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# Antenna Approval Sheet

For

**3-WIFI-2450-05 Project**

|          |                           |         |                       |
|----------|---------------------------|---------|-----------------------|
| Customer |                           | Project | <b>3-WIFI-2450-05</b> |
| Band     | WiFi 2.4GHZ/5.2GHZ/5.8GHZ |         |                       |
| ZC PN    | SG001-CA-93               |         |                       |
| Version  | R:A                       | Data    | <b>2023-8-8</b>       |

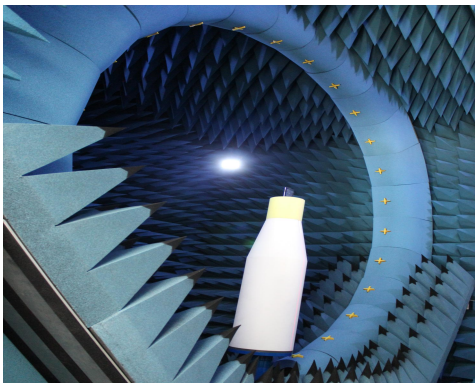
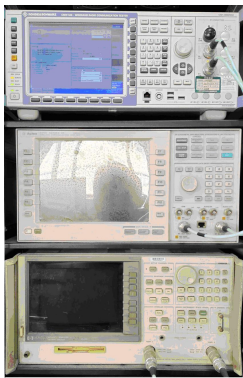
|              |  |    |  |
|--------------|--|----|--|
| RF           |  | ME |  |
| Checked By   |  |    |  |
| Confirmed By |  |    |  |
| Cust Confirm |  |    |  |

## 1. Electrical Specification:

|                  |                                           |
|------------------|-------------------------------------------|
| Antenna types    | FPC Antenna                               |
| Frequency        | 2400–2500 MHz, 5150–5350MHZ, 5730–5835MHz |
| Impedance        | 50 Ω                                      |
| VSWR             | < 2.0                                     |
| Gain             | 2.4GHZ 1.59dbi, 5.2GHZ 3.5dbi,5.8GHZ 5dbi |
| Efficiency       | >35 %                                     |
| Antenna Material | FPCB+Coaxial Cable                        |
| Connector Type   | 0.81 MHF–3–Plug                           |

## 2. Test Condition

| 2.1            | TEST ITEM                                                             | TESTING INSTRUMENT                                                                                            | REMARKS |
|----------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------|
| 1.PASSIVE TEST | 1.TRP<br>2.TIS                                                        | 1. 3D microwave darkroom (Satimo SG24)<br>2. Comprehensive test instrument (CMW500)<br>3. Agilent 8960 E5515C |         |
| 2.ACTIVE TEST  | 1. Antenna Gain<br>2. S.W.R<br>3. Return Loss<br>4. Radiation Pattern | 1. Network analyzer (R&S ZVL6)<br>2. Network analyzer (HP 8753D)                                              |         |



### 2.2 Matching Circuit    The matching circuit was Default

### 3. RF Performance –WIFI Antenna

#### 3.1 Active test data

| Item | Standard  | Band         | Channel | Frequency | TRP   | TIS    |
|------|-----------|--------------|---------|-----------|-------|--------|
| 1    | WIFI (AP) | WIFI_B (11M) | 1       | 2412      | 13.9  | -64.33 |
| 2    | WIFI (AP) | WIFI_B (11M) | 6       | 2437      | 13.96 | -64.32 |
| 3    | WIFI (AP) | WIFI_B (11M) | 11      | 2462      | 12.09 | -64.01 |
| 1    | WIFI (AP) | WIFI_A (54M) | 149     | 5745      | 10.94 | -67.2  |
| 2    | WIFI (AP) | WIFI_A (54M) | 157     | 5785      | 8.82  | -66.03 |
| 3    | WIFI (AP) | WIFI_A (54M) | 165     | 5825      | 11.66 | -68.04 |

#### 3.2 Passive parameters

| Freq. (MHz) | 2400 | 2410 | 2420 | 2430 | 2440 | 2450 | 2460 | 2470 | 2480 | 2490 | 2500 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|
| Gain (dBi)  | 0.58 | 0.66 | 1.1  | 1.02 | 1.17 | 1.59 | 0.72 | 0.08 | 0.72 | 1.19 | 1.73 |

| Freq. (MHz) | 5150 | 5175 | 5200 | 5225 | 5250 | 5275 | 5300 | 5325 | 5350 |
|-------------|------|------|------|------|------|------|------|------|------|
| Gain (dBi)  | 2.44 | 1.86 | 2.08 | 2.76 | 3.15 | 3.64 | 3.28 | 2.84 | 2.56 |

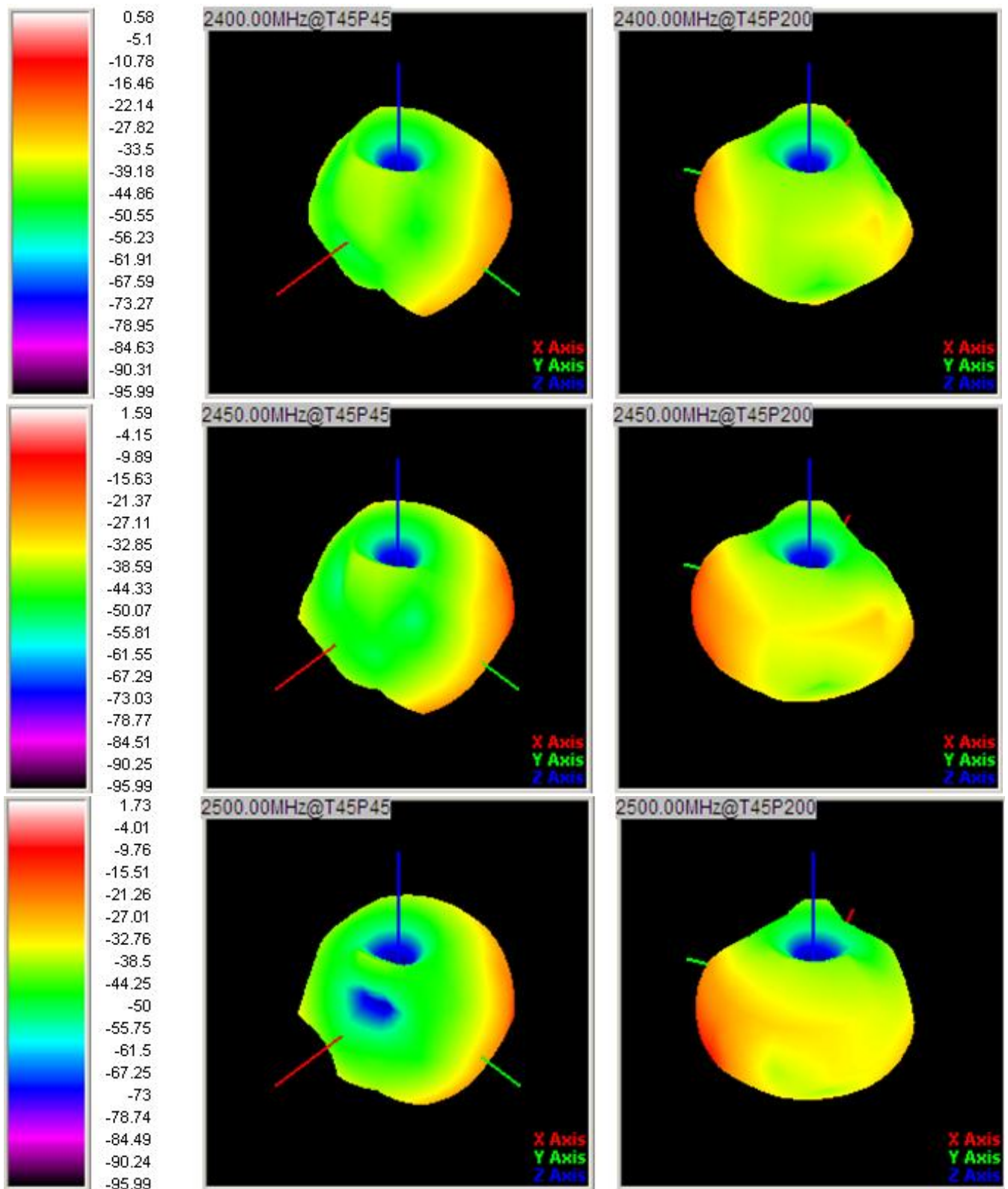
| Freq. (MHz) | 5720 | 5740 | 5760 | 5780 | 5800 | 5820 | 5840 | 5860 | 5880 |
|-------------|------|------|------|------|------|------|------|------|------|
| Gain (dBi)  | 2.65 | 4.39 | 4.95 | 3.22 | 5.25 | 4.26 | 3.48 | 1.91 | 4.32 |

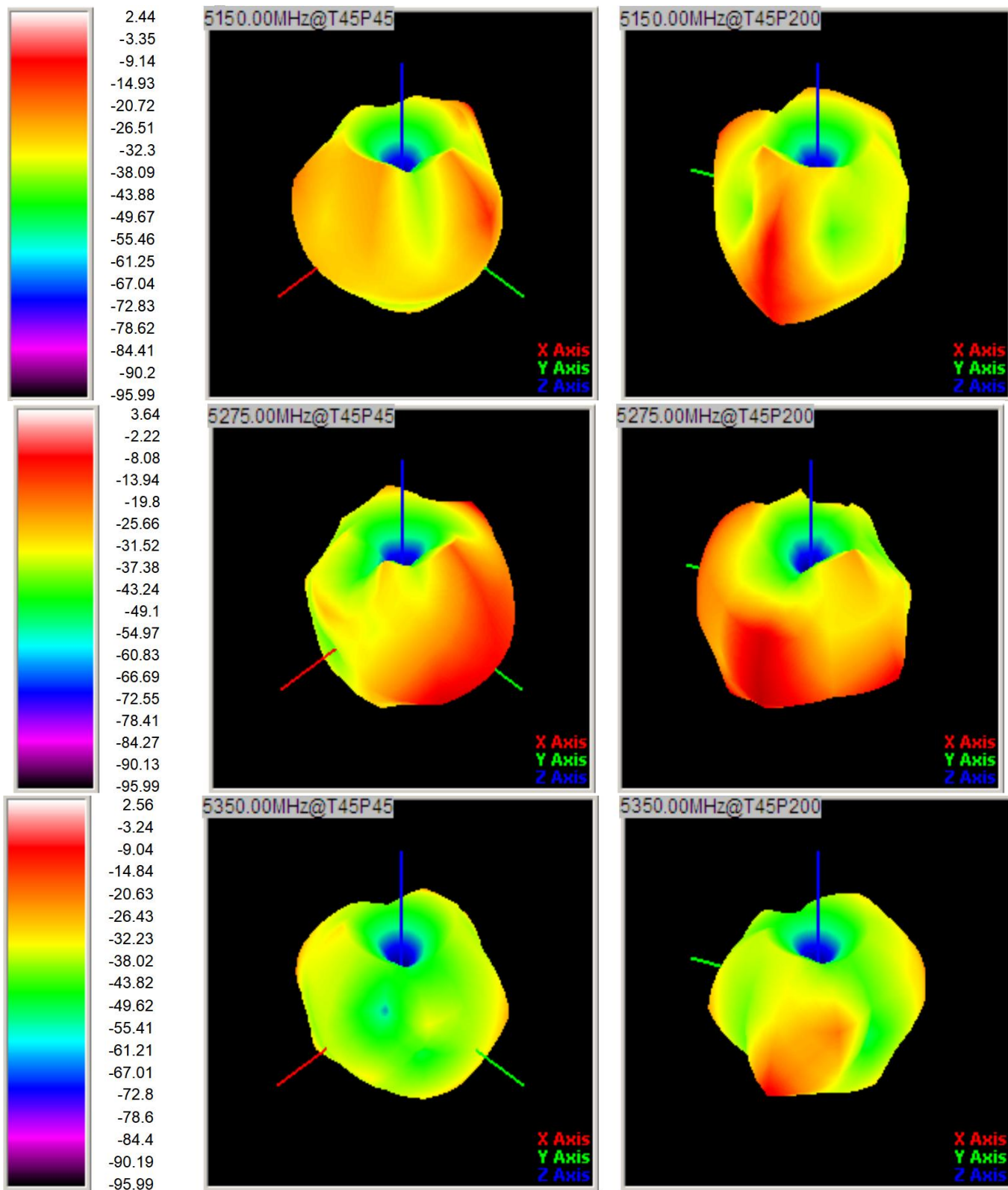
#### 3.3 S Parameter

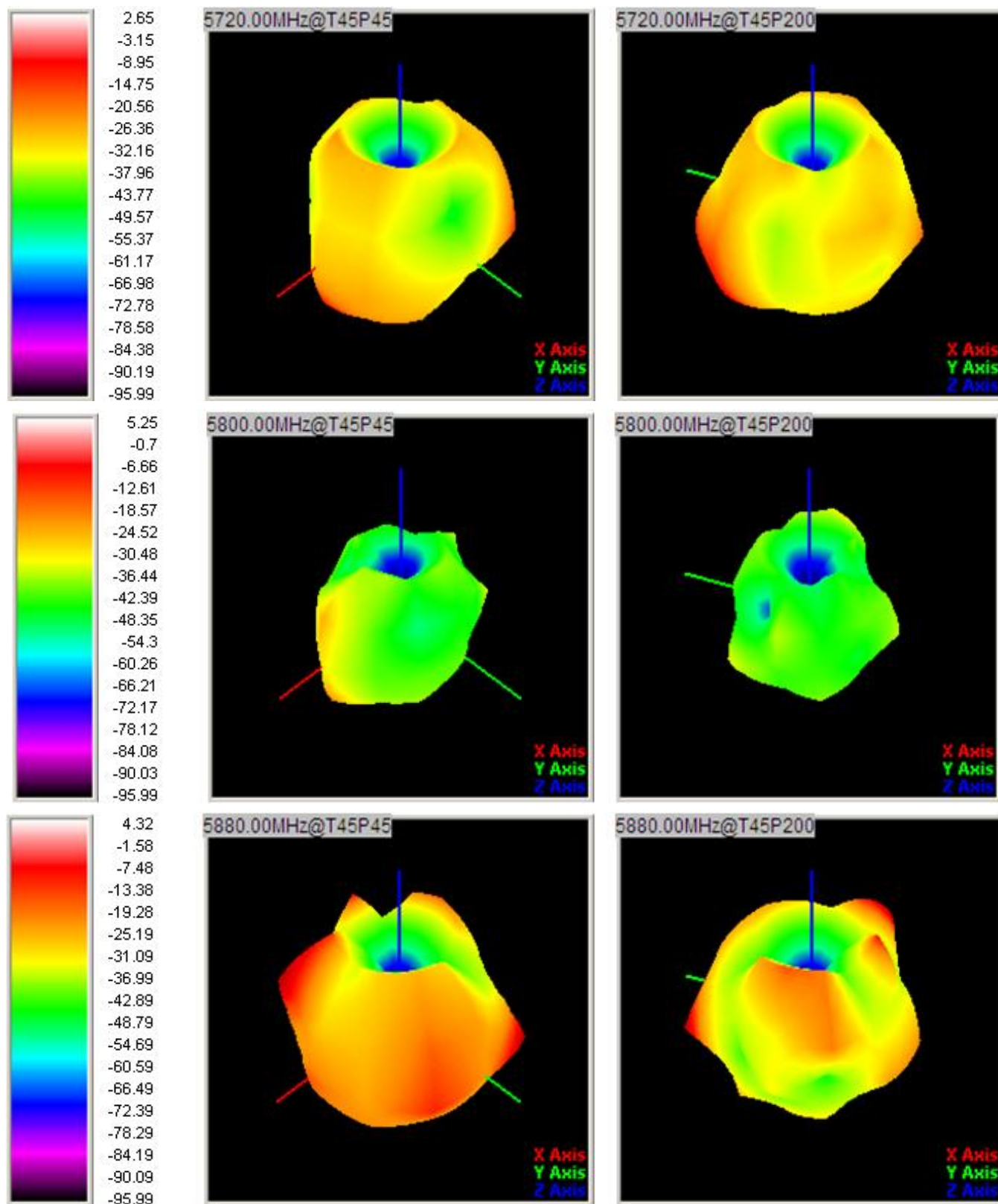
| Frequency (MHz)  | 2400  | 2450  | 2480  | 5180   | 5320   | 5725  | 5875  |
|------------------|-------|-------|-------|--------|--------|-------|-------|
| Return Loss (dB) | -13.2 | -20.6 | -13.9 | -10.36 | -13.13 | -17.5 | -17.1 |
| VSWR             | 1.53  | 1.27  | 1.6   | 1.89   | 1.6    | 1.28  | 1.33  |



### 3.4 Antenna 3D Radiation Pattern (Unit:dbi)







4.ME Drawing for the antenna

