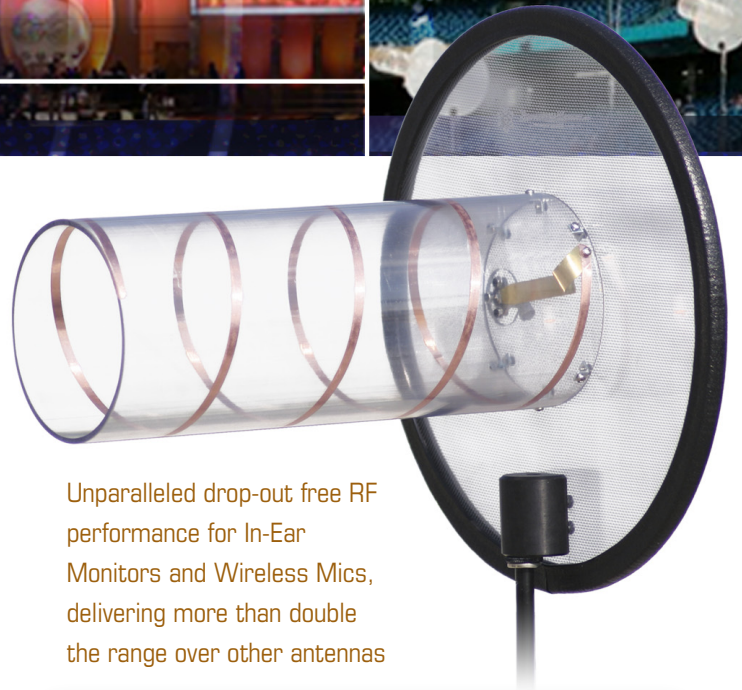




PROFESSIONAL WIRELESS

PWS Helical Antenna

The PWS Helical Antenna is part of a new generation of antennas that provide greater bandwidth, longer range gain and more flexibility in wireless communications. Unlike the traditional whip antenna, which transmit and receive signals in a single polarization, the helical antenna distributes signals multi-dimensionally. The circular motion of the RF field emitted by the helical antenna reduces the risk of drop-outs and guarantees the strongest possible signal.



Unparalleled drop-out free RF performance for In-Ear Monitors and Wireless Mics, delivering more than double the range over other antennas

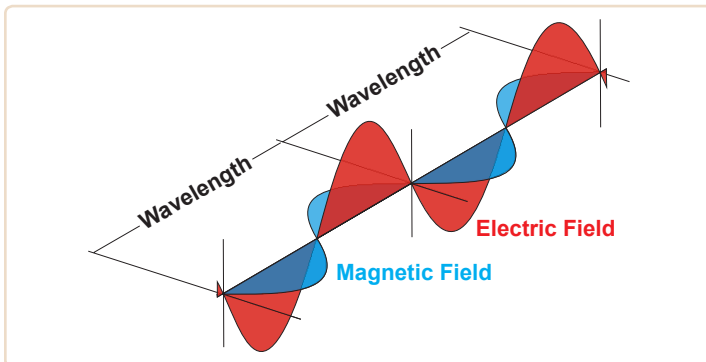
Helical ANTENNA BY THE NUMBERS

- Gain: 14 dBi
- Bandwidth: 460 MHz to 900 MHz
- Beamwidth: 57 degrees
- Dimensions: 14" x 14" x 14"

BENEFITS

- Greater bandwidth
- Greater gain
- More flexibility
- Uni-directional antenna
- Crystal clear audio transmissions

ANTENNA POLARIZATION BASICS



As shown in the wave diagram above, electromagnetic waves consist of separate electrical and magnetic components which oscillate at right angles to one another as they travel from their transmitting source. This energy is polarized from the transmitter, for example, a vertically mounted omnidirectional antenna will emit a sphere of radio frequency (RF) energy, polarized vertically. The receiving antenna would be mounted vertically to receive the maximum energy. Any deviation in antenna position can result in a weaker signal. For maximum efficiency, both transmitting and receiving antennas must display the same polarization, or be positioned in the same direction (figure 1).

For example, if a transmitting antenna is positioned vertically and the receiving antenna is tilted a few degrees, the result will be a weaker signal or poor reception. If a receiving antenna is positioned at a 90 degree angle from a transmitting antenna, it will result in the weakest possible signal (figure 2).

Figure 1

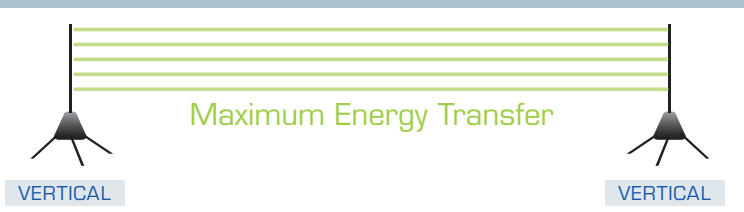
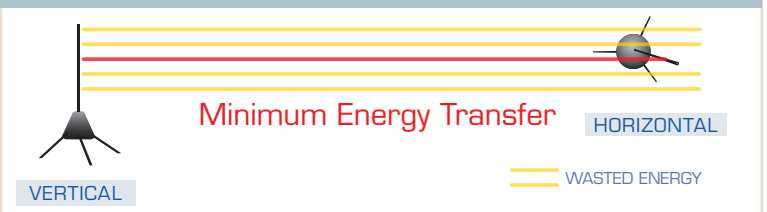


Figure 2



POLARIZATION SOLUTIONS

Typical antennas suffer from polarization. This isn't so much of a problem under normal circumstances, for example, the large vertical FM antenna tower broadcasting a local radio station is being received by the vertically mounted antenna on your car. The trouble is, in the entertainment and events industry, antenna polarization is becoming a major issue. Larger venues and more RF used for performer microphones, in-ear-monitors (IEMs) and crew communication are causing headaches for audio engineers.

The helical antenna, which eliminates polarization problems, has been around for decades, but was previously used only for military applications and for satellite communications. Helical Antennas are increasingly being utilized in the entertainment and events industry where drop-out free coverage is critical.

During setup and testing, audio engineers typically place a wireless microphone in a stand, with the whip antenna positioned vertically. Using a standard paddle antenna, also positioned vertically, they get a strong signal. The trouble is, no performer is going to stand still and keep the antenna on their microphone or belt pack perfectly vertical. As they move around, they change the polarity of their transmitter or receiver antenna, causing signal dropouts. The helical antenna eliminates these problems. Its circular polarization receives and transmits both vertical and horizontal signals and every angle in between. The result is greater bandwidth and gain and the strongest possible signal.

PWS HELICAL ANTENNA ADVANTAGES

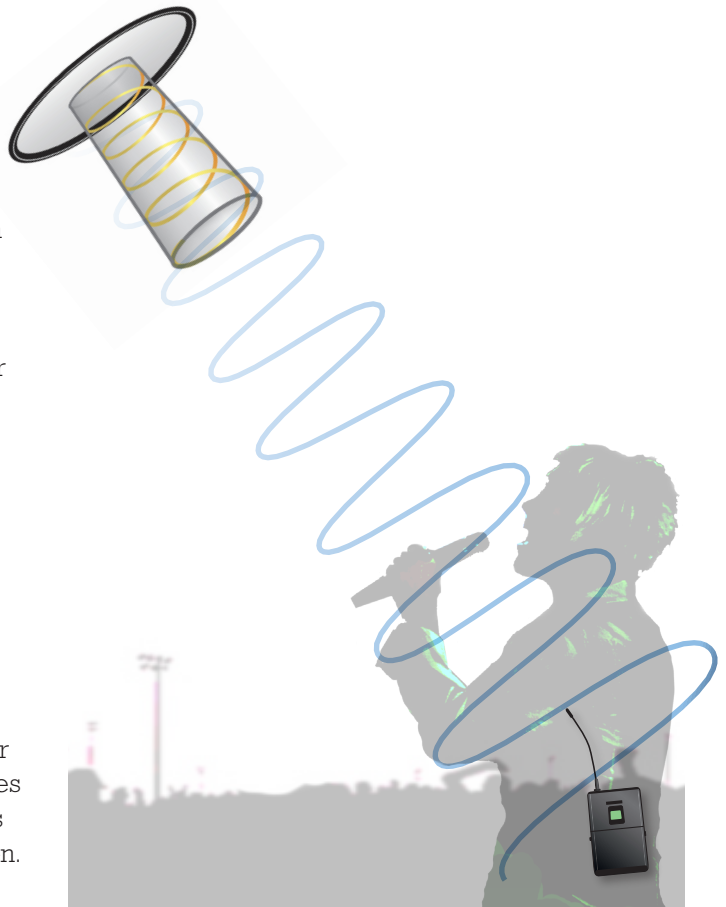
The PWS Helical antenna is easy to use and can replace any other directional antenna technology. The antenna is particularly useful in large-scale events, where it is virtually impossible to control the orientation of both the sending and receiving ends of communication.

It can be used in a couple of different ways – as an In-Ear Monitor transmitter antenna or with a receiver for wireless microphones.

Typically performing artists wear a receiver that includes a $\frac{1}{4}$ wave whip antenna. Any movement can result in a lower quality transmission. With the helical antenna, RF energy rotates through 360 degrees of polarization, providing crystal clear reception in the artists' ear no matter how much they move or where they go on the stage.

The same applies when an artist is using a wireless microphone. A helical antenna can be used with the receiver for greater performance no matter how much the handheld microphone is moved around.

The PWS Helical Antenna is part of a new generation of antennas that provide greater bandwidth, higher gain and more flexibility in wireless communications.



WORD ON THE STREET

"The antenna works great wherever I am in the venue. I can still get RF even in the dressing rooms through these thick walls; it's incredible!"

– George Squires, monitor engineer for REM and Red Hot Chili Peppers

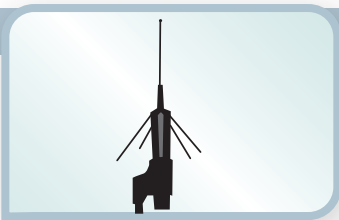
"This was designed by the same guy who does the RF support for the Super Bowl and they are used at the Super Bowl every year. Rat uses them because they are amazing for in-ears and wireless mics."

– Jon Rat Sound

FOR MORE INFORMATION

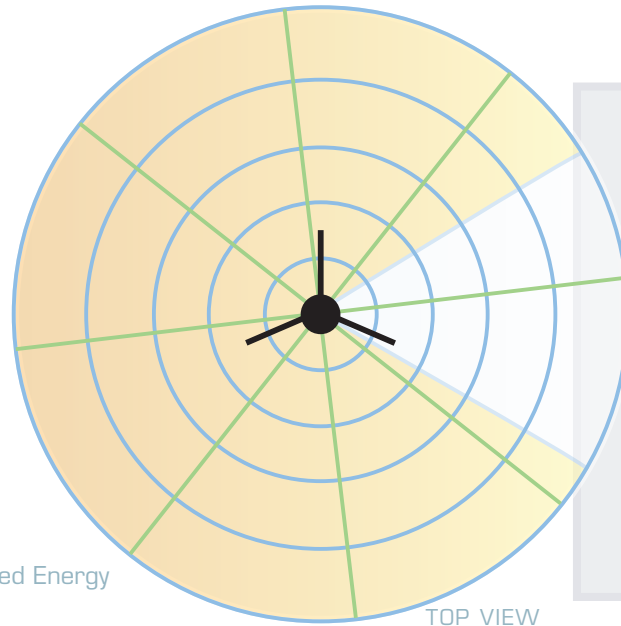
www.professionalwireless.com/helical

OMNI GROUND PLANE



SIDE VIEW

A specialized antenna mainly used when remote antennas are required. The Omni ground plane antenna has limited use for 'live' broadcasts and special events.

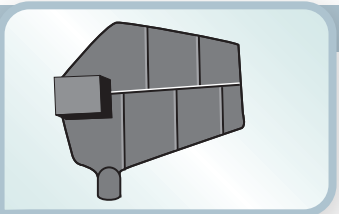


TOP VIEW

Wasted Energy

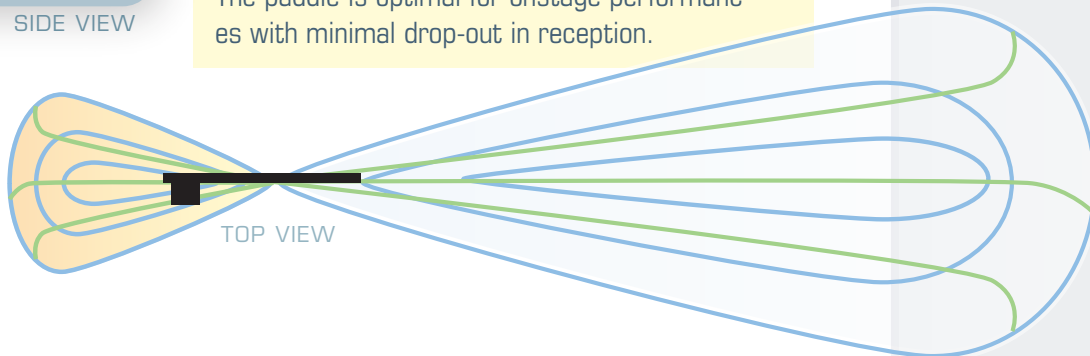
STAGE

LOG PERIODIC DIPOLE ARRAY (LPDA)



SIDE VIEW

Also known as the 'paddle' antenna, is the industry standard for wireless communication. The paddle is optimal for onstage performances with minimal drop-out in reception.

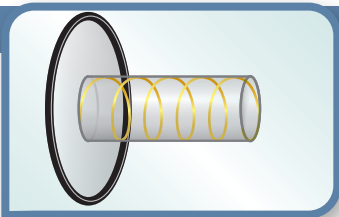


TOP VIEW

Wasted Energy

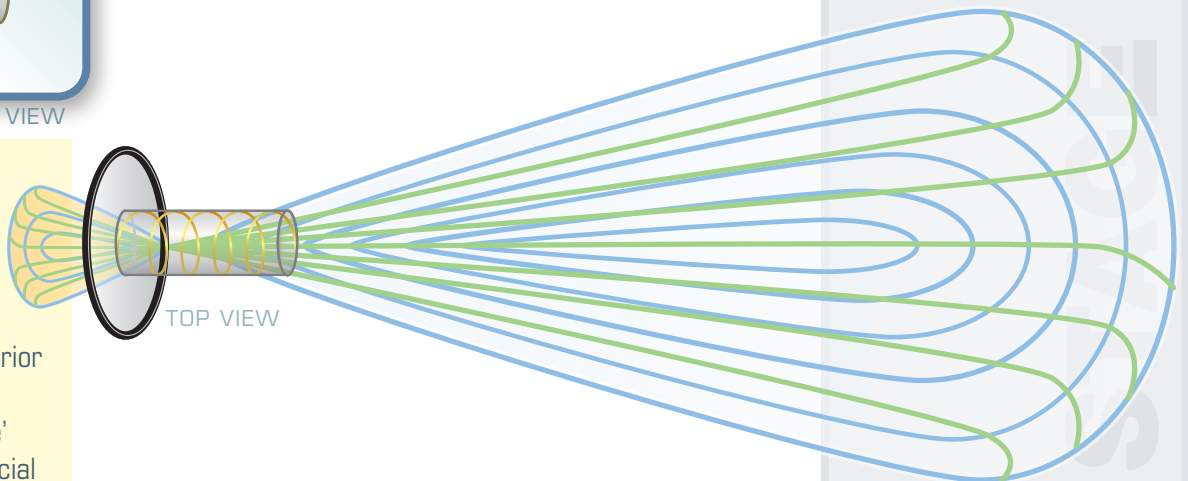
STAGE

HA-8089 HELICAL ANTENNA



SIDE VIEW

The helical achieves drop-out free performances for both in-ear and wireless mics. The helical delivers superior coverage for all activities during 'live' broadcasts and special events.



TOP VIEW

Wasted Energy

STAGE

HA-8089 HELICAL
ENGINEERING DATA
SPECIFICATIONS

RF Frequency Range / Bandwidth
460 - 900 MHz

Impedance
50 ohms

Beamwidth
57 degrees

Antenna Gain
14 dBi (on axis)

Front-to-Back Ratio / Rear Rejection
30 dB

DC/AC Power Source
Not required

RF Connector
BNC female, right angle

Dual Mounting Adapter
5/8"-27 U.S. standard
3/8"-16 European standard

Antenna Cable Retainer
Plastic clamp on rear of antenna

Estimated Operating Temperature
-30 degrees F to 180 degrees F [-34 degrees C to 80 degrees C]

Construction Material
Clear Polycarbonate plastic

Net Weight: 3 lbs 11 oz [1.7 kg]

Shipping Weight: 5 lbs [2.3 kg]



Please ask
about our
Low Loss Cable

PWS HELICAL ANTENNAS AT WORK:



A Masque Sound Company

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