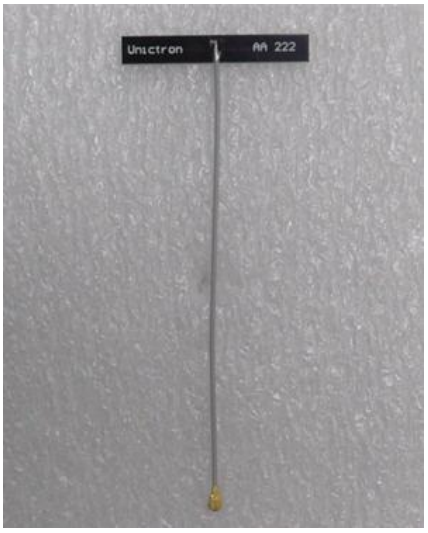
40.0 x 6.0 x 0.5 (mm) Wi-Fi Dual Band PCB Substrate Antenna

Engineering Specification

1. Explanation of Product Number

H	2	B	1	P	D	1	A	1	C	0	6	0	0
				(1)	(2)		(3)	(4)		(5)			



Antenna type :PIFA

Product Code

(1) Product Applications:

P: Wi-Fi dual band antenna

(2) Dimensions:

D1: 40.0 x 6.0 x 0.5 (mm)

(3) Material:

A: GF

(4) Working Frequencies:

1C: 2400~2500 & 4900~5900 MHz

(5) Antenna Series:

06: serial number

(Connector(MHF I)+Cable(ϕ 1.13mm, gray),L=100 mm, Tape:TTA40D))

Prepared by : Tom	Designed by : Tom	Checked by : Chinling	Approved by : Herbert

TITLE : 40.0 x 6.0 x 0.5 (mm) Wi-Fi Dual Band PCB Substrate Antenna (L=100mm) Engineering Specification	DOCUMENT NO.	H2B1PD1A1C0600	REV. D

2. Features

*Stable and reliable in performances
*Compact size
*RoHS compliance

3. Applications

* IEEE802.11n/a/b/g.
* Hand-held devices when Wi-Fi(802.11n/a/b/g) functions are needed.

4. Description

Unictron's antenna series are specially designed for Wi-Fi(802.11n/a/b/g) applications. Based on Unictron's proprietary design and processes, this antenna has excellent stability and sensitivity to consistently provide high signal reception efficiency.

5. Operating Condition:

Temperature -10 to +85 °C
Humidity 10 to 95% RH

6. Storage Condition:

Temperature -10 to +85 °C
Humidity 10 to 95% RH

7. Electrical Specifications

(Antenna is attached on a 2.0mm-thick ABS + PC material plate)

7-1. 2400~2500 MHz Band

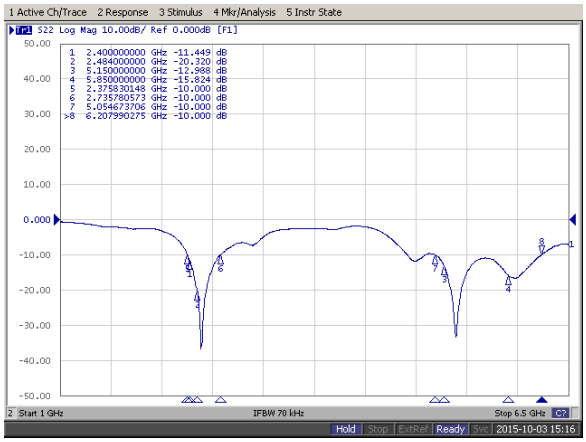
Characteristics	Specifications	Unit
Outline Dimensions	40.0 x 6.0 x 0.5	mm
Working Frequency (Center Frequency)	2400~2500 (2450)	MHz
Bandwidth	100 Min.	MHz
VSWR	2 Max.	
Impedance	50	Ω
Polarization	Linear Polarization	
Peak Gain	5.5 Max.	dBi
Efficiency	84.6 Max.	%

7-2. 4900~5900 MHz Band

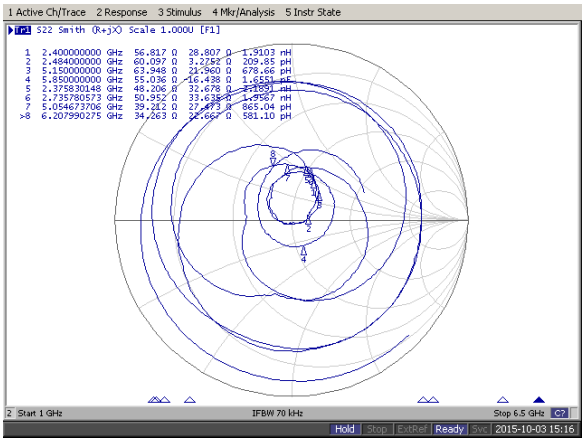
Characteristics	Specifications	Unit
Working Frequency (Center Frequency)	4900~5900 (5400)	MHz
Bandwidth	1000 Min.	MHz
VSWR	2 Max.	
Impedance	50	Ω
Polarization	Linear Polarization	
Peak Gain	6.0 Max.	dBi
Efficiency	83.2 Max.	%

7-3. Return Loss & Smith Chart

Return Loss



Smith Chart



7-4. Measurement Setup

1. Reflection Coefficient Measurement

- Equipment : Network Analyzer(Agilent E5071A) (Fig. 1)
- Item : Impedance、Return loss、VSWR

Fig. 1 Network Analyzer

2. Gain Pattern Measurement

(a) Equipment : Anechoic Chamber, Network Analyzer (Agilent E5071C), Standard Horn. (Fig. 2)

(b) Item : Gain . Chamber Dimension : 8m x 4m x 4m

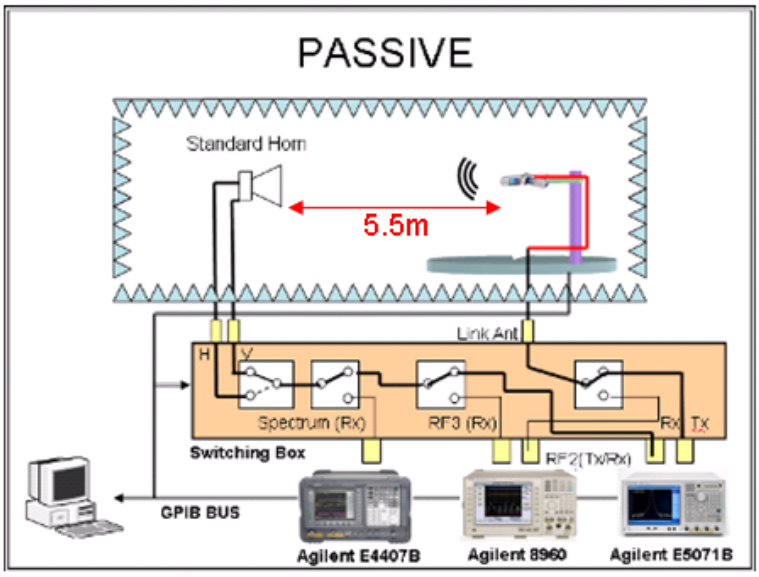
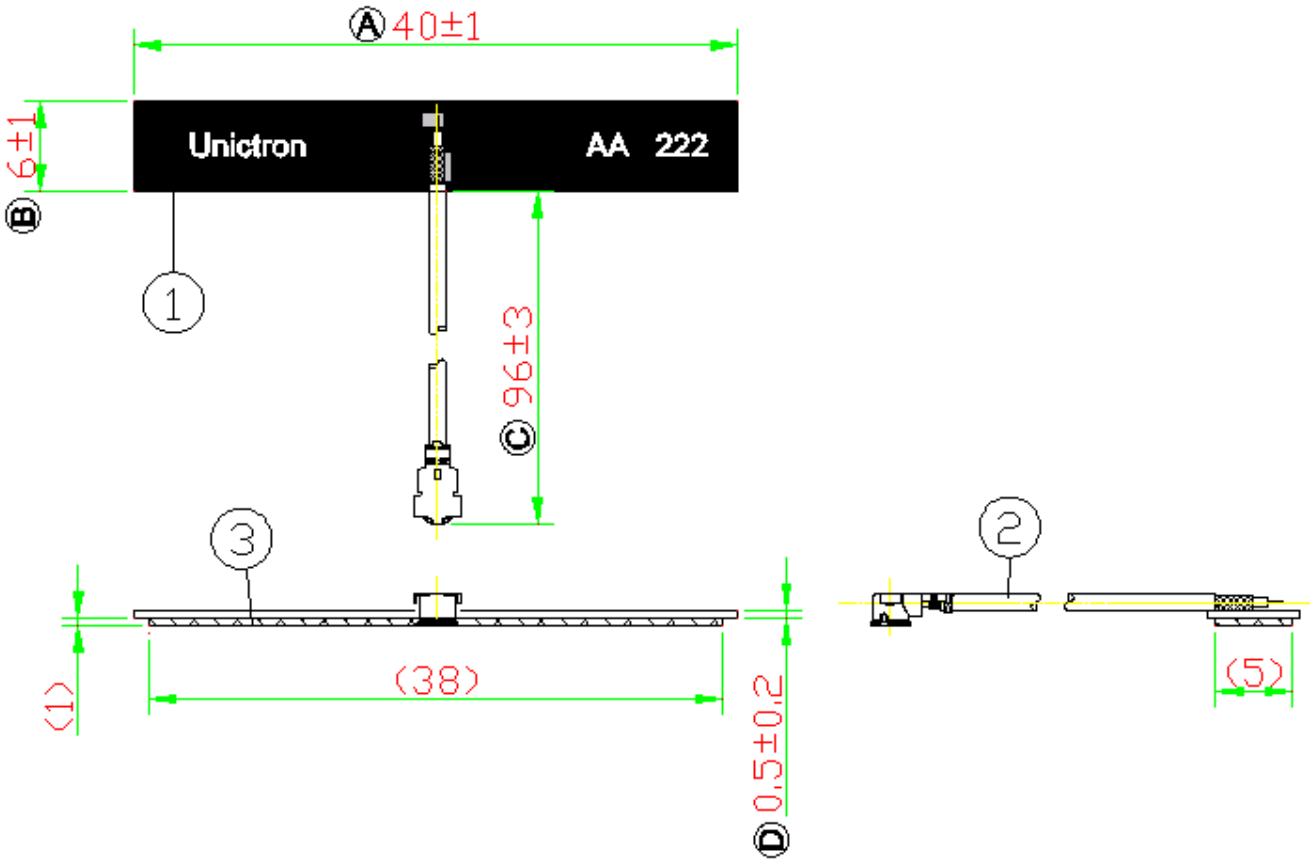


Fig. 2 Anechoic Chamber

8. Dimensions of antenna with cable (unit: mm)



NOTE:
1.All material must be RoHS compliant.
2."Ⓐ~Ⓓ" Critical Dimensions.
3."( )" Reference Dimensions.

Item	Name	Material	Color	Q'ty
1	AA222_PCB (40mm*6mm*0.5mm)	FR4	Black	1
2	I-PEX Connector (MHF I)_Cable Φ1.13mm	FEP	Gray	1
3	Adhesive Tape	PE	Black	1

Prepared by : Tom Designed by : Tom Checked by : Chinling Approved by : Herbert

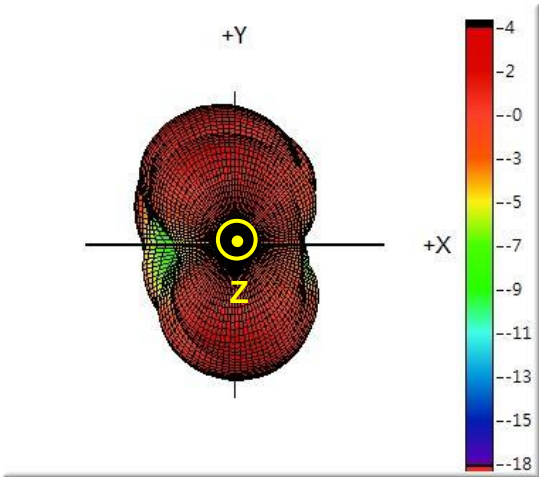
TITLE : 40.0 x 6.0 x 0.5 (mm) Wi-Fi Dual Band PCB Substrate Antenna (L=100mm) Engineering Specification	DOCUMENT NO.	H2B1PD1A1C0600	REV. D

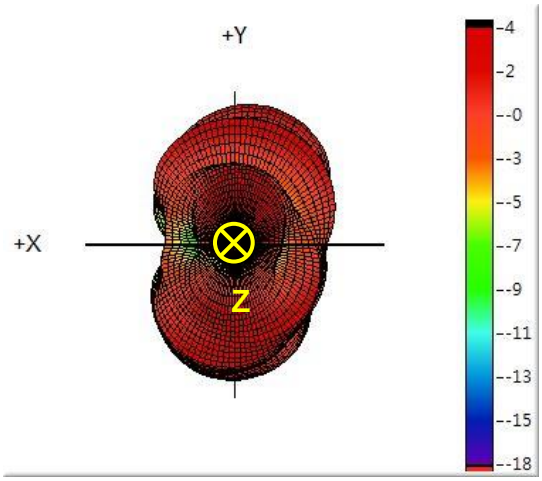
9. Radiation Pattern

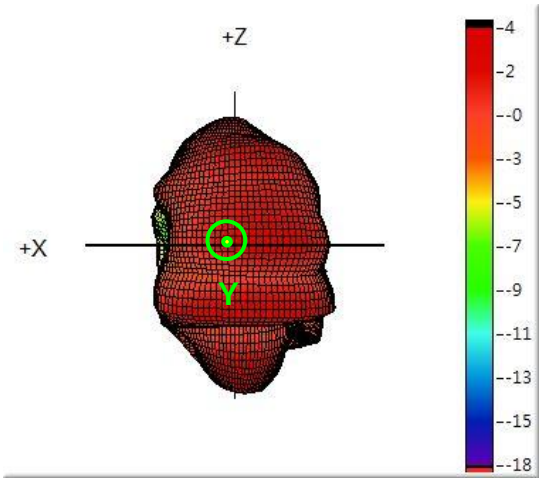
[Antenna is attached on a 2.0mm-thick ABS + PC material plate (Size:120 x 74 x 11 mm)] Test Temperature : 25.0℃ Humidity : 67%

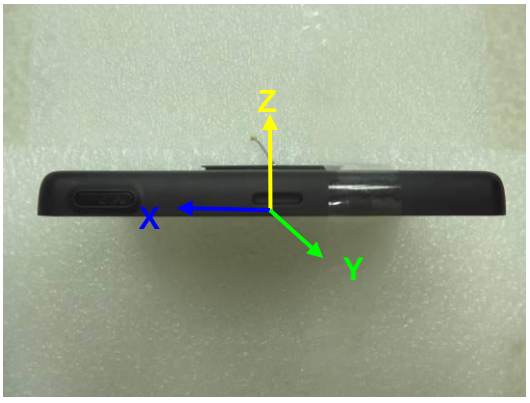
9-1. 2400~2500 MHz Band

9-1-1. 3D Gain Pattern @ 2442 MHz (unit: dBi)





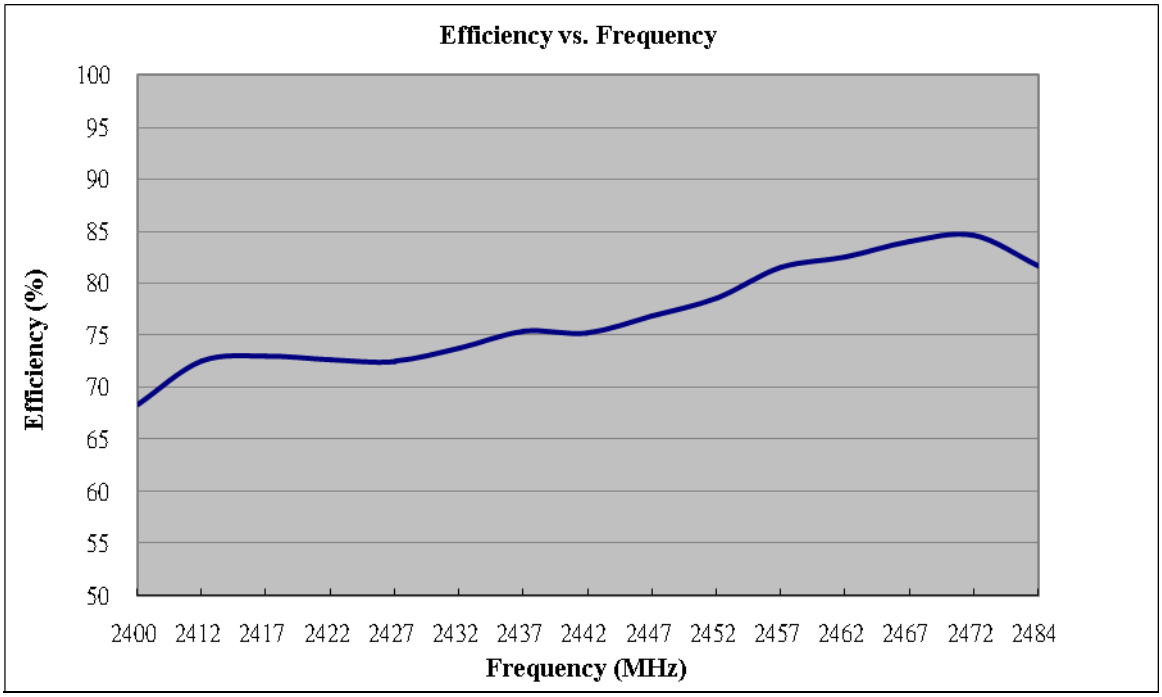




9-1-2. 3D Efficiency Table

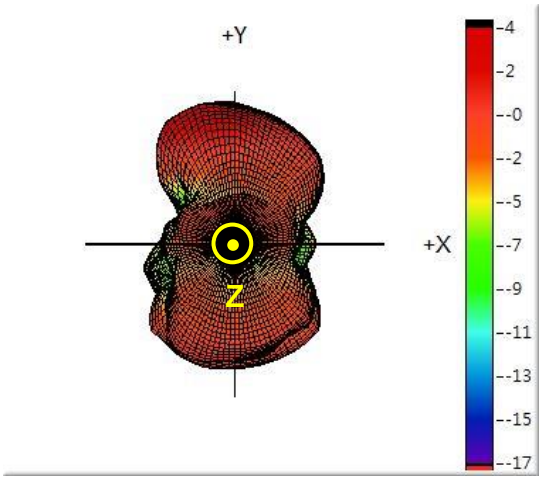
Frequency (MHz)	2400	2412	2417	2422	2427	2432	2437	2442	2447	2452	2457	2462	2467	2472	2484
Efficiency (dB)	-1.6	-1.4	-1.4	-1.4	-1.4	-1.3	-1.2	-1.2	-1.1	-1.0	-0.9	-0.8	-0.8	-0.7	-0.9
Efficiency (%)	68.4	72.5	73.0	72.7	72.5	73.8	75.4	75.2	76.8	78.6	81.5	82.5	84.0	84.6	81.7
Gain (dBi)	3.0	3.3	3.3	3.4	3.4	3.4	3.5	3.4	3.5	3.5	3.6	3.6	3.7	3.9	3.9

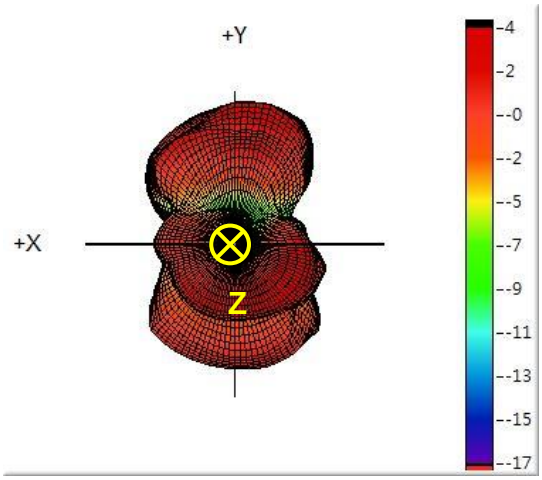
9-1-3. 3D Efficiency vs. Frequency

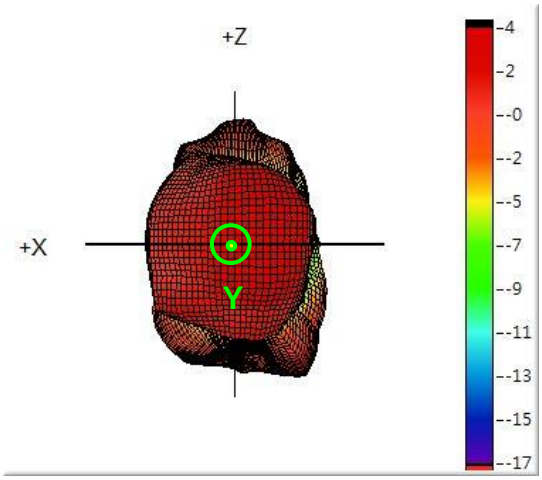


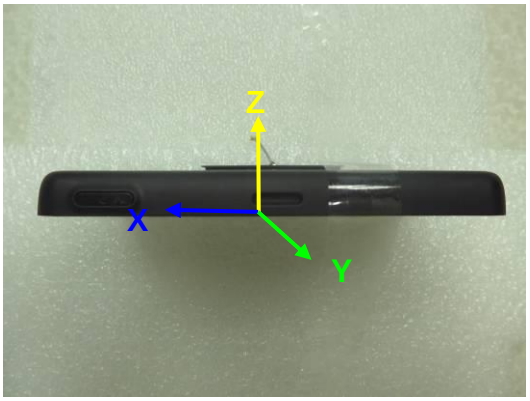
9-2. 4900~5900 MHz Band

9-2-1. 3D Gain Pattern @ 5150 MHz (unit: dBi)

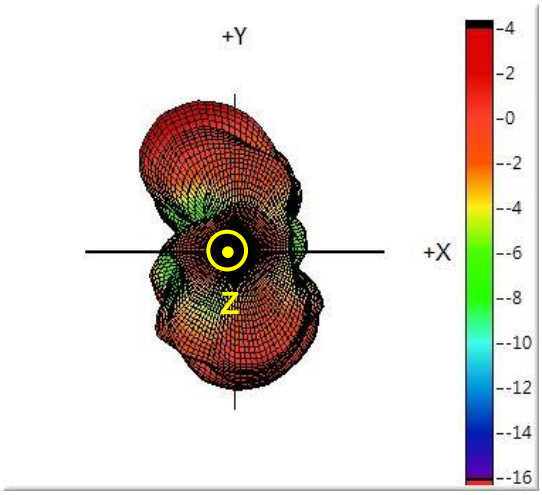


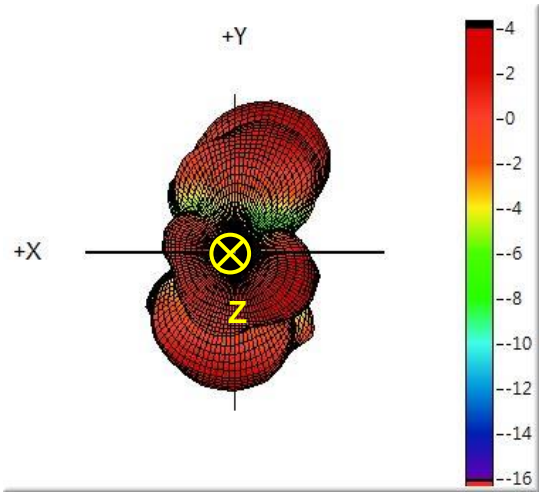


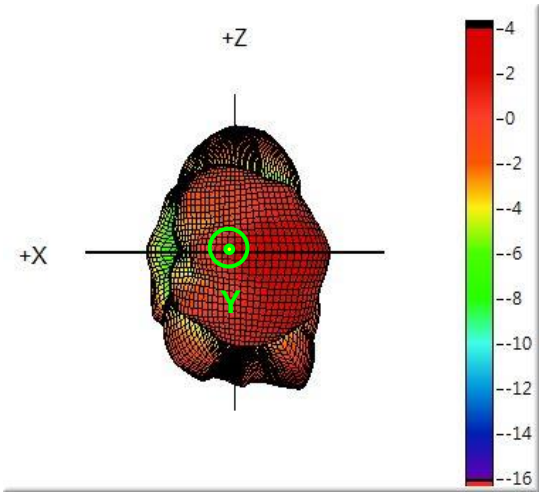


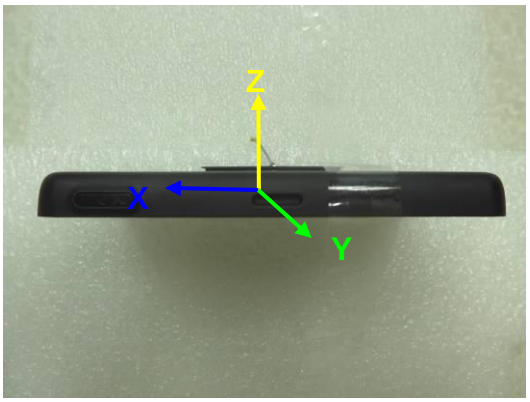


9-2-2. 3D Gain Pattern @ 5500 MHz (unit: dBi)

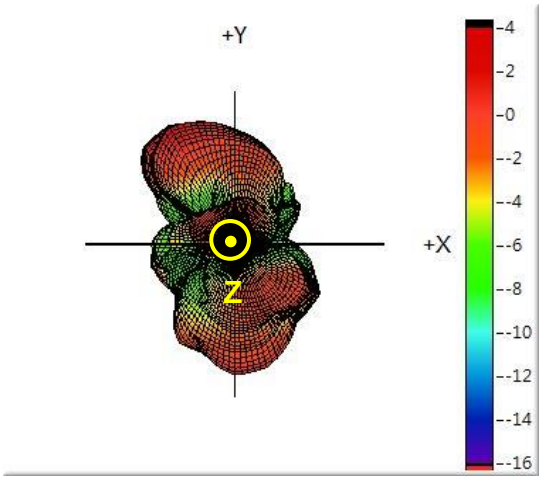


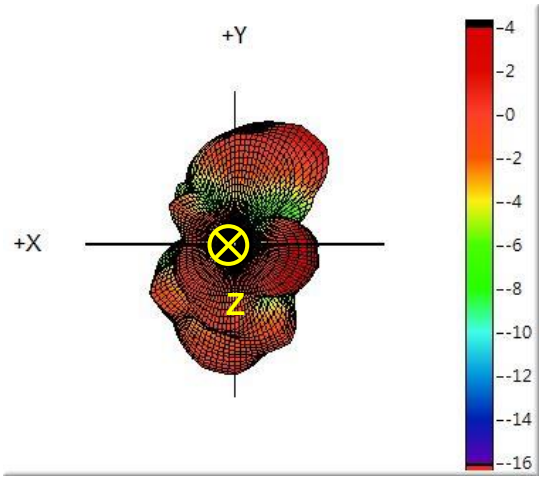


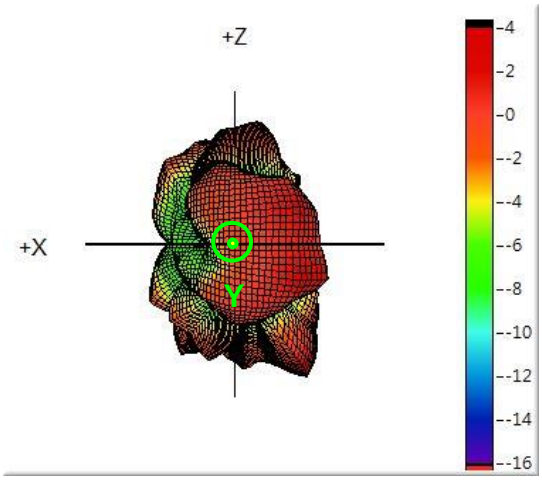


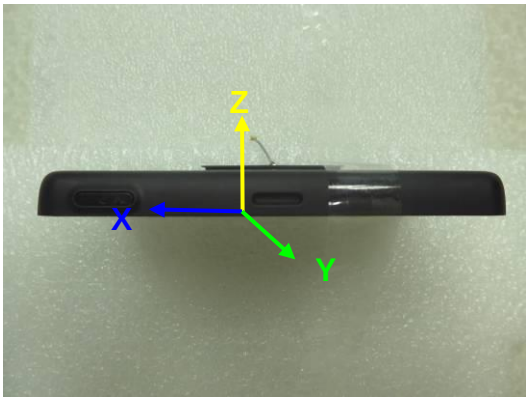


9-2-3. 3D Gain Pattern @ 5850 MHz (unit: dBi)







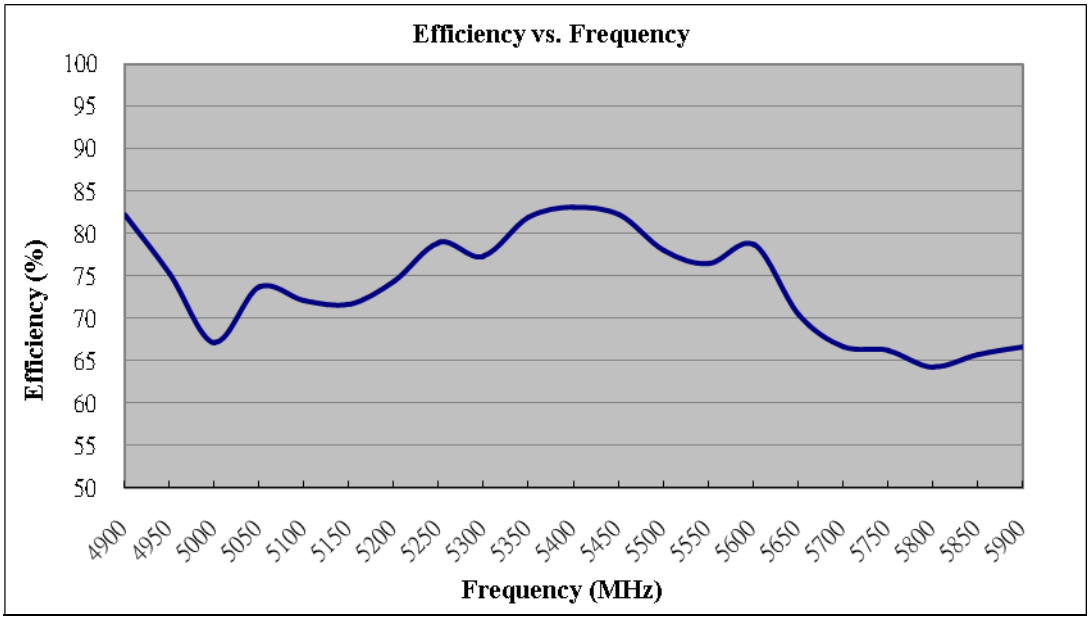


9-2-4. 3D Efficiency Table

Frequency (MHz)	4900	4950	5000	5050	5100	5150	5200	5250	5300	5350	5400
Efficiency (dB)	-0.9	-1.2	-1.7	-1.3	-1.4	-1.6	0.3	2.0	0.8	0.6	0.3
Efficiency (%)	82.2	75.3	67.1	73.7	72.1	71.7	74.4	79.0	77.3	81.9	83.2
Gain (dBi)	3.8	3.7	4.3	4.2	4.3	3.8	3.9	3.9	4.3	4.2	4.1

Frequency (MHz)	5450	5500	5550	5600	5650	5700	5750	5800	5850	5900
Efficiency (dB)	-0.9	-1.7	-1.7	-1.0	-1.5	-1.8	-1.8	-2.1	-1.8	-2.3
Efficiency (%)	82.2	77.9	76.5	78.7	70.5	66.7	66.2	64.2	65.8	66.6
Gain (dBi)	3.9	3.9	4.3	4.2	4.1	3.9	4.1	4.1	3.8	3.8

9-2-5. 3D Efficiency vs. Frequency



10. Package

10-1. Weight and Quantity:

10-1-1. Unit Weight: 0.6 ± 0.5 (g)

10-1-2. Quantity

Each EPE Tray: 25 pcs

Each Outer Box: 2500 pcs

10-1-3. Total Weight

N.W.: 1.5 ± 1 kg

G.W.: 2.3 ± 1 kg

Process	Photos	Remark
1		Put 25 pcs in a PE bag and attach label on PE bag.
2		Put 100 PE bags into an outer box with 2,500 pcs of antenna inside.

10-2. Dimensions

10-2-1. Outer Box (605mm*400mm*190mm)