ALMR INSIDER

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Planning for the Future - The 2014 National Emergency Communications Plan

In 2007, the Department of Homeland Security (DHS) Office of Emergency Communications (OEC) was tasked with developing and periodically updating the National Emergency Communications Plan (NECP)-the country's first strategic plan for emergency communications. OEC released the first NECP in 2008, at a time when land mobile radio (LMR) was the primary tool for maintaining mission critical voice communications.

LMR remains the primary tool used by public safety for mission critical voice communications, but advances in technologies are rapidly changing the face of emergency communications. With this in mind, OEC recently spearheaded an effort to update the nation's emergency communications plan, culminating with the release of the 2014 NECP in November.

The new NECP effectively balances the need to integrate existing and emerging broadband capabilities into emergency communications planning with a continued emphasis on maintaining and improving LMR systems. First responders are increasingly turning to mobile data services and applications such as live video streaming, mapping and location-based services, large data file transfers and telemetry, for example, to supplement LMR-based mission critical voice capabilities. This trend will only accelerate with the deployment of the nationwide public safety broadband network (NPSBN), which will provide broadband access exclusively for use by public safety agencies, enhancing situational awareness and information sharing capabilities.

OEC is currently providing technical assistance and support to public safety entities using commercial broadband and will continue to do so while the NPSBN is being built. Nonetheless, for some public safety agencies-especially many serving rural communities or those with limited resources to commit to new technology - maintaining and improving LMR capabilities will continue to be an emergency communications planning priority for the foreseeable future.

(Article taken from Public Safety Communications, December 2014, Mr. Ron Hewitt and Mr. Chris Essid)

System Capacity Upgrades

Alaska Land Mobile Radio (ALMR) System capacity upgrades were recently completed by the State of Alaska (SOA) Enterprise Technology Services (ETS) and the ALMR System Management Office (SMO).

The first additional channel was added to the Cottonwood Creek site on November 21 and one channel, each, was also added to the Willow Mountain (December 16), Glennallen (December 17), Tolsona (January 5, 2015) and Tok (Jan 6, 2015) sites.

These sites were identified by the User Council, ETS, Operations Management Office (OMO) and SMO as priority sites in need of capacity upgrades. The decision was made by monitoring call load and site busies over the past two to three years.

As additional agencies come on the System, the three-channel sites can quickly become overwhelmed during even minor incidents. It is the intention of ETS and ALMR to upgrade all of existing three-channel sites to at least four channels, as funding becomes available.

The Pipeline Hills (Kenai Peninsula) three-channel site is the next site scheduled for an additional channel. This should take place some time in the first quarter of calendar year 2015.

(Article submitted by Mr. Rich Leber, ALMR Technical Advisor.)

ALMR Subscriber Programming Requirements

To ensure interoperability among Alaska Land Mobile Radio (ALMR) member agencies, the ALMR Executive and User Councils have established policies and procedures that must be adhered to when programming agency radios.

Some Federal, State and local agencies/organizations have chosen to program their own radios. This is not a problem if all ALMR policies, procedures and protocols are followed. Unfortunately, this isn't happening in some cases.

While not usually an issue for agency day-to-day operations, it becomes one during multi-agency/multi-jurisdictional emergency events, when first responders may not be able to communicate with one another because the programming in one, or both, of the radios doesn't comply with established ALMR programming standards.

We also see radios that haven't been "touched" in years and the programming is out of date. Any changes to ALMR, National, State and Regional Interoperability and Command Zones are always announced in the ALMR Insider newsletter and associated ALMR documentation. It is strongly suggested that each agency's radio technician check for programming changes annually, and update accordingly.

Established ALMR programming policies, procedures and protocols are all located on the ALMR web site www.alaskalandmobileradio.org. The following documents detail proper up-to-date programming and naming conventions:

> Concept of Operations (CONOP)
> Interoperability Procedure 300-3
> Usage and Transmission Protocols Procedure 300-6
> Talkgroup Development Procedure 400-14

Although the ALMR Help Desk won't be able to program your radios, they will assist with your programming questions. However, a list of Alaska commercial communications service providers that can program agency radios is available on the ALMR web site.

All State agencies should directly coordinate their radio programming with the Department of Administration, Enterprise Technology Services office.

If you have further questions, please contact the Operations Management Office.

(Article submitted by Mr. Rich Leber, ALMR Technical Advisor)

Tests Find Portables Fail During High Temperature Exposure

New test results from the National Institute of Standards and Technology (NIST) confirm that portable radios used by firefighters can fail to operate properly within 15 minutes, when exposed to temperatures that may be encountered during firefighting activities.

NIST researchers are furnishing their test data and performance measurements to the National Fire Protection Association (NFPA), which is developing a performance standard for portable radios used by emergency personnel. The NFPA committee is using the testing for standards development.

All seven of the firefighter portable radios tested by NIST failed to perform properly within 15 minutes when exposed to temperature levels encountered in "fully involved" fires, as when all the contents in a room or structure are burning. Four of the handheld radios stopped transmitting, and three experienced significant "signal drift," rendering the radios unreliable for communications.

As is typical for portable firefighter radios, all seven radios had a manufacturer-listed maximum operating temperature of 60 degrees Celsius (140 degrees Fahrenheit). The failures occurred while the radios were subjected to a temperature of 160 degrees Celsius (320 degrees Fahrenheit), termed Thermal Class II conditions. This temperature is representative of a fully involved fire or conditions

outside a room when its contents burst into flames simultaneously, a phenomenon known as flashover. During the post-test cool-down period, three of the radios did not recover normal function.

Funded by the U.S. Department of Homeland Security (DHS), the NIST tests further ongoing work to develop performance standards for firefighter portable radio equipment, which includes radios, wearable combinations of speakers and microphones and related items. The existing standard provides only general guidance that portable radios "be manufactured for the environment in which they are to be used."

All radios tested by NIST performed reliably when exposed to a temperature of 100 degrees Celsius (212 degrees Fahrenheit) for 25 minutes, or Thermal Class I conditions, akin to a small fire in a room or fighting a fire from a distance. No tests were conducted under more extreme fire conditions (Thermal Classes III and IV).

"By releasing this report, we hope to raise awareness of the limitations of the radio equipment in elevated thermal conditions," said Donnelly. "We also hope that it will encourage manufacturers to pursue improvements to their equipment ahead of the new standard."

(Excerpts from 17 December Mission Critical Communication Transmission Weekly News by Sandra Wendelken 12/11/14)

FCC Agreement for Cross-Border Public Safety Communications

Federal Communications Commission (FCC) Chairman Tom Wheeler and Industry Canada Senior Assistant Deputy Minister Kelly Gillis have signed an agreement allowing public safety officials who cross the U.S.-Canada border to use their hand-held radios in either country.

The agreement – a Statement of Intent between the FCC and Industry Canada – expands roaming privileges originally granted to public safety officials in a 1952 Treaty.

The Statement of Intent allows public safety officials to operate handheld radios in the other country, whereas the 1952 Treaty only contemplated the cross-border operation of radios installed in public safety vehicles. The Statement of Intent also eliminates the need for the host country to issue permits to public safety officials crossing the border provided the radios used by such officials are licensed in their country of origin.

The Statement of Intent is available on the International Bureau web site at http://transition.fcc.gov/ib/sand/agree/files/CBPSC.pdf.

(Article extracted from "FCC Announces Agreement with Industry Canada for cross-border Public Safety Communications," Tom Sullivan, October 20, 2014, Federal Communications Commission Newsletter)

700MHz Narrowbanding Deadline Eliminated

In new 700 MHz narrowband spectrum rules, the FCC eliminated the 6.25-kilohertz narrowbanding deadline for 700 MHz spectrum, reallocated reserve spectrum for T-band licensees, and encouraged Project 25 (P25) Compliance Assessment Program (CAP) certification by manufacturers and licensees.

The 700 MHz narrowbanding deadline was Jan. 1, 2017, and the decision allows public-safety officials who were in limbo awaiting a decision to move forward with equipment purchases and network decisions. The order eliminating the 700 MHz narrowbanding requirement "will enable licensees to extend the life of existing systems and will provide public safety with greater flexibility in determining the optimal future use of the band."

The commission also released reserve spectrum to provide additional capacity, particularly for licensees relocating to the 700 MHz band from the UHF T-band. According to the rules, T-band public-safety licensees have priority for licensing the former reserve channels, reallocated to general use channels, in T-band areas.

The order also revised and updated the technical rules for the 700 MHz band to enhance interoperability and open certain channels to new uses. Specifically, the FCC redesignated channels in the 700 MHz band that are currently licensed for secondary trunking operations for public-safety aircraft voice operations, consistent with a 2010 National Public Safety Telecommunications Council (NPSTC) proposal. The FCC also allowed voice operations on data interoperability channels on a secondary basis.

The new order has the potential to give renewed vigor to the P25 CAP. The FCC encouraged manufacturers of 700 MHz public-safety radios to obtain P25 CAP certification for new equipment to demonstrate that the equipment meets P25 interoperability standards as required by Section 90.548 of the commission's rules. CAP certification will presumptively establish compliance with Section 90.528; manufacturers that elect not to obtain CAP certification must disclose their basis for asserting compliance.

The commission also encouraged public-safety licensees to incorporate CAP into their solicitations for supporting equipment. In addition, the rules recommend, but don't require, that 700 MHz radios operating on interoperability calling channels employ the P25 Network Access Code (NAC) $293. The FCC clarified that 700 MHz radios must be capable of being programmed to any of the 64 interoperability channels, but that all interoperability channels don't have to be accessible to the radio's user. The rules also clarified that analog operation is not allowed on the 700 MHz interoperability channels.

In addition, the order adopted rules governing the spectral output of signal boosters when simultaneously retransmitting multiple signals. The commission also adopted effective radiated power (ERP) as a regulatory parameter in this band, in place of transmitter power output (TPO).

The rules declined to establish a Nationwide Interoperability Travel Channel and declined to increase the permissible 2-watt ERP for radios operating on the mobile-only low-power channels.

In 2013, the FCC proposed updating the 700 MHz narrowband technical rules, which were adopted in 1998 as part of the digital TV transition. The new report and order is available at http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db1024/FCC-14-172A1.pdf

(Article excerpts extracted from "700 MHz Narrowbanding Deadline Eliminated, Spectrum Prioritized for T-Band Licensees," Sandra Wendelken, October 28, 2014, Radio Resource Media Group)

SATS/ETS 2014 Milestones

ALMR relies upon the State of Alaska (SOA) Telecommunications System (SATS) to provide the network connectivity needed to operate. As an integral part of the overall System, SATS maintenance is crucial to the health of ALMR.

The ETS division works tirelessly throughout the year to guarantee SATS is healthy, along with working countless other projects for the State.

The following lists only a couple of their major milestones in 2014.

⇒ SATS Dashboard Web Portal Implemented
  • Provides central location for critical information on SATS sites
  • Includes real-time and historical alarms, current break/fix issues, site details documentation, asset management and maintenance tracking
  • Significantly improves information availability and alarm notification to SATS staff
  • Working a follow-on project to create a mobile app extending functionality of SATS Dashboard

⇒ Deferred Maintenance-Year 4 of 5
  • Microwave Upgrades - Implementation of new microwave equipment in the Kenai area of the SATS system to increase bandwidth while replacing end-of-life equipment
  • MPLS Alcatel Project - Continued expansion of the MPLS network by installing several 7705 routers throughout SATS
  • Power Systems Improvements - Installed new commercial power line to Cordova/Heney Range site. Upgraded multiple battery backup/charging systems at SATS; enables remote/more efficient power management
  • Executed several heavy lift helicopter support projects. New shelters placed at five sites and three shelters removed from two sites

(Article submitted by Mr. Max McGrath, SATS/ETS Manager)

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2014 ALMR Factoids

Annual Total Voice Calls:

13,796,423

Annual Total Data Allocations:

4,167,043

Total Subscriber Units*:

19,247

Total Member Agencies*:

122

(*end of year)

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