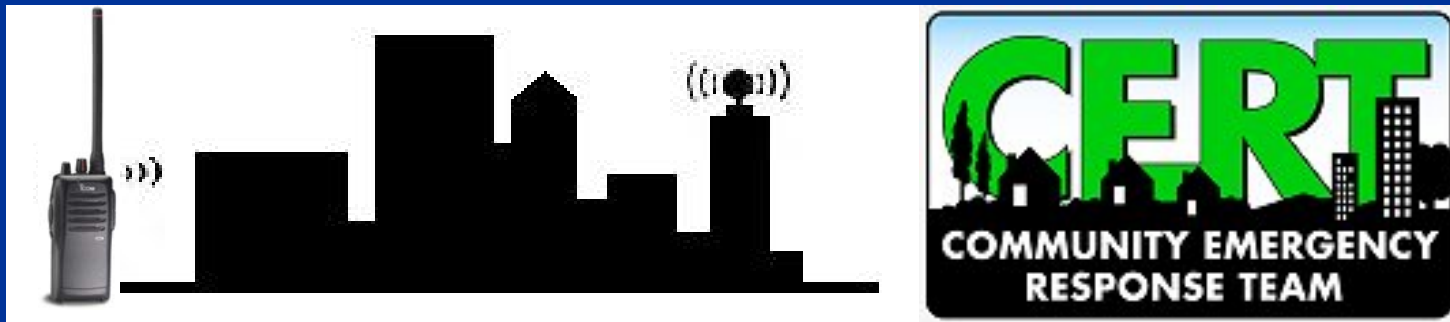


Portable Radio Fundamentals

Part 1 of 2



**How to use your FRS, hand-held
radio effectively in an emergency**

Objectives:

***After completing this unit
you will be able to:***

- **Understand the characteristics of FRS radio**
- **Identify typical radio features and controls**
- **Use correct radio operating procedures**
 - **Standard procedural words, and phonetics**
- **Use your portable radio more effectively during an emergency!**

What is FRS

- The Family Radio Service
- No license is required
- Radios designed and “Type Accepted” for use in the FRS
- Max. transmit power 500mw
Short range – “line of sight”



What is GMRS?

- General Mobile Radio Service
- An FCC Part 95 *Licensed Service* for personal and business use by immediate family members
- FCC license, 5 years \$85, no test is required
- May use more powerful radios for longer range.
- Enables use of repeaters (duplex operation)
- FRS channels 1 through 7 are shared with GMRS
- FRS and GMRS may legally talk to each other on the shared simplex channels.



FCC Part 95

- *Some manufacturers have received FCC approval to market radios certified for use in both the Family Radio Service (FRS) and the General Mobile Radio Service (GMRS).*
- *If you operate a radio that has been approved exclusively under the rules that apply to FRS, you are not required to have a license.*
- *If you operate a radio under the rules that apply to GMRS, you must have a GMRS license.*
- *GMRS radios generally transmit at higher power levels (1 to 5 watts is typical) and may have detachable antennas.*

How do I *USE* a 2-way Radio?

- **DIFFERENT MAKES** and models of radios vary, so...
- **READ** the **INSTRUCTIONS**
- **BECOME FAMILIAR** with the controls on YOUR radio!



Portable Radio “Anatomy”

Power On-Off, Switch

- Is combined with volume control on some models
- Or “push-button on others
- First of all, make sure the radio is “turned on”



Portable Radio “Anatomy”

Channel Selector

- **Select assigned “channel”**
 - *Communications Officer, in Logistics writes up a Communications Plan**
- **“Up-Down” arrows**
- **Or a rotating “knob”**



“Privacy tones” are not..

Continuous Tone-Coded Squelch (CTCSS)

- Tones don't make your conversation private
- Tone use only limits what you hear
- They enable several groups to use the same channel without hearing each other
- Each group then uses a different CTCSS tone
- Use “carrier squelch” (tone turned off) to hear EVERYONE who is using the same channel.

FRS Channel Assignments for Large Incidents

- **FRS1** Neighborhood Watch to Responders
- **FRS2** CERT Team Leaders to Command Post
- **FRS3** CERT Planning Section
- **FRS4** CERT Logistics Section
- **FRS5** CERT Admin Section
- **FRS6** CERT Team Leader to Public Safety Responders
- **FRS7** Safety Officer – Rapid Intervention Team
- **FRS8** CERT Ops Inter-Team Primary Working Channel
- **FRS9- 14** CERT Intra-team working channels 500mw Max.

Use of the "Interstitial Simplex" Channels 1 through 7 with transmitter output greater than 500mw requires GMRS license and Part 95 Type Accepted radio such as the ICOM F21GM.

Portable Radio “Anatomy”

Volume control

- Adjust the volume control until you can “hear” other users.



Portable Radio “Anatomy”

“Squelch” control



- Either a concentric ring
 - under the Volume control
- Or a separate knob of its own
- “Open” until you hear “white noise”
- “Close” just until noise disappears



Portable Radio “Anatomy”

“Push-To-Talk”

(PTT) Switch

- PUSH to TALK
- Let go to LISTEN
- LISTEN more than you talk!
- If somebody seems in control of things, LISTEN to them!



Portable Radio “Anatomy”

Speaker-Microphone

- To SPEAK, Push-To-Talk
- SPEAK in a NORMAL tone
- To LISTEN, Just LET GO
- LISTEN more than you talk!



Portable Radio “Anatomy”

Batteries or Battery Pack

- Use AA or AAA alkaline



- Or a rechargeable pack
 - If supplied with the radio
 - Make sure the pack is charged
- Always carry spare batteries!



Maha MH-C204F
AA battery charger

Portable Radio “Anatomy”

Antenna (flexible or telescoping)

- Extend fully
- Hold vertical (best reception)
- Replace or repair
 - If visibly damaged





*A 2-way radio is not
“Like a telephone...”*

BECAUSE:

- You can't hear anyone if YOU are talking!
- So, no one else can speak when YOU talk!
- If EVERYONE talks, NOBODY understands!
- Which results in CHAOS %^~#&*!
- SO...

When Do You Speak?

Speak **ONLY** if you have to

- LISTEN don't "talk over" others
- WAIT until others have finished
- THINK about what you will say
- USE PLAIN LANGUAGE
- KEEP IT SHORT!

Push-To-Talk...PAUSE

- Wait a fraction of a second after pushing the “talk” button and before speaking
- This avoids “clipping” off first syllable as radio changes over from its receive state to transmit

Single Station Call

1. **Voice the unit ID you are calling**
 2. **Then say the words “THIS IS”**
 3. **Followed by your unit ID**
 4. **Then say “OVER”**
- (Invitation to reply).**

Single Station Call - Example

- The call* “SEARCH TEN, THIS IS COMMAND,
OVER”
- The answer* “THIS IS SEARCH TEN, GO AHEAD”
- The response* “CONTACT MEDICAL ON CHANNEL
ONE FOUR, OVER”
- The acknowledgement*
- “SEARCH TEN CHANGING TO ONE
FOUR FOR CONTACT, ROGER,
OUT.”

Review - To call someone

- **SAY** the unit ID of the person you want to call,
- Then say **'THIS IS'**
- Followed by "**<your ID>**"
- Then say, **"OVER>"**

Example: "P2 Garage, this is P2 North Elevator, Over"

Acknowledge Calls To You:

When you hear a call to you reply:

- **“THIS IS”** followed by “<your ID>”
- Tell the unit calling you that you are ready to receive their message by saying:
- **‘GO AHEAD’**

“THIS IS P2 GARAGE, GO AHEAD”

RADIO OPERATING PRACTICE

(continued)

- **CLARIFY**
- **REPEAT Critical Information**
- **CONFIRM correct**

RADIO OPERATING PRACTICE

(continued)

- **WAIT to be recognized** before speaking
- **Don't relay information that must be copied until certain that you have the other's attention**
- **ACKNOWLEDGE** transmissions to you
 - ‘Control’ then knows you are ready to continue with your assignment, releasing the frequency
 - This avoids having to repeat the message.

RADIO OPERATING PRACTICE

(continued)

- Answer questions directly; do not explain
- If more information is vital to ensure that your information is fully understood, then be brief
- Let 'Control' or the requestor ask for details
- ASK who a message is for if you don't know
- Let third parties speak directly to each other

Don't speak louder in a noisy environment




If you speak louder than is needed for normal speech, the radio will distort your voice, *reducing* intelligibility.

In Noisy Environments

Preventive Steps:

- **Use earphone or headset** (if you have one)
- **Turn down volume** - don't add to noise level!
- **Shield microphone from the wind**
- **Speak ACROSS the microphone**
 - Use a normal speaking voice



Use Procedural Words Correctly

- “Prowords” help expedite radio messages and reduce copying errors
- They are effective ONLY if everyone understands and uses them correctly

The “Basic Four”

Everyone who uses a 2-way radio should learn and use these:

- **“THIS IS”** - Used to identify who is calling
- **“OVER”** - Means *“I have finished speaking and it’s now your turn”*
- **“GO AHEAD”** - Means *“I’m ready to copy”*
- **“OUT”** - Means - *“I am finished and expect no reply”*

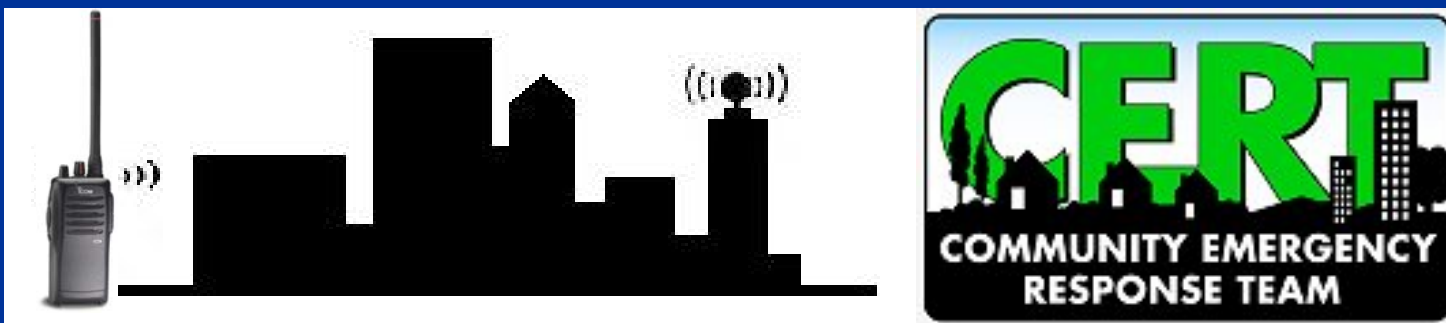
The station who initiates the call always TERMINATES it.

Proword Recap

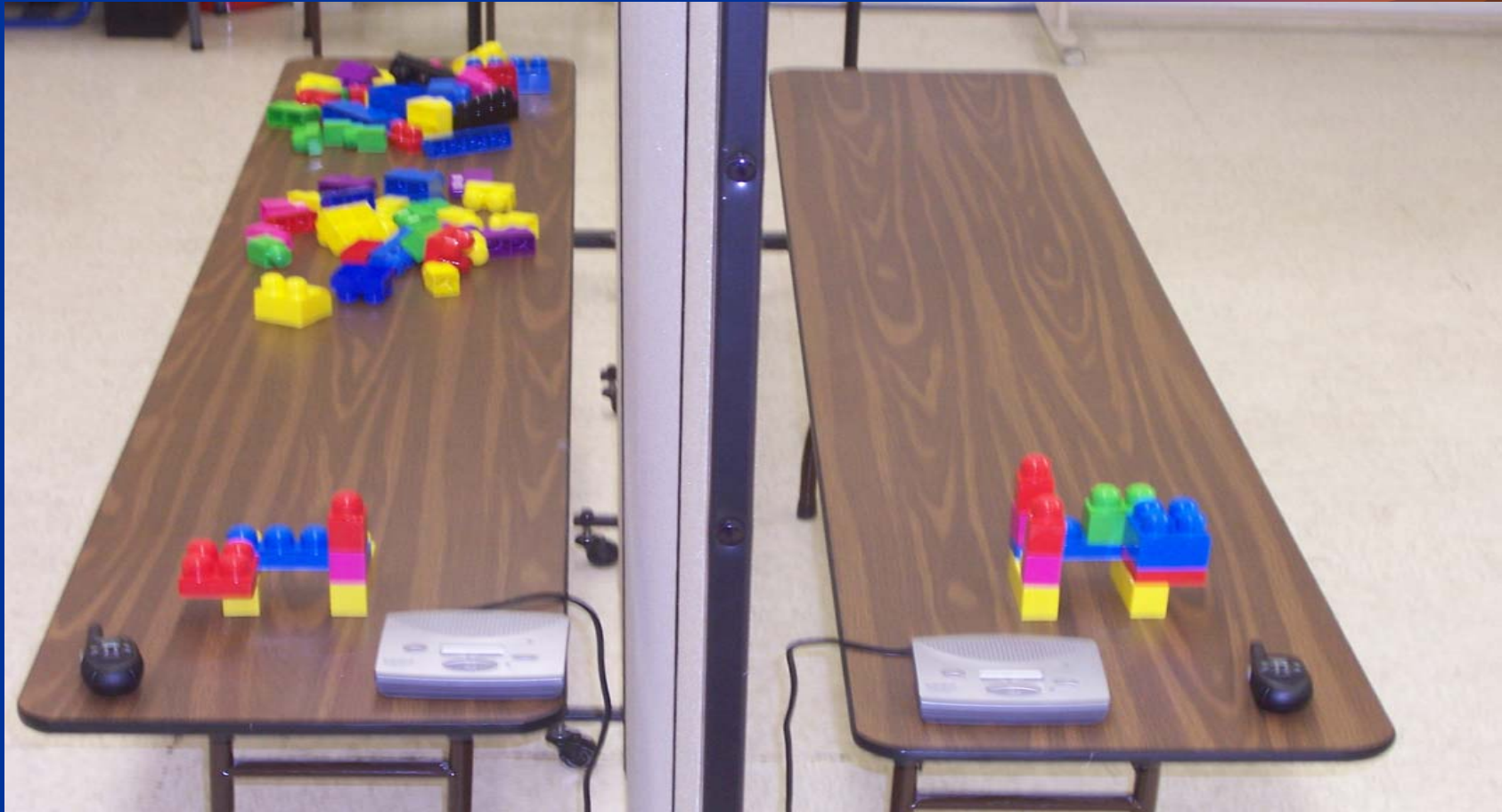
- “OVER”
 - Leaves no doubt whose turn it is...
- “OUT”
 - Tells everyone the contact has ended.

*Using “Over and Out” together is unnecessary,
use either one, or the other.*

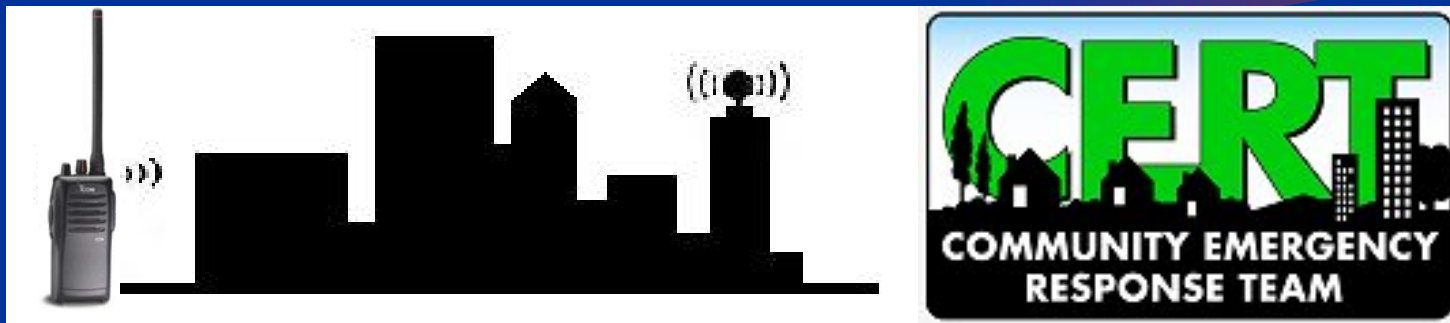
Break for a “Evolution” exercise



*I know that you believe that you understand
what I said BUT I am not sure you realize that
what you heard is not what I meant!*



Return from Break



TIME FOR QUESTIONS
Before We Start Part II