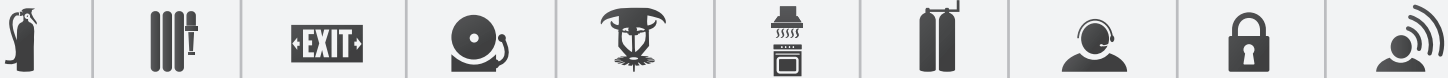


# BI-DIRECTIONAL AMPLIFIER (BDA) & FIBER DAS SYSTEMS

RELIABLE IN-BUILDING PUBLIC SAFETY  
RADIO COVERAGE FOR SAFER BUILDINGS



## SOLVING THE COVERAGE PROBLEM

Is your building prepared to protect the people who protect you during an emergency event? Concrete or metal construction, larger buildings, and underground structures have a negative impact on the in-building signal strength required for reliable communications. Buildings that use low-E glass windows will attenuate the signal from public safety radio systems. Many design professionals are not aware of the ERCES requirements. If ERCES is not referenced on a building submittal, the fire official should immediately notify the building official and design professional, in writing, that the ERCES must be evaluated. If the existing radio coverage has not been maintained, then ERCES must be provided.

## HOW TO DETERMINE IF A BDA SYSTEM IS BENEFICIAL TO YOUR BUILDING

Typically performed by specialized FCC GROL certified technician and some fire department radio personnel, an RF Survey is accomplished by measuring the Downlink/Uplink signal strengths in decibels-milliwatts (dBm) using special measuring devices. Results are submitted to AHJ to determine if a BDA system is required or if a waiver is appropriate.

## CODE REQUIREMENT AND PRODUCT STANDARDS

Emergency Responder Communication Enhancement Systems (ERCES) were first introduced in the 2009 International Building Code. The ERCES requirement was established to address the performance of emergency responders' portable radios inside buildings because building construction, building size, construction features, and other elements can absorb or block radio communications.

Today's Codes like the IBC 2021 Section 916, NFPA 1 2021 Section 11.10, IFC 2021 Section 510, NFPA 1221 Section 9.6 require all buildings to have an approved level of emergency communication coverage for emergency responders within the building based on the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This can be achieved by enhancing the in-building radio frequency signal coverage with an ERCES, which comprises of a BDA / Signal Booster and Distributed Antenna System (DAS).

UL2524 product performance listing and standard was only recently introduced for ERCES. UL2524 2nd Edition listing from an OSHA-approved NRTL (Nationally Recognized Testing Laboratory) for UL2524 provides AHJs, A&Es, and building owners the certainty from an independent third-party organization that systems are code compliant and installed BDA systems will provide reliable communications for emergency responders.

## FAQS

### **What are NFPA's requirements for annunciator at FACP, or is FACP monitoring adequate?**

A dedicated annunciator panel must be located in the fire command center or other location designated by the AHJ. The BDA and Fiber DAS Master/Remote status must also be monitored by the building's fire alarm system.

### **Does the Building Code require BDAs for Police and Fire Departments?**

The code requires coverage for Emergency Responders. The AHJ will determine which Emergency Responder agencies need to be included in the system. Generally, it includes Fire, Fire Mutual Aid, Police, and EMS.

### **Who determines what public safety agencies are to be supported under the provisions for "Emergency Responder Radio Coverage"?**

The AHJ will determine which agencies will need coverage.

### **How does a system designer or system engineer determine what frequencies are to be supported?**

The AHJ is required to maintain a document of technical information specific to these requirements.

### **Where multiple agencies are required to be supported, is each agency responsible for accepting or approving their respective system, or is that the sole responsibility of the Fire Official?**

It is usually the fire marshal (AHJ) who provides the technical specifications and information on permitting and testing procedures and requirements for the jurisdiction. FCC 47 CFR Part 90.219 requires express consent of the licensee(s) i.e. FCC License Holder, of the frequencies for which the device or system is intended to amplify,

### **What skills, education, or experience must a technician have to install, commission, and service a BDA system?**

This depends on the jurisdiction, but typically FCC GROL or approved equivalent and manufacturer certification.

### **How does one determine whether existing radio coverage is adequate or justify whether an Enhancement System is warranted?**

An RF Survey must be performed. Typically performed by specialized FCC GROL certified technician and some fire department radio personnel, an RF Survey is accomplished by measuring the Downlink/Uplink signal strengths in decibels-milliwatts (dBm) using special measuring devices.

The survey can be determined before the building construction starts with a signal survey on the building site followed by software-simulated radio propagation modeling. This results in heat maps that show predicted signal coverage levels.

Results are submitted to AHJ to determine if a BDA / Fiber DAS is required or if a waiver is appropriate.

## BENEFITS OF CHOOSING KOORSEN

For over 75 years, Koorsen Fire & Security has worked harder, trained longer, and have done whatever it takes to keep property and people safe.

- Complete Fire & Security Solutions
- 100% Codes & Regulations Compliance
- Certified Distributor of Top Systems
- Quick Installation Times
- Extensive System Design Experience
- Manufacturer-Trained / FCC Licensed Technicians
- Industry Leading System Design Inventory
- Full Integration with Life Safety Systems

Koorsen is proud to work with industry-leading manufacturers like EST/ADRF, Siemens/RSI, and Honeywell. For performing Signal Surveys, Koorsen used the latest PCTEL technology. This state-of-the-art tech streamlines the building approval process by testing coverage and signal quality across multiple LMR, cellular, and WiFi networks.

**CONTACT US TODAY FOR RELIABLE IN-BUILDING PUBLIC SAFETY RADIO COVERAGE**