Eugene-Springfield CERT GMRS Class

This class will review basic GRMS radio operation, and focus on local GMRS repeater use.

Radio Services

GMRS   ([General Mobile Radio Service](#))   [47 CFR Part 95](#)   [subpart E](#) (radio service ZA)
FRS   ([Family Radio Service](#))   [47 CFR Part 95](#)   [subpart B](#)
Ham   ([Amateur Radio Service](#))   [47 CFR Part 97](#) (radio service HA, HV)

GMRS Licenses

GMRS users must have an FCC license. Currently a $35 license is good for 10 years and one license includes immediate family members.
You can get a GMRS license online https://www.fcc.gov/wireless/universal-licensing-system. Use the two links below to follow the process :

- [Apply for an FCC Registration Number](#) (FRN), if you don't already have one.
- Using your FRN, [apply for a license](#) in the ZA radio service.

Operator identification

An operator must state their FCC issued GMRS call sign [every 15 minutes](#) during a conversation, and at the end of a conversation.

GMRS Repeaters

Unlike FRS, the GMRS radio service allows the use of repeaters. (The ham radio service also allows the use of repeaters in certain frequency ranges.) A repeater has a receiver operating on one of the special repeater-only input frequencies. When the repeater receives a signal on its input channel, it is transmitted simultaneously on the repeater output frequency.

Usually the repeater is set up to require the presence of a sub-audible tone on the input signal in order to enable the repeater output, to prevent retransmission of random noise, or retransmission of signals intended for a different repeater using the same input channel.

The user's radio must be programmed correctly when using a GMRS repeater.
- Set the radio channel to match the repeater output channel.
- Program the radio for repeater operation rather than simplex operation.
- Set the correct tone to access the repeater, as required.

Local GMRS repeaters

A local business has very kindly made their GMRS repeater (normally used for their business) available for emergency communication use and for training by pre-arrangement. The repeater is located in the Coburg Hills at a commercial transmitter site.

IMPORTANT: the repeater owner requires that any and all radios used to access the repeater must be FCC type approved for the GMRS radio service. Check the FCC ID marked on the radio at https://www.fcc.gov/oet/ea/fccid looking at the Test Report in the Detail section. For example, the report for FCC ID MMAMXT275 says it was tested for the GMRS service.

Repeater output channel: 16 (462.575 MHz)
Repeater input channel: RP16 (467.575 MHz)
Tone: CTCSS 100 Hz (At one time the tone was 141 Hz, so this might work if 100 Hz doesn't.)

Radio Programming

Every radio manufacturer does things differently, so you will need to refer to your radio manual. On my Midland MicroMobile MXT275, I need to do several steps:
- Use the menu system to enable repeater mode. After doing this, in addition to channels 1 through 22, the radio can be set to channels 15rp through 22rp.
- With the radio set to the desired repeater channel (16rp in our case), set the correct transmit tone. (Do NOT set a receive tone.) This repeater uses analog tone 100 Hz (often called a PL tone, from an old Motorola trademark "Private Line". These are also called CTCSS tones (Continuous Tone-Coded Squelch System). Radios also provide another type of tone called DCS (Digital Coded Squelch) but this repeater uses CTCSS tones. On my radio, I go to the menu setting for Transmit Privacy Code, select Ct (for CTCSS), then select the value 12. The value 12 comes from a table in the back of the radio manual that says it corresponds to the 100 Hz tone.

Privacy tone use

My personal opinion is that receive squelch privacy tones should not be used during emcomm radio operations. All they do is make it impossible to hear if the channel is clear before you transmit (unless you use the radio's monitor function every time).