



NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL

Intrinsically Safe Radios Discussion
Tuesday, November 16, 2010 | 5:00 pm - 7:00 pm
Call in 888-569-3956 | ID 9975153594

Call to Order and Introductions, Marilyn Ward, Executive Director, National Public Safety Telecommunications Council (NPSTC), welcomed those assembled to a meeting to discuss revisions to be made to the intrinsically safe standard for electrical equipment, including Land Mobile Radios (LMR). This revision to the standard that the public safety community only learned of last month would have a serious financial impact on the public safety community. Ms. Ward thanked representatives of FM Approvals, a standards certification testing organization, for attending the meeting and agreeing to answer questions. The goal of the meeting was to develop recommendations for a solution to the problem. Participants are listed at the end of these minutes.

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 LMR. FM Approvals intends to adopt the revised ANSI/ISA 60079-11 standard in January 2012, in their FM 3610 series of standards. The revised standard appears to be driven not by any concern that the existing standard is unsafe, but rather to harmonize the U.S. standard with international standards.

The ANSI/ISA 60079 national standard has formally been adopted by every Nationally Recognized Testing Laboratory (NRTL) in the U.S. (FM Approvals, UL, ITS, and CSA), under the Occupational Safety and Health Administration (OSHA). All certification organizations that test and certify equipment for hazardous locations are under the auspices of OSHA's NRTL program.

NPSTC is very concerned about the potential implementation of FM Approvals Standard 3610-2010 [*FM Approvals' designation for the revised standard, ANSI/ISA 60079-11*] due to the negative technical and financial impact on public safety users of LMR that require the intrinsically safe certification. The impact of the changes identified in this approval standard will extend far beyond basic product design considerations on portable radio equipment. NPSTC is unclear as to whether the impact to LMR intrinsically safe operations was considered when the updated/harmonized version of 60079-11 was adopted and/or whether any consideration was ever given to the appropriateness of including LMR equipment in the general "electrical automation equipment" category, particularly in light of the fact that LMR equipment has seemingly not caused any problems operating in hazardous conditions under the previous/existing certifications.

FM Approvals Certifications Updates, FM Approvals representatives Robert Martell, Paris Stavrianidis, Steve Zenofsky, and Patrick Burns attended the meeting to answer questions and to propose a possible solution to the problem. Representatives of UL and CSA International, additional testing and certification organizations, were invited to attend the meeting but did not respond.

Mr. Martell presented what he called an interim solution to be used until a revised standard can be developed that everyone can agree to support. He said FM Approvals wants to get public safety's feedback on how this new standard impacts public safety. He'd like to get written input from the public safety associations on issues such as the typical lifespan of a handheld radio, how public safety would implement a new system to the standard, etc. Ms. Ward provided an example of the very high costs to public safety based on an assessment of how much it would cost Pinellas County, Florida, to implement the changes.

FM Approvals proposes to work with ISA, the organization that developed ANSI/ISA 60079-11 and with UL, an organization that holds a similar ANSI standard in the U.S., along with the public safety and manufacturing communities. They (FM Approvals) support the development of a consensus standard that is completely transparent to all participants. FM Approvals would like the manufacturers and end users to also contact ISA and UL to seek commitments from both ISA and UL, along with FM Approvals, to consider this option.

Fred Moloznik, Motorola representative to TIA-TR8.17, asked if, under the FM proposed solution, a manufacturer develops a brand new product in 2012, would the new product be evaluated to the 3610-2010 standard, assuming that the industry has not established a new standard with ISA or UL yet? If the industry and UL, with FM Approvals help, established a new LMR standard that goes into effect in 2017, will new products introduced between 2012 and 2017¹ be evaluated to the 3610-2010, and then in 2017 new products would be evaluated to a "new-new" consensus standard? FM Approvals proposed that they would postpone the January 2012 date currently slated for adoption of the new FM 3610-2010 standard and establish in conjunction with end users and manufacturers a new effective date for the FM3610-2010 standard.

FM Approvals will continue to approve current equipment to FM 3610-1988 as intrinsically safe, but will ask manufacturers to make no changes or additions that impact intrinsic safety design considerations to radios, batteries, and accessories that were FM approved before Jan 2012. Manufacturers must freeze (i.e., not make any changes to) existing designs of land mobile radios and accessories that were FM approved prior to January 1, 2012, in order for those products to continue to be FM Approved until the new "effective date" Mr. Martell said that users will benefit because after 2011 manufacturers can continue to make and sell products approved to the 1988 standard, provided they make no design changes after 2011. Users can continue to purchase replacement accessories and batteries for the useful life of radios approved to the 1988 standard.

¹ Note that 2017 is a key milestone for public safety, in that 700 MHz narrowband systems are required to operate at 6.25 kHz equivalency.

All new products or re-designed products would be evaluated to the new FM 3610-2010 standard, starting in January 2012, or to a new consensus standard (mentioned above) with a “new-new” effective date, Mr. Martell said.

Greg Riddle, Association of Public Safety Communications Officials – International (APCO), asked if there are no problems with the current standard and it works as currently designed, why change the standard at all? The proposed change as demonstrated in the Pinellas example alone could cost between \$36 and 45 million. Mr. Martell stated that standards change because of technology changes. Terry Hall, APCO, said that it would cost \$28 million to change his new \$62 million system. He added that manufacturers are constantly migrating new products for the user and accessories for LMR, particularly for the fire services. Public safety can’t wait for 5 years to buy these new products while a new standard is being developed. Regarding the desire to harmonize standards world wide, he said, the U.S. uses P25 and Europe uses TETRA. He added that it is unrealistic to put the noose around the vendors.

Mr. Stavrianidis said that the new U.S. national standard has already been changed; what FM seeks is a way to collectively change that new U.S. national standard. The 1988 standard is not defunct, but there is a newer standard that will override the former standard, beginning in January 2012. FM Approvals is willing to work with public safety to change that new national standard and to postpone implementation of FM 3610-2010.

Harlin McEwen, International Association of Chiefs of Police (IACP), and Chair, Public Safety Spectrum Trust (PSST), said no one in this room supported this idea and the cost will be in the billions. There is no local or state money to do this. “We are trying to make it clear that you are a solution looking for a problem,” he said. “There is no current danger today with the existing standard. Unless you can demonstrate a danger, you will have a big battle.”

Leonard Edling, Haz Mat Chief, Chicago Fire Department, said that the standard includes a reduction of battery power. On the fireground, firefighters use simplex communications, radio to radio, and a power level of 1 to 2 watts in the fireground will not work. He would have to put twice as many people in harm’s way to ensure communications in a fire. The lower power won’t work for SWAT or anyone that wears protective clothing. Mr. Martell replied that there is nothing in the revised ISA standard that limits the power of a radio, calling such concerns a product design issue. FM Approvals wants to work with public safety to urge ISA and UL to develop a new standard for public safety and industry, again adding that the new standard is needed because technology, including battery technology, has changed.

Pam Montanari, Pinellas County, Florida, Vice Chair, NPSTC Interoperability Committee, said the cost of the actual radios is only one piece of the puzzle; each city and county has millions of dollars worth of infrastructure. Bob Speidel, Harris, TIA-PRS, said that ISA admits that the impact for LMR or portable radios was not considered during the development of the new standard. Mr. Stavrianidis said FM needs the influence of the public safety organizations to support a transparent process to develop a new national standard that addresses the needs of this community.

Karen Ray, Department of Homeland Security, Office for Interoperability and Compatibility (OIC), said that battery technology is safer than it was in 1988. She would like to have a more detailed discussion offline about why there is an assumption that batteries are so much more dangerous.

Thomas Roche, Police Chief (ret.), Gates, New York, said that he has been working in communications for 40 years, but never heard of this alleged problem. He said he was not convinced there is any problem. Ms. Ward said Ted Schnaare, ISA, told NPSTC that this was FM's decision. Mr. Schnaare said there is a difference between the designations used by the standards-setting organizations—zones for ANSI/ISA, and divisions for UL—that is related to the differences in international and U.S. organizations. Mr. Schnaare told Ms. Ward that the driving force behind the new standard was the manufacturing community, which wanted one test to apply to all equipment. Both standards rely on the same testing methods. Ms. Ward said this is basically a business decision by FM that fits their testing methods.

Dusty Rhoads, DHS, Office of Emergency Communications (OEC), asked for clarification of the process. He reprised Mr. Martell's saying that anything developed after 2012 has to be in compliance with the new standard. "This is about harmonizing how we test products going into a hazardous location, whether portable or fixed," Mr. Martell said. Mr. Stavrianidis reinforced FM Approvals' new proposal of two parallel paths; extending the FM3610-2010 effective date past 1/1/2012 date, and collectively working to develop a new national standard. This solution will allow public safety to purchase equipment certified to the old (1988) intrinsically standard if there are no changes from before 2012.

Ms. Ward proposed establishing a Working Group under NPSTC's Technology Committee to discuss the matter and gather more information. The Intrinsically Safe Working Group will be co-chaired by Tom Sorley, City of Houston, Chair, NPSTC Technology Committee, and Paul Szoc, International Municipal Signal Association (IMSA), and include Alan Caldwell, International Association of Fire Chiefs (IAFC); Mr. Edling, Rick Finn, Canadian Interoperability Technology Interest Group (CITIG); Chief McEwen, Lloyd Mitchell, Forestry Conservation Communications Association (FCCA); Ms. Montanari, Ms. Ray, Mr. Riddle, a representative from American Association of State Highway and Transportation Officials (AASHTO) to be designated by Bill Brownlow; Andy Thiessen, ITS, Vice Chair, NPSTC, Technology Committee; Lance Valcour, CITIG; and Stephen Verbil, State of Connecticut.

Mr. Sorley said the Working Group will engage UL and work with FM and move to solve this problem. He thanked the FM Approvals representatives for attending and their willingness to work with public safety.

Meeting Participants

Doug Aiken, International Municipal Signal Association (IMSA)

Jackie Bayless, NPSTC

Bill Brownlow, American Association of State Highway and Transportation Officials (AASHTO)

Patrick Burns, FM Approvals
Alan Caldwell, International Association of Fire Chiefs (IAFC)
Anthony Catalonetto, New York Fire Department
Nancy Dzoba, NPSTC
Leonard Edling, Chicago Fire Department
Rick Finn, Canadian Interoperability Technology Interest Group (CITIG)
Paul Fitzgerald, Story County, Iowa Sheriff, National Sheriffs' Association
Ray Flynn, Las Vegas Metropolitan Police, Major City Chiefs
Terry Hall, Association of Public Safety Communications Officials – International (APCO)
Ralph Haller, Chair, NPSTC
Terry LaValley, State of Vermont
Paul Leary, State of New Hampshire and DRED
Timothy Lowenstein, National Association of Counties (NACO) and SAFECOM ERC
Bob Martell, FM Approvals
Harlin McEwen, International Association of Chiefs of Police (IACP), and Chair, Public Safety Spectrum Trust (PSST)
Kevin McGinnis, National Association of State Emergency Medical Services Officials (NASEMSO)
Ferdinand Milanes, California Department of Transportation
Lloyd Mitchell, Forestry Conservation Communications Association (FCCA)
Fred Moloznik, Motorola, Member TIA-TR8.17
Pam Montanari, Pinellas County, Florida, Vice Chair, NPSTC Interoperability Committee
Michael Murphy, Project Manager, Gulf Coast Interoperability Cooperative
Larry Nyberg, Motorola, Vice Chair, Telecommunications Industry Association (TIA)-PRS
Stu Overby, Vice Chair, NPSTC Spectrum Management Committee
Paul Patrick, NASEMSO
John Powell, Chair, NPSTC, Interoperability Committee
Karen Ray, Department of Homeland Security (DHS) Science and Technology (S&T)
Dusty Rhoads, DHS, Office of Emergency Communications (OEC)
Greg Riddle, APC O
Thomas Roche, Police Chief (ret.), Gates, New York
Penny Rubow, Director, AWIN
Charlie Sasser, National Association of State Technology Directors (NASTD)
Tom Sorley, City of Houston, Chair, NPSTC Technology Committee
Bob Speidel, Harris, TIA-PRS
Paris Stavrianidis, FM Approvals
Bob Symons, State of Wyoming PSCC
Paul Szoc, IMSA
Andy Thiessen, ITS, Vice Chair, NPSTC, Technology Committee
Lance Valcour, CITIG
Stephen Verbil, State of Connecticut
Marilyn Ward, Executive Director, NPSTC
Steve Zenofsky, FM Approvals