Allied Radio Matrix for Emergency Response (ARMER)
Standards, Protocols, Procedures

Document Section 8	**Miscellaneous**	**Status:** Approved
State Standard Number	**8.2.0**	
Standard Title	**P25 Digital Standard for Public Safety Infrastructure and Subscriber Equipment in the State**	
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Replaces Document Dated		
Date Revised		

1. Purpose or Objective

The purpose of this standard is to establish a single technology standard for interoperable land mobile radio communications equipment in the state of Minnesota. A standards-based approach will create multi-jurisdictional and multi-disciplinary interoperability.

2. Technical Background

- **Constraints**

- **Capabilities**

Project 25 (P25) is a suite of standards for digital land mobile equipment designed for vendor neutrality and seamless interoperability between all P25-compliant equipment. P25 standards are detailed in the Telecommunications Industry Association (TIA) series TIA-102. P25 ensures that all P25-certified land mobile radios can exchange voice traffic no matter which manufacturer made the radio. P25 is an open architecture facilitating interlinking of different vendors' systems so public safety agencies may choose from multiple vendors and products to meet their customized needs and have the freedom to choose from a wide range of standardized equipment and common features.

With input from the user community, these standards have been developed to allow for backward compatibility with existing digital and analog systems and to provide for interoperability in future systems. These standards are widely supported by the public safety community. For example, Federal Communications Commission (FCC) rules require the P25 suite of standards for interoperable narrowband voice and low-speed data in the public safety 700 MHz narrowband spectrum between 769-775 MHz and 799-805 MHz.[1] P25 is also endorsed for new land mobile radio systems by most United States (U.S.) Federal entities, including the Integrated Wireless Network (IWN) of the U.S. Departments of Homeland Security (DHS), Justice, and the Treasury.

[1] *See* 47 C.F.R. § 90.547-90.548.

3. Operational Context

This standard adopts the P25 Suite of Standards for consideration prior to purchasing new or replacement equipment for public safety communication systems in Minnesota.

This standard also specifies issues to be addressed when using grant dollars (State or Federal) to purchase this equipment.

4. Recommended Protocol and Standard

Each individual jurisdiction or entity shall be responsible for documenting their compliance with this standard and shall be able to provide such documentation if audited. Regional Radio Boards (RRBs) shall include a review of compliance with this standard as part of approving radio system implementation plans or any modifications requiring Regional Radio Board approval.

All purchases of radio equipment funded wholly or in part with state or federal grant dollars must comply with the current requirements of the P25 standard, unless otherwise excepted under Section 5 of this State Standard.

5. Recommended Procedure

When procuring equipment for communication systems, whether voice or data, a standards-based approach must be used to create multi-jurisdictional and multi-disciplinary interoperability. The applicable requirements for Land Mobile Radio (LMR) systems, voice over IP (VoIP) systems, and data sharing systems are described below.

Land Mobile Radio Systems
All new digital voice systems must comply with the Project 25 suite of standards. This requirement is intended for government-owned or leased digital land mobile radio equipment used for public safety. The purpose of this requirement is to make sure that such equipment or systems are capable of interoperating with other digital land mobile equipment or systems used for emergency response.

This requirement does not apply to commercial services that offer other types of interoperable technology solutions. Further, this requirement does not exclude any alternative technology platform if that alternative platform solution will demonstrably enhance interoperability.

Voice-over-Internet Protocol Systems
When purchasing bridging/gateway devices that use VoIP to provide connectivity between LMR systems, those devices must, at a minimum, implement either the Bridging Systems Interface (BSI)[2] or the P25 Inter Radio Frequency (RF) Sub-System Interface (ISSI)[3] as part of their VoIP capability.

SAFECOM Guidance for Federal Grant Programs
When purchasing P25 equipment/systems, grantees will, at a minimum ensure the vendor has participated in equipment testing consistent with the Project 25 Compliance Assessment Program (P25 CAP) and equipment used on the ARMER backbone is listed on the ARMER Approved Subscriber

[2] *See* "Bridging Systems Interface Core Profile 1.1", Public Safety VoIP Working Group, US Departments of Homeland Security and Commerce. Note that BSI is not a P25 interface standard in TIA102, but rather a specification detailing recommended methods for using IP and SIP to handle interoperable voice communications.
[3] *See* Inter-RF Subsystem Interface as detailed in the following TIA-102 standards: BACA-A, BACA-A-1, BACA-A-2, BACD-A, BACE, BACF, BACA-A-1, BACA-A-4, and BACD-B.

Equipment list, per ARMER State Standard 1.7.0, "Subscriber Radio Standards." Where such equipment is covered in the P25 Compliance Assessment Program Requirements document, it must be tested in accordance with applicable standards and policies of the P25 CAP, and evidence of this testing must be documented through Supplier's Declarations of Compliance and Summary Test Reports that have been posted to: http://www.rkb.us.

Additionally, when P25 LMR equipment or systems are purchased with a non-standard, proprietary feature or capability, and a comparable TIA-102 (P25) feature or capability is commercially available at time of purchase, the P25 LMR equipment or systems must include the standards-based feature or capability. For assistance in determining eligible communications equipment purchases under this section and determining when justification material is required, grantees can access web based technical assistance tools at: http://www.its.bldrdoc.gov/resources/p25/OICGrantguidancetool.pdf.

The Office for Interoperability and Compatibility (OIC) Wireless Communications Grant Guidance Tool will also give users access to detailed information that will be helpful in selecting and procuring P25 equipment. In addition, this tool offers links to documents available under the P25 CAP.

6. Management

The Regional Radio Boards shall manage the administration of this standard. The policy shall be reviewed for possible revision or cancellation as required by the Statewide Emergency Communications Board (SECB).