

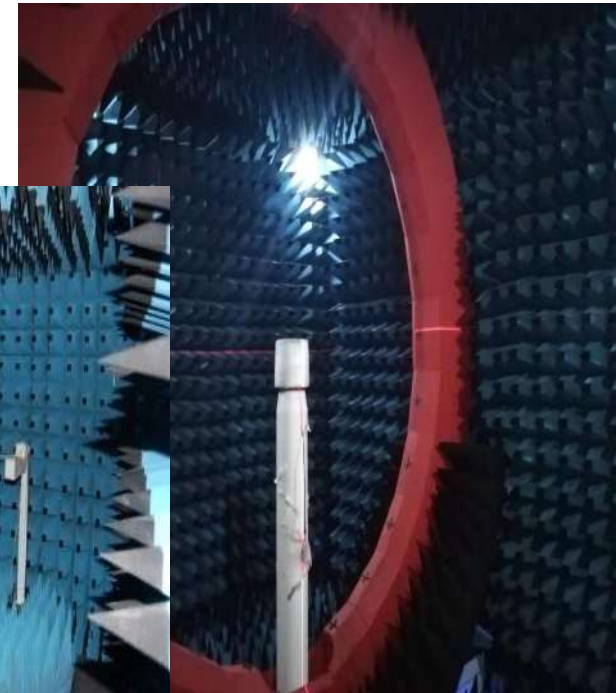
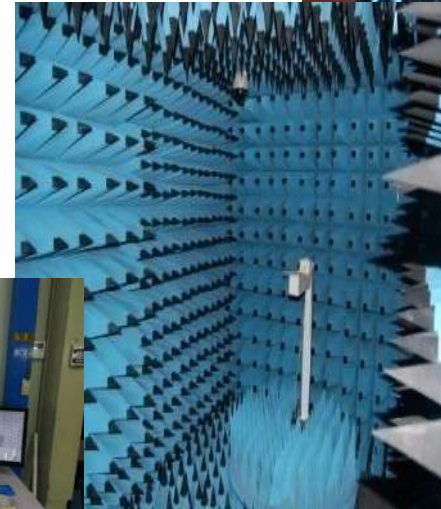
The test report

Model Name :T0821 3in1 Antenna

Mar 26, 2022

contents:

1. Project overview
2. Report version record
3. Company and testing environment
4. Matching circuit
5. Antenna related data
6. Active data
7. Engineering drawing



Project overview :

Prototype status		Debug the machine		product type		T0821	
Antenna overview							
	Frequency		structural style	Type	position	Matching change	Antenna version number
3in1 ant	WIFI	2400-2500MHz 5120-5850MHz	FPC	PIFA	housing	NO	V0.1
	GPS	L1:1575.42MHz					
other ant							
Environmental treatment				No			

Report version record

Edition	Report time	Commissioning overview
A1	2022.03.26	First sample test Report

Company profile

◆ Futen Technology (Shanghai) Co., Ltd; Founded in September 2016, it is an advanced mobile terminal antenna enterprise in China, covering an area of more than 2000 square meters. R & D centers have been set up in Shanghai and Shenzhen.

◆ Main business: focus on the field of wireless communication intelligent terminal antenna (I have accumulated a lot of experience in the research and development technology of 2g/3g/4g/5g full band antenna, including mobile phone built-in antenna, notebook antenna, NFC, LDS, metal frame antenna, GPS ceramic antenna, Beidou antenna, module antenna, external antenna, fixed station antenna, rod antenna, ceiling antenna, beautification antenna, base station antenna, small microwave antenna used by IOT intelligent terminal, telecom power and other antennas.) Provide products and services to meet the requirements of precision mold design and manufacturing, injection molding, surface coating and light metal shell manufacturing of the whole industry chain. The products are widely used in mobile phones, pads, wearable devices, laptops, automobiles, security monitoring and other fields.

研发设备



Agilent E5071C



Agilent 8753E



Agilent 8714ET



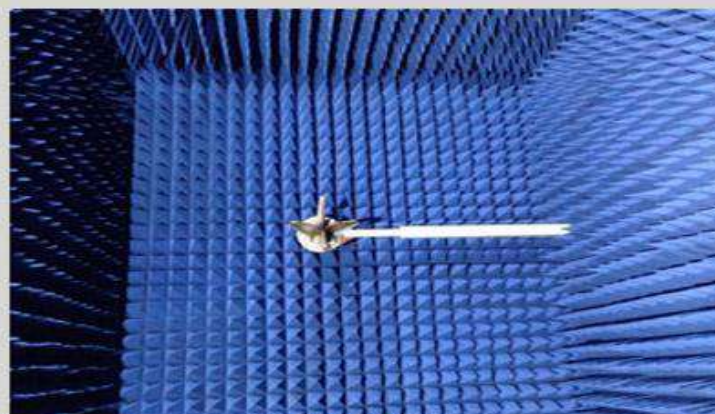
Agilent 8960 Series10



Satimo 暗室内景(2)



Satimo 暗室内景(2)



Satimo 暗室内景(3)



Satimo控制机柜



企业概况

研发设备

团结进取 开拓创新

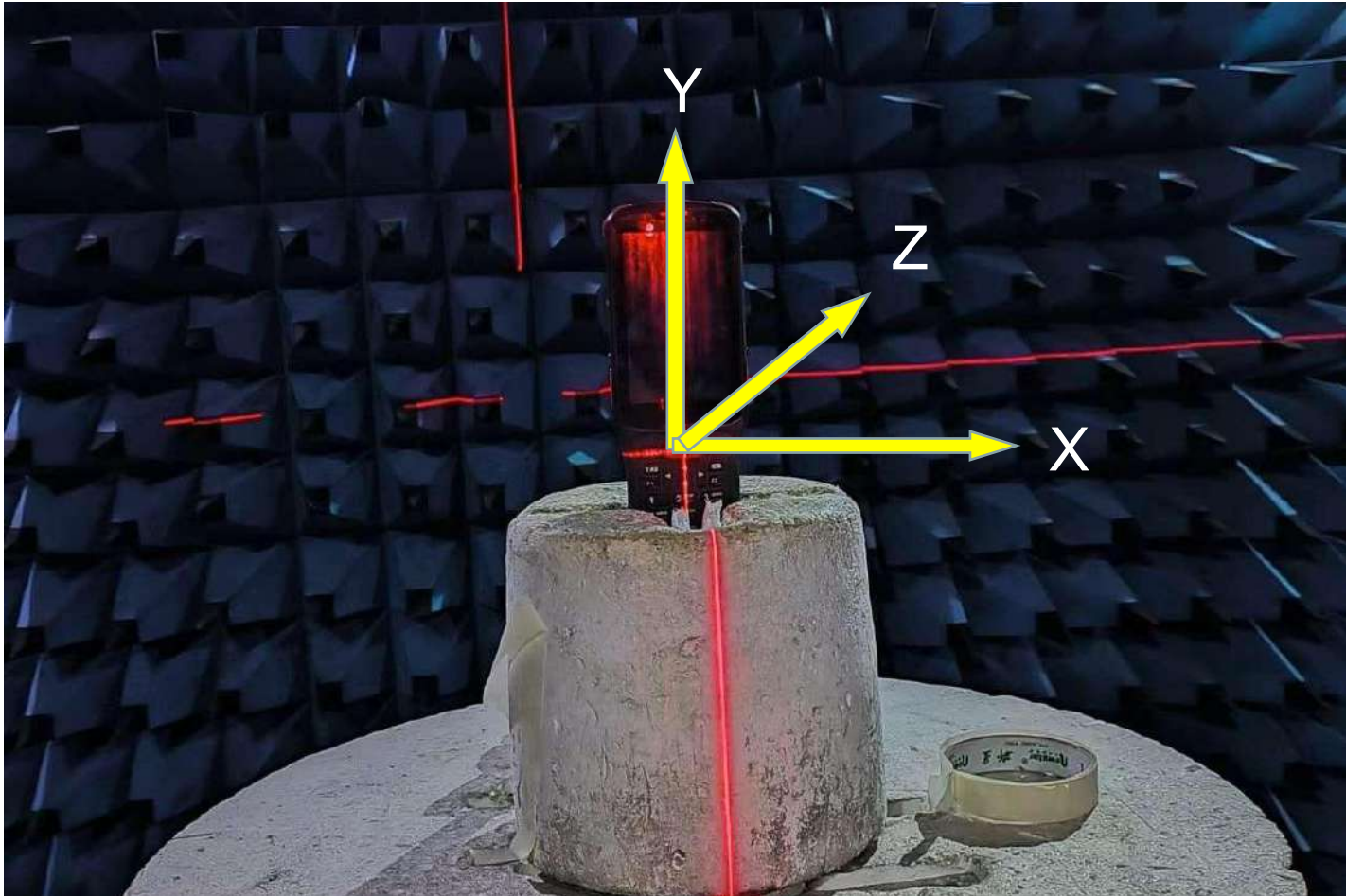
优质高效

追求卓越

The RF test fixture picture

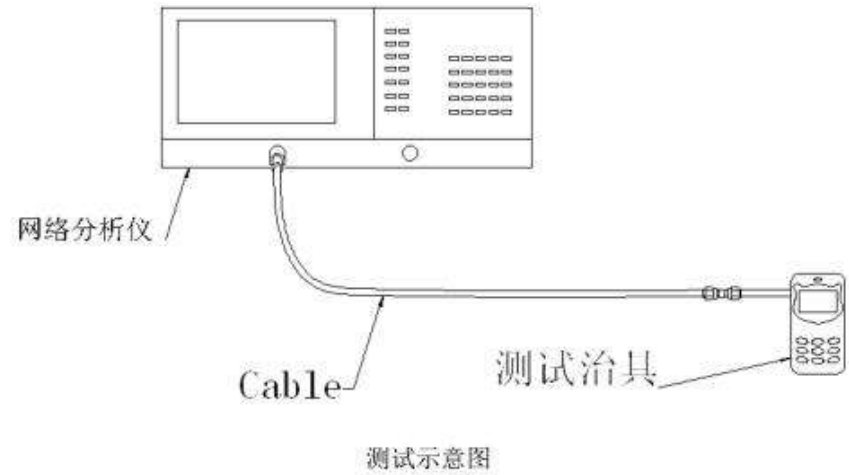
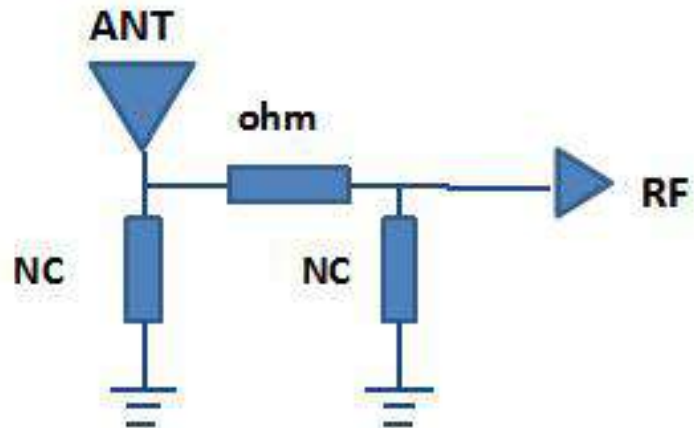


The RF test fixture picture

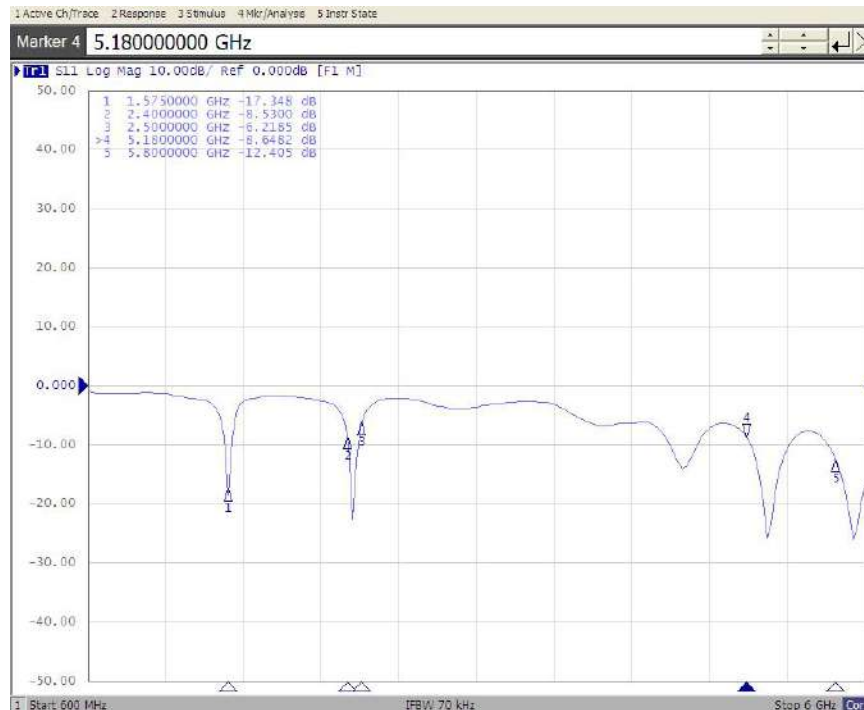
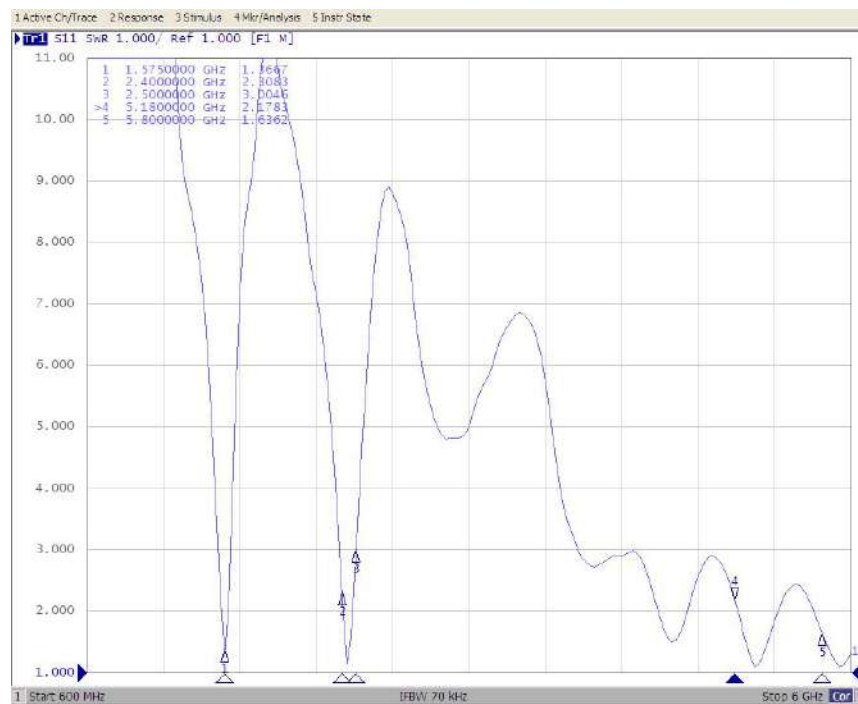


Matching circuit

matching circuit



1) S11 parameter test data

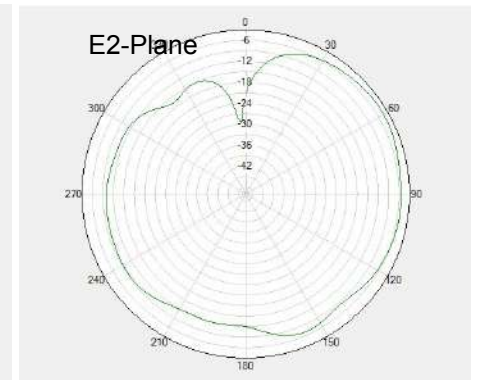
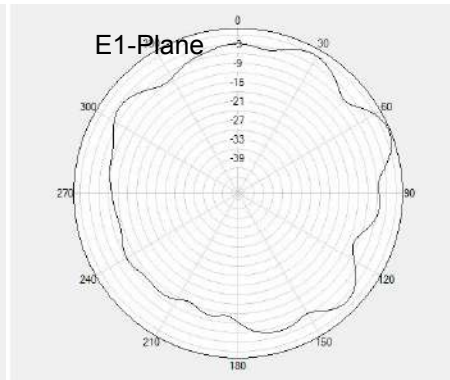
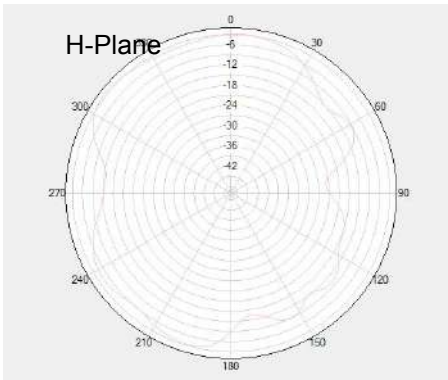
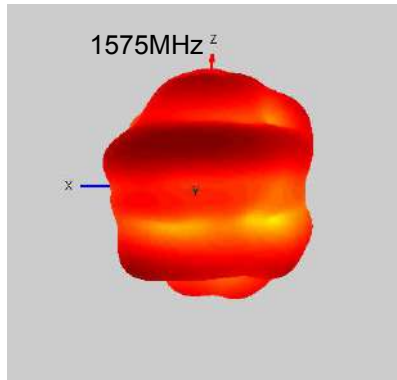


频率 (MHZ)	1575	2400	2500	5180	5800	
VSWR	1.36	2.3	3.0	2.17	1.63	
Return loss	-17.34	-8.53	-6.21	-8.64	-12.4	

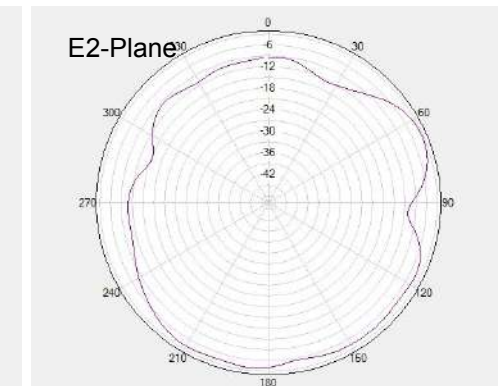
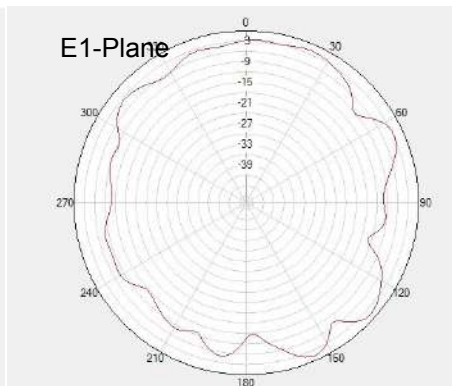
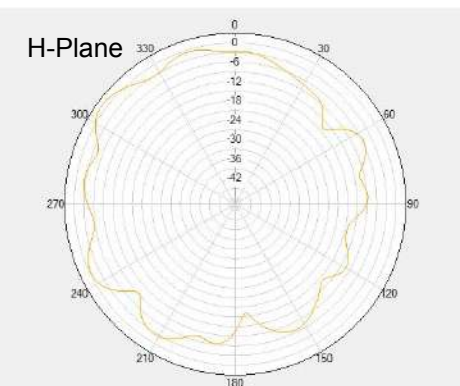
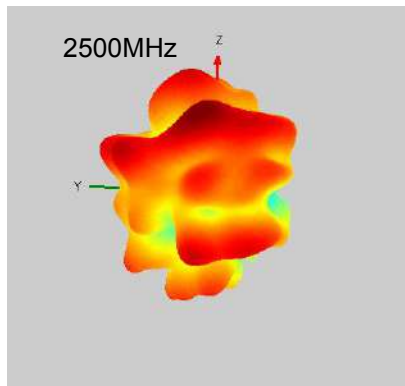
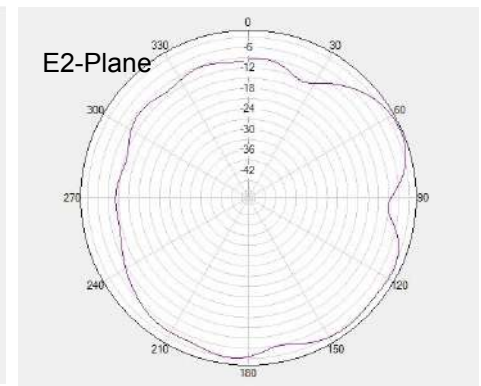
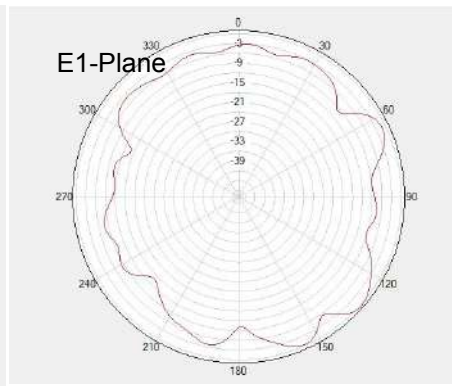
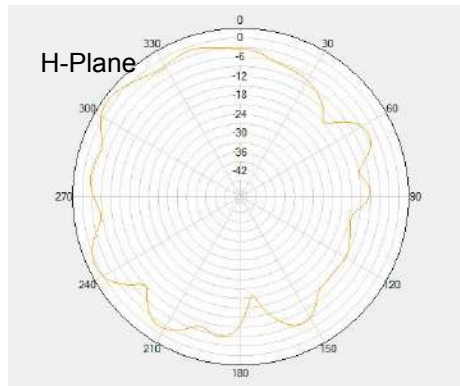
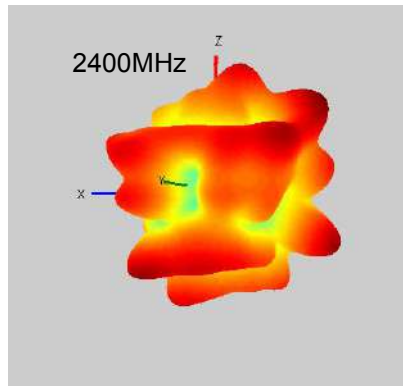
2) Gain&Efficiency test data

frequency 频率 (MHz)	gain 增益(dBi)	efficiency 效率(%)
1555	1.36	40.62
1565	1.95	45.71
1575	1.96	43.56
1585	1.51	39.15
1595	1.06	34.15
2400	1.07	28.11
2420	2.13	33.88
2440	1.94	33.18
2460	0.81	29.31
2480	0.9	29.90
2500	0.83	28.90
5150	1.81	32.51
5250	1.23	31.76
5350	2.18	38.49
5450	1.76	38.54
5550	1.74	35.55
5650	2.16	39.41
5750	2.88	42.88
5850	2.9	39.86
5900	3.27	43.50

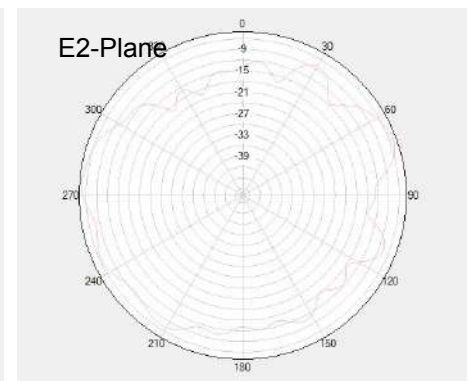
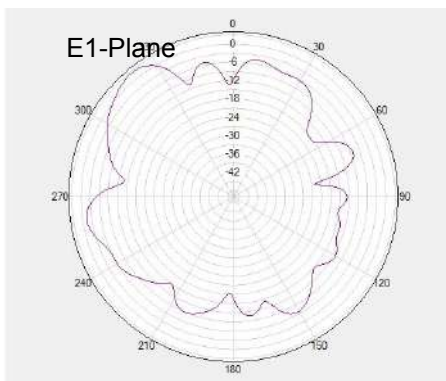
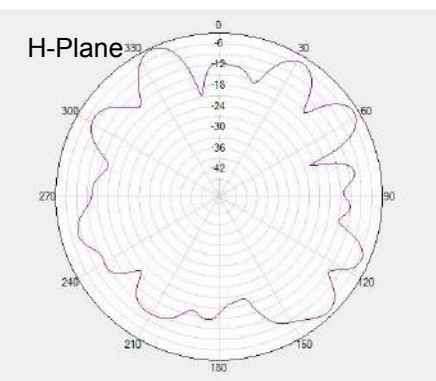
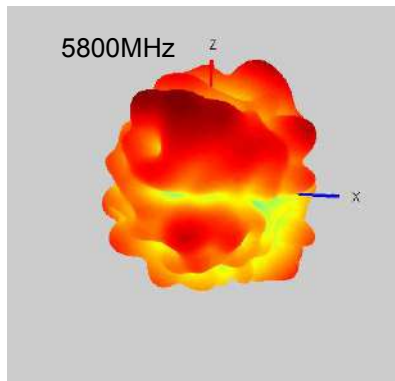
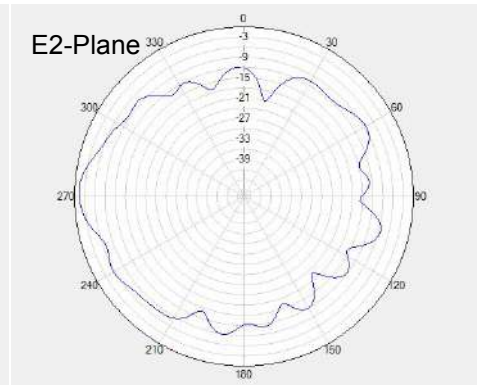
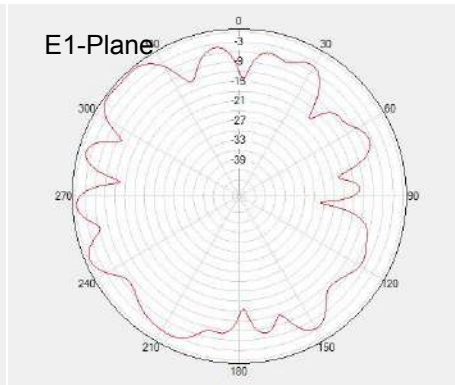
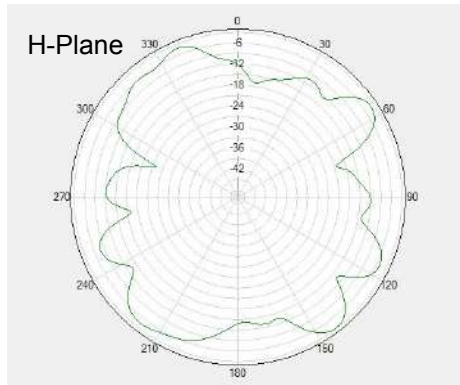
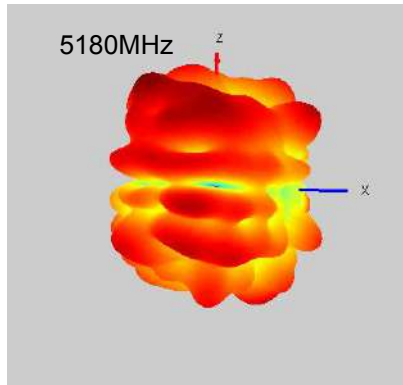
Field pattern



Field pattern



Field pattern



Active data

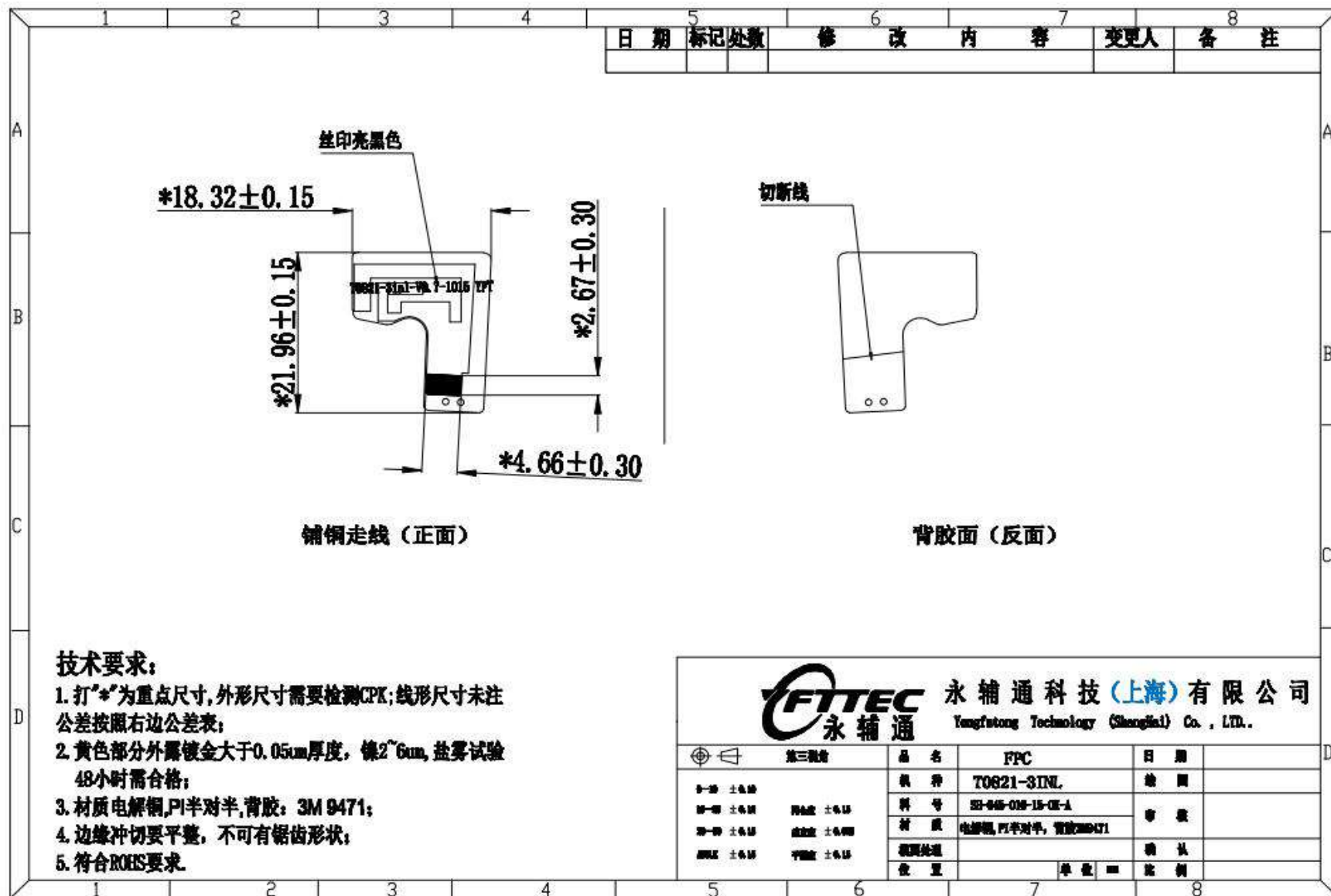
11b11M

Test	Wifi 2G TEST		
Result	1	7	11
Frequency (MHz)	2412	2442	2462
TRP (dBm)	14.13	13.74	13.73
TIS (dBm)			-83.42

11a54M

Test	Wifi 5G TEST		
Result	36	64	165
Frequency (MHz)	5180	5320	5825
TRP (dBm)	10.1	10.41	12.27
TIS (dBm)			-72.45

GPS:	-144.52
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Thanks for your comment!

Futen Technology (ShangHai) Co.,LTD..

Phone: 021-20905889

Address: Room 203, 2nd Floor, Building 1, No. 3408 xiupu Road,

Pudong New Area, Shanghai



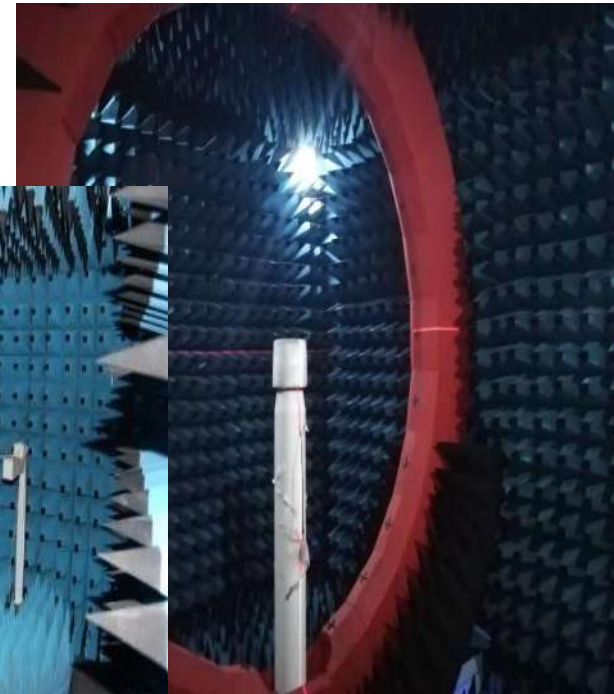
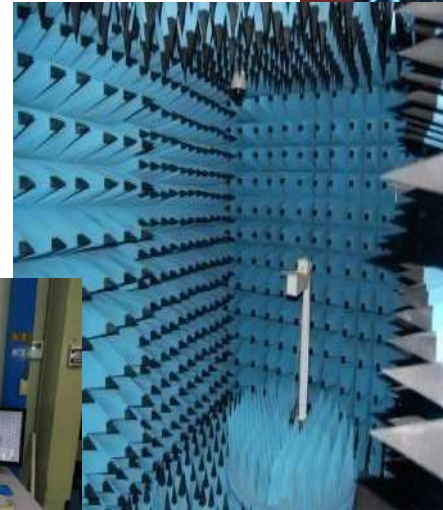
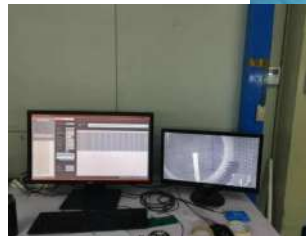
The test report

Model Name :T0821 Main Antenna

Mar 26, 2022

contents:

1. Project overview
2. Report version record
3. Company and testing environment
4. Matching circuit
5. Antenna related data
6. Environmental treatment of the whole machine
7. Engineering drawing



Project overview :

Prototype status		Debug the machine		product type		T0821	
Antenna overview							
	Frequency		structural style	Type	position	Matching change	Antenna version number
Main ant	LTE 4G	790-960MHz 1710-2690MHz	LDS	PIFA	housing	NO	V0.1
other ant							
Environmental treatment				No			

Report version record

Edition	Report time	Commissioning overview
A1	2022.03.26	First sample test Report

Company profile

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研发设备



Agilent E5071C



Agilent 8753E



Agilent 8714ET



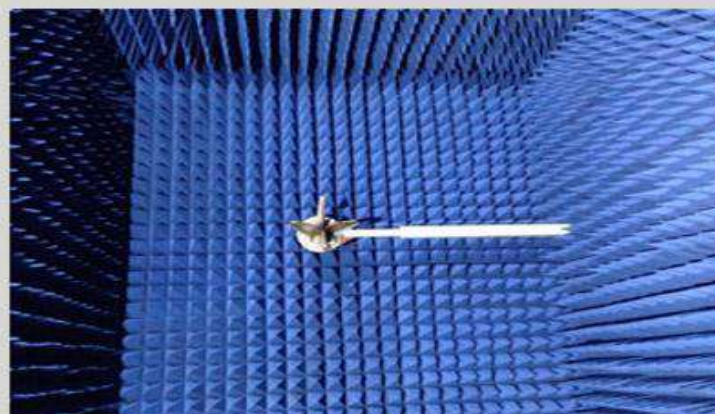
Agilent 8960 Series10



Satimo 暗室内景(2)



Satimo 暗室内景(2)



Satimo 暗室内景(3)



Satimo控制机柜



企业概况

研发设备

团结进取 开拓创新

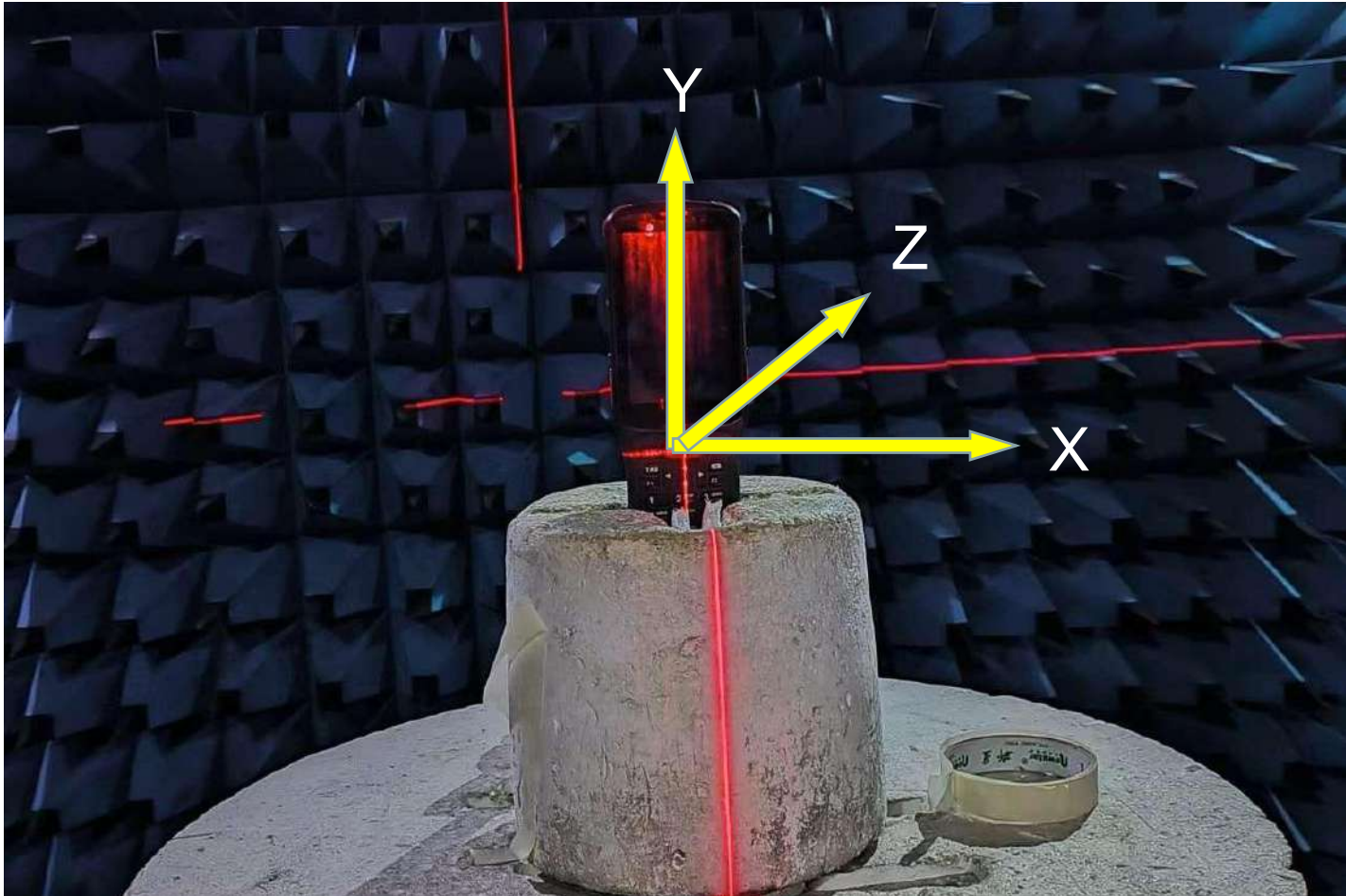
优质高效

追求卓越

The RF test fixture picture

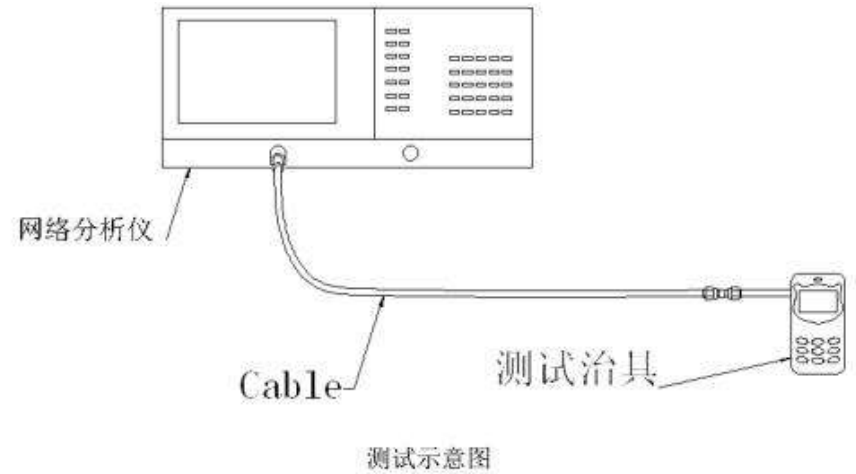
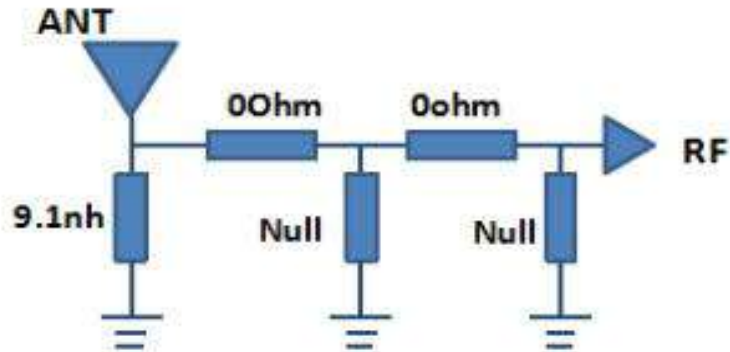


The RF test fixture picture



Matching circuit

Main matching circuit



RF switching circuit

A1版本天线开关:

RF1:0欧姆

RF2:5.6NH

RF3:5.1NH

RF4: NC

E1/L1版本天线开关:

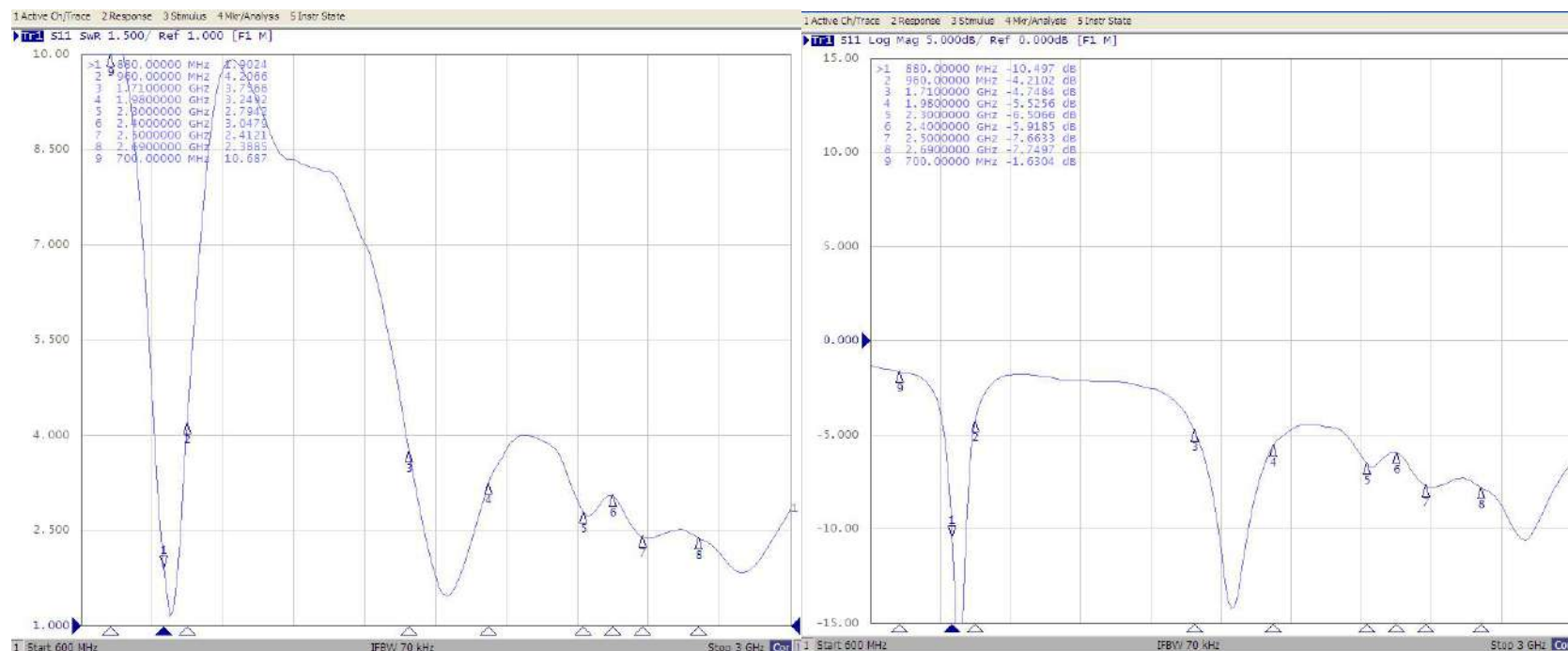
RF1:0欧姆

RF2:5.6NH

RF3:27NH

RF4: NC

1) S11 parameter test data



频率 (MHZ)	880	960	1710	1980	2400	2690
VSWR	1.9	4.2	3.75	3.24	3.04	2.38
Return loss	-10.5	-4.2	-4.7	-5.5	-5.9	-7.7

2) Gain&Efficiency test data

frequency 频率(MHz)	gain 增益 (dBi)	efficiency 效率(%)	frequency 频率(MHz)	gain 增益 (dBi)	efficiency 效率(%)	frequency 频率(MHz)	gain 增益 (dBi)	efficiency 效率(%)
880	-0.1	21.25	1710	-1	19.47	2300	0.42	30.30
900	1.86	33.94	1730	-0.75	21.63	2320	0.24	28.16
920	2.8	38.53	1750	-0.52	22.12	2340	0.57	29.33
940	2.04	29.33	1770	-0.17	24.10	2360	0.25	28.84
960	-0.28	19.70	1790	0.12	26.57	2380	0.66	30.38
			1810	0.73	33.18	2400	0.87	31.16
			1830	0.77	34.27	2420	1.68	35.56
			1850	1	34.10	2440	1.81	35.95
			1870	1.34	33.42	2460	1.84	35.47
			1890	1.17	31.51	2480	1.87	37.75
			1910	0.83	29.65	2500	2.02	40.05
			1930	0.86	29.01	2520	1.69	37.47
			1950	0.31	25.33	2540	1.71	36.27
			1970	-0.02	23.36	2560	1.73	34.94
			1990	-0.13	22.92	2580	2.49	37.91
			2010	-1.04	20.38	2600	2.98	39.68
			2030	-1.13	19.66	2620	2.83	39.33
			2050	-1.44	18.24	2640	2.95	39.95
			2070	-1.6	18.77	2660	2.85	38.43
			2090	-1.29	20.86	2680	3.19	42.49
			2110	-1.52	20.73	2690	3.18	43.38
			2130	-2.12	19.24			
			2150	-1.56	21.60			
			2170	-1.13	25.38			

2) Gain&Efficiency test data

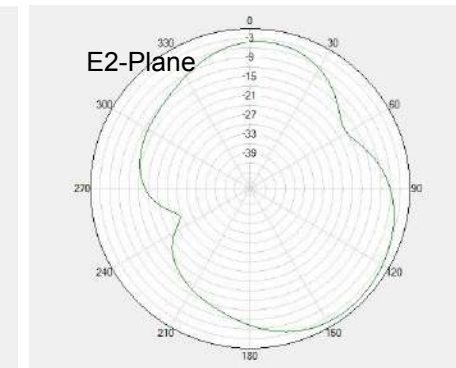
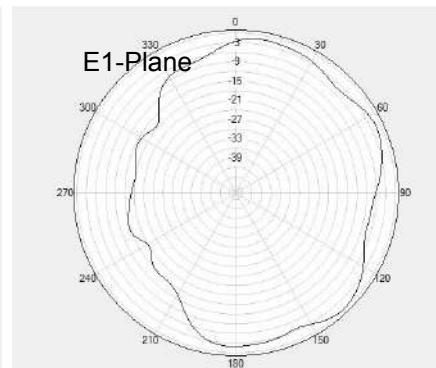
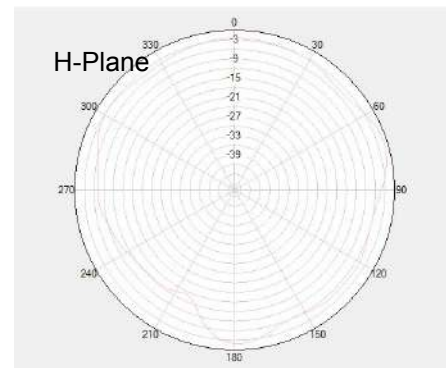
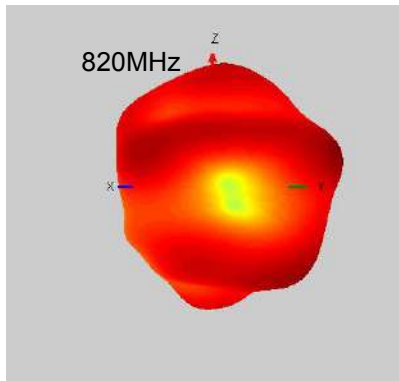
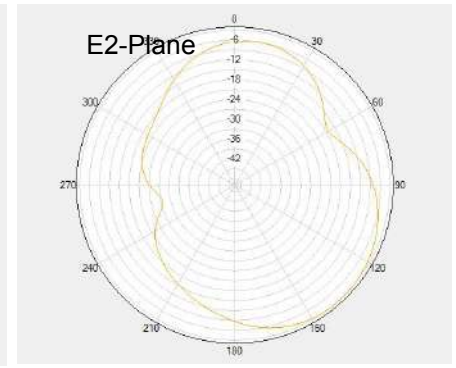
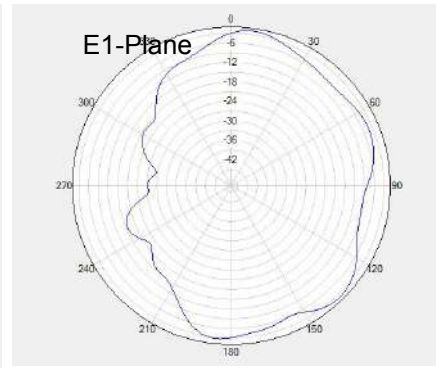
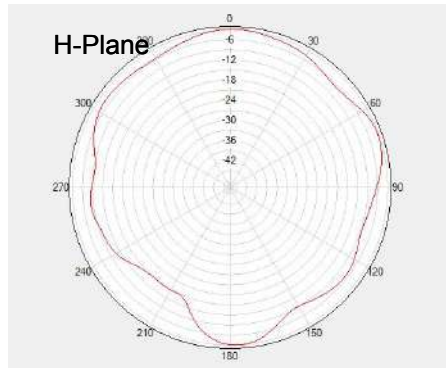
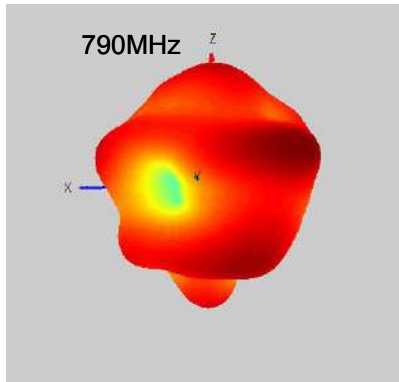
RF2:

frequency 频率(MHz)	gain 增益 (dBi)	efficiency 效 率(%)
820	-1.81	17.97
840	-1.34	19.06
860	-0.78	21.41
880	-1.23	20.11
900	-1.65	18.39

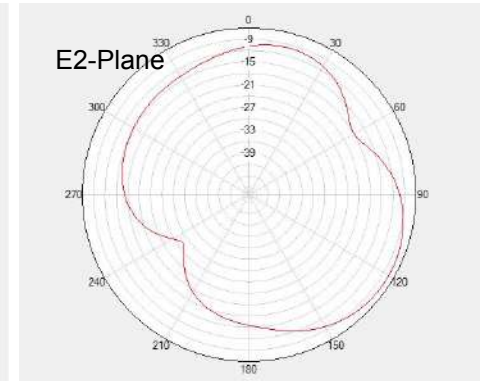
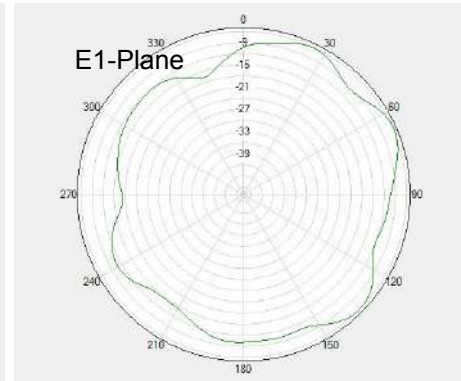
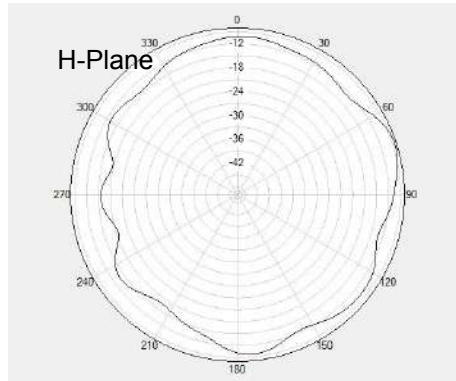
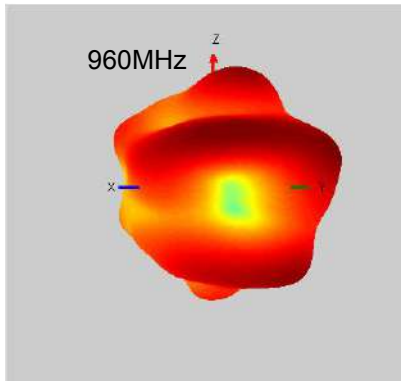
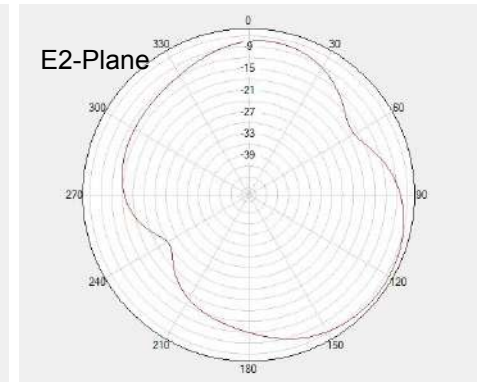
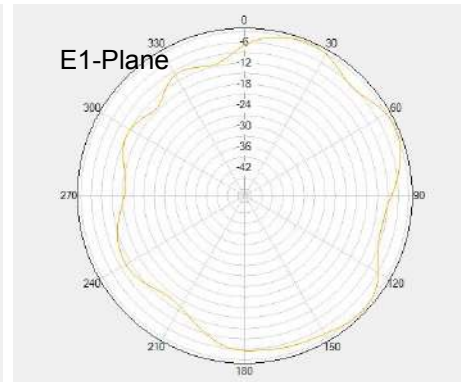
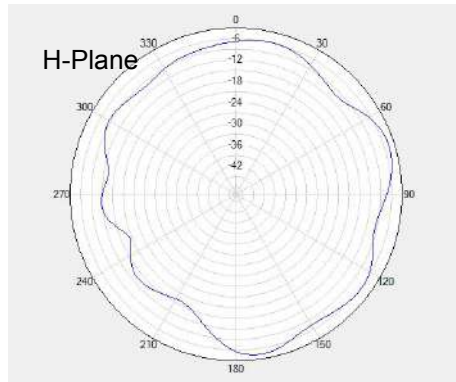
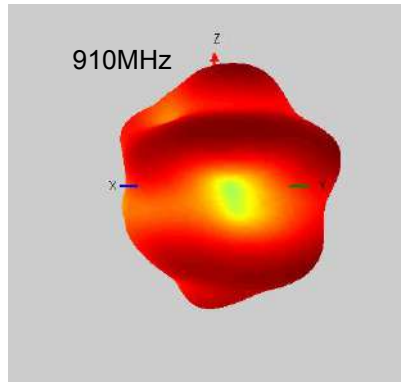
RF3:E1/L1

frequency 频率(MHz)	gain 增益 (dBi)	efficiency 效 率(%)
700	-3.47	13.22
720	-2.7	14.89
740	-2.14	16.71
760	-2.15	16.70
780	-1.45	17.84
800	-0.69	16.95
2300	1.97	35.59
2320	1.55	33.29
2340	1.63	35.29
2360	0.99	33.77
2380	0.97	35.45
2400	1.14	35.73

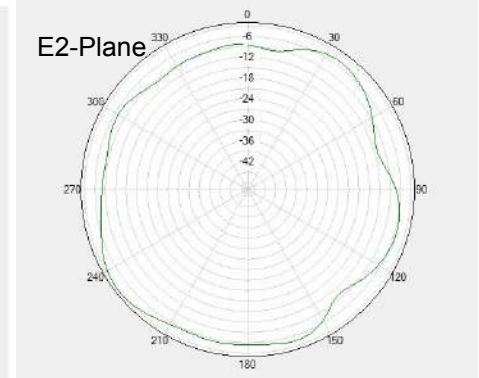
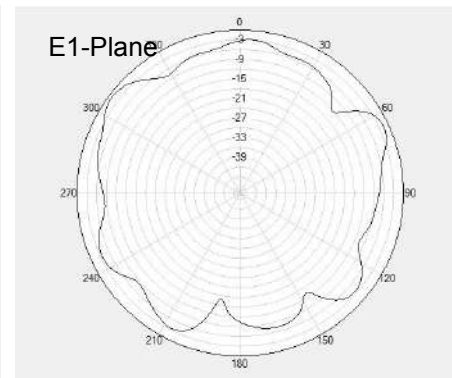
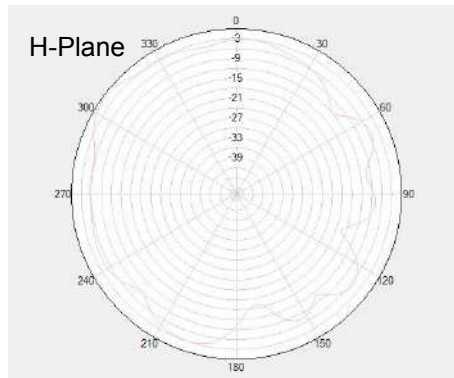
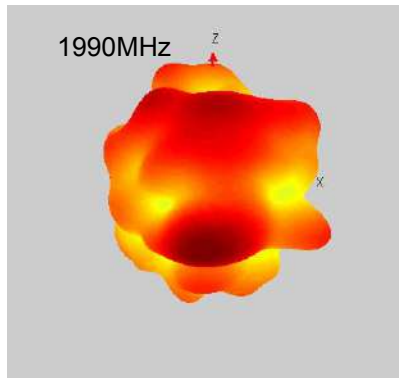
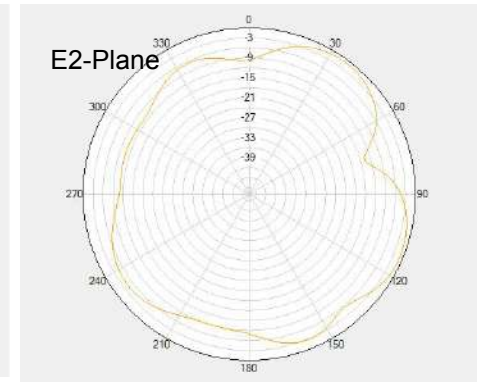
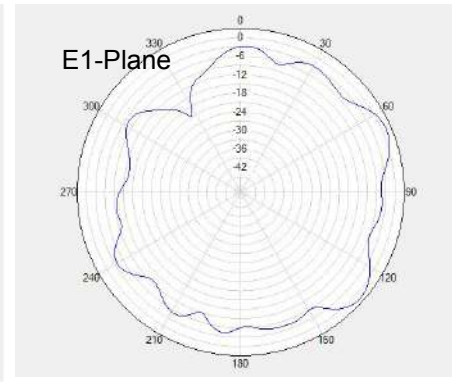
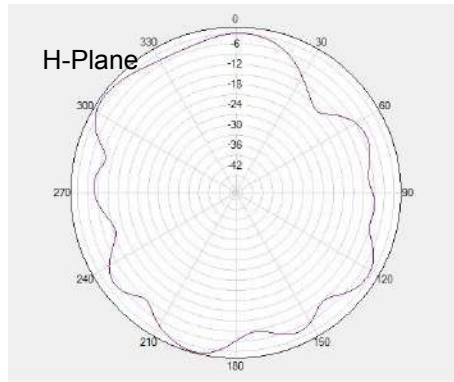
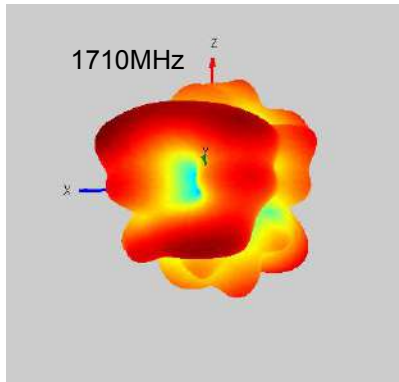
Field pattern



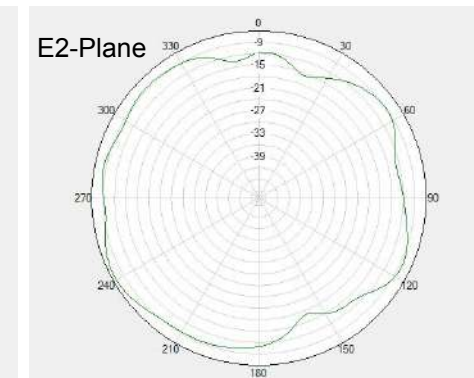
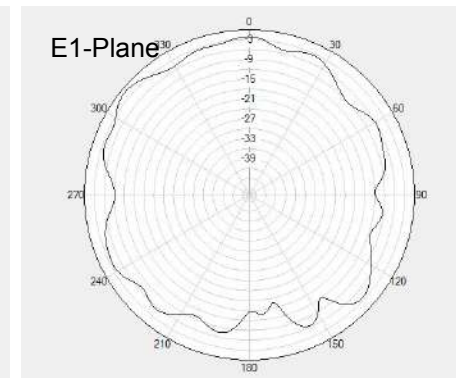
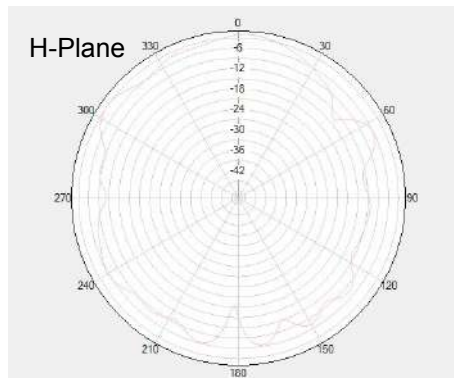
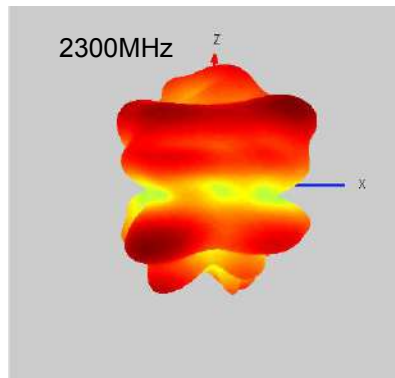
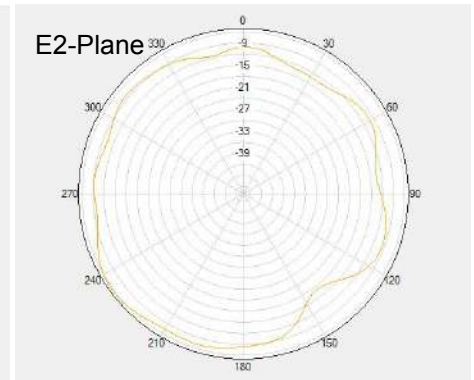
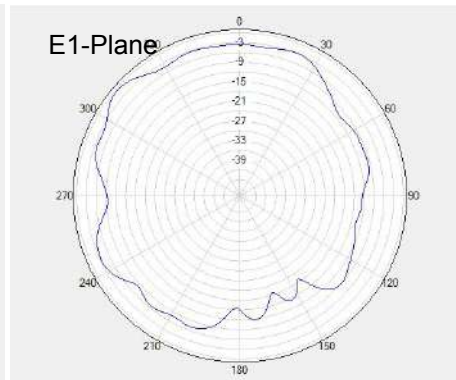
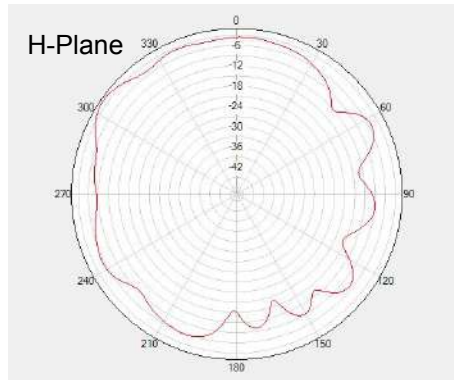
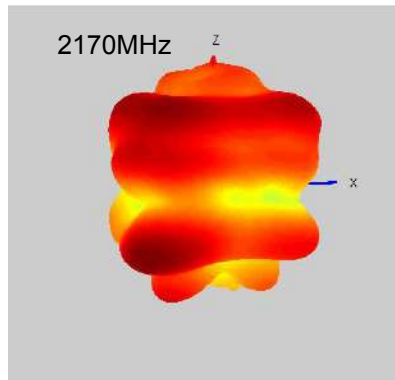
Field pattern



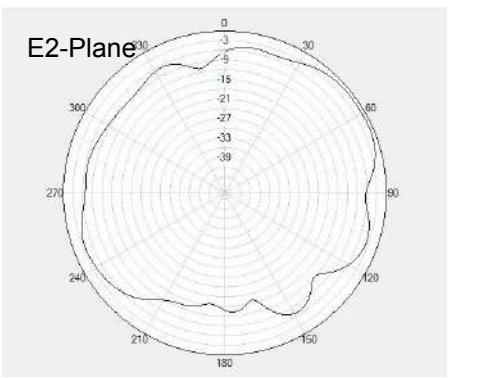
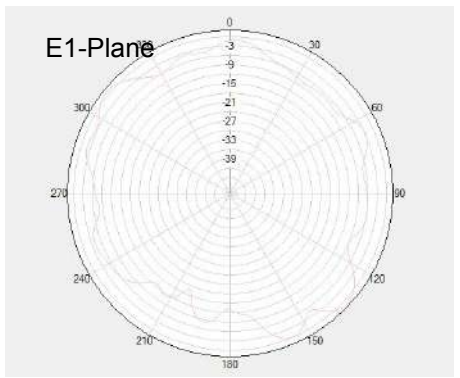
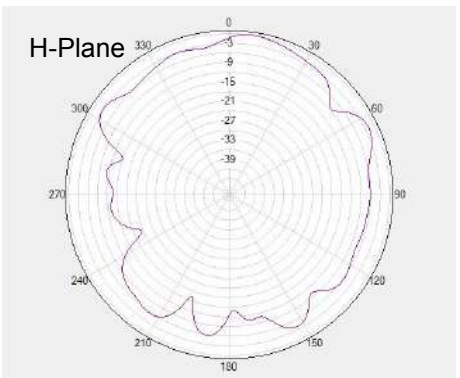
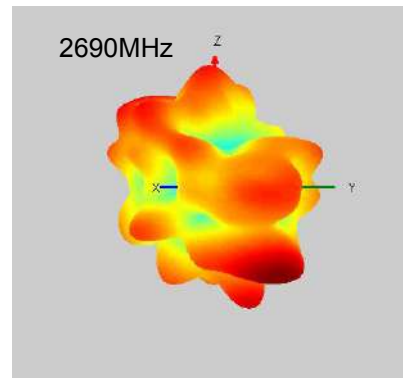
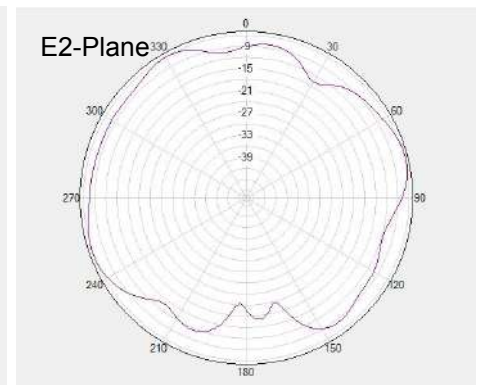
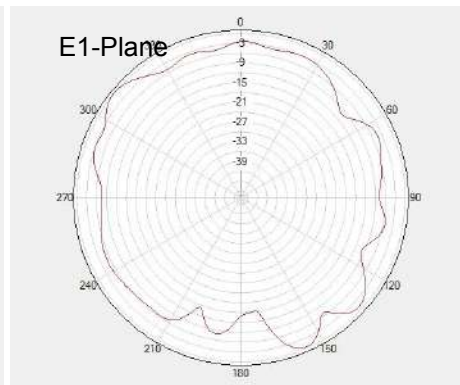
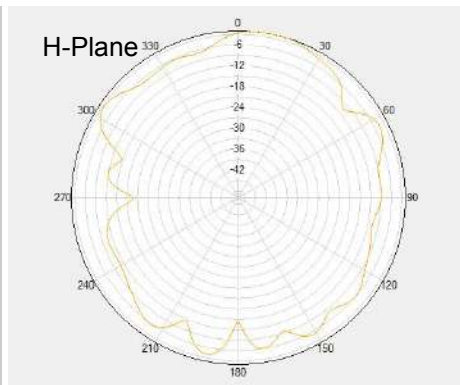
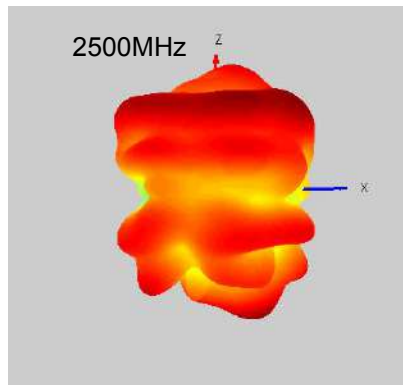
Field pattern



Field pattern

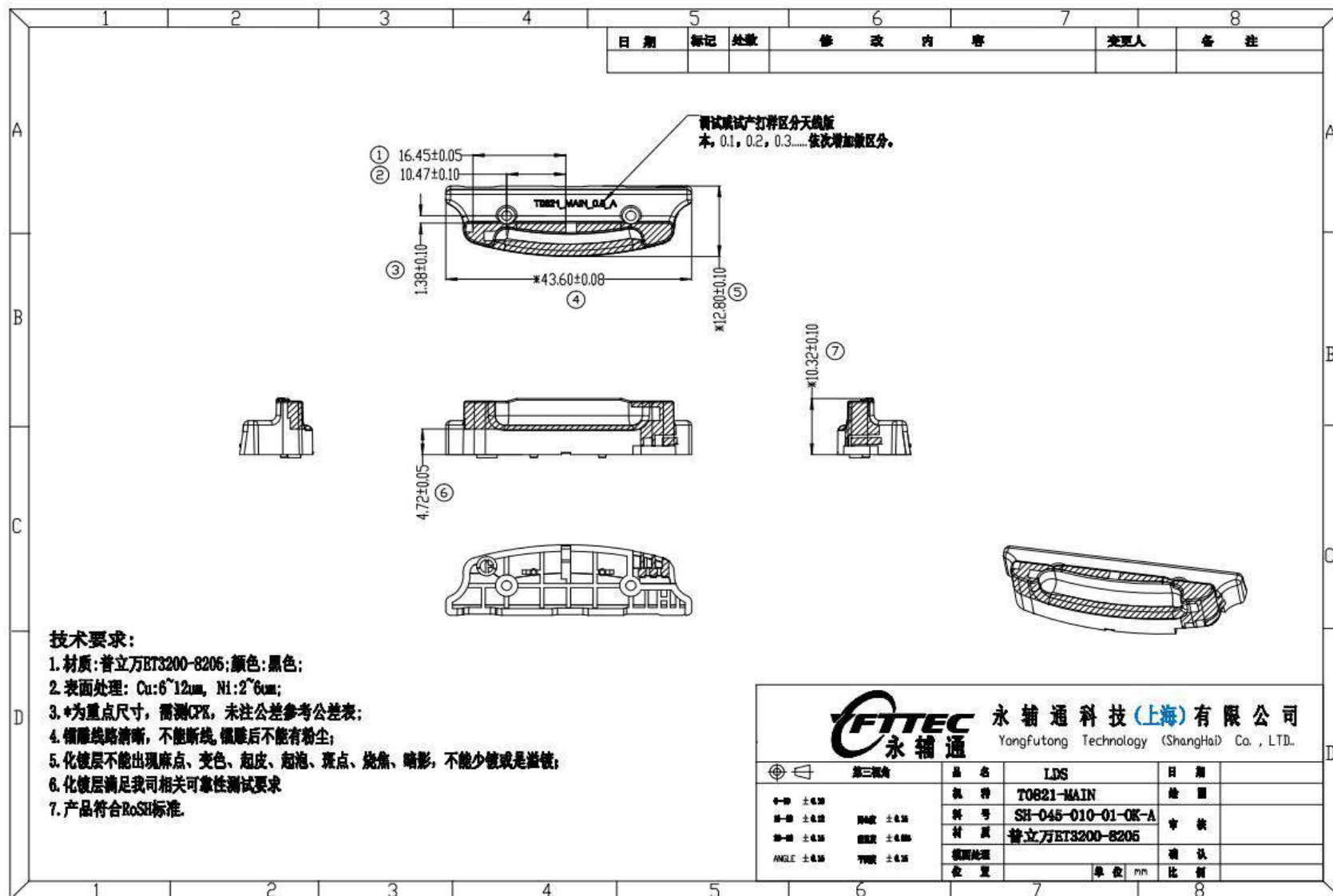


Field pattern



Active data

Band	TRP	TIS	Band	TRP	TIS
GSM850	26.18	102.75	FDD_B1	18.79	92.91
	26.72			18.71	
	26.29			18.42	
GSM900	27.2	104.79	FDD_B3	17.78	92.63
	28.27			18.73	
	27.31			18.23	
DCS1800	25.35	105.72	FDD_B5	17.12	91.15
	25.87			17.52	
	25.34			17.32	
PCS1900	26.12	103.24	FDD_B7	18.39	92.58
	26.54			18.51	
	26.87			18.35	
WCDMA_B1	18.44	103.59	FDD_B8	17.14	90.5
	18.74			18.38	
	18.62			17.11	
WCDMA_B5	17.2	102.44	FDD_B20	17.11	91.01
	17.66			17.25	
	17.49			17.35	
WCDMA_B8	17.65	102.2			
	18.02				
	17.53				



Thanks for your comment!

Futen Technology (ShangHai) Co.,LTD..

Phone: 021-20905889

Address: Room 203, 2nd Floor, Building 1, No. 3408 xiupu Road,

Pudong New Area, Shanghai



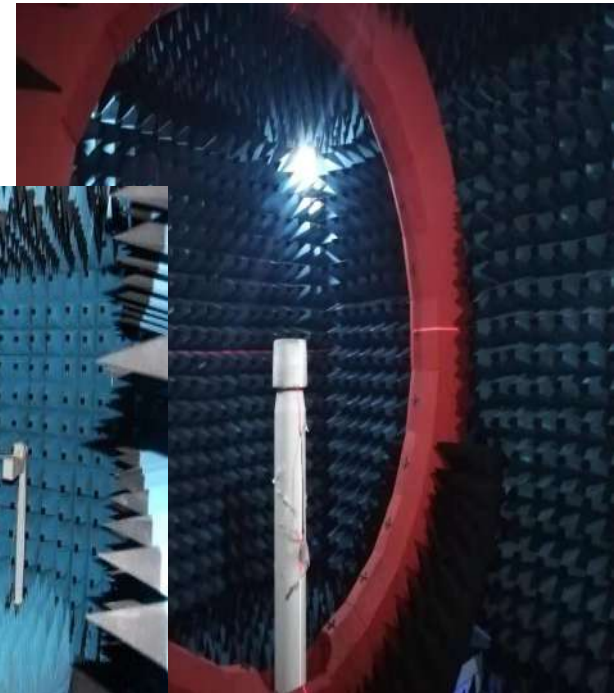
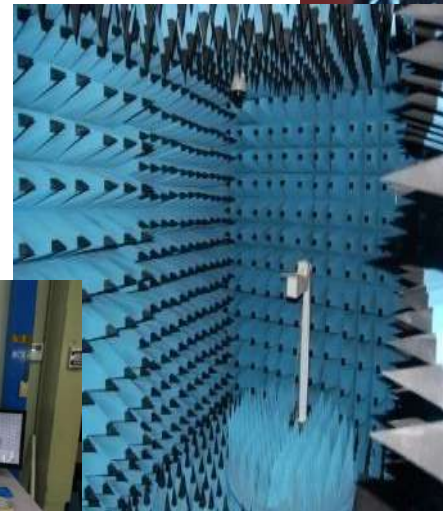
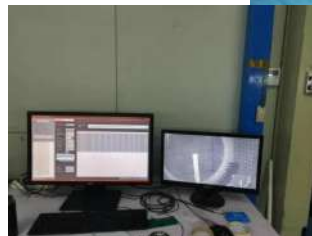
The test report

Model Name :T0821 DIV Antenna

Mar 26, 2022

contents:

- 1.Project overview
- 2.Report version record
- 3.Company and testing environment
- 4.Matching circuit
- 5.Antenna related data
- 6.Engineering drawing



Project overview :

Prototype status		Debug the machine		product type		T0821	
Antenna overview							
	Frequency		structural style	Type	position	Matching change	Antenna version number
DIV ant	LTE 4G	790-960MHz 1710-2690MHz	FPC	PIFA	housing	NO	V0.1
other ant							
Environmental treatment				No			

Report version record

Edition	Report time	Commissioning overview
A1	2022.03.26	First sample test Report

Company profile

◆ Futen Technology (Shanghai) Co., Ltd; Founded in September 2016, it is an advanced mobile terminal antenna enterprise in China, covering an area of more than 2000 square meters. R & D centers have been set up in Shanghai and Shenzhen.

◆ Main business: focus on the field of wireless communication intelligent terminal antenna (I have accumulated a lot of experience in the research and development technology of 2g/3g/4g/5g full band antenna, including mobile phone built-in antenna, notebook antenna, NFC, LDS, metal frame antenna, GPS ceramic antenna, Beidou antenna, module antenna, external antenna, fixed station antenna, rod antenna, ceiling antenna, beautification antenna, base station antenna, small microwave antenna used by IOT intelligent terminal, telecom power and other antennas.) Provide products and services to meet the requirements of precision mold design and manufacturing, injection molding, surface coating and light metal shell manufacturing of the whole industry chain. The products are widely used in mobile phones, pads, wearable devices, laptops, automobiles, security monitoring and other fields.

研发设备



Agilent E5071C



Agilent 8753E



Agilent 8714ET



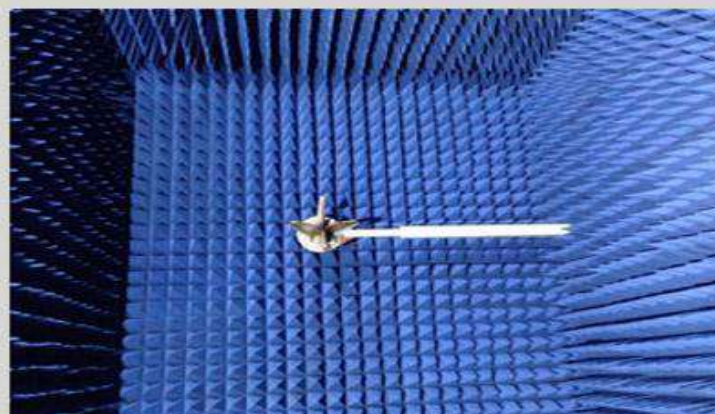
Agilent 8960 Series10



Satimo 暗室内景(2)



Satimo 暗室内景(2)



Satimo 暗室内景(3)



Satimo控制机柜



企业概况

研发设备

团结进取 开拓创新

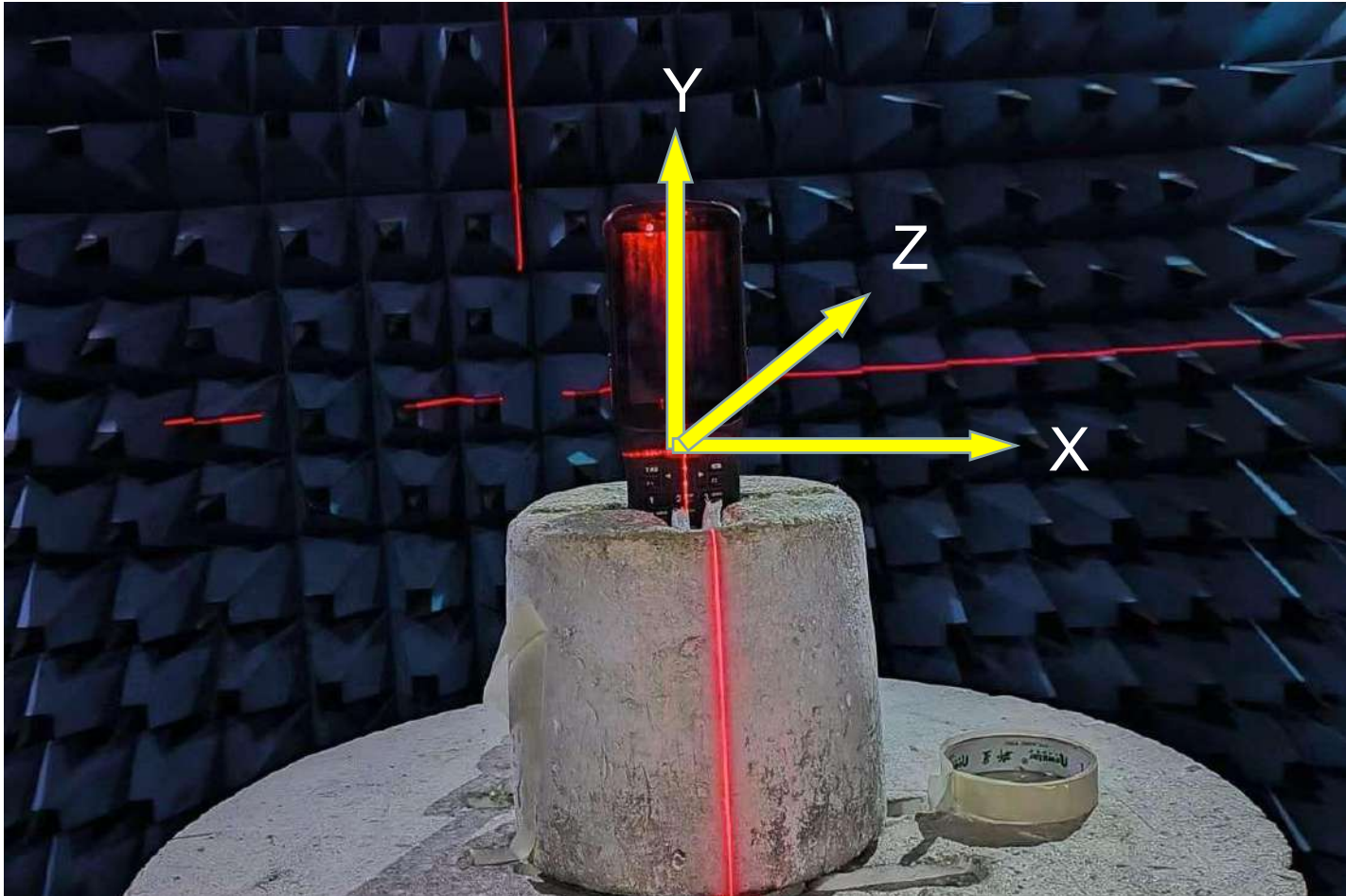
优质高效

追求卓越

The RF test fixture picture

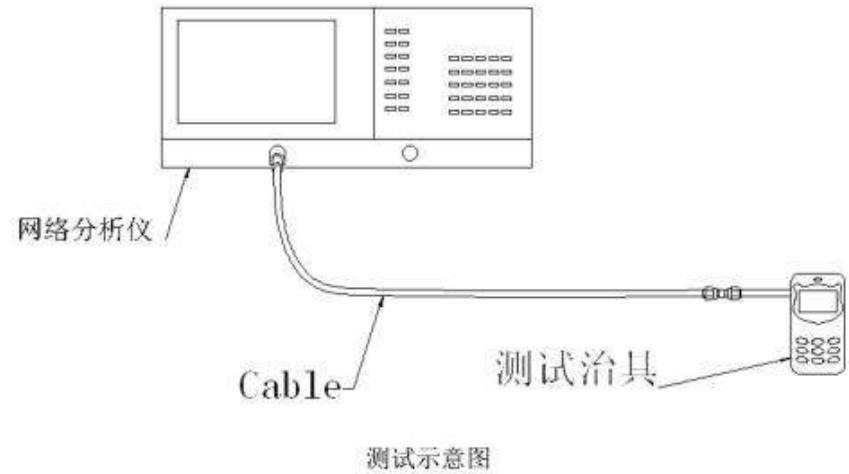
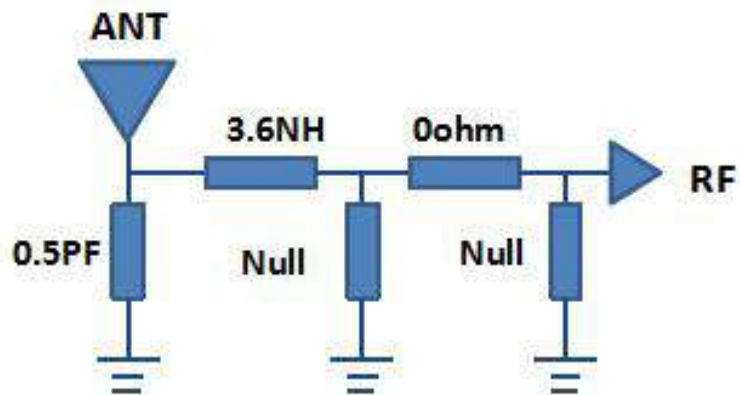


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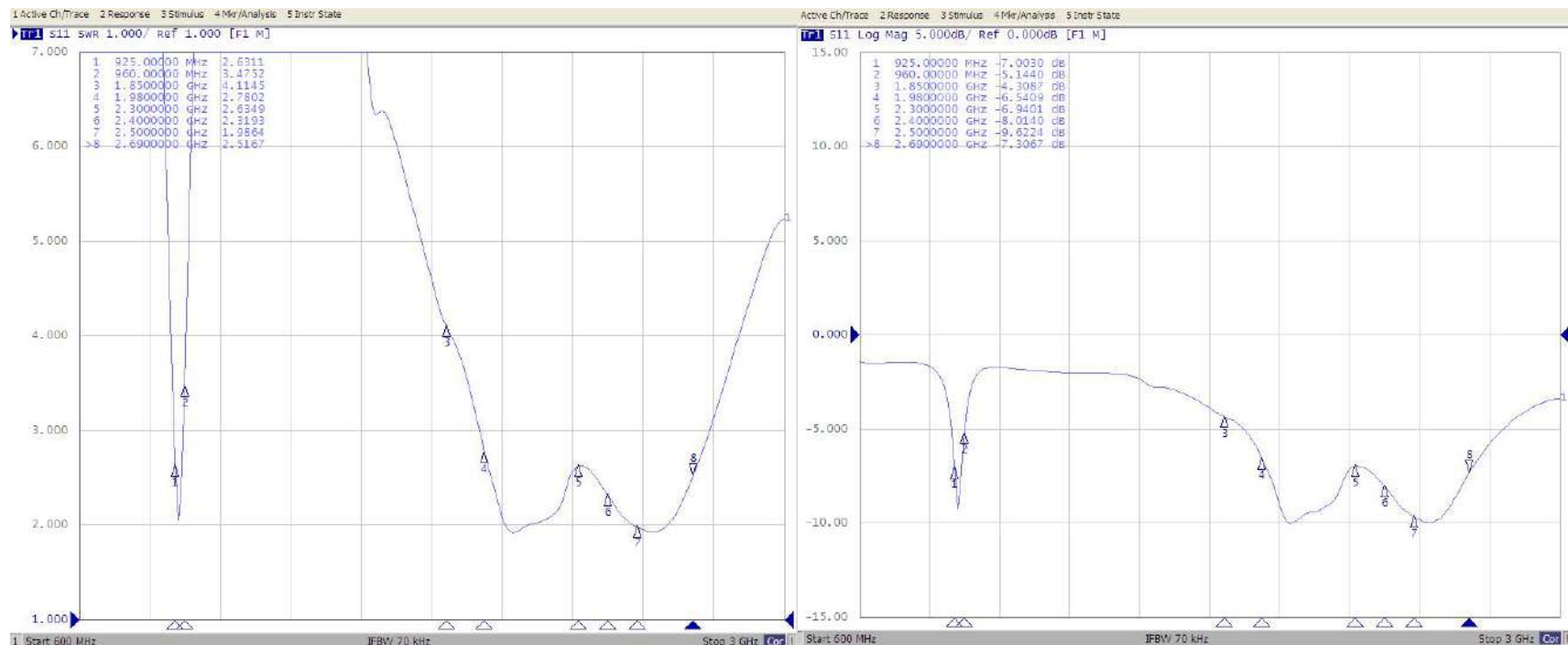


Matching circuit

matching circuit



1) S11 parameter test data

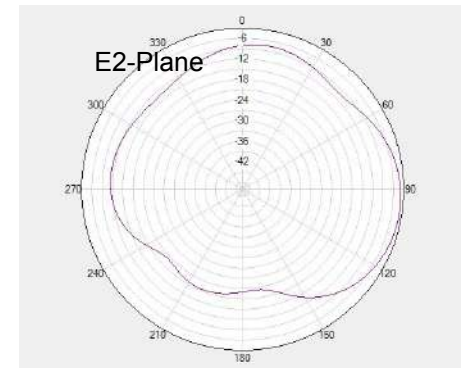
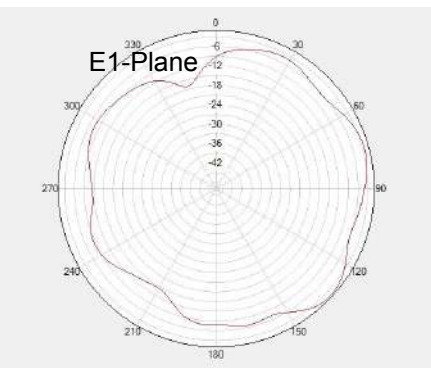
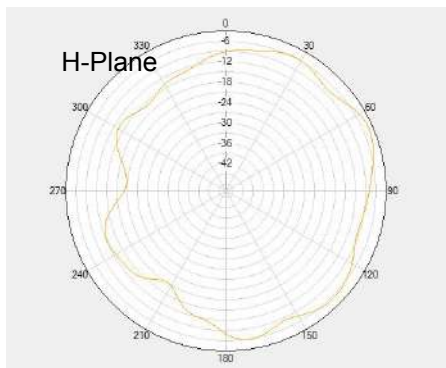
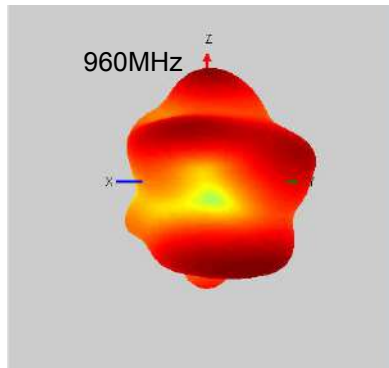
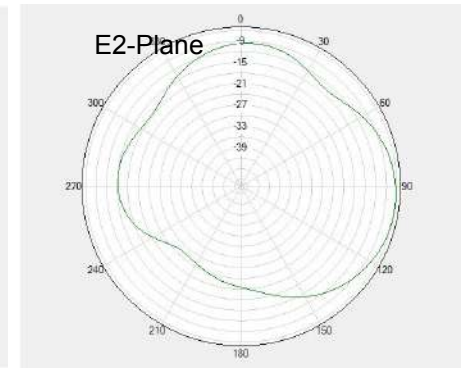
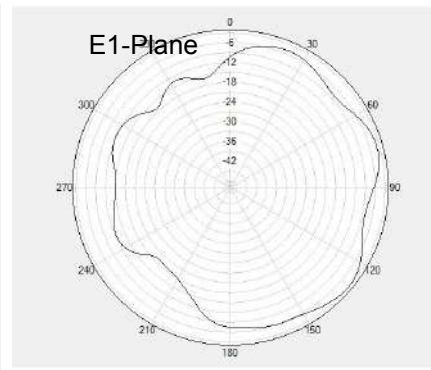
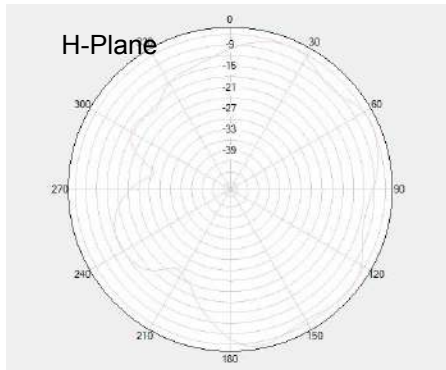
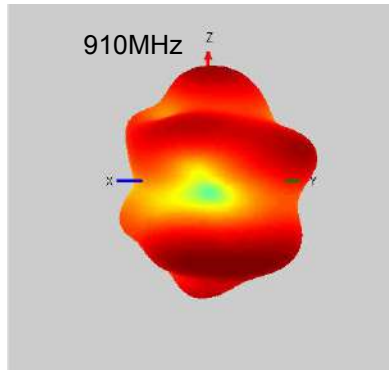


频率 (MHZ)	925	960	1850	1980	2400	2690
VSWR	2.63	3.47	4.11	2.78	2.31	2.51
Return loss	-7.03	-5.14	-4.30	-6.54	-8.01	-7.3

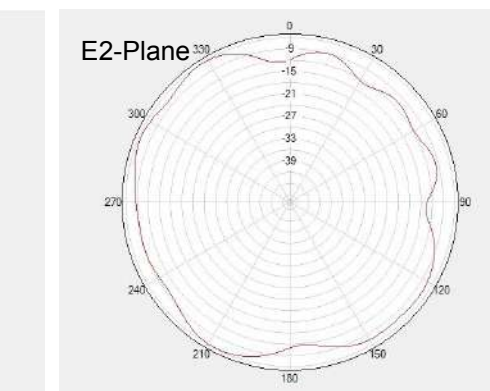
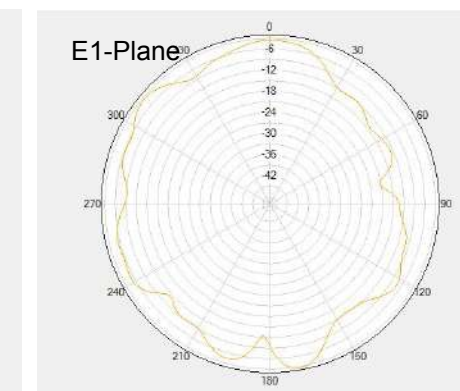
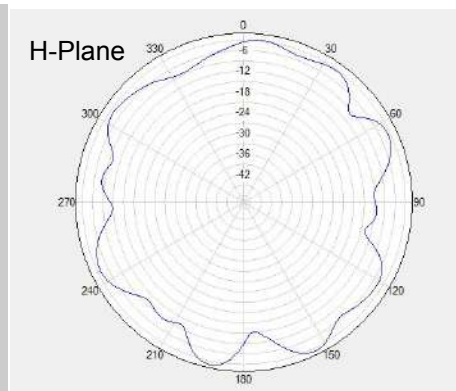
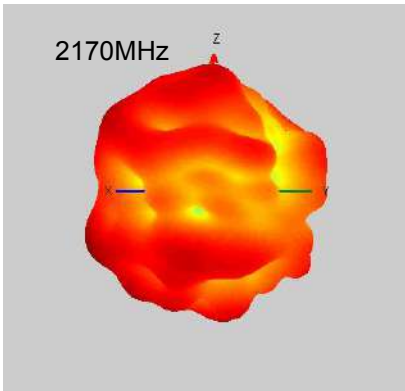
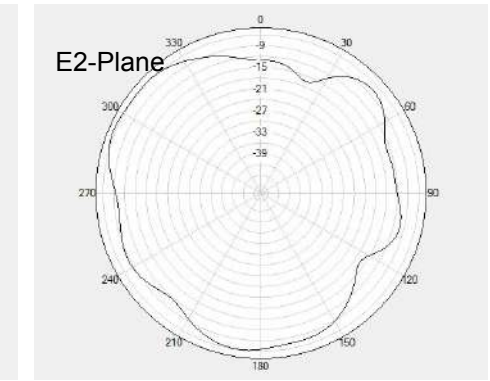
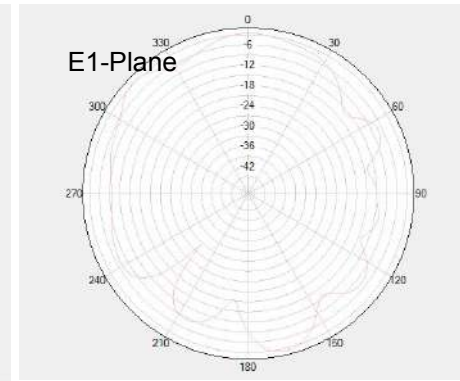
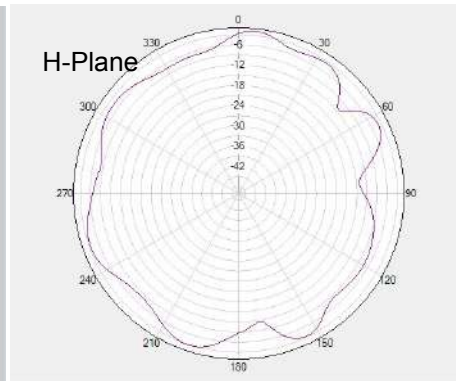
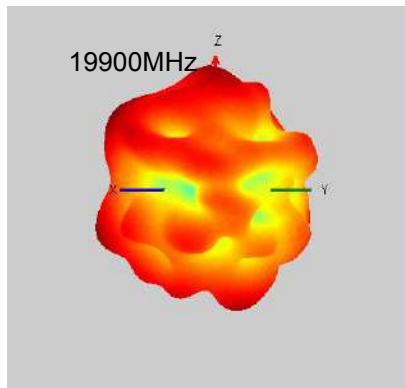
2) Gain&Efficiency test data

frequency 频 率(MHz)	gain 增益 (dBi)	efficiency 效 率(%)	frequency 频 率(MHz)	gain 增益 (dBi)	efficiency 效 率(%)
900	-2.04	10.94	2300	0.07	23.71
920	-1.55	13.33	2320	-0.15	23.16
940	-0.73	14.07	2340	0.11	25.50
960	-2.21	11.35	2360	0	26.06
1850	-2.28	16.20	2380	0.21	27.91
1870	-1.98	17.69	2400	0.5	28.11
1890	-1.6	19.47	2420	1.04	29.52
1910	-1.4	20.60	2440	0.81	28.27
1930	-0.57	21.81	2460	0.68	26.29
1950	-0.05	22.32	2480	0.39	25.65
1970	0.43	25.61	2500	0.25	23.11
1990	0.71	29.38	2520	-0.12	19.09
2010	0.87	30.38	2540	-0.21	17.65
2030	0.59	29.18	2560	-0.14	16.58
2050	0.41	28.98	2580	0.55	19.37
2070	-0.27	26.73	2600	0.31	21.05
2090	-0.92	26.07	2620	0.48	22.69
2110	-0.71	24.64	2640	0.52	22.46
2130	-0.42	25.32	2660	0.05	21.82
2150	-0.02	26.57	2680	0.6	23.92
2170	0.54	29.65	2690	0.6	23.03

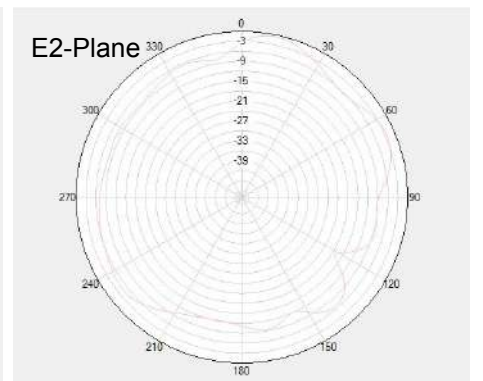
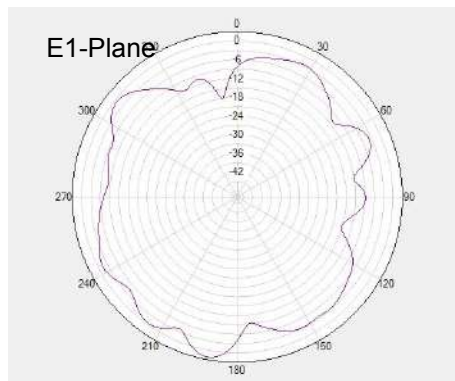
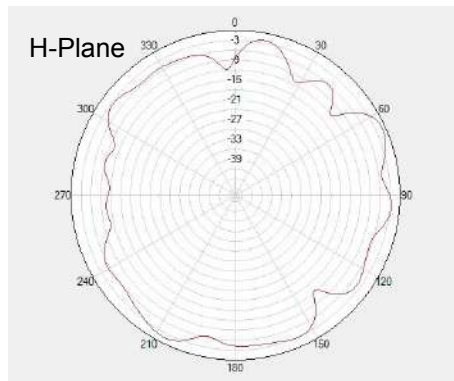
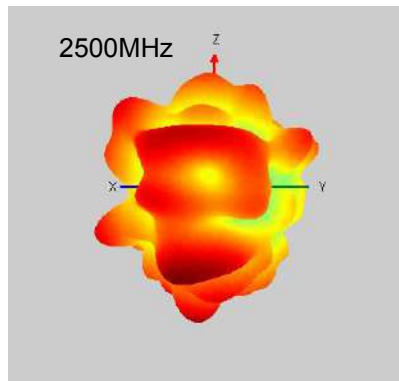
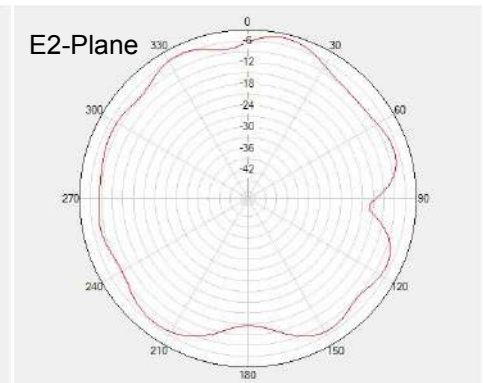
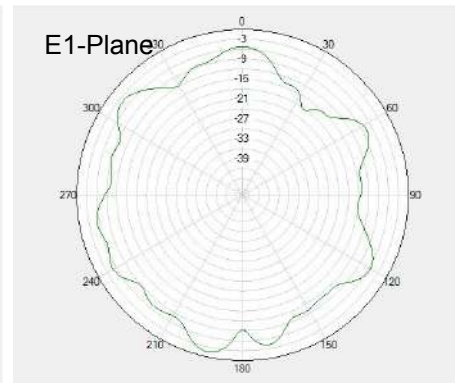
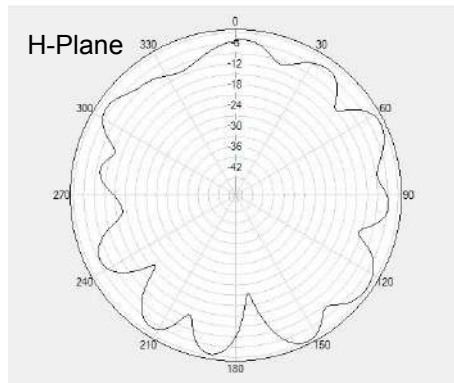
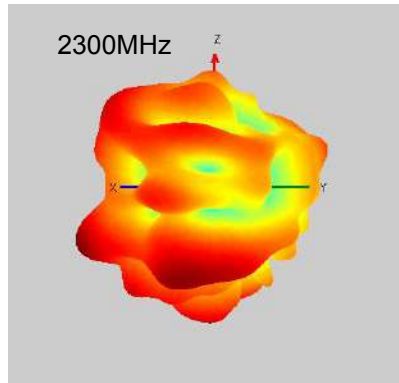
Field pattern



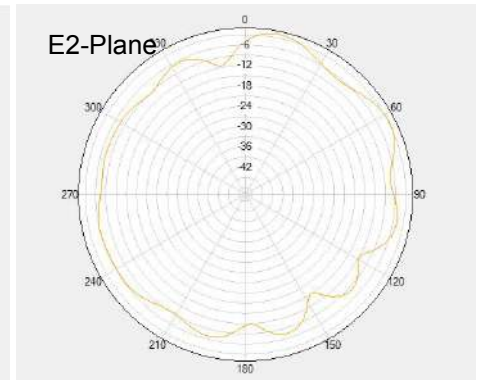
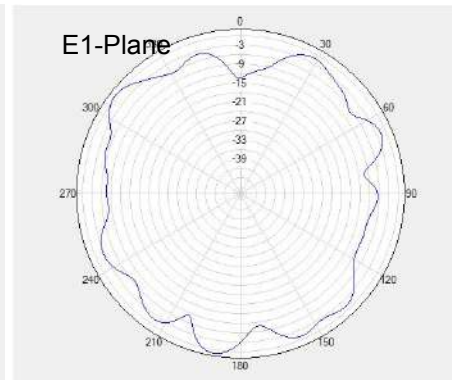
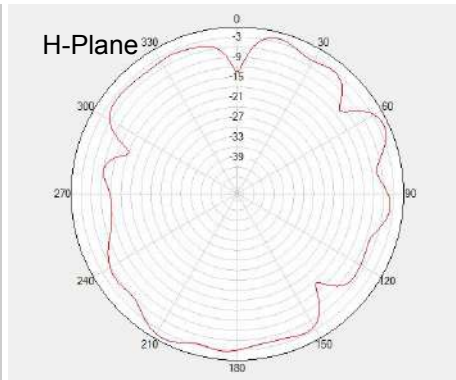
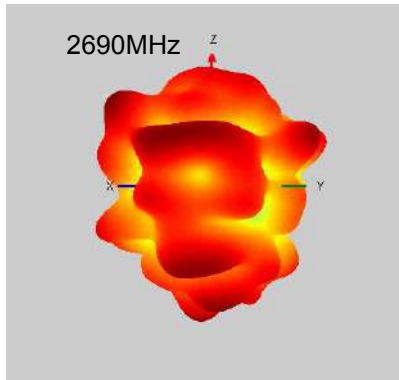
Field pattern

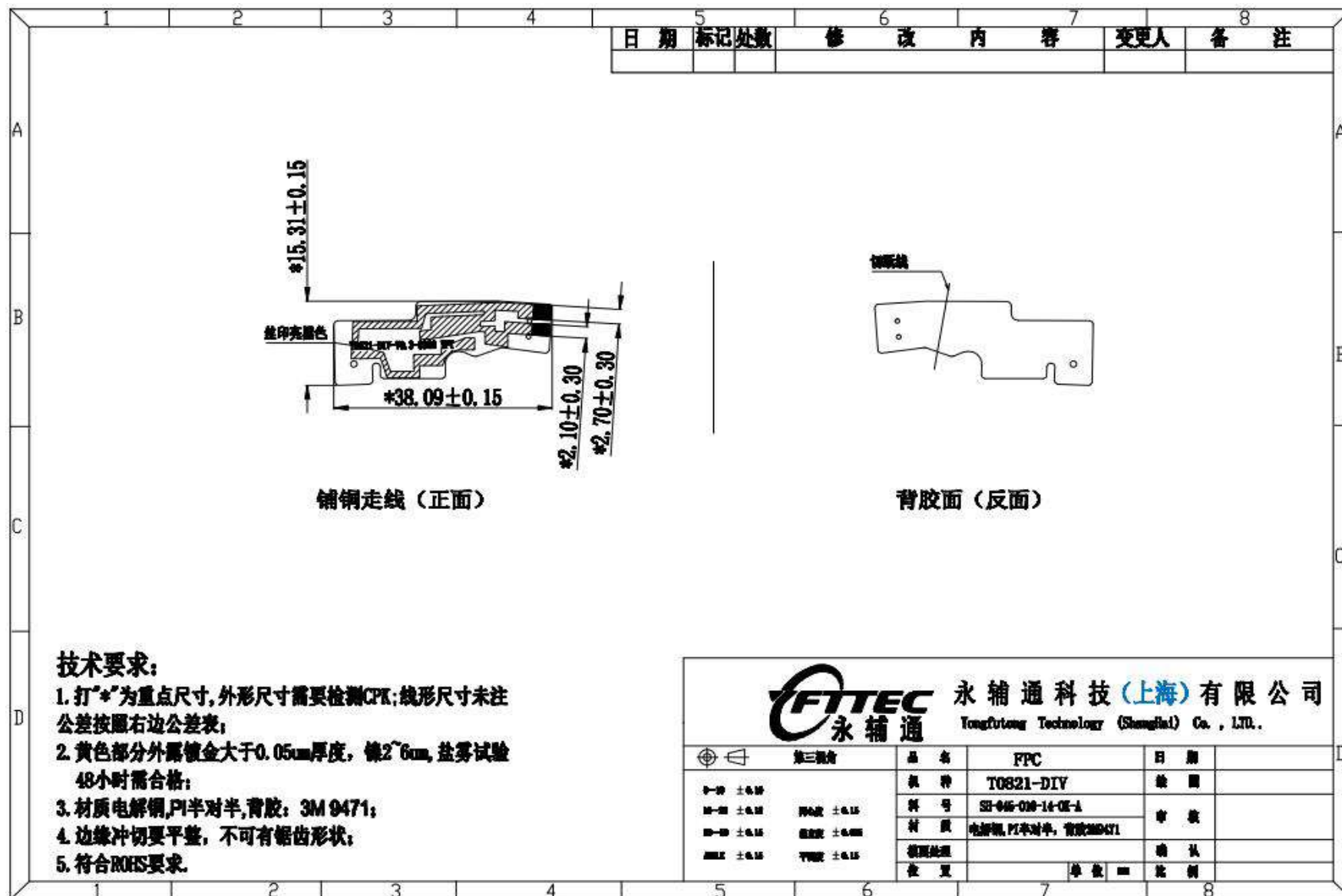


Field pattern



Field pattern





Thanks for your comment!

Futen Technology (ShangHai) Co.,LTD..

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Pudong New Area, Shanghai

