



Aerospace Testing Technology (Shenzhen) Co., Ltd.

101, Block A4, No. 5, 8th Road, Shapu Yangyong Industrial Park,
Songgang Street, Bao'an District, Shenzhen, Guangdong, China

EMC TEST REPORT

Report No : AST2208202002

Product Name : Pet Water Fountain

Product Model : CW-002

Applied Standard : EN IEC 55014-1:2021
EN IEC 55014-2:2021

Test Result : PASS

Issue Date : Aug 19, 2022

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Product Name	: Pet Water Fountain
Tested Model	: CW-002
Attached Model	: /
Trademark	: /
Applicant	: JIETAI PURIFICATION TECH CO., LTD
Address	: No. 175 Dashanjiao, Wuguishan District, Zhongshan City, Guangdong 528458, China
Manufacturer	: JIETAI PURIFICATION TECH CO., LTD
Address	: No. 175 Dashanjiao, Wuguishan District, Zhongshan City, Guangdong 528458, China
Factory	: JIETAI PURIFICATION TECH CO., LTD
Address	: No. 175 Dashanjiao, Wuguishan District, Zhongshan City, Guangdong 528458, China
Test date	: Aug. 13, 2022 to Aug. 18, 2022
Remark:	<i>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.</i>

Prepared by



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Aug 19, 2022

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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
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Phone	: +86 0755-26001833
E-mail	: qiubo@smq.com.cn
Test Report Form No.	: ASTCX-31-JL03-EN55014 EMC Test Report Ver.1.0
TRF Originator	: Aerospace Testing Technology (Shenzhen) Co., Ltd.
Master TRF	: Jul.1,2021

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2. Summary of test result

Test Items	Test site	Result
<u>Radiated Emissions (RE) 9kHz-30MHz</u> <input type="checkbox"/> Enclosure Port	Site 3	N/A
<u>Radiated Emissions (RE) 30MHz-1000MHz</u> <input checked="" type="checkbox"/> Enclosure Port	Site 1	Pass
<u>Radiated Emissions (RE)1000MHz-6000MHz</u> <input type="checkbox"/> Enclosure Port	Site 1	N/A
<u>Conducted Emission (CE)</u> <input checked="" type="checkbox"/> Mains port <input type="checkbox"/> Auxiliary ports <input type="checkbox"/> Wired network ports <input type="checkbox"/> Mains port of motor operated tools	Site 1	Pass
<u>Electrostatic Discharge (ESD)</u> <input checked="" type="checkbox"/> Enclosure Port	Site 2	Pass
<u>RF Electromagnetic Field (RS)</u> <input checked="" type="checkbox"/> Enclosure Port	Site 2	Pass
<u>Fast Transients Common mode (EFT)</u> <input checked="" type="checkbox"/> AC Power ports <input type="checkbox"/> DC Power ports <input type="checkbox"/> Signal and control lines	Site 2	Pass
<u>RF Common mode (CS)</u> <input checked="" type="checkbox"/> AC Power ports <input type="checkbox"/> DC Power ports <input type="checkbox"/> Signal and control lines	Site 2	Pass
<u>Surges</u> <input checked="" type="checkbox"/> AC Power ports	Site 2	Pass
<u>Voltage Dips and Interruptions (AC DIP)</u> <input checked="" type="checkbox"/> AC Power ports	Site 2	Pass

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

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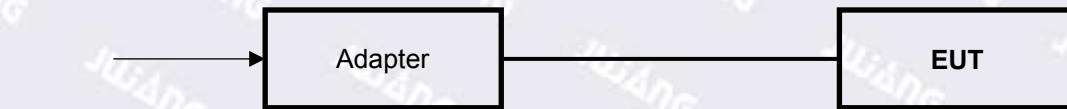
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3. Equipment Under Test information

Rating Voltage	: AC 120~240V	50/60Hz
Rating Current	: /	
Test Voltage	: AC 230V/50Hz	
The difference of the model	: /	

Table 3-1 Test Mode List

Mode No.	Test Mode	Test Voltage
Mode 1	Working	AC 230V/50Hz



AC Mains

Figure 1-1 Test configuration

Table 3-2 Associated Equipment used during test

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

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4. Test Condition

4.1 Environmental conditions

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

4.2 Measurement uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded 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	9 kHz ~ 30MHz	2.9
	150 kHz ~ 30MHz	3.2
SAC966-1	9 kHz ~ 30MHz	3.1
	30MHz ~ 1000MHz	3.4
	1000MHz ~ 6000MHz	3.2

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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

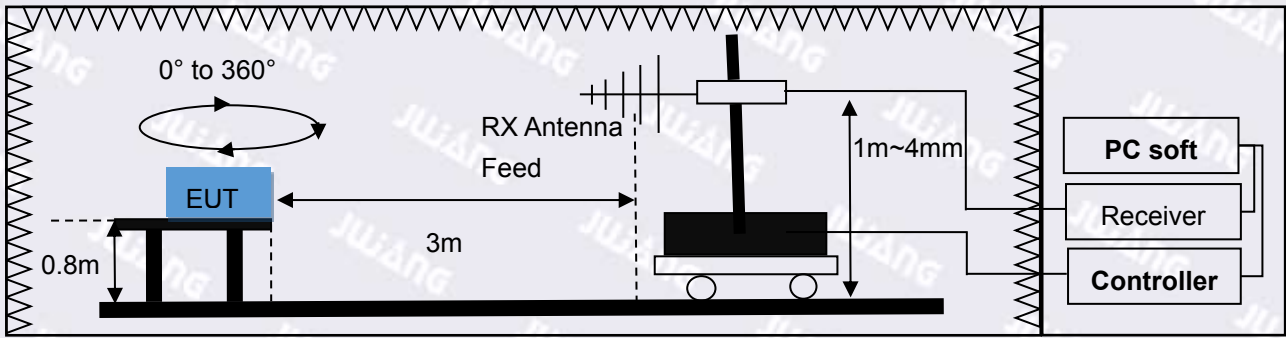


Figure 5-2 Test set-up of radiated disturbance(30MHz-1GHz)

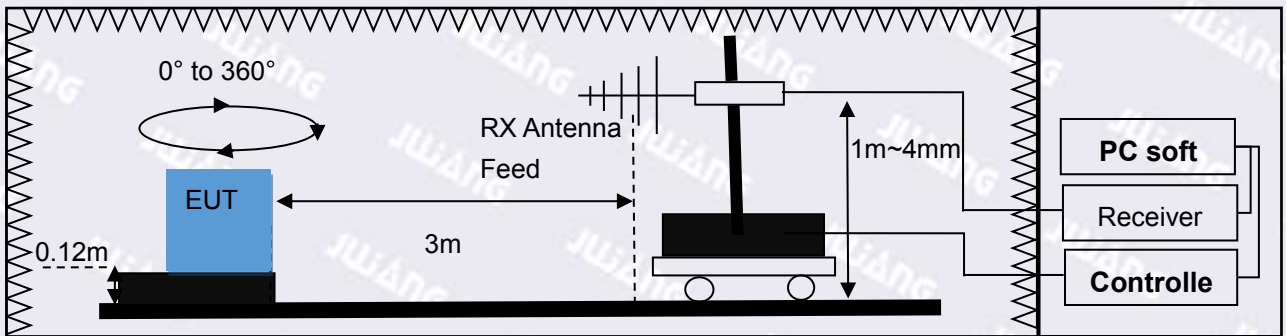


Figure 5-3 Test set-up of radiated disturbance(30MHz-1GHz)

5.1.4 Test limits

Table 5-2 RE test limits 30MHz to 1000MHz

Frequency (MHz)	QP dBu V/m
30 to 230	40
230 to 1000	47

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.

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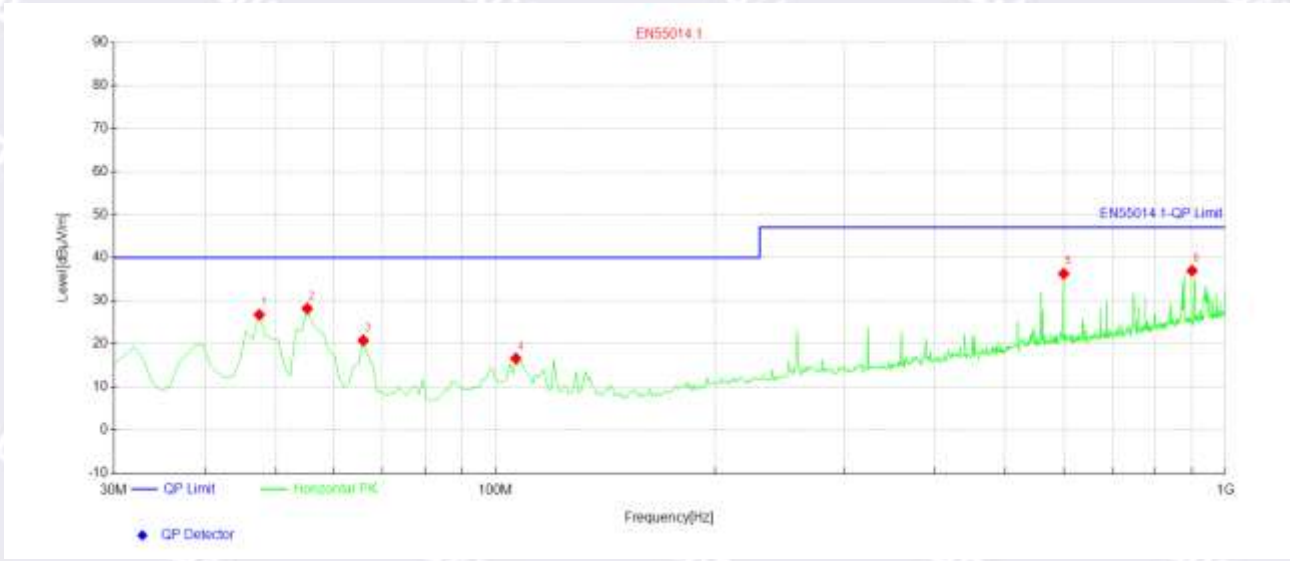
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Working

极性: 水平



Suspected Test Data									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Factor [dB]	Height [cm]	Angle [°]	Polarity	Result
1	47.46	26.71	40.00	13.29	-31.33	100	336	Horizo	PASS
2	55.22	28.15	40.00	11.85	-32.01	100	224	Horizo	PASS
3	65.89	20.73	40.00	19.27	-33.46	200	1	Horizo	PASS
4	106.63	16.55	40.00	23.45	-32.75	100	78	Horizo	PASS
5	600.36	36.24	47.00	10.76	-22.33	200	269	Horizo	PASS
6	900.09	36.95	47.00	10.05	-17.87	100	313	Horizo	PASS

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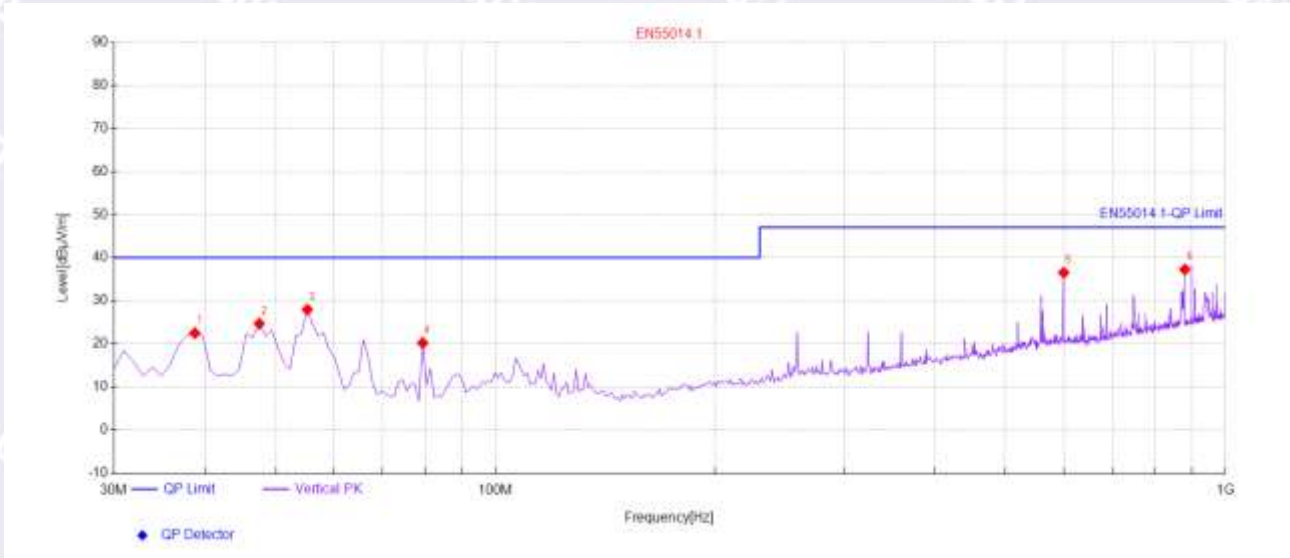
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极性: 垂直



Suspected Test Data									
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Factor [dB]	Height [cm]	Angle [°]	Polarity	Result
1	38.73	22.44	40.00	17.56	-32.13	100	204	Vertical	PASS
2	47.46	24.65	40.00	15.35	-31.33	100	10	Vertical	PASS
3	55.22	27.92	40.00	12.08	-32.01	100	359	Vertical	PASS
4	79.47	20.17	40.00	19.83	-36.42	100	183	Vertical	PASS
5	600.36	36.49	47.00	10.51	-22.33	100	113	Vertical	PASS
6	879.72	37.25	47.00	9.75	-18.31	100	232	Vertical	PASS

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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

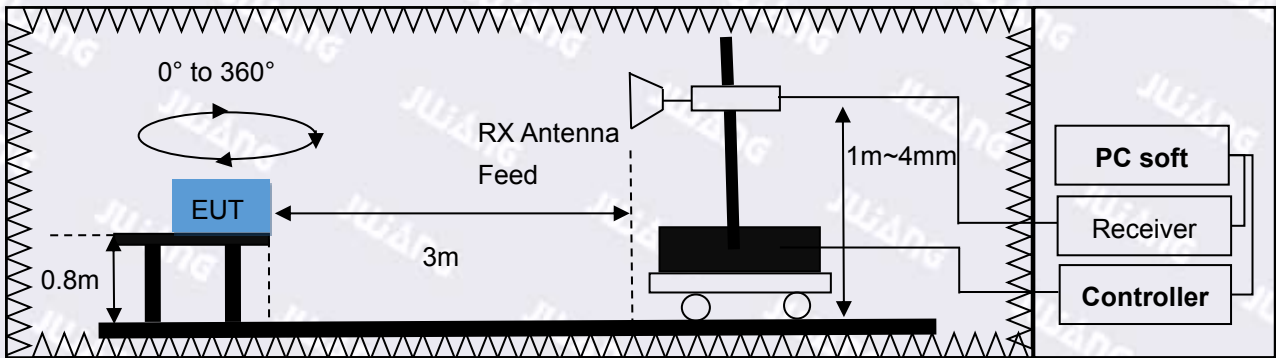


Figure 5-4 Test set-up of radiated disturbance(1000MHz-6000MHz)

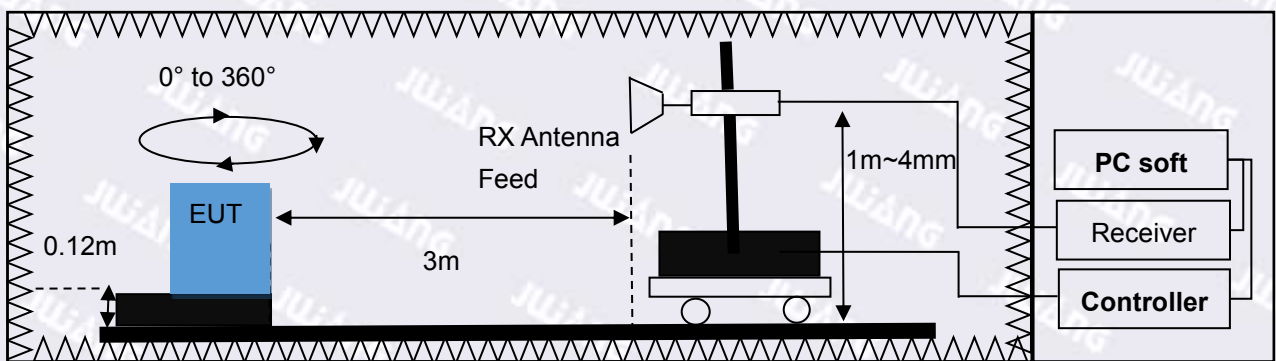


Figure 5-5 Test set-up of radiated disturbance(1000MHz-6000MHz)

5.2.4 Test limits

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

Frequency (MHz)	Peak dBu V/m	Average dBu V/m
1000 to 3000	70	50
3000 to 6000	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

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5.3 Conducted Disturbance 9 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

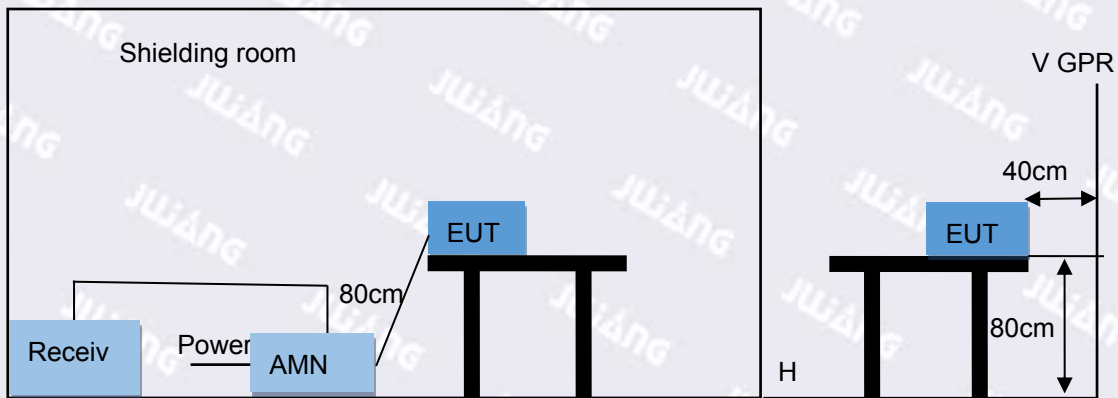


Figure 5-6 Test set-up of conducted disturbance for power port

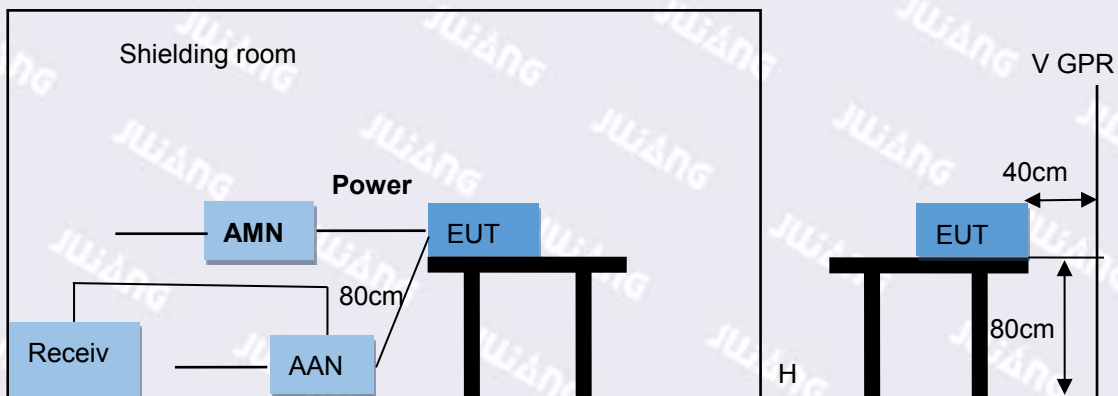


Figure 5-7 Test set-up of conducted disturbance for wired network ports

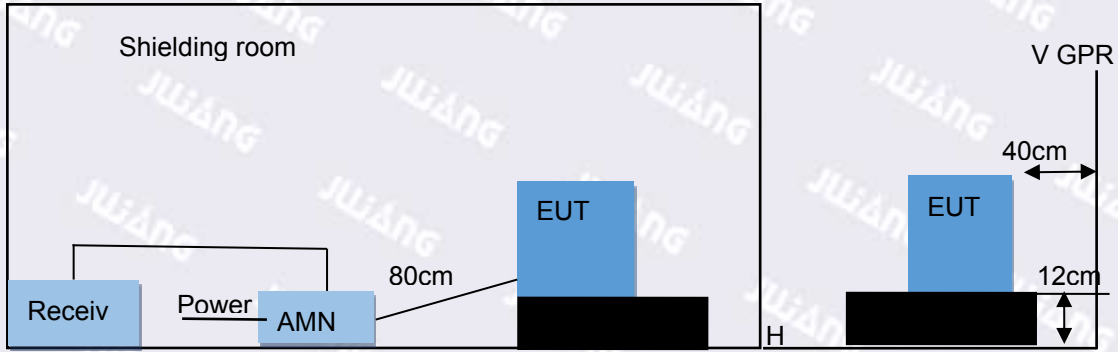


Figure 5-6 Test set-up of conducted disturbance for power port

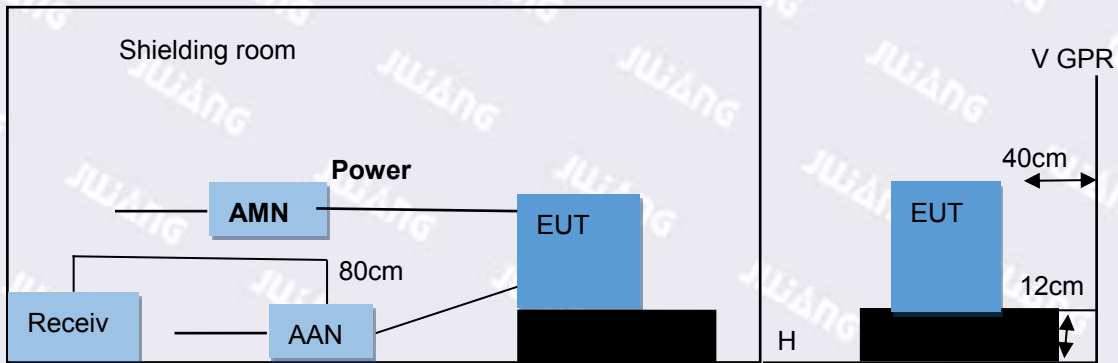


Figure 5-7 Test set-up of conducted disturbance for wired network ports

5.3.3 Test limits

Table 5-4 Test Limit of AC mains port for equipment with active IPT function

Frequency range	Voltage limits	
	QP	AV
9 kHz to 50 kHz	110dB μ V	--
50 kHz to 0.15MHz	90-80dB μ V	--
0.15MHz~0.5MHz	66-56dB μ V	56-46dB μ V
0.5MHz~5MHz	56dB μ V	46dB μ V
5MHz~30MHz	60dB μ V	50dB μ V

Table 5-5 Test Limit for General equipment port

Frequency range	Main port		Auxiliary ports			
	Disturbance voltage		Disturbance voltage		Disturbance current	
1	2	3	4	5	6	7
MHz	Quasi-peak dB μ V	Average dB μ V	Quasi-peak dB μ V	Average dB μ V	Quasi-peak dB μ A	Average dB μ A
0.15 to 0.5	66 to 56	59 to 46	80	70	40 to 30	30 to 20
0.5 to 5	56	46	74	64	30	20

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5 to 30	60	50	74	64	30	20
---------	----	----	----	----	----	----

Table 5-6 Limits for the mains port of motor operated tools

Frequency range	$P \leq 700W$		$700 W < P \leq 1000 W$		$P > 1000 W$	
1	2	3	4	5	6	7
MHz	Quasi-peak dB μ V	Average dB μ V	Quasi-peak dB μ V	Average dB μ V	Quasi-peak dB μ A	Average dB μ A
0.15 to 0.35	Decreasing linearly with the logarithm of the frequency from:					
	66 to 59	59 to 49	70 to 63	63 to 53	76 to 69	69 to 59
0.35 to 5	59	49	63	53	69	59
5 to 30	64	54	68	58	74	64

Table 5-7 Test Limit of wired network interfaces other than power supply

Frequency range	Voltage limits	
	QP	AV
0.15MHz~0.5MHz	84-74dB μ V	74-64dB μ V
0.5MHz~30MHz	74dB μ V	64dB μ V

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.

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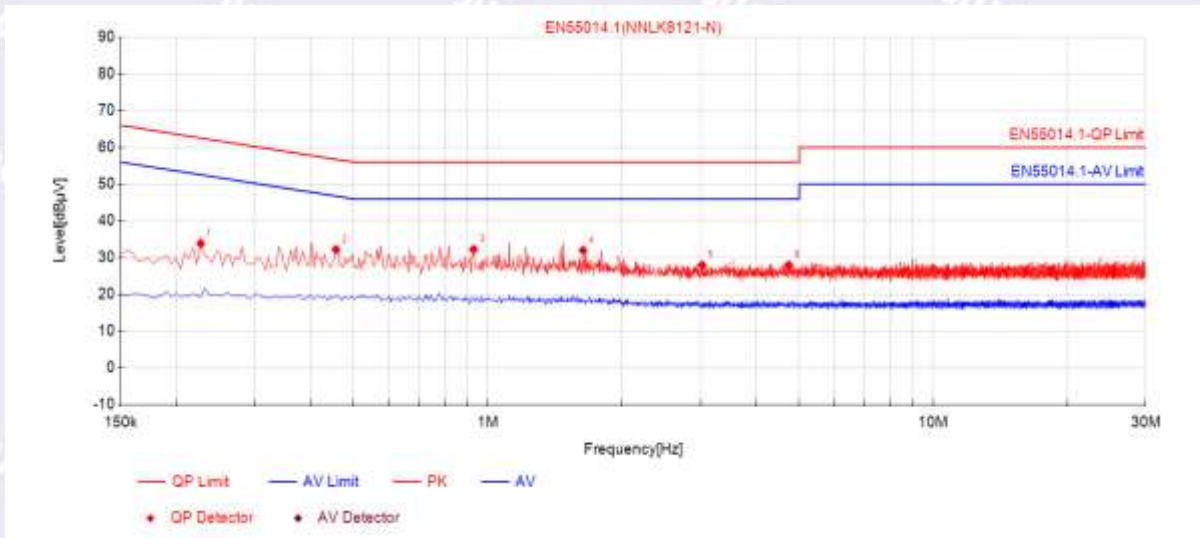
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Working 极性: N



Suspected test data

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Type	Verdict
1	0.2265	33.90	10.44	62.58	28.68	NNLK8121-N	PASS
2	0.456	32.24	10.43	56.77	24.53	NNLK8121-N	PASS
3	0.9285	32.30	10.40	56.00	23.70	NNLK8121-N	PASS
4	1.635	32.04	10.42	56.00	23.96	NNLK8121-N	PASS
5	3.0255	28.02	10.44	56.00	27.98	NNLK8121-N	PASS
6	4.7355	28.06	10.46	56.00	27.94	NNLK8121-N	PASS

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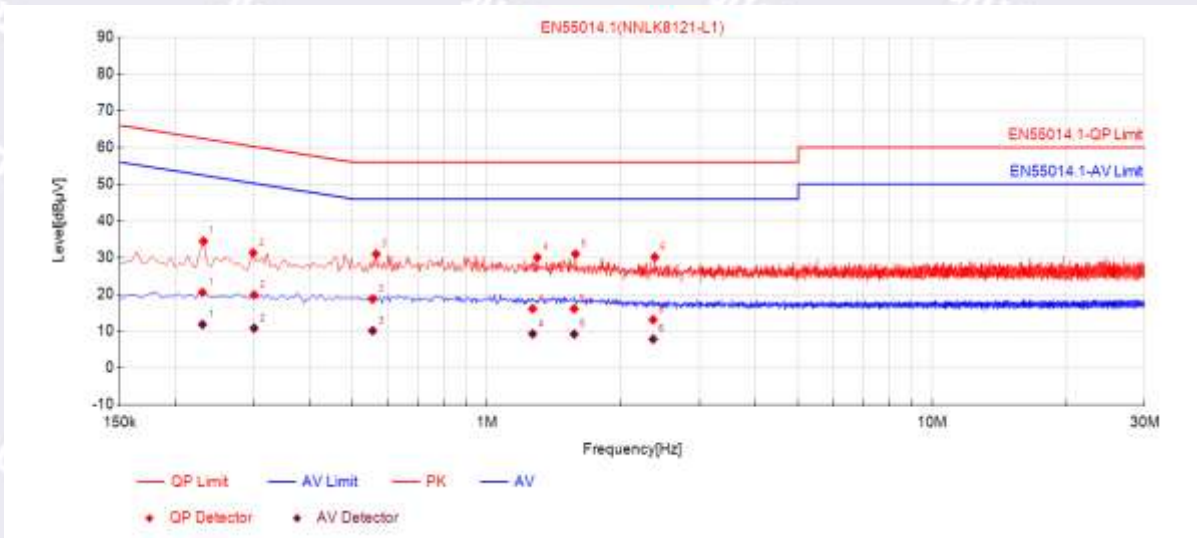
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极性: L1



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	0.2298	20.56	62.46	41.90	11.85	52.46	40.61	NNLK8121-L1	PASS
2	0.3000	19.88	60.24	40.36	10.84	50.24	39.40	NNLK8121-L1	PASS
3	0.5539	18.76	56.00	37.24	10.15	46.00	35.85	NNLK8121-L1	PASS
4	1.2669	16.13	56.00	39.87	9.32	46.00	36.68	NNLK8121-L1	PASS
5	1.5702	16.14	56.00	39.86	9.22	46.00	36.78	NNLK8121-L1	PASS
6	2.3609	13.16	56.00	42.84	7.86	46.00	38.14	NNLK8121-L1	PASS

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6. Electromagnetic Susceptibility (EMS)

6.1 Performance criteria

Performance criterion A:

The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. 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 from what the user may reasonably expect from the apparatus if used as intended.

Performance criterion B:

The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however no change of actual operating state or stored data is allowed to persist after the test. 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 from what the user may reasonably expect from the apparatus if used as intended.

Performance criterion C:

Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

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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

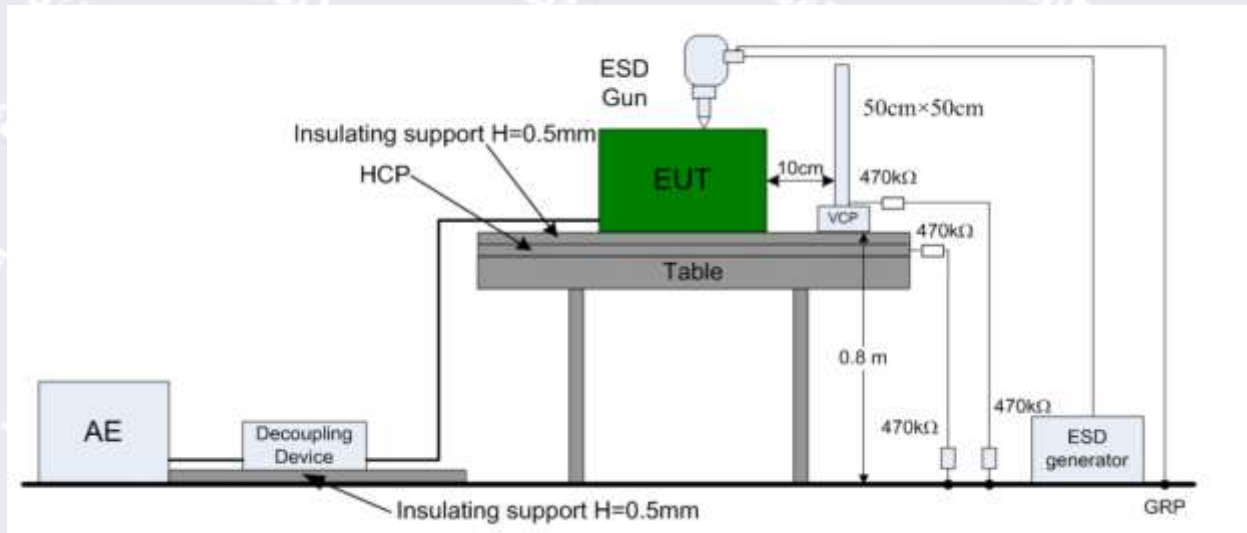


Figure 6-1 Test set-up of electrostatic discharge

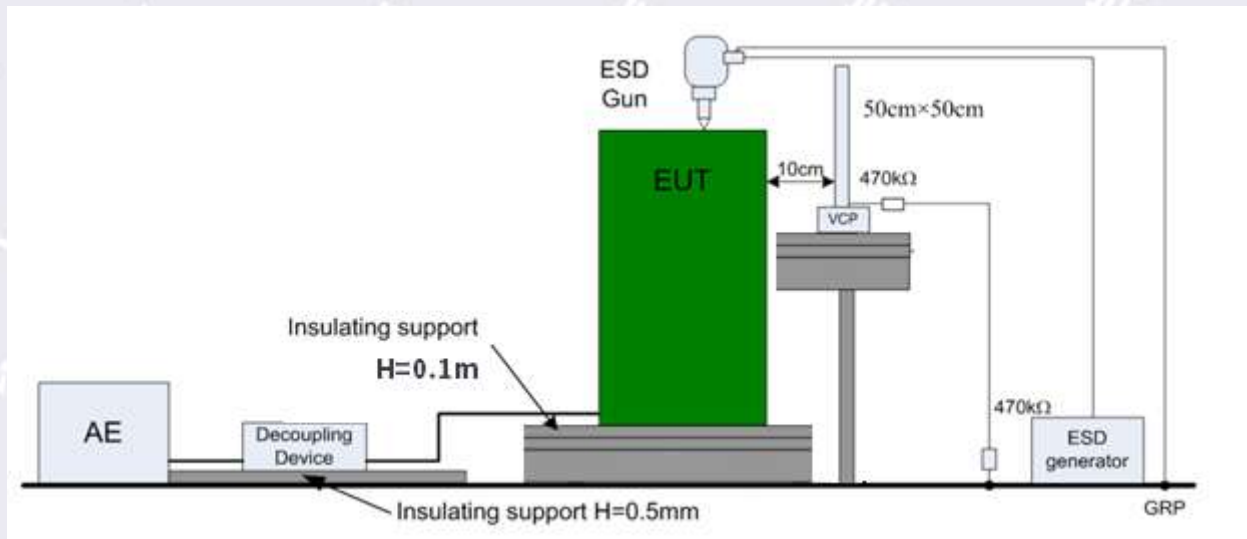


Figure 6-2 Test set-up of electrostatic discharge

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	√	√	N/A	N/A	B	Pass
Gaps	N/A	N/A	√	√	B	Pass
Buttons	N/A	N/A	√	√	B	Pass
Note: <input checked="" type="checkbox"/> 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

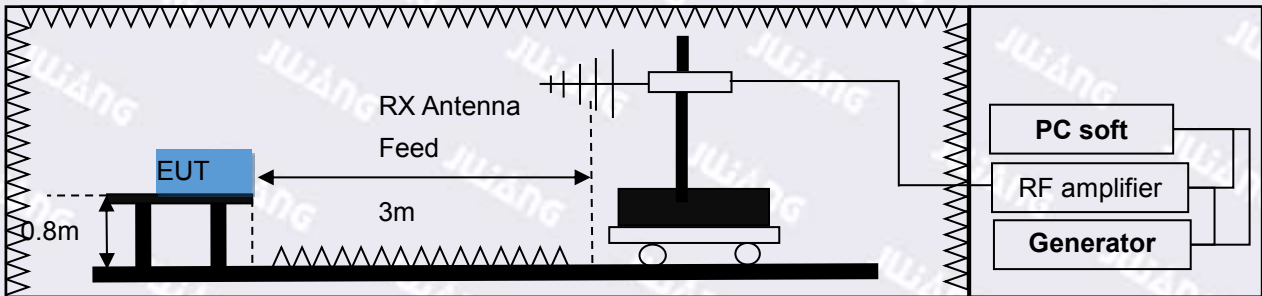


Figure 6-3 Test set-up of Immunity to Radiated Electric Fields (80MHz-1000MHz)

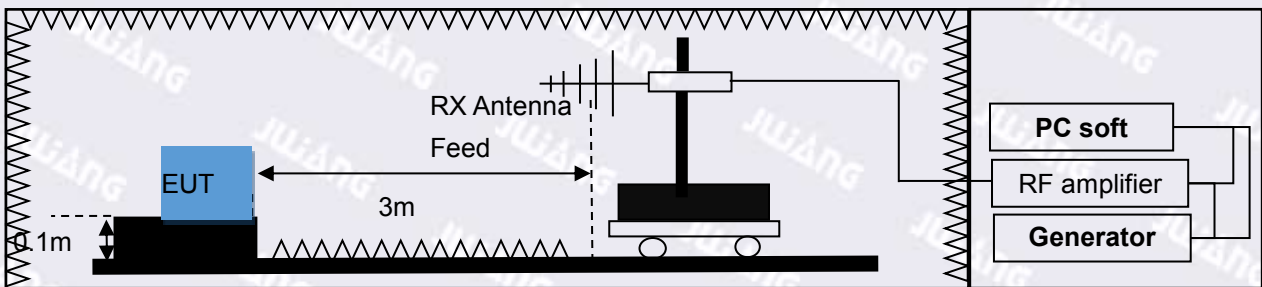


Figure 6-4 Test set-up of Immunity to Radiated Electric Fields (80MHz-1000MHz)

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

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Conclusion	Pass
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6.4 Immunity to Electrical Fast Transient Bursts

6.4.1 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.

6.4.2 Test setup

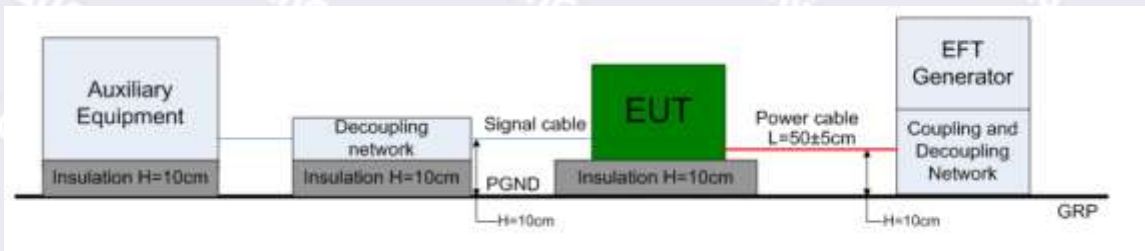


Figure 6-5 Test set-up of immunity to electrical fast transient bursts

6.4.3 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

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6.4.4 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: $\pm 1.0\text{kV}$, 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: $\pm 0.5\text{kV}$, Tr/ Th: 5/50ns, 5kHz Test Duration: 120 seconds	N/A	B	N/A
Signal and control lines	Lines-Ref G Level: $\pm 0.5\text{kV}$, Tr/ Th: 5/50ns, 5kHz Test Duration: 120 seconds	N/A	B	N/A

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6.5 Immunity to Continuous Conducted Interference 0.15MHz to 80MHz

6.5.1 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.

6.5.2 Test setup

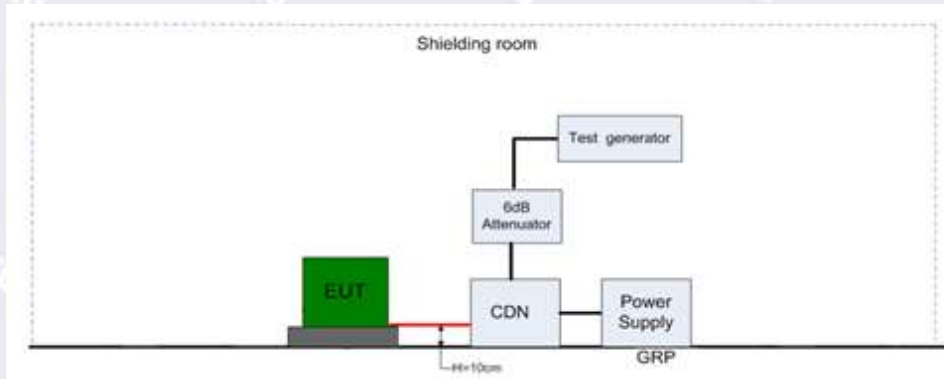


Figure 6-6 Test set-up of immunity to continuous conducted interference

6.5.3 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

6.5.4 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
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6.6 Immunity to Surges

6.6.1 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.

6.6.2 Test setup

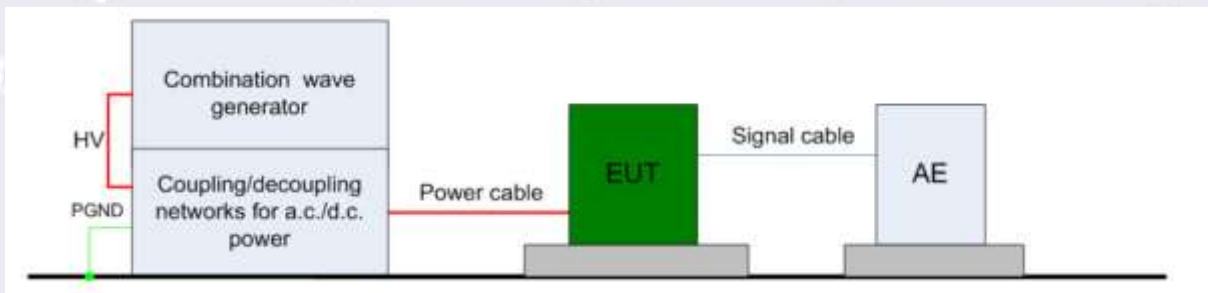


Figure 6-7 Test set-up of immunity to surge

6.6.3 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

6.6.4 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

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

6.7.1 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.

6.7.2 Test setup

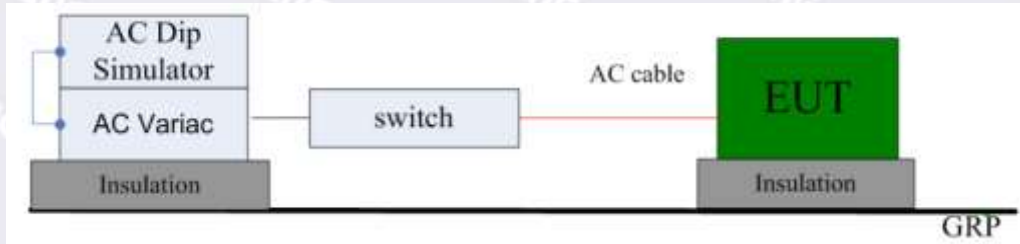


Figure 6-8 test set-up of Voltage Dips and Short Interruption of AC Power Port

6.7.3 Test levels

Table 6-9 Voltage dips

Ports	Test levels	Number of periods	Performance Criterion
AC Power Port	0%	0.5	C
	40%	10	C
	70%	25	C

6.7.4 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	C	No fail detected	Pass
	Voltage dip: 40 % residual voltage for 10 cycles	C	No fail detected	Pass
	Voltage dip: 70 % residual voltage for 25 cycles	C	No fail detected	Pass

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, 2023
2	Bilog Antenna	SCHWARZBECK	VULB 9163	Aug. 24, 2023
3	Horn Antenna	SCHWARZBECK	BBHA9120D	Aug. 24, 2023
4	Amplifier	Tonscend	TAP-9E6343	Aug. 24, 2023
5	Amplifier	Tonscend	TAP-051841	Aug. 24, 2023
6	Triple-Loop Antenna	Daze	ZN30401	Aug. 24, 2023

Table 7-2 CE instruments

Item	Kind of Equipment	Manufacturer	Type No.	Calibrated until
1	EMI Test Receiver	R&S	ESRP3	Aug. 24, 2023
2	LISN	Schwarzbeck	NNLK 8121	Aug. 24, 2023
3	Amplitude limiter	Schwarzbeck	VTSD 9561 F	Aug. 24, 2023

Table 7-3 ESD instruments

Item	Kind of Equipment	Manufacturer	Type No.	Calibrated until
1	ESD TEST GENERATOR	3CTest	EDS 30V	Aug. 24, 2023

Table 7-4 RS instruments

Item	Kind of Equipment	Manufacturer	Type No.	Calibrated until
1	Signal Generator	Keysight	N5181A	Aug. 24, 2023
2	Power Amplifier	Mic-top	MPA-80-1000-1000	Aug. 24, 2023
3	Power meter	Keysight	E4419A	Aug. 24, 2023
3	Power probe	Keysight	E9304A	Aug. 24, 2023
4	Power Amplifier	AR	25S1G4A	Aug. 24, 2023
5	Antenna	Schwarzbeck	STLP9149	Aug. 24, 2023

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, 2023
2	Coupling clamp	3CTest	CCC100	Aug. 24, 2023
3	CDN	3CTest	SEPN3832T	Aug. 24, 2023
4	Voltage regulator	3CTest	VVT2216	Aug. 24, 2023

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8. Photos of the EUT



EUT Photo



EUT Photo

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EUT Photo



EUT Photo

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9. Photos of test setup



Figure 9-1 RE test setup



Figure 9-2 CE test setup

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

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