

**Product Number: AN2450-Z4075B81B80BL**  
**Product Name: Antenna**

**Index:**

- 1. Revision History / Page 3**
- 2. Specification / Page 4**
- 3. Characteristics and Reliability Test / Page 5**
- 4. Antenna - S Parameter Test Data / Page 6**
- 5. Antenna - Radiation Pattern Test Data / Page 7 ~ 8**
- 6. Mechanical and Packing Drawing / Page 9 ~ 10**
- 7. Material Description and RoHS Test Report / Page 11 ~ end**

Dongguan tengchen Electronics Technology Co., Ltd.  
Room 302, No. 974, Chang'an Section, Tai'an Road, Chang'an Town, Dongguan City,  
Guangdong, China

**Product Number: AN2450-Z4075B81B80BL**

**Product Name: Antenna**

## **1. Revision History**

| <b>Revision</b> | <b>Date</b> | <b>Change Notification</b> | <b>Description</b> |
|-----------------|-------------|----------------------------|--------------------|
| 1.0             | 2021.10.29  |                            |                    |
|                 |             |                            |                    |
|                 |             |                            |                    |
|                 |             |                            |                    |
|                 |             |                            |                    |
|                 |             |                            |                    |
|                 |             |                            |                    |
|                 |             |                            |                    |
|                 |             |                            |                    |
|                 |             |                            |                    |

Product Number: AN2450-Z4075B81B80BL

Product Name: Antenna

## 2. Specification

| Sample Photo                                                                      |                                                              |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------|
|  |                                                              |
| A. Electrical Characteristics                                                     |                                                              |
| Frequency                                                                         | 2400 ~ 2500 MHz<br>5150 ~ 5850 MHz                           |
| S.W.R.                                                                            | $\leq 2.0$ @ 2400 ~ 2500 MHz<br>$\leq 2.5$ @ 5150 ~ 5850 MHz |
| Antenna Gain                                                                      | 1.0 dBi @ 2400 ~ 2500 MHz<br>1.0 dBi @ 5150 ~ 5850 MHz       |
| Efficiency(%)                                                                     | 75 % @ 2400~2500 MHz<br>75 % @ 5150~5850 MHz                 |
| Radiation Pattern                                                                 | Omni-Directional                                             |
| Max Input Power                                                                   | $\geq 2$ W                                                   |
| Polarization                                                                      | Linear                                                       |
| Impedance                                                                         | 50 Ohm                                                       |
| B. Material & Mechanical Characteristics                                          |                                                              |
| Material of Radiator                                                              | CU                                                           |
| Material of Plastic                                                               | Body: FPC                                                    |
| Cable Type                                                                        | OD0.81                                                       |
| Connector Type                                                                    | OP                                                           |
| C. Environmental                                                                  |                                                              |
| Operation Temperature                                                             | - 40 °C ~ + 65 °C                                            |
| Storage Temperature                                                               | - 40 °C ~ + 80 °C                                            |
| Antenna Color Storage life                                                        | < 2 year                                                     |

Product Number: AN2450-Z4075B81B80BL

Product Name: Antenna

### 3. 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            | GB / T2423 . 48-1997<br>Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 to 20 Hz<br>3 directions; 2 hours for each direction | 1. No Visual Damage<br>2. Frequency Tol.<= 5%                           |
| M2         | Random Drop          | GB / T2423.8-1995<br>Height: 1.0 Meter;<br>3 directions; 1 time for each direction                                        | 1. No parts separated<br>2. Frequency Tol.<= 5%                         |
| M3         | Solderability        | GB 2423 . 28- 82<br>Solder iron: 260±5°C; Duration: 5 seconds                                                             | 1. Mounted on PCB<br>2. No Visual Damage                                |
| M4         | Terminal-Pull Test   | Holding with individual specification; force applied to axis of terminal                                                  | 1. Directive DUT specification<br>2. Frequency Tol.<= 5%                |
| M5         | Terminal-Torque Test | 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           | GB / T 2423 . 17- 93<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             | GB / T 2423 . 4 - 93<br>Temp: 80°C / 12 H; -40°C / 12H RH: >= 90%;<br>Time: 24 hours                                      | After 2 Hours Recovery<br>1. No Visual Damage<br>2. Frequency Tol.<= 5% |
| E3         | Thermal Shock        | GB / T 2423 . 22 - 87<br>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.)    | GB /T 2423 . 2 - 89<br>Temp: 80°C; Time: 24 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 2011/65/EU                                               |
| 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                                              |

Product Number: AN2450-Z4075B81B80BL

Product Name: Antenna

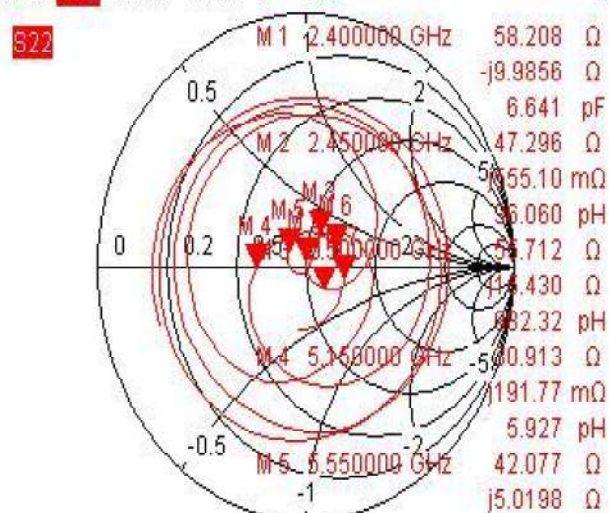
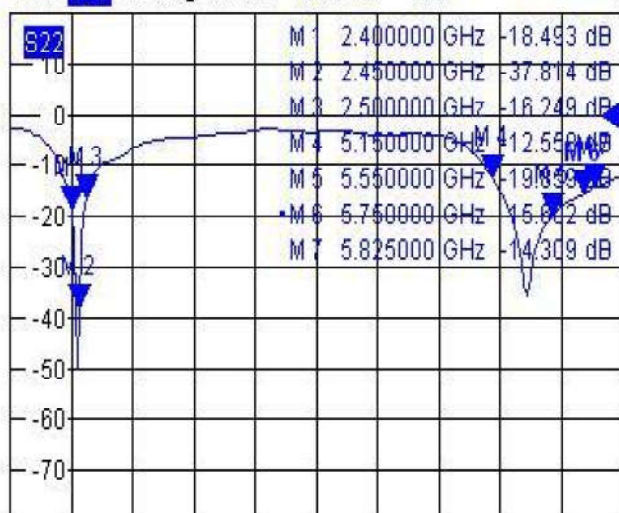
#### 4. Antenna - S Parameter Test Data



Trc1 S22 dB Mag 10 dB / Ref0 dB Cal

1 Trc2 S22 Smith Ref1 U Cal

2

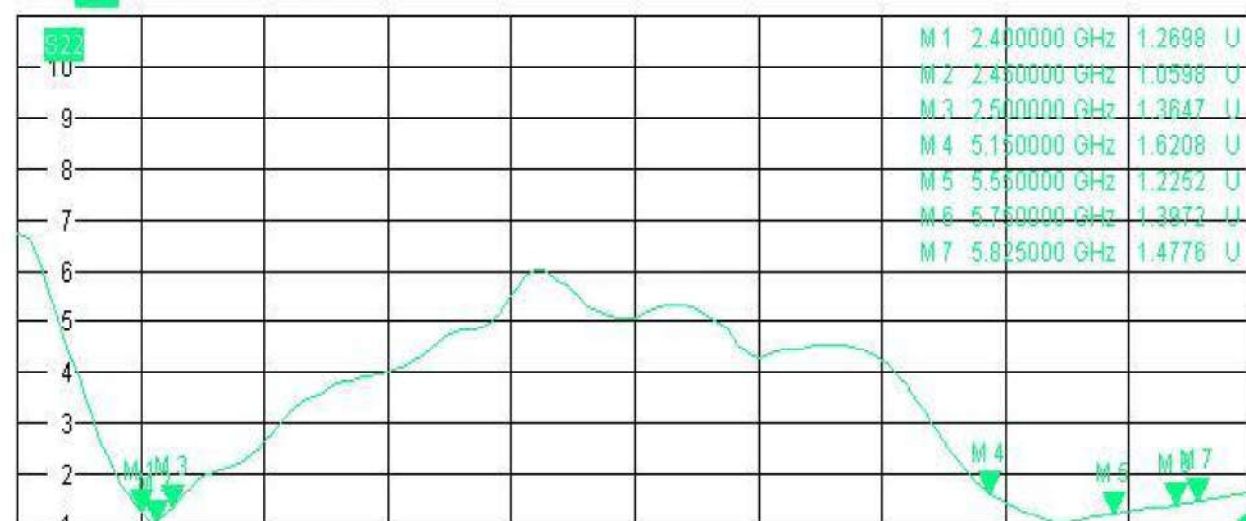


Ch1 Start 2 GHz Pwr 0 dBm Stop 6 GHz

Ch1 Start 2 GHz Pwr 0 dBm Stop 6 GHz

Trc3 S22 SWR 1 U / Ref1 U Cal

3



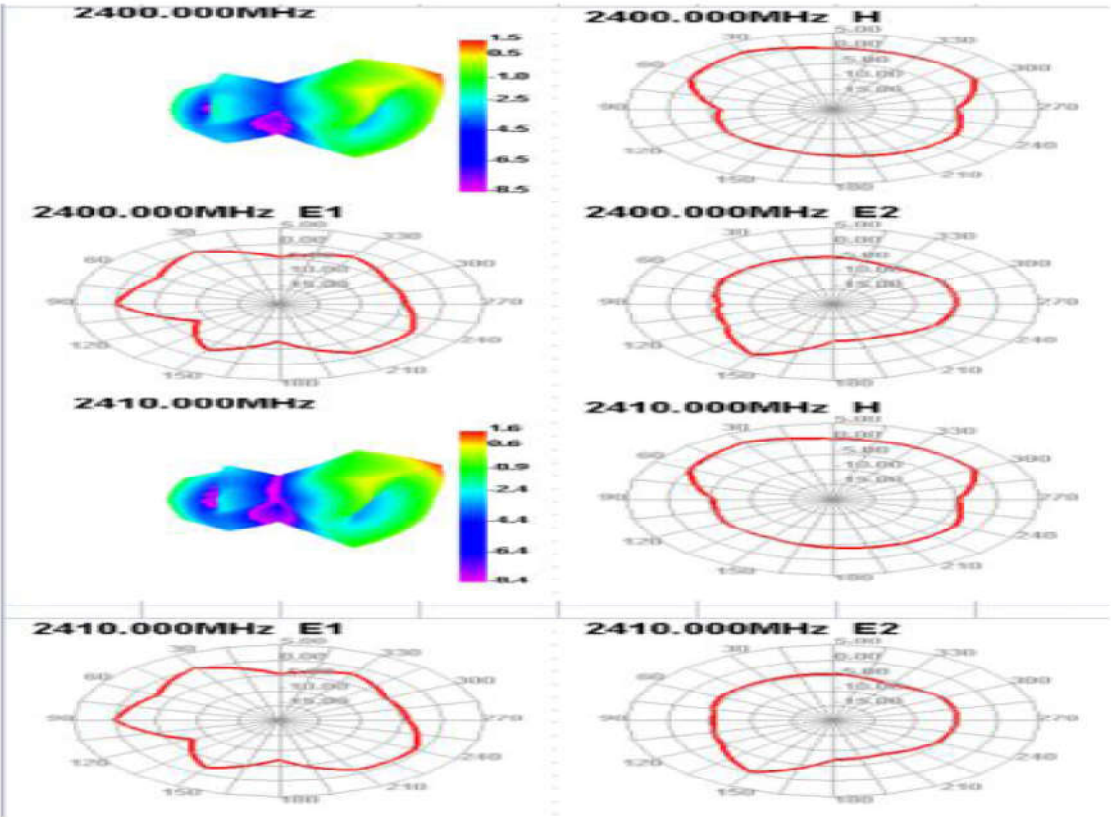
Ch1 Start 2 GHz

Pwr 0 dBm

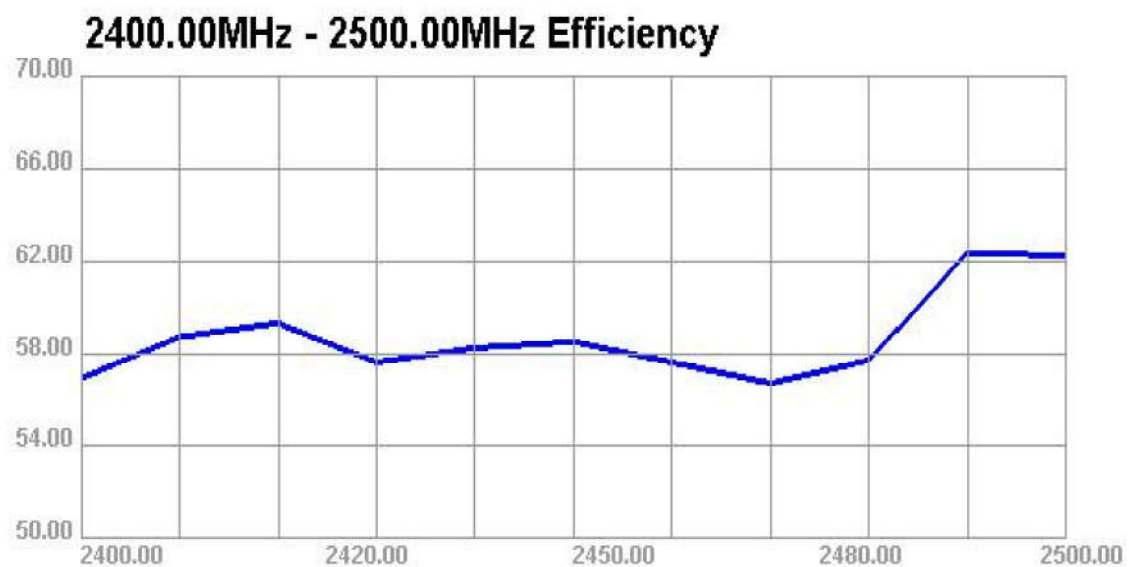
Stop 6 GHz

5. Antenna - Radiation Pattern Test Data

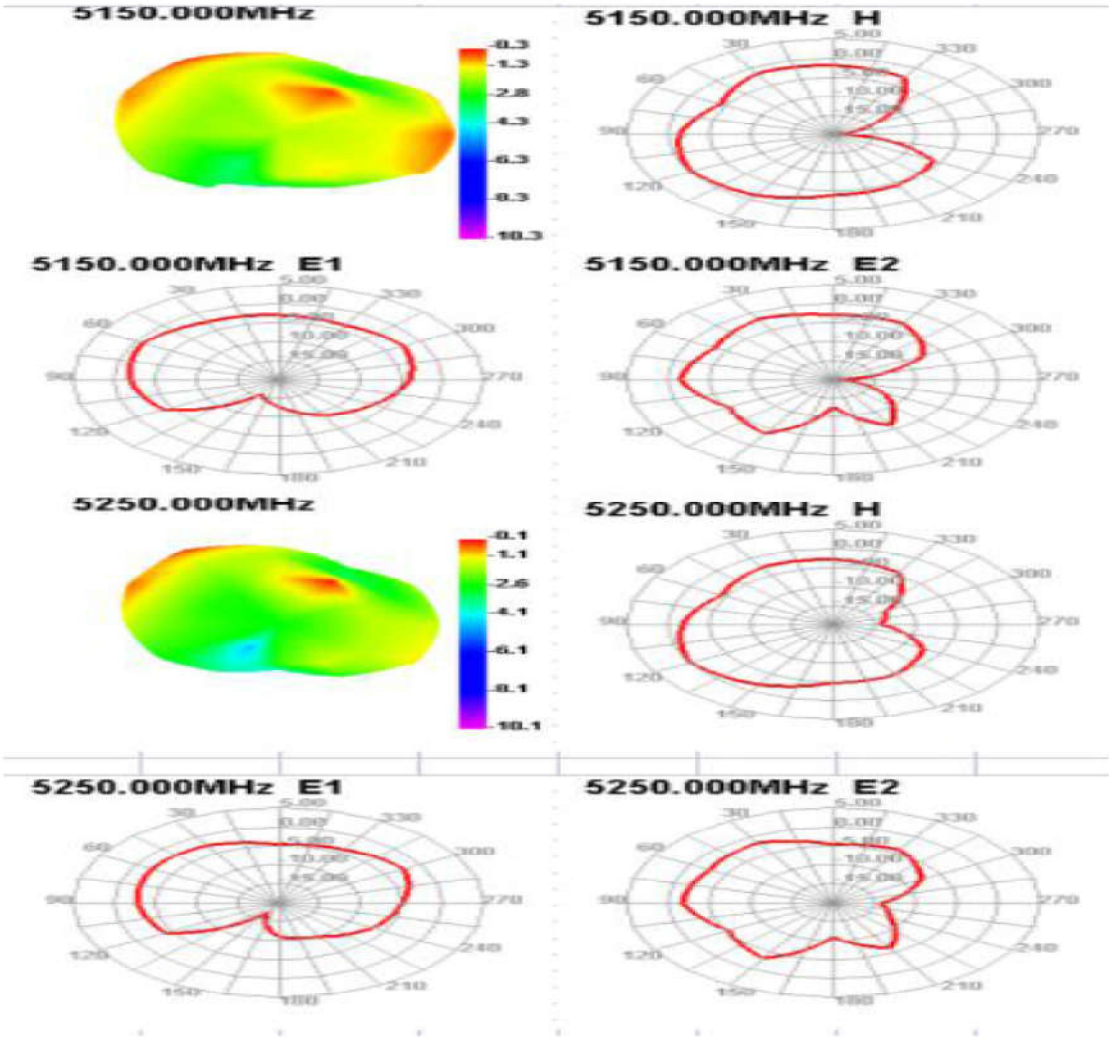
| Passive Test For WIFI2400 |          |           |            |            |         |          |          |          |                  |                 |
|---------------------------|----------|-----------|------------|------------|---------|----------|----------|----------|------------------|-----------------|
| Freq (MHz)                | Effi (%) | Effi (dB) | Gain (dBi) | Gain (dBd) | UHS (%) | DHIS (%) | Max (dB) | Min (dB) | irectivity (dBi) | Beamwidth (3dB) |
| 2400                      | 56.91    | -2.45     | 0.95       | -0.63      | 28.926  | 27.987   | 1.52     | -8.76    | 3.97             | 0               |
| 2410                      | 58.72    | -2.31     | 1.00       | -0.55      | 29.226  | 29.495   | 1.6      | -7.95    | 3.91             | 0               |
| 2420                      | 59.31    | -2.27     | 0.97       | -0.57      | 28.854  | 30.452   | 1.58     | -7.44    | 3.85             | 0               |
| 2430                      | 57.61    | -2.4      | 0.67       | -0.79      | 27.399  | 30.208   | 1.36     | -7.44    | 3.75             | 60              |
| 2440                      | 58.24    | -2.35     | 0.73       | -0.82      | 27.105  | 31.134   | 1.33     | -7.4     | 3.68             | 30              |
| 2450                      | 58.51    | -2.33     | 0.72       | -0.83      | 26.686  | 31.821   | 1.32     | -7.59    | 3.65             | 60              |
| 2460                      | 57.6     | -2.4      | 0.63       | -0.92      | 25.848  | 31.751   | 1.23     | -7.85    | 3.62             | 60              |
| 2470                      | 56.72    | -2.46     | 0.55       | -1         | 25.101  | 31.618   | 1.15     | -7.85    | 3.61             | 60              |
| 2480                      | 57.69    | -2.39     | 0.51       | -1.04      | 25.22   | 32.474   | 1.11     | -7.75    | 3.5              | 60              |
| 2490                      | 62.37    | -2.05     | 0.65       | -0.9       | 26.902  | 35.47    | 1.25     | -7.43    | 3.3              | 60              |
| 2500                      | 62.22    | -2.06     | 0.61       | -1         | 26.504  | 35.718   | 1.15     | -7.53    | 3.21             | 60              |



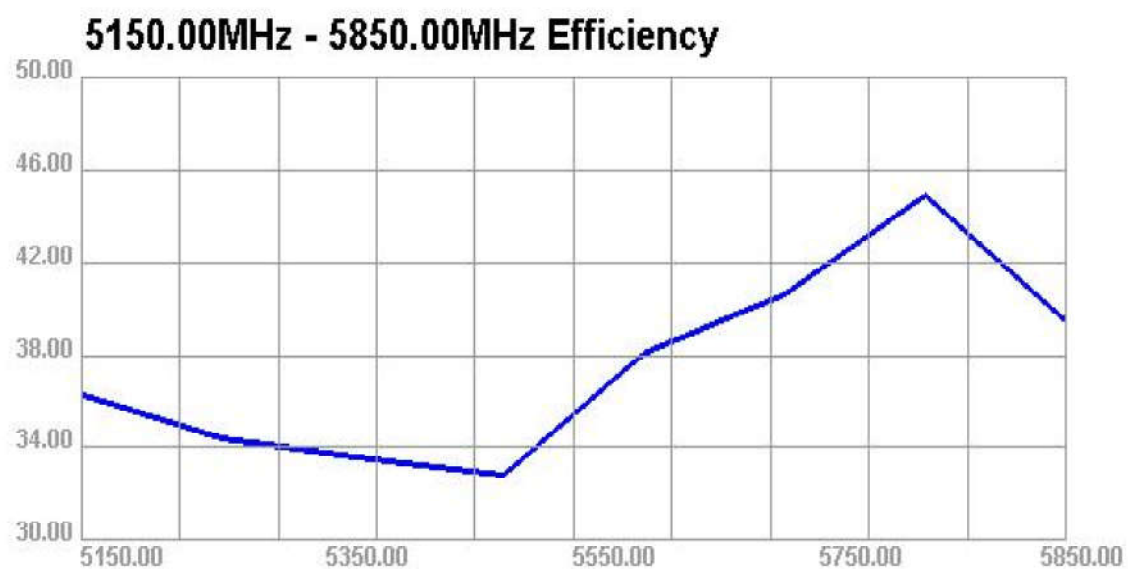
Product Number: AN2450-Z4075B81B80BL  
Product Name: Antenna



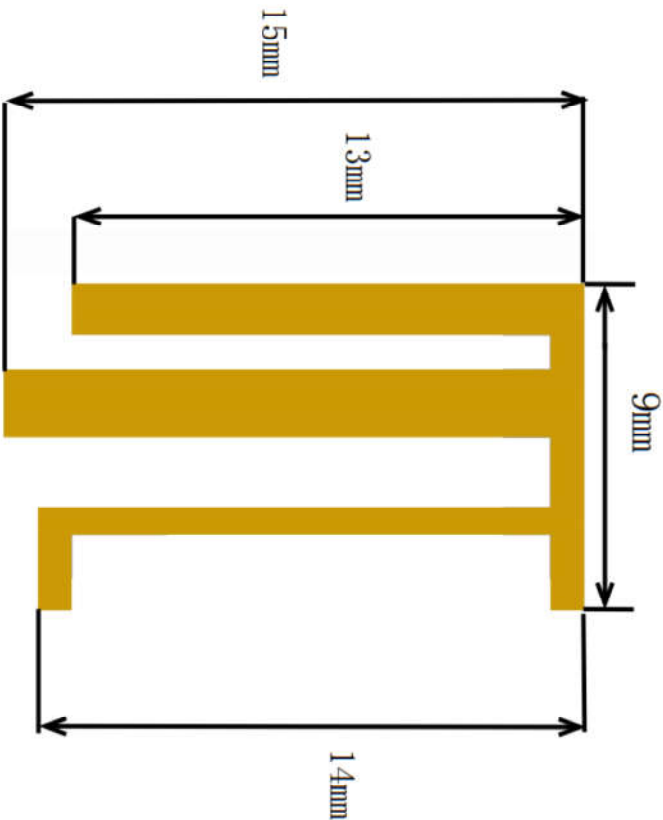
| Passive Test For WIFI-5G |             |              |               |               |            |            |             |             |                     |                    |
|--------------------------|-------------|--------------|---------------|---------------|------------|------------|-------------|-------------|---------------------|--------------------|
| Freq<br>(MHz)            | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) | Gain<br>(dBd) | UHS<br>(%) | DHS<br>(%) | Max<br>(dB) | Min<br>(dB) | irectivity<br>(dBi) | Beamwidth<br>(3dB) |
| 5150                     | 36.31       | -4.4         | -0.29         | -2.44         | 23.018     | 13.289     | -0.29       | -20.92      | 4.11                | 150                |
| 5250                     | 34.4        | -4.63        | -0.1          | -2.25         | 22.104     | 12.294     | -0.1        | -18.14      | 4.54                | 210                |
| 5350                     | 33.56       | -4.74        | -0.21         | -2.36         | 21.725     | 11.837     | -0.21       | -17.45      | 4.53                | 90                 |
| 5450                     | 32.8        | -4.84        | -0.93         | -3.08         | 21.155     | 11.643     | -0.93       | -14.55      | 3.91                | 60                 |
| 5550                     | 38.08       | -4.19        | -0.39         | -2.54         | 24.271     | 13.809     | -0.39       | -12.72      | 3.8                 | 60                 |
| 5650                     | 40.61       | -3.91        | 0.35          | -1.8          | 25.254     | 15.355     | 0.35        | -12.95      | 4.26                | 60                 |
| 5750                     | 44.89       | -3.48        | 1.00          | -1.34         | 27.602     | 17.293     | 0.81        | -13.08      | 4.28                | 60                 |
| 5850                     | 39.45       | -4.04        | 0.18          | -1.97         | 24.39      | 15.063     | 0.18        | -12.96      | 4.22                | 60                 |



Product Number: AN2450-Z4075B81B80BL  
Product Name: Antenna



| 1   |         | 2                  | 3 | 4 | 5    | 6 | 7 | 8 |
|-----|---------|--------------------|---|---|------|---|---|---|
| NO. | NAME    | SPECIFICATION      |   |   | Q'TY |   |   |   |
| 1   | Cable   | l=80mm O.D.=0.81mm |   |   | 1    |   |   |   |
| 2   | ANTENNA | FPC                |   |   | 1    |   |   |   |



- NOTES:
1. Electrical:
- 1.1 Impedance: 50 OHM.
- 1.2 Frequency:2400~5800MHz
- 1.3 Polarization :Vertical
- 1.4 VSWR: ≤2.0
- 1.5 Gain: 2dBi
2. Environmental:
- 2.1 Storage Temperature Range: -30 TO +70℃.
- 2.2 Operating Temperature Range: -30 TO +70℃.
3. All Materials Must Meet & Shall Rofis Request.

| Assembly Drawing |                      |            |  | Designer                                         | ZhangShengBing | Date  | 2021-10-29 |
|------------------|----------------------|------------|--|--------------------------------------------------|----------------|-------|------------|
|                  |                      |            |  | Auditor                                          |                | Date  |            |
|                  |                      |            |  | Confirm                                          |                | Date  |            |
| Product No       | TC2450-Z4075A81B80BL |            |  |                                                  | Proportion     | 1 : 1 | Unit: mm   |
| Version          | A0                   |            |  | Page 1/1                                         |                |       |            |
| Change Mark      |                      | Change Num |  | Dongguan tengchen Electronic Technology Co., Ltd |                |       |            |