# OTA TEST REPORT

| | |
|---|---|
| **Applicant** | Shanghai High-Flying Electronics Technology Co., Ltd |
| **Product** | Low Power 2.4GWi-Fi6 + BLE Module |
| **Model** | HF-LPT6200 |
| **Report No.** | Y2211A1164-T1 |
| **Issue Date** | January 9, 2023 |

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **ANSI/IEEE Std 149-2021.** The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

*Prepared by: Xu Ying* *Approved by: Xu Kai*


**TA Technology (Shanghai) Co., Ltd.**

*Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China*
*TEL: +86-021-50791141/2/3*
*FAX: +86-021-50791141/2/3-8000*

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# 1. Test Laboratory

## 1.1. Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

## 1.2. Test facility

**A2LA (Certificate Number: 3857.01)**

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

## 1.3. Testing Location

| | |
|---|---|
| Company: | TA Technology (Shanghai) Co., Ltd. |
| Address: | Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China |
| City: | Shanghai |
| Post code: | 201201 |
| Country: | P. R. China |
| Contact: | Xu Kai |
| Telephone: | +86-021-50791141/2/3 |
| Fax: | +86-021-50791141/2/3-8000 |
| Website: | http://www.ta-shanghai.com |
| E-mail: | xukai@ta-shanghai.com |

## 1.4. Laboratory Environment

| | | |
|---|---|---|
| Temperature | Min. =19℃, Max. = 25℃ | |
| Relative humidity | Min. =40%, Max. =72% | |
| Shield effect | 0.7-6GHz | > 100dB |
| Ground resistance | <0.5Ω | |

# 2. General Description of Equipment under Test

## 2.1. Applicant and Manufacturer Information

| | |
|---|---|
| **Applicant Name** | Shanghai High-Flying Electronics Technology Co., Ltd |
| **Applicant address** | Building 17, No.1500 Zu Chongzhi Road,Pudong District, 201203, Shanghai, China |
| **Manufacturer Name** | Shanghai High-Flying Electronics Technology Co., Ltd |
| **Manufacturer address** | Building 17, No.1500 Zu Chongzhi Road,Pudong District, 201203, Shanghai, China |

## 2.2. General information

| EUT Description | |
|---|---|
| Product Name: | Low Power 2.4GWi-Fi6 + BLE Module |
| Model | HF-LPT262 |
| HW Version: | V2.0 |
| SW Version: | V1.0 |
| Antenna Type: | Internal Antenna |
| Antenna Manufacturer: | Shanghai High-Flying Electronics Technology Co., Ltd |
| Test Frequency: | 2400MHz ~ 2450MHz |
| Note: The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.<br>All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. | |

## 2.3. Test Date

The test is performed on November 25, 2022.

## 2.4. Received Date

The sample was received on November 14, 2022.

## 2.5. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test Method: **ANSI/IEEE Std 149-2021**

# 3. Test Conditions

## 3.1. Test Configuration

Great-Circle-Cut method is used to measure the antenna 3D GAIN of EUT in OTA qualified anechoic chamber. Equipment Under Test (EUT) geometry centre vertical projection at the centre of platform, the distance from EUT to measurement antenna is 5m.

## 3.2. Test Measurement

**Spherical coordinate system**

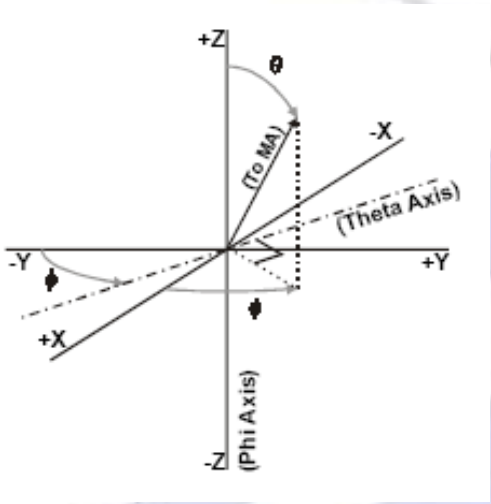
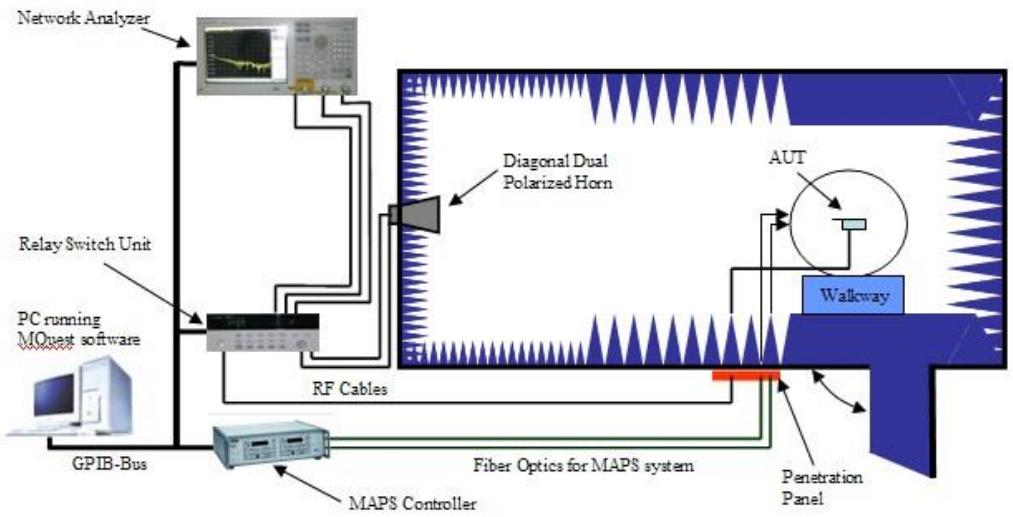



Figure 1 Test coordinate system

Note: Theta is from 0~180 degree. Phi is from 0~360. Rotate the EUT and record the Data, the step of rotation is 15 degree.

**Test Setup**



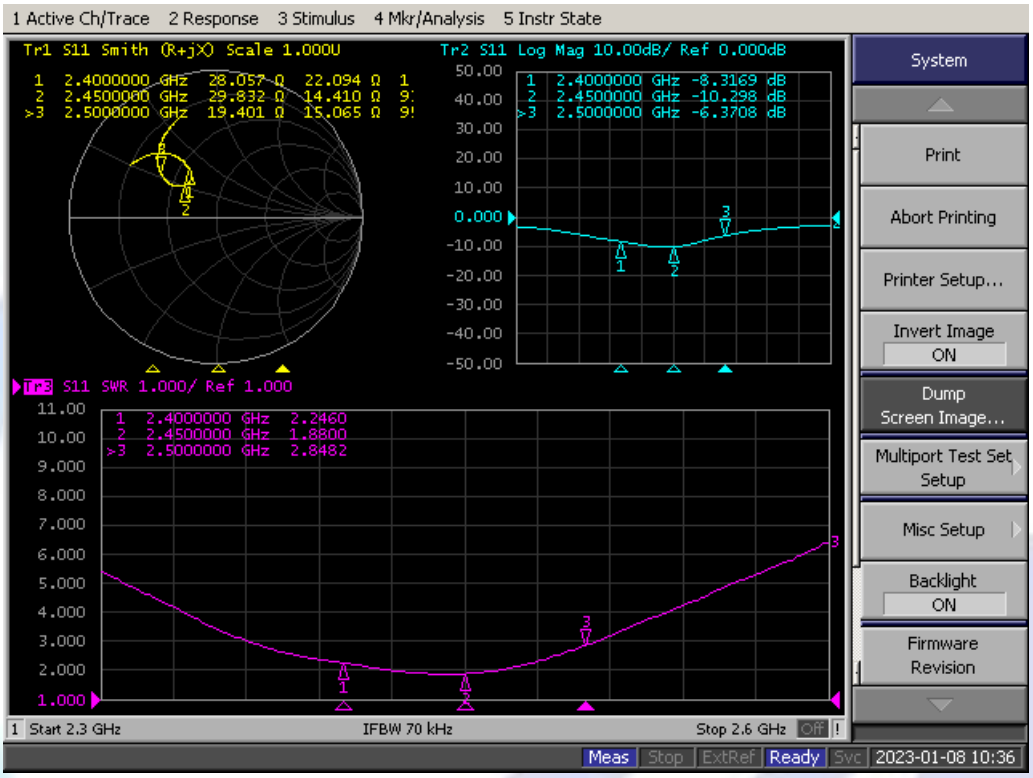
# 4. Test Results

## 4.1. Gain and Efficiency

| Test State | Frequency (MHz) | Efficiency (%) | Gain (dBi) | directivity |
|---|---|---|---|---|
| 自由空间 | 2400 | -2.95 | 1 | 5.65 |
| | 2402 | -2.89 | 1 | 5.61 |
| | 2404 | -2.77 | 1 | 5.88 |
| | 2406 | -2.76 | 1 | 5.67 |
| | 2408 | -2.81 | 0.99 | 5.83 |
| | 2410 | -2.76 | 0.99 | 5.99 |
| | 2412 | -2.80 | 0.99 | 6.11 |
| | 2414 | -2.79 | 0.98 | 5.93 |
| | 2416 | -2.80 | 0.97 | 6.08 |
| | 2418 | -2.89 | 0.96 | 6.20 |
| | 2420 | -2.82 | 0.98 | 6.17 |
| | 2422 | -2.77 | 0.96 | 6.17 |
| | 2424 | -2.77 | 0.96 | 6.24 |
| | 2426 | -2.80 | 0.97 | 6.57 |
| | 2428 | -2.77 | 1 | 6.38 |
| | 2430 | -2.72 | 0.56 | 6.26 |
| | 2432 | -2.76 | 0.78 | 6.25 |
| | 2434 | -2.80 | 0.93 | 6.50 |
| | 2436 | -2.86 | 0.78 | 6.59 |
| | 2438 | -2.87 | 0.91 | 6.35 |
| | 2440 | -2.86 | 0.78 | 6.55 |
| | 2442 | -2.85 | 0.94 | 6.60 |
| | 2444 | -2.81 | 0.78 | 6.56 |
| | 2446 | -2.79 | 0.95 | 6.50 |
| | 2448 | -2.72 | 1 | 6.62 |
| | 2450 | -2.72 | 1 | 6.57 |
| | 2452 | -2.70 | 0.78 | 6.46 |
| | 2454 | -2.66 | 0.85 | 6.52 |
| | 2456 | -2.63 | 0.99 | 6.62 |
| | 2458 | -2.64 | 0.90 | 6.54 |
| | 2460 | -2.66 | 0.99 | 6.65 |
| | 2462 | -2.70 | 0.83 | 6.52 |
| | 2464 | -2.64 | 0.98 | 6.62 |

| | | | | |
|---|---|---|---|---|
| | 2466 | -2.66 | 0.75 | 6.41 |
| | 2468 | -2.76 | 0.68 | 6.44 |
| | 2470 | -2.84 | 0.74 | 6.57 |
| | 2472 | -2.86 | 0.65 | 6.51 |
| | 2474 | -2.84 | 0.65 | 6.48 |
| | 2476 | -2.86 | 0.68 | 6.54 |
| | 2478 | -2.90 | 0.70 | 6.60 |
| | 2480 | -2.85 | 0.58 | 6.42 |
| | 2482 | -2.85 | 0.78 | 6.63 |
| | 2484 | -2.84 | 0.50 | 6.34 |
| | 2486 | -2.97 | 0.52 | 6.48 |
| | 2488 | -2.99 | 0.29 | 6.28 |
| | 2490 | -3.05 | 0.59 | 6.64 |
| | 2492 | -3.06 | 0.26 | 6.32 |
| | 2494 | -3.13 | 0.26 | 6.39 |
| | 2496 | -3.19 | 0.20 | 6.38 |
| | 2498 | -3.14 | 0.03 | 6.17 |
| | 2500 | -3.14 | 0.19 | 6.33 |

## 4.2. Voltage Standing Wave Ratio (VSWR) & Antenna S11 & Smith Chart



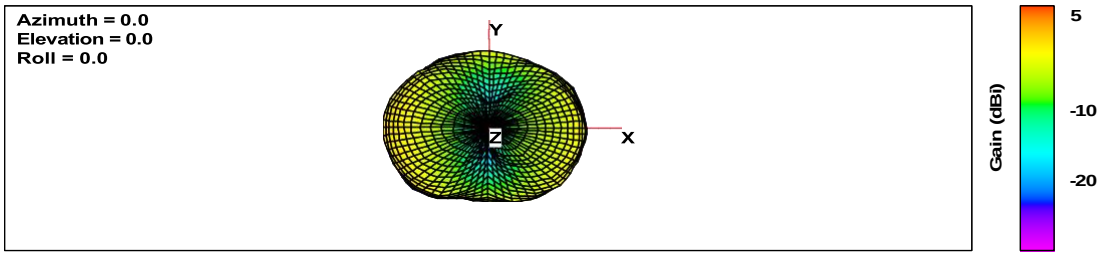

| Frequency (MHz) | 2400 | 2450 | 2500 |
|---|---|---|---|
| VSWR | 2.2460 | 1.8800 | 2.8482 |

# 5. Equipment List

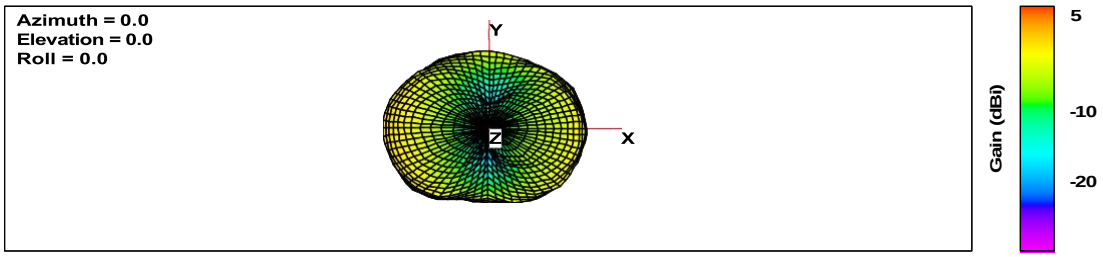
| Type of Equipment | Manufacture | Model Number | S/N | Calibration Date | Expiration Time |
|---|---|---|---|---|---|
| Anechoic Chamber | ETS | AMS-8500 | CT-001157-1219 | 2020-05-17 | 2025-05-16 |
| Test Software | ETS | EMQuest™ | REV 1.0.9 | - | - |
| EMCenter_Switch Control System | ETS | 7006/7001 | 00059957/MY 42001152 | - | - |
| Diagonal Dual Polarized Horn | ETS | ETS 3164-04 | 00062743 | 2020-04-14 | 2025-04-13 |
| Communication TX/RX Antenna on turntable | ETS | taoglas WDMP.2458.A | 100214H000 088A | - | - |
| Network Analyzer | Keysight | E5071B | MY42404014 | 2022-05-14 | 2023-05-13 |

# ANNEX A: 3-D Pattern Plots

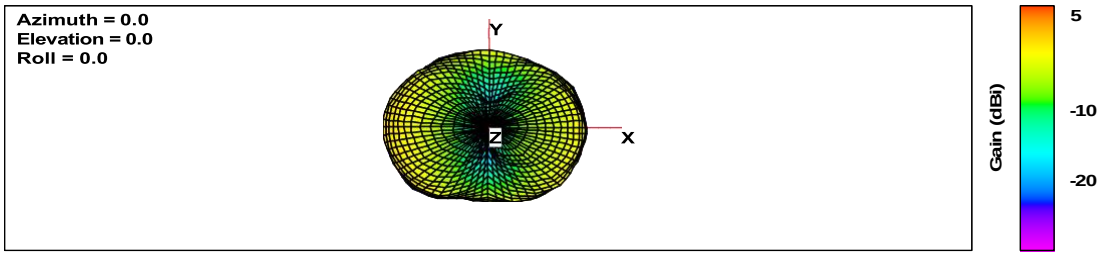
Total



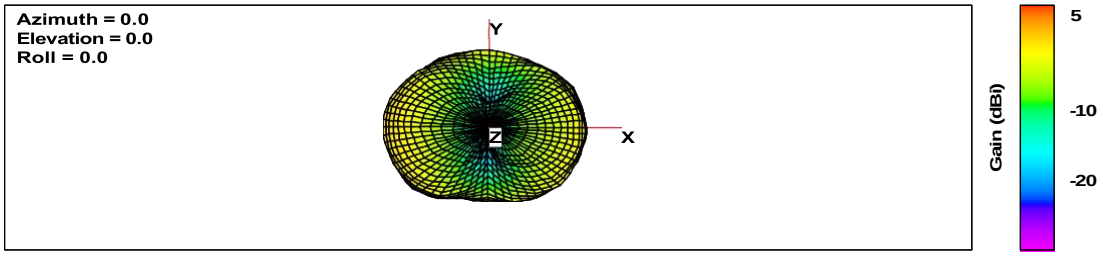

2412 MHz
Total



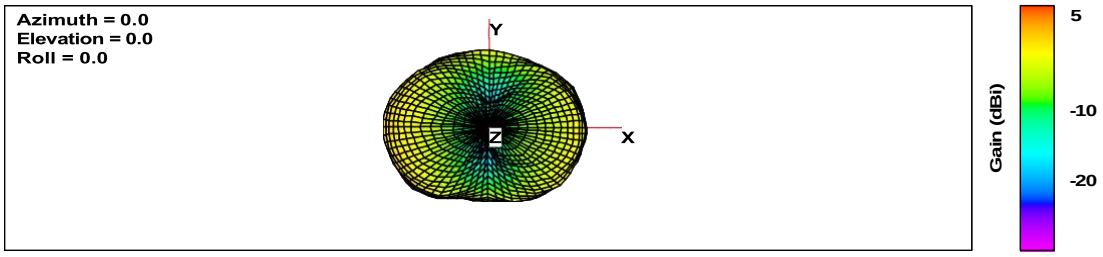

2417 MHz
Total



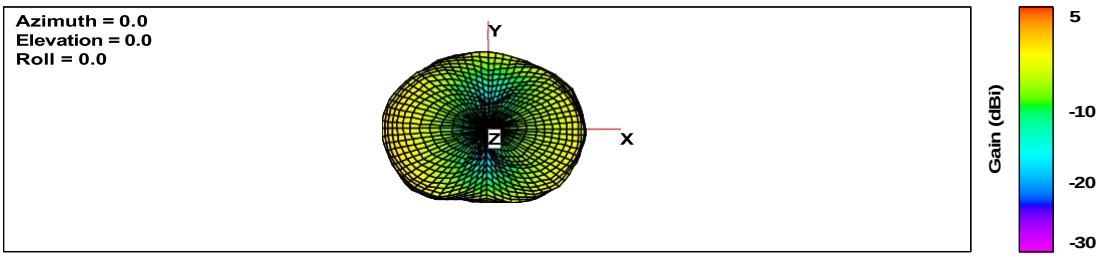

2422 MHz
Total




2427 MHz
Total

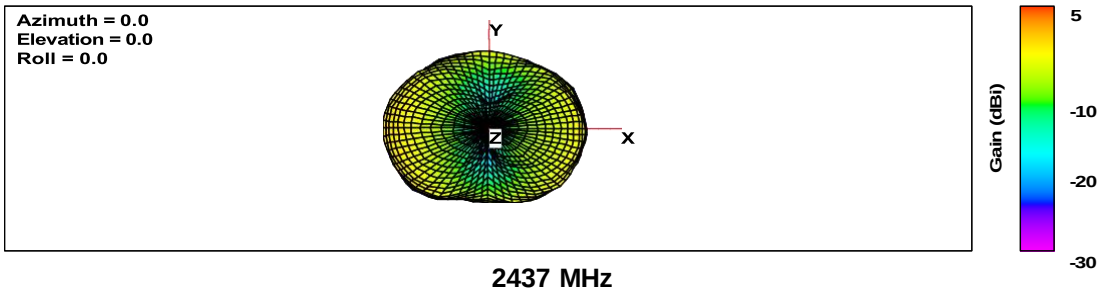



2432 MHz
Total

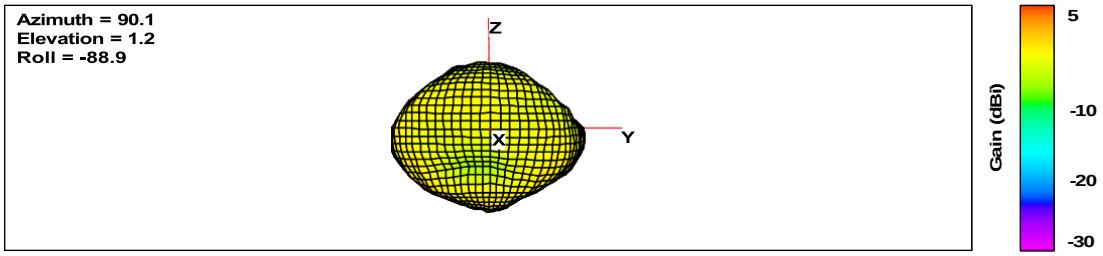



**2432 MHz**
**Total**

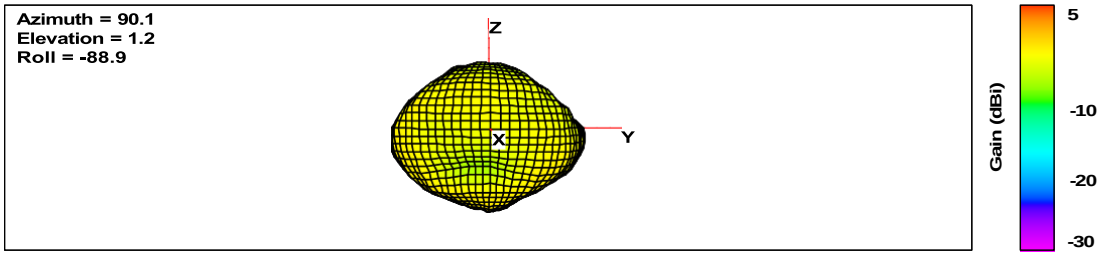
-30



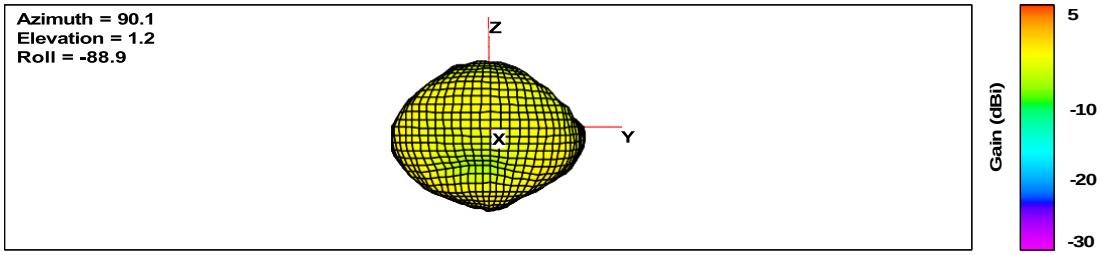

2437 MHz
Total



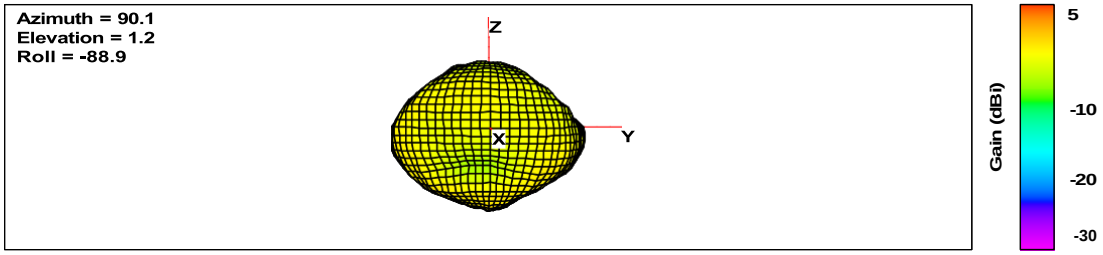

2442 MHz
Total

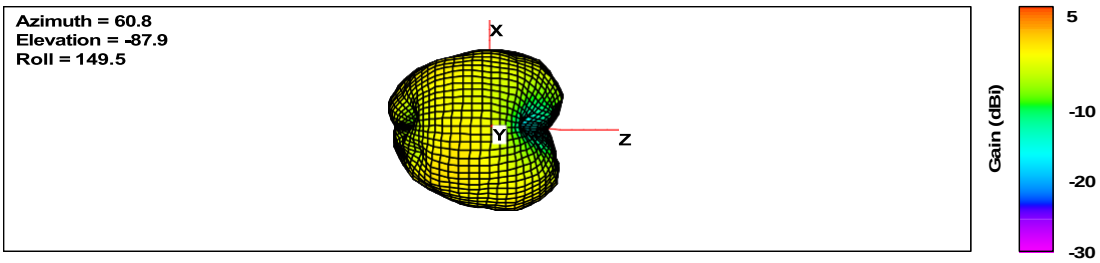



2447 MHz
Total

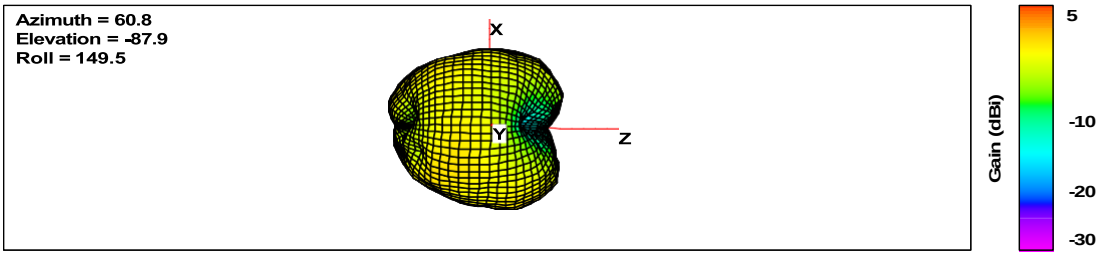



2452 MHz
Total

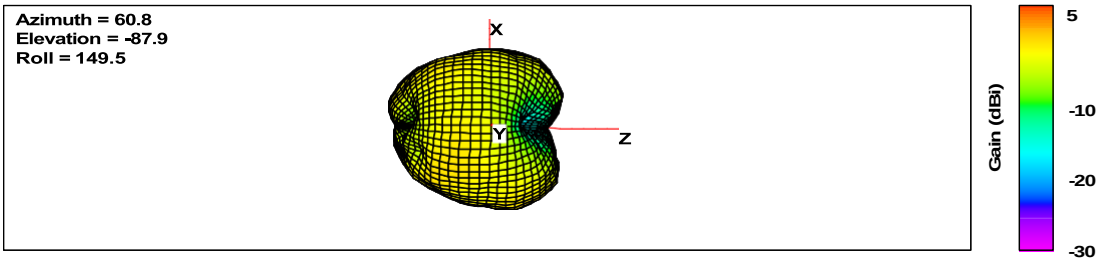




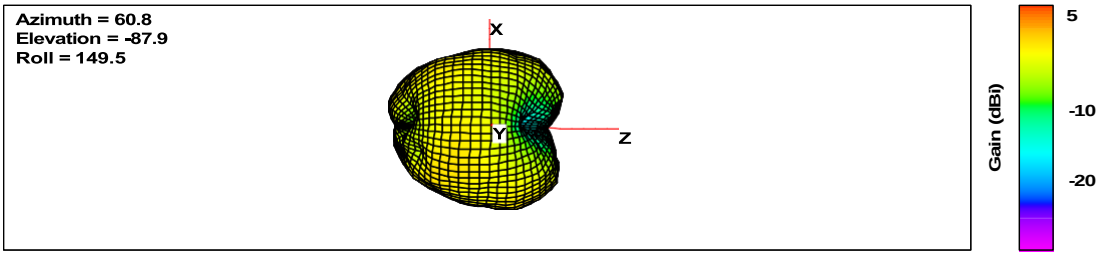

**2457 MHz**
**Total**



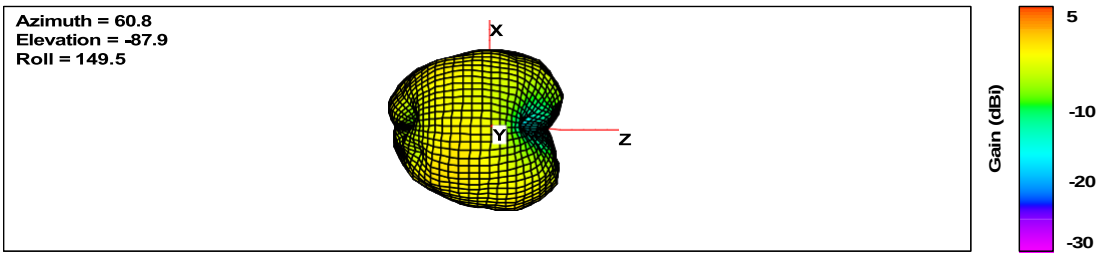

**2462 MHz**
**Total**



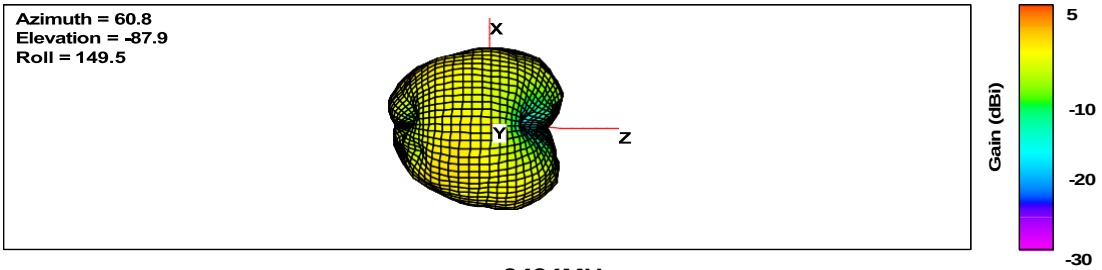

**2467 MHz**
**Total**



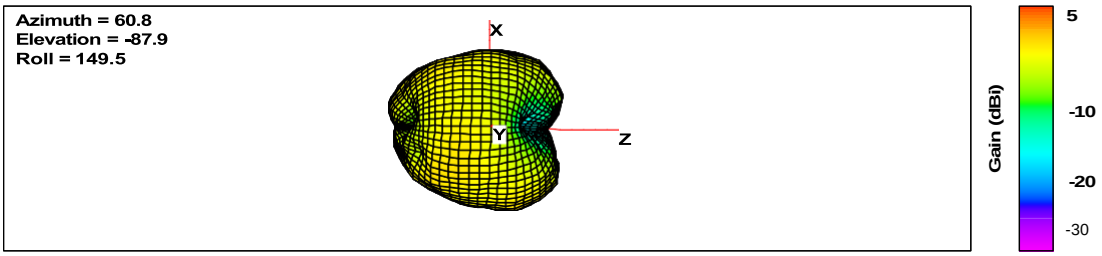

**2472 MHz**
**Tota**




**2477 MHz**
**Tota**



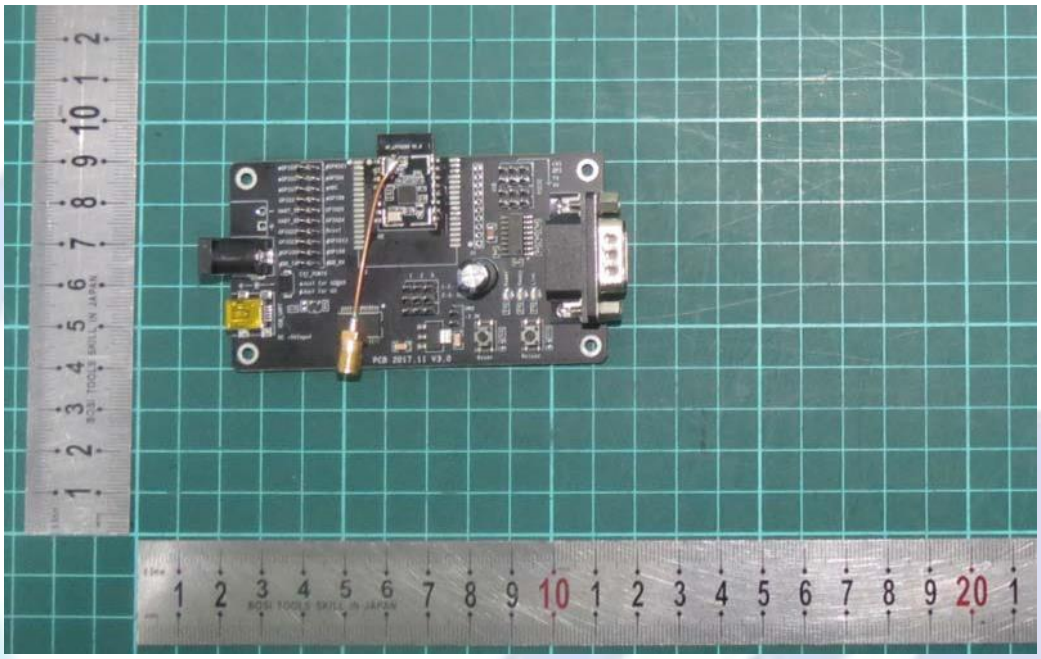

**2484MHz**
**Tota**




**2500 MHz**
**Tota**

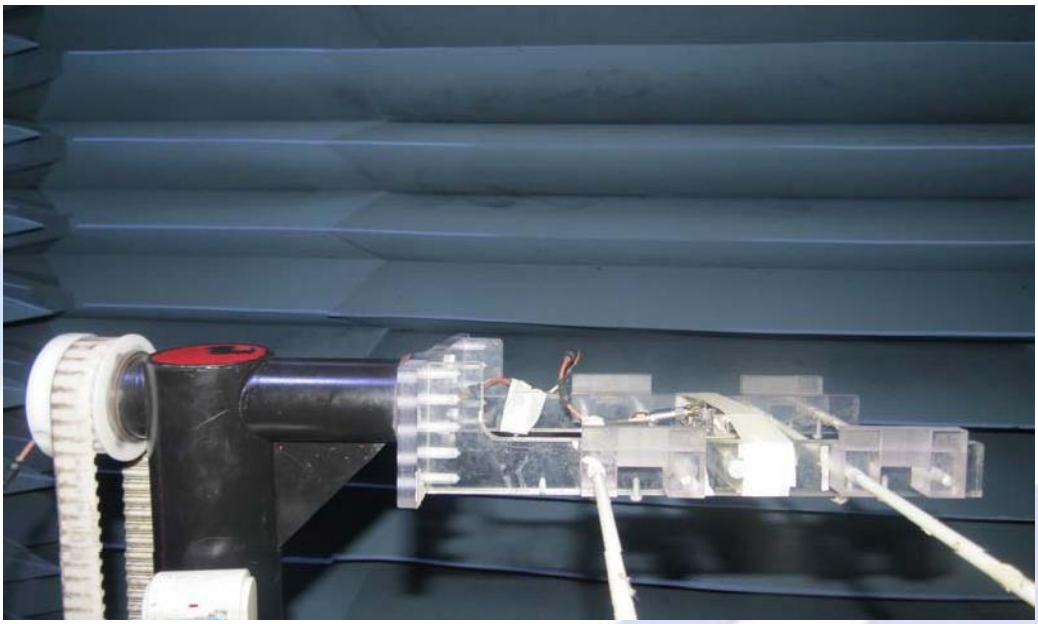
# ANNEX B: The EUT Appearance and Test Configuration

## B.1 EUT Appearance



**Picture 1 Constituents of EUT**

## B.2 Test Configuration



**Picture 2 Test Setup**

********END OF REPORT ********