航 天 检 测 技 术（深 圳）有 限 公 司

Aerospace Testing Technology (Shenzhen) Co., Ltd.

EMC TEST REPORT

Report No : AST2205202008

Product Name : New energy vehicle charging pile

Product Model : 7KW

Applied Standard : IEC61851-21-2：2018

Test Result : PASS

Issue Date : May 27, 2022

Aerospace Testing Technology (Shenzhen) Co., Ltd.

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Product Name	:	**New energy vehicle charging pile**
Tested Model	:	**7KW**
Attached Model	:	**3.5KW,11KW,22KW**
Trademark	:	*/*
Applicant	:	**Nanjing Jia Zu Electric Appliance Co., LTD**
Address	:	**Jia Zu Electric Appliance, 396 Taiping South Road, Qinhuai District, Nanjing city, Jiangsu Province**
Manufacturer	:	**Nanjing Jia Zu Electric Appliance Co., LTD**
Address	:	**Jia Zu Electric Appliance, 396 Taiping South Road, Qinhuai District, Nanjing city, Jiangsu Province**
Factory	:	**Nanjing Jia Zu Electric Appliance Co., LTD**
Address	:	**Jia Zu Electric Appliance, 396 Taiping South Road, Qinhuai District, Nanjing city, Jiangsu Province**
Test date	:	**May 24, 2022 to May 26,2022**

Remark:
This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Aerospace Testing Technology (Shenzhen) Co., Ltd.

Prepared by	Reviewed by	Approved by
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May 27, 2022	May 27, 2022	May 27, 2022

Aerospace Testing Technology (Shenzhen) Co., Ltd. AST.LAB Approved

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1. Test Laboratory

Test Site1		
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Test Site2		
Name	:	Shenzhen Supersonic Measurement And Control Technology Co.,Ltd.
Address	:	B2 Building 101, Jinweiyuan Industrial Plant Area, Julongshan District, Longtian Street Industrial Zone, Pingshan District, Shenzhen, Guangdong, China.
Phone	:	+ 086 0755-84636042
E-mail	:	ranguangfu@supersonic-mc.com
Test Site3		
Name	:	Shenzhen Academy of Metrology & Quality Inspection
Address	:	No.4 Tongfa Road Xili Street Nanshan District, Shenzhen, Guangdong, China.
Phone	:	+86 0755-26001833
E-mail	:	qiubo@smq.com.cn
Test Report Form	:	ASTCX-31-JL03-EN55032&EN55035 EMC Test Report Version:1.0
TRF Originator	:	Aerospace Testing Technology (Shenzhen) Co., Ltd.
Master TRF	:	Jul. 1, 2021

2. Summary of test result

Test Items	Test site	Result
Radiated Emissions (RE) 30MHz-1000MHz ☒ Enclosure Port	Site 1	Pass
Radiated Emissions (RE)1000MHz-6000MHz ☐ Enclosure Port	Site 1	N/A
Conducted Emission (CE) ☒ Mains port ☐ Auxiliary ports ☐ Wired network ports ☐ Mains port of motor operated tools	Site 1	Pass
Electrostatic Discharge (ESD) ☒ Enclosure Port	Site 2	Pass
RF Electromagnetic Field (RS) ☒ Enclosure Port	Site 2	Pass
Power frequency magnetic fields （PMF） ☒ Enclosure Port	Site 2	Pass
Fast Transients Common mode (EFT) ☒ AC Power ports ☐ DC Power ports ☐ Signal and control lines	Site 2	Pass
RF Common mode (CS) ☒ AC Power ports ☐ DC Power ports ☐ Signal and control lines	Site 2	Pass
Surges ☐ AC Power ports	Site 2	N/A
Voltage Dips and Interruptions (AC DIP) ☐ AC Power ports	Site 2	N/A

Note:

- test case does not apply to the test object.....: N/A

- test object does meet the requirement.....: Pass

- test object does not meet the requirement .....: Fail

3. Equipment Under Test information

Rating Voltage	:	**100-240VAC⎓32A, 50Hz**
Rating Current	:	**/**
Test Voltage	:	**230V**
The difference of the models	:	**The difference The output current and power are different**

Table 3-1 Test Mode List

Test Mode	Describe
/	/
/	/
/	/

Figure 1-1 Test configuration

Table 3-2 Associated Equipment used during test

Name	Model	Manufacturer	S/N	Cal Due Date
/	/	/	/	/

4. Test Condition

4.1 Environmental conditions

- Temperature : 23°C
- Relative humidity: 60%

4.2 Measurement uncertainty

The reported uncertainty of measurement y ± U，where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2，providing a level of confidence of approximately 95%.

Table 4-1 measurement uncertainty

Test Site	Measurement Frequency Range	U (dB)
SR843-1	150 kHz ~ 30MHz	3.2
SAC966-1	30MHz ~ 1000MHz	3.4
	1000MHz ~ 6000MHz	3.2

5. Electromagnetic Interference (EMI)

5.1 Radiated Disturbance 30MHz to 1000MHz

5.1.1 Test procedure

The EUT was configured as described in section 1 for this test. The enclosure port was tested.

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.4 and CISPR 16-1-4. The test distance was 3m for 30~1GHz.

The set-up and test methods were according to CISPR 16-2-3.

A preliminary scan and a final scan of the emissions were made from 30MHz to 1GHz by using test script of software; the emissions were measured using Quasi-Peak Detector. The maximal emission value was acquired by adjusting the antenna height, polarization and turntable azimuth in accordance with the software setup. Normally, the height range of antenna was 1m to 4m, the azimuth range of turntable was 0°to 360°, The receive antenna has two polarizations V and H.

5.1.2 Test method

a) According as the EUT information, Configured the ports and powered the EUT with the normal voltage.
b) The EUT was placed on the top of a table 0.8 meters above the ground at 3-meter SAC as figure 5-2 or 0.12m above the ground at 3-meter SAC as figure 5-3.
c) The measuring distance of at 3m shall be used for measurements at frequency up to 1GHz.
d) The polarizations of the antenna were set to horizontal.
e) The height of the test antenna was 1m.
f) The turn table was rotating from 0° to 360° and the test receiver pre-scan.
g) Change the height of the test antenna from 1m to 4m, then repeated f) and recorded and save the maximum value.
h) Select six points have little margin from limit and finally reading.
i) Recording the maximum value, and the deg. and the height of the test antenna.
j) Change the polarizations to vertical and repeated the e) to i).

5.1.3 Test setup

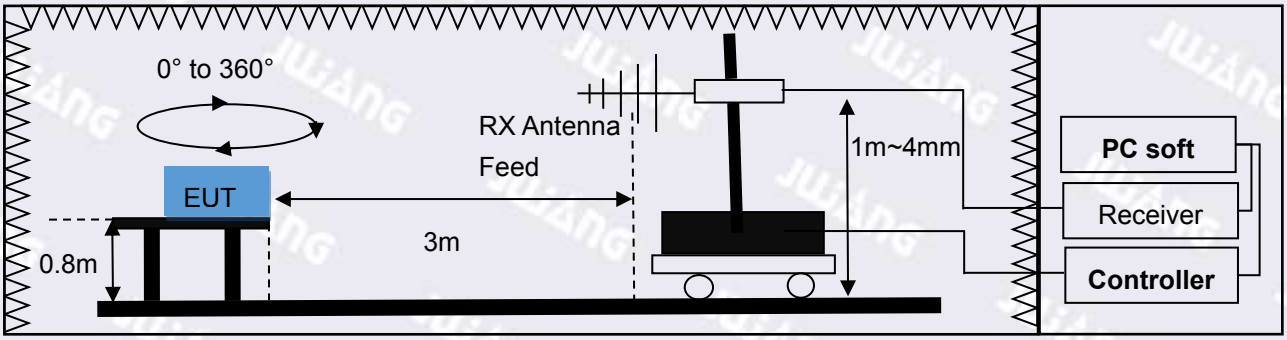


Figure 5-1 Test set-up of radiated disturbance(30MHz-1GHz)

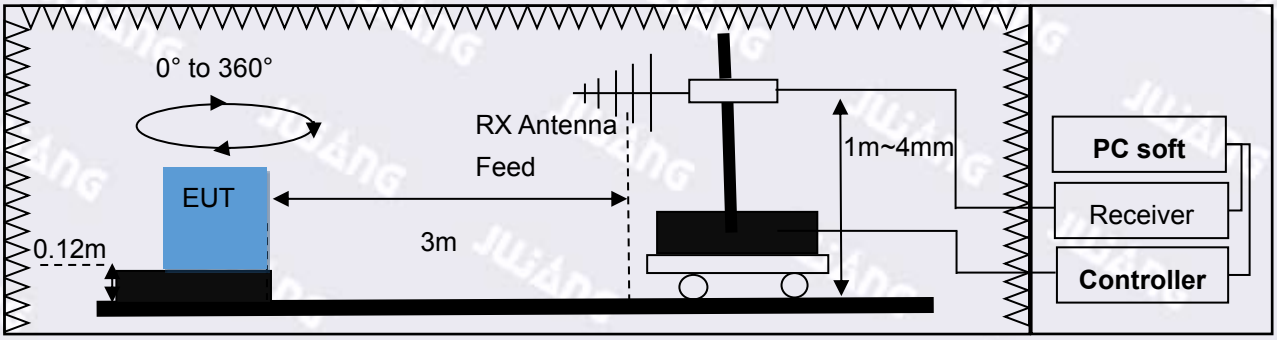


Figure 5-2 Test set-up of radiated disturbance(30MHz-1GHz)

5.1.4 Test limits

Table 5-1 RE test limits 30MHz to 1000MHz

Frequency (MHz)	Class A Quasi-peak dBμV/m	Class B Quasi-peak dBμV/m
30 to 230	50	40
230 to 1000	57	47
Note 1: Test distance is 3m. Note 2: The lower limit shall apply at the transition frequency.		

Table 5-2 RE test limits from FM receivers

Frequency (MHz)	Fundamental Quasi-peak dBμV/m	Harmonics Quasi-peak dBμV/m
30 to 230	60	52
230 to 300		52
300 to 1000		56
Note 1: Test distance is 3m. Note 2: The lower limit shall apply at the transition frequency.		

5.1.5 Test results

The EUT has met requirements for Radiated disturbance. The test data as follow:

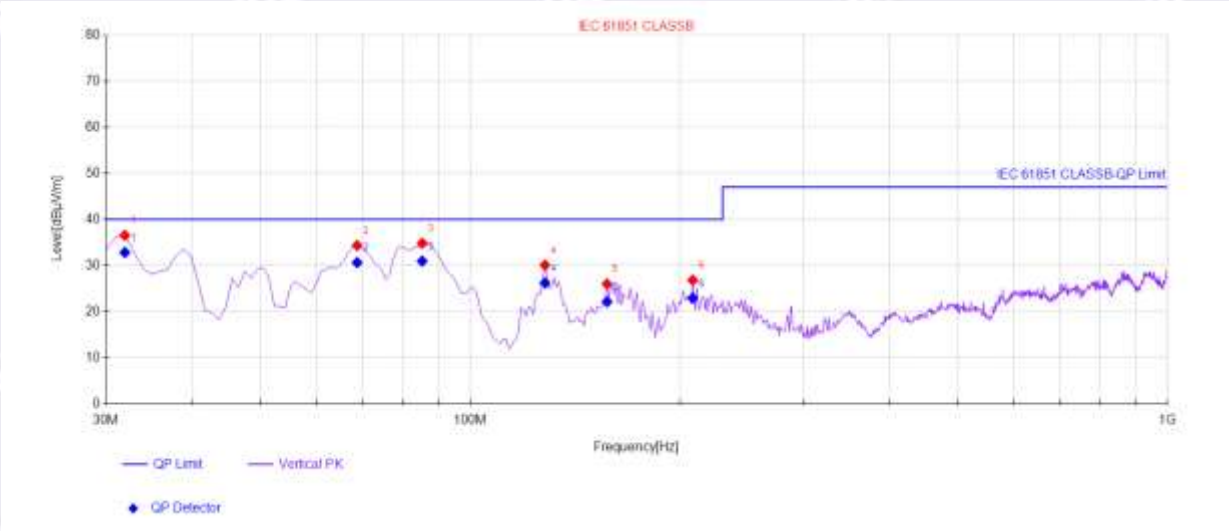
Remark:

Level= Reading Level + Factor,

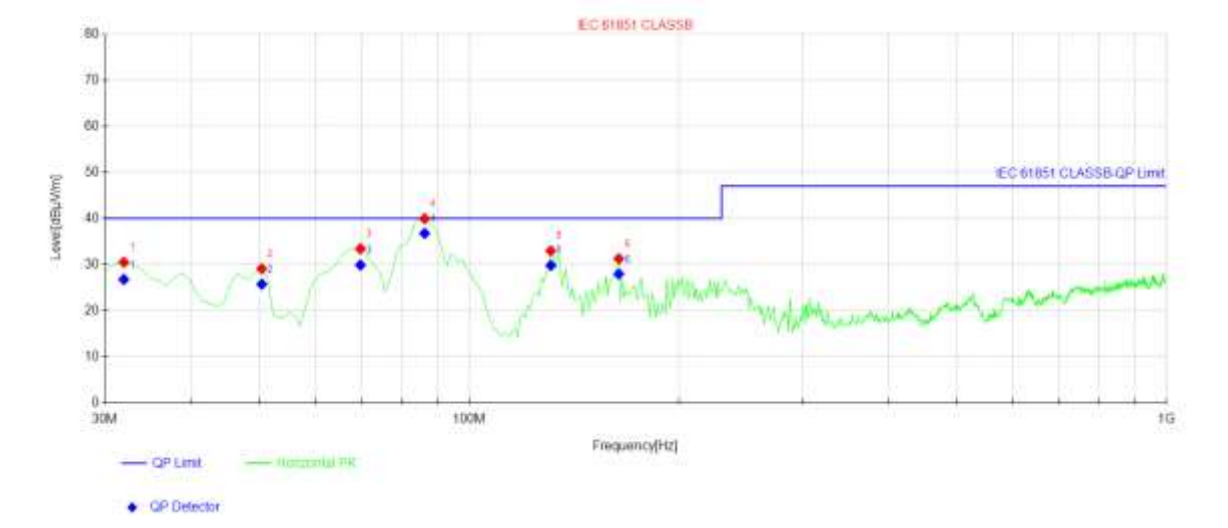
Factor= Cable Loss +Antenna Factor – Amplifier,

(The Level is recorded by software which is not shown in the sheet).

Margin=Limit – Level.



Final Test Data								
NO.	Freq. [MHz]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Result
1	31.9400	32.84	40.00	7.16	100	218	Vertical	PASS
2	68.8000	30.67	40.00	9.33	200	263	Vertical	PASS
3	85.2900	30.98	40.00	9.02	100	0	Vertical	PASS
4	127.9700	26.23	40.00	13.77	100	19	Vertical	PASS
5	157.0700	22.16	40.00	17.84	100	158	Vertical	PASS
6	208.4800	22.97	40.00	17.03	100	176	Vertical	PASS



Final Test Data								
NO.	Freq. [MHz]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Result
1	31.9400	26.79	40.00	13.21	200	18	Horizontal	PASS
2	50.3700	25.76	40.00	14.24	200	153	Horizontal	PASS
3	69.7700	29.90	40.00	10.10	200	0	Horizontal	PASS
4	86.2600	36.78	40.00	3.22	200	357	Horizontal	PASS
5	130.8800	29.81	40.00	10.19	200	51	Horizontal	PASS
6	163.8600	27.96	40.00	12.04	200	64	Horizontal	PASS

5.2 Radiated Disturbance 1000MHz to 6000MHz

5.2.1 Test procedure

The EUT was configured as described in section 1 for this test. The enclosure port was tested.

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.4 and CISPR 16-1-4. The test distance was 3m for 1000MHz~6000MHz.

The set-up and test methods were according to CISPR 16-2-3.

A preliminary scan and a final scan of the emissions were made from 1000MHz to 6000MHz by using test script of software; the emissions were measured using Quasi-Peak Detector. The maximal emission value was acquired by adjusting the antenna height, polarization and turntable azimuth in accordance with the software setup. Normally, the height range of antenna was 1m to 4m, the azimuth range of turntable was 0°to 360°, The receive antenna has two polarizations V and H.

5.2.2 Test method

a) According as the EUT information, Configured the ports and powered the EUT with the normal voltage.
b) The EUT was placed on the top of a table 0.8 meters above the ground at 3-meter SAC as figure 5-4 or 0.12m above the ground at 3-meter SAC as figure 5-5.
c) The measuring distance of at 3m shall be used for measurements at frequency 1000MHz-6000MHz.
d) The polarizations of the antenna were set to horizontal.
e) The height of the test antenna was 1m.
f) The turn table was rotating from 0° to 360° and the test receiver pre-scan.
g) Change the height of the test antenna from 1m to 4m, then repeated f) and recorded and save the maximum value.
h) Select six points have little margin from limit and finally reading.
i) Recording the maximum value, and the deg. and the height of the test antenna.
j) Change the polarizations to vertical and repeated the e) to i).

5.2.3 Test setup

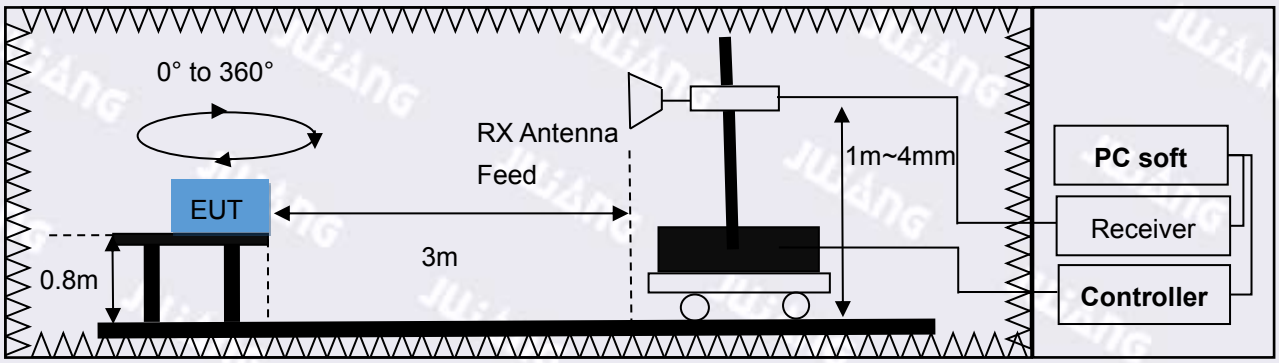


Figure 5-3 Test set-up of radiated disturbance(1000MHz-6000MHz)

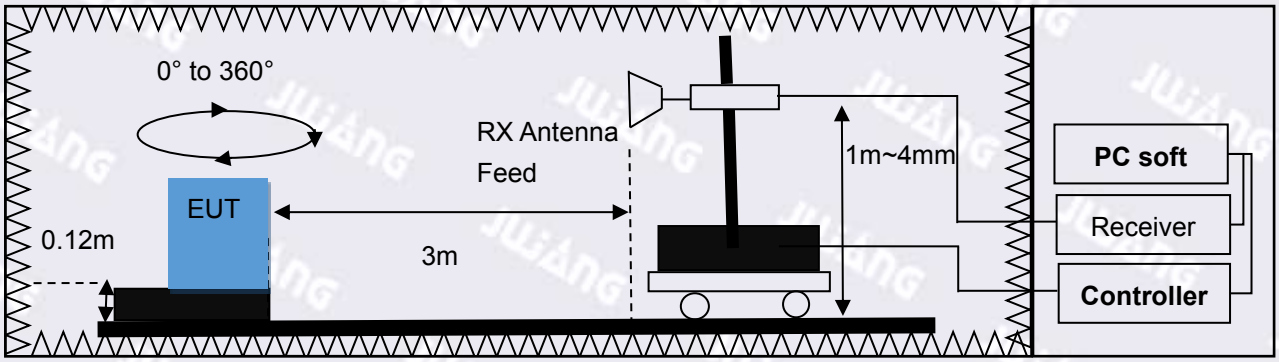


Figure 5-4 Test set-up of radiated disturbance(1000MHz-6000MHz)

5.2.4 Test limits

Table 5-3 RE test limits 1000MHz to 6000MHz

Frequency (MHz)	Class A		Class B	
	Peak dBμV/m	Average dBμV/m	Peak dBμV/m	Average dBμV/m
1000 to 6000	80	60	74	54
Note 1: Test distance is 3m. Note 2: The lower limit shall apply at the transition frequency.				

5.2.5 Test results

The EUT has met requirements for Radiated disturbance. The test data as follow:

Remark:

Level= Reading Level + Factor,

Factor= Cable Loss +Antenna Factor – Amplifier,

(The Level is recorded by software which is not shown in the sheet).

Margin=Limit – Level.

N/A

5.3 Conducted Disturbance 150 kHz to 30MHz

5.3.1 Test procedure

The EUT was configured as described in section 1 for this test. The mains cable of the EUT being measured shall be connected to LISN, The LISN shall be placed 0.8m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

All telecommunication and signal ports must be correctly terminated using either appropriate associated equipment or a representative termination during the measurement of the conducted disturbances at the mains.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1m.

The set-up and test methods were according to CISPR 16-2-3.

5.3.2 Test setup

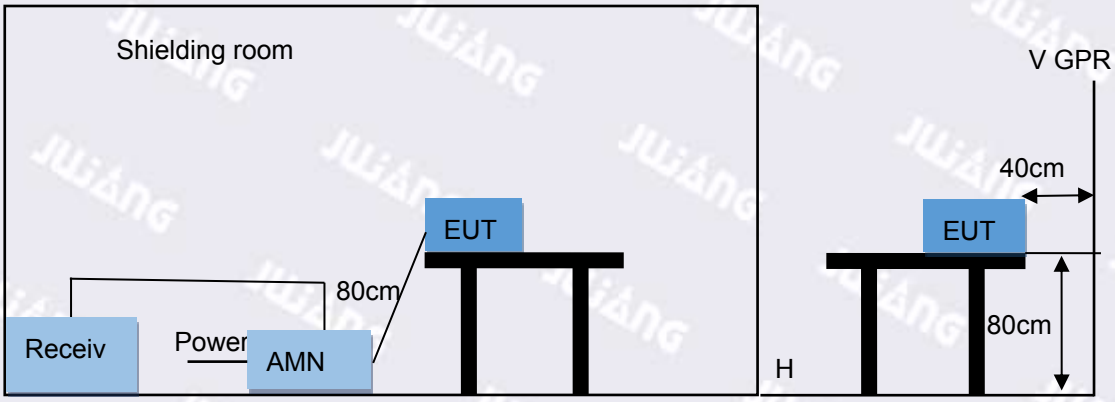


Figure 5-5 Test set-up of conducted disturbance for power port

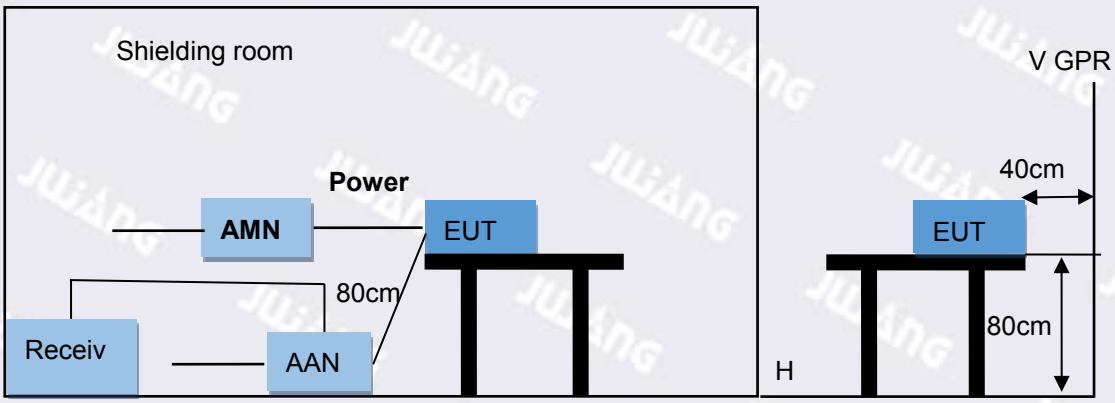


Figure 5-6 Test set-up of conducted disturbance for wired network ports

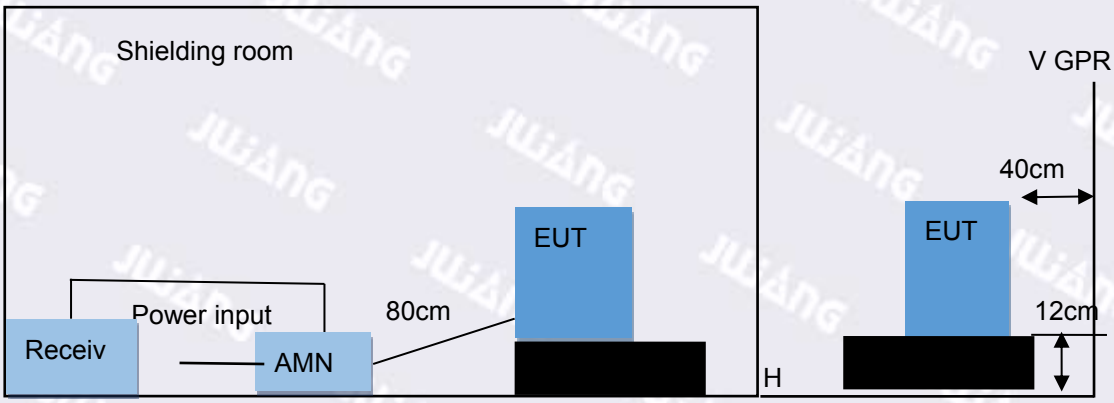


Figure 5-7 Test set-up of conducted disturbance for power port

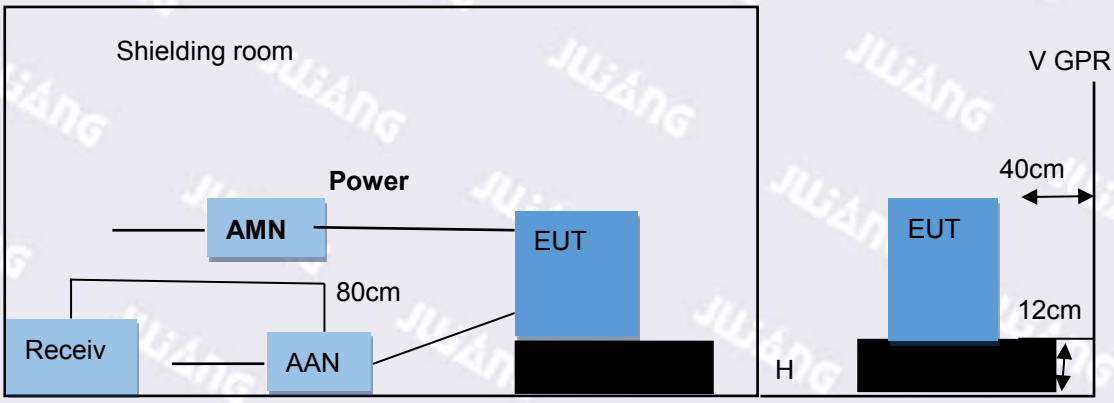


Figure 5-8 Test set-up of conducted disturbance for wired network ports

5.3.3 Test limits

Table 5-4 Test Limit of AC mains port

Frequency range	Class A		Class B	
	Quasi Peak dBμV	Average dBμV	Quasi Peak dBμV	Average dBμV
0.15MHz~0.5MHz	79	66	66 to 56	56 to 46
0.5MHz~5MHz	73	60	56	46
5MHz~30MHz	73	60	60	50

Table 5-5 Test Limit for asymmetric mode

Frequency range	Class A		Class B	
	Quasi Peak dBμV	Average dBμV	Quasi Peak dBμV	Average dBμV
0.15MHz~0.5MHz	97 to 87	84 to 74	84 to 74	74 to 64
0.5MHz~30MHz	87	74	74	64

5.3.4 Test results

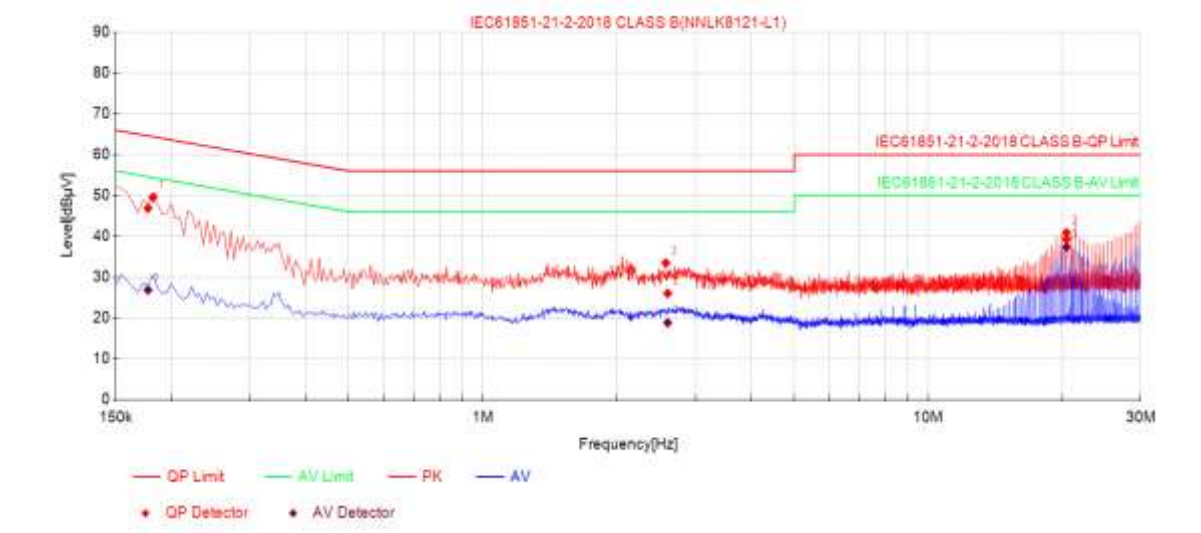
Remark:

Level= Reading Level + Correction Factor

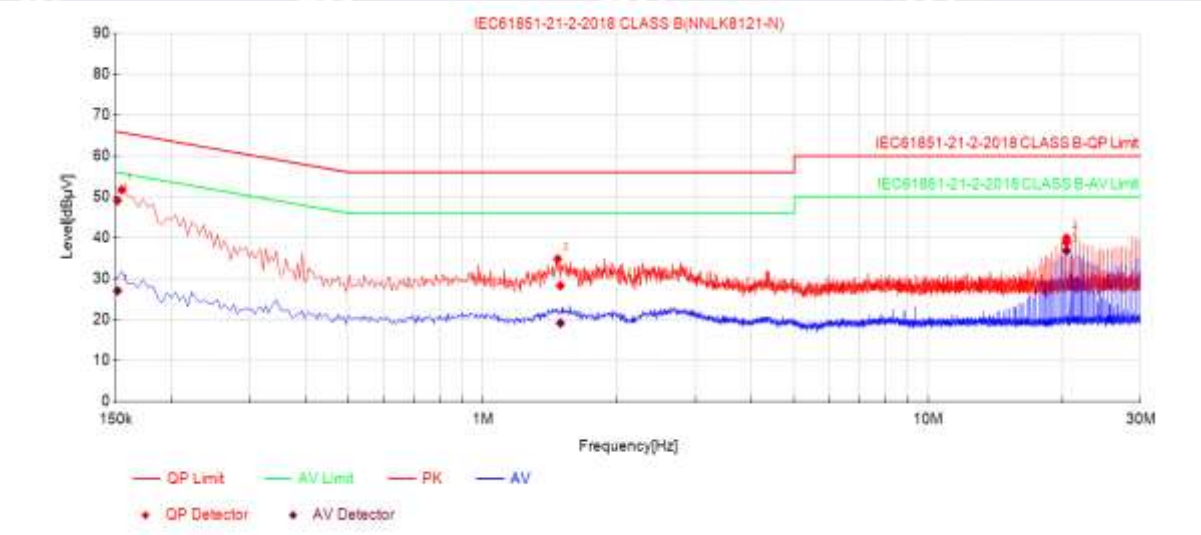
Factor= Cable Loss + Factor

(The Reading Level is recorded by software which is not shown in the sheet)

Margin=Limit – Level.



Final test data									
NO.	Freq. [MHz]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Type	Verdict
1	0.1770	46.89	64.63	17.74	26.89	54.63	27.74	NNLK8121-L1	PASS
2	2.5990	26.05	56.00	29.95	18.87	46.00	27.13	NNLK8121-L1	PASS
3	20.4374	39.34	60.00	20.66	37.40	50.00	12.60	NNLK8121-L1	PASS



Final test data									
NO.	Freq. [MHz]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Type	Verdict
1	0.1512	49.08	65.93	16.85	27.08	55.93	28.85	NNLK8121-N	PASS
2	1.4931	28.33	56.00	27.67	19.17	46.00	26.83	NNLK8121-N	PASS
3	20.4300	38.90	60.00	21.10	36.89	50.00	13.11	NNLK8121-N	PASS

6. Electromagnetic Susceptibility (EMS)

6.1 Performance criteria

Performance criterion A:

The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, 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.

Performance criterion B:

During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test. After the test， the equipment shall continue 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 equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level (or the permissible performance loss), or recovery time, is not specified by the manufacturer, 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.

Performance criterion C:

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A reboot or re-start operation is allowed. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

6.2 Immunity to Electrostatic Discharge

6.2.1 Test procedure

The EUT was configured as described in section 1 for this test. The set-up and test methods were according to IEC 61000-4-2. Twenty discharges (10 with positive and 10 with negative polarity) were be applied on each accessible metallic part of the enclosure (terminals were excluded). Air discharges were used where contact discharges cannot be applied. Discharges were applied on the horizontal or vertical coupling planes.

6.2.2 Test setup

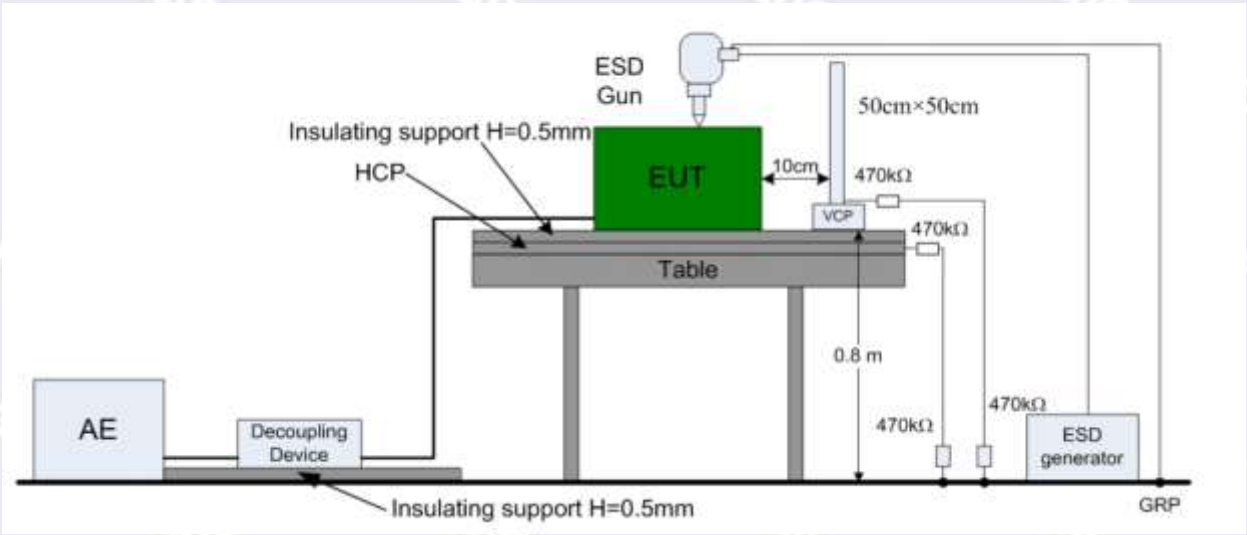


Figure 6-1 Test set-up of electrostatic discharge

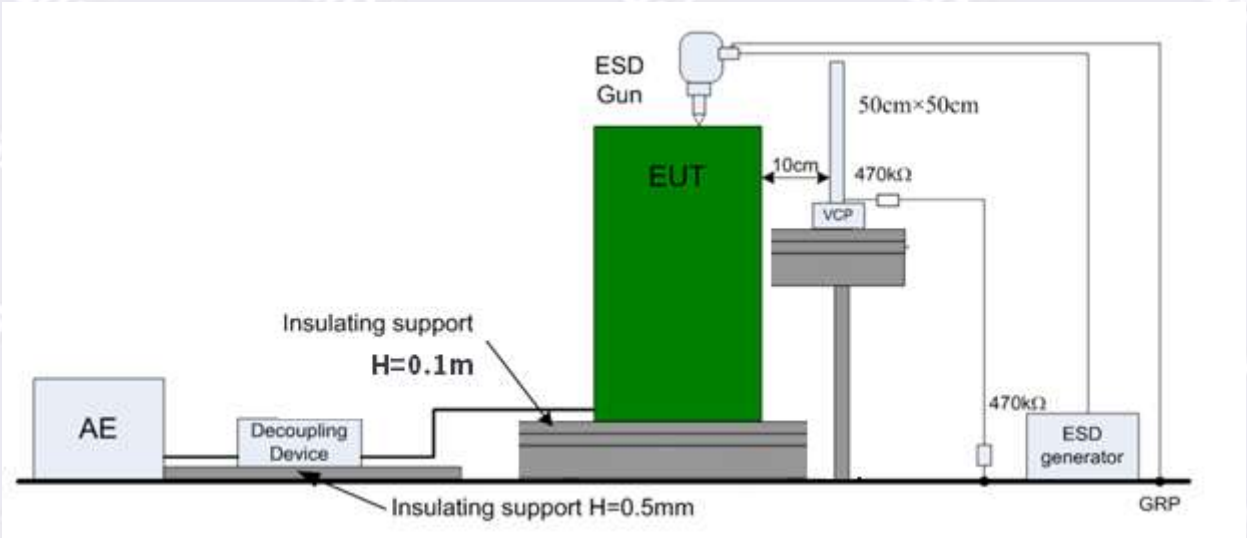


Figure 6-2 Test set-up of electrostatic discharge

6.2.3 Test levels

Table 6-1 Electrostatic discharges levels

Characteristics	Test levels	Performance Criterion
Contact discharge	±4kV	B
Air discharge	±8kV	B

6.2.4 Test results

Details of the points tested were presented in below:

Test Results						
Test Points	Specification Level				Criterion	Conclusion
	±2kV, ±4 kV Contact Discharges		±2 kV, ±4 kV, ±8 kV Air Discharges			
	Positive	Negative	Positive	Negative		
Indirect Contact						
Indirect Contact, HCP (left, right, front, rear)	√	√	N/A	N/A	B	Pass
Indirect Contact, VCP (left, right, front, rear)	√	√	N/A	N/A	B	Pass
Direct Contact/ Air Contact						
Housing	√	√	√	√	B	Pass
Gaps	N/A	N/A	√	√	B	Pass
Buttons	√	√	N/A	N/A	B	Pass
Note: ☒ The EUT's performance was paired at this test point when the ESD pulse was applied.						

6.3 Immunity to Radiated Electric Fields 80MHz to 1000MHz

6.3.1 Test procedure

The EUT was configured as described in section 1 for this test. The set-up and test methods were according to IEC 61000-4-3. All sides of the EUT (front, rear, left and right) were tested by antenna with vertical and horizontal polarization.

6.3.2 Test setup

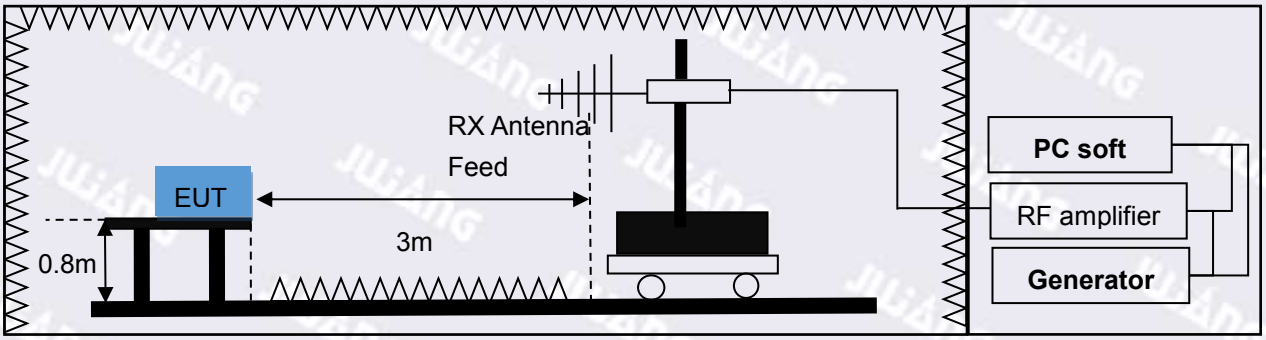


Figure 6-3 Test set-up of Immunity to Radiated Electric Fields (80MHz-1000MHz)

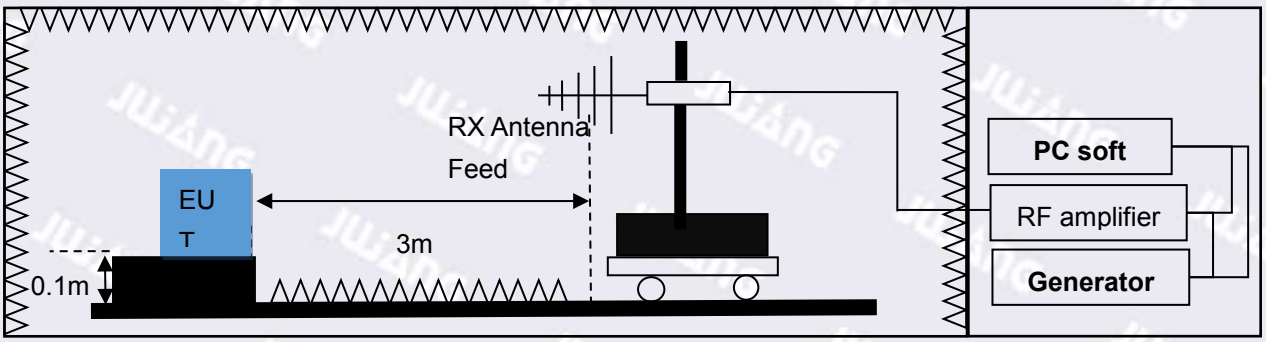


Figure 6-4 Test set-up of Immunity to Radiated Electric Fields (80MHz-1000MHz)

6.3.3 Test levels

Table 6-2 Radiated Electric Fields levels

Characteristics	Test levels	Performance Criterion
Frequency range	80MHz to 1000MHz	A
Test level	3V/m (unmodulated)	
Modulation	1 kHz, 80% AM, sine wave	

6.3.4 Test results

Test Results	
Test side of EUT	Front, Rear, Left, Right
Criterion	A
Frequency range	80MHz –1000MHz
Test Level	3 V/m(Unmodulated, rms.)
Modulation	80% AM, 1kHz
Conclusion	Pass

6.4 Immunity of Power frequency magnetic fields

6.4.1 Test procedure

The EUT was configured as described in section 1 for this test. The set-up and test methods were according to IEC 61000-4-8 and need only to be applied to equipment containing components susceptible to magnetic fields, such as Hall elements or magnetic field sensors. In case of mains-operated devices, the test frequency shall be locked to the mains frequency. All sides of the EUT (front, rear, left and right) were tested by antenna with vertical and horizontal polarization.

6.4.2 Test setup

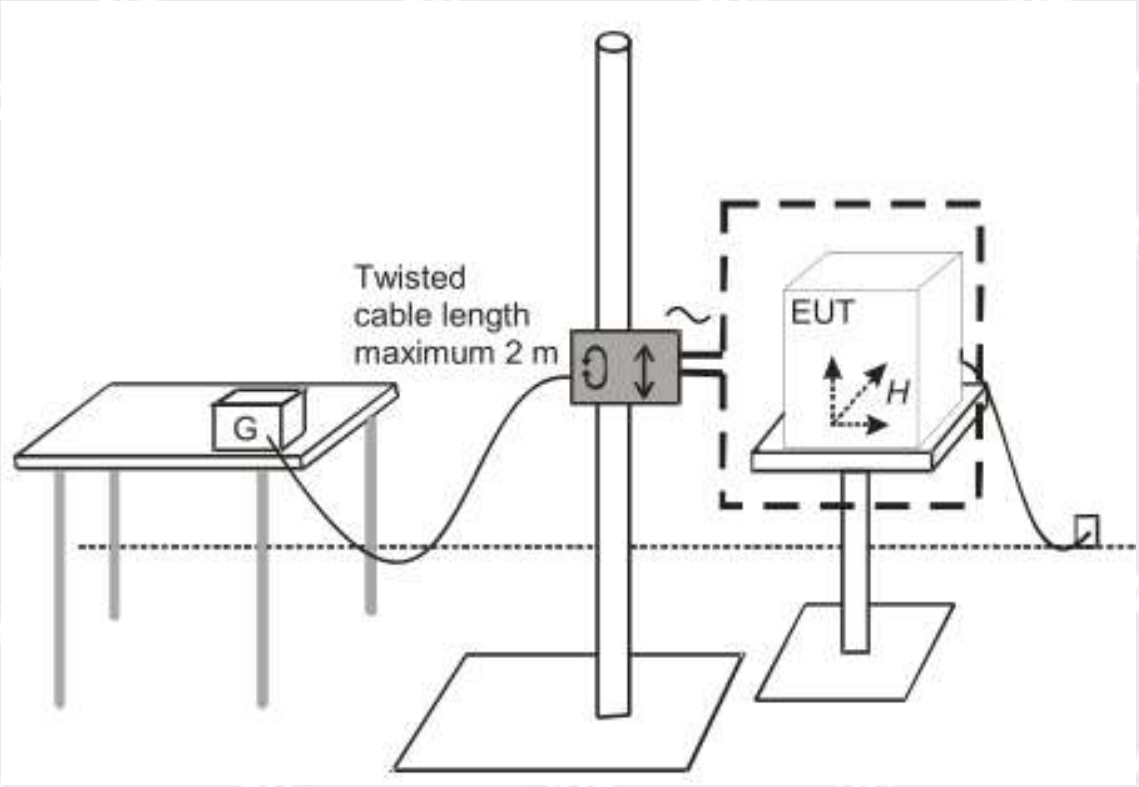


Figure 6-5 Test set-up of Immunity of Power frequency magnetic fields

6.4.3 Test levels

Table 5-3 Power frequency magnetic fields levels

Characteristics	Test levels
Field Frequency	50Hz/60Hz
Antenna Polarization	vertical and horizontal
Performance Criterion	A
Test level	1A/m

6.4.4 Test results

Test Results of Radiated Electric Fields	
Test side of EUT	Front, Rear, Left, Right
Antenna Polarization	vertical and horizontal
Criterion	A
Field Frequency	50Hz/60Hz
Test level	3A/m
Conclusion	Pass

6.5 Immunity to Electrical Fast Transient Bursts

6.5.1 Test procedure

The EUT was configured as described in section 1 for this test. A series of Fast Transient Bursts meeting the specification were applied for a period of 120 seconds. The Transient Bursts were applied for both Positive and Negative Burst Trains to Power Port. The set-up and test methods were according to IEC 61000-4-4.

6.5.2 Test setup

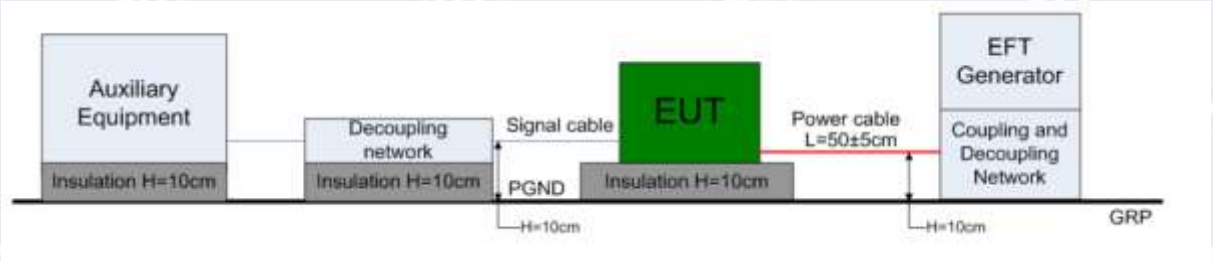


Figure 6-6 Test set-up of immunity to electrical fast transient bursts

6.5.3 Test levels

Table 6-4 Fast transients test levels for AC power ports

Characteristics	Test levels
Test Level	±1kV (peak)
Rise time/hold time	5/50 ns
Repetition frequency	5kHz
Performance Criterion	B

Table 6-5 Fast transients test levels for DC power ports

Characteristics	Test levels
Test Level	±0.5kV (peak)
Rise time/hold time	5/50 ns
Repetition frequency	5kHz
Performance Criterion	B

Table 6-6 Fast transients test levels for signal and control lines

Characteristics	Test levels
Test Level	±0.5kV (peak)
Rise time/hold time	5/50 ns
Repetition frequency	5kHz
Performance Criterion	B

6.5.4 Test results

Test Results of Electrical Fast Transient Bursts				
Ports	Measuring condition Couple mode	Description	Criterion	Conclusion
AC Power Port	L-Ref G, N-Ref G, L+N-Ref G Level: ±1.0kV, Tr/ Th: 5/50ns, 5kHz Test Duration: 120 seconds	No fail detected	B	Pass
DC Power Port	(DC+) - Ref G, (DC-) - Ref G, (DC+) + (DC-) - Ref G Level: ±0.5kV, Tr/ Th: 5/50ns, 5kHz Test Duration: 120 seconds	N/A	B	N/A
Signal and control lines	Lines-Ref G Level: ±0.5kV, Tr/ Th: 5/50ns, 5kHz Test Duration: 120 seconds	N/A	B	N/A

6.6 Immunity to Continuous Conducted Interference 0.15MHz to 80MHz

6.6.1 Test procedure

The EUT was configured as described in section 1 for this test. The applied level was Amplitude Modulated by a 1 kHz sinusoidal signal to a modulation depth of 80%. The set-up and test methods were according to IEC 61000-4-6.

6.6.2 Test setup

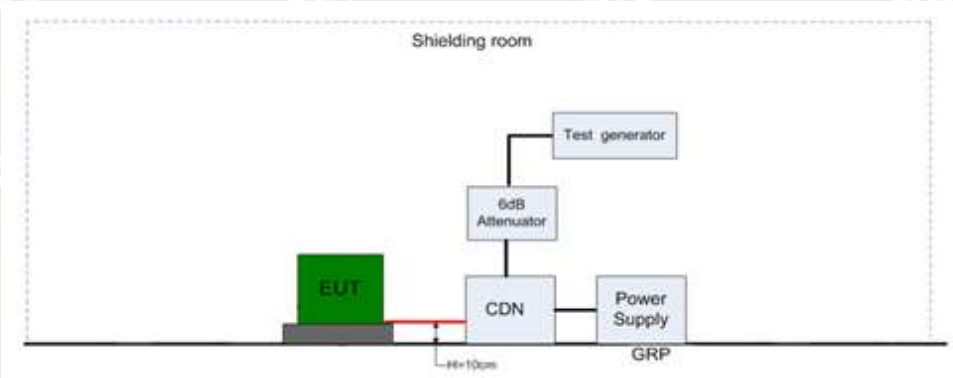


Figure 6-7 Test set-up of immunity to continuous conducted interference

6.6.3 Test levels

Table 6-7 Continuous Conducted Interference

Characteristics	Test levels
Frequency range	0.15MHz to 80MHz
Test levels	3V r.m.s. (unmodulated)
Modulation	1kHz, 80% AM, sine wave
Source impedance	150Ω
Performance Criterion	A

6.6.4 Test results

Test Results of Continuous Conducted Interference					
Ports	Measuring condition	Inject method	Description	Criterion	Conclusion
AC Power Port	Frequency range: 0.15 MHz to 80 MHz Induced voltage :3 V (r.m.s.)	CDN M3	No fail detected	A	Pass
DC Power Port	Frequency range: 0.15 MHz to 80 MHz Induced voltage :3 V (r.m.s.)	CDN M2	N/A	A	N/A

Signal and control lines	Frequency range: 0.15 MHz to 80 MHz Induced voltage :3 V (r.m.s.)	EM Clamp	N/A	A	N/A

6.7 Immunity to Surges

6.7.1 Test procedure

The EUT was configured as described in section 1 for this test. A series of High Energy Surges were applied to Power Port. The set-up and test methods were according to IEC 61000-4-5.

6.7.2 Test setup

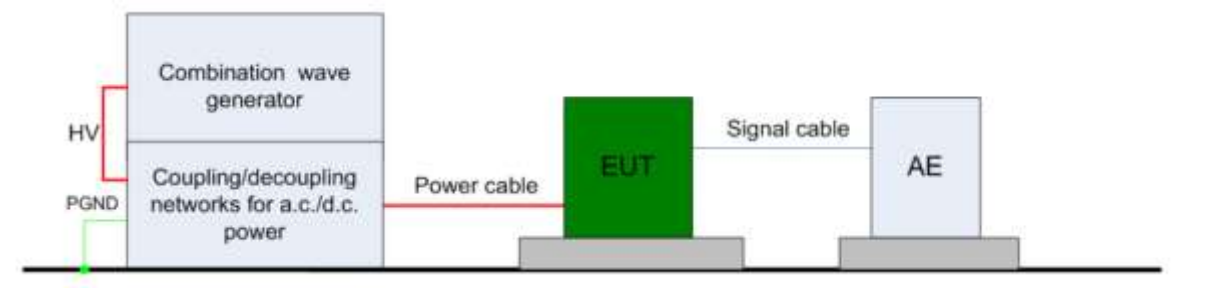


Figure 6-8 Test set-up of immunity to surge

6.7.3 Test levels

Table 6-8 Surge test levels for AC power ports

Test line	Test levels	Wave shape	Performance Criterion
Line to Line	±1kV	1.2/50us	B
Line to ground	±2kV	1.2/50us	B

6.7.4 Test results

Test Results of Surges				
Ports	Measuring condition	Description	Criterion	Conclusion
AC Power Port	Line to Line: L-N Level:±1.0kV, Tr/Th:1.2/50μs Interval: 60 seconds Phase: Sync	No fail detected	B	Pass
	Line to ground: L- Ref G,N- Ref G, L+N- Ref G Level:±2.0kV, Tr/Th:1.2/50μs Interval: 60 seconds Phase: Sync	No fail detected	B	Pass

6.8 Immunity to Voltage Dips and Short Interruption of AC Power Port

6.8.1 Test procedure

The EUT was configured as described in section 1 for this test. The set-up and test methods were according to IEC 61000-4-11. Changes to the voltage level shall occur at a zero crossing point in the AC voltage waveform.

6.8.2 Test setup

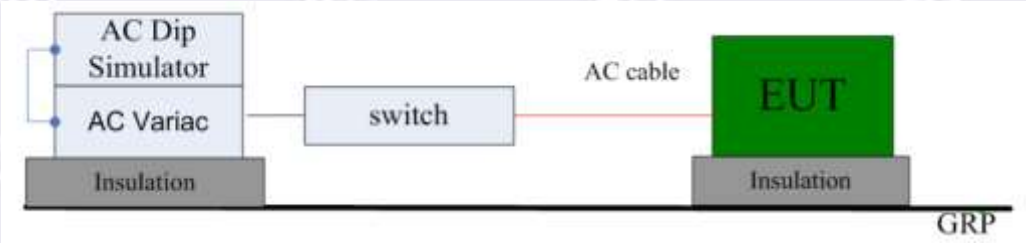


Figure 6-9 test set-up of Voltage Dips and Short Interruption of AC Power Port

6.8.3 Test levels

Table 6-9 Voltage dips

Ports	Test levels	Number of periods	Performance Criterion
AC Power Port	0%	0.5	B
	70%	25/30	C
	0%	250/300	C

6.8.4 Test results

In the case where the equipment is fitted with or connected to a battery back-up, the performance criteria for transient phenomena shall apply.

In the case where the equipment is powered solely from the AC mains supply (without the use of a parallel battery back-up) volatile user data may have been lost and if applicable the communication link need not to be maintained and lost functions should be recoverable by user or operator; no unintentional responses shall occur at the end of the test.

Test Results of Voltage Dips and Short Interruption				
Ports	Measuring condition	Performance Criterion	Description	Conclusion
AC Power Port	Voltage dip: 0 % residual voltage for 0.5 cycles	B	No fail detected	Pass
	Voltage dip: 70 % residual voltage for 25/30 cycles	C	No fail detected	Pass
	Voltage dip: 0 % residual voltage for 250/300 cycles	C	No fail detected	Pass

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7. Measurement Instruments

Table 7-1 RE instruments

Item	Kind of Equipment	Manufacturer	Type No.	Calibrated until
1	EMI Test Receiver	R&S	ESU8	Aug. 24, 2022
2	Bilog Antenna	SCHWARZBECK	VULB 9163	Aug. 24, 2022
3	Horn Antenna	SCHWARZBECK	BBHA9120D	Aug. 24, 2022
4	Amplifier	Tonscend	TAP-9E6343	Aug. 24, 2022
5	Amplifier	Tonscend	TAP-051841	Aug. 24, 2022
6	Triple-Loop Antenna	Daze	ZN30401	Aug. 24, 2022

Table 7-2 CE instruments

Item	Kind of Equipment	Manufacturer	Type No.	Calibrated until
1	EMI Test Receiver	R&S	ESRP3	Aug. 24, 2022
2	LISN	Schwarzbeck	NNLK 8121	Aug. 24, 2022
3	Amplitude limiter	Schwarzbeck	VTSD 9561 F	Aug. 24, 2022

Table 7-3 ESD instruments

Item	Kind of Equipment	Manufacturer	Type No.	Calibrated until
1	ESD TEST GENERATOR	3Ctest	EDS 30V	Aug. 24, 2022

Table 7-4 RS instruments

Item	Kind of Equipment	Manufacturer	Type No.	Calibrated until
1	Signal Generator	Keysight	N5181A	Aug. 24, 2022
2	Power Amplifier	Mic-top	MPA-80-1000-1000	Aug. 24, 2022
3	Power meter	Keysight	E4419A	Aug. 24, 2022
3	Power probe	Keysight	E9304A	Aug. 24, 2022
4	Power Amplifier	AR	25S1G4A	Aug. 24, 2022
5	Antenna	Schwarzbeck	STLP9149	Aug. 24, 2022

Table 7-5 EFT, AC-DIP and SURGE instruments

Item	Kind of Equipment	Manufacturer	Type No.	Calibrated until
1	Immunity test	3CTest	CCS 600	Aug. 24, 2022
2	Coupling clamp	3CTest	CCC100	Aug. 24, 2022
3	CDN	3CTest	SEPN3832T	Aug. 24, 2022
4	Voltage regulator	3CTest	VVT2216	Aug. 24, 2022

8. Photos of the EUT

Figure 8-1 EUT

Figure 8-2 EUT

========== The End of Report==========

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