



3081GA Antenna information

Record for version modification

Date	Revision	Modify Content	Author
2023-07-18	V1.0	1 st Version	Yin Feijie

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Website: www.sdmctech.com



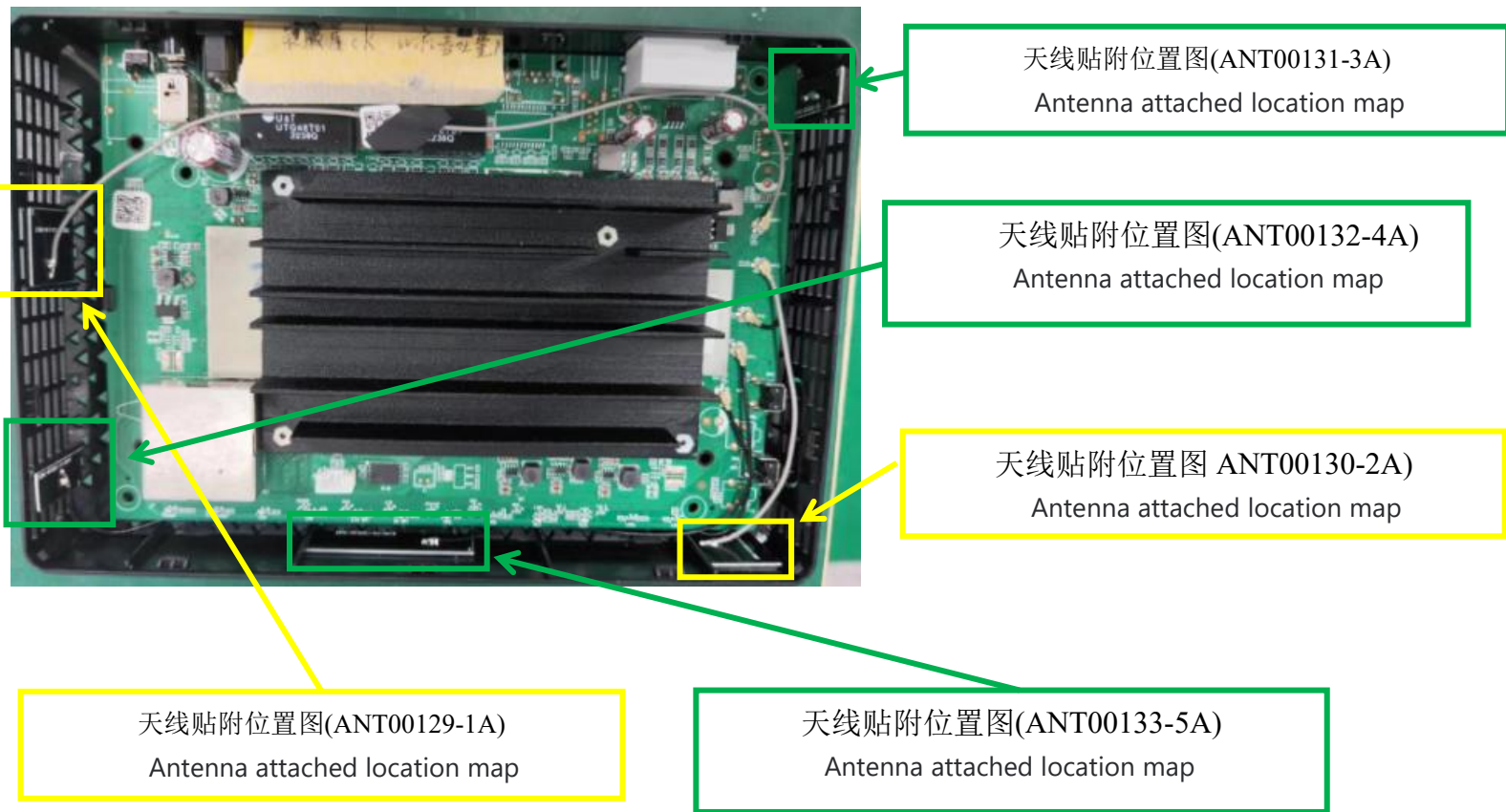
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1. Project information

Model No.	NP3081GA
HW Version	V1
SW Version	10.3.3.1
Antenna type	Metal built-in antenna
Installation mode	Internal
WIFI Model	/
Antenna supplier	Shenzhen Yingjiachuang Electronic Technology Co. LTD
Tester	Yin Feijie
Acceptance	Fang Wenfeng
Reviewer	Xiao Han
Date	2023/07/18

2. Appearance and specification



3. Performance parameter

3.1 Antenna passive test

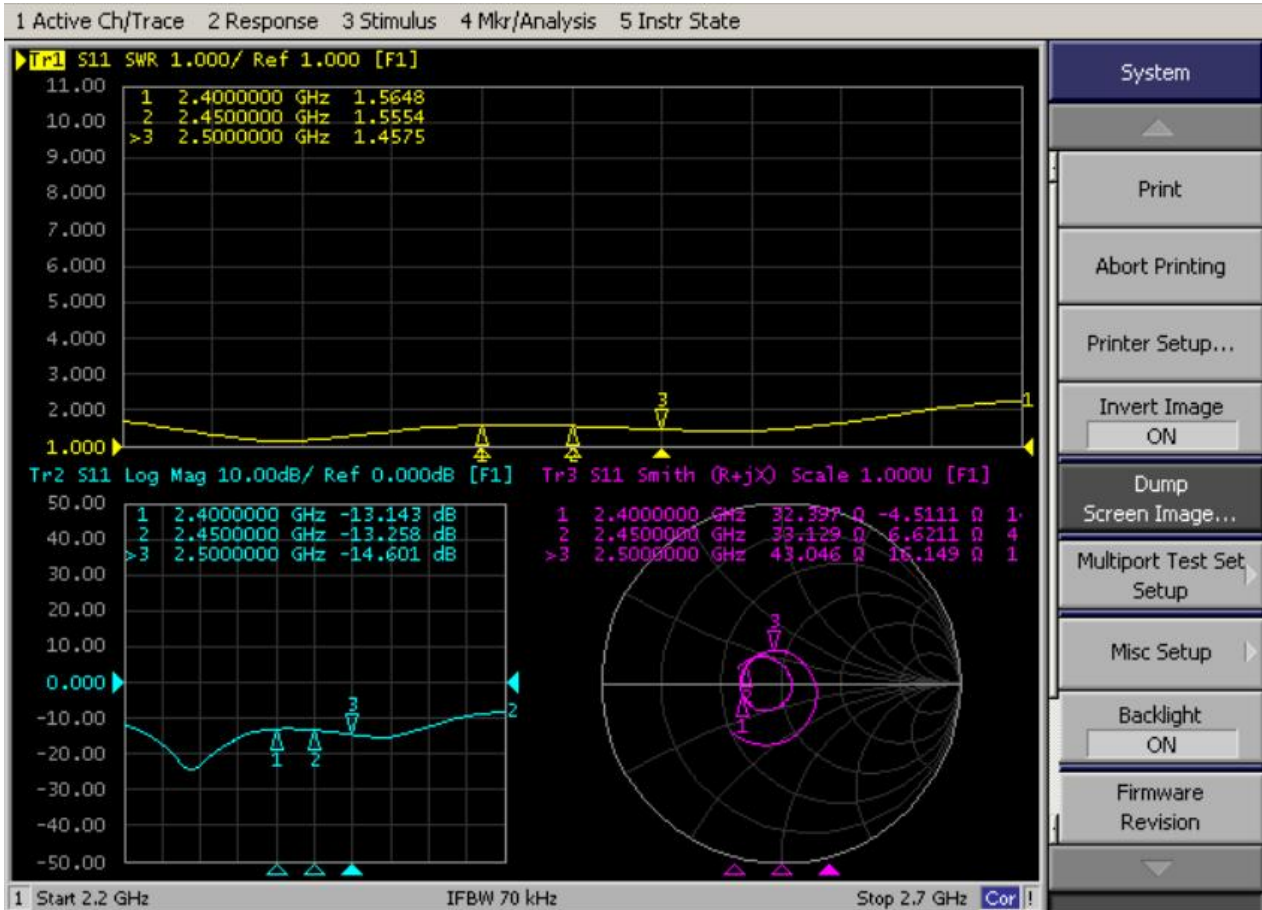
Frequency	2400Mhz~2500Mhz/5150Mhz~5850Mhz
Impedance	50Ω
Antenna Gain	2.4Glong $\geq 3.23\text{dBi}$, 2.4Gshort $\geq 3.37\text{dBi}$ 5.8Glong $\geq 4.01\text{dBi}$, 5.8Gshort $\geq 4.34\text{dBi}$, 5.8GCenter line $\geq 3.53\text{dBi}$
Power capacity	<10w
Radiation	Omni-directional

3.1.1 Reflection loss&V.S.W.R

Test tools: network analyzer:(E5071B)

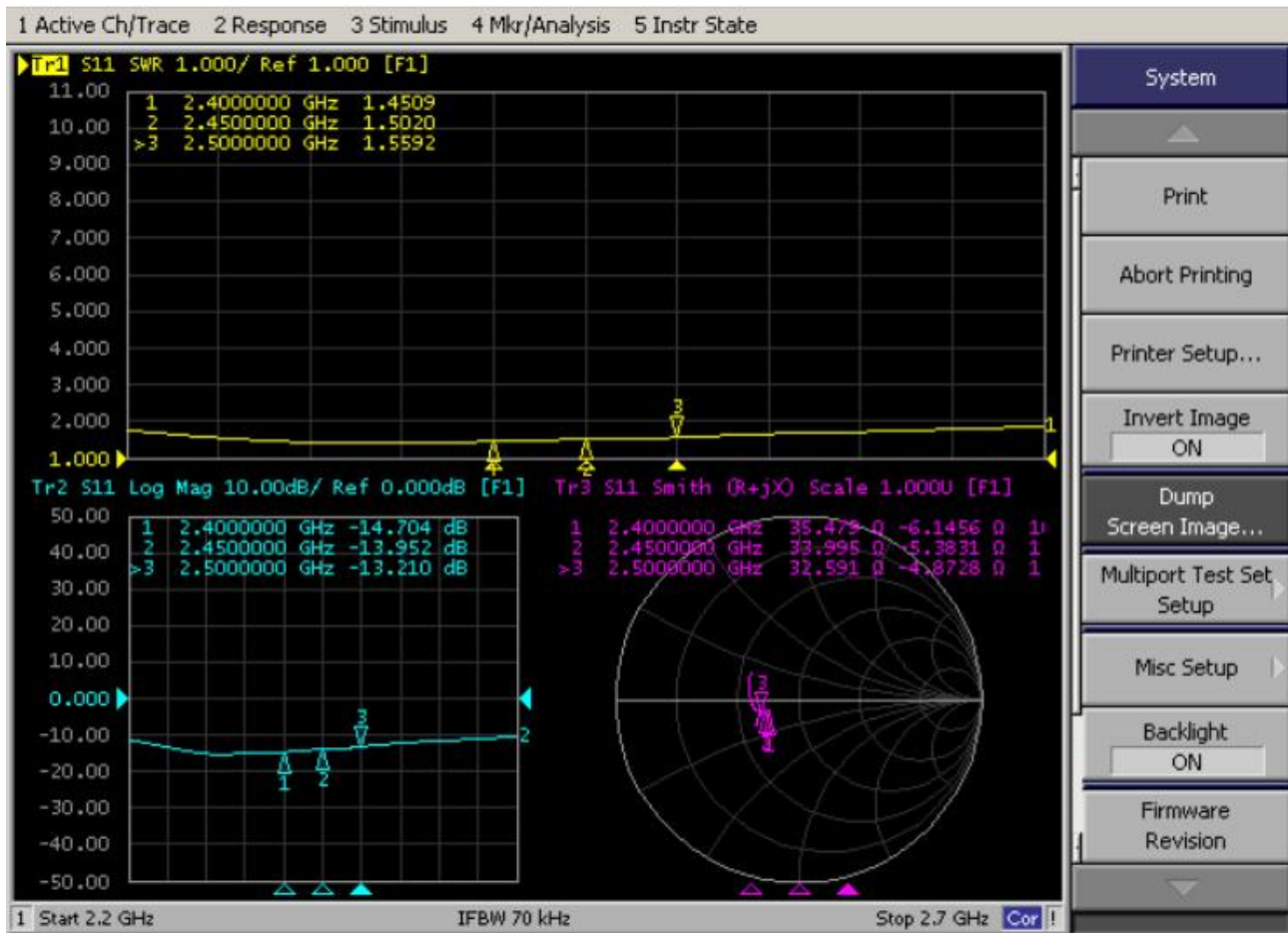
Standard: Reflection loss $\leq$ -10db V.S.W.R $\leq$ 1.92

Antenna-2.4GANT00130-2A



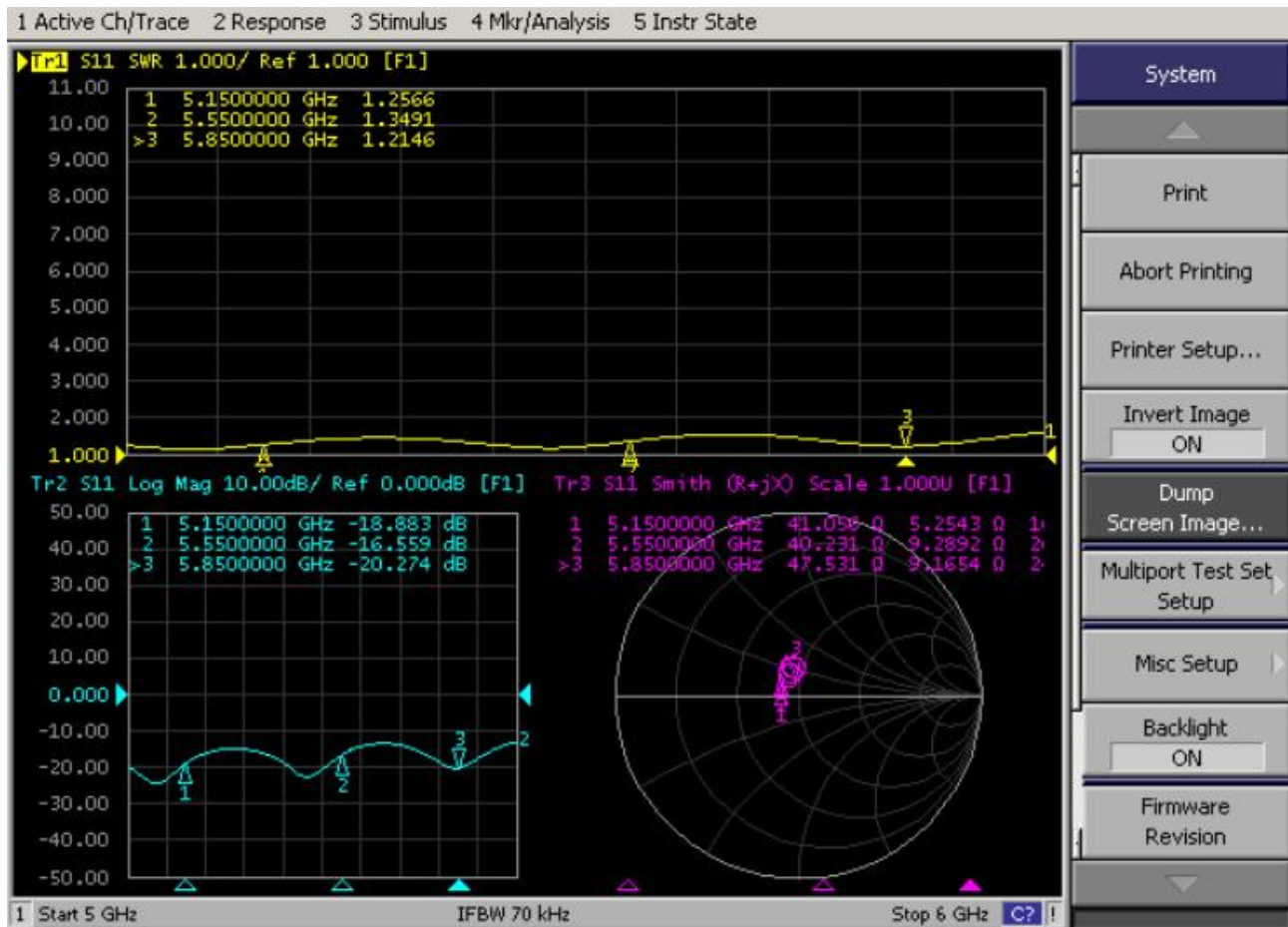
V.S.W.R

Freq/GHz	2.4	2.45	2.5
VSWR	1.56	1.55	1.45



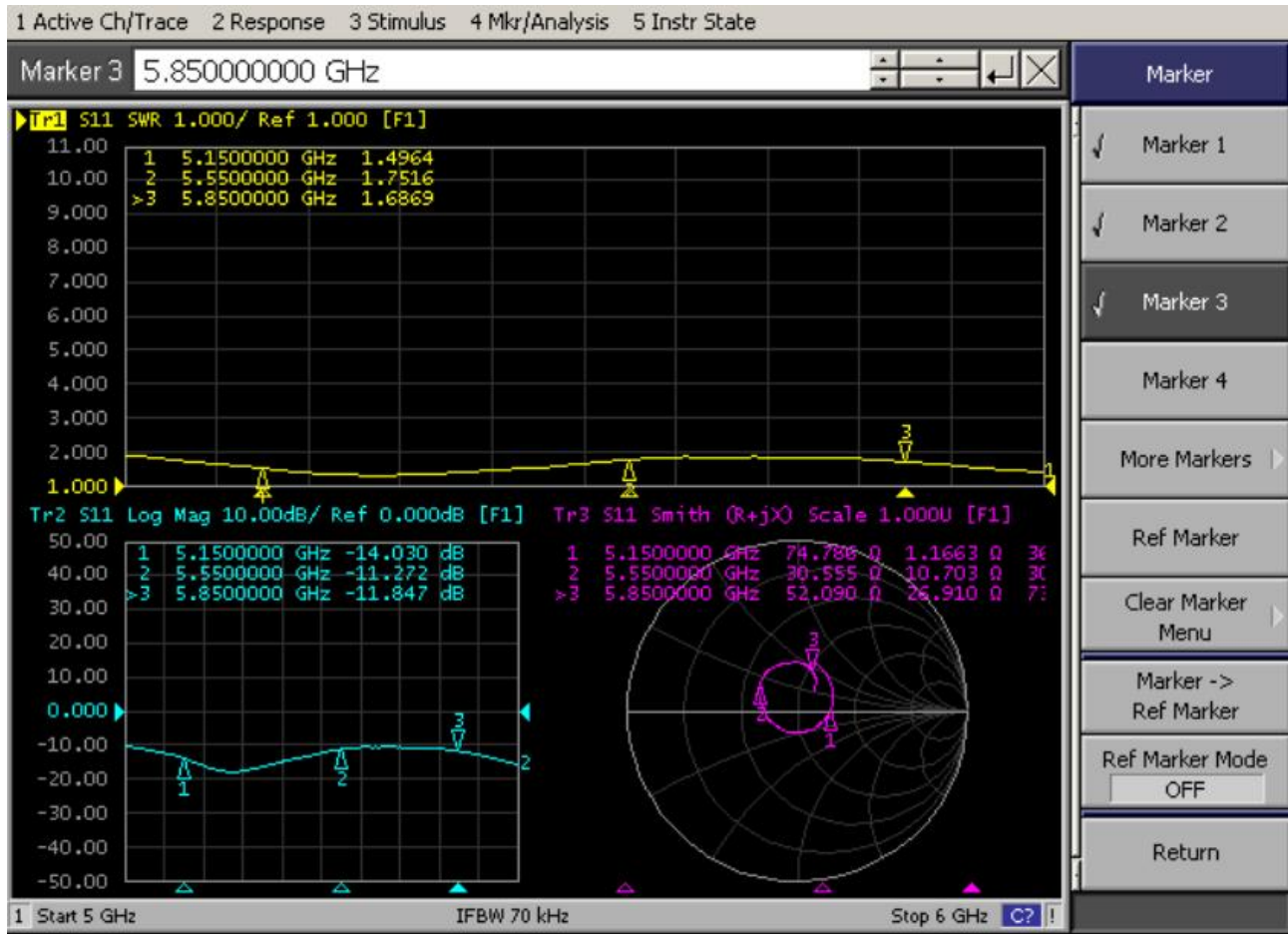
V.S.W.R

Freq/GHz	2.4	2.45	2.5
VSWR	1.45	1.50	1.55



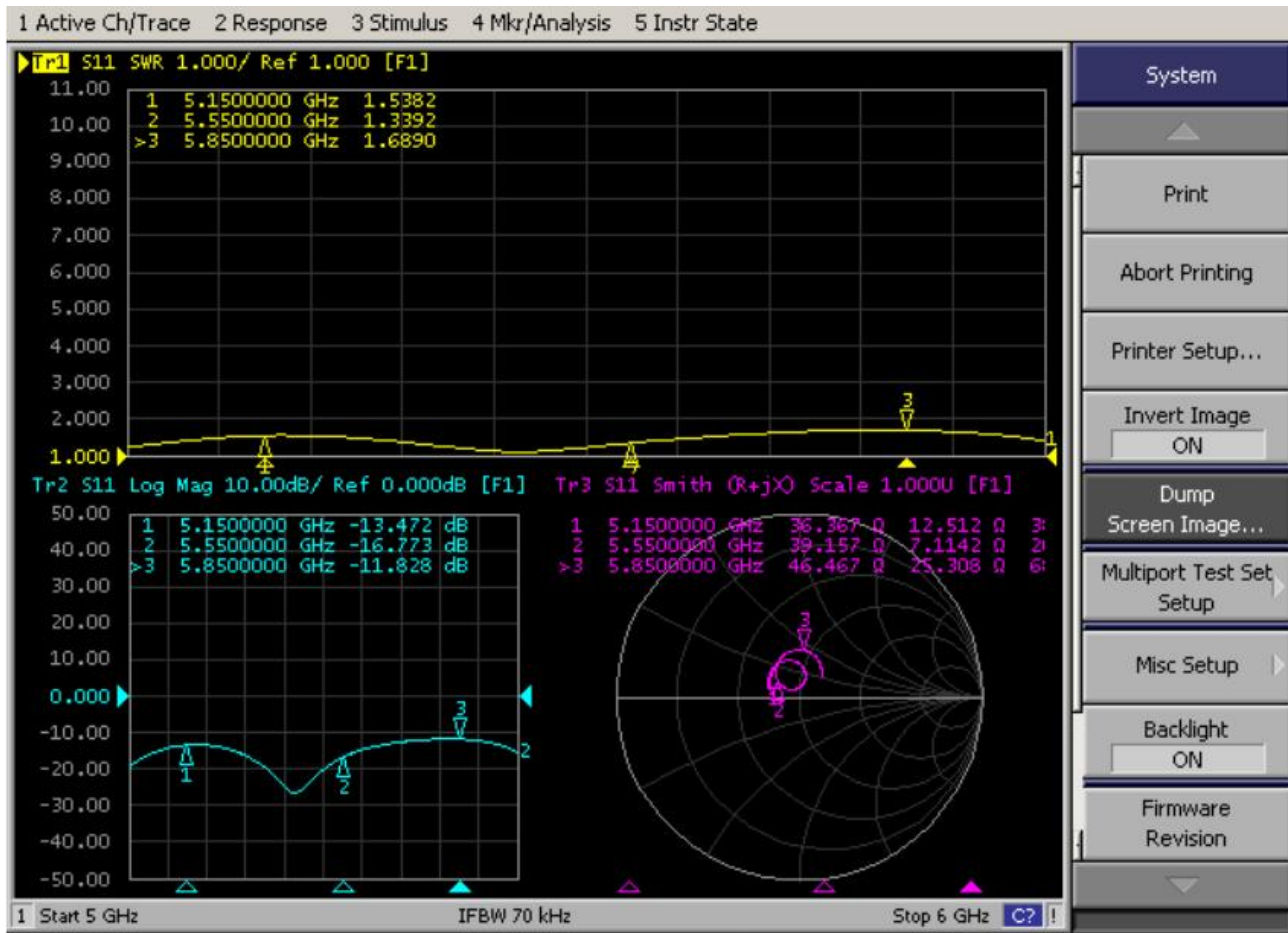
V.S.W.R

Freq/GHz	5.15	5.72	5.85
VSWR	1.25	1.34	1.21



V.S.W.R

Freq/GHz	5.15	5.72	5.85
VSWR	1.49	1.75	1.68



V.S.W.R

Freq/GHz	5.15	5.72	5.85
VSWR	1.53	1.33	1.68

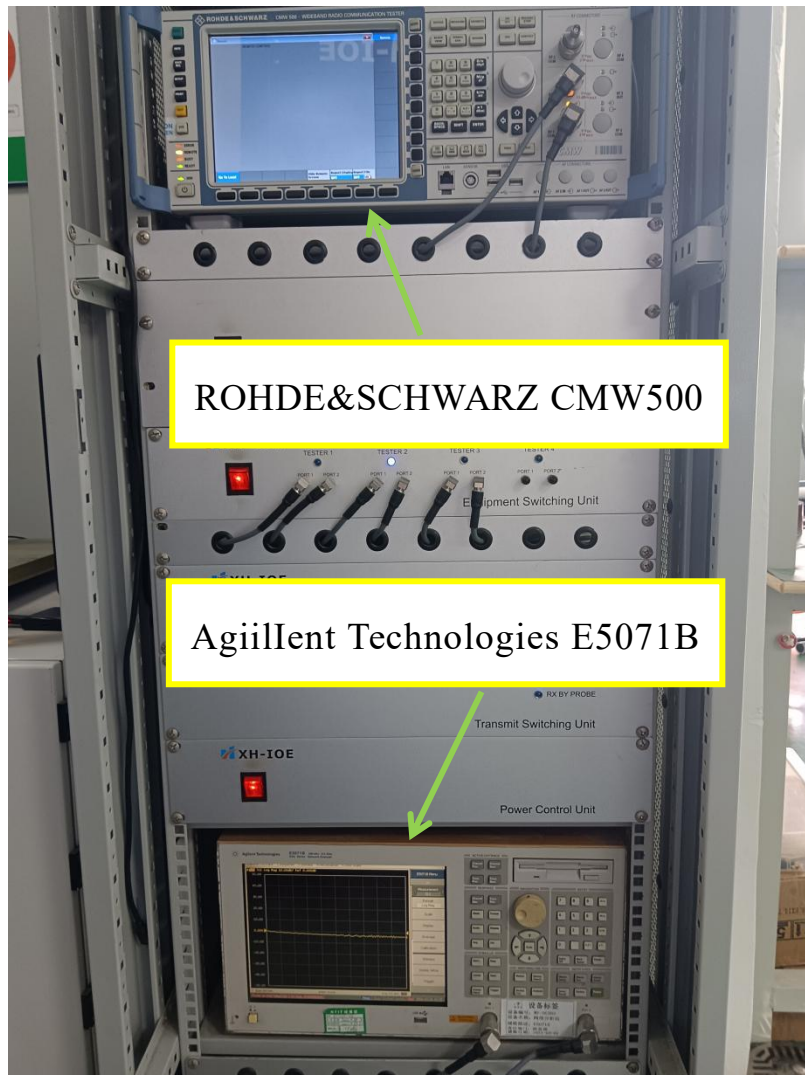
3.1.2 Gain & Efficiency

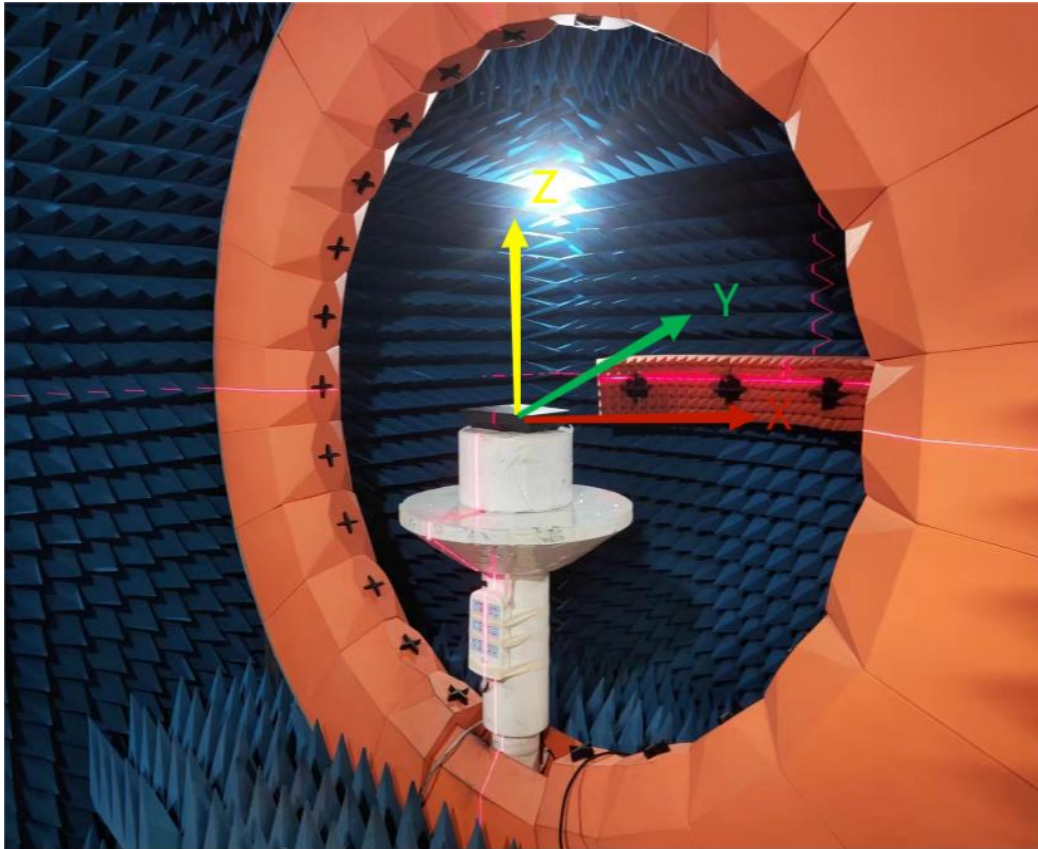
Test tools: Microwave Anechoic Chamber+Agiilent Technologies E5071B

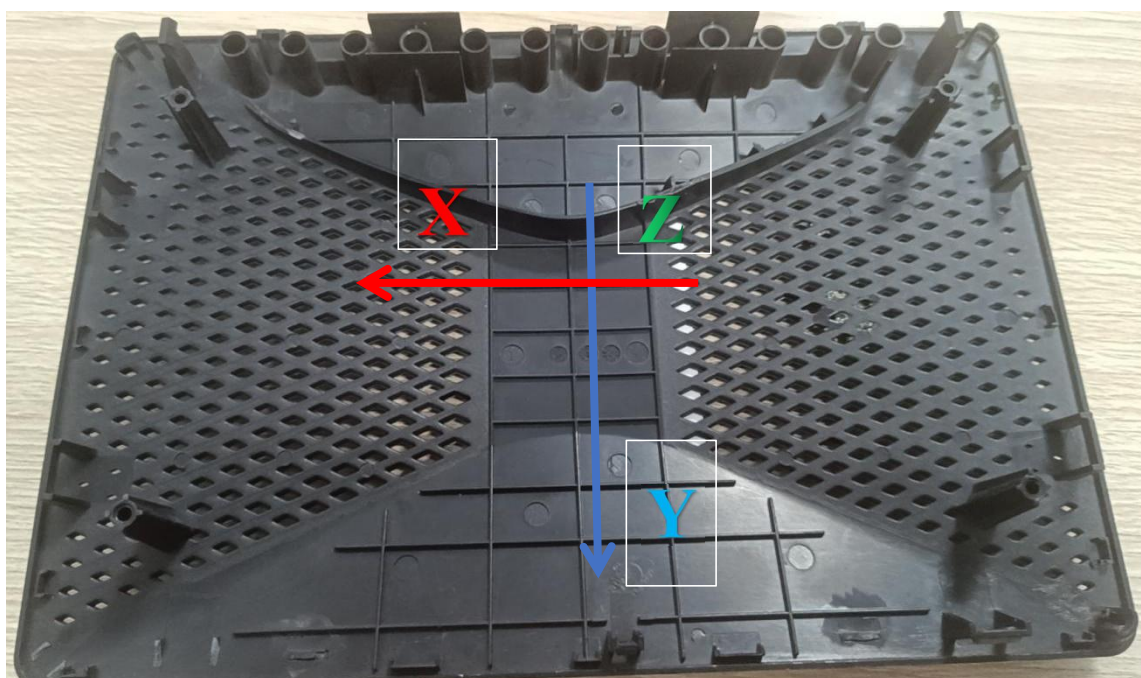
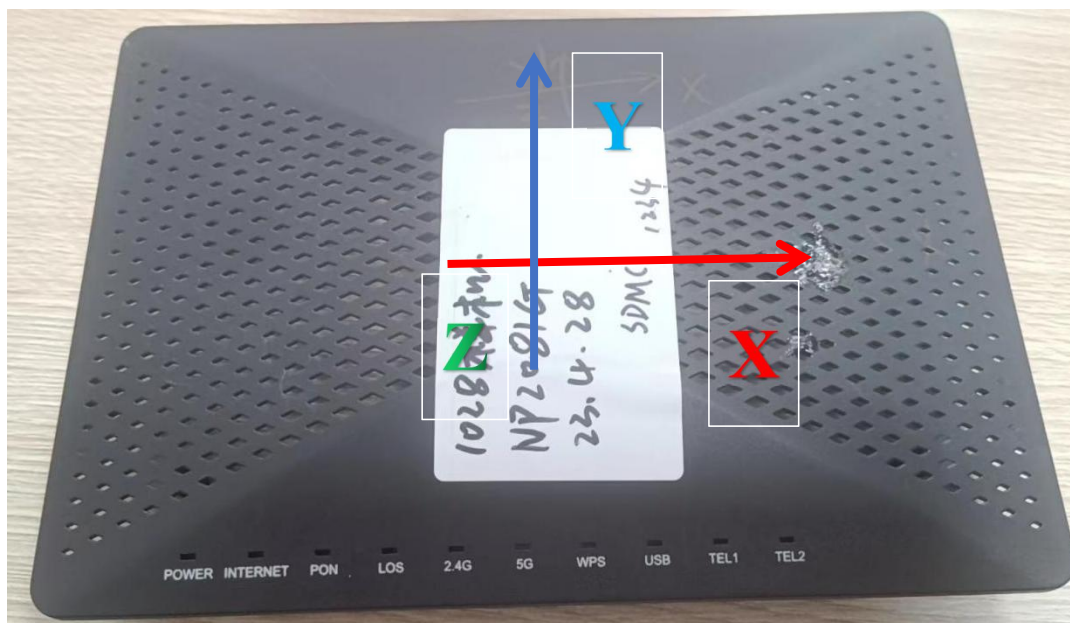
Standard: 2.4G $1.5\text{dBi} \leq \text{Gain} \leq 6\text{dBi}$ Efficiency $\geq 55\%$

5G $1.7\text{dBi} \leq \text{Gain} \leq 6\text{dBi}$ Efficiency $\geq 60\%$

Testing Environment: As shown in the figure





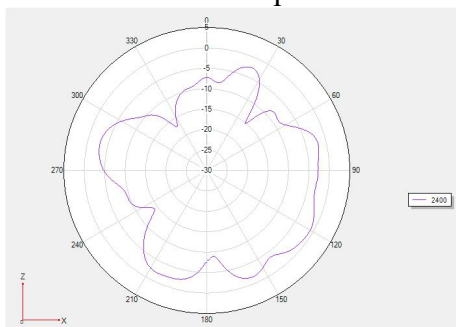


Antenna test data

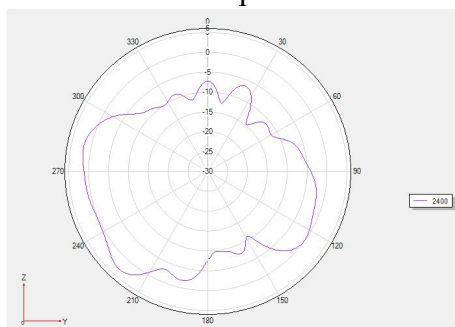
2.4GANT00129-1A		
2.4G		
Frequency / MHz	Gain/ dBi	Efficiency / %
2400	3.37	55.65
2410	3.79	57.93
2420	3.75	56.22
2430	3.7	57.41
2440	3.75	56.81
2450	3.67	57.24
2460	3.39	56.14
2470	4.82	61.26
2480	3.88	55.89
2490	3.52	58.46
2500	3.92	53.42

2.4GShort line 天线方向图-2.4G(Antenna direction diagram - 2.4G)

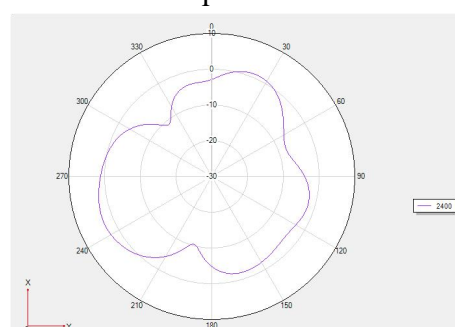
Phi =0 freq=2400MHz



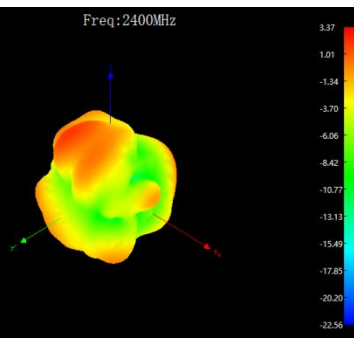
Phi =90 freq=2400MHz



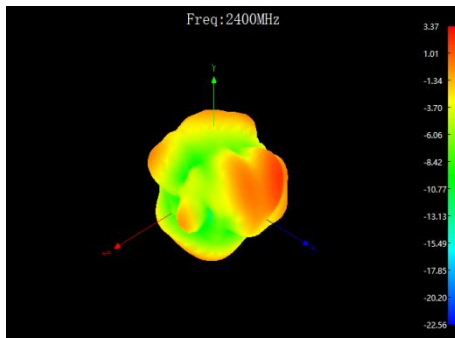
Theta =90 freq=2400MHz



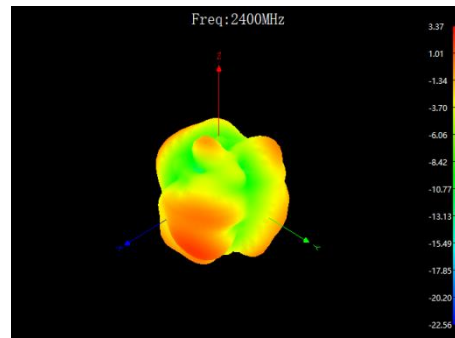
Freq:2400MHz



Freq:2400MHz

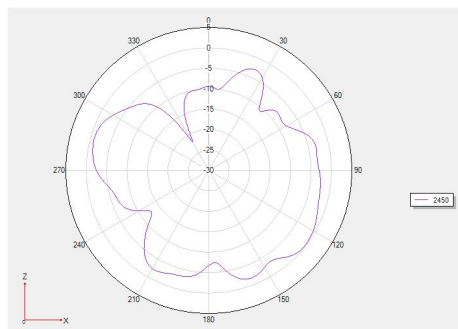


Freq:2400MHz

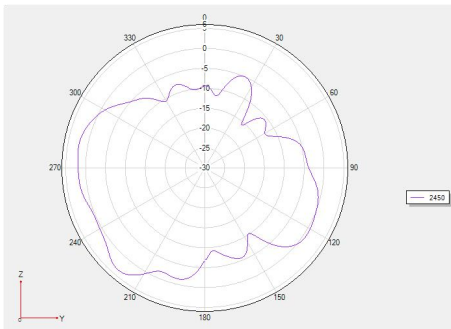




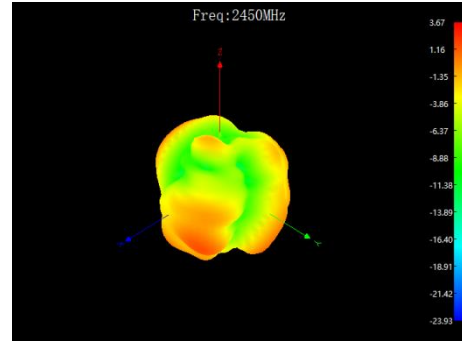
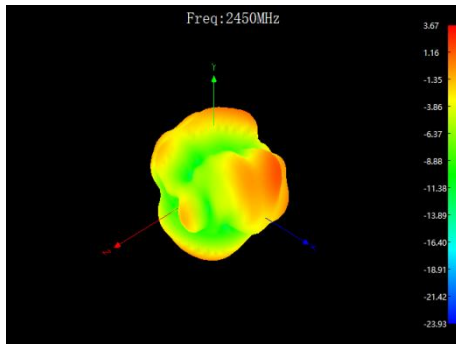
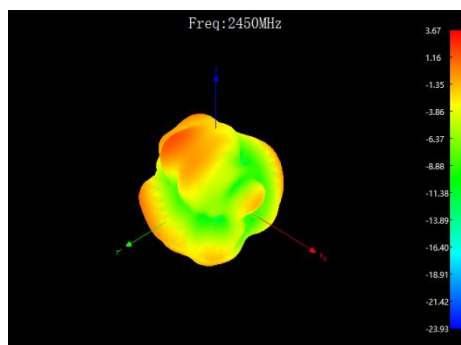
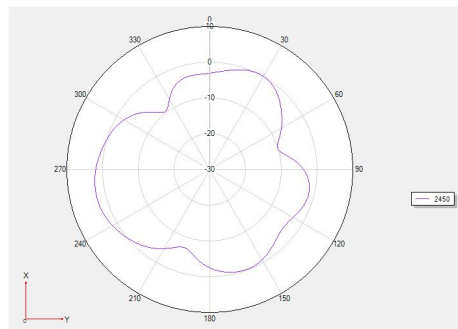
Phi =0 freq=2450MHz



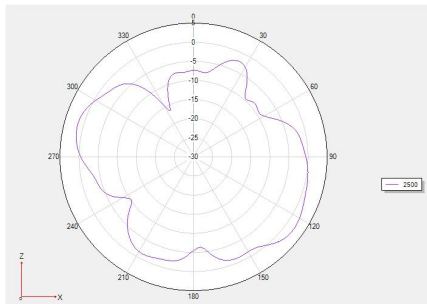
Phi =90 freq=2450MHz



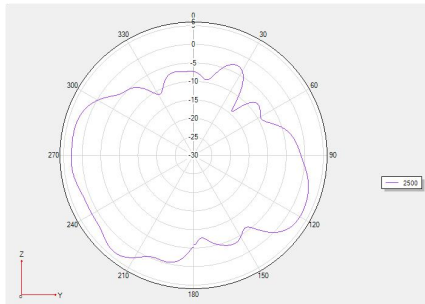
Theta =90 freq=2450MHz



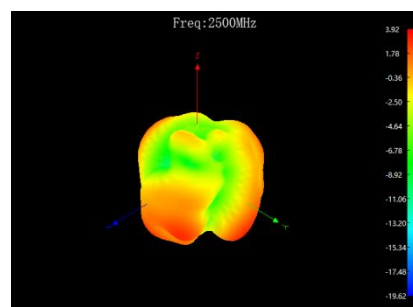
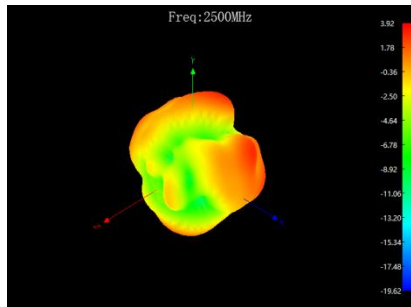
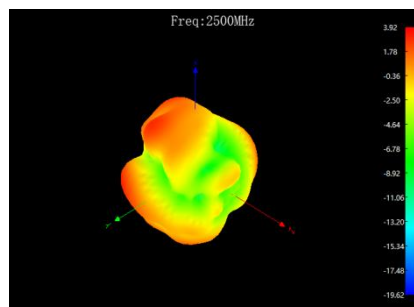
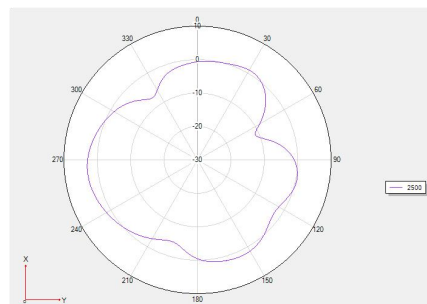
Phi =0 freq=2500MHz



Phi =90 freq=2500MHz



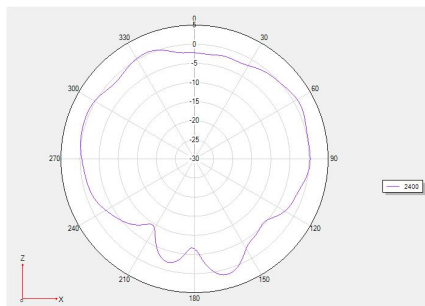
Theta =90 freq=2500MHz



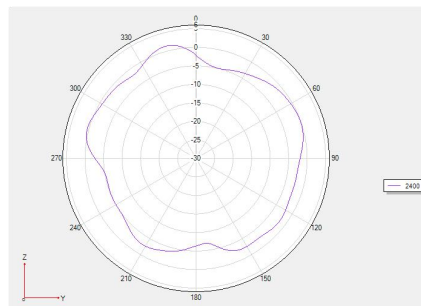
2.4GANT00130-2A		
2.4G		
Frequency / MHz	Gain/ dBi	Efficiency / %
2400	3.23	50.18
2410	3.52	52.17
2420	4.12	63.28
2430	3.49	56.56
2440	3.69	57.58
2450	3.25	55.16
2460	3.61	57.4
2470	3.36	54.43
2480	3.45	53.19
2490	3.36	52.96
2500	3.9	62.11

2.4G Long line 天线方向图-2.4G(Antenna direction diagram - 2.4G)

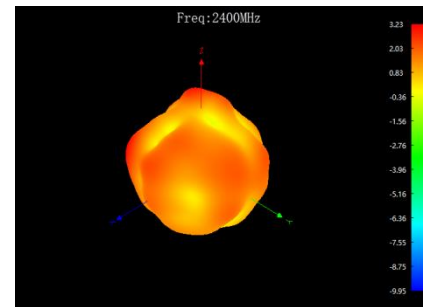
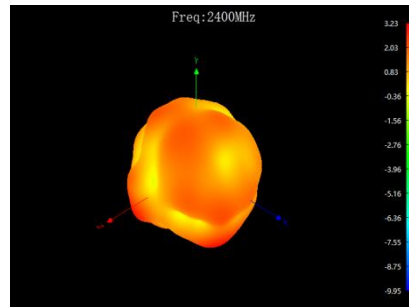
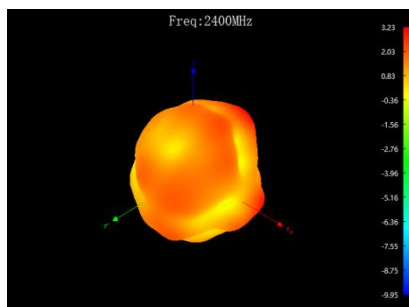
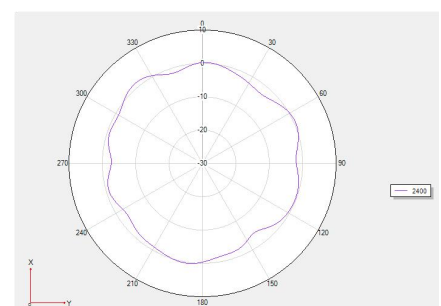
Phi =0 freq=2400MHz



Phi =90 freq=2400MHz

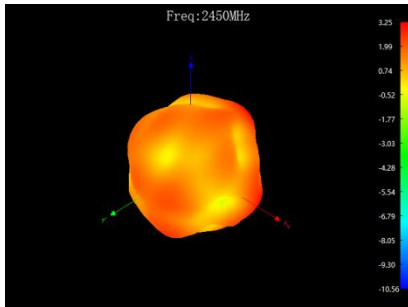
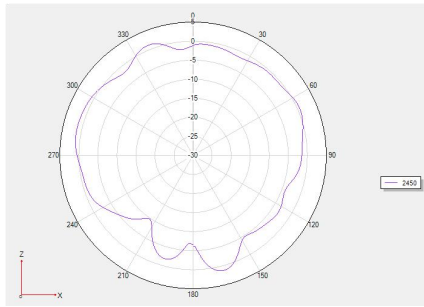


Theta =90 freq=2400MHz

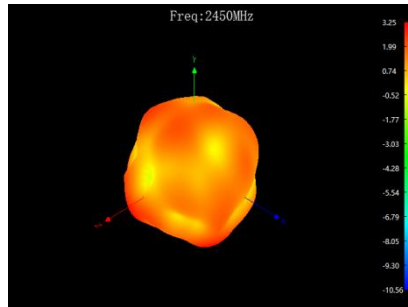
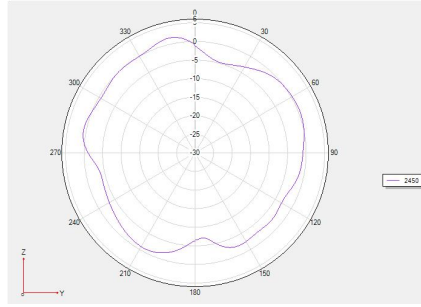




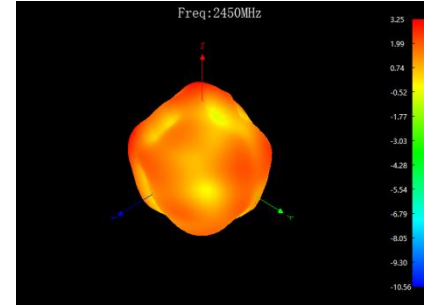
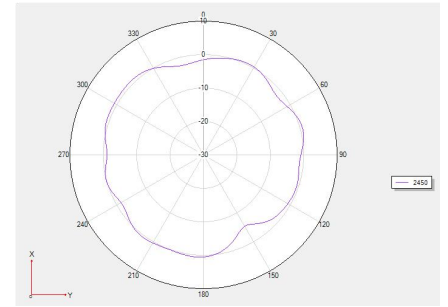
Phi =0 freq=2450MHz



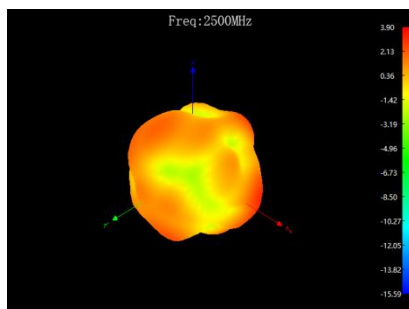
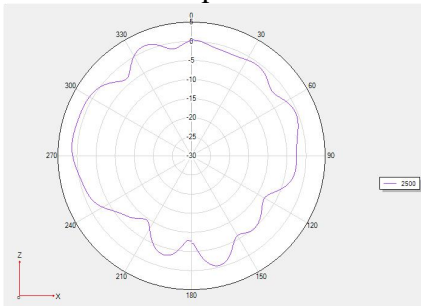
Phi =90 freq=2450MHz



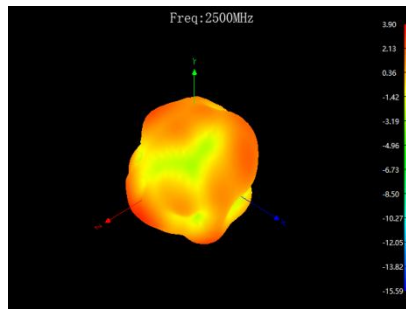
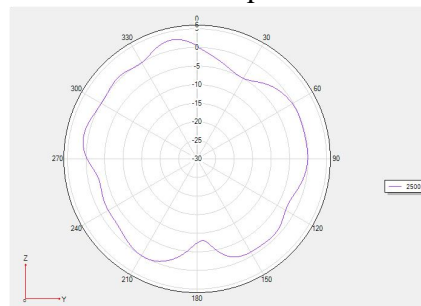
Theta =90 freq=2450MHz



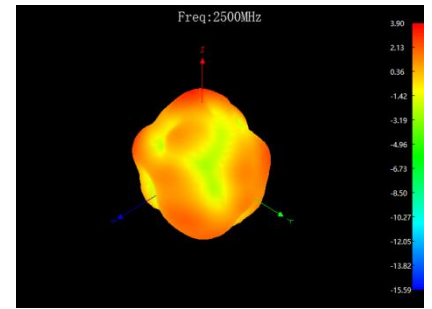
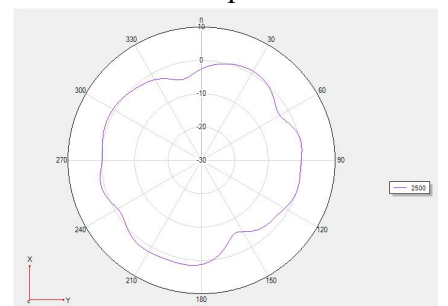
Phi =0 freq=2500MHz



Phi =90 freq=2500MHz



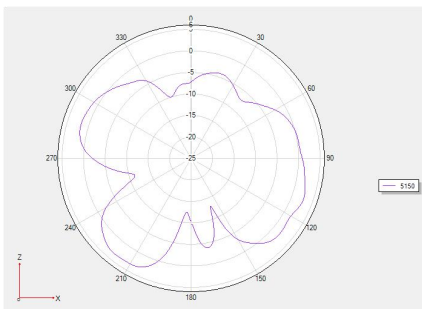
Theta =90 freq=2500MHz



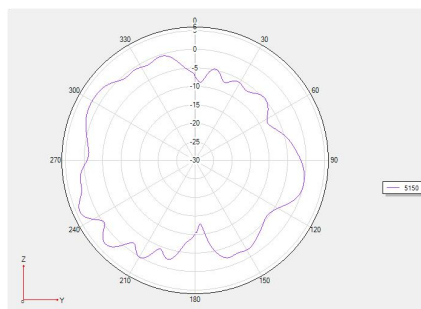
5.8GANT00131-3A		
5.8G		
Frequency / MHz	Gain/ dBi	Efficiency / %
5150	4.78	52.24
5250	5.08	53.7
5350	4.64	53.46
5450	4.92	61.61
5550	4.34	54.66
5650	4.56	58.34
5750	4.41	56.49
5850	4.69	56.62

5.8GShort line 天线方向图-5.8G(Antenna direction diagram -5.8G)

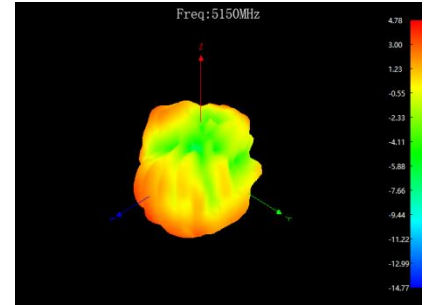
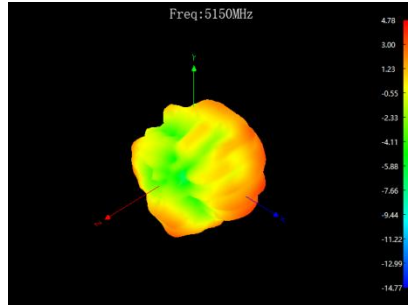
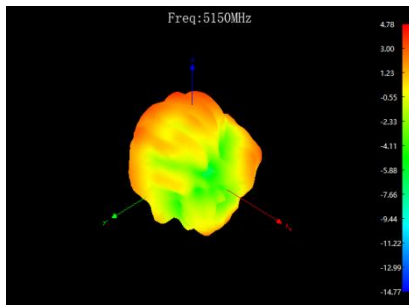
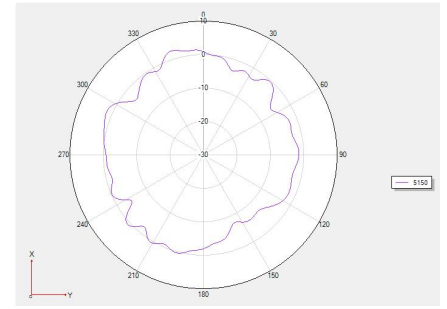
Phi =0 freq=5150MHz



Phi =90 freq=5150MHz

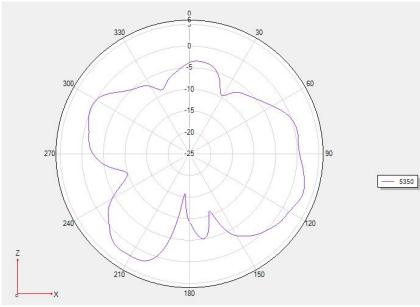


Theta =90 freq=5150MHz

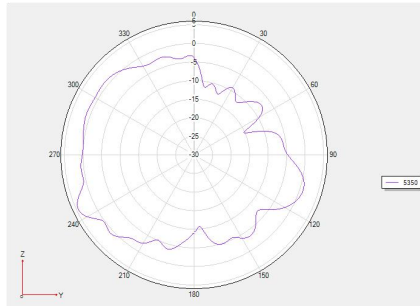




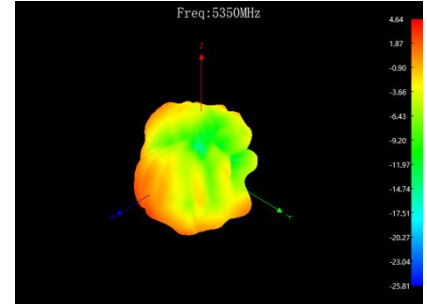
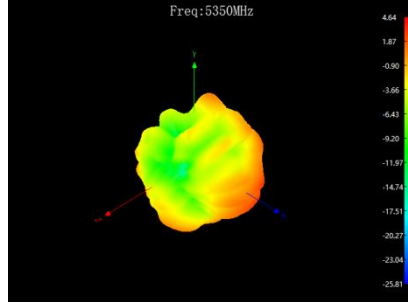
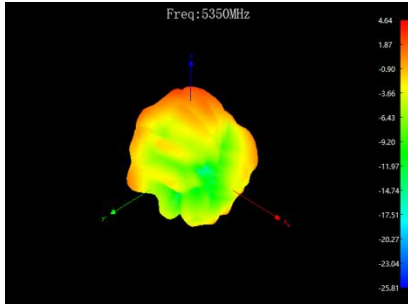
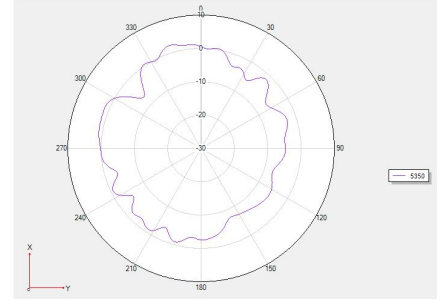
Phi =0 freq=5350MHz



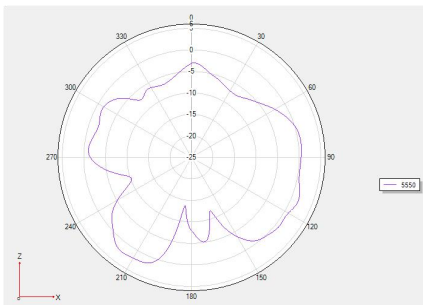
Phi =90 freq=5350MHz



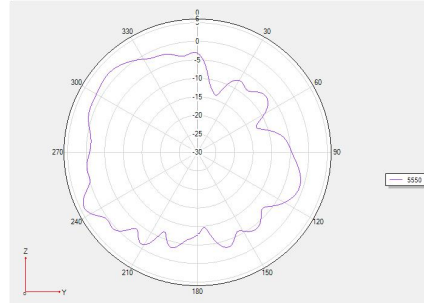
Theta =90 freq=5350MHz



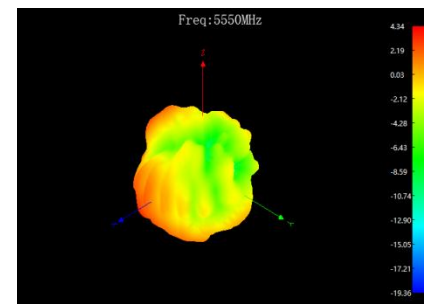
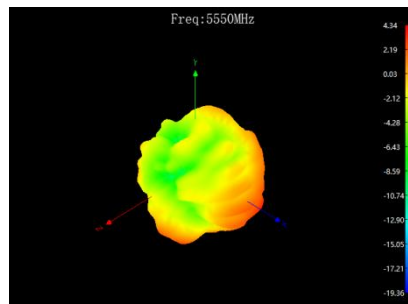
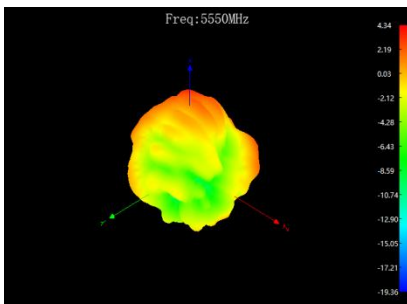
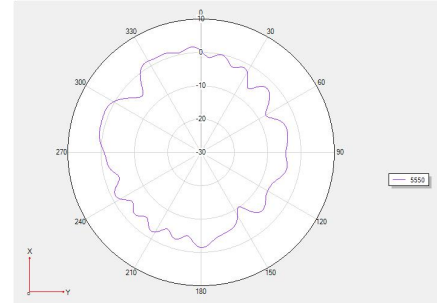
Phi =0 freq=5550MHz



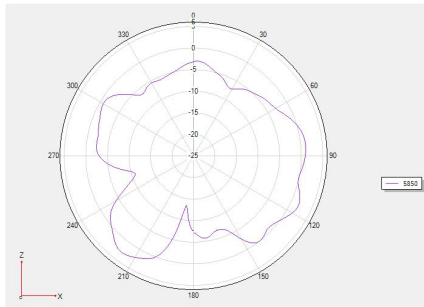
Phi =90 freq=5550MHz



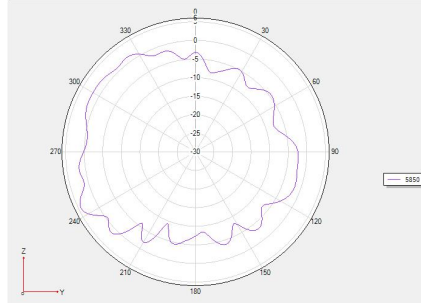
Theta =90 freq=5550MHz



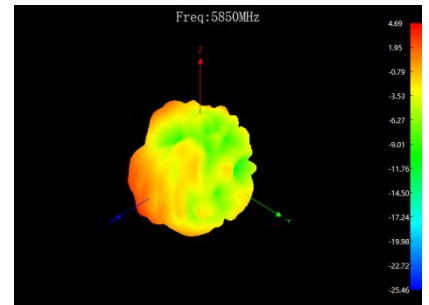
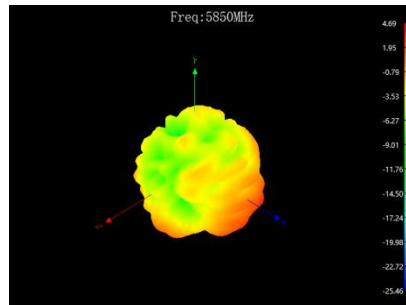
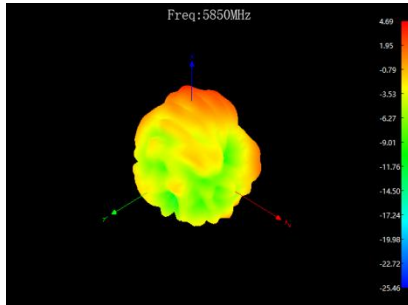
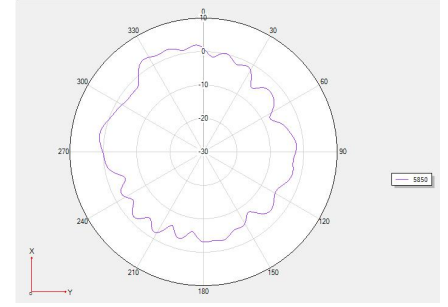
Phi =0 freq=5850MHz



Phi =90 freq=5850MHz



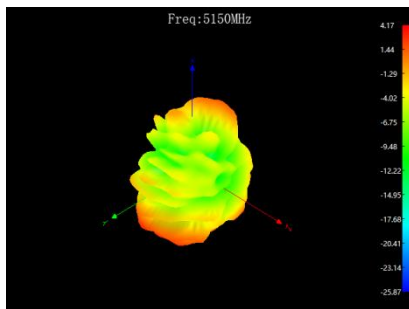
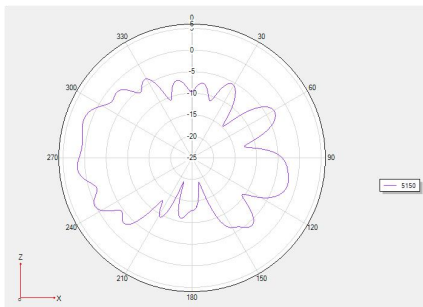
Theta =90 freq=5850MHz



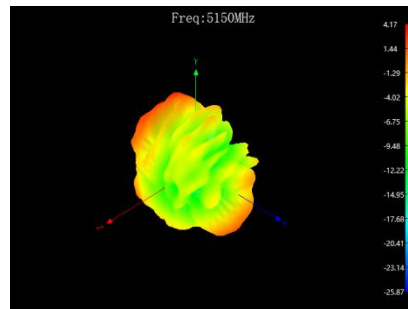
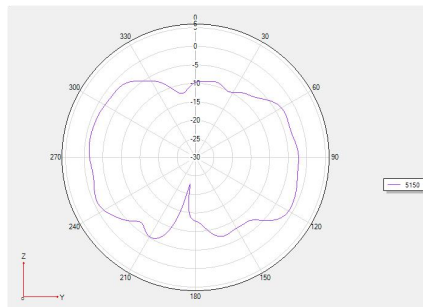
5.8GANT00132-4A		
5.8G		
Frequency / MHz	Gain/ dBi	Efficiency / %
5150	4.17	53.3
5250	5.15	60.71
5350	4.79	58.88
5450	4.01	51.59
5550	4.08	52.87
5650	4.21	55.17
5750	4.5	57.02
5850	4.47	56.09

5.8G Long line 天线方向图-5.8G(Antenna direction diagram -5.8G)

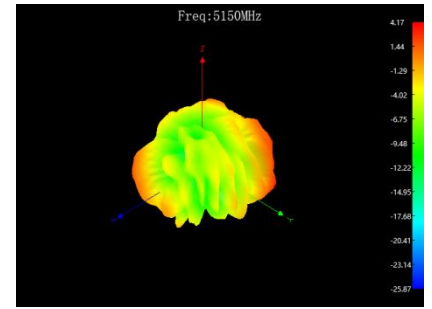
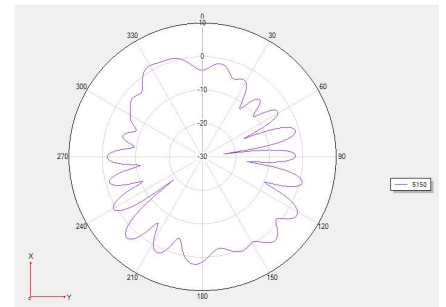
Phi =0 freq=5150MHz



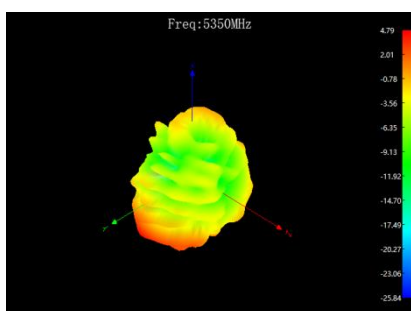
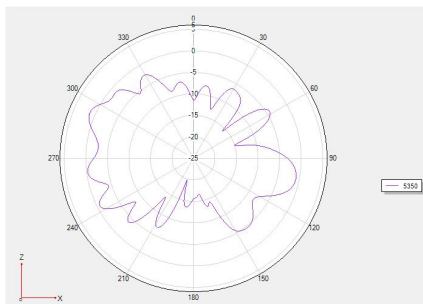
Phi =90 freq=5150MHz



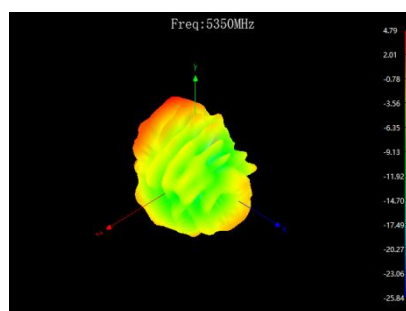
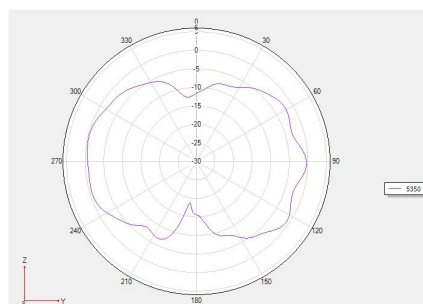
Theta =90 freq=5150MHz



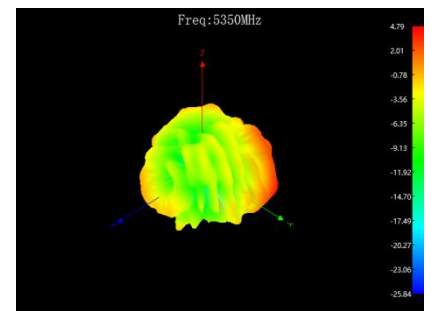
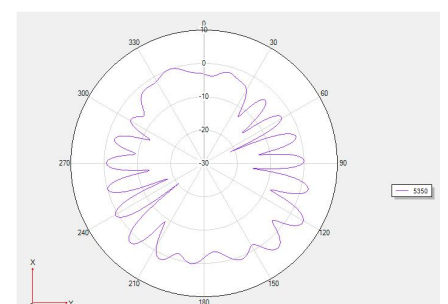
Phi =0 freq=5350MHz



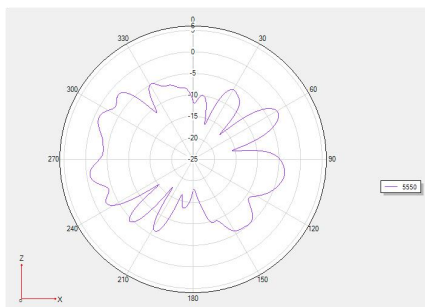
Phi =90 freq=5350MHz



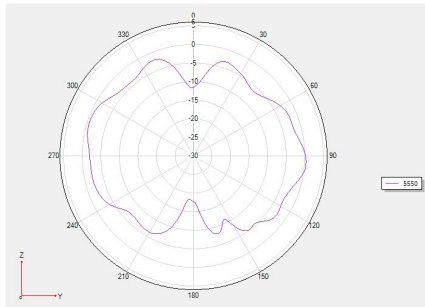
Theta =90 freq=5350MHz



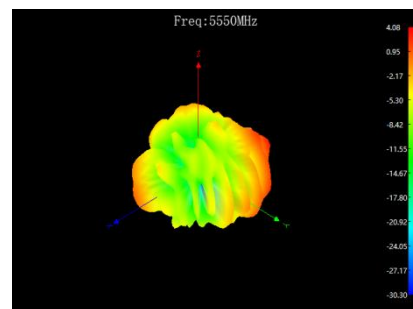
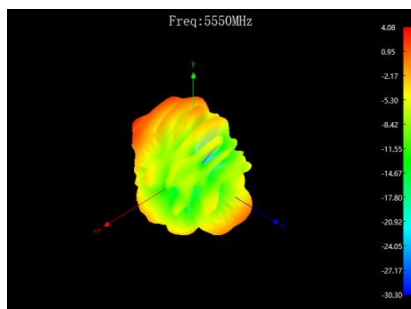
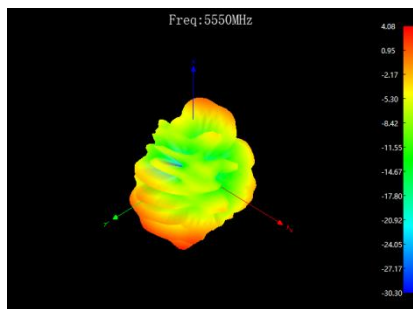
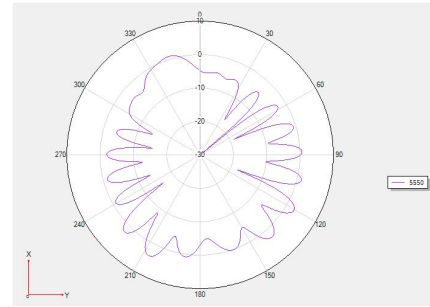
Phi =0 freq=5550MHz



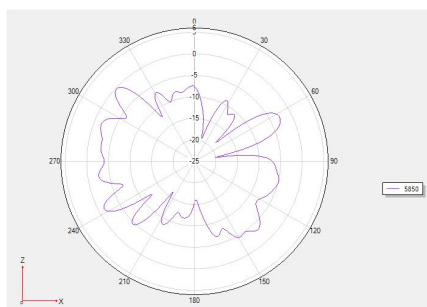
Phi =90 freq=5550MHz



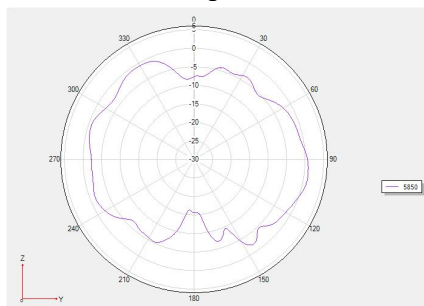
Theta =90 freq=5550MHz



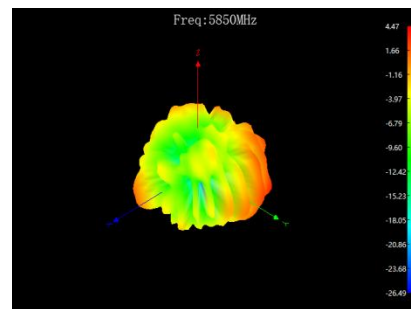
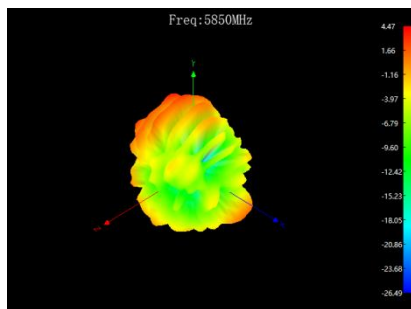
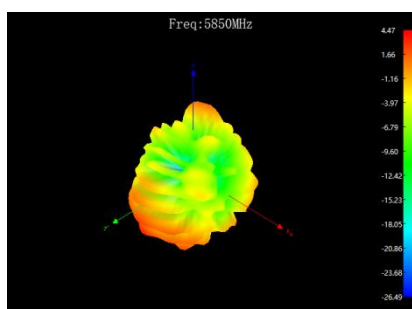
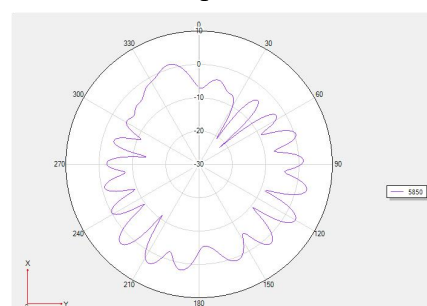
Phi =0 freq=5850MHz



Phi =90 freq=5850MHz



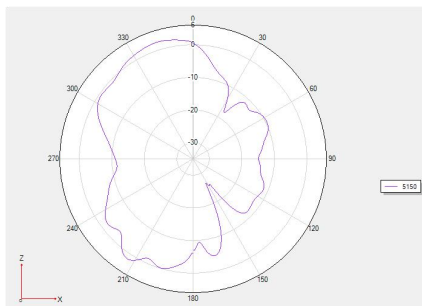
Theta =90 freq=5850MHz



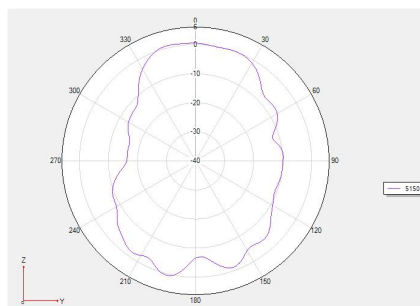
5.8GANT00133-5A		
5.8G		
Frequency / MHz	Gain/ dBi	Efficiency / %
5150	4.3	57.42
5250	4.69	60.13
5350	4.76	53.25
5450	3.67	59.66
5550	4.49	54.83
5650	3.87	58.42
5750	3.53	56.67
5850	4.66	51.29

5.8GCenter line 天线方向图-5.8G(Antenna direction diagram -5.8G)

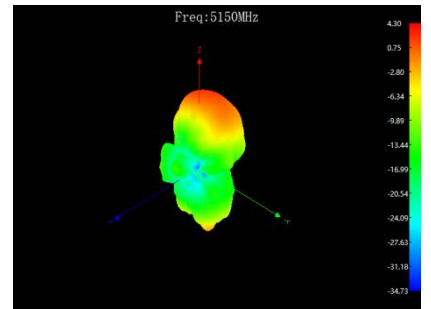
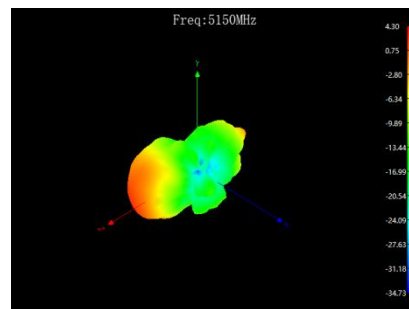
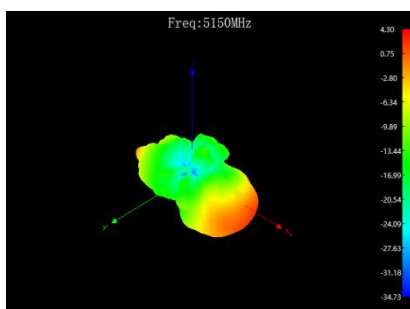
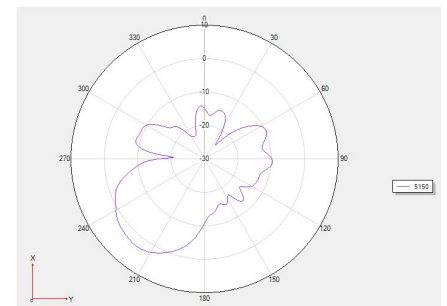
Phi =0 freq=5150MHz



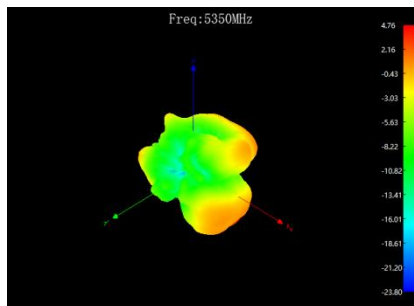
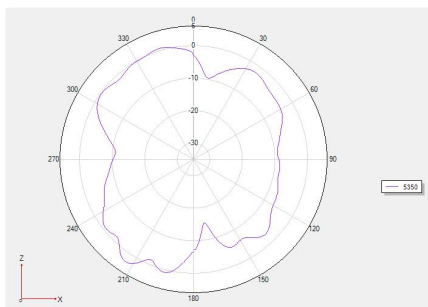
Phi =90 freq=5150MHz



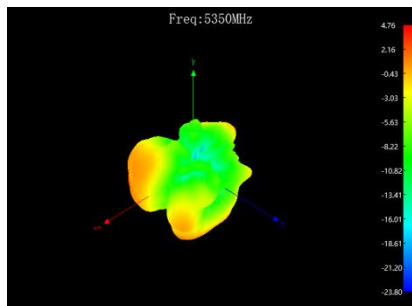
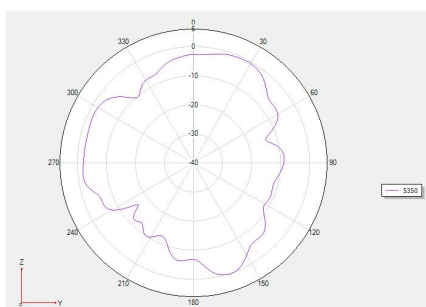
Theta =90 freq=5150MHz



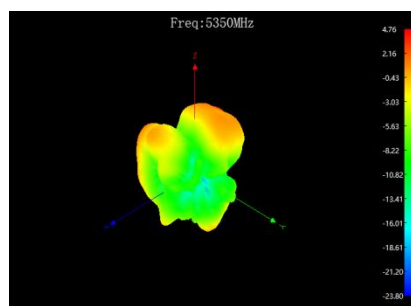
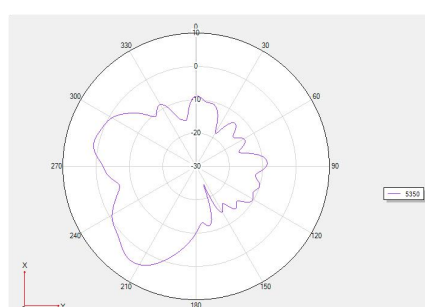
Phi =0 freq=5350MHz



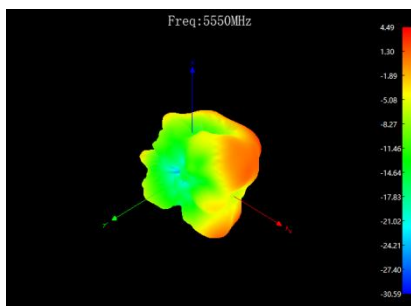
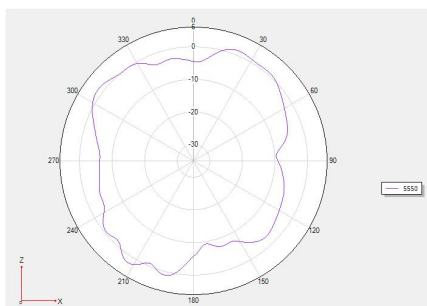
Phi =90 freq=5350MHz



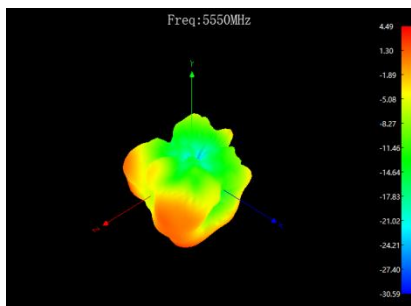
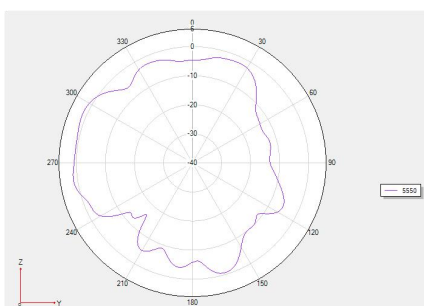
Theta =90 freq=5350MHz



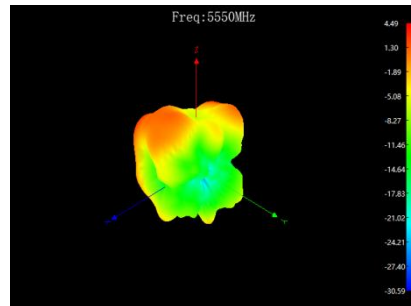
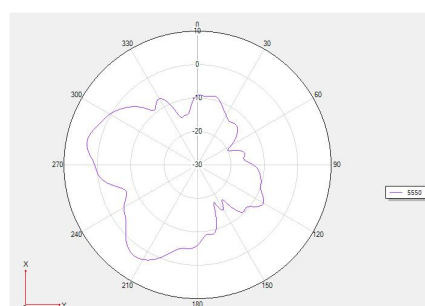
Phi =0 freq=5550MHz



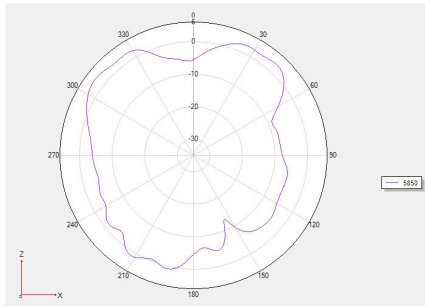
Phi =90 freq=5550MHz



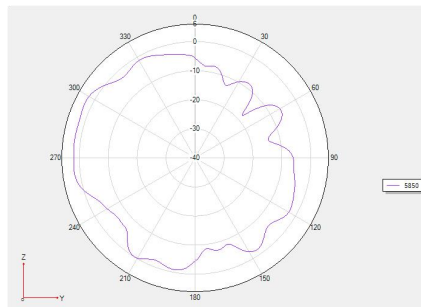
Theta =90 freq=5550MHz



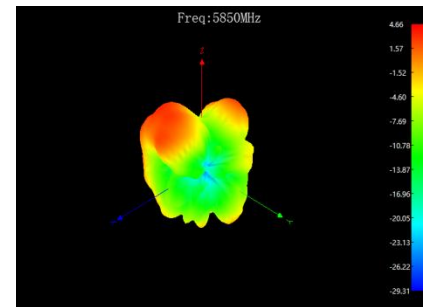
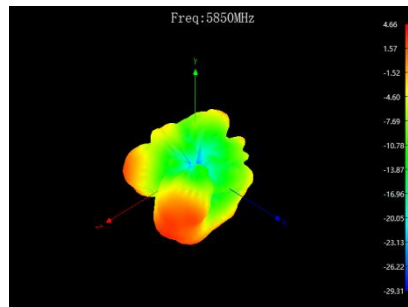
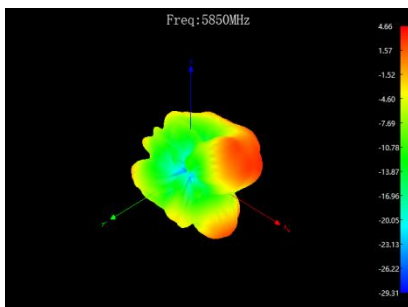
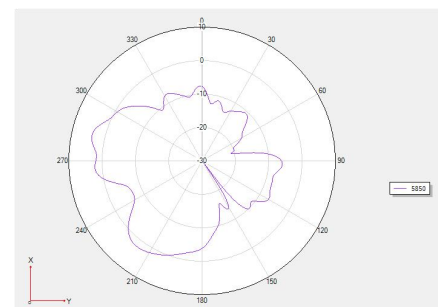
Phi =0 freq=5850MHz



Phi =90 freq=5850MHz



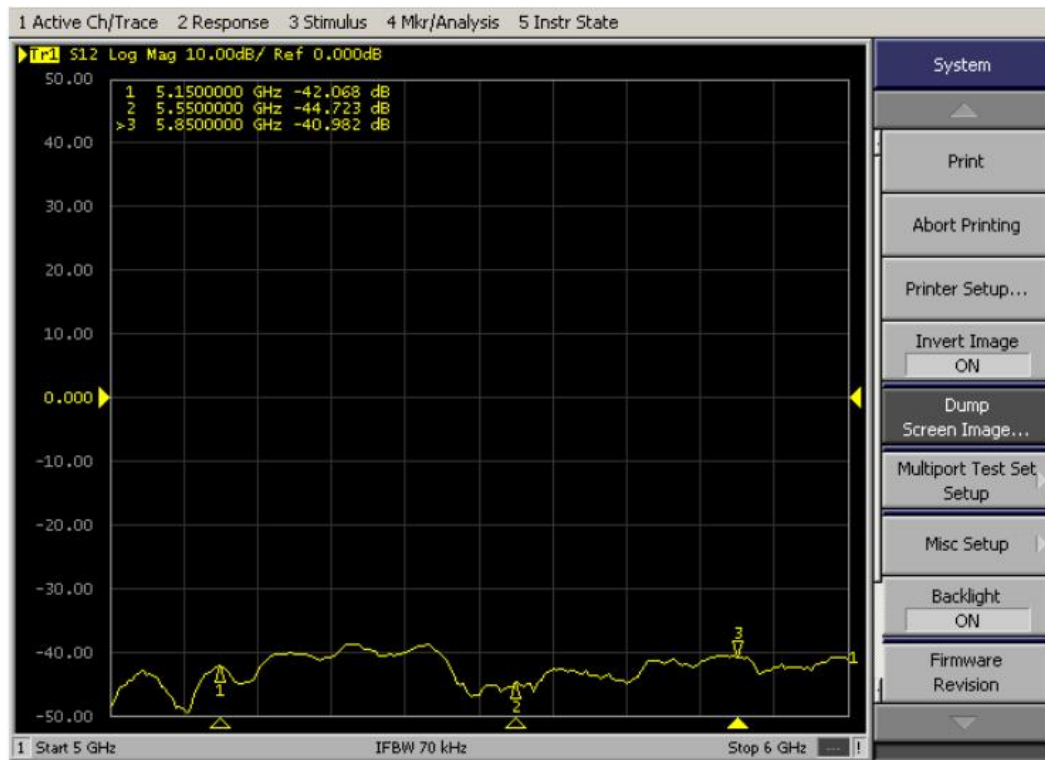
Theta =90 freq=5850MHz



3.1.3 Antenna isolation

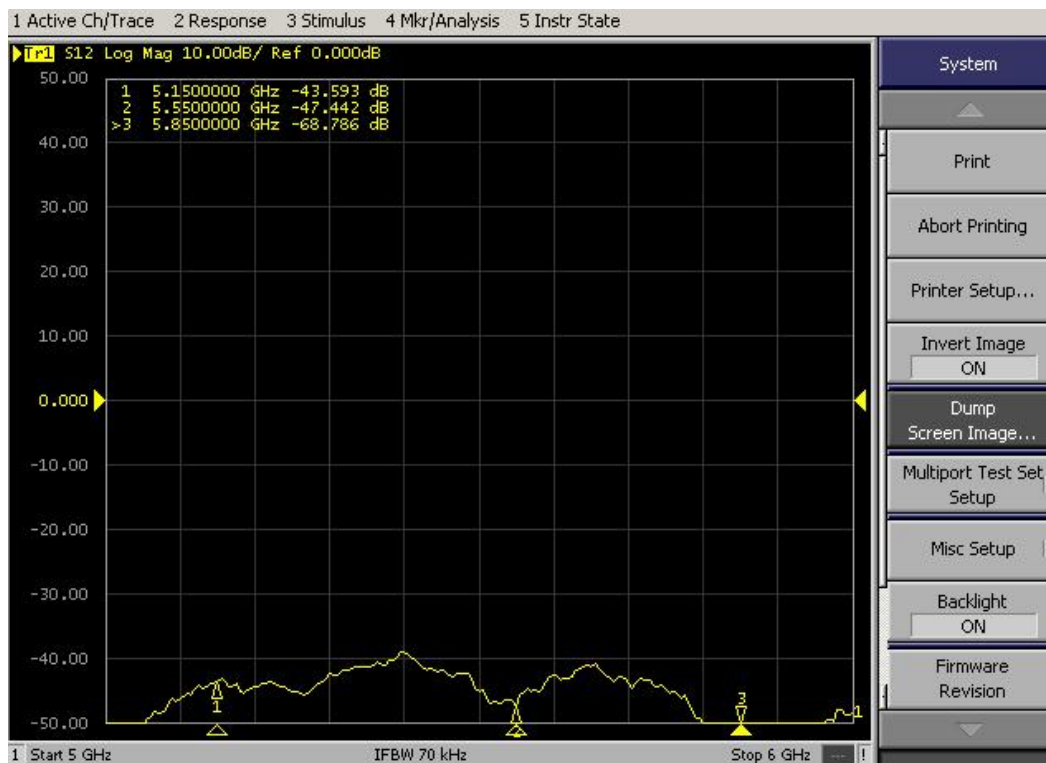
Test tools: network analyzer: (E5017B)

Standard: Isolation $\leq$ -20dB

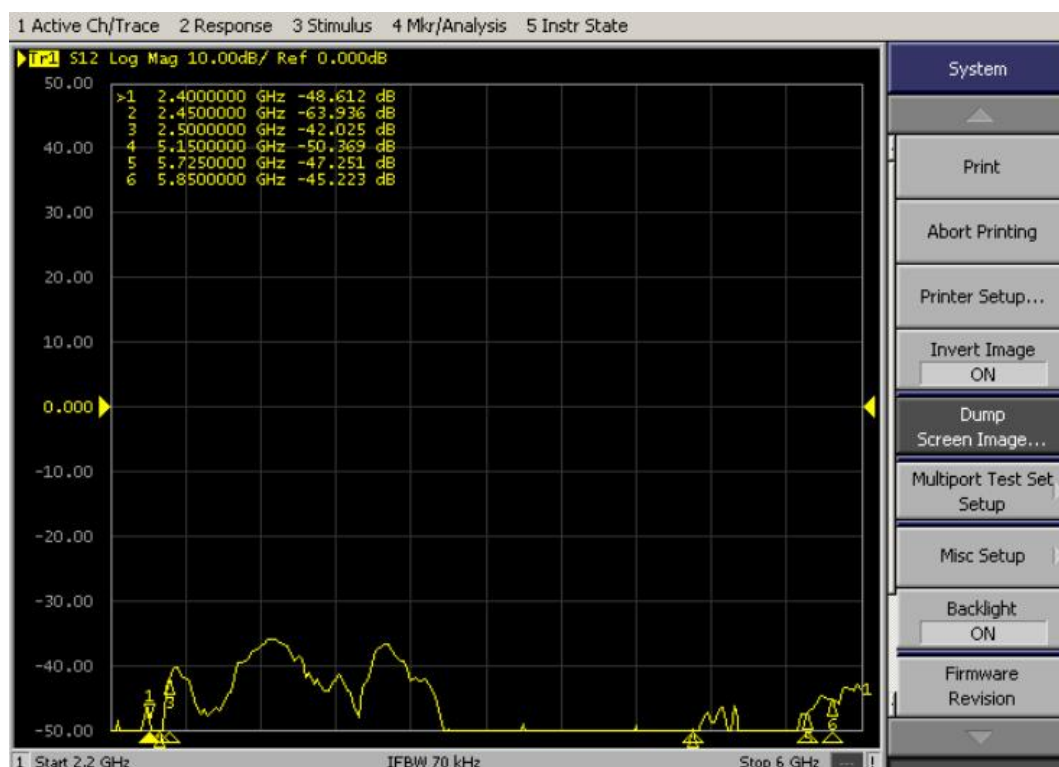


ANT00132-4A-ANT00131-3A 隔离度(isolation)

W



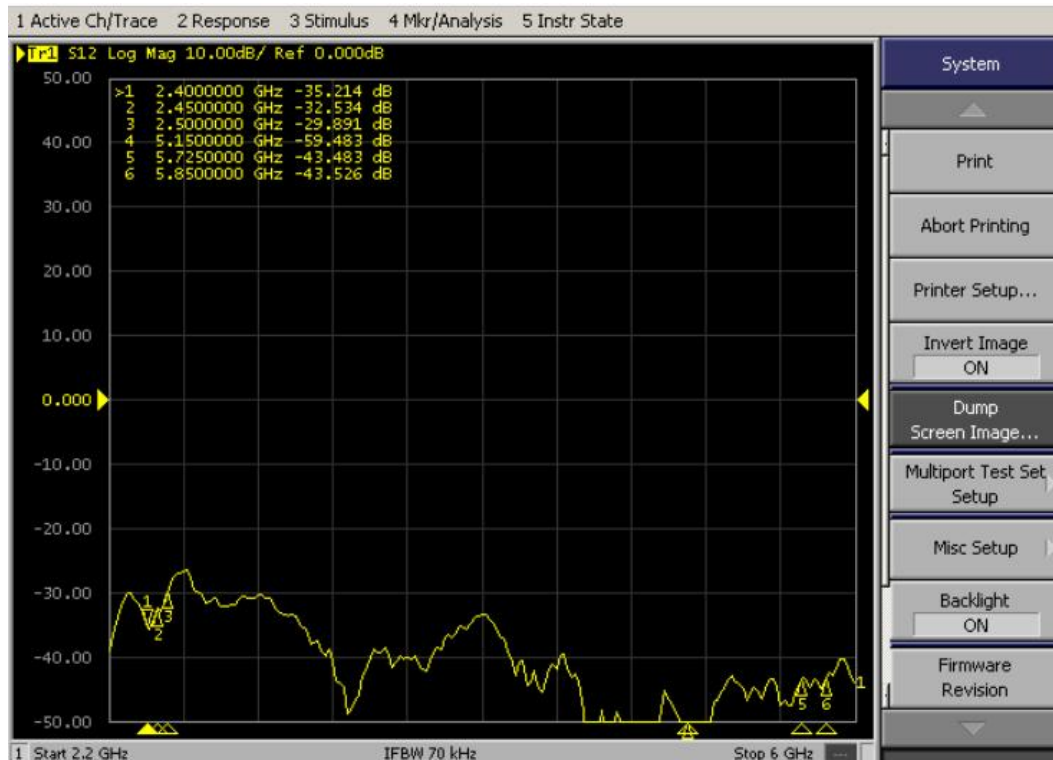
ANT00132-4A-ANT00133-5A 隔离度(isolation)



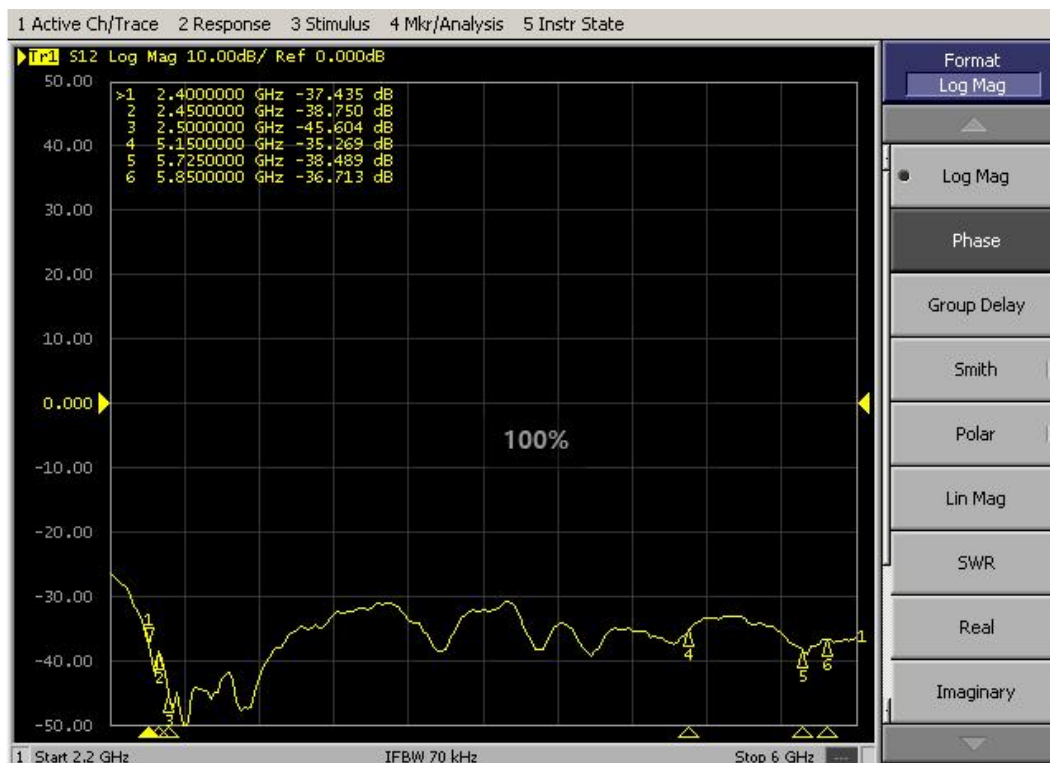
ANT00132-4A-ANT00130-2A 隔离度(isolation)



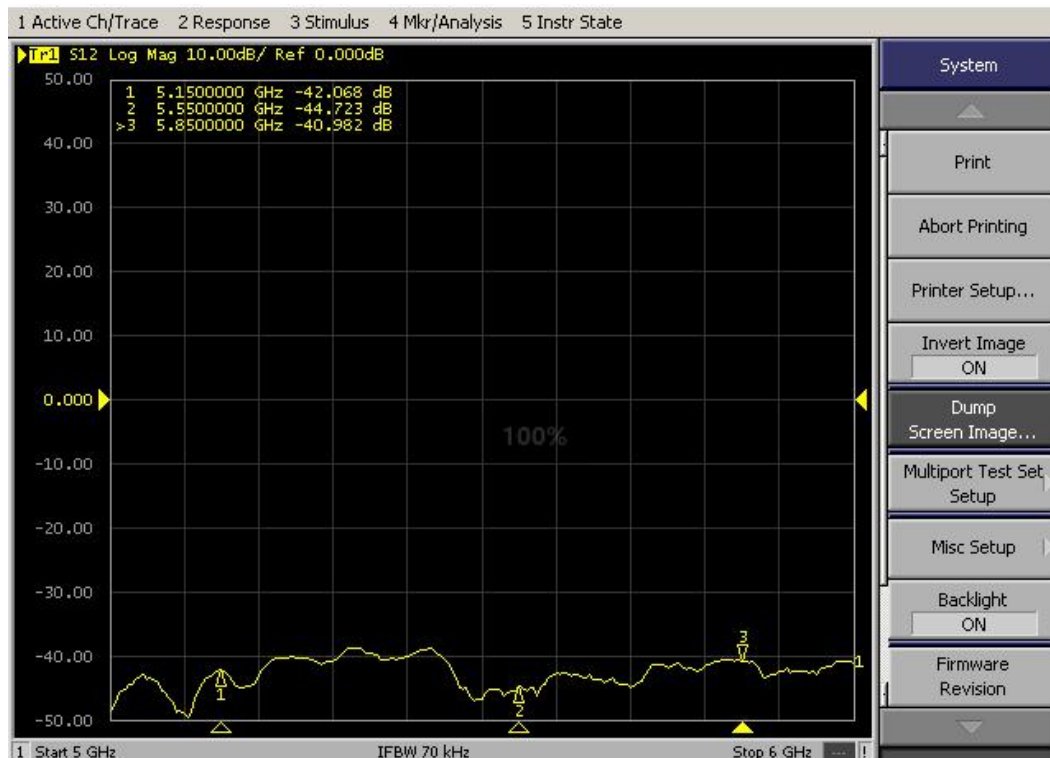
ANT00132-4A-ANT00129-1A 隔离度(isolation)



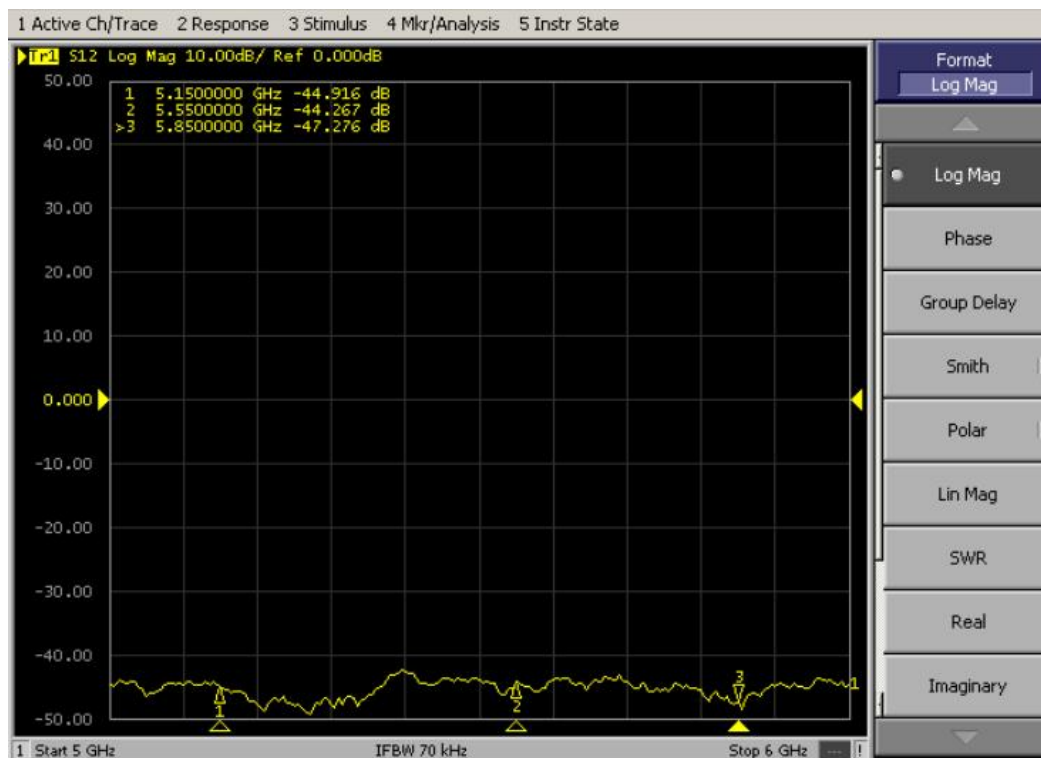
ANT00131-3A-ANT00130-2A 隔离度(isolation)



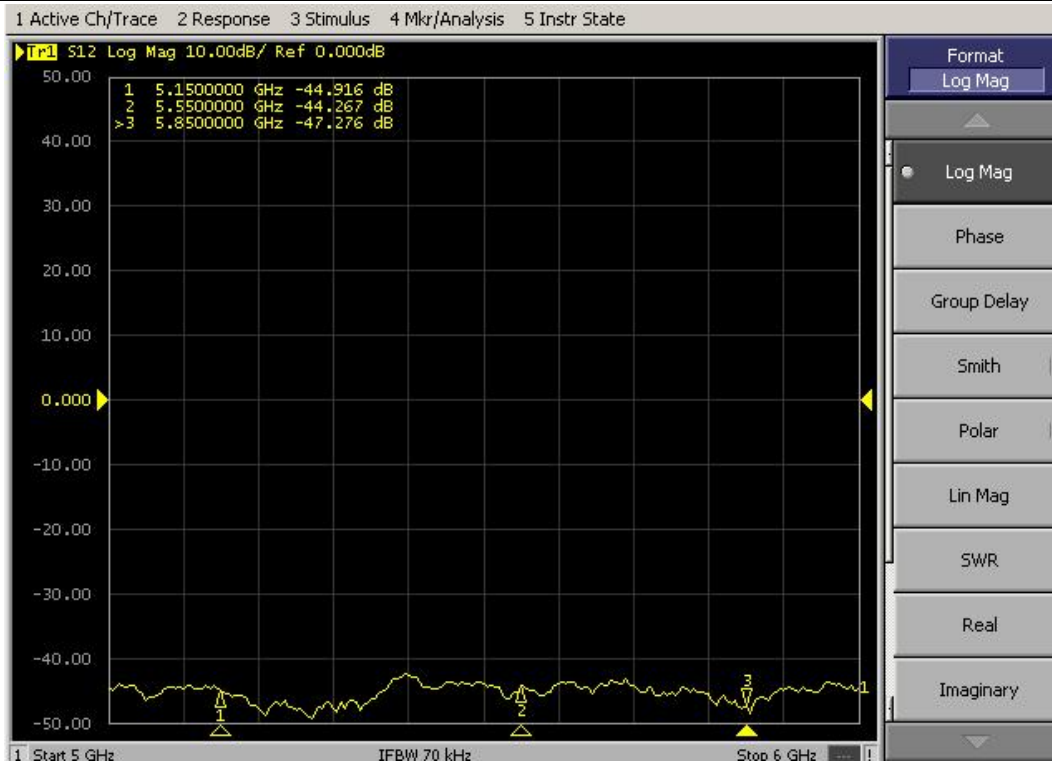
ANT00131-3A-ANT00129-1A 隔离度(isolation)



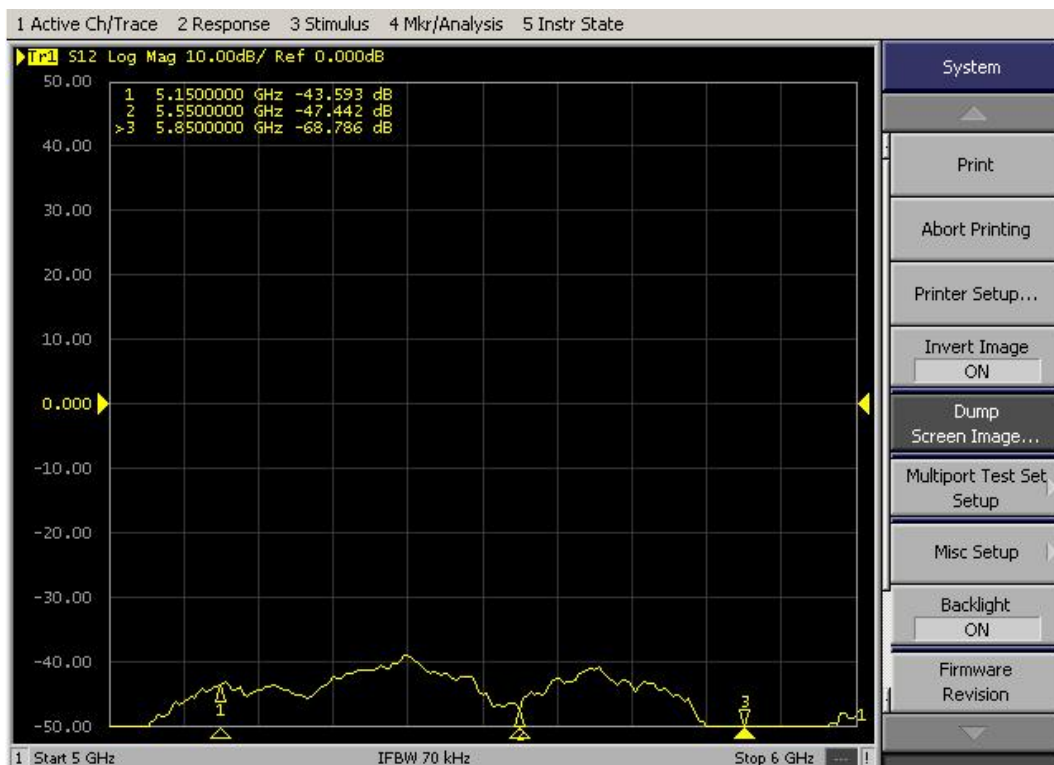
ANT00131-3A-ANT00132-4A 隔离度(isolation)



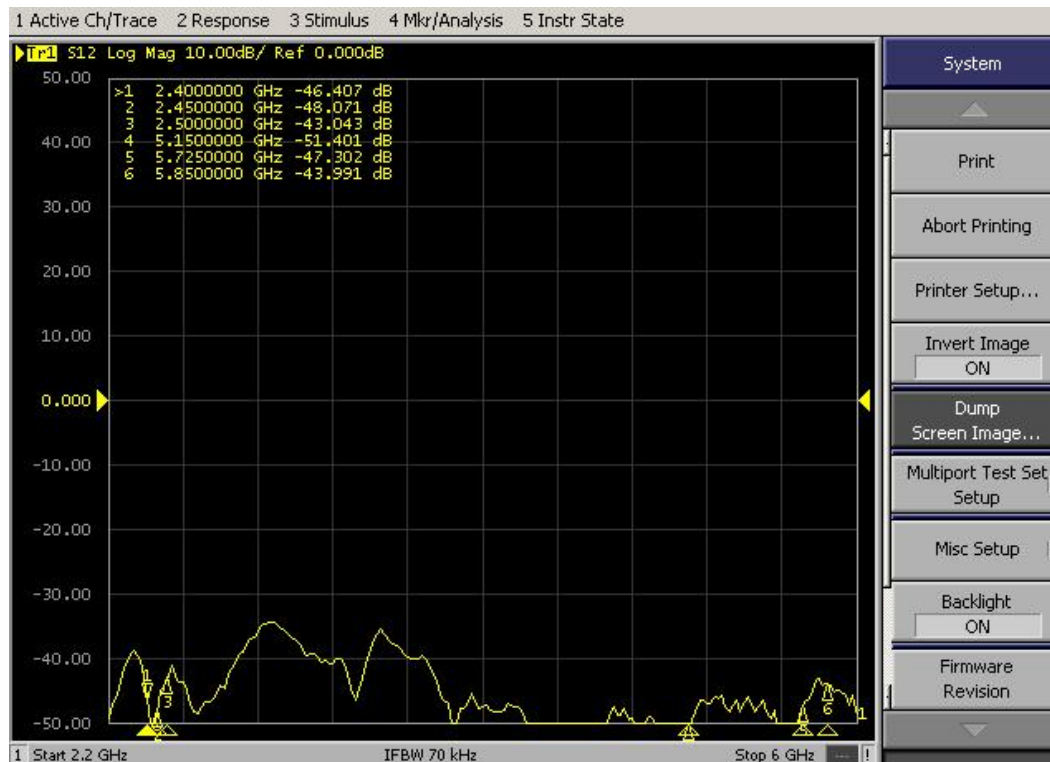
ANT00131-3A-ANT00133-5A 隔离度(isolation)



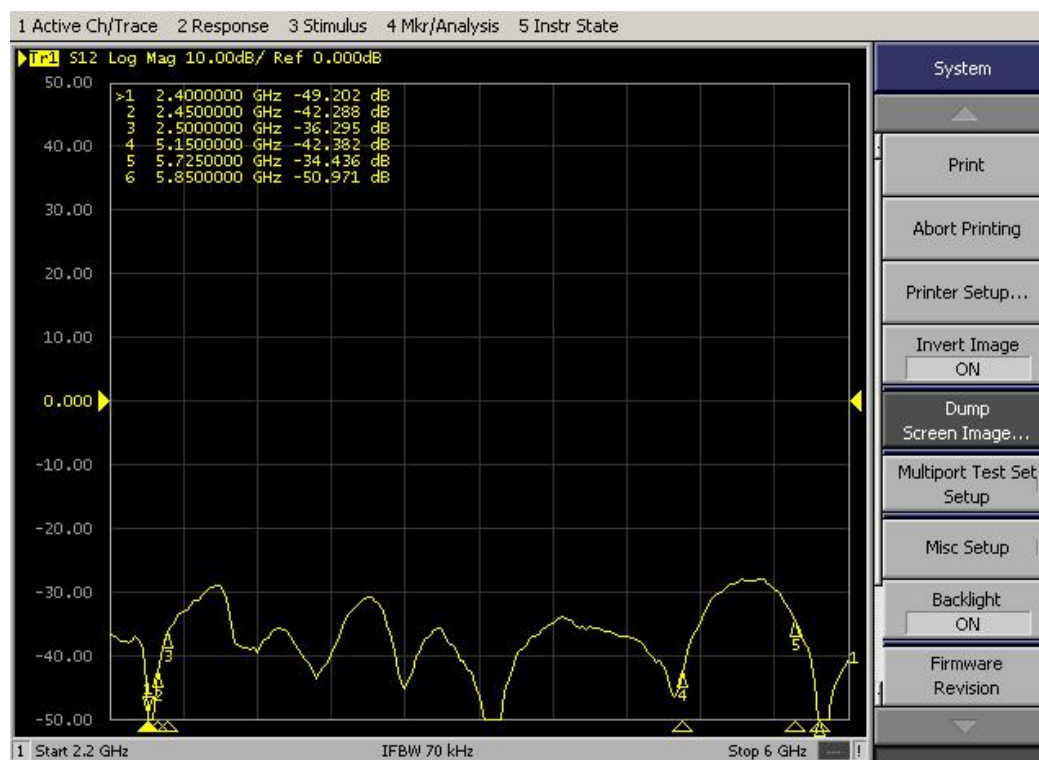
ANT00133-5A-ANT00131-3A 隔离度(isolation)



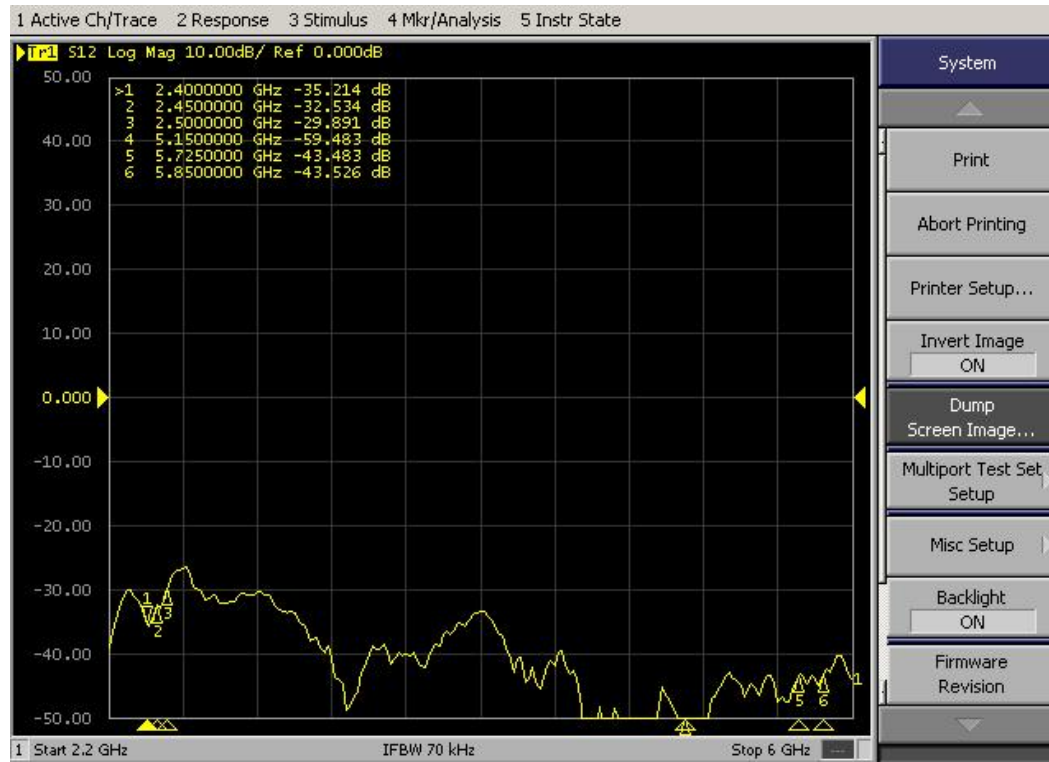
ANT00133-5A-ANT00132-4A 隔离度(isolation)



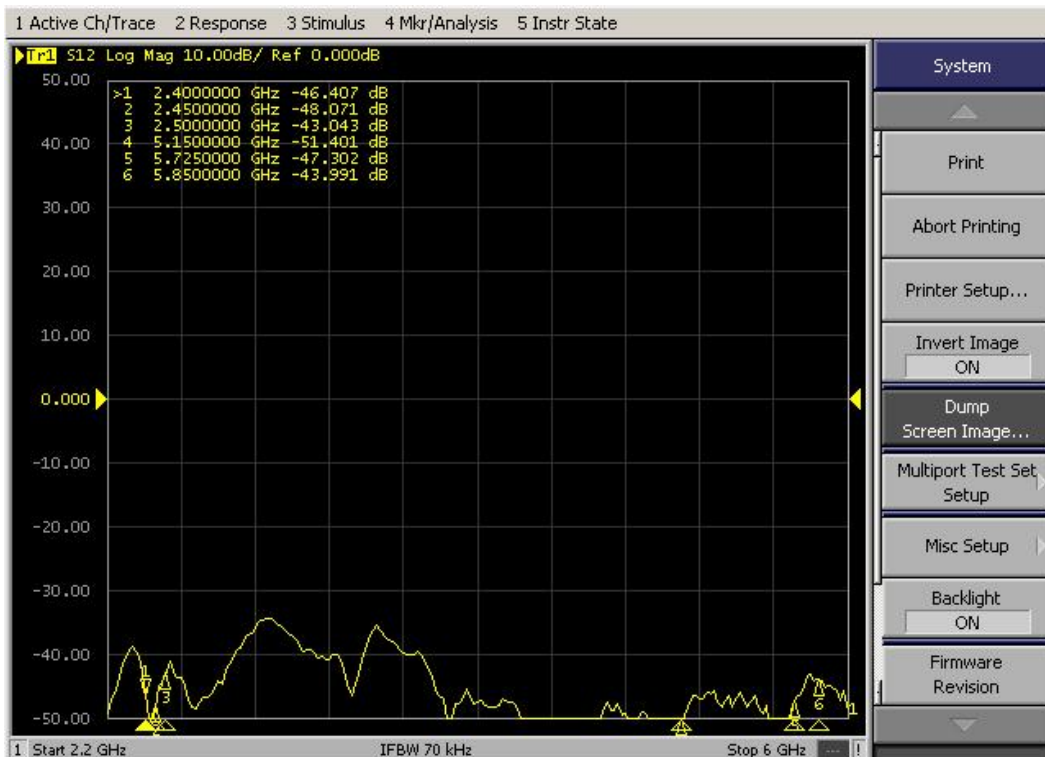
ANT00133-5A-ANT00130-2A 隔离度(isolation)



ANT00133-5A-ANT00131-3A 隔离度(isolation)



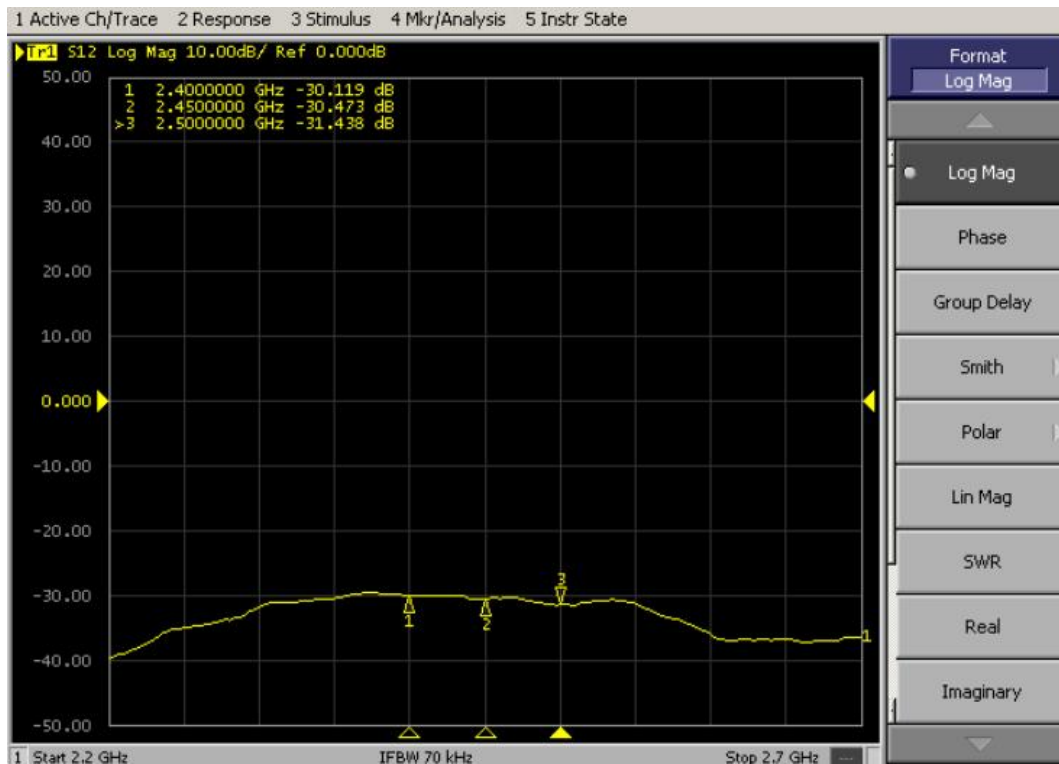
ANT00130-2A-ANT00131-3A 隔离度(isolation)



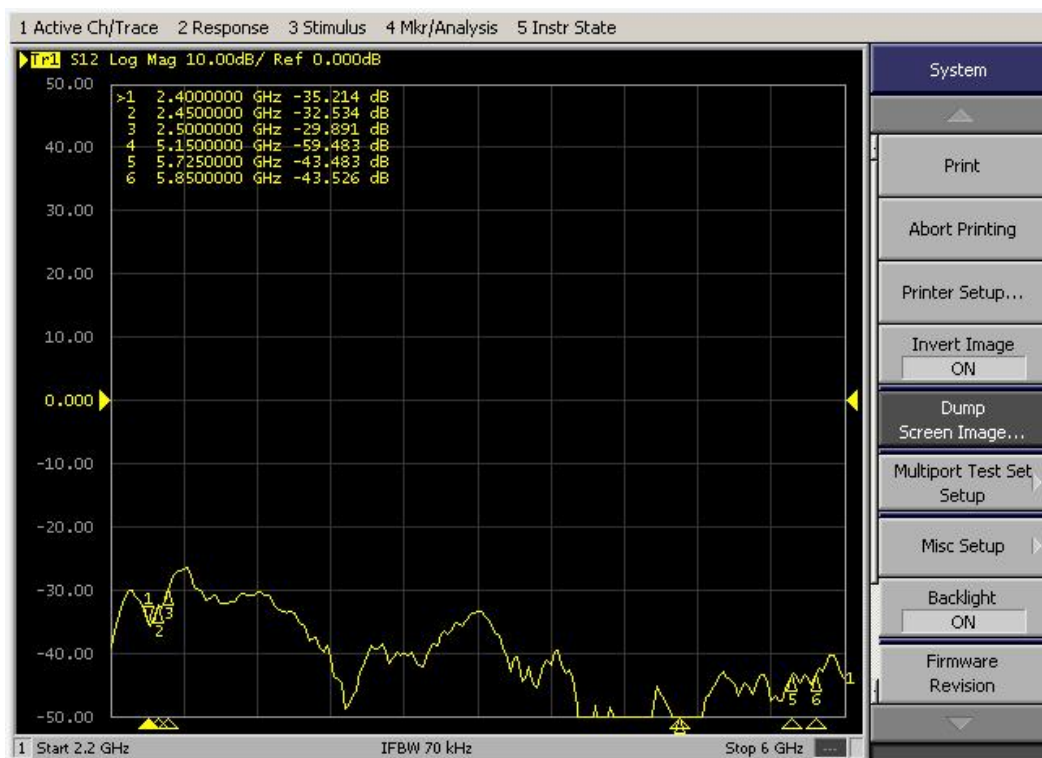
ANT00130-2A- ANT00133-5A 隔离度(isolation)



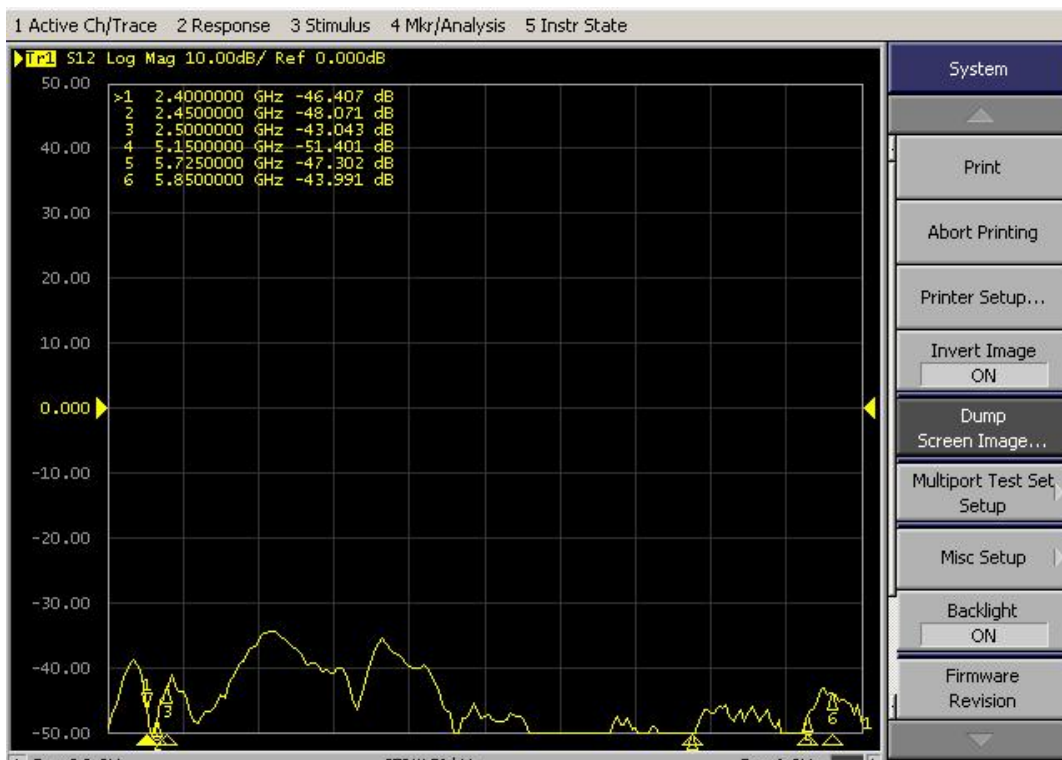
ANT00130-2A-ANT00132-4A 隔离度(isolation)



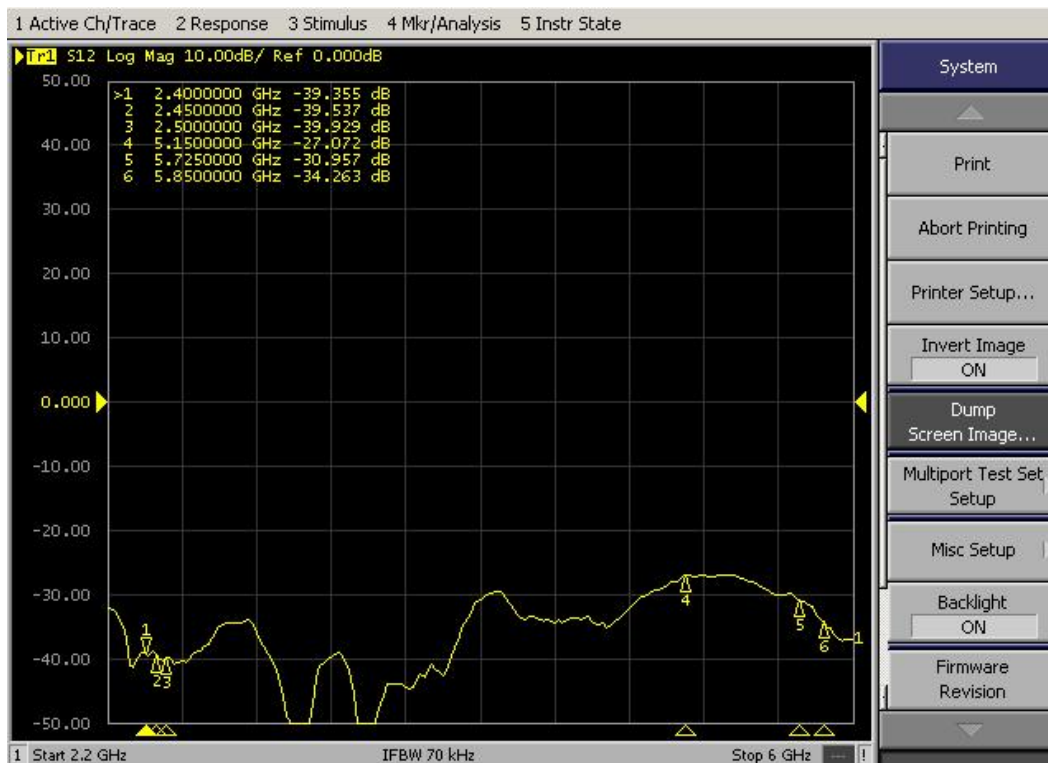
ANT00130-2A-ANT00129-1A 隔离度(isolation)



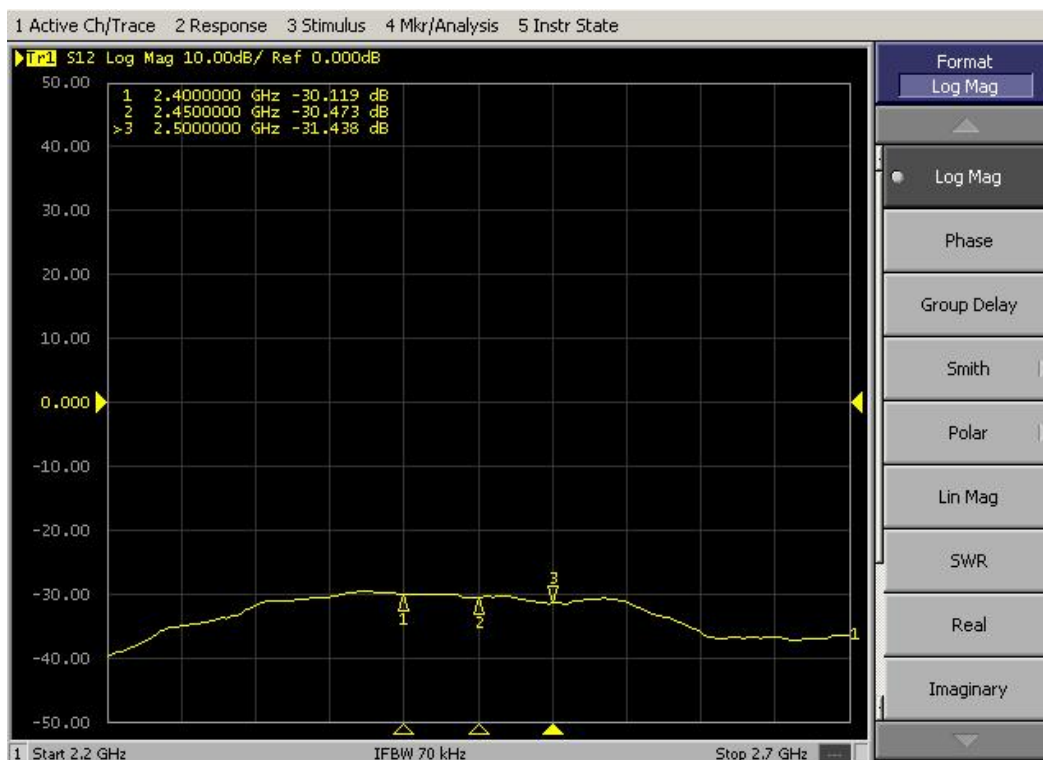
ANT00129-1A-ANT00131-3A 隔离度(isolation)



ANT00129-1A-ANT00133-5A 隔离度(isolation)



ANT00129-1A- ANT00132-4A 隔离度(isolation)



ANT00129-1A-ANT00130-2A 隔离度(isolation)

3.2 Antenna active test

Test tools: Microwave Anechoic Chamber+ROHDE&SCHWARZ CMW 500

Standard: As shown in the table

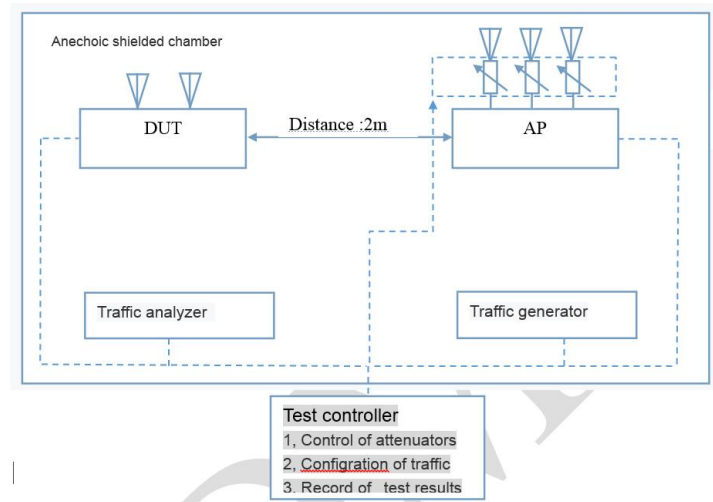
Testing Environment: Same as passive test

OTA active test data statistics: (2.4/5.8G)

Item	Measurement	Band	Channel	Frequency	Total
1	TRP	WIFI_AX_ISM (135M)	1	2412	18.72
2	TRP	WIFI_AX_ISM (135M)	6	2437	17.88
3	TRP	WIFI_AX_ISM (135M)	11	2462	18.6
4	TIS(EIRP)	WIFI_AX_ISM (135M)	1	2412	-59.35
5	TIS(EIRP)	WIFI_AX_ISM (135M)	6	2437	-58.37
6	TIS(EIRP)	WIFI_AX_ISM (135M)	11	2462	-58.5
7	TRP	WIFI_AX_UNII (135M)	36	5180	21.42
8	TRP	WIFI_AX_UNII (135M)	149	5745	22.36
9	TRP	WIFI_AX_UNII (135M)	165	5825	22.23
10	TIS(EIRP)	WIFI_AX_UNII (135M)	36	5180	-65.16
11	TIS(EIRP)	WIFI_AX_UNII (135M)	149	5745	-65.33
12	TIS(EIRP)	WIFI_AX_UNII (135M)	165	5825	-65.6

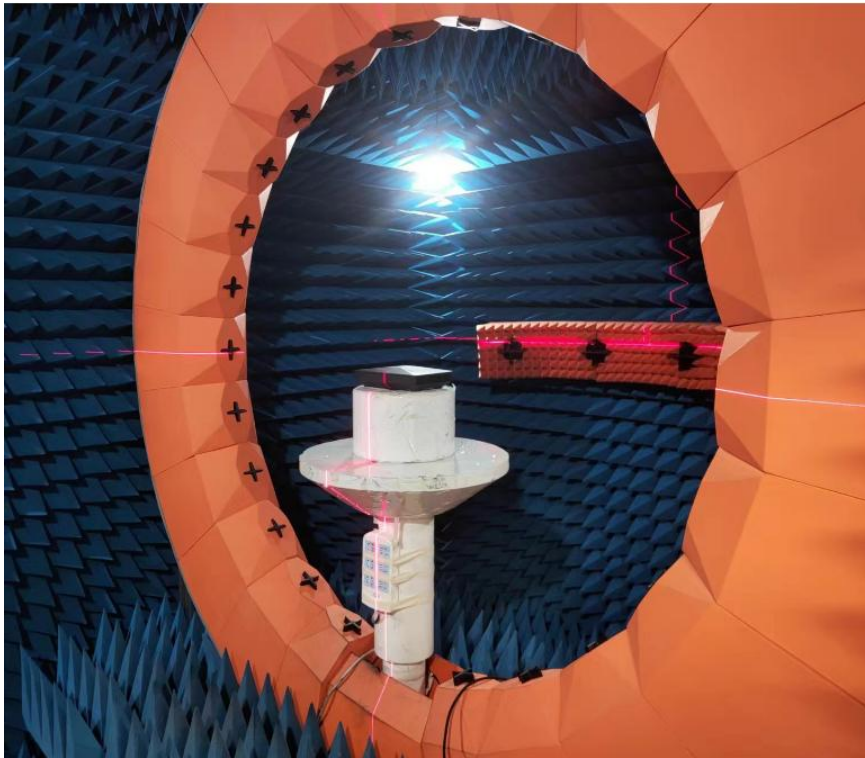
4.Throughput Test

4.1 Test Setup



1. The test setup SHALL locate in the anechoic shielded chamber.
2. A Traffic Generator/Analyzer, sending the Ethernet packets, connects to the LAN interface of the AP. The peer AP antenna is located in 1.5M meter to the DUT.
3. Additional attenuation is added in each RF chain of AP to simulate the incremental distance.
4. The host SHALL send the Ethernet packet at the maximum rate which the DUT can achieve theoretically.
5. TCP connection SHALL be used for Ethernet packet transmission in the test.

4.2 Testing Environment



4.3 Test data



WiFi throughput
test record table.)