



## LEAST RESISTANCE TRAINING CONCEPTS

### PROCEDURE GUIDE No. 20-71

#### RADIO USAGE

Issue Date: 12-31-22, Rev. 4-24-24



This Procedure Guide supersedes all previous guides in order to comply with the latest communications protocols.

#### **Discussion:**

Reliable communications can be critical for smooth and coordinated operations in the field. Previously, our mobile units could not talk to the handheld units and vice-versa. Our new system operates on the UHF band and the new mobile radios and handheld radios will be able to communicate with each other, and over longer distances.

#### **1. Radio Definitions**

- 1.1 Three types of radios will be utilized.
- 1.2 GMRS Mobile radios are permanently installed in vehicles. Due to their higher power output, FCC licenses are required. GMRS licenses are good for ten years. (LRTC will reimburse for license fees.)
- 1.3 GMRS Handheld Radios are higher powered commercial grade handheld radios that can operate on mobile and repeater channels as well as FRS channels. They have to be associated with a licensed station.
- 1.4 FRS Handheld Radios, currently in-use, are low power and require no license, but will be able to communicate with the higher power radios over short distances.

#### **2. Band Plan**

- 2.1 A band plan has been developed that meets FCC regulations for communications between the various types of radios being used. We have established channels that are sufficiently spaced apart to avoid cross-channel "bleed-over."

#### 2.2. Band Plan

LRTC DEFAULT RADIO FREQUENCY USAGE (BAND PLAN)					
Channel Pos.	Display Name	Use or Repeater	RX	TX	PL
004	GMRS-4	Primary Tactical			
007	GMRS-7	Secondary Tactical			
016	GMRS-16	Primary Command			
022	GMRS-22	Secondary Command			
026	DTN-26	Dayton Repeater - Travel	462.6250	467.6250	127.3

## 2.3. Radio Program Plan

**LRTC GMRS RADIO PROGRAM PLAN**

Channel Pos.	Display Name	Use or Repeater	RX	TX	PL
004	GMRS-4	Primary Tactical			
007	GMRS-7	Secondary Tactical			
023	OLI-23	Olinghouse Repeater	462.5500	467.5000	107.2
024	GVL-24	Golden Valley-2 Repeater	462.5750	467.5750	110.9
025	STD-25	Stead Repeater	462.6000	467.6000	103.5
026	DTN-26	Dayton Repeater	462.6250	467.6250	127.3
027	CSN-27	Carson Repeater	462.6500	467.6500	141.3
028	MDN-28	Minden Repeater	462.6750	467.6750	141.3
029	LRT-29	LRTC Portable Repeater	462.7000	467.7000	C/S
030	SVL-30	Sun Valley Repeater	462.7250	467.7250	C/S

**PROGRAMMING MENU OPTIONS**

Mobile	CTCSS	Menu 28	Channel Name	Menu 22
Handheld	CTCSS	Menu 10	Channel Name	Menu 37

## 3. Radio Usage

- 3.1 Primary Radio Channel: Radios should normally be operated on Channel 4 (Tac-4.) This channel allows the various types of radios to communicate with each other. Tac 4 is our default primary radio channel.
- 3.2 Secondary Radio Channel: If there are other nearby users on Tac-4 creating a situation where we are interfering with each others' communications, or if we need to break into two distinctive functional groups, Channel 7 (Tac-7) is our default secondary channel.
- 3.3 Command Channels: If an incident warrants a separate channel for command and coordination traffic to avoid excessive traffic on a tactical channel, Channel 16 (Command-16) or alternatively Channel 22 (Command-22) will be our default command channels.

## 4. Repeater Usage

- 4.1 Some of the radios can access a repeater to increase range when traveling. Repeater usage would typically be limited to situations where units are spread over a wide area and cannot communicate reliably using simplex (direct) channels. Operations on repeater frequencies will be on a need to use basis.

## **5. Mobile Radio Installation**

- 5.1 Mobile radios require licensing. LRTC can assist with licensing applications and will reimburse the \$ 35.00 license fee.
- 5.2 Our radios come with an option for mounting a thin face plate on or near the dashboard with the actual transceiver mounted under the seat, reducing the “bulk” taking up space on dashboards or consoles.
- 5.3 Antennas are relatively compact and can be permanently or magnetically mounted.
- 5.3 LRTC can assist with mounting of mobile radios and antennas.

## **6. Shared Frequencies**

- 6.1 Users need to keep in mind that these frequencies are also being used by other licensed GMRS and FRS users. We need to make reasonable attempts to avoid multiple users interfering with each other, and use appropriate protocols when transmitting.