ANTENNA TEST REPORT

Manufacturer:	**Shenzhen ZhiLong Electronic Technology Co., Ltd**
Address:	No.105, Fourth Lane, Yongxiang Rd., Wuhe Community, Bantian St., Longgang Dist., Shenzhen, CHINA 518000
Product Name:	**ANT SPEC**
Product Model:	**2.4G ANT**
Report Number:	**2503S12167E-RF**
Date Of Issue:	**2025/4/29**
Reviewed :	**Luke Yuan** Luke Yuan
Title:	OTA Engineer
Approved By:	**SunZhong** Sun Zhong
Title:	Manager
Test Laboratory:	**China Certification ICT Co., Ltd (Dongguan)** No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China Tel: +86-769-83085888 www.ccttt.com.cn

Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "▲". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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This report may contain data that are not covered by the accreditation scope and shall be marked with an asterisk "★".

Each test item follows the test standard(s) without deviation.

CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2503S12167E-RF	Original Report	2025/4/29

1. GENERAL INFORMATION

Product Name:	ANT SPEC
Product Model:	2.4G ANT
Antenna Type:	PCB
Test Items:	Gain; Efficiency; 3D Pattern
Test Frequency (MHz):	2400, 2450, 2500
Sample Number:	31ZN-1
EUT Received Date:	2025/4/28
EUT Received Status:	Good

2. TEST CONFIGURATIONS

2.1 Test Environment

Temperature (℃)	26.2
Humidity (%RH)	45.8
Atmospheric Pressure (kPa)	101.4
Tester	Leo Li
Test Date	2025/4/29

2.2 Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Vector Network Analyzer	ZNB-8	1311601044104250	2025/2/10	Pass
R&S	Cross-Pol.Vivald i-ANT	TC-TA18	200256	N/A	N/A
R&S	Switch Controller	OSP320	1528.3111K02\10 1442	N/A	N/A
R&S	Switch Controller	OSP320	1528.3105K03\10 1666	N/A	N/A
R&S	Turntable controllers	NCD/536/ 3082..01	N/A	N/A	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

2.3 Test Specification

IEEE Std 149-2021

2.4 Test Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Passive	1.82 dB
VSWR(S11)	0.57 dB

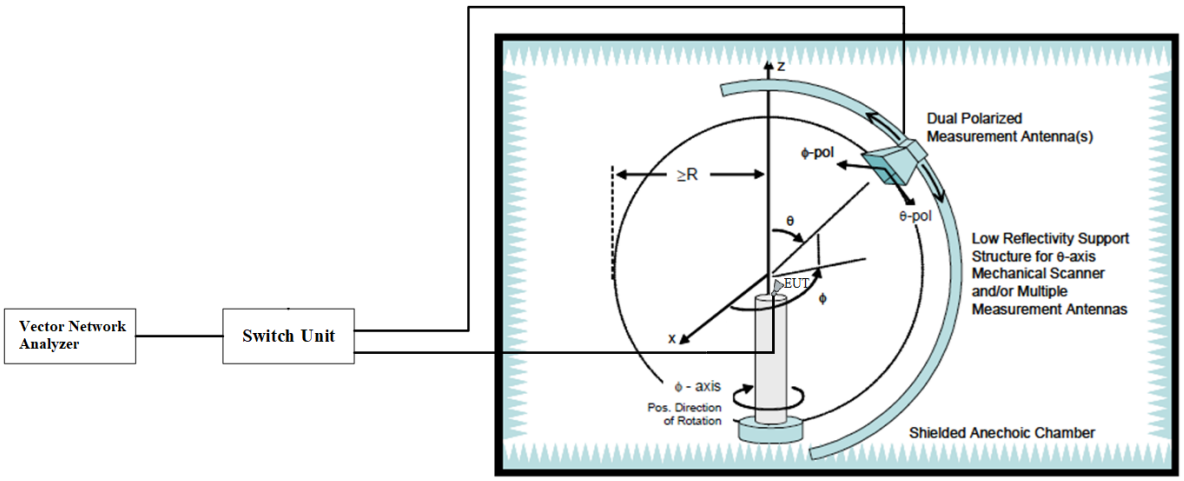
2.5 Test Measurement System

Conical-cut method is used to measure EUT in OTA qualified anechoic chamber. 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. Eleven conical cuts are required to capture data at every 15 degrees from the EUT, with the top (0 degrees) and bottom (180 degrees) cuts not being measured. 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.

Measurements of the radiated transmit power and receiver sensitivity should be recorded in both E-theta and E-phi polarizations simultaneously to reduce measurement uncertainties due to EUT repositioning.

2.6 Test Setup

2.6.1 Antenna Gain, Efficiency and Radiation Pattern Test Setup



3. TEST RESULTS

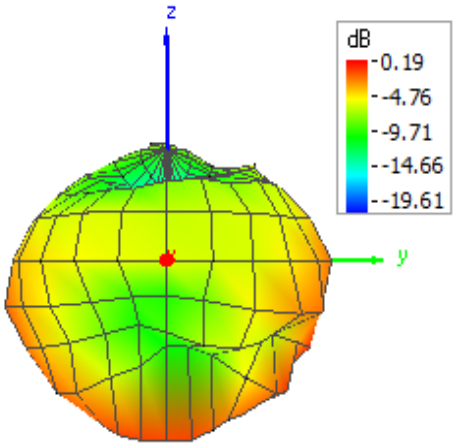
3.1 Gain and Efficiency

Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)
2400.00	35.52	0.19
2450.00	33.92	0.38
2500.00	34.25	1.40

3.2 Radiation Pattern

2400 MHz 3D

Theta = 90, Phi = 0



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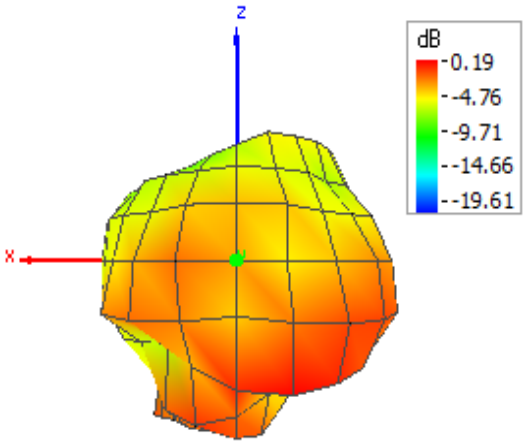

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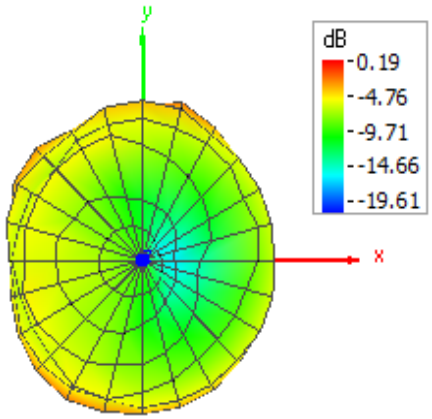

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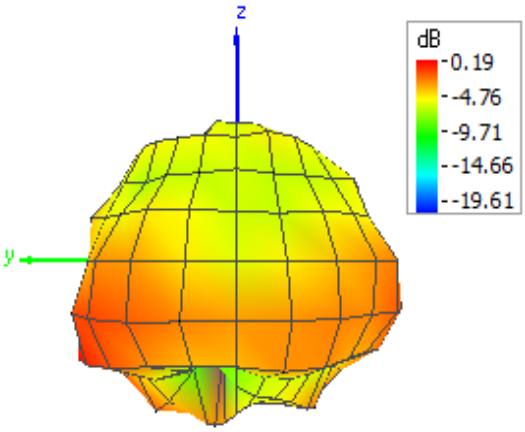
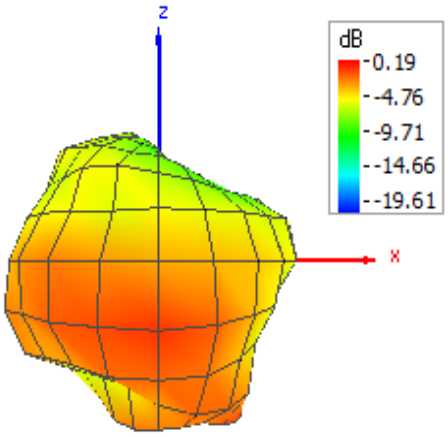
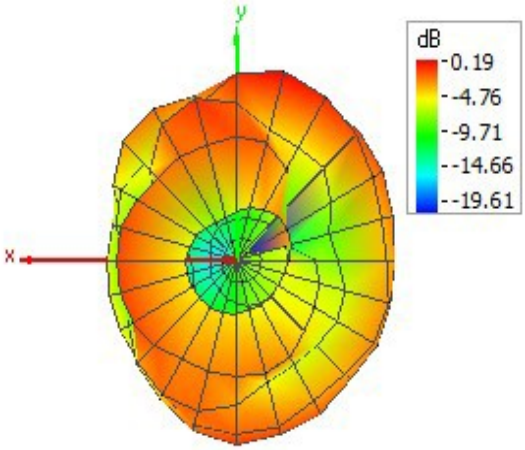


Theta = 90, Phi = 270



Theta = 180, Phi = 0



2450 MHz 3D

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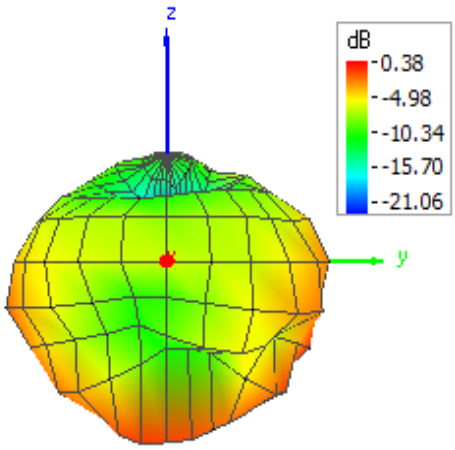

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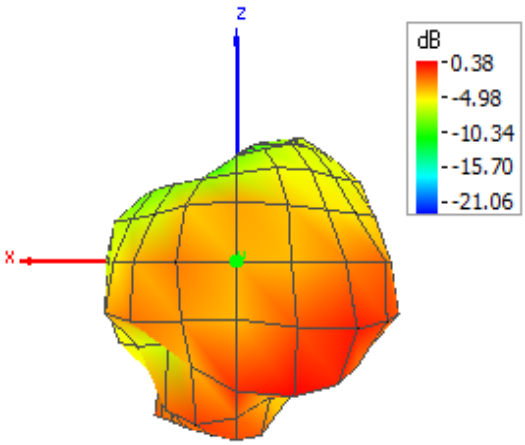

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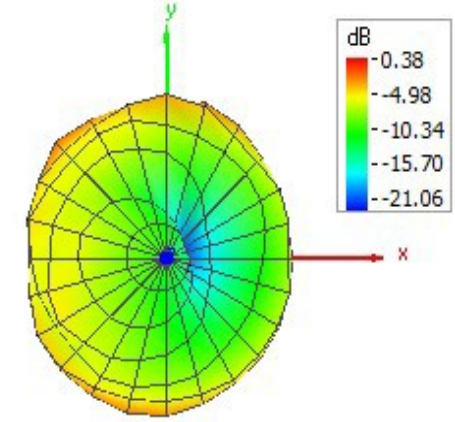

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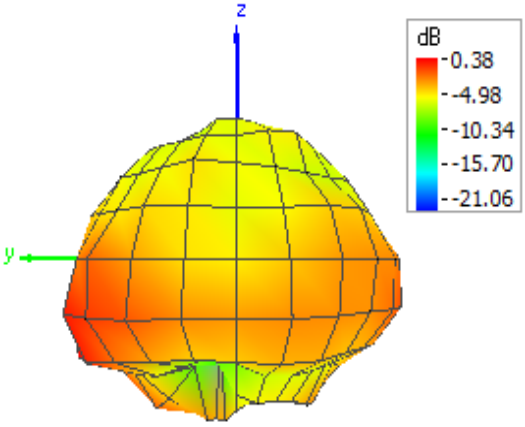

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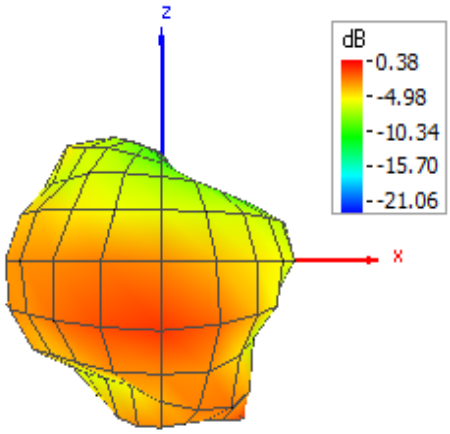

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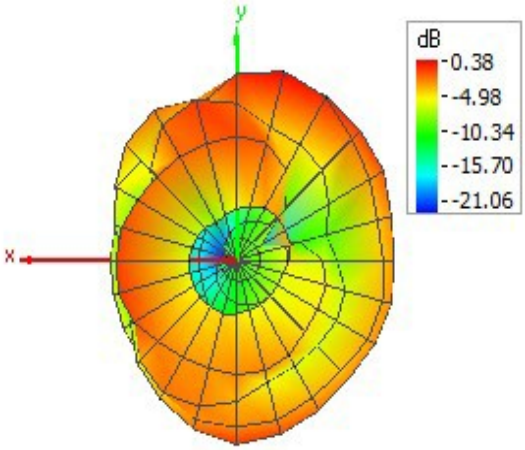

2500 MHz 3D

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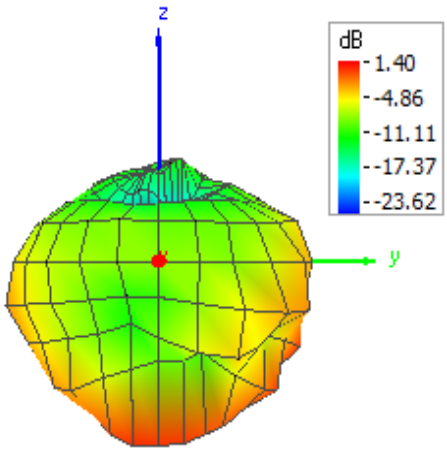

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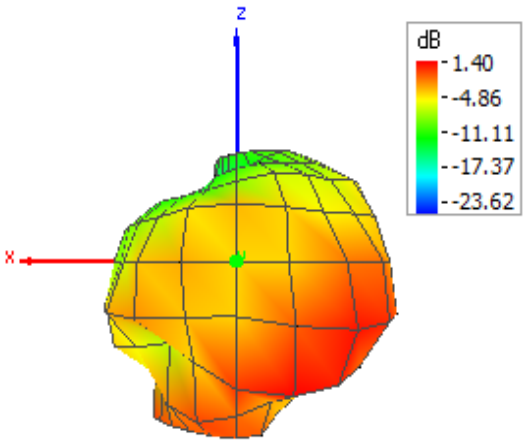
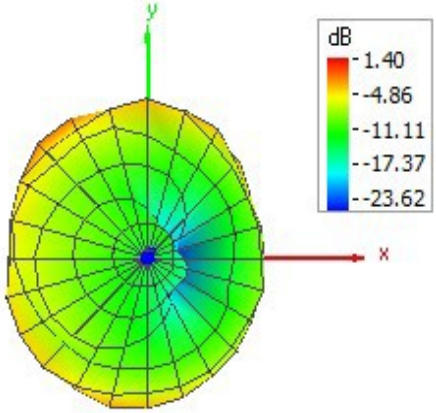


Theta = 0, Phi = 0



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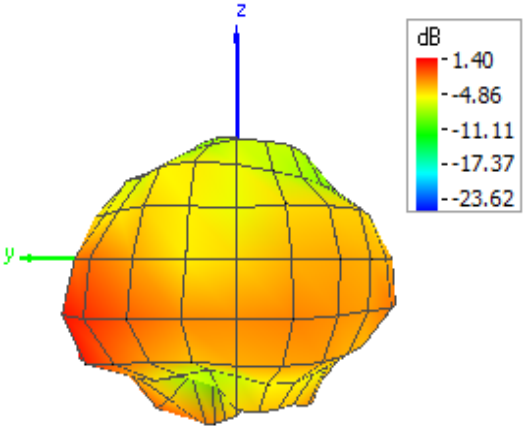
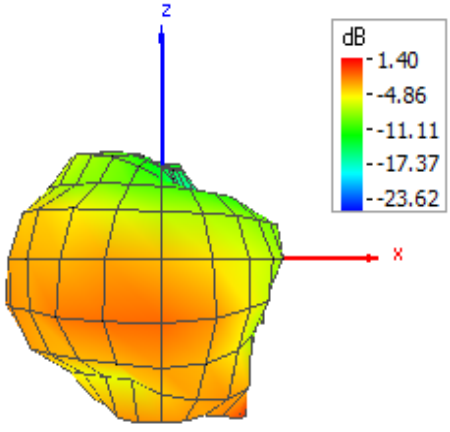


Theta = 90, Phi = 270



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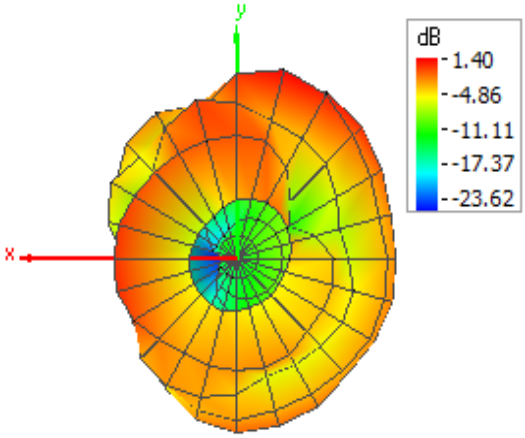
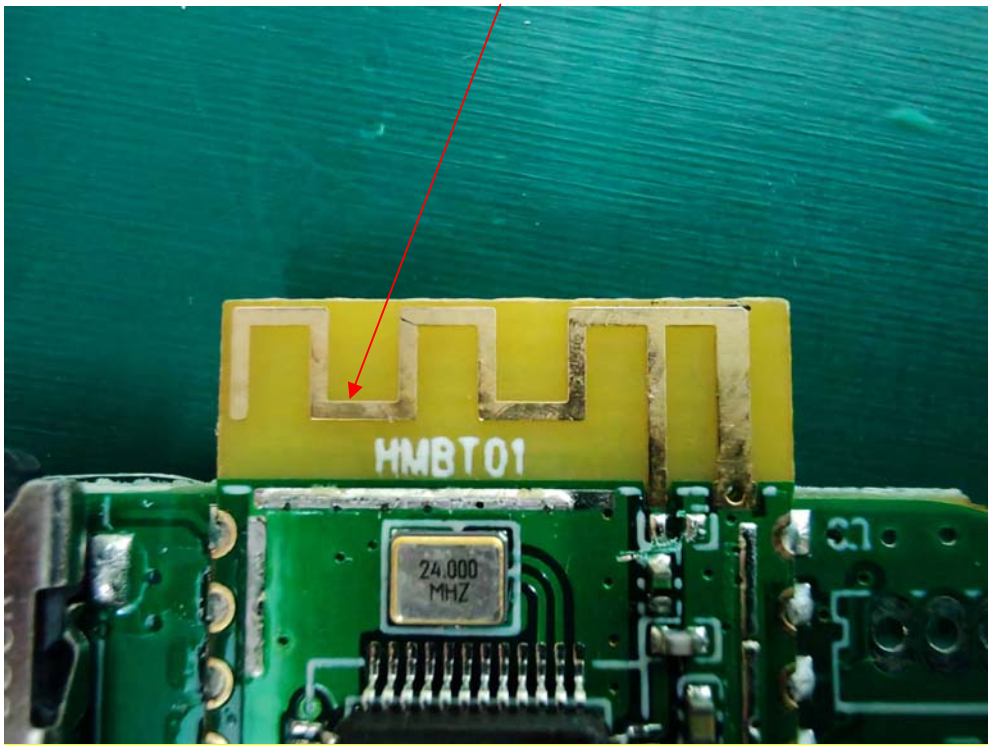
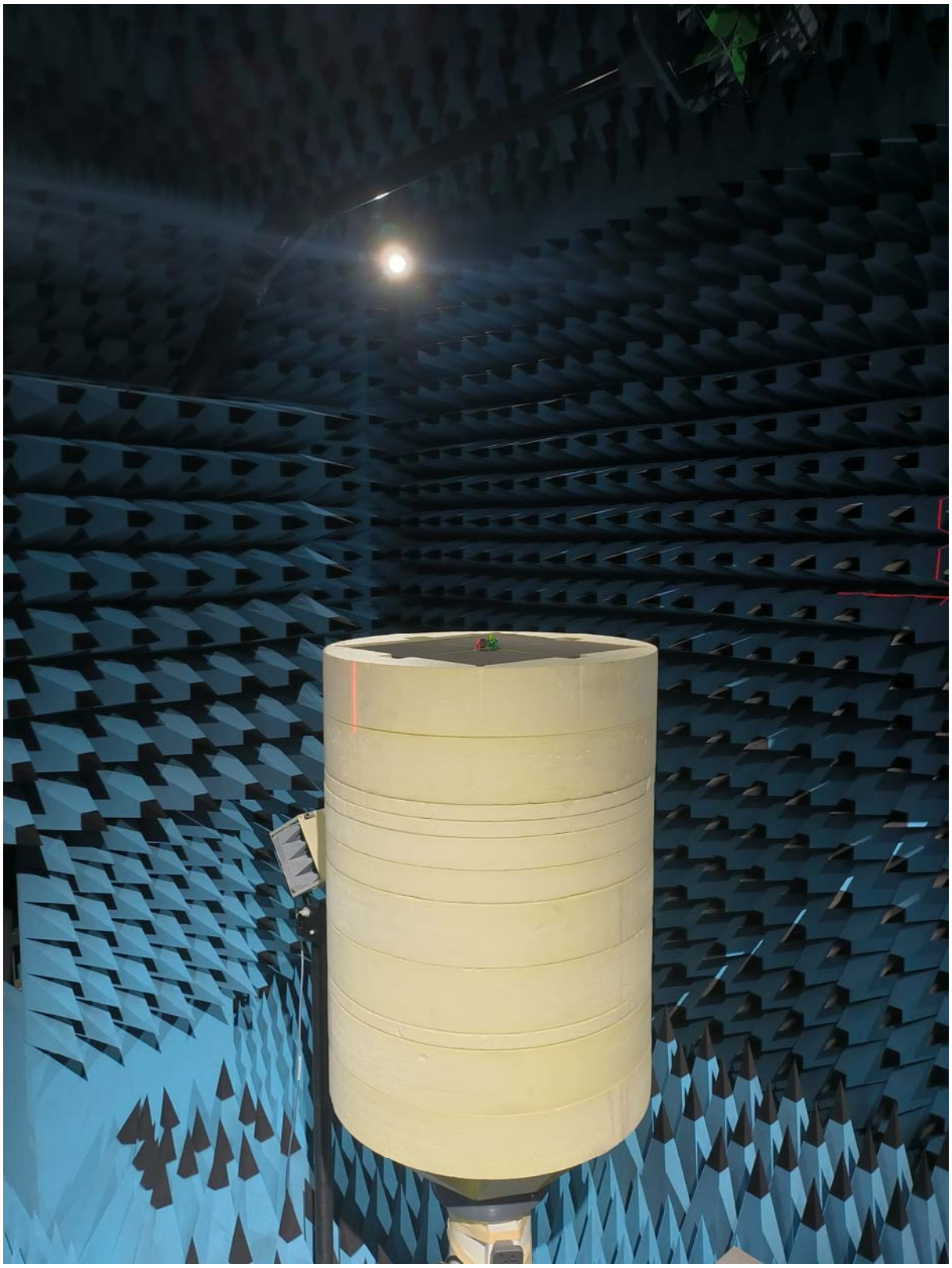


4. EUT PHOTOGRAPHS

Antenna



5. TEST SETUP PHOTOGRAPHS



===== END OF REPORT =====