Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
The Development of Operational,	)	
Technical and Spectrum Requirements	)	WT Docket 96-86
For Meeting Federal, State and Local	)	
Public Safety Agency Communication	)	
Requirements Through the Year 2010	)	

COMMENTS OF
NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL
IN RESPONSE TO
THIRD NOTICE OF PROPOSED RULEMAKING

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EXECUTIVE SUMMARY

i. The National Public Safety Telecommunications Council, herein referred to as NPSTC, submits the following comments in response to the Third Notice of Proposed Rulemaking of the Federal Communications Commission (Commission) WT Docket 96-86 (FCC 98-191).

ii. NPSTC and others have filed Petitions for Reconsideration of the First Report and Order with the intent, among others, to reduce the anticipated delay of several years before any meaningful use of the spectrum could be accomplished. A similar delay in the use of the 8.8 MHz of "reserved spectrum" is a particular concern for statewide wide area systems, as well as for day to day operations and interoperability, which are urgently needed now.

iii. Spectrum must be allocated for statewide and other wide area systems, with a time limit in which planning and funding must be in place, and construction started. Otherwise, after the time limit has expired, that spectrum can be allotted to others in need by the Regional Planning Committee. The spectrum allocated for statewide use must survive future International Agreements. Regional Planning Committees can allot additional spectrum to statewide plans where needed.

iv. Interoperability channels should continue to be optionally licensed to individual agencies, or to states as appropriate to state, regional and local plans.

v. While identified channels in existing Public Safety bands and Maritime channels remote from navigable waterways will provide only a limited use for interoperability purposes and will not be uniformly available for that purpose, they can be effective in certain areas. Further it is noted that the obsolete IMTS channels are appropriate targets for reallocation to Public Safety.

vi. The 3 MHz targeted for transfer from NTIA to FCC have been requested to be transferred to Public Safety. The Commission is reminded of Section 3002(c)(2) of the Balanced Budget Act of 1997 in regards to this need by Public Safety.

vii. NPSTC recommends that the Commission notify licensees of the concerns for Y2k, and it is noted that the Commission has recently undertaken such notices at license renewal time.

viii. NPSTC notes that the second harmonic impact on GLONASS receivers is limited, and is only a concern with respect to Public Safety wideband channel mobile operations in the 700 MHz band. Continuation of the 43+10logP out of band emission limitation is recommended. A special committee of technical experts representing all interested parties to study the second harmonic issue that might impact GLONASS is recommended, with a report due by December 31, 1999. To date Public Safety has not been included in GLONASS interference discussions.

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INTRODUCTION

1. The National Public Safety Telecommunications Council, herein referred to as NPSTC, submits the following comments in response to the Third Notice of Proposed Rulemaking of the Federal Communications Commission (Commission) WT Docket 96-86 (FCC 98-191).

2. The National Public Safety Telecommunications Council (NPSTC) is a federation of associations representing Public Safety telecommunications. NPSTC currently consists of the following charter organizations:

American Association of State Highway Transportation Officials (AASHTO)
Association of Public-Safety Communications Officials -International (APCO)
Forestry Conservation Communications Association (FCCA)
International Association of Chiefs of Police (IACP)
International Association of Fire Chiefs (IAFC)
International Association of Fish and Wildlife Agencies (IAFWA)
International Municipal Signal Association (IMSA)
National Association of State Emergency Medical Services Directors (NASEMSD)

National Association of State Foresters (NASF)
National Association of State Telecommunications Directors (NASTD)
National Coordinating Council for Emergency Management (NCCEM)
U.S. Federal Emergency Management Agency (FEMA)

3. NPSTC was created to encourage and facilitate implementation of the findings and recommendations of the Public Safety Wireless Advisory Committee (PSWAC) - a federal advisory committee jointly established to advise the Federal Communications Commission (Commission) and the National Telecommunications and Information Administration (NTIA). Specifically, the NPSTC charter directs that NPSTC shall develop and make recommendations to appropriate governmental bodies regarding Public Safety communications issues; shall serve as a standing forum for the exchange of ideas and information regarding Public Safety communications; shall develop recommendations regarding Public Safety communications policies that promote greater interoperability and cooperation between federal, state and local Public Safety agencies; shall identify and promote methods for funding development of Public Safety communications systems; shall sponsor and conduct studies of Public Safety communications and; shall perform such other functions as the Governing Board deems appropriate, consistent with relevant law. Pursuant to the mandate of its charter, NPSTC is pleased to submit these comments in this proceeding.

PREFACE

4. NPSTC (and several others) have filed requests for Reconsideration. These comments on the Third Notice are consistent with its previous filing. As pointed out in those requests the original proposal by the Commission would result in a delay of several years before any meaningful use of the spectrum could be accomplished; likewise, this is true of the 8.8 MHz of spectrum addressed in this Third NPRM.

5. Additional spectrum, both for normal day to day operations and for purposes of interoperability is urgently needed now. The most stringent needs are for significant portions of suitable spectrum for state and other wide area new technology shared

infrastructure systems, and for interoperability (mutual aid). While some of these needs for wide area systems may be met with this new spectrum, additional spectrum below 512 MHz must be provided to interface with the significant imbedded base of Public Safety systems operating in this portion of the spectrum.

PLANNING

6. Planning should be extended in some fashion to this remaining spectrum as well, since these channels are interleaved with the other spectrum [1] covered in the First Report and Order. While there is unquestionably a need for spectrum to be set aside (allocated) for statewide and other wide area systems, such spectrum must be administered in such a way that minimum interference to/from adjacent channel operations and co-channel use in adjacent states will be ensured, and maximum usability of the entire 24 MHz will be achieved. The proposed Planning structure must be designed to require consideration for State Plans and the full exchange of planning and licensing information between adjacent and proximate Planning Committees.

7. NPSTC believes sufficient spectrum must be preserved and allocated for use by states for statewide systems. However, this should not be for an unlimited time; rather it should be for a fixed period, providing states that so desired the opportunity to plan, fund and have commenced construction of such systems. If after this prescribed time a state had not exercised this option and there was a need for the spectrum by other agencies, the Regional Planning Committee should be free to use it for that purpose. Regional Planning Committees should also be instructed that spectrum for state and wide area systems is a high priority, and, if needed, additional spectrum should be so designated in every Region where viable plans are submitted.

8. Special consideration is required for the states bordering Canada and Mexico. Allocation of spectrum to statewide systems must be based on usability considering the

[1] See 47 CFR 90.531(b)

constraints of present or future international border agreements. The statewide channel allocations must survive the terms of any future international agreements into which the government of the United States may enter.[2]

9. The Commission also inquires if the interoperability channels should be licensed by the states or administered by the Regional Planning committees. In many areas, licensing by a state has provided a means of control and supervision that is needed to ensure appropriate operation. Present practice provides this as an option to states through implementation of interoperability/mutual aid plans. Such plans should remain an option for state and local governments, and the Regional Planning Committees. NPSTC recommends uniform guidelines be promulgated by the National Coordination Council [3] for these plans.

INTEROPERABILITY BELOW 512 MHz

10. The Commission requests comments on three options:
    - Set aside channels from existing Public Safety blocks.
    - Channels in the 138-144 MHz Band
    - Channels from the VHF Maritime Band.

    NPSTC recommends that all three options be exercised and comments separately on each of the options.

Set aside channels from existing Public Safety blocks

11. In earlier comments the Public Safety Communications Council (PSCC) identified five VHF frequencies and two frequency pairs in UHF to be utilized to partially meet current requirements. These frequencies were selected primarily because they were lightly used and the adjacent frequencies were also less heavily loaded. The obvious reason for this

[2] See 47 CFR 90.533 (c)
[3] National Coordination Council - paragraph 92, Report and Order, WT Docket 96-86 (FCC 98-191).

lighter loading is related to geographic and demographic considerations. While NPSTC supports the adoption of these frequencies, it must be recognized that the potential for needing these frequencies in an emergency or disaster is greatest in the areas where they cannot be used effectively due to adjacent channel loading. Even so, they may offer some limited improvement for interoperability.

12. A further consideration is that since use, under current rules, is restricted in VHF and UHF to 12.5 kHz bandwidth equipment,[4] only the very latest equipment will be able to utilize the frequencies, restricting use to a limited number of agencies in the near term. This is particularly true in the case of fire agencies that have one of the greatest needs for interoperability. Vast numbers of systems, nationwide, operate in VHF highband on legacy equipment requiring wider channels. This restricts equipment that can operate in the proposed channels' narrower bandwidth, further reducing the potential for effective interoperability use.

13. In spite of these shortcomings, any improvement in the capability to interoperate is better than none, and NPSTC endorses the proposal to identify the nine frequencies identified by PSCC for interoperability.

Frequencies in the 138-144 MHz Band

14. NPSTC continues to believe that channels from the 138-144 MHz block of spectrum offer the most immediate relief to the acute shortage of frequencies in VHF highband. A significant number of channels identified for use by Public Safety would provide frequencies for interoperability. However, as explained in detail in the NPSTC Petition for Rulemaking (filed April 9, 1998), portions of the 138-144 MHz band must also be made available to relieve operational frequency congestion for state and local systems in the nearby 150-174 MHz bands.

[4] See 47 CFR 90.209(b)(5).

15. Therefore, this block of spectrum should be established in two 1.5 MHz segments (139-140.5 and 141.5-143 MHz), one for base and mobile transmit, the other for mobile only transmit, with 0.5 MHz allocated for interoperability and 2.5 MHz allocated for new technology shared use wide area systems. This will facilitate improvements in spectrum efficiency and make vacated channels available for the expansion needs of embedded base systems that use legacy equipment.

16. While endorsing the concept of moving to narrower channels for future use, some of the interoperability frequencies should be authorized to operate on channel widths sufficient to enable use by the vast embedded base of the users of existing VHF highband 20F3 equipment (of course, only newer embedded base equipment will be able to operate over the entire 138-170 MHz frequency range). Finally, while NPTSC acknowledges that certain provisions of the Balanced Budget Act of 1997 indicate that spectrum identified by NTIA for reallocation (including the 138-144 MHz band) is to be auctioned, we also remind the Commission that Section 3002(c)(2) of that Act requires that "in making available bands of frequencies for competitive bidding," the Commission shall "consider the needs of existing Public Safety radio services."

Interoperability Channels from the VHF Maritime Band

17. NPSTC applauds the Commission for providing additional spectrum in the 150-160 MHz band. Even with the extremely limited geographical restrictions, it will provide significant relief to some areas of the country. Unfortunately, it does not meet one of the primary requirements for interoperability spectrum described in the PSWAC Final Report: *nationwide availability*.[5]

18. Because these channels are not available nationwide, and because many of the areas where use will be permitted now heavily use the 150-160 MHz band, NPSTC believes these individual areas may benefit more by using these frequencies for operational rather than

interoperability use. NPSTC recommends that the Commission make these frequencies available for general Public Safety operational use; state/local options could subsequently restrict them for interoperability use if that met with state/local needs.

19. Although the use of these channels is severely limited geographically, it is once again a case of "better than nothing". This could offer limited relief in certain areas although not in the major markets or in large segments of the country that are in close proximity to specified navigable waters. Parameters for use should provide that these channels be interoperable with existing (20F3) VHF highband equipment.

20. Also, we call to the Commission's attention that the PSWAC Final Report and prior filings by this and other organizations have identified other VHF and UHF spectrum that could be made available on a nationwide basis. In particular, this spectrum includes the wideband paired channels that have been used for the "Improved Mobile Telephone Service (IMTS)" that is now obsolete technology (replaced by cellular and PCS) [6] in the 150-160 and 450-460 MHz bands.[7]

YEAR 2000 TECHNOLOGY PROBLEM

21. NPSTC applauds the Commission for their concern for the effect that the Year 2000 Technology Problem (Y2k) could cause Public Safety. We recognize the seriousness of this problem, and agree that everything possible should be done to encourage users to take appropriate preventative measures. However, it is difficult to visualize how this can be addressed within the scope of this proceeding, particularly considering the time element involved. Y2k will impact many computer aided dispatch systems in less than 12 months. Trunked radio systems also may be affected. Even sooner – 9 months from

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[5] PSWAC Final Report, Appendix C – Interoperability Subcommittee Report, Section 12.3.11.4, page 152 (426) and Section 12.3.11.5, page 153 (427).

[6] Letter comments from the Department of Defense to PSWAC, dated July 29, 1996, and incorporated as Appendix K to the Spectrum Requirements Subcommittee Report, PSWAC Final Report Appendix D at Page 119 (725).

[7] Listed in 47 CFR 22.561

now, the GPS equipment used in automatic vehicle location and other high technology systems may experience date/time problems.

22. Although at least some Regional Planning Committees have made a sincere effort to develop an awareness of the problem and encourage Public Safety agencies to take adequate steps, there appears to be a lack of concern by many small agencies. NPSPAC Regional Planning Committees do not reach the majority of Public Safety agencies, which are licensed on other than 800 MHz NPSPAC channels. Without funding, NPSPAC Regional Planning Committees have no ability to pay for even publication and mailing costs. Thus, it is not possible for most Regional Planning Committees to do more than talk-up the problem to those present at meetings. Overall, this would reach a very small number of Public Safety agencies.

23. The suggestion of placing the burden upon frequency coordinators without providing funding is also not a viable option. Generally speaking, the only contact frequency coordinators have with Public Safety agencies is during the coordination process, when agencies attempt to license a new station or modify an existing license. While they can access the same Public Safety contact information that the Commission has in its license database, without funding they would have no ability to attempt to contact every licensee. Thus, it is not possible for frequency coordinators to do more than include a notice of the problem in mailings associated with Public Safety agency coordination requests. Overall, this would be a very small quantity of notices.

24. NPSTC believes that direct notices from the Commission to every licensee would carry more weight and reach more Public Safety agencies than any other means. Such notices should contain specific information regarding recognition of the problem, how it might affect Public Safety equipment and systems, and Internet web sites where further information may be obtained. NPSTC recognizes that the Commission also has limited resources, but believes that this is the most viable means of creating awareness to the greatest number of Public Safety agencies and encourages the Commission to proceed

along these lines. Further, it is noted that the Commission's most recent license renewals have included an information sheet describing the Y2k issue. NPSTC applauds the Commission for taking this very timely action.

GLONASS

25. NPSTC shares concern that use of mobile communications equipment by Public Safety agencies could interfere with satellite-based navigation systems, particularly since many Public Safety units utilize such systems for automatic vehicle location and other high technology applications. Studies of the frequencies and the relationship of their second harmonics indicates that only the wideband Public Safety channels could possibly impact the GLONASS channels.

26. Requiring second harmonic attenuation of -80dBW/700 Hz of narrowband mobile and portable Public Safety equipment operating in the 700 MHz band imposes a restriction which would seriously inhibit the use of these channels by Public Safety. In particular, portable radio equipment, which is predominantly used in metropolitan areas and around airports as an essential communications requirement, would be severely impacted – if it is even possible to achieve that level of suppression. This level exceeds current radio enclosure radiation specifications. The requirement to reduce effective radiated power by this amount includes problems created in antenna systems that cannot be easily measured and is not included in type acceptance testing of radio equipment. Such problems can develop over time and may easily go undetected by the licensee.

27. In 1996, two years after the International Civil Aviation Organization (ICAO) accepted the US proposal to use GPS for civil aviation, GLONASS was offered by Russia and accepted by ICAO. GLONASS had achieved 24 working satellites during 1995, although it has had great difficulty in maintaining full operational capability since then.

28. Clearly, there needs to be a thorough review of the proposal for GLONASS to be used in the United States and its territories and protectorates. GPS is operated and maintained by the US Department of Defense and is jointly managed with the Department of Transportation to ensure consideration for non-military use of GPS applications. GLONASS is operated and maintained by the Russian Federation Ministry of Defense, Russian Space Forces.

29. Since 1982, The FAA has sponsored research into satellite navigation in civil aviation through the Massachusetts Institute of Technology Lincoln Laboratory.[8] In its GLONASS status, updated 15 December 1997,[9] the constellation consists of 16 active satellites, not counting a spare in Plane 2. Eight satellite slots are empty. The GLONASS satellites launched so far have been prototypes. The Block IIc satellites, launched in recent years, have a design life of three years. In the current constellation, eight satellites have been in service three years or more. The production models, called GLONASS-M, are planned to have a design life of 5 years. The number of satellites marked healthy in the last three months has not exceeded 15. A fully deployed GLONASS constellation is composed of 24 satellites in 3 orbital planes whose ascending nodes are 120 degrees apart, with 8 satellites equally spaced in each orbit, displaced from each other by 45 degrees of latitude and 15 degrees of longitude.[10]

30. These factors, combined with Russia's current fiscal instability and political status, could lead one to reasonably question the viability of GLONASS for a reliable global navigation system to be used by civil aircraft. It is noted that there was a GLONASS launch on December 30, 1998, which injected three GLONASS satellites into slot 7 of orbit 1, two

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[8] From a paper by Pratap N. Misra: Integrated use of GPS and GLONASS in Civil Aviation, Internet: http://satnav.atc.ll.mit.edu/papers/LLjournal/Misra.html

[9] From the MIT Lincoln Laboratory Satellite Navigation Group report, Internet: http//satnav.atc.ll.mit.edu/glonass/status.html

[10] From a definition of GLONASS Constellation, Russian Federation Coordination Scientific Information Center, Internet: http://mx.iki.rssi.ru/SFCSIC/constel.html

of which are later to be positioned into slots 2 and 8 respectively.[11] However, even if all three become operational in their correct positions, that will still leave the constellation at only 75% capability.

31. Since GLONASS is an FDMA carrier based system, where each satellite "in view" is on a different frequency, and the Public Safety wide band channels will also be carrier based, any interference received by GLONASS navigation receivers would only impact a single satellite, and data could continue to be received from the other satellites "in view".

32. The US Federal Aviation Administration has been supporting development of GPS enhancements that will provide the accuracy, availability and integrity/reliability needed to use GPS as a primary means of navigation in the US National Airspace System. The Wide Area Augmentation System (WAAS) provides improved basic GPS accuracy to approximately 7 meters vertical and horizontal through the use of differential correction developed from a network of ground stations. In addition, the Local Area Augmentation System (LAAS) will satisfy the most stringent Category 3 precision approach.

33. In a September 1, 1998 Memo from Jane Garvey FAA Administrator to the Deputy Secretary of Transportation, in which the FAA sets forth their need for an additional signal in an aeronautical radio navigation service protected band on the GPS, she states: "The FAA supports the vision of the White House for GPS as the international standard for navigation, positioning, and timing." From that statement, it is unclear why the Commission is pressing for protection of GLONASS at this time.

34. Since only the Public Safety wideband channels have a direct second harmonic relationship with GLONASS (and then only with the limited impact in paragraph 31 above) and there is no such relationship between GPS and the Public Safety allocations in 746-806 MHz, NPSTC encourages the Commission to move forward relying upon its existing out of band emission schedule of 43+10logP. NPSTC endorses the establishment of a special

[11] GLONASS Launch report, Internet: //mx.iki.rssi.ru/SFCSIC.bloc28-e.html

committee of technical experts ***representing all affected services*** to further study the global navigation satellite system use by civil aviation issue and make recommendations regarding the second harmonic issues between wideband Public Safety channels and GLONASS receivers by December 31, 1999. To date Public Safety has not been included in such committee meetings.

CONCLUSION

35. On behalf of the Public Safety groups involved in this effort, NPSTC requests the Commission to proceed in an expeditious manner to favorably respond to its earlier request for reconsideration and as recommended in these comments.

Respectfully submitted,

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Marilyn B. Ward
Interim Chairperson
National Public Safety Telecommunications Council

January 19, 1999