

深圳维力谷无线技术股份有限公司

SHENZHEN VLG WIRELESS TECHNOLOGY CO.,LTD

天线测试报告

Antenna Test Report

项目名/ Project name : ST5BEAA

日期/Date: 2019年09月06日

ME: 曾聪 RF: 毛永飞

Content

- 1、Description of the complete machine and its environment
- 2、Picture of physical assessment
- 3、Antenna S Parameter
- 4、Antenna matching circuit
- 5、Passive data

1. Description of the complete machine and its environment

Customer name		Amlogic	Item	ST5BEAA
NO.	Items	Details		
1	product type	OTT		
2	Frequency Requirement	WIFI antenna 2.4GHZ/5G		
3	Antenna Numbers	WIFI antenna and BT antenna		
4	Antenna pattern	FPC/printed antenna		
5	Main reasons and components affecting antenna performance			
6	Notes			

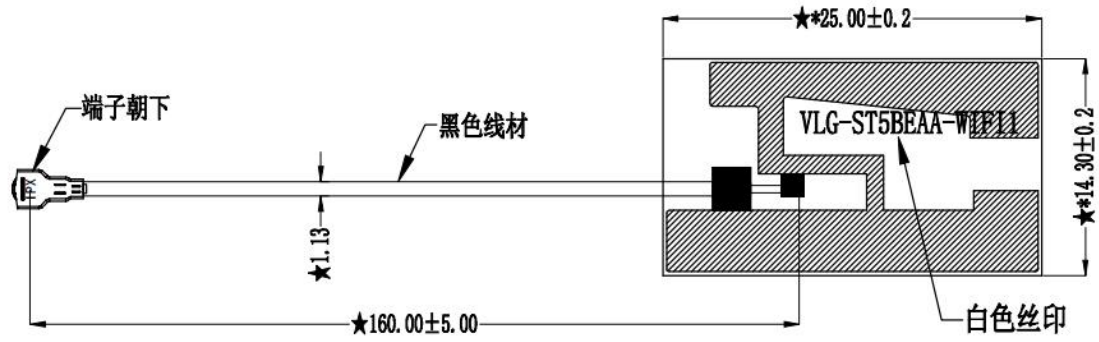
2. Antenna picture



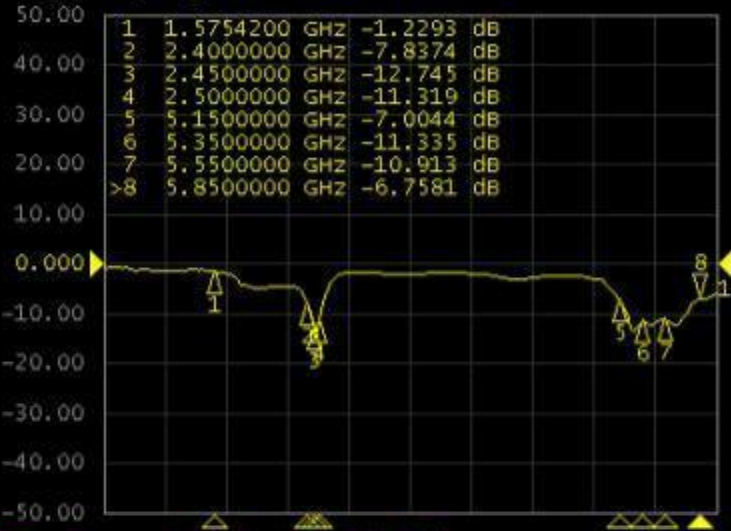
Antenna: FPC+cable

Antenna placement picture

3. Antenna #1 S11 parameter



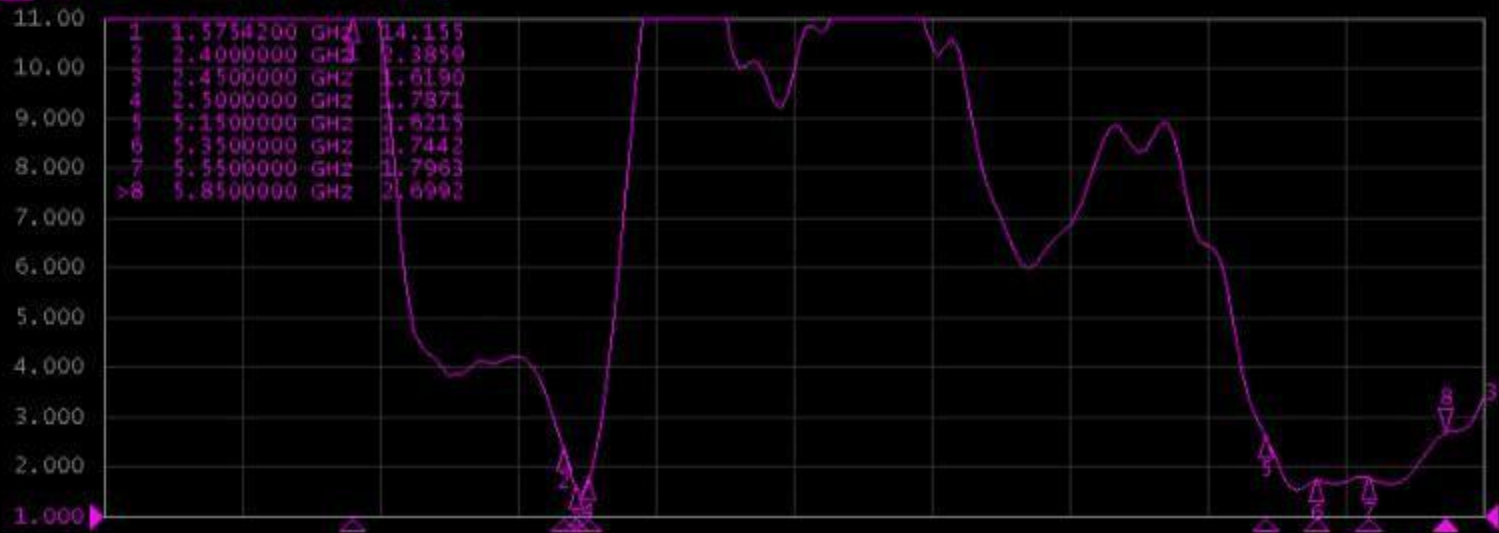
Tr1 S11 Log Mag 10.00dB/ Ref 0.000dB [F1]



Tr2 S11 smith (R+jX) scale 1.000U [F1]



S11 SWR 1.000/ Ref 1.000 [F1]





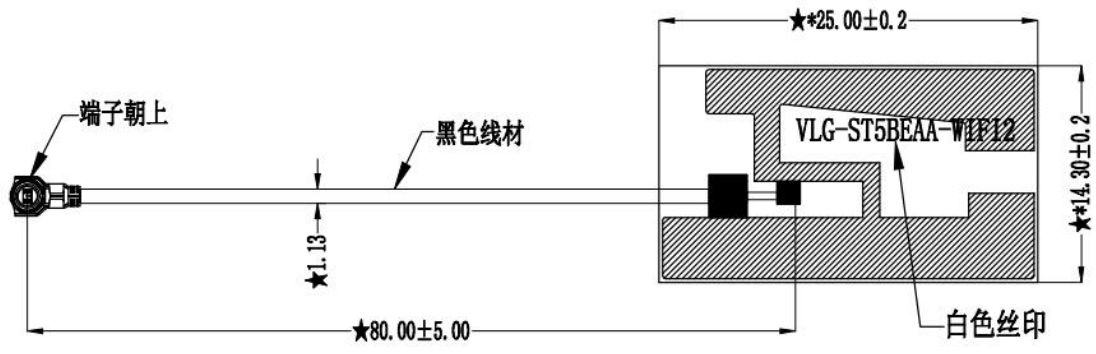
1 Start 600 MHz

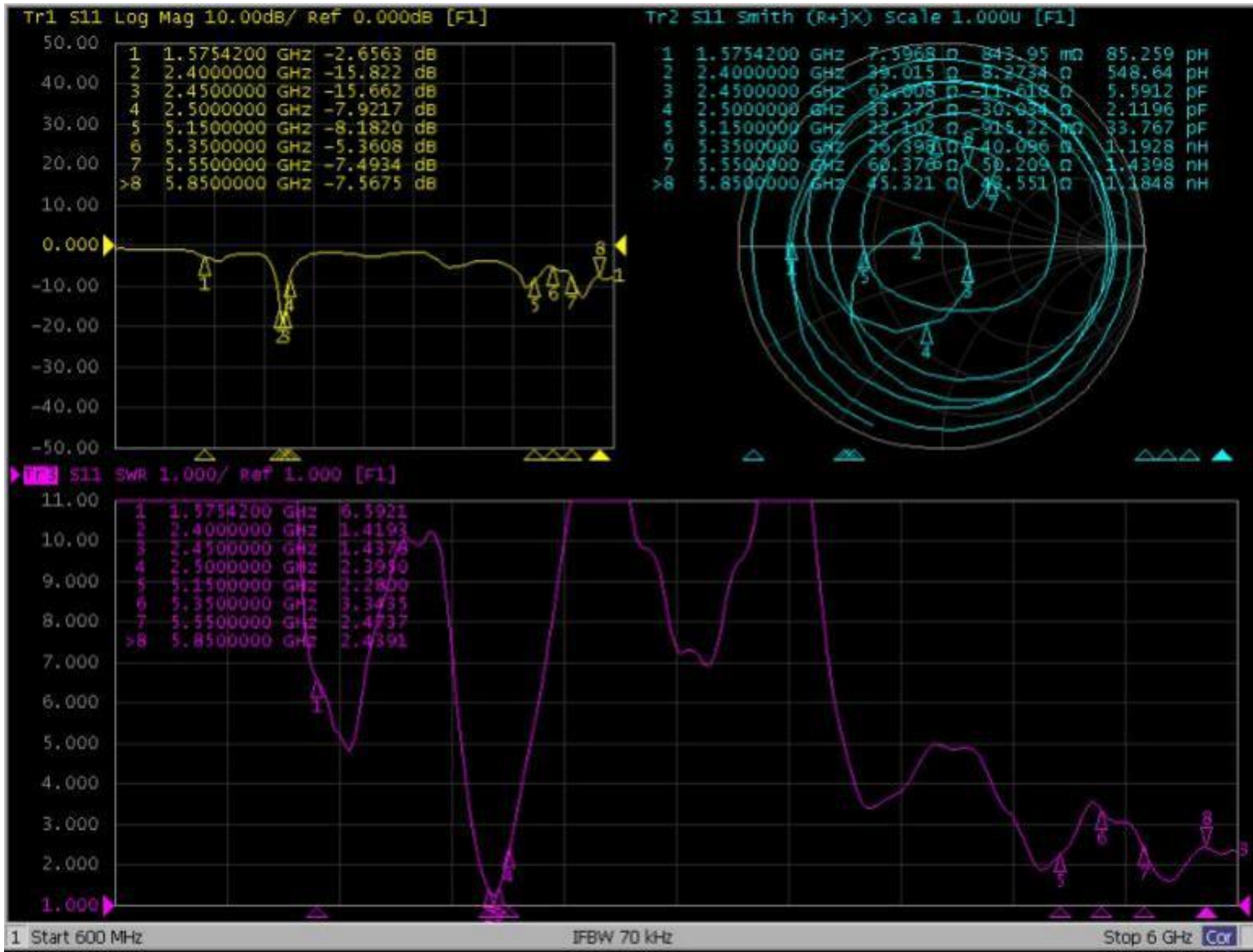
IFBW 70 kHz

Stop 6 GHz [Cor]

Antenna #2 S11 parameter

-  线路区域
-  镀金区域

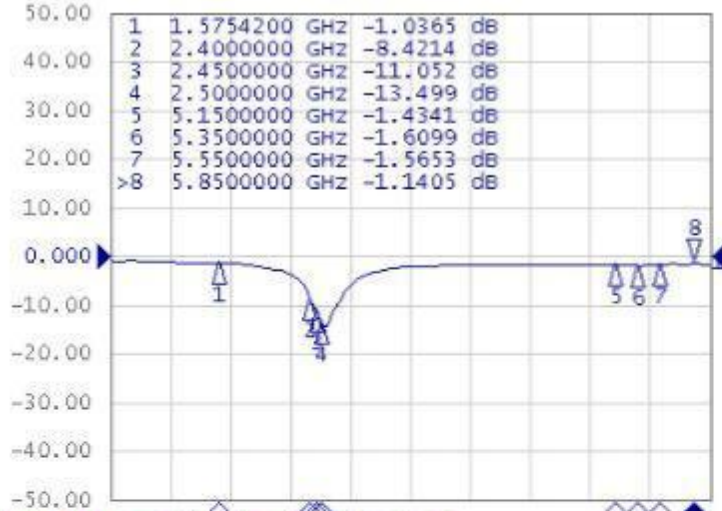




BT Antenna S11 parameter

Tr1 S11 Log Mag 10.00dB/ Ref 0.000dB [F1]

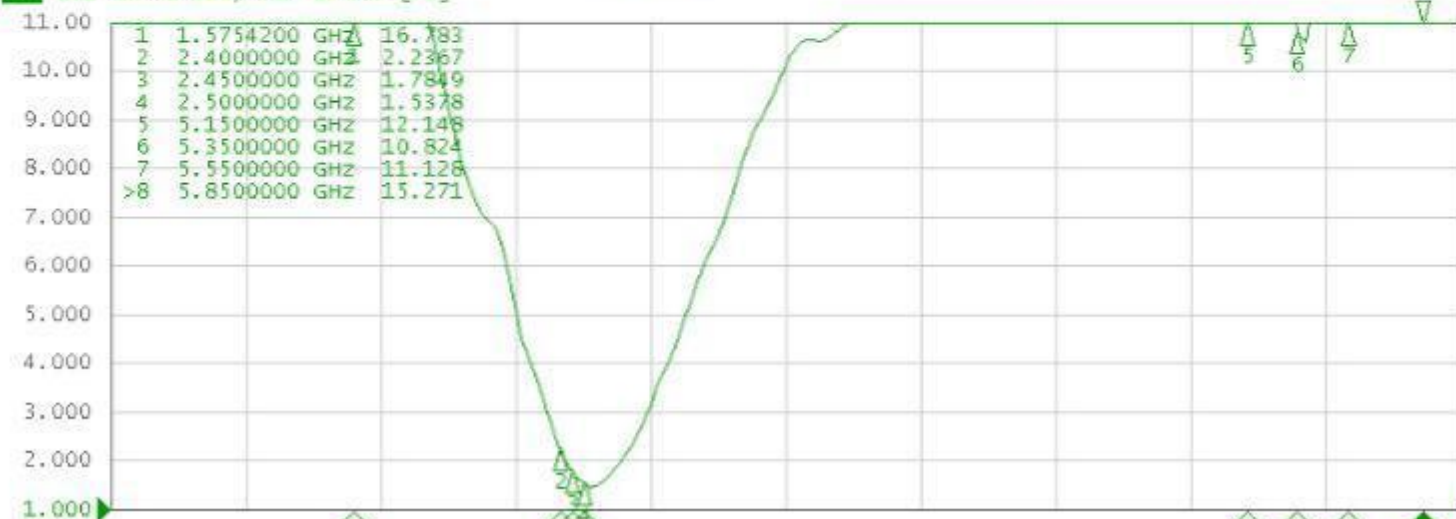
Tr2 S11 Smith (R+jX) Scale 1.000U [F1]



Frequency (GHz)	R (Ω)	X (Ω)	Component
1.5754200	751.97	-114.41	906.81 FF
2.4000000	40.052	-33.744	1.8553 pF
2.4500000	32.452	-31.273	4.2534 pF
2.5000000	25.211	-2.4640	156.87 pH
5.1500000	18.197	-90.620	341.03 FF
5.3500000	5.0080	-14.338	2.0748 pF
5.5500000	6.0551	29.105	534.64 nH
5.8500000	221.60	330.85	93011 nH



Tr3 S11 SWR 1.000/ Ref 1.000 [F1]

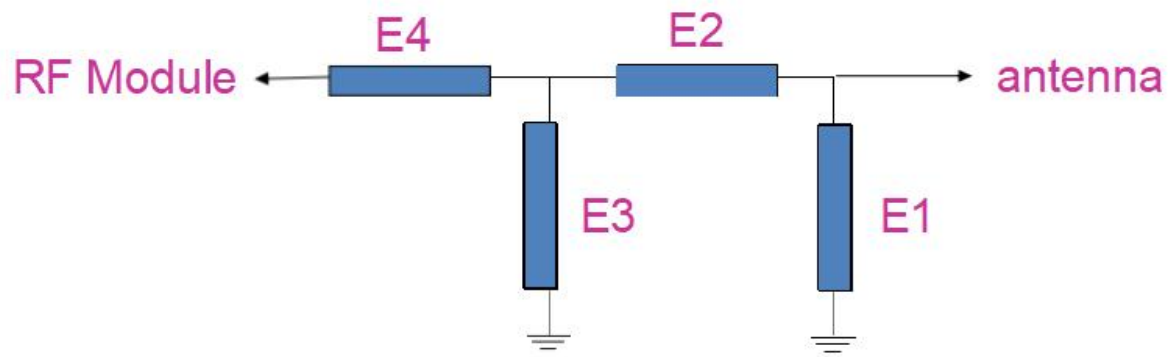


1 Start 600 MHz

IFBW 70 kHz

Stop 6 GHz

4. Antenna matching circuit



Element	WIFI antenna Value	BT antenna Value
E1(0402)	NC	1.2PF
E2(0402)	0Ω	0Ω
E3(0402)	NC	NC
E4(0402)	0Ω	0Ω

Antenna passive data

1# Antenna

Frequency (MHz)	Efficiency	Efficiency (dB)	Peak Gain (dBi)
2400	50.19%	-2.99	1.24
2410	51.20%	-2.91	1.38
2420	51.38%	-2.89	1.37
2430	52.21%	-2.82	1.36
2440	53.52%	-2.72	1.51
2450	54.47%	-2.64	1.57
2460	55.67%	-2.54	1.63
2470	57.68%	-2.39	1.72
2480	56.08%	-2.51	1.79
2490	58.39%	-2.34	1.86
2500	58.05%	-2.36	2.00

Frequency (MHz)	Efficiency	Efficiency (dB)	Peak Gain (dBi)
5140	50.97%	-2.93	2.97
5160	51.57%	-2.88	2.98
5180	52.28%	-2.82	3.10
5200	52.74%	-2.78	3.20
5220	54.00%	-2.68	3.35
5240	55.96%	-2.52	3.49
5260	55.32%	-2.57	3.64
5280	57.01%	-2.44	3.88
5300	58.43%	-2.33	3.83
5320	59.53%	-2.25	4.02
5340	60.82%	-2.16	4.19
5360	61.26%	-2.13	4.38
5380	60.53%	-2.18	4.56
5400	61.45%	-2.11	4.68
5420	59.37%	-2.26	4.74
5440	60.32%	-2.20	4.90
5460	61.00%	-2.15	4.87
5480	60.10%	-2.21	5.05

5500	60.27%	-2.20	5.18
5520	60.46%	-2.19	5.19
5540	60.48%	-2.18	5.26
5560	63.71%	-1.96	5.34
5580	63.29%	-1.99	5.41
5600	67.01%	-1.74	5.70
5620	67.06%	-1.74	5.75
5640	67.72%	-1.69	6.06
5660	68.77%	-1.63	6.11
5680	67.56%	-1.70	6.22
5700	67.12%	-1.73	6.33
5720	66.54%	-1.77	6.29
5740	65.64%	-1.83	6.27
5760	66.14%	-1.80	6.19
5780	65.44%	-1.84	6.09
5800	66.85%	-1.75	6.10
5820	66.24%	-1.79	6.02
5840	66.94%	-1.74	6.13
5860	66.97%	-1.74	6.12

Antenna passive data

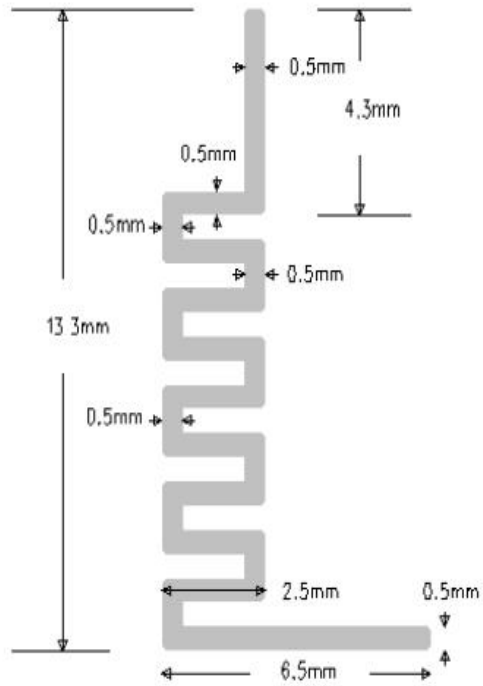
2# Antenna

Frequency (MHz)	Efficiency	Efficiency (dB)	Peak_Gain (dBi)
2400	66.48%	-1.77	3.44
2410	67.00%	-1.74	3.54
2420	66.77%	-1.75	3.58
2430	66.66%	-1.76	3.64
2440	65.71%	-1.82	3.62
2450	64.40%	-1.91	3.52
2460	62.23%	-2.06	3.31
2470	59.67%	-2.24	3.01
2480	56.66%	-2.47	2.70
2490	52.58%	-2.79	2.31
2500	48.86%	-3.11	1.94

Frequency (MHz)	Efficiency	Efficiency (dB)	Peak_Gain (dBi)
5140	50.30%	-2.98	3.60
5160	52.75%	-2.78	3.76
5180	54.19%	-2.66	3.82
5200	55.70%	-2.54	3.91
5220	56.84%	-2.45	3.97
5240	57.78%	-2.38	4.10
5260	58.33%	-2.34	4.21
5280	58.92%	-2.30	4.29
5300	59.11%	-2.28	4.32
5320	59.85%	-2.23	4.35
5340	61.09%	-2.14	4.43
5360	59.88%	-2.23	4.23
5380	60.54%	-2.18	4.20
5400	61.29%	-2.13	4.18
5420	60.90%	-2.15	4.08
5440	60.93%	-2.15	4.13
5460	59.51%	-2.25	3.98
5480	56.97%	-2.44	3.77

5500	56.31%	-2.49	3.72
5520	52.75%	-2.78	3.42
5540	52.77%	-2.78	3.45
5560	53.11%	-2.75	3.63
5580	52.11%	-2.83	3.63
5600	52.28%	-2.82	3.73
5620	52.72%	-2.78	3.76
5640	53.17%	-2.74	3.87
5660	55.96%	-2.52	4.27
5680	55.99%	-2.52	4.38
5700	58.41%	-2.34	4.70
5720	58.42%	-2.33	4.85
5740	59.01%	-2.29	5.03
5760	59.69%	-2.24	5.21
5780	59.54%	-2.25	5.27
5800	59.25%	-2.27	5.33
5820	58.97%	-2.29	5.38
5840	58.64%	-2.32	5.44
5860	59.34%	-2.27	5.57

BT Antenna



Printed Antenna BT

Frequency (MHZ)	Efficiency	Efficiency . dB	Peak_Gain (dBi)
2400	49.81%	-3.03	3.82
2410	52.19%	-2.82	4.00
2420	54.96%	-2.60	4.22
2430	56.81%	-2.46	4.39
2440	58.09%	-2.36	4.51
2450	59.14%	-2.28	4.59
2460	59.28%	-2.27	4.55
2470	59.65%	-2.24	4.49
2480	59.56%	-2.25	4.41
2490	58.94%	-2.30	4.34
2500	59.30%	-2.27	4.35

WiFi negative data

Test Equipment:	Anritsu MT 8860C/ Agilent E4438C			
Test Condition:	3D chamber			
Band	Wireless Protocol	Channel	TRP(dBm)	TIS(dBm)
WIFI	802.11 b/11Mbps	1	13.78	
		7	14.43	
		13	13.03	-83
	802.11.a	36		
		64		
		149	11.94	
		157	11.48	
		165	11	