ANTENNA TEST REPORT

Applicant	Oro Technology Co., Ltd. 3F, No.29, 21st Road, Industrial Park, Taichung 408, Taiwan
Brand	ORO
Manufacturer	Oro Technology Co., Ltd. 3F, No.29, 21st Road, Industrial Park, Taichung 408, Taiwan
Product Name	Tire Pressure Monitoring System
Model Name	AI SENSOR
Report No	4790838020
Received Date	2023/5/29
Test Period	2023/6/20
Issued Date	2023/7/3

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Release Note

Rev.	Date	Revisions	Revised By
--	2023/7/3	-	-

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1. Description of Antenna

Ant. No.	Brand Name	Model Name	Ant. Type	Operation Mode
1	ORO	M02AN00004	Monopole	315MHz & 433MHz

Note:

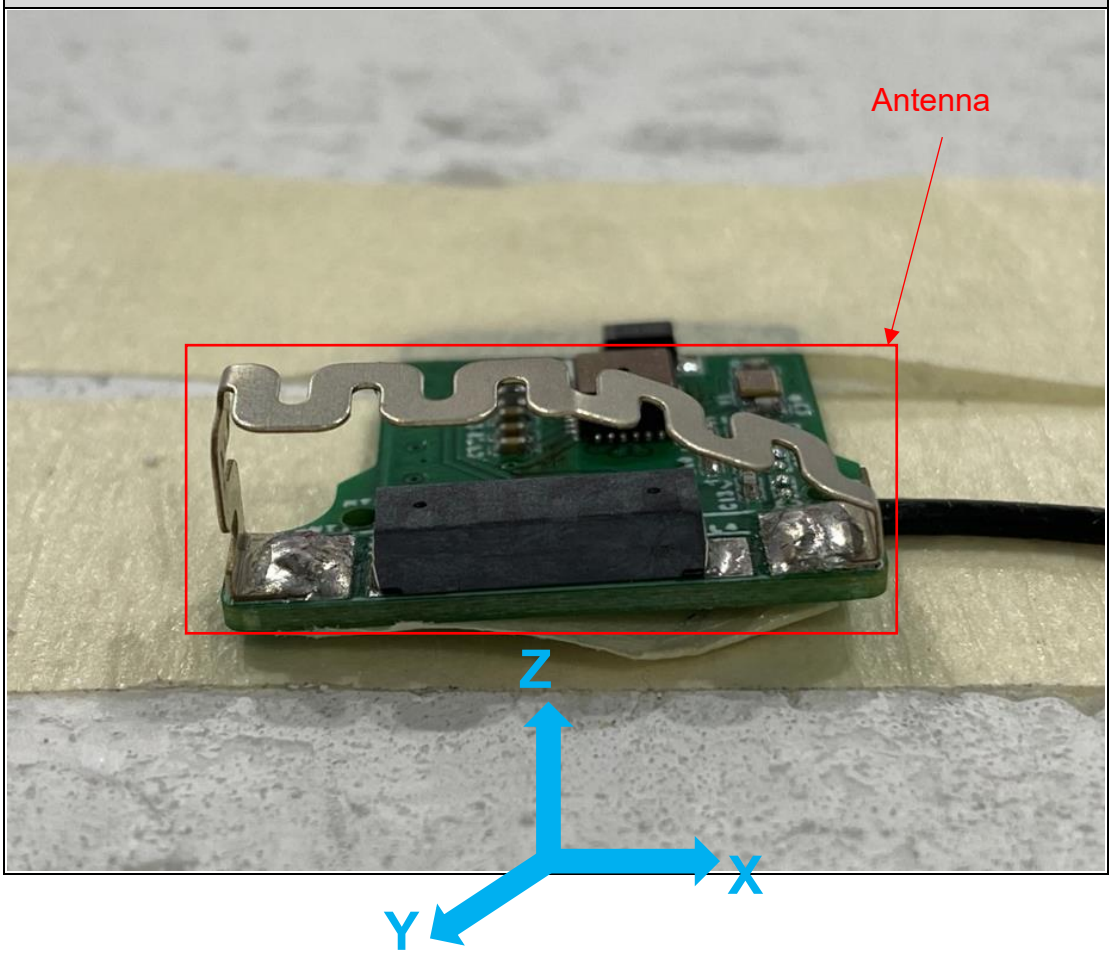
1. The above Antenna information is declared by manufacturer and for more detailed features description, please refer the manufacturer's or user's manual.

2. Test Frequency and Polarization

The tests frequency is declared by manufacturer.

Test Frequency (MHz)
315
433.92

EUT Position and Polarization



3. Test Location and Address

Test Location	Underwriters Laboratories Taiwan Co., Ltd.,
Address	Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Description	All measurement facilities use to collect the measurement data are located at Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

4. Measuring Instrument List (Test Equipment)

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

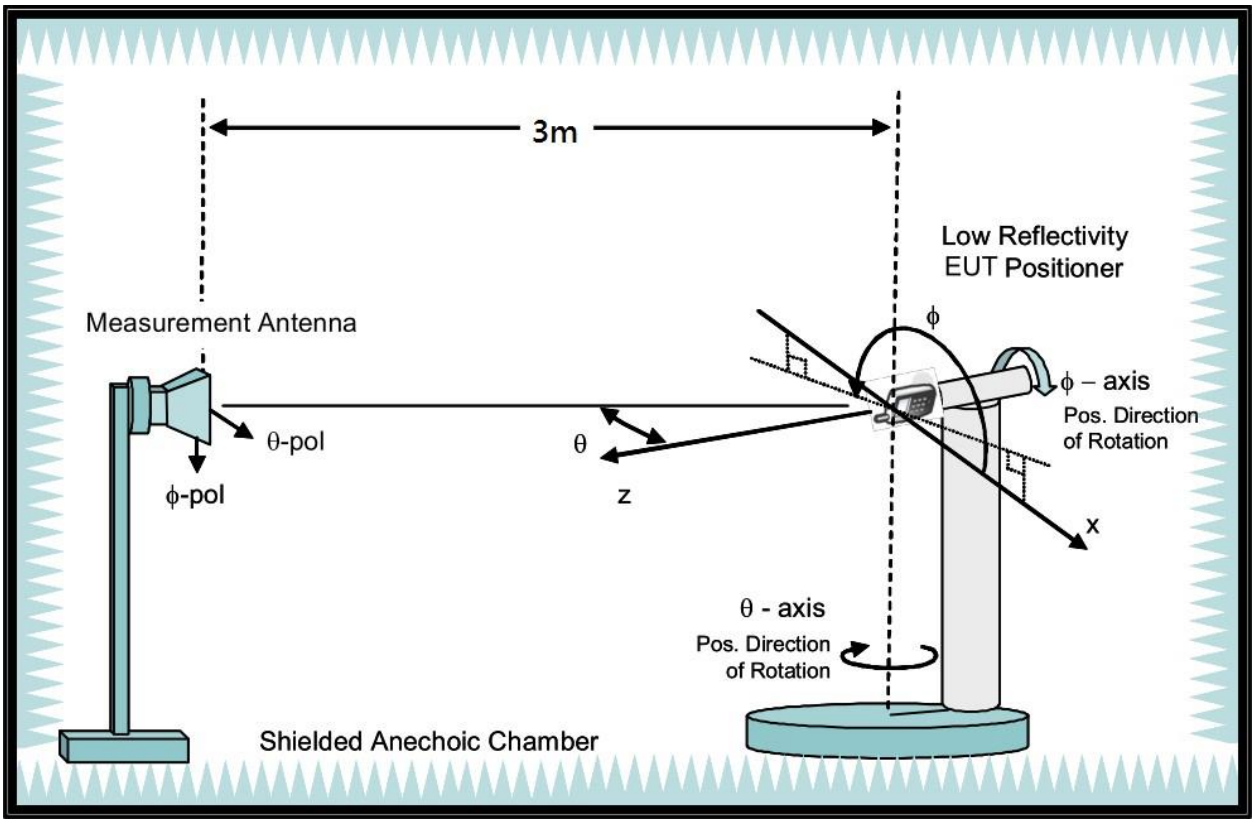
Test Equipment List					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Expired Date**
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	781	2022/12/30	2023/12/29
MXG Vector Signal Generator	Keysight Technologies	N5182B	MY56200244	2023/1/6	2024/1/5
Cables	Hanyitek	K1K50-UP0264-K1K50-2500	170214-1 & 170214-2	2022/12/1	2023/11/30
Cables	Hanyitek	HPMC40KM90KF	CB038	2023/2/15	2024/2/14
Support Calibration Equipment List					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Expired Date**
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	01690	2022/12/21	2023/12/20

UL Software

Software	Version
Antenna Pattern Measurement System	1.0.0.0

5. Test Connection Diagram and Condition

Test Facility	Test Site No.	Environmental Condition	Test Date	Tested by
Fully Anechoic Chamber	1277	23°C/65%RH	2023/6/20	Jubo Shen



6. Test Procedure

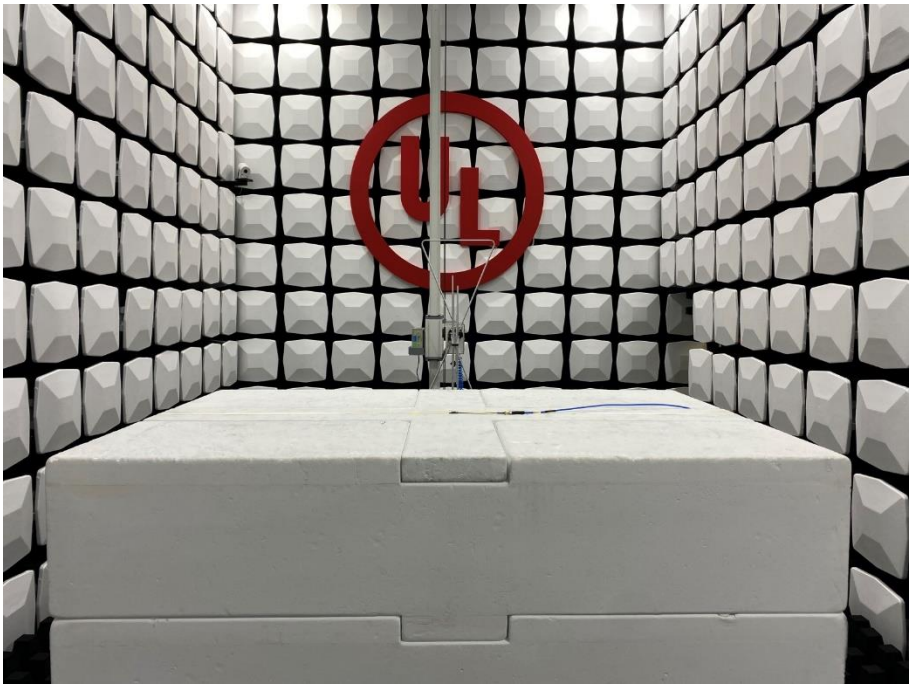
1. Set the Calibration Antenna on multi-axis positioner and connect to signal generator for capture the correction factor.
2. Signal generator insertion normalize and calculate the standard antenna factor with spectrum analyzer.
3. Calibration Antenna change to the EUT's antenna.
4. The EUT is then stepped between 0 to 360 degrees along the theta axis.

7. Test Result

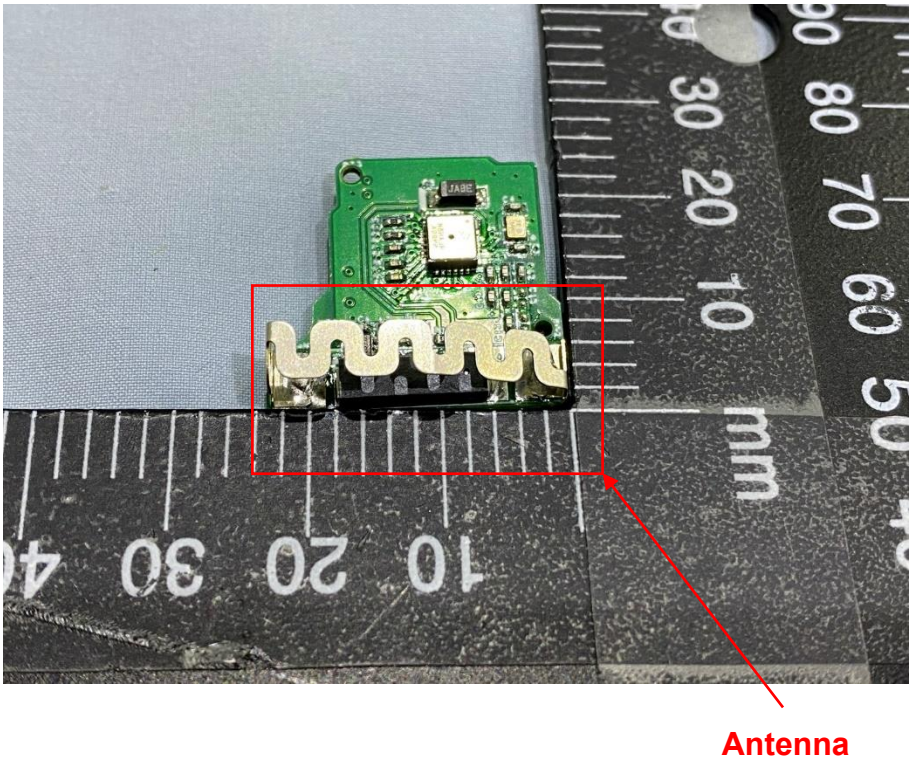
Maximum gain result refer below table:

Polarization	Test Frequency (MHz)	X-Y Plane Gain (dBi)	X-Z Plane Gain (dBi)	Y-Z Plane Gain (dBi)
Vertical	315 MHz	-22.32	-23.11	-22.84
Horizontal	315 MHz	-21.77	-22.16	**-20.89**
Vertical	433.92 MHz	-25.86	-24.62	-26.97
Horizontal	433.92 MHz	-20.77	**-19.90**	-20.98

Appendix I： Photographs of Test Configuration



Appendix II：Photographs of the Antenna Outview



Appendix III：Antenna Pattern

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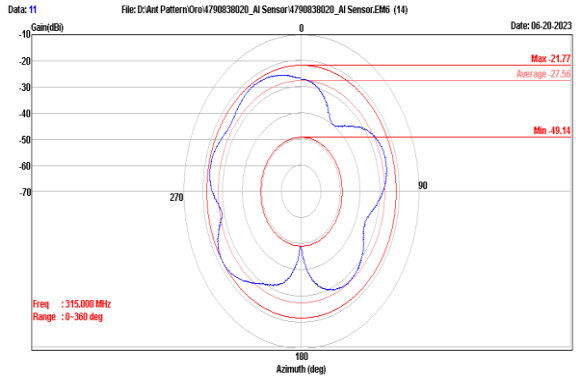	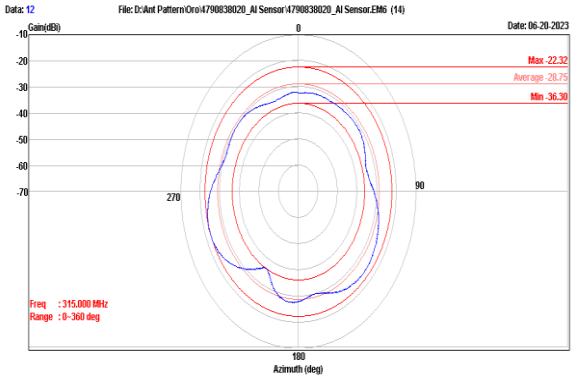
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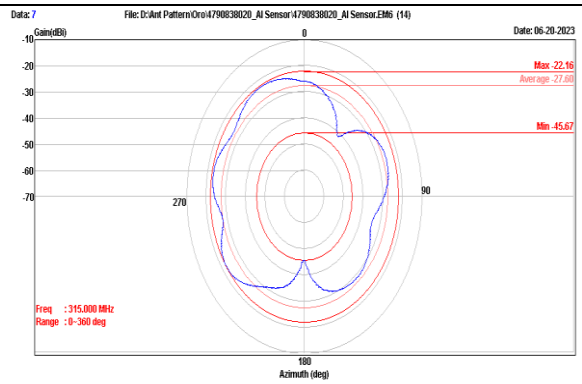	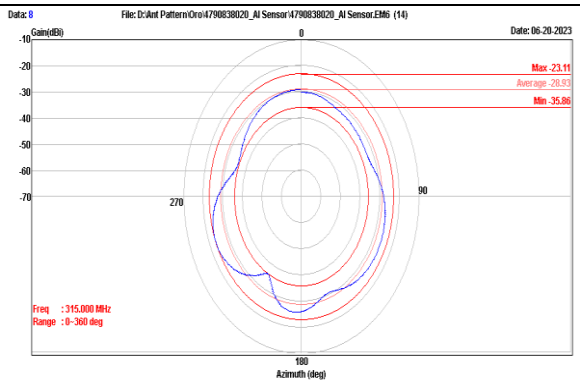
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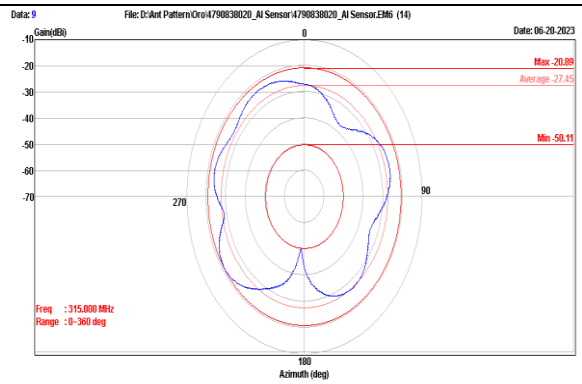
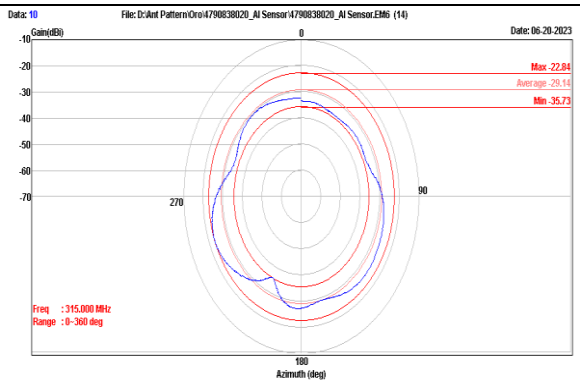
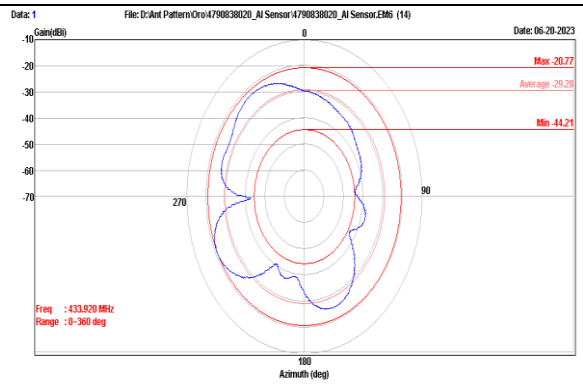
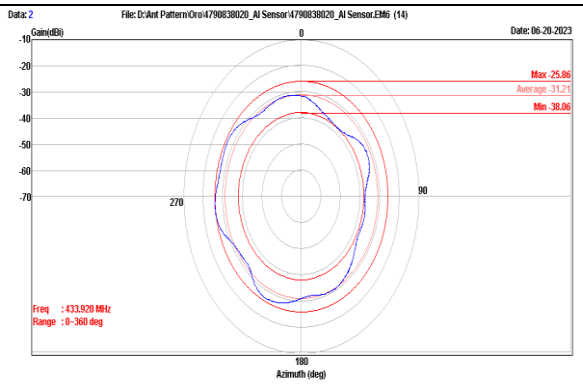
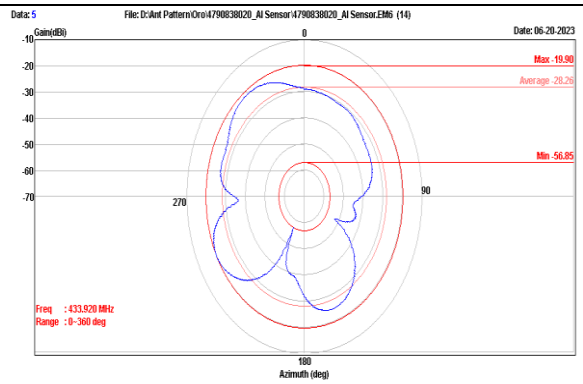
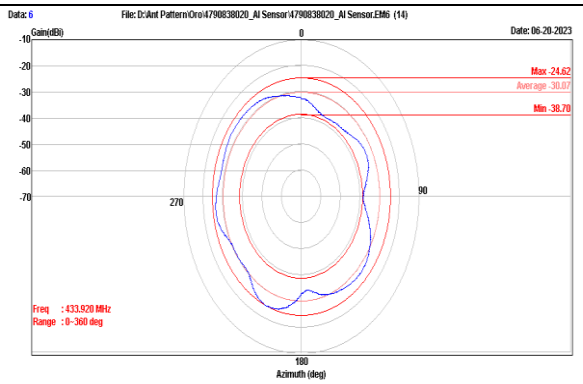
	

433.92MHz_Horizontal_X-Y	433.92MHz_Vertical_X-Y
	
433.92MHz_Horizontal_X-Z	433.92MHz_Vertical_X-Z
	
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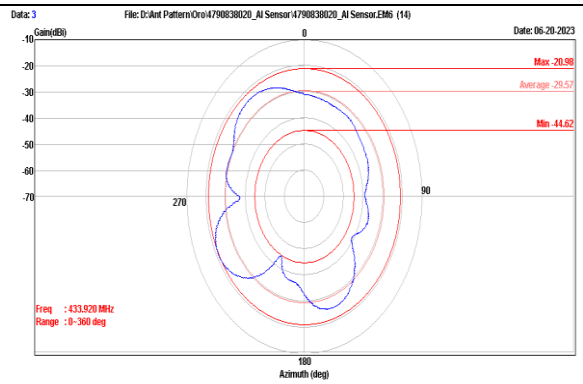	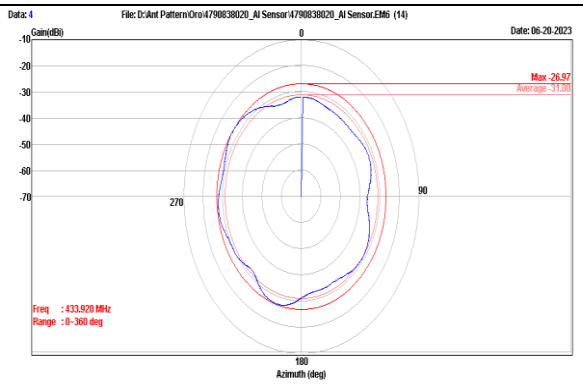

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