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

1. Explanation of Product Number

H	2	B	1	P	D	1	A	1	C	0	1	0	0

(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

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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 Unitron test environment .

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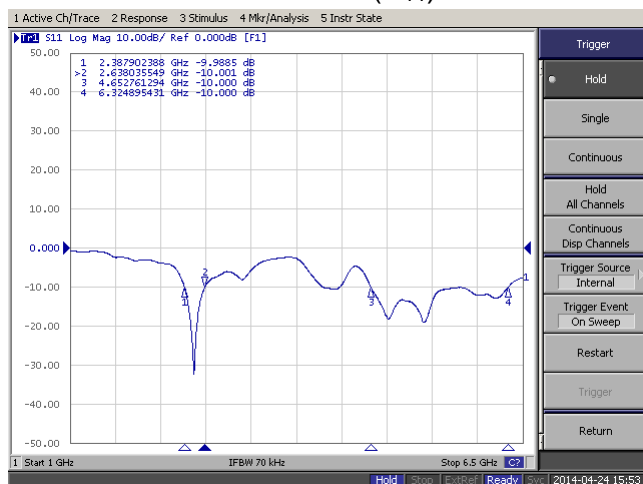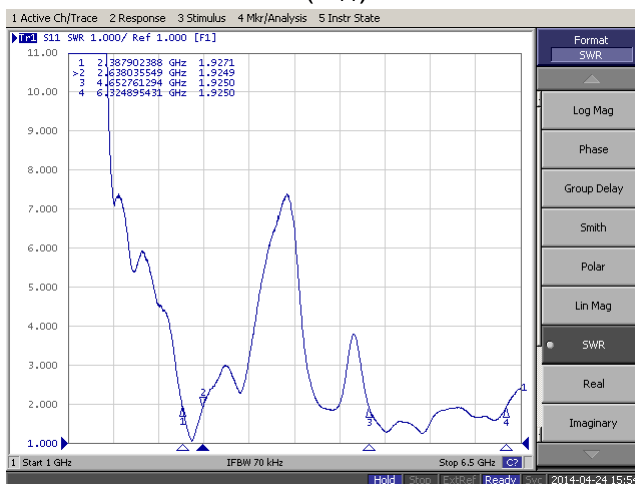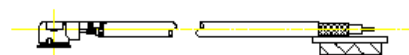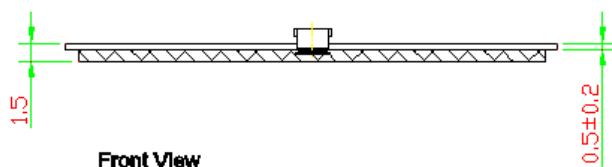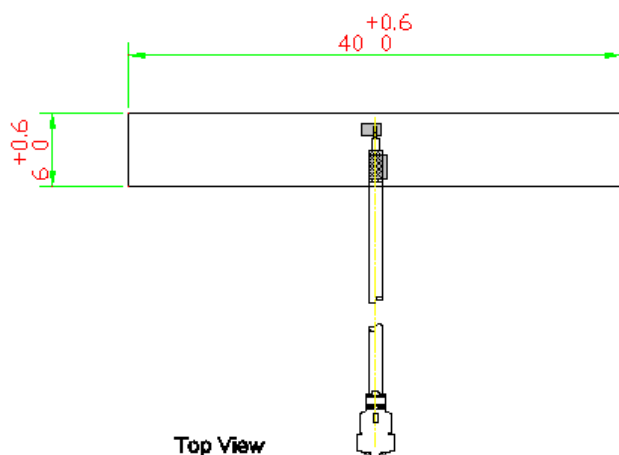| TITLE：40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate Antenna (AA222) Engineering Specification	DOCUMENT NO.	H2B1PD1A1C0100	REV. G

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	Ω
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$_{11}$)

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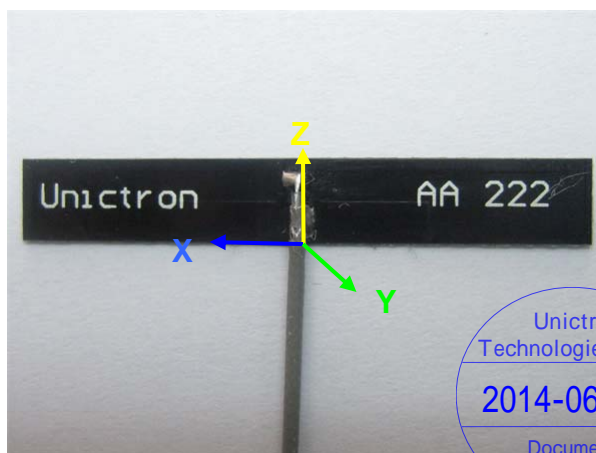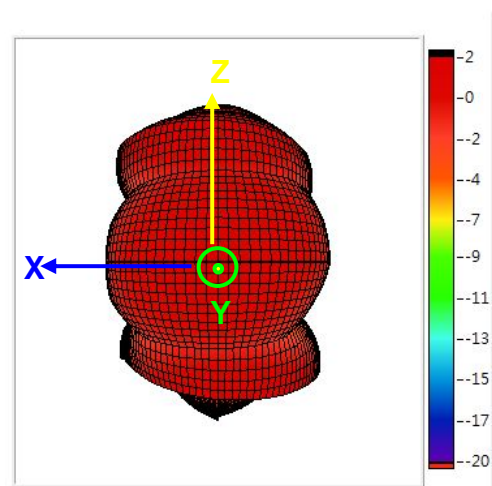| TITLE : 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate Antenna (AA222) Engineering Specification	DOCUMENT NO.	H2B1PD1A1C0100	REV. G

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8. Antenna Dimensions (unit: mm)

Top View

Front View

Side View

40 +0.6 0

6.0 +0.6 0

1.5

0.5±0.2

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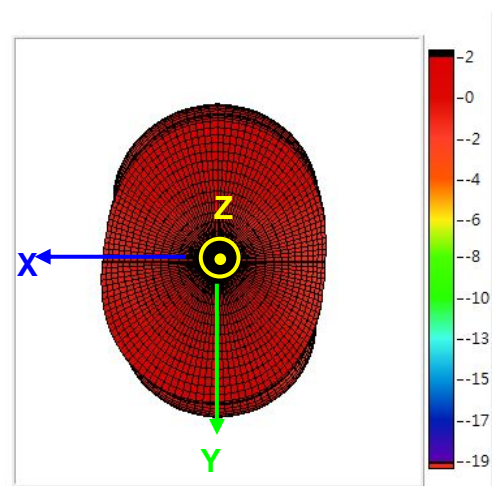| TITLE：40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate Antenna (AA222) Engineering Specification	DOCUMENT NO.	H2B1PD1A1C0100	REV. G

9. Radiation Pattern

9-1.2400~2500 MHz Band

9-1-1.3D Gain Pattern @ 2442 MHz (unit: dBi)
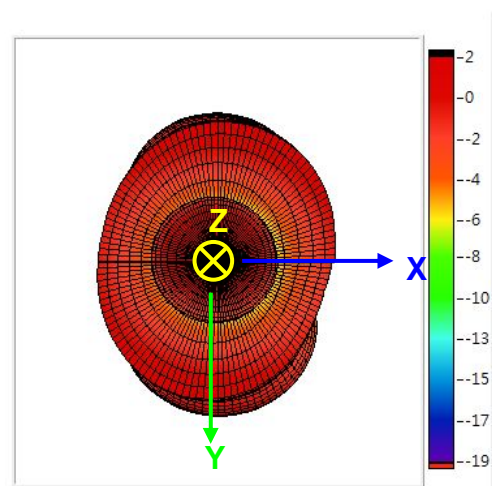
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9-1-2. 3D Efficiency Table

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
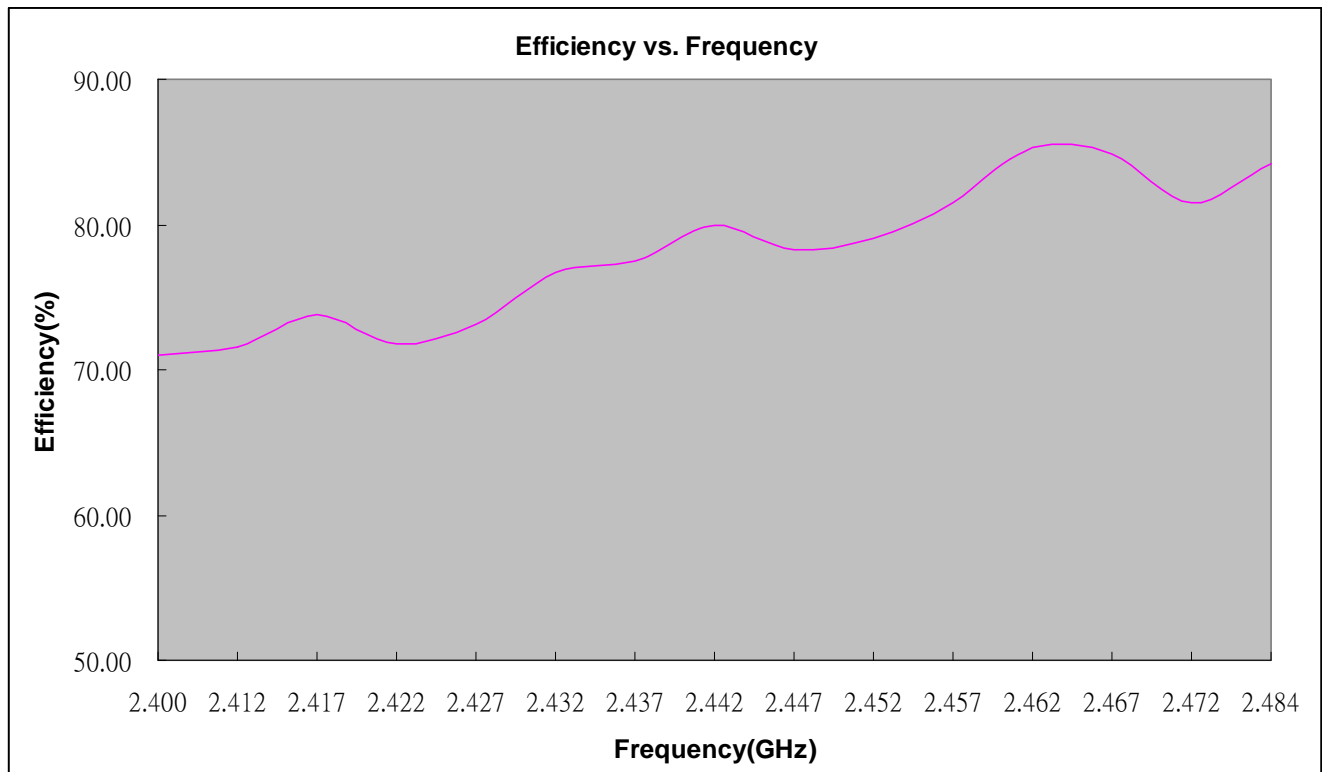
Efficiency vs. Frequency

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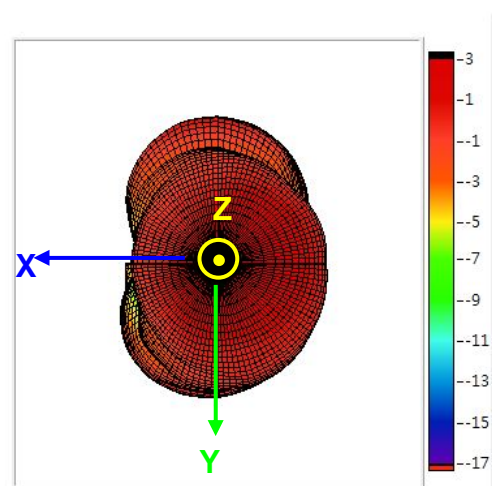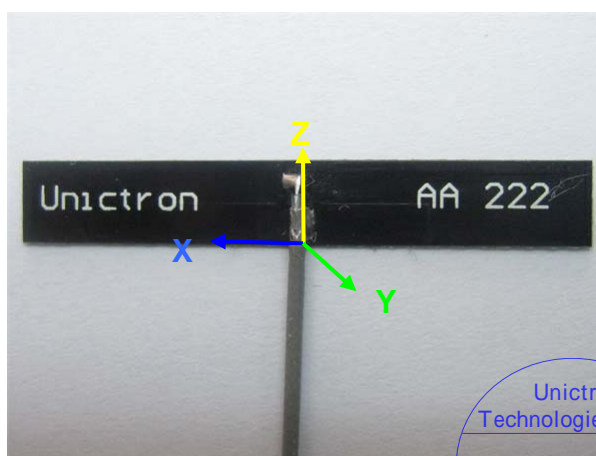| TITLE : 40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate Antenna (AA222) Engineering Specification	DOCUMENT NO.	H2B1PD1A1C0100	REV. G

9-2.4900~5900 MHz Band

9-2-1.3D Gain Pattern @ 5150 MHz   (unit: dBi)
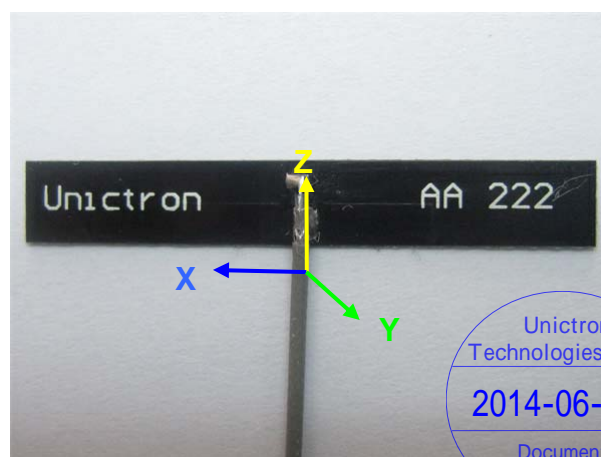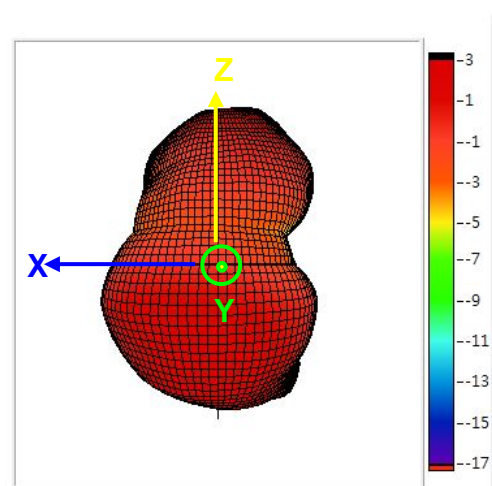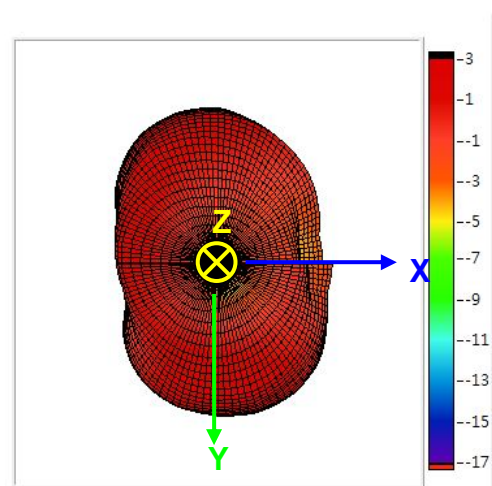
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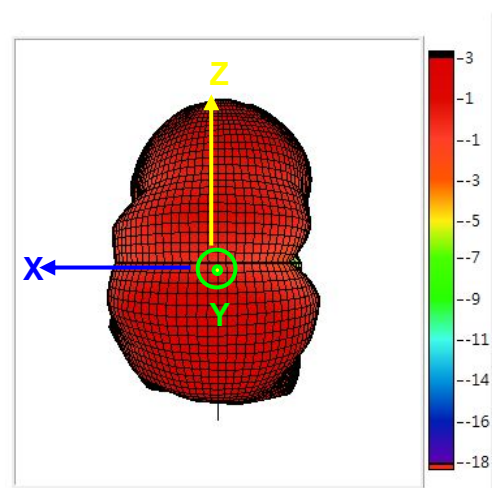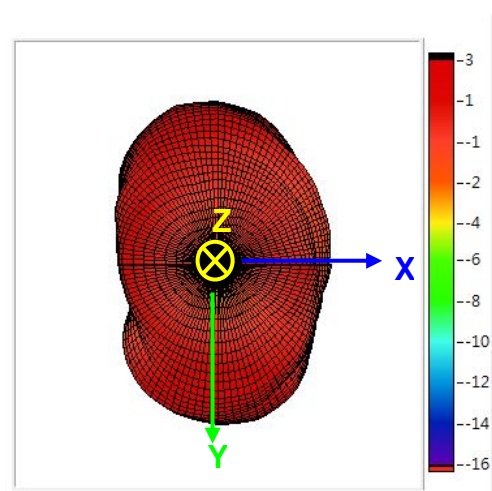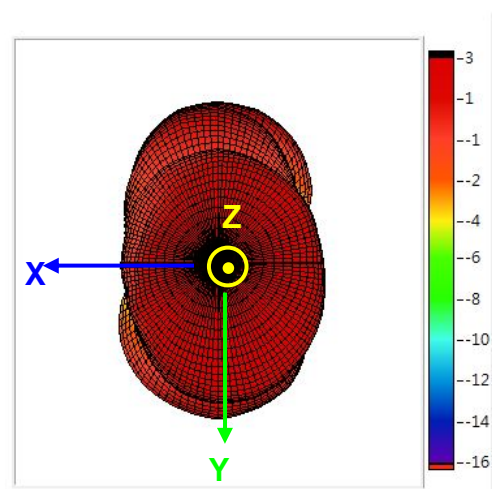| TITLE：40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate Antenna (AA222) Engineering Specification	DOCUMENT NO.	H2B1PD1A1C0100	REV. G

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

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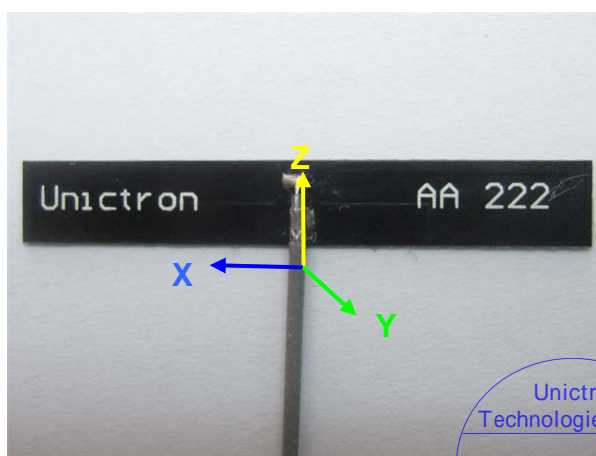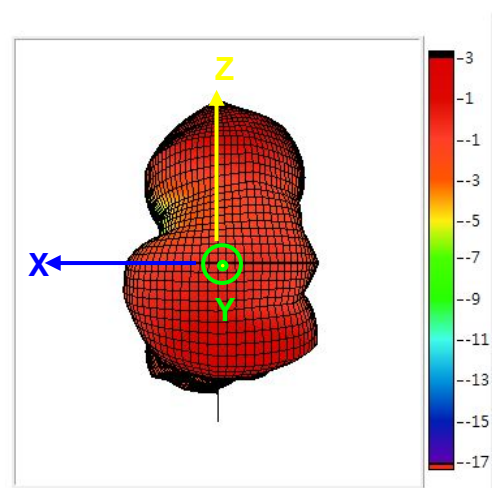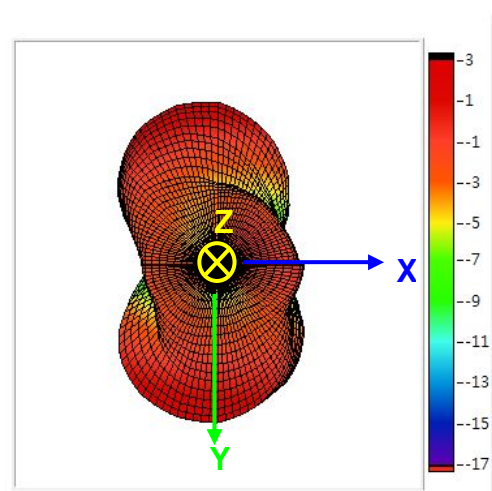| Prepared by : Ann	Designed by : Chinling	Checked by : Chinling	Approved by：Herbert	UNIT：mm

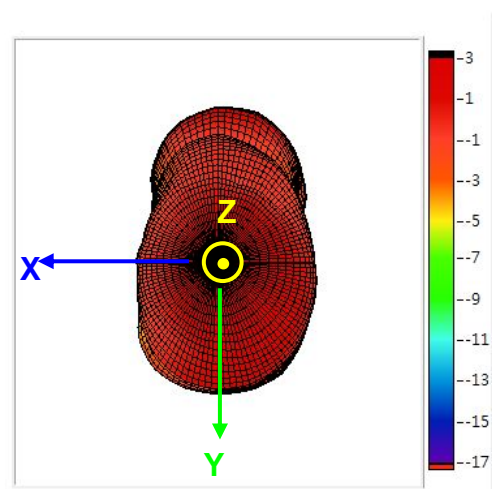| TITLE：40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate Antenna (AA222) Engineering Specification	DOCUMENT NO.	H2B1PD1A1C0100	REV. G

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

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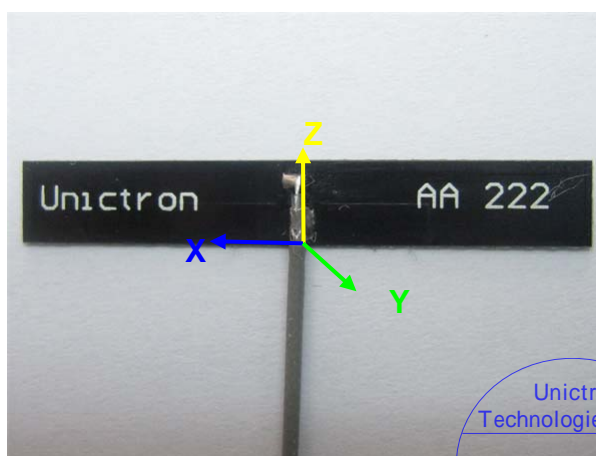**TITLE**：40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate Antenna (AA222) Engineering Specification

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

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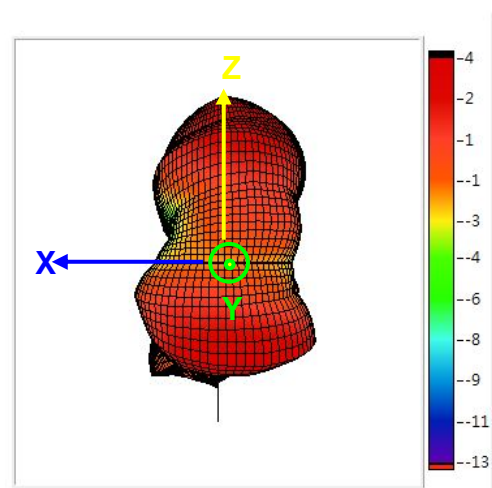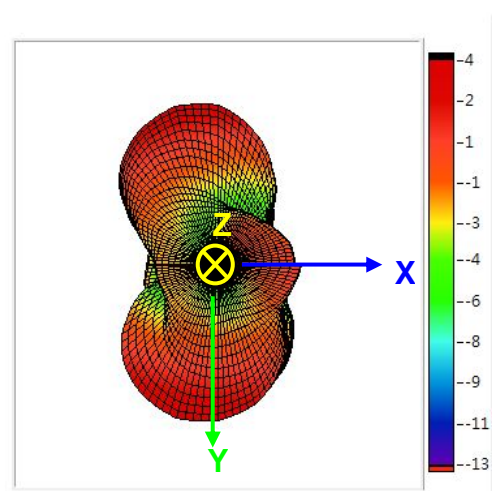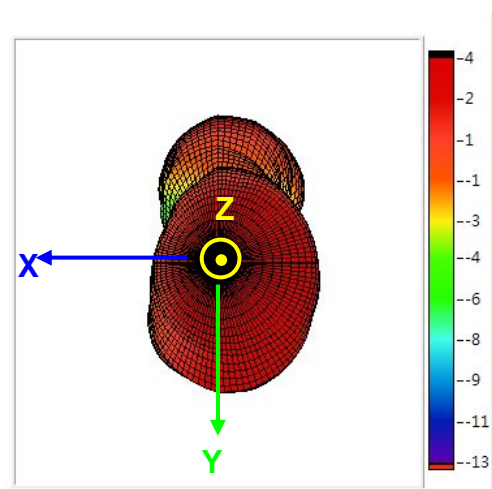| Prepared by : Ann	Designed by : Chinling	Checked by : Chinling	Approved by：Herbert	UNIT：mm

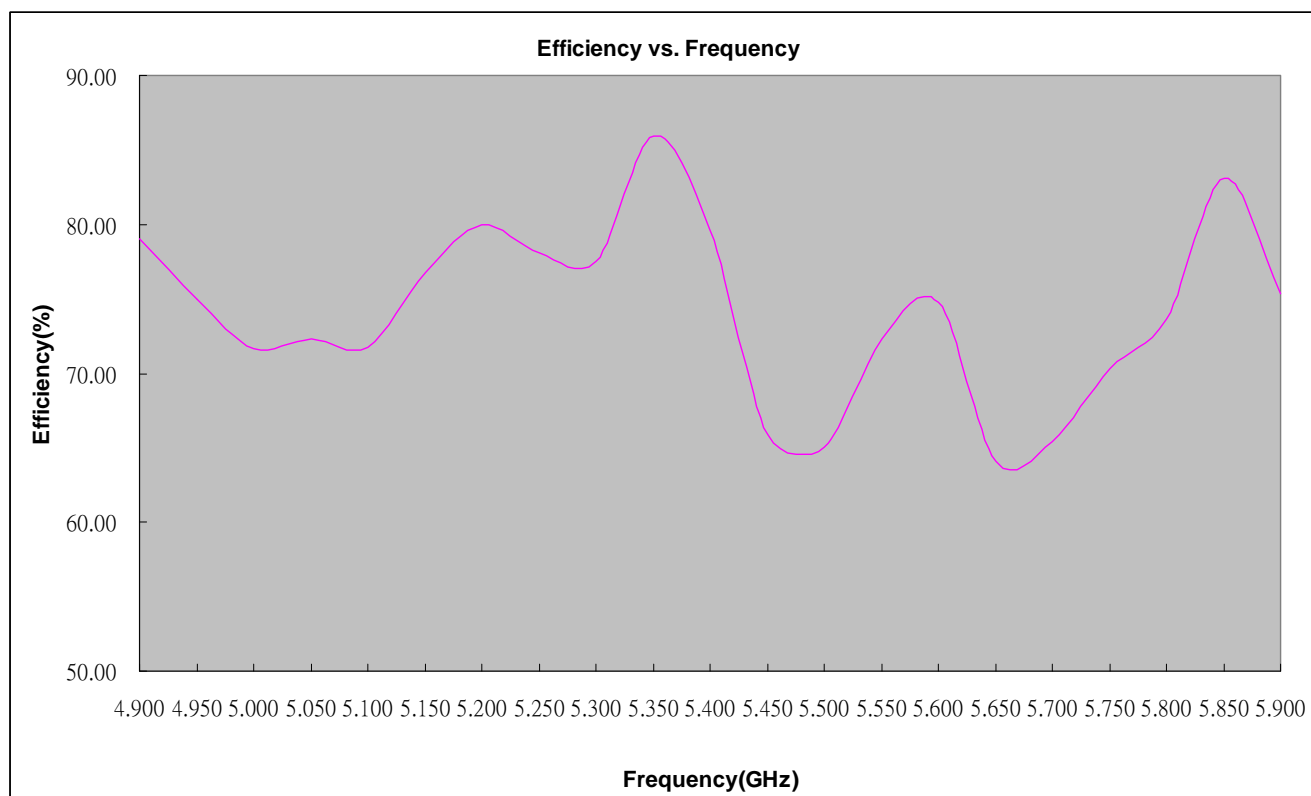| TITLE：40.0 x 6.0 x 0.5 (mm) WiFi Dual Band PCB Substrate Antenna (AA222) Engineering Specification	DOCUMENT NO.	H2B1PD1A1C0100	REV.
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9-2-5. 3D Efficiency Table

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

Efficiency vs. Frequency

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