

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

In the Matter of)	
)	
COMMONWEALTH OF PENNSYLVANIA)	FCC File No. 0002112329
)	
Request for Waiver of Sections 90.247(a) and (c))	
and 90.613 of the Commission's Rules)	

ORDER

Adopted: January 30, 2007

Released: January 31, 2007

By the Deputy Chief, Policy Division, Public Safety and Homeland Security Bureau:

I. INTRODUCTION

1. We have before us an application and associated waiver request filed by the Commonwealth of Pennsylvania (Pennsylvania).¹ Pennsylvania seeks a waiver of Sections 90.247(a) and (c) and 90.613 of the Commission's rules² to allow vehicular repeater stations to operate on certain base station frequencies in the 800 MHz band and to allow associated hand-held units to exceed an output power of 2.5 watts.³ For the reasons discussed herein, we grant Pennsylvania's waiver request.

II. BACKGROUND

2. Pennsylvania encompasses a geographic area of approximately 44,817 square miles and has a population of approximately 12.3 million persons. In order to provide public safety services, Pennsylvania states that it is developing a statewide public safety radio system associated with its homeland security efforts.⁴ The system is expected to consist of 500 station sites operating on 800 MHz public safety channels.⁵ Pennsylvania notes that it has completed an extensive search of the 800 MHz Band and identified ten channel pairs⁶ that it states can be used in conjunction with this radio system.⁷

¹ FCC File No. 0002112329 and accompanying waiver request (filed Apr. 4, 2005; amended Jun. 9, 2005, Jul. 29, 2005, Jan. 3, 2006, Mar. 24, 2006, and Dec. 14, 2006) (Waiver Request).

² 47 C.F.R. §§ 90.247(a), 90.247(c), 90.613.

³ See FCC File No. 0002112329 and Waiver Request. Pennsylvania also requests a waiver of Section 90.621 of the Commission's Rules, 47 C.F.R. § 90.621. See Waiver Request at 1. Pennsylvania does not explain why it requires a waiver of this rule, and it is not apparent to us that it is required. We therefore do not consider Section 90.621 in this Order.

⁴ See "Amendment attachment, including a Request for Waiver and Technical Showing, Associated with Vehicular Tactical Repeater (VTAC) Network, New FCC License Application File Number 0002112329" (filed Mar. 24, 2006) (Waiver Request Amendment).

⁵ *Id.*

⁶ Specific frequencies requested for station class MO and MO3 are 856.2125 MHz, 856.4875 MHz, 857.2125 MHz, 857.4625 MHz, 857.4875 MHz, 858.4875 MHz, 858.7625 MHz, 859.4875 MHz, 860.4625 MHz, and 860.7625 MHz. Frequencies requested for station class MO are 811.2125 MHz, 811.4875 MHz, 812.2125 MHz, 812.4625 MHz, 812.4875 MHz, 813.4875 MHz, 813.7625 MHz, 814.4875 MHz, 815.4625 MHz, and 815.7625 MHz. We

Although Pennsylvania states that it already has constructed over 200 radio towers, it asserts that there is an immediate need for portable coverage that can only be accomplished via use of vehicular repeaters at various locations within its geographic borders.⁸

3. On April 4, 2005, Pennsylvania filed an application and associated waiver request, seeking to license a mobile-only radio system in the 806-816 MHz/851-861 MHz portion of the 800 MHz band.⁹ Subsequent to filing its application, Pennsylvania filed its initial request for Special Temporary Authority (STA) to operate a vehicular mobile radio repeater system.¹⁰ We granted the STA on July 5, 2005, which has been renewed and remains in effect.¹¹ On July 29, 2005, Pennsylvania amended its application with supplemental documentation.¹² On March 24, 2006, and December 14, 2006, Pennsylvania again amended its application with supplemental information relating to its Waiver Request.¹³

4. In its application, Pennsylvania states that its vehicular repeaters have the capability to operate as a local repeater base station when its portable units travel outside the communication range of the statewide network.¹⁴ Specifically, it indicates that its portable units communicate directly to the fixed base stations in its statewide network when the portable unit receives a locking signal from a base station.¹⁵ When the portable units travel outside the communication range of the network's base stations, however, the portable units will seek to communicate directly to the mobile radio repeater.¹⁶ In this mode, the mobile radio repeater acts as a base station repeater.¹⁷ Pennsylvania indicates that when its vehicular repeaters operate as a base station repeater, they require a degree of separation between the receive- and transmit- frequencies, in order to enable duplex operation.¹⁸ Thus, in this mode of operation, the portable unit will transmit on the mobile radio side of the frequency pair (806-816 MHz), while the mobile radio repeater station will transmit on the base station side of the frequency pair (851-861 MHz).¹⁹

note that these frequencies are in the interleaved portion of the 800 MHz band and are not subject to rebanding under the Commission's 800 MHz band reconfiguration plan

⁷ Waiver Request at 1.

⁸ See March 24, 2006 Waiver Request Amendment at 1.

⁹ See FCC File No. 0002112329 (filed Apr. 4, 2005) (inactive).

¹⁰ See FCC File No. 0002194028 (filed Jun. 9, 2005).

¹¹ *Id.* Pennsylvania applied for, and was granted, its first renewal of the STA on October 17, 2005. See FCC File No. 0002348408. Pennsylvania applied for, and was granted, its second renewal of the STA on April 7, 2006. See FCC File No. 0002559310. Pennsylvania applied for, and was granted, its third renewal of the STA on October 2, 2006. See FCC File No. 0002769446.

¹² See FCC File No. 0002112329 (amended Jul. 29, 2005) (inactive).

¹³ See FCC File No. 0002112329 (amended Mar. 24, 2006) (inactive); "Amendment attachment, supplemental VTAC network operational explanation" associated with FCC File No. 0002112329 (amended Dec. 14, 2006) (Dec. 14, 2006 Waiver Request Amendment).

¹⁴ See *id.*

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ See FCC File No. 0002112329 (Jan. 3, 2006 Waiver Request Amendment) at 2.

¹⁹ See Dec. 14, 2006 Waiver Request Amendment. Pennsylvania also requests "talk-around" capability for its portable units by seeking to license the portable units on the output frequencies of its vehicular repeater stations. This would permit the portable units to communicate without using a fixed base station or a vehicular repeater. *Id.*

Pennsylvania asserts that its vehicular repeater stations cannot function as base station repeaters if the transmit and receive frequencies are limited to the mobile radio side of the frequency pair (806-816 MHz).²⁰

5. Consequently, Pennsylvania seeks a waiver of Sections 90.247(a) and (c) and 90.613, in order to allow its vehicular repeater stations to transmit on frequencies normally assigned to base stations in the 851-860 MHz portion of the band.²¹ Section 90.247(a) limits the transmit frequencies of mobile repeater stations to the mobile side of the base/mobile frequency pair (806-816 MHz).²² Section 90.613 establishes that only fixed base stations may transmit in the 851-860 MHz portion of the band.²³ Because Pennsylvania also seeks to operate its portable radios associated with the vehicular repeaters at approximately 3 watts of output power,²⁴ Pennsylvania seeks a waiver of Section 90.247(c) to enable communications from hand-held units to be relayed automatically through the vehicular repeater stations.²⁵ Section 90.247(c) limits the output power of hand-held units which transmit through a mobile radio repeater to 2.5 watts.²⁶

III. DISCUSSION

6. To obtain a waiver of the Commission's rules, a petitioner must demonstrate either that: (i) the underlying purpose of the rule(s) would not be served or would be frustrated by application to the present case, and that a grant of the waiver would be in the public interest;²⁷ or (ii) in view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome, or contrary to the public interest, or the applicant has no reasonable alternative.²⁸ An applicant seeking a waiver faces a high hurdle and must plead with particularity the facts and circumstances that warrant a waiver.²⁹ We conclude that Pennsylvania has shown that its request should be granted under the first prong of the waiver standard.

7. The underlying purpose of both Sections 90.247 and 90.613 is to promote spectrum efficiency by reducing the possibility of harmful interference between licensed land mobile radio stations.³⁰ For instance, the Commission generally designs land mobile radio band plans so that the base

²⁰ See Jan. 3, 2006 Waiver Request Amendment at 2.

²¹ *Id.* at 1.

²² See 47 C.F.R. § 90.247 (“A mobile station authorized to operate on a mobile service frequency above 25 MHz may be used as a mobile repeater to extend the communications range of hand-carried units.”).

²³ See 47 C.F.R. § 90.613. See also Inquiry Relative to the Future Use of the Frequency Band 806-960 MHz and Amendment of Parts 2, 18, 21, 73, 74, 89, 91, and 93 of the Rules Relative to Operations in the Land Mobile Service Between 806 and 960 MHz, Docket No. 18262, *Second Report and Order*, 46 F.C.C. 2d 752, 769 ¶ 61 (1974) (*Land Mobile Second Report and Order*).

²⁴ Mar. 24, 2006 Waiver Request Amendment at 1.

²⁵ *Id.*

²⁶ See 47 C.F.R. § 90.247(c).

²⁷ 47 C.F.R. § 1.925(b)(3)(i).

²⁸ 47 C.F.R. § 1.925(b)(3)(ii).

²⁹ *WAIT Radio v. FCC*, 413 F.2d 1153, 1157 (D.C. Cir. 1969) (*WAIT Radio*), *aff'd*, 459 F.2d 1203 (1973), *cert. denied*, 409 U.S. 1027 (1972) (citing *Rio Grande Family Radio Fellowship, Inc. v. FCC*, 406 F.2d 664 (D.C. Cir. 1968)); *Birach Broad. Corp., Memorandum Opinion and Order*, 18 FCC Rcd 1414, 1415 (2003).

³⁰ See *Land Mobile Second Report and Order*, 46 F.C.C. 2d at 770 ¶ 71.

station transmit frequencies are spectrally separate from the mobile radio station transmit frequencies.³¹ In this regard, Section 90.613 requires base stations in the 800 MHz band to transmit in the 851-869 MHz band, while corresponding mobile radio stations must transmit on frequencies forty-five megahertz lower in frequency.³² Similarly, Section 90.247(a) limits the transmission of mobile radio repeater stations to the mobile radio side of the base/mobile radio frequency pair (806-816 MHz).³³ The Commission's rules recognize that if a mobile radio station is assigned to a frequency that would normally be assigned to a base station, the mobile radio station may be subject to interference that would otherwise not occur.³⁴ It also follows that if a mobile radio station transmits on a frequency normally assigned to a base station, the mobile radio station could create interference to other mobile radio units that are monitoring the base station transmit frequency.

8. Here, Pennsylvania seeks to license mobile radio repeater stations on base station transmit frequencies in order to allow the mobile radio vehicular units to operate as base station repeaters when the portable units travel outside the communication range of the statewide network.³⁵ Pennsylvania indicates that the mobile radio repeater stations are programmed to lock out specific channels if the units travel to locations where they might cause co-channel interference to existing base station operations.³⁶ Once a channel is deemed to be available, Pennsylvania states that the mobile radio repeater continuously will monitor the channel in use and switch to an alternate channel if other station traffic is detected.³⁷ Thus, Pennsylvania claims that these advanced features offer interference protection to existing co-channel operations.³⁸

9. Our engineering staff has reviewed the technical data filed by Pennsylvania and confirmed Pennsylvania's claim that sufficient co-channel interference protection will be offered to existing users.³⁹ Specifically, a review of the frequency study filed by Pennsylvania indicates that the mobile radio repeater stations would exclude the base station frequency of any co-channel licensee if the mobile radio repeater enters the county in which that co-channel user operates.⁴⁰ Under the circumstances presented, we find that granting a waiver of Sections 90.247(a) and 90.613 would not frustrate the underlying purpose of these rules because Pennsylvania's use of mobile radio repeater stations to transmit on base station frequencies would not have an adverse impact on spectrum efficiency by creating harmful interference to other users.

10. Moreover, we note that the public interest will be served by grant of a waiver of Sections 90.247(a) and 90.613 because it will allow Pennsylvania to operate a more flexible public safety communications system – an improvement that will enhance the safety of Pennsylvania's citizens and their property. To ensure that our decision neither deters existing users from expanding their systems or new licensees from beginning operations on these frequencies after Pennsylvania has placed its mobile radio repeater units into operation, we grant Pennsylvania's request for a waiver of Sections 90.247(a)

³¹ See 47 C.F.R. § 90.173(i); *Land Mobile Second Report and Order*, 46 F.C.C. 2d at 769 ¶ 61.

³² 47 C.F.R. § 90.613; *Land Mobile Second Report and Order*, 46 F.C.C. 2d at 769 ¶ 61.

³³ 47 C.F.R. § 90.247(a).

³⁴ See 47 C.F.R. § 90.173(i).

³⁵ See Dec. 14, 2006 Waiver Request Amendment.

³⁶ Waiver Request at 1-2.

³⁷ *Id.* at 2.

³⁸ *Id.*

³⁹ *Id.* at 1.

⁴⁰ See frequency search attachments and VTAC Matrix accompanying Waiver Request.

and 90.613 on the condition that Pennsylvania may operate its mobile radio repeater stations only on a secondary basis, *i.e.* they may not cause harmful interference to primary operations, and must accept interference from primary operations.

11. Pennsylvania also seeks a waiver of the 2.5 watt power limitation in Section 90.247(c) because its hand-held units would operate with a maximum output power of 3 watts when communicating via mobile radio repeater stations.⁴¹ In evaluating Pennsylvania's request, we note that operation of the handsets at 3 watts is consistent with the devices' certification by the Commission.⁴² Furthermore, our evaluation of the operational parameters of the handheld units indicates that the increased potential for interference between Pennsylvania's handheld units operating at 3 watts versus 2.5 watts (0.8 dB) is *de minimis* in the context of this particular system. In consideration of the increase in the operational performance contemplated here and the advanced features of Pennsylvania's system to limit harmful co-channel interference we believe that the underlying purpose of the power limit in Section 90.247(c) would not be frustrated by waiving Section 90.247(c) in this instance. We also believe that a grant of the waiver request would serve the public interest for the same reasons noted above: it will allow Pennsylvania to implement a communications system that will enhance the safety of Pennsylvania's citizens and their property.

IV. CONCLUSION

12. Based on the information before us, we find that Pennsylvania has satisfied the Commission's waiver criteria in support of its request for a waiver of Sections 90.247(a) and (c) and 90.613, of the Commission's rules to operate vehicular repeater stations on base station frequencies in the 851-861 MHz portion of the 800 MHz band and to operate hand-held units with a maximum output power of 3 watts when operating through mobile repeaters.

V. ORDERING CLAUSES

13. Accordingly, IT IS ORDERED, pursuant to Section 4(i) of the Communications Act of 1934, as amended, 47 U.S.C. § 154(i), and Section 1.925 of the Commission's rules, 47 C.F.R. § 1.925, that the Waiver Request filed by the Commonwealth of Pennsylvania with respect to application FCC File No. 0002112329 IS GRANTED SUBJECT TO THE CONDITION that operation of mobile radio repeaters is authorized only on a secondary basis.

14. IT IS FURTHER ORDERED that application FCC File No. 0002112329 SHALL BE PROCESSED in accordance with this *Order* and the Commission's rules.

15. This action is taken under delegated authority pursuant to Sections 0.191 and 0.392 of the Commission's rules, 47 C.F.R. §§ 0.191, 0.392.

FEDERAL COMMUNICATIONS COMMISSION

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⁴¹ See Mar. 24, 2006 Waiver Request Amendment at 1.

⁴² See equipment authorization BV8M803VTAC.