

Antenna Passive Test Report

Project No. : TCWD250600415
Product Type : HidrateSpark PRO 2 Quarter Wavelength Printed Monopole Antenna
Test Mode : Free Space
Date of Receipt : 2025/06/09
Date of Test : 2025/06/09
Issued Date : 2025/06/18
Test Sample : TCWD250600415-M-01
Standard(s) : ANSI/IEEE Std 149-2008
Applicant : HIDRATESMART LLC
Address : PO Box 777250, Henderson, NV 89077, USA
Manufacturer : HIDRATESMART LLC
Address : PO Box 777250, Henderson, NV 89077, USA

TOWE. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

the results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of the model are manufactured with identical electrical and mechanical components. All sample tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise. without written approval of TOWE, the test report shall not be reproduced except in full.

范家福

Fan Jiafu
Approved By:

林其隆

Lin Qilong
Reviewed By:

Table of Contents

REVISION HISTORY	3
1 . CERTIFICATE OF COMPLIANCE	4
1.1 DESCRIPTION OF EUT AND TEST(S) PERFORMED	4
1.2 LABORATORY ENVIRONMENT	4
2 . MEASUREMENT SYSTEM INFORMATION	5
2.1 GENERAL INFORMATION	5
2.2 LIST OF EQUIPMENT	7
2.3 MEASUREMENT UNCERTAINTY	8
3.TEST RESULTS	9
4. 2-D PATTERN PLOTS	10
5. 3-D PATTERN PLOTS	13
6. THE EUT AND TEST CONFIGURATION	15

REVISION HISTORY

Rev.	Issue Date	Description	Revised by
01	2025/06/18	Original	Fan Jiafu

1. CERTIFICATE OF COMPLIANCE

1.1 DESCRIPTION OF EUT AND TEST(S) PERFORMED

Manufacturer	HIDRATESMART LLC
Model	SENSOR-008 Tupac32-Monopole
Serial Number(s) / ESN(s) / IMEI(s)	N/A
Hardware Version	N/A
Software Version	N/A

1.2 LABORATORY ENVIRONMENT

Temperature	Min = 20°C , Max = 24°C	
Relative humidity	Min = 30% , Max = 70%	
Shield effect	0.6 – 8.5G	> 100dB
Ground resistance	< 0.5Ω	

2. MEASUREMENT SYSTEM INFORMATION

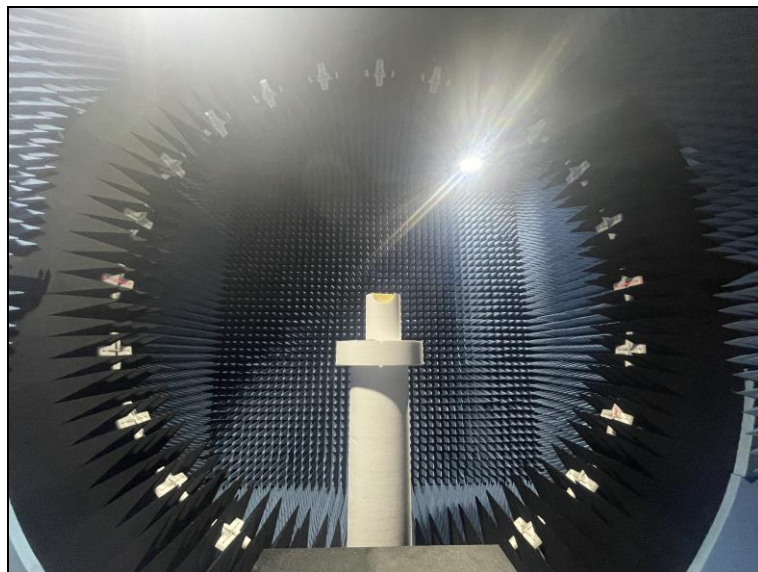
2.1 GENERAL INFORMATION

Measurement Facility:

- Measurement Chamber: ETS-Lindgren 3D fully anechoic chamber and its measuring system (AMS-8923)
- ETS-Lindgren EMCenter
- Vector Network Analyzer: R&S ZNB8



Instruments View



Inside View

2.2 LIST OF EQUIPMENT

Equipment Description	Manufacturer	Identification No.	SN	Current Calibration Date	Next Calibration Date
Vector Network Analyzer	R&S	ZNB8	101413	2024/7/17	2025/7/16
RF switch control	ETS-Lindgren	EMCenter	00251211	N/A	N/A
Measurement software	ETS-Lindgren	EMQuest	N/A	N/A	N/A

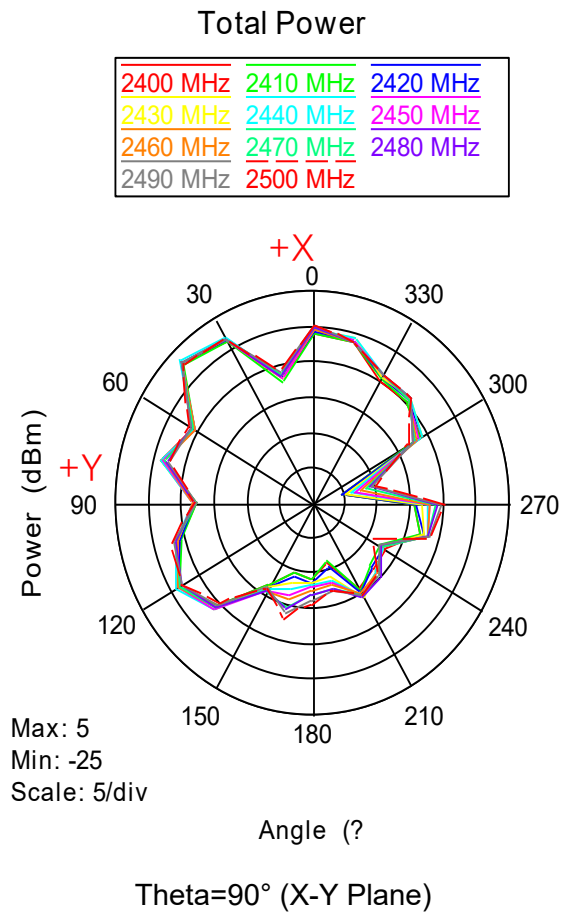
2.3 MEASUREMENT UNCERTAINTY

Item	2400 – 2500MHz
Gain	0.83 dB
Efficiency	0.83 dB
Measurement Uncertainty (95% Confidence Interval) K=2	

3.TEST RESULTS

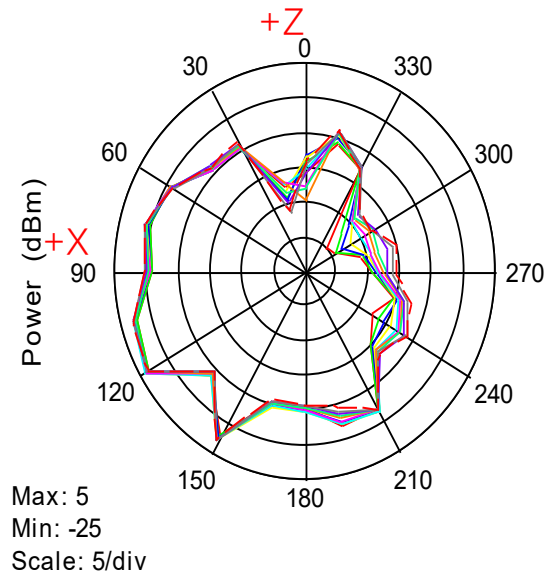
Free Space		
Frequency (MHz)	Efficiency (%)	Gain (dBi)
2400	42.16	4.00
2410	41.99	3.99
2420	44.37	4.28
2430	46.25	4.51
2440	46.96	4.55
2450	45.82	4.40
2460	45.13	4.31
2470	44.85	4.25
2480	44.76	4.26
2490	44.91	4.30
2500	44.88	4.29

4. 2-D PATTERN PLOTS



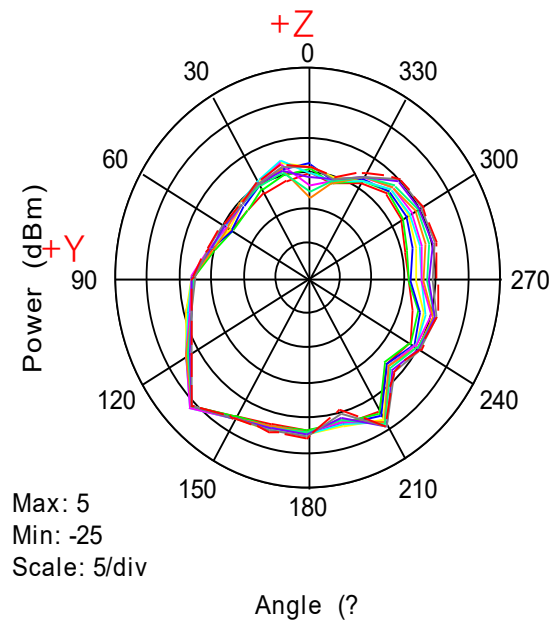
Total Power

2400 MHz	2410 MHz	2420 MHz
2430 MHz	2440 MHz	2450 MHz
2460 MHz	2470 MHz	2480 MHz
2490 MHz	2500 MHz	



Total Power

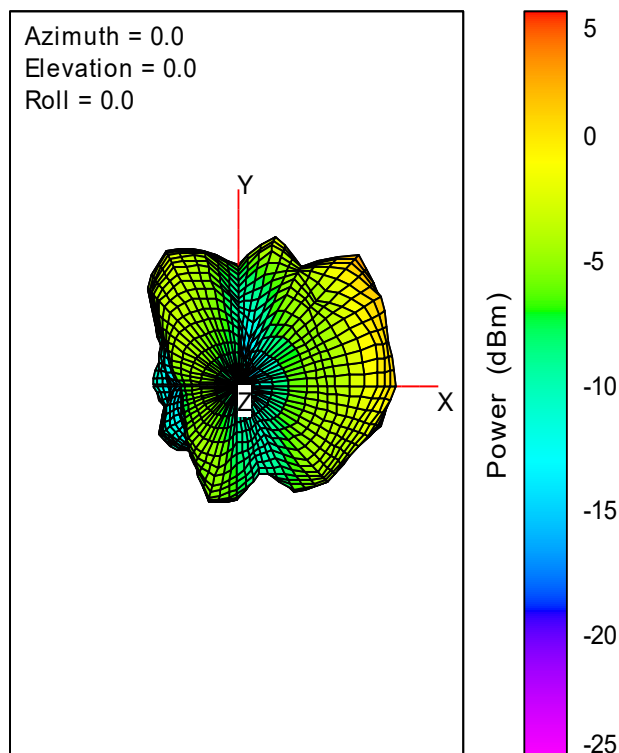
2400 MHz	2410 MHz	2420 MHz
2430 MHz	2440 MHz	2450 MHz
2460 MHz	2470 MHz	2480 MHz
2490 MHz	2500 MHz	



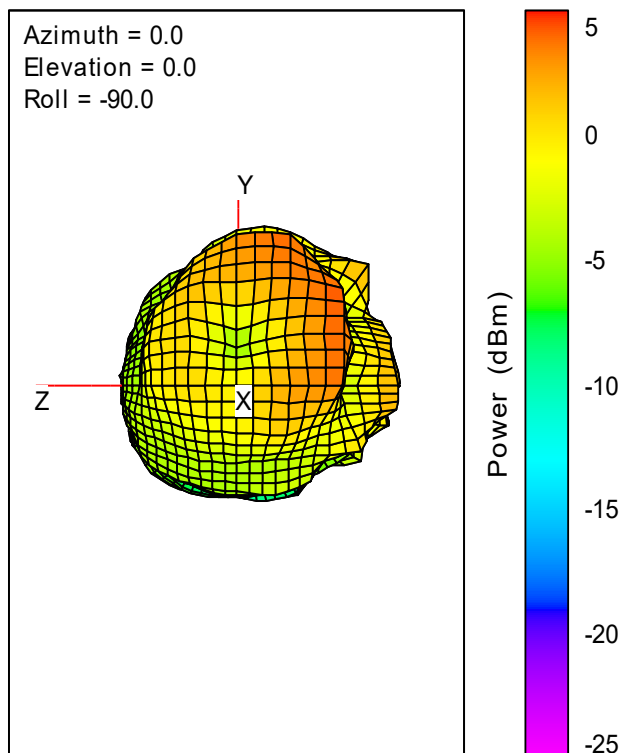
Phi=90° (Y-Z Plane)

5. 3-D PATTERN PLOTS

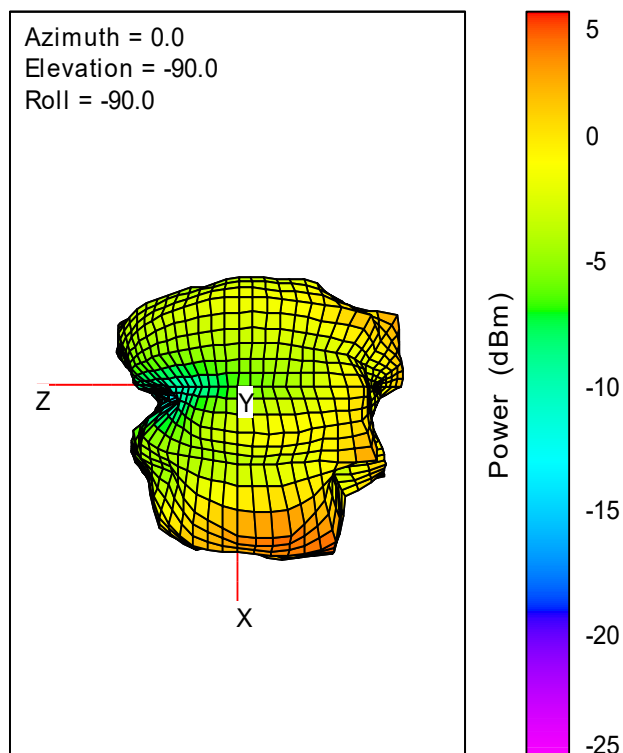
Total Power



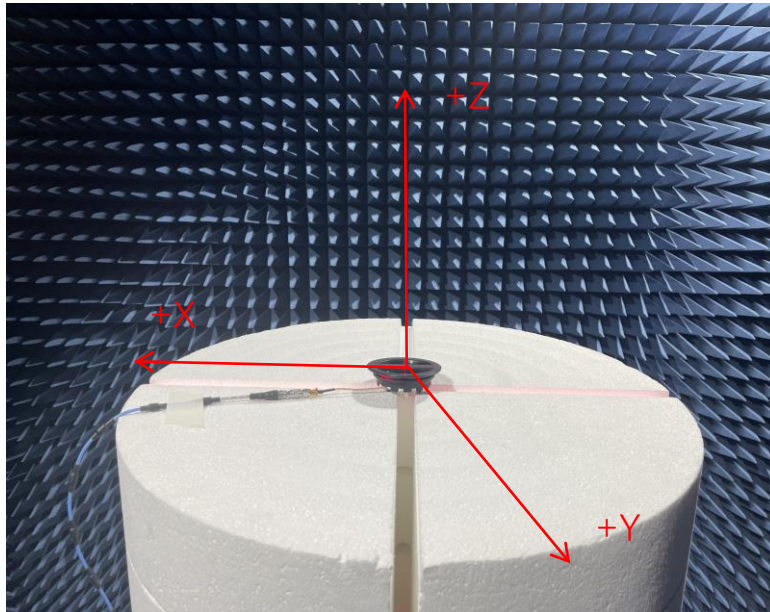
Total Power



Total Power



6. THE EUT AND TEST CONFIGURATION



Free Space View

End of Test Report