

# ***LongChamp(P1JBC) C-Build WLAN SKU Antenna Test Report***

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Ver:04**

*Smarter Solutions for a Smarter Future*

A blue silhouette illustration of a smart city skyline. It features a person on the left talking on a mobile phone with signal waves, a car in the center with a large antenna on its roof, a person running, a person sitting at a desk with a computer monitor, and another person on the right with a laptop and signal waves. The background shows a city skyline. The entire illustration is set against a blue wavy background that transitions from light blue to dark blue.

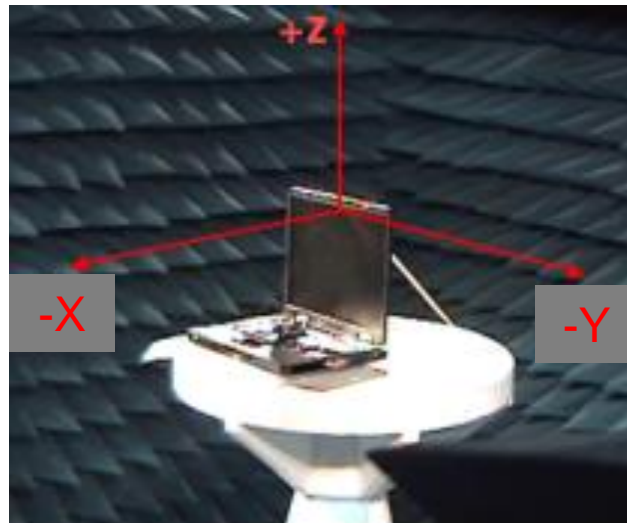
# Agenda

1. Experimental setup
2. Configuration
3. Antenna placement and picture
4. Measured Efficiency & VSWR & Isolation
5. Antenna 2D Radiation Pattern
6. Conclusion



# 1. Experimental setup

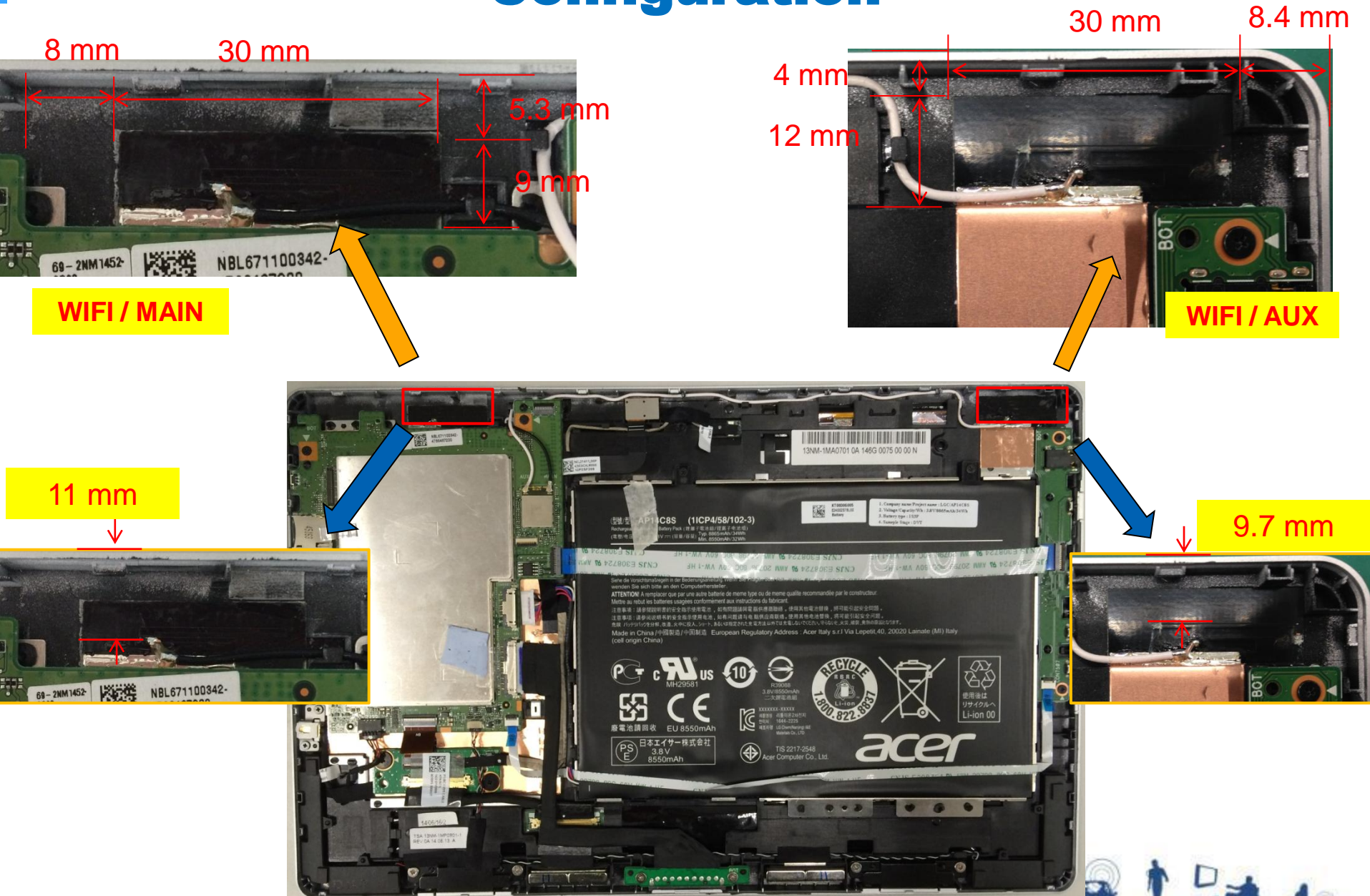
- Measurement Item: a. VSWR    b. Radiation Pattern
- VSWR:    a. Instrument: vector network analyzer  
            b. Calibration method: open/short/load
- Radiation Pattern:  
    Instrument: WNC In-house 3D Antenna Measurement System  
                  @Satimo SG 64
- Coordinate system:



# 2.Configuration

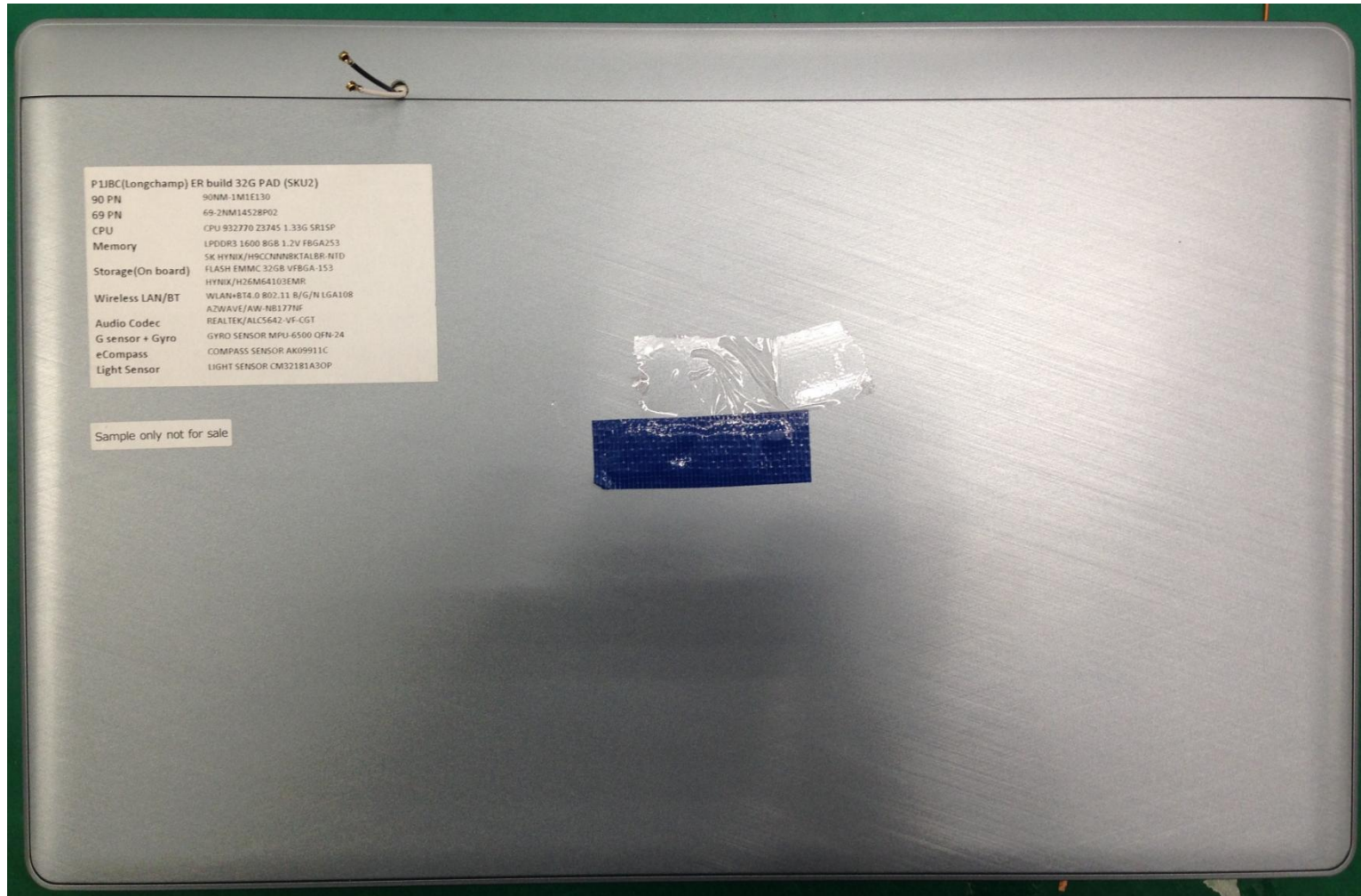


# Configuration





# 2.Configuration

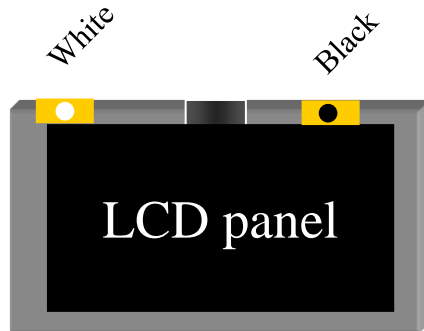


P1JBC(Longchamp) ER build 32G PAD (SKU2)  
90 PN 90NM-1M1E130  
69 PN 69-2NM14528P02  
CPU CPU 932770 Z3745 1.33G SR15P  
Memory LPDDR3 1600 8GB 1.2V FBGA253  
SK HYNIX/H9CCNNBKALBR-NTD  
Storage(On board) FLASH EMMC 32GB VFBGA-153  
HYNIX/H26M64103EMR  
Wireless LAN/BT WLAN-BT4.0 802.11 B/G/N LGA108  
AZWAVE/AW-NB177NF  
REALTEK/ALCS642-VF-CGT  
Audio Codec GYRO SENSOR MPU-6500 OFN-24  
G sensor + Gyro COMPASS SENSOR AK09911C  
eCompass LIGHT SENSOR CM32181A30P  
Light Sensor

Sample only not for sale



# 3. Antenna placement and picture



Antenna Cable:Φ1.13	
Color:	Length(mm)
WLAN Main / Black	64 mm
WLAN Aux / White	242mm

WLAN Main	WLAN Aux
<p>30 x 9 x 0.4</p>	<p>30 x 12 x 0.4</p>

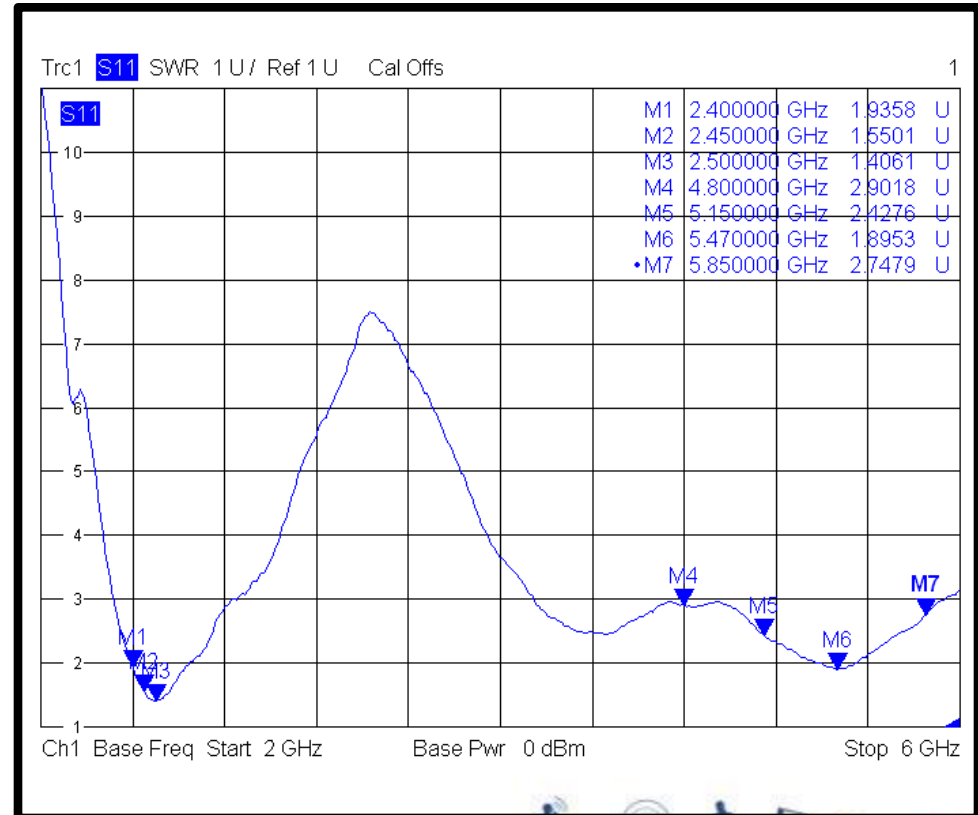


# 4. Measured Efficiency & VSWR

WLAN Main\ Black



Freq. (MHz)	X-Y Plane Peak Gain (dBi)	X-Y Plane Average Gain (dBi)	Efficiency	
			(%)	dB
2400	2.43	-1.93	49.95	-3.01
2442	2.67	-1.49	52.04	-2.84
2450	2.69	-1.69	53.22	-2.74
2484	2.71	-1.89	54.01	-2.68
2500	2.78	-2.11	55.81	-2.53
4800	1.16	-3.43	48.13	-3.18
5150	-0.65	-3.45	50.47	-2.97
5250	0.34	-3.63	51.05	-2.92
5350	1.02	-3.68	54.38	-2.65
5470	0.80	-3.64	55.63	-2.55
5600	0.19	-3.73	53.25	-2.74
5725	0.83	-4.07	51.27	-2.90
5850	0.85	-4.38	49.00	-3.10
5875	0.78	-4.52	48.45	-3.15





# Measured Efficiency & VSWR

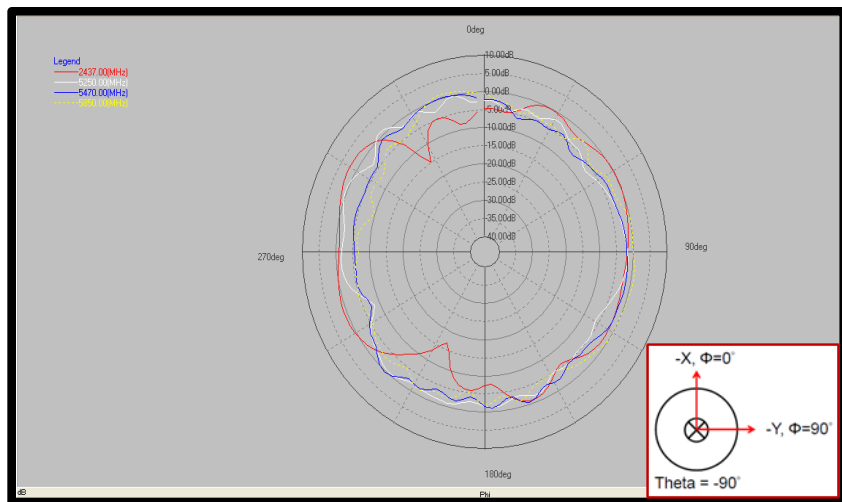
WLAN Aux\ White

Freq. (MHz)	X-Y Plane Peak Gain (dBi)	X-Y Plane Average Gain (dBi)	Efficiency	
			(%)	dB
2400	-0.22	-4.58	43.55	-3.61
2442	0.50	-4.33	42.88	-3.68
2450	0.87	-4.04	45.21	-3.45
2484	1.12	-4.19	42.25	-3.74
2500	1.35	-4.34	41.22	-3.85
4800	-1.18	-5.21	41.75	-3.79
5150	-0.37	-4.39	45.90	-3.38
5250	-0.33	-4.74	44.83	-3.48
5350	0.09	-4.51	42.95	-3.67
5470	-0.16	-4.16	43.22	-3.64
5600	-0.17	-4.26	42.28	-3.74
5725	0.59	-4.37	40.62	-3.91
5850	0.50	-4.10	43.42	-3.62
5875	1.33	-3.79	45.88	-3.38

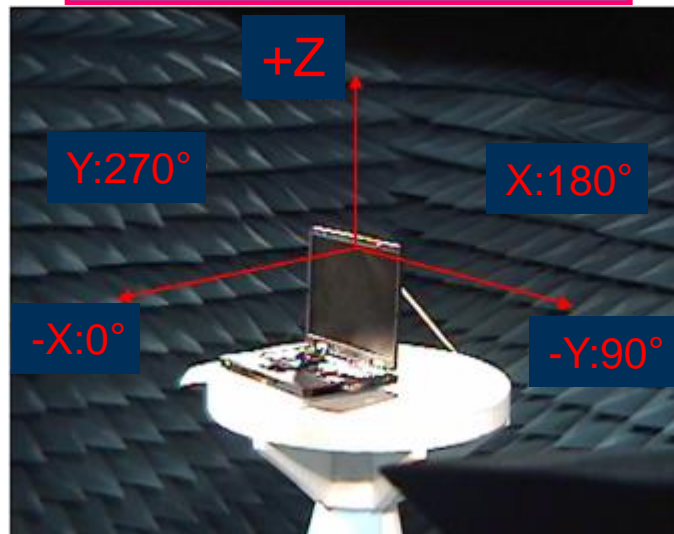


# 5. Antenna 2D Radiation Pattern

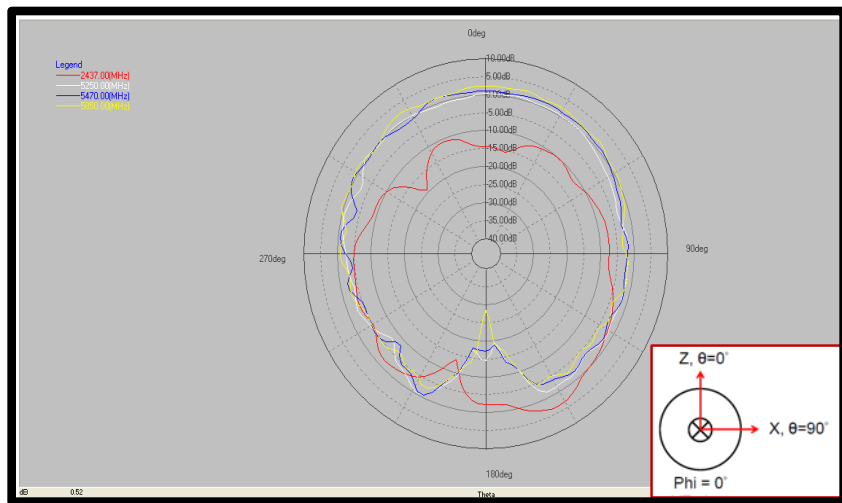
## XY-Plane



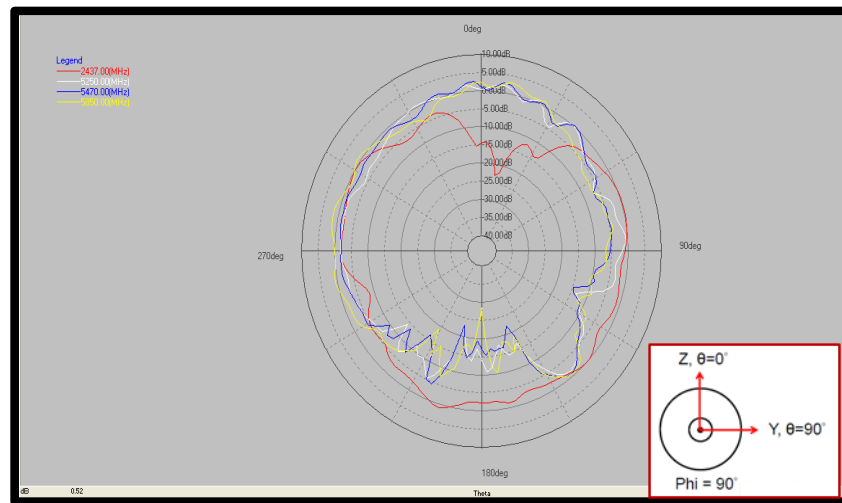
## WLAN Main / Black



## XZ-Plane

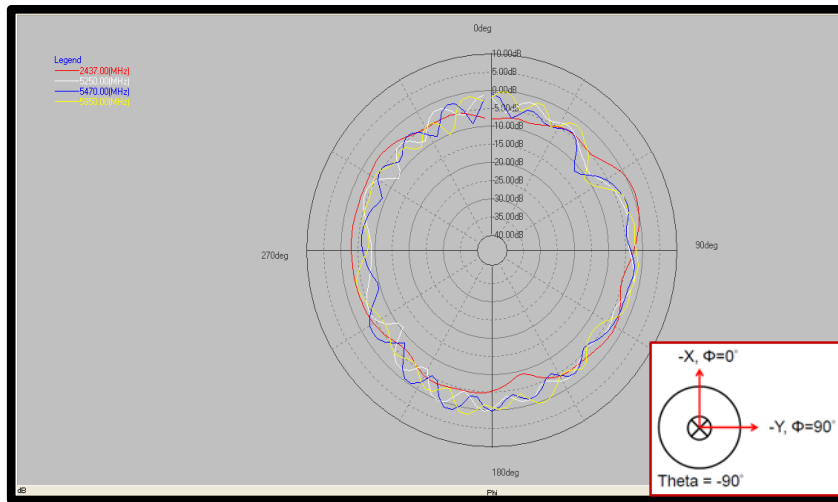


## YZ-Plane

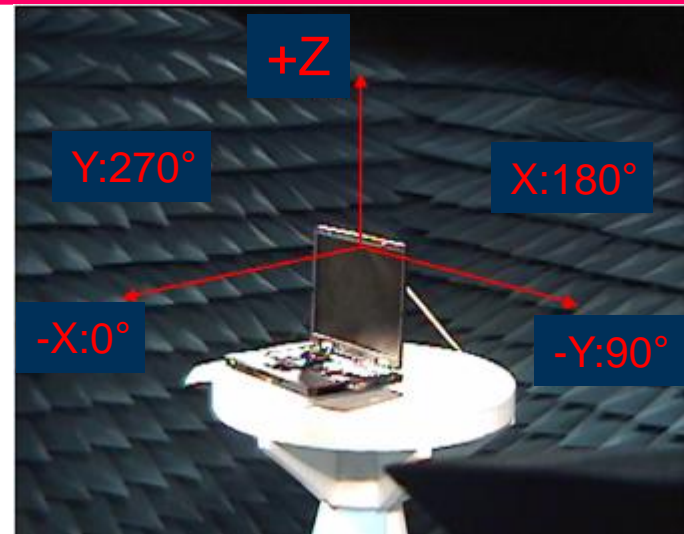


# Antenna 2D Radiation Pattern

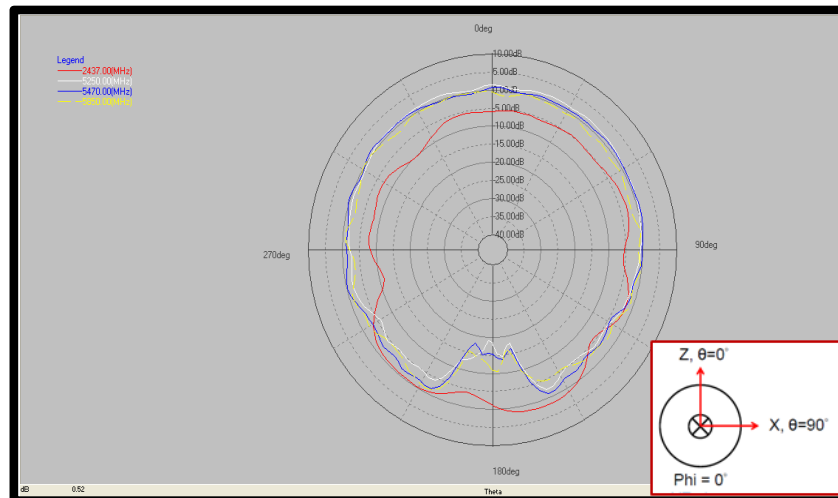
## XY-Plane



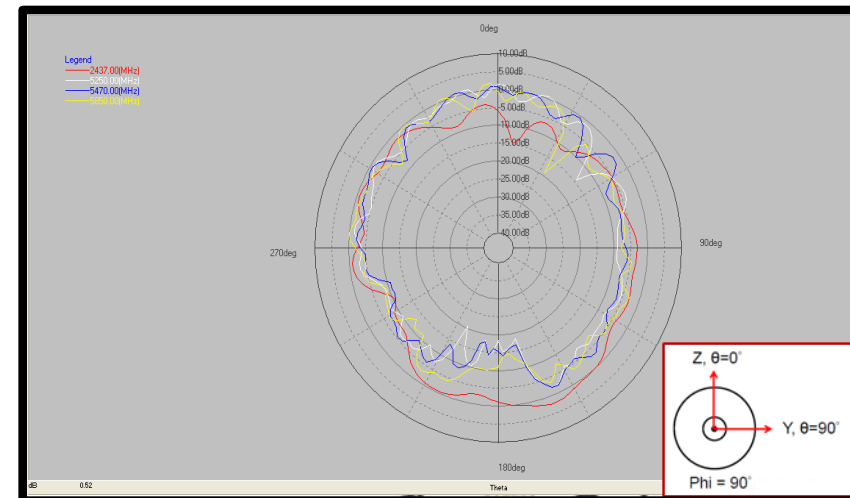
## WLAN Aux / White



## XZ-Plane



## YZ-Plane



# 6. Conclusion

	<b>VSWR</b>	<b>Average gain</b>	<b>Efficiency</b>	<b>Peak gain</b>
<b>WLAN Black antenna</b>	<p>&lt;2.0 @ 2.4~2.5GHz &lt;2.0 @ 5.15~5.85GHz</p>	<p>&gt;-4 @ 2.4G band &gt;-5 @ 5G band</p>	<p>&gt;40 @ 2.4~2.5GHz</p>	<p>&lt;3 @ 2.4G band &lt;6 @ 5G band</p>
<b>WLAN White antenna</b>	<p>&lt;2.0 @ 2.4~2.5GHz &lt;2.0 @ 5.15~5.85GHz</p>	<p>&gt;-4 @ 2.4G band &gt;-5 @ 5G band</p>	<p>&gt;40 @ 2.4~2.5GHz</p>	<p>&lt;3 @ 2.4G band &lt;6 @ 5G band</p>

