# Logitech Antenna Under Test (AUT) Report

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Manufacturer:	Logitech Far East LTD.
Equipment Typ	<b>De:</b> Dongle
Model Name:	A00196

Report Date: \_\_\_\_\_2024.11.26\_\_\_\_\_

# **Report Release History**

Report version	Description	Date Issued
Voss Dongle AUT Report	Original release	2024/11/26

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# 1. EUT Antenna Information

1) Antenna Material: PCB on board

2) Antenna Type: Monopole

3) Antenna Dimension: 11 x 11 mm

4) Operating Frequency: 2.4 GHz - 2.4835 GHz

5) Input Impedance :  $50 \Omega$ 

6) Standing-Wave Ratio: 2:1

## 2. Measured Values and Calculation of Antenna Gains

Measure peak horizontal/vertical EIRP on 3D plane. The highest measured values will be used to calculate the antenna peak gain.

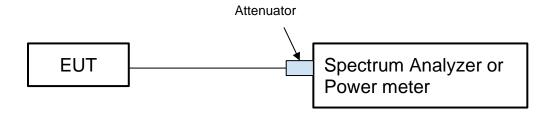
Antenna Peak Gain (dBi) = Max EIRP(dBm) - Conducted Power (dBm)

Frequency (MHz)	3D Plane		Max Peak	Conducted	Antenna Peak
	Max Value on Phi( $\varphi$ °)	Max Value on Theta(θ°)	EIRP (dBm)	Power (dBm)	Gain (dBi)
2402	68.75°	60°	8.52	5.41	3.11
2440	68.75°	60°	8.73	5.73	3.00
2480	68.75°	60°	8.49	5.73	2.76

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# 3. Conducted Power Measurement

## 3.1 Test Setup



# 3.2 Test Instruments

Description	Model No.	Serial No.	Last Calibration
Power Meter Anritsu	ML2495A	1448002	Aug.29.2024
Power Meter Sensor Anritsu	MA2411B	1339230	Aug.29.2024

Note: The calibration interval of the above test instruments is \_\_12\_ months

#### 3.3 Test Procedure

A spectrum analyzer or Power meter was used to perform output power measurement, setting the detector to average and configuring EUT continuously transmitting power(100% duty cycle).

#### 3.4 Test Result of RF conducted Power

Frequency	Conducted Power (dBm)		
2402	5.41		
2440	5.73		

Frequency	Conducted Power (dBm)
2480	5.73

Test Date: \_\_\_\_\_2024/11/26\_\_\_\_\_

# 4. 3D Radiation Pattern Measurement

#### 4.1 Test Location

3D radiation pattern measurement in the anechoic chamber

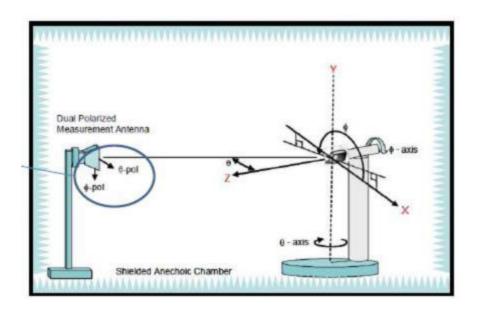
# 4.2 Description of the anechoic chamber

The anechoic chamber is a standard AMS-8500 rectangular anechoic chamber designed and built by ETS-Lindgren with the following nominal dimensions

Length: 7.32m (24 ft) Width: 3.66m (12 ft) Height: 3.51m (11.52 ft) Turntable height: 1.45m

Measurement antenna height: 1.75m

Measurement distance: 4.86m



### 4.3 Test Instruments

Description	Model No.	Serial No.	Last Calibration	Due Calibration
Measurement Software	EM-Quest1.16- ETS- Lindgren	1281	N/A	N/A
Signal Analyzer	R&S FSV	102330	2024/5/3	2025/5/2
Measurement Antenna	ETS Lindgren (3164-08)	00157567	N/A	N/A
Bluetooth Tester	CBT- R&S	100980	2023/08/01	2025/07/31
Chamber	ETS-lindgren_AMS-8500 Antenna Measurement System	CT0000411-1132	N/A	N/A

#### **4.4 Test Procedure**

- i. Connect the EUT to power meter and record the power setting of EUT and the measured conducted power.
- ii. Fasten the EUT in the center of the jig on Multi-Axis Positioning System, record the coordinates and take pictures.
- iii. Configuring EUT continuously transmitting power (100% duty cycle).
- iv. Make sure the transmit signal is stable and at the maximum RF power level.
- v. Read the channel power level on the signal analyzer and record in the following positions.
  - 1. The EUT is then stepped between 0 to 360 degrees along the horizontal plane in 15-degree increments.
  - 2. Data is recorded using the signal analyzer for both theta and phi polarizations at each position.
  - 3. Rotate the EUT with 90 degree and repeat step f.1 and step f.2 until all 3 planes were measured.
- vi. Change EUT setup to transmit the RF power on 2402MHz, 2441MHz and 2480MHz respectively.
- vii. Find the highest peak EIRP recorded from measurement data for all 3 planes.
- viii. Antenna Peak Gain (dBi) = Max EIRP(dBm) Conducted Power (dBm)

# 4.5 Test Setup photos



# 4.6 3D Pattern Test Plot





