

ALMR INSIDER

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ALMR Help Desk

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ALMR is referred to as P25 compliant. What does that really mean?

PROJECT 25

Project 25 (P25) is a set of standards produced through the joint efforts of the Association of Public Safety Communications Officials (APCO), the National Association of State Telecommunications Directors (NASTD), selected Federal Agencies and the National Communications System (NCS), and standardized under the Telecommunications Industry Association (TIA). P25 is an open architecture, user driven suite of system standards that define digital radio communications system architectures capable of serving the needs of Public Safety and Government organizations. The P25 suite of standards involves digital Land Mobile Radio (LMR) services for local, state/provincial and national (Federal) public safety organizations and agencies. P25 open system standards define the interfaces, operation, and capabilities of any P25 compliant radio system. A P25 radio is any radio that conforms to the P25 standard in the way it functions or operates. P25 compliant radios can communicate in analog mode with legacy radios and in either digital or analog mode with other P25 radios. The P25 standard exists in the public domain, allowing any manufacturer to produce a P25 compatible radio product.

Manufacturer's P25 radios currently approved for ALMR are Motorola, EF Johnson, and Kenwood. ICOM is currently testing on ALMR and Thales is planning on testing in the near future.

The development of the P25 standard had four main objectives:

- Ensure competition in system life cycle procurements through Open Systems Architecture
- Allow effective, efficient and reliable intra- and interagency communications
- Provide enhanced functionality and capabilities with a focus on public safety needs
- Improve radio spectrum efficiency

TIA is a national trade organization of manufacturers and suppliers of telecommunica-

tions equipment and services. It has substantial experience in the technical aspects of radio communications and in the formulation of standards with reference thereto. TIA is accredited by the American National Standards Institute (ANSI®) as a standards developing organization.

PHASES

P25 compliant technology is being deployed in several phases. ALMR technology is compliant with Phase 1.

Phase 1 - radio systems operate in 12.5 KHz analog, digital or mixed mode. Phase 1 radios use Continuous 4 level FM (C4FM) non-linear modulation for digital transmissions. Phase 1 P25 compliant systems are backward compatible and interoperable with legacy systems, across system boundaries, and regardless of system infrastructure. In addition, the P25 suite of standards provides an open interface to the RF subsystem to facilitate interlinking of different vendors' systems.

Phase 2 - radio systems will achieve one voice channel or a minimum 4800 bps data channel per 6.25 kHz bandwidth efficiency. The P25 Phase 2 FDMA solution is finalized (CQPSK), and an alternate TDMA solution is currently under development. Phase 2 implementation achieves the goal of improved spectrum utilization. Also being stressed are such features as interoperability with legacy equipment, interfacing between repeaters and other sub-systems, roaming capacity and spectral efficiency/channel reuse.

Phase 3 - Implementation of Phase 3 will address the need for high-speed data for public-safety use. Activities will encompass the operation and functionality of a new aeronautical and terrestrial wireless digital wideband/broadband public safety radio standard that can be used to transmit and receive voice, video and high-speed data in (continued on page 4)

The System Management Office Role in ALMR

The Alaska Land Mobile Radio (ALMR) Communications System provides day-to-day and emergency communications capabilities to more than 90 member agencies operating approximately 14,000 subscribers units. The System provides a wide area communications capability stretching from just North of Fairbanks to South at Ketchikan, and from East near the Canadian border to as far West as Kodiak over 80 plus repeater sites. As discussed in a previous edition, the State of Alaska Telecommunications System (SATS) provides connectivity to the far flung sites primarily through its microwave system. SATS is maintained and operated by the State of Alaska Enterprise Technology Services within the Department of Administration.

The System Management Office (SMO) oversees the technical aspects of the ALMR System which is operated and maintained by the ALMR partnership through a shared contract with Bering Straits Information Technology (BSIT). BSIT is a subsidiary of the Bering Straits Native Corporation. To provide the services necessary to ensure that ALMR is available 24/7, BSIT has formed sub-partnerships with Motorola, North Slope Telecommunications, Inc., Alaska Telecom, Inc., Alaska Wireless, and others to provide the resources necessary to provide a rapid and timely response thereby ensuring this important communications systems is available to public safety first responders.

As set out in the contract, the SMO provides an integrated suite of services to ALMR users. Those services include Help Desk Support, System Management Services, System Maintenance Services, Transportable deployment, storage of critical spare ALMR equipment, and System status reporting. In a separate contract with the United States Army Alaska (USARAK) and Alaskan Command (ALCOM), the SMO provides property administration support services.

User requests for service, preventive maintenance, and responses to maintenance issues are coordinated through the Help Desk. The chart below outlines those services provided to users, as well as services required to maintain the availability of the System.

Service Category	Services Include
General Services	User inquiries; reset radios; information and contact requests
Reporting Services	Daily and monthly reports providing system status, issue tracking and issue resolution information
Asset Management Services	Inventory lists; lost/stolen equipment; equipment repair
System Management Services	Coordinate user services; support ALMR user groups; information assurance management
Infrastructure Maintenance Services	Preventive maintenance; OEM authorized technologist services; Transportable maintenance
Technical Support Services	24/7 system monitoring; issue/dispatch management; diagnosis and resolution of system performance services
Security Services	System vulnerability assessments; user accounts; DIACAP compliance

More detailed information on the services provided to ALMR users through the SMO is available in the SMO Customer Support Plan (CSP) in the Plans section on the Documents page of the ALMR website (www.alaskalandmobileradio.org), by emailing almr-helpdesk@inuitservices.com, or by calling 1-888-334-2567 from outside of Anchorage or 334-2567 within the Anchorage bowl.

ALMR/IWN/OWIN Demonstration

Staff members from the Alaska Land Mobile Radio (ALMR) Communications System Operations Management and System Management Offices recently participated in a multi-state, multi-agency interoperability demonstration involving the Integrated Wireless Network (IWN) and the Oregon Wireless Interoperability Network (OWIN). Utilizing the ALMR Transportable Area South (TAS) 10 Meter Satellite dish and the TAS MotoBridge™ gateway unit, connectivity was established through a General Communications Incorporated (GCI) satellite uplink/downlink to a GCI earth station in Washington State. A commercial T-1 “tail circuit” serviced by Verizon established connectivity to the Washington State Patrol (WSP) Communications Center in Marysville, Washington. The WSP center then connected circuits to the IWN dispatch console in Bothell, Washington and the Oregon State Police (OSP) dispatch center in Salem, Oregon.

The connectivity established through the satellite system and the MotoBridge™ gateway in Alaska to the earth station in Washington enabled direct voice communications between Alaska public safety responders utilizing ALMR radios, Federal law enforcement agencies in the Seattle area utilizing IWN radios, Royal Canadian Mounted Police (RCMP) utilizing a cross-border talk group on IWN, and the Oregon State Police (OSP) dispatch center console,

which then extended the connectivity to an OSP Mobile Command vehicle. The final phase of the test plan called for utilizing the ACU-1000 gateway installed in the command vehicle to “bridge” an Oregon State Police (OSP) unit to Soldotna AST Dispatch who would then “bridge” the OSP unit, via the dispatch center’s Motorola MotoBridge™, to a Kenai Peninsula Borough emergency services mobile unit. Due to connectivity difficulties, this part of the demonstration was not successfully accomplished during the time window set aside for the tests. Trouble shooting to determine how to correct the connectivity issues continues, and the “bridging” tests will be conducted at a later date.

While the connectivity, and subsequent interoperability capability, is not likely to be needed on a regular basis between Alaska, Washington and Oregon, the technical requirements, the process and procedures to establish the link will be documented. Although not instantly available due to the use of commercial carriers, should the need arise in the future for this type of capability as a result of natural- or man-caused damage to other communications links it will provide an alternative for an interoperable communications allowing for coordination of efforts by emergency responders in Alaska, Washington, and Oregon.

Standardized Interoperable Channel Naming

If the “Big One” does occur, Alaska will no doubt be inundated with outside Federal and state assistance. These assisting agencies will arrive with their own radios programmed with the National Standardized Interoperability Channels. These channels will be the first line of interoperability with Alaska’s Federal, State, and local government agencies until the outside entities can be transitioned onto the Alaska Land Mobile Radio (ALMR) Communications System via MotoBridge™ or by reprogramming their radios.

Some ALMR agencies have yet to program the National Standardized Interoperable Channels into radios, or they are still utilizing with the old interoperability channels/naming convention. In either case, it is imperative that the standardized channels be programmed, as soon as possible, with adherence to the National Standardized Naming Convention to avoid communications delays during critical, emergency incidents.

The ALMR Standard Channel Naming Convention Policy and Procedure 400-10 can be found on the ALMR website (www.alaskalandmobileradio.org) on the

‘Documents’ page. Additional information can be obtained in the Department of Homeland Security (DHS) National Interoperability Field Operations Guide (NIFOG), which can be found at www.npstc.org/documents/NIFOG_1_3.pdf.

It may be possible to utilize DHS grant funding for the reprogramming of local agency radios. Agencies should check with the State of Alaska, Division of Homeland Security and Emergency Management at (907) 428-7064, to see if funds are available.

FACTOID

System Totals For 2009

Voice Calls - 9,622,521

Data Allocations - 3,719,468

Busies - 35,187

P25 Compliant (cont)

wide area, multiple-agency networks. The European Telecommunications Standards are working collaboratively on Phase 3, known as Project MESA (Mobility for Emergency and Safety Applications). Current P25 systems and future Project MESA technology will share many compatibility requirements and functionalities.

CONVENTIONAL VS. TRUNKED

In general, radio systems can be separated into conventional and trunked systems. A conventional system is

characterized by relatively simple geographically fixed infrastructure (such as a repeater network) that serves to repeat radio calls from one frequency to another. A trunked system such as ALMR is characterized by a controller in the infrastructure which assigns calls to specific channels. P25 supports both trunked and conventional radio systems. (Ref: Daniels Training Guide, TG-001 P25 Radio Subsystems, January 2007; www.danelec.com)

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

FCC Narrowbanding Requirements and ALMR

The ALMR System is fully compliant with the Federal Communications Commission (FCC) and National Telecommunications and Information Administration (NTIA) narrowbanding requirements which become effective January 1, 2013.

However, agencies planning on retaining their legacy systems as a backup to ALMR need to ensure they have taken the steps necessary to continue utilizing that system when necessary.

Agencies should be well along in preparing to migrate to narrowband systems by having assessed their current legacy radio equipment and applying for new or modified licenses, as necessary.

A new information and resource site has been launched for the benefit of all Part 90 VHF and UHF LMR/SMR licensees interested/involved with narrowbanding. It is located at <http://www.wirelessradio.net>.

FACTOID

**On ALMR as of
Dec 31, 2009:**

Agencies - 98

**Subscriber Units -
13,551**

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