

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

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Procedure Title	STR-Radio Cache	
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1. Purpose or Objective

The purpose of this standard is to establish policies and procedures for the deployment and use of the following Strategic Technology Reserve (STR) component:

800 MHz Radio Cache

2. Technical Background

▪ Capabilities

As part of the Public Safety Interoperable Communication (PSIC) grant program, a radio cache of 30 ARMER capable radios is established in each of the six non-metro radio regions in the state. The ARMER radio cache capabilities are described as follows:

Resource	Description
ARMER Radio Cache	30 Motorola XTS1500 Portable Radios (Model 1.5) Note: The radios are programmed for trunked operation on the ARMER system. They are not provisioned with encryption software.
Extra Batteries and Chargers	Each radio cache contains an extra battery per radio and three Impres™ multi-unit chargers with two hardened plastic storage cases.

The STR radio cache radios are programmed with statewide interoperability talkgroups (Zone 1), 800 MHz Scene of Action (SOA) channels, all National Public Safety Planning Advisory Committee (NPSPAC) interoperability channels (Zone 2), and regional interoperability talkgroups (Zone 3). A fleetmap for STR cache radios is attached as Appendix A to this standard.

Through the allocation of this STR resource and STR transportable towers and repeaters, each region of the state should have an ability to respond immediately to any catastrophic loss of the existing public safety communication resources, to provide additional communication resources under certain circumstances, and to provide local responders

with a transportable communication resource should they respond to a major event or natural disaster in another state.

▪ **Constraints**

With a statewide footprint, the ARMER system is capable of providing immediate communication resources in locations where independent public safety radio systems are maintained. The deployment of an ARMER radio cache is capable of providing substantial regional and statewide communication resources under circumstances where the ARMER backbone remains intact.

Although more limited, the deployment of an ARMER radio cache provides added resources when used in conjunction with the STR transportable tower and repeater. Operation without the ARMER backbone (or STR Satellite enabled ARMER base radio site) will be limited to NPSPAC and a limited number of other statewide and nationwide interoperability repeater channels and Scene of Action (SOA) radio-to-radio channels operation.

Although maintenance demands are minimal, STR radio cache batteries must be periodically rotated through chargers to ensure availability. Radio users should be familiar with characteristics of trunked radio operation and critical radio features before radio assignment. The assignment and deployment of STR cache radios (individually or as a unit of 30 radios) must be documented to make sure radios and batteries are accounted for and returned to the proper location.

3. Operational Context

The STR radio cache is one element of a comprehensive STR capability available within the state. Additional elements include transportable tower/repeater (State Standard 3.33.2), Satellite-enabled ARMER base radio site (State Standard 3.33.3), and Satellite enabled Remote Communication Platform, RCP (State Standard 3.33.4). The allocation of an STR radio cache and an STR transportable tower/repeater to every Regional Radio Board (RRB) provides a resource that can be placed into service within the region very quickly. Upon deployment to the scene or area of operation, an STR radio cache can be put into operation very quickly, depending upon the configuration (for use on ARMER backbone, for use on SOA channels, for use in conjunction with STR transportable tower/repeater, or for use with STR satellite-enabled ARMER base radio site [SAT-COW]).

RRB standards should address the following issues necessary to maintain operational readiness and availability of the equipment:

- Designate primary and alternate points of contact for access to the equipment
- Designate at least one person, point of contact, or other person who can ensure the equipment is fully operational, including fully charged batteries, before deployment

An STR radio cache may be deployed individually or used in conjunction with other STR resources. There are 180 identically equipped and programmed radios available (30 in

each non-metro region) as part of the STR radio cache resources that are available for rapid deployment throughout the state. Additional ARMER radio caches are available at various locations throughout the state, including a substantial ARMER radio cache of 180 radios maintained by the Division of Emergency Networks (DECN) as part of the Urban Area Security Initiative (UASI) capability. Depending upon the configuration, the range of operation of this resource may be limited.

Users should be advised of operational expectations at the time of deployment, as follows:

- ARMER Backbone Operation-Operational characteristics are consistent with normal backbone operation and are limited only by capacity (number of trunked channels available) and coverage (standard coverage characteristics).
- Scene of Action Channels (radio-to-radio)-Depending upon the environment, reliable communication may be expected at a distance of 2-3 miles between radios. Portable-to-mobile radio communication may provide better communications, and at the fringes of coverage, minor positioning shifts may re-establish communication between radios. Users should be advised that when operating on Scene of Action mode, they should not assume other users have received all communications unless the area of operations is very small.
- STR Transportable Tower/Repeater-While operating on a repeated NPSPAC channel, a range of operations of 3-7 miles might be expected. Actual coverage will vary depending upon tower placement, terrain, and the composition of structures within the area of operation. Users should also note that crossband operation of the STR transportable tower/repeater (VHF to 800 NPSPAC channel) may not provide identical coverage for the two systems due to different spectrum propagation characteristics.
- STR SAT-COW-While operating from the STR SAT-COW, a range of 7-10 miles from the SAT-COW location might be expected. Actual coverage will vary depending upon the SAT-COW placement, terrain, and the composition of structures in the area of operations.
- Users assigned to critical operations should all be made aware of one SOA channel that will be resorted to should system resources (ARMER backbone, Satellite enabled ARMER base radio site, NPSPAC repeater) become unavailable.

4. Standardized Policy

Every region of the state should have access to basic STR components (radio cache and transportable tower/repeater) necessary to immediately respond to any loss of basic public safety communications. This standard defines the steps necessary to make sure the STR radio cache is available for deployment by addressing the requirements to maintain, operate, and deploy the STR radio cache.

To the greatest extent possible, each region's basic STR components (radio cache and transportable tower/repeater) should be made available to support operations in other regions of the state and to provide communication resources for public safety personnel responding to an event or disaster in another state.

5. Standardized Procedure

Each region shall provide for the STR radio cache as follows:

Maintenance and Storage

The STR radio cache must be maintained in a temperature controlled, secured inside area to prevent loss or disturbance to equipment.

Battery chargers must have uninterrupted access to an electrical power supply to provide for proper battery maintenance.

STR radio batteries should be rotated through Impres™ chargers at least once per month. Any deficiencies or issues should be reported immediately to the primary point of contact for the resource. In addition to rotation through Impres™ chargers provided for here, batteries should be operationally tested at least once every 18 months.

STR radio cache radios should be shop tested at least every 18 months or at any other time a specific problem is noted.

Resource Activation

The region's designated point of contact and alternate contact should be listed in each region's Tactical Interoperable Communications Plan (TICP) and must have access to the STR radio cache at all times.

When practical, a person capable of and authorized to program the radios should deliver the radios to the incident scene and be available for on-scene support during the deployment.

A pre-deployment checklist should be maintained with the equipment that includes a thorough list of the equipment (including serial numbers of radios).

Each radio should be labeled with the owning agency's identification.

Copies of equipment lists, which may be combined with the pre-deployment check list, shall be maintained with each STR radio cache to document assignment of the STR radio cache as a unit or the assignment of individual pieces of equipment for the STR radio cache.

A user deployment checklist should be maintained with each STR ARMER radio cache outlining the basic elements of use of cache radios (such as talkgroup selection,

maintenance of assigned zone, and other relevant information) for users who have not previously participated in ARMER equipment use training.

A laminated fleetmap list shall be available for deployment with each STR cache radio and should be reviewed periodically to ensure accuracy and legibility.

Deployment of an STR radio cache or of individual radios from a STR radio cache may be for any purpose authorized by the RRB, provided that such deployments must be temporary and provide for immediate return if the resource is needed for assignment to an STR purpose.

Deployment outside the region to support public safety response to an event or natural disaster shall be provided for in the RRB local standard, which may contain reasonable prerequisites.

Note: STR radio caches are standardized to ensure compatibility of the resource across the state.

Once the cache radios have arrived at the incident scene, the Incident Commander is responsible for resource tracking of the radio cache.

The requesting agency shall be responsible for the return of any cache radios/equipment to the owner agency.

The agency requesting the cache radios assumes full risk for cache radios which are lost, stolen, damaged, consumed, inoperable, or destroyed until the radios are returned to the owner agency.

The requesting agency shall reimburse the owner agency for the repair or replacement cost of any radio, accessories, batteries, or other equipment which are lost, stolen, damaged, consumed, inoperable, or destroyed.

Operational Training

All trained Communication Unit Leaders (COMLs) in the region should be familiar with the STR radio cache capability and configuration, as well as basic operational characteristics of STR radio cache radios.

Prior to the assignment of individual STR cache radios, users who have not been trained in the use of similar ARMER radios shall be provided with a short explanation of the fleetmap and basic elements of operation.

At the regional level, the STR radio cache should be made available for local disaster exercises, local events (fairs or celebrations), or other activities through which personnel will become familiar with the deployment procedures and operational characteristics of the equipment.

6. Management

Each of the RRBs and the entity to which the STR ARMER radio cache has been transferred is responsible for the ensuring compliance with this standard. The Statewide Emergency Communications Board (SECB) STR subcommittee shall conduct an annual review of this standard and make adjustments as necessary. In that process, the subcommittee shall seek comments and suggestions from the STR ARMER radio cache points of contact and may inspect equipment to determine needs.

ARMER Public Safety Communications System Standards, Protocols, Procedures

Document Section 3	Interoperability Standards	<h1>Appendix A</h1>
State Standard Number	3.33.1	
Standard Title	STR-Radio Cache	
Date Established	03/19/2013	
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These fleetmap zones shall be maintained in all Radio Caches maintained as part of Minnesota's Strategic Technology Reserve:

Pos	STATEWIDE INTEROP	CONVENTIONAL INTEROP	HOME REGION INTEROP
1	STAC1	8CALL90	REG CALL*
2	STAC2	8TAC91	REG TAC-2*
3	STAC3	8TAC92	REG TAC-3*
4	STAC4	8TAC93	REG TAC-4*
5	STAC5	8TAC94	REG TAC-5*
6	STAC6	8CALL90D	REG-TAC-6*
7	STAC7	8TAC91D	REG-TAC-7*
8	STAC8	8TAC92D	REG TAC-8*
9	STAC9	8TAC93D	REG TAC-9*
10	STAC10	8TAC94D	REG TAC-10*
11	STAC11	8SOA1	REG TAC-11*
12	STAC12	8SOA2	REG ROAM*
13		8SOA3	DRO-1 **
14		8SOA4	DRO-2 **
15			DRO-3 **
16			DRO-4 **

* Each region will be asked to designate which home region interoperability talkgroups are programmed into this zone, e.g., the standard lineup above or other configuration, such as ATACs & PTACs.

** DRO-1, DRO-2, DRO-3 and DRO-4 refer to statewide Disaster Relief Organization talkgroups that are used by Minnesota Voluntary Organizations Active in Disaster (MNVOAD) in small and large-scale responses to disaster. (See State Standard 5.2.0 for additional details).

Note: The fleetmap for the three unassigned zones in the STR cache radios may be programmed as determined by the region maintaining the radios. Although consideration should be given to the regional interoperability talkgroups of neighboring regions, there is no requirement that those talkgroups be programmed into STR cache radios.