

Metro Region ARMER Standards

Section 3 – Metro 3.24.0 – Interoperability Guidelines

Date Established

1-30-01

Date Revised/Reviewed

1-27-16

1. Purpose or Objective

To establish procedures for the use of RF control stations for various purposes. Establish procedures for use of the limited-800 MHz participating agency PSAP 9-1-1 hailing talkgroups.

2. Technical Background

• Capabilities

A RF control station is a radio transmitter and receiver that is set up with the same transmission and reception capabilities as a mobile radio or a portable radio. A RF control station, however, is used at a fixed location and is not moved.

The Metropolitan Emergency Services Board (MESB) is providing two radio control stations to each of the limited-800 MHz participating PSAP centers in the metropolitan area. A PSAP 9-1-1 hailing talkgroup is also created for each of these limited-participating agencies for agencies to be able to contact the PSAPs as needed for interoperability.

• Constraints

The talkgroup that is operated using radio communications control console electronics can function on one trunked radio system talkgroup only.

Care in design must be exercised when multiple RF control station are used at the same physical location to limit the amount of intermodulation interference generated.

Use of RF control stations to patch regional 800 MHz talkgroups to VHF, UHF, or other 800 MHz radio systems, may have a region-wide impact. This type of patch can be easily accomplished but may cause harmful interference under certain circumstances.

The PSAP 9-1-1 hailing talkgroups are not for normal business operations, they are intended for interoperability between agencies. The number of PSAPs creates a significant number of talkgroups, which can make the radio channel lineup planning more complex.

3. Operational Context

There are a number of uses for RF control stations including:

- An agency that does not have a dispatch center, such as a fire department that is remotely dispatched or a public works department may use a RF control station to communicate with the network. Normally that would be a RF control station that is surface mounted and has a means for controlling one of multiple talkgroups.
- RF control stations may be used to gain access to the regional 800 MHz trunked radio system from a dispatch center this is on a radio system other than the new regional system.

- RF control stations may be used for day-to-day purposes, for urgent or emergency situations, for task teams and for other purposes.
- An individual hailing talk group has been created for every limited-800 MHz participating PSAP in the metropolitan area, the IDs for these talkgroups have been pre-planned to facilitate agencies in their radio programming planning.
- The MESB is providing two radio control stations to each of the limited-800 MHz participating PSAP centers in the metropolitan area. One of the two stations is intended to be on the PSAP 9-1-1 hailing channel for that agency, the other is for the agency to be able to initiate communications with other agencies as needed.

4. Recommended Protocol/Standard

- Use of RF control stations is recommended to gain access to the regional 800 MHz trunked radio system network by radio user agencies that are not on the regional system. Agencies desiring to initiate manual or permanent patches from trunked RF control stations to other radio resources must be pre-approved by the owner of the resource in accordance with *Metro Standard 1.10.1 Requesting Participation*.
- Use of RF control stations for backup dispatching may be permitted, and it is an optional use determined by each agency. Some agencies may elect to use portable radios in portable radio battery chargers for this backup capability.
- Use of RF control stations by an agency without a dispatch center may be permitted and is an optional choice for radio user agencies that are served by the regional 800 MHz trunked radio system.
- Use of RF control stations by agencies that have a dispatch center on the regional 800 MHz trunked radio system at locations away from the dispatch center may be permitted and is an optional selection available to each agency.
- Use of RF control stations rather than microwave for dispatch center access to the regional 800 MHz radio system by subscriber agencies may be permitted if there is a design that will limit the intermodulation products in an acceptable manner.
- A small number of RF control stations may be permitted at a single location provided that care in design is exercised to limit intermodulation products (see SECB Standard LMR-24 for specific design requirements). Multiple RF control stations can be used for day-to-day communications, for urgent or emergency situations, for communications with task teams and for other purposes.
- An individual PSAP 9-1-1 hailing talk group will be created for each limited-800 MHz participating agency PSAP in the metropolitan area.
- These talkgroups can be patched by the PSAP agencies to conventional infrastructure as needed to meet the communications needs of an event involving multiple agencies.

Talk Group Sharing/Eligibility

- The PSAP 9-1-1 hailing talkgroups are optional and available for any public safety agency for programming into their radios.
- Non-public safety agencies are at the discretion of the individual PSAP for which that talk group is the 9-1-1 hailing channel, as defined in SECB Standard LMR-13 “Shared Talkgroups”.

5. Recommended Procedure

- Any agency that wishes to use more than one RF control station at one location shall only be permitted to use that configuration if the design is compliant with SECB Standard LMR-24. The process for obtaining permission will be to submit an application for multiple RF control stations to the System Manager Group (SMG). The application will describe the location and use of each control station and make it clear that the multiple RF control station configuration design meets the criteria in SECB Standard LMR-24.
- No permission will be required for an Authorized User that wishes to purchase and use a single RG control station on the regional 800 MHz trunked radio system. However, the RF control stations must meet the standards for radio equipment operating on the regional 800 MHz trunked radio system as defined in SECB Standard LMR-24.
- Non-participating or unauthorized radio users will need to obtain permission from the MESB before installing a RF control station.
- Talkgroups that can be accessed using RF control stations shall be governed by the permission granting process for shared talkgroups in SECB Standard LMR-13.
- The regional 800 MHz radio system includes an extensive VHF interoperability system for VLAW31, VMED28, MNCOMM have several voting receivers throughout the region, and a series of transmitters that are manually steered by a system dispatch console position operator. A regional 800 MHz trunked radio system RF control station may not be patched to any of these VHF radio channels at any dispatch center.
- MIMS and Statewide EMS/HEAR have several voting receivers, but only one transmitter site. Use of this site will result in high signal level radio coverage over an area greater than the ten-county service area of the regional 800 MHz trunked radio system. In some cases, use of a patch between a regional 800 MHz RF control station and a local agency’s transmitter on one of these channels, may be desirable to minimize the radio coverage area. If an agency desires approval to perform this type of patch, that agency must submit a plan describing the intended use to the Radio Technical Operation Committee; and receive approval.
- In some situations, there may be operational reasons to permanently/hard patch a local conventional radio channel to a regional 800 MHz system RF control station. Normally this type of patch should only be used if other suitable means for interagency communication are insufficient for the need. If an agency desires approval to perform this type of patch that agency must submit a plan describing the intended use to the Systems Managers Group (SMG) and receive approval.

- The transmit and receive audio on RF control stations may be logged by the owner of the RF control station.
- Control stations/PSAP 9-1-1 hailing talkgroups can be used as a transition stage for an agency in the process of converting its communications operations to 800 MHz trunking.
- The PSAP 9-1-1 hailing talkgroups can be used as dispatch “Point to Point” communications with the permission of the owning agency.

6. Management

All dispatch center operators shall be trained on the use of RF control stations and there shall be continuing training to maintain a good level of understanding of the procedures by all dispatch center operators.

The owners of RF control stations on the regional 800 MHz radio system will be permitted to obtain mobile radio licenses for those stations.

The PSAP 9-1-1 hailing talkgroups will be created and administered by the MnDOT 800 MHz System Administrator.