

PSCR CONDUCTS SECOND ROUND OF FIREGROUND DIGITAL RADIO TESTS

Urgent Communications

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The U.S. Commerce Department's Public Safety Communications Research (PSCR) arm is conducting a second round of testing on **digital radio fireground communications**. The tests will evaluate noise pollution that interrupts communications on the fireground, said D.J. Atkinson, a lead electronics engineer at PSCR.

The tests are part of a joint effort between the National Institute of Standards and Technology and the Institute of Telecommunications Services. Their goal is to address firefighters' concern about digital radios' interference problems and then collaborate with manufactures to develop technical enhancements to improve their reliability, Atkinson said.

A few years ago, the International Association of Fire Chiefs (IAFC) created a **Digital Project Working Group** that performed initial investigations into digital radio use on the fireground and offered best practices to manufacturers, Atkinson said. The current test, being held in a controlled environment at PSCR laboratories in Boulder, Colo., will quantify what improvements have been made and target where efforts are needed to further improve audio quality for public-safety communications. It is an important issue, as the FCC soon will force **public safety to move to 12.5 kHz**, he said.

"You can get away with 12.5 kHz of analog on the fire ground but when the FCC forces you to go to 6 ¼, analog it isn't an option anymore," Atkinson said.

The test is designed to compare digital and analog communication technology in laboratory representations of public-safety communications environments. Atkinson said speech and noise from such environments will be tested in a manufacturer-independent manner using reference communication systems, which enable the testing of communications technology.

"This is accomplished through the examination of the system performance in a subjective listening test, in which the relative performance among the systems is measured in a quantitative and repeatable way," he said.

Communication degradation also will be tested, including fireground background noise — such as a roaring pumper. Researchers will include law-enforcement and EMS background noise, as well. For example, his team recorded noise at a local nightclub. Then, they scientifically determined the level of noise encountered if police or EMS were responding to an incident at a bar and how such background noise would affect communications.

For the first time, intelligibility —how understandable the speech is coming across the radio — and radio channel degradation will be tested, Atkinson said.

“We are adding both background noise and channel impairments — bit error rate, things like that — to see how those problems may compound to see if that has any additional detrimental effect or intelligibility issues,” he said.

Atkinson expects to find measurable improvements in comparison to the first test. But he admits that digital radios “still have a little way to go before [they] are the best that they can be.”

The study will run for about three weeks. Atkinson said he hopes to provide results sometime in October.

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