CE Test Report

Product Name : SQR-SD5 series

Model No. : SQR SD5, SQR-SD5XXXXXXXXXX (where “X” may be any alphanumeric character or blank or “-”)

Applicant : Advantech Co., Ltd.

Address : No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.

Date of Receipt : 2022/06/22

Issued Date : 2022/08/04

Report No. : 2260691R-E3012310002-A

Report Version : V1.0

Issued Date : 2022/08/04
Report No.: 2260691R-E3012310002-A

Product Name	:	SQR-SD5 series
Applicant	:	Advantech Co., Ltd.
Address	:	No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.
Manufacturer	:	Advantech Co., Ltd.
Model No.	:	SQR SD5, SQR-SD5XXXXXXXXXX (where “X” may be any alphanumeric character or blank or “-”)
EUT Rated Voltage	:	Power from IPC
EUT Test Voltage	:	AC 230V/50Hz
Trade Name	:	ADVANTECH
Applicable Standard	:	EN 55032: 2015/A1: 2020, Class A EN 55011: 2016/A2: 2021 (Group1), Class A EN 55035: 2017/A11: 2020 EN IEC 61000-6-4: 2019 EN IEC 61000-6-2: 2019 EN IEC 61000-3-2: 2019/A1: 2021 EN 61000-3-3: 2013/A2: 2021 CISPR 32: Ed. 2.1 BS EN 55032: 2015+A1: 2020, Class A BS EN 55011: 2016+A2: 2021 (Group1), Class A BS EN 55035: 2017+A11: 2020 BS EN IEC 61000-6-4: 2019 BS EN IEC 61000-6-2: 2019 BS EN IEC 61000-3-2: 2019+A1: 2021 BS EN 61000-3-3: 2013+A2: 2021 Parts of Applicable Standard are relating to Electromagnetic Compatibility Directive (2014/3 0/EU).
Test Result	:	Complied
Performed Location	:	DEKRA Testing and Certification Co., Ltd. Linkou Laboratory No. 5-22, Ruishukeng Linkou District, New Taipei City, 24451, Taiwan TEL:+886-2-8601-3788 / FAX:+886-2-8601-3789

Documented By : Leven Huang

(Senior Adm. Specialist / Leven Huang)

Approved By :

(Director / Vincent Lin)

Laboratory Information

We, **DEKRA Testing and Certification Co., Ltd.**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scopes:

Taiwan	**:**	**BSMI, NCC, TAF**
Norway	**:**	**DNVGL**
USA	**:**	**FCC**
Japan	**:**	**VCCI**

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site : http://www.dekra.com.tw

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Product Photos: Please refer to the file: 2260691R-Product Photos

Revision History

Report No.	Version	Description	Issued Date
2260691R-E3012310002-A	V1.0	Initial issue of report.	2022-08-04

1. General Information

1.1. EUT Description

Product Name	SQR-SD5 series
Trade Name	ADVANTECH
Model No.	SQR SD5, SQR-SD5XXXXXXXXXX (where “X” may be any alphanumeric character or blank or “-”)
EUT Max Frequency	768MHz

Component	
CPU	Intel i9-12900TE, Speed: 1.1G
Motherboard	ADVANTECH, AIMB-288
HDD	ADVANTECH, SQF-S25V4-2TDSDC
SSD	ADVANTECH, SQF-S8BV4-2TDSDC
VGA Card	On Board
LAN Card	On Board
Power Supply	FSP, FSP230-AAAN3
DDR-RAM	ADVANTECH, SQR-SD5N32G4K8MNAB

Note: The EUT is available in different model names for marketing purposes.

1.2. Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Pre-Test Mode
Mode 1：Normal Operation
Final Test Mode
Emission
Mode 1：Normal Operation
Immunity
Mode 1：Normal Operation

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

EMI:

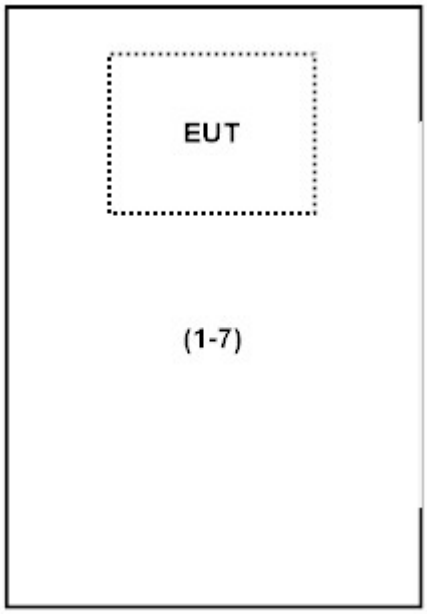
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	IPC	ADVANTECH	AIMB-B2000-00YZ	KMA5307227	Non-Shielded, 1.8m
2	4k Monitor	Dell	U2720Q	CN-0834VF-WSL00-12I-DQDL-A08	Non-Shielded, 1.8m
3	Microphone & Earphone	RONEVER	MOE240	N/A	N/A
4	USB Keyboard	Microsoft	1576	65809394843	N/A
5	USB Mouse	Microsoft	1113	N/A	N/A
6	External HDD	DonKen	GK-HDD-01	N/A	N/A
7	Printer	EPSON	StyLus C63	FAPY093574	Non-Shielded, 1.9m

EMS:

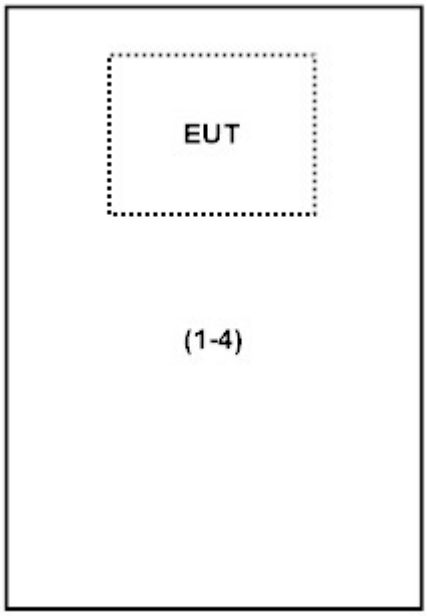
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	IPC	ADVANTECH	AIMB-B2000-00YZ	KMA5307227	Non-Shielded, 1.8m
2	Monitor	DELL	U2410	CN-0J257M-72872-985-0A6L	Non-Shielded, 1.8m
3	USB Keyboard	Logitech	Y-Y0009	1344MG02H0W8	N/A
4	USB Mouse	Logitech	M-U0026	1245HS0684J8	N/A

1.4. Configuration of Tested System

EMI:

Connection Diagram	
	
Signal Cable Type	Signal cable Description
N/A	

EMS:

Connection Diagram	
	
Signal Cable Type	Signal cable Description
N/A	

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment.
3	Personal Computer reads data from disk.
4	Personal Computer will sends “471-1” pattern to monitor.
5	Start test.

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

Emission			
Performed Item	Normative References	Test Performed	Deviation
Conducted Emission	EN 55032: 2015/A1: 2020, Class A EN 55011:2016/A2:2021 (Group1), Class A EN IEC 61000-6-4:2019 CISPR 32: Ed. 2.1 BS EN 55032: 2015+A1: 2020, Class A BS EN 55011:2016+A2:2021 (Group1), Class A BS EN IEC 61000-6-4:2019	Yes	No
Impedance Stabilization Network	EN 55032: 2015/A1: 2020, Class A EN IEC 61000-6-4:2019 CISPR 32: Ed. 2.1 BS EN 55032: 2015+A1: 2020, Class A BS EN IEC 61000-6-4:2019	No	No
Radiated Emission	EN 55032: 2015/A1: 2020, Class A EN 55011:2016/A2:2021 (Group1), Class A EN IEC 61000-6-4:2019 CISPR 32: Ed. 2.1 BS EN 55032: 2015+A1: 2020, Class A BS EN 55011:2016+A2:2021 (Group1), Class A BS EN IEC 61000-6-4:2019	Yes	No
Power Harmonics	EN IEC 61000-3-2: 2019/A1: 2021 BS EN IEC 61000-3-2: 2019+A1: 2021	Yes	No
Voltage Fluctuation and Flicker	EN 61000-3-3:2013/A2:2021 BS EN 61000-3-3:2013+A2:2021	Yes	No

Immunity			
Performed Item	Normative References	Test Performed	Deviation
Electrostatic Discharge	IEC 61000-4-2 Ed. 2.0: 2008	Yes	No
Radiated susceptibility	IEC 61000-4-3 Ed. 4.0: 2020	Yes	No
Electrical fast transient/burst	IEC 61000-4-4 Ed. 3.0: 2012	Yes	No
Surge	IEC 61000-4-5 Ed. 3.1:2017	Yes	No
Conducted susceptibility	IEC 61000-4-6 Ed. 4.0: 2013	Yes	No
Power frequency magnetic field	IEC 61000-4-8 Ed. 2.0: 2009	Yes	No
Voltage dips and interruption	IEC 61000-4-11 Ed. 3.0: 2020	Yes	No

2.2. List of Test Equipment

Conducted Emission / LK-SR01 (SR1)

Instrument	Manufacturer	Type No.	Serial No	Cal. Date	Due. Date
EMI Test Receiver	R&S	ESR3	102952	2022/03/01	2023/02/28
Two-Line V-Network	R&S	ENV216	101478	2021/08/24	2022/08/23
Two-Line V-Network	R&S	ESH3-Z5	836679/023	2022/05/30	2023/05/29
Coaxial Cable	SUHNER	RG 400	LC016-RG	2022/06/17	2023/06/16
Test Software version : DEKRA Test System V2.0					

Radiated Emission / LK-Site02 (Site2)

Instrument	Manufacturer	Type No.	Serial No	Cal. Date	Due. Date
Bilog Antenna	Schaffner	CBL6112B	2921	2021/08/11	2022/08/10
EMI Test Receiver	R&S	ESR3	102473	2021/10/15	2022/10/14
Coaxial Cable	SUHNER	RG 214	LC002A-RG LC002B-RG	2022/06/09	2023/06/08
Coaxial Switch	Anritsu	MP59B	6200436230	2022/06/09	2023/06/08
Preamplifier	Jet-Power	JPA-10M1G33	170101000330009	2022/06/09	2023/06/08
NSA	DEKRA	N/A	N/A	2022/06/09	2023/06/08
Test Software version : DEKRA Test System V2.0					

Radiated Emission (Above 1GHz) / LK-CB05 (CB7)

Instrument	Manufacturer	Type No.	Serial No	Cal. Date	Due. Date
Double Ridged Guide Horn Antenna	ETS-Lindgren	3117	00202723	2021/10/12	2022/10/11
EMI Test Receiver	R&S	ESU26	100433	2022/01/12	2023/01/11
Coaxial Cable	SUHNER	SUCOFLEX 104	LC034-SF	2022/06/20	2023/06/19
Coaxial Cable	ROSNOL	R-Test EW0630	LC046-SF	2022/06/20	2023/06/19
Coaxial Cable	ROSNOL	MP533A	AC031-MP	2022/06/20	2023/06/19
Microwave Preamplifier	EMCI	EMC051845SE	980359	2021/12/14	2022/12/13
VSWR	DEKRA	N/A	N/A	2022/06/21	2023/06/20
Test Software version : DEKRA Test System V2.0					

Power Harmonics & Flicker / LK-SR04 (SR4)

Instrument	Manufacturer	Type No.	Serial No	Cal. Date	Due. Date
AC Power Source (Harmonic)	TESEQ	NSG 1007-5	1530A00015	2022/04/28	2023/04/27
Signal conditioning unit (Flicker)	TESEQ	CCN 1000-1	1530A00015	2022/04/28	2023/04/27
Test Software version : Teseq CTS4 V2.20					

Electrostatic Discharge / LK-SR06 (SR6)

Instrument	Manufacturer	Type No.	Serial No	Cal. Date	Due. Date
ESD Simulator System	Noiseken	ESS-B3011	ESS1233479	2021/07/21	2022/07/20
ESD GUN	Noiseken	GT-30R	ESS2042226	2021/07/21	2022/07/20
Horizontal Coupling Plane(HCP)	QuieTek	HCP AL50	N/A	N/A	N/A
Vertical Coupling Plane(VCP)	QuieTek	VCP AL50	N/A	N/A	N/A

Radiated susceptibility / LK-CB03 (CB9)

Instrument	Manufacturer	Type No.	Serial No	Cal. Date	Due. Date
Signal Generator	Keysight	N5171B	MY53051650	2021/05/28	2022/11/27
Power Sensor	R&S	NRP6A	101799/101800	2021/06/01	2022/11/31
Stacked double Log.-Per.-Broadband Antenna	SCHWARZBECK	STLP 9129	9129 011	N/A	N/A
Power Amplifier	Teseq	CBA 1G-1200B	W2346-0918	N/A	N/A
Power Amplifier	MILMEGA	AS0860B-50/50	1071482	N/A	N/A
Audio Analyzer	R&S	UPV	104461	2022/06/02	2023/06/01
Mouth Simulator	B&K	4227	3176440	2021/12/07	2022/12/06
Sound Calibrator	B&K	4231	3022024	2021/12/07	2022/12/06
Ear Simulator	B&K	4185	3023588	2021/12/07	2022/12/06
Conditioning Amplifiers	B&K	Type-2690--0S2	3140676	2021/12/07	2022/12/06
Probe Microphone	B&K	4182	3138351	2021/12/07	2022/12/06
uniform field calibration	Dekra	N/A	N/A	2022/03/19	2023/03/18
Test Software version : R&S EMC32 V10.40.00					

Electrical fast transient/burst / LK-SR03 (SR3)

Instrument	Manufacturer	Type No.	Serial No	Cal. Date	Due. Date
EMS TEST System	TESEQ	NSG 3060	1823	2022/05/24	2023/05/23
Test Software version : TESEQ Win3000 V1.3.2					

Surge / LK-SR03 (SR3)

Instrument	Manufacturer	Type No.	Serial No	Cal. Date	Due. Date
EMS TEST System	TESEQ	NSG 3060	1823	2022/05/24	2023/05/23
Test Software version : TESEQ Win3000 V1.3.2					

Conducted susceptibility / LK-SR06 (SR6)

Instrument	Manufacturer	Type No.	Serial No	Cal. Date	Due. Date
TESEQ RF-Generator	TESEQ	NSG 4070B-30	37490	2021/08/12	2022/08/11
Test Software version : TESEQ NSG 4070-30 V2.23					

Power frequency magnetic field / LK-SR04 (SR4)

Instrument	Manufacturer	Type No.	Serial No	Cal. Date	Due. Date
AC Power Source	TESEQ	NSG 1007-5	1530A00015	2022/04/28	2023/04/27
Magnetic Loop Coil	Schaffner	INA 702	160	2021/10/15	2022/10/14
Magnetic Loop Coil	TESEQ	INA 703	2007	2021/10/15	2022/10/14
Test Software version : TESEQ Win2120 V6.0					

Voltage dips and interruption / LK-SR03 (SR3)

Instrument	Manufacturer	Type No.	Serial No	Cal. Date	Due. Date
EMS TEST System	TESEQ	NSG 3060	1823	2022/05/24	2023/05/23
Test Software version : TESEQ Win3000 V1.3.2					

2.3. Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 3.49 dB.

Radiated Emission(Under 1GHz)

The measurement uncertainty is evaluated as ± 5.16 dB.

Radiated Emission(Above 1GHz)

The measurement uncertainty is evaluated as ± 4.88 dB.

Harmonic Current Emission / Voltage Fluctuation and Flicker

The measurement uncertainty is evaluated as 0.87%.

Electrostatic Discharge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in ESD testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant ESD standards. The immunity test signal from the ESD system meet the required specifications in IEC 61000-4-2 through the calibration report with the calibrated uncertainty for the waveform of voltage, current and timing as being 3.0 %, 3.2% and 12%.

Radiated susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in RS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant RS standards. The immunity test signal from the RS system meet the required specifications in IEC 61000-4-3 through the calibration for the uniform field strength and monitoring for the test level with the uncertainty evaluation report for the electrical filed strength as being 1.72 dB.

Electrical fast transient/burst

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in EFT/Burst testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant EFT/Burst standards. The immunity test signal from the EFT/Burst system meet the required specifications in IEC 61000-4-4 through the calibration report with the calibrated uncertainty for the waveform of voltage, frequency and timing as being 4.3 %,0.9% and 4.1%.

Surge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in Surge testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant Surge standards. The immunity test signal from the Surge system meet the required specifications in IEC 61000-4-5 through the calibration report with the calibrated uncertainty for the waveform of voltage, current and timing as being 4.2%, 4.3% and 11%.

Conducted susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in CS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant CS standards. The immunity test signal from the CS system meet the required specifications in IEC 61000-4-6 through the calibration for unmodulated signal and monitoring for the test level with the uncertainty evaluation report for the injected modulated signal level through CDN and EM Clamp/Direct Injection as being 4.2 dB and 2.84 dB.

Power frequency magnetic field

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in PFM testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant PFM standards. The immunity test signal from the PFM system meet the required specifications in IEC 61000-4-8 through the calibration report with the calibrated uncertainty for the Gauss Meter to verify the output level of magnetic field strength as being 10 %.

Voltage dips and interruption

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in DIP testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant DIP standards. The immunity test signal from the DIP system meet the required specifications in IEC 61000-4-11 through the calibration report with the calibrated uncertainty for the waveform of voltage , current and timing as being 0.98%, 5.5% and 2.7%.

2.4. Test Environment

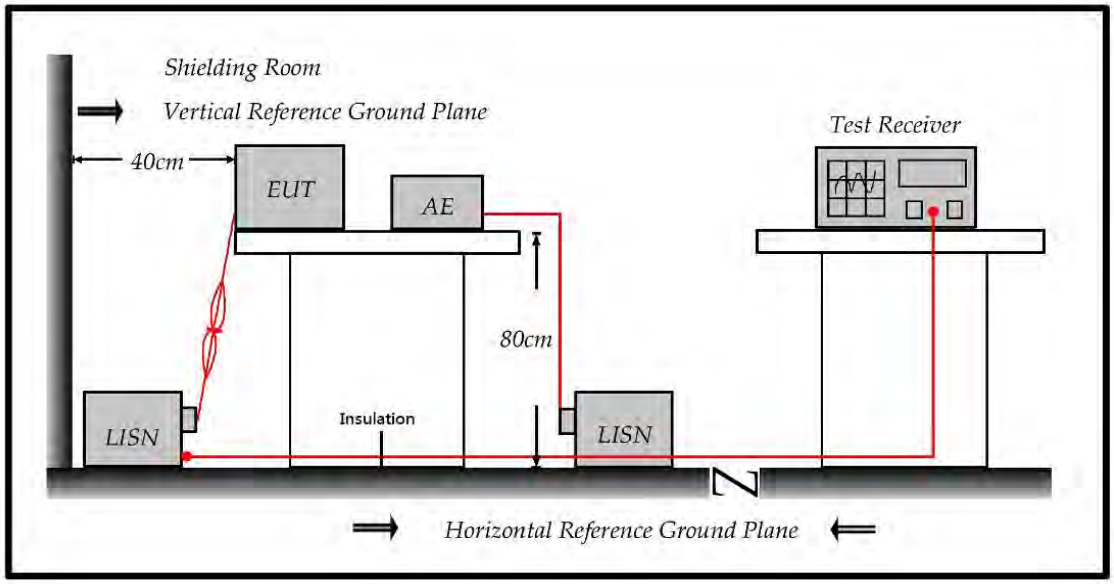
Performed Item	Items	Required
Conducted Emission	Temperature (°C)	10-40
	Humidity (%RH)	10-90
Radiated Emission	Temperature (°C)	10-40
	Humidity (%RH)	10-90
Electrostatic Discharge	Temperature (°C)	15-35
	Humidity (%RH)	30-60
	Barometric pressure (mbar)	860-1060
Radiated susceptibility	Temperature (°C)	10-40
	Humidity (%RH)	10-90
Electrical fast transient/burst	Temperature (°C)	10-40
	Humidity (%RH)	10-90
Surge	Temperature (°C)	10-40
	Humidity (%RH)	10-90
Conducted susceptibility	Temperature (°C)	10-40
	Humidity (%RH)	10-90
Power frequency magnetic field	Temperature (°C)	10-40
	Humidity (%RH)	10-90
Voltage dips and interruption	Temperature (°C)	10-40
	Humidity (%RH)	10-90

3. Conducted Emission (Main Terminals)

3.1. Test Specification

According to EMC Standard : EN 55032, BS EN 55032, EN55011, EN IEC 61000-6-4

3.2. Test Setup



3.3. Limit

Applicable to AC mains power ports			
Frequency range MHz	Coupling device	Detector type/ Bandwidth	Class A limits dB(μV)
0.15 – 0.5	AMN	Quasi Peak / 9 kHz	79
0.5 – 30			73
0.15 – 0.5	AMN	Average / 9 kHz	66
0.5 – 30			60
Both apply across the entire frequency range.			

Remarks:

If the limits for the average detector are met when using the quasi-peak detector, then the limits for the measurement with the average detector are considered to be met.

3.4. Test Procedure

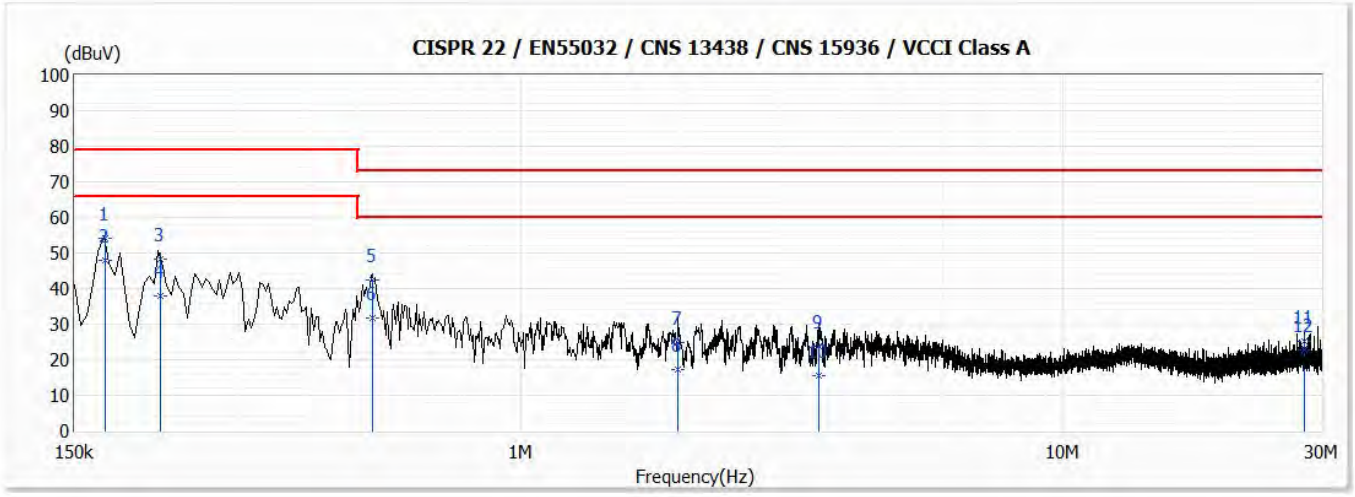
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination.
(Please refers to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5. Deviation from Test Standard

No deviation.

3.6. Test Result

Model No	SQR SD5, SQR-SD5XXXXXXXXXX (where “X” may be any alphanumeric character or blank or “-”)	Site	SR1
Test Voltage	AC 230V/50Hz	Test Date	2022/6/23
Test Mode	Mode 1	Engineer	Nilk Chen
Phase	L1	Temperature (℃)	23.1
Test Condition	--	Humidity (%RH)	58



No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.171	54.16	79.00	-24.84	44.56	9.60	QP
*2	0.171	47.83	66.00	-18.17	38.23	9.60	AV
3	0.216	48.20	79.00	-30.80	38.60	9.60	QP
4	0.216	37.97	66.00	-28.03	28.37	9.60	AV
5	0.531	42.40	73.00	-30.60	32.78	9.62	QP
6	0.531	31.70	60.00	-28.30	22.08	9.62	AV
7	1.948	24.70	73.00	-48.30	14.96	9.74	QP
8	1.948	17.20	60.00	-42.80	7.46	9.74	AV
9	3.538	23.65	73.00	-49.35	13.84	9.81	QP
10	3.538	15.52	60.00	-44.48	5.71	9.81	AV
11	27.874	25.28	73.00	-47.72	15.15	10.13	QP
12	27.874	22.69	60.00	-37.31	12.56	10.13	AV

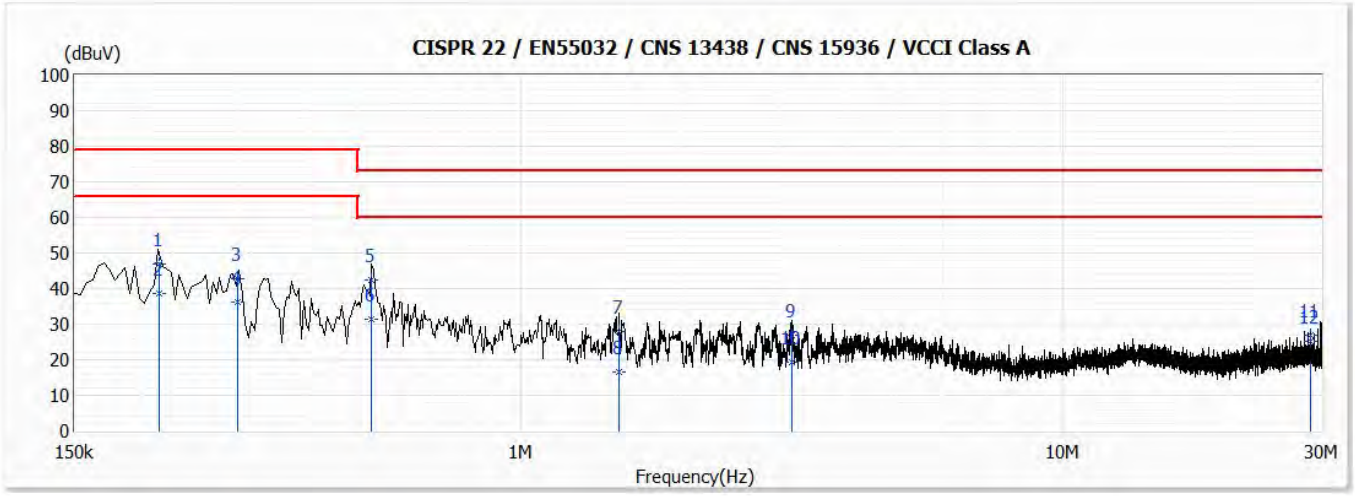
Remark:

1. "*" means this data is the worst emission level;"!" means this data is over limit.

2. Emission Level=Reading Level + Correct Factor(Correct Factor=LISN Factor+Cable Loss).

3. Margin=Emission Level-Limit.

Model No	SQR SD5, SQR-SD5XXXXXXXXXX (where “X” may be any alphanumeric character or blank or “-”)	Site	SR1
Test Voltage	AC 230V/50Hz	Test Date	2022/6/23
Test Mode	Mode 1	Engineer	Nilk Chen
Phase	N	Temperature (℃)	23.1
Test Condition	--	Humidity (%RH)	58



No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.215	47.00	79.00	-32.00	37.40	9.60	QP
*2	0.215	38.57	66.00	-27.43	28.97	9.60	AV
3	0.300	42.82	79.00	-36.18	33.20	9.62	QP
4	0.300	36.37	66.00	-29.63	26.75	9.62	AV
5	0.530	42.26	73.00	-30.74	32.63	9.63	QP
6	0.530	31.51	60.00	-28.49	21.88	9.63	AV
7	1.514	27.80	73.00	-45.20	18.07	9.73	QP
8	1.514	16.51	60.00	-43.49	6.78	9.73	AV
9	3.153	26.83	73.00	-46.17	17.03	9.80	QP
10	3.153	19.41	60.00	-40.59	9.61	9.80	AV
11	28.682	27.03	73.00	-45.97	16.69	10.34	QP
12	28.682	25.26	60.00	-34.74	14.92	10.34	AV

Remark:

1. "*" means this data is the worst emission level;"!" means this data is over limit.

2. Emission Level=Reading Level + Correct Factor(Correct Factor=LISN Factor+Cable Loss).

3. Margin=Emission Level-Limit.

3.7. Test Photograph

Test Mode : Mode 1

Description : Front View of Conducted Test

Test Mode : Mode 1

Description : Back View of Conducted Test

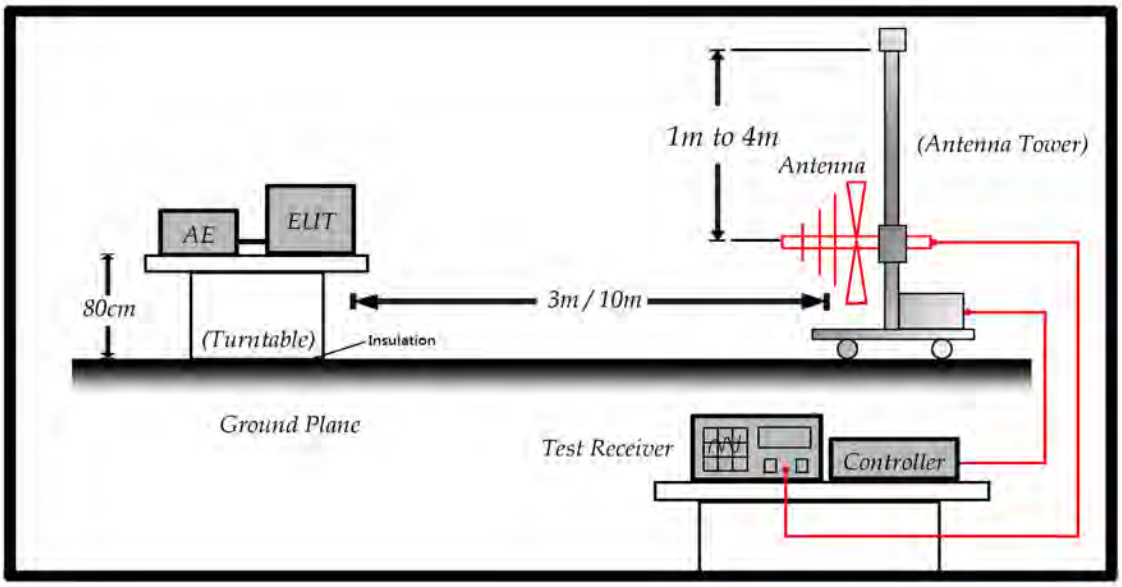
4. Radiated Emission

4.1. Test Specification

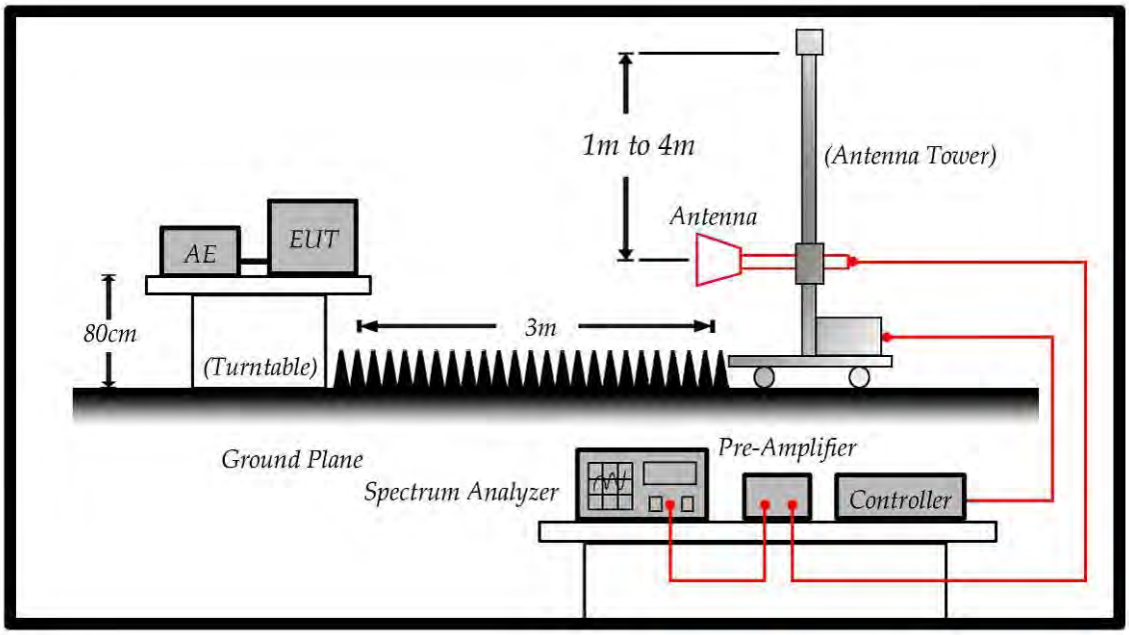
According to EMC Standard : EN 55032, BS EN 55032, EN55011, EN IEC 61000-6-4

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

Standard: EN 55032

Radiated emissions at frequencies up to 1 GHz

for Class A equipment

Frequency range MHz	Measurement		Class A limits dB(μV/m)
	Distance m	Detector type/ Bandwidth	OATS / SAC
30-230	10	Quasi Peak / 120 KHz	40
230-1000			47
30-230	3		50
230-1000			57
Apply only 3m or 10m across the entire frequency range			

Radiated emissions at frequencies above 1 GHz

for Class A equipment

Frequency range MHz	Measurement		Class A limits dB(μV/m)
	Distance m	Detector type/ Bandwidth	OATS / SAC
1000-6000	3	Average / 1 MHz	60
1000-6000		Peak / 1 MHz	80
Both apply across the frequency range from 1000 MHz to the highest required frequency of measurement derived from			

Required highest frequency for radiated measurement

Highest internal frequency (*F*x)	Highest measured frequency
*F*x ≤ 108 MHz	1 GHz
108 MHz < *F*x ≤ 500 MHz	2 GHz
500 MHz < *F*x ≤ 1 GHz	5 GHz
*F*x> 1 GHz	5 × *F*x up to a maximum of 6 GHz

Standard: EN IEC 61000-6-4

Limits		
Frequency (MHz)	Distance (m)	dBuV/m
30 – 230	10	40
230 – 1000	10	47

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Frequency range MHz	Measurement		limits dB(μV/m)
	Distance m	Detector type/ Bandwidth	OATS / SAC
1000-3000	3	Average / 1 MHz	56
3000-6000			60
1000-3000		Peak / 1 MHz	76
3000-6000			80
Both apply across the frequency range from 1000 MHz to the highest required frequency of measurement derived from			

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5th harmonic of the highest frequency or 6 GHz, whichever is lower

Standard: EN 55011

Limits		
Frequency (MHz)	Distance (m)	dBuV/m
30 – 230	10	40
230 – 1000	10	47

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.4. Test Procedure

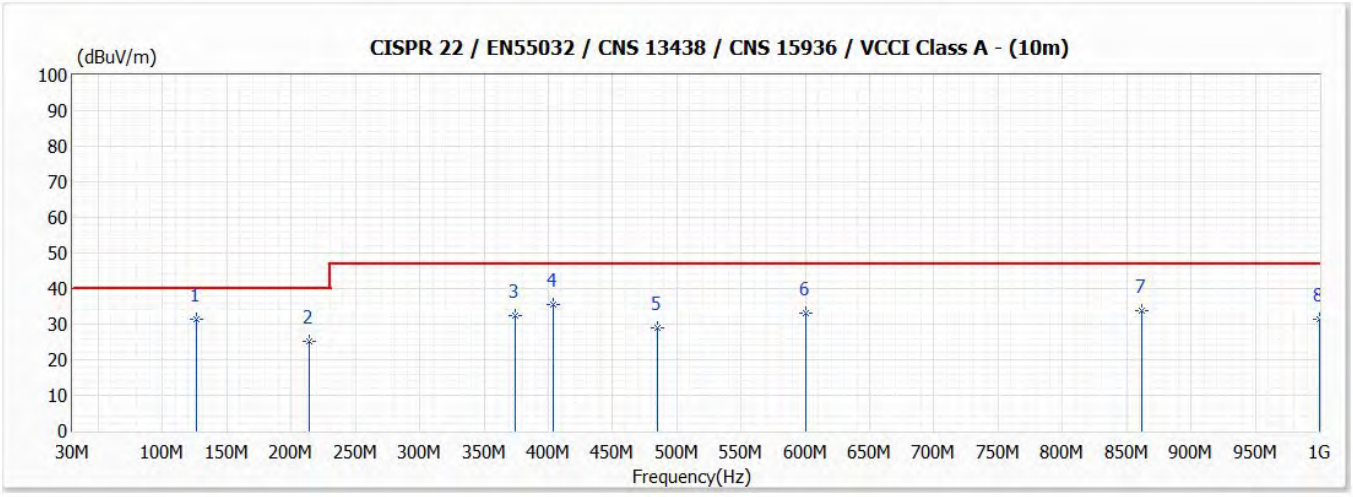
The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3/10 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.
Radiated emissions were invested over the frequency range from 30MHz to 1GHz using a receiver bandwidth of 120kHz and above 1GHz using a receiver bandwidth of 1MHz.
30MHz to 1GHz Radiated was performed at an antenna to EUT distance of 10 meters.
Above 1GHz Radiated was performed at an antenna to EUT distance of 3 meters.
It is placed with absorb on the ground between EUT and Antenna.

4.5. Deviation from Test Standard

No deviation.

4.6. Test Result

Model No	SQR SD5, SQR-SD5XXXXXXXXXX (where “X” may be any alphanumeric character or blank or “-”)	Site	SITE2
Test Voltage	AC 230V/50Hz	Test Date	2022/6/23
Test Mode	Mode 1	Engineer	Edward Chi
Polarity	Horizontal	Temperature (℃)	56.7
Test Condition	--	Humidity (%RH)	67

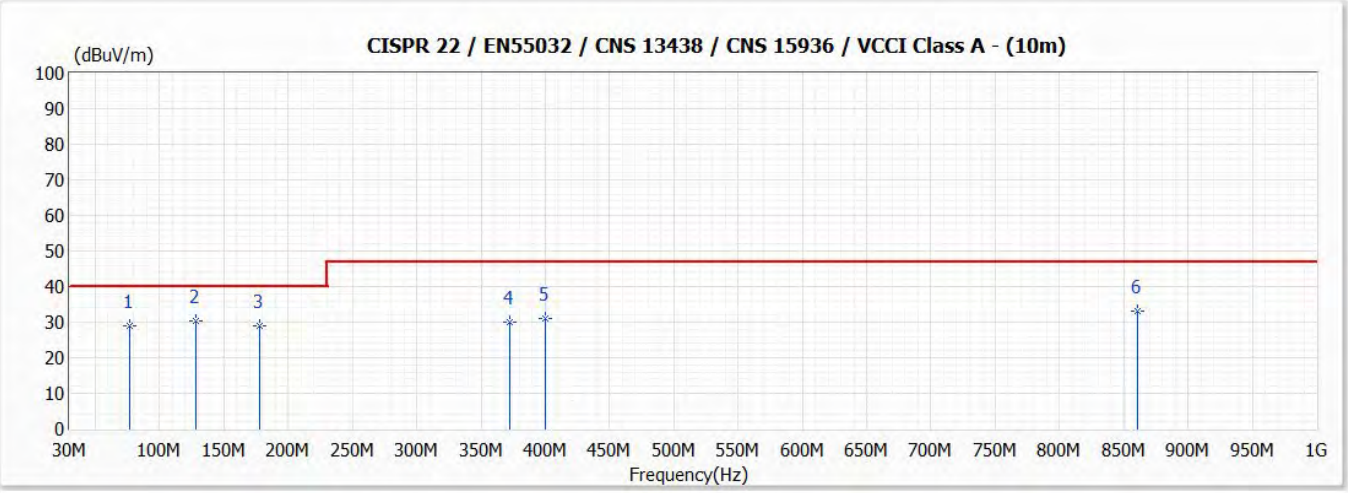


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Ant Pos (cm)	TT Pos (deg)	Detector Type
* 1	126.450	31.47	40.00	-8.53	43.40	-11.93	370	26	QP
2	214.450	25.30	40.00	-14.70	39.40	-14.10	370	-67	QP
3	374.100	32.53	47.00	-14.47	39.40	-6.87	300	-59	QP
4	403.500	35.48	47.00	-11.52	40.80	-5.32	200	-98	QP
5	484.500	29.11	47.00	-17.89	32.70	-3.59	200	111	QP
6	600.000	33.04	47.00	-13.96	34.20	-1.16	100	-60	QP
7	861.400	33.80	47.00	-13.20	30.80	3.00	100	-79	QP
8	1000.000	31.39	47.00	-15.61	26.10	5.29	100	117	QP

Remark:

1. "*" means this data is the worst emission level;"!" means this data is over limit.
2. Emission Level=Reading Level + Correct Factor(Correct Factor=Ant Factor+Cable Loss-Pre Amp).
3. Margin=Emission Level-Limit.

Model No	SQR SD5, SQR-SD5XXXXXXXXXX (where “X” may be any alphanumeric character or blank or “-”)	Site	SITE2
Test Voltage	AC 230V/50Hz	Test Date	2022/6/23
Test Mode	Mode 1	Engineer	Edward Chi
Polarity	Vertical	Temperature (℃)	56.7
Test Condition	--	Humidity (%RH)	67

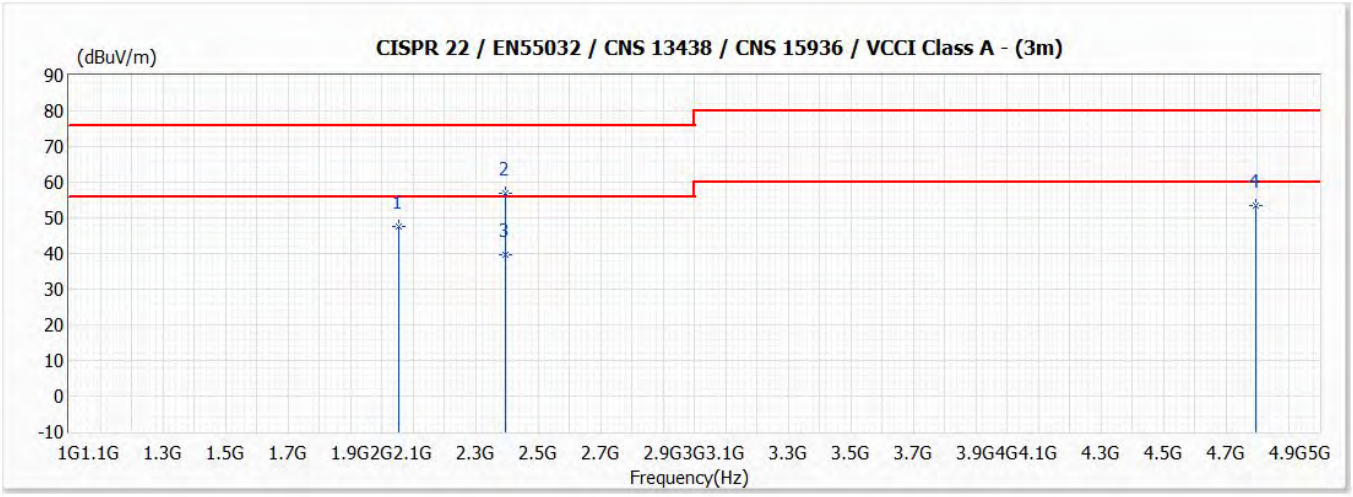


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Ant Pos (cm)	TT Pos (deg)	Detector Type
1	77.160	28.84	40.00	-11.16	46.50	-17.66	100	-60	QP
* 2	128.450	30.29	40.00	-9.71	42.30	-12.01	100	29	QP
3	177.800	28.90	40.00	-11.10	43.10	-14.20	100	112	QP
4	372.800	29.90	47.00	-17.10	36.80	-6.90	100	-90	QP
5	400.000	30.95	47.00	-16.05	36.50	-5.55	300	-89	QP
6	861.120	33.20	47.00	-13.80	30.20	3.00	150	28	QP

Remark:

1. "*" means this data is the worst emission level;"!" means this data is over limit.
2. Emission Level=Reading Level + Correct Factor(Correct Factor=Ant Factor+Cable Loss-Pre Amp).
3. Margin=Emission Level-Limit.

Model No	SQR SD5, SQR-SD5XXXXXXXXXX (where “X” may be any alphanumeric character or blank or “-”)	Site	CB7
Test Voltage	AC 230V/50Hz	Test Date	2022/6/24
Test Mode	Mode 1	Engineer	Nilk Chen
Polarity	Horizontal	Temperature (℃)	26.5
Test Condition	--	Humidity (%RH)	63

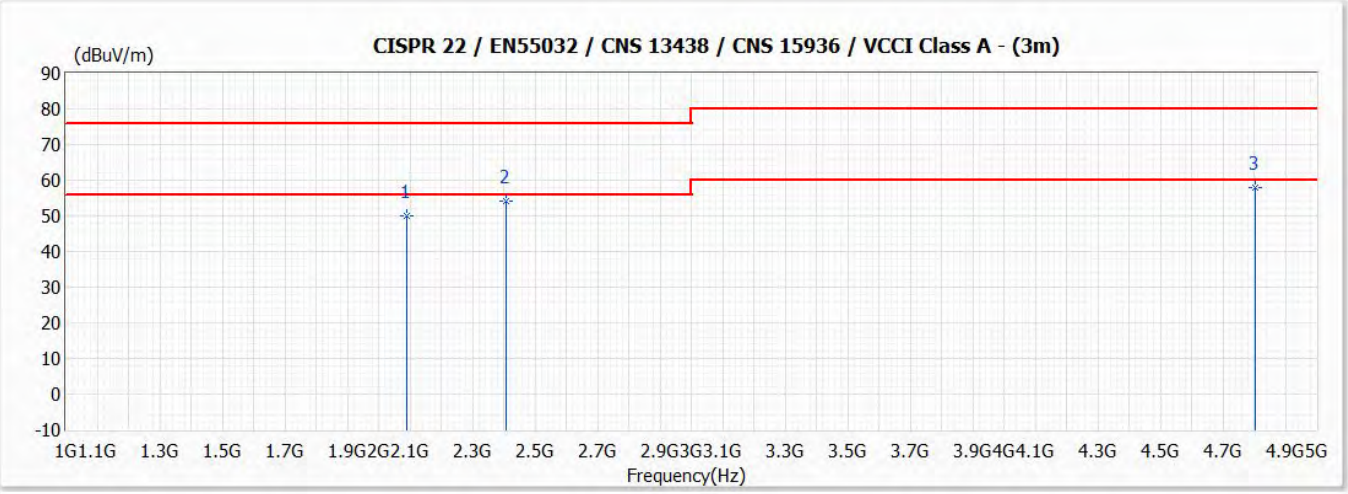


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Ant Pos (cm)	TT Pos (deg)	Detector Type
1	2054.000	47.54	76.00	-28.46	56.20	-8.66	130	68	PK
2	2396.000	57.04	76.00	-18.96	64.30	-7.26	120	-142	PK
* 3	2396.000	39.50	56.00	-16.50	46.76	-7.26	120	-142	AV
4	4796.000	53.52	80.00	-26.48	55.12	-1.60	120	175	PK

Remark:

1. "*" means this data is the worst emission level;"!" means this data is over limit.
2. Emission Level=Reading Level + Correct Factor (Correct Factor=Ant Factor+Cable Loss-Pre Amp).
3. Margin= Emission Level-Limit.
4. The above 1 GHz test. When PEAK measures level less than AV limit by 20 dBuV, its average is not measured separately.

Model No	SQR SD5, SQR-SD5XXXXXXXXXX (where “X” may be any alphanumeric character or blank or “-”)	Site	CB7
Test Voltage	AC 230V/50Hz	Test Date	2022/6/24
Test Mode	Mode 1	Engineer	Nilk Chen
Polarity	Vertical	Temperature (℃)	26.5
Test Condition	--	Humidity (%RH)	63



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Ant Pos (cm)	TT Pos (deg)	Detector Type
1	2092.000	49.92	76.00	-26.08	58.37	-8.45	130	17	PK
* 2	2406.000	53.98	76.00	-22.02	61.23	-7.25	130	183	PK
3	4804.000	57.85	80.00	-22.15	59.44	-1.59	130	-87	PK

Remark:

1. "*" means this data is the worst emission level;"!" means this data is over limit.
2. Emission Level=Reading Level + Correct Factor (Correct Factor=Ant Factor+Cable Loss-Pre Amp).
3. Margin= Emission Level-Limit.
4. The above 1 GHz test. When PEAK measures level less than AV limit by 20 dBuV, its average is not measured separately.

4.7. Test Photograph

Test Mode : Mode 1

Description : Front View of Radiated Test

Test Mode : Mode 1

Description : Back View of Radiated Test

Test Mode : Mode 1

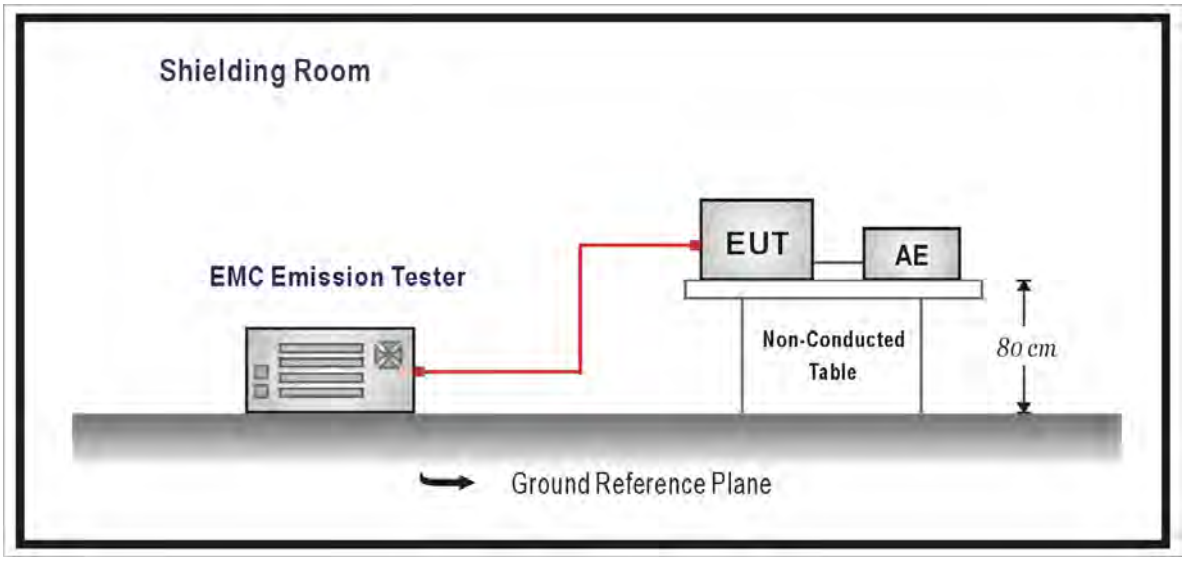
Description : Front View of High Frequency Radiated Test

5. Harmonic Current Emission

5.1. Test Specification

According to EMC Standard : EN 61000-3-2

5.2. Test Setup



5.3. Limit

(a) Limits of Class A Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current A	Harmonics Order n	Maximum Permissible harmonic current A
Odd harmonics		Even harmonics	
3	2.30	2	1.08
5	1.14	4	0.43
7	0.77	6	0.30
9	0.40	8 n 40	0.23 * 8/n
11	0.33		
13	0.21		
15 n 39	0.15 * 15/n		

(b) Limits of Class B Harmonics Currents

For Class B equipment, the harmonic of the input current shall not exceed the maximum permissible values given in table that is the limit of Class A multiplied by a factor of 1.5.

(c) Limits of Class C Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current Expressed as a percentage of the input current at the fundamental frequency %
2	2
3	30 · Λ*
5	10
7	7
9	5
11 n 39 (odd harmonics only)	3
∗λ is the circuit power factor	

(d) Limits of Class D Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current per watt Ma/W	Maximum Permissible harmonic current A
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
11 n 39 (odd harmonics only)	3.85/n	See limit of Class A

5.4. Test Procedure

The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

5.5. Deviation from Test Standard

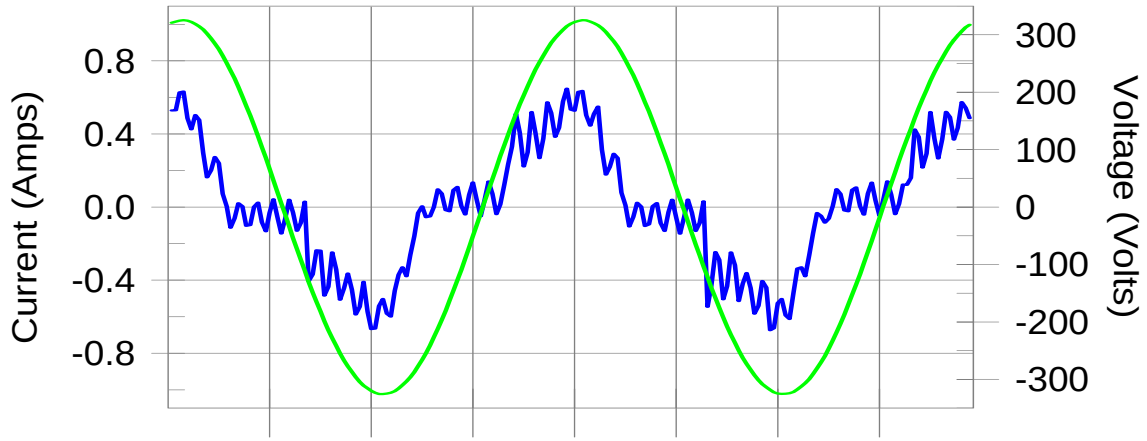
No deviation.

5.6. Test Result

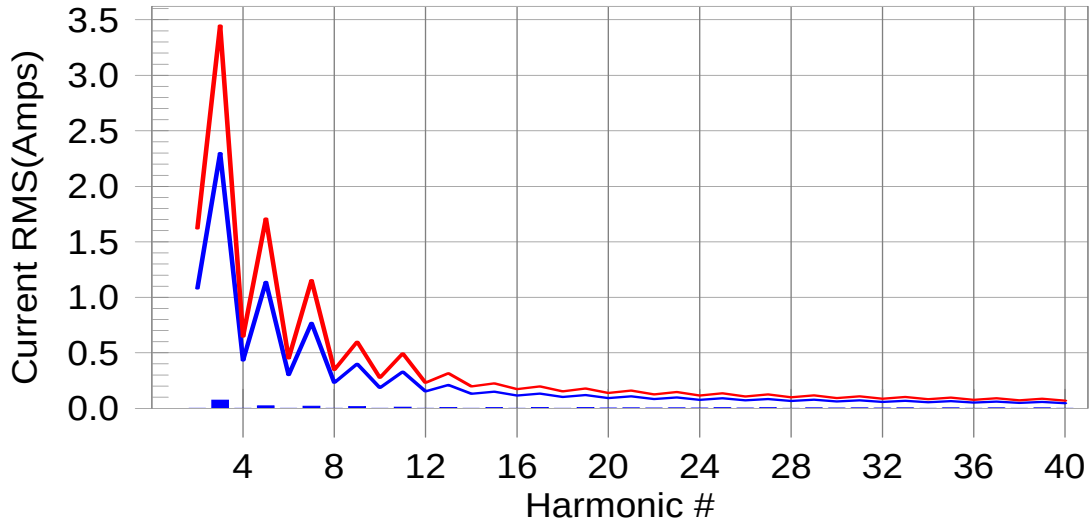
Product	SQR-SD5 series		
Test Item	Power Harmonics		
Test Mode	Mode 1		
Date of Test	2022/06/27	Test Site	LK-SR04
Engineer	Vinson XU		

Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass Worst harmonics H19-5.0% of 150% limit, H17-6.8% of 100% limit

Test Result: Pass Source qualification: Normal
THC(A): 0.087 I-THD(%): 35.7 POHC(A): 0.015 POHC Limit(A): 0.251
Highest parameter values during test:

V_RMS (Volts):	230.27	Frequency(Hz):	50.00
I_Peak (Amps):	0.714	I_RMS (Amps):	0.321
I_Fund (Amps):	0.244	Crest Factor:	2.727
Power (Watts):	50.4	Power Factor:	0.835

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.002	1.620	N/A	Pass
3	0.075	2.300	3.3	0.085	3.450	2.5	Pass
4	0.001	0.430	N/A	0.002	0.645	N/A	Pass
5	0.022	1.140	1.9	0.028	1.710	1.6	Pass
6	0.001	0.300	N/A	0.001	0.450	N/A	Pass
7	0.021	0.770	2.7	0.022	1.155	1.9	Pass
8	0.001	0.230	N/A	0.002	0.345	N/A	Pass
9	0.017	0.400	4.3	0.019	0.600	3.2	Pass
10	0.002	0.184	N/A	0.002	0.276	N/A	Pass
11	0.011	0.330	3.3	0.012	0.495	2.5	Pass
12	0.002	0.153	N/A	0.002	0.230	N/A	Pass
13	0.009	0.210	4.1	0.011	0.315	3.4	Pass
14	0.002	0.131	N/A	0.002	0.197	N/A	Pass
15	0.007	0.150	4.6	0.008	0.225	3.4	Pass
16	0.002	0.115	N/A	0.002	0.173	N/A	Pass
17	0.009	0.132	6.8	0.010	0.198	4.9	Pass
18	0.002	0.102	N/A	0.002	0.153	N/A	Pass
19	0.007	0.118	5.9	0.009	0.178	5.0	Pass
20	0.002	0.092	N/A	0.002	0.138	N/A	Pass
21	0.005	0.107	4.8	0.006	0.161	3.9	Pass
22	0.002	0.084	N/A	0.003	0.125	N/A	Pass
23	0.005	0.098	N/A	0.005	0.147	N/A	Pass
24	0.003	0.077	N/A	0.003	0.115	N/A	Pass
25	0.006	0.090	6.4	0.006	0.135	4.6	Pass
26	0.002	0.071	N/A	0.003	0.107	N/A	Pass
27	0.006	0.083	6.6	0.006	0.125	4.7	Pass
28	0.002	0.066	N/A	0.002	0.099	N/A	Pass
29	0.004	0.078	N/A	0.005	0.116	N/A	Pass
30	0.002	0.061	N/A	0.003	0.092	N/A	Pass
31	0.004	0.073	N/A	0.005	0.109	N/A	Pass
32	0.002	0.058	N/A	0.003	0.086	N/A	Pass
33	0.004	0.068	N/A	0.005	0.102	N/A	Pass
34	0.002	0.054	N/A	0.002	0.081	N/A	Pass
35	0.004	0.064	N/A	0.005	0.096	N/A	Pass
36	0.002	0.051	N/A	0.002	0.077	N/A	Pass
37	0.004	0.061	N/A	0.005	0.091	N/A	Pass
38	0.002	0.048	N/A	0.002	0.073	N/A	Pass
39	0.003	0.058	N/A	0.004	0.087	N/A	Pass
40	0.001	0.046	N/A	0.001	0.069	N/A	Pass

1.Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.

2:According to EN61000-3-2 paragraph 7 the note 1 and 2 are valid for all applications having an active input power >75W. Others the result should be pass.

5.7. Test Photograph

Test Mode : Mode 1

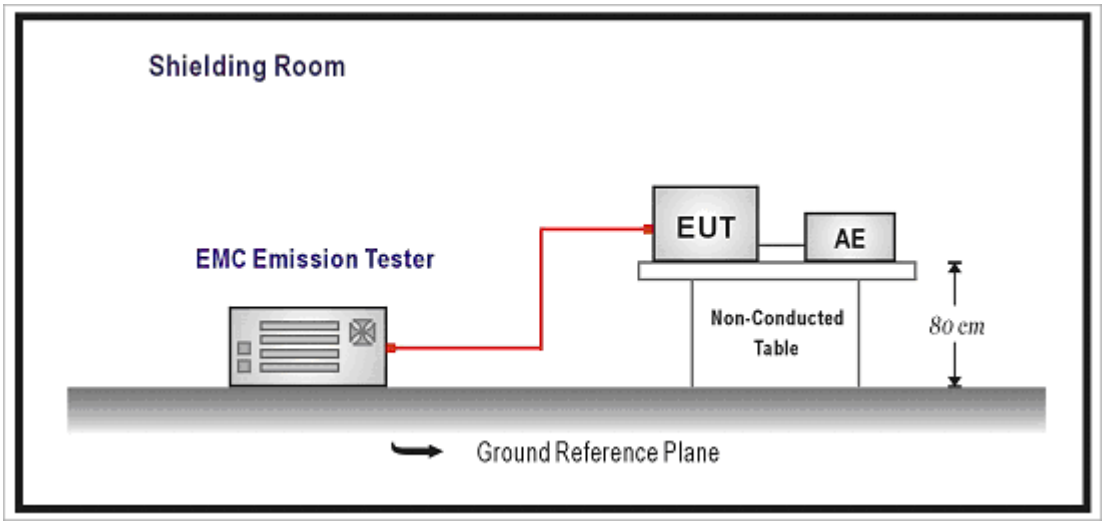
Description : Power Harmonics Test Setup

6. Voltage Fluctuation and Flicker

6.1. Test Specification

According to EMC Standard : EN 61000-3-3

6.2. Test Setup



6.3. Limit

The following limits apply:

- the value of P_{st} shall not be greater than 1.0;
- the value of P_{lt} shall not be greater than 0.65;
- the value of d(t) during a voltage change shall not exceed 3.3 % for more than 500 ms;
- the relative steady-state voltage change, d_c, shall not exceed 3.3 %;
- the maximum relative voltage change, d_{max}, shall not exceed;

a) 4 % without additional conditions;

b) 6 % for equipment which is:

- switched manually, or
- switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

NOTE The cycling frequency will be further limited by the P_{st} and P_{1t} limit.

For example: a d_{max} of 6%producing a rectangular voltage change characteristic twice per hour will give a P_{1t} of about 0.65.

c) 7 % for equipment which is:

- attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
- switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

P_{st} and P_{1t} requirements shall not be applied to voltage changes caused by manual switching.

6.4. Test Procedure

The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

6.5. Deviation from Test Standard

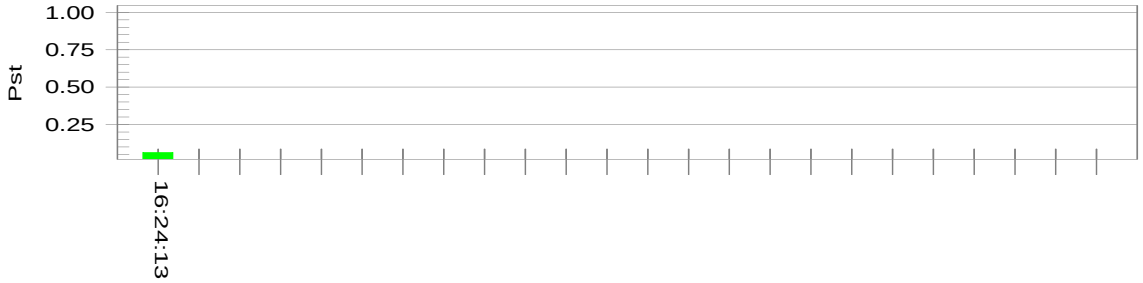
No deviation.

6.6. Test Result

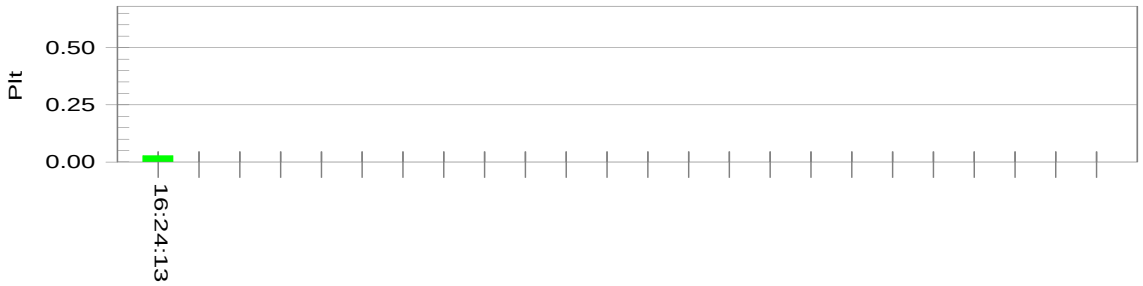
Product	SQR-SD5 series		
Test Item	Voltage Fluctuation and Flicker		
Test Mode	Mode 1		
Date of Test	2022/06/27	Test Site	LK-SR04
Engineer	Vinson XU		

Test Result: Pass Status: Test Completed

Pst and limit line European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.95			
Highest dt (%):		Test limit (%):		
T-max (mS):	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.028	Test limit:	0.650	Pass

6.7. Test Photograph

Test Mode : Mode 1

Description : Flicker Test Setup

7. Annex Requirements (From EN55035 standard)

7.1. Normative

Annex A: Broadcast reception function

Annex A defines:
• the function to be tested,
• the mode(s) of operation of the broadcast receiver during the test(s),
• any deviations from the test levels defined in Table 1 to Table 4,
• any deviations from the general immunity criteria defined in Clause 8.

Annex A applies to MME with a broadcast reception function. This function enables the EUT to receive analogue or digitally modulated sound or television broadcast signals via an integral or external antenna or cable.
MME with a broadcast reception function, and no port for external signal connection, is excluded from tests requiring performance criterion A.

For the purpose of Annex A broadcast reception equipment is classified as follows:
Group 1: equipment in which the desired RF broadcast signal enters the equipment through a coaxial broadcast receiver tuner port. These coaxial ports are intended to be connected via a coaxial cable to an antenna or a cable distribution system.
Group 2: broadcast reception equipment which is not included in Group 1.

AM/FM/DAB equipment with a coaxial broadcast receiver tuner port is classified as Group 2 equipment if the manufacturer declares that the equipment is not intended to be connected to a CATV or other cable distribution network.

Mode of operation:
The broadcast reception function shall be tested in each reception mode for which the receiver is designed, for example analogue reception, DVB-T, DVB-T2, DVB-C, DVB-C2, DVB-S, DVB-S2. The receiver shall be tuned to one channel and provided with an appropriate wanted signal on that channel as described in Table A.1 or other input typical of normal use.

Modified test levels and performance criteria:

The broadcast reception function shall comply with the general performance criteria given in Clause 8 and any relevant annex with the deviations defined in Table A.2.

Table A.2 – Modified test levels for performance criterion A for the broadcast reception function

Performance criteria	Test type table clause	Group 1	Group 2
A	1.2 1.3	The disturbance level is reduced to 1 V/m for in-band frequencies.	No test requirements apply
	2.1 3.1 4.1	The disturbance level is reduced to 1 V for in-band frequencies.	
In-band is defined as the entire tuneable operating range of the selected broadcast reception function. The tuned channel ±0,5 MHz (lower edge frequency – 0,5 MHz up to the upper edge frequency + 0,5 MHz of the tuned channel) is excluded from testing. NOTE In some countries, there is a requirement to test the tuned channels. Refer to the relevant regional requirements for guidance.			

Annex B: Print function

Applicability:

The print function is the rendering of patterns on to media, to create patterns that are readable by humans or machines by sensing the reflection or transmission of light, and that are retained on the media after the print function has ended. The patterns may include text, photographs, drawings, bar codes, or other patterns. The image content exists as analogue or digital electrical signals during or immediately prior to printing. The print function may render the image on various types of media such as paper, cloth, ceramic, or film. The image may be rendered onto the media using a number of materials such as dyes, pigments, inks, thermoplastic toners, or waxes. The image may also be rendered onto the media by a variety of processes such as exposing the media to heat or light. Functions designed to store large amounts of data for magneto-optical retrieval, such as in a DVD recorder, are not covered by Annex B.

Mode of operation:

Printing shall be performed in the presence of the EM disturbance, and the results shall be compared with results in undisturbed operation. A particular test pattern is not specified, but a suitable image and conditions shall be selected so as to evaluate the performance specified by the manufacturer. The following are examples of features for a test pattern:

- text with three or more font types or sizes;
- one or more grids of lines, to aid in detecting any stretch or compression of the printed image;
- some regions of the image should include the highest possible detail resolution (dots per centimetre or per square centimetre);
- various levels of shading or half-toning;
- multiple colours, where available;

Performance criteria:

Performance criterion A

The following shall not occur as a consequence of the application of the disturbance:

- change of operating state;
- unintended pausing of the print operation;
- a change of print quality or legibility, as appropriate to the test pattern;
- change of character font;
- unintended line feed;
- unintended page feed;
- paper feed failure.

Performance criterion B
Apply criterion B as defined in 8.3 with the following specifics and additional limitations.
Paper feed failures are allowed only if, after removal of the jammed sheets, the job is automatically recovered and there is no loss of printed information.
Any low-quality print output caused by the application of the disturbance shall not continue beyond the sheet of media being printed, or beyond the typical length of a finished page or sheet printed from continuous roll media.

False indicators are permitted during the test provided that a normal operator response to that
false indicator is simple (such as pressing a button). False indicators are not acceptable if they would cause the user to discard printing supplies such as ink, toner or paper, when those
supplies are actually not empty or faulty. Any false indicator shall either clear automatically or after the operator’s response.

After the disturbance, the print function may print the remainder of the print job at a quality level within the manufacturer’s specifications. Alternately, the print function may halt processing of a print job as a result of the disturbance, but only if the operator is capable of reprinting the job (for example, a fax printing job where the image to be printed still resides in local memory). Automatically restarting the print job from the beginning is also acceptable. In any scenario, the pairing of front and back images during double-sided printing shall be correct.

Performance criterion C
Apply criterion C as defined in 8.4.

Annex C: Scan function

Applicability:

The scan function illuminates an object, or part of an object, and creates an electronic representation of an image of the object. Flat bed scanners, bar code scanners, finger print readers and copying machines typically have functions within the scope of Annex C. Functions designed to record images of complex 3-dimensional shapes, distant objects, or moving action, such as those in most digital cameras or video cameras, are outside the scope of Annex C.

Mode of operation:

Scanning shall be performed during the test, and the results of the scanning shall be compared with the results generated when not subject to interfering signals.

The object scanned shall be appropriate for the type of scanner and shall be sufficiently complex to allow the performance of the EUT to be evaluated.

The test object for a document scanner should include the following features:

• text with three or more font types;

• one or more grids of lines, to aid in detecting any stretch or compression of scanned images;

• image content in various parts of the scanned area that has fine detail, to aid in detecting changes to scan resolution (pixels per centimetre or per square centimetre);

• various levels of shading or half-toning;

• multiple colours, if the scan function is designed to detect colour variations.

Performance criteria:

Performance criterion A

The following shall not occur as a consequence of the application of the test:

- change of settings, such as which side(s) of the page to be scanned, colour or monochrome, and resolution;
- corruption of the image, for example stretching, compressing or change in colour;
- paper feed failures;
- errors in the reading of bar codes.

Performance criterion B

The following specifics and additional limitations:

- Document feed failures are allowed only if the original documents are undamaged and, after removal of the jammed sheets, the job is automatically recovered and there is no lossof scanned information.
- During the test, the representation of the image shall not be degraded such that reading mistakes occur.

Performance criterion C

Apply criterion C as defined in 8.4.

Annex D: Display and display output functions

Applicability:

A display function is the presentation of an image or sequence of images to a viewer. It does not include images presented on removable media, such a sheets of paper. Examples of equipment with a display function are: TV set; notebook computer; computer monitor; calculator; telephone; electronic musical instrument.

Video outputs intended for further processing (and that are not intended to be directly connected to a display) are outside the scope of Annex D.

Mode of operation:

The EUT shall be exercised with the most complex image from Table D.1 that it is capable of displaying. Where the user can select different spatial resolutions or field/frame rates, the highest number of pixels and field/frame rates that are typical of normal use shall be selected.

When there is more than one display or display output, each display or display output shall be configured using this requirement and taking into account the maximum performance of each display or display output.

Where an input signal to the EUT is required to provide the displayed image, the characteristics of that input signal (for example, its amplitude) shall be typical of normal use.

The display images may be modified, when necessary to monitor primary functions of the EUT.

Where possible, these modifications should be restricted to the bottom or top half of the display area so that the image defined in Table D.1 fills the majority of the display.

Measurement method:

Using a subjective by direct observation for the display quality or signal quality of a display output.

Performance criteria:

Performance criterion A for continuous radiated and conducted disturbances tests

Apply criterion A as defined in 8.2. Additionally, an increase in any degradation greater than just perceptible by observation of the image shall not occur as a consequence of the application of the test. Examples of such degradations are:

- superimposed patterning;
- positional disturbances due to synchronisation errors;
- geometric distortion;
- change of contrast or brightness;
- picture artefacts;
- freezing or disturbance of motion;
- image loss;
- video data or decoding errors.

Performance criterion A for the power frequency magnetic field tests

Alternative 1: A continuous magnetic field of 1 A/m:

The jitter (in mm) shall not exceed the value $\frac{(\text{character height in mm} + 0{,}3) \times 2{,}5}{33{,}3}$

Alternative 2: An increased power frequency magnetic field ≤ 50 A/m:

The amplitude of the disturbing field shall be increased by a factor K, where 1 ≤ K ≤ 50. The jitter shall not exceed K times the value given in alternative 1. The value of K should be chosen to avoid saturation of any magnetic screening materials.

When the EUT is subjected to fields above K = 1 and the performance criteria are satisfied for all relevant functions of the EUT, the EUT shall be deemed to satisfy the requirement.

When the EUT is subjected to fields above K = 1 and the display function is shown to meet these performance criteria, but the performance criteria for other relevant functions are NOT satisfied, the EUT shall be retested at K = 1 (the field level required in table clause 1.1) to assess compliance for those other functions.

Performance criterion B

Apply criterion B as defined in 8.3.

Performance criterion C

Apply criterion C as defined in 8.4.

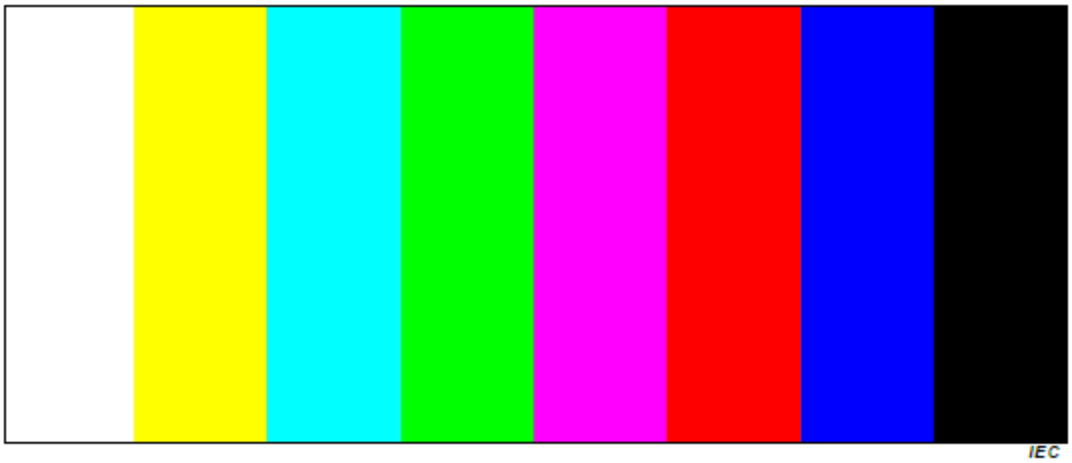


Figure D.1 – Example colour bar image

Table D.1 – Prioritised list of display images

Complexity	Display image	Description	Examples of appropriate equipment
4 (Most)	Colour bars with moving picture element	Standard colour bar image with a small moving element.	Digital television set, set–top box, personal computer, DVD player, video game player, video camera.
3	Colour bars	Standard colour bar image.	Analogue television set, display on a still camera, display on photo printer.
2	Text image	A pattern consisting of all H characters shall be displayed. If the H character is not available, another character of similar complexity shall be selected. The character size and number of characters per line shall be set so that typically the greatest number of characters per screen is displayed. If text scrolling is supported on the display, the text shall scroll (except during power frequency magnetic field testing of a CRT).	POS terminal, telephone, computer terminal without graphic capability.
1 (Least)	Typical display	Whatever display can be generated by the EUT.	Equipment with proprietary displays and/or not capable of displaying any of the above images, for example electronic music instrument, indicator light

Annex E: Musical tone generating function

Applicability:

The musical tone generating function is the reproduction of musical tones having pitch, loudness and sound type, which are individually and independently altered and controlled in accordance with control data from a keyboard controller or other control device. Examples of equipment having a musical tone generating function include:

- electronic piano,
- electronic organ,
- synthesizer,
- musical tone generator without keyboard.

Annex E does not apply to simple tones for alarms, warnings, time markers or simple feedback 'beeps' and that are typically output from equipment such as clocks, microwave ovens, and timers.

Mode of operation:

To generate musical tones, auto-play or demonstration modes shall be used. Tone generation shall be performed during the test and the sound generated shall be compared with the sound generated when not subject to interfering signals.

The sequence of tones used for test may be a combination of simple musical phrases (a group of musical notes) for example repeated playing of 'sol-fa'.

Performance criteria:

Performance criterion A

Performance criterion A is subdivided according to the type of equipment and its use. Three subgroups corresponding to different equipment types are defined in Table E.1 and have corresponding performance criteria A1, A2 and A3. The relevant subgroup shall be selected by the manufacturer in accordance with the product specification. The description of criteria A1, A2 and A3 are presented in Table E.2.

Table E.1 – Subgroups and performance criteria A for the musical tone generating function

Equipment type and use	Subgroup	Performance Criteria
High-end quality suitable for professional use or studio recording	1	A1
Middle grade quality suitable for amateur use or home use	2	A2
Entry grade quality for practice or exercise use	3	A3

Table E.2 – Performance criteria for different subgroups given in Table E.1

Description of degradation in performance	Performance Criteria		
	A1	A2	A3
Specific unintended change in the characteristic of the tone generated 1. interruption 2. stopping (or ceasing) 3. holding 4. sudden change in amplification	Not acceptable	Not acceptable	Not acceptable
Specific unintended change in the characteristic of the tone generated 1. frequency 2. harmonic distortion	Not acceptable	Not acceptable if the degradation is beyond the level specified by the manufacturer	Not acceptable if the manufacturer judges such degradations interfere with the continuation of playing music
Other changes in the type of tone generated	Not acceptable	Not acceptable	Not acceptable if the manufacturer judges such degradations interfere with the continuation of playing music

Performance criterion B

During the test, degradation of performance beyond that defined in criterion A1 of Table E.2 is allowed. However, sudden amplification of tone to a level that exceeds the expected level by more than 6 dB is not allowed.

After the test, normal operation of the EUT shall be self-recovered.

In the case of unintended tone holding caused by a MIDI protocol communication error, the EUT can be re-initialised by the operation of the controls by the user controls in accordance with the manufacturer's instructions.

Due to the nature of the MIDI protocol, it is necessary to modify the performance criterion B to allow user intervention when the unintended tone holding is caused by a missing MIDI communication error (for example missing a 'NOTE OFF' message).

Performance criterion C

Degradation of the performance beyond that defined in criterion A1 of Table E.2 is permitted provided that the normal operation of the EUT can be restored after the test by operator intervention. However, sudden amplification of tone to a level that exceeds the expected level by more than 6 dB is not allowed.

Annex F: Networking functions

Applicability:

Annex F contains specific performance criteria and operational conditions related to networking functions. Equipment that provides these functions transmits and receives data through ports such as an analogue/digital data port. Networking functions are described further in the following subgroups:

- network switching and routing, F.1.2,
- data transmission, F.1.3,
- supervisory, F.1.4.

Configuration:

The configuration shall:

- include a representative system with end-to-end functionality employing suitable network elements, simulators or call generators;
- provide a stable method to monitor the signal quality during testing.

Traffic passing through the switch, modem, terminal, router or transmission system shall simulate the various types of supported protocols. The loading of the system (the amount of traffic or number of calls established/re-established) shall be representative of normal operation. Where possible, signal levels transmitted and received at analogue/digital data ports shall be at a level representative of a typical installation. It may be determined by the manufacturer that one data rate (or type of transmission) represents a worst-case. In such a case, the test may be performed in only that worst-case operating mode.

Equipment used to develop this representative configuration may include, but is not limited to:

- simulators,
- dummy loads,
- loopback cables,
- line attenuators,
- other network equipment,
- software emulators,
- call traffic generators.

Where loopback cables are used to interconnect systems and ports, they should simulate normal impedance, network insertion loss, grounding and connection practices. Further guidance is given in ITU-T recommendations K.48 and K.43. All supervisory functions shall be monitored.

Performance criteria:

Performance criterion A

Where relevant, during the application of the test the network function shall, as a minimum, operate ensuring that:

- established connections shall be maintained throughout the application of the test;
- no change of operational state or corruption of stored data occurs;
- no increase in error rate above the figure defined by the manufacturer occurs. The manufacturer should select the most appropriate performance measurement criteria for the product or system, for example bit error rate, block error rate;
- no request for retry above the figure defined by the manufacturer;
- the data transmission rate does not reduce below the figure defined by the manufacturer;
- no protocol failure occurs;
- the audio noise level at a two-wire analogue interface (supporting telephony) shall satisfy the requirements of Table G.3. The audio level measurements shall be performed at the demodulated frequency of the disturbance using a narrowband filter with a 3 dB bandwidth of 100 Hz using the method defined in table clause G.1.4. See G.6.1.

Performance criterion B

Established connections shall be maintained throughout the test, or shall self-recover in a way and timescale that is imperceptible to the user.

The error rate, request for retry and data transmission rates may be degraded during the application of the test. Degradation of the performance as described in criterion A is permitted, provided that the normal operation of the EUT is self-recoverable to the condition established prior to the application of the test.

Where required, as defined in Clause 5, the acceptable operation of the function shall be verified at the completion of the test as described in Table H.1, by confirming the following:

- the EUT’s ability to establish a connection,
- the EUT’s ability to clear a connection.

During surge testing disconnection is allowed on the analogue/digital data port being tested.

Performance criterion C

Degradation of performance as described in criteria A and B is permitted provided that the normal operation of the EUT is self-recoverable to the condition immediately before the application of the test, or can be restored after the test by the operator.

Annex G: Audio output function

Applicability:

Annex G applies to equipment with functions that generate audio signals which are presented to any of the following:

• on-ear devices (G.2.9),

• loudspeakers (G.2.8),

• audio output ports (G.2.3),

• equipment supporting telephony functions defined in Annex F and Annex H.

Equipment with functions not covered by the above with audio outputs intended for further processing and that are not intended for direct connection to loudspeakers (G.2.8) or on-ear devices (G.2.9) are outside the scope of Annex G, for example, HDMI ports, which transfer audio streams that require further processing before the audible sound is generated.

Specific performance criteria are given in G.7. These include a requirement for maintenance of the audio output function, and interference ratio limits.

In order to simplify the measurement of the interference, it is preferable that no wanted audio signal is sent to the EUT during the test. However, Clause G.5 gives guidance when this is not practical.

Ports to be tested:

Some devices have more than one port which needs to be tested to ensure that the applied disturbance does not interfere with normal operation. Table G.1 provides the test requirements for some examples of MME.

Table G.1 – Test requirements for various MME

Table clause	MME	Port to be tested	Example test set up figures
G.1.1	AM/FM Radio, TV Tablet computer	Audio output Integral loudspeaker	Figure G.1 Figure G.2, Figure G.3
G.1.2	Telephone (with a hands free function)	Handset (on-ear device) Loudspeaker (hands free) Wired network connection	Figure G.4, Figure G.5, Figure G.6 Figure G.2, Figure G.3 Figure G.7
G.1.3	VOIP phone	Handset (on-ear device) Wired network connection (measure using a remote AE)	Figure G.4, Figure G.5, Figure G.6 Figure G.5
G.1.4	PABX	Analogue network line connection	Figure G.7
G.1.5	Powered headphones	Headset (on-ear device)	Figure G.4

Mode of operation:

The EUT shall be configured in a manner typical of normal use and in accordance with the manufacturer's instructions.

For devices supporting telephony, active communication shall be maintained or simulated during the test.

If the EUT requires any audio or other signal(s) to be applied to exercise it or put it into a particular operating state during the test, this shall be done in a way that does not interfere with the measurements being performed. For example, a pilot signal at a frequency different from the modulation frequency of the applied disturbance could be used to exercise the audio path, as well as for monitoring purposes.

The disturbance test signal shall be 80 % amplitude modulated by a sine wave, preferably having a frequency of 1 kHz.The 1 kHz modulation may be replaced by a different audio modulation frequency more appropriate for a given EUT, if 1 kHz is not within the operating audio range of the EUT.

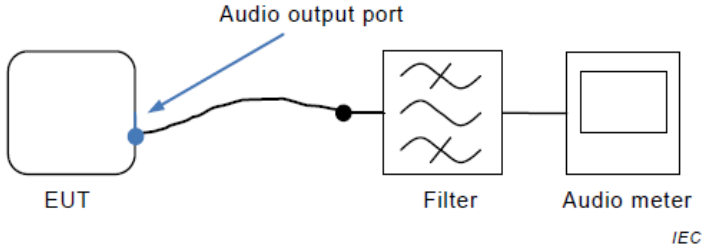
Method of measurement:

Electrical measurements

For electrical measurements use one of the following:

- a direct connection to the port under test, terminated with the manufacturer's recommended impedance,
- a high impedance connection in parallel with the input to a loudspeaker, headphone or other electro-acoustic transducer,
- a balun with a power feeding circuit (see Figure G.7), a simulator or other emulation methods may be used when measuring the analogue wired network ports.

The basic measurement setup is defined in Figure G.1.



The filter is the audio filter specified in G.6.1 and is typically incorporated into the audio meter. Additional filtering might be necessary to ensure that the RF disturbance signal does not interfere with the measurement.

Figure G.1 – Example basic test setup for electrical measurements (direct connection to EUT)

Acoustic measurements

Attention should be given to the acoustic characteristics of the measurement environment. To reduce the effect of reflections, acoustic absorption material may be necessary in the space around the transducer under test, such as the loudspeaker or the on-ear devices and the measuring microphone.

The manufacturer shall select a measurement test distance taking into account factors including but not limited to: EUT characteristics, reference level, ambient noise, and pass/fail criteria.

The ambient acoustic noise shall be at a sufficiently low level to avoid affecting the measurement result.

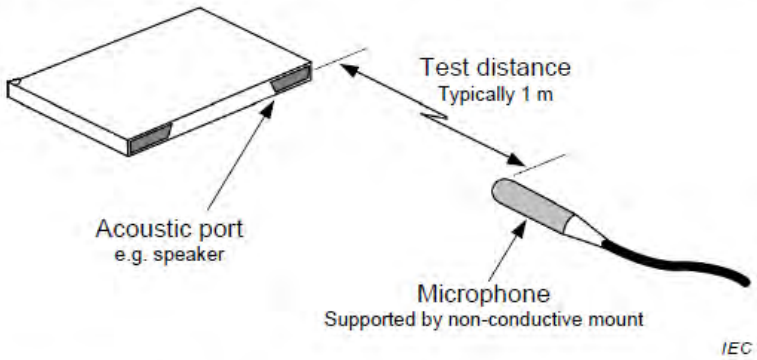
For on-ear measurements, the measurement transducer shall be coupled closely to the EUT electro-acoustic transducer limiting any loss of the demodulated signal by either:

- placing the transducer as close as possible to the earpiece; or,
- closely coupling a plastic or similar tube to the acoustic output to a remote mounted microphone. In this case, the appropriate correction factor due to loss in the tube shall be applied.

The method using a remotely mounted microphone should be used during radiated immunity measurements. When the measurement transducer is placed within the applied field, it may be impacted by the applied disturbance and any shielding used to isolate the microphone may distort the applied field. Where this method is used, the impact of any shielding and any direct demodulation by the microphone shall be documented in the test report.

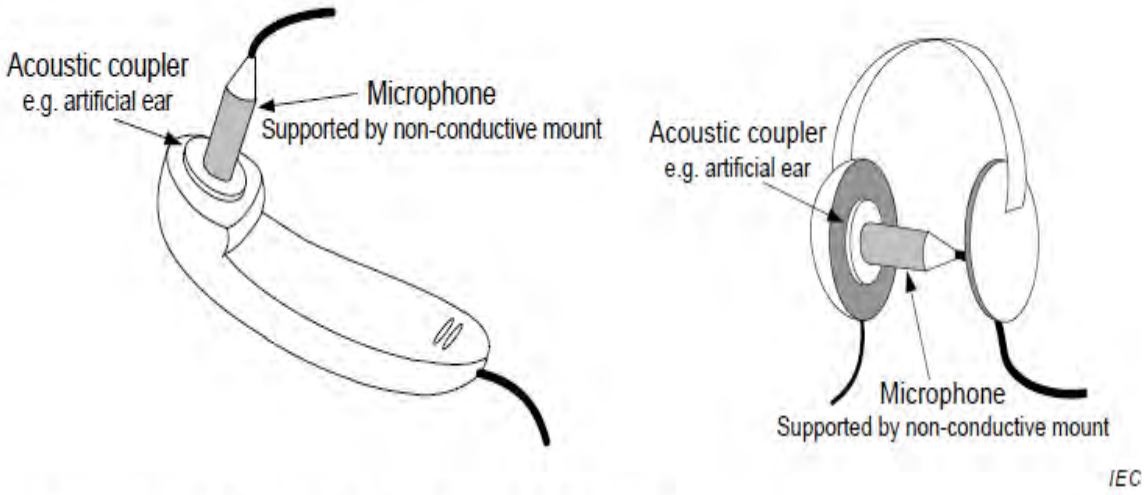
See Figure G.3 to Figure G.7 for examples of test setups.

Figure G.2 – Example basic test setup for acoustic measurements



The microphone is connected via the cable to a suitable amplifier. Ensure that there is minimal acoustic loss between EUT and microphone.

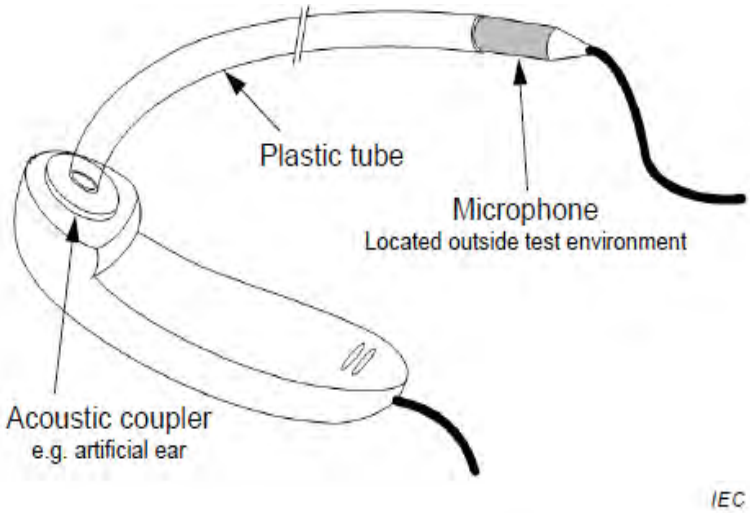
Figure G.3 – Example test setup for acoustic measurements on loudspeakers



NOTE 1 The microphone is connected via the cable to a suitable amplifier.

NOTE 2 This setup cannot be suitable for radiated testing. See G.6.3.

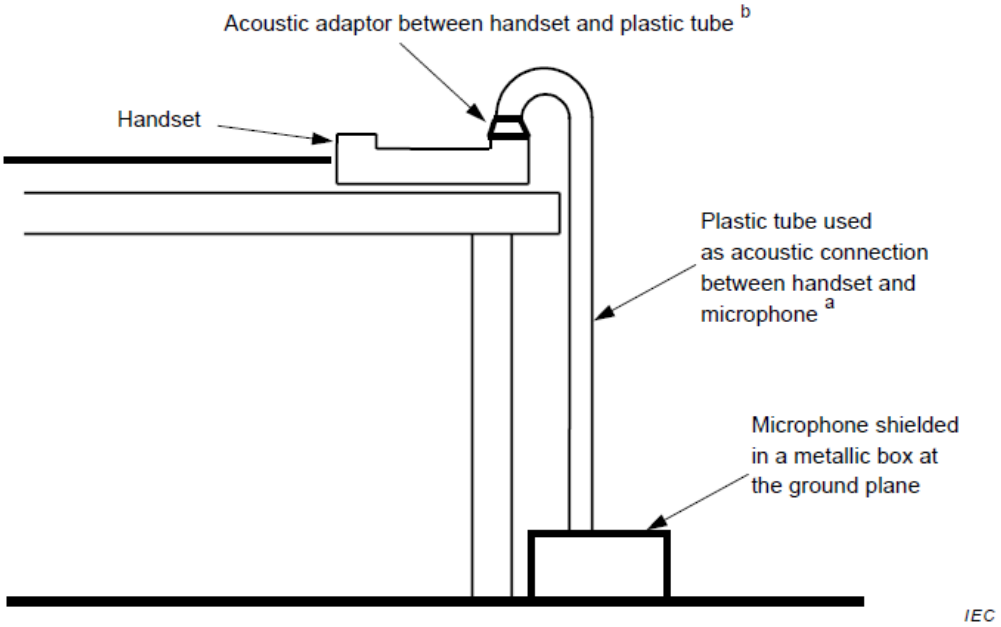
Figure G.4 – Example test setup for on-ear acoustic measurements



NOTE 1 The microphone is connected via the cable to a suitable amplifier.

NOTE 2 This setup is suitable for radiated immunity testing. See G.6.3

Figure G.5 – Example test setup for on-ear acoustic measurements, microphone located away from earpiece transducer



NOTE This set up is suitable for radiated immunity testing. See G.6.3.

[a] The acoustic measurement procedure compensates for the acoustic properties of the tube. Typically, the tube has an inner diameter of 15 mm, an outer diameter of 19 mm, and a total length of 1,5 m.

[b] Conically formed adaptor which is connected acoustically to the various forms of handsets with some type of soft rubber. This stable coupling of the handset to the acoustical tube should not be changed between establishing the reference level and measuring the demodulated levels.

Figure G.6 – Example test setup for measuring the sound pressure level from the acoustic output device of a telephone handset

Annex H: Telephony function

Applicability:

Annex H defines the requirements for the telephony function applicable to terminal equipment.

Typical terminal equipment includes:

- analogue telephones (POTS),
- VOIP devices,
- headsets with microphones (supporting a telephony function),
- conference bridges,
- video phones,
- integrated audio and video conference devices, and, • terminals and other devices connected directly to analogue telephone lines, such as small key telephone systems or PABXs (see Table clause G.1.4 and Clause J.3.5).

Mode of operation:

The EUT shall have an active connection through a wired or wireless network to support the telephony function.

For a wired network connection, this may be achieved by connecting the EUT, through a cable at its normal impedance, to:

- an exchange;
- an exchange simulator that supports telephony (voice communication); or,
- other AE simulating a wired network.

For a wireless connection, this may be achieved by connecting the EUT through a wireless network, such as Wi-Fi, Wireless LAN, Bluetooth or another form of supported transmission, to the following:

- an exchange;
- an exchange simulator that supports telephony (voice communication); or,
- other AE simulating the telephony network.

Performance criteria:

Table H.1 defines the performance criteria for various telephony functions that shall be exercised (or operated) in the presence of the disturbances specified in Table 1 to Table 4.

Table H.1 – Telephony functions, performance criteria

Function to be exercised	Performance criteria		
	A	B	C
Establish new communication	At the additional spot frequency tests [a, c]	Performed before and after the application of the test or disturbance	Performed before and after the application of the test or disturbance
Maintain established communication	Yes In addition, the requirements of Annex G for the audio output function shall be satisfied [c]	Yes [b]	No
Terminate established communication	At the additional spot frequency tests [a, c]	Performed before and after the application of the test or disturbance	Performed before and after the application of the test or disturbance

Communication refers to a telephone call or other form of voice connection.

[a] Applicable to TTE with a dial function that provides dedicated emergency service/safety of life call capability. Where the EUT does not provide this functionality, this limitation shall be stated in the equipment user manual.

[b] Communication shall be established prior to the application of the disturbance, the communication shall be maintained and the quality of that communication (for example, volume setting, the level of background noise) shall be maintained after completion of the test or disturbance.

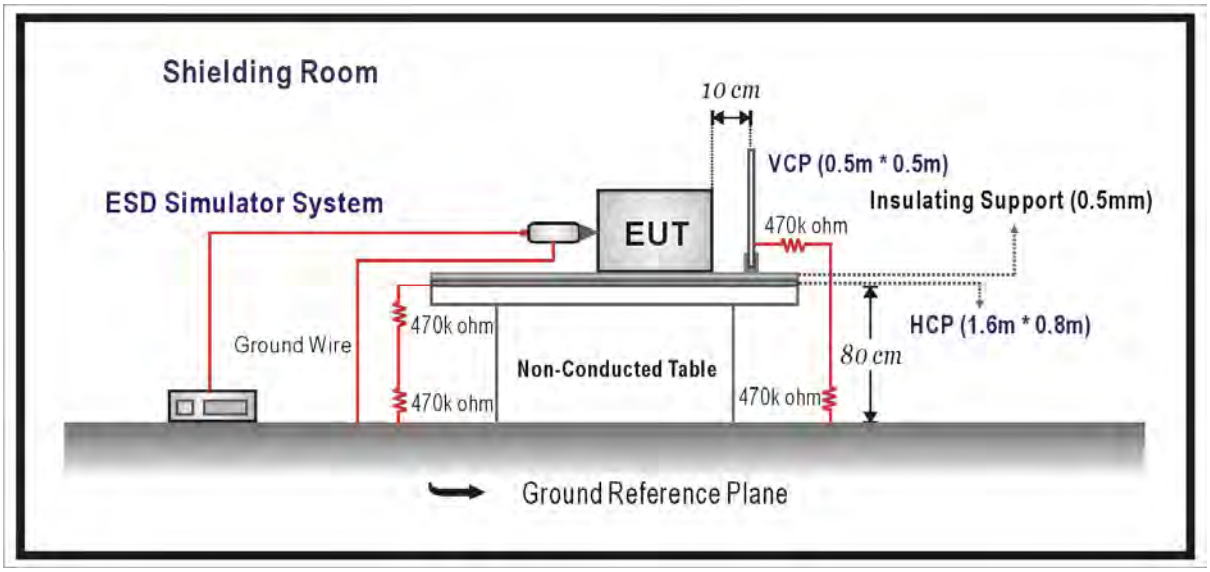
[c] Where defined in Clause 5 (for the tests in Table 1 to Table 4), these functional tests shall be performed during the additional spot frequency tests.

8. Electrostatic Discharge

8.1. Test Specification

According to Standard : IEC 61000-4-2

8.2. Test Setup



8.3. Test Level

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Electrostatic Discharge	kV(Charge Voltage)	±8 Air Discharge ±4 Contact Discharge	B

8.4. Test Procedure

The test procedure shall be in accordance with IEC 61000-4-2:2008. Electrostatic discharges shall be applied only to points and surfaces of the EUT which are expected to be touched during normal operation, including user access operations specified in the user manual, for example cleaning or adding consumables when the EUT is powered. The application of discharges to the contacts of open connectors is not required.

The number of test points is EUT dependent. Subclause 8.3.1 and Clause A.5 of IEC 61000-4-2:2008 shall be taken into consideration when selecting test points, paying particular attention to keyboards, dialling pads, power switches, mice, drive slots, card slots,the areas around communication ports, etc.

When applying direct discharges to a portable or handheld battery-powered EUT with a display screen, it may not be possible to observe the screen for a given EUT orientation. If observation of the screen is necessary during this test, the EUT may be mounted vertically using non-metallic supports.

Direct application of discharges to the EUT:

Contact discharge was applied only to conductive surfaces of the EUT.

Air discharges were applied only to non-conductive surfaces of the EUT.

During the test, it was performed with single discharges. For the single discharge time between successive single discharges will be keep longer 1 second. It was at least ten single discharges with positive and negative at the same selected point.

Indirect application of discharges to the EUT:

Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

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

8.5. Test Result

Product	SQR-SD5 series		
Test Item	Electrostatic Discharge		
Test Mode	Mode 1		
Date of Test	2022/06/28	Test Site	LK-SR06
Environmental	22(°C) 42(%RH) 999(mbar)	Engineer	Harrison Chen
Standard	EN 55035		

Item	Amount of Discharge	Voltage	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8kV	B	N/A	N/A
	10	-8kV	B	N/A	N/A
Contact Discharge	10	+4kV	B	A	Pass
	10	-4kV	B	A	Pass
Indirect Discharge (HCP)	10	+4kV	B	A	Pass
	10	-4kV	B	A	Pass
Indirect Discharge (VCP)	10	+4kV	B	A	Pass
	10	-4kV	B	A	Pass

NR: No Requirement

☒ Meet criteria A: Operate as intended during and after the test

☐ Meet criteria B: Operate as intended after the test

☐ Meet criteria C: Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at ____ kV.

☒ No false alarms or other malfunctions were observed during or after the test.

Product	SQR-SD5 series		
Test Item	Electrostatic Discharge		
Test Mode	Mode 1		
Date of Test	2022/06/28	Test Site	LK-SR06
Environmental	22(°C) 42(%RH) 999(mbar)	Engineer	Harrison Chen
Standard	EN IEC 61000-6-2		

Item	Amount of Discharge	Voltage	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8kV	B	N/A	N/A
	10	-8kV	B	N/A	N/A
Contact Discharge	10	+4kV	B	A	Pass
	10	-4kV	B	A	Pass
Indirect Discharge (HCP)	10	+4kV	B	A	Pass
	10	-4kV	B	A	Pass
Indirect Discharge (VCP)	10	+4kV	B	A	Pass
	10	-4kV	B	A	Pass

NR: No Requirement

☒ Meet criteria A: Operate as intended during and after the test

☐ Meet criteria B: Operate as intended after the test

☐ Meet criteria C: Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at ____ kV.

☒ No false alarms or other malfunctions were observed during or after the test.

8.6. Test Photograph

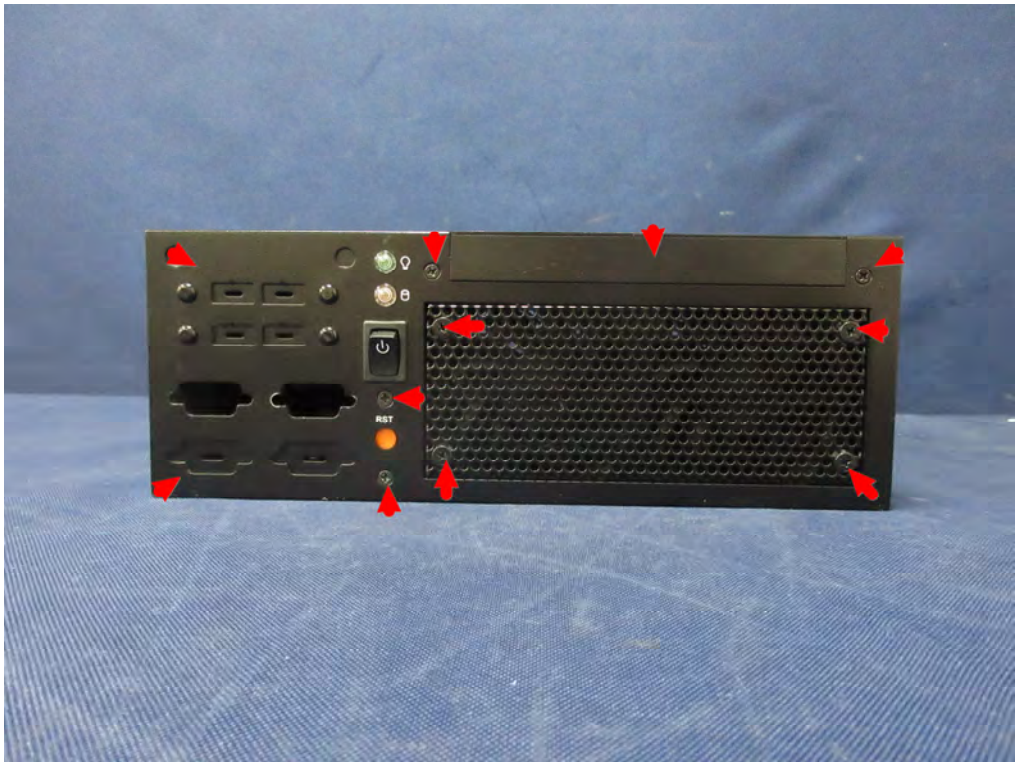
Test Mode : Mode 1

Description : ESD Test Setup

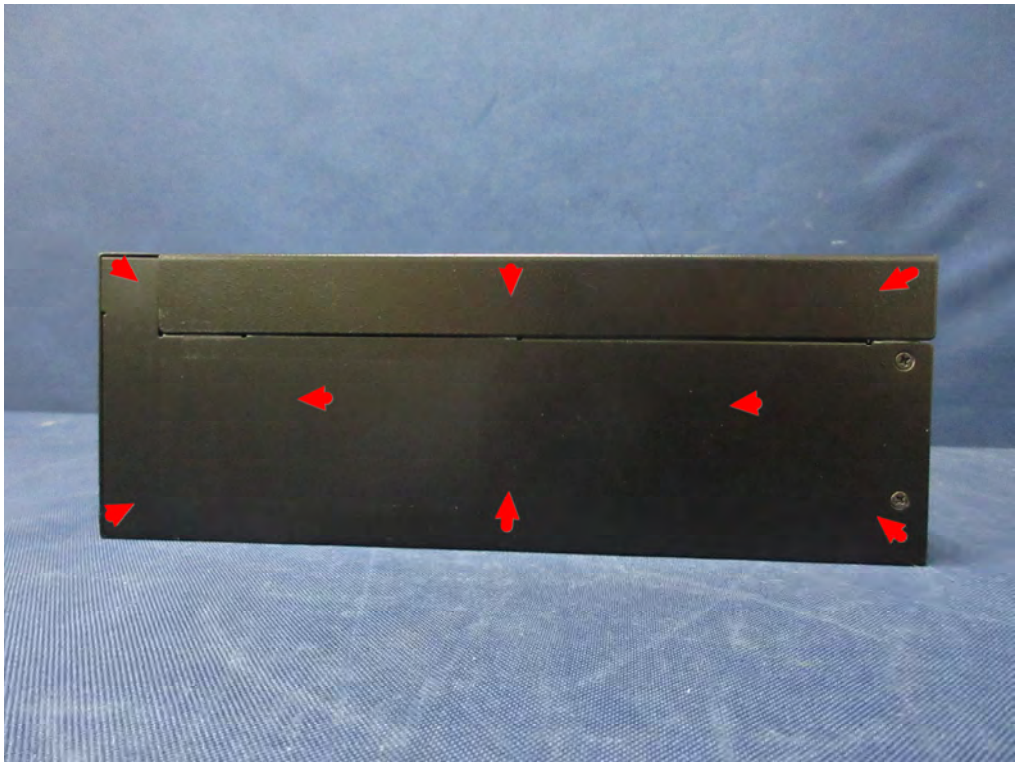
8.7. EUT to dot photo for ESD test

Test dot: (Contact Discharge)

Test dot: (Contact Discharge)

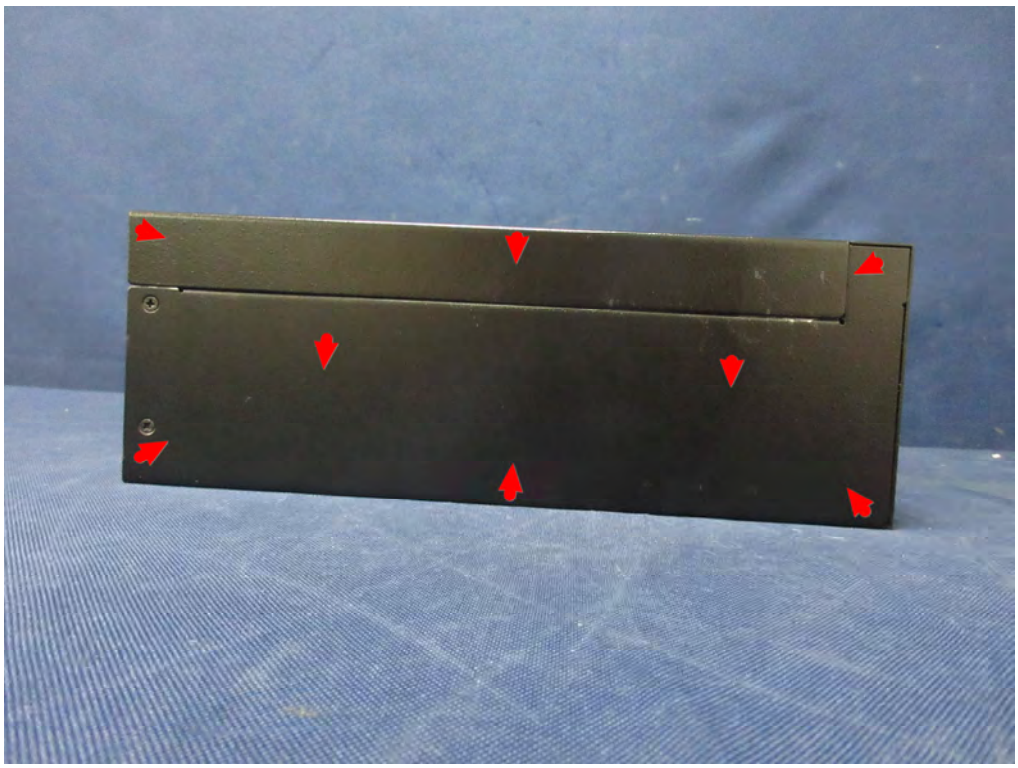


Test dot: (Contact Discharge)



Test dot: (Contact Discharge)

Test dot: (Contact Discharge)

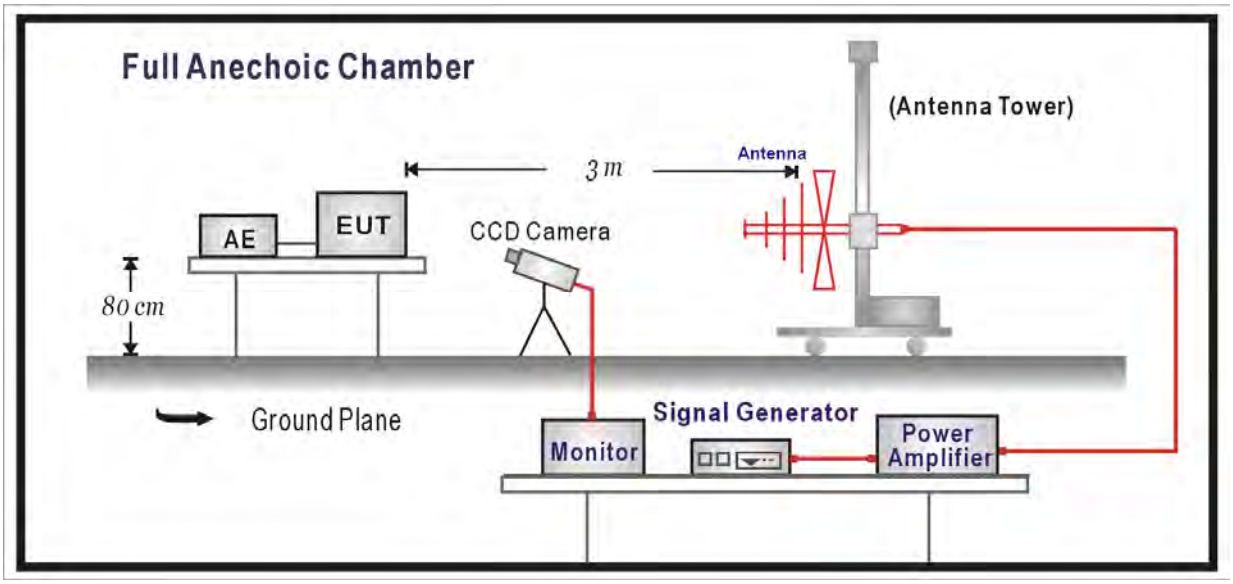


9. Radiated Susceptibility

9.1. Test Specification

According to Standard : IEC 61000-4-3

9.2. Test Setup



9.3. Test Level

Standard: EN 55035

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Radio-Frequency Electromagnetic Field Amplitude Modulated	MHz V/m(Un-modulated, rms) % AM (1kHz)	80-1000 3 80	A
	Continuous RF electromagnet tic field disturbances, spot test V/m(Un-modulated, rms) Amplitude Modulated	MHz V/m(Un-modulated, rms) % AM (1kHz)	1800 2600 3500 5000 3 80	A

Standard: EN IEC 61000-6-2

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Radio-Frequency Electromagnetic Field Amplitude Modulated	MHz V/m(Un-modulated, rms) % AM (1kHz)	80-1000 1400-6000 10,3 80	A

9.4. Test Procedure

The EUT and load, which are placed on a table that is 0.8 meter above ground, are placed with one coincident with the calibration plane such that the distance from antenna to the EUT was 3 meters.
Both horizontal and vertical polarization of the antenna and four sides of the EUT are set on measurement.
In order to judge the EUT performance, a CCD camera is used to monitor EUT screen.
The test procedure shall be in accordance with IEC 61000-4-3.
When testing using IEC 61000-4-3, if the most sensitive face (or side) of the EUT is known throughout the frequency range (for example, via preliminary tests), testing may be restricted to that side only.
When testing to the requirements defined in IEC61000-4-3 table clause 1.3 (spot frequency testing above 1 GHz), the radiated field illumination of the EUT using the 'independent windows method' specified in IEC 61000-4-3, Annex H may be used.
Recognising that a 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 in order to reduce the testing time for equipment requiring testing in multiple configurations and/or long cycle times.

The test level specified is the rms voltage level of the unmodulated signal.

The disturbance test signal shall be 80 % amplitude modulated by a sine wave, preferably having a frequency of 1 kHz.
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.

- During continuous RF disturbance testing, additional spot frequency tests are required for equipment with a primary function of telephony, subject to the limitations specified in Table H.1. The additional spot frequencies are:
  – 80 MHz; 120 MHz; 160 MHz; 230 MHz; 434 MHz; 460 MHz; 600 MHz; 863 MHz and 900 MHz (±1 %) for continuous RF radiated electromagnetic field disturbances.

9.5. Test Result

Product	SQR-SD5 series		
Test Item	Radiated susceptibility		
Test Mode	Mode 1		
Date of Test	2022/06/28	Test Site	LK-CB03
Environmental	22(°C) 50(%RH)	Engineer	Harrison Chen
Standard	EN 55035		

Audio output function: ☐ Yes , ☒ No

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	0°	H/V	3	A	A	PASS
80-1000	90°	H/V	3	A	A	PASS
80-1000	180°	H/V	3	A	A	PASS
80-1000	270°	H/V	3	A	A	PASS
1800	0°	H/V	3	A	A	PASS
1800	90°	H/V	3	A	A	PASS
1800	180°	H/V	3	A	A	PASS
1800	270°	H/V	3	A	A	PASS
2600	0°	H/V	3	A	A	PASS
2600	90°	H/V	3	A	A	PASS
2600	180°	H/V	3	A	A	PASS
2600	270°	H/V	3	A	A	PASS
3500	0°	H/V	3	A	A	PASS
3500	90°	H/V	3	A	A	PASS
3500	180°	H/V	3	A	A	PASS
3500	270°	H/V	3	A	A	PASS
5000	0°	H/V	3	A	A	PASS
5000	90°	H/V	3	A	A	PASS
5000	180°	H/V	3	A	A	PASS
5000	270°	H/V	3	A	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☐ Meet criteria C: Loss/Error of function
☐ Additional Information
  ☐ There was no observable degradation in performance.
  ☐ EUT stopped operation and could / could not be reset by operator at _____ V/m at frequency _____MHz.

☒ No false alarms or other malfunctions were observed during or after the test.

Product	SQR-SD5 series		
Test Item	Radiated susceptibility		
Test Mode	Mode 1		
Date of Test	2022/06/28	Test Site	LK-CB03
Environmental	21(°C) 50(%RH)	Engineer	Harrison Chen
Standard	EN IEC 61000-6-2		

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	0°	H	10	A	A	PASS
80-1000	0°	V	10	A	A	PASS
80-1000	90°	H	10	A	A	PASS
80-1000	90°	V	10	A	A	PASS
80-1000	180°	H	10	A	A	PASS
80-1000	180°	V	10	A	A	PASS
80-1000	270°	H	10	A	A	PASS
80-1000	270°	V	10	A	A	PASS
1400-6000	0°	H	3	A	A	PASS
1400-6000	0°	V	3	A	A	PASS
1400-6000	90°	H	3	A	A	PASS
1400-6000	90°	V	3	A	A	PASS
1400-6000	180°	H	3	A	A	PASS
1400-6000	180°	V	3	A	A	PASS
1400-6000	270°	H	3	A	A	PASS
1400-6000	270°	V	3	A	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☐ Meet criteria C: Loss/Error of function
☐ Additional Information
  ☐ There was no observable degradation in performance.
  ☐ EUT stopped operation and could / could not be reset by operator at _____ V/m at frequency _____MHz.

☒ No false alarms or other malfunctions were observed during or after the test.

9.6. Test Photograph

Test Mode : Mode 1

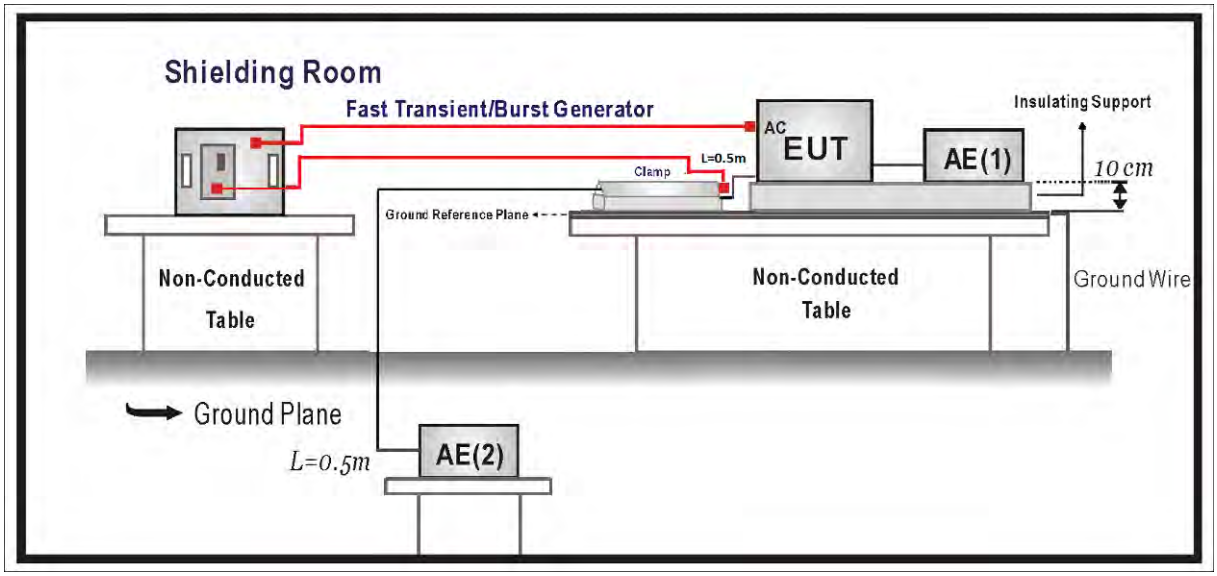
Description : Radiated Susceptibility Test Setup

10. Electrical Fast Transient/Burst

10.1. Test Specification

According to Standard : IEC 61000-4-4

10.2. Test Setup



10.3. Test Level

Standard: EN 55035

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
I/O and communication ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±0.5 5/50 5	B
For CPE xDSL ports repetition frequency is 100 kHz.				
Input DC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±0.5 5/50 5	B
Input AC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±1 5/50 5	B

Notes:

1) Applicable only to ports which, according to the manufacturer's specification, support cable lengths greater than 3 m.

Standard: EN IEC 61000-6-2

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
I/O and communication ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±1 5/50 5 or 100	B
Input DC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±1 5/50 5 or 100	B
Input AC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±2 5/50 5 or 100	B

10.4. Test Procedure

The EUT is placed on a table that is 0.8 meter height. A ground reference plane is placed on the table, and uses a 0.1m insulation between the EUT and ground reference plane.
The minimum area of the ground reference plane is 1m*1m, and 0.65mm thick min, and projected beyond the EUT by at least 0.1m on all sides.

Test on I/O and communication ports:
The EFT interference signal is through a coupling clamp device couples to the signal and control lines of the EUT with burst noise for 1minute.

Test on power supply ports:
The EUT is connected to the power mains through a coupling device that directly couples the EFT/B interference signal.
Each of the Line and Neutral conductors is impressed with burst noise for 1 minute.

The length of the signal and power lines between the coupling device and the EUT is 0.5m.

Multi-conductor cables shall be tested as a single cable. Cables shall not be split or divided into groups of conductors for this test.

10.5. Test Result

Product	SQR-SD5 series		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 1		
Date of Test	2022/06/28	Test Site	LK-SR03
Environmental	24(°C) 45(%RH)	Engineer	Harrison Chen
Standard	EN 55035		

Repetition frequency : ■5KHz , □100KHz

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L	±	1kV	60	Direct	B	A	PASS
N	±	1kV	60	Direct	B	A	PASS
PE	±	1kV	60	Direct	B	A	PASS
L-N-PE	±	1kV	60	Direct	B	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
  ☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.
☒ No false alarms or other malfunctions were observed during or after the test.

Product	SQR-SD5 series		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 1		
Date of Test	2022/06/28	Test Site	LK-SR03
Environmental	24(°C) 45(%RH)	Engineer	Harrison Chen
Standard	EN IEC 61000-6-2		

Repetition frequency : ■5KHz , ■100KHz

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L	±	2kV	60	Direct	B	A	PASS
N	±	2kV	60	Direct	B	A	PASS
PE	±	2kV	60	Direct	B	A	PASS
L-N-PE	±	2kV	60	Direct	B	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
  ☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.
☒ No false alarms or other malfunctions were observed during or after the test.

10.6. Test Photograph

Test Mode : Mode 1

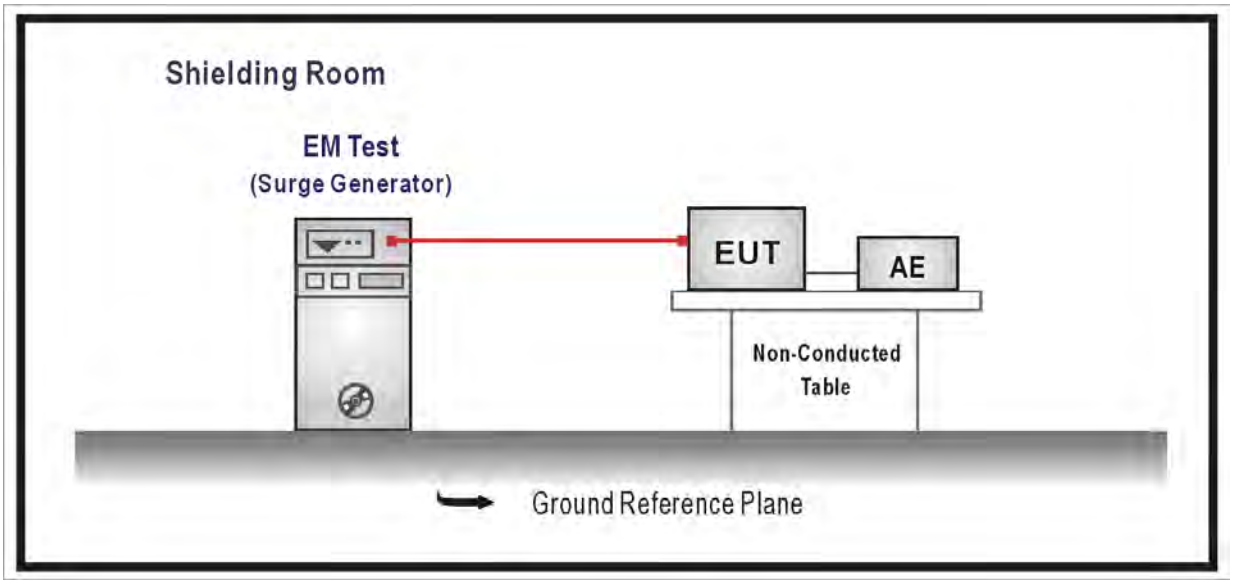
Description : EFT/B Test Setup

11. Surge

11.1. Test Specification

According to Standard : IEC 61000-4-5

11.2. Test Setup



11.3. Test Level

Standard: EN 55035

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Analogue/Digital data ports: Apply where primary protection is intended (Port type: unshielded symmetrical)				
	Surges Line to Ground	Tr/Th us kV	10/700 1 and 4	C
Analogue/Digital data ports: Apply where primary protection is not intended (Port type: unshielded symmetrical)				
	Surges Line to Ground	Tr/Th us kV	10/700 1	C
Analogue/Digital data ports: Apply where primary protection is not intended (Port type: coaxial or shielded)				
	Surges shield to ground	Tr/Th us kV	1.2/50 0.5	B
Input DC Power Ports				
	Surges Line to Ground	Tr/Th us kV	1.2/50 (8/20) 0.5	B
AC Input and AC Output Power Ports				
	Surges Line to Line Line to Ground	Tr/Th us kV kV	1.2/50 (8/20) 1 2	B

Notes:

1) Applicable only to ports which, according to the manufacturer's specification, support cable lengths greater than 3 m.

Standard: EN IEC 61000-6-2

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Signal Ports and Telecommunication Ports				
	Surges Line to Ground	Tr/Th us kV	1.2/50 (8/20) 1	B
Input DC Power Ports				
	Surges Line to Line Line to Ground	Tr/Th us kV	1.2/50 (8/20) 0.5 1	B
AC Input and AC Output Power Ports				
	Surges Line to Line Line to Ground	Tr/Th us kV kV	1.2/50 (8/20) 1 2	B

11.4. Test Procedure

The EUT and its load are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The length of power cord between the coupling device and the EUT shall be 2m or less.
For Input and Output AC Power or DC Input and DC Output Power Ports:
The EUT is connected to the power mains through a coupling device that directly couples the Surge interference signal.
The number of pulses applied shall be as follows:

- Five positive pulses line-to-neutral at 90° phase
- Five negative pulses line-to-neutral at 270° phase

The following additional pulses are required only if the EUT has an earth connection or if the EUT is earthed
via any AE.

- Five positive pulses line-to-earth at 90° phase
- Five negative pulses line-to-earth at 270° phase
- Five negative pulses neutral-to-earth at 90° phase
- Five positive pulses neutral-to-earth at 270° phase

For multiple-phase systems, where a neutral conductor is present, the test is applied (as defined above) to a single phase unless the other phases are connected to significantly different circuit arrangements.
For multiple-phase systems, where a neutral conductor is not present, the test is applied as defined in the basic standard.

The surge noise shall be applied synchronized to the voltage phase at 0^0, 90^0, 180^0, 270^0 and the peak value of the a.c. voltage wave. (Positive and negative)
Each of Line-Earth and Line-Line is impressed with a sequence of five surge voltages with interval of 1 min.

11.5. Test Result

Product	SQR-SD5 series		
Test Item	Surge		
Test Mode	Mode 1		
Date of Test	2022/06/28	Test Site	LK-SR03
Environmental	24(°C) 45(%RH)	Engineer	Harrison Chen
Standard	EN 55035		

Inject Line	Polarity	Voltage kV	Angle	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	+	1kV	90	60	Direct	B	A	PASS
L-N	-	1kV	270	60	Direct	B	A	PASS
L-PE	+	2kV	90	60	Direct	B	A	PASS
L-PE	-	2kV	270	60	Direct	B	A	PASS
N-PE	+	2kV	270	60	Direct	B	A	PASS
N-PE	-	2kV	90	60	Direct	B	A	PASS

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
  ☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test.

Product	SQR-SD5 series		
Test Item	Surge		
Test Mode	Mode 1		
Date of Test	2022/06/28	Test Site	LK-SR03
Environmental	24(°C) 45(%RH)	Engineer	Harrison Chen
Standard	EN IEC 61000-6-2		

Inject Line	Polarity	Voltage kV	Angle	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	1kV	0	60	Direct	B	A	PASS
L-N	±	1kV	90	60	Direct	B	A	PASS
L-N	±	1kV	180	60	Direct	B	A	PASS
L-N	±	1kV	270	60	Direct	B	A	PASS
L-PE	±	2kV	0	60	Direct	B	A	PASS
L-PE	±	2kV	90	60	Direct	B	A	PASS
L-PE	±	2kV	180	60	Direct	B	A	PASS
L-PE	±	2kV	270	60	Direct	B	A	PASS
N-PE	±	2kV	0	60	Direct	B	A	PASS
N-PE	±	2kV	90	60	Direct	B	A	PASS
N-PE	±	2kV	180	60	Direct	B	A	PASS
N-PE	±	2kV	270	60	Direct	B	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
  ☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test.

11.6. Test Photograph

Test Mode : Mode 1

Description : SURGE Test Setup

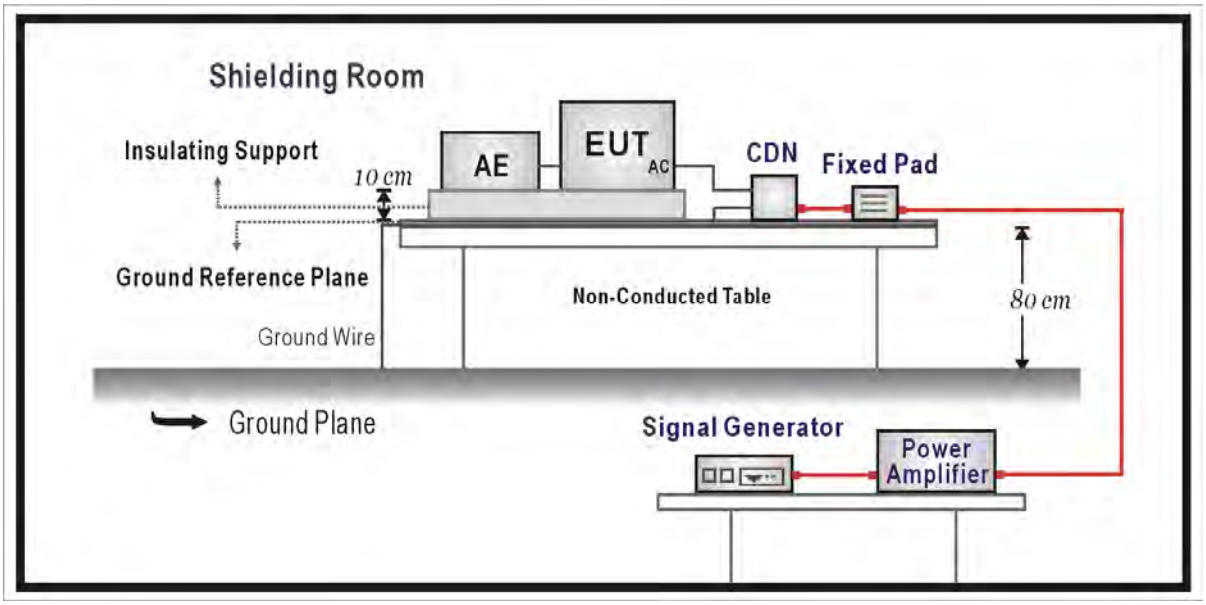
12. Conducted Susceptibility

12.1. Test Specification

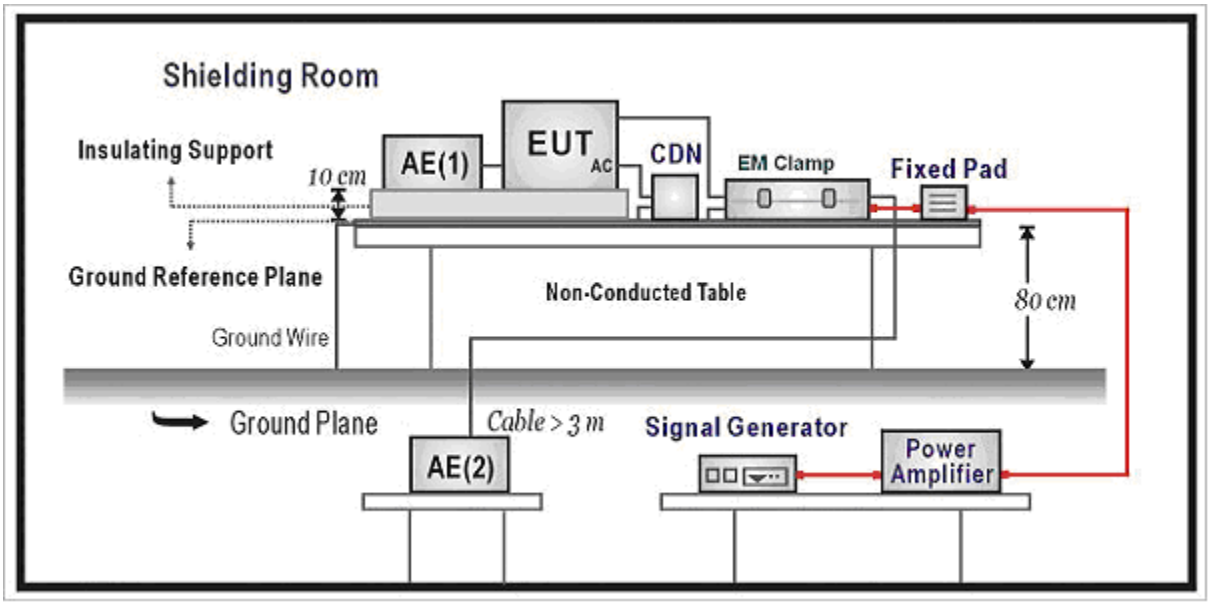
According to Standard : IEC 61000-4-6

12.2. Test Setup

CDN Inject Method



EM Clamp Inject Method



12.3. Test Level

Standard: EN 55035

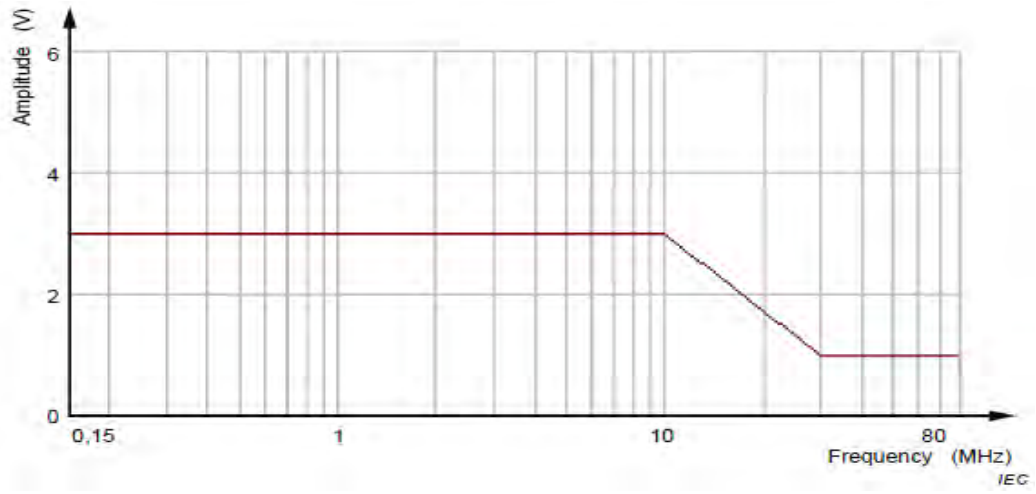
Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Analogue & Digital Data Ports/ Input DC Power Ports / Input AC Power Ports				
	Continuous induced RF disturbances	MHz V (rms, Un-modulated) % AM (1kHz)	0.15 to 10 3 80	A
		MHz V (rms, Un-modulated) % AM (1kHz)	10 to 30 3 to 1 80	A
		MHz V (rms, Un-modulated) % AM (1kHz)	30 to 80 1 80	A

Standard: EN IEC 61000-6-2

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Signal Ports and Telecommunication Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 10 80	A
Input DC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 10 80	A
Input AC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 10 80	A

Notes:

1) Applicable only to ports which, according to the manufacturer's specification, support cable lengths greater than 3 m.



12.4. Test Procedure

The EUT are placed on a table that is 0.8 meter height, and a Ground reference plane on the table, EUT are placed upon table and use a 10cm insulation between the EUT and Ground reference plane.
For Signal Ports and Telecommunication Ports
The disturbance signal is through a coupling and decoupling networks (CDN) or EM-clamp device couples to the signal and Telecommunication lines of the EUT.
For Input DC and AC Power Ports
The EUT is connected to the power mains through a coupling and decoupling networks for power supply lines. And directly couples the disturbances signal into EUT.

Recognising that a 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 in order to reduce the testing time for equipment requiring testing in multiple configurations and/or long cycle times. The step size and test level used shall be recorded in the test report.

The test level specified is the rms voltage level of the unmodulated signal.

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.

Multi-conductor cables shall be tested as a single cable. Cables shall not be split or divided into groups of conductors for this test. Where an appropriate CDN is not available for the single cable including all the conductors, use Figure 1 from IEC 61000-4-6:2008 to determine the suitable injection method.

- During continuous RF disturbance testing, additional spot frequency tests are required for equipment with a primary function of telephony, subject to the limitations specified in Table H.1. The additional spot frequencies are:
  - 0,2 MHz; 1 MHz; 7,1 MHz; 13,56 MHz; 21 MHz; 27,12 MHz and 40,68 MHz (±1 %) for continuous induced RF disturbances.

12.5. Test Result

Product	SQR-SD5 series		
Test Item	Conducted susceptibility		
Test Mode	Mode 1		
Date of Test	2022/06/27	Test Site	LK-SR06
Environmental	27(°C) 51(%RH)	Engineer	Vinson XU
Standard	EN 55035		

Audio output function: ☐ Yes , ☒ No						
Frequency Range (MHz)	Voltage Applied (V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~10	3	CDN	AC IN	A	A	PASS
10~30	3 to 1	CDN	AC IN	A	A	PASS
30~80	1	CDN	AC IN	A	A	PASS

Note:

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
- ☐ EUT stopped operation and could / could not be reset by operator at _____ dBμV(V) at frequency _____MHz.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	SQR-SD5 series		
Test Item	Conducted susceptibility		
Test Mode	Mode 1		
Date of Test	2022/06/27	Test Site	LK-SR06
Environmental	27(°C) 51(%RH)	Engineer	Vinson XU
Standard	EN IEC 61000-6-2		

Frequency Range (MHz)	Voltage Applied (V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	10	CDN	AC IN	A	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
- ☐ EUT stopped operation and could / could not be reset by operator at _____ dBuV(V) at frequency _____MHz.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

12.6. Test Photograph

Test Mode : Mode 1

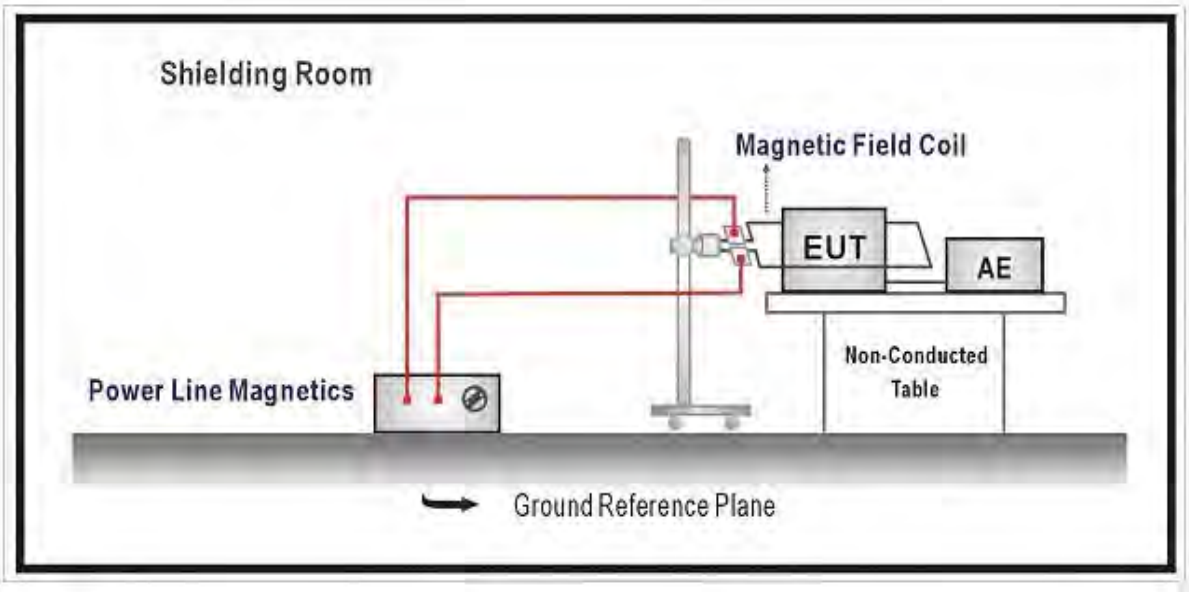
Description : Conducted Susceptibility Test Setup

13. Power Frequency Magnetic Field

13.1. Test Specification

According to Standard : IEC 61000-4-8

13.2. Test Setup



13.3. Test Level

Standard: EN55024 / EN 55035

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Power-Frequency Magnetic Field	Hz A/m (r.m.s.)	50 or 60 1	A

Standard: EN IEC 61000-6-2

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Power-Frequency Magnetic Field	Hz A/m (r.m.s.)	50/60 30	A

Note:

Applicable only to equipment containing devices intrinsically susceptible to magnetic fields, such as CRT monitors, Hall effect elements, electro-dynamic microphones, magnetic field sensors or audio frequency transformers. Refer to D.3.2 for determining the test level when the EUT contains a CRT display.

13.4. Test Procedure

The EUT and its load are placed on a table which is 0.8 meter above a metal ground plane measured at least 1m*1m min. The test magnetic field shall be placed at central of the induction coil.

The test magnetic Field shall be applied by the immersion method to the EUT. And the induction coil shall be rotated by 90 in order to expose the EUT to the test field with different orientation (X, Y, Z Orientations).

13.5. Test Result

Product	SQR-SD5 series		
Test Item	Power frequency magnetic field		
Test Mode	Mode 1		
Date of Test	2022/06/27	Test Site	LK-SR04
Environmental	26(°C) 54(%RH)	Engineer	Vinson XU
Standard	EN 55035		

Polarization	Frequency (Hz)	Inject Time (s)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	60	1	A	A	PASS
Y Orientation	50	60	1	A	A	PASS
Z Orientation	50	60	1	A	A	PASS

☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☐ Meet criteria C: Loss/Error of function
☐ Additional Information
☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	SQR-SD5 series		
Test Item	Power frequency magnetic field		
Test Mode	Mode 1		
Date of Test	2022/06/27	Test Site	LK-SR04
Environmental	26(°C) 54(%RH)	Engineer	Vinson XU
Standard	EN IEC 61000-6-2		

Polarization	Frequency (Hz)	Inject Time(s)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50/60	60	30	A	A	PASS
Y Orientation	50/60	60	30	A	A	PASS
Z Orientation	50/60	60	30	A	A	PASS

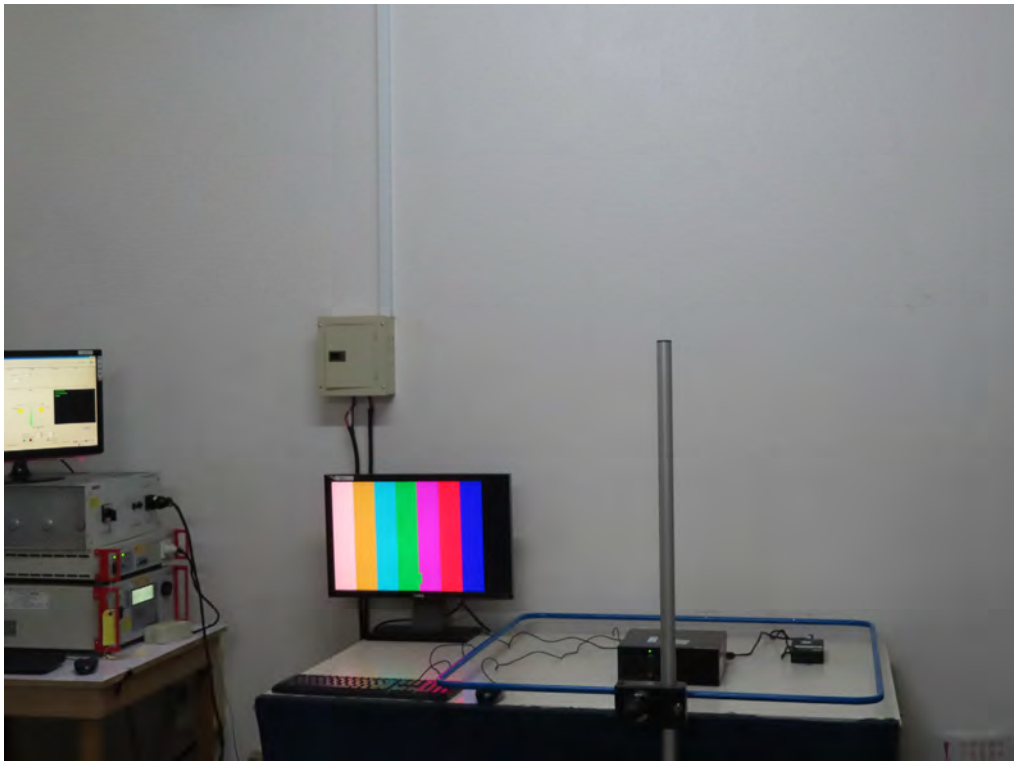
☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☐ Meet criteria C: Loss/Error of function
☐ Additional Information
  ☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

13.6. Test Photograph

Test Mode : Mode 1

Description : Power Frequency Magnetic Field Test Setup

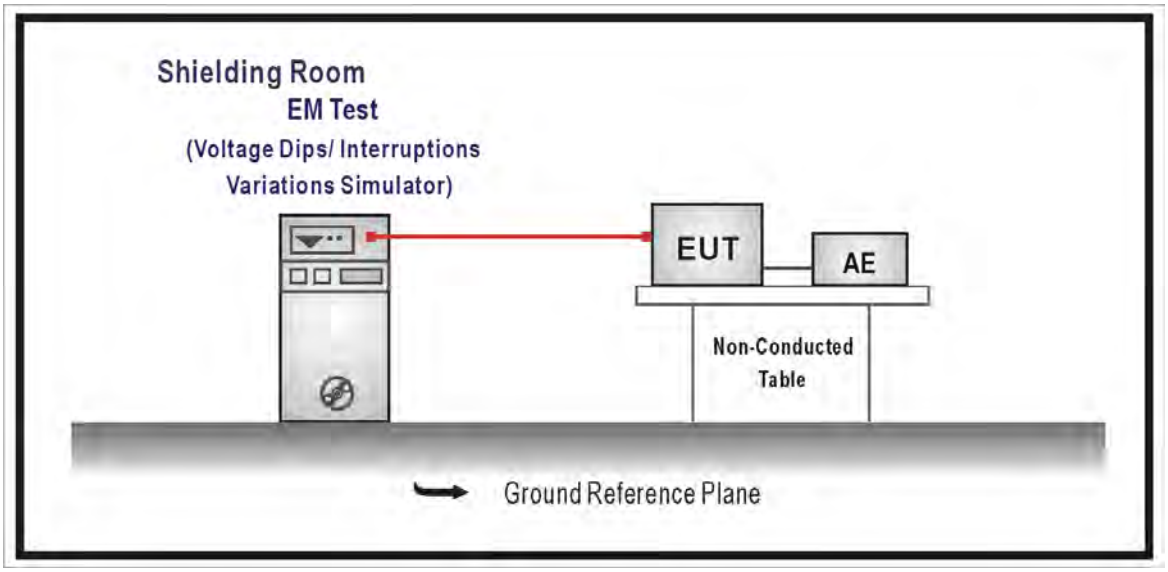


14. Voltage Dips and Interruption

14.1. Test Specification

According to Standard : IEC 61000-4-11

14.2. Test Setup



14.3. Test Level

Standard: EN 55035

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Input AC Power Ports				
	Voltage Dips (Apply at only one supply frequency of the MME.)	% Residual voltage Period	70 25 for 50Hz 30 for 60Hz	C
		% Residual voltage Period	<5 0.5	B
	Voltage Interruptions (Apply at only one supply frequency of the MME.)	% Residual voltage Period	<5 250 for 50Hz 300 for 60Hz	C

Standard: EN IEC 61000-6-2

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Input AC Power Ports				
	Voltage Dips	% Reduction Period	30 25	C
		% Reduction Period	60 10	C
		% Reduction Period	100 1	B
	Voltage Interruptions	% Reduction Period	100 250	C

14.4. Test Procedure

The EUT and its load are placed on a table which is 0.8 meter above a metal ground plane measured 1m*1m min. And 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The power cord shall be used the shortest power cord as specified by the manufacturer.

For Voltage Dips/ Interruptions test:

The selection of test voltage is based on the rated power range. If the operation range is large than 20% of lower power range, both end of specified voltage shall be tested. Otherwise, the typical voltage specification is selected as test voltage.

The EUT is connected to the power mains through a coupling device that directly couples to the Voltage Dips and Interruption Generator.

Changes to occur at 0 degree crossover point of the voltage waveform. If the EUT does not demonstrate compliance when tested with 0 degree switching, the test shall be repeated with the switching occurring at both 90 degrees and 270 degrees. If the EUT satisfies these alternative requirements, then it fulfils the requirements. This condition shall be recorded in the test report.

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The EUT shall be tested for 100% voltage dip of supplied voltage and duration 0.5/1/250/300 Periods, for 60% voltage dip of supplied voltage and duration 10 Periods, for 30% voltage dip of supplied voltage and duration 25/30 Periods with a sequence of three voltage interruptions with intervals of 10 seconds.

Voltage phase shifting are shall occur at 0^0, 45^0, 90^0 ,135^0 ,180^0 ,225^0, 270^0 ,315^0 of the voltage.

14.5. Test Result

Product	SQR-SD5 series		
Test Item	Voltage dips and interruption		
Test Mode	Mode 1		
Date of Test	2022/06/28	Test Site	LK-SR03
Environmental	24(°C) 45(%RH)	Engineer	Harrison Chen
Standard	EN 55035		

Voltage Dips and Interruption Residual voltage (%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
70	0	25	C	A	PASS
70	90	25	C	A	PASS
70	270	25	C	A	PASS
<5	0	0.5	B	A	PASS
<5	90	0.5	B	A	PASS
<5	270	0.5	B	A	PASS
<5	0	250	C	C	PASS
<5	90	250	C	C	PASS
<5	270	250	C	C	PASS

☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☒ Meet criteria C: Loss/Error of function
☐ Additional Information
  ☐ The nominal voltage of EUT is 230V.
  ☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	SQR-SD5 series		
Test Item	Voltage dips and interruption		
Test Mode	Mode 1		
Date of Test	2022/06/28	Test Site	LK-SR03
Environmental	24(°C) 45(%RH)	Engineer	Harrison Chen
Standard	EN IEC 61000-6-2		

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	25	C	A	PASS
30	45	25	C	A	PASS
30	90	25	C	A	PASS
30	135	25	C	A	PASS
30	180	25	C	A	PASS
30	225	25	C	A	PASS
30	270	25	C	A	PASS
30	315	25	C	A	PASS
60	0	10	C	A	PASS
60	45	10	C	A	PASS
60	90	10	C	A	PASS
60	135	10	C	A	PASS
60	180	10	C	A	PASS
60	225	10	C	A	PASS
60	270	10	C	A	PASS
60	315	10	C	A	PASS
100	0	1	B	A	PASS
100	45	1	B	A	PASS
100	90	1	B	A	PASS
100	135	1	B	A	PASS
100	180	1	B	A	PASS
100	225	1	B	A	PASS
100	270	1	B	A	PASS
100	315	1	B	A	PASS
100	0	250	C	C	PASS
100	45	250	C	C	PASS
100	90	250	C	C	PASS
100	135	250	C	C	PASS
100	180	250	C	C	PASS
100	225	250	C	C	PASS
100	270	250	C	C	PASS
100	315	250	C	C	PASS

☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☒ Meet criteria C: Loss/Error of function
☐ Additional Information
  ☐ The nominal voltage of EUT is 230V.
  ☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

14.6. Test Photograph

Test Mode : Mode 1

Description : Voltage Dips Test Setup