

## GMRS vs Ham radio

### Terminology:

- **Radio to radio (simplex).** Simple radio to radio transmission. Limited to the range of the radios. This is a good option for ward leadership communication if the ward boundaries are small.
- **Radio to repeater to radio (duplex).** A radio can transmit to a **repeater**, the **repeater** then retransmits on a different frequency with much more power and range to other radios. This requires radios that can be programmed for duplex **repeater** use. This is the only option for stake wide communication.
- **Privacy tones (CTCSS):** These are privacy tones that can be programmed into the radios that only allow radios with the same tones to hear and transmit to each other. This works for both simplex (radio to radio) and duplex (radio to repeater to radio).
- **Antenna types:**
  - ¼ wave, ½ wave, 5/8 wave of the wavelength of the frequency.
  - GMRS 462 to 467 Mhz 65 cm (26 in)
  - Ham radio: 146 MHz 2 meter (72in), 440 MHz 70 cm (28in) and many others

### Types of radios

#### FRS (family radio service):

These are low power (1-2 watts), short range walkie talkie type radios. Range is max 1 mile and are not programmable, not able to upgrade the antenna. Radio to Radio **simplex**.

#### GMRS (general mobile radio service):

- Frequencies: 462.-----MHz, 467.-----MHz chan 1-22, repeater R15-R22
- Ch 1-7 (5 watt max), Ch 8-15 (½ Watt max), Ch 16-22 (50 Watt max)

GMRS radios have come a long way in the last couple of years (older radios may not have the same functionality). They now are programmable for **repeaters (duplex)** and **privacy tones (CTCSS)** and come in a variety of handhelds, mobile and home base platforms. Most radios are UHF/VHF ham radios restricted to the GMRS frequencies with the same power and functionality as the ham radios. Unfortunately, there are no long range powerful GMRS repeaters in our area yet. My dad and I are setting up a small local GMRS repeater that should cover West Richland and Benton City. This would allow communication for all of West Richland, parts of Richland, and most of Benton City. A programmed CTCSS privacy tone will restrict use to only our stake. Coverage to Prosser will still need to be on a more powerful repeater on ham radio. We will set up a repeater exercise for all those in the stake with GMRS programmable radios--this is called a repeater net.

**FCC license: the FCC does require a \$35 license every 10 years that is good for the entire family. NO TEST IS REQUIRED.** I am including a link below to a pair of GMRS

radios that are affordable and have all the functions needed described above. I know many people do not obtain a GMRS license, but remember the 12th Article of Faith. You will need to announce your call sign the FCC will give you at the beginning of your transmission, and after each 10 minute block of time.

Features needed to function as described above.

- Repeater channels that are programmable
- Privacy tones programmable (CTCSS)
- removable antenna to improve range (the one below has an upgraded whip antenna).  
**Upgrade to a ¼ wave, ½ wave or 5/8 wave**, or even home base or car mobile.

### **Ham Radio: UHF/VHF**

The best platform with the largest range repeaters and support in our area, but does require a test with the license. The problem is, we do not have enough ham operators for leadership communication at the ward and stake level. We will still need to communicate by ham repeaters from West Richland to Prosser--especially on the Horse Heaven Hills. We are in the process of getting approval for holding a stake ham radio net on a large repeater soon. That way everyone can get comfortable and experienced using the repeater that holds a ham license.

Link for GMRS radios. There are many others as well that have the same functions.

[https://www.amazon.com/dp/B0B4JSWYL2?ref=ppx\\_yo2ov\\_dt\\_b\\_product\\_details&th=1](https://www.amazon.com/dp/B0B4JSWYL2?ref=ppx_yo2ov_dt_b_product_details&th=1)

Link for GMRS license:

This is a website that will help you navigate the process.

[https://midlandusa.com/blogs/blog/why-do-i-need-a-gmrs-license-how-do-i-get-it?gad\\_source=1&gclid=CjwKCAiA7t6sBhAiEiwAsaieYIUkUZIk8iIUUsQBYhaFTP21ZINplqqgJD92V9pkDIVdhof\\_nynLqrRoCkBwQAvD\\_BwE](https://midlandusa.com/blogs/blog/why-do-i-need-a-gmrs-license-how-do-i-get-it?gad_source=1&gclid=CjwKCAiA7t6sBhAiEiwAsaieYIUkUZIk8iIUUsQBYhaFTP21ZINplqqgJD92V9pkDIVdhof_nynLqrRoCkBwQAvD_BwE)

**If you purchase or have a programmable GMRS radio and would like to participate in a stake GMRS net, email me back and I will notify you when we hold a net.**

- **Our first GMRS net will be held on March 3, 2024 at 8:00 pm**
- **Repeater channel R3 or R17 depending on the radio**
- **CTCSS Rx and Tx tone 103.5**

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