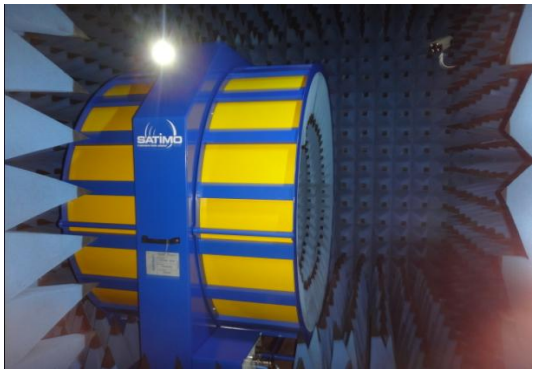
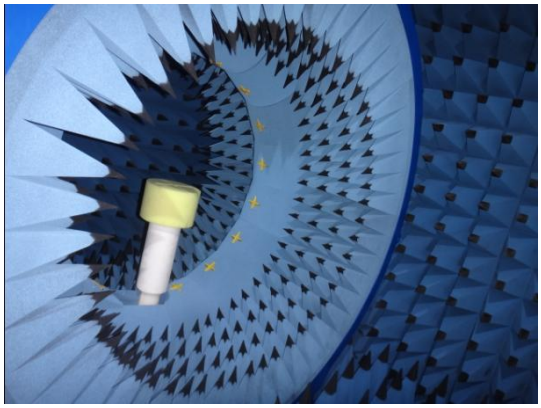
深圳市安弗特电子有限公司
深圳市无限智联科技有限公司

Test report

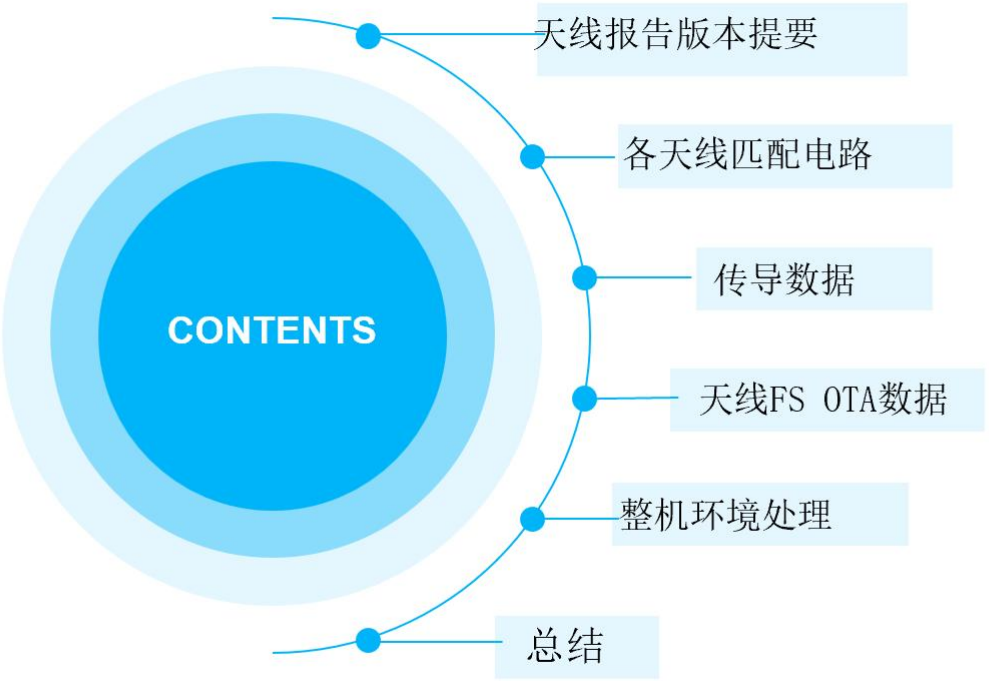
Customer name	Chong Woo	**Project name**	J200-US
Commissioning band	4P/W2 4 5/B1 2 3 4 5 7 12 13 17 20 25 26 28 34 38 39 40 41 66 71	**Structural mode**	FPC
Radio frequency engineer	**Xiang Yi**	**Structural engineer**	**Du Qiang**
Antenna type	PIFA	**date**	2025/6/24

地址：深圳市龙华区大浪街道华宁路 40 号港深创新园 B 栋 3 楼 302 室　电话：0755-27888203　传真：0755-27888450





StarLab 3D laboratory, originally imported from France SATIMO Company, can accurately and quickly test the TRP, TIS, efficiency, gain, apple chart, direction chart and other parameter data of communication terminal products such as mobile phones, tablets and notebooks.



Antenna report version summary

edition	date	Content overview
V1.0	2024/12/23	Debugging antenna test report
V2.0	2025/1/2	Certification data
V3.0	2025/4/21	Add a direction map to the certification materials
V4.0	2025/6/24	Add a direction map to the certification materials

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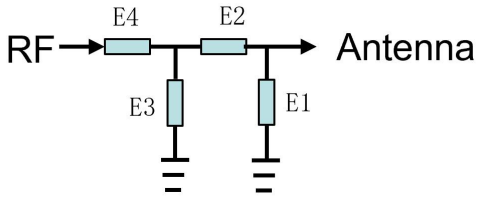
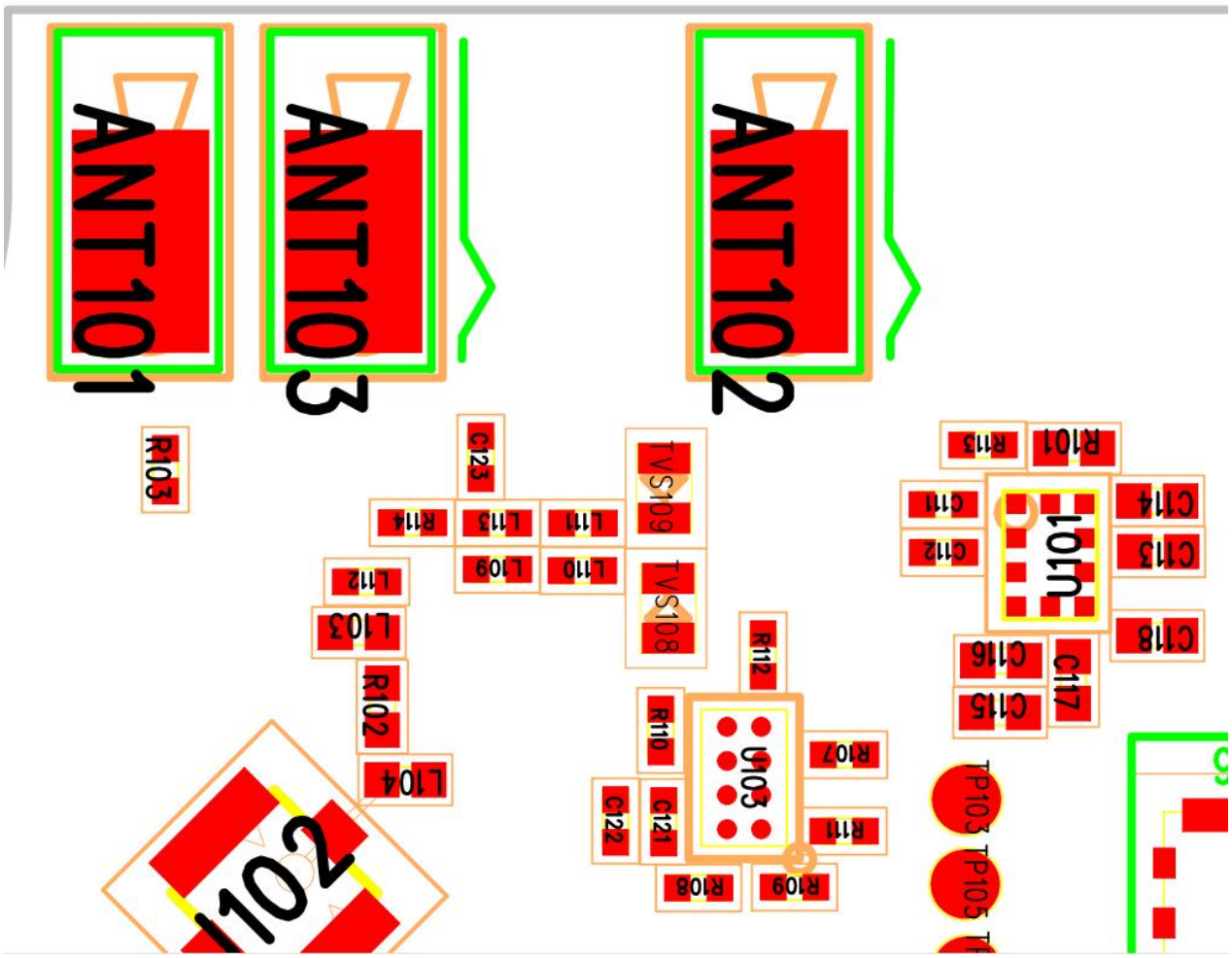
The main antenna matching circuit ------ has been changed

Element	E1	E2	E3	E4
Value	NC	2.0NH	15NH	0 欧





Elemnet	Band
RF1	GSM900/1800/1900/W2/4/B2/4/25/66
RF2	GSM850/W5/B5/26
RF3	B7 12 13 17 41
RF4	B71

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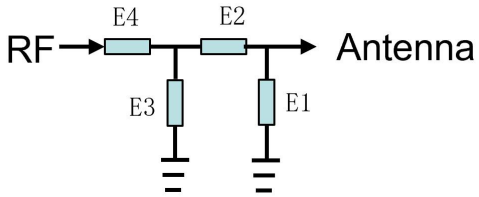
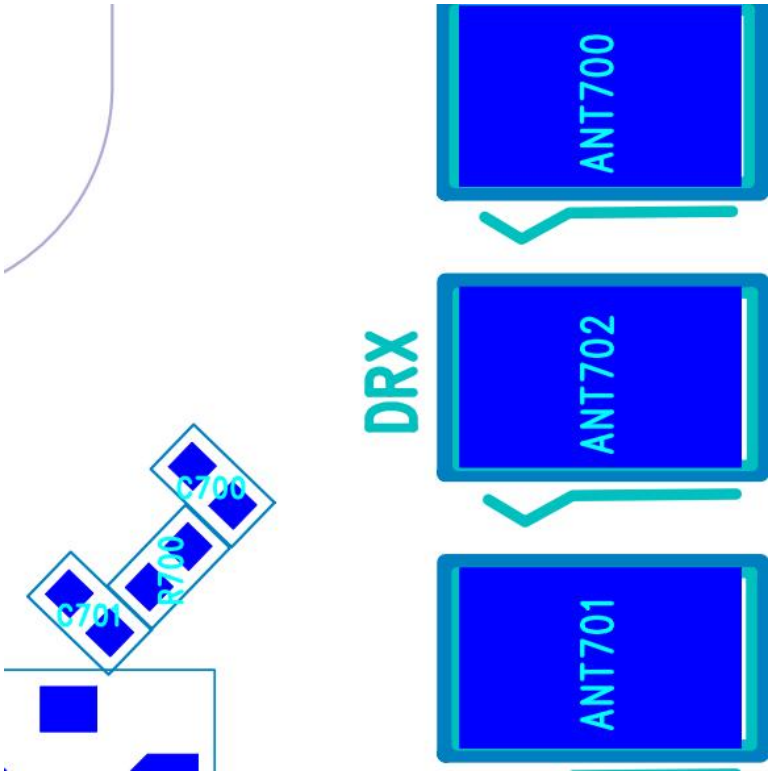
The diversity antenna matching circuit ------ has been changed

Element	E1	E2	E3	E4
Value	1PF	1.5NH	NC	0 欧

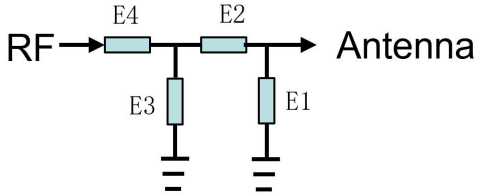




C700/1PF
R700/1.5NH
C701/NC

3-in-1 antenna matching circuit ------ has not been changed

Element	E1	E2	E3	E4
Value	NC	0 欧	NC	0 欧



Motherboard conduction data

Band	Channel	power	Single master sensitivity	Band	Channel	power	Single master sensitivity
GSM900	L			DCS1800	L		
	M				M		
	H				H		
GSM850	L			PCS1900	L		
	M				M		
	H				H		
W1900	L			W1700	L		
	M				M		
	H				H		
W850	L				L		
	M				M		
	H				H		
B2(10MHz)	L			B27(10MHz)	L		
	M				M		
	H				H		
B4(10MHz)	L			B25(10MHz)	L		
	M				M		
	H				H		
B5(10MHz)	L			B26(10MHz)	L		
	M				M		
	H				H		
B7(10MHz)	L			B41(10MHz)	L		
	M				M		
	H				H		
B12(10MHz)	L			B66(10MHz)	L		
	M				M		
	H				H		
B13(10MHz)	L			B71(10MHz)	L		
	M				M		
	H				H		

WIFI Motherboard conduction without line loss

Band	Channel	TRP(dBm)	TIS(dBm)	Band	Channel	TRP(dBm)	TIS(dBm)
2.4G（B 模 11M）	1	20.1	-85.0	5G（A 模 54M）	36	14.5	-73.0
	7	20.1	-84.5		149	15.5	-73.5
	13	19.0	-84.0		165	11.9	-69.5

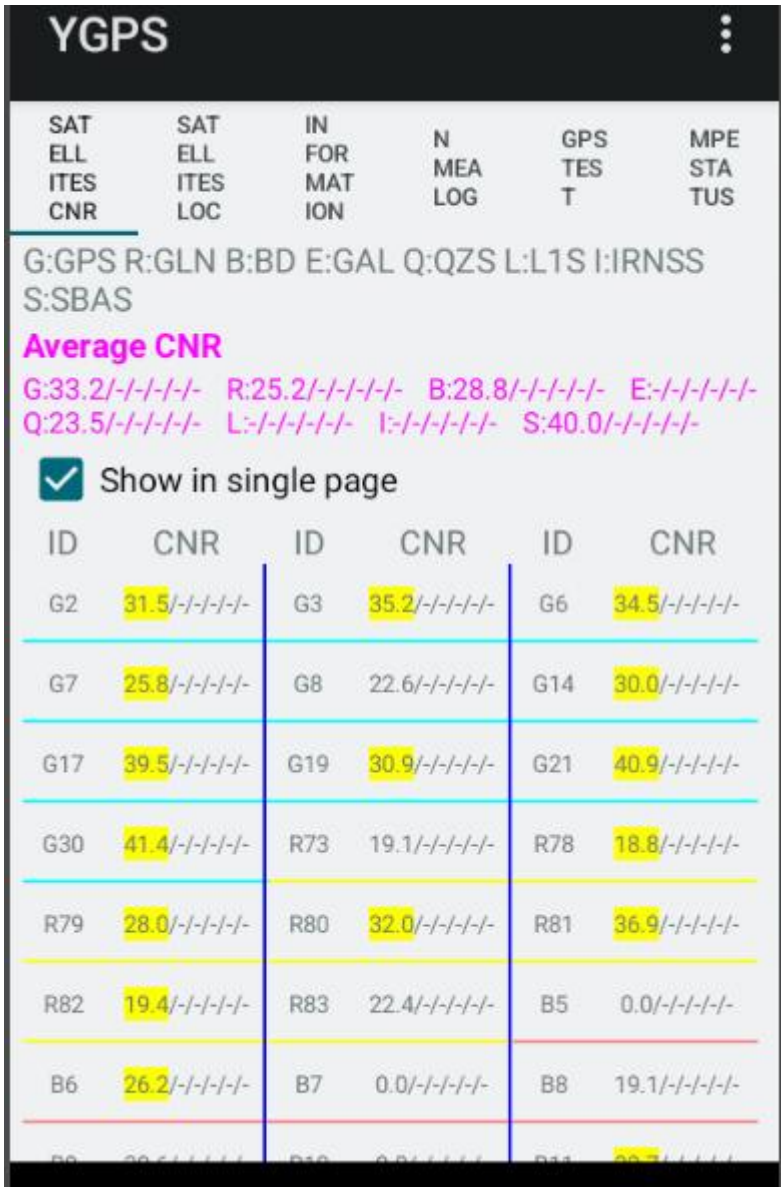
Free Space OTA

Band	Channel	TRP (dBm)	TIS (dBm)	Band	Channel	TRP (dBm)	TIS (dBm)
GSM900	L	27.0		DCS1800	L	25.0	
	M	27.5			M	25.5	
	H	27.6	-102.4		H	26.3	-103.5
GSM850	L	27.2		PCS1900	L	25.9	
	M	27.4			M	25.8	
	H	27.6	-103.0		H	25.2	-103.3
W1900	L	18.5		W1700	L	18.0	
	M	18.8			M	18.2	
	H	18.8	-105.5		H	18.4	-104.0
W850	L	17.7		B39(20MHz)	L	18.8	
	M	17.9			M	19.1	
	H	18.2	-104.2		H	18.9	-91.6
B2(10MHz)	L	19.0		B17(10MHz)	L	17.2	
	M	18.8			M	17.0	
	H	18.2	-93.3		H	16.9	-91.6
B4(10MHz)	L	17.8		B25(10MHz)	L	18.3	
	M	18.0			M	18.0	
	H	18.4	-92.6		H	18.1	-93.4
B5(10MHz)	L	17.8		B26(10MHz)	L	18.0	
	M	18.0			M	18.3	
	H	18.0	-91.8		H	18.0	-90.0
B7(10MHz)	L	18.0		B41(20MHz)	L	18.3	
	M	18.3			M	19.0	
	H	18.6	-93.2		H	19.1	-90.7
B12(10MHz)	L	16.8		B66(10MHz)	L	18.0	
	M	17.1			M	18.7	
	H	17.0	-91.4		H	18.9	-93.2
B13(10MHz)	L			B71(10MHz)	L	16.1	
	M	17.1	-90.8		M	16.3	
	H				H	16.4	-89.3
B1(10MHz)	L	19.5		B28(10MHz)	L	16.8	
	M	19.4			M	17.0	
	H	18.7	-93.2		H	17.2	-92.3
B3(10MHz)	L	18.5		B34(10MHz)	L	18.2	
	M	18.9			M	18.2	
	H	18.7	-92.5		H	18.0	-93.8
B8(10MHz)	L	18.3		B40(20MHz)	L	19.1	
	M	17.7			M	18.8	
	H	17.3	-91.2		H	18.5	-90.0

WIFI OTA

Band	Channel	TRP(dBm)	TIS(dBm)	Band	Channel	TRP(dBm)	TIS(dBm)
2.4G（B 模 11M）	1	17.0	-82.1	5G（A 模 54M）	36	12.0	-71.8
	7	16.9	-82.1		149	10.2	-69.8
	13	15.8	-81.5		165	8.0	-66.6

GPS Actual measurement：



5 Roof test, GPS star search and positioning time as shown in the figure above

3-in-1 antenna efficiency gain

Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)
5150	52.28	-1.55	1525	43.62	2.93
5200	59.85	-2.51	1535	42	2.56
5250	66.24	-2.7	1545	42.39	2.62
5300	57.57	-2.29	1555	41.43	2.24
5350	54.55	-2.51	1565	41.49	1.89
5400	55.17	-2.75	1575	40.62	1.32
5450	56.52	1.20	1585	38.11	0.87
5500	53.56	0.94	1595	36.96	0.17
5550	46.94	0.04	1605	30.81	-0.12
5600	36.24	0.44	1615	25.64	-0.45
5650	33.46	0.97	1625	20.91	-0.95
5700	37.37	0.96	Freq (MHz)	Effi (%)	Gain (dBi)
5750	44.44	0.01			
5800	45.55	0.51	2400	48.28	-1.57
5850	45.9	0.39	2410	49.52	-1.62
			2420	53.76	-1.94
			2430	53.8	-1.89
			2440	59.7	0.3
			2450	56.85	0.07
			2460	59.49	0.50
			2470	60.21	-0.58
			2480	60.65	-0.85
			2490	59.49	0.09
			2500	61.12	0.12

Diversity antenna efficiency gain

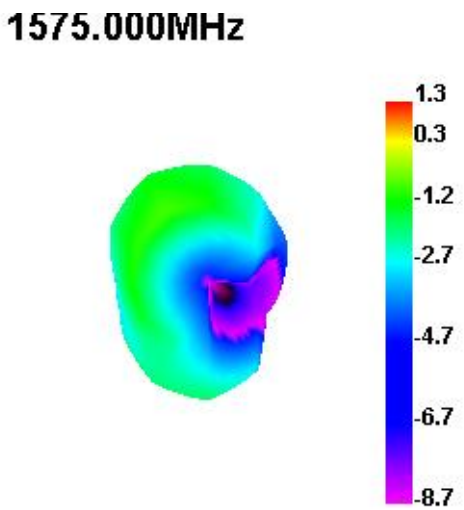
Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)
700	0.91	-17.58	1700	62.98	1.99
710	1.09	-16.55	1720	72.81	3
720	1.42	-15.29	1740	64.38	2.75
730	1.48	-14.42	1760	53.33	2.21
740	1.63	-14.23	1780	47.83	2.12
750	1.64	-13.46	1800	31.71	0.31
760	1.91	-13.24	1820	31.79	-0.43
770	1.91	-12.7	1840	29.9	-0.43
780	2.59	-11.68	1860	23.7	-1.25
790	3.44	-10.23	1880	25.74	-1
800	4.15	-9.69	1900	26.43	-1.16
810	4.83	-9.11	1920	27.81	-1.32
820	6.89	-7.8	1940	32.89	-0.76
830	8.22	-6.49	1960	31.33	-0.94
840	10.71	-5.52	1980	32.59	-0.6
850	12.55	-5.01	2000	34.44	-0.15
860	15.04	-4.53	2020	25.29	-1.25
870	16.81	-3.46	2040	22.65	-1.54
880	21.78	-2.46	2060	21.9	-1.74
890	28.59	-0.9	2080	17.66	-2.97
900	34.01	0.23	2100	18.43	-3.19
910	44.07	1.29	2120	17.93	-3.82
920	39.85	0.61	2140	19.71	-3.6
930	37.46	0.33	2160	18.07	-3.89
940	28.69	-0.18	2180	18.37	-3.52
950	23.67	-0.68	2200	17.56	-3.41
960	15.5	-2.24	2220	14.13	-4.03
970	12.68	-3.39	2240	11.07	-4.61
			2260	10.82	-4.73
2500	50.63	2.49	2280	13.62	-4.33
2520	51.51	2.56	2300	17.3	-3.64
2540	48.67	2.08	2320	21.66	-2.52
2560	36.59	0.61	2340	22.23	-2.28
2580	45.23	1.38	2360	21.95	-1.96
2600	38.99	0.69	2380	25.43	-1.15
2620	36.84	0.51	2400	27.29	-0.7
2640	36.91	0.52	2420	33.5	0.3
2660	29.6	-0.38	2440	39.36	1.01
2680	24.39	-0.91	2460	43.15	1.64
2700	25.36	-0.28	2480	55.06	2.78

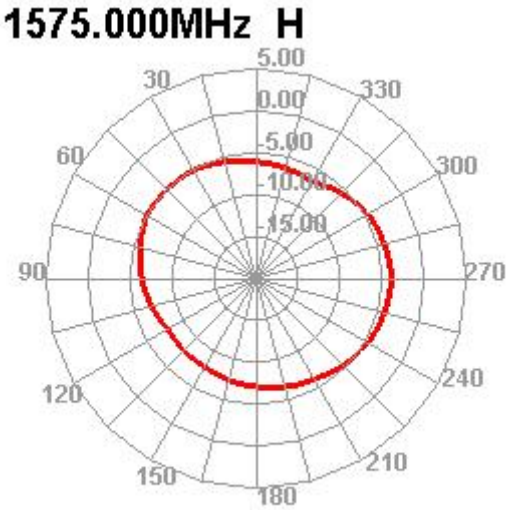
Main antenna efficiency gain

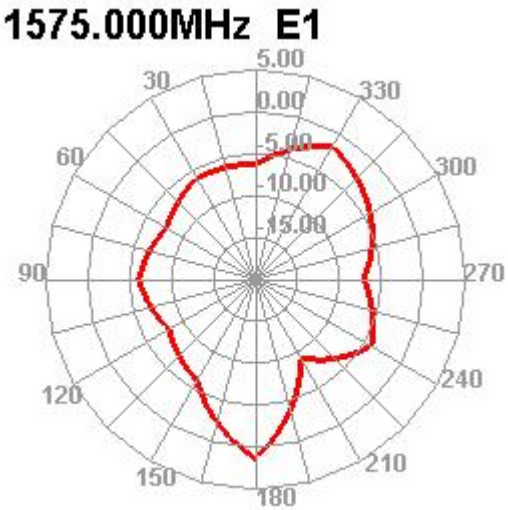
Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)
700	21.14	-4.03	1700	46.83	1.73
710	26.8	-2.10	1720	60.99	0.80
720	28.6	-2.57	1740	66.7	0.7
730	31.64	-1.78	1760	68.03	2.72
740	31.99	-2.08	1780	65.93	2.77
750	32.09	-1.75	1800	48.17	1.42
760	30.9	-2.24	1820	51.07	1.5
770	28.39	-1.4	1840	43.54	0.56
780	26.99	-2.38	1860	37.88	0.06
790	25.19	-2.44	1880	42.12	0.43
800	20.04	-3.36	1900	42.01	0.80
810	29.61	-1.87	1920	48.69	2.62
820	33.3	-1.00	1940	53.53	3.44
830	33.68	-1.57	1960	52.58	3.56
840	35.76	-1.38	1980	49.81	3.22
850	33.6	-2.06	2000	50.31	3.09
860	30.32	-2.39	2020	36.55	1.58
870	25.08	-3.17	2040	32	0.98
880	26.81	-2.6	2060	28.12	0.38
890	30.59	-2.04	2080	22.53	-0.78
900	31.43	-1.36	2100	22.67	-0.98
910	32.2	-1.26	2120	21.56	-1.4
920	26.5	-1.73	2140	25.56	-0.82
930	23.26	-2.1	2160	22.86	-1.52
940	17.14	-3.14	2180	25.59	-1.23
950	15.59	-3.45	2200	28.56	-0.74
960	12.06	-4.5	2220	26.46	-1.1
			2240	27.96	-0.88
2500	40.98	0.99	2260	28.65	-0.71
2520	43.08	1.2	2280	29.85	-0.57
2540	39.68	1.02	2300	32.02	-0.39
2560	32.78	1.01	2320	29.67	-1.08
2580	37.46	1.26	2340	28.25	-1.35
2600	37.64	0.85	2360	23.43	-2.07
2620	35.08	0.12	2380	21.8	-2.26
2640	34.46	-0.29	2400	22.81	-1.96
2660	27.8	-1.28	2420	22.82	-2.45
2680	22.69	-2.12	2440	25.74	-1.86
2700	21.13	-2.6	2460	30.47	-0.18
			2480	37.05	1.21

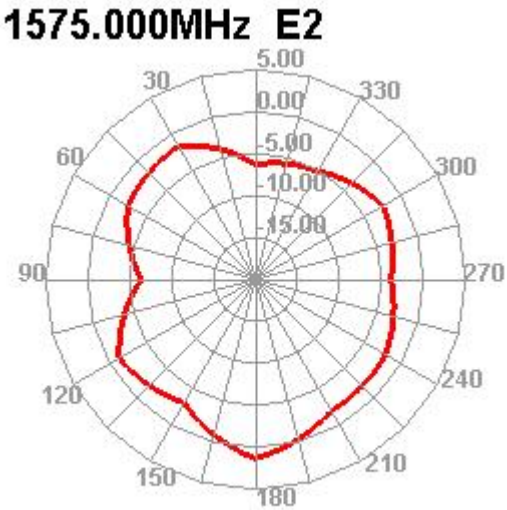
Antenna apple pattern

GPS

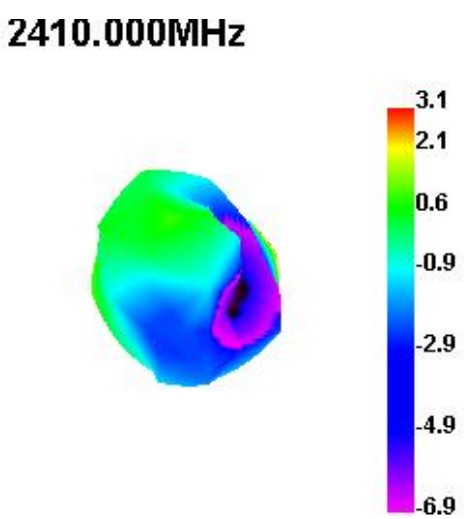


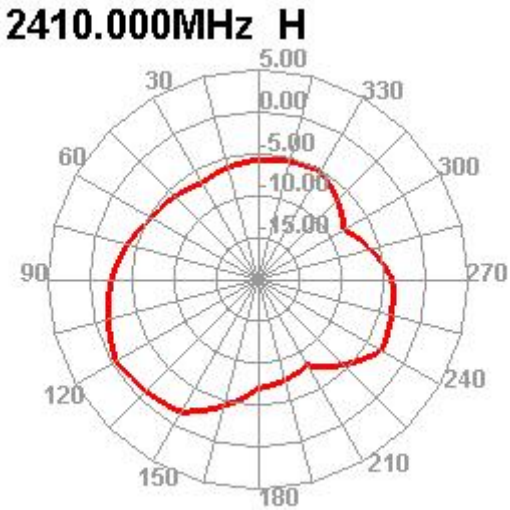




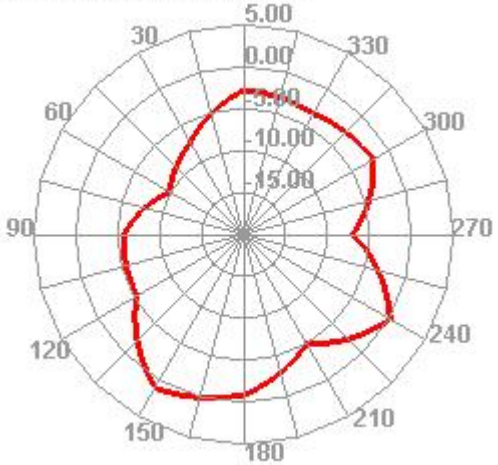


2.4G-WiFi

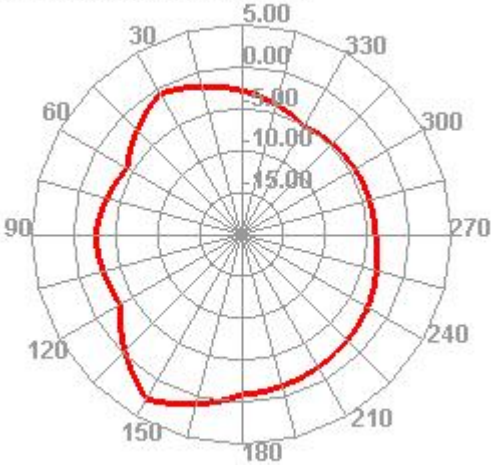




2410.000MHz E1

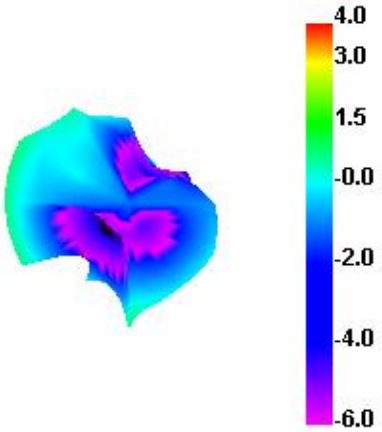


2410.000MHz E2

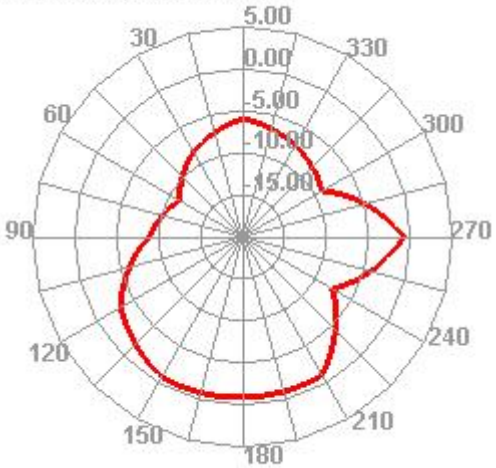


5G-WIFI

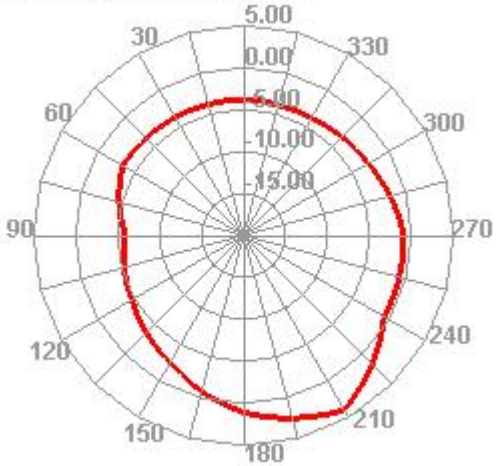
5150.000MHz



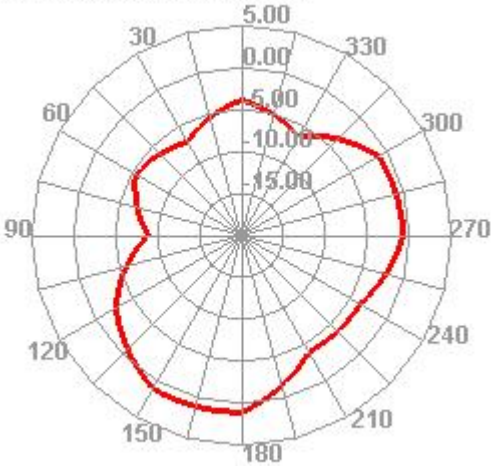
5150.000MHz H



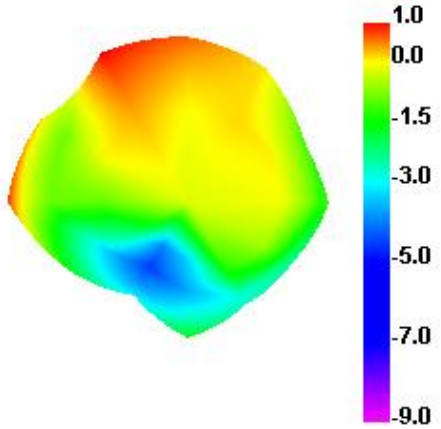
5150.000MHz E1



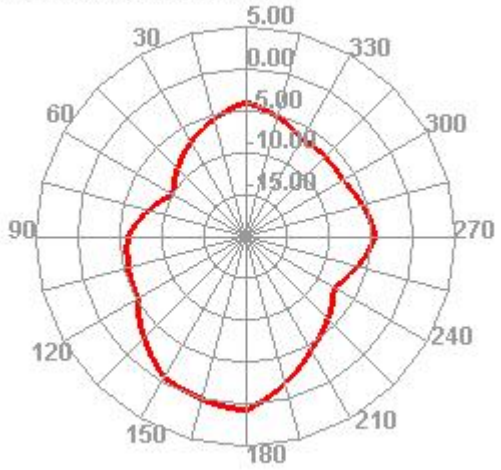
5150.000MHz E2



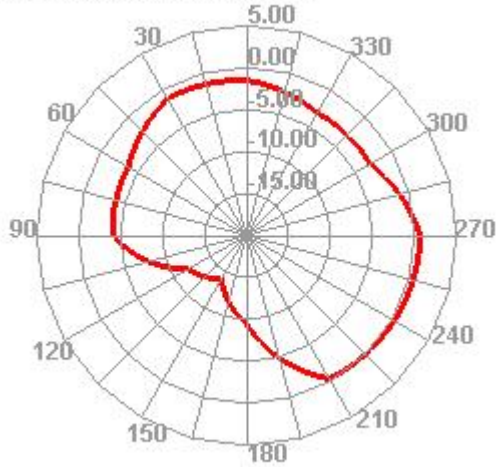
5850.000MHz



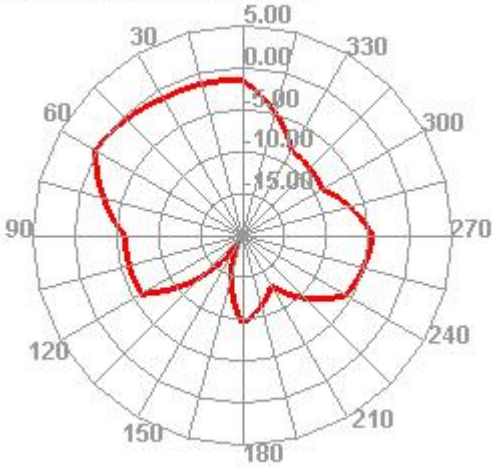
5850.000MHz H



5850.000MHz E1

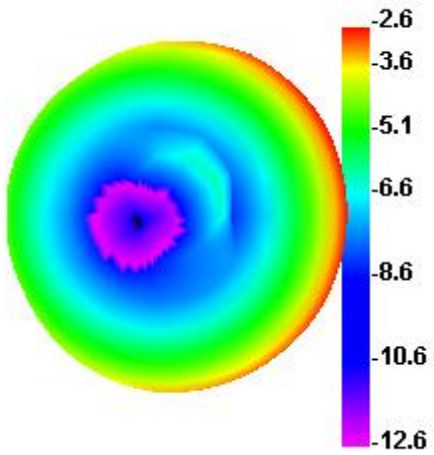


5850.000MHz E2

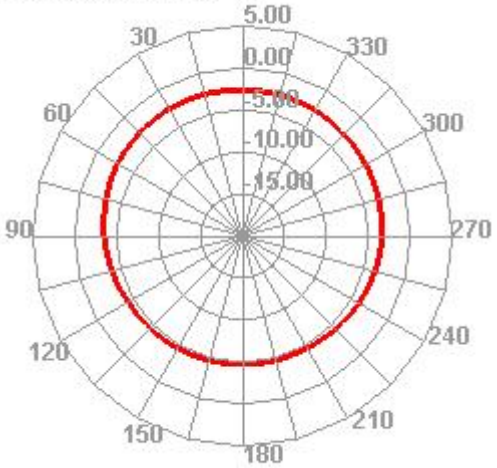


LTE-B28

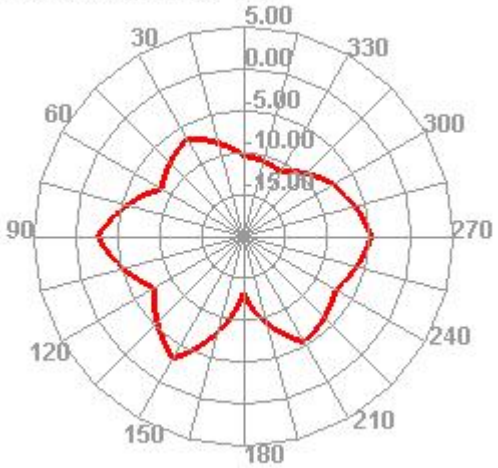
710.000MHz



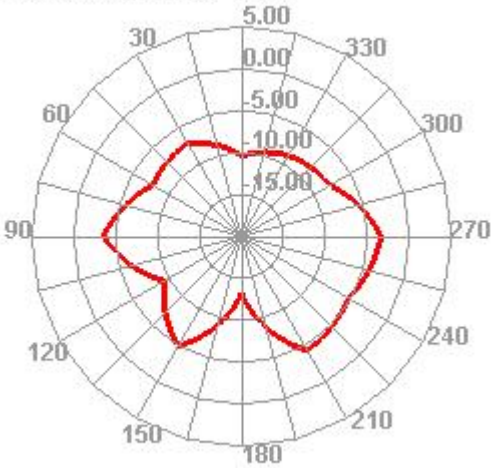
710.000MHz H



710.000MHz E1

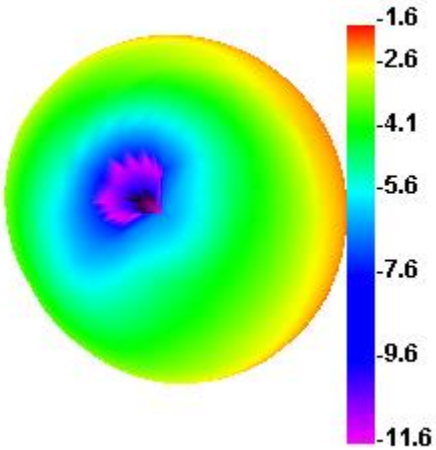


710.000MHz E2

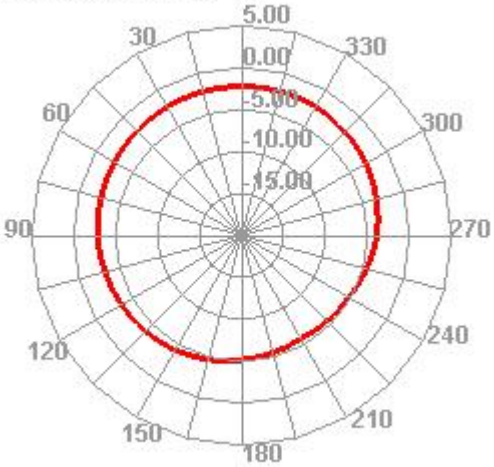


LTE-B5 20 26 W5 GSM850

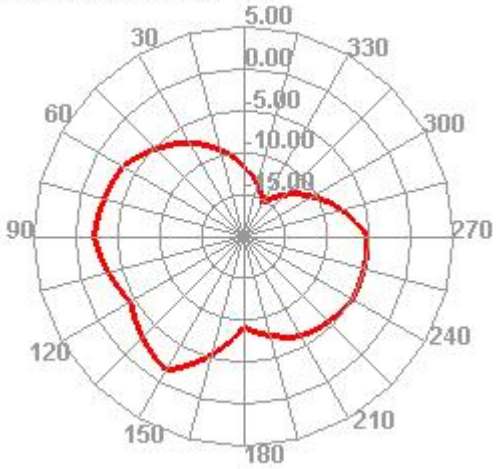
830.000MHz



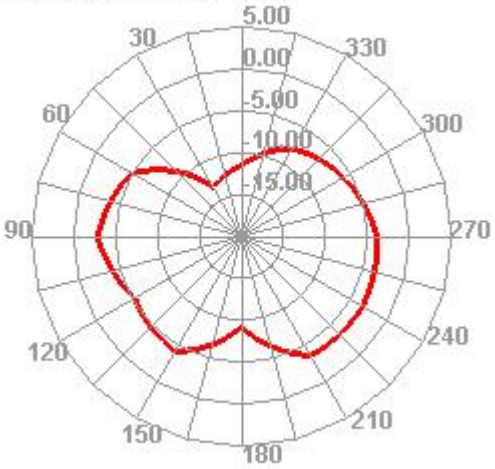
830.000MHz H



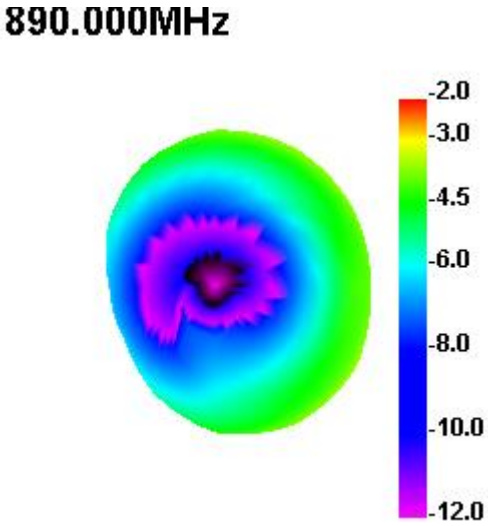
830.000MHz E1

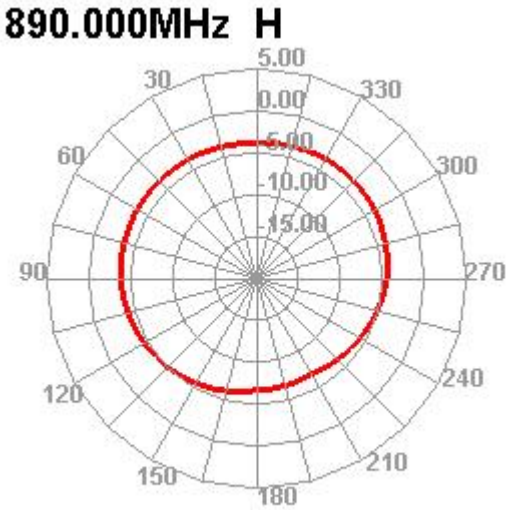


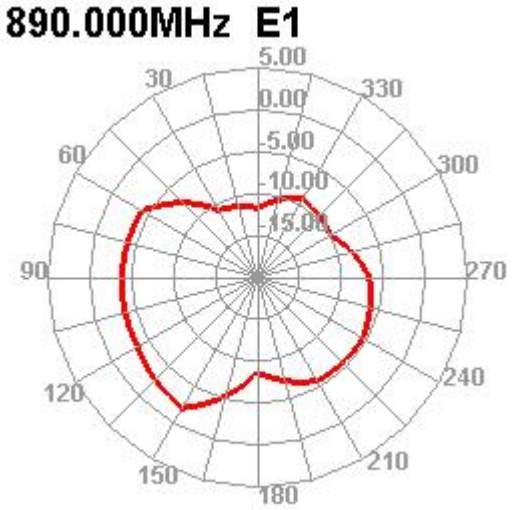
830.000MHz E2

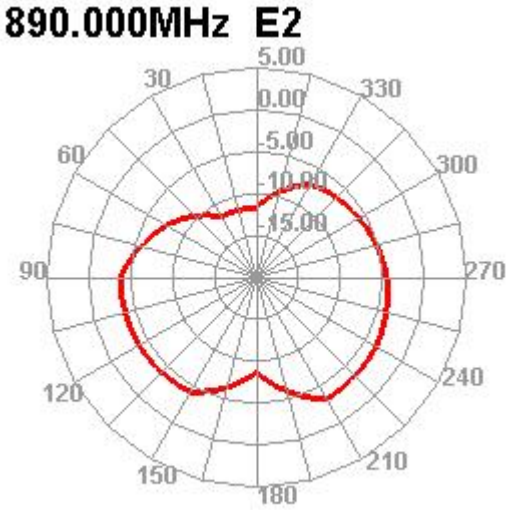


LTE-B8 W8 GSM900

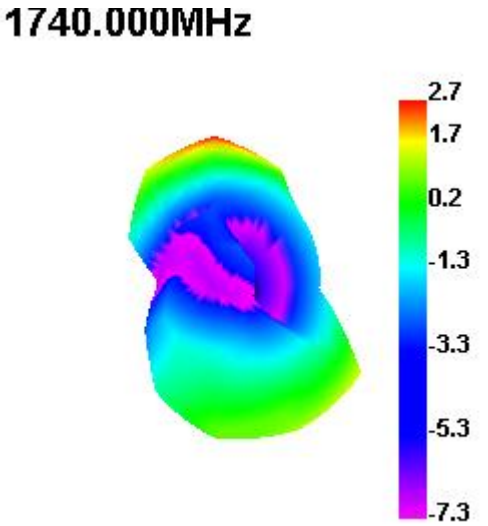


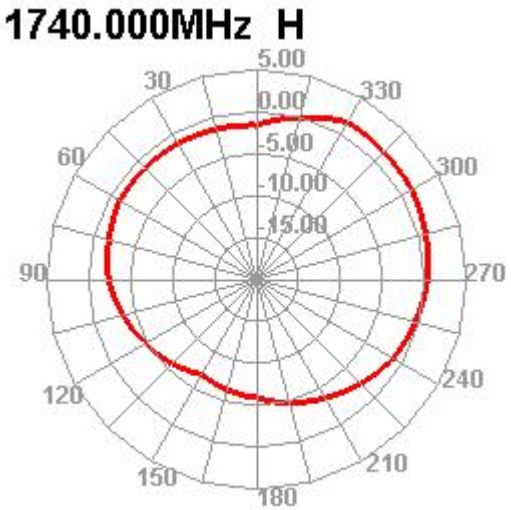




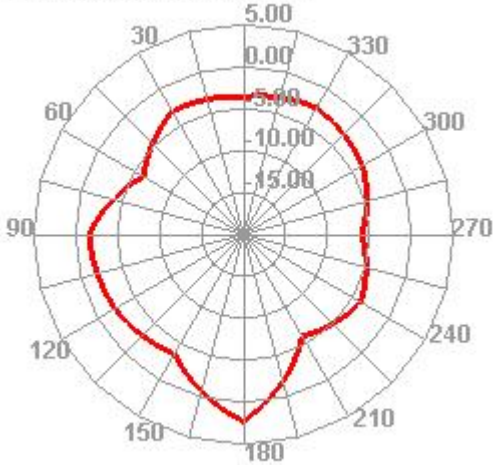


LTE-B3 4 66 W4 DCS1800

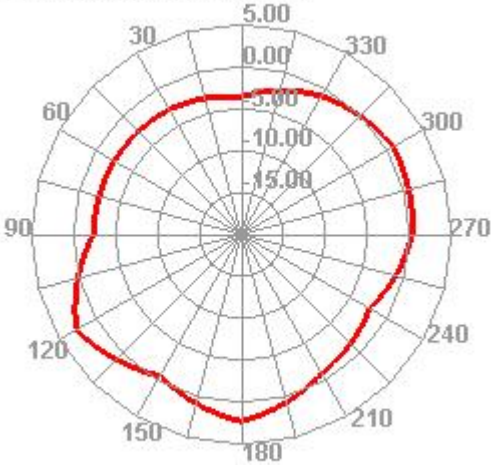




1740.000MHz E1

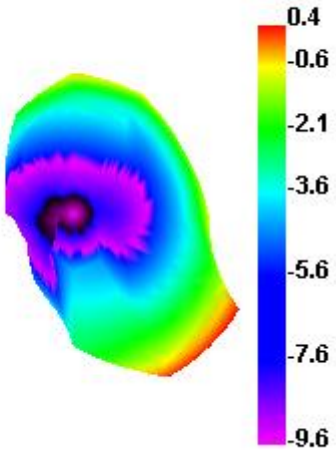


1740.000MHz E2

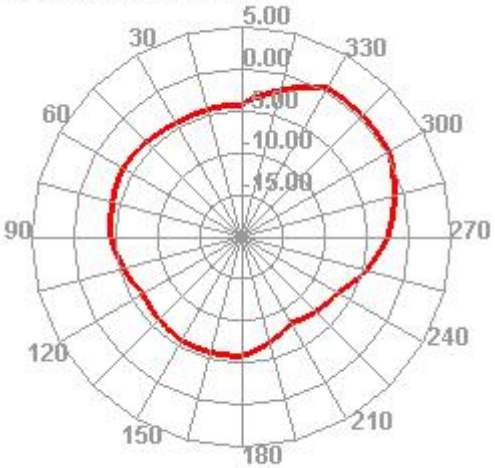


LTE-B2 25 39 W2 PCS1900

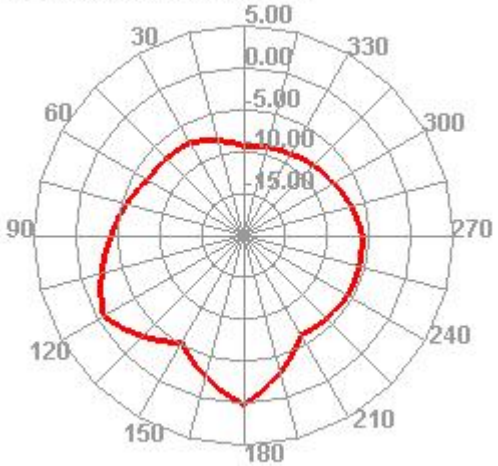
1880.000MHz



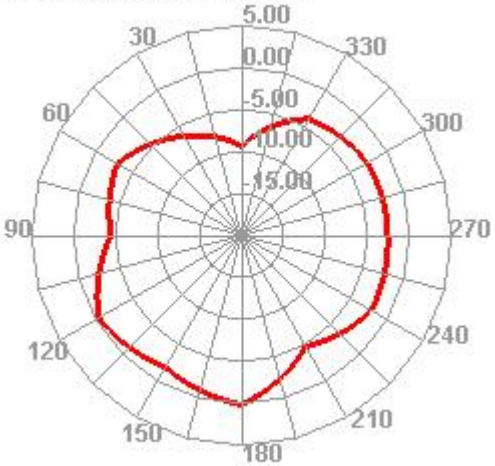
1880.000MHz H



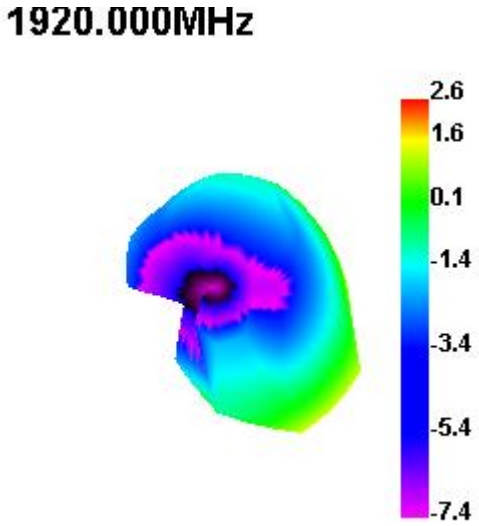
1880.000MHz E1

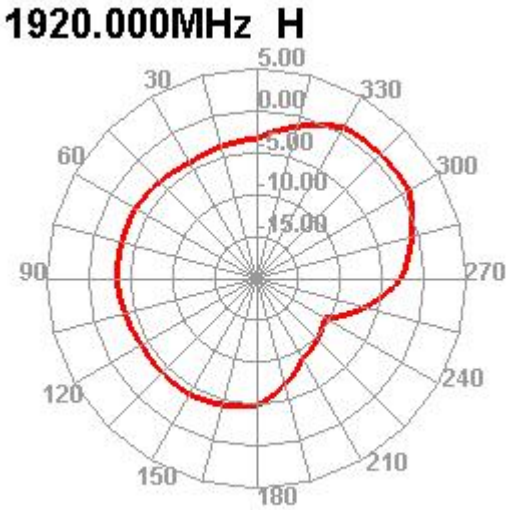


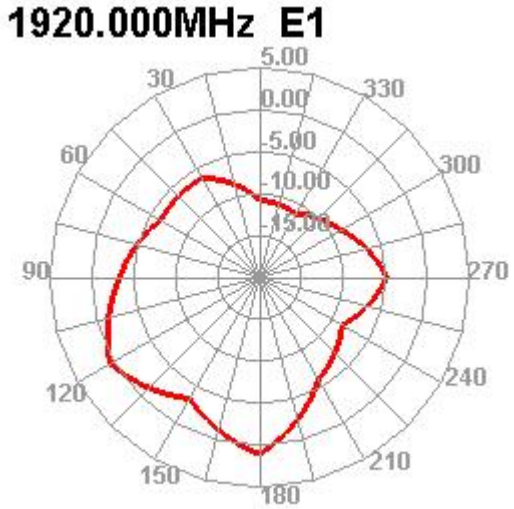
1880.000MHz E2

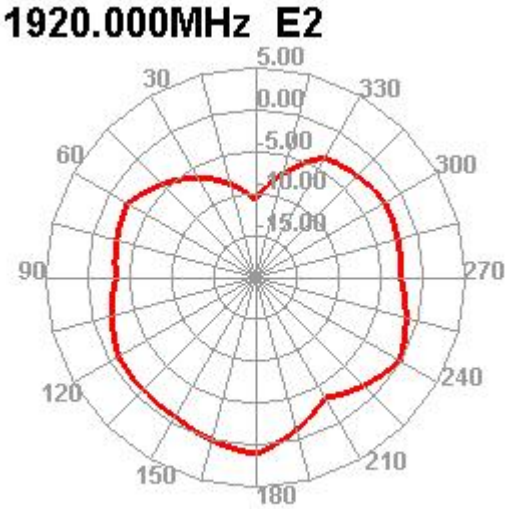


LTE-B1 W1

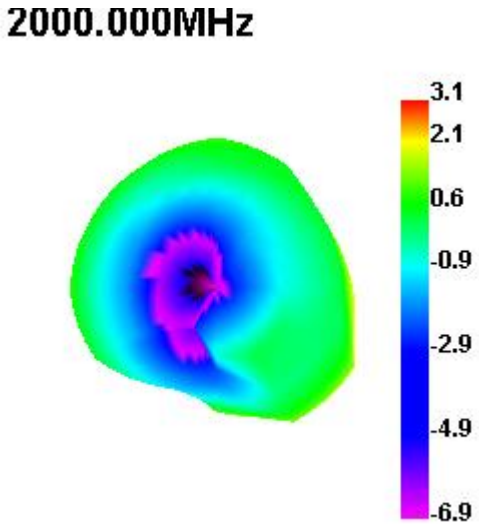


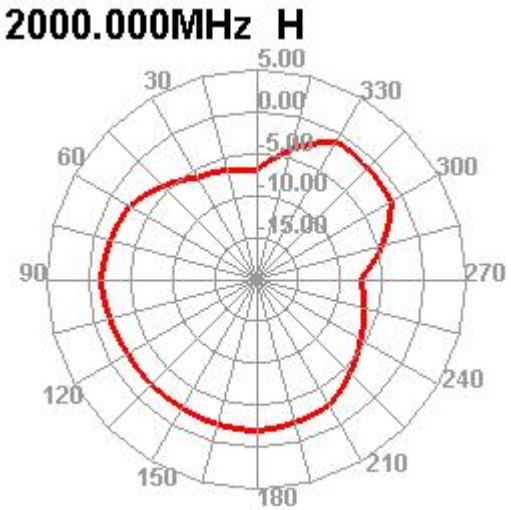




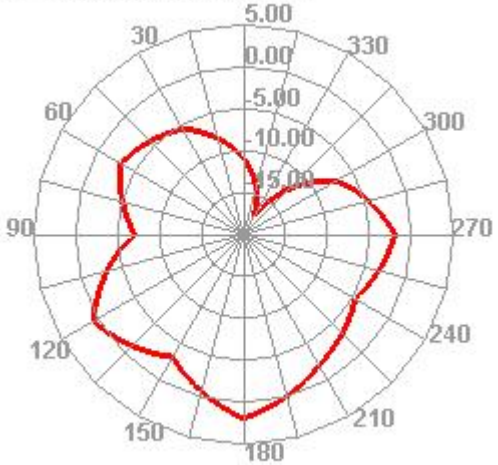


LTE-B34

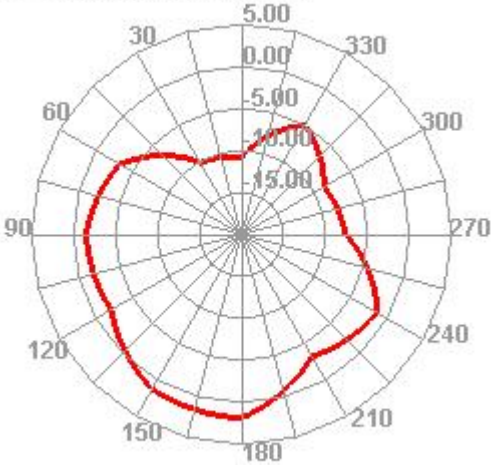




2000.000MHz E1

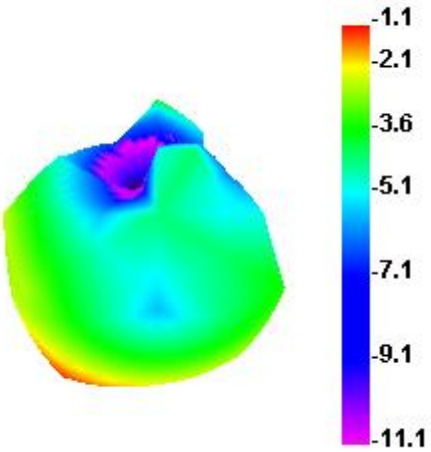


2000.000MHz E2

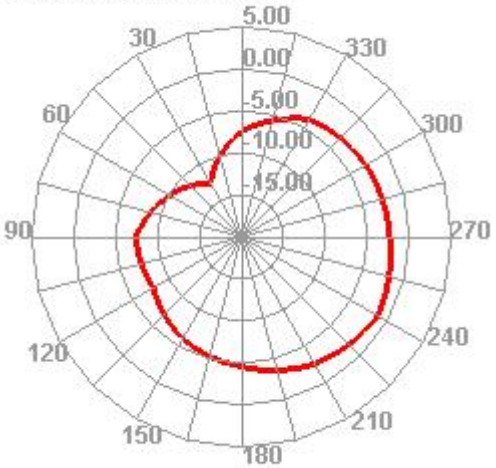


LTE-B40

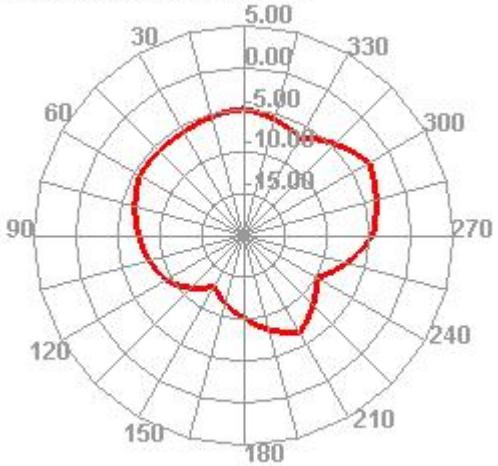
2320.000MHz



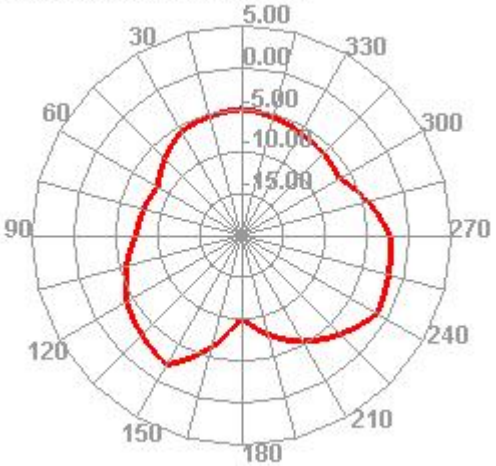
2320.000MHz H



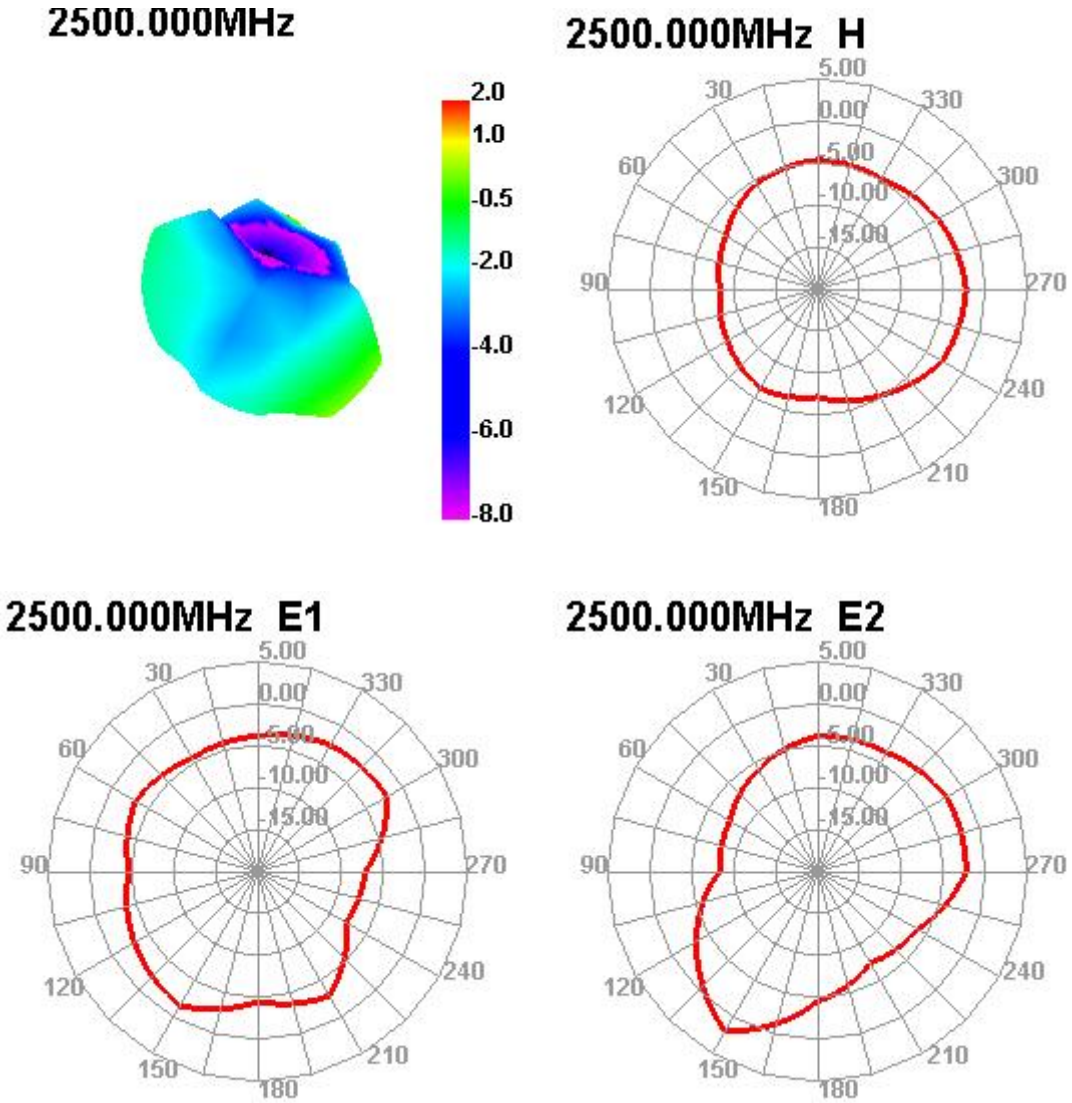
2320.000MHz E1



2320.000MHz E2



LTE-B7 38 41


2500.000MHz
2.0
1.0
-0.5
-2.0
-4.0
-6.0
-8.0
2500.000MHz H
2500.000MHz E1
2500.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

NFC Test distance

卡类型	读卡距离（MM）
TYPE 1 Tag NFC ANEF （ISO14443）	45
TYPE 2 Tag NTAG-215 (M)	35
TYPE 2 Tag Mif one（ISO14443 /M）	45
TYPE 3 Tag Felica Rc-S966	45
TYPE 4 Tag NFC-A (TA32)（ISO14443 ）	35
TYPE 4 Tag NFC-B (TB32)（ISO14443 ）	35
TYPE 5 Tag NFC-V (ISO15693)	70
MF1（M）	60
银行卡（A）	40
身份证（B）	40
深圳通（A）	45
无锡卡	70