

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

Document Section 3	<b>Interoperability Standards</b>	<b>Status: Complete</b>
State Standard Number	<b>State 3.15.0</b>	
Standard Title	<b>Use of 700 MHz and 800 MHz Statewide Scene of Action (SOA) Channels</b>	
Date Established	<b>10/06/2008</b>	<b>SECB Approval: 3/28/2013</b>
Replaces Document Dated	<b>10/23/2008</b>	
Date Revised	<b>3/28/2013</b>	

### **1. Purpose or Objective**

The purpose of this standard is to provide standards, protocols, procedures, and operating parameters for short range simplex Scene of Action (SOA) interoperability and tactical channels.

The public safety/service interest is best served by creating an operating procedure that maintains safety of personnel in situations. The limitation of this resource due to the range of mobiles and the potential “walk over” issue is a critical point. Once a radio is keyed, there is no way to control the footprint of the transmission other than limiting the power of that transmission. Personnel talking on a mobile radio may have no way of knowing if they are walking over a portable in the next community, because they will not be able to receive it or realize that the channel is in use by the portable.

### **2. Technical Background**

#### **▪ Capabilities**

- SOAs allow the ability to communicate radio-to-radio without using system resources.
- There are six statewide 800 MHz interoperability SOA channels.
- There are 12 nationwide 700 MHz low power tactical SOA channels.

#### **▪ Constraints**

- 800 MHz SOA channels are limited for use within Minnesota only.
- 8SOA2 and 8SOA4 are shared with the statewide Strategic Reserve satellite-enabled Communications Site on Wheels (STR SATCOW) deployable trunked site (see State Standard 3.33.3 for coordination requirements).

- Portable units will have limited range of operation, depending on the situation and conditions, while mobile units will have a greater range but may cause inadvertent interference to SOA portable users in adjacent areas.
- SOA channels included in a multi-mode (trunked and conventional) scan list of a radio unit will not allow that unit to priority scan. SOA channels may be included in scan lists; however, personnel will need to be aware that if the SOA channel is included in the scan list, the radio will lose the priority revert feature. If they are scanning, they may miss important radio traffic even on the channel selected.
- Dispatch centers normally will not be able to monitor, patch, or assign SOA channels for use.
- 700 MHz SOA channels are limited to 2 Watts Effective Radiated Power (ERP) per Federal Communications Commission (FCC) Rule 90.531 (portables or mobiles programmed to low power.)
- CAUTION: If radios are incorrectly programmed, it is possible for radio units to inadvertently walk over or interfere with other radio units in close proximity to one another, endangering personnel operating on emergency scenes.

### **3. Operational Context**

The four general purpose 8SOAs and two fire/EMS only FSOAs can be used anywhere in the state and are not tracked on the StatusBoard in any Public Safety Answering Point (PSAP). As such, upon initial use, caution should be taken to verify that duplication of use is not occurring. Units requiring the use of an SOA channel should announce their intent to use the channel and determine whether or not the SOA channel is already in use.

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

Names and uses of the SOA channels shall be as indicated in the table below:

<b>Name</b>	<b>Eligibility</b>	<b>Which Radios</b>	<b>Recommendation Level</b>	<b>Encryption</b>
8SOA1	All Users	All Radios	Required in all radios	Clear Only
8SOA2	All Users	All Radios	Required in all radios	Clear Only
8SOA3	All Users	All Radios	Required in all radios	Clear Only
8SOA4	All Users	All Radios	Required in all radios	Clear Only
FSOA1	Fire/EMS Only	All Radios	Required in all Fire/EMS radios	Clear Only
FSOA2	Fire/EMS Only	All Radios	Required in all Fire/EMS radios	Clear Only
7SOA1	All Users	2 Watt ERP Max	Recommended in all portables	Both
7SOA2	All Users	2 Watt ERP Max	Recommended in all portables	Both
7SOA3	All Users	2 Watt ERP Max	Recommended in all portables	Both
7SOA4	All Users	2 Watt ERP Max	Recommended in all portables	Both
7SOA5	All Users	2 Watt ERP Max	Recommended in all portables	Both
7SOA6	All Users	2 Watt ERP Max	Recommended in all portables	Both
7SOA7	All Users	2 Watt ERP Max	Recommended in all portables	Both

7SOA8	All Users	2 Watt ERP Max	Recommended in all portables	Both
7SOA9	All Users	2 Watt ERP Max	Recommended in all portables	Both
7SOA10	All Users	2 Watt ERP Max	Recommended in all portables	Both
7SOA11	All Users	2 Watt ERP Max	Recommended in all portables	Both/Std Key
7SOA12	All Users	2 Watt ERP Max	Recommended in all portables	Both/Std Key

Existing ASOA1 and ASOA2 are renamed 8SOA1 and 8SOA2, and existing PSOA1 and PSOA2 are renamed 8SOA3 and 8SOA4. Existing FSOA1 and FSOA2 are unchanged. Dual names for the four 8SOA channels will remain in place until June 26, 2015, or until all affected ARMER radios have been reprogrammed, whichever comes first. The old name will be primary until June 26, 2014, then secondary until June 26, 2015. Dual naming will be removed on June 26, 2015.

Only Project 25 Phase I digital modulation with a standardized Network Access Code (NAC) shall be used on the SOA channels.

All subscriber radios shall be programmed with conventional personalities on the SOA channels with **TRANSMIT INHIBIT ON VALID NAC** to eliminate the “walk over” potential.

Elevated external antennas connected to portable or mobile radios for portable radios may be allowed on the 800 MHz SOA channels only. A communications technician (COMT) should be consulted prior to utilizing an elevated antenna.

The six 800 MHz SOA channels shall be used in clear mode only.

Jail sally port operations electing to use short range radio communications with incoming transport units should use 8SOA4.

**7SOA1 through 7SOA12 Encryption**

Optional encryption is permitted on the twelve 700 MHz SOAs; however, CLEAR MODE IS ALSO REQUIRED in all radios programmed for interoperability purposes and FCC Rule 90.553 compliance.

7SOA11 and 7SOA12 shall use only a state assigned P25 DES common encryption key for interoperability. The Minnesota Department of Transportation (MnDOT) System Administrator will be responsible for managing and periodically updating the statewide 7SOA11 and 7SOA12 common encryption key.

It is recommended that encryption users program separate banks for 7SOA channels strapped to either clear mode or encrypted mode to reduce the chance of inadvertent clear mode transmission when encrypted mode is desired.

## **5. Recommended Procedure**

Unit-to-unit communications using the SOAs is initiated when necessary or during an event or incident when assigned by an incident commander. The dispatch centers will normally not be able to monitor each SOA channel to assign them for use. On scene units requiring the use of an SOA channel should announce their intent to use the channel. SOA channel location on portable radios will be set by individual system users in their fleetmaps.

## **6. Management**

System Managers or Administrators will be responsible for ensuring compliance with this standard.