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

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

# FOURTH NOTICE OF PROPOSED RULE MAKING

**Adopted:** July 25, 2000 **Released:** August 2, 2000

**Comment Date**: Thirty days after Publication in the Federal Register
**Reply Comment Date**: Forty five days after Publication in the Federal Register

By the Commission:

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## I. INTRODUCTION AND EXECUTIVE SUMMARY

1. In this *Fourth Notice of Proposed Rule Making (Fourth Notice)*, we consider various technical and operational issues regarding the use of interoperability frequencies in the 764-776 MHz and 794-806 MHz frequency bands (the 700 MHz band). We charged the Public Safety National Coordination Committee (NCC) to prepare a report on the technical and operational standards for interoperability frequencies in this new public safety band. The NCC issued this report to the Federal Communications Commission (the Commission) on February 25, 2000.[1] We seek comment on the recommendations contained in the NCC Report. Given that we are seeking comment on the NCC's recommendations, we will defer resolution at this time of the reconsideration request concerning guard channels in the context of our interoperability plan.[2]

2. We have defined the term "interoperability" as "an essential communications link within public safety and public service wireless communications systems which permits units from two or more different entities to interact with one another and to exchange information according to a prescribed method in order to achieve predictable results."[3] A primary goal of interoperability in the new 700 MHz public safety band is seamless interaction on a nationwide basis.[4] We believe that the proposed rules provide a flexible regulatory framework that satisfies this goal in both a technology-neutral and cost effective manner. Accordingly, we take the following actions:

- Propose that the Commission not impose a mandatory trunking requirement on all thirty-two interoperability channel sets under the current band plan.
- Propose a permissive trunking scheme covering up to twelve interoperability channel sets on a secondary, non-interference basis.
- Propose to allow applicants to aggregate four contiguous 6.25 kHz channels to form 25 kHz channels.
- Tentatively conclude that states should administer the interoperability channels.
- Propose to have Regional Planning Committees (RPCs) administer the interoperability channels if the states are unwilling to do so.

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[1] Public Safety National Coordination Committee's Recommendations to the Federal Communication Commission for Technical and Operational Standards for Use of the 764-776 MHz and 794-806 MHz Public Safety Band Pending Development of Final Rules (Feb. 25, 2000) (NCC Report). The NCC provided detailed technical information in its Report, which the reader should consult as an adjunct to this *Fourth Notice*. A copy of the NCC Report can be obtained via the Internet at http://www.fcc.gov/wtb/publicsafety/ncc.html, or from International Transcription Services, Inc. (ITS), 1231 20th Street, N.W., Washington, DC 20036, (202) 857-3800, TTY (202) 293-8810, or faxing ITS at (202) 857-3805.

[2] *See* Petition of Ericsson.

[3] Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, *First Report and Order and Third Notice of Proposed Rulemaking*, 14 FCC Rcd 152, 189-90 ¶ 76 (1998) (referred to herein as "*First Report and Order*" or "*Third Notice*" as applicable).

[4] *First Report and Order*, 14 FCC Rcd at 189-90 ¶ 75.

- Seek comment on requiring that each state form a State Interoperability Executive Committee (SIEC) to administer the interoperability channels.

- Propose to blanket license mobile and portable units operating on the 700 MHz interoperability spectrum.

- Solicit comment on requiring the RPCs to review the technical parameters of applications for interoperability channels and verify that such applications are in accordance with a state-approved plan, as recommended in the NCC Report.

- Solicit comment on whether, and to what extent, the RPCs or similar entities should assume responsibility to develop interoperability operational plans in the absence of state action on the matter.

- Seek comment on how an applicant will secure approval from the state before operating a base or control station on interoperability channels, and specifically seek comment on the use of Memoranda of Understanding (MOUs) and sharing.

- Seek comment on designating channels for a particular purpose and naming each interoperability channel set (12.5 kHz consisting of two contiguous 6.25 kHz narrowband channels).

- Propose to designate two channels as nationwide calling channels.

- Solicit comment on the effect of channel labeling and whether channel labeling would affect centralized trunking operations and 25 kHz operation.

- Propose to reject codifying a priority scheme for resolving conflicts when the demand for interoperability channels exceeds the supply of such channels.

- Seek comment on the appropriate digital voice standard for the interoperability channels.

- Tentatively conclude to adopt the Project 25 Phase 1 standard at this time and that we should develop and implement a "migration path" to 6.25 kHz technology.

- Propose to retain our present 4.8 kilobytes per second (kbps) per 6.25 kHz standard rather than require one voice channel per 6.25 kHz bandwidth.

- Invite comment on the appropriate data interoperability standard for the interoperability channels.

- Propose to reserve two interoperability channels for data transmission.

- Tentatively decline to require that subscriber units designed for data-only applications have voice capability.

- Tentatively decline to require subscriber units designed for voice-only applications have data transmission capability.

- Solicit comment on the establishment of a single standard for encrypted communications, specifically, the current Federal government standard.

- Solicit comment on whether to mandate receiver standards to address interference issues raised by the public safety radio community.

- Decline to establish additional rules to require Federal sharing of the interoperability spectrum.

- Decline to require RPCs to use a "pre-coordination database" developed for the 700 MHz band, but seek comment on whether RPCs should include a coordination process between interoperability and general use channels.

## II. BACKGROUND

3. The Commission initiated this proceeding in 1996 to develop a framework to ensure that public safety communications needs are met through the year 2010.[5] In the Balanced Budget Act of 1997, Congress directed the Commission to reallocate 24 megahertz of spectrum recovered from television Channels 60-69 as a result of the digital television (DTV) proceeding for public safety services.[6] In 1998, the Commission reallocated 24 megahertz of spectrum located in the 700 MHz band for public safety services.[7] At the same time, the Commission sought comment on the best use of this 24 megahertz of spectrum.[8] This record led to the adoption of the 700 MHz band plan and service rules contained in the *First Report and Order*.[9] Part of the band plan designated 2.6 megahertz, or 10.8% of the band, to nationwide public safety interoperability use.[10]

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[5] *See* 47 U.S.C. § 309(j)(10)(B)(iv), as added by the Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, Title VI, § 6002, 107 Stat. 312 (1993); Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, Establishment of Rules and Requirements of Priority Access Service, WT Docket No. 96-86, *Notice of Proposed Rule Making*, 11 FCC Rcd 12460 (1996) (*Notice*).

[6] *See* Balanced Budget Act of 1997, Pub. L. No. 105-33, § 3004, 111 Stat. 251 (1997). *See also* Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, MM Docket No. 87-268, *Sixth Further Notice of Proposed Rulemaking*, 11 FCC Rcd 10968 (1996).

[7] *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).

[8] *See* Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, Establishment of Rules and Requirements of Priority Access Service, WT Docket No. 96-86, *Second Notice of Proposed Rule Making*, 12 FCC Rcd 17706 (1997) (*Second Notice*).

[9] *See First Report and Order and Third Notice of Proposed Rulemaking*, 14 FCC Rcd 152, 162-64 ¶¶ 13-16. Petitions and comments that were filed in response to the *First Report and Order and Third Notice of Proposed Rulemaking* are available to the public electronically and on hard copy. We address pertinent petitions and comments throughout this *Fourth Notice*.

[10] *See id.* at 165 ¶ 20.

4. In the *First Report and Order*, the Commission found strong support for national planning for both the interoperability spectrum and the general use spectrum in the 700 MHz band.[11] Accordingly, the Commission chartered the NCC as an advisory committee for the purpose of addressing and advising the Commission on certain public safety communications matters. The NCC performs its functions in accordance with the procedural steps contained in the Federal Advisory Committee Act.[12] The *First Report and Order* described the major responsibilities of the NCC as follows: (1) formulate and submit for Commission review and approval an operational plan to achieve national interoperability that includes a shared or priority system among users of the interoperability spectrum, for both day-to-day and emergency operations, and recommendations regarding Federal users' access to the interoperability spectrum; (2) recommend interoperability digital modulation, trunking, and receiver standards for Commission review and approval; (3) provide voluntary assistance in the development of coordinated regional plans; and (4) provide general recommendations to the Commission on operational plans of the public safety community.[13]

5. We stated that we intended to provide formality to the NCC and to ensure participation by representatives of all elements of the public safety community.[14] We also explained that the operational recommendations (*e.g.*, protocols for prioritizing user access) of the NCC would be subject to Commission approval. The NCC Report describes the participants in the NCC's decision-making process, the meetings that the NCC conducted, and the exchanges of information that occurred in preparation for the publication of the NCC's recommendations on February 25, 2000.[15] We discuss and consider those recommendations in this *Fourth Notice*.

## III. DISCUSSION

### A. Trunking on Interoperability Spectrum

6. *Mandatory Trunking.* In the *Second Notice*, we recognized the spectrum efficiency benefits associated with trunking, and tentatively concluded that a trunked system[16] is the best method to achieve—in a large scale emergency—the rapid coordination of communications among many personnel from different agencies and regions.[17] At the same time, however, we noted that we had not heretofore required the use of a specific trunking standard and asked for comments as to whether we should mandate a single nationwide trunking standard for interoperability spectrum.[18] Many of the commenters addressing this issue vigorously opposed the adoption of a requirement to use trunking technology on the

[11] *See First Report and Order*, 14 FCC Rcd at 196 ¶ 90.

[12] *See id.* at 197 ¶ 92. *See also* Federal Advisory Committee Act, 5 U.S.C. App. 2 (1988).

[13] *See First Report and Order*, 14 FCC Rcd at 197 ¶ 92.

[14] *Id.*

[15] For a discussion of the NCC's activities from its inception, see NCC Report at 1-4.

[16] A trunked system utilizes multiple radio frequencies in a manner that provides greater spectrum efficiency than would be obtained from the same number of frequencies if used in a conventional manner. Computerized trunking technology provides the ability to search randomly for available frequencies and automatically establish a talk path between a caller and a called party. *See Notice*, WT Docket No. 96-86, 11 FCC Rcd at 12477 n.30.

[17] *Second Notice*, 12 FCC Rcd at 17752.

[18] *Id.*

interoperability channels.[19] They argued that conventional, repeated, or direct unit-to-unit communications are better suited for most types of interoperability communications needs. As a result, in the *First Report and Order*, we asserted that our tentative conclusion that trunking is the only practicable technology for interoperability may have been overstated and declined to adopt a requirement mandating trunking on interoperability channels.[20] Instead, we directed the NCC to make a timely recommendation concerning whether we should require trunking on nationwide interoperability spectrum.[21]

7. After considering the advantages and disadvantages of requiring the use of trunking on the interoperability channels, the NCC recommends that we not mandate trunking. The NCC's conclusion stems mainly from operational considerations. Trunking can occur only when communications take place through a system infrastructure. The NCC believes, however, that most interoperability communications will occur at the scene of an incident on a unit-to-unit basis, not through an infrastructure.[22] Accordingly, only a few infrastructure interoperability channels are required in most cases.[23] The NCC therefore contends that the cost of configuring a small number of infrastructure channels for trunked operations would not be justified by the slight increase in spectrum efficiency that would result with trunking.[24]

8. The NCC also notes that if we mandate trunking, then all mobile units nationwide must have trunking capability.[25] This capability would provide a small benefit at the expense of added cost, weight, and complexity to the units. As noted, most interoperable communications will be on a unit-to-unit basis and not employ trunking. Moreover, only large metropolitan areas would employ a sufficient number of interoperability channels to justify trunking from a cost standpoint. The NCC also notes that if trunking is used on the interoperability channels, the ability of foreign units to respond to an emergency would be compromised because those units would be required to be registered with the trunked system before they could be used. According to the NCC, registration is a manual and somewhat time-consuming task, and this process could cause unacceptable delays in an emergency situation.[26]

9. We agree with the NCC's recommendation and tentatively conclude not to require trunking on the thirty-two interoperability channel sets.[27] We are not convinced that the additional costs

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[19] *See First Report and Order*, 14 FCC Rcd at 206 ¶ 115.

[20] *Id.* at 207 ¶ 116.

[21] *Id.*

[22] NCC Report at 7 ¶ 17.

[23] *Id.*

[24] *Id.*

[25] *Id.* at 7 ¶ 18.

[26] Emergencies tend to be local in nature and are often difficult to predict. Thus, in many instances, an extensive trunking capability—built at considerable public cost—would lie dormant.

[27] In accord with the usage in the NCC Report, we use the term "channel set" to refer to a 12.5 kHz channel block, which actually consists of two contiguous 6.25 kHz narrowband channels. Accordingly, the current channel plan provides for 32 interoperability channel sets for base stations, which are paired with 32 interoperability channel sets for mobile units.

associated with trunking justify the efficiencies gained.[28] Moreover, it appears that in the majority of situations where emergency and disaster response interoperability communications are required, the ability to conduct direct unit-to-unit communications at the site is more critical than a wide area trunked system. Furthermore, as we discussed in the *First Report and Order*, a decision to mandate trunking would require a government entity to create and maintain a nationwide database of radio ID numbers.[29] We seek comments on our tentative conclusions.

10. *Permissive Trunking.* The NCC recommends that we permit, rather than mandate, trunking on ten of the interoperability channel sets on a secondary basis.[30] The NCC believes that jurisdictions would likely implement trunked interoperability channel systems if they could use the interoperability channel sets as part of their general use systems during the majority of the time when the channels are not needed for interoperability purposes.[31] Thus, the NCC recommends that we permit routine (day-to-day) communications on some of the interoperability channels when the channels are not being used for emergency communications.[32]

11. The NCC notes, however, that secondary trunking raises the possibility that systems might fail to release the trunked channels immediately when the channels are required for unit-to-unit conventional interoperability communications. Accordingly, the NCC recommends that the Commission adopt a number of safeguards. First, to help ensure that interoperability channels are always available when necessary, the NCC recommends that we permit secondary trunking on only ten of the thirty-two interoperability channel sets that are designated for general interoperability use. Trunking would be prohibited on the remaining channel sets. Second, the NCC recommends that we permit secondary trunking only if a jurisdiction maintains a continuous (twenty-four hours per day, seven days per week) dispatch facility at which an operator can release the interoperability channels for conventional (*i.e.*, non-trunked) use on demand, with no discretion on the operator's part.[33] The NCC further recognizes those instances where the secondarily-trunked channels might become so integral to the jurisdiction's trunked system that it becomes "politically impossible" to release them when necessary. To prevent this from occurring, the NCC recommends a third safeguard that would permit systems to use secondary trunking only as follows: (1) systems with ten or fewer general use channel sets could use secondary trunking on one interoperability channel set, and (2) systems with more than ten general use channel sets could use secondary trunking on two interoperability channel sets.[34] Systems with twenty or more general use channel sets could request secondary trunking on more than two channel sets, decided on a case-by-case basis.[35]

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[28] This approach is consistent with our approach to the mutual aid 800 MHz National Public Safety Planning Advisory Committee (NPSPAC) channels where we decided not to require trunking.

[29] *First Report and Order*, 14 FCC Rcd at 206 ¶ 115, n.296 (citing comments by the National Public Safety Telecommunications Council (NPSTC)).

[30] NCC Report at 9 ¶ 24.

[31] *Id.* at 7 ¶ 20.

[32] *See id.* at 14 ¶ 44 (access priority number four).

[33] Such a request would be part of a larger priority scheme, discussed further below, which would govern communications on the interoperability channels. *See infra* at paras. 36-37.

[34] NCC Report at 8 ¶ 21.

[35] *Id.*

12. We observe that the members of the NCC's Steering Committee were not unanimous in recommending permissive trunking.[36] One Steering Committee member, who represents the International Association of Fire Chiefs, dissented from this trunking recommendation, believing permissive trunking should not be permitted because of the likelihood of disputes arising in an emergency when it becomes necessary to disassociate an interoperability channel from a trunked system and revert it to conventional use. [37]

13. We propose to allow trunking only on ten of the interoperability channel sets (pursuant to the NCC's recommendations),[38] and then only on a strict secondary basis. To insure that the primary use of these general public safety channel sets is interoperability communications, we propose that trunked operation must immediately be discontinued whenever any channel sets are needed for interoperability communications or whenever a trunked system interferes with any interoperability communication, *e.g.*, communications conducted on a unit-to-unit basis or using conventional repeaters.[39] Although we tentatively conclude that some limited trunking capability has merit, we are not convinced at this time that we should establish rules, other than the secondary restrictions, to safeguard conventional use. Rather, we believe that the states should be responsible for administering the interoperability spectrum and should set any additional restrictions for trunking interoperability spectrum in their areas.[40] Nevertheless, we seek comment on all the NCC's recommendations regarding trunking. We invite specific comment on whether ten channels is the appropriate number of channels to designate for trunking.[41]

14. *Guard Channels*. The band plan for the public safety 700 MHz band, as set forth in the *First Report and Order*, designates thirty-two 12.5 kHz interoperability channel sets.[42] The spectrum on both sides (immediately adjacent) of the 12.5 kHz interoperability channels is part of the reserve spectrum. Ericsson sought reconsideration of our decision on the issue of our interoperability channel plan. Generally, Section 90.531(d)(1) of our Rules[43] permits the combining of two or four narrowband channels. For interoperability, however, the channel plan provides only for a maximum combination of two 6.25 kHz narrowband channels (to form 12.5 kHz channel sets), instead of four contiguous 6.25 kHz narrowband channels (to form 25 kHz channels). Further, Section 90.531(d) of our Rules states, in part,

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[36] *Id.* at 9 ¶ 25.

[37] *Id.*

[38] The ten channels are defined by GTAC 5 through GTAC 13 and GTAC 35 through GTAC 43. *See* Table of Interoperability Channels for Specific Uses/Services, NCC Report at Appendix C.

[39] We would allow 6.25 kHz, 12.5 kHz, and 25 kHz trunked operations. Additionally, we would permit routine (day-to-day) communications if the channel(s) are not needed for emergency communications. *See supra* at paras. 10-11.

[40] *See infra* at paras. 19-21.

[41] We note that GTAC 31 and GTAC 61 also are designated for General Public Safety interoperability use. *See* NCC Report at Appendix D at 5. *See also infra* at paras. 14-18 (discussing guard channels and Ericsson's Petition for Reconsideration).

[42] *See First Report and Order*, 14 FCC Rcd at 175 ¶ 43.

[43] 47 C.F.R. § 90.531(d).

"channels designated for nationwide interoperability use must not be combined with channels that are not designated for nationwide interoperability use."[44]

15. Ericsson indicated that although the *First Report and Order* and our Rules clearly allow aggregation of up to four narrowband channels, the interoperability plan permits only the aggregation of two 6.25 kHz channels.[45] Ericsson proposes that we rearrange the interoperability channel plan from 32 pairs of two contiguous 6.25 kHz channel sets (12.5 kHz) to 16 pairs of four contiguous 6.25 kHz channel sets (25 kHz).[46] Ericsson asserts that while the channels still could be used for 6.25 kHz and 12.5 kHz operations, this grouping would permit public safety entities to use many promising technologies (*e.g.*, TETRA) that could not even be considered for application in the interoperability portion of the narrowband spectrum.[47]

16. The NCC supports consideration of Ericsson's proposal[48] and states that it "agrees with the need to preserve the possibility of converting specified two-channel groups in the interoperability band to four-channel groups, thereby to accommodate technologies that require more than a 12.5 kHz bandwidth."[49] The NCC recommends that if we do not adopt Ericsson's proposal, that we should preserve as "guard channels" the two contiguous 6.25 kHz reserve channels immediately below the ten 12.5 kHz interoperability channel sets on which the NCC recommends we permit secondary trunking."[50] This designation would allow users to combine the guard channels with certain interoperability channels to form 25 kHz channel blocks. The NCC proposes that the guard channels should not be available except for use in conjunction with secondary trunking on the interoperability channels. The NCC states that we also could use the guard channels to form 25 kHz channel blocks if we decide at some later date to increase the bandwidth of the interoperability channels to 25 kHz.[51] The NCC further notes that if the Ericsson proposal is approved, then guard channels would no longer be necessary.[52]

17. We believe that providing the public safety community with the flexible option of conducting 25 kHz operations on the interoperability channels has merit. Pursuant to the NCC recommendation, however, we propose herein to prohibit trunking on other interoperability channels because they are reserved for conventional operations, and we would not anticipate that entities would employ technologies requiring 25 kHz bandwidths—such as TETRA—on these channels. Additionally, we have concerns about the potential adjacent channel interference that may result from repositioning the

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[44] *Id.*

[45] Ericsson Petition at 6.

[46] *See ex parte* Letter from Robert J. Speidal, Ericsson, to Magalie Salas, Secretary, FCC, dated Sept. 13, 1999 (*Ericsson Proposal*).

[47] Ericsson Petition at 6.

[48] *See ex parte* Letter from Kathleen Wallman, Chairperson, NCC, to William E. Kennard, Chairman, FCC, dated Oct. 14, 1999.

[49] NCC Report at 11 ¶ 32.

[50] *Id.* at App. C at 2-3.

[51] *Id.*

[52] *Id.* at 11 ¶ 32.

interoperability channels into groups of four contiguous channel sets, as proposed by Ericsson.[53] For example, would simultaneous use of both 12.5 kHz channel sets in a 25 kHz aggregated block be precluded in the same area? Rather than combine 12.5 kHz interoperability channel sets (two contiguous 6.25 kHz channels) to form 25 kHz channels (four contiguous 6.25 kHz channels) as suggested by Ericsson, we believe that a better approach is to designate the two contiguous reserve pool 6.25 kHz channels (12.5 kHz), either immediately above or below each 12.5 kHz interoperability channel set, as temporary "guard channels" to form 25 kHz channels. We solicit comments on the issue.

18. Accordingly, we seek comment on how best to accommodate 25 kHz operations on the interoperability channels. Specifically, we request comment on how we should allocate the temporary guard channels. Among the options for the temporary guard channels are: (1) to move the interoperability channels so that they are adjacent to each other, thereby eliminating the need for temporary guard channels (*i.e.*, Ericsson's proposal), or (2) to designate those channels immediately where trunking is permitted for interoperability use, thus permitting the aggregation of 25 kHz bandwidths on some interoperability channels, or (3) to allocate all of the channels for interoperability use, thereby doubling the total number of interoperability channels. In particular, we seek comments on the potential for adjacent channel interference if the interoperability channels are reallocated in groups of four, as suggested by Ericsson. Further, we seek comment on the need to provide 25 kHz aggregated blocks on all the interoperability channels, or only on the channels where secondary trunking is permitted. For instance, we understand the potential benefits associated with allowing 25 kHz aggregated block operations on those interoperability channels where trunking would be allowed on a secondary basis. This would provide entities with the option to include interoperability channels in a trunked system that employs 25 kHz general use channels (*e.g.*, a TETRA system). We solicit comment on these points. Comments should indicate the recommended use of the interoperability channels as well as the temporary guard channels.

### B. Administration of the Interoperability Channels

19. *Administrative Oversight*. In the *Third Notice*, we sought comment on how to administer the interoperability spectrum.[54] Specifically, we sought comment on whether we should use the RPCs, the states, or some other entity to manage the interoperability channels.[55] Some commenters contended that the RPCs should administer the interoperability channels and should have the option of assigning the channels directly to the states.[56] Other commenters thought that the NCC should decide the issue in the first instance.[57] With regard to state management of the interoperability channels, the State of Arizona (Arizona) does not wish to be responsible for administration of the interoperability spectrum.[58] The State

[53] *See infra* at paras. 56-58 (discussing receiver standards and interference issues).

[54] *Third Notice*, 14 FCC Rcd at 233.

[55] *Id.* at 234. We initially received 11 comments in response.

[56] *See* Association of Public-Safety Communications Officials-International, Inc. (APCO) Comments at 5; State of California (California) Comments at 7; NPSTC Comments at 7.

[57] *See* Federal Law Enforcement Wireless Users Group (FLEWUG) Comments at 18; Public Safety Wireless Network (PSWN) Comments at 16.

[58] Arizona Reply Comments at 8.

of California (California) noted that while it has a strong statewide communication organization, other states may have insufficient resources available to adequately manage the interoperability channels.[59]

20. The NCC asserts that most large-scale events and disasters where interoperability will be used are governed by state statute.[60] Further, the NCC notes that most wide-area mutual aid operations are managed and controlled by state-level organizations.[61] In addition, the NCC contends that in states where there are multiple RPCs, or where one RPC covers multiple states, RPC administration of interoperability spectrum may be difficult.[62] For these reasons, the NCC recommends that the states and RPCs work together at the state level. Specifically, under the NCC proposal, administration of the interoperability channels would be handled by the states, and oversight of the interoperability infrastructure would be handled by the RPCs.[63] Under this framework, states would hold the license and be responsible for developing statewide interoperability plans.[64] The states would administer the interoperability channels; whereas the RPCs will perform technical reviews of the applications. For example, the state could be responsible for creating and overseeing incident response protocols, creating chains of command for incident response and reporting, and other operating functions. If a state were unwilling to do so, however, then the NCC recommends that the RPCs would assume this responsibility.

21. We agree with the NCC that administration of the interoperability channels should occur at the state level. As noted by the NCC, state-level organizations[65] are usually in charge in multi-agency incidents. Further, states are in a better position to deal with Federal Government emergency agencies. Therefore, we propose to have the states administer the interoperability spectrum. Under this approach, applications for interoperability spectrum must be approved by a state-level agency or organization responsible for administering state emergency communications. The state (or state-level agency) can be the licensee for all stations operating on the interoperability channels or it could approve other eligible public safety entities—such as local governments—to be a licensee. A state may delegate this approval process for interoperability channels to another entity, such as an RPC.

22. In addition, the NCC recommends: (a) the formation of State Interoperability Executive Committees (SIECs); (b) that the Commission license "subscriber equipment" (mobile and portable units) operating on interoperability channels; (c) that RPCs oversee interoperability infrastructure; and (d) the adoption of standardized templates for Memoranda of Understanding between SIECs and sharing agreements between jurisdictions.[66] These recommendations are discussed separately below.

23. *State Interoperability Executive Committees*. Although we agree with the NCC that administration of the interoperability channels should be handled by the states, the NCC further suggests that each state form an SIEC to handle the administration of interoperability channels. Under this

[59] California Comments at 7.

[60] NCC Report at Appendix E at 1.

[61] *Id.*

[62] *Id.*

[63] *Id.*

[64] *Id.*

[65] State level entities may include the Governor of the state or his or her designee (including a state agency).

[66] NCC Report at 11 ¶ 33.

approach, entities desiring a license to operate on the interoperability channels would have to enter into a Memorandum of Understanding (MOU) with the pertinent SIEC. The SIEC would be charged with enforcement of the MOU's terms,[67] with final authority vested with the Commission. The NCC notes that "it is difficult to see how the Commission would treat such a recommendation except to itself encourage the formation of SIECs; the Steering Committee does not foresee the Commission establishing a rule mandating the establishment of SIECs."[68] The NCC recommends that among other duties, SIECs develop interoperability operational plans. If a SIEC or another state agency elects not to oversee development of such plans for a state, the NCC recommends that the RPC do so. Because we believe the benefits of SIECS are best determined by the states, the decision to form such groups or seek assistance from existing groups such as RPCs should be determined by the states as well. However, we are concerned that situations may arise in which a SIEC or other state agency would not oversee the development of an interoperability plan for a state. We invite comment on whether a RPC would oversee the development of an interoperability plan for a state in this situation.

24. *Subscriber Equipment Licensing*. The NCC recommends that we license subscriber equipment (mobiles and portables).[69] The NCC asserts that such licensing—coupled with the Commission's enforcement authority—would forestall abuse of the interoperability channels in the 700 MHz public safety band.[70] In support of its request, the NCC contends that we should take measures to guard against abuses that allegedly have occurred in the five mutual aid channels in the 821-824 MHz and 866-869 MHz bands (800 MHz band).[71]

25. Under our Rules, an entity must have a license to operate a base or control station on the five 800 MHz band mutual aid channels.[72] Mobile operation, however, is permitted on these channels without an individual license by any entity operating in accordance with an approved 800 MHz regional plan (*i.e.*, a blanket licensing approach).[73] Therefore, we presume that the NCC is recommending that we require entities that want to operate mobile units, including portables, on the 700 MHz interoperability channels to obtain a license.

26. We do not believe that the current record in this docket supports the NCC recommendation. The primary objective in setting aside interoperability spectrum and requiring all 700 MHz equipment to be capable of operating on these channels was to ensure that all public safety entities could communicate with one another, especially during disaster situations. Blanket licensing all public

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[67] *See infra* at paras. 31-32.

[68] NCC Report at 13 ¶ 38.

[69] *Id.* at 12 ¶ 35, Appendix E at 2.

[70] *Id.*

[71] *Id.* at 12 ¶ 35. *See generally* 47 C.F.R. §§ 90.16, 90.617(a); Development and Implementation of a Public Safety National Plan and Amendment of Part 90 to Establish Service Rules and Technical Standards for Use of the 821-824/866-869 MHz Bands by the Public Safety Services, GEN Docket No. 87-112, *Report and Order*, 3 FCC Rcd 905, 908-09 (1987) (*800 MHz Band Report and Order*) (discussing "mutual aid channels"), as modified by *Memorandum Opinion and Order on Reconsideration*, 3 FCC Rcd 5391 (1988), *Memorandum Opinion and Order*, 3 FCC Rcd 2113 (1988).

[72] *See 800 MHz Band Report and Order*, 3 FCC Rcd at 909 ¶¶ 30, 33-34; *see generally* 47 C.F.R. §§ 90.16, 90.20, 90.603, 90.617, 90.619(a)(2).

[73] *Id.*

safety licensees so that they are authorized for mobile operation, rather than requiring an individual license, seems to better support this objective and achieves the same effect as end-user licensing. Further, blanket—rather than individual—licensing would eliminate many administrative burdens associated with licensing (*i.e.*, entities would not have to apply for a mobile license, and the Commission would not have to process the applications).

27. In addition, we are unsure what abuses the NCC believes have occurred in the 800 MHz public safety band because it has not identified any specific abuses in its Report. Accordingly, we seek comment on the types of abuses that have occurred allegedly as a result of not requiring subscriber equipment licensing. Additionally, because this *Fourth Notice* concerns the 700 MHz public safety band, we seek comment concerning whether these alleged abuses would be problematic in this band without subscriber equipment licensing.

28. Although we are seeking comment on these alleged abuses, we believe blanket—as opposed to individual—licensing does not diminish our enforcement authority. The Commission has the authority to penalize entities for abuse. Therefore, we propose to allow public safety entities to operate mobile units on the 700 MHz band interoperability channels without an individual license if (1) such entities are eligible to hold a 700 MHz band license, or (2) such entities otherwise are licensed under Part 90 of our Rules. As with the 800 MHz National Public Safety Planning Advisory Council (NPSPAC) mutual aid channels, base and control stations must be licensed individually.[74] We seek comment on these proposals, including the NCC's recommendation for licensing subscriber equipment, as well as the issue of whether the NCC's suggestions would require amendments to Sections 90.179 and 90.421 of our Rules.[75]

29. *RPC Oversight of Interoperability Infrastructure*. The NCC recommends that (1) the oversight of the technical parameters of the interoperability infrastructure should rest with the RPCs; (2) the RPCs should urge the states to jointly develop interoperability operational plans—and failing that—to develop such plans independently; and (3) the RPCs should request the states to hold the licenses for infrastructure—and failing that—to have the licenses held by the next highest level of government.[76]

30. We solicit comment on whether the RPCs should review the technical parameters of applications for interoperability channels. The RPCs already have the mechanism in place to review the technical parameters of the 700 MHz general use spectrum. Further, we seek comment on whether the RPCs should be responsible to verify that the application is in accordance with the state-approved plan for interoperability spectrum, or if there is no plan, to certify that the application has been approved by the appropriate state-level agency. Under this approach, RPCs would be free to advocate that the states develop interoperability plans or, with state approval, develop a plan on their own. In addition, as discussed above,[77] states may hold the licenses for interoperability spectrum or approve others to hold licenses.[78]

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[74] *See 800 MHz Band Report and Order*, 3 FCC Rcd at 909 ¶ 34.

[75] 47 C.F.R. §§ 90.179 (Shared use of radio stations), 90.421 (Operation of mobile units in vehicles not under the control of the licensee).

[76] NCC Report at 12 ¶ 36.

[77] *See supra* at paras. 20-21.

[78] The licenses referred to here are for base and control stations.

31. *Memoranda of Understanding and Sharing Agreements*. The NCC has developed a model Memorandum of Understanding (MOU) that would govern the use of the interoperability channels. The NCC proposes that we require an applicant and the relevant SIEC or other entity that is charged with administering the interoperability channels to sign an MOU before a license could be granted. The model MOU requires, *inter alia*, licensees to use plain (unencrypted) language on the interoperability channels; to monitor the calling channels and coordinate use of the tactical channels; to limit secondary trunking on the interoperability channels as described above; and to follow a set of priority levels when using the channels.[79] The NCC notes that the SIECs and RPCs may adapt the model MOU to their own needs.[80] The NCC also has developed a model sharing agreement for use of the interoperability channels.[81] The NCC contemplates that when foreign users (*i.e.*, non-licensees, federal government agencies, or non-governmental organizations) respond to a particular incident, sharing of the interoperability channels would be done on the basis of an *ad hoc* "virtual sharing agreement" that would begin at the time of the response and end at the conclusion of the incident.[82]

32. We have proposed that the states (or their designees) administer the interoperability spectrum.[83] In order to receive a license to operate a base or control station on interoperability channels, the applicant must secure approval from the state. The exact procedures that a state may use to administer its channels were not clearly explained by the NCC. However, at any rate, we are not convinced that our Rules should dictate the specific details of this approval process. Further, we are unclear how the NCC's proposals actually would work in practice. Nevertheless, we seek comment on the NCC's proposals on the issues of MOUs and sharing agreements and how these proposals would work in practice.

### C. Channel Designation and Access Priority

33. *Channel Designation*. The NCC recommends that we adopt a table of channel assignments for the interoperability channels.[84] The table would assign a particular purpose and name to each interoperability channel set (two 6.25 kHz channels). For example, Channels 23 and 24 would be assigned for General Public Safety use and given the label "GTAC 5." We seek comment on the NCC's proposed table and assignments.[85] We note that the NCC Report lists a specific use or description for each interoperability channel (*e.g.*, "Fire Services"). Although there are benefits to "reserving" channels for specific uses, the disadvantage is that it limits system flexibility. For example, a channel designated for Fire Services could not be used for Police Services, and vice-versa. One possible alternative would be to specify a particular use for a channel but allow other public safety entities to use the channel on a secondary basis. Further, the NCC recommends specific interoperability channel labels and proposes that we codify those channel labels in our Rules.[86] We seek comment on these issues. Commenters in

[79] NCC Report at Appendix E. *See infra* at paras. 36-37 (discussing access priority).

[80] NCC Report at 13 ¶ 41.

[81] *Id.* at 13 ¶ 37. Appendix E at 5-7.

[82] *Id.* at 13 ¶ 37.

[83] *See supra* at para. 21.

[84] NCC Report at 14 ¶ 42.

[85] *See id.* at Appendix D at 5; *supra* at note 1, paras. 17-18 (discussing the NCC's Table).

[86] *Id.* at 14 ¶ 43, Appendix D.

favor of the recommended approach of designating these channels in the Rules should address the difficulties regarding making changes to a channel label via the rulemaking or waiver process.

34. *Display Labeling (Nomenclature)*. Generally, transmitters used under Part 90 of our Rules must be certificated for use.[87] The NCC recommends that we require mobile units certificated for use under Part 90 of the Rules be capable of displaying interoperability channel labels alphanumerically if the radios are equipped with alphanumeric displays.[88] Further, the NCC recommends that when a mobile radio is operating in the direct (simplex) mode,[89] the letter "D" should be appended to the end of the displayed channel label.[90] The NCC asserts that adoption of these rules would allow the Commission to establish a nationally standardized format to communicate on interoperability channels, as well as to eliminate guesswork during a multi-agency response.[91]

35. We invite comments on these recommendations. Commenters should address the costs and benefits associated with these recommendations and the likelihood that standardized nomenclature (*e.g.*, police "ten codes") would be accomplished without specifying labels in our Rules. We additionally seek comment on the effect of channel labeling, if any, on centralized trunking operations and 25 kHz operation.

36. *Access Priority*. The NCC recommends that we adopt a mandatory priority scheme for the use of the interoperability channels.[92] The NCC recommends that users receive priority access only for "mission critical" communications, not for administrative or other non-mission critical communications.[93] Under the NCC's scheme, a party wishing to use an interoperability channel in use by another party would declare its level of priority. The higher level of priority would gain use of the channel; the party with the lower priority level would be required to cease its communications immediately. Under the NCC's proposal, the highest level of priority, Level 1, would be for disaster and extreme emergency operations for mutual aid and interagency communications. The next level, Level 2, would be for emergency or urgent operations involving imminent danger to life or property. Level 3 would be for special event control, generally of a preplanned nature (including task force operations). Finally, Level 4, the lowest level (and the default when no higher priority level has been declared) would be for single agency secondary communications. As stated above, conventional use of the interoperability channels always would have precedence over secondary trunked use.[94] Within the same level of priority, the NCC recommends giving access to the organization with the wider span of control

[87] 47 C.F.R. § 90.203. *See* 47 C.F.R. Part 2, Subpart J.

[88] NCC Report at 14 ¶ 43, Appendix D.

[89] In this case, simplex operation is mobile to mobile communications on one-half of the channel pair. The communications do not go through an infrastructure. Simplex operation is often the dominant mode of communications between multiple public safety agencies at the scene of an accident.

[90] NCC Report at 14 ¶ 43, Appendix D.

[91] *Id.* at Appendix D at 1-2.

[92] *Id.* at 14 ¶ 44.

[93] *Id.* at Appendix D.

[94] *See supra* at para. 13.

or authority. The NCC states that the proposed priority levels are taken from the Public Safety Wireless Advisory Committee (PSWAC) report and represent the consensus opinion of experts in the field.[95]

37. We find merit in a priority scheme for resolving conflicts when the demand for interoperability channels exceeds the supply of such channels. We are not convinced, however, that such scheme should be codified in our Rules, because we believe that the states (the entities proposed herein to administer the interoperability spectrum) are in a better position to determine priority use and resolve disputes. For example, agreement to a priority scheme could be tied to state approval of the application. While we do not propose at this time to add a priority access scheme to our Rules, we nevertheless, seek comment on the NCC recommendations regarding our adoption of a priority scheme. We ask commenters to address whether the definitions of the NCC's recommended priority levels are sufficiently clear so that they will be useful in the field.[96] Parties also should address any administrative problems that may arise in implementing this priority scheme. For example, we note that the priority levels are declared by the user and that there are no ready means of resolving disputes except after the fact.

38. In addition, we note that the priority levels the NCC recommends are different from the Priority Access Service (PAS) levels we recently adopted to allow commercial mobile radio service (CMRS) providers to provide PAS for national and security and emergency preparedness (NSEP) personnel.[97] The National Communications System (NCS) desired priority levels that would be compatible with the priority levels it had established for wartime use.[98] These priority levels are framed in terms of users. The NCC's recommended priority levels for the interoperability channels are framed in terms of the type of emergency. We recognized that the underlying purposes for the PAS and the 700 MHz interoperability spectrum are different and that such difference may necessitate varying priority levels. As a result, we ask commenters to discuss whether the priority levels for the interoperability channels should be different from the priority levels adopted for CMRS providers. In addition, we seek comment as to whether the priority levels for the interoperability channels could be fashioned so that they are complementary with those established for PAS.

39. *Calling Channels*. The NCC recommends that we designate two interoperability channels as calling channels to use as gateways to other channels.[99] Public safety entities, particularly those from "outside the system," would use calling channels to access the public safety communications

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[95] NCC Report at 15 ¶ 47.

[96] For example, we could define the levels of priority in the following manner: (1) a Level 1 event is one in which an entity is threatened by grave and imminent danger and in need of immediate assistance; (2) a Level 2 event is one in which there is a particular urgency regarding the safety of an entity; and (3) a Level 3 event is one in which a delay in a communication transmission could adversely affect the safety or property of an entity. *See generally* 47 C.F.R. § 80.5 (providing definitions for priorities in the Maritime Services).

[97] *See* 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, FCC 00-242, *Second Report and Order*, July 13, 2000.

[98] *Id.* ¶ 6

[99] NCC Report at 15 ¶ 47.

infrastructure in the area where they are located. For example, a fire department responding to an incident in another county could use the calling channels to find out the appropriate on-scene tactical channel or how to contact other public safety entities such as the police. The NCC recommends that we require licensees that use the associated interoperability channels to monitor the calling channels. In addition to normal calling channel use, the NCC recommends using the channels to declare emergencies and to request the immediate release of any channels being used for secondary trunking.[100] Finally, the NCC recommends that we forbid the use of encryption on calling channels. We seek comment on the NCC's recommendations.

40. We agree that calling channels are a key part of any interoperability system.[101] Therefore, we propose to specify two of the 700 MHz interoperability channels as nationwide calling channels. These channels are not intended for routine administration or day-to-day communications but are to be reserved for activities such as coordination of multiple public safety entities at the scene of an incident or entities "outside the system" requesting help or information. Although we propose to prohibit trunking and encryption on these two channels, we seek comment on whether we should adopt monitoring or coverage requirements for the calling channels.

### D. Technical Standards

41. Narrowband Digital Voice Standards for Interoperability Channels. In the *First Report and Order*, we discussed digital modulation standards for the narrowband interoperability channels.[102] We noted that to achieve interoperability on these channels, a single standard would ensure equipment compatibility.[103] We considered adopting the Project 25 Phase I standard (also referred to as the TIA/25 standard).[104] However, the Project 25 Phase I standard requires a 12.5 kHz bandwidth. We anticipated the development of more spectrum-efficient equipment that would require only a 6.25 kHz bandwidth for one voice channel. Accordingly, we declined to adopt the Project 25 Phase I standard in the *First Report and Order* and instructed the NCC to recommend a set of voluntary technical standards for digital modulation for use on the interoperability spectrum in the 700 MHz band.[105] We designed the 700 MHz public safety band channel plan—based on 6.25 kHz channel spacing—to accommodate spectrum-efficient equipment.[106] We recognized, however, that there might be a delay in the implementation of spectrum-efficient technology and, accordingly, provided that two adjacent 6.25 kHz channels could be

[100] *Id.* at 15 ¶ 45; *see supra* at paras. 10-13.

[101] *See 800 MHz Band Report and Order*, 3 FCC Rcd at 908 ¶¶ 27-30.

[102] *First Report and Order*, 14 FCC Rcd at 205 ¶ 113.

[103] *Id.* at 204 ¶ 111. We also note at least one other instance where the Commission has mandated equipment compatibility standards to promote interoperability. For example, ships operating under the provisions of the Global Maritime Distress and Safety System (GMDSS) must be equipped with VHF radios capable of operating on various prescribed frequencies that are dedicated for certain purposes. 47 C.F.R. § 80.1085. Ship radios must have a dedicated channel capable of continually monitoring the transmission of distress alerts. 47 C.F.R. § 80.1085(a).

[104] Project 25 Phase I is a 12.5 kHz Frequency Division Multiple Access (FDMA) standard that the public safety community developed and is an American National Standards Institute (ANSI) standard. Project 25 Phase II is a 6.25 kHz FDMA standard.

[105] *First Report and Order*, 14 FCC Rcd at 205 ¶ 113.

[106] *Id.*

combined to accommodate equipment that required a 12.5 kHz bandwidth, depending upon the standard chosen.[107]

42. Numerous commenters requested reconsideration of our decision declining to adopt the TIA/25 standard.[108] Specifically, they assert that immediate acceptance of the TIA/25 standards will avoid a substantial delay while the NCC proceeds with its work.[109] Moreover, APCO contends that the TIA/25 Phase I standard permits equipment to exceed the channel efficiency requirement we adopted for the 700 MHz band.[110] APCO states that because Project 25 Phase II will be a 6.25 kHz standard, and will be backwards compatible to Phase I equipment, there is no reason to prohibit immediate use of digital equipment meeting the TIA/25 Phase I standard in the 700 MHz band.[111]

43. On the other hand, some commenters agree with our approach in the *First Report and Order*. Both Ericsson and AASHTO oppose the immediate adoption of an interoperability digital standard.[112] Ericsson argues that regardless of the presence or absence of a narrowband standard in this new spectrum, the 700 MHz band will not be available for public safety use in any appreciable amount, or in areas where it is truly needed, until 2006 at the earliest. Ericsson further asserts that the existence of a narrowband standard will not cause TV stations in congested areas to exit this spectrum any sooner than the DTV date.[113] AASHTO maintains that we should wait for the forthcoming Project 25 Phase II 6.25 kHz standard because it will be compliant with the requirements and standards adopted in the *First Report and Order*.[114]

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[107] *Id.*

[108] Twenty filings were received on the issue of digital standards. Petitions and comments supporting the immediate adoption by the Commission of the TIA/25 digital standard were filed by APCO, NPSTC, New York State Technology Enterprise Corporation (NYSTEC), Union Pacific Railroad Company (UPRR), FLEWUG, Motorola, State of California, Project 25 Steering Committee (Project 25), State of Florida, APCO Canada, Daniels Electronic, Ltd. (Daniels), King Communications U.S.A., Inc., Illinois APCO, Northwest Central Dispatch System (NWCDS), DuPage Public Safety Communications, City of Chicago OEC, State of Nebraska, and Elk Grove Village Fire Department. While NPSTC did not specifically mention that it supported the existing TIA/25 standard, it requested reconsideration of our decision on digital standards, arguing that the decision will cause an unacceptable delay in the use of the 700 MHz band. Petition of NPSTC at 6. Comments opposing the immediate adoption of the TIA/25 standard were filed by Ericsson and American Association of State Highway and Transportation Officials, Forestry Conservation Communications Association, International Association of Fire Chiefs, Inc., International Association of Fish and Wildlife Agencies, International Municipal Signal Association, and National Association of State Foresters (collectively AASHTO).

[109] *See, e.g.*, APCO Petition at 5-13, Motorola Petition at 5-13, NPSTC Petition at 7, NYSTEC Petition at 3-9, UPRR Comments at 1-2.

[110] APCO Petition at 5-13. We allow 12.5 kHz operation in the 700 MHz band if the 9.6 kbps/12.5 kHz channel efficiency requirement (*i.e.*, 4.8 kbps/6.25 kHz) is met. *First Report and Order*, 14 FCC Rcd at 173 ¶ 38; 47 C.F.R. § 90.535(b).

[111] APCO Petition at 11-12.

[112] Opposition by Ericsson to the Petitions for Reconsideration to the *First Report and Order* filed by UPRR, Daniels, APCO Canada, NYSTEC, California, Project 25, Motorola, APCO, and FLEWUG at 3-8.

[113] *Id.* at 3.

[114] AASHTO Joint Reply Comments at 3. Project 25 Phase II also is an official ANSI standard, however, it has not been implemented in commercially available equipment in any band.

44. The NCC considered three digital voice standards: Project 25 Phase I, Project 25 Phase II, and the European Technical Standards Institute (ETSI) 392 TETRA system (TETRA).[115] The NCC recommends that we adopt Project 25 Phase I as the digital voice standard for interoperability channels.[116] As discussed above, the Project 25 Phase I standard is based on 12.5 kHz channels. It meets our minimum data rate of 4800 bps per 6.25 kHz bandwidth. It does not, however, meet the spirit of our 6.25 kHz band plan (*i.e.*, one voice channel per 6.25 kHz bandwidth). According to the NCC Report, the Project 25 Phase I standard was preferred because it has been implemented successfully in other bands (*e.g.*, the 800 MHz public safety band), and radio equipment could be available in the very near future.[117] The NCC did not recommend Project 25 Phase II, in part, because of perceived delays (approximately five years) in the availability of Phase II technology.[118] The NCC did not recommend TETRA primarily because of the low power of its handheld units[119] and the fact that it is not an ANSI standard.[120] Moreover, the Project 25 Phase I standard is the only common denominator between several technologies in development, whereas the Project 25 Phase II standard may never provide such a benefit.[121]

45. We observe that the members of the NCC's Steering Committee were not unanimous in recommending the Project 25 Phase I standard.[122] One Steering Committee member, who represents the International Association of Fire Chiefs, disfavored the Project 25 Phase I standard because of perceived spectrum inefficiency and lack of competition.[123] This Steering Committee member proposed the use of analog FM technology pending the development of a more spectrum-efficient digital technology.[124] Additionally, we observe that the NCC reported that Nokia also opposed the Project 25 Phase I standard.[125]

46. We invite parties to comment on the issue of what digital voice standard should be adopted for usage on the interoperability channels in the 700 MHz public safety band. Although we still intend to require spectrum efficient 6.25 kHz technology on the 700 MHz interoperability channels, we recognize that a substantial delay in the use of this band could result if we have no alternative standard

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[115] TETRA is a four-slot Time Division Multiple Access (TDMA) standard in which four voice channels are realized within a 25 kHz bandwidth. TETRA is currently not an ANSI standard.

[116] NCC Report at 17 ¶ 54.

[117] *Id.*

[118] According to the NCC, the technology readiness obstacles associated with Project 25 Phase II are battery size, weight and oscillator stability. NCC Report at 18 ¶¶ 55-56.

[119] The NCC notes that the lower power results in reduced coverage and building penetration relative to Project 25 Phase I radios. The inferior building penetration, in particular, was thought to be an important safety concern, especially for police and fire operations. NCC Report at 18-19 ¶¶ 57-58.

[120] NCC Report at 19 ¶ 58.

[121] *See id.* at Appendix G.

[122] *Id.* at 22 ¶ 69.

[123] *Id.*

[124] *Id.*

[125] *Id.* at Appendix B, Minutes of NCC's Sixth Meeting, Jan. 28, 2000, at iii.

for the present use of the band. As a result, we tentatively conclude that we should adopt the NCC's recommendation of the Project 25 Phase I standard at this time and that we should develop and implement a "migration path" to 6.25 kHz technology. We solicit comment on our tentative conclusion. In seeking comment on this issue, parties should be cognizant of the dual goals of (1) encouraging the development and usage of the most spectrum-efficient technology, and (2) providing public safety entities access to the 700 MHz interoperability channels on a near-term basis in a cost-effective manner.

47. We note that we anticipate the NCC's future recommendations for transitioning from a 12.5 kHz standard to a more spectrum-efficient 6.25 kHz standard. To avoid even the specter of delay, we tentatively conclude that we should incorporate a "migration path" to a 6.25 kHz standard in our Rules while we continue to foster spectrum efficient 6.25 kHz technology. Commenters who advocate a specific technical standard should offer recommendations regarding a clear, timely and realistic migration path to spectrum efficient 6.25 kHz technology in the future. Additionally, we request comments concerning what technical challenges must the industry overcome to migrate to a 6.25 kHz standard and how will these challenges affect the length of the migration. What equipment compatibility issues must the industry resolve? Furthermore, can the industry develop equipment that is both forward and backwards compatible?

48. In addition to comments concerning technology and equipment issues, we seek comment on the development of a specific migration path from the Project 25 Phase I standard to a 6.25 kHz standard. Specifically, what is an appropriate length of time to migrate to the 6.25 kHz standard.[126] Commenters should address the advantages as well as the disadvantages of a particular migration path. Should we require a migration period that ends in the year 2010, approximately ten years? This date corresponds to the date by which Congress directed the Commission to develop a framework to ensure that public safety communications needs are met.

49. As an adjunct to the length of the migration period, we seek comment on several additional migration issues. Primarily, should we limit the time period for the type acceptance of 12.5 kHz equipment? For example, in the *Refarming* proceeding, we require equipment certified after January 1, 2005 to meet the 6.25 kHz requirements in the 150-174 MHz and 421-512 MHz "refarmed" bands.[127] Are there alternative approaches for migration other than type acceptance? Furthermore, some thought should also be given to whether the migration period should be completed in stages. If so, what time periods would be appropriate and what occurrences should mark the beginning and ending of the time periods? Should we have a date certain, or should we determine these time periods based upon the DTV transition? What would be the advantages and disadvantages of a date certain versus a less certain date. Commenters should also address the cost to public safety entities to migrate to the 6.25 kHz standard from a 12.5 kHz standard.

50. *Channel Efficiency Standards—Narrowband Channels*. We established a channel efficiency standard (data throughput) of 4.8 kilobits per second (kbps) per 6.25 kHz for the narrowband channels.[128] Ericsson requests that we modify the efficiency standard for narrowband channels (general use and interoperability) to include a requirement that transmitters for voice communications in the

[126] In the *Refarming* proceeding, we adopted a conversion period of 10 years. *See* 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 Frequency Assignment Policies of the Private Land Mobile Radio Services, PR Docket No. 92-235, *Report and Order and Further Notice of Proposed Rule Making*, 10 FCC Rcd 10,076 (1995).

[127] *See* 47 C.F.R. § 90.203(5).

[128] *First Report and Order*, 14 FCC Rcd at 173 ¶ 38 and Appendix E; *see* 47 C.F.R. § 90.535(b).

narrowband segment of the 700 MHz band meet a spectrum efficiency standard of one voice channel per 6.25 kHz of channel bandwidth, regardless of the data rate supplied.[129] Ericsson contends that it is entirely possible that a digital voice transmitter, even though it meets the data requirement now specified in our Rules, would provide only one voice path in a 12.5 kHz channel.[130] Therefore, Ericsson asserts that a requirement for voice efficiency, as currently exists for channels in the 150-174 MHz and 421-512 MHz bands, is also needed.[131] Furthermore, Ericsson contends that refusal to adopt complimentary voice spectrum efficiency requirements will seriously undermine the adequacy of the spectrum needs identified in the PSWAC Final Report.[132]

51. APCO and Motorola oppose Ericsson's suggestion to require a voice channel efficiency standard of one voice channel per 6.25 kHz. APCO contends that Ericsson's proposal appears to favor its own proprietary TDMA 2-slot technology, which is not an ANSI standard.[133] APCO further states that at this time there is no ANSI-approved technology that provides one voice channel per 6.25 kHz of channel bandwidth, and that several technologies are under consideration as part of the Project 25 Phase II, 6.25 kHz standard now in development.[134] APCO also argues that to mandate that equipment be capable of supporting one voice channel per 6.25 kHz would unnecessarily and prematurely favor TDMA technology and undermine the public safety community's support for the existing TIA/25 standard.[135] Motorola argues that adoption of the one voice channel per 6.25 kHz of channel bandwidth would accelerate public safety requirements ahead of those established for business and industrial applications, and would require public safety users to assume responsibility for funding the development of new technologies.[136]

52. As stated above, we invite comment on the appropriate digital voice standard for the interoperability channels in the 700 MHz public safety band. Ericsson's recommendation would result in a negation of the NCC's recommendation to use the Project 25 Phase I (TIA/25) standard. Because we are reluctant to negate the NCC's recommendation, we will not, at this juncture, alter our present 4.8 kbps per 6.25 kHz standard. We seek comment on this issue.

53. *Narrowband Low Speed Data Transmission Standard and Channel Reservation*. The NCC recommends that we reserve two interoperability channels for data transmission.[137] The NCC recognizes that although time-critical information, such as "safety of life messages," requires communication by voice radio, low speed data transmission also can be used to manage specific incident command system operations.[138] For example, narrowband data transmission can facilitate the exchange

[129] Ericsson Petition at 8.

[130] *Id.*

[131] *Id.*

[132] Ericsson Reply to Motorola and APCO at 2.

[133] APCO Response to Petitions at 5-6.

[134] *Id.* at 6-7.

[135] *Id.* at 7.

[136] Motorola Comments to Petitions at 7.

[137] NCC Report at 20 ¶ 63, Appendix I.

[138] *Id.* at Appendix H at 1.

of keyboard messages or the uploading and downloading of short files.[139] Pursuant to the NCC's recommendation, we propose to reserve two interoperability channels for data transmission.

54. Just as an interoperability standard is needed for digital voice, a standard is also needed for narrowband data transmissions on interoperability channels. The NCC recommends that we adopt the data interoperability standard that is incorporated in the Project 25 suite of standards and is defined by one ANSI standard and four TIA/EIA standards.[140] This data interoperability standard requires use of a 12.5 kHz channel—the same channel size recommended by the NCC for voice transmission.[141] The NCC asserts that using the same channel size for voice transmission will reduce the complexity and cost of equipment. The NCC notes that the data rate meets our spectrum efficiency requirement of 9600 bps for a 12.5 kHz channel. We solicit comment on the appropriate standard for narrowband data transmissions on interoperability channels. As stated earlier, commenters who advocate a specific technical standard should offer recommendations regarding a clear, timely, and realistic "migration path" to more spectrum-efficient technology in the future.[142]

55. Additionally, we propose that subscriber units designed for data-only applications not be required to have voice capability. Conversely, subscriber units designed for voice-only applications need not have data transmission capability. We tentatively support the NCC recommendations above and solicit comment on these issues, with particular regard to matters of spectrum efficiency and any changes necessary in our Rules.

56. *Encryption*. The NCC notes that public safety entities increasingly are using encryption. The NCC recommends that we require a standard encryption algorithm if we decide to permit licensees to use encryption on the interoperability channels.[143] Otherwise, the ability to use the channels for interoperability will be compromised. We agree with the NCC that there is an increasing use of encryption by public safety entities. Because we anticipate that the Federal government, which normally encrypts its communications, will be using the channels, the NCC recommends that we adopt the latest Federal standard.[144] We believe that encryption should be permitted on the 700 MHz band public safety spectrum, except for the calling channels. Further, we invite comments on the NCC's recommendation that if encryption is permitted on the interoperability channels, a single standard is needed. We understand that the Federal government currently uses an encryption standard known as "2xDES" but soon will adopt a new, more secure standard—potentially FIPS 46-3, which operates on 12.5 kHz channels. We seek comment on whether this Federal standard should be adopted, and if so, the best method for updating the encryption standard in the future.

57. *Receiver Standards and Interference*. In the *First Report and Order*, we observed that we traditionally have adopted rules only as necessary to limit interference between communications

[139] *Id.* at 20 ¶ 62.

[140] *Id.* at 21 ¶ 64, Appendix I.

[141] *Id.* at 21 ¶ 65, Appendix I.

[142] *See supra* at para. 46.

[143] NCC Report at 15 ¶ 46.

[144] *Id.*

systems and have not specified performance or quality standards for receivers.[145] We further recognized that while receiver standards may be appropriate in certain public safety circumstances, the balance between the quality and the cost of receivers is one best left to the market.[146] Accordingly, for general use channels, we required RPCs to establish reference values for adjacent channel selectivity, spurious response attenuation, and intermodulation rejection in their plans.[147] For interoperability, we charged the NCC with recommending the parameters (*e.g.*, sensitivity, selectivity, dynamic range, durability characteristics) to include in the receiver standards.[148] The NCC has included this matter in its second year work-plan.

58. In the *Second MO&O*, we declined to adopt receiver standards absent additional information from the public safety community regarding the advantages, disadvantages, and feasibility of mandating receiver standards for the 700 MHz band.[149] We noted that to the extent that receiver standards could improve the reliability of interoperability communications systems used in critical safety of life and property circumstances, such standards may be appropriate.[150] Recently we have received an increasing number of interference complaints from public safety licensees in the 800 MHz public safety band. Many of these licensees note several instances where public safety mobile and portable radios operating on the 800 MHz band either have failed to function properly, or have failed to function at all, especially in areas located near towers operated by commercial mobile radio service (CMRS) systems. There are indications that some incidents of interference may be caused—at least in part—by receivers that are too susceptible to interference from nearby public safety or commercial operations. These incidents of interference are difficult to resolve because the adjacent licensees may be operating within the terms of their licenses, while public safety operators may lack the resources to replace radio systems that are susceptible to interference with more robust equipment. We therefore seek comment on whether the interests of public safety and commercial licensees in the 700 MHz band would be served by establishing interference standards for receivers operating on public safety frequencies.

59. Specifically, we invite comment on whether we should mandate receiver standards to address interference issues raised by public safety radio operators.[151] Furthermore, assuming that interference experienced by public safety radio operations is caused by CMRS systems, what is the specific cause of this interference? For example, can this interference be attributable to out-of-band emissions, the poor quality of some public safety radio receivers, or some other factor? Do we need to

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[145] *First Report and Order*, 14 FCC Rcd at 208 ¶ 118. *But see generally* 47 C.F.R. §§ 80.1081 (prescribing the functional requirements for GMDSS ship stations), 80.874 (specifying technical parameters for marine VHF receiver sensitivity, audio output, and reception capability).

[146] *See First Report and Order*, 14 FCC Rcd at 208 ¶ 118.

[147] *Id.* at 211-12 ¶ 132. We noted that this approach will allow public safety entities to avail themselves of competitive market choices while establishing a "reference receiver," thereby assisting all parties, including the Commission, in resolving interference disputes. *Id.*

[148] *First Report and Order*, 14 FCC Rcd at 208 ¶ 121.

[149] Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, *Second Memorandum Opinion and Order*, FCC 00-264, ¶ 23 (Aug. 1, 2000) (*Second MO&O*).

[150] *Id*

[151] *See, e.g.*, 47 C.F.R. §§ 80.257, 80.259, 80.269, 80.271 (addressing equipment authorizations for compulsory ships using stations in the maritime services), 80.1101(c) (addressing equipment standards for the GMDSS).

revisit our current rules on out-of-band emissions by radio transmitters? Could higher filtering standards solve most interference problems? Is interference caused primarily by transmissions from adjacent channels or non-adjacent channels? We also seek comment on whether we should require equipment manufacturers to label equipment to indicate the interference level that a customer might expect with a given receiver. We additionally invite comment on whether public safety operations in the 700 MHz band might be less susceptible to interference than public safety operations in the 800 MHz band due to the various differences in channelization plans and the use of guard channels in the 700 MHz band.

### E. Other Issues

60. *Federal Use of the Interoperability Spectrum.* The NCC recommends sufficient flexibility in our Rules to allow state and local authorities to enter contractual agreements with Federal authorities.[152] In these agreements, Federal users would have equal rights to the spectrum, and no user would have priority over another user unless otherwise specified in the contract. As the NCC observes, Section 2.103(b) of our Rules[153] already offers flexibility in this regard. In the *Second MO&O*, we concluded that there is no impediment to federal use of the 700 MHz band through the use of sharing agreements.[154] Thus, we tentatively conclude that an additional rule is not necessary to facilitate Federal sharing of the interoperability spectrum. We seek comment on our tentative conclusion.

61. *Pre-coordination Database.* The NCC recommends that we require RPCs to use a regional planning "pre-coordination database," which will be developed for the 700 MHz public safety band. The NCC recommends requiring RPCs to choose interoperability channels from this pre-coordination database in order to avoid co-channel and adjacent channel interference.[155] According to the NCC, the National Law Enforcement and Corrections Technology Center (NLETC) will provide and maintain a real-time database of interoperability assignments, including pre-application assignments. The National Institute of Justice will fund the database.[156] RPCs would submit pre-application information to NLETC concerning anticipated use of interoperability channels. When planning systems, RPCs could check the database to see how adjacent regions were planning to use interoperability spectrum and thus eliminate potential interference problems in the early stages of system development.

62. We are aware of and support the benefits of a real-time common database for planning purposes and in minimizing interference. Nonetheless, just as we decline to micromanage frequency coordination in the 700 MHz regional planning spectrum in the *Second MO&O*,[157] we similarly decline to micromanage pre-coordination of interoperability channels.[158] We believe that it is unnecessary to require by rule the use of a pre-coordination database.

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[152] NCC Report at 22 ¶ 72, Appendix J.

[153] 47 C.F.R. § 2.103(b).

[154] *Second MO&O*, ¶¶ 46-53.

[155] NCC Report at 23-24 ¶ 74, Appendix K (Letter from Marilyn Ward, Chair, National Public Safety Telecommunications Council, to Kathleen Wallman, Chairperson, NCC, dated Apr. 22, 1999).

[156] NCC Report at 24 ¶ 74.

[157] *Second MO&O*, ¶ 80.

[158] *See Second MO&O*, ¶¶ 79-84.

63. Based on the record before us, we tentatively conclude that the decision to require applicants for interoperability channels to use a common pre-coordination database is best left to the entities tasked with administering the interoperability spectrum. In any event, we solicit comment from parties favoring the NCC's recommendation for requiring the use of a pre-coordination database. We also solicit comment on whether the RPCs should include in their regional plans a coordination process between interoperability and general use channels. We also seek comment on what alternative systems of channel coordination RPCs could employ in their planning process. Do commenters envision the use of a pre-coordination database if the states or SIECs are the entities to manage the interoperability spectrum? Moreover, we invite commenters to propose how they envision coordination between various interoperability entities (*i.e.*, SIECs in different states, or SIECs or RPCs managing the interoperability channels for the same region). We also solicit comment on any other pertinent issues that would facilitate the successful implementation of the pre-coordination database.

## IV. PROCEDURAL MATTERS

64. *Initial Regulatory Flexibility Analysis*. As required by the Regulatory Flexibility Act (RFA) of 1980,[159] we have prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities of the policies and rules proposed by this *Fourth Notice of Proposed Rule Making*. The IRFA is set forth in Appendix A. We request written public comment on the IRFA.

65. Comments must be filed in accordance with the same filing deadlines as comments filed in this rulemaking proceeding, they must have a separate and distinct heading designating them as responses to the IRFA. The Consumer Information Bureau, Reference Information Center, shall send a copy of this *Fourth Notice of Proposed Rule Making*, including the IRFA, to the Chief Counsel of the Small Business Administration, in accordance with the Regulatory Flexibility Act.

66. *Paperwork Reduction Analysis*. This *Fourth Notice of Proposed Rule Making* contains proposed information collections. As part of its continuing effort to reduce paperwork burdens, the Commission invites the general public and the Office of Management and Budget (OMB) to take this opportunity to comment on the proposed revisions to the information collections contained in this *Fourth Notice of Proposed Rule Making*, which is required by the Paperwork Reduction Act of 1995, Pub. L. No. 104-13.

67. Public and agency comments are due at the same time as other comments on this *Fourth Notice of Proposed Rule Making*. OMB comments are due sixty days from the date of publication of this *Fourth Notice of Proposed Rule Making* in the Federal Register. In addition to filing comments with the Secretary, a copy of any comments on the information collections contained herein should be submitted to Judy Boley, Federal Communications Commission, 445 Twelfth St., S.W., Room 1-C804, Washington, D.C. 20554, or via the Internet to jboley@fcc.gov, and to Virginia Huth, OMB Desk Officer, 10236 NEOB, 725 17th St., N.W., Washington, D.C. 20503, or via the Internet to vhuth@omb.eop.gov. 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.

[159] *See* 5 U.S.C. § 603.

68. *Ex Parte Presentations*. For purposes of this permit-but-disclose notice and comment rulemaking proceeding, members of the public are advised that *ex parte* presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed under our Rules.[160]

69. *Comment Dates*. Pursuant to Sections 1.415 and 1.419 of our Rules,[161] interested parties may **file comments on or before thirty days after publication of the *Fourth Notice* in the Federal Register; 2000, and reply comments on or before forty five days after publication of the *Fourth Notice* in the Federal Register.** Comments may be filed using the Commission's Electronic Comment Filing System (ECFS) or by filing paper copies.[162] All relevant and timely comments will be considered by the Commission before final action is taken in this proceeding. To file formally, interested parties must file an original and four copies of all comments, reply comments, and supporting comments. If interested parties want each Commissioner to receive a personal copy of their comments, they must file an original plus nine copies. Interested parties should send comments and reply comments to the Office of the Secretary, Federal Communications Commission, 445 12th Street, S.W., Washington, DC 20544.

70. Comments filed through the ECFS can be sent as an electronic file via the Internet to <http://www.fcc.gov/e-file/ecfs.html>. Generally, only one copy of an electronic submission must be filed. In completing the transmittal screen, commenters should include their full name, Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by the Internet e-mail. To get filing instructions for e-mail comments, commenters should send an e-mail to ecfs@fcc.gov, and should include the following words in the body of the message, "get form <your e-mail address>." A sample form and directions will be sent in reply.

71. Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, commenters must submit two additional copies for each additional docket or rulemaking number. All filings must be sent to the Commission's Secretary, Magalie Roman Salas, Office of the Secretary, Federal Communications Commission, 445 12th Street, S.W., Washington, DC 20554.

72. For further information concerning this proceeding, contact Nancy Zaczek, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau at (202) 418-0759 or nzaczek@fcc.gov.

73. Alternative formats (computer diskette, large print, audio cassette, and Braille) are available to persons with disabilities by contacting Martha Contee at (202) 418-0260, TTY (202) 418-2555, or via e-mail to mcontee@fcc.gov. This *Fourth Notice of Proposed Rule Making* can be downloaded at http://www.fcc.gov/Wireless/Orders/2000/fcc00-271.txt.

## V. ORDERING CLAUSES

74. Accordingly, IT IS ORDERED that these actions ARE TAKEN pursuant to Sections 1, 4(i), 7, 301, 302, 303, and 337 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 157, 301, 302, 303, 337.

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[160] *See generally* 47 C.F.R. §§ 1.202, 1.203, 1.206(a).

[161] 47 C.F.R. §§ 1.415, 1.419.

[162] *See* Electronic Filing of Documents in Rulemaking Proceedings, *Memorandum Opinion and Order*, 13 FCC Rcd 21517 (1998), *Report and Order*, 13 FCC Rcd 11322 (1998).

75. IT IS FURTHER ORDERED that NOTICE IS HEREBY GIVEN of the proposed regulatory changes described above, and that comment is sought on these proposals.

76. IT IS FURTHER ORDERED that this *Fourth Notice of Proposed Rule Making* is hereby ADOPTED.

77. IT IS FURTHER ORDERED that the Commission's Consumer Information Bureau, Reference Information Center, SHALL SEND a copy of this *Fourth Notice of Proposed Rule Making*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas
Secretary

# APPENDIX A

## INITIAL REGULATORY FLEXIBILITY ANALYSIS

As required by the Regulatory Flexibility Act (RFA),[163] the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities of the policies and rules proposed in this *Fourth Notice of Proposed Rule Making (Fourth Notice)*. Written public comments are requested regarding this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Fourth Notice* provided in the item. The Commission will send a copy of the *Fourth Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.[164] In addition, the *Fourth Notice* and IRFA (or summaries thereof) will be published in the Federal Register.[165]

### A. Need for, and Objectives of, the Proposed Rules

In the *Fourth Notice*, we continue our evaluation of rules applicable to the use of public safety spectrum in the frequencies at 764-776 MHz and 794-806 MHz (the 700 MHz band). Specifically, the *Fourth Notice* summarizes and seeks comment on the recommendations of the Public Safety National Coordination Committee (NCC) concerning technical and operational standards for public safety interoperability frequencies in the 700 MHz band. We seek comment on a number of issues including: primary and secondary trunking on the interoperability channels; establishment and role of Regional Planning Committees (RPCs) and State Interoperability Executive Committees (SIECs); administration of the interoperability channels by state or local entities; licensing of end-users; standardized display labeling for interoperability units; access priority scheme for the interoperability channels; designation and use of calling channels; use of encryption on the interoperability channels; digital voice standards and efficiency standards for the interoperability channels; digital data standards and channel reservation for the interoperability channels; federal use of the interoperability spectrum; and use of a pre-coordination database to assign the interoperability channels. The proposed rules and actions should help achieve our goal of seamless interoperability on a nationwide basis, thereby improving critical public safety communications.[166]

### B. Legal Basis

Authority for issuance of this item is contained in Sections 1, 4(i), 7, 301, 302, 303, and 337 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 157, 301, 302, 303, 337.

### C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply

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.[167] The RFA defines the term "small

[163] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

[164] *See* 5 U.S.C. § 603(a).

[165] *See id.*

[166] *See supra* at paras. 31-32

[167] 5 U.S.C. § 603(b)(3).

entity" as having the same meaning as the terms "small business," "small organization," and "small business concern" under Section 3 of the Small Business Act.[168] A small business concern is one that: (1) is independently owned and operated, (2) is not dominant in its field of operation, and (3) satisfies any additional criteria established by the Small Business Administration.[169] Nationwide, as of 1992, there were approximately 275,801 small organizations.[170] "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."[171] As of 1992, there were approximately 85,006 such jurisdictions in the United States.[172] This number includes 38,978 counties, cities, and towns; of these, 37,566, or ninety-six percent, have populations of fewer than 50,000.[173] 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. Below, we further describe and estimate the number of small entity licensees and regulatees that may be affected by the proposed rules, if adopted.

*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.[174] Spectrum in the 700 MHz band for 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. As indicated above, all governmental entities with populations of less than 50,000 fall within the definition of a small entity.[175] Neither the Commission nor the SBA has developed a definition of small businesses directed specifically toward public service licensees. Therefore, the applicable definition of small business is the definition under the SBA rules applicable to radiotelephone (wireless) companies. This provides that a small business is a radiotelephone company employing no more than 1,500 persons.[176] According to the

[168] *Id.* § 601(b)(3).

[169] *Id.* § 632.

[170] 1992 Economic Census, U.S. Bureau of the Census, Table 6 (special tabulation of data under contract to Office of Advocacy of the U.S. Small Business Administration).

[171] 5 U.S.C. § 601(5).

[172] U.S. Dep't of Commerce, Bureau of the Census, *1992 Census of Governments.*

[173] *Id*

[174] *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 forest organizations that 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.

[175] 5 U.S.C. § 601(5).

[176] 13 C.F.R. 121.201, SIC code 4812.

Bureau of the Census, only twelve radiotelephone firms from a total of 1,178 such firms which operated during 1992 had 1,000 or more employees.[177] Therefore, even if all twelve of these firms were public safety licensees, nearly all would be small businesses under the SBA's definition, if independently owned and operated.

*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 Small Business Administration'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.[178] 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.[179] We do not have information that indicates how many of the six radio equipment manufacturers associated with this proceeding are among these 778 firms. Motorola and Ericsson, however, are major, nationwide radio equipment manufacturers, and thus, we conclude that they would not qualify as small businesses.

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

The *Fourth Notice* proposes a number of rules and solicits comments that will entail reporting, recordkeeping, and/or third-party consultation. The Commission believes, however, that these requirements are the minimum needed. The licensing methods under consideration in the *Fourth Notice* include the possibility of imposing recordkeeping and reporting requirements on applicants for public safety licenses that may be required to make submissions to planning committees justifying their request for spectrum. These entities will be required to submit applications for spectrum licenses on Form 601.

The *Fourth Notice* also seeks comment on recommendations to employ Memoranda of Understanding (MOUs) and model sharing agreements to govern use of interoperability channels. Entities would be responsible for gathering the information necessary to complete an MOU or sharing agreement. [180]

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

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. 5 U.S.C. §603.

The NCC, comprised of representatives from government, the public safety community, and the communications equipment manufacturing industry, was chartered by the FCC as a Federal Advisory

[177] 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*, at Table 5, SIC code 4812.

[178] 13 C.F.R. § 121.201, (SIC) Code 3663.

[179] U.S. Dep't of Commerce, *1992 Census of Transportation, Communications and Utilities* (issued May 1995), SIC category 3663.

[180] *See supra* at paras. 31-32.

Committee, effective February 25, 1999. The NCC made recommendations concerning various issues addressed in this *Fourth Notice*. We note that in several instances, to benefit all entities, including small entities, we did not propose a particular recommendation. For instance, see the discussion in paragraphs 25-28 and 60-62, *supra*.

In formulating the proposals in the *Fourth Notice*, we have reduced economic burdens wherever possible. The regulatory burdens that we have proposed are necessary to ensure that the public receives the pubic safety benefits of innovative new services in a prompt and efficient manner. For example, we have proposed technical and operational rules that should promote competition in the equipment market. We believe that the rules we adopt 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. 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. With these considerations in mind, we believe that the technical regulations we propose herein provide a reasonable balance of these concerns.

Under the regional planning process, frequency coordination is competitive. Frequency coordination is the process by which a private organization recommends to the Commission the most appropriate frequencies for private land mobile radio service applicants.[181] Frequency coordinators provide a valuable service to the Commission by eliminating common application errors, thereby improving the quality of the applications and resolving potential interference problems at the source. We continue to believe that the encouragement of competition among coordinators promotes cost-based pricing of coordination services and provides incentives for enhancing service quality. Therefore, we will continue to allow any of the certified public safety coordinators to provide coordination in the 700 MHz band.

Recognizing the budgetary constraints that public safety entities face as a matter of course, we have proposed rules that encourage broad-based efforts, such as projects on the state and regional level, to coordinate and consolidate operations that are critical to meeting the needs of public safety with cost effective, spectrally-efficient radio systems. For example, we have proposed trunking on certain public safety channels in the 700 MHz band. Trunked systems would provide service to many governmental entities in a specific geographic area and offer a higher degree of efficiency than some smaller, non-trunked systems. A difficulty in establishing these types of shared systems is that they require individual agencies to surrender some autonomy in return for the efficiencies and better coverage of a larger system. In addition, the funding required to develop the infrastructure necessary to support some of the newer technologies is often too great to permit small public safety agencies to participate in new, sophisticated, spectrum efficient, wireless radio systems. These same agencies, however, might be able to participate in a county-wide or state-wide system. For these, and other, reasons, we encourage the use of shared systems in the public safety community.[182]

We believe that flexible licensing policies are necessary to encourage the use of the most spectrally efficient technology to meet user-defined needs. Recognizing the budgetary constraints that small public safety entities face, the *Fourth Notice* seeks comment on a variety of proposals regarding the interoperability spectrum in the 700 MHz public safety band. Any significant alternatives presented in comments will be considered.

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[181] *See* Frequency Coordination in the Private Land Mobile Radio Services, PR Docket No. 83-737, *Report and Order*, 103 FCC 2d 1093 (1986).

[182] Area-wide licenses often encourage the rapid development and deployment of innovative services and facilitate interoperability and operational standards, while allowing economies of scale that encourage the development of low cost equipment. *See, e.g.*, Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service, GN Docket No. 96-228, *Report and Order*, 12 FCC Rcd 10785, 10814 (1997).

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

None.

## APPENDIX B

## PROPOSED RULES

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

1. The authority citation for Part 90 is revised to read as follows:

AUTHORITY: Secs. 4, 251-52, 303, 309, 332 and 337, 48 Stat. 1066, 1082, as amended, 47 U.S.C. 154, 251-52, 303, 309, 332 and 337, unless otherwise noted.

2. A new Section 90.524 is added to read as follows:

**§ 90.524 Administration of interoperability channels.**

(a) States are responsible for administration of the interoperability channels in the 764-776 MHz and 794-806 MHz frequency bands. Base and control stations must be licensed individually. A public safety entity may operate mobile or portable units on the interoperability channels in the 764-776 MHz and 794-806 MHz frequency bands without an individual license if (1) the entity is eligible to hold a license in the 764-776 MHz and 794-806 MHz frequency bands, or (2) the entity otherwise is licensed under part 90 of these Rules. All persons operating mobile or portable units are responsible for compliance with part 90 of these Rules and other applicable federal laws.

(b) License applications for interoperability channels in the 764-776 MHz and 794-806 MHz frequency bands must be approved by a state-level agency or organization responsible for administering state emergency communications. States may hold the licenses for interoperability channels or approve other qualified entities to hold such licenses. States may delegate the approval process for interoperability channels to another entity, such as regional planning committees.

3. Section 90.531 is amended by adding paragraphs (i) through (iv) in subsection (b)(1), to read as follows:

**§ 90.531 Band plan.**

* * * * *

(b)(1) *Narrowband nationwide interoperability channels.* The following categories of narrowband channels are designated for nationwide interoperability licensing and use:

(i) *Primary narrowband interoperability channels.* The following channels are designated as primary narrowband interoperability channels. [Note: channels dependent upon guard band decision].

(ii) *Narrowband data interoperability channels.* The following channels are dedicated for the express purpose of nationwide data transmission only. [Note: channels dependent upon guard band decision].

(iii) *Narrowband calling interoperability channels.* The following channels are dedicated for the express purpose of nationwide interoperability calling only [Note: channels dependent upon guard band decision]. Trunking and encryption are prohibited on the two designated calling

channel sets.

(iv) *Narrowband trunking interoperability channels.* The following channels are available for nationwide interoperability trunking purposes. [Note: channels dependent upon guard band decision].

* * * * *

4. Section 90.537 is amended by adding the second, third, and fourth sentences of the paragraph, to read as follows:

**§ 90.537 Trunking requirement.**

(a) *General use channels.* All systems using six or more narrowband channels in the 764-776 MHz and 794-806 MHz frequency bands must be trunked systems, except for those described in paragraph (b) of this section.

(b) *Interoperability channels.* Trunking is permitted on ten of the channels designated for nationwide interoperability use, as designated in § 90.531(b)(1)(iv). The following requirements apply to interoperability channels where trunking is permitted, but not required: trunked use must be conducted on a strict secondary, non-interference basis; 6.25 kHz, 12.5 kHz, and 25 kHz trunked operations are permitted; and routine (day-to-day) communications are permitted if the channel(s) are not needed for emergency communications. Trunking is prohibited on the remainder of the interoperability channels, including any channels reserved as calling channels, because such channels are reserved for conventional operations.

5. Section 90.547 is revised to read as follows:

**§ 90.547 Interoperability channel capability requirement.**

(a) Mobile and portable transmitters designed pursuant to standards adopted by the National Coordination Committee to operate in the 764-776 MHz and 794-806 MHz frequency bands must be capable of operating on any of the designated nationwide narrowband interoperability channels, approved by the Commission. Subscriber units designed for data-only applications are not required to have voice capability. Subscriber units designed for voice-only applications are not required to have data transmission capability.

(b) Transmitters operating on those narrowband channels in the 764-776 and 794-806 MHz band designated for interoperability (*See* 90.531 shall conform to the following technical standards:

(i) Transmitters designed for voice operation within a 12.5 kHz or 6.25 kHz bandwidth shall conform to the following standards: ANSI/TIA/EIA102.BAAA-1 (common air interface); ANSI/TIA/EIA102.BABA (vocoder).

(ii) Transmitters designed for data transmission within a 12.5 kHz or 6.25 kHz bandwidth shall conform to the following standards, as applicable: ANSI/TIA/EIA 102.BAEA (data overview); ANSI/TIA/EIA 102.BAEB (packet data specification); ANSI/TIA/EIA102.BAEC (circuit data description); ANSI/TIA/EIA 102.BAEA (radio control protocol); and ANSI/TIA/EIA 102.BABA (vocoder).

(c) Copies of the standards listed in this Section 90.547 that are incorporated by reference can be

purchased from the American National Standards Institute, Washington, DC Headquarters, 1819 L Street, NW, 6th Floor, Washington, DC 20036.

(d) Copies of the standards listed in this Section 90.547 that are incorporated by reference may be inspected at the Federal Communications Commission, 445 12th Street, SW, Washington, DC (Reference Information Center) or at the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC.