‘buffer’” between these bands, at least in the near term. Accordingly, we will maintain the guard band restrictions currently in place for the 768-769 and 798-799 MHz band. In a future proceeding we may consider relaxing these restrictions to accommodate some operations in this band, such as those commenters contemplate, but such matters are not yet ripe for consideration at this early stage of network development.

g. Equipment Certification

41. In the NPRM, the Commission proposed consolidating under § 90.549 of its rules the requirements governing certification of equipment for operation in FirstNet’s licensed spectrum. The Commission further observed that, under this approach, such certification would be subject to consolidated technical rules that had themselves yet to be adopted. Accordingly, it suspended OET’s acceptance and processing of applications for equipment certification in FirstNet’s licensed spectrum pending the adoption of the necessary technical rules. In addition, it sought comment on whether to adopt certification requirements specific to this band that would augment the basic certification requirements already codified under § 90.549. Finally, it proposed removing from its rules a legacy provision, § 90.203(p), that required applicants for equipment certification in the public safety broadband spectrum to

demonstrate support for LTE interfaces that public safety operators had been required to implement under rules no longer in force.

42. Comments. In general, commenters support the specific proposals regarding equipment certification set forth in the NPRM. Those commenters that addressed these matters support the proposed consolidation of requirements under § 90.549 and the proposed deletion of § 90.203(p). With respect to the proposed rule consolidation, General Dynamics further observes that “[t]he inclusion of the D Block frequency in this section will have the benefit of eliminating duplicative certification processes, thereby reducing cost.”

43. As noted earlier, a substantial number of commenters, including FirstNet, contend that urgent Commission action is necessary to ensure that equipment is made available for operations in FirstNet’s licensed spectrum on an expedited basis. FirstNet explains that “there is an imminent need for authorized equipment to meet the needs of jurisdictions that may deploy early” in its licensed spectrum under lease agreements. Motorola Solutions similarly notes that “[t]here is already a demand” for authorized equipment “that will increase as FirstNet progresses towards deployment of the nationwide public safety broadband network,” and that “[t]he halt in equipment authorizations is impacting product development schedules for devices being designed to meet this demand.” Ericsson further argues that “delays in certifying equipment hampe[r] the access to new and potentially life-saving technologies by the public safety community.” Some commenters, including APCO and Harris, offer proposals for expediting the availability of equipment for use in this band prior to the adoption of technical service rules. APCO recommends “issuance of an earlier order that focuses on [equipment certification] to avoid further interruptions in the development of equipment necessary for [network] operations.” Harris, meanwhile, recommends that the Commission permit equipment with existing certifications already granted under the provisions of its 2010 waiver order, and equipment subsequently certified to be compliant with that order’s technical requirements, to be authorized for use by early adopter networks while the Commission continues to develop technical service rules to permit the certification of equipment. Harris clarifies, however, that all equipment operated in the band should be subject to the rules ultimately adopted “to

ensure interoperability and [a] multi-vendor environment.”

44. A few commenters also urge the Commission to refrain from adopting any band-specific requirements that would augment the more basic requirements for equipment certification established under § 90.549. On this point, Motorola Solutions observes that “[s]imilar to any commercial system operator, FirstNet has the right to impose additional requirements on equipment vendors to support specified features, protocols and applications” and that “[s]ubjecting future enhancements and refinements to the Commission’s rulemaking process would add unnecessary delay to providing public safety with devices that have the latest features and functionality.”

45. Discussion. Our adoption in the Second R&O of consolidated public safety broadband technical service rules sets the stage for equipment certifications to commence in this band. Commenters widely support the Commission’s proposal to unify the equipment certification requirements for this band under § 90.549, without further modification. We accordingly consolidate this rule as proposed and direct the Office of Engineering and Technology to certify equipment in this band consistent with the technical rules adopted in the Second R&O, as soon as these rules become effective. We also delete § 90.203(p) as proposed in the NPRM.

46. Moreover, as explained in more detail below, we will make the Second R&O effective **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Such action will expedite the Commission’s ability to process applications for equipment certification under the newly consolidated rules, thereby obviating the need for adoption of interim measures such as those APCO and Harris propose.

h. Miscellaneous Proposals From the Comment Record

47. AT&T’s Proposed Rule on Adherence to Commercial Standards. AT&T proposes that, in addition to consolidating existing technical rules under part 90, the Commission should adopt “a catch-all rule to ensure that the public safety broadband network operates in accordance with ‘commercial standards’ as defined [by statute].” Motorola Solutions opposes the adoption of such a rule, arguing that it “may hinder FirstNet’s ability to promote the development and use of public safety applications and

devices that do not conform precisely to commercial standards.”

48. AT&T concedes that many of the specific technical rules proposed in the NPRM align with requirements applicable to commercial spectrum bands, but it asserts that its proposed rule “would serve to fill any unintended gaps in the other rules, provide important context for construing any ambiguities in the other rules, and plainly place the Commission in step with the mission of other governments entities charged with implementing [the statute].” The rule it proposes, however, largely recites general principles set forth by statute and, as such, would not appear to place any affirmative restriction on the conduct of FirstNet or any other entity in deploying and operating the network. Any such restriction the rule might impose, on the other hand, may exceed the scope of the NPRM, which did not expressly seek comment on proposals to implement the statutory requirement that FirstNet base its network on “commercial standards,” or on how this requirement of the Spectrum Act should be construed in this context. We thus decline to adopt AT&T’s proposal.

49. Harris’s Proposed Regulatory Classification of LTE Base Stations. Harris proposes that the Commission’s public safety broadband service rules “establish distinct definitions and rules for different types of base stations . . . in a manner consistent with 3GPP definitions and technical specifications.” In particular, Harris recommends the adoption of distinct transmitter power and minimum coupling loss (MCL) restrictions for “Wide area,” “Medium area,” “Local area,” and “Home” base stations, at levels defined by the LTE standard. Specialized requirements for various base station classes are necessary, Harris asserts, “to ensure that minimum technical requirements are placed on each of the classes while minimizing cost and harmful interference potential.”

50. The technical rules we are establishing for FirstNet’s licensed spectrum include power limits and other technical requirements aimed at mitigating the interference potential of operations in FirstNet’s licensed spectrum. These protections are well-established and enjoy broad record support, and, as some commenters have observed, they are generally aligned with the technical service rules that apply to 700 MHz commercial LTE services. We do not find that Harris has made the case for codifying a distinct and potentially conflicting set of rules for FirstNet’s licensed spectrum based directly on LTE design

specifications, which themselves may evolve over time. Accordingly, we decline to adopt Harris's proposal.

2. Further Rule Consolidations

51. In addition to its proposed consolidation of technical service rules, the Commission proposed additional minor rule revisions necessary to remove the D Block from the reach of part 27 and place it within the purview of part 90. The only commenters to address these proposed revisions support them. We accordingly adopt the proposals. We also requested comment more generally on "the development of a unified set of rules for the expanded public safety broadband allocation," and Motorola Solutions identified for revision two additional "non-substantive" part 27 references to the D Block. We agree that these changes to reflect the new statutory mandate with respect to the D Block are purely ministerial, and we adopt such revisions as well.

52. The Commission also proposed minor revisions to §§ 2.103, 90.179 and 90.523 of its rules to omit references to the defunct Public Safety Broadband Licensee. The few commenters that addressed any of these proposed revisions support them. We accordingly adopt these proposals as well.

PROCEDURAL MATTERS

A. Final Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act (RFA), the Commission has prepared this Final Regulatory Flexibility Analysis (FRFA) of the possible significant economic impact on small entities of rules adopted in the Second R&O in PS Docket No. 12-94. The Commission sought comment on such impact in an Initial Regulatory Flexibility Analysis (IRFA) prepared in connection with the NPRM in which the rules were proposed. No commenters directly responded to the IRFA.

B. Need for, and Objectives of, the Proposed Rules

2. In the Second R&O, the Commission adopts a unified set of technical service rules for the spectrum licensed to the First Responder Network Authority (FirstNet) for purposes of establishing a nationwide 700 MHz public safety broadband network. This unification primarily involves merging into part 90 of the Commission's rules a number of technical requirements that had been codified separately in

parts 27 and 90 for the two respective segments of FirstNet’s licensed spectrum, the “public safety broadband spectrum” (763-768/793-798 MHz) and the “D Block” (758-763/788-793 MHz). Such action will further “facilitate[s] the transition” of spectrum to FirstNet for its use in establishing a nationwide wireless broadband communications network for our Nation’s first responders. In particular, the adoption of consolidated rules for FirstNet’s licensed spectrum will enable the Commission to start certifying equipment for operation in this spectrum under the technical rules established for the combined band.

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

3. No commenters directly responded to the IRFA. A number of commenters expressed support in general for the consolidation of technical rules that we effect in the Second R&O. Also, no commenters expressed the view that such consolidation of rules would have a significant economic impact on a substantial number of small entities.

D. Description and Estimate of the Number of Small Entities To Which the Proposed Rules Will Apply

4. 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”). Below, we further describe and estimate the number of small entity licensees and regulatees that may be affected by the rules changes we propose in the NPRM.

5. Small Businesses, Small Organizations, and Small Governmental Jurisdictions. Our action may, over time, affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three comprehensive, statutory small entity size standards. First, nationwide, there are a total of approximately 27.5 million small businesses, according to the SBA. In addition, a “small

organization” is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.” 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, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.” Census Bureau data for 2011 indicate that there were 89,476 local governmental jurisdictions in the United States. We estimate that, of this total, as many as 88,506 entities may qualify as “small governmental jurisdictions.” Thus, we estimate that most governmental jurisdictions are small.

6. Public Safety Radio Licensees. As a general matter, Public Safety Radio Pool licensees include police, fire, local government, forestry conservation, highway maintenance, and emergency medical services. Because of the vast array of public safety licensees, the Commission has not developed a small business size standard specifically applicable to public safety licensees. The SBA rules contain a definition for Wireless Telecommunications Carriers (except Satellite) which encompasses business entities engaged in radiotelephone communications employing no more than 1,500 persons. With respect to local governments, in particular, since many governmental entities comprise the licensees for these services, we include under public safety services the number of government entities affected. According to Commission records, there are a total of approximately 133,870 licenses within these services. There are 2,442 licenses in the 4.9 GHz band, based on an FCC Universal Licensing System search of May 23, 2012. We estimate that fewer than 2,442 public safety radio licensees hold these licenses because certain entities may have multiple licenses.

7. We observe, however, that “small governmental jurisdictions”—regardless of their status as Public Safety Radio Pool licensees—are ineligible to hold direct Commission authorizations to operate in the spectrum licensed to FirstNet. By statute, FirstNet is charged with constructing, operating and maintaining public safety broadband network in this spectrum on a nationwide basis, under a nationwide license. Accordingly, we do not believe the technical service rules adopted in the Second R&O to govern operations in this spectrum will directly affect a substantial number of small entities, and that it is thus unnecessary to prepare a regulatory flexibility analysis in connection with these requirements.

Nevertheless, to the extent such rules could be construed as having a direct effect on a substantial number of small entities, we estimate that the economic impact on any entity would be minimal. This is because the rules adopted in the Second R&O largely involve unifying under a single set of part 90 provisions a number of already existing technical requirements that had been codified in disparate rule sections.

8. The Second R&O does, however, establish rules governing equipment certification, which would apply directly to equipment manufacturers or other entities seeking to certify equipment for use in FirstNet's licensed spectrum. The SBA category that includes such entities is that of "Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing," which the Census Bureau defines as follows: "This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment." The SBA has developed a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, which is: all such firms having 750 or fewer employees. According to Census Bureau data for 2007, there were a total of 939 establishments in this category that operated for part or all of the entire year. According to Census bureau data for 2007, there were a total of 919 firms in this category that operated for the entire year. Of this total, 771 had less than 100 employees and 148 had more than 100 employees. Thus, under that size standard, the majority of firms can be considered small.

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

9. The technical service rules adopted in the Second R&O largely involve consolidating a number of parallel part 27 and part 90 rules within the latter rule part, so as to subject FirstNet's licensed spectrum to a unified set of rules. Because FirstNet is the nationwide licensee in this spectrum, it will be primarily responsible on a nationwide basis for complying with any such requirements that are ultimately adopted. Accordingly, as discussed, we do not believe that these requirements would have a significant

economic impact on a substantial number of small entities.

10. The Second R&O also establishes certification requirements for equipment operated in the combined public safety broadband spectrum and directs the Commission's Office of Engineering and Technology (OET) to process certifications under the newly consolidated rules. These certification requirements will be applicable to entities, such as equipment manufacturers, seeking to certify equipment for operation in this spectrum. However, as we observed in the IRFA, equipment certification is a longstanding Commission practice, widely applicable to equipment marketed for operation in radiospectrum licensed by the Commission. As the Commission further anticipated in the IRFA, the equipment certification rules adopted in the Second R&O do not depart significantly from current practice in this area. Indeed, the rules merely consolidate equipment certification requirements already applicable to the two respective segments of FirstNet's licensed spectrum. We do not believe that such consolidation would have a significant economic impact on a substantial number of small entities.

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

11. The RFA requires an agency to describe any significant alternatives that it has considered in developing its approach, which may include the following four alternatives (among others): “(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities.”

12. As previously discussed, the rules adopted in the Second R&O already involve the “consolidation” of existing requirements into a unified set of part 90 provisions. We believe that such action will help facilitate the efforts in deploying the network, and there is no reason to believe that such rule consolidation would impose a significant economic impact on small entities.

13. We also do not believe it would be tenable to establish differing requirements for small

entities or to exempt such entities from rules adopted in the Second R&O, including rules governing equipment certification. Given the importance of ensuring that the public safety broadband network is technically and operationally viable on a nationwide basis, it is important that the network be governed by a common set of rules and requirements and that all equipment operated in the network be subject to common certification procedures.

G. Federal Rules that May Duplicate, Overlap, or Conflict With the Proposed Rule

14. None.

Effective Date

Section 553 of the Administrative Procedure Act generally requires publication of a rule in the Federal Register at least thirty days before it goes into effect, but not when an agency otherwise finds and publishes “good cause” for an earlier effective date. We believe there is good cause for making such rules effective immediately upon publication. As noted above, in our NPRM we suspended OET’s acceptance and processing of applications for equipment certification in this band pending the adoption of the foregoing technical rules against which to evaluate such equipment. With several near-term deployments now planned in FirstNet’s licensed spectrum, some under lease agreements that have already been executed, it is essential that the Commission commence its equipment certification process for this band as soon as possible, particularly in light of the clear public safety benefits resulting from such proposed deployments. Because the rules we adopt in the Second R&O will provide the foundation for this certification process, expediting their effective date is necessary to prevent delay in the availability of equipment for operation in FirstNet’s licensed spectrum. We will therefore make the Second Report and Order effective **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

Congressional Review Act

The Bureau will 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).

List of Subjects

47 CFR Part 1

Administrative practice and procedure, Civil rights, Claims, Communications common carriers, Cuba, Drug abuse, Environmental impact statements, Equal access to justice, Equal employment opportunity, Federal buildings and facilities, Government employees, Income taxes, Indemnity payments, Individuals with disabilities, Investigations, Lawyers, Metric system, Penalties, Radio, Reporting and recordkeeping requirements, Satellites, Telecommunications, Television, Wages.

47 CFR Part 2

Communications equipment, Disaster assistance, Imports, Radio, Reporting and recordkeeping requirements, Telecommunications, Television, Wiretapping and electronic surveillance.

47 CFR Part 27

Communications common carriers, Radio.

47 CFR Part 90

Administrative practice and procedure, Business and industry, Civil defense, Common carriers, Communications equipment, Emergency medical services, Individuals with disabilities, Radio, Reporting and recordkeeping requirements.

FEDERAL COMMUNICATIONS COMMISSION.

Marlene H. Dortch,
Secretary.

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR parts 1, 2, 27 and 90 as follows:

PART 1 – PRACTICE AND PROCEDURE

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

Authority: 15 U.S.C. 79 et seq.; 47 U.S.C. 151, 154(i), 154(j), 155, 157, 225, 227, 303(r), 309, 1403, 1404, and 1451.

2. Section 1.9005 is amended by revising paragraph (k) to read as follows:

§ 1.9005 Included services.

* * * * *

(k) The Wireless Communications Service in the 746 – 758 MHz, 775 – 788 MHz, and 805 – 806 MHz bands (part 27 of this chapter);

* * * * *

PART 2 – FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

3. The authority citation for part 2 continues to read as follows:

Authority: 47 U.S.C. 154, 302(a), 303, and 336, unless otherwise noted.

4. Section 2.103 is amended by revising paragraph (a) introductory text and paragraph (c) to read as follows:

§ 2.103 Federal use of non-Federal frequencies.

(a) Federal stations may be authorized to use non-Federal frequencies in the bands above 25 MHz (except the 758-775 MHz and 788-805 MHz public safety bands) if the Commission finds that such use is necessary for coordination of Federal and non-Federal activities: Provided, however, that:

* * * * *

(c) Federal stations may be authorized by the First Responder Network Authority to use channels in the 758-769 MHz and 788-799 MHz public safety bands.

PART 27 – MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

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

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

6. Section 27.6 is amended by revising paragraph (b) introductory text and removing paragraph (b)(3) to read as follows:

§ 27.6 Service areas.

* * * * *

(b) 746–758 MHz, 775–788 MHz, and 805-806 MHz bands. WCS service areas for the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands are as follows.

* * * * *

7. Section 27.11 is amended by revising paragraph (c) introductory text and removing paragraph (c)(4) to read as follows:

§ 27.11 Initial authorization.

* * * * *

(c) 746–758 MHz, 775–788 MHz, and 805-806 MHz bands. Initial authorizations for the 746–758 MHz, 775–788 MHz, and 805-806 MHz bands shall be for paired channels of 1, 5, 6, or 11 megahertz of spectrum in accordance with § 27.5(b).

* * * * *

8. Section 27.13 is amended by revising the first sentence in paragraph (b) to read as follows:

§ 27.13 License period.

* * * * *

(b) 698-758 MHz, 776-788, 775-776, and 805-806 MHz bands. Initial authorizations for the 698-758 MHz and 776-788 MHz bands will extend for a term not to exceed ten years from June 13, 2009, except that initial authorizations for a part 27 licensee that provides broadcast services, whether exclusively or in combination with other services, will not exceed eight years. * * *

* * * * *

9. Section 27.14 is amended by revising the first sentence in paragraph (a) and the first sentence in paragraph (e), and removing and reserving paragraphs (m) and (n), to read as follows:

§ 27.14 Construction requirements; Criteria for renewal.

(a) AWS and WCS licensees, with the exception of WCS licensees holding authorizations for Block A in the 698-704 MHz and 728-734 MHz bands, Block B in the 704-710 MHz and 734-740 MHz bands, Block E in the 722-728 MHz band, Block C, C1 or C2 in the 746-757 MHz and 776-787 MHz bands, Block A in the 2305-2310 MHz and 2350-2355 MHz bands, Block B in the 2310-2315 MHz and 2355-2360 MHz bands, Block C in the 2315-2320 MHz band, and Block D in the 2345-2350 MHz band, and with the exception of licensees holding AWS authorizations in the 1915-1920 MHz and 1995-2000 MHz bands or the 2000-2020 MHz and 2180-2200 MHz bands, must, as a performance requirement, make a showing of "substantial service" in their license area within the prescribed license term set forth in § 27.13. * * *

* * * * *

(e) Comparative renewal proceedings do not apply to WCS licensees holding authorizations for Block A in the 698-704 MHz and 728-734 MHz bands, Block B in the 704-710 MHz and 734-740 MHz bands, Block C in the 710-716 MHz and 740-746 MHz bands, Block D in the 716-722 MHz band, Block E in the 722-728 MHz band, or Block C, C1 or C2 in the 746-757 MHz and 776-787 MHz bands. * * *

* * * * *

10. Section 27.15 is amended by revising the first sentence in paragraphs (d)(1)(i) and (d)(2)(i) to read as follows:

§ 27.15 Geographic partitioning and spectrum disaggregation.

* * * * *

(d) * * *

(1) * * *

(i) Except for WCS licensees holding authorizations for Block A in the 698-704 MHz and 728-734 MHz bands, Block B in the 704-710 MHz and 734-740 MHz bands, Block E in the 722-728 MHz band, or

Blocks C, C1, and C2 in the 746-757 MHz and 776-787 MHz bands; and for licensees holding AWS authorizations in the 1915-1920 MHz and 1995-2000 MHz bands or the 2000-2020 MHz and 2180-2200 MHz bands; the following rules apply to WCS and AWS licensees holding authorizations for purposes of implementing the construction requirements set forth in § 27.14. * * *

* * * * *

(2) * * *

(i) Except for WCS licensees holding authorizations for Block A in the 698-704 MHz and 728-734 MHz bands, Block B in the 704-710 MHz and 734-740 MHz bands, Block E in the 722-728 MHz band, or Blocks C, C1, and C2 in the 746-757 MHz and 776-787 MHz bands; and for licensees holding AWS authorizations in the 1915-1920 MHz and 1995-2000 MHz bands or the 2000-2020 MHz and 2180-2200 MHz bands; the following rules apply to WCS and AWS licensees holding authorizations for purposes of implementing the construction requirements set forth in § 27.14. * * *

* * * * *

11. Section 27.20 is amended by revising paragraph (a) to read as follows:

§ 27.20 Digital television transition education reports.

(a) The requirements of this section shall apply only with regard to WCS license authorizations in Block A in the 698-704 MHz and 728-734 MHz bands, Block B in the 704-710 MHz and 734-740 MHz bands, Block E in the 722-728 MHz band, and Block C, C1 or C2 in the 746-757 MHz and 776-787 MHz bands.

* * * * *

12. Section 27.50 is amended by revising paragraph (b) introductory text, paragraphs (b)(2) through (b)(6), (b)(7) introductory text, (b)(7)(i), (b)(8) through (b)(10), (b)(12), (c)(5)(i), and the headings to Table 1 through Table 4 below paragraph (i) to read as follows:

§ 27.50 Power limits and duty cycle.

* * * * *

(b) The following power and antenna height limits apply to transmitters operating in the 746-758 MHz, 775-788 MHz and 805-806 MHz bands:

* * * * *

(2) Fixed and base stations transmitting a signal in the 746-757 MHz and 776-787 MHz bands with an emission bandwidth of 1 MHz or less must not exceed an ERP of 1000 watts and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts ERP in accordance with Table 1 of this section.

(3) Fixed and base stations located in a county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, and transmitting a signal in the 746-757 MHz and 776-787 MHz bands with an emission bandwidth of 1 MHz or less must not exceed an ERP of 2000 watts and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 2000 watts ERP in accordance with Table 2 of this section.

(4) Fixed and base stations transmitting a signal in the 746-757 MHz and 776-787 MHz bands with an emission bandwidth greater than 1 MHz must not exceed an ERP of 1000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP in accordance with Table 3 of this section.

(5) Fixed and base stations located in a county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, and transmitting a signal in the 746-757 MHz and 776-787 MHz bands with an emission bandwidth greater than 1 MHz must not exceed an ERP of 2000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 2000 watts/MHz ERP in accordance with Table 4 of this section.

(6) Licensees of fixed or base stations transmitting a signal in the 746-757 MHz and 776-787 MHz bands at an ERP greater than 1000 watts must comply with the provisions set forth in paragraph (b)(8) of this section and § 27.55(c).

(7) Licensees seeking to operate a fixed or base station located in a county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the

Bureau of the Census, and transmitting a signal in the 746-757 MHz and 776-787 MHz bands at an ERP greater than 1000 watts must:

(i) Coordinate in advance with all licensees authorized to operate in the 698-758 MHz, 775-788, and 805-806 MHz bands within 120 kilometers (75 miles) of the base or fixed station;

* * * * *

(8) Licensees authorized to transmit in the 746-757 MHz and 776-787 MHz bands and intending to operate a base or fixed station at a power level permitted under the provisions of paragraph (b)(6) of this section must provide advanced notice of such operation to the Commission and to licensees authorized in their area of operation. Licensees who must be notified are all licensees authorized to operate in the 758-775 MHz and 788-805 MHz bands under part 90 of this chapter within 75 km of the base or fixed station and all regional planning committees, as identified in §90.527 of this chapter, with jurisdiction within 75 km of the base or fixed station. Notifications must provide the location and operating parameters of the base or fixed station, including the station's ERP, antenna coordinates, antenna height above ground, and vertical antenna pattern, and such notifications must be provided at least 90 days prior to the commencement of station operation.

(9) Control stations and mobile stations transmitting in the 746–757 MHz, 776–788 MHz, and 805-806 MHz bands and fixed stations transmitting in the 787–788 MHz and 805-806 MHz bands are limited to 30 watts ERP.

(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 776–788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

* * * * *

(12) For transmissions in the 746-757 and 776-787 MHz bands, licensees may employ equipment operating in compliance with either the measurement techniques described in paragraph (b)(11) of this section or a Commission-approved average power technique. In both instances, equipment employed must be authorized in accordance with the provisions of § 27.51.

(c) * * *

(5) * * *

(i) Coordinate in advance with all licensees authorized to operate in the 698-758 MHz, 775-788, and 805-806 MHz bands within 120 kilometers (75 miles) of the base or fixed station;

* * * * *

(i) * * *

Table 1 - Permissible Power and Antenna Heights for Base and Fixed Stations in the 757-758 and 775-776 MHz Bands and for Base and Fixed Stations in the 698-757 MHz and 776-787 MHz Bands Transmitting a Signal with an Emission Bandwidth of 1 MHz or Less	
* * * *	* * *

Table 2 – Permissible Power and Antenna Heights for Base and Fixed Stations in the 698-757 MHz and 776-787 MHz Bands Transmitting a Signal with an Emission Bandwidth of 1 MHz or Less	
* * * *	* * *

Table 3 – Permissible Power and Antenna Heights for Base and Fixed Stations in the 698-757 MHz and 776-787 MHz Bands Transmitting a Signal with an Emission Bandwidth Greater than 1 MHz	
* * * *	* * *

Table 4 – Permissible Power and Antenna Heights for Base and Fixed Stations in the 698-757 MHz and 776-787 MHz Bands Transmitting a Signal with an Emission Bandwidth Greater than 1 MHz	
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13. Section 27.53 is amended by removing paragraph (d), redesignating paragraphs (e) through (n) as paragraphs (d) through (m), and revising newly redesignated paragraphs (d) introductory text, (d)(1), (d)(2) and (e) to read as follows:

§ 27.53 Emission limits.

* * * * *

(d) For operations in the 775–776 MHz and 805–806 MHz bands, transmitters must comply with either paragraphs (d)(1) through (5) of this section or the ACP emission limitations set forth in paragraphs (d)(6) to (d)(9) of this section.

(1) On all frequencies between 758-775 MHz and 788-805 MHz, the power of any emission outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by a factor not less than $76 + 10 \log (P)$ dB in a 6.25 kHz band segment, for base and fixed stations;

(2) On all frequencies between 758-775 MHz and 788-805 MHz, the power of any emission outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;

* * * * *

(e) For operations in the 746–758 MHz, 775–788 MHz, and 805-806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to –70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and –80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

* * * * *

14. Section 27.55 is amended by revising paragraph (c) to read as follows:

§ 27.55 Power strength limits.

* * * * *

(c) Power flux density limit for stations operating in the 746-757 MHz and 776-787 MHz bands. For base and fixed stations operating in the 746-757 MHz and 776-787 MHz bands in accordance with the provisions of § 27.50(b)(6), the power flux density that would be produced by such stations through a combination of antenna height and vertical gain pattern must not exceed 3000 microwatts per square meter on the ground over the area extending to 1 km from the base of the antenna mounting structure.

15. Section 27.57 is amended by revising paragraph (b) to read as follows:

§ 27.57 International coordination.

* * * * *

(b) Operation in the 698–758 MHz, 775–788 MHz, and 805-806 MHz bands is subject to international agreements between Mexico and Canada. Unless otherwise modified by international treaty, licenses must not cause interference to, and must accept harmful interference from, television broadcast operations in Mexico and Canada.

* * * * *

16. Section 27.60 is amended by revising the introductory text, paragraph (a)(1)(iii), the second sentence in paragraph (b) introductory text, the first sentence in paragraph (b)(2)(i), paragraph (b)(2)(ii) introductory text, and paragraphs (b)(2)(ii)(A) and (C) to read as follows:

§ 27.60 TV/DTV interference protection criteria.

Base, fixed, control, and mobile transmitters in the 698–758 MHz, 775–788 MHz, and 805-806 MHz frequency bands must be operated only in accordance with the rules in this section to reduce the potential for interference to public reception of the signals of existing TV and DTV broadcast stations transmitting on TV Channels 51 through 68.

(a) * * *

(1) * * *

(iii) For transmitters operating in the 746–758 MHz, 775–788 MHz, and 805-806 MHz frequency bands,

17 dB at the equivalent Grade B contour (41 dB μ V/m) (88.5 kilometers (55 miles)) of the DTV station.

* * * * *

(b) * * * Tables to determine the necessary minimum distance from the 698–758 MHz, 775–788 MHz, and 805–806 MHz station to the TV/DTV station, assuming that the TV/DTV station has a hypothetical or equivalent Grade B contour of 88.5 kilometers (55 miles), are located in § 90.309 of this chapter and labeled as Tables B, D, and E. * * *

* * * * *

(2) * * *

(i) Base and fixed stations that operate in the 746–758 MHz and 775–787 MHz bands having an antenna height (HAAT) less than 152 m. (500 ft.) shall afford protection to co-channel and adjacent channel TV/DTV stations in accordance with the values specified in Table B (co-channel frequencies based on 40 dB protection) and Table E (adjacent channel frequencies based on 0 dB protection) in § 90.309 of this chapter. * * *

(ii) Control, fixed, and mobile stations (including portables) that operate in the 787–788 MHz and 805–806 MHz bands and control and mobile stations (including portables) that operate in the 698–757 MHz and 776–787 MHz bands are limited in height and power and therefore shall afford protection to co-channel and adjacent channel TV/DTV stations in the following manner:

(A) For control, fixed, and mobile stations (including portables) that operate in the 787–788 MHz and 805–806 MHz bands and control and mobile stations (including portables) that operate in the 746–757 MHz and 776–787 MHz bands, co-channel protection shall be afforded in accordance with the values specified in Table D (co-channel frequencies based on 40 dB protection for TV stations and 17 dB for DTV stations) in § 90.309 of this chapter.

* * * * *

(C) For control, fixed, and mobile stations (including portables) that operate in the 787–788 MHz and 805–806 MHz bands and control and mobile stations (including portables) that operate in the 698–757 MHz and 776–787 MHz bands, adjacent channel protection shall be afforded by providing a minimum

distance of 8 kilometers (5 miles) from all adjacent channel TV/DTV station hypothetical or equivalent Grade B contours (adjacent channel frequencies based on 0 dB protection for TV stations and -23 dB for DTV stations).

* * * * *

17. Section 27.70 is amended by revising paragraph (a) introductory text, and paragraphs (b)(1) and (2) to read as follows:

§ 27.70 Information exchange.

(a) Prior notification. Public safety licensees authorized to operate in the 758-775 MHz and 788-805 MHz bands may notify any licensee authorized to operate in the 746-757 or 776-787 MHz bands that they wish to receive prior notification of the activation or modification of the licensee's base or fixed stations in their area. Thereafter, the 746-757 or 776-787 MHz band licensee must provide the following information to the public safety licensee at least 10 business days before a new base or fixed station is activated or an existing base or fixed station is modified:

* * * * *

(b) * * *

(1) Allow a public safety licensee to advise the 746-757 or 776-787 MHz band licensee whether it believes a proposed base or fixed station will generate unacceptable interference;

(2) Permit 746-757 and 776-787 MHz band licensees to make voluntary changes in base or fixed station parameters when a public safety licensee alerts them to possible interference; and,

* * * * *

18. Section 27.303 is amended by revising paragraph (a) introductory text to read as follows:

§ 27.303 Upper 700 MHz commercial and public safety coordination zone.

(a) General. CMRS operators are required, prior to commencing operations on fixed or base station transmitters on the 776-787 MHz band that are located within 500 meters of existing or planned public safety base station receivers, to submit a description of their proposed facility to a Commission-approved public safety coordinator.

* * * * *

19. Section 27.501 is revised to read as follows:

§ 27.501 746–758 MHz, 775–788 MHz, and 805–806 MHz bands subject to competitive bidding.

Mutually exclusive initial applications for licenses in the 746 – 758 MHz, 775 – 788 MHz, and 805 – 806 MHz bands are subject to competitive bidding. The general competitive bidding procedures set forth in part 1, subpart Q of this chapter will apply unless otherwise provided in this subpart.

PART 90 – PRIVATE LAND MOBILE RADIO SERVICES

20. The authority citation for part 90 continues to read as follows:

Authority: Sections 4(i), 11, 303(g), 303(r), and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), and 332(c)(7), and Title VI of the Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156.

21. Section 90.179 is amended by revising paragraph (g) to read as follows:

§ 90.179 Shared use of radio stations.

* * * * *

(g) Notwithstanding paragraph (a) of this section, licensees authorized to operate radio systems on Public Safety Pool frequencies designated in § 90.20 may share their facilities with Federal Government entities on a non-profit, cost-shared basis. Such a sharing arrangement is subject to the provisions of paragraphs (b), (d), and (e) of this section, and § 2.103(c) of this chapter concerning operations in the 758-769 MHz and 788-799 MHz bands. State governments authorized to operate radio systems under § 90.529 may share the use of their systems (for public safety services not made commercially available to the public) with any entity that would be eligible for licensing under § 90.523 and Federal government entities.

* * * * *

§ 90.203 [Amended]

22. Section 90.203 is amended by removing paragraph (p) and redesignating paragraph (q) as paragraph (p)..

23. Section 90.205 is amended by revising paragraph (j) to read as follows:

§ 90.205 Power and antenna height limits.

* * * * *

(j) 758-775 MHz and 788-805 MHz. Power and height limitations are specified in §§ 90.541 and 90.542.

* * * * *

24. Section 90.523 is amended by revising the introductory text and paragraph (e), to read as follows:

§ 90.523 Eligibility.

This section implements the definition of public safety services contained in 47 U.S.C. 337(f)(1). The following are eligible to hold Commission authorizations for systems operating in the 769-775 MHz and 799-805 MHz frequency bands:

* * * * *

(e) A nationwide license for the 758-769 MHz and 788-799 MHz bands shall be issued to the First Responder Network Authority.

25. Section 90.533 is amended by revising the introductory text and paragraphs (a) and (c) to read as follows:

§ 90.533 Transmitting sites near the U.S./Canada or U.S./Mexico border.

This section applies to each license to operate one or more public safety transmitters in the 758-775 MHz and 788-805 MHz bands, at a location or locations North of Line A (see § 90.7) or within 120 kilometers (75 miles) of the U.S.-Mexico border, until such time as agreements between the government of the United States and the government of Canada or the government of the United States and the government of Mexico, as applicable, become effective governing border area non-broadcast use of these bands.

Public safety licenses are granted subject to the following conditions:

(a) Public safety transmitters operating in the 758-775 MHz and 788-805 MHz bands must conform to the limitations on interference to Canadian television stations contained in agreement(s) between the United States and Canada for use of television channels in the border area.

* * * * *

(c) Conditions may be added during the term of the license, if required by the terms of international

agreements between the government of the United States and the government of Canada or the government of the United States and the government of Mexico, as applicable, regarding non-broadcast use of the 758-775 MHz and 788-805 MHz bands.

§ 90.542 [Amended]

26. Section 90.542 is amended by revising all references to “763” to read “758” and “793” to read “788” in paragraph (a) introductory text, in paragraphs (a)(1) through (8), in the headers of Tables 1 through 4, and in paragraph (b).

27. Section 90.543 is amended by revising the introductory text, revising paragraph (e) introductory text, redesignating paragraph (e)(3) as (e)(4), adding new paragraphs (e)(3) and (5), and revising paragraph (f) to read as follows:

§ 90.543 Emission limitations.

Transmitters designed to operate in 769-775 MHz and 799-805 MHz frequency bands must meet the emission limitations in paragraphs (a) through (d) of this section. Transmitters operating in 758-768 MHz and 788-798 MHz bands must meet the emission limitations in (e) of this section.

* * * * *

(e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee’s frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

* * * * *

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log (P)$ dB.

* * * * *

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

* * * * *

28. Section 90.549 is revised to read as follows:

§ 90.549 Transmitter certification.

Transmitters operated in the 758-775 MHz and 788-805 MHz frequency bands must be of a type that have been authorized by the Commission under its certification procedure as required by § 90.203.

29. Section 90.555 is amended by revising paragraph (a) introductory text, paragraph (b)(1), paragraph (b)(2), and paragraph (c) to read as follows:

§ 90.555 Information exchange.

(a) Prior notification. Public safety licensees authorized to operate in the 758-775 MHz and 788-805 MHz bands may notify any licensee authorized to operate in the 746-757 MHz or 776-787 MHz bands that they wish to receive prior notification of the activation or modification of the licensee's base or fixed stations in their area. Thereafter, the 746-757 MHz or 776-787 MHz band licensee must provide the following information to the public safety licensee at least 10 business days before a new base or fixed station is activated or an existing base or fixed station is modified:

* * * * *

(b) * * *

(1) Allow a public safety licensee to advise the 746-757 or 776-787 MHz band licensee whether it believes a proposed base or fixed station will generate unacceptable interference;

(2) Permit 746-757 and 776-787 MHz band licensees to make voluntary changes in base or fixed station parameters when a public safety licensee alerts them to possible interference; and,

* * * * *

(c) Public Safety Information Exchange. (1) Upon request by a 746-757 or 776-787 MHz band licensee, public safety licensees authorized to operate radio systems in the 758-775 and 788-805 MHz bands shall provide the operating parameters of their radio system to the 746-757 or 776-787 MHz band licensee.

(2) Public safety licensees who perform the information exchange described in this section must notify the appropriate 746-757 or 776-787 MHz band licensees prior to any technical changes to their radio system.

[FR Doc. 2013-28974 Filed 01/03/2014 at 8:45 am; Publication Date: 01/06/2014]