



This document is scheduled to be published in the Federal Register on 05/16/2013 and available online at <http://federalregister.gov/a/2013-11581>, and on [FDsys.gov](http://FDsys.gov)

**6712-01**

## **FEDERAL COMMUNICATIONS COMMISSION**

### **47 CFR Part 90**

**[WP Docket No. 07-100, FCC 13-52]**

### **Private Land Mobile Radio Stations Below 800 MHz**

**AGENCY:** Federal Communications Commission.

**ACTION:** Final rule.

**SUMMARY:** In this document, the Federal Communications Commission (Commission) amends its rules regarding private land mobile radio (PLMR) licensing, including increasing the power limit for end-of-train devices, modifying trunking rules for PLMR stations below 800 MHz, and permitting digital transmission of station identification by PLMR station with exclusive use of their spectrum, as addressed in the Second Further Notice of Proposed Rulemaking and Order in this proceeding. This proceeding is part of our continuing effort to provide clear and concise rules that facilitate new wireless technologies, devices and services, and are easy for the public to understand.

**DATES:** Effective [**INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**] except for amendments to §§ 90.187 and 90.425, which contain information collection requirements that are not effective until approved by the Office of Management and Budget (OMB). The Federal Communications Commission will publish a document in the Federal Register announcing the effective date.

**FOR FURTHER INFORMATION CONTACT:** Rodney P. Conway, at [Rodney.Conway@FCC.gov](mailto:Rodney.Conway@FCC.gov), Wireless Telecommunications Bureau, (202) 418-2904, or TTY (202) 418-7233.

**SUPPLEMENTARY INFORMATION:** This is a summary of the Commission's Fifth Report and Order in WP Docket No. 07-100, FCC 13-52, adopted on April 16, 2013, and released April

18, 2013. The full text of this document is available for inspection and copying during normal business hours in the FCC Reference Center, 445 12<sup>th</sup> Street, SW., Washington, DC 20554. The complete text may be purchased from the Commission's copy contractor, Best Copy and Printing, Inc., 445 12<sup>th</sup> Street, SW., Room CY-B402, Washington, DC 20554. The full text may also be downloaded at: [www.fcc.gov](http://www.fcc.gov). Alternative formats are available to persons with disabilities by sending an e-mail to [fcc504@fcc.gov](mailto:fcc504@fcc.gov) or by calling the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

1. In the Second Report and Order, at 75 FR 19277, April 14, 2010, in this proceeding, the Commission adopted various changes to the rules regarding PLMR licensing, including frequency coordination and eligibility issues. The accompanying Second Further Notice of Proposed Rule Making (Second FNPRM), at 75 FR 19340, April 14, 2010, proposed various changes to the PLMR licensing and service rules. Below, in this document, the Commission addresses these proposals, with the exception of those issues relating to Wireless Medical Telemetry Services (WMTS). The Commission believes that the benefits of the rule changes adopted herein outweigh any potential costs, and that these rule changes will afford licensees new options for enhancing the safety and reliability of their operations.

2. End-of-Train Devices. End-of-Train (EOT) devices operate on frequency pair 452/457.9375 MHz and transmit information regarding the brake pipe pressure on the rear car to the lead locomotive for display to the locomotive engineer and allow the engineer to apply the rear train brakes in an emergency. As a practical matter, EOT devices must be mounted on the coupling knuckle behind the last car in the train, but the path from the end of the train to the front of the train is always blocked by intervening train cars, and also can be adversely affected by variable terrain factors.

3. In the Second FNPRM, the Association of American Railroads, which is the Commission's certified frequency coordinator for frequency pair 452/457.9375 MHz and the

adjacent frequencies, argued that the current two-watt power limit offers little margin for degradation of the communications link, especially on longer trains (some of which are 7,000 to 8,000 feet long), and that the proposed increase in power was unlikely to cause interference to railroad operations. The Second FNPRM sought comment on the proposal.

4. Commenters unanimously support increasing the maximum transmitter output power for EOT devices to eight watts. We agree and will modify § 90.238(e) accordingly. Allowing these devices to operate with up to eight watts transmitter output power is justified to minimize the possibility of communications link failure in light of the changing needs of the rail industry. Operation of higher-power EOTs will benefit the public by increasing the safety of life and property for railroads and their employees, and for people in communities through which trains travel. It also will reduce the indirect delay costs incurred by railroads when trains must stop or slow down due to loss of a telemetry link. In addition, given that use of the frequency pair and the adjacent frequencies is coordinated by the railroad industry, and they generally are not used by non-railroad entities, it appears that there is little risk of interference due to the increase in power. Moreover, since the waiver was issued for operation of EOT devices at the higher power level, we have not received any interference complaints and are not aware of any interference concerns. Accordingly, the benefits of this rule change greatly exceed the costs.

5. Trunking Rules. Section 90.187 of the Commission's rules specifies the manner in which trunking may be accomplished in the PLMR bands below 800 MHz. A trunked radio system employs technology that can search two or more available channels and automatically assign a user an open channel. In a centralized trunked system, the base station controller provides dynamic channel assignments by automatically searching all channels within the system and assigning an open channel to a user; in a decentralized trunked system, the system monitors the assigned channels for activity both within and outside the trunked system, and transmits only when an open channel is found.

6. The Commission noted in the Second FNPRM that § 90.187 had been the subject of several decisions clarifying or interpreting it since it was adopted, and, accordingly, the Commission proposed or sought comment in this proceeding on various amendments intended to simplify or clarify the trunking rules. Most of the proposals were not controversial, and we adopt those herein. In particular, we amend § 90.187 to clarify that it neither requires applicants for decentralized trunked systems to obtain consent from affected licensees nor permits decentralized trunked systems to operate without monitoring. We also remove unnecessary language from §§ 90.187(b)(2)(v) (which, redundantly of § 90.175(a), allows a potential applicant to ask the Commission to overturn a frequency coordinator's determination that proposed operations would cause objectionable interference) and § 90.187(d) (which provides a procedure to prevent "strike" applications, which already are prohibited by § 1.935). We also take this opportunity to correct the 800 MHz band trunking rules to set forth the correct cross-reference in § 90.631(d), to the table in § 90.741. We also correct cross-references contained in § 90.210. We find that the public will benefit from these changes by eliminating potential confusion and simplifying the rules, thereby better effectuating the interference protection provided by the rules for incumbent stations. Moreover, we do not anticipate that these changes will impose new costs on parties.

7. Section 90.187 provides that a trunked system must monitor the frequencies and employ equipment that prevents transmission on a frequency if a signal from another system is present on it, unless the licensee either operates on 470-512 MHz band frequencies on which it has obtained exclusive use by loading pursuant to § 90.313 of the Commission's rules or the licensee obtains the written consent of all "affected licensees." Whether an incumbent is an "affected licensee" depends on the spectral proximity of the existing and proposed frequencies and the physical proximity of the existing and proposed facilities.

8. Under the existing rule, a geographically proximate incumbent (under the criteria discussed infra, paragraph 10) is an “affected licensee” if its assigned frequency is 15 kilohertz or less from the assigned frequency of a proposed 25 kilohertz bandwidth station, 7.5 kilohertz or less from the assigned frequency of a proposed 12.5 kilohertz bandwidth station, or 3.75 kilohertz or less from the assigned frequency of a proposed 6.25 kilohertz bandwidth station. The Second FNPRM sought comment on a proposal by the Land Mobile Communications Council (LMCC) to broaden the definition of “affected licensee” to include more incumbent stations (depending on the authorized bandwidth of the incumbent station) in certain cases involving proposed narrowband stations. Some commenters argued that LMCC’s proposed protection parameters provided excessive protection to incumbent wideband systems and, as a result, were too restrictive to allow potential adjacent channel narrowband systems and would stifle migration to narrowband systems. LMCC subsequently modified its proposal to decrease the proposed protection for incumbent wideband systems and increase the protection for very narrowband (6.25 kHz) systems. We find that the protection criteria submitted by LMCC in its supplemental comments adequately address concerns raised by other commenters in the record and provide an appropriate balance between protecting incumbent wideband stations and allowing the establishment of new narrowband systems.

9. LMCC’s modified proposal also, for the first time, differentiated between analog and digital 25 kilohertz bandwidth incumbents. We note that neither LMCC nor any other commenter submitted justification for treating analog and digital stations differently. As a result, we are not persuaded that the protection criteria should differ depending on the incumbent’s emission type. Instead, we find LMCC’s revised proposed criteria for digital stations to be appropriate for all incumbent 25 kilohertz bandwidth stations. We therefore amend the spectral separation criteria as set forth in the table in new § 90.187(d)(1)(A).

10. With respect to physical proximity, the current rule allows the applicant to choose between two methods of determining whether spectrally proximate incumbents are “affected licensees”: stations with service contours that are overlapped by a circle with a seventy-mile radius from the proposed base station (distance analysis), or stations with service contours that are overlapped by the proposed station’s interference contour (contour analysis). Given its understanding that almost all applications for new centralized trunked systems rely on contour analysis, the Commission proposed to streamline the rule by eliminating the distance analysis option. No commenter opposed this proposal, and we amend § 90.187 accordingly for the reasons set forth in the Second FNPRM.

11. Currently, the contour analysis must be performed only to demonstrate that a proposed system’s interference contour does not overlap any spectrally proximate incumbent system’s service contour. The Second FNPRM sought comment on whether the contour analysis should also be conducted in reverse, *i.e.*, whether an applicant for a new centralized trunked system should be required to demonstrate that its proposed service contour would not be overlapped by the interference contour of any incumbent system. Such a requirement would prevent the licensing of stations that appear to be of limited use but which would preclude the expansion of the service contour of the existing system. We agree with the commenters in support of the proposal that the public interest is not served by authorizing stations that may be of limited use but will affect future use of the spectrum by viable incumbent stations. Another commenter, RadioSoft, argues that proposed stations that will incur “limited” interference should be authorized on a secondary basis, but proposes no criteria for an acceptable interference level. We agree with LMCC that, rather than defining any limited circumstances under which we will authorize new stations with service contours overlapped by incumbents’ interference contours, we should permit applicants with legitimate reasons for seeking authorization for service contours overlapped by incumbents’ interference contours to seek case-by-case waivers. We

disagree with the State of Wisconsin Department of Transportation's assertion that requiring a two-way contour analysis will unnecessarily "double the difficulty and workload to study these situations." We find that the benefits of this rule change in protecting the expansion needs of viable stations outweigh the limited additional burden on frequency coordinators of performing a two-way analysis to ensure that a station of limited use is not authorized that will potentially restrict expansion possibilities of existing stations. We amend § 90.187(d) accordingly.

12. Finally, the Commission sought comment in the Second FNPRM on how systems that have no permanent base stations should be treated for purposes of the trunking rules. It sought comment on different possible ways to treat such stations for purposes of the contour analysis, and on whether "affected licensee" status should be accorded to mobile-only stations for which the license does not specify geographic coordinates (e.g., licenses authorizing operation within a particular county or state), or only to mobile-only stations with an authorized operating area defined as a radius around geographic coordinates. Commenters unanimously agree that mobile-only stations should be protected with respect to proposed centralized trunked systems whether their authorized operating area is defined by a point-radius or a particular jurisdiction such as a county or state. We conclude that a method suggested by LMCC's supplemental comments balances the appropriate protection level with ease of administration better than previous proposals set forth in the Second FNPRM: for purposes of determining whether an incumbent licensee's written consent is required, a mobile-only system's authorized operating area will be used as both the station's service contour and its interference contour, regardless of whether that licensee has defined its operating area as a point-radius or by jurisdictional boundaries. As the Commission noted in the Second FNPRM, other possible methods for analyzing a mobile-only system by placing a mobile unit at the center or edge of the authorized operating area could understate or overstate the system's potential to cause or receive interference. We believe that using the service area boundary for both the protected contour and

the interference contour will allow establishment of new facilities while still providing an appropriate level of protection to the mobile operations. We amend § 90.187 accordingly.

13. 470-512 MHz band offset channels. In 1997, the Commission directed the certified frequency coordinators for the PLMR services to reach a consensus on the applicable coordination procedures for the 12.5 kHz offset channels in the 470-512 MHz band. That consensus is embodied in the LMCC procedures for evaluating adjacent channel interference in the 470-512 MHz band using the interference criteria of TIA/EIA/TSB-88 (TSB-88). The LMCC Consensus provides that an application shall not be certified if an incumbent or the applicant has unacceptable interference of more than five percent reduction of the calculated service area reliability.

14. In the Second FNPRM, the Commission sought comment on LMCC's suggestion that the TSB-88 requirement be codified in our rules in order to reduce confusion concerning the requirement. The Commission also asked commenters to consider whether it would be preferable to leave the requirement uncodified, so that the frequency coordinators can continue to modify the TSB-88 procedures without an amendment of the Commission's rules. It noted that if the TSB-88 requirement were codified in our rules, it could unnecessarily reduce the flexibility that the frequency coordinators currently have to tailor the TSB-88 analysis to specific situations because any changes to the procedure would have to be codified before they could take effect. We agree with LMCC, the only commenter to address this issue, that on balance it would be preferable not to codify the TSB-88 requirement in order to allow the frequency coordinators flexibility to modify the procedures as necessary. We therefore will not modify the Commission's rules to codify the TSB-88 requirement.

15. Station Identification. Generally, part 90 station identification must be transmitted by voice in the English language or by Morse Code. However, the following types of stations may, if they are licensed on an exclusive basis, transmit station identification

information in digital format if the licensee will provide the Commission with information sufficient to decode the digital transmission to ascertain the call sign transmitted: 800 and 900 MHz band stations that normally employ digital emissions and Commercial Mobile Radio Service (CMRS) stations in any band. The Second FNPRM, sought comment on Motorola's request that the rules be amended to afford the same flexibility to VHF and UHF PLMR licensees that are licensed on an exclusive basis. Some commenters opposed the request, or asked that digital transmission of PLMR station identification information be readable without specialized equipment. They note that instances of interference are frequently mitigated between licensees without Commission involvement when the licensees can identify and contact each other directly. However, the proposed station identification changes would apply only where licensees have exclusive use of the spectrum, and permitting other exclusive-use licensees this flexibility has not resulted in increased interference complaints to the Commission.

16. We therefore amend § 90.425 to allow PLMR licensees in the bands between 150 and 512 MHz that are licensed on an exclusive basis to transmit station identification information in digital format, on the condition that the licensee will provide the Commission with information sufficient to decode the digital transmission to ascertain the call sign transmitted. Because this simply gives licensees an option regarding the method of transmission of required call sign information, but does not impose a new burden, licensees will not incur new costs – specifically the cost associated with providing the Commission sufficient information to decode the transmission – unless they choose the digital transmission option. Moreover, as indicated above, by limiting this option to exclusive-use licensees, we do not anticipate that this will cause any significant increase in interference complaints or result in any significant impairment of the ability of licensees to work with each other in resolving interference problems. Therefore, we find that the benefits of granting flexibility with respect to call sign transmission outweigh any associated costs.

17. The Second FNPRM also sought comment on Motorola's request to allow PLMR licensees to use a single call sign for commonly owned facilities that are operated as part of a single system, similar to flexibility already available to CMRS licensees. The only other commenter to address the proposal supports it. We conclude that multi-station PLMR licensees should be afforded the same call sign flexibility that is enjoyed by CMRS licensees. We amend § 90.425 accordingly.

18. Finally, as Motorola notes, certain 800 and 900 MHz trunked systems are required to transmit station identification only on the lowest frequency in the base station trunk group assigned to the licensee, while VHF and UHF PLMR trunked systems must transmit station identification on every assigned frequency. Motorola requests that the rules be amended to afford similar flexibility for trunked VHF and UHF PLMR trunked systems with exclusive frequencies. Unlike the 800 and 900 MHz bands, however, VHF and UHF PLMR frequencies are assigned individually rather than by predefined group. Consequently, a party seeking to determine a monitored station's call sign does not automatically know the station's lowest assigned frequency. For this reason, we decline to adopt Motorola's suggestion.

19. Multiple Licensing. As explained in the Notice of Proposed Rulemaking (NPRM), at 72 FR 32582, June 13, 2007, most PLMR communication systems employ mobile relays (repeaters) with wide-area coverage so that communication may be maintained between mobile units that otherwise would be out of range of one another. It is common practice for an entity that owns and operates a repeater to share a base station with a number of other users. Under this practice, each user of the mobile relay station (commonly called a "community repeater") applies for and obtains an individual license for the station. Thus, a single base station is licensed to multiple users. The NPRM sought comment on the continued usefulness of multiple licensing, given that changes in the Commission's Rules have created new means for multiple entities to share facilities or spectrum, or otherwise meet their communications needs.

20. Most commenters argue that multiple licensing continues to serve an important purpose and should be retained. We agree that multiple licensing provides for a cost effective licensing option to entities while also facilitating efficient use of spectrum. Therefore, we conclude that there are public interest benefits in allowing multiple licensing of the same facility, and we will take no action to phase it out at this time.

## **I. PROCEDURAL MATTERS**

### **A. Ex Parte Rules – Permit-But-Disclose Proceeding**

21. This is a permit-but-disclose notice and comment rulemaking proceeding. Ex parte presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed as provided in the Commission’s rules.

### **B. Paperwork Reduction Act**

22. This document contains 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 or modified “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).

## **II. FINAL REGULATORY FLEXIBILITY ANALYSIS**

23. As required by the Regulatory Flexibility Act (RFA), an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities by the policies and rules proposed in the Second FNPRM in this proceeding was incorporated in the Second FNPRM. Written public comments were requested on the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.

Need for, and Objectives of, the Proposed Rules:

24. This proceeding is part of our continuing effort to provide clear rules that are easy for licensees to comprehend. The Fifth Report and Order makes changes to certain regulatory requirements contained in part 90 of the Commission's rules pertaining to telemetry operations by railroad licensees, and trunking of private land mobile radio operations below 512 MHz to allow for more flexibility in the efficient use of radio spectrum.

#### Summary of Significant Issues Raised By Public Comment in Response to the IRFA

25. No comments were submitted specifically in response to the IRFA. As discussed in Section E of this FRFA, we have considered the potential economic impact on small entities of these rules, and we have considered alternatives that would reduce the potential economic impact of the rules enacted herein, regardless of whether the potential economic impact was discussed in any comments.

#### Description and Estimate of the Number of Small Entities To Which the Final Rules Will Apply:

26. 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. 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). A small organization is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field." Below, we further describe and estimate the number of small entity licensees and regulatees that may be affected by the rules changes adopted in this Fifth Report and Order.

27. Private Land Mobile Radio Licensees. Private land mobile radio (PLMR) systems serve an essential role in a vast range of industrial, business, land transportation, and

public safety activities. Companies of all sizes operating in all U.S. business categories use these radios. Because of the vast array of PLMR users, the Commission has not developed a small business size standard specifically applicable to PLMR users. The SBA rules, however, contain a definition for Wireless Telecommunications Carriers (except Satellite) which encompasses business entities engaged in radiotelephone communications employing no more than 1,500 persons. See 13 CFR 121.201, NAICS code 517210. According to the Commission's records, a total of approximately 470,316 licenses comprise PLMR users. Despite the lack of specific information, however, the Commission believes that a substantial number of PLMR licensees may be small entities.

28. Frequency Coordinators. Neither the Commission nor the SBA has developed a small business size standard specifically applicable to spectrum frequency coordinators. The Commission has not developed a small business size standard specifically applicable to frequency coordinators. The SBA rules, however, contain a definition for Wireless Telecommunications Carriers (except Satellite) which encompasses business entities engaged in radiotelephone communications employing no more than 1,500 persons. See 13 CFR 121.201, NAICS code 517210. Under this category and size standard, we estimate that a majority of frequency coordinators can be considered small.

29. RF Equipment Manufacturers. The Census Bureau defines this category as follows: "This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment." The SBA has developed a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, which is: all such firms having 750 or fewer employees. See 13 CFR 121.201, NAICS code

334220. 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 fewer than 100 employees and 148 had more than 100 employees. See U.S. Census Bureau, American FactFinder, 2002 Economic Census, Industry Series, Industry Statistics by Employment Size, NAICS code 334220 (released May 26, 2005). Thus, under this size standard, the majority of firms can be considered small.

Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements:

30. The rule changes adopted in the Fifth Report and Order allow PLMR licensees in the bands between 150 and 512 MHz that are licensed on an exclusive basis to transmit station identification information in digital format, on the condition that the licensee will provide the Commission with information sufficient to decode the digital transmission to ascertain the call sign transmitted. This requirement already applies to other licensees that are permitted to transmit station identification information in digital format. Because this simply gives station an option regarding the method of transmission of required call sign information, but does not impose a new burden, stations will not incur new costs – specifically the cost associated with providing the Commission sufficient information to decode the transmission – unless they choose the digital transmission option

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

31. The RFA requires an agency to describe the steps it has taken to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statutes, including a statement of the factual, policy, and legal reasons for selecting the alternative adopted in the final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected. See 5 U.S.C. 603(c).

32. We believe the changes adopted in the Fifth Report and Order will promote flexibility and more efficient use of the spectrum, reduce administrative burdens on both the Commission and licensees, and allow licensees to better meet their communication needs. In this Fifth Report and Order, we will allow an increase in the telemetry power operations for railroad licensees to allow increased flexibility and safety for operations of longer trains in difficult terrain. Additionally, the Fifth Report and Order decides to allow for the transmission of station identification information, in certain situations, in a digital format. The Fifth Report and Order also provides for a more streamlined, concise and understandable regulations concerning proposals for new trunking stations.

#### Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

33. None.

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

### **III. ORDERING CLAUSES**

34. Pursuant to sections 4(i), 302, 303(b), 303(f), 303(g), 303(o), 303(p), 303(r), and 405 of the Communications Act of 1934, 47 U.S.C. 154(i), 302a, 303(b), 303(f), 303(g), 303(o), 303(p), 303(r), and 405, that this Fifth Report and Order is HEREBY ADOPTED.

35. Part 90 of the Commission's rules IS AMENDED as specified in below, effective thirty days after publication of the Fifth Report and Order in the Federal Register.

36. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Fifth Report and Order, including the Final

Regulatory Flexibility Analyses, to the Chief Counsel for Advocacy of the Small Business Administration.

**List of Subjects in 47 CFR Part 90**

Communications equipment, 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 part 90 as follows:

**PART 90-PRIVATE LAND MOBILE RADIO SERVICES**

1. 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. 112-96, 126 Stat. 156.

2. Section 90.7 is amended by adding definitions for “centralized trunked system” and “decentralized trunked system” in alphabetical order and by revising the definition of “trunked radio system” to read as follows:

**§ 90.7 Definitions.**

\* \* \* \* \*

Centralized trunked system. A system in which there is dynamic assignment of communications paths by automatically searching all communications paths in the system and assigning to a user an open communications path within that system. Individual communications paths within a trunked system may be classified as centralized or decentralized in accordance with the requirements of § 90.187.

\* \* \* \* \*

Decentralized trunked system. A system which monitors the communications paths within its assigned channels for activity within and outside of the trunked system and transmits only when an available communications path is found. Individual communications paths within a trunked system may be classified as centralized or decentralized in accordance with the requirements of § 90.187.

\* \* \* \* \*

Trunked radio system. A radio system employing technology that provides the ability to search two or more available communications paths and automatically assigns an open communications path to a user.

\* \* \* \* \*

3. Section 90.187 is revised to read as follows:

**§ 90.187 Trunking in the bands between 150 and 512 MHz.**

(a) Applicants for centralized and decentralized trunked systems operating on frequencies between 150 and 512 MHz (except 220-222 MHz) must indicate on their applications (radio service and class of station code, instructions for FCC Form 601) that their system will be trunked. Licensees of stations that are not trunked may trunk their systems only after modifying their license (see § 1.927 of this chapter).

(b) Except as provided in paragraphs (c) and (d) of this section, trunked systems operating under this section must employ equipment that prevents transmission on a trunked frequency if a signal from another system is present on that frequency. The level of monitoring must be sufficient to avoid harmful interference to other systems.

(c) The monitoring requirement in paragraph (b) of this section does not apply to trunked systems operating in the 470-512 MHz band that meet the loading requirements of § 90.313 and have exclusive use of their frequencies in their service area.

(d) The monitoring requirement in paragraph (b) of this section does not apply if the application is accompanied by written consent from all affected licensees.

(1) Affected licensees for the purposes of this section are licensees (and previously filed pending applicants) meeting both a spectral and a contour overlap as defined:

(i) Spectral overlap. Licensees (and filers of previously filed pending applications) with an assigned (or proposed) frequency having a spectral separation from a frequency of the proposed centralized trunked station that does not exceed these values:

Proposed Station	Incumbent Authorized Bandwidth		
	<i>25 kHz</i>	<i>12.5 kHz</i>	<i>6.25 kHz</i>
<i>25 kHz</i>	15.0 kHz	15.0 kHz	15.0 kHz
<i>12.5 kHz</i>	15.0 kHz	7.5 kHz	7.5 kHz
<i>6.25 kHz</i>	15.0 kHz	7.5 kHz	5.0 kHz

The left column is the authorized bandwidth requested for the proposed trunked station. The second row is the authorized bandwidth of the incumbent. The other cells in the table show the frequency range above and below the frequency of the proposed centralized trunked station that must be considered.

(ii) Contour overlap. (A) Licensees (and filers of previously filed pending applications) with a service contour (37 dBu for stations in the 150-174 MHz band, and 39 dBu for stations in the 421-512 MHz band) that is overlapped by the proposed centralized trunked station's interference contour (19 dBu for stations in the 150-174 MHz band, and 21 dBu for stations in the 421-512 MHz band). Contour calculations are required for base station facilities and not for mobile stations associated with those base stations.

(B) The calculation of service and interference contours shall be performed using generally accepted engineering practices and standards, including appropriate derating factors, agreed to by a consensus of all certified frequency coordinators. Frequency coordinators shall make this information available to the Commission upon request.

(C) For purposes of this section, the authorized operating area of a station or proposed station with no associated base station shall be used as both the station's service contour and its interference contour.

(D) After January 1, 2013, licensees with an authorized bandwidth exceeding 12.5 kHz will not be deemed affected licensees, unless the licensee meets the efficiency standard set forth in § 90.203(j)(3) or the licensee was granted a waiver of § 90.209(b).

(2) The written consent from an affected licensee shall state all terms agreed to by the parties and shall be signed by the parties. The written consent shall be maintained by the operator of the centralized trunked station and be made available to the Commission upon request. An application for a centralized trunked station shall include either a certification from the applicant that written consent has been obtained from all affected licensees, or a certification from the frequency coordinator that there are no affected licensees.

(3) In addition, the service contour for proposed centralized trunked stations shall not be overlapped by an incumbent licensee's interference contour.

(e) The exclusive service area of a station that has been authorized for centralized trunked operation will be protected from proposed centralized trunked, decentralized trunked or conventional operations in accordance with the standards of paragraph (d) of this section.

(f) Trunking of systems licensed on paging-only channels or licensed in the Radiolocation Service (subpart F) is not permitted.

(g) Channel limits. (1) No more than 10 channels for new centralized trunked operation in the Industrial/Business Pool may be applied for at a single transmitter location or at locations with overlapping service contours as specified in paragraph (d) of this section. Subsequent applications for centralized trunked operation are limited to no

more than an additional 10 channels, and must be accompanied by a certification, submitted to the certified frequency coordinator coordinating the application, that all of the applicant's existing channels authorized for centralized trunked operation at that location or at locations with overlapping service contours have been constructed and placed in operation. Certified frequency coordinators are authorized to require documentation in support of the applicant's certification that existing channels have been constructed and placed in operation.

(2) Applicants for Public Safety Pool channels may request more than 10 centralized trunked channels at a single location or at locations with overlapping service contours if accompanied by a showing of sufficient need. The requirement for such a showing may be satisfied by submission of loading studies demonstrating that requested channels in excess of 10 will be loaded with 50 mobiles per channel within a five year period commencing with the grant of the application.

(h) If a licensee authorized for centralized trunked operation discontinues trunked operation for a period of 30 consecutive days, the licensee, within 7 days thereafter, shall file a conforming application for modification of license with the Commission.

4. Section 90.210 is amended by revising the introductory text, the table, and paragraphs (d)(4) and (e)(4) to read as follows:

**§ 90.210 Emission masks.**

Except as indicated elsewhere in this part, transmitters used in the radio services governed by this part must comply with the emission masks outlined in this section. Unless otherwise stated, per paragraphs (d)(4), (e)(4), and (o) of this section, measurements of emission power can be expressed in either peak or average values provided that emission powers are expressed with the same parameters used to specify the unmodulated transmitter carrier power. For transmitters that do not produce a full

power unmodulated carrier, reference to the unmodulated transmitter carrier power refers to the total power contained in the channel bandwidth. Unless indicated elsewhere in this part, the table in this section specifies the emission masks for equipment operating under this part.

#### APPLICABLE EMISSION MASKS

Frequency band (MHz)	Mask for equipment with Audio low pass filter	Mask for equipment without audio low pass filter
Below 25 <sup>1</sup> .....	A or B	A or C
25-50 .....	B	C
72-76 .....	B	C
150-174 <sup>2</sup> .....	B, D, or E	C, D or E
150 paging only .....	B	C
220-222 .....	F	F
421-512 <sup>2,5</sup> .....	B, D, or E	C, D, or E
450 paging only .....	B	G
806-809/851-854 ....	B	H
809-824/854-869 <sup>3,5</sup> .....	B	G
896-901/935-940 ....	I	J
902-928 .....	K	K
929-930 .....	B	G
4940-4990 MHz .....	L or M	L or M
5850-5925 <sup>4</sup> .....		

All other bands .....	B	C
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<sup>1</sup> Equipment using single sideband J3E emission must meet the requirements of Emission Mask A. Equipment using other emissions must meet the requirements of Emission Mask B or C, as applicable.

<sup>2</sup> Equipment designed to operate with a 25 kHz channel bandwidth must meet the requirements of Emission Mask B or C, as applicable. Equipment designed to operate with a 12.5 kHz channel bandwidth must meet the requirements of Emission Mask D, and equipment designed to operate with a 6.25 kHz channel bandwidth must meet the requirements of Emission Mask E.

<sup>3</sup> Equipment used in this licensed to EA or non-EA systems shall comply with the emission mask provisions of § 90.691 of this chapter.

<sup>4</sup> DSRCs Roadside Units equipment in the 5850-5925 MHz band is governed under subpart M of this part.

<sup>5</sup> Equipment may alternatively meet the Adjacent Channel Power limits of § 90.221.

\* \* \* \* \*

(d) \* \* \*

(4) The reference level for showing compliance with the emission mask shall be established using a resolution bandwidth sufficiently wide (usually two or three times the channel bandwidth) to capture the true peak emission of the equipment under test. In order to show compliance with the emission mask up to and including 50 kHz removed from the edge of the authorized bandwidth, adjust the resolution bandwidth to 100 Hz with the measuring instrument in a peak hold mode. A sufficient number of sweeps must be measured to insure that the emission profile is developed. If video filtering is used, its

bandwidth must not be less than the instrument resolution bandwidth. For emissions beyond 50 kHz from the edge of the authorized bandwidth, see paragraph (o) of this section. If it can be shown that use of the above instrumentation settings do not accurately represent the true interference potential of the equipment under test, an alternate procedure may be used provided prior Commission approval is obtained.

(e) \* \* \*

(4) The reference level for showing compliance with the emission mask shall be established using a resolution bandwidth sufficiently wide (usually two or three times the channel bandwidth) to capture the true peak emission of the equipment under test. In order to show compliance with the emission mask up to and including 50 kHz removed from the edge of the authorized bandwidth, adjust the resolution bandwidth to 100 Hz with the measuring instrument in a peak hold mode. A sufficient number of sweeps must be measured to insure that the emission profile is developed. If video filtering is used, its bandwidth must not be less than the instrument resolution bandwidth. For emissions beyond 50 kHz from the edge of the authorized bandwidth, see paragraph (o) of this section. If it can be shown that use of the above instrumentation settings do not accurately represent the true interference potential of the equipment under test, an alternate procedure may be used provided prior Commission approval is obtained.

\* \* \* \* \*

5. Section 90.238 is amended by revising paragraph (e) to read as follows:

**§ 90.238 Telemetry operations.**

\* \* \* \* \*

(e) In the 450-470 MHz band, telemetry operations will be authorized on a secondary basis with a transmitter output power not to exceed 2 watts on frequencies subject to § 90.20(d)(27) or § 90.35(c)(30), except that telemetry operations used by

Railroad licensees may be authorized on frequency pair 452/457.9375 MHz with a transmitter output power not to exceed 8 watts.

\* \* \* \* \*

6. Section 90.425 is amended by revising paragraph (e)(3) and adding paragraph (f) to read as follows:

**§ 90.425 Station identification.**

\* \* \* \* \*

(e) \* \* \*

(3) CMRS stations granted exclusive channels may transmit their call signs digitally. A licensee that identifies its call sign in this manner must provide the Commission, upon request, information sufficient to decode the digital transmission and ascertain the call sign transmitted.

(f) Special provisions for stations licensed under this part that are not classified as CMRS providers under part 20 of this chapter.

(1) Stations subject to a station identification requirement will be permitted to use a single call sign for commonly owned facilities that are operated as part of a single system.

(2) Stations licensed on an exclusive basis in the bands between 150 and 512 MHz that normally employ digital signals for the transmission of data, text, control codes, or digitized voice may be identified by digital transmission of the call sign. A licensee that identifies its call sign in this manner must provide the Commission, upon request, information sufficient to decode the digital transmission and ascertain the call sign transmitted.

7. Section 90.631 is amended by revising paragraph (d) to read as follows:

**§ 90.631 Trunked systems loading, construction and authorization requirements.**

\* \* \* \* \*

(d) In rural areas, a licensee of a trunked system may request to increase its system capacity by five more channels than it has constructed without meeting the loading requirements specified in paragraphs (b) and (c) of this section. A rural area is defined for purposes of this section as being beyond a 100-mile radius of the following designated centers of the following urban areas: New York, NY; Los Angeles, CA; Chicago, IL; Philadelphia, PA; San Francisco, CA; Detroit, MI; Boston, MA; Houston, TX; Washington, DC; Dallas-Fort Worth, TX; Miami, FL; Cleveland, OH; St. Louis, MO; Atlanta, GA; Pittsburgh, PA; Baltimore, MD; Minneapolis-St. Paul, MN; Seattle, WA; San Diego, CA; and Tampa-St. Petersburg, FL. The coordinates for the centers of these areas are those referenced in § 90.741, except that the coordinates (referenced to North American Datum 1983 (NAD83)) for Tampa-St. Petersburg are latitude 28° 00' 1.1" N, longitude 82° 26' 59.3" W.

\* \* \* \* \*

[FR Doc. 2013-11581 Filed 05/15/2013 at 8:45 am; Publication Date: 05/16/2013]