Date :2023.05.18

SPECIFICATION

Product Name	**ANTENNA**
Model Name	**내장형 안테나**
Provider	**RadiAnt**
Part Code.	**RFANT3216120A5T**

Buyer	**Submitted**	**Checked**		**Approved**
RadiAnt	**Submitted**	**Checked**	**Checked**	**Approved**
				

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1. Product History

LIST					
NO	Data	Front	After	Change	REV
1	2023.05.19			Approval	0
2					
3					
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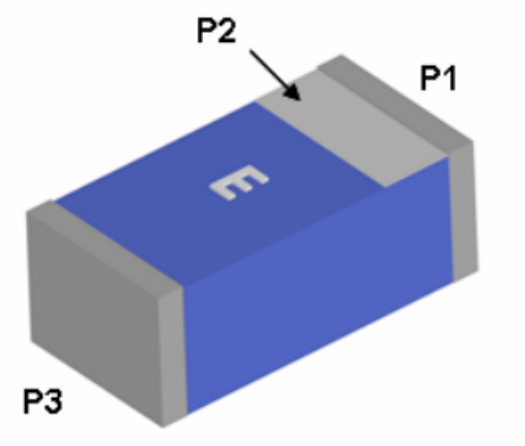
2. Electrical Feature

2.1. Product Features

- 2.4GHz CHIP ANT
- 2.4GHz ISM Band RF Application
- Provider Walsin Technology corporation

CONSTRUCTION



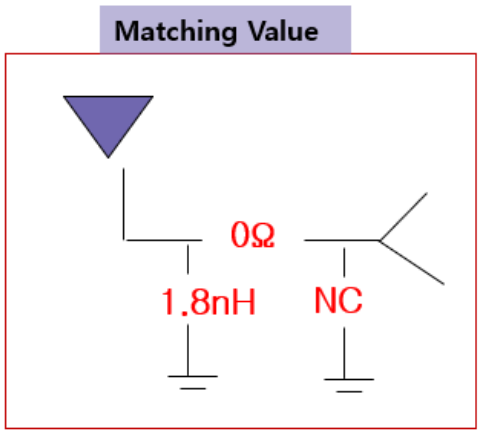
PIN	Connection
1	Feeding
2	Identification Mark
3	Soldering terminal

2.2. Frequency Band.

Frequency Range	2400 ~ 2485MHz

2.3 Matching circuit

Matching Circuit is composed in free space of 2.1 frequency band while satisfying customer's requirements.



2.4 Impedance

2.2.1 Input Impedance

- R =50Ω

2.5 Detailed Passive Electrical Spec

Impedance Matching optimization is performed under the below mentioned environment.

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2.5.1 Free Space Environment

Frequency Range	2400 ~ 2485MHz			
FREQUENCY	2400	2425	2450	2485
VSWR	2.71	2.21	1.75	1.34
AVG.Gain[dBi]	-4.84	-4.28	-4.15	-3.61
Peak Gain[dBi]	0.65	1.22	1.24	1.77

2.6 Maximum Power

- **P=2W Under**

3. Environment Test

3.1 Operating Temperature Test

3.1.1 Test Condition

Temperature = -30℃, +80℃

Duration time = 1 hour

3.1.2 Requirements

After the test, the antenna must not have an outer damage, and also it must pass requirement shown in 2.4.

3.1.3 Measuring Method

Antenna is kept at -30℃ for 1 hour and +80℃ for 1 hour and than passed test of 2.4

3.2 Temperature Cycling Test

3.2.1 Test Condition

- Low cycling Temperature TLC = -40℃
- High cycling Temperature THC = +80℃
- 1Cycle = 4 hours
- Test number = 10Cycle

3.2.2 Requirements

After the test, the antenna must not have an outer damage, and also it must pass requirement shown in 2.4.

3.2.3 Measuring Method

Antenna is kept at low temperature -40℃ for 2 hours and increase the temperature up to +80℃ within 2 hour and kept for another 2 hours at the same temperature will be 1 cycle. As shown in Figure 3.2.1 repeat 10 cycle and kept for 2 hour in normal temperature.

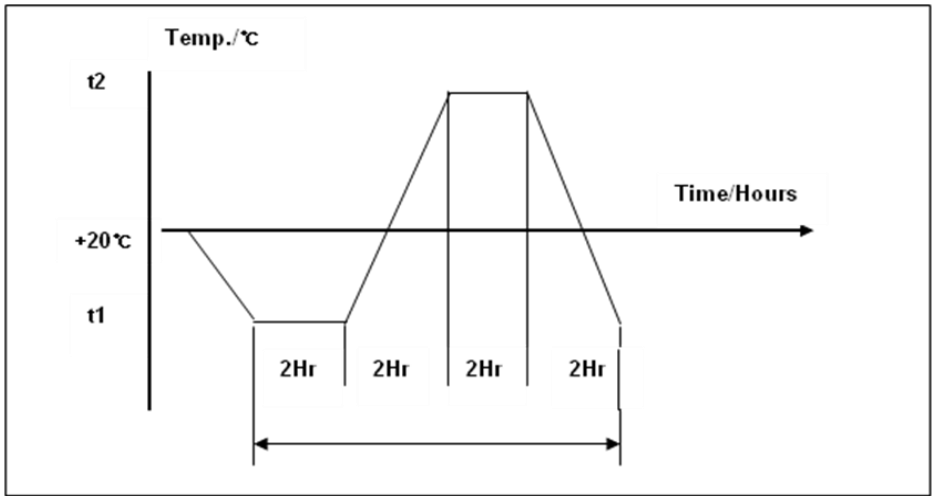


Figure 3.2.1 Temperature Cycling

3.3 Corrosion Resistance Test

3.3.1 Test Condition

- NaCl = 90%
- Water Temperature = 60℃
- Duration Time = 96 hours

3.3.2 Requirements

After the test, the antenna must not have an outer damage, and also it must pass requirement shown in 2.4.

3.3.3 Measuring Method

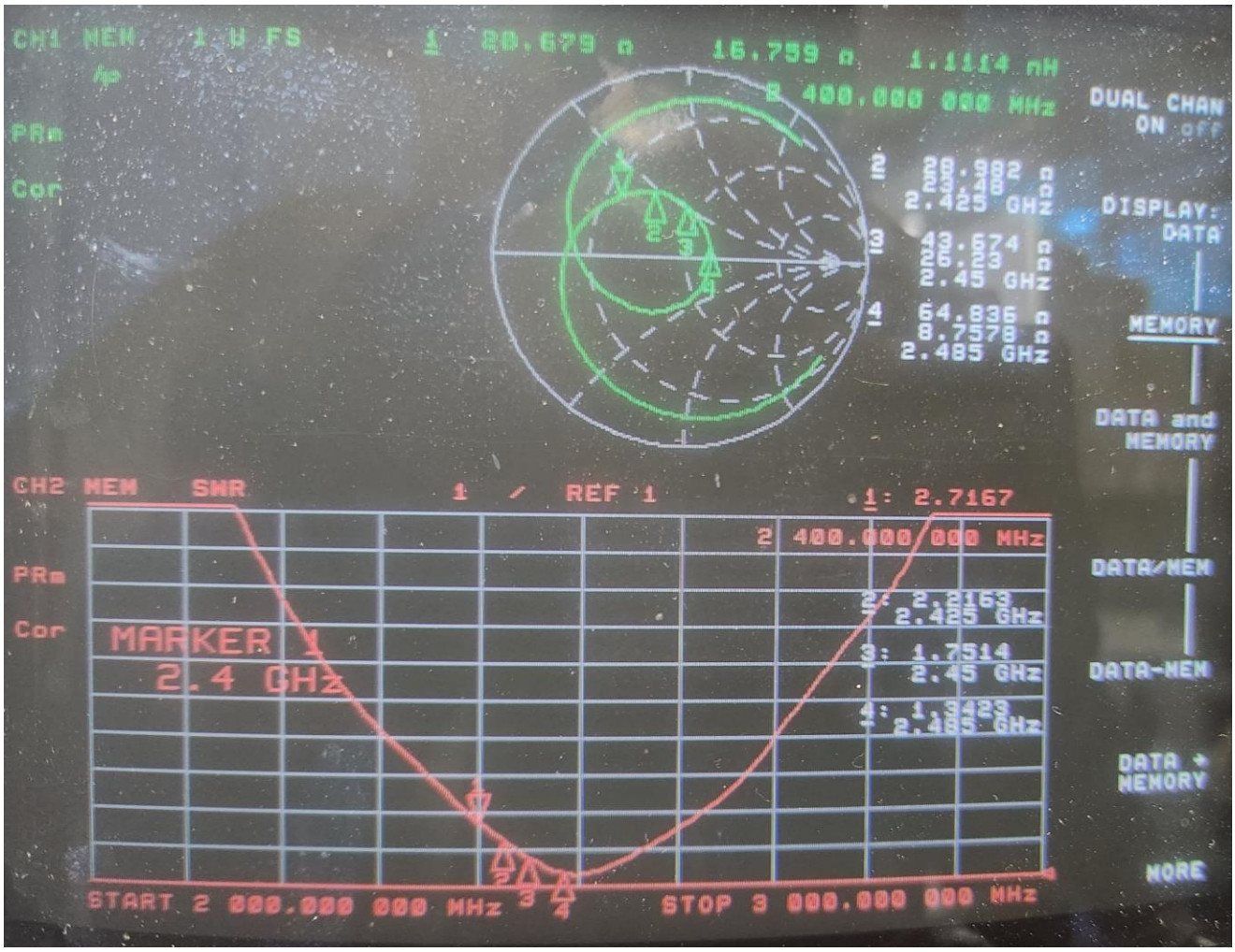
Antenna is soaked in sodium chloride solution at temperature +60℃ and 90%(NaCl) for 96 hours and dry out.

4. Overall Performance

4.1 Test Environment

- ENA Series Network Analyzer E5071C , 100KHz ~ 8.5GHz
- 3D Anechoic chamber 400MHz ~ 6GHz

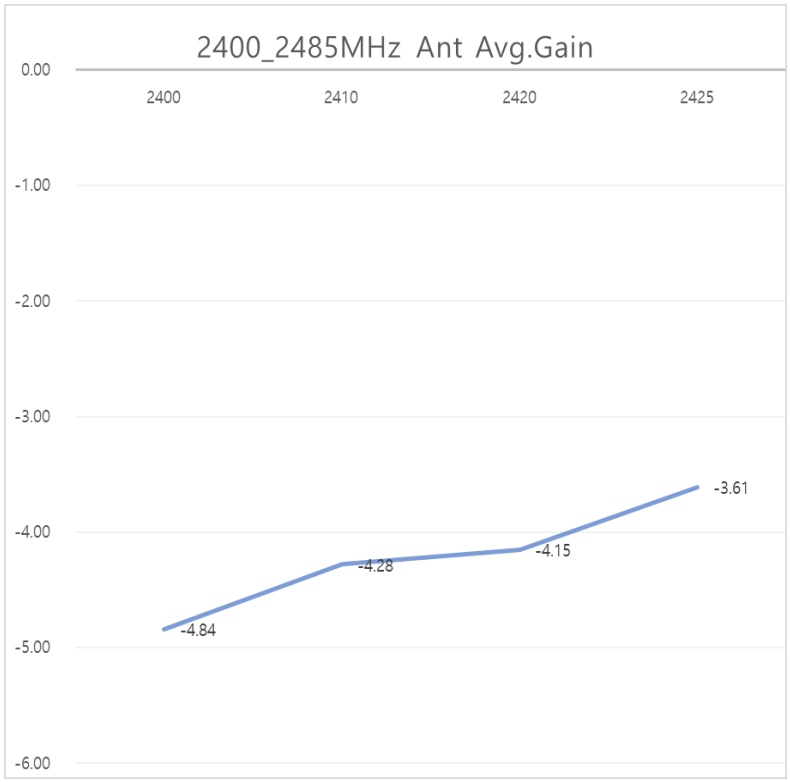
4.2 VSWR

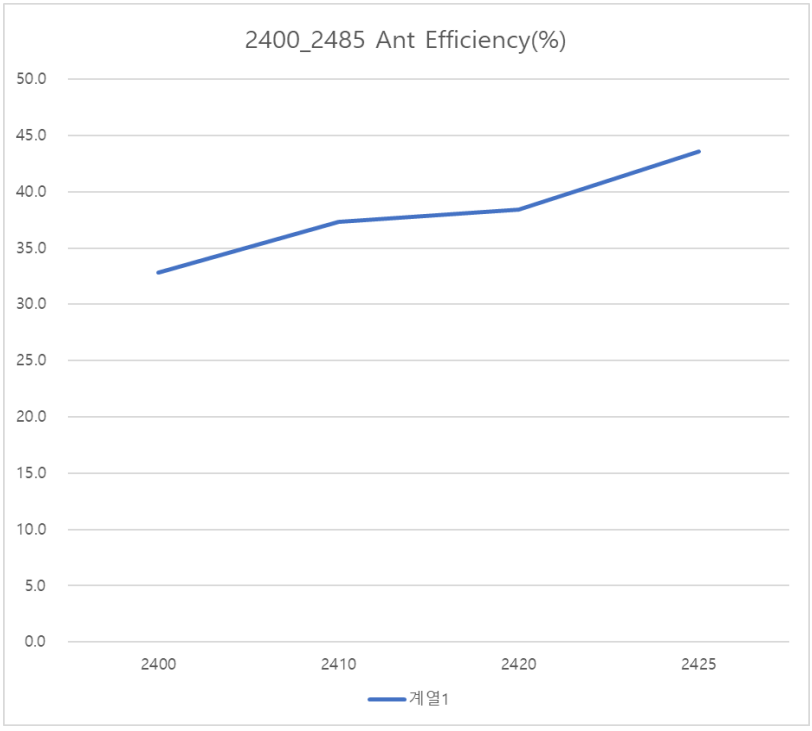


FREQUENCY	2400	2425	2450	2485
VSWR	2.71	2.21	1.75	1.34

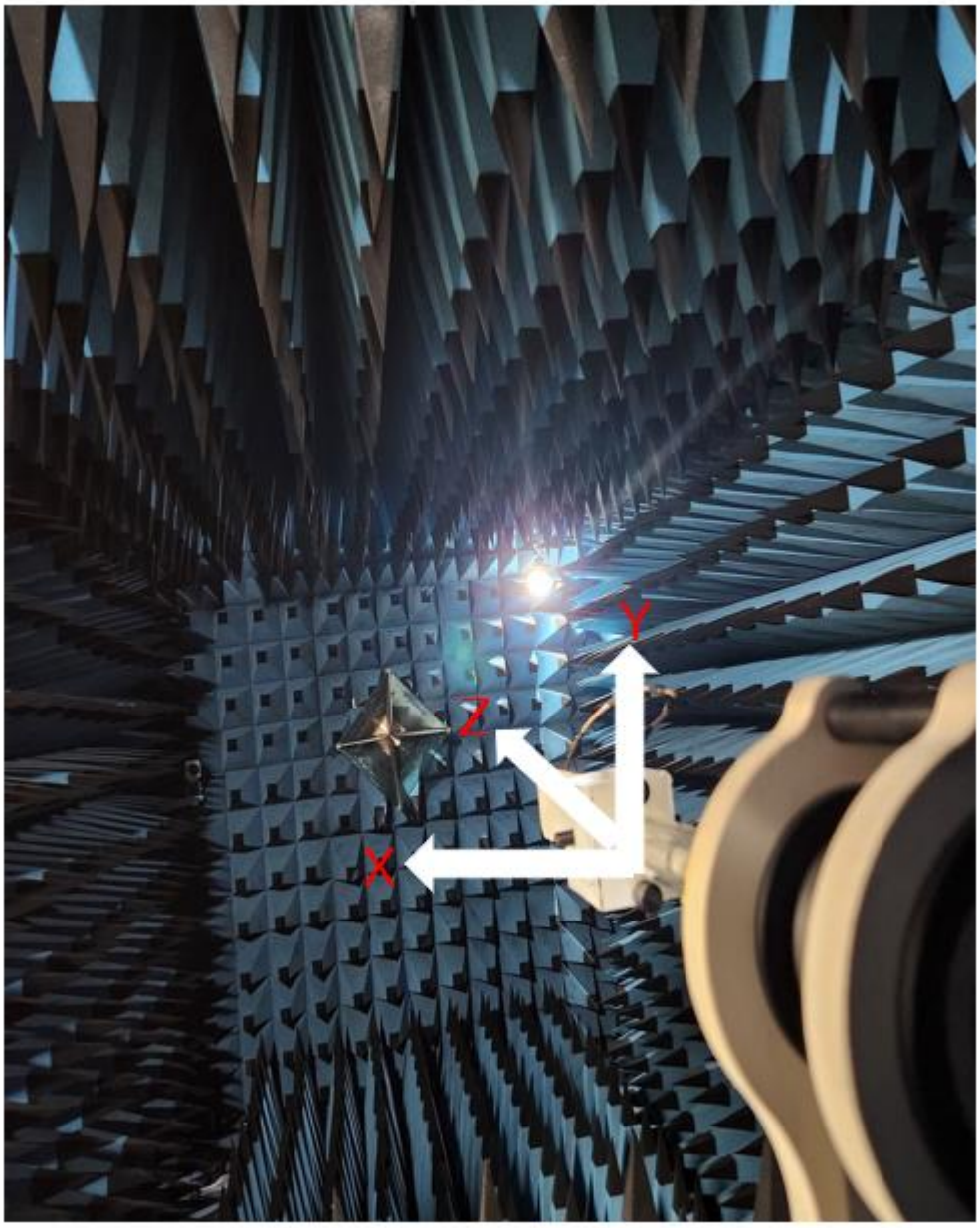
4.3 Passive Ant Gain

4.3.1 2400 ~ 2485MHz





4.4 Radiation Pattern

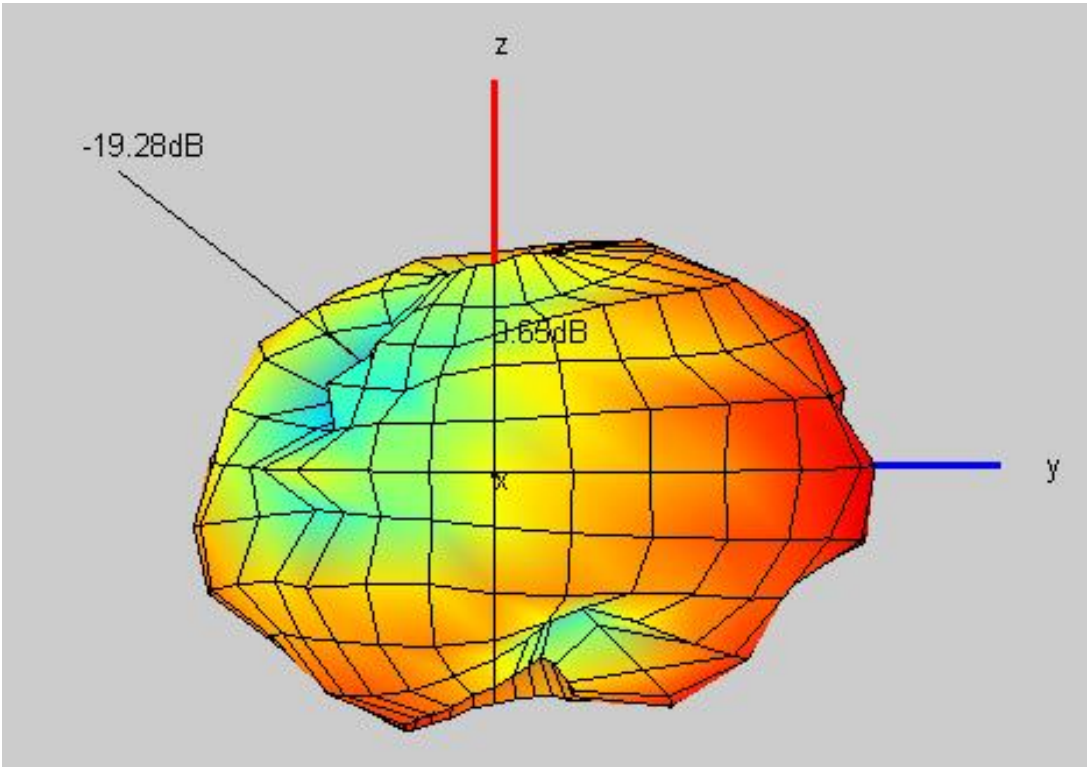


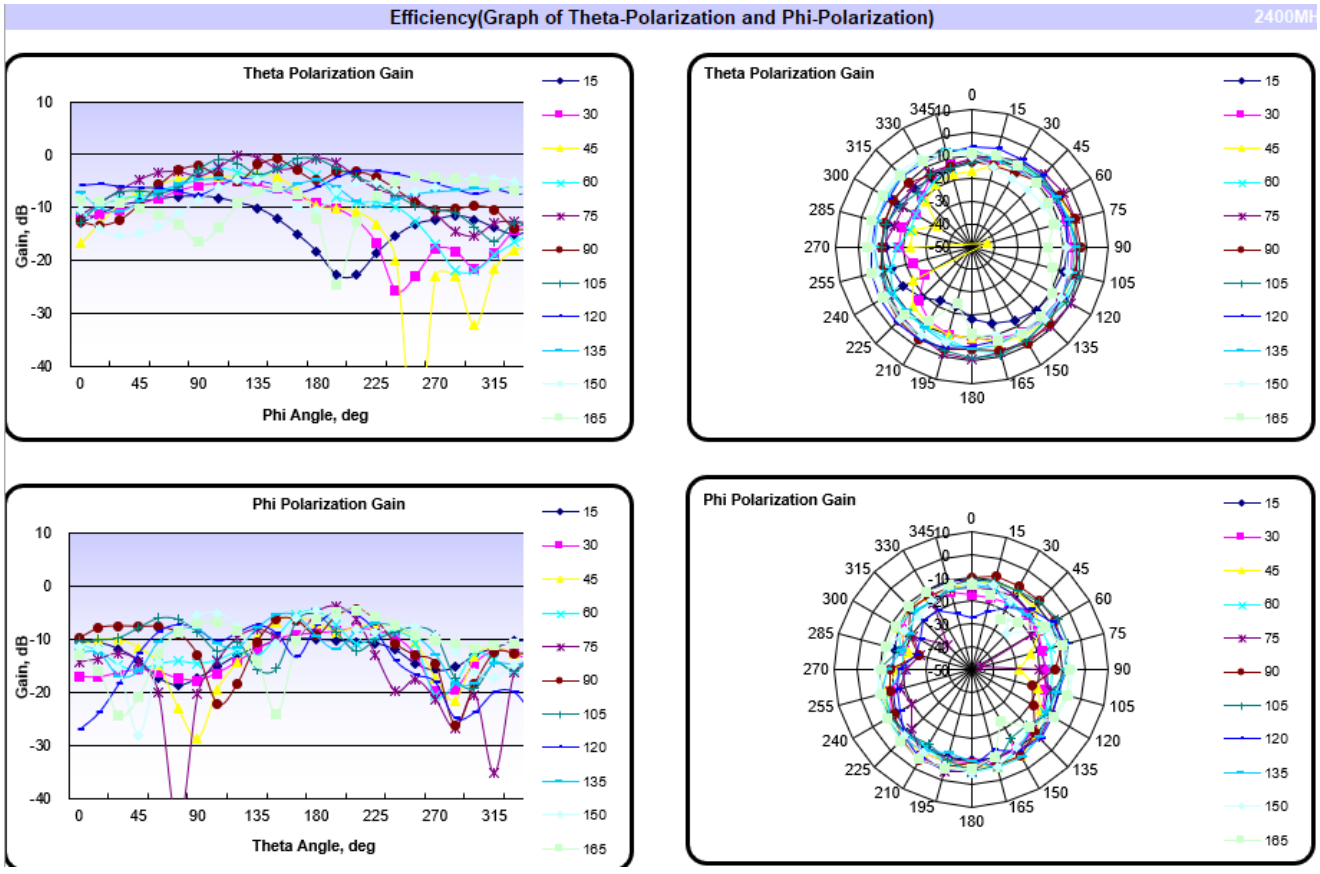
H plane : the tangent of XY

E1 plane : the tangent of XZ

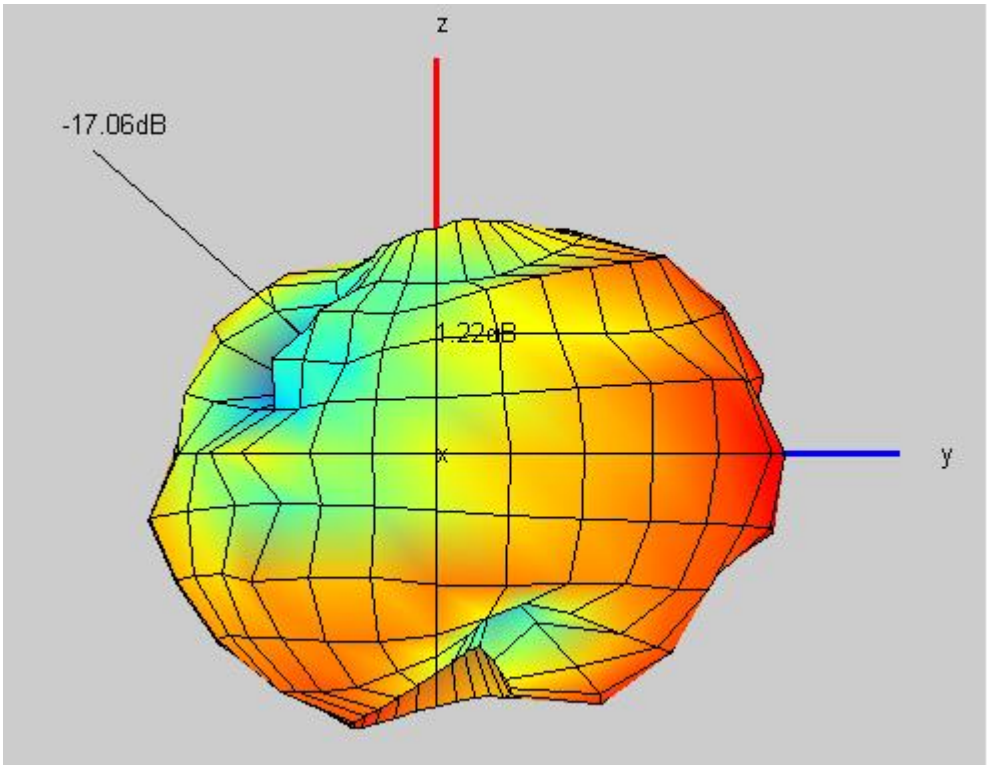
E2 plane : the tangent of YZ

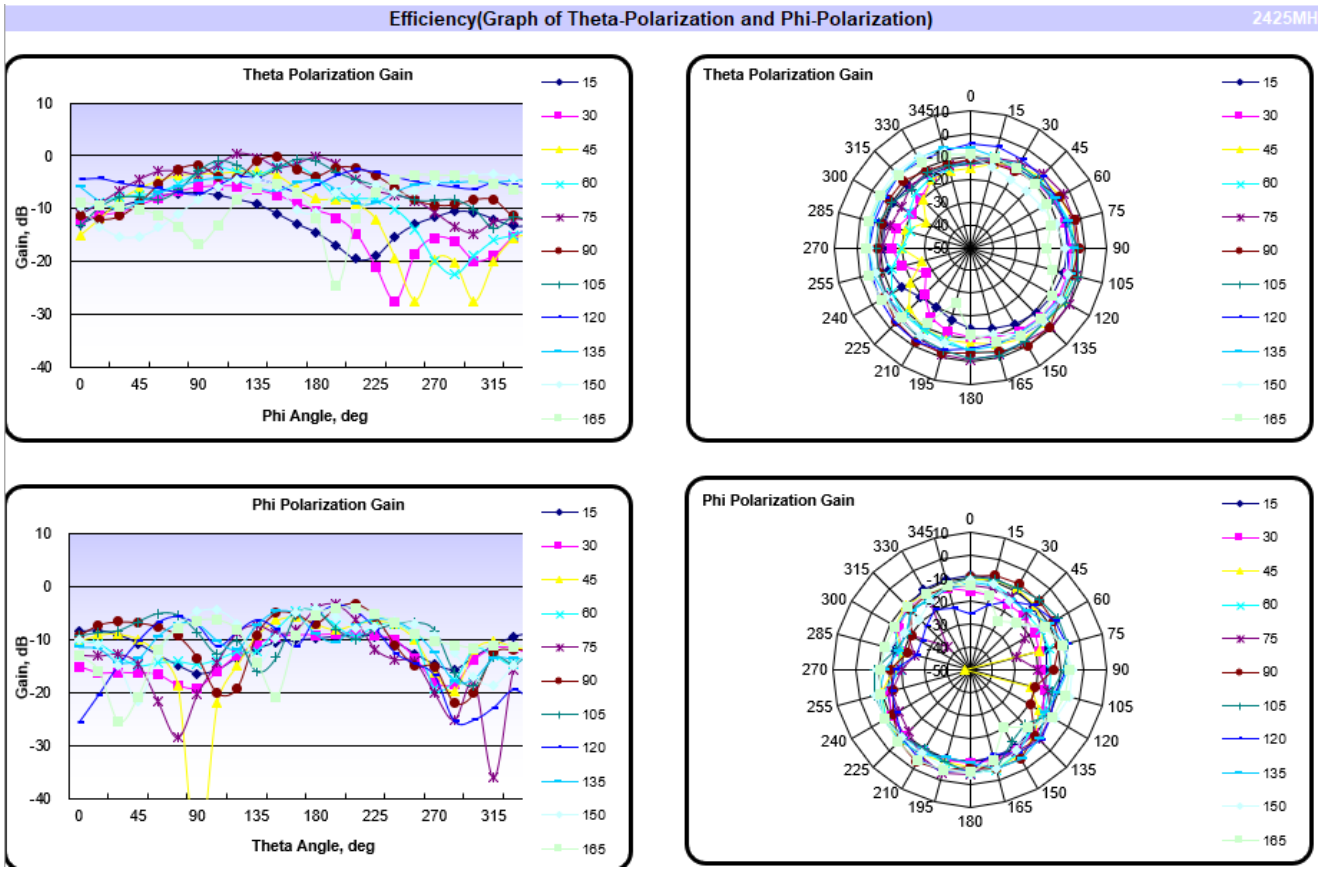
4.4.1 2400MHz


z
-19.28dB
3.68dB
x
y

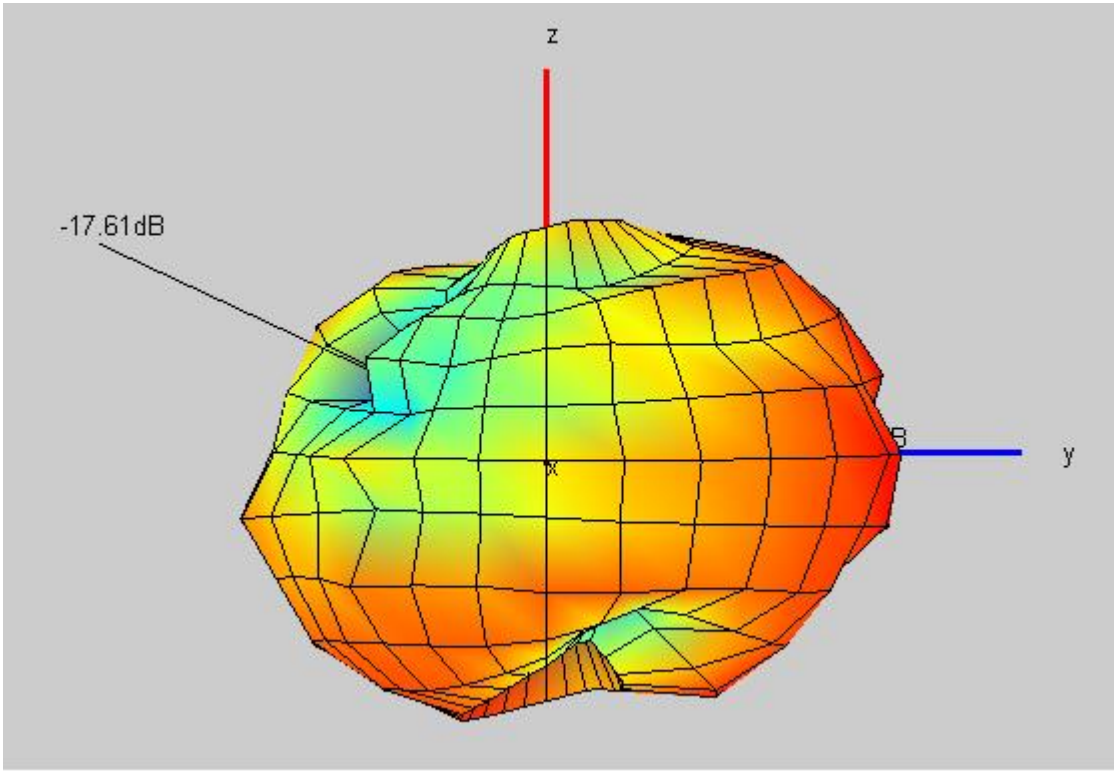

Efficiency(Graph of Theta-Polarization and Phi-Polarization)
Theta Polarization Gain
Gain, dB
Phi Angle, deg
Theta Polarization Gain
Phi Polarization Gain
Gain, dB
Theta Angle, deg
Phi Polarization Gain
15
30
45
60
75
90
105
120
135
150
165

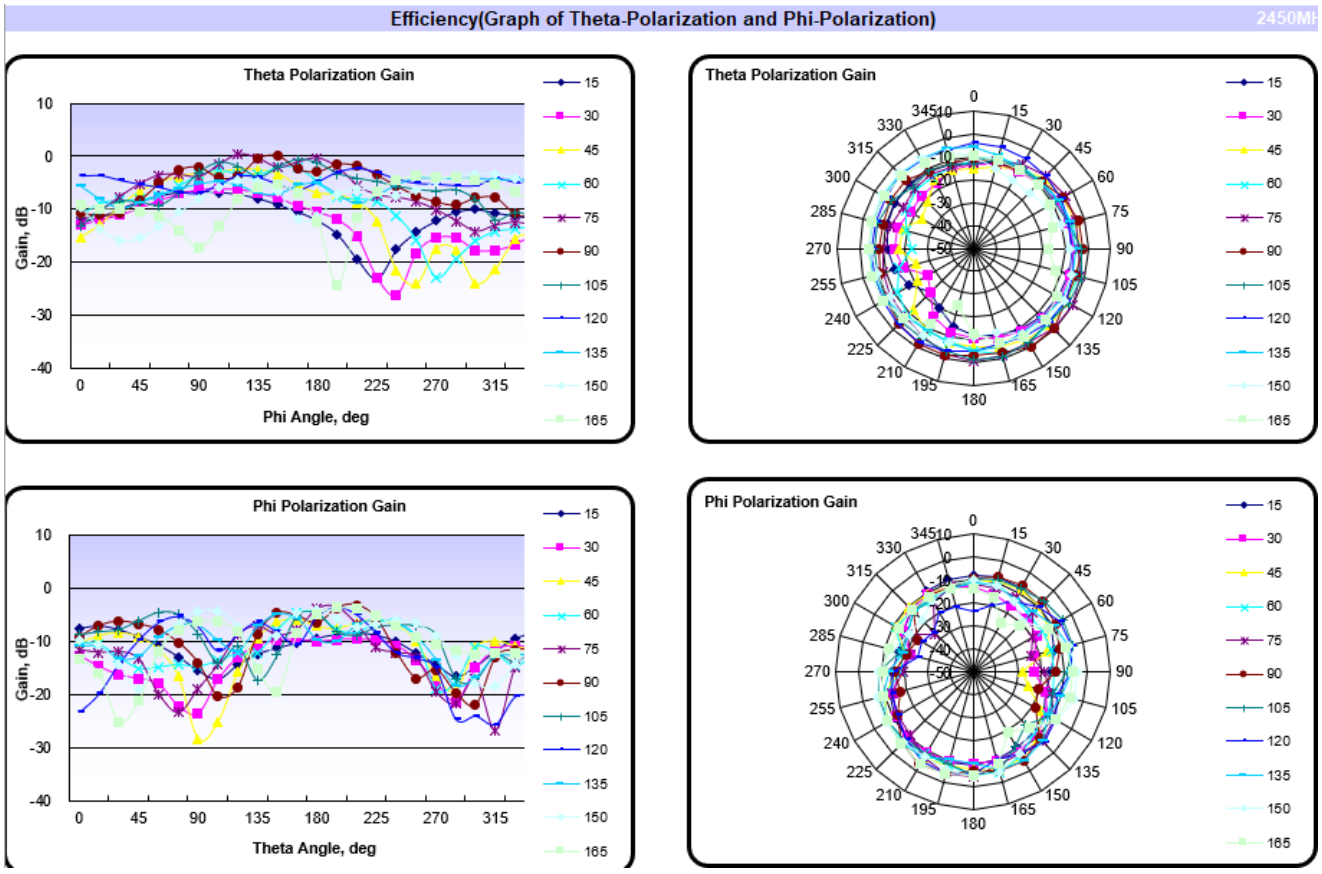
4.4.2 2425MHz


z
-17.06dB
1.22dB
x
y

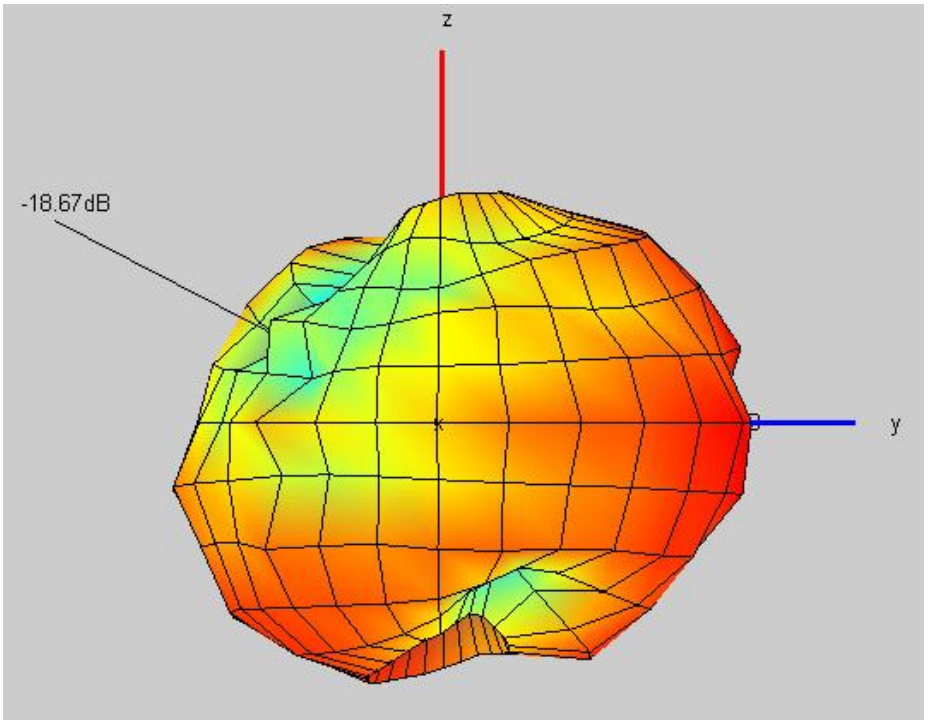

Efficiency(Graph of Theta-Polarization and Phi-Polarization)
2425MH
Theta Polarization Gain
Gain, dB
Phi Angle, deg
Theta Polarization Gain
Phi Polarization Gain
Gain, dB
Theta Angle, deg
Phi Polarization Gain
15
30
45
60
75
90
105
120
135
150
165

4.4.3 2450MHz

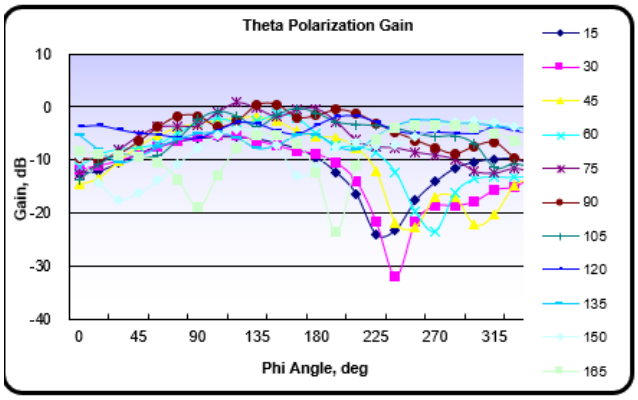

z
-17.61dB
y
x

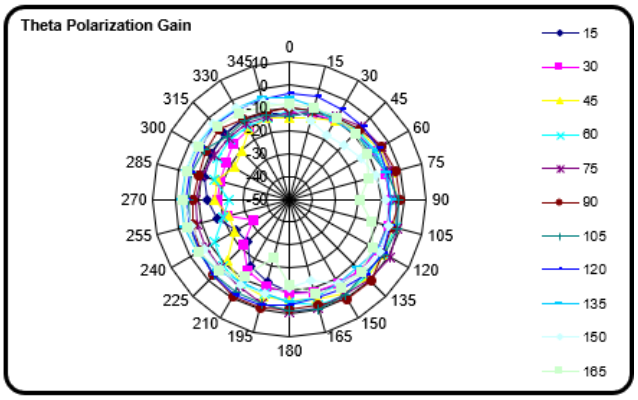

Efficiency(Graph of Theta-Polarization and Phi-Polarization)
2450MH
Theta Polarization Gain
Gain, dB
Phi Angle, deg
Theta Polarization Gain
Phi Polarization Gain
Gain, dB
Theta Angle, deg
Phi Polarization Gain
15
30
45
60
75
90
105
120
135
150
165

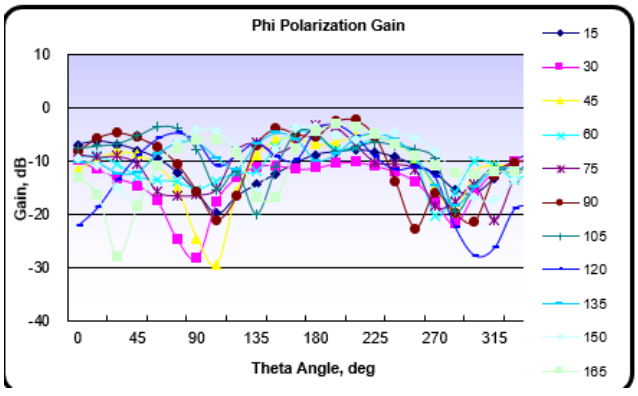
4.4.4 2485MHz

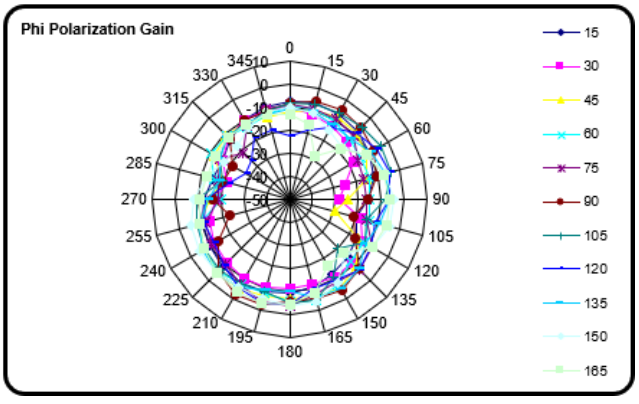


Efficiency(Graph of Theta-Polarization and Phi-Polarization) 2485MH









5. Drawing

Symbol	Dimension (mm)
L	3.20 ± 0.20
W	1.60 ± 0.10
T	1.20 ± 0.10
A	0.25 ± 0.15

Figure