Central Ohio Interoperable Radio System (COIRS)

Serving the safety and service forces of Delaware Co, Dublin, Hilliard, Upper Arlington and Worthington

COIRS Fact Sheet on Bi-Directional Amplifiers (BDA's)

The use of signal boosters (aka Bi-Directional Amplifiers or BDA's) in primary public safety wireless systems has become an accepted method of resolving in-building coverage.

The purpose of this Fact Sheet is to provide guidelines for BDA system design, testing and operation to ensure reliable emergency voice radio communications in large buildings.

BDA's are passive devices that do not require an operating license by the Federal Communications Commission (FCC) but they must be type accepted by the FCC to ensure reliable operation.

The need for BDA's is driven by the fact that the radio wave attenuation caused by large buildings will reduce the signal to the point of being unusable. Simply put, a BDA takes the good signal from outside the building and distributes it inside the building.

If a building is in an area with good emergency voice radio coverage outside and unacceptable coverage inside, the solution probably is the installation of a BDA.

Chapter 24 (2013 version) of National Fire Protection Association (NFPA) 72 provides guidelines of:

- There should be minimum signal strength of -95 dBm available (both transmit and receive) over 90% of the floor area on each floor of the building, measured with a spectrum analyzer.
- The BDA system (including backup electrical power) should have backup electrical power to operate for no less than 24 hours without external electrical power.

The BDA system should be installed and tested (initially and annually thereafter) by a certified technician.

The goal of a BDA in large buildings is to improve interior emergency communications. With the installation of a BDA that is in the 700/800 MHz frequency band, this will not only cover our current radio system, but also allow for future expansion.

Since most Police, Fire and Federal Agencies have moved into the 700/800 MHz band. A BDA in this configuration will also allow for the majority of Central Ohio agencies operating on these systems to utilize the same BDA system with no additional modifications or costs. This includes Columbus Police and Fire, Ohio State Highway Patrol, regional Haz-Mat and FEMA teams.

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Operational Frequencies: 700/800MHz Public Safety

- 855.9626
- 855.7125
- 855.4875
- 856.6125
- 851.4875
- 851.7625
- 851.2500
- 854.1875
- 853.3625

Tower Sites:

- Avery Rd 40.127868, -83.162911
- Hard Rd 40.123786, -83.096697
- Arlington 40.034910, -83.067785
- Huntley 40.093015, -82.999856
- Darby 40.033345, -83.166211

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NRECC 911
NORTHWEST REGIONAL EMERGENCY COMMUNICATIONS CENTER
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Norwich Township | City of Upper Arlington