



WHA YU INDUSTRIAL CO., LTD.(HEAD OFFICE)

DONGGUAN AEON TECH CO.,LTD.(CHINA)

SPECIFICATION FOR APPROVAL

CUSTOMER: 鴻海科技股份有限公司

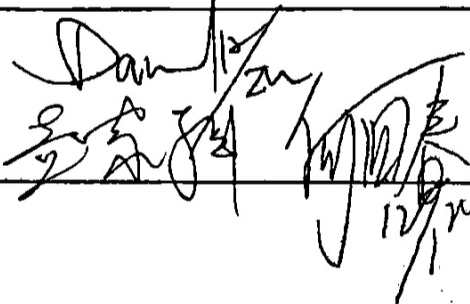

PART NAME: RF Antenna Assembly

PART NO.:

REVISION:

W. Y. P/NO.: C107-692075-A(SRF20221979)

REV.: XI

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
APPROVED BY :		
DATE :		

WHA YU GROUP

WHA YU INDUSTRIAL CO., LTD.(HEAD OFFICE)

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RF Antenna Assembly

Specification

1. Electrical Properties : With housing/With Cable loss(Ant.1)

- 1.1 Frequency Range..... 3.55~3.70 GHz
- 1.2 Impedance 50Ω Nominal
- 1.3 VSWR 2.0 : 1 Max.
- 1.4 Return Loss..... 9.5 dB Min.
- 1.5 Radiation Omni-Directional
- 1.6 Peak Gain..... >5dBi
- 1.7 Cable Loss..... 0.34 Max.
- 1.8 Polarization..... Linear, Horizontal
- 1.9 Cable..... 1.37 Low loss Coaxial Cable ; Color Black
- 1.10 Connector..... I-PEX MHF Connector
- 1.11 Core..... N/A

2. Physical Properties :

- 2.1 Operating Temp. -10°C ~ +60°C
- 2.2 Storage Temp. -10°C ~ +70°C

RF Antenna Assembly

Specification

1. Electrical Properties : With housing/With Cable loss(Ant.2)

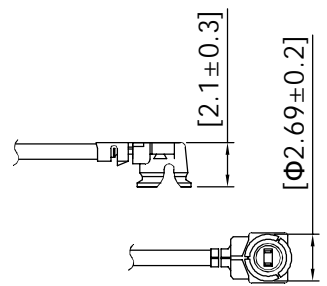
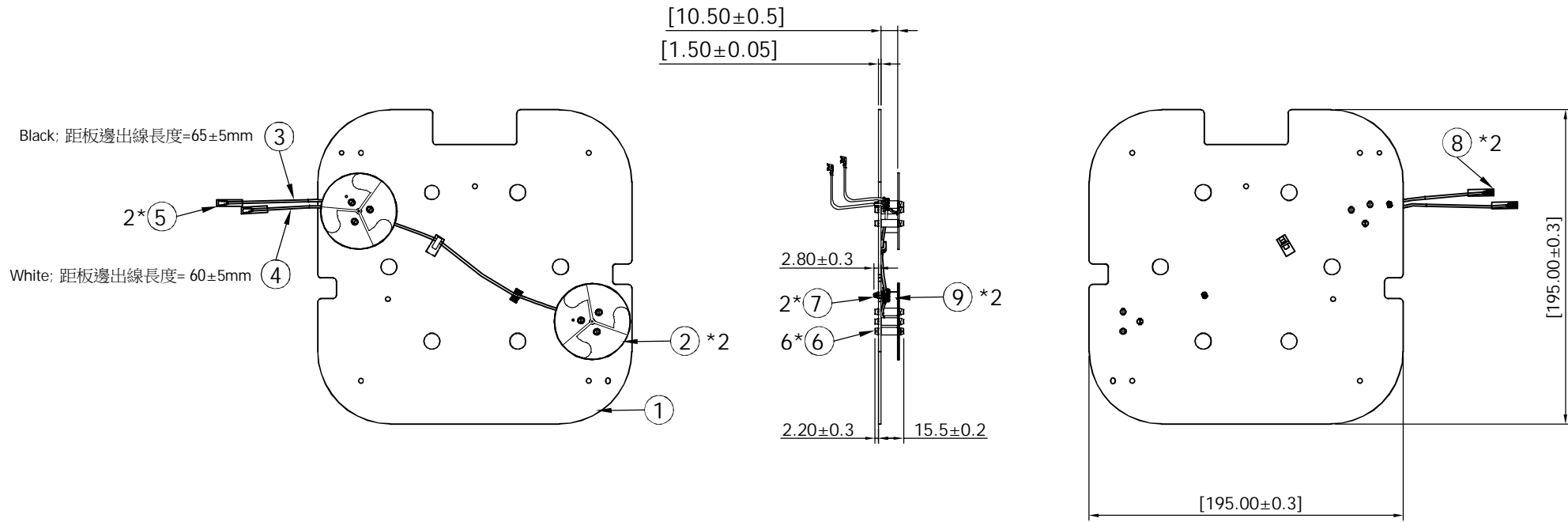
- 1.1 Frequency Range..... 3.55~3.70 GHz
- 1.2 Impedance 50Ω Nominal
- 1.3 VSWR 2.0 : 1 Max.
- 1.4 Return Loss..... 9.5 dB Min.
- 1.5 Radiation Omni-Directional
- 1.6 Peak Gain..... >5dBi
- 1.7 Cable Loss..... 0.87 Max.
- 1.8 Polarization..... Linear, Horizontal
- 1.9 Cable..... 1.37 Low loss Coaxial Cable ; Color White
- 1.10 Connector..... I-PEX MHF Connector
- 1.11 Core..... N/A

2. Physical Properties :

- 2.1 Operating Temp. -10°C ~ +60°C
- 2.2 Storage Temp. -10°C ~ +70°C

CG-

REV	DATE	DESCRIPTION
X1	11/30-2022	New Issue
X3	03/07-2023	更新外露線長
X4	03/10-2023	變更線扣



※ I-PEX鉚壓後 開口尺寸、高度示意圖

NO	DESCRIPTION	Q'TY	REMARK
9	泡棉背膠 (W)10.0*(L)10.0*(T)11mm	2	
8	Tube 透明套管;Φ3.0*20mm	2	
7	線扣 (L)9*(W)4.5*(H)3.6mm;Nylon 66(UL)	2	
6	間格柱 Φ4.4*17.7mm; Nylon 66(UL)	6	
5	Connector MHF Plug for Φ1.37(20351-112R-37)	2	
4	Cable 2 Φ1.37mm low loss;L=255±5mm;White[白色]	1	
3	Cable 1 Φ1.37mm low loss;L=100±5mm;Black[黑色]	1	
2	PCB 1 LNB33; (Φ)47.29*T=0.8mm	2	
1	鋁載盤 AL5052; T=1.5mm	1	

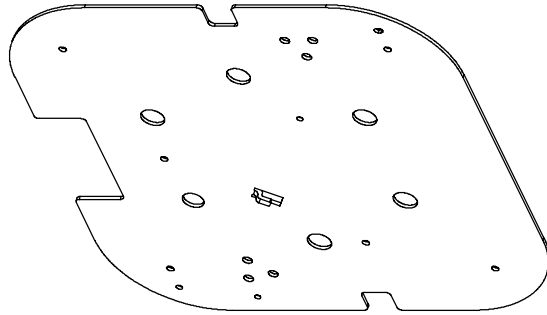
CUSTOMER'S SINGATURE	XXX.	±5.0	APPROVED	CUSTOMER: 鴻海		
	XX.	±3.0		PART NO : 361.01737.005		
	.X	±1.0	CHECKED	PART NAME: RF Antenna Assembly		
	.X	±0.5		W.Y P/NO : C107-692075-A		
	.XX	±0.2	DRAWING	REV	UNIT	FILE
⊕	⊖	X4		mm	SHEET	: 1/1

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CF-9633

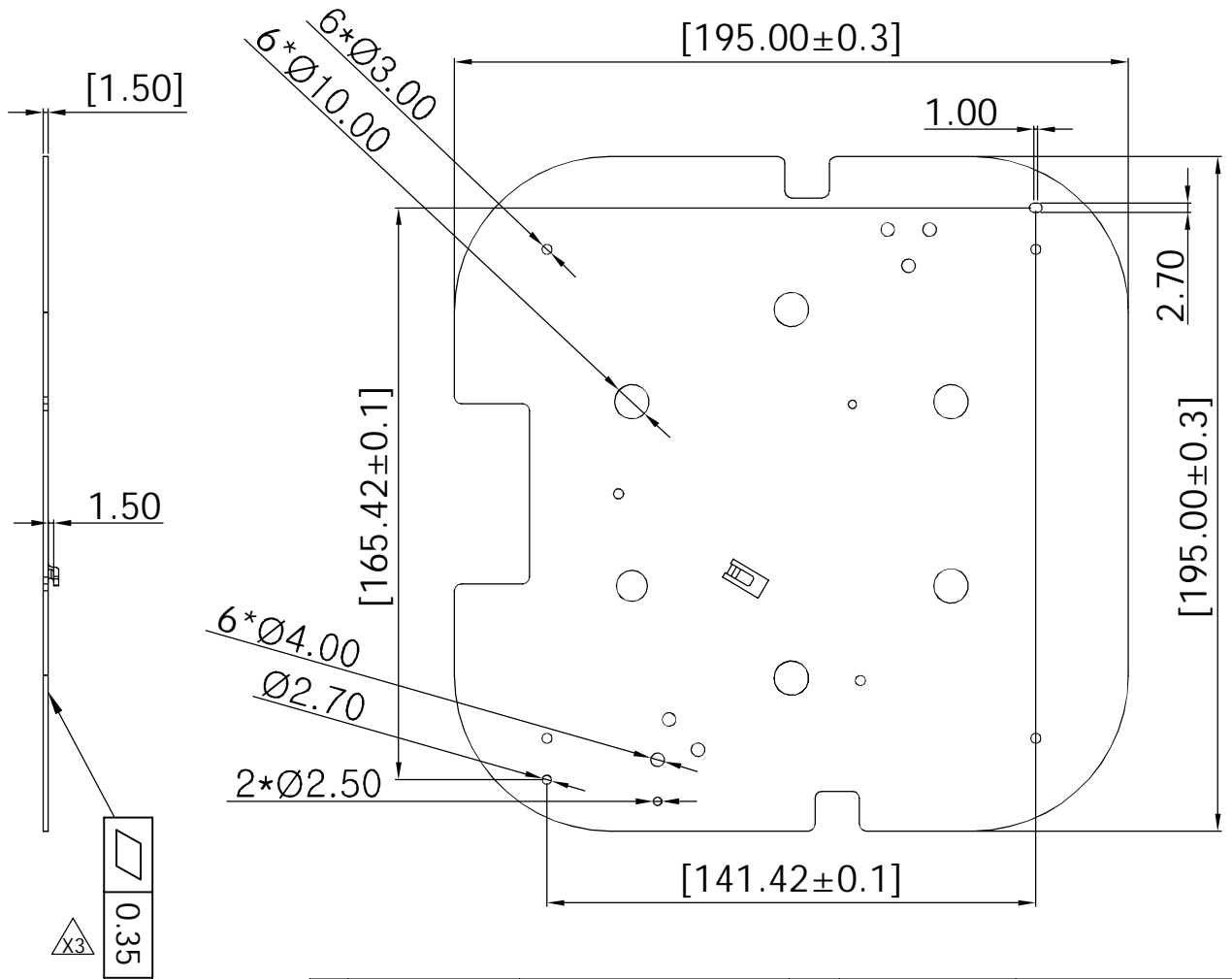
REV	DATE	DESCRIPTION
X1	12/05-2022	New Issue
X2	01/30-2023	變更孔徑
X3	03/27-2023	變更平整度



- Note:
- Remove All Burrs.
產品不可有毛邊。
 - Break All Corners And Edges C0.15 Max.
所有彎折處的C角最大值为0.15mm。
 - The 3D Model Shall Control All Features Of This Part Not Defined On This Drawing.
未於此2D圖面定義的尺寸,請以實際3D圖面測量為準。
 - Metal Parts Must Be Supplied With Bright Lustrous Finish、Clean & Free From Oil、Grease And Dirt.
金屬零件必須光澤明亮、乾淨、無多餘的潤滑油、油垢及污漬。
 - Critical To Function Dimension Are Mark With [X...].
影響產品功能的重點尺寸標註,請參考中括號 [...] 內尺寸。
 - 氣泡袋包裝,產品不能變形。

Select	V	A	B	C	EPS	EPE	BAG	CTN	LABEL	USR
0-6	0.05	0.05	0.10	/	/	/	/	0.20	0.05	
6-30	0.10	0.15	0.20	0.50	0.50	3.00	/	0.20	0.05	
30-120	0.15	0.20	0.30	0.50	0.50	5.00	2.00	0.25	0.10	
120-300	0.20	0.30	0.40	1.00	1.00	10.00	3.00	0.30	0.15	
300-450	0.25	0.40	0.50	2.00	2.00	15.00	5.00	0.50	0.20	
450-600	0.30	0.50	0.60	3.00	3.00	20.00	5.00	0.80	0.20	

DRAFT TOLERANCE	±0.2'	CRITICAL DIM. MARK	* / Ⓟ
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P/N	REMARK

XXX.	±2.0	APPROVED
XX.	±1.0	
X.	±0.5	CHECKED
.X	±0.2	
.XX	±0.1	DRAWING

1	鋁載盤	AL5052 T=1.5mm	1	100-40141533-AZ	
NO	DESCRIPTION	MATERIAL	Q'TY	P/N	
	VENDER				
	PART NO				
	PART NAME	鋁載盤			
	W.Y P/NO	100-40141533-AZ			
REV	UNIT	SCALE	SIZE	SHEET	FILE NAME
X3	mm	1/1	A 4	1 OF 1	

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ENGINEERING DRAWING

Foxconn_CBRS_internal_B48_2port_ plane omni_6dBi Antenna test report

Document Number: NE3-22075

Version: V 1.04

Released Date: 2022/11/10

Prepared By: Anton

Reviewed By: J.H.

Contents

- Revised History
- Specification
- Antenna Placement & Solution
- VSWR Results
- Isolation Results
- Test Setup for Radiation Pattern Measurement
- 2D Radiation Pattern Results
- 3D Radiation Pattern Results
- Results Summary (peak gain, efficiency)

Revision History

Released Date	Version	Revised Record
2022/10/05	1.00	Initial version
2022/10/14	1.01	Matching π circuit / Radiation pattern improved : Cancel center hole of plastic part / Use copper(with conducted glue) to cover the hole
2022/10/24	1.02	Antenna type : PCB / Top cover moved up 5mm
2022/11/03	1.03	Antenna type : PIFA / Top cover moved up 5mm Radiation pattern improved : Updated Antenna layout & Antenna position adjusted
2022/11/10	1.04	Antenna type : PCB Antenna finetune / new plastic part

Specification

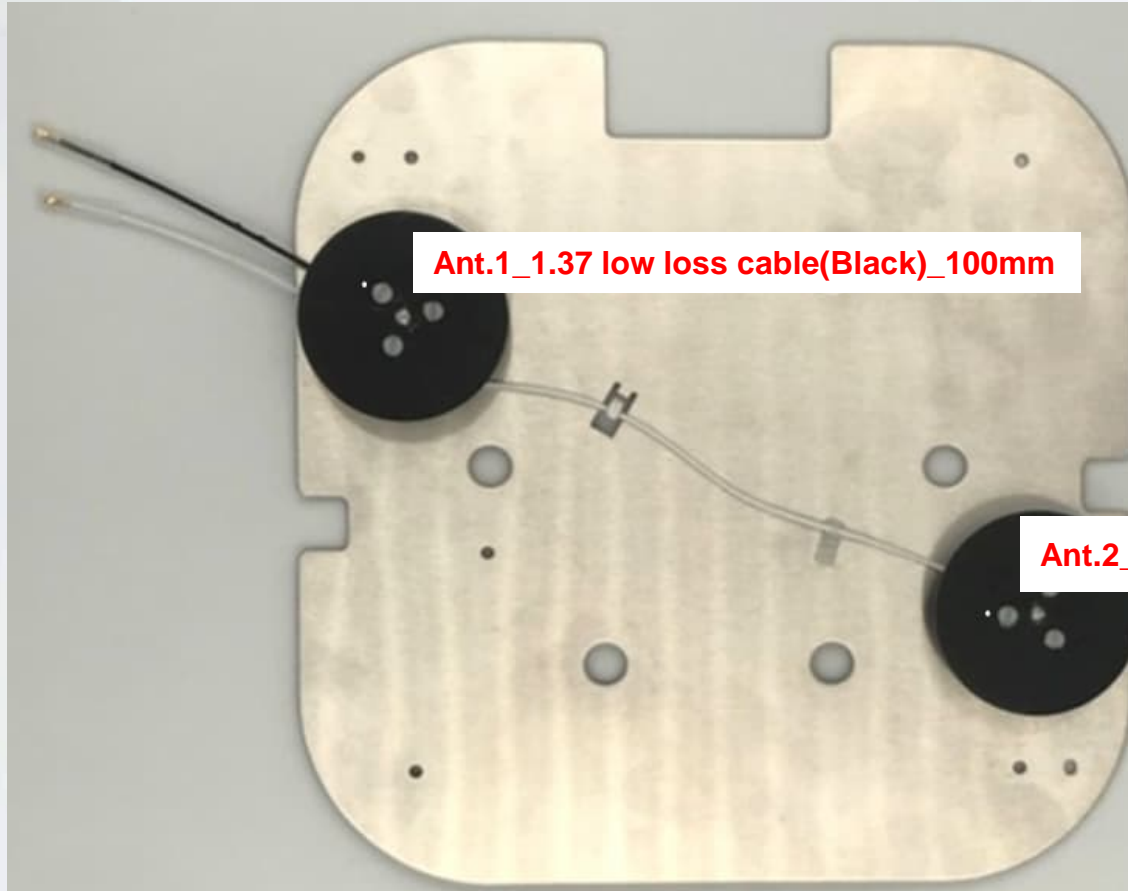
Requirements of Antenna Design

RF Function	Number of ANT	Frequency Band	Remark
B48	1_2	3550~3700 MHz	

Requirements of Measurement

Test Item	Specification	Remark
VSWR	<2	
Polarization	Horizontal	
Peak gain	>5dBi	
Efficiency	>60%	
Radiation pattern	Scale: +10~ -20dBi	

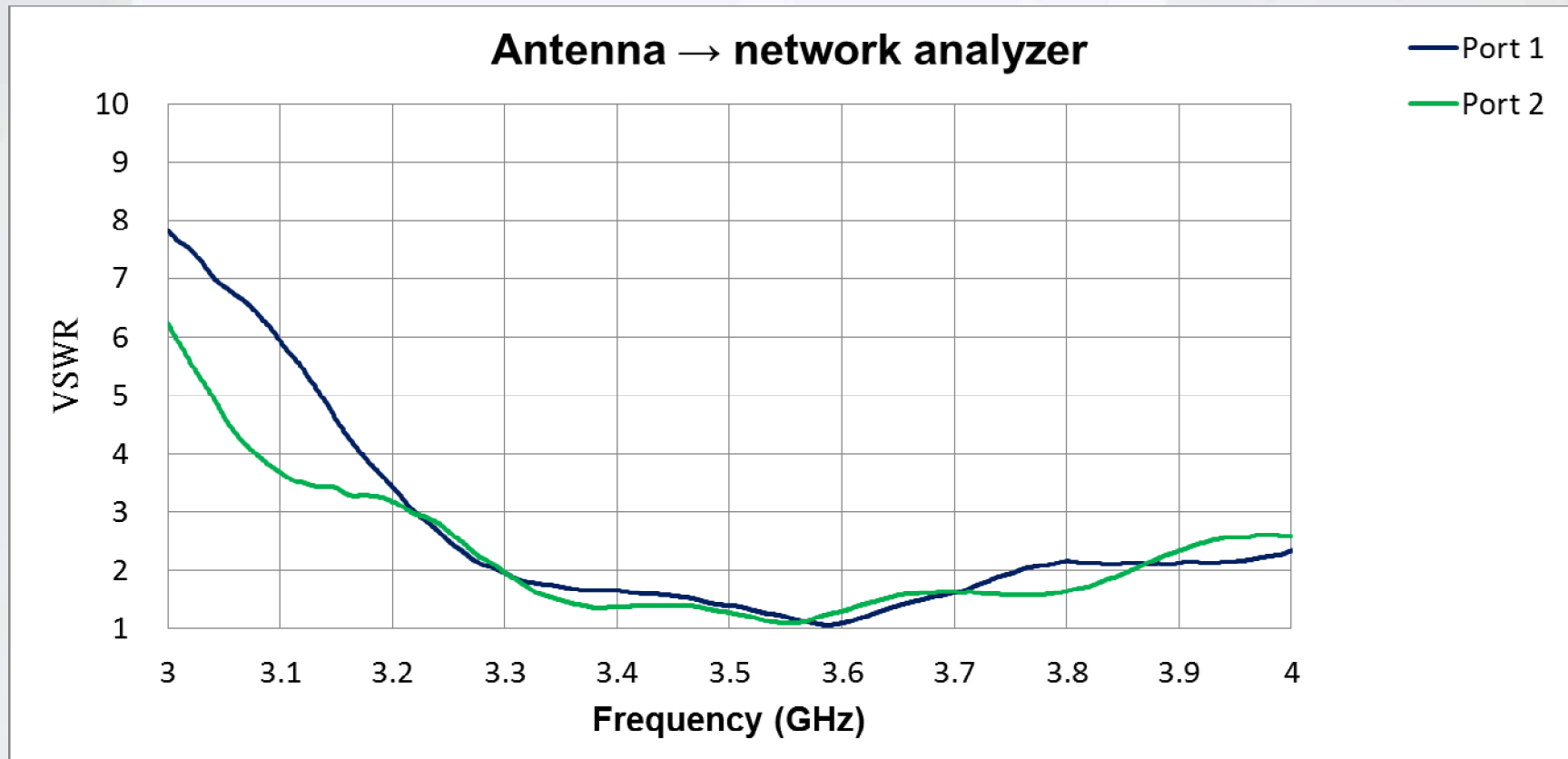
Antenna Placement & Solution



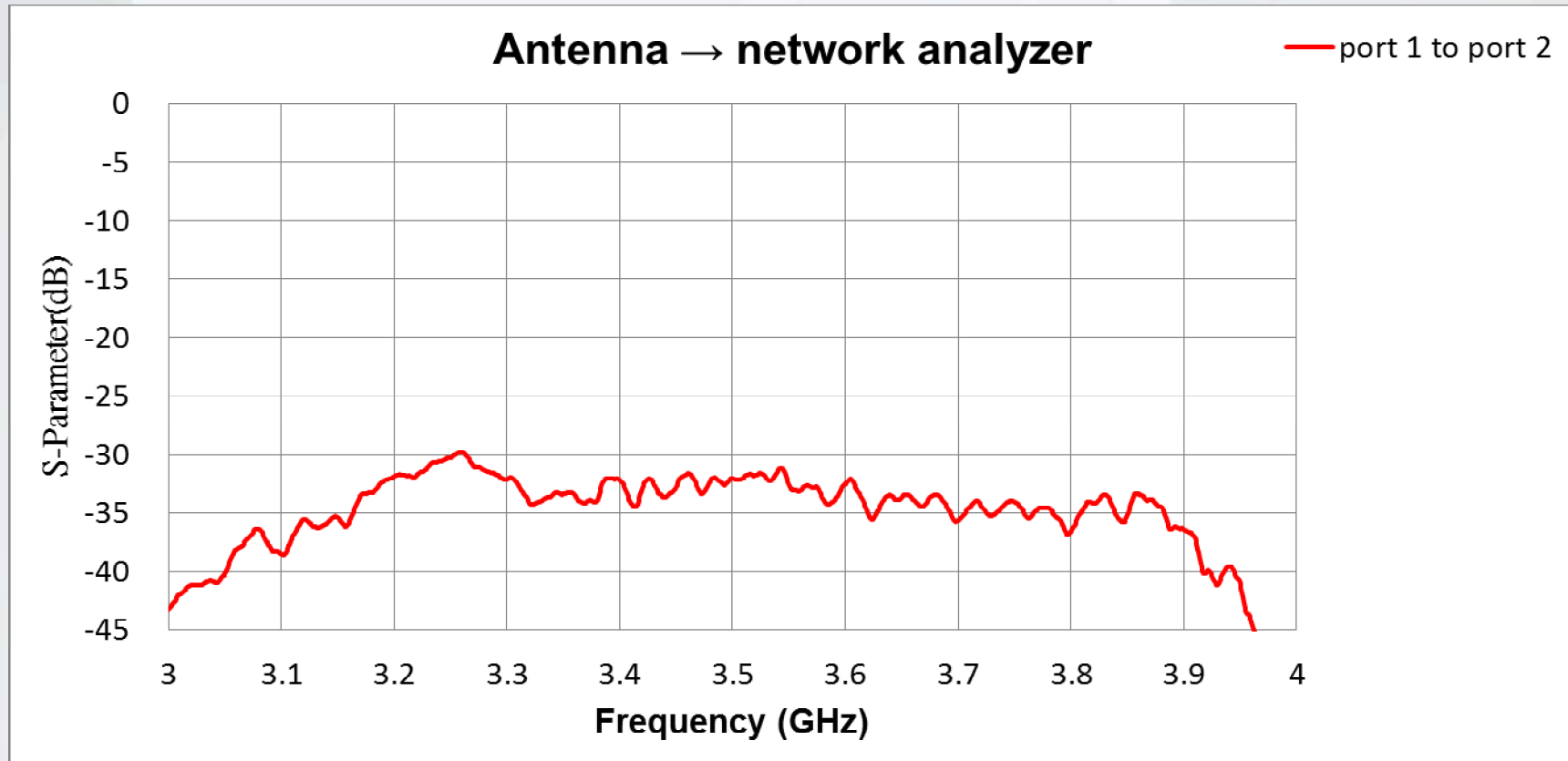
Ant.1_1.37 low loss cable(Black)_100mm

Ant.2_1.37 low loss cable(White)_255mm

VSWR Results

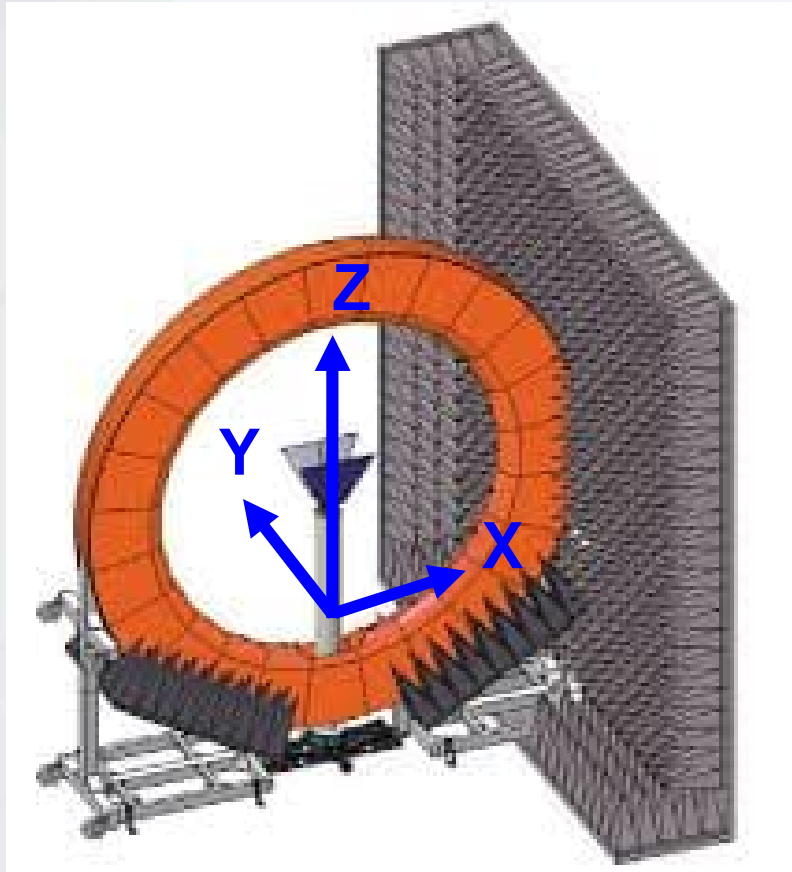


Isolation Results



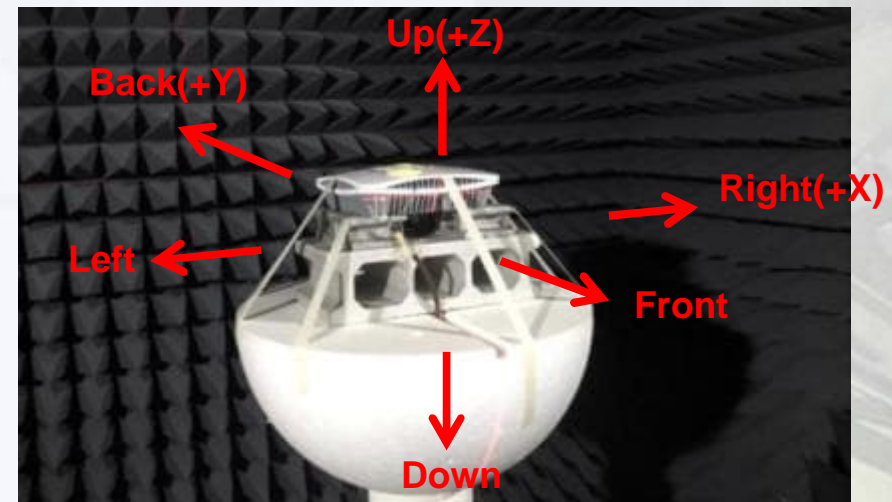
Test Setup for Radiation Pattern Measurement

Chamber Information



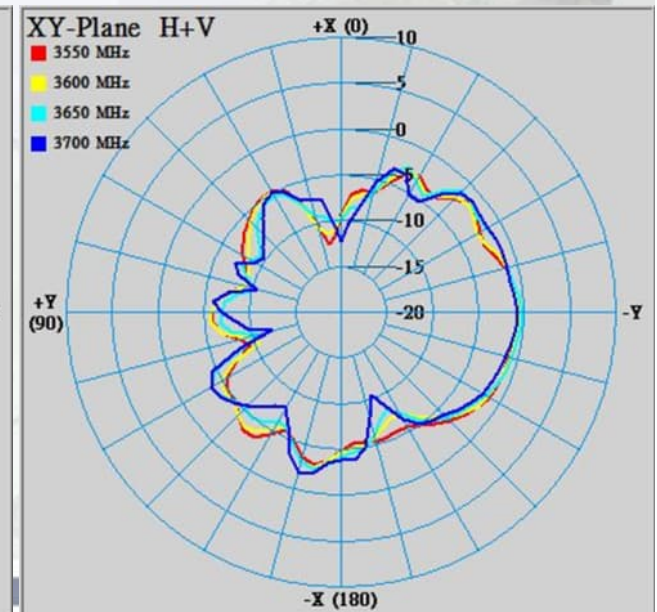
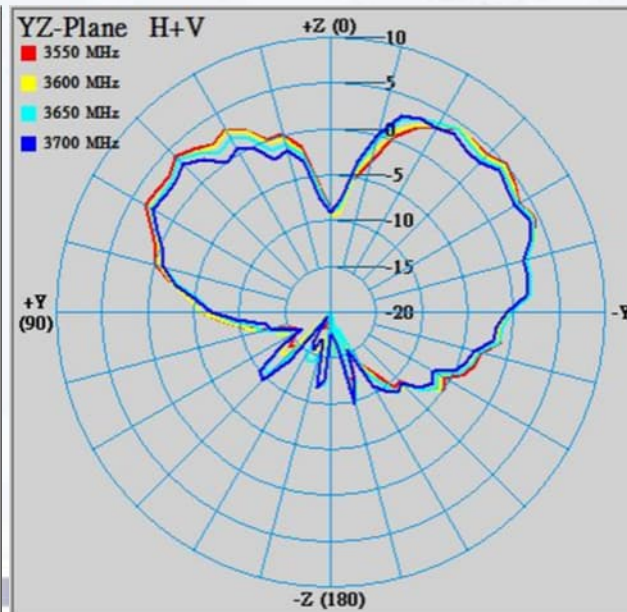
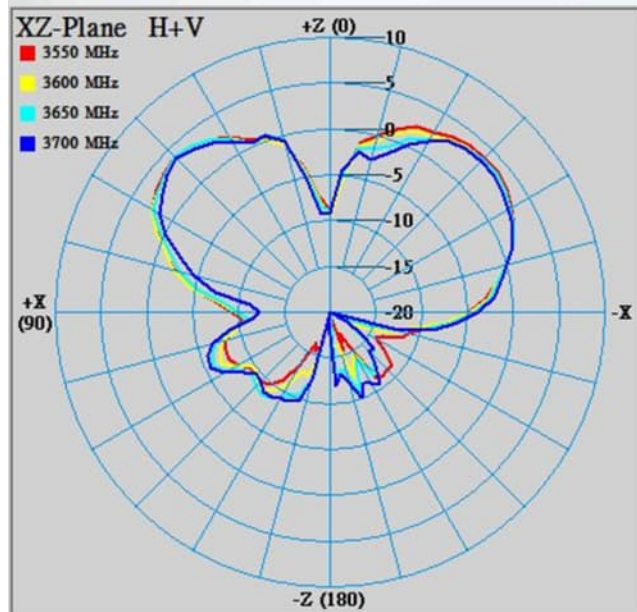
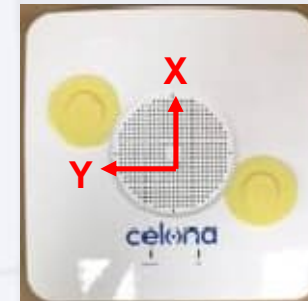
- **SATIMO SG-24L Multi-Probe Antenna Measurement System**

- Angle between probes: 15°
- Frequency range: 400 MHz – 9 GHz
- Chamber Room Size: 5m L x 5m W x 5m H



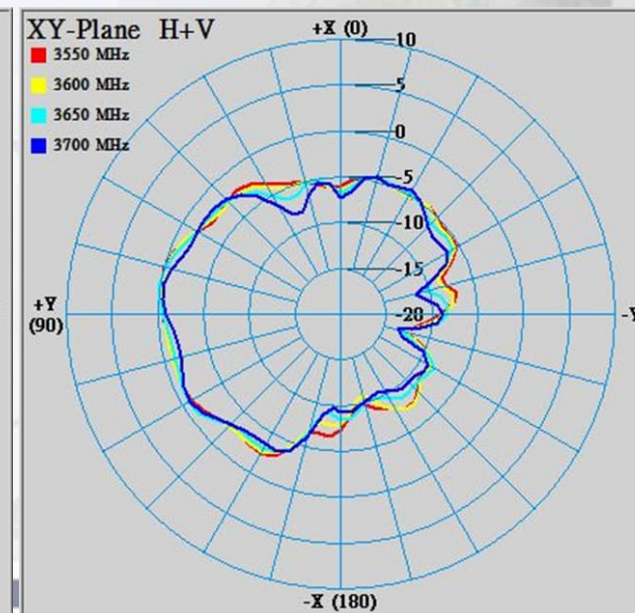
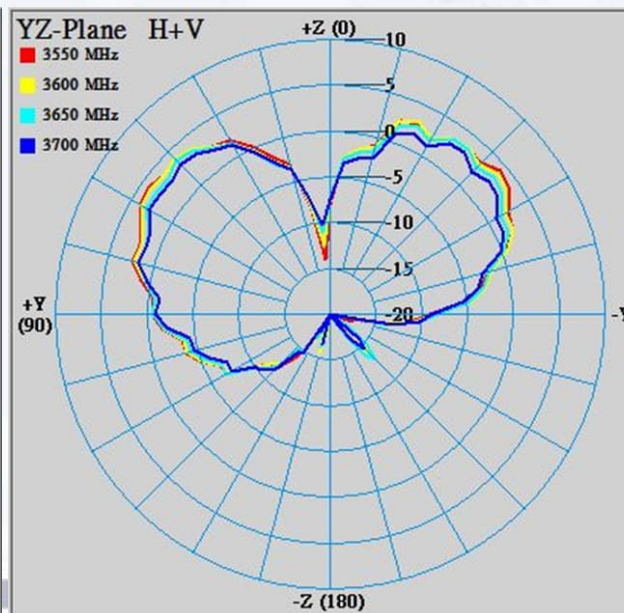
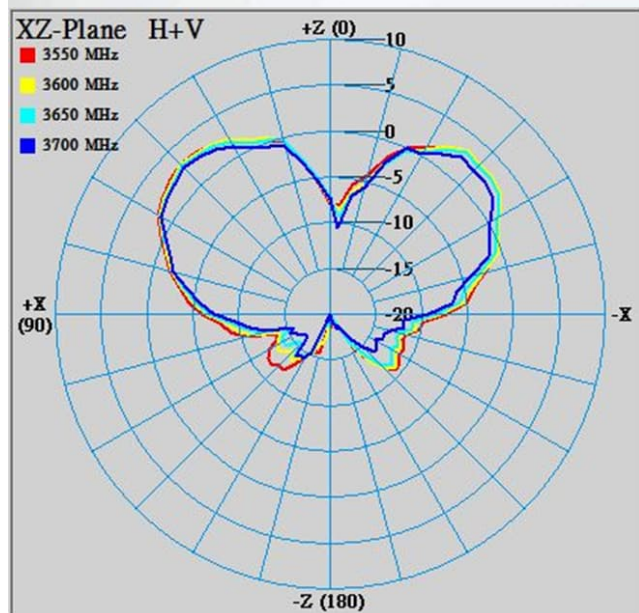
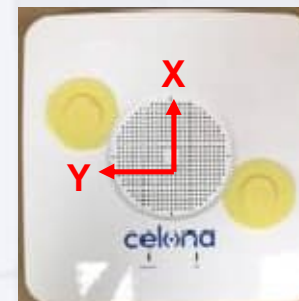
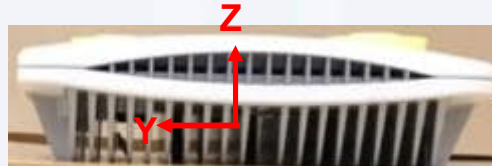
2D Radiation Pattern Results (Antenna → Network Analyzer)

Ant1 : 3550-3700 MHz



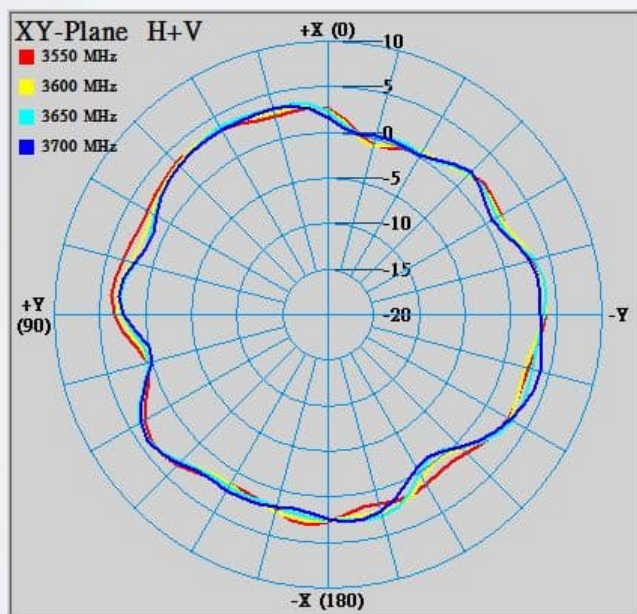
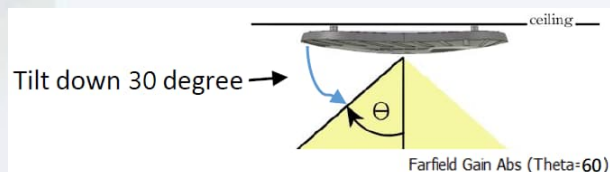
2D Radiation Pattern Results (Antenna → Network Analyzer)

Ant2 : 3550-3700 MHz



2D Radiation Pattern Results (Antenna → Network Analyzer)

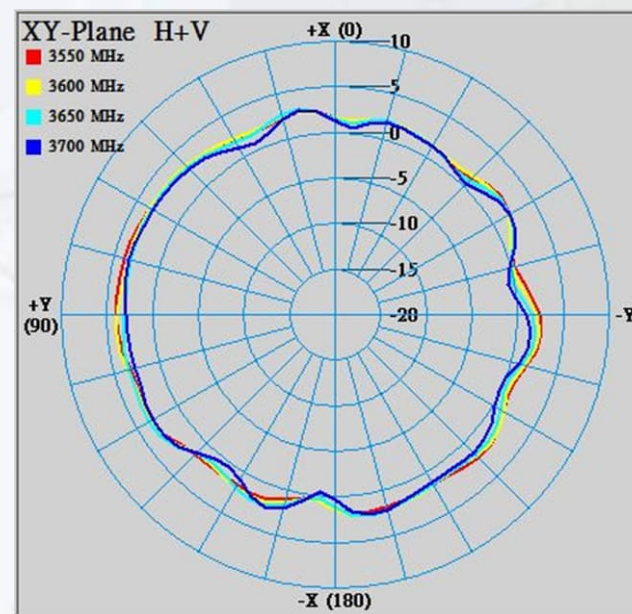
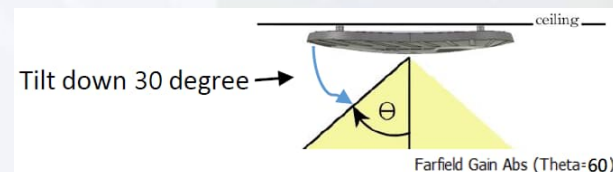
Port1



Theta=60deg

	Peak gain(dBi)
3550	3.97
3600	4.18
3650	4.04
3700	4.08

Port2

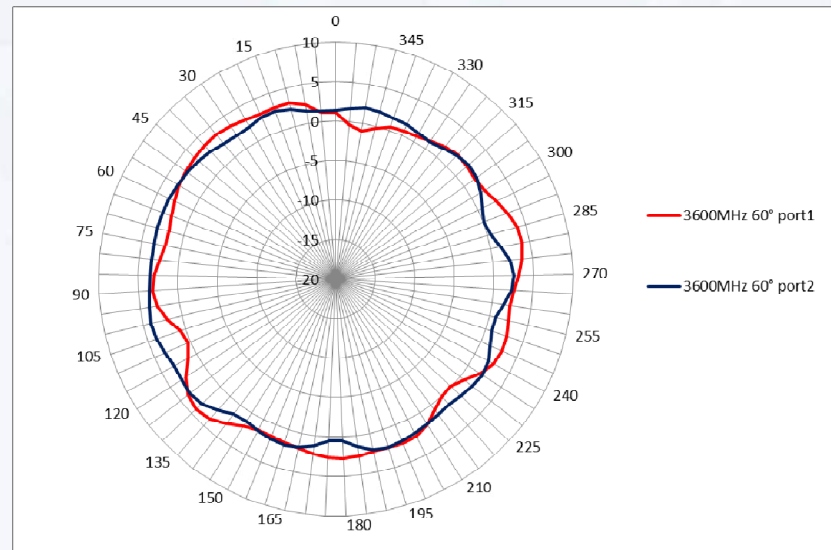
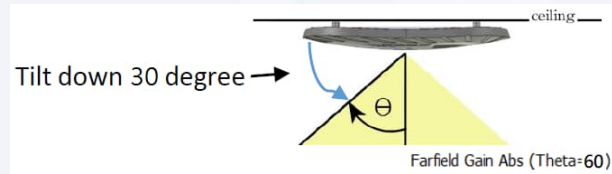


Theta=60deg

	Peak gain(dBi)
3550	4.06
3600	4
3650	3.55
3700	3.4

2D Radiation Pattern Results (Antenna → Network Analyzer)

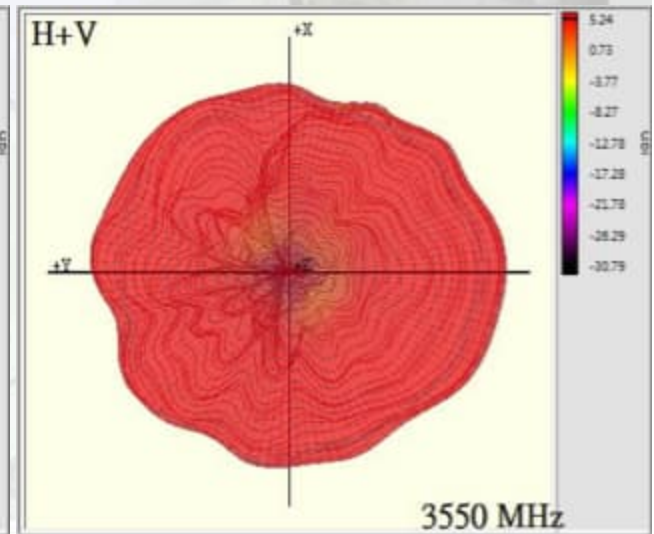
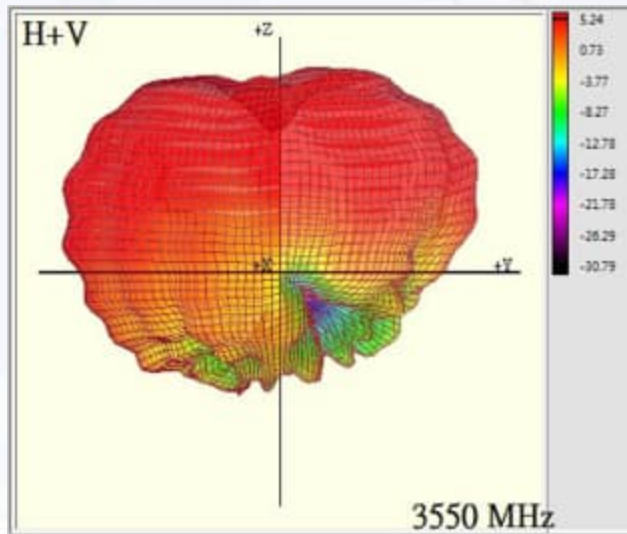
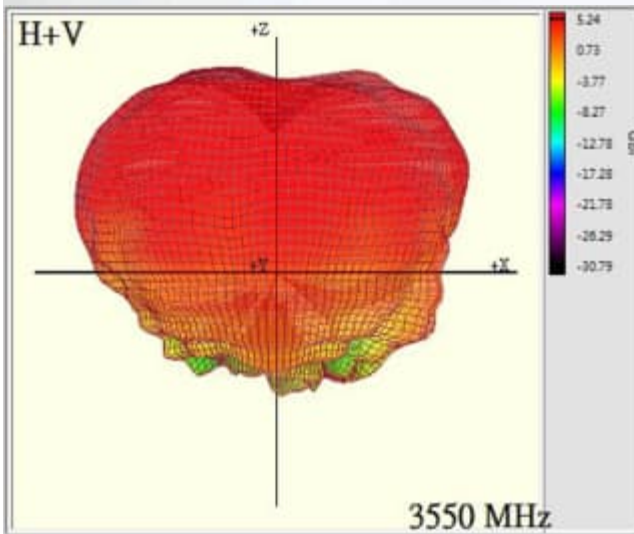
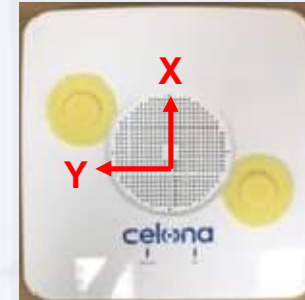
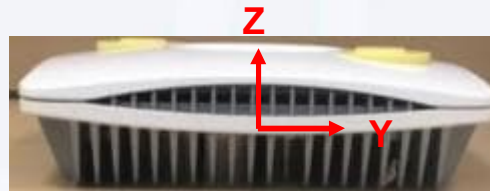
Combination pattern Ant1+2_3600MHz



Theta=60deg

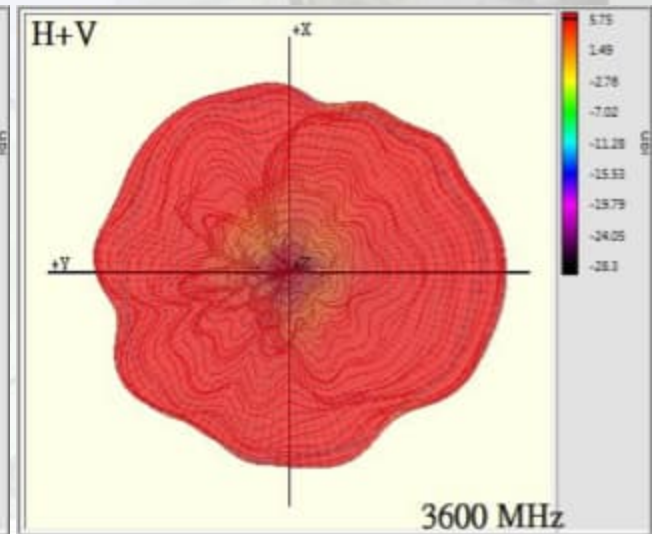
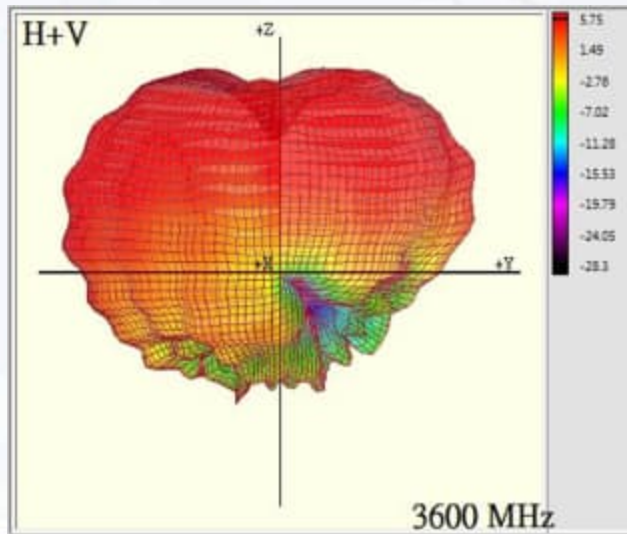
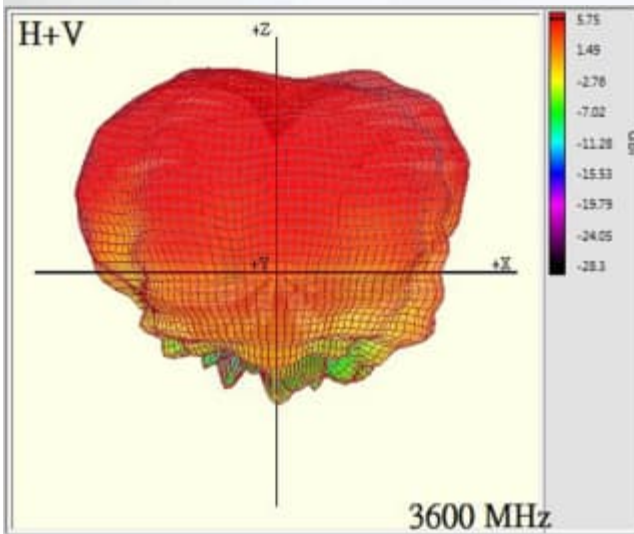
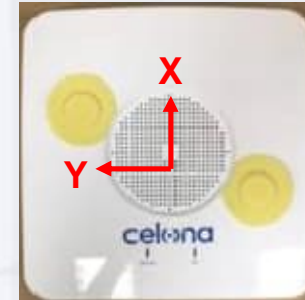
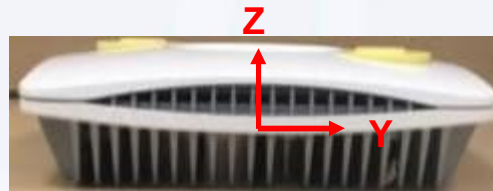
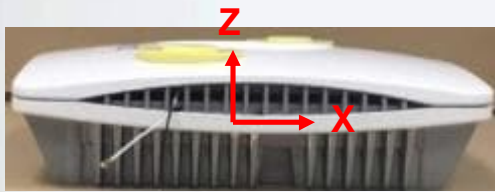
3D Radiation Pattern Results (Antenna → Network Analyzer)

Ant1 : 3550MHz



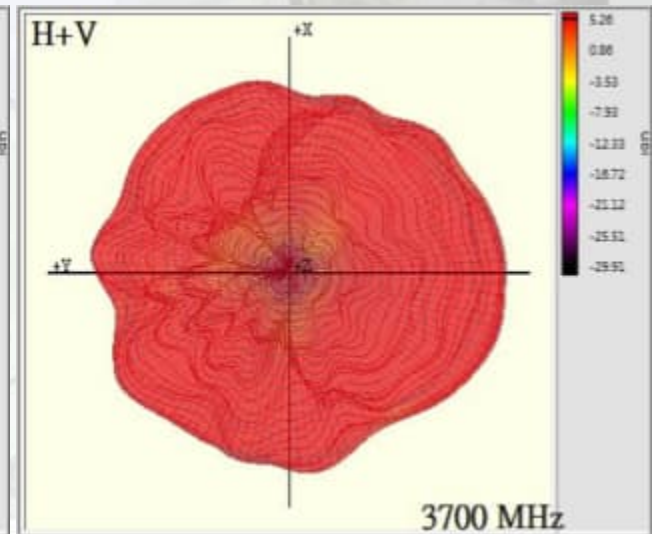
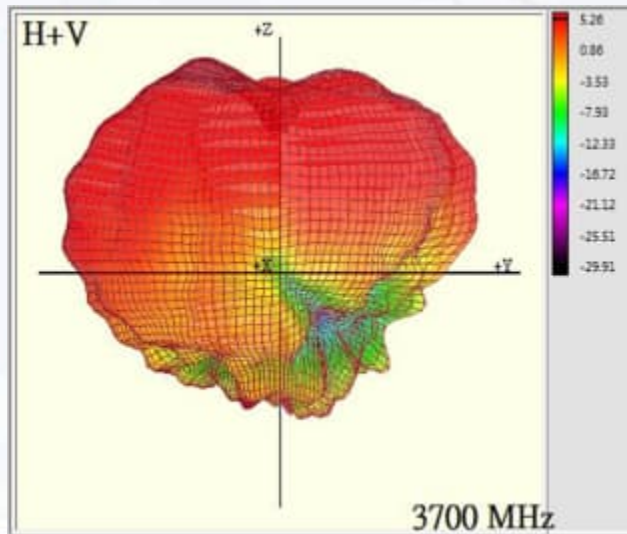
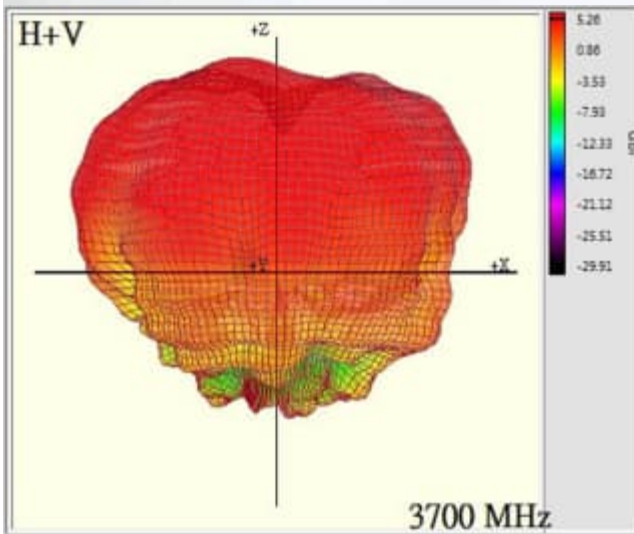
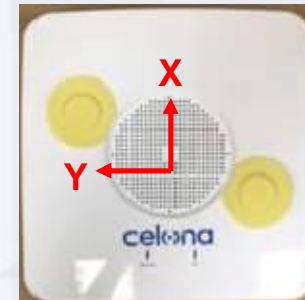
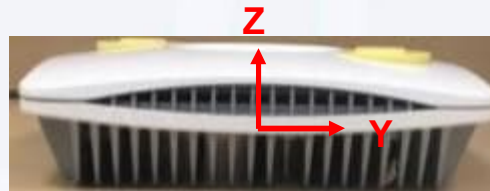
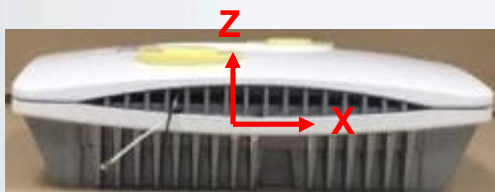
3D Radiation Pattern Results (Antenna → Network Analyzer)

Ant1 : 3600MHz



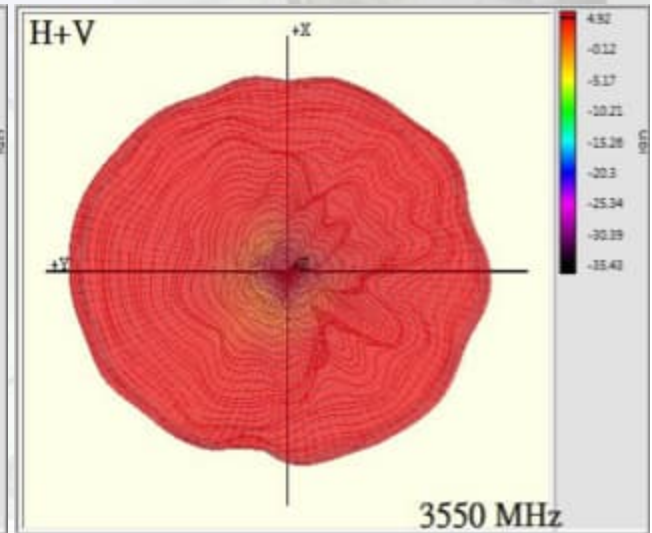
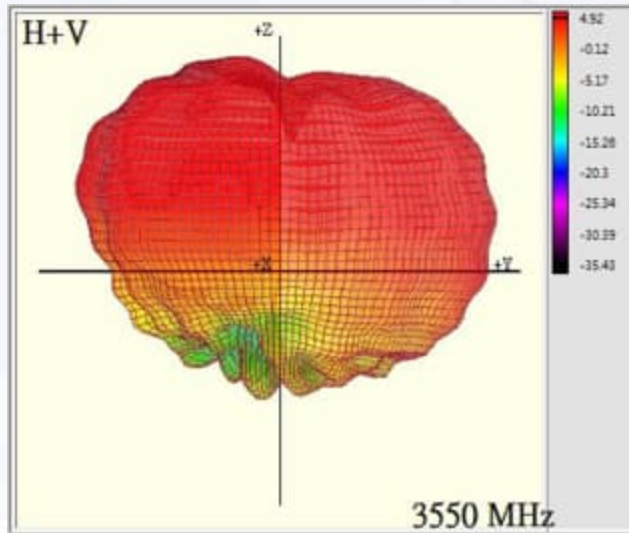
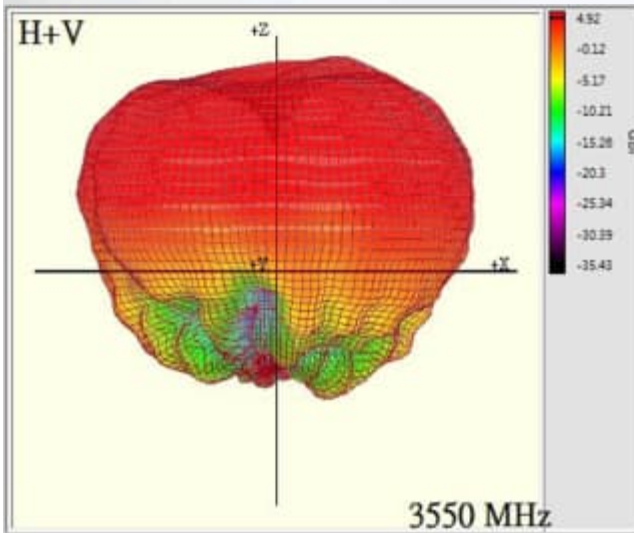
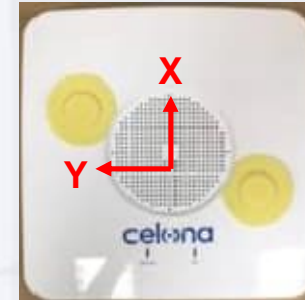
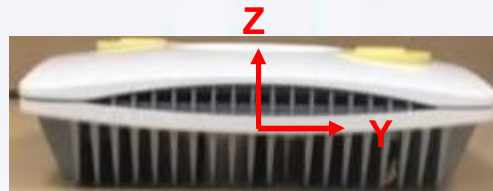
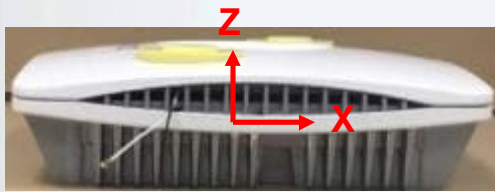
3D Radiation Pattern Results (Antenna → Network Analyzer)

Ant1 : 3700MHz



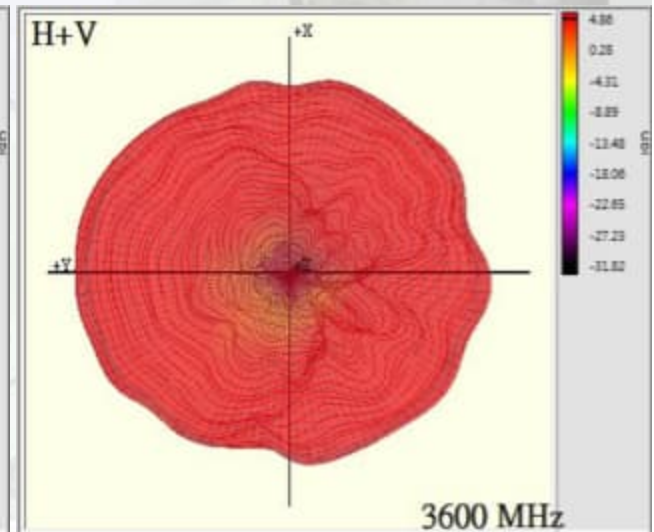
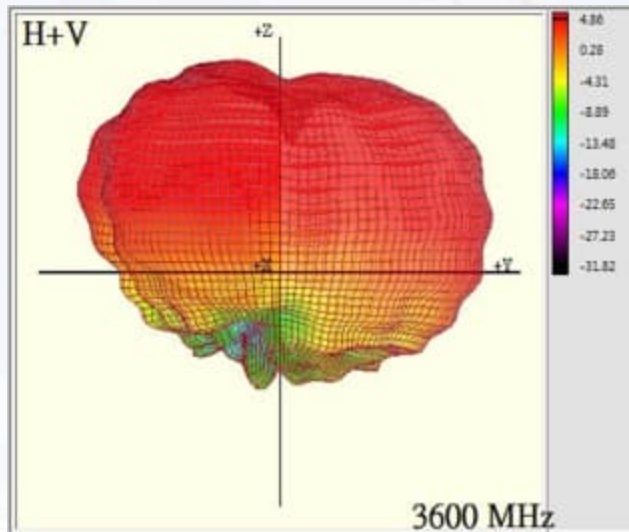
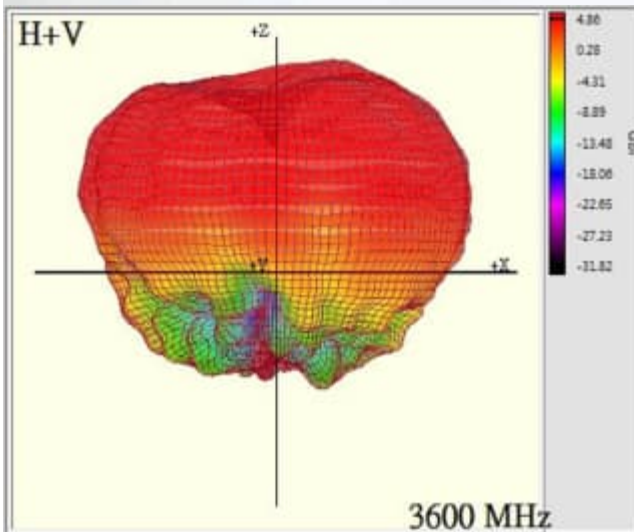
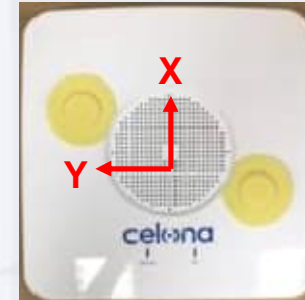
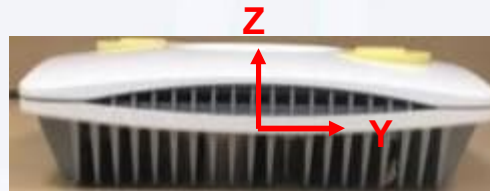
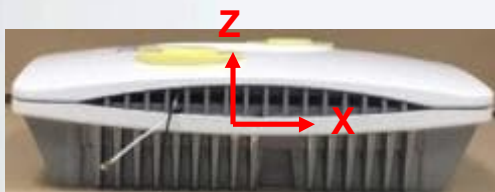
3D Radiation Pattern Results (Antenna → Network Analyzer)

Ant2 : 3550MHz



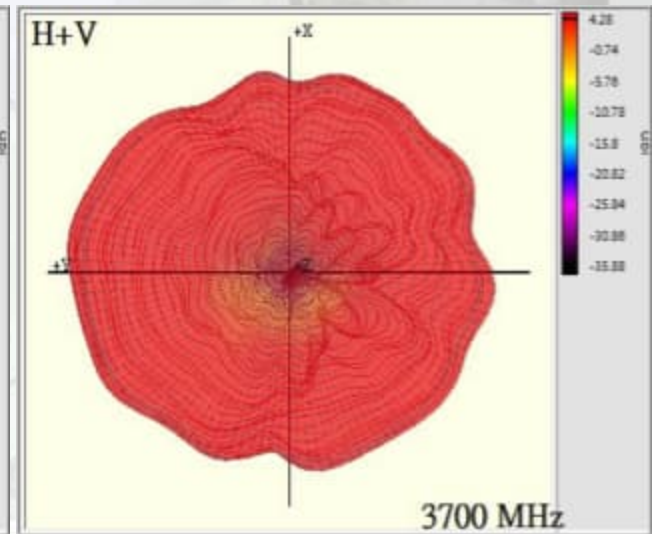
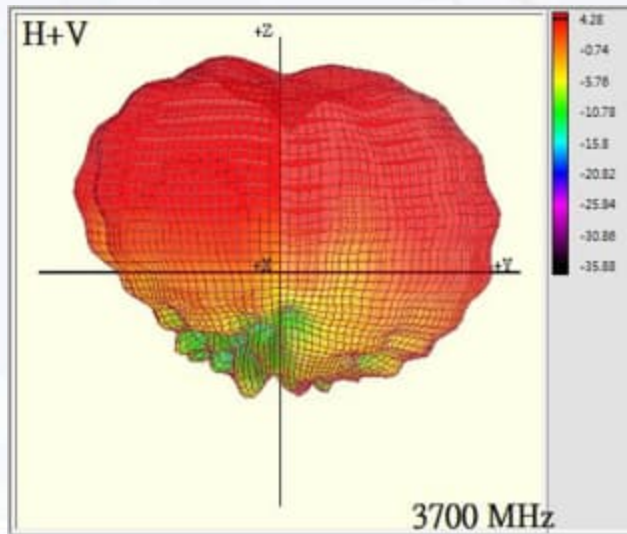
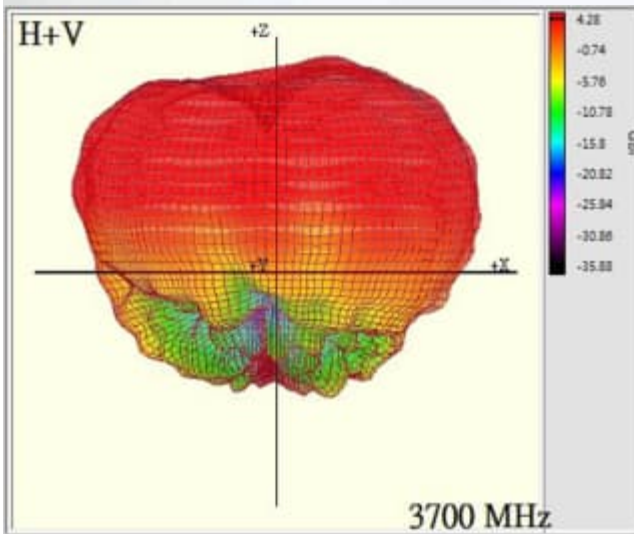
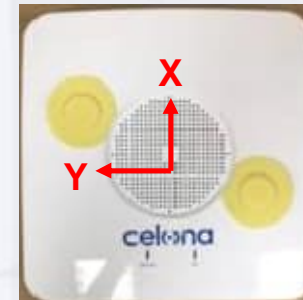
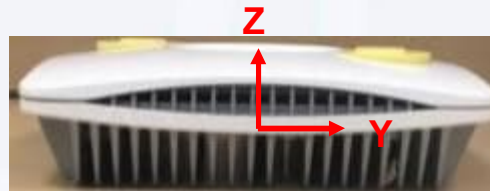
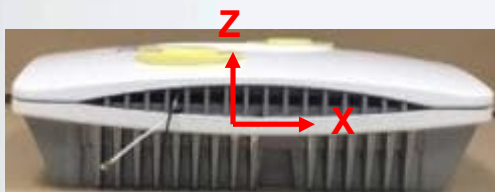
3D Radiation Pattern Results (Antenna → Network Analyzer)

Ant2 : 3600MHz



3D Radiation Pattern Results (Antenna → Network Analyzer)

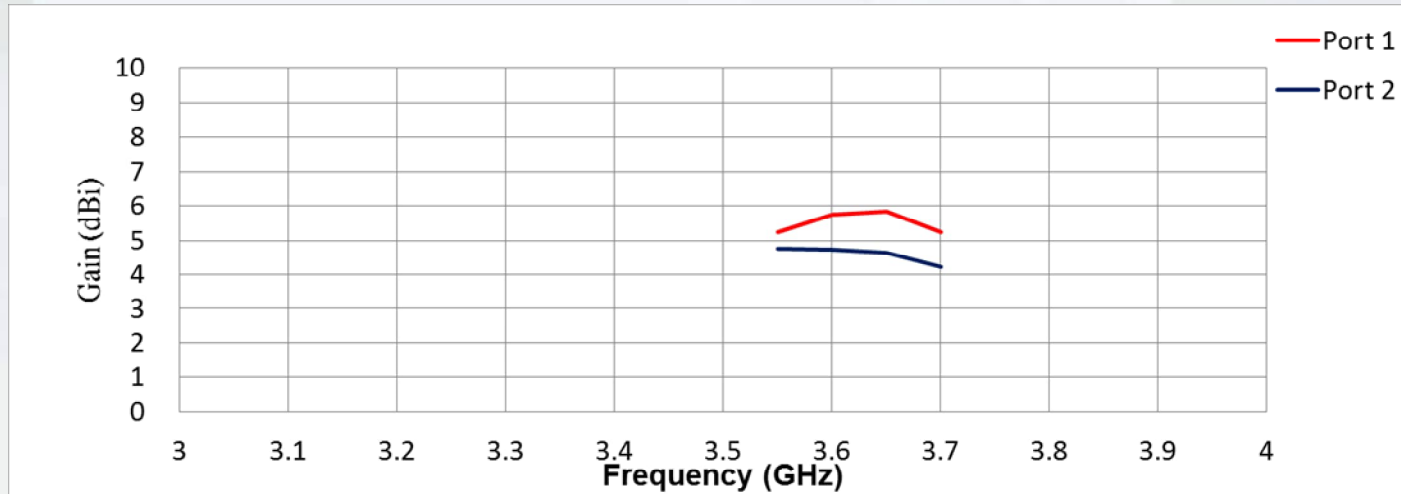
Ant2 : 3700MHz



Results Summary

(Antenna → Network Analyzer)

Peak gain

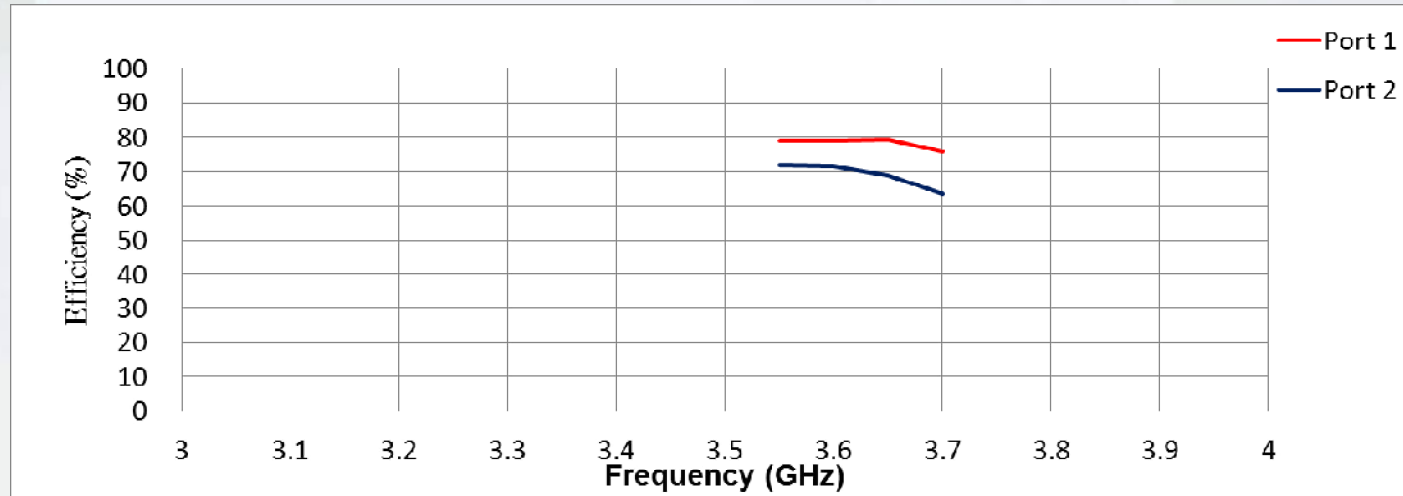


Frequency (MHz)	Ant1 Peak Gain (dBi)	Ant2 Peak Gain (dBi)
3550	5.23	4.76
3600	5.76	4.72
3650	5.84	4.64
3700	5.25	4.22

Results Summary

(Antenna → Network Analyzer)

Efficiency



Frequency (MHz)	Ant1 Efficiency(%)	Ant2 Efficiency(%)
3550	79.07	71.94
3600	78.89	71.45
3650	79.25	68.71
3700	75.68	63.39