FCC TEST REPORT

For

LUISUAN TECHNOLOGY CO., LTD

ForinnBase GroundPool

Test Model: GP5016-2401

Additional Model No.: Please Refer to Page 8

Prepared for	:	LUISUAN TECHNOLOGY CO., LTD
Address	:	No.803-2Block 20,Dongyiwan Yihu House.Waihuan Road No.16, Xiaohuangpu Community，Ronggul Street.Shunde District,Foshan,Guangdong
Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	:	Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China
Tel	:	+(86) 0755-82591330
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Web	:	www.lcs-cert.com
Mail	:	webmaster@lcs-cert.com
Date of receipt of test sample	:	December 4, 2023
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	December 4, 2023 to December 6, 2023
Date of Report	:	December 28, 2023

TEST REPORT

Report No.	:	**LCSA12013063E001**
Date of Issue	:	December 28, 2023
Testing Laboratory Name	:	**Shenzhen LCS Compliance Testing Laboratory Ltd.**
Address	:	Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China
Testing Location/ Procedure.....	:	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's Name	:	**LUISUAN TECHNOLOGY CO., LTD**
Address	:	No.803-2Block 20,Dongyiwan Yihu House.Waihuan Road No.16, Xiaohuangpu Community，Ronggul Street.Shunde District,Foshan,Guangdong
Test Specification		
Standard	:	FCC 47 CFR Part 15, Subpart B ANSI C63.4-2014
Test Report Form No.	:	LCSEMC-1.0
TRF Originator.....	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF.....	:	Dated 2011-03

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Test Item Description.	:	**ForinnBase GroundPool**
Trade Mark	:	N/A
Test Model	:	GP5016-2401
Result	:	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Jelly Li	Baron Wen	
Jelly Li / File Administrator	Baron Wen / Technique principal	Gavin Liang / Manager

TEST REPORT

Test Report No.: LCSA12013063E001	December 28, 2023 Date of issue

Test Model	:	**GP5016-2401**
EUT	:	ForinnBase GroundPool
Applicant	:	**LUISUAN TECHNOLOGY CO., LTD**
Address	:	No.803-2Block 20,Dongyiwan Yihu House.Waihuan Road No.16, Xiaohuangpu Community，Ronggul Street.Shunde District,Foshan,Guangdong
Telephone	:	/
Fax	:	/
Manufacturer	:	**LUISUAN TECHNOLOGY CO., LTD**
Address	:	No.803-2Block 20,Dongyiwan Yihu House.Waihuan Road No.16, Xiaohuangpu Community，Ronggul Street.Shunde District,Foshan,Guangdong
Telephone	:	/
Fax	:	/
Factory	:	**LUISUAN TECHNOLOGY CO., LTD**
Address	:	No.803-2Block 20,Dongyiwan Yihu House.Waihuan Road No.16, Xiaohuangpu Community，Ronggul Street.Shunde District,Foshan,Guangdong
Telephone	:	/
Fax	:	/

Test Result	**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Report Version	Issue Date	Revision Content	Revised By
000	December 6, 2023	Initial Issue	/
001	December 28, 2023		Jelly Li

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Test Report Description Page

1. SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

Description of Test Item	Standard	Limits	Result
Conducted emissions on AC mains	FCC 47 CFR Part 15, Subpart B ANSI C63.4-2014	15.107, Class A	Pass
Radiated emissions (Below 1GHz)	FCC 47 CFR Part 15, Subpart B ANSI C63.4-2014	15.109, Class A	Pass
Radiated emissions (Above 1GHz)	FCC 47 CFR Part 15, Subpart B ANSI C63.4-2014	15.109, Class A	Pass

1.2 Description of Test Modes

No	Title	Description
TM1	Working(AC 120V/60Hz)	Record

2. GENERAL INFORMATION

2.1 Description of Device (EUT)

EUT	: ForinnBase GroundPool
Test Model	: GP5016-2401
Additional Model No.	: GP5016-2402, GP5014-2401, GP5014-2402, GP5012-2401, GP5012-2402
Model Declaration	: PCB board, structure and internal of these model(s) are the same, So no additional models were tested
Power Supply	: INPUT:100-240~50/60Hz, 5A,800W
Highest Internal Frequency	: Above 1GHz
Classification of Equipment	: Class A

Highest internal frequency (Fx)	Highest measured frequency
Fx ≤ 1.705MHz	30MHz
1.705MHz < Fx ≤ 108MHz	1GHz
108MHz < Fx ≤ 500MHz	2GHz
500MHz < Fx ≤ 1000MHz	5GHz
Fx > 1GHz	5 x Fx up to a maximum of 40GHz

2.2 Support equipment List

The EUT was tested as an independent device.

2.3 Description of Test Facility

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

NVLAP Accreditation Code is 600167-0.
FCC Designation Number is CN5024.
CAB identifier is CN0071.
CNAS Registration Number is L4595.

2.4 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emission (150kHz to 30MHz)	± 2.35 dB
Radiated Emission (30MHz to 1000MHz)	± 3.48 dB
Radiated Emission (above 1000MHz)	± 3.90 dB
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3. MEASURING DEVICES AND TEST EQUIPMENT

Conducted emissions on AC mains					
Equipment	**Manufacturer**	**Model No**	**Serial No.**	**Cal Date**	**Due Date**
EMI Test Software	Farad	EZ	/	/	/
Artificial Mains	R&S	ENV216	101288	2023-06-09	2024-06-08
Pulse Limiter	R&S	ESH3-Z2	102750-NB	2023-08-15	2024-08-14
EMI Test Receiver	R&S	ESR3	102312	2023-02-25	2024-02-24

Radiated emissions (Below 1GHz)					
Equipment	**Manufacturer**	**Model No**	**Serial No.**	**Cal Date**	**Due Date**
EMI Test Software	Farad	EZ	/	/	/
EMI Test Software	AUDIX	E3	/	/	/
By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2021-09-12	2024-09-11
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2021-09-05	2024-09-04
EMI Test Receiver	R&S	ESR3	102311	2023-08-15	2024-08-14
Broadband Preamplifier	/	BP-01M18G	P190501	2023-06-09	2024-06-08
EMI Test Receiver	R&S	ESCI7	101173	2023-10-25	2024-10-24
By-log Antenna	SchwarzZBECK	VULB9163	01428	2023-09-05	2024-09-04

Radiated emissions (Above 1GHz)					
Equipment	**Manufacturer**	**Model No**	**Serial No.**	**Cal Date**	**Due Date**
EMI Test Software	AUDIX	E3	/	/	/
By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2021-09-12	2024-09-11
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2021-09-05	2024-09-04
EMI Test Receiver	R&S	ESR3	102311	2023-08-15	2024-08-14
Broadband Preamplifier	/	BP-01M18G	P190501	2023-06-09	2024-06-08
EMI Test Software	Farad	EZ	/	/	/
MXA Signal Analyzer	Agilent	N9020A	MY53290398	2023-06-09	2024-06-08

4. EMISSION TEST RESULTS (EMI)

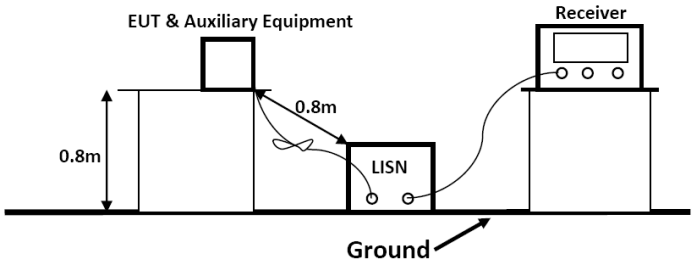
4.1 Conducted emissions on AC mains

Test Requirement:	15.107, Class A
Test Limit:	**Frequency of emission (MHz)** / **Conducted limit (dBμV)** (Quasi-peak / Average) 0.15-0.5: 79 / 66 0.5-30: 73 / 60
Test Method:	ANSI C63.4-2014
Procedure:	An initial pre-scan was performed with peak detector.Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected. Remark: Level= Read Level+ Cable Loss+ LISN Factor

4.1.1 E.U.T. Operation:

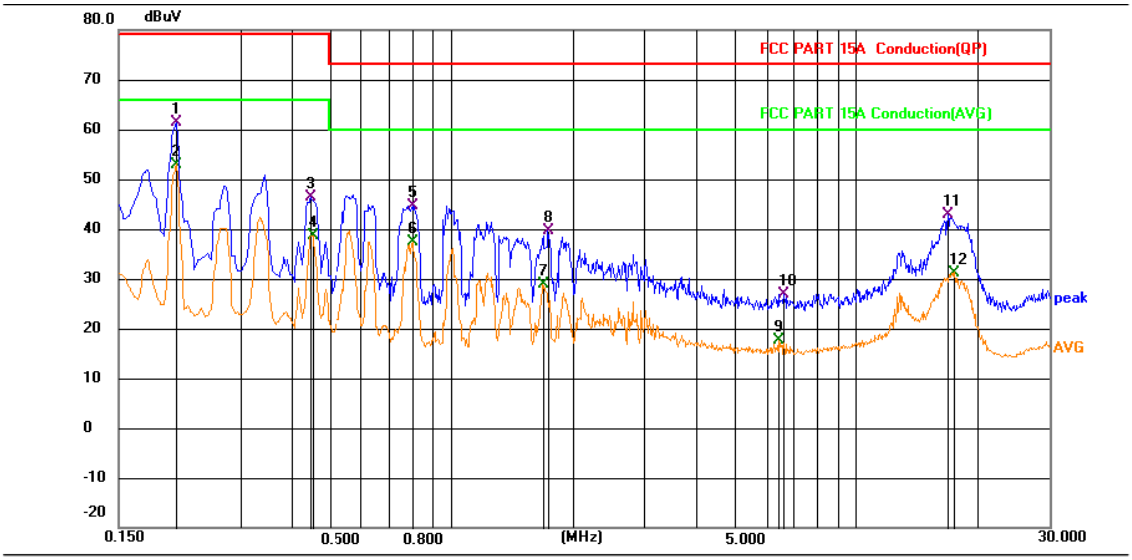
Operating Environment:			
Temperature:	23.5 °C	Humidity:	53.6 %
Pre test mode:	TM1		
Final test mode:	TM1		

4.1.2 Test Setup Diagram:



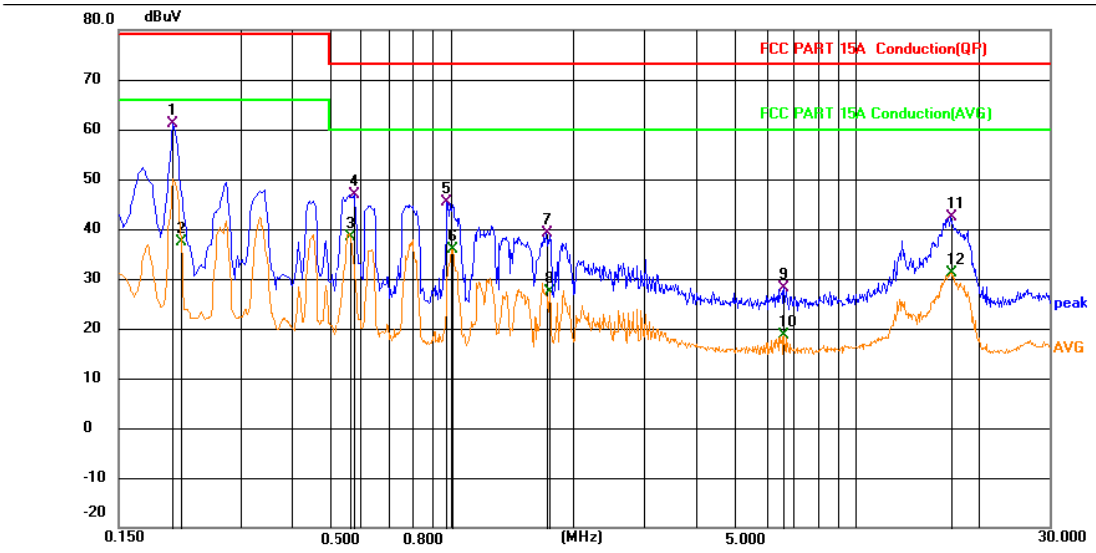
4.1.3 Test Data:

TM1 / Line: Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2086	41.30	20.16	61.46	79.00	-17.54	QP	
2	*	0.2086	32.84	20.16	53.00	66.00	-13.00	AVG	
3		0.4471	26.08	20.24	46.32	79.00	-32.68	QP	
4		0.4516	18.44	20.23	38.67	66.00	-27.33	AVG	
5		0.8026	24.64	20.07	44.71	73.00	-28.29	QP	
6		0.8026	17.19	20.07	37.26	60.00	-22.74	AVG	
7		1.6801	8.73	20.18	28.91	60.00	-31.09	AVG	
8		1.7296	19.53	20.18	39.71	73.00	-33.29	QP	
9		6.3871	-2.30	20.00	17.70	60.00	-42.30	AVG	
10		6.5986	6.96	20.01	26.97	73.00	-46.03	QP	
11		16.8496	22.16	20.64	42.80	73.00	-30.20	QP	
12		17.4886	10.53	20.72	31.25	60.00	-28.75	AVG	

TM1 / Line: Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.2041	41.07	20.06	61.13	79.00	-17.87	QP	
2		0.2139	17.28	20.05	37.33	66.00	-28.67	AVG	
3		0.5639	18.36	19.95	38.31	60.00	-21.69	AVG	
4		0.5775	26.87	20.01	46.88	73.00	-26.12	QP	
5		0.9735	25.19	20.11	45.30	73.00	-27.70	QP	
6		1.0005	15.88	20.08	35.96	60.00	-24.04	AVG	
7		1.7160	18.95	20.20	39.15	73.00	-33.85	QP	
8		1.7520	7.10	20.21	27.31	60.00	-32.69	AVG	
9		6.5986	7.85	20.36	28.21	73.00	-44.79	QP	
10		6.5986	-1.79	20.36	18.57	60.00	-41.43	AVG	
11		17.1376	22.16	20.23	42.39	73.00	-30.61	QP	
12		17.2771	10.86	20.24	31.10	60.00	-28.90	AVG	

4.2 Radiated emissions (Below 1GHz)

Test Requirement:	15.109, Class A
Test Limit:	The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the following:

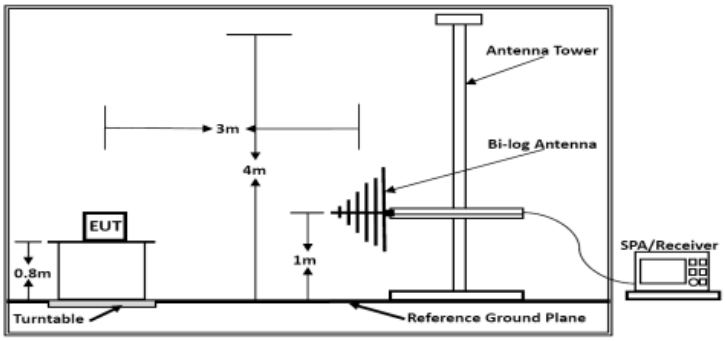
Frequency of emission (MHz)	Field strength @10m		Field strength @3m	
	(uV/m)	(dBuV/m)	(uV/m)	(dBuV/m)
30 – 88	90	39.1	300	49.5
88 – 216	150	43.5	500	54.0
216 – 960	210	46.4	700	56.9
Above 960	300	49.5	1000	60.0

Test Method:	ANSI C63.4-2014
Procedure:	An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities. Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

4.2.1 E.U.T. Operation:

Operating Environment:			
Temperature:	22.3 °C	Humidity:	53 %
Pre test mode:	TM1		
Final test mode:	TM1		

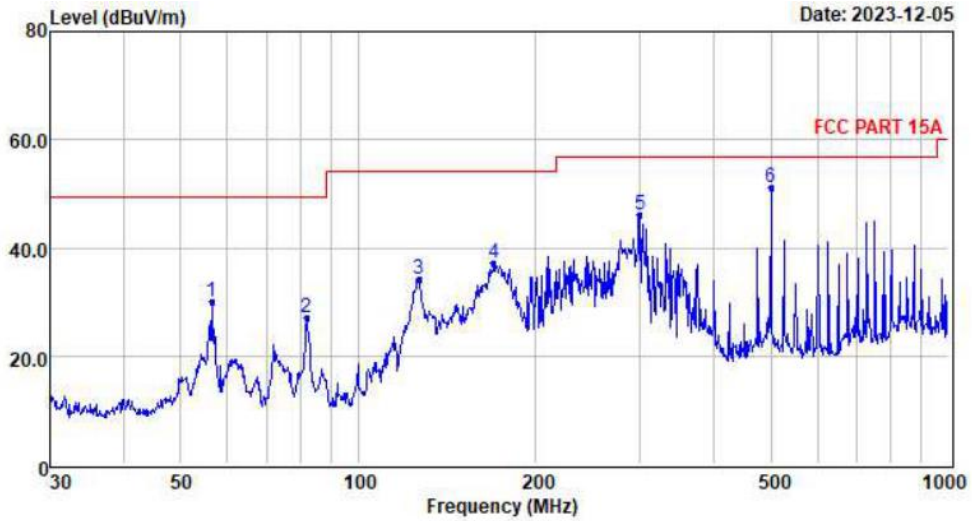
4.2.2 Test Setup Diagram:



Below 1GHz

4.2.3 Test Data:

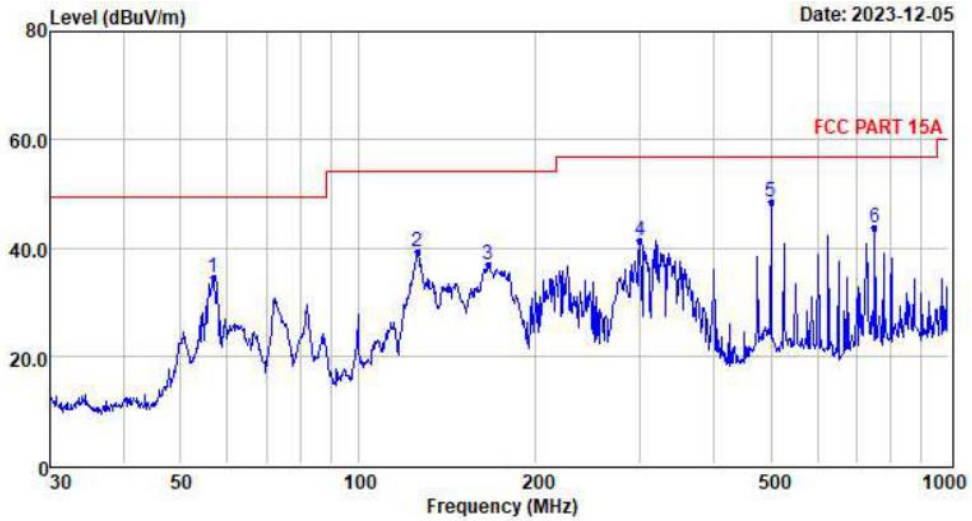
TM1 / Polarization: Horizontal



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	56.39	16.91	0.63	12.53	30.07	49.50	-19.43	QP
2	81.78	16.61	0.74	9.74	27.09	49.50	-22.41	QP
3	126.77	23.53	0.94	9.78	34.25	54.00	-19.75	QP
4	169.60	26.37	1.10	9.68	37.15	54.00	-16.85	QP
5	300.37	31.00	1.32	13.70	46.02	56.90	-10.88	QP
6	501.18	32.90	1.50	16.82	51.22	56.90	-5.68	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that are 20db below the official limit are not reported

TM1 / Polarization: Vertical



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	56.79	21.28	0.64	12.53	34.45	49.50	-15.05	QP
2	125.89	28.39	0.93	9.88	39.20	54.00	-14.80	QP
3	166.07	26.14	1.09	9.51	36.74	54.00	-17.26	QP
4	300.37	26.33	1.32	13.70	41.35	56.90	-15.55	QP
5	501.18	30.21	1.50	16.82	48.53	56.90	-8.37	QP
6	750.11	22.05	1.90	19.70	43.65	56.90	-13.25	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that are 20db below the official limit are not reported

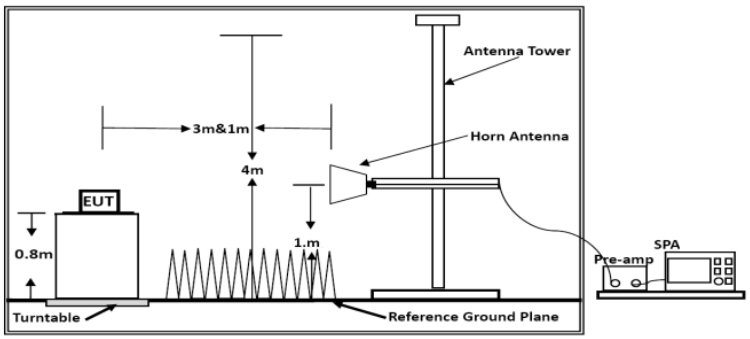
4.3 Radiated emissions (Above 1GHz)

<table>
<tr><td>Test Requirement:</td><td colspan="4">15.109, Class A</td></tr>
<tr><td>Test Limit:</td><td colspan="4">
<table>
<tr><td rowspan="2">Frequency of emission (MHz)</td><td colspan="3">Field strength @10m</td></tr>
<tr><td>Average (uV/m)</td><td>Average(dB uV/m)</td><td>Peak (dBuV/m)</td></tr>
<tr><td>Above 1GHz</td><td>300</td><td>49.5</td><td>69.5</td></tr>
<tr><td rowspan="2"></td><td colspan="3">Field strength @3m</td></tr>
<tr><td>Average (uV/m)</td><td>Average(dB uV/m)</td><td>Peak (dBuV/m)</td></tr>
<tr><td>Above 1GHz</td><td>1000</td><td>60</td><td>80</td></tr>
</table>
Frequency of emission (MHz)
</td></tr>
<tr><td>Test Method:</td><td colspan="4">ANSI C63.4-2014</td></tr>
<tr><td>Procedure:</td><td colspan="4">An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. For below 1GHz test, Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities. For above 1GHz test, Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.
Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</td></tr>
</table>

4.3.1 E.U.T. Operation:

<table>
<tr><td colspan="4">Operating Environment:</td></tr>
<tr><td>Temperature:</td><td>23.9 °C</td><td>Humidity:</td><td>52 %</td></tr>
<tr><td colspan="2">Pre test mode:</td><td colspan="2">TM1</td></tr>
<tr><td colspan="2">Final test mode:</td><td colspan="2">TM1</td></tr>
</table>

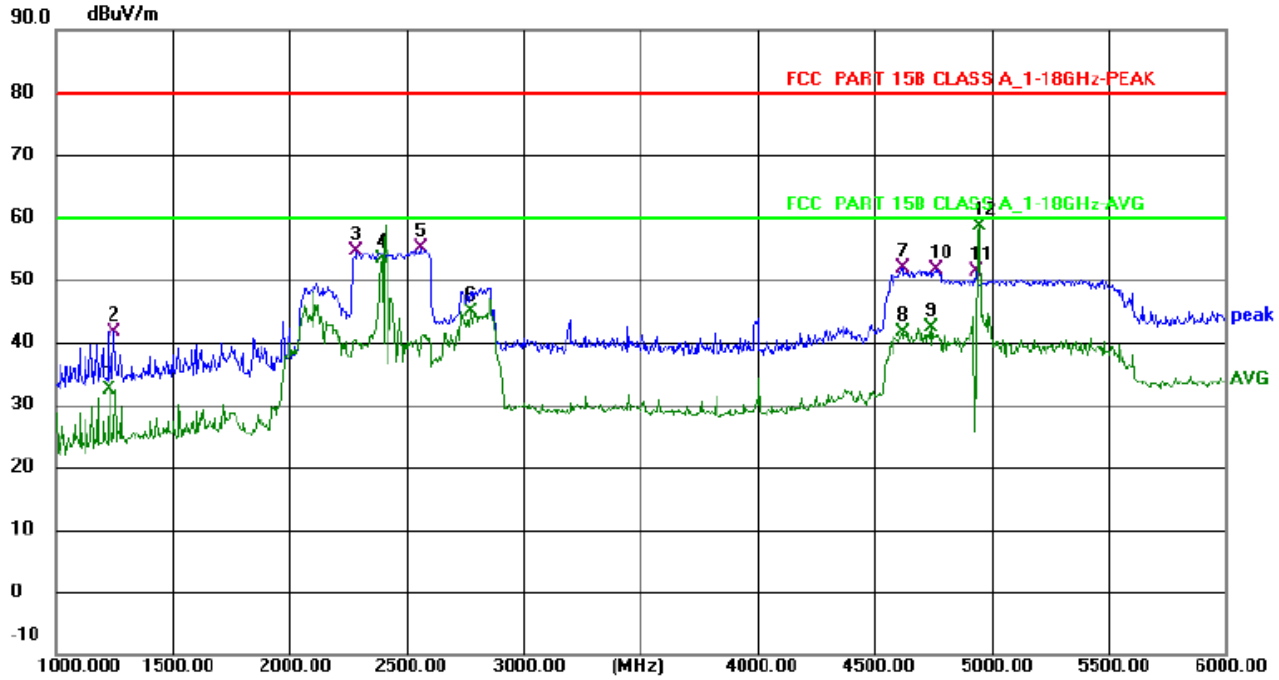
4.3.2 Test Setup Diagram:



Above 1GHz

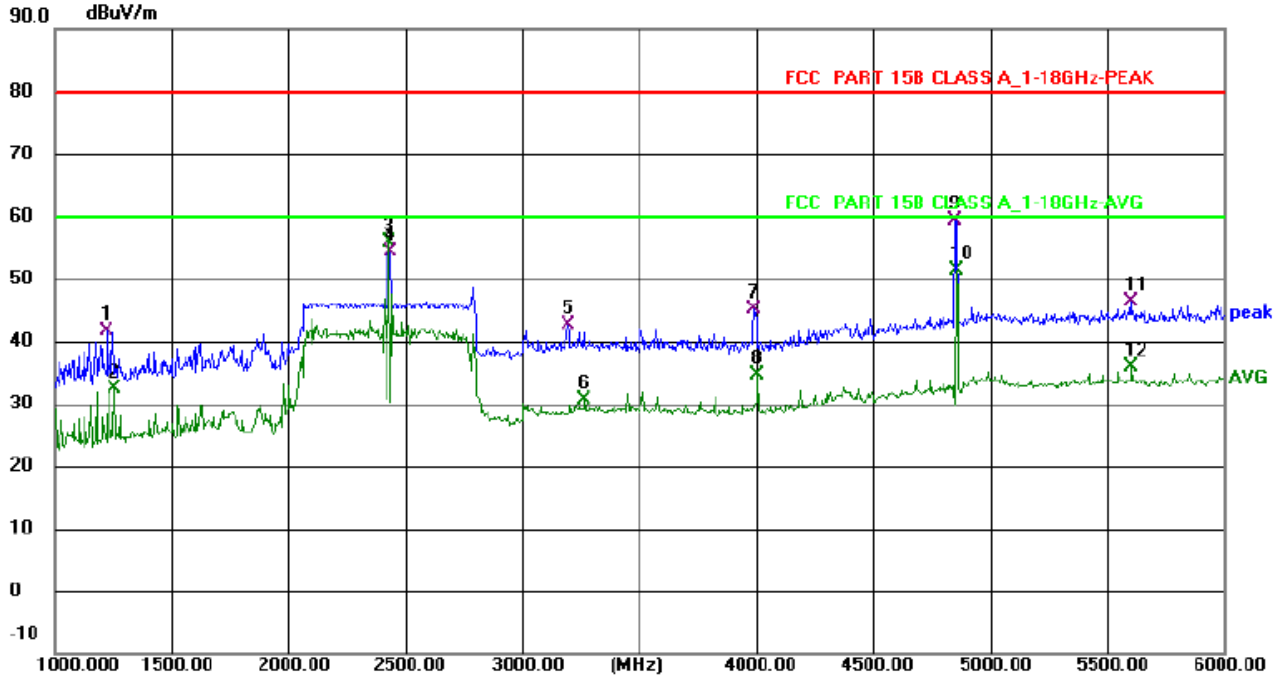
4.3.3 Test Data:

TM1 / Polarization: Horizontal



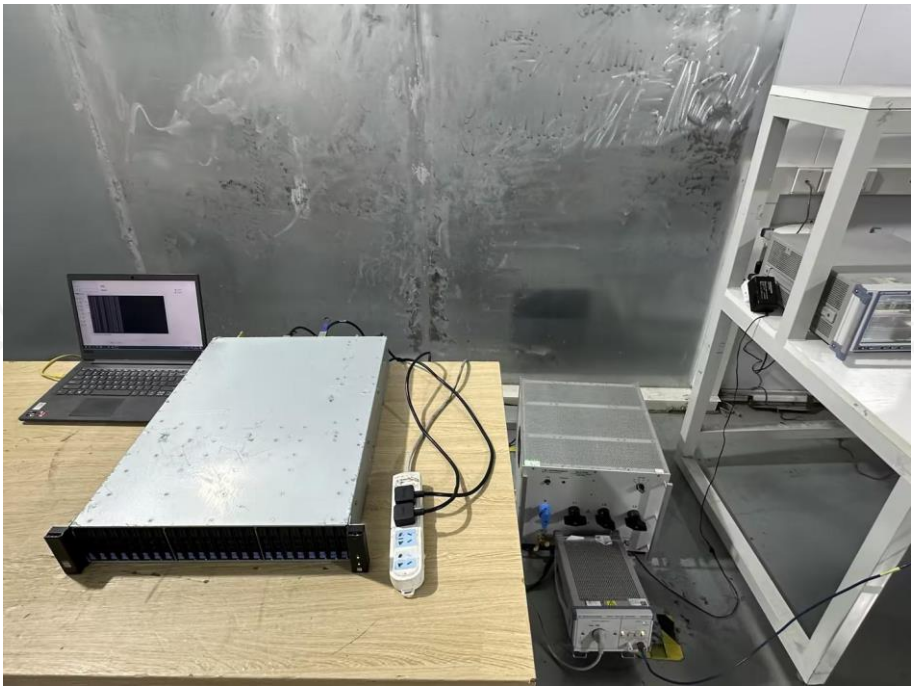
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1230.000	47.55	-15.22	32.33	60.00	-27.67	AVG	P	
2	1250.000	56.82	-15.22	41.60	80.00	-38.40	QP	P	
3	2285.000	66.61	-12.10	54.51	80.00	-25.49	QP	P	
4	2395.000	64.97	-11.71	53.26	60.00	-6.74	AVG	P	
5	2560.000	66.29	-11.14	55.15	80.00	-24.85	QP	P	
6	2775.000	55.28	-10.38	44.90	60.00	-15.10	AVG	P	
7	4620.000	57.88	-5.99	51.89	80.00	-28.11	QP	P	
8	4620.000	47.59	-5.99	41.60	60.00	-18.40	AVG	P	
9	4745.000	47.88	-5.38	42.50	60.00	-17.50	AVG	P	
10	4760.000	56.84	-5.30	51.54	80.00	-28.46	QP	P	
11	4935.000	55.73	-4.45	51.28	80.00	-28.72	QP	P	
12	4950.000	62.99	-4.36	58.63	60.00	-1.37	AVG	P	

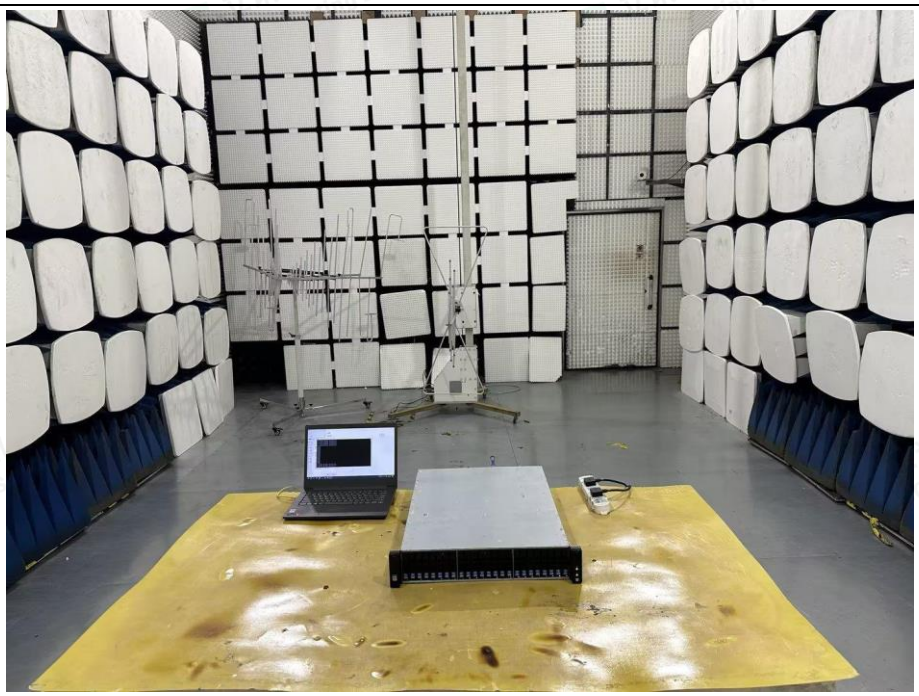
TM1 / Polarization: Vertical

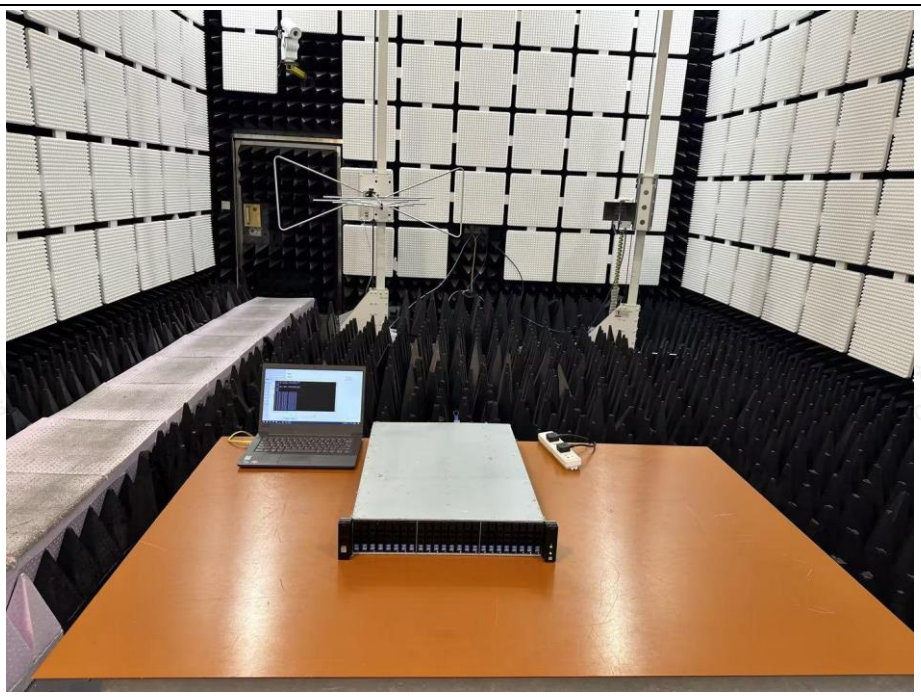


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1225.000	56.81	-15.21	41.60	80.00	-38.40	QP	P	
2	1255.000	47.67	-15.23	32.44	60.00	-27.56	AVG	P	
3	2430.000	67.37	-11.60	55.77	60.00	-4.23	AVG	P	
4	2435.000	66.07	-11.58	54.49	80.00	-25.51	QP	P	
5	3195.000	52.22	-9.52	42.70	80.00	-37.30	QP	P	
6	3265.000	40.15	-9.50	30.65	60.00	-29.35	AVG	P	
7	3990.000	53.63	-8.57	45.06	80.00	-34.94	QP	P	
8	4005.000	43.25	-8.52	34.73	60.00	-25.27	AVG	P	
9	4850.000	64.21	-4.85	59.36	80.00	-20.64	QP	P	
10	4855.000	56.25	-4.83	51.42	60.00	-8.58	AVG	P	
11	5600.000	49.69	-3.31	46.38	80.00	-33.62	QP	P	
12	5605.000	39.21	-3.31	35.90	60.00	-24.10	AVG	P	

5. TEST SETUP PHOTOS

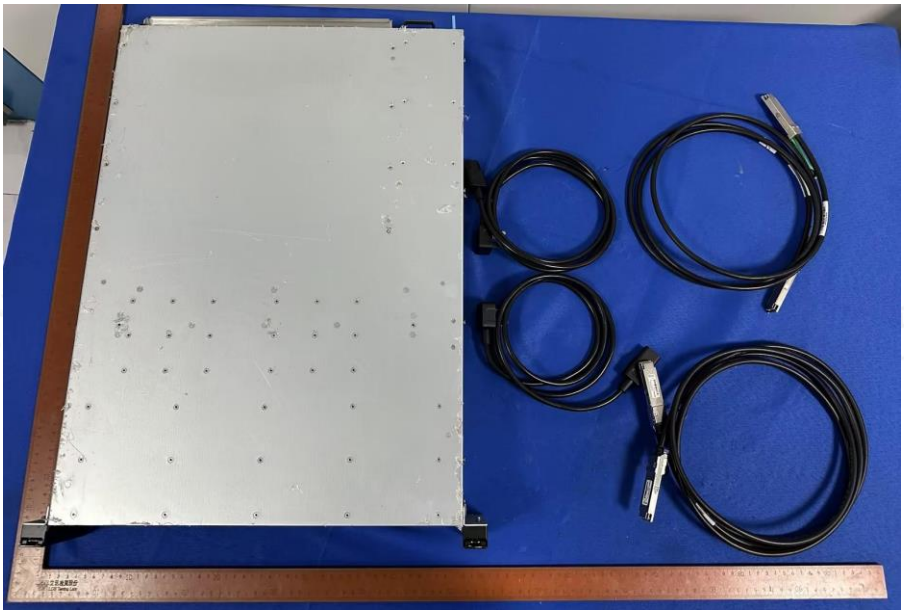
Conducted emissions on AC mains


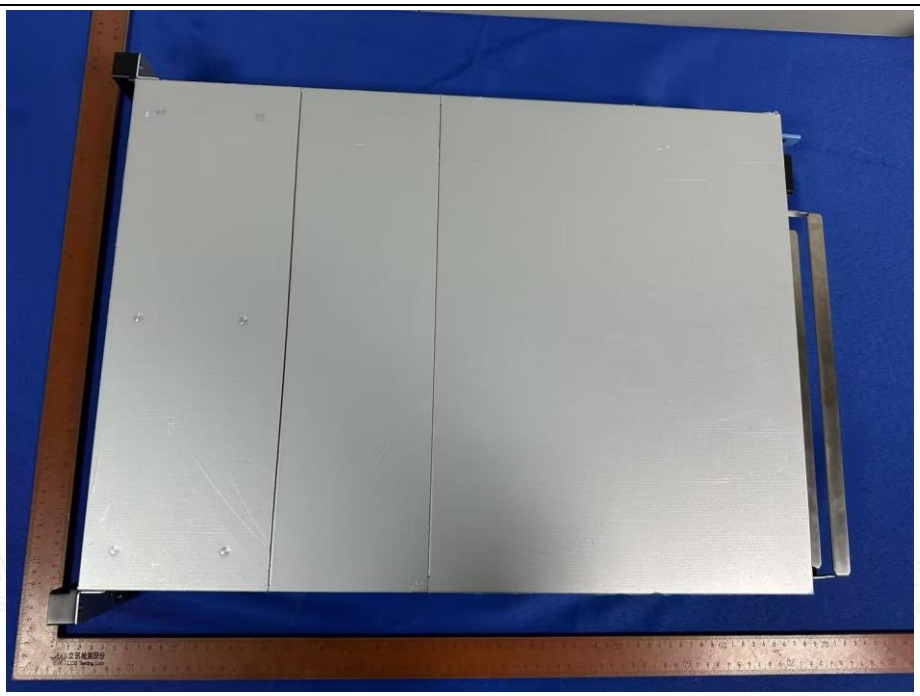
Radiated emissions (Below 1GHz)


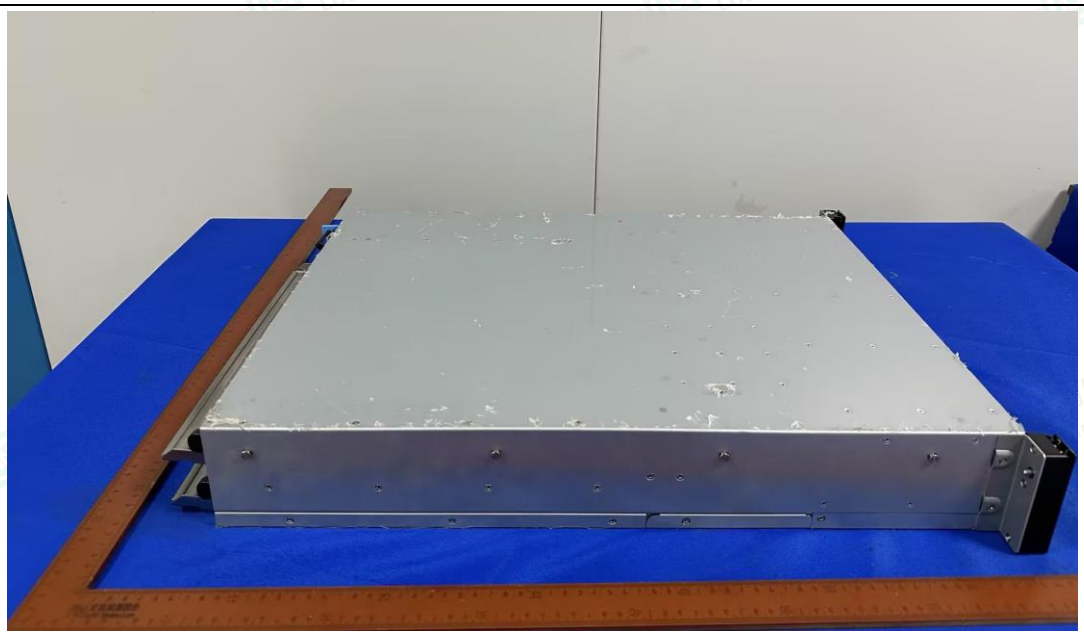
Radiated emissions (Above 1GHz)


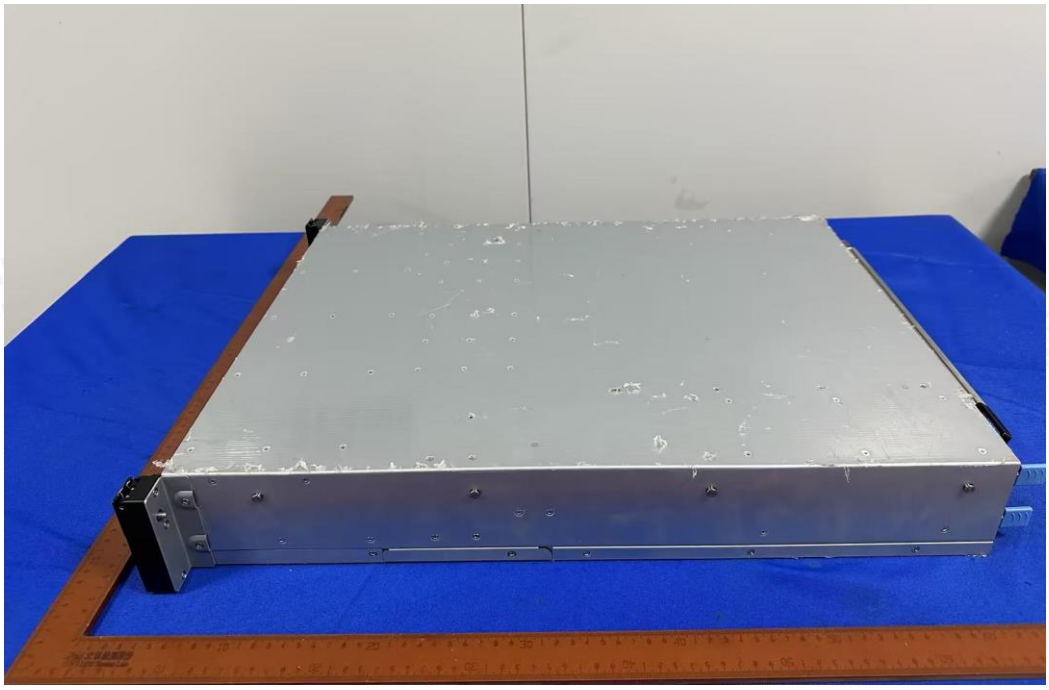
6. EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)

External









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