WHA YU INDUSTRIAL CO., LTD.(HEAD OFFICE)
DONGGUAN AEON TECH CO.,LTD.(CHINA)
SUZHOU AEON TECH CO.,LTD.(CHINA)
AEON TECH (SHANGHAI) CO.,LTD(CHINA)
DONGGUAN PARNER TECH CO.,LTD.(CHINA)

SPECIFICATION FOR APPROVAL

CUSTOMER: ***捷普***

PART NAME: ***PCB Antenna Assembly***

PART NO.: ***BNFRC003041AR*** ***REVISION:***

W. Y. P/NO.: ***C6523-510003-A(SH1512-042)*** ***REV.: X3***

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
APPROVED BY :		
DATE :	2015 . 12 . 26	

WHA YU GROUP

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Contents

PCB Antenna Assembly

Specification

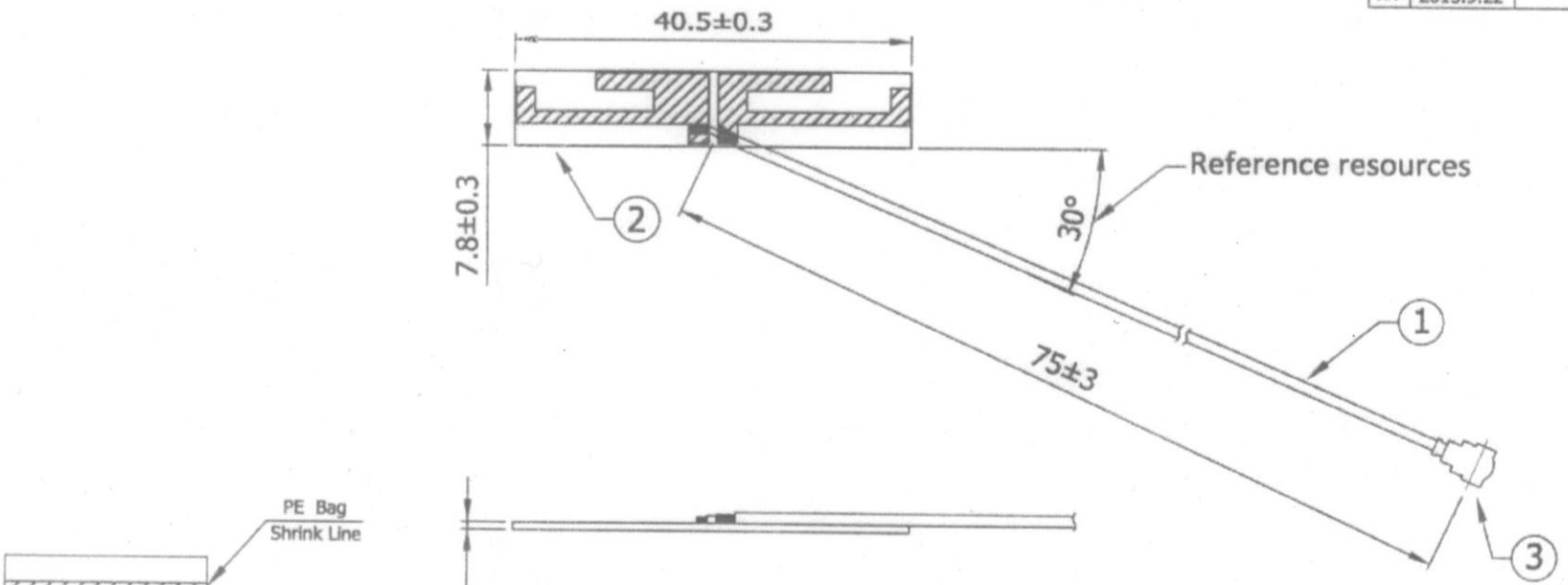
1. Electrical Properties :(With housing)

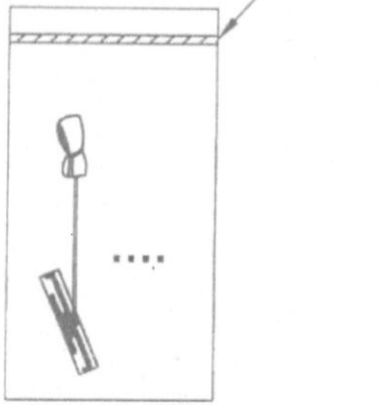
1.1	Frequency Range……	2.4~2.5/4.9~5.85 GHz
1.2	Impedance ……	50Ω Nominal
1.3	VSWR ……	1.92 :1Max.@2.4~2.5GHz
	……	1.92 :1Max.@4.9~5.85 GHz
1.4	Return Loss……	-10 dB Max.@2.4~2.5GHz
	……	-10 dB Max.@4.9~5.85 GHz
1.5	Radiation ……	Omni-directional
1.6	Gain(peak)……	1.98dBi @2.4GHz~2.5GHz
	….……	3.38dBi @4.9GHz~5.85 GHz
1.7	Polarization……	Linear;
1.8	Admitted Power……	1W
1.9	Cable……	Φ1.13 Coaxial Cable
1.10	Cable Loss.....	0.29dB@2.4GHz~2.5GHz
	.....	0.41dB@4.9GHz~5.85 GHz
1.11	Connector…..……	MHF Plug

2. Physical Properties :

2.1	Operating Temp. ……	-10℃ ~ +60℃
2.2	Storage Temp. ……	-10℃ ~ +70℃

REV	DATE	DESCRIPTION
X1	2015.5.14	New Issue
X2	2015.6.5	增加出線角度&變更線材與PCB為黑色
X3	2015.7.25	變更線長
X4	2015.9.22	變更 PCB Layer





Packing : 20 pcs/bag

NO	DESCRIPTION		Q'TY	REMARK
3	Connector	MHF Plug	1	
2	PCB	FR4 ;40.5*7.8*0.8mm	1	
1	Cable	Φ1.13mm Cable,Black,50 Ω;Silver tin wire	1	

XX.	±5.0	APPROVED
X.	±3.0	
.X	±1.0	CHECKED
.XX	±0.2	
.XXX	±0.1	DRAWING

CUSTOMER'S SINGATURE

CUSTOMER:	捷普		
PART NO :	BNRFC003041AR		
PART NAME:	PCB Antenna Assembly		
W.Y P/NO :	C6523-510003-A		
REV	UNIT	FILE :	SH1512-042
X4	mm	SHEET :	1/1

M.gear Wha Yu Group

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Antenna Design of AP

V1.04

Document Number	HG-15039

1st Released Date	**2015.5.12**
Last Released Date	**2015.9.8**
Author	**平小東**
Review by	**Byron Chang**

Revised History

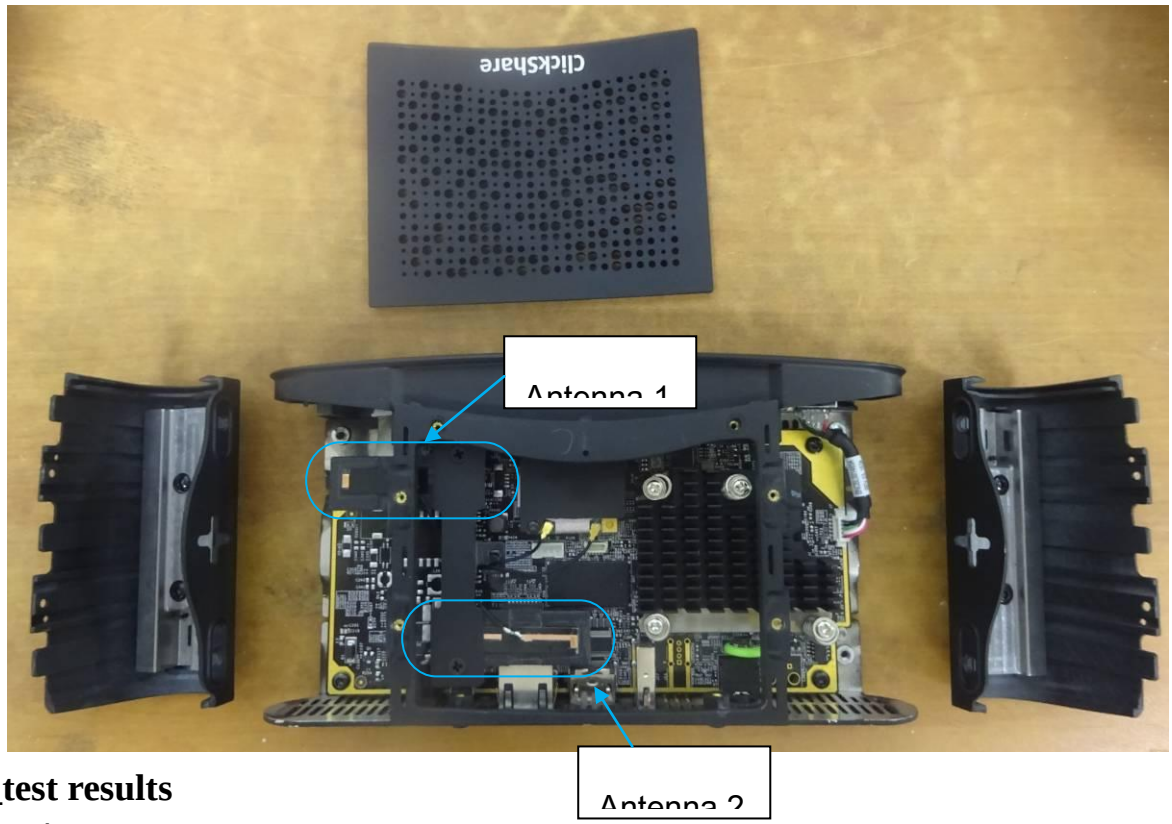
Date	Version	Revised Record
2015.5.12	1.00	New Project Antenna
2015.5.14	1.01	變更 PCB 尺寸
2015.7.22	1.02	客户机台增加配重
2015.8.28	1.03	客户提供增加配重机台测試
2015.9.8	1.04	客户要求優化天線

Specification

Rough description		
Item	Initial Specification	Final Specification
Dimensions	None	
Impedance	50Ω	
Test environment	With housing	
Spectrum	WIFI	
Freq. Range	Antenna 1：2.4~2.5/4.9~5.85 GHz Antenna 2：2.4~2.5/4.9~5.85 GHz	
Antenna type	Antenna 1& Antenna 2：Dipole	
Gain	Antenna 1：2.4~2.5 GHz :1.98 dBi(Peak gain) 4.9~5.85GHz : 3.34 dBi(Peak gain) Antenna 2：2.4~2.5 GHz : 1.88 dBi(Peak gain) 4.9~5.85GHz : 3.38 dBi(Peak gain)	
Radiation	Near Omni	
Polarization	Linear	

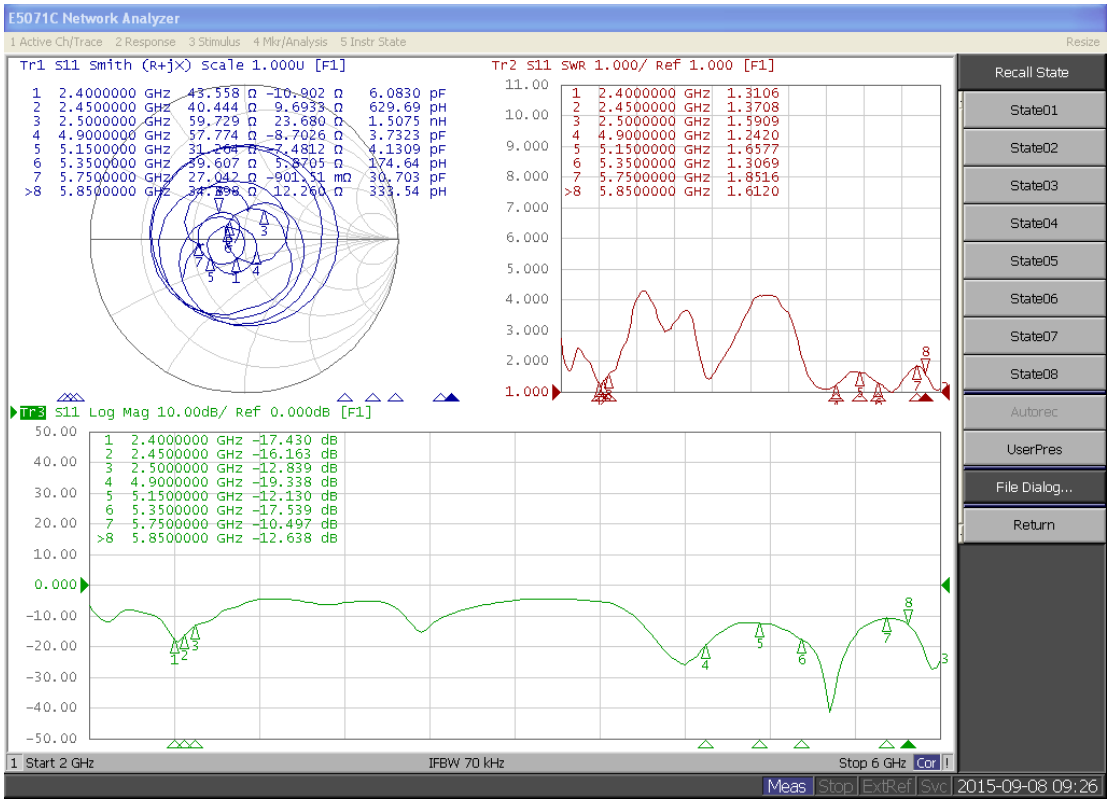
Rad. efficiency	Antenna 1： 2.4~2.5 GHz > 65 % 4.9~5.85GHz > 70 % Antenna 2： 2.4~2.5 GHz > 61 % 4.9~5.85GHz > 68 %	
Return Loss	≤-10db	
Connector type	1.13mm MHF	
Cable length(Total)	None	
Isolation	≤-20dB	

1.Antennas' setup and environment

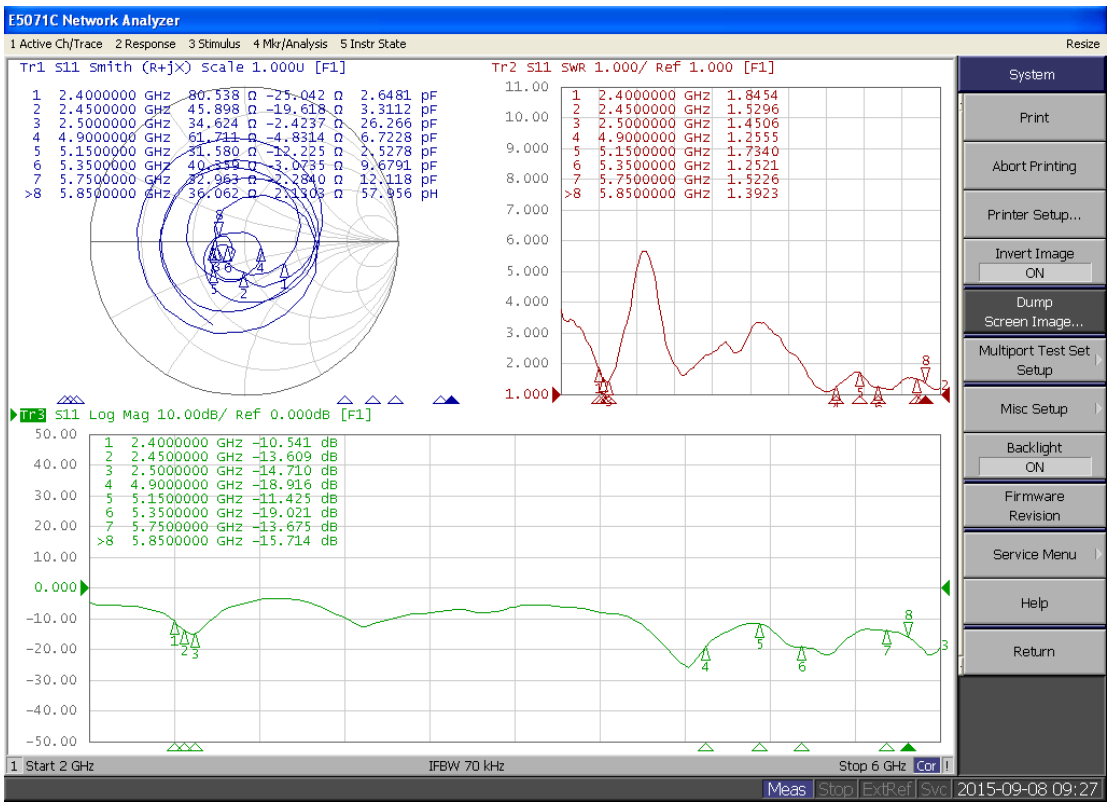


2. S11_test results

Antenna 1



Antenna 2



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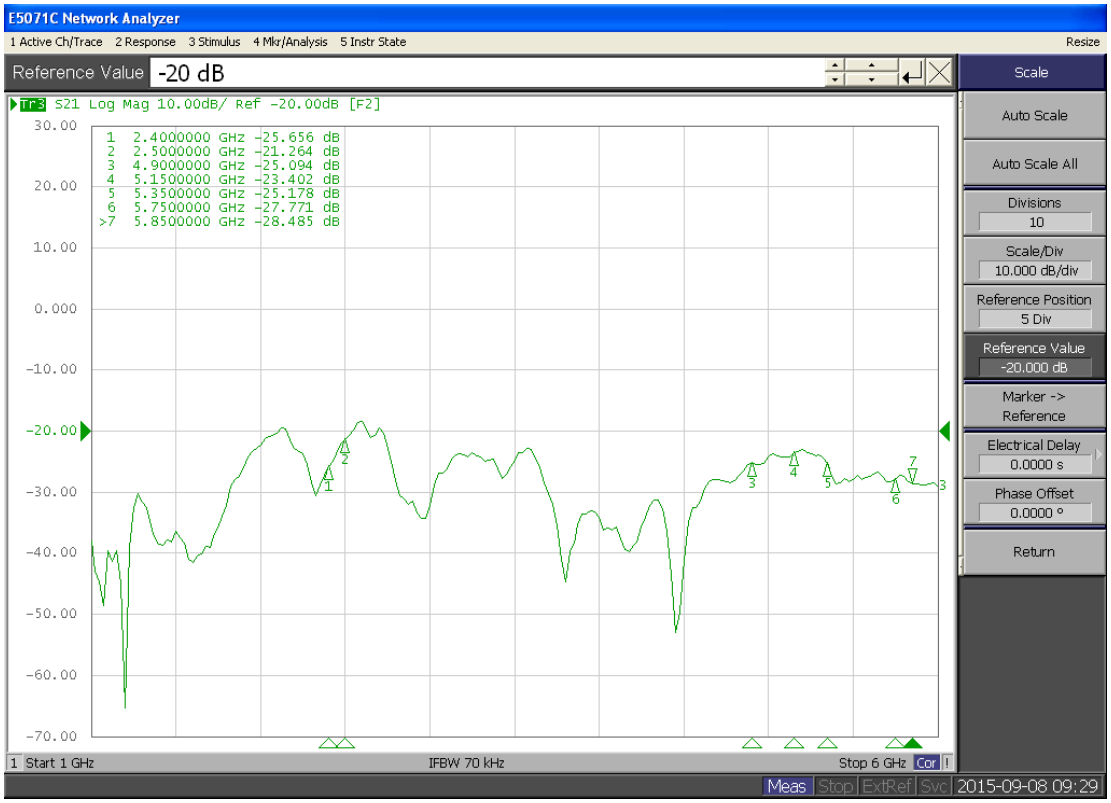
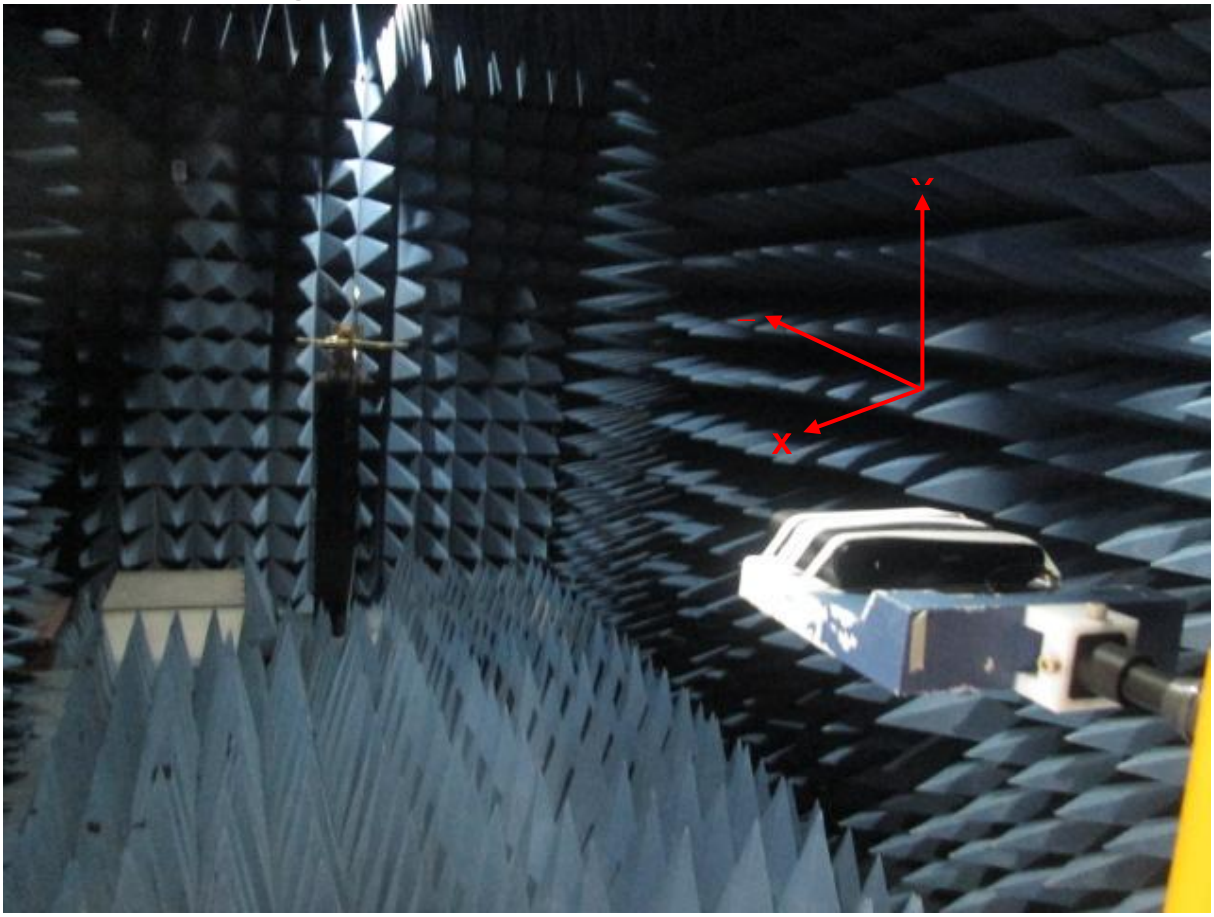
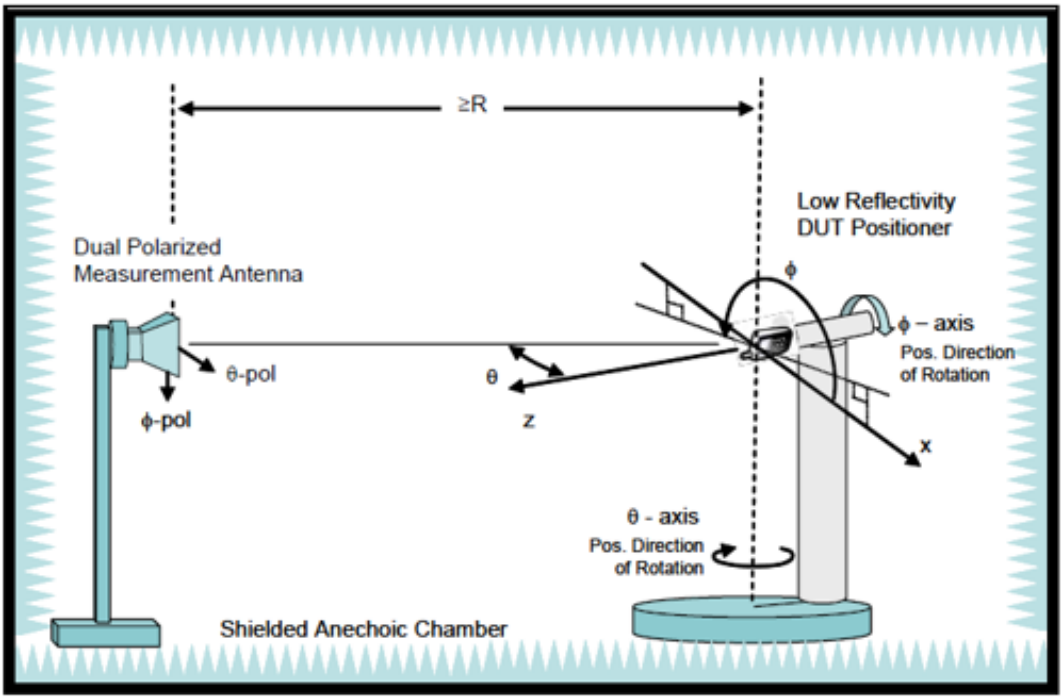


4. Gain & Patterns test results

4 .1 Measurement setting

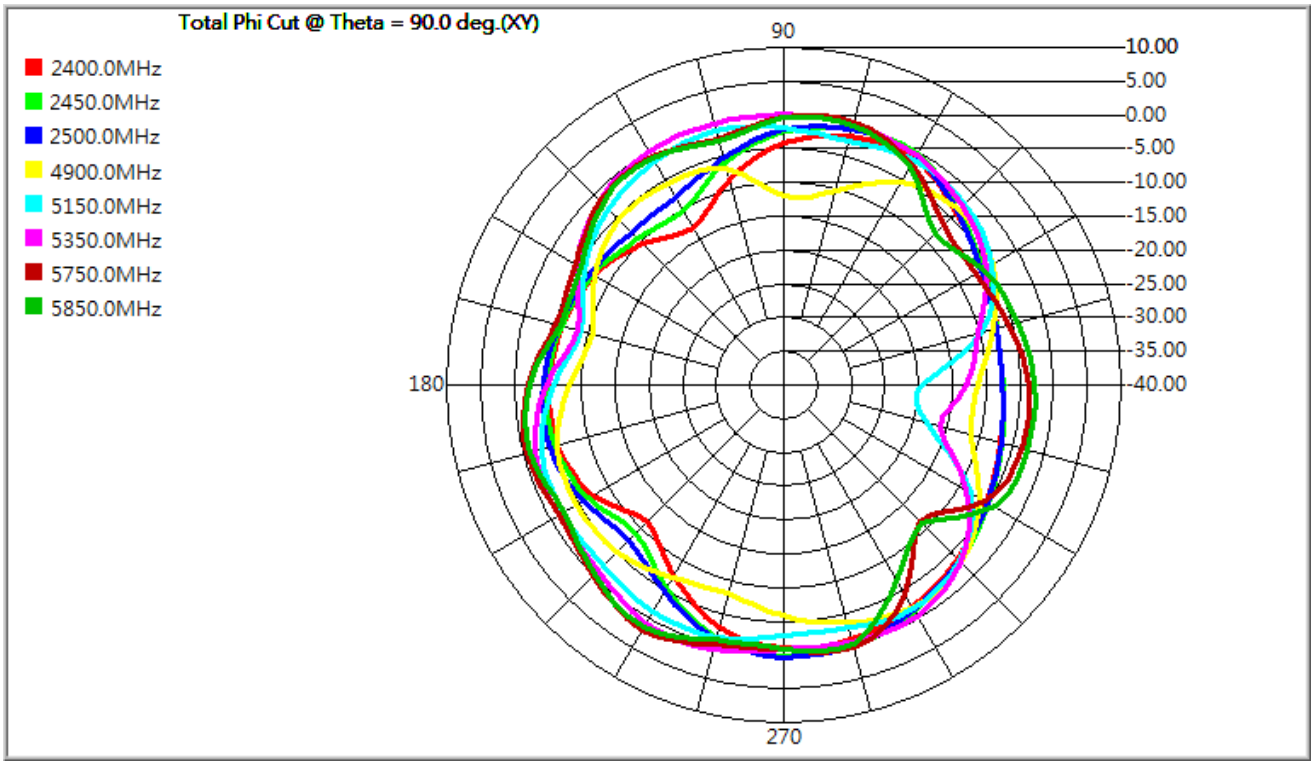



≥R
Low Reflectivity
DUT Positioner
Dual Polarized
Measurement Antenna
ϕ
ϕ – axis
Pos. Direction
of Rotation
θ-pol
θ
ϕ-pol
z
x
θ - axis
Pos. Direction
of Rotation
Shielded Anechoic Chamber

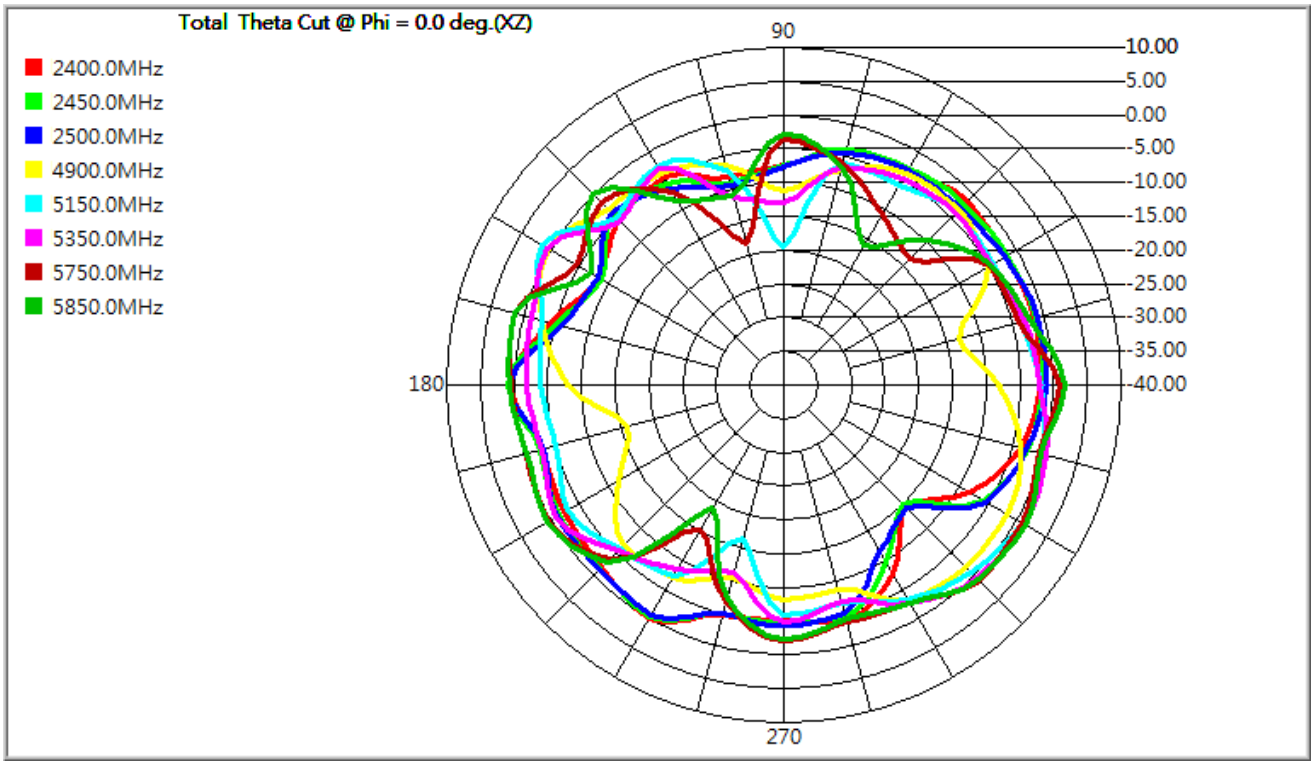
4.2 2D patterns

Antenna 1

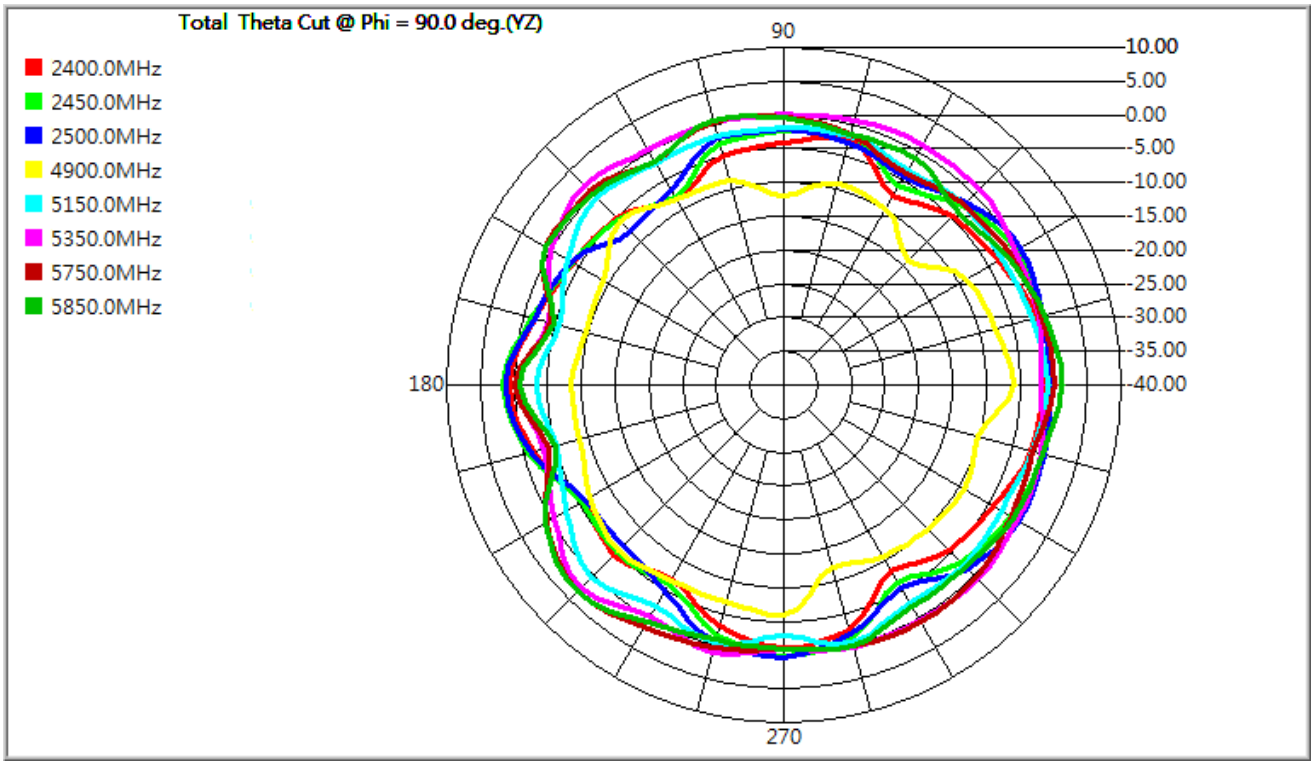
X-Y



X-Z



Y-Z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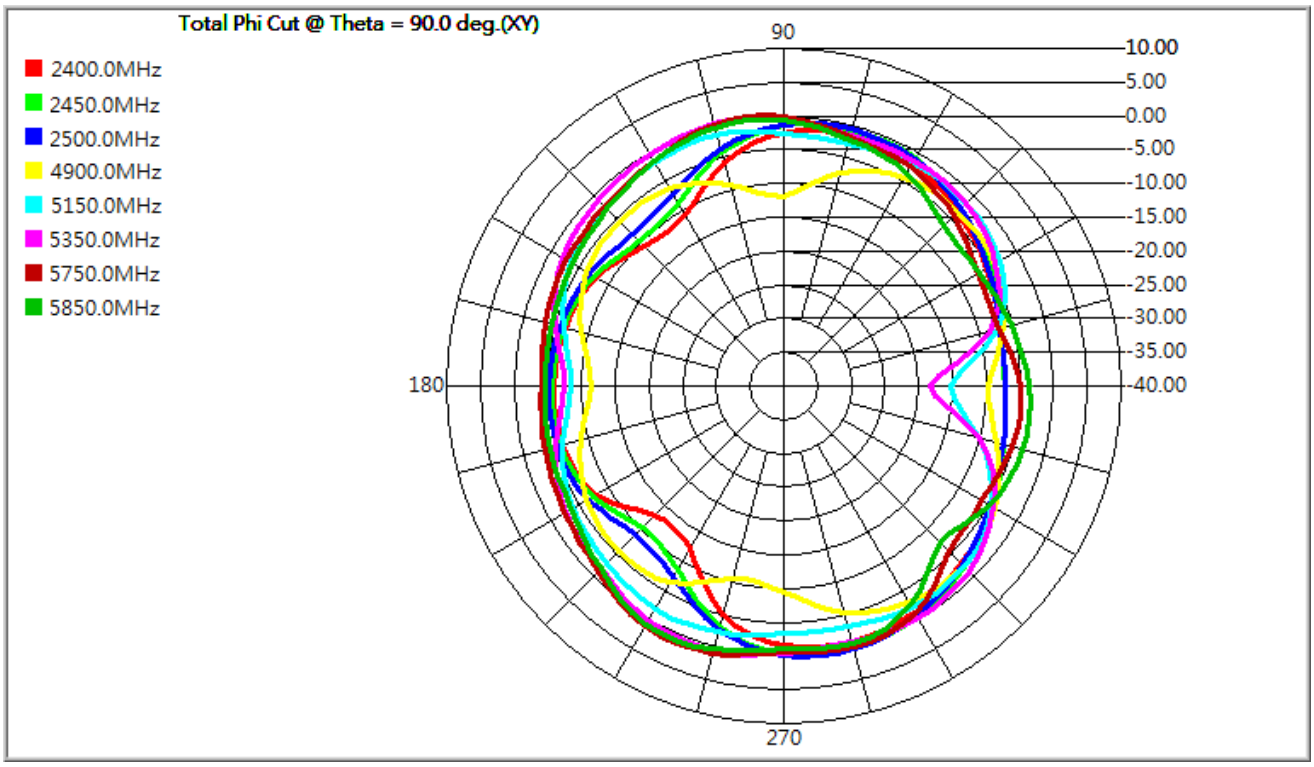
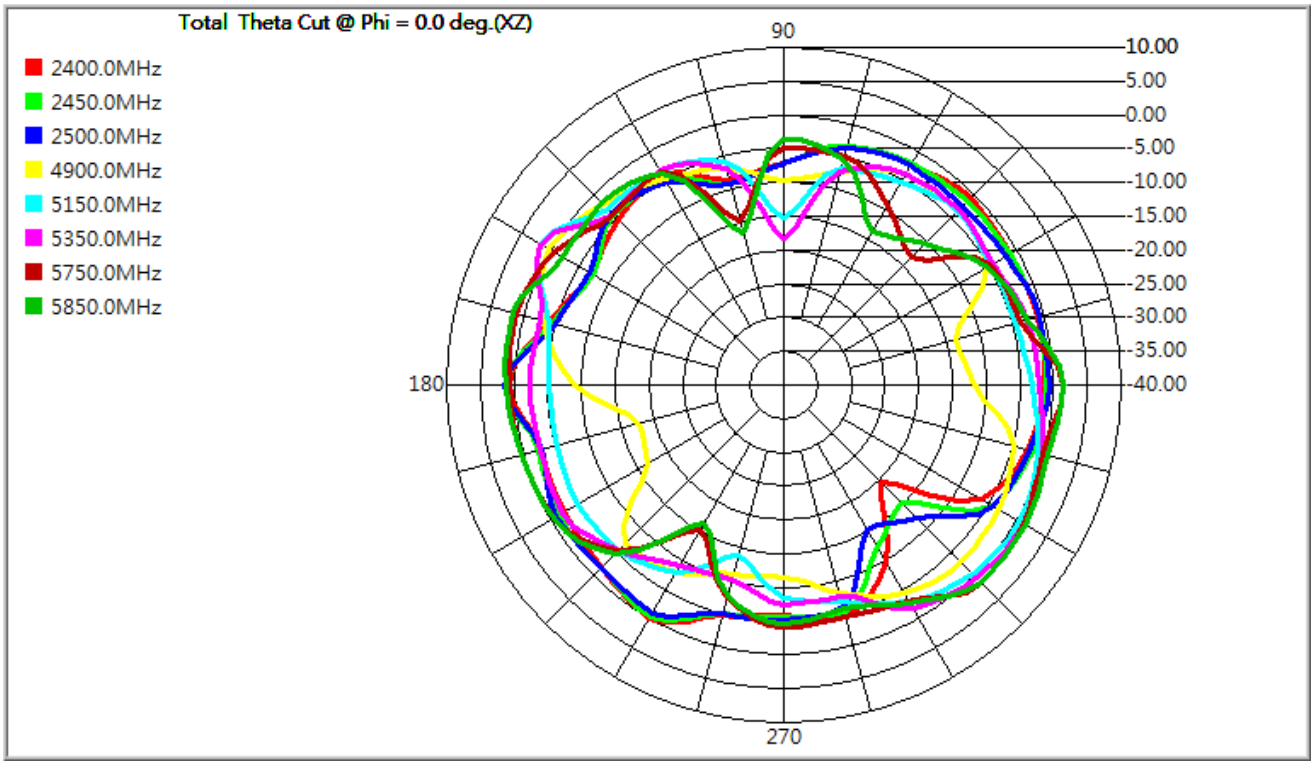
2400.0MHz
2450.0MHz
2500.0MHz
4900.0MHz
5150.0MHz
5350.0MHz
5750.0MHz
5850.0MHz
90
180
270
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
-30.00
-35.00
-40.00

Antenna 2

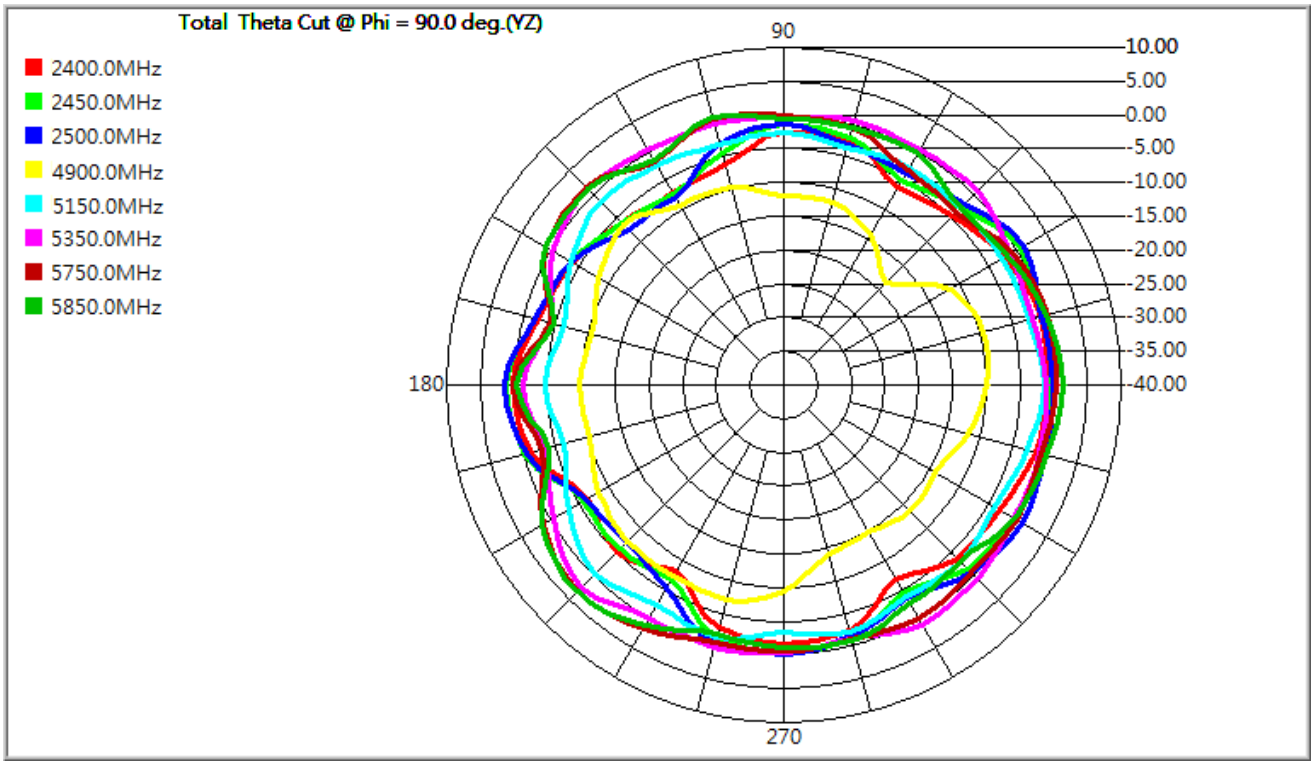
X-Y



X-Z



Y-Z


Total Theta Cut @ Phi = 90.0 deg.(YZ)
2400.0MHz
2450.0MHz
2500.0MHz
4900.0MHz
5150.0MHz
5350.0MHz
5750.0MHz
5850.0MHz
90
180
270
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
-30.00
-35.00
-40.00

4.Summary

4.1 Return Loss

Frequency	Ant 1(dB)	Ant 2(dB)
2400MHz	-17.4	-10.5
2450MHz	-16.1	-13.6
2500MHz	-12.8	-14.7
4900MHz	-19.3	-18.9
5150MHz	-12.1	-11.4
5350MHz	-17.5	-19.0
5750 MHz	-10.4	-13.6
5850 MHz	-12.6	-15.7

4.2 Isolation

Frequency	Ant 1-2(dB)
2400MHz	-25
2500MHz	-21
4900MHz	-25
5150MHz	-23
5350MHz	-25
5750 MHz	-27
5850 MHz	-28

4.3 3D Total Peak Gain & Efficiency

Frequency	ANT 1		ANT 2	
	peak Gain(dBi)	Efficiency(%)	peak Gain(dBi)	Efficiency(%)
2400MHz	1.51	70	1.79	62
2450MHz	1.98	68	1.82	64
2500MHz	1.64	65	1. 68	61
4900MHz	1.73	72	1.24	71
5150MHz	1.76	70	1.96	68
5350MHz	2.90	74	2.71	70
5750 MHz	3.30	74	3.28	72
5850 MHz	3.34	71	3.38	71