

## ANT-916-CW-RAH-ccc 916 MHz Helical Monopole Antenna

### Product Description

Linx RAH Series antennas use a helical element to greatly reduce the physical length of the antenna housing. They are ideal for products requiring a compact antenna in a fixed right-angle form factor. Despite their small size, they are ruggedly constructed and able to withstand punishing environments. RAH antennas attach via a standard SMA or FCC Part 15 compliant RP-SMA connector.

### Features

- Right-angle mount
- Omnidirectional pattern
- Fully weatherized
- Flexible main shaft
- Rugged & damage-resistant
- Standard SMA or FCC Part 15 compliant RP-SMA connector



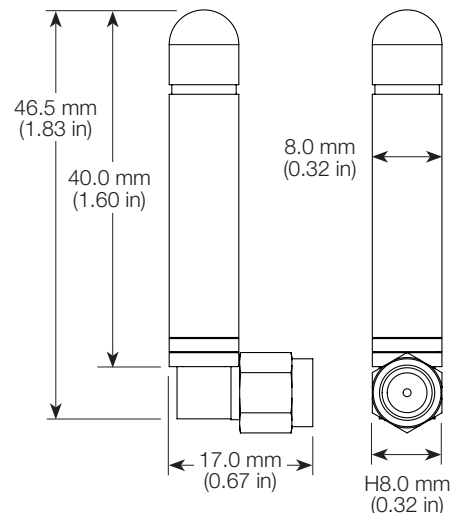
ANT-916-CW-RAH-SMA Shown

### Electrical Specifications

|                     |                    |
|---------------------|--------------------|
| Center Frequency:   | 916 MHz            |
| Recom. Freq. Range: | 850 MHz to 970 MHz |
| Wavelength:         | 1/4-wave           |
| VSWR:               | ≤ 1.9 typical      |
| Peak Gain:          | 2.2 dBi            |
| Impedance:          | 50-Ohms            |
| Connection:         | RP-SMA or SMA      |
| Oper. Temp. Range:  | -40 °C to +90 °C   |

Electrical specifications and plots measured on 10.16 cm x 10.16 cm (4.00" x 4.00") reference ground plane

### Product Dimensions

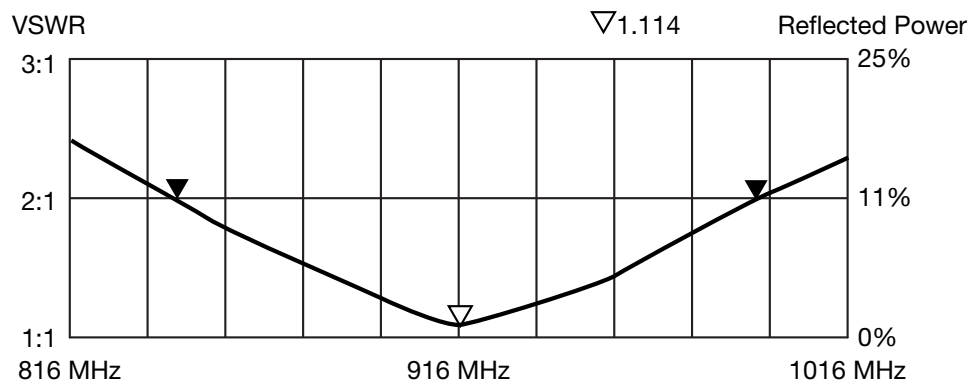


### Ordering Information

| Part Number        | Description                                                    |
|--------------------|----------------------------------------------------------------|
| ANT-916-CW-RAH     | Antenna with FCC Part 15 compliant RP-SMA jack (female socket) |
| ANT-916-CW-RAH-SMA | Antenna with SMA plug (male pin)                               |

Available from Linx Technologies and select distributors and representatives.

## VSWR Graph



### What is VSWR?

The Voltage Standing Wave Ratio (VSWR) is a measurement of how well an antenna is matched to a source impedance, typically 50-ohms. It is calculated by measuring the voltage wave that is headed toward the load versus the voltage wave that is reflected back from the load. A perfect match has a VSWR of 1:1. The higher the first number, the worse the match, and the more inefficient the system. Since a perfect match cannot ever be obtained, some benchmark for performance needs to be set. In the case of antenna VSWR, this is usually 2:1. At this point, 88.9% of the energy sent to the antenna by the transmitter is radiated into free space and 11.1% is either reflected back into the source or lost as heat on the structure of the antenna. In the other direction, 88.9% of the energy recovered by the antenna is transferred into the receiver. As a side note, since the “:1” is always implied, many data sheets will remove it and just display the first number.

### How to Read a VSWR Graph

VSWR is usually displayed graphically versus frequency. The lowest point on the graph is the antenna's operational center frequency. In most cases, this is different than the designed center frequency due to fabrication tolerances. The VSWR at that point denotes how close to 50-ohms the antenna gets. Linx specifies the recommended bandwidth as the range where the typical antenna VSWR is less than 2:1.

## Counterpoise

Quarter-wave or monopole antennas require an associated ground plane counterpoise for proper operation. The size and location of the ground plane relative to the antenna will affect the overall performance of the antenna in the final design. When used in conjunction with a ground plane smaller than that used to tune the antenna, the center frequency typically will shift higher in frequency and the bandwidth will decrease. The proximity of other circuit elements and packaging near the antenna will also affect the final performance. For further discussion and guidance on the importance of the ground plane counterpoise, please refer to Linx Application Note AN-00501: Understanding Antenna Specifications and Operation.

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