

## SPECIFICATION

- Part No. : **TG.22.0221**
- Product Name : 2G/3G Penta-Band Cellular Connector Mount Monopole Antenna  
Straight FME Female Connector  
824 MHz ~ 2170 MHz
- Features : Works with GSM/GPRS/CDMA/HSPA/UMTS/EDGE  
Omni-Directional  
Robust and Compact  
0dBi Gain for lower cellular bands, 4dBi for higher cellular bands  
FME(F) Straight, 50 ohms  
52.3\*7.8 mm  
**RoHS Compliant**



# 1. INTRODUCTION

The TG.22 2G/3G Penta-band from 824MHz to 2170MHz monopole antenna is a quality robust antenna with high gain in small form factor.

Connection is made via straight FME(F) connector with a hardened TPEE casing, this antenna is a good compact 2G/3G antenna for remote monitoring devices or telematics applications.

The TG.22.0221 antenna has been tuned specifically for optimum efficiency when connected directly to the Sierra Wireless Airlink GL series programmable module.

# 2. SPECIFICATION

## ELECTRICAL

| Standard                  | GSM Penta-Band |         |           |           |           |
|---------------------------|----------------|---------|-----------|-----------|-----------|
|                           | 824-896        | 880-960 | 1710-1880 | 1850-1990 | 1920-2170 |
| Operation Frequency (MHz) | 824-896        | 880-960 | 1710-1880 | 1850-1990 | 1920-2170 |
| Polarization              | Linear         |         |           |           |           |
| Impedance                 | 50 ohm         |         |           |           |           |
| VSWR                      | 3:1            | 2:1     | 2:1       | 2:1       | 3:1       |
| Return Loss (dB)          | <-5dB          | <-5dB   | <-10dB    | <-10dB    | <-10dB    |
| Efficiency (%)            | 49.47          | 47.33   | 72.17     | 72.95     | 70.32     |
| Gain (dBi)                | 0.88           | 0.88    | 3.86      | 4.42      | 4.42      |
| Average Gain (dB)         | -3.08          | -3.30   | -1.42     | -1.37     | -1.54     |
| Max Input Power           | 5W             |         |           |           |           |

\* The TG.22 antenna performance was measured on a 62\*46.5 mm evaluation board

## MECHANICAL

|                                 |           |
|---------------------------------|-----------|
| Dimensions (mm)                 | 52.3*7.8  |
| Required Space (mm)             | 52.3*7.8  |
| Material                        | TPEE      |
| Connector                       | FME(F) ST |
| Weight                          | 8g        |
| Recommended Torque for Mounting | 0.78N·m   |
| Max Torque for Mounting         | 1.47N·m   |

## ENVIRONMENTAL

|                       |               |
|-----------------------|---------------|
| Operation Temperature | -40°C to 85°C |
| Storage Temperature   | -40°C to 85°C |
| Relative Humidity     | 40% to 95%    |
| RoHs Compliant        | Yes           |

### 3. TEST SET UP

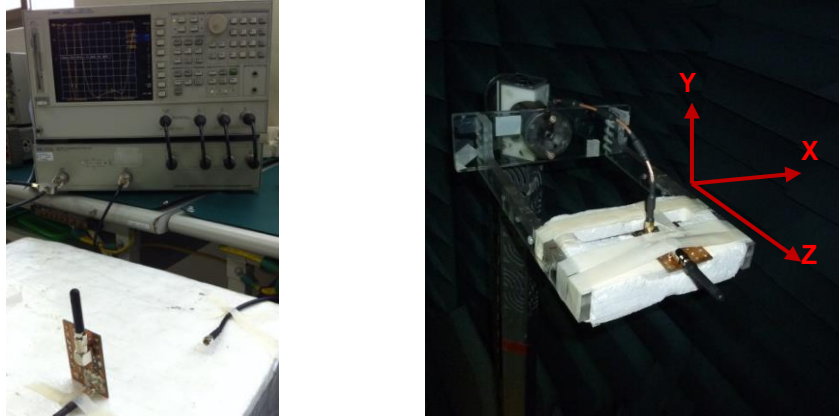


Figure 1. Impedance measurements (left hand) and peak gain, efficiency and radiation pattern measurements (right hand).

### 4. ANTENNA PARAMETERS

#### 4.1. Return Loss

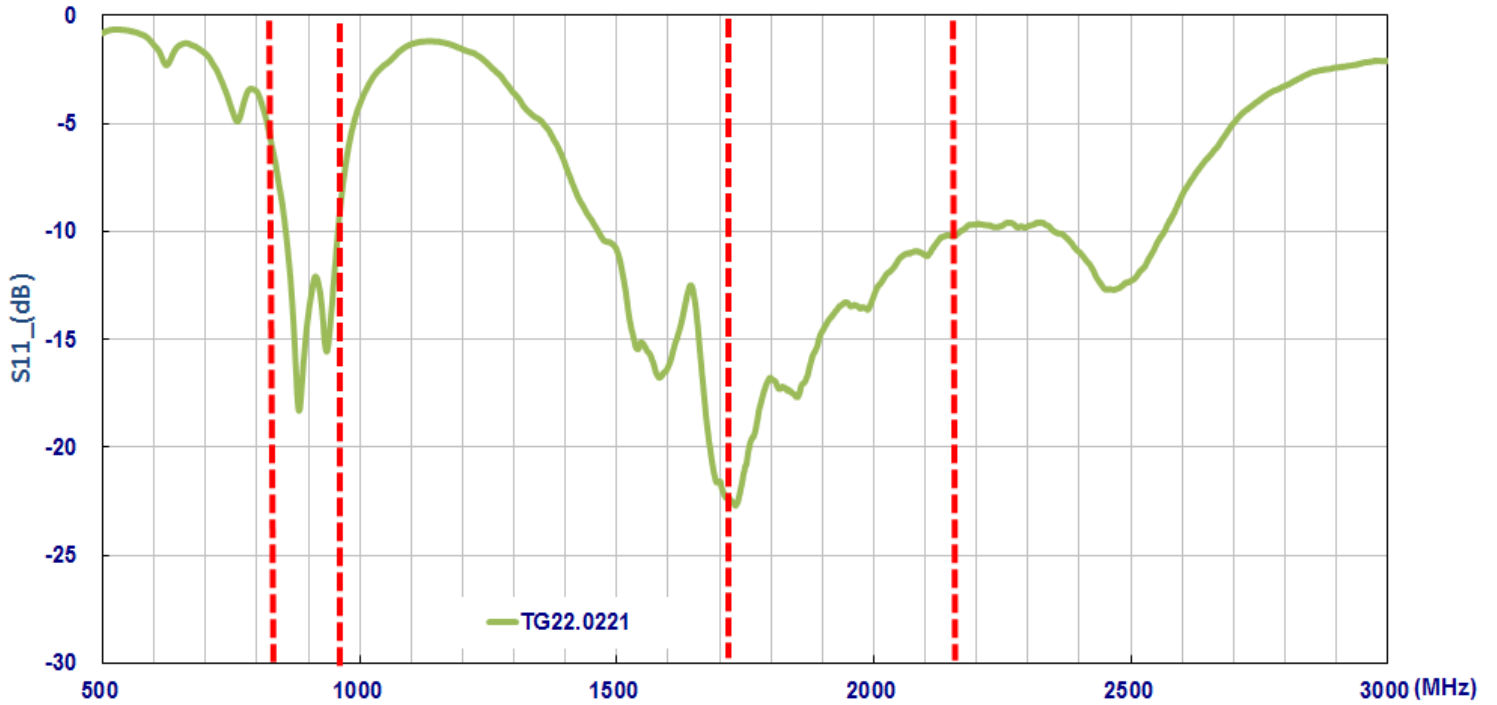


Figure 2. Return loss of the TG.22 antenna.

## 4.2. Efficiency

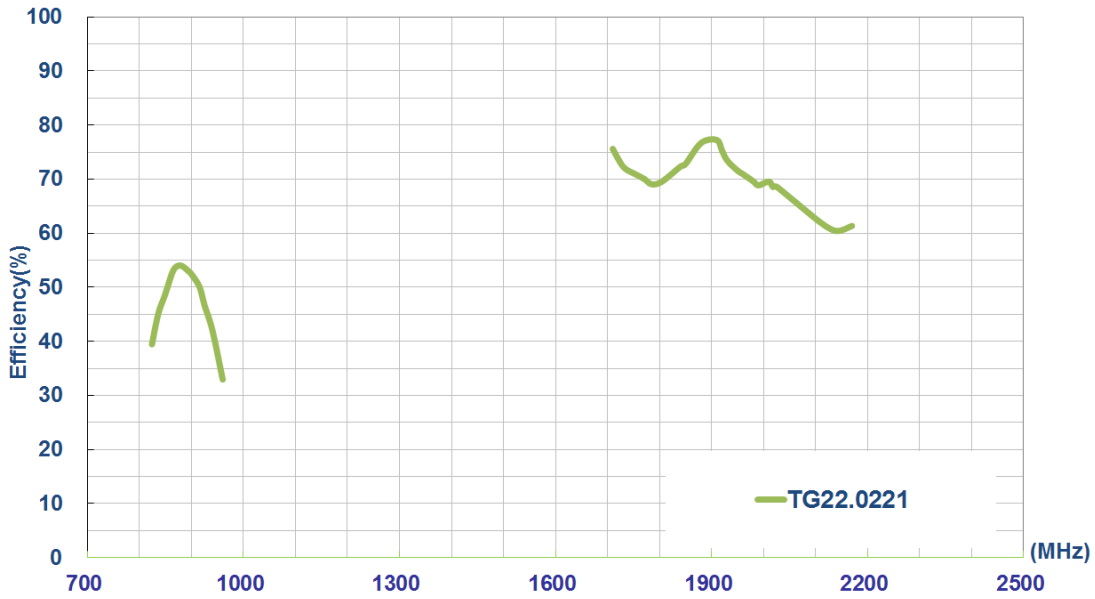


Figure 3. Efficiency of the TG.22 antenna.

## 4.3. Peak Gain

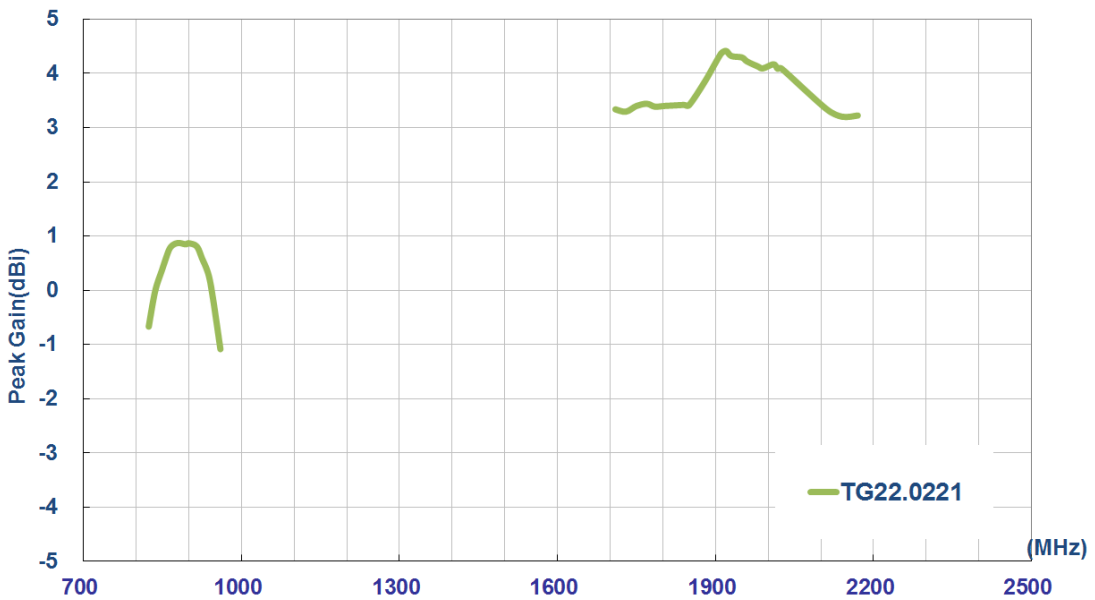
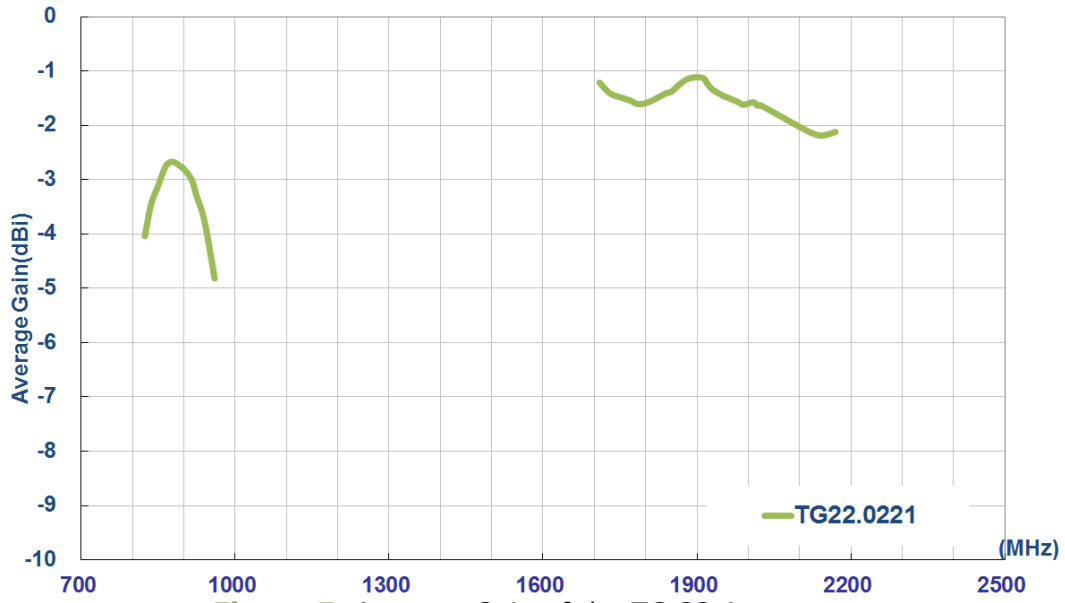


Figure 4. Peak Gain of the TG.22 Antenna.

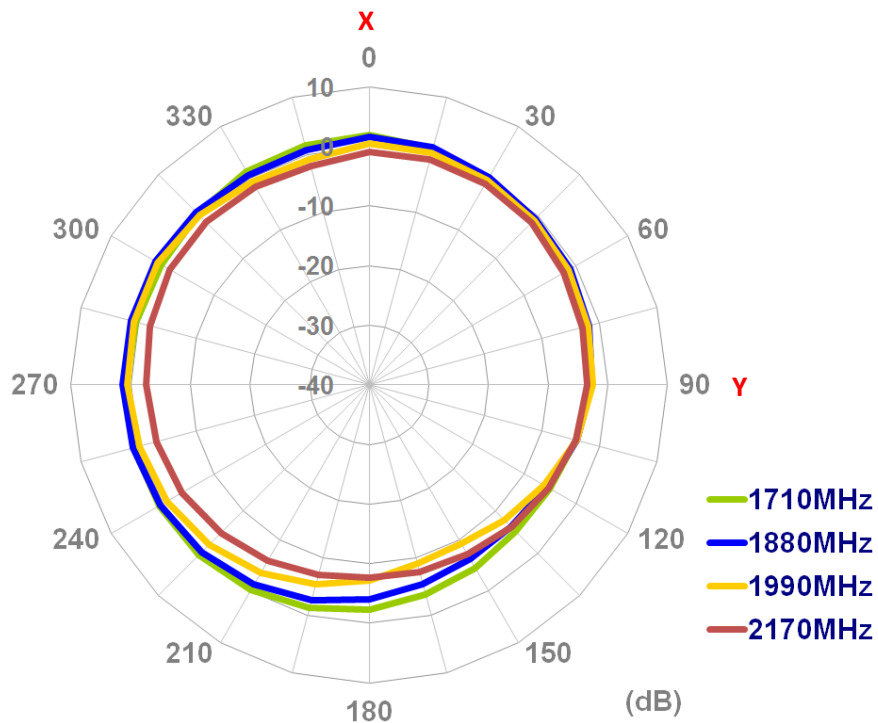
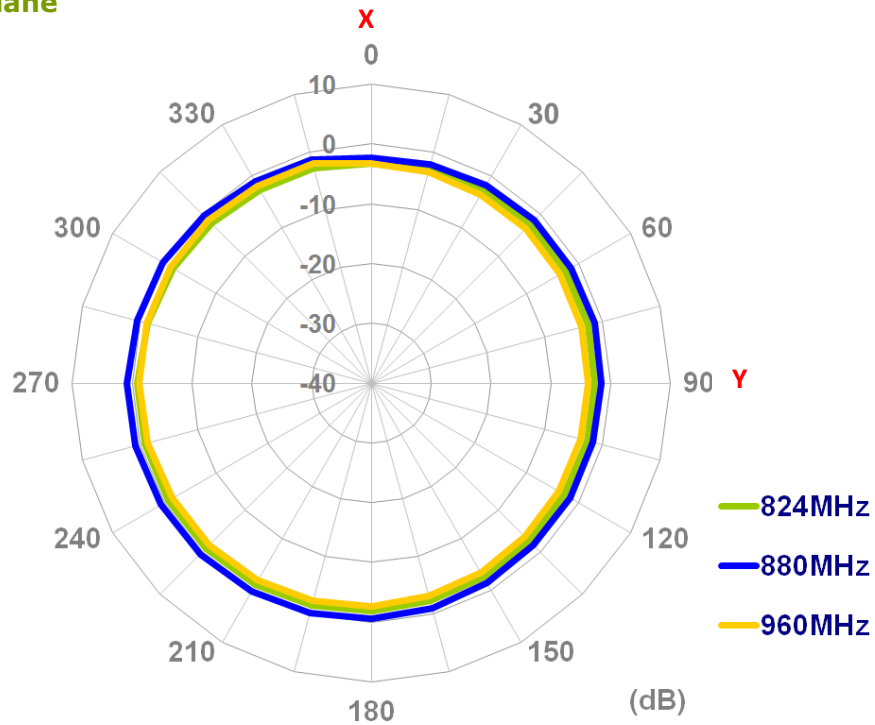
#### 4.4. Average Gain



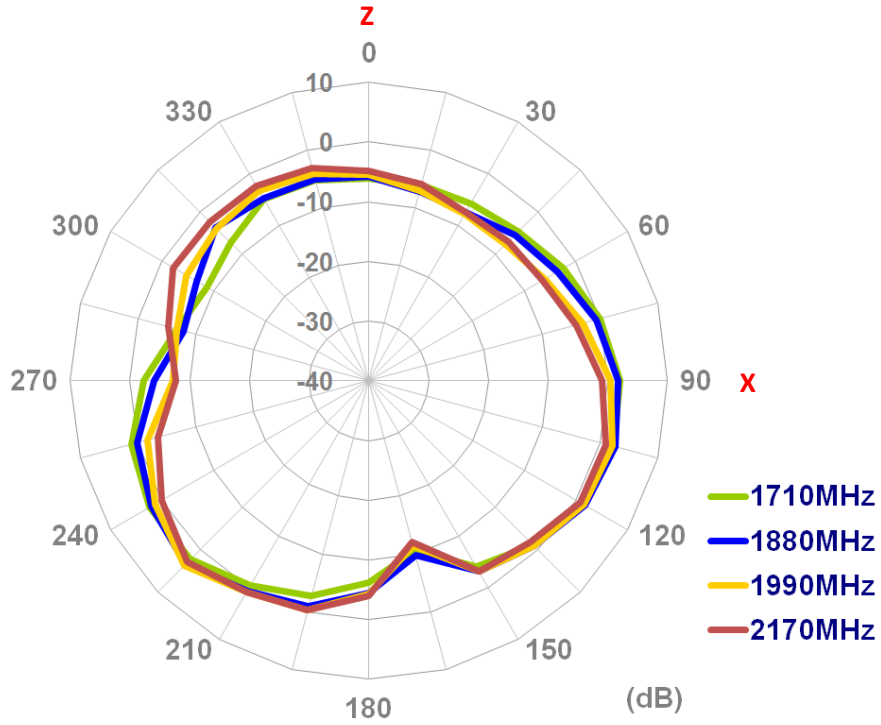
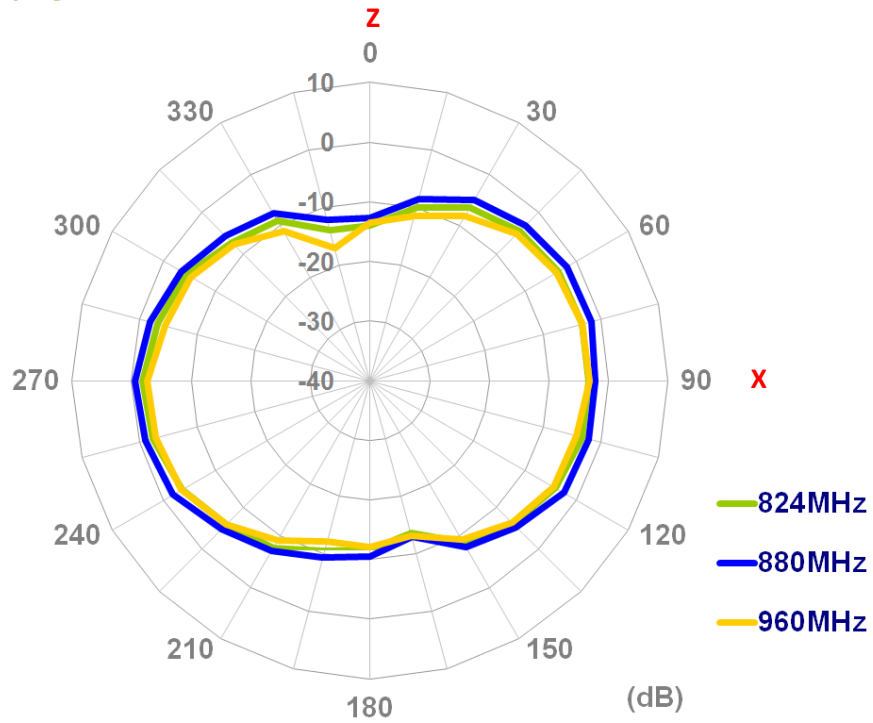
**Figure 5.** Average Gain of the TG.22 Antenna.

# 5. Antenna Radiation Patterns

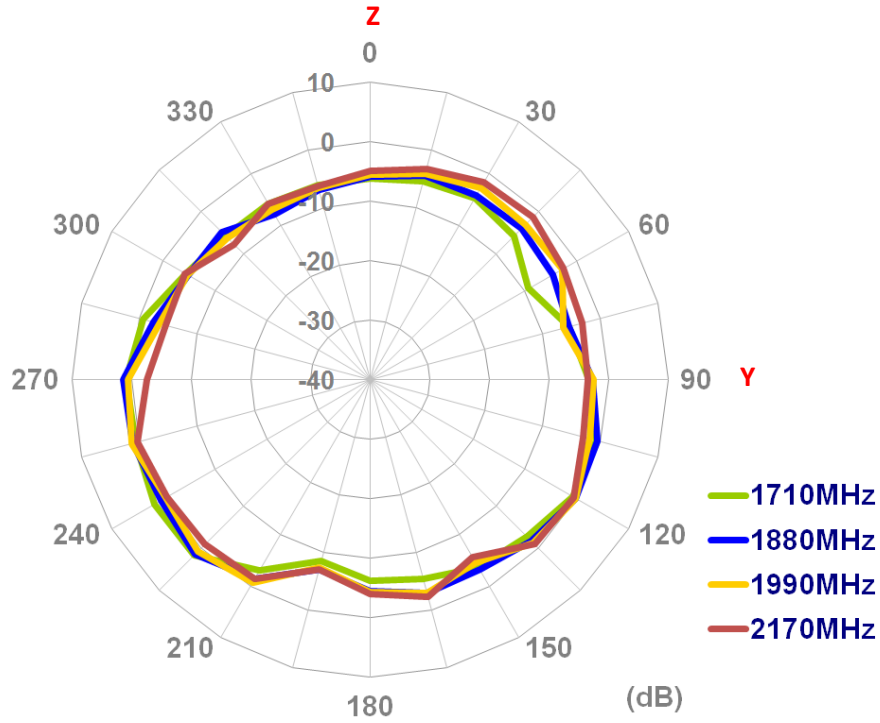
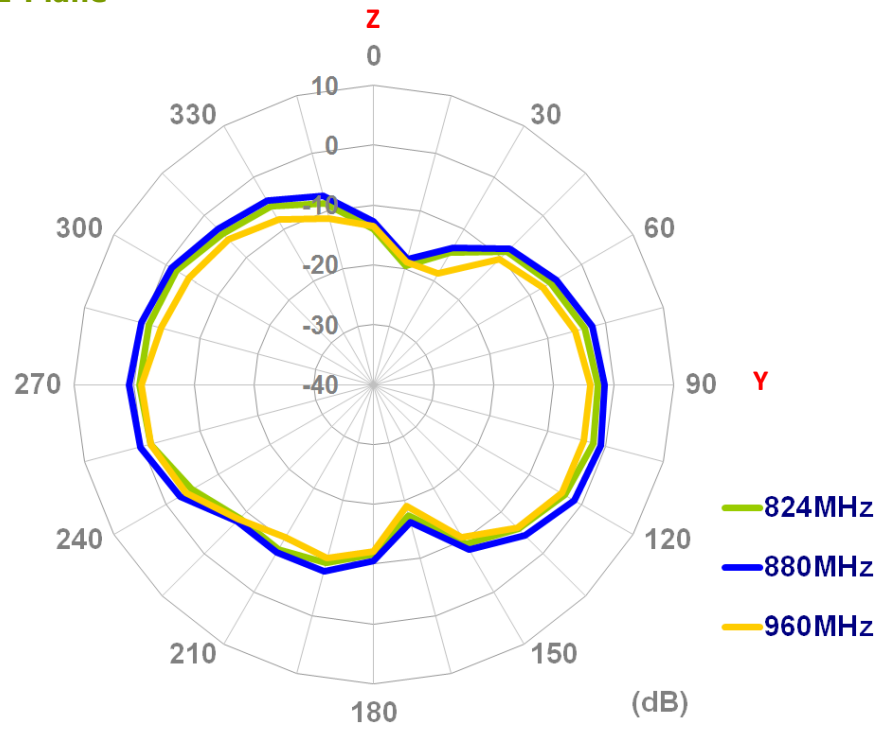
## 5.1. 2D Radiation pattern XY-Plane



**XZ-Plane**



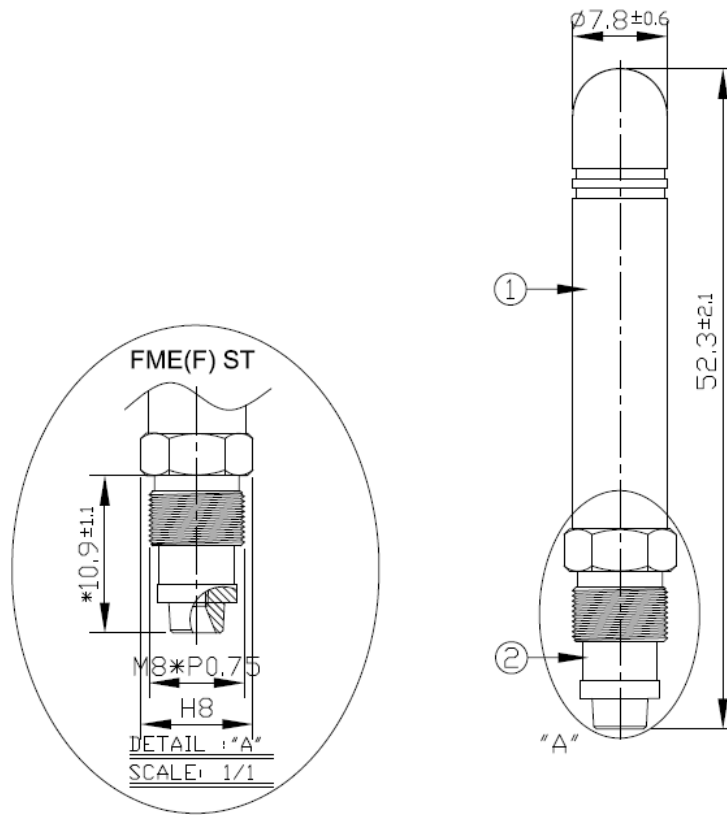
**YZ-Plane**



**Figure 6.** 2D Radiation Pattern of the TG.22 Antenna.

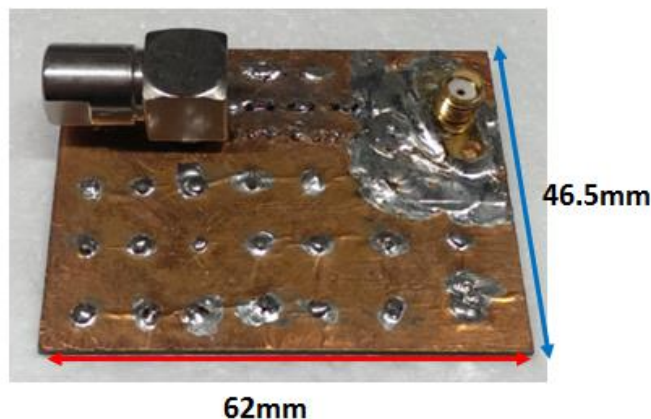


## 6. Mechanical Drawing



|   | Name            | P/N            | Material | Finish    | QTY |
|---|-----------------|----------------|----------|-----------|-----|
| ① | Antenna Housing | 000111F030002A | TPEE     | Black     | 1   |
| ② | FME(F) ST       | 211614D000002A | Brass    | NI Plated | 1   |

**Figure 7.** Mechanical Drawings of the TG.22



**Figure 8.** TG.22 Antenna EVB

## 7. Installation Guide

Recommended Torque for Mounting 0.78N·m

Maximum Torque for Mounting 1.47N·m



## 8. Packaging

Put 1pcs TG.22 antenna per small PE bag, 100 small PE bags put in one big PE bag. Final package will have 100pcs TG.22 antennas in the big PE bag.

