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EN IEC 61000-6-3:2021
EN IEC 61000-6-1:2019

TEST REPORT

For

Energy storage power supply

MODEL NUMBER: 12V628PRO, 12V460PRO, 12V314PRO, 12V230PRO, 12V100PRO

REPORT NUMBER: E04A25090350E00101

ISSUE DATE: September 22, 2025

Prepared for

**NKON B.V.
De Huufkes 87,5674TL Nuenen, Netherlands**

Prepared by

Guangdong Global Testing Technology Co., Ltd.

**Room 101-105 & 203-210, Building 1, No.2, Keji 8th Road, Songshan Lake Park,
Dongguan Guangdong, China**

**This report is based on a single evaluation of the submitted sample(s) of the above mentioned product, it does not imply an assessment of the production of the products.
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Guangdong Global Testing Technology Co., Ltd.**

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	September 22, 2025	Initial Issue	

Summary of Test Results

Emission			
Standard	Test Item	Limit	Result
EN IEC 61000-6-3:2021	Conducted emissions - AC mains ports	Clause 8	N/A
	Radiated emissions below 1GHz	Clause 8	Pass
	Radiated emissions above 1GHz	Clause 8	N/A (NOTE 1, 2)

Immunity (EN IEC 61000-6-1:2019)				
Basic Standard	Test Item	Test Specification	Criteria	Result
IEC 61000-4-2:2008	Electrostatic discharge	IEC 61000-4-2, Clause 5	B	Pass
IEC 61000-4-3:2006+A1:2007+A2:2010	Radio-frequency electromagnetic field. AM	IEC 61000-4-3, Clause 5	A	Pass
IEC 61000-4-4:2012	Fast transients_Input and output AC power ports	IEC 61000-4-4, Clause 5	B	N/A
IEC 61000-4-5:2014	Surges_Input and output AC power ports	IEC 61000-4-5, Clause 5	B	N/A
IEC 61000-4-6:2013	Radio-frequency common mode_Input and output AC power ports	IEC 61000-4-6, Clause 5	A	N/A
IEC 61000-4-11:2004	Voltage dips and Voltage interruptions_Input and output AC power ports	IEC 61000-4-11, Clause 5	B,B,C,C	N/A

Note:

1. N/A: In this whole report not applicable.

2. 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 1 GHz, 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 the highest frequency or 6 GHz, whichever is less.

*This test report is only published to and used by the applicant, and it is not for evidence purpose in China.

*The measurement result for the sample received is <Pass> according to <EN IEC 61000-6-3:2021, EN IEC 61000-6-1:2019> when <Accuracy Method> decision rule is applied.

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: NKON B.V.
Address: De Huufkes 87,5674TL Nuenen, Netherlands

Manufacturer Information

Company Name: NKON B.V.
Address: De Huufkes 87,5674TL Nuenen, Netherlands

Factory Information

Company Name: NKON B.V.
Address: De Huufkes 87,5674TL Nuenen, Netherlands

EUT Information

Product Description: Energy storage power supply
Model: 12V628PRO
Series Model: 12V460PRO, 12V314PRO, 12V230PRO, 12V100PRO
Brand: N/A
Sample Received Date: September 10, 2025
Sample Status: Normal
Sample ID: A25090350 001
Date of Tested: September 20, 2025

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

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2. TEST METHODOLOGY

All tests were performed in accordance with the standard EN IEC 61000-6-3:2021, EN IEC 61000-6-1:2019

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	A2LA (Certificate No.: 6947.01) Guangdong Global Testing Technology Co., Ltd. has been assessed and proved to be in compliance with A2LA. FCC (FCC Designation No.: CN1343) Guangdong Global Testing Technology Co., Ltd. has been recognized to perform compliance testing on equipment subject to Supplier's Declaration of Conformity (SDoC) and Certification rules ISED (Company No.: 30714) Guangdong Global Testing Technology Co., Ltd. has been registered and fully described in a report filed with ISED. The Company Number is 30714 and the test lab Conformity Assessment Body Identifier (CABID) is CN0148.
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Note: All tests measurement facilities use to collect the measurement data are located at Room 101-105 & 203-210, Building 1, No.2, Keji 8th Road, Songshan Lake Park, Dongguan Guangdong, China

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Measurement Frequency Range	K	U(dB)
Radiated emissions below 1GHz (10m RE Left axis 30MHz~1GHz)	30 MHz -1 GHz	2	3.98
Radiated emissions below 1GHz (10m RE Right axis 30MHz~1GHz)	30 MHz -1 GHz	2	3.93
Note1: This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of k=2.			
Note 2: According to the standard CISPR 16-4-2, the MU for the Conducted emissions from the AC mains power ports using AMN should not exceed 3.8 in range of 9kHz to 150kHz and 3.4 in range of 150kHz to 30MHz. We have considered the test results containing the value of Ulab (in dB) for the measurement instrumentation actually used for the measurements.			

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	Energy storage power supply
Model	12V628PRO
Series Model	12V460PRO, 12V314PRO, 12V230PRO, 12V100PRO
Model Difference	Note: All models are the same except for the differences in appearance size and internal battery capacity. Their internal structure and PCB board electronic circuits are exactly the same.
Internal Frequency	below 108MHz
Ratings	Nominal Voltage: 12.8V Recommended Charging Voltage: 14.4V Maximum Charging Voltage: 14.6V Maximum Discharge Voltage: 11.6V

5.2. TEST MODE

Test Mode	Description
M01	Charging
M02	Discharging

5.3. MONITORING OF EUT FOR ALL IMMUNITY TEST

Other	Monitor the voltage output status of the multimeter.
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5.4. SUPPORT UNITS FOR SYSTEM TEST

The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Cement Resistance	N/A	N/A	N/A	GTG Support

The following cables were used to form a representative test configuration during the tests.

Item	Type of cable	Shielded Type	Ferrite Core	Length
C-1	DC cable	Unshielded	without ferrite	1.0 m

6. MEASURING EQUIPMENT AND SOFTWARE USED

Test Equipment of Radiated emissions below 1GHz					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
Chamber 3	ETS	20.8×12.1×8.9	Q2150	2025.05.20	2026.05.29
Bilog Antenna	ETS	3142E	00243646	2025.08.17	2027.08.16
Bilog Antenna	ETS	3142E	00243651	2025.02.22	2028.02.21
Pre-Amplifier	HzEMC	HPA-9K0130	HYP A23022	2025.08.23	2026.08.22
Pre-Amplifier	HzEMC	HPA-9K0130	HYP A23021	2025.08.23	2026.08.22
Receiver	R&S	ESC I3	101308	2025.08.23	2026.08.22
Receiver	R&S	ESC I3	101221	2025.08.23	2026.08.22
Test Software	Farad	EZ-EMC 1.1.4.2	N/A	N/A	N/A

Test Equipment of Electrostatic discharge					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
ESD Simulator	TESEQ	NSG437	336	8/25/2025	8/24/2026

Test Equipment of Radio-frequency electromagnetic field. AM					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
Stacked Log-Per-Broadband Antenna	Schwarzbeck	STLP 9129	170	N/A	N/A
Power amplifier	MiCOTOP	MPA-80-1000-500	MPA2209336	8/23/2025	8/22/2026
Power amplifier	MiCOTOP	MPA-1000-6000-100	MPA2209337	8/23/2025	8/22/2026
EPM Series Power Meter	Keysight	N1914A	MY53240003	8/23/2025	8/22/2026
Average Power Sensor	Keysight	E9304A	MY41498925	8/23/2025	8/22/2026
Average Power Sensor	Keysight	E9304A	MY41497454	8/23/2025	8/22/2026
EXG Analog Signal Generator	Keysight	N5171B	MY61252624	8/23/2025	8/22/2026
Field Probe	Narda	EP 601	811ZX11137	8/26/2025	8/25/2026
Test Software for RS	HzEMC	FASLAB-RS	V2.7.2.3	N/A	N/A

7. EMISSION TEST

7.1. RADIATED EMISSIONS BELOW 1GHZ

LIMITS

(a). Limits up to 1 GHz

FREQUENCY (MHz)	10m Distance	3m Distance
	dB μ V/m	dB μ V/m
30 – 230	30	40
230 – 1000	37	47

Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission level (dB μ V/m)=20log Emission level (uV/m).

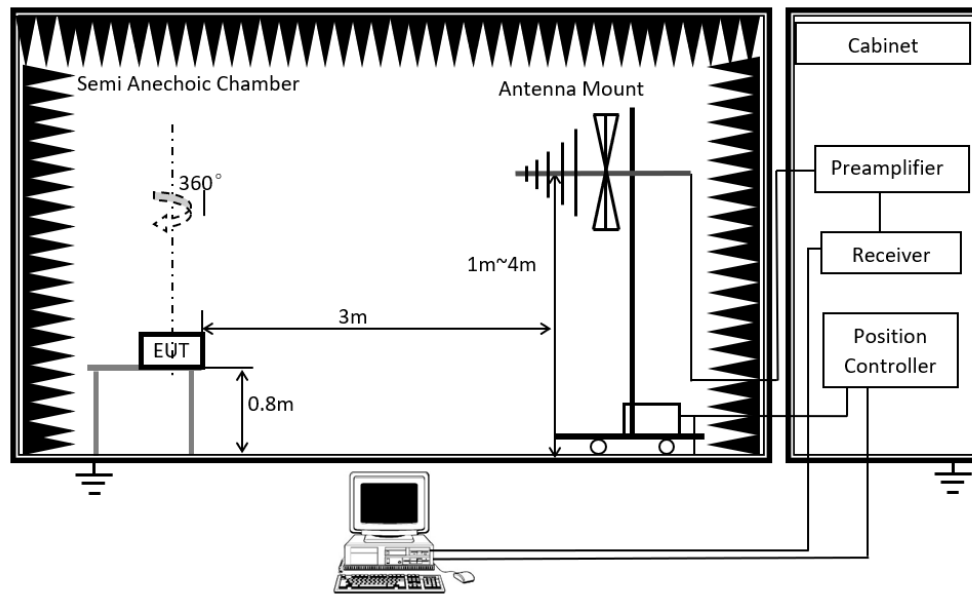
TEST PROCEDURE

Below 1 GHz and above 30 MHz

The setting of the spectrum analyzer

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak and QP
Trace	Max hold

1. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp was used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
2. The EUT was placed on a turntable with 80 cm above ground.
3. 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.
4. 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.
5. Cables of hand-operated devices, such as keyboards and mice, shall be placed as for normal used.
6. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
7. For measurement below 1 GHz, the initial step in collecting Radiated emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

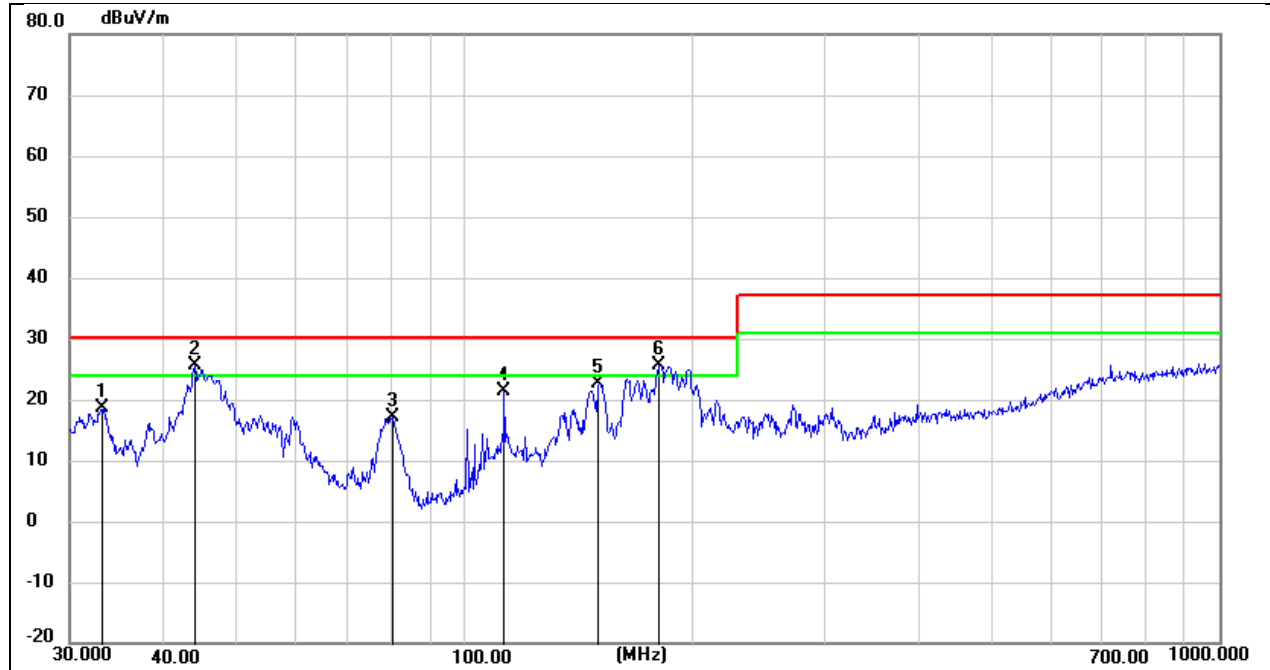
TEST SETUP**TEST ENVIRONMENT**

Temperature	22.5°C	Relative Humidity	50%
Atmosphere Pressure	101kPa		

TEST MODE

Pre-test Mode:	M01 ~ M02
Final Test Mode:	M01, M02

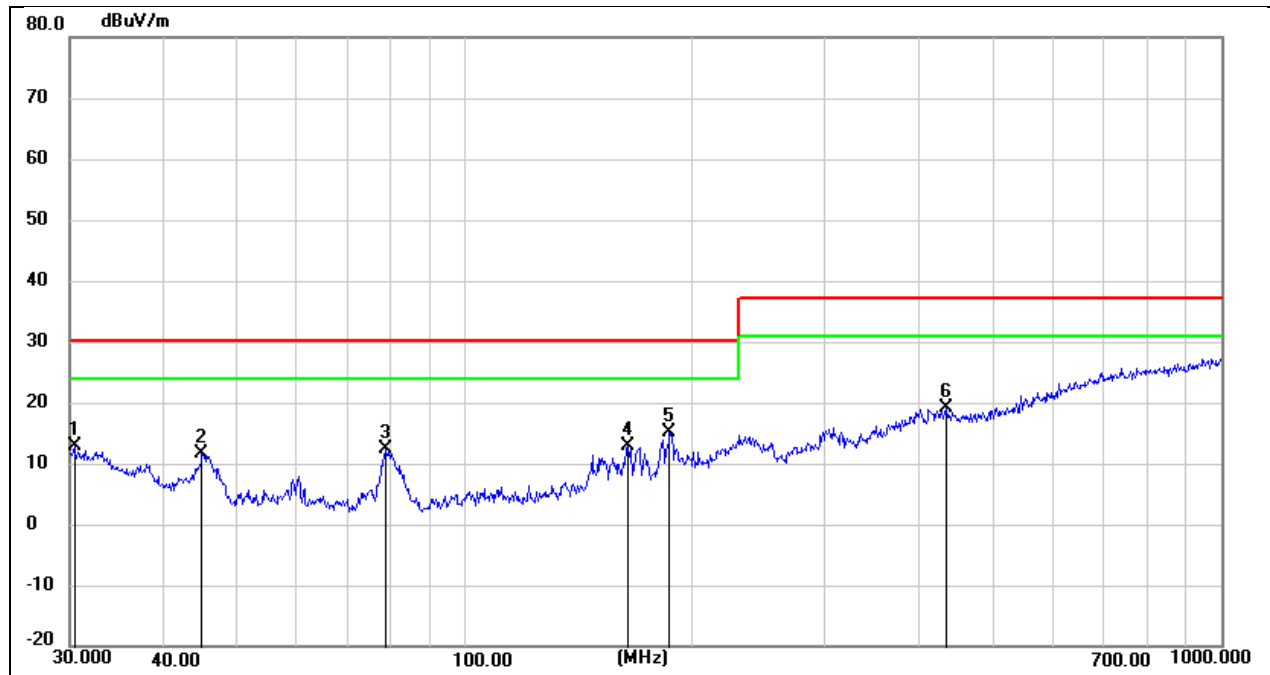
Note: All test modes had been tested, but only the worst data recorded in the report.

TEST RESULTS

Antenna: Vertical

Mode: M02

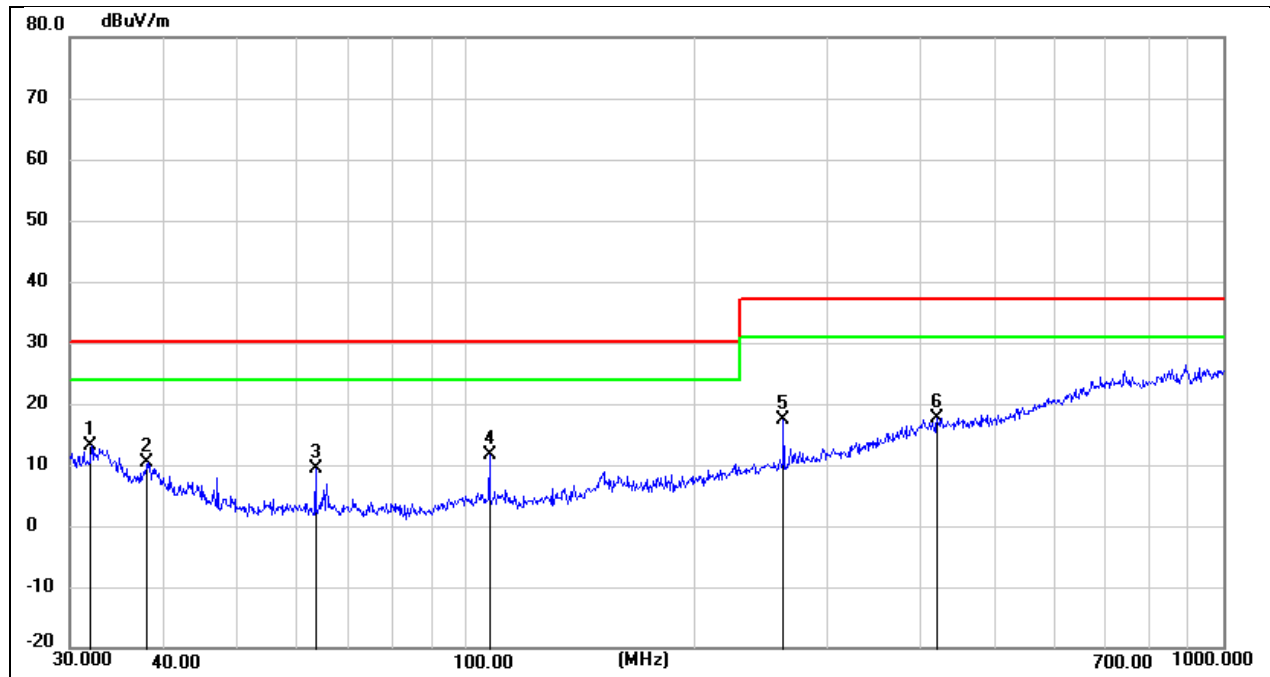
No.	Frequency (MHz)	Reading Level(dB uV)	Correct Factor(dB/m)	Measurement(dB uV/m)	Limit (dBuV/m)	Over (dB)	Detector	Comment
1	33.3278	35.37	-16.76	18.61	30.00	-11.39	QP	
2 !	43.9658	47.74	-22.19	25.55	30.00	-4.45	QP	
3	80.6440	42.75	-25.51	17.24	30.00	-12.76	QP	
4	112.9196	45.19	-23.92	21.27	30.00	-8.73	QP	
5	151.0663	44.79	-22.14	22.65	30.00	-7.35	QP	
6 *	181.2834	47.22	-21.54	25.68	30.00	-4.32	QP	



Antenna:Horizontal

Mode: M02

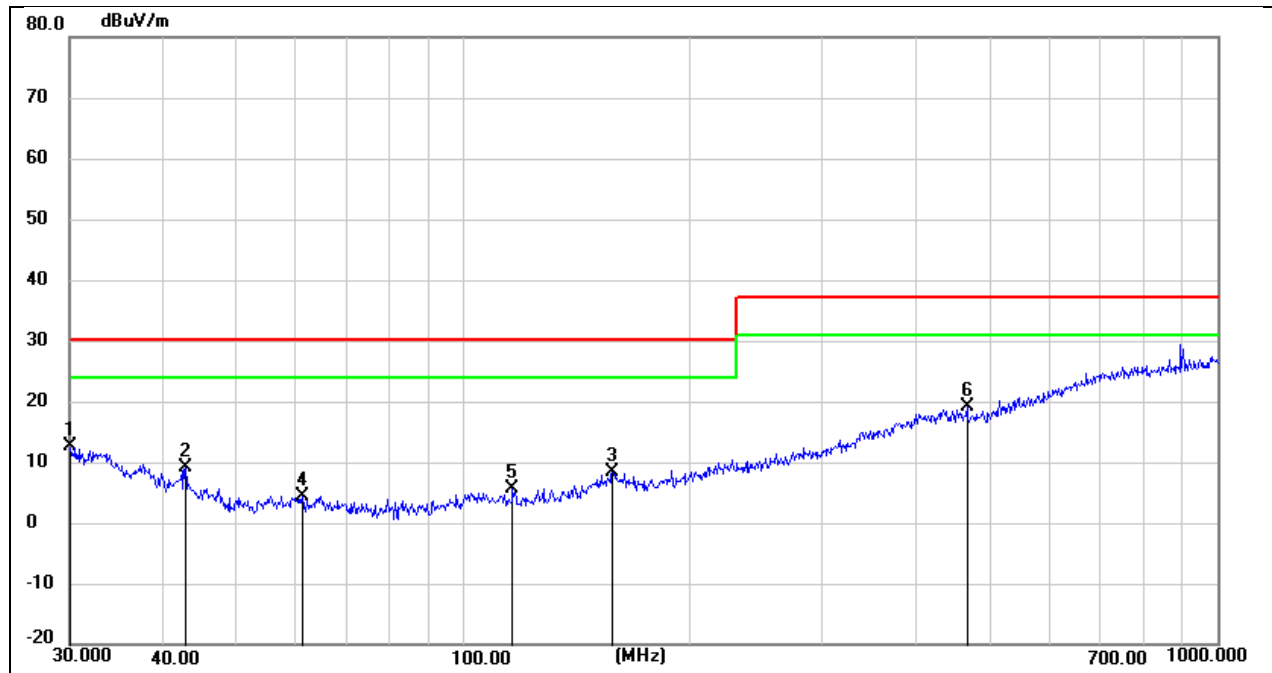
No.	Frequenc y (MHz)	Reading Level(dB uV)	Correct Factor(d B/m)	Measure- ment(dB uV/m)	Limit (dBuV/m)	Over (dB)	Detector	Commen t
1	30.4238	27.23	-14.37	12.86	30.00	-17.14	QP	
2	44.9004	33.72	-22.01	11.71	30.00	-18.29	QP	
3	78.6888	37.49	-25.14	12.35	30.00	-17.65	QP	
4	164.3301	34.21	-21.28	12.93	30.00	-17.07	QP	
5 *	186.4406	36.64	-21.51	15.13	30.00	-14.87	QP	
6	432.5455	31.01	-11.96	19.05	37.00	-17.95	QP	



Antenna: Vertical

Mode: M01

No.	Frequency (MHz)	Reading Level(dB uV)	Correct Factor(dB/m)	Measurement(dB uV/m)	Limit (dBuV/m)	Over (dB)	Detector	Comment
1 *	32.0667	29.26	-16.06	13.20	30.00	-16.80	QP	
2	38.0782	29.84	-19.37	10.47	30.00	-19.53	QP	
3	63.3132	34.43	-25.15	9.28	30.00	-20.72	QP	
4	107.5101	35.36	-23.79	11.57	30.00	-18.43	QP	
5	262.8955	36.43	-19.04	17.39	37.00	-19.61	QP	
6	419.1080	30.84	-13.16	17.68	37.00	-19.32	QP	



Antenna:Horizontal

Mode: M01

No.	Frequenc y (MHz)	Reading Level(dB uV)	Correct Factor(d B/m)	Measure- ment(dB uV/m)	Limit (dBuV/m)	Over (dB)	Detector	Commen t
1 *	30.0000	26.78	-14.13	12.65	30.00	-17.35	QP	
2	42.7496	30.14	-21.02	9.12	30.00	-20.88	QP	
3	157.5588	29.57	-21.11	8.46	30.00	-21.54	QP	
4	61.1315	28.66	-24.17	4.49	30.00	-25.51	QP	
5	116.1320	29.49	-23.83	5.66	30.00	-24.34	QP	
6	465.5994	30.72	-11.63	19.09	37.00	-17.91	QP	

Note: 1. Measure-ment = Reading +Correct (Cable Loss + Antenna Factor - Amplifier Factor)
 2. Over = Measure-ment - Limit

8. IMMUNITY TEST

8.1. PERFORMANCE CRITERIA

EN IEC 61000-6-1:2019

GENERAL PERFORMANCE CRITERIA

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

Criterion A:	The EUT shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the EUT is used as intended. If the performance level is not specified by the manufacturer, this may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.
Criterion B:	The EUT shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. However, during the test degradation of performance is allowed but no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.
Criterion C:	Temporary loss of function is allowed during the test, provided the function is self-recoverable or can be restored by the operation of the controls.

Note, 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.

8.2. ELECTROSTATIC DISCHARGE

TEST SPECIFICATION

Standard:	EN IEC 61000-6-1:2019 IEC 61000-4-2:2008
Basic standards	IEC 61000-4-2
Criterion Required:	Performance criteria B
Discharge Impedance:	330 Ω / 150 pF
Polarity:	Positive & Negative
Number of Discharge:	Minimum 10 times at each test point
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum
Test Level:	Contact discharge: $\pm$ 4 kV; Air discharge: $\pm$ 8 kV

TEST PROCEDURE

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

- a. Contact discharge was applied to conductive surfaces and coupling planes of the EUT.

During the test, it was performed with single discharges. For the single discharge time between successive single discharges was at least 1 second.

Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5 m x 0.5 m, is placed parallel to, and positioned at a distance 0.1 m 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 0.1 m 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.

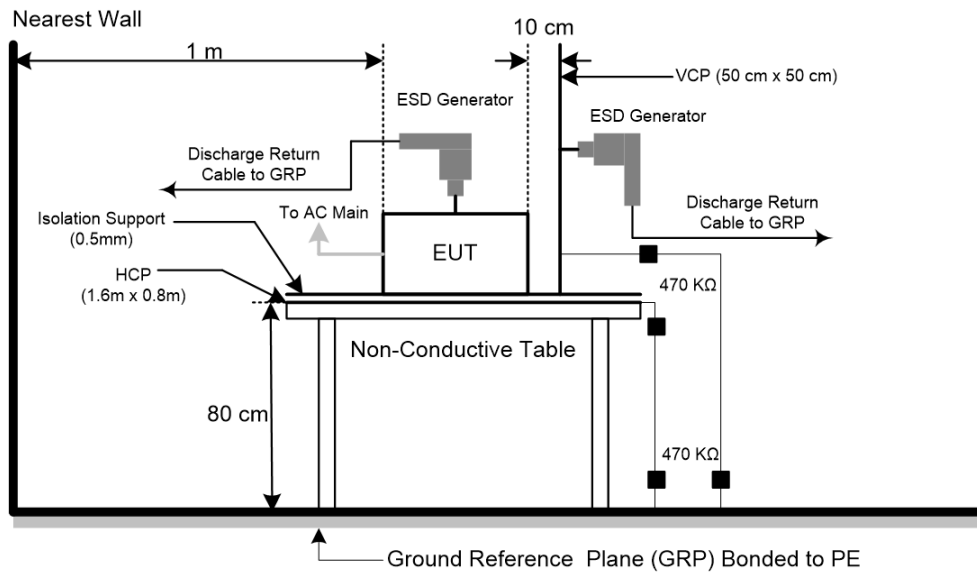
It was at least ten single discharges with positive and negative at the same selected point.

- c. The test shall be performed with single discharges. On each pre-selected point at least 10 single discharges (in the most sensitive polarity) shall be applied.

- d. For air discharge testing, the test shall be applied at all test levels 2 kV, 4 kV and 8 kV.

- e. For the actual test configuration, please refer to the related Item: EUT Test Photos.

TEST SETUP



TEST ENVIRONMENT

Temperature	23.5°C	Relative Humidity	52%
Atmosphere Pressure	101kPa	Test Voltage	DC 14.6V and DC 12.8V

TEST MODE

Test Mode:	M01, M02
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TEST RESULTS

Mode	Level(kV)	Polarity	Test Point	Criteria	Result	Judgement
Air Discharge	2,4,8	+	All Slot	B	A	Pass
Air Discharge	2,4,8	-	All Slot	B	A	Pass
Contact Discharge	4	+	All Metal	B	A	Pass
Contact Discharge	4	-	All Metal	B	A	Pass
Horizontal Coupling	4	+	Front,rear,left,right	B	A	Pass
Horizontal Coupling	4	-	Front,rear,left,right	B	A	Pass
Vertical Coupling	4	+	Front,rear,left,right	B	A	Pass
Vertical Coupling	4	-	Front,rear,left,right	B	A	Pass
Air Discharge	15	+	All Slot	/	/	/
Air Discharge	15	-	All Slot	/	/	/
Contact Discharge	8	+	All Metal	/	/	/
Contact Discharge	8	-	All Metal	/	/	/
Observation:						
A: No observable change.						
Conclusion: The EUT met the requirements of the standard						

8.3. RADIO-FREQUENCY ELECTROMAGNETIC FIELD. AM

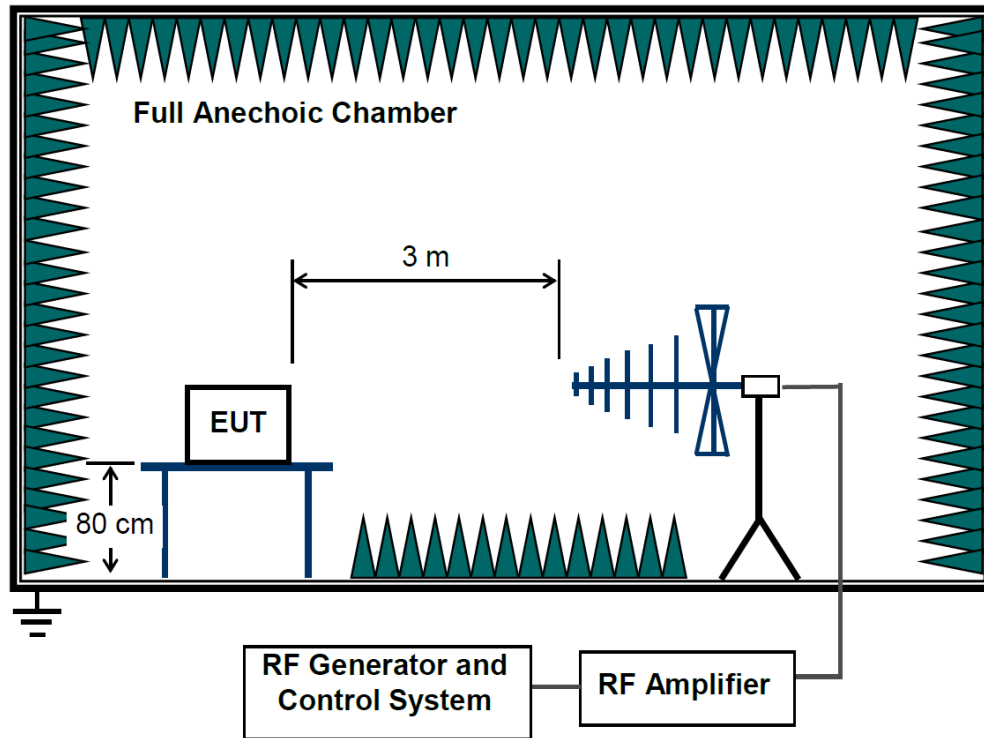
TEST SPECIFICATION

Standard:	EN IEC 61000-6-1:2019 IEC 61000-4-3:2006 +A1:2007+A2:2010
Basic standards	IEC 61000-4-3
Criterion Required:	Performance criteria A
Test Frequency:	80 MHz to 1 000 MHz, 1.4 GHz to 6.0 GHz
Test Level:	3 V/m(measured unmodulated)
Modulation:	The test signal shall be amplitude modulated to a depth of 80 % by a sinusoidal audio signal of 1 000 Hz.
Frequency Step:	1 % increment
Dwell time:	1 seconds
Antenna Polarization:	Horizontal and vertical

TEST PROCEDURE

The test procedure was in accordance with IEC 61000-4-3.

- a. The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.
- b. The disturbance test signal shall be 80 % amplitude modulated by a sine wave, preferably having a frequency of 1 kHz. A frequency other than 1 kHz may be used where permitted within EN 55035 (for example Clause G.3).
- c. 1 % step size is preferred, the frequency range can be swept incrementally with a step size not exceeding 4 % of the previous frequency with a test level of twice the value of the specified test level.
- d. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised and to be able to respond. However, the dwell time should not exceed 5 s at each of the frequencies during the scan.
- e. The test was performed with the EUT exposed to both vertically and horizontally polarized fields.

TEST SETUP**TEST ENVIRONMENT**

Temperature	23.6°C	Relative Humidity	51%
Atmosphere Pressure	101kPa	Test Voltage	DC 14.6V and DC 12.8V

TEST MODE

Test Mode:	M01, M02
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TEST RESULTS

Freq.Range (MHz)	Position (Face)	Polarity (H or V)	Field Strength (V/m) (unmodulated,r.m.s)	Criterion	Result	Judgement
80-1000	0°	H&V	3 V/m	A	A	Pass
80-1000	90°	H&V	3 V/m	A	A	Pass
80-1000	180°	H&V	3 V/m	A	A	Pass
80-1000	270°	H&V	3 V/m	A	A	Pass
1400-6000	0°	H&V	3 V/m	A	A	Pass
1400-6000	90°	H&V	3 V/m	A	A	Pass
1400-6000	180°	H&V	3 V/m	A	A	Pass
1400-6000	270°	H&V	3 V/m	A	A	Pass

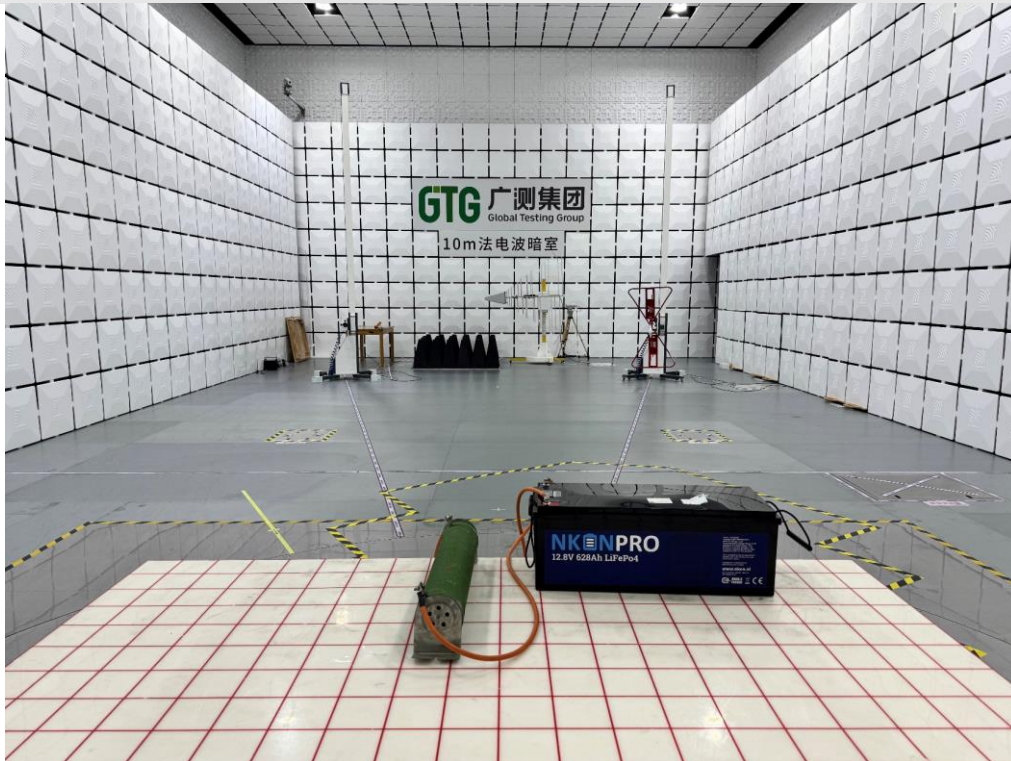
Observation:

A: No observable change.

Conclusion: The EUT met the requirements of the standard

APPENDIX: PHOTOGRAPHS OF TEST CONFIGURATION

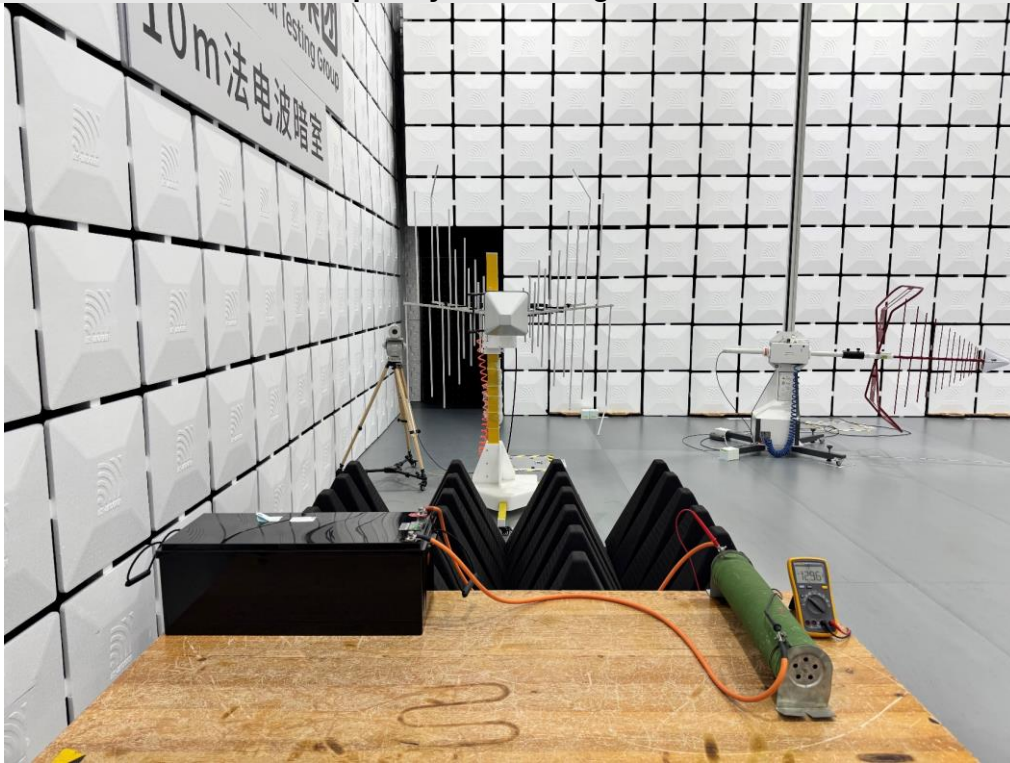
Radiated emissions below 1GHz



Electrostatic discharge



Radio-frequency electromagnetic field. AM



APPENDIX: PHOTOGRAPHS OF THE EUT

External







END OF REPORT