



Community Risk Reduction Division

Two Way Radio Enhancement System / Bi-Directional Amplifier (BDA)

Permit Requirements

Property Name: _____ Permit #: _____ Insp. Date: _____

Property Address: _____

DAS/BDA Installer Name and Contact: _____

FA Installer Name and Contact: _____

FA Monitoring Company and Contact: _____

- 1. Approved Plans to include written sequence of operation, as-built drawings, and operation and maintenance manuals on site.
- 2. Disciplines on site for testing: ___ Fire Alarm Co. ___ BDA Installer ___ SLCFD Fire Inspector
- 3. Organization responsible for the electrical system shall be identified.
- 4. Masts and metal structures supporting the antennae are grounded and Lightning Protection as required by the National Electric Code.
- 5. Openings and penetrations properly sealed.
- 6. Pathway of survivability as per plan.
- 7. System components are approved and compatible with the public safety radio system, included are repeaters, transmitters, receivers, signal boosters, cabling and the finer distributed antenna system.
- 8. All repeaters, transmitters, receivers, signal booster components and battery system components are contained and installed in a UL approved NEMA 4 or 4 X Type enclosures.
- 9. Fire Alarm system supervisory and trouble signals were activated and annunciated by the FA panel for the following:
 - **Antenna Malfunction**  FA system supervisory  Signal booster trouble indicated
 - **Signal Booster Failure**  FA system supervisory  Signal booster trouble indicated



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- **Low-battery capacity, alarming at 70% of capacity** → FA system supervisory → Power supply trouble indicated
- **Loss of normal AC Power** → A system supervisory → Power supply trouble indicated
- **Failure of Battery Charger** → A system supervisory → Power supply trouble indicated

10. Integrity of the circuit monitoring signal boosters and power supplies shall comply with section 10.6.9 and 12.6. All monitoring of system components must provide notification of system integrity automatically within 200 seconds (3 min 20 seconds) (NFPA 72)

11. A Dedicated monitoring panel providing visual and labeled notifications is located in the Emergency Command Center and provided indications of the following occurrences for each signal booster:
(NFPA 72) (BDA disconnect notification needs to be immediate to 3 minutes and 20 seconds.)

Loss of A/C Power	BDA-Signal Booster Trouble	BDA- AC Power Fail
BDA-Failure of Battery Charger	BDA-Low Battery Capacity	Remove BDA-Antenna Fail

12. Radio coverage was provided throughout the building as a percentage of floor area as follows:
(Verify signal heat map for internal antennae locations, contact Dispatch for a testing radio channel and test areas throughout the bldg. with 1 Insp. in BDA Equipment room, 1 insp. outside and 1 insp. walking the building with the map performing radio tests to other inspectors.(Verify signal strength from the signal strength chart from installer)

a. coverage Critical Areas 99% floor area radio (NFPA 72):

___Emergency Command Center ___Fire pump room ___Elevator lobbies ___Sprinkler sectional valve locations

___ Exit Stairs ___ Exit Passageways ___Standpipe cabinets ___Other areas deemed critical by the AHJ

Areas that did not pass: _____

b. General Building Areas 90% floor area radio coverage (NFPA 72):

___ Verify plan to heat map Areas that did not pass: _____

13. Two (2) independent and reliable power supplies provided and functioned, 1 primary and 1 secondary. (NFPA72) as follows:

a. Primary (one of the following)

___Commercial light and power



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___ Engine driven or equivalent and where person trained to operate is on duty at all times

___ Engine driven generator or equivalent arranged for cogeneration with commercial light and power.

b. Secondary (one of the following)

___ A storage of batteries dedicated to the system with at least 12 hours of 100% system operation capacity and arranged per NFPA 72.

___ Automatic-starting engine-driven generator serving the dedicated branch circuit or the system with at least 12 hours of 100% system operation capacity and storage batteries dedicated to the system with at least 2 hours of 100% system operation capacity and arranged in accordance with 10.6.11.3. (NFPA 72)

14. The minimum signal strength inbound -95dBm provided throughout coverage area. (NFPA 72)
15. The minimum signal strength outbound -95dBm provided at donor site from the coverage area. (NFPA 72)
16. Donor Antenna – isolation is maintained between donor antennae and all inside antennas and shall be a minimum of 15dB above the signal booster gain under all operating conditions (NFPA 72)
17. Signal boosters shall have FCC certified and verified by approved paperwork provided. (NFPA 72)
18. Signal boosters are compatible with both analog and digital communications simultaneously at the time of installation. (NFPA 72)
19. Provide signage where the signal booster equipment is located and FD accessible with the following:
Fire Department Signal Booster Permit Number and Service Provider Name and Contact Number
20. In **DAS/BDA Equipment Room- in Labeled Binder for DAS/BDA Equipment** : (NFPA 72)
___ As Built drawings ___ Manufacturer specifications ___ Post Signal Heat Map ___ Maintenance Repair Log
___ Post repair signal strength measurements ___ ORCAT Approval Copy ___ Maintenance Contract
Note: This DAS/BDA records are separate from FA records, as different installer and repair technicians
21. Provide NFPA 72 Completion Paper Work for install from fire alarm contractor and/or master electrical. (FS 489)



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22. Provide documentation that a maintenance and service agreement has been entered into between the property owner and service provider for the fire alarm radio transmitter. All components and signal strength level testing is required annually. (NFPA 72)



Inspection: Passed



Inspection: Failed (___Re-schedule ___ Fire Only)

NOTES: _____

SLC Fire Inspector: _____ Signature: _____
DAS/BDA Installer: _____ Signature: _____
Property Owner: _____ Signature: _____