

**Description:** 824-960/1710-2170MHz 2G/3G  
Pentaband PCB antenna with coax feed

**Series:** Internal PCB Antenna

**PART NUMBER:** W3538XXXXX

## Features:

- Small form factor
- PCB size W x L x H (with adhesive): 40 [1.57] x 15 [0.59] x 0.7[0.028]mm [inch]
- Lead free materials
- RoHS Compliant Product
- Mounting with adhesive tape
- Various cable lengths available
- Connector options:
  - Hirose connector U.FL-series (I.PEX connector MHF-series compatible)
  - MMCX right angle jack (male)
  - Sunridge MCD series connector

## Applications:

- Penta band EU/US GSM/WCDMA
- Frequency range: 850 / 900 / 1800 / 1900/ 2100 MHz
- 824-960MHz/1710-2170MHz



All dimensions are in mm / inches

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For more information:

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Pulse/Larsen Antennas  
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Pulse GmbH & Co, KG  
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Tel: 49 7032 7806 0

Pulse (Suzhou) Wireless Products Co, Inc.  
99 Huo Ju Road(#29 Bldg, 4<sup>th</sup> Phase  
Suzhou New District  
Jiangsu Province, Suzhou 215009 PR China  
Tel: 86 512 6807 9998



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**This document covers all product variants of the following product family:**

| P/N        | Cable length<br>(mm/inch) | Connector | P/N        | Cable length<br>(mm/inch) | Connector |
|------------|---------------------------|-----------|------------|---------------------------|-----------|
| W3538B0045 | 45/1.77                   | U.FL      | W3538E0300 | 300/11.81                 | MMCX      |
| W3538B0075 | 75/2.95                   | U.FL      | W3538T0150 | 150/5.91                  | MCD       |
| W3538B0085 | 85/3.35                   | U.FL      | W3538T0200 | 200/7.87                  | MCD       |
| W3538B0100 | 100/3.94                  | U.FL      | W3538T0300 | 300/11.81                 | MCD       |
| W3538B0150 | 150/5.91                  | U.FL      | W3538M0085 | 85/3.35                   | Murata    |
| W3538B0200 | 200/7.87                  | U.FL      | W3538M0150 | 150/5.91                  | Murata    |
| W3538B0300 | 300/11.81                 | U.FL      | W3538M0200 | 200/7.87                  | Murata    |
| W3538E0075 | 75/2.95                   | MMCX      | W3538M0300 | 300/11.81                 | Murata    |
| W3538E0150 | 150/5.91                  | MMCX      | W3538G0500 | 500/19.69                 | SMA       |
| W3538E0200 | 200/7.87                  | MMCX      | W3538A0200 | 200/7.87                  | N/A       |

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## ELECTRICAL SPECIFICATIONS

Typical free space performance, measured in test unit mechanics(position 1).

| Cable Length (mm) | P/N                      | Frequency Range(MHz) | Max Gain (dBi) | Efficiency (%) | Return Loss min. (dB) |
|-------------------|--------------------------|----------------------|----------------|----------------|-----------------------|
| 45                | W3538B0045               | 824 - 960            | 0.78           | 44             | -3                    |
|                   |                          | 1710 - 1990          | 1.73           | 49             | -5                    |
|                   |                          | 1920 - 2170          | 1.84           | 50             | -5                    |
| 75                | W3538B0075<br>W3538E0075 | 824 - 960            | -1.64          | 30             | -3                    |
|                   |                          | 1710 - 1990          | 2.26           | 53             | -6                    |
|                   |                          | 1920 - 2170          | 2.37           | 55             | -6                    |
| 85                | W3538B0085<br>W3538M0085 | 824 - 960            | -2.38          | 25             | -3                    |
|                   |                          | 1710 - 1990          | 2.3            | 57             | -6                    |
|                   |                          | 1920 - 2170          | 1.96           | 58             | -6                    |
| 100               | W3538B0100               | 824 - 960            | -1.77          | 14             | -3                    |
|                   |                          | 1710 - 1990          | 2.55           | 40             | -6                    |
|                   |                          | 1920 - 2170          | 2.89           | 47             | -6                    |

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## ELECTRICAL SPECIFICATIONS

| Cable Length (mm) | P/N        | Frequency Range(MHz) | Max Gain (dBi) | Efficiency (%) | Return Loss min. (dB) |
|-------------------|------------|----------------------|----------------|----------------|-----------------------|
| 150               | W3538B0150 | 824 - 960            | -1.05          | 37             | -3                    |
|                   | W3538E0150 | 1710 - 1990          | 2.27           | 47             | -6                    |
|                   | W3538T0150 | 1920 - 2170          | 2.04           | 53             | -6                    |
|                   | W3538M0150 |                      |                |                |                       |
| 200               | W3538B0200 | 824 - 960            | 0.53           | 40             | -6                    |
|                   | W3538E0200 | 1710 - 1990          | 4.18           | 56             | -6                    |
|                   | W3538T0200 | 1920 - 2170          | 4.06           | 57             | -6                    |
|                   | W3538M0200 |                      |                |                |                       |
|                   | W3538A0200 |                      |                |                |                       |
| 300               | W3538B0300 | 824 - 960            | 2.40           | 42             | -6                    |
|                   | W3538E0300 | 1710 - 1990          | 3.21           | 45             | -6                    |
|                   | W3538T0300 | 1920 - 2170          | 2.68           | 44             | -6                    |
|                   | W3538M0300 |                      |                |                |                       |
| 500               | W3538G0500 | 824 - 960            | 1.61           | 30             | -5                    |
|                   |            | 1710 - 1990          | 3.10           | 47             | -6                    |
|                   |            | 1920 - 2170          | 2.78           | 44             | -6                    |

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### MECHANICAL SPECIFICATIONS

|                |                                                            |
|----------------|------------------------------------------------------------|
| PCB size       | 40 [1.57] x 15 [0.59] x 0.7[0.028](with adhesive) mm[inch] |
| Connector type | Optional                                                   |
| Cable type     | Optional                                                   |
| Cable length   | Optional                                                   |

### ENVIRONMENTAL SPECIFICATIONS

|                       |         |     |
|-----------------------|---------|-----|
| Operating Temperature | -40/+85 | ° C |
| Storage Temperature   | -40/+85 | ° C |
| RoHS Compliant        |         | Yes |

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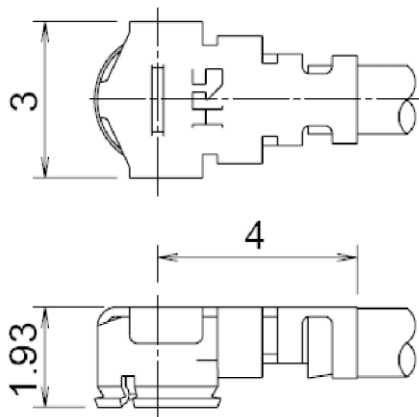
## OTHER SPECIFICATIONS

### Cable and Connector Configuration

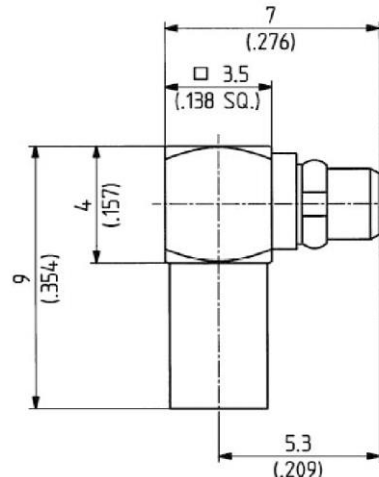
Antenna feed cable:

- 1.13mm OD with Hirose connector (U.FL series, MHF compatible)
- 1.13mm OD with MMCX right angle jack (male)
- 0.81mm OD with Murata GSC connector
- 0.81mm OD with Sunridge MCD connector
- 1.13mm OD with SMA male connector

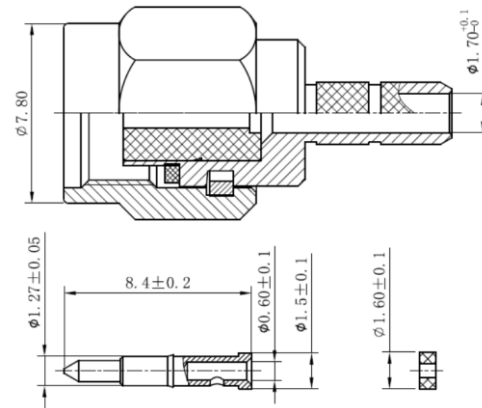
#### Hirose U.FL connector



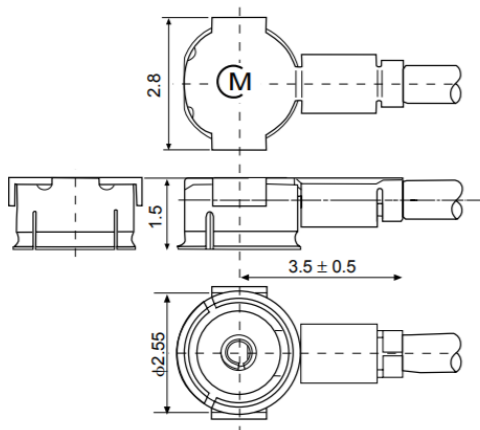
#### MMCX right angle jack (male)



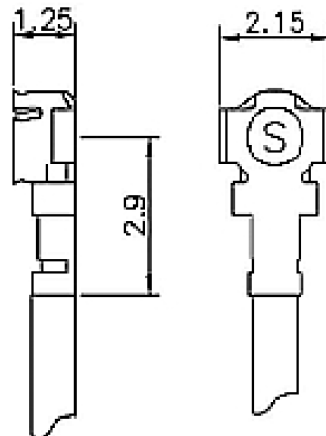
#### SMA male connector



#### Murata GSC connector



#### Sunridge MCD connector



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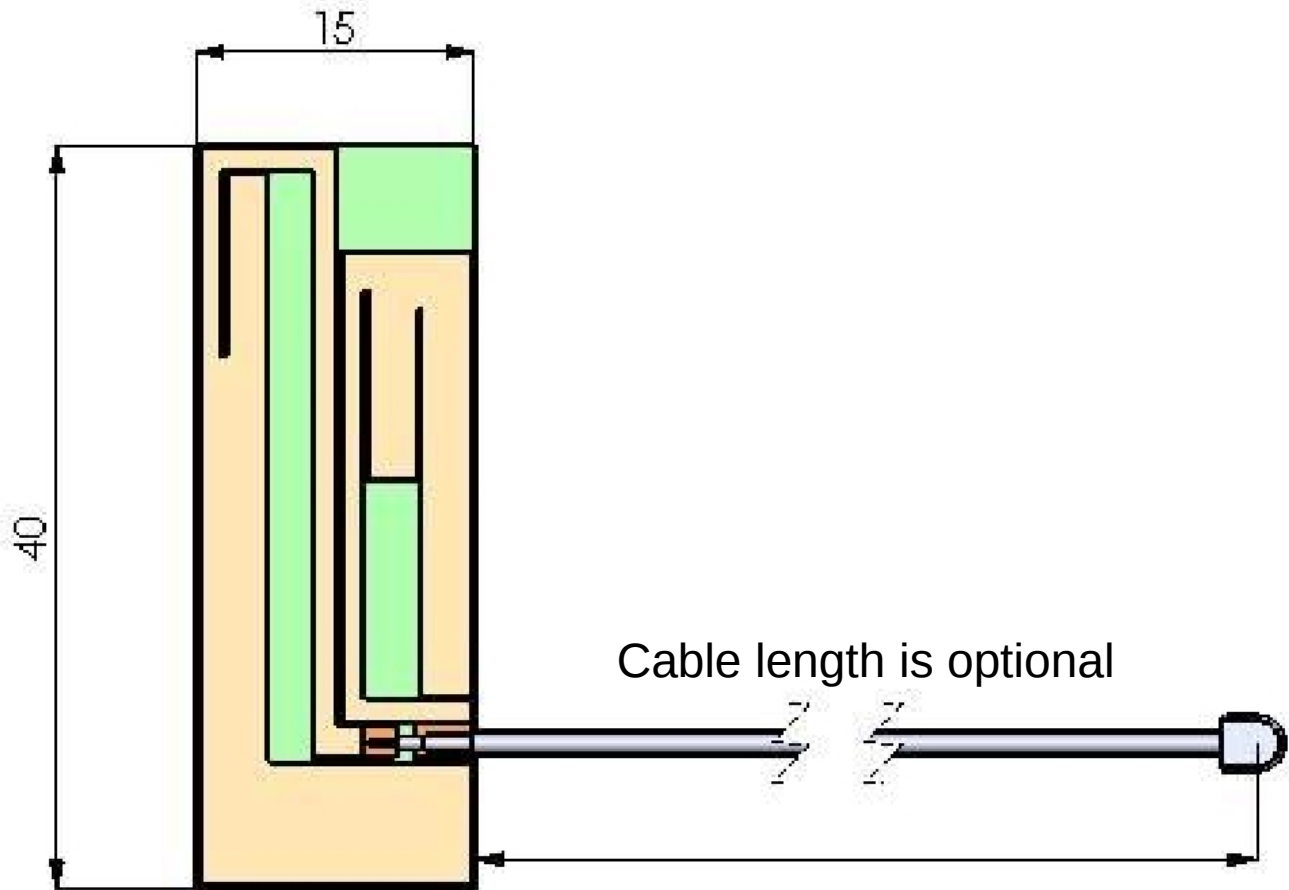
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MECHANICAL DRAWING



Dimension unit is mm

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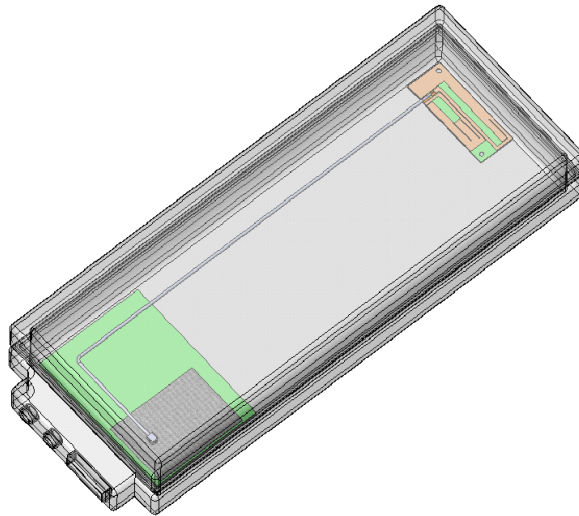
**Series:** Internal PCB Antenna **PART NUMBER:** W3538XXXXX

## TEST SETUP

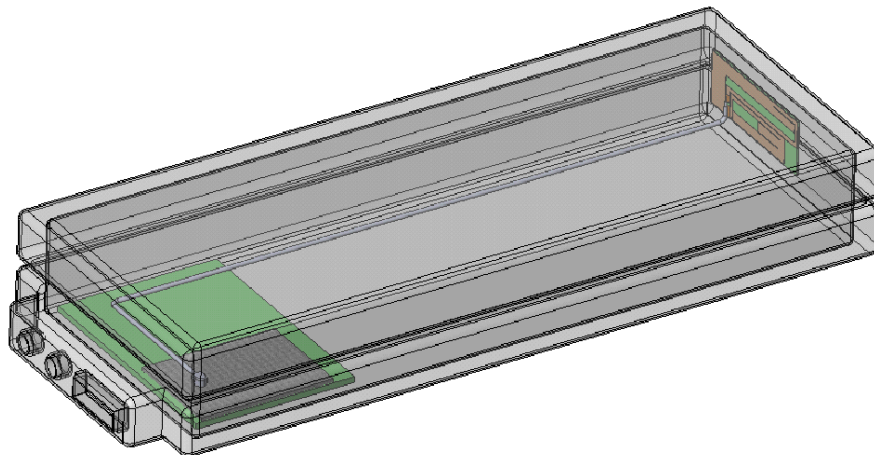
### Test Unit and Antenna Mounting Options

Test unit is illustrative and antenna does not need effective ground plane

Position 1. Antenna could be mounted at same plane and level as device board or a different level also



Position 2. Antenna could be mounted on upright position at bottom end of device



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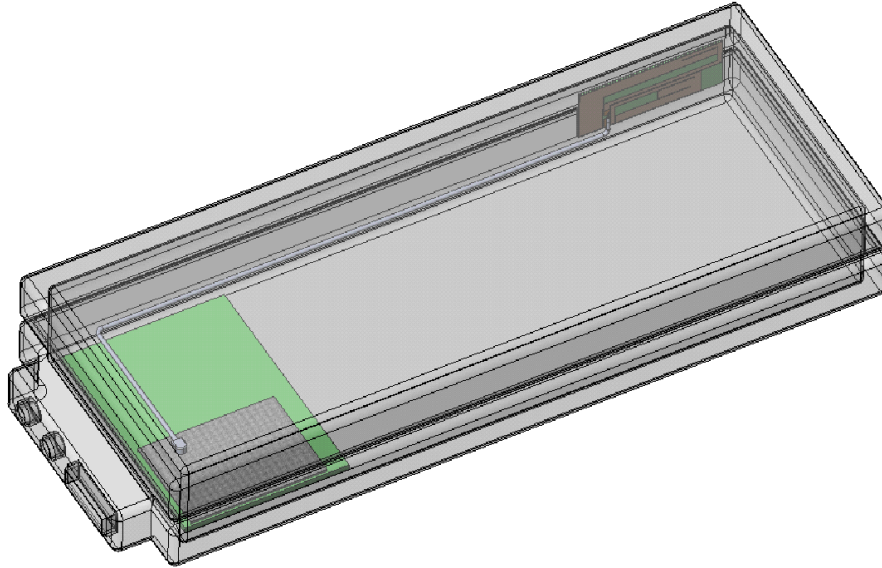
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### TEST SETUP

Position 3. Antenna could be mounted on upright position at long edge of device



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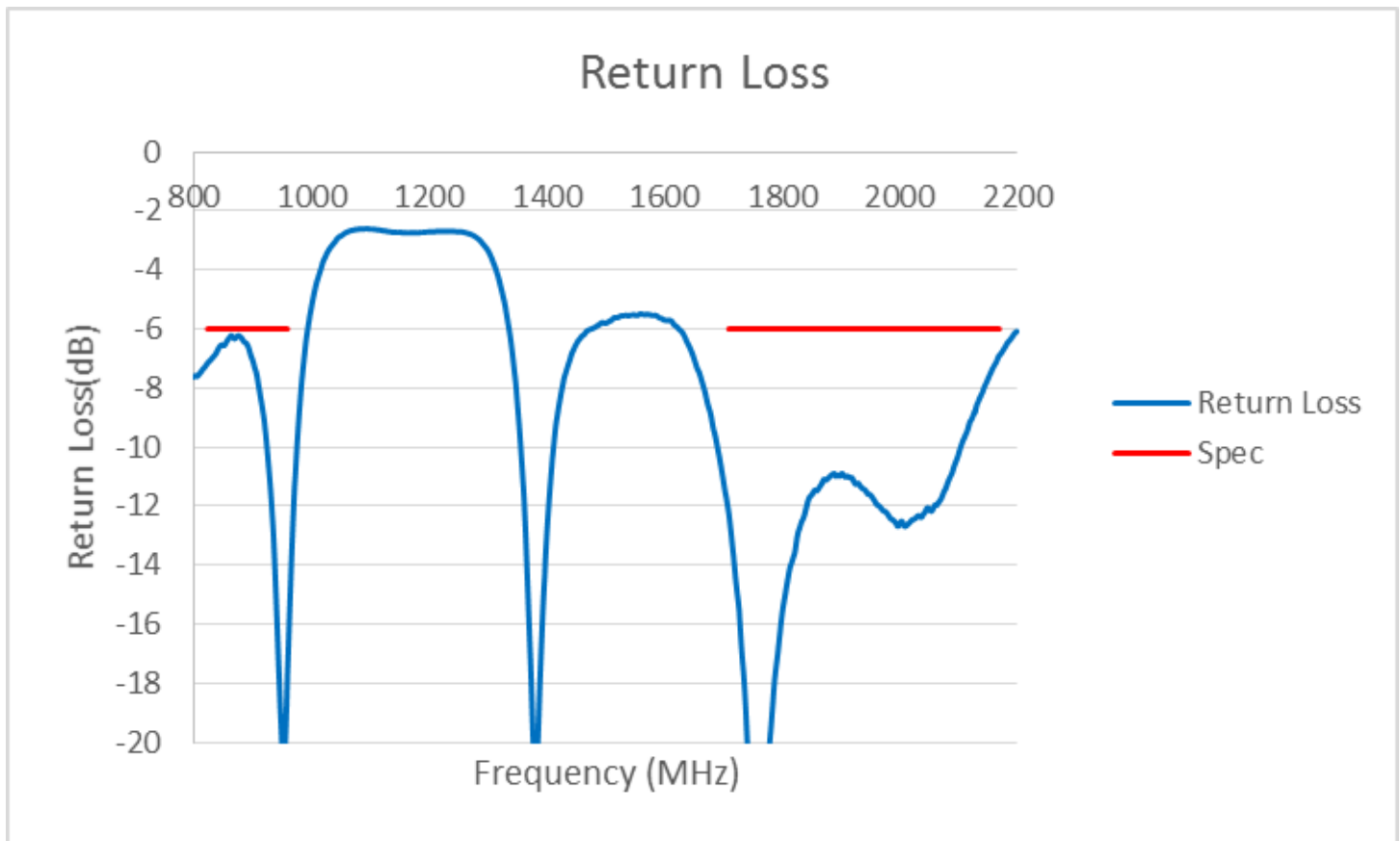
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## CHARTS



Note: Antenna tested on 2mm plastic plate with 200mm feed cable.

Issue: Issue: 1819

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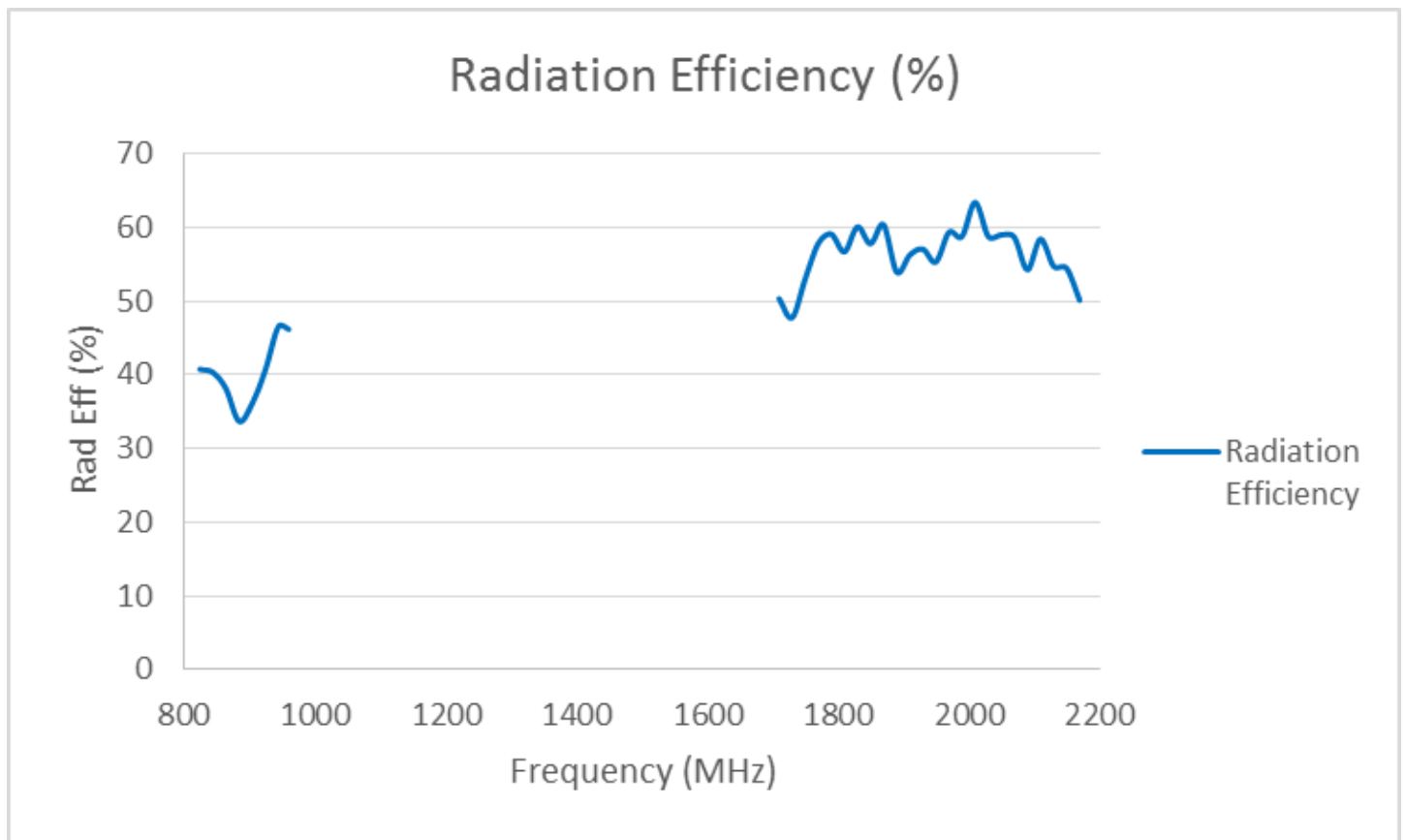
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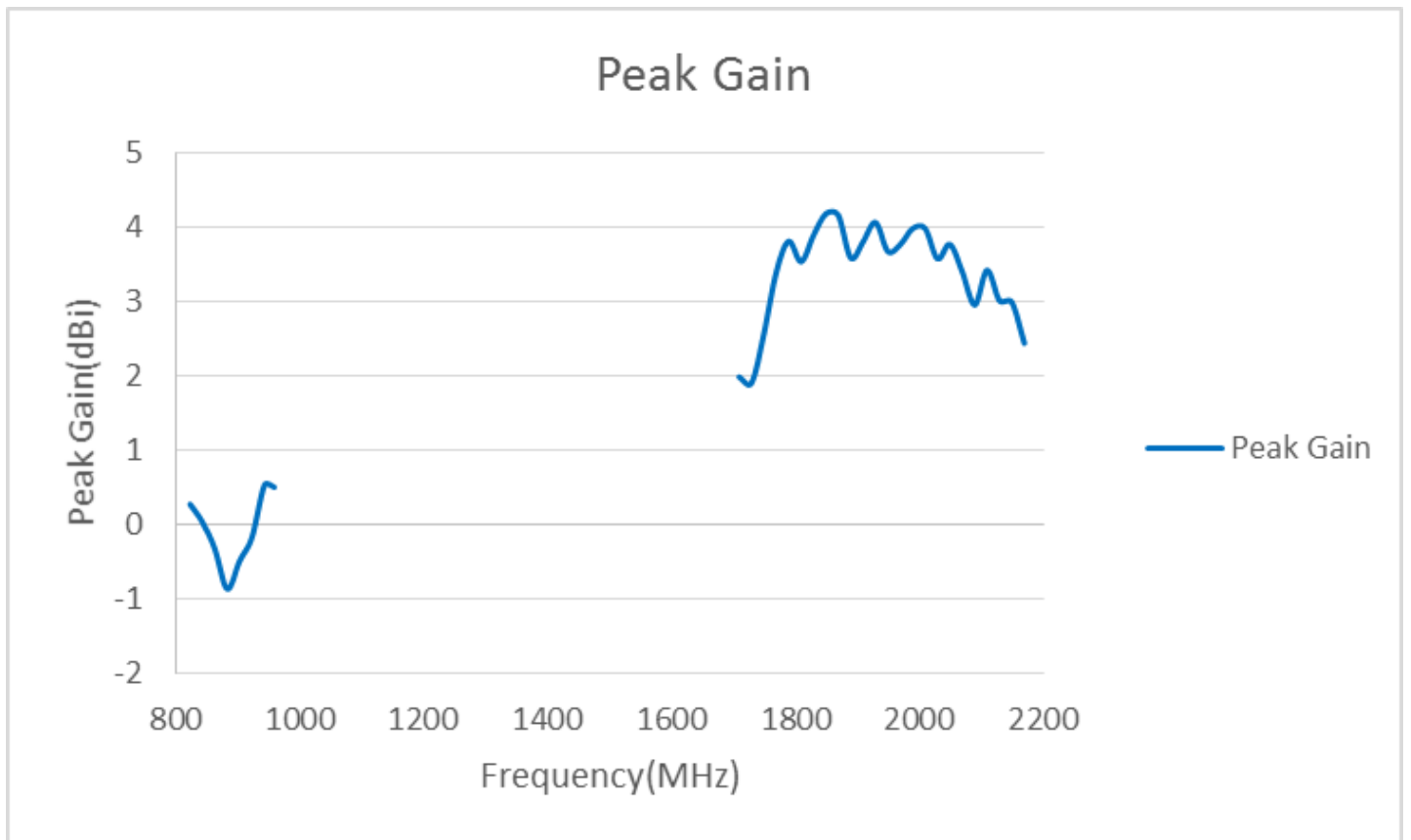
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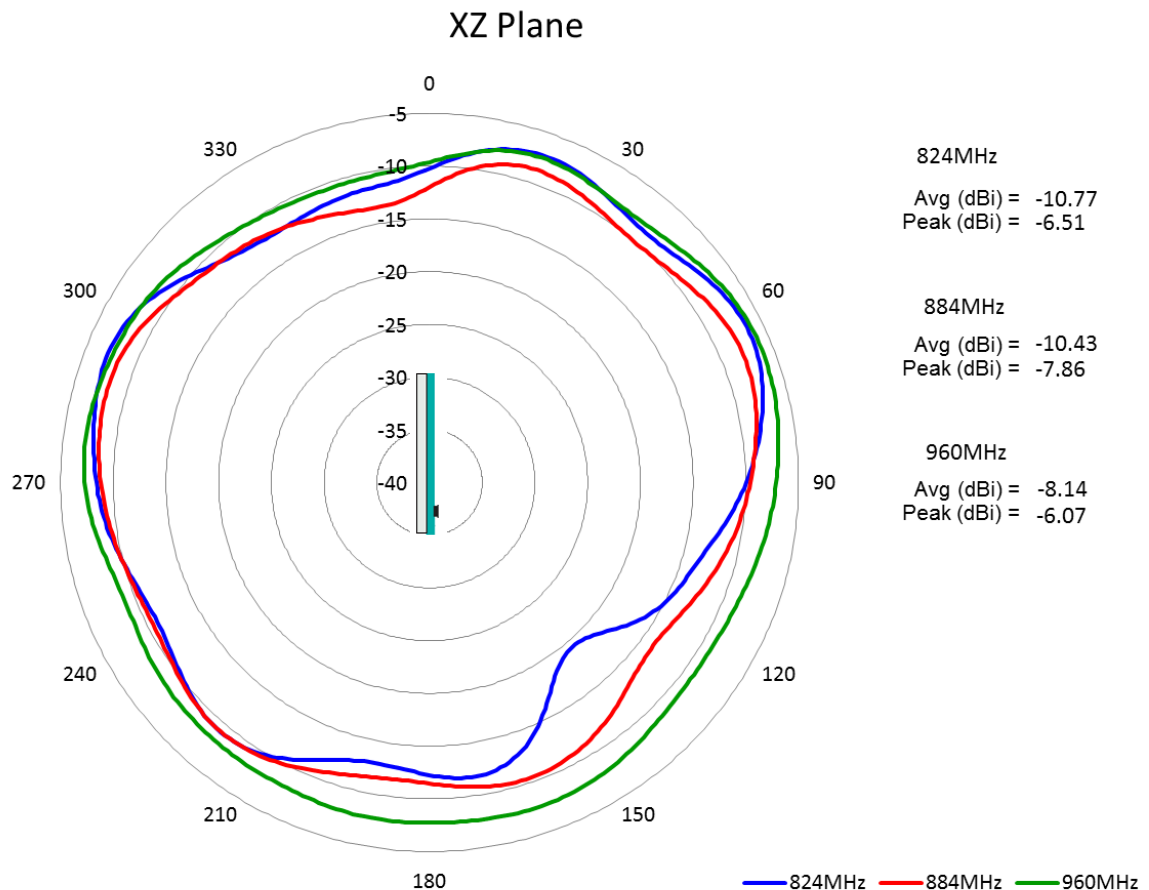
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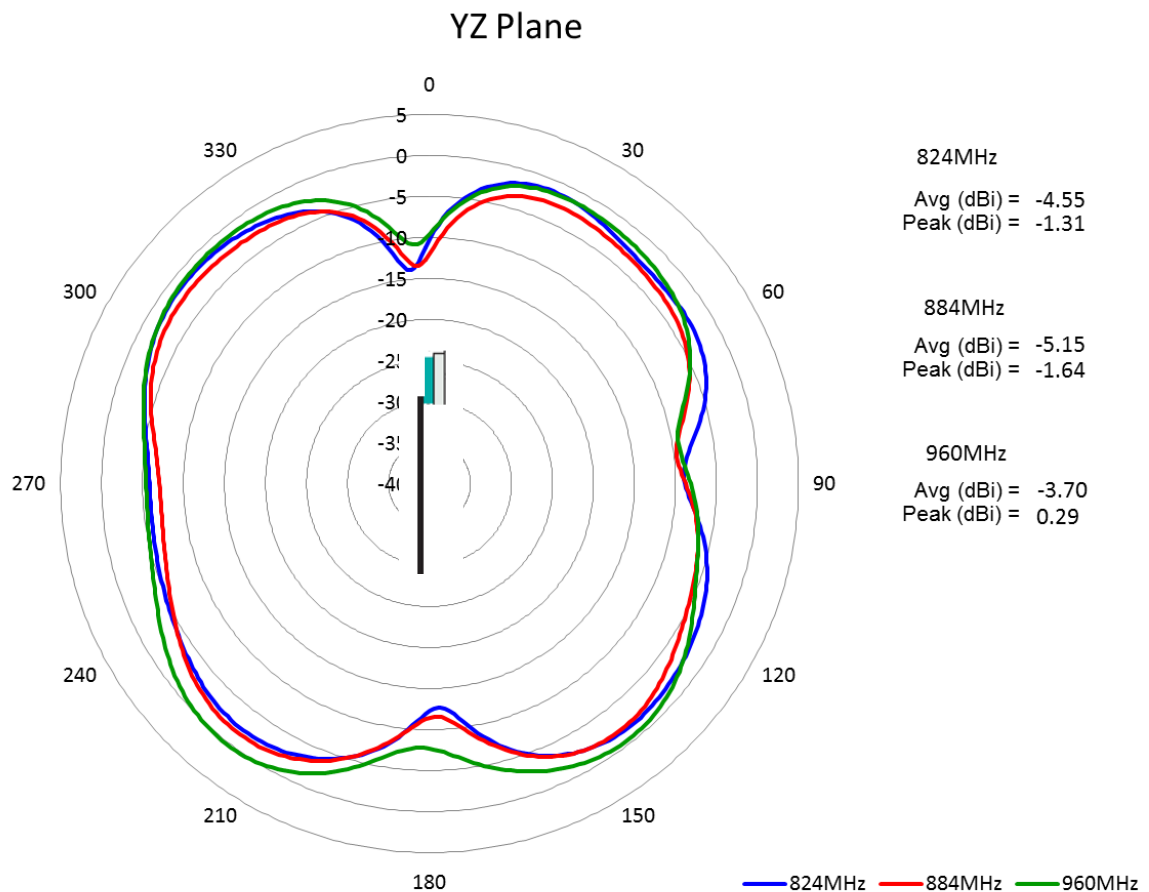
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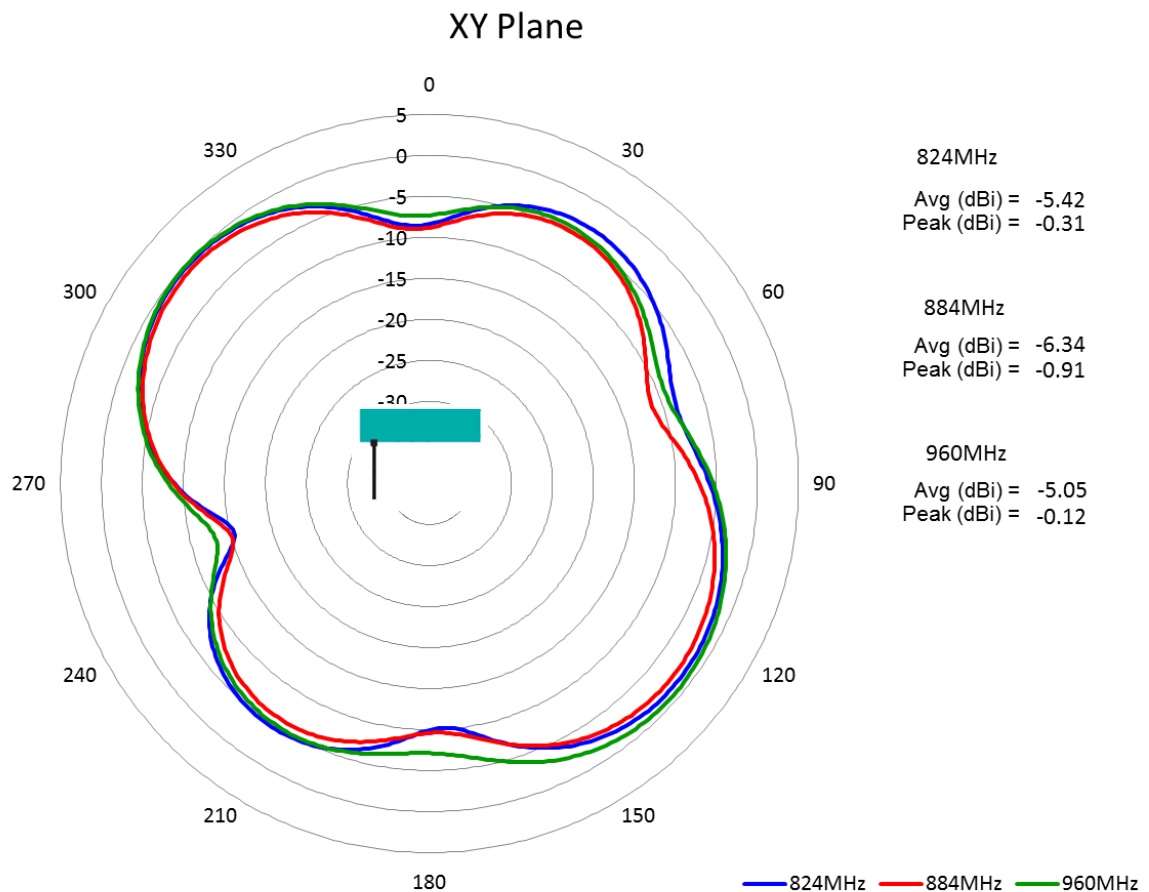
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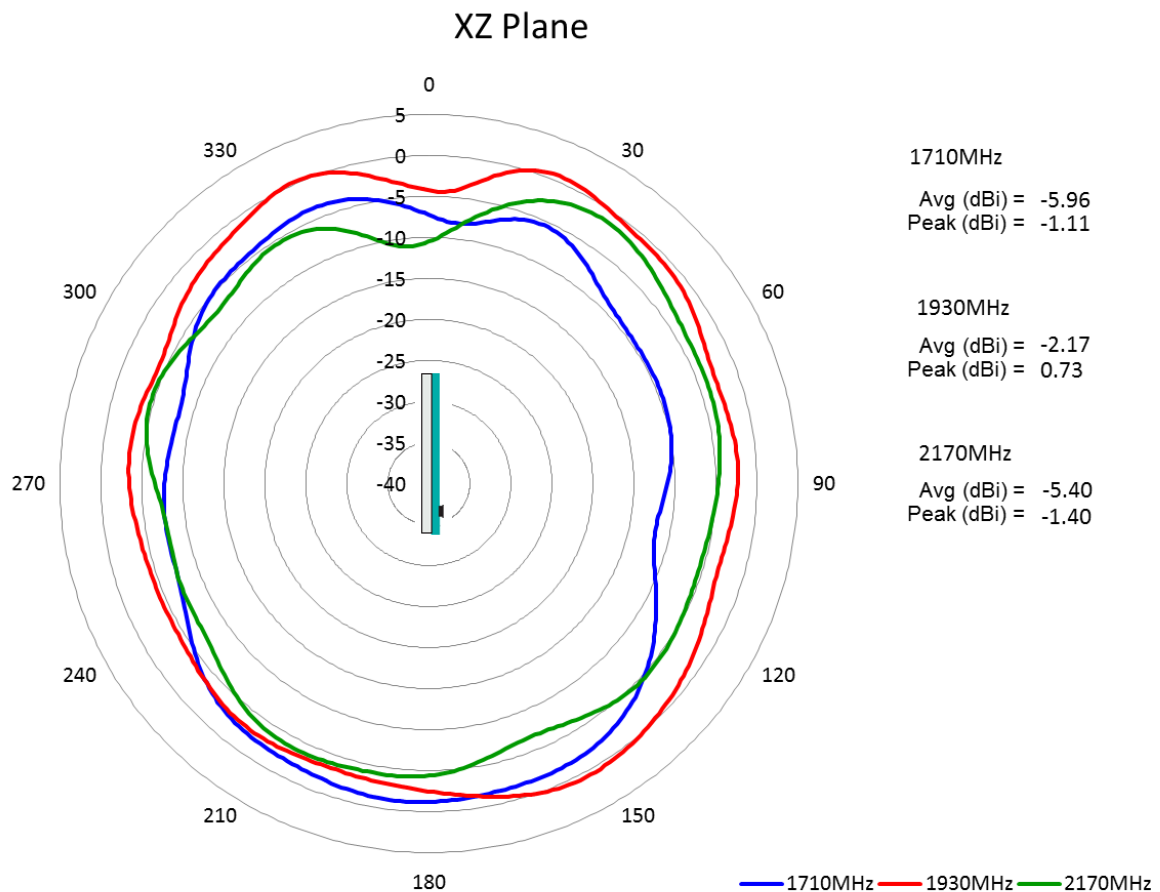
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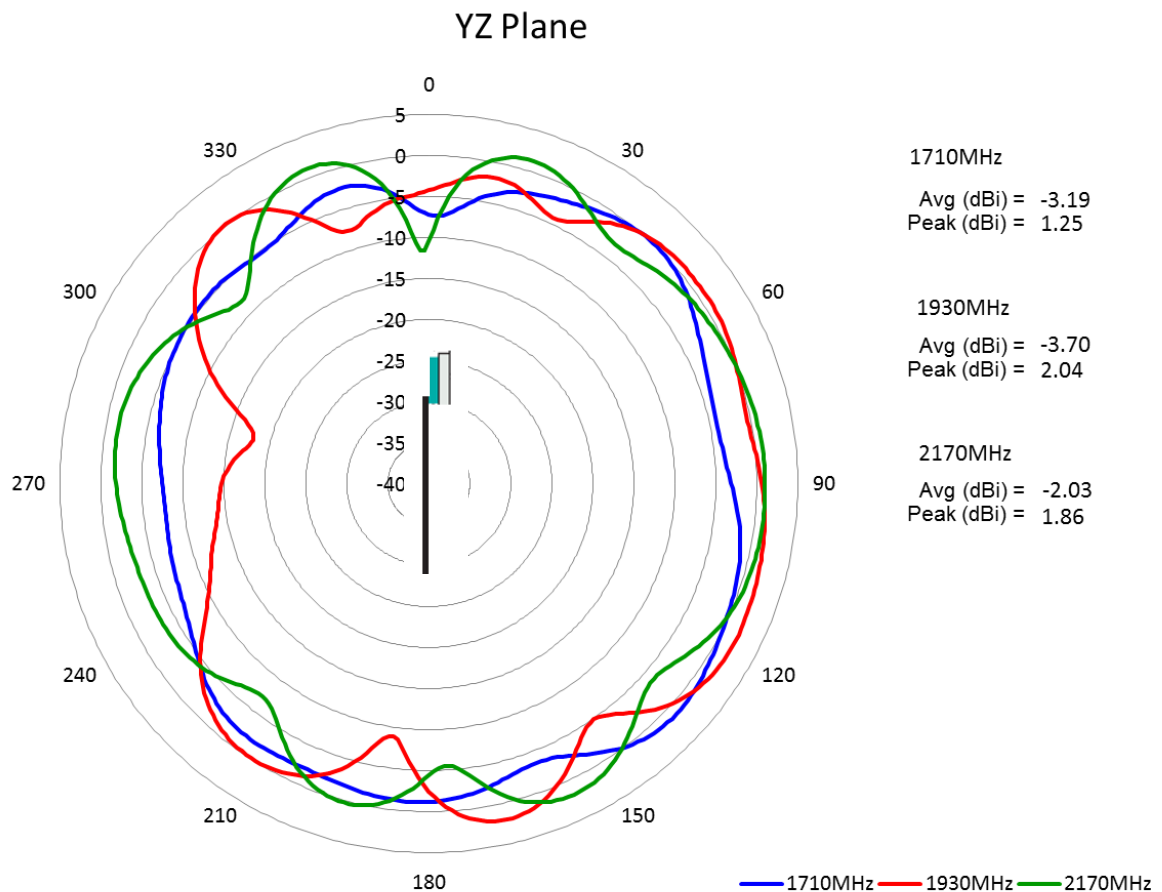
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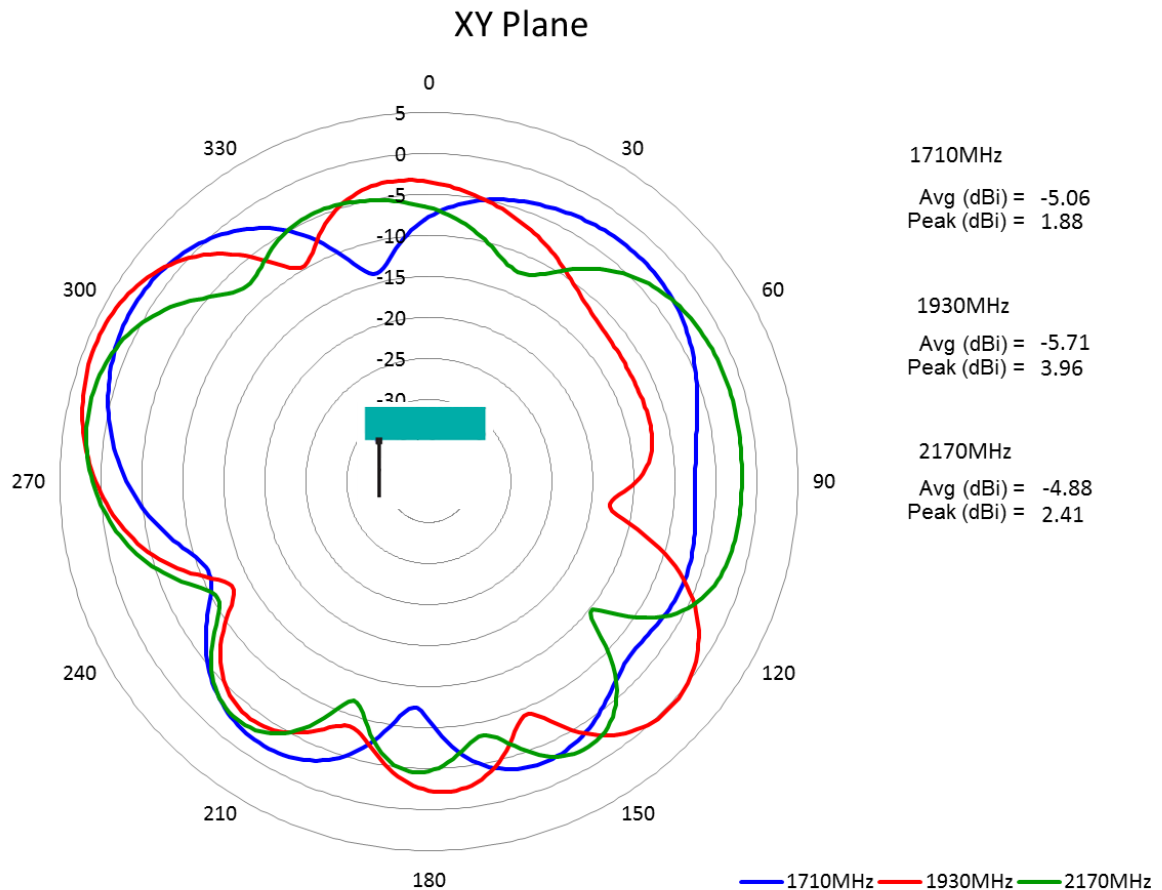
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## PACKAGING

10PCS/PE bag  
10PE bag/foam bag  
10 foam bag/ carton box  
Total 1000PCS/carton box



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