City of Monterey Park
Technical Specification for
EMERGENCY RESPONDER RADIO COMMUNICATIONS SYSTEM
(Rev. 2018-11-06)

The emergency responder radio system operated by the ICIS JPA (City of Monterey Park Subscriber) & the City of Monterey Park (Police). The following are the Monterey Park Frequencies and Donor Sites:

These frequencies shall be included in every signal booster installation.

System	Downlink	Uplink	Type	Donor Sites	Modulation (M)	Power (W)	Max. Propagation Delay of BDA & DAS
MP Police 1*	155.5650	154.9500	Conventional	1	Project 25 Digital (P25D)	50	15 microseconds
MP Police 2*	155.4150	156.2250	Conventional	2	Project 25 Digital (P25D)	50	15 microseconds
XLC Access**	470.3625	473.3625	Conventional	3	Analog	50	25 microseconds

Single-Site System*
Six-Site Simulcast**

One of the following trunking cells shall be included in every signal booster installation.
Select the trunking cell which provides the clearest path to the BDA donor antenna.
Either the Montebello Trunking Cell -OR- the Glendale Truncking cell.

Either the Montebello Trunking Cell OR

System	Downlink	Uplink	Type	Donor Sites	M	Power (W)	Max. Propagation Delay of BDA & DAS
Montebello***	470.3375	473.3375	Trunking	4	P25D	50	15 microseconds
Montebello***	482.0375	485.0375	Trunking	4	P25D	50	15 microseconds
Montebello***	482.1125	485.1125	Trunking	4	P25D	50	15 microseconds
Montebello***	482.1500	485.1500	Trunking	4	P25D	50	15 microseconds
Montebello***	482.2125	485.2125	Trunking	4	P25D	50	15 microseconds
Montebello***	482.2750	485.2750	Trunking	4	P25D	50	15 microseconds
Montebello***	428.3125	485.3125	Trunking	4	P25D	50	15 microseconds
Montebello***	482.3750	485.3750	Trunking	4	P25D	50	15 microseconds
Montebello***	482.4125	485.4125	Trunking	4	P25D	50	15 microseconds
Montebello***	482.4750	485.4750	Trunking	4	P25D	50	15 microseconds
Montebello***	482.5125	485.5125	Trunking	4	P25D	50	15 microseconds
Montebello***	482.6125	485.6125	Trunking	4	P25D	50	15 microseconds

Six-Site Simulcast***
the Glendale Trunking Cell

System	Downlink	Uplink	Type	Donor Sites	M	Power (W)	Max. Propagation Delay of BDA & DAS
Glendale****	470.0875	473.0875	Trunnking	3	P25D	50	15 microseconds
Glendale****	470.1375	473.1375	Trunnking	3	P25D	50	15 microseconds
Glendale****	470.2125	473.2125	Trunnking	3	P25D	50	15 microseconds
Glendale****	470.2625	473.2625	Trunnking	3	P25D	50	15 microseconds
Glendale****	482.0875	485.0875	Trunnking	3	P25D	50	15 microseconds
Glendale****	482.1375	485.1375	Trunnking	3	P25D	50	15 microseconds
Glendale****	482.1875	485.1875	Trunnking	3	P25D	50	15 microseconds
Glendale****	482.2375	485.2375	Trunnking	3	P25D	50	15 microseconds
Glendale****	482.2875	485.2875	Trunnking	3	P25D	50	15 microseconds
Glendale****	482.3375	485.3375	Trunnking	3	P25D	50	15 microseconds
Glendale****	482.3875	485.3875	Trunnking	3	P25D	50	15 microseconds
Glendale****	482.4375	485.4375	Trunnking	3	P25D	50	15 microseconds
Glendale****	482.4875	485.4875	Trunnking	3	P25D	50	15 microseconds
Glendale****	482.5375	485.5375	Trunnking	3	P25D	50	15 microseconds
Glendale****	482.5875	485.5875	Trunnking	3	P25D	50	15 microseconds
Glendale****	482.6375	485.6375	Trunnking	3	P25D	50	15 microseconds
Glendale****	484.1875	487.1875	Trunnking	3	P25D	50	15 microseconds
Glendale****	484.2625	487.2625	Trunnking	3	P25D	50	15 microseconds

Nine-Site Simulast**

Required Donor Sites:

Site	GPS Coordinates	GPS Coordinates
Site 1	34.054187	-118.142466
Site 2	34.049387	-118.133577
Site 3	34.187167	-118.256278
Site 4*	34.032500	-118.098056
Site 4**	34.027778	-118.132861

Site 1: Sequoia Park, 750 Ridgecrest Street, Monterey Park
Site 2: Bradshawe Water Tank, 10001 Bradshawe Place, Monterey Park
Site 3: Mount Thom
Site 4 (Use one of the following)
*Montebello Reservoir
**Quiet Cannon

California Fire Code, 2016 ed. as adopted by the City of Monterey Park

SECTION 510
EMERGENCY RESPONDER RADIO COVERAGE

510.1 Emergency responder radio coverage **in** new buildings. All new buildings shall have approved radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where approved by the building official and the fire code official, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an approved radio coverage system.

2. Where it is determined by the fire code official that the radio coverage system is not needed.

3. In facilities where emergency responder radio coverage is required and such systems, components or equipment required could have a negative impact on the normal operations of that facility, the fire code official shall have the authority to accept an automatically activated emergency responder radio coverage system.

510.2 Emergency responder radio coverage in existing buildings. Existing buildings shall be provided with approved radio coverage for emergency responders as required in Chapter 11.

510.3 Permit required. A construction permit for the installation of or modification to emergency responder radio coverage systems and related equipment is required as specified in Section 105.7.5. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

510.4 Technical requirements. Systems, components, and equipment required to provide emergency responder radio coverage system shall comply with Sections 510.4.1 through 510.4.2.5.

> **510.4.1** Radio signal strength. The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in 95 percent of all areas on each floor of the building meet the signal strength requirements in Sections 510.4.1.1 and 510.4.1.2.

510.4.1.1 Minimum signal strength into the building. A minimum signal strength of -95 dBm shall be receivable within the building.

510.4.1.2 Minimum signal strength out of the building. A minimum signal strength of -95 dBm shall be received by the agency's radio system when transmitted from within the building.

510.4.2 System design. The emergency responder radio coverage system shall be designed in accordance with Sections 510.4.2.1 through 510.4.2.5.

510.4.2.1 Amplification systems allowed. Buildings and structures which cannot support the required level of radio coverage shall be equipped with a radiating cable system, a distributed antenna system with Federal Communications Commission (FCC)-certified signal boosters, or other system approved by the fire code official in order to achieve the required adequate radio coverage.

510.4.2.2 Technical criteria. The fire code official shall maintain a document providing the specific technical information and requirements for the emergency responder radio coverage system. This document shall contain, but not be limited to, the various frequencies required, the location of radio sites, effective radiated power of radio sites, and other supporting technical information.

510.4.2.3 Standby power. Emergency responder radio coverage systems shall be provided with standby power in accordance with section 604. The standby power supply shall be capable of operating the emergency responder radio coverage system for a period of not less than 24 hours.

510.4.2.4 Signal booster requirements. If used, signal boosters shall meet the following requirements:

1. All signal booster components shall be contained

in a National Electrical Manufacturer's Association (NEMA) 4-type waterproof cabinet.

2. Battery systems used for the emergency power source shall be contained in a NEMA 4-type waterproof cabinet.

3. The signal booster system and battery system shall be electrically supervised and monitored by a supervisory service, or when approved by the fire code official, shall sound an audible signal at a constantly attended location.

4. Equipment shall have FCC certification prior to installation.

510.4.2.5 Additional frequencies and change of frequencies. The emergency responder radio coverage system shall be capable of modification or expansion in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC.

510.5 Installation requirements. The installation of the public safety radio coverage system shall be in accordance with Sections 510.5.1 through 510.5.4.

510.5.1 Approval prior to installation. Amplification systems capable of operating on frequencies licensed to any public safety agency by the FCC shaH not be installed without prior coordination and approval of the fire code officiaL

510.5.2 Minimum qualifications of personnel. The minimum qualifications of the system designer and lead installation personnel shall include:

1. A valid FCC-issued general radio operators license;

2. Certification of in-building system training issued by a nationally recognized organization, school or a certificate issued by the manufacturer of the equipment being installed.

These qualifications shall not be required where demonstration of adequate skills and experience satisfactory to the fire code official is provided.

510.5.3 Acceptance test procedure. When an emergency responder radio coverage system is required, and upon completion of installation, the building owner shall have the radio system tested to ensure that two-way coverage on each floor of the building is a minimum of 90 percent. The test procedure shall be conducted as follows:

1. Each floor of the building shall be divided into a grid of 20 approximately equal test areas.

2. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system.

3. Failure of a maximum of two nonadjacent test areas shall not result in failure of the test.

4. In the event that three of the test areas fail the test, in order to be more statistically accurate, the floor shall be permitted to be divided into 40 equal test areas. Failure of a maximum of four nonadjacent test areas shall not result in failure of the test. If the system fails the 40-area test, the system shall be altered to meet the 90 percent coverage requirement.

5. A test location approximately in the center of each test area shall be selected for the test, with the radio enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire test area. Failure in the selected test location shall be considered failure of that test area. Additional test locations shall not be permitted.

6. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building owner so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building *owner* shall be required to rerun the acceptance test to reestablish the gain values.

7. As part of the installation a spectrum analyzer or other suitable test equipment shall be utilized to ensure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at time of installation and subsequent annual inspections.

510.5.4 FCC compliance. The emergency responder radio coverage system installation and components shall also comply with all applicable federal regulations including, but not 1imited to, FCC 47 CFR Part 90.219.

510.6 Maintenance. The emergency responder radio coverage system shall be maintained operational at all times in accordance with Sections 510.6.1 through 510.6.3.
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510.6.1 Testing and proof of compliance. The emergency responder radio coverage system shall be inspected and tested annually or whenever structural changes occur including additions or remodels that could materially change the original field performance tests. Testing shall consist of the following:

1. In-building coverage test as described in Section 510.5.3.

2. Signal boosters shal1 be tested to ensure that the gain is the same as it was upon initial installation and acceptance.

3. Backup batteries and power supplies shall be tested under load of a period of one hour to verify that they will properly operate during an actual power outage. If within the l-hour test period the battery exhibits symptoms of failure, the test shall be extended for additional l-hour periods until the integrity of the battery can be determined.

4. All other active components shall be checked to verify operation within the manufacturer's specifications.

5. At the conclusion of the testing, a report, which shall verify compliance with Section 510.5.3, shall be submitted to the fire code official.

510.6.2 Additional frequencies. The building owner shall modify or expand the emergency responder radio coverage system at their expense in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC. Prior approval of a public safety radio coverage system on previous frequencies does not exempt this section.

510.6.3 Field testing. Agency personnel shall have the right to enter onto the property at any reasonable time to conduct field testing to verify the required level of radio coverage.