

# Community Emergency Response Team



## Contra Costa County CERT Program Unit 9 – FRS Radio

Released: 6 September 2011

Revised Jan 25 2013



# Community Emergency Response Team

- ◆ Personal safety is *ALWAYS* the number one priority
- ◆ Work as a team
- ◆ Wear personal protective equipment...gloves, helmet, goggles, N95 mask and boots
- ◆ No radios if near a gas leak
  
- ◆ **The CERT goal is to do the  
Greatest Good for the Greatest Number**
- ◆ **Hope for the best but plan for the worst**

# Standard Forms of Communication

- ◆ Messenger / runner
- ◆ U.S. Postal Service
- ◆ Telephone, voice mail & messaging
  - Standard unit (“landline”)
  - Mobile
  - Pager
- ◆ E-mail
- ◆ Radio –broadcast, business, FRS, licensed amateur (hams)  
public safety (police, fire, public works)



# Post Disaster: Loss of Communications

- ◆ Messenger / runner
- ◆ U.S. Postal Service
- ⊘ Telephone, voice mail & messaging
  - ⊘ Standard unit (“landline”)
  - ⊘ Mobile
  - ⊘ Pager
- ⊘ E-mail
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# Disaster Communications

## Communications for CERTS

- ◆ Face-To-Face: vocal
- ◆ Within Sight: signs and signals
- ◆ Beyond Sight: runners and two-way radio

## About FRS/GMRS Hybrid Radios (Family Radio Service / General Mobile Radio Service)

- ◆ 2 or 3 power levels: 1/2 Watt to 1-1/2 Watts typical
- ◆ Moderate cost
- ◆ No license required when operated on
  - [ch 8-14], or [ch 1-7 @ low power].
  - Those are referred to as “FRS operation”.
- ◆ Personal use OK; business use NOT
- ◆ **FRS channels 1-7 shared with GMRS**
- ◆ Channels 8-14 are FRS only; 14 total for FRS
- ◆ **Channels 15-22 are GMRS only (ok to listen)**
- ◆ No external antennas allowed; no repeaters allowed.
- ◆ Typical 0.5 - 1 mile communication range





# FRS Radio Features & Functions



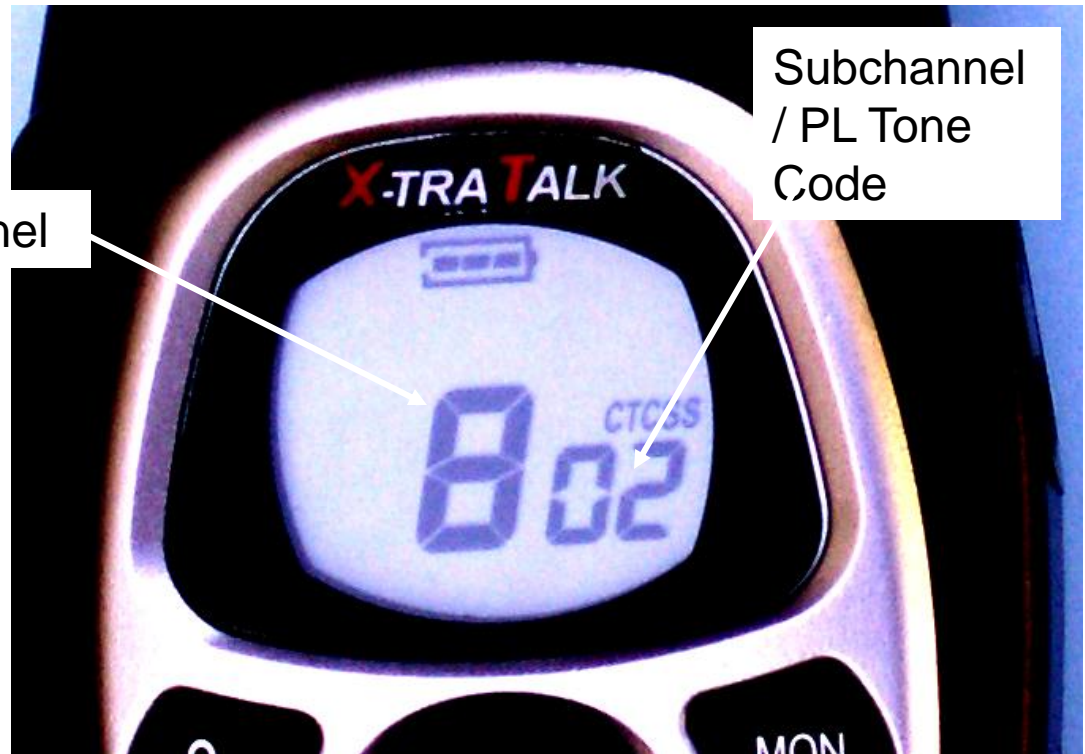
**Motorola Model T6500**

# Front Panel Closeup



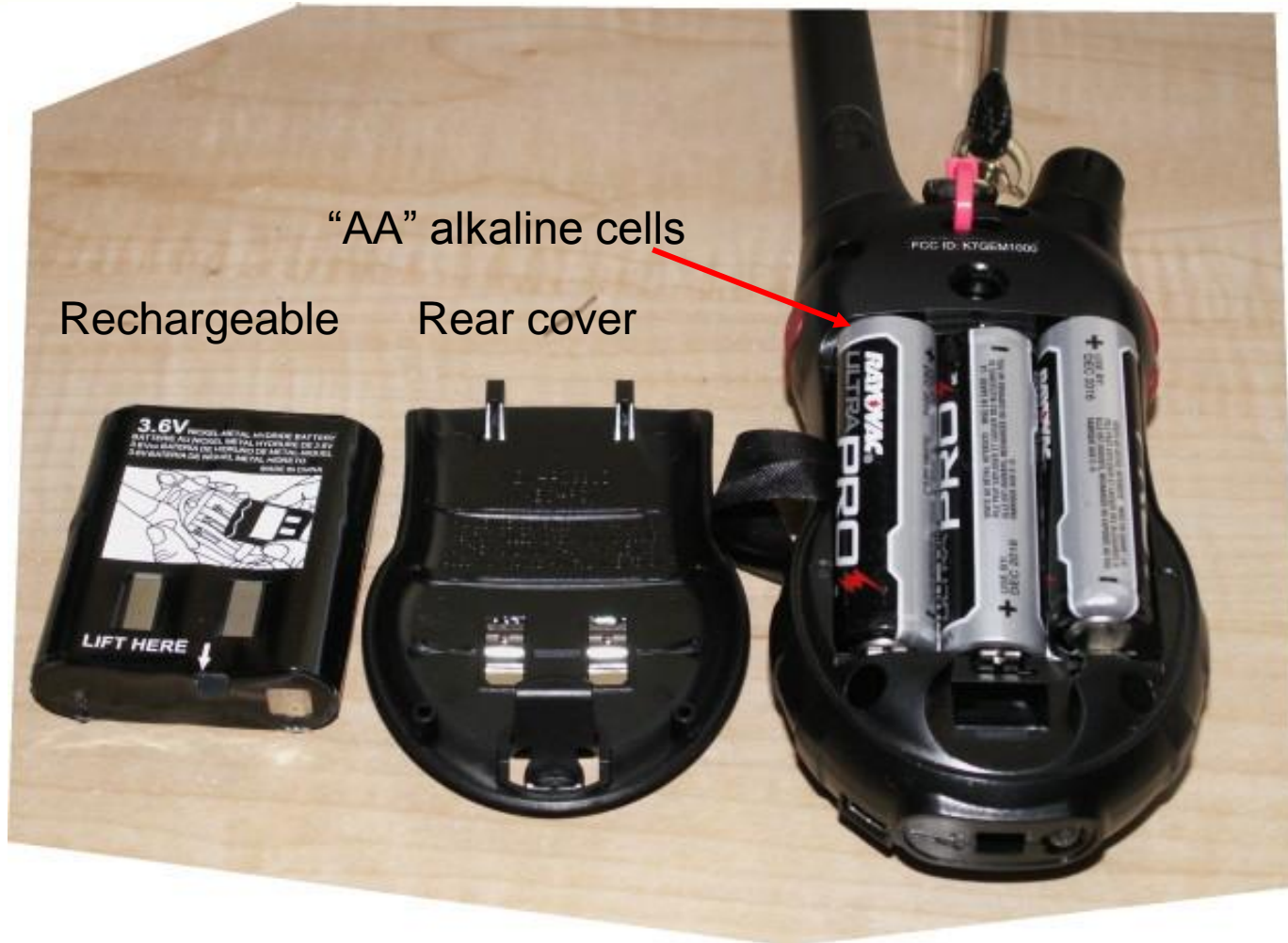


# Midland 710 Showing PL Tone / Subchannel



Midland: If PL / subchannel is needed, set type to "CTCSS" as shown.

# Batteries



Consider marking “+” and “-” with contrasting paint or marker.

# GMRS License

- ◆ FRS is fine for many applications.
- ◆ GMRS license:
  - No test. \$85 for 5 yrs
  - One license (callsign) covers entire family!
    - Spouse, parents, grandparents, children, grandchildren, siblings, in-laws, etc.
- ◆ Allows use of radios w/ swappable antennas
- ◆ Allows handheld radios up to 5W; base radios up to 25W or 50W
- ◆ Allows use of repeaters.

# SELECTING FRS/GMRS Hybrid RADIOS

FRS / GMRS with 22 channels



## Midland FRS/GMRS

### Motorola

#### FRS/GMRS

- ◆ Uses AA alkaline batteries. Not AAA, and not rechargeable batteries unless they can also use AA.
- ◆ Ignore “mileage” claims. Battery life is more important than transmit power.

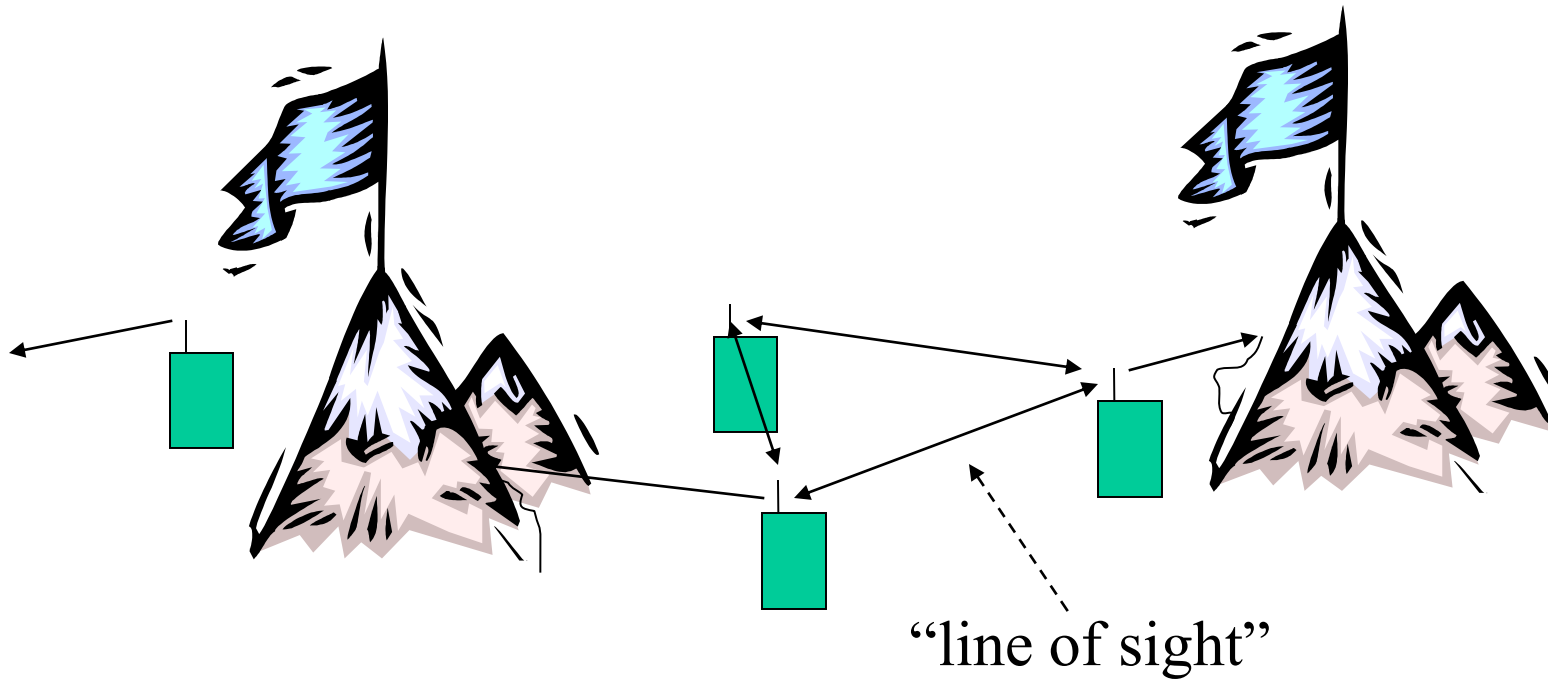
### Recommended Models

<u>MFG</u>	<u>MODEL</u>	<u>APPROX. PRICE (\$)</u>
Motorola	<b>MR 355R, MR 356R</b>	\$80.00 Pair CAN USE A REPEATER.
Midland	<b>GXT- 760 VP4</b>	\$60.00 Pair

Not recommended: Motorola MR 350R. Not repeater-capable

# FRS Range

- ◆ FRS Range limits



# Using the radio

- ◆ Select a channel – your team leader will tell which to use
- ◆ Test the radio before you venture out
- ◆ Make sure you can communicate with your team
- ◆ It is not a cell-phone
- ◆ To talk; hold radio 2”- 3” from mouth, press the button
- ◆ To listen; let go of the button



# Radio Protocols - I

## Talking

- ◆ Calling another:
  - Use agreed-upon identifiers
    - “Team 3 this is Team Leader. Over”
- ◆ Wait for response, which should be:
  - “Team leader this is Team 3. Over”
  - Or just
  - “Team 3. Over”
- ◆ Speak in a normal tone of voice, and speak clearly!

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# Radio Protocols - II

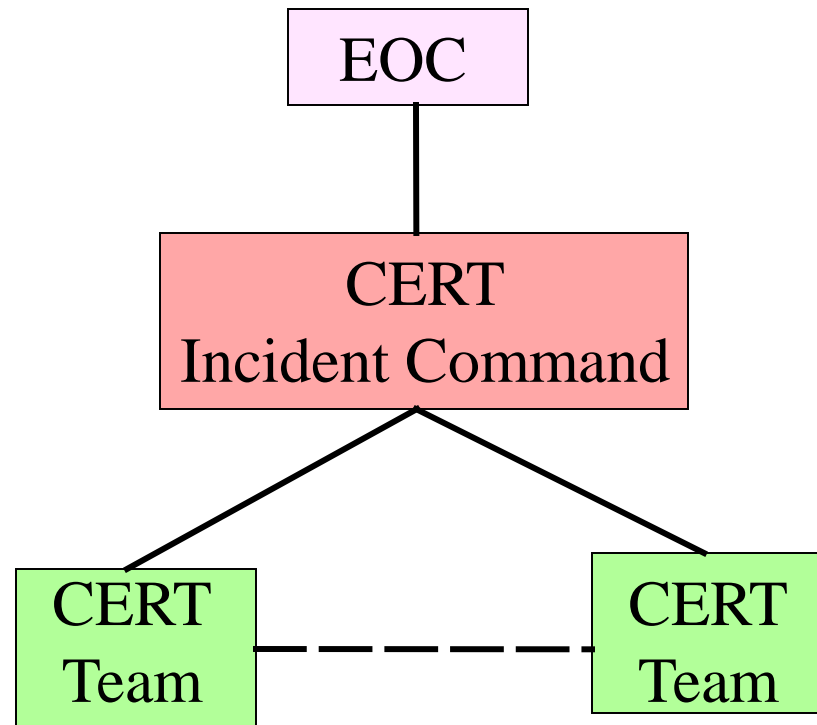
- ◆ You have made contact: exchange questions and answers in brief, clear language understandable to all who may listen
  - NO “10” codes or “11” codes!
  - NO CB jargon!
  - NO slang or ethnic / gender slurs
- ◆ You are conveying important information to people you may neither know nor have worked with in the past

# Radio Protocols - III

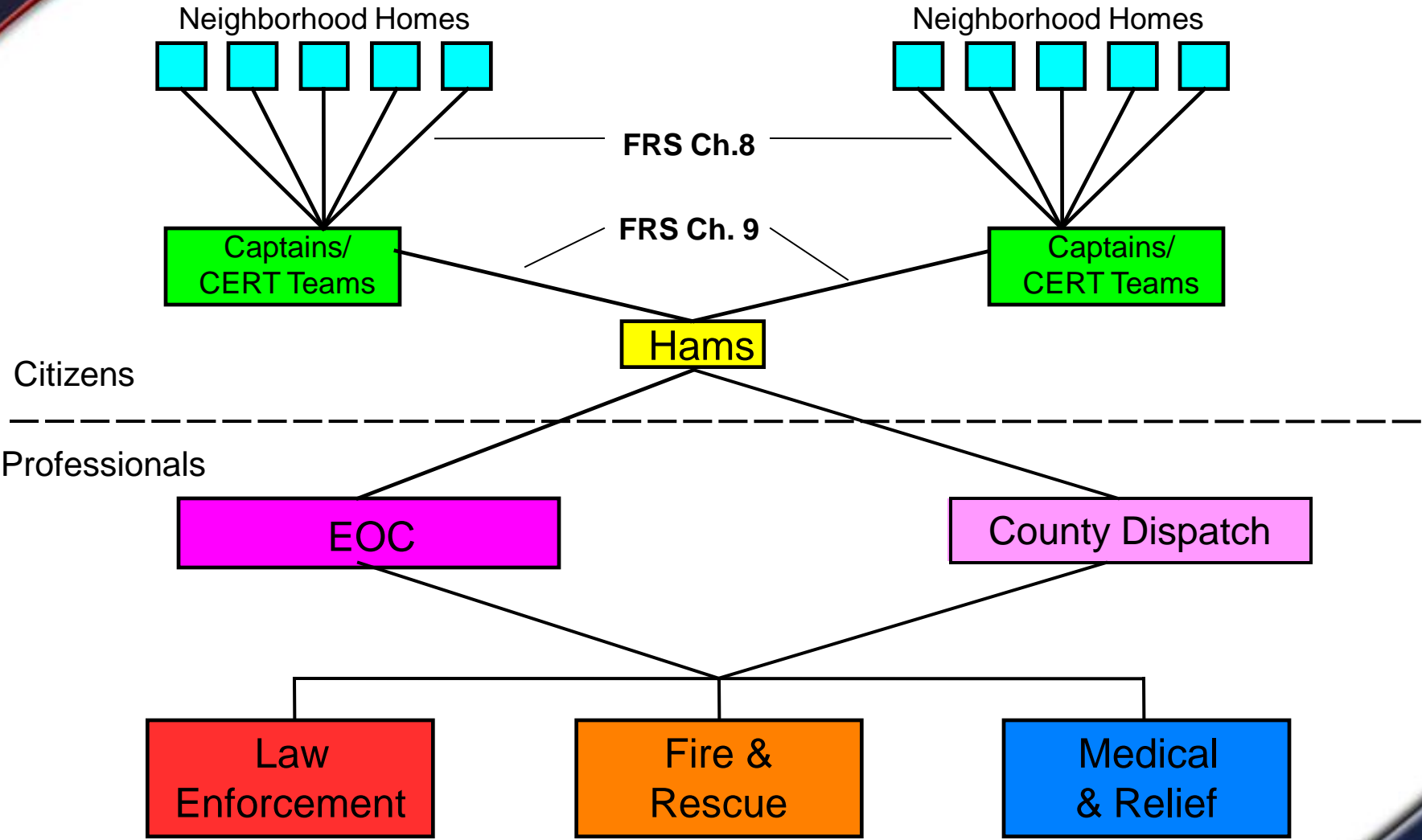
## Sample exchange

- ◆ “Team A this is Team Leader”
  - “Team A – over”
- ◆ “What is your location? – over”
  - “Corner of Moraga Way and Moraga Road – over”
- ◆ “Check Safeway for damage and injuries – over”
  - “Will check Safeway for damage and injuries.”
  - “Team A out”

# Basic CERT Disaster Communications



# Sample **DISASTER** Communications Plan





# Suggested FRS Channel Allocations

- ◆ Ch. 8      Calling
- ◆ Ch. 9      Emergency messages for relay  
                **Message passing between CERT and hams**
- ◆ Ch.10-13    Secondary emergency channels  
                **Used as needed**
- ◆ Ch. 14      Light Search & Rescue



# CERT Radio Communications

## Non-Disaster FRS Communications

- ◆ Channel allocations: Channels 8 – 14
- ◆ Sub-channel / PL Tone / Privacy code, as directed by the team leader. (Seldom used)
- ◆ Remember, all team radios need to be set to the same channel and privacy code

# Unit Summary

- ◆ Standard forms of communication not available
- ◆ Radio is always available
- ◆ FRS requires no license
- ◆ FRS has short range
- ◆ Listen first, then speak clearly, calmly, carefully without using a lot of words
- ◆ Use plain English, no codes
- ◆ All team members must use the same channel



# Frequently-Asked Questions - 1

- ◆ Q: Are FRS-only radios available for purchase?
- ◆ A: Not anymore. (Only ICOM, about \$80 each)
- ◆ Q: Can I use my amateur (ham) radio on FRS/GMRS frequencies?
- ◆ A: Not legally, no. Ham radios are certified differently.
- ◆ Q: Is there a radio that will work on GMRS and Ham (UHF/70cm)?
- ◆ A: Yes, several commercial (business) radios can legally do GMRS and Ham (UHF/70cm). ICOM brand, used, \$ 150 each.

# Frequently-Asked Questions - 2

- ◆ Q: Will my Amateur (ham) license allow me to use GMRS radios/channels/powers?
- ◆ A: No.
- ◆ Q: How do I set my radio to low power so I can use it on ch 1-7 in FRS mode (no-license mode)?
- ◆ A1: Midlands allow you to set the power to H/M/L on each channel. The setting will “stick”.
- ◆ A2: Some Motorolas have a two-part Push-To-Talk switch. The recessed part transmits at 0.5W (low-power).

# Questions?



Visual 9.27



Thank you for your attention

# Richmond

