EMC TEST REPORT

Product Name: Rechargeable Lithium-Ion Battery

Model Number: PS5120E

Issued For : Huizhou Fuji Energy Technology Co., Ltd.

No.11-12 Factory, Huizhou Zhongkai Zhongji Zhigu Industrial Park,Shanbei Village, Lilin Town, HZZK Hi-tech Industrial Development Zone, Huizhou City, Guangdong Province, P.R.China

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China

Report Number:	LGT26F098EM01
Sample Received Date:	Jun. 10, 2026
Date of Test:	Jun. 10, 2026 ~ Jun. 16, 2026
Date of Issue:	Jun. 16, 2026

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TEST REPORT CERTIFICATION

Applicant:	Huizhou Fuji Energy Technology Co., Ltd.
Address:	No.11-12 Factory, Huizhou Zhongkai Zhongji Zhigu Industrial Park,Shanbei Village, Lilin Town, HZZK Hi-tech Industrial Development Zone, Huizhou City, Guangdong Province, P.R.China
Manufacturer:	Huizhou Fuji Energy Technology Co., Ltd.
Address:	No.11-12 Factory, Huizhou Zhongkai Zhongji Zhigu Industrial Park,Shanbei Village, Lilin Town, HZZK Hi-tech Industrial Development Zone, Huizhou City, Guangdong Province, P.R.China
Product Name:	Rechargeable Lithium-Ion Battery
Trademark:	N/A
Model Number:	PS5120E
Sample Status:	Normal

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
EN IEC 61000-6-3:2021 EN IEC 61000-6-1:2019	PASS

Prepared by:

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Engineer

Approved by:

Vita Li

Technical Director

SHENZHEN LGT TEST SERVICE CO., LTD. LGT 领冠检测

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Revision History

Rev.	Issue Date	Contents
00	Jun. 16, 2026	Initial Issue

1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgement	Remark
EN IEC 61000-6-3:2021	Conducted Emissionon AC And Telecom Port 150kHz to 30MHz	Class B	N/A	**NOTE (3)**
	Radiated Emission 30MHz to 1000MHz	Class B	Pass	
	Radiated Emission 1GHz to 6GHz	Class B	Pass	**NOTE (1)**
EN IEC 61000-3-2:2019+A1:2021+A2:2024	Harmonic Current Emission	Class A	N/A	**NOTE (2)**
EN 61000-3-3:2013+A1:2019+A2:2021	Voltage Fluctuations & Flicker	------	N/A	**NOTE (2)**
EMC Immunity				
Section EN IEC 61000-6-1:2019	Test Item	Performance Criteria	Judgement	Remark
EN 61000-4-2:2009	Electrostatic discharges	B	Pass	
EN IEC 61000-4-3:2020	Continuous RF electromagnetic field disturbances	A	Pass	
EN 61000-4-4:2012	Electrical fast transients/burst	B	N/A	**NOTE (2)**
EN 61000-4-5:2014+A1:2017	Surges	B	N/A	**NOTE (2)**
EN IEC 61000-4-6:2023	Continuous induced RF disturbances	A	N/A	**NOTE (2)**
EN 61000-4-8:2010	Power frequency magnetic field	A	Pass	
EN IEC 61000-4-11:2020	Voltage dips and interruptions	B / C / C	N/A	**NOTE (2)**

Note: (1) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz.

If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.

If the highest frequency of the internal sources of the EUT is between 500 MHz and 1GHz, the measurement shall only be made up to 5 GHz.

If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times of the highest frequency or 6 GHz, whichever is less.

(2) N/A=Not Applicable.

(3) The cable length of DC port is less than or equal to 3m (defined by the manufacturer). Therefore, the test for DC power ports are not applicable for this EUT.

1.1 TEST LABORATORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China

1.2 MEASUREMENT UNCERTAINTY

Test Item	Measurement Frequency Range MHz	Uncertainty dB
Conducted Emissions at AC mains power port	0.009 ~ 30	2.80
Conducted Emissions at telecommunication port	0.15 ~ 30	3.70
Radiated Emissions	30 ~ 1000	4.61
Radiated Emissions	1000 ~ 6000	5.10
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. The measurement uncertainty is not included in the test result.		

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name:	Rechargeable Lithium-Ion Battery
Test Model Number:	PS5120E
Series Number:	N/A
Model Difference:	N/A
Maximum operating frequency:	>108MHz
Rating:	Capacity: 100Ah Nominal Voltage Range: 44.8V-58.4V Nominal voltage: 51.2V Charging voltage: 57.6V Standard charging current: 50A Standard discharge current: 50A Max charge duration current: 80A Max discharge duration current: 100A
Test Voltage:	DC 58.4V
Hardware Version:	N/A
Software Version:	N/A
Connecting I/O Port(s):	Please refer to the Note 1.

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2. The EUT information in the table of section 2.1 is provided by the applicant.

3. LGT is not responsible for wrong test results due to incorrect information (e.g., max. internal operating frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).

4. LGT is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

5. Sample source: sent by customer.

2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	Charging
Mode 2	Discharging

For Radiated Emission	
Final Test Mode	Description
Mode 1	Charging
Mode 2	Discharging

For EMS Test	
Final Test Mode	Description
Mode 1	Charging
Mode 2	Discharging

2.3 DESCRIPTION OF THE SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the test.

Accessories Equipment

Description	Manufacturer	Model	S/N	Rating

Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Bi-directional programmable DC power supply	Kewell	D2000N-100K-2000-150-IV	N/A	N/A
Multimeter	CHNT	ZTW890CS+ PRO	N/A	N/A

Note:

(1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.4 MEASUREMENT INSTRUMENTS LIST

Radiated Emission					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Cal. Until**
EMI Test Receiver	R&S	ESU8	100372	2026-03-02	2027-03-01
Spectrum Analyzer	Keysight	N9020A	MY50530994	2026-03-02	2027-03-01
Spectrum Analyzer	Keysight	N9010B	MY60242508	2026-03-03	2027-03-02
Trilog Broadband Antenna	SCHWARZBECK	VULB 9168	01447	2024-05-17	2027-05-16
Horn Antenna	SCHWARZBECK	3115	10SL0060	2025-03-10	2028-03-09
Pre-amplifier (9kHz-1GHz)	EMtrace	RP01A	02017	2026-03-02	2027-03-01
Pre-amplifier (1-26.5G)	Agilent	8449B	3008A4722	2026-03-02	2027-03-01
Temperature & Humidity	JINGCHUANG	BT-3	N.A	2026-03-05	2027-03-04
Testing Software	SKET	EMC-I	V1.4.0.3	N/A	N/A
Electrostatic Discharge (ESD)					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Cal. Until**
ESD TEST GENERATOR	PRIMA	ESD61002TA	PR230725090	2026-03-03	2027-03-02
Temperature & Humidity	SuWei	ST-W2318	N.A	2026-03-05	2027-03-04
Radio Frequency Electromagnetic Fields (RS)					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Cal. Until**
Power Sensor	R&S	Z11	116655	2026-03-02	2027-03-01
Power Sensor	R&S	Z11	121896	2026-03-02	2027-03-01
Signal Generator	Agilent	N5181A	MY47070409	2026-03-02	2027-03-01
Power Amplifier	SKET	HAP_80M01G -250W	S202211402	2026-03-02	2027-03-01
Power Amplifier	SKET	HAP_010G06 0G-80W	S202211403	2026-03-02	2027-03-01
RS Test Antenna	SKET	STLP 9129 Plus	SK202210120 06	N.A	N.A
Power frequency magnetic field (PFMF)					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Cal. Until**
Power Frequency Magnetic Field Generator	PRIMA	PFM61008TG	PR211281444	2026-03-02	2027-03-01
Temperature & Humidity	JINGCHUANG	BT-3	N.A	2026-03-05	2027-03-04

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 LIMIT

(Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	AC mains port		Wired network port		DC power port	
	Quasi-peak (dBμV)	Average (dBμV)	Quasi-peak (dBμV)	Average (dBμV)	Quasi-peak (dBμV)	Average (dBμV)
0.15 ~ 0.5	66 to 56 *	56 to 46 *	87 to 74 *	74 to 64 *	79	66
0.5 ~ 5	56	46	74	64	73	60
5 ~ 30	60	50	74	64	73	60

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

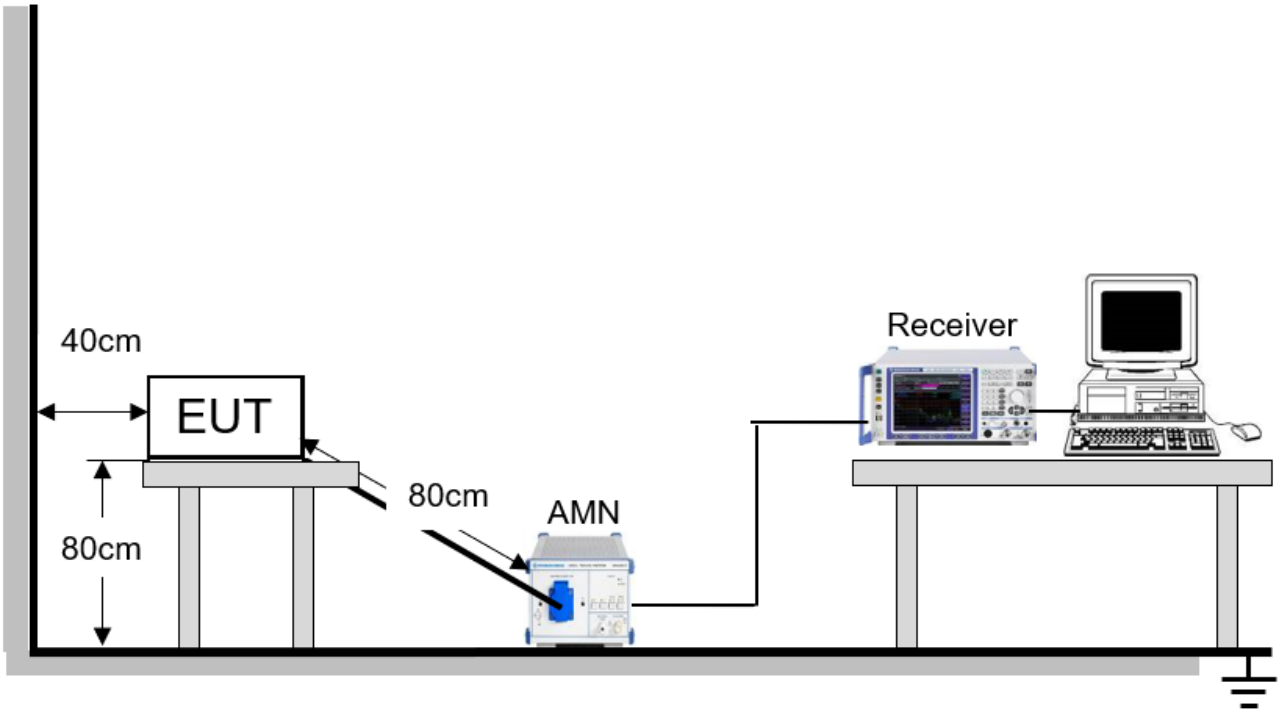
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provides 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

d. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TESTSETUP



3.1.4 TEST RESULTS

N/A.

Remak:
1.According to the electrical construction of the EUT, there is no AC terminal incorporated and no dedicated AC/DC adaptor. Therefore, this test is not applicable for this EUT.
2.The cable length of DC port is less than or equal to 3m (defined by the manufacturer).

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF THE RADIATED EMISSION MEASUREMENT (Below 1000MHz)

FREQUENCY (MHz)	At 10m dBμV/m	At 3m dBμV/m
30 ~ 230	30	40
230 ~ 1000	37	47

3.2.2 LIMITS OF THE RADIATED EMISSION MEASUREMENT(Above 1000MHz)

FREQUENCY (MHz)	At 3m dBμV/m	
	Peak	Average
1000 ~ 3000	70	50
3000 ~ 6000	74	54

Notes:

(1) The limit for radiated test was performed in the following:CISPR 32.

(2) The tighter limit applies at the band edges.

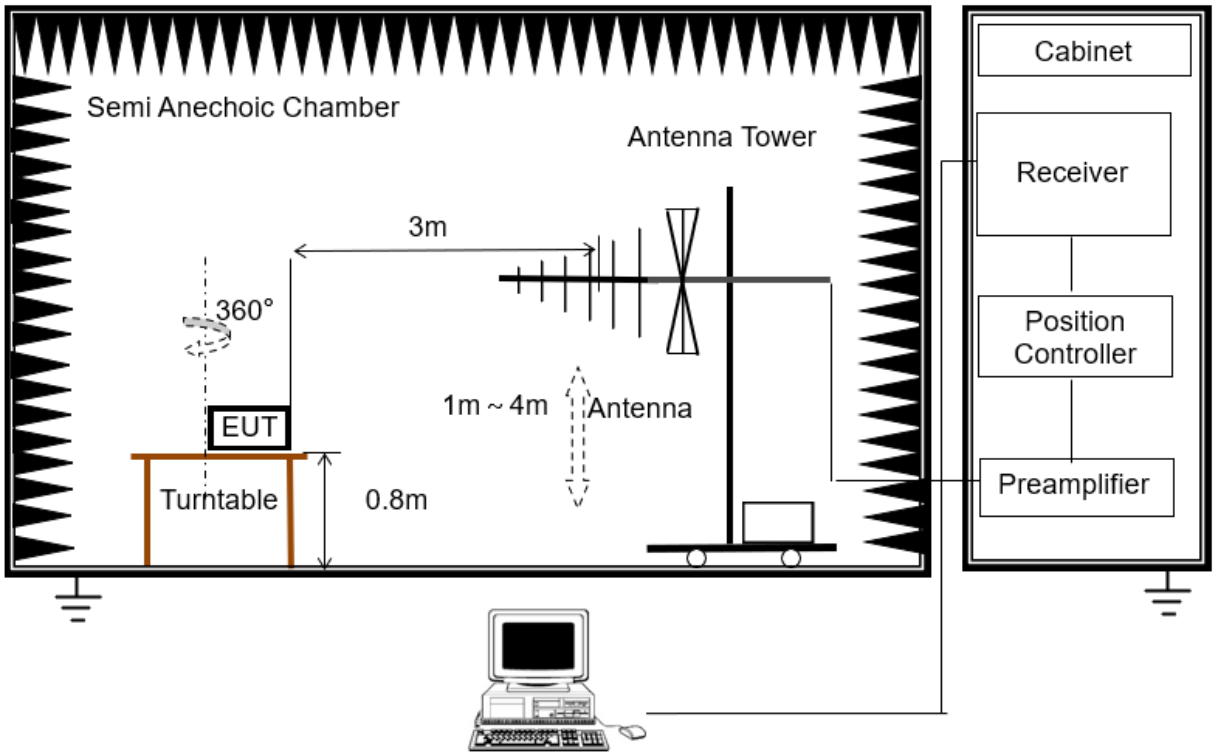
(3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.3 TEST PROCEDURE

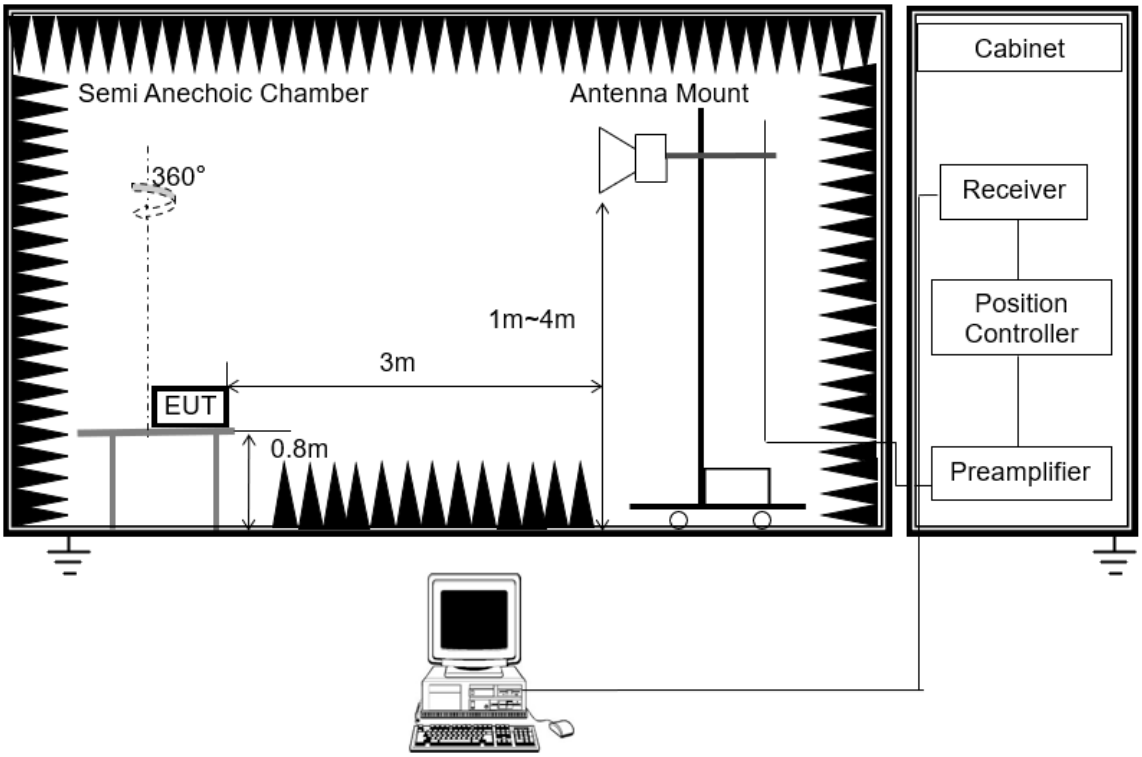
a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
b. EUT as the center to the edge of the auxiliary device, the distance from the maximum edge to the center of the antenna is 3 meters.
c. The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degree to 360 degrees to find the maximum reading.
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.4 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



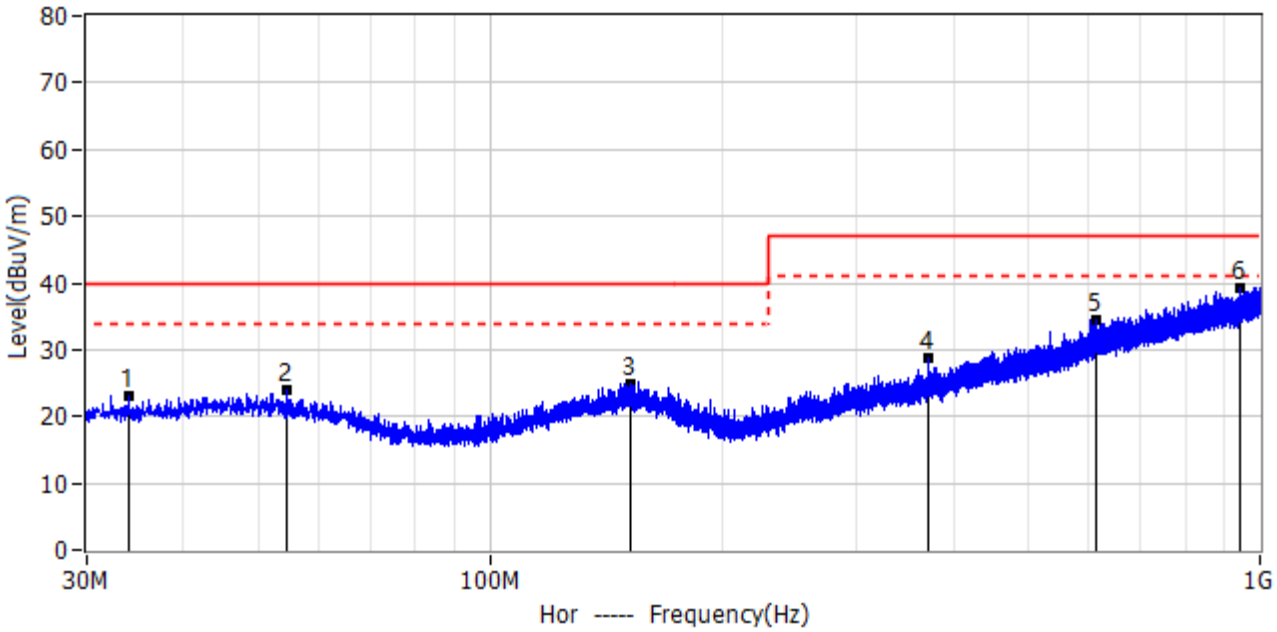
(B) Radiated Emission Test Set-Up Frequency Above 1GHz



3.2.5 TEST RESULTS

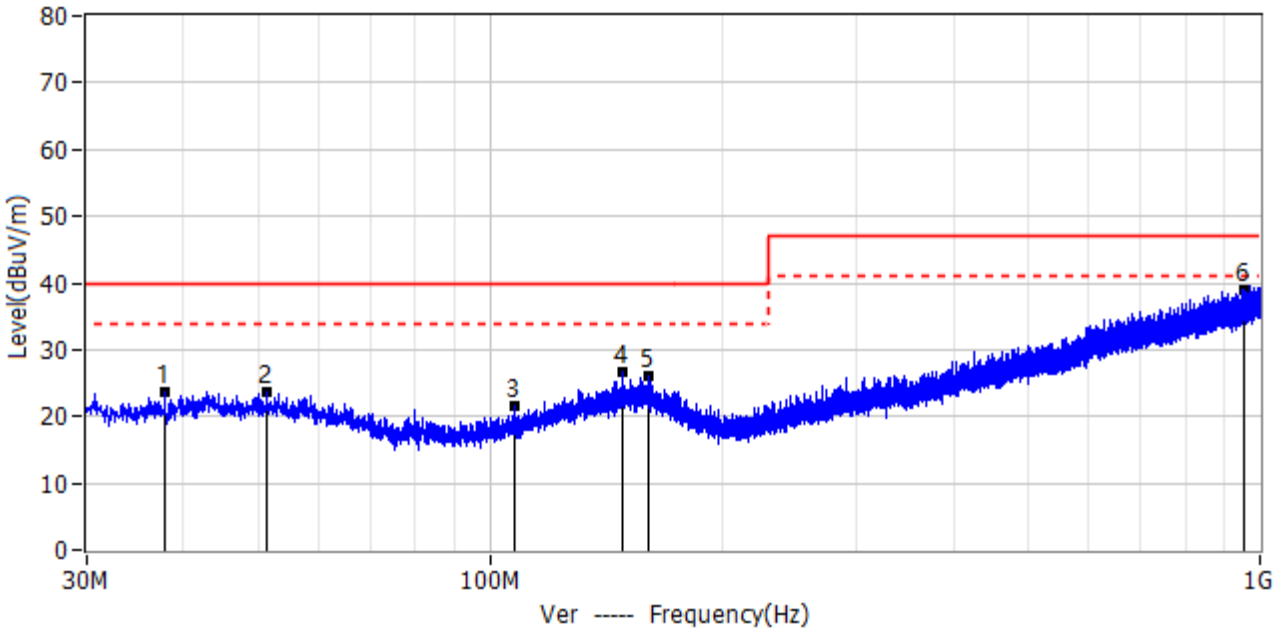
Below 1GHz

Project: LGT26F098	Test Engineer: Bill Chen
EUT: Rechargeable Lithium-Ion Battery	Temperature: 26.2℃
M/N: PS5120E	Humidity: 58%RH
Test Voltage: DC 58.4V	Test Date: 2026-06-15
Test Mode: Charging	
Note:	



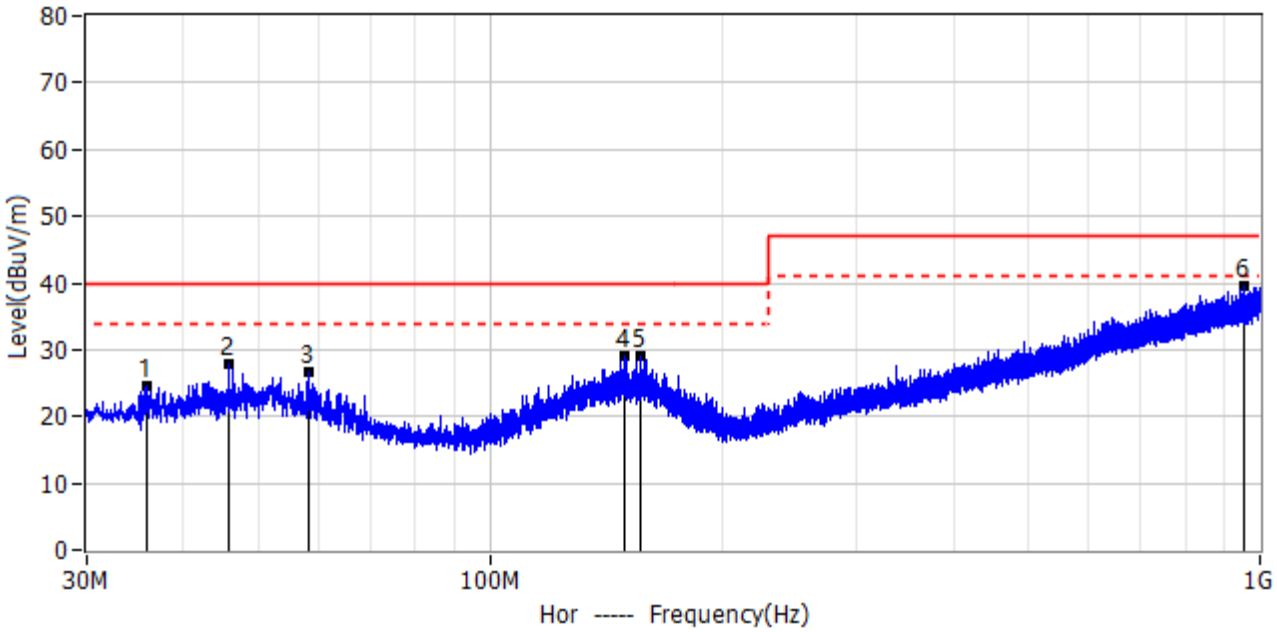
No.	Frequency MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	34.029	3.33	19.84	23.17	40.00	-16.83	QP	Hor
2*	54.524	3.56	20.50	24.06	40.00	-15.94	QP	Hor
3*	152.220	3.23	21.76	24.99	40.00	-15.01	QP	Hor
4*	371.390	4.52	24.28	28.80	47.00	-18.20	QP	Hor
5*	612.746	4.63	29.83	34.46	47.00	-12.54	QP	Hor
6*	942.546	4.58	34.74	39.32	47.00	-7.68	QP	Hor

Project: LGT26F098	Test Engineer: Bill Chen
EUT: Rechargeable Lithium-Ion Battery	Temperature: 26.2℃
M/N: PS5120E	Humidity: 58%RH
Test Voltage: DC 58.4V	Test Date: 2026-06-15
Test Mode: Charging	
Note:	



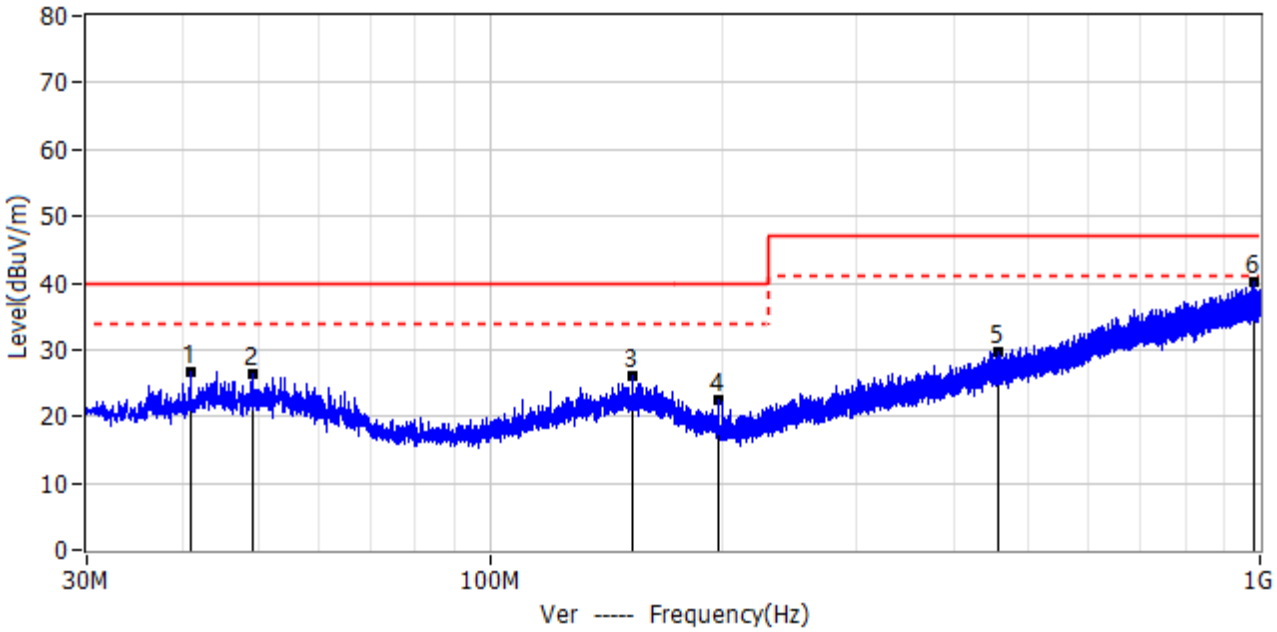
No.	Frequency MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	37.859	3.68	20.02	23.70	40.00	-16.30	QP	Ver
2*	51.340	2.96	20.86	23.82	40.00	-16.18	QP	Ver
3*	107.948	3.54	18.05	21.59	40.00	-18.41	QP	Ver
4*	148.788	4.71	21.98	26.69	40.00	-13.31	QP	Ver
5*	160.925	4.33	21.83	26.16	40.00	-13.84	QP	Ver
6*	951.102	4.12	34.96	39.08	47.00	-7.92	QP	Ver

Project: LGT26F098	Test Engineer: Bill Chen
EUT: Rechargeable Lithium-Ion Battery	Temperature: 26.2℃
M/N: PS5120E	Humidity: 58%RH
Test Voltage: DC 58.4V	Test Date: 2026-06-15
Test Mode: Discharging	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	35.969	4.44	20.16	24.60	40.00	-15.40	QP	Hor
2*	45.769	7.21	20.70	27.91	40.00	-12.09	QP	Hor
3*	58.055	6.74	19.93	26.67	40.00	-13.33	QP	Hor
4*	149.285	7.18	21.97	29.15	40.00	-10.85	QP	Hor
5*	156.846	6.80	22.35	29.15	40.00	-10.85	QP	Hor
6*	956.126	4.50	35.02	39.52	47.00	-7.48	QP	Hor

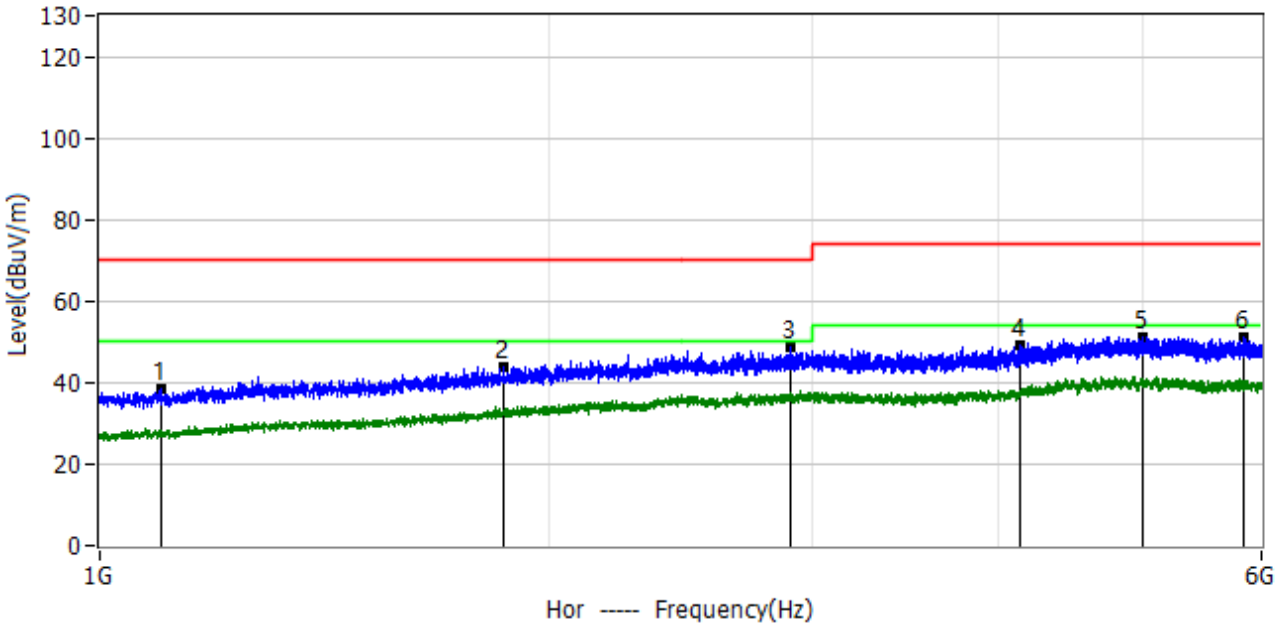
Project: LGT26F098	Test Engineer: Bill Chen
EUT: Rechargeable Lithium-Ion Battery	Temperature: 26.2℃
M/N: PS5120E	Humidity: 58%RH
Test Voltage: DC 58.4V	Test Date: 2026-06-15
Test Mode: Discharging	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	40.993	6.03	20.64	26.67	40.00	-13.33	QP	Ver
2*	49.301	5.33	20.92	26.25	40.00	-13.75	QP	Ver
3*	153.265	3.86	22.13	25.99	40.00	-14.01	QP	Ver
4*	197.885	4.46	18.06	22.52	40.00	-17.48	QP	Ver
5*	456.054	3.14	26.47	29.61	47.00	-17.39	QP	Ver
6*	984.281	4.65	35.46	40.11	47.00	-6.89	QP	Ver

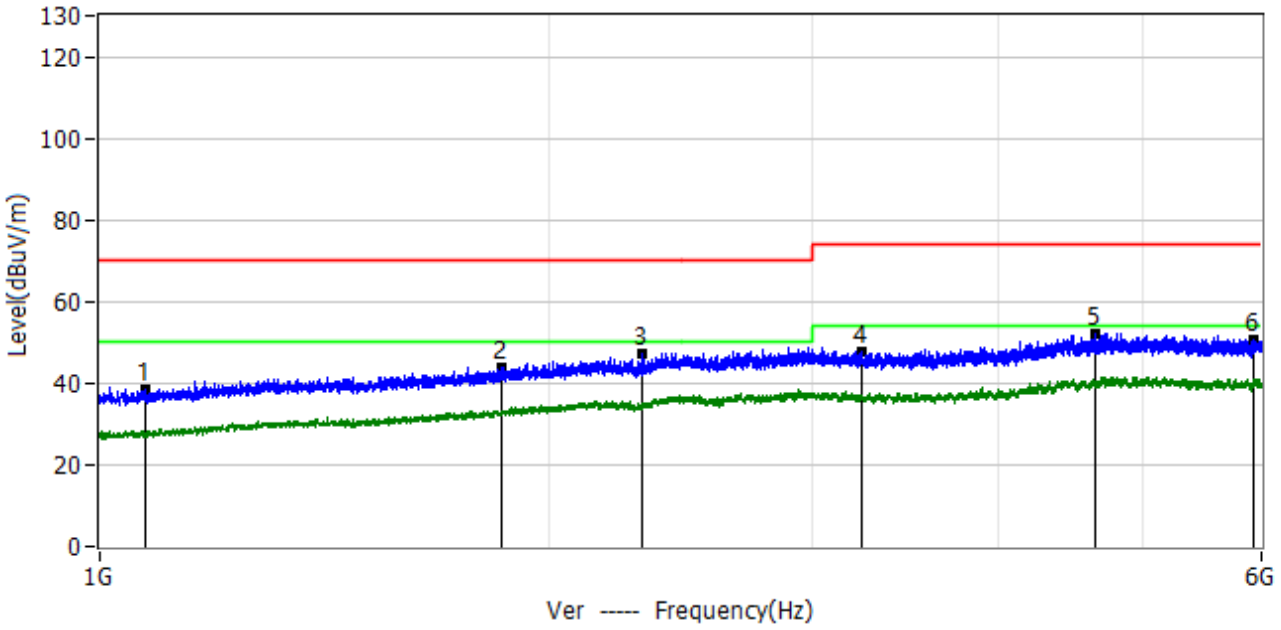
Above 1GHz

Project: LGT26F098	Test Engineer: Bill Chen
EUT: Rechargeable Lithium-Ion Battery	Temperature: 26.2℃
M/N: PS5120E	Humidity: 58%RH
Test Voltage: DC 58.4V	Test Date: 2026-06-15
Test Mode: Charging	
Note:	



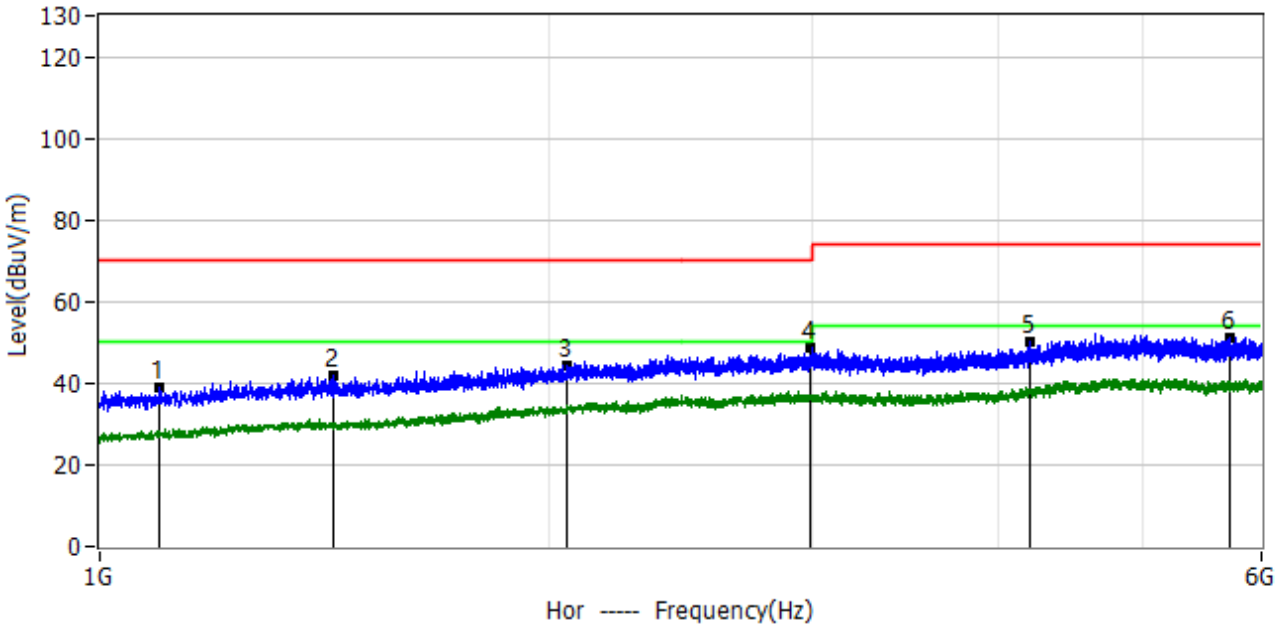
No.	Frequency MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1100.000	62.77	-24.23	38.54	70.00	-31.46	PK	Hor
2*	1863.000	60.30	-16.43	43.87	70.00	-26.13	PK	Hor
3*	2902.000	57.12	-8.52	48.60	70.00	-21.40	PK	Hor
4*	4134.000	56.38	-7.13	49.25	74.00	-24.75	PK	Hor
5*	5001.000	57.29	-6.01	51.28	74.00	-22.72	PK	Hor
6*	5833.000	59.31	-7.95	51.36	74.00	-22.64	PK	Hor

Project: LGT26F098	Test Engineer: Bill Chen
EUT: Rechargeable Lithium-Ion Battery	Temperature: 26.2℃
M/N: PS5120E	Humidity: 58%RH
Test Voltage: DC 58.4V	Test Date: 2026-06-15
Test Mode: Charging	
Note:	



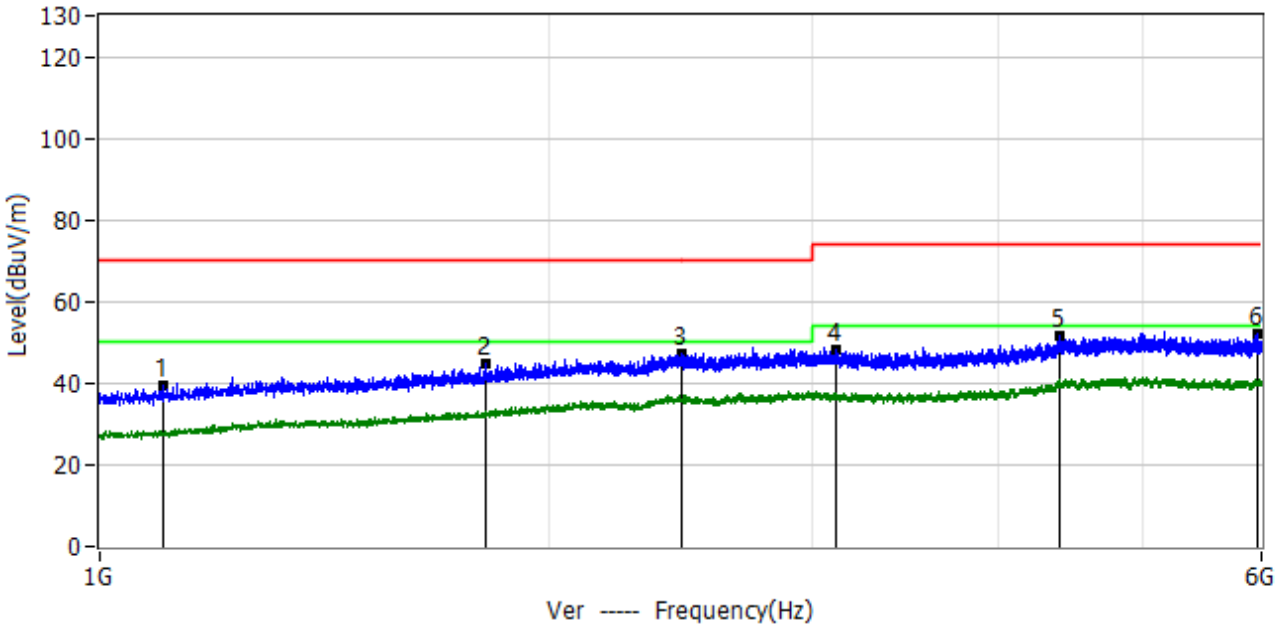
No.	Frequency MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1074.000	62.95	-24.52	38.43	70.00	-31.57	PK	Ver
2*	1858.000	60.46	-16.50	43.96	70.00	-26.04	PK	Ver
3*	2306.000	59.32	-11.94	47.38	70.00	-22.62	PK	Ver
4*	3234.000	56.05	-8.21	47.84	74.00	-26.16	PK	Ver
5*	4640.000	57.66	-5.71	51.95	74.00	-22.05	PK	Ver
6*	5928.000	58.74	-7.97	50.77	74.00	-23.23	PK	Ver

Project: LGT26F098	Test Engineer: Bill Chen
EUT: Rechargeable Lithium-Ion Battery	Temperature: 26.2℃
M/N: PS5120E	Humidity: 58%RH
Test Voltage: DC 58.4V	Test Date: 2026-06-15
Test Mode: Discharging	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1096.000	63.10	-24.28	38.82	70.00	-31.18	PK	Hor
2*	1435.000	62.51	-20.88	41.63	70.00	-28.37	PK	Hor
3*	2053.000	58.69	-14.28	44.41	70.00	-25.59	PK	Hor
4*	2996.000	56.64	-8.14	48.50	70.00	-21.50	PK	Hor
5*	4202.000	57.06	-6.85	50.21	74.00	-23.79	PK	Hor
6*	5718.000	59.07	-7.93	51.14	74.00	-22.86	PK	Hor

Project: LGT26F098	Test Engineer: Bill Chen
EUT: Rechargeable Lithium-Ion Battery	Temperature: 26.2℃
M/N: PS5120E	Humidity: 58%RH
Test Voltage: DC 58.4V	Test Date: 2026-06-15
Test Mode: Discharging	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1101.000	63.73	-24.22	39.51	70.00	-30.49	PK	Ver
2*	1816.000	61.69	-17.01	44.68	70.00	-25.32	PK	Ver
3*	2451.000	57.67	-10.60	47.07	70.00	-22.93	PK	Ver
4*	3112.000	56.42	-8.16	48.26	74.00	-25.74	PK	Ver
5*	4391.000	57.88	-6.06	51.82	74.00	-22.18	PK	Ver
6*	5958.000	59.97	-7.97	52.00	74.00	-22.00	PK	Ver

3.3 HARMONICS CURRENT

3.3.1 LIMITS OF THE HARMONICS CURRENT

Table 1 – Limits for Class A equipment

Harmonic order h	Maximum permissible harmonic current A
Odd harmonics	
3	2,30
5	1,14
7	0,77
9	0,40
11	0,33
13	0,21
$15 \le h \le 39$	$0{,}15\frac{15}{h}$
Even harmonics	
2	1,08
4	0,43
6	0,30
$8 \le h \le 40$	$0{,}23\frac{8}{h}$

Table 2 – Limits for Class C equipment [a]

Harmonic order h	Maximum permissible harmonic current expressed as a percentage of the input current at the fundamental frequency %
2	2
3	$30 \cdot \lambda$ [b]
5	10
7	7
9	5
$11 \le h \le 39$ (odd harmonics only)	3

[a] For some Class C products, other emission limits apply (see 7.4).

[b] λ is the circuit power factor.

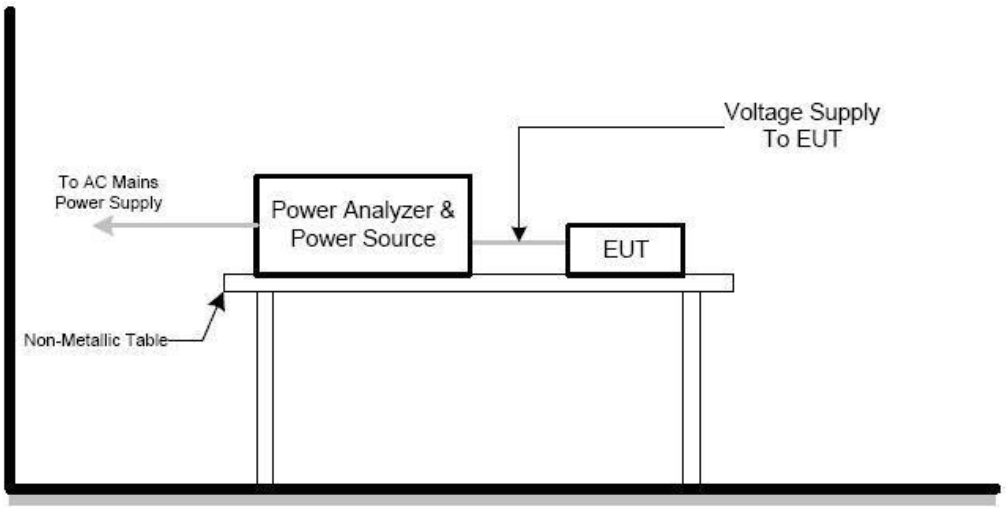
Table 3 – Limits for Class D equipment

Harmonic order h	Maximum permissible harmonic current per watt mA/W	Maximum permissible harmonic current A
3	3,4	2,30
5	1,9	1,14
7	1,0	0,77
9	0,5	0,40
11	0,35	0,33
$13 \le h \le 39$ (odd harmonics only)	$\frac{3{,}85}{h}$	See Table 1

3.3.2 TEST PROCEDURE

a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions.
b. The classification of EUT is according to section 5 of EN IEC 61000-3-2. The EUT is classified as follows:
Class A: Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.
Class B: Portable tools. Portable tools; Arc welding equipment which is not professional equipment.
Class C: Lighting equipment.
Class D: Equipment having a specified power less than or equal to600W of the following types: Personal computers and personal computer monitors and television receivers.
c. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

3.3.3 TEST SETUP



3.3.4 TEST RESULTS

N/A.

Remark: This part is applicable to the power input terminals of equipment intended to be connected to 220/380 V, 230/400 V and 240/415 V systems operating at 50 Hz or 60 Hz. Requirements and limits for other cases are not yet specified.

3.4 VOLTAGE FLUCTUATION AND FLICKERS

3.4.1 LIMITS OF THE VOLTAGE FLUCTUATION AND FLICKERS

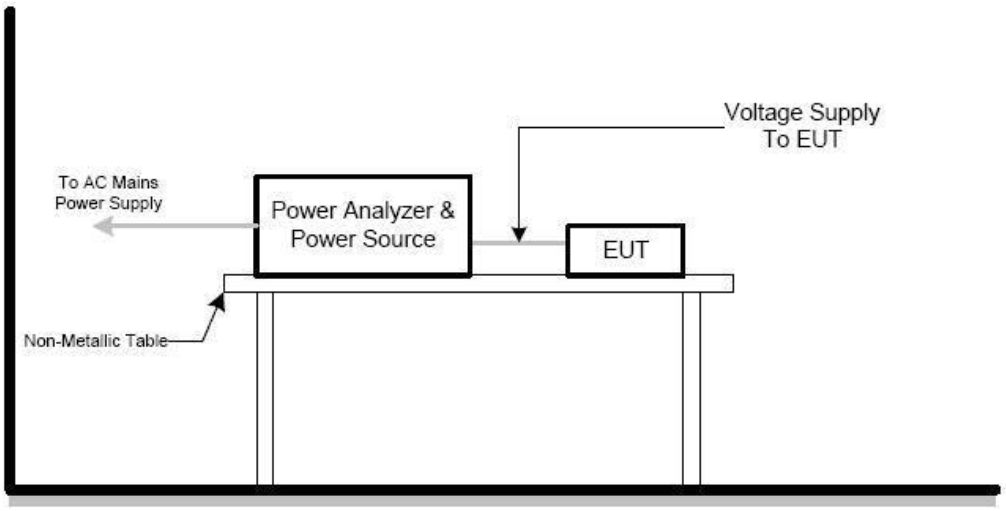
Tests	Measurement Value	Limit	Descriptions
	IEC555-3	IEC/EN 61000-3-3	
P_{st}	≤ 1.0,Tp= 10 min.	≤ 1.0,Tp= 10 min.	Short Term Flicker Indicator
P_{lt}	N/A	≤0.65,Tp=2 hr.	Long Term Flicker Indicator
$T_{dt(s)}$	≤ 3%	≤ 3.3%	Relative Steady-State V-Chang
d_{max}(%)	≤ 4%	≤ 4%	Maximum Relative V-Chang
d_c(%)	N/A	≤3.3% for > 500ms	Relative V-change Characteristic

3.4.2 TEST PROCEDURE

b. Fluctuation and Flickers Test:
Tests was performed according to the Test Conditions/Assessment of Voltage Fluctuations specified in Clause 5.0/6.0 of IEC555-3 and/or Clause 6.0/4.0 of IEC/EN 61000-3-3 depend on which standard adopted for compliance measurement.

c. All types of voltage fluctuation in this report are assessed by direct measurement using flicker-meter.

3.4.3 TEST SETUP



3.4.4 TEST RESULTS

N/A.

Remark: This part is applicable to electrical and electronic equipment having an input current equal to or less than 16 A per phase, intended to be connected to public low-voltage distribution systems of between 220 V and 250 V line to neutral at 50 Hz, and not subject to conditional connection.

4. EMC IMMUNITY TEST

4.1 STANDARD COMPLIANCE/SERVRITY LEVEL/CRITERIA

Tests Standard No.	TEST SPECIFICATION	Test Mode Test Ports	Perform. Criteria
1. ESD IEC/EN 61000-4-2	8KV air discharge 4KV contact discharge	Direct Mode	B
	4KV HCP discharge 4KV VCP discharge	Indirect Mode	B
2. RS IEC/EN 61000-4-3	80 MHz - 1000 MHz, 1.4 GHz - 6.0 GHz, 1000Hz, 80%,AM modulated	Enclosure	A
3. EFT/Burst IEC/EN 61000-4-4	5/50ns Tr/Th 5KHz Repetition Freq.	Power Supply Port	B
	5/50ns Tr/Th 5KHz Repetition Freq.	CTL/Signal Data Line Port	B
4. Surges IEC/EN 61000-4-5	1.2/50(8/20) Tr/Th us	L-N	B
	1.2/50(8/20) Tr/Th us	L-PE N-PE	B
5. Injected Current IEC/EN 61000-4-6	0.15 MHz to 80 MHz, 1000Hz 80 % , AM Modulated 150Ω source impedance	CTL/Signal Port	A
	0.15 MHz to 80 MHz, 1000Hz 80 % , AM Modulated 150Ω source impedance	AC Power Port	A
	0.15 MHz to 80 MHz, 1000Hz 80 % , AM Modulated 150Ω source impedance	DC Power Port	A
6. Power Frequency Magnetic Field IEC/EN 61000-4-8	50 Hz	Enclosure	A
7. Volt. Interruptions Volt. Dips IEC/EN 61000-4-11	Voltage dip 100% Voltage dip 30% Interruption 100%	AC Power Port	B C C

4.2 GENERAL PERFORMANCE CRITERIA

According to **EN IEC 61000-6-1** standard, the general performance criteria are as follows:

Criterion A	The apparatus shell continues to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the manufacturer does not specify the minimum performance level or the permissible performance loss, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion B	After test, the apparatus shell continues to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomenon below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. However, no change of operating state if stored data is allowed to persist after the test. If the manufacturer does not specify the minimum performance level or the permissible performance loss, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion C	Temporary loss of function is allowed, provided the functions is self-recoverable or can be restored by the operation of controls by the user in accordance with the manufacturer instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

If, as a result of the application of the tests defined in this standard, the EUT becomes dangerous or unsafe, it shall be deemed to have failed the test.

Remark:
1.During and after the test, monitoring the DC voltage, current and indicator light of EUT.
2.The cable length of DC port is less than or equal to 3m (defined by the manufacturer).

4.3 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

4.3.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Required Performance:	B
Discharge Voltage:	Air Discharge: 2KV/4KV/8KV (Direct) Contact Discharge: 4KV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	Air Discharge: at least10 times on each point Contact Discharge: at least 10 times on each point 50 times at each test point
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum

4.3.2 TEST PROCEDURE

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manners:

a. Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal operation
The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.

The time interval between two successive single discharges was at least 1 second.

The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the EUT.

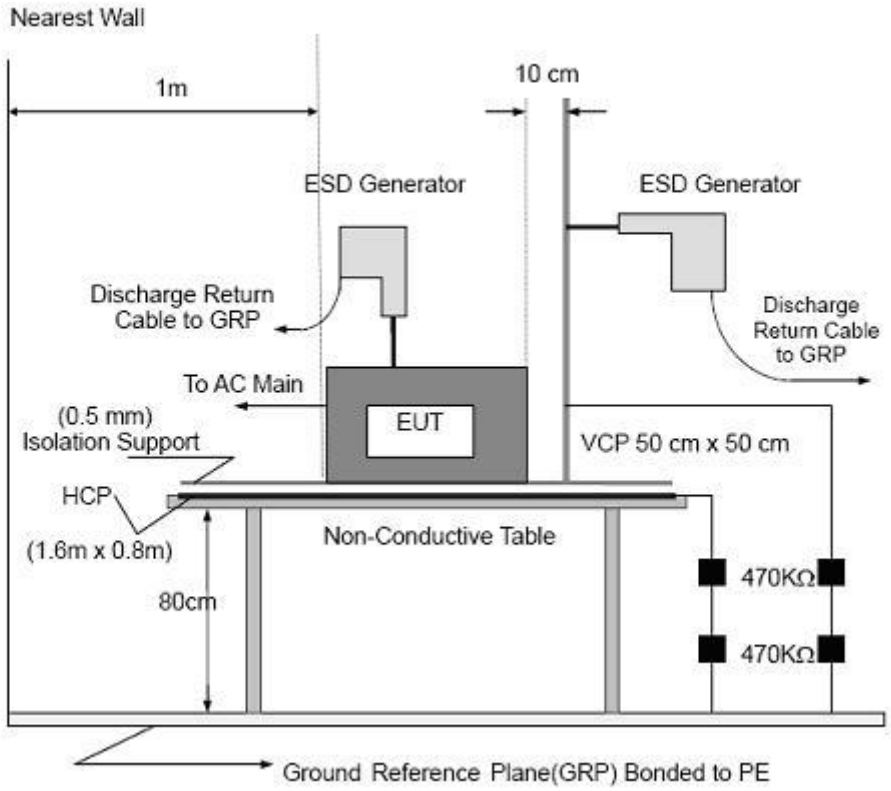
Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.

Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were completely.

Vertical Coupling Plane (VCP):
The coupling plane of dimensions 0.5m x 0.5m, is placed parallel to and positioned at a distance 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.
The four faces of the EUT will be performed with electrostatic discharge.
Horizontal Coupling Plane (HCP):
The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the discharge electrode touching the coupling plane.
The four faces of the EUT will be performed with electrostatic discharge.

b. Air discharges at insulation surfaces of the EUT.
It was at least ten single discharges with positive and negative at the same selected point.

4.3.3 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP by means of a cable with 940kΩ total impedance. The equipment under test was installed in a representative system as described in section 7 of IEC /EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of 0.8 meters minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC/EN 61000-4-2, and its cables were isolated from the ground reference plane by an insulating support of0.1meter thickness. The GRP was consisted of a sheet of aluminum that is at least 0.25mm thick, and extended at least 0.5 meters from the EUT on all sides.

4.3.4 TEST RESULTS

Temperature:	24.6℃	Relative Humidity:	53%
Pressure:	1017.8hPa	Test Date:	2026.06.15

Discharge times	Contact discharge: minimum 10 times (+/-respectively) at each point Air discharge: minimum 10 times (+/- respectively) at each point					
Discharge Level/KV	Polarity	Test Points	Contact Discharge	Air Discharge	Criterion	Test Result
2,4	+/-	HCP/VCP	A	N/A	B	Pass
2,4,	+/-	Green Dot	A	N/A	B	Pass
2,4,8	+/-	Red Dot	N/A	A	B	Pass
Note 1: EUT operate as intended during the test Normal performance within limits specified by the manufacturer, request or purchaser. Note 2: Red Dot_Air Discharged, Green Dot_Contact Discharged						





4.4 CONTINUOUS RF ELECTROMAGNETIC FIELD DISTURBANCES (RS)

4.4.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-3
Required Performance:	A
Frequency Range:	80MHz to 1000MHz, 1.4GHz to 6GHz
Field Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5 m
Dwell Time:	1.5x 10^{-3} decade/s

4.4.2 TEST PROCEDURE

a. The test was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.

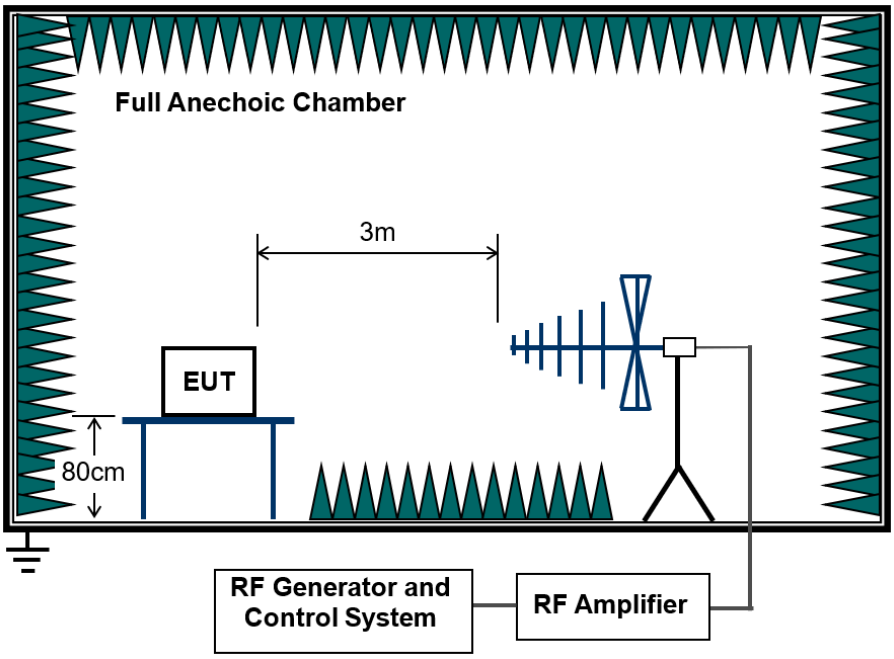
b. The test was swept over the frequency range with the signal 80% amplitude modulated with a 1kHz sine-wave. The rate of sweep did not exceed 1.5 x 10^{-3} decade/s, where the frequency range is swept incrementally, the step size was 1% of preceding frequency value.

c. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.

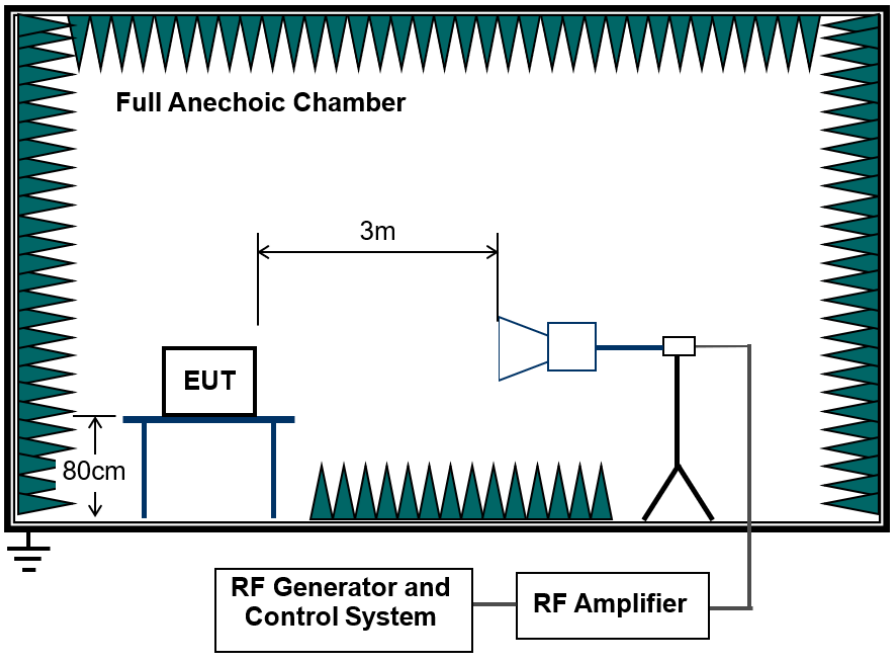
e. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

4.4.3 TEST SETUP

(A) RS Test Set-Up Frequency Below 1GHz



(B) RS Test Set-Up Frequency Above 1GHz



Note:

If due to its heavy weight or large physical size or for safety reasons, the equipment cannot be raised to the height of the UFA or removed from its delivery support (for example, a shipping pallet), it should be placed on the insulating pallet or other insulating support with a thickness of 0,05 m, or more. Non-conductive rollers, which are common on large and heavy EUTs, can be used.

4.4.4 TEST RESULTS

Temperature:	24.6℃	Relative Humidity:	53%
Test Power:	DC 58.4V	Test Date:	2026.06.15

Frequency Range (MHz)	Antenna polarity	Modulation	EUT position	Criterion	Result
80MHz-1000MHz	Horizontal Vertical	3 V/m 1KHz, 80% AM	Front	A	A
			Rear	A	A
			Left	A	A
			Right	A	A
1400MHz-6000MHz	Horizontal Vertical	3 V/m 1KHz, 80% AM	Front	A	A
			Rear	A	A
			Left	A	A
			Right	A	A
Note: EUT operate as intended during the test Normal performance within limits specified by the manufacturer, request or purchaser.					

4.5 ELECTRICAL FAST TRANSIENT (EFT)

4.5.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-4
Required Performance:	B
Test Voltage:	AC power ports: ±1kV DC power ports: ±0.5kV Signal/control ports: ±0.5kV
Polarity:	Positive & Negative
Impulse Frequency:	5 kHz
Impulse Wave shape:	5/50 ns
Burst Duration:	15ms
Burst Period:	300ms
Test Duration:	Not less than 1 min

4.5.2 TEST PROCEDURE

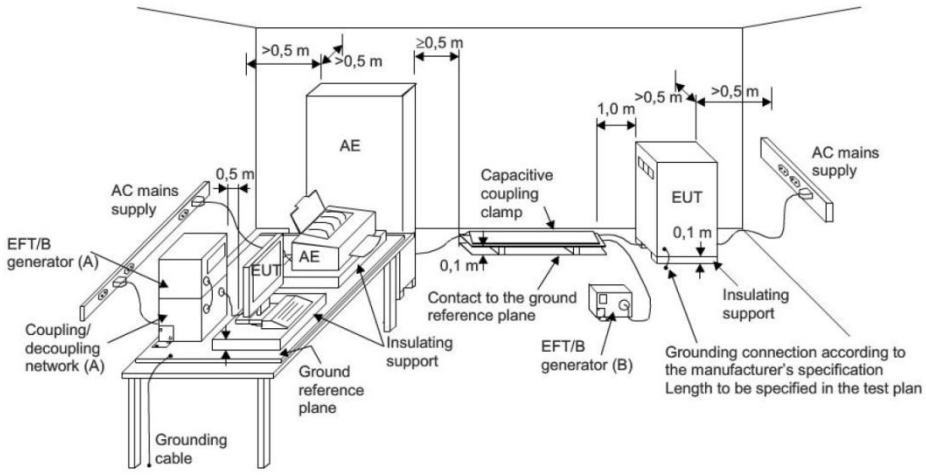
The ground reference plane shall be a metallic sheet (copper or aluminum) of 0.25 mm minimum thickness; other metallic materials may be used, but they shall have at least 0.65 mm minimum thickness
Another condition requires manners as following:

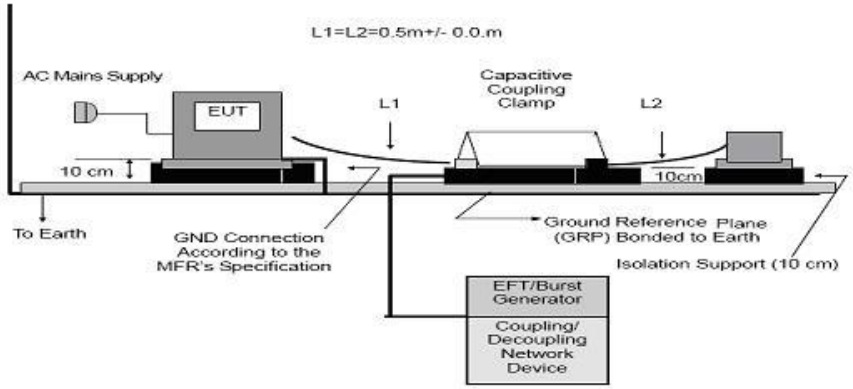
a. The length of power cord between the coupling device and the EUT should not exceed 1 meter.

b. Both positive and negative polarity discharges were applied.

c. The duration time of each test sequential was 1 minute.

4.5.3 TEST SETUP





Note:

TABLE-TOP EQUIPMENT

a. Table-top equipment and equipment normally mounted on ceilings or walls as well as built-in equipment shall be tested with the EUT located (0.1 ± 0.01) m above the ground reference plane.
b. Testing of large table-top equipment or multiple systems can be performed on the floor; maintaining the same distances as for the test setup of table-top equipment.
c. The test generator and the coupling/decoupling network shall be bonded to the ground reference plane.
d. The ground reference plane shall be a metallic sheet (copper or aluminum) of 0.25mm minimum thickness; other metallic materials may be used , but they shall have at least 0.65 mm minimum thickness.
e. The minimum size of the ground reference plane is 0.8m x 1m. The actual size depends on the dimension of the EUT.
f. The ground reference plane shall project beyond the EUT by at least 0.1m on all sides.
g. The ground reference plane shall be connected to the earth (PE) for safety reasons.
h. The EUT shall be arranged and connected to satisfy its functional requirements according to the equipment installation specifications.
i. The minimum distance between the EUT and all other conductive structures (including the generator, AE and the walls of a shielded room), except the ground reference plane, shall bemore than 0.5m.
j. AII cables to the EUT shall be placed on the insulation support 0.1m above the groundreference plane. Cables not subjectto electrical fasttransients shall be routed as far aspossible from the cable under testto minimize the coupling between the cables.
k. The EUT shall be connected tothe earth system in accordance with the manufacturer's installation specifications; no additional earth connections are allowed.
l. The connection impedance of the coupling/decoupling network earth cables to the groundreference plane and all connectors shall provide a low inductance.
m. Either a direct coupling network or a capacitive clamp shall be used for the application of the test voltages. The test voltages shall be coupled to all of the EUT ports in turn including those between two units of equipment involved in the test, unless the length of the interconnecting cable makes it impossible to test.

FLOOR-STANDING EQUIPMENT

When using the coupling clamp, the minimum distance between the coupling plates and all other conductive surfaces (including the generator), except the ground reference planebeneath the coupling clamp and beneath the EUT, shall be at least 0.5m.
The distance between any coupling devices and the EUT shall be (0.5 - 0/+0.1) m for tabletop equipment testing, and (1.0 ± 0.1) m for floor standing equipment, unless otherwise specified in product standards. When it is not physically possible to apply the distances mentioned above, other distances can be used and shall be recorded in the test report.
The cable between the EUT and the coupling device, if detachable, shall be as short as possible to comply with the requirements of this clause. If the manufacturer provides a cable exceeding the distance between the coupling device and the point of only of the EUT, the excess length of this cable shall be bundled and situated at a distance of 0.1m above the ground reference plane.
When a capacitive clamp is used as a coupling device, the excess cable length shall be bundled at the AE side.
Parts of the EUT with interconnecting cables of a length less than 3m, which are not tested,shall be placed on the insulating support. The parts of the EUT shall have a distance of 0.5mbetween them. Excess cable length shall be bundled.

4.5.4 TEST RESULTS

N/A.

Remak:
1.According to the electrical construction of the EUT, there is no AC terminal incorporated and no dedicated AC/DC adaptor. Therefore, this test is not applicable for this EUT.
2.The cable length of DC port is less than or equal to 3m (defined by the manufacturer).

4.6 SURGE TESTING

4.6.1 TEST SPECIFICATION

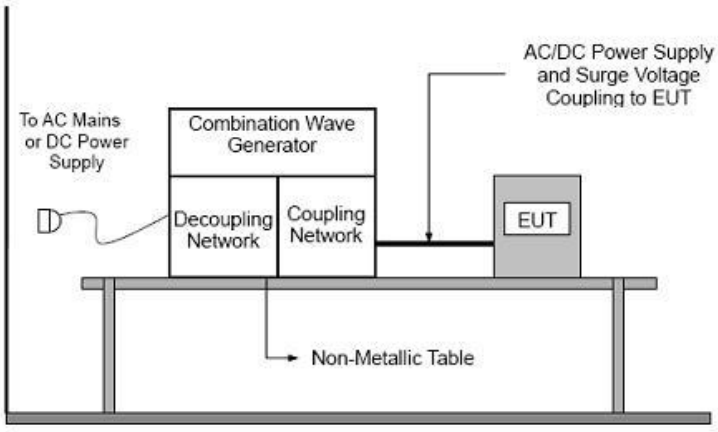
Basic Standard:	IEC/EN 61000-4-5
Required Performance:	B
Wave-Shape:	1.2/50 (8/20) Tr/Td μs
Test Voltage:	AC power ports: Line to earth ±2kV, Line to Line ±1kV DC power ports: Line to earth ±1kV, Line to Line ±0.5kV Signal/control ports: Line to earth ±1kV
Surge Input/Output:	L-N, L-PE, N-PE
Generator Source:	(L-N)2 ohm between networks
Impedance:	(L-PE, N-PE)12 ohm between network and ground
Polarity:	Positive/Negative
Pulse Repetition Rate:	1 time / min. (maximum)
Number of Tests:	5 positive and 5 negative at selected points

4.6.2 TEST PROCEDURE

a. For EUT power supply:
The surge is to be applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks shall be 2meter in length (or shorter).

b. For test applied to unshielded unsymmetrical operated interconnection lines of EUT:
The surge is applied to the lines via the capacitive coupling. The coupling /decoupling networks shall not influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meter in length (or shorter).

4.6.3 TEST SETUP



4.6.4 TEST RESULTS

N/A.

Remak:
1.According to the electrical construction of the EUT, there is no AC terminal incorporated and no dedicated AC/DC adaptor. Therefore, this test is not applicable for this EUT.
2.The cable length of DC port is less than or equal to 3m (defined by the manufacturer).

4.7 CONDUCTED RADIO FREQUENCY DISTURBANCES (CS)

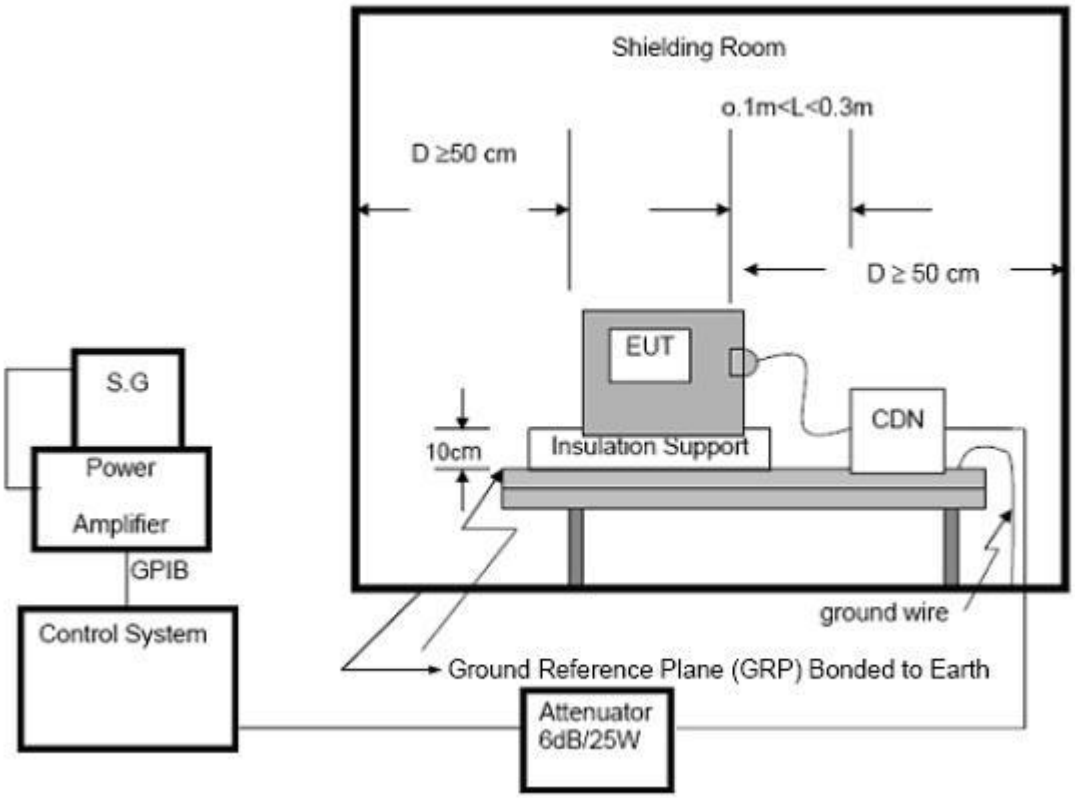
4.7.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-6
Required Performance:	A
Frequency Range:	0.15 MHz - 80 MHz
Field Strength:	3V
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Dwell Time:	1.5x 10^{-3} decade/s

4.7.2 TEST PROCEDURE

The EUT shall be tested within its intended operating and climatic conditions.
The test shell performed with the test generator connected to each of the coupling anddecoupling devices in turn, while the other non-excited RF input ports of thecoupling devices are terminated by a 50-ohm load resistor.
The frequency range was swept from 150 kHz to 80 MHz, using the signal levelestablished during the setting process and with a disturbance signal of 80 %amplitude. The signal was modulated with a 1 kHz sine wave, pausing to adjustthe RF signal level or the switch coupling devices as necessary. The sweep ratewas 1.5 x 10^{-3}decades/s. Where the frequency range is swept incrementally, thestep size was 1 % of preceding frequency value from 150kHz to 80MHz.
The dwell time at each frequency was less than the time necessary for the EUT to beexercised, and able to respond. Sensitive frequencies such as clockfrequency(ies) and harmonics or frequencies of dominant interest, was analyzedseparately.
Attempts was made to fully exercise the EUT during testing, and to fully interrogate allexercise modes selected for susceptibility.

4.7.3 TEST SETUP



NOTE:
FLOOR-STANDING EQUIPMENT

The equipment to be tested is placed on an insulating support of 0.1 meter height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meter and 0.3 meter from the projected geometry of the EUT on the ground reference plane.

4.7.4 TEST RESULTS

N/A.

Remak:
1.According to the electrical construction of the EUT, there is no AC terminal incorporated and no dedicated AC/DC adaptor. Therefore, this test is not applicable for this EUT.
2.The cable length of DC port is less than or equal to 3m (defined by the manufacturer).

4.8 POWER FREQUENCY MAGNETIC FIELD TESTING

4.8.1 TEST SPECIFICATION

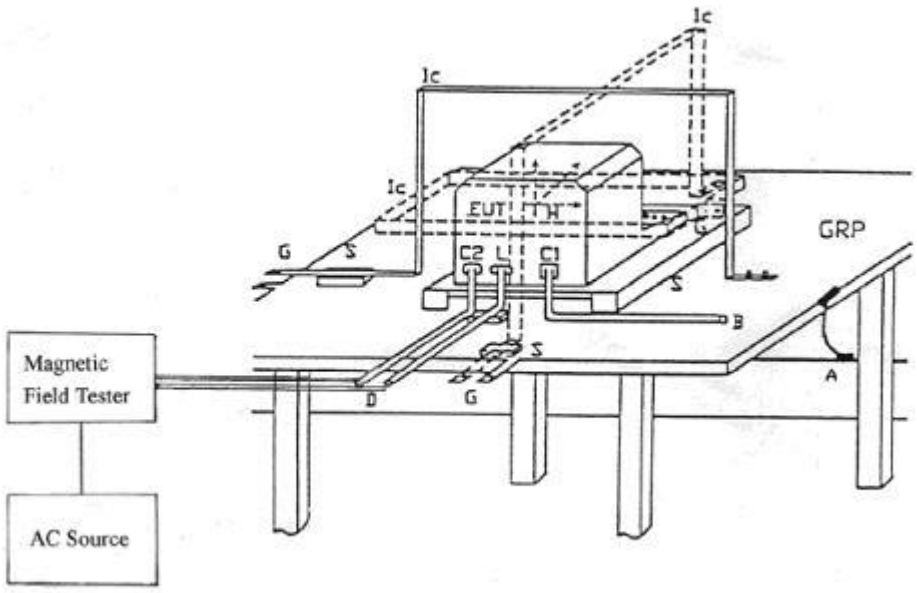
Basic Standard:	IEC/EN 61000-4-8
Required Performance:	A
Frequency Range:	50Hz
Field Strength:	3 A/m
Observation Time:	1 minute
Inductance Coil:	Rectangular type, 1mx1m

4.8.2 TEST PROCEDURE

The EUT and support equipment, are placed on a table that is 0.8 meter&0.1 meter above a metal ground plane measured 1m*1m min..
The other condition need as following manners:

a. The equipment cabinets shall be connected to the safety earth directly on the GRP via the earth terminal of the EUT.
b. The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.

4.8.3 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The equipment shall be subjected to the test magnetic field by using the induction coil of standard dimension (1 m x 1 m). The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

FLOOR-STANDING EQUIPMENT

The equipment shall be subjected to the test magnetic field by using induction coils of suitable dimensions. The test shall be repeated by moving and shifting the induction coils, in order to test the whole volume of the EUT for each orthogonal direction. The test shall be repeated with the coil shifted to different positions along the side of the EUT, in steps corresponding to 50 % of the shortest side of the coil. The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

4.8.4 TEST RESULTS

Temperature:	24.6℃	Relative Humidity:	53%
Test Power:	DC 58.4V	Test Date:	2026.06.15

Test Mode	Power frequency magnetic field background value of the laboratory	Test Level	Coil Orientation	Duration (s)	Perform Criteria	Results
Enclosure	0.073 A/m	3A/m	X	180	A	A
Enclosure	Same as above	3A/m	Y	180	A	A
Enclosure	Same as above	3A/m	Z	180	A	A
Note: EUT operate as intended during the test Normal performance within limits specified by the manufacturer, request or purchaser.						

4.9 VOLTAGE INTERRUPTION/DIPS TESTING (DIPS)

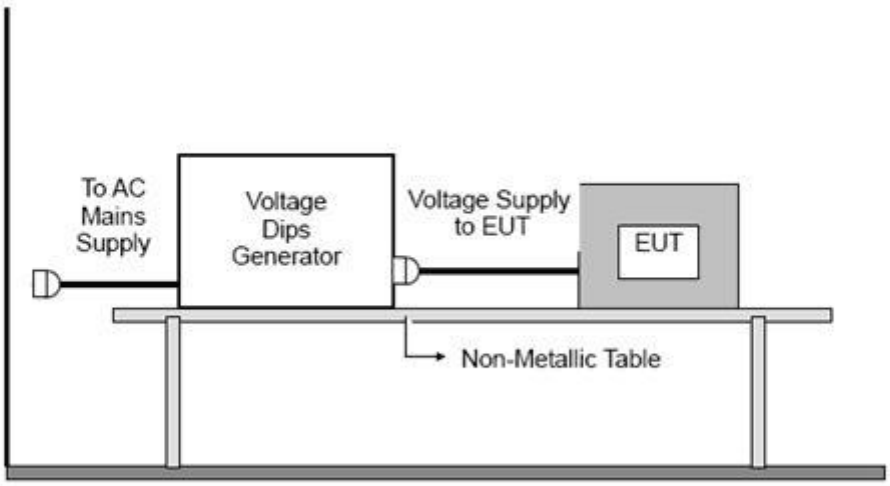
4.9.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-11
Required Performance:	B (0% residual voltage 0.5cycle) B (0% residual voltage 1cycle) C (70% residual voltage 25/30 cycle at 50/60 Hz) C (0% residual voltage 250/300 cycle at 50/60 Hz)
Test Duration Time:	Minimum 3 test events in sequence
Interval between Event:	Minimum 10 seconds
Test Cycle:	3 times

4.9.2 TEST PROCEDURE

The EUT shall be tested for each selected combination of test levels and duration with a sequence of three dips/interruptions with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested. Abrupt changes in supply voltage shall occur at zero crossings of the voltage waveform.

4.9.3 TEST SETUP



4.9.4 TEST RESULTS

N/A.

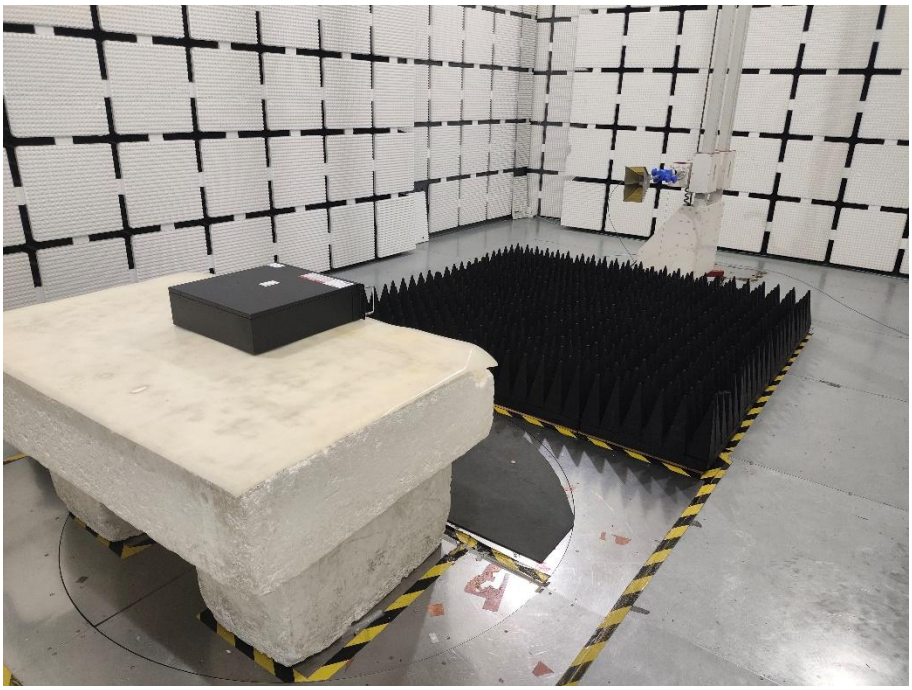
Remak:
According to the electrical construction of the EUT, there is no AC terminal incorporated and no dedicated AC/DC adaptor. Therefore, this test is not applicable for this EUT.

APPENDIX I - TEST SETUP

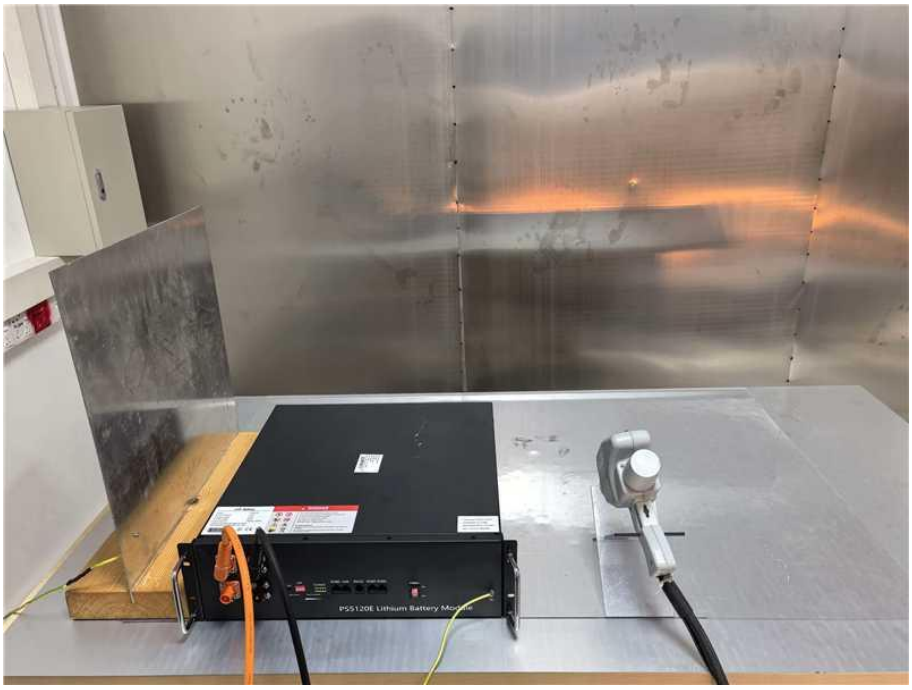
Set-up for Radiated Emission (RE), Below 1GHz



Set-up for Radiated Emission (RE), Above 1GHz



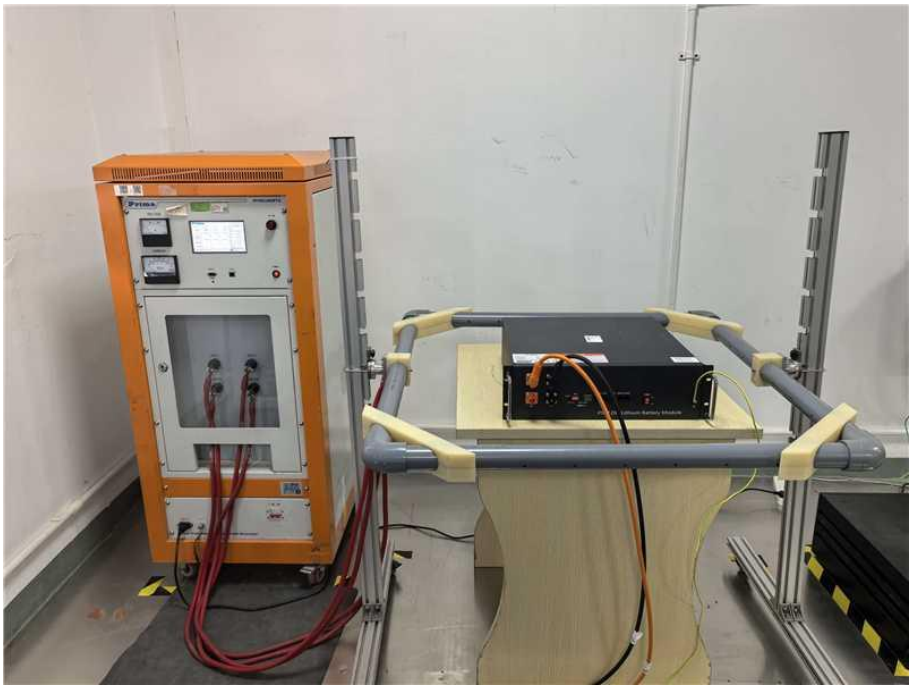
Set-up for Electrostatic Discharges (ESD)



Set-up for Radio Frequency Electromagnetic Fields (RS)



Set-up for Power Frequency Magnetic Field (PFMF)



APPENDIX II - PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Photo 1



Photo 2



Photo 3



Photo 4

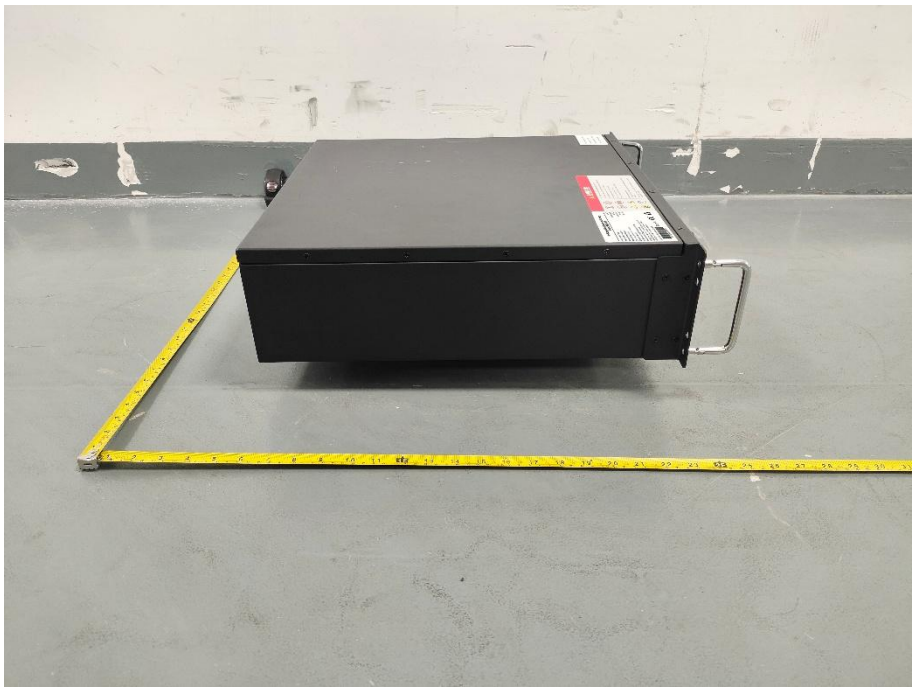


Photo 5



Photo 6

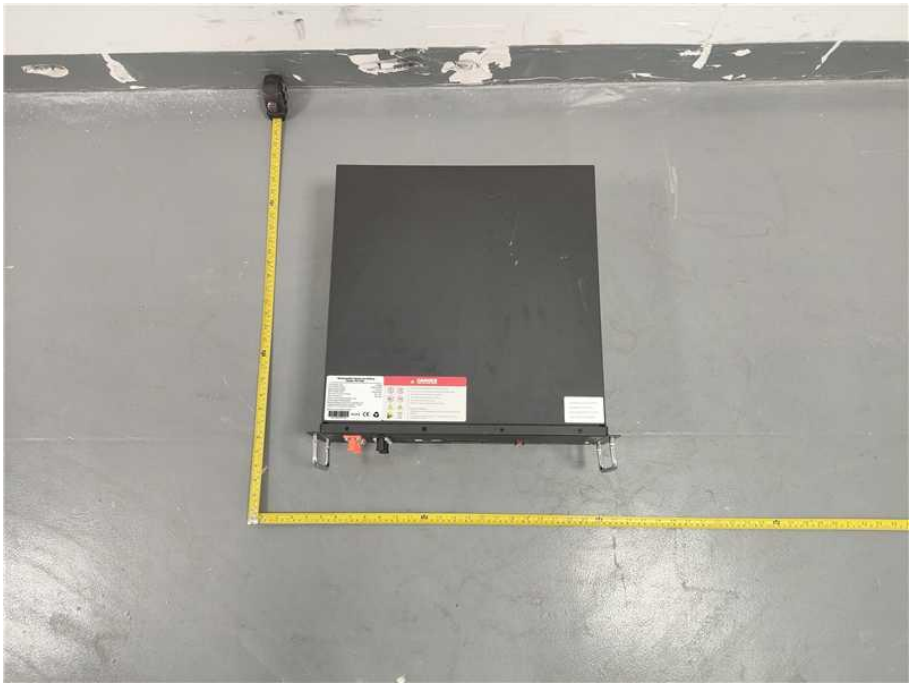


Photo 7



Photo 8

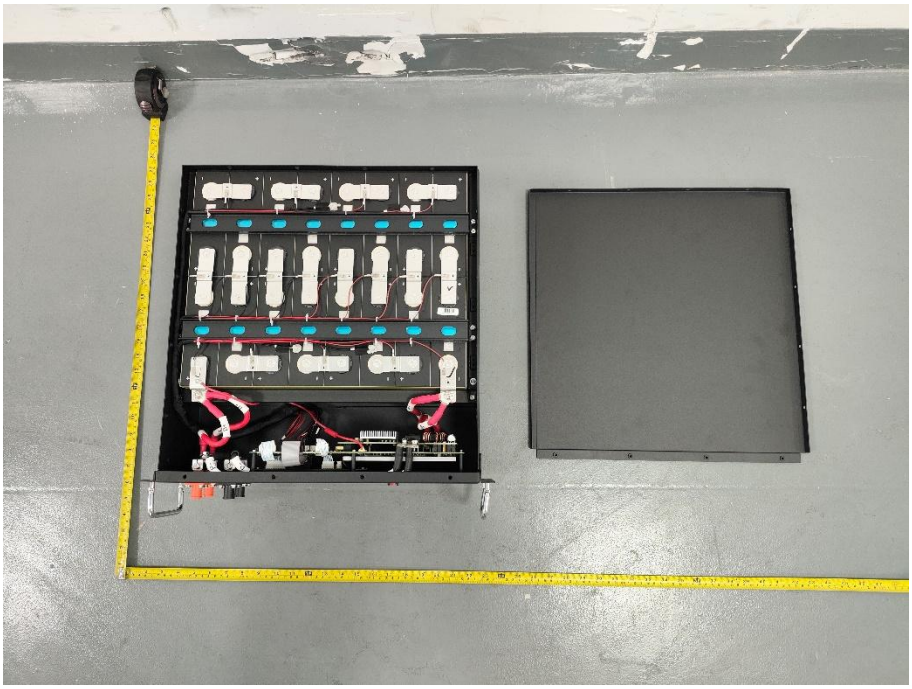


Photo 9

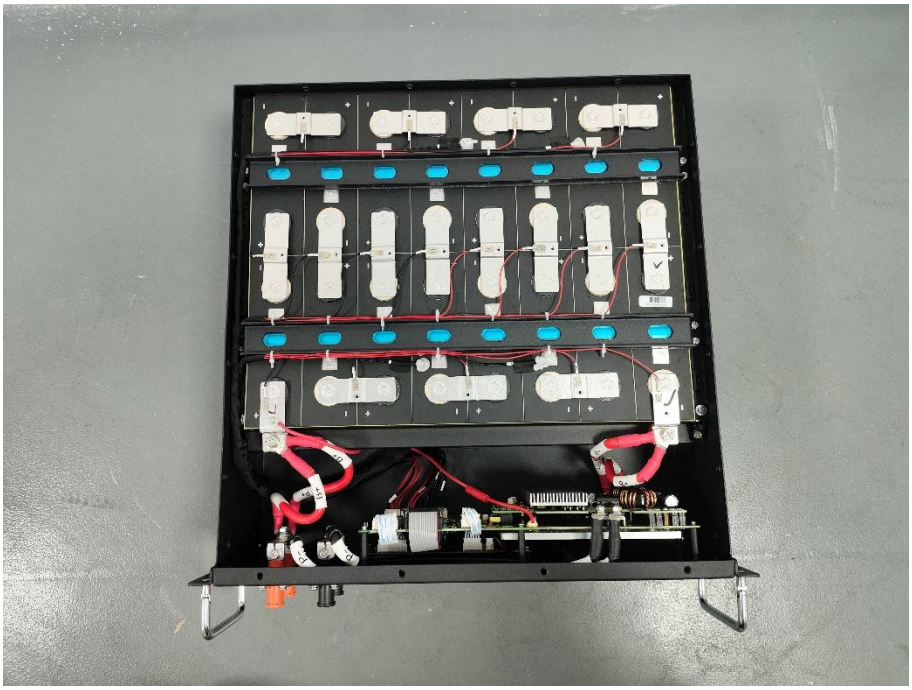


Photo 10

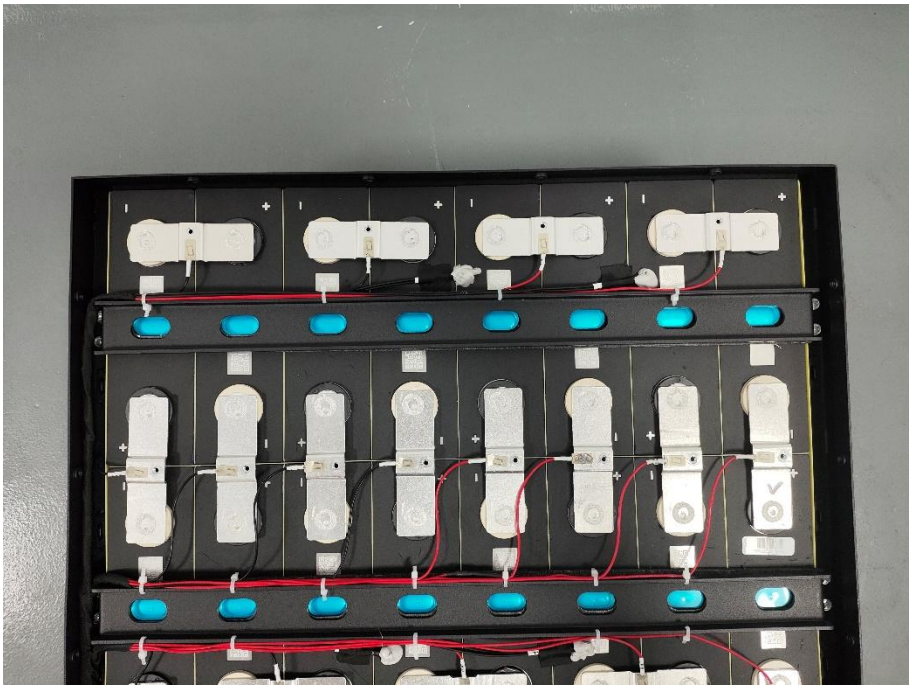


Photo 11

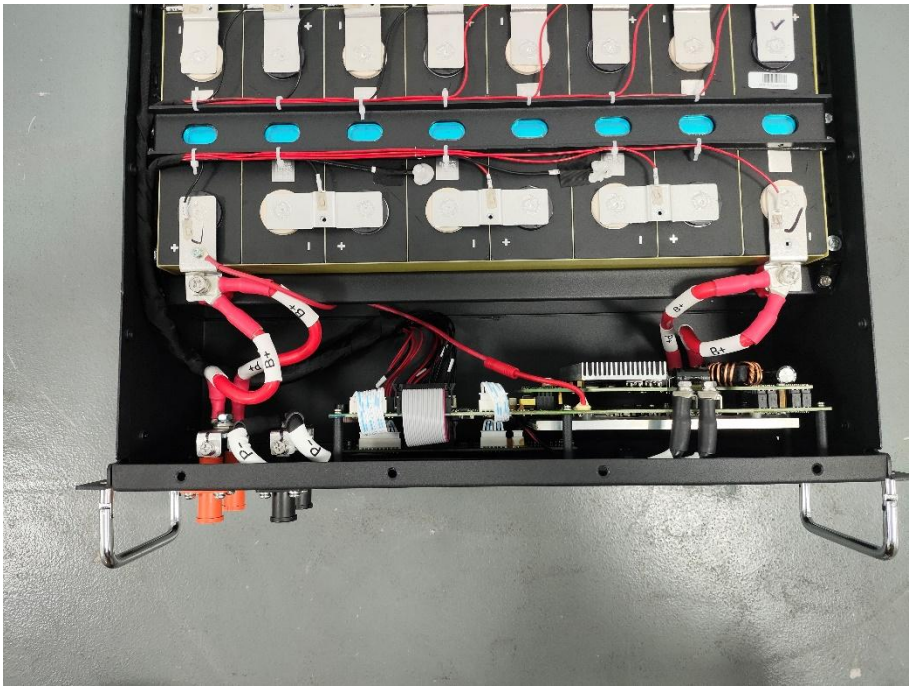
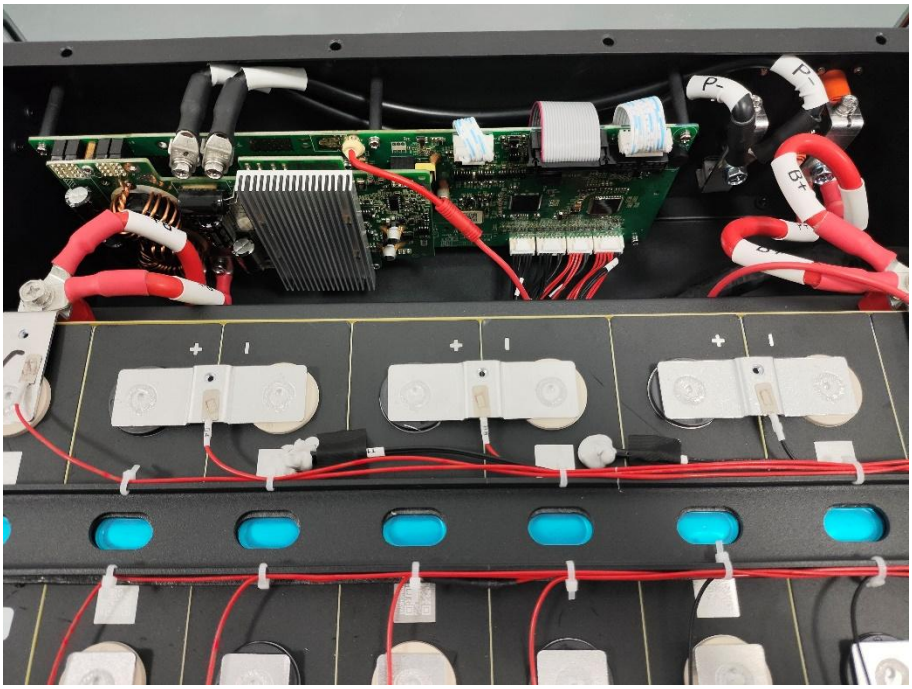


Photo 12



※※※※※END OF THE REPORT※※※※※