SUNNYWAY 尚远科技

Shanghai Sunnyway Communication Technology Limited Company

Skyline Acknowledgement Book

Customer: SUNMI	The project: P2 LITE SE
Operating frequency band: **GSM850/ 900/1800/1900 +WCDMA1/2/5/8+LTE Band 1/2/3/4/5/7/12/17/28+TDD Band/38/41**	
Motherboard version: P2 LITE SE-MB-V1.2	

Shangyuan material specifications		
Specifications and models	Shangyuan material number	Customer part number
div antenna	SH22027IB75-3	

The record of project changes			
Date of preparation/change	Changes	Change of person	version
22.09.20	first edition	linfeng	V1.0

Sunnyway counter-signature bar				
Research and development	ME:	Auditor:	QE:	Approver:
	RF:	Auditor:		

Client Counter-signature bar			
EE	PM	RF	QE

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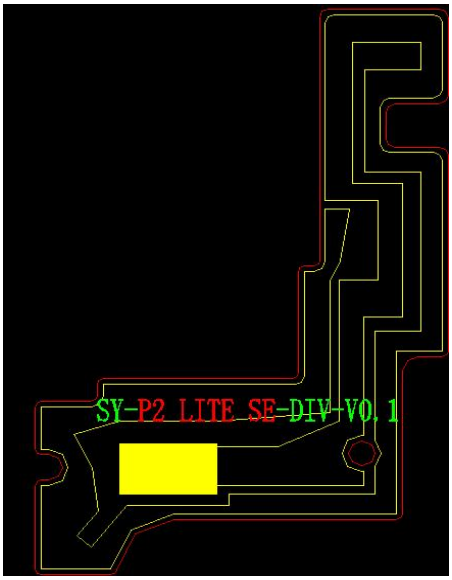
Shanghai Shangyuan Communication Technology Co., Ltd. antenna recognition

1. Project information

Machine information

Antenna information



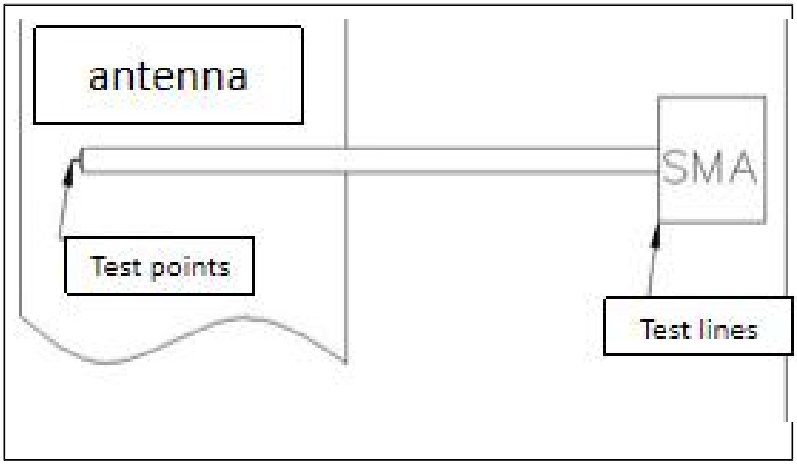
	Antenna version
Diversity	SY-P2 LITE SE-DIV-V0.1

Note: The customer finally verified that the antenna performance prototype was retained in our company for at least one year, which is convenient for analysis and solution to abnormal situations in antenna mass production.
Ensure antenna shipment quality.

2. Test fixtures

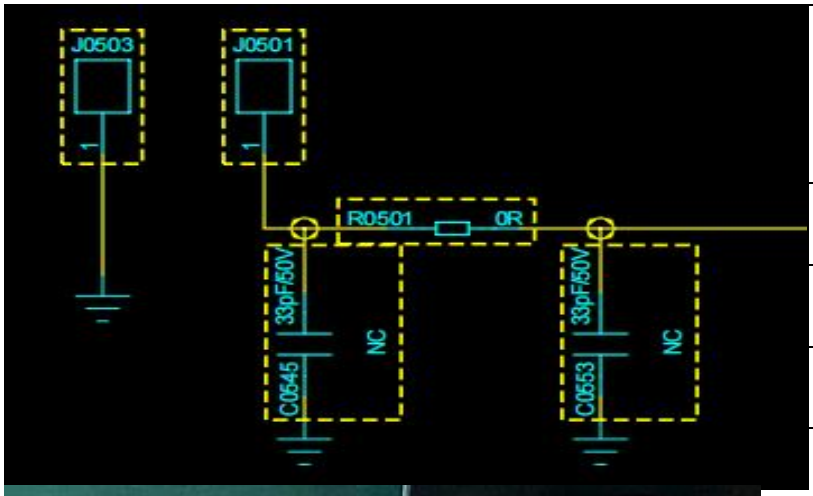
Purpose: To test the passive parameters of the antenna as accurately as possible.

How to make: The prototyping mechanism is made of a 50 ohm coaxial cable, one end is connected to the test point at the back of the matching circuit of the prototype motherboard (the front of the RF test hole), and the other end is connected to the SMA connector. The schematic diagram is as follows:

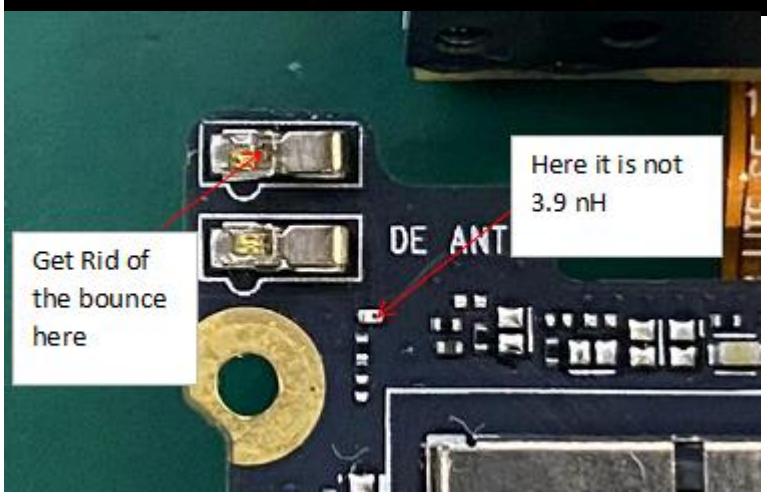


3. Matching circuits

Diversity antenna



Element	Value	Main circuit electronic components
E1	3.9nH	C0545
E2	0Ω	R0501
E3	N/C	C0553



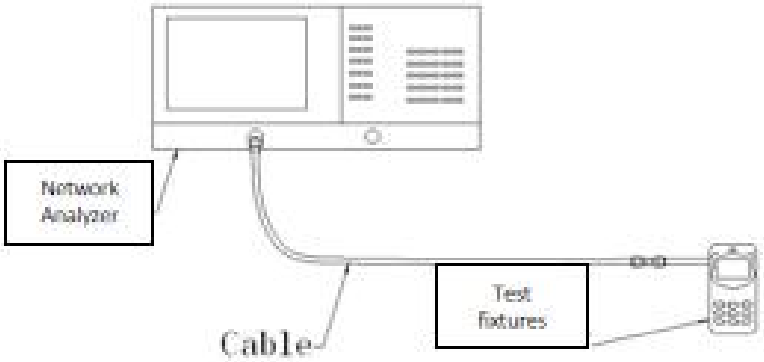
4. S11 test

4. 1S11 Test Method Description

Test Equipment: Network Analyzer (E5071C)

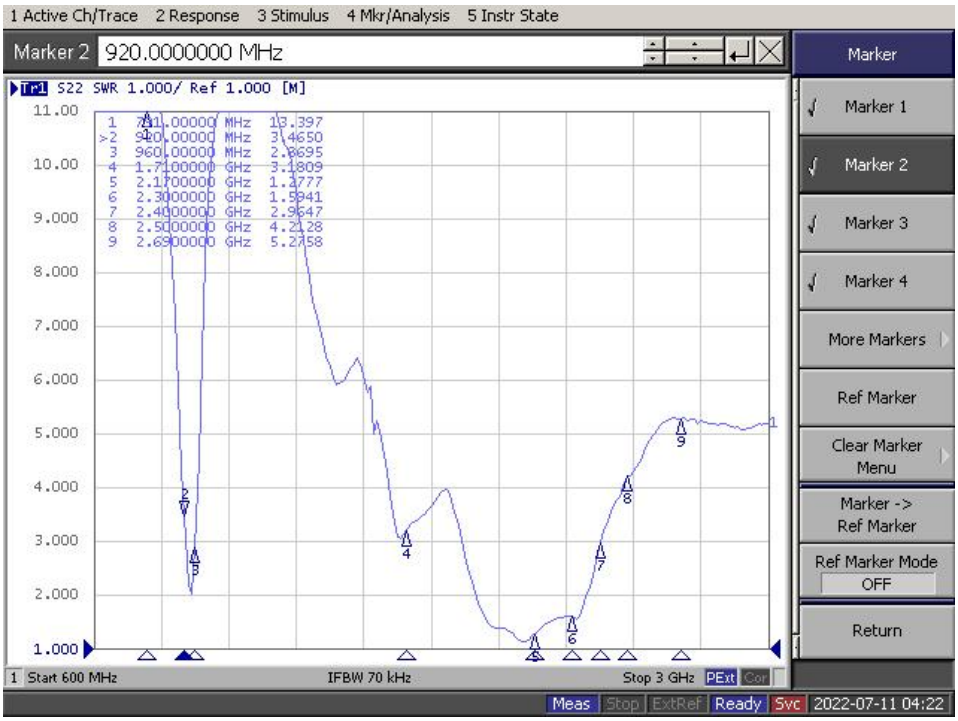
Test method: A 50 ohm CABLE cable is derived from the instrument test port, and the SMA connector of the prototype is connected after calibration using the calibrator to record the return loss and standing wave ratio corresponding to the relevant frequency point.

The test diagram is as follows:



Test the schematic

4.2 S11 parameter



frequency (MHz)	SWR
791	13.39
920	3.46
960	2.86
1710	3.18
2170	1.27
2300	1.59
2400	2.96
2500	4.20
2690	5.27

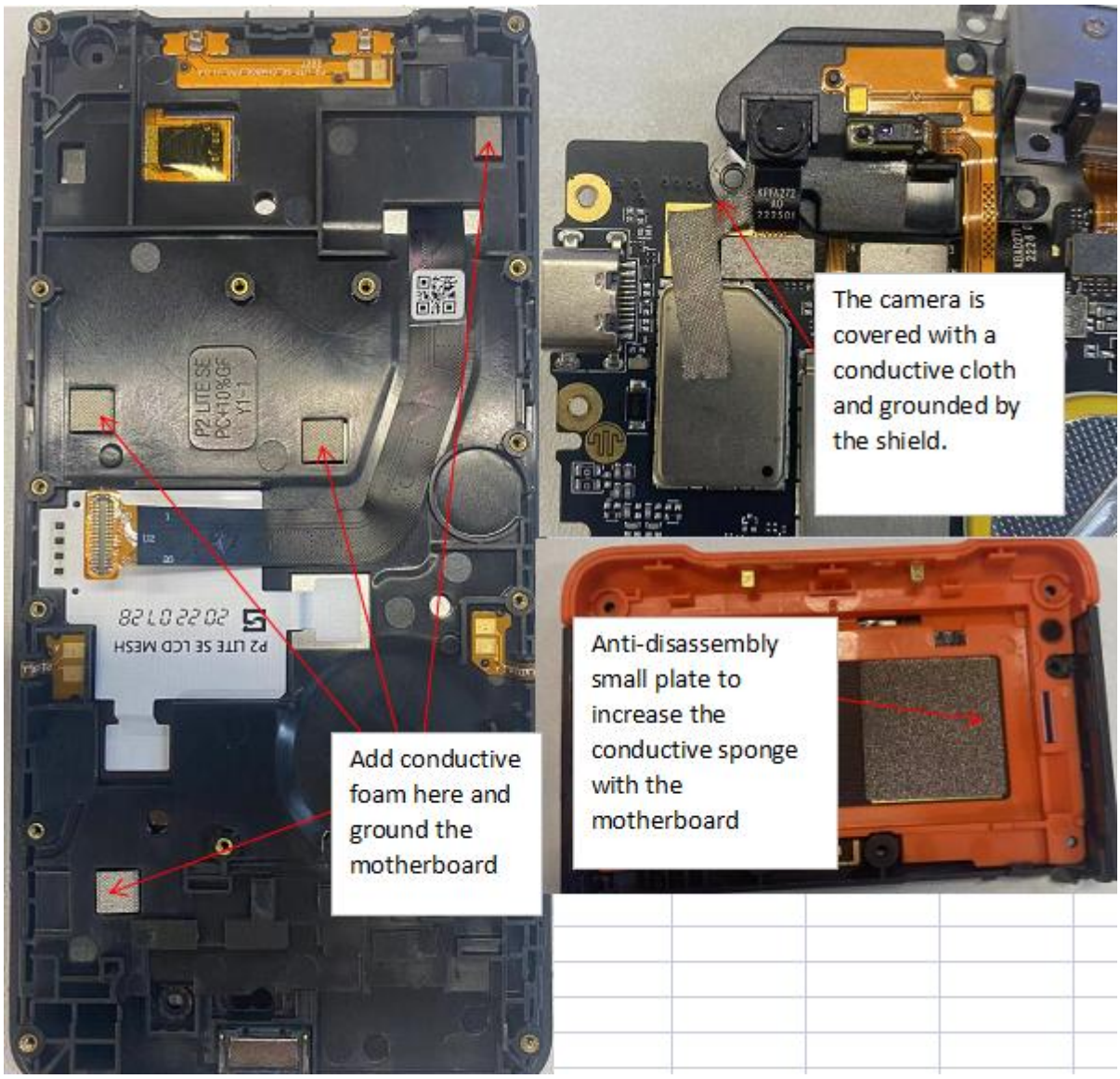
5 Darkroom test data

Test system: Shielded darkroom
Test environment: temperature 22℃±3℃, humidity 50%±15%
Test equipment: When testing passive data, use the Network Analyzer Agilent E5062C
When testing active data, the Comprehensive Tester Agilent 8960 /CMW500/E4438C is used

5.1 Passive test data

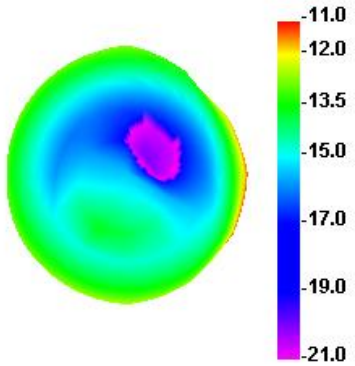
					Diversity antenna						
frequency (MHz)	Gain(dBi)	Efficiency(dB)	frequency (MHz)	Gain(dBi)	Efficiency(dB)	frequency (MHz)	Gain(dBi)	Efficiency(dB)	frequency (MHz)	Gain(dBi)	Efficiency(dB)
880	-6.5	-9.8	1890	1.3	-5.3	2170	0.1	-4.5	2450	-0.3	-6.3
890	-5.8	-9.2	1900	0.4	-6.0	2180	0.3	-4.1	2460	-0.4	-6.3
900	-4.4	-7.8	1910	0.3	-6.1	2190	0.3	-4.2	2470	-1.2	-6.8
910	-3.6	-7.0	1920	-0.3	-6.4	2200	0.4	-3.7	2480	-0.9	-6.6
920	-2.7	-6.2	1930	-0.1	-6.2	2210	0.3	-4.0	2490	-0.8	-6.4
930	-2.7	-6.0	1940	-0.1	-6.0	2220	0.8	-3.5	2500	-0.7	-6.7
940	-2.6	-5.8	1950	0.4	-5.5	2230	0.9	-3.6	2510	-0.7	-6.4
950	-3.0	-6.1	1960	0.2	-5.8	2240	1.0	-3.6	2520	-1.1	-6.5
960	-3.4	-6.8	1970	0.3	-5.7	2250	0.7	-4.2	2530	-0.8	-6.1
			1980	0.0	-6.1	2260	0.6	-4.4	2540	-0.8	-5.9
1710	-0.6	-6.0	1990	0.5	-5.5	2270	0.4	-5.1	2550	-1.0	-5.9
1720	-1.0	-6.3	2000	0.4	-5.5	2280	0.4	-5.2	2560	-1.8	-6.6
1730	0.0	-5.3	2010	0.1	-5.9	2290	0.4	-5.4	2570	-1.2	-6.1
1740	0.0	-5.2	2020	0.2	-5.7	2300	0.4	-5.3	2580	-1.6	-6.6
1750	0.8	-4.5	2030	0.3	-5.5	2310	0.4	-5.5	2590	-1.3	-6.3
1760	0.4	-5.3	2040	0.2	-5.4	2320	1.1	-5.0	2600	-2.1	-7.2
1770	1.2	-5.0	2050	-0.2	-5.4	2330	1.2	-5.0	2610	-2.1	-7.1
1780	0.7	-5.6	2060	-0.1	-4.8	2340	1.5	-4.6	2620	-3.0	-8.0
1790	1.2	-5.3	2070	-0.7	-4.9	2350	1.0	-5.0	2630	-2.6	-7.6
1800	0.3	-6.2	2080	-0.6	-4.7	2360	0.6	-4.9	2640	-2.9	-7.7
1810	0.4	-6.1	2090	-0.3	-4.8	2370	-0.7	-5.9	2650	-3.1	-7.8
1820	-0.3	-6.8	2100	0.1	-4.2	2380	0.1	-5.1	2660	-3.6	-8.2
1830	0.3	-6.2	2110	-0.2	-4.2	2390	-0.3	-5.7	2670	-3.2	-7.7
1840	0.4	-6.2	2120	-0.1	-4.3	2400	-0.2	-6.2	2680	-3.4	-7.9
1850	1.1	-5.6	2130	0.0	-4.3	2410	-0.5	-6.5	2690	-3.4	-7.9
1860	0.9	-5.8	2140	0.0	-4.4	2420	-0.1	-6.0			
1870	1.5	-5.3	2150	0.0	-4.4	2430	-0.5	-6.1			
1880	1.1	-5.5	2160	-0.1	-4.6	2440	0.1	-5.7			

6. Prototype grounding

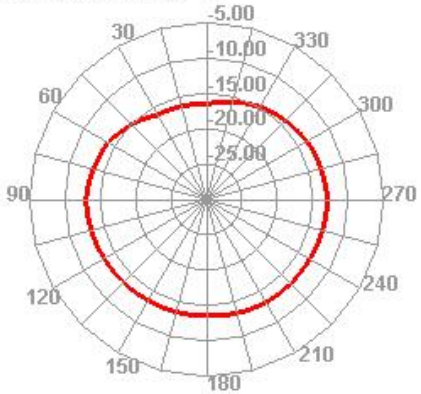


7. MAntenna Radiation Patterns

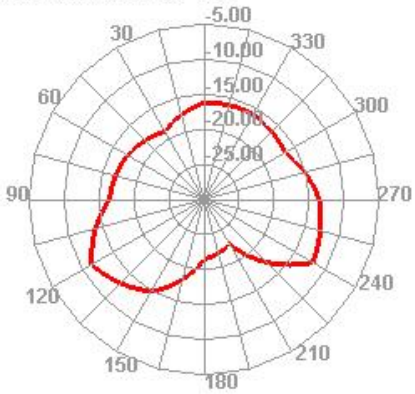
820.000MHz



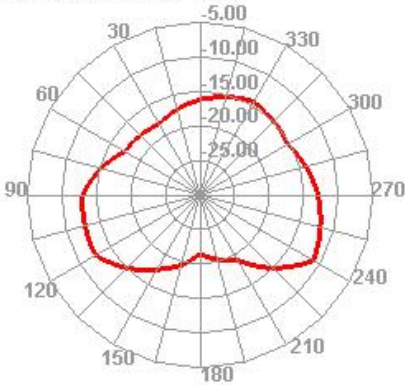
820.000MHz H



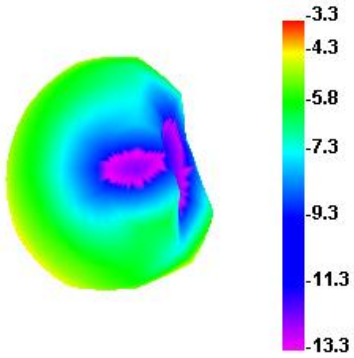
820.000MHz E1



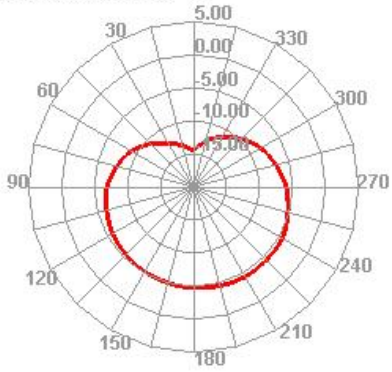
820.000MHz E2



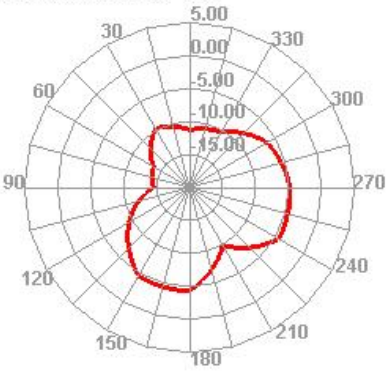
960.000MHz



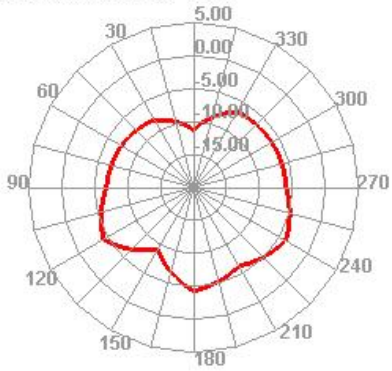
960.000MHz H



960.000MHz E1



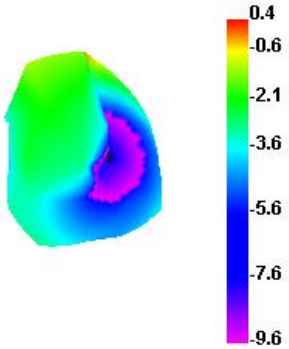
960.000MHz E2



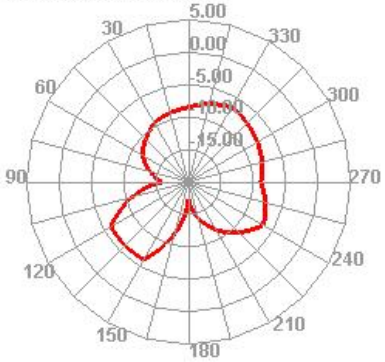
上海尚远通讯科技有限公司天线承认书

MAntenna Radiation Patterns

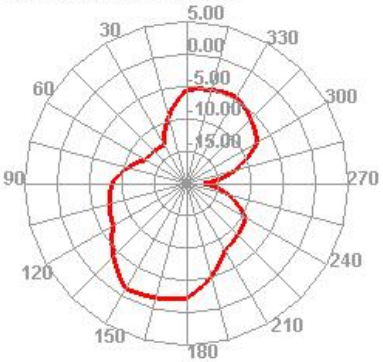
1810.000MHz



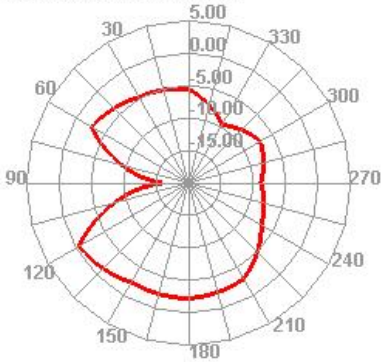
1810.000MHz H



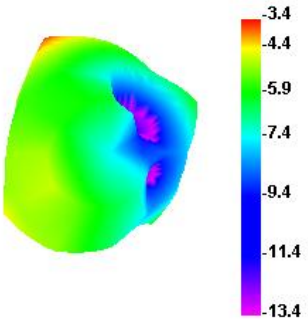
1810.000MHz E1



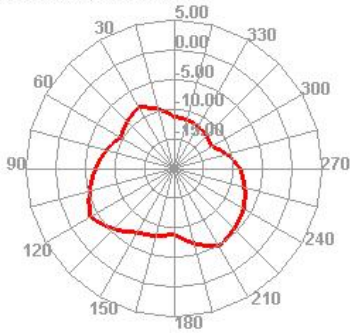
1810.000MHz E2



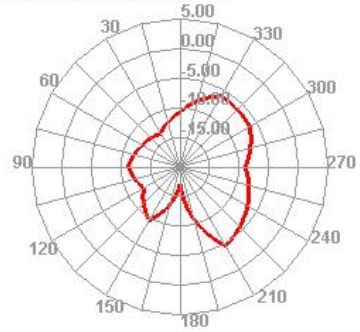
2690.000MHz



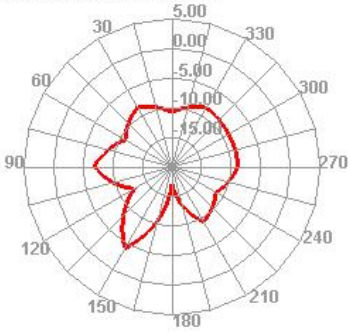
2690.000MHz H



2690.000MHz E1



2690.000MHz E2

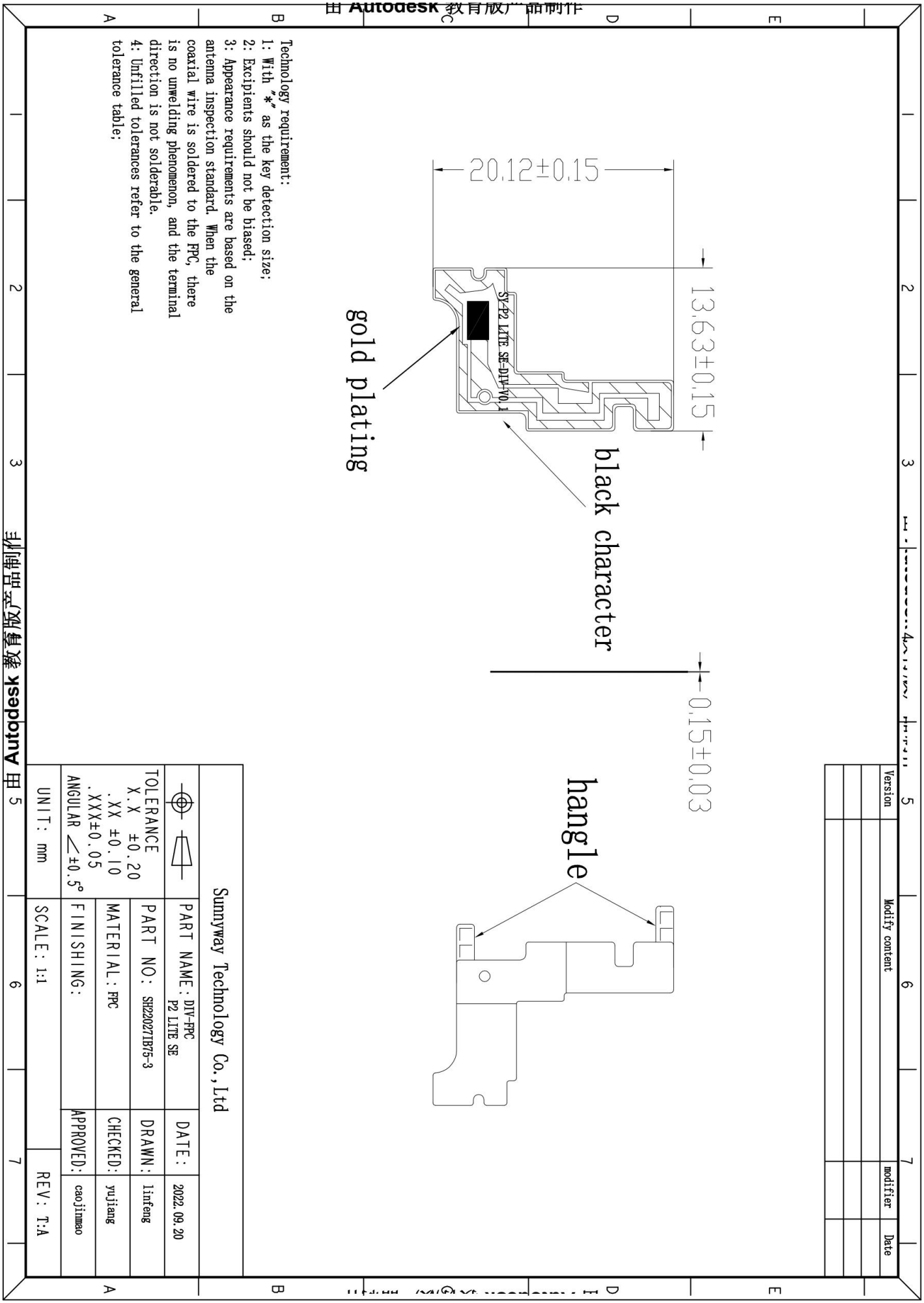


8. Mass production antenna indicators

When the antenna is mass-produced, the standing wave ratio is used as the mass production test standard. According to the differences in the project itself, the following criteria are given:

frequency（MHz）	Mass production standards
Diversity antenna 920--960；1710--2690	VSWR（Mass production performance）<VSWR(Acknowledge performance)+0.5

9 Drawings


20.12±0.15
13.63±0.15
SY-P2 LITE SE-DIY-V0.1
gold plating
black character
0.15±0.03
hangle
Technology requirement:
1: With "*" as the key detection size;
2: Excipients should not be biased;
3: Appearance requirements are based on the antenna inspection standard. When the coaxial wire is soldered to the FPC, there is no unwelding phenomenon, and the terminal direction is not solderable.
4: Unfilled tolerances refer to the general tolerance table;
Version
Modify content
modifier
Date
Sunnyway Technology Co.,Ltd
PART NAME: DIY-FPC P2 LITE SE
DATE: 2022.09.20
PART NO: SH22027IB75-3
DRAWN: linfeng
MATERIAL: FPC
CHECKED: yujiang
FINISHING:
APPROVED: caojinmao
TOLERANCE
X.X ±0.20
.XX ±0.10
.XXX±0.05
ANGULAR ∠±0.5°
UNIT: mm
SCALE: 1:1
REV: T:A