

# 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate Antenna (AA222) Engineering Specification

## 1. Explanation of Product Number

<u>H</u>	<u>2</u>	<u>B</u>	<u>1</u>	<u>P</u>	<u>D</u>	<u>1</u>	<u>A</u>	<u>1</u>	<u>C</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>
				(1)	(2)	(3)	(4)			(5)			



### Product Code:

#### (1) Product Applications:

P: WiFi 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:

01: serial number



詠業科技股份有限公司  
Unictron Technologies Corporation  
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Ann      Designed by : Chinling      Checked by : Chinling      Approved by : Herbert      UNIT : mm

TITLE : 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate  
Antenna (AA222) Engineering Specification

DOCUMENT  
NO.

H2B1PD1A1C0100

REV.  
G

## 2. Features

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

## 3. Applications

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

## 4. Description

Unictron's antenna series are specially designed for WiFi(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	(With double-sided tape)
	- 40 to +85 °C	(Without double-sided tape)
Humidity	10 to 95% RH	

## 6. Storage Condition:

Temperature	-10 to +85 °C	(With double-sided tape)
	- 40 to +85 °C	(Without double-sided tape)
Humidity	10 to 95% RH	

## 7. Electrical Specifications

### 7-1. 2400~2500 MHz Band

Characteristics		Specifications	Unit
Outline Dimensions		40.0 x 6.0 x 0.5	mm
Working Frequency		2400~2500	MHz
Bandwidth		100 (min)	MHz
VSWR (@Center Frequency)*		2 (max)	
Impedance		50	Ω
Polarization		Linear Polarization	
Gain	Peak	2.6 (typical)	dBi
	Efficiency	79 (typical)	%

\* Center frequency will be offset to another frequency according to the conditions of user's ground plane and radome.

\* Bandwidth & VSWR are tested at Unictron test environment .



詠業科技股份有限公司  
Unictron Technologies Corporation  
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Ann      Designed by : Chinling      Checked by : Chinling      Approved by : Herbert      UNIT : mm

TITLE : 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate  
Antenna (AA222) Engineering Specification

DOCUMENT  
NO.

H2B1PD1A1C0100

REV.  
G

## 7-2. 4900~5900 MHz Band

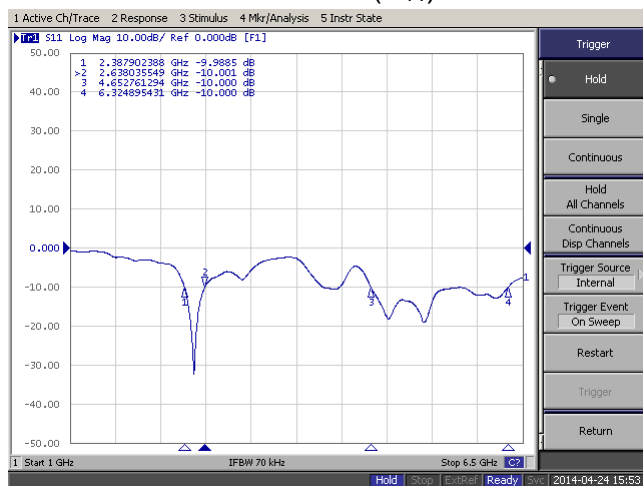
Characteristics		Specifications	Unit
Working Frequency		4900~5900	MHz
Bandwidth **		1000 (min)	MHz
VSWR (@Center Frequency)*		2 (max)	
Impedance		50	$\Omega$
Polarization		Linear Polarization	
Gain	Peak	3.3 (typical)	dBi
	Efficiency	79 (typical)	%

\* Center frequency will be offset to another frequency according to the conditions of user's ground plane and radome.

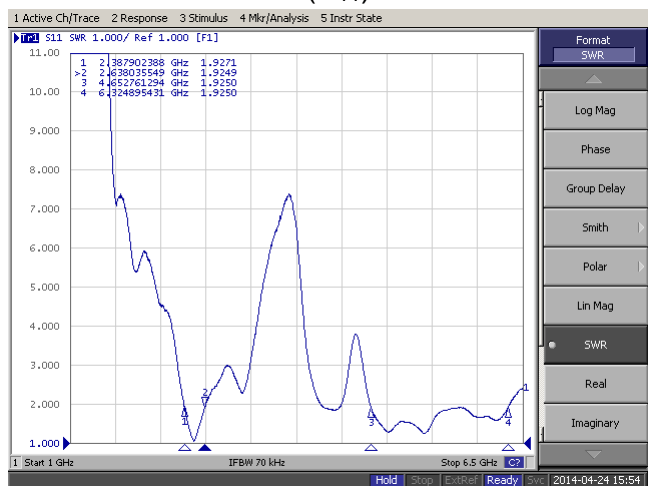
\* Bandwidth & VSWR are tested at Unitron test environment .

## 7-3. Return Loss & VSWR

Return Loss ( $S_{11}$ )



VSWR ( $S_{11}$ )



詠業科技股份有限公司  
 Unictron Technologies Corporation  
 Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Ann      Designed by : Chinling      Checked by : Chinling      Approved by : Herbert      UNIT : mm

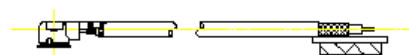
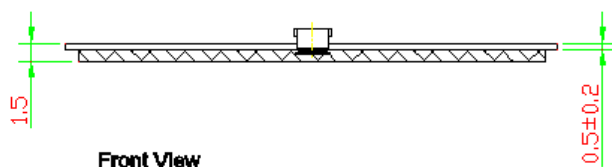
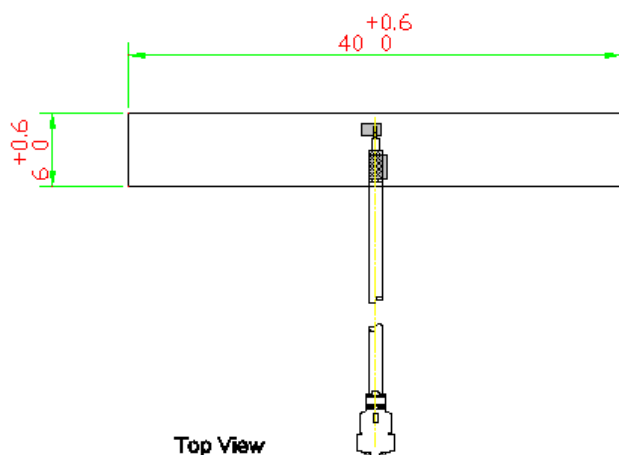
TITLE : 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate  
 Antenna (AA222) Engineering Specification

DOCUMENT  
 NO.

H2B1PD1A1C0100

REV.  
 G

## 8. Antenna Dimensions (unit: mm)



詠業科技股份有限公司  
Unictron Technologies Corporation  
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Ann      Designed by : Chinling      Checked by : Chinling      Approved by : Herbert      UNIT : mm

TITLE : 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate  
Antenna (AA222) Engineering Specification

DOCUMENT  
NO.

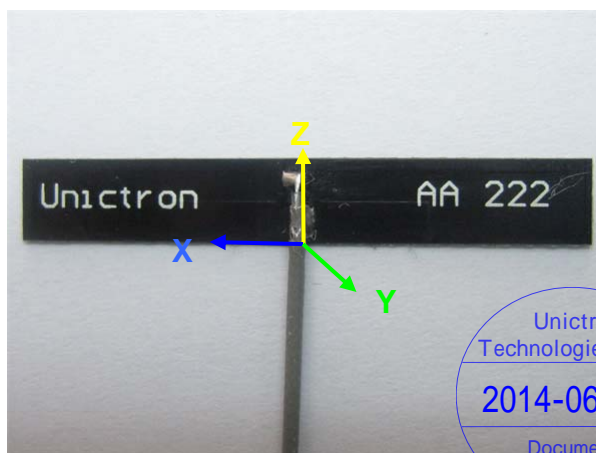
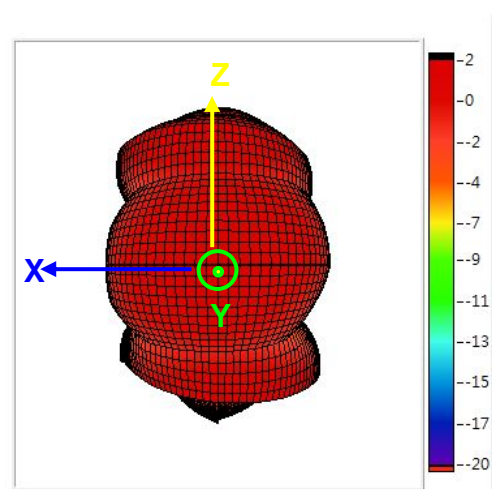
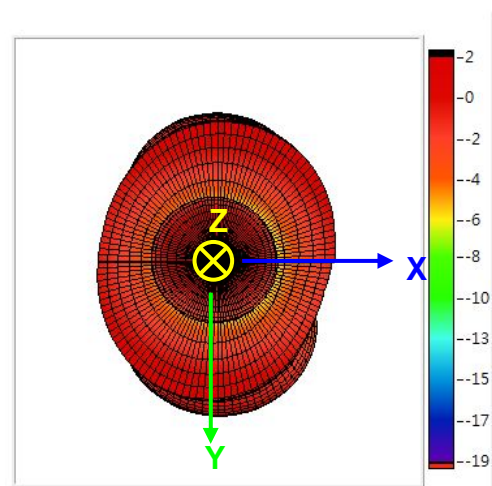
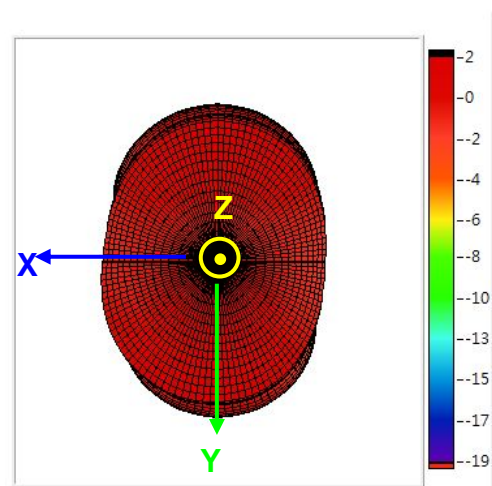
H2B1PD1A1C0100

REV.  
G

## 9. Radiation Pattern

9-1.2400~2500 MHz Band

9-1-1.3D Gain Pattern @ 2442 MHz (unit: dBi)



詠業科技股份有限公司  
Unictron Technologies Corporation  
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Ann      Designed by : Chinling      Checked by : Chinling      Approved by : Herbert      UNIT : mm

TITLE : 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate  
Antenna (AA222) Engineering Specification

DOCUMENT  
NO.

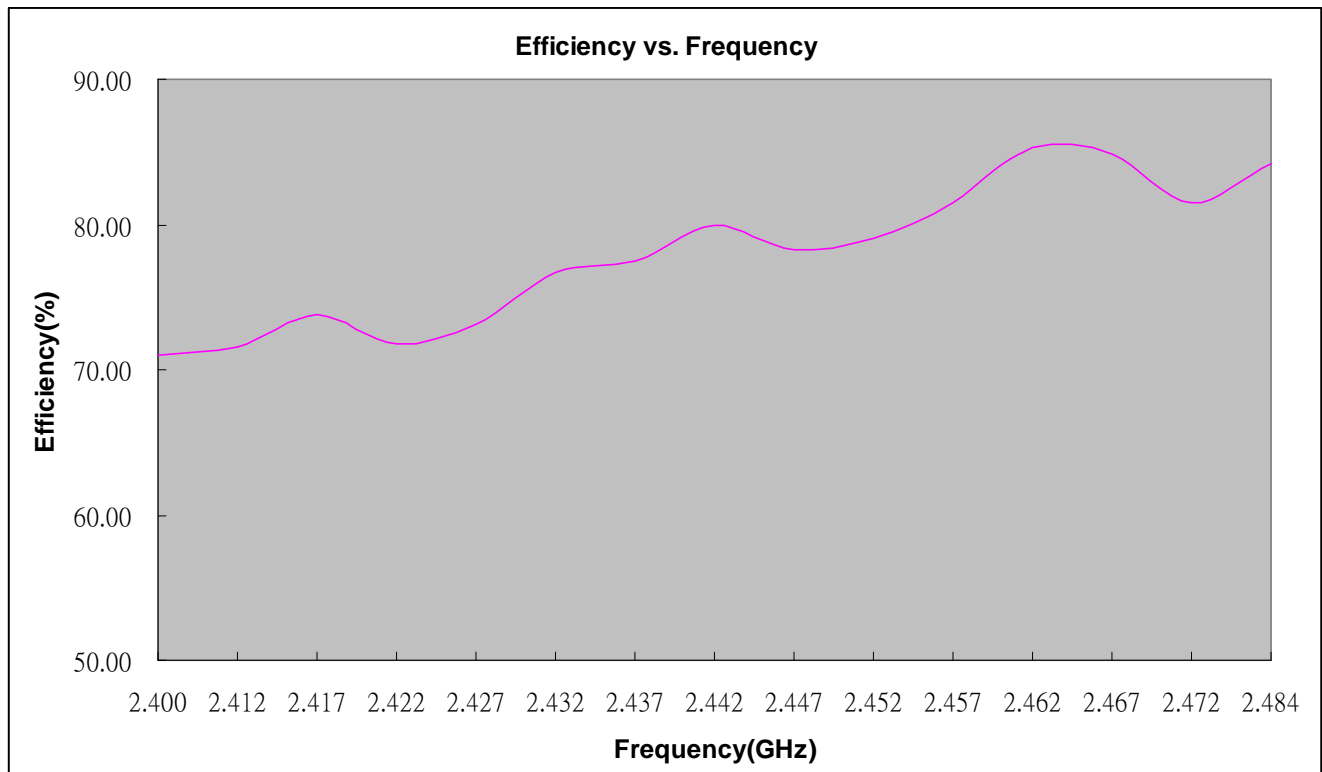
H2B1PD1A1C0100

REV.  
G

### 9-1-2. 3D Efficiency Table

Frequency(GHz)	2.400	2.412	2.417	2.422	2.427	2.432	2.437	2.442	2.447	2.452	2.457	2.462	2.467	2.472	2.484
Efficiency(dB)	-1.49	-1.45	-1.32	-1.44	-1.36	-1.15	-1.11	-0.97	-1.06	-1.02	-0.89	-0.69	-0.71	-0.89	-0.75
Efficiency(%)	70.96	71.61	73.79	71.78	73.11	76.74	77.45	79.98	78.31	79.10	81.51	85.26	84.83	81.51	84.20
Gain(dBi)	2.11	2.21	2.34	2.26	2.33	2.49	2.52	2.68	3.07	3.21	3.50	3.73	3.69	3.39	3.42

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



詠業科技股份有限公司  
Unictron Technologies Corporation  
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Ann      Designed by : Chinling      Checked by : Chinling      Approved by : Herbert      UNIT : mm

**TITLE : 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate  
Antenna (AA222) Engineering Specification**

**DOCUMENT  
NO.**

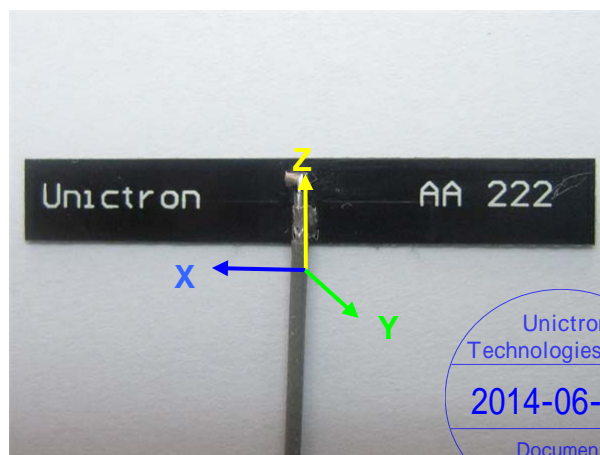
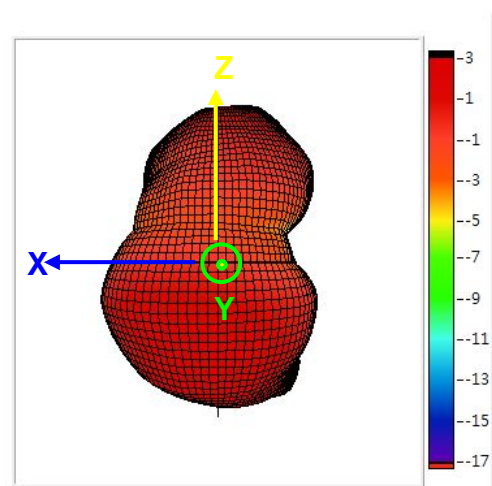
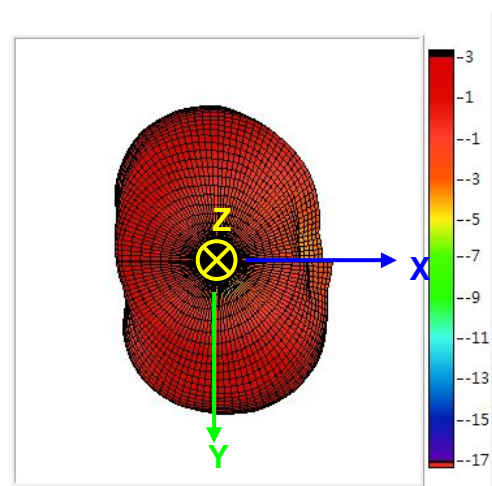
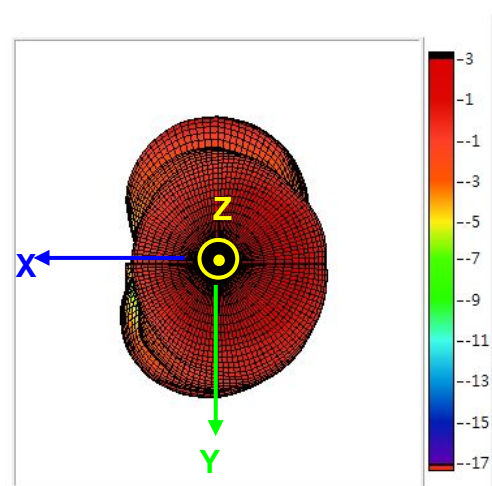
**H2B1PD1A1C0100**

**REV.  
G**



# 9-2.4900~5900 MHz Band

## 9-2-1.3D Gain Pattern @ 5150 MHz (unit: dBi)



Unictron  
Technologies Corp.  
2014-06-30  
Document  
Control Center



詠業科技股份有限公司  
Unictron Technologies Corporation  
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Ann

Designed by : Chinling

Checked by : Chinling

Approved by : Herbert

UNIT : mm

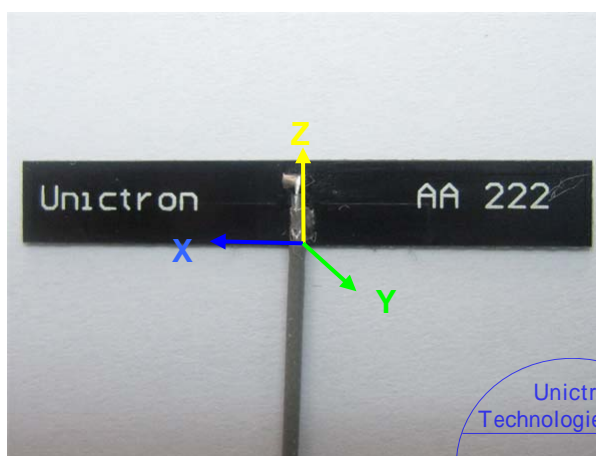
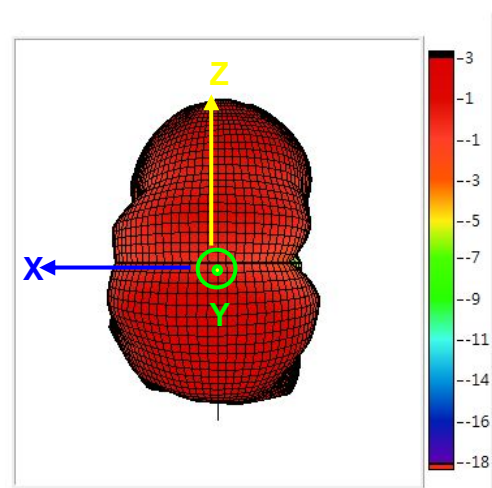
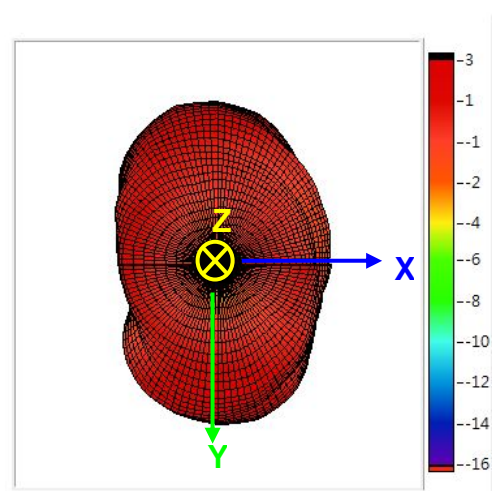
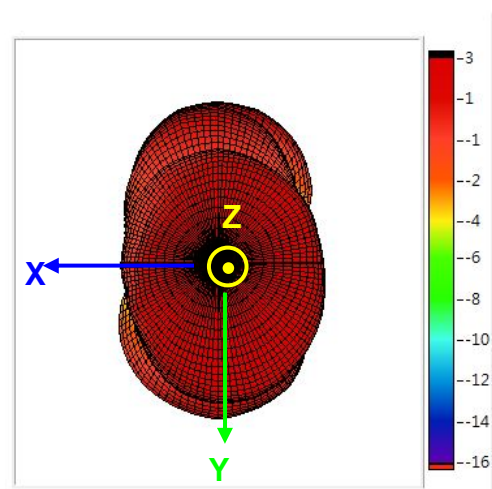
TITLE : 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate  
Antenna (AA222) Engineering Specification

DOCUMENT  
NO.

H2B1PD1A1C0100

REV.  
G

# 9-2-2.3D Gain Pattern @ 5350 MHz (unit: dBi)



Unictron  
Technologies Corp.  
2014-06-30  
Document  
Control Center



詠業科技股份有限公司  
Unictron Technologies Corporation  
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Ann      Designed by : Chinling      Checked by : Chinling      Approved by : Herbert      UNIT : mm

TITLE : 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate  
Antenna (AA222) Engineering Specification

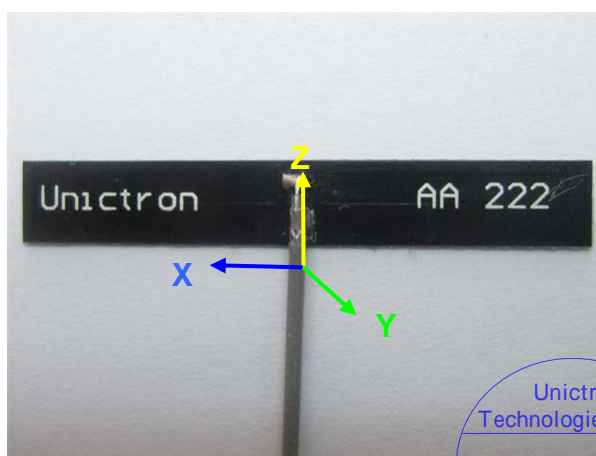
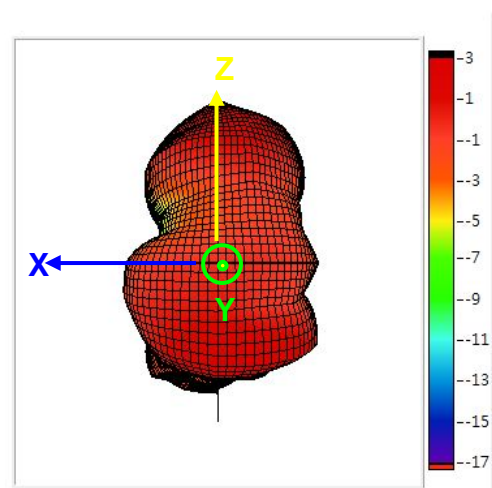
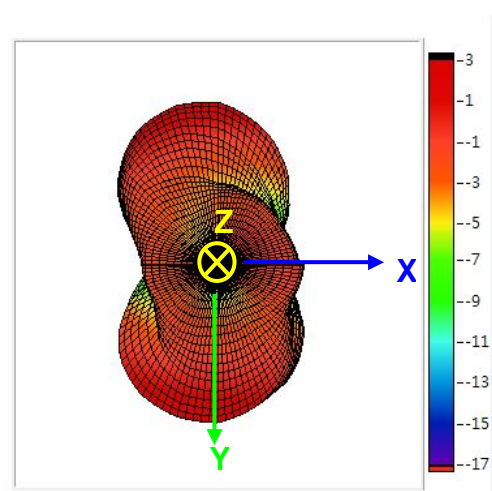
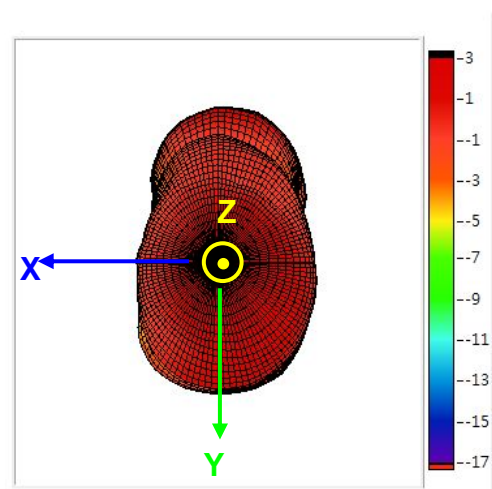
DOCUMENT  
NO.

H2B1PD1A1C0100

REV.  
G



### 9-2-3.3D Gain Pattern @ 5700 MHz (unit: dBi)



Unictron  
Technologies Corp.  
2014-06-30  
Document  
Control Center



詠業科技股份有限公司  
Unictron Technologies Corporation  
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Ann

Designed by : Chinling

Checked by : Chinling

Approved by : Herbert

UNIT : mm

TITLE : 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate  
Antenna (AA222) Engineering Specification

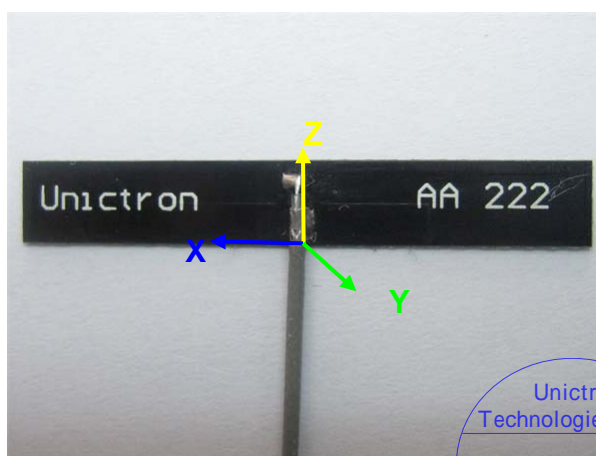
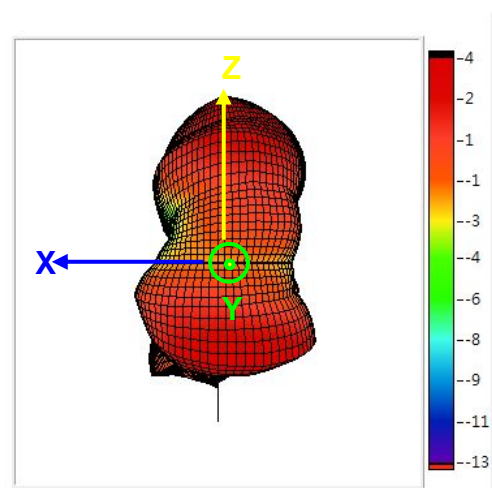
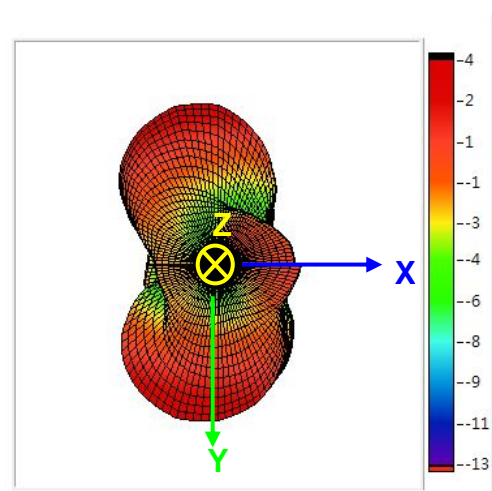
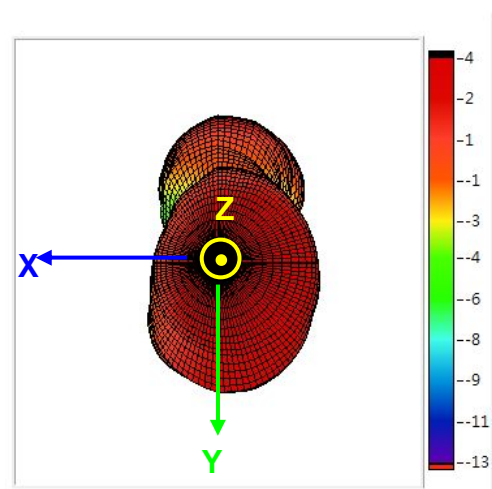
DOCUMENT  
NO.

H2B1PD1A1C0100

REV.

G

# 9-2-4.3D Gain Pattern @ 5850 MHz (unit: dBi)



Unictron  
Technologies Corp.  
2014-06-30  
Document  
Control Center



詠業科技股份有限公司  
Unictron Technologies Corporation  
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Ann      Designed by : Chinling      Checked by : Chinling      Approved by : Herbert      UNIT : mm

TITLE : 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate  
Antenna (AA222) Engineering Specification

DOCUMENT  
NO.

H2B1PD1A1C0100

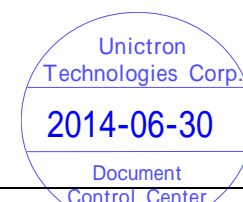
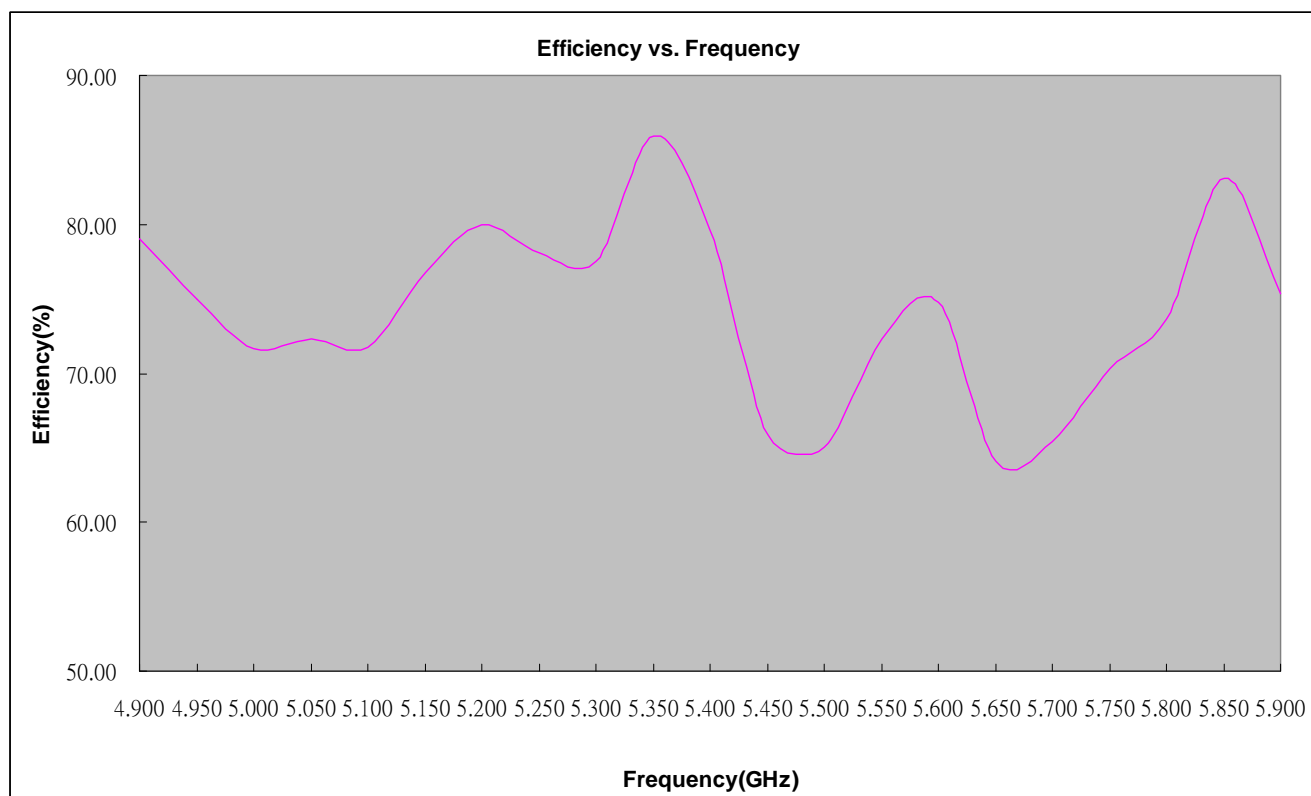
REV.  
G

### 9-2-5. 3D Efficiency Table

Frequency(GHz)	4.900	4.950	5.000	5.050	5.100	5.150	5.200	5.250	5.300	5.350	5.400
Efficiency(dB)	-1.02	-1.25	-1.45	-1.41	-1.44	-1.15	-0.97	-1.07	-1.11	-0.66	-0.99
Efficiency(%)	79.07	74.99	71.61	72.28	71.78	76.74	79.98	78.10	77.50	85.95	79.62
Gain(dBi)	3.23	2.74	2.30	2.56	2.83	3.20	3.46	3.72	3.30	3.39	3.36

Frequency(GHz)	5.450	5.500	5.550	5.600	5.650	5.700	5.750	5.800	5.850	5.900
Efficiency(dB)	-1.81	-1.87	-1.41	-1.26	-1.93	-1.85	-1.53	-1.33	-0.80	-1.23
Efficiency(%)	65.92	65.01	72.28	74.82	64.09	65.37	70.31	73.62	83.11	75.34
Gain(dBi)	2.47	2.97	3.49	3.79	2.60	3.06	3.74	3.91	5.18	3.98

### 9-2-6. 3D Efficiency vs. Frequency



詠業科技股份有限公司  
Unictron Technologies Corporation  
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Ann      Designed by : Chinling      Checked by : Chinling      Approved by : Herbert      UNIT : mm

**TITLE : 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate  
Antenna (AA222) Engineering Specification**

**DOCUMENT  
NO.**

**H2B1PD1A1C0100**

**REV.  
G**