25.0 x 7.0 x 0.5 (mm) Wi-Fi Dual Band PCB Antenna with Cable (AA258) Engineering Specification

1. Explanation of Product Number

H	2	B	1	P	C	1	A	1	C	x	x	x	x
				(1)	(2)		(3)	(4)		(5)			

Product Code

(1) Product Applications:

P: WiFi dual band antenna dipole type

(2) Dimensions:

C1: 25.0 x 7.0 x 0.5 (mm)

(3) Material:

A: GF

(4) Working Frequencies:

1C: 2400~2484 & 5150~5850 MHz

(5) Antenna Series:

xx: serial number

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2. Features

*Stable and reliable in performances

*Compact size

*RoHS 2.0 compliance

3. Applications

* IEEE802.11(a/b/g/n/ac).

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

4. Description

Unictron's PCB antenna with cable series are specially designed for IEEE802.11(a/b/g/n/ac) 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	

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7. Electrical Specifications

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

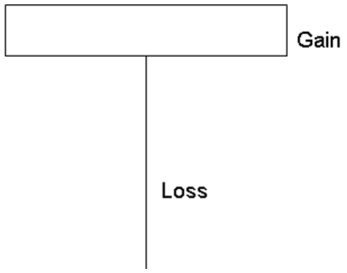
7-1. 2400~2484 MHz Band

Characteristics		Specifications	Unit
Outline Dimensions		25.0 x 7.0 x 0.5	mm
Working Frequency (Center Frequency)		2400~2484 (2442)	MHz
Bandwidth		100Min.(typical)	MHz
VSWR(@Center Frequency)*		2Max. (typical)	
Impedance		50	Ω
Polarization		Linear Polarization	
Peak Gain	(@2442MHz)	2.9 (typical)	dBi
Efficiency		56.9 (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 Unictron test environment.

7-2.Peak Gain at 2400~2484 MHz Band



Length	Gain(dBi)	Loss	Total
50mm	2.9	0.23	2.67
100mm	2.9	0.36	2.54
150mm	2.9	0.58	2.32
200mm	2.9	0.66	2.24
250mm	2.9	0.8	2.1
300mm	2.9	0.95	1.95

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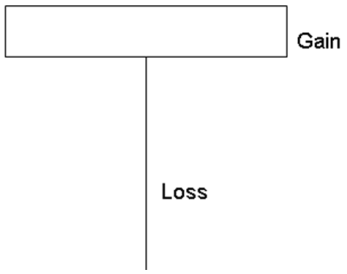
7-3. 5150~5250 MHz Band

Characteristics		Specifications	Unit
Working Frequency (Center Frequency)		5150~5250 (5200)	MHz
Bandwidth		700Min.(typical)	MHz
VSWR(@Center Frequency)*		2Max. (typical)	
Impedance		50	Ω
Polarization		Linear Polarization	
Peak Gain	(@5200MHz)	4.0 (typical)	dBi
Efficiency		66.2 (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.

7-4 Peak Gain at 5150~5250 MHz Band



Length	Gain(dBi)	Loss	Total
50mm	4.0	0.78	3.22
100mm	4.0	1.02	2.98
150mm	4.0	1.23	2.77
200mm	4.0	1.64	2.36
250mm	4.0	1.68	2.32
300mm	4.0	2.27	1.73

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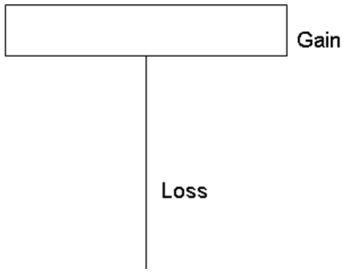
7-5. 5250~5350 MHz Band

Characteristics		Specifications	Unit
Working Frequency (Center Frequency)		5250~5350 (5300)	MHz
Bandwidth		700Min.(typical)	MHz
VSWR(@Center Frequency)*		2Max. (typical)	
Impedance		50	Ω
Polarization		Linear Polarization	
Peak Gain	(@5300MHz)	4.9 (typical)	dBi
Efficiency		76.3 (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.

7-6 Peak Gain at 5250~5350 MHz Band



Length	Gain(dBi)	Loss	Total
50mm	4.9	0.99	3.91
100mm	4.9	1.16	3.74
150mm	4.9	1.49	3.41
200mm	4.9	1.79	3.11
250mm	4.9	1.87	3.03
300mm	4.9	2.34	2.56

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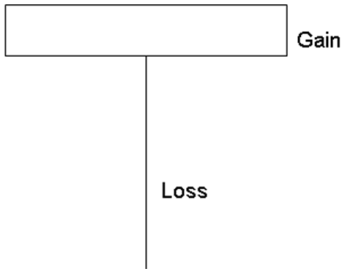
7-7. 5470~5725 MHz Band

Characteristics		Specifications	Unit
Working Frequency (Center Frequency)		5470~5725 (5600)	MHz
Bandwidth		700Min.(typical)	MHz
VSWR(@Center Frequency)*		2Max. (typical)	
Impedance		50	Ω
Polarization		Linear Polarization	
Peak Gain	(@5600MHz)	4.0 (typical)	dBi
Efficiency		70.1 (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.

7-8 Peak Gain at 5470~5725 MHz Band



Length	Gain(dBi)	Loss	Total
50mm	4.0	1.18	2.77
100mm	4.0	1.34	2.61
150mm	4.0	1.50	2.45
200mm	4.0	1.87	2.08
250mm	4.0	1.90	2.05
300mm	4.0	2.31	1.64

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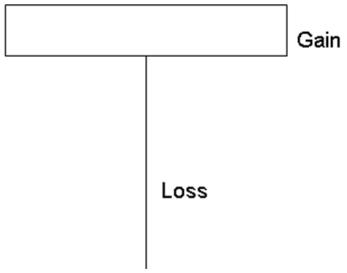
7-9. 5725~5850 MHz Band

Characteristics		Specifications	Unit
Working Frequency (Center Frequency)		5725~5850 (5790)	MHz
Bandwidth		700Min.(typical)	MHz
VSWR(@Center Frequency)*		2Max. (typical)	
Impedance		50	Ω
Polarization		Linear Polarization	
Peak Gain	(@5790MHz)	5.0 (typical)	dBi
Efficiency		67.8 (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.

7-10 Peak Gain at 5725~5850 MHz Band



Length	Gain(dBi)	Loss	Total
50mm	5.6	1.63	3.92
100mm	5.6	1.67	3.88
150mm	5.6	1.92	3.63
200mm	5.6	2.1	3.45
250mm	5.6	2.47	3.08
300mm	5.6	2.83	2.72

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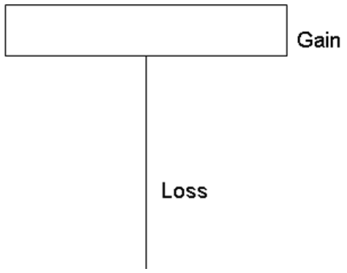
7-11. 5850~5895 MHz Band

Characteristics		Specifications	Unit
Working Frequency (Center Frequency)		5850~5895 (5870)	MHz
Bandwidth		700Min.(typical)	MHz
VSWR(@Center Frequency)*		2Max. (typical)	
Impedance		50	Ω
Polarization		Linear Polarization	
Peak Gain	(@5870MHz)	6.0 (typical)	dBi
Efficiency		76.2 (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.

7-12 Peak Gain at 5850~5895 MHz Band



Length	Gain(dBi)	Loss	Total
50mm	6.0	1.57	4.4
100mm	6.0	1.58	4.39
150mm	6.0	1.89	4.08
200mm	6.0	1.92	4.05
250mm	6.0	2.32	3.65
300mm	6.0	2.51	3.46

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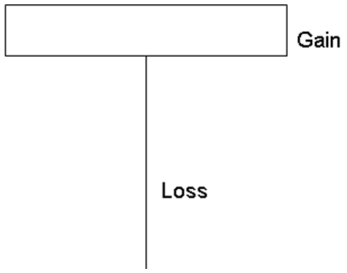
7-13. 5925~6425 MHz Band

Characteristics		Specifications	Unit
Working Frequency (Center Frequency)		5925~6425 (6175)	MHz
Bandwidth		700Min.(typical)	MHz
VSWR(@Center Frequency)*		2Max. (typical)	
Impedance		50	Ω
Polarization		Linear Polarization	
Peak Gain	(@6175MHz)	5.2 (typical)	dBi
Efficiency		48.3 (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.

7-14 Peak Gain at 5925~6425 MHz Band



Length	Gain(dBi)	Loss	Total
50mm	5.2	1.61	3.59
100mm	5.2	1.67	3.53
150mm	5.2	1.92	3.28
200mm	5.2	2.1	3.1
250mm	5.2	2.47	2.73
300mm	5.2	2.83	2.37

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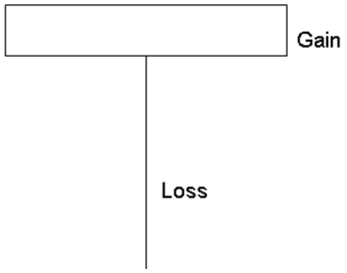
7-15. 6425~6525 MHz Band

Characteristics		Specifications	Unit
Working Frequency (Center Frequency)		6425~6525 (6475)	MHz
Bandwidth		700Min.(typical)	MHz
VSWR(@Center Frequency)*		2Max. (typical)	
Impedance		50	Ω
Polarization		Linear Polarization	
Peak Gain	(@6475 Hz)	5.0 (typical)	dBi
Efficiency		46.5 (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.

7-16 Peak Gain at 6425~6525 MHz Band



Length	Gain(dBi)	Loss	Total
50mm	5.4	1.72	3.63
100mm	5.4	1.7	3.65
150mm	5.4	2.15	3.2
200mm	5.4	2.3	3.05
250mm	5.4	2.5	2.85
300mm	5.4	2.86	2.49

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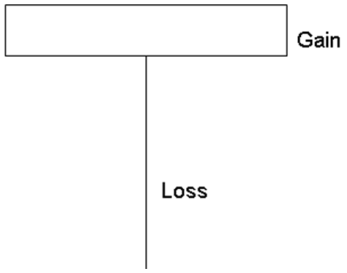
7-17. 6525~6875 MHz Band

Characteristics		Specifications	Unit
Working Frequency (Center Frequency)		6525~6875 (6700)	MHz
Bandwidth		700Min.(typical)	MHz
VSWR(@Center Frequency)*		2Max. (typical)	
Impedance		50	Ω
Polarization		Linear Polarization	
Peak Gain	(@6700MHz)	4.1 (typical)	dBi
Efficiency		52.4 (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.

7-18 Peak Gain at 6525~6875 MHz Band



Length	Gain(dBi)	Loss	Total
50mm	4.1	1.75	2.33
100mm	4.1	1.82	2.26
150mm	4.1	2.22	1.86
200mm	4.1	2.34	1.74
250mm	4.1	2.53	1.55
300mm	4.1	2.78	1.3

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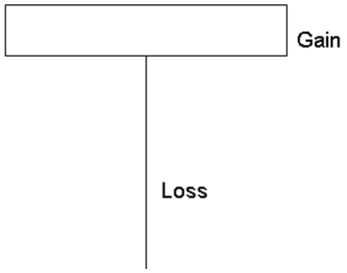
7-19. 6875~7125 MHz Band

Characteristics		Specifications	Unit
Working Frequency (Center Frequency)		6875~7125 (7000)	MHz
Bandwidth		700Min.(typical)	MHz
VSWR(@Center Frequency)*		2Max. (typical)	
Impedance		50	Ω
Polarization		Linear Polarization	
Peak Gain	(@7000MHz)	3.2 (typical)	dBi
Efficiency		42.3 (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.

7-20 Peak Gain at 6875~7125 MHz Band



Length	Gain(dBi)	Loss	Total
50mm	3.2	1.78	1.37
100mm	3.2	1.92	1.23
150mm	3.2	2.35	0.8
200mm	3.2	2.41	0.74
250mm	3.2	2.76	0.39
300mm	3.2	3.21	-0.06

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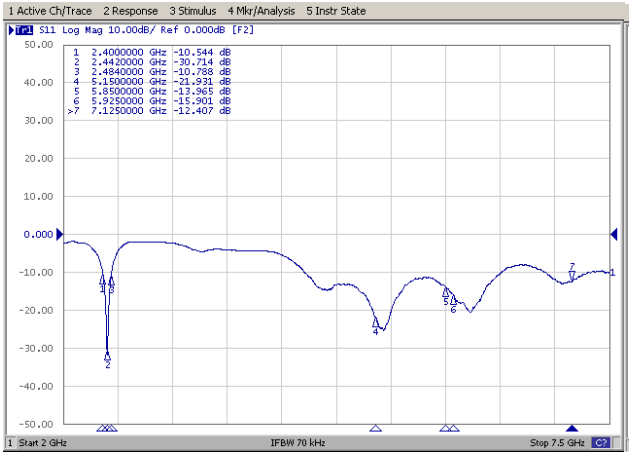
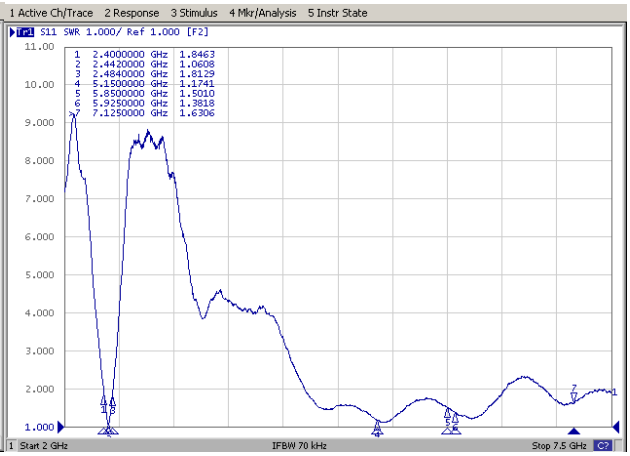
7-21. Return Loss & VSWR

Return Loss (S_{11})

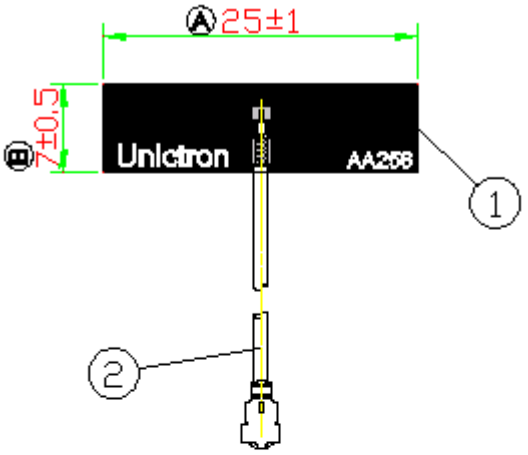


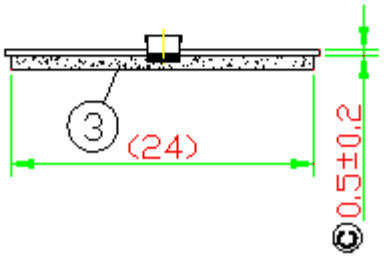
VSWR (S_{11})

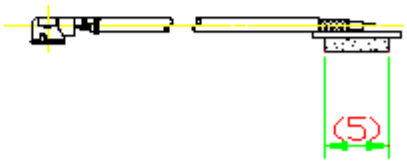


8. Dimensions of PCB antenna with cable (unit: mm)

8-1 I-PEX (MHF I)







NOTE:
1.All materials are RoHS 2.0 compliant.
2."Ⓐ~Ⓓ" Critical Dimensions.
3."( )" Reference Dimensions.

Item	Name	Material	Color	Q'ty
1	AA258_PCB (25mm*7mm*0.5mm)	FR4	Black	1
2	I-PEX Connector (MHF I) _ Cable1.13mm	FEP	Gray	1
3	Adhesive Tape	PE	Black	1

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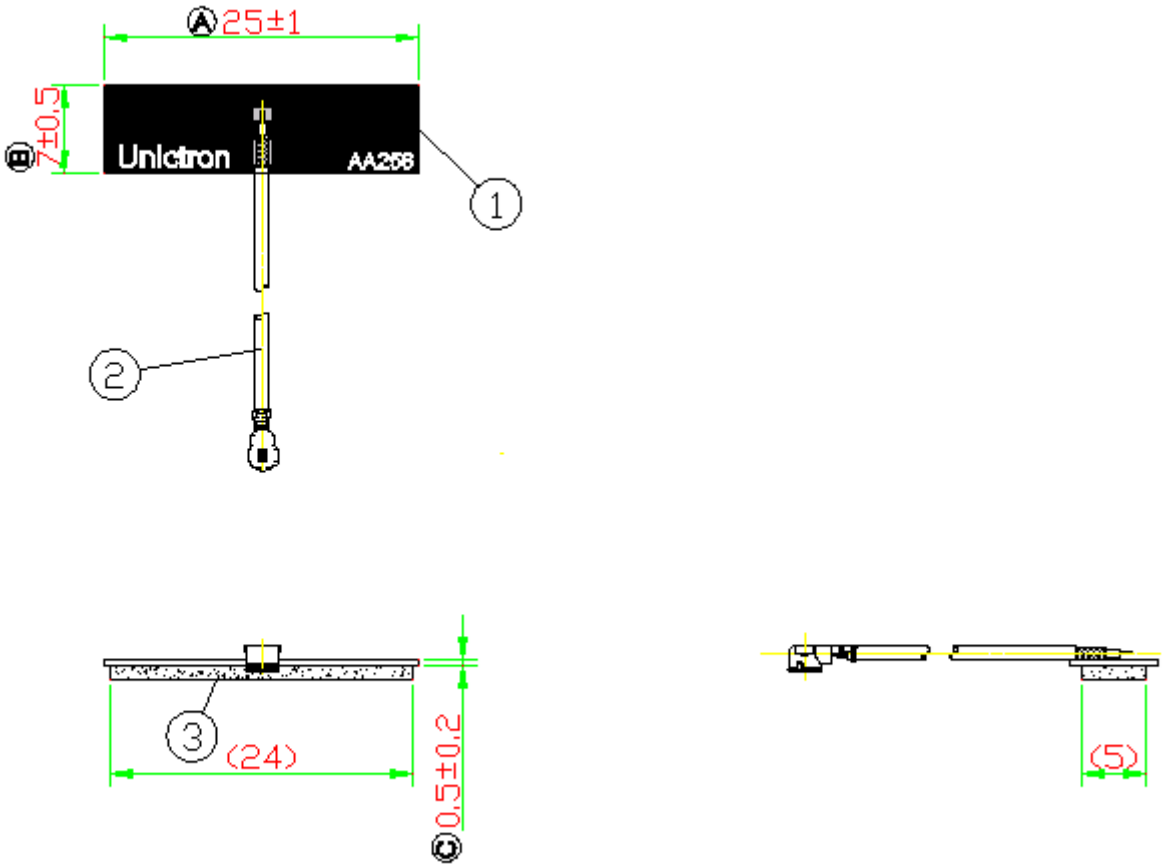
8-2 I-PEX (MHF 4L)



NOTE:
1.All materials are RoHS 2.0 compliant.
2."Ⓐ~Ⓓ" Critical Dimensions.
3."( )" Reference Dimensions.

Item	Name	Material	Color	Q'ty
1	AA258_PCB (25mm*7mm*0.5mm)	FR4	Black	1
2	I-PEX Connector (MHF 4L)_CableΦ1.13mm	FEP	Gray	1
3	Adhesive Tape	PE	Black	1

Unictron Technologies Corp.

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Unictron Technologies Corporation
Website:www.unictron.com

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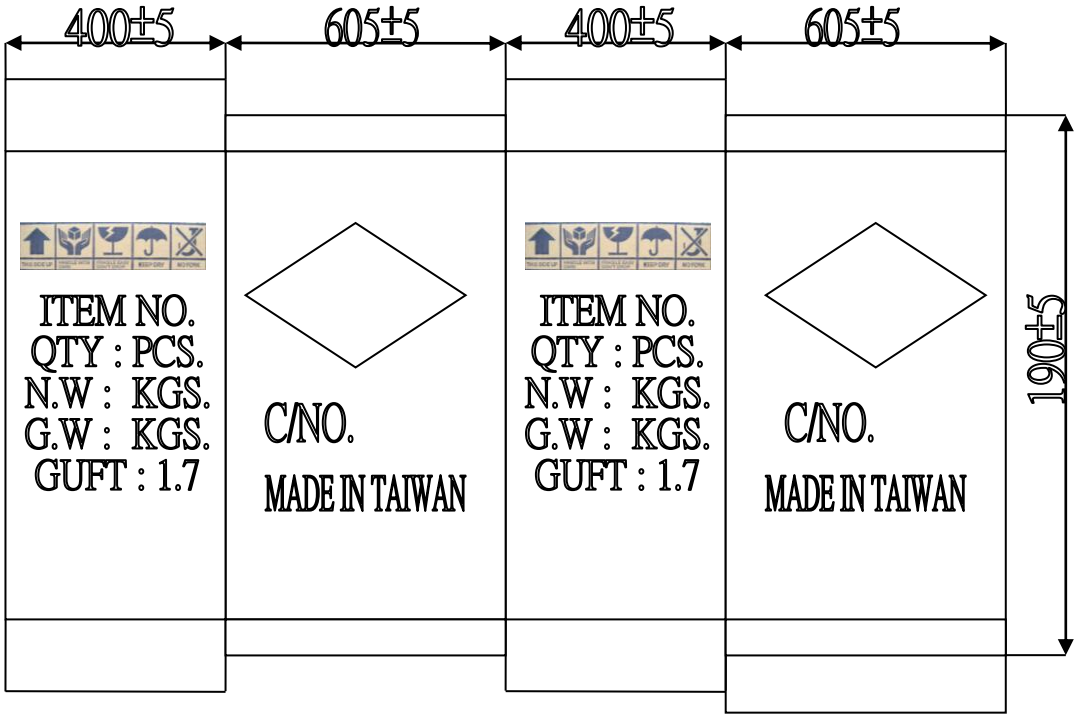
Prepared by : Sandy Designed by : Gavin Checked by : Mike Yang Approved by : Herbert

TITLE : 25.0 x 7.0 x 0.5 (mm) Wi-Fi Dual Band PCB Antenna with Cable (AA258) Engineering Specification	DOCUMENT NO.	H2B1PC1A1Cxxxx	REV. A

9-2. Dimensions

9-2-1 Outer Box (605mm*400mm*190mm)



10. Country of Origin

Company Name	Unictron Technologies Corporation
Factory	Second Factory
Postal Code	32556
Country of Origin	Taiwan
Address	5F NO. 83, Kewang Rd., Longtan Dist., Taoyuan City, Taiwan

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11. Reference Date

11-1Measurement Setup

1. Reflection Coefficient Measurement

   (a) Equipment : Network Analyzer(Agilent E5071A) (Fig. 1)

   (b) 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 .

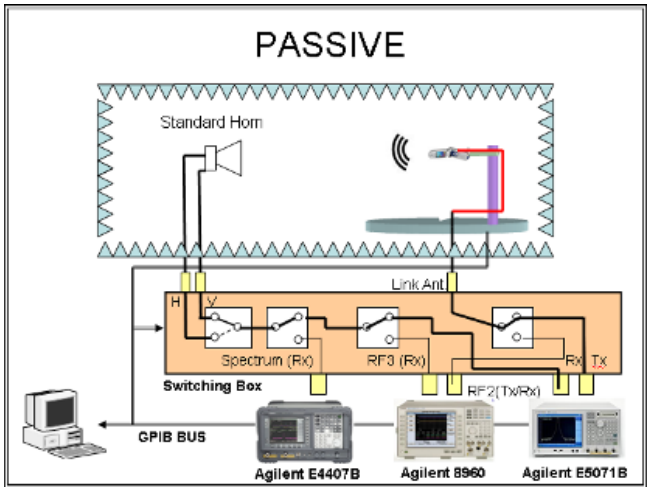

Fig. 2 Anechoic Chamber

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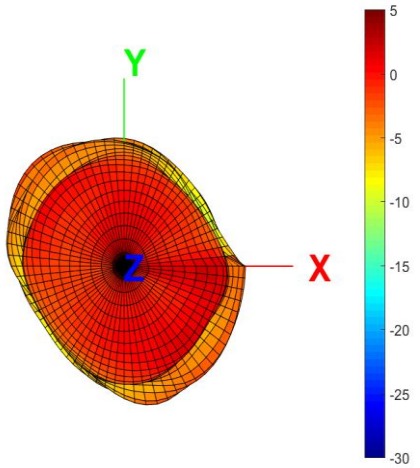
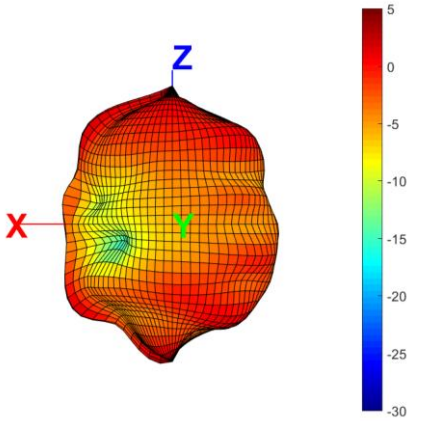
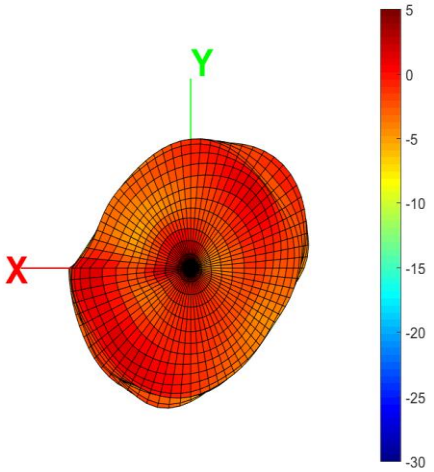
12. Radiation Pattern

12-1.2400~2484 MHz Band (L=100mm)

12-1-1.3D Gain Pattern @ 2445 MHz (unit: dBi)







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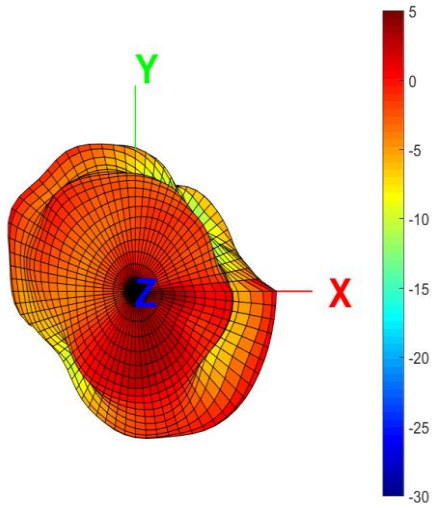
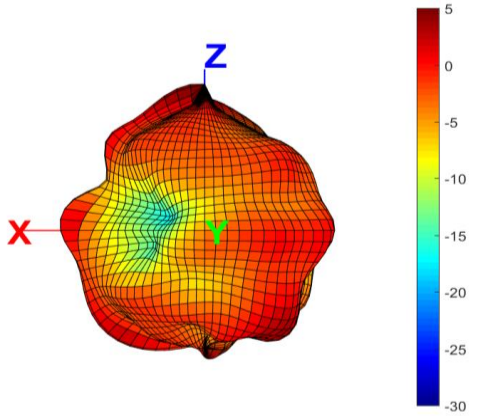
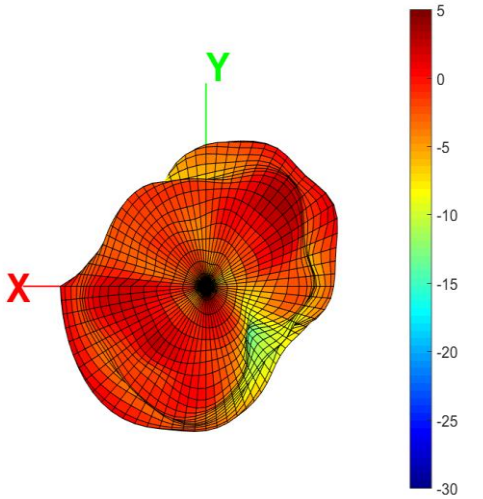
12.2. 5150~5250 MHz Band (L=100mm)

12-2-1.3D Gain Pattern @ 5200 MHz (unit: dBi)







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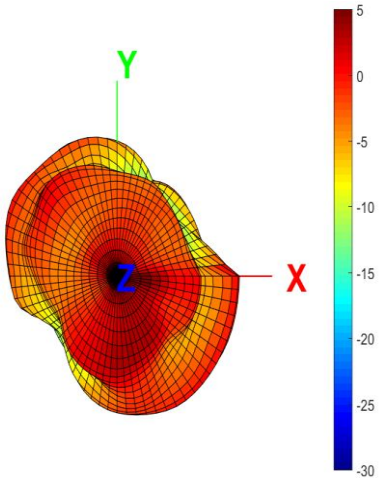
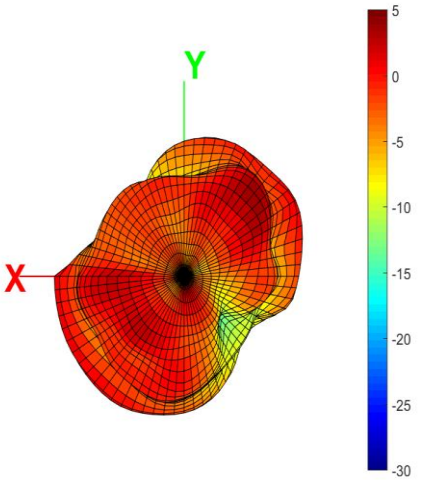
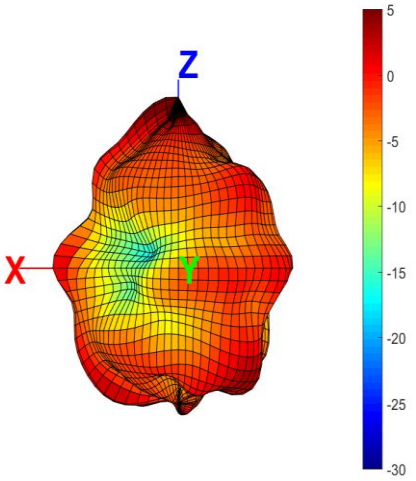
12.3. 5250~5350 MHz Band (L=100mm)

12-3-1.3D Gain Pattern @ 5300 MHz (unit: dBi)







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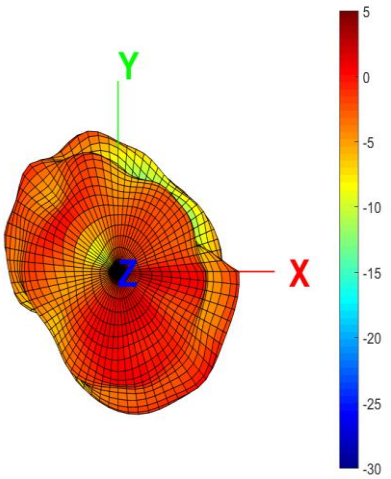
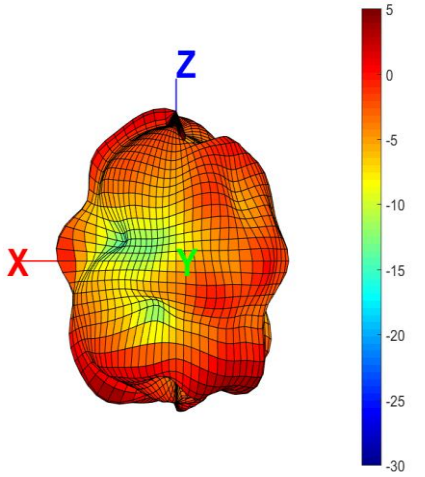
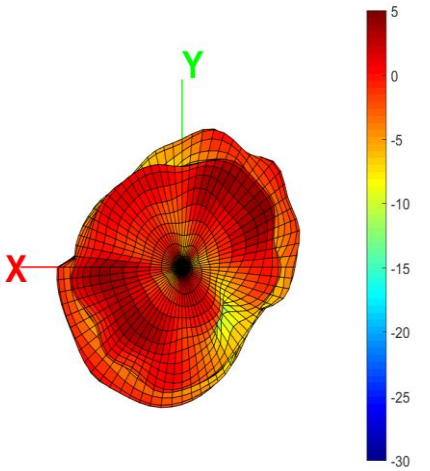
12.4. 5470~5725 MHz Band (L=100mm)

12-4-1.3D Gain Pattern @ 5600 MHz (unit: dBi)

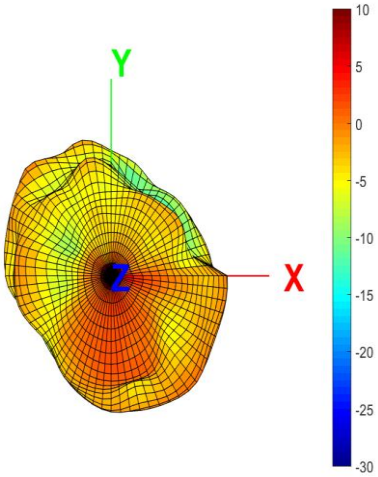


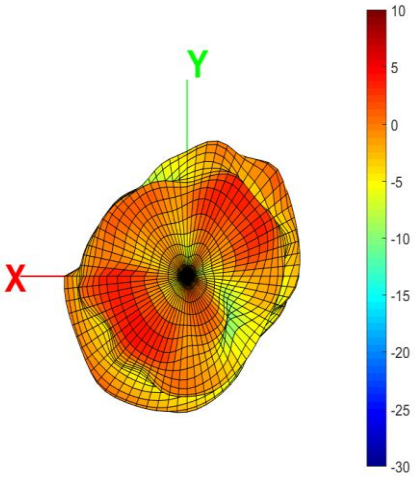


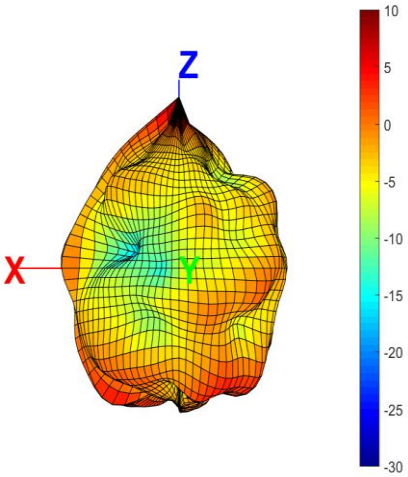


12.5. 5725~5850 MHz Band (L=100mm)

12-5-1.3D Gain Pattern @ 5790 MHz (unit: dBi)

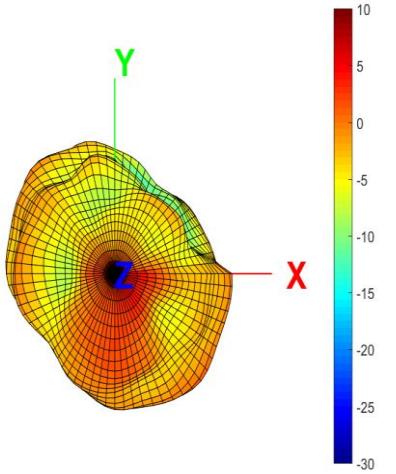


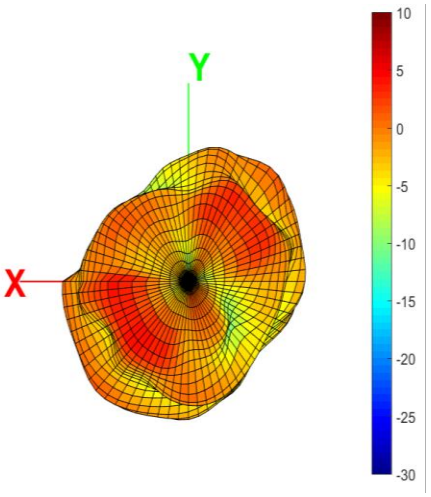


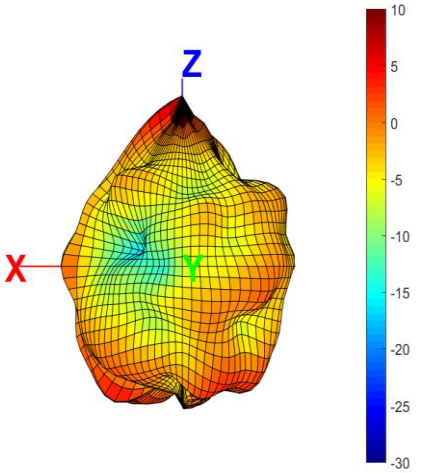


12.6. 5850~5895 MHz Band (L=100mm)

12-6-1.3D Gain Pattern @ 5870 MHz (unit: dBi)







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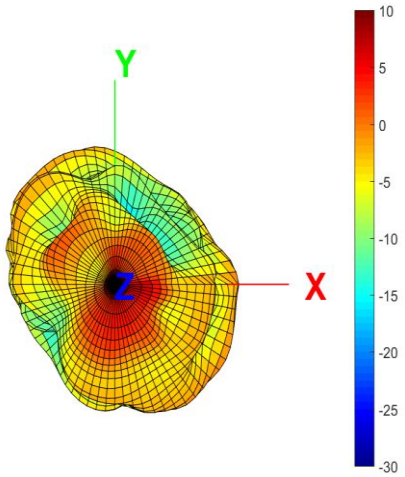
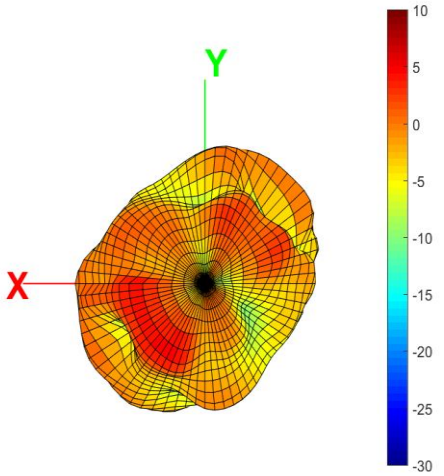
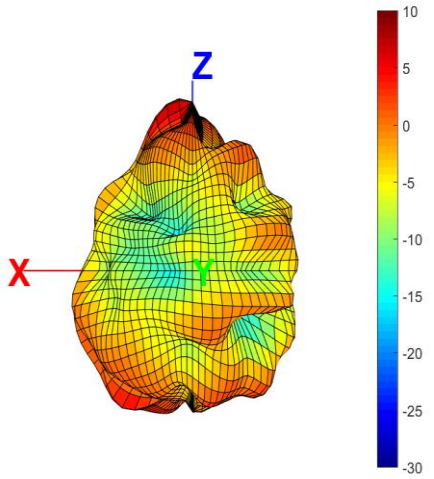
12.7. 5925~6425 MHz Band (L=100mm)

12-7-1.3D Gain Pattern @ 6175 MHz (unit: dBi)

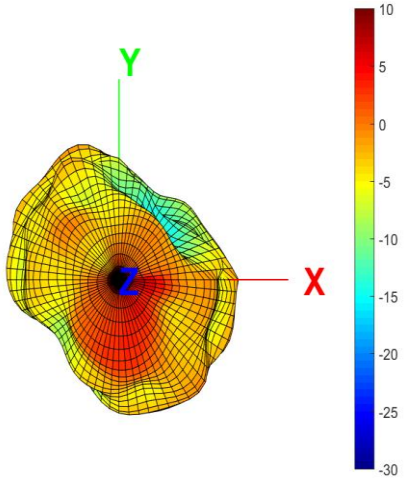


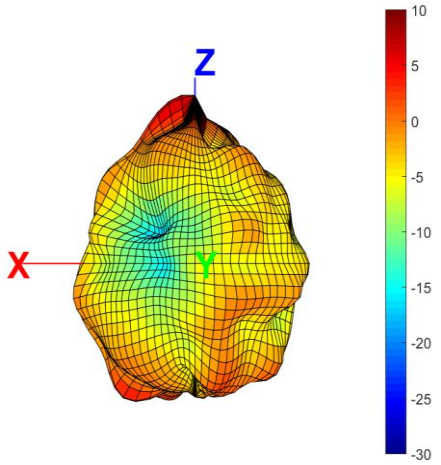


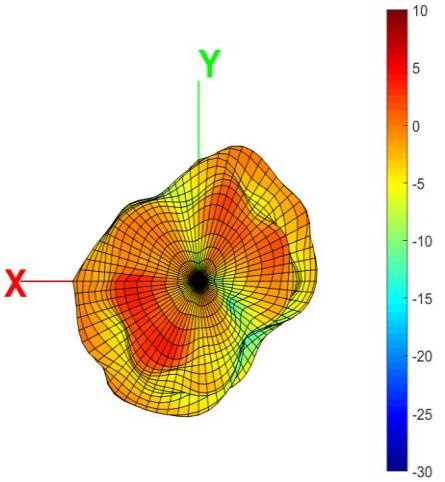


12.8. 6425~6525 MHz Band (L=100mm)

12-8-1.3D Gain Pattern @ 6475 MHz (unit: dBi)







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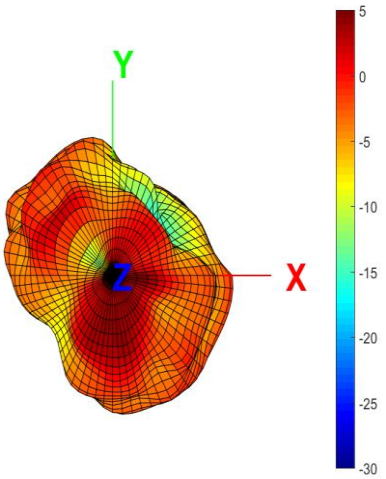
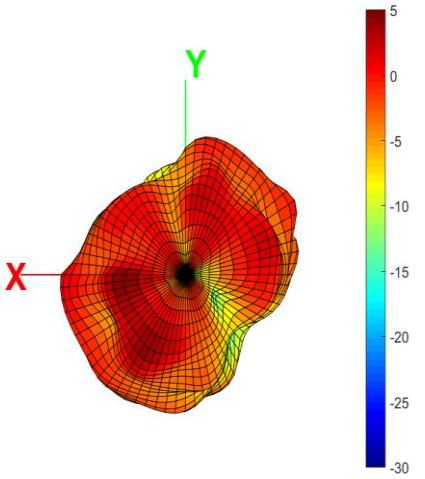
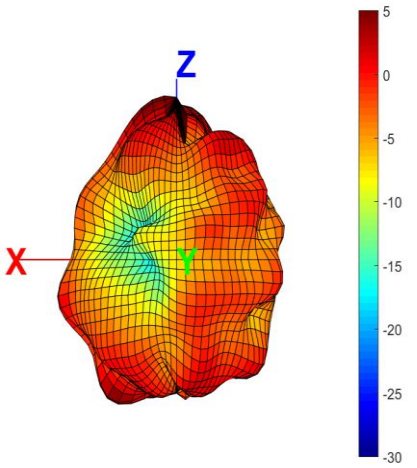
12.9. 6525~6875 MHz Band (L=100mm)

12-9-1.3D Gain Pattern @ 6700 MHz (unit: dBi)







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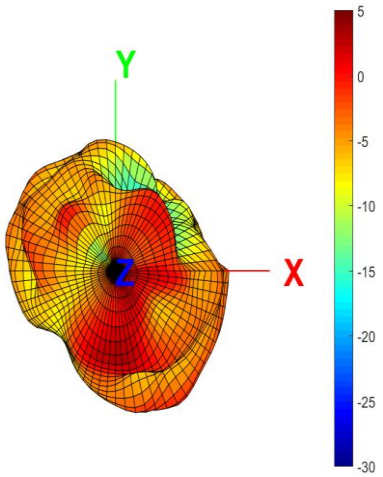
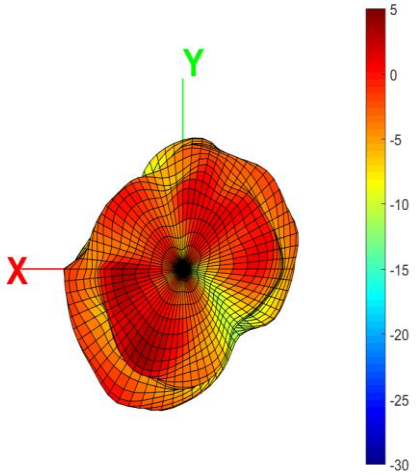
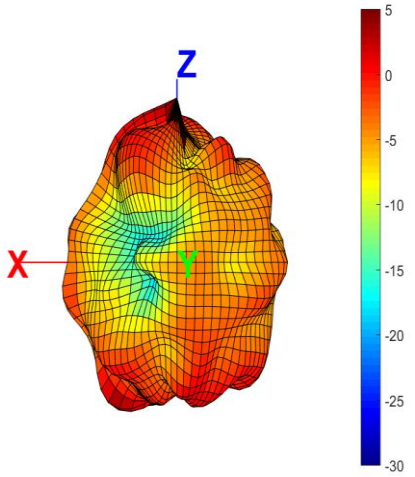
12.10. 6875~7125 MHz Band (L=100mm)

12-10-1.3D Gain Pattern @ 7000 MHz (unit: dBi)







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