



VIP SYSTEMS
DAS/BDA

FOR LIFE SAFETY AND CELLULAR IN HI-RISE ENVIRONMENTS





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ABOUT VIP SYSTEMS



VIP Systems Integration Services

VIP Systems is a nationwide provider of low voltage systems, network infrastructure, fire alarms and security systems. Our capabilities range from design/build on new construction projects to modernizing or expanding existing systems and infrastructure.

We focus on specific industries which allow us to expertly serve the needs of that market. This focus gives us in-depth knowledge of risks and challenges our clients face so that we can provide the best possible solutions.

Our fire and security team works with businesses to minimize loss and liability, detect and deter unwanted events and increase productivity and profitability. We provide the industry-specific experience and advanced technology to design, build, commission and maintain the security that protects your people, property and profits.

In a world of problems it's nice to be a group with solutions, VIP Systems has a proven track record in over thirty markets from Miami to Moscow. Contact the integrators that see problems for what they are; something waiting for our answer.

VIP Systems Miami is based in beautiful Hallandale Beach with a service area encompassing most of the east coast providing electrical, low voltage, and security contracting and consulting as well as hospitality services such as FF&E and digital conceirge. With over ten years servicing the luxury need of Miami and the entire east coast VIP Systems Miami is here for your next development.

Location: 415 NE 2nd Ave, Hallandale Beach, FL 33009

Office Hours: M-F 8:00am-5:00pm

Phone: 954-957-1847

DAS/BDA

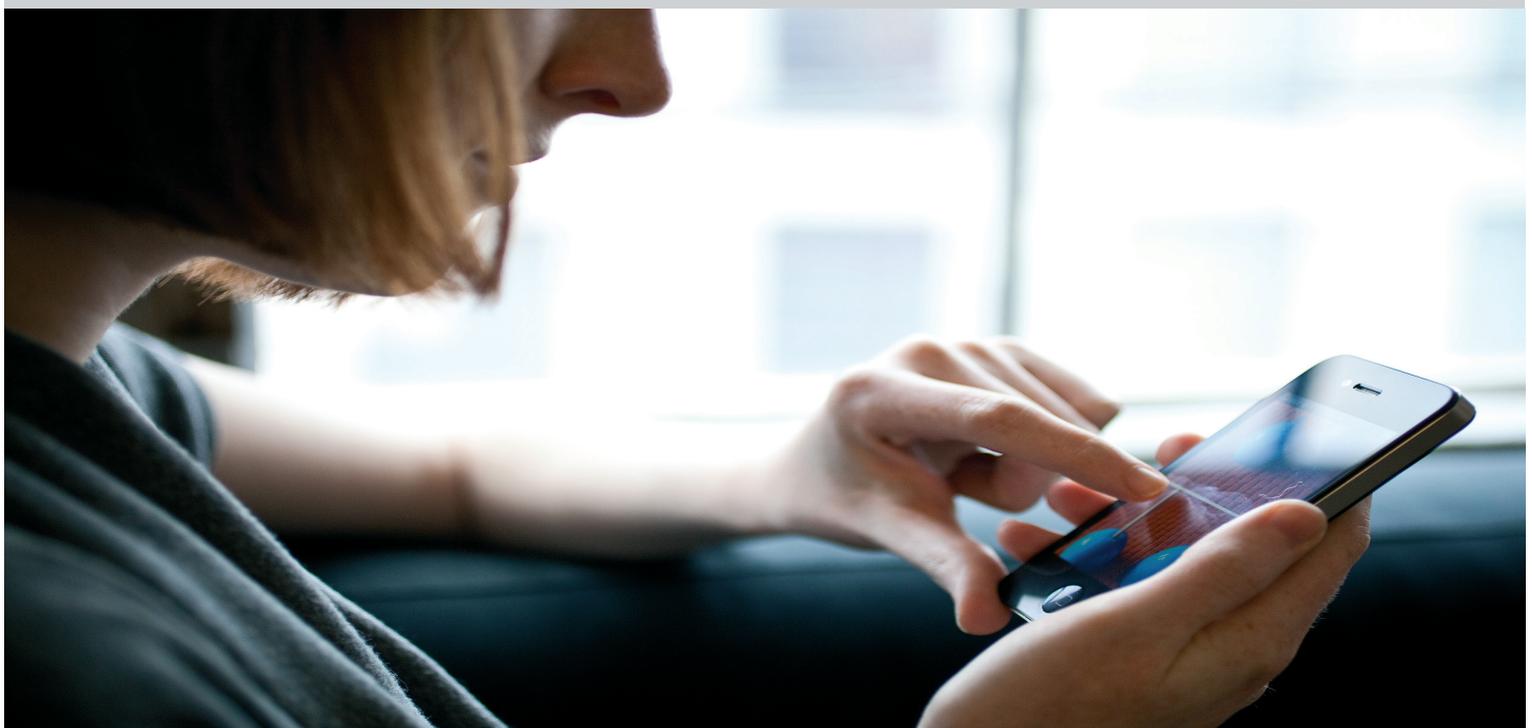
FOR LIFE SAFETY AND CELLULAR IN HI-RISE ENVIRONMENTS

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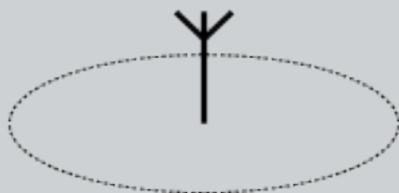
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INTRODUCTION TO DAS/BDA

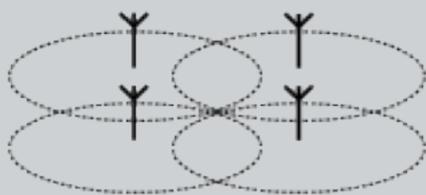


A distributed antenna system, or DAS, is a network of spatially separated antenna nodes connected to a common source via a transport medium that provides wireless service within a geographic area or structure. DAS antenna elevations are generally at or below the clutter level and node installations are compact. A distributed antenna system may be deployed indoors (an iDAS) or outdoors (an oDAS). A BDA is the introduction of a Bi-Directional Amplifier to the DAS.

As illustrated in the figure, the idea is to split the transmitted power among several antenna elements, separated in space so as to provide coverage over the same area as a single antenna but with reduced total power and improved reliability. A single antenna radiating at high power (a) is replaced by a group of low-power antennas to cover the same area (b).



single antenna



distributed antenna system

A distributed antenna system can be implemented using passive splitters and feeders, or active-repeater amplifiers can be included to overcome the feeder losses. In systems where equalization is applied, it may be desirable to introduce delays between the antenna elements. This artificially increases delay spread in areas of overlapped coverage, permitting quality improvements via time diversity.

If a given area is covered by many distributed antenna elements rather than a single antenna, then the total radiated power is reduced by approximately a factor $N^{1-n}/2$ and the power per antenna is reduced by a factor $Nn/2$ where a simple power-law path-loss model with path-loss exponent n is assumed. As an alternative, the total area covered could be extended for a given limit of effective radiated power, which may be important to ensure compliance with safety limits on radiation into the human body.

In simple terms a base station signal (emergency antenna tower or cell tower) is received by donor antennas (outdoor antennas mounted on a building) that go to a repeater(s) and series of splitters and indoor antennas to propagate the signal inside a building that would otherwise not be available allowing for emergency radios and cellular telephones to work.

Bi-Directional Amplifier (BDA) Systems combine with Distributed Antenna Systems (DAS) to allow for critical communications anywhere in your facility.

DAS/BDA

THE COMPONENTS



The common components to any DAS/BDA installation consists of the following:

1. Antennas

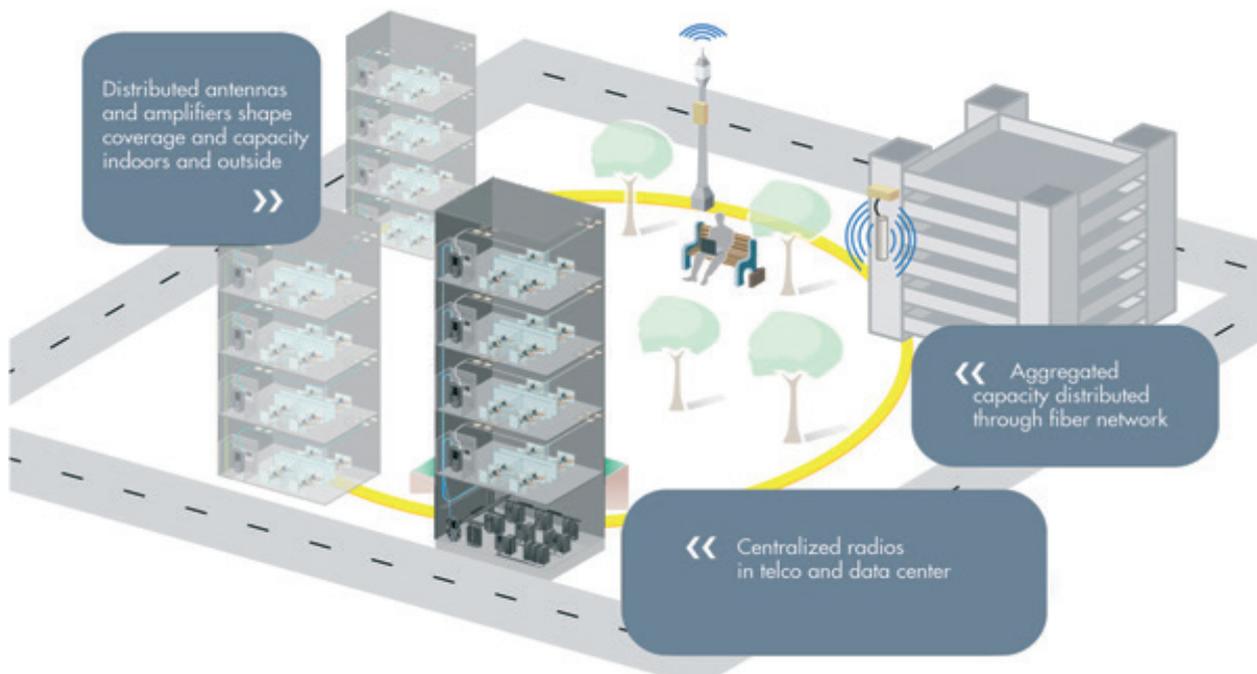
The type of antennas used for a DAS/BDA system depends on the environment the system is deployed in. Antenna types range from omni directional (in all directions) to uni directional (one direction) and also vary in signal strength as well as use for indoors or outdoors.

2. Repeater and Bi- Directional Amplifier

The repeater and bi-directional amplifier receives the signal from the offsite antennas and amplifies the signal to be propagated throughout the building via the indoor antennas.

3. Cable Infrastructure

In most cases a special large core coaxial cable is used to connect the antennas to the repeater or amplifier. This cable is specially tuned to the correct ohms to distribute the cellular or emergency band signals. In some cases the distance is too great for coax alone and the signal is converted to an optical transmission and carried by fiber optics and then converted back to a radio signal before connecting to the antenna.



DAS/BDA RULES AND REGULATIONS



To meet the critical need of fire, police, and medical teams to communicate inside large structures, communities are adopting the International Fire Code, Section 510 regulations.

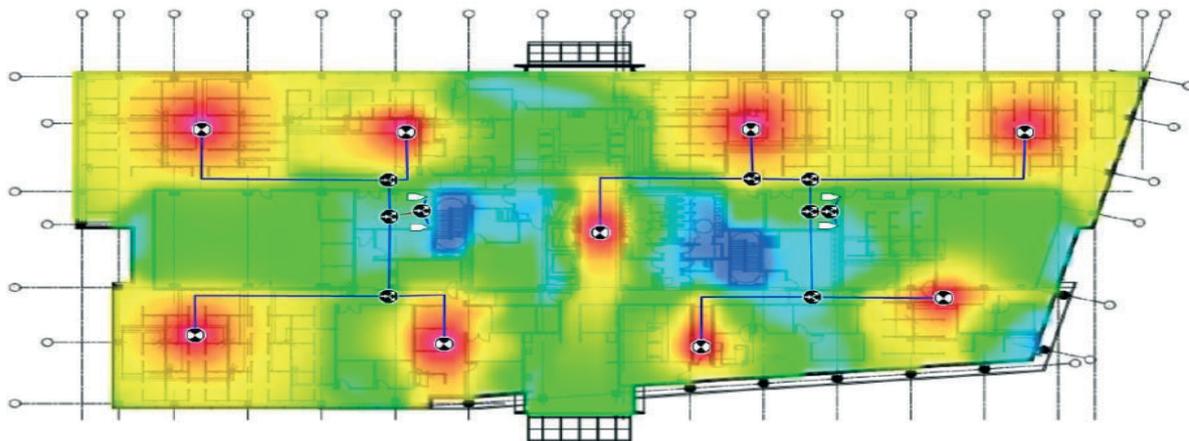
We are experts at deploying systems that meet local municipal fire codes for radio coverage inside buildings. This requires specific technical design requirements and testing requirements. These systems must be installed and tested by FCC licensed technicians. They must be re-tested every year to maintain proper operation.

Fire code DAS installations must be approved by the local authority, typically the fire marshal. Design and installation and system testing must be coordinated with the public safety radio system operator.

Although local agencies can enhance their fire code, key elements require:

- minimal signal level of -95 dBm in 90% of the structure
- back-up power for 24 hours of operation
- applies to structures of 50,000 sq. ft. or those with below ground floors
- coverage test using a 20 grid or 40 grid process
- annual certification of equipment with grid coverage test and one hour battery test
- must be tested by an FCC licensed or factory certified technician

VIP Systems also provides an antenna heatmap (example image below) showing the signal propagation throughout a building, this assists with the commissioning and results in quicker permitting approval.



DAS/BDA NOTABLE INSTALLATIONS



VIP Systems DAS/BDA Engineering and Integration team are proud of the following successful and operational installations:



FLAGLER MANOR

SYSTEM TYPE: CELLULAR, EMERGENCY BAND

NUMBER OF ANTENNAS: 140

NUMBER OF AMPLIFIERS: 8

COMMISSIONED IN: 2015



DORAL MANOR

SYSTEM TYPE: CELLULAR, EMERGENCY BAND

NUMBER OF ANTENNAS: 184

NUMBER OF AMPLIFIERS: 12

COMMISSIONED IN: 2014



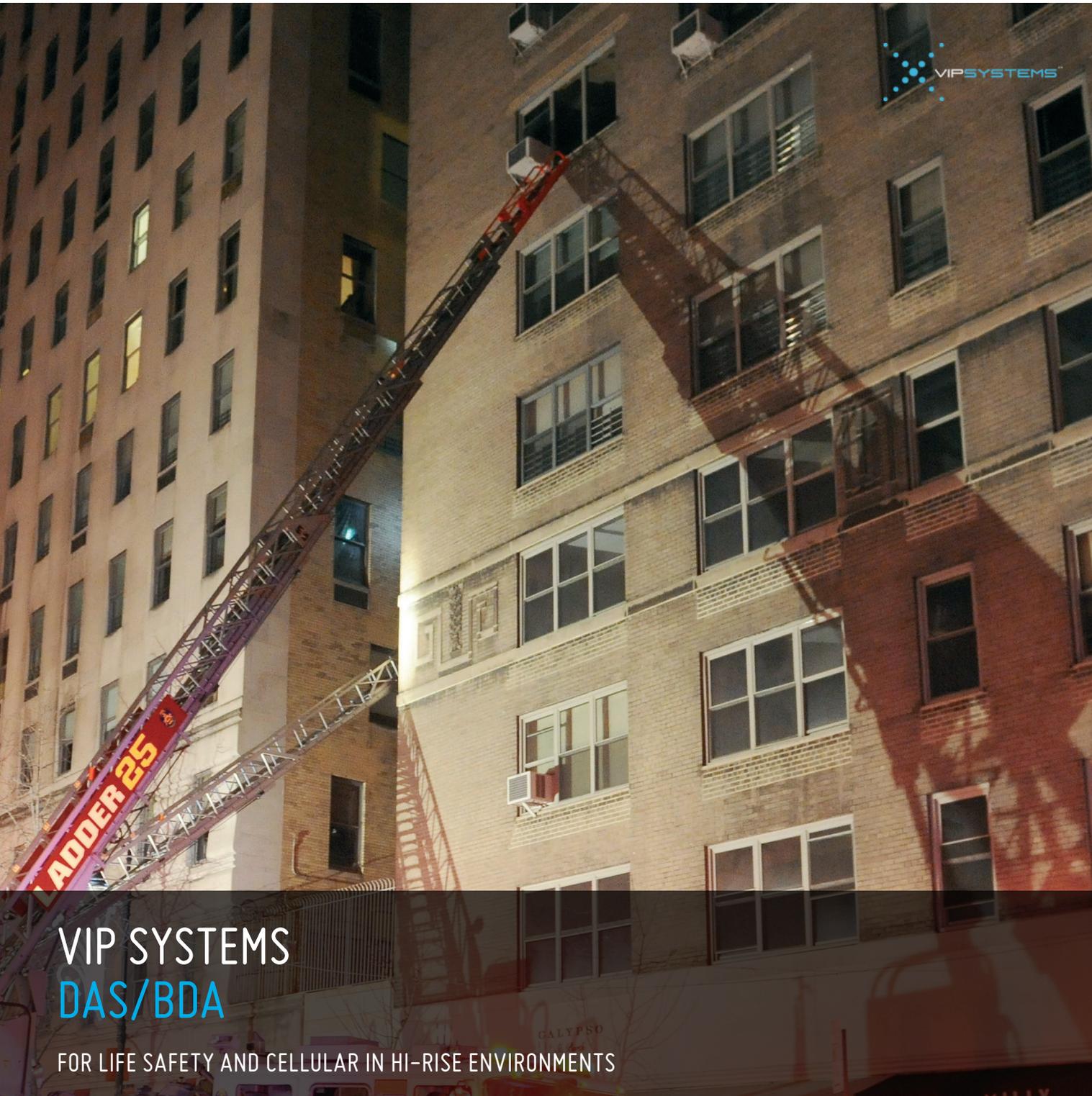
BEACHWALK

SYSTEM TYPE: CELLULAR, EMERGENCY BAND, WiFi

NUMBER OF ANTENNAS: 216

NUMBER OF AMPLIFIERS: 12

COMMISSIONED IN: 2013



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