



**Iowa Statewide Interoperable Communications System (ISICS)  
Standards, Protocols, Procedures**

Standard Name:	<b>Subscriber Radio Standards</b>		Date Created:	<b>05-08-2018</b>	
Standard Policy #	<b>2.13.0</b>	Section Title:	<b>Management of System</b>	Status	<b>APPROVED</b>
Approval Authority:	<b>ISICSB</b>		Adopted:	<b>7/12/18</b>	Reviewed: 7/12/18

**1. Purpose or Objective**

The purpose of this standard is to:

- Set minimum technical and performance standards for subscriber radios allowed to operate on the Iowa Statewide Interoperable Communications System (ISICS).
- Provide procedures to measure, test, certify and/or publish a list of subscriber radios which are approved for use on the system.

**2. Technical Background**

**Capabilities**

The ISICS Platform uses the digital communications technology specified in the TIA-102 Series Standards, Interim Standards, and Telecommunications Systems Bulletins, commonly known as APCO Project 25 (P25). The P25 standards provide capability for full backward migration and limited forward migration along an evolving continuum of technologies and services assuming the radios operate on a common set of frequencies. P25 also permits different vendors of subscriber radios and infrastructure to provide value added vendor specific premium features and services. The ISICS Platform uses P25 Phase II Time Division Multiple Access (TDMA) modulation.

**Constraints**

Subscriber radios from vendors using different radio operating software will provide a variety of services, features, functionality, and performance to the users. Some radios will also interact differently with the infrastructure and could potentially exhibit undesirable operations.

Subscriber Radio Standards  
State Standard 2.13.0  
ISICSB Approval: 7/12/18

It is possible that new, unproven radios and/or software may exhibit performance and functionality characteristics that are destructive to the overall performance, capacity and/or security of the ISICS platform.

This standard does not include paging equipment.

### **3. Operational Context**

Participants using the system need access to radios that will meet their operational needs for the lowest cost. It is anticipated that radios capable of operation on the system will be available from multiple vendors over the life of the system. Users need the flexibility and knowledge to optimally choose from the radios available in the marketplace that would be operationally desirable and not cause problems for other users on the ISICS Platform.

### **4. Recommended Protocol/ Standard**

All subscriber radios meeting the applicable P25 Standards that DO NOT exhibit operational, performance, or other characteristics that substantially and measurably negatively impact the system or its users will be approved for use on the system.

Before a new subscriber radio that is not on the vetted subscriber radio list is approved for use on the system, it shall undergo a vetting process in which the list of required P25 features are sent to the manufacturers for verification that the required functionality exists in their subscriber units and is compatible with the ISICS infrastructure. The manufacturers shall provide documentation confirming functionality and compatibility in conjunction with a list of required features.

### **5. Recommended Procedure**

#### **5.1 Verification of functionality of subscriber radios for operation on the system**

- Identification of the radio proposed for use on the system. Radios or pre-production radios may be submitted for evaluation by any authorized user. Radio equipment manufacturers should work closely with an authorized user who is considering purchasing the proposed radio.
- Review of technical specifications to determine basic compliance with the P25 Standards.
- Review the specified functionality outlined in Appendix A with the manufacturer of the radio. Functionality should be verified based on the underlying ISICS infrastructure. Acceptable documentation can include P25 Compliance Assessment Program (CAP) results or other inter-manufacturer interoperability testing. The Technology Committee may review and update Appendix A as needed.
- Technology Committee reviews documentation of standards compliance and testing. If the stipulations are met, the Technology Committee acts to approve the radio for use on the system. Any potential concerns, limitations or constraints will be documented. If the Technology Committee has any concerns or questions that would preclude approval, follow-up documentation will be requested.
- The CAP and/or inter-manufacturer interoperability testing documentation and any additional actions taken by the Technology Committee will be submitted to the ISICSB for final action.

Subscriber Radio Standards  
State Standard 2.13.0  
ISICSB Approval: 7/12/18

- A list of approved radios will be posted on the ISICSB web site.

## 5.2 Problems with Previously Approved Radios

### 5.2.1 *New problem with previously approved radio*

If a previously approved subscriber radio type begins to exhibit characteristics that are harmful to the operation of other users on the system, users are required to coordinate with the manufacturer and provide documentation when the problem is solved. The subscriber unit functionality outlined in Appendix A may be reviewed and updated by the Technology Committee to ensure proper testing of characteristic exhibited.

If a problem is due to the use of a new feature in the radio, that feature will not be allowed to be used until satisfactorily repaired and tested by the manufacturer for proper operation.

## 5.3 Purchase of second-hand and/or used radio equipment

Any purchase of second-hand or used radio equipment may require an inspection and software flash by the vendor to ensure that it is in proper working order. The purchaser is responsible for ensuring the radio is coming from a reputable vendor and in good working order.

## **6. Management**

The Statewide System Administrator is responsible for managing this procedure, including maintaining all certification records, managing radio equipment manufacturer-initiated submittals, and coordinating activities of the Technology Committee.

## **Appendix A**

### List of Required Functionality on the ISICS Infrastructure

1. Group Call Receive
2. Group Call Transmit
3. Intra-system Roaming
4. Registration & Affiliation
5. De-registration & De-affiliation
6. Emergency Call