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Experts call for wider testing of P25 land mobile radios

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It has been nearly a decade since the lack of communications interoperability on 9/11 became a national disgrace, but even today the participation among manufacturers of public safety radios in the P25 compliance testing program has been strikingly sparse -- with only four of out 11 makers of walky-talkies participating, and only two out of eight manufacturers of base station equipment participating.



Experts in communications interoperability appeared before the House Science and Technology Committee on May 27 and informed lawmakers that the quest for truly interoperable radio systems has a long way to go.

David Boyd, Director of the Command, Control and Interoperability Division of the Science and Technology Directorate within DHS, pointed out that there are more than 50,000 different emergency response agencies in the U.S. and that each one has its own legacy communication system and its own budgeting and planning cycles.

“The existing public safety communication infrastructure in the United States represents, conservatively, an investment of more than \$100 billion for voice systems hardware alone,” noted Boyd. “These existing systems cannot be quickly or easily replaced.”

Instead of replacing such legacy systems, the public safety agencies have been pushed inexorably toward a “system of systems approach,” said Boyd, which emphasizes the need for strict technical *standards* for different pieces of equipment produced by different manufacturers – so they can “talk” with each other -- and comprehensive *compliance testing* to determine whether those pieces of equipment are meeting the agreed-upon standards.

“The system of systems approach would allow separate agencies to join together using standards, compatible procedures, and training exercises without having to discard major investments in their existing systems,” Boyd told the lawmakers, “and enables emergency

responders to use their own equipment to respond to an incident anywhere in the nation.

“By leveraging standards, emergency responders could communicate by voice and exchange data, imagery, video, and maps -- creating situational awareness that improves response for daily operations and major incidents,” he said.

However, one problem that has long existed is that conformance testing of public safety radios in the P-25 arena – to ensure the equipment conforms to standardized specifications -- has not been mandatory for manufacturers. By contrast, for other newly-emerged wireless technologies, such as Wi-Fi, Bluetooth, WiMAX, LTE and the European public safety standard called TETRA, conformance testing conducted either by the relevant industry association or by a partnership of industry and government has been mandatory for manufacturers.

“To exclude conformance testing from the P25 CAP [Compliance Assessment Program] would make it, to our knowledge, the only wireless technology compliance assessment program to do so,” explained Dereck Orr, program manager for public safety communications systems at the National Institute of Standards and Technology (NIST).

As it is currently conceived, the P25 Compliance Assessment Program for public safety communications gear does not involve certification by a third-party testing organization. Instead, the CAP simply requires that a manufacturer have its equipment tested at a DHS-recognized lab (eight labs have already been certified), and that the manufacturer then publish what is called a “Supplier’s Declaration of Compliance.” The manufacturer must also publish on a DHS Web site (www.rkb.us [2]) a “Summary Test Report,” that provides pass/fail data about its equipment.

“Public safety agencies using Federal grant dollars can only purchase P25 equipment with public documents available on the DHS website,” Orr told the subcommittee members.

That would appear to place great importance on the test results, but Orr did not appear satisfied with the “minimalist” testing effort that the P25 Compliance Assessment Program has become. He urged the lawmakers not to gut the program even further.

“Removing conformance testing from the program would call into question its ability to achieve the goals of confidence and interoperability it was established to address,” said Orr, who has headed NIST’s public safety communication standards work since 2002.

“We are aware of multiple public safety agencies using the P25 CAP in their procurement decisions and evaluation,” Orr observed. “However, the participation rate must increase for the program to be truly effective.”

Orr sees four main issues that are hampering progress toward seamless interoperability and open competition among manufacturers:

- Standards have not been developed or published for all eight of the open “interfaces” that are needed in the field of land mobile radios;
- Thus far, only a portion of the P25 systems are “standards based”;
- Many public safety agencies don’t understand what a true P25 system entails;
- There is no industry-led formal compliance assessment program.

Boyd, of the DHS Science and Technology Directorate, closed his formal testimony by underscoring the importance of a rigorous testing program.

“Emergency responders’ ability to communicate is vital to completing their mission, and the P25 CAP provides them with credible facts and data to evaluate manufacturers’ claims of standards compliance,” Boyd told the legislators. “Without this rigorous testing, a ‘P25 radio’ is compliant in name only.”

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