

# SPECIFICATION

Part No. : **TG.22.0222**

Product Name : 2G/3G Penta-Band Cellular Connector Mount Monopole Antenna  
For Sierra Wireless Airlink GL Series Module  
824MHz~2170MHz

Features : Omni-Directional  
Robust and Compact  
0dBi Gain on lower bands, 4dBi on higher bands  
FME(F) Right Angle  
45\*24.7\*7.8 mm  
**RoHS Compliant**



## 1. INTRODUCTION

The TG.22.0222 824MHz to 2170MHz monopole antenna is a quality robust antenna with high gain in small form factor.

Connection is made via right angle FME(F) connector with a hardened TPEE casing, this antenna is the ideal for remote monitoring devices or telematics applications. The TG.22.0222 antenna has been tuned specifically for optimum efficiency when connected directly to the Sierra Wireless Airlink GL series programmable module.

## 2. SPECIFICATION

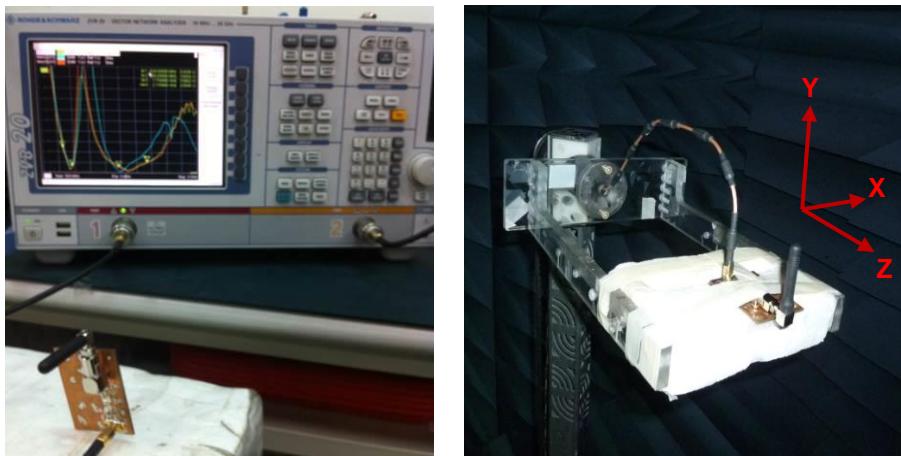
| ELECTRICAL                |                |         |           |           |           |
|---------------------------|----------------|---------|-----------|-----------|-----------|
| Standard                  | GSM Penta-Band |         |           |           |           |
| Operation Frequency (MHz) | 824-896        | 880-960 | 1710-1880 | 1850-1990 | 1920-2170 |
| Polarization              | Linear         |         |           |           |           |
| Impedance                 | 50 ohm         |         |           |           |           |
| VSWR                      | 3:1            | 3:1     | 2:1       | 2:1       | 2:1       |
| Return Loss (dB)          | <-5dB          | <-8dB   | <-10dB    | <-10dB    | <-10dB    |
| Efficiency (%)            | 51.37          | 49.71   | 74.64     | 80.57     | 76.56     |
| Gain (dBi)                | -0.04          | -0.03   | 3.98      | 4.61      | 4.61      |
| Average Gain (dB)         | -2.91          | -3.07   | -1.28     | -0.94     | -1.17     |
| Max Input Power           | 5W             |         |           |           |           |

\* The TG.22.0222 antenna performance was measured on a 62\*46.5 mm evaluation board

| MECHANICAL                      |              |
|---------------------------------|--------------|
| Dimensions (mm)                 | 45x24.7x.7.8 |
| Required Space (mm)             | 45x24.7x.7.8 |
| Material                        | TPEE         |
| Connector                       | FME(F)RA     |
| Weight                          | 0.05Kg       |
| 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           |

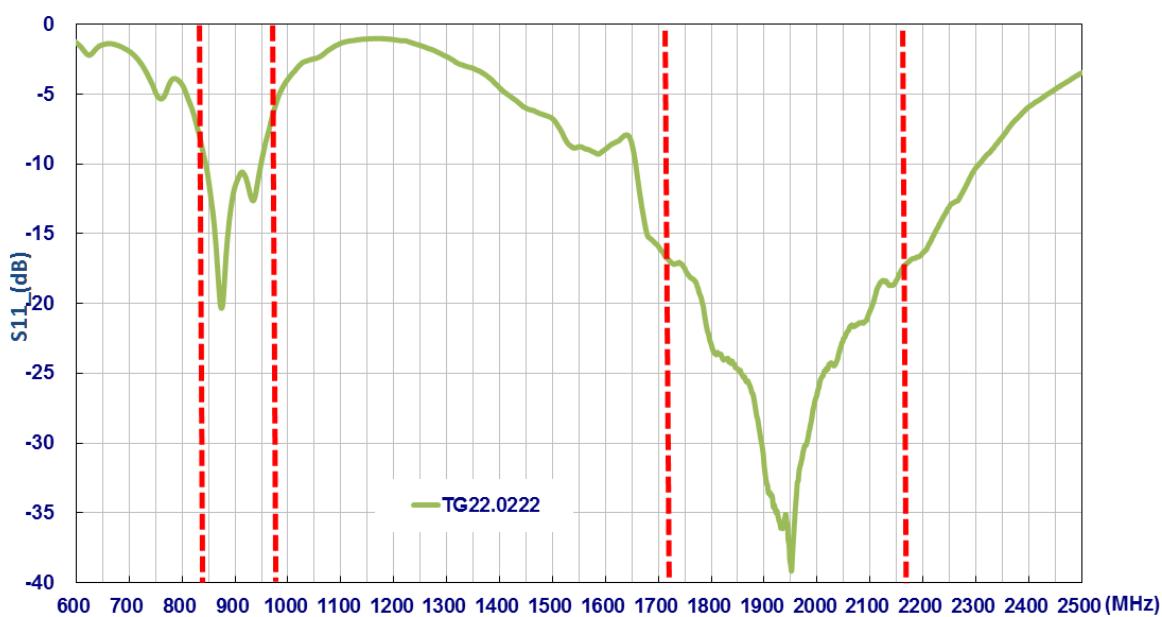
### 3. TEST SET UP



**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

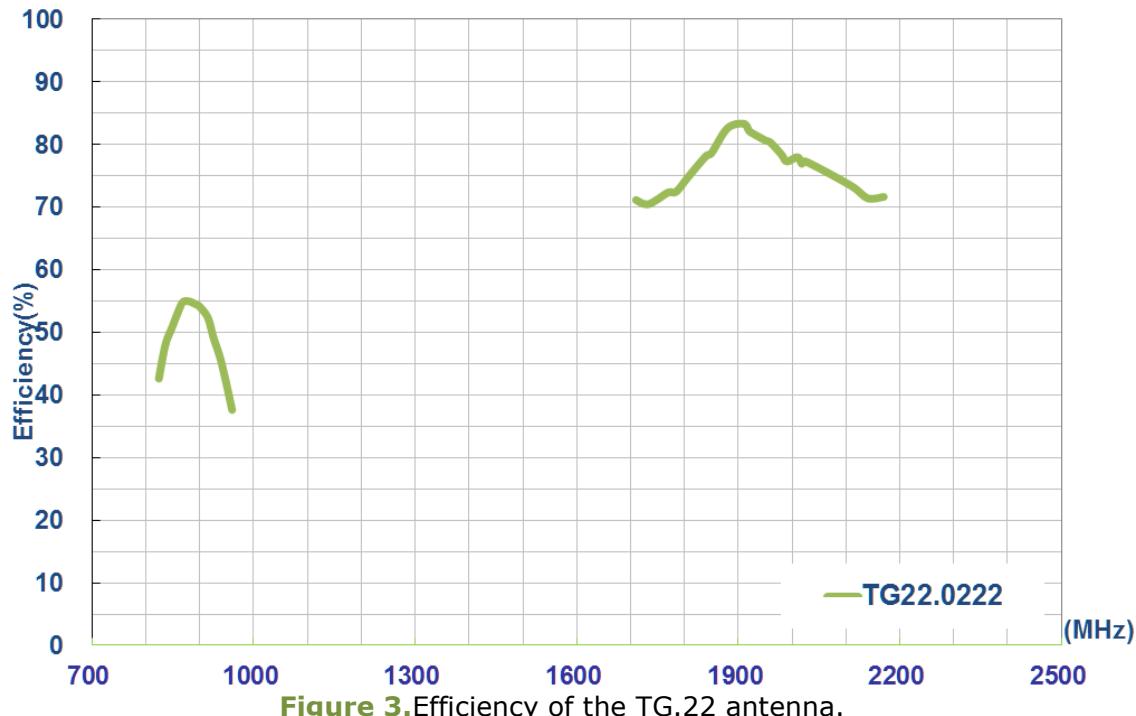


Figure 3. Efficiency of the TG.22 antenna.

## 4.3. Peak Gain

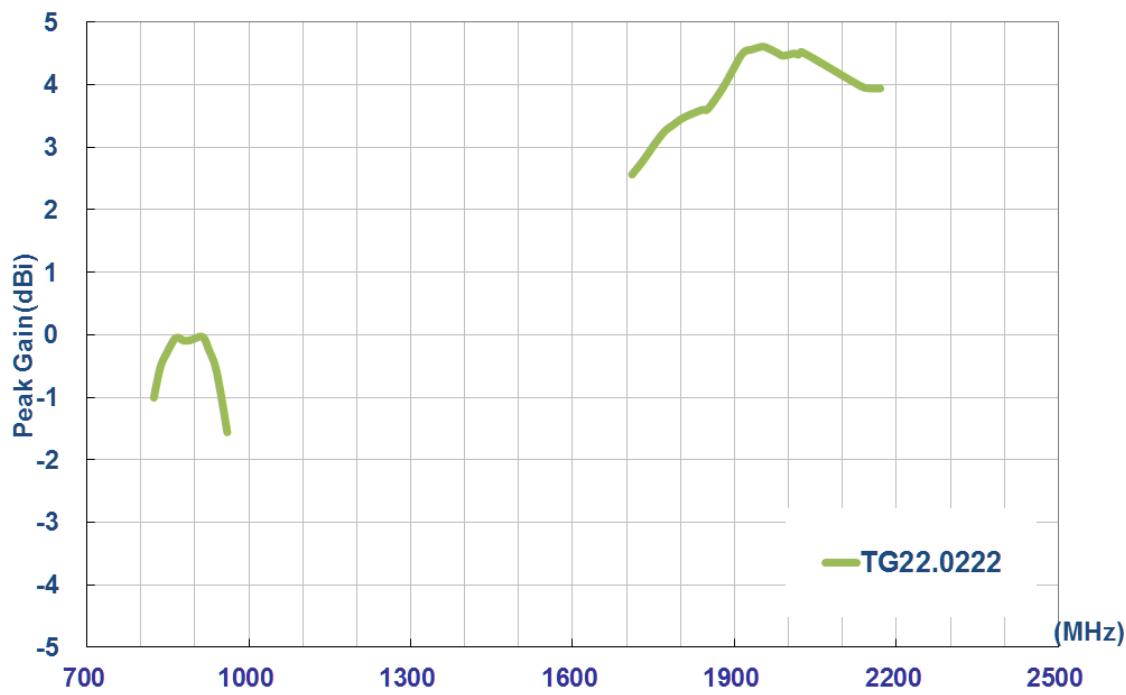


Figure 4. Peak Gain of the TG.22 Antenna.

#### 4.4. Average Gain

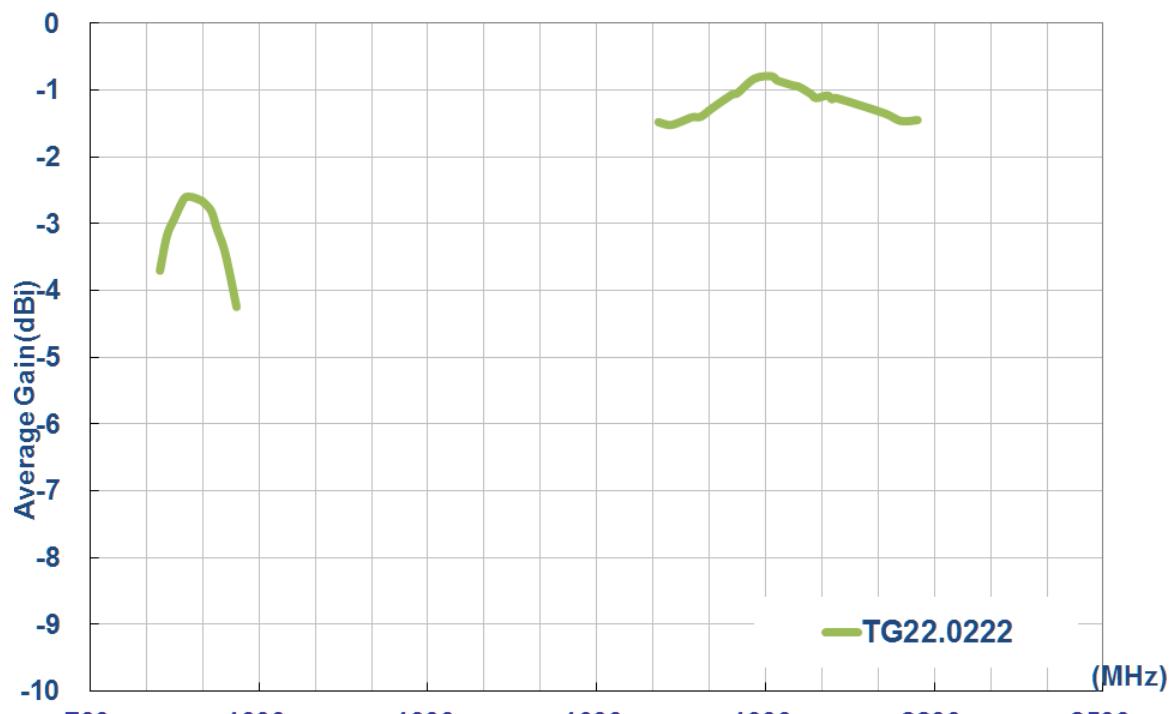
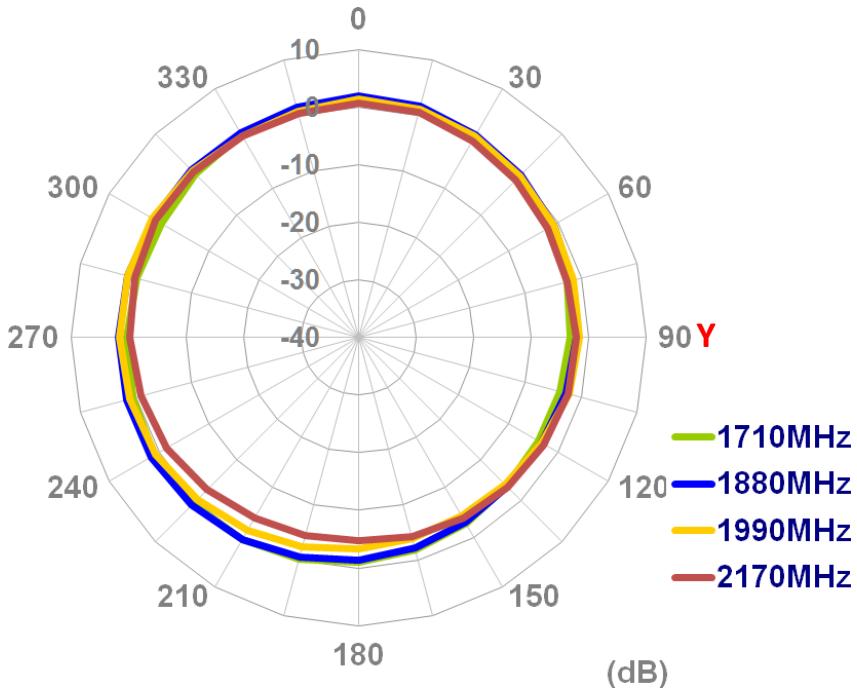
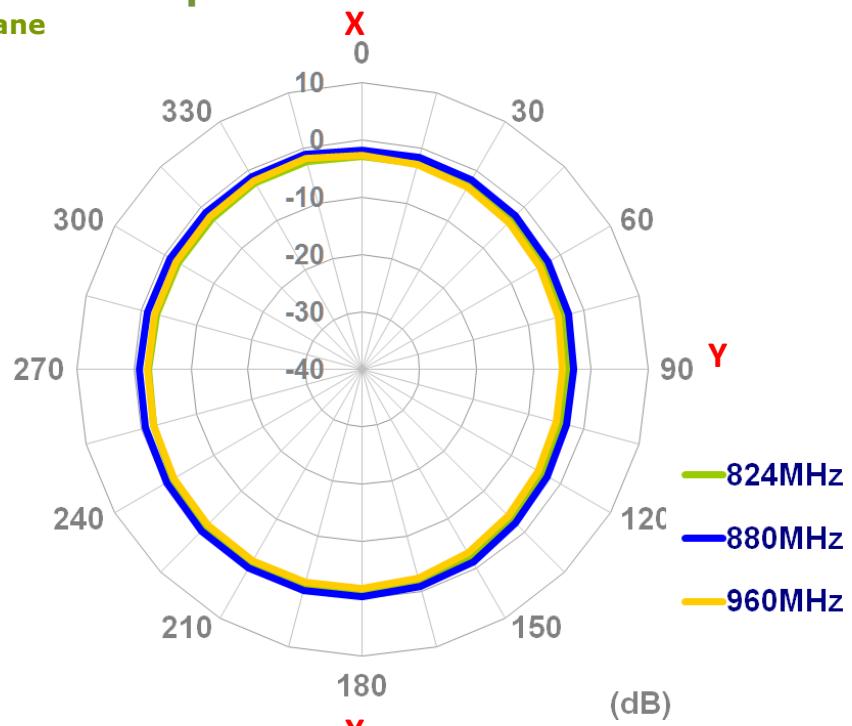


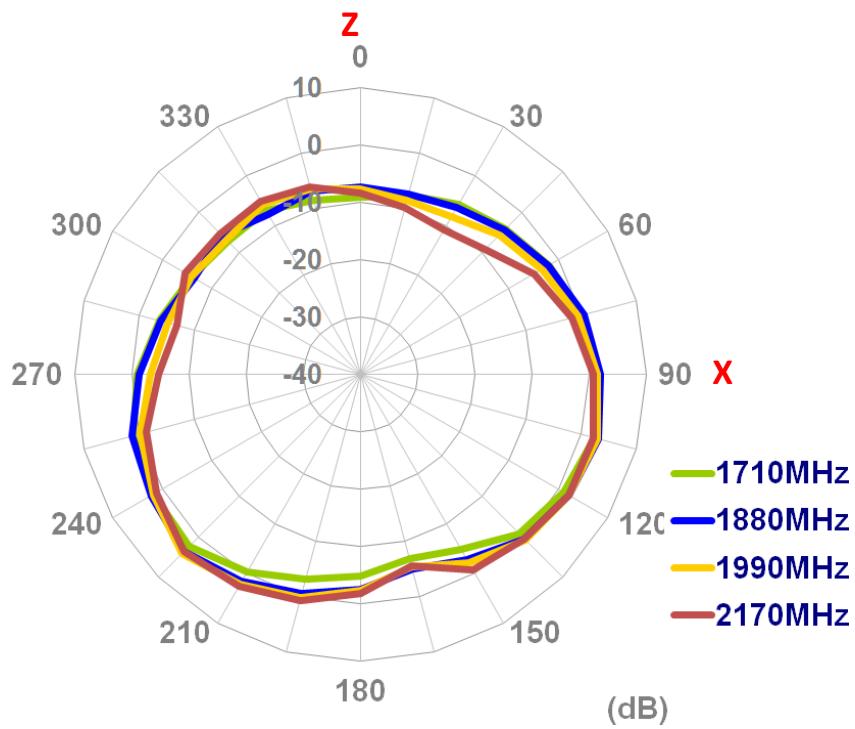
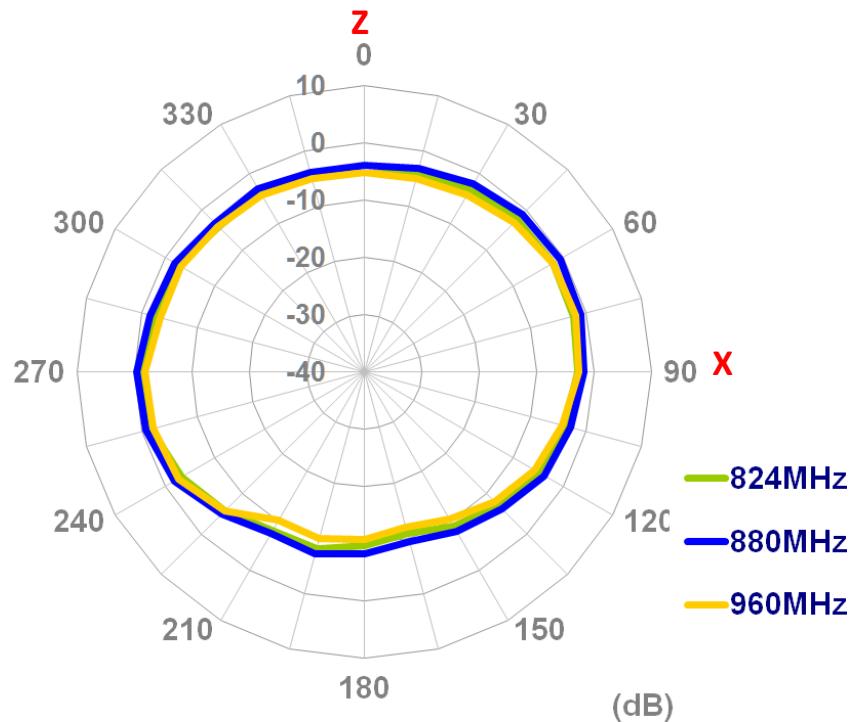
Figure 5. Average Gain of the TG.22 Antenna.

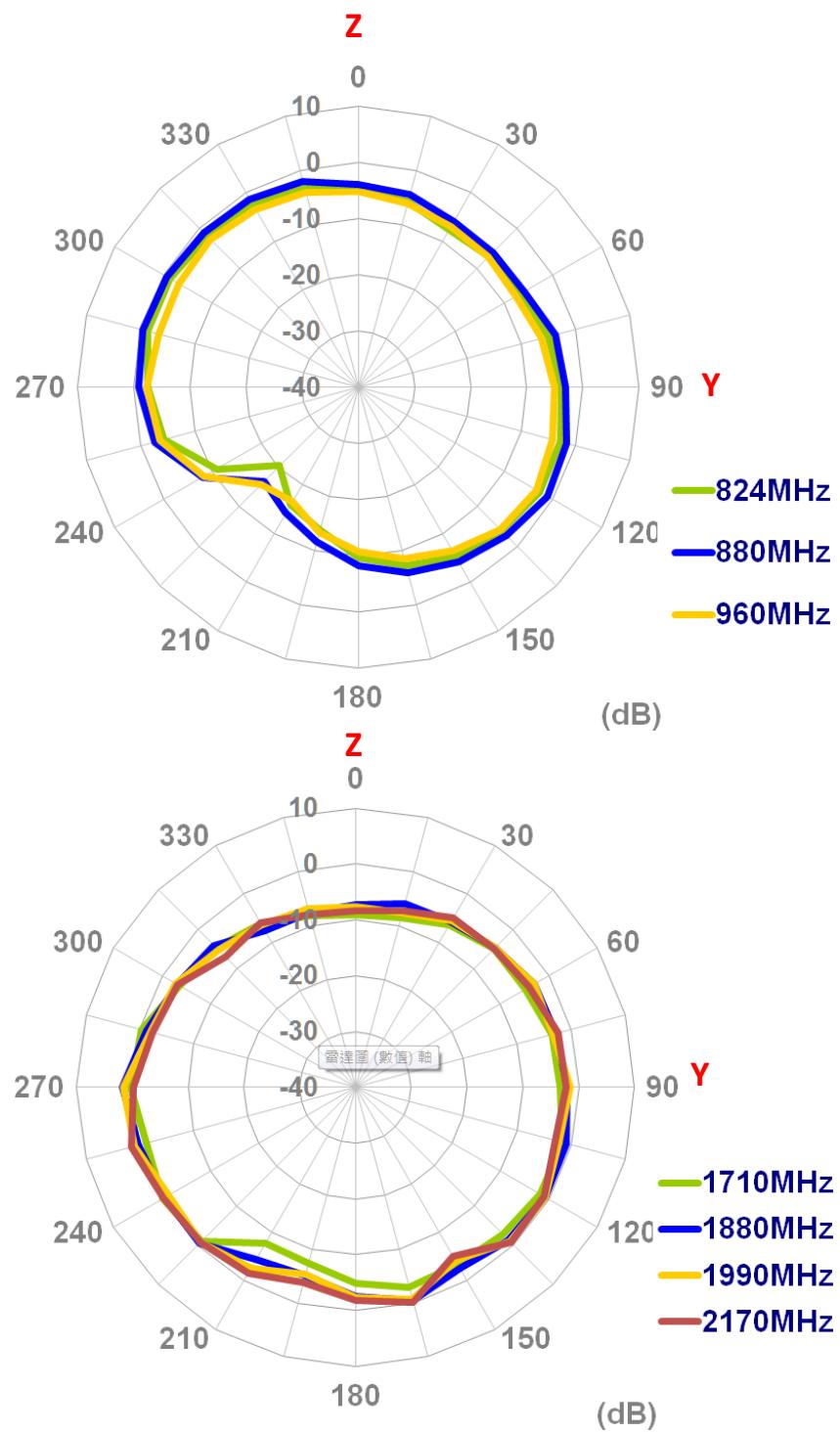
## 5. Antenna Radiation Patterns

### 5.1. 2D Radiation pattern

XY-Plane

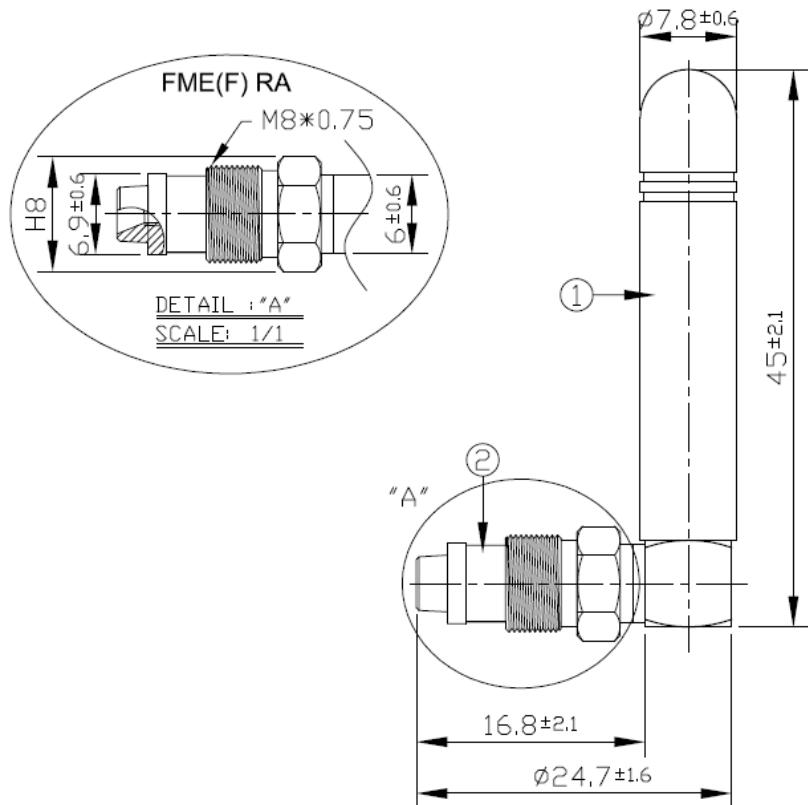


**XZ-Plane**

**YZ-Plane**


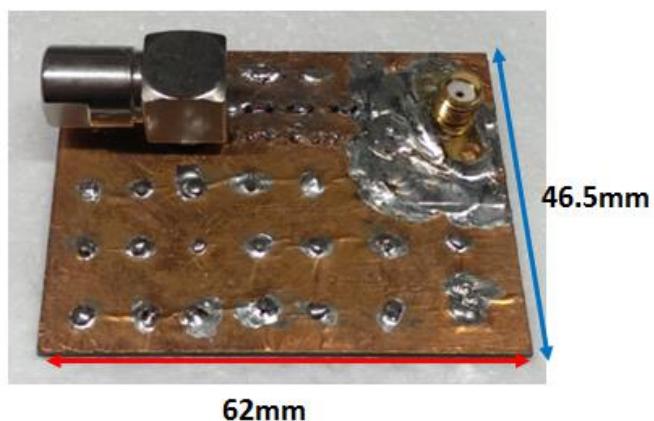
**Figure 6.** 2D Radiation Pattern of the TG.22 Antenna.

## 6. Mechanical Drawing



|     | Name            | P/N            | Material | Finish    | QTY |
|-----|-----------------|----------------|----------|-----------|-----|
| (1) | Antenna Housing | 000111F030002A | TPEE     | Black     | 1   |
| (2) | FME(F) RA       | 202513J000002A | Brass    | Ni Plated | 1   |

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



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

## 7. Installation Guide

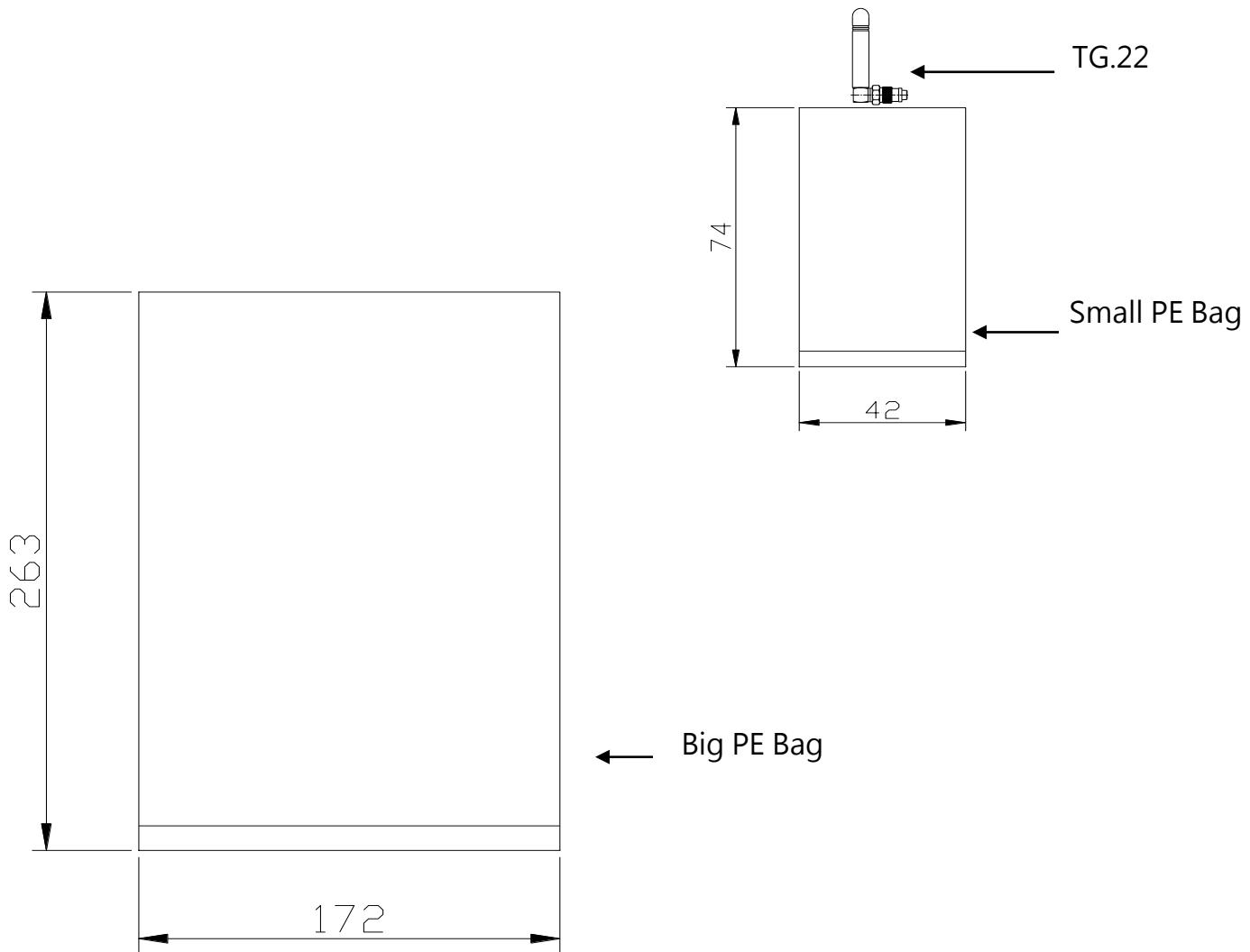


Recommended Torque for Mounting 0.78N·m

Maximum Torque for Mounting 1.47N·m

## 8. Packaging

- 1pcs TG.22 antenna per small PE bag (74\*42mm)(Weight 0.05kg)
- 100 small PE bags put in one big PE bag. Final package will have 100pcs TG.22 antennas in big PE bag (263\*172mm)



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