

ALMR INSIDER

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Alaska Land Mobile Radio Transportable Communications Systems

ALMR Help Desk

In Anchorage:
334-2567

Toll Free within
Alaska (outside of
Anchorage):
888-334-2567

E-mail:
almr-helpdesk
@inuitservices.com

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Overview

The State of Alaska (SOA) Telecommunica-
tions System (SATS) microwave network pro-
vides the wide-area connectivity for the
Alaska Land Mobile Radio (ALMR) Communi-
cations System.

Therefore, ALMR primarily provides coverage
along the major road system and in some por-
tions of Southeast Alaska. Recognizing the
potential need for communications outside the
ALMR coverage area and SATS infrastruc-
ture, two transportable/deployable, self-
contained ALMR sites were designed and
built for the Department of Defense. The
transportable systems are assets of Joint
Task Force, Alaska, and available to the ser-
vices to meet their mission needs, including
their Defense Support to Civil Authority
(DSCA) role if certain deployment criteria are
met.

In an emergency, and when approved by the
Commander Alaskan Command, the units can
be deployed anywhere in the state by truck,
heavy-lift helicopter, or large cargo aircraft.

Transportable Communications Systems

The transportables are designed to integrate
into the existing ALMR fixed infrastructure.
One system is designed to operate in the
South Zone, the other in the North Zone.

The transportable systems provide four criti-
cal functions in support of sustained emer-
gency communications. First the transport-
able is designed to "plug" into the existing
system to provide emergency replacement, or
fill in for site infrastructure that is damaged
or down for repair. Second, the design allows
for the transportable system to be added to
the wide-area system, as needed, to expand
the loading capacity at a location where emer-
gency response has overwhelmed the existing
capacity. Third, the transportable is designed
to provide a stand-alone 5-channel trunked
radio capability with reach back to the fixed
infrastructure. Last, the transportable pro-
vides a continuity of operations (COOP) capa-

bility. This capability provides critical com-
munications to service emergency operations
centers, joint field offices, or other command
centers when those facilities have been dam-
aged or when operations must be moved to a
tactical field level outside the ALMR fixed
coverage area.

Each transportable/deployable consists of
multiple modules that can be transported
via tractor-trailer, C-130/similar-sized cargo
plane, or Chinook/similar-sized helicopter.
Transportable Area South (TAS) encom-
passes all five modules, while Transportable
Area North (TAN) does not have Module 4
(the 4.5 Meter C-Band Satellite Earth Sta-
tion Antenna Skid) or Module 5 (the Logis-
tics Skid). Only those modules required/
approved for the requested mission will be
transported for set up.

The following is a basic description of the
shelters/skids and their functions.

Communication Shelter

The Communications Shelter module is ap-
proximately 9 feet wide, by 16 feet long, by 9
feet high. It contains a five-channel RF site,
satellite control interface, an unlicensed 5.8
GHz microwave radio, a central electronics
bank (CEB) and a 48 VDC battery plant for
eight hours run time.

Dispatch Shelter

The Dispatch Shelter is approximately 9 feet
wide by 16 feet long by 9 feet high. It con-
tains one Motorola® Gold Elite console posi-
tion and a conventional UHF and VHF ra-
dios, marine band and air-to-ground radios,
a MotoBridge® RGU, OMC, ACP, SIP
Server, WSGU, and dispatch position.

Tower/Power Skid

The Tower/Power Skid is approximately 9
feet wide by 20 feet long and contains a
35KW self-contained diesel generator and
integral fuel tank designed for three con-
tinuous days of operation at half load. It
also contains a 50-foot, (continued on page 2)

ALMR Transportable Communications Systems (cont)

powered crank-up tower. It has permanently mounted antennas for the trunked RF site and two conventional frequencies.

C-Band Satellite Earth Station Antenna Skid

The C-Band transportable earth station is an Andrew 4.5 Meter Tri-Fold antenna mounted on a trailer/skid approximately 9 feet wide by 20 feet long.

Logistics Skid

The Logistics Skid is utilized to store ancillary equipment supporting the transportable during deployment. It also serves as a facility for maintenance operations while in the deployed state.

Contained within the Logistics Skid is the Unclassified Deployable Mesh (UDM) Network. The Mesh Network houses the Mesh™ Network components. It provides a robust wireless communications solution operating in the unlicensed 2.4GHz and the newly-licensed 4.9GHz public safety spectrum via microwave, fiber, or satellite connection, which supports up to four networks in a single access point with a two-mile radius coverage capacity.

Mesh network technology was originally developed for the military battlefield to provide instant, ad-hoc communication networks where fixed infrastructure was not available or deployable. The Mesh also provides WiFi access, security and real-time video, dedicated licensed network connectivity, and a license-free mobile broadband that is self-forming and self-healing and can deliver seamless

data connections and real-time video transfers to vehicles moving at highway speeds. The Logistics Skid measures 9 feet wide, by 20 feet long, by 9 feet high.

SkyTerra

The Transportable units are equipped to operate on the SkyTerra satellite network. Satellite Mutual Aid Radio Talk groups (SMART) are SkyTerra's nationwide and regional programs of public safety talk groups. These talk groups enable critical and interoperable communications among homeland security officials, law enforcement, emergency responders, and public safety officials from various departments and agencies across the United States.

Transporter

The Transporter is a tracked or wheeled, all-terrain trailer used to transport the modules/skids short distances, move the modules/skids from hot storage, stage modules for deployment, and place the modules back into their original configuration upon redeployment.

Tug

The Tug is a 2007 Ford F350 Bobtail, capable of towing 30K pounds at 25 mph. It is used to pull the transporter.

Rapid Deployable System

The Rapid Deployable System (RDS) Shelter provides a fast, easy, durable, and versatile structure for first responders, command posts, operations centers, or other remote operation uses.

ANSI Approves Channel Naming Standard

The Association of Public-Safety Communications Officials (APCO) International and the National Public Safety Telecommunications Council (NPSTC) today announced the approval of the American National Standard (ANS) to ensure national consistency of interoperability on related radio channels. *APCO/NPSTC ANS 1.104.1-2010: Nomenclature for the Public Safety Interoperability Channels* was approved by the American National Standards Institute (ANSI) on June 9 and provides a standardized naming format for each Federal Communications Commission (FCC) and National Telecommunications and Information Administration (NTIA) designated Interoperability Channel in the Public Safety and Federal government Radio Services.

"The public safety community uses spectrum allocated by the FCC and NTIA in multiple bands that is replete with interoperability channels," APCO International Executive Director George Rice said. "It is necessary to develop and employ a common set of channel names so that all responders to an incident know which channel to tune their radios to, as well as the band and primary use for the channel."

NPSTC Chair Ralph A. Haller said that he was pleased

to see such a positive step forward in interoperability saying, "Common interoperability channel names will help to assure that any organization responding to an emergency will be able to establish contact immediately when arriving on scene. Although the specific channel names were initially controversial, the new standard represents the collective efforts of public safety agencies across the country to reach consensus. NPSTC is pleased to have been instrumental in this process."

The issue of common channel naming has been on the forefront since the mid-1980s and was again highlighted during the terrorist attacks on September 11, 2001 and Hurricane Katrina. In 2006, NPSTC reviewed and updated the Standard Channel Nomenclature recommended in the *700 MHz National Coordination Committee's Final Report*. This new protocol has been widely adopted across the country in the intervening period, and requests to the federal government resulted in finalizing standard names for similar channels in federal agency spectrum earlier this year. APCO International facilitated the most recent version of the Standard Channel Nomenclature document through the ANSI standardization process. (Extracted from the NPSTC Press Release, June 17, 2010).

Exploring Your Radio's Capabilities

The basic function of radios on the Alaska Land Mobile Radio (ALMR) Communications System is to transmit voice communications, whether they are open or encrypted, to other users authorized to be in the same talkgroup. Most users are pleased with the quality of the audio on ALMR radios, but may not have explored the additional capabilities beyond basic voice transmissions.

The software-definable radios are, to steal a phrase, "not your father's radios." The Project 25 (P-25), digital, Voice-over-Internet Protocol (VoIP) Very High Frequency (VHF) radios have capabilities and capacity barely imagined by first responders just a few, short years ago. Essentially, these radios are computers capable of transmitting voice and data, but can provide a number of other functions to assist the first responder carrying the radio.

One of the functions that some Motorola® users may not be aware of is the annunciation function, which can be programmed to audibly "announce" the zone and talkgroup as the selector knob is turned this allows the first responder to know if they have selected the correct position of the knob without having to look at the radio directly. Although the research was not exhaustive, the Operations Manager was only able to find three agencies operating on ALMR who currently take advantage of this feature. Assistant Chief Ernie Wyrick, Rural Deltana Volunteer Fire Department, has activated the annunciation function in his agency's radios, as well as radios for the City of Delta Junction Volunteer Fire Department and

the Delta Rescue Squad by recording the appropriate voice announcements for each of the zones and talkgroups. He has volunteered to answer any questions from ALMR users that are interested in utilizing this feature on their radios. You can contact Assistant Chief Wyrick at 907-378-6691 or ruraldeltanavfd@gmail.com.

Additionally, although the Fairbanks Fire Department does not utilize the annunciation function when they are in the ALMR trunking mode, they do use it in the conventional mode as part of their fire ground accountability safety process.

The following is a brief description, from Motorola®, of annunciation:

The channel announcement feature allows you to convert and compress voice/audio files from a ".wav" format to a ".mvf" (Motorola® Voice File) format, then load the .mvf voice files into the Customer Programming Software (CPS), and, ultimately, assign these individual voice files to the radio's channels/modes. The voice recording will now play when the radio user changes the radio to a channel with an assigned voice file. Additionally, a "channel announcement" button can also be programmed to allow the user to hear the radio's current voice recording, whenever needed.

Although this article focused primarily on Motorola® radios, please note that Kenwood radios also have this capability.

ALMR Enhances EMS Response

The ability of EMS Paramedics to talk directly with Emergency Room (ER) doctors at the hospital while at the scene of an incident, or en route to the hospital, can sometimes make a critical difference to the patient. Until recently, EMS crews in the Fairbanks area often could not talk directly with the ER staff by conventional radio until they were within a few miles of the hospital, or were in an area with cell phone coverage and the cell phone system was not overloaded with calls.

In a meeting of Fairbanks area first responders and hospital staff earlier this year, a decision was made to dedicate one of the Alaska Land Mobile Radio (ALMR) Fairbanks North Star Borough talkgroups to radio traffic between EMS units in the field and Fairbanks Memorial Hospital (FMH) and Bassett Army Hospital (BAH) on Fort Wainwright.

EMS crews are now able to contact either of the Fairbanks area hospital ERs directly by radio for medical consultation during a patient transport from anywhere in the ALMR coverage area. Previously during a transport from Delta Junction to Fairbanks, an EMS unit would not have been able to speak with the ER until they were within the cell phone coverage area or in close proximity

to the hospital. Additionally, should the intended destination hospital need to divert the EMS unit to the other hospital, they might have been delayed in contacting the transporting unit, potentially creating crucial delays for the patient to receive care.

ER staff in the hospitals normally monitor their radios maintaining constant availability should an EMS units need to contact them. However as we all know, an ER can occasionally turn chaotic in a short timeframe. The possibility exists that a radio call from an EMS unit could be missed. To ensure this doesn't occur, a procedure has been developed whereby the Fairbanks Regional Dispatch (FRD) monitors the EMS talkgroup. If the ER at either hospital fails to respond to radio traffic from an EMS unit, FRD (after three attempts) will either "tone out" that ER or contact them by phone to advise them the EMS unit is attempting to contact them.

The coordination of effort by Fairbanks area hospital and EMS responders to serve the public by taking advantage of the capabilities provided by ALMR is just another example of that areas continuing commitment to communications interoperability between agencies.

Statewide Incident Command (IC) Zones

Statewide IC Zone	
HAIL	Monitored by Fairbanks AST Dispatch
S TAC 1	South Zone Tactical Responder Talkgroup
S TAC 2	South Zone Tactical Responder Talkgroup
S TAC 3	South Zone Tactical Responder Talkgroup
N TAC 1	North Zone Tactical Responder Talkgroup
N TAC 2	North Zone Tactical Responder Talkgroup
N TAC 3	North Zone Tactical Responder Talkgroup
TAC SX	Conventional Talk-Around
CMD 1	Command Talkgroup
CMD 2	Command Talkgroup
CMD 3	Command Talkgroup
CMD 4	Command Talkgroup
CMD MG	Command Multi-group
S TAC MG	Multi-group
N TAC MG	Multi-group
DYN RGP	Dynamic Regroup

The Statewide IC, OP, and Admin Zones should be programmed into all ALMR radios. Regional IC Zones should also be programmed (as capacity allows). All zones can be found in the ALMR CONOP, pgs 17 - 23 (www.alaskalandmobileradio.org/documents.htm).

Help Desk In Anchorage Bowl:
334-2567

Toll Free within Alaska:
888-334-2567

Fax: 907-269-6797

Email: almr-helpdesk@inuitservices.com

Website: <http://www.alaskalandmobileradio.org>

FACTOID
As of June 30
Voice Calls:
5,084,306
Data Allocations:
2,086,702

**Alaska Land Mobile Radio
 Operations Management Office
 5900 E. Tudor Road, Suite 121
 Anchorage, AK 99507-1245**

