

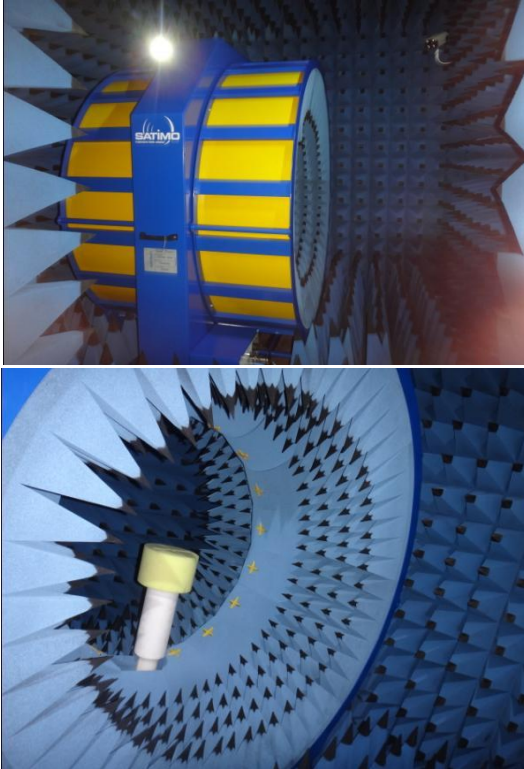
Test report



Customer Name	Creation Origin	Project Name	J302
Debug Frequency Band	G4+BC0/BC1+W1/2/4/5/8+LTE:B 1/2/3/4/5/7/8/12/13/17/20/2 5/26/66/71/34/38/39/40/41	structure mode	FPC+LDS
RF Engineer	Chen Xitian	structural engineer	Du Qiang
Antenna Type	PIFA	Date	2026/05/30

深圳市安弗特电子有限公司

AFT tech Electronic Co., Ltd. (Shenzhen)



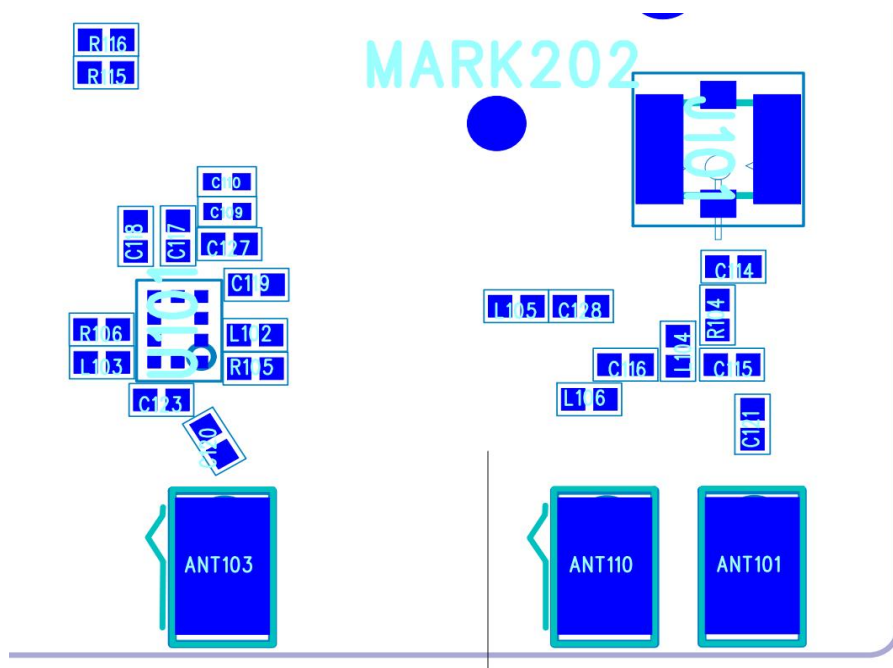
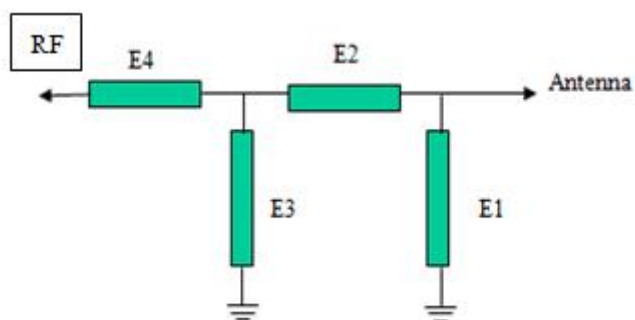
The original imported French SATIMO Company's StarLab 3D laboratory can accurately and quickly test the parameters such as TRP, TIS, efficiency, gain, Apple graph, and direction graph of communication terminal products like mobile phones, tablets, and laptops.

Antenna Report Summary

Version	Date	Summary of Content
V	2026-5-6	Preliminary Test Report
V	2026-5-18	Optimize Antenna Test Report
V	2026-5-20	Enhanced efficiency test report
V	2026-5-30	EVT Machine Test Report

Main antenna matching circuit - Changes have been made

Element	E1	E2	E3	E4
Value	NC	3NH	15NH	



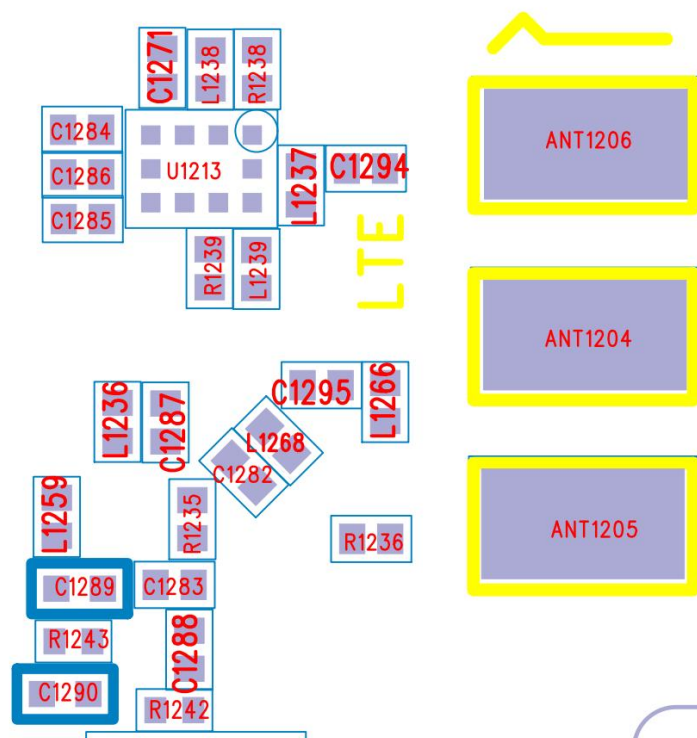
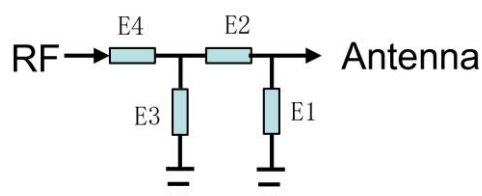
Main road matching	
L106	100NH
C116	33PF
L104	68NH
L105	100NH
C128	33PF
C115	NC
R104	3NH
C114	15NH
C121	33PF

Switch matching	
C120	33P
Permanent residence: C123	33NH
RF1:R105	0
RF2:L102	8.2PF
RF3:L103	8.2NH
RF4:R106	22NH

Antenna switch port	Matching value	Main antenna
RF1	0R	2G:GSM850/1800/1900
		CDMA:BC0/BC1
		3G:W1/2/4/5
		4G:B1/2/3/4/5/7/20/25//26/66/34/38/39/40/41
RF2	8.2PF	2G:GSM900
		CDMA:
		3G:W8
		4G:
RF3	8.2NH	2G:
		3G:
		4G:B13
RF4	22NH	2G:
		3G:
		4G:B12/17
ALL OFF	33NH	2G:
		CDMA:
		3G:
		4G:B71

Diversity antenna matching circuit - Changes have been made

Element	E1	E2	E3	E4
Value	NC	2.7NH	15NH	



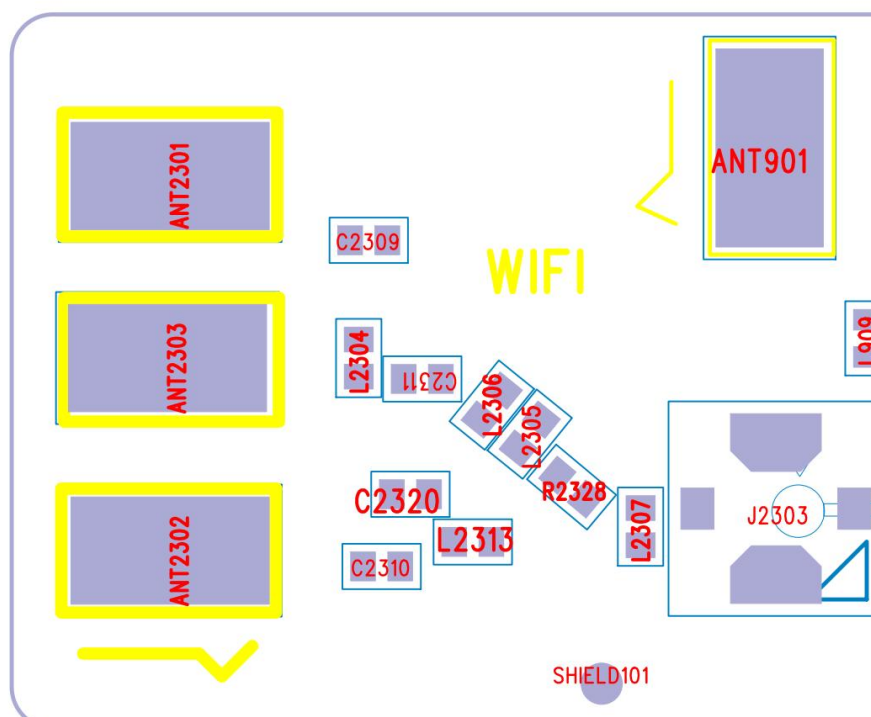
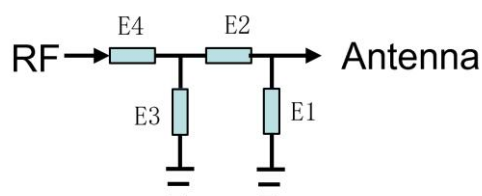
Main road matching	
R1236	33PF
L1266	100NH
C1295	33PF
L1268	68NH
C1282	NC
R1235	2.7NH
C1283	15NH

Switch matching	
C1294	22PF
Permanent residence : L1237	68NH
RF1:R1238	0R
RF2:L1238	4.7NH
RF3:L1239	33NH
RF4:R1239	NC

Antenna switch port	Matching value	Diversity antenna switch logic
RF1	0R	2G:GSM900/1800/1900
		CDMA:BC1
		3G:W1/2/4/8
		4G:B1/2/3/4/5/7/20/25//26/66/34/38/39/40/41
RF2	4.7NH	2G:GSM850
		CDMA:BC0
		3G:W5
		4G:B5/20/26
RF3	33NH	2G:
		3G:
		4G:B12/13/17
RF4	NC	2G:
		3G:
		4G:B71
ALL OFF	Currently not supported	
		2G:
		3G:
		4G:

WIFI antenna matching circuit - Changes have been made

Element	E1	E2	E3	E4
Value	NC	1NH	0.5PF	

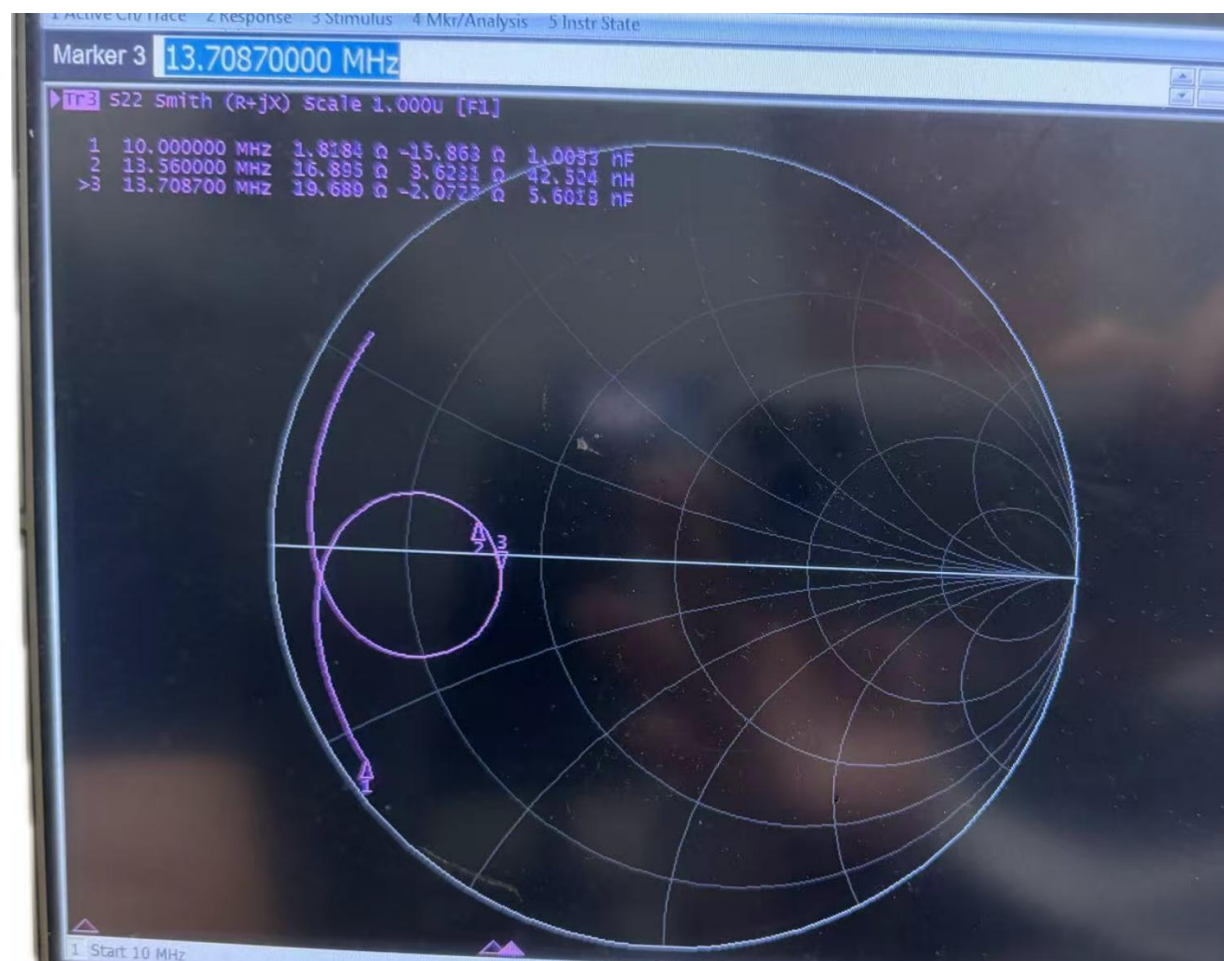


WIFI	
L2304	100NH
C2311	33PF
L2305	68NH
L2306	NC
R2328	1NH
L2307	0.5PF

NFC Matching

Numbering position	Matching value	Note
C410/C4	1	The current-carrying capacity is not less than 350MA and the voltage is within the range of 50V $\pm 2\%$.
R416/R4	3	
R415/R4	N	
L401/L4	120	
C417/C4	150	
C418/C4	680	
C411/C4	56	
C412/C4	12	
C413/C4	47	
C425/C4	15	
R409/R4	N	
R421/R4	0	

Passive standing wave:



NFC Testing

Card type	Card reading distance (MM)
TYPE 1 Tag NFC ANEF	
TYPE 2 Tag NTAG-215 (M)	
TYPE 2 Tag Mif one (ISO14443 /M)	
TYPE 3 Tag Felica Rc-S966	
TYPE 4 Tag NFC-A (TA32)	40MM
TYPE 4 Tag NFC-B (TB32)	35MM
TYPE 5 Tag NFC-V (ISO15693)	
MF1 (M)	
Pudong Bank Card (A)	55MM
Identity Card (B)	
Shenzhen Tong Public Transport Card (A)	45MM

Free Space OTA:

Band	Channel	TRP (dBm)	TIS (dBm)	Band	Channel	TRP (dBm)	TIS (dBm)
GSM900	L	27		DCS1800	L	25.	
	M	27			M	25.	
	H	26	-103.7		H	25.	-102.3
GSM850	L	26		PCS1900	L	24.	
	M	26			M	24.	
	H	26	-102.2		H	25.	-102.4
LTE-B1 (10MHz)	L	18		LTE-B2 (10MHz)	L	18.	
	M	18			M	18.	
	H	17	-96.9		H	17.	-97.5
LTE-B3 (10MHz)	L	18		LTE-B4 (10MHz)	L	18.	
	M	19			M	19.	
	H	19	-94.1		H	19.	-97.9
LTE-B5 (10MHz)	L	18		LTE-B7 (10MHz)	L	19.	
	M	18			M	19.	
	H	17	-95.1		H	20.	-96.7
LTE-B8 (10MHz)	L	17		LTE-B12 (10MHz)	L	17.	
	M	18			M	19.	
	H	17	-93.1		H	18.	-94.4
LTE-B13 (10MHz)	L			LTE-B17 (10MHz)	L	18.	
	M	19	-94.7		M	18.	
	H				H	18.	-93.6
LTE-B20 (10MHz)	L	18		LTE-B25 (10MHz)	L	19.	
	M	17			M	18.	
	H	16	-94.4		H	17.	-97.5
LTE-B26 (10MHz)	L	18		LTE-B66 (10MHz)	L	19.	
	M	19			M	20.	
	H	17	-95.2		H	20.	-97.9
LTE-B71 (10MHz)	L	17		LTE-B34 (10MHz)	L	18.	
	M	17			M	18.	
	H	17	-90.5		H	18.	-97.0
LTE-B38 (20MHz)	L	19		LTE-B39 (20MHz)	L	17.	
	M	19			M	18.	
	H	19	-92.2		H	18.	-93.3
LTE-B40 (20MHz)	L	19		LTE-B41 (20MHz)	L	19.	
	M	18			M	19.	
	H	17	-92.1		H	19.	-91.9
WCDMA-B1	L	18		WCDMA-B2	L	18.	
	M	18			M	18.	
	H	18	-105.6		H	18.	-105.6

WCDMA-B4	L	20.		WCDMA-B5	L	18.	
	M	21.			M	17.	
	H	20.	-104.9		H	17.	-103.4
WCDMA-B8	L	18.		B C0	L	19.	
	M	18.			M	17.	
	H	17.	-104.2		H	16.	-102.1
B C1	L	19.					
	M	18.					
	H	19.	-103.3				

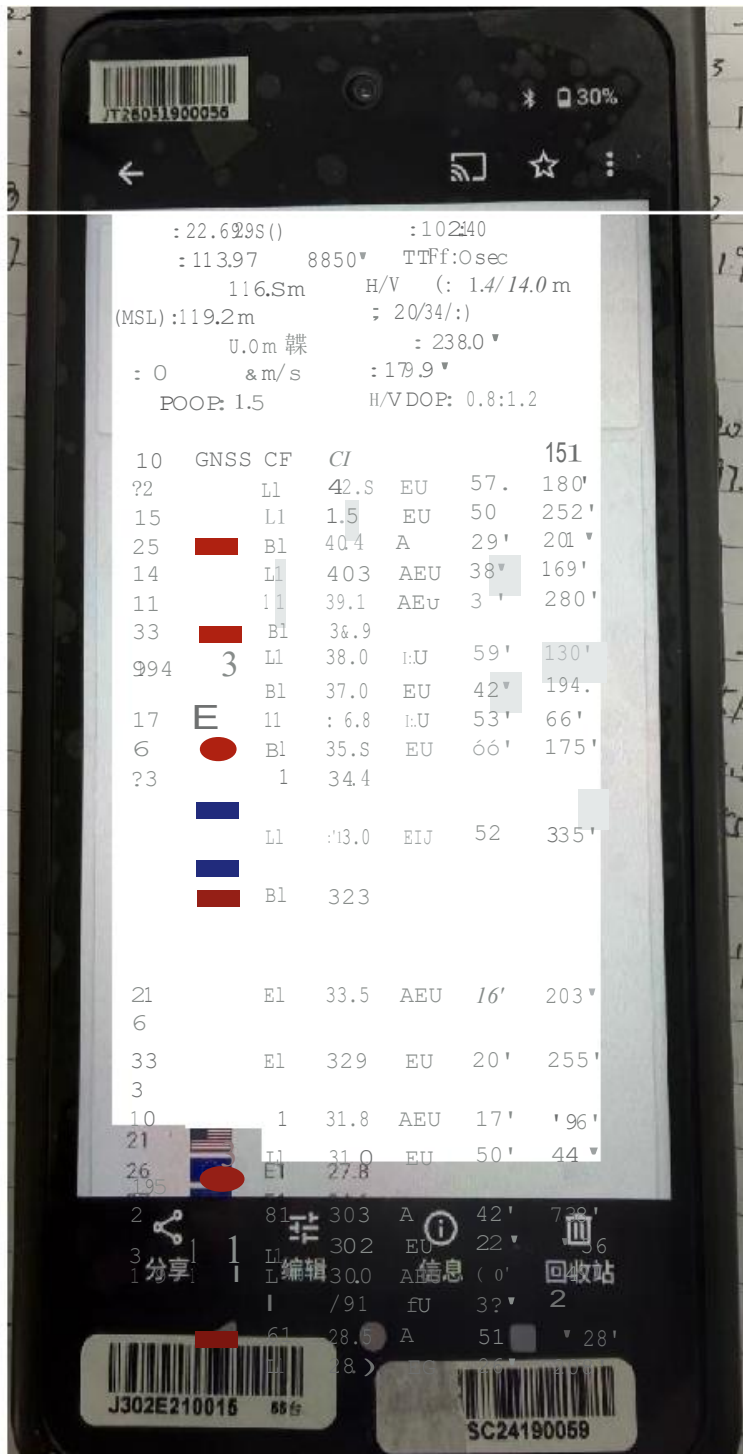
WIFI OTA test data is as follows: (Test in the screen-on state)

Band	Channel	TRP(dBm)	TIS(dBm)	Band	Channel	TRP(dBm)	TIS(dBm)
2.4G (B) 11M	1	12.1	-83.1	5G (A 54M)	3	11.2	-68.2
	7	11.3	-83.0		1	11.8	-67.2
	13	11.2	-83.2		1	11.5	-68.1
2.4G (AX) MCS11	1	10.2	-53.4	5G (AC HE20-MCS9)	3	12.0	-65.8
	7	9	-54.5		1	12.7	-53.4
	13	9	-53.6		1	12.8	-61.7
				5G (AX HE20-MCS11)	3	11.3	-55.0
					1	12.1	-56.3
					1	12.1	-53.7

AFTtEch

AFTtech Electronic Co. Ltd.(Shenzhen)

GPS measurement :



B8 Passive Standing Wave Diagram:



B5 medium-high frequency passive standing wave diagram:



B12 passive standing wave diagram



B13 passive standing wave diagram



AFTtEch

AFTtech Electronic Co. Ltd.(Shenzhen)

871 passive standing wave diagram



Main antenna efficiency

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
600	9.2	-10.36	-7.05	1700	46.57	-3.32	2.77	2400	20.06	-6.98	-0.67
610	12.37	-9.08	-5.8	1720	62.92	-2.01	3.81	2420	21.58	-6.66	-0.44
620	16.47	-7.83	-4.21	1740	62.8	-2.02	3.85	2440	23.01	-6.38	-0.18
630	16.8	-7.75	-4.11	1760	57.23	-2.42	3.66	2460	26.97	-5.69	0.41
640	24.57	-6.1	-2.02	1780	49.52	-3.05	2.99	2480	35.93	-4.45	1.51
650	24.37	-6.13	-2.45	1800	34.43	-4.63	1.16	2500	33.64	-4.73	1.18
660	24.41	-6.12	-2.64	1820	37.15	-4.3	1.44	2520	41.22	-3.85	1.87
670	22.16	-6.54	-2.79	1840	32.63	-4.86	0.79	2540	36.8	-4.34	0.91
680	19.54	-7.09	-3.18	1860	30.38	-5.17	0.35	2560	33.39	-4.76	-0.16
690	18.81	-7.26	-3.02	1880	34.32	-4.64	0.58	2580	38.34	-4.16	0.31
700	20.34	-6.92	-3.69	1900	32.85	-4.83	0.12	2600	38.51	-4.14	-0.01
710	24.02	-6.19	-2.81	1920	39.36	-4.05	0.59	2620	36.7	-4.35	-0.32
720	25.72	-5.9	-2.53	1940	45.09	-3.46	0.54	2640	41.13	-3.86	-0.08
730	27.75	-5.57	-1.89	1960	50.07	-3	0.6	2660	37.63	-4.25	-0.48
740	20.45	-6.89	-3.21	1980	51.56	-2.88	0.62	2680	34.71	-4.6	-1
750	23.38	-6.31	-2.37	2000	50.29	-2.99	0.5	2700	38.05	-4.2	-0.92
760	26.2	-5.82	-1.84	2020	38.01	-4.2	-0.61				
770	27.6	-5.59	-1.53	2040	34.91	-4.57	-0.8				
780	25.82	-5.88	-1.82	2060	34.88	-4.57	-1.12				
790	18.81	-7.26	-3.24	2080	35.82	-4.46	-1.12				
820	17.65	-7.53	-3.59	2100	33.81	-4.71	-1.3				
830	20.21	-6.94	-3.23	2120	44.48	-3.52	0.22				
840	20.81	-6.82	-3.12	2140	45.8	-3.39	0.78				
850	24.82	-6.05	-2.33	2160	40.43	-3.93	0.52				
860	25.85	-5.88	-2.14	2180	44.05	-3.56	1.02				
870	25.35	-5.96	-2.24	2200	38.95	-4.09	0.46				
880	23.99	-6.2	-2.49	2220	34.82	-4.58	-0.2				
890	20.58	-6.87	-3.13	2240	34.43	-4.63	-0.5				
900	21.01	-6.78	-2.63	2260	32.02	-4.95	-1.08				
910	26.48	-5.77	-2.07	2280	34.46	-4.63	-1.28				
920	24.75	-6.07	-1.94	2300	31.53	-5.01	-1.63				
930	23.93	-6.21	-2.13	2320	29.79	-5.26	-1.04				
940	22	-6.58	-2.46	2340	25.42	-5.95	-0.75				
950	22.73	-6.43	-2.57	2360	20.38	-6.91	-1.02				
960	19.37	-7.13	-3.18	2380	19.61	-7.08	-0.82				

Diversity B8 + medium and high frequency passive standing wave



Diversity B5 passive standing wave



Diversity B12/13/17 passive standing wave



Diversity B71 passive standing wave



Diversity antenna efficiency

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
620	1.3	-18.85	-14.67	1700	24.28	-6.15	-2.28	2520	52.11	-2.83	5.03
630	1.3	-18.86	-14.42	1720	31.26	-5.05	-1.12	2540	42.68	-3.7	4.41
640	1.81	-17.43	-13	1740	32.24	-4.92	-1.29	2560	36.08	-4.43	3.87
650	1.78	-17.49	-12.58	1760	29.27	-5.34	-1.95	2580	36.32	-4.4	3.98
660	2.24	-16.5	-11.45	1780	26.87	-5.71	-2.24	2600	34.98	-4.56	3.94
670	2.21	-16.56	-11.59	1800	17.94	-7.46	-4.06	2620	31.65	-5	3.53
680	2.23	-16.51	-11.72	1820	19.21	-7.16	-3.52	2640	33.16	-4.79	3.59
690	2.3	-16.37	-12.06	1840	17.82	-7.49	-3.56	2660	29.23	-5.34	2.92
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	1860	16.53	-7.82	-3.84	2680	27.37	-5.63	2.5
				1880	18.61	-7.3	-3.19	2700	26.25	-5.81	2.24
700	2.37	-16.26	-13.06	1900	21.92	-6.59	-2.34				
710	2.29	-16.39	-13.45	1920	23.33	-6.32	-1.79				
720	2.72	-15.65	-12.28	1940	29.47	-5.31	-0.46				
730	2.71	-15.67	-12.38	1960	30.66	-5.13	-0.05				
740	3.11	-15.08	-11.3	1980	29.6	-5.29	-0.15				
750	3.14	-15.02	-11.39	2000	30.51	-5.16	-0.04				
760	4.08	-13.9	-9.83	2020	23.64	-6.26	-1.15				
770	3.81	-14.19	-10.4	2040	21.37	-6.7	-1.48				
780	3.93	-14.05	-10.2	2060	22.64	-6.45	-1.17				
790	3.71	-14.31	-10.78	2080	22.2	-6.54	-1.24				
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	2100	22.67	-6.44	-1.29				
				2120	29.46	-5.31	-0.32				
820	3.26	-14.87	-11.22	2140	31.43	-5.03	-0.11				
830	3.4	-14.69	-11.15	2160	28.83	-5.4	-0.5				
840	3.86	-14.14	-10.82	2180	32.65	-4.86	0.01				
850	4.31	-13.65	-10.21	2200	31.77	-4.98	0.03				
860	4.84	-13.15	-9.85	2220	29.14	-5.36	-0.15				
870	5.78	-12.38	-8.96	2240	29.17	-5.35	0.08				
880	6.59	-11.81	-8.23	2260	27.85	-5.55	0.06				
890	8.82	-10.55	-7.04	2280	31.47	-5.02	0.81				
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	2300	31.97	-4.95	1.19				
				2320	32.34	-4.9	1.39				
880	4.66	-13.32	-9.8	2340	33.93	-4.69	1.57				
890	6.95	-11.58	-8.08	2360	29.35	-5.32	0.73				
900	8.91	-10.5	-6.93	2380	29.86	-5.25	0.65				
910	12.19	-9.14	-5.68	2400	31.18	-5.06	0.89				
920	10.74	-9.69	-6.1	2420	32.67	-4.86	1.24				
930	9.98	-10.01	-6.32	2440	37.37	-4.27	2.12				
940	7.37	-11.33	-7.2	2460	44.53	-3.51	3.32				

950	7.05	-11.52	-7.49	2480	51.78	-2.86	4.35
960	5.33	-12.73	-8.56	2500	50.16	-3	4.57

Three-in-one standing wave diagram:

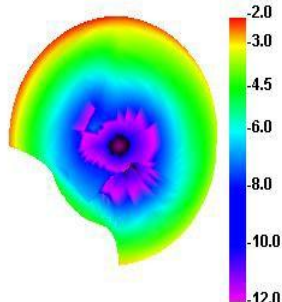


Three-in-one antenna efficiency

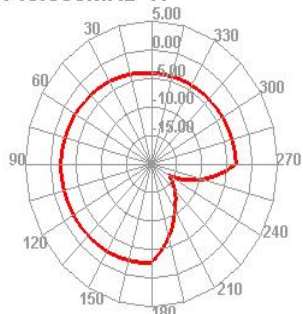
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1525	32.9	-4.83	-2.06	38.02	-4.53	1.42	5900	25.05	-6.92	-3.48
1535	35.77	-4.46	-1.6	35.56	-4.92	1.11	5950	33.46	-5	-2.77
1545	37.1	-4.31	-1.37	34.45	-5.12	1.16	6000	36.88	-4.41	-2.08
1555	37.99	-4.2	-1.33	30.96	-5.79	0.79	6050	42.39	-3.6	-1.2
1565	39.11	-4.08	-1.23	30.44	-5.89	0.72	6100	38.33	-4.18	-2.03
1575	35.9	-4.45	-1.7	31.22	-5.73	0.61	6150	39.48	-4	-1.73
1585	33.49	-4.75	-1.97	33.66	-5.26	0.63	6200	33.59	-4.97	-2.31
1595	30.23	-5.19	-2.43	32.46	-5.49	-0.21	6250	32.01	-5.27	-2.36
1605	29.87	-5.25	-2.33	31.21	-5.73	-0.77	6300	28.65	-5.99	-2.84
1615	29.66	-5.28	-2.42	26.85	-6.73	-2.07	6350	24.48	-7.09	-4.21
1625	28.54	-5.45	-2.31	25.03	-7.23	-2.95	6400	22.8	-7.63	-4.89
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	26.02	-6.95	-2.94	6450	20.65	-8.43	-5.98
				25.89	-6.99	-3.04	6500	20	-8.7	-5.73
2400	33.84	-4.71	3.14	24.05	-7.52	-3.21	6550	18.83	-9.24	-5.77
2410	34.53	-4.62	3.14	24.51	-7.38	-2.96	6600	18.84	-9.23	-5.46
2420	36.82	-4.34	3.27				6650	19.16	-9.08	-5.43
2430	37.06	-4.31	3.22				6700	19.37	-8.98	-5.26
2440	40.98	-3.87	3.55				6750	21.45	-8.11	-4.38
2450	43.16	-3.65	3.74				6800	23.91	-7.27	-2.83
2460	47.58	-3.23	4.11				6850	24.94	-6.96	-2.41
2470	49.36	-3.07	4.28				6900	24.1	-7.21	-2.64
2480	55.6	-2.55	4.74				6950	22.65	-7.68	-2.97
2490	48.61	-3.13	4.27				7000	21.02	-8.28	-3.38
2500	47.54	-3.23	4.18				7050	20.96	-8.3	-3.61
							7100	19.72	-8.82	-4.25
							7150	20.96	-8.3	-4
							7200	21.34	-8.15	-3.98
							7250	21.61	-8.05	-4.08

B71 Apple diagram Direction diagram

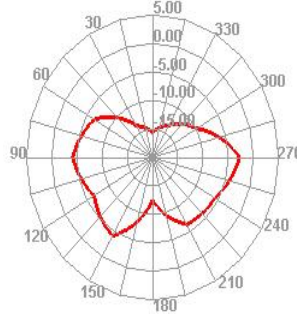
640.000MHz



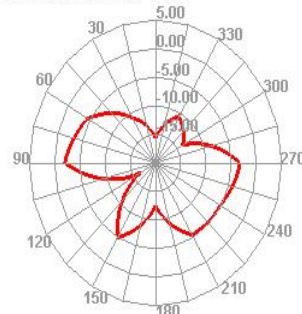
640.000MHz H



640.000MHz E1

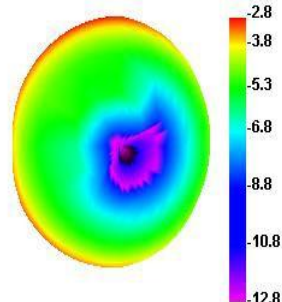


640.000MHz E2

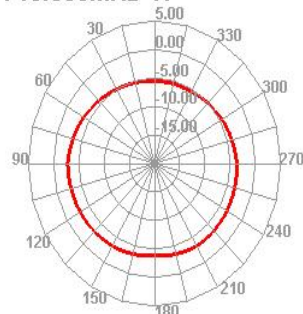


B12/17 Apple diagram Direction diagram

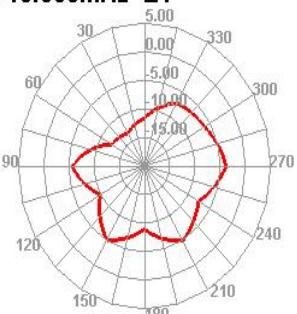
710.000MHz



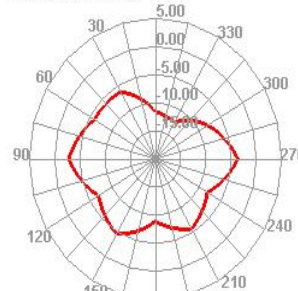
710.000MHz H



710.000MHz E1

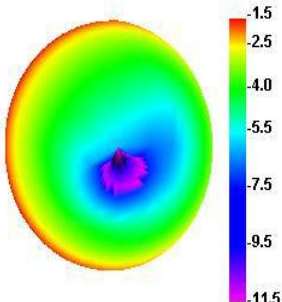


710.000MHz E2

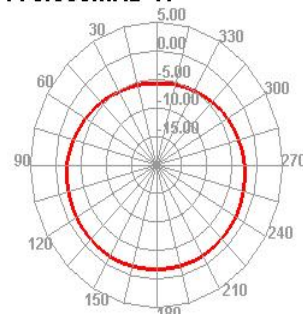


B13 Apple diagram Direction diagram

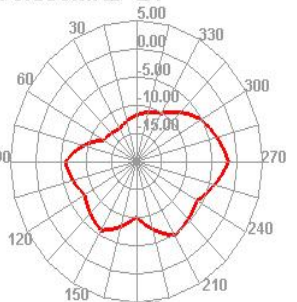
770.000MHz



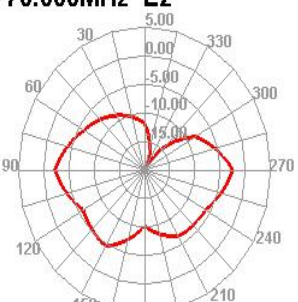
770.000MHz H



770.000MHz E1

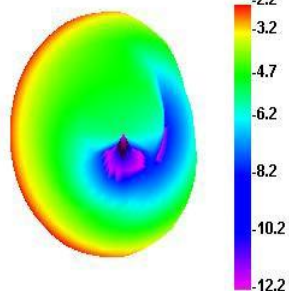


770.000MHz E2

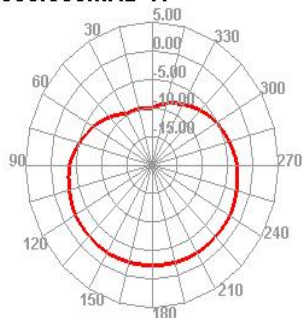


B5/20/26/BC0/GSM850/W5 Apple diagram Direction diagram

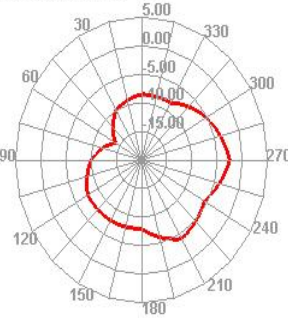
830.000MHz



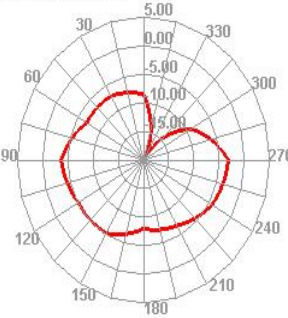
830.000MHz H



830.000MHz E1

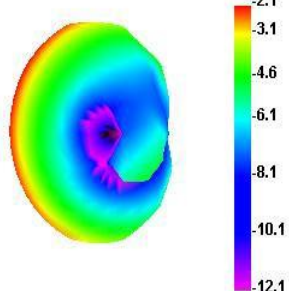


830.000MHz E2

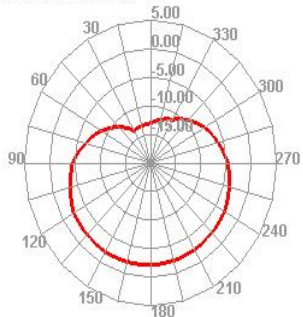


B8/GSM900/W8 Apple diagram Direction diagram

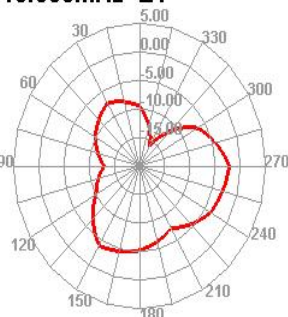
910.000MHz



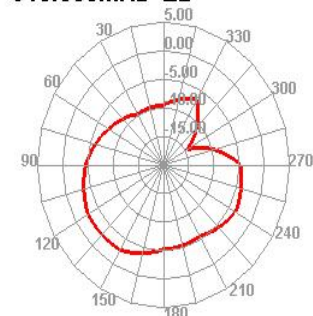
910.000MHz H



910.000MHz E1

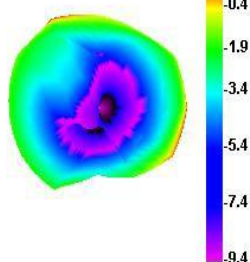


910.000MHz E2

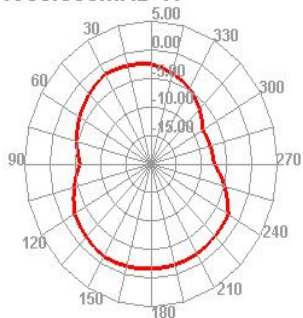


B1/W1 Apple diagram Direction diagram

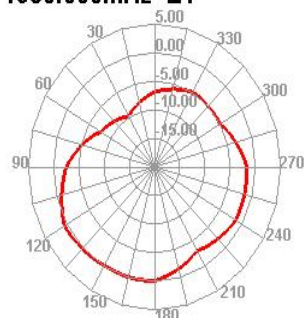
1980.000MHz



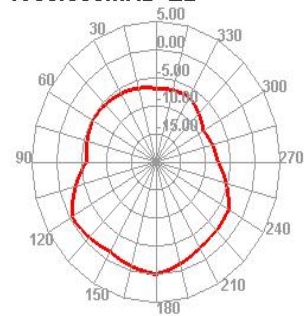
1980.000MHz H



1980.000MHz E1

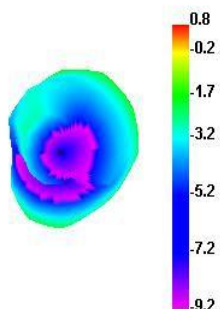


1980.000MHz E2

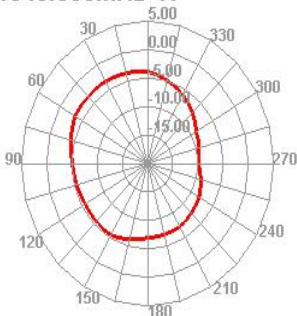


B2/BC1/PCS1900/W2 Apple diagram Direction diagram

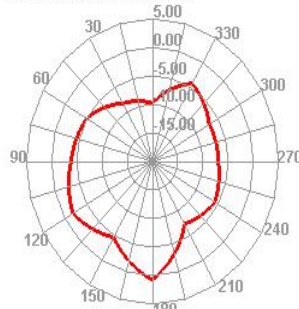
1840.000MHz



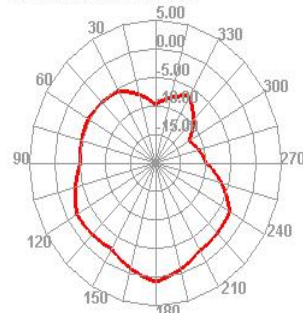
1840.000MHz H



1840.000MHz E1

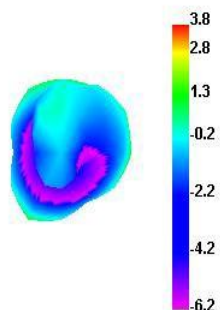


1840.000MHz E2

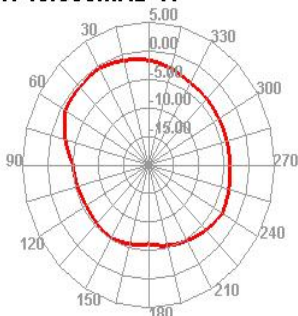


B3/4/25/66/DCS1800/W4 Apple diagram Direction diagram

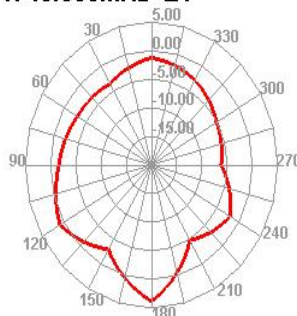
1740.000MHz



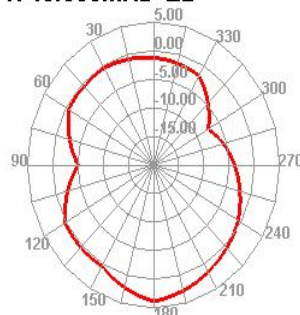
1740.000MHz H



1740.000MHz E1

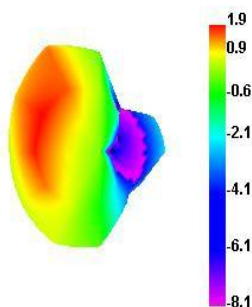


1740.000MHz E2

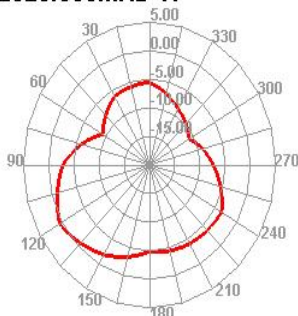


B7/41 Apple diagram Direction diagram

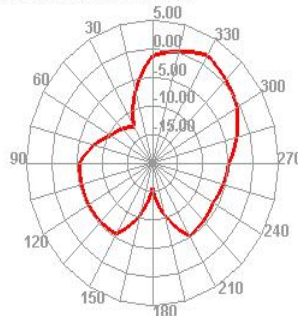
2520.000MHz



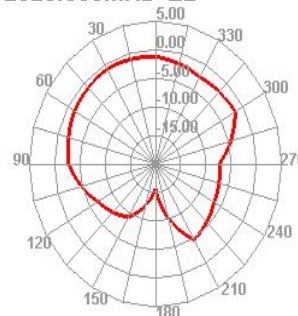
2520.000MHz H



2520.000MHz E1

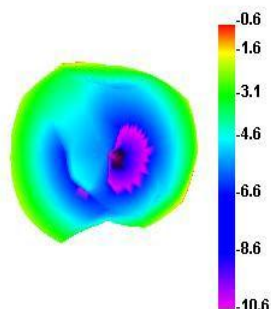


2520.000MHz E2

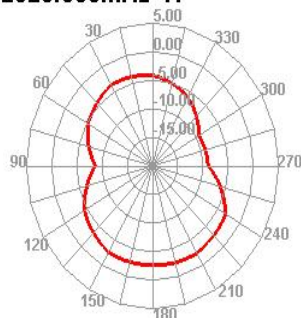


B34 Apple diagram Direction diagram

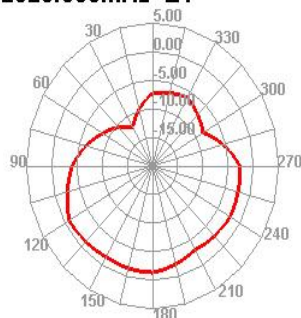
2020.000MHz



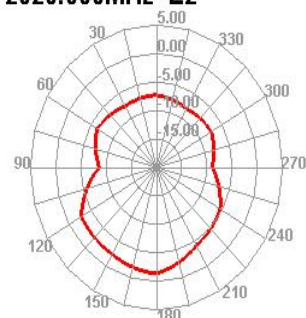
2020.000MHz H



2020.000MHz E1

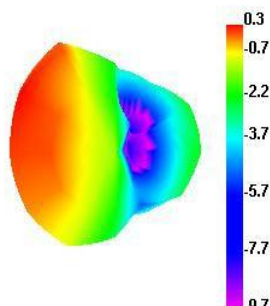


2020.000MHz E2

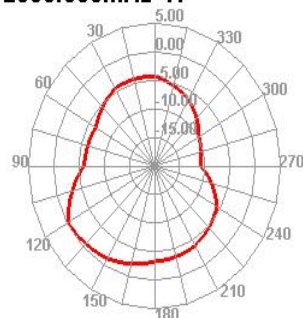


B38 Apple diagram Direction diagram

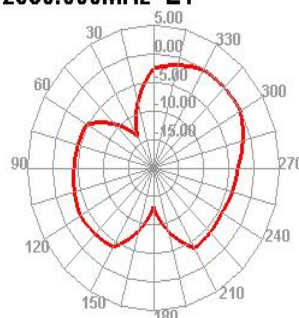
2580.000MHz



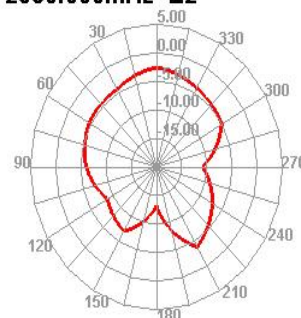
2580.000MHz H



2580.000MHz E1

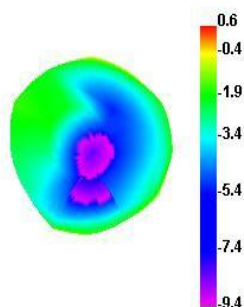


2580.000MHz E2

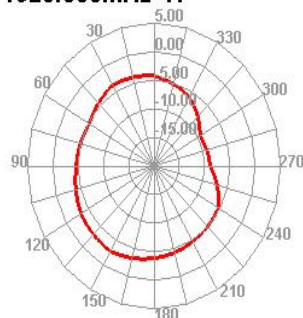


B39 Apple diagram Direction diagram

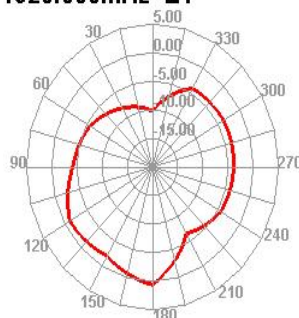
1920.000MHz



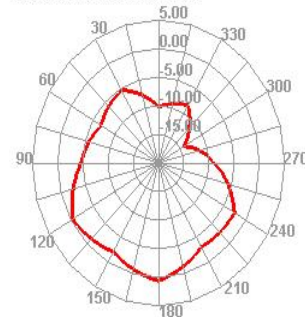
1920.000MHz H



1920.000MHz E1

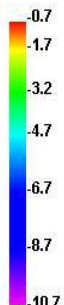
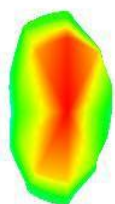


1920.000MHz E2

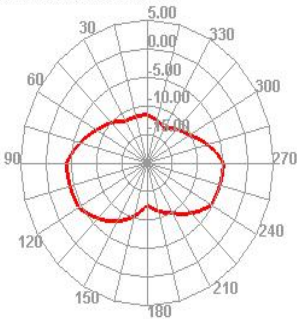


B40 Apple diagram Direction diagram

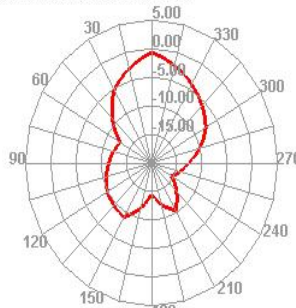
2400.000MHz



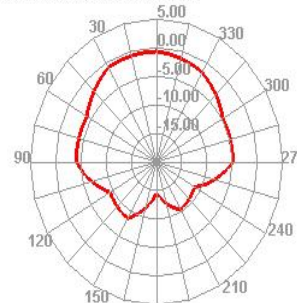
2400.000MHz H



2400.000MHz E1

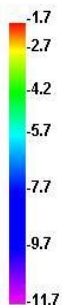
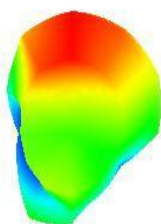


2400.000MHz E2

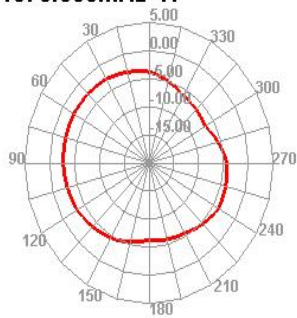


Three-in-One Apple diagram Direction diagram

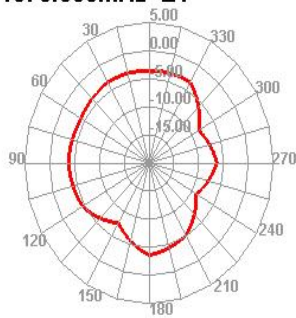
1575.000MHz



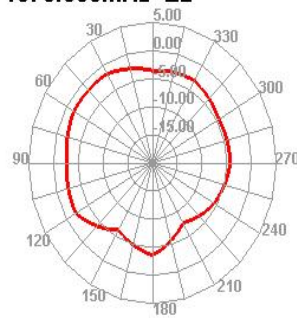
1575.000MHz H



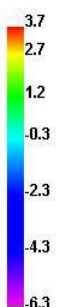
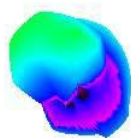
1575.000MHz E1



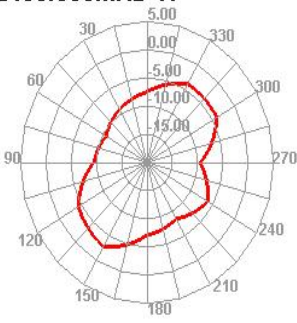
1575.000MHz E2



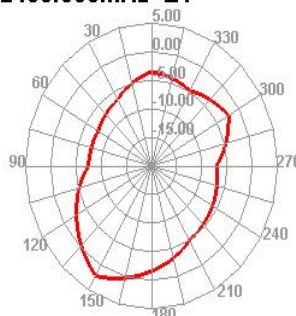
2450.000MHz



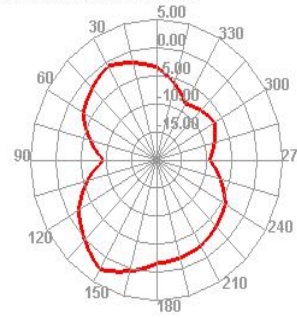
2450.000MHz H



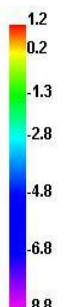
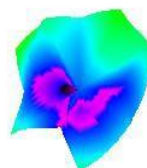
2450.000MHz E1



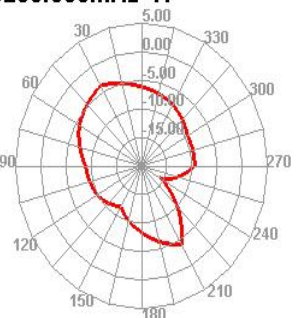
2450.000MHz E2



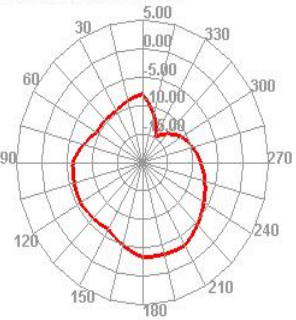
5250.000MHz



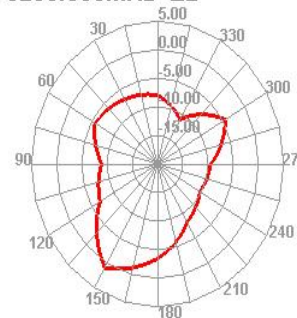
5250.000MHz H



5250.000MHz E1



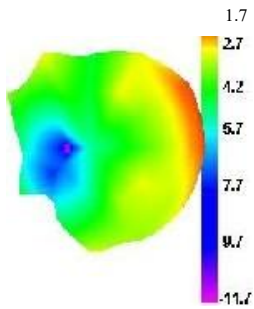
5250.000MHz E2



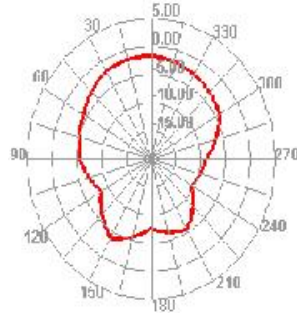
AFTtEch

AFTtech Electronic Co. Ltd.(Shenzhen)

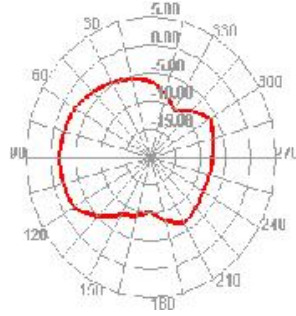
6150DOOMHz



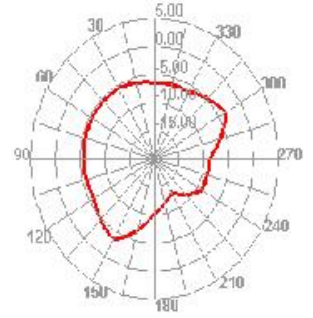
B150.000MHz H



6150.000MHz E1



8150.000MHz E2



BT/WIFI Antenna



LTE Antenna





深圳市安弗特电子有限公司

AFT tech Electronic Co., Ltd. (Shenzhen)

Notes:

1. This antenna is only applicable for the prototype debugging. Any changes to the mainboard PCB or RF circuit components, as well as alterations to accessories (such as camera, screen, speaker, motor, battery, casing processing), must be tested and verified by our company on the entire machine before they can be used.
2. If this project requires third-party verification, please provide the prototype to our company at least one working day in advance for re-testing to ensure it is OK before sending for testing. Avoiding multiple or repeated tests that may delay the project schedule!