

Antenna

YF0002CA Datasheet

Antenna Services

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About the Document

Revision History

| Version | Date | Author | Note |
|---------|------------|------------|---|
| 1.0 | 2020-06-08 | Kenny YIN | First official release |
| 1.1 | 2021-03-12 | Kenny YIN | 1. Added the installation method (Chapter 3); 2. Updated the drawing (Chapter 5). |
| 1.2 | 2021-07-25 | Kenny YIN | Updated the working temperature and detailed passive electrical specifications (Chapter 3). |
| 1.3 | 2021-10-09 | Vinnie LIU | Updated the drawing (Chapter 5). |
| 1.4 | 2021-12-06 | Vinnie LIU | Updated the product description in Chapter 1. |

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1 Product Description

This Quectel embedded 5G FPC antenna covers 5G NR Sub-6 GHz frequency bands and is compatible with 4G/3G/2G/LPWA bands. Ground plane independent, it's designed to be mounted directly to the underside of either a plastic or non-metallic enclosure. Ease of integration with a cable and connector which can be customized to meet your product design and RF module. Used with other 5G antennas, it can achieve MIMO (multiple input, multiple output) antenna technology for wireless communications in which multiple antennas are used at both the source (transmitter) and the destination (receiver)

2 Product Features

- Cellular 5G MIMO
- High efficiency
- Excellent performance



3 Product Specifications

Passive Electrical Specifications

| | |
|-------------------|------------------------------|
| Frequency Range | 1710–2700 MHz, 3300–5000 MHz |
| Input Impedence | 50 Ω |
| VSWR | ≤ 5.0 |
| Gain | ≤ 3 dBi |
| Polarization Type | Linear |

Detailed Passive Electrical Specifications

| Frequency Range (MHz) | 698–960 | 1176–1280 | 1400–1610 | 1710–2170 | 2170–2690 | 3300–4000 | 4000–5000 | 5000–6000 |
|------------------------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| VSWR (Max.) | - | - | - | 2.86 | 3.8 | 2.58 | 2.86 | - |
| Average Efficiency (%) | - | - | - | 35 | 34 | 34 | 36- | - |
| Max. Peak Gain (dBi) | - | - | - | 0 | 1.0 | 2.0 | 3.1 | - |

Mechanical Specifications

| | |
|---------------------|-----------------------------|
| Antenna Size | 37.25 mm × 9.6 mm × 10.1 mm |
| Casing | PC |
| Working Temperature | -40 °C to +85 °C |
| Radome Color | Black |
| Mounting Type | M1.6 Screw |

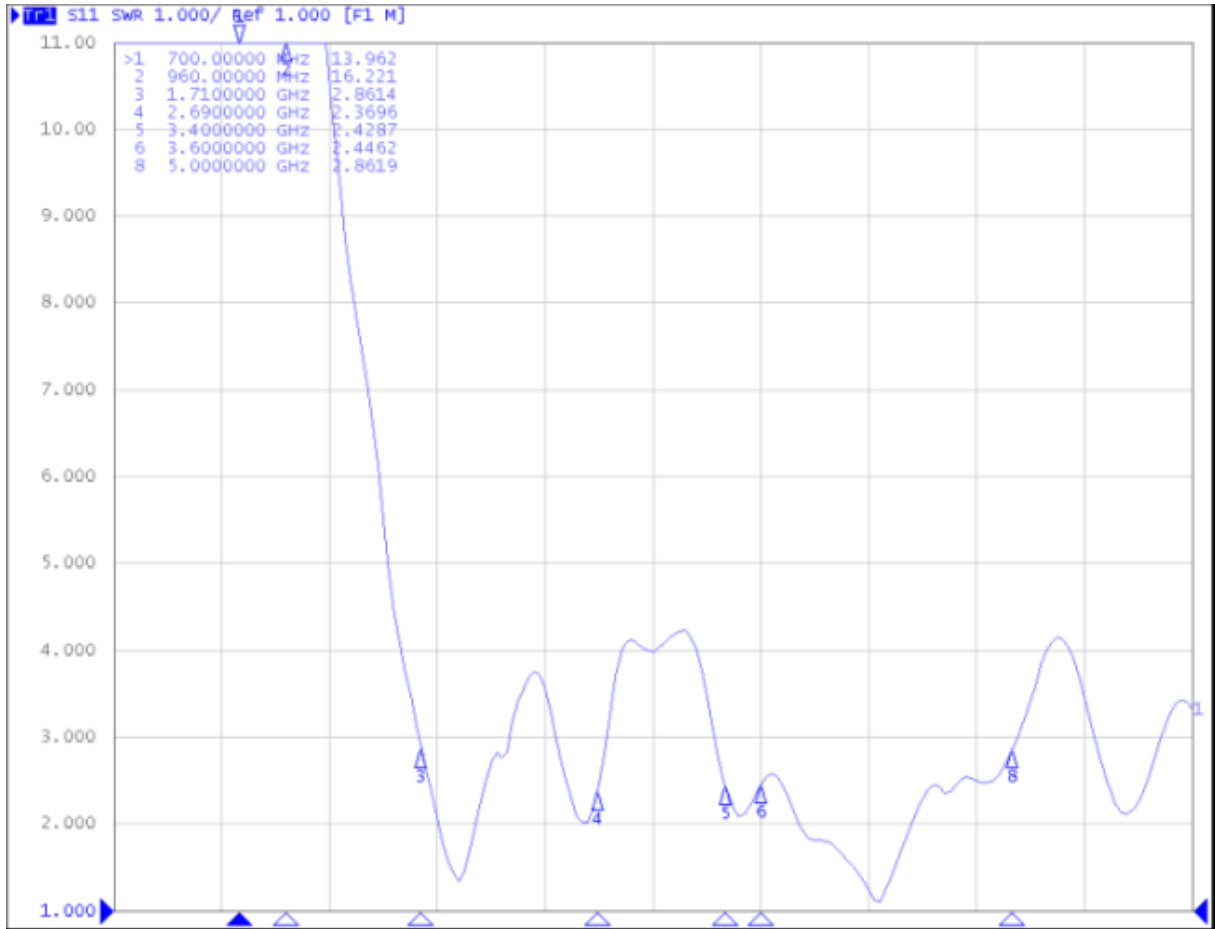
4 Overall Performance

4.1. Test Environment

- KEYSIGHT VNA Network Analyzer E5063A 100 kHz – 8.5 GHz
- RayZone®2800 Chamber 5G (FR1) SISO/MIMO 400 MHz – 8.0 GHz

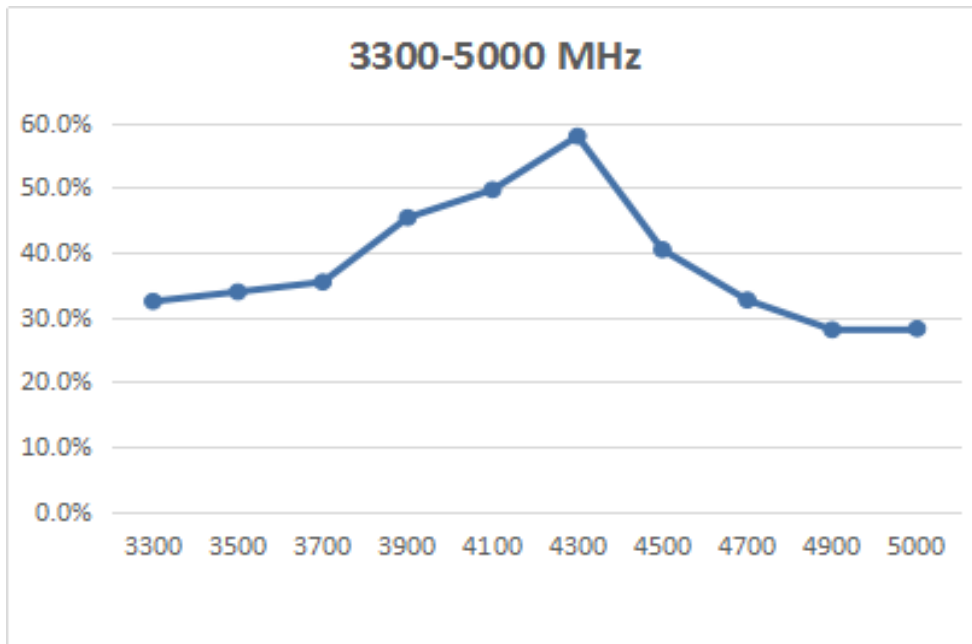
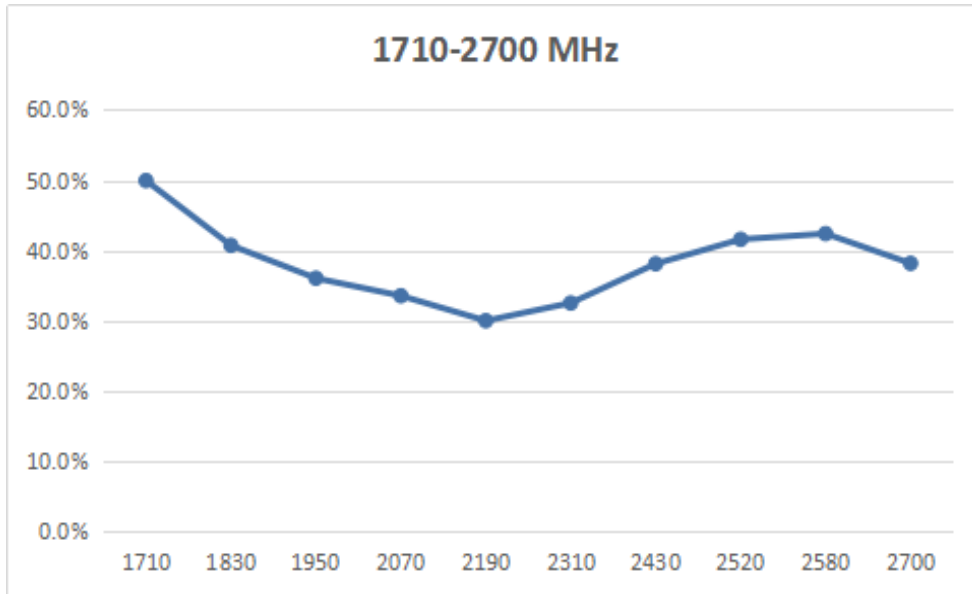


4.2. VSWR



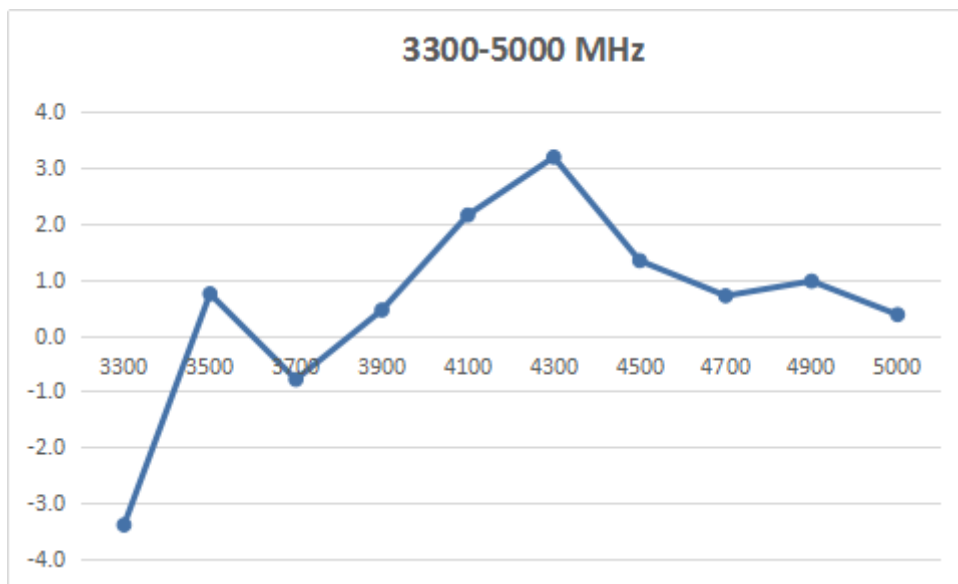
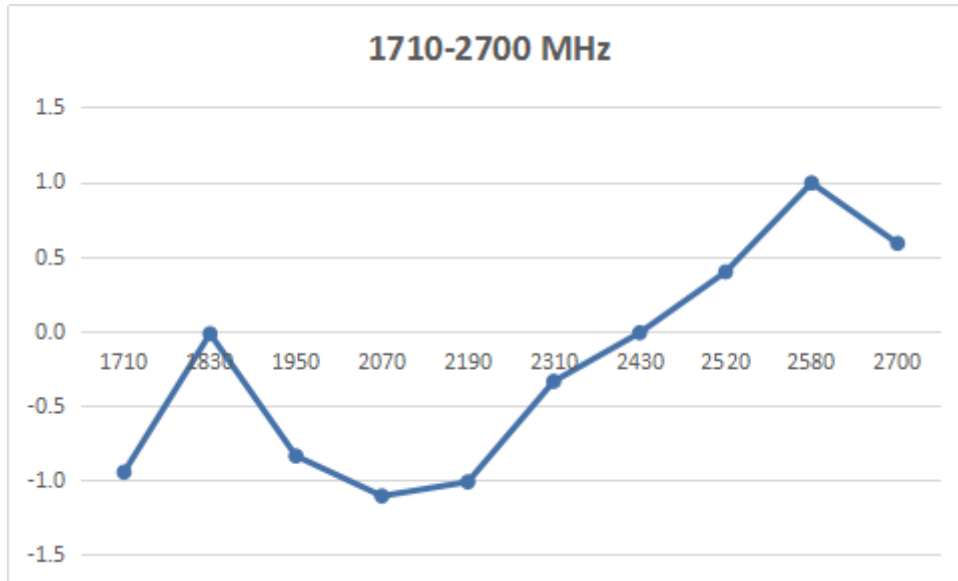
| | | | | | |
|-----------------|------|------|------|------|------|
| Frequency (MHz) | 1710 | 2690 | 3400 | 3600 | 5000 |
| VSWR | 2.86 | 2.36 | 2.42 | 2.44 | 2.86 |

4.3. Efficiency



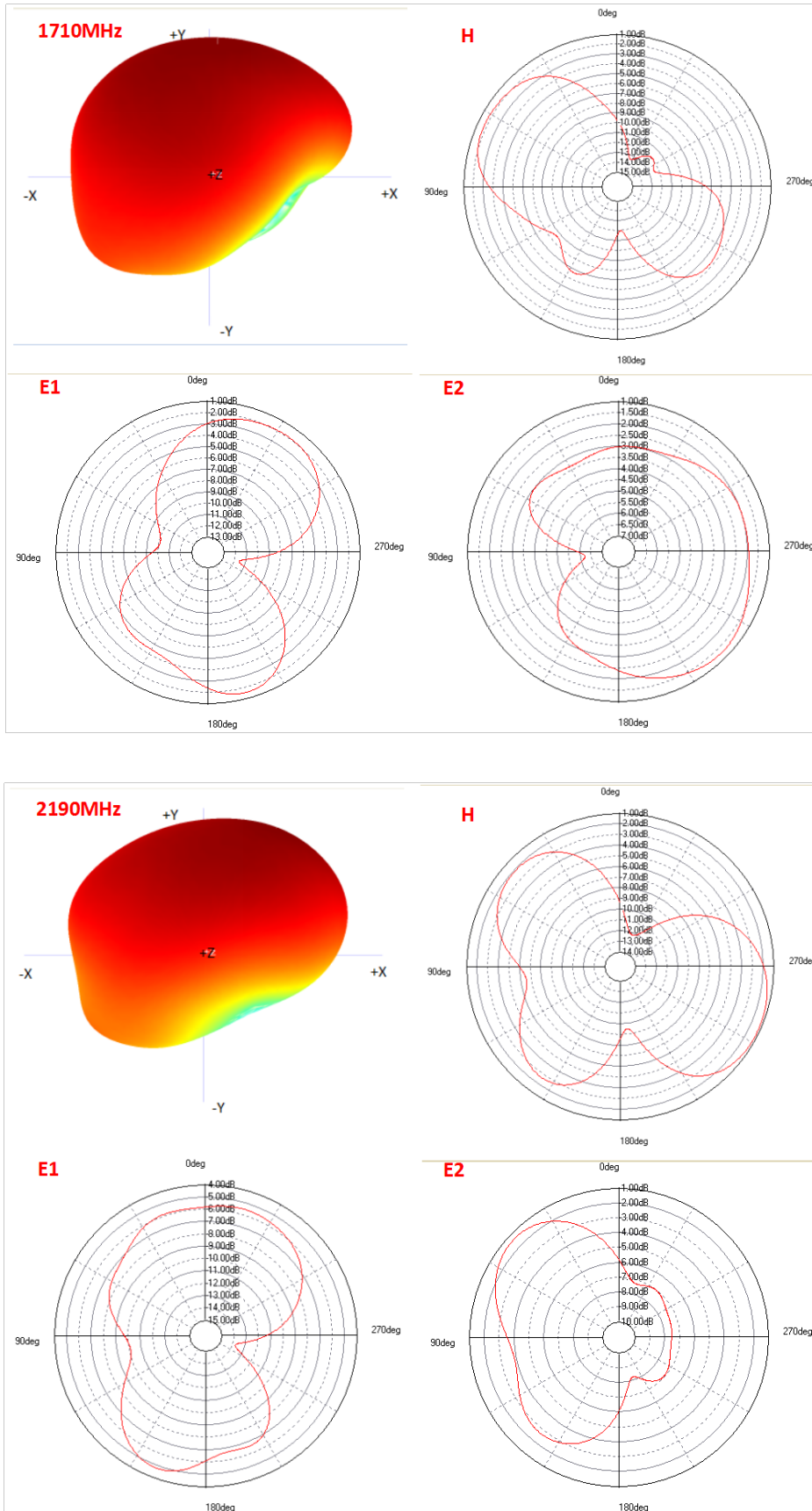
| | | | | | | |
|------------------------|------|------|------|------|------|------|
| Frequency (MHz) | 1710 | 2190 | 2700 | 3300 | 4100 | 5000 |
| Efficiency (%) | 49.9 | 30.0 | 38.2 | 32.4 | 49.6 | 28.2 |

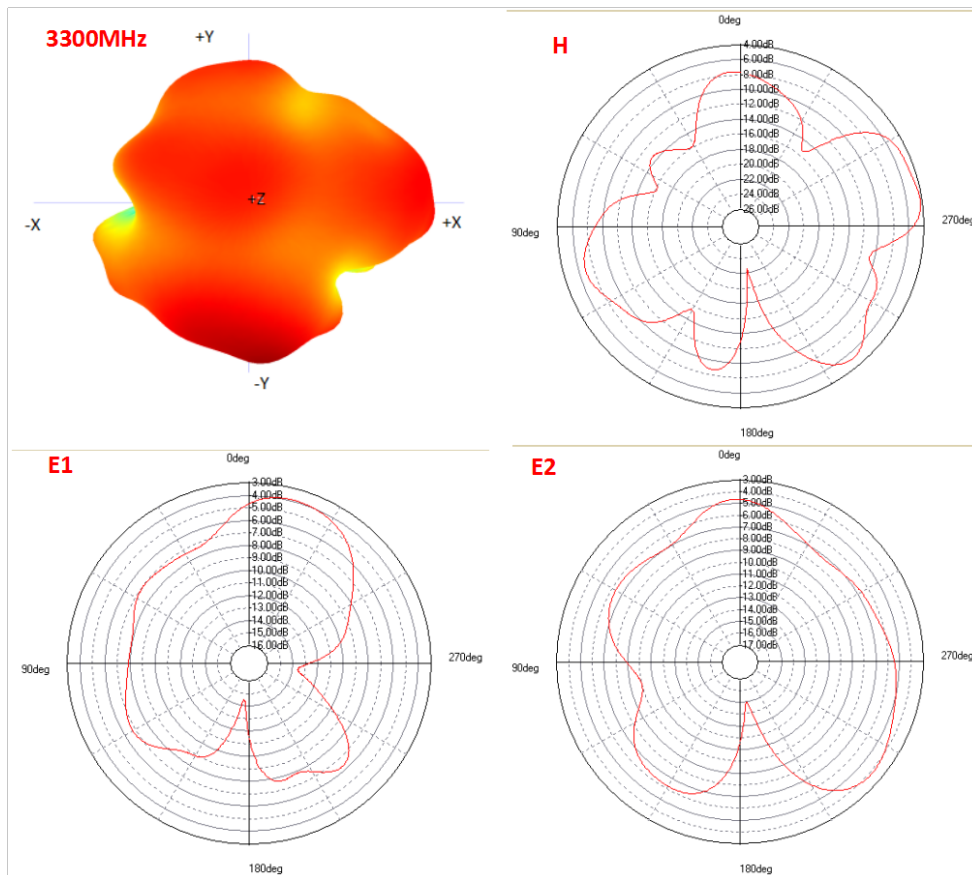
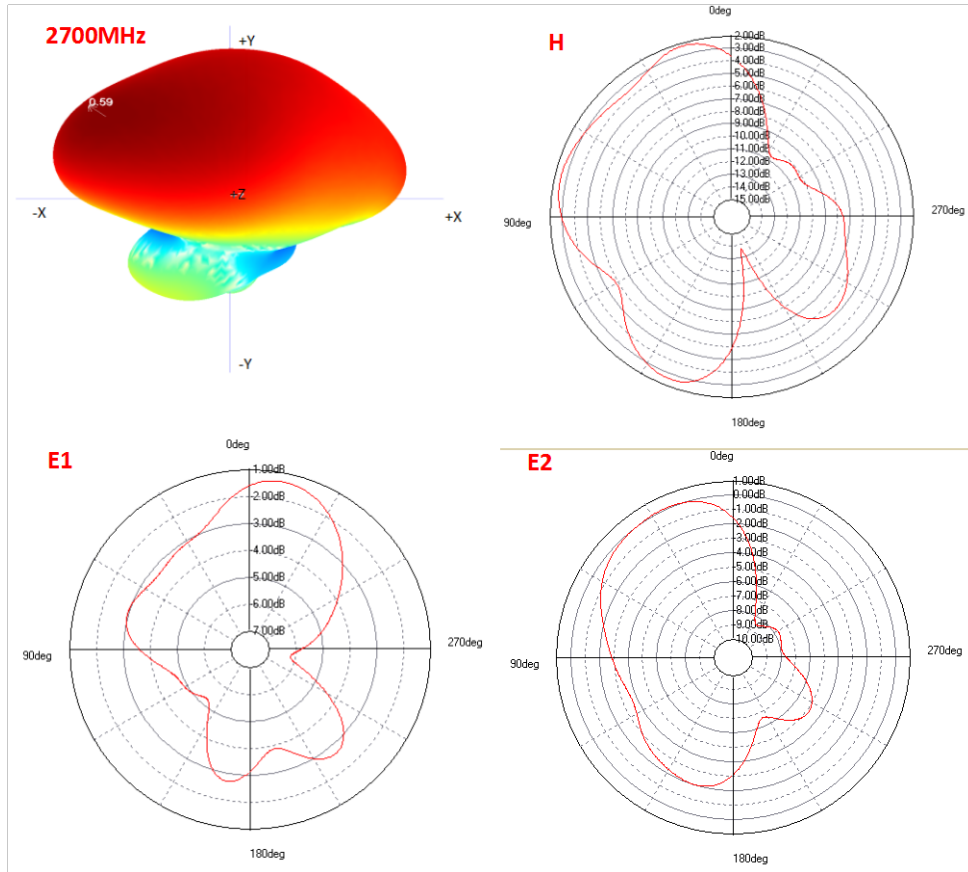
4.4. Gain

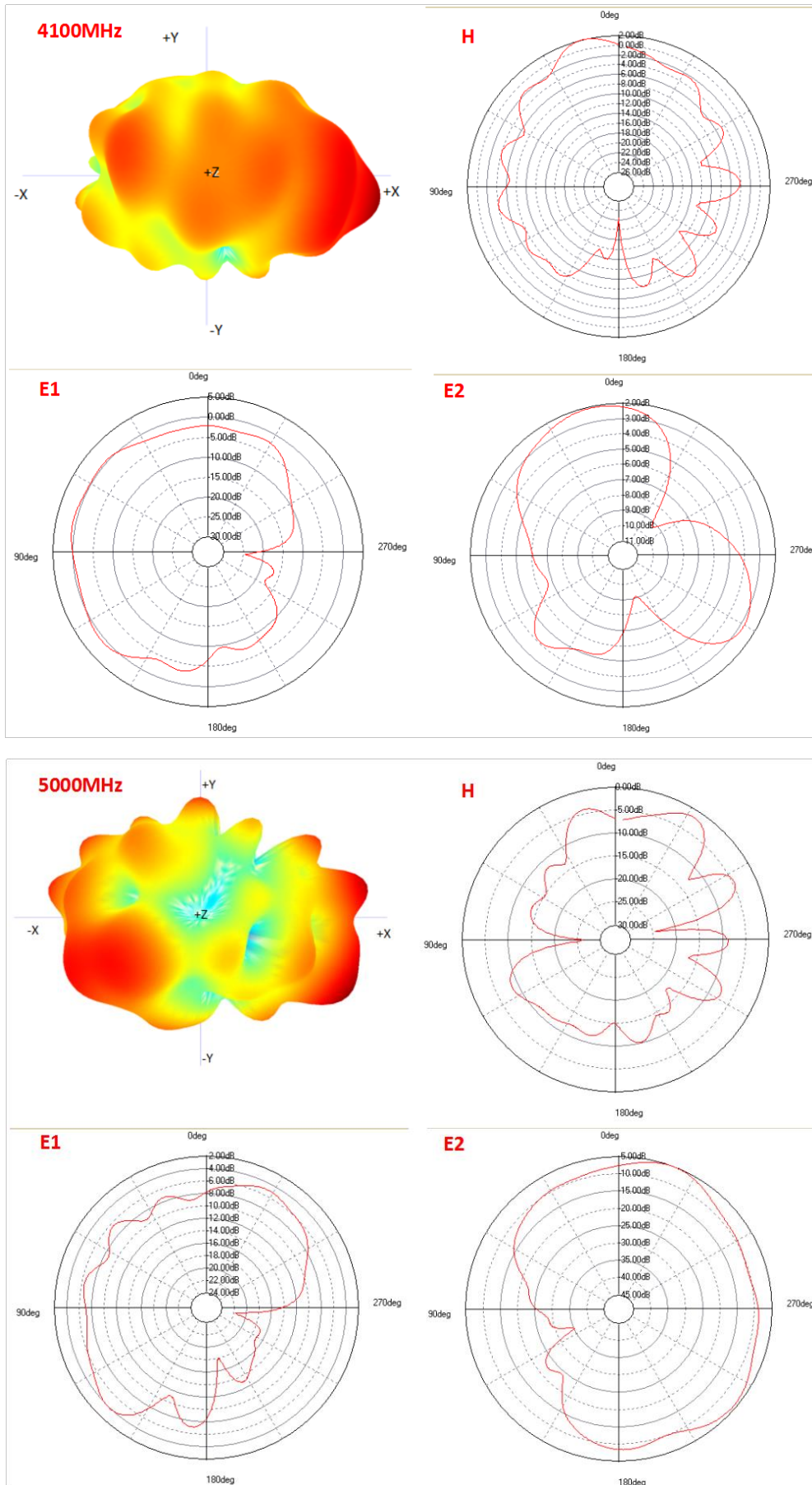


| | | | | | | |
|------------------------|------|------|------|------|------|------|
| Frequency (MHz) | 1710 | 2190 | 2700 | 3300 | 4100 | 5000 |
| Gain (dBi) | -1.0 | -1.0 | 0.6 | -3.4 | 2.2 | 0.4 |

4.5. Radiation Pattern







5 Product Size

