

Antenna Test Report

Report No.: TEOT2508000915EP

Applicant Name: LEDGER SAS
Manufacturer Name: LEDGER SAS

Product Name: Ledger NanoTMGen5
Model No.: 1403

Measurements performed at
SGS Taiwan Ltd.
NeiHu District, Taiwan

Issued Date: September 3, 2025

	Name	Date & Signature	Distribution
Prepared by:	Kent Chen Sr. Engineer	<i>Kent Chen</i> September 3, 2025	
Approved by:	Willy Lee Supervisor	<i>Willy Lee</i> September 3, 2025	

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Revision Version

Report Number	Revision	Date	Memo
TEOT2508000915EP	00	2025/09/03	Initial creation of test report.

This test report contains a reference to the previous version test report that it replaces.

Measurement System Information

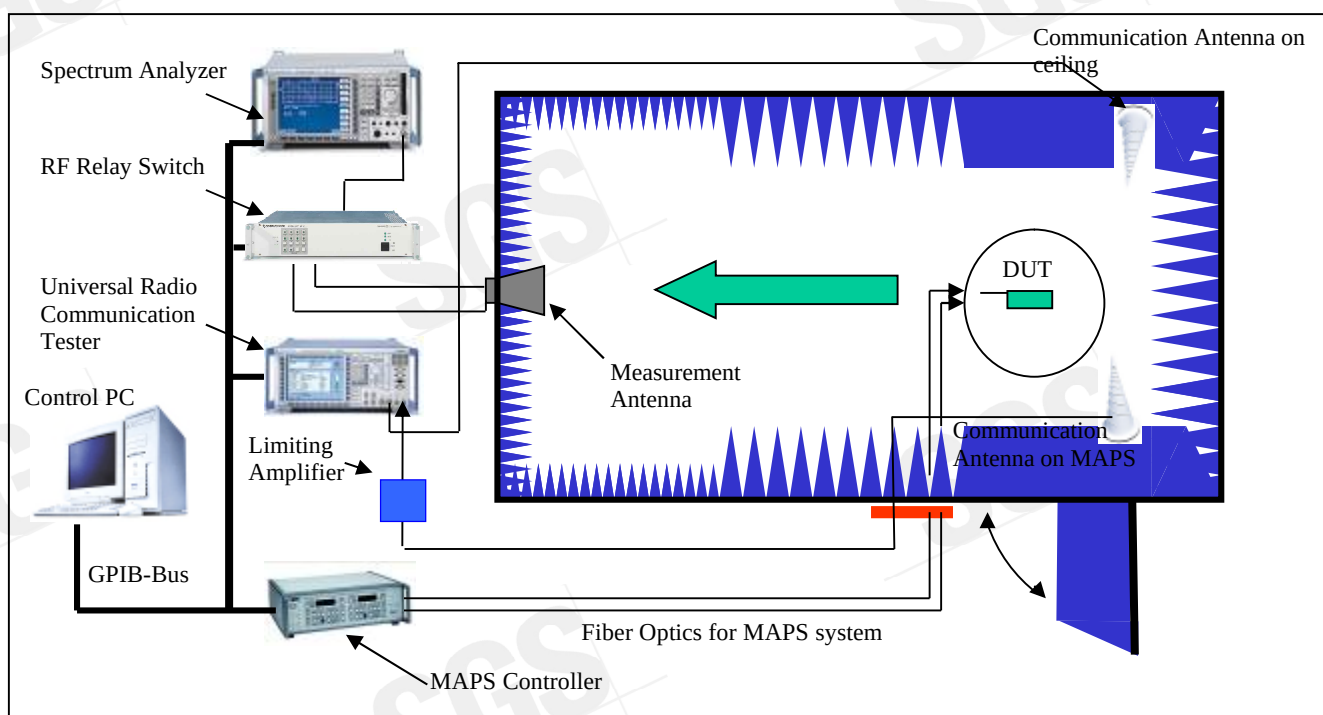
General Information

Testing Condition:

- Temperature: $25 \pm 3^{\circ}\text{C}$
- Humidity: $< 80\%$

Measurement Facility:

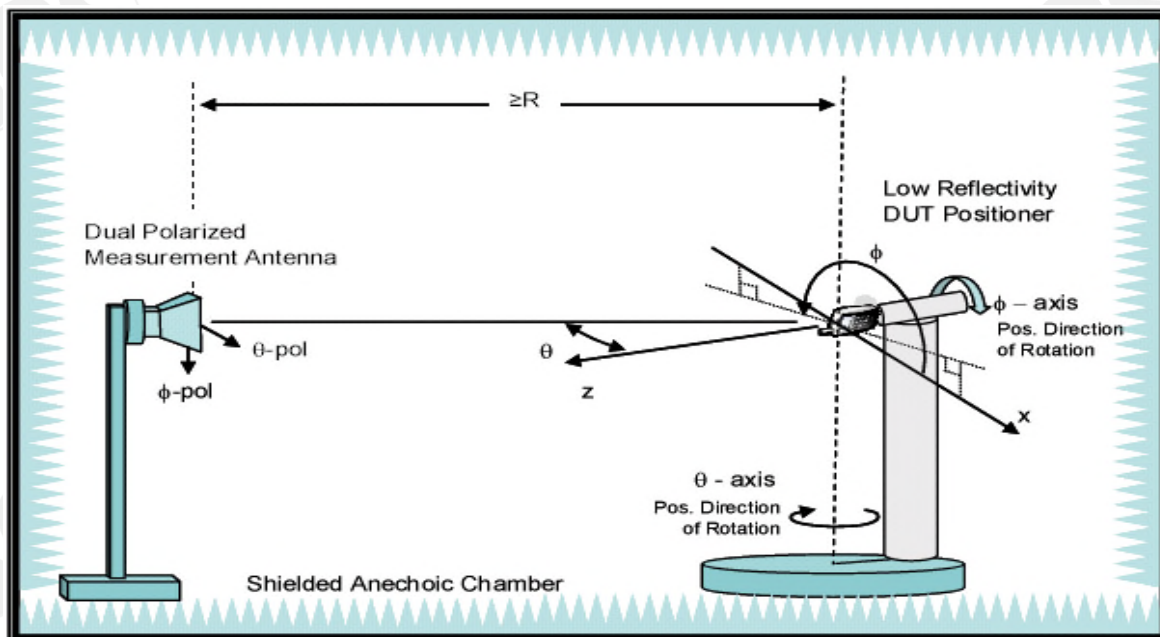
- Measurement Chamber: ETS-Lindgren 3D fully anechoic chamber and its measuring system (AMS-8500)
- Base Station Simulator: Agilent E5515C
- ETS-Lindgren EMCO-2090 Auxiliary Ports RF Relay Switches
- Spectrum Analyzer: Agilent N9010A
- Network Analyzer: Agilent E5071C



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Measurements are performed in an ETS-Lindgren **AMS-8500** 3D fully anechoic test system. The test system includes a high-performance RF-shielded, rectangular anechoic chamber, a Multi-Axis Positioning System (MAPS), and *EMQuest™* **EMQ-100** data acquisition and analysis software. The geometry of the setup is specified below for reference.

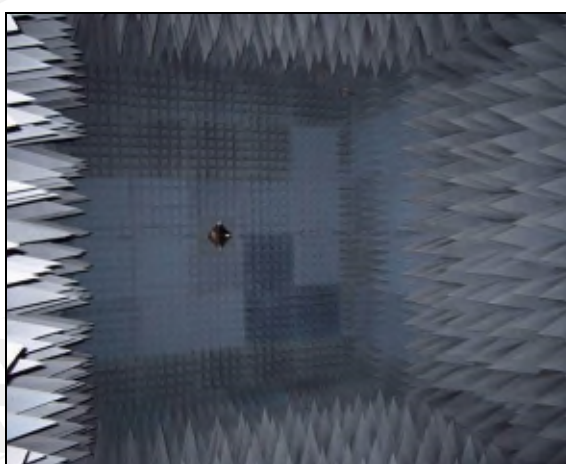
Typical Setup for ETS-Lindgren AMS-8500:



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:**
1F, No. 8, Alley 15, Lane 120, Sec. 1, NeiHu Road, NeiHu District, Taipei City 114, Taiwan 11446.

Details of Applicant:

Applicant's name:	LEDGER SAS
Applicant's address:	106 Rue du Temple, 75003 Paris, France
Contact person:	Antoine Thibault
Telephone:	+33 (0)184011375
Fax:	N/A
E-mail:	ledger.certification@ledger.fr

Details of Manufacturer:

Manufacturer's name:	LEDGER SAS
Manufacturer's address:	106 Rue du Temple, 75003 Paris, France
Contact person:	Antoine Thibault
Telephone:	+33 (0)184011375
Fax:	N/A
E-mail:	ledger.certification@ledger.fr

Details of EUT:

Device Description:	Ledger Nano™Gen5
Device Manufacturer:	LEDGER SAS
Device Model:	1403
Hardware Version:	EVT2
Software Version:	MCU: bridge_2.2_3d140f96.wb35.hex SE: 0.0.1-rc12
FCC ID:	2ASAL-1403
Frequency Range:	2400MHz ~ 2500MHz, Step size: 10MHz
Antenna Type:	Internal

Duration of Tests:

Sample Receive Date:	2025-08-27
Test Starting Date:	2025-08-27
Test Ending Date:	2025-08-27
Report Issued Date:	2025-09-03

Photographs of EUT:**Front View****Back View**

List of Equipment

Equipment Summary Sheet

Equipment Description	Manufacturer	Identification no.	Current calibration date	Next calibration date
Network analyzer	Agilent	E5071C	2025/06/26	2026/06/25
Measurement software	ETS-Lindgren	EMQuest	N/A	N/A
Multi axis positioning system(MAPSTM)	ETS-Lindgren	EMCO 2115	N/A	N/A
Multi axis positioning system(MAPSTM)	ETS-Lindgren	EMCO 2110	N/A	N/A
MAPSTM controller	ETS-Lindgren	EMCO 2090	N/A	N/A
Fully anechoic test system	ETS-Lindgren	AMS-8500	N/A	N/A
Horn antenna	ETS-Lindgren	3164-10	N/A	N/A

Reference Measurement Procedure

The reference measurement procedure is described in SGS Working Instruction WI-TESP-EO-101 to 108 for OTA service.

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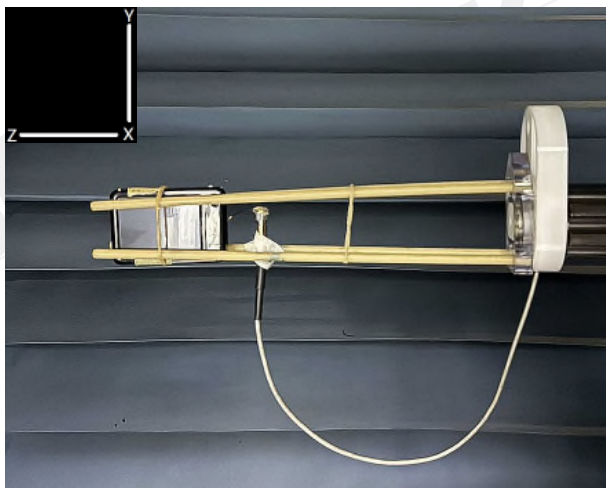
Antenna Gain and Efficiency

Test Result											
Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Point Values											
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-12.30	-11.73	-11.23	-10.87	-10.54	-10.27	-10.16	-9.86	-9.55	-9.03	-8.26
Peak EIRP (dBm)	-8.32	-7.68	-7.21	-6.92	-6.59	-6.14	-6.05	-5.74	-5.51	-5.05	-4.28
Directivity (dBi)	3.99	4.05	4.02	3.95	3.96	4.14	4.11	4.13	4.04	3.98	3.98
Efficiency (dB)	-12.30	-11.73	-11.23	-10.87	-10.54	-10.27	-10.16	-9.86	-9.55	-9.03	-8.26
Efficiency (%)	5.88	6.72	7.53	8.18	8.83	9.40	9.63	10.32	11.09	12.51	14.94
Gain (dBi)	-8.32	-7.68	-7.21	-6.92	-6.59	-6.14	-6.05	-5.74	-5.51	-5.05	-4.28
NHPRP $\pm\pi/4$ (dBm)	-13.69	-13.12	-12.64	-12.29	-11.98	-11.73	-11.65	-11.39	-11.10	-10.61	-9.85
NHPRP $\pm\pi/6$ (dBm)	-15.49	-14.95	-14.47	-14.15	-13.84	-13.61	-13.53	-13.29	-13.00	-12.50	-11.73
NHPRP $\pm\pi/8$ (dBm)	-16.90	-16.36	-15.89	-15.56	-15.23	-14.98	-14.89	-14.63	-14.33	-13.82	-13.03
Upper Hem. PRP (dBm)	-17.04	-16.43	-15.89	-15.53	-15.16	-14.91	-14.78	-14.44	-14.07	-13.49	-12.67
Lower Hem. PRP (dBm)	-14.08	-13.53	-13.05	-12.69	-12.38	-12.10	-12.01	-11.73	-11.45	-10.95	-10.21

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Test Setup

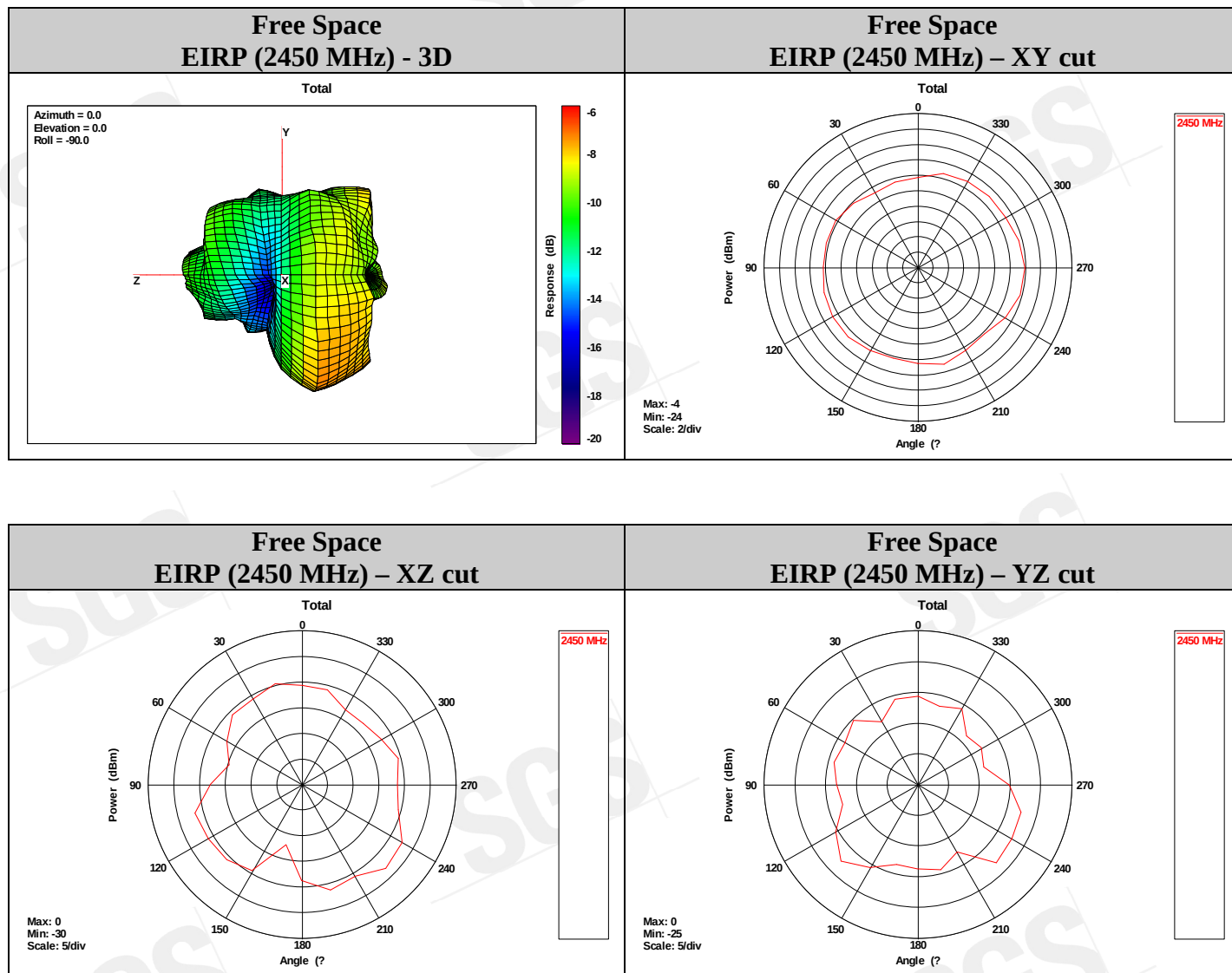
Free Space



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Antenna 3D Plot Matrix

All plots in this section show the total EIRP ($EIRP_{\theta} + EIRP_{\phi}$) with the +x-axis pointing out of the page, +y-axis pointing top of the page, and +z-axis pointing left of the page.



End of Report

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