Antenna Test report

Model Name: T6665C
Date: 3th January, 2024

ANWEI commnuication Technology Co., Ltd.
www.aw168.cn

Catalogue

CO NT E NT

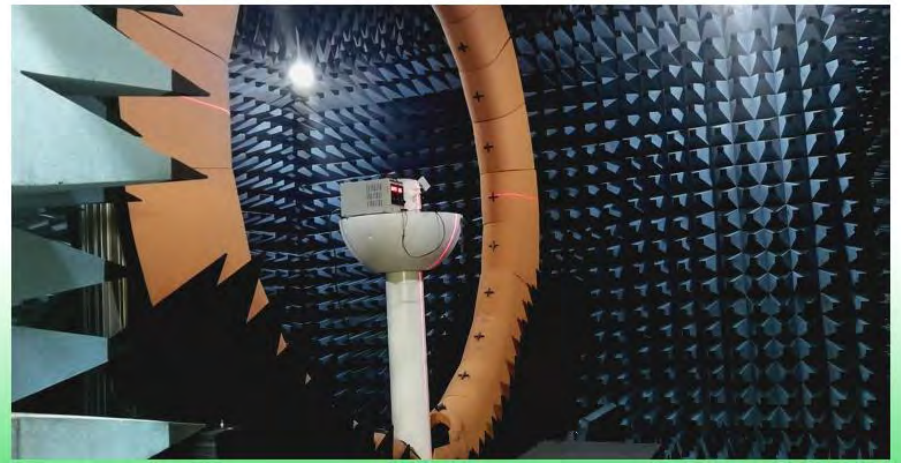
01.Project Introducation and Photoes-Project Introducation

RF Engineer	Engineer lei	Email	
		Mobile	15986728949
Antenna Overview			
Status of Sample machine	Whole machine	Project Name	T6665C
Antenna Type	PIFA	Structure mode	FPC
Main Antenna	4G B2/4/5/12/17/41/66/71 2G(850/900/1800/1900) 3G 2/4/5		
Other Antenna	Diversity Three-in-one antenna		

02.Report Versions

Version	Report Time	Commissioning Overview
A0	2024.1.3	Antenna Test Report
A1		
A2		
A3		
A4		
A5		
A6		
A7		
A8		
A9		
A10		

04.Introduction of Company and Test Environment-Test Environment

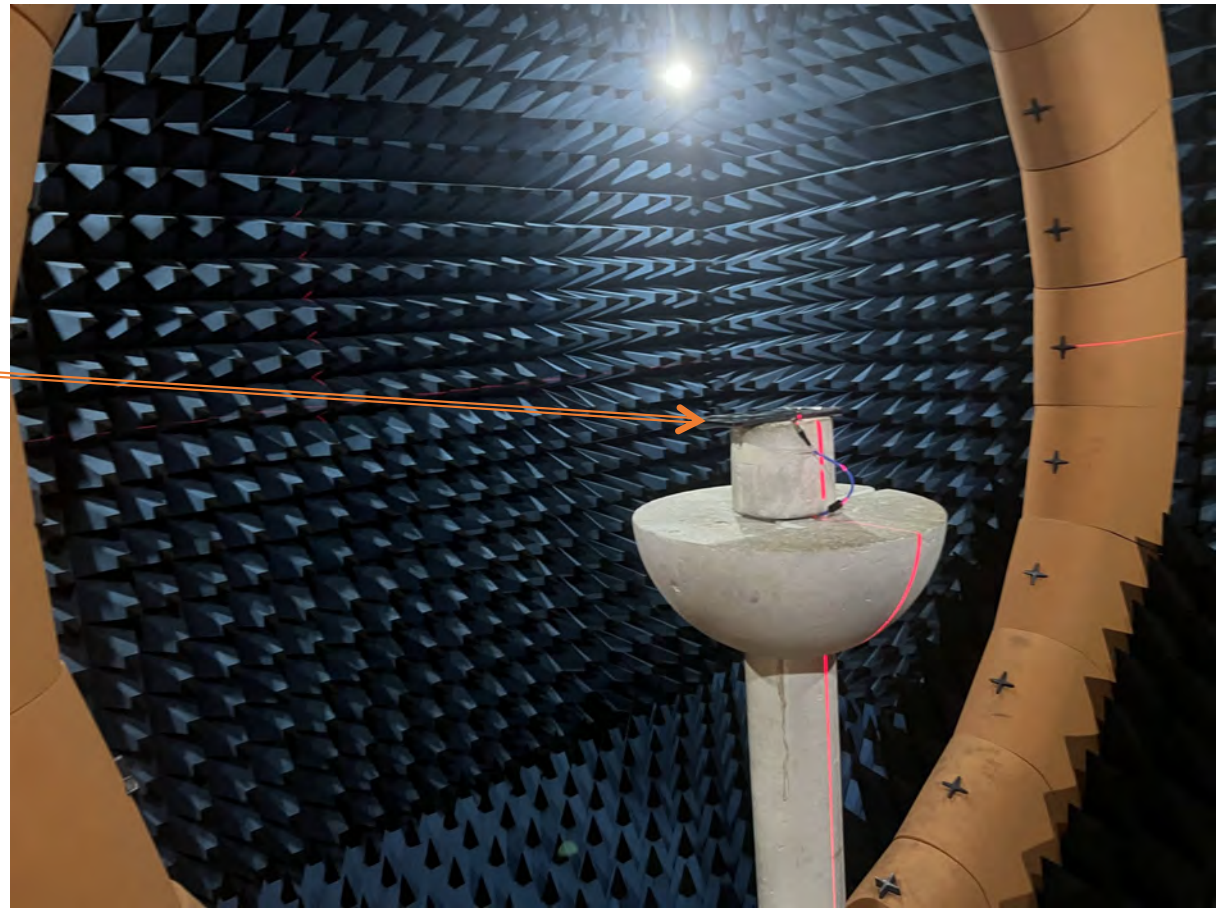


The company owns several OTA darkrooms whose frequency bands covers from 400mhz to 8.5ghz.

- Providing OTA test for whole machine which include but not be limited to 5G NSA, SA(trp/tis), WiFi active test (supporting 11b/11g/11n/11ax mode), bluetooth/GPS active test
- Providing antenna gain and efficiency
- Providing2D pattern / Apple chart analysis
- Providing upper and lower hemisphere efficiency
- Providing mutual interference correlation coefficient test items.

05.Enviornment Test

Location of Tested Machine



06.Antenna correlation data

Main antenna active data

	Channel	TRP (dBm)	TIS (dBm)
FDD B2	18650	19.35	
	18900	19.41	
	19150	19.5	-92.65
FDD B4	20000	18.23	
	20175	18.3	
	20350	18.43	-94.35
FDD B5	20450	19.32	
	20525	19.43	
	20600	18.02	-92.49
FDD B12	23060	17.07	
	23095	17.32	
	23130	17.42	-93.54
FDD B17	23780	18.75	
	23790	18.78	
	23800	18.65	-93.27
TDD B41	40340	21.48	
	40740	21.88	
	41140	21.49	-89.41
FDD B66	132022	17.83	
	132322	17.35	
	132622	18.04	-94.43
FDD B71	133172	16.75	
	133297	17.08	
	133422	17.57	-93.49

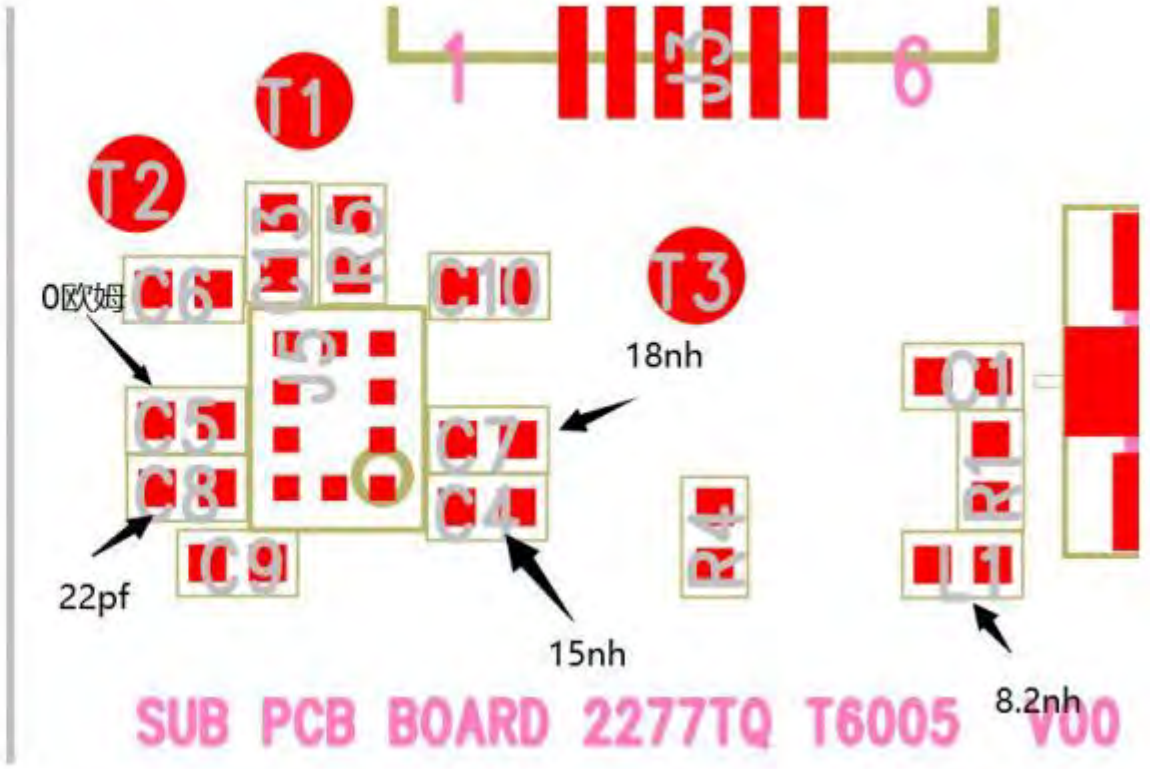
	Channel	TRP (dBm)	TIS (dBm)
W2	9262	19.78	
	9400	19.86	
	9538	19.11	-107.33
W4	1413	19.24	
	1513	19.03	
	1738	19.79	-107.59
W5	4132	18.49	
	4183	18.29	
	4233	17.1	-102.76
GSM850	128	26.98	
	190	26.59	
	251	26.02	-102.44
GSM900	1	23.21	
	62	22.01	
	124	21.16	-93.25
DCS1800	512	24.41	
	699	24.37	
	885	26.94	-107.58
PCS1900	512	26.9	
	661	27.42	
	810	26.36	-106

06.Matching circuit

Matching circuit

RF1:C4=15NH ; LTE 12/17
RF2:C7=18NH; LTE 71
RF3:C8=22pf; GSM900/1800/1900 W2/4 LTE 2/4/41/66
RF4:C5= 0欧姆; GSM850 W5 LTE 5

信号路匹配：L1=15NH



08. WIFI measurement

09. Antenna passive data

Main antenna gain

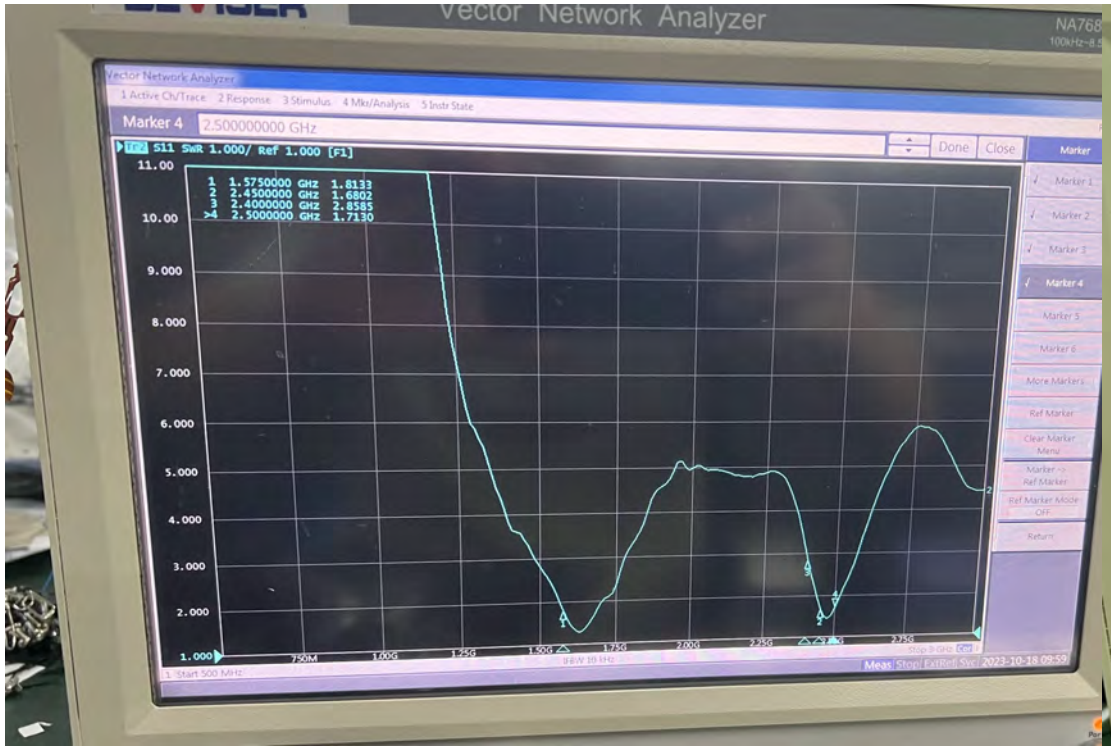
frequency 频率(MHz)	gain 增益(dBi)	mingain 最小增益 (dB)	efficiency 效率(dB)	efficiency 效率
700	-0.38	-21.6	-4.97	29.87%
710	-0.19	-21.2	-4.79	28.21%
720	-0.31	-22.03	-4.85	29.72%
730	-0.37	-23.23	-5	29.59%
740	-0.4	-22.99	-5.33	29.33%
750	-0.23	-23.72	-5.47	28.35%
760	-0.18	-24.16	-5.72	26.79%
770	-0.59	-23.17	-6.09	24.63%
780	-1.26	-21.74	-6.67	24.03%

Gain&Efficiency

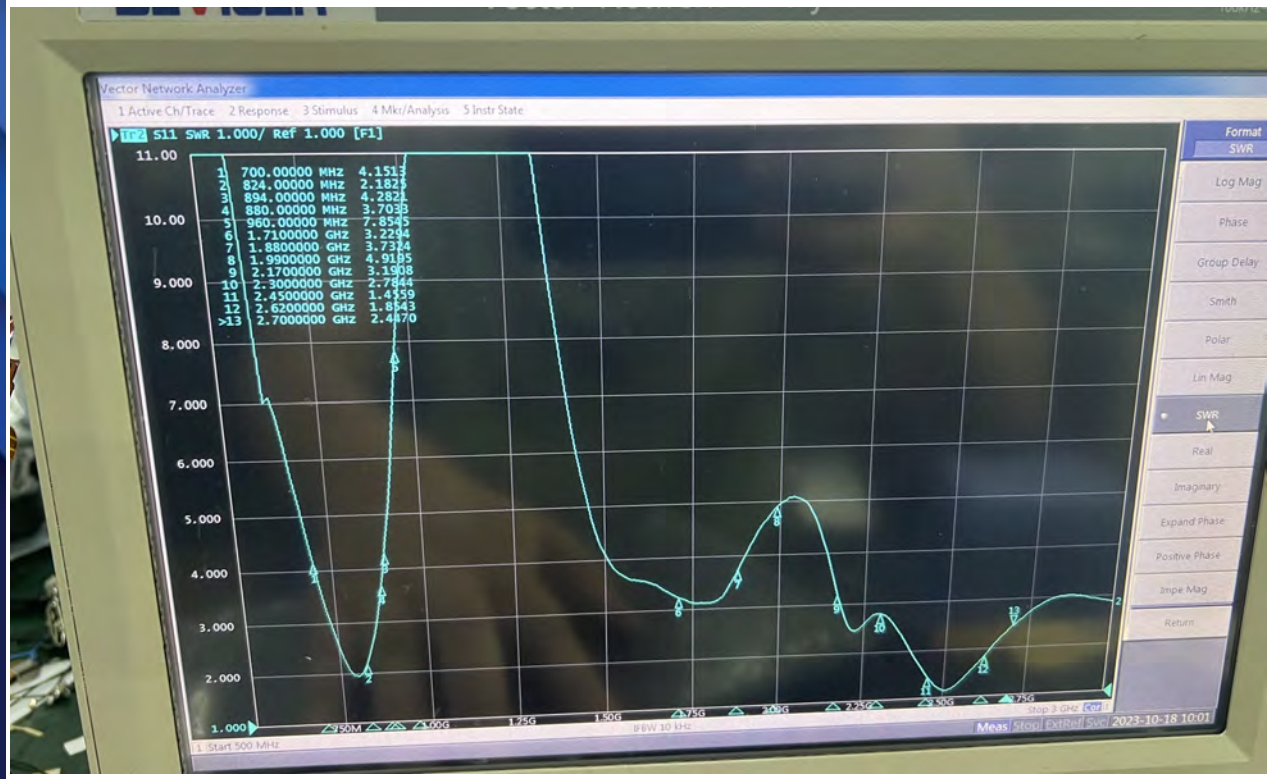
frequency 频率(MHz)	gain 增益(dBi)	mingain 最小增益	efficiency 效率(dBi)	efficiency 效率(%)
820	-1.58	-19.56	-6.07	24.71
840	-1.26	-20.28	-5.74	26.68
860	-0.91	-23.05	-5.94	25.48
880	-0.83	-23.25	-6.12	24.46
900	-0.62	-28.83	-6.18	24.09
920	-0.64	-20.88	-6.18	24.09
940	-0.82	-20.95	-6.44	22.71
960	-0.55	-19.36	-6.29	23.47

频率(MHz)	增益(dBi)	最小增益	效率(dBi)	效率(%)
1700	-0.83	-23.25	-6.12	24.46
1720	-0.91	-23.05	-5.94	25.48
1740	-2.46	-14.31	-5.79	26.38
1760	-1.57	-14.37	-5.32	29.36
1780	-2	-14.64	-5.7	26.91
1800	0.82	-21.31	-5.41	28.74
1820	0.53	-18.33	-5.8	26.30
1840	0.43	-18.61	-5.87	25.88
1860	1.61	-19.31	-5.37	29.06
1880	2.8	-19.54	-4.83	32.89
1900	-1.1	-14.99	-5.06	31.20
1920	-1.06	-14.95	-5.03	31.37
1940	-0.76	-15.62	-5.01	31.55
1960	-0.82	-16.36	-5.15	30.55
1980	-0.65	-17.27	-5.01	31.57
2000	-0.65	-16.54	-5.02	31.51
2020	-0.75	-18.48	-5.19	30.24
2040	-0.33	-21.02	-4.83	32.85
2060	-0.7	-20.7	-4.95	32.01
2080	-0.46	-16.67	-4.65	34.31
2100	-0.23	-15.71	-4.55	35.11
2120	-0.75	-15.24	-4.76	33.43
2240	0.42	-18.69	-5.67	27.10
2260	0.39	-19.62	-5.71	26.84
2280	0.48	-21.02	-5.81	26.23
2300	1.21	-16.13	-4.79	33.16
2320	1.03	-15.86	-4.8	33.10
2340	-0.04	-16.57	-5.4	28.86
2360	0.5	-16.91	-5.24	29.93
2380	-0.17	-15.75	-5.98	25.25
2400	0.45	-17.34	-5.29	29.59
2420	-0.33	-19.88	-6.04	24.90
2440	-0.77	-18.62	-6.07	24.72
2460	-1.11	-20.62	-6.44	22.72
2480	-0.91	-23.61	-6.14	24.32
2500	-1.2	-23.79	-6.34	23.23
2520	0.45	-19.55	-5.07	31.09
2540	-0.35	-23.37	-5.76	26.54
2560	0.24	-22.17	-5.11	30.81
2580	0.35	-23.43	-5.18	30.32
2600	0.64	-22.43	-5.09	30.95
2620	0.2	-20.13	-5.8	26.28
2640	1.45	-20.28	-4.62	34.52
2660	0.88	-22.09	-5.33	29.30
2680	0.88	-23.79	-5.21	30.15

09.GPS/WIFI/BT Antenna VSWR/S11

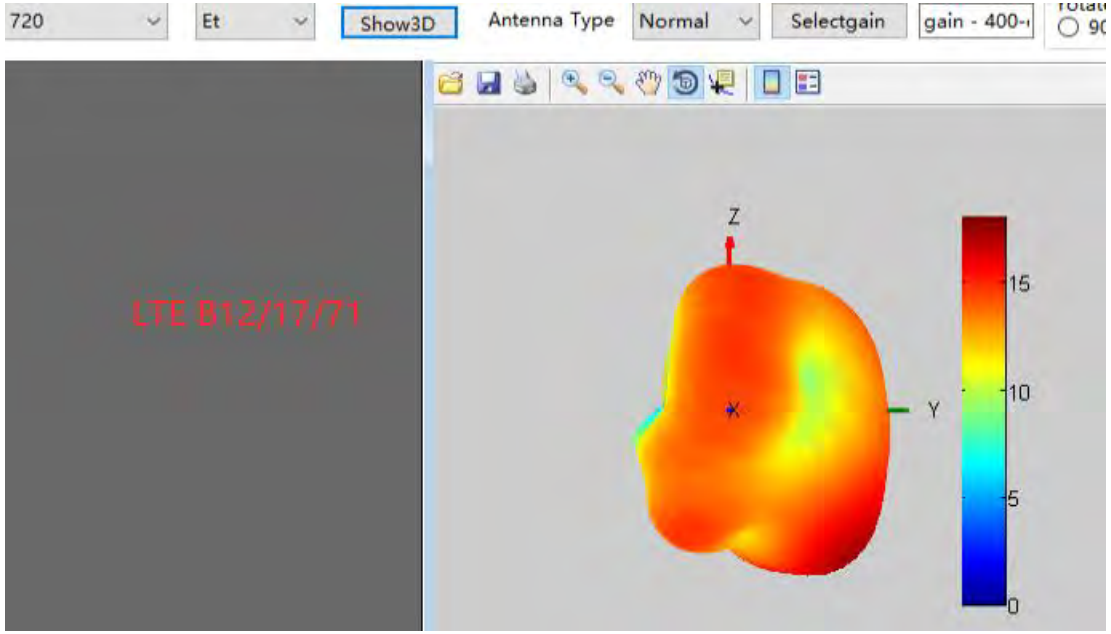


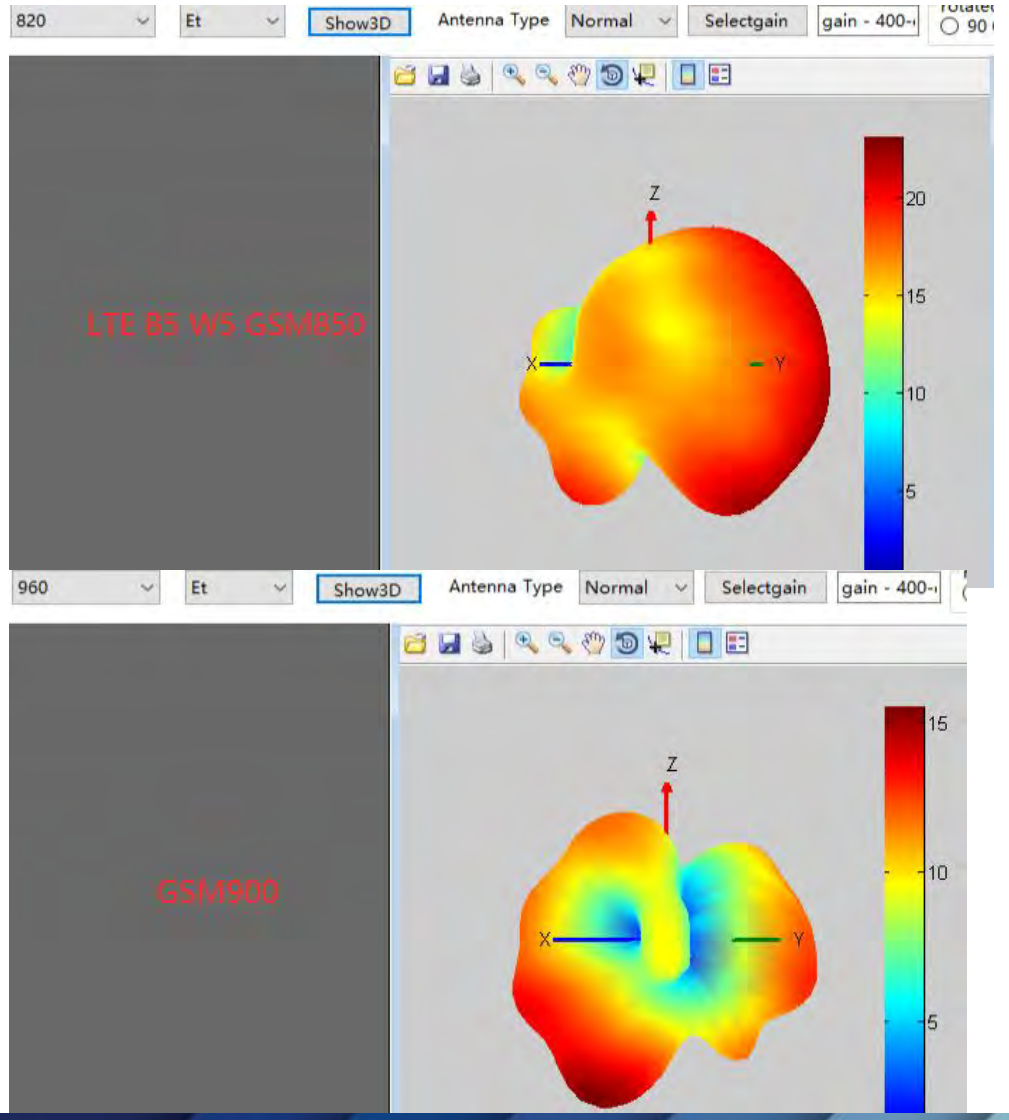
10.
MAIN Antenna
VSWR/S11



10. Antenna correlation data

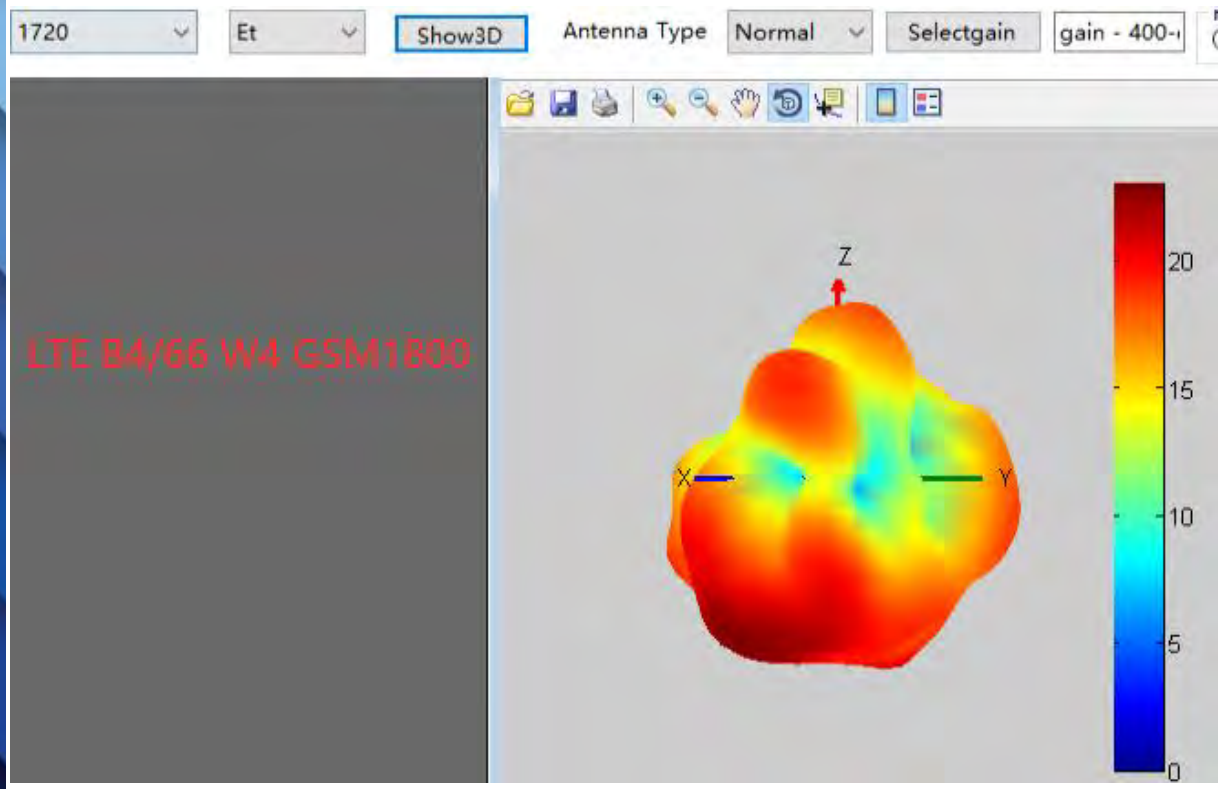
Main antenna apple pattern and directional pattern

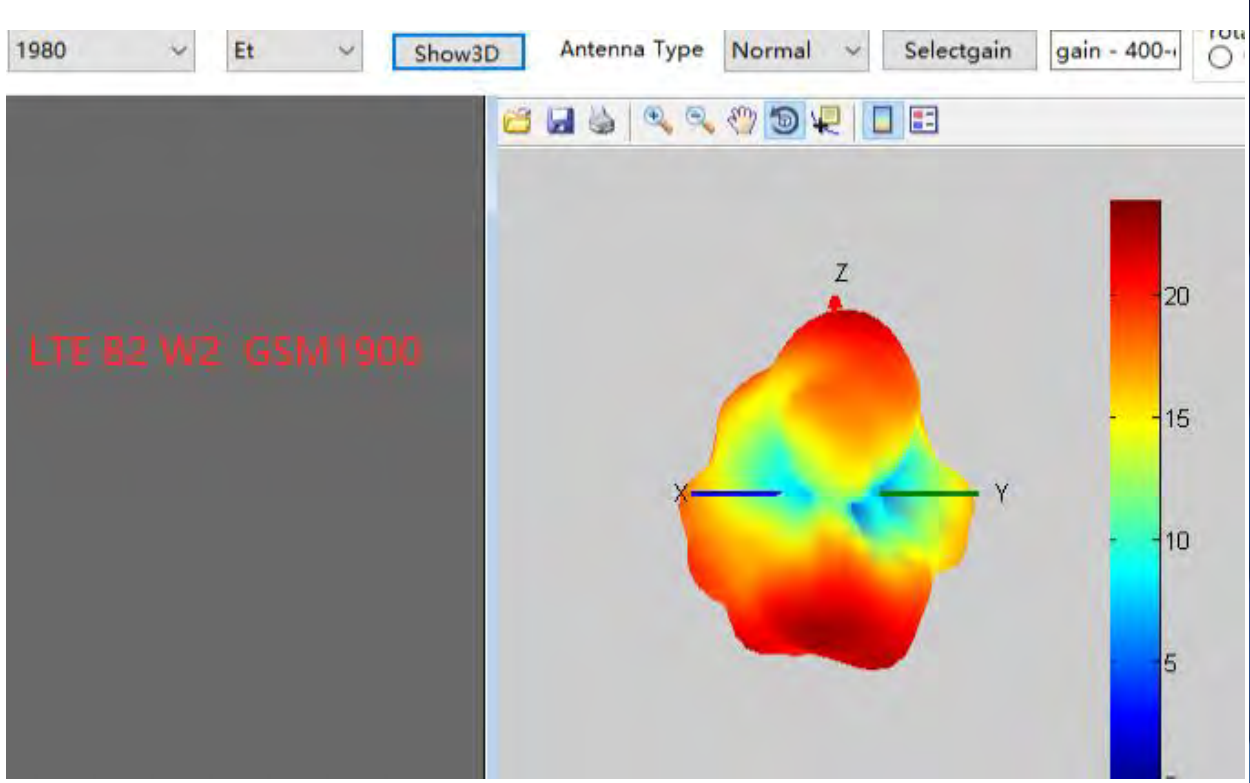




10. Antenna correlation data

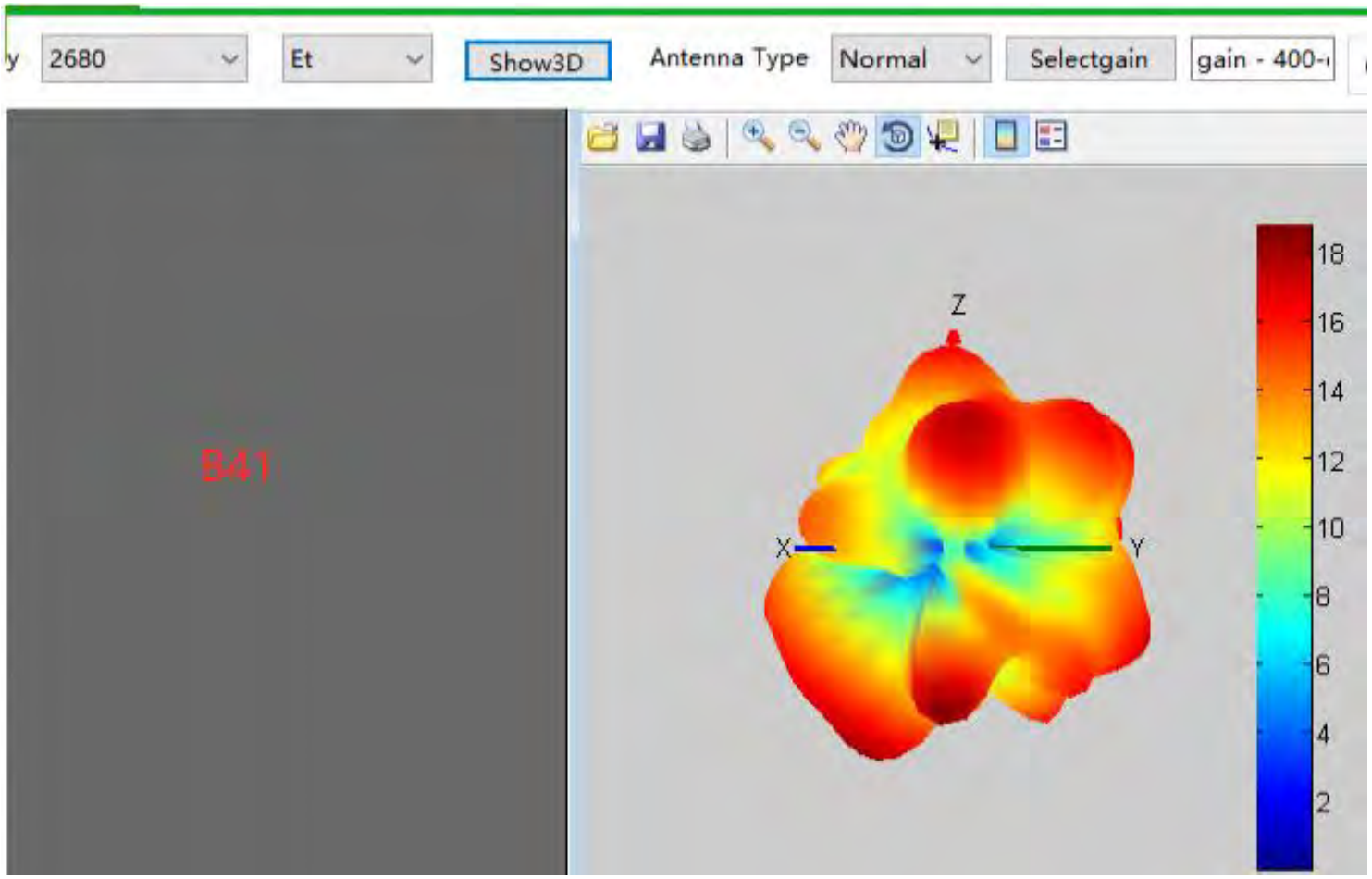
Main antenna apple pattern and directional pattern





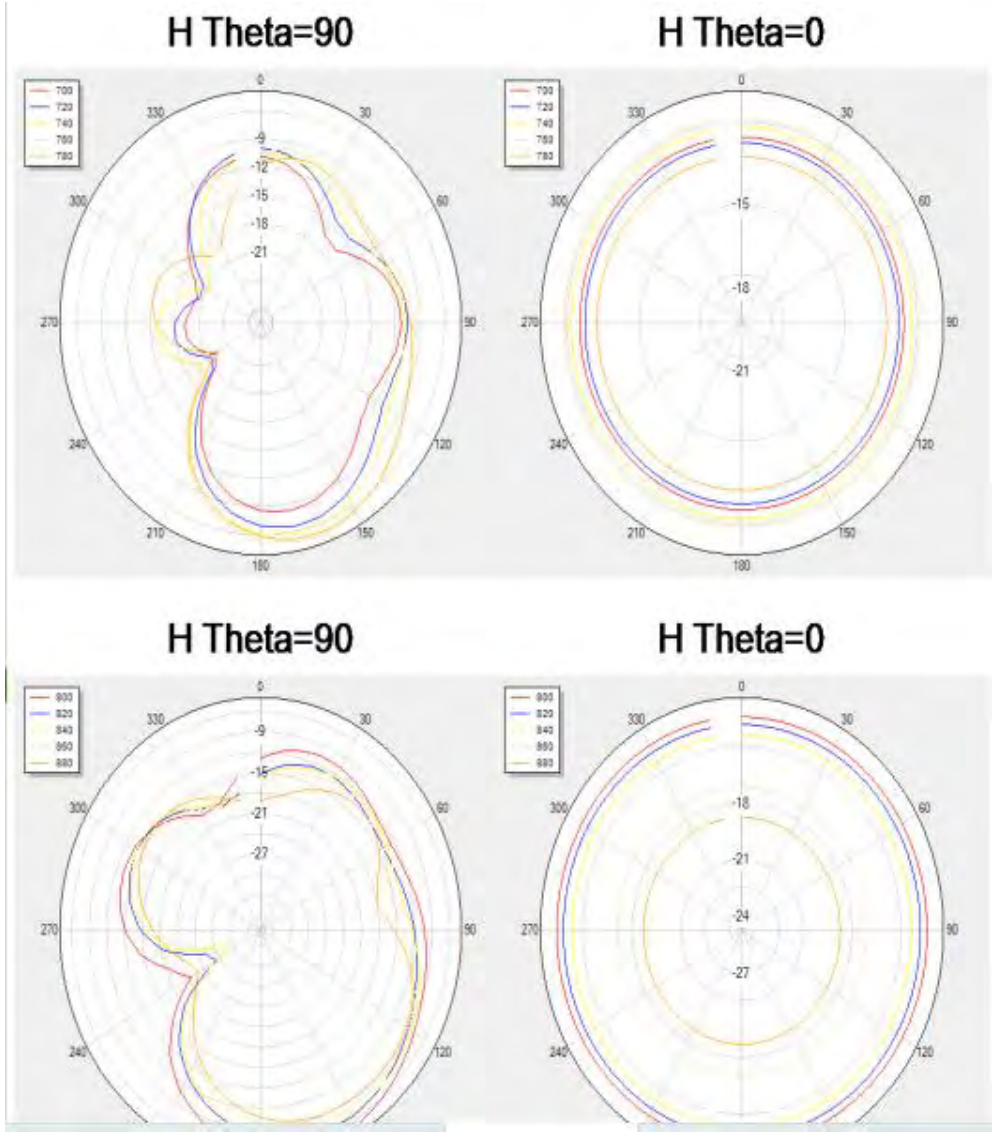
10. Antenna correlation data

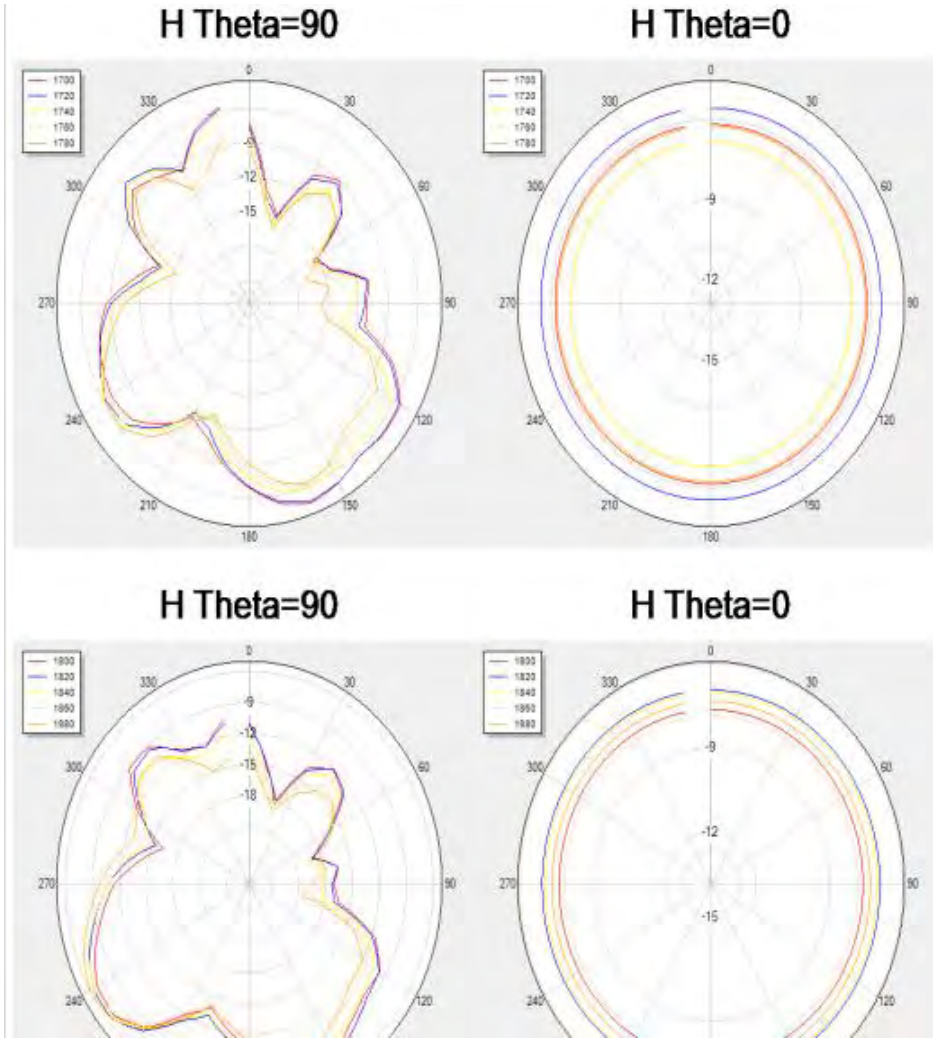
Main antenna apple pattern and directional pattern



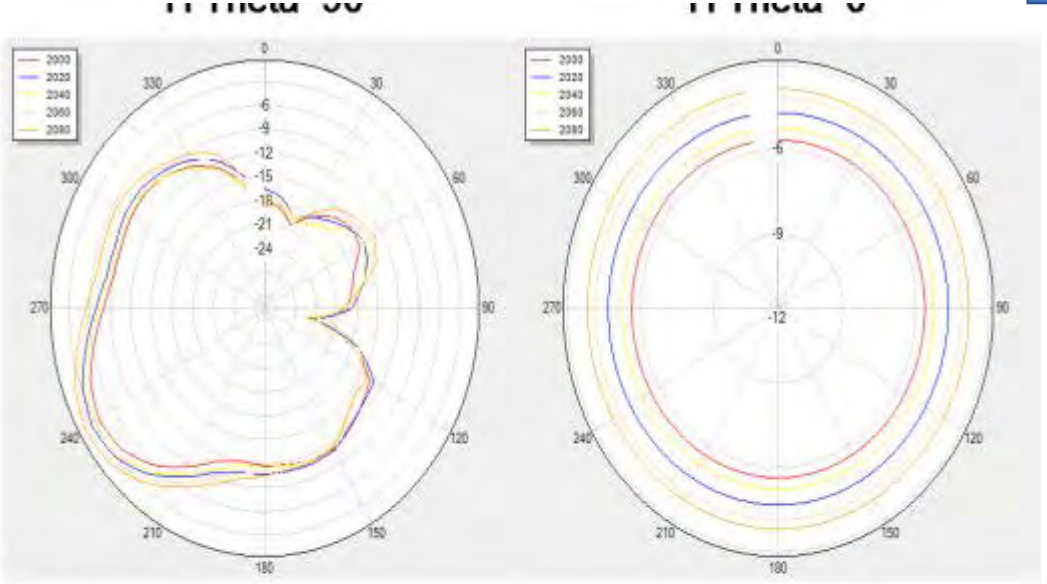
10. Antenna correlation data

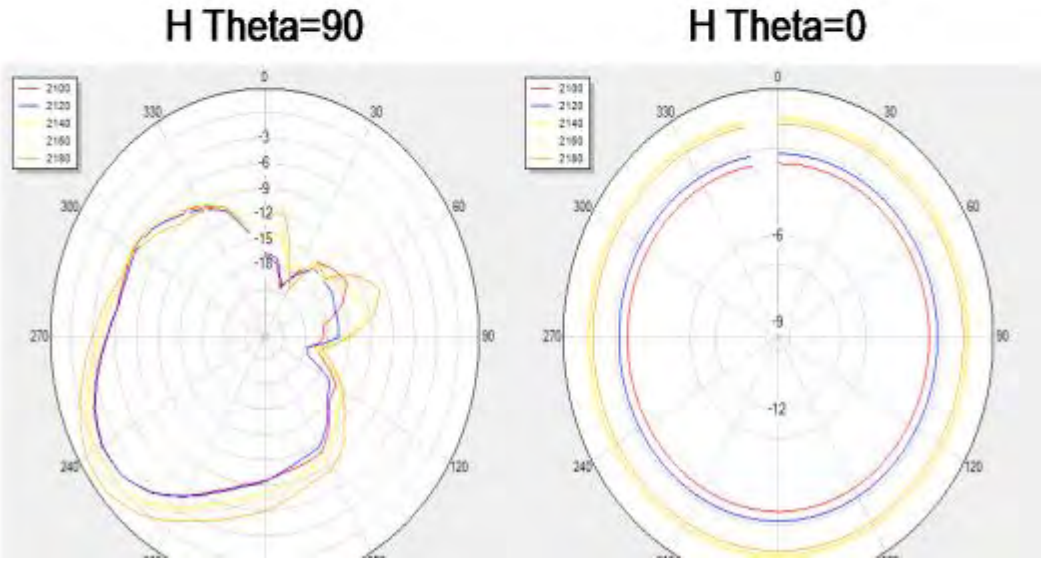
Main antenna apple pattern and directional pattern



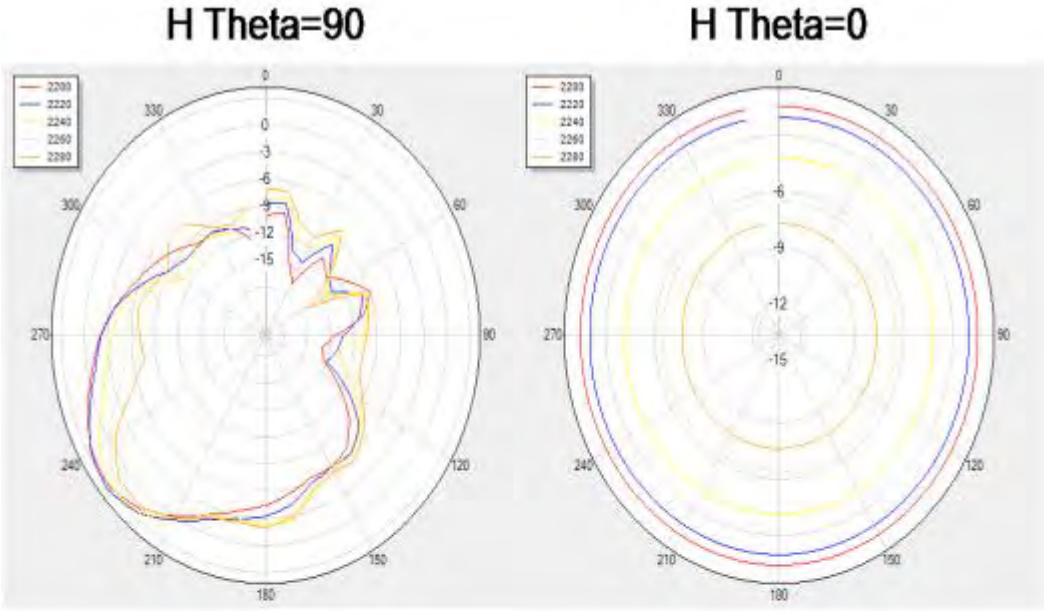


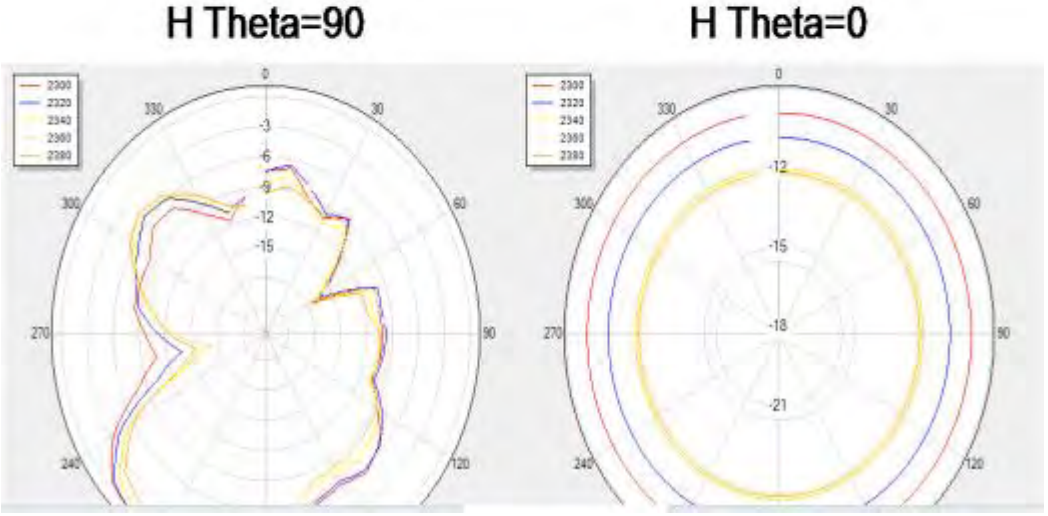
10. Antenna correlation data



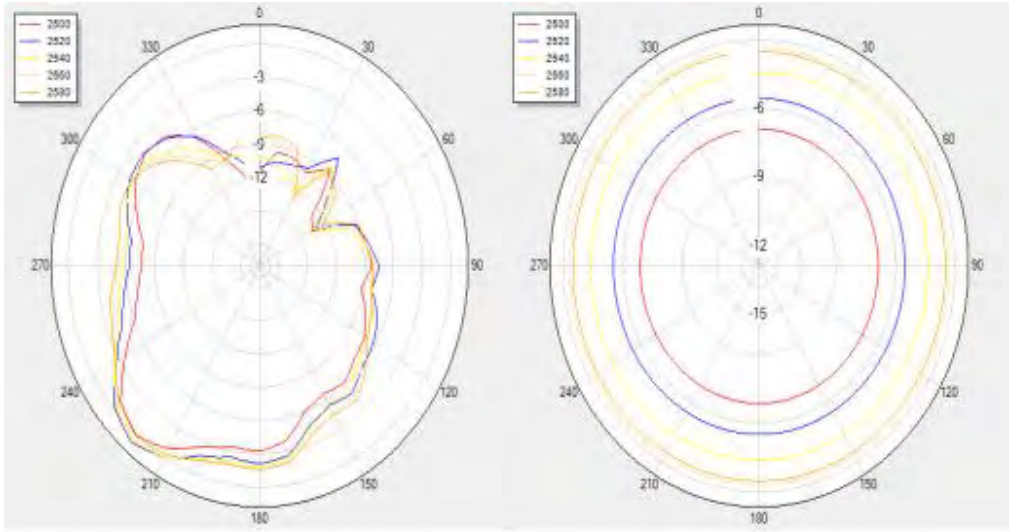


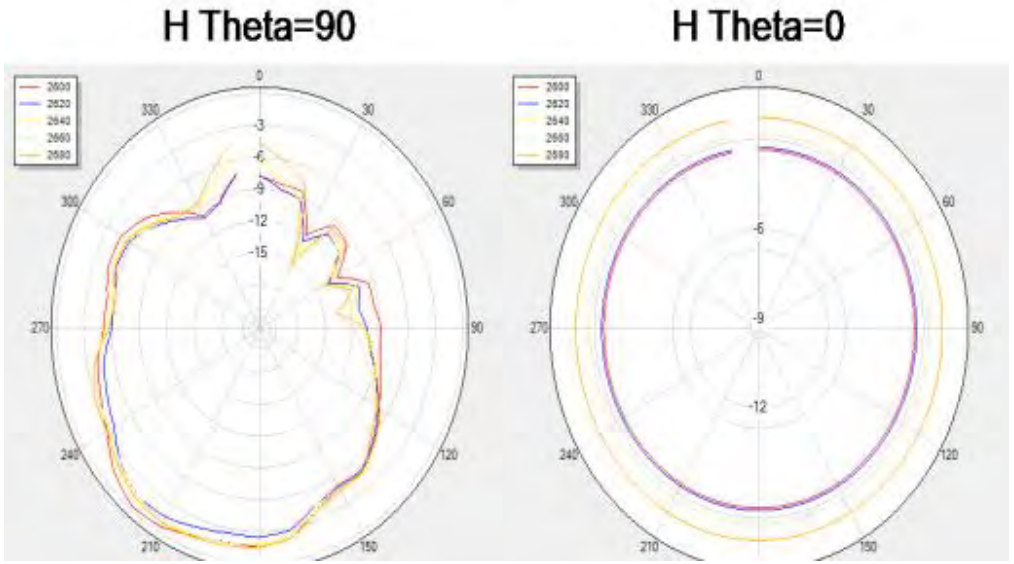
Main antenna apple pattern and directional pattern



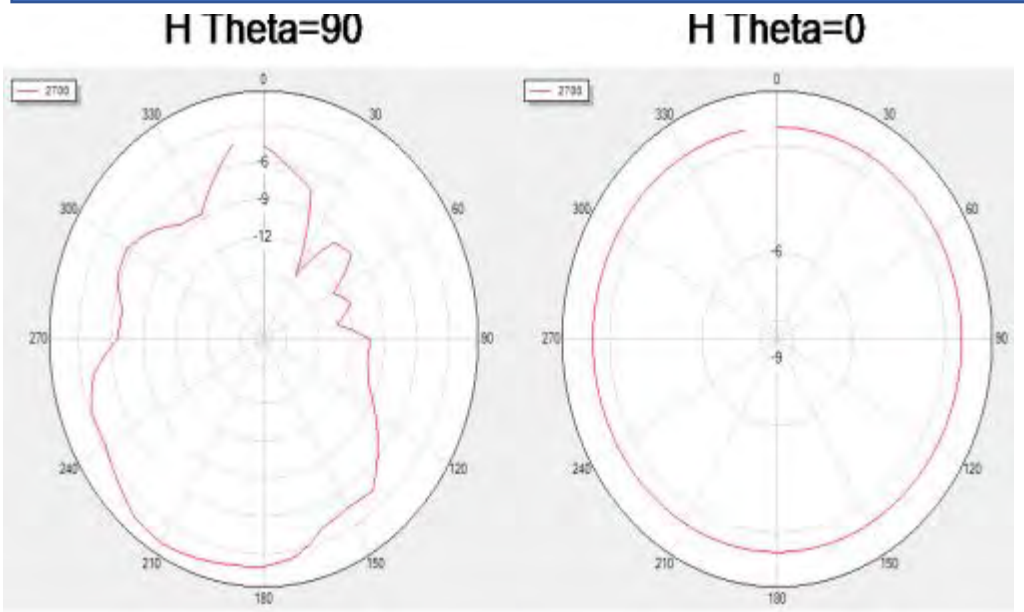


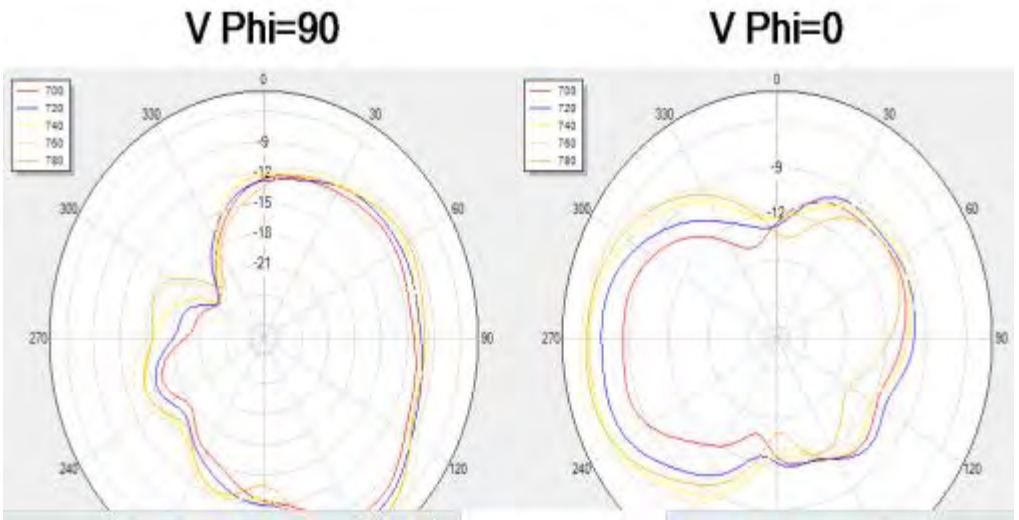
10. Antenna correlation data





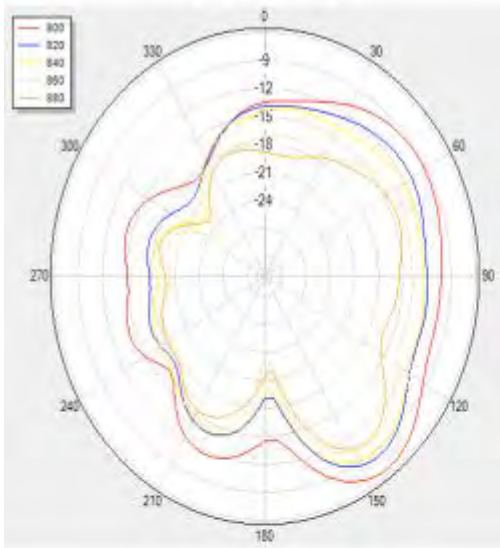
Main antenna apple pattern and directional pattern



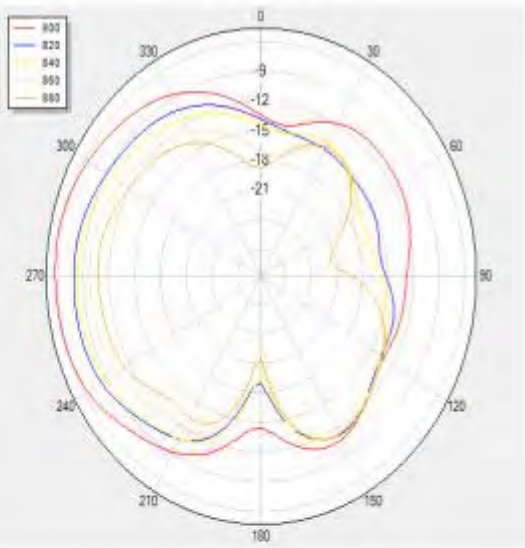


10. Antenna correlation data

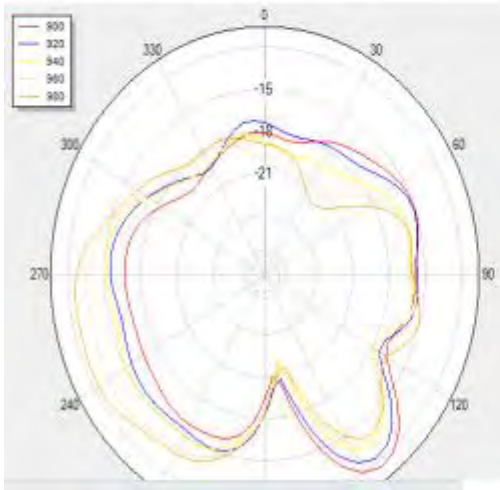
V Phi=90



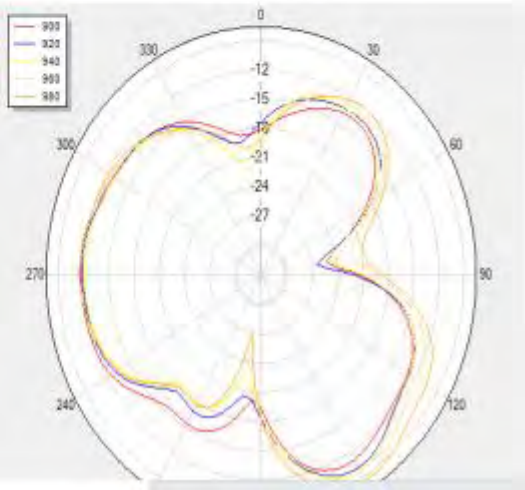
V Phi=0



V Phi=90

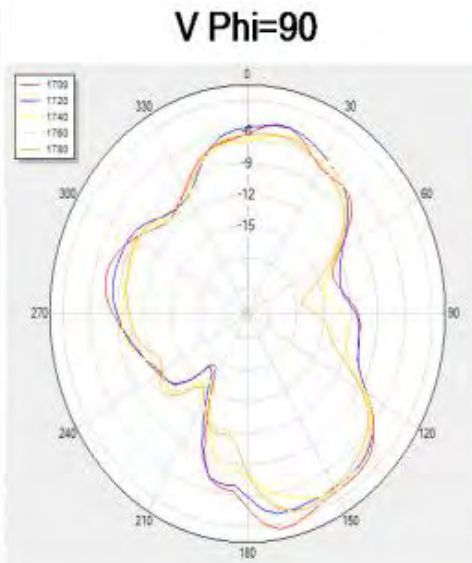


V Phi=0

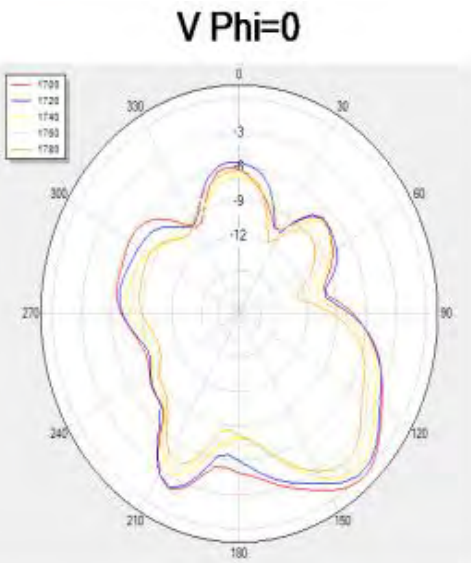


Main antenna apple pattern and directional pattern

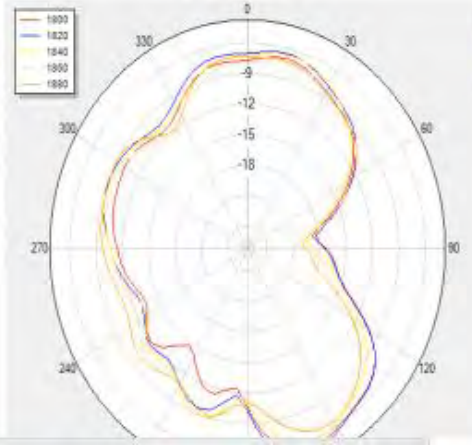
V Phi=90



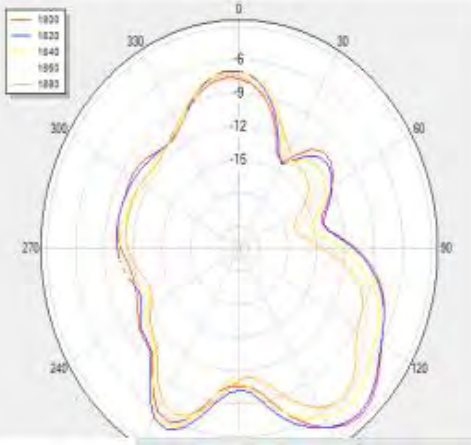
V Phi=0



V Phi=90



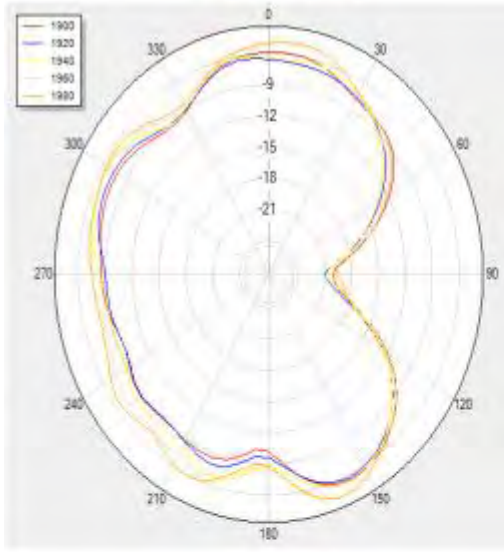
V Phi=0



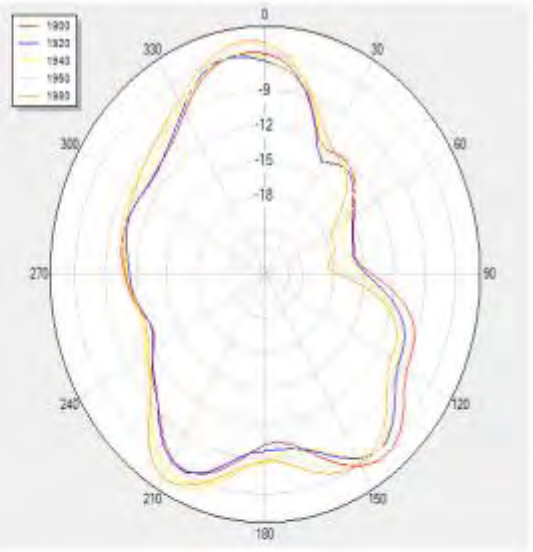
10. Antenna correlation data

Main antenna apple pattern and directional pattern

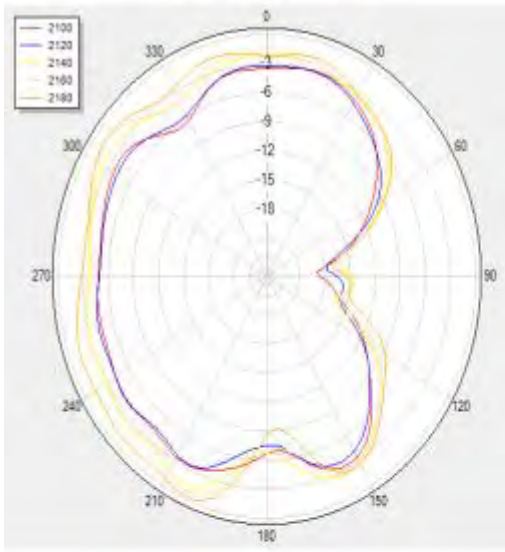
V Phi=90



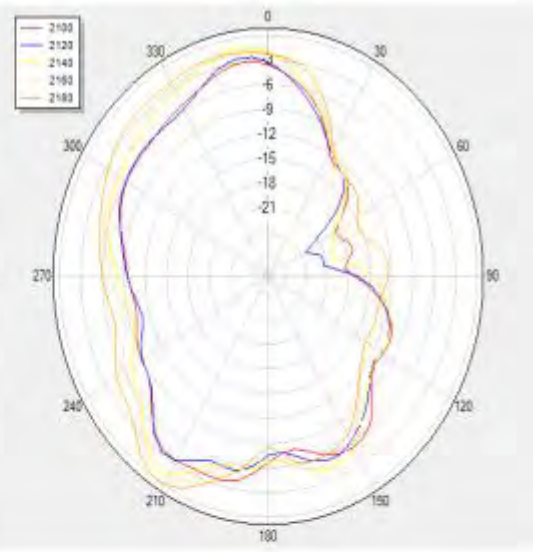
V Phi=0



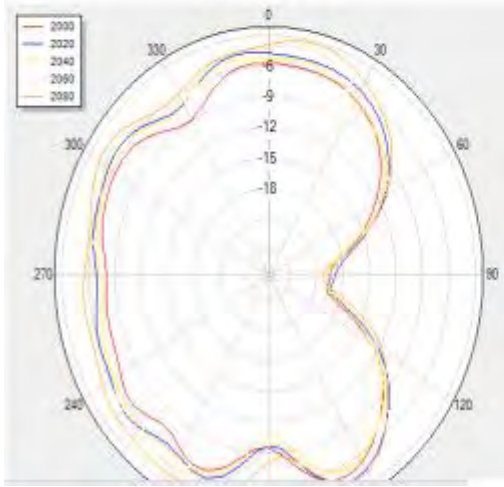
V Phi=90



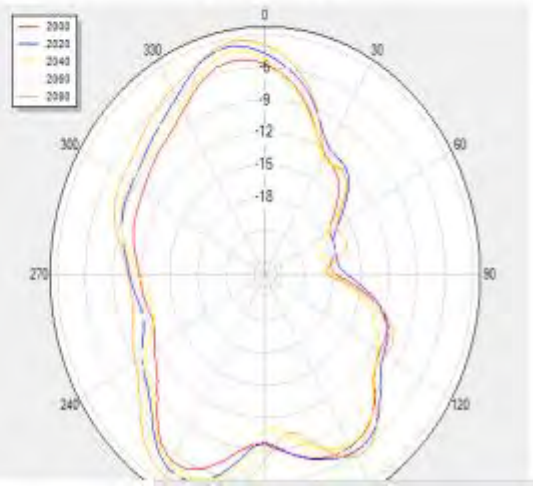
V Phi=0



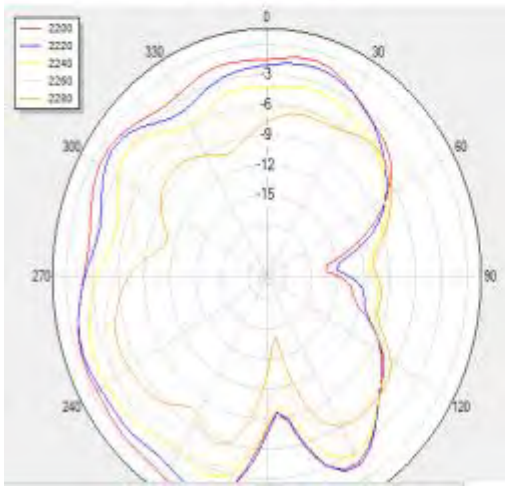
V Phi=90



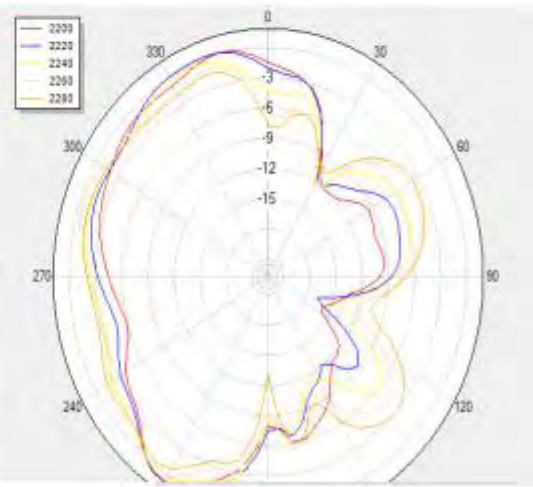
V Phi=0



V Phi=90

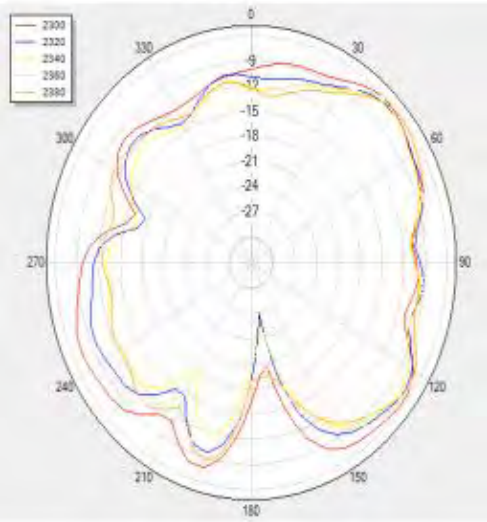


V Phi=0

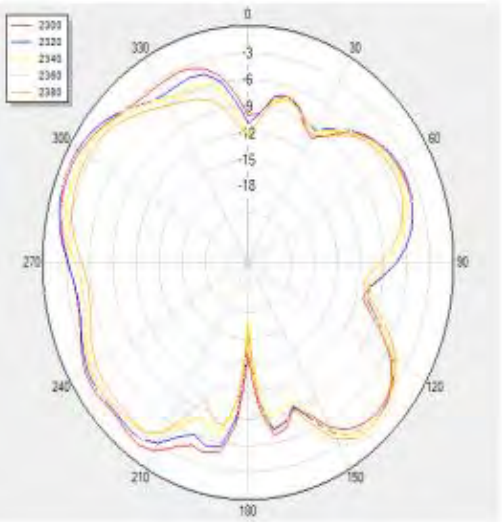


10. Antenna correlation data

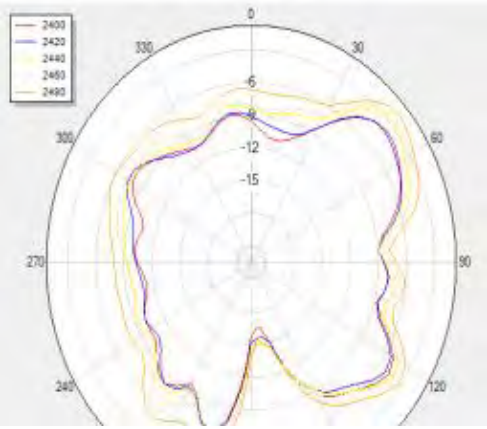
V Phi=90



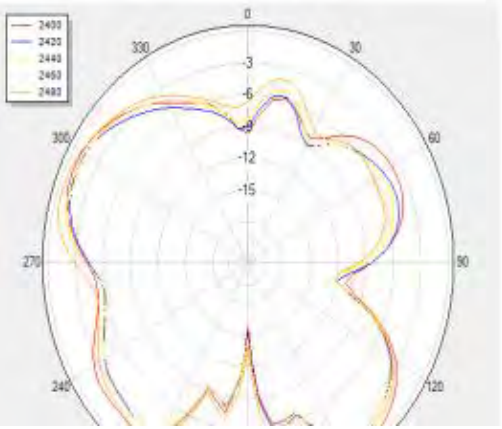
V Phi=0



V Phi=90

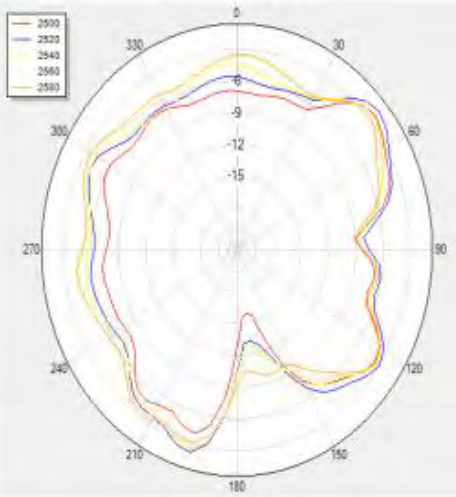


V Phi=0

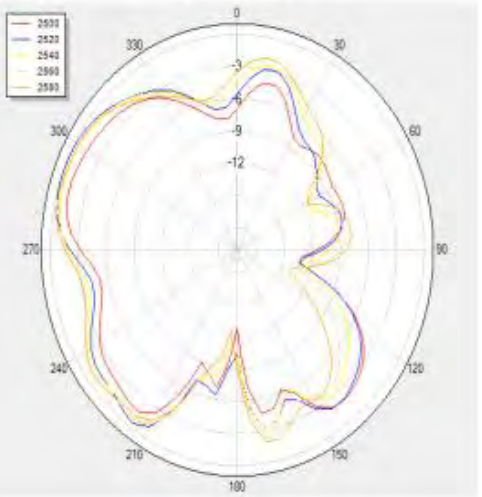


Main antenna apple pattern and directional pattern

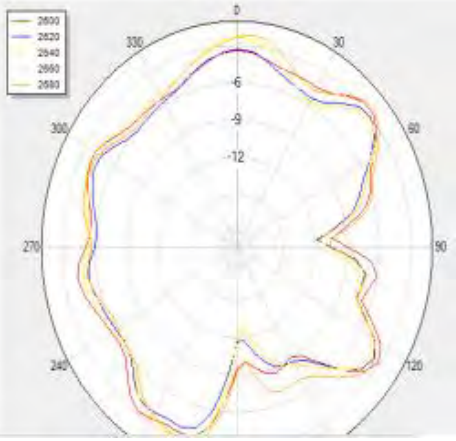
V Phi=90



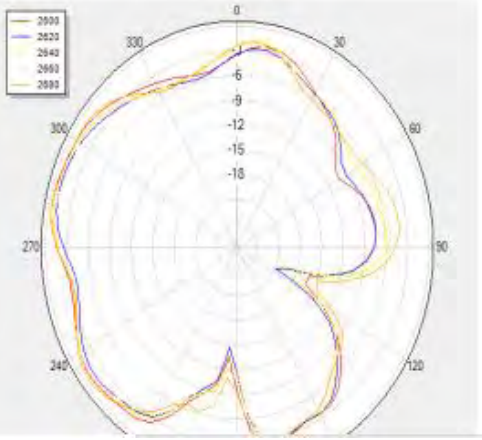
V Phi=0



V Phi=90

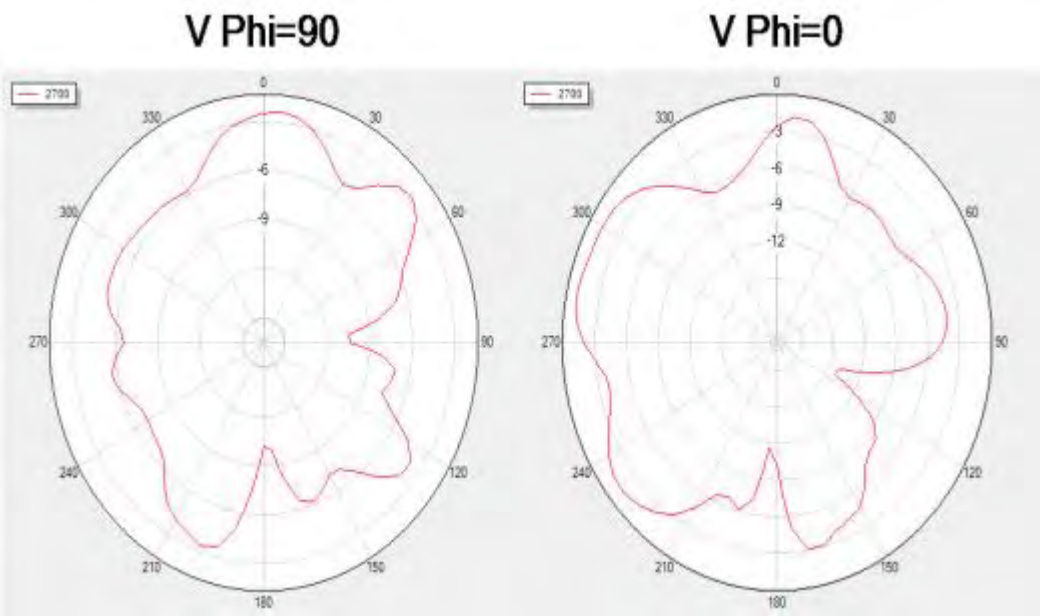


V Phi=0



10. Antenna correlation data

Main antenna apple pattern and directional pattern



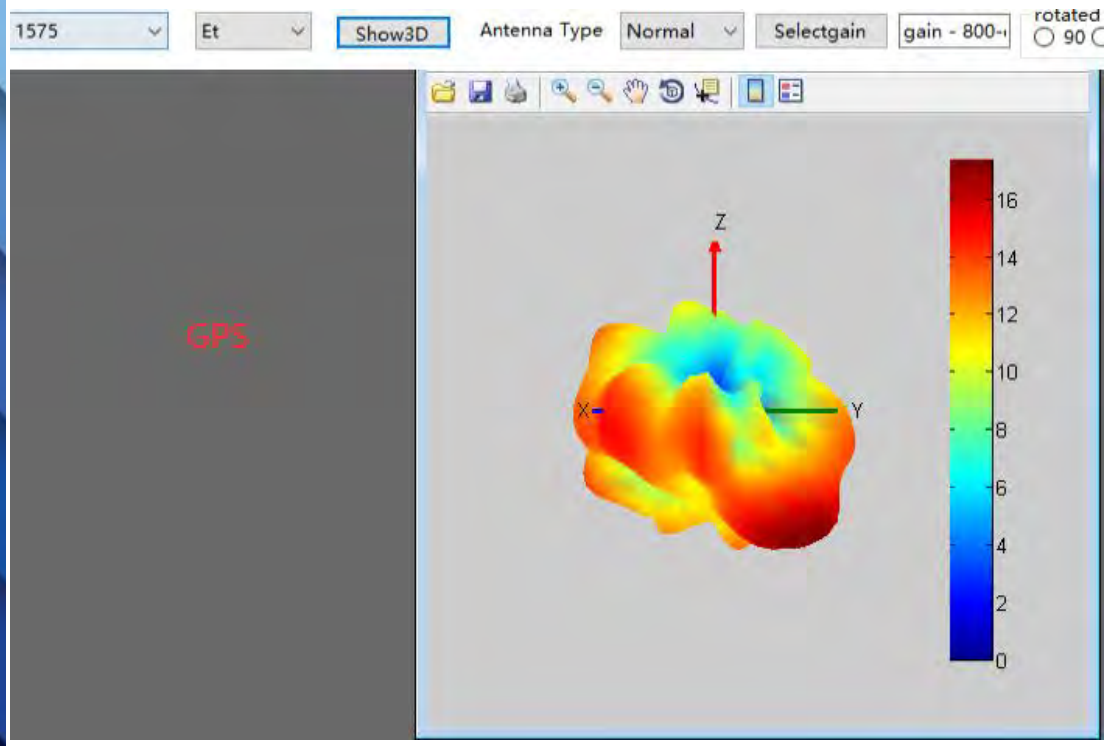
11. Antenna passive data

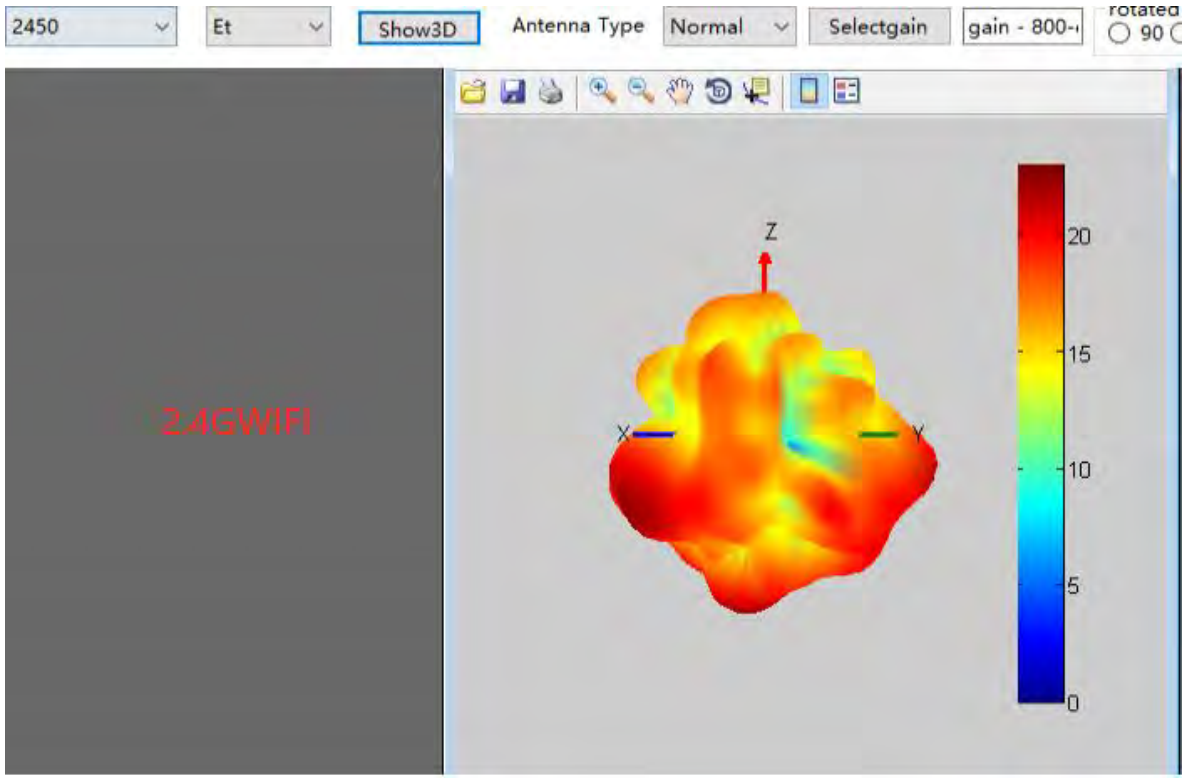
Three in one antenna gain

Gain&Efficiency				
frequency 频率(MHz)	gain 增益(dBi)	mingain 最小增益	efficiency 效率(dBi)	efficiency 效率(%)
1570	1.75	-24.13	-3.2	47.85
1575	1.44	-24.25	-3.47	44.98
1580	1.11	-24.3	-3.62	43.50
2400	0.73	-21.4	-4.4	36.30
2450	-0.2	-21.63	-4.65	34.30
2500	-0.13	-19.02	-4.39	36.43
5100	-4.82	-25.21	-8.53	16.85
5200	-3.58	-26.89	-7.72	17.66
5300	-2.56	-25.6	-7.43	18.08
5400	-0.26	-20.32	-6.02	25.02
5500	0.87	-17.4	-4.61	34.58
5600	0.08	-22.72	-4.4	36.30
5700	0.24	-16.46	-4.29	37.24
5800	0.23	-15.83	-4.7	33.86
5900	-0.68	-17.81	-5.46	28.43
6000	-0.71	-20.05	-5.74	26.65

12. Antenna correlation data

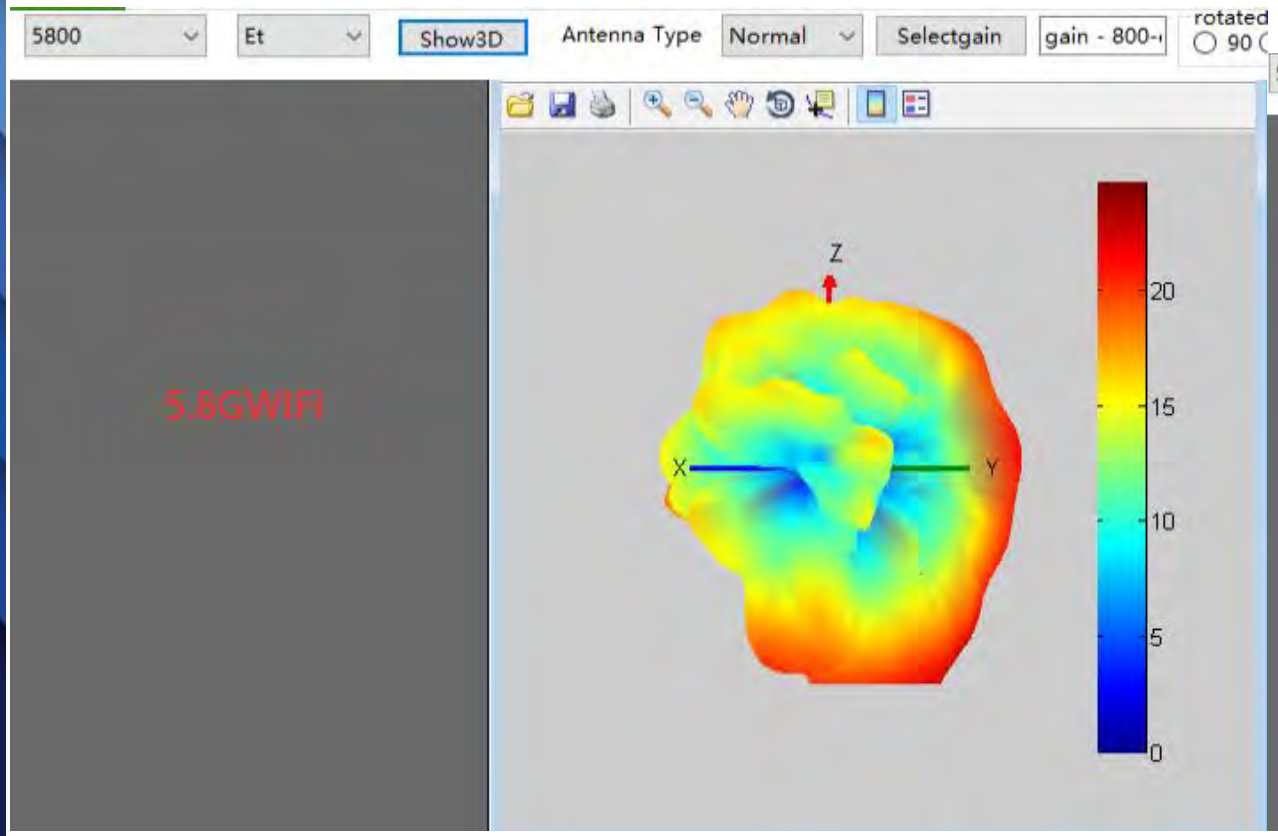
Three in one antenna apple pattern and directional pattern

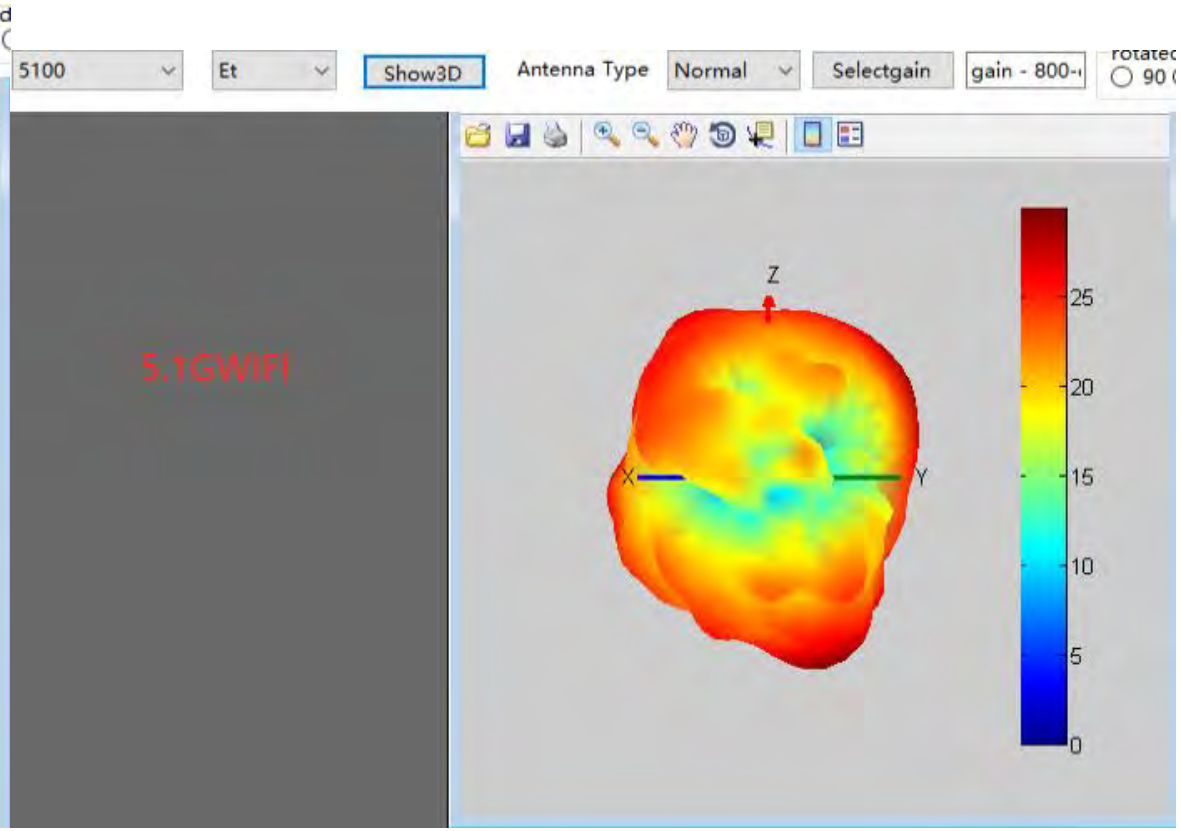




12. Antenna correlation data

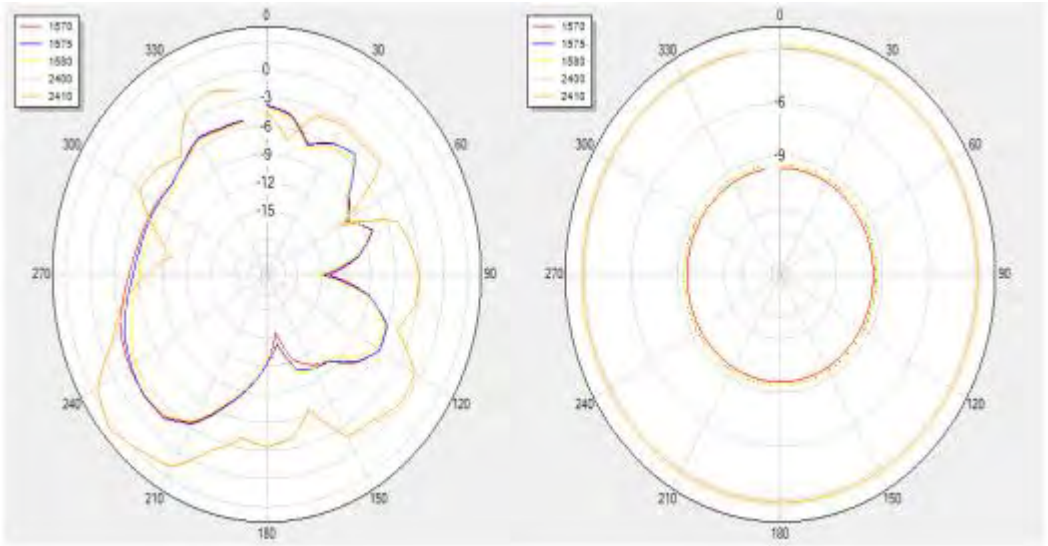
Three in one antenna apple pattern and directional pattern

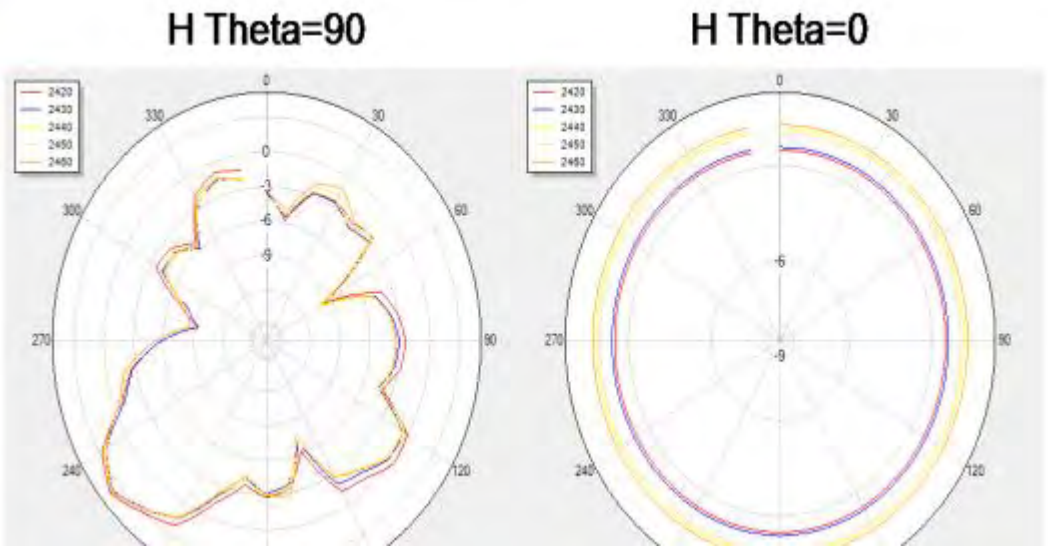


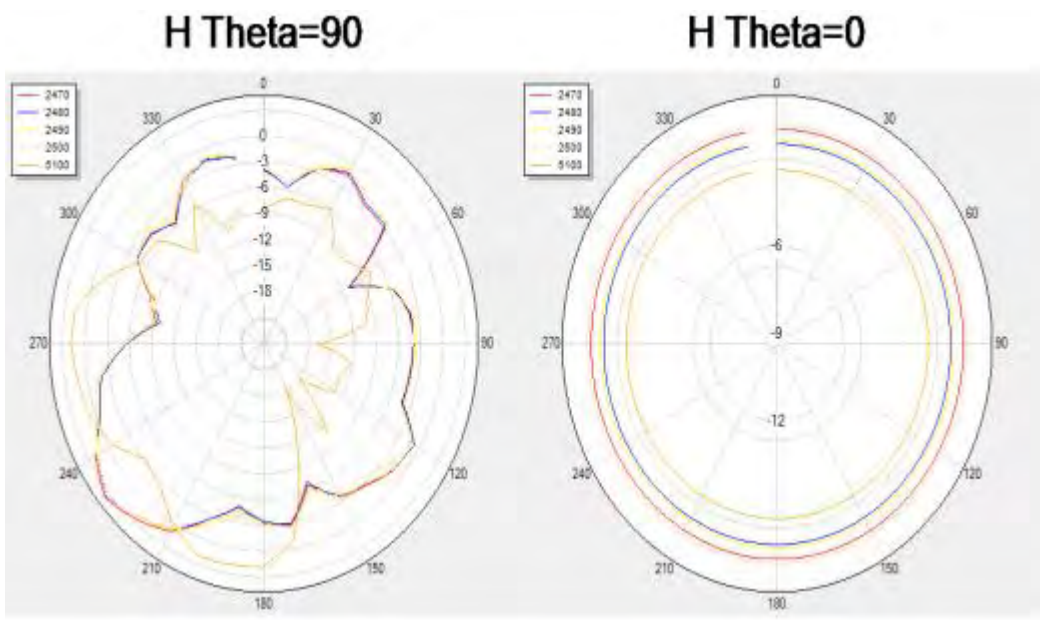


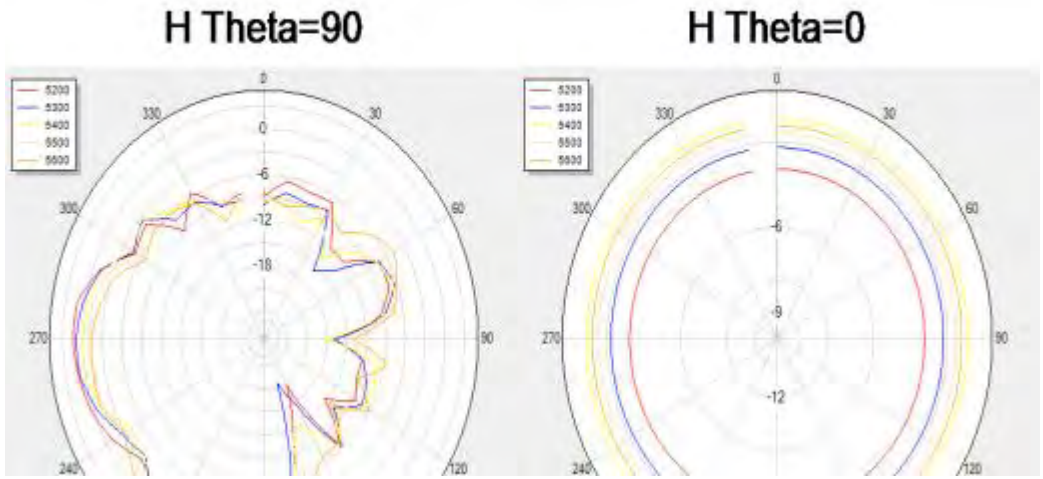
12. Antenna correlation data

Three in one antenna apple pattern and directional pattern



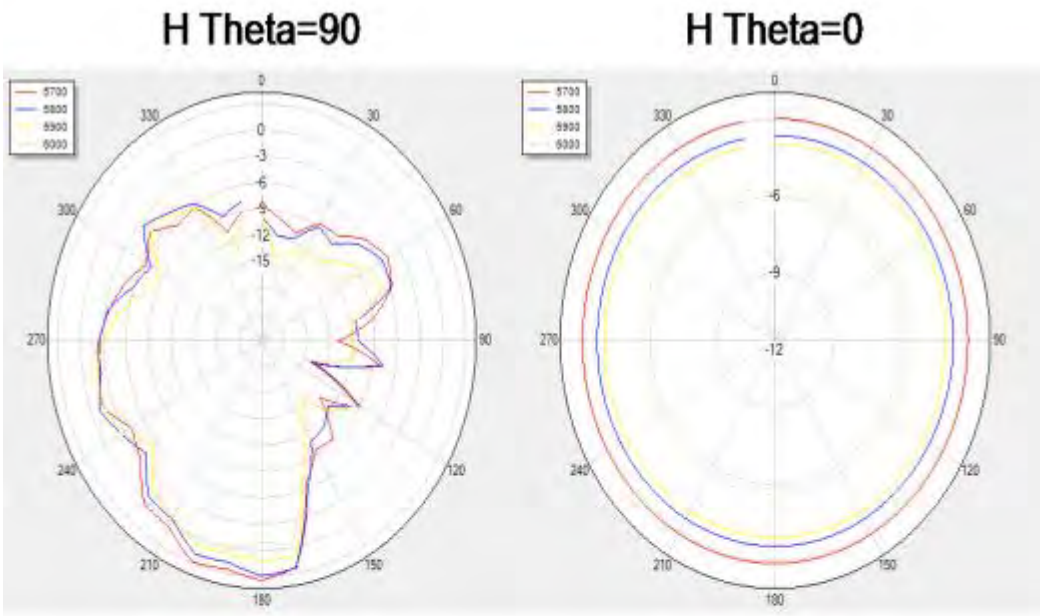


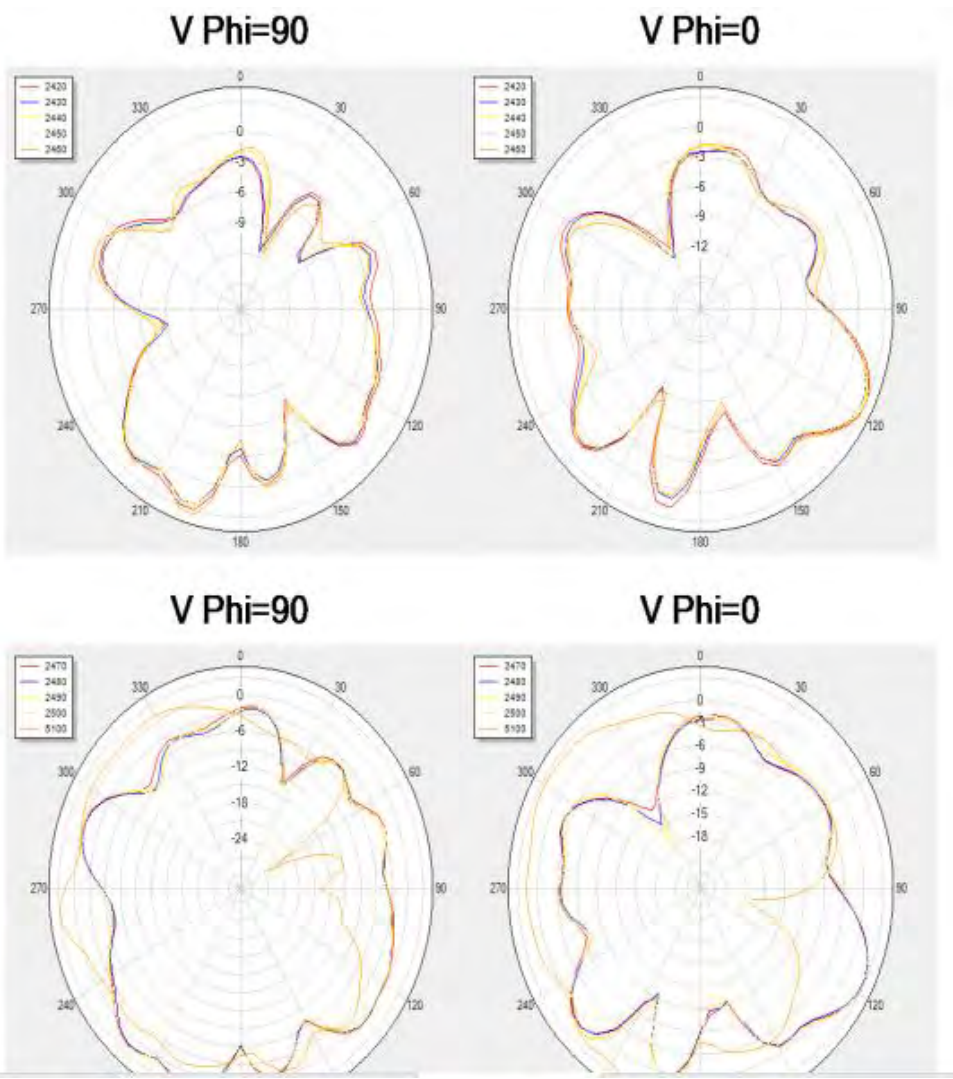




12. Antenna correlation data

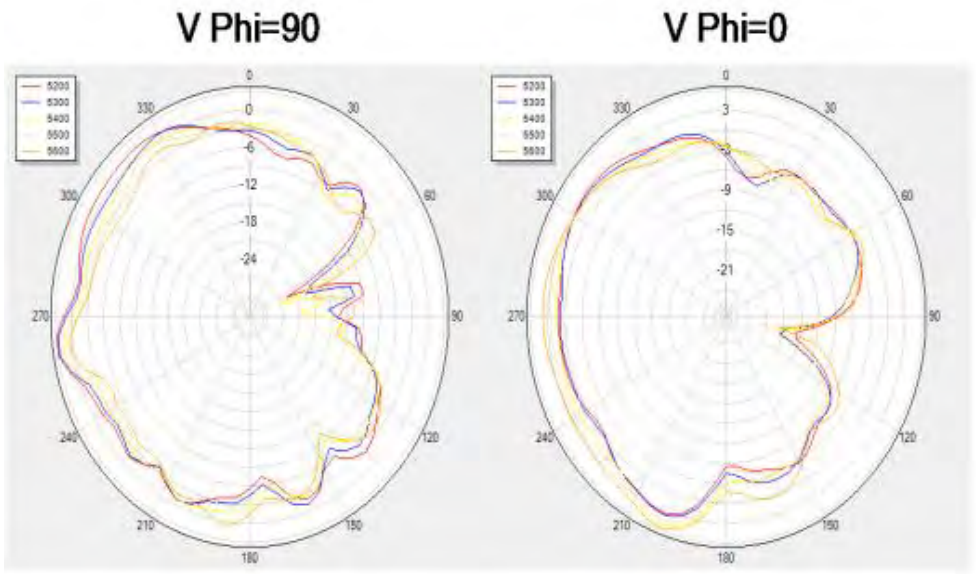
Three in one antenna apple pattern and directional pattern



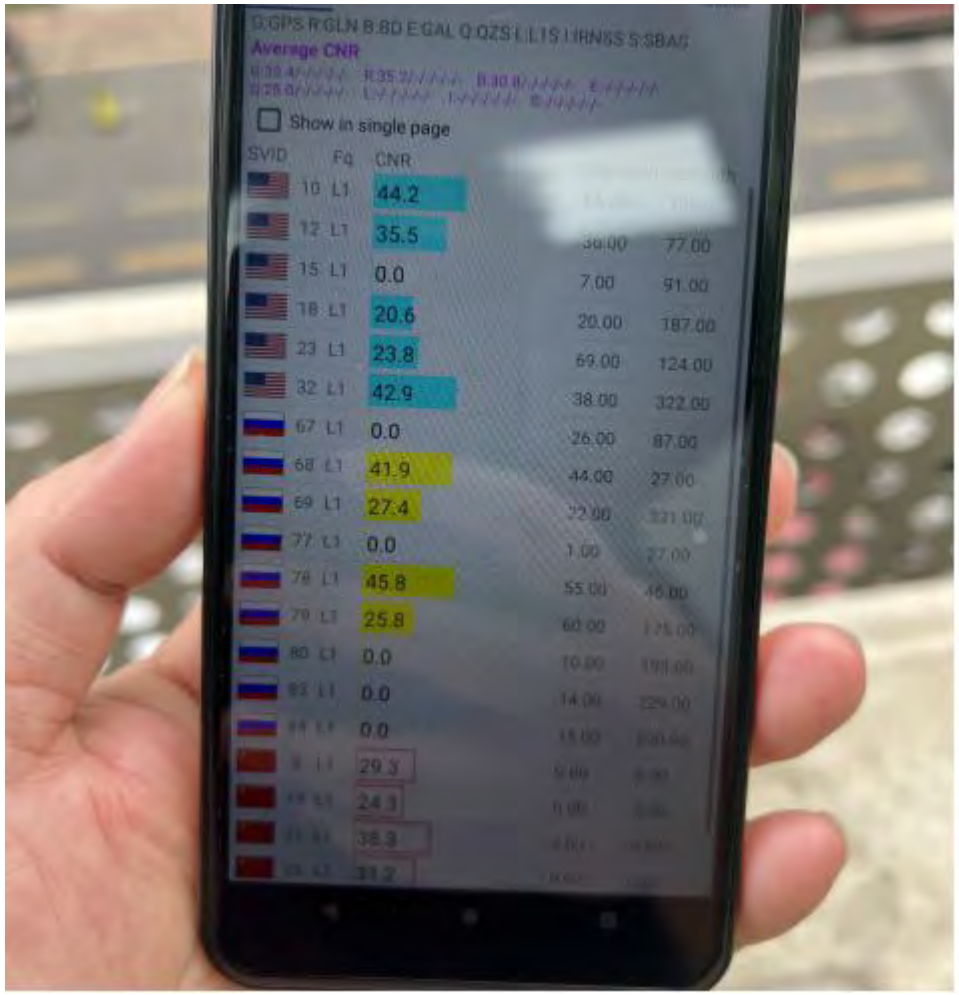


12. Antenna correlation data

Three in one antenna apple pattern and directional pattern



13.GPS/BT/ measured data



GPS cold start positioning for 65 seconds, C/N value of 44, Bluetooth 13 meters, no noise

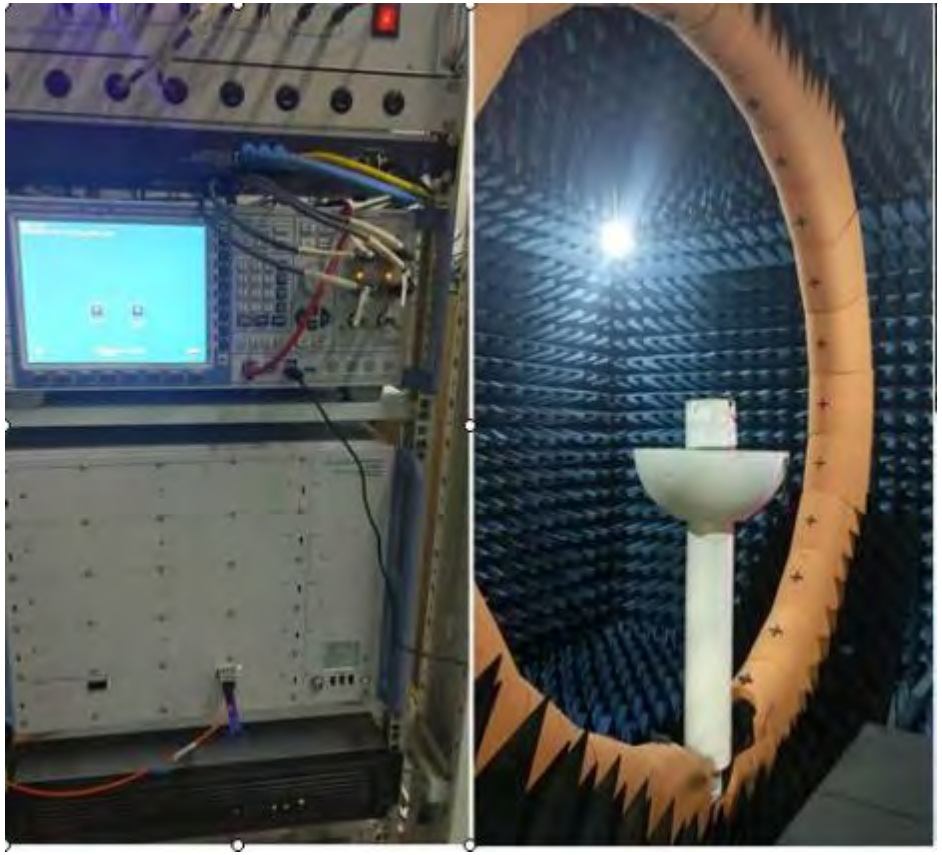
15. Environmental treatment

Cable laying and conductive cloth shielding

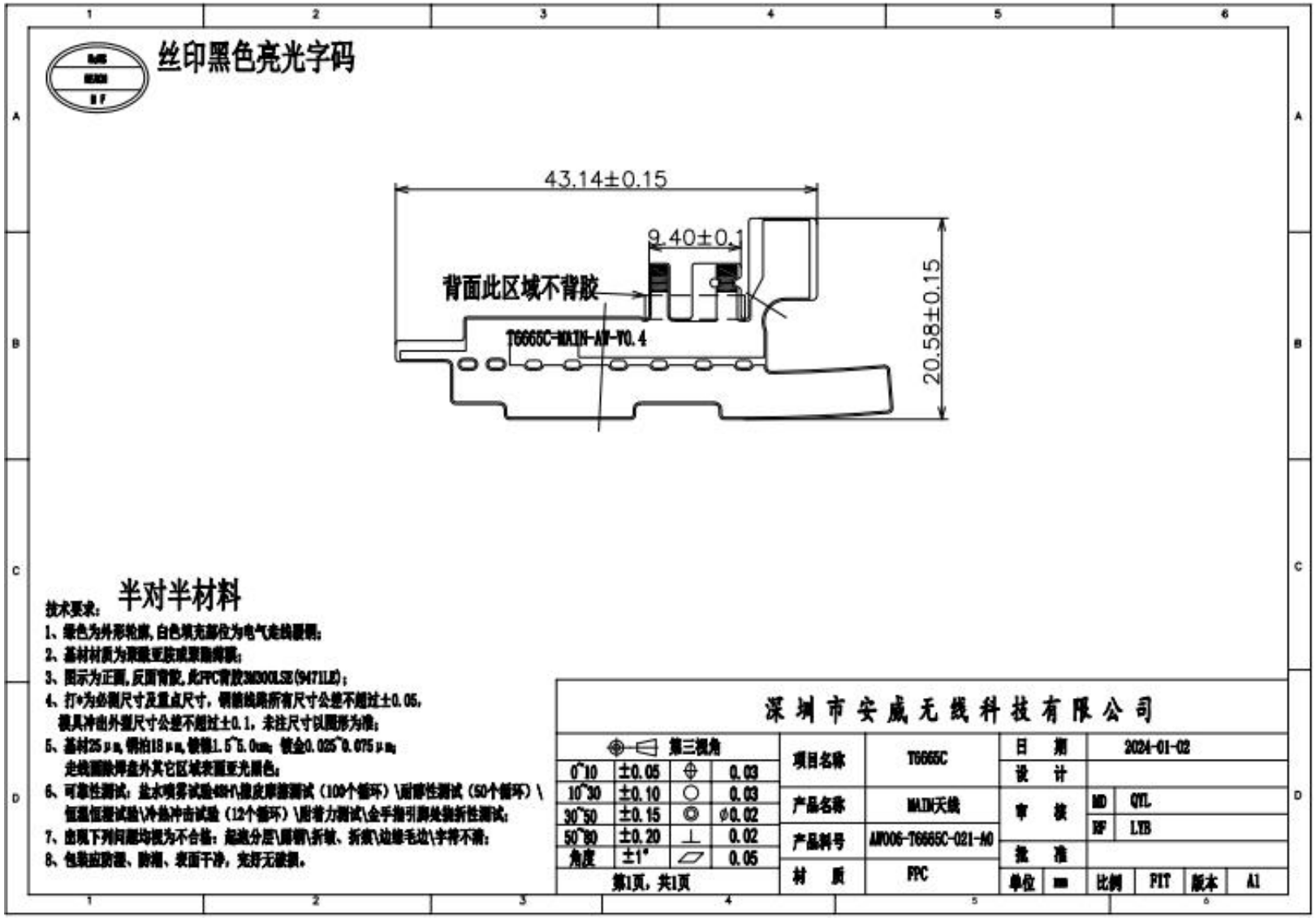
First, apply a Mylar to the earplug hole and then apply a conductive cloth to the shielding cover. The conductive cloth should be large to prevent GPS noise

17.Conclusion

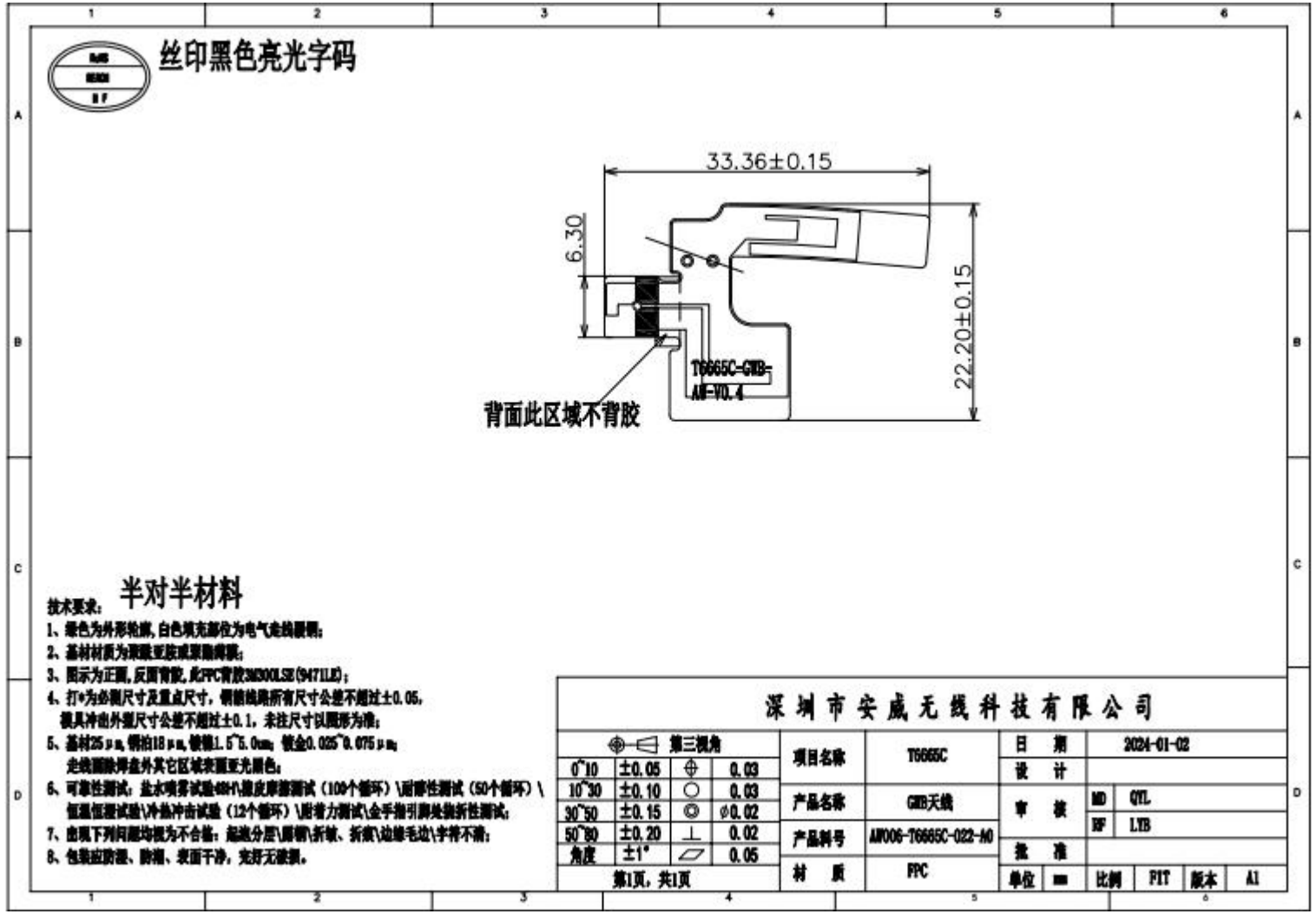
The software and hardware of batch prodution should be the same as the sample machine.



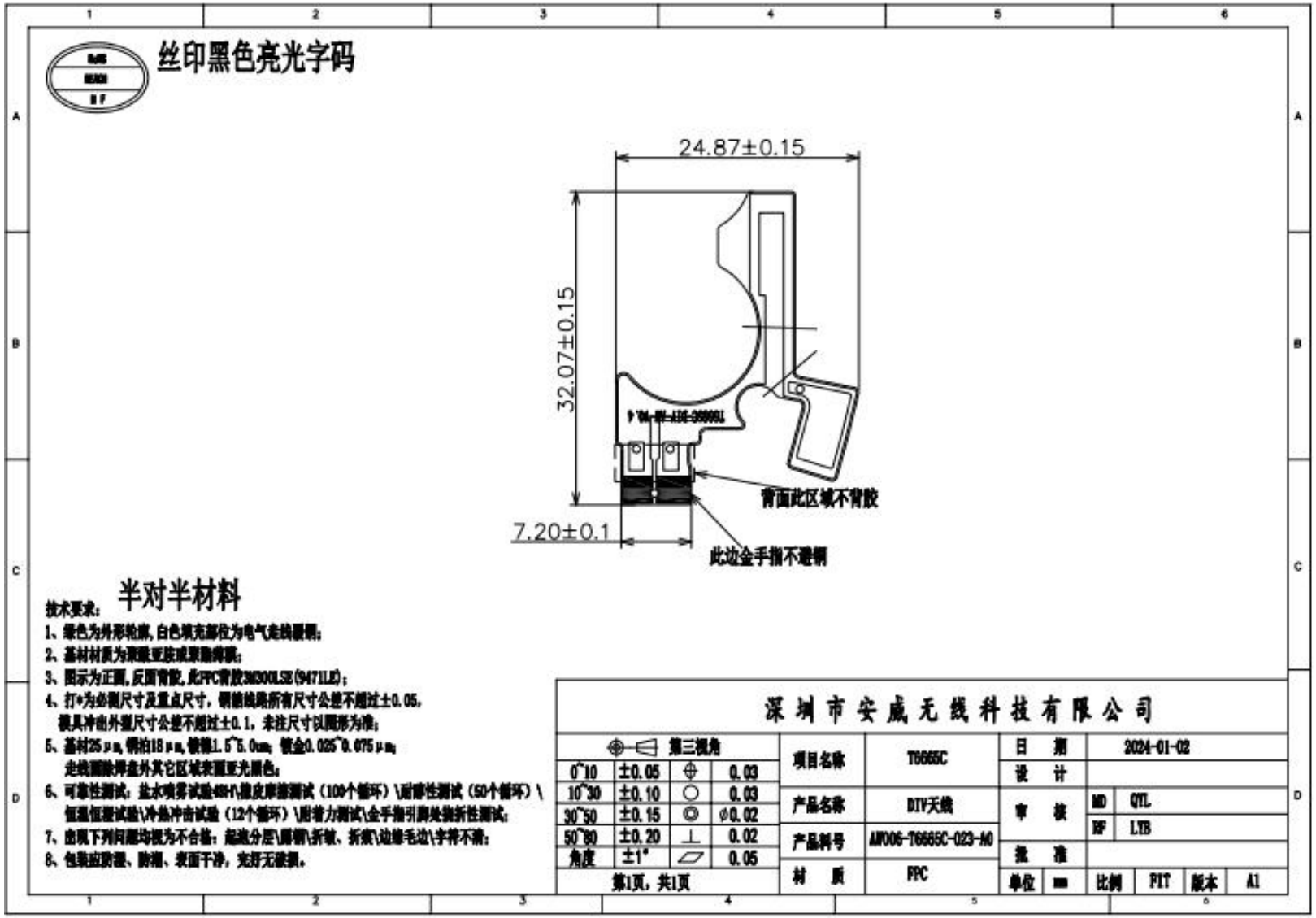
Main antenna size



Three in one antenna size



Diversity antenna size



THANKS!

ANWEI commnuication Technology Co., Ltd.