

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

In the Matter of )  
 )  
1998 Biennial Regulatory Review -- ) WT Docket No. 98-182  
47 C.F.R. Part 90 - Private Land Mobile ) RM-9222  
Radio Services )

REPLY TO OPPOSITIONS TO A  
PETITION FOR RECONSIDERATION

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I. BACKGROUND OF THE COMMENTER.

1. The Personal Radio Steering Group, Inc. (PRSG) is an all-volunteer, not-for-profit Michigan corporation established in 1980 by licensees in the General Mobile Radio Service (GMRS, FCC Part 95-A) to provide services to and to serve as an advocate for users of the FCC's personal radio services.

2. The PRSG has published more than 300 different guides to GMRS licensing, technology and operating practices in the various personal radio services. PRSG's flagship publication, the GMRS NATIONAL REPEATER GUIDE, lists the more than 3,500 GMRS repeaters, their sponsors, technical characteristics and detailed coverage information. The GUIDE has become

the essential reference to this cooperative, nonprofit communications network for licensed private individuals. PRSG also works closely with major land mobile equipment manufacturers to disseminate instructional materials for radio purchasers.

3. PRSG brought issues in this PETITION which had arisen since the first Report and Order in this Docket, issues for which there had been no prior opportunity for public comment. In this Reply ("REPLY") we identify some additional issues for which there has been no previous opportunity for the public to submit comments.

## II. BACKGROUND OF THE DOCKET.

4. In our PETITION, we requested that the FCC consider three general areas because issues had arisen since the most recent opportunity for public comment. These areas included:

- a) imprecise and antiquated language concerning network interconnection;
- b) new equipment standards that would improve compliance with the current operating rules; and,
- c) requirements for operations under otherwise impermissible standards.

5. Four parties filed comments ("OPPOSITIONS"), although two did not provide the proper service. We had expected more parties to file, and we reserve the right to submit Supplemental Reply Comments if there are additional filings.

## III. THERE HAVE BEEN CHANGES IN MURS SINCE THE FILING OF OUR PETITION.

### III.A. SOME BELIEVE MURS IS OR SHOULD BECOME A "HOBBY SERVICE."

6. A raging debate has enveloped some YAHOO discussion lists and other Internet-based "chat rooms" about whether or not MURS is a "hobby service." The hobbyists argue that since there is no specific FCC rule prohibiting the use of MURS for "hobby communications," that it must therefore be permissible.

7. PRSG has long opposed the use of the Part 95 "Personal Radio Services" (exclusive of the Remote Control Radio Service, but only as designated for the remote control of toys and other devices) for "hobby communications." PRSG believes that the FCC's original intent in reallocating the five frequencies now in MURS to this new personal radio service was to relieve the licensing obligation for users of these frequencies, and to acknowledge that these transceivers had been widely marketed to the general public for use to organize and coordinate their daily personal activities. We have found NO indication that the FCC intended these frequencies to be used for "hobby communications."

8. For purpose of this REPLY, we adopt a definition of "hobby communications" to mean "communications as a recreational activity in and

of itself, and not otherwise used to directly organize and coordinate one's non-radio-based daily activities." The significance of this definition is that the typical "hobby communications" can often involve lengthy exchanges of a largely frivolous nature or intended to entertain or amuse. The use of MURS for "hobby communications," in PRSG's opinion, would be counter to the FCC's intent that MURS communications be both short in distance and short in time, in order to maximize sharing of these only five frequencies intended for use by "small footprint" systems.

9. There are some who argue that MURS should be an "entry level" to the Amateur Radio Service (ham radio). They advocate the use of MURS as some kind of "stepping stone" to the licensed and more versatile Amateur Radio Service.

10. PRSG objects to this misuse of MURS. We caution the FCC that it may need to consider, at some point in the future, imposing additional requirements (such as transmitter time-out limits) to discourage the use of MURS for hobby communications.

### III.B. SOME MISUNDERSTAND OR REFUSE TO ACCEPT THE NEED FOR THE "TYPE CERTIFICATION" PROCESS.

11. As MURS becomes promoted for "hobby communications," there is a growing tolerance (bordering on advocacy) of the use of modifying (frequently called "opening up," referring to expand the capable transmit frequencies) of radios suitable ONLY for use in the Amateur Radio Service. One commenter to this PETITION has repeatedly expressed a tolerance of the illegal use of modified ham radios for MURS [FN1]

FN1: Stewart Teaze, at paragraph 1, acknowledges that he is the moderator of the Yahoo Group "MURS-OPEN." This group has an open membership policy and is not moderated as to who can post messages, or who can join and read messages. Following in our REPLY we quote freely from the message archives of this Yahoo Group. In message #4430 of June 3, 2003, Teaze said,

"I've mentioned before that I don't have any grief with a ham modifying his own handheld (VX-7, etc.) for use on MURS ..."

12. Teaze has also exhibited a serious misunderstanding of the purpose of the type-certification process required of all transceivers permitted to be used in MURS [FN2].

FN2: In Yahoo Group MNURS-OPEN, message 5112 of July 15, 2003, Teaze said:

"Some will complain that you should use a "type accepted" radio (not a converted ham radio, for instance). But, that is mainly a requirement for the manufacturers, so that consumers can know they are buying the proper equipment... it turns out there are Part 90 type accepted radios that don't meet the MURS requirements, for one reason or another, so "type acceptance" is not a true gauge for meeting the spirit of the rules"

13. What Teaze fails to recognize is that although power output, signal deviation and frequency stability are some of the aspects of the type certification process (and, presumably MIGHT be modified and verified to

fall within the limits set for MURS), other conditions (such as spectral purity and harmonic suppression, limitation of the modulation sidebands, etc.) cannot be verified without sophisticated testing equipment not available to the typical hobbyist. Moreover, there are further restrictions (such as the programmability for operation on non-MURS frequencies) that are expressly forbidden on transceivers certificated both under the initial MURS Rules (effective November 2000) and the subsequently amended ones (effective November 2002).

IV. MANY MURS OPERATORS FAIL TO UNDERSTAND OR TO ACCEPT THEIR OPERATING OBLIGATIONS UNDER THE CURRENT RULES, OR UNDER THE CHANGES REQUESTED IN THE PRSG PETITION.

14. Both in the online discussions and in the oppositions filed to the PETITION, many people demonstrate a failure to understand their obligations for proper MURS operations both under the existing FCC rules, and under the changes requested by the PETITION. We will demonstrate this with regard to specific comments below, but this misunderstanding permeates the general user community as well.

15. This suggests that beyond the contents and requests of the PETITION, the FCC may need to consider further changes in rule language, and perhaps the issuance of a series of clarifications and interpretations.

IV.A. THERE ARE MULTIPLE AND CONFLICTING DEFINITIONS OF PHRASES DESCRIBING THE FREQUENCY MONITORING PROCESS.

16. For purposes of this discussion, and for evaluating the OPPOSITIONS filed to our PETITION, we shall describe the typical communications exchange in THREE PHASES. We have given names to these phases reluctantly, since a simplified reference can carry or omit additional implications and/or consequences not intended.

IV.A.1. THE "INITIATION" PHASE.

17. In ALL radio services in which multiple users share the same channel, and in which the user determines when to begin the communication exchange, the user is supposed to monitor the frequency FIRST to determine if it is already in use, and to refrain from transmitting if that transmission would disrupt pre-existent communications on the same channel. There are certain radio services and operating protocols where this voluntary pre-transmission monitoring is not necessary (such as in a trunked system with exclusively assigned channels). There are other (if rare) circumstances in which the transmitter is inhibited from transmitting if its associated receiver detects another signal already on the same channel. This is a "busy-channel lock out ["BCLO"].

18. There are TWO kinds of this Initiation Phase. The first applies to the party who initiates the communications exchange. The second applies to the one or more parties who respond to the first caller.

19. A commonly recognized and acknowledged phrase is, "No two people ever see the same rainbow." In a communications system with very-low-power transmitters and quite limited range, no two radios may hear the same signals. The FCC requirement at 95.1307(d) appropriately does not exclude ANY party to the communications, neither the initiator nor any subsequent recipients, from the pre-transmission monitoring requirement. BOTH the initiator and the recipient must monitor the frequency before transmitting. The recipient cannot assume that the originator's performance of the obligatory pre-transmission monitoring relieves the recipient of the same obligation.

#### IV.A.2. THE "EXCHANGE" PHASE.

20. In this Phase, the various parties to the exchange alternately transmit to and receive from the other parties to the exchange.

21. Any party to a communications exchange must immediately cease transmitting if that transmission would interfere with another transmission on the same channel pertaining to the immediate safety of life or protection of property. However, the only way to know if there is such an emergency transmission is to monitor the channel without any form of muted or coded squelch. [FN3] The monitoring need not be done at the "zero bias" noise level (in which the associated receiver's speaker would emit "white noise"), but SHOULD be done with a squelch setting at a level where the operator would be able to hear any co-channel emergency transmission with which his/her subsequent transmission might interfere.

FN3: The phrase "coded or muted squelch" shall refer in this REPLY to any receiver-muting protocol in which the receiver audio is silenced or substantially reduced in the absence of a code. Such a code might include a continuous code ("continuous tone-controlled squelch system," or "CTCSS," or "digital coded squelch," or "DCS") or a "tone burst" signal typically at the beginning of the transmission.

#### IV.A.2. THE "CLOSURE" PHASE.

22. After the conclusion of the communications exchange, the parties involved can return their radios to a muted-squelch condition. The significance of this Phase to this REPLY is how the radio operator initiates this phase, the penalty against doing so prematurely, and whether or not this Phase can or should begin automatically.

#### IV.B. DO THESE MONITORING OBLIGATIONS DERIVE FROM A "MORAL" OR A "LEGAL" IMPERATIVE?

23. In the numerous chat-room discussions of the PETITION, some participants have resisted the idea of requiring these monitoring efforts during the first and second Phases, and have loudly proclaimed that such monitoring is unenforceable, as would be any requirement "to legislate morality." What they ignore is that it IS possible to legislate behaviors. What for some may seem to be "a morality issue" is possible to address

as a regulatory one as well. Behaviors are quite commonly legislated and regulated, and sanctions can be imposed against those who ignore or violate those requirements and restrictions.

24. But is it necessary to regulate such behaviors? We argue that in the face of widespread resistance to complying voluntarily with these reasonable pre- and during-transmission monitoring requirements, that YES it has become necessary to "put some teeth" into these requirements. The only feasible way to accomplish this is to incorporate such mandates into the basic design of the hardware and software.

25. Opponents to this concept have vigorously argued the following:

- 1: The changes would mandate a behavior required in no other personal radio service.
- 2: Users who have developed poor monitoring habits in other radio services would have to be "retrained."
- 3: The new monitoring requirements would impose "an inconvenience" on radio operators.
- 4: Existing radios would be difficult to retrofit with the new hardware or software.
- 5: User resistance to the changes would encourage efforts to defeat these features integral to the operation of the radio.
- 6: The changes would add unnecessary cost (both for design and for implementation) to the radios.
- 7: If these changes were really a benefit to the user, manufacturers would have already built them into existing radios.
- 8: These changes would be "over-regulation" at a time when federal agencies should be Deregulating.

#### IV.B.1: THE CHANGES WOULD MANDATE A BEHAVIOR REQUIRED IN NO OTHER PERSONAL RADIO SERVICE.

25. We cite the growing body of experience in the Family Radio Service (FRS) at locations where there is a high density of use. At nearly any crowded venue and major sporting, recreational or entertainment event, FRS users can be heard increasingly "walking all over each other," repeatedly transmitting "calling tones" and shouting into their radios, OBLIVIOUS to the fact that the operating channel is in use by others, often by multiple others.

26. This is NOT a future that we would wish for MURS, but there is growing experience that this is precisely what awaits the relatively new personal radio experience.

27. And this is NOT, as alleged by Teaze (Teaze Opposition at paragraph 1) an unnecessarily "gloom and doom" prediction. It is a real-life experience both that exists frequently today in FRS and (despite the

much lighter use of MURS, and the availability of only a single MURS model radio with "ring tones") that is beginning to occur in MURS.

IV.B.2: USERS WHO HAVE DEVELOPED POOR MONITORING HABITS IN OTHER RADIO SERVICES WOULD HAVE TO BE "RETRAINED."

28. Precisely. This "retraining" is necessary to break bad habits so that they don't spread to MURS operations.

IV.B.3: THE NEW MONITORING REQUIREMENTS WOULD IMPOSE "AN INCONVENIENCE" ON RADIO OPERATIONS.

29. Of course it would, but life is full of "inconveniences." It is "inconvenient":

- to come to a stop at a STOP sign
- to refrain from passing in a "no passing zone"
- to refrain from smoking on an airlines flight
- to identify by FCC callsign in radio services that require this etc., etc.

But these are "inconveniences" that society has determined to be desirable and to be necessary to require by regulation.

30. Bottom line: An inconvenience is necessary to cooperate with other users of a shared resource such as a common radio channel.

IV.B.4: EXISTING RADIOS WOULD BE DIFFICULT TO RETROFIT WITH THE NEW HARDWARE OR SOFTWARE.

31. This would be difficult, and the PETITION did not propose this. Fortunately, there is a relative scarcity of existing equipment suitable for use in MURS. Any considerable growth in MURS use would require the manufacturing of more and new models which, if certificated first after the implementation of these requirements, would all have such features.

IV.B.5: USER RESISTANCE TO THE CHANGES WOULD ENCOURAGE EFFORTS TO DEFEAT THESE FEATURES INTEGRAL TO THE OPERATION OF THE RADIO.

32. Although possible, this is less likely given the sophistication of contemporary radio design, which is heavily based on computer control by an integral central processing unit (CPU). FCC regulation could prohibit any design whose features (capabilities and limitations) could be modified merely by "clipping a jumper," "entering a 'secret code'," or some other devious work-around.

IV.B.6: THE CHANGES WOULD ADD UNNECESSARY COST (BOTH FOR DESIGN

AND FOR IMPLEMENTATION) TO THE RADIOS.

33. No representative of any radio manufacturer has made such a claim. The experience of radios models that already incorporate features tied to timing requirements and constraints shows that such behavioral controls can be made integral to the software. For example, the Garmin model 120 combination FRS/GPS transceiver incorporates minimum and maximum timing provisions without adding noticeably to the cost of design and manufacture. The timing requirements are required by the FCC Rule implemented by the Report and Order in WTB Docket 01-339, effective April 2, 2003.

IV.B.7: IF THESE CHANGES WERE REALLY A BENEFIT TO THE USER, MANUFACTURERS WOULD HAVE ALREADY BUILT THEM INTO EXISTING RADIOS.

34. This hasn't happened so far WITHOUT federal regulation. No radio manufacturer would want to be "first" with a radio model that would impose the "inconvenience" of pre- and during-transmission monitoring. Implementation of the timing and monitoring requirements will simply not come voluntarily unless required "across the board" for all newly MURS-certificated radios.

IV.B.8: THESE CHANGES WOULD BE "OVER REGULATION" AT A TIME WHEN FEDERAL AGENCIES SHOULD BE DEREGULATING.

35. To the contrary, the FCC has recently begun to permit data communications in the FRS, but ONLY by radios that must incorporate such time-limiting provisions (maximum transmit time, minimum time between transmissions). Clearly there is now a strong precedent for requiring behavior-mandating controls in a personal radio service offering new or expanded capabilities, something common both the data transmissions in FRS, and to ALL transmissions in MURS.

36. PRSG believes that it is no longer acceptable for the FCC to avoid such behavior-mandating requirements. The unique opportunity for MURS includes the fact that there is a limited amount of existing (pre-monitoring-requirement) supply of radios on the market. The changes which PRSG requests now can reasonably be expected to have big payoffs later as this relatively new personal radio service expands in popularity.

V. THE PETITION REQUESTS A MORE SPECIFIC PRE-TRANSMISSION MONITORING REQUIREMENT.

37. In the "Memorandum Opinion and Order/Second Report and Order" ["MO&O/SR&O"] to this Docket (the action which this PETITION addressed), the FCC changed the language of 95.1307(d) to read as follows:

"MURS users shall take reasonable precautions to avoid causing harmful interference. This includes monitoring the transmitting

frequency for communications in progress and such other measures as may be necessary to minimize the potential for causing interference."

38. PRSG believes that this language does not go far enough. The new rule fails to establish any minimum pre-transmission monitoring time. Is 0.1 second sufficient? 0.5 second? 2 seconds? 5 seconds? 10.375 seconds?

39. The length of time to determine if there is pre-transmission co-channel activity depends on several factors. On a channel used primarily or exclusively for repeater transmissions, the monitoring station might easily be able to hear some repeater (his/her own, or another) that was already in use. A pre-transmission monitoring might require only a second or less.

40. But this is NOT the situation in MURS, where the FCC Rules now prohibit repeaters of the conventional variety (separate input and output frequencies, nearly simultaneous retransmission, often very height-advantageous antenna siting, etc.). In a low-power, limited-range, it can take longer to determine if the frequency is available for use. However, there are also limits on user patience to wait, and a mandated pre-transmission requirement must balance between these two interests.

41. In the PETITION, PRSG refrained from requesting a specific minimum-unmuted-squelch monitoring time. Commenters would have focused on some alleged impracticality of a specific limit, and would have been less likely to address the general requirement of a mandated minimum.

42. Given the general MURS-related consideration discussed in paragraph 49 above, PRSG believes that the minimum monitoring time should be not less than 2 seconds, and probably should be not more than 5 seconds. We believe that the FCC should propose a more specific time limit (or maybe, range of limits) as part of a further public inquiry, after having established a commitment to proceed to establish some level of mandate.

43. We must also note that those who oppose the imposition of ANY hardware- or software-mandated minimum pre-transmission monitoring time must be obliged to explain why SOME minimum should NOT be mandated by FCC rule. Comments so far on the PETITION have failed to provide any viable explanation as to why there should be no mandated minimum.

44. Clearly, as discussed previously, it cannot be a matter of cost. Garmin's model 120 (combining a GPS receiver with a FRS transceiver) includes precisely such an integral timing mandate (maximum data transmission on time, minimum time between data transmissions time).

45. Nor have (nor could) parties opposed to this concept logically argue that it would increase the complexity of operations. (PRSG has heard no outcry of Garmin model 120 users, such as in the various Yahoo groups and other Internet-based chat rooms, complaining of overly complex operating requirements. Perhaps "an inconvenience," but as we discussed previously, life is full of those.) Besides, the Garmin model 120 timing constraints actually SIMPLIFY compliance with the reasonable FCC timing requirements, allowing the user not to have to use a stopwatch to determine compliance.

V.A. THE REQUESTED PRE-TRANSMISSION-MONITORING PROTOCOL WOULD REQUIRE ONLY A SINGLE WAITING PERIOD.

46. The required unmuted-squelch protocol need be required only once after the associated receiver squelch is unmuted. It would not need to be imposed again until/unless the radio operator again switches the associated receiver back to a coded-squelch-only format.

47. This is NOT, as some have mischaracterized it, a "busy-channel lock out" (BCLO) protocol for operations where there is an operator present at the radio. The protocol would enable the transmitter to activate after the minimum waiting time, whether or not the receiver perceived any co-channel activity. The "Phase 1" operation for the station initiating the communications would begin when the operator removed the receiver from a coded-squelch condition, and would end when the radio first transmitted.

48. However, if the transmitter is remotely activated by any means other than by a station operator listening first for co-channel communications, then a requirement for a BCLO IS justified. Those who would employ transmitters in a system where there is no opportunity for pre-transmission monitoring by a station operator should reasonably be required to exercise additional precaution in the installation and operation of such a station. A BCLO requiring some minimum period of time is a reasonable obligation to expect, to assure compliance with the concept of pre-transmission monitoring, and is, in reality, nothing more than is required in the CURRENT rules.

49. This Phase 1 pre-transmission-monitoring requirement would not again be imposed unless/until the radio receiver returned to coded-squelch status (in Phase 3). In the case of a remotely actuated transmitter, however, the pre-transmission monitor function (as a BCLO) should reasonable be required before EACH transmission.

V.B. SOME EXISTING RADIO MODELS DISCOURAGE COMPLIANCE WITH THE REQUIREMENT FOR UNCODED-SQUELCH MONITORING.

50. Some manufacturers have designed radio models so that the radio transmitter's encoding of a CTCSS, DCS, tone-burst, or some other "selective addressing" protocol, used to activate a remote receiver, is disabled whenever the associated receiver's coded-squelch is also disabled. The creates an undesirable and distinctly "user-unfriendly" operating requirement, wherein the operator must continually enable (before transmit) and disable (before receive) the encoding/decoding function if trying to call another party whose receiver is in a coded-squelch condition.

51. In current radio models, and in any future radio models that also require such repetitive user actions, the practical effect of such an undesirable and unfriendly feature is to discourage monitoring with an uncoded squelch. If the FCC were to adopt the pre-transmission-monitoring protocol that the PETITION requests, future radio models that continue such an unfriendly user interface would have to repeat the Phase 1

transmitter-disabled waiting period.

52. Some parties may have assumed that future radios WOULD continue to employ such an unfriendly user interface. We would hope not, and we would encourage the FCC to consider requiring that disabling the coded-squelch monitoring function should not also disable the transmitter encoding of such a selective-addressing code.

V.C. SOME MANUFACTURERS HAVE GIVEN NAMES TO CODED-SQUELCH FUNCTIONS THAT ARE CONFUSING OR MISLEADING.

53. The names falsely suggest that the use of various coded-squelch protocols creates a "private line," a "private channel," or assures a "quiet channel" for the user's own, non-interfering use. More recently, the manufacturers of FRS radios have described coded squelch as being an "interference ELIMINATOR," whereas the end result has instead been that its use is an "interference IGNORER," since without uncoded squelch monitoring, users are completely unaware of co-channel traffic and the interference which they suffer from or cause to other co-channel users.

54. Some have also described the use of CTCSS and DCS coding as providing "subchannels," implying (incorrectly) that the combination of RF channel and CTCSS/DCS code creates some unique subchannel and suggesting that this increases the capacity of the channel (and/or reduces the need for pre- and during-transmission monitoring).

55. This mislabeling is all "marketing hype" in an effort to conceal the inconvenience required to monitor and to responsibly share the same channel among multiple users. But the hype has the effect of encouraging users to ignore good operating practices.

56. This is the communications industry's "dirty little secret." It is only further reason why FCC action is necessary in this fledgling MURS personal radio service, to develop and then to impose the hardware and software requirements the will ENCOURAGE rather than DISCOURAGE compliance both with operating requirements and with well-established "good operating practice." The manufacturers haven't taken, and can't be expected to take, the first step. The FCC must.

V.D. THE PRE-TRANSMISSION-MONITORING REQUIREMENT ALSO IMPACTS CALL RECIPIENTS.

57. The discussion above concerns the requirements that the PETITION requests be imposed on those who INITIATE a call. There are comparable requirements for those who first RECEIVE a call from another party. The same minimum pre-transmission-monitoring time period should be required, of the recipient, but it could begin to accumulate at the conclusion of the first receipt of the initiator's coded-squelch transmission. Further recipient operator action would not be necessary, since receipt of the call could automatically start that second station's uncoded-squelch monitoring.

58. Without further refinement in the protocol, this could permit some abuse or circumvention. For instance, the call originator could transmit

merely momentarily to trigger the uncoded-squelch countdown in radios of the intended recipients, then pause and then transmit a second time while the recipients' radios were still counting down to the minimum monitoring time before transmit enablement.

59. To minimize this abuse, PRSG recommends that the countdown timer of recipients' radios accumulate "time credit" toward the uncoded-monitoring time minimum ONLY in the absence of an incoming signal encoded with the recipients' muted-squelch code.

60. Although the concept just described would appear to be complex, it would all be embedded in the software controlling the radios' CPU. The apparent complexity would be transparent to the end user, who need know only that he/she must monitor with uncoded squelch for a minimum time before the associated transmitter is enabled

## VI. THE PETITION REQUESTS REQUIREMENT OF UNCODED SQUELCH THROUGHOUT THE EXCHANGE OF COMMUNICATIONS.

61. Only by operating in an uncoded-squelch mode would a station operator be able to hear that another station on the same channel needed to communicate about an emergency threatening the safety of life or the protection of property. This is "a no-brainer," yet (based on comments in various chat rooms and other Internet-based discussion groups) this seems to be a point of some controversy.

62. Two-way radio users, but especially those whose main radio operating experience has been in FRS, have been conditioned to accept an unrealistically and inappropriately broad definition of "interference." INTERFERENCE is when one signal DISRUPTS or prevents the receipt of some other signal. Interference is NOT the mere perception of some other signal. Merely hearing a signal which a user does not need or wish to hear does not constitute interference, unless there is also that factor of disruption.

63. The (especially FRS) user public has come to confuse the concept of "interference" with those of "annoyance," inconvenience," and "distraction." That user public has also become conditioned to ignore the reasonable pre- and during-transmission-monitoring obligations inherent in "sharing."

64. Persons who refuse to monitor with uncoded squelch, or who even refuse to leave slight breaks of radio silence in between the normal exchange, are in essence saying, "If there's an emergency, I don't want to know about it." This reflects a selfishness, laziness, and deliberate disregard for the rights of others using the same shared radio spectrum resource.

65. Since these abusive behaviors DO exist, and since some MURS station operators DO exhibit them, the general MURS user community (for which the PRSG attempts to serve as an advocate) can reasonably request that the FCC consider taking steps not just to identify and require by rule compliance with good operating practices, but also impose such performance-related requirements on equipment designed and marketed to the MURS user community.

VI.A. SHOULD THERE BE A "SPECIAL EXEMPTION" FOR EMERGENCIES?

66. In the ongoing Internet discussions, there was some debate about whether or not an exemption from pre- and during-transmission-monitoring requirements should be available for emergencies threatening the safety of life or the protection of property.

67. Three of the parties that contributed to this REPLY have a cumulative total of more than seven decades of experience (including public-safety fleet dispatch) in emergency communications safety. For any "emergency" that one party may perceive, there is always the possibility that another "emergency" could and should be afforded a higher priority. The presence or absence of some "emergency" is not a dichotomous absolute.

68. The only way to accommodate varying degrees of urgency is for those communicating about them to be aware of other communications activities on the same channel. PRSG recommends against any suggestion that those alleging to need to communicate about some emergency should be exempted from the requirements for pre- and during-transmission monitoring.

VI.B. MEETING THE ON-GOING REQUIREMENT TO MONITOR WITH UNCODED SQUELCH SHOULD NOT DEMAND ANY EXTRAORDINARY OR CONTINUING OPERATOR ACTION.

69. Some radio models provide the operator with uncoded-squelch monitoring ONLY through some continuing operator action, such as holding down a button or first entering a multiple-digit sequence. This kind of requirement DIScourages operator compliance with pre- and during-transmission monitoring. The PETITION (at paragraph 14) requested that the FCC require that uncoded-squelch monitoring not require some complex or continuing operator action, but rather should be able to be set to for open monitoring with a single action. Permitting the use of a momentary "push-to-listen" button is not sufficient or appropriate, since it requires continuing operator action and thus DISCOURAGES compliance with pre- and during-channel encoded squelch monitoring.

VII. THE RE-ENABLEMENT OF RECEIVER MUTING COULD BE AUTOMATED.

70. After conclusion of the exchange of communications, the operator should be able to re-enable receiver muting. This process could also be automated, for instance to occur after some time period of transmitter activity.

71. However, with re-enablement of receiver muting, the transceiver should not be allowed enabled to transmit (in our described Phase 2) unless and until the station operator again goes through the required pre-transmission uncoded-squelch monitoring of Phase 1. If the transceiver incorporates a provision for automatic re-enablement of receiver muting, the station operator needs a convenient and simple (single-stroke) option to prevent this. This will minimize operator frustration with

having to return to the Phase 1 uncoded-squelch monitoring if the operators anticipates needing to shortly return to a Phase 2-enabled exchange of communications.

VIII. THE COMMENTS REVEAL NO PARTICULAR INSIGHT AS TO HOW THE FCC SHOULD CLARIFY INTERCONNECTION WITH THE PUBLIC SWITCHED NETWORK.

72. In the PETITION (at paragraphs 5 through 7), we raised the issue that today's complex network of networks defied any easy analysis of what is and what is not a portion of, or connected to, the Public Switched Network ("PSN"). In the eight months since filing the PETITION, the situation has become even more complex. The newer flavors of network design and interface, including Session Initiated protocols ("SIP"), assure that the changes in network sophistication and user/usage transparency will continue at a most rapid pace.

73. Given this rapidly increasing proliferation and complexity, we tried to synthesize this out to a more fundamental question. At paragraph 9:

"What this argues is that the Commission needs to modify its current approach of granting or denying network access in MURS based solely on the first-phase network topology. Instead, the Commission needs to address this issue from a more basic position: Under what conditions (and with what limitations) should the Commission permit a MURS station to transmit messages or data coming other than from a specific person locally controlling a specific MURS transmitter, what we could characterize as a 'one person/one push-to-transmit button' station.

74. The Petition (at paragraph 10) also observed:

"that the Commission's rules pertaining to the operation of the frequencies now allocated to MURS essentially limited network (including private network) interconnection previously by establishing the maximum distance between the control point and the center of the radiating antenna."

Thus, no changes under consideration should impact any grandfathered (previously Part 90-licensed) user of MURS except those to whom the FCC had granted specific exemptions or waivers, and which the Commission intends to continue to permit

75. None of the comments directly addressed these complexities, except Teaze (at paragraph 4) who claims that the current rules are sufficiently clear.

VIII.A. TEAZE'S OWNS PLANS FOR MURS NETWORK INTERCONNECTION NEED FURTHER EXAMINATION.

76. Stewart Teaze, Amateur Radio licensee (N0MH5) and self-described RF communications systems engineer, is the principal author and proponent of a new data transfer protocol (in development) for use by MURS stations. He

seems to believe that there is currently a loophole in the MURS rules that would permit implementation of this new protocol using a non-dial-up Internet connection to achieve potentially nationwide delivery.

77. This new protocol is best described in his own words. In message #152 of the MURS-OPEN Yahoo Groups forum, Teaze described this protocol on June 13, 2001, as follows:

"1) By moving the passing of all routing information from the RF level to the Internet level, you can VASTLY reduce the overhead of passing routing information over the precious RF bandwidth. The routing information can be removed from the protocol, and no system-level routing traffic need take place on RF - ever. More sophisticated "server-level" software needs to be written to achieve this coordination over the Internet - but it is entirely achievable. Broadcasts from the servers can even be somewhat "time-coordinated" for the local channels, further reducing the chances for "collisions" and hidden terminal problems at the higher RF coverage levels.

"2) By moving towards a hybrid "strategic broadcast/routing" scenario, from the current "RF routing, and everyone broadcasts" scenario of APRS or the "RF routing" scenario of the old NET/ROM-based packet networks, you can combine the APRS and e-mail (and other character-based apps) applications on one channel, to help achieve critical mass of Internet gateway stations. Broadcast packets would contain combined information (all sorted out by the server-level software), further reducing protocol overhead (the overhead of sending these bursty messages out on separate packets, all having separate TxDelays is a BANDWIDTH KILLER!).

"3) Move towards a more "cellular-based" RF network structure. By using many Internet backbone gateways, set up at strategically spaced lower-level sites, running lower power and directional antennas (rather than a few high-level nodes, that don't/can't have Internet access) the hidden terminal problem is vastly reduced."

78. This was written before announcement (May 2002) or implementation (November 2002) of the current MURS Rules, which now prohibit interconnection between any MURS station and the PSN. However, that change does not seem to have dissuaded Mr. Teaze from intending on using an Internet backbone for the interconnection of these MURS stations. In message #4090 of the MURS-OPEN Yahoo Groups forum, Teaze said on April 25, 2003:

"M.1 (and the MURSlink application) is going to integrate the more useful features of APRS with an Internet-backed e-mail/IM system, for use on MURS."

79. Even more recently, and in a message that reveals that he doesn't understand the PETITION, Teaze said (message #5072 of the MURS-OPEN Yahoo Groups forum, on July 10, 2003):

"This brings up a good point, as IRLP type systems were directly addressed in the PRSG petition.

"PRSG wants the FCC to make another regulation to specifically disallow this type of system on MURS, by specifically stating that a

control point operator must be within 50ft on the antenna (or something like that). In my comment to the FCC, regarding this issue, I stated that changing the rules was unnecessary, as the current rules imply that this activity does not meet the intention of the service (a short range voice and data communications service).

"While I wouldn't mind seeing a limited amount of IRLP usage allowed on MURS; I have to admit that there is a potential for abuse with such a system, as it seems to me that it would be next to impossible to deal with remote abusers of such a system. John Guetherman also brought up a good point, in that a high-level node could end up dominating a couple of MURS freqs over a widespread area.

"Rather than changing the rules, I'm hoping the FCC simply makes some kind of clarification statement regarding this issue - and that they don't go too far, and create an overly restrictive situation."

PRSG did not recommend any reinstatement of a maximum distance between the control point and the transmitting antenna, although that IS one option which the FCC might consider. More importantly, Teaze apparently doesn't want his perceived wide-area-network loophole to be taken away.

80. Teaze suggests even further bending of the current rules. At message #4460 of the MURS-OPEN Yahoo Groups forum, on June 9, 2003, Teaze said:

"... while it is true that, under the MURS rules, you can't implement Amateur-like "store-and-forward" type systems (which is usually a good thing, by the way), if you use a hub or access point, and use centralized application to "massage the input data" so that packets aren't simply being stored and forwarded, you can do some things that you might initially overlook as being possible under the MURS rules. I'd also like to point out that there have been a number of discussions related to the M.1 MURS-oriented open protocol on the murslink newsgroup:

"<http://groups.yahoo.com/group/murslink/?yguid=44552993>"

81. Now comes Mr. Teaze in his Opposition (at paragraph 4) making the following statement:

"The MURS rules already contain wording that prohibits the use of the type of voice-relay system described in the PRSG petition. MURS is a service designed for "short range communication". Any individual attempting to implement an Internet-based relay portal allowing a remote user to key a radio from a location that was hundreds, or even thousands, of miles away, would obviously be violating the express purpose of the MURS service. Since the existing MURS rules already address the issue at hand, there is no need to modify the existing MURS regulations (continuous and flippant modifications of MURS rules can have wide-ranging and unintended consequences, as was described in more detail in my opening statement)."

82. We find it difficult to reconcile the contradictions between Teaze's statements in the MURS-OPEN Yahoo Group, and those which he submitted in his Opposition to the PRSG PETITION. Mr. Teaze may want to think that he has carefully crafted his words so as not to appear contradictory, but we

find the language of his Opposition to be simply disingenuous.

83. As a minimum, Teaze's comments rather clearly demonstrate why the FCC needs to consider some new approach to more clearly explain what should and what should not be permissible for MURS network interconnectivity.

IX. HOW TO DEFINE REASONABLE OBLIGATIONS FOR THOSE WHOSE FORMER PART 90 LICENSES AUTHORIZED NOW-PROHIBITED OPERATIONS.

84. In paragraphs 15 through 18 of the PETITION, we identified the problem of how to distinguish those "grandfathered" users whose prior licenses authorized operations not compliant with current MURS rules. We would expect these to be few in number, but still potentially significant to note as the MURS user community might attempt to apply peer pressure to bring compliance with the current rules.

85. Some people misunderstood what the PETITION requested, but none provided a workable alternative to what the PETITION had requested.

86. Michael Dickerson (at paragraph 11) speculated that such licensing information could be misused to conceal or mislead others as to their true eligibility to operate beyond the parameters authorized for MURS station. PRSG provided an online database of all GMRS licenses, available through one of our Bulletin Board Systems to our subscribers, for most of the early and mid 1990s. Our experience was that there was little misuse of the licensing data. Furthermore, now that the licensing data is available online through the FCC's own Web site, we have not heard of any such misuse.

87. We therefore have to conclude that Dickerson's concerns about the potential for misuse of the licensing data are largely unfounded.

X. IN SUMMARY.

88. The points that we raised in the PETITION all go to subjects that will likely have a significant impact on the future of this personal radio service. None of the OPPOSITIONS raise issues that should detract from our original requests.

89. On the particular issue of pre-transmission monitoring, we request that the FCC commit to the implementation of the general concept, and then initiate a Further Notice of Proposed Rulemaking to invite public comment what the specific timing parameters should.

90. On the remaining issues, we request that the Commission proceed directly with rulemaking, including such changes as the Commission finds necessary to address its intent on permissible or prohibited interconnection was public and private networks. PRSG believes that no case has been made to permit interconnection even with private networks, given the intent of this service to provide brief communications of a highly localized nature.

XI. SERVICE LIST.

91. I hereby certify that on July 22, 2003, I sent a copy of this REPLY by First Class US Mail to the following parties at the addresses shown:

F.E. Brody  
RR 2, Box 568  
Thomaston, CT 06787

James Johnston  
828 S Wise  
Sumter, SC 29150

Stewart Teaze  
39501 Cedarwood Dr  
Murrieta, CA 92563

92. I also certify that on July 22, 2003, I sent an electronic copy of this REPLY to the following party, upon his certification of willingness to receive this REPLY but that means:

Michael Dickerson at ramj1@earthlink.net

/s/  
Corwin D. Moore, Jr., Administrative Coordinator  
Personal Radio Steering Group. Inc.  
PO Box 2851  
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