

EMC TEST REPORT

Equipment all in one intelligent display

Trademark  橙光

Model No. A23X4B-N, XC1010C, XC1210A, XC1500A, XC1560B, XC1700A
XC1900A, XC1900B, XC2350C, XC2400B, XC2800B, XC2200C
XC3200B, XC4300B, XC5500B, XC3500B, XC4900B, XC6500A
XC2900B, XC3660B, XC3700B

Report No. CTB200909022EX

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Date of Test(s) Sep. 5, 2020 ~ Sep. 10, 2020

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Test Standard(s) EN 55032:2015, EN 55035:2017
EN 61000-3-2:2014, EN 61000-3-3:2013

In the configuration tested, the EUT complied with the standards specified above.

Producer :  , Date : Sep. 10, 2020
Amy Yang/ Engineer

Signatory :  , Date : Sep. 10, 2020
Sherwin Qian/ Director

Note: The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report shall not be reproduced except in full, without prior written approval of CTB. This document may be altered or revised by CTB, personnel only, and shall be noted in the revision of the document.

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
0	Sep. 10, 2020	Initial Issue	All Page	Sherwin Qian

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1. TEST SUMMARY


Emission			
Requirement - Test	Test Method	Limit	Result
Conducted Emission	EN 55032:2015	Class B	PASS
Radiated emissions at frequencies up to 1 GHz		Class B	PASS
Radiated emissions at frequencies above 1 GHz		Class B	PASS
Harmonic current emissions	EN 61000-3-2:2014	Class A	N/A
Voltage changes, voltage fluctuations and flicker	EN 61000-3-3:2013	Clause 5	N/A
Immunity (EN 55035:2017)			
Requirement - Test	Test Method	Performance criteria	Result
Electrostatic discharges (ESD)	EN 61000-4-2:2009	B	PASS
Electromagnetic field	EN 61000-4-3:2006+A1:2008+A2:2010	A	PASS
Electrical fast transients/burst (EFT/B)	EN 61000-4-4:2004+A1:2010	B	PASS
Surges	EN 61000-4-5:2006	B	PASS
Conducted RF	EN 61000-4-6:2009	A	PASS
Power frequency magnetic field	EN 61000-4-8:2010	A	PASS
Voltage dips and Short interruptions	EN 61000-4-11:2009+A1:2010	B & C	PASS

Remark: N/A is abbreviation for Not Applicable.

The test was carried out in all the test modes, only the worst data are list in report.

2. GENERAL INFORMATION

2.1. Description of EUT

Equipment	all in one intelligent display
Trademark	 橙光
Model Name	A23X4B-N, XC1010C, XC1210A, XC1500A, XC1560B, XC1700A, XC1900A, XC1900B, XC2350C, XC2400B, XC2800B, XC2200C, XC3200B, XC4300B, XC5500B, XC3500B, XC4900B, XC6500A, XC2900B, XC3660B, XC3700B
Serial No.	Not labeled
Model Difference	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: A23X4B-N.
Rated Power Supply	AC100-240V, 50/60Hz,
Rated Power	N/A
Normal Testing Voltage	DC12V from adapter input AC 100-240V, 50/60Hz, 0.8A
Configuration	<input checked="" type="checkbox"/> Table-top <input type="checkbox"/> Floor-standing
Accessory Device	Adapter
Cable Supplied	N/A

Note:

1. The EUT uses following adapter

Adapter	1	
Manufacturer		
Model	A23X4B-N	
AC Input Power	100-240V, 50/60Hz, 0.8A	
DC Output Power	12V $\overline{\text{---}}$ 2A	
Plug Type	EU	
Power Cord		

2. Other Accessory Device List and Details

Description	Manufacturer	Model	Note

External I/O Cable

Cable Description	Shielded Type	Ferrite Core	Length(m)	Note
	<input type="checkbox"/> Shielded <input type="checkbox"/> Non-shielded	<input type="checkbox"/> Yes <input type="checkbox"/> No		

3. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.2. Operating condition of EUT

Test mode	Description
1	working
2	
3	
4	

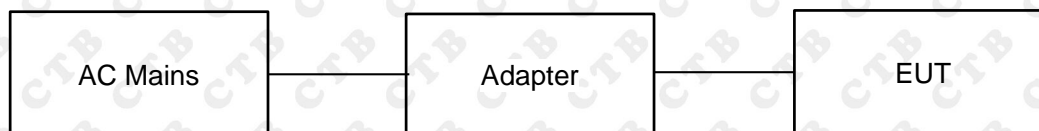
2.3. Test conditions

Temperature: 15-35°C

Relative Humidity: 30-60 %

Atmospheric pressure: 800hPa-1060hPa

2.4. Block diagram of EUT configuration



3. FACILITIES

3.1. Test Facility

CTB-LAB

Floor 1&2, Building A, No. 26 of Xinhe Road, Xinqiao Street, Baoan District, Shenzhen China

3.2. Test Instruments

Conducted Emission Measurement (Test software: EZ-EMC Ver. EMC-con3A1.1)

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	AMN	ROHDE&SCHWARZ	ESH3-Z5	831551852	20191030
2	Pulse limiter	ROHDE&SCHWARZ	ESH3Z2	357881052	20191030
3	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100428/003	20191102
4	Coaxial cable	ZDECL	Z302S	18091904	20191030
5	AAN	Schwarzbeck	NTFM8158	183	20200506

Radiated Emission Measurement (Test software: EZ-EMC Ver. FA-03A2 RE)

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA 9120D	1911	20191102
2	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	869	20191102
3	Amplifier	Agilent	8449B	3008A01838	20191101
4	Amplifier	HP	8447E	2945A02747	20191101
5	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESPI7	100362	20191101
6	Coaxial cable	ZDECL	ZT26	18091906	20191101
7	Coaxial cable	ZDECL	ZT26	18097604	20191101
8	Coaxial cable	ZDECL	ZT26	18091908	20191101
9	Coaxial cable	ZDECL	ZT26	18091907	20191101

Harmonic Current & Voltage Fluctuation and Flicker (Test software: EZ-EMC Ver. FA-03A2 RE)

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Power Analyzer	Laplace Instruments	AC2000A	311363	20191223
2	AC Power source	HTEC Instruments	HPF5010	633088	20191223

Electrostatic Discharge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	ESD Simulator	TESTQ	NSG437	329	20191030

Conducted RF Test

Item	Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Signal Generator	Agilent	N5182A	MY47420195	2019.10.30
2	Power Amplifier	AR	75A 250A	320289	2019.10.30
3	Attenuator	EM-Test	ATT6/75	320835	2019.10.30
4	CDN	EM-Test	CDN M2/M3	0208-01	2019.10.30
5	EM-Clamp	EM-Test	EM101	35762	2019.10.30

RF electromagnetic field Test

Item	Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Signal Generator	Agilent	N5182A	MY47420195	2019.10.30
2	Log-Bicon Antenna	Schwarzbeck	VULB9161	9128ES-128	2019.10.30
3	Power Amplifier	AR	150W1000M1	342526	2019.10.30
4	Microwave Horn Antenna	AR	AT4002A	322279	2019.10.30
5	Power Amplifier	AR	25S1G4A	321116	2019.10.30

Surge& Electrical Fast Transient/Burst Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Surge& Burst Generator	Lioncel	LSG-545CB	180602	20191030
2	Capacitive coupling clamp	Lioncel	EFTC	18071801	20191030

Power frequency magnetic field

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Magnetic field generator	Lioncel	PMF-801C-C	180701	20191101

Voltage dips and interruptions Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Voltage dip simulator	Lioncel	VDS-1102	180902	20191030

4. Measurement uncertainty

The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4.

Test	Parameters	Expanded Uncertainty (U_{Lab})	Expanded Uncertainty (U_{Cispr})
Conducted Emission	Level Accuracy: 150kHz to 30MHz	± 1.22 dB	± 3.6 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	± 3.67 dB	± 5.2 dB
Radiated Emission	Level Accuracy: Above 1000MHz	± 4.79 dB	N/A

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

5. Emission

5.1. Conducted Emission

5.1.1. Limit

Requirements for conducted emissions from the AC mains power ports of Class A equipment

Frequency range MHz	Coupling device	Detector type / bandwidth	Class A limits dB(μV)
0,15 to 0,5	AMN	Quasi Peak / 9 kHz	79
0,5 to 30			73
0,15 to 0,5		Average / 9 kHz	66
0,5 to 30			60

Requirements for conducted emissions from the AC mains power ports of Class B equipment

Frequency range MHz	Coupling device	Detector type / bandwidth	Class B limits dB(μV)
0,15 to 0,5	AMN	Quasi Peak / 9 kHz	66 to 56
0,5 to 5			56
5 to 30			60
0,15 to 0,5		Average / 9 kHz	56 to 46
0,5 to 5			46
5 to 30			50

Requirements for asymmetric mode conducted emissions from Class A equipment

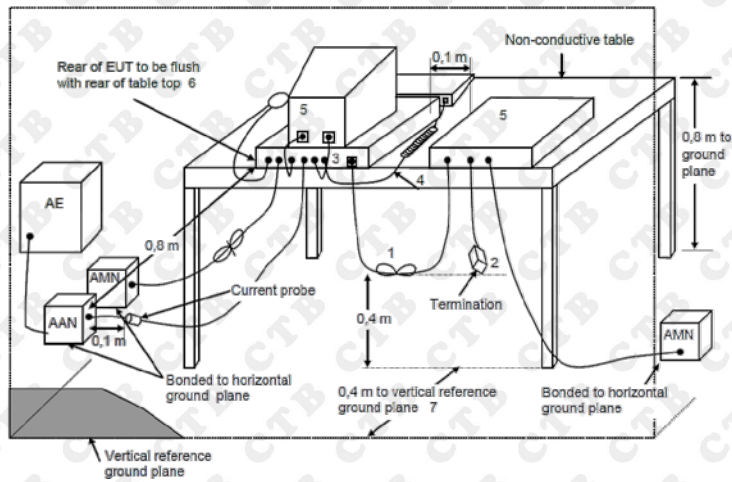
Frequency range MHz	Coupling device	Detector type / bandwidth	Class A limits dB(μV)
0,15 to 0,5	AAN	Quasi Peak / 9 kHz	97 to 87
0,5 to 30			87
0,15 to 0,5		Average / 9 kHz	84 to 74
0,5 to 30			74

Requirements for asymmetric mode conducted emissions from Class B equipment

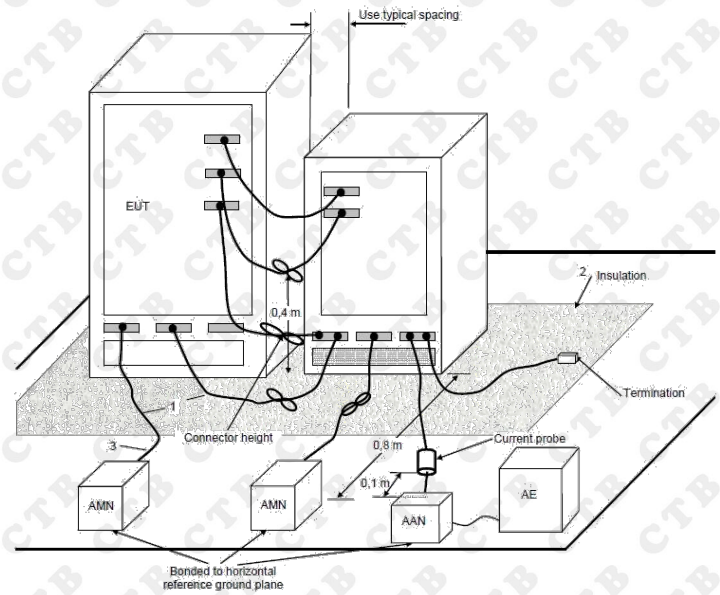
Frequency range MHz	Coupling device	Detector type / bandwidth	Class B limits dB(μV)
0,15 to 0,5	AAN	Quasi Peak / 9 kHz	84 to 74
0,5 to 30			74
0,15 to 0,5		Average / 9 kHz	74 to 64
0,5 to 30			64

5.1.2. Test setup

For table-top equipment



For floor standing equipment



5.1.3. Test procedure

Measurement was performed in shielded room, and instruments used were followed CISPR 16-2-1 clause7.

Detailed test procedure was following clause 7 of CISPR 16-2-1.

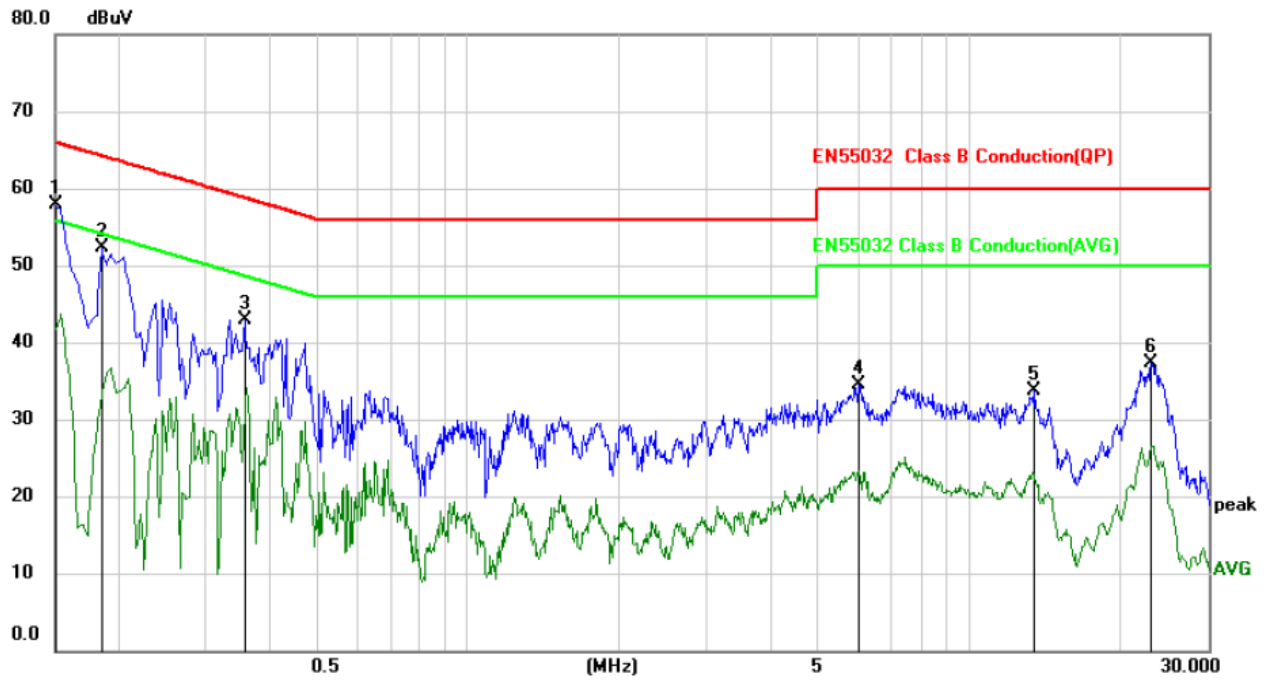
Frequency range 150kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 9 kHz.

5.1.4. Test results

PASS

Please refer to the following page.

Phase: L

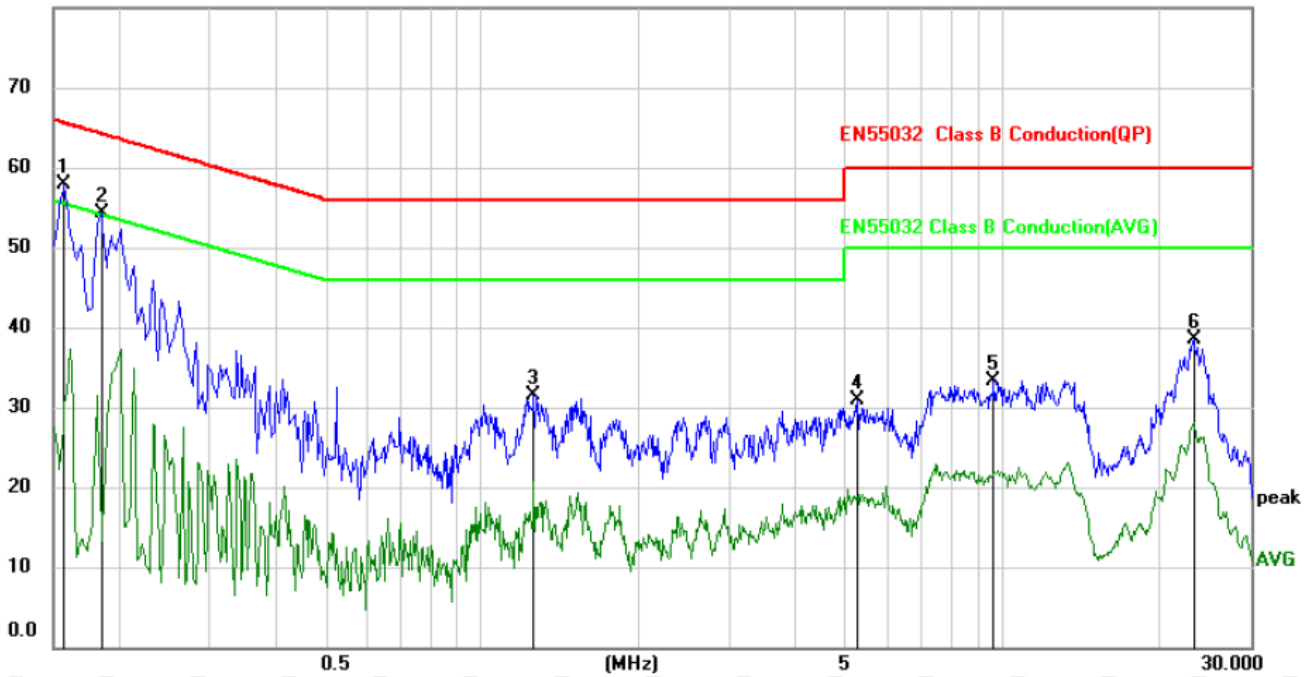


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1500	47.77	10.08	57.85	66.00	-8.15	peak	
2		0.1860	42.18	10.11	52.29	64.21	-11.92	peak	
3		0.3580	32.74	10.18	42.92	58.77	-15.85	peak	
4		6.0020	23.90	10.53	34.43	60.00	-25.57	peak	
5		13.4980	22.99	10.68	33.67	60.00	-26.33	peak	
6		23.1100	26.46	10.76	37.22	60.00	-22.78	peak	

Note: Result=Reading + Factor
Over Limit=Result - Limit

Phase: N

80.0 dBuV



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1580	47.76	10.09	57.85	65.57	-7.72	peak	
2		0.1860	44.17	10.11	54.28	64.21	-9.93	peak	
3		1.2620	21.31	10.15	31.46	56.00	-24.54	peak	
4		5.2580	20.45	10.51	30.96	60.00	-29.04	peak	
5		9.6459	22.64	10.64	33.28	60.00	-26.72	peak	
6		23.3620	27.69	10.76	38.45	60.00	-21.55	peak	

Note: Result=Reading + Factor
Over Limit=Result - Limit

5.2. Radiated emissions

5.2.1. Limit

Requirements for radiated emissions at frequencies up to 1 GHz for class A equipment

Frequency range MHz	Measurement			Class B limits dB(μV/m)
	Facility	Distance m	Detector type / bandwidth	
30 to 230	SAC	3	Quasi Peak / 120 kHz	50
230 to 1 000				57

Requirements for radiated emissions at frequencies above 1 GHz for class A equipment

Frequency range MHz	Measurement			Class B limits dB(μV/m)
	Facility	Distance m	Detector type / bandwidth	
1 000 to 3 000	FSOATS	3	Average / 1MHz	56
3 000 to 6 000				60
1 000 to 3 000		3	Average / 1MHz	76
3 000 to 6 000				80

Requirements for radiated emissions at frequencies up to 1 GHz for class B equipment

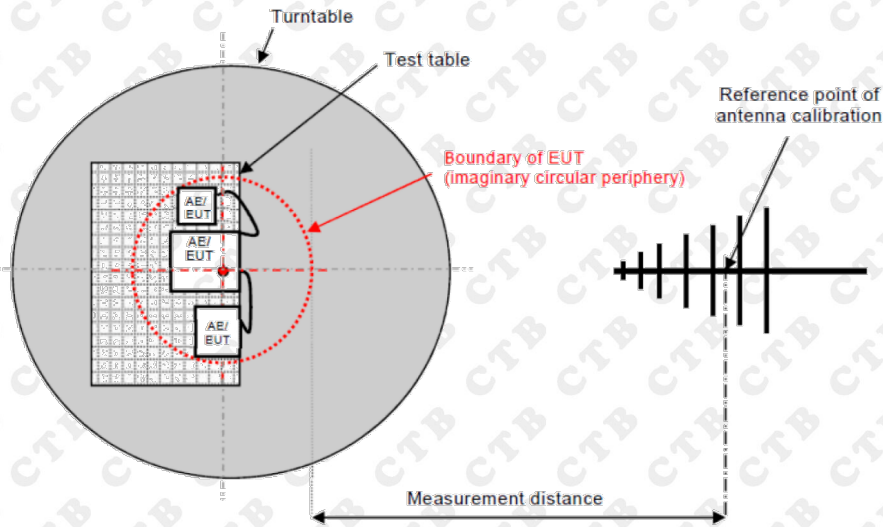
Frequency range MHz	Measurement			Class B limits dB(μV/m)
	Facility	Distance m	Detector type / bandwidth	
30 to 230	SAC	3	Quasi Peak / 120 kHz	40
230 to 1 000				47

Requirements for radiated emissions at frequencies above 1 GHz for class B equipment

Frequency range MHz	Measurement			Class B limits dB(μV/m)
	Facility	Distance m	Detector type / bandwidth	
1 000 to 3 000	FSOATS	3	Average / 1MHz	50
3 000 to 6 000				54
1 000 to 3 000		3	Average / 1MHz	70
3 000 to 6 000				74

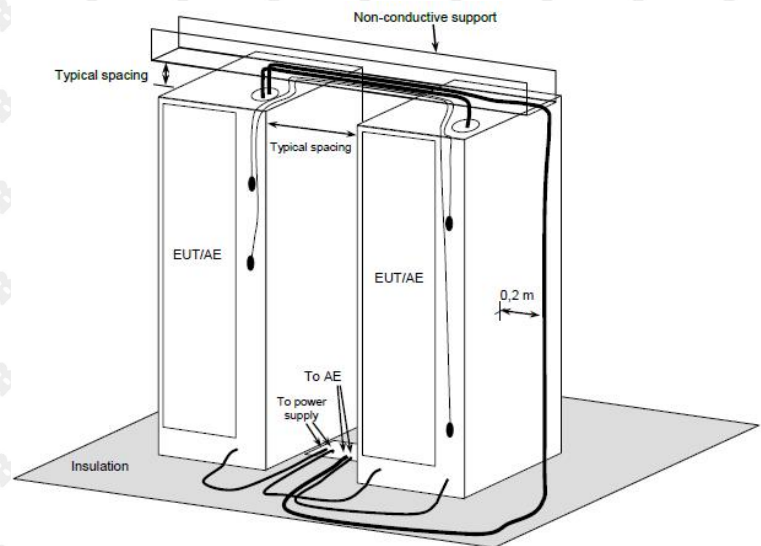
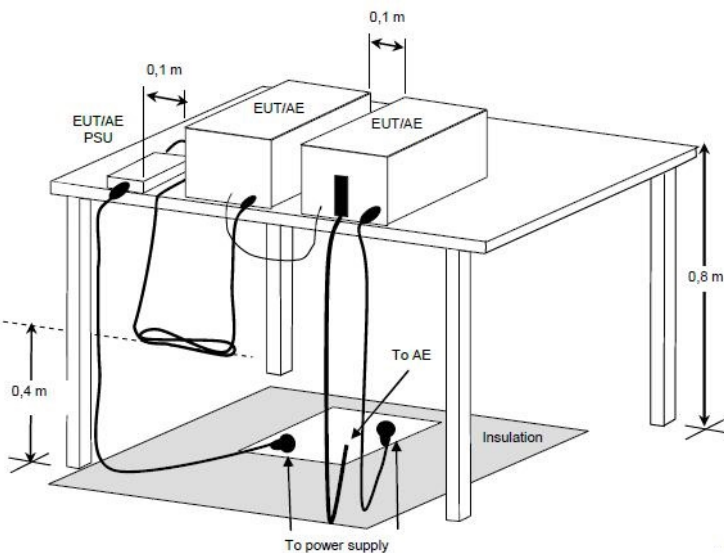
5.2.2. Block diagram of test setup

Measurement distance



For table-top equipment

For floor standing equipment



5.2.3. Test procedure

The measurement was performed in a semi-anechoic chamber. The distance from EUT to receiving antenna is 3 meters. Measurement was performed according to clause 7.3 of CISPR 16-2-3.

5.2.4. Test results

PASS

Please refer to the following page.

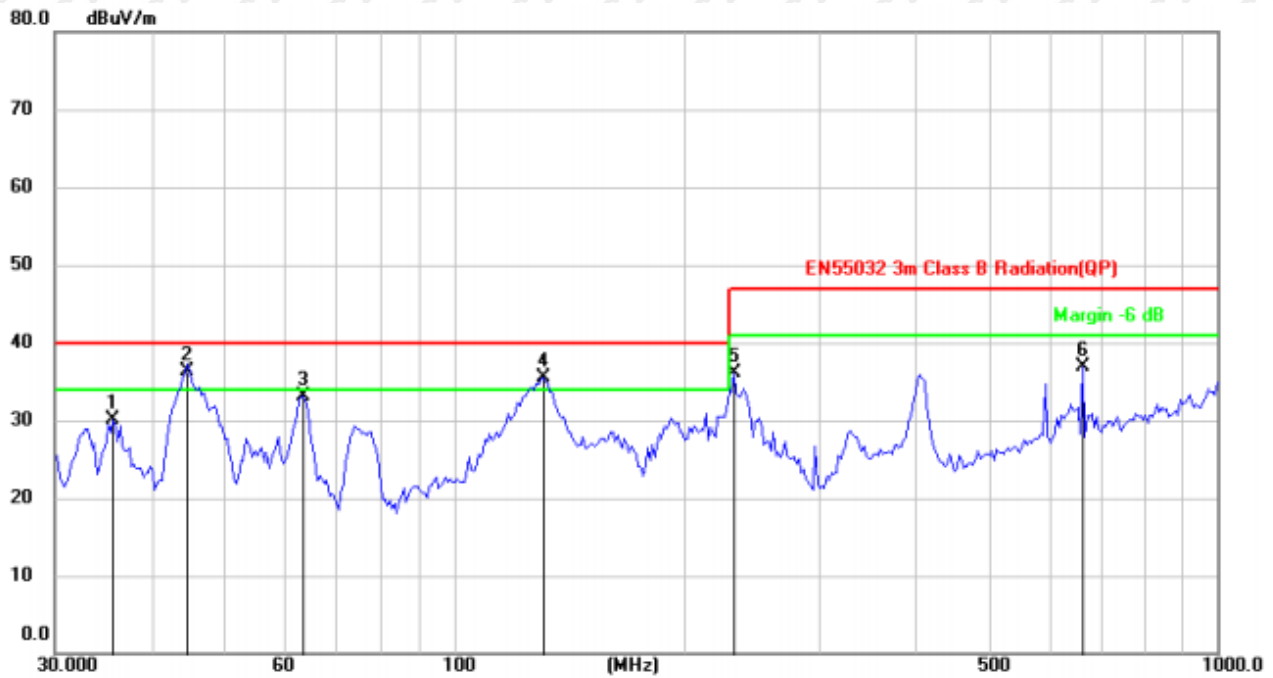
Polarization: H



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
	MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1	45.0583	30.65	-5.78	24.87	40.00	-15.13	peak		
2	63.0916	32.85	-7.37	25.48	40.00	-14.52	peak		
3 !	206.3975	43.33	-8.99	34.34	40.00	-5.66	QP		
4	240.8302	45.13	-6.69	38.44	47.00	-8.56	peak		
5 *	410.3824	44.01	-1.90	42.11	47.00	-4.89	QP		
6	665.8035	32.48	3.24	35.72	47.00	-11.28	peak		

Note: Result=Reading+Factor
Over Limit=Result-Limit

Polarization: V

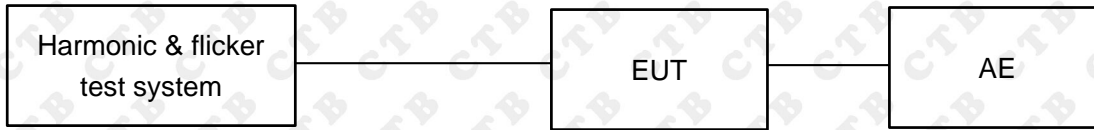


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector	Antenna Height cm	Table Degree	Comment
1		35.7490	36.61	-6.56	30.05	40.00	-9.95	peak			
2	*	44.7433	42.06	-5.79	36.27	40.00	-3.73	QP	100	128	
3		63.5356	40.62	-7.45	33.17	40.00	-6.83	peak			
4	!	130.8369	42.60	-7.07	35.53	40.00	-4.47	QP			
5		232.5318	43.26	-7.19	36.07	47.00	-10.93	peak			
6		665.8034	33.74	3.24	36.98	47.00	-10.02	peak			

Note: Result=Reading+Factor
Over Limit=Result-Limit

5.3. Harmonic current emissions

5.3.1. Test Setup



5.3.2. Test Procedure

Basic Standard(s)	: EN 61000-3-2:2014
Measurement Equipment requirement	: IEC 61000-4-7
Measured Harmonics	: 1 - 40
Equipment Class	: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
Limits	: <input type="checkbox"/> Clause 7.1 Table 1 <input type="checkbox"/> Clause 7.2 <input type="checkbox"/> Clause 7.3 Table 2 <input type="checkbox"/> Clause 7.4 Table 3

☒ This product is not defined as lighting equipment, and has rated power less than 75W, therefore, no limit applies according to EN 61000-3-2

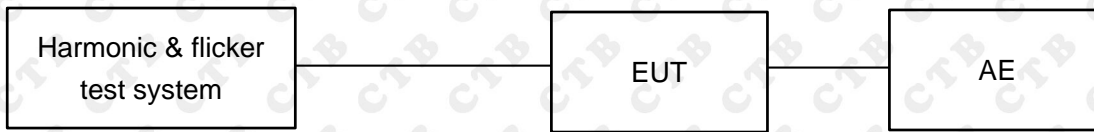
☐ The EUT is kitchen machines as listed in the scope of IEC 60335-2-14, therefore, is deemed to conform to the harmonic current limits of this standard without further testing.

5.3.3. Test Result

N/A

Voltage changes, voltage fluctuations and flicker

5.3.4. Test Setup



5.3.5. Test Procedure

Basic Standard(s)	: EN 61000-3-3:2013
Measurement Equipment requirement	: IEC 61000-4-15
Limits	: Clause 5

5.4.2.1 Definition

Flicker: impression of unsteadiness of visual sensation induced by a lighting stimulus whose luminance or spectral distribution fluctuates with time.

P_{st} : Short-term flicker indicator the flicker severity evaluated over a short period (in minutes);

$P_{st}=1$ is the conventional threshold of irritability

P_{lt} : long-term flicker indicator; the flicker severity evaluated over a long period (a few hours) using successive P_{st} values.

dc: the relative steady-state voltage change

d_{max} : the maximum relative voltage change

$d(t)$: the value during a voltage change

5.4.2.2 Test Procedure

The following limits apply

- " P_{lt} " shall not exceed 0.65.
- " P_{st} " shall not exceed 1.0.
- "dc" shall not exceed 3.3%.
- " $d(t)$ " shall not exceed 3.3% for more than 500ms.
- "dmax" shall not exceed:
 - ☐ 4% without additional conditions,
 - ☐ 6% switched manually or automatically more than twice per day,
 - ☐ 7% attended whilst in use or switched automatically for no more than twice per day or attended while in use.
 - ☐ For manual switch, dmax is measured in accordance with Annex B of standard, average dmax is calculated from 24 times measurement.
 - ☒ The EUT is unlikely to produce significant voltage fluctuations or flicker by technical analysis and evaluation. So it is deemed to fulfil the requirements without testing.

5.3.6. Test Result

N/A

The EUT is unlikely to produce significant voltage fluctuations or flicker.

6. Immunity

Performance criteria

Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss 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 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

The equipment shall continue to operate as intended after the test. No degradation of performance or loss function is allowed below a performance level specified by the manufacturer, when the equipment is used as intended. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from equipment if used as intended.

Performance criterion C

Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by operation of the controls.

6.1. Electrostatic discharges (ESD)

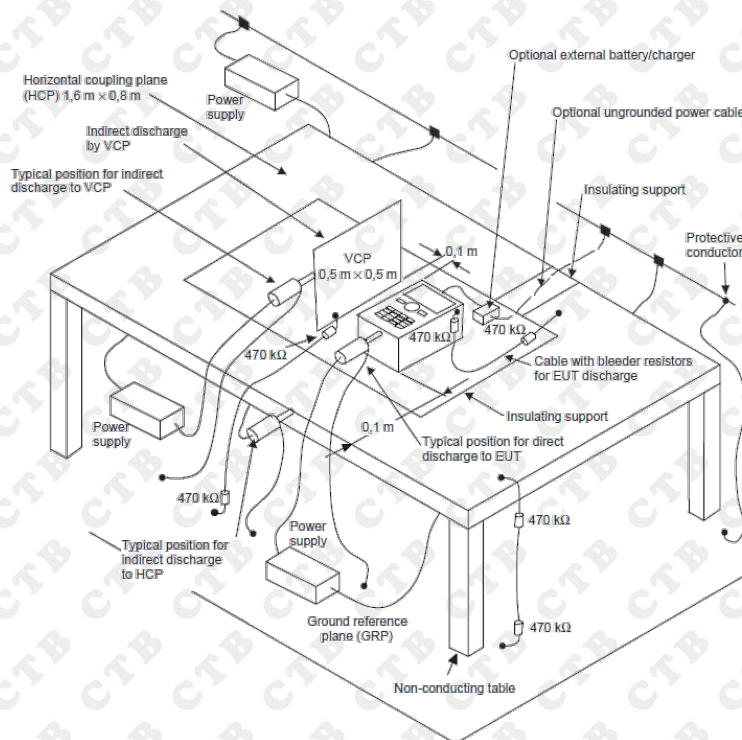
6.1.1. Test Levels and Performance Criterion

Characteristics	Test levels
Air discharge	±8 kV
Contact discharge	±4 kV

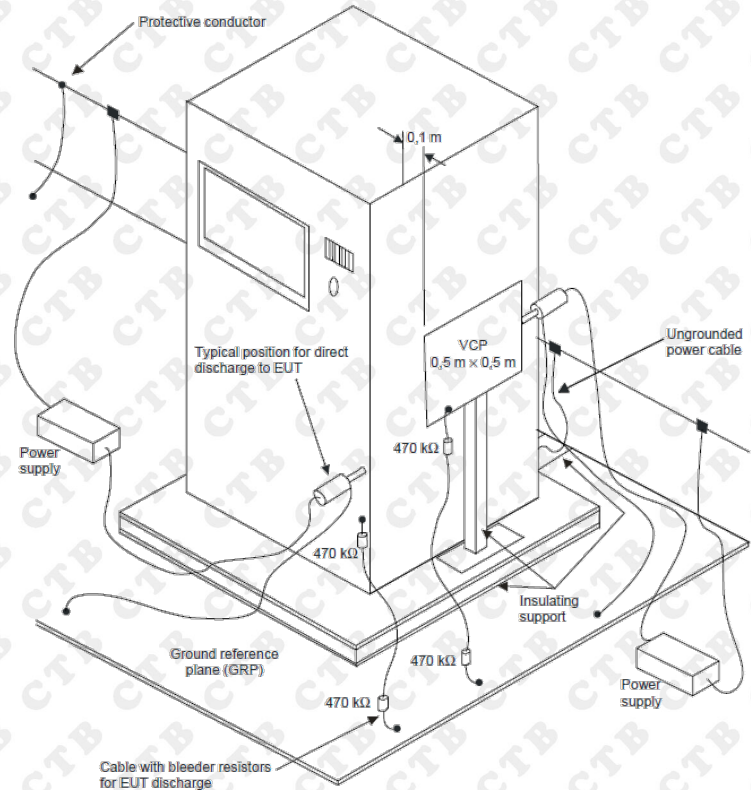
Performance criterion: **B**

6.1.2. Test setup

For table-top equipment



For floor standing equipment



6.1.3. Test Procedure

Measurement was performed in shielded room.

Measurement procedure was applied according to EN 61000-4-2 clause 8.

The test method and equipment were specified by EN 61000-4-2.

6.1.4. Test Result

PASS

Please refer to the following page.

No.	Location of discharge	Polarity	Discharge	Number of discharges	Test level kV	Result
1	HCP top side	P&N	C	25	4	PASS
3	HCP bottom side	P&N	C	25	4	PASS
5	VCP right side	P&N	C	25	4	PASS
7	VCP left side	P&N	C	25	4	PASS
9	Points on conductive surface	P&N	C	25	4	PASS
10	Points on non-conductive surface	P&N	A	10	8	PASS
HCP = Horizontal coupling plate VCP = Vertical coupling plate N = Negative P = Positive A = Air discharge C = Contact discharge						

6.2. Electromagnetic field

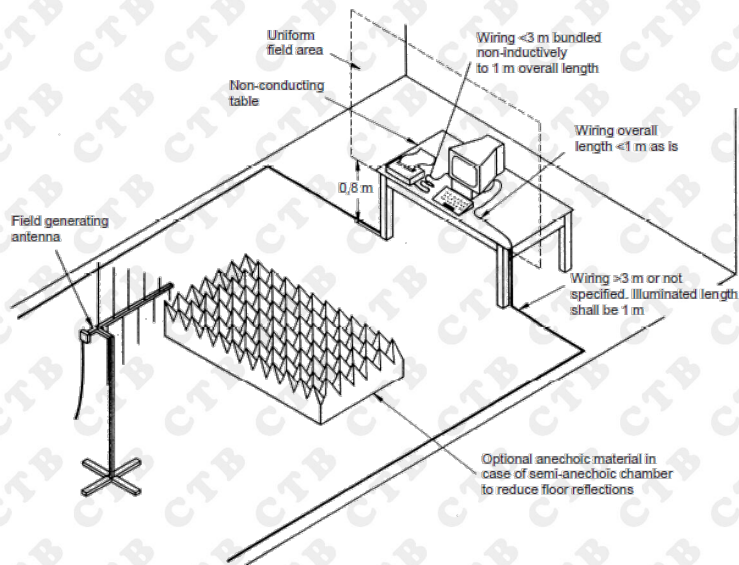
6.2.1. Test Levels and Performance Criterion

Characteristics	Test levels	Test levels
Frequency range	80 MHz to 1 000 MHz,	1 800MHz, 2 600MHz, 3 500MHz, 5 000MHz
Test level	3 V/m (unmodulated)	1 V/m (unmodulated)
Modulation	1 kHz, 80 % AM, sine wave	1 kHz, 80 % AM, sine wave

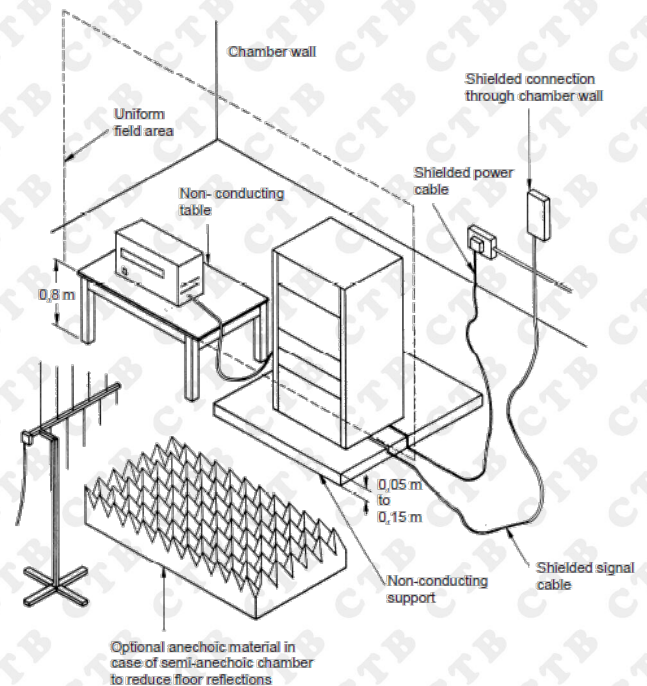
Performance criterion: **A**

6.2.2. Test setup

For table-top equipment



For floor standing equipment



6.2.3. Test Procedure

Measurement was performed in full-anechoic chamber.

Measurement procedure was applied according to EN 61000-4-3 clause 8.

The test method and equipment was specified by EN 61000-4-3.

6.2.4. Test Result

PASS

Enclosure	Horizontal	Vertical
Front	PASS	PASS
Right Side	PASS	PASS
Left Side	PASS	PASS
Rear	PASS	PASS

6.3. Electrical fast transients/burst (EFT/B)

6.3.1. Test Levels and Performance Criterion

Severity Level 2 for signal and control ports

Severity Level 2 for input and output DC power ports

Severity Level 2 for input and output AC power ports

Open circuit output test voltage and repetition frequency of the impulses				
Level	Power ports, earth port (PE)		Signal, and control ports	
	Voltage peak kV	Repetition frequency kHz	Voltage peak kV	Repetition frequency kHz
1	0,5	5 or 100	0,25	5 or 100
2	1	5 or 100	0,5	5 or 100
3	2	5 or 100	1	5 or 100
4	4	5 or 100	2	5 or 100
X ^a	Special	Special	Special	Special

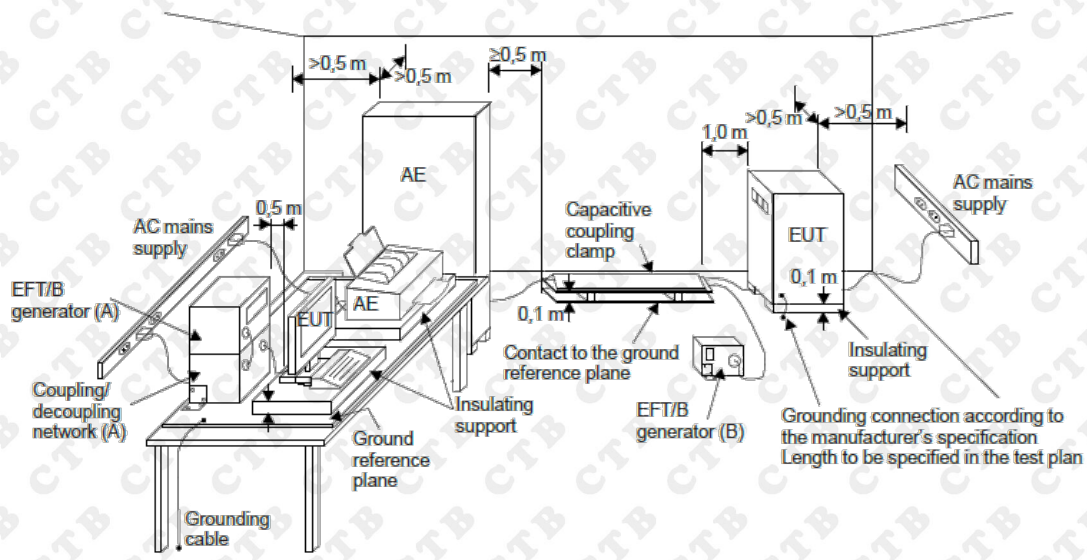
The use of 5 kHz repetition frequency is traditional, however, 100 kHz is closer to reality. Product committees should determine which frequencies are relevant for specific products or product types.

With some products, there may be no clear distinction between power ports and signal ports, in which case it is up to product committees to make this determination for test purposes.

^a "X" can be any level, above, below or in between the others. The level shall be specified in the dedicated equipment specification.

Performance criterion: **B**

6.3.2. Test setup



6.3.3. Test Procedure

Measurement was performed in shielded room.

Measurement procedure was applied according to EN 61000-4-4 clause 8.

The test method and equipment was specified by EN 61000-4-4.

6.3.4. Test Result

PASS

Location	Level (kV)	Polarity (P/N)	Result
AC power (including protective earth)	1	P/N	Pass
DC power (including protective earth)	1	P/N	N/A
I/O signal/control (including functional earth)	0,5	P/N	N/A
I/O signal/control connected directly to mains supply	1	P/N	N/A

6.4. Surges

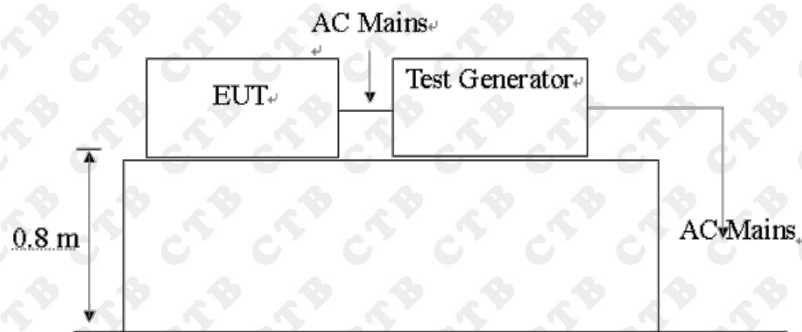
6.4.1. Test Levels and Performance Criterion

Severity Level 2 for line to line 1.0KV, Severity Level 2 for line to ground at 2.0KV

Level	Open-circuit test voltage $\pm 10\%$ (kV)
1	0,5
2	1
3	2
4	4
X ^a	Special
^a "X" can be any level, above, below or in between the others. The level shall be specified in the dedicated equipment specification.	

Performance criterion: **B**

6.4.2. Test setup



6.4.3. Test Procedure

Measurement was performed in shielded room.

Measurement procedure was applied according to EN 61000-4-5 clause 8.

The test method and equipment was specified by EN 61000-4-5.

6.4.4. Test Result

PASS

Location	Level(kV)	Polarity(P/N)	Result
AC power (including protective earth) (line to line)	0,5	P/N	Pass
AC power (including protective earth) (line to ground)	1.0	P/N	N/A
DC power (including protective earth) (line to line)	0,5	P/N	N/A
DC power (including protective earth) (line to ground)	1.0	P/N	N/A
I/O signal/control (including functional earth) (line to ground)	1.0	P/N	N/A
I/O signal/control connected directly to mains supply (line to line)	0,5	P/N	N/A
I/O signal/control connected directly to mains supply (line to ground)	1.0	P/N	N/A

6.5. Conducted RF

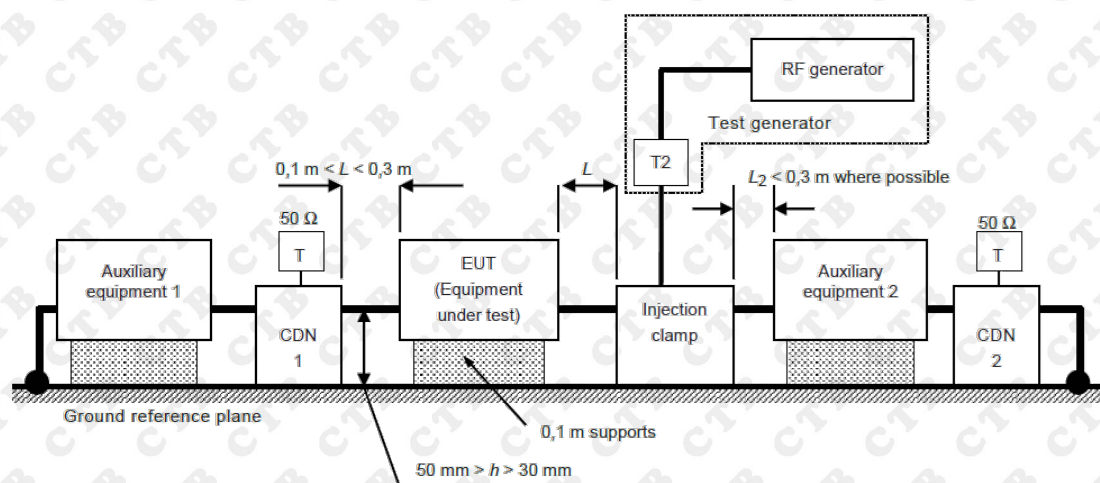
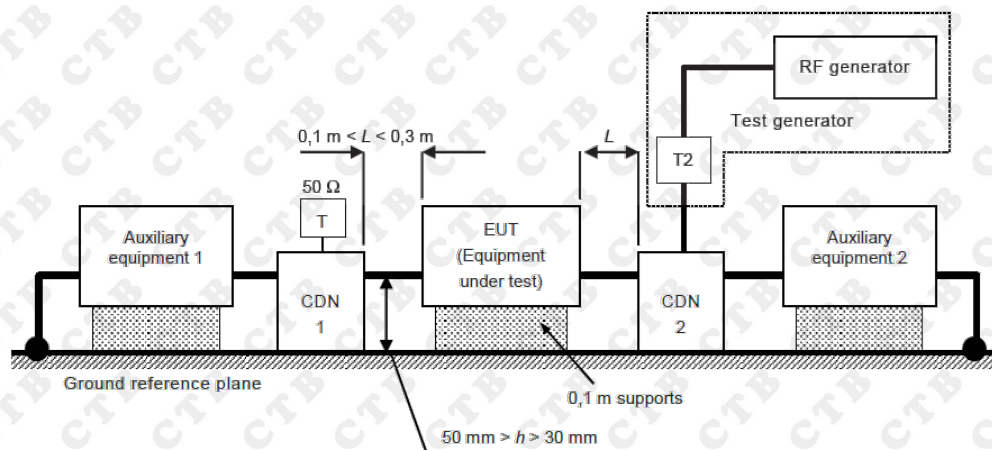
6.5.1. Test Levels and Performance Criterion

Severity Level 2

Frequency range 150 kHz ± 80 MHz		
Level	Voltage level (e.m.f.)	
	U0 dB(μV)	U0 V
1	120	1
2	130	3
3	140	10
X a	Special	
a X is an open level.		

Performance criterion: **A**

6.5.2. Test setup



6.5.3. Test Procedure

Measurement procedure was applied according to EN 61000-4-6 clause 8.
The test method and equipment was specified by EN 61000-4-6.

6.5.4. Test Result

PASS

Injected point	Frequency (MHz)	Level (e.m.f)	Modulation	Result
AC power (including protective earth)	0.15 to 80	3V	80%, 1 kHz, AM	PASS
DC power (including protective earth)	0.15 to 80	3V	80%, 1 kHz, AM	N/A
I/O signal/control (including functional earth)	0.15 to 80	3V	80%, 1 kHz, AM	N/A
I/O signal/control connected directly to mains supply	0.15 to 80	3V	80%, 1 kHz, AM	N/A

6.6. Power frequency magnetic field

6.6.1. Test Levels and Performance Criterion

Severity Level 2

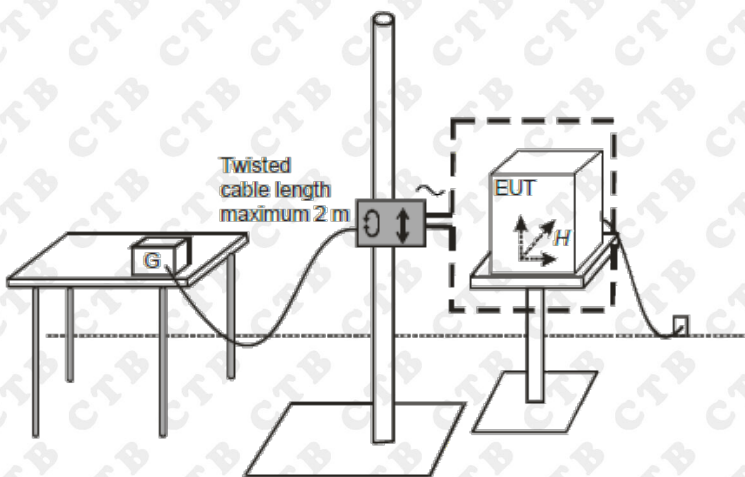
Level	Magnetic field strength (A/m)
1	1
2	3
3	10
4	30
5	100
X ^a	Special

^a "X" can be any level, above, below or in between the others. The level shall be specified in the dedicated equipment specification.

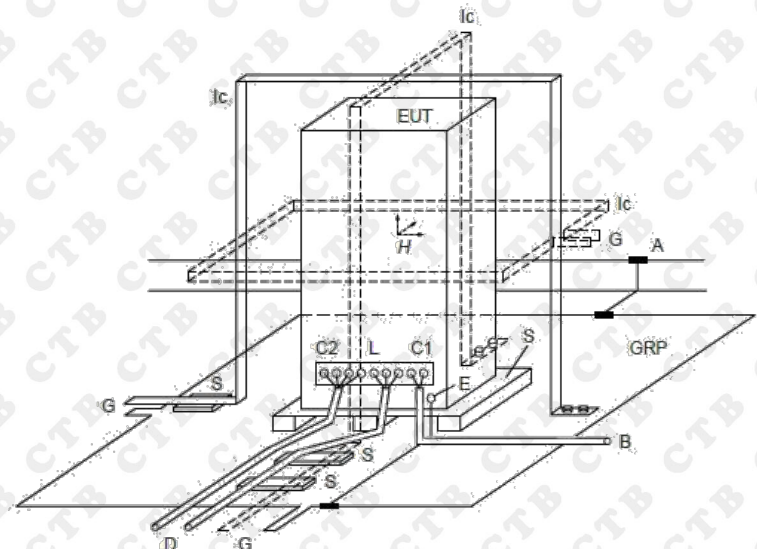
Performance criterion: **A**

6.6.2. Test setup

For table-top equipment



For floor standing equipment



6.6.3. Test Procedure

Measurement was performed in shielded room.

Measurement procedure was applied according to EN 61000-4-8 clause 8.

The test method and equipment was specified by EN 61000-4-8.

6.6.4. Test Result

PASS

Test frequency	Test Level (A/m)	Test time [s]	Axis	Result
<input checked="" type="checkbox"/> 50Hz <input type="checkbox"/> 60Hz	1	300	X	Pass
<input checked="" type="checkbox"/> 50Hz <input type="checkbox"/> 60Hz	1	300	Y	Pass
<input checked="" type="checkbox"/> 50Hz <input type="checkbox"/> 60Hz	1	300	Z	Pass

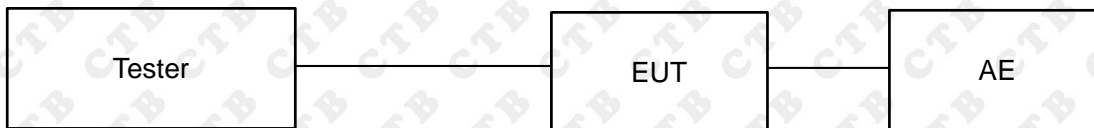
6.7. Voltage dips and Short interruptions

6.7.1. Test Levels and Performance Criterion

Residual voltage	Voltage Reduction	Period (Cycles)	Performance criterion
0%	100%	0,5	B
0%	100%	1	B
70	30	25/30 ^a	C
0	100	250/300 ^b	C

^a, ^b For example "25/30 cycles" means "25 cycles for 50 Hz test" or "30 cycles for 60 Hz test".

6.7.2. Test setup



6.7.3. Test Procedure

Measurement was performed in shielded room.

Measurement procedure was applied according to EN 61000-4-11 clause 8.

The test method and equipment was specified by EN 61000-4-11.

6.7.4. Test Result

PASS

U _T in V	Frequency in Hz	Test Level % of U _T	Phase angles [°]	Duration in cycles	Results
<input checked="" type="checkbox"/> 230 <input type="checkbox"/> 120	<input checked="" type="checkbox"/> 50 <input type="checkbox"/> 60	0	0, 45, 90, 135, 180, 225, 270, 315	<input type="checkbox"/> 0,5 (50 Hz) <input type="checkbox"/> 0,5 (60 Hz)	PASS
<input checked="" type="checkbox"/> 230 <input type="checkbox"/> 120	<input checked="" type="checkbox"/> 50 <input type="checkbox"/> 60	0	0, 45, 90, 135, 180, 225, 270, 315	<input type="checkbox"/> 1 (50 Hz) <input type="checkbox"/> 1 (60 Hz)	PASS
<input checked="" type="checkbox"/> 230 <input type="checkbox"/> 120	<input checked="" type="checkbox"/> 50 <input type="checkbox"/> 60	70	0, 45, 90, 135, 180, 225, 270, 315	<input type="checkbox"/> 25 (50 Hz) <input type="checkbox"/> 30 (60 Hz)	PASS
<input checked="" type="checkbox"/> 230 <input type="checkbox"/> 120	<input checked="" type="checkbox"/> 50 <input type="checkbox"/> 60	0	0, 45, 90, 135, 180, 225, 270, 315	<input type="checkbox"/> 250 (50 Hz) <input type="checkbox"/> 300 (60 Hz)	PASS

7. Photographs of test setup

Photograph of test setup for Conducted Emission



Photograph of test setup for Radiated Emission

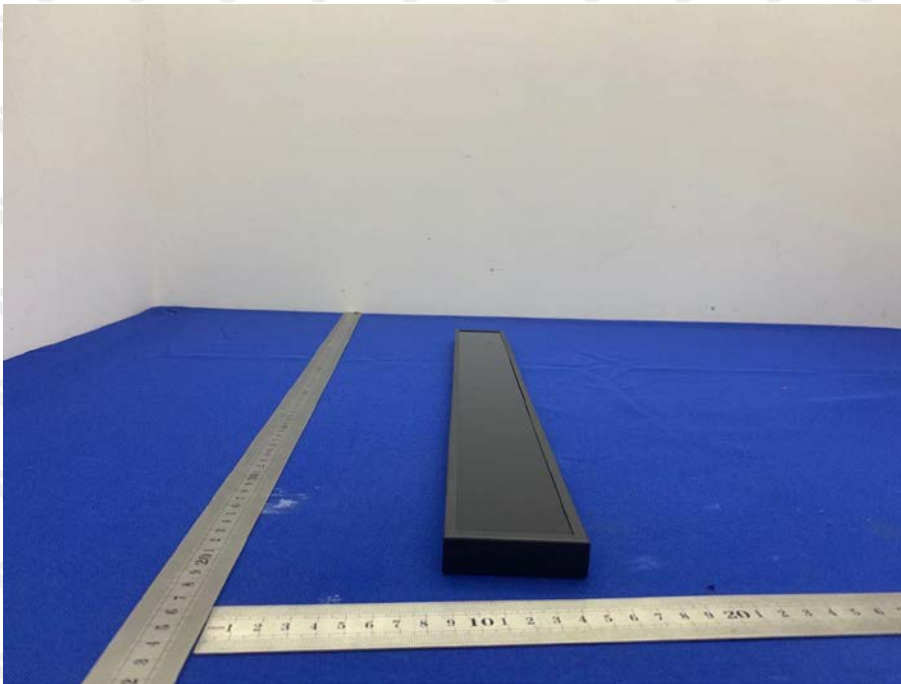
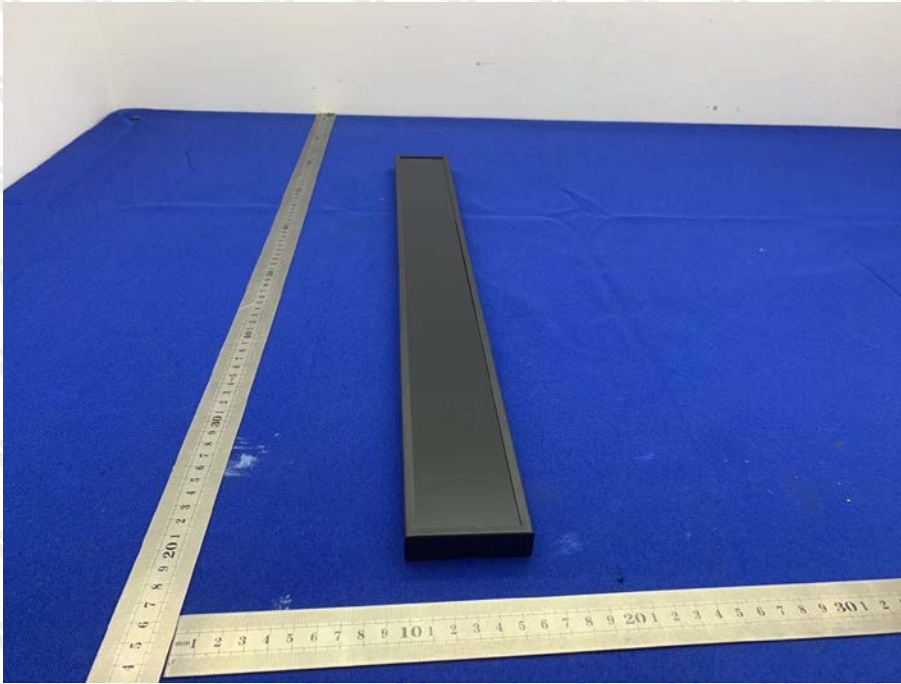


Photographs of EUT

Photographs of EUT



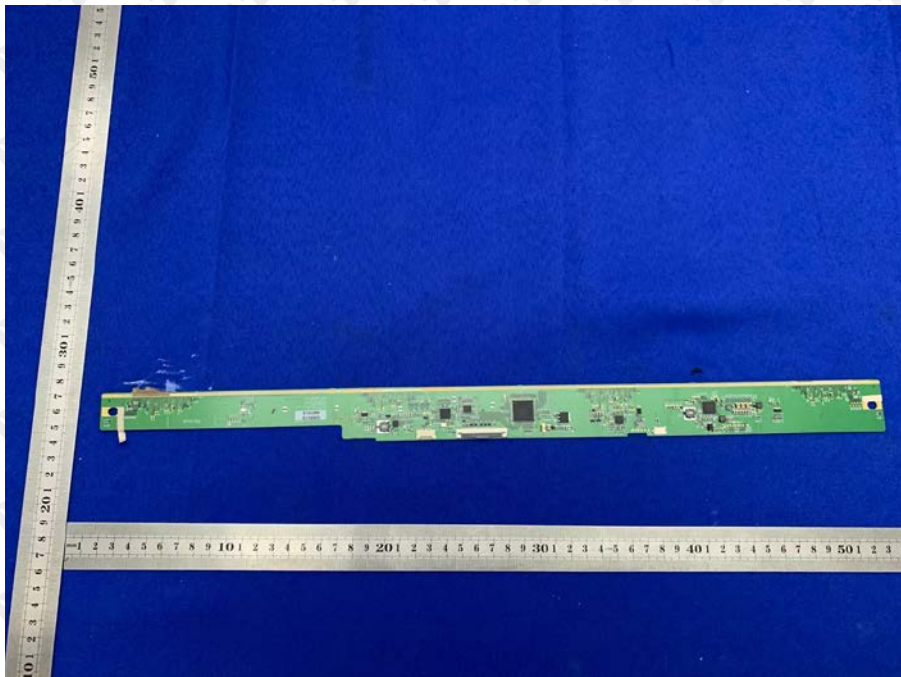
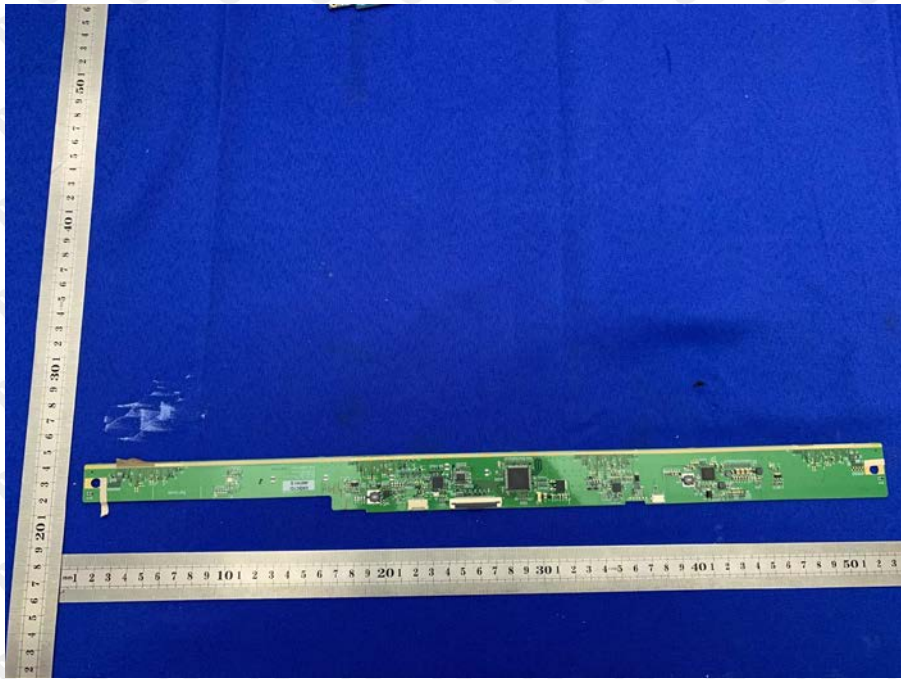
Photographs of EUT



Photographs of EUT



Photographs of EUT



End of report