

General Mobile Radio Service

The **General Mobile Radio Service (GMRS)** is a land-mobile FM UHF radio service designed for short-range two-way voice communication and authorized under part 95 of the US FCC code. It requires a license in the United States, but some GMRS compatible equipment can be used license-free in Canada. The US GMRS license is issued for a period of 10 years by the FCC. The United States permits use by adult individuals who possess a valid GMRS license, as well as their immediate family members.^[a] Immediate relatives of the GMRS system licensee are entitled to communicate among themselves for personal or business^[1] purposes, but employees of the licensee who are not family members are not covered by the license. Non-family members must be licensed separately.

GMRS radios are typically handheld portable (walkie-talkies) much like Family Radio Service (FRS) radios, and they share a frequency band with FRS near 462 and 467 MHz.. Mobile and base station-style radios are available as well, but these are normally commercial UHF radios as often used in the public service and commercial land mobile bands. These are legal for use in this service as long as they are certified for GMRS under USC 47 Part 95.

(or older radios that are certified under USC 47 Part 90 as they are "grandfathered in" and are able to be programmed with GMRS frequencies and used legally for GMRS as well)



Tidradio Left one Baofeng Right one

GMRS licensees are allowed to establish repeaters to extend their communications range. GMRS repeaters are not permitted to be linked with other GMRS repeaters and are not authorized to connect to the public switched telephone network. Only Remote control can be used by the station owner.

Licensing [

Any individual in the United States who is at least 18 years of age and not a representative of a foreign government may apply for a GMRS license by completing the application form, online through the FCC's Universal Licensing System. No exam is required. A GMRS license is issued for a 10-year term.^[2] The current fee was reduced to \$35 for all applicants on April 19, 2022.^[3]

A GMRS individual license extends to immediate family members and authorizes them to use the licensed system.^[4] GMRS license holders are allowed to communicate with FRS users on those frequencies that are shared between the two services.^[5] GMRS individual licenses do not extend to employees.^[4]

New GMRS licenses are being issued only to individuals. Prior to July 31, 1987, the FCC issued GMRS licenses to non-individuals (corporations, partnerships, government entities, etc.). These licensees are grandfathered and may renew but not make major modifications to their existing licenses.^[6]

In any case, each GMRS station must be identified by transmission of its FCC-assigned call sign at the end of a transmission or a series of transmissions, and at least once every 15 minutes for a series lasting more than 15 minutes. The call sign may be spoken or sent with audible tones using Morse code. A repeater station handling properly identified transmissions of others is not required to send its own station identification.^[7]

Range

As with other UHF radio services, reliable range is considered to be line-of-sight and the distance to the radio horizon can be estimated based on antenna height. Theoretically, the range between two hand-held units would be about one or two miles (about 1.5–3 km); mobile units have higher antennas and a range of around 5 miles (8 km). A GMRS repeater with an antenna that is high above the surrounding terrain can extend the usable range over a wide area – for example, up to a 20-mile (32.2 km) radius around the repeater station.^[8] Obstructions such as hills and buildings can reduce range. Higher power does not necessarily give a proportional increase in range, although it may improve the reliability of communication at the limits of line-of-sight distance.

Frequency assignments

GMRS is allotted 30 frequency channels in the vicinity of 462 MHz and 467 MHz. They are divided into 16 main channels and 14 interstitial channels.^[9]

Licensees may use the eight main 462 MHz channels for simplex communication or repeater outputs.^[10]

The eight main 467 MHz channels may only be used as repeater inputs,^[11] in conjunction with the 462 MHz channels as outputs. The repeater input frequencies are exclusive to GMRS, and may be used only by licensed GMRS operators.

GMRS operators are permitted to transmit at up to 50 watts transmitter power output, on the 16 main channels,^[12] but transmitting 1 to 5 watts is more common in practice.

The interstitial frequencies are in-between the main channels, and the 462 MHz interstitial frequencies may be used for simplex as long as the effective radiated power does not exceed 5 watts.^[13] The 467 MHz interstitial frequencies have a power limit of 500 milliwatts ERP,^[14] and only hand-held portable units may transmit on these channels.^[15]

Sharing with FRS

All 22 Family Radio Service (FRS) frequencies are shared with GMRS, and users of the two services may communicate with each other. With the exception of FRS channels 8 through 14, GMRS licensees may use higher power radios with detachable or external antennas.

GMRS and FRS frequencies are listed below.

FRS-GMRS Frequency Chart (2018)

While the FCC determines the frequencies and privacy tones used in the FRS and GMRS radio services, channel and tone numbering is left up to the manufacturer. The ACS-CERT Communications Plan uses the Motorola FRS Channel Numbering Standard. To avoid confusion, check your radio against a known Motorola standard radio and record your radio's channel and tone numbers in the chart below.

The 22-channels assigned to the FRS and GMRS radio services are all shared, meaning that FRS operators can talk to GMRS operators, and vice versa, on all 22-channels. Channels 15-22, however, offer GMRS users the highest power option, so these are preferred for tactical communications.

| Std* # | My Radio # | Frequency | FRS | | GMRS [^] | | Usage** | PRIVACY TONES ^{^^} | | |
|---------|------------|-----------|-----|---------------|-------------------|----------------|----------|-----------------------------|-----------|---------|
| | | | FRS | FRS Max Power | GMRS | GMRS Max Power | | Std. Tone # | My Tone # | PL Tone |
| 1 | | 462.56250 | X | 2-Watts | X | 5-Watts | H,B,M | 1 | | 67 |
| 2 | | 462.58750 | X | 2-Watts | X | 5-Watts | H,B,M | 2 | | 71.9 |
| 3 | | 462.61250 | X | 2-Watts | X | 5-Watts | H,B,M | 3 | | 74.4 |
| 4 | | 462.63750 | X | 2-Watts | X | 5-Watts | H,B,M | 4 | | 77 |
| 5 | | 462.66250 | X | 2-Watts | X | 5-Watts | H,B,M | 5 | | 79.7 |
| 6 | | 462.68750 | X | 2-Watts | X | 5-Watts | H,B,M | 6 | | 82.5 |
| 7 | | 462.71250 | X | 2-Watts | X | 5-Watts | H,B,M | 7 | | 85.4 |
| 8 | | 467.56250 | X | 1/2-Watt | X | 1/2-Watt | H | 8 | | 88.5 |
| 9 | | 467.58750 | X | 1/2-Watt | X | 1/2-Watt | H | 9 | | 91.5 |
| 10 | | 467.61250 | X | 1/2-Watt | X | 1/2-Watt | H | 10 | | 94.8 |
| 11 | | 467.63750 | X | 1/2-Watt | X | 1/2-Watt | H | 11 | | 97.4 |
| 12 | | 467.66250 | X | 1/2-Watt | X | 1/2-Watt | H | 12 | | 100 |
| 13 | | 467.68750 | X | 1/2-Watt | X | 1/2-Watt | H | 13 | | 103.5 |
| 14 | | 467.71250 | X | 1/2-Watt | X | 1/2-Watt | H | 14 | | 107.2 |
| 15*** | | 462.55000 | X | 2-Watts | X | 50-Watts | H,B,M,RO | 15 | | 110.9 |
| 16*** | | 462.57500 | X | 2-Watts | X | 50-Watts | H,B,M,RO | 16 | | 114.8 |
| 17*** | | 462.60000 | X | 2-Watts | X | 50-Watts | H,B,M,RO | 17 | | 118.8 |
| 18*** | | 462.62500 | X | 2-Watts | X | 50-Watts | H,B,M,RO | 18 | | 123 |
| 19*** | | 462.65000 | X | 2-Watts | X | 50-Watts | H,B,M,RO | 19 | | 127.3 |
| 20*** | | 462.67500 | X | 2-Watts | X | 50-Watts | H,B,M,RO | 20 | | 131.8 |
| 21*** | | 462.70000 | X | 2-Watts | X | 50-Watts | H,B,M,RO | 21 | | 136.5 |
| 22*** | | 462.72500 | X | 2-Watts | X | 50-Watts | H,B,M,RO | 22 | | 141.3 |
| 15-R*** | | 467.55000 | | | X | 50-Watts | RI | 23 | | 146.2 |
| 16-R*** | | 467.57500 | | | X | 50-Watts | RI | 24 | | 151.4 |
| 17-R*** | | 467.60000 | | | X | 50-Watts | RI | 25 | | 156.7 |
| 18-R*** | | 467.62500 | | | X | 50-Watts | RI | 26 | | 162.2 |
| 19-R*** | | 467.65000 | | | X | 50-Watts | RI | 27 | | 167.9 |
| 20-R*** | | 467.67500 | | | X | 50-Watts | RI | 28 | | 173.8 |
| 21-R*** | | 467.70000 | | | X | 50-Watts | RI | 29 | | 179.9 |
| 22-R*** | | 467.72500 | | | X | 50-Watts | RI | 30 | | 186.2 |
| | | | | | | | | 31 | | 192.8 |
| | | | | | | | | 32 | | 203.5 |
| | | | | | | | | 33 | | 210.7 |
| | | | | | | | | 34 | | 218.1 |
| | | | | | | | | 35 | | 225.7 |
| | | | | | | | | 36 | | 233.6 |
| | | | | | | | | 37 | | 241.8 |
| | | | | | | | | 38 | | 250.3 |

* Motorola Standard

**Handheld (H), Mobile (M), Base (B), GMRS Repeater Input (RI), Output (RO)

***When used as a repeater, commonly referred-to by the numbers after decimal (550-Repeater, 575-Repeater)

[^]GMRS Frequencies require an FCC GMRS License

^{^^}Privacy Tones should not be used in tactical situations unless absolutely necessary