EMERGENCY RESPONDER COMMUNICATION SYSTEMS

Equipment shall be for 700MHz P25 Radio System
• UCA has changed to a 700MHz P25 Phase II trunked radio system in Q4 2024.

1. Initial Testing

• Fire Code Official to make final determination if an ERCES is required.
• DAQ grid test shall be required by the Fire Code Official. ○ Building must be dried in with all exterior glass, interior walls, and drywall installed.
○ If outer skin is metal, mesh, or other RF blocking materials, building must be fully enclosed.

• It is recommended that if the building is of notable size, made with heavy concrete/steel, or has an underground component that the owner take steps early on to establish the early integration of an ERCES for pathway prior to substantial completion testing so as not to delay certificate of occupancy.
• Testing to be performed per NFPA 1225 for DAQ (Delivered Audio Quality) or its Quantitative equivalency listed below. ○ DAQ; 3.0 or greater over ≥ 95% (qualitive)

or
○ RSSI; -95dBm or greater over ≥ 95% (quantitative)
○ Signal to Noise Ratio (SiNR); 18.0 dB or greater over ≥ 95% (quantitative)
○ Bit-error-rate (BER); 2.5% or less over ≥ 95% (quantitative)

• Installer Requirements 510.5.3 Submit to firemarshal@murray.utah.gov

• Training Certifications
• Project References
• Product Certifications
• NICET Certification

2. Letter of Consent / Frequency and Site Information

• Obtain from Utah Communications Authority (UCA)

• www.uca911.org/ 801-840-4200
• https://www.uca911.org/Application-for-Letter-of-Consent-to-operate-a-Bidirectional-Amplifier

Salt Lake County Jail
40.697241 -111.914607
769.15625
774.68125
Verify Control Channel and Frequencies- Contact UCA
Donor Site 2 – Jordan Commons
40.581856 -111.887817
769.26875
774.83125
Verify Control Channel and Frequencies -Contact UCA

3. Construction Permit

• $125 fee renewable every 2 years
• https://www.murray.utah.gov/1748/Fire-Prevention.
• Email: Firemarshal@murray.utah.gov
• Add system to Liv compliance engine for notice of annual inspections.
• A construction permit for the installation of or modification to an ERCES or related equipment is REQUIRED. Maintenance performed in accordance with the IFC is not considered a modification and does not require a permit. Fees will be assessed upon the conclusion of the plan review according to the locally adopted fee schedule.
• A complete RF design in clear, easy to understand format. Heatmapping is also required.
• A copy of all equipment specification sheets.
• A summary of design assumptions and scope of work.

4. Equipment Requirements

• 700 MHz Class A Amplifier
• High Gain Donor Antenna
• Longer battery back up
• Conduit in garage
• Signage that a DAS is onsite-at building entrance or FACP

5. Acceptance Testing Procedures (IFC Section 510 and NFPA 1225)

• DAQ grid test with passing 3.0 or better over 95% of general areas
• DAQ grid test with passing 3.0 or better over 99% of critical areas ○ Minimum 20 Non-Critical Areas (95%)
○ Separate Readings for ALL Critical Areas
○ Digital Audio Quality of 3.0 (Speech understandable with slight effort/Occasional repetition due to noise/distortion) See DAQ Chart

• Record the gain values and keep them on file with owner and equipment.
• Ensure spurious oscillations are not being generated by the signal booster.
• Monitored alarm testing of all conditions listed NFPA 1221 (9.6.13.2.1) 2019 or NFPA 1225 18.14.1.2
• Isolation test results
• External leakage test

6. Close Out Package

• Detailed Cover Page with Tower Information
• Map-Tower, Buildings, Distance
• Frequency Information
• UL and DL Gain settings
• Survey Notes ▪ Preferred Tower
▪ Alternate Tower
▪ Frequencies Used (Control Channel)

• Registration of Class B Amplifier (Only Class B requires registration)
• UCA Letter of Consent

7. Annual Inspection

• Follow testing procedures listed in NFPA 1225 20.3.10-20.4.3
• Visually inspect all equipment, cabling, and ground connections
• Noise Floor Test
• Ensure the gain values are the same as they were upon initial acceptance.
• Ensure spurious oscillations are not being generated by the signal booster.
• Backup batteries and power supplies to be tested under load for 1 hour. Replace if <70%
• Class B systems tested for Near-Far issues (510.5.3 item #8)
• Monitored Alarm testing of all conditions listed NFPA 1225

8. Reporting

• Completion report submitted to Murray City Fire Marshals Office for initial testing, construction, or annual testing. firemarshal@murray.utha.gov ○ Detailed cover page, name, location,
○ System design (as-built), construction test results, link budget, pictures, equipment locations.
○ FCC registration, frequency letter of consent
○ DAQ grid test results in visual format
○ Installer contact information, site contact information

• Murray City Fire Marshals Office performs on site radio checks in ALL critical areas and at random in non-Critical.