


## 2.4GHz External Antenna

Product Number: AT2.4G-10109-2.0WT

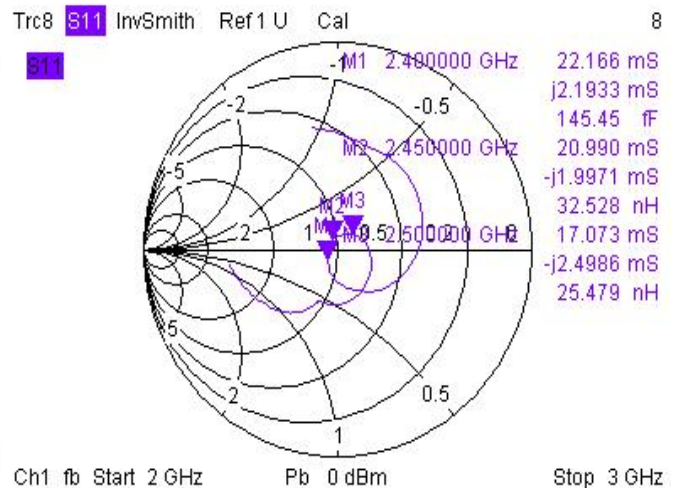
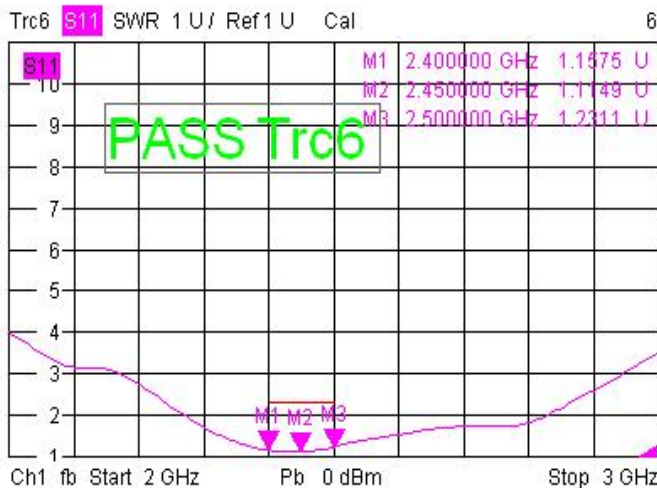
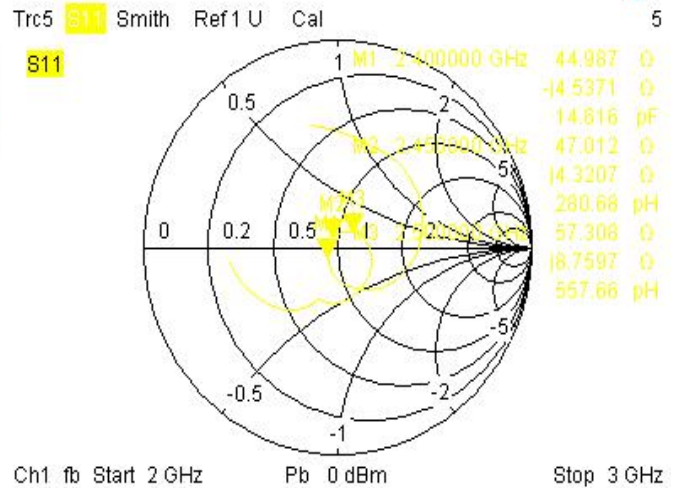
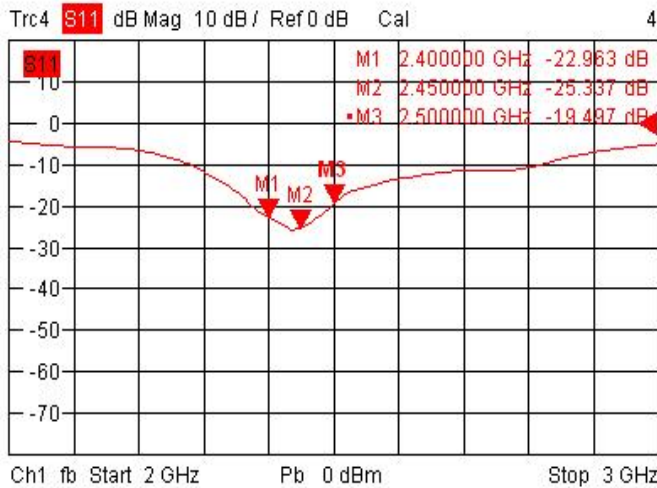
### 1. Specification

| Sample Photo  |   |
|---|---|
|  |   |
| A. Electrical Characteristics   |   |
| Frequency   | 2400 ~ 2500 MHz   |
| S.W.R.  | $\leq 2.0$  |
| Antenna Gain  | 2 dBi   |
| Polarization  | Linear  |
| Impedance   | 50 Ohm  |
| B. Material & Mechanical Characteristics  |   |
| Material of Radiator  | Cu  |
| Material of Plastic   | Body: TPE    Anti-UV<br>Hinge: ABS    Anti-UV<br>Holder: ABS    Anti-UV |
| Cable Type  | RG-178  |
| Connector Type  | SMA Male  |
| Connector Pull Test   | $\geq 3\text{Kg}$   |
| Connector Torque Test   | 150~ 600 g.cm   |
| C. Environmental  |   |
| Operation Temperature   | - 40 °C ~ + 85 °C   |
| Storage Temperature   | - 40 °C ~ + 85 °C   |

## 2. Characteristics and Reliability Test

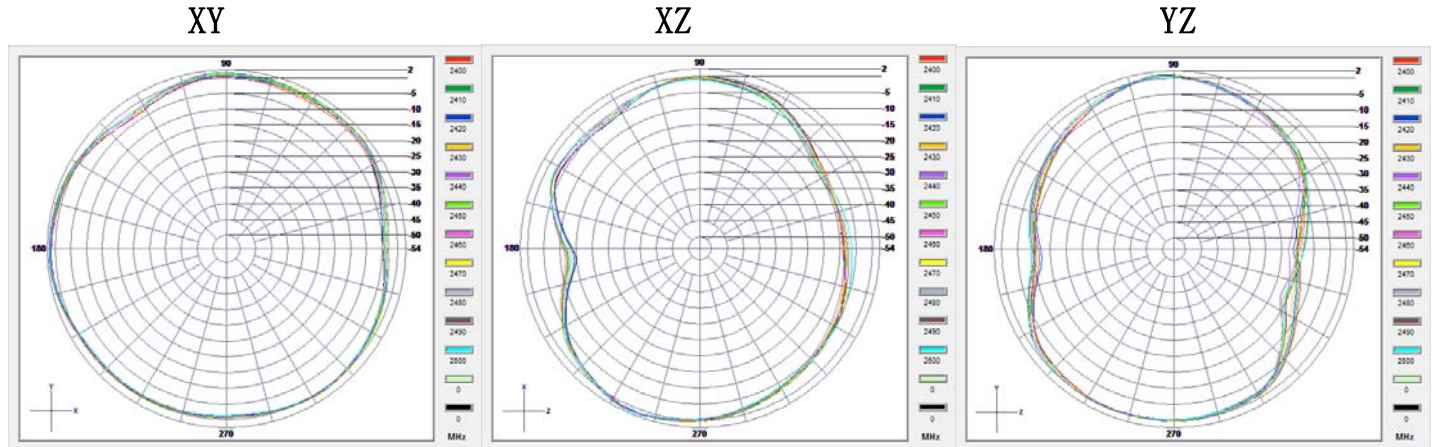
| Test Items |                      | Test Condition and Procedure   | Requirements  |
|------------|----------------------|--|---|
| C1         | S.W.R.               | Set DUT on Network Analyzer; make individual calibration to test   | Directive DUT specification   |
| C2         | Antenna Gain         | Set DUT on Antenna Chamber; make individual calibration to test  | Directive DUT specification   |
| M1         | Vibration            | MIL-STD-202G, 201A<br>Amplitude: 0.03 inch (0.76mm); Freq: 10 to 55 Hz<br>3 directions; 2 hours for each direction                   | 1. No Visual Damage<br>2. Frequency Tol.<= 5%                           |
| M2         | Random Drop          | Height: 1.5 Meter;<br>3 directions; 1 time for each direction  | 1. No parts separated<br>2. Frequency Tol.<= 5%                         |
| M3         | Solderability        | MIL-STD-202G, 210F, cond. A<br>Solder iron: 350±10°C; Duration: 5 seconds  | 1. Mounted on PCB<br>2. No Visual Damage                                |
| M4         | Terminal-Pull Test   | MIL-STD-202G, 211A, cond. A<br>Holding with individual specification; force applied to axis of terminal                              | 1. Directive DUT specification<br>2. Frequency Tol.<= 5%                |
| M5         | Terminal-Torque Test | MIL-STD-202G, 211A, cond. E<br>Holding with individual specification; applied clockwise and counterclockwise to the axis of terminal | 1. Directive DUT specification<br>2. Frequency Tol.<= 5%                |
| M6         | Dimension            | Inspection of dimension, color, material, package, surface process   | Directive DUT specification   |
| E1         | Salt Spray           | MIL-STD-202G, 101E, cond. B<br>Temp: 35°C; RH: >= 95%; NaCl solution: >= 5%;<br>Time: 48 hours                                       | After 2 Hours Recovery<br>1. No Visual Damage<br>2. Frequency Tol.<= 5% |
| E2         | Humidity             | MIL-STD-202G, 103B, cond. B<br>Temp: 40°C; RH: >= 95%; Time: 48 hours  | After 2 Hours Recovery<br>1. No Visual Damage<br>2. Frequency Tol.<= 5% |
| E3         | Thermal Shock        | 1 Cycle: - 40°C (30 minutes) to + 80°C (30 minutes)<br>Cycles: 24  | After 2 Hours Recovery<br>1. No Visual Damage<br>2. Frequency Tol.<= 5% |
| E4         | Life (High Temp.)    | MIL-STD-202G, 108A, cond. A<br>Temp: 85°C; Time: 96 hours  | After 2 Hours Recovery<br>1. No Visual Damage<br>2. Frequency Tol.<= 5% |
| R1         | RoHS                 | With Reference to IEC 62321:2008 with flow chart   | Directive RoHS 2002/95/EC   |
| R2         | PFOS                 | With Reference to USA EPA 3540C:1996 by LC/MS  | Directive RoHS 2006/122/EC  |
| R3         | PFOA                 | With Reference to USA EPA 3540C:1996 by LC/MS  | Directive RoHS 2006/122/EC  |

### 3. Antenna - S Parameter Test Data

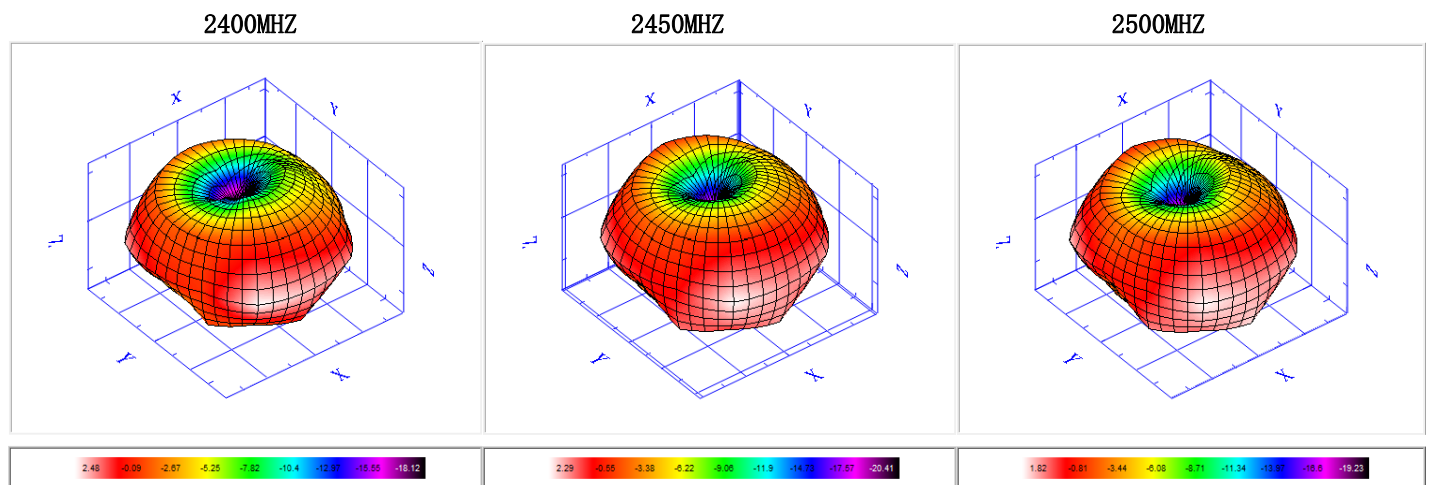


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## 4. Antenna - Radiation Pattern Test Data



|                         |        |        |       |
|-------------------------|--------|--------|-------|
| Frequency               | 2400   | 2450   | 2500  |
| TRP (dBm)               | -1.24  | -1.29  | -1.45 |
| Peak EIRP (dBm)         | 2.48   | 2.29   | 1.82  |
| NHPRP +/- 45 (degree)   | -1.38  | -1.29  | -1.45 |
| NHPRP +/- 30 (degree)   | -1.73  | -1.84  | -2.12 |
| E-Theta Peak Gain (dBi) | -12.84 | -11.76 | -9.33 |
| E-Phi Peak Gain (dBi)   | 2.48   | 2.27   | 1.81  |
| E-Total Peak Gain (dBi) | 2.48   | 2.29   | 1.82  |
| Directivity (dBi)       | 3.72   | 3.58   | 3.27  |
| Efficiency (%)          | 75.2   | 74.3   | 71.6  |



## 5. Mechanical Drawing

