technology for the future of land mobile radio."[35] As a result of the determination that digital modulation serves as the primary interoperability spectrum parameter, the Commission solicited comment regarding which digital standard should be applied. The Commission's reasonable apprehension at precluding future technologies was taken into account by APCO's migration, which ensures forward compatibility from the present 12.5 kHz technology to the Commission's 6.25 kHz per channel efficiency parameter. Moreover, the Commission appropriately determined that sufficient opportunity for industry development existed, thereby negating any concern that relative technology evolution might be stunted.

36. The Commission weighed the likely rigors of establishing a digital standard and ultimately determined that digital modulation was more responsive to emerging technologies, outweighing the costs of evolving relative systems and infrastructures. The Commission recognized that as technologies emerge, the cost of maintaining analog systems that will interact with evolving systems would actually be cost prohibitive. Therefore, the Commission determined that all public safety equipment within the 700 MHz band must be designed to use digital modulation as its primary modulation mode.[36] As the last several years of development have verified, industry solutions have unquestionably moved public safety technologies into the digital age.

37. The PSWN Program is compelled to point out that many public safety entities, especially in rural and less affluent communities, are simply without the resources to upgrade

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[35] See *1st R&O, WT 96–86,* at para. 109.
[36] See *1st R&O, WT 96–86,* at para. 110.

their systems, as this technology would require.[37] Until technology replacement costs can be met or reduced, all new equipment used in current public safety spectrum should have the capacity to send and receive both analog and digital signals.

B. Receiver Standards

38. The PSWN Program supports the Commission's requirement for Regional Planning Committees (RPC) to establish reference values for adjacent channel selectivity, spurious response attenuation, and intermodulation rejection in their plans.[38] Furthermore, the PSWN Program supports the Commission's decision that the NCC recommend receiver standards "for the nationwide interoperability channels as established for the recommendation of the interoperability modulation standard...[and] the scope of parameters (*e.g.* sensitivity, selectivity, dynamic range, durability characteristics) that need to be included in the receiver standards."[39] This action will allow entities to establish a reference point for interference analysis.

39. The FLEWUG has been a strong supporter of receiver standards for public safety equipment to protect licensees from harmful interference.[40] The PSWN Program also advocates this position. The FLEWUG has also agreed with the National Public Safety Telecommunications Council (NPSTC) that the establishment of receiver standards for the

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[37] See PSWN Program Information Brief, *A Priority Investment for America's Future Safety, September, 1999,* at page 5, citing the PSWN Program Land Mobile Radio Replacement Cost Study, June 1998. At the time of publication of that report, it was estimated that the replacement cost of existing public safety radio systems was "at least $18.3 billion."

[38] See *1st R & O, WT 96-86,* at para. 132.

[39] *Id.,* at para. 121.

[40] See *FLEWUG Reply Comments to 2nd NPRM, WT 96–86,* at para. 21.

interoperability spectrum is necessary.[41] Such standards would help reduce possible harmful interference in the public safety bands and increase reliability and interoperability of all public safety radios. The PSWN Program recommends that the Commission should err on the side of caution, and fashion a standard that will be sufficient to protect public safety operations and personnel from any degree of interference, in any location, and for any duration.

C. Interference Standards

40. The real danger that exists because of interference with public safety operations cannot be exaggerated. The media have reported numerous cases of officers wounded in the line of duty and unable to call for help because their radios were "drowned out by a torrent of information age services."[42] Such incidents are rapidly becoming a tragically familiar, and unnecessary, story. In its Fourth R&O, the Commission found insufficient evidence of adjacent channel interference and therefore no overriding urgency that would compel adoption of guard channels on either side of the interoperability channels. Consequently, the Commission adopted a band plan that allows four contiguous 6.25 kHz channel pairs to be aggregated into a single 25 kHz block.[43] The PSWN Program notes that since the Fourth R&O, significant research has been performed by members of the Telecommunications Industry Association (TIA) verifying "the potential for significant interference to interoperability users from other users on adjacent general use channels in the same geographic area if the interoperability channels are not protected by a 6.25 kHz guard channel, i.e., if the 12.5 kHz is not centered within the 25 kHz

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41 *Id.*, at para. 20.

42 See, e.g., *USA Today*, "*Cellphones Drowning Out Police Radios,*" March 12, 2001, at pages 1, 2. See also the *Oregonian*, Oregonlive.com, "*Emergency calls crowded out,*" August 5, 2001.

43 See *PSWN Program Petition for Reconsideration (PSWN PFR), WT 96–86,* at para. 11.

assignment with a 6.25 kHz guard channel on either side."[44] The PSWN Program encourages the Commission to review and incorporate recommended values set forth in the PSWN Program's ex parte filing attaching the TIA's interference analysis for 47 C.F.R. § 27.53.[45]

41. A critical requirement for public safety operations in any band is sufficient protection from interference. In the 700 MHz band, there is still a need for protection to prevent a situation similar to that experienced by public safety users in the 800 MHz band.[46] The Commission needs to provide protection to public safety so that no lives are lost or property damaged because public safety personnel cannot communicate.[47] NPSTC has further suggested that the Commission adopt, as a standard, the position of "Zero Tolerance of Interference to Public Safety" from commercial users.[48] The PSWN Program fully supports this measure to ensure that public safety operations remain a paramount interest.

42. The PSWN Program also reiterates its support of NPSTC's Petition for Reconsideration, WT Docket No. 99–168, to amend the Commission's rules governing protection from interference of public safety communications in the 700 MHz band. The Commission has reversed its initial service rules, which had originally limited high-power base stations to the lower portion (747–762 MHz) of the commercial spectrum in the 700 MHz

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44 *Id.*, at para. 13.

45 See generally, *PSWN Program Ex Parte Letter, WT 96–86, June 12, 2001.*

46 See Best Practices Guide for Avoiding Interference Between Public Safety and Commercial Wireless 800 MHz Communications Systems.

47 See *the National Public Safety Telecommunications Council Petition for Reconsideration (NPSTC PFR), 2nd R&O, WT 99–168,* at pages 10–11.

48 *Id.*, at page 10.

band.[49] Since that time, Motorola, NPSTC, the NCC, the TIA, and many other members of the public safety community have submitted studies and comments to the Commission. All the evidence supports the conclusion that under the revised service rules, high-power commercial transmitters present an almost certain and widespread threat of interference to vital public safety operations, as has been well-documented in the 800 MHz band. The PSWN Program recommends establishing strict standards on co-channel and adjacent channel interference, out-of-band emissions, and limits on effective radiated power to curb this problem.

IV. REGULATION AND USE OF SPECTRUM

A. Advisory and Spectrum Management Functions of Regional Planning Committees and State Interoperability Executive Committees

43. The PSWN Program advocates an active NCC role in concert with RPCs and State Interoperability Executive Committees (SIEC) relative to resolving regional disputes, national oversight of planning processes, administering interoperability spectrum in the 700 MHz band, and promulgating uniform guidelines for the development of interoperability and mutual aid plans.[50] The PSWN Program urges the Commission to continue its support of SIECs to oversee the development of interoperability at the state level.[51] The SIEC is best positioned to develop the State Interoperability Plan to coordinate operations between emergency medical, fire, forestry, general government, law enforcement, and transportation agency personnel. While at present SIEC development has only been encouraged in the 700 MHz band, expanding the duties of SIECs and RPCs to include management of other public safety spectrum would be a

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[49] *Id.*, at page 8.
[50] See *PSWN Program Submission for NCC Membership; WT 96–86*, at para. 25.
[51] See *4th R&O, WT 96–86*, rel. January 17, 2001, at paras. 12–13.

valuable leveraging of assets. This action would capitalize on the states' knowledge of their own internal processes and shared experiences with these issues in other bands.

44. The PSWN Program continues to support the Commission's finding that administration of interoperability spectrum can and should occur at the state level through representative bodies such as SIECs.[52] Moreover, the PSWN Program echoes the Commission's determination that SIECs handle administration of the interoperability channels through Memoranda of Understanding between the SIEC and the licensee.[53] However, the PSWN Program recommends that the Commission not mandate a single "one size fits all" approach.[54] As was pointed out by the PSWAC Steering Committee, different public safety agencies have different needs and require the flexibility of tailored solutions to meet their unique requirements.[55] The PSWN Program believes that the Commission's recent decision on the 700 MHz band to allow such flexibility is the correct choice [56] and should be emulated in other public safety bands.

B. Priority Access System

45. Within its Fourth NPRM, the Commission requested comment on the NCC's recommendation for a four-level access priority scheme for interoperability channels. The PSWN Program maintains its endorsement of a priority access scheme because it allows for responsive, certain delegation of finite spectrum for public safety uses on all interoperability

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52 *Id.*, at paras. 12–14.
53 See *PSWN Program Comments to the 4th NPRM; WT 96–86,* at para. 12.
54 *Id.*, at para. 14.
55 See *PSWAC Final Report,* at paras. 1.4, 1.23–1.26.
56 See *4th R&O, WT 96–86*, at paras. 12-13.

spectrum bands. Level 1 priority would be given for response to disasters. Level 2 priority would be appropriate in emergencies where imminent danger to life and property exists. Level 3 priority would be for special event control, in cases of planned and foreseeable occurrences such as demonstrations or parades. Level 4 is the default priority, for supporting secondary communications by a single responding agency.[57] The PSWN Program therefore recommends the Commission apply the NCC's recommended approach, also suggested in the PSWAC Report,[58] which included a proposal to establish a nationwide channel to disseminate information to the public and media.[59]

C. Interoperability Pre–Coordination Database

46. In light of the Commission's determination not to mandate use of a pre–coordination database (PCDB), the PSWN Program and other parties have filed a Petition for Reconsideration asking the Commission to reexamine its decision. The response from the Commission is still pending.[60] As originally proposed by the NCC, the National Institute of Justice (NIJ) would fund this database, which would be administered and maintained by the Public Safety Frequency Coordinators, as part of the pre–established licensing process.[61] The PSWN Program cannot overstate the value and necessity of such an initiative to manage use of public safety spectrum. The database would require all users to register their operations and provide a mechanism to quickly reference and evaluate frequency use and prevent interference. Only by requiring its use, will this database become a successful and authoritative asset to the

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57 See *4th NPRM, WT 96–86*, at paras. 36–38.
58 See *PSWAC Final Report*, at para. 4.1.21.
59 *Id.*, at 4.1.14.
60 *See PSWN Program Petition for Reconsideration, 4th R&O, WT 96–86*, at paras. 3–6.
61 *Id.*, at paras 3–5.

public safety community for planning purposes. The mandated use of the database would also help ease technical impediments to interagency cooperation and allow swift resolution when interference issues inhibit public safety communications. The PSWN Program therefore recommends the Commission reconsider its ruling that the pre–coordination database should be voluntary and instead mandate this valuable resource in both the 700 MHz band and all future interoperability bands.

V. CONCLUSION

47. As always, the PSWN Program is grateful for the opportunity to provide comments and present the interests of the public safety community, and we request the full and thorough consideration of the Commission in response to our recommendations. The PSWN Program further acknowledges the contributions made by other public safety entities in preparing this Petition and submits these recommendations with the goal of bringing the public safety community's concerns to the top of the Commission's agenda. The PSWN Program is certain that the Commission will continue to place a priority on the issues affecting the interests of public safety operations, will address the expressed concerns in a constructive manner, and will advance the cause of assuring the integrity of these invaluable services. The PSWN Program hopes that the urgency of the public safety community's needs will receive prompt, swift, active support from the Commission to fulfill the public safety community's essential communications requirements for the new century.

Respectfully submitted,

Brigadier General Paul H. Wieck II
Iowa Army National Guard
Chair, PSWN Executive Committee
Spectrum Working Group

Steven Proctor
Executive Director,
Utah Communications Agency Network
Executive Vice–Chair,
PSWN Executive Committee

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

In the Matter of	)
	)
Petition for Rule Making	)
By the Public Safety Wireless Network	)
To Promote the Allocation of Spectrum	)
For Public Safety Agencies and Other Matters	)
To Address Communications Needs Through 2010	)

I, Richard N. Allen, Senior Associate, Booz·Allen & Hamilton Inc., 8283 Greensboro Drive, McLean, Virginia, 22102–3838, hereby certify that on this date I caused to be served, by first-class mail, postage prepaid (or by hand where noted) copies of the Public Safety Wireless Network Program's *Petition for Rulemaking to Promote the Allocation of Spectrum for Public Safety Agencies and Other Matters To Address Communications Needs Through 2010,* the original of which is filed herewith and upon the parties identified on the attached service list.

DATED at Fair Oaks, Virginia this 14th day of September, 2001.

Richard N. Allen

SERVICE LIST

*The Honorable Michael Powell, Chairman
Federal Communications Commission
445 12th St., SW, Rm. 8–B201
Washington, DC 20554

*The Honorable Kathleen Abernathy, Commissioner
Federal Communications Commission
445 12th St., SW, Rm. 8–A204
Washington, DC 20554

*The Honorable Michael J. Copps, Commissioner
Federal Communications Commission
445 12th St., SW, Rm. 8–A302
Washington, DC 20554

*The Honorable Kevin J. Martin, Commissioner
Federal Communication Commission
445 12th St., SW. Rm. 8–C302
Washington, DC 20554

*Peter A. Tenhula
Office of Chairman Powell
Federal Communications Commission
445 12th St., SW, Rm. 8–A204
Washington, DC 20554

*Bryan Tramont, Senior Legal Advisor
Office of Commissioner Abernathy
Federal Communications Commission
445 12th St., SW, Rm. 8–A204
Washington, DC 20554

*Jordan Goldstein, Legal Advisor
Office of Commissioner Copps
Federal Communications Commission
445 12th St., SW, Rm. 8–A302
Washington, DC 20554

*Susanna Zwerling, Legal Advisor
Office of Commissioner Copps
Federal Communications Commission
445 12th St., SW, Rm. 8–A302
Washington, DC 20554

*Samuel Feder, Legal Advisor
Office of Commissioner Martin
Federal Communication Commission
445 12th St., SW, Rm. 8–C302
Washington, DC 20554

*Thomas J. Sugrue, Chief
Wireless Telecommunications Bureau
Federal Communications Commission
445 12th St., SW, Rm. 3–C252
Washington, DC 20554

*Kathleen O'Brien–Ham, Deputy Chief
Wireless Telecommunications Bureau
Federal Communications Commission
445 12th St., SW, Rm. 3–C255
Washington, DC 20554

*James D. Schlichting, Deputy Chief
Wireless Telecommunications Bureau
Federal Communications Commission
445 12th St., SW, Rm. 3–C254
Washington, DC 20554

*D'Wana R. Terry, Chief
Public Safety & Private Wireless Division
Federal Communications Commission
445 12th St., SW, Rm. 4–C321
Washington, DC 20554

*Ramona Melson, Chief Legal Counsel
Public Safety & Private Wireless Division
Federal Communications Commission
445 12th St., SW, Rm. 4–C321
Washington, DC 20554

*Herb Zeiler
Public Safety & Private Wireless Division
Federal Communications Commission
445 12th St., SW, Rm. 4–C321
Washington, DC 20554

*Mary Beth Murphy, Chief
Policy Division
Federal Communications Commission
445 12th St., SW, Rm. 2–C360
Washington, DC 20554

*Bruce Romano, Deputy Chief
Policy Division
Federal Communications Commission
445 12th St., SW, Rm. 2–C226
Washington, DC 20554

*Paul D'Ari, Chief
Wireless Policy Division
Federal Communications Commission
445 12th St., SW, Rm. 4–A325
Washington, DC 20554

*Susan Friedman, Deputy Chief
Wireless Policy Division
Federal Communications Commission
445 12th St., SW, Rm. 4–A225
Washington, DC 20554

*Steve Weingarten, Chief
Commercial Wireless Division
Federal Communications Commission
445 12th St., SW, Rm. 4–C224
Washington, DC 20554

*Jeff Steinberg, Deputy Chief
Commercial Wireless Division
Federal Communications Commission
445 12th St., SW, Rm. 4–C222
Washington, DC 20554

*Jeanne Kowalski, Deputy Chief
Public Safety & Private Wireless Division
Wireless Telecommunications Bureau
445 12th St., SW, Rm. 4–C324
Washington, DC 20554

*Michael J. Wilhelm, Legal Advisor
Public Safety and Private Wireless Division
Wireless Telecommunications Bureau
445 12th Street, SW, Room 4–C305
Washington, DC 20554

International Transcription Services, Inc.
1231 12th St., NW
Washington, DC 20037