

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

In the Matter of )  
 )  
Service Rules for the 746-764 and )  
776-794 MHz Bands, and )  
Revisions to Part 27 of the ) WT Docket No. 99-168  
Commission's Rules )

To: The Commission

REPLY COMMENTS IN RESPONSE TO COMMENTS FILED TO THE ABOVE  
REFERENCED NOTICE OF PROPOSED RULEMAKING

Filed by: The Public Safety Wireless Network Program

Date: August 13, 1999

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

In the Matter of )  
 )  
Service Rules for the 746-764 and )  
776-794 MHz Bands, and )  
Revisions to Part 27 of the ) WT Docket No. 99-168  
Commission's Rules )

PUBLIC SAFETY WIRELESS NETWORK PROGRAM'S  
REPLY COMMENTS IN RESPONSE TO COMMENTS FILED TO THE ABOVE  
REFERENCED NOTICE OF PROPOSED RULEMAKING

1. The Public Safety Wireless Network (PSWN) program respectfully submits the following reply comments in response to comments filed by other parties regarding the Commission's Notice of Proposed Rulemaking *In the Matter of Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules* (Notice).<sup>1</sup>

2. In its Notice, the Commission directly addresses a number of issues, such as private wireless service providers in the 746-764 and 776-794 MHz bands and systems emissions/interference standards that are of great interest to the PSWN program.<sup>2</sup> The PSWN program continues to investigate such wireless communications issues with direct impact on public safety agencies. Through these reply comments, the PSWN program hopes to bring the benefits of its perceptions to the Commission as it decides the matters raised in the Notice.

---

<sup>1</sup> See *In the Matter of Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules*, WT Docket No. 99-168, FCC 99-97 (rel. June 3, 1999).

<sup>2</sup> The "PSWN program" and "the program" are used synonymously throughout the document to represent the Public Safety Wireless Network program.

## Background

3. The PSWN program is a federal initiative operating on behalf of all local, state, and federal 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 National Partnership for Reinventing Government (NPRG) initiative.<sup>3</sup> The NPRG, previously known as the National Performance Review, is an effort to reengineer how government provides services to citizens through more effective use of information technology and through more concerted partnership efforts among government at all levels.

4. Consistent with the NPRG, and in concert with the public safety community, the PSWN program hopes to achieve a shared vision of interoperability—seamless, coordinated, and integrated public safety communications for the safe and efficient protection of life and property.<sup>4</sup> The PSWN program is developing partnerships and working closely with the public safety community throughout the first five-year phase of the program to develop a comprehensive implementation plan for interoperability among wireless networks.<sup>5</sup> The program is in its third year and recently passed the halfway mark of the first phase. During the second five-year phase, the program will assist the public safety community with its implementation of interoperability in accordance with the national plan.<sup>6</sup>

5. Consistent with its NPRG charter, and building on the findings of the Public Safety Wireless Advisory Committee (PSWAC), the PSWN program has made spectrum one of its priority areas of activity.<sup>7</sup> In an effort to help resolve open spectrum issues and realize

---

<sup>3</sup> See the Public Safety Wireless Network NPRG booklet (submitted with the PSWN Program Comments, WT Docket No. 96-86), which contains a general overview of NPRG initiatives, as described by the Vice President; copies of NPRG action items IT04 (for establishing a national law enforcement/public safety network) and A06 (for establishing the intergovernmental wireless public safety network); and a one-page summary of the PSWN program vision and mission.

<sup>4</sup> See the *PSWN Program Strategic Plan*, April 1998 (submitted with the PSWN Program Comments, WT Docket No. 96-86) at page 2.

<sup>5</sup> The information obtained and developed by the PSWN program through its activities is openly available via the program's web page at <http://www.pswn.gov>.

<sup>6</sup> See the *PSWN Program Strategic Plan*, at pages 5, 9, and 10 for information regarding the PSWN program phases (e.g., their definitions, relative timing, and types of activities within each phase).

<sup>7</sup> See the PSWN Program Comments (WT Docket No. 96-86) at paragraphs 5 and 6. The PSWN program has identified six key spectrum issues that require resolution for improving public safety radio communications: insufficient aggregate amount of spectrum, excessive number and undetermined appropriateness of frequency

improvements in this area, the PSWN program has undertaken several spectrum-related activities.<sup>8</sup> These activities are designed to raise awareness, improve understanding of processes and policy, and analyze issues in more specific detail as appropriate. They include making direct contributions to this and other Commission proceedings related to public safety spectrum.

6. The PSWN program is pleased to offer these reply comments in response to comments filed in regard to the Notice of Proposed Rulemaking, WT Docket 99-168. Although the PSWN program did not file comments in response to the Notice, it maintains a strong interest in following the proceedings of this docket. While the primary focus of the docket does not directly address public safety spectrum allocations, due to relative proximity, the spectrum being discussed does impact adjacent public safety bands. This docket also addresses public safety's possible participation within this band, and the results of this proceeding could impact public safety's ability to receive additional needed spectrum in the future. As an entity working on behalf of public safety, the program determined that it would best serve the community by reserving comments for specific public safety issues raised by commenters. The program offers these reply comments to do so.

7. The PSWN program will address the following areas in its reply comments to comments filed to the Notice of Proposed Rulemaking: private wireless service providers in the 746-764 and 776-794 MHz bands, systems emissions/interference standards, spectrum auctions for public safety, and GNSS/GPS spurious emissions issues.

#### Private Wireless Services Within the 746-764 and 776-794 MHz Bands

8. The PSWN program agrees with certain commenters regarding the merits of allowing private wireless licensees access to the 746-764 and 776-794 MHz bands. In particular —

- The PSWN program agrees with United Telecom Council<sup>9</sup>, Palletized Trucking, Inc.<sup>10</sup>,

---

bands, insufficient interoperability spectrum, lack of affordable multi-band technology, complicated spectrum management processes, and lack of a migration strategy.

<sup>8</sup> See *Id.* at paragraph 7.

<sup>9</sup> See UTC Comments at page 3, where it is stated that “Despite efforts to make more efficient use of existing bands, evolving spectrum needs and the loss of access to spectrum have nearly exhausted available private bands.”

<sup>10</sup> See Palletized Trucking, Inc. Comments at page 1, where it is stated that “The lack of available spectrum prevents expansion of my communications systems and negatively impacts my business by reducing my productivity, efficiency, and the safety of my employees.”

and Northside Plumbing Supply<sup>11</sup> that the public interest can be served by allocating private wireless users a portion of this spectrum. This would help to address the unmet spectrum needs of a variety of organizations that provide market-demanded goods and services to the general public. In conjunction with satisfying market-driven needs, public sector service demands like those required of public safety could also be realized. In this instance, public safety could benefit from a private wireless allocation that would result in the availability of advanced technology wireless dispatch systems for multiple-user systems.

- The PSWN program agrees with Southern Communications Services, Inc. (Southern)<sup>12</sup> and Industrial Telecommunications Association, Inc. (ITA)<sup>13</sup> that allocating this spectrum to private wireless licensees could be beneficial to the public safety community. Interference issues could be minimized as the private wireless industry and public safety already have coordination procedures established. In addition, private wireless licensees can provide public safety agencies services on a commercial system that meets public safety communications requirements while minimizing operational costs. As the spectrum in question neighbors current public safety allocations, developing similar systems in close proximity can be used to design systems that enable interoperability.
- The PSWN program agrees with Southern<sup>14</sup>, ITA<sup>15</sup>, Houston 2-Way Radio (Houston)<sup>16</sup>, and Personal Communications Industry Association, Inc. (PCIA)<sup>17</sup> that economies of scale can be achieved if spectrum in the 746-764 and 776-794 MHz bands is allocated to private

---

<sup>11</sup> See Northside Plumbing Supply Comments at page 1, where it is stated that “The public interest would be best served by providing private wireless users such as myself with additional spectrum so that we may operate a communication system that meets our needs...”

<sup>12</sup> See Southern Comments at page 5, where it is stated that “...there are many instances where taking service on a commercial system, tailored to meet the needs of public safety entities and businesses, is a more attractive option than financing, constructing and operating a system.”

<sup>13</sup> See ITA Comments at page 13, where it is stated that “The coordination procedures already in place between the public safety and private wireless industries will alleviate these types of interference problems.”

<sup>14</sup> See Southern Comments at page 6, where it is stated that “...additional spectrum for SMR service will open spectrum to competitive providers and thus reduce market concentration and reduce prices for consumers.”

<sup>15</sup> See ITA Comments at page 13, where it is stated that “Co-locating public safety and private wireless users results in lower equipment costs for the public safety community.”

<sup>16</sup> See Houston 2-Way Radio Comments at page 1, where it is stated that “The close proximity to both the 800 MHz band and the 24 MHz of spectrum allocated to public safety entities enables manufacturers to provide similar equipment at lower prices as they gain economies of scale.”

<sup>17</sup> See PCIA Comments at page 2, where it is stated that “In order for manufacturers to invest millions of dollars in equipment development, testing, and production, there must be two factors present: (1) sufficient demand for the product; and (2) regulatory certainty.”

wireless users. Currently a limited number of manufacturers produce equipment geared toward the public safety community, resulting in high costs and limited competition. With the recent introduction of public safety agencies in the 700 MHz band, this problem is exacerbated by the fact that manufacturers have yet to produce equipment that operates in this band. If the Commission allocates a portion of this spectrum to private wireless users, manufacturers would then be encouraged to enter a demand-rich market thus accelerating the availability of equipment for the 700 MHz band. In addition, the creation of similar services would limit uncertainty in the marketplace.

#### Adjacent Channel Interference Within the 746-764 and 776-794 MHz Bands

9. The PSWN program agrees with certain commenters regarding adjacent channel interference in the 746-794 MHz bands. In particular —

- The PSWN program agrees with the Association of Public-Safety Communications Officials-International, Inc. (APCO)<sup>18</sup>, MRFAC, Inc. (MRFAC)<sup>19</sup>, and Motorola<sup>20</sup> that the benefits of the recent public safety allocation could be jeopardized by adjacent channel interference caused by television broadcast operations on the 746-794 MHz bands. Specifically, public safety channels 63, 64, and 68 would likely be subject to interference from high-power broadcast emissions on channels 62, 65, and 67. The nature of public safety radio usage dictates the need for clear communications channels. The addition of broadcast services to adjacent spectrum could reduce the overall effectiveness of critical public safety capabilities. Thus the PSWN program believes television broadcast operations should not be permitted in the 746-794 MHz bands.

---

<sup>18</sup> See the APCO Comments at page 3, where it is stated that “... the Commission must not allow any new television broadcast operations on frequencies immediately adjacent to the public safety allocation (i.e., Channels 62, 65 and 67).”

<sup>19</sup> See the MRFAC Comments at page 3, where it is stated that “... the Commission should not allow new broadcast licensing in the band. ... the high power levels, wide bandwidths, and large coverage areas characteristic of broadcasting would greatly increase the potential for interference to land mobile uses...”

<sup>20</sup> See the Motorola Comments at page 8, where it is stated that “... the Commission [should] not allow additional broadcasting service operations in this spectrum, as doing so would undermine the inherent ability for any meaningful mobile and fixed service in the band. It would also frustrate a previously adopted policy to transition broadcast television operations to core spectrum in TV channels 2-51.”

- The PSWN program agrees with APCO<sup>21</sup> that limitations should be placed on non-broadcast services in the 746-764 and 776-794 MHz bands to prevent interference with adjacent public safety bands. Although non-broadcast services traditionally operate at lower power levels, the potential for interference still exists depending on antenna heights, bandwidths, and coverage areas. As stated previously, public safety agencies must have clear communication channels in order to effectively carry out their responsibilities. Therefore, to minimize channel interference, only systems compatible with public safety should be used in adjacent bands.

#### Auctions for Public Safety in the 746-764 and 776-794 MHz Bands

10. The PSWN program agrees with certain commenters that the current auction process is not structured to allow equal participation by all interested parties. In particular —

- The PSWN program agrees with Union Pacific Railroad<sup>22</sup> that the lack of funding experienced by certain types of organizations provides a significant hurdle in the spectrum auction process. Because the auction process can be resource and cost intensive, prospective licensees participating in auctions must have the necessary resources readily available. However, certain studies<sup>23</sup> have demonstrated that a major obstacle to improved public safety communications is inadequate funding. Public safety agencies generally lack the funding to obtain the equipment needed for their radio networks, let alone to bid and pay for spectrum under the auctions process. Thus, the possibility of public safety agencies actively or successfully participating in auctions is minimal.
- The PSWN program agrees with MRFAC<sup>24</sup> that spectrum auctions can result in the allocation of spectrum blocks, which have not been sized necessarily to meet the needs of

---

<sup>21</sup> See the APCO Comments at page 3, where it is stated that “The Commission must also limit the types and nature of non-broadcast commercial mobile radio operations on adjacent channels . . . to prevent interference with public safety systems.”

<sup>22</sup> See the Union Pacific Railroad Comments at page 1 where it is stated that “Union Pacific Railroad is not in favor of competing for spectrum on an auction basis. . . . we are unable to secure enough funding to compete with companies who have telecommunications as their primary form of business.”

<sup>23</sup> See the *PSWN Program Analysis of Fire and EMS Communications Interoperability* (attached) and the National Institute of Justice *State and Local Law Enforcement Wireless Communications and Interoperability: A Quantitative Analysis*, for detailed analysis of inadequate funding as an obstacle to public safety communications interoperability.

<sup>24</sup> See the MRFAC Comments at page 3 where it is stated that “. . . users inevitably would be forced to bid for far more or far less spectrum than they actually need.”

the participating organizations. In some cases, spectrum blocks have been sized irrespective of the services to be provided using that spectrum. As spectrum is a scarce resource in demand by both private wireless services and public safety, it would be in the public interest to determine the size of spectrum blocks based on user need. The PSWN program is concerned that even if public safety agencies were permitted to participate in auctions, the block sizes would be too large for efficient use by public safety.

11. The PSWN program disagrees with certain commenters that support public safety agencies competing for spectrum through the auction process. In particular —

- Although the PSWN program appreciates the views of APCO<sup>25</sup> and Southern<sup>26</sup> (i.e., that public safety agencies could participate in the auctions process), several obstacles impede the realization of full participation. These obstacles include limited monetary resources and administrative capabilities of public safety agencies. In addition, the complex nature of the spectrum allocation process would make it difficult for the typical public safety agency to successfully navigate the auction process.

12. The PSWN program respectfully suggests a different approach for the Commission to couple public safety spectrum needs with spectrum auctions. Namely, the program recommends that the Commission award, at no cost, spectrum within this band to public safety if it does not garner what budget analysts expect in the auction process. The program feels the public interest would be better served by awarding this spectrum, at no cost, for public safety use instead of accepting negligible amounts in auction revenues. In effect, the program is suggesting a default award be made to public safety in lieu of an auction that will not yield significant revenue.

#### Global Navigation Satellite System Emission Limits

13. The PSWN program has not studied this issue (i.e., the potential interference with GNSS operations due to other transmissions in the 700 MHz band). However, the program does understand the gravity of this matter and the implications that its resolution may have for use of the 700 MHz band. As public safety agencies have recently been allocated spectrum in this band,

---

<sup>25</sup> See the APCO Comments at page 6 where it is stated that “... there is no rational reason to prevent a public safety entity from participating in an auction...”

the PSWN program is concerned that an incomplete assessment could lead to unnecessary limitations. Therefore, the program encourages the Commission to weigh carefully the information entered into the record on this docket as well as in WT Docket No. 96-86, giving due consideration to detailed technical analyses provided by commenters experienced in these matters.

14. Specifically, the PSWN program recommends that the Commission carefully consider the comments of the National Telecommunications and Information Administration (NTIA)<sup>27</sup> when establishing emission standards. NTIA, a participant in a study that developed out-of-band emission limits, is well suited to offer opinions on this matter.<sup>28</sup> Above all, the PSWN program strongly urges the Commission to not adopt measures that would preclude the use of the 700 MHz spectrum by any portions of the public safety community in any area of the country.<sup>29</sup>

---

<sup>26</sup> See the Southern Comments at page 8 where it is stated that “Southern supports the Commission’s tentative conclusion that all of the spectrum at issue should be open to application by public safety entities under the same rules applied to commercial applicants.”

<sup>27</sup> See NTIA Comments at page 1, where it is stated that “NTIA recommends that the following emission limits should be applied to all spurious emissions, including second harmonics in the 1559-1610 MHz range: 1) a wide band limit of –70dBW/MHz on the equivalent isotropically radiated power (EIRP) density and 2) a narrowband limit of –80 dBW. ” See also page 2, where it is stated that “The Department of Transportation and NTIA conducted field monitoring testing at numerous television stations throughout the United States...NTIA recommends that the emission limit of –110 dB should be included as the proposed unwanted emission limit, including harmonics, for DTV transmitters operating in the 746-764 MHz and 776-794 MHz bands.”

<sup>28</sup> See NTIA Reply Comments (WT Docket 96-86) at page 8.

<sup>29</sup> See the PSWN Program comments (WT Docket 96-86) at paragraph 26.

Conclusion

15. The PSWN program commends the efforts of all commenters to this NPRM and respectfully requests the Commission to consider carefully the program's positions herein submitted on many of the comments made by others.

Sincerely,

---

Mr. David A. Williams  
PSWN Program Support Staff  
Booz·Allen & Hamilton Inc.

FOR

Brigadier General Paul Wieck (Iowa Army National Guard)  
Chair, PSWN Executive Committee Spectrum Working Group