SPECIFICATION

Product Name	Smart Mold Sensor
Model Name	NHS24
Provider	ITOFROM
Part Code.	ITF3216120A5T

– Table of Contents –

1. Product History

				LIST		
NO	Data	Front	After	Change		REV
1	2024.04.01			Approval		0
2						
3						
4						
5						
6						
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10						
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2. Electrical Feature

2.1. Product Features

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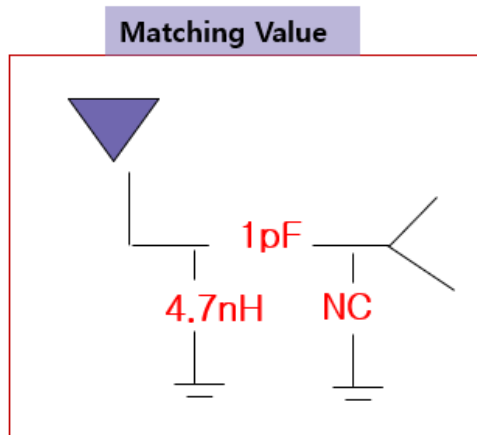- **Provider Walsin Technology corporation**

CONSTRUCTION
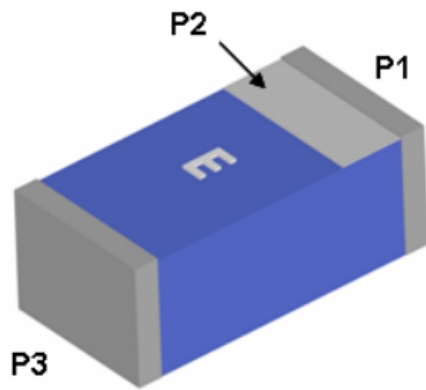
PIN	Connection
1	Feeding
2	Identification Mark
3	Soldering terminal

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.

Matching Value

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	2.18	1.81	1.63	1.91
AVG.Gain[dBi]	-4.18	-4.27	-4.59	-5.41
Peak Gain[dBi]	1.71	1.59	1.26	0.64

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
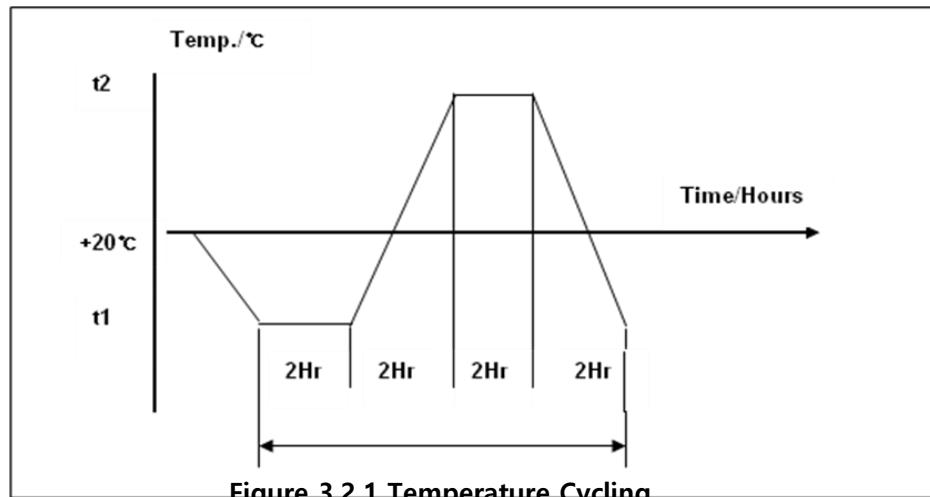
3.3 Corrosion Resistance Test

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
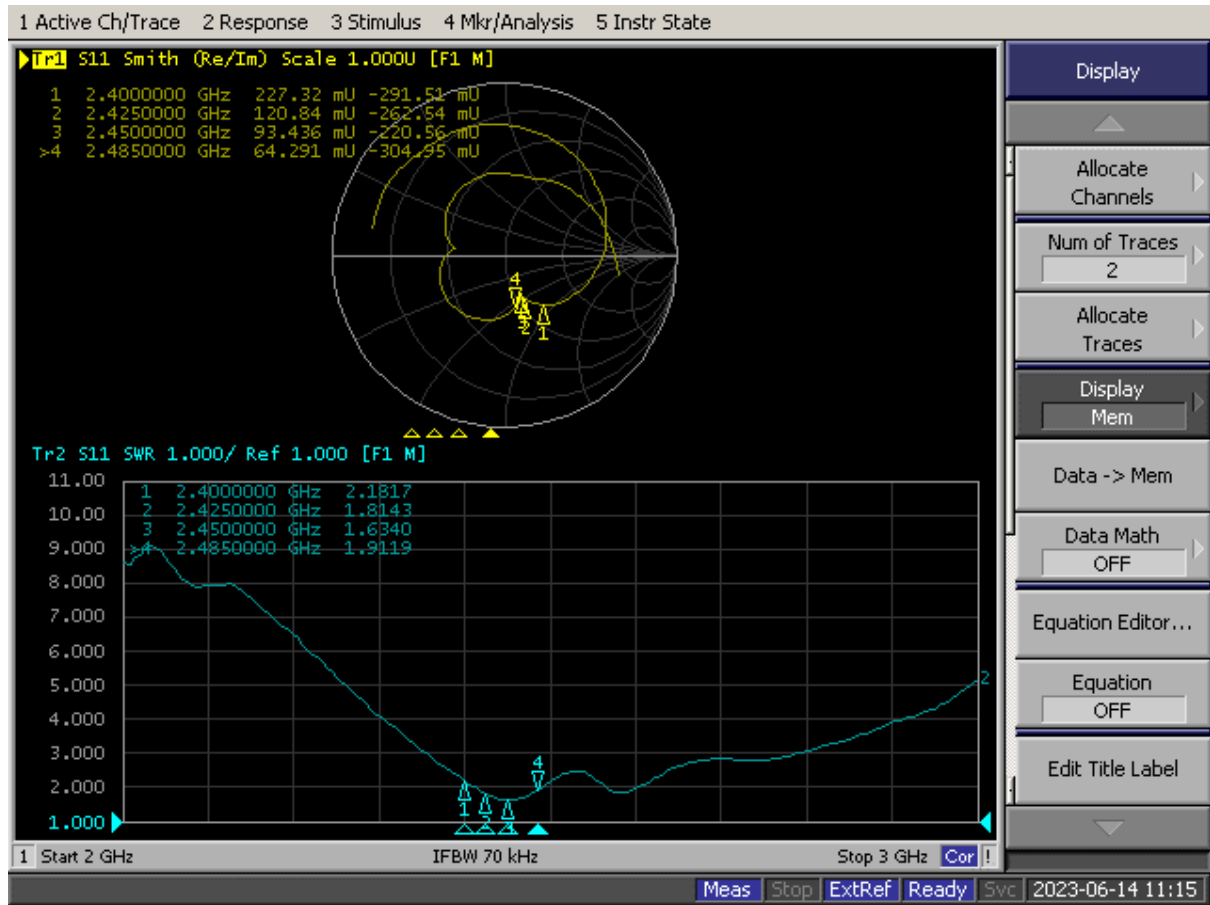
FREQUENCY	2400	2425	2450	2485
VSWR	2.18	1.81	1.63	1.91

4.3 Passive Ant Gain

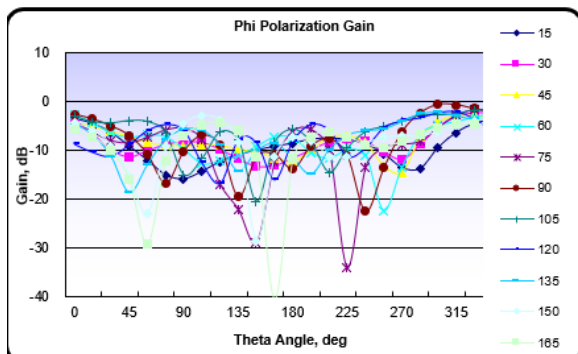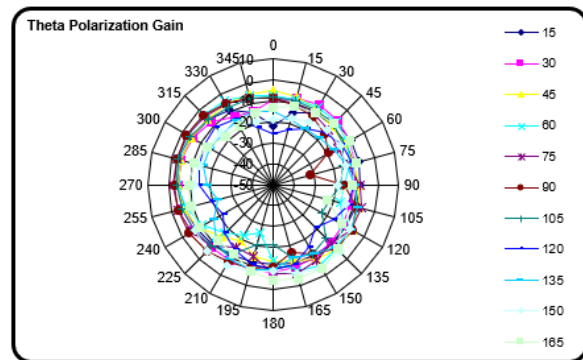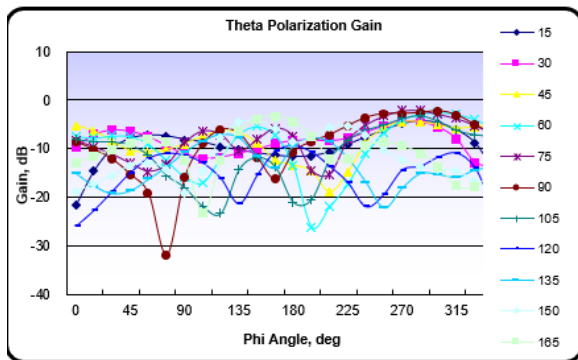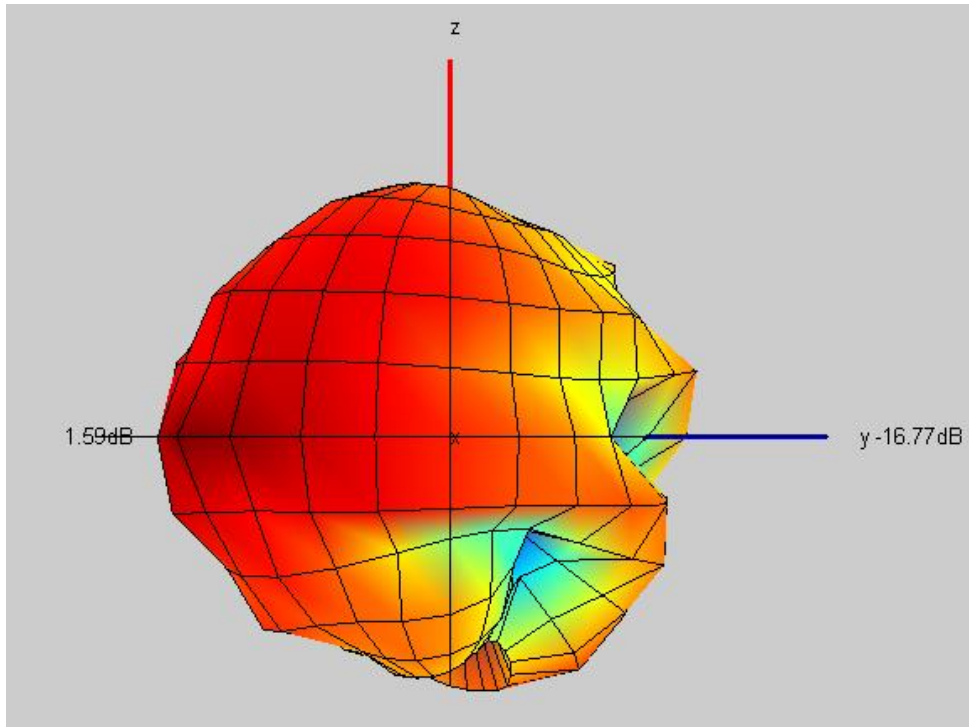## 4.3.1 2400 ~ 2485MHz
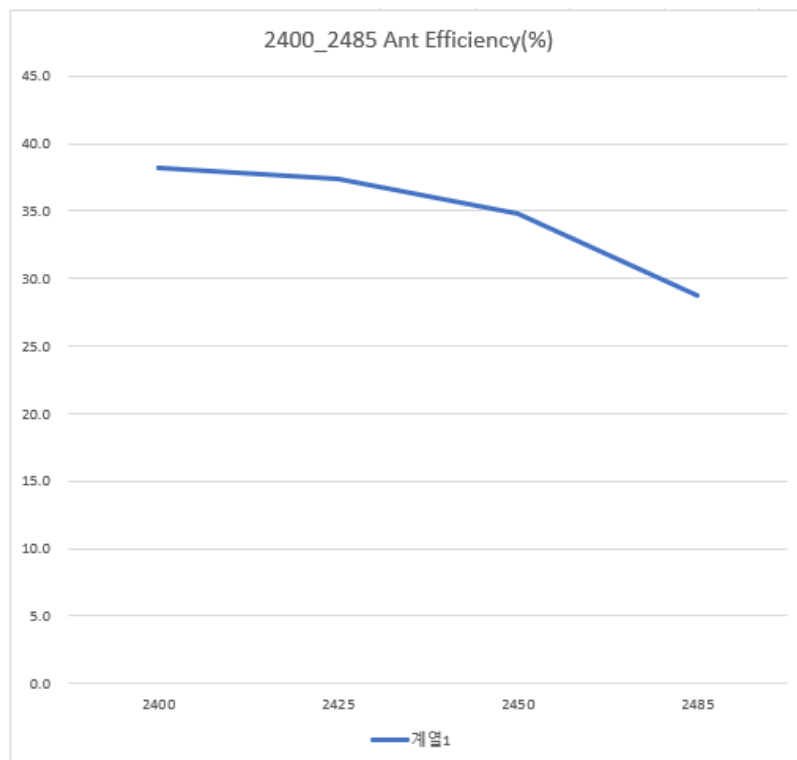
4.4 Radiation Pattern
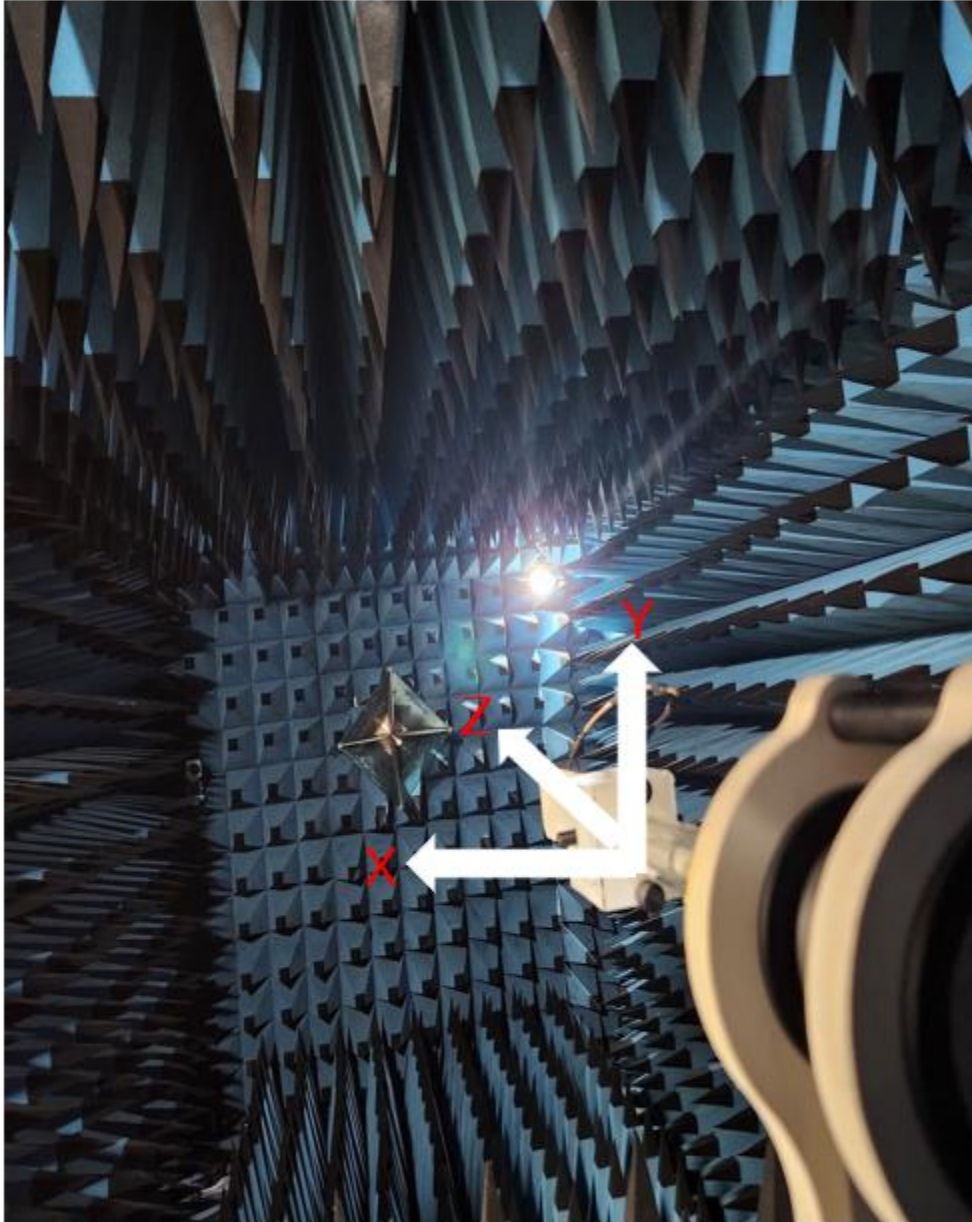
H plane : the tangent of XY
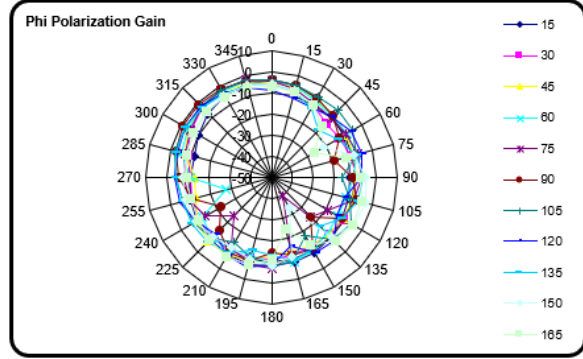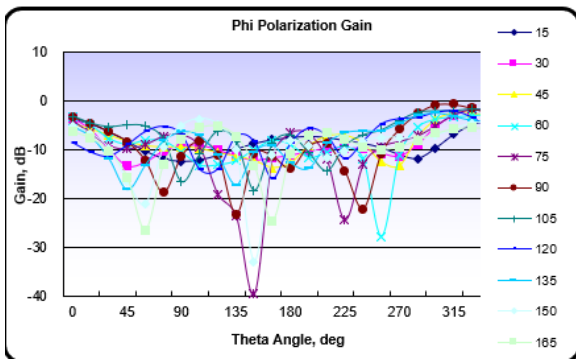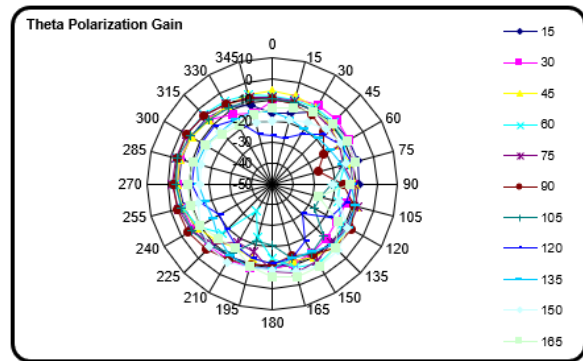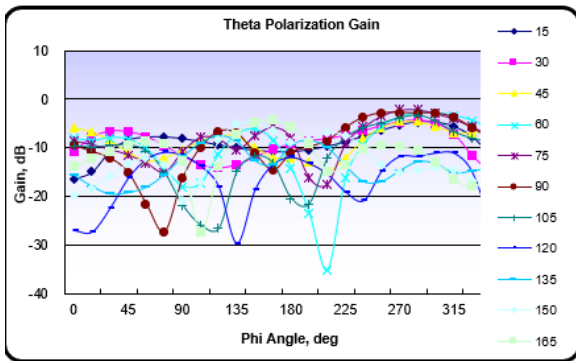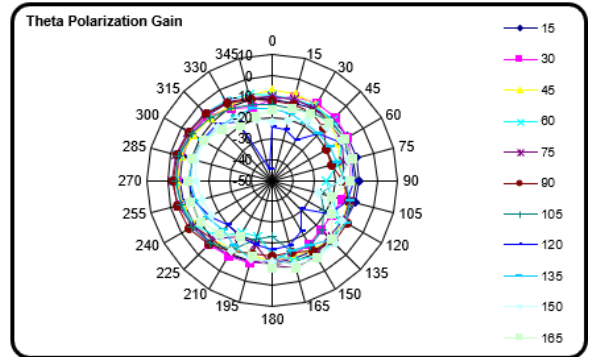**E1 plane : the tangent of XZ**
E2 plane : the tangent of YZ

4.4.1 2400MHz
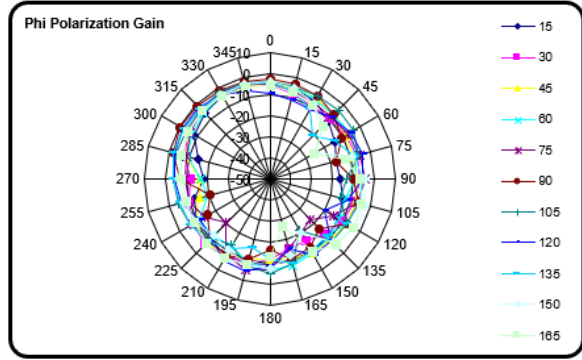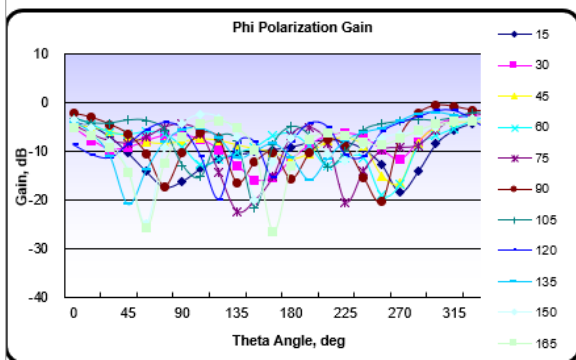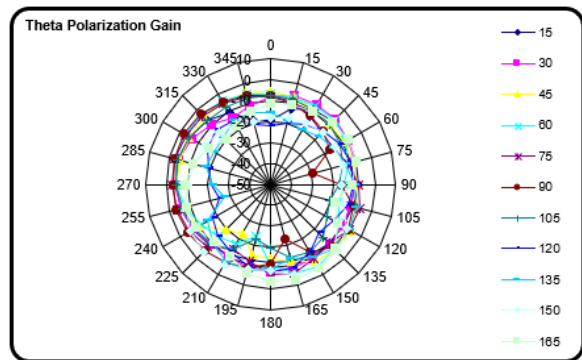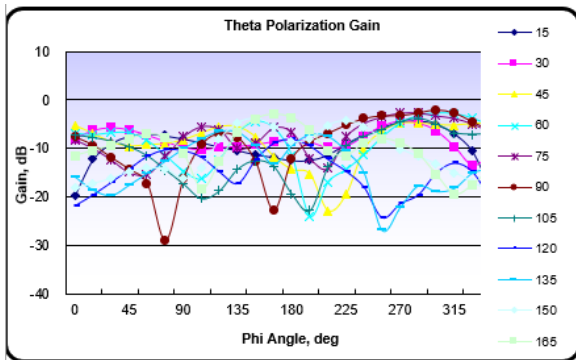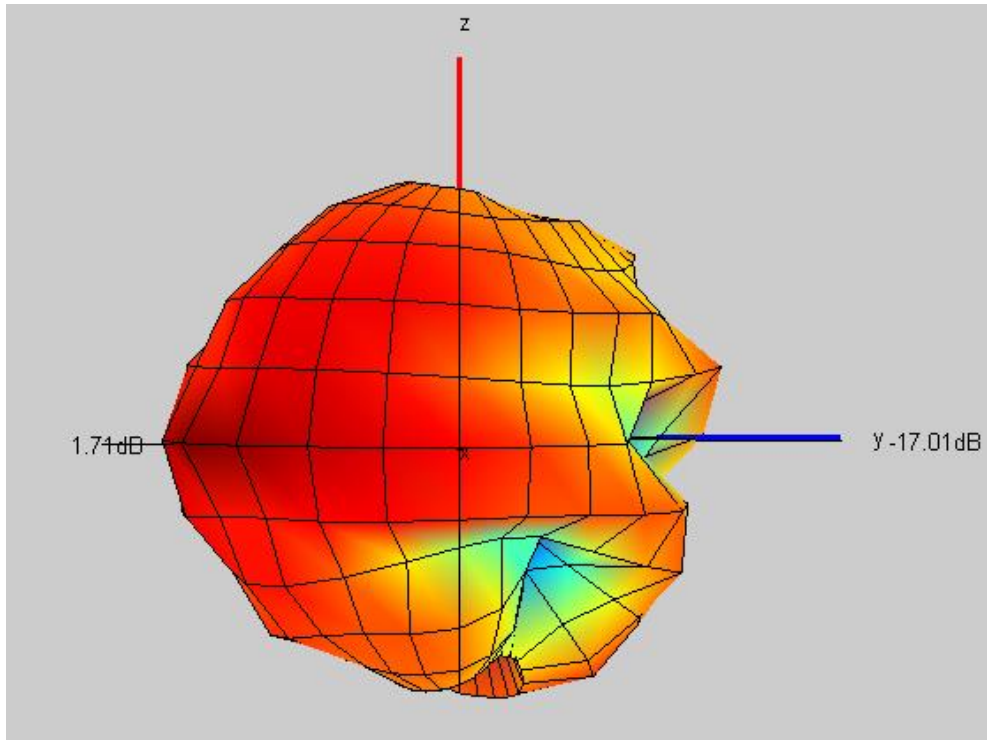
4.4.2 2425MHz
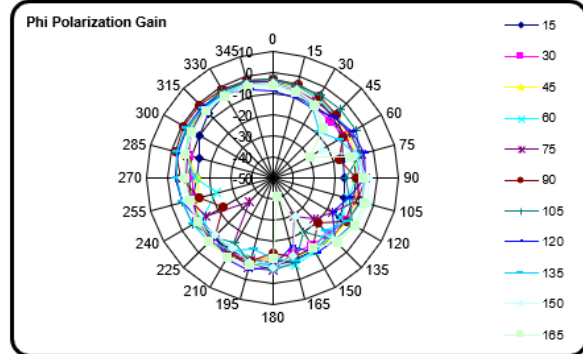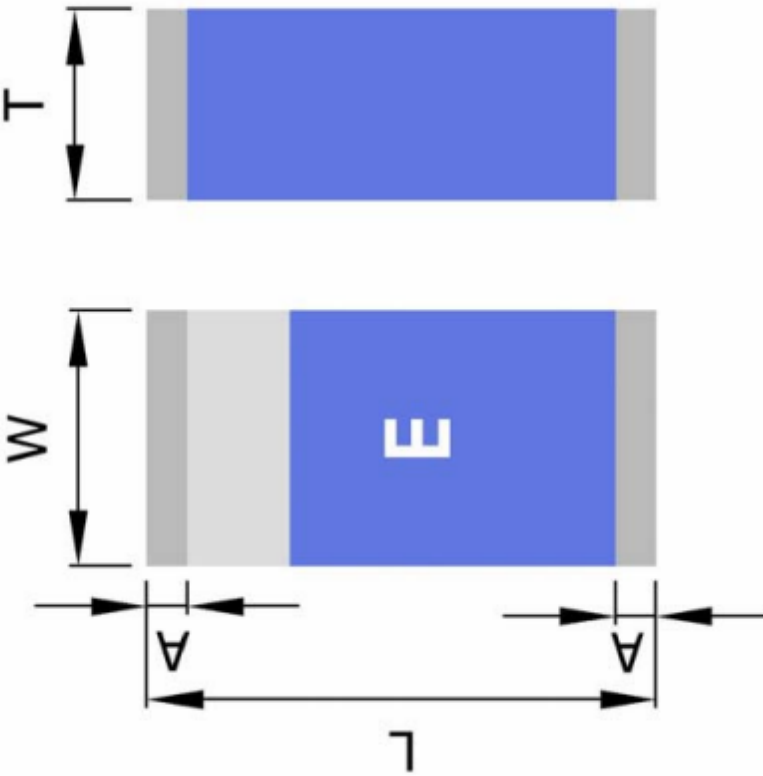
4.4.3 2450MHz
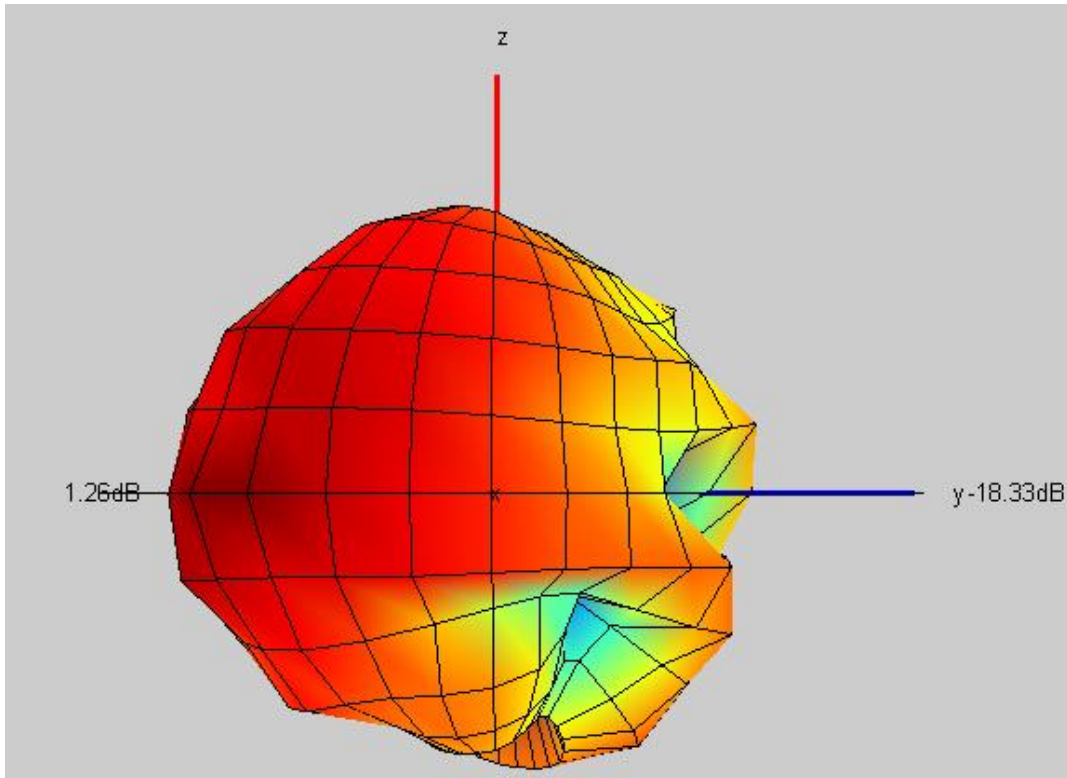
4.4.4 2485MHz
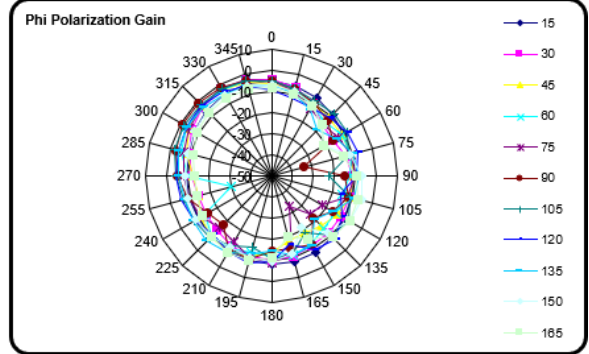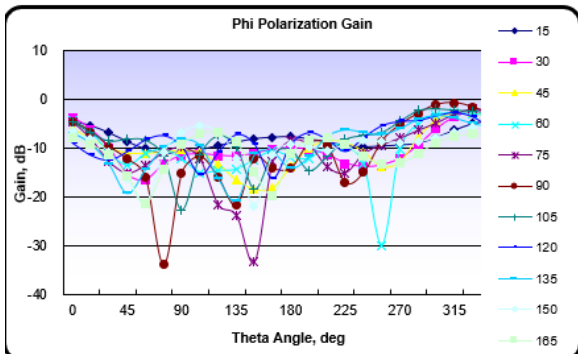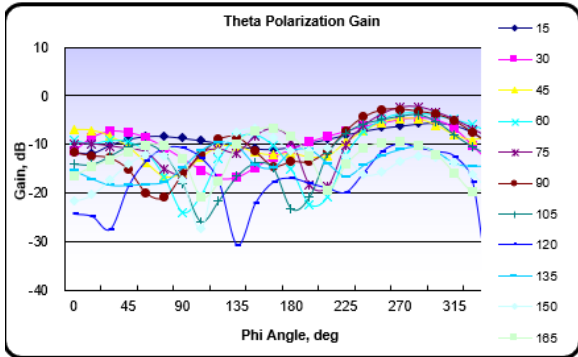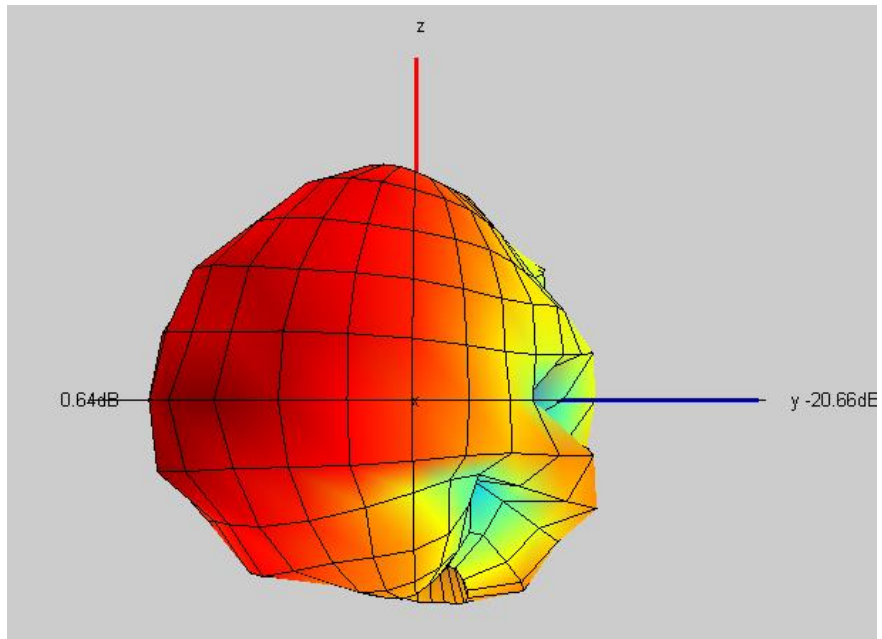
5. Drawing

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