HFR,Inc. for Mobile Internet
(주) 에치에프알
경기도 성남시 분당구 구미동 158
하나 EZ 타워 5 층
Phone (031) 712-7768
FAX (031) 712-7948
Web http://www.hfrnet.com

APPROVAL SHEET

프로젝트명(Project Name)	flexAU10-3.55G-4TW
제품명	CBRS_3.55~3.7GHz Wall Type Antenna
모델명	CBRS-Wall (AUW-n48)
Document Number	
Approval Code	
Revision	**1.00**
Date	**2024-02-06**

Approval	Charge	Check	Check	Approval
	김태윤	정호두	최창섭	신희성
㈜에치에프알	(인)	(인)	(인)	인)
Suppliers	**Charge**	**Check**		**Approval**
	Kim.c.s	**Cha.s.m**		**Jung.j.w**
㈜케이디티	(인)	(인)	(인)	(인)

Revision History

Date	Rev. No.	Description	Auther	Check	Approval
24.02.06	1.0	Initial create	K.C.S	C.S.M	J.J.W

CONTENTS

1. Specification 4

1.1 Product Spec 4
1.2 Product Design 5
1.3 Product Drawing 6

2. Perfornace Test 7

2.1 Performance Test Specification 7
2.2 Inspection Procedure 9
2.3 Test Result 11

3. Reliability Test 15

3.1 Reliability Test Specification 15
3.2 Reliability Test Result 15

4. Packing 16

5. Hazardous substance data 17

5.1 MSDS 17
5.2 ROHS 17

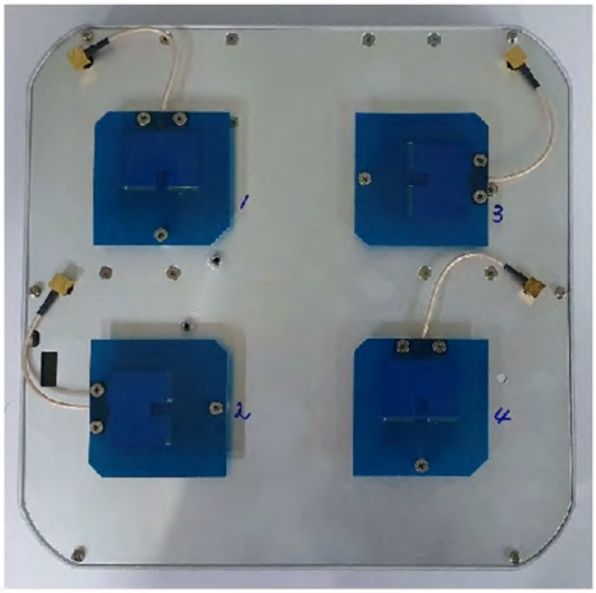
1. Specification

1.1 Product Spec

Electrical Specifications				
Frequency Range (MHz)	3550 ~ 3700			
V.S.W.R (Max)	2.0 :1			
Gain (Peak)	8 dBi (8.87dBi)			
Isolation	-20dB			
Input Impedance	50 (Ω)			
Polarization	Linear (+45°, -45°)			
Beam Width	Above H 60°, Above V 60°			
Mechanical Specifications				
Antenna Size (Width x Length x Height)	See drawing			
Connector	SMB(M) RA			
Cable Length	Port 1	Port 2	Port 3	Port 4
	105 mm	105 mm	105 mm	105 mm
Operation Temperature	– 20 ∽ 85 (℃)			
Operation Humidity	10 ∽ 90 (%)			

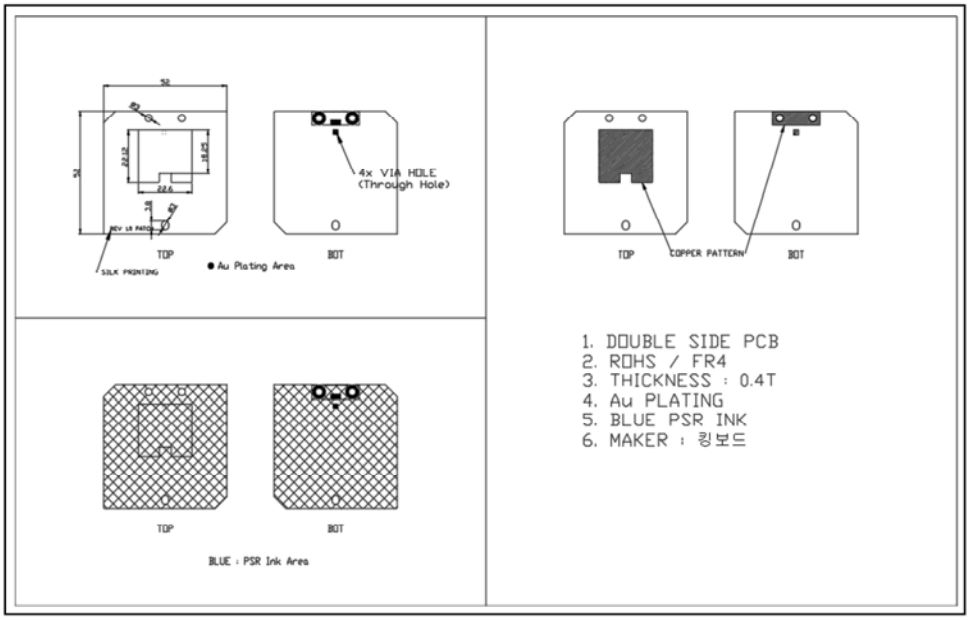
1.2 Product Design

- Set Assembly

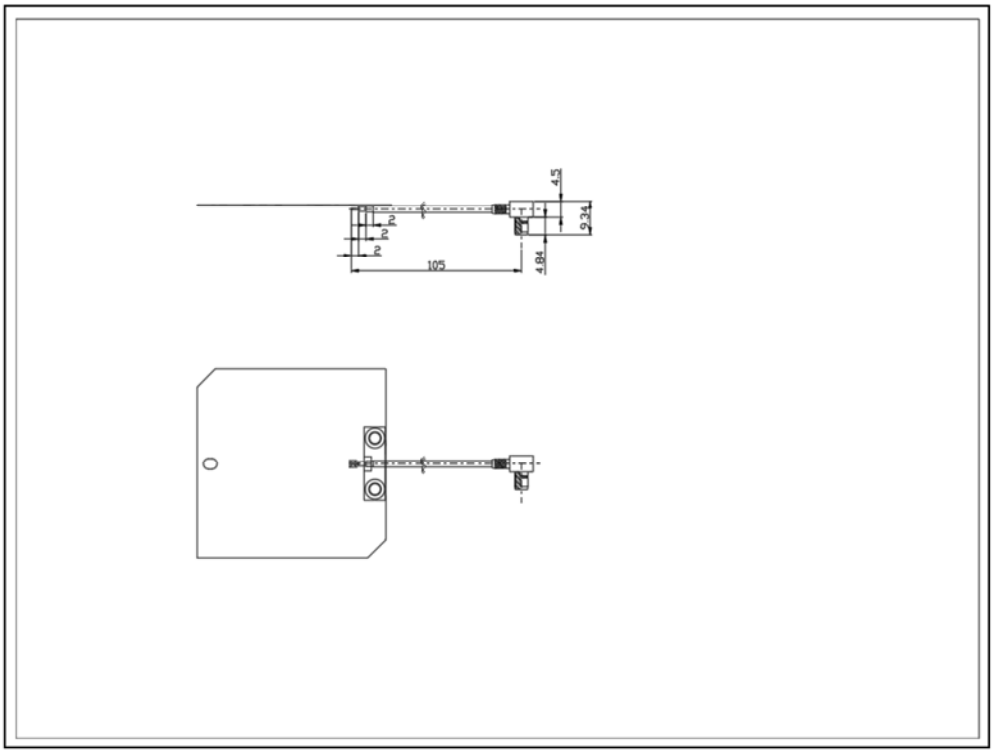


- Antenna

1.3 Product Drawing



Antenna PCB



Antenna PCB + Cable Assembly

2. Performance Test

2.1 Performance Test Specifiction

VSWR

Marker	Frequency	Spec	Data			
			Port1	Port2	Port3	Port4
1	3550MHz	Below 2.0	1.5575	1.4341	1.4986	1.5059
2	3625MHz	Below 2.0	1.2744	1.1703	1.3724	1.2521
3	3700MHz	Below 2.0	1.6404	1.3731	1.2096	1.5119

Gain

Frequency	3550MHz				3625MHz				3700MHz			
Data	Port1	Port2	Port3	Port4	Port1	Port2	Port3	Port4	Port1	Port2	Port3	Port4
	8.73	8.42	8.80	8.29	8.78	8.75	8.87	8.58	8.49	8.61	8.04	8.42
Spec	Above 8 dBi				Above 8 dBi				Above 8 dBi			

Isolation

Frequency	Spec	Data					
		Port1-Port2	Port1-Port3	Port1-Port4	Port2-Port3	Port2-Port4	Port3-Port4
3550~3700MHz	-20 이하	-29.070	-33.779	-33.534	-32.916	-30.387	-25.473

2.2 Inspection Procedure

2.2.1 V.S.W.R

Step 1.

Connect the antenna to Port 1 after the calibration of the Network Analyzer.

Step 2.

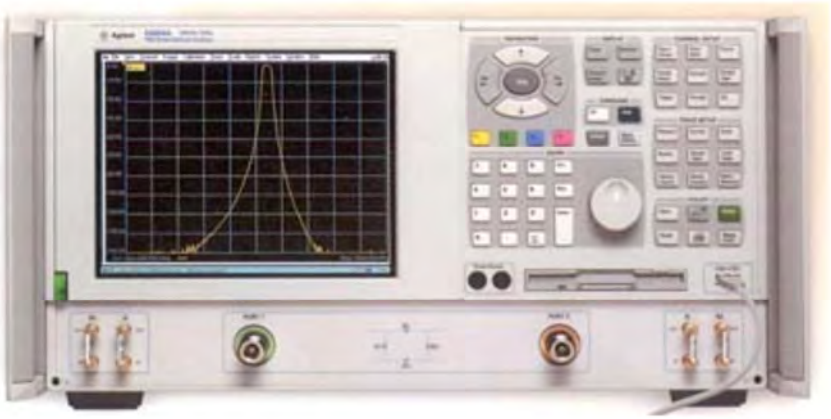
Set the marker of the Network Analyzer to the target frequency.

Step 3.

Measure the VSWR and verify that it meets the specifications.

Step 4.

Record the measurement data.



2.2.2 Gain and Radiation Patterns

Step 1

Calibrate the non-reflective chamber and the measurement system using a dipole antenna and a horn antenna.

Prepare software for system control.

Step 2.

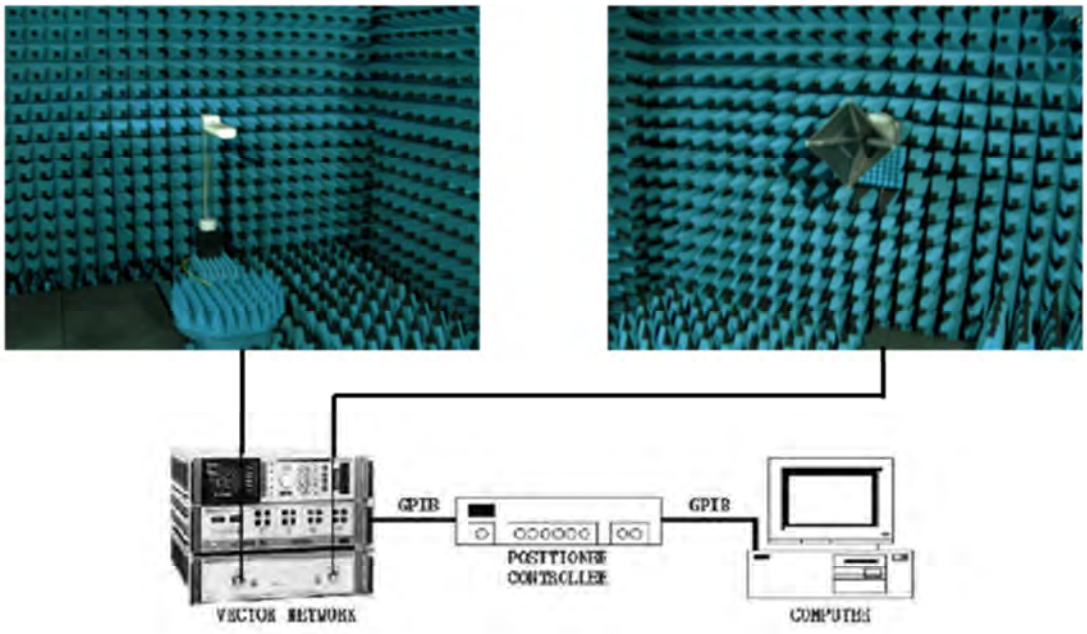
Mount the antenna to be measured in the non-reflective chamber mounting position.

Step 3.

Start the measurement software and proceed with the measurement.

Step 4.

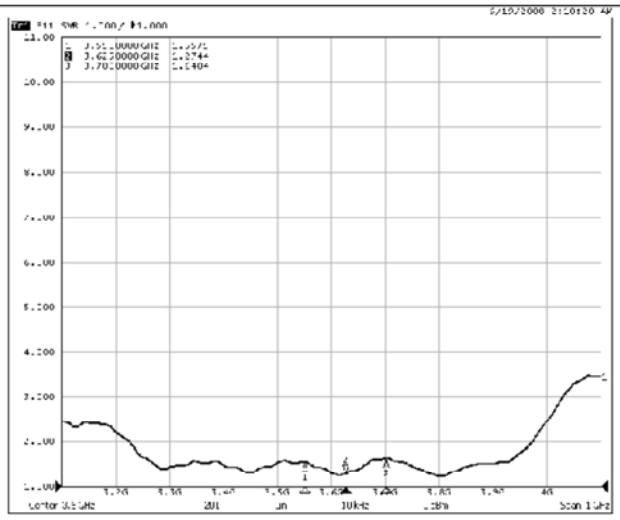
Record the measurement results.



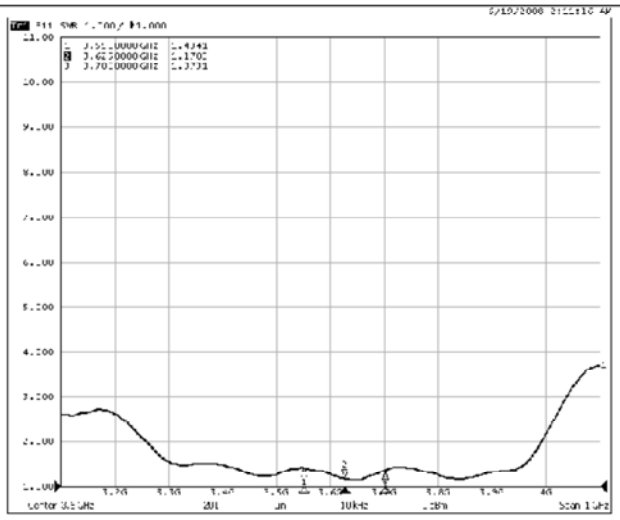
2.3 Test Result

2.3.1 VSWR

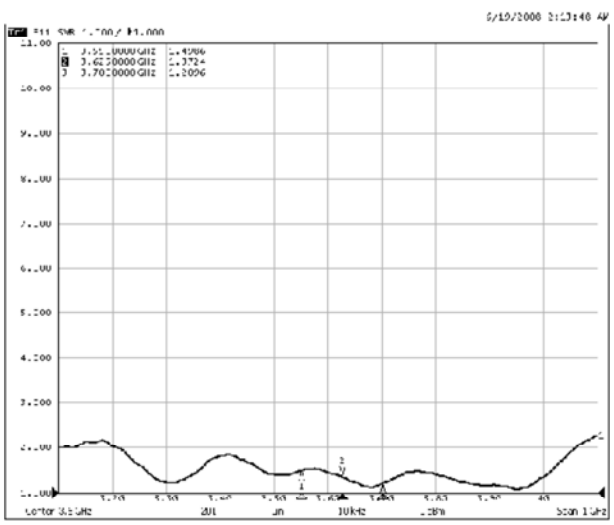
Port1



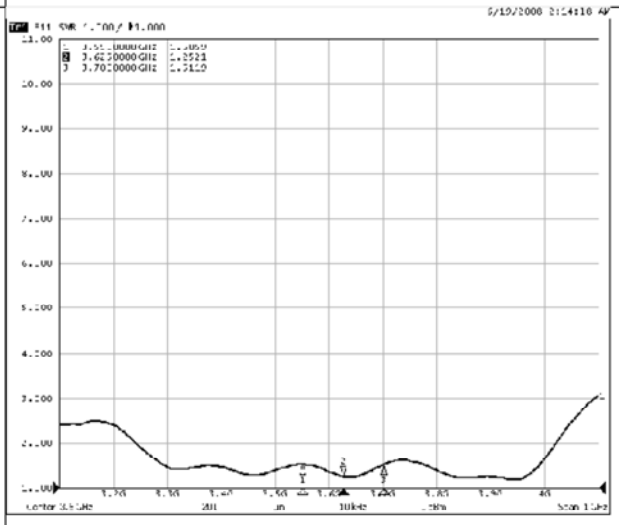
Port2



Port3



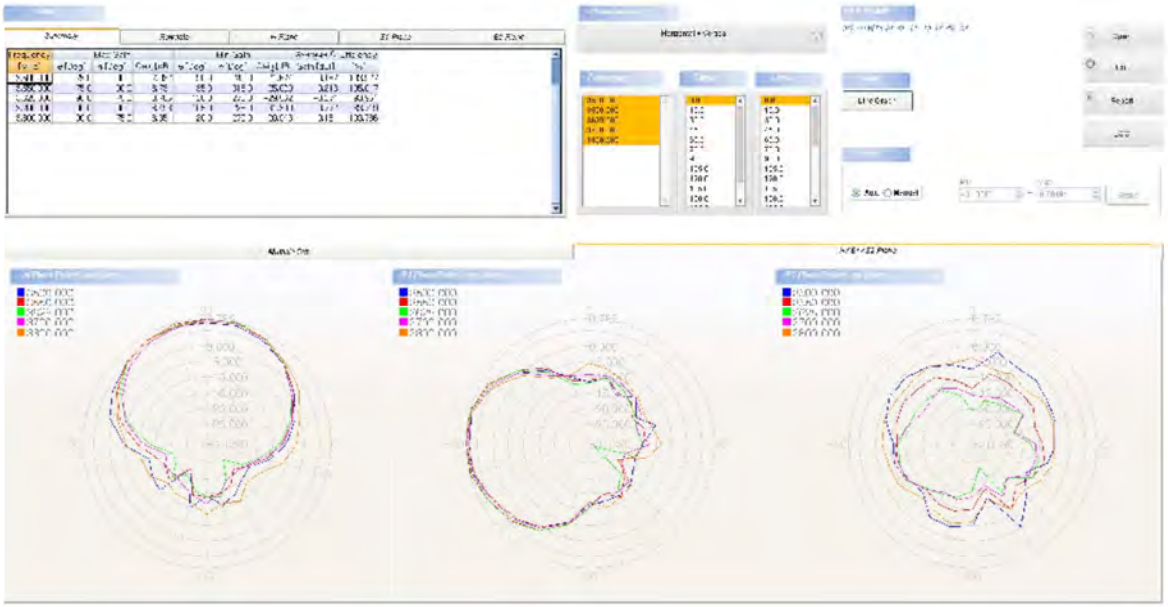
Port4



2.3.2 Gain, Radiation Patterns

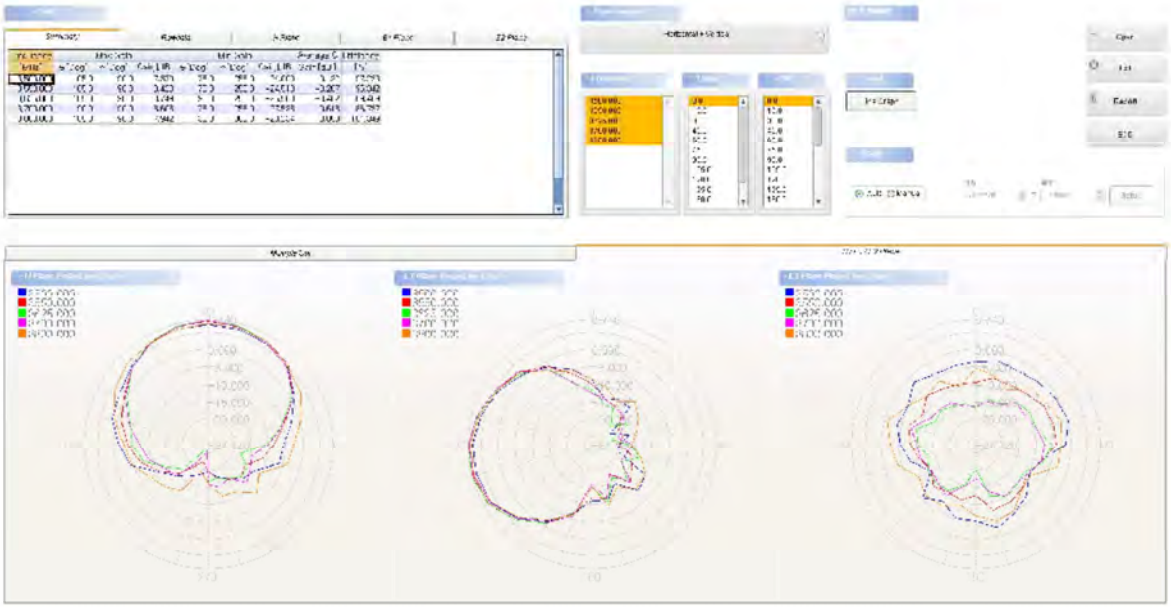
ANT Port #1

No	Frequency	Peak Value		Minimum Value		Avg. Gain	Efficiency
	[MHz]	Value[dBi]	Degree	Value[dBi]	Degree	[dBi]	[%]
1	3500.000	7.931729	75 / 90	-21.673523	90 / 240	0.167267	103.926604
2	3550.000	8.730520	75 / 90	-25.019844	135 / 315	0.212587	105.016790
3	3625.000	8.784937	90 / 75	-29.562462	120 / 270	-0.270968	93.951397
4	3700.000	8.493402	90 / 90	-31.389895	105 / 225	-0.771737	83.719444
5	3800.000	8.351301	90 / 75	-20.943344	120 / 270	0.161405	103.786412



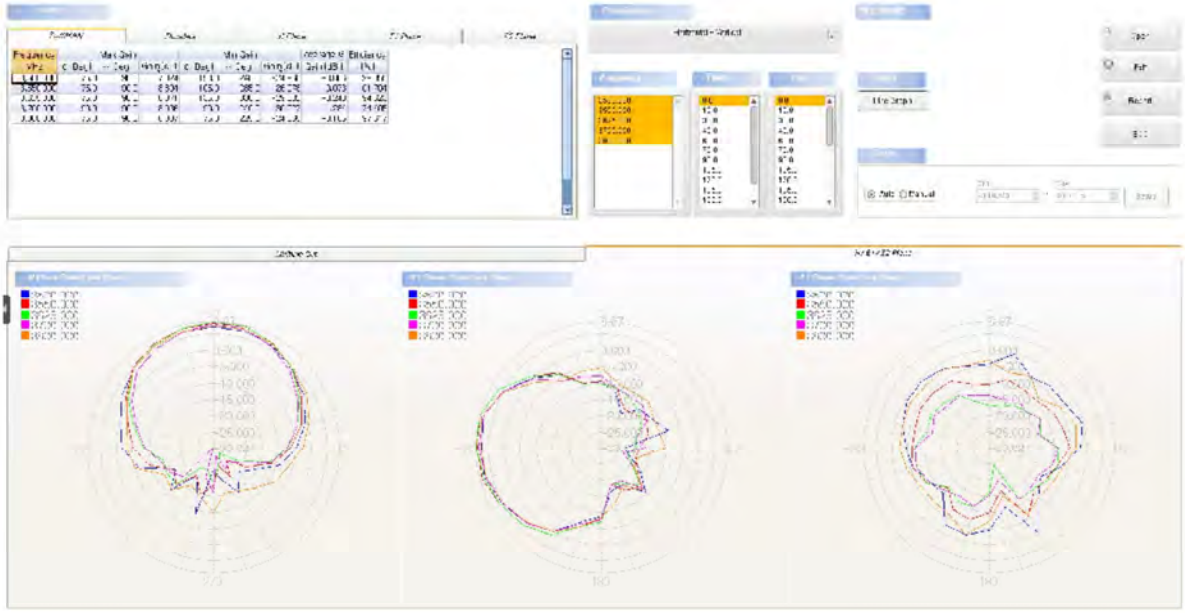
ANT Port #2

No	Frequency	Peak Value		Minimum Value		Avg. Gain	Efficiency
	[MHz]	Value[dBi]	Degree	Value[dBi]	Degree	[dBi]	[%]
1	3500.000	7.378982	105 / 90	-24.000479	75 / 255	-0.121872	97.232792
2	3550.000	8.423303	105 / 90	-24.513132	75 / 255	-0.207161	95.341921
3	3625.000	8.748563	105 / 90	-25.579825	90 / 255	-0.482306	89.488947
4	3700.000	8.607706	90 / 90	-27.527555	75 / 255	-0.617978	86.736567
5	3800.000	7.942285	105 / 90	-20.233889	30 / 300	0.058192	101.348933



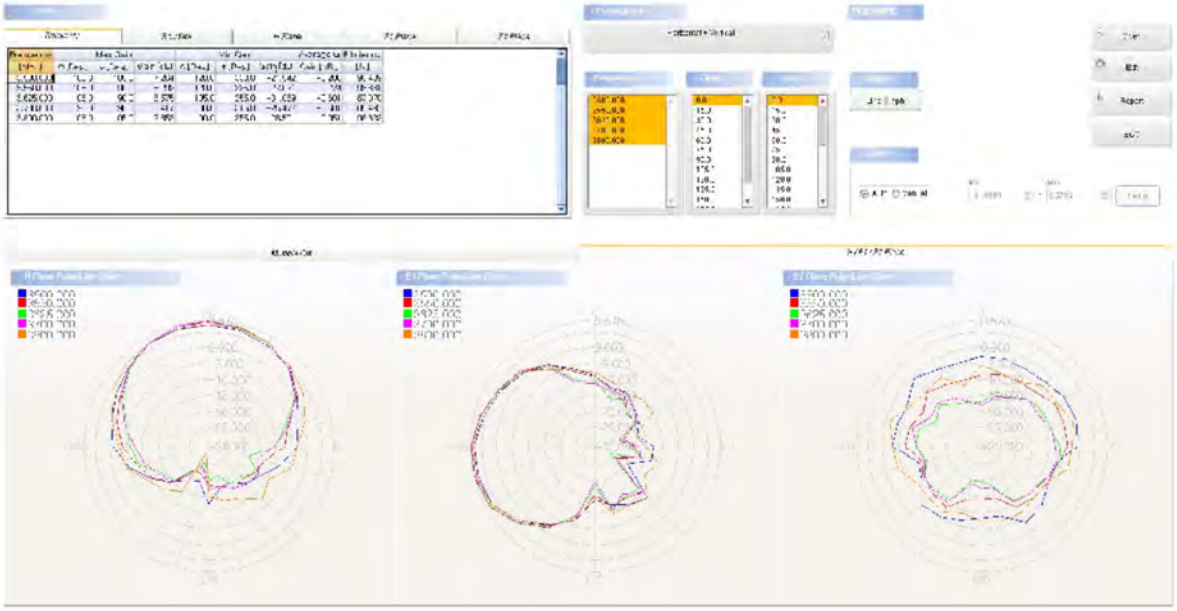
ANT Port #3

No	Frequency	Peak Value		Minimum Value		Avg. Gain	Efficiency
	[MHz]	Value[dBi]	Degree	Value[dBi]	Degree	[dBi]	[%]
1	3500.000	7.824404	75 / 90	-24.968141	150 / 240	-0.006323	99.854506
2	3550.000	8.803646	75 / 90	-26.977652	105 / 285	0.073371	101.703789
3	3625.000	8.871048	75 / 90	-29.502419	135 / 330	-0.240050	94.622633
4	3700.000	8.035889	90 / 90	-30.027335	90 / 240	-1.283970	74.405147
5	3800.000	8.336903	75 / 90	-24.664921	75 / 225	-0.104752	97.616859

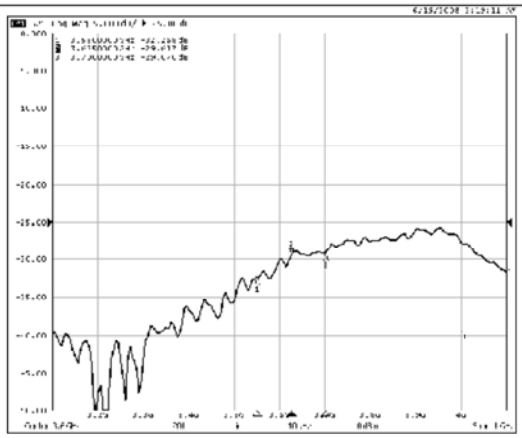
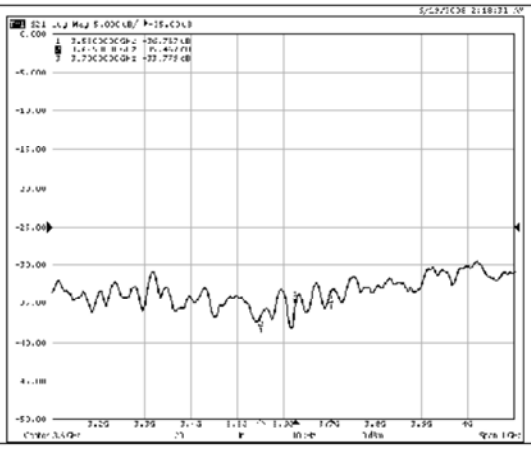
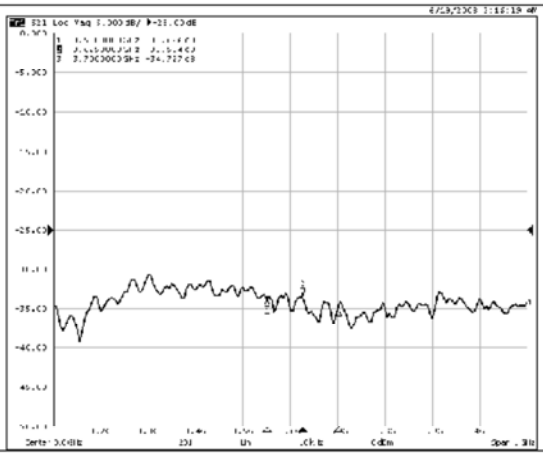
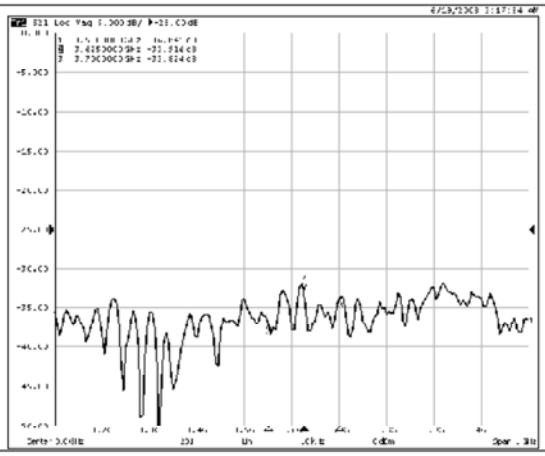
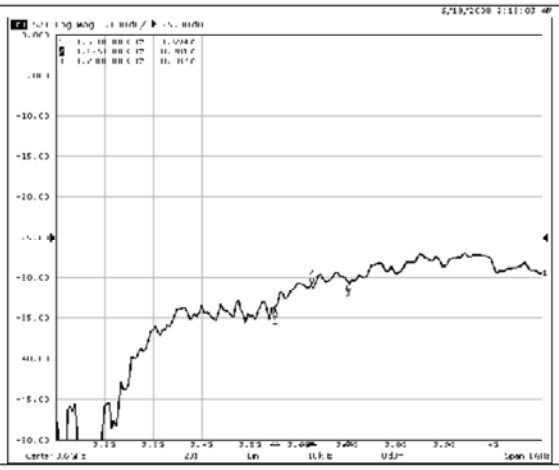
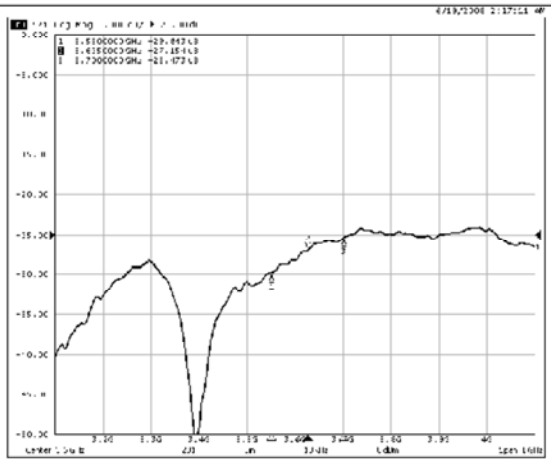


ANT Port #4

No	Frequency	Peak Value		Minimum Value		Avg. Gain	Efficiency
	[MHz]	Value[dBi]	Degree	Value[dBi]	Degree	[dBi]	[%]
1	3500.000	7.263875	105 / 105	-21.542264	120 / 330	-0.200449	95.489392
2	3550.000	8.292220	105 / 90	-27.020771	120 / 225	-0.274228	93.880896
3	3625.000	8.575209	105 / 90	-31.088903	105 / 255	-0.601315	87.069991
4	3700.000	8.417413	90 / 90	-25.476815	30 / 315	-0.680741	85.492079
5	3800.000	7.853179	105 / 105	-28.501379	90 / 255	-0.051043	98.831563



2.3.3 Isolation

Port1-Port2	Port1-Port3
	
Port1-Port4	**Port2-Port3**
	
Port2-Port4	**Port3-Port4**
	

3. Reliability Test

3.1 Reliability Test Specification

3.1.1 Temperature Test

Maintain at 20℃ for 48 hours and at +85℃ for 48 hours without deformation and defects in appearance.

3.1.2 Humidity Test

After maintaining at +50℃ and 95% for 48 hours,
No apparent deformation or defects.

3.1.3 Thermal Shock Test

Conduct 24 cycle tests to maintain at +85℃ for 30 minutes and -40℃ for 30 minutes.
No apparent deformation or defects.

3.1.4 Salt Water Spray Test

After a 96-hour neglect test in an atmosphere saturated with a 5% salt solution at +35°C,
No apparent deformation or defects.

3.2 Reliability test result

3.2.1 Temperature Test

: PASS

3.2.2 Humidity Test

: PASS

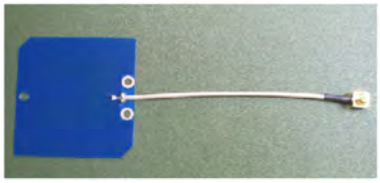
3.2.3 Thermal Shock Test

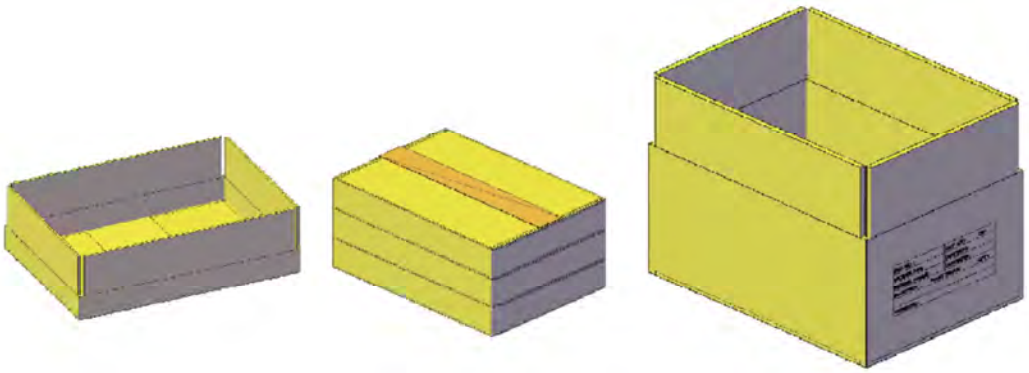
: PASS

3.2.4 Salt Water Spray Test

: PASS

4. Packing





	PART NAME	QTY
1	POLYBAG	20ea
2	INNERBOX (330*250*80mm)	500ea
3	CARTONBOX (365*260*250mm)	1,500ea

Packing quantity can be changed for stability and efficiency.

5. RoHS DATA

5.1 Material Certificate (MSDS)

Submission separately

5.2 RoHS Data

Submission separately