Antenna Test Report

Report No.: TEOT2302000103E4

Applicant Name: UNIQUE PRODUCT & DESIGN CO., LTD
Manufacturer Name: UNIQUE PRODUCT & DESIGN CO., LTD

Product Name: VOLT REMOTE
Model Number: VOLT REMOTE

Measurements performed at
SGS Taiwan Ltd.
Hwaya District, Taiwan

Issued Date: March 06, 2023

	Name	Date & Signature
Prepared by:	Nandi Chen Sr. Engineer	Nandi Chen March 06, 2023
Approved by:	Shawn Yen Supervisor	Shawn Yen March 06, 2023

Distribution

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Measurement System Information

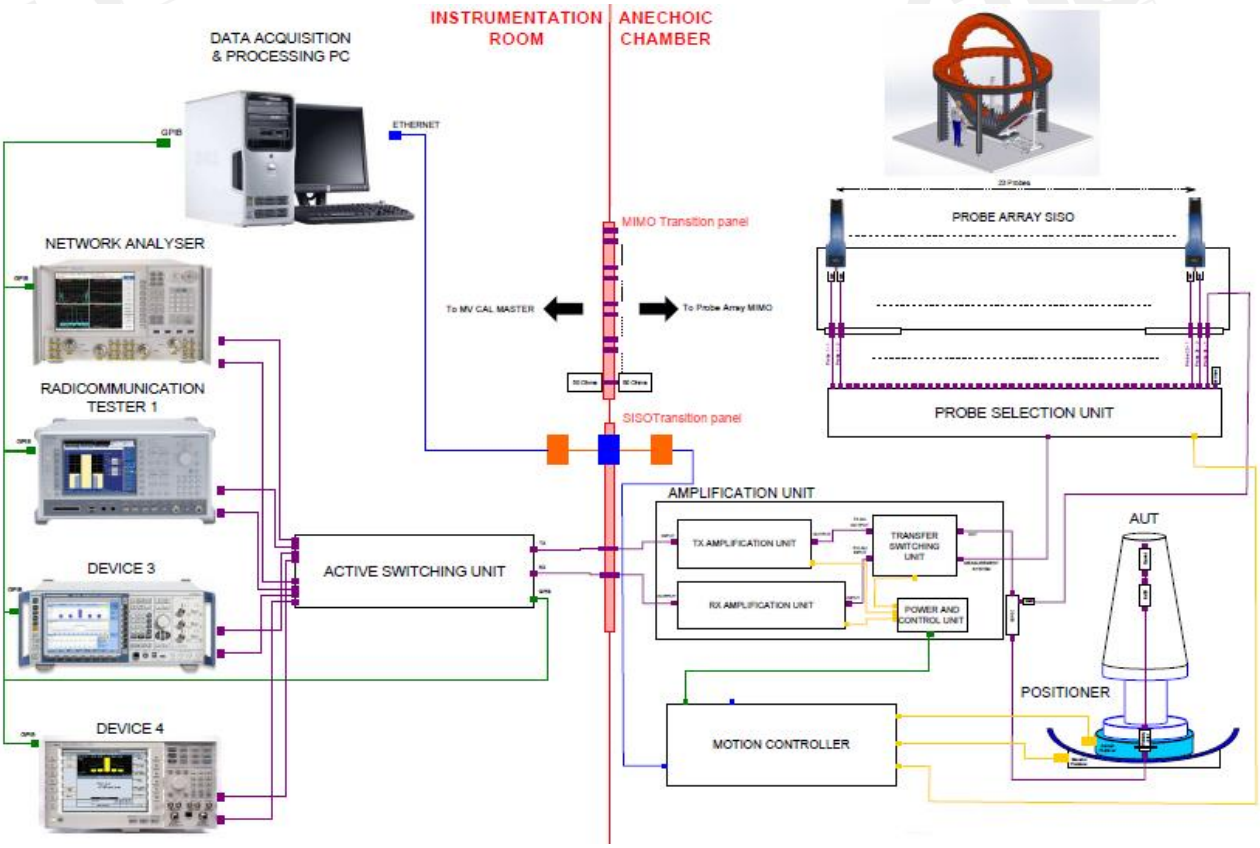
General Information

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



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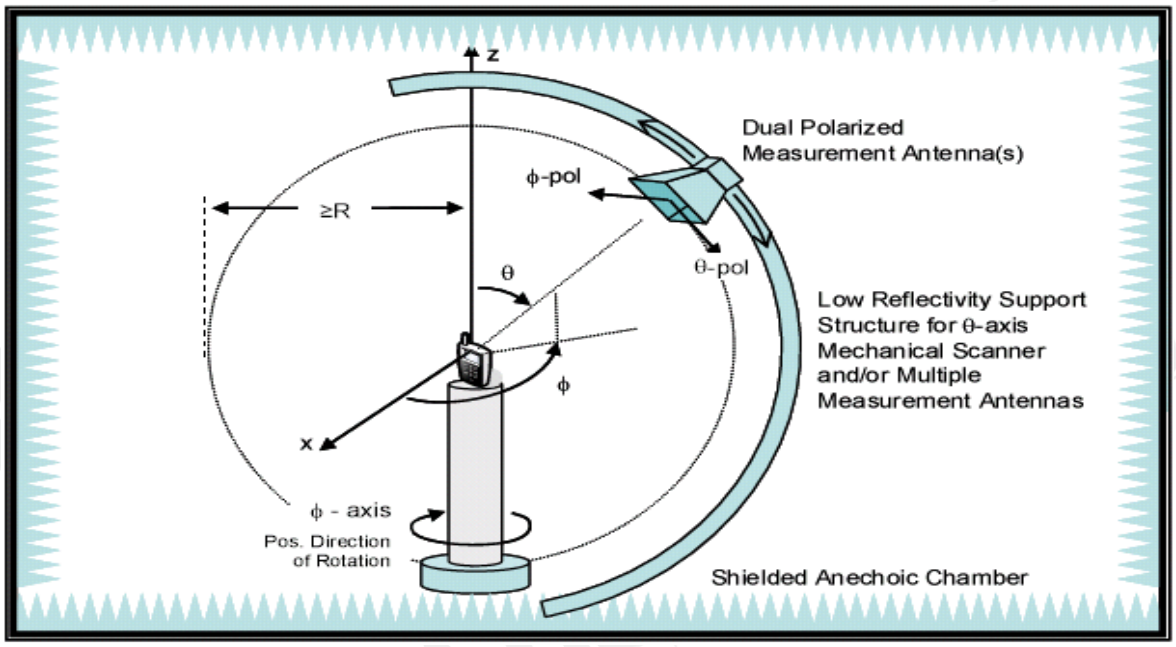
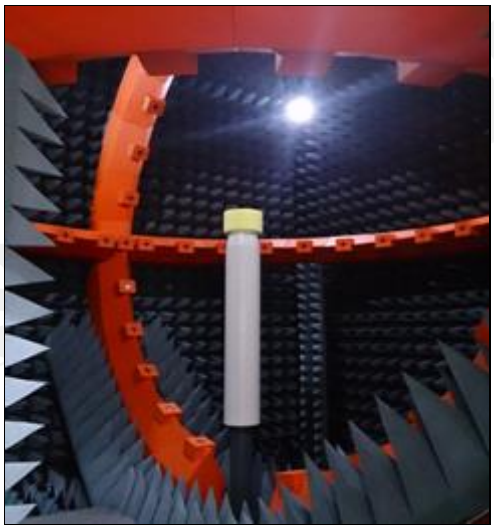
Measurements are performed in a MVG **Stargate-24-L** with the StarAct interface for a base station simulator. The **Stargate-24-L** has 23 probe antennas mounted with equal spacing on a circular arch. Electronic switching of the probe antennas provides outstanding measurement speed. The geometry of 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



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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 Applicant:

Applicant's name:	**UNIQUE PRODUCT & DESIGN CO., LTD**
Applicant's address:	**NO.5,MING DOGE ROAD, YONG KANG DISTRICT,YAINAN CITY,TAIWAN**
Contact person:	**曾昱翰**
Telephone:	**06-2536766 EXT:6512**
Fax:	**06-2530998**
E-mail:	**unique.rd@msa.hinet.net**

Details of Manufacturer:

Applicant's name:	**UNIQUE PRODUCT & DESIGN CO., LTD**
Applicant's address:	**NO.5,MING DOGE ROAD, YONG KANG DISTRICT,YAINAN CITY,TAIWAN**
Contact person:	**曾昱翰**
Telephone:	**06-2536766 EXT:6512**
Fax:	**06-2530998**
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Details of EUT:

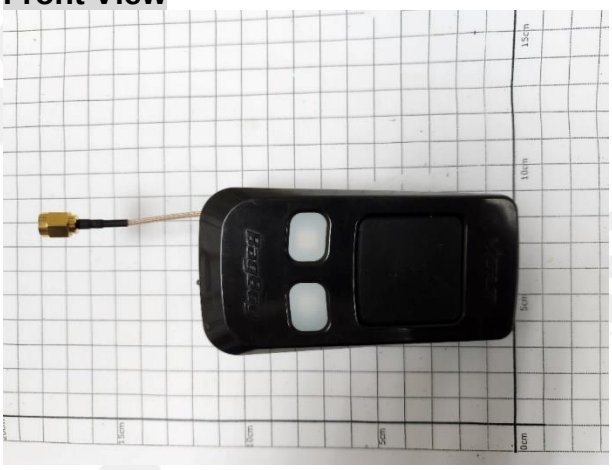
Device Description:	**VOLT REMOTE**
Device Manufacturer:	**UNIQUE PRODUCT & DESIGN CO., LTD**
Device Model:	**VOLT REMOTE**
Hardware Version:	**N/A**
Software Version:	**N/A**
FCC ID:	**2A9OXBBP72086**
Frequency Range:	**2400MHz ~ 2500MHz, Step: 10MHz**
Antenna Type:	**PCB Layout Type**

Duration of Tests:

Sample Receive Date:	**2023-02-16**
Test Starting Date:	**2023-02-22**
Test Ending Date:	**2023-02-22**
Report Issued Date:	**2023-03-06**

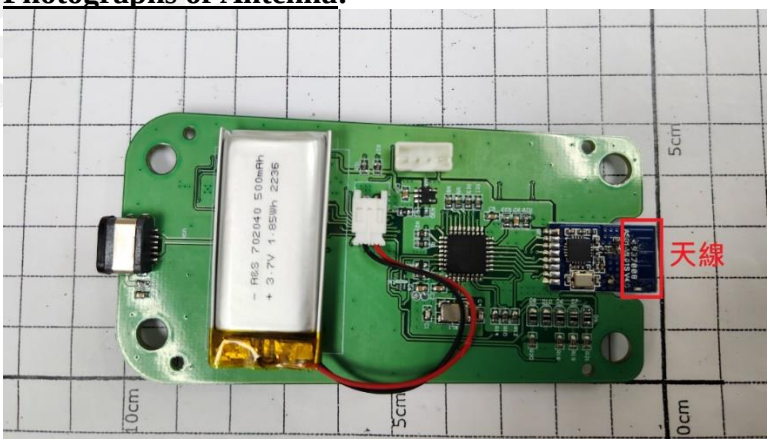
Photographs of EUT:

Front View



Side View

Photographs of Antenna:



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List of Equipment

Equipment Summary Sheet				
Equipment Description	**Manufacturer**	**Identification no.**	**Current calibration date**	**Next calibration date**
Universal Radio Communication tester	Anritsu	MT8820C	2022/10/12	2023/10/11
Network Analyzer	Agilent	E5071C	2023/01/16	2024/01/15
Sleeve Dipole	MVG	SD740	2022/01/07	2025/01/06
Dual Ridge Horn	MVG	SH800	2022/11/25	2023/11/24
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

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Member of SGS Group

Antenna Gain and Efficiency

VOLT REMOTE			
Freq(MHz)	Peak Gain. dBi	Efficiency	Average . dBi
2400.00	-4.62	17.93%	-7.47
2410.00	-4.67	18.60%	-7.30
2420.00	-4.53	20.16%	-6.96
2430.00	-4.59	20.36%	-6.91
2440.00	-5.25	18.32%	-7.37
2450.00	-5.59	17.36%	-7.60
2460.00	-5.37	18.06%	-7.43
2470.00	-5.67	17.45%	-7.58
2480.00	-5.52	18.64%	-7.30
2490.00	-5.36	19.71%	-7.05
2500.00	-5.56	18.54%	-7.32

Test Setup

Front View

Side View

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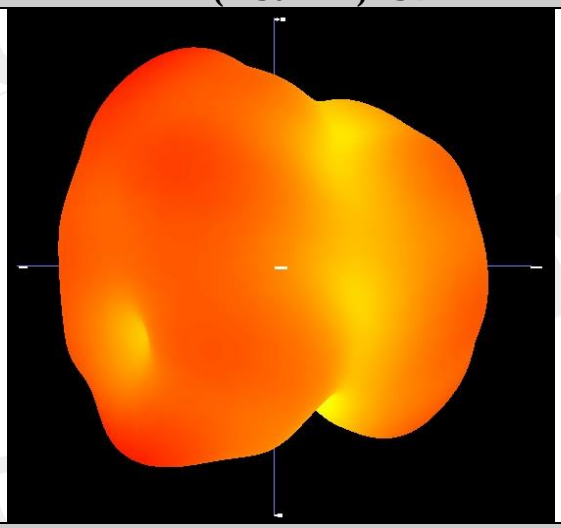
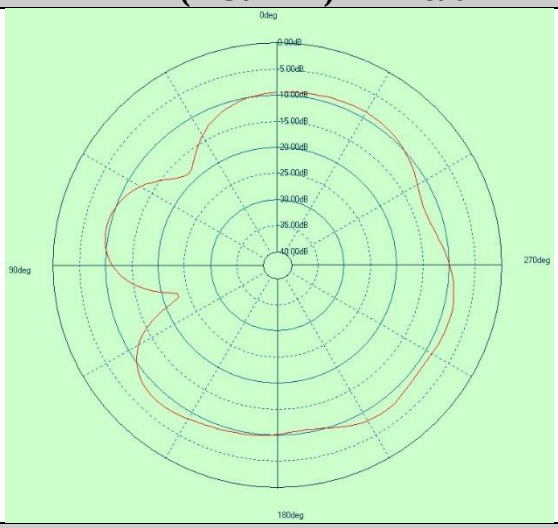
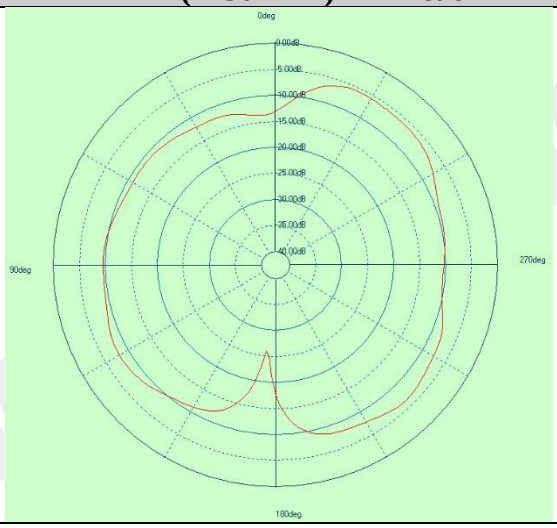
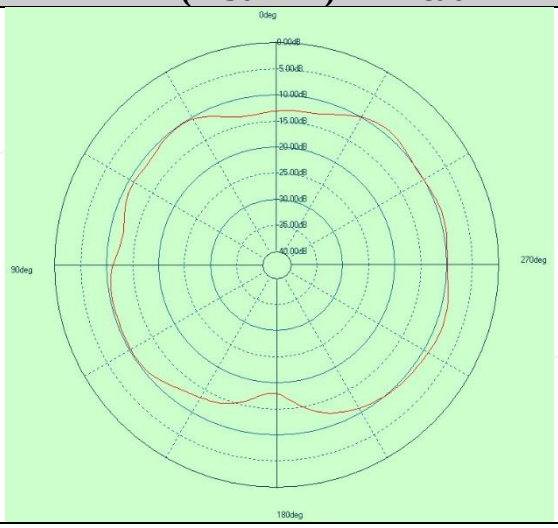
Antenna 3D Plot Matrix

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

Free Space EIRP (2450MHz) - 3D	Free Space EIRP (2450MHz) – XY cut
	
Free Space EIRP (2450MHz) – XZ cut	**Free Space EIRP (2450MHz) – YZ cut**
	

End of Report

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