ALMR INSIDER

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Inside this issue:

What is the Status of Narrowbanding Today?

On January 1, 2013, the Federal Communications Commission (FCC) has mandated that all public safety and business industrial land mobile radio (LMR) systems operating in the 150-512 MHz radio bands must cease operating using 25 kHz efficiency technology and begin operating on channel bandwidths of 12.5 kHz or less, or that meet a specific efficiency standard, e.g., utilize two- or four-slot TDMA.

Who Is Affected: This mandate affects any users operating at VHF (150-174 MHz) and UHF (421-512 MHz) utilizing Part 90 frequencies. This includes but is not limited to public safety, public works, utilities, hospitals, higher education, and K-12 schools. After January 1, 2013, licensees not operating at 12.5 KHz efficiency will be in violation of the Commission's rules and could be subject to FCC enforcement action. In addition to the FCC's deadline of January 1, 2013 for all licensees to cut-over to new narrowband equipment, there are some "interim" deadlines. For example, there is a date by which no more new or modified operations on 25 KHz bandwidth channels may be initiated, and there are certain deadlines that apply to equipment manufacturers and importers.

Narrowbanding is not required in 800 MHz; it only applies to the VHF and UHF Part 90 spectrum (low band, 30-50 MHz and 220 MHz are not included). Although a deadline for the second phase of narrowbanding, conversion to 6.25 KHz channel efficiency, has not been specified by the FCC for VHF/UHF licenses, a deadline has been established which requires 700 MHz channels to operate at 6.25 KHz efficiency by January 1, 2017.

Certain Interim Narrowbanding Deadlines Extended: In response to a stay request filed by NPSTC, the FCC extended two of the interim VHF/UHF narrowbanding deadlines that were to go into effect on January 1, 2011. The original requirements would have required a 6.25 KHz equivalent mode in all new radios and would have made it difficult to secure new 25 kHz equipment.

The FCC extended the following interim 2011 requirements until January 1, 2013:

- Prohibition on the manufacture or import of equipment that includes a 25 kHz efficiency mode.
- Requirement that equipment submitted for certification include a 6.25 kHz efficiency mode.

However, the FCC declined to extend the following interim deadlines which remain in effect for January 1, 2011:

- Prohibition on new or expanded 25 KHz operations. Such requests will require individual waivers and be handled on a case-by-case basis.
- Prohibition on manufacturer certification of equipment which includes a 25 KHz mode, wide area, multiple-agency networks.

ALMR was designed and implemented as a narrow band compliant system and therefore, is compliant with the FCC mandate. However, a number of ALMR member agencies have retained their original conventional system as backup and will need to address the narrowband mandate prior to January 1, 2013. (Extracted from www.npstc.org/index.jsp)

Communications Spotlight

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)

FM Approvals Proposed Standards for Intrinsically Safe Radios

Background:

The American National Standards Institute (ANSI), International Society of Automation (ISA), and Underwriters Laboratories (UL) are organizations that publish consensus standards that are developed through the participation of manufacturers, regulators, and consultants as well as standards certification organizations such as FM Approvals. The ANSI/ISA 60079 series for intrinsically safe electrical equipment applies to equipment used in hazardous locations, including land mobile radios. FM Approvals intends to adopt the revised ANSI/ISA 60079 -11 standard in January 2012, in their FM 3610 series of standards.

Under the existing FM Approvals 3610 standard, battery-operated devices such as portable land mobile radios would need to be redesigned by January 1, 2012, to meet the new intrinsically safe standard.

Much concern has been raised over the past few months that a January 2012 deadline was unreasonable for manufacturers to meet but of even more concern is potential impact on radio systems such as ALMR when the batteries meeting the new standard are put into use.

Various land mobile user groups have expressed concerns about the standard, which would effectively require that portable radios emit signals at less than 1 watt instead of the multi-watt capability that is available in most current land mobile radio portables.

It is anticipated that entities wanting to have intrinsically safe systems under the new standard would need to replace their portable units. Additionally, they would need to deploy more towers and repeaters so that the lower-powered portables would be able to effectively communicate on the system.

Current status:

Apparently due to the concerns expressed about the standards, FM Approvals indicated at a recent National Public Safety Telecommunications Council (NPSTC) meeting that they would like to work with user groups and manufacturers to define a new effective date for implementation of the standard. While NPSTC members appreciated the opportunity to discuss the standards implementation with FM Approvals, the general feeling among the NPSTC members is the new intrinsically safe standard is unnecessary because the existing standard has provided users with high level of safety for years and has not been cited as deficient in anyway.
(excerpts extracted from articles in Urgent Communications, Dec 10, and NPSTC, Nov 10)

Statewide OP Zone

Statewide OP Zone		Owning agencies are not required to monitor these channels. Available for statewide use. Conventional Wideband Channels Expire Dec 31, 2012
LE SX	Law Enforcement Simplex Channel 155.2500	Non P25 wideband conventional (wide)
CnC	AK Command and Control Channel 155.2950	Non P25 wideband conventional (wide)
EMS	AK Emergency Medical Services 155.1600	Non P25 wideband conventional (wide)
CH 6	Marine Ch 6 156.3	Marine Frequencies (Programmed into DOD radios as Receive Only)
CH 16	Marine Ch 16 156.8	Marine Frequencies (Programmed into DOD radios as Receive Only)
CH 17	Marine Ch 17 156.85	Marine Frequencies (Programmed into DOD radios as Receive Only)
CH 22A	Marine Ch 22A 157.1	Marine Frequencies (Programmed into DOD radios as Receive Only)
VCALL10 (conventional)	National Incident Calling Plan VHF Channel 155.7525 (NAC 293)	Federal Calling Plan Channel National P25 Channel (narrow)
VTAC11 (conventional)	National Incident Tactical Plan VHF Channel 151.1375 (NAC 293)	Federal Calling Plan Channel National P25 Channel (narrow)
VTAC12 (conventional)	National Incident Tactical Plan VHF Channel 154.4525 (NAC 293)	Federal Calling Plan Channel National P25 Channel (narrow)
VTAC13 (conventional)	National Incident Tactical Plan VHF Channel 158.7375 (NAC 293)	Federal Calling Plan Channel National P25 Channel (narrow)
VTAC14 (conventional)	National Incident Tactical Plan VHF Channel 159.4725 (NAC 293)	Federal Calling Plan Channels National P25 Channel (narrow)
ASTT	Alaska State Trooper Talkgroup (trunked)	Coordinate use of this channel with Alaska State Troopers
EMST	Emergency Medical Services Talkgroup (trunked)	Coordinate use of this channel with AK Emergency Medical Services
DECT	Dept of Environmental Conservation Talkgroup (trunked)	Coordinate use of this channel with AK Dept of Environmental
DNRT	Dept of Natural Resources Talkgroup (trunked)	Coordinate use of this channel with AK Dept of Natural Resources

Achieving Interoperability: It's about More than Just the Hardware

When public safety officials and first responders address interoperability, their focus has often turned to the hardware, such as radios, gateways, base stations and other infrastructure. However, making this equipment operate as effectively as possible also requires addressing the "soft components" of interoperability. Interoperability activities are crucial to ensuring that responders can communicate when needed. During a disaster or emergency, or when they travel from their home jurisdiction to a neighboring one, first responders need to operate using procedures that ensure reliable communications among all parties involved. Addressing these aspects early on through formal agreements and published policies, procedures and protocols, as ALMR has done, substantially decreases the likelihood that communications problems will arise.

To ensure interoperability of even the most sophisticated system, the following foundational aspects as set out in the Interoperability Continuum need to be in place:

- **Governance:** Governance relates to the structure that is established to oversee the implementation and continuing use of interoperable communications among users of the system. Effective governance requires a formal organizational structure and in the case of ALMR this is set out in the Cooperative Agreement and further defined in the Executive Council and User Council Charters. (available at alaskalandmobileradio.org)

- **Standard operating procedures:** In addition to an established governance process, effective standard operating policies and procedures (available at alaskalandmobileradio.org) need to be established. To minimize communications related issues during the integration of responders from multiple jurisdictions and disciplines, ALMR policies and procedures have been established that address relevant procedural steps that address anticipated issues i.e.:
  - Which Incident Command zones will be utilized, regional or statewide?
  - What Incident Command talk groups will be assigned?
  - How will MotoBridge be utilized?

- **Technology:** ALMR is a P-25 standards based, VOIP, digital, wide area shared System

- **Training & Exercises:** Standardized policies and procedures need to be translated into actions that police officers, firefighters, EMS personnel and other first responders can understand and use. First responders must receive training on the procedures, and they should participate in exercises to practice the procedures and observe the outcomes of their actions. Simulations will often uncover issues in the SOPs or systems that can be resolved long before a real disaster strikes. ALMR user agencies are encouraged to conduct training and engage in local and multi-jurisdictional exercises as often as possible.

- **Usage:** ALMR public safety personnel use the interoperable communications capabilities of the System as part of their daily activities. Critical incidents don't occur regularly however, to the extent that emergency responders use these resources day to day and across disciplines the likelihood of communications barriers occurring during a major incident is substantially lessened.

- **Additional Considerations:** Agencies should simplify communications plans so they are easily grasped and executed by the personnel on the street. Also, furnishing sufficient instruction in how to use interoperable resources can be a tremendous challenge because training must include law enforcement personnel, firefighters, EMS providers, dispatchers managing multiple channels and emergency responders who are specifically trained to set up interoperable field gateways. However, a similarity among these users is that most don't have an in-depth understanding of all the technical details. Therefore; training should focus on what channels to use, how to access them and how to communicate with outside responders coming onto the scene. Standardized policies and procedures are meaningless unless they are translated from the work of planners to the work of the actual users. They must be practiced in training exercises and activities in the field. Funding through the Interoperable Communications Emergency Grant Program (ICEGP), may be available to communities interested in further developing the "soft side of interoperability" needed to make the most effective use of hardware and technology. (extracted from a white paper from L.R. Kimball, May 2010)

ALMR and AWARN Update

The initial planning and design for the Alaska Land Mobile Radio (ALMR) Communications System envisioned a combined State and Department of Defense interoperable system of 90 VHF sites, plus the inclusion of the Anchorage Wide Area Radio Network (AWARN) with their 15 planned 700 MHz sites.

The State of Alaska recently completed the last of the currently planned and funded ALMR sites in Haines (operational as of November 2010) and Ketchikan (operational as of September 2010). The completion of these two sites brings the total of ALMR sites to 82. Funding for build out of the remaining State ALMR sites (Curry, Gilmore Creek, Grandview Tunnel, Houston, Hunter, Petersburg, Mt Sunny Hay, Sitka, and Wrangell) has not been identified at this time.

The Municipality of Anchorage (MOA) has completed build out of the first six sites of the AWARN system. Within the AWARN coverage area, several agencies, including the Anchorage Fire Department, are utilizing the system. Work continues on the remaining sites and expansion of the MOA microwave system that provides connectivity for AWARN.

High Mountain Site (Ketchikan)

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FACTOID

As of Dec 31, 2010:

106 Agencies

14,428 Radios

9,833,178 Voice Calls

3,925,293 Data Allocations

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