

**Product Number: AN2400-FPC095GO-03**

**Product Name: FPC Antenna**

## 1. Specification

### Sample Photo



### A. Electrical Characteristics

|              |              |
|--------------|--------------|
| Frequency    | 2400-2500MHz |
| S.W.R.       | $\leq 2.0$   |
| Antenna Gain | 3.22 dBi     |
| Polarization | Linear       |
| Impedance    | 50 Ohm       |

### B. Material & Mechanical Characteristics

|                      |           |
|----------------------|-----------|
| Material of Radiator | Cu        |
| Material of Plastic  | FPC       |
| Cable Type           | 1.13 GRAY |
| Connector Type       | /         |

### C. Environmental

|                       |                   |
|-----------------------|-------------------|
| Operation Temperature | - 40 °C ~ + 80 °C |
| Storage Temperature   | - 40 °C ~ + 80 °C |

## 2. Characteristics and Reliability Test

| Test Items |        | Test Condition and Procedure                 | Requirements                |
|------------|--------|----------------------------------------------|-----------------------------|
| C1         | S.W.R. | Set DUT on Network Analyzer; make individual | Directive DUT specification |



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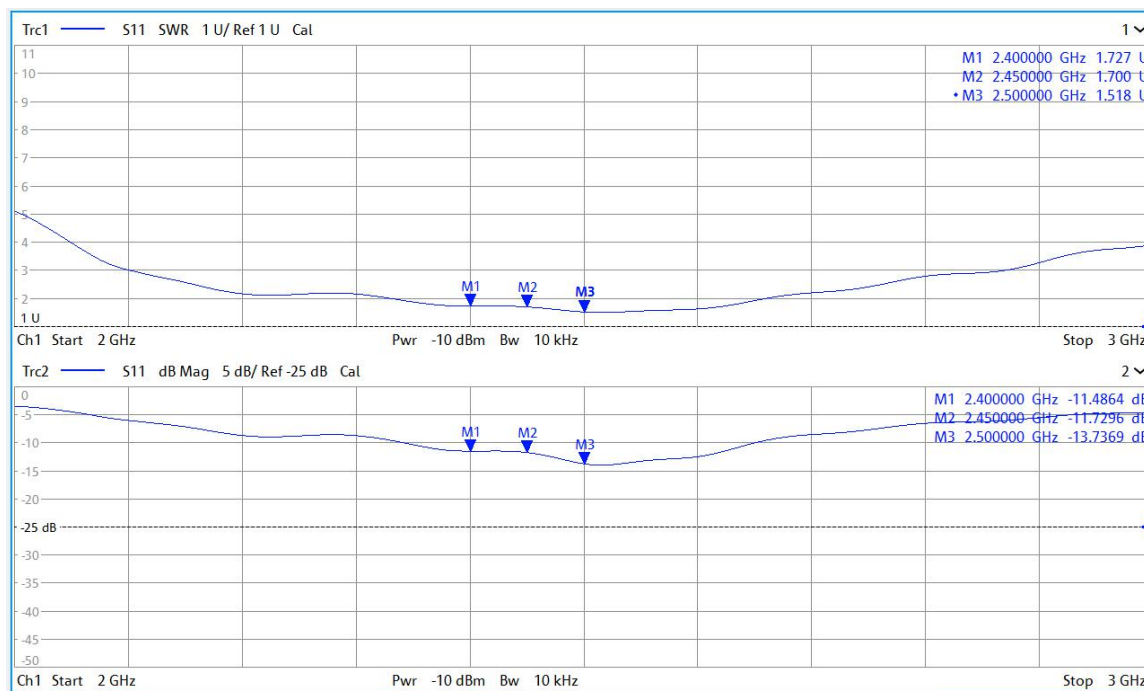
|    |                      |                                                                                                                                      |                                                                         |
|----|----------------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
|    |                      | calibration to test                                                                                                                  |                                                                         |
| 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: 24 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 EU 2015/863                                              |

### 3. Antenna - S Parameter Test Data



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## 4. Antenna - Radiation Pattern Test Data

| Test Point ID | Freq. (MHz) | TRP (dBm) | Gain (dBi) | Directivity (dBi) | Efficiency (%) | Efficiency (dB) | Max (dBm) | Theta of Max | Phi of Max | Min (dBm) | Theta of Min | Phi of Min | AVG (dBm) | Max/Min (dB) | Max/AVG (dB) | Min/AVG (dB) |
|---------------|-------------|-----------|------------|-------------------|----------------|-----------------|-----------|--------------|------------|-----------|--------------|------------|-----------|--------------|--------------|--------------|
| 1             | 2400.0      | 2400.00   | 1.93       | 5.87              | 40.4%          | -3.94           | 1.93      | 90           | 90         | -20.69    | 150          | 195        | -5.22     | 22.62        | 7.15         | -15.47       |
| 2             | 2410.0      | 2410.00   | 2.05       | 6.12              | 39.1%          | -4.08           | 2.05      | 90           | 90         | -19.54    | 150          | 195        | -5.17     | 21.59        | 7.22         | -14.37       |
| 3             | 2420.0      | 2420.00   | 1.90       | 6.04              | 38.5%          | -4.15           | 1.90      | 90           | 90         | -18.69    | 150          | 195        | -5.44     | 20.58        | 7.34         | -13.24       |
| 4             | 2430.0      | 2430.00   | 1.95       | 6.13              | 38.2%          | -4.18           | 1.95      | 90           | 90         | -18.07    | 150          | 210        | -5.45     | 20.02        | 7.40         | -12.62       |
| 5             | 2440.0      | 2440.00   | 2.25       | 6.27              | 39.6%          | -4.02           | 2.25      | 90           | 90         | -17.48    | 150          | 210        | -5.20     | 19.74        | 7.46         | -12.28       |
| 6             | 2450.0      | 2450.00   | 2.40       | 6.21              | 41.6%          | -3.81           | 2.40      | 90           | 90         | -17.86    | 135          | 210        | -5.16     | 20.26        | 7.56         | -12.71       |
| 7             | 2460.0      | 2460.00   | 2.66       | 6.72              | 39.2%          | -4.06           | 2.66      | 90           | 90         | -18.95    | 135          | 210        | -5.03     | 21.60        | 7.68         | -13.92       |
| 8             | 2470.0      | 2470.00   | 2.70       | 6.82              | 38.8%          | -4.11           | 2.70      | 90           | 90         | -20.36    | 135          | 210        | -5.07     | 23.07        | 7.77         | -15.30       |
| 9             | 2480.0      | 2480.00   | 2.79       | 6.87              | 39.1%          | -4.08           | 2.79      | 90           | 90         | -20.47    | 135          | 210        | -5.01     | 23.26        | 7.81         | -15.45       |
| 10            | 2490.0      | 2490.00   | 3.01       | 6.84              | 41.4%          | -3.83           | 3.01      | 90           | 90         | -19.19    | 135          | 210        | -4.78     | 22.20        | 7.78         | -14.41       |
| 11            | 2500.0      | 2500.00   | 3.22       | 6.88              | 43.0%          | -3.66           | 3.22      | 90           | 90         | -17.62    | 135          | 165        | -4.61     | 20.84        | 7.82         | -13.01       |

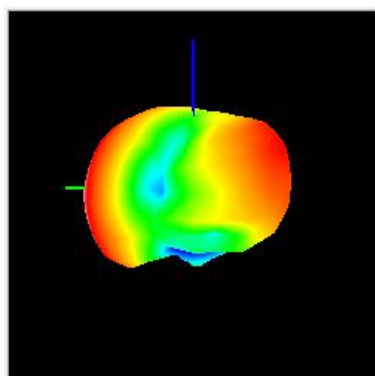


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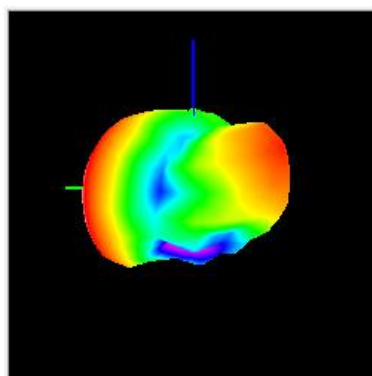
Address: No.53 Shayong Road, Shatou, Chang 'an Town, Dongguan City, Guangdong Province, China.

Product Number: AN2400-FPC095GO-03

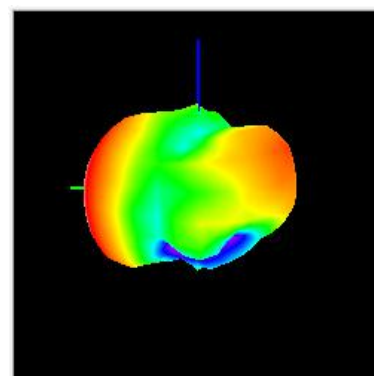
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2400MHz



2450MHz



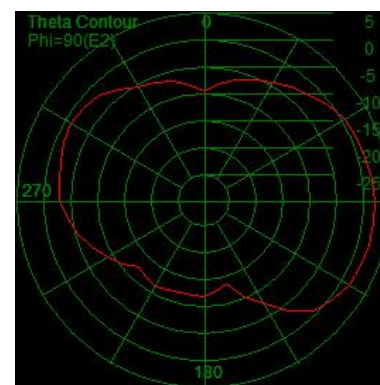
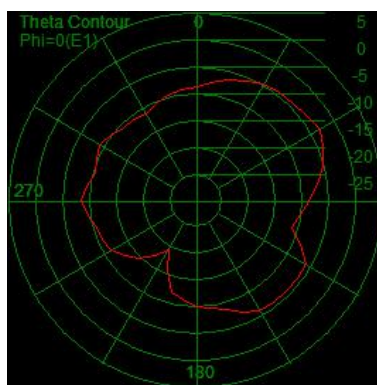
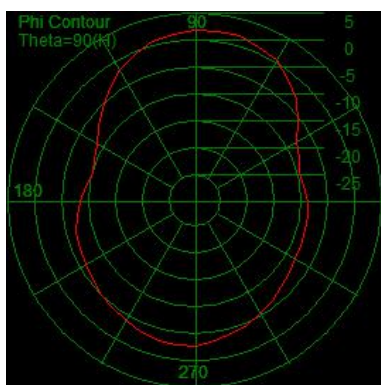
2500MHz

XY\_Plane

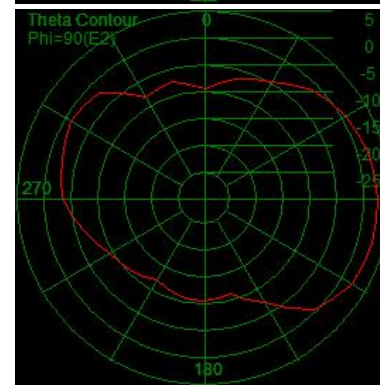
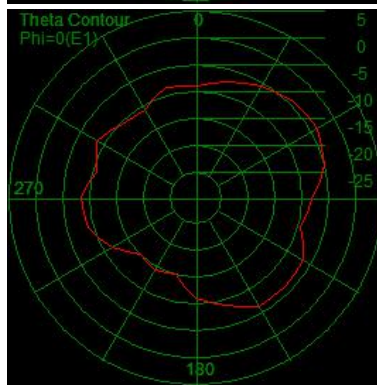
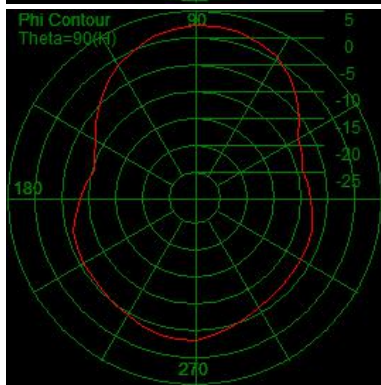
XZ\_Plane

YZ\_Plane

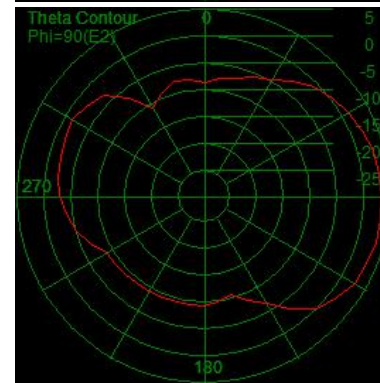
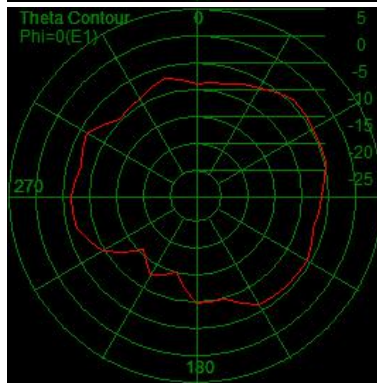
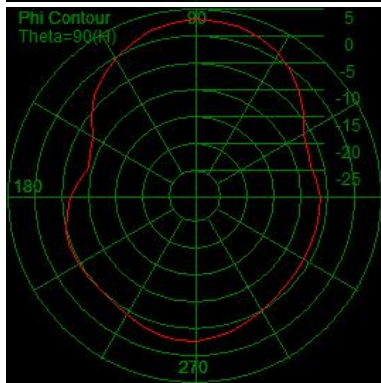
2400MHz



2450MHz

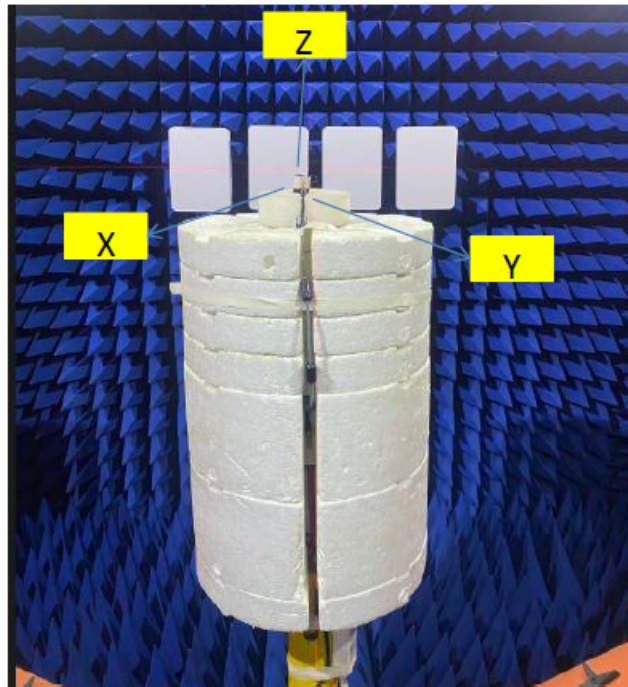


2500MHz

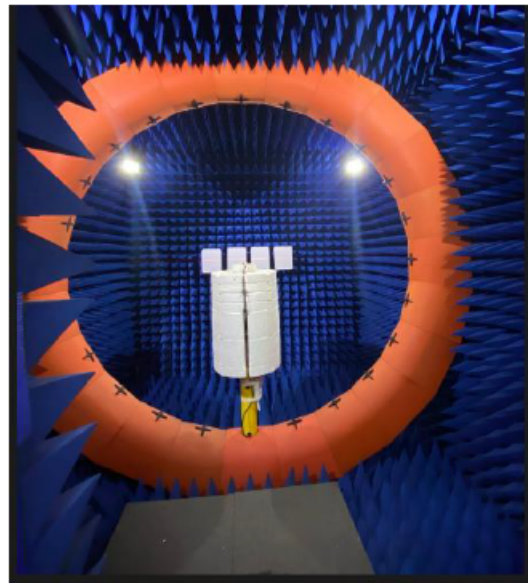


## 5. Mechanical Drawing (See attached files)

## 6. Testing environment

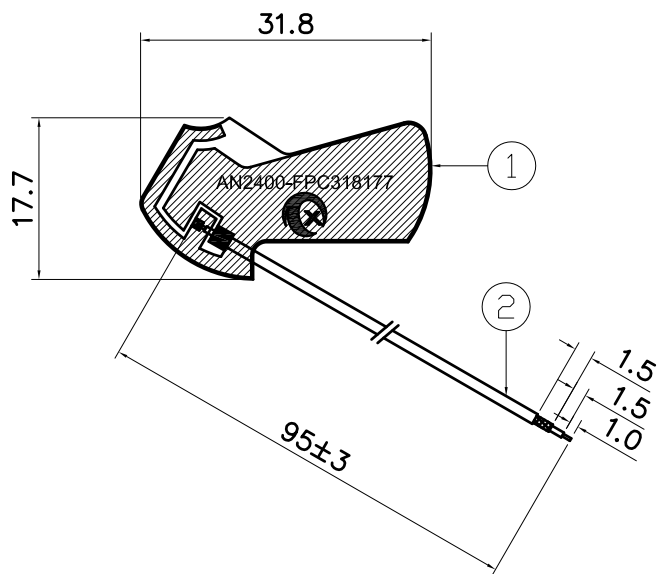


Testing environment



Testing 3D microwave darkroom(3m\*3m\*3m)

| SIGN                                                                              | DATE | DESCRIPTION | APPROVER |
|-----------------------------------------------------------------------------------|------|-------------|----------|
|  |      |             |          |
|  |      |             |          |
|  |      |             |          |



Note:

1. Mark \* is important dimension; "Cpk "Identify for process control ( $Cpk \geq 1.33$ ).
2. Tolerance: Unmarked tolerance refer to the standard tolerance please.
3. Pay attention to the direction of the connector.

|                                                                                                                              |            |            |            |                                                                                       |  |           |
|------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|---------------------------------------------------------------------------------------|--|-----------|
|  <b>Tengxiang Electronics Co., Ltd.</b> |            |            |            |                                                                                       |  |           |
| TITLE: Antenna                                                                                                               |            |            |            |                                                                                       |  |           |
| PART NO.: AN2400-FPC095GO-03                                                                                                 |            |            |            | CUSTOMER P/N: /                                                                       |  |           |
| APP BY                                                                                                                       | CHK BY     | RF BY      | DES BY     |  |  | Tolerance |
| YCX                                                                                                                          | HC         | WJ         | DWB        | UNITS: mm                                                                             |  | X.X ±0.5  |
| 2020.06.10                                                                                                                   | 2020.06.10 | 2020.06.10 | 2020.06.10 | SCALE: 1/1                                                                            |  | X.XX ±0.2 |
|                                                                                                                              |            |            |            | REVISION: A                                                                           |  | X° ±1     |