

# Quick Start Guide to GMRS Radio For Beginners



GMRS radio is one of the most versatile and powerful communications tools a family can use for keeping in touch in places where cell phones aren't an option. Whether they're used for

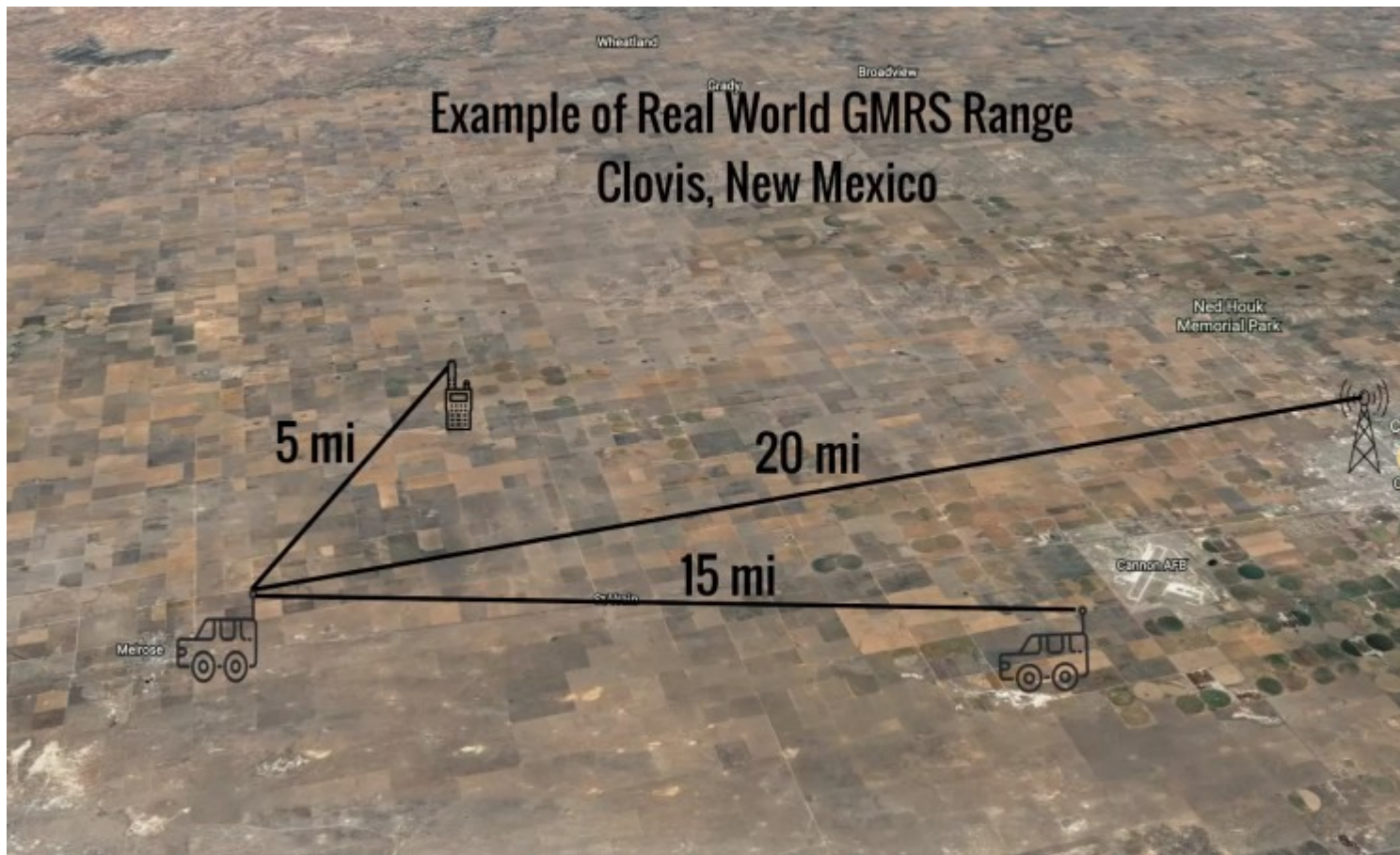
*Courtesy of [Woof the Beaten Path](#)*

keeping a family connected while hiking and exploring the back-country or simply as a backup to have on hand should the cellular ever network fail, these radios are now affordable enough that everyone in the family can have access to one if needed. As users of this radio service for over twenty years now, we'd like to share just how easy it is to get started using GMRS radios.

## What is GMRS Radio?

The General Mobile Radio Service was authorized by the Federal Communications Commission in the 1970's. It consists of [30 UHF channels](#), 8 of which are used for repeater inputs. A maximum of 50 watts of power is allowed (on channels 15-22), along with the ability to use high-gain base and mobile antennas for range up to 30 miles or more.\*

Back when the FCC first allowed this service, there were very few users, since CB radios were cheaper and more popular. Transceivers once cost several times that of Citizens Band units, which is why the service really didn't catch on until later years. Now a full power GMRS mobile radio costs around \$200, and some 5 watt, repeater-capable handhelds cost less than \$30.



GMRS radios typically provide much longer range than FRS handhelds. Example of real-world GMRS range, level terrain.

## Step 1. Determine If GMRS is Right For You

Not everyone needs a General Mobile Radio Service radio setup. For some, license-free FRS radios, which can have a range from 1/2 mile to 5 miles or more, are a good alternative. These inexpensive radios are great for outdoor activities and for using in the event of an emergency, when family members need to keep in touch over a small area. If you need even more range, GMRS radios are one of the best options a family can use to keep in touch with each other over a large area.

## Step 2: Get Your GMRS License

To use these powerful radios and be able to use any of the long-range repeaters across the US (with permission of the owners), you'll need an FCC license. See our post about [How to Get a GMRS License](#) for full details. The FCC recently lowered the cost from \$70 to \$35 for a ten year license which covers the whole family. The primary license holder must be 18 years old and minors may operate under their authorization, with the adult license holder ultimately being responsible for compliance with the rules of operation. A GMRS license may be issued in as little as 24 hours.



“Honey, I bought some communications gear for the overland vehicle.”

### Step 3: Decide What Kind of GMRS Radios You Need

Are you just needing a powerful set of walkie-talkies to use for outdoor adventures in a remote area, or do you want a combination of GMRS radios that includes handhelds, a home base unit and mobiles in your vehicles? Our own two-way radio setup consists of three mobile units, several handhelds and a base station using a directional antenna, aimed in the direction where we do most of our running around. This system gives us about ten to fifteen miles of range in a suburban area and up to 25 miles (farther if using repeaters) in the rural areas.

Not everyone needs or wants a setup like ours, and for many a set of 5 watt handheld radios, such as the Baofeng UV-9G ([see our review](#)) will work just fine. If you have a UTV or open cab Jeep, you might need a waterproof mobile like the Btech GMRS-20V2 or Midland MXT575 to avoid it getting damaged.

Most mobile radios can be set up on a 12 volt power supply to create a powerful base station. Models like the Btech GMRS-50x1 and the Radioddity DB-25G can work well for this purpose.

Settings	Loc	Frequency	Name	Tone Mode	Tone	ToneSql	DTCS Code	DTCS Rx Code	DTCS Pol	Cross Mode	Duplex	Offset	Mode	Power	Skip
	14	467.712500	GMRS14	(None)							(None)		NFM	Low	
	15	462.550000	GMRS15	(None)							(None)		FM	High	
	16	462.575000	GMRS16	(None)							(None)		FM	High	
	17	462.600000	GMRS17	(None)							(None)		FM	High	
	18	462.625000	GMRS18	(None)							(None)		FM	High	
	19	462.650000	GMRS19	(None)							(None)		FM	High	
	20	462.675000	GMRS20	(None)							(None)		FM	High	
	21	462.700000	GMRS21	(None)							(None)		FM	High	
	22	462.725000	GMRS22	(None)							(None)		FM	High	
	23	462.550000	REPTR1	Tone	141.3						+	5.000000	FM	High	
	24	462.575000	REPTR2	Tone	141.3						+	5.000000	FM	High	
	25	462.600000	REPTR3	Tone	141.3						+	5.000000	FM	High	
	26	462.625000	REPTR4	Tone	141.3						+	5.000000	FM	High	
	27	462.650000	REPTR5	Tone	141.3						+	5.000000	FM	High	
	28	462.675000	REPTR6	Tone	141.3						+	5.000000	FM	High	
	29	462.700000	REPTR7	Tone	141.3						+	5.000000	FM	High	
	30	462.725000	REPTR8	Tone	141.3						+	5.000000	FM	High	
	31	462.700000	Custom	TSQ		225.7					(None)		FM	High	
	32	146.520000	ham 2 m	(None)							+	5.000000	FM	High	
	33	462.600000	DIV3	(None)							+	5.000000	FM	High	
	34	462.625000	DIV4	(None)							+	5.000000	FM	High	
	35	462.650000	DIV5	(None)							+	5.000000	FM	High	
	36	462.675000	DIV6	(None)							+	5.000000	FM	High	
	37	462.700000	DIV7	(None)							+	5.000000	FM	High	

Programming the Baofeng UV-9G with Chirp

## Step 4: Getting To Know Your New GMRS Radio

Whether it's a mobile rig or handheld "walkie talkie", there are some features that all GMRS radios have in common:

- PTT (Push to Talk) switch. GMRS isn't like your cell phone. You must push a button to talk, then release to listen. Make sure everyone in the family gets the hang of this important step.
- Volume Control – If your radio's volume is turned down you won't hear incoming calls. Learn what setting works best, then always set your units the same after turning them on.
- Squelch – The Squelch keeps your radio silent until an incoming call breaks through. Set it as low as possible so as not to miss calls. We set our Baofeng UV-9G's squelch to 1 or 2.
- Channel Selector – GMRS handhelds may feature up to 22 main channels, mobiles typically have 15 channels. Channels 15-22 can use higher power, and should be used sparingly.

## Privacy Codes on GMRS

When you get your new radio, you'll most likely need to change some of the factory settings. Some handhelds, like the Retevis RB27, are shipped preset with "privacy codes" that keep you from hearing other radios besides that same model. Try to avoid using privacy tones or codes on GMRS when possible so as not to accidentally talk over other radio users, who you won't hear if these are enabled.



Repeaters require "privacy tones" or codes. However, "privacy tones" or codes should only be used on Simplex, when absolutely necessary, so you don't talk over someone else's conversation.

Using a program called “[Chirp](#)” we can set up many models of GMRS mobile and handheld radios with the tones needed for local repeaters, along with privacy tones, should you choose to use them on certain channels to block unwanted signals. Tones and codes should always be used sparingly and with caution to avoid “stepping on” other GMRS users. Many radios feature a “monitor” button, which you can press to temporarily open the squelch and see if someone else is already using the channel before you talk. Others may have an LED light that glows if someone is occupying the frequency.

### **What GMRS Channel Should You Use?**

On most mobile units, channels 1-7 are the low power channels, which are best used for most short to medium range communications. Channels 15-22 are where 50 watts of power is allowed, and where repeater stations broadcast their output. It’s best to avoid using channels 15-22 unless you really need extended range, and instead use 1-7 or (8-14 if using a handheld).

**Beep!** – Most regular users of GMRS don’t use (or care for hearing) the “roger beep” tone that some radios are factory-set with. Be sure to disable this, especially if you’re going to use a repeater system. *Roger That? Beep!*

**Tips For Mobile Units** – If you’ve purchased a new mobile radio kit that includes a magnetic mount antenna, be sure to place it in the center of your vehicle’s roof if possible, or alternatively on the center of your trunk for the best signal pattern. Also, for full-power units, be sure to use a fused, heavy-gauge wire that’s connected directly to your vehicle’s battery, so your transceiver isn’t starved for power.

When using an antenna that didn’t come with your mobile GMRS transceiver, it may need to be tuned or matched to your radio to work properly.



### **Step 5: Listen First, Then Talk**

Before you ever push the PTT button or key the mic, it's best to listen to other licensed GMRS users talking in your area. All channels are shared with the license-free FRS service, and even used legally by some businesses, but you can usually tell which users are GMRS operators, either by the better audio quality or by their use of call-signs. Most of the repeaters and longer-range calling activity can be found on the high-power channels 15-22, where 50 watts output is allowed.

If there isn't much activity in your area you always go to [myGMRS.com](http://myGMRS.com), where you can hear live audio feeds from linked repeater networks around the country.



When paired with a high-gain antenna like this [Tram Browning BR-180B](#) a 50 watt GMRS radio can reach out up to 30 miles in open country like this.

### **Making Your First GMRS Call**

To call another radio user in your family, you might say something like “WABC123 unit one to unit two”. The FCC doesn’t specify any exact way to phrase a call other than using your call sign at the end of a transmission, or at least every 15 minutes if in a conversation. If calling a user outside of your family, you would use their call sign first, followed by yours, such as “WBCD345, WABC123” or “WBCD345 this is WABC123”.

Local norms might be different in your area, but the main thing required by the FCC is that you use your call sign at the end of the transmission. If you aren’t calling anyone specifically and just wanting a signal report for example, you might say “WABC123 looking for a signal report on channel 16” or if simply wanting to talk to someone, you could say “WABC123 monitoring channel 16”.



You also may hear users who already know the other operator's full call sign shortening it for simplicity's sake. When done talking in a group conversation, they might say something like "that's all for me, passing it over to 543, WABC123" instead of the other person's full call sign.

### **Enjoy Your New GMRS Radio!**

The key to getting the most out of your new radio is to learn as much about its features and controls as you can, as well as learning from other licensed users in your area how GMRS is used. Most cities have local clubs or repeater groups you can join, often with the benefit of being able to use their systems so your radio can cover a large area, even up to nationwide.

The technology is still evolving, and new services such as Zello can even allow you to use your cell phone in one part of the country to call a GMRS radio somewhere out in the back-country where no cellphone towers exist. We've done this, and it's really kind of amazing! Some new GMRS handhelds now support SMS messaging, along with the ability to use GPS tracking and display users location when paired with a phone app.

In terms of versatility, range and ease of access for all family members, GMRS radio is the way to go, or at least it is for us.

Just remember to always be courteous, listen before talking, and be aware that others are most likely listening before using your GMRS radio.

*\*Use of high gain antennas on channels other than 15-22 may result in exceeding FCC limits on Effective Radiated Power for the GMRS service.*