# Antenna

# YB0014AA Datasheet

**Antenna Services**

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Status: Released

**Our aim is to provide customers with timely and comprehensive service. For any assistance, please contact our company headquarters:**

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# About the Document

## Revision History

| Version | Date | Author | Note |
|---|---|---|---|
| - | 2020-09-11 | Kenny YIN | Creation of the document |
| 1.0 | 2020-09-11 | Kenny YIN | Initial |
| 1.1 | 2021-01-18 | Kenny YIN | Updated the antenna image in Chapter 2. |

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# 1 Product Description

The antenna is designed for superior performance, and can be widely used for wireless applications.

We provide comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs.

# 2 Product Features

- Cellular LTE
- High efficiency
- Excellent performance

# 3 Product Specifications

| | | | |
|---|---|---|---|
| **Passive Electrical Specifications** | | | |
| Frequency Range | LTE: 698–960 MHz; 1700–2700 MHz<br>GNSS: 1561–1571 MHz; 1602–1606 MHz | | |
| Input Impendence | 50 Ω | | |
| VSWR | ≤ 4.0 | | |
| Gain | Main Antenna | 698–960 MHz | < 3.0 dBi |
| | | 1700–2700 MHz | < 3.0 dBi |
| | DIV Antenna | 698–960 MHz | < 2.5 dBi |
| | | 1700–2700 MHz | < 4.0 dBi |
| | GNSS | 1561–1571 MHz<br>1602–1606 MHz | 28 ±3 dBi |
| Polarization Type | 4G Main/DIV | Linear | |
| | GNSS | RHCP | |
| **Mechanical Specifications** | | | |
| Antenna Size | 81 mm × 27.5 mm, RG174 L= 3000 mm | | |
| Casing | ABS + PC | | |
| Radiator | Cuprum | | |
| Connector Type | SMA Male (with center pin) | | |
| Working Temperature | -20 °C to +85 °C | | |
| Radome Color | Black | | |
| Waterproof Grade | IP66 | | |

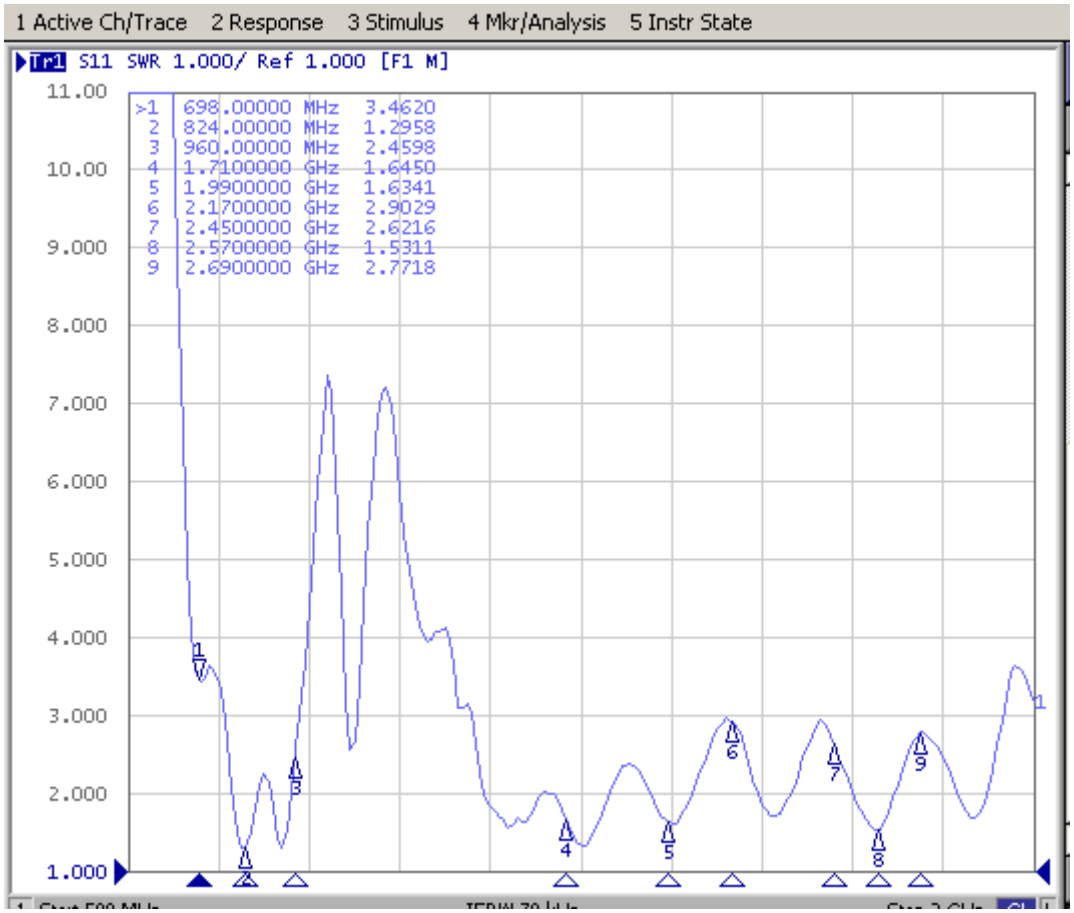
# 4 Overall Performance

## 4.1. Test Environment

- KEYSIGHT VNA Network Analyzer E5063A, 100 kHz – 6.5 GHz
- RayZone® 2800 Chamber 5G (FR1) SISO/MIMO, 400 MHz – 6.0 GHz

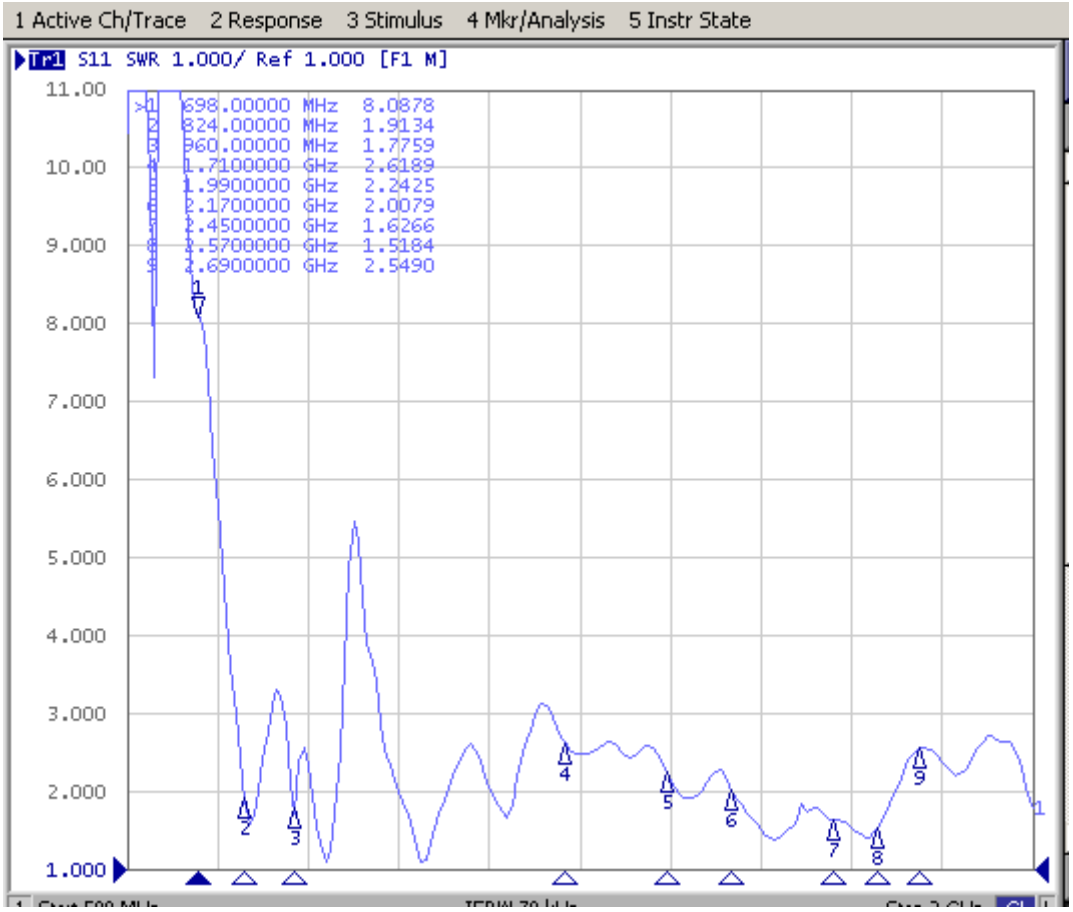
## 4.2. VSWR

**4G**




| Frequency (MHz) | 698 | 824 | 960 | 1710 | 1990 | 2170 | 2450 | 2570 | 2690 |
|---|---|---|---|---|---|---|---|---|---|
| VSWR | 3.46 | 1.30 | 2.46 | 1.65 | 1.63 | 2.90 | 2.62 | 1.53 | 2.77 |

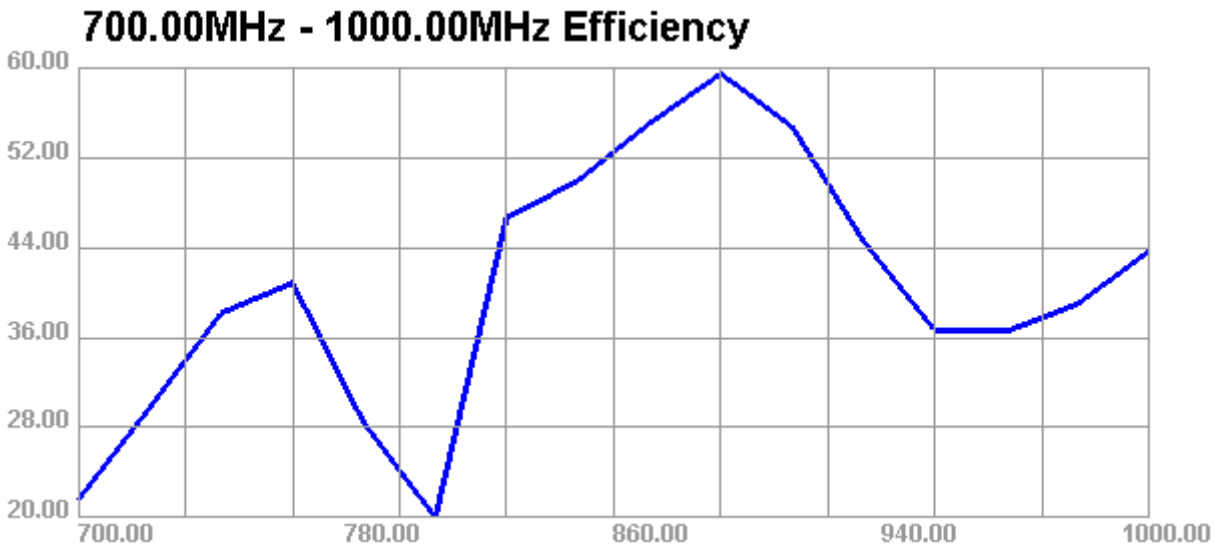
**4G DIV**

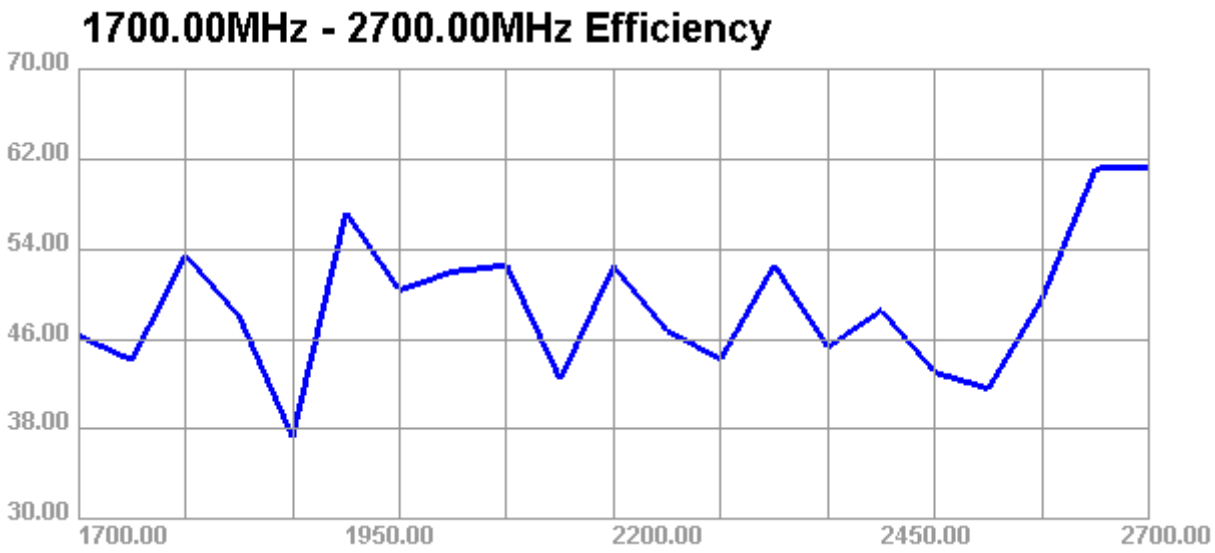



| Frequency (MHz) | 698 | 824 | 960 | 1710 | 1990 | 2170 | 2450 | 2570 | 2690 |
|---|---|---|---|---|---|---|---|---|---|
| VSWR | 8.09 | 1.91 | 1.78 | 2.62 | 2.24 | 2.01 | 1.63 | 1.52 | 2.55 |

## 4.3. Efficiency

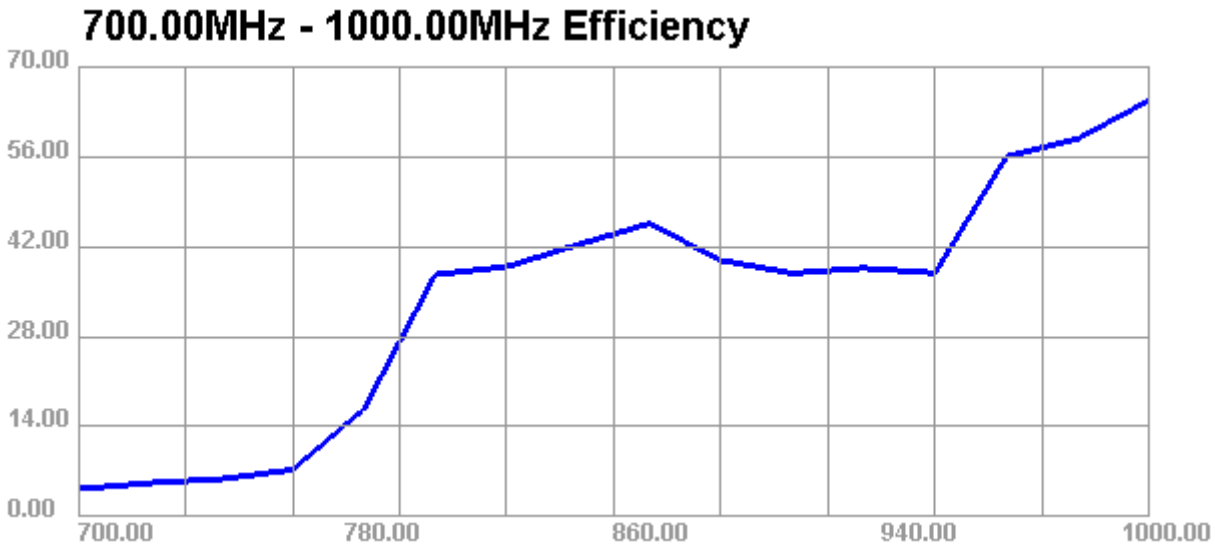
**4G**

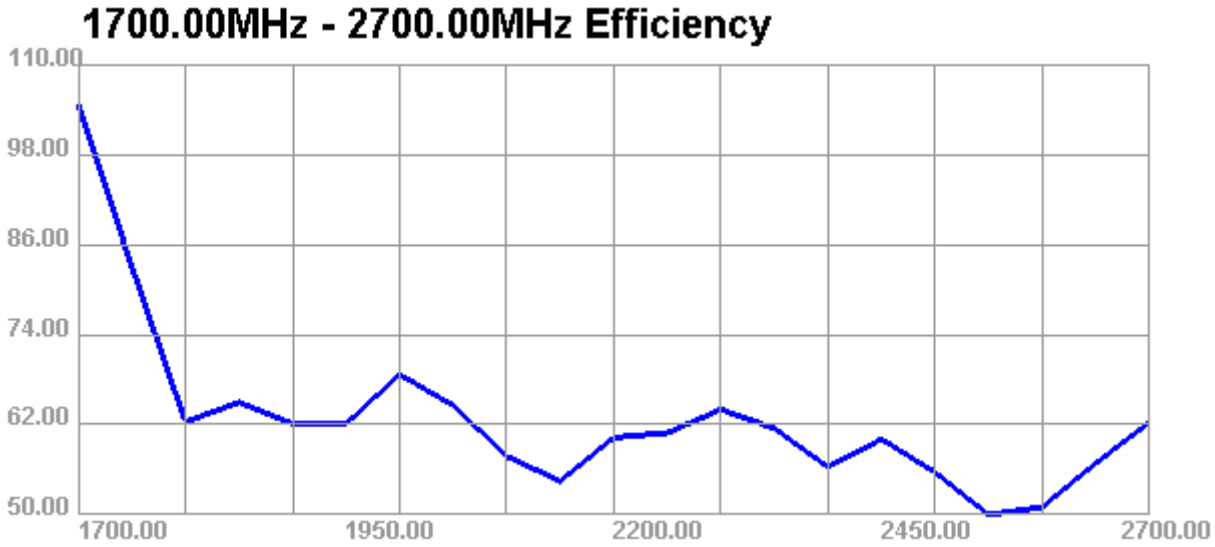



| Frequency (MHz) | 760 | 860 | 960 | 1700 | 1950 | 2200 | 2450 | 2650 |
|---|---|---|---|---|---|---|---|---|
| Efficiency (%) | 40.86 | 55.04 | 36.56 | 46.33 | 57.24 | 52.47 | 48.58 | 61.14 |

4G DIV

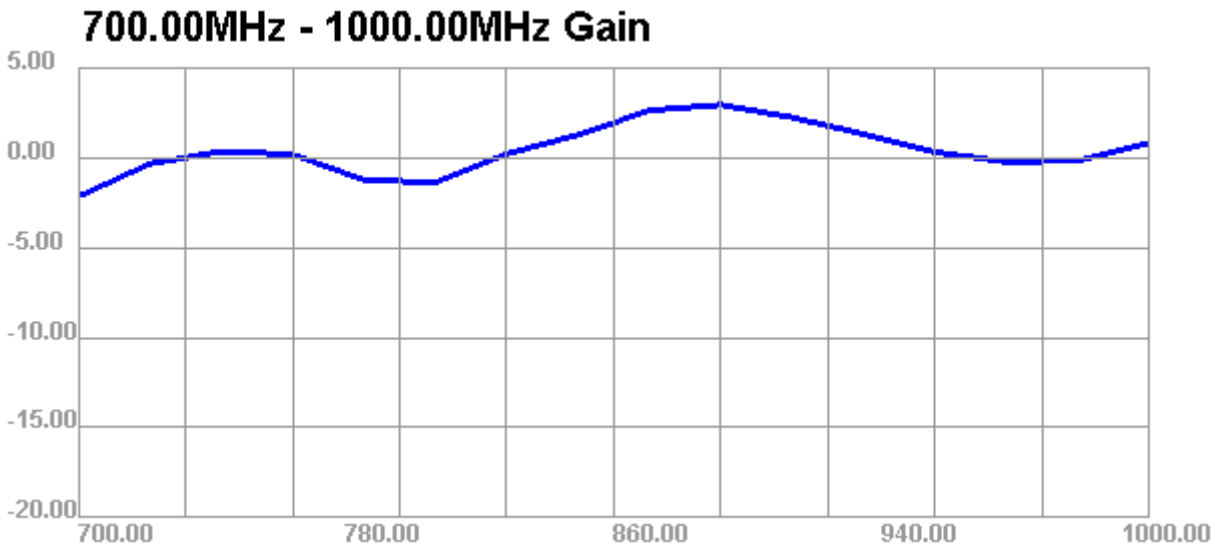


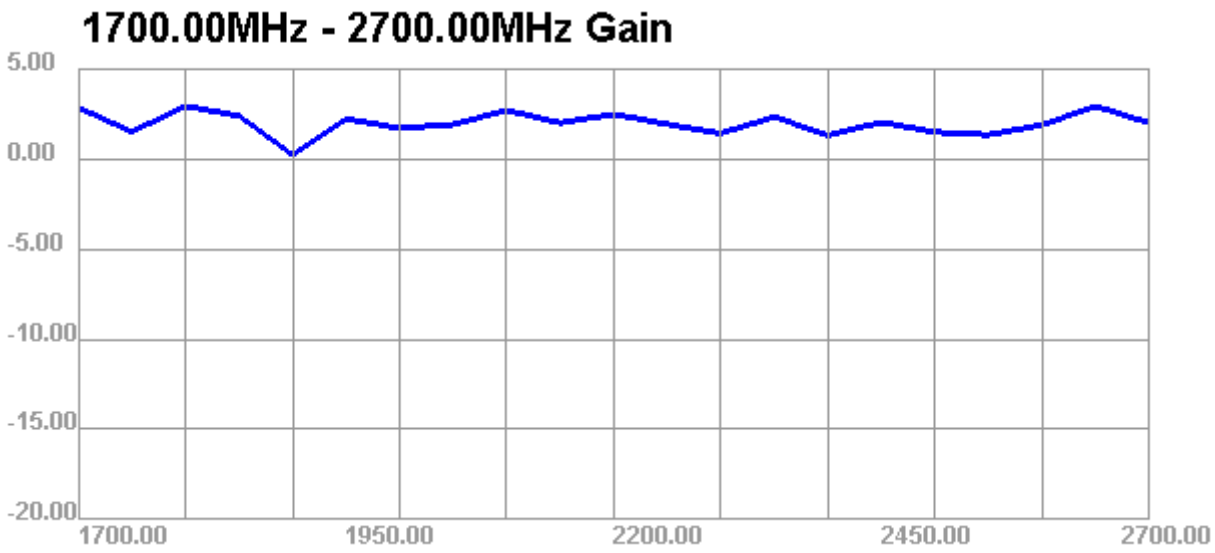




| Frequency (MHz) | 760 | 860 | 960 | 1700 | 1950 | 2200 | 2450 | 2650 |
|---|---|---|---|---|---|---|---|---|
| Efficiency (%) | 7.3 | 45.62 | 55.99 | 104.74 | 62.14 | 60.29 | 60.08 | 56.85 |

## 4.4. Gain

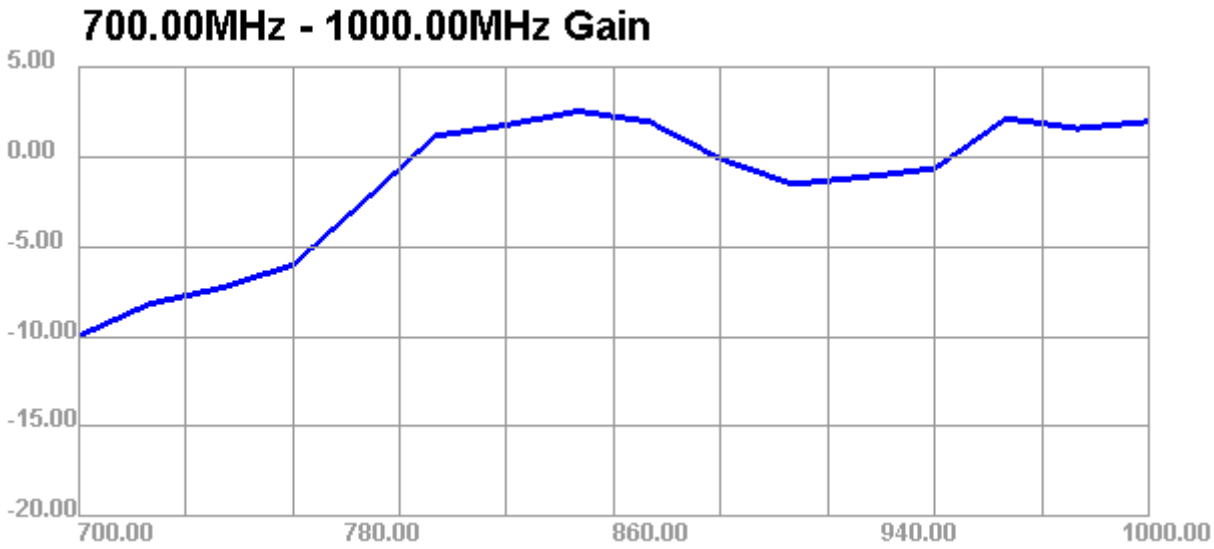
**4G**

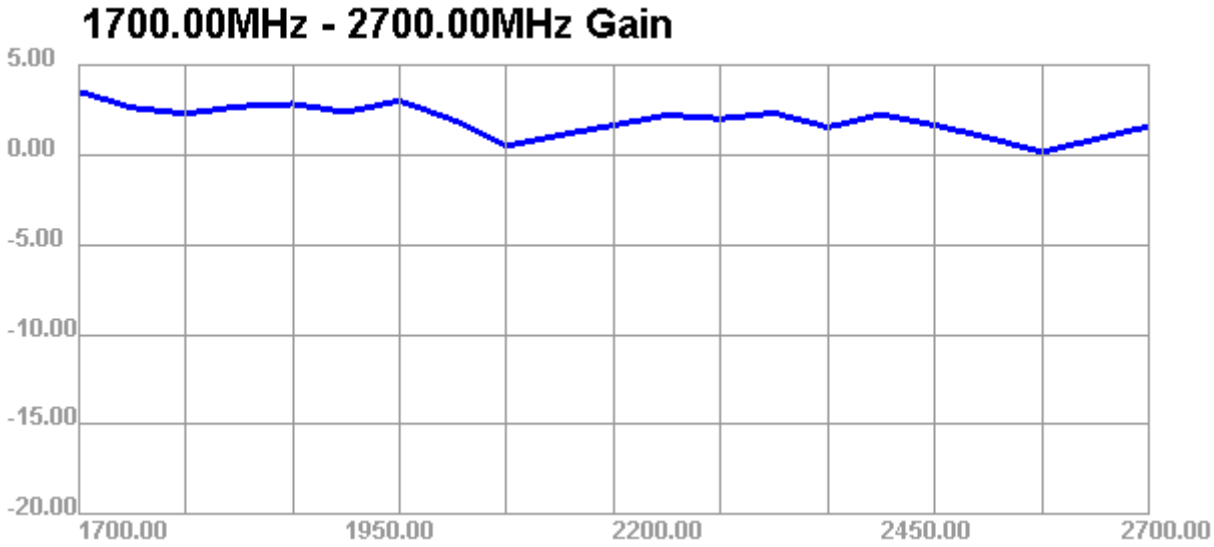



| Frequency (MHz) | 760 | 860 | 960 | 1700 | 1950 | 2200 | 2450 | 2650 |
|---|---|---|---|---|---|---|---|---|
| Gain (dBi) | 0.19 | 2.63 | -0.23 | 2.85 | 2.22 | 2.48 | 2.04 | 2.93 |

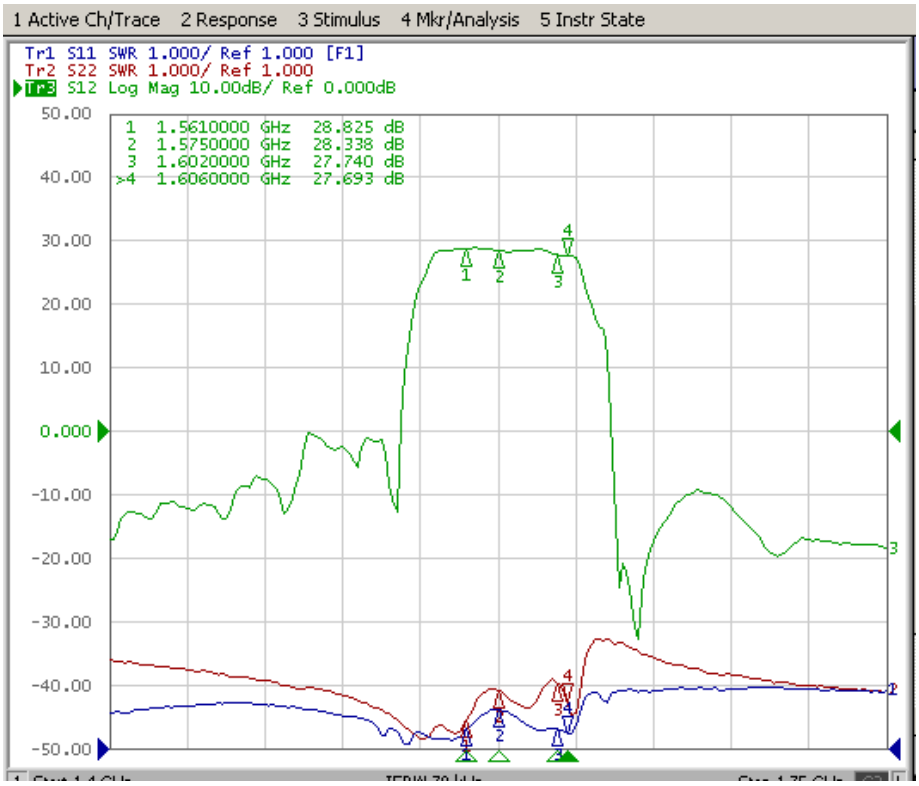
**4G DIV**




| **Frequency (MHz)** | 760 | 860 | 960 | 1700 | 1950 | 2200 | 2450 | 2650 |
|---|---|---|---|---|---|---|---|---|
| **Gain (dBi)** | -6.02 | 1.95 | 2.12 | 3.52 | 2.37 | 1.63 | 2.24 | 0.87 |

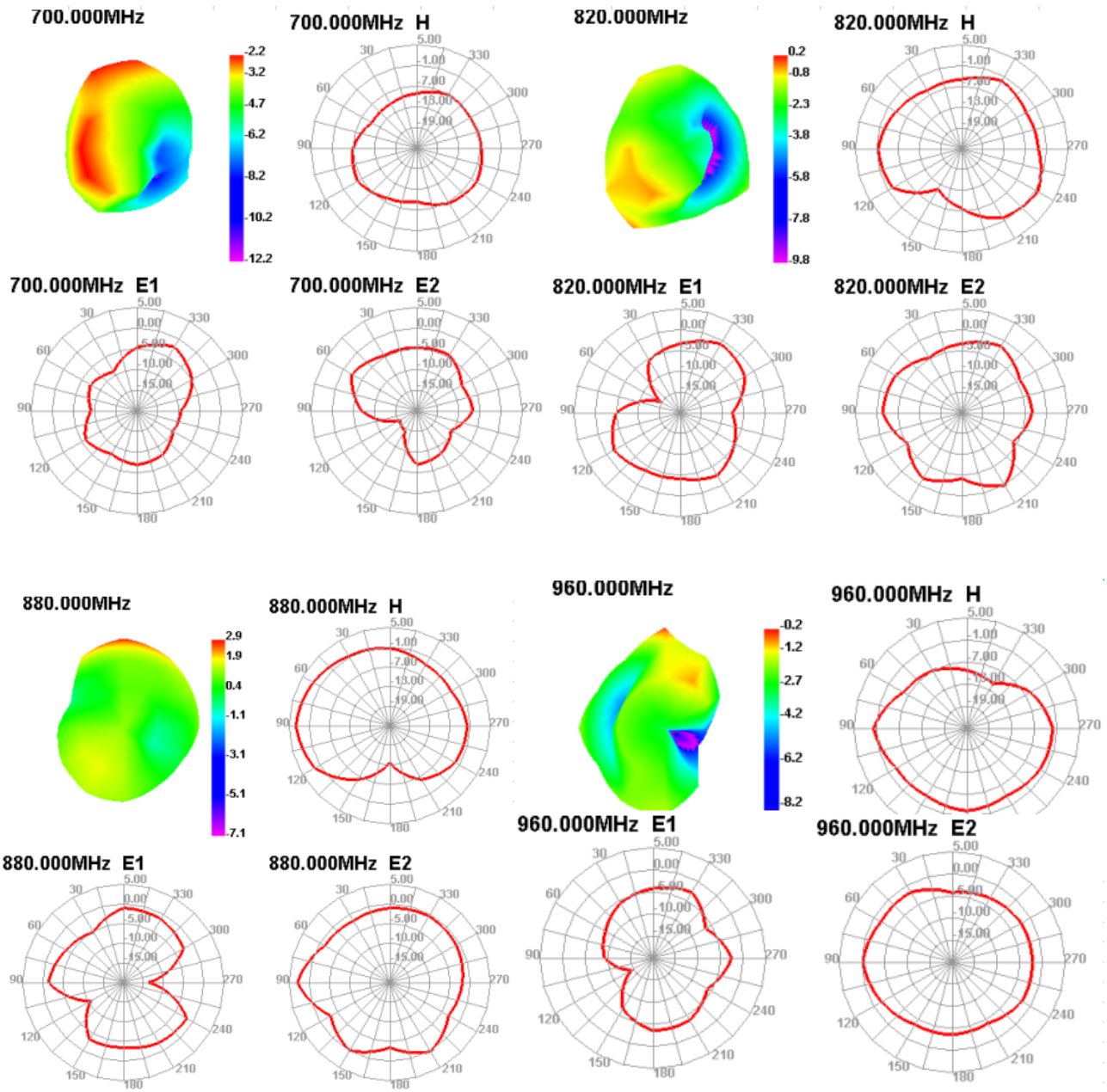
## GNSS



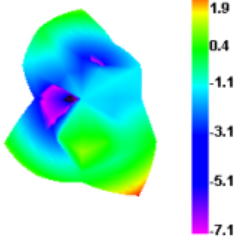

| Frequency (MHz) | 1561 | 1575 | 1602 | 1606 |
|---|---|---|---|---|
| Gain (dBi) | 28.82 | 28.34 | 27.74 | 27.69 |

## 4.5. Radiation Patterns

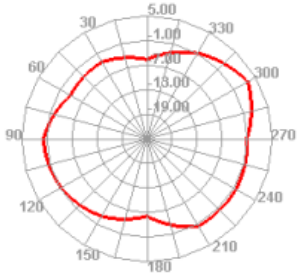
### 4G



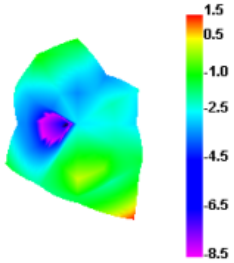
1700.000MHz



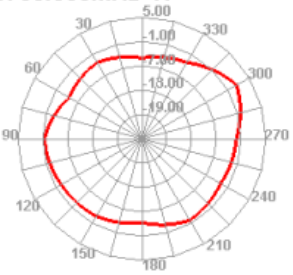

1700.000MHz H



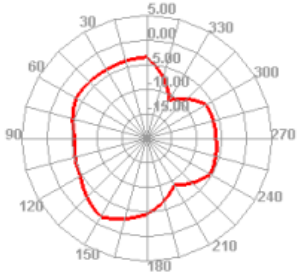
1750.000MHz



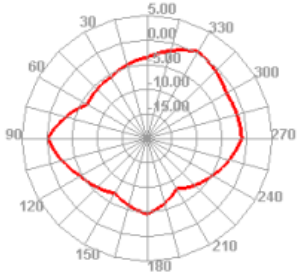

1750.000MHz H



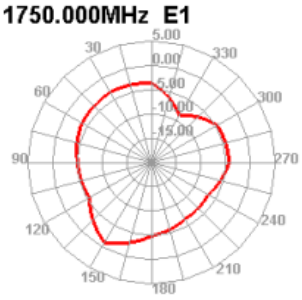
1700.000MHz E1



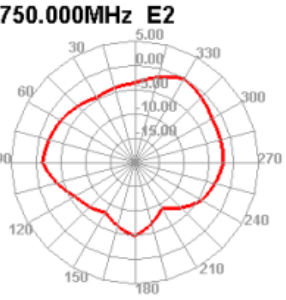
1700.000MHz E2



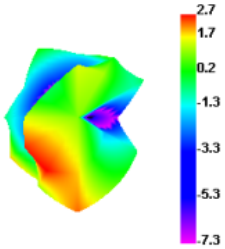
1750.000MHz E1



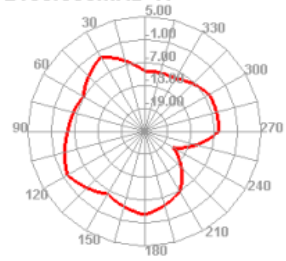
1750.000MHz E2



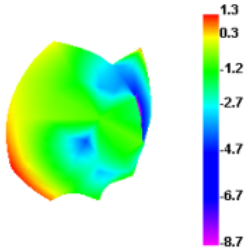
2100.000MHz



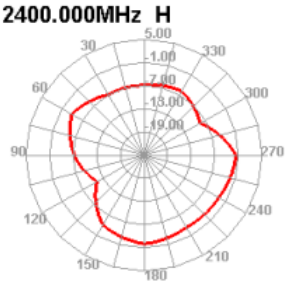

2100.000MHz H



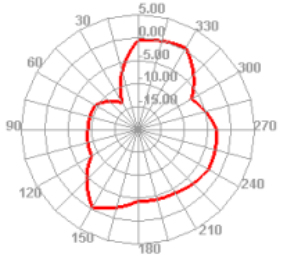
2400.000MHz



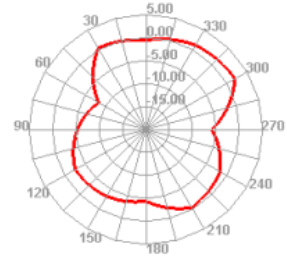

2400.000MHz H



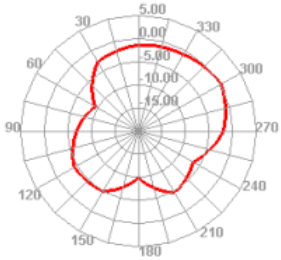
2100.000MHz E1



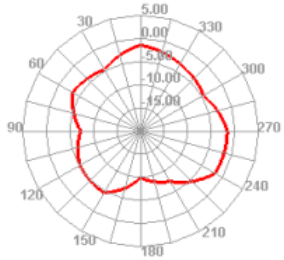
2100.000MHz E2



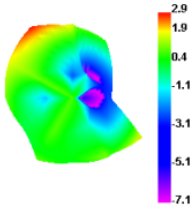
2400.000MHz E1



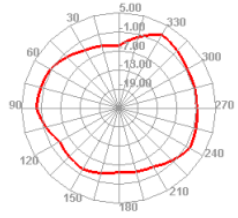
2400.000MHz E2



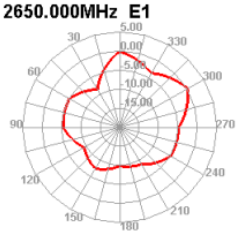
2650.000MHz



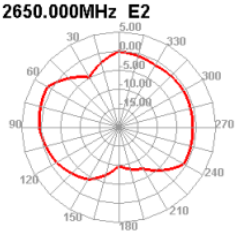

2650.000MHz H



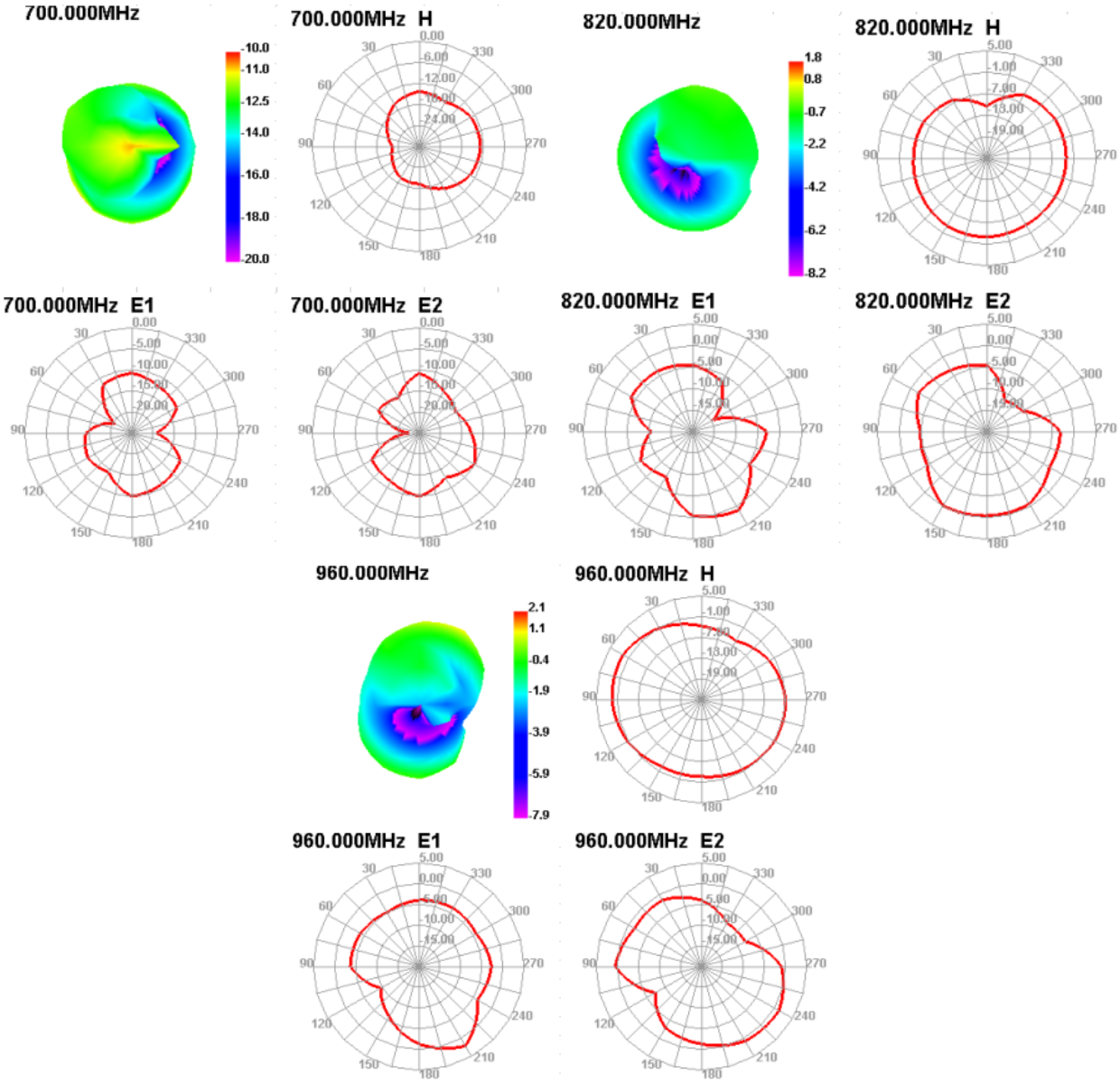
2650.000MHz E1



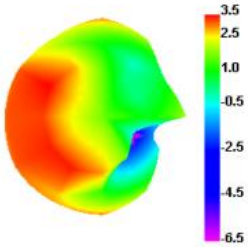
2650.000MHz E2



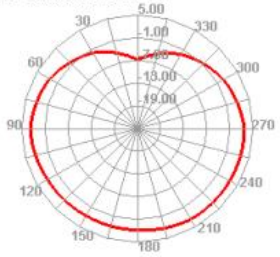
## 4G DIV


700.000MHz
700.000MHz H
820.000MHz
820.000MHz H
700.000MHz E1
700.000MHz E2
820.000MHz E1
820.000MHz E2
960.000MHz
960.000MHz H
960.000MHz E1
960.000MHz E2

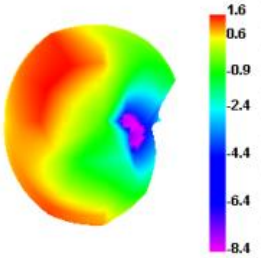
1700.000MHz



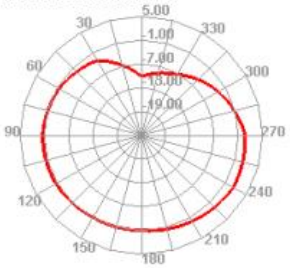

1700.000MHz H



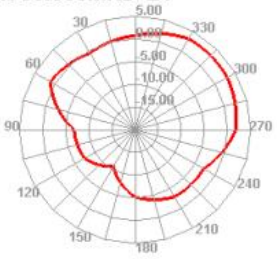
2200.000MHz



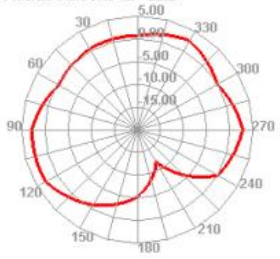

2200.000MHz H



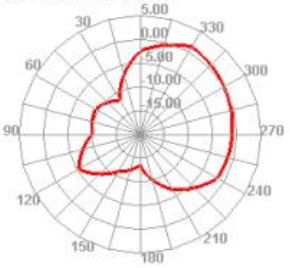
1700.000MHz E1



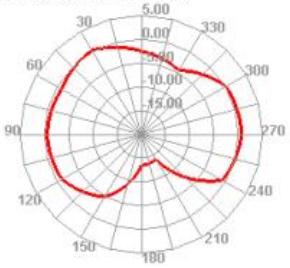
1700.000MHz E2



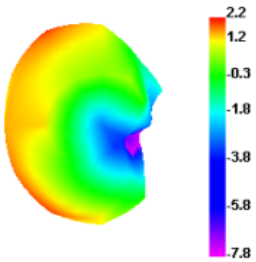
2200.000MHz E1



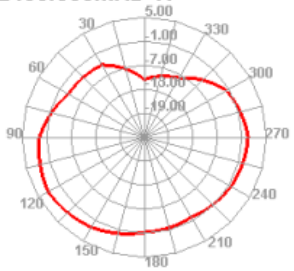
2200.000MHz E2



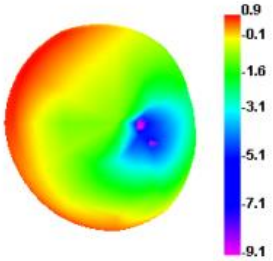
2450.000MHz



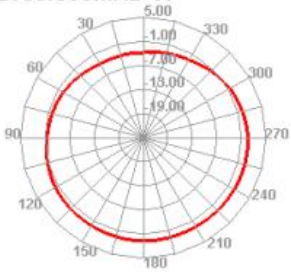

2450.000MHz H



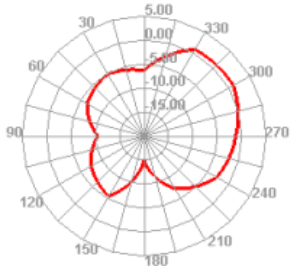
2650.000MHz



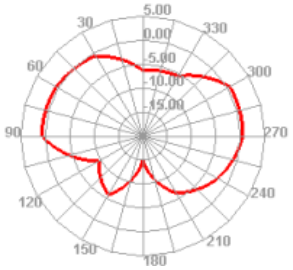

2650.000MHz H



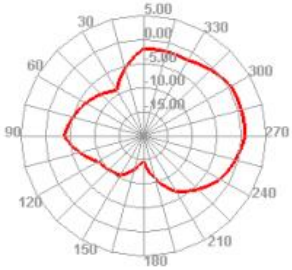
2450.000MHz E1



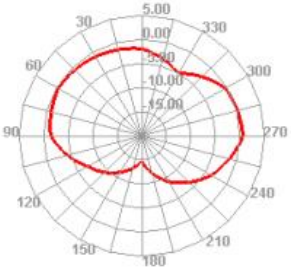
2450.000MHz E2



2650.000MHz E1



2650.000MHz E2



# 5 Product Size