

END THE RADIO SILENCE FOR FIRST RESPONDERS

Reliable In-Building Public Safety Radio Coverage for Safer Buildings

Bi-Directional Amplifier (BDA) & Fiber DAS Systems

Honeywell

HONEYWELL BI-DIRECTIONAL AMPLIFIER SYSTEMS

Is your building prepared to protect the people who protect you during an emergency event? Honeywell's Bi-Directional Amplifier (BDA) and Fiber DAS emergency communication system is designed to enhance in-building radio frequency (RF) signal coverage for public safety use.

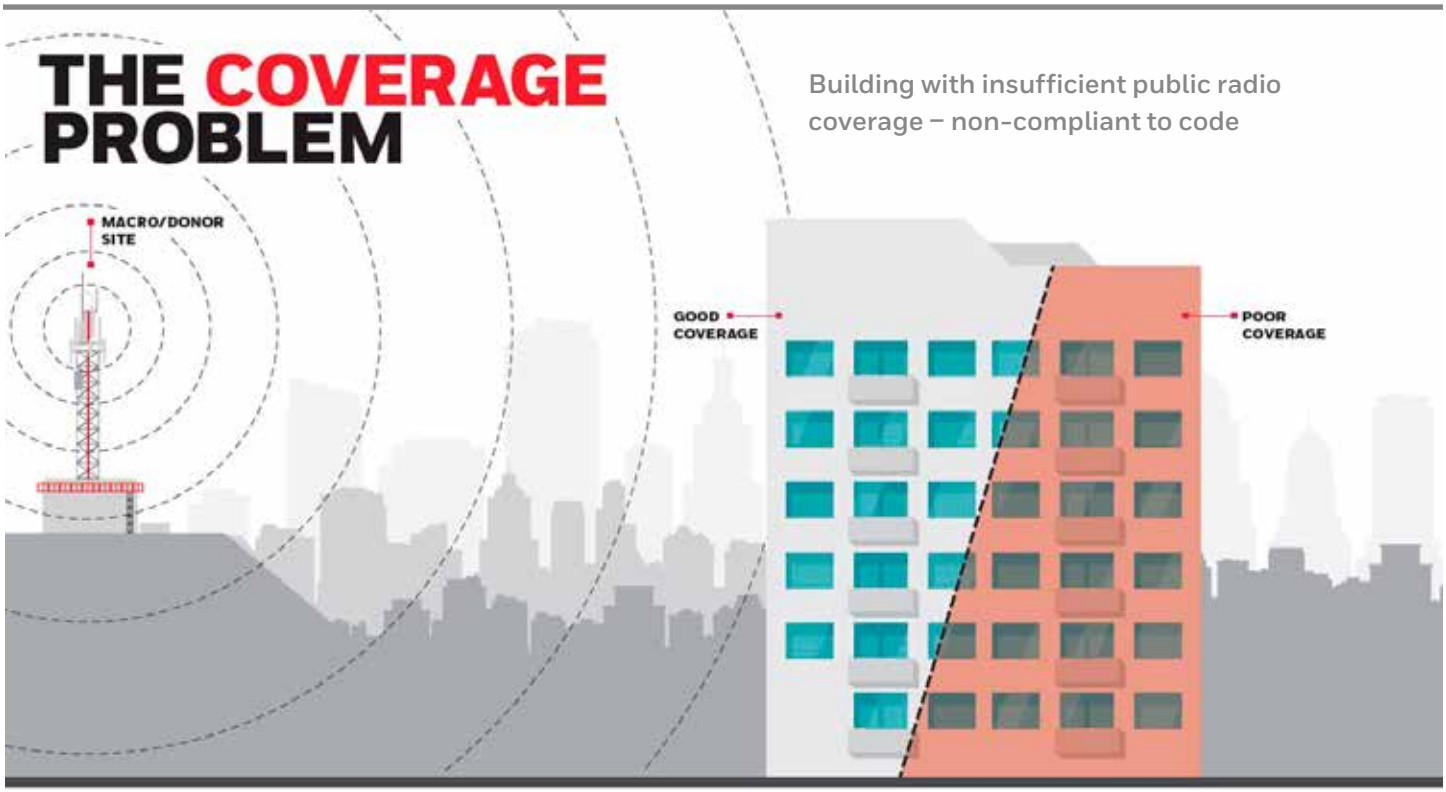


CODE REQUIREMENTS AND PRODUCT STANDARDS

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, 2019 NFPA 1221 Section 9.6 or 2022 NFPA 1225 Chapter 18 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.



SOLVING THE COVERAGE PROBLEM

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.

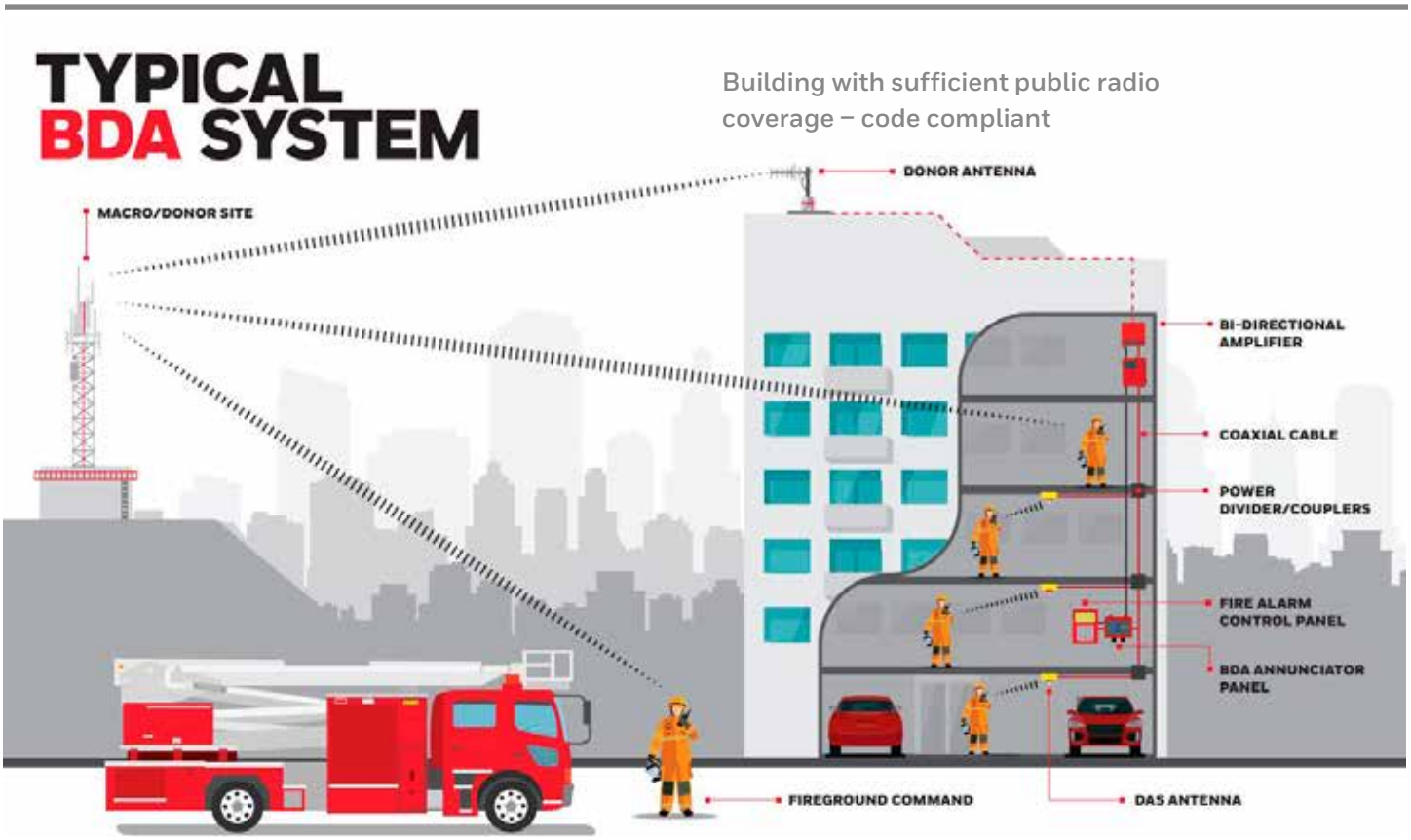
HOW TO DETERMINE IF A BDA SYSTEM IS BENEFICIAL TO YOUR BUILDING

Typically performed by specialized FCC GROL certified technician and some fire department radio personnel, a 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.

HOW IS HONEYWELL'S BDA AND FIBER DAS SYSTEM UNIQUE?

Specifically designed to meet NFPA and IBC/IFC code compliance with UL2524 2nd Edition listing, Honeywell's BDA and Fiber DAS solution enhances two-way radio signal strength inside buildings, tunnels and other structures. Honeywell BDA and Fiber DAS Solutions offer Digital Class A/B, low to high power (0.5W to 5W) radio signal booster system that can be designed and customized to meet all public safety frequency band ranges -VHF, UHF, 700 MHz, 800 MHz and FirstNet Band 14 support with Single/Dual Band. Honeywell's state of the art BDA and Fiber DAS System is developed to provide best amplification and coverage performance, but at the same time support reliability of the radio network with no noise.

- Single portfolio, offering all components required, to meet any single or multi-building application across US supporting all public safety frequency bands
- IFC, IBC and NFPA compliant, FCC certified
- UL2524 2nd Edition listing for In-building 2-Way Emergency Radio Communication Enhancement Systems
- Channel Selective, software programmable or adjustable bandwidths. Platform wide Downlink Automatic Gain Control (AGC) per channel and time slot
- Alarm relay outputs for fire alarm panel connection for monitoring BDA and Fiber DAS Master / Remote. Dedicated annunciator options with built-in annunciator in BBU (Battery Backup Unit) and remote annunciator
- No noise, oscillation prevention and monitoring with programmable performance mitigation actions and automatic uplink power amplifier auto off support for safe operation and non-interference with public safety radio system
- Address any application, any jurisdiction with lower total cost of ownership



FAQ

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?

A RF Survey must be performed. Typically performed by specialized FCC GROL certified technician and some fire department radio personnel, a 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.

What is the difference between the two BDAs: Class A Channelized vs. Class B Band Selective?

Each BDA / Fiber DAS amplifies a specific frequency range or bandwidth.

Class A Classification

- Bandwidth less than 75 KHz categorizes the BDA by the FCC as Class A.
- BDAs that can amplify multiple <75 KHz channels are called Channelized Signal Boosters. Class A can mitigate the near-far communications effects.

Class B Classification

- Bandwidth higher than 75 KHz categorizes the BDA by the FCC as Class B. Class B Signal Boosters must be registered directly with the FCC before being used.
- Class B amplifiers are more common and can cover all channels within 800 and 700MHz public safety bands at the same time.



BUY AMERICAN COMPLIANT

Honeywell BDA & Fiber DAS System meets the definition of Domestic Construction Material under the Buy American Act.

For More Information
https://hwll.co/BDA

Honeywell Fire Solutions
12 Clintonville Road
Northford, CT 06472
203.484.7161
https://buildings.honeywell.com/

HW-BR-BDA | 5/2022 | Rev 02 | © 2022Honeywell International Inc.

THE FUTURE IS WHAT WE MAKE IT

Honeywell