SHURE Publications

UA864

Wall-Mounted Active Directional Antenna

General Description

The UA864 antenna provides active directional RF coverage in an easy-to-install, low-profile enclosure that can be mounted on walls, ceilings, or metal surfaces with improved reception. The paintable, neutral white housing allows the antenna to blend into corporate or classroom settings. The 4-position selectable gain switch provides attenuation and boost settings to match the antenna to the environment. UHF variants provide wideband RF coverage.

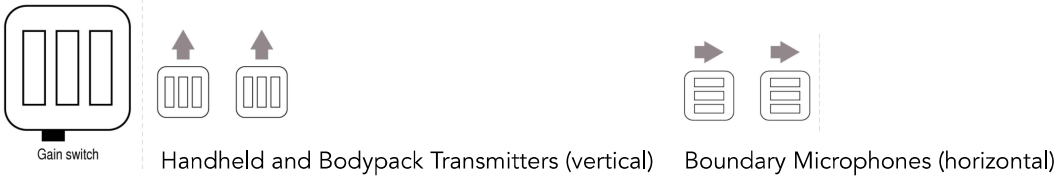
Features

- Low-profile design
- Wall or ceiling mounting options
- Wideband performance (UHF models only)
- Four-position gain switch
- Metal surface mounting capability
- LED indicators for gain settings
- Neutral white, paintable housing

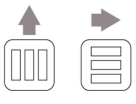
Positioning Antennas for Diversity Reception

The UA864 is a polarized antenna and must be oriented correctly to optimize reception for each transmitter type. The gain switch indicates the antenna's orientation. Position the antennas using the following guidelines:

Note: The antenna's inner construction may differ for each model variation.



Handheld and Bodypack Transmitters (vertical) Boundary Microphones (horizontal)

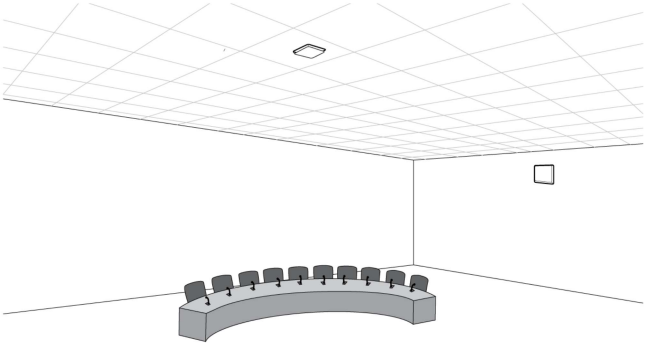


Mixed Transmitter Types (vertical and horizontal)

Antenna Placement

Use the following guidelines when mounting antennas:

- Antennas and receivers must cover the same frequency range.
- Mount antennas at least four feet apart for optimal diversity.



Find More Information Online

For more information, visit http://www.shure.com

Installation

Mounting on a Wall or Ceiling

The mounting plate installs directly to a wall, ceiling, or a standard junction box.

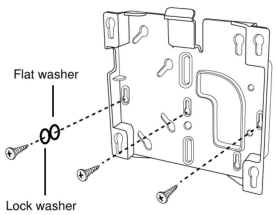
Required Equipment

- #8 or #6 screws
- Flat washers
- Lock washers
- Drill
- Screwdriver

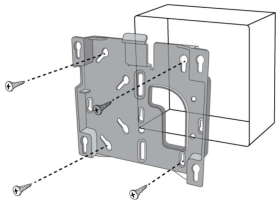
Installation Steps

1. Align the mounting plate:
   Junction box mounting: Align the mounting plate with the junction box so that at least two screws can be used.

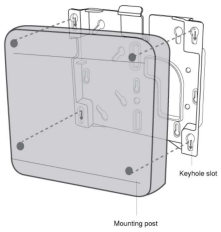
   Wall mounting: Use the mounting plate as a template to mark the location for the holes on the mounting surface. Drill the holes accordingly.
2. Secure the mounting plate to the surface with the washers as shown (CAUTION: Do not over-tighten screws).
3. If running RF cable from inside the wall, guide it through the opening in the mounting plate and connect the cable to the antenna output.
4. Position the antenna mounting posts over the keyhole slots in the mounting plate and slide it into the locked position.



Mounting to a wall or ceiling

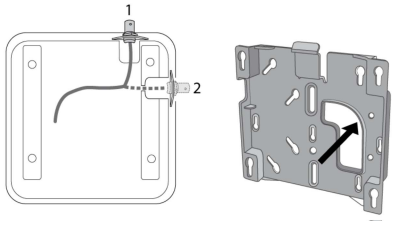


Mounting to an electrical junction box



Securing the antenna to the mounting plate

The output connector can be routed through ports **1** or **2** on the antenna. When connecting to an RF cable in the wall, run the cable through the opening in the mounting plate.



Rotating the Cover

The cover can be detached and rotated in any direction for a matched appearance when using multiple antennas.

1. Remove the screws holding the cover in place from the back of the antenna
2. Remove the cover and rotate to the desired position
3. Replace the screws to secure the cover

Painting the Antenna

The cover of the antenna can be painted to match the installation environment. Use the following guidelines when painting the antenna cover:

- Remove the antenna cover before painting
- Only use non-metallic paint, as any metallic content may interfere with RF reception
- Allow the paint to dry completely before reinstalling the cover
- Avoid painting in the screw holes

Warning: Do not touch the internal components of the antenna when the cover is removed.

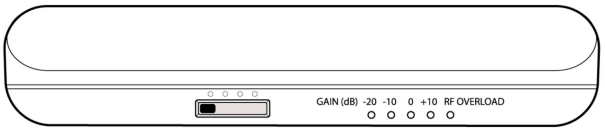
Connecting to a Receiver

This antenna is compatible with any receivers, distribution systems, and splitters that operate within the antenna's frequency range. For receivers with multiple antenna ports, connect each antenna being used to a separate port.

Note: The antenna requires bias voltage from the receiver or distribution system to operate and for LED functionality. If these devices do not supply bias voltage, the Shure UABIAST inline power supply can be used.

Setting the Gain Switch

Use the gain switch to optimize antenna performance for the RF characteristics of the room or location. Monitor the RF signal from the receiver to ensure optimal signal strength.



RF Gain Setting (dB)
Use Scenario

Use Scenario
Pad: –10, –20
Provides increased isolation from other RF sources when the desired wireless microphone signal strength is strong. If the RF OVERLOAD LED illuminates when using a higher gain setting, the pad should be used to attenuate the signal, but only after verifying that the transmitter is an appropriate distance from the antenna.
0 (Default)
Suitable for typical room installations and provides enough RF gain in most cases when cable runs are between 10 and 50 feet.
Boost: +10
Provides an extra 10 dB of RF gain to compensate for signal loss if using long cable runs (50 feet or more).

Note: Bias power supplied by receiver antenna ports or an external power source is required for antenna to operate and for illuminating the LEDs.

Selecting Antenna Cables

Use 50 ohm low-loss coaxial cable, such as RG-8U. Shure offers pre-terminated antenna cables ranging from 6 to 100 feet.

NOTE: When ordering cables from Shure, select the low-loss "Z" models (available for longer cables) when using frequency bands above 1000 MHz.

Cable Maintenance

To maintain top performance for antenna cables:

- Avoid sharp bends or kinks in the cables.
- Do not deform cables with makeshift clamps, such as bending a nail over the cable.
- Do not use in permanent outdoor installations.
- Do not expose to extreme moisture.

Specifications

Connector Type

BNC, Female

Impedance

10 to 15 V DC bias from coaxial connection, 75 mA

RF Frequency Range

UA864US
470 – 698 MHz
UA864LO
470 – 698 MHz
UA864HI
530 – 790 MHz
UA864A
650 – 952 MHz
UA864Z16
1240 – 1260 MHz
UA864Z17
1492 – 1525 MHz
UA864Z18
1785 – 1805 MHz

Reception Pattern

UA864US	100 degrees
UA864LO	100 degrees
UA864HI	95 degrees
UA864A	90 degrees
UA864Z16	70 degrees
UA864Z17	70 degrees
UA864Z18	70 degrees

Third-order Overload Intercept Point (OIP3)

>30 dBm

Antenna Gain

On Axis, 0 dB Gain Setting at center frequency

UA864US	2.5 dBi
UA864LO	2.5 dBi

3 . 0 dBi
UA864A
5 . 5 dBi
UA864Z16
7 . 5 dBi
UA864Z17
6 . 5 dBi
UA864Z18
4 . 5 dBi

Signal Gain

±1 dB, Switchable

+10 dB0 dB–10 dB–20 dB

RF Overload LED Threshold

–15 dBm

Dimensions

176 x 176 x 51 mm (H x W x D)

Weight

UA864
487 g (17 . 2 oz.)

454 g (16 oz.)

Operating Temperature Range

–7°C (20°F) to 49°C (120°F)

Storage Temperature Range

–29°C (-20°F) to 74°C (165°F)

Certifications

This product meets the Essential Requirements of all relevant European directives and is eligible for CE marking.

The CE Declaration of Conformity can be obtained from: www.shure.com/europe/compliance

Authorized European representative:

Shure Europe GmbH

Headquarters Europe, Middle East & Africa

Department: EMEA Approval

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Polar Pattern

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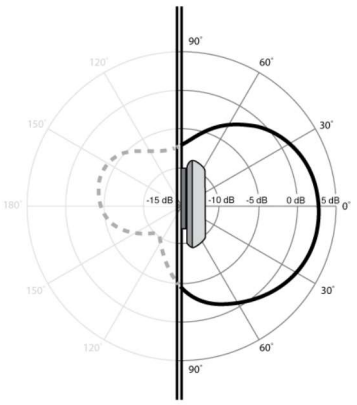
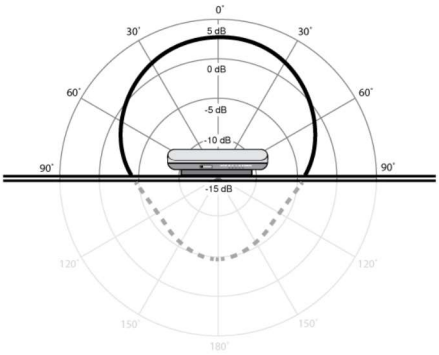
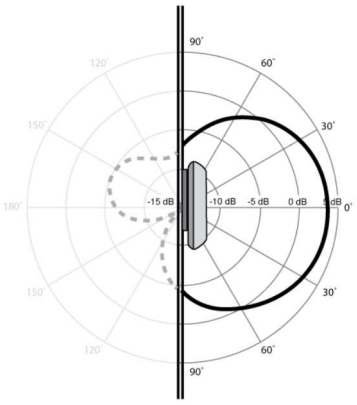
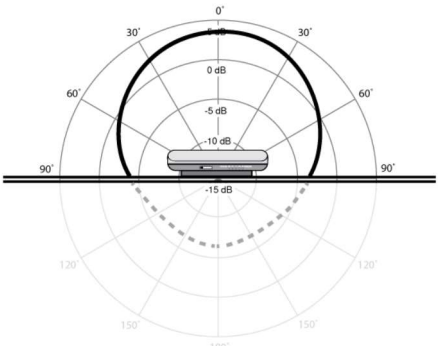
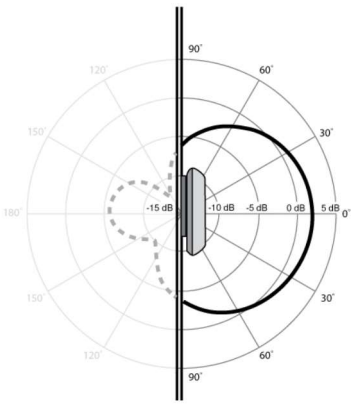
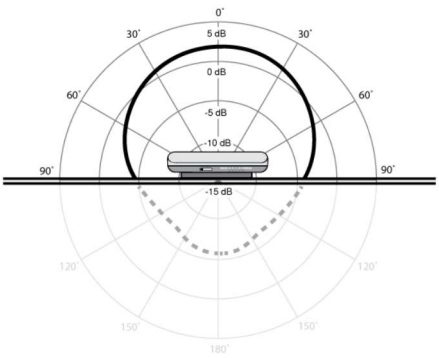
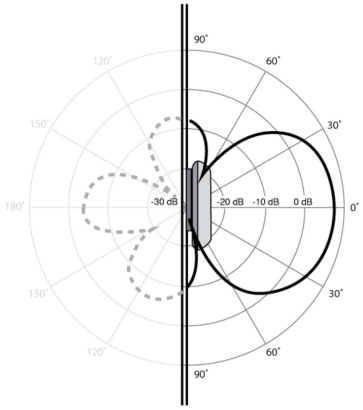
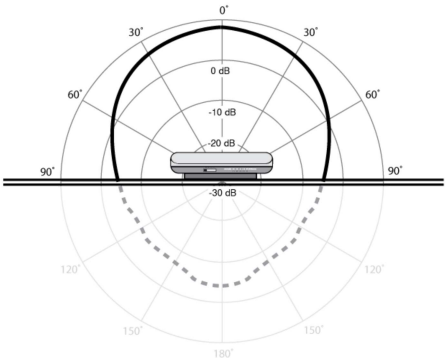
	Side View	Top View
UA864US/ UA864LO 585 MHz		
UA864HI 700 MHz		
UA864A 790 MHz		

	Side View	Top View
UA864-Z16 1240–1260 MHz		

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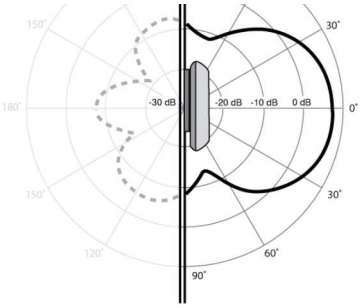
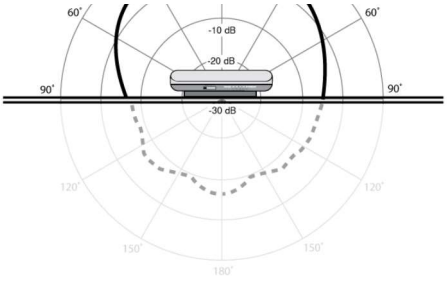
UA864-Z17
1492-1525 MHz





UA864-Z18
1785-1805 MHz