APPENDIX A

UPPER ALLEN TOWNSHIP

800 MHz Radio Communications System
In-Building
Certification Requirements

1. Scope and Purpose

1.1 These rules and regulations ensure the quality of the Township’s emergency communications system by maintaining quality in-building communications to prevent “dead zone” areas. This helps to protect the citizens of the Township so emergency public safety personnel can communicate during a response to an emergency situation.

1.2 These rules and regulations apply to all existing and new commercial buildings in excess of 32,000 square feet.

2. Reference.

The Code of Upper Allen Township, Chapter 192 (Public Safety Radio System Amplifiers), as amended.

3. Definitions

3.1 800 MHZ BAND – Radio frequencies between 806 and 870 MHz

3.2 APPROVED VENDOR – Vendor has current FCC license (or equivalent) for two-way radio on file with the Department of Public Safety, Cumberland County, PA.

3.3 COMMERCIAL BUILDING – any large building or enclosure used or intended for use in the operation of one (1) or more business enterprises for the sale and distribution of any product, commodity, article or service used or intended for use for any social, amusement, religious, educational, charitable or public purpose and shall include institutional dormitories, individual condominium units and integral units within a single structure (such as “flex-space offices”). Includes the gross floor area, including storage areas, basements, attics, and stairwells.

3.4 DELIVERED AUDIO QUALITY (DAQ):

3.4.1 DAQ 1: Unusable. Speech present but not understandable.
3.4.2 **DAQ 2**: Speech understandable with considerable effort. Requires frequent repetition due to noise or distortion.

3.4.3 **DAQ 3**: Speech understandable with slight effort. Requires occasional repetition due to noise or distortion.

3.4.4 **DAQ 3.4**: Speech understandable without repetition. Some noise or distortion present.

3.4.5 **DAQ 4**: Speech easily understandable. Little noise or distortion.

3.4.6 **DAQ 4.5**: Speech easily understandable. Rare noise or distortion.

3.4.7 **DAQ 5**: Perfect. No distortion or noise discernible.

3.5 **LARGE BUILDING** – Buildings that meet one or more of the following characteristics.

3.5.1 Gross building size of 32,000 square feet or more.

3.5.2 High concentration of steel or machinery.

3.5.3 Hospitals.

3.5.4 Nursing homes.

3.5.5 Schools or colleges, including elementary, secondary, post-secondary, public and private.

3.6 **MINIMUM SIGNAL STRENGTH FOR PUBLIC SAFETY** – minus (-) 90 dBm (micro-volt) or as set forth by Cumberland County Department of Public Safety.

3.7 **PUBLIC SAFETY PERSONNEL** – Police, fire and emergency medical personnel and as set forth by the Upper Allen Township Board of Commissioners.

4. **In-Building System Architectures:**

   Systems can consist of, but are not limited to, simple passive systems (an internal antenna system with a FCC certified Bi-Directional Amplifier).

5. **Interference:**

   If a flaw in the system design or installation causes interference to other systems the building owner or their representative will make necessary adjustments.
6. Alarm and Control:

6.1 Systems shall be capable of sensing a primary failure in the system, and reporting this failure to an approved monitoring company. The alarm unit shall provide reporting, at a minimum, for the following conditions:

   6.1.1 Main power disruption

   6.1.2 Back-up power failure

   6.1.3 Transmitter/Receiver failure

6.2 The monitoring company must notify the Township Community Development Department within 24-hours in the event of a BDA alarm.

7. Power Source:

7.1 All systems shall be connected to a dedicated power source from the building’s AC power distribution panel.

7.2 If any part of the installed system or systems contains an electrically powered component, the system shall be capable of operating on an independent battery and/or generator system for a period of at least two (2) hours without external power input. The battery system shall automatically charge in the presence of external power input. If a generator system is used, the back-up power should ensure the equipment remains operational during switch-over to the generator system in the event of primary AC failure.

7.3 All electrically powered components of the system shall be fully encased within a NEMA 4 (or equivalent) dust/waterproof case to protect against water damage (due to sprinkler activation or fire hose water spray).

8. Environmental Controls:

8.1 Systems must have adequate environmental controls to meet the heating, ventilation, cooling and humidity requirements of the equipment that will be utilized to meet the coverage requirements.

8.2 All systems, cables and antenna systems shall be grounded with a single point ground system of five (5) ohms or less.

8.3 System transient suppression for the telephone circuits, AC power, radio frequency (RF) cabling is required.
9. Initial Coverage Testing and Acceptance:

9.1 All new and existing commercial buildings in excess of 32,000 square feet, including new additions and tenant fit-outs, and those that do not increase the total square feet, are required to be tested.

9.2 Initial testing and acceptance will be completed as described in Appendix A.

9.3 A copy of the test shall be retained on the inspected premises. (Official testing form can be found at Appendix B.)

9.4 A copy of the test shall be sent to:

Upper Allen Township
Community Development Department
100 Gettysburg Pike
Mechanicsburg, PA 17055

10. Reliability and Coverage Level:

The building(s) must meet ninety-five (95%) radio coverage with a reliability factor of ninety-five percent (95%) on each floor of building, at minimum strength in the 800 MHz band.

11. Annual Test:

11.1 When an in-building system is installed, the building owner or their representative shall test all active components of the system, including, but not limited to, every antenna point, the amplifier, power supplies, and back-up batteries, a minimum of once every twelve (12) months. Annual testing will include:

11.1.1 Amplifiers shall be tested to ensure that the gain is the same as it was upon initial installation and acceptance.

11.1.2 Back-up batteries and power supplies shall be tested under load for a period of one (1) hour to verify that they will operate during an actual power outage.

11.1.3 All other active components shall be checked to determine that they are operating within the manufacturers specifications for their intended purposes.

11.1.4 Test results shall be reported using the attached tabulation form.
11.1.5 Test results must be completed within 395 days of the previous annual inspection.

11.2 A copy of the tabulated test results shall be retained on the inspected premises.

11.3 An original, signed copy of the tabulated test results shall be sent to the Township:

Upper Allen Township
Community Development Department
100 Gettysburg Pike
Mechanicsburg, PA 17055

11.5 If any area(s) of the system fail to meet the coverage requirements herein during the annual testing, the building owner or their representative will make necessary adjustments.

12. Testing Qualification:

All tests shall be conducted, by an Approved Vendor with a valid FCC license, or equivalent, for two-way radio.

13. Township or Public Safety Personnel Inspections:

13.1 Township or public safety personnel or their designated representatives, after providing reasonable notice (24 hours) to the owner or representative, shall have the right during normal business hours to enter onto the property to verify compliance and that the required level of coverage is present in any area of the building. This inspection will be performed at no cost to the owner. Any noted deficiencies shall be provided in an inspection report to the owner or the owner's representative.

13.2 If any area(s) of the system fail to meet the coverage requirements herein during the Township inspection, the building owner or their representative will make necessary adjustments.

14. Temporary Certificate of Occupancy for New Structures:

A Temporary Certificate of Occupancy (TCO) may be issued in the event the initial coverage test fails. To receive a consideration for a TCO the facility owner or designated representative must submit a plan of corrective action (PCA) to Upper Allen Township, Community Development Department for review and approval. A TCO may be valid for up to six (6) months from date of issue. The Township may extend the TCO with an approved PCA, in the event of extenuating circumstances outside the owner's control.
15. Maintenance Responsibilities:

The owner or their representative shall be responsible for maintenance of the system and upgrades or replacements to the system should the system fail, or portion of the system fail at any time.