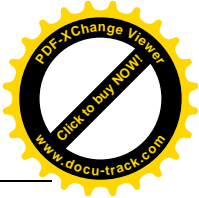
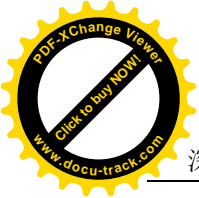


1. Antenna Type: Metal type antenna
2. Brand: Redbirdtek
3. Manufacturer: Redbirdtek
4. Manufacturer Addr:
Room 206, No. 1, Lane 1, District 1 Haibin New Village,
Gushu Community, Xixiang Street, Baoan District,
Shenzhen City

天线规格书

SPECIFICATION FOP APPROVAL

CUST OMER	
● 客户名称	Actions microelectronics
CUS PART NO:	
● 客户型号	
PART NAME	
● 品名规格	WIFI dual band
TPT PART NO:	
● 锐博泰料号	RBT-ANT-524-03-A002
● 版本	1.0



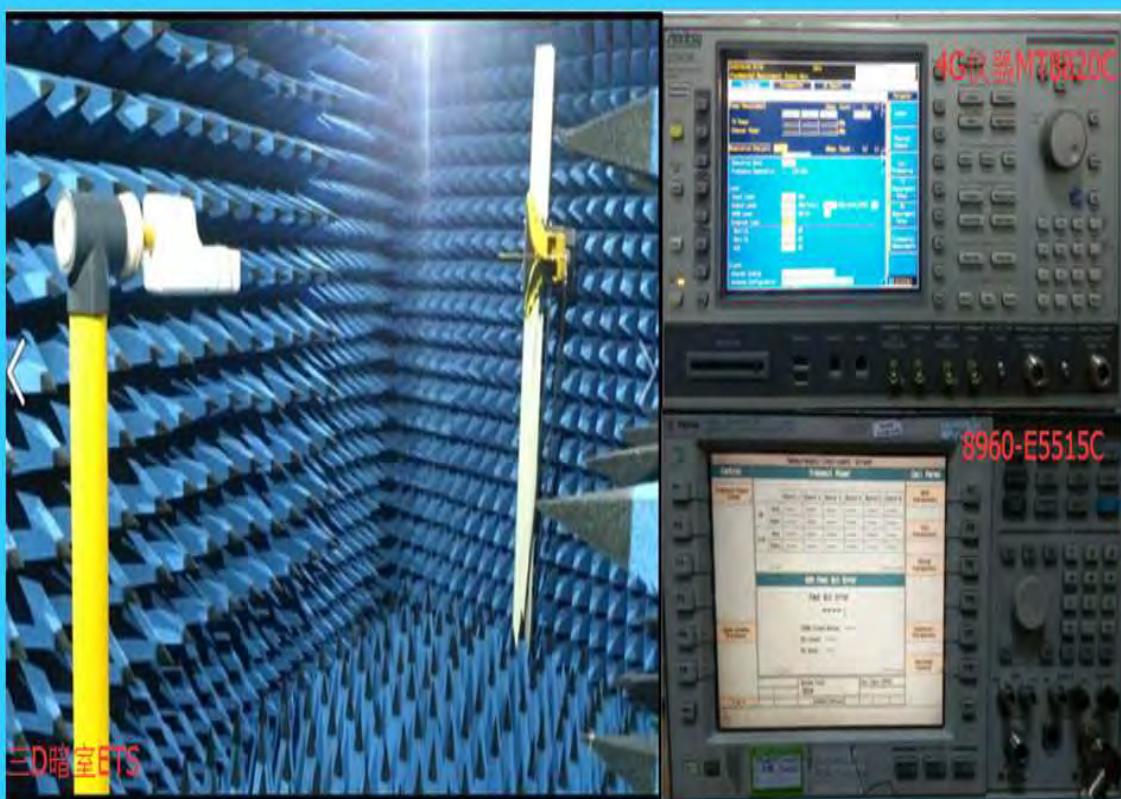
测试设备

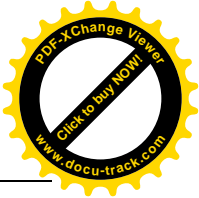
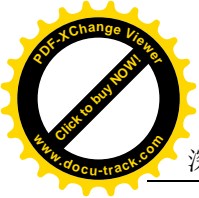
测试系统: 3D暗室

测试环境: 温度 $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$, 湿度 $50\% \pm 15\%$

测试设备: 测试无源数据时, 使用网络分析仪 Agilent E5071B

测试有源数据时, 使用综测仪 Agilent 8960/4G仪器MT8820C



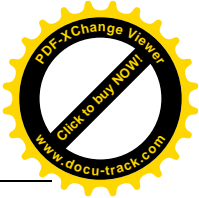
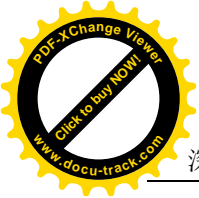


1) Antenna parameter

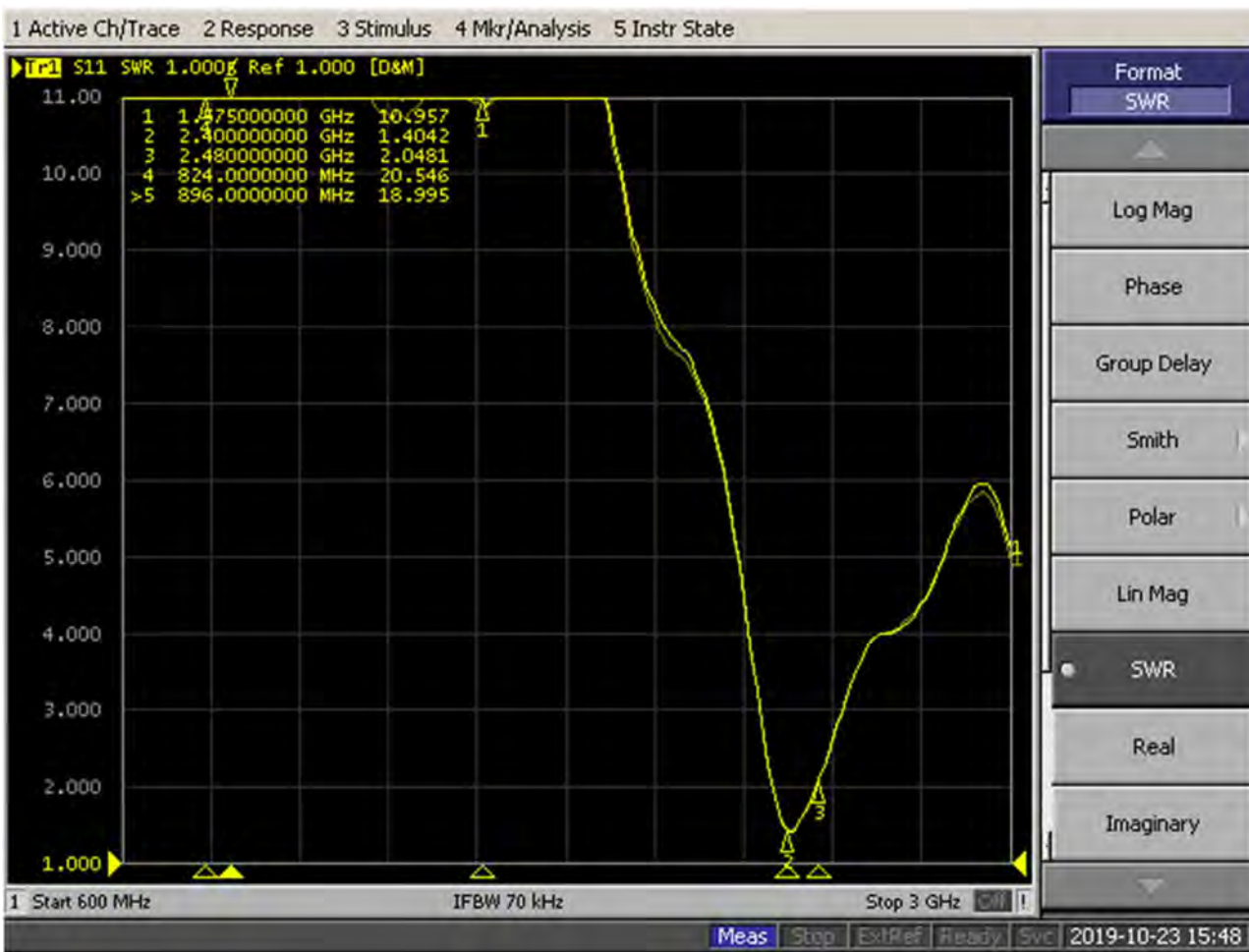
技术要求	技术指标
Frequency range	WIFI:2400-2480MHz ; 5150-5850MHz
Gain	WIFI: 0.56dBi@2.4G;1.52dBi@5G
Antenna polarization	
Bandwidth	WIFI: <2.0
Return loss	WIFI: <-10
Radiation pattern	vertical / horizontal
Antenna impedance	50

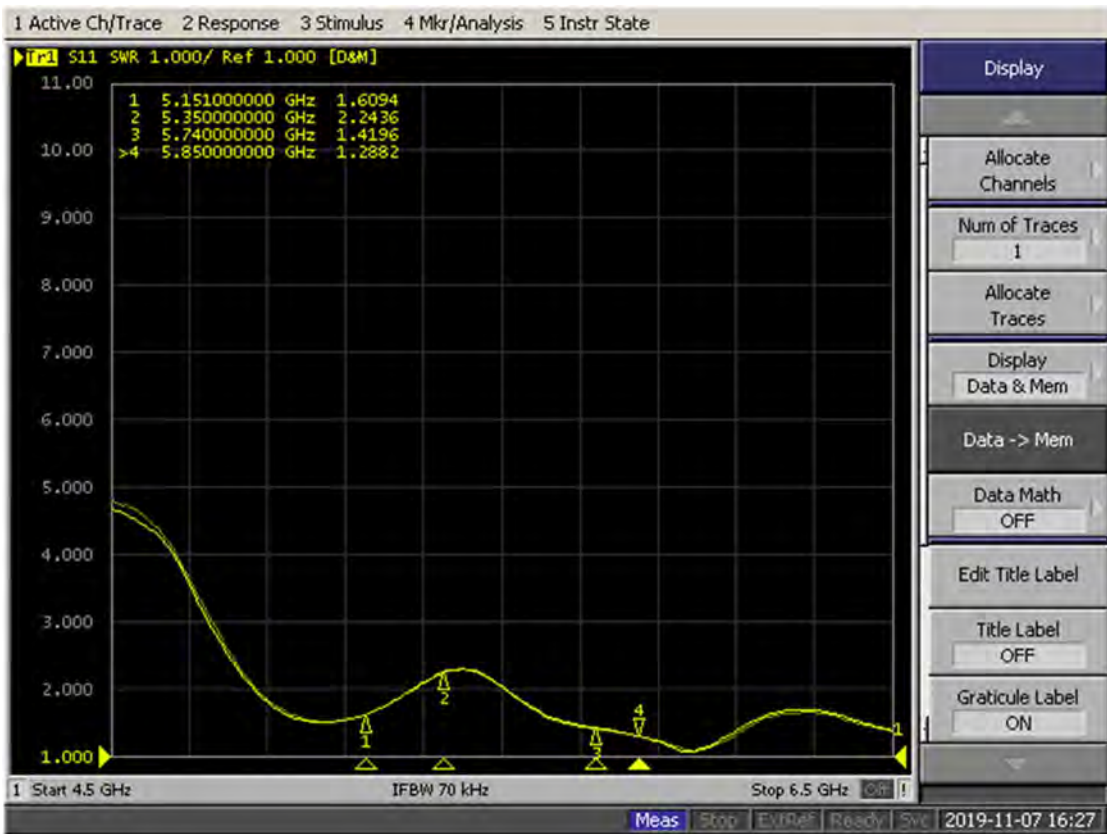
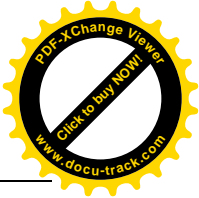
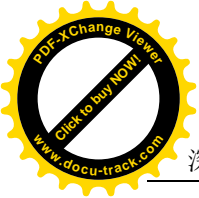
2) Antenna parameter

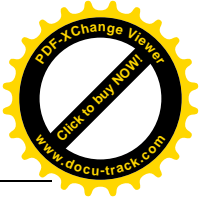
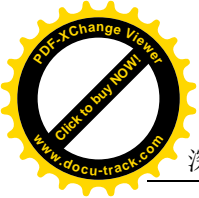
Size	11.1mm*6.2mm*3mm
Material	copper
Color	silver
Storage temp.	0°~80°
Working temp.	0°~65°



3) ANT Return,SVWR 图:







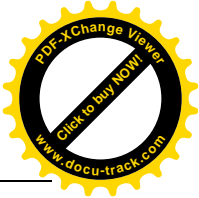
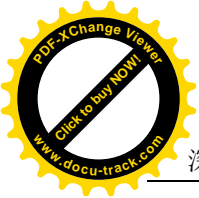
4) ANT radiation parameter

Test Point ID	Freq. (MHz)	TRP (dBm)	Gain (dB)	Directivity (dB)	Efficiency (%)	Efficiency (dB)	Max (dBm)	Theta of Max	Phi of Max	Min (dBm)	Theta of Min	Phi of Min	AVG (dBm)	Max/Min (dB)	Max/AVG (dB)	Min/AVG (dB)
1	2400.0	2400.00	0.34	3.83	43.6%	-6.18	0.34	120	255	-96.99	0	0	-6.87	93.65	4.53	-89.12
2	2410.0	2410.00	0.26	4.04	50.1%	-7.18	0.26	120	265	-96.99	0	0	-7.76	92.87	4.64	-88.23
3	2420.0	2420.00	0.34	3.77	51.3%	-6.47	0.34	120	255	-96.99	0	0	-6.86	93.29	4.16	-89.13
4	2430.0	2430.00	0.46	4.12	52.2%	-5.46	0.46	120	240	-96.99	0	0	-5.73	94.66	4.40	-90.26
5	2440.0	2440.00	0.56	4.07	49.4%	-5.78	0.56	120	240	-96.99	0	0	-6.04	94.30	4.36	-89.95
6	2450.0	2450.00	0.29	3.86	48.3%	-3.41	0.29	150	285	-96.99	0	0	-3.69	96.43	4.13	-92.30
7	2460.0	2460.00	0.37	4.12	47.3%	-4.41	0.37	75	225	-96.99	0	0	-4.68	95.70	4.39	-91.31
8	2470.0	2470.00	0.19	3.51	46.8%	-3.29	0.19	150	285	-96.99	0	0	-3.81	96.20	4.03	-92.17
9	2480.0	2480.00	0.21	3.26	45.2%	-4.57	0.21	75	225	-96.99	0	0	-5.56	94.68	4.25	-90.43
10	2490.0	2490.00	0.34	2.96	44.2%	-5.17	0.34	75	225	-96.99	0	0	-6.28	93.79	4.08	-89.71
11	2500.0	2500.00	0.37	4.91	43.4%	-6.74	0.37	120	225	-96.99	0	0	-7.87	94.16	6.04	-88.12
12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

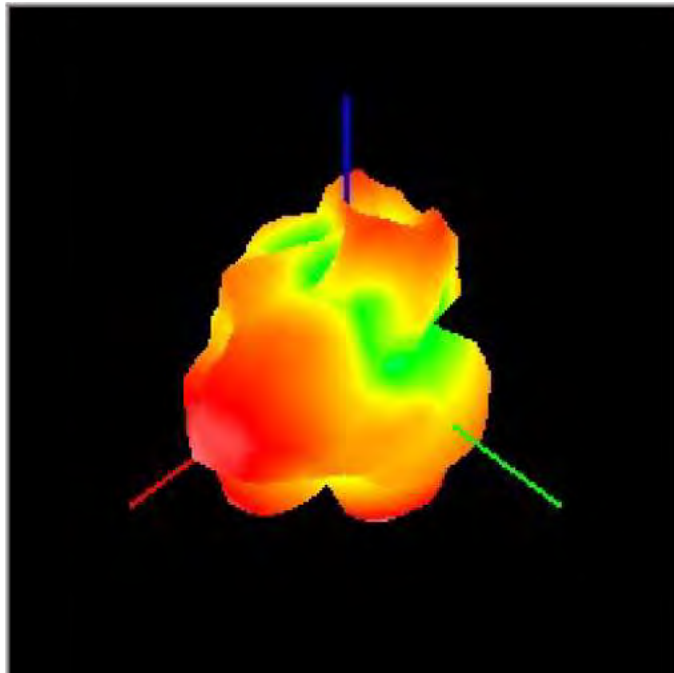
WIFI-2.4G 频段

Test Point ID	Freq. (MHz)	TRP (dBm)	Gain (dB)	Directivity (dB)	Efficiency (%)	Efficiency (dB)	Max (dBm)	Theta of Max	Phi of Max	Min (dBm)	Theta of Min	Phi of Min	AVG (dBm)	Max/Min (dB)	Max/AVG (dB)	Min/AVG (dB)
1	5150.0	5150.00	0.82	4.07	47.3%	-3.25	0.82	45	180	-26.42	0	90	-4.28	27.24	5.09	-22.14
2	5170.0	5170.00	1.02	4.64	57.9%	-2.37	1.02	45	180	-20.80	0	105	-3.54	23.06	5.80	-17.26
3	5190.0	5190.00	1.27	3.95	53.9%	-2.69	1.27	45	180	-24.93	0	135	-4.18	26.20	5.45	-20.74
4	5210.0	5210.00	1.00	3.15	61.1%	-2.14	1.00	135	0	-23.97	180	90	-3.82	24.97	4.82	-20.15
5	5230.0	5230.00	0.71	3.02	58.8%	-2.30	0.71	30	180	-23.68	150	135	-4.02	24.39	4.73	-19.66
6	5250.0	5250.00	0.95	3.38	57.2%	-2.43	0.95	45	165	-22.00	165	285	-4.20	22.96	5.15	-17.80
7	5270.0	5270.00	1.23	3.54	50.1%	-0.80	1.23	135	0	-21.71	15	285	-2.46	24.45	5.19	-19.26
8	5290.0	5290.00	1.05	4.67	52.4%	-1.36	1.05	135	0	-27.62	150	300	-2.73	30.93	6.04	-24.89
9	5310.0	5310.00	1.10	4.74	53.1%	0.35	1.10	135	0	-18.46	165	330	-0.96	23.55	6.05	-17.50
10	5330.0	5330.00	0.98	3.44	54.2%	-1.23	0.98	60	75	-23.38	165	300	-2.78	25.59	4.99	-20.60
11	5350.0	5350.00	0.87	4.20	55.1%	-0.96	0.87	135	0	-22.75	150	135	-2.62	25.99	5.87	-20.13
12	5370.0	5370.00	0.75	4.81	55.2%	-1.97	0.75	135	0	-24.27	180	15	-3.61	27.11	6.45	-20.67
13	5390.0	5390.00	0.72	4.51	52.1%	-0.74	0.72	135	0	-24.91	150	315	-2.29	28.69	6.06	-22.63
14	5410.0	5410.00	0.67	4.59	50.2%	-0.89	0.67	135	0	-25.04	135	60	-2.66	28.74	6.26	-22.48
15	5430.0	5430.00	0.73	4.72	49.6%	-1.04	0.73	135	0	-23.19	160	135	-2.62	26.67	6.30	-20.57
16	5450.0	5450.00	0.62	5.90	48.3%	-0.06	0.62	135	0	-19.05	165	315	-1.30	24.89	7.14	-17.75
17	5470.0	5470.00	0.82	5.97	43.3%	0.10	0.82	135	0	-20.03	150	315	-1.47	26.11	7.54	-18.57
18	5490.0	5490.00	0.91	4.60	43.6%	-0.30	0.91	135	0	-22.14	0	90	-2.08	26.44	6.38	-20.07
19	5510.0	5510.00	1.05	4.46	42.4%	1.17	1.05	60	165	-25.02	165	315	-0.45	30.65	6.08	-24.57
20	5530.0	5530.00	1.13	5.17	41.2%	-0.30	1.13	135	0	-26.03	165	300	-2.11	30.91	6.98	-23.93
21	5550.0	5550.00	1.18	6.01	43.7%	0.60	1.18	135	0	-23.43	0	0	-1.39	28.95	6.91	-22.04
22	5570.0	5570.00	1.35	5.21	45.2%	0.45	1.35	120	0	-22.88	165	300	-1.48	28.54	7.14	-21.40
23	5590.0	5590.00	1.42	5.23	46.8%	0.26	1.42	120	0	-21.52	150	315	-1.69	27.01	7.18	-19.83
24	5610.0	5610.00	1.52	5.44	47.2%	1.36	1.52	135	0	-21.13	0	15	-0.55	27.94	7.36	-20.58
25	5630.0	5630.00	1.30	6.04	43.1%	1.01	1.30	120	0	-17.10	180	105	-0.80	24.15	7.86	-16.29
26	5650.0	5650.00	1.20	6.12	43.2%	1.36	1.20	135	0	-17.97	0	0	-0.28	25.45	7.77	-17.69
27	5670.0	5670.00	0.94	6.15	44.2%	1.72	0.94	135	0	-24.35	0	0	-0.12	32.22	7.99	-24.23
28	5690.0	5690.00	0.82	5.32	45.7%	0.96	0.82	135	0	-21.69	165	300	-0.78	27.97	7.06	-20.91
29	5710.0	5710.00	0.67	6.31	45.6%	1.29	0.67	135	0	-17.16	15	315	-0.27	24.76	7.87	-16.89
30	5730.0	5730.00	0.54	5.81	46.8%	2.23	0.54	135	0	-15.90	165	105	0.42	23.95	7.62	-16.33
31	5750.0	5750.00	0.51	5.86	43.3%	2.75	0.51	135	0	-21.51	165	15	0.91	30.12	7.70	-22.42
32	5770.0	5770.00	0.48	6.48	42.1%	1.38	0.48	135	0	-21.29	180	15	-0.20	29.16	8.06	-21.09
33	5790.0	5790.00	0.50	5.82	41.1%	2.58	0.50	135	0	-23.38	165	15	0.59	31.79	7.81	-23.98
34	5810.0	5810.00	0.49	5.61	40.2%	2.39	0.49	135	0	-20.93	165	15	0.37	28.93	7.63	-21.30
35	5830.0	5830.00	0.42	5.91	40.3%	1.29	0.42	135	0	-17.91	180	15	-0.18	25.10	7.37	-17.73
36	5850.0	5850.00	0.40	6.53	40.0%	-1.16	0.40	135	0	-31.97	15	315	-3.29	37.34	8.66	-28.68

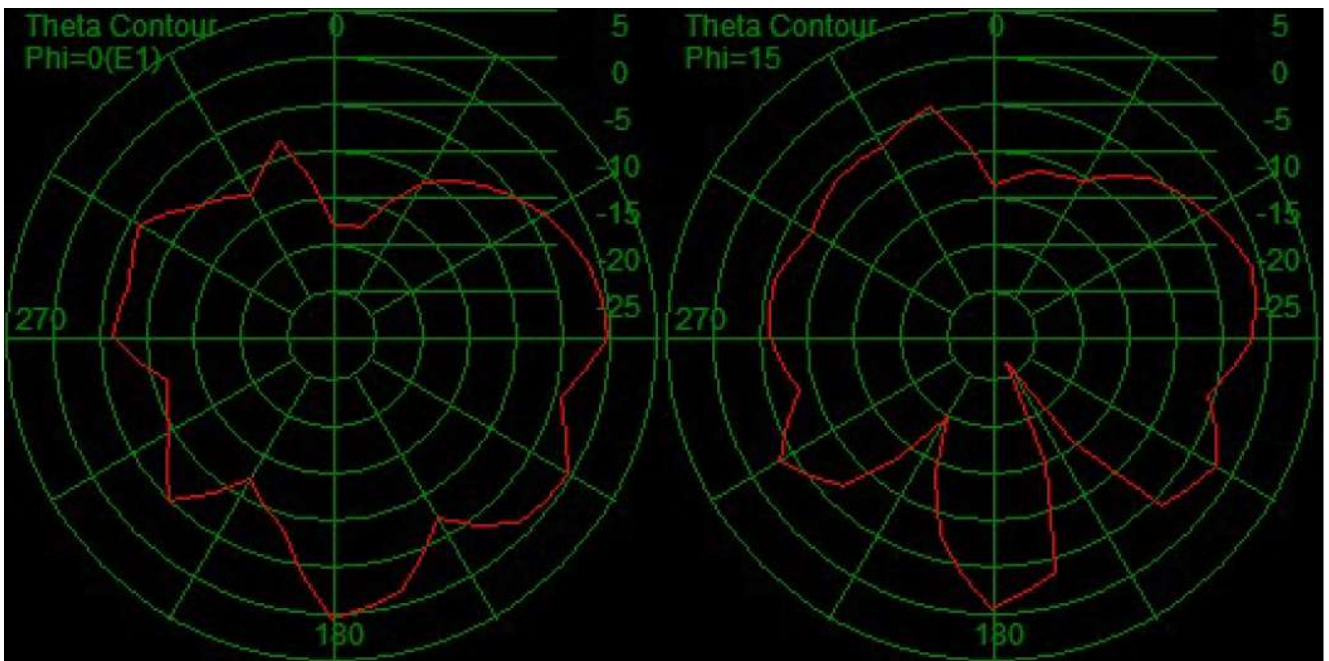
WIFI-5G 频段



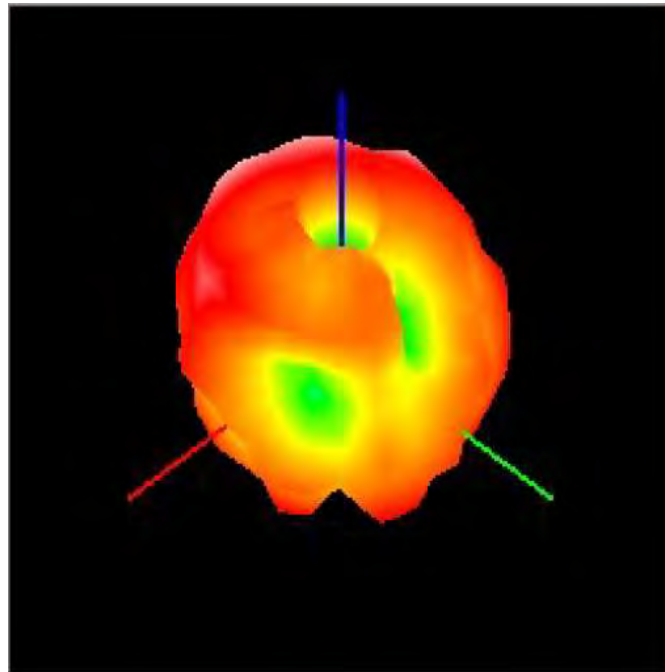
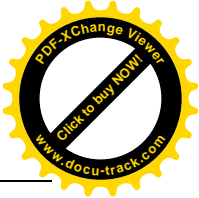
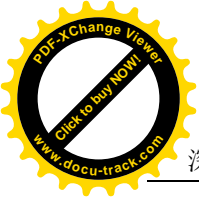
5) ANT 3D and pattern



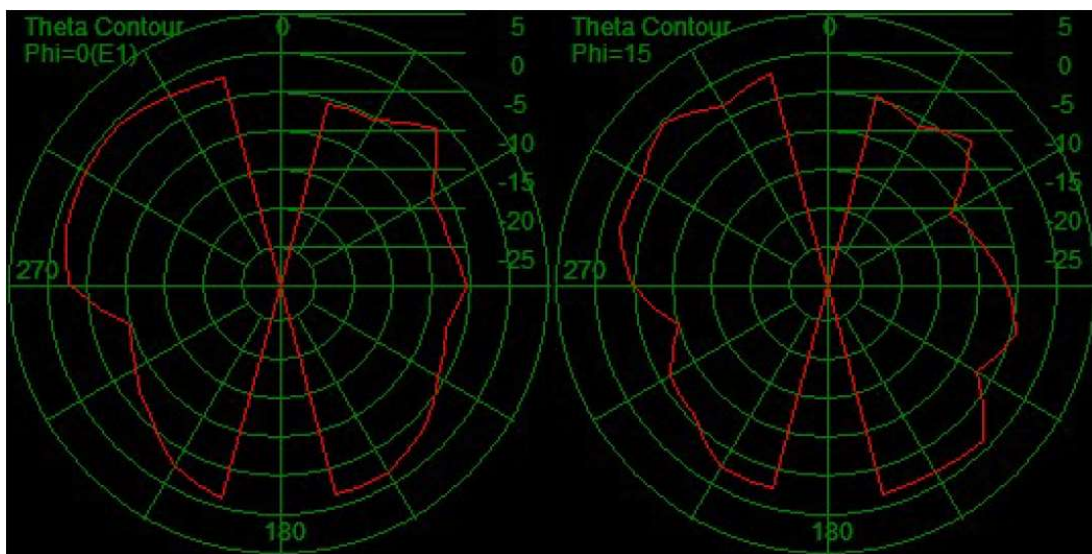
frequency range: 2.4GHz



2.4G pattern



frequency range: 5GHz



5G pattern