

Then there's FRS for the rest

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As some of you may know there is a popular new two-way radio band called FRS. FRS means Family Radio Service. FRS was originally set up by the FCC (Federal Communications Commission) to accommodate Families or non-profit groups with non-licensed, low power, short distance communications. The FCC set aside 14 channels to be used for this purpose. Frequencies allocated are in the 462 & 467 Megahertz area, referred to as the "UHF" band. The use of low power of 500milliwatts (1/2 a watt) maximum is required so as to not interfere with other services.

To assist in the multiple user aspect and to give a little more privacy manufactures added 38 sub-audible tones sometimes referred to as PL (Private Line tones) the abbreviation coined by Motorola. The PL tone idea is known officially as CTCSS (Continuous Tone Coded Squelch System). This gives you 532 possible combinations of frequency and tone. "532 combinations" is the marketing version. Of course, we know that 14 frequencies are limited to 14 simultaneous conversations maximum. FRS users are supposed to look at the radio display before transmitting to make sure the frequency is clear. Some manufacturers went as far as to include an encryption scheme to give added privacy. The operating frequencies are nestled in with the "GMRS" (General Mobile Radio Service) which is licensed, and higher power, for greater area coverage of mobile applications.

To be type accepted in FRS, radios must have non-detachable antennas. This restriction also helps increase the shareability of the 14 frequencies by further controlling the effective radiated power of the transmitter. One user cannot monopolize an FRS channel by replacing the "rubber ducky" antenna with a gain antenna. Most manufacturers, and a general consensus in the industry, indicate that the average useful range should be around 2 miles. Of course that has to take into account terrain and obstacles. An example is on a desert or open body of water the range may be increased. But in the inner city or areas with lots of obstacles that may be decreased.

A purchaser of these "FRS" radios must carefully read the literature accompanying the product to be aware that the radios contain the features, as I will explain. The tones and encryption are valuable features because as the market gets flooded with these, and use increases you will have more versatility (532) possibilities, plus encryption to get a little more privacy. Encryption is a form of scrambling the voice to give added privacy. A big reason to want these features would be not having to listen to other conversations, and knowing that if you hear something, it may pertain to your family or group.

An important consideration is to purchase a style that it is compatible with the ones you already own. That way you will be able to stock common batteries, PL tones or encryption will be compatible and maybe even choice of one color for ease of identification. Purchase of different models does not mean that yours will not be able to communicate with others on the common channels, just that you may not have the use of privacy features. Units are available with anywhere from 1 to 14 channels. While the PL tones themselves will be compatible, the way the tones are identified in the display and the buttons you must press to set them may differ. Never underestimate the benefit of knowing how to tell someone over the air what buttons to push and what to look for on the display!

Typical uses for this form of communications may be hunting, fishing, hiking, parades, neighbor to neighbor or house to tree house, snowmobile, sporting events, and many other uses. Important: You are not the only one using these radios, everyone has the right to use these frequencies, courtesy is very important. DO UNTO OTHERS... Emergencies as with all communications take priority!

FRS Channel Number vs. Frequency in MHz

1=462.5625, 2=462.5875, 3=462.6125, 4=462.6375, 5=462.6625, 6=462.6875, 7=462.7125,
8=467.5625, 9=467.5875, 10=467.6125, 11=467.6375, 12=467.6625, 13=467.6875, 14=467.7125

There are at least two proposals for “calling channels” in FRS. REACT is suggesting that channel 1 NO TONE be used as a calling channel. Another proposal has suggested channel 1 as a general calling channel and channel 9 as an emergency channel. One problem with this second proposal is that older FRS radios may have fewer than 9 channels.

The good thing about this is that when hiking, or other activities for instance, National, and State Park Rangers could monitor it for your safety.

Channel 1 is an offset of the output of a GMRS Repeater frequency.
It is not legal for a licensed GMRS operator to communicate with an FRS user.
The exception is a strict emergency. Each having to follow the rules of that service. ie. FRS 1/2watt no external antenna etc. The GMRS would use repeater output (simplex) only. As always using the least amount of power to establish communications.

Care should be taken when seeing ads for FRS+ or (plus) these are GMRS not FRS.
This is a poor marketing strategy which leads the consumer to believe that operation by un-licensed persons is O.K. if you read the fine print somewhere in that ad it will tell you “license is required.”

LET THE BUYER BEWARE!

Eventually if consensus develops around one of these calling channel proposals, we may see manufacturers add an ‘emergency channel’ button and monitor or priority scan feature to these simple radios.

I hope this information gives you a little insight and may help you with your decision. If greater distance is a necessity, other communications services may be more practical such as GMRS (license required), Commercial two-way radio (license required), Ham Radio (license required www.arrl.org), or simply a CELL Phone (no license required). License information may be obtained at www.fcc.org

This is excerpted and charted from

TITLE 47--TELECOMMUNICATION
PART 95 PERSONAL RADIO SERVICES
Subpart A--General Mobile Radio Service (GMRS)
Sec. 95.29 Channels available.

GMRS system Channels Repeater T/R	GMRS system Channels Base-Portable- mobile T/R	Interstitial channels simplex 5 watts ERP	Family Radio Service(FRS) Channel/Freq	Family Radio Service(FRS) Channel/Freq
462.5500/+5.0	467.5500/-5.0	462.5625	*1 =462.5625	8=467.5625
462.5750/+5.0	467.5750/-5.0	462.5875	*2 =462.5875	9=467.5875
462.6000/+5.0	467.6000/-5.0	462.6125	*3 =462.6125	10=467.6125
462.6250/+5.0	467.6250/-5.0	462,6375	*4 =462,6375	11=467.6375

462.6500/+5.0	467.6500/-5.0	462.6625	*5 =462.6625	12=467.6625
462.6750/+5.0	467.6750/-5.0	462.6875	*6 =462.6875	13=467.6875
462.7000/+5.0	467.7000/-5.0	462.7125	*7 =462.7125	14=467.7125
462.7250/+5.0	467.7250/-5.0			

- *shared with Interstitial (GMRS licensed) channels simplex 5 watts ERP.
- **(FRS)** Un-licensed, Non-removable, Non-gain antenna, simplex, and
- 500 milliwatts of power.

GMRS Licensed, Duplex operation, 50 watts max gain antenna permissible