



中认信通

CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)

ANTENNA TEST REPORT

Manufacturer: Imaginastix Pty Ltd

Address: 57 Crawshaw Cr, Manning, Australia

Product Name: 2.4 GHz PCB antenna

Product Model: BLE-TAG-ANT

Report Number: 2503U13144E-RF

Date Of Issue: 2025/6/23

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.cctft.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.

This report cannot be reproduced except in full, without prior written approval of the Company.

This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

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	4
1. GENERAL INFORMATION	5
2. TEST CONFIGURATIONS	6
2.1 TEST ENVIRONMENT	6
2.2 TEST EQUIPMENT	6
2.3 TEST SPECIFICATION.....	6
2.4 TEST UNCERTAINTY	6
2.5 TEST MEASUREMENT SYSTEM	7
2.6 TEST SETUP	7
2.6.1 Antenna Gain, Efficiency and Radiation Pattern Test Setup	7
3. TEST RESULTS	8
3.1 GAIN AND EFFICIENCY	8
3.2 RADIATION PATTERN	9
4. EUT PHOTOGRAPHS	15

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2503U13144E-RF	Original Report	2025/6/23

1. GENERAL INFORMATION

Product Name:	2.4 GHz PCB antenna
Product Model:	BLE-TAG-ANT
Antenna Type:	PCB
Test Items:	Gain; Efficiency; Radiation Pattern
Test Frequency (MHz):	2400, 2440, 2480
Sample Number:	34VM-1
EUT Received Date:	2025/6/18
EUT Received Status:	Good

2. TEST CONFIGURATIONS

2.1 Test Environment

Temperature (°C)	26.2
Humidity (%RH)	56.1
Atmospheric Pressure (kPa)	100.2
Tester	Leo Li
Test Date	2025/6/20

2.2 Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibrate Due Date
R&S	Vector Network Analyzer	ZNB-8	1311601044104250	2025/2/10	2026/2/9
R&S	Cross-Pol.Vivaldi-ANT	TC-TA18	200256	N/A	N/A
R&S	Switch Controller	OSP320	1528.3111K02\101442	N/A	N/A
R&S	Switch Controller	OSP320	1528.3105K03\101666	N/A	N/A
maturio	Turntable controllers	NCD/536/3082..01	N/A	N/A	N/A
R&S	Test Software	AMS32	11.40.00	N/A	N/A
R&S	Test System	TS8991	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

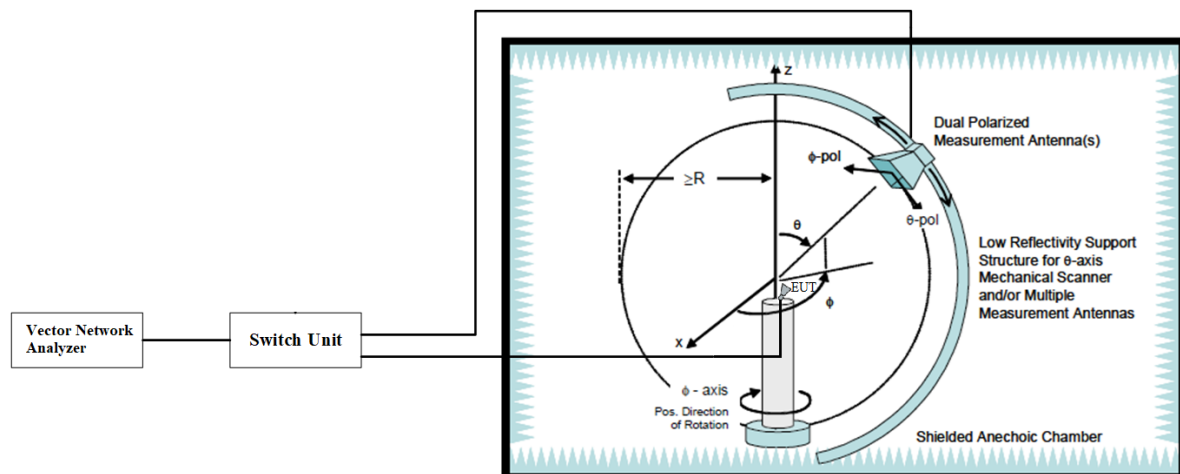
2.5 Test Measurement System

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

ANT1:

Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)
2400.00	21.90	0.99
2440.00	31.94	3.03
2480.00	37.90	3.96

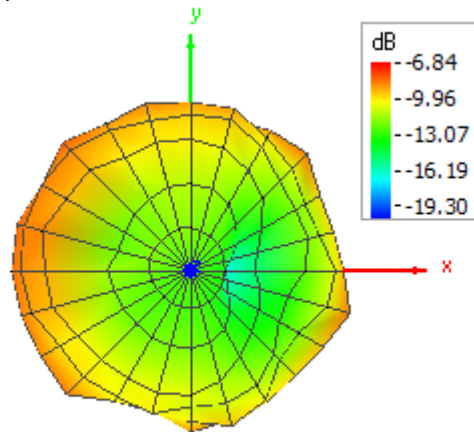
ANT2:

Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)
2400.00	10.96	-6.84
2440.00	13.41	-5.11
2480.00	21.51	-3.10

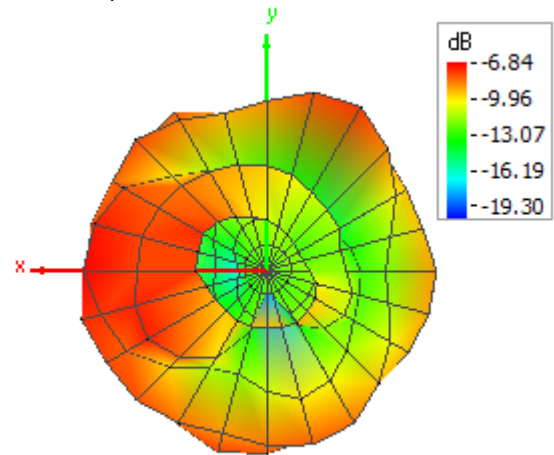
3.2 Radiation Pattern ANT2

2400 MHz 3D

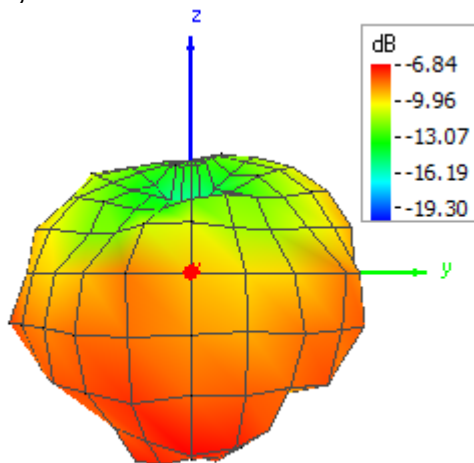
Theta = 0, Phi = 0



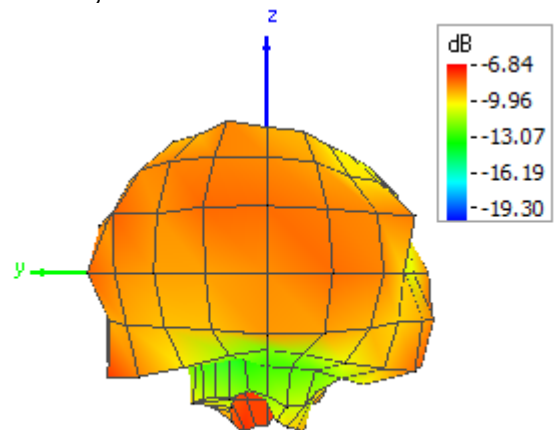
Theta = 180, Phi = 0



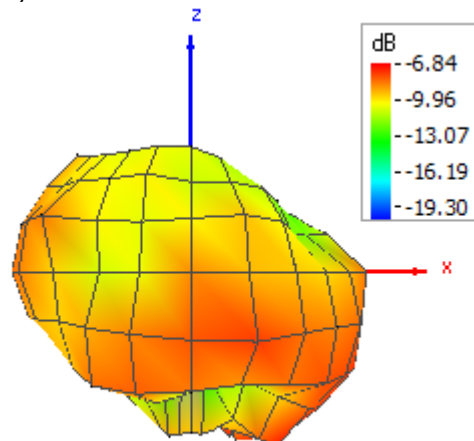
Theta = 90, Phi = 0



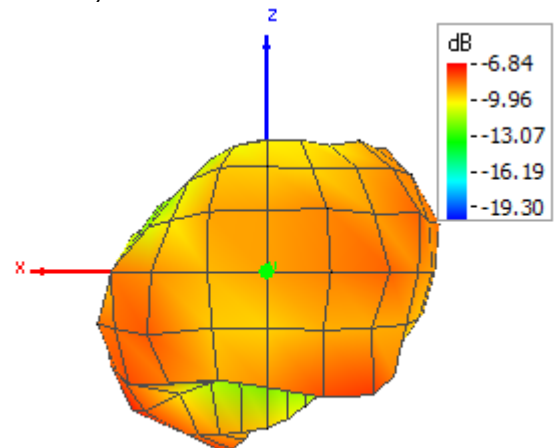
Theta = 90, Phi = 180



Theta = 90, Phi = 270

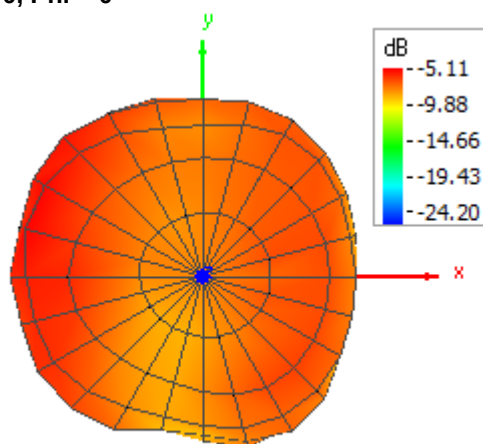


Theta = 90, Phi = 90

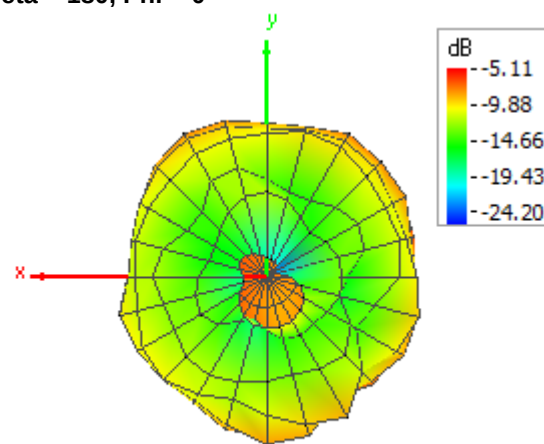


2440 MHz 3D

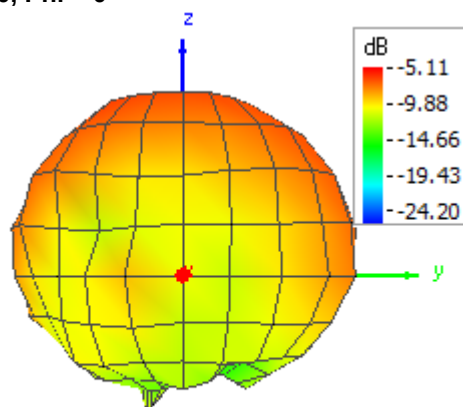
Theta = 0, Phi = 0



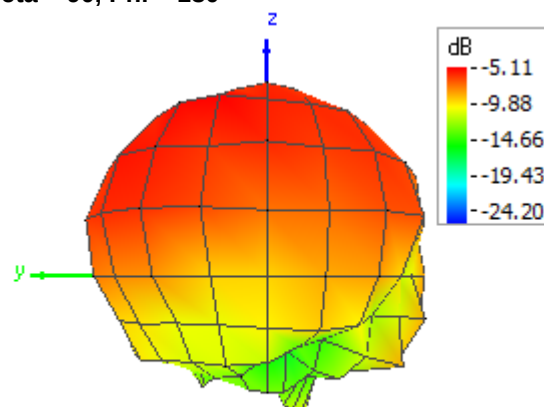
Theta = 180, Phi = 0



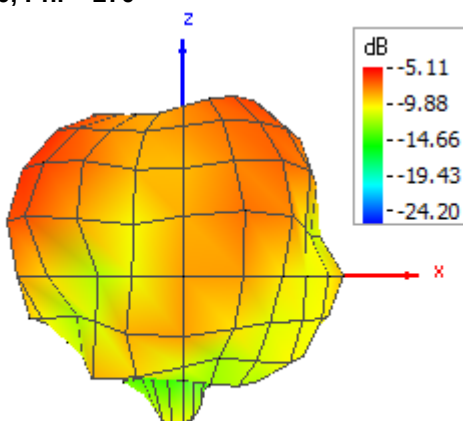
Theta = 90, Phi = 0



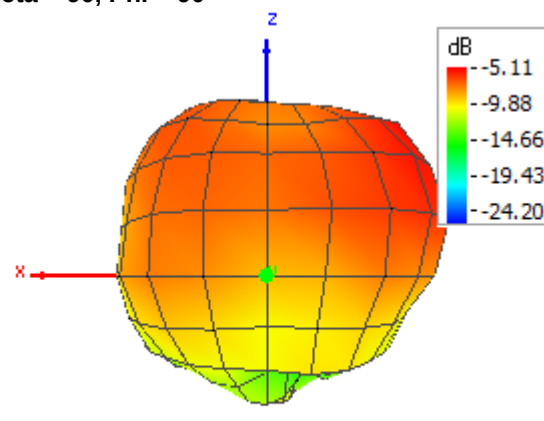
Theta = 90, Phi = 180



Theta = 90, Phi = 270

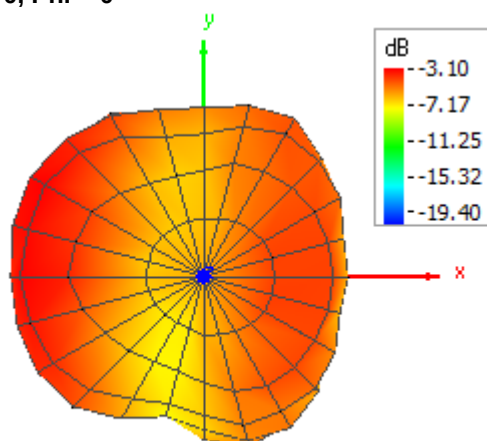


Theta = 90, Phi = 90

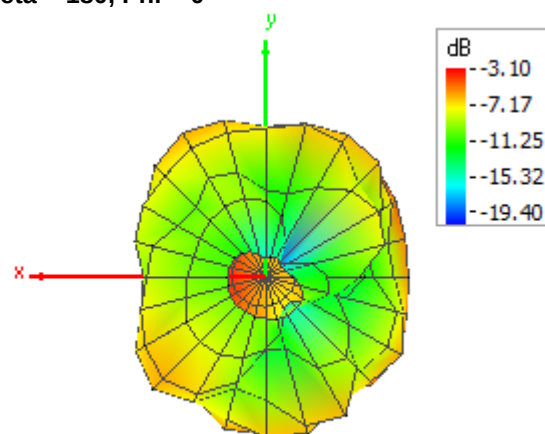


2480 MHz 3D

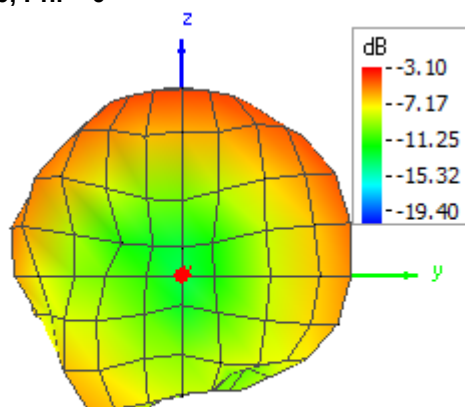
Theta = 0, Phi = 0



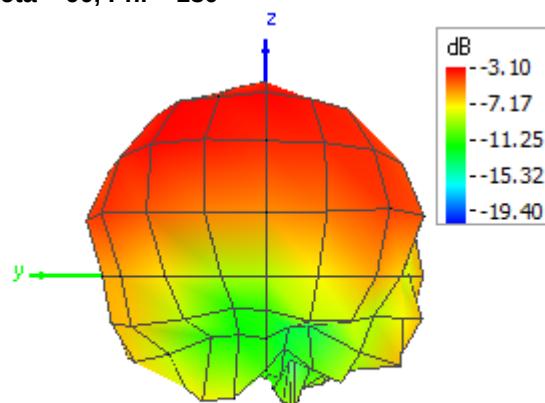
Theta = 180, Phi = 0



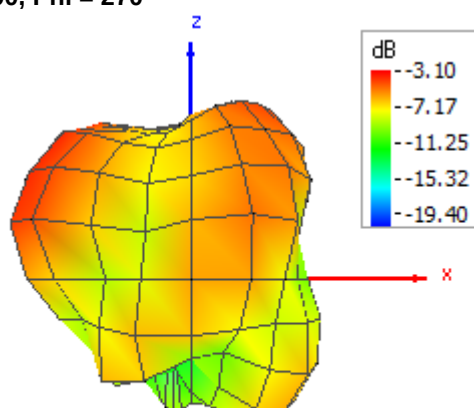
Theta = 90, Phi = 0



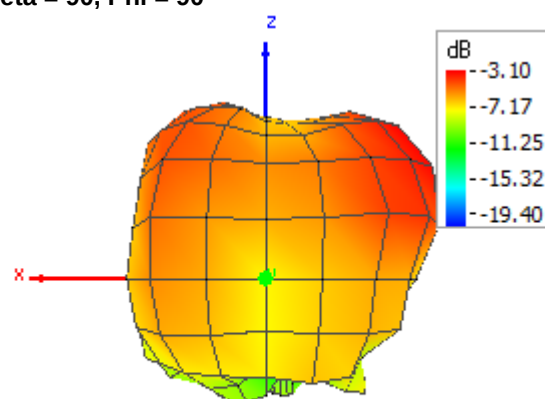
Theta = 90, Phi = 180



Theta = 90, Phi = 270

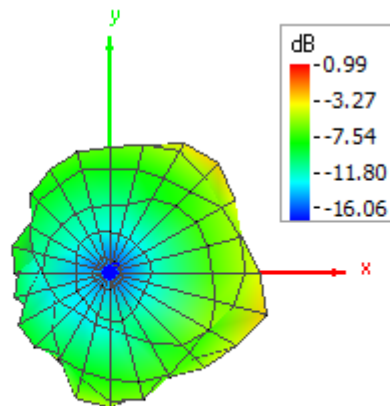


Theta = 90, Phi = 90

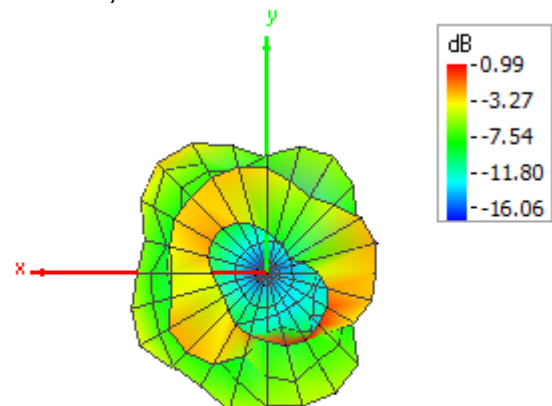


ANT1**2400 MHz 3D**

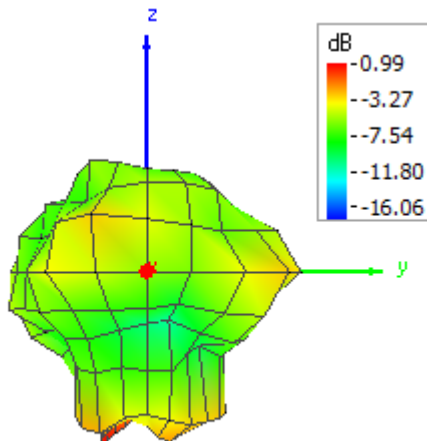
Theta = 0, Phi = 0



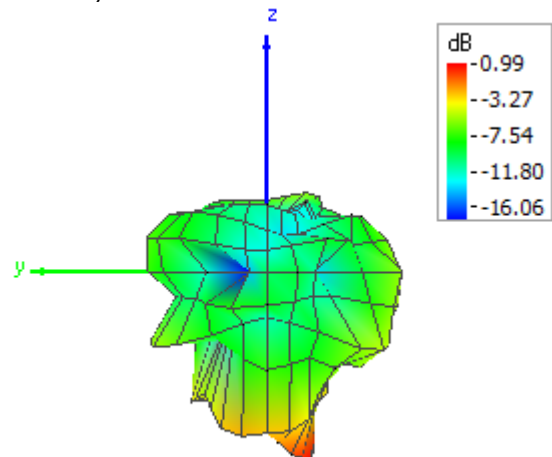
Theta = 180, Phi = 0



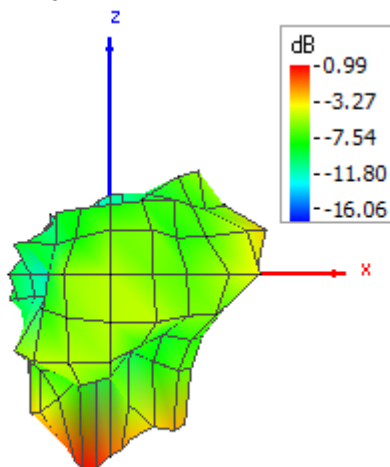
Theta = 90, Phi = 0



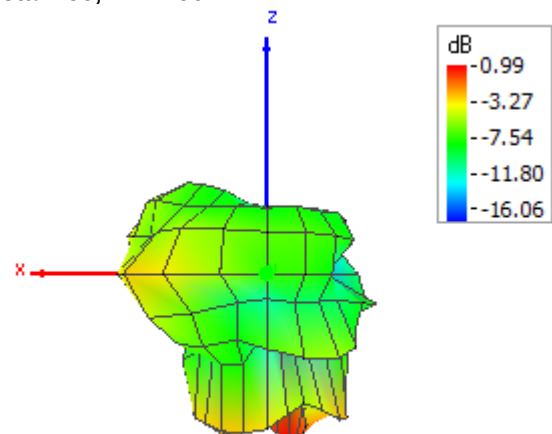
Theta = 90, Phi = 180



Theta = 90, Phi = 270

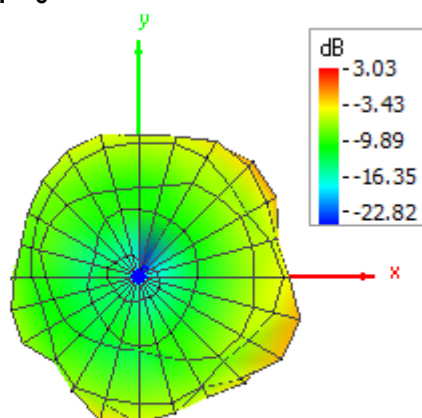


Theta = 90, Phi = 90

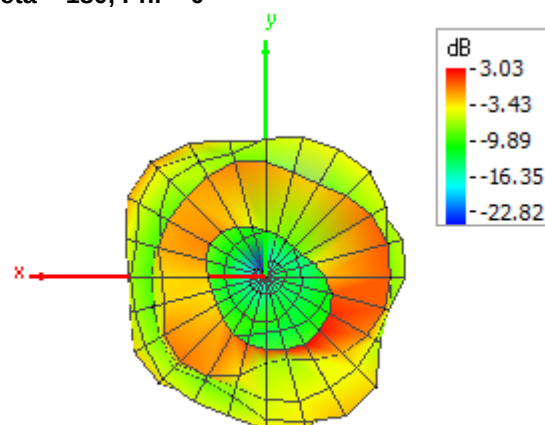


2440 MHz 3D

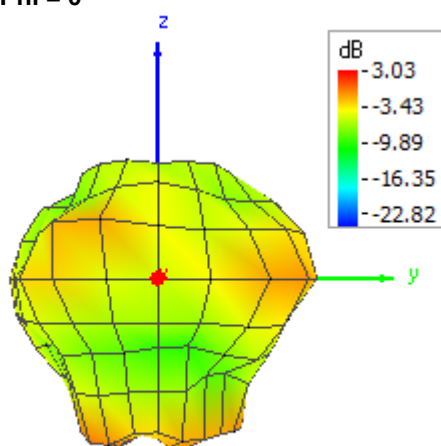
Theta = 0, Phi = 0



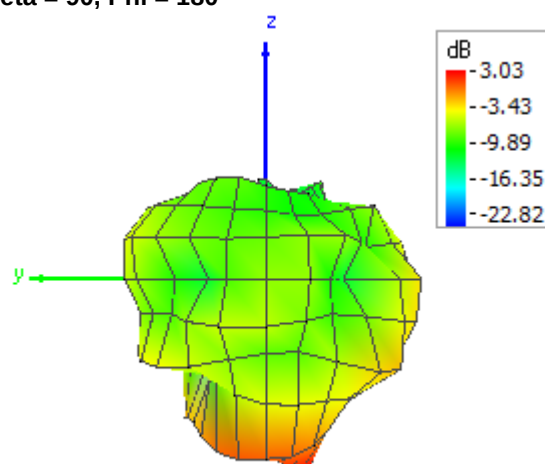
Theta = 180, Phi = 0



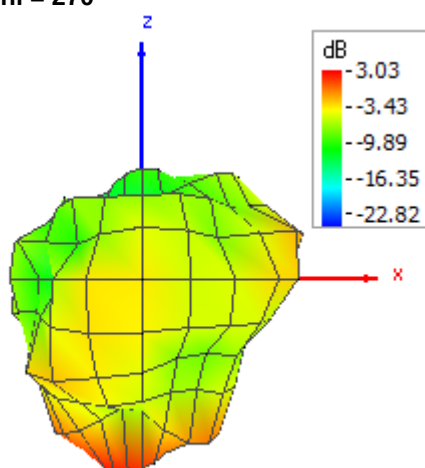
Theta = 90, Phi = 0



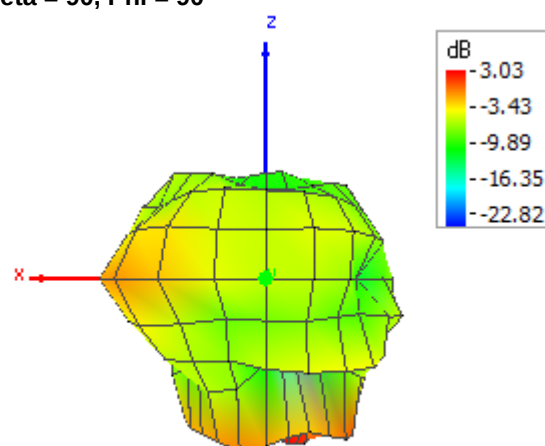
Theta = 90, Phi = 180



Theta = 90, Phi = 270

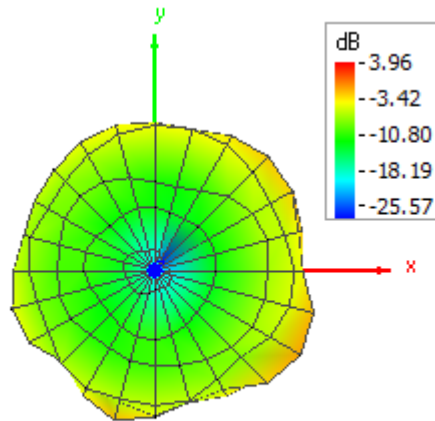


Theta = 90, Phi = 90

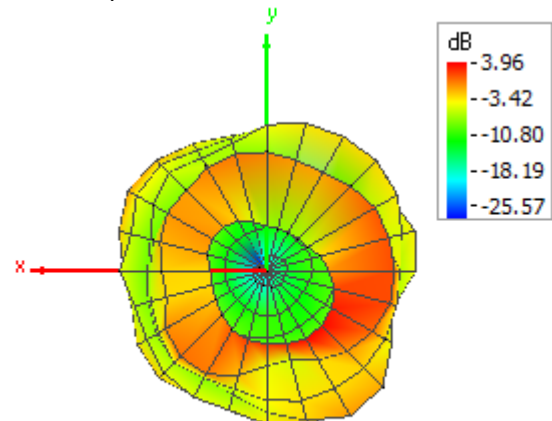


2480 MHz 3D

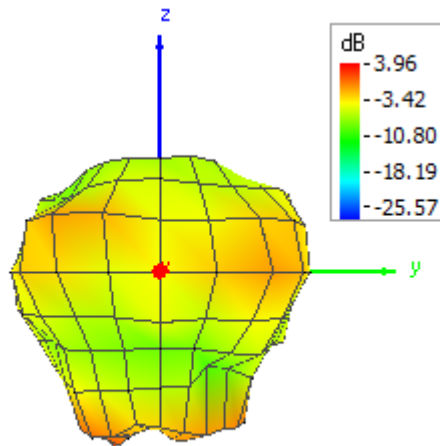
Theta = 0, Phi = 0



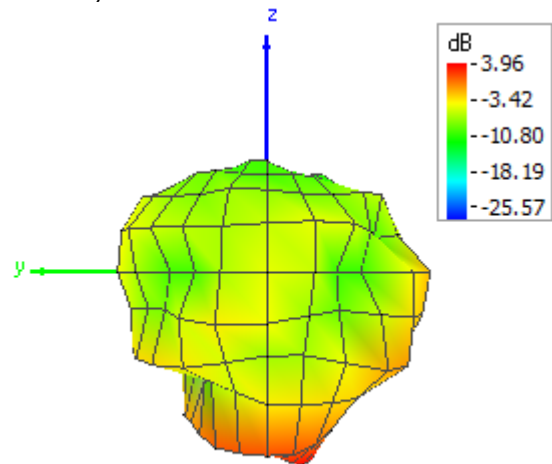
Theta = 180, Phi = 0



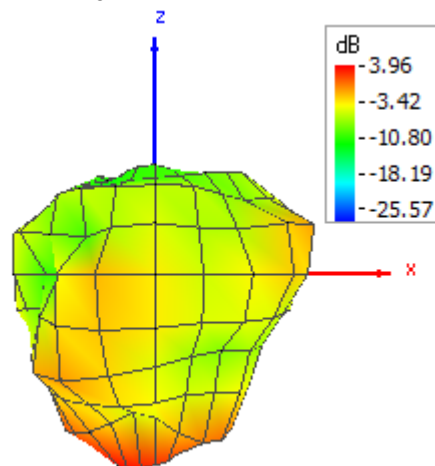
Theta = 90, Phi = 0



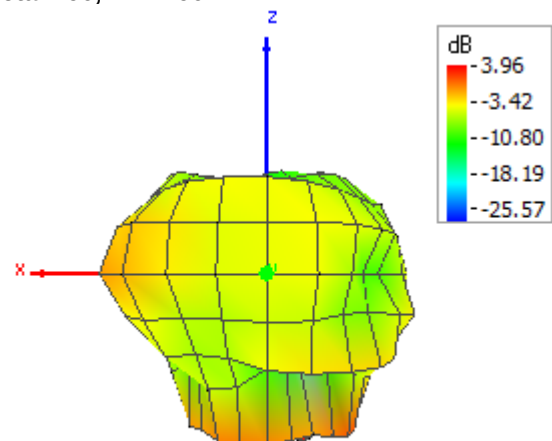
Theta = 90, Phi = 180



Theta = 90, Phi = 270

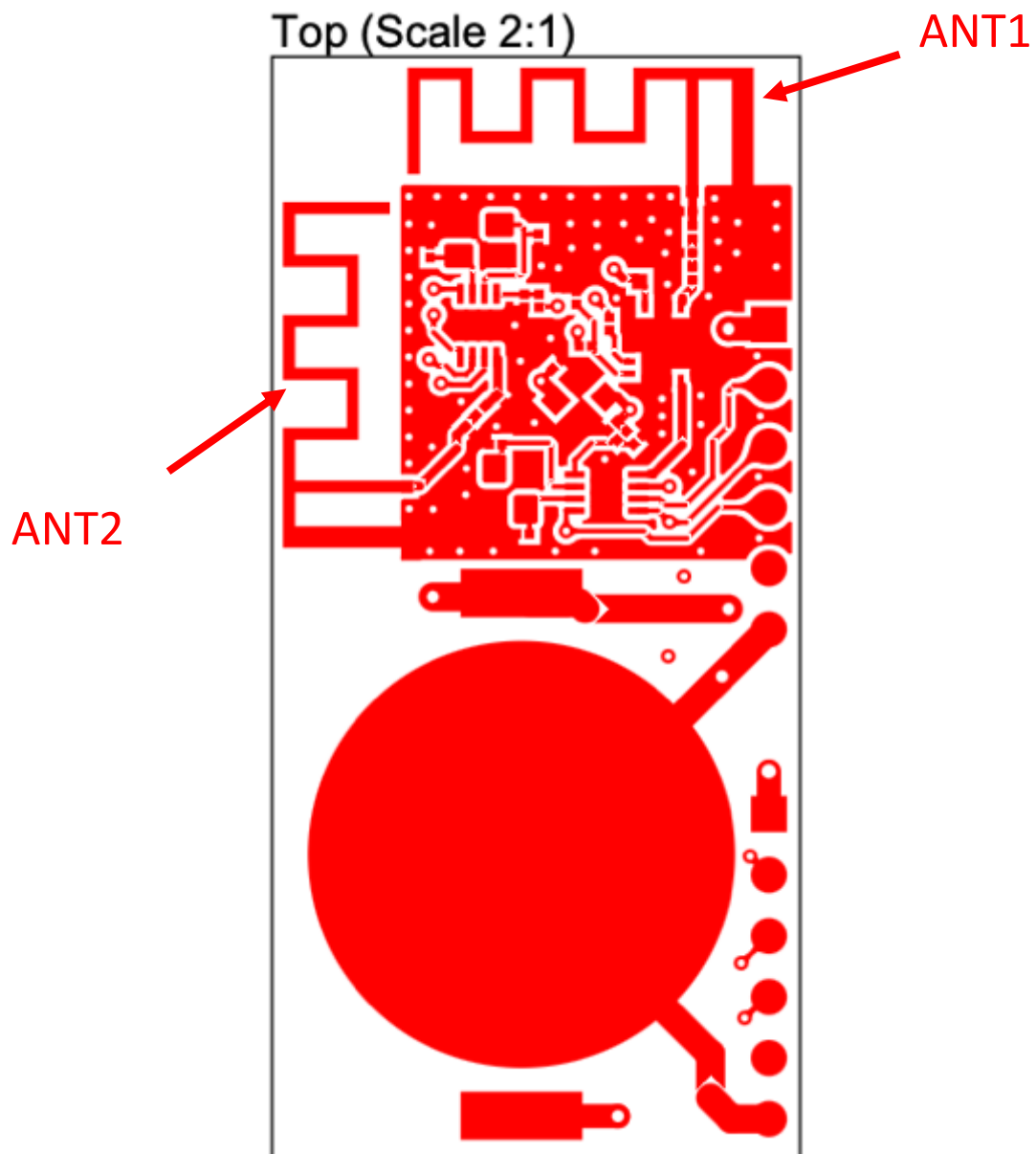


Theta = 90, Phi = 90



4. EUT PHOTOGRAPHS

ANT



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