Antenna Approval Sheet

For
TS5000 Project

Customer	富士伟业	Project	TS5000
Band	WIFI2.4GHZ/BT/433MHZ/315MHZ		
ZC PN	FC012-CA-93/FC012-XB-16		
Version	R:A	Data	2023-8-8

RF		ME	
Checked By			
Confirmed By			
Cust Confirm			

1. Summary of the DUT

TS5000 Picture

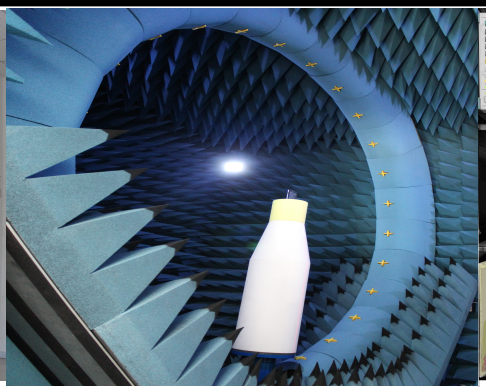
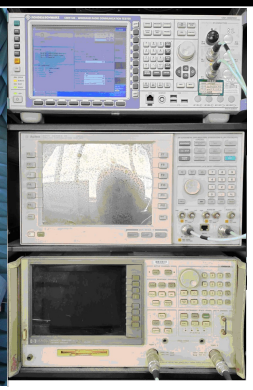
Antenna Picture

2. Electrical Specification:

Antenna types	Built-in WIFI/BT Antenna/433MHZ/315MHZ Spring coil Antenna
Frequency	2400-2500 MHz,433MHZ,315MHZ
Impedance	50 Ω
VSWR	< 2.5
Gain	2.4GHZ 1.5 dbi, 433MHZ 0.8 dbi, 315MHZ 0.2dbi
Efficiency	>35 %
Antenna Material	FPCB+同轴线/Spring coil
Connector Type	1.13 MHF-1-Plug/Soldering

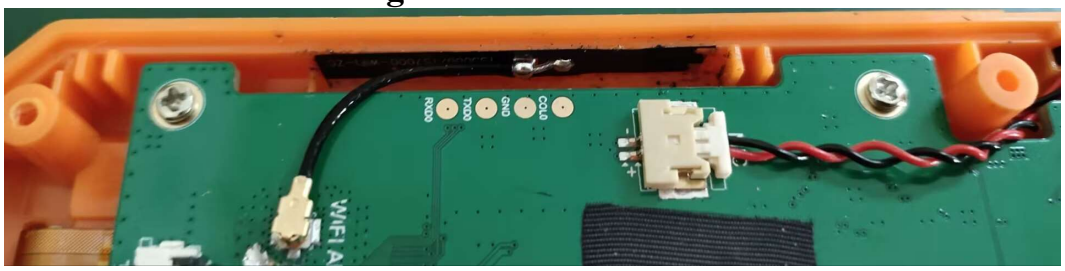
3. Test Condition

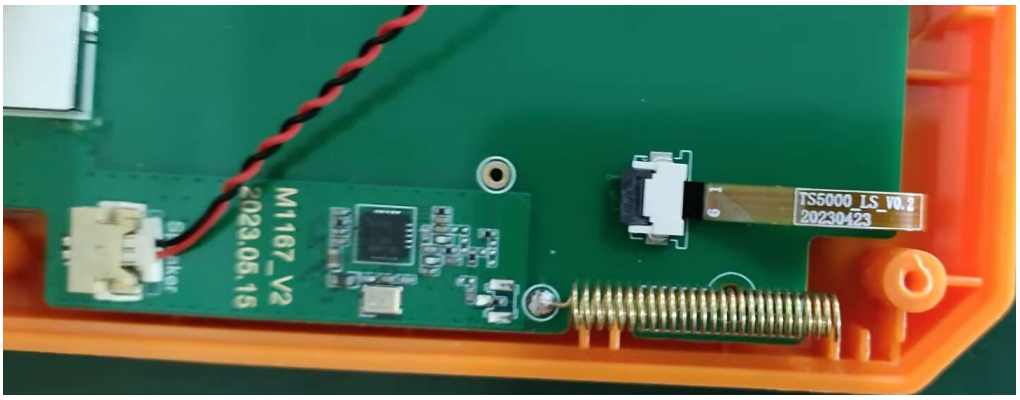
3.1	测试项目	测试设备和型号	备注
1.有源测试	1.TRP 2.TIS	1. 3D microwave darkroom (Satimo SG24) 2. Comprehensive test instrument （CMW500） 3. Agilent 8960 E5515C	
2.无源测试	1. Antenna Gain 2. S.W.R 3. Return Loss 4. Radiation Pattern	1. Network analyzer （R&S ZVL6） 2. Network analyzer （HP 8753D）	

3.2 Matching Circuit The matching circuit was Default

3.3Antenna installation diagram:





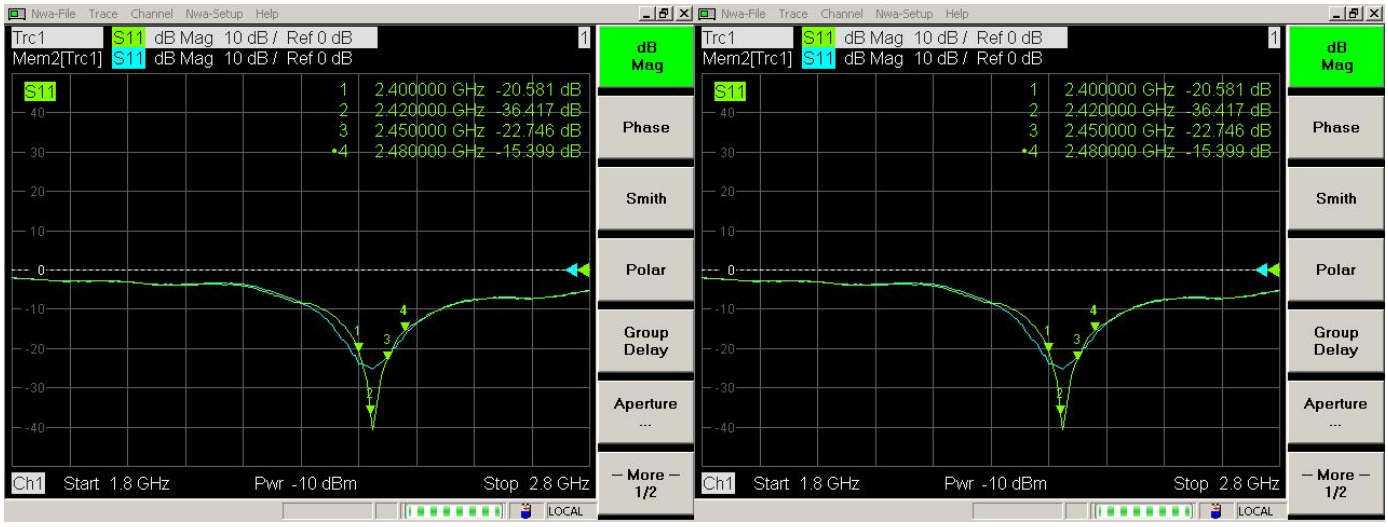
4. 1 RF Performance –WIFI Antenna

4.1.1 Active test data

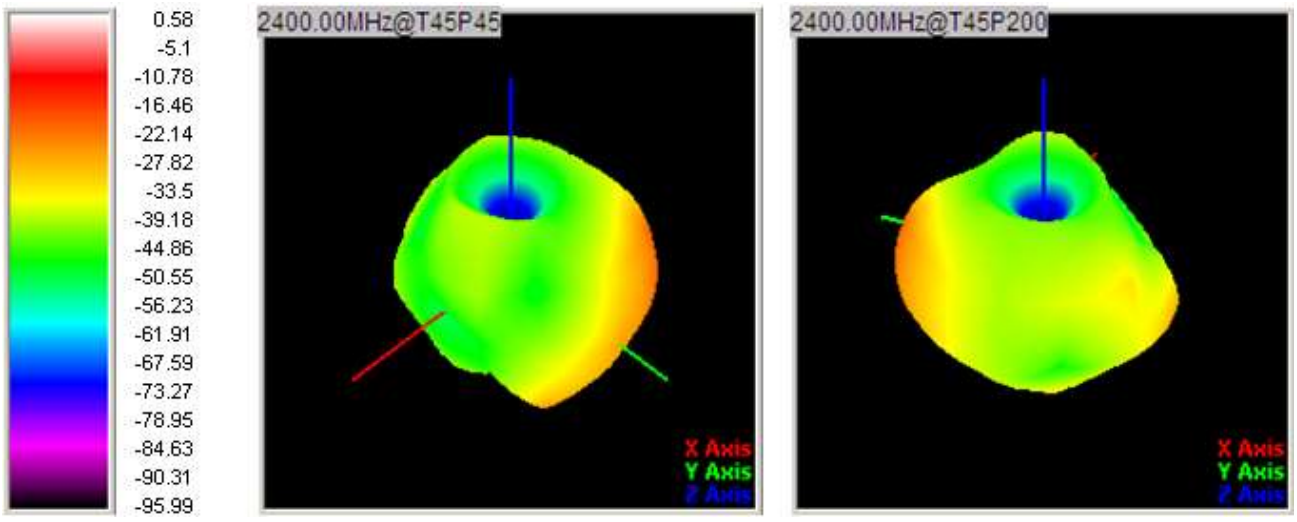
Item	Standard	Band	Channel	Frequency	TRP	TIS
1	WIFI (AP)	WIFI_B (11M)	1	2412	**14.97**	**-81.12**
2	WIFI (AP)	WIFI_B (11M)	6	2437	**15.4**	**-82.59**
3	WIFI (AP)	WIFI_B (11M)	11	2462	**15.35**	**-81.61**

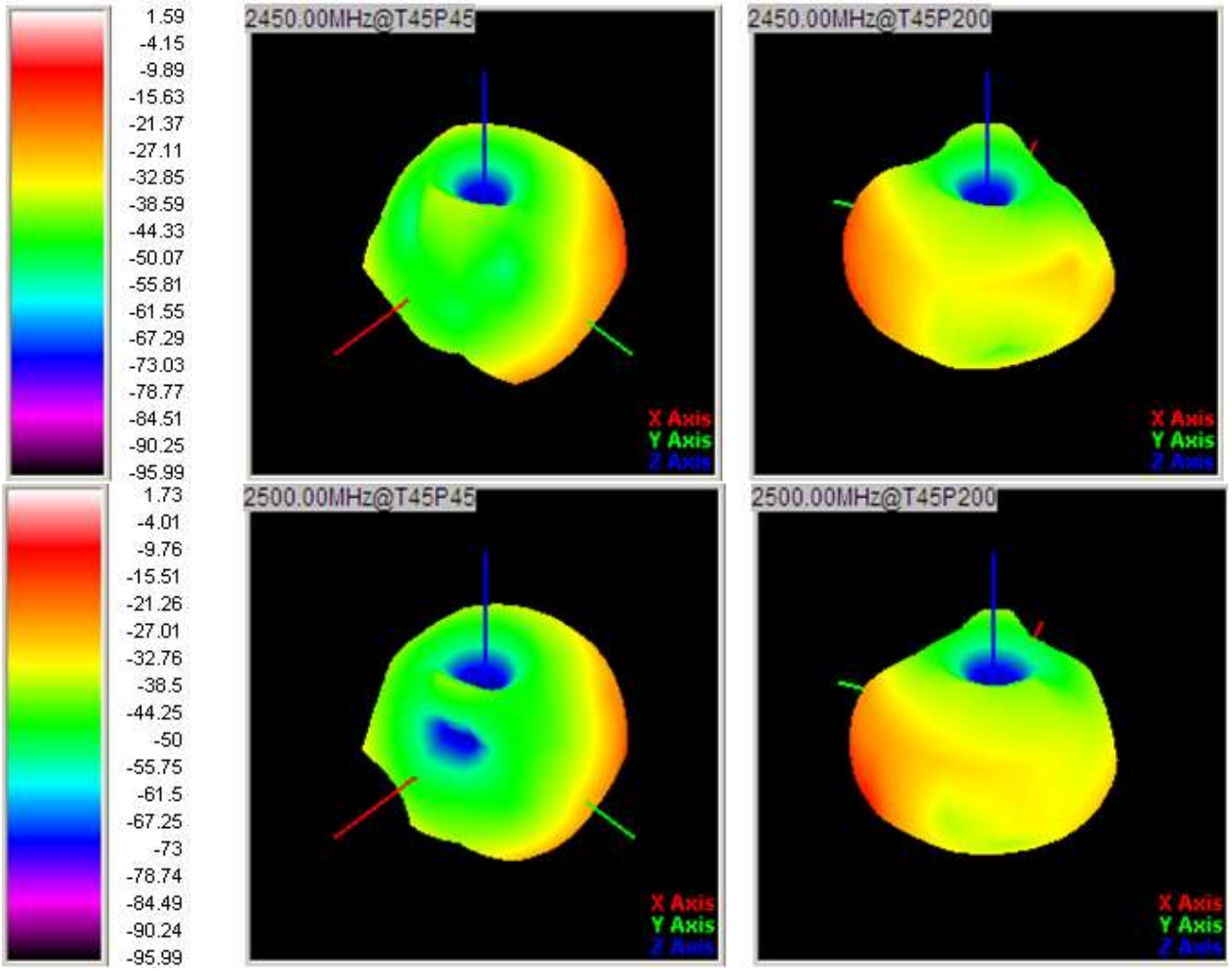
4.1.2 Passive parameters

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



4.1.3 Antenna 3D Radiation Pattern (Unit:dbi)

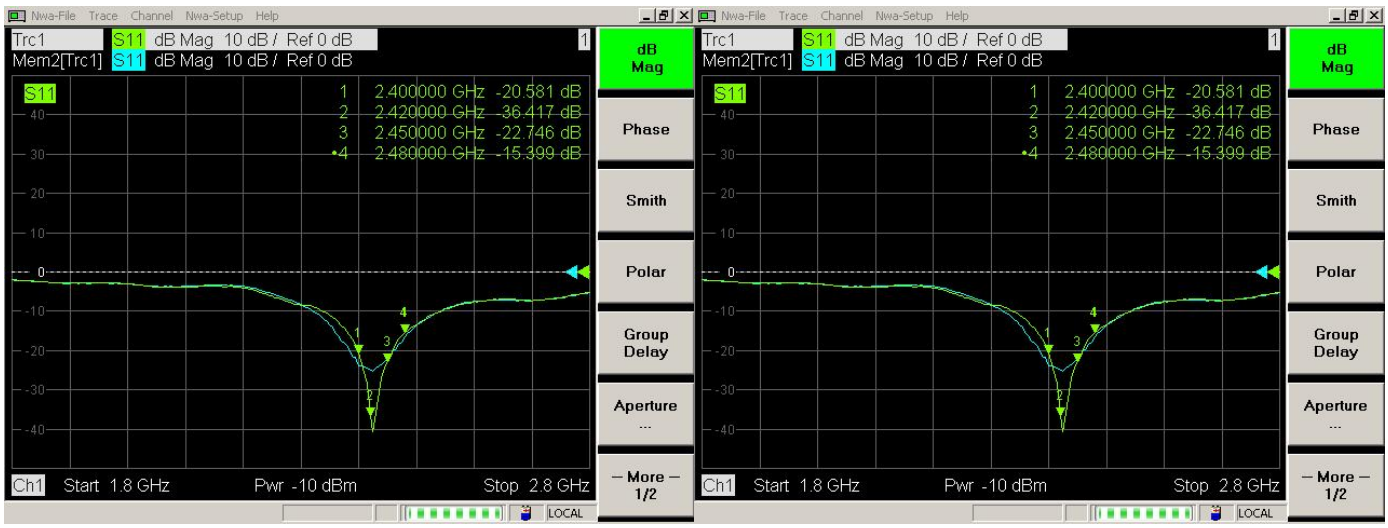




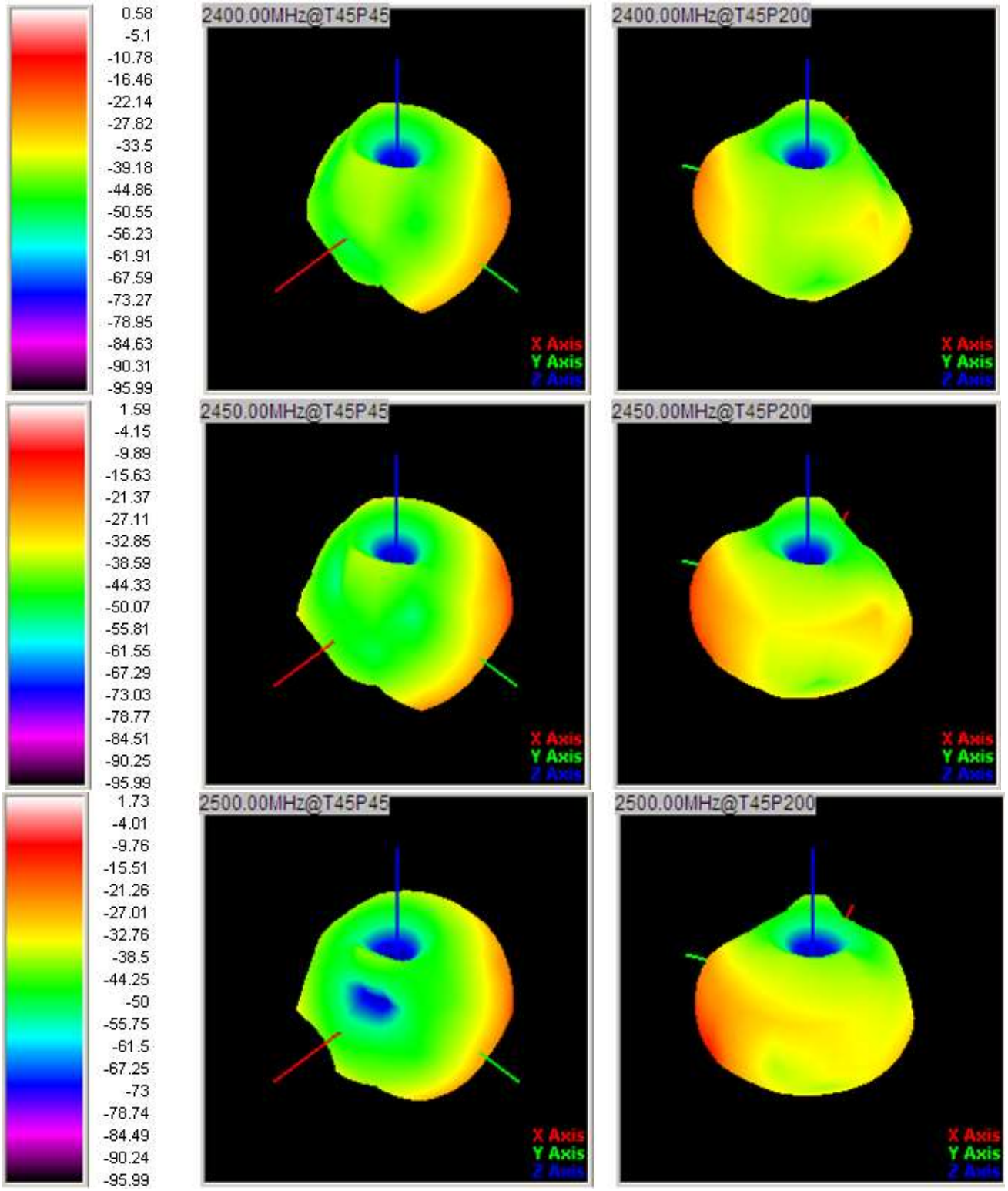
4.2 RF Performance –BT Antenna

4.2.1 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



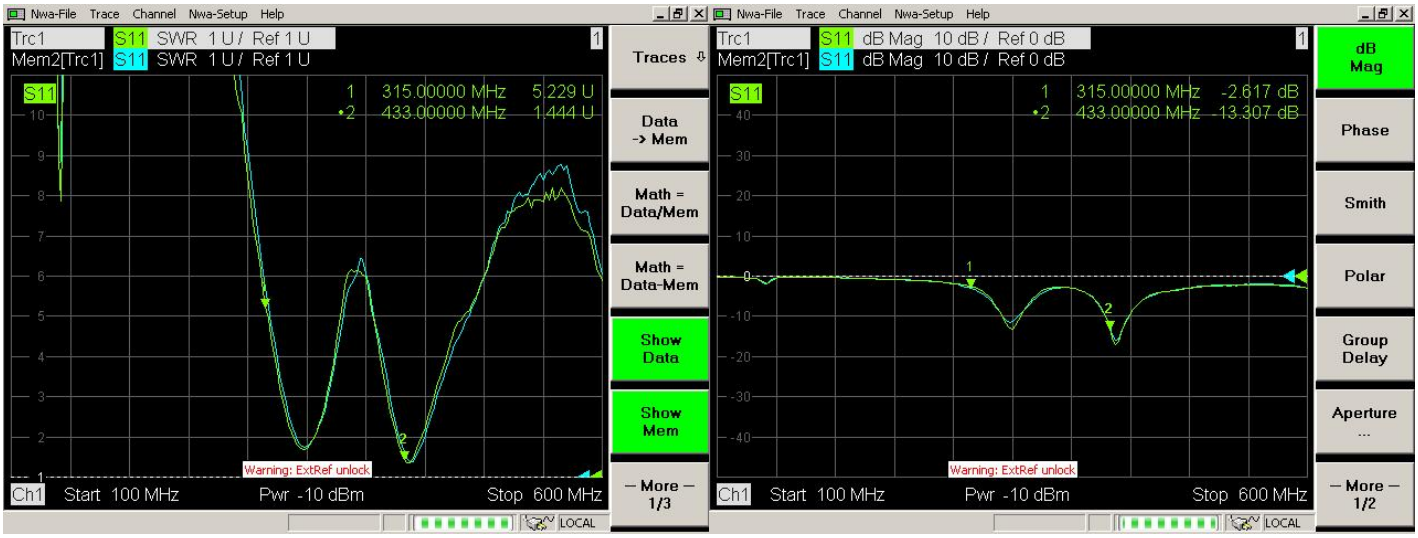
4.2.2 Antenna 3D Radiation Pattern (Unit:dbi)



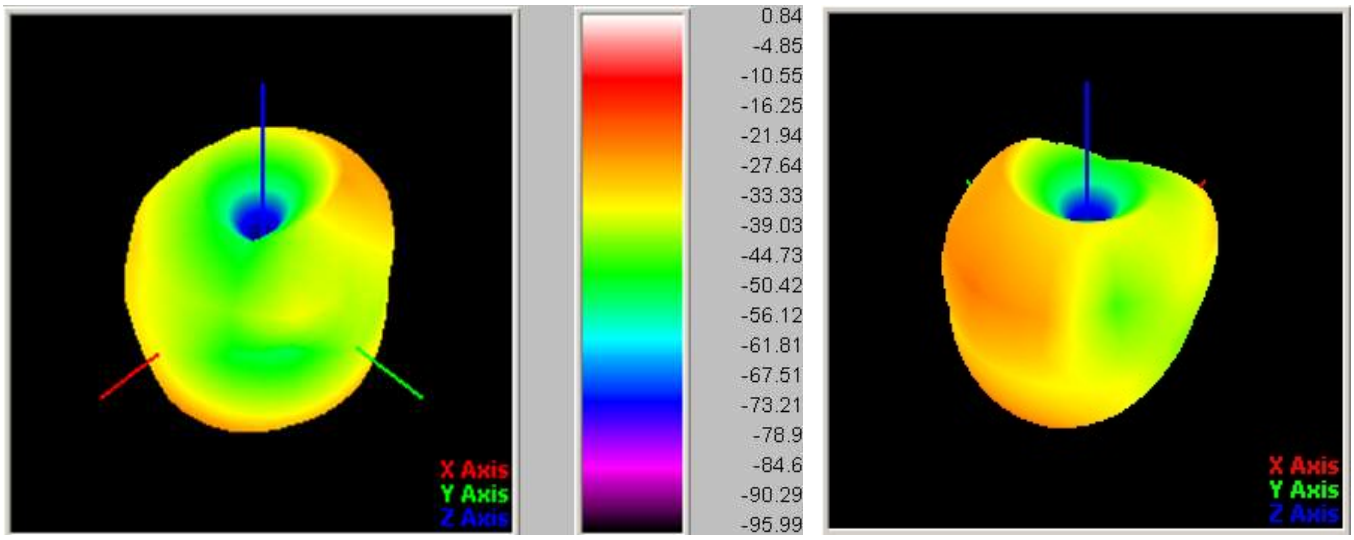
4.3 RF Performance-433/315MHZ Antenna

4.3.1 Passive parameters

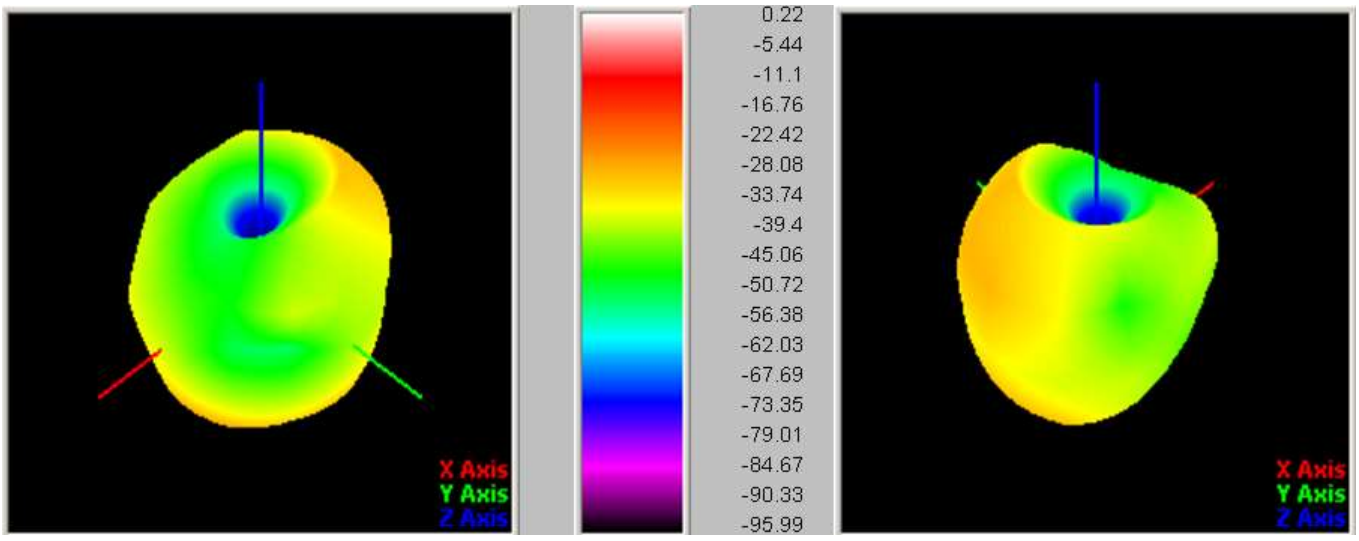
Frequency (MHz)	Return Loss(dB)	VSWR	Gain (dBi)
433	-13.3	1.44	0.84
315	-2.61	5.22	0.22



4.3.2 Radiation Pattern (Unit:dbi)

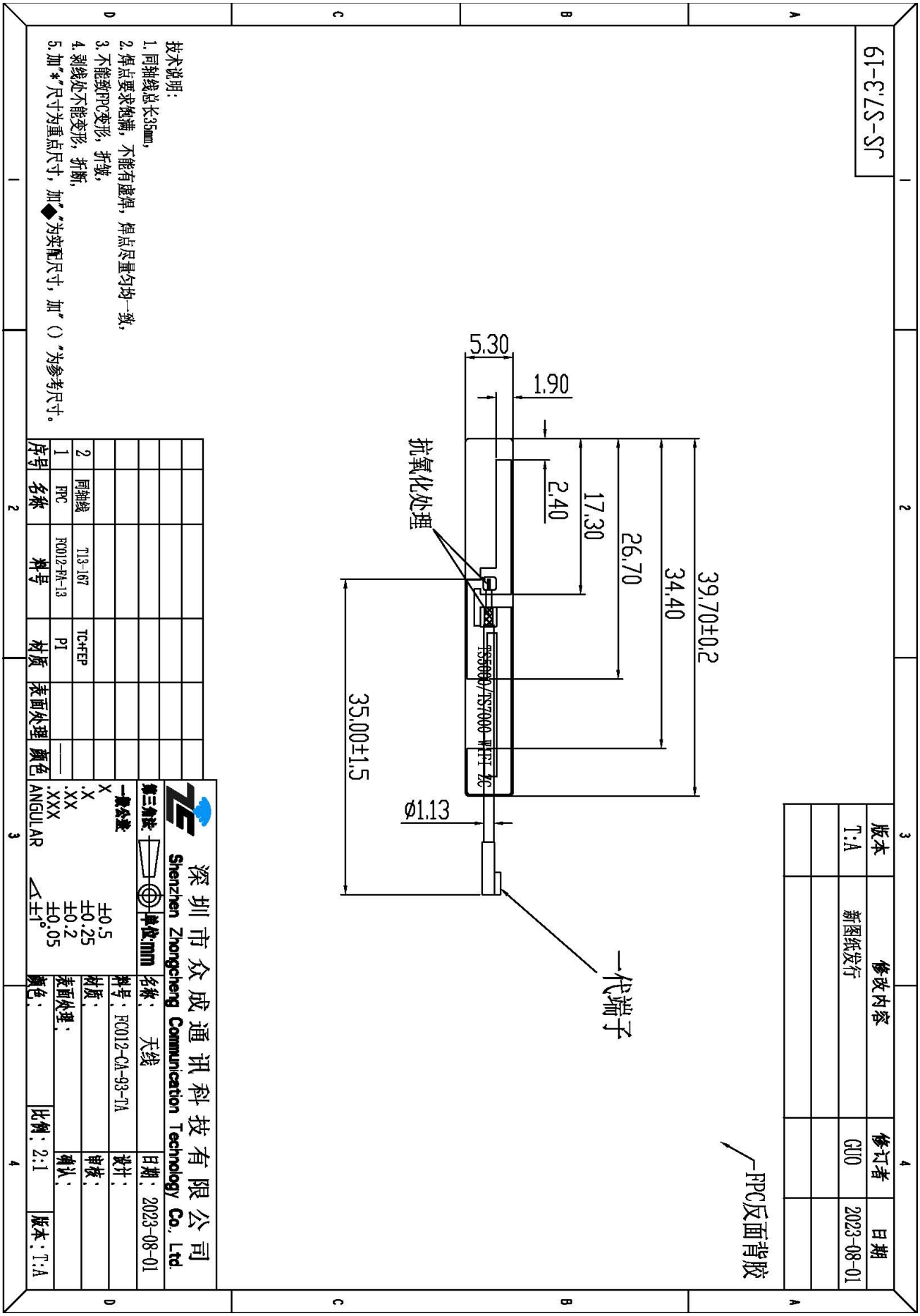


Passive -Freq443.00MHZ

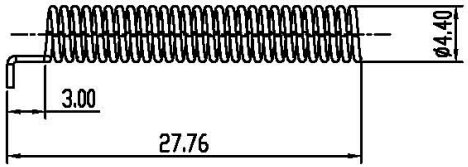


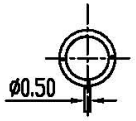
Passive -Freq315.00MHZ

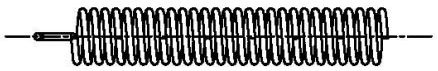
5. ME Drawing for the antenna

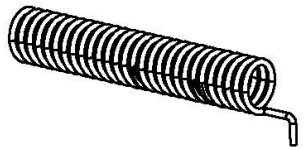


版本	修改内容	修订者	日期
T:A	新图纸发行	GUO	2023-06-10









技术说明:

1. 一段螺距，每段螺距要等距,
2. 外径要一致，不能变形,不能有脏污、色斑、氧化,
3. 加"*"尺寸为重点尺寸，加"◆"为实配尺寸，加"（）"为参考尺寸,
4. 未注公差按一般公差，未注圆角R0.2,

深圳市众成通讯科技有限公司 Shenzhen Zhongcheng Communication Technology Co., Ltd.			
第三角法	单位:mm	名称: 弹簧线圈	日期: 2023-08-01
一般公差 X ±0.5 .X ±0.25 .XX ±0.10 .XXX ±0.05 ANGULAR ∠ ±1°		料号: FC012-XB-16-TA	设计:
		材质: 镀镍钢丝	审核:
		表面处理:	确认:
		颜色:	比例: 2:1 / 版本: T:A