



Public Safety Communications Research (PSCR)

Department of Commerce – Boulder Labs

5/15/2009

PSCR Partnership



NIST



ITS Institute for Telecommunication Sciences
Boulder, Colorado

- The response community nationwide can exchange voice and data seamlessly to effectively respond to any incident or emergency.
 - Seamless voice and data exchange refers to the ability of the response community to interoperate with each other on demand, in real time, when needed, and when authorized.

- To fulfill this vision, PSCR will act as an objective technical advisor and laboratory to OIC and public safety to accelerate the adoption and implementation of only the most critical public safety communication standards and technologies.

PSCR Sponsors



Homeland Security

Department of Homeland Security

**Office for Interoperability and
Compatibility**



COPS

Department of Justice

**Office of Community Oriented
Policing Services**

PSCR Program Plan Snapshot

Vision The response community nationwide can exchange voice and data seamlessly to effectively respond to any incident or emergency.

Mission To fulfill this vision, PSCR will act as an objective technical advisor and laboratory to OIC and public safety to accelerate the adoption and implementation of only the most critical public safety communication standards and technologies.

PSCR Projects

LMR Standards and Technologies	Broadband Standards and Technologies	Interoperability Device Standards and Technologies	Emerging Standards and Technologies	Cross-cutting or Supporting Activities
P25 CAP	ROW-B	Multi-Band Radio	Public Safety Security	Program Management & Reporting
Project 25 (P25) Standards Development	Public Safety VoIP	Interim Interoperability Device Testing	Technical Services Projects (MANET, Security)	Statement of Requirements (SOR)
ISSI Test Tools	4.9 GHz Broadband Task Group		Video Quality	Public Safety Architecture Framework
Audio Quality	700 MHz Broadband Working Group			RF Propagation Studies
	Modeling and Simulation			

PSCR Approach



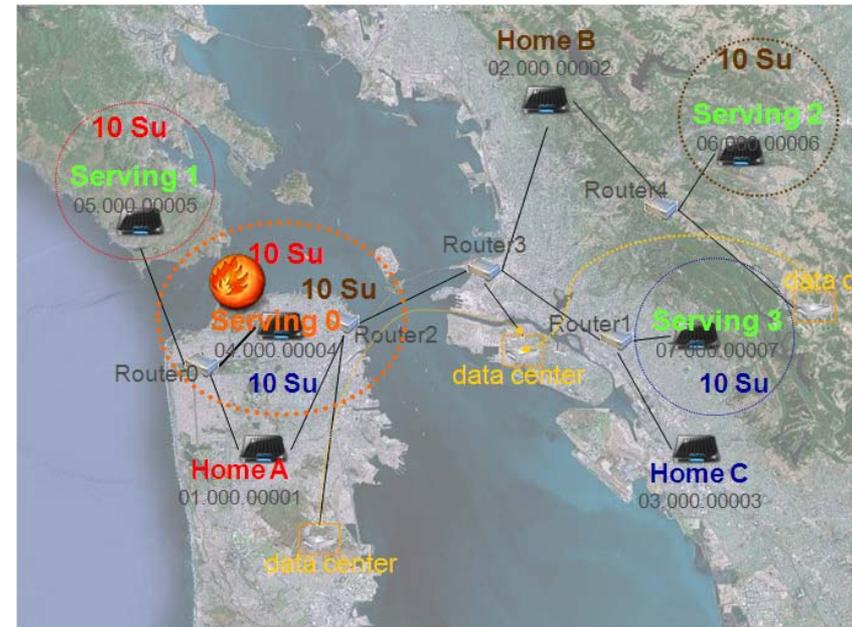
Land Mobile Radio Standards and Technologies

- **Project 25 (P25) Standards Development:**
 - P25 is a user-driven effort to develop a suite of standards for digital LMR systems—a critical communications resource for first responders.
 - Define how mobile radios should operate, and more importantly, how key system interface standards allow radios and infrastructure from different manufacturers to interoperate.
- **Project 25 Compliance Assessment Program:**
 - A voluntary system that provides a mechanism for P25 equipment suppliers to formally demonstrate their products' compliance with a key subset of testing requirements within the P25 standards.
- **Audio Quality:**
 - Firefighters reports showed that some background noises created by firefighting equipment can interfere with digital communication.
 - PSCR worked with practitioners to develop and implement tests that measure the operation of digital radios, and also tested mitigation techniques for the problems.



Broadband Standards and Technologies

- **Radio over Wireless Broadband (ROW-B):**
 - Successfully integrated radios operating on the District of Columbia's existing Land Mobile Radio (LMR) system with a 700MHz broadband network, allowing for broadband devices such as computers and cell phones to communicate with radios on the LMR network.
 - Responders are increasingly using commercial cellular phone networks as a secondary means of communications and are gaining access to other advanced communication capabilities through high-speed, or broadband, wireless connections.
- **Voice over Internet Protocol (VoIP):**
 - Leading a coalition of public safety officials and bridging systems vendors to develop an VoIP implementation profile so one emergency response agency can now seamlessly connect its radio system to another agency's system over a network—regardless of manufacturer.



- **ISSI Modeling and Simulation:**
 - Provides the public safety community with the performance analysis tools needed to better understand emerging network technologies in order to make decisions on planning and purchasing of equipment related to the ISSI.

Interoperability Device Standards and Technologies



- **Multi-Band Radio Testing:**
 - Because communications systems frequently have a 20- to 30-year replacement cycle and emergency responders cannot upgrade to standardized systems immediately, solutions are needed that provide some level of basic voice interoperability until standardized replacement systems can be procured.
 - PSCR assesses the applicability of currently available technical solutions to the interoperability needs of emergency responders.

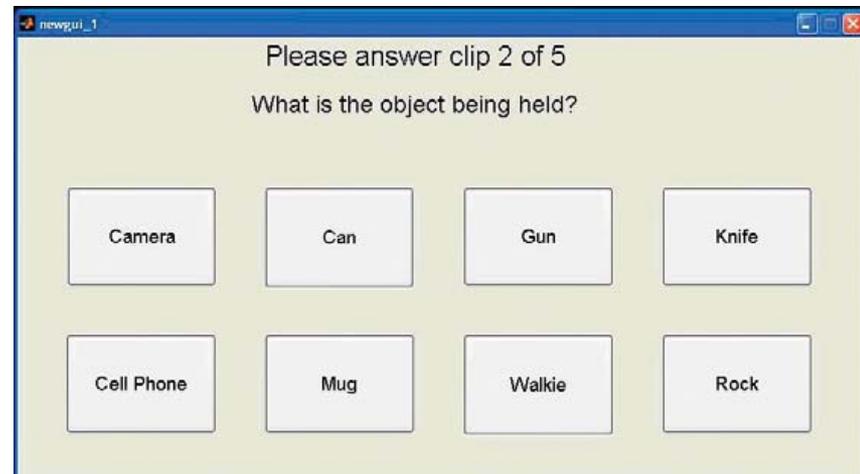
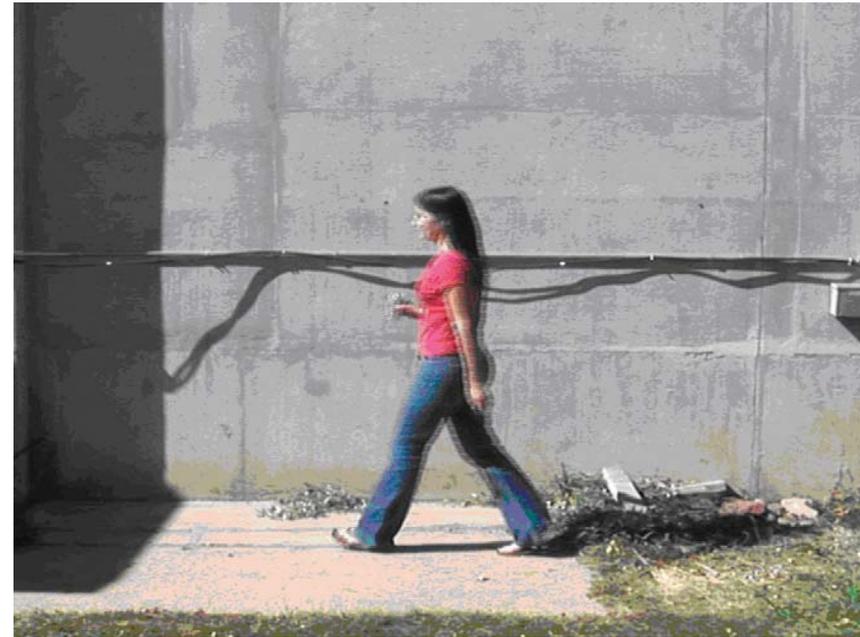
Emerging Standards and Technologies

- **Video Quality Testing:**

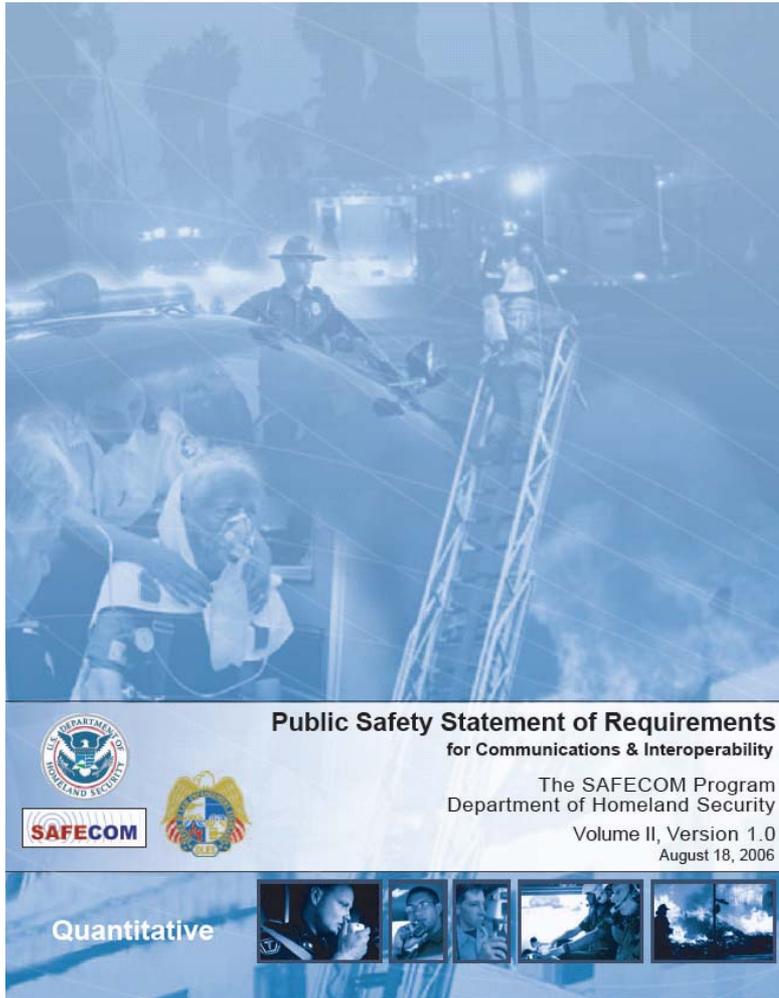
- Conducting research to develop task-specific video quality requirements for public safety applications
 - The traditional methods of evaluating perceived broadcast video quality are not appropriate for public safety video.

- **P25 Security:**

- Developing practical security tools for P25 radio systems
- Promoting awareness of P25 security strengths and weaknesses among the standards, manufacturing, and user communities
- Documenting each known security vulnerability, consider mitigation options for each vulnerability, and document mitigation decisions



Cross-Cutting and Supporting Activities



- **Public Safety Statement of Requirements:**
 - Provides a comprehensive understanding of public safety's communications requirements, focused on both voice and data applications, and is spectrum and technology agnostic.
 - PSCR convened a meeting of practitioners where, through facilitation, the overall public safety requirements were captured.
- **Public Safety Architecture Framework:**
 - Provides a consistent and comprehensive method for describing the governance, technology, training and exercises, standard operating procedures, and the frequency of use of public safety communications solutions.
 - Creates a capability to analyze LMR compatibility, agency-to-agency interoperability solutions, and communications system restoration during a disaster.