

Pine Strawberry Neighborhood Radio Watch

An Introduction to General Mobile Radio Service (GMRS)

What is GMRS

General Mobile Radio Service is a low power method of communicating by 2-way radio. The radios are reasonably inexpensive and very easy to use as they are channel based and only require a purchased license, similar to a fishing license, to be used legally. A license for an entire family cost just \$35 and is good for 10 years.

Why use GMRS

The FCC allows GMRS radios to have more power than CB and FRS radios, up to 50W versus the 4 watts allotted to CBs and 2 watts for FRS. The GMRS spectrum is broken into 22 channels, which are shared with FRS, with 8 additional repeater channels (15R-22R) that are exclusive to GMRS and may only be used by licensed GMRS operators.

What are Other Options

Amateur Radio – Amateur Radio, sometimes called HAM radio, uses a wide variety of frequencies and bands, requires in-depth technical knowledge and requires much more expensive equipment. In addition, you have to take a written test for each of the successively more difficult license classes to be able to use those frequencies.

MURS – Multi-Use Radio Service is a low power service limited to 2 watts and only uses 5 channels. However, it is on different (VHF) frequencies than FRS/GMRS and while you can use an external antenna, it does not support repeaters.

FRS – Family Radio Service (low power version of GMRS with NO repeater capability) is a reasonable alternative for very short range, family based, communications, but is not powerful enough to meet the needs of a community-wide system. FRS does not require a license and the radios are very inexpensive. FRS is a good low-cost alternative for simply “listening” to GMRS channels. The antennas cannot be replaced so it cannot be used by radios other than Handi-Talkies (HTs, sometimes called Walkie Talkies). Maximum power is limited to either .5 or 2 watts depending on the channel.

GMRS – General Mobile Radio Service is channel-based with 22 channels plus 8 repeater channels that can be configured (often come pre-configured) on your radio to allow communication over great distances. It does require a license, but no testing is required. Just pay the fee and you get an FCC Call identifier to make you and your family legal. 7 channels are limited to .5 watts, 7 are limited to 5 watts, but 8 of the channels can use up-to 50 watts meaning it is far easier to reach from one end of town to the other (in Pine or Strawberry). Also, there are mobile versions of these radios that are easily made portable or converted to a “base station” for your home and all for much less money than Amateur Radio operators spend.

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How Far Can I Talk

How far you can communicate varies widely depending on the type/brand of radio, your antenna type and height, and the operating terrain. 5 watts and less should expect anywhere from ¼ mile to a mile. 10-20 watts will generally reach up to 5 miles. However, using repeaters can extend this distance to 20 or more miles.

GMRS & FRS CHANNELS AND UHF FREQUENCIES

Channel	Frequency (MHz)	Radio Service	Max Permitted Power - FRS	Max Permitted Power - GMRS
1	462.5625	GMRS or FRS	2 watts	5 watts
2	462.5875	GMRS or FRS	2 watts	5 watts
3	462.6125	GMRS or FRS	2 watts	5 watts
4	462.6375	GMRS or FRS	2 watts	5 watts
5	462.6625	GMRS or FRS	2 watts	5 watts
6	462.6875	GMRS or FRS	2 watts	5 watts
7	462.7125	GMRS or FRS	2 watts	5 watts
8	467.5625	GMRS or FRS	.5 watts	.5 watts
9	467.5875	GMRS or FRS	.5 watts	.5 watts
10	467.6125	GMRS or FRS	.5 watts	.5 watts
11	467.6375	GMRS or FRS	.5 watts	.5 watts
12	467.6625	GMRS or FRS	.5 watts	.5 watts
13	467.6875	GMRS or FRS	.5 watts	.5 watts
14	467.7125	GMRS or FRS	.5 watts	.5 watts
15	462.5500	GMRS or FRS	2 watts	50 watts
16	462.5750	GMRS or FRS	2 watts	50 watts
17	462.6000	GMRS or FRS	2 watts	50 watts
18	462.6250	GMRS or FRS	2 watts	50 watts
19	462.6500	GMRS or FRS	2 watts	50 watts
20	462.6750	GMRS or FRS	2 watts	50 watts
21	462.7000	GMRS or FRS	2 watts	50 watts
22	462.7250	GMRS or FRS	2 watts	50 watts
15RP	467.5500	GMRS	Prohibited	50 watts
16RP	467.5750	GMRS	Prohibited	50 watts
17RP	467.6000	GMRS	Prohibited	50 watts
18RP	467.6250	GMRS	Prohibited	50 watts
19RP	467.6500	GMRS	Prohibited	50 watts
20RP	467.6750	GMRS	Prohibited	50 watts
21RP	467.7000	GMRS	Prohibited	50 watts
22RP	467.7250	GMRS	Prohibited	50 watts

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What are the Rules

There are very few rules governing GMRS and really no rules (other than not using explicit language) for FRS.

However, there are a few things to keep in mind:

- You must identify yourself by your FCC Call at the end of your communication, or every 15 minutes, depending on which occurs first.
- GMRS does not give you a personal broadcast station.
- You may not transmit music over your radio.
- You may not use it for illegal activities.
- You may not interfere with anyone else's use of their radio. For example, you may not transmit over the top of someone else or otherwise interfere with their use of the channel.
- You may not use your radio to sell or advertise anything.
- You may not operate it remotely.
- You may not ENCRYPT your communications.

Those are the primary things of which to be aware. In general, be respectful and a good citizen and you will have no issues. The Golden Rule applies here.

What Else Do We Need to Know

Remember that **ALL your communications are PUBLIC!** There are things called "Privacy Codes" or Tones but these ONLY create privacy for OTHERS. ***They do NOT make your communications private!***

Repeaters

GMRS on a repeater involves talking on one frequency and listening on a second. The radio does this automatically on specific channels by using "control tones" to handle the exchange. The repeater hears your transmitted signal and "repeats" it on the frequency you, and others, are listening on. If the repeater is up high, and its line-of-sight allows it, it may be heard, and you may be able to BE heard, by radios much farther away.

Neighborhood Watch

A neighborhood watch is simply a group of concerned citizens with 2-way communications (in this case we are assuming GMRS radios) that have agreed to meet at specific times on a specific frequency/channel to exchange information. Most communities that are creating or have created Neighborhood Radio Watch groups meet at a specific time once a week for a NET. This allows them to use their radios to make sure they are in good working order, stay practiced on HOW to use them, and to communicate with their neighbors to make sure they will be able to do so in an emergency.

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Neighborhood Watch (continued)

In case of an emergency, ALWAYS CALL 911 First! However, if you are just seeking information, and the power is out, and cell phones are not working, then you can get on the NET channel and start sharing information. When properly organized, the local Sheriff, CERT (Community Emergency Response Team), or Fire District will also be able to get on the same channel and make announcements.

NETS

A Net is a “network” of radios that are all communicating on the same frequency. By scheduling to “meet” on a specific frequency/channel at the same time, you can have what is essentially a party-line with your neighbors.

By having some sort of structure to the conversation, each person gets a chance to talk while others are just listening. In order to make that happen, 1 person (station) agrees to be the Net Control.

The Net Control station keeps a list of people who are “checked-in” and calls each one in turn to allow them to talk about whatever.

Most of the time this is done as a “round table net”, meaning each person gets a chance to talk and you go round and round until everyone is done, hopefully within the time you have allotted for the Net.

The List of Checked-in stations can be created in two ways.

1. The Net Control for the specific Net calls out for stations to check-in and writes down their names/FCC call on a list to make sure everyone gets a turn to speak. This can be a bit crazy initially as you will probably have many people calling at the same time.
2. Have a pre-printed list of who plans to participate and call each person on the list, using your radio, to see if they are there on for this particular Net. Keep track of who is participating and keep a record of who has been there for the previous 3 or 4 Nets and eventually you will end up with an abbreviated list of persons to call.

In either case, once Net Control goes through the list once, they ask for Latecomers or Visitors to call and adds them to the list (if there are any).

Nets are easily run by using a pre-printed “preamble” as a script. This prevents getting tongue tied or falling into “Mike Fright” and forgetting where one is in the process.

Generally, there are Net members that are comfortable enough talking on the radio to take turns from one Net to the next so that this duty is shared by multiple people.