PUBLIC SAFETY PSWN PROGRAM WIRELESS NETWORK

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Public Safety Wireless Network

Saving Lives and Property Through Improved Interoperability

February 10, 2003

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OFFICE OF THE SECRETARY

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, SW
12th St. Lobby, TW–A325
Washington, DC 20554

Re: PSWN Program Reply Comments to the Spectrum Policy Task Force Report, *In the Matter of Spectrum Policy Task Force Seeks Public Comment on Issues Related to the Commission's Spectrum Policies*, **ET Docket No. 02-135**

Dear Ms. Dortch:

On behalf of the Public Safety Wireless Network (PSWN) Program and pursuant to Section 1.51 of the Federal Communication Commission's Rules, 47 C.F.R. § 1.51 (2000), enclosed herewith for filing are an original and four (4) copies of the PSWN Program's Reply Comments in the above-referenced proceeding.

Kindly date-stamp and return the additional, marked copy of this cover letter and filing to the person delivering it.

Should you require any additional information, please contact the undersigned.

Respectfully submitted,

Steven Proctor

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

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In the Matter of	)	
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Spectrum Policy Task Force Seeks Public	)	FCC 02-322
Comment on Issues Related to Commission's	)	ET Docket No. 02-135
Spectrum Policies	)	

To: The Commission

REPLY COMMENTS TO THE SPECTRUM POLICY TASK FORCE REPORT

Filed by: The Public Safety Wireless Network Program

Date: February 10, 2003

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EXECUTIVE SUMMARY

The Public Safety Wireless Network (PSWN) Program is pleased to offer its comments to the Federal Communication Commission (Commission) regarding the recommendations published in the Spectrum Policy Task Force (SPTF) Report. The PSWN Program acknowledges the contributions of the SPTF and the work that was performed by the members in undertaking a comprehensive evaluation of the Commission's spectrum management rules and procedures. Many of the observations and recommendations could enhance efficient use of spectral resources and reduce or eliminate problems experienced by all users, including interference, delayed or limited spectrum access, an onerous and expensive licensing process, lack of clarity with respect to defining user rights and responsibilities, and their enforcement.

The PSWN Program supports performing a study of the noise floor in all bands to ascertain appropriate interference standards, as well as rapid enforcement of the Commission's Rules. The PSWN Program also endorses recommendations for receiver standards, grouping like systems and technologies in adjacent spectrum, and clearly defining spectrum users' rights and responsibilities. The PSWN Program further notes its approval of the continued use of the "command-and-control" spectrum model to allocate public safety spectrum.

However, the SPTF Report also includes many suggestions that need further examination and investigation before implementation is considered. The PSWN Program notes that reliance on market forces to value the highest use of spectrum should not be applied to public safety and public interest uses that do not provide services for profit. While the PSWN Program is optimistic regarding the use of spectrum time-sharing and other proposals to encourage greater

access and efficiency, additional assurances must be provided to ensure that adoption of new techniques and technologies will not create disruption and interference with licensed incumbent services.

The technology to support some of these proposals, such as the use of "frequency-agile" radios that can be used both above and below the noise floor, is experimental and remains unproven. Likewise, the proposed leasing of public safety spectrum for commercial use and competitive bidding by public safety agencies at auction are ill advised and should not be contemplated unless or until a significant improvement in technology or equally drastic change in the price of spectrum occurs.

The PSWN Program looks forward to the Commission's further deliberations in this matter. The public safety community trusts and relies on the continued caution and thoughtfulness of your leadership to exercise sound judgement and make well-reasoned decisions. The PSWN Program will continue to advocate policies and procedures that will support the provision of better services to promote public safety and the protection of our Nation's citizens.

Before the
Federal Communications Commission
Washington, DC 20554

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To: The Commission

REPLY COMMENTS TO THE SPECTRUM POLICY TASK FORCE REPORT

I. INTRODUCTION

1. The Public Safety Wireless Network (PSWN) Program[1] Executive Committee respectfully submits these reply comments to the Federal Communications Commission (Commission) in response to the comments submitted to the Spectrum Policy Task Force Report (SPTF Report)[2] on January 27, 2003. The Commission has established ET Docket No. 02-135 to consider recommendations for the revision of long-standing rules and policies regarding spectrum usage, rights, and responsibilities.[3] Local, state, and tribal law enforcement, fire and rescue, emergency medical personnel, and other public safety wireless users have an important interest in the outcome of this rulemaking and could be required to modify their operations

[1] The PSWN Program is a federally funded initiative operating on behalf of all local, state, federal, and tribal public safety agencies. The Department of Justice and the Department of the Treasury are jointly leading the PSWN Program's efforts to plan and foster interoperability among public safety wireless networks. The PSWN Program is a 10-year initiative that is an effort to ensure that no man, woman, or child loses his or her life because public safety officials cannot talk to one another.
[2] *See* Federal Communications Commission, *Spectrum Policy Task Force Report*, ET Docket No. 02-135, November 2002 (*SPTF Report*).
[3] Public Notice, *Spectrum Policy Task Force Seeks Public Comment on Issues Related to Commission's Spectrum Policies*, DA 02-1311, rel. June 6, 2002.

based on the policies and procedures that the Commission ultimately adopts. The PSWN Program submits the following comments on behalf of those public safety organizations that could be impacted by the changes proposed in the SPTF Report.

2. The PSWN Program readily acknowledges that the public safety community could benefit from the implementation of some of the policies that the Commission is investigating. Limits on power, incorporation of receiver standards, a study of the noise floor, emergency easements for public safety access to other spectrum in limited circumstances, and other recommendations discussed in the SPTF Report hold great promise for improving usage and resolving many of the problems experienced by public safety users today. The SPTF Report's findings offer a wide range of far-reaching and innovative methods to expand opportunities for spectrum access and enhanced efficiency. Some of the policy recommendations would allow for the deployment of cutting-edge technologies such as software defined radio (SDR) and other cognitive or "frequency-agile" radio applications that bear further investigation. These technologies could provide relief from spectral congestion and promote interoperability between different agencies and jurisdictions.

II. KEY ELEMENTS OF SPECTRUM POLICY

A. The Commission Should Adopt Reasonable Limitations on Flexible Spectrum Use

3. As the SPTF Report states, "clear technical rules (*e.g.*, power limits, interference standards) remain necessary in all spectrum bands in order to facilitate co-existence of multiple

spectrum uses in common and adjacent bands."[4] The PSWN Program agrees that power limits and interference standards need to be established and enforced. In implementing policies that will enhance flexible spectrum usage, the Commission must take precautions that unlicensed use and other innovative spectrum sharing does not negatively impact existing services. The PSWN Program continues to oppose any proposal to lease public safety spectrum during temporary periods of reduced use. Unexpected spikes in need when emergencies occur could contribute to disastrous consequences if all spectrum allocated for public safety use is not immediately available to support necessary safety-of-life services. On the other hand, the PSWN Program fully supports the SPTF Report's recommendation for the provision of emergency easements for public safety agencies to access non-public safety spectrum for those limited periods "in extraordinary regional or national emergencies" when additional spectrum is needed.[5]

B. Providing Clear Definitions of Spectrum Rights and Responsibilities

4. The PSWN Program agrees with commenters that have endorsed specifically delineated and definitive rules of etiquette for all users and have stated that the Commission must also be willing to "diligently enforce those rights."[6] As one party pointed out, "regulation, through clear definitions, rights, and responsibilities will be needed to prevent a reoccurrence of the issues similar to that of the 800 MHz band, where the Commission and industry learned *ex post facto* that certain operations were unable to coexist in close spectral and geographic proximity to others."[7]

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[4] *See* Federal Communications Commission, *SPTF Report*, ET Docket No. 02-135, November 2002, at p. 16.
[5] *Id.*, at p. 44.
[6] *See* Comments of Metrocall, Inc., ET Docket No. 02-135, January 27, 2003, (*Metrocall* Comments) at p. 2.
[7] Comments of the Industrial Telecommunications Association, Inc., ET Docket No. 02-135, January 27, 2003, at pp. 3–4 (*ITA Comments*).

C. Acknowledging the Current Technical Limitations on Time-Sharing of Spectrum

5. The PSWN Program notes, however, that even knowledgeable industry experts are concerned that this initiative prematurely relies on emerging technologies to resolve access issues and that these innovations need further testing before they are ready for deployment. The Telecommunications Industry Association (TIA) asserted "many of the technologies cited...are not likely to be ready for commercial availability for some time. Allocations based on anticipated advances in technology are dangerous and should await the demonstrable existence of such technology at reasonable costs for widespread deployment."[8] The PSWN Program also agrees with comments submitted by Motorola, Nokia, and Lucent that technological innovation is "not an adequate substitute for spectrum allocation and management."[9]

6. Motorola offered a solution for promoting responsible and non-interfering spectrum-sharing techniques. In its comments, Motorola recommended that the Commission should require the direct participation of incumbent licensees in developing a spectrum time-sharing process, "authorizing licensees to enter into secondary market agreements," or "by requiring consultation with incumbents, particularly where incentives exist for efficient spectrum use."[10] This approach would allow the licensed users to establish rules that would protect their own interests and control the conditions under which spectrum time-sharing would be permitted. Another contributor to the docket, referring to the proliferation of local and wide area networks

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[8] Comments of the TIA, ET Docket No. 02-135, January 27, 2003 (*TIA Comments*), at p. 3.

[9] *See* Comments of Motorola, Inc., In the Matter of Spectrum Policy Task Force Report, ET Docket No. 02-135, January 27, 2003 (*Motorola Comments*), at p. iv; *see also* Comments of Nokia, ET Docket No. 02-135, January 27, 2003, at p. 2: "However, it should be noted that technology is not a panacea for good spectrum management;.... Notwithstanding the need for flexibility that would allow carriers to select, within their assigned spectrum, the service to be provided and the technology to be deployed, the Commission should not completely abandon its control over spectrum usage," Comments of Lucent Technologies, Inc., ET Docket No. 02-135, January 27, 2003 (*Lucent Comments*), at p. 1.

[10] Motorola Comments, at p. 9.

using the 802.11b (Wi-Fi) standard, suggested that "[s]imple steps can be taken to allow these networks to coexist provided the first step of awareness is **required registration**," adding that a "publicly accessible database of registered users" is necessary to coordinate unlicensed use.[11] As one commenter stated, "use of secondary markets with prior coordination of use and an enforcement-focused regulation model, could fulfill one of the fundamental suggestions of the Task Force."[12]

7. Even with these precautions in place, the PSWN Program agrees that some services are incompatible with the concept of time-sharing of spectrum. The Commission should consider the comments of Metrocall, which recognize that time-sharing in exclusive messaging bands could undermine the reliability of paging services that are often used by medical personnel and other professions that work with the public safety community in emergencies. Ambulance services, physicians, nurses, and other health care professionals are among those most needed to respond to a catastrophic event, and communications among these providers cannot be jeopardized. Metrocall states that paging services are both very efficient and very susceptible to interference.[13] The PSWN Program asserts that these wireless users, like the public safety community, are entitled to the Commission's most rigorous protection to ensure continued effectiveness and productivity of these services.

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[11] Comments of Scoreboard, Inc., ET Docket No. 02-135, January 27, 2003, at p. 11.
[12] ITA Comments, at p.5.
[13] *See* Metrocall Comments, at pp. 5–7. Metrocall notes that it "provides messaging services to more than 700 hospitals in the United States," and that more than 400,000 of its messaging units used in health care facilities nationwide. *Id.*, at p. 7.

D. Measurement of Efficient Use of Spectrum

8. The PSWN Program again reiterates its concern that measurements of spectrum efficiency for commercial users and public safety entities cannot be meaningfully compared. The PSWN Program fully supports Motorola's contention that "efficiency should be measured by how well spectrum use meets the requirements of spectrum users, *i.e.*, economic efficiency, which is dependent upon operational efficiency as well as spectrum efficiency."[14] These comments also suggest that the Commission should adopt a policy based on providing efficiency incentives, rather than adopting efficiency standards, and observe that "it would be unfair to apply incentives only to public safety and private radio bands but not to broadcast use."[15] The PSWN Program agrees that incentives for efficiency should provide sufficient motivation for public safety users to gain the greatest yield from the resources they have available. However, additional spectrum, beginning with the spectrum already allocated for public services, remains essential to meeting established needs. Merely "doing more with less" spectrum will not provide sufficient channels for interoperability and day-to-day operations, nor will currently accessible bands support new applications such as high-speed data and video capabilities.

9. Motorola also observed that even if the public safety community is provided access to all of the spectrum currently allocated to support its operations, that still falls short of the needs identified in the Public Safety Wireless Advisory Committee (PSWAC) Report of 1996.[16] Motorola urged the Commission to allocate additional spectrum for public safety users to meet those requirements. That comment also concurred with the PSWN Program's statement that the

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[14] Motorola Comments, at p.10.
[15] *Id.*
[16] *See* PSWAC Report, September 11, 1996 at p. 21.

acquisition of spectrum through the auction process by public safety entities is unrealistic in the foreseeable future.[17]

E. Incentives for Spectrum "Neighbors"

10. The PSWN Program is in favor of grouping systems containing similar architecture and other technical characteristics to reduce the likelihood of interference. In its Comments, Motorola maintained that adoption of this policy would also be consistent with recommendations made in TIA's *Best Practices Guide.*[18] Additional guidance from the Commission and policies that would reward compatible and non-interfering usage of spectrum are welcome. In the long term, this would also improve efficiency by reducing enforcement costs and time spent by the Commission and wireless users in resolving interference.

F. Performing a Regular Review of Spectrum Rules

11. The PSWN Program also endorses the recommendation made in the SPTF Report for the Commission to regularly review its rules to determine whether they require modification to account for improvements in technologies.[19] This practice would help ensure that obsolete technologies are transitioned to make room for more efficient and robust systems. The Commission can also gradually prepare users for shifts in use that reflect changing needs of the public and spur development of more versatile applications, making "patches" between networks and other ad hoc solutions less necessary to incorporate incompatible technologies.

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[17] Motorola Comments, at pp. 16–18.
[18] *Id.* at p. 11, citing TIA's *Avoiding Interference Between Public Safety Wireless Communications Systems and Commercial Wireless Communications Systems at 800 MHz- A Best Practices Guide*, December 2000, at http://apcointl.org/frequency/downloads/BPG.pdf. *Id.*, at FN 34.
[19] SPTF Report at pp. 22, 64.

G. Uniform and Timely Enforcement of the Commission's Rules

12. The PSWN Program concurs with commenters that called for rapid and definitive enforcement of the Commission's Rules to effectuate compliance with both current policies and those adopted in the future based on proposed policy revisions. Agilent Technologies, Inc., noted that advanced enforcement technology will be required to locate and document infractions of more advanced, intermittent, and agile transmitters, stating that "'[t]he tragedy of the commons' seems more likely if enforcement fails to track spectrum utilization."[20] The PSWN Program reiterates its prior statements that the Commission must swiftly enforce its Rules when interference occurs and impose penalties that are sufficient to deter future violations.

III. INTERFERENCE AVOIDANCE

A. The Interference Temperature Metric Must Be Accurate

13. The PSWN Program generally agrees with the qualified support offered by The National Association for Amateur Radio (ARRL) regarding adoption of the proposed interference temperature metric by the Commission. ARRL notes that the Commission has "no reliable information regarding ambient noise levels in various environments, nor any collected data concerning interference susceptibility of receivers in various services. Especially in the context of unlicensed devices, there is no good data available as to aggregate noise levels."[21] The PSWN Program reiterates its prior statement that a comprehensive study must be undertaken by the Commission to ascertain actual noise floors in different bands before a metric can be accurately

[20] Comments of Agilent Technologies, Inc., ET Docket No. 02-135, January 27, 2003, at p. 5.
[21] Comments of ARRL, the National Association for Amateur Radio, on Spectrum Policy Task Force Recommendations, ET Docket No. 02-135, January 27, 2003, at para. 9.

assessed. To further reduce incidents of interference, the PSWN Program also endorses the ITA's general recommendation of adopting a "best practices" guide.[22] The PSWN Program also reaffirms previous requests that the Commission makes the prevention of interference to public safety communications in all bands a priority. The Commission must use all resources at its disposal to protect public safety wireless users from any interruptions and ensure reliable, high-quality communications at all times. If necessary communications are compromised, the consequences could be truly a matter of life and death.

B. Mandating Receiver Standards to Improve Quality of Service

14. The PSWN Program also encourages the Commission to adopt the SPTF Report's recommendation for the establishment of receiver standards. In its comments to this docket, National Public Radio observed that "[w]hile there has been much conjecture over whether receiver manufacturers have improved receiver performance or merely reduced their manufacturing costs, it is time for the Commission to establish a baseline for modern receiver performance."[23] The public safety community would benefit from both reduced costs and open standards that promote compatibility between different networks and users. The Commission, in cooperation with the National Telecommunications and Information Administration (NTIA), can devise appropriate standards that will help achieve this goal. The PSWN Program further notes its concurrence with Motorola that in promulgating standards, the Commission should "consider users' operational requirements and must balance the relative costs of any guidelines with the benefits obtained in a real world setting."[24]

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[22] ITA Comments, at p. 9.
[23] Comments of National Public Radio, Inc., ET Docket No. 02-135, January 27, 2003, at p. 9.
[24] Motorola Comments, at p. 16.

IV. SPECTRUM USAGE MODELS

15. The PSWN Program notes with approval that the SPTF Report recommends that public safety communications are one of the "specific government-defined uses" that should remain subject to the command-and-control usage model, as "exclusive reliance on market-based spectrum usage models would undervalue or thwart the provision of such services."[25] The PSWN Program agrees that the "one-size-fits-all" approach to spectrum management is not appropriate and that the exclusive rights and commons models could be applied under certain circumstances for some users. However, as previously stated, the Commission must be cautious in permitting potentially conflicting applications that could negatively impact incumbents.

16. In its comments, the Land Mobile Communications Council emphasized that the Commission must bear in mind the needs of private wireless users, who represent a substantial number of the licensed user community. These wireless services could require "priority access, especially in times of emergencies, beyond what commercial providers may be willing to provide. They experience peak usage patterns that can overwhelm commercial systems....There will always be a need for dedicated internal-use systems due to the critical nature and specialized capability requirements of their communications."[26] Such uses must also be recognized as crucial communications services, especially those that support and protect critical infrastructure industries. Like other incumbent licensees, the Commission must account for those needs when planning for unlicensed spectrum overlays or easements in order to confirm that any changes in spectrum policy or management will not compromise quality of service. As ITA noted in its

[25] SPTF Report, at pp. 35–36.
[26] Comments of the Land Mobile Communications Council, ET Docket No. 02-135, January 27, 2003, at p. 2.

response, an exclusive use model might be inappropriate because of the expense of licenses, while the commons model could "result in additional overcrowding, further limiting geographic and spectral options."[27]

V. PROMOTING ACCESS TO SPECTRUM

17. The SPTF Report maintained that "in many bands, spectrum access is a more significant problem than spectrum scarcity."[28] The PSWN Program strongly suggests that unlicensed use should not proliferate in frequencies used by sensitive applications, such as surveillance by law enforcement, safety-of-life operations, or global positioning service or similar technology used to provide location of planes, ships, or terrestrial users. In this regard, the program is again in agreement with Motorola, in recommending that unlicensed use should be restricted to higher frequencies,[29] and even then, only after making certain that these overlays or easements do not disturb the operations of current licensees in those bands.

VI. CONCLUSION

18. The PSWN Program appreciates the efforts of the Commission to respond to the urgent needs of wireless users and to promote flexibility and access that would support and encourage additional development of spectral resources. This is a complex and demanding process, and many of the issues presented in the SPTF Report cannot be easily resolved. The PSWN Program is confident that the Commission can and will permit more flexible and efficient use of spectral

[27] ITA Comments, at p. 7.
[28] SPTF Report, at p. 3.
[29] Motorola Comments, at p. 25.

resources by noise-limited and interference-limited systems for analog and digital users, and will resolve differences in applications and technologies. The PSWN Program looks forward to the adoption of policies and procedures that foster improved access and create benefits for consumers. At the same time, as the Commission advances new approaches to spectrum management, public safety communications must remain a paramount concern and safety and security objectives must receive the full support they deserve.

Respectfully submitted,

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

Before the
Federal Communications Commission
Washington, DC 20554

Certificate of Service

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I, Richard N. Allen, Senior Associate, Booz Allen Hamilton, 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 Reply Comments to the Spectrum Policy Task Force Report, *Spectrum Policy Task Force Seeks Public Comment on Issues Related to the Commission's Spectrum Policies,* the original of which is filed herewith and upon the parties identified on the attached service list.

DATED at Fair Oaks, Virginia this 10th day of February 2003.

Richard N. Allen

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