Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
GARMIN INTERNATIONAL, INC.	)	WT Docket No. 01-339
	)	
Amendment of Sections 95.193(a) and 95.631(d) to Authorize Manufacture, Sale and Use of GPS Transmission Enhanced Family Radio Service Units	)	RM - 10070
	)	
Amendment of Sections 95.193(a), 95.193(b), and 95.631(d) of the Commission's Rules Governing Permissible Communications in the Family Radio Service	)	

Comments Filed in Response to a
Notice of Proposed Rulemaking

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Date: February 13, 2000

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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. Because frequencies authorized to the Family Radio Service (FRS, FCC Part 95-B) include some that are also frequencies allocated to the GMRS, and others that are located in between other GMRS frequencies, PRSG has a continuing interest in the growth and evolution of the FRS. We also have extensive experience in evaluating the nature of interference caused by some FRS operations both to other FRS operations and to licensed GMRS operations, especially the operation of GMRS repeater stations.

II. PRSG AGREES IN GENERAL WITH THE INTENT TO PERMIT LIMITED NON-VOICE COMMUNICATIONS IN THE FAMILY RADIO SERVICE.

4. In its NOTICE OF PROPOSED RULEMAKING (WT Docket No. 01-339, adopted December 12, 2001, released December 20, 1998) (NPRM), the Commission proposes to permit certain non-voice (data) communications for limited purposes (for the transmission of location information) in the Family Radio Service. This would require a change in the FCC Rules, since FRS transmissions are currently limited solely to voice communications except

for the limited purposes described in 95.193(b).

5. PRSG agrees that the capability of transmitting digital information about location would be a beneficial enhancement to the FRS. In these COMMENTS, we propose certain additional changes to the rules that the FCC has proposed in the NPRM. Some of these changes are intended to enhance the benefit of GPS-based location information. Others are intended to protect existing voice users of the FRS.

III. FRS DATA TRANSMISSIONS MUST BE SECONDARY TO VOICE TRANSMISSIONS.

6. The FRS is currently and (PRSG believes) must remain a service primarily for VOICE communications. Garmin acknowledged this when it claimed that the enhancements requested would not be likely to cause interference to any other FRS unit transmitting in the FRS band. [NPRM at paragraph 6.]

7. Actual experience (including personal monitoring FRS channels for thousands of hours, and the observation of thousands of FRS communications exchanges) leads us to DISAGREE VIGOROUSLY with Garmin's claim that location data information would not interfere with FRS voice communications. Although any SINGLE data transmission would likely cause minimal interference to other FRS units, the cumulative effect of GPS data transmissions by dozens or even hundreds of FRS units could completely command any single channel, or indeed ALL available FRS channels, in precisely those operating environments (such as in a crowded amusement park) identified as a type of likely use.

8. Is this likely to happen? Experience by PRSG personnel, and reported by others to PRSG, indicates that the FRS channels are so crowded at certain large amusement parks that there is nearly no channel-plus-selective-calling-code combination not in use during busy periods. With fourteen FRS channels and typically about 36 common selective-calling codes available, this would be more than 500 user or family groups operating simultaneously. Given the many thousands of people in attendance at these large parks, the number of family and other user groups can and does easily exceed the number of channel and code combinations.

9. If individuals within even only a third of those 500 groups were attempting to transmit GPS data, there could be such massive interference as to preclude or at least significantly interfere with voice communications on some or ALL of the available FRS channels. The experience is that it is already difficult to find an available channel-plus-code combination. Oft-repeated data transmissions would exacerbate this problem.

10. In keeping with the FCC's stated intent (in the original rulemaking, WT Docket 95-102) that the OPERATING rules for FRS be kept as simple as possible, the FCC needs to consider modifications to the permissible technical parameters pertaining to non-voice FRS communications. Although the changes proposed below will place certain constraints on FRS data operations, they will BENEFIT the kind of VOICE communications which should have priority in this service.

IV. THE MINIMUM TIME BETWEEN SUBSEQUENT DATA TRANSMISSIONS SHOULD BE

INCREASED.

11. Garmin (and now the FCC, in the NPRM) proposed a ten-second minimum interval between subsequent data transmissions from an FRS unit. These radios are likely to be carried by individual persons, and the movement of these persons within any ten-second interval is likely to be minimal. This is even more true if that person is lost or is consciously using the FRS radio to digitally announce his/her location.

12. In these and other general situations, there is likely to be minimal change in location within ten seconds. PRSG recommends that the minimum-off-time be increased. Given the conditions under which these data transmissions are likely to occur, a minimum-off-time of ONE MINUTE (between subsequent data transmissions) would be more appropriate. Under reasonably foreseeable circumstances, parties transmitting the GPS-based location information are probably going to want to engage in voice transmissions during that interval anyway.

13. Increasing the minimum off-time will have the benefit of reducing interference to co-channel voice communications, especially in those operating environments (such as crowded amusement parks) where there is likely already to be a high demand placed on the limited number of FRS channels available.

V. VOICE COMMUNICATIONS BETWEEN DATA TRANSMISSIONS SHOULD BE REQUIRED.

14. In addition to increasing the minimum off time, any subsequent data transmission should be permitted ONLY if the unit has made a subsequent VOICE transmission. This would encourage the user to attempt to make a voice contact for whatever purpose(s) he/she sent the data communication in the first place. It should also discourage repeated data transmissions merely for recreational or other frivolous purposes. (PRSG has received reports of some users repeatedly sending "calling tones" for the apparent purpose of harassing other co-channel users.)

15. Since (under the proposed rules) any data transmission would have to be initiated by the user, requiring that same user to initiate a voice transmission (merely by pushing another button) would impose no significant additional burden.

16. That proposed requirement should be expanded to require that EACH data transmission must be separately initiated by the user's specific action SINCE the last data transmission. That will prevent an abuse of the timing restrictions by a user "stacking" commands in a queue.

17. Such a "voice between data" requirement would also discourage use of FRS in commercial and industrial environments as a substitute for use of more appropriate communications facilities, thus helping to preserve the intent of the FRS for the intended family and small-group use.

VI. REMOTE POLLING AND AUTOMATIC RECEIPT ACKNOWLEDGEMENT SHOULD CONTINUE TO BE PROHIBITED.

18. Garmin originally requested that "remote polling" be permitted, in which one unit would be able to cause the activation of another unit's transmission of location data. Garmin fails to understand the need for security of these communication. Such a remote polling capability could be substantially abused by pedophiles or others who could take improper or illegal advantage of location information.

19. The current proposal provides no provision for AUTOMATIC "acknowledgement" (ACK) transmissions. PRSG agrees that the FCC should make NO such provision. If such automatic ACK transmissions were permissible, this would further congest the limited number of channels available. The noted absence of an automatic ACK could also create a security problem, since other units could observe this absence and engage in some inappropriate or illegal activity in response (such as offering assistance nefariously intended to take advantage of the lost, confused or injured party's condition).

20. However, in acknowledging the benefit that could come from an ACK, PRSG would support a provision allowing a ACK data burst transmitted as part of a subsequent, manually initiated VOICE transmission.

VII. DATA TRANSMISSIONS SHOULD BE ENABLED ONLY AFTER A PRE-TRANSMISSION DETERMINATION OF CHANNEL OCCUPANCY.

21. The preponderance of FRS "field experience" is that FRS users do not monitor the channel before transmitting, and are usually quite unaware of the presence of pre-existent co-channel communications. This leads many to be totally unaware about the shared-resource nature of the service, and the need for cooperation and sharing in channel selection and use.

22. The users of data-enabled FRS transceivers are likely to be even less aware of pre-existent co-channel communications. Sending location information is merely "a button to press." This suggests the need for an additional measure to prevent data interference to voice communications.

23. The solution would be to require that the data transmission be permitted only after the associated FRS receiver has determined channel availability for some minimum period of time (during which there is no received FRS signal above some minimum threshold). (On many FRS radios, that threshold is internally set and is not normally user adjustable through any conventional "squelch" control.) This "minimum clear-channel" would have to be done in "carrier squelch" (CSQ) mode, in order to verify channel non-occupancy by ANY signal employing ANY selective-calling code.

24. Requirement of an automated "channel availability" determination would benefit other FRS users. This would be an especially important consideration for voice users, who could otherwise become quite outraged at interruption of their on-going voice communications exchange.

25. Implementation of such a minimum-clear-channel time requirement could be entirely user transparent. That is, once the data user has initiated a request for a data transmission, the unit could proceed with the transmission as soon as it detected channel availability (based on the associated receiver CSQ monitoring at the pre-sent threshold).

VIII. THE PERMISSIBLE TRANSMITTED DATA INFORMATION SHOULD PERMIT SOME MANUFACTURER-DETERMINED UNIQUE UNIT IDENTIFIER.

26. As previously mentioned, in some high-density usage environments (such as at crowded amusement parks), there can often be a greater number of family and user groups than there are combinations of FRS channel and selective-calling codes. A unique unit identifier would assist the recipient of a GPS-based location signal to determine if that signal originated from one of his/her associated units, or from some other non-affiliated unit.

27. PRSG anticipates that a unique identification string associated with each GPS-data-enabled FRS unit would be a valuable benefit for users.

28. However, for reasons discussed below, this unique identifier should NOT be user selectable or modifiable. That would likely lead to use of this data-transmission capability for purposes beyond those permitted for FRS non-voice communications.

IX. DATA TRANSMISSIONS MUST BE LIMITED SOLELY TO AUTOMATICALLY GENERATED, GPS-DERIVED LOCATION INFORMATION.

29. The scope of permissible data communications should be narrowly defined explicitly to prohibit user-generated text or signaling. This proposed rule change does NOT look to creating a Short Message Service (SMS) being enabled FRS, and the rule language defining permissible data needs to be more specific. (There are some people who have wanted to argue, for instance, that the existing FRS rules, at 95.193(b), permit packet-type operations so long as the maximum 15-second requirement is observed.)

30. For instance, not intended by this rulemaking (yet not expressly prohibited) would be user-generated text messaging that contained some minimal reference to location: "Meet me at Joe's in an hour." "What are you doing at home tonight?" Etc. Although there are elements of information about location in these messages, the FCC rules must explicitly prohibit this kind of user-generated text messaging.

31. At paragraphs 26 through 28 above, we have identified the ONLY information other than that derived automatically from GPS sensing that should be permitted. To prohibit clever attempts at circumventing these restrictions, the user-identification information should be limited solely to a manufacturer-assigned and user-inaccessible code.

X. ALL DATA-GENERATING COMPONENTS MUST BE STRICTLY INTERNAL TO THE FRS UNIT.

32. To restrict the collection and the generation of the data permissible to be transmitted in FRS, the rules should require that all data-affecting circuitry be solely INTERNAL to the FRS unit, and must not be addressable by any external device or through any external connection or inductive coupling.

33. Without this kind of restriction, the availability of data-enabled FRS units will be an open invitation to their misuse through attachment or coupling of external devices. Although the current FCC Rules (for instance, at 95.194(c)) prohibit the use of such devices and apparatuses, some people circumvent this rule by using the available connection ports. This allows use of external devices that create data packets, that enable FRS repeater functions (in a store-and-forwarding operating mode), and the transmission of music and audio formats otherwise clearly not intended for even if sometimes not outright prohibited in FRS.

34. Along this same line, the FCC Rules should prohibit any available connection ports (such as for an external microphone) to be able to cause anything but a voice-grade modulation of the FRS transmitter. Specifically, the FCC Rules must prohibit the transmission of an F2D emission using any signal source or modulation coupled directly (through physical connection or induction) from a source external to the FRS unit itself. The ONLY permissible F2D emission must be that from the GPS-derived location information, plus (if available) the manufacturer's preset unique identification code.

XI. NO FRS UNIT MAY TRANSMIT AN F2D EMISSION UNLESS THAT UNIT IS CERTIFIED FOR USE WITH A GPS RECEIVER INTERNAL TO THAT UNIT.

35. Merely because F2D emissions are authorized for FRS, no FRS unit should be individually certified for or capable of F2D emissions UNLESS that unit is also certified for operation and actually equipped with an internal GPS receiver.

XII. THESE CHANGES CAN BE IMPLEMENTED IN THE HARDWARE AND SOFTWARE OF FRS UNITS.

36. By the very nature of how a GPS receiver processes signals and calculates its location, combination GPS/voice FRS radios will have an internal Central Processing Unit (CPU). Each of the changes discussed above can be implemented readily by and directly into that CPU, in the software itself. Thus the burden of additional complicated user-based rules is avoided, and the actual operating rules (as per the FCC's intent of creating simple operating rules) is met.

37. The burden of implementing these changes rests instead on the manufacturer to include certain software commands and restrictions, conditions for which there would already likely be provisions for control within the software and the CPU itself.

38. However, an additional CPU-programming-related constraint also deserves consideration. The rules should expressly prohibit the capability of reprogramming the CPU from any external source, either through direct or inductive coupling. Without such a specific prohibition, there WILL be people who will attempt to reprogram the CPU functions, or to enable other impermissible data transmissions, through the use of direct or inductively coupled signals.

XIII. OTHER PROCEDURAL MATTERS.

39. PRSG authorizes parties replying to these COMMENTS to submit them to us by E-mail at: prsg@provide.net

40. However, all other requirements of the applicable FCC Regulations (including full personal identification and an accurate current mailing address) must still be provided.

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February 13, 2002

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