




Prüfbericht-Nr.: <i>Test report no.:</i>	CN23X4B3 001	Auftrags-Nr.: <i>Order no.:</i>	168404347	Seite 1 von 26 Page 1 of 26
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	2470625	Auftragsdatum: <i>Order date:</i>	28 Dec. 2022	
Auftraggeber: <i>Client:</i>	Hangzhou Vestwoods Technology Co., LTD Floor 3, Building 1, Yongle Countryside, Cangqian Street, Yuhang District, Hangzhou City, Zhejiang Province, 311121, P.R. China			
Prüfgegenstand: <i>Test item:</i>	Energy Storage system (Rechargeable Li-ion Battery)			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	VE51100W			
Auftrags-Inhalt: <i>Order content:</i>	TUV Rheinland - EMC service			
Prüfgrundlage: <i>Test specification:</i>	EN IEC 61000-6-1:2019 EN IEC 61000-6-3:2021			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2023-01-10			
Prüfmuster-Nr.: <i>Test sample no.:</i>	SPO2310330-1			
Prüfzeitraum: <i>Testing period:</i>	Refer to test report			
Ort der Prüfung: <i>Place of testing:</i>	Refer to section 2.1			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i> Chunli Zheng		genehmigt von: <i>authorized by:</i> Ware Xin		
Datum: <i>Date:</i> 2023-02-09		Ausstellungsdatum: <i>Issue date:</i> 2023-02-09		
Stellung / Position:	Engineer	Stellung / Position:	Reviewer	
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested
<p>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i></p>				

v05

TEST SUMMARY

5.1.1 CONDUCTED EMISSION

RESULT: Pass

5.2.1 RADIATED EMISSION

RESULT: Pass

6.2.1 RADIO-FREQUENCY ELECTROMAGNETIC FIELD AMPLITUDE MODULATED (RS)

RESULT: Pass

6.2.2 RADIO-FREQUENCY CONTINUOUS CONDUCTED (CS)

RESULT: Pass

6.2.3 POWER-FREQUENCY MAGNETIC FIELDS

RESULT: Pass

6.3.1 FAST TRANSIENTS (EFT)

RESULT: Pass

6.3.2 SURGE

RESULT: Pass

6.3.3 ELECTROSTATIC DISCHARGES (ESD)

RESULT: Pass

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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

SHENZHEN CHENGXIN TECHNOLOGY SERVICE CO., LTD. (CTS)
Tongfuyu Industrial Zone, No. 13 North of Aiqun Road, Shiyan Town, Baoan District,
Shenzhen, P. R. China

The tests at the test site 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 Disturbance (CTS)				
Test Receiver	ROHDE&SCHWARZ	ESCI 7	TE18080002	2023.03.07
LISN	SCHWARZBECK	NNLK 8130	TE18080014	2023.03.07
Attenuator	ROHDE&SCHWARZ	ESH3-Z2	TE18080089	2023.09.13
Radiated Disturbance (10m Chamber)(30MHz-1000MHz) (CTS)				
10m Chamber	EMC-united	21.1x12.4x8.55 M(H)	TE18080063	2024.04.16
Test Receiver	ROHDE&SCHWARZ	ESCI 7	TE18080002	2023.03.07
Broadband Antenna	SCHWARZBECK	VULB 9162	TE18080009	2023.03.20
Preset Amplifier	Anritsu	NH648A	TE18080057	2023.07.10
Radiated Disturbance (3m Chamber)(1000MHz-6000MHz) (CTS)				
3m Chamber	EMC-united	9m*6m*6m	TE21100001	2024.11.19
Test Receiver	ROHDE&SCHWARZ	ESCI 7	TE18080002	2023.03.07
Horn Antenna	SCHWARZBECK	BBHA 9120D	TE18080004	2023.03.04
Preset Amplifier	SCHWARZBECK	BBV 9743B	TE18080083	2023.07.10
ESD (CTS)				
ESD Test System	TESEQ	NSG 437	TE18080035	2023.03.10
Radio-Frequency Electromagnetic Field Amplitude Modulated (CTS)				
Signal Generator	Agilent	N5181A	TE18080045	2023.07.10
Power Meter	Agilent	N1914A	TE18080058	2023.07.10
EMS Antenna	SCHWARZBECK	STLP 9128 E	TE18080007	2024.02.03
EMS Antenna	SCHWARZBECK	BBHA 9120 J	TE18080005	2024.02.03
Power Amplifier	TESEQ	CBA 1G-1200B	TE18080055	2023.09.13
Power Amplifier	MILMEGA	AS0104-200/200	TE18080063	2023.07.10
Power Amplifier	MILMEGA	CBA 6G-080D	TE18080012	2023.07.10
EFT and Surge (CTS)				
EFT/Surge Test System	EM TEST	UCS500N7.2	TE18080036	2023.03.07

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Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
CDN	EM TEST	CNI503B9.4/100 A	TE18080037	2023.03.07
Capacitive clamp	EM TEST	CCI	TE18080034	2023.03.07
Radio-Frequency Continuous Conducted (CTS)				
Signal Generator	ROHDE&SCHWARZ	SML 01	TE18080048	2023.11.17
Power Meter	Agilent	N1914A	TE18080058	2023.07.10
Power Amplifier	AMETEK	SCDX150	TE18080013	2023.09.13
Electromagnetic coupling clamp	TESEQ	KEMZ 801A	TE18080031	2023.07.10
CDN	SCHWARZBECK	M1 16A	TE18080018	2023.03.07
CDN	SCHWARZBECK	M2/M3 PE 16A	TE18080020	2023.03.07
Power Frequency Magnetic Field				
Magnetic Field Tester	3C TEST	MFS 1200	TE18080040	2023.07.10
Magnetic Field Test Coil	3C TEST	TCXS 113	TE18080041	2023.07.10

3. General Product Information

3.1 Product Function and Intended Use

The **EUT** (**E**quipment **U**nder **T**est) is Energy Storage system (Rechargeable Li-ion Battery) used for residential, commercial and light-industrial environments.

Model difference:

Model	Nominal capacity	Rated Voltage	Maximum charge current	Maximum discharge current
VE51100W	100Ah	51.2V	100A	100A

All models are identical in circuit design.

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

3.2 Ratings and System Details

Nominal Voltage:	DC 51.2V
Nominal Energy:	5.12kWh
Operating Voltage Range:	DC 44.8-57.6V
Standard Charge Current:	DC 100A
Standard Discharge Current:	DC 100A
Nominal Capacity:	100Ah
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

- Rating Label

- Instruction Manual

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 VE51100W.

4.3 Special Accessories and Auxiliary Equipment

The EUT was tested together with the following accessories:

Item	Manufacturer	M/N	S/N
Multimeter	Fluke	Fluke 17B	TS18080066
Clamp ammeter	Fluke	Fluke 317	TS18080168
DC power	szchuangyao	CS200F	TE21080001
Loading Cabinet	SIKES	SKS-RDC-600A/0.05	TE18080103
Loading Cabinet	SIKES	SKS-RDC-160KW-750/1000V	TE18080102

4.4 Countermeasures to achieve EMC Compliance

The test sample, which has 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.

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
Frequency range : 0.15 - 30MHz
Limits : Table 5 of EN IEC 61000-6-3:2021
Kind of test site : 10m Semi-Anechoic Chamber
Tested Port : DC power port *

Test setup

Input Voltage : DC 57.6V for charging mode
Operation Condition : Clause 5 of EN IEC 61000-6-3:2021
Operation mode : A
Artificial hand : Not applied
Earthing : Connected

* Since the signal port of the EUT does not conform to the type listed in Table 6 of EN IEC 61000-6-3:2021, Therefore Conducted Emission test is not applicable to the Signal port.

Refer to attached Appendix 1.

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
Frequency range : 30 - 6000MHz
Limits : Table 3 of EN IEC 61000-6-3:2021
Kind of test site : 10m Semi-Anechoic Chamber
Tested Port : Enclosure

Test setup

Input Voltage : DC 57.6V for charging mode
Operation Condition : Clause 5 of EN IEC 61000-6-3:2021
Operation mode : A
Earthing : Connected

Refer to attached Appendix 1.

6. Test Results IMMUNITY

6.1 Classification of apparatus

According to EN IEC 61000-6-1:2019, 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:

* 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 : 2023-01-15
 Test Specification : EN IEC 61000-6-1:2019
 Basic Standard : IEC 61000-4-3:2006+A1+A2
 Criterion : A
 Frequency Range : 80 - 1000MHz, 1.4 - 6.0GHz
 Test Level : 3V/m, 80 – 1000MHz
 : 3V/m, 1.4 – 6.0GHz
 (Unmodulated, r.m.s.)
 Modulation : AM 80%, 1kHz sine-wave
 Tested Port : Enclosure

Test setup

Input Voltage : DC 57.6V for charging mode
 Operation Mode : A
 Earthing : Connected
 Ambient temperature : 22°C
 Relative humidity : 52%
 Atmospheric pressure : 101kPa

Test results:

Polarization	Frequency Range	Test Level	Criterion	Description	Conclusion
H/V	80MHz to 1000MHz	3V/m	A	Operating as intended, no failure detected	Pass
H/V	1.4GHz to 6.0GHz	3V/m	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 : 2023-01-16
 Test Specification : EN IEC 61000-6-1:2019
 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.)
 Modulation : AM 80%, 1kHz sine-wave
 Sweep mode : automatic
 Sweep rate : 1.5×10^{-3}decade/sec.
 Tested Port : DC power port, Signal port

Test setup

Input Voltage : DC 57.6V for charging mode
 Operation Mode : A
 Earthing : Connected
 Ambient temperature : 21°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	A	Operating as intended, no failure detected	Pass
Signal Port	EM-Clamp	0.15 - 80 MHz	3V	A	Operating as intended, no failure detected	Pass

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6.2.3 Power-frequency Magnetic Fields

RESULT: **Pass**

Date of testing : 2023-01-16
 Test Specification : EN IEC 61000-6-1:2019
 Basic Standard : IEC 61000-4-8:2009
 Criterion : A
 Test Frequency : 50/60Hz
 Test level : 3A/m
 Tested Port : Enclosure

Test setup

Input Voltage : DC 57.6V for charging mode
 Operation Mode : A
 Earthing : Connected
 Ambient temperature : 21°C
 Relative humidity : 53%
 Atmospheric pressure : 101kPa

Test results:

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

6.3 Transient Disturbances

6.3.1 Fast Transients (EFT)

RESULT:**Pass**

Date of testing	:	2023-01-16
Test Specification	:	EN IEC 61000-6-1:2019
Basic Standard	:	IEC 61000-4-4:2012
Criterion	:	B
Test level	:	±0.5kV (Signal port) ±0.5kV (DC power port)
Test duration	:	≥60sec
Rise time	:	5/50ns
Repetition frequency	:	5kHz
Tested Port	:	DC power port, Signal port

Test setup

Input Voltage	:	DC 57.6V for charging mode
Operation Mode	:	A
Earthing	:	Connected
Ambient temperature	:	21°C
Relative humidity	:	53%
Atmospheric pressure	:	101kPa

Test results:

Ports	Coupling	Test Level	Criterion	Description	Conclusion
DC Power Port	CDN	±0.5kV	B	Operating as intended, no failure detected	Pass
Signal Port	Capacitive Clamp	±0.5kV	B		Pass

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6.3.2 Surge
RESULT:
Pass

Date of testing : 2023-01-16
 Test Specification : EN IEC 61000-6-1:2019
 Basic Standard : IEC 61000-4-5:2014
 Criterion : B
 Source impedance : 2 Ω , 12 Ω
 Test level : $\pm 0.5\text{kV}$ (DC power port, line-to-line)
 : $\pm 1\text{kV}$ (DC power port, line-to-earth)
 Number of surges : 5 (for each combination of parameters)
 Repetition rate : Max. 1/min
 Tested Port : DC power port*

Test Setup

Input Voltage : DC 57.6V for charging mode
 Operation Mode : A
 Earthing : Connected
 Ambient temperature : 24°C
 Relative humidity : 52%
 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	$\pm 0.5\text{kV}, \pm 1\text{kV}$	P-PE, N-PE	12	B		Pass

*Since the length of signal cable which is installed indoors and will not exceed 30M according to the manufacturer's functional specification, therefore surge test is not applicable to the signal port.

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Page 19 of 26**6.3.3 Electrostatic Discharges (ESD)****RESULT:****Pass**

Date of testing : 2023-01-16
Test Specification : EN IEC 61000-6-1:2019
Basic Standard : IEC 61000-4-2:2008
Criterion : B
Charge voltage : ±2.0kV, ±4.0kV, ±8kV (air discharge)
 : ±2.0kV, ±4.0kV (contact discharge)
Number of discharges : >10
Tested Port : Enclosure

Test Setup

Input Voltage : DC 57.6V for charging mode
Operation Mode : A
Earthing : Connected
Ambient temperature : 21°C
Relative humidity : 53%
Atmospheric pressure : 101kPa

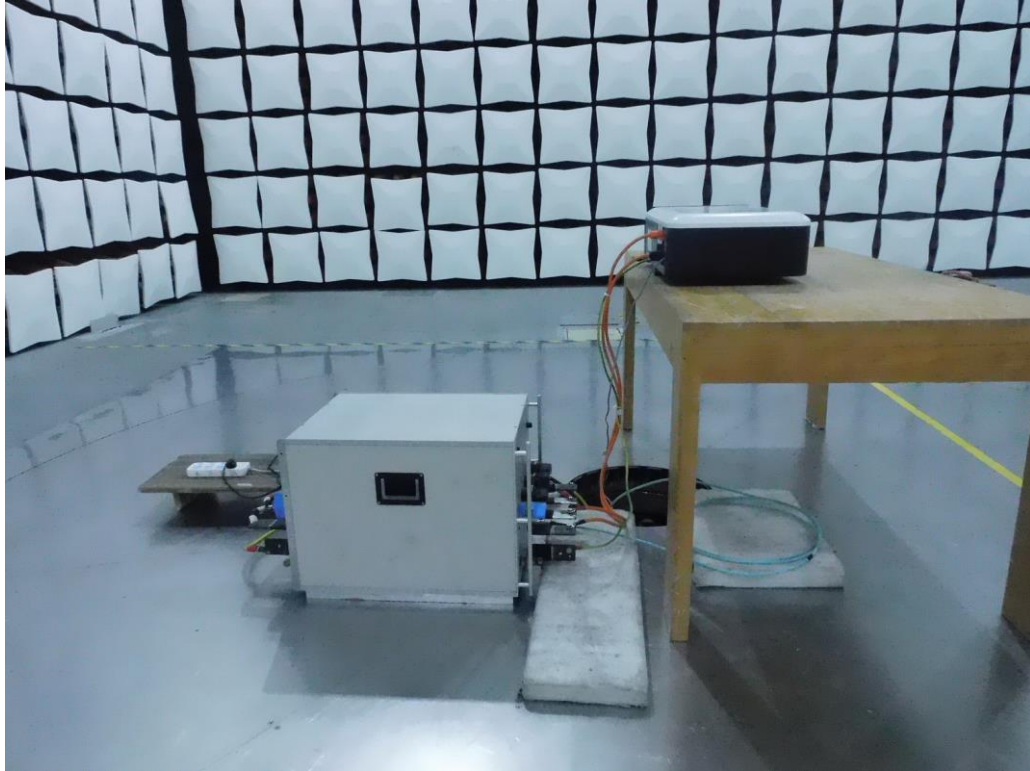
Test Results:

Test Point	Test Mode	Test Level(kV)	Criterion	Description	Conclusion
HCP	C	±2, ±4	B	No failure detected	Pass
VCP	C	±2, ±4	B	No failure detected	Pass
Screw	C	±2, ±4	B	No failure detected	Pass
Conducted Enclosure	C	±2, ±4	B	No failure detected	Pass
Non-conducted Enclosure	A	±2, ±4, ±8	B	No failure detected	Pass
Indicator light & Button	A	±2, ±4, ±8	B	No failure detected	Pass

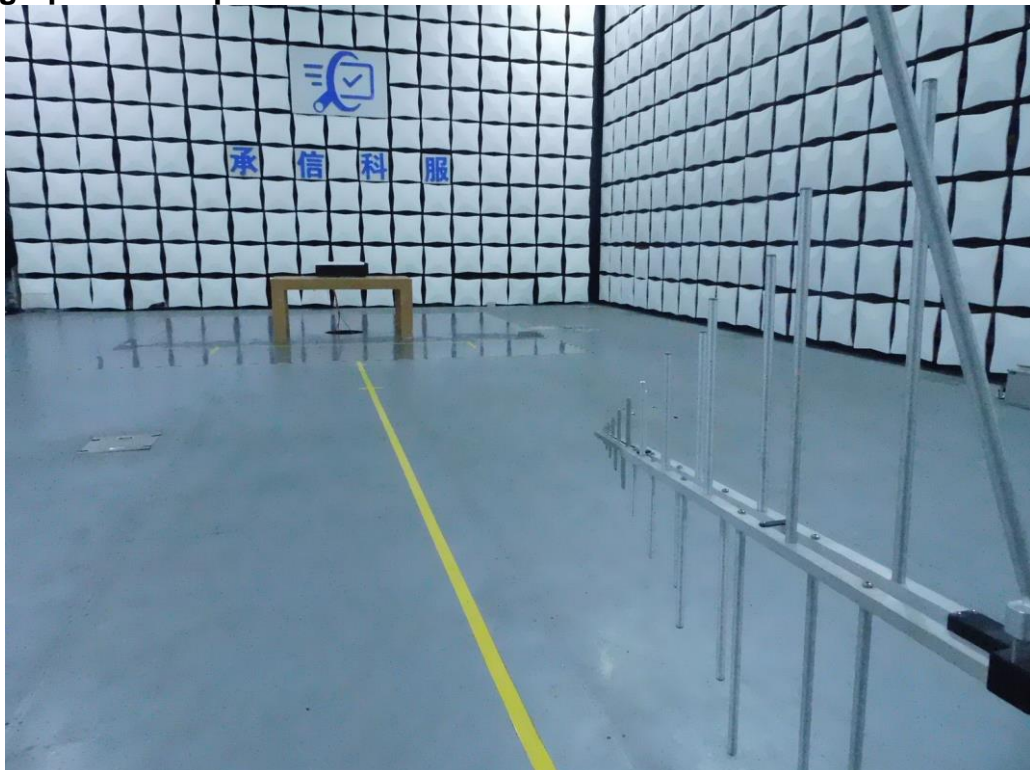
Note: A-Air Discharge; C-Contact Discharge; VCP-Vertical Coupling Plane; HCP-Horizontal Coupling Plane

7. Photographs of the Test Set-Up

Photograph 1: Set-up for Conducted Emission

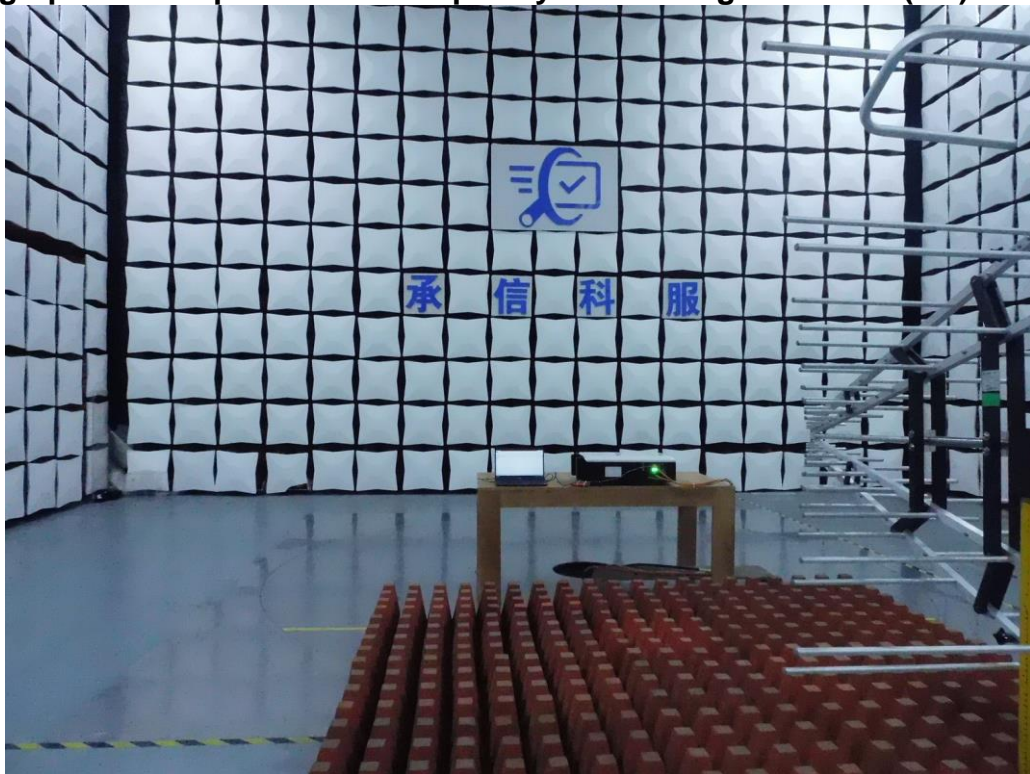


Photograph 2: Set-up for Radiated Emission





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



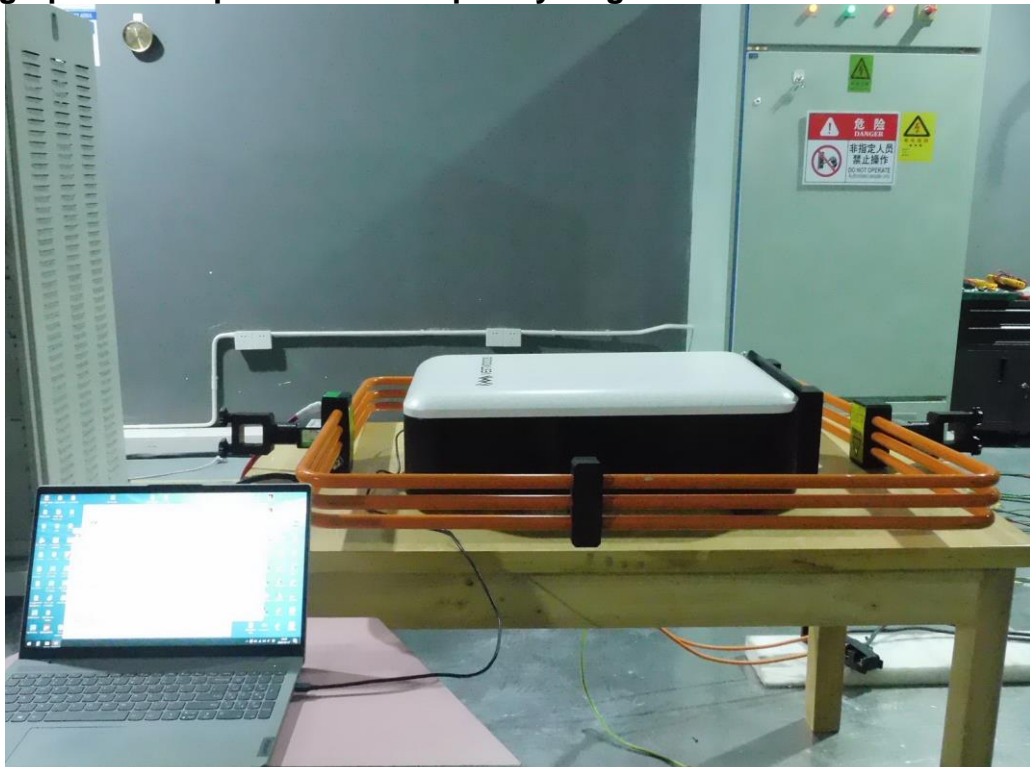


Photograph 4: Set-up for Conducted Susceptibility (CS)





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



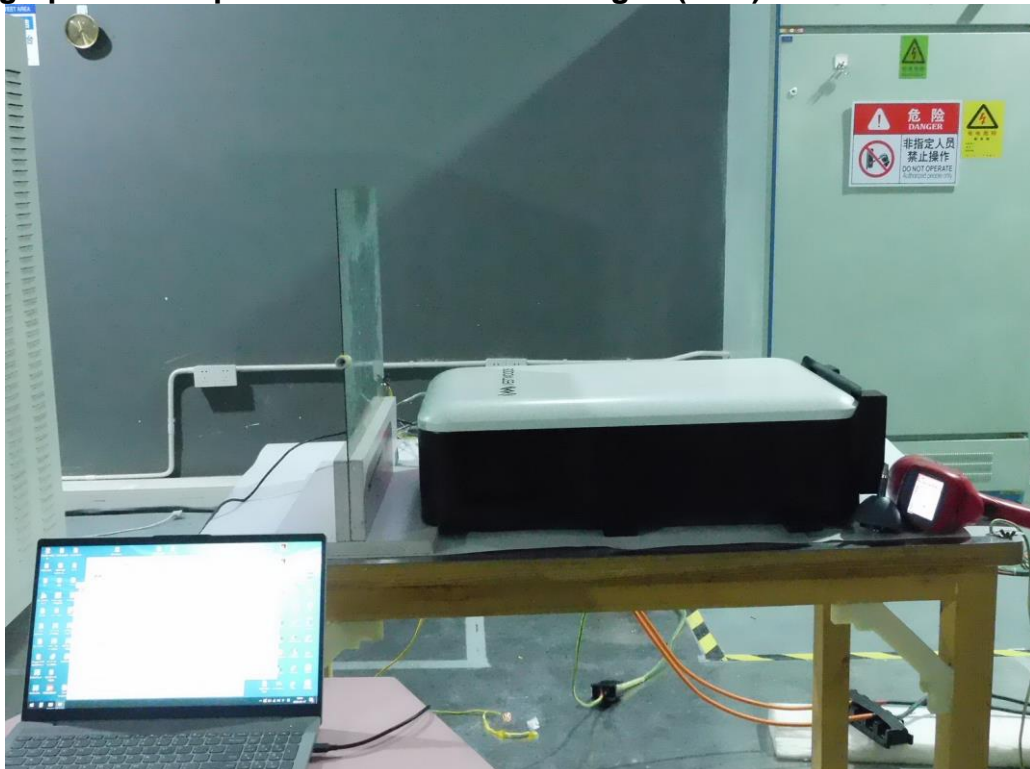
Photograph 6: Set-up for EFT



Photograph 7: Set-up for Surge



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



8. List of Tables

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CTS Test Record

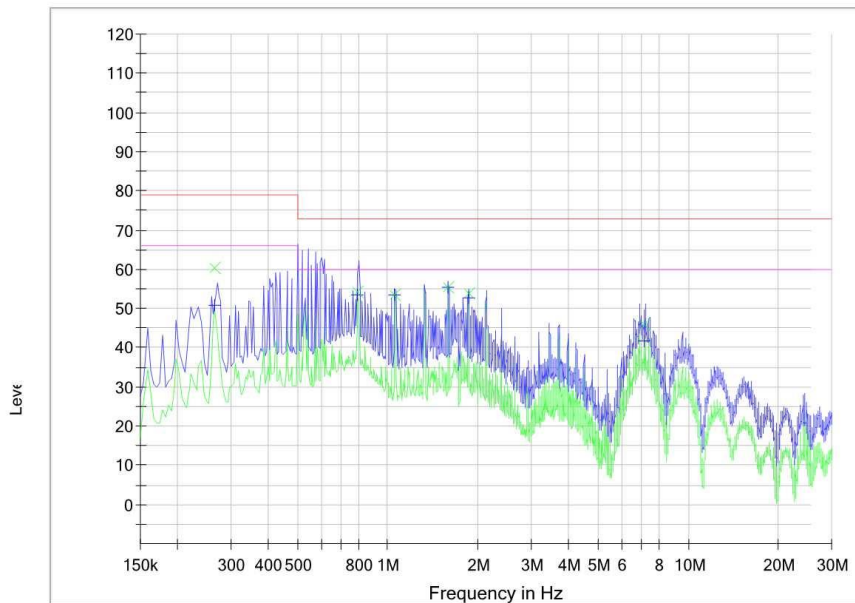
DC-

Common Information

Test Description:	CTS 10m Chamber Laboratory
Test Site:	SHENZHEN CHENGXIN TECHNOLOGY SERVICE CO., LTD.
Operator Name:	Zhou Peisheng
Test Standard:	EN IEC 61000-6-3:2021, EN IEC 61000-6-4:2019
Comment:	Charging mode, 100% load

Limit and Margin

Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dB μ V)	Margin - AVG (dB)	Limit - AVG (dB μ V)
0.266000	60.47	50.77	10.1	18.53	79.0	15.23	66.0
0.794000	54.39	53.59	10.1	18.61	73.0	6.41	60.0
1.058000	53.37	53.46	10.1	19.63	73.0	6.54	60.0
1.590000	55.23	55.27	10.1	17.77	73.0	4.73	60.0
1.854000	54.00	52.74	10.2	19.00	73.0	7.26	60.0
7.166000	45.81	41.88	10.3	27.19	73.0	18.12	60.0



CTS Test Record

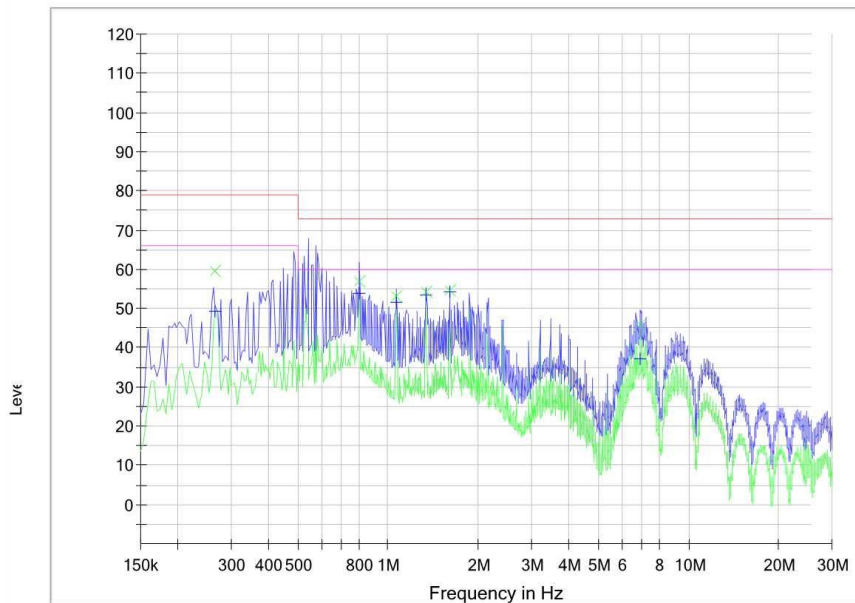
DC-

Common Information

Test Description:	CTS 10m Chamber Laboratory
Test Site:	SHENZHEN CHENGXIN TECHNOLOGY SERVICE CO., LTD.
Operator Name:	Zhou Peisheng
Test Standard:	EN IEC 61000-6-3:2021, EN IEC 61000-6-4:2019
Comment:	Discharge mode, 100% load

Limit and Margin

Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dB μ V)	Margin - AVG (dB)	Limit - AVG (dB μ V)
0.266000	59.38	49.16	10.1	19.62	79.0	16.84	66.0
0.802000	57.04	54.02	10.1	15.96	73.0	5.98	60.0
1.066000	53.21	51.70	10.1	19.79	73.0	8.30	60.0
1.334000	54.42	53.56	10.1	18.58	73.0	6.44	60.0
1.602000	54.69	54.36	10.2	18.31	73.0	5.64	60.0
6.938000	46.03	37.12	10.3	26.97	73.0	22.88	60.0



CTS Test Record

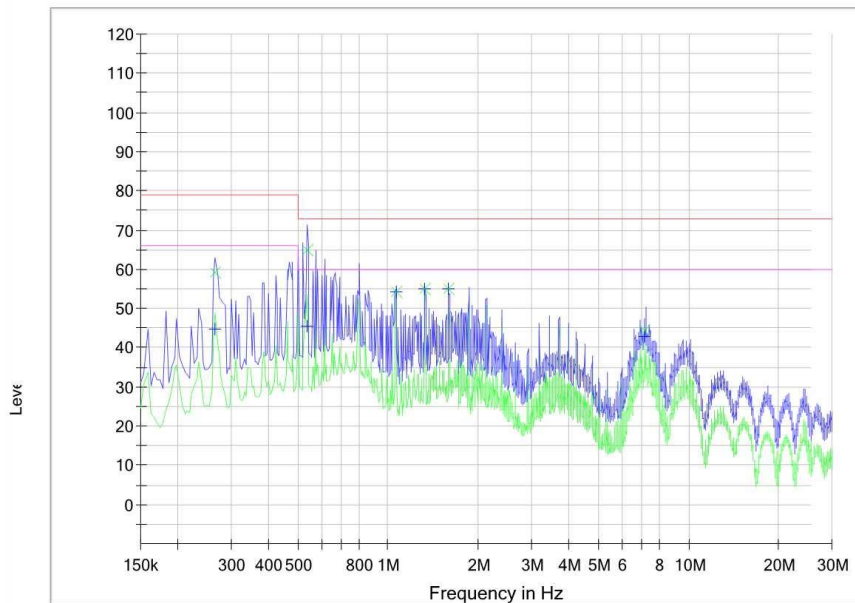
DC+

Common Information

Test Description:	CTS 10m Chamber Laboratory
Test Site:	SHENZHEN CHENGXIN TECHNOLOGY SERVICE CO., LTD.
Operator Name:	Zhou Peisheng
Test Standard:	EN IEC 61000-6-3:2021, EN IEC 61000-6-4:2019
Comment:	Charging mode, 100% load

Limit and Margin

Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dB μ V)	Margin - AVG (dB)	Limit - AVG (dB μ V)
0.266000	59.24	44.75	10.1	19.76	79.0	21.25	66.0
0.538000	64.72	45.37	10.1	8.28	73.0	14.63	60.0
1.062000	54.13	54.16	10.1	18.87	73.0	5.84	60.0
1.326000	55.08	55.11	10.1	17.92	73.0	4.89	60.0
1.590000	54.96	55.06	10.1	18.04	73.0	4.94	60.0
7.162000	44.38	42.81	10.3	28.62	73.0	17.19	60.0



CTS Test Record

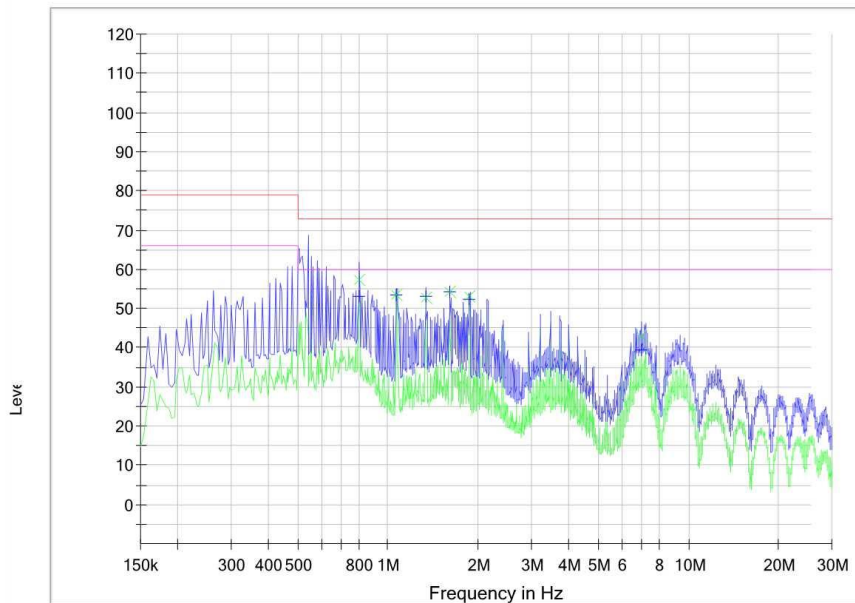
DC+

Common Information

Test Description:	CTS 10m Chamber Laboratory
Test Site:	SHENZHEN CHENGXIN TECHNOLOGY SERVICE CO., LTD.
Operator Name:	Zhou Peisheng
Test Standard:	EN IEC 61000-6-3:2021, EN IEC 61000-6-4:2019
Comment:	Discharge mode, 100% load

Limit and Margin

Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dB μ V)	Margin - AVG (dB)	Limit - AVG (dB μ V)
0.802000	57.38	53.15	10.1	15.62	73.0	6.85	60.0
1.070000	53.44	53.56	10.1	19.56	73.0	6.44	60.0
1.338000	52.64	52.98	10.1	20.36	73.0	7.02	60.0
1.602000	54.42	54.36	10.2	18.58	73.0	5.64	60.0
1.870000	53.04	52.17	10.2	19.96	73.0	7.83	60.0
6.950000	42.95	39.39	10.3	30.05	73.0	20.61	60.0



CTS Test Record

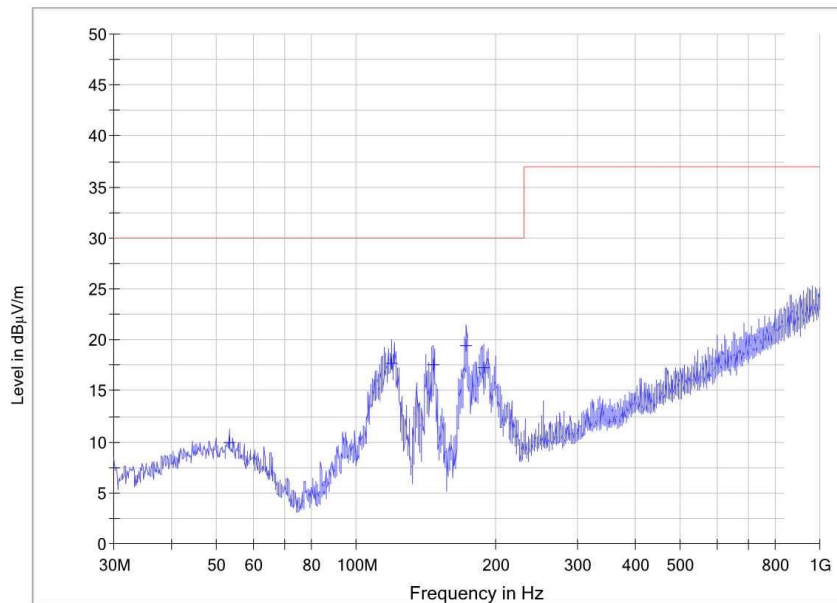
H

Common Information

Test Description:	CTS 10m Chamber Laboratory
Test Site:	SHENZHEN CHENGXIN TECHNOLOGY SERVICE CO., LTD.
Operator Name:	Zhou Peisheng
Test Standard:	EN IEC 61000-6-3:2021, EN IEC 61000-6-4:2019
Comment:	Charging mode, 100% load

Limit and Margin

Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dB μ V/m)
53.400000	9.98	20.0	120.000	300.0	H	316.0	-15.4	20.02	30.0
93.760000	9.31	20.0	120.000	300.0	H	283.0	-18.0	20.69	30.0
119.240000	17.68	20.0	120.000	300.0	H	97.0	-18.8	12.32	30.0
146.280000	17.58	20.0	120.000	400.0	H	136.0	-20.1	12.42	30.0
173.200000	19.49	20.0	120.000	300.0	H	40.0	-18.8	10.51	30.0
188.720000	17.29	20.0	120.000	400.0	H	279.0	-17.6	12.71	30.0



CTS Test Record

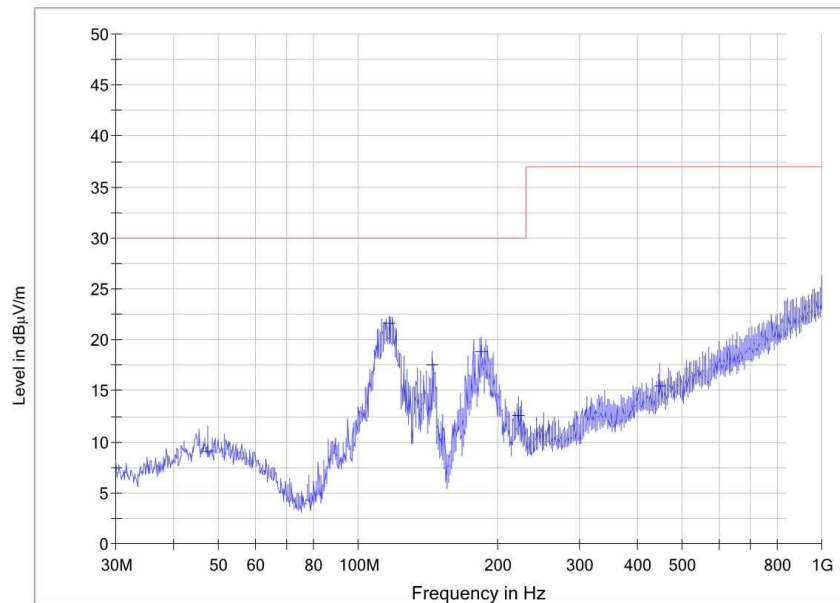
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Common Information

Test Description:	CTS 10m Chamber Laboratory
Test Site:	SHENZHEN CHENGXIN TECHNOLOGY SERVICE CO., LTD.
Operator Name:	Zhou Peisheng
Test Standard:	EN IEC 61000-6-3:2021, EN IEC 61000-6-4:2019
Comment:	Discharge mode, 100% load

Limit and Margin

Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dB μ V/m)
47.440000	9.07	20.0	120.000	400.0	H	240.0	-15.3	20.93	30.0
116.680000	21.58	20.0	120.000	400.0	H	280.0	-18.4	8.42	30.0
144.720000	17.57	20.0	120.000	300.0	H	241.0	-20.1	12.43	30.0
184.960000	18.81	20.0	120.000	300.0	H	126.0	-17.9	11.19	30.0
221.920000	12.52	20.0	120.000	300.0	H	153.0	-16.3	17.48	30.0
446.360000	15.51	20.0	120.000	300.0	H	82.0	-10.9	21.49	37.0



CTS Test Record

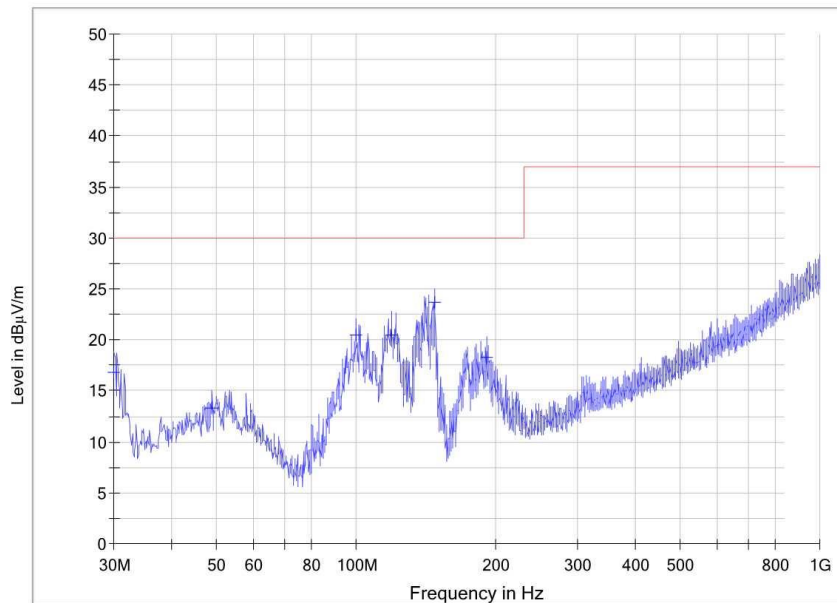
V

Common Information

Test Description:	CTS 10m Chamber Laboratory
Test Site:	SHENZHEN CHENGXIN TECHNOLOGY SERVICE CO., LTD.
Operator Name:	Zhou Peisheng
Test Standard:	EN IEC 61000-6-3:2021, EN IEC 61000-6-4:2019
Comment:	Charging mode, 100% load

Limit and Margin

Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dB μ V/m)
30.000000	16.82	20.0	120.000	200.0	V	22.0	-18.2	13.18	30.0
48.920000	13.25	20.0	120.000	100.0	V	70.0	-15.2	16.75	30.0
99.720000	20.54	20.0	120.000	200.0	V	141.0	-17.0	9.46	30.0
119.360000	20.54	20.0	120.000	100.0	V	164.0	-18.9	9.46	30.0
147.720000	23.64	20.0	120.000	200.0	V	130.0	-20.1	6.36	30.0
191.000000	18.34	20.0	120.000	200.0	V	237.0	-17.4	11.66	30.0



CTS Test Record

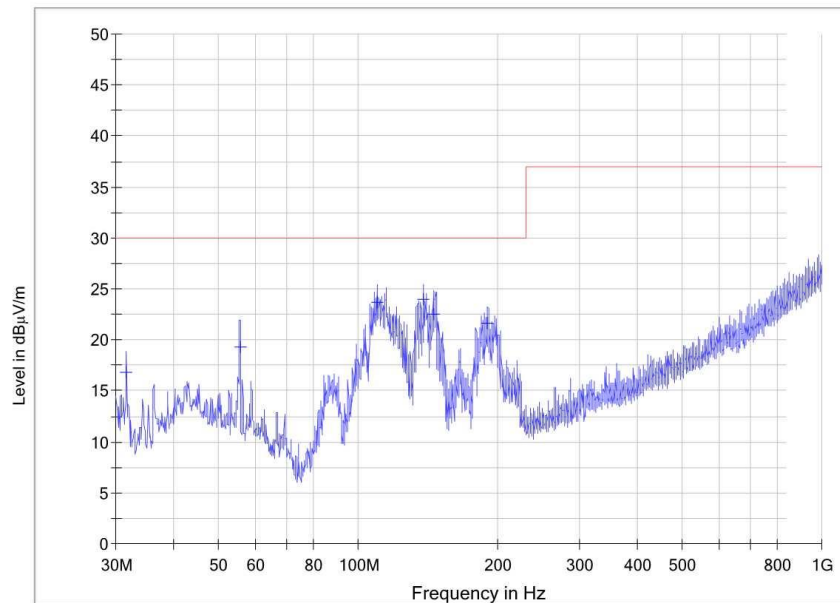
V

Common Information

Test Description:	CTS 10m Chamber Laboratory
Test Site:	SHENZHEN CHENGXIN TECHNOLOGY SERVICE CO., LTD.
Operator Name:	Zhou Peisheng
Test Standard:	EN IEC 61000-6-3:2021, EN IEC 61000-6-4:2019
Comment:	Discharge mode, 100% load

Limit and Margin

Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dB μ V/m)
31.680000	16.87	20.0	120.000	200.0	V	15.0	-18.1	13.13	30.0
55.600000	19.35	20.0	120.000	200.0	V	304.0	-15.6	10.65	30.0
110.280000	23.69	20.0	120.000	100.0	V	247.0	-17.1	6.31	30.0
138.640000	23.97	20.0	120.000	200.0	V	264.0	-20.2	6.03	30.0
145.680000	22.58	20.0	120.000	200.0	V	87.0	-20.1	7.42	30.0
190.640000	21.57	20.0	120.000	200.0	V	67.0	-17.5	8.43	30.0



CTS Test Record

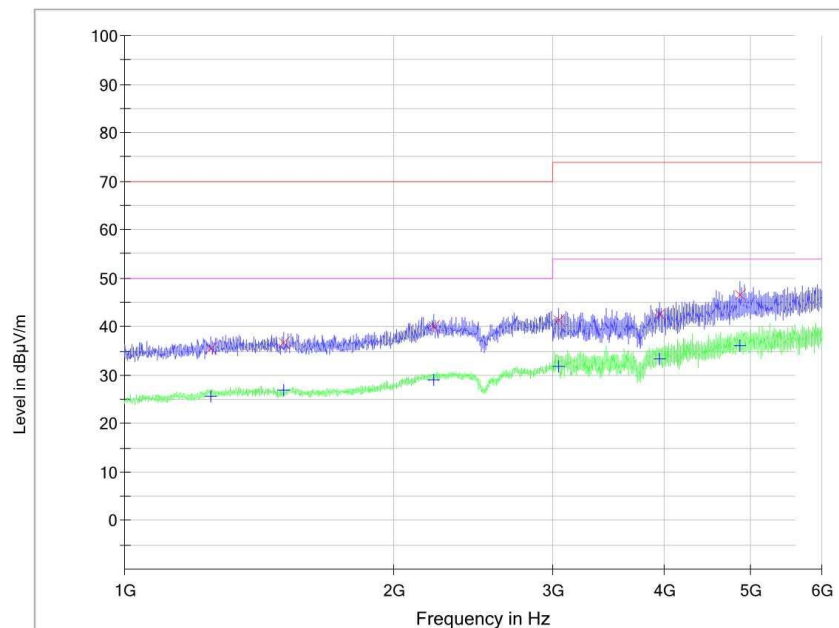
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Common Information

Test Description:	CTS 3m Chamber Laboratory
Test Site:	SHENZHEN CHENGXIN TECHNOLOGY SERVICE CO., LTD.
Operator Name:	Zhou Peisheng
Test Standard:	EN IEC 61000-6-3:2021, EN IEC 61000-6-4:2019
Comment:	Charging mode, 100% load

Limit and Margin

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dB μ V/m)	Margin - AVG (dB)	Limit - AVG (dB μ V/m)
1248.000000	35.6	25.7	400.0	H	231.0	1.7	34.4	70.0	24.3	50.0
1506.509125	36.7	26.9	400.0	H	117.0	2.1	33.3	70.0	23.1	50.0
2215.775079	40.0	29.1	300.0	H	103.0	5.8	30.0	70.0	20.9	50.0
3047.869651	41.3	31.7	300.0	H	97.0	7.6	32.7	74.0	22.3	54.0
3960.269025	42.4	33.3	400.0	H	134.0	9.3	31.6	74.0	20.7	54.0
4870.558088	46.4	36.1	400.0	H	221.0	11.6	27.6	74.0	17.9	54.0



CTS Test Record

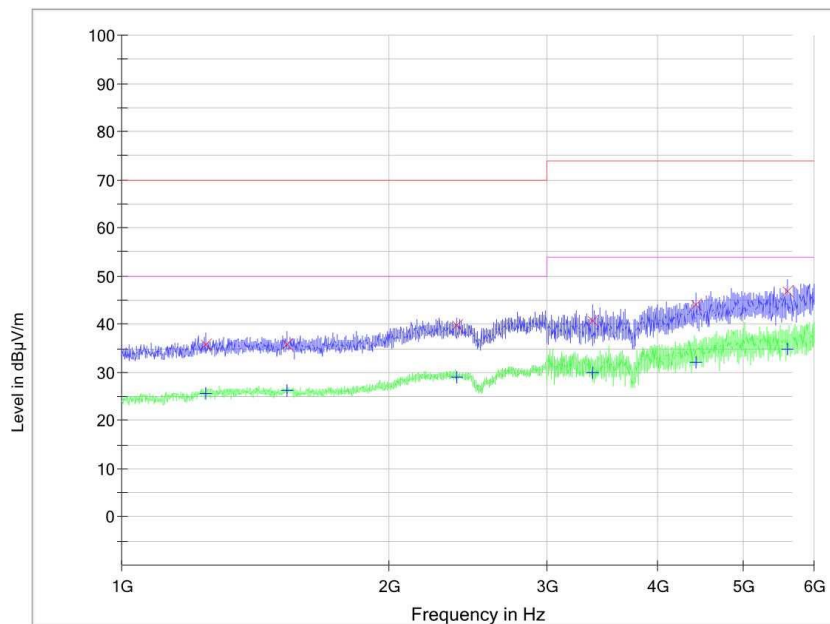
H

Common Information

Test Description:	CTS 3m Chamber Laboratory
Test Site:	SHENZHEN CHENGXIN TECHNOLOGY SERVICE CO., LTD.
Operator Name:	Zhou Peisheng
Test Standard:	EN IEC 61000-6-3:2021, EN IEC 61000-6-4:2019
Comment:	Discharge mode, 100% load

Limit and Margin

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dB μ V/m)	Margin - AVG (dB)	Limit - AVG (dB μ V/m)
1244.695066	35.9	25.7	300.0	H	134.0	1.7	34.1	70.0	24.3	50.0
1533.858019	35.9	26.2	400.0	H	251.0	2.2	34.1	70.0	23.8	50.0
2378.730136	39.8	28.9	400.0	H	49.0	6.0	30.2	70.0	21.1	50.0
3388.508678	40.7	29.9	400.0	H	86.0	7.4	33.3	74.0	24.1	54.0
4424.939011	44.1	32.1	400.0	H	194.0	10.8	29.9	74.0	21.9	54.0
5596.486969	46.9	35.0	400.0	H	215.0	11.9	27.1	74.0	19.0	54.0



CTS Test Record

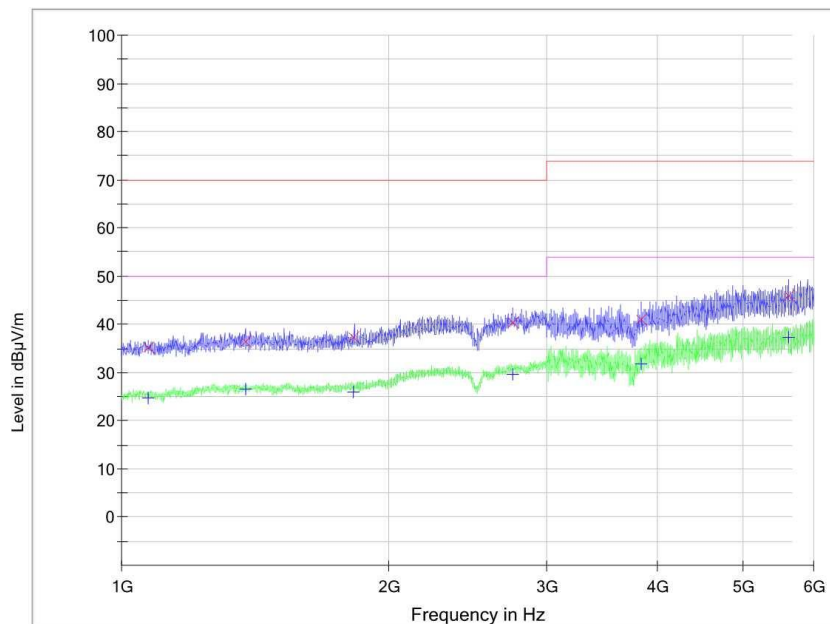
V

Common Information

Test Description:	CTS 3m Chamber Laboratory
Test Site:	SHENZHEN CHENGXIN TECHNOLOGY SERVICE CO., LTD.
Operator Name:	Zhou Peisheng
Test Standard:	EN IEC 61000-6-3:2021, EN IEC 61000-6-4:2019
Comment:	Charging mode, 100% load

Limit and Margin

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dB μ V/m)	Margin - AVG (dB)	Limit - AVG (dB μ V/m)
1071.399270	35.3	24.8	100.0	V	302.0	0.4	34.7	70.0	25.2	50.0
1376.907588	36.4	26.6	200.0	V	185.0	2.1	33.6	70.0	23.4	50.0
1825.217578	37.4	25.8	100.0	V	211.0	2.5	32.6	70.0	24.2	50.0
2752.456642	40.5	29.8	100.0	V	174.0	6.9	29.5	70.0	20.2	50.0
3835.607946	41.0	31.6	200.0	V	221.0	9.0	33.0	74.0	22.4	54.0
5630.149950	45.9	37.3	100.0	V	124.0	11.9	28.1	74.0	16.7	54.0



CTS Test Record

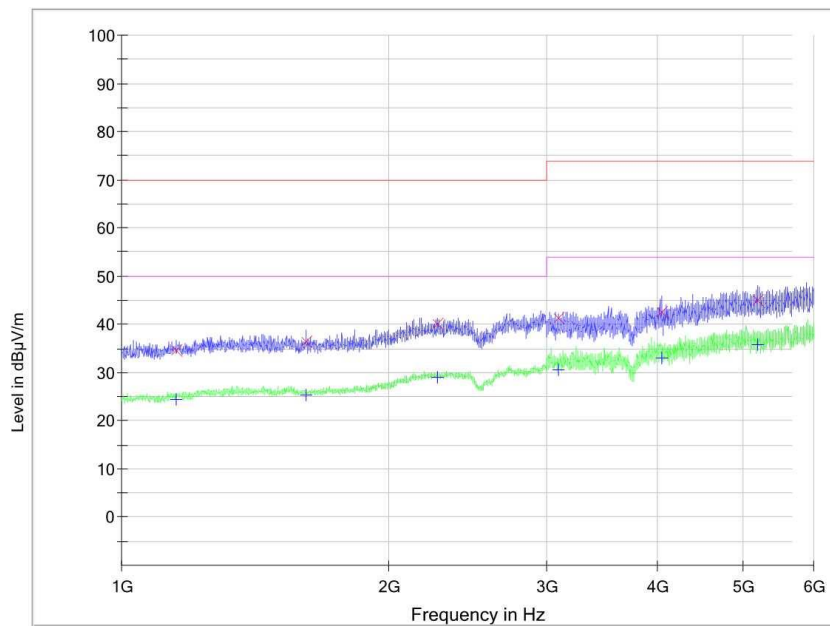
V

Common Information

Test Description:	CTS 3m Chamber Laboratory
Test Site:	SHENZHEN CHENGXIN TECHNOLOGY SERVICE CO., LTD.
Operator Name:	Zhou Peisheng
Test Standard:	EN IEC 61000-6-3:2021, EN IEC 61000-6-4:2019
Comment:	Discharge mode, 100% load

Limit and Margin

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dB μ V/m)	Margin - AVG (dB)	Limit - AVG (dB μ V/m)
1151.343529	34.6	24.4	200.0	V	152.0	0.9	35.4	70.0	25.6	50.0
1609.240226	36.5	25.3	100.0	V	324.0	2.1	33.5	70.0	24.7	50.0
2267.302441	40.2	28.9	100.0	V	117.0	5.9	29.8	70.0	21.1	50.0
3100.100025	41.3	30.7	200.0	V	263.0	7.6	32.7	74.0	23.3	54.0
4044.271622	42.4	33.1	100.0	V	120.0	9.9	31.6	74.0	20.9	54.0
5192.298910	45.1	35.8	100.0	V	168.0	11.8	28.9	74.0	18.2	54.0



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_{cispr})
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 3.70 dB ± 3.30 dB	± 3.8 dB ± 3.4 dB
Radiated Emission	Level accuracy (30MHz to 1000MHz, Horizontal) (30MHz to 1000MHz, Vertical)	± 4.50 dB ± 4.50 dB	± 6.3 dB
Radiated Emission	Level accuracy (above 1000MHz, Horizontal) (above 1000MHz, Vertical)	± 4.80 dB ± 4.80 dB	N/A

As U_{lab} in all applicable tests listed above are less than U_{cispr} according to CISPR 16-4-2:2011,

- 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.