

PSA

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PASSIVE SYSTEM ALLIANCE

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PASSIVE SYSTEM ALLIANCE

迪芬尼_UC WALL

Presented by

Peter.Hou

2025/08/25

Version	Test Date	Description	Test Author
V01	2024/04/23	New Release(Simulation)	Peter
V02	2024/08/12	整機天線測試	Iven
V03	2024/08/20	優化特性(降低PeakGain、提升Isolation)	Calvin
V04	2025/04/02	驗證完整機台(BT及Wifi天線位置互換)	Peter
V05	2025/05/02	評估Dipole天線版本	Peter
V06	2025/08/15	驗證完整機台(開模殼)	Peter
V07	2025/08/25	驗證完整機台(開模殼)	Peter

OUTLINE

1. Measurement Information

1. Experimental Setup
2. Antenna Solution Detail

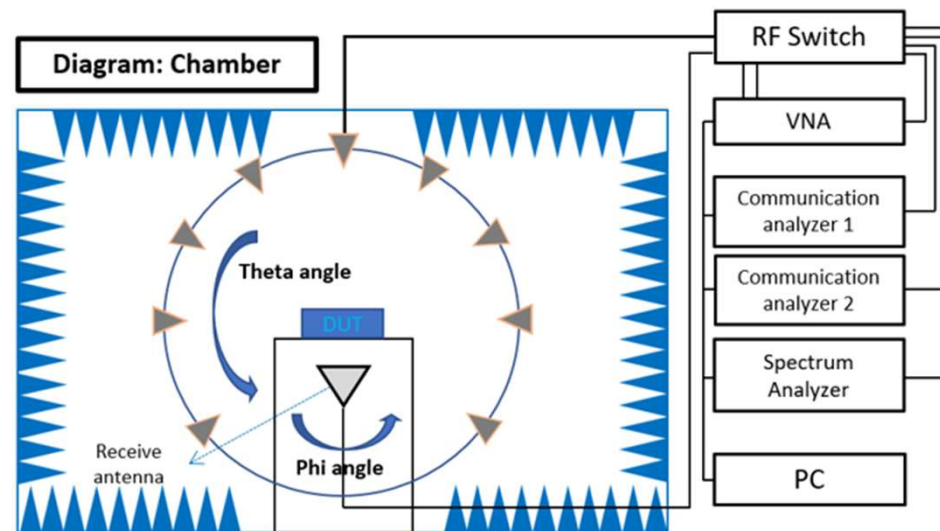
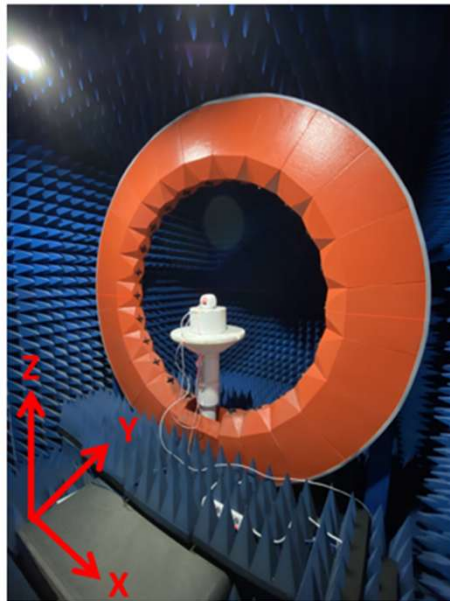
2. Antenna Characteristics

1. S-Parameter
2. Antenna Efficiency and Peak Gain
3. 3 views of antenna & 2D Radiation Patterns

3. Summary

1. Measurement Information

Chamber model: MPS-4842 system



Equipment	Spectrum Analyzer	Communication analyzer	VNA	RF Switch	Power Amplifier
Brand	Keysight (N9020B)	R&S(CMW500) 、 ANRITSU(MT8000A) 、 (MT8862A)	Keysight (E5070C)	TEMRADIO	XH-IOE

1. Measurement Information

- Test dates :
2025/08/25
- Names of test personnel :
Eric Liu
- Names of commercial test software used :
XH-IOE TEST FOR PASSIVE
- Description of how measurements are made :

The MPS-4842 system is a fully enclosed 3D chamber, designed for the "Multi-Probe Test Method." A detailed description is provided below:

In this measurement method, the DUT is placed at the center, and the lower axis rotates in the +Z direction, which is defined as the Phi angle. Data is captured every 15 degrees from the top (0 degrees) to the bottom (180 degrees) of the DUT. Typically, the EUT remains fixed on a turntable throughout the entire measurement process. Multiple probes measure from theta 0 degrees to 180 degrees, while the EUT undergoes a full 360-degree rotation in the phi axis. The measurement antennas (probes) are then repositioned to the next theta angle, and the process is repeated.

		θ -Axis	Φ -Axis
Passive	Step size	15°~165° step: 15°	0°~345° step: 15°
	N / M (Points)	12	24

1. Measurement Information

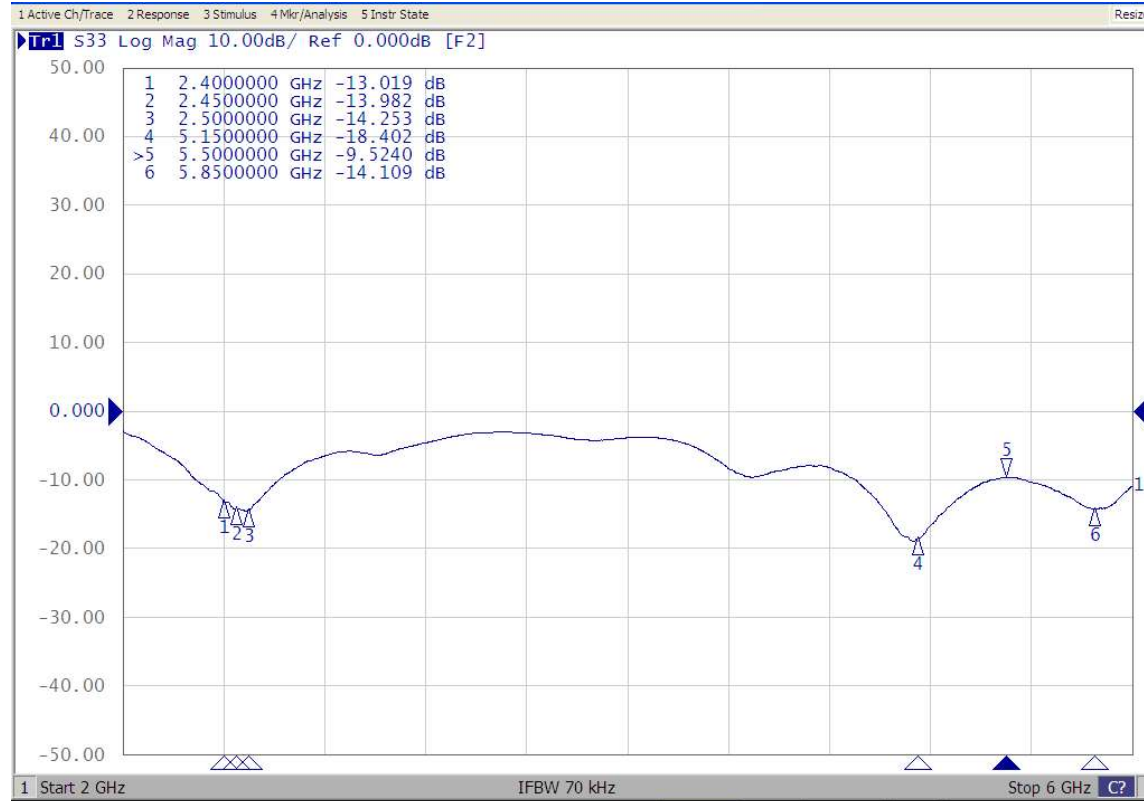
Calibration date:

Device	Type/Model	Serial#	Manufacturer	Cal Date	Cal. Due Date
Chamber	MPS-4842	4842	XH-IOE	2024-10-14	2026-2-14
Switch systems	NA	NA	XH-IOE	N/A	N/A
Measurement SW	NA	NA	XH-IOE	N/A	N/A
Spectrum Analyzer	(N9020B)	MY59050565	Keysight	2024-12-02	2025-12-24
Communication analyzer 1	CMW-500	1201.0002k50	R&S	2024-02-13	2026-03-13
Communication analyzer 2	MT8000A	6272368783	ANRITSU	2024-02-13	2026-03-13
Communication analyzer 3	MT8862A	6262115497	ANRITSU	2024-9-24	2026-9-24
Cable 2.5m – 30MHz to 18 GHz	0500990992500KE	19.23.395	Radial	2023-02-13	2026-03-13
Cable 1.2m – 18 to 40 GHz	UFA147A-0-0480-200200	MFR60637-59609-072	Micro-coax	2024-07-26	2026-04-14
Cable 1m – 1GHz to 18GHz	UFA147A	NA	Utilflex	2024-07-25	2026-03-30
Cable 2m – 26.5GHz to 40GHz	794-9191-2000A	E00327	Atem	2024-07-26	2026-03-30
Cable 1m 30 MHz – 18GHz	UFB311A-0-0590-50U50U	MFR 64637-59609-060	Micro-coax	2024-07-25	2026-03-25
Cable7m DC-18 GHz	0501051057000GX	19.35.850	Radial	2024-07-26	2026-09-26
Cable7m – 18GHz to 40GHz	R286304009		Radial	2024-07-25	2026-04-25
Cable 1.5m – DC-18GHz	CBL-1.5M-SMSM+	202879	Mini-Circuits	2024-07-26	2026-07-26
Temp & Humidity Logger	RA12E-TH-RAS	RA12-D0EB1A	Avtech	2023-09-15	2026-05-15

2. Antenna Characteristics

WL

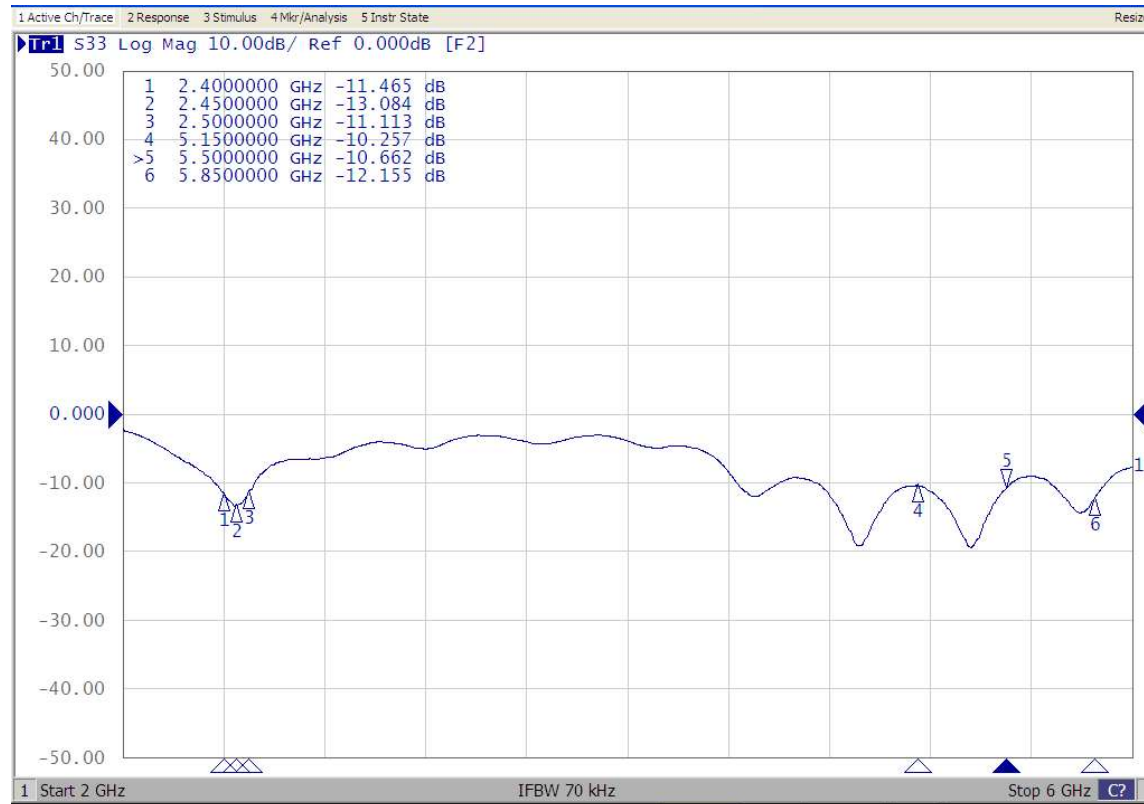
2.1 S-Parameter



2. Antenna Characteristics

WR

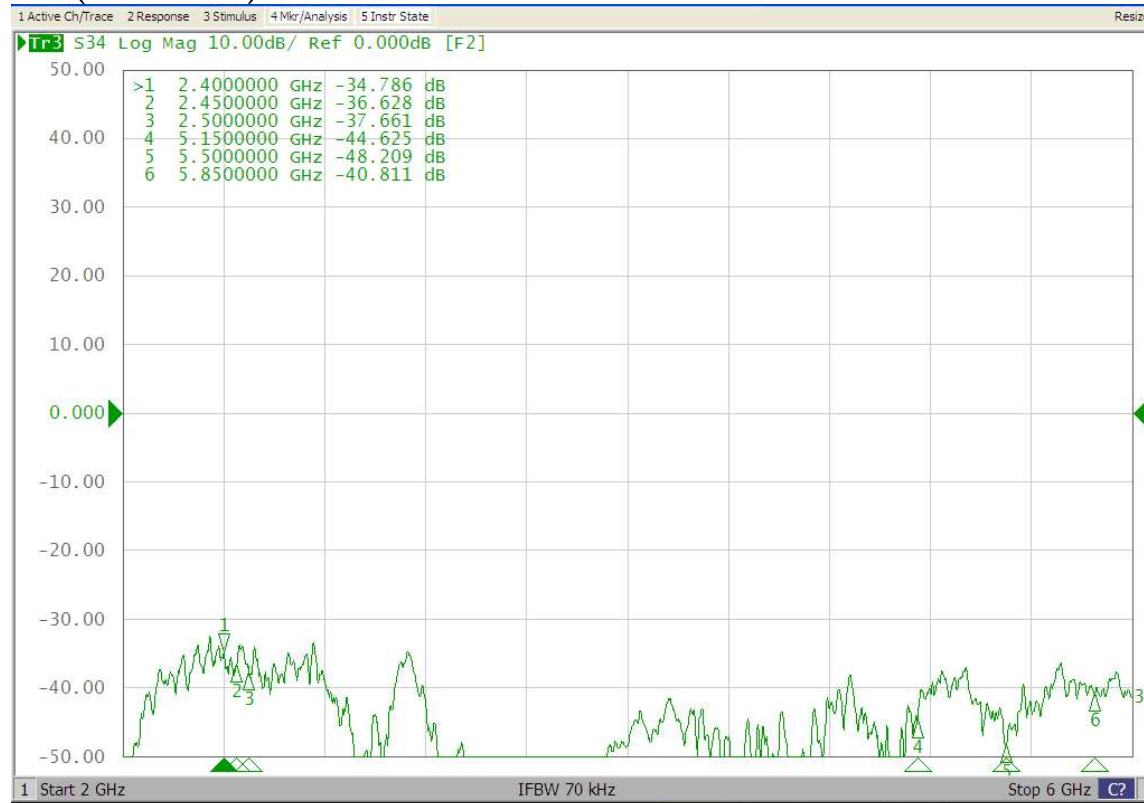
2.1 S-Parameter



2. Antenna Characteristics

WL to WR

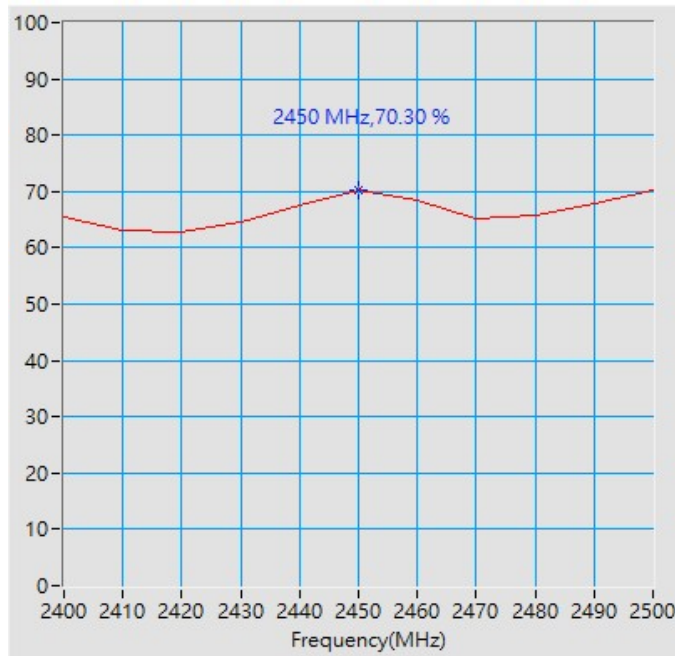
2.1 S-Parameter (Isolation)



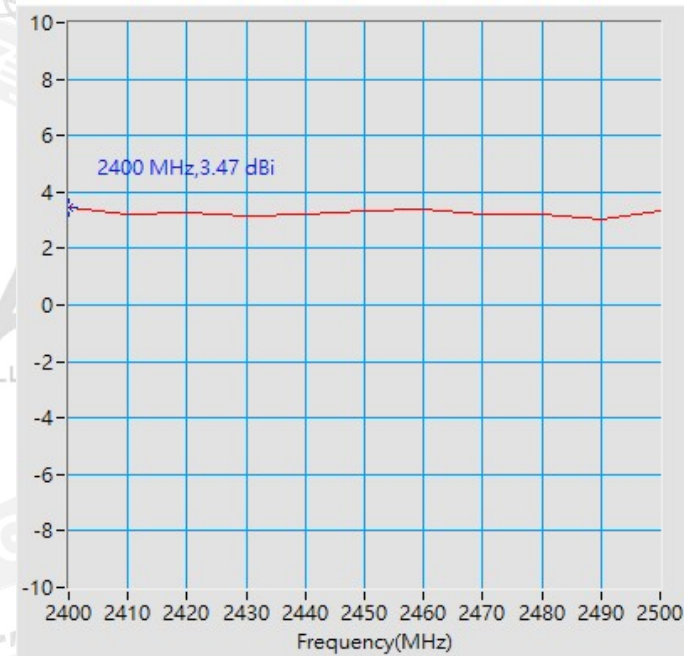
2. Antenna Characteristics

WL

2.2 Antenna Efficiency and Peak Gain



Maximum Efficiency at 2450 MHz : 70.30 %

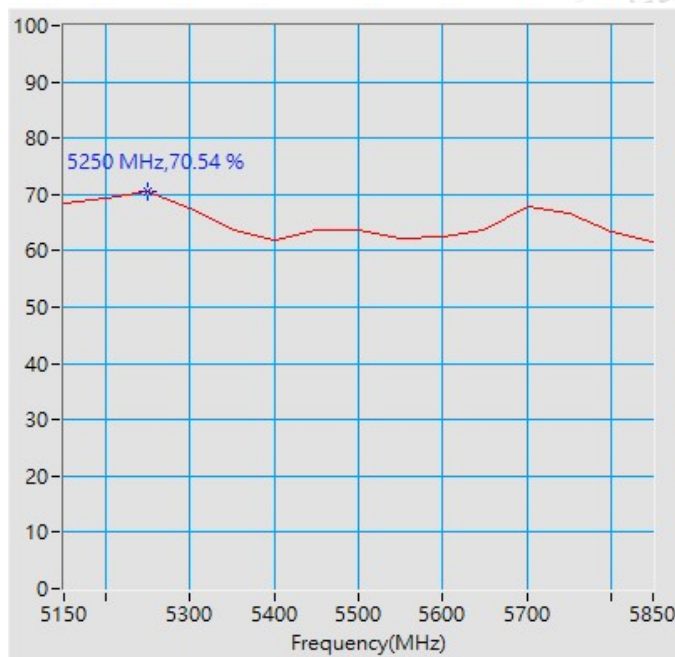


Maximum Peak Gain at 2400 MHz : 3.47 dBi

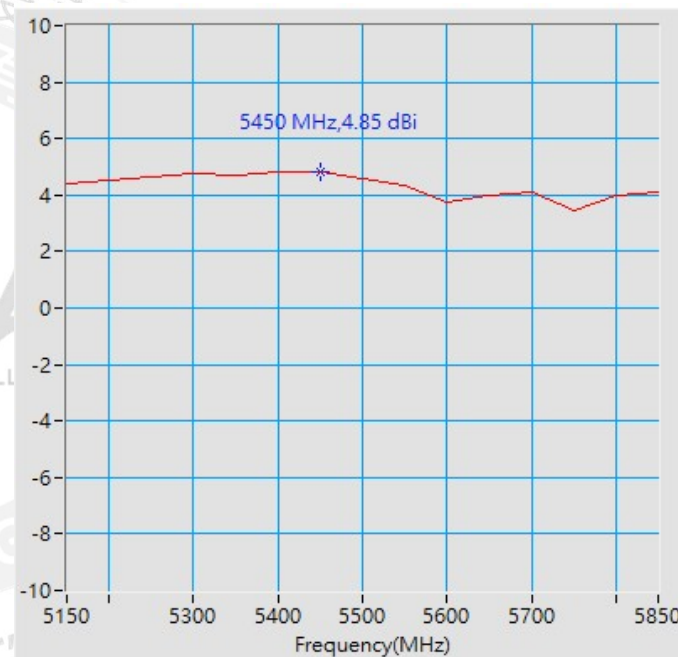
2. Antenna Characteristics

WL

2.2 Antenna Efficiency and Peak Gain



Maximum Efficiency at 5250 MHz : 70.54 %

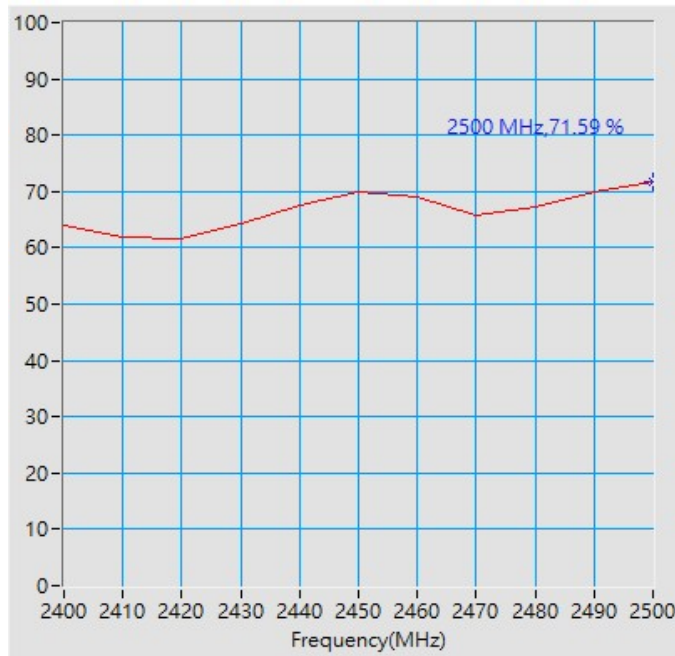


Maximum Peak Gain at 5450 MHz : 4.85 dBi

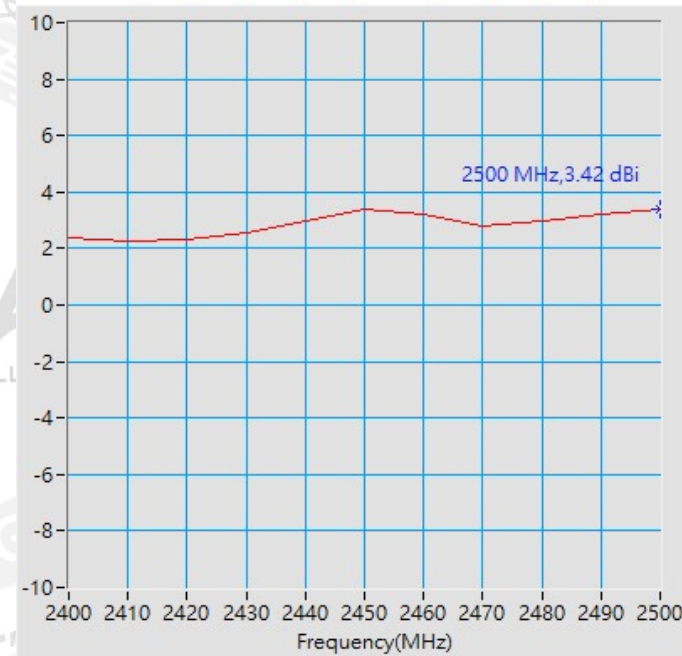
2. Antenna Characteristics

WR

2.2 Antenna Efficiency and Peak Gain



Maximum Efficiency at 2500 MHz : 71.59 %

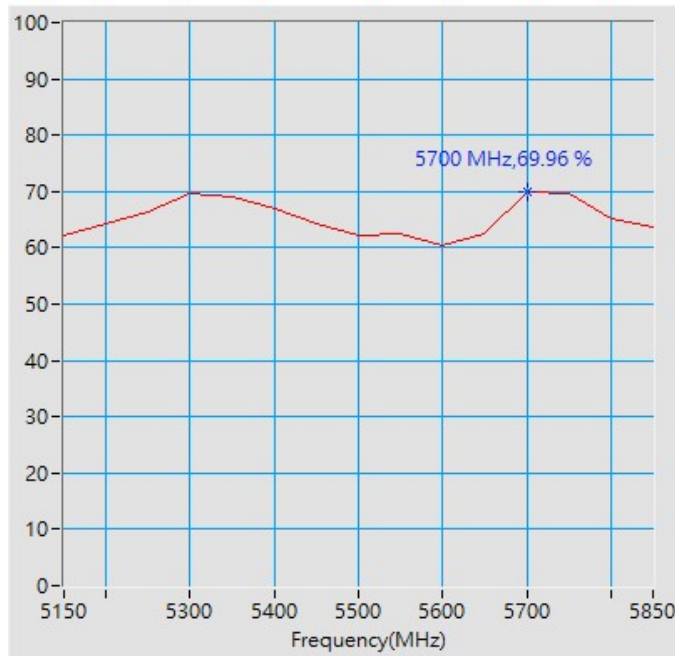


Maximum Peak Gain at 2500 MHz : 3.42 dBi

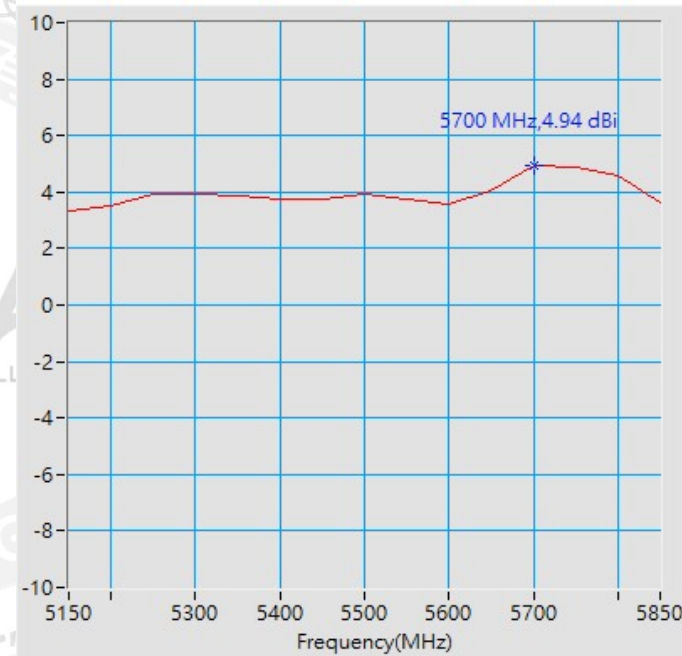
2. Antenna Characteristics

WR

2.2 Antenna Efficiency and Peak Gain



Maximum Efficiency at 5700 MHz : 69.96 %



Maximum Peak Gain at 5700 MHz : 4.94 dBi

2. Antenna Characteristics

2.2 Antenna Efficiency and Peak Gain

WL		
Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)
2400	65.54	3.47
2450	70.30	3.33
2500	70.17	3.32
5150	68.44	4.41
5500	63.57	4.56
5850	61.64	4.10

2. Antenna Characteristics

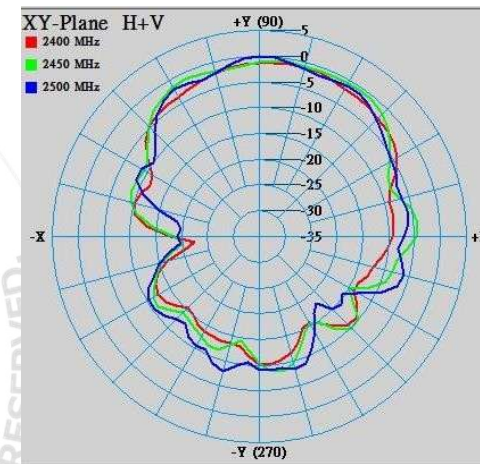
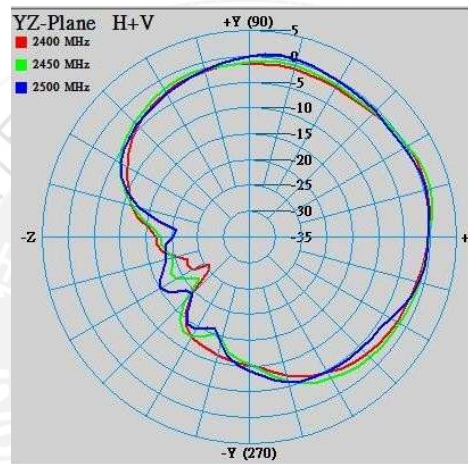
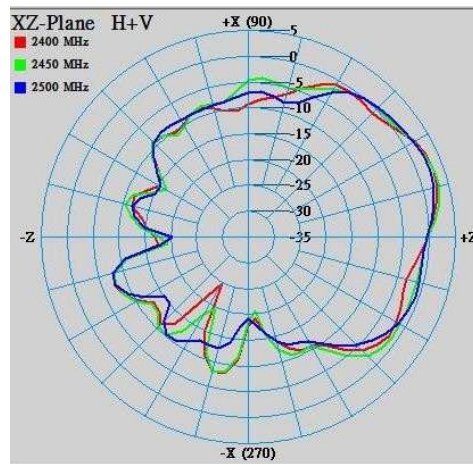
2.2 Antenna Efficiency and Peak Gain

WR		
Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)
2400	64.11	2.35
2450	69.84	3.39
2500	71.59	3.42
5150	62.19	3.35
5500	62.18	3.93
5850	63.61	3.62

2. Antenna Characteristics

WL

2.3 2D Radiation Patterns

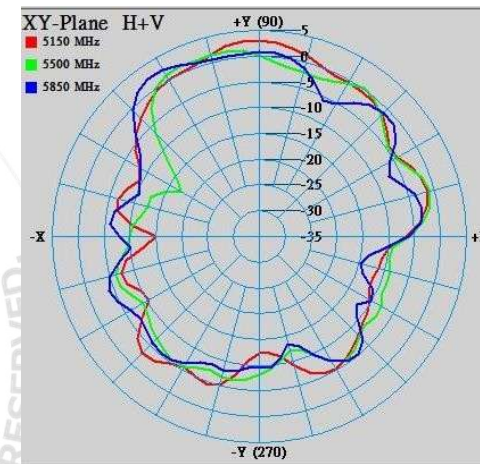
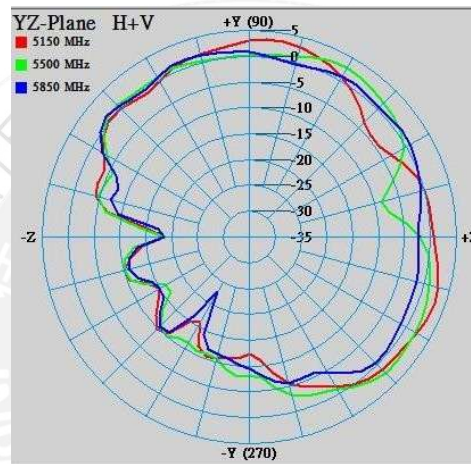
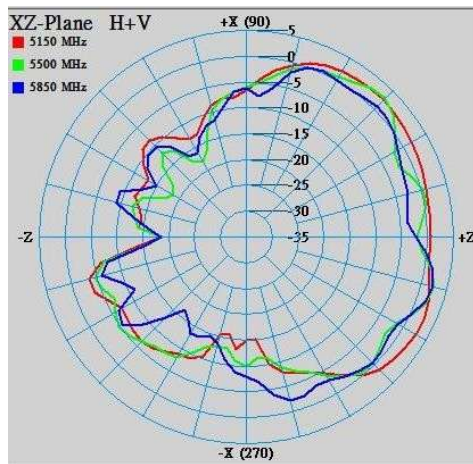


	ZX plane		ZY plane		XY plane	
Frequency [MHz]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]
2400	3.05	-4.36	0.60	-3.60	-1.00	-6.43
2450	3.30	-3.80	1.27	-3.09	-0.61	-5.59
2500	2.45	-4.30	0.65	-3.34	0.05	-5.80

2. Antenna Characteristics

WL

2.3 2D Radiation Patterns

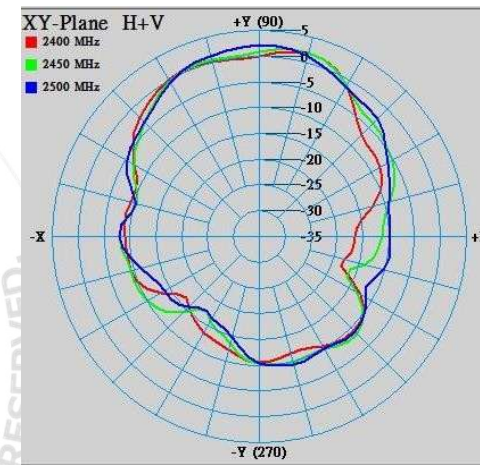
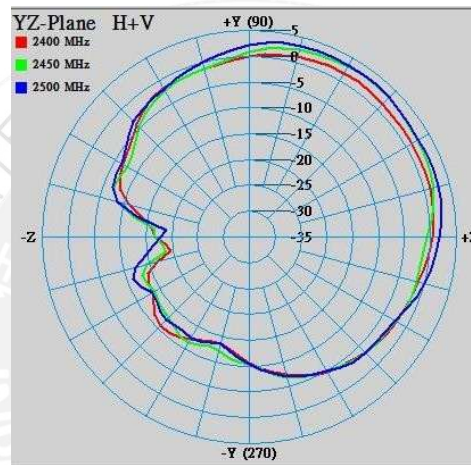
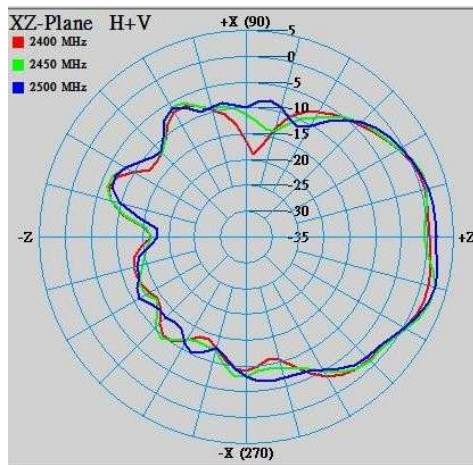


	ZX plane		ZY plane		XY plane	
Frequency [MHz]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]
5150	2.85	-2.03	3.47	-1.04	2.98	-3.13
5500	2.81	-3.18	2.79	-1.27	1.36	-4.00
5850	2.27	-3.68	1.54	-2.07	2.45	-3.86

2. Antenna Characteristics

WR

2.3 2D Radiation Patterns

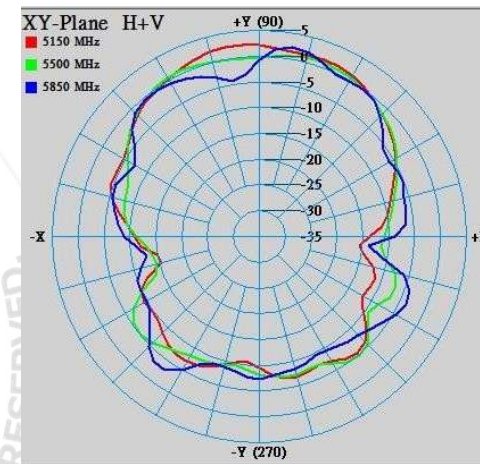
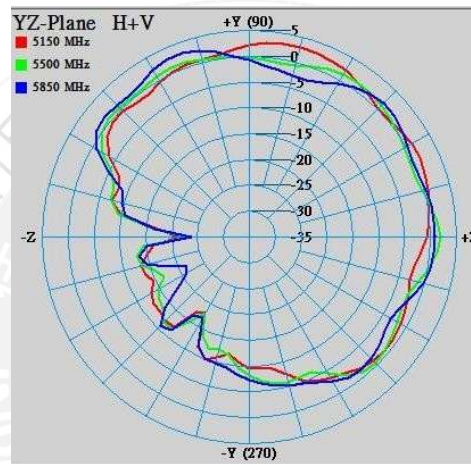
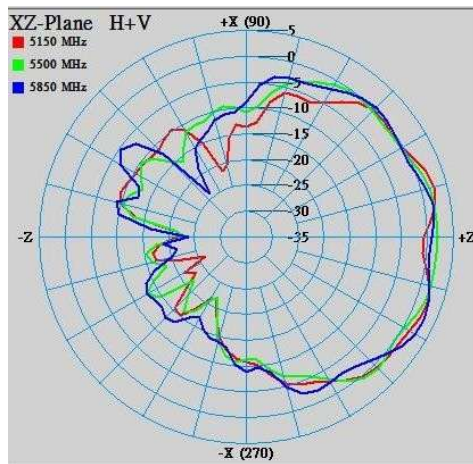


	ZX plane		ZY plane		XY plane	
Frequency [MHz]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]
2400	1.58	-4.53	1.67	-2.47	1.77	-5.05
2450	2.82	-4.23	3.30	-1.81	1.86	-4.70
2500	2.70	-3.94	3.36	-1.08	2.21	-4.43

2. Antenna Characteristics

WR

2.3 2D Radiation Patterns



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]
5150	2.58	-3.61	2.94	-1.70	2.41	-3.36
5500	1.96	-3.36	1.83	-1.97	0.97	-3.88
5850	2.91	-3.22	2.92	-1.79	2.26	-4.07

3. Summary

- 天線效率與前版測報比較有大幅提升，判斷與外殼材質有極大關係。
- The performance of antennas is shown in table

	WL-2G	WL-5G
Maximum Efficiency (%)	70.30	70.54
Maximum Gain (dBi)	3.47	4.85

	WR-2G	WR-5G
Maximum Efficiency (%)	71.59	69.96
Maximum Gain (dBi)	3.42	4.94

Thank you

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