PCA900
Printed Circuit Antenna

• Printed circuit finished with black solder mask on FR4 fiberglass for a slim profile and the ruggedness needed for field use
• Directional dipole design
• 825 to 1025 MHz frequency range
• Circular pattern with 3.7 dB gain
• Supplied with aluminum mounting strap

A unique and very useful design, the PCA900 antenna provides wide bandwidth and a circular pattern in a compact, rugged package. A BNC connector allows direct connection to receivers and multicouplers with standard 50 ohm coaxial cable. An aluminum mounting strap for fixed installation is included and a variety of other mounting options are also available for mobile applications.
Optional Mounting Block & Adapters

For mobile applications where the antenna is moved and remounted frequently, an optional mounting block and threaded adapters are available to allow mounting on tripods and lighting clamps.

A wall mounting with the antenna oriented vertically as shown here provides an even, circular coverage of the room.

The antenna can also be mounted to a ceiling with appropriate bends in the bracket.

The block is mounted so that the threaded stud and clamping rod extend behind the reflector of the antenna, following the same guidelines as for the strap.

The block is mounted with the four screws supplied with the antenna. Insert the threaded stud with the hex key end facing forward so an Allen wrench can be used to tighten the stud and lighting clamp rod.

The photo below shows how these accessories mount to antenna.
**Antenna Placement**

The best placement of the antenna is generally within a line of sight of the transmitter, placed so that the antenna patterns overlap each other as depicted by the blue elliptical lines in the diagrams below.

The transmitter antenna pattern varies significantly depending upon placement on the user’s body and the orientation of the whip, but the basic pattern is much the same as the PCA900.

The patterns shown here are signal strength plots showing the power or sensitivity of the antenna in different directions in an anechoic environment. In reality, reflections off the room surfaces, furniture, etc. generate many more paths between the transmitter and receiver antennas. It is, however, best practice to optimize the placement considering the patterns shown here since direct signals are stronger than reflected signals.

Outdoors the pattern is often close to the plots shown above, so the orientation in the diagrams below are accurate examples. Indoors, the pattern of the antenna is modified by RF signal reflections off walls, ceilings and other surfaces, so the coverage patterns normally do not match the ideal plots shown above. Strong reflections that are common indoors can also cause multipath dropouts, requiring diversity reception for reliable operation.

In spite of signal behavior in a reflective environment, patterns should still be considered in determining antenna placement and orientation. Fig. 1 depicts an ideal setup where the antennas are both vertical. Fig. 2 shows what happens when a belt pack transmitter is positioned with its antenna horizontal and the PCA900 is in the null of the transmitter antenna. Fig. 3 depicts a worst case setup where each antenna is in the null of the other.
Specifications

Antenna type: Directional dipole
Frequency range: 825 - 1025 MHz
Gain: 3.7 dB approx.
Dimensions: 5.63 x 3.88 x .500 inches;
143 x 98 x 13 mm
Weight: 1.7 ozs; 47 grams
(without strap and hardware)
Included accessories: Aluminum strap with four
mounting screws