

Prüfbericht-Nr.: Test report no.:	CN24WB21 001	Auftrags-Nr.: Order no.:	168477025	Seite 1 von 26 Page 1 of 26
Kunden-Referenz-Nr.: Client reference no.:	2419426	Auftragsdatum: Order date:	2024-04-02	
Auftraggeber: Client:	Shenzhen EEnovance Energy Technology CO., LTD Room 401, Building 2, Yufengda Industrial Park, No. 1008 Guangqiao Avenue, Yulv Community, Yutang Streets, Guangming District, SHENZHEN Guangdong P.R. China			
Prüfgegenstand: Test item:	Rechargeable Li-ion battery System			
Bezeichnung / Typ-Nr.: Identification / Type no.:	RT5.12-H4, RT5.12-H5, RT5.12-H6, RT5.12-H7, RT5.12-H8, RT5.12-H9, RT5.12-H10, RT5.12-H11, RT5.12-H12			
Auftrags-Inhalt: Order content:	TUV Rheinland - EMC service			
Prüfgrundlage: Test specification:	EN IEC 61000-6-1:2019 EN IEC 61000-6-3:2021 EN IEC 61000-6-2:2019 EN IEC 61000-6-4:2019			
Wareneingangsdatum: Date of sample receipt:	2024-05-07			
Prüfmuster-Nr.: Test sample no.:	ENS2405070193W001			
Prüfzeitraum: Testing period:	Refer to test report			
Ort der Prüfung: Place of testing:	Refer to section 2.1			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
erstellt von: created by:		genehmigt von: authorized by:		
Datum: Date: 2024-05-27	Ting Lv	Ausstellungsdatum: Issue date: 2024-05-27	Chunli Zheng	
Stellung / Position:	Project Engineer	Stellung / Position:	Reviewer	
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:				
		Prüfmuster vollständig und unbeschädigt Test item complete and undamaged		
* Legende: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet * Legend: P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
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Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
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4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

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TEST SUMMARY

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1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix 1: Test result

Appendix 2: Measurement uncertainties

2. Test Sites

2.1 Test Facilities

EMTEK (Shenzhen) Co., Ltd.

Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China.

The tests at the test sites have been conducted under the supervision of a TÜV engineer.

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2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
Conducted Emission (EMTEK)				
EMI Test Receiver	Rohde & Schwarz	ESCI	101045	2025-05-09
PULSE LIMITER	Rohde & Schwarz	ESH3-Z2	100107	2025-05-09
AMN	Rohde & Schwarz	ESH3-Z5	100191	2025-05-09
AMN	Schwarzbeck	NNLK 8129	8129203	2025-05-10
V-Network	Rohde & Schwarz	ESH3-Z6	100011	2025-05-10
V-Network	Rohde & Schwarz	ESH3-Z6	100253	2025-05-10
DC LISN	Schwarzbeck	NNHV 8123-400	00398	2025-05-09
DC LISN	Schwarzbeck	NNHV 8123-400	00397	2025-05-10
DC LISN	Schwarzbeck	PVDC 8301	00075	2025-05-10
Radiated Emission (10m Chamber) (EMTEK)				
Bilog Antenna	Schwarzbeck	VULB9163	659	2025-08-31
Bilog Antenna	Schwarzbeck	VULB9163	712	2025-07-01
EMI Test Receiver	Rohde & Schwarz	ESR3	101707	2025-05-10
EMI Test Receiver	Rohde & Schwarz	ESR3	101706	2025-05-10
Pre-Amplifier	Lunar EM	LNA10M1G-40	J1011131126001	2025-05-10
Pre-Amplifier	Lunar EM	LNA10M1G-40	J1011131126002	2025-05-10
Radio-Frequency Electromagnetic Field Amplitude Modulated (RS) (EMTEK)				
Power Amplifier	MILMEGA	AS0102-55	1018770	2025-05-10
RF Power Meter. Dual Channel	BOONTON	4232A	10539	2025-05-10
Log.-Per. Antenna	SCHWARZBECK	STLP 9129-7/16	3050	N/A
Signal Generator	Agilent	N5181A	MY50145187	2025-05-10
50ohm Diode Power Sensor	BOONTON	51011EMC	36164	2025-05-10
Field Strength Meter	DARE	RSS1006A	10I00037SNO22	2025-05-10
Multi-function interface system	DARE	CTR1009B	12I00250SNO72	N/A
Automatic switch group	DARE	RSW1004A	N/A	N/A
Power Amplifier	MILMEGA	AS1860-50	1059346	2025-05-10
Power Amplifier	Vectawave	VBA 1000-600C	133627	2024-10-22
Directional Coupler	BONN	BDC 0810-50/1500	2229689	2024-10-22
ESD (EMTEK)				
ESD Tester	EMTEST	Dito	CR46527B	2024-10-19
Radio-Frequency Continuous Conducted (CS) (EMTEK)				
Continuous Wave Simulator	EMTEST	CWS500C	0900-12	2025-05-09
EM Injection Clamp	EMTEST	F-2031-23MM	368	2025-05-10
Attenuator	EMTEST	100W 6dB DC-3G	/	2025-05-09

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Signal Generator	R&S	SMB100A	103041	2025-05-10
Three phase CDN	TESEQ	CDN M532S	33799	2025-05-09
EFT (EMTEK)				
Burst Tester	HAEFELY	PEFT4010	080981-16	2025-10-30
Coupling Clamp	HAEFELY	IP-4A	147147	2025-05-10
Three phase CDN	Teseq	CDN 163	202	2025-05-12
Surge (EMTEK)				
Controller	HAEFELY	Psurge 8000	174031	2025-05-09
Impulse Module	HAEFELY	PIM 100	174124	2025-05-09
Coupling Decoupling	HAEFELY	PCD 130	172181	2025-05-09
Coupling Module	HAEFELY	PCD122	174354	2025-05-09
Impulse Module	HAEFELY	PIM 120	174435	2025-05-09
Power-Frequency Magnetic Fields (EMTEK)				
Magnetic Field Tester	HAEFELY	MAG100	250040.1	2025-05-09

3. General Product Information

3.1 Product Function and Intended Use

The **EUTs** (Equipment Under Test) are Rechargeable Li-ion battery System used for residential, commercial, light-industrial and industrial environments.

Model list:

MODELS LIST		RT 5.12-H4	RT 5.12-H5	RT 5.12-H6	RT 5.12-H7	RT 5.12-H8	RT 5.12-H9	RT 5.12-H10	RT 5.12-H11	RT 5.12-H12
BATTERY	No. of Modules	4	5	6	7	8	9	10	11	12
	Rated Voltage [Vdc]	204.8	256.1	307.2	358.4	409.6	460.8	512.0	563.2	614.4
	BATTERY Voltage Range [Vdc]	182.4 – 224.6	228.0 – 280.8	273.6 – 336.9	319.2 – 393.1	364.8 – 449.2	410.4 – 505.4	456.0 – 516.6	501.6 – 617.7	547.2 – 673.9
	Max. Charge Current [A]	98								
	Max. Discharge Current [A]	98								
	Rated Energy [kWh]	20.48	25.6	30.72	35.84	40.96	46.08	51.2	56.32	61.44
	Rated capacity [Ah]	100								
	Overvoltage Category (OVC)	II								
CONSTRUCTION	Protective Class	1								
	Enclosure Protection (IP)	20								
	Operating Temperature Range [°C]	Charging: 0 to 50°C Discharging: -15 to 50°C								
	Pollution degree (PD)	PD 3 (PD 2 inside)								
	Altitude [m]	≤2000								
	Size [mm]	620×630×2220 mm								
	Weight [kg]	327.5	370.5	413.5	456.5	499.5	542.5	585.5	628.5	671.5

All models have identical circuit design and layout, only different in model name and number of battery packs. Addition these models also have another the color is white, compared to the Test model have identical circuit design and layout.

For details please refer to the Circuit Diagram & Instruction Manual.

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3.2 Ratings and System Details

Rated Capacity:	refer to section 3.1
Rated Power:	refer to section 3.1
Voltage Range [Vdc]:	refer to section 3.1
Rated Voltage:	refer to section 3.1
Max.Charging Voltage:	refer to section 3.1
Max.Discharge Voltage:	refer to section 3.1
Earthing:	Connected

3.3 Independent Operation Modes

The basic operation modes are:

- A. On
 - 1. Charging
 - 2. Discharging
- B. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Instruction Manual
- Rating Label
- Circuit Diagram

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure their highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

Immunity: The equipment under test (EUT) was configured to have their highest possible susceptibility against the tested phenomena. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5 & 6.
Pre-test in all operation modes and find out the worst case for compliance test.
According to section 3.1, full tests were applied on model RT 5.12-H12.

4.3 Special Accessories and Auxiliary Equipment

The EUT was tested together with the following accessories:

Item	Manufacturer	Model	S/N
BIDIRECTIONAL DC SOURCE	SUNGROW	PB302000-V12	A2321316690

4.4 Countermeasures to achieve EMC Compliance

The test samples, which have been tested, contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

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5. Test Results EMISSION

5.1 Emission in the Frequency Range up to 30 MHz

5.1.1 Conducted Emission

RESULT:

Pass

Date of testing	:	Refer to Appendix 1
Test standard	:	EN IEC 61000-6-3:2021 EN IEC 61000-6-4:2019
Frequency range	:	0.15 - 30MHz
Limits	:	Table 5 of EN IEC 61000-6-3:2021 Table A.1 of EN IEC 61000-6-4:2019
Kind of test site	:	10m Semi-Anechoic Chamber
Tested Port	:	DC Power Port

Test setup

Test Voltage	:	DC 673.9V
Operation Condition	:	Clause 5 of EN IEC 61000-6-3:2021 Clause 4 of EN IEC 61000-6-4:2019
Operation mode	:	A
Artificial hand	:	Not applied
Earthing	:	Connected

Remark: The signal ports of EUT don't belong to other wired ports, therefore above test is not applicable.

Refer to attached Appendix 1.

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5.2 Emission in the Frequency Range above 30 MHz

5.2.1 Radiated Emission

RESULT:

Pass

Date of testing	:	Refer to Appendix 1
Test standard	:	EN IEC 61000-6-3:2021 EN IEC 61000-6-4:2019
Frequency range	:	30 - 1000MHz*
Limits	:	Table 3 of EN IEC 61000-6-3:2021 Table 3 of EN IEC 61000-6-4:2019
Kind of test site	:	10m Semi-Anechoic Chamber
Tested Port	:	Enclosure

Test setup

Test Voltage	:	DC 673.9V
Operation Condition	:	Clause 5 of EN IEC 61000-6-3:2021 Clause 4 of EN IEC 61000-6-4:2019
Operation mode	:	A
Earthing	:	Connected

* - The highest frequency generated or used in the EUT is below 108MHz, hence the upper frequency of this test is 1GHz.

Refer to attached Appendix 1.

6. Test Results IMMUNITY

6.1 Classification of apparatus

According to EN IEC 61000-6-2:2019, the EUT shall be tested in accordance with table 1, 2, 3 and comply with following performance criterion:

Continuous Disturbance

Power-Frequency Magnetic Fields	Criterion A
Radio-Frequency Electromagnetic Field Amplitude Modulated (RS)	Criterion A
Radio-Frequency Continuous Conducted (CS) *	Criterion A

Transient Disturbance

Fast Transients (EFT) *	Criterion B
Surge *	Criterion B
Electrostatic Discharges (ESD)	Criterion B

Power Supply Alterations

Voltage Dips and Interruptions*	Criterion B & C
---------------------------------	----------------------------

Remark:

- * The length of signal cable will not exceed 3m according to the manufacturer's functional specification, therefore CS test, EFT test is not applicable to the signal/control ports of EUT.
- * Since signal/control ports of EUT which are not intended to be connected to outdoor, and the length of signal cable will not exceed 30m according to the manufacturer's functional specification, therefore Surge test are not applicable to the signal/control ports of EUT.
- * Since the EUT has no AC Power port, therefore Voltage Dips and Interruptions test are not applicable to the EUT.

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6.2 Continuous Disturbances

6.2.1 Radio-Frequency Electromagnetic Field Amplitude Modulated (RS)

RESULT: Pass

Date of Testing : 2024-05-22
Test Specification : EN IEC 61000-6-1:2019
EN IEC 61000-6-2:2019
Basic Standard : IEC 61000-4-3:2006+A1+A2
Criterion : A
Frequency Range : 80 - 1000MHz, 1.4 - 6.0GHz
Test Level : 3V/m & 10V/m, 80 – 1000MHz
3V/m, 1.4 – 6.0GHz
(Unmodulated, r.m.s.)
Modulation : AM 80%, 1kHz sine-wave
Tested Port : Enclosure

Test setup

Test Voltage : DC 673.9V
Operation Mode : A
Earthing : Connected
Ambient temperature : 24°C
Relative humidity : 53%
Atmospheric pressure : 101kPa

Test results:

Polarization	Frequency Range	Test Level	Criterion	Description	Conclusion
H/V	80MHz to 1000MHz	3V/m & 10V/m (rms)	A	Operating as intended, no failure detected	Pass
H/V	1.4GHz to 6.0GHz	3V/m (rms)	A	Operating as intended, no failure detected	Pass

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6.2.2 Radio-Frequency Continuous Conducted (CS)

RESULT: **Pass**

Date of testing	:	2024-05-22
Test Specification	:	EN IEC 61000-6-1:2019 EN IEC 61000-6-2:2019
Basic Standard	:	IEC 61000-4-6:2013
Criterion	:	A
Frequency range	:	0.15 - 80 MHz
Source impedance	:	150Ω
Test level	:	3V (unmodulated, r.m.s.) (required in EN IEC 61000-6-1:2019); 10V (unmodulated, r.m.s.) (required in EN IEC 61000-6-2:2019)
Modulation	:	AM 80%, 1kHz sine-wave
Sweep mode	:	automatic
Sweep rate	:	<1.5×10 ⁻³ decade/sec.
Tested Port	:	DC Power Port

Test setup

Test Voltage	:	DC 673.9V
Operation Mode	:	A
Earthing	:	Connected
Ambient temperature	:	24°C
Relative humidity	:	53%
Atmospheric pressure	:	101kPa

Test results:

Ports	Coupling Network	Frequency Range	Test Level	Criterion	Description	Conclusion
DC Power Port	CDN	0.15 - 80 MHz	3V & 10V (rms)	A	Operating as intended, no failure detected	Pass

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6.2.3 Power-Frequency Magnetic Fields

RESULT:**Pass**

Date of testing : 2024-05-22
Test Specification : EN IEC 61000-6-1:2019
EN IEC 61000-6-2:2019
Basic Standard : IEC 61000-4-8:2009
Criterion : A
Test Frequency : 50/60Hz
Test level : 3 & 30A/m
Tested Port : Enclosure

Test setup

Test Voltage : DC 673.9V
Operation Mode : A
Earthing : Connected
Ambient temperature : 24°C
Relative humidity : 53%
Atmospheric pressure : 101kPa

Test results:

Ports	Test Level	Testing Duration	Coil Orientation	Criterion	Description	Conclusion
Enclosure	3 & 30A/m	5 mins	X	A	Operating as intended, no failure detected	Pass
Enclosure	3 & 30A/m	5 mins	Y	A	Operating as intended, no failure detected	Pass
Enclosure	3 & 30A/m	5 mins	Z	A	Operating as intended, no failure detected	Pass

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6.3 Transient Disturbances

6.3.1 Fast Transients (EFT)

RESULT:**Pass**

Date of testing : 2024-05-22
Test Specification : EN IEC 61000-6-1:2019
EN IEC 61000-6-2:2019
Basic Standard : IEC 61000-4-4:2012
Criterion : B
Test level : $\pm 0.5\text{kV}$, $\pm 1\text{kV}$
Test duration : $\geq 60\text{sec}$
Rise time : 5/50ns
Repetition frequency : 5kHz
Tested Port : DC Power Port

Test setup

Test Voltage : DC 673.9V
Operation Mode : A
Earthing : Connected
Ambient temperature : 24°C
Relative humidity : 53%
Atmospheric pressure : 101kPa

Test results:

Ports	Coupling	Test Level	Criterion	Description	Conclusion
DC Power Port	CDN	$\pm 0.5\text{kV}$, $\pm 1\text{kV}$	B	Operating as intended, no failure detected	Pass

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6.3.2 Surge

RESULT:**Pass**

Date of testing : 2024-05-22
Test Specification : EN IEC 61000-6-1:2019
EN IEC 61000-6-2:2019
Basic Standard : IEC 61000-4-5:2014
Criterion : B
Source impedance : 2Ω , 12Ω
Test level : $\pm 0.5\text{kV}$, $\pm 1\text{kV}$
Number of surges : 5 (for each combination of parameters)
Repetition rate : Max. 1/min
Tested Port : DC Power Port

Test Setup

Test Voltage : DC 673.9V
Operation Mode : A
Earthing : Connected
Ambient temperature : 24°C
Relative humidity : 53%
Atmospheric pressure : 101kPa

Test result:

Ports	Test Level	Coupling Mode	Impedance (ohm)	Criterion	Description	Conclusion
DC Power Port	$\pm 0.5\text{kV}$	P-N	2	B	Operating as intended, no failure detected	Pass
DC Power Port	$\pm 1\text{kV}$	P-PE, N-PE	12	B	Operating as intended, no failure detected	Pass

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Test report no.:
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6.3.3 Electrostatic Discharges (ESD)

RESULT: **Pass**

Date of testing : 2024-05-22
 Test Specification : EN IEC 61000-6-1:2019
 : EN IEC 61000-6-2:2019
 Basic Standard : IEC 61000-4-2:2008
 Criterion : B
 Charge voltage : ±8.0kV (air discharge)
 : ±4.0kV (contact discharge)
 Number of discharges : >10
 Tested Port : Enclosure

Test Setup

Test Voltage : DC 673.9V
 Operation Mode : A
 Earthing : Connected
 Ambient temperature : 24°C
 Relative humidity : 53%
 Atmospheric pressure : 101kPa

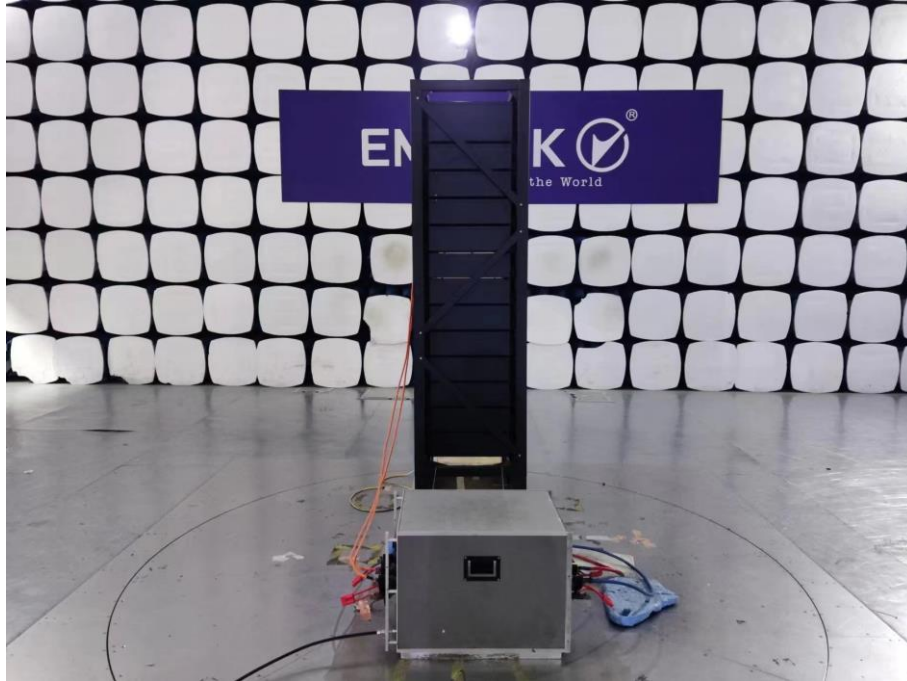
Test Results:

Test Point	Test Mode	Test Level(kV)	Criterion	Description	Conclusion
HCP	C	±4.0	B	No failure detected	Pass
VCP	C	±4.0	B	No failure detected	Pass
Metal	C	±4.0	B	No failure detected	Pass
Screw	C	±4.0	B	No failure detected	Pass
Conducted Enclosure	C	±4.0	B	No failure detected	Pass
Non-Conducted Enclosure	A	±8.0	B	No failure detected	Pass
Slot	A	±8.0	B	No failure detected	Pass
Screen	A	±8.0	B	No failure detected	Pass

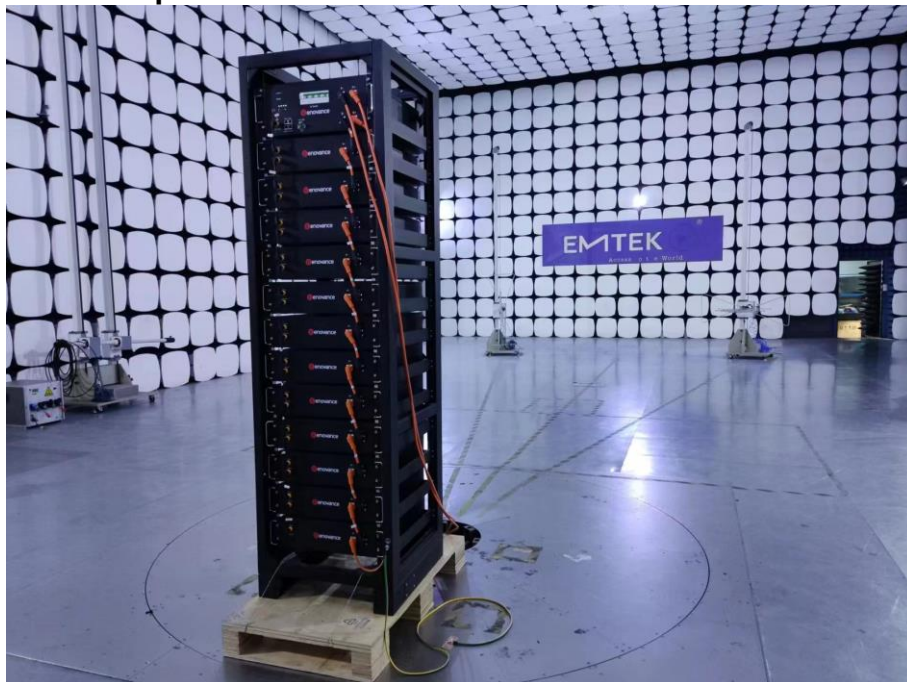
Note: A-Air Discharge; C-Contact Discharge; HCP- Horizontal Coupling Plane VCP-Vertical Coupling Plane

7. Photographs of the Test Set-Up

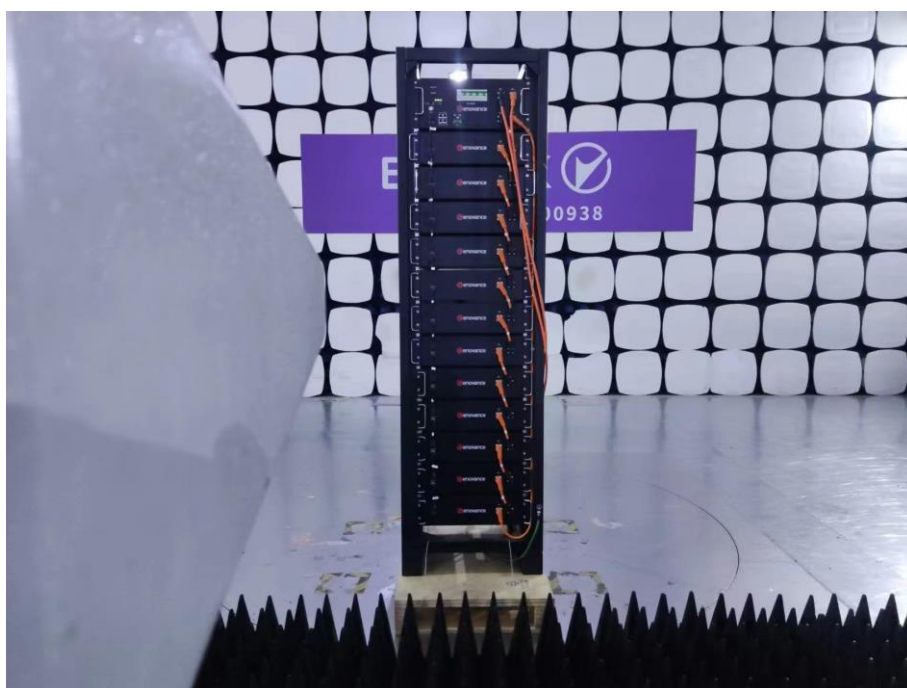
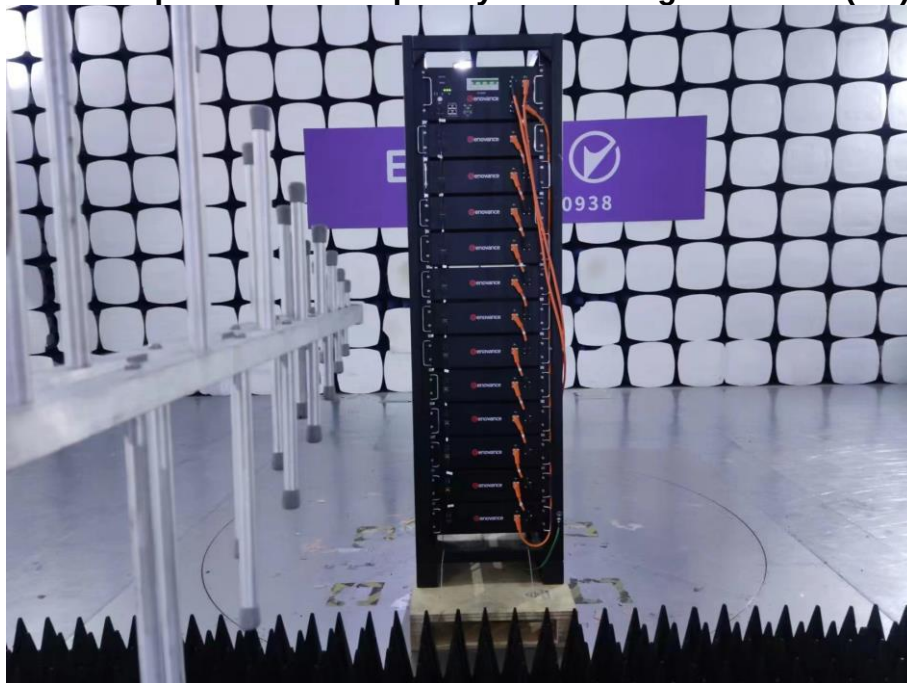
Photograph 1: Set-up for Conducted Emission



Photograph 2: Set-up for Radiated Emission



Photograph 3: Set-up for Radio Frequency Electromagnetic Field (RS)



Photograph 4: Set-up for Conducted Susceptibility (CS)



Photograph 5: Set-up for Power-Frequency Magnetic Fields



Photograph 6: Set-up for EFT



Photograph 7: Set-up for Surge



Photograph 8: Set-up for Electrostatic Discharges (ESD)



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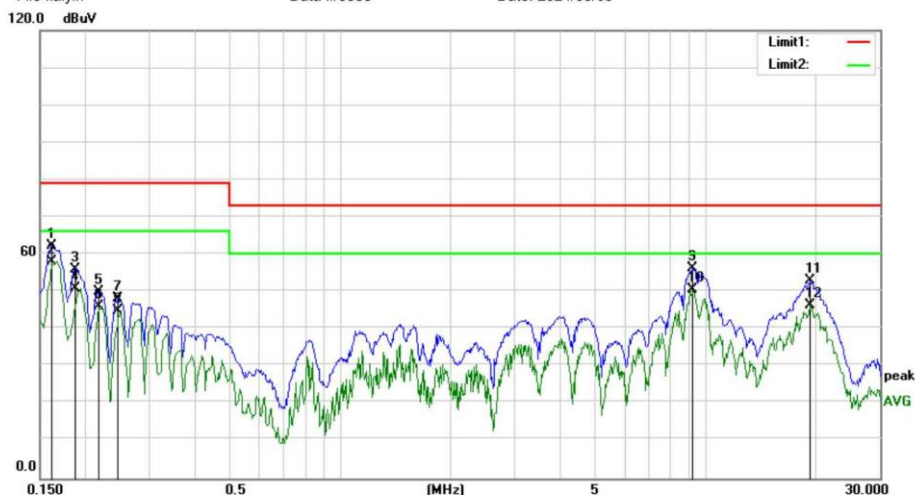
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Conducted Emission Measurement

File :laiyin Data :#3588 Date: 2024/05/09



Site 10m Chamber 1#

Phase: +

Temperature: 24.8

Limit: (CE)EN61000-6-3_DC PORT_QP

Power: DC 673.9V

Humidity: 54 %

EUT: Rechargeable Li-ion battery System

M/N: RT5.12-H12

Mode: Charging

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1620	52.01	10.18	62.19	79.00	-16.81	QP	
2	*	0.1620	47.99	10.18	58.17	66.00	-7.83	AVG	
3		0.1874	45.83	10.21	56.04	79.00	-22.96	QP	
4		0.1874	40.62	10.21	50.83	66.00	-15.17	AVG	
5		0.2180	39.73	10.23	49.96	79.00	-29.04	QP	
6		0.2180	35.80	10.23	46.03	66.00	-19.97	AVG	
7		0.2460	37.89	10.23	48.12	79.00	-30.88	QP	
8		0.2460	34.72	10.23	44.95	66.00	-21.05	AVG	
9		9.2060	45.95	10.33	56.28	73.00	-16.72	QP	
10		9.2060	40.22	10.33	50.55	60.00	-9.45	AVG	
11		19.2980	42.34	10.58	52.92	73.00	-20.08	QP	
12		19.2980	35.65	10.58	46.23	60.00	-13.77	AVG	

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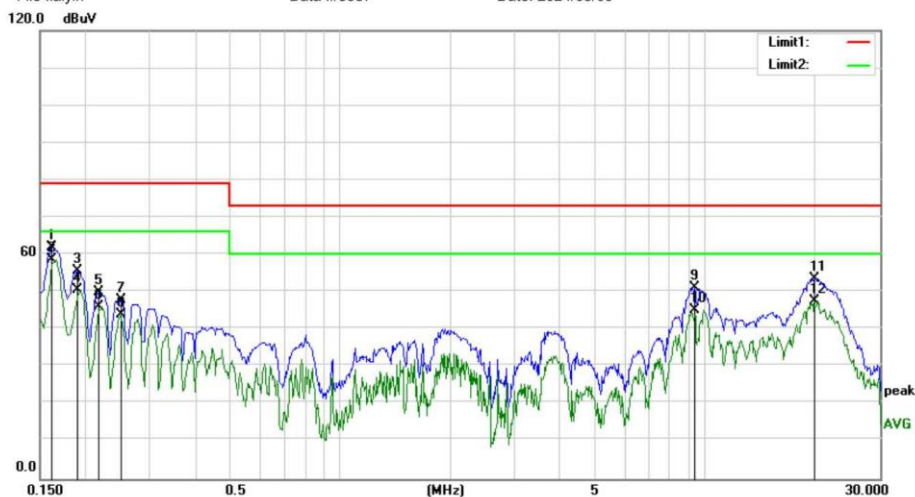
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Conducted Emission Measurement

File :laiyin Data :#3587 Date: 2024/05/09



Site 10m Chamber 1#

Phase: -

Temperature: 24.8

Limit: (CE)EN61000-6-3_DC PORT_QP

Power: DC 673.9V

Humidity: 54 %

EUT: Rechargeable Li-ion battery System

M/N: RT5.12-H12

Mode: Charging

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1620	51.81	10.18	61.99	79.00	-17.01	QP	
2	*	0.1620	48.58	10.18	58.76	66.00	-7.24	AVG	
3		0.1900	45.36	10.22	55.58	79.00	-23.42	QP	
4		0.1900	40.46	10.22	50.68	66.00	-15.32	AVG	
5		0.2180	39.60	10.23	49.83	79.00	-29.17	QP	
6		0.2180	35.69	10.23	45.92	66.00	-20.08	AVG	
7		0.2500	37.62	10.24	47.86	79.00	-31.14	QP	
8		0.2500	33.86	10.24	44.10	66.00	-21.90	AVG	
9		9.3100	40.78	10.34	51.12	73.00	-21.88	QP	
10		9.3100	34.77	10.34	45.11	60.00	-14.89	AVG	
11		19.9420	43.09	10.60	53.69	73.00	-19.31	QP	
12		19.9420	36.91	10.60	47.51	60.00	-12.49	AVG	

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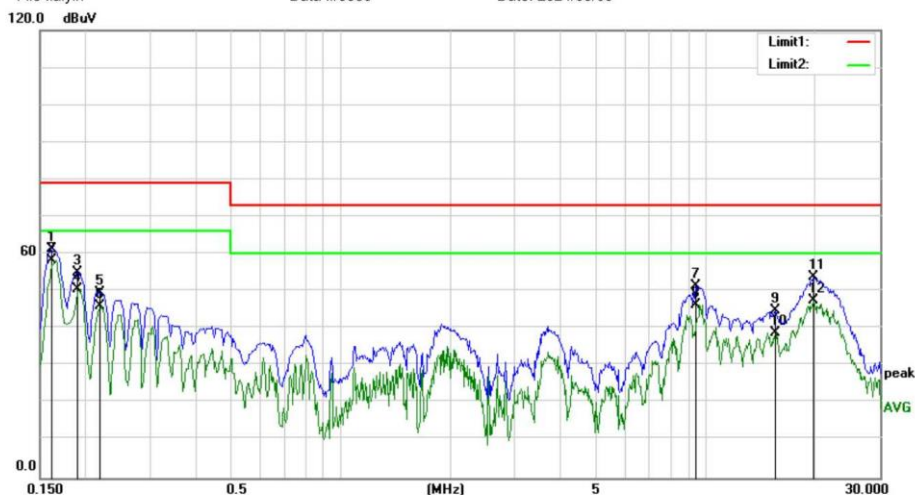
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Conducted Emission Measurement

File :laiyin Data :#3586 Date: 2024/05/09



Site 10m Chamber 1#

Phase: -
Power: DC 673.9V

Temperature: 24.8
Humidity: 54 %

Limit: (CE)EN61000-6-3_DC PORT_QP
EUT: Rechargeable Li-ion battery System
M/N: RT5.12-H12
Mode: Discharging
Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
		MHz	Level	Factor	ment				
			dBuV	dB	dBuV	dBuV	dB		
1		0.1620	51.32	10.18	61.50	79.00	-17.50	QP	
2	*	0.1620	48.24	10.18	58.42	66.00	-7.58	AVG	
3		0.1900	44.83	10.22	55.05	79.00	-23.95	QP	
4		0.1900	40.35	10.22	50.57	66.00	-15.43	AVG	
5		0.2185	39.29	10.23	49.52	79.00	-29.48	QP	
6		0.2185	35.76	10.23	45.99	66.00	-20.01	AVG	
7		9.3780	41.00	10.34	51.34	73.00	-21.66	QP	
8		9.3780	35.89	10.34	46.23	60.00	-13.77	AVG	
9		15.5340	34.29	10.48	44.77	73.00	-28.23	QP	
10		15.5340	28.34	10.48	38.82	60.00	-21.18	AVG	
11		19.8180	43.10	10.60	53.70	73.00	-19.30	QP	
12		19.8180	36.97	10.60	47.57	60.00	-12.43	AVG	

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Prüfbericht - Produkte
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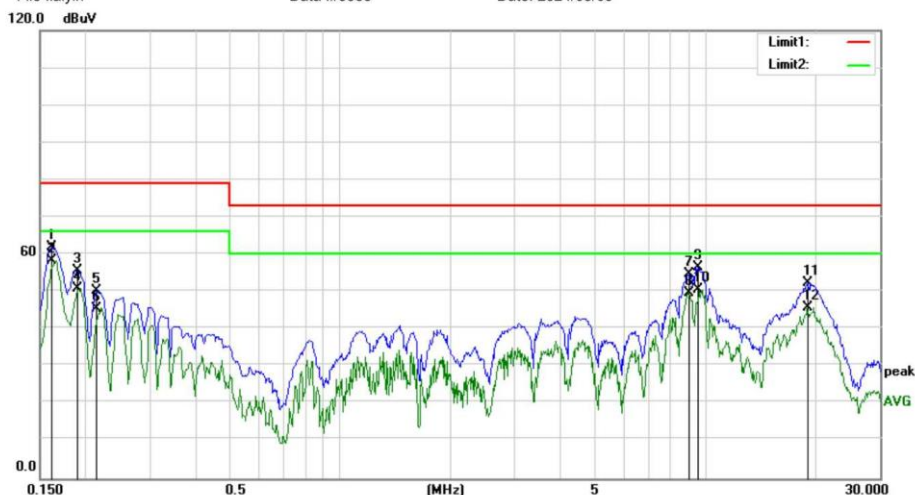
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Conducted Emission Measurement

File :laiyin Data :#3585 Date: 2024/05/09



Site 10m Chamber 1#

Phase: +

Temperature: 24.8

Limit: (CE)EN61000-6-3_DC PORT_QP

Power: DC 673.9V

Humidity: 54 %

EUT: Rechargeable Li-ion battery System

M/N: RT5.12-H12

Mode: Discharging

Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
		MHz	Level	Factor	ment				
			dBuV	dB	dBuV	dBuV	dB		
1		0.1620	51.74	10.18	61.92	79.00	-17.08	QP	
2	*	0.1620	48.07	10.18	58.25	66.00	-7.75	AVG	
3		0.1900	45.41	10.22	55.63	79.00	-23.37	QP	
4		0.1900	40.50	10.22	50.72	66.00	-15.28	AVG	
5		0.2140	40.03	10.23	50.26	79.00	-28.74	QP	
6		0.2140	35.37	10.23	45.60	66.00	-20.40	AVG	
7		8.9780	44.44	10.33	54.77	73.00	-18.23	QP	
8		8.9780	39.30	10.33	49.63	60.00	-10.37	AVG	
9		9.5500	46.28	10.35	56.63	73.00	-16.37	QP	
10		9.5500	40.19	10.35	50.54	60.00	-9.46	AVG	
11		19.0660	41.87	10.58	52.45	73.00	-20.55	QP	
12		19.0660	35.05	10.58	45.63	60.00	-14.37	AVG	

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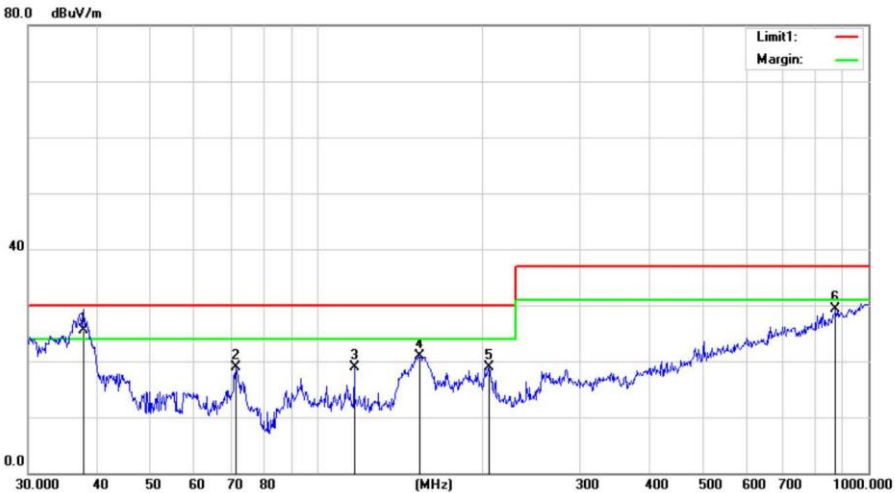
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Radiated Emission Measurement

File :laiyin Data :#3674 Date: 2024/5/20



Site 10m Chamber 1# Polarization: **Vertical** Temperature: 26
Limit: (RE10M)EN55032 Class B Power: DC 673.9V Humidity: 60 %
EUT: Rechargeable Li-ion battery System
M/N: RT5.12-H12
Mode: Discharging
Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	dBuV	Factor	ment			Height	Degree	Comment
				dB	dBuV/m	dBuV/m	dB	cm	degree	
1	*	37.8121	54.83	-29.33	25.50	30.00	-4.50	QP	200	23
2		71.3300	51.04	-32.09	18.95	30.00	-11.05	QP	198	0
3		116.9495	49.07	-30.17	18.90	30.00	-11.10	QP	400	198
4		153.7384	53.13	-32.13	21.00	30.00	-9.00	QP	200	155
5		205.6750	47.20	-28.35	18.85	30.00	-11.15	QP	300	200
6		872.1832	39.57	-10.18	29.39	37.00	-7.61	QP	200	37

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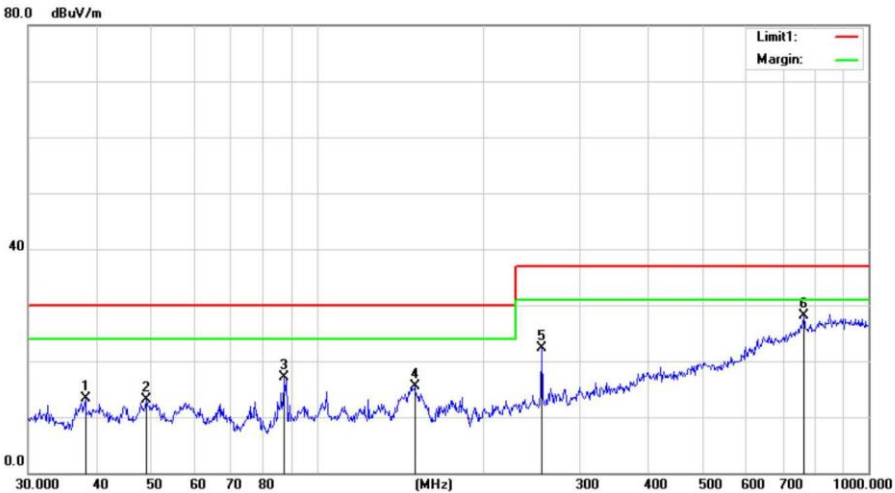
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Radiated Emission Measurement

File :laiyin Data :#3673 Date: 2024/5/20



Site 10m Chamber 1# Polarization: **Horizontal** Temperature: 26
Limit: (RE10M)EN55032 Class B Power: DC 673.9V Humidity: 60 %
EUT: Rechargeable Li-ion battery System
M/N: RT5.12-H12
Mode: Discharging
Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	Comment
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	
1		38.0782	44.32	-30.96	13.36	30.00	-16.64	QP	300	155
2		49.1865	42.04	-28.96	13.08	30.00	-16.92	QP	300	0
3		87.4175	49.95	-32.79	17.16	30.00	-12.84	QP	300	0
4		150.5378	47.79	-32.27	15.52	30.00	-14.48	QP	400	182
5		255.6230	49.71	-27.48	22.23	37.00	-14.77	QP	300	200
6	*	763.3757	39.92	-11.87	28.05	37.00	-8.95	QP	400	221

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Radiated Emission Measurement

File :laiyin

Data :#3672

Date: 2024/5/20

80.0 dBuV/m



Site 10m Chamber 1#

Polarization: **Vertical**

Temperature: 26

Limit: (RE10M)EN55032 Class B

Power: DC 673.9V

Humidity: 60 %

EUT: Rechargeable Li-ion battery System

M/N: RT5.12-H12

Mode: Charging

Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	Comment
			dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	
1	!	30.1051	56.01	-30.61	25.40	30.00	-4.60	QP	200	155
2	*	37.9450	54.99	-29.29	25.70	30.00	-4.30	QP	100	22
3		70.8315	50.65	-31.91	18.74	30.00	-11.26	QP	400	162
4		154.2786	53.98	-32.10	21.88	30.00	-8.12	QP	300	141
5		170.7923	54.61	-31.01	23.60	30.00	-6.40	QP	200	0
6		207.1226	48.95	-28.39	20.56	30.00	-9.44	QP	200	0

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Prüfbericht - Produkte
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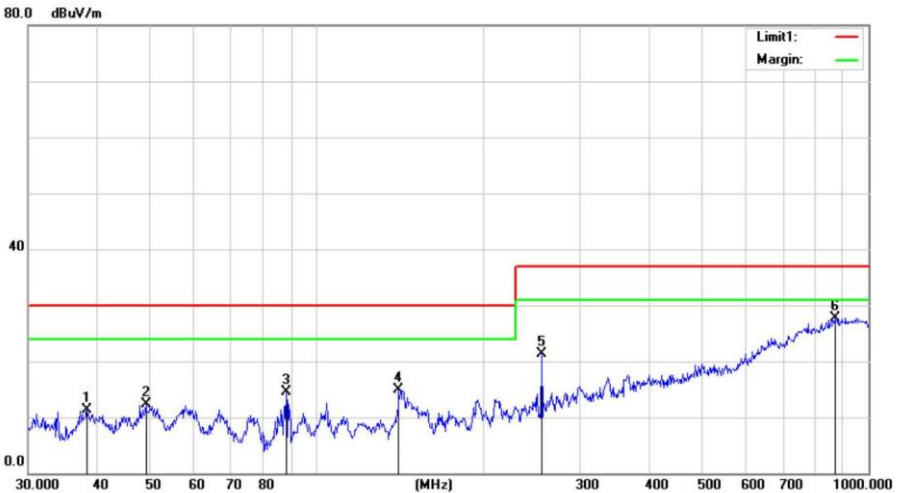
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Radiated Emission Measurement

File :laiyin Data :#3671 Date: 2024/5/20



Site 10m Chamber 1# Polarization: **Horizontal** Temperature: 26
Limit: (RE10M)EN55032 Class B Power: DC 673.9V Humidity: 60 %
EUT: Rechargeable Li-ion battery System
M/N: RT5.12-H12
Mode:Charging
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		38.3462	42.33	-30.96	11.37	30.00	-18.63	QP 400	342	
2		49.0144	41.22	-28.95	12.27	30.00	-17.73	QP 300	62	
3		88.0327	47.32	-32.75	14.57	30.00	-15.43	QP 300	168	
4		140.8351	46.89	-31.94	14.95	30.00	-15.05	QP 400	272	
5		255.6230	48.77	-27.48	21.29	37.00	-15.71	QP 400	126	
6	*	872.1832	37.75	-10.14	27.61	37.00	-9.39	QP 300	352	

Measurement Uncertainties

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Table 1: Measurement Uncertainty levels

Test	Parameters	Expanded uncertainty (U_{lab})	Expanded uncertainty ($U_{\text{cisp}}r$)
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	$\pm 3.16\text{dB}$ $\pm 2.90\text{dB}$	$\pm 3.8\text{dB}$ $\pm 3.4\text{dB}$
Radiated Emission	Level accuracy (30M~1GHz Polarize: H)	$\pm 4.32\text{dB}$	$\pm 6.3\text{dB}$
	Level accuracy (30M~1GHz Polarize: V)	$\pm 4.30\text{dB}$	$\pm 6.3\text{dB}$

As U_{lab} in all applicable tests listed above are less than $U_{\text{cisp}}r$ according to CISPR 16-4-2:2011+A1:2014+A2:2018,

- compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.