

# Bluetooth / WLAN / WiFi Ceramic Chip Antenna

Ground cleared under antenna, clearance area 4.00 x 4.25/6.25 mm. Pulse Part Number W3008, W3008C



## Features

- Omni directional radiation
- Low profile
- Compact size W x L x H (3.2 x 1.6 x 1.1 mm)
- Low weight (33 mg)
- Fully SMD compatible
- Lead free soldering compatible
- Tape and reel packing
- RoHS Compliant Product

## Applications

- Bluetooth, WLAN, WiFi
- IEEE 802.11b/g
- ZigBee IEEE 802.15.4
- 2.4 GHz WLAN
- 2.4 GHz ISM Band Systems

## Electrical specifications @ +25 °C

*Note: Electrical characteristics depend on test board (GP) size and antenna positioning on GP and Ground Clearance area size.*

### Bluetooth, W3008

Typical performance (test board size 80x37 mm, PWB ground clearance area 4.00 x 4.25 mm)

| Frequency Range [MHz] | Linear Max Gain [dBi]          | Efficiency [%] / [dB]                      | Return loss min. [dB] | Impedance [ $\Omega$ ] | Operating Temperature [°C] |
|-----------------------|--------------------------------|--------------------------------------------|-----------------------|------------------------|----------------------------|
| 2400–2483.5           | 1.7 (Peak)<br>0.7 (Band edges) | 70 / -1.6 (Peak)<br>55 / -2.6 (Band edges) | -8                    | 50                     | -40 to +85                 |

### Bluetooth / WLAN / WiFi, W3008C

Typical performance (test board size 80x37 mm, PWB ground clearance area 4.00 x 6.25 mm)

| Frequency Range [MHz] | Linear Max Gain [dBi]          | Efficiency [%] / [dB]                      | Return loss min. [dB] | Impedance [ $\Omega$ ] | Operating Temperature [°C] |
|-----------------------|--------------------------------|--------------------------------------------|-----------------------|------------------------|----------------------------|
| 2400–2483.5           | 2.2 (Peak)<br>1.9 (Band edges) | 75 / -1.3 (Peak)<br>70 / -1.6 (Band edges) | -11                   | 50                     | -40 to +85                 |

#### Pulse Finland Oy

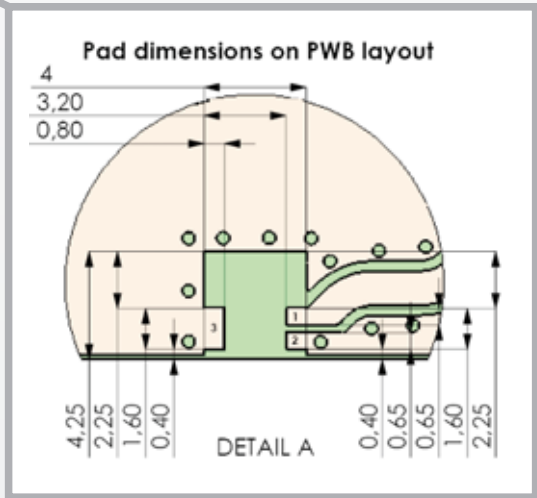
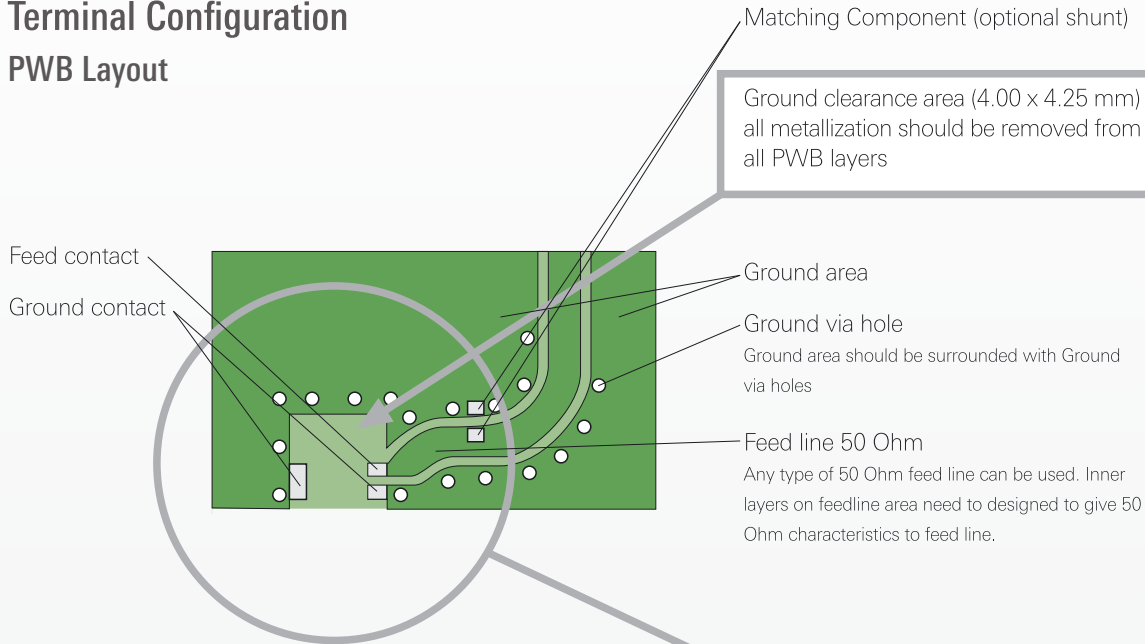
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# Bluetooth / WLAN / WiFi Ceramic Chip Antenna

## Terminal Configuration

### PWB Layout



### PWB features

| No. | Terminal name | Terminal Dimensions |
|-----|---------------|---------------------|
| 1   | Feed          | 0.8 x 0.65 mm       |
| 2   | GND           | 0.8 x 0.65 mm       |
| 3   | GND           | 0.8 x 1.60 mm       |

#### Pulse Finland Oy

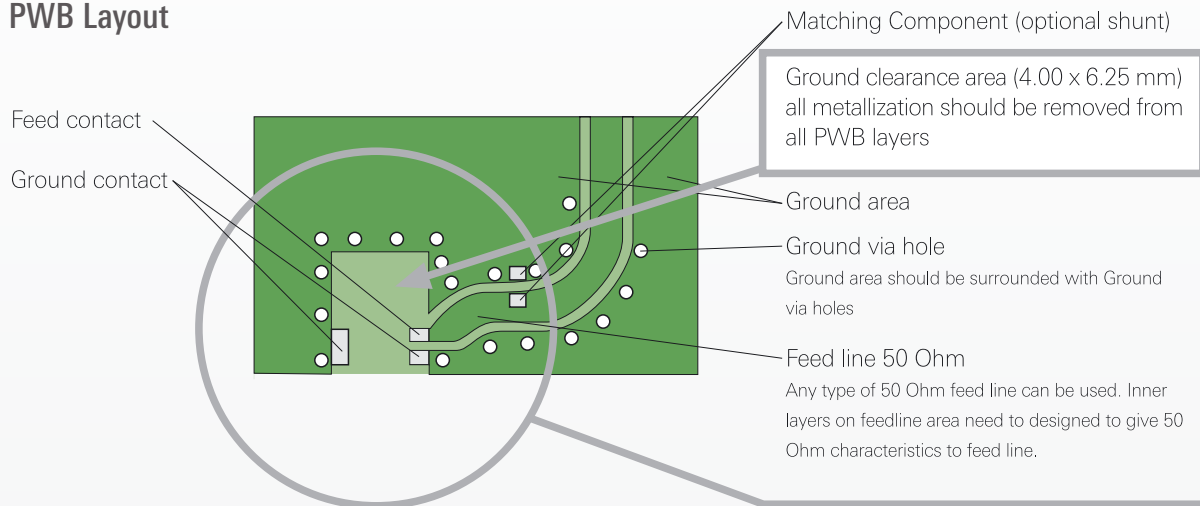
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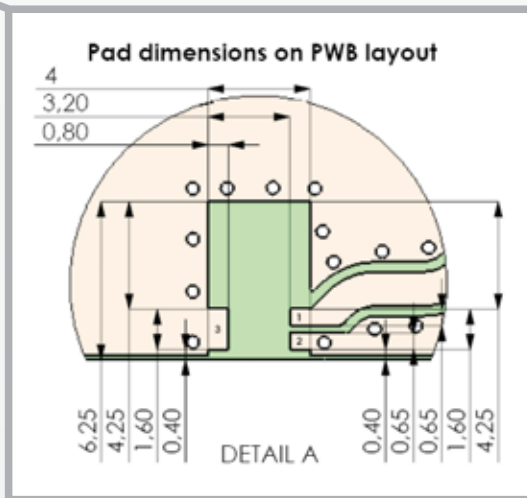
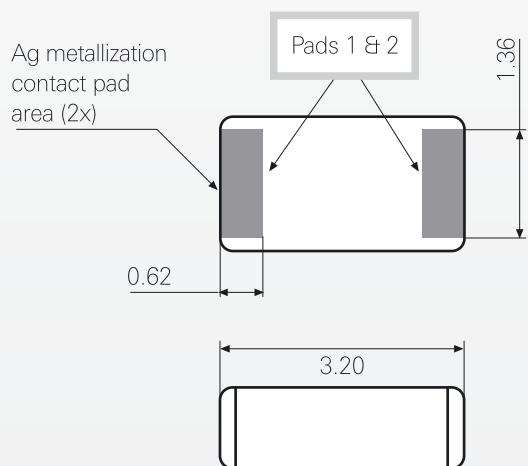
# Bluetooth / WLAN / WiFi Ceramic Chip Antenna

## Terminal Configuration

### PWB Layout



### Antenna



### Antenna features

| No. | Terminal name | Terminal Dimensions |
|-----|---------------|---------------------|
| 1   | Feed / GND    | 0.62 x 1.36 mm      |
| 2   | Feed / GND    | 0.62 x 1.36 mm      |

Antenna is symmetrical.

Either of terminals 1 or 2 can be feed / GND

### PWB features

| No. | Terminal name | Terminal Dimensions |
|-----|---------------|---------------------|
| 1   | Feed          | 0.8 x 0.65 mm       |
| 2   | GND           | 0.8 x 0.65 mm       |
| 3   | GND           | 0.8 x 1.60 mm       |

# Bluetooth / WLAN / WiFi Ceramic Chip Antenna

## Typical Electrical Characteristics (T=25 °C), W3008

Typical Return Loss S11/ impedance, measured on the test board

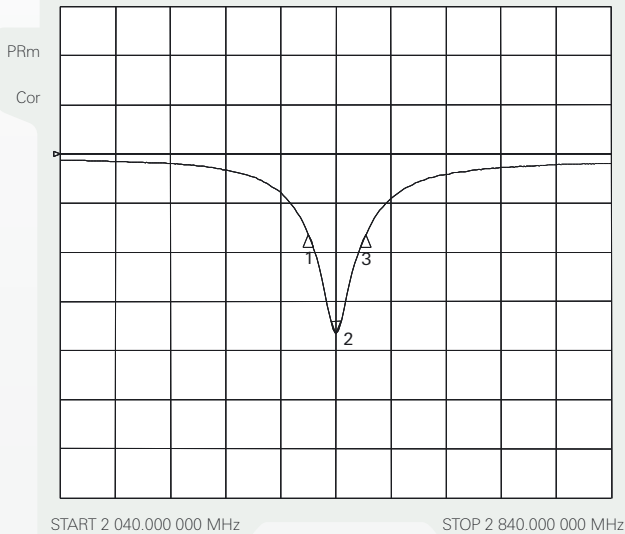
**BT**

20 Oct 2005 12:37:16

CH1 S11&MLOG 5 dB/REF 0 dB

CH1Markers

1. -8.1915 dB 2.40000 GHz
2. -18.312 dB 2.440.000 000 MHz
3. -8.2296 dB 2.48350 GHz



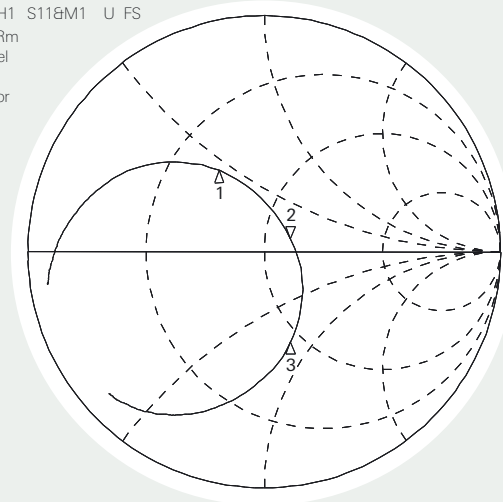
**BT**

20 Oct 2005 12:39:25

CH1Markers

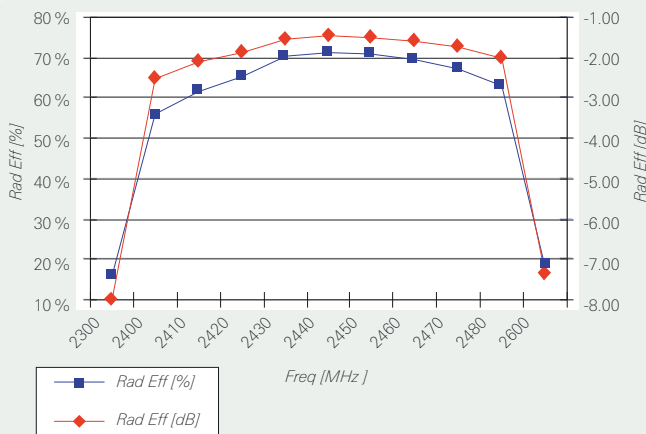
- |             |           |             |
|-------------|-----------|-------------|
| 1. 27.585 Ω | 22.421 Ω  | 2.40000 GHz |
| 2. 62.148 Ω | 6.8613 Ω  | 447.55 pH   |
| 3. 45.029 Ω | -40.875 Ω | 2.48350 GHz |

CH1 S11&M1 U FS  
PRm  
Del  
Cor

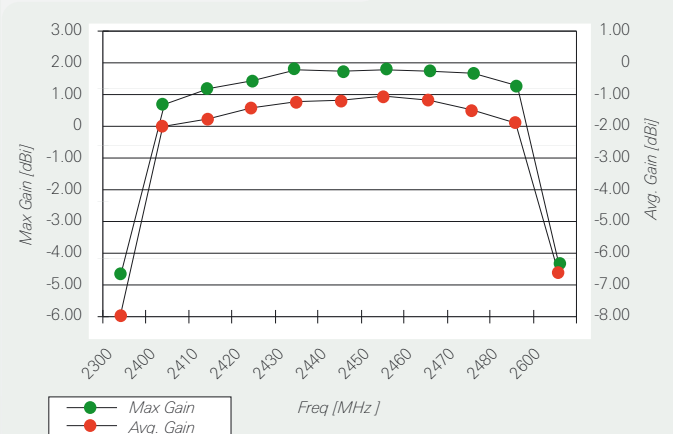


Free space efficiency and maximum gain / PWB ground clearance area 4.00 x 4.25 mm

### BT GC 3.2 x 1.6 x 1.1 mm



### BT GC 3.2 x 1.6 x 1.1 mm



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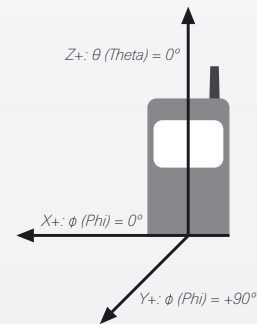
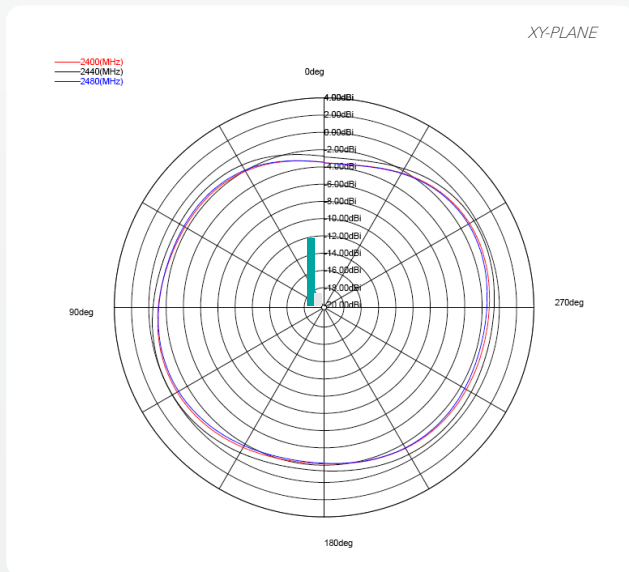
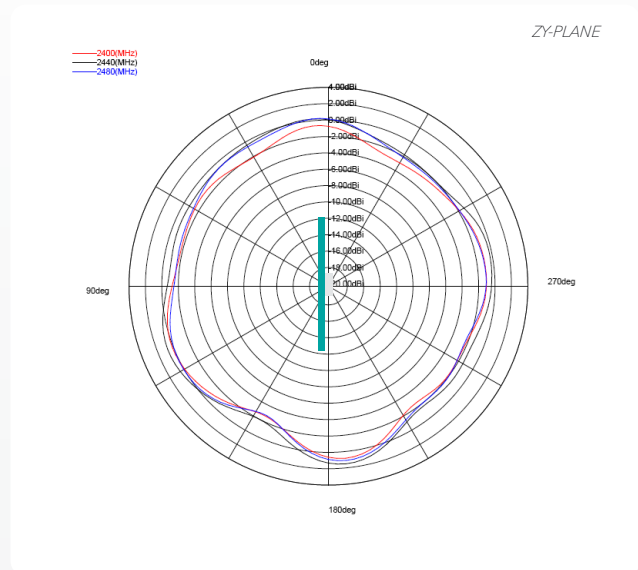
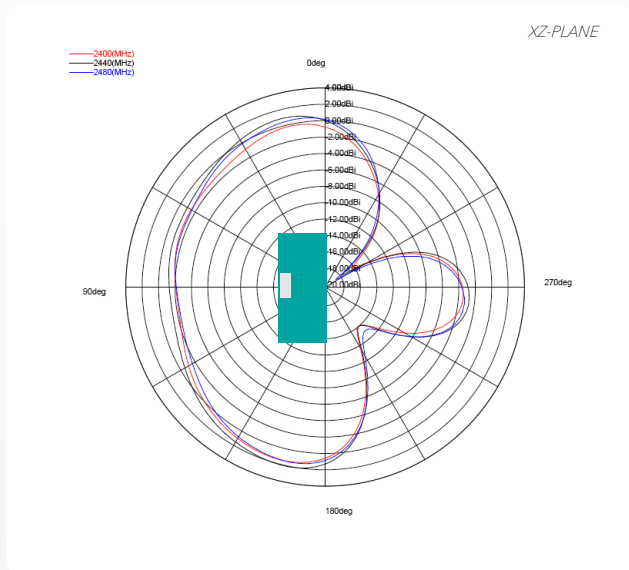
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# Bluetooth / WLAN / WiFi Ceramic Chip Antenna

## Typical Free Space Radiation Patterns, W3008



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## Typical Electrical Characteristics (T=25 °C), W3008C

Typical Return Loss S11/ impedance, measured on the test board

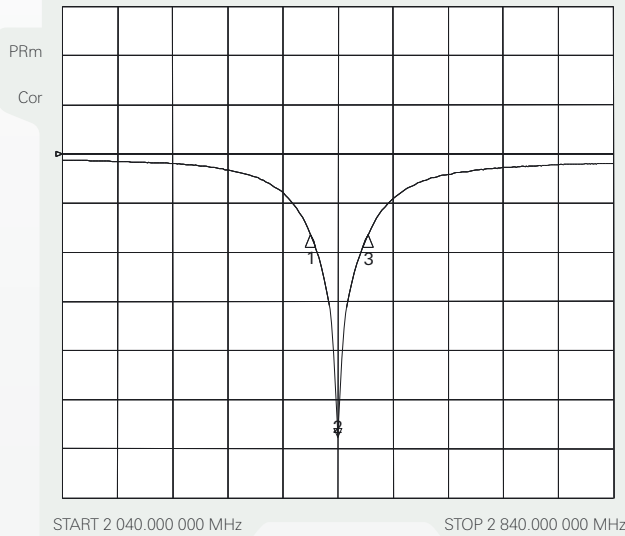
### BT/WLAN

20 Oct 2005 12:36:03

CH1 S11&MLOG 5 dB/REF 0 dB

CH1Markers

1. -11.415 dB 2.40000 GHz
2. -11.464 dB 2.440.000 000 MHz
3. -27.875 dB 2.48350 GHz



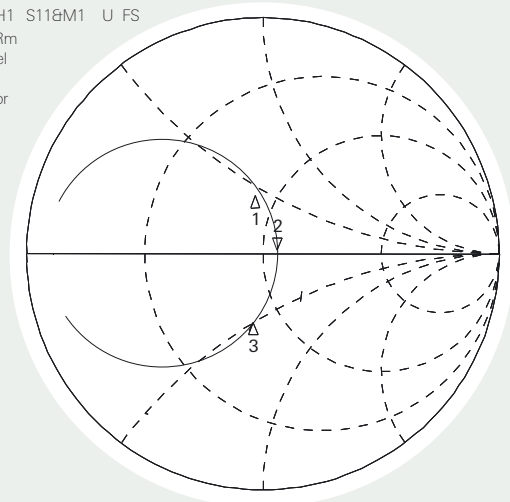
### BT/WLAN

20 Oct 2005 12:39:25

CH1Markers

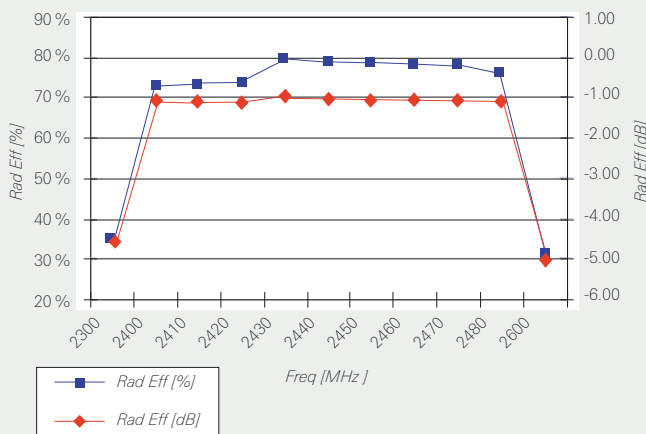
1. 40.141 Ω 24.354 Ω 2.40000 GHz
2. 55.264 Ω 1.3613 Ω 88.796 pF
3. 40.658 Ω -25.082 Ω 2.48350 GHz

CH1 S11&M1 U FS  
PRm  
Del  
Cor

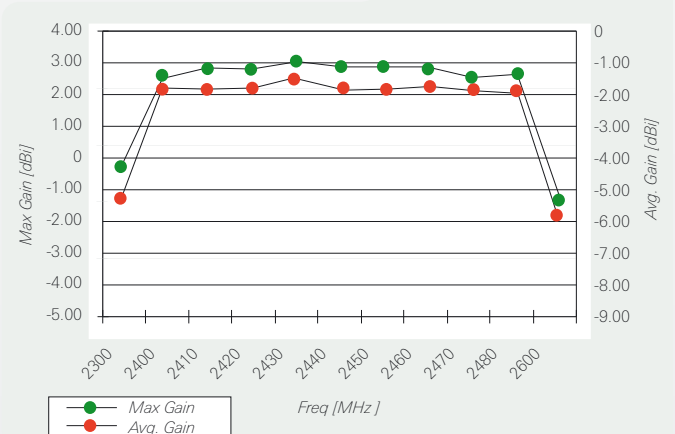


Free space efficiency and maximum gain / PWB ground clearance area 4.00 x 6.25 mm

### BT GC 3.2 x 1.6 x 1.1 mm



### BT GC 3.2 x 1.6 x 1.1 mm



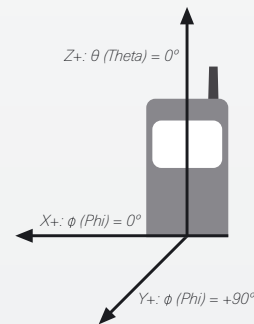
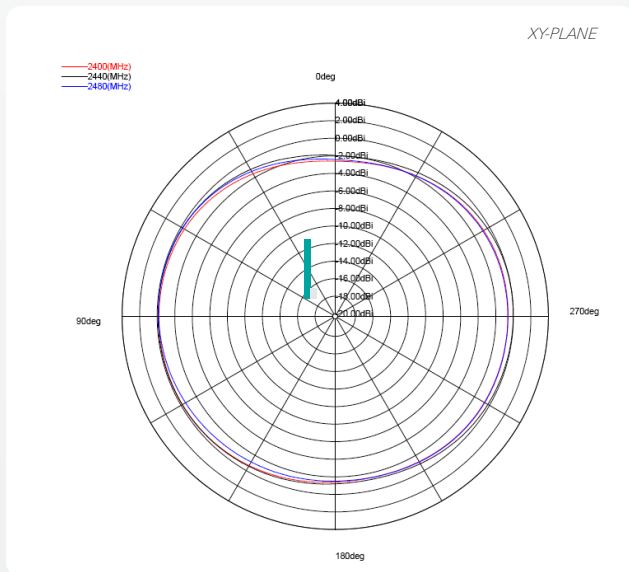
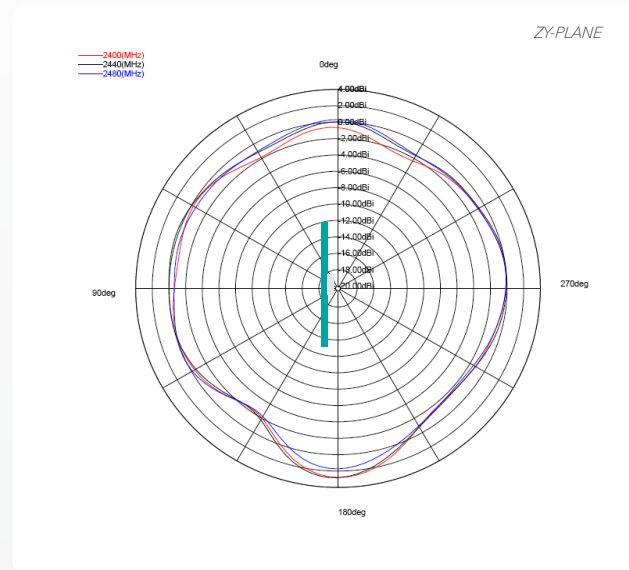
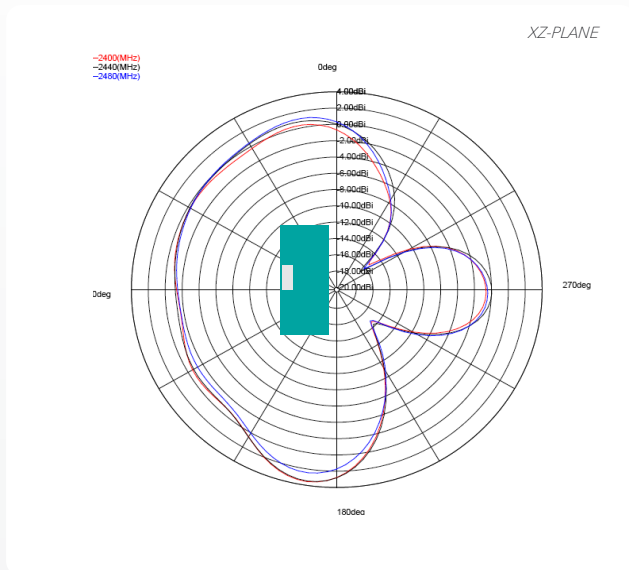
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## Typical Free Space Radiation Patterns , W3008C



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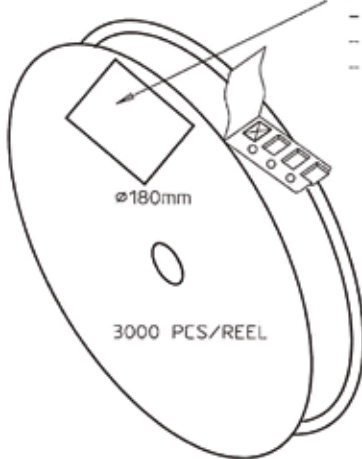
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# Bluetooth / WLAN / WiFi Ceramic Chip Antenna

## Packing Form



ø180mm  
3000 PCS/REEL

**REEL LABEL INFORMATION:**

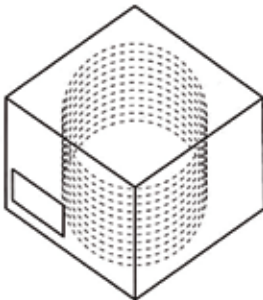
- TRACEABILITY
- QUANTITY
- PRODUCT CODE

**CARRIER TAPE H85-00125**  
width=8,00 depth=1,22  
**COVER TAPE H85-00126**  
width=5,60


**LENGTH OF TAPE:**

- Leader section: 50 empty cavities before component section
- Trailer section: 25 empty cavities after component section.

Empty part cavities at leader and trailer section of the tape must be sealed with top cover tape.



|                                |            |
|--------------------------------|------------|
| BOX H85-00128<br>(182x182x132) | 1 pcs      |
| - LABEL                        | 1 pcs/BOX  |
| REEL H85-00127<br>(D180, W12)  | 10 pcs     |
| - REEL LABEL                   | 1 pcs/REEL |

|              |                                                                                     |         |               |               |   |
|--------------|-------------------------------------------------------------------------------------|---------|---------------|---------------|---|
| MATERIAL     |                                                                                     |         |               |               |   |
| HANDLINGS    |                                                                                     |         |               |               |   |
|              |  | RATIO   | DRWN          | 010305 PeHa H |   |
|              |                                                                                     |         | DGNER         |               | G |
|              |                                                                                     |         | CHKD          |               | F |
|              |                                                                                     |         | APPRD         |               | E |
| PRODUCT      | H90-OY116-F01P01                                                                    |         | APPRD BY      |               | D |
| DENOMINATION | PACKING FORM                                                                        |         |               |               | C |
|              |                                                                                     |         |               |               | B |
|              |                                                                                     |         |               |               | A |
|              |                                                                                     | VERSION | MOD/DATE/NAME |               |   |

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