

FirstNet Technical Outreach Event

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PUBLIC SAFETY GRADE

Overview

- Public Safety Grade still a controversial topic – vide recent statements from Verizon
- A NPSTC report from 2014 is considered a common platform document
- In general, NPSTC report calls for the FirstNet network and subscribers performance to meet or exceed that of high-end LMR systems and devices
- Additional documentation from APCO is scheduled to be released as an ANSI standard during Spring of 2018



A NPSTC Public Safety Communications Report

The National Public Safety Telecommunications Council is a federation of organizations whose mission is to improve public safety communications and interoperability through collaborative leadership.

Defining Public Safety Grade Systems and Facilities

Final Report 5/22/2014

Support to NPSTC provided by the U.S. Department of Homeland Security's Science and Technology Directorate, Office for Interoperability and Compatibility (OIC), and the National Protection and Programs Directorate, Office of Emergency Communications (OEC). Points of view or opinions expressed are those of the originators and do not necessarily represent the official position or policies of the U.S. Department of Homeland Security.

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Major Categories in the NPSTC report

- Environmental Events
- Service Level Agreements
- Reliability and Resiliency
- Coverage
- Push-To-Talk (PTT)
- Applications
- Site Hardening
- Installation
- Operations and Maintenance

Environmental Events

- NPSTC completed a list of environmental risks known to have caused failures to public safety communications in the past
- Each type of event is analyzed and recommendations are provided



Service Level Agreements

- NPSTC compiled a list of components of a Public Safety Grade SLA document
- The SLAs should specify coverage area, availability, reliability, resiliency, and other parameters to measure the services provided by the NPSBN
- The recommendations include regular reporting and monetary penalties for non-compliance



Reliability and Resiliency

- Reliability is the probability of the NPSBN completing its predefined function during a specified period of time.
- Resiliency is the ability of the NPSBN to withstand a disruption to the network that would result in loss of coverage and the ability to recover from any such outage within a minimum period of time.
- NPSTC conveyed the need for design choices that support a greater overall network reliability and resiliency to network disruptions compared to commercial networks, but did not provide any guidance as to how these should be measured.
- One of the possible measures is the ability of service provider to remedy any problems within the time frame defined in SLA.

Coverage

- Public Safety coverage needs are different from those of commercial operators:
 - Commercial networks: where the most demand for service is
 - Public Safety: desired 100 percent of the jurisdiction area
- Critical buildings must be covered
- Coverage performance definition needs to be verifiable
- LTE coverage performance description needs to include parameters such as
 - User data rate
 - Traffic load level
 - Placement of radios/phones on the body of the user

Push-To-Talk (PTT)

- NPSTC proposes detailed performance specifications and definitions that are necessary for mission critical public safety operations:
- In general, PTT functionality and performance should be equal to or better than currently provided by LMR technologies
- Update: The 3GPP standards completed in December '17



Applications

- NPSTC's paper covers the following areas:
 - Actionable information
 - Availability
 - Common data model
 - Human-centered interface
 - Interoperability
 - Operability
 - Performance
 - Resiliency
 - Scalability, adaptability, and portability
 - Security and information assurance
 - Updates
 - Verification and certification

Site Hardening

- This section, provided by APCO, covers and provides detailed recommendations for the majority of all systems and infrastructure at a site:
 - Physical Security
 - Antenna Support Structure
 - Equipment Enclosures
 - Environmental and Climate Control
 - Power



Installation

- This section defines a number of different detailed installation requirements covering:
 - Antenna Systems
 - Transmission Lines
 - Shelters, Equipment and Internal Cabling
 - Vehicles



Operations and Maintenance

- Operations and maintenance practices focusing on prevention for RAN, backhaul, core, and sites :
 - Sites and Backhaul
 - Generators and UPS Maintenance



