Unictron AA222 MHF4 100 mm

Datasheet

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Unictron Technologies Corp.

WiFi Dual Band PCB Substrate Antenna with IPEX IV connector
Model: AA222
Product Number: H2B1PD1A1C385L

REFERENCE SPECIFICATION

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1 Introduction

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.

Features

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

Applications

* IEEE802.11 b/g/n
* Wireless PCMCIA cards or USB dongles

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2 Electrical Characteristics

2.1 Table with electrical properties:

Note: Antenna is attached on a 2.0mm-thick ABS + PC material plate

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)	
Characteristic Impedance		50	Ω
Polarization		Linear Polarization	
Gain	Peak	3.0 (typical)	dBi
	Efficiency	72 (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.
* The cable loss is ±0.2dBi

4900 – 5900 MHz Band

Characteristics		Specifications	Unit
Working Frequency		4900 – 5900	MHz
Bandwidth **		1000 (min)	MHz
VSWR (@Center Frequency)*		2 (max)	
Characteristic Impedance		50	Ω
Polarization		Linear Polarization	
Gain	Peak	4.4 (typical)	dBi
	Efficiency	77.9(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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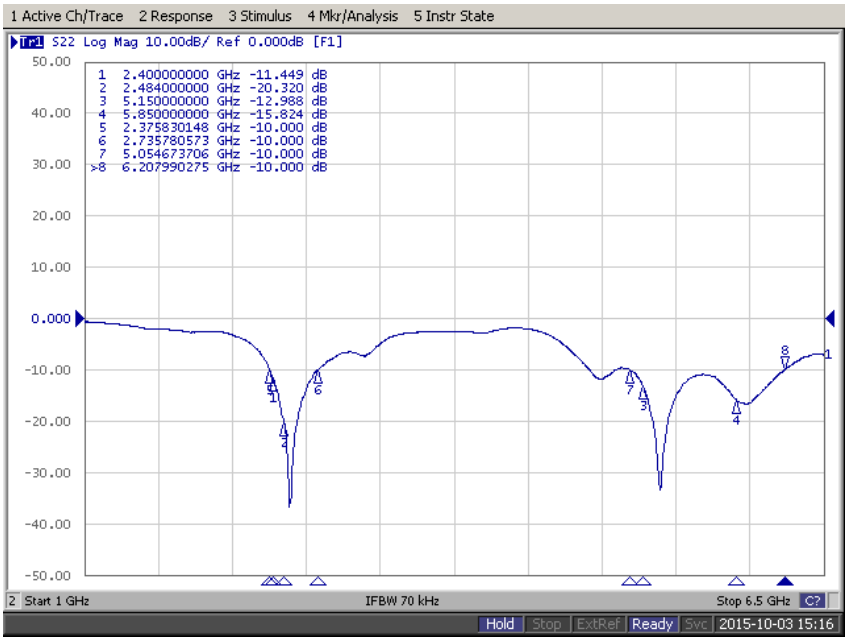
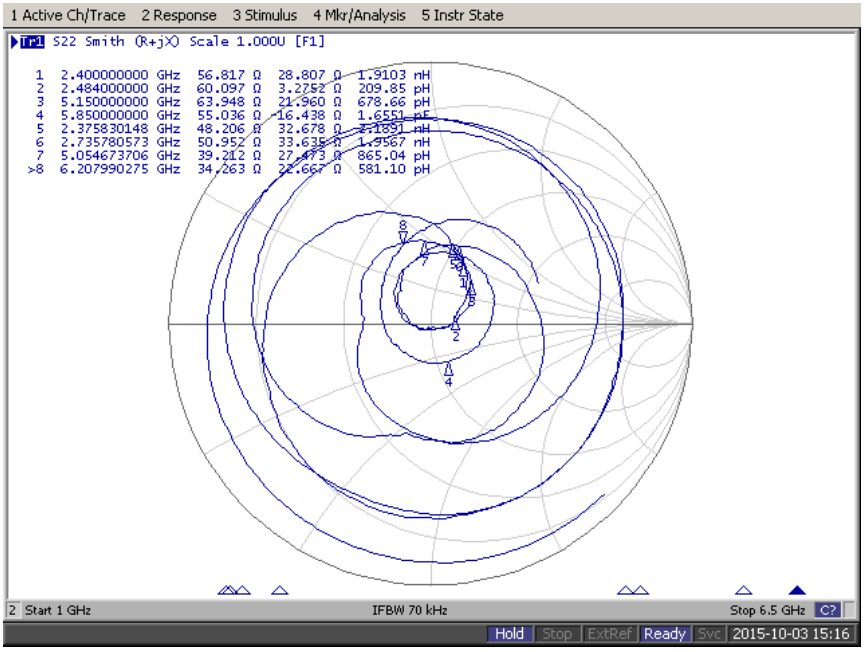
2.2 Return Loss (S_{11})



2.3 Smith Chart



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2.4 Efficiency Table (without cable loss)

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	-0.9	-0.8	-0.8	-0.7	-0.9
Efficiency(%)	67.5	72.0	72.3	72.3	72.1	73.8	74.9	74.2	76.4	78.4	80.5	81.8	83.1	84.0	81.1
Gain(dBi)	2.5	2.7	2.7	2.8	2.8	2.8	2.9	2.8	2.9	2.9	3.0	3.0	3.0	2.9	2.9

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(%)	82.4	75.1	67.1	73.4	72.0	71.2	74.1	79.1	77.4	81.8	83.0
Gain(dBi)	3.7	3.7	4.2	4.2	4.3	3.7	3.8	3.9	4.4	4.2	4.0

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(%)	82.3	78.9	77.5	79.7	70.4	68.2	68.3	63.4	64.9	63.6
Gain(dBi)	3.8	3.8	4.4	4.3	4.0	3.8	4.0	4.0	3.7	3.6

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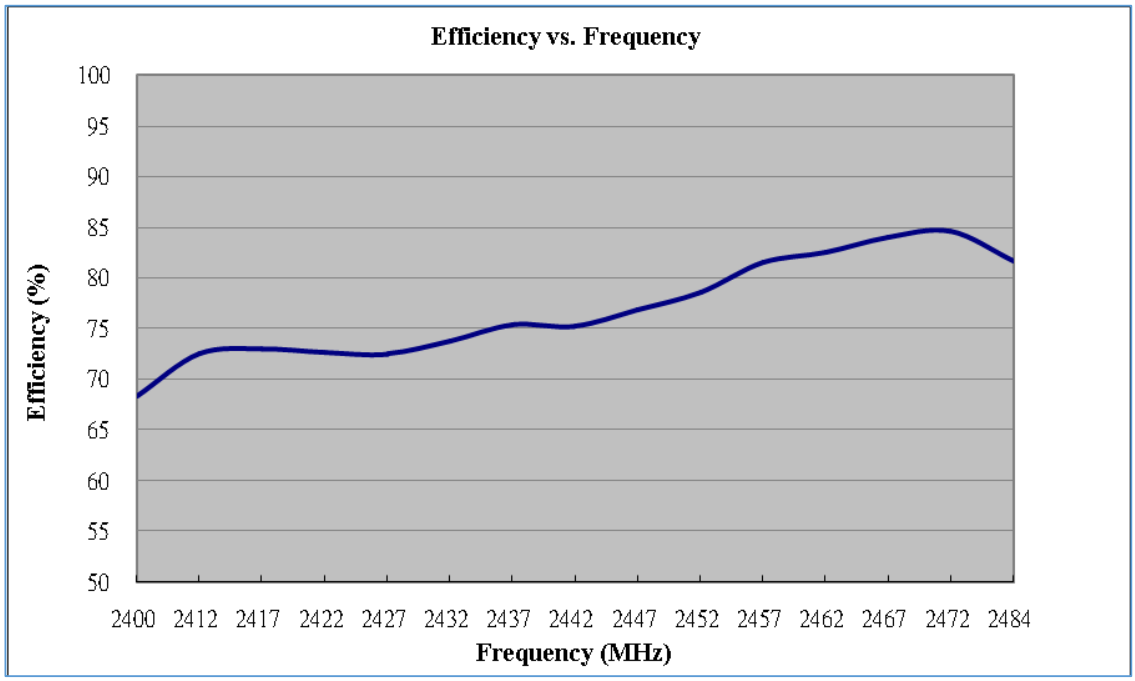
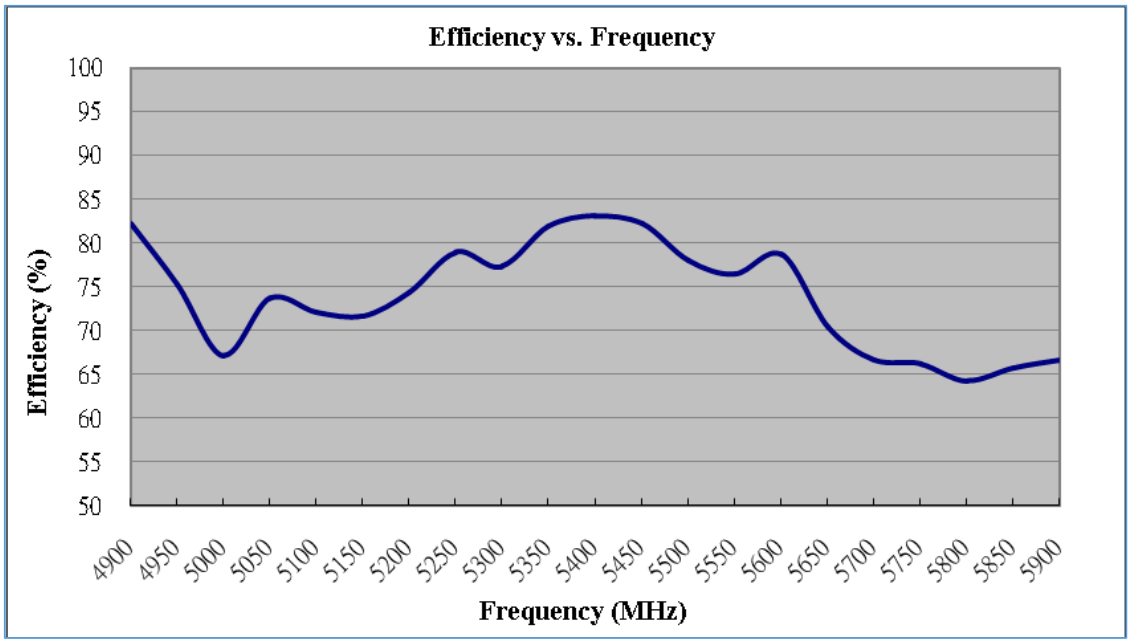
2.5 Efficiency vs. Frequency





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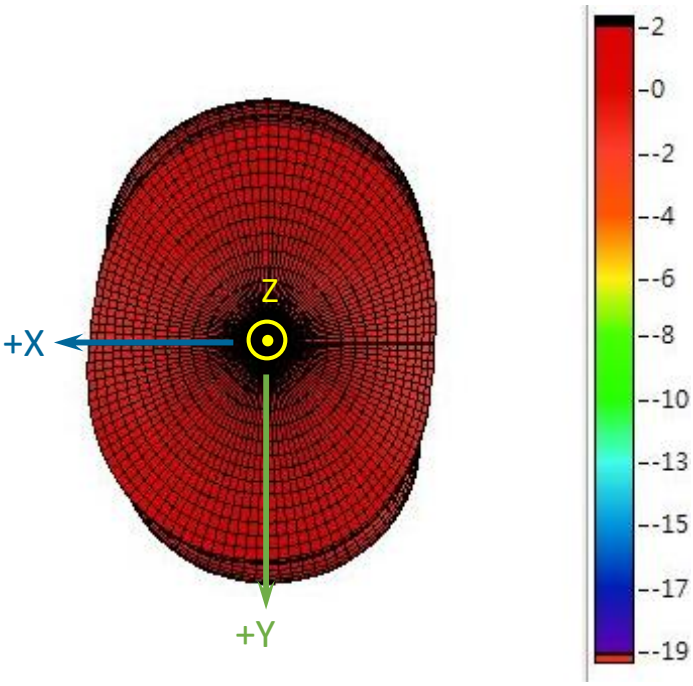
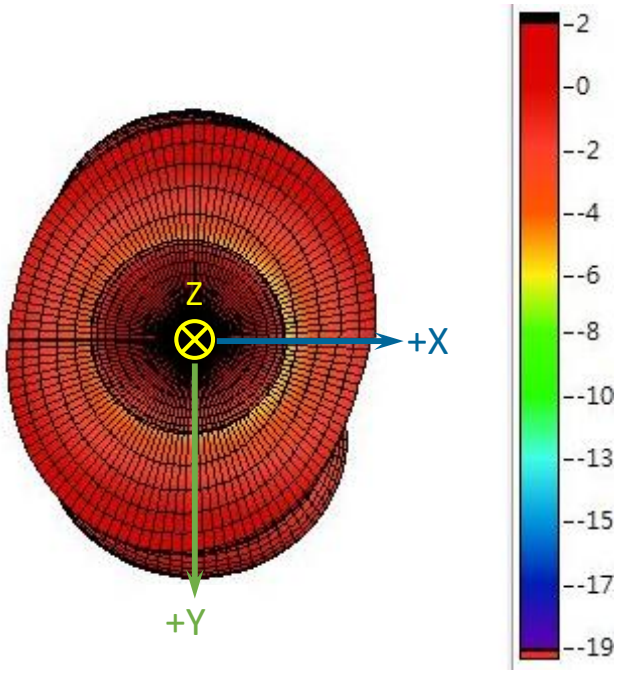
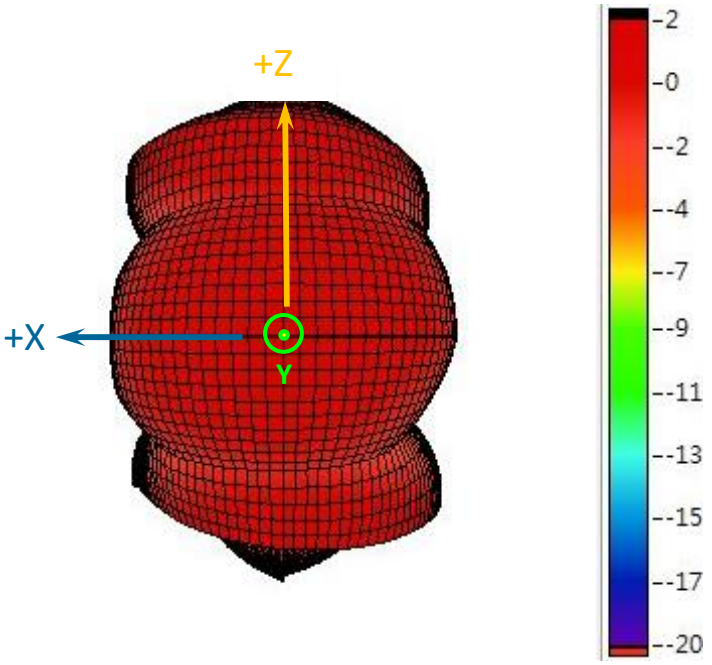
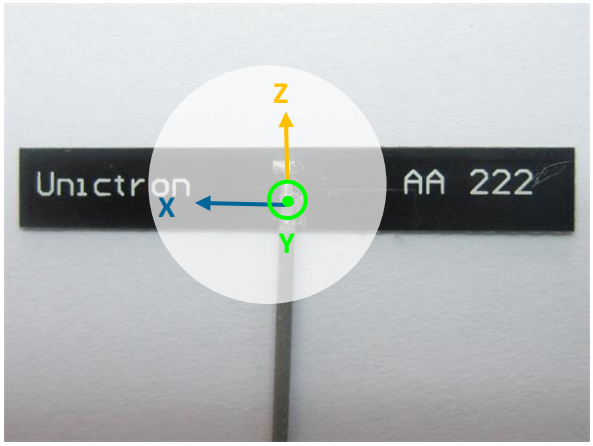
2.6 Radiation Pattern

3D Gain Pattern @ 2442 MHz (unit: dBi)









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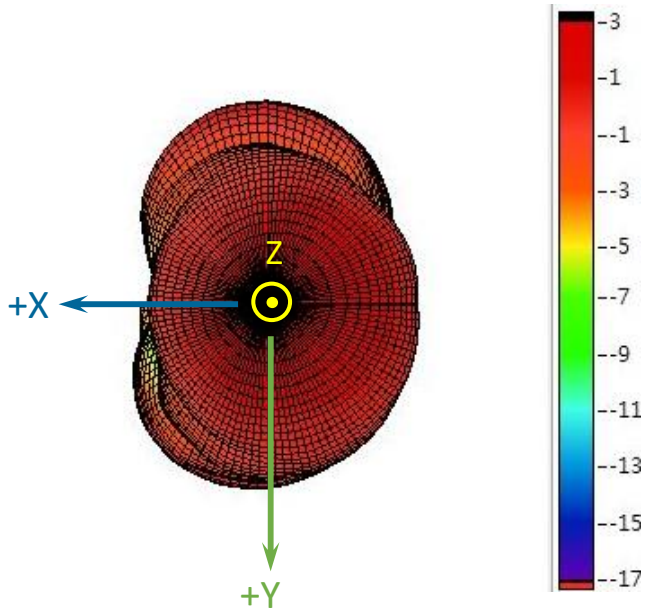
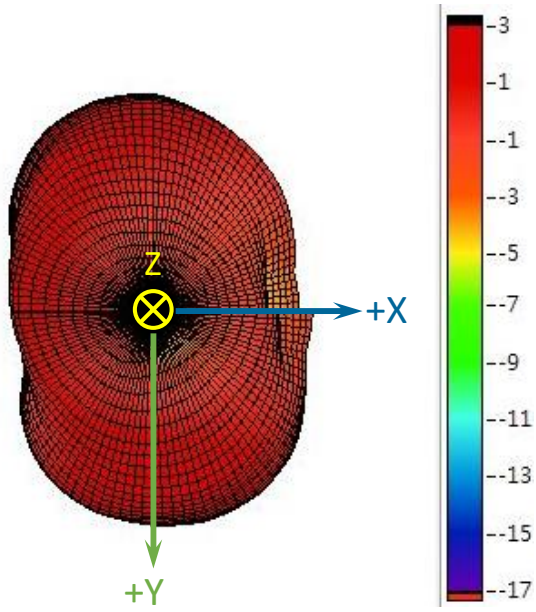
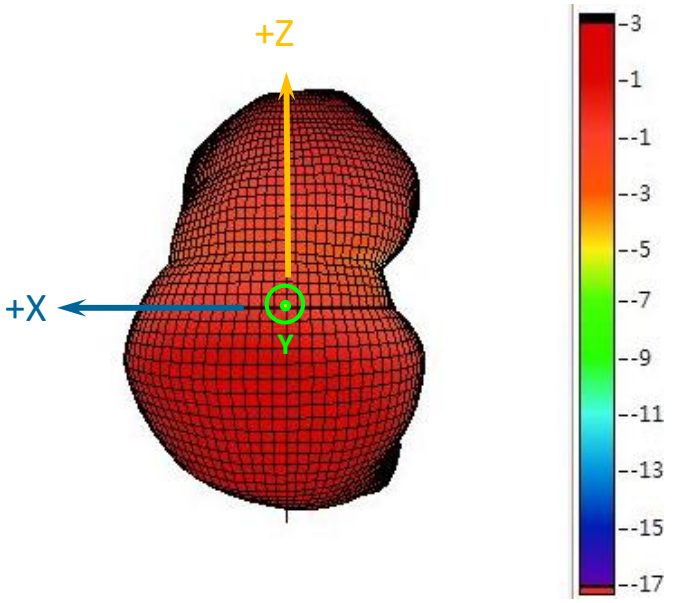
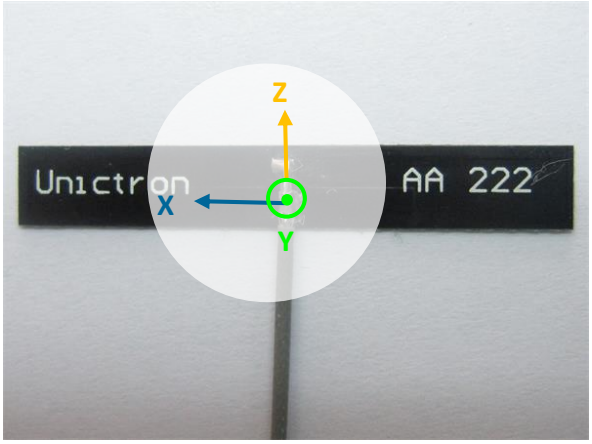
3D Gain Pattern @ 5150 MHz (unit: dBi)









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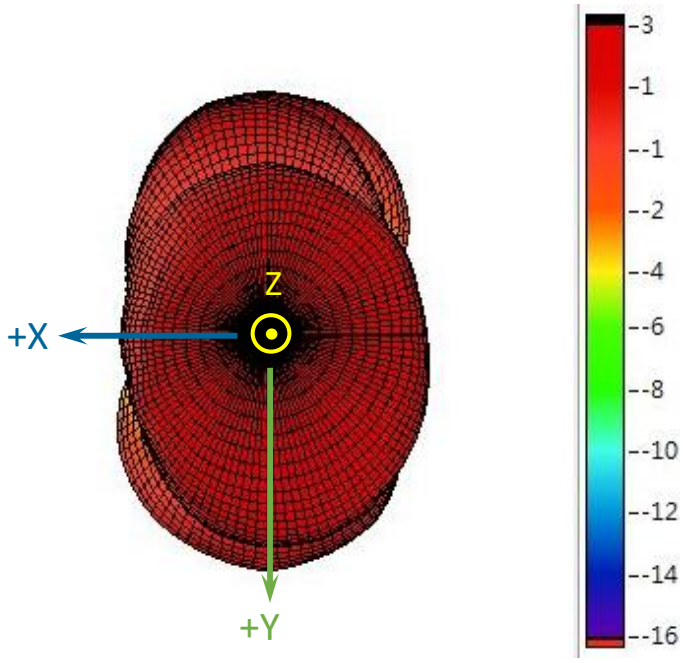
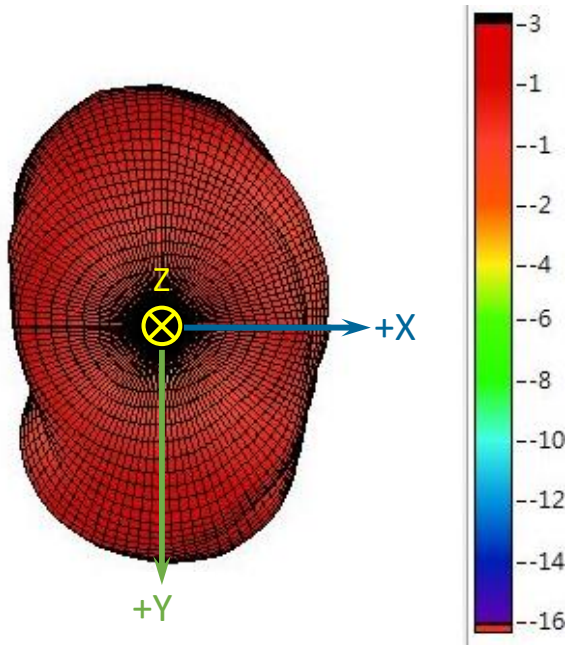
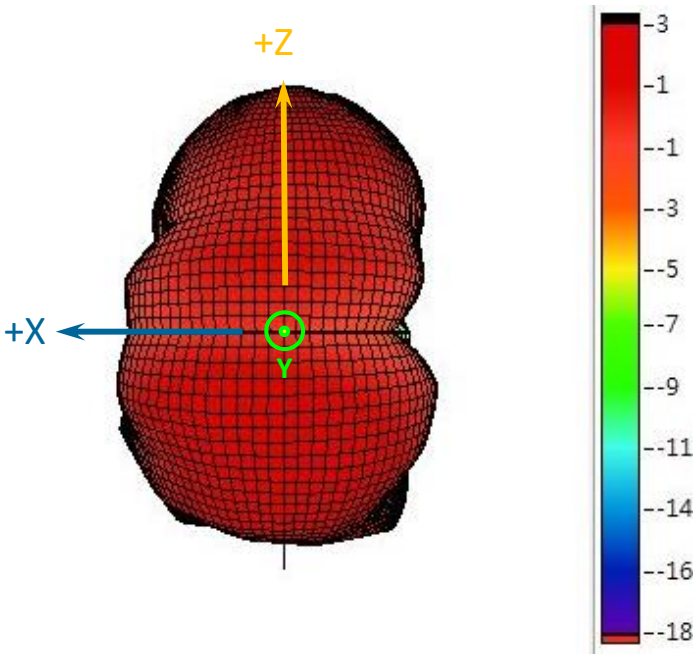
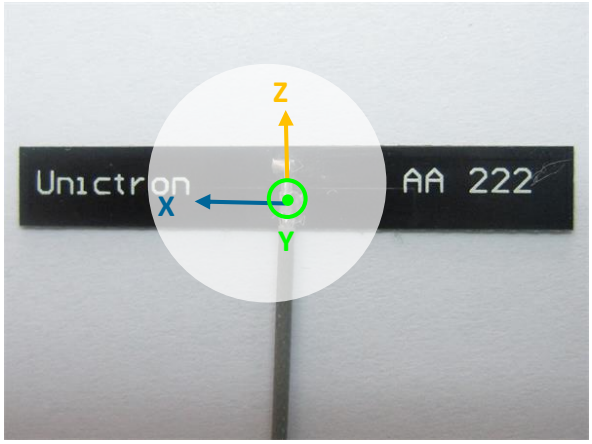
3D Gain Pattern @ 5350 MHz (unit: dBi)









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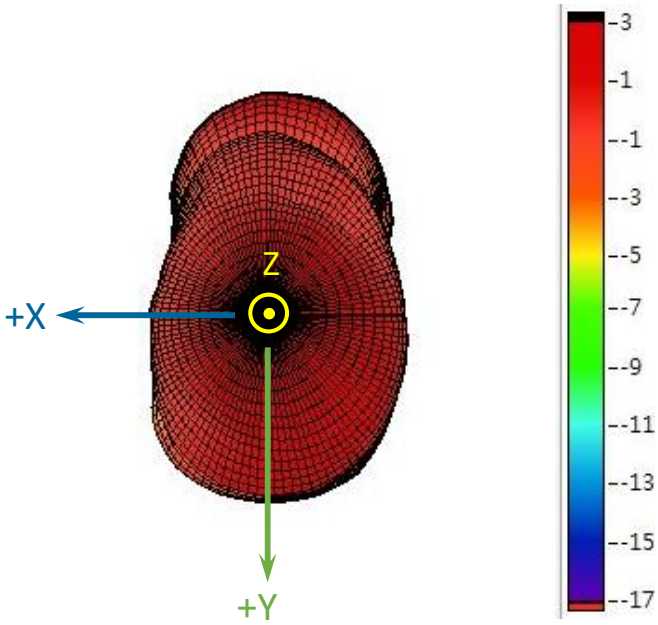
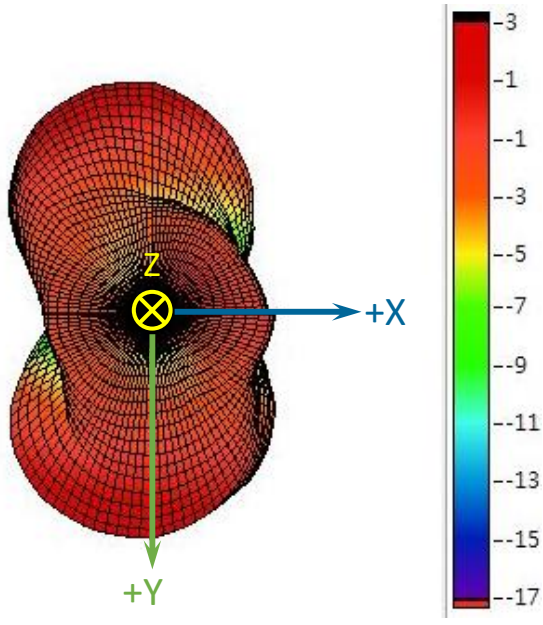
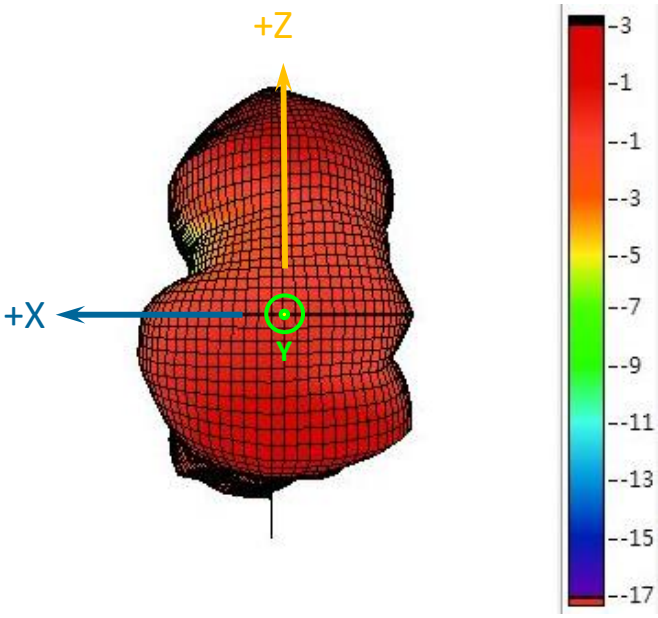
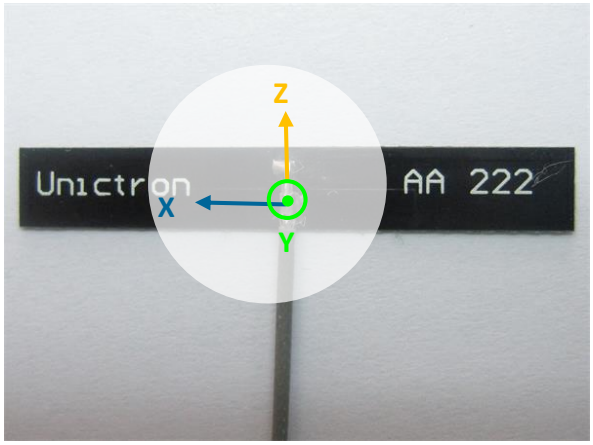
3D Gain Pattern @ 5700 MHz (unit: dBi)









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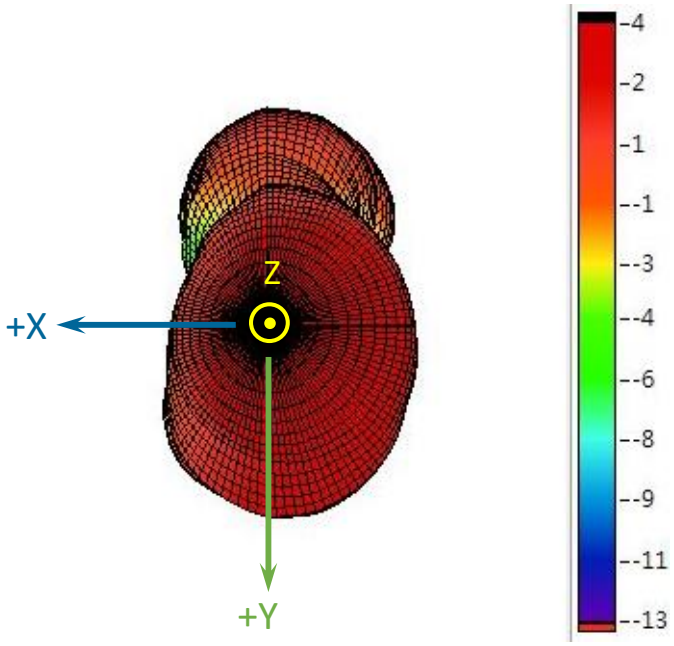
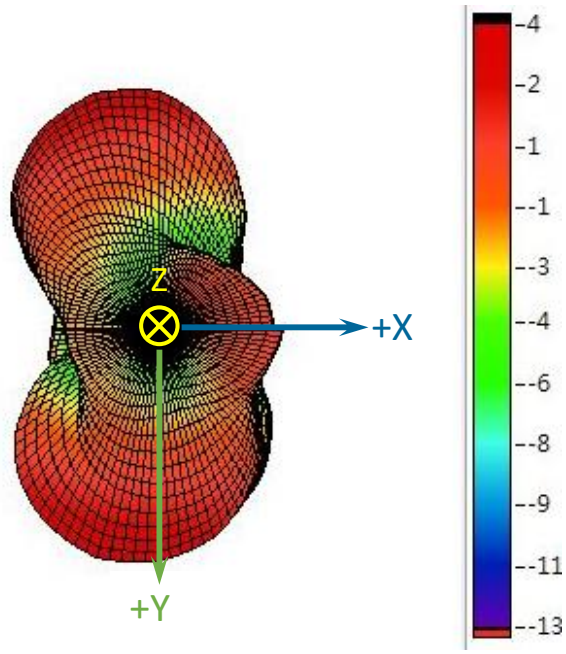
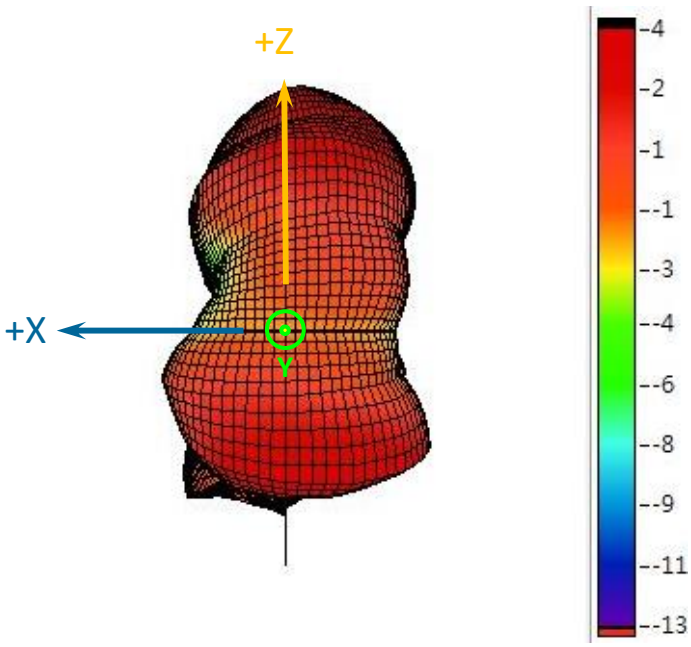
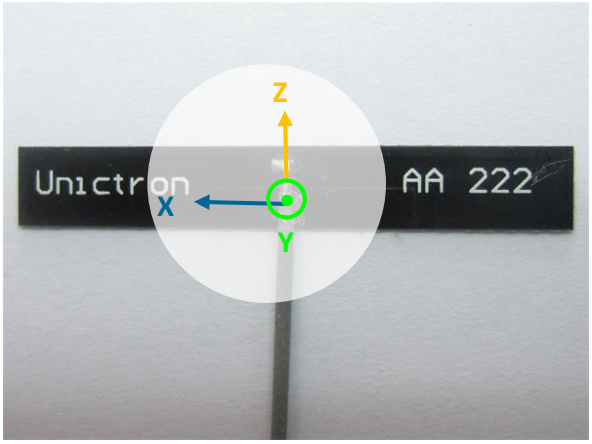
3D Gain Pattern @ 5850 MHz (unit: dBi)









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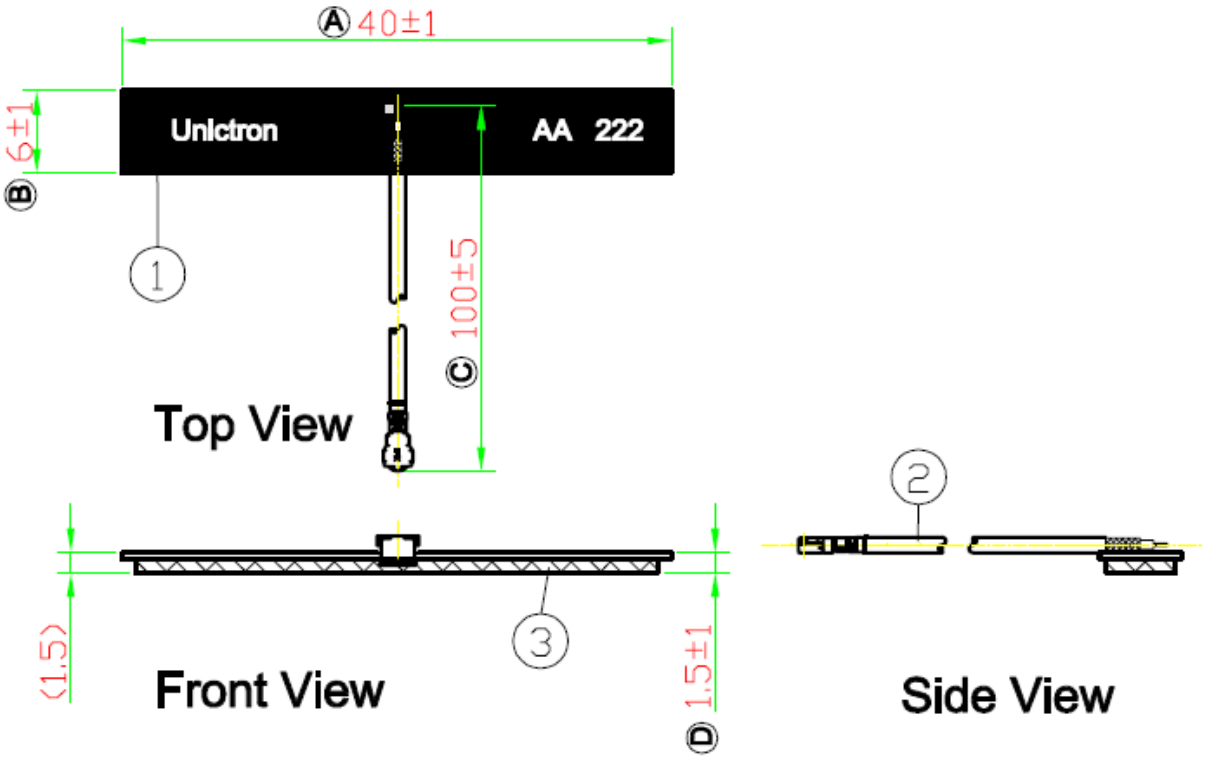
3 Antenna Dimensions



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

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4 Notes

4.1 Operating conditions

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

4.2 Storage conditions

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

4.3 Package

Weight and Quantity:

Unit Weight: 0.6 ± 0.5 (g)

Quantity

Each EPE Tray: 25 pcs

Each Outer Box: 2500 pcs

Total Weight

N.W.: 1.5 ± 1 kg

G.W.: 2.3 ± 1 kg

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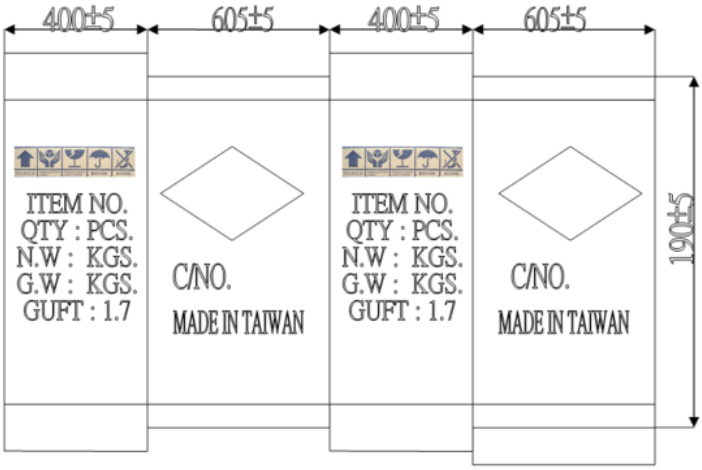
Dimensions

Outer Box (605mm*400mm*190mm)



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.

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4.4Cables and connectors

The AA222 PCB antenna is provided with a standard cable 100mm long and IPEX MHF IV connector.

Change of the cable length and type, connector type is possible upon request.

4.5 Additional note

The actual performance of the antenna will depend on the environment of the device antenna is placed into. For the optimal performance avoid using antenna near metal parts like metal housing, display, battery, metal buttons, etc.

Feel free to contact us in regard of optimal antenna placement in your device.

Information presented in this Reference Specification is believed to be correct as of the date of publishing. Unictron Technologies Corporation reserves the rights to change the Reference Specification without notice due to technical improvements, etc. Please consult with Unictron's engineering team about the latest information before using this product. Per request, we may provide advice and assistance in implementing this antenna to a customer's device by simulation or real measurement of the interested device in our testing facilities.

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