# Measurement System Information

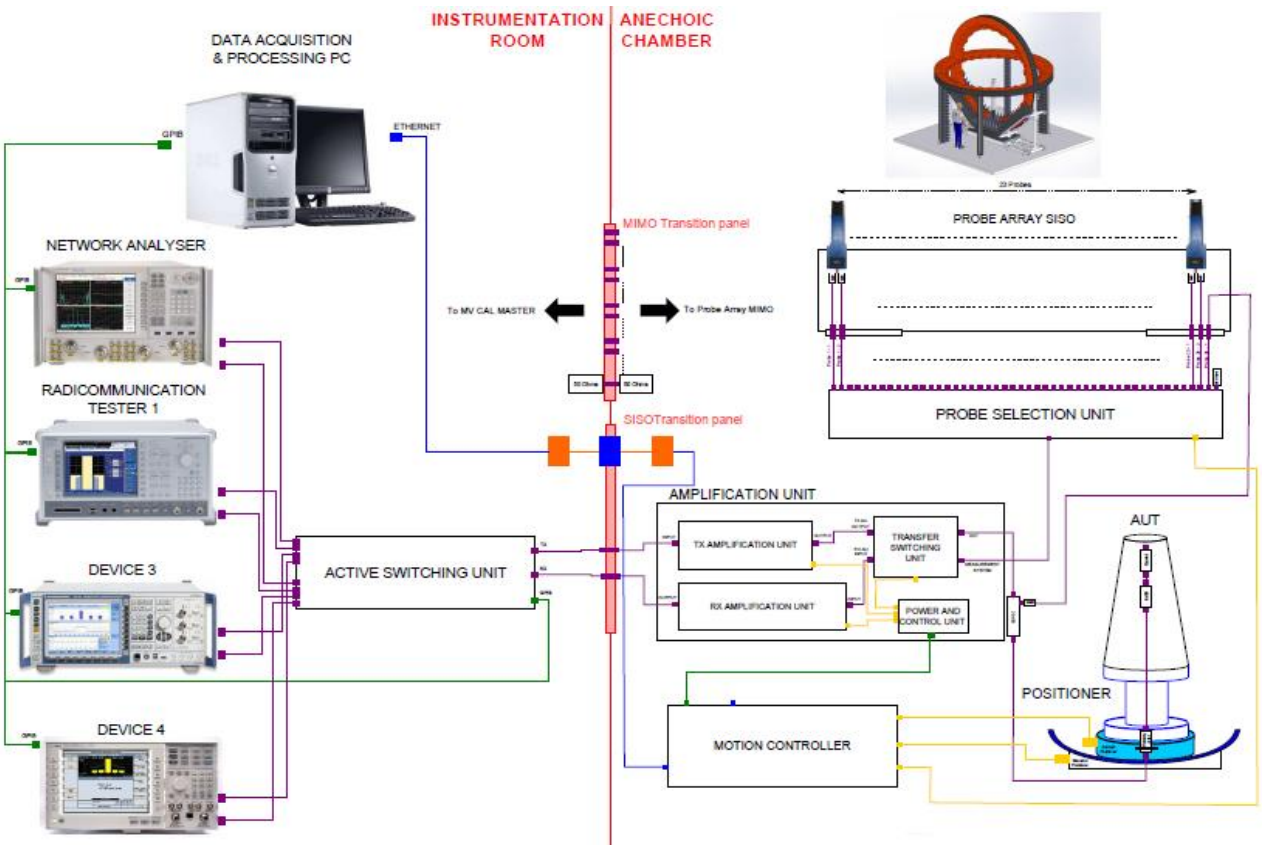
## General Information

**Testing Condition:**

- Temperature: 22±3˚C
- Humidity: <80%

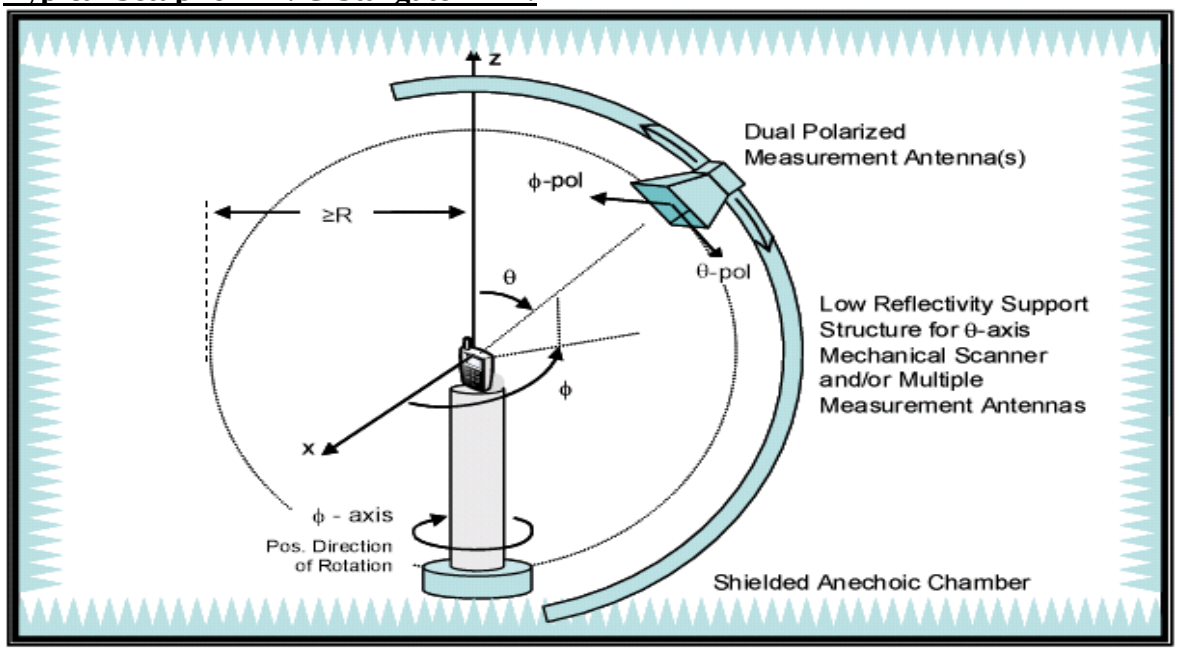
**Measurement Facility:**

- Measurement Chamber: MVG 3D fully anechoic chamber and its measuring system (Stargate-24-L)
- Base Station Simulator: Anritsu MT8820C (or R&S CMU200)
- Network Analyzer: Agilent E5071C



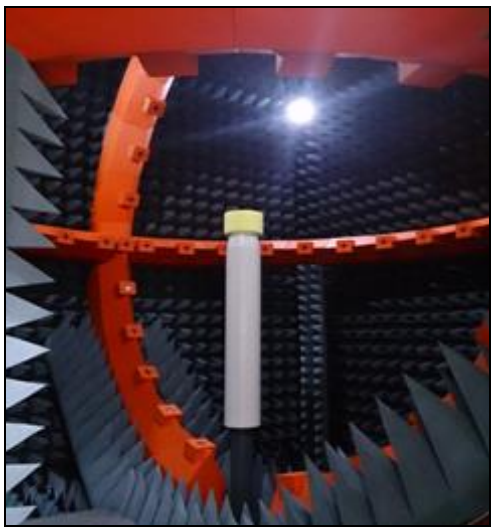
Measurements are performed in a MVG **Stargate-24-L** with the StarAct interface for a base station simulator. The **Stargate-24-L** has 23 probe antennas mounted with equal spacing on a circular arch. Electronic switching of the probe antennas provides outstanding measurement speed. The geometry of the setup, with only a Styrofoam column within 1.6 meters of the EUT, ensures minimum interference and low ripple on the measured radiation patterns. The DUT is placed on top of the pedestal, in the center of the system.

**Typical Setup for MVG Stargate-24-L:**




**Instruments View**

**Inside View**



**Testing Laboratory: Identification of the Responsible Test Laboratory.**

- **OTA Laboratory:**
  **SGS Taiwan Ltd. Wireless Laboratory**
  No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803.
  Telephone: +886 2 2299 3279
  Fax: +886 2 2298 0488
  Internet: http://www.tw.sgs.com

- **Testing Location:**
  No. 2, Keji 1st Rd., Hwaya Technology Park, Guishan District, Taoyuan City, Taiwan 33383.

**Details of Manufacturer:**

| | |
|---|---|
| **Applicant's name:** | **Zeroplus Technology Co., Ltd.** |
| **Applicant's address:** | **2F., No. 123, Jian 8th Rd., Zhonghe Dist., New Taipei City 23585, Taiwan** |

**Details of EUT:**

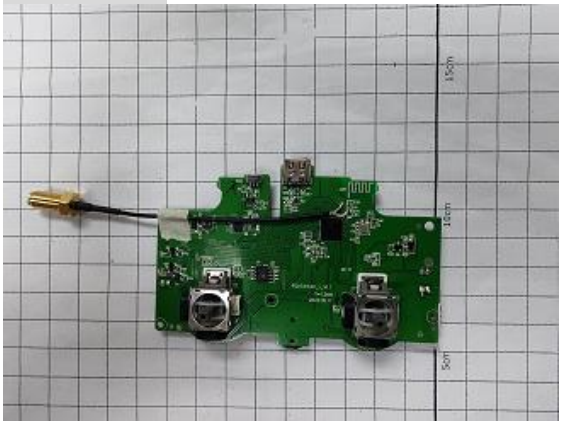
| | |
|---|---|
| **Device Description:** | |
| **Device Manufacturer:** | |
| **Device Model:** | |
| **Hardware Version:** | **N/A** |
| **Software Version:** | **N/A** |
| **Frequency Range:** | **2400MHz ~ 2500MHz**<br>**Step size: 10MHz** |
| **Antenna Type:** | **PCB** |

**Duration of Tests:**

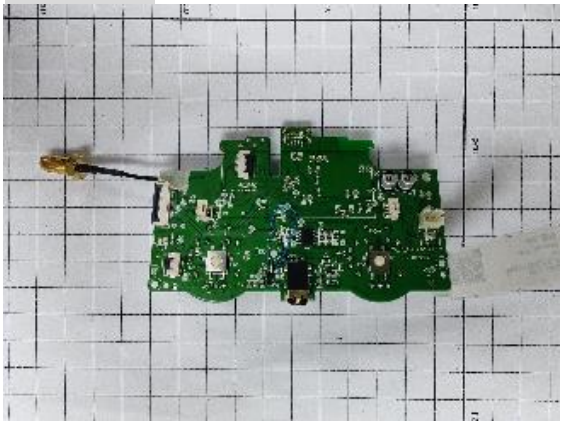
| | |
|---|---|
| **Sample Receive Date:** | **2022-11-29** |
| **Test Starting Date:** | **2022-11-30** |
| **Test Ending Date:** | **2022-11-30** |
| **Report Issued Date:** | **2022-12-05** |

**Photographs of EUT:**

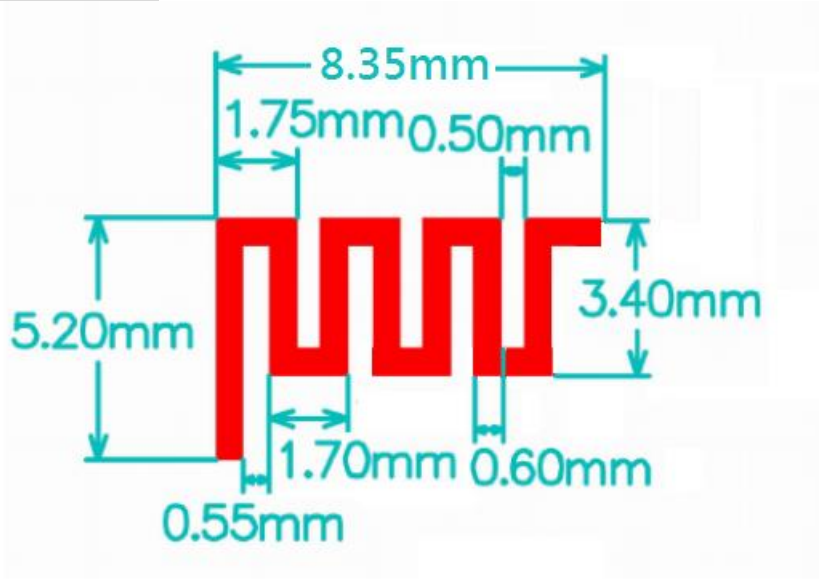
**Front View**



**Side View**



**Antenna Size**




## List of Equipment

Equipment Summary Sheet

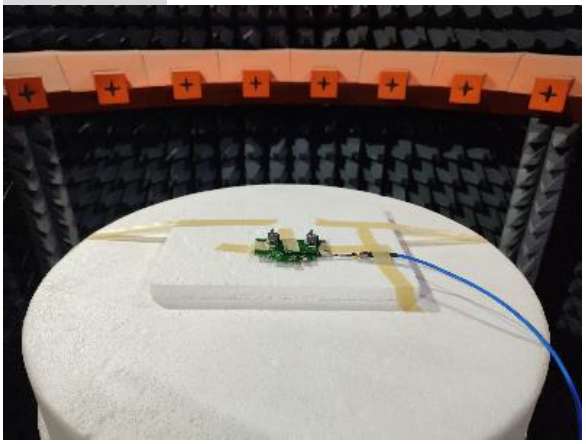
| Equipment Description | Manufacturer | Identification no. | Current calibration date | Next calibration date |
|---|---|---|---|---|
| Universal Radio Communication tester | Anritsu | MT8820C | 2022/10/14 | 2023/10/13 |
| Network Analyzer | Agilent | E5071C | 2021/01/12 | 2023/01/11 |
| Sleeve Dipole | MVG | SD740 | 2022/01/07 | 2025/01/06 |
| Dual Ridge Horn | MVG | SH800 | 2022/11/09 | 2023/11/08 |
| Stargate-24-L probe array | MVG | Stargate-24-L | 2022/08/26 | 2023/08/25 |
| Measurement software | MVG | SPM V1.9 | N/A | N/A |

## Antenna Gain and Efficiency

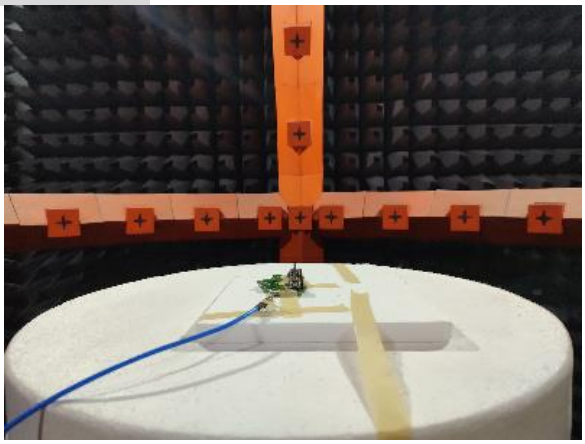
| Freq(MHz) | Peak Gain. dBi | Efficiency | Average . dBi |
|---|---|---|---|
| 2400.00 | -1.73 | 19.03% | -7.21 |
| 2410.00 | -1.84 | 19.16% | -7.18 |
| 2420.00 | -1.74 | 19.74% | -7.05 |
| 2430.00 | -1.16 | 22.68% | -6.44 |
| 2440.00 | -0.68 | 25.10% | -6.00 |
| 2450.00 | -0.53 | 27.35% | -5.63 |
| 2460.00 | -0.58 | 28.68% | -5.42 |
| 2470.00 | -0.17 | 31.61% | -5.00 |
| 2480.00 | 0.04 | 32.16% | -4.93 |
| 2490.00 | 0.03 | 31.82% | -4.97 |
| 2500.00 | 0.22 | 32.71% | -4.85 |

## Test Setup

**Front View**

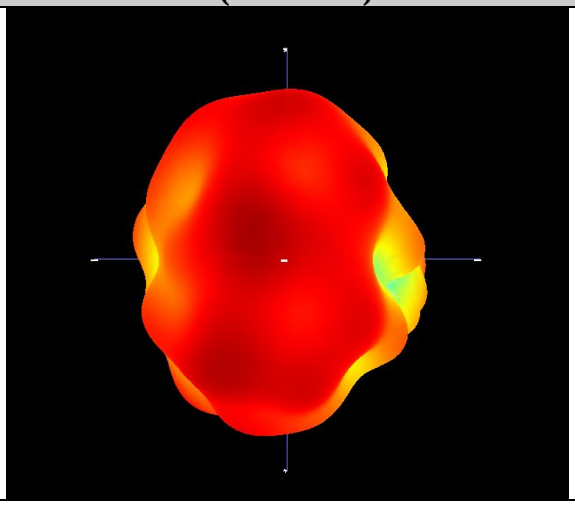
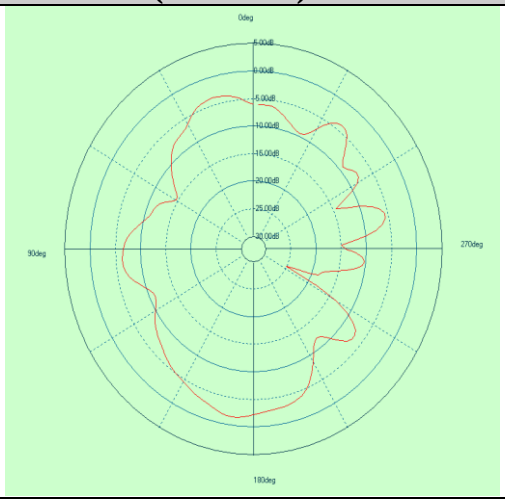


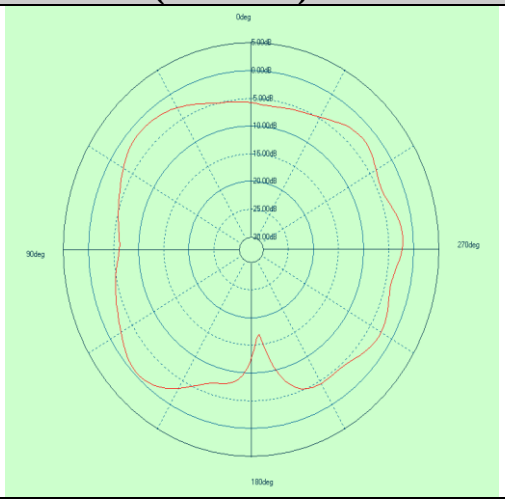
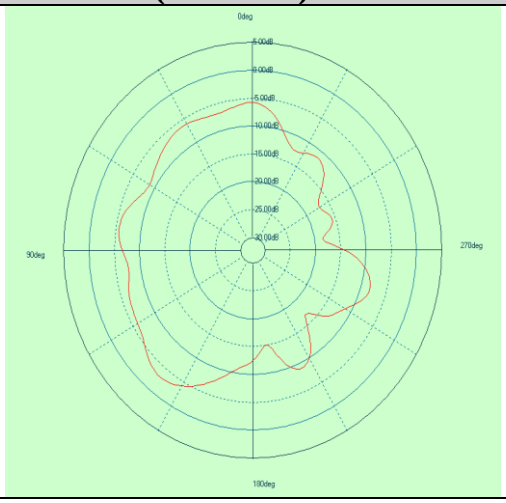
**Side View**



## Antenna 3D Plot Matrix

All plots in this section show the total EIRP (EIRPθ + EIRPφ) with the +x-axis pointing out of the page, +y-axis pointing right, and +z-axis pointing up.

| Free Space<br>EIRP (2450MHz) - 3D | Free Space<br>EIRP (2450MHz) – XY cut |
|---|---|
|  |  |

| Free Space<br>EIRP (2450MHz) – XZ cut | Free Space<br>EIRP (2450MHz) – YZ cut |
|---|---|
|  |  |

## End of Report