



**ALASKA LAND MOBILE RADIO**

# Dispatch Operator Training

November 18, 2021

# Objectives

- Provide an overview of the technical workings of the ALMR system for dispatch operators
- Highlight the common functions of the MCC 7500 series dispatch console
- Review issue reporting information requirements



# Terminology

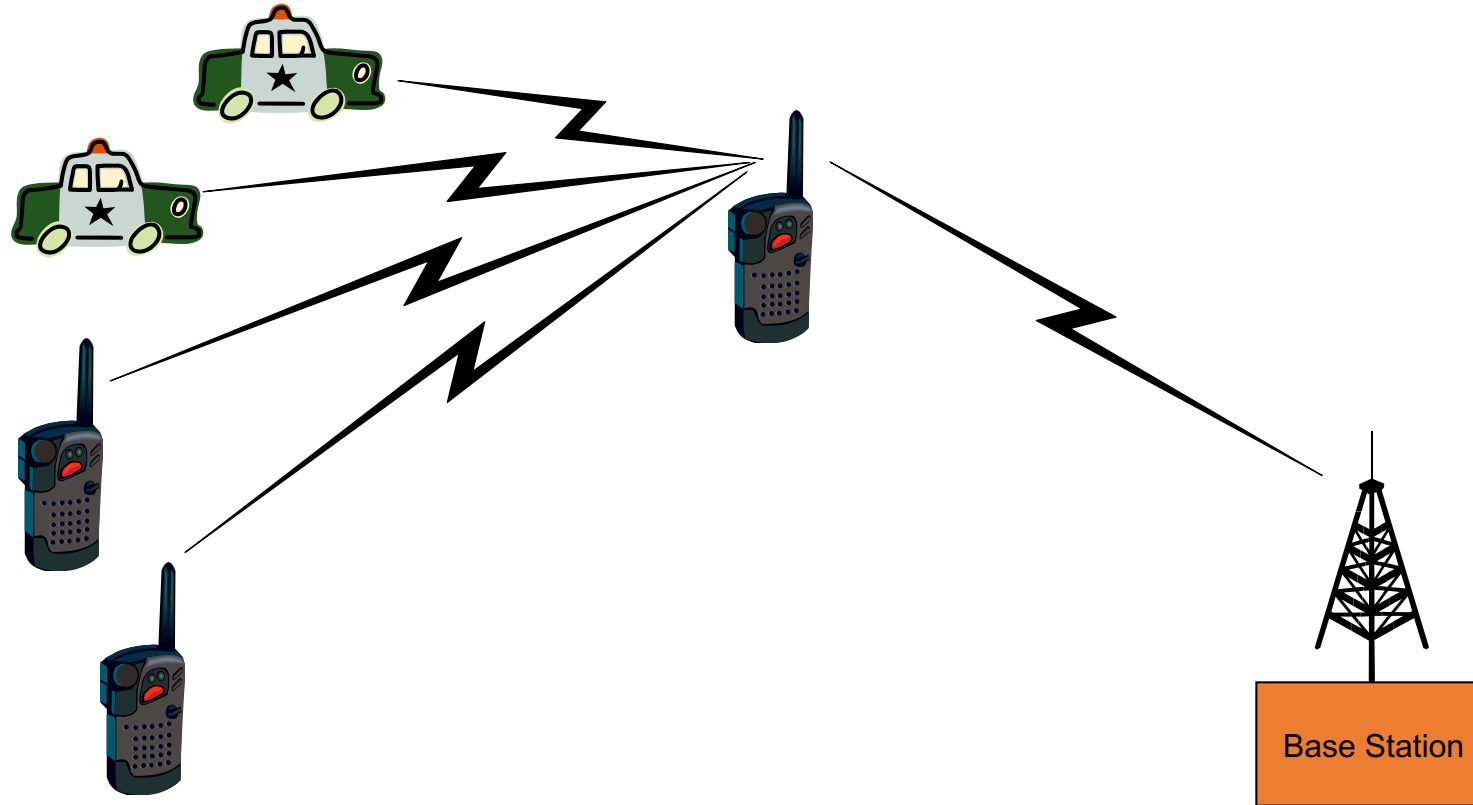
- P25 – Project 25 Standard Radio System
- Talkgroup – virtual “channel” in the system
- Master Site – main control points for ALMR
- Subscriber Unit – radio or device used by a responder
- Site – ALMR Tower Site
- AWARN – Anchorage Wide Area Radio Network
- Radio Alias – nickname for a radio
- Radio ID – numeric ID assigned to radio
- Affiliation – communication with a site by a radio



# Radio System Concepts

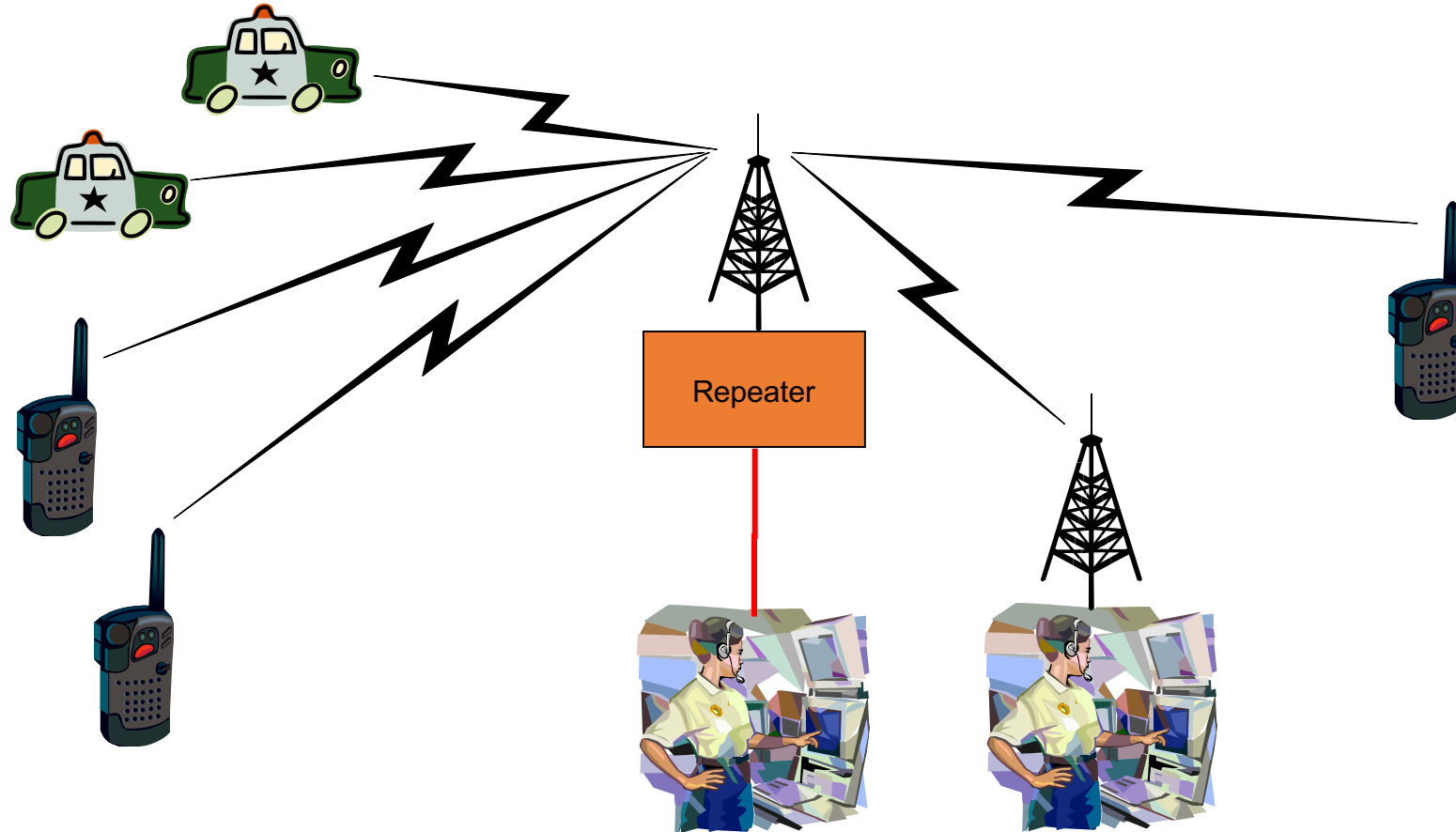
# Radio Systems Overview

## Conventional System – Simplex



# Radio Systems Overview

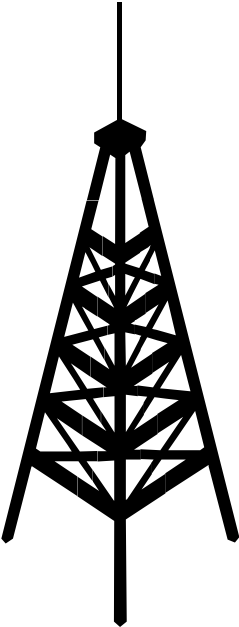
## Conventional System – Repeater



# Trunking System Operation (ALMR)



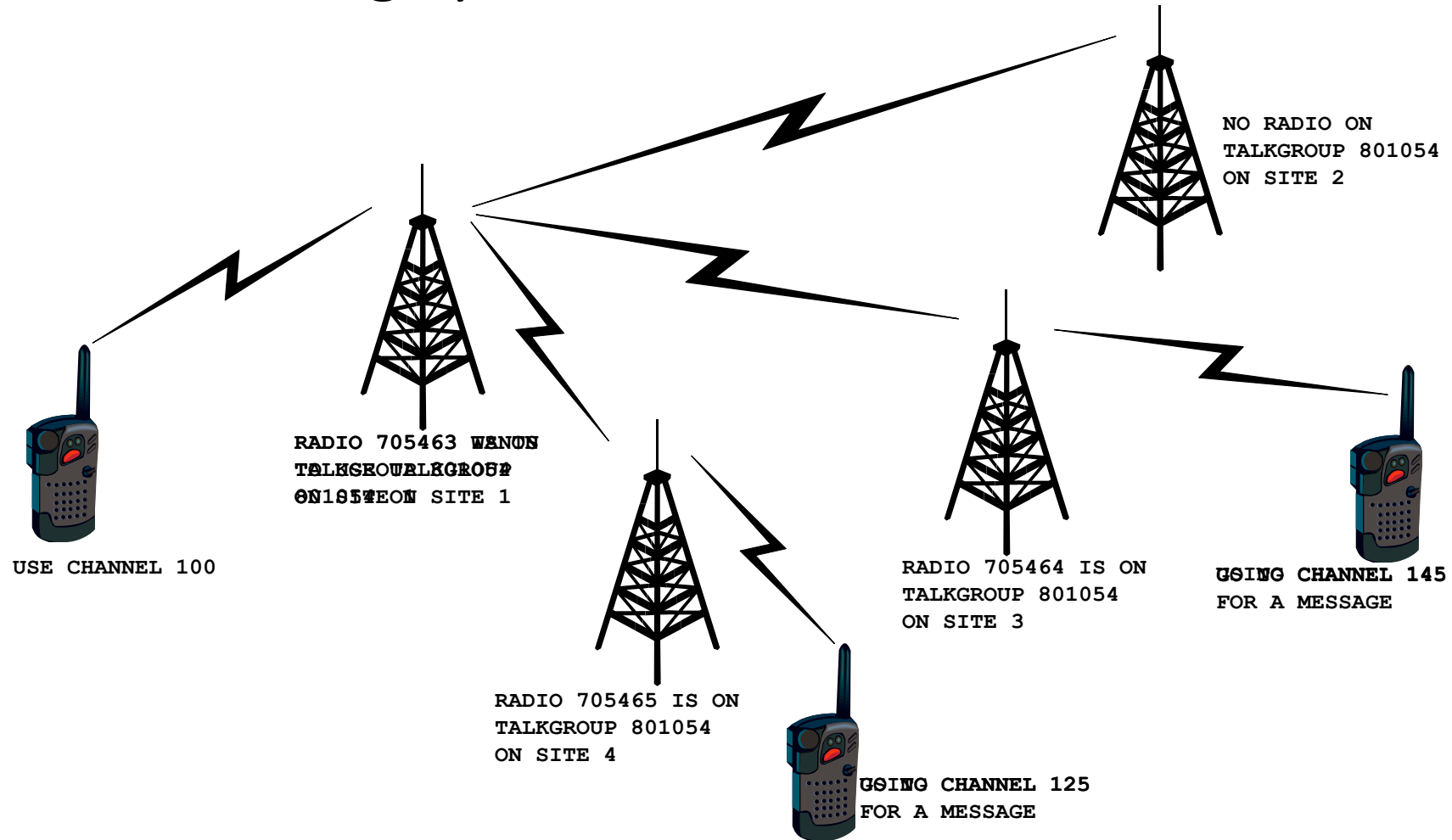
USE CHANNEL 100



RADIO 705463 WENON  
TALKGROWBLEGROSE  
801054

# Radio Systems Overview

## Networked Trunking System





# ALMR System

A Federal, State, and Municipal partnership

# ALMR System Zones

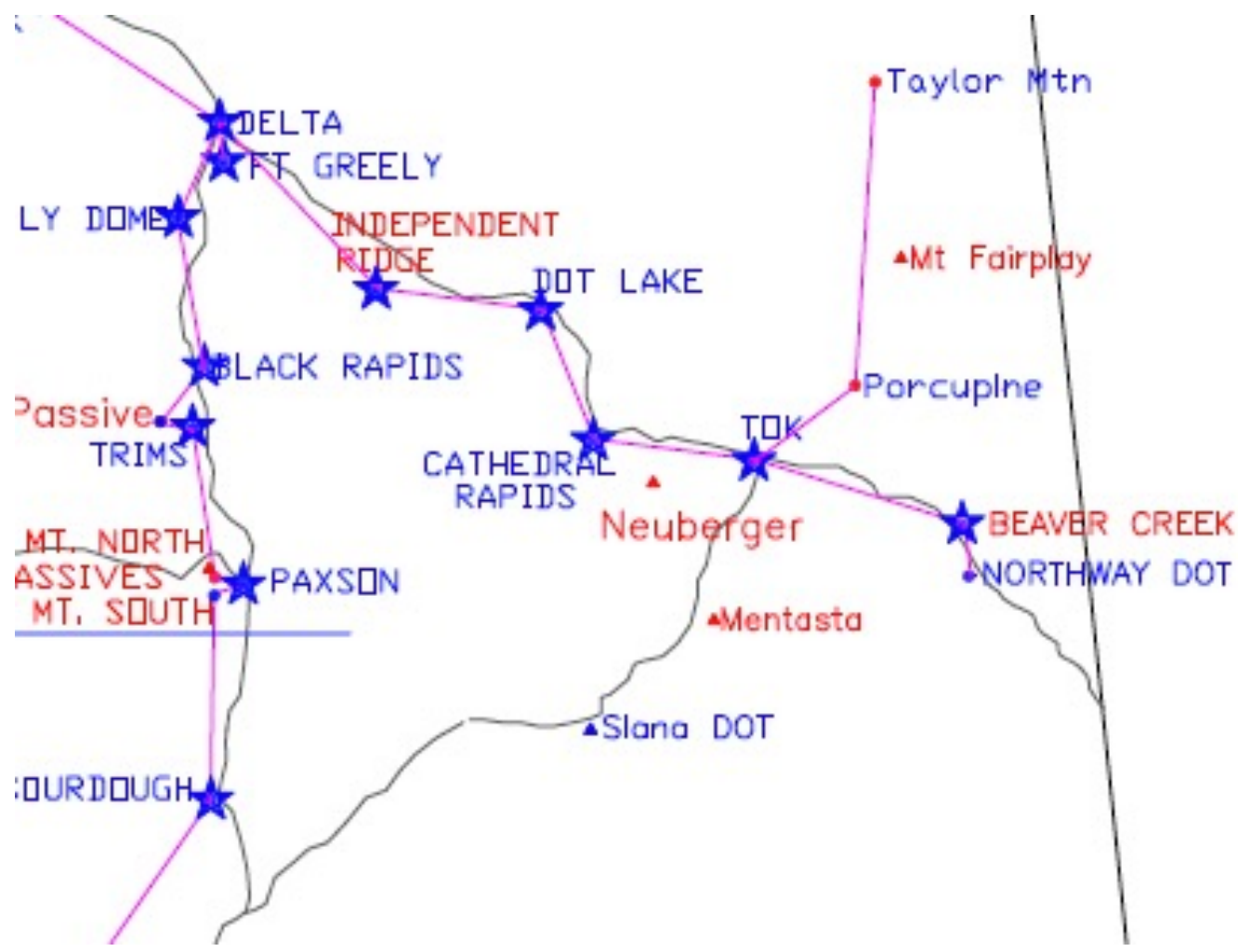
- Zone 1: All areas south of the Denali Highway
- Zone 2: All areas north of the Denali Highway
- Zone 3: (reserved for possible Southeast expansion)
- Zone 4: Anchorage Wide Area Radio Network (AWARN)
- Each zone has a master site: Zone 1 and 4 in Anchorage, Zone 2 in Fairbanks



# ALMR Sites

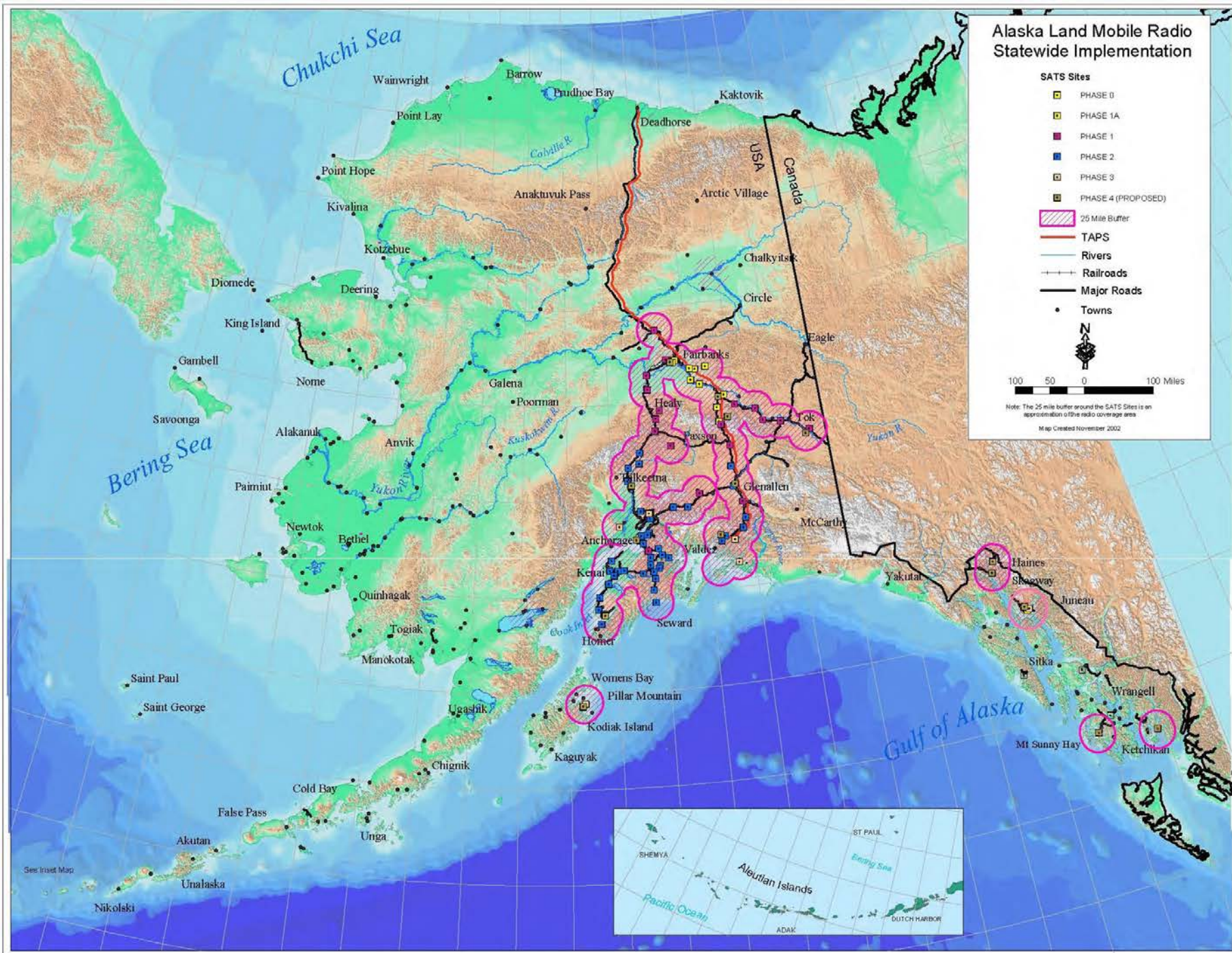
- About 85 tower sites make up the ALMR system
- The sites are connected via the State of Alaska Telecommunications System (SATS)
- Almost all sites feature redundant network connections.
- All sites have emergency power capabilities.





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**MOBILE RADIO**

# Organization and Governance

- Alaska Public Safety Communications Services (APSCS)
- System Management Office (SMO)
- Operations Management Office (OMO)
- User Council
- Executive Council
- Key Partners: State of Alaska, Department of Defense, Alaska Municipal League, Municipality of Anchorage



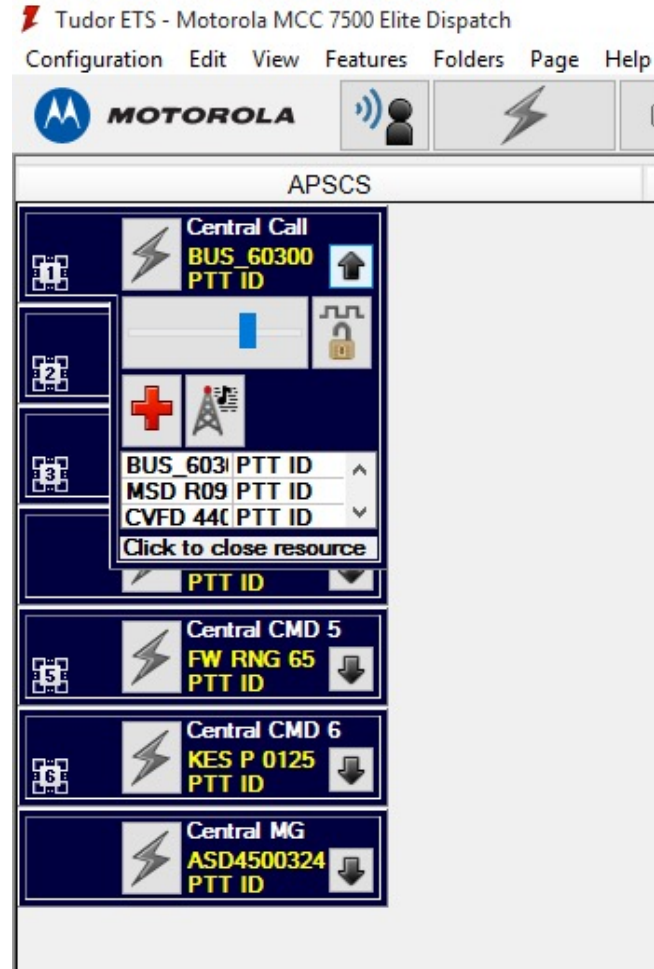
# Console Functionality

# Selecting a Radio Resource





# Expanding and Compressing a resource window



# Frequency Select

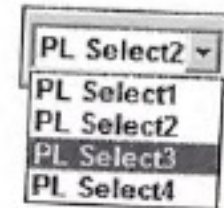
Some radio resources may have specific frequencies that can be selected, for example a primary and backup repeater

Not usually an option on ALMR talkgroups

Click the expand button on the resource to view the options



*Frequency Select*



*Private Line Select*



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# Activity Log

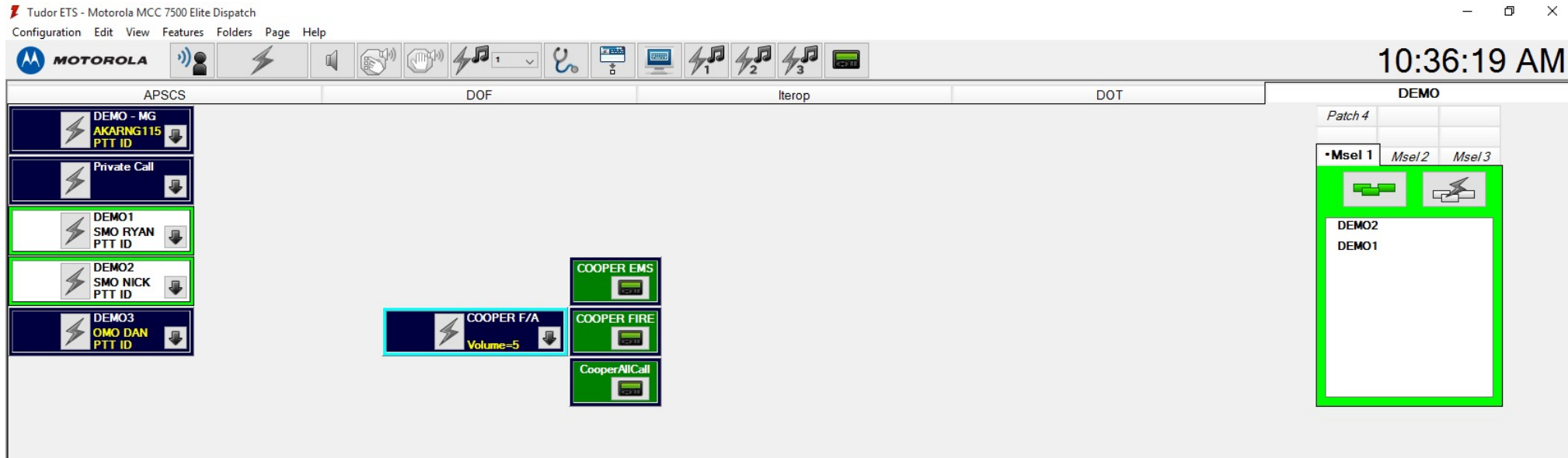
Activity Log - Elite Dispatch

Palmer 13245  
Volume=5

9:17:20 AM	DOF FAS	DOF 2155147	2155147	2	1	PTT ID
9:17:15 AM	North DOF Bkup 2	1155192	1155192	2	2039	PTT ID
9:17:14 AM	DOF DAS	DOF T05	1155192	2	22	PTT ID
9:17:14 AM	DOF TAS	DOF T05	1155192	2	22	PTT ID
9:17:14 AM	DOF FAS	DOF T05	1155192	2	22	PTT ID
9:17:11 AM	North DOF Bkup 2	2155147	2155147	2	2039	PTT ID
9:17:11 AM	DOF DAS	DOF 2155147	2155147	2	1	PTT ID
9:17:11 AM	DOF TAS	DOF 2155147	2155147	2	1	PTT ID
9:17:11 AM	DOF FAS	DOF 2155147	2155147	2	1	PTT ID
9:17:05 AM	North DOF Bkup 2	1155192	1155192	2	2039	PTT ID
9:17:04 AM	DOF DAS	DOF T05	1155192	2	22	PTT ID
9:17:04 AM	DOF TAS	DOF T05	1155192	2	22	PTT ID
9:17:04 AM	DOF FAS	DOF T05	1155192	2	22	PTT ID
9:11:23 AM	SYSTECH 1	ALMR SYSMGR:WAVE System	20	0	0	PTT ID
9:08:21 AM	LMR TECH	ALMR SYSMGR:WAVE System	20	0	0	PTT ID
9:07:10 AM	SYSTECH 1	Dan:WAVE System	145	0	0	PTT ID
9:07:05 AM	SYSTECH 1	Dan:WAVE System	145	0	0	PTT ID
9:07:04 AM	SYSTECH 1	Dan:WAVE System	145	0	0	PTT ID
9:06:56 AM	SYSTECH 1	SMO TRAVIS	1295113	1	30	PTT ID



# Multi-Select



- Putting frequencies or talkgroups in a multi-select group allows you to transmit on all of them simultaneously



# Patch

Tudor ETS - Motorola MCC 7500 Elite Dispatch

Configuration Edit View Features Folders Page Help

MOTOROLA

10:37:00 AM

APSCS      DOF      Iterop      DOT

DEMO - MG  
AKARNG115  
PTT ID

Private Call

DEMO1  
SMO RYAN  
PTT ID

DEMO2  
SMO NICK  
PTT ID

DEMO3  
OMO DAN  
PTT ID

COOPER F/A  
Volume=5

COOPER EMS

COOPER FIRE

CooperAllCall

DEMO

•Patch 3	•Patch 5	•Patch 6
Msel 3	•Patch 1	•Patch 2
<b>Patch 4</b>	Msel 1	Msel 2

- A patch links frequencies or talkgroups together that allows users to talk with each other



# Patch

Tudor ETS - Motorola MCC 7500 Elite Dispatch

Configuration Edit View Features Folders Page Help

MOTOROLA

10:37:05 AM

APSCS      DOF      Iterop      DOT      DEMO

DEMO - MG  
AKARNG115  
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DEMO3  
OMO DAN  
PTT ID

COOPER F/A  
Volume=5

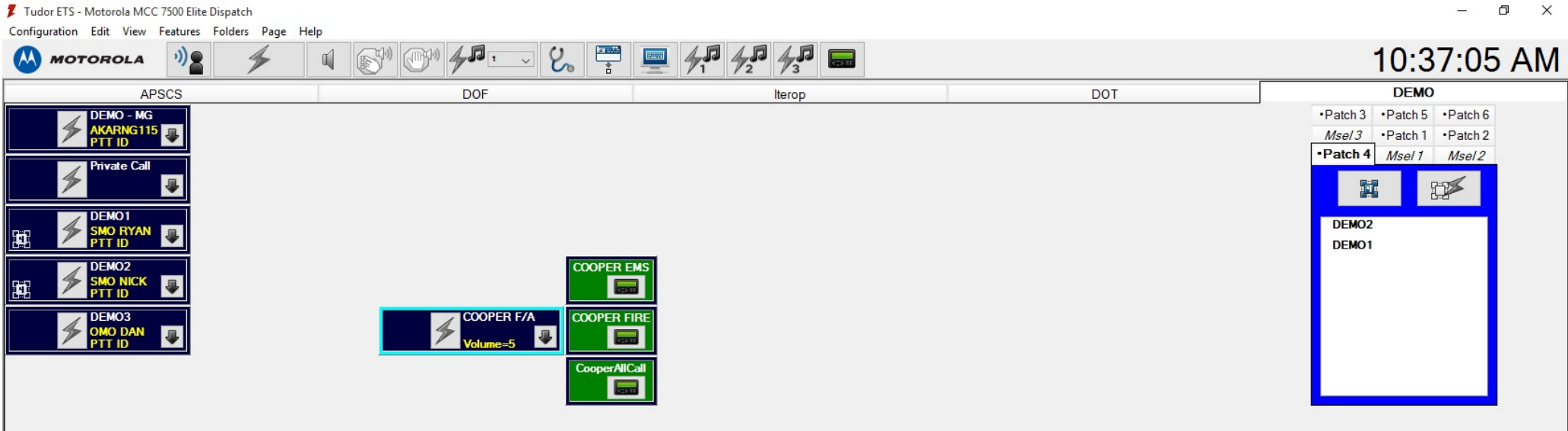
COOPER EMS

COOPER FIRE

CooperAllCall

•Patch 3 •Patch 5 •Patch 6  
Msel 3 •Patch 1 •Patch 2  
•Patch 4 Msel 1 Msel 2

DEMO2  
DEMO1



# Auxiliary Inputs and Outputs

- Small white buttons on the console can be configured as aux inputs/outputs
- They can be configured to do many different things such as opening/closing doors, controlling lighting, and other functions
- Some require you to hold down the button to activate the function, while others need one click to toggle on and another to toggle off





# Emergency Alarm

- Typically the orange button on radio

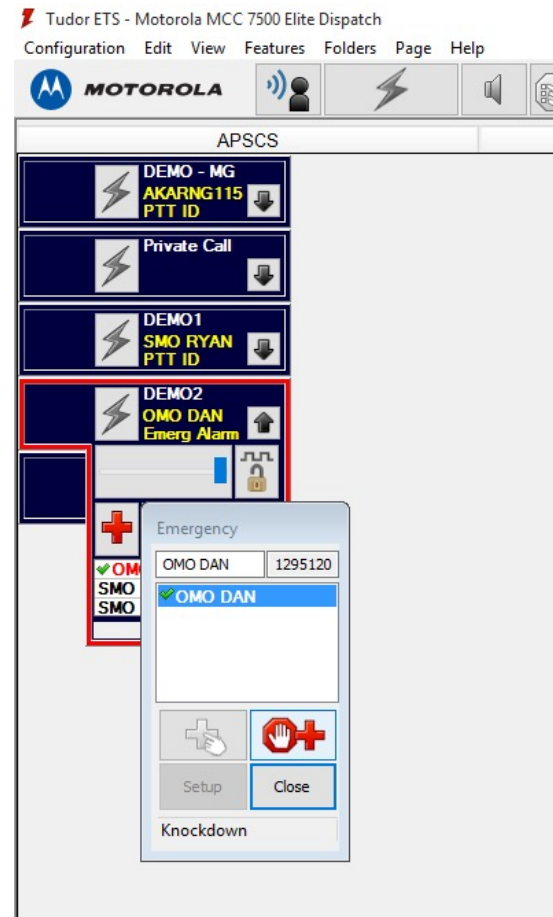
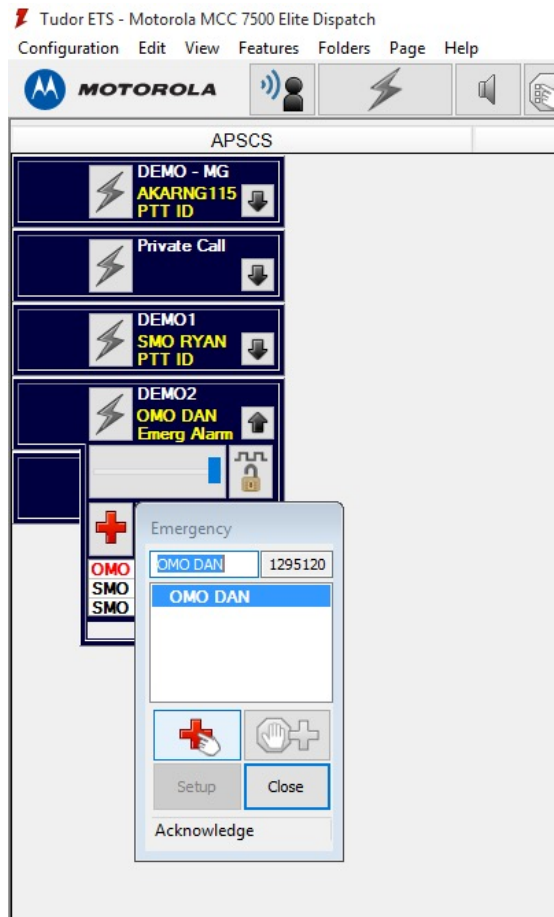
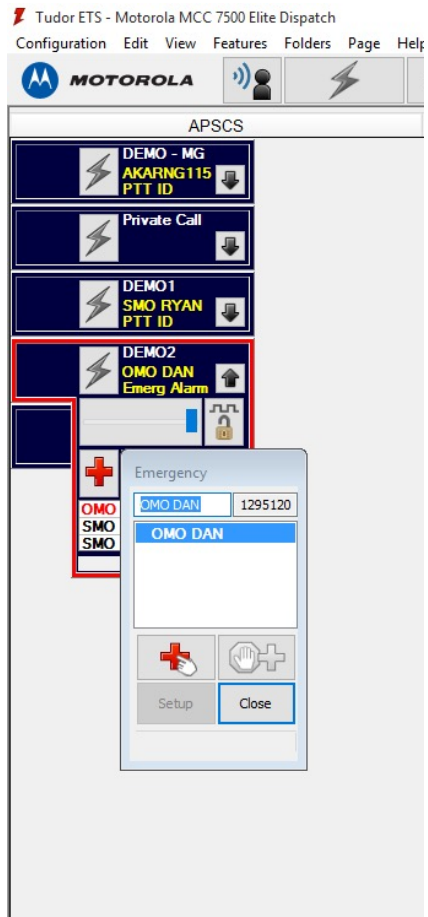




# Emergency Alarm



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# Potential Radio Issues

# Bonk

- The “Bonk” sound typically is caused by two issues on the radio: The radio is out of range and can’t affiliate with a site, or that site is too busy to accept the radio traffic
- Each site has a specific number of channels. One channel is dedicated to a control channel, the others can be used for radio users. If those channels are full, the site is busy.

7 Alcantra	1	2	3	4
7 Alcantra				
Busy: none				
	Control Channel			
	5			



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# Site and Wide Trunking

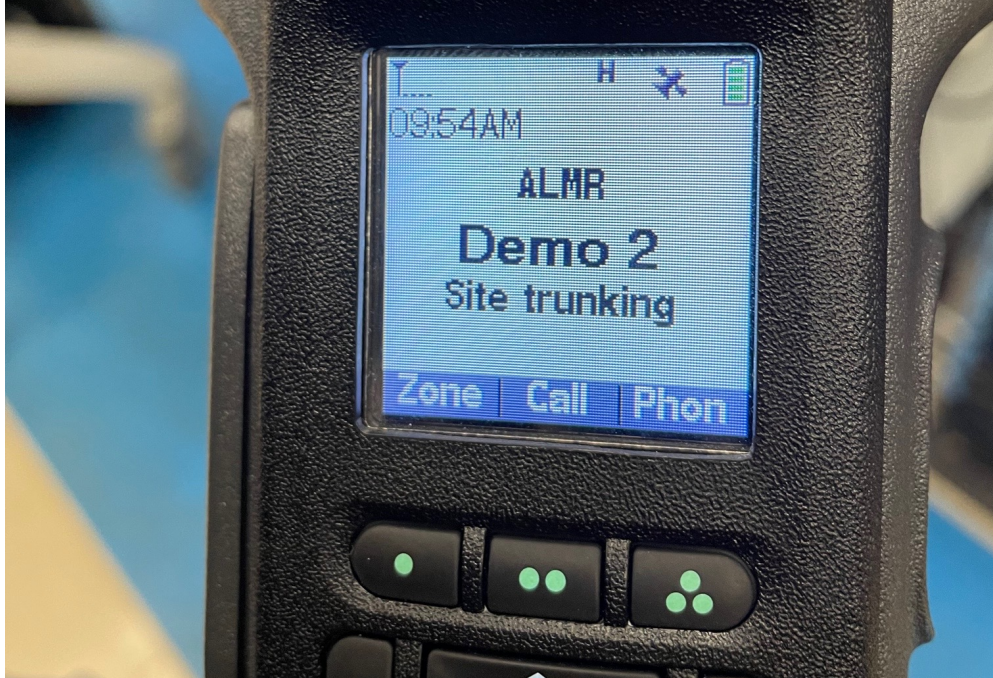
- Trunking refers to the ability for a site to reach other radios in the network
- Wide trunking is the default operation, it uses the SATS system to communicate with other sites.
- Site trunking means that a particular site has lost the connection with the rest of the network:
  - Radios in site trunking can only talk to radios that were affiliated with that site when trunking was lost
  - New radios won't affiliate to a site in site trunking
  - Most radios display an alarm when a site moves to site trunking



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# Site Trunking indicators

- Radios, depending on how they are programmed, will give an indication of site trunking on the screen.
- Mobiles will generally turn orange and give an audible alarm





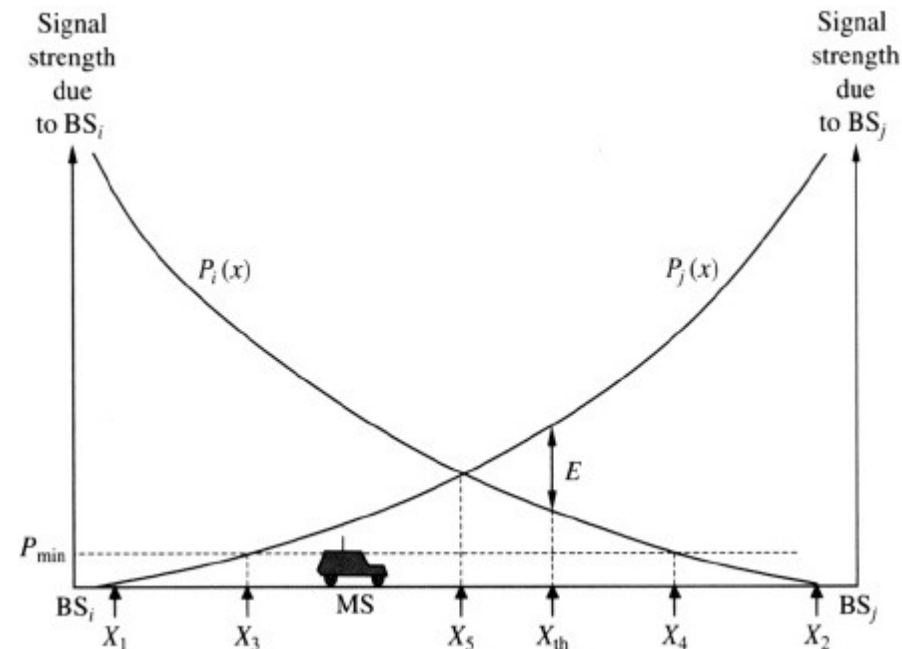
# Portables and Mobiles

- Mobile radios are typically mounted in vehicles, while portables are handheld radios.
- Mobile radio typically have 55 watts of transmit power, while a portable typically has 6.
- The ALMR system was designed for 90 percent mobile radio coverage.



# Affiliation

- When a radio is powered on, it affiliates with a particular site, generally with the strongest signal strength
- As the radio moves around, it can re-affiliate with a site that has a stronger signal
- Programming issues can affect affiliation, can cause momentary bonk





# Audio Concepts

- Compared to conventional radio, ALMR is a digital system
- In older radios, you may be able to make out words through static or know someone is attempting to key up
- Digital radios are generally “all or nothing” - signal strength is there until it’s not. It won’t fade out or get worse and then fail.



# Common causes of coverage issues

- Portables will see diminished coverage on ALMR. Some areas are known to have limited coverage
- Antennas, location, and equipment at the ALMR site
- Use of the radio (orientation, portable in a vehicle, in/out of building)
- Radio programming
- Individual unit maintenance



# System Maintenance

# Site Maintenance

- To keep updated on site maintenance, consult the daily report e-mailed to dispatch centers Monday – Friday
- Additional notifications are sent when specific sites have scheduled or unscheduled maintenance



# Preventative Maintenance

- Each site has at least one preventative maintenance visit per year
- Upgrades and repairs may warrant additional site visits
- PM downtime is usually about 15 minutes
- Dispatch centers in the affected area are called before proceeding



# Quarterly Zone Controller Maintenance

- Each Zone (1, 2, 4) has a zone controller – the central controller for the system
- There is also a redundant zone controller in each zone
- Quarterly, system patches require a rollover to the other zone controller
- Typical downtime is less than one minute



# Reporting Issues

# Available Support

- ALMR Helpdesk available Monday – Friday 7:30am – 4:30pm
- Helpdesk and SATS team available 24/7 for emergencies
- Motorola provides remote monitoring and assistance 24/7
- For routine issues: please call or e-mail the helpdesk during normal business hours
- Emergency issues: Call the helpdesk number to be routed to an on call technologist
- Monitor the Daily System Status report





# Helpful information

- Date and Time
- Radio ID number or Alias
- Description of the issue
- Location of the radio
- Site affiliated with, if known
- Any commonalities



ALMR Help Desk: (907) 334-2567  
ALMR-Helpdesk@beringstraits.com

ALMR Operations Management: (907) 777-1109  
Dan.Nelson@wostmann.com

[www.alaskalandmobileradio.org](http://www.alaskalandmobileradio.org)



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