PULSE ANT8010LL04R2400A Chip Antenna MeasurementFor Ampak [WL72917_8M] Project

Wireless Components

LTCC R&D

December 4, 2024

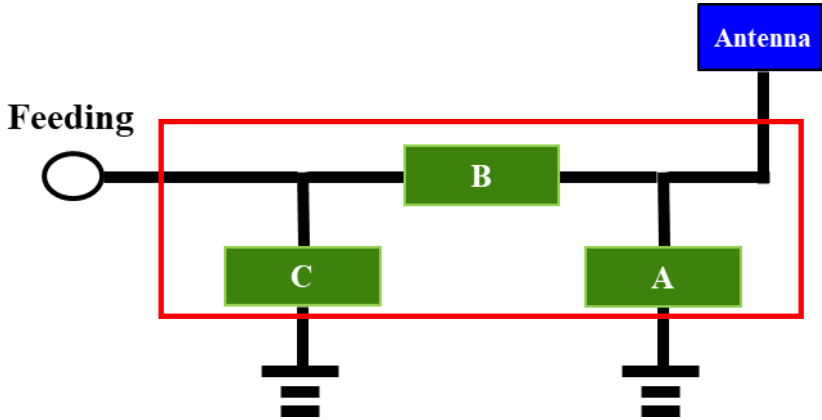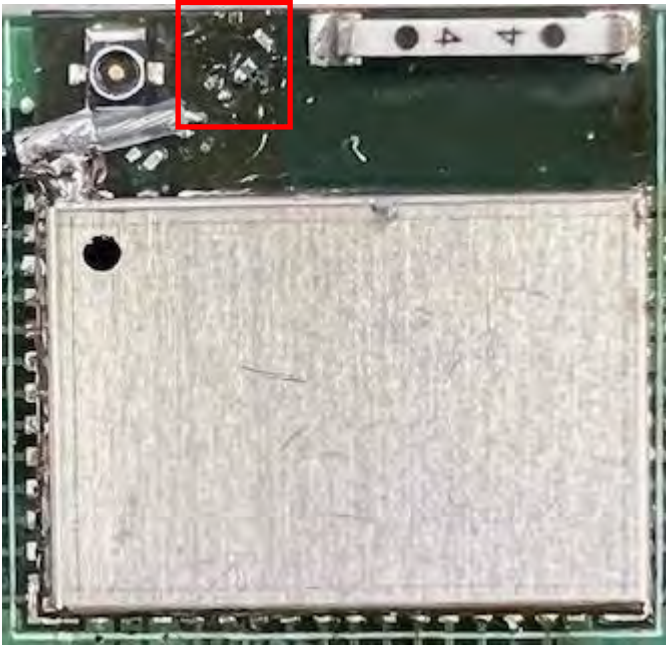*Pulse*

a **YAGEO** company

Project Information

- **Customer : Ampak**

- **Project Name : WL72917_8M**

- **Application: WIFI+BT+IoT module test board**

- **Antenna size :**

    8x1x1(mm) 2.4GHz chip antenna(ANT8010LL04R2400A)

- **Report date : 2024/12/04**

- **Version : 1**

- **Manufacturer: Pulse Electronics**

  Address: No.179 Changjiang Road, Suzhou New District Jiangsu Province, China 215009

WL72917_8M PCBA Photo
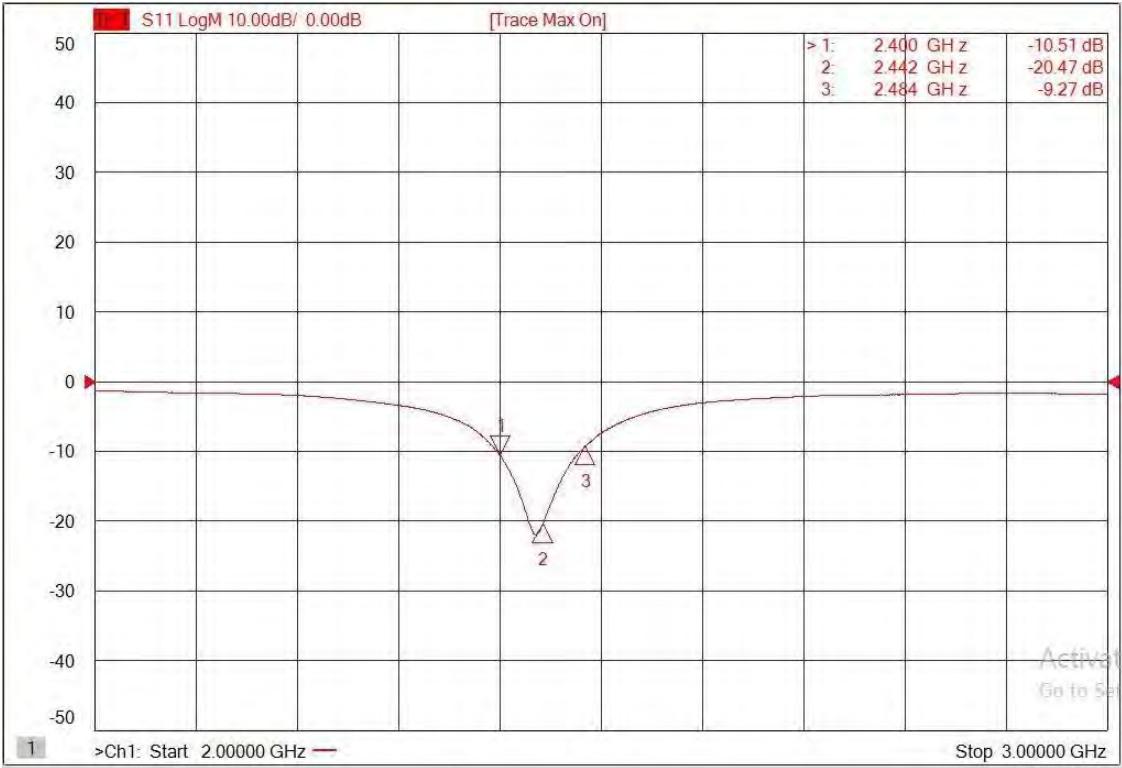

ANT8010LL04R2400A

Matching Circuit

Component	Supplier		Value	PN
A	Cap._0201	YAGEO	1 pF	CC0201BRNPO9BN1R0
B	Cap._0201	YAGEO	3.3 pF	CC0201BRNPO9BN3R3
C			Open	

Return Loss

Condition	WL72917_8M		
Antenna	PULSE 8010 2.4GHz Chip antenna (ANT8010LL04R2400A)		
Frequency (MHz)	2400	2442	2484
R.L. (dB)	-10.5	-20.5	-9.3
Max. Gain (dBi)	0.6	0.7	0.1
Avg. Gain (dB)	-2.9	-2.8	-3.8
Efficiency (%)	51.1	52.1	42.1

S11 LogM 10.00dB/ 0.00dB   [Trace Max On]

> 1:	2.400 GHz	-10.51 dB
2:	2.442 GHz	-20.47 dB
3:	2.484 GHz	-9.27 dB

>Ch1: Start 2.00000 GHz   Stop 3.00000 GHz

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Measurement Configuration

[Direction Definition]

[Anechoic Chamber]

Horn Antenna

ANT8010LL04R2400A

Z

Y

X

WL72917_8M_TB_V00

Phi

X

Y

Z

DUT

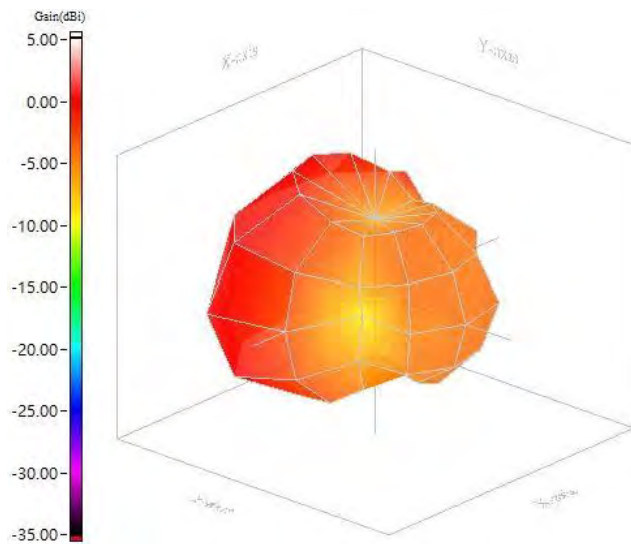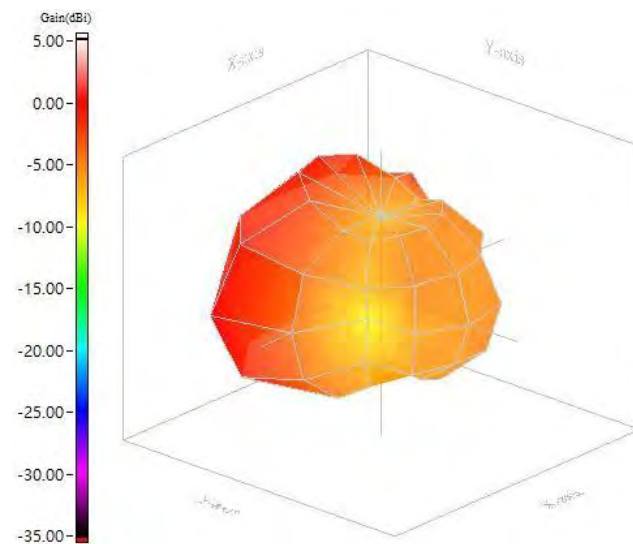Horn Ant.

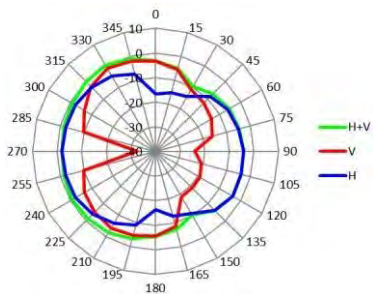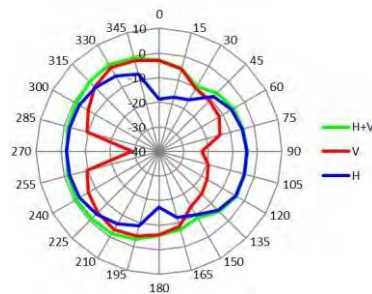Theta

6
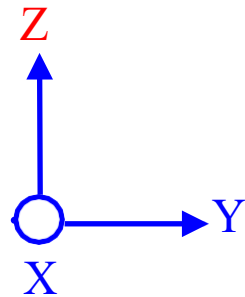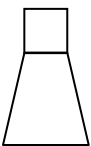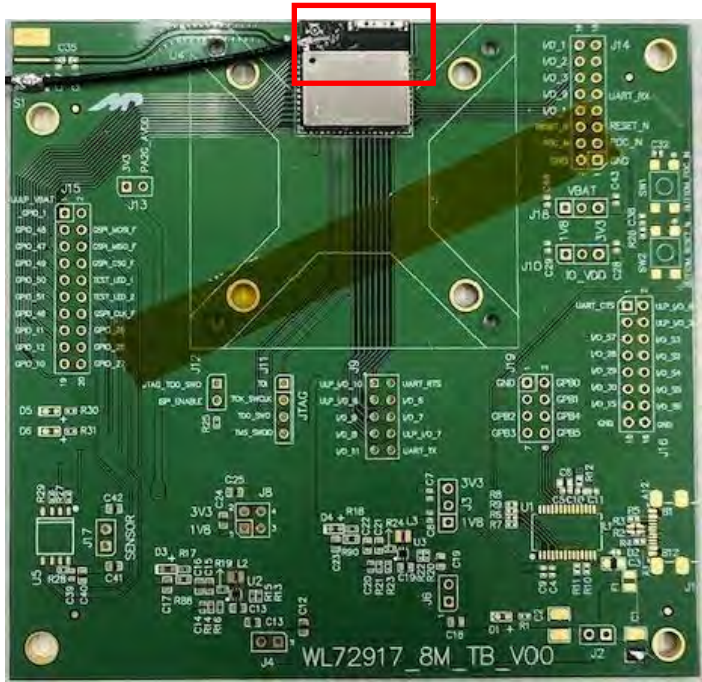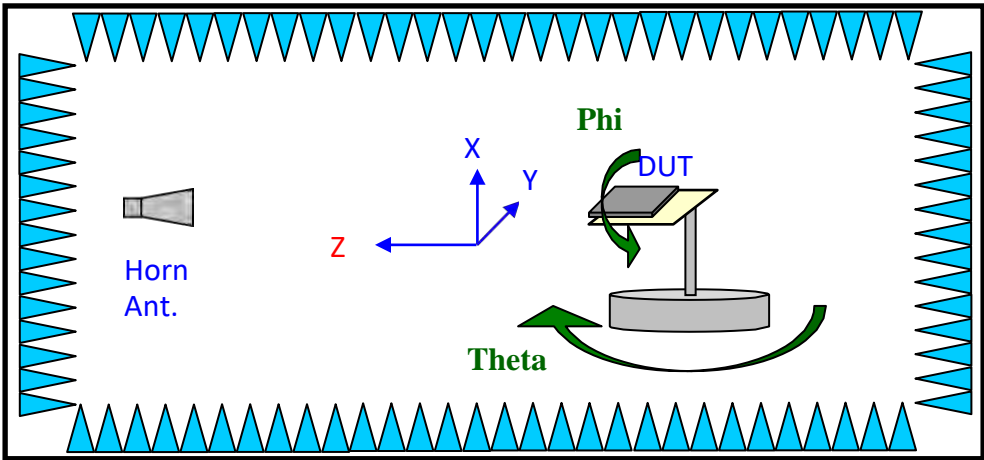
Radiation Pattern (3D)
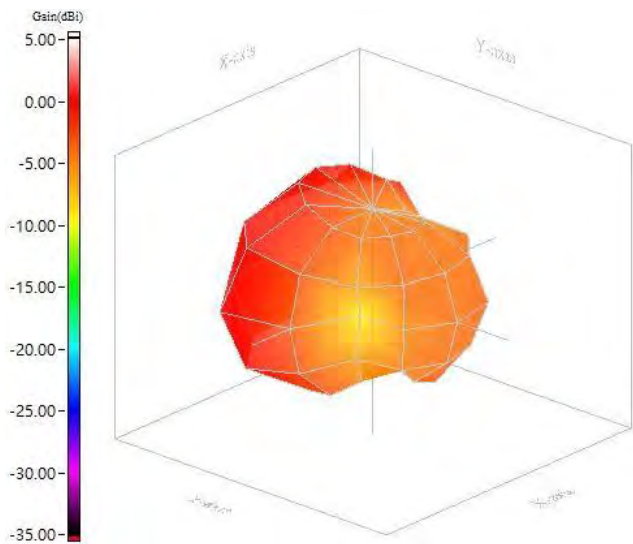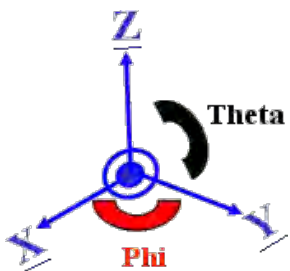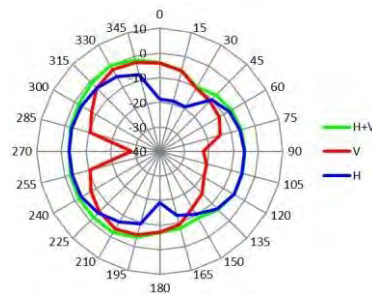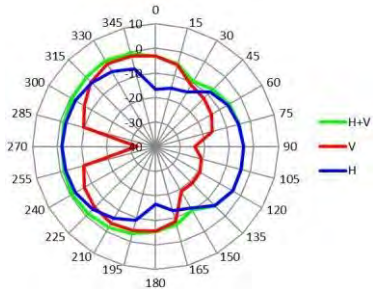

2400MHz

2442MHz

2484MHz
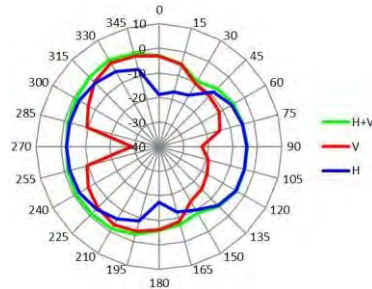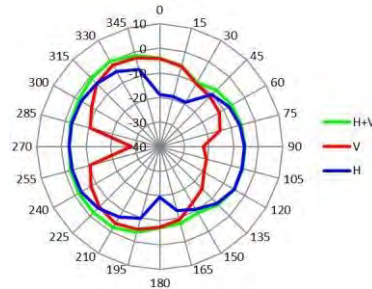
Radiation Pattern (2D)

XY-Plane

2400MHz   2442MHz   2484MHz
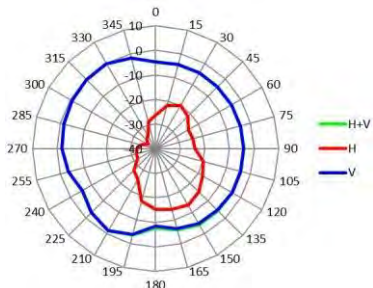
XZ-Plane

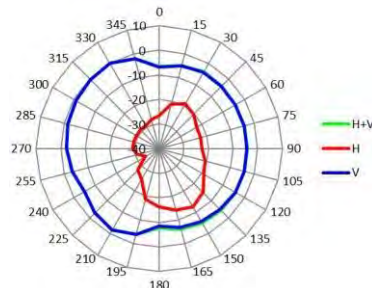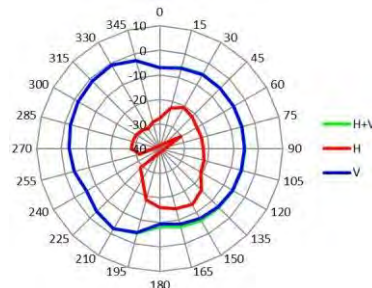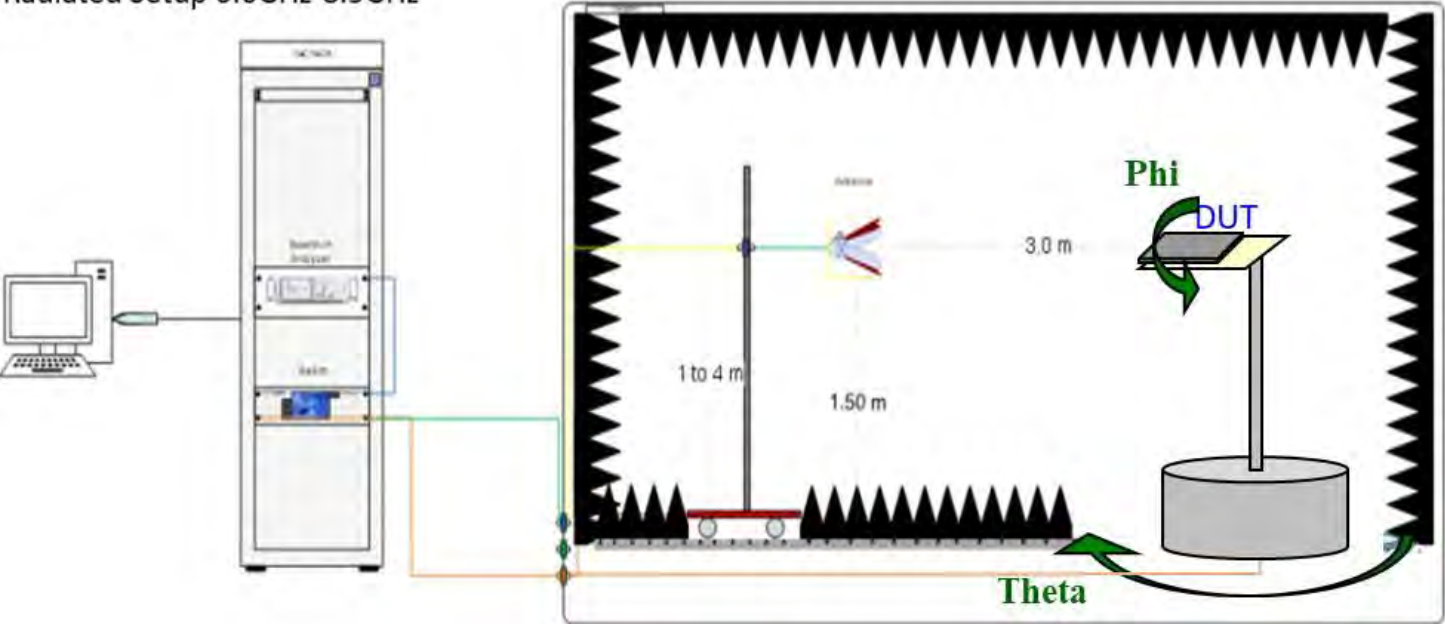2400MHz   2442MHz   2484MHz

YZ-Plane

2400MHz   2442MHz   2484MHz

Antenna Vendor Info & Measurement Setup

Radiated Setup 0.6GHz-8.5GHz

ID#	Device	Type/Model	Serial#	Manufactuter	Cal. Date	Estimated Next Cal. Date
1	Anechoic Chamber	AMS8500	-	ETS-Lindgren	2023-07-13	2024-07-13
2	Turn Table	ETS	-	ETS-Lindgren	N/A	N/A
3	Switch & Positioning system	2090	-	ETS-Lindgren	N/A	N/A
4	Horn Antenna	3164-08	99210	ETS-Lindgren	N/A	N/A
5	Network Analyzer	E5071C	MY46103999	Agilient	2023-07-13	2024-07-13
6	Commercial test software	EMQuest	Version 1.14 Build 10265 SN:1156	ETS-Lindgren	2023-07-13	2024-07-13
7	Test Operator	Matthew Kung		YAGEO		
N/A: Not Applicable						

Test Procedure

ETS-Lindgren AMS-8500 system is 3D fully anechoic chamber, it is applied to the "Conical Cut test method", the detail description is described as below :

- The Conical Cut method requires the ability of the Measurement Antenna to be physically rotated in the theta plane (overhead) of the EUT for implementations using a single Measurement Antenna, thirteen conical cuts are required to capture data at every 15 degrees from the EUT.

- Typically, the EUT will remain affixed to a turntable during the entire measurement process.

- The Measurement Antenna will be positioned at a starting theta angle.

- The EUT will then be rotated around the full 360 degrees of phi rotation.

- The Measurement Antenna will then be positioned at the next theta angle, and the process repeated.

- Finally, the measurement data of all angles are calculated through the EMQuest software to obtain the Peak gain, Average gain, Efficiency... and other data we need.

Thank You