



FRS and GMRS Radio Guide  
By John Spooner, 02/02/04

## The Scoop on FRS & GMRS 2-Way Radios

### These ain't your father's walkie-talkies

OK, so your father never even had a walkie-talkie. And the only folks who did were your rich, spoiled cousin and the obnoxious neighbor kid who always had everything. Remember how their walkie-talkies didn't work much better than a couple of tin cans tied together with a string? Nevertheless you gotta admit, that even in spite of the anemic range and transmission quality of early walkie-talkies, they really were kinda' cool... inspiring fantasies, such as covert spy missions in the neighborhood, relentless games of capture the flag and radioing home from the park to have Mom make lunch. Well, like so many other wireless electronic items, 2-way radios have grown up, into handy high-tech communications devices that have inspired new and practical applications.

### I read you loud and clear

These days FRS and GMRS radios are compact, quality transceivers that transmit and receive over greater distances and with superior clarity to "first-gen" walkie-talkies. They operate on UHF radio frequencies which are much less prone to the static and interference that plague CB (citizens band) radios. What that means in practical terms is a whole new range (no pun intended) of potential uses that just might justify putting an FRS or GMRS 2-way radio or two on your "must-have" electronics list.

### FRS and GMRS radios uses:

FRS and GMRS 2-way radios are a great way to keep in constant touch with members of your party, whether on an outdoor adventure, vacation, road trip or at a crowded shopping mall or amusement park. With the ability to talk, hear and ring other radios within range, they're a lot like having a short-range cell phone — except without the usage fees and contracts. FRS and GMRS radios can also be used like a wireless intercom in and around the home to call someone out in the yard or on the far side of the house. In short, 2-way radio uses are as nearly varied as the people who use them. Listed below are some of the more popular and practical uses:

- **Camping** – to radio critical messages to base camp: "Yes, make mine medium-rare, with the steak sauce on the side."
- **Boating** – to seize the day: "10-4, we're on the south shore... and don't forget the gas."
- **Hiking** – to stay ahead of the game: "Hey, did you say *left* or *right* to avoid the bears?"
- **Fishing** – to hoard the best fishing hole: "Nope, nothin' bitin' over here either... Over."

- **Hunting** – to talk between the blinds: "So which weekend did you say the ducks *usually* fly?"
- **Vacationing** – to rally the troops: "Anybody who wants pizza, meet us down by the pool."
- **Skiing or snowboarding** – to never say die: "Who's game for one more run?"
- **Snowmobiling** – to stay high and dry: "Heads up, gang... we got open water dead ahead."
- **Shopping malls** – to relay a reminder: "Johnny, get back over here this minute or you're grounded for life!"
- **At the amusement park** – to canvas the grounds: "I have a mouse sighting. Repeat, I have Mickey in sight. Head to the Magic Kingdom."
- **At ballparks and arenas** – to arrange an accompaniment: "I *did* say you can see perfectly from home plate... but *our* seats are in the right-field bleachers... just walk straight toward the foul pole."
- **For yard games and scavenger hunts** – to procure the essentials: "I've got the fuzzy dice and you've got the sombrero. So that just leaves the turkey baster and the diaper pins. 10-4?"
- **On road trips** – to advocate staying the course: "No we *don't* need to stop for directions! Just follow me... I know *exactly* where I'm going!"

#### **The advantages of FRS and GMRS radios over CB radios or cell phones:**

- No charge for airtime
- No monthly contracts
- No per-call charges
- Less static and interference than CB radios
- Lighter and more compact than CB radios
- Easy to operate

#### **The differences between FRS and GMRS radios:**

##### **FRS:**

FRS or Family Radios Service radios are compact, handheld, wireless 2-way radios that provide very good clarity over a relatively short range. FRS radios operate on any of 14 dedicated channels (1-14) designated by the FCC (Federal Communications Commission) expressly for FRS radio usage. In order to comply with FCC standards, FRS radios have a maximum allowable power of 0.5 milliwatts (or 1/2 watt). FRS radio transceivers and their antennas may not be modified to extend their range.

##### **FRS radio distinctions:**

- 1) Unlike with CB (citizens band) radios and most other 2-way radios, there is no license required to use an FRS radio.
- 2) There are no fees for usage, airtime or per-call charges. (Aside from the cost of batteries, they are virtually free to use.)

## **GMRS:**

**GMRS or General Mobile Radio Service** radios operate on any of up to 8 dedicated channels (15-22) designated by the FCC. GMRS radios typically have power ratings of 1.0 to 5.0 watts and have a maximum allowable power of 50 watts.

### **GMRS radios are very similar to FRS radios, except for a few important distinctions:**

- 1) GMRS radio use requires you to purchase an FCC operator's license.
- 2) GMRS radios generally achieve greater ranges than FRS radios.
- 3) While FRS radios may not legally be altered, GMRS radios may legally be outfitted or retrofitted with optional antennas, car antennas or home antennas to extend their range. For more information, please visit the FCC online at FCC.gov. **Note:** *Some GMRS radios (those with non-detachable antennas) will not accommodate antenna alterations. If you intend to alter your GMRS radio, please take care to choose a radio with a detachable-style antenna that accommodates your needs.*

### **FRS/GMRS dual-service or "hybrid" radios:**

FRS/GMRS 2-way radios are simply dual-service, or "hybrid," radios that provide access to both the FRS and GMRS bands, utilizing FRS channels (1-14) and GMRS channels (15-22). Use of a dual-service radio's GMRS bands requires an FCC operator's license. Dual-service radios may be used without an operator's license, if only the FRS channels are used.

### **Operating range of FRS and GMRS radios:**

#### **FRS radio range:**

Generally stated as "up to 2 miles," you should note that this manufacturer's stated range should be construed as the absolute max, to be achieved only under optimal conditions (such as flat terrain, no obstructions and full batteries). Somewhere in the 1/4 to 1 mile range, depending upon conditions, is much more realistic.

#### **GMRS radio range:**

GMRS radios typically achieve greater ranges than FRS radios. GMRS range is generally specified by manufacturers as "up to 5 miles" and occasionally slightly more. Again, this is a maximum range, likely achieved only under optimal conditions. Realistic range for GMRS radios under most conditions is more likely 1-2 miles, depending upon the particular conditions.

#### **FRS/GMRS dual-service radio range:**

Ranges of FRS/GMRS dual-service radios are essentially the same as those stated above, for each of their respective bands.

### **Can I communicate with any other FRS/GMRS radio within range?**

Yes, you can communicate with any other FRS or GMRS radio within range, regardless

of make and model, provided you're on the same band and channel. Essentially this means that when within range, any FRS radio can communicate with any other FRS radio, any GMRS radio can communicate with any other GMRS radio, and any FRS/GMRS hybrid can communicate with either variety.

### **The lowdown on "privacy codes":**

Privacy codes are a nice feature to have because they effectively expand the number of channels you can use by adding 38 CTCSS (Continuous Tone Coded Squelch System) codes. For example, in the case of FRS radios, instead of having just 14 channels from which to choose, with these sub-channels you are effectively provided with 14 x 38 CTCSS codes, or 532 available channels. This makes it much easier to find a free channel in crowded areas such as stadiums, amusement parks or shopping malls. The term "privacy code," however, is a bit misleading because choosing a given code does not block or scramble that channel or in any way prevent others from listening in.

### **What other features should I look for?**

FRS and GMRS radios have evolved to include many more functions than when they first hit the market. In addition to the FRS/GMRS dual-service functionality already mentioned, these radios may also include a GPS (Global Positioning Satellite) receiver, FM radio or weather-band radio. Of course, incorporating an entire additional technology, such as GPS, into the unit ups the price substantially, but may still represent a cost savings and convenience versus the alternative of purchasing both a GPS receiver and a GMRS or FRS radio. The bottom line is: It's really up to you which features you need and are willing to put a bit more for. That said, the list below provides an insight into some of the more popular features you may want to look for:

- **Backlight** — an indispensable feature for nighttime or low-light use
- **Adjustable squelch** — most radios have automatic squelching which is designed to filter out static and interference
- **VOX system** — voice activation system automatically puts radio in transmit mode when the radio detects noise, facilitating hands-free operation when used with an optional headset
- **Ringer** — an audible tone indicating an incoming call from a member of your party
- **Silent vibrating ringer** — causes the radio to vibrate rather than ring, to indicate an incoming call
- **Auto scan** — automatically scans all available channels for signals
- **Selectable power level** — allows you to choose high power for longer range or low power to extend battery life on shorter range transmissions
- **Out-of-range alert** — Indicates when someone in your party has moved out of range
- **Keypad lock** — A handy feature for outdoor use, this prevents changing settings, such as channel selected, should you inadvertently bump the keypad
- **Battery indicator** — Provides an indication of how much transmitting power is left and when batteries need replacement

- **Battery type** — FRS and GMRS radios may use AA or AAA batteries. Many models also use NiMH rechargeable batteries and may include a battery pack and charger

### **Do I need to buy a license to use my 2-way radio?**

#### **FRS radios do not require a license to use:**

*"If you operate a radio that has been approved exclusively under the rules that apply to FRS, you are not required to have a license. FRS radios have a maximum power of 1/2 watt (500 milliwatt) effective radiated power and integral (non-detachable) antennas."\**

#### **GMRS radios require a license to use:**

*"If you operate a radio under the rules that apply to GMRS, you must have a GMRS license. GMRS radios generally transmit at higher power levels (1 to 5 watts is typical) and may have detachable antennas."\**

#### **FRS/GMRS dual-band radios require a license if you use the GMRS channels:**

*"If you operate a (dual-band) radio under the rules that apply to GMRS, you must have a GMRS license."\**

#### **How much does a GMRS license cost?**

*"The FCC grants 5-year renewable licenses for GMRS Systems. The current fee for a new GMRS license is \$75."\** **Note:** The amount stated above is the GMRS license fee at the time of the writing of this article. However, we recommend that you check with the FCC at: <http://wireless.fcc.gov/services/personal/generalmobile/> to verify current fees.

#### **You can obtain your GMRS license or additional information from the FCC:**

To purchase your GMRS operator's license or to obtain more information, you can access the FCC (Federal Communications Commission) online at [FCC.gov](http://FCC.gov) or by phone at 1-888-CALL-FCC or 1-877-480-3201. Or you may e-mail the FCC for licensing help at: [ulshelp@fcc.gov](mailto:ulshelp@fcc.gov)

#### **Roger that... your family members may share in the use of your GMRS license:**

*"The General Mobile Radio Service (GMRS) is a land-mobile radio service available for short-distance two-way communications to facilitate the activities of an adult individual and his or her immediate family members, including a spouse, children, parents, grandparents, aunts, uncles, nephews, nieces, and in-laws (47 CFR 95.179). Normally, as a GMRS system licensee, you and your family members would communicate among yourselves over the general area of your residence or during recreational group outings, such as camping or hiking."\**

#### **Over and out...**

As you can see, there are a wide variety of fun and practical uses for FRS and GMRS radios. And, we've got a broad selection of these slick 2-way communications devices at

a variety of prices to suit your budget. So, c'mon in and browse through our [FRS and GMRS selection](#) here at BestBuy.com.