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

In the Matter of	)	
	)	
The Development of Operational,	)	
Technical and Spectrum Requirements	)	
for Meeting Federal, State and Local	)	WT Docket No. 96-86
Public Safety Agency Communication	)	
Requirements Through the Year 2010	)	

FIFTH REPORT AND ORDER

Adopted: July 16, 2002 **Released: August 2, 2002**

By the Commission:

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Appendices:

I. INTRODUCTION AND EXECUTIVE SUMMARY

1. In this *Fifth Report and Order*, we adopt a migration path to a 6.25 kHz voice efficiency requirement for the 764-776 MHz and 794-806 MHz band General Use and State License channels.[1] The actions we take today are based on the record developed in response to the *Fifth Notice of Proposed Rule Making* in the above-captioned proceeding. In addition to the adoption of a specific migration path for the General Use and State License channels, we clarify the rule relating to cross-border interference with Canada to comport with current international agreements.

2. In keeping with the Commission's safe harbor guidelines to facilitate use of the 764-776 MHz and 794-806 MHz band, we are mindful that the migration path we adopt today must not hinder the development and deployment of public safety equipment.[2] Additionally, we believe the migration path must not result in a delay in the planning and construction of pubic safety systems in this band.[3] Accordingly, we adopt the following measures to ensure efficient, effective and maximized use of the narrowband General Use and State License channels of the 700 MHz public safety band:

- Allow the marketing, manufacture and importation of 12.5 kHz equipment until December 31, 2006.[4]
- Accept applications for filing to use 12.5 kHz equipment that are filed on or before December 31, 2006.
- Accept applications for filing for *new* systems to use 6.25 kHz equipment that are filed after December 31, 2006.
- Permit legacy licensees to continue using 12.5 kHz based systems until December 31, 2016.
- Permit legacy licensees to purchase dual mode equipment (operates in 12.5 or 6.25 kHz mode) for system expansion or maintenance and operate it in the 12.5 kHz mode until December 31, 2016.

[1] The 764-776 MHz and 794-806 MHz bands are comprised of former television channels 63, 64, 68 and 69. *See* Reallocation of Television Channels 60-69, the 746-806 MHz Band, ET Docket No 97-157, *Report and Order*, 12 FCC Rcd 22953 (1997) (*Reallocation Report and Order*). The 764-776 MHz and 794-806 MHz bands are also collectively referred to as the 700 MHz public safety band.

[2] The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *Fourth Report and Order and Fifth Notice of Proposed Rulemaking*, 16 FCC Rcd 2020, 2049 ¶ 81 (2001) ("*Fourth R&O*" and "*Fifth Notice,*" as applicable).

[3] *Id.*

[4] For convenience, we refer to systems or equipment that provide only one voice path per 12.5 kHz of spectrum bandwidth as "12.5 kHz systems" or "equipment operating in the 12.5 kHz mode" and we refer to licensees of these systems as "12.5 kHz licensees" or "legacy licensees." Similarly, we refer to systems or equipment that provide at least one voice path per 6.25 kHz of spectrum bandwidth as "6.25 kHz systems" or "equipment operating in the "6.25 kHz mode" and we refer to licensees of these systems as "6.25 kHz licensees" or "dual mode" licensees. These references relate to voice efficiency; thus, references to "12.5 kHz equipment" do not encompass equipment that provides two voice paths using 12.5 kHz of spectrum bandwidth whereas references to "6.25 kHz equipment" do encompass equipment that provides at least four voice paths using 25 kHz of spectrum bandwidth.

- Ban the marketing, manufacture and importation of equipment that is exclusively 12.5 kHz effective after December 31, 2006.
- Cease type certifying equipment that is exclusively 12.5 kHz after December 31, 2006.
- Require use of 6.25 kHz equipment exclusively effective after December 31, 2016.

II. BACKGROUND

3. Previously, the Commission allocated twenty-four megahertz of spectrum at 764-776 MHz and 794-806 MHz (hereinafter "the 700 MHz public safety band") for public safety use.[5] The Commission designated the spectrum for use as follows: 12.5 megahertz for General Use, 2.6 megahertz for Interoperability, 2.4 megahertz for State License, 0.3 megahertz for Low Power, 0.2 megahertz for Secondary Trunking, and 6.0 megahertz for Reserve.[6] The Commission also divided the twenty-four megahertz of spectrum into narrowband (6.25 kHz channel) and wideband (50 kHz channel) segments. The Commission mandated that in order to receive FCC certification, all transmitters in the 700 MHz band must use digital modulation and that transmitters designed to operate in the narrowband segment must maintain a minimum data rate of 4.8 kbps per 6.25 kHz of bandwidth.[7]

4. In the *Fourth Notice of Proposed Rulemaking* in this proceeding, the Commission sought comment solely on the issue of migration to 6.25 kHz efficiency only for the 700 MHz band Interoperability channels.[8] In responding to the *Fourth Notice* issue, however, several commenters opined not only on migration path issues regarding the Interoperability channels, but also the General Use channels. We received no comments, however, on a migration path for the State License channels.

5. When the Commission issued the *Fourth R&O*, on January 11, 2001, the Commission did not believe it could adopt a rule requiring equipment operating on the General Use channels to meet a spectrum efficiency requirement of one voice channel per 6.25 kHz given that it did not seek specific comment on the issue raised by those commenters to the *Fourth Notice*.[9] Accordingly, the Commission sought to address these concerns by seeking comment, in the concurrently released *Fifth NPRM*, on the best manner to implement a one voice channel per 6.25 kHz of bandwidth requirement for the General Use channels.[10]

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[5] Reallocation Report and Order, 12 FCC Rcd 22953 ¶1.

[6] *See, e.g.*, 47 C.F.R. § 90.531 (Band plan).

[7] *See* 47 C.F.R. § 90.535 (Modulation and spectrum usage efficiency requirements). Mobiles and portables that only operate on designated low power channels are exempt from these requirements and mobile and portable transmitters may have analog modulation capability as a secondary mode. *Id.* § 90.535(a). We note that these standards are not unique. The Commission mandated the same standards for new transmitters transmitting data in the 150-174 MHz and/or the 450-512 MHz bands. *See* 47 C.F.R. § 90.203(j) (specifies separate voice and data efficiency requirements).

[8] The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *Fourth Notice of Proposed Rulemaking*, 15 FCC Rcd 16899, 16917 ¶ 46 (2000) (*Fourth Notice*).

[9] *Fourth R&O*, 16 FCC Rcd 2048 ¶ 79.

[10] *Id.* at 2048-49 ¶ 79.

6. The Commission recognized, however, that the outstanding migration issues, raised in the *Fifth Notice*, might inhibit immediate use of the 700 MHz public safety band where it is available.[11] To facilitate use of the spectrum where it is available, the Commission adopted a "safe harbor" policy to encourage the expeditious development and deployment of 700 MHz band equipment on the General Use channels.[12] This policy allows any systems constructed and placed in operation prior to December 31, 2005, to employ 12.5 kHz channel width and to continue to purchase and deploy 12.5 kHz equipment for system expansion and maintenance.[13] The Commission further concluded that the earliest it would require new systems to utilize 6.25 kHz channel technology would be December 31, 2005.[14] Finally, the Commission decided that it would not require these systems to cease operations and convert to 6.25 kHz channel width until December 31, 2015.[15] This *Fifth Report and Order* sets forth the migration path to a 6.25 kHz requirement for the General Use and State License channels.

III. DISCUSSION

A. Migration Timing

1. Migration Path to a 6.25 kHz Voice Efficiency Requirement

7. *Background.* In light of the Commission's commitment to ultimately require equipment operating on the General Use channels to meet a spectrum efficiency requirement of one voice channel per 6.25 kHz, the Commission sought comment on the most expeditious and effective manner to achieve this result.[16] In the *Fifth Notice*, the Commission noted that Com-Net Ericsson Critical Radio Systems Inc. (Com-Net Ericsson), Nokia, Inc. (Nokia) and North American TETRA Forum (NATF) advocate immediate adoption of a one voice path per 6.25 kHz of channel bandwidth requirement, for voice operations on the General Use channels,[17] while the Association of Public-Safety Communications Officials, International ("APCO") and the International Association of Chiefs of Police ("IACP") advocate a five-step, twenty-one year migration plan.[18] As indicated in the *Fifth Notice,* step one of the APCO/IACP plan requires the immediate adoption of Project 25 Phase I as the Interoperability requirement.[19] Step two requires that all newly type-accepted radios for use in the band have the capability to provide one voice channel per 6.25 kHz and still meet the Project 25 Phase I standard for the

[11] Television broadcasting in many areas of the country prevents public safety use of this spectrum until incumbent broadcasters vacate it as part of the transition to digital television (DTV). *See Reallocation Report and Order*, 12 FCC Rcd 22953, 22964-65 ¶ 24. *See also* Statement by FCC Chairman Michael K. Powell, DTV Plan Update – Progress for Consumers, *FCC News*, released July 11, 2002.

[12] *Fifth Notice*, 16 FCC Rcd 2049 ¶ 81.

[13] *Id.*

[14] *Id.*

[15] *Id.*

[16] *Fourth R&O,* 16 FCC Rcd 2048 ¶ 79.

[17] *Fifth Notice*, 16 FCC Rcd 2054 ¶ 96, *citing* Com-Net Ericsson Comments to the *Fourth Notice* at 17-18, Nokia Comments to the *Fourth Notice* at 4-5, NATF Comments to the *Fourth Notice* at 5.

[18] *Fifth Notice,* 16 FCC Rcd 2053-544 ¶ 95. Referred to collectively as the "APCO/IACP Plan."

[19] *Fifth Notice,* 16 FCC Rcd 2054 ¶ 97. Project 25 Phase I was adopted on January 11, 2001. *See Fourth Report and Order*, 16 FCC Rcd 2022 ¶ 2.

Interoperability channels.[20] Specifically, step two would occur as of the later of two dates: December 31, 2006 or within six months following Commission notice that at least fifteen of the top twenty metropolitan areas have been cleared of relevant television stations.[21] Step three requires that within ten years after the date established above, all General Use operations must utilize 6.25 kHz channel width in the top fifty metropolitan areas.[22] Step four requires that all General Use operations must utilize 6.25 kHz channel width within fifteen years after the date established in Step two.[23] Finally, as of the date established in Step two, the Commission must re-examine technological and marketplace developments and determine whether it is possible to develop a migration path for the subsequent transition to a 6.25 kHz interoperability standard.[24]

8. *Discussion.* We believe a phased implementation of the 6.25 kHz channel efficiency strikes the appropriate balance between providing the public safety community with rapid access to the 700 MHz public safety band and ensuring efficient spectrum use. This approach comports with the Commission's "safe harbor" provisions in the *Fourth R&O,*[25] and provides public safety entities sufficient time for long-range strategic and financial planning. The majority of commenters favor the phased implementation of 6.25 kHz channel efficiency envisioned in the APCO/IACP plan.[26] Consequently, APCO also states that its plan would allow installation of both 12.5 kHz and 6.25 kHz equipment for General Use operation in the near term, "but would require that 700 MHz public safety band equipment [certificated] after a specific date to have 6.25 kHz capability (but still maintain Project 25 Phase I for Interoperability channels)."[27]

9. However, support for the general framework of the APCO/IACP plan is not unanimous. Nokia contends that "the Commission should not seriously contemplate a decades long migration to 6.25 kHz efficiency for the General Use channels,"[28] asserting that once an embedded base of 12.5 kHz

[20] *Fifth Notice,* 16 FCC Rcd 2054 ¶ 97.

[21] *Id.*

[22] *Id.*

[23] *Id.*

[24] *Id.*

[25] *Fourth R&O,* 16 FCC Rcd 2049 ¶ 81.

[26] California Comments at 2 (The State of California notes that agencies entering the 700 MHz public safety band early in the implementation cycle (presumably, with 12.5 kHz equipment) must be able to realize a reasonable useful life from their investment.); Motorola Comments at 4; Com-Net Ericsson Comments at 6 (no longer urges immediate adoption of a 6.25 kHz efficiency requirement for 700 MHz public safety equipment).

[27] APCO Comments at 2-3.

[28] Nokia Comments at 3 (footnote omitted). Nokia also urges that the Commission grant NATF's reconsideration petition to the *Fourth Report and Order*, regarding the Commission's mandate that all narrowband public safety radios deployed in the 700 MHz band include Project 25 Phase I functionality. Nokia Comments at 2, 6. Nokia states that requiring such functionality, without a reasonable transition period and well before the time such functionality will be a practical necessity, will cause a "needlessly protracted migration path to 6.25 kHz technology for the 700 MHz General Use channels, . . ." *Id.* at 2. We note that this issue is now moot because the Commission has ruled on NATF's petition for reconsideration. *See* The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *Fourth Memorandum Opinion and Order*, 17 FCC Rcd 4736, 4746-49 ¶¶ 24-29 (2002) as corrected by *Erratum*, DA-02-902 (rel. Apr. 19, 2002).

infrastructure deployed in the 700 MHz band exists, "any migration to 6.25 will be exceedingly difficult and expensive."[29] APCO objects to the Commission characterization of the APCO/IACP plan "as too long of a migration path when considering the demand for public safety spectrum."[30] APCO notes that its plan "fits well within the 'safe harbor' established in the *Fourth R&O*."[31] Specifically, APCO clarified that the implementation dates of its plan coincide with the digital television (DTV) conversion. We agree with Nokia that it will be difficult to transition to 6.25 kHz efficiency once a public safety entity has become "embedded" in the 700 MHz public safety band using 12.5 kHz equipment, however, the rules we adopt today are designed to prevent such an occurrence. By allowing for the continued use of 12.5 kHz equipment through the normal life-span of the equipment as well as providing for interoperability with 6.25 kHz systems, we expect that the migration will be efficient and orderly. Our concern that mandating the use of 6.25 kHz technology would only serve to delay the use of the 700 MHz public safety band spectrum where it is presently available, has not abated;[32] but based on our review of the comments, we note that the public safety community supports a migration to 6.25 kHz voice efficiency on a reasonable timetable that promotes both maximum spectrum efficiency and use of the 700 MHz public safety band where available.

2. Fixed or Contingent Benchmarks

10. *Background.* In the *Fifth Notice*, the Commission indicated that there were several factors that could impact the length of the migration.[33] Accordingly, the Commission requested the commenters to identify such factors and the potential impact that they would have on the duration of a migration period.[34] Under the APCO/ IACP plan, the adoption of a 6.25 kHz voice efficiency requirement for the General Use channels is linked to the DTV transition. Specifically, the APCO/IACP plan requires that all newly type-accepted radios for use in the 700 MHz public safety band must have the 6.25 kHz technology by the later of December 31, 2006 or within six months of Commission notice that at least fifteen of the top twenty metropolitan areas have been cleared of relevant television stations.[35]

11. *Discussion.* We are persuaded by the view of the majority if commenters against linking the implementation of 6.25 kHz technology to the DTV transition.[36] We agree with California that the transition to 6.25 kHz efficiency will be driven by equipment availability, as opposed to the

[29] Nokia Comments at 3.

[30] APCO Comments at 4 *citing Fifth Notice*, 16 FCC Rcd 2055 ¶ 98.

[31] APCO Comments at 2; *see also Fourth R&O*, 16 FCC Rcd at 2049 ¶ 81.

[32] *Fifth Notice*, 16 FCC Rcd at 2055 ¶ 98. Nokia further argues that under the policies adopted in the *Fourth Report and Order* any 12.5 kHz system deployed before 2005 will not be required to convert to 6.25 kHz efficiency until 2015 at the earliest." Nokia Comments at 5. As noted above, objections to the Commission's decisions in the *Fourth Report and Order* are now moot. *See* note 28, *supra*.

[33] *Fifth Notice*, 16 FCC Rcd 2055 ¶ 98. Specifically, the Commission mentioned that the duration of the broadcasters' transition from analog to DTV may impact the length of the migration.

[34] *Id.*

[35] *See Fifth Notice* 16 FCC Rcd 2054 ¶ 97, *citing* APCO Comments to *Fourth NPRM* at 7-10, IACP Comments to *Fourth NPRM* at 3-5.

[36] *See e.g.* IMSA/IAFC Comments at 3; California Comments at 3-4; Com-Net Ericsson Comments at 9. *But see* PSWN Reply Comments at 5; APCO Comments at 3.

implementation of DTV.[37] In this connection, we note that several equipment manufacturers have indicated their ability to manufacture 6.25 kHz equipment (that meets the Interoperability capability requirement) before December 31, 2006.[38] Moreover, we believe that establishing a fixed date provides notice and certainty to all interested parties in a manner that facilitates future planning. In this connection, we find persuasive Com-Net Ericsson's contention that requiring migration by a date certain will require all affected public safety agencies to adequately consider migration issues in the initial procurement process, whether through the initial equipment decision or through incorporating migration requirements in any procurement contract.[39] We also agree with Com-Net Ericsson that setting a date certain eliminates the potentially troublesome scenario in which equipment manufacturers and public safety agencies would have only six months, after the Commission issues notice that an appropriate level of DTV transition has occurred, to prepare and implement a migration plan.[40] Moreover, as Com-Net Ericsson notes citing the experience of the *Refarming* proceeding, absent specific dates there is little motivation for users of land mobile radio spectrum to utilize newer more spectrally efficient technologies.[41] Thus, we conclude that certainty in knowing a definite date for migration will ensure an effective and efficient migration to a 6.25 kHz requirement.

12. Although we conclude that the migration dates need not be linked to the DTV transition, we acknowledge APCO's point that the pace of the DTV transition could impact equipment availability. Accordingly, the Commission will monitor - through our equipment certification process - whether 6.25 kHz equipment is likely to be commercially available relative to the deadline; if future circumstances warrant, the Commission reserves the right to take appropriate actions (including altering the implementation schedule) as necessary.

3. *Implementation*

a. Establishing Specific Migration Dates

13. *Background.* As previously noted, in adopting the safe harbor provisions of the *Fourth R&O*, the Commission announced December 31, 2005 as the earliest date new systems would have to employ 6.25 kHz technology.[42] Additionally, "any 12.5 kHz-based systems constructed and placed in operation prior to December 31, 2005, may continue to purchase and deploy 12.5 kHz equipment for system

[37] California Comments at 3.

[38] *See, e.g.*, Motorola Comments at 4 (supports "the specifics" of the APCO/IACP, with implication that it can supply equipment); Com-Net Ericsson Comments at 5 (acknowledges that 6.25 kHz voice equipment is fully developed and widely available throughout the word); Nokia Comments, Exhibit A (timeline indicates Nokia's ability to produce compliant radios by 2006).

[39] Com-Net Ericsson Comments at 10.

[40] *Id.*

[41] *Id.* at 7-8 *citing* Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them, And, Examination of Exclusivity and Frequent Assignment Policies of the Private Land Mobile Service, PR Docket 92-235 ("Refarming Proceeding.") We further note that because equipment purchase is a major expense, public safety organizations, which often face severe budgetary constraints, may not employ spectrally efficient equipment unless required to do so. *See Third MO&O and Third R&O*, 15 FCC Rcd at 19853-54 ¶ 22 citing The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *First Report and Order and Third Notice of Proposed Rulemaking*, 14 FCC Rcd 152, 172 ¶ 37 (1998) ("*First R&O*" or "*Third NPRM*" as applicable).

[42] *Fourth R&O*, 16 FCC Rcd at 2049 ¶ 81.

expansion or maintenance, and will not be required to cease operations and convert to 6.25 kHz technology" earlier than December 31, 2015.[43]

14. *Discussion.* Commenters are less concerned about which date we ultimately choose, and more concerned that we actually choose a date certain. Com-Net Ericsson suggests the adoption of December 31, 2005, as the date by which "new" systems must have 6.25 kHz or equivalent voice efficiency. Com-Net Ericsson believes that this date allows early access to the spectrum while promoting efficient use of the spectrum.[44] The APCO/IACP plan puts forth December 31, 2006, as the earliest date by which all newly certificated radios must have the capability to provide one voice channel per 6.25 kHz and must still meet the Project 25 Phase I standard for the Interoperability channels.[45] APCO also suggests December 31, 2016, as the earliest date all General Use operations must be operating at 6.25 kHz efficiency in the major urban areas of the United States.[46] IMSA/IAFC urges the Commission to adopt the December 31, 2005 and December 31, 2015 dates as firm compliance dates regarding permissive use of 12.5 kHz bandwidth equipment on the General Use channels.[47]

15. Based on the record before us, we believe that the dates offered in the APCO/IACP plan (*i.e.*, December 31, 2006, and December 31, 2016) are appropriate benchmark dates exclusive of any conditioning clauses. We note that commenters in favor of a phased migration to 6.25 kHz efficiency requirement generally agree that these dates will give radio equipment manufacturers sufficient time to research, develop and manufacture compliant equipment, while providing public safety entities that purchase 12.5 kHz equipment prior to December 31, 2006, a reasonable equipment life of ten years.[48] We also note that radio manufacturers have indicated their ability to comply with these dates.[49] We believe that establishing dates certain now will commence and promote competition among public safety radio equipment manufacturers. It also establishes certain parameters so that manufacturers who have not previously developed public safety equipment can accurately gauge the task before them. We believe that providing an additional year beyond the date announced in the safe harbor policy will allow both manufacturers and public safety entities to engage in strategic long-range planning. Finally, we note that the record does not contain convincing evidence for extending these dates beyond 2006 and 2016.

[43] *Id.*

[44] Com-Net Ericsson Comments at 8-9. Additionally, Com-Net Ericsson notes that "[t]he Refarming proceeding requires 6.25 kHz or equivalent voice spectrum efficiency for all newly type-accepted equipment in the Refarmed bands as of January 1, 2005," *id.* at 8, suggesting 6.25 kHz equipment will be ready even earlier than the safe harbor dates. We note, however, that because the Refarming Proceeding does not concern the 700 MHz band, conclusions regarding the effect of the Refarming Proceeding upon equipment availability may not be germane to this proceeding.

[45] APCO Comments at 3. Under the APCO/ IACP plan, the adoption of a 6.25 kHz voice efficiency requirement for the General Use channels is linked to the DTV transition. *See* para. 10, *supra.*

[46] *Id.* at 3-4.

[47] IMSA/IAFC Comments at 3-4; *see also*, State of California Comments at 3 (recommending adoption of the end of the 'safe harbor period,' December 31, 2005, as the date by which newly type-accepted equipment must include a 6.25 kHz-efficient mode of operation).

[48] *See, e.g.*, Com-Net Ericsson Comments at 10, "Establishing a date, today, that is approximately 15 years out into the future enables public safety agencies a reasonable period of time to recoup their communications investments should they initially choose to utilize [12.5 kHz equipment]." *See also* APCO Comments to the *Fourth Notice* at 9, (the dates the Commission selects should "provide a minimum 10-year life cycle for 'pure' 12.5 kHz radios . . . . Ten years is currently the generally accepted life span for many elements of a radio system, ... "

[49] *See* note 38, *supra.*

Accordingly, for the reasons discussed above, we are not adopting the APCO/IACP proposal to link these dates to the DTV transition.[50]

b. Effect of Implementation

16. We now define the practical implications of our selection of these dates. As a preliminary matter we stress that these dates apply with equal force to both State Licensees and licensees of General Use channels. Applications for new systems filed after December 31, 2006, will be granted only to use 6.25 kHz equipment. "Legacy licensees," *i.e.*, licensees of 12.5 kHz-based systems authorized based on an application filed on or before December 31, 2006 ("legacy systems"), may continue to use 12.5 kHz equipment marketed before December 31, 2006 (legacy equipment), until December 31, 2016. Additionally, after December 31, 2006, legacy licensees may purchase dual mode equipment (*i.e.*, equipment that operates utilizing 6.25 kHz channels, but is backward compatible with 12.5 kHz bandwidth equipment) for legacy system expansion or maintenance and operate it in the 12.5 kHz mode until December 31, 2016.[51] We note that some legacy licensees may not complete construction of its entire system before December 31, 2006. Thus, we clarify that only legacy licensees will have the option of using 12.5 kHz equipment after December 31, 2006. However, applicants/licensees who apply to operate new systems after December 31, 2006, will not be able to operate 12.5 kHz equipment in their systems.[52] In making this decision, we recognize APCO's contention that requiring legacy licensees to purchase dual mode equipment could impose substantial additional costs on agencies and tax payers.[53] In this connection, we consider that a uniform nationwide, predictable migration to 6.25 kHz offers economies of scale and other incentives that promote a competitive equipment market by encouraging new entrants. Moreover, we believe that APCO's proposal is misplaced because requiring dual mode equipment, for legacy system expansion or maintenance, provides legacy licensees with a fiscally prudent method of achieving spectral efficiency. Specifically, dual mode equipment will have backward compatibility with legacy systems, *e.g.*, for accessing a legacy system's repeater or for mobile-to-mobile direct communication. Moreover, as legacy systems add dual mode units for expansion or maintenance, these systems become increasingly forward compatible with new systems operating in the 6.25 kHz mode. By allowing legacy licensees the ability to gradually bring their systems to 6.25 kHz efficiency through the use of dual mode equipment we are providing agencies and taxpayers the opportunity to finance this conversion over an extended period of time. By contrast, allowing legacy licensees to continue purchasing 12.5 kHz equipment until the date it becomes illegal to use such equipment would ensure confusion and deprive licensees of a minimum 10-year life cycle for 'pure' 12.5 kHz radios. . . .[54] Moreover, these licensees would have to replace their entire systems, a substantially greater financial burden than a gradual transition.

17. Finally, we emphasize that all systems licensed on the General Use and State License channels of the 700 MHz public safety band must cease 12.5 kHz operations on these channels, and use

[50] *See* paras. 10-12, *supra*.

[51] Thus, we will permit manufacture of 12.5 kHz bandwidth equipment, provided that such equipment is also 6.25 kHz (*i.e.*, dual mode). Both APCO and Nokia acknowledge, all new radios for use on the 700 MHz public safety spectrum will be dual mode as of our first implementation date. *See* APCO Comments at 2-3; Nokia Comments at 4. We will revisit this issue should these predictions fail to come to fruition.

[52] We envision that licensees using 6.25 kHz equipment will be able to communicate with legacy licensees on the interoperability channels.

[53] APCO Comments at 6.

[54] "Ten years is currently the generally accepted life span for many elements of a radio system, ... " *See* APCO Comments to the *Fourth Notice* at 9.

6.25 kHz equipment exclusively by December 31, 2016. In taking this position we reject APCO's and California's proposed plans to allow certain licensees to operate 12.5 kHz operations indefinitely on a secondary basis.[55] While we are cognizant that requiring public safety entities to migrate to more spectrally-efficient systems is not a cost-free requirement, we believe that failing to take this step would engender indefinite reliance on 12.5 kHz equipment, defeating the Commission's goal of expeditious development and deployment of spectrum efficient public safety equipment in the 700 MHz band.[56] The public safety community has opined in various dockets that it does not have sufficient spectrum to accomplish its important objectives.[57] Requiring exclusive use of 6.25 kHz equipment will effectively double the amount of spectrum available to public safety entities on the General Use and State License channels. This doubling will not be contingent upon the Commission's procurement and allocation of additional spectrum for public safety entities, but through the Commission's requirement that these entities use more efficient equipment. We believe such expansion of the spectrum for public safety use is in the public interest. Accordingly, we will prohibit the use of 12.5 kHz equipment, including the 12.5 kHz component of dual mode equipment, on the General Use and State License channels after December 31, 2016.

18. We therefore conclude that after December 31, 2006, we will ban the marketing, manufacture and importation of equipment that is exclusively 12.5 kHz, will no longer certify equipment that is exclusively 12.5 kHz, or that lacks 6.25 kHz efficiency and only certify equipment that is dual mode. We further conclude that after December 31, 2016, all systems must cease 12.5 kHz operations for the General Use and State License channels, and use 6.25 kHz-compatible equipment exclusively. To ensure compliance with our December 31, 2006 migration deadline, we will require the Wireless Telecommunications Bureau to release a public notice listing all systems on the General Use and State License channels that are authorized to utilize 12.5 kHz equipment.[58] The Wireless Telecommunications Bureau will release this public notice no later than by January 31, 2007 (January 2007 PN). Any system that is not listed on this public notice may not use 12.5 kHz compatible equipment after December 31, 2006.[59]

19. To ensure compliance with our December 31, 2016 deadline, each licensee of a system listed on the January 2007 PN must declare to the Commission that its system(s) are using 6.25 kHz equipment exclusively.[60] Although the declaration may be filed as soon as the licensee converts its system

[55] APCO proposes allowing rural licensees to operate 12.5 kHz equipment on a secondary basis while California would extend this provision to all licensees. *See* APCO Comments at 4 and California Comments at 5.

[56] *Fourth R&O*, 16 FCC Rcd at 2022 ¶ 2.

[57] *See* 4.9 GHz Band Transferred from Government Use, WT Docket No. 00-32, *Second Report and Order and Further Notice of Proposed Rulemaking*, FCC 02-47 (rel. Feb. 27, 2002) (National public safety organizations and local police, fire, and rescue organizations filed numerous comments seeking designation of 50 MHz of spectrum for exclusive public safety use.) *See also* Final Report of Public Safety Wireless Advisory Committee to the Federal Communications Commission, September 11, 1999, at 3 (Public safety community is in great need of additional spectrum to utilize emerging state of the art technologies, to meet their critical operational needs.)

[58] Public Safety entities will have 30 days to notify the Wireless Telecommunications Bureau of any errors in the public notice.

[59] Violators of these provisions may be in violation of 47 U.S.C. §§ 301 and 302 and subject to the penalties described in 47 U.S.C. § 501-510.

[60] Violators of these provisions may be subject to enforcement action by the Commission. For example, to the extent information comes to the Commission's attention that a licensee on the January 2007 PN intentionally, incorrectly certified that it is using 6.25 kHz equipment exclusively, the Commission could impose a forfeiture for (continued....)

exclusively to 6.25 kHz equipment, each licensee must file this declaration no later than January 31, 2017. Licensees must submit this filing electronically through the Commission's Universal Licensing System. The Commission intends to assist the pertinent licensees with this declaration by sending a reminder notice to the licensees in June of 2016 and again in December of 2016.[61]

B. Rural and Urban Markets

20. *Background.* In the *Fifth Notice*, the Commission noted that it may be appropriate to establish multiple migration paths for different types of entities. Specifically, the Commission requested comment on whether different migration paths would be appropriate for public safety entities in rural and urban areas given their different needs.[62]

21. *Discussion.* We believe the benefits of adopting a nationwide migration path outweigh the benefits that could be achieved from adopting separate migration paths for rural and urban areas. We are concerned that separate migration paths for urban and rural areas may increase interference concerns and complicate frequency coordination. Additionally, we believe a single, nationwide migration path could lead to economies of scale. Because we are mindful of the administrative burden that separate migration paths could present to equipment manufacturers, public safety entities, and the Commission, and noting that no compelling rationale has been presented in support of differentiating between urban and rural users, we decline to adopt a separate migration path for rural users. Accordingly, we conclude that there will be a single, nationwide migration path to 6.25 kHz voice efficiency for all General Use and State License operations nationwide.

22. APCO contends that the Commission should afford rural area (which it defines as areas outside a seventy mile radius of the top fifty metropolitan areas)[63] a longer migration path because they will be among the last entities to implement 700 MHz systems, or because of issues of cost effectiveness.[64] California, PSWN and FLEWUG support APCO's ten-year urban/fifteen-year rural migration path,[65] although both PSWN and FLEWUG describe APCO's timeframes as speculative[66] and PSWN opposes different migration paths for urban and rural markets, contending that a single migration path for the whole country is most appropriate.

23. APCO and other supporters of different migration paths do not address several matters regarding this approach including how to differentiate rural areas from urban areas across the nation. Although APCO offers a definition it provides no basis for it and the record is silent as to its suitability. We are also concerned that adopting different migration paths would introduce frequency coordination

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violation of section 1.17 of the rules or potentially revoke the license for misrepresentation. (*See, e.g.*, 47 C.F.R. § 1.17 (prohibiting intentional misrepresentation); *see also* U.S.C. 47 § 503(b)).

[61] The Commission views the sending of reminder notifications as a convenience to the licensee and not a requirement of the Commission. Each licensee bears the responsibility of knowing the parameters and requirements of its license. We delegate to the Wireless Telecommunications Bureau authority to undertake additional outreach measures to assist licensees with complying with the certification requirements.

[62] *Fifth Notice*, 16 FCC Rcd at 2055 ¶ 99.

[63] APCO Comments at 4.

[64] *Id.*

[65] PSWN Comments at 4; FLWEUG Comments at 3; California Comments at 3-4.

[66] PSWN Comments at 6; FLEWUG Comments at 4.

issues between such areas, as well as the effect such an approach would have on the long term goal of efficiency in the 700 MHz band, and compatibility within state-wide systems. Com-Net Ericsson expresses concern that different sets of migration rules based solely on demographics will result in uncertainty.[67] Com-Net Ericsson also notes that, because 700 MHz systems will likely be large, wide area, shared systems, different sets of rules may result in less than optimum utilization of 6.25 kHz equipment.[68] IAFC/IMSA opposes multiple migration paths because it believes spectrum needs are driven by the needs of urban areas and that integration with these urban 700 MHz systems would spur use of the 700 MHz public safety band in rural areas.[69]

24. We agree that the benefits of implementing one migration path for the General Use and State License channels provide certainty for both applicants/licensees and equipment manufacturers. Furthermore, since rural areas are less encumbered with TV stations than urban areas, rural areas may be among the first entities to implement 700 MHz systems. Allowing such systems to operate with 12.5 kHz equipment on a longer migration path than urban areas would sustain a viable market for 12.5 kHz equipment at a time when the Commission is seeking a transition to the more efficient 6.25 kHz equipment. Accordingly, we will implement one migration path for these channels. In making this decision we note that the Chairman's Spectrum Policy Task Force, as part of its inquiry on promoting spectral efficiency, will be examining whether to take the differences in geographic areas into account when developing rules, standards or guidelines regarding spectral efficiency.[70] Dependent upon the results of this global inquiry, we may revisit this issue at a later time.

C. Migration for General Use and State License Channels

25. *Background.* Although the Commission declined to adopt final rules regarding implementation of 6.25 kHz technology on the General Use channels, the Commission repeated its commitment to ultimately require migration to such an efficiency requirement.[71] Additionally, the Commission invited comment to obtain additional information concerning the most expeditious and effective manner to achieve this result.[72] Throughout this proceeding, the Commission has sought to develop a flexible, regulatory framework to meet vital current and public safety communications needs.[73]

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[67] Com-Net Comments at 11.

[68] *Id.* at 12. *See also* IAFC/IMSA Comments at 4-5 ("the migration plans for urban systems will serve to dictate the migration plans for the suburban and rural systems"). IAFC/IMSA and Com-Net Ericsson both urge that, should a rural system find itself unable or unwilling to comply with the Commission's migration path rules, then it should proceed under the waiver process.

[69] IAFC/IMSA Comments at 5.

[70] *See* Spectrum Policy Task Force Seeks Public Comment on Issues Related to Commission's Spectrum Policies, ET Docket 02-135, *Public Notice*, DA 02-1311, (rel. Jun 6, 2002). *See also* Spectrum Policy Task Force Announces Public Workshops on Issues Related to Commission's Spectrum Policies, ET Docket 02-135, *Public Notice*, DA 02-1643, (rel. Jul 10, 2002).

[71] *Fourth Report and Order*, 16 FCC Rcd at 2048 ¶ 79.

[72] *Id.* (The Commission made this determination as a result of commenters' requests that the Commission adopt a 6.25 kHz requirement for the General Use channels.)

[73] *See* The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *Third Memorandum Opinion and Order and Third Report and Order*, 15 FCC Rcd 19844, 19847 ¶ 3 (2000) (*Third MO&O and Third R&O*).

26. *Discussion.* In response to the Commission's *Fifth Notice*, Com-Net Ericsson maintains that requiring 6.25 kHz technology on the non-interoperability channels in the 700 MHz public safety band is essential for public safety agencies to plan and budget for new communications systems.[74] We agree with regards to the General Use and State License channels. We believe that in order to expeditiously and effectively implement the 6.25 kHz efficiency requirement on the 700 MHz public safety band, we must establish a migration path for not only the General Use channels, but for the State License channels as well.

27. Although we note that the *Fifth Notice* did not specifically request comment on a migration path for the State License channels, we believe consideration of this issue at this time is appropriate because commenters have raised concerns that the State License channels should follow the same migration schedule as the General Use channels.[75] There are several reasons why migration of the General Use and State License channels on the same timetable is in the public interest.[76] First, in order to allow the development of equipment that would use both State License and General Use channels, these channels should have the same migration timetable. Second, State Licensees that seek to incorporate General Use channels into their state systems will need to use the same technology to combine the General Use and State License channels. Finally, the migration is in the public interest because State License channels recovered under the provisions of Section 90.529 of the Commission's Rules will revert to General Use and be administered by the pertinent Regional Planning Committee.[77] We note that since the Commission recently granted State Licenses to all states, no channels have reverted to General Use. However, those State License channels that states have not constructed by the end of the construction period will revert to General Use channels. Although Com-Net Ericsson advocates implementation of a migration path for all non-interoperability channels, we do not believe the same factors that favor such a course for the State License channels exist with regards to the Low Power channels,[78] Secondary Trunking channels[79] and Reserve channels.[80]

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[74] *See* Com-Net Ericsson Comments at 5-6.

[75] *See, e.g., id. See also* WT Docket No. 96-86, Letters from Robert M. Gurss, Counsel for APCO, to Secretary, FCC, dated October 31, 2000, and November 1, 2000 (describing migration issue for "General Use (and State) Channels" interchangeably).

[76] *Id.* It is a matter of longstanding judicial interpretation that an agency must be able to respond to the comments it is compelled to solicit under the APA and to adopt those comments that it finds persuasive without re-noticing the rule prior to its adoption. *See South Terminal Corp. v. EPA*, 504 F2d 646 (1st Cir. 1974).

[77] *See* 47 C.F.R. § 90.529(a)(2), (e); Development Of Operational, Technical And Spectrum Requirements For Meeting Federal, State And Local Public Safety Agency Communication Requirements Through The Year 2010, Third Memorandum Opinion and Order and Third Report and Order, 15 FCC Rcd 19,844, 19,871-72 ¶ 63 (2000). We note that all the States applied for and received State Licenses. Thus, reversion to the General Use and administration by the RPC would only occur if the State Licensee turned the spectrum in or failed to meet the construction requirements.

[78] The use of Low Power channels is limited by their very nature because their maximum effective radiated power on these channels is limited to 2 watts. *Id.* at 19,860 ¶ 39. Moreover, transmitters operating exclusively on the Low Power channels are exempt from the digital modulation requirement. *See* 47 C.F.R. § 90.535(a). Accordingly, the Low Power channels would not be used in the same manner as General Use and State License channels.

[79] The Secondary Trunking channels are narrowband interoperability channels. The Commission will revisit the issue of a 6.25 kHz voice efficiency requirement on the interoperability channels no earlier than 2005. Development Of Operational, Technical And Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through The Year 2010, *Fourth Report and Order and Fifth Notice of Proposed Rule Making*, 16 FCC Rcd 2020, 2047-48 ¶ 77.

28. Implementing the same migration path for General Use and State License channels will enhance the ability of public safety agencies to perform both long range and short term planning to include coordination with adjacent agencies regarding their respective communications needs. Such planning and coordination between the public safety agencies is critical to the successful deployment of communications systems in this band. Accordingly, in order to have effective, efficient and maximized use of the 700 MHz band spectrum, we must implement a migration plan that takes a coordinated approach regarding the operation of the General Use and State License channels. Consequently, we will apply the migration path to both General Use and State License channels.

D. Section 90.533 – Transmitting sites near the U.S./Canada or U.S./Mexico border

29. In the *First Report and Order* in this docket, the Commission addressed issues involving applications for 700 MHz public safety spectrum along the United States/Canada and United States/Mexico borders.[81] On our own motion, we are revising Section 90.533, which incorrectly implies that Canadian television signals are entitled to interference protection within the United States.[82] Under the existing Agreement,[83] transmitters located in the United States are required to protect *within Canadian territory* the signals of Canadian digital television stations, based on specified signal and interference contours.[84] Thus, we are revising Section 90.533(a) to ensure that it comports with the existing Agreement.

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[80] This spectrum is reserved for future developments in broadband technologies. *Public Safety Third MO&O and Third R&O*, 15 FCC Rcd at 19,848 ¶ 6.

[81] *First R&O*, 14 FCC Rcd at 227-28 ¶¶ 165-67. *See also* 47 C.F.R. § 90.533, codifying the conditions precedent to the grant of a license. Section 90.533 refers to the TV/DTV interference protection criteria set forth at 47 C.F.R. § 90.545.

[82] 47 C.F.R. § 90.533. Section 90.533(a) refers to the TV/DTV interference protection criteria set forth at 47 C.F.R. § 90.545.

[83] *See* Agreement Between the Government of the United States of America and the Government of Canada Relating to the TV Broadcast Service, Nov. 3, 1993 – Jan. 5, 1994; Letter of Understanding between the Federal Communications Commission of the United States of American and Industry Canada Related to the Use of the 54-72 MHz, 76-88 MHz, 174-216 MHz, and 470-806 MHz Bands for the Digital Television Broadcasting Service Along the Common Border ("Letter"). The full text of the Letter is available at: >http://www.fcc.gov/ib/pnd/agree/dtvlou092200.pdf<.

[84] The action we take today reflects the "foreign affairs exception" to the notice and comment rulemaking requirement. *See* 5 U.S.C. § 553(a)(1) (APA rule making section "applies, according to the provisions thereof, except to the extent that there is involved - a military or foreign affairs function of the United States."). *See, e.g., WBEN v. United States/Federal Communications Commission*, 396 F.2d 601 (9th Cir. 1968) (the court held that the Commission was "on firm ground" when it did not engage in formal rulemaking prior to adopting new rules under a Canada/United States agreement limiting the times and power of transmission. The court did indicate that adopting such rules pursuant to an internal agreement obviated the APA rule making requirements). *See also, International Brotherhood of Teamsters v. Pena*, 17 F.3d 1478 (D.C. Cir. 1994), where the court, citing *WBEN*, explicitly rejected the argument that the APA's notice and comment requirements (5 U.S.C. Section 553 (b) and (c)) applied to rules that the Department of Transportation (DOT) adopted pursuant to the North American Free Trade Agreement (NAFTA). In ruling that the foreign function exception applied, the court stated "[t]he rule at issue here, . . . , did no more than implement an agreement between the United States and Mexico. . . . . [T]he United States would have been reneging on international obligations if the [DOT] had not issued the rule." 17 F.3d 1478, 1486. In citing *WBEN*, the court noted, "[h]ere as there the rule does no more than carry out obligations to a foreign nation undertaken for purposes of resolving a problem requiring coordination . . . . We believe it therefore involves a 'foreign affairs function' within the meaning of 553(a)" *Id.*

IV. PROCEDURAL MATTERS

A. Regulatory Flexibility Act

30. Appendix B contains a Final Regulatory Flexibility Analysis (FRFA) with respect to the *Fifth Report and Order*. As required by the Regulatory Flexibility Act,[85] the Commission has prepared the analysis of the possible impact on small entities of the rules and proposed rules set forth in this document. The Commission's Consumer Information Bureau, Reference Information Center, will send a copy of this *Fifth Report and Order*, including the FRFA, to the Chief Counsel for Advocacy of the Small Business Administration in accordance with the Regulatory Flexibility Act.

B. Paperwork Reduction Act

31. This Report and Order contains either a proposed or modified information collection. As part of its continuing effort to reduce paperwork burdens, we invite the general public and the Office of Management and Budget (OMB) to take this opportunity to comment on the information collections contained in this *Report and Order*, as required by the Paperwork Reduction Act of 1995, Pub. L. No. 104-13. Public and agency comments are due at the same time as other comments on this *Report and Order*; OMB comments are due 60 days from date of publication of this *Report and Order* in the Federal Register. Comments should address: (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology. Written comments by the public on the proposed and/or modified information collections are due within 60 days. Written comments must be submitted by the Office of Management and Budget (OMB) on the proposed and/or modified information collections on or before 60 days after date of publication in the *Federal Register*. In addition to filing comments with the Secretary,[86] a copy of any comments on the information collections contained herein should be submitted to Judy Boley, Federal Communications Commission, Room 1-C804, 445 Twelfth Street, S.W., Washington, DC 20554,[87] or via the Internet to jboley@fcc.gov and to Edward Springer, OMB Desk Officer, 10236

[85] *See* 5 U.S.C. § 601, *et seq.*

[86] Commenters should be aware of the new filing procedures and locations for paper documents noted in a recent *Public Notice*, DA 01-2919 (released December 14, 2001):

If you are sending this type of document or using this delivery method...	**It should be addressed for delivery to...**
Hand-delivered or messenger-delivered paper filings for the Commission's Secretary	236 Massachusetts Avenue, NE, Suite 110, Washington, DC 20002 (8:00 a.m. to 7:00 p.m.)
Other messenger-delivered documents, including documents sent by overnight mail (other than United States Postal Service Express Mail and Priority Mail)	9300 East Hampton Drive, Capitol Heights, MD 20743 (8:00 a.m. to 5:30 p.m.)
United States Postal Service first-class mail, Express Mail, and Priority Mail	445 12th Street, SW, Washington, DC 20554

[87] *Id.*

NEOB, 725 - 17th Street, N.W., Washington, D.C. 20503[88] or via the Internet to Edward.Springer@omb.eop.gov.

32. Alternative formats (computer diskette, large print, audio cassette and Braille) are available to persons with disabilities by contacting Brian Millin, phone 418-7426, TTY 418-7365, bmillin@fcc.gov. This *Fifth Report and Order* can also be downloaded at http:// www.fcc.gov/wtb/orders/fccxxxx.doc.

33. For further information concerning this proceeding, contact Roberto Mussenden, Esq., 202/418-0680, rmussend@fcc.gov, Wireless Telecommunications Bureau.

V. ORDERING CLAUSES

34. Authority for the issuance of this *Fifth Report and Order* is contained in Sections 4(i), 4(j), 7(a), 302, 303(b), 303(f), 303(g), 303(r), 307(e), 332(a), and 332(c) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 154(j), 157(a), 302, 303(b), 303(f), 303(g), 303(r), 307(e), 332(a), 332(c).

35. Accordingly, IT IS ORDERED that Part 90 of the Commission's Rules, 47 C.F.R. Part 90 IS AMENDED as specified in Appendix C.

36. IT IS FURTHER ORDERED that this *Fifth Report and Order* will be effective thirty days after publication in the Federal Register.

[88] *Id.*

37. IT IS FURTHER ORDERED that 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 Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A
Parties Submitting Comments and Reply Comments in WT Docket 96-86

The following list contains the names of parties filing comments and reply comments to the *Fifth Notice*:

Comments

Association of Public-Safety Communications Officials-International, Inc. (APCO)
Com-Net Ericsson Critical Radio Systems, Inc. (Com-Net Ericsson)
Federal Law Enforcement Wireless Users Group (FLEWUG)
International Association of Fire Chiefs, Inc. (IAFC)
International Municipal Signal Association (IMSA)
Motorola, Inc. (Motorola)
Nokia, Inc. (Nokia)
Public Safety Wireless Network (PSWN)
State of California

Reply Comments

APCO
FLEWUG
PSWN

APPENDIX B
FINAL REGULATORY FLEXIBILITY ANALYSIS

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[89] An Initial Regulatory Flexibility Analysis (IRFA) was incorporated into the *Fourth Report and Order and Fifth Notice of Proposed Rule Making (Fifth NPRM)*[90] of this proceeding. The Commission sought written public comment on the proposals in the *Fifth NPRM*, including comment on the IRFA.[91] The present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.[92]

A. Need for, and Objectives of, the *Fifth Report and Order*:

2. The need is to resolve outstanding migration issues regarding a migration path for the General Use and State License channels located within the public safety spectrum at frequencies 764-776 MHz and 794-806 MHz (the 700 MHz band). Resolution entails requiring a 6.25 kHz requirement for the General Use and State License channels. Our objective is to promote the efficient, effective, and maximum use of 700 MHz public safety spectrum and not hinder development and deployment of public safety equipment. Specifically, the rules adopted herein will: require licensees in the narrowband General Use and State License channels, whose applications are filed after December 31, 2006, to operate only in voice mode using a voice efficiency standard of at least one voice path per 6.25 kHz of spectrum bandwidth; allow licensees in the narrowband General Use and State License channels, whose applications are filed on or before December 31, 2006 ("legacy licensees"), to operate in voice mode using a voice efficiency standard of at least one voice path per 12.5 kHz of spectrum bandwidth until December 31, 2016; allow legacy licensees to buy dual mode equipment (*i.e.*, equipment that operates in 12.5 kHz or 6.25 kHz mode) for system expansion or maintenance; ban the manufacture, importation, and marketing of equipment that only operates on a voice efficiency standard of at least one voice channel per 12.5 kHz of spectrum bandwidth after December 31, 2006; and prevent acceptance of applications for certification of equipment that operates exclusively on a voice efficiency standard of at least one voice channel per 12.5 kHz of spectrum bandwidth or that lacks the ability to operate on a voice efficiency standard of one voice channel per 6.25 kHz of spectrum bandwidth after December 31, 2006.

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

3. No comments were submitted in response to the IRFA. Comments were submitted in response to the *Fifth NPRM* regarding whether different migration paths would be appropriate for public safety entities in rural urban areas based on their different needs.[93]

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[89] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et seq.*, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[90] 16 FCC Rcd 2020, 2060 (2001).

[91] *Id.*

[92] *See* 5 U.S.C. § 604.

[93] Comments addressing this issue are summarized in the *Fifth Report and Order* at paras. 22-24.

C. Description and Estimate of the Number of Small Entities to Which 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 proposed rules, if adopted.[94] The RFA generally defines "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[95] In addition, the term "small business" has the same meaning as "small business concern" under the Small Business Act.[96] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operations; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[97]

5. A small organization is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.[98] Nationwide, as of 1992, there were approximately 275,801 small organizations.[99] "Small governmental jurisdiction" generally means "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000."[100] As of 1992, there were approximately 85,006 such jurisdictions in the United States.[101] This number includes 38,978 counties, cities, and towns; of these, 37,566, or ninety-six percent, have populations of fewer than 50,000.[102] The Census Bureau estimates that this ratio is approximately accurate for all governmental entities. Thus, of the 85,006 governmental entities, we estimate that 81,600 (ninety-one percent) are small entities.

6. *Public Safety Radio Pool Licensees.* As a general matter, Public Safety Radio Pool licensees include police, fire, local government, forestry conservation, highway maintenance, and emergency medical services that draw from a common pool of spectrum.[103] Spectrum in the 700 MHz band for

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[94] 5 U.S.C. § 603(b)(3).

[95] 5 U.S.C. § 601(6).

[96] 5 U.S.C. § 601(3) (incorporating by reference the definition "small business concern" in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such terms which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." 5 U.S.C. § 601(3).

[97] Small Business Act, 15 U.S.C. § 632 (1996).

[98] 5 U.S.C. § 601(4).

[99] 1992 Economic Census, U.S. Bureau of the Census, Table 6 (special tabulation of data under contract to Office of Advocacy of the SBA).

[100] 5 U.S.C. § 601(5).

[101] U.S. Dept. of Commerce, Bureau of the Census, "1992 Census of Governments."

[102] *Id.*

[103] *See* Subparts A and B of Part 90 of the Commission's Rules, 47 C.F.R. §§ 90.1 - 90.22. Police licensees include 26,608 licensees that serve state, county, and municipal enforcement through telephony (voice), telegraphy (code) and teletype and facsimile (printed material). Fire licensees include 22,677 licensees comprised of private volunteer or professional fire companies as well as units under governmental control. Public Safety Radio Pool licensees also include 40,512 licensees that are state, county, or municipal entities that use radio for official purposes. There are also 7,325 forestry service licensees comprised of licensees from state departments of conservation and private (continued....)

public safety services is governed by 47 U.S.C. § 337. Non-Federal governmental entities as well as private businesses are licensees for these services. All governmental entities with populations of less than 50,000 fall within the definition of a small entity.[104]

7. *Radio and Television Equipment Manufacturers.* We anticipate that at least six radio equipment manufacturers will be affected by our decisions in this proceeding. According to the SBA's regulations, a radio and television broadcasting and communications equipment manufacturer must have 750 or fewer employees in order to qualify as a small business concern.[105] Census Bureau data indicate that there are 858 U.S. firms that manufacture radio and television broadcasting and communications equipment, and that 778 of these firms have fewer than 750 employees and would therefore be classified as small entities.[106] We do not have information that indicates how many of the six radio equipment manufacturers associated with this proceeding are among these 778 firms. However, Motorola and Ericsson, two of the six manufacturers, are major, nationwide radio equipment manufacturers, and, thus, we conclude that these manufacturers would *not* qualify as small businesses because, in all likelihood, they have more than 750 employees.

8. *Television Stations.* This proceeding will affect full service TV station licensees (Channels 60-69), TV translator facilities, and low power TV (LPTV) stations. The SBA defines a TV broadcasting station that has no more than $12 million in annual receipts as a small business.[107] TV broadcasting stations consist of establishments primarily engaged in broadcasting visual programs by TV to the public, except cable and other pay TV services.[108] Included in this industry are commercial, religious, educational, and other TV stations.[109] Establishments primarily engaged in TV broadcasting and which produce taped TV program materials are also included in this industry.[110] Separate

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forest organizations who set up communications networks among fire lookout towers and ground crews. The 9,480 state and local governments are highway maintenance licensees that provide emergency and routine communications to aid other public safety services to keep main roads safe for vehicular traffic. Emergency medical licensees (1,460) use these channels for emergency medical service communications related to the delivery of emergency medical treatment. Another 19,478 licensees include medical services, rescue organizations, veterinarians, handicapped persons, disaster relief organizations, school buses, beach patrols, establishments in isolated areas, communications standby facilities, and emergency repair of public communications facilities.

[104] 5 U.S.C. § 601(5).

[105] 13 C.F.R. § 121.201, North American Industry Classification System (NAICS) Code 334220.

[106] NAICS Code 334220.

[107] 13 C.F.R. § 121.201, NAICS Code 513120.

[108] Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, 1992 Census of Transportation, Communications and Utilities, Establishment and Firm Size, Series UC92-S-1, Appendix A-9 (1995) (ESA 1992 Census).

[109] *See*, for broadcast television stations, U.S. Small Business Administration Table of Small Business Size Standards, NAICS Code 513120, 13 C.F.R. § 121.201.

[110] ESA 1992 Census at Appendix A-9.

establishments primarily engaged in producing taped TV program materials are classified under another NAICS Code,[111] and are defined as small if annual receipts do not exceed $6 million.[112]

9. There were 1,509 TV stations operating in the nation in 1992.[113] That number has remained fairly constant as indicated by the approximately 1,551 operating TV broadcasting stations in the nation as of February 28, 1997.[114] For 1992[115] the number of TV stations that produced less than $10.0 million in revenue was 1,155 establishments, or approximately 77 percent of the 1,509 establishments.[116] There are currently 95 full service analog TV stations, either operating or with approved construction permits on channels 60-69.[117] In the *DTV Proceeding*, we adopted a DTV Table that provides only 15 allotments for DTV stations on channels 60-69 in the continental United States.[118] There are seven DTV allotments in channels 60-69 outside the continental United States.[119] Thus, the rules will affect approximately 117 TV stations; approximately 90 of those stations may be considered small businesses.[120] These estimates may overstate the number of small entities since the revenue figures on which they are based do not include or aggregate revenues from non-TV affiliated companies. We recognize that the rules may also impact minority-owned and women-owned stations, some of which may be small entities. In 2000, minorities owned and controlled 23 (1.9 percent) of 1,288 full power commercial TV stations in the United States.[121]

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[111] ESA 1992 Census at Appendix A-9; NAICS Code 512110 (Motion Picture and Video Tape Production); NAICS Codes 512290, 532490, 561310, 711110, 711120, 711320, 711410, 711510, 5613910 (Theatrical Producers and Miscellaneous Theatrical Services (producers of live radio and TV programs)).

[112] 13 C.F.R. § 121.201.

[113] *Allocation Report and Order*, 12 FCC Rcd at 22953 (1998), at Appendix C; ESA 1992 Census at Appendix A-9.

[114] *Allocation Report and Order*, 12 FCC Rcd 22953 (1998) at Appendix C.

[115] A census for communications establishments is performed every five years ending with a "2" or "7." *See* ESA 1992 Census at III.

[116] The amount of $10 million was used to estimate the number of small business establishments because the relevant Census categories stopped at $9,999,999 and began at $10,000,000. No category for $12 million existed. Thus, the number is as accurate as is possible to calculate with the available information.

[117] *See Allocation Notice*, 12 FCC Rcd at 14142.

[118] See DTV Proceeding, 12 FCC Rcd 14588.

[119] *See Allocation Notice* 12 FCC Rcd 14142, n.5.

[120] We use the 77 percent figure of TV stations operating at less than $10 million for 1992 and apply it to the 117 TV stations to arrive at 90 stations categorized as small businesses.

[121] *Minority Commercial Broadcast Ownership in the United States*, U.S. Dep't of Commerce, National Telecommunications and Information Administration, The Minority Telecommunications Development Program ("MTDP") (Dec. 2000). MTDP considers minority ownership as ownership of more than 50 percent of a broadcast corporation's stock, voting control in a broadcast partnership, or ownership of a broadcasting property as an individual proprietor. The minority groups included in this report are Black, Hispanic, Asian, and Native American.

According to the U.S. Bureau of the Census, in 1987 women owned and controlled 27 (1.9 percent) of 1,342 commercial and non-commercial TV stations in the United States.[122]

10. There are currently 4,977 TV translator stations and 1,952 LPTV stations.[123] Approximately 1,309 low power TV and TV translator stations are on channels 60-69[124] which could be affected by policies in this proceeding. The Commission does not collect financial information of any broadcast facility and the Department of Commerce does not collect financial information on these broadcast facilities. We will assume for present purposes, however, that most of these broadcast facilities, including LPTV stations, could be classified as small businesses. As indicated earlier, approximately 77 percent of TV stations are designated under this analysis as potentially small businesses. Given this, LPTV and TV translator stations would not likely have revenues that exceed the SBA maximum to be designated as small businesses.

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

11. The *Fifth Report and Order* does not adopt rules that entail recordkeeping, and/or third-party consultation. However, it does adopt rules that entail certain reporting and compliance requirements. The rules allow legacy licensees (as described in the *Fifth Report and Order*) to operate their systems at a 12.5 kHz voice efficiency standard until December 31, 2016, when these systems must convert to a 6.25 kHz voice efficiency standard on the General Use and State License channels. These legacy licensees must file, through ULS, no later than January 31, 2017, a declaration that they have completed the requisite conversion.[125]

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

12. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed 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 or reporting requirements under the rule for 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 small entities.[126]

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[122] *See* Comments of American Women in Radio and TV, Inc. in MM Docket No. 94-149 and MM Docket No. 91-140 at 4 n.4 (filed May 17, 1995) (citing 1987 Economic Censuses, *Women-Owned Business*, WB87-1, U.S. Dep't of Commerce, Bureau of the Census, August 1990 (based on 1987 Census)). After the 1987 Census report, the Census Bureau did not provide data by particular communications services (four-digit SIC Code), but rather by the general two-digit SIC Code for communications (#48). Consequently, since 1987, the Census Bureau has not updated data on ownership of broadcast facilities by women, nor does the Commission collect such data. However, we sought comment on whether the Annual Ownership Report Form 323 should be amended to include information on the gender and race of broadcast license owners. Policies and Rules Regarding Minority and Female Ownership of Mass Media Facilities, *Notice of Proposed Rule Making*, 10 FCC Rcd 2788, 2797 (1995).

[123] *See Allocation Report and Order*, 12 FCC Rcd 22986 at Appendix C.

[124] *See Allocation Notice* at 12 FCC Rcd 14142, n.3.

[125] A detailed discussion of these requirements can be found at paras. 16, 18, 19 of the *Fifth Report and Order*.

[126] 5 U.S.C. § 603.

13. The rules adopted in the *Fifth Report and Order* are essentially designed to achieve standardization of technology at points in time in the distant future. Therefore, we do not believe that the impact of these rules will be different for smaller entities in the long run. In formulating the rules in the *Fifth Report and Order*, we reduced economic burdens wherever possible for all entities, large and small. The regulatory burdens that we have adopted are necessary to ensure that the public receives the public safety benefits of innovative new services in a prompt and efficient manner. For example, we have adopted technical and operational rules that will promote competition in the equipment market. We believe that the rules must be as competitively and technologically neutral as possible, in order to allow for competing equipment designs and to avoid hindering future innovative technological developments.

14. We note that tighter technical specifications generally allow more intense spectrum use, but may result in higher equipment costs. Conversely, although wider tolerances may allow manufacturers to use less costly component parts in transmitting equipment, they also may result in less efficient spectrum use. Because the Commission is statutorily required to consider the safety of life and property in its consideration of spectrum management issues, we believe that the technical regulations we adopt herein provide a reasonably balanced approach in meeting the Commission's mandate.

15. As for radio equipment for use on the 700 MHz public safety band, we believe that the rules we adopt today will foster competition in the market for radio equipment for use in the 700 MHz public safety band, and thereby increase the opportunity for small entities to enter this market. As for smaller public safety entities, the rules we adopt today are designed to allow them (and all public safety entities) a full 10-year life cycle for equipment they may purchase between now and December 31, 2006. We do not believe there are feasible alternatives to these rules, in that they are the narrowly tailored to allow both early access to the 700 MHz public safety spectrum, and give early entrants into that spectrum a full life span for the equipment they use. Although we considered whether to permit smaller entities, specifically those operating in rural areas, to operate indefinitely using a 12.5 kHz voice efficiency standard, we rejected this approach because we wanted to ensure certainty and consistency of operations by all licensees as described in the *Fifth Report and Order* and to avoid sustaining a viable market for spectrally inefficient equipment.

Report to Congress: The Commission will send a copy of the *Fifth Report and Order*, including this FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act, *see* 5 U.S.C. § 801(a)(1)(A). Also, the Commission will send a copy of the *Fifth Report and Order* to the Chief Counsel for Advocacy of the Small Business Administration. In addition, the *Fifth Report and Order* and FRFA (or summaries thereof) will be published in the Federal Register. *See* 5 U.S.C. § 604(b).

APPENDIX C
FINAL RULES

Part 90 of Title 47 of the Code of Federal Regulations is amended as follows:

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), 332(c)(7).

2. Section 90.201 is amended to read as follows.

§ 90.201 Scope.

This subpart sets forth the general technical requirements for use of frequencies and equipment in the radio services governed by this part. Such requirements include standards for acceptability of equipment, frequency tolerance, modulation, emissions, power, and bandwidths. Special additional technical standards applicable to certain frequency bands and certain specialized uses are set forth in subparts J, K, N, and R.

3. Section 90.203 is amended by adding paragraphs (m-n) to read as follows.

§ 90.203 Certification required.
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(m) Applications for part 90 certification received after December 31, 2006 will not be granted to transmitters designed to operate in the voice mode on channels designated in §§ 90.531(b)(5) or 90.531(b)(6) that do not provide at least one voice path per 6.25 kHz of spectrum bandwidth.

(n) Transmitters designed to operate in the voice mode on channels designated in §§ 90.531(b)(5) or 90.531(b)(6) that do not provide at least one voice path per 6.25 kHz of spectrum bandwidth shall not be manufactured in, or imported into the United States after December 31, 2006. Marketing of these transmitters shall not be permitted after December 31, 2006.

4. Section 90.531 is amended by amending paragraphs (b)(5-6) and paragraph (d)(1) to read as follows.

§ 90.531 Band Plan.
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(b) ***

(5) *Narrowband state channels.* The following narrowband channels are designated for direct licensing to each state (including U.S. territories, districts, and possessions): 25-36, 65-76, 105-116, 145-156, 185-196, 225-236, 265-276, 305-316, 645-656, 685-696, 725-736, 765-776, 805-816, 845-856, 885-896, 925-936, 985-996, 1025-1036, 1065-1076, 1105-1116, 1145-1156, 1185-1196, 1225-1236, 1265-1276, 1605-1616, 1645-1656, 1685-1696, 1725-1736, 1765-1776, 1805-1816, 1845-1856, 1885-1896. Voice operations on these channels are subject to compliance with the spectrum usage efficiency requirements set forth in § 90.535(d).

(6) *Narrowband general use channels.* All narrowband channels established in paragraph (b) of this section, other than those listed in paragraphs (b)(1), (b)(2), (b)(4) and (b)(5) of this section are designated to public safety eligibles subject to Commission approved regional planning committee

regional plans. Voice operations on these channels are subject to compliance with the spectrum usage efficiency requirements set forth in § 90.535(d).

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(d) ***

(1) *Narrowband.* Subject to compliance with the spectrum usage efficiency requirements set forth in § 90.535, two or four contiguous narrowband (6.25 kHz) channels may be used in combination as 12.5 kHz or 25 kHz channels, respectively. The lower (in frequency) channel for two channel combinations must be an odd (*i.e.*, 1, 3, 5 ...) numbered channel. The lowest (in frequency) channel for four channel combinations must be a channel whose number is equal to 1+(4xn), where n = any integer between 0 and 479, inclusive (*e.g.*, channel number 1, 5, ... 1917). Channel combinations are designated by the lowest and highest channel numbers separated by a hyphen, *e.g.*, "1-2" for a two channel combination and "1-4" for a four channel combination.

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5. Section 90.533 is amended by revising paragraphs (a-c) to read as follows:

§ 90.533 Transmitting sites near the U.S./Canada or U.S./Mexico border
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(a) Public safety transmitters operating in the 764-776 MHz and 794-806 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.

(b) Public safety facilities must accept any interference that may be caused by operations of UHF television broadcast transmitters in Canada and Mexico.

(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 764-776 MHz and 794-806 MHz bands.

6. Section 90.535 is amended by revising paragraphs (b-c) and by adding paragraph (d) to read as follows.

§ 90.535 Modulation and spectrum usage efficiency requirements.
*****

(b) Transmitters designed to operate in the narrowband segment using digital modulation must be capable of maintaining a minimum data (non-voice) rate of 8 kbps per 6.25 kHz of bandwidth.

(c) Transmitters designed to operate in the wideband segment using digital modulation must be capable of maintaining a minimum data (non-voice) rate of 384 kbps per 150 kHz of bandwidth.

(d) The following provisions apply to licensees operating in the channels designated in §§ 90.531(b)(5) or 90.531(b)(6).

(1) With the exception of licensees designated in subparagraph (2), after December 31, 2006, licensees may only operate in voice mode in these channels at a voice efficiency of at least one voice path per 6.25 kHz of spectrum bandwidth.

(2) Licensees authorized to operate systems in the voice mode on these channels from applications filed on or before December 31, 2006, may continue operating in the voice mode on these channels (including modification applications of such licensees granted after December 31, 2006, for expansion or maintenance of such systems) at a voice efficiency of at least one voice path per 12.5 kHz of spectrum bandwidth until December 31, 2016.

(3) The licensees designated in subparagraph (2) must, no later than January 31, 2017, file a declaration through the Universal Licensing System that they are operating these channels at a voice efficiency of at least one voice path per 6.25 kHz of spectrum bandwidth.