

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

In the Matter of)	WT Docket No. 10-119
)	
Review of the Commission's Part 95)	
Personal Radio Services Rules)	
)	WT Docket No. 98-182
1998 Biennial Regulatory Review – 47)	RM-9222
C.F.R. Part 90 – Private Land Mobile)	
Radio Services)	
)	
Petition for Rulemaking of Garmin)	RM-10762
International, Inc.)	

COMMENT ON PROPOSED RULE MAKING

My name is Joe Leikhim. I am a public safety communications consultant with over 30 years experience in the land mobile communications field. My company, Leikhim and Associates, is based in the Orlando metropolitan area in Florida but we do business all over the country, mostly with public safety agencies. I hold an FCC GROL certification, a FCC Amateur Radio License (K4SAT), a FCC GMRS license (WPXM352), and DHS/FEMA Incident Command System certifications. I am also a member of ARRL, AMSAT, APCO and IEEE.

While I laud the FCC's work to simplify and streamline the PRS rules, after reading the proposed rule changes to the Personal Radio Service I have several concerns regarding some of the proposed changes,¹ some of which I believe will have a detrimental effect on the character and continuing usefulness of the GMRS service.

It is my opinion that little is broken with respect to the current GMRS service and that some of the changes proposed will have the unfortunate result of creating a GMRS service which will be greatly reduced in potential and functionally indistinct from FRS. Additionally, the existing GMRS rules have not created any major problems of interpretation or practice.

Both GMRS and FRS are important in providing a communications resource in times of emergency and for Search and Rescue (S&R) operations. The Civil Air Patrol (CAP) revised their longstanding prohibition on use of FRS when, on June 27, 2003 using a borrowed FRS radio, they were able to communicate and locate 12 lost hikers trapped deep in a Colorado canyon². In a 2006 case, the FRS assisted recovery of a lost hiker was reported by a New Mexico Search and Rescue team³. In 2000, two youngsters playing with FRS radios received an SOS call from three injured mountain climbers 80 miles away and assisted in their recovery⁴.

¹ Proposed Rules Appendix B

² AF/CAP Reconsiders role of FRS radios: <http://orwg.uscap.us/Pubs/ISRFRExcerpt.PDF>

³ New Mexico Search & Rescue Council mission 06-07-20

<http://www.nmesc.org/missions/missions2006.html>

⁴ Youngsters hailed in radio rescue <http://www.arrl.org/arrlletter?issue=2000-06-30#youngsters>

These examples describe FRS and GMRS capabilities to share frequencies and interoperate with each other to the extent of their respective performance and legal constraints, and to provide communications in remote areas where commercial communication carriers are unavailable or unreliable. Additionally, natural disasters such as hurricane Katrina⁵ and terrorist attacks such as 9/11 can create sustained commercial communications difficulties even in populated areas, and FRS and GMRS radios have and continue to fill a need in all of these situations⁶. They both provide inexpensive and reliable communications capability on a local and neighborhood level to families and citizens during times of emergency⁷.

For licensed operators, the GMRS service provides higher power radios, repeater capability and a resulting wider scope of coverage than FRS. With an estimated 360 active stations in the U.S.⁸, GMRS is used by a large number of volunteer citizen organizations to provide emergency services in times of need, serving rural areas as well as major population centers. The two services, while different in power capabilities, complement each other and these attributes must be preserved.

III -A-3 Power Limits Paragraph # 15:

The proposal to specify GMRS output power in terms of ERP or EIRP is overly restrictive in that it will require integrated antennas on transmitters. This is not only incompatible with many types of products currently available but it will also curtail the ability to attach a mobile antenna to a portable radio—a must during S&R operations. ERP power restrictions that force the requirement of integrated antennas for all types of equipment will create a situation where vehicular mounted mobile type radios and fixed repeater stations become impractical.

This change will also have the effect of preventing the use of commercial radio equipment with dual Part 90 and 95 certification, thus limiting the types and quality⁹ of equipment available for users.

Since, there has been no evidence of the existing rules creating a problem it is recommended that this proposal not be considered.

⁵ Katrina outages reveal phone system quirks: <http://www.msnbc.msn.com/id/9120503/>

⁶ While the Amateur Radio Service (ARS) offers similar capabilities in the VHF and UHF bands, the distinction is that FRS and GMRS operation is available to all eligible users without a technical test. These services are of great utility to the majority of the population.

⁷ “Can’t use your wireless telephone?” <http://www.fcc.gov/cgb/consumerfacts/prs.pdf>

⁸ Due to present licensing methodology, actual numbers are not known. www.myGMRS.COM

⁹ Currently, GMRS operators have the choice of commercial grade equipment having excellent published transmitter and receiver specifications and low cost “bubble pack” radios which have nebulous performance characteristics such as “16 miles”, and which are lacking important features such as repeater operation, replaceable antenna and rechargeable high capacity battery packs.

III – A -5 Voice Scrambling Paragraphs # 19 and 20:

While Voice Scrambling should continue to be prohibited in the FRS, GMRS and CB services, an exception to the “plain language” requirement should be considered for the adoption of a future digital narrowband standard for GMRS. APCO Project 25 CAI (Phase 1) should be adopted as an option with the understanding that scrambling or encryption continues to be prohibited.

III –A- 6 Crystal Control Paragraphs # 21 and 22:

The absence of a requirement for temperature compensated quartz crystal (TCXO) control of FRS radios opens the possibility for poor design, gross frequency drift, and subsequent interference to adjacent channels of GMRS or Part 90 users. Furthermore, the quartz crystal frequency reference has proven to be a cost effective solution for hand held and mobile radios, with the only possible exception being fixed stations such as repeaters, which could potentially extract a better reference from a network standard or GPS disciplined frequency reference.

While TCXO should be specifically required for FRS and GMRS equipment, the rules should also provide for the option of an externally derived network standard or GPS disciplined frequency reference meeting or exceeding the frequency stability specified in the rules.

III –B-1 Station Licensing Paragraphs 25, 26, 27 and 28:

The proposal to license GMRS “by rule” instead of the current requirement of certification of eligibility of an individual licensee will create problems in the management of repeater use and coordination of frequencies, since the elimination of licenses and associated call signs will inhibit the ability for repeater operators to self-police and coordinate their repeaters.

GMRS licensees, who construct and operate repeater stations, do so at significant personal effort and expense. Licensed GMRS repeater operators are ultimately responsible for the content of the communications as well as the technical compliance of the repeater and, as records show, the FCC has had few if any enforcement actions¹⁰ on individual GMRS operators, proving that the current self-policing methodology has been very effective.

License by rule will also create abuse and channel congestion because ineligible business users who will no longer be restricted from obtaining a license, will obtain and operate high power GMRS equipment to the detriment of eligible individuals. These ineligible users will do so without fear of FCC enforcement action.

¹⁰ A review of the online FCC enforcement reports reveals only two instances of GMRS licensees being subject to enforcement actions. In both cases, the cited activities were unrelated to GMRS operation.

A major reason cited by the Commission to “license by rule” is the known unlicensed proliferation and use of FRS/GMRS combination radios, an unintended consequence of technology. However, the real issue is that most consumers are reluctant to spend \$85 to license a pair of radios purchased for \$45 and extending the period to 10 years alone will not overcome this non-compliance issue. Instead, a more sensible approach would be the following no-cost instant licensing procedure:

1. Extend licensing period to 10 years, which would cover the expected lifetime of consumer and commercial grade equipment.
2. Issue the license at no cost¹¹ to eligible individuals via simplified FCC web portal¹² and alternative postcard application and certification processes.
3. Require manufacturers to include FCC application website information and post-paid postcard with each radio package.
4. Require manufacturers to include highlighted requirements for eligibility for FCC licensing on the exterior of each retail package and provide instructions for an instant temporary call sign in the format. Example: Use the letters ‘WT’ plus your residence telephone number¹³.

Eliminating the cost issue and streamlining the licensing process will also solve the licensing issue for non-profit volunteer public service agencies whose members cannot afford a license.

III-B-2 Eligibility Paragraphs # 29 and 30:

Minimum Age

The reduction of eligibility age limits is an excellent idea, as it will help educate younger users on FCC compliance and may help reduce abuse. A minimum age of 12 years would be suitable, as the service is not meant to be a hobby or toy.

Prohibition of Business Use

Removing the existing prohibition of business use of GMRS devices is a bad idea, as the experience with FRS shows. It produced the unintended adoption of FRS for on-site communications by many corporations who are otherwise eligible and positioned financially to utilize Part 90 services. Permitting business use of GMRS can only lead to construction of wide area closed repeaters to the detriment of use by individuals and their families. There should continue to be a prohibition on business use.

¹¹ Regulatory fees associated with GMRS anticipated for 2010 represent less than 1/10 of one percent of the total FY2010 Revenue Requirement, thus the impact is negligible.

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-10-51A1.pdf

¹² An FRN number can be prompted for and if none exists, be issued automatically during licensing process.

¹³ This format presently exists: <http://www.fcc.gov/Forms/Form605/605f.pdf>

First Responder Interoperability with Citizens

Eligibility should include First Responder public safety (PS) agencies use of GMRS and FRS on a secondary basis for coordination and interoperation with the public. Agencies should include GMRS and FRS in their mutual aid plan for use by First Responders.

Although Part 90 frequencies should always be used for their primary mission, the rules should specifically authorize PS secondary use of GMRS and FRS for direct interoperation with the public for Neighborhood Watch and Search & Rescue missions, but individuals would continue to be primary users of the channels for simplex and repeater operations.

Additionally, many public safety and newsgathering aircraft contain UHF radios, which can be directly programmed to GMRS and FRS frequencies¹⁴. Such aircraft, if monitoring FRS channel 1 under a proposal by National SOS¹⁵, could easily save hours and lives when searching for lost hikers. The revised rules should encourage such operational protocols and as well, grandfather Part 90 equipment for GMRS use.

III-B-3 GMRS Portable Devices Paragraphs # 31, 32, 33, 34 and 35:GMRS Specific Absorption Rate (SAR) Testing and ERP limitations:

SAR exposure requirements or ERP restrictions should not be imposed on GMRS stations. GMRS stations should remain excluded from this requirement, since there has been no evidence of the existing rules creating a problem and subjecting GMRS to SAR exposure limitations will result in overly restrictive designs that will reduce overall performance of portable radios and will make mobile and fixed radios impractical.

Typically, GMRS stations operate under similar conditions as Amateur Radio 70 CM FM operations. ARS rules requiring routine RF environmental evaluation¹⁶ set the power threshold for such self-evaluation at 70 watts, which is greater than the 50-watt limit for GMRS stations. Mandating an SAR restriction on GMRS would be overly restrictive, add additional cost, reduce performance, and restrict equipment options.

GMRS portable and vehicular mounted mobile radios generally operate at up to 5 and 50 watts (transmitter output power) respectively. Radios operating at these limits are generally very similar to if not exactly like UHF Part 90 radios¹⁷. Such radios operate on a push to talk (PTT) basis and have duty cycles, which are quite low. Indeed, there has been no demonstrated health hazard from the historic use of these devices.

Restricting portable devices to 2 watts effective radiated power (ERP) implies that an integral antenna will be required. While this may be a requirement for a FRS/GMRS

¹⁴ Technisonics TFM-403 <http://til.ca/content.php?page=tfm-403>

¹⁵ <http://www.nationalsos.com/>

¹⁶ See CFR47 97.13 (1) Restrictions on station location.

¹⁷ Many commercially available Part 90 radios are also type accepted for Part 95 or 95A GMRS operation.

combo radio to meet maximum ERP restriction on FRS channels, it should not be a requirement for GMRS portables that do not contain FRS channels.

Commercial grade GMRS portable radios typically have a removable antenna for convenience of temporarily attaching a mobile antenna for greater range as might be required for Search & Rescue operations, or for replacement as part of maintenance. Vehicular mounted mobile radios are usually installed by a professional or persons having technical expertise. Commercial portable and mobile radios generally include a safety warning describing the correct method of operation and for mobiles, the installation and placement of the radio and antenna with respect to passengers.

Finally, Fixed, Base, and Repeater stations antennas are generally installed at elevated heights, further minimizing human exposure.

GMRS rules currently allow for use of commercial grade equipment that are more rugged and have better transmitter and receiver performance specifications than those of consumer grade “bubble pack” GMRS radios. The proposed restrictions will prohibit the use of commercial grade radios by operators.

General safety warnings and instructions in the radio instruction manual—as is typical of Part 90 equipment—should be the extent of any action on this issue, and no restrictions of SAR or restrictions on ERP should be made.

ERP limitations for coordination:

The existing 50-watt output power limitation should be retained and not be reduced as proposed. The current methods of coordination¹⁸ have sufficed and there have not been any issues of interference or frequency congestion in most areas. The most prevalent complaint from users is regarding business use of GMRS by unlicensed stations. Reduction of power should be left up to users when self coordinating, as is currently the rule. There has been no evidence of the existing rules creating a problem.

Repeater Operations:

Repeater and base station operations in GMRS should not be discontinued, since there has been no evidence of the existing rules creating a problem.

UHF radio communications are largely limited to “line of site” due to obstructions, which attenuate the signal, or at best extend to the local horizon. A repeater provides a relay point to overcome these limitations. A repeater's antenna is installed well above the local obstructions and thus reduces the attenuation and extends the apparent horizon.

¹⁸ 95.7 (b) Channel sharing. The commission may impose limits on ERP, height or period of operations to resolve disputes. A search of the FCC website by this respondent yielded no instances where FCC had imposed such limits on a GMRS station.

The argument that “most wide-area personal communications needs are now met by commercial communications providers” is weak and flawed, since it is well known that vast areas of the US and territories are not provided with sufficient commercial coverage¹⁹. Moreover, commercial carriers are subject to congestion and failure during times of crisis²⁰; and even if commercial carriers provided nationwide seamless and fully reliable coverage, few offer a multi-user push to talk (PTT) dispatch capability equivalent to that available from a GMRS repeater²¹.

Finally, if repeater operations were prohibited, what would happen to the hundreds of existing repeater systems that now exist? Could comparable facilities even be provided?

GMRS repeaters provide an essential communications link during periods of emergency and fulfill an emergency network need, and as such, they should remain a vital component of the GMRS service.

Small Base Stations

The Commission’s proposal to change the power limitation definition of small base stations from 5 watts ERP to 5 watts transmitter output should be implemented. However, consistent with previous recommendations against ERP restrictions for all other classes of GMRS stations, the choice of antenna should be left up to the operator as a means to provide the most efficient communications path.

III-B-4 Narrowbanding GMRS Channels Paragraphs # 36 and 37:

While narrowbanding is a mandate for Part 90 operations, it should not be a mandate for GMRS: GMRS and FRS channels are currently allocated on 12.5 KHz channel centers and FRS is narrowband²², so further narrowbanding of GMRS will not yield additional channels for GMRS or FRS.

Utilization of the “interstitial” channels in the 467 MHz band for GMRS repeater inputs will potentially create interference problems for such repeaters from existing FRS operations and from GMRS mobiles stations to FRS receivers. The use of these channels for repeaters would be sensible only at such time when the original eight pairs are exhausted.

Mandating narrowbanding will reduce the interoperability capabilities between licensees. Instead, it should be an option available to GMRS operators to reduce FRS-GMRS

¹⁹ Cell Phone Coverage holes hurt public safety http://news.cnet.com/Cell-phone-coverage-holes-hurt-public-safety/2100-1039_3-6143866.html

²⁰ Katrina outages reveal phone system quirks: <http://www.msnbc.msn.com/id/9120503/>

²¹ Unlike most cellular or PCS services, a communication channel can exist amongst many GMRS users at same time. GMRS radios can operate in either a simplex mode or through a simple repeater. In emergencies, no infrastructure is required for simplex GMRS communications to occur. Where needed, a repeater provides coverage well beyond the horizon.

²² FRS radios already are narrowband as they operate on 12.5 KHz interstitial channels at reduced deviation.

adjacent channel interference if required, or at such time when the market limits the availability of wideband equipment.

Furthermore, while narrowbanding of analog GMRS using analog technology will result in a 3 dB reduction of coverage (worse if NB and WB are mixed), using digital technology instead would result in a 6 dB improvement²³. For this reason, I strongly feel that, in the interest of future digital capabilities, the best solution to provide a narrowband standard for GMRS is to adopt the APCO Project 25 CAI (Phase 1) as an optional mode of operation, with the understanding that scrambling or encryption continues to be prohibited.

III-B-6 Garmin International, Inc. Petition for Rulemaking Paragraphs # 39, 40, 41 and 42:

With reservation, I support the Garmin International, Inc. proposal in principle²⁴. At issue is that the available products are proprietary and function only with other Garmin units, therefore any benefit provided by higher power GMRS radios would benefit users of Garmin radios only. There would be limited interoperability benefit of opening the 462 MHz GMRS channels for this use. If this feature were an open architecture such as APRS²⁵, there might be wider benefit despite the potential for interference. I encourage the Commission to make interoperability between vendor equipment an important aspect of FRS and GMRS services, for this reason, I suggest that this item be studied further.

III-C-1 Paragraphs # 45, 46 and 47 Combination Radios:

As noted in III-B-1 above, the problem of unlicensed GMRS operations by users of FRS/GMRS combo radios can be mediated through a no-cost instant licensing procedure.

FRS/VHF Marine radios only pose an eligibility issue if the user is ineligible to operate a VHF marine radio (FCC Part 80). In a typical scenario, a captain might obtain an FRS/VHF combo and provide inexpensive FRS radios to family members. It can be argued that such an arrangement would actually minimize unauthorized and unnecessary use of VHF marine channels²⁶.

²³ See chart "Impact on Radio System Performance" <http://www.leikhim.com/page13.php>

²⁴ Garmin Petition at 1 (citing *FRS GPS R&O*). Specifically, Garmin recommends amending the GMRS rules to provide that transmission of GPS location data be limited to GMRS mobile units that have integrated (*i.e.*, nondetachable) antennas and be limited to an authorized bandwidth of no more than 12.5 kHz. Garmin also proposes that GMRS mobile unit may transmit digital data (1) containing location information, (2) requesting location information from one or more GMRS units, or (3) containing a brief text message to another specific GMRS unit. Garmin also recommends that digital data transmissions (1) must be initiated by a manual action or command by the user, except that a GMRS unit receiving an interrogation request may automatically respond with its location; (2) not exceed one second; and (3) generally be limited to no more than one digital transmission within a thirty-second period, except that a GMRS unit may automatically respond to more than one interrogation request received within a thirty-second period. *Id.* at 4; Garmin Reply Comments at 2-10.

²⁵ Automatic Position Reporting System <http://www.aprs.net/>

²⁶ As an example, a West Marine VHF250 radio, including FRS capability, is on sale at \$170, which is significantly higher in cost than a typical FRS radio, a pair of which can be obtained for \$30 at some chains. Furthermore, if one is bent on abusing VHF marine channels, a new VHF handheld or 25 watt fixed mount radio can be obtained for \$99 at many locations.

With respect to combo radios, which include GMRS with frequencies in Part 90, as both are licensed services, eligibility is not an issue. Many commercial grade Part 90 radios are type accepted for Part 95/95A GMRS as well as other services. These are combination radios by definition and in absence of any record of abuse; such products should not be prohibited.

Moreover, Public Safety users operating under Part 90 are seeking multi-band and software-defined radios, which by design will likely encompass the FRS/GMRS frequency bands. The valuable utility of such radios to listen for and respond to a lost citizen during an S&R mission cannot be ignored.

I support combo radios that comply with the technical requirements of their respective services and I also support grandfathering Part 90 equipment that complies with technical requirements pertaining to Part 95/95A GMRS operation.

I applaud the Commission's request for public input and comments before adopting the new rules and I hope these comments will be taken into consideration before a final decision is made.

Respectfully yours,

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President

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