# Antenna Approval Sheet

## For
## 3-WIFI-2450-05 Project

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

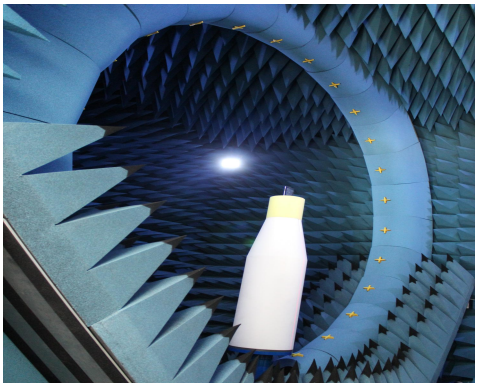
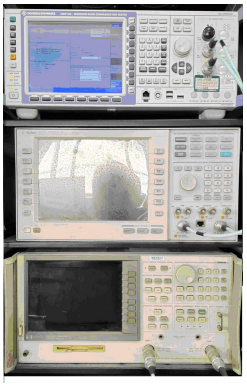
| | | | |
|---|---|---|---|
| RF | | ME | |
| Checked By | | | |
| Confirmed By | | | |
| Cust Confirm | | | |

## 1. Electrical Specification:

| | |
|---|---|
| Antenna types | Built-in WIFI Antenna |
| Frequency | 2400-2500 MHz, 5150-5350MHZ,5730-5835MHz |
| Impedance | 50 Ω |
| VSWR | < 2.0 |
| Gain | 2.4GHZ 1.73dbi, 5.2GHZ 3.64dbi,5.8GHZ 5.25dbi |
| 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 |

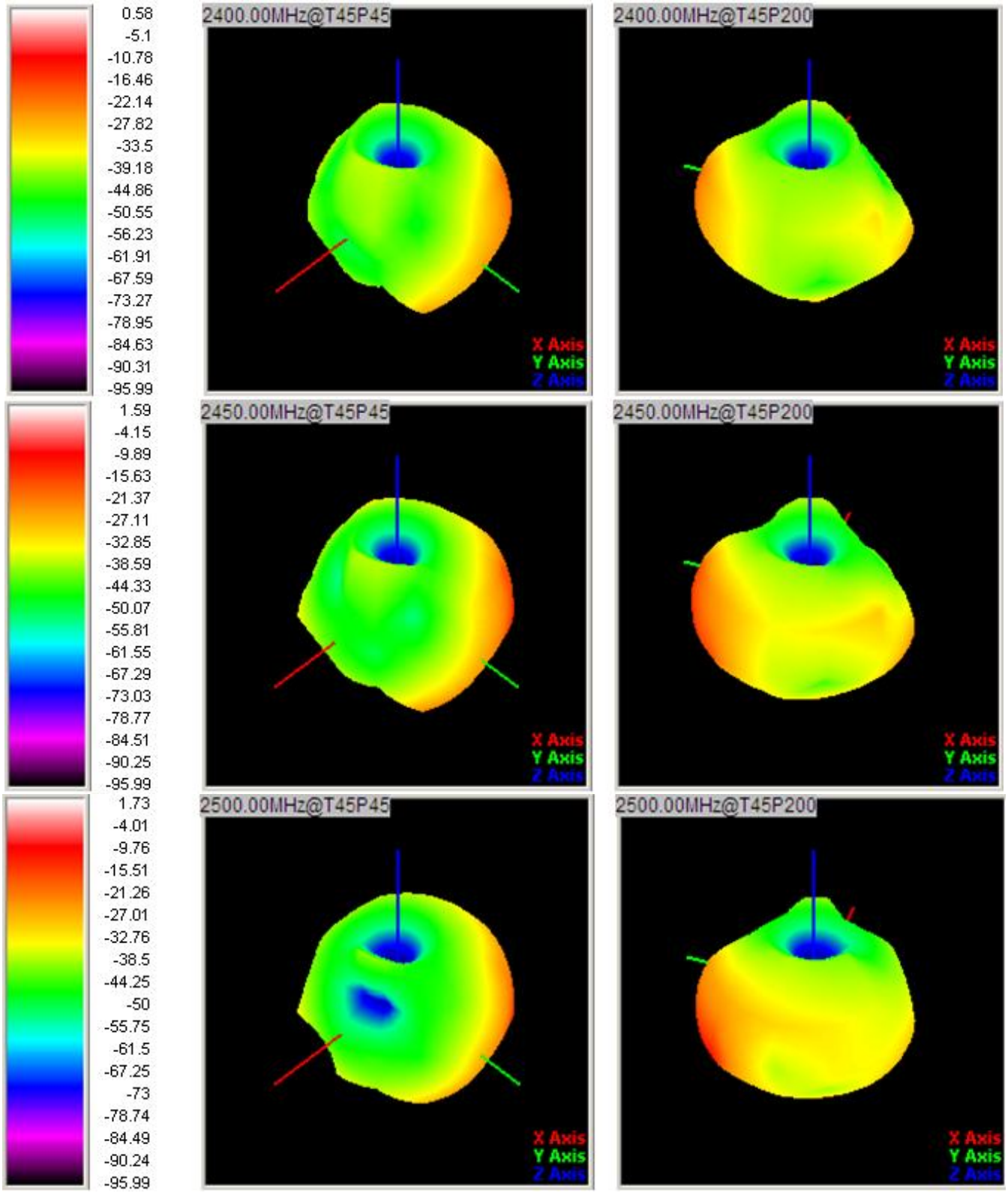
| **Freq. (MHz)** | 5150 | 5175 | 5200 | 5225 | 5250 | 5275 | 5300 | 5325 | 5350 |
|---|---|---|---|---|---|---|---|---|---|
| **Gain (dBi)** | 2.44 | 1.86 | 2.08 | 2.76 | 3.15 | 3.64 | 3.28 | 2.84 | 2.56 |

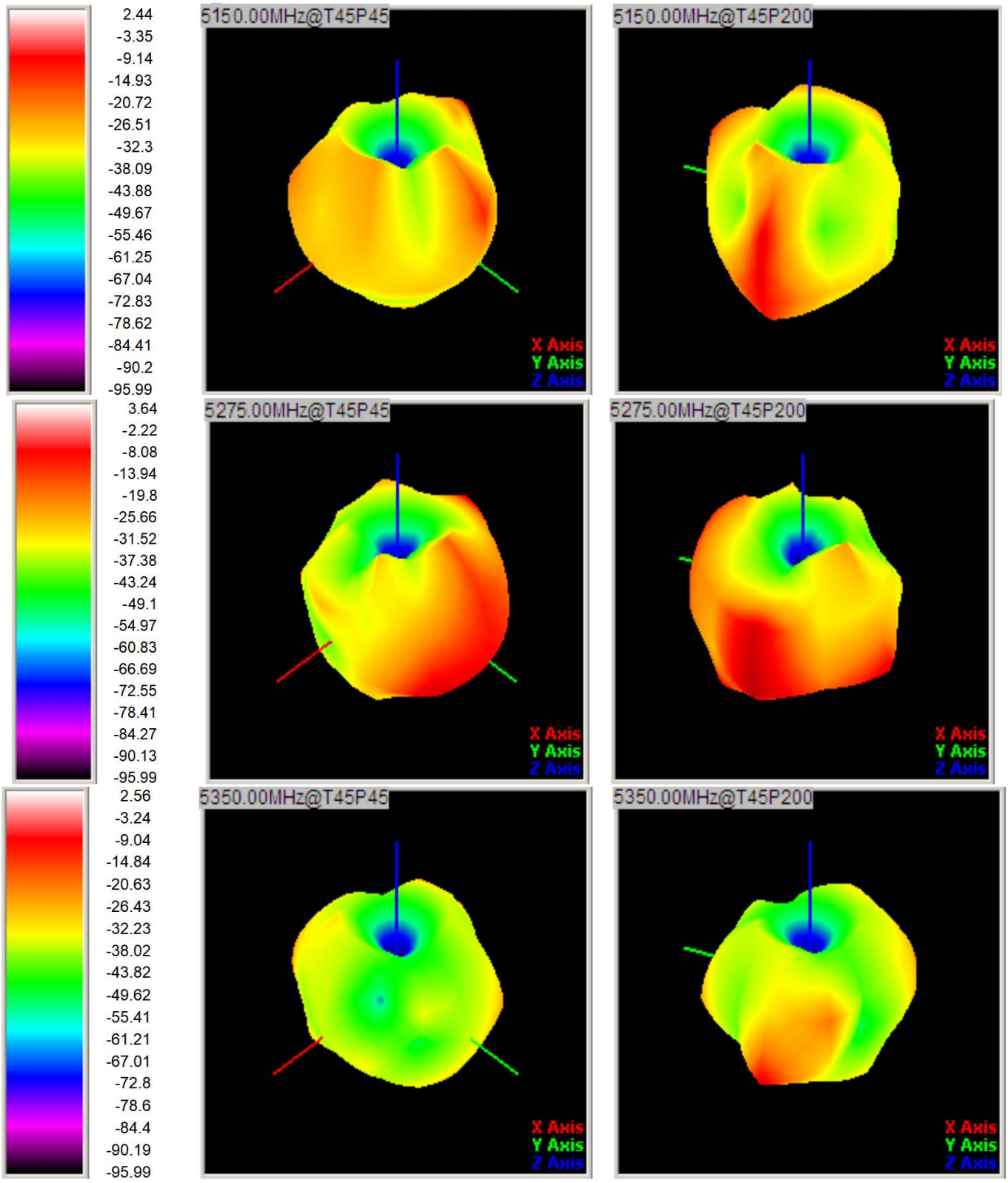
| **Freq. (MHz)** | 5720 | 5740 | 5760 | 5780 | 5800 | 5820 | 5840 | 5860 | 5880 |
|---|---|---|---|---|---|---|---|---|---|
| **Gain (dBi)** | 2.65 | 4.39 | 4.95 | 3.22 | 5.25 | 4.26 | 3.48 | 1.91 | 4.32 |

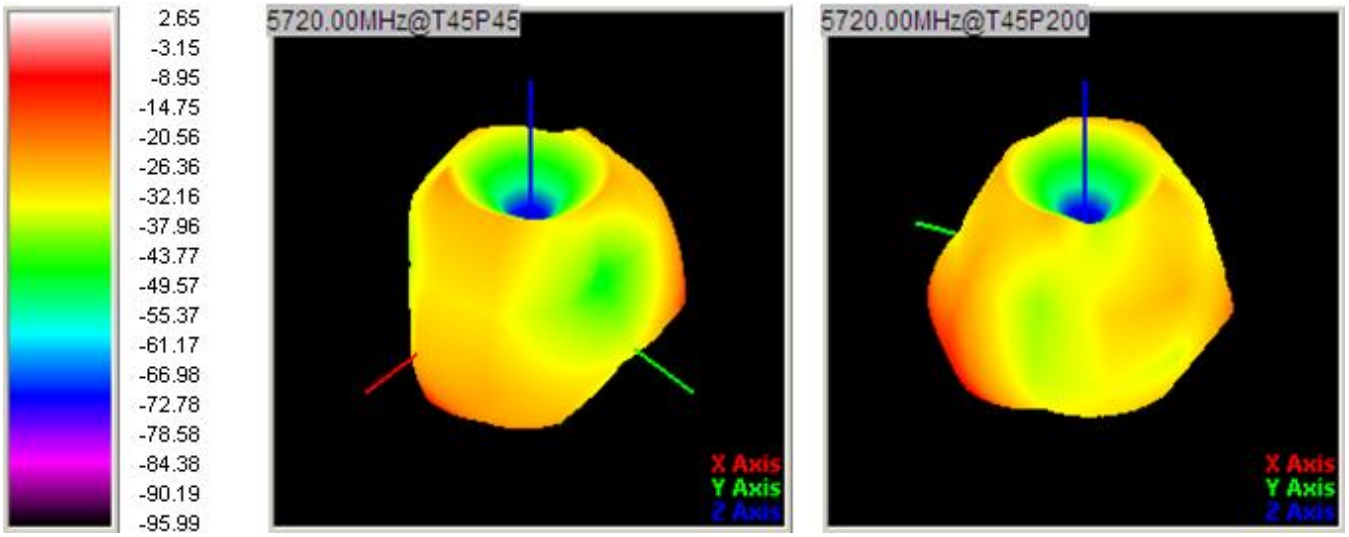
## 3.3 S Parameter

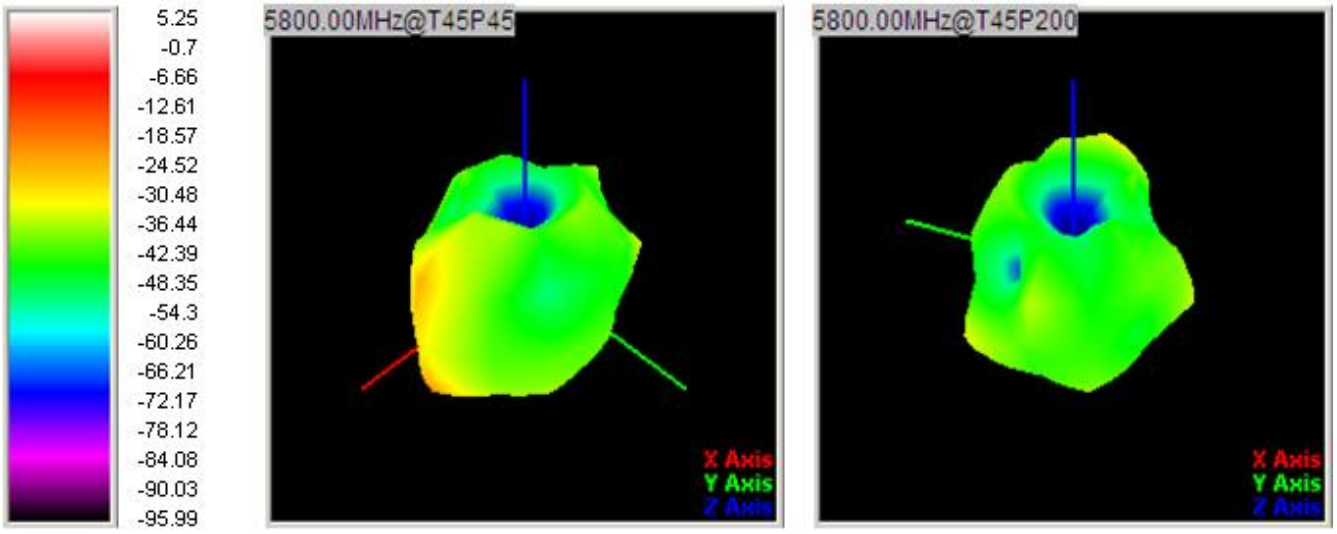
| Frequency (MHz) | 2400 | 2450 | 2480 | 5180 | 5320 | 5725 | 5875 |
|---|---|---|---|---|---|---|---|
| Return Loss(dB) | -13.2 | -20.6 | -13.9 | -10.36 | -13.13 | -17.5 | -17.1 |
| VSWR | 1.53 | 1.27 | 1.6 | 1.89 | 1.6 | 1.28 | 1.33 |

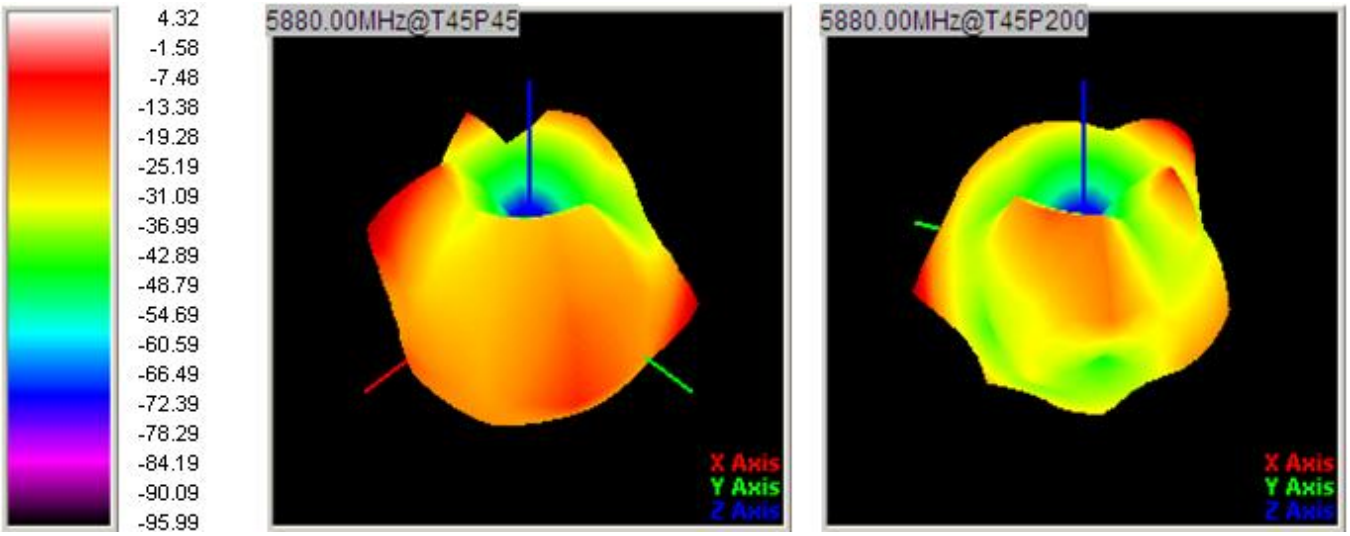
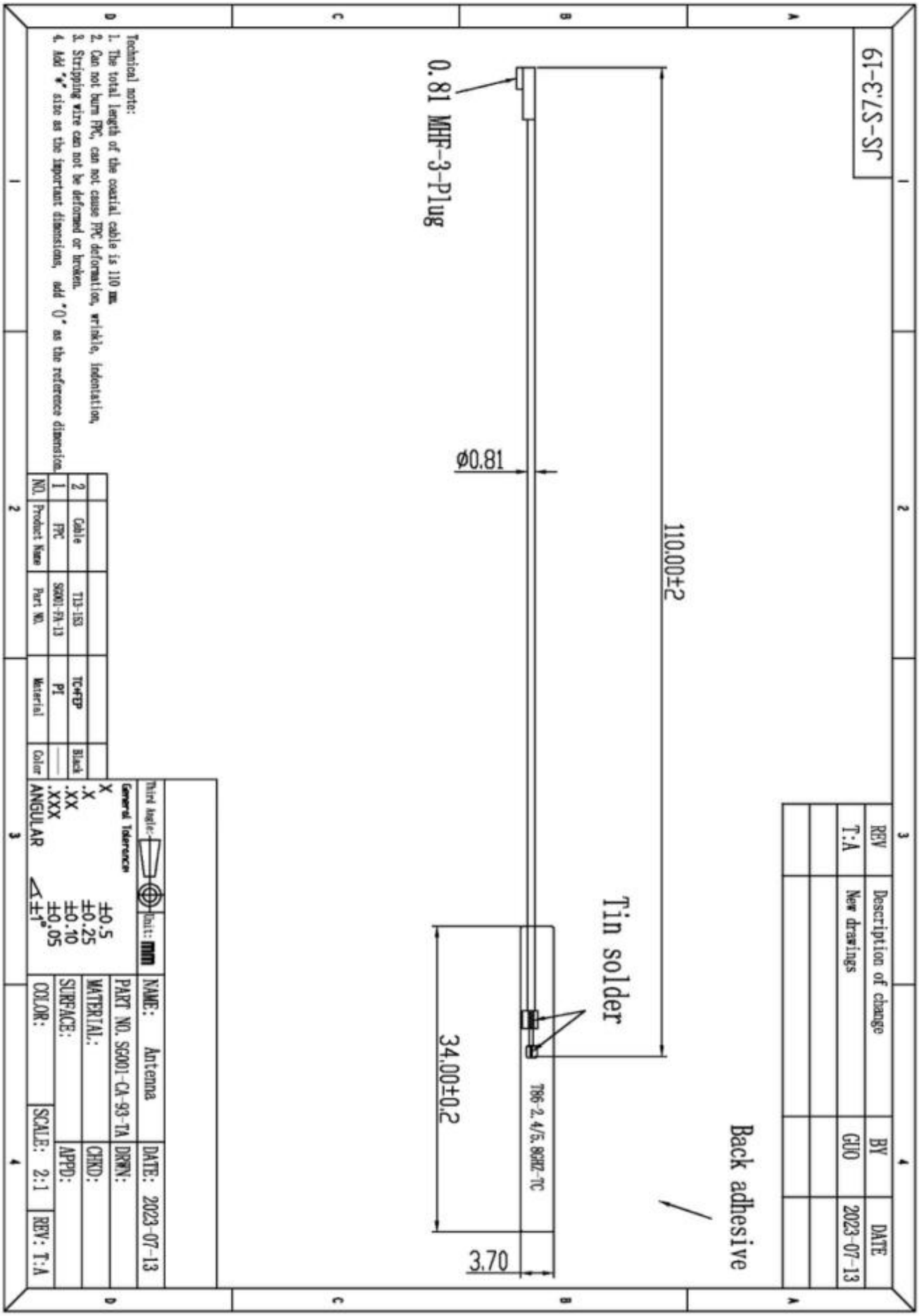
## 3.4 Antenna 3D Radiation Pattern (Unit:dbi)




2.44
-3.35
-9.14
-14.93
-20.72
-26.51
-32.3
-38.09
-43.88
-49.67
-55.46
-61.25
-67.04
-72.83
-78.62
-84.41
-90.2
-95.99
5150.00MHz@T45P45
X Axis
Y Axis
Z Axis
5150.00MHz@T45P200
X Axis
Y Axis
Z Axis
3.64
-2.22
-8.08
-13.94
-19.8
-25.66
-31.52
-37.38
-43.24
-49.1
-54.97
-60.83
-66.69
-72.55
-78.41
-84.27
-90.13
-95.99
5275.00MHz@T45P45
X Axis
Y Axis
Z Axis
5275.00MHz@T45P200
X Axis
Y Axis
Z Axis
2.56
-3.24
-9.04
-14.84
-20.63
-26.43
-32.23
-38.02
-43.82
-49.62
-55.41
-61.21
-67.01
-72.8
-78.6
-84.4
-90.19
-95.99
5350.00MHz@T45P45
X Axis
Y Axis
Z Axis
5350.00MHz@T45P200
X Axis
Y Axis
Z Axis


2.65
-3.15
-8.95
-14.75
-20.56
-26.36
-32.16
-37.96
-43.77
-49.57
-55.37
-61.17
-66.98
-72.78
-78.58
-84.38
-90.19
-95.99
5720.00MHz@T45P45
X Axis
Y Axis
Z Axis
5720.00MHz@T45P200
X Axis
Y Axis
Z Axis


5.25
-0.7
-6.66
-12.61
-18.57
-24.52
-30.48
-36.44
-42.39
-48.35
-54.3
-60.26
-66.21
-72.17
-78.12
-84.08
-90.03
-95.99
5800.00MHz@T45P45
X Axis
Y Axis
Z Axis
5800.00MHz@T45P200
X Axis
Y Axis
Z Axis


4.32
-1.58
-7.48
-13.38
-19.28
-25.19
-31.09
-36.99
-42.89
-48.79
-54.69
-60.59
-66.49
-72.39
-78.29
-84.19
-90.09
-95.99
5880.00MHz@T45P45
X Axis
Y Axis
Z Axis
5880.00MHz@T45P200
X Axis
Y Axis
Z Axis

## 4.ME Drawing for the antenna