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PUTTING FIRST RESPONDERS FIRST

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SCIENCE AND TECHNOLOGY



LOS ANGELES CONVENTION CENTER • LOS ANGELES, CA

JANUARY 16-17, 2008
HTTP://EVENTS.NSAS.DHS
EVENT # 0600

The Digital Radio Problem Update

Chief Charles Werner

Chair

Digital Problem Working Group

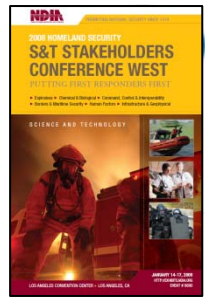
International Association of Fire Chiefs

“Putting First Responders First”



**Homeland
Security**
Science & Technology

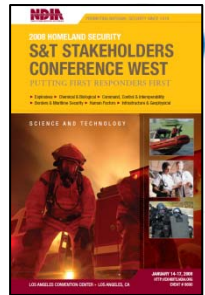
Background



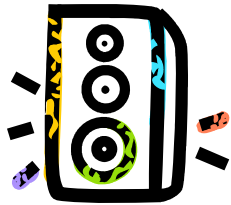
- ✘ In the Fall of 2006, a couple of U.S. fire departments discovered that the voice audio from digital radios in the presence of background noises (common to the fire operations) may cause distortion to the degree of becoming unintelligible.
- ✘ These Departments after not being able to get resolution to the problem or identify the cause other than it being in digital radios notified the IAFC, and the IAFF.



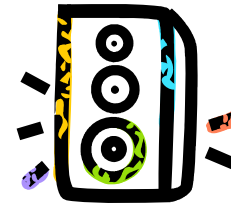
Example of the Issue



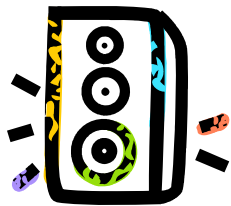
Analog
(no background noise)



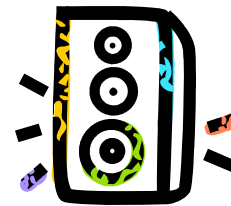
P25
(no background noise)



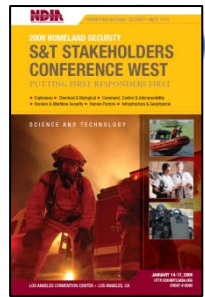
Analog
(fire truck)



P25
(fire truck)

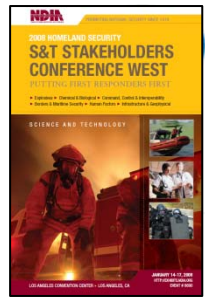


Actions Taken on the Issue



- ✘ March 20, 2007, the IAFC issued a Member Alert.
- ✘ The IAFC also approved the formation of a Working Group to determine the scope of the problem and work with manufacturers and other stakeholders to identify and/or develop short and long term solutions.
- ✘ On May 8, 2007, the Working Group convened and established two sub groups (Testing and Best Practices)
- ✘ The Testing Group is focused on more long term solutions while the Best Practices Group is focused on quicker solutions through behavior and/or operational modifications.

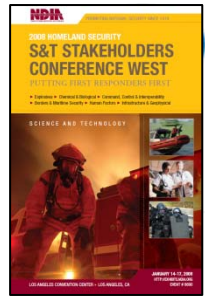
Best Practices



- On July 24, 2007, the Best Practices Group met and finalized forwarded its recommended best practices to the Working Group and to the Testing Group for follow-up.
 - Includes things such as microphone placement and specific issues that should be addressed in training.
- Developed a PowerPoint presentation for educational and outreach purposes



Testing Group

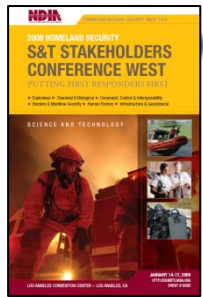


- In July, the Testing Group met in Denver and worked with NIST to develop a practical testing strategy. NIST started the testing on 11/9/07 using an intelligibility test call the Modified Rhyme Test (MRT)
 - 9 noise conditions
 - With and without mask, noises like fire trucks, chain saws, low air alarms, PASS alarms
 - 4 radio systems
 - 25 KHz analog, 12.5 kHz analog, baseline P25, P25 with enhanced vocoder
 - 54,000 sample files generated



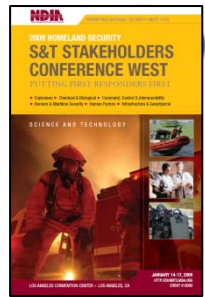
Testing Status (as of 1/11/08)

- 15 of 30 subjects tested
- 12 additional subjects currently scheduled
- Expect testing complete this month
- Analysis expected by 2/28/08



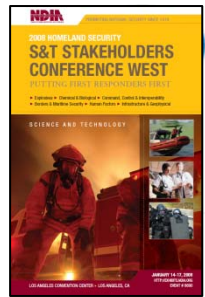
Additional Information

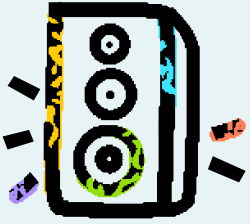
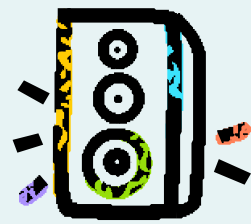
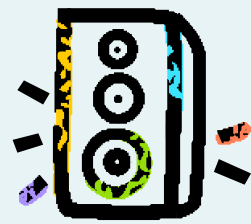
- Yahoo Newsgroup
 - Post message: digitalproblem@yahoogroups.com
 - Subscribe: digitalproblem-subscribe@yahoogroups.com
- IAFC Information Pages
 - www.iafc.com/digitalproblem
- Chief Charles Werner (Chair Digital Problem Working Group)
 - wernerc@charlottesville.org
- Dallas Lipp (Chair Best Practices Group)
 - Dallas.Lipp@montgomerycountymd.gov
- Paul Roberts (Chair Testing Group)
 - proberts@cityofboise.org
- DJ Atkinson (Technical Test Lead)
 - dj@its.blrdoc.gov



Sample Speech from Test

- SCBA Mask with In-Mask Low Air Alarm



25 kHz Analog FM	P25 with Baseline Vocoder	P25 with Enhanced Vocoder
		





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