



中国认可
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检测
TESTING
CNAS L2291



TEST REPORT

Product Name : Uninterruptible Power Systems
**Model Number : NTCS3380-TY, NTCS33100-TY,
NTCS33120-TY**

Prepared for : Netcon Enterprise Pvt Ltd
Address : 430A, Kathirvedu, Puzhal, Chennai- 600066, India

Prepared by : EMTEK (SHENZHEN) CO., LTD.
Address : Building 69, Majialong Industry Zone, Nanshan District,
Shenzhen, Guangdong, China

Tel: (0755) 26954280
Fax: (0755) 26954282

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Date(s) of Tests : September 1, 2022 to September 26, 2022
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APPENDIX (Photos of EUT) (1 Pages)

TEST REPORT DESCRIPTION

Applicant : Netcon Enterprise Pvt Ltd
 Manufacturer : Netcon Enterprise Pvt Ltd
 Trademark : 
 EUT : Uninterruptible Power Systems
 Model Number : NTCS3380-TY, NTCS33100-TY, NTCS33120-TY
 Power supply : Input: 380-415V, 50/60Hz
 Output: 380-415V, 50/60Hz

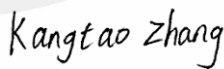
Measurement Procedure Used:

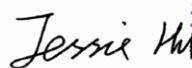
EN IEC 62040-2: 2018, IEC 62040-2: 2016
 (IEC 61000-4-2:2008, IEC 61000-4-3:2006+A1:2007+A2:2010, IEC61000-4-4:2012,
 IEC 61000-4-5:2014+A1:2017, IEC 61000-4-6:2013, IEC 61000-4-8:2009, IEC 61000-4-11:2004+A1:2017,
 IEC 61000-2-2:2002+A1:2017)

The device described above is tested by EMTEK (SHENZHEN) CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and EMTEK (SHENZHEN) CO., LTD. is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the EN IEC 62040-2 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of EMTEK (SHENZHEN) CO., LTD.

Date of Test : September 1, 2022 to September 26, 2022

Prepared by : 
Kangtao Zhang/Editor

Reviewer : 
Jessie Hu/Supervisor

Approved & Authorized Signer : 
Lisa Wang/Manager

Modified Information

Version	Report No.	Revision Date	Summary
Ver.1.0	ENS2407290306E00301R	/	Original Report



1. DESCRIPTION OF STANDARDS AND RESULTS (EUT)

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted Emissions	EN IEC 62040-2: 2018	C3	Pass
Asymmetric mode conducted emissions Wired network ports	EN IEC 62040-2: 2018	C3	N/A
Radiated emissions at frequencies up to 1 GHz	EN IEC 62040-2: 2018	C3	Pass
Harmonic Current Emissions	EN 61000-3-12:2011	Table 3	N/A
Voltage Fluctuation and Flicker	EN IEC 61000-3-11: 2019	Section 5	N/A
IMMUNITY			
Description of Test Item	Basic Standard	Performance Criteria	Results
Electrostatic Discharge (ESD)	IEC 61000-4-2:2008	B	Pass
RF Field Strength Susceptibility (R/S)	IEC 61000-4-3: 2006+A1:2007+A2:2010	A	Pass
Electro Fast Transient (EFT)	IEC 61000-4-4:2012	B	Pass
Surge	IEC 61000-4-5: 2014+A1:2017	B	Pass
Radio-Frequency, Continuous Conducted Disturbance	IEC 61000-4-6:2013	A	Pass
Power Frequency Magnetic Field	IEC 61000-4-8:2009	A	Pass
Voltage Dips and Interruptions	IEC 61000-4-11: 2004+A1:2017	-	Pass
Low Frequency signals	IEC 61000-2-2: 2002+A1:2017	A	Pass
Power Line Unbalance (Three-Phase Ups Systems Only)	EN IEC 62040-2: 2018	A	Pass
Note: N/A is an abbreviation for Not Applicable.			
1) AC output cable, as declared by the manufacturer in the user manual, does not exceed 10 m in length.			

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT : Uninterruptible Power Systems

Model Number : NTCS3380-TY, NTCS33100-TY, NTCS33120-TY
(Note: These models are identical in circuitry and electrical, mechanical and physical construction; the only difference is the model number. for trading purpose. We prepare NTCS33120-TY for test.)

Test Voltage : AC 380V/50Hz

Applicant : Netcon Enterprise Pvt Ltd

Address : 430A, Kathirvedu, Puzhal, Chennai- 600066, India

Manufacturer : Netcon Enterprise Pvt Ltd

Address : 430A, Kathirvedu, Puzhal, Chennai- 600066, India

Date of Received : September 1, 2022

Date of Test : September 1, 2022 to September 26, 2022

Note: This report is based on ENS2209080127E00101R change of applicant, manufacturer, address, trademark and model. This change or addition does not affect test results. The original data and records are referred to ENS2209080127E00101R.

2.2. Independent Operation Modes

A. On
1. Line Mode

2.3. Test Manner

Test Items	Test Voltage	Operation Modes	Worst case
Conducted disturbance at mains Terminals	AC 380V/50Hz	Mode A	Mode A.1
Radiated emissions at frequencies up to 1 GHz	AC 380V/50Hz	Mode A	Mode A.1
Harmonic Current Emissions	AC 380V/50Hz	Mode A.1	/
Voltage Fluctuation and Flicker	AC 380V/50Hz	Mode A.1	/
EMS	AC 380V/50Hz	Mode A	/

2.4. Description of Support Device

N/A

2.5. Description of Test Facility

Site Description

EMC Lab. : **Accredited by CNAS**
The Certificate Registration Number is L2291.
The Laboratory has been assessed and proved to be in compliance with
CNAS-CL01 (identical to ISO/IEC 17025:2017)

Accredited by FCC

Designation Number: CN1204
Test Firm Registration Number: 882943

Accredited by A2LA

The Certificate Number is 4321.01.

Accredited by Industry Canada

The Conformity Assessment Body Identifier is CN0008

Name of Firm : EMTEK (SHENZHEN) CO., LTD.
Site Location : Building 69, Majialong, Industry Zone, Nanshan District, Shenzhen,
Guangdong, China

2.6. Measurement Uncertainty

Test Item	Uncertainty
Conducted Emission Uncertainty	: 2.08dB (9k~150kHz Conduction 1#) 2.40dB (150k-30MHz Conduction 1#)
Radiated Emission Uncertainty (10m Chamber)	: 4.58dB (30M~1GHz Polarize: H) 4.54dB (30M~1GHz Polarize: V)
Uncertainty for Harmonic test	: 1.8%
Uncertainty for C/S Test	: 1.45(Using CDN Test) 2.37(Using EM Clamp Test)
Uncertainty for R/S Test	: 2.10dB(80MHz-200MHz) 1.76dB(200MHz-1000MHz)
Uncertainty for test site temperature and humidity	: 0.6℃ 4%

3. MEASURING DEVICE AND TEST EQUIPMENT

3.1. For Conducted Emissions At the Mains Power Ports

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒	EMI Test Receiver	Rohde & Schwarz	ESCI	101384	May 14, 2022	1 Year
☒	AMN	Rohde & Schwarz	ENV216	101161	May 14, 2022	1 Year
☒	AMN	Kyoritsu	KNW-407	8-1492-9	May 14, 2022	1 Year

3.2. For Radiated Emission Measurement

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒	Loop Antenna	Schwarzbeck	FMZB1519	1519-012	June 12, 2021	2 Year
☒	Bilog Antenna	Schwarzbeck	VULB9163	661	June 12, 2021	2 Year
☒	Bilog Antenna	Schwarzbeck	VULB9163	660	June 12, 2021	2 Year
☒	EMI Test Receiver	Rohde & Schwarz	ESR3	101706	May 14, 2022	1 Year
☒	Pre-Amplifier	Lunar EM	LNA10M1G-40	J1011131126001	May 14, 2022	1 Year
☒	Pre-Amplifier	Lunar EM	LNA10M1G-40	J1011131126002	May 14, 2022	1 Year
☒	Loop Antenna	Schwarzbeck	FMZB1519	1519-012	June 12, 2021	2 Year

3.3. For Harmonic Current / Flicker Measurement

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒	45KVA AC Power source	Teseq	NSG 1007-45/45KV A	1305A02873	May 15, 2022	1 Year
☒	Signal conditioning Unit	Teseq	CCN 1000-3	1305A02873	May 15, 2022	1 Year
☒	Impedance network	Teseq	INA2197/37A	1305A02873	May 15, 2022	1 Year
☒	Impedance network	Teseq	INA 2196/75A	1305A02874	May 15, 2022	1 Year
☒	Proflin 2100 AC Switching Unit	Teseq	NSG 2200-3	A22714	May 15, 2022	1 Year

3.4. For Electrostatic Discharge Immunity Test

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒	ESD Tester	TESEQ AG	NSG 438A	130	June 23, 2022	1 Year

3.5. For RF Strength Susceptibility Test

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒	Power Amplifier	MILMEGA	AS0102-55	1018770	May 14, 2022	1 Year
☒	RF Power Meter. Dual Channel	BOONTON	4232A	10539	May 14, 2022	1 Year
☒	Log.-Per. Antenna	SCHWARZBECK	VULP 9118E	811	N/A	N/A
☒	Signal Generator	Agilent	N5181A	MY50145187	May 14, 2022	1 Year
☒	50ohm Diode Power Sensor	BOONTON	51011EMC	36164	May 14, 2022	1 Year
☒	Broad-Band Horn Antenna	SCHWARZBECK	STLP 9149	9149-227	N/A	N/A
☒	Field Strength Meter	DARE	RSS1006A	10I00037SNO 22	May 23, 2022	1 Year
☒	Multi-function interface system	DARE	CTR1009B	12I00250SNO 72	N/A	N/A
☒	Automatic switch group	DARE	RSW1004A	N/A	N/A	N/A
☒	Power Amplifier	MILMEGA	AS1860-50	1059346	May 14, 2022	1 Year
☒	Power Amplifier	MILMEGA	80RF1000-17 5	1059345	May 14, 2022	1 Year
☒	Directional Coupler	MILMEGA	DC6180AM1	0340463	May 14, 2022	1 Year
☒	Audio Analyzer	R&S	UPV	101473	May 14, 2022	1 Year
☒	Audio Test System	AUDIO PRECISION	ATS-1	41100	May 14, 2022	1 Year

3.6. For Electrical Fast Transient / Burst Immunity Test

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒	Burst Tester	HAEFELY	PEFT4010	080981-16	May 15, 2022	1 Year
☐	Coupling Clamp	HAEFELY	IP-4A	147147	May 15, 2022	1 Year

3.7. For Surge Immunity Test

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒	Controller	HAEFELY	Psurge 8000	174031	May 15, 2022	1 Year
☒	Impulse Module	HAEFELY	PIM 100	174124	May 15, 2022	1 Year
☒	Coupling Decoupling	HAEFELY	PCD 130	172181	May 15, 2022	1 Year
☐	Coupling Module	HAEFELY	PCD122	174354	May 15, 2022	1 Year
☐	Impulse Module	HAEFELY	PIM 120	174435	May 15, 2022	1 Year
☐	Coupling Module	HAEFELY	PCD 126A	174387	May 15, 2022	1 Year
☐	Impulse Module	HAEFELY	PIM 110	174391	May 15, 2022	1 Year
☐	Impulse Module	HAEFELY	PIM 150	178707	May 15, 2022	1 Year
☐	Impulse Module	PMI	PCDN8	190422	May 15, 2022	1 Year

3.8. For Injected Current Susceptibility Test

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒	Continuous Wave Simulator	EMTEST	CWS500C	0900-12	May 15, 2022	1 Year
☐	CDN	EMTEST	CDN-M2	510010010010	May 15, 2022	1 Year
☒	CDN	EMTEST	CDN-M3	0900-11	May 14, 2022	1 Year
☒	EM Injection Clamp	EMTEST	F-2031-23MM	368	May 15, 2022	1 Year
☒	Attenuator	EMTEST	100W 6dB DC-3G	/	May 14, 2022	1 Year
☐	Signal Generator	R&S	SMB100A	103041	May 14, 2022	1 Year
☒	CDN	LUTHI	CDN L-801 M2/M3	2606	May 14, 2022	1 Year

3.9. For Magnetic Field Immunity Test

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒	Magnetic Field Tester	HAEFELY	MAG100	250040.1	May 15, 2022	1 Year

3.10. For Voltage Dips and Interruptions Test

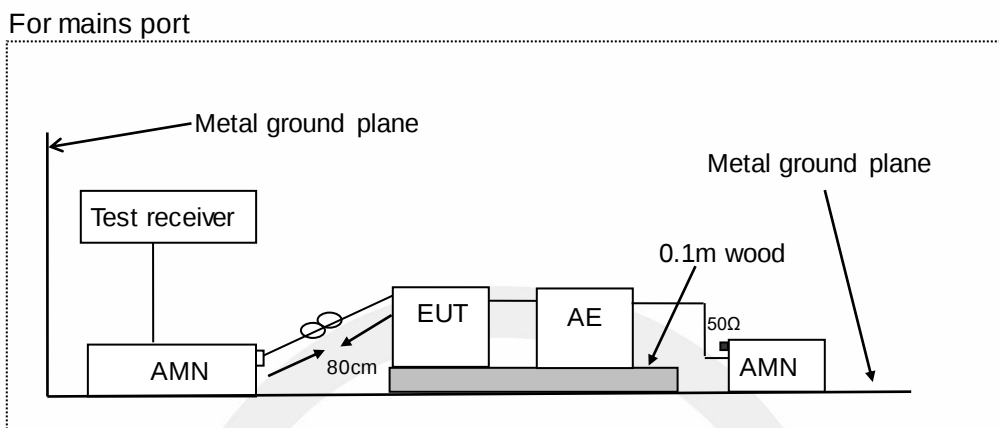
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒	45KVA AC Power source	Teseq	NSG 1007-45/45K VA	1305A02873	May 15, 2022	1 Year
☐	Signal conditioning Unit	Teseq	CCN 1000-3	1305A02873	May 15, 2022	1 Year
☐	Impedance network	Teseq	INA2197/37A	1305A02873	May 15, 2022	1 Year
☐	Impedance network	Teseq	INA 2196/75A	1305A02874	May 15, 2022	1 Year
☒	Proflin 2100 AC Switching Unit	Teseq	NSG 2200-3	A22714	May 15, 2022	1 Year

3.11. Low Frequency Signals Test

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒	Programmable AC Source	CHROMA	6530	5341	May 15, 2022	1 Year

4. CONDUCTED EMISSIONS FROM THE AC MAINS POWER PORTS

4.1. Block Diagram of Test Setup



AMN: Artificial Mains Network
AE: Associated equipment
EUT: Equipment under test

4.2. Limits

Table 2 – Limits of mains terminal and network port disturbance voltage for category C3 UPS in the frequency range 0,15 MHz to 30 MHz

UPS rated output current A	Frequency range MHz	Limits dB (μV)			
		Mains terminal		Network port	
		Quasi-peak	Average	Quasi-peak	Average
> 16 to 100	0,15 to 0,50 ^b	100	90	110 to 100 ^a	94 to 84 ^a
	0,50 to 5,0 ^b	86	76	100	84
	5,0 to 30,0	90 to 73 ^a	80 to 60 ^a		
> 100	0,15 to 0,50 ^b	130	120	110 to 100 ^a	94 to 84 ^a
	0,50 to 5,0 ^b	125	115	100	84
	5,0 to 30,0	115	105		

^a The limits decrease linearly with the logarithm of the frequency.
^b The lower limit shall apply at the transition frequency.

4.3. Test Procedure

The EUT was placed on a desk 0.1 m height from the metal ground plane and 0.4 m from the conducting wall of the shielding room and it was kept at least 0.8 m from any other grounded conducting surface. The size of the table will nominally be 1.5 m x1.0 m.

The rear of the arrangement shall be flush with the back of the supporting tabletop unless that would not be possible or typical of normal use.

All units of equipment forming the system under test (includes the EUT as well as connected peripherals and associated equipment or devices) shall be arranged such that a nominal 0.1 m separation is achieved between the neighboring units.

Connect EUT to the power mains through a artificial mains network (AMN). Where the mains cable supplied by the manufacturer is longer than 1 m, the excess should be folded at the centre into a bundle no longer than 0.4 m, so that its length is shortened to 1 m.

All the support units are connecting to the other AMN.

The AMN provides 50 ohm coupling impedance for the measuring instrument.

The CISPR states that the AMN with 50 ohm and 50 microhenry should be used.

Both sides of AC line were checked for maximum conducted interference.

The frequency range from 150 kHz to 30 MHz was sweep.

Set the test-receiver system to quasi peak detect function and average detect function, and to measure the conducted emissions values.

Test results were obtained from the following equation:

Emission Level (dBμV) = AMN Factor (dB) + Cable Loss (dB) + Reading (dBμV)

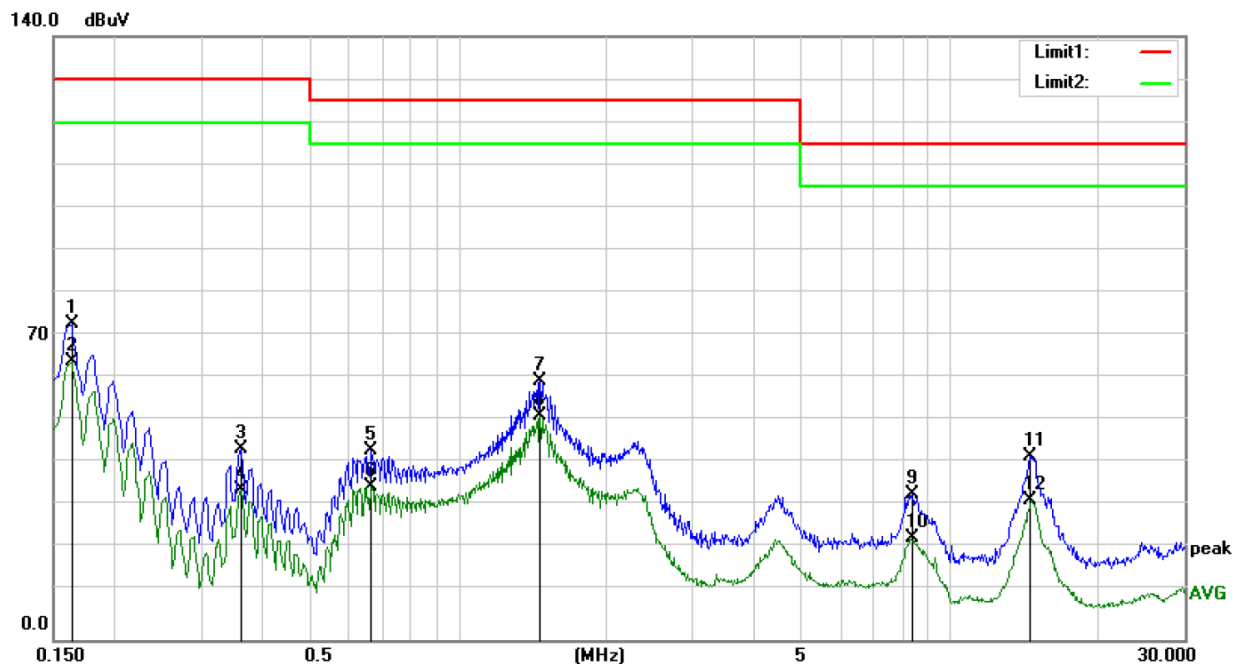
Margin (dB) = Emission Level (dBμV) - Limit (dBμV)

4.4. Measuring Results

PASS.

Please refer to the following pages.

INPUT



Site Conduction #1

Phase: **L1**

Temperature: 21.9

Limit: (CE)EN62040-2 C3_QP(>100A)

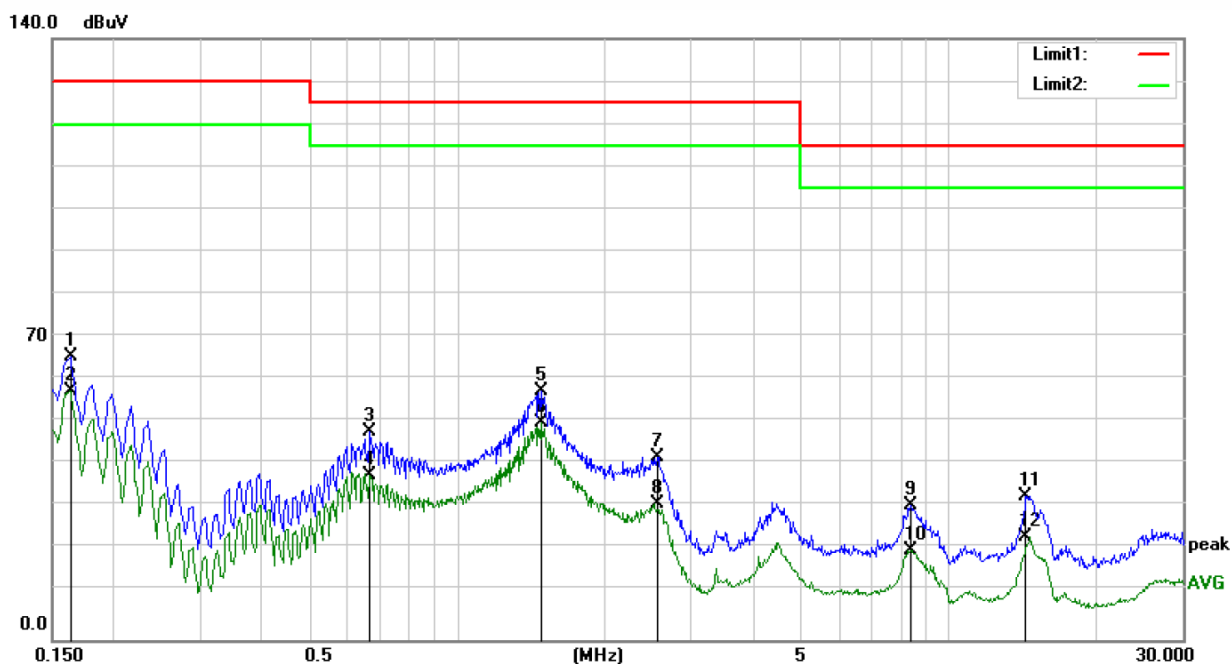
Power: AC 380V/50Hz

Humidity: 58 %

Mode: Line Mode

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1635	63.66	9.59	73.25	130.00	-56.75	QP	
2	*	0.1635	54.99	9.59	64.58	120.00	-55.42	AVG	
3		0.3615	34.44	9.68	44.12	130.00	-85.88	QP	
4		0.3615	25.04	9.68	34.72	120.00	-85.28	AVG	
5		0.6675	34.38	9.61	43.99	125.00	-81.01	QP	
6		0.6675	26.00	9.61	35.61	115.00	-79.39	AVG	
7		1.4685	50.50	9.60	60.10	125.00	-64.90	QP	
8		1.4685	42.24	9.60	51.84	115.00	-63.16	AVG	
9		8.3985	24.15	9.55	33.70	115.00	-81.30	QP	
10		8.3985	13.98	9.55	23.53	105.00	-81.47	AVG	
11		14.5500	32.75	9.63	42.38	115.00	-72.62	QP	
12		14.5500	22.77	9.63	32.40	105.00	-72.60	AVG	



Site Conduction #1

Phase: **L2**

Temperature: 21.9

Limit: (CE)EN62040-2 C3_QP(>100A)

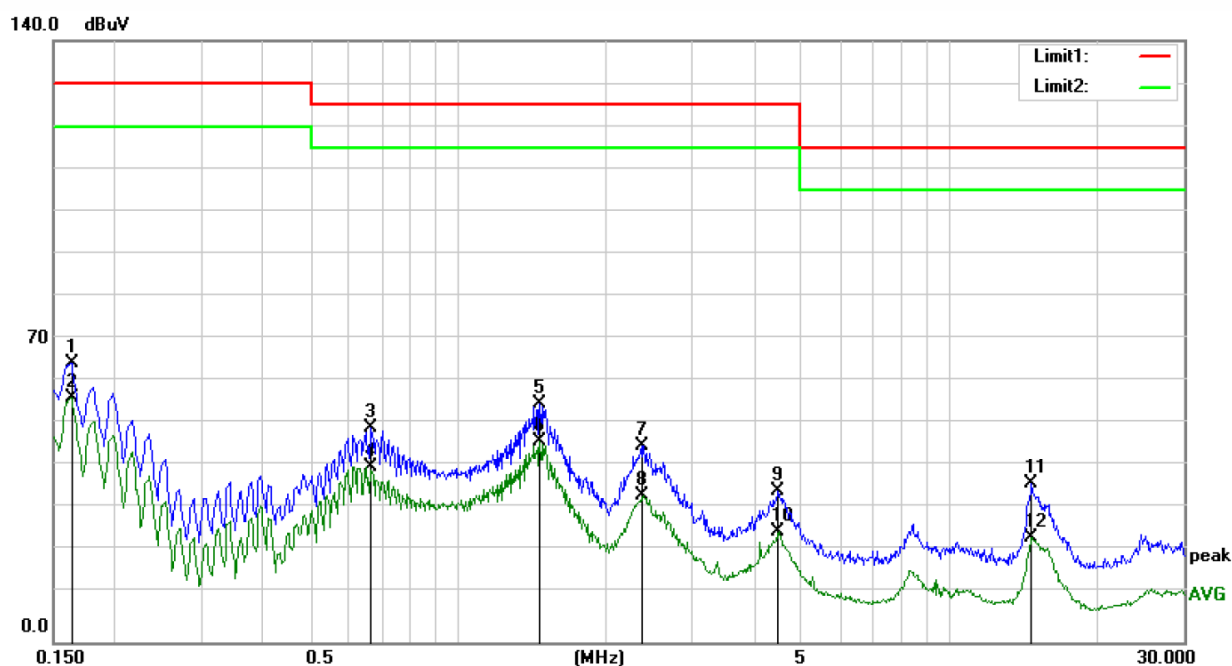
Power: AC 380V/50Hz

Humidity: 58 %

Mode: Line Mode

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1635	56.41	9.59	66.00	130.00	-64.00	QP	
2	*	0.1635	48.42	9.59	58.01	120.00	-61.99	AVG	
3		0.6675	38.79	9.61	48.40	125.00	-76.60	QP	
4		0.6675	28.79	9.61	38.40	115.00	-76.60	AVG	
5		1.4865	48.34	9.60	57.94	125.00	-67.06	QP	
6		1.4865	40.88	9.60	50.48	115.00	-64.52	AVG	
7		2.5574	33.05	9.58	42.63	125.00	-82.37	QP	
8		2.5574	21.94	9.58	31.52	115.00	-83.48	AVG	
9		8.4075	21.90	9.55	31.45	115.00	-83.55	QP	
10		8.4075	11.13	9.55	20.68	105.00	-84.32	AVG	
11		14.3880	23.89	9.63	33.52	115.00	-81.48	QP	
12		14.3880	14.38	9.63	24.01	105.00	-80.99	AVG	



Site Conduction #1

Phase: **L3**

Temperature: 21.9

Limit: (CE)EN62040-2 C3_QP(>100A)

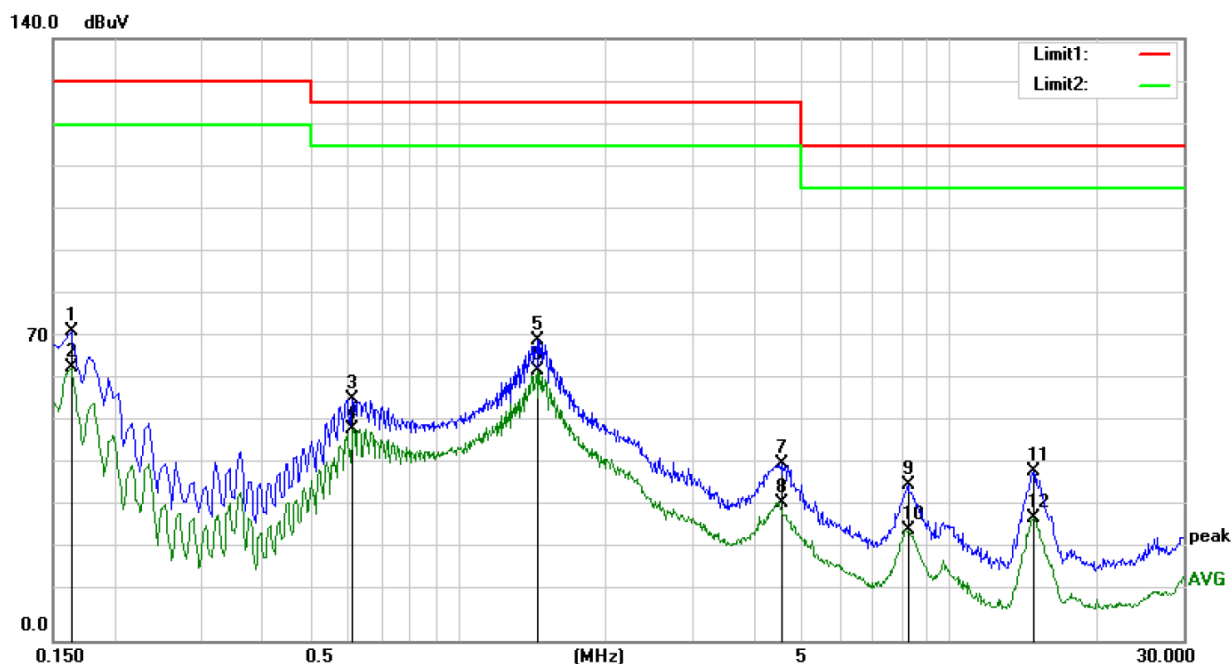
Power: AC 380V/50Hz

Humidity: 58 %

Mode: Line Mode

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1635	55.48	9.59	65.07	130.00	-64.93	QP	
2	*	0.1635	47.40	9.59	56.99	120.00	-63.01	AVG	
3		0.6675	40.34	9.61	49.95	125.00	-75.05	QP	
4		0.6675	31.29	9.61	40.90	115.00	-74.10	AVG	
5		1.4685	45.75	9.60	55.35	125.00	-69.65	QP	
6		1.4685	37.10	9.60	46.70	115.00	-68.30	AVG	
7		2.3594	36.06	9.59	45.65	125.00	-79.35	QP	
8		2.3594	24.65	9.59	34.24	115.00	-80.76	AVG	
9		4.4970	25.57	9.54	35.11	125.00	-89.89	QP	
10		4.4970	16.13	9.54	25.67	115.00	-89.33	AVG	
11		14.7120	27.30	9.64	36.94	115.00	-78.06	QP	
12		14.7120	14.79	9.64	24.43	105.00	-80.57	AVG	



Site Conduction #1

Phase: **N**

Temperature: 21.9

Limit: (CE)EN62040-2 C3_QP(>100A)

Power: AC 380V/50Hz

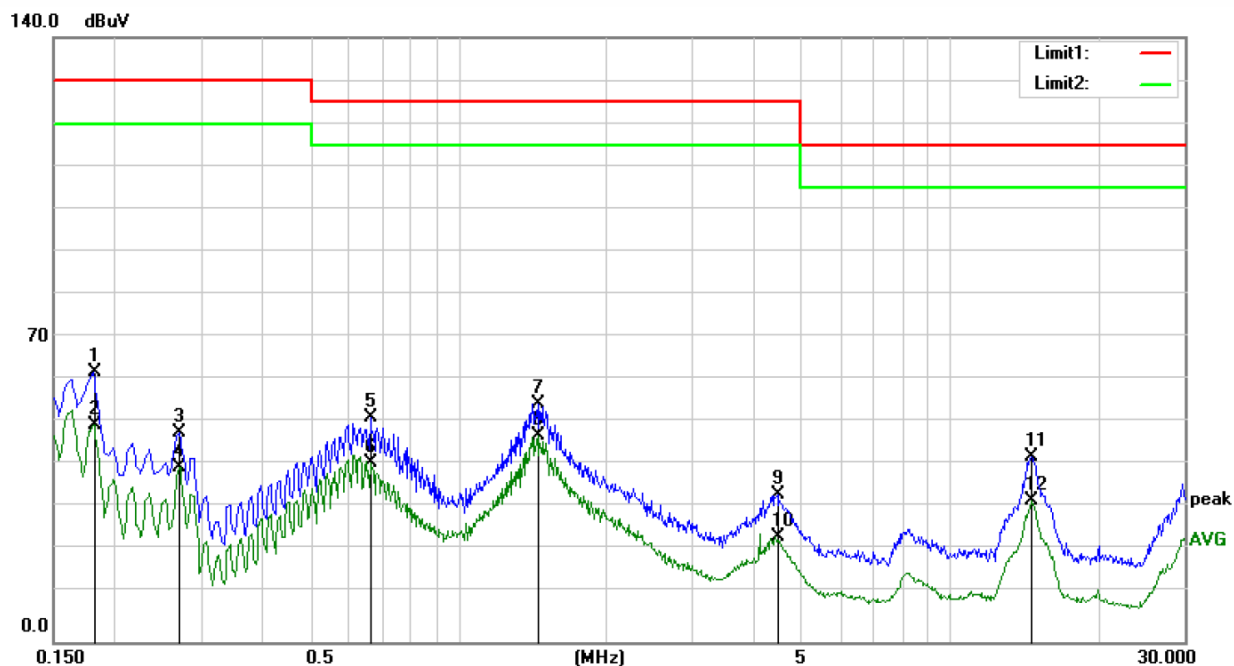
Humidity: 58 %

Mode: Line Mode

Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV	dBuV	dB		
1		0.1635	62.19	9.59	71.78	130.00	-58.22	QP	
2		0.1635	53.82	9.59	63.41	120.00	-56.59	AVG	
3		0.6134	46.68	9.61	56.29	125.00	-68.71	QP	
4		0.6134	39.68	9.61	49.29	115.00	-65.71	AVG	
5		1.4505	60.18	9.60	69.78	125.00	-55.22	QP	
6	*	1.4505	53.09	9.60	62.69	115.00	-52.31	AVG	
7		4.5555	31.71	9.53	41.24	125.00	-83.76	QP	
8		4.5555	22.58	9.53	32.11	115.00	-82.89	AVG	
9		8.2590	26.67	9.55	36.22	115.00	-78.78	QP	
10		8.2590	16.23	9.55	25.78	105.00	-79.22	AVG	
11		14.8875	29.70	9.64	39.34	115.00	-75.66	QP	
12		14.8875	18.95	9.64	28.59	105.00	-76.41	AVG	

OUTPUT



Site Conduction #1

Phase: **L1**

Temperature: 21.9

Limit: (CE)EN62040-2 C3_QP(>100A)

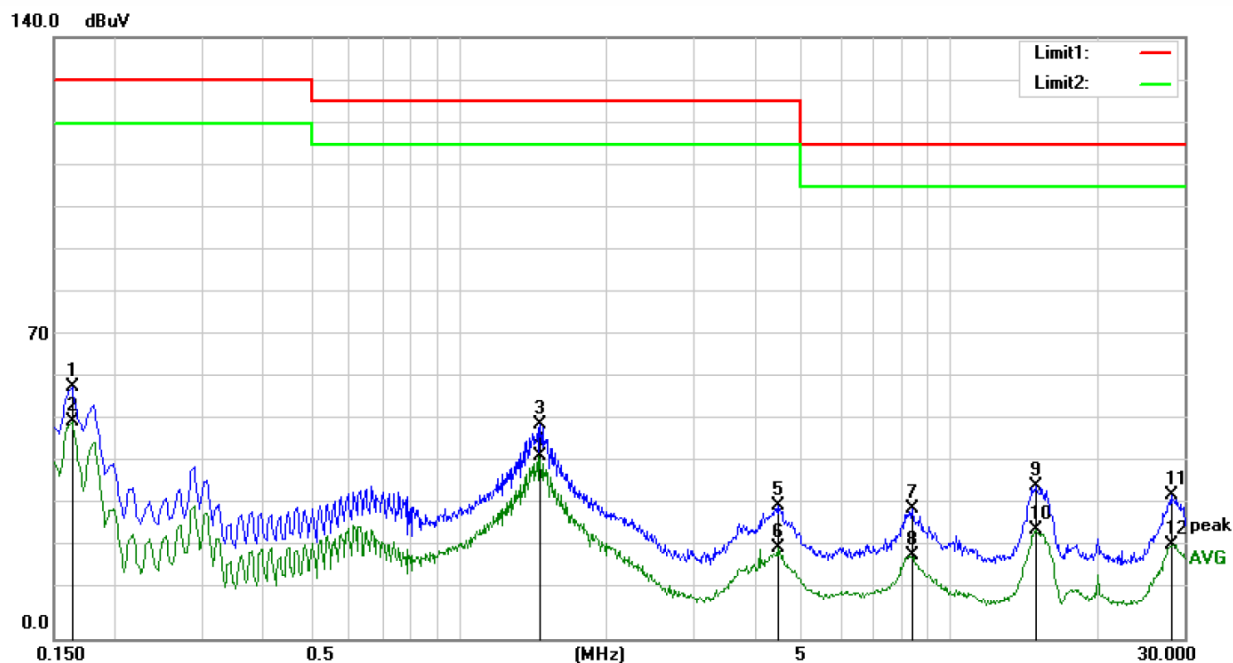
Power: AC 380V/50Hz

Humidity: 58 %

Mode: Line Mode

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1815	52.79	9.61	62.40	130.00	-67.60	QP	
2		0.1815	40.49	9.61	50.10	120.00	-69.90	AVG	
3		0.2714	38.90	9.69	48.59	130.00	-81.41	QP	
4		0.2714	30.61	9.69	40.30	120.00	-79.70	AVG	
5		0.6630	42.29	9.61	51.90	125.00	-73.10	QP	
6		0.6630	31.76	9.61	41.37	115.00	-73.63	AVG	
7		1.4504	45.53	9.60	55.13	125.00	-69.87	QP	
8	*	1.4504	38.10	9.60	47.70	115.00	-67.30	AVG	
9		4.4745	24.42	9.54	33.96	125.00	-91.04	QP	
10		4.4745	14.67	9.54	24.21	115.00	-90.79	AVG	
11		14.6355	33.29	9.64	42.93	115.00	-72.07	QP	
12		14.6355	23.04	9.64	32.68	105.00	-72.32	AVG	



Site Conduction #1

Phase: **L2**

Temperature: 21.9

Limit: (CE)EN62040-2 C3_QP(>100A)

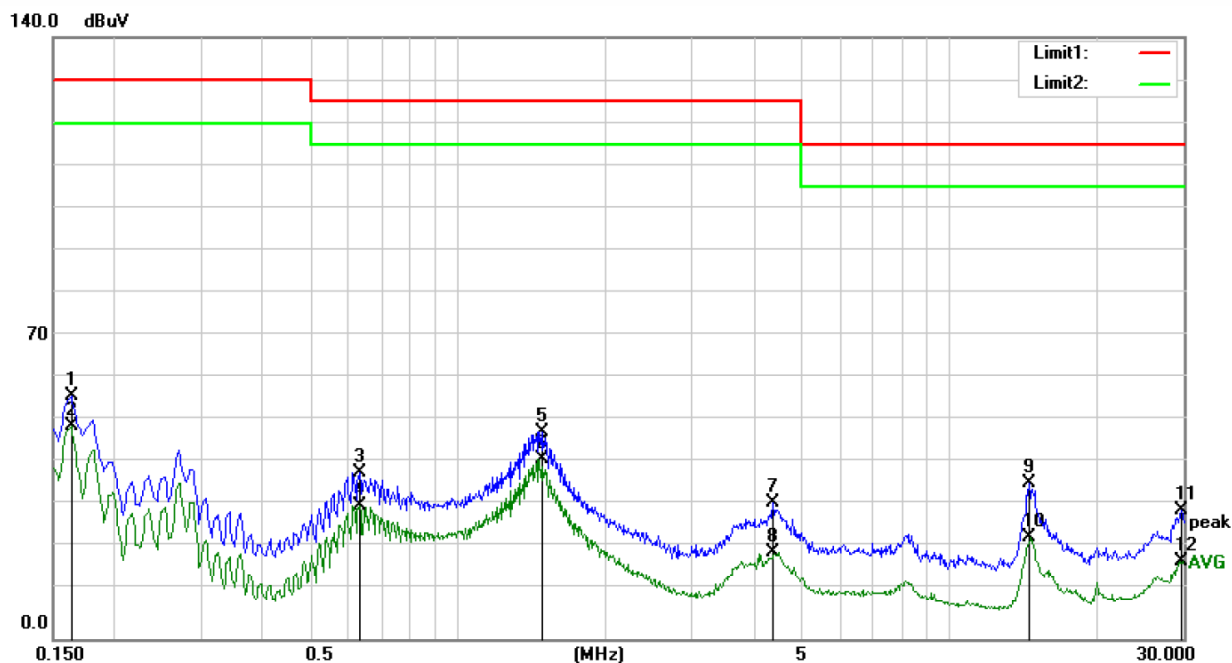
Power: AC 380V/50Hz

Humidity: 58 %

Mode: Line Mode

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1635	48.90	9.59	58.49	130.00	-71.51	QP	
2	*	0.1635	41.11	9.59	50.70	120.00	-69.30	AVG	
3		1.4685	40.24	9.60	49.84	125.00	-75.16	QP	
4		1.4685	32.88	9.60	42.48	115.00	-72.52	AVG	
5		4.4745	21.40	9.54	30.94	125.00	-94.06	QP	
6		4.4745	11.47	9.54	21.01	115.00	-93.99	AVG	
7		8.3805	20.65	9.55	30.20	115.00	-84.80	QP	
8		8.3805	10.01	9.55	19.56	105.00	-85.44	AVG	
9		14.9235	25.91	9.64	35.55	115.00	-79.45	QP	
10		14.9235	15.62	9.64	25.26	105.00	-79.74	AVG	
11		28.1985	23.43	9.87	33.30	115.00	-81.70	QP	
12		28.1985	12.05	9.87	21.92	105.00	-83.08	AVG	



Site Conduction #1

Phase: **L3**

Temperature: 21.9

Limit: (CE)EN62040-2 C3_QP(>100A)

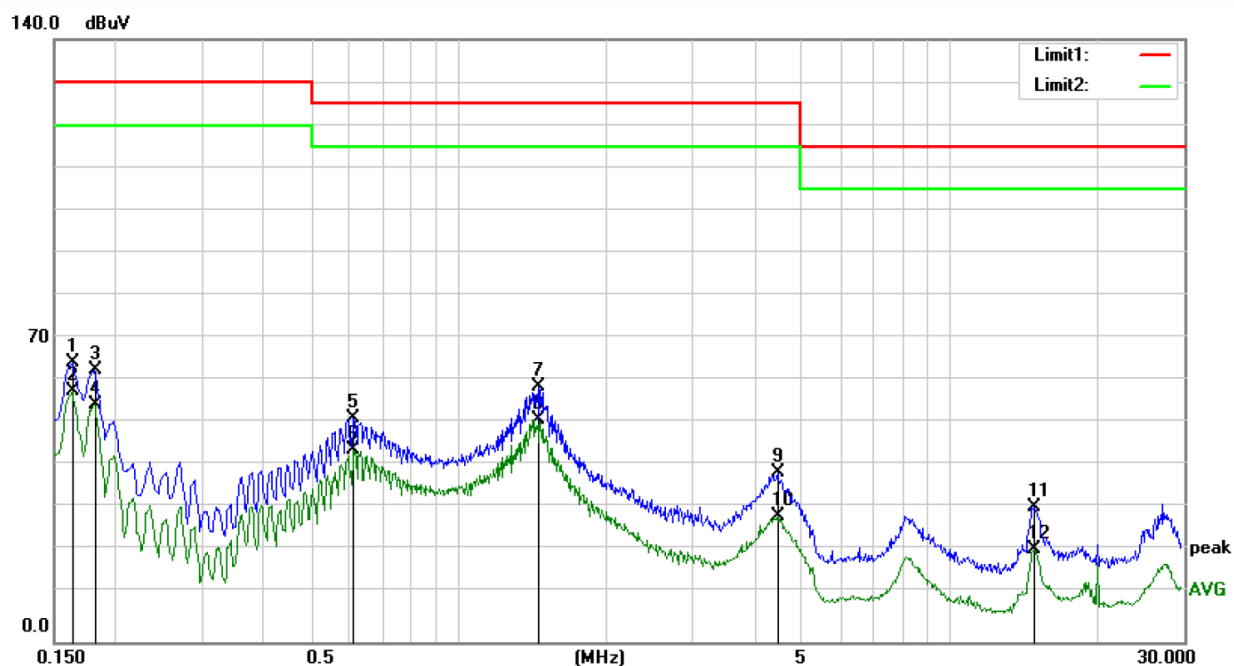
Power: AC 380V/50Hz

Humidity: 58 %

Mode: Line Mode

Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV	dBuV	dB		
1		0.1635	47.08	9.59	56.67	130.00	-73.33	QP	
2	*	0.1635	39.94	9.59	49.53	120.00	-70.47	AVG	
3		0.6315	29.06	9.61	38.67	125.00	-86.33	QP	
4		0.6315	21.39	9.61	31.00	115.00	-84.00	AVG	
5		1.4865	38.70	9.60	48.30	125.00	-76.70	QP	
6		1.4865	32.20	9.60	41.80	115.00	-73.20	AVG	
7		4.3665	22.22	9.54	31.76	125.00	-93.24	QP	
8		4.3665	10.53	9.54	20.07	115.00	-94.93	AVG	
9		14.5680	26.50	9.63	36.13	115.00	-78.87	QP	
10		14.5680	14.00	9.63	23.63	105.00	-81.37	AVG	
11		29.7915	20.10	9.88	29.98	115.00	-85.02	QP	
12		29.7915	8.21	9.88	18.09	105.00	-86.91	AVG	



Site Conduction #1

Phase: **N**

Temperature: 21.9

Limit: (CE)EN62040-2 C3_QP(>100A)

Power: AC 380V/50Hz

Humidity: 58 %

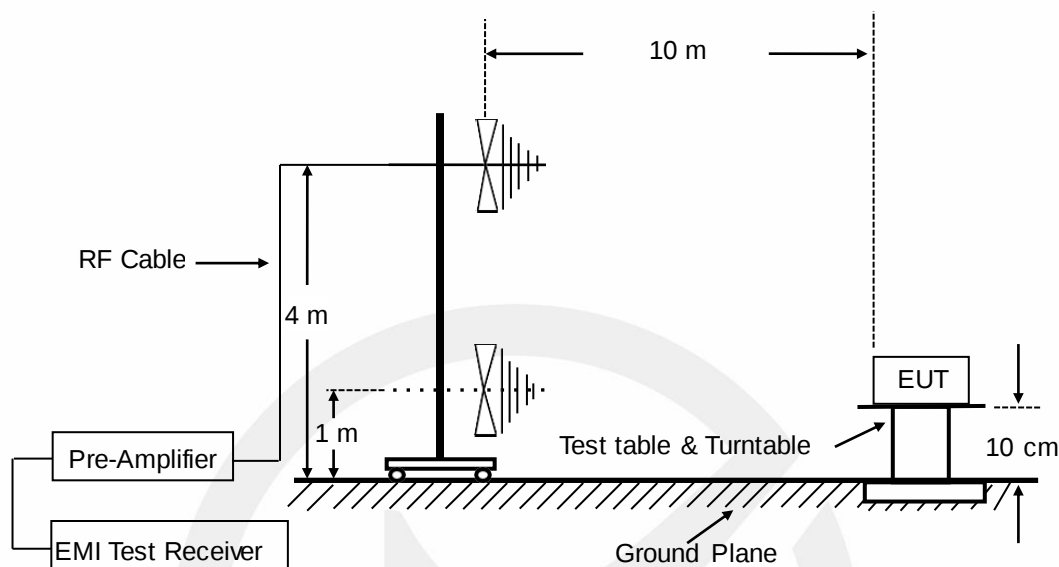
Mode: Line Mode

Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV	dBuV	dB		
1		0.1635	55.20	9.59	64.79	130.00	-65.21	QP	
2		0.1635	48.56	9.59	58.15	120.00	-61.85	AVG	
3	*	0.1815	53.52	9.61	63.13	120.00	-56.87	AVG	
4		0.1815	45.57	9.61	55.18	120.00	-64.82	AVG	
5		0.6134	42.43	9.61	52.04	125.00	-72.96	QP	
6		0.6134	34.94	9.61	44.55	115.00	-70.45	AVG	
7		1.4504	49.56	9.60	59.16	125.00	-65.84	QP	
8		1.4504	42.07	9.60	51.67	115.00	-63.33	AVG	
9		4.4610	29.83	9.54	39.37	125.00	-85.63	QP	
10		4.4610	19.53	9.54	29.07	115.00	-85.93	AVG	
11		14.8695	21.75	9.64	31.39	115.00	-83.61	QP	
12		14.8695	11.86	9.64	21.50	105.00	-83.50	AVG	

5. RADIATED EMISSION MEASUREMENT (UP TO 1GHz)

5.1. Block Diagram of Test Setup



5.2. Radiated Limit

Table 3 – Limits of radiated emission in the frequency range 30 MHz to 1 000 MHz

Frequency range MHz	Quasi-peak limits dB (μV/m)		
	Category C1 UPS	Category C2 UPS	Category C3 UPS
30 to 230 ^a	30	40	50
230 to 1 000	37	47	60

^a The lower limit shall apply at the transition frequency.

5.3. Test Procedure

The EUT was placed on a non-conductive table whose total height equaled 10cm. All units of equipment forming the system under test (includes the EUT as well as connected peripherals and associated equipment or devices) shall be arranged such that a nominal 0.1 m separation is achieved between the neighboring units. Where the mains cable supplied by the manufacturer is longer than 1 m, the excess should be folded at the centre into a bundle no longer than 0.4 m, so that its length is shortened to 1 m.

The EUT was set 3 meters (or 10 meters) away from the receiving antenna that was mounted on a non-conductive mast. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level.

The turntable can rotate 360 degree to determine the position of the maximum emission level.

The initial testing identified the frequency that has the highest disturbance relative to the limit while operating the EUT in typical modes of operation and cable positions in a test setup representative of typical system configuration.

The identification of the frequency of highest emission with respect to the limit was found by investigating emissions at a number of significant frequencies. The probable frequency of maximum emission had been found and that the associated cable and EUT configuration and mode of operation had been identified.

The bandwidth of the Receiver is set at 120 kHz.

Test results were obtained from the following equation:

Emission level (dB μ V/m) = Antenna Factor - Amp Factor + Cable Loss + Reading

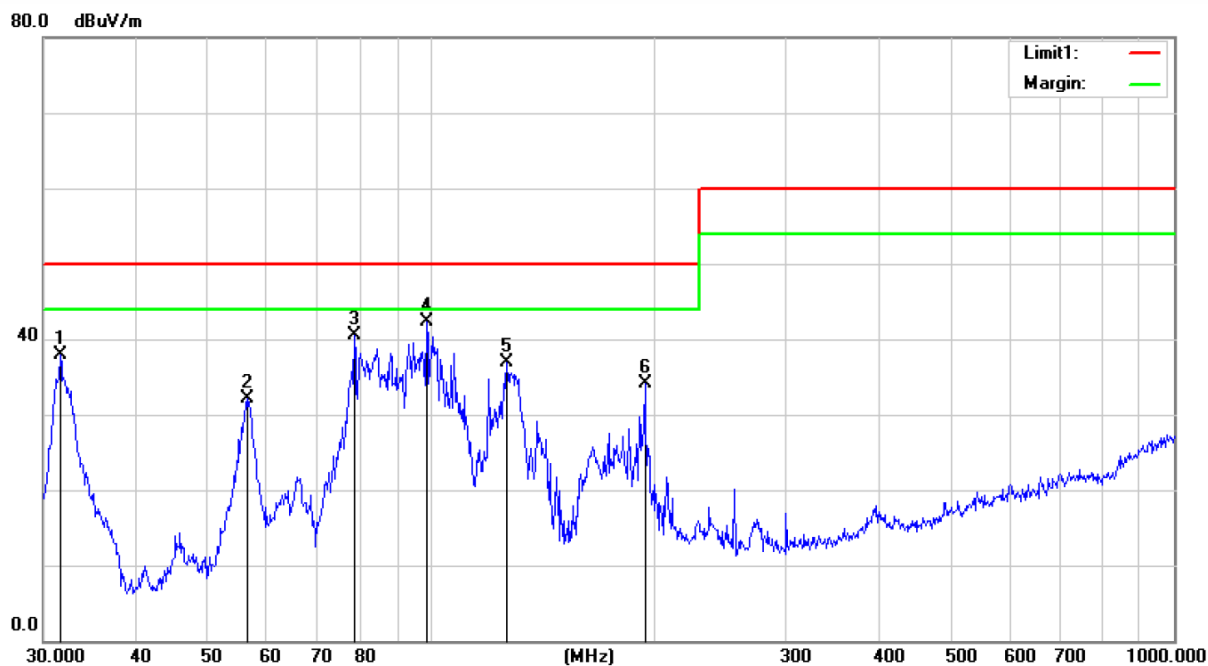
Margin (dB) = Emission Level (dB μ V/m) - Limit (dB μ V/m)

5.4. Measuring Results

PASS.

Please refer to the following pages.





Site 10m Chamber 1#

Polarization: **Horizontal**

Temperature: 26

Limit: (RE10M)EN62040-2_C3

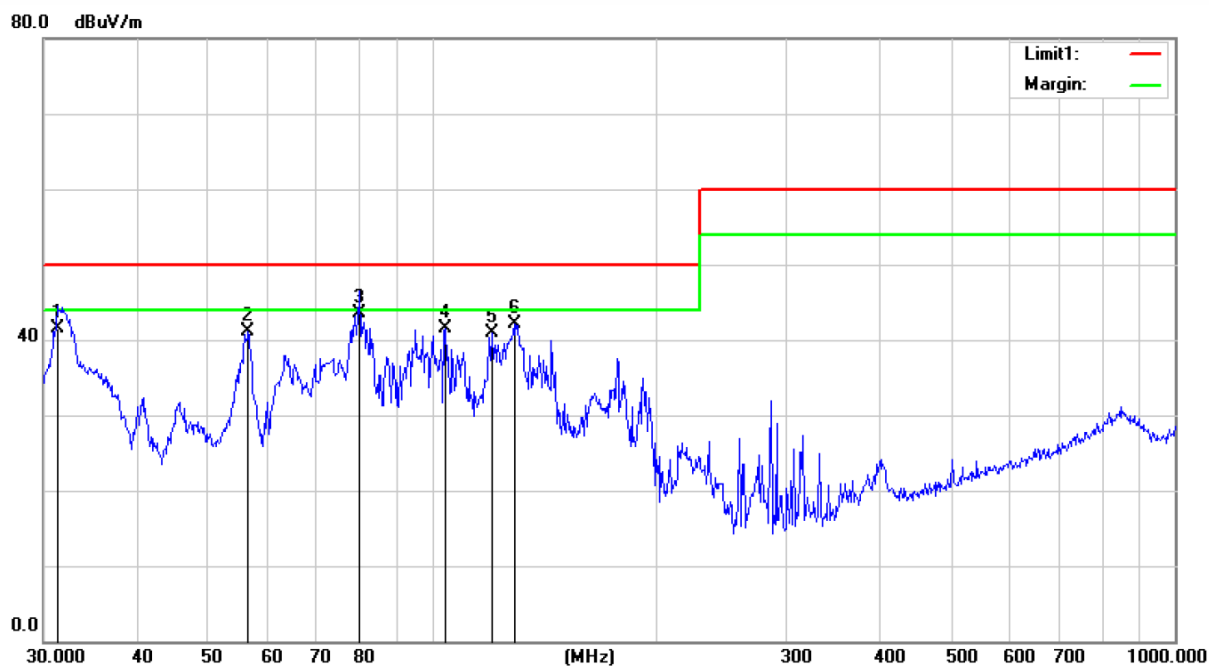
Power: AC 380V/50Hz

Humidity: 60 %

Mode:Line Mode

Note:

No.	Mk.	Freq.	Reading Level	Ant. Factor	Pre Amp Gain	Cable loss	Measure-ment	Limit	Over	HI	Degree	
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	Detector	cm	deg.
1		31.6202	69.84	10.66	43.45	0.95	38.00	50.00	-12.00	QP	400	85
2		56.5930	62.24	12.05	43.52	1.24	32.01	50.00	-17.99	QP	400	233
3		78.6888	74.77	7.94	43.59	1.43	40.55	50.00	-9.45	QP	176	244
4	*	98.4866	73.15	11.29	43.65	1.58	42.37	50.00	-7.63	QP	400	223
5		126.3286	68.71	10.07	43.74	1.82	36.86	50.00	-13.14	QP	400	284
6		193.7728	64.63	11.05	43.99	2.33	34.02	50.00	-15.98	QP	400	298



Site 10m Chamber 1#

Polarization: **Vertical**

Temperature: 26

Limit: (RE10M)EN62040-2_C3

Power: AC 380V/50Hz

Humidity: 60 %

Mode:Line Mode

Note:

No.	Mk.	Freq.	Reading Level	Ant. Factor	Pre Amp Gain	Cable loss	Measure-ment	Limit	Over	HI	Degree	
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	Detector	cm	deg.
1		31.2893	73.07	10.51	43.27	1.29	41.60	50.00	-8.40	QP	100	32
2		56.5930	69.95	12.67	43.33	1.72	41.01	50.00	-8.99	QP	100	69
3	*	79.8002	75.44	9.43	43.38	2.01	43.50	50.00	-6.50	QP	199	244
4		104.1701	73.25	9.34	43.43	2.37	41.53	50.00	-8.47	QP	199	160
5		120.2766	72.37	9.5	43.45	2.52	40.94	50.00	-9.06	QP	199	352
6		129.0146	73.40	9.59	43.46	2.59	42.12	50.00	-7.88	QP	100	235

6. IMMUNITY PERFORMANCE CRITERIA DESCRIPTION

Performance Level

The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance level by its manufacturer or the requestor of the test, or the agreed between the manufacturer and the purchaser of the product.

Definition related to the performance level:

1. Based on the used product standard
2. Based on the declaration of the manufacturer, requestor or purchaser

EN IEC 62040-2:

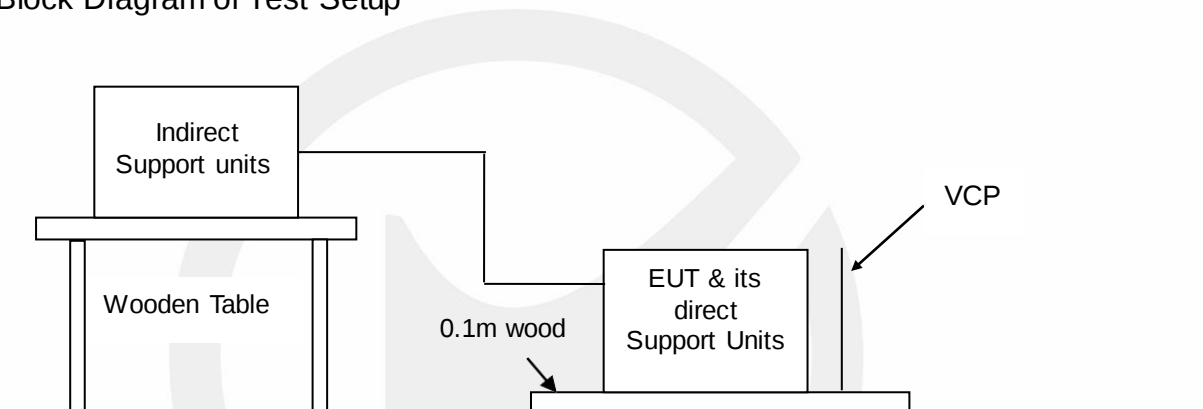
	Criterion A	Criterion B
External and internal indications and metering	Change only during test	Change only during test
Control signals to external devices	No change	Change only temporarily in consistency with the actual Uninterruptible Power Systems mode of operation
Mode of operation ^a	No change	Change only temporarily
a At all times, the Uninterruptible Power Systems shall remain within the performance classification as declared by the Uninterruptible Power Systems manufacturer		

7. ELECTROSTATIC DISCHARGE

7.1. Test Specification

Test Standard	: EN IEC 62040-2
Basic Standard	: IEC 61000-4-2
Performance criterion	: B
Test level	: $\pm 8.0\text{kV}$ (Air discharge) $\pm 4.0\text{kV}$ (Contact discharge)

7.2. Block Diagram of Test Setup



7.3. Test Procedure

- In the case of air discharge testing, the climatic conditions shall be within the following ranges:
 - ambient temperature: 15°C to 35°C ;
 - relative humidity : 30% to 60%;
 - atmospheric pressure : 86 kPa (860 mbar) to 106 kPa (1060 mbar)
- Test programs and software shall be chosen so as to exercise all normal modes of operation of the EUT. The use of special exercising software is encouraged, but permitted only where it can be shown that the EUT is being comprehensively exercised.
- In the case of contact discharges, the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.
- In the case of painted surface covering a conducting substrate, the following procedure shall be adopted :
 - If the coating is not declared to be an insulating coating by the equipment manufacturer, then the pointed tip of the generator shall penetrate the coating so as to make contact with the conducting substrate.
 - Coating declared as insulating by the manufacturer shall only be submitted to the air discharge.
 - The contact discharge test shall not be applied to such surfaces.
- In the case of air discharges, the round discharge tip of the discharge electrode shall be approached as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator (discharge electrode) shall be removed from the EUT. The generator is then retriggered for a new single discharge. This procedure shall be repeated until the discharges are completed. In the case of an air discharge test, the discharge switch, which is used for contact discharge, shall be closed.
- The test voltage shall be increased from the minimum to the selected test severity level, in order to

determine any threshold of failure. The final test level should not exceed the product specification value in order to avoid damage to the equipment.

g. The test shall be performed with both air discharge and contact discharge. According to the CE severity level on pre-selected points, at least 10 single discharges (in the most sensitive polarity) shall be applied on air discharge and at least 25 single discharges (in the most sensitive polarity) shall be applied on contact discharge. For the time interval between successive single discharges, an initial value of one second is recommended. Longer intervals may be necessary to determine whether a system failure has occurred.

h. Ensure that the applied charge on the EUT has been dis-charged before next ESD pulse.

7.4. Test Results

PASS

Temperature : 22.3°C
Humidity : 47%
Atmospheric Pressure : 101kpa
Test Engineer : ZHT
Test Date : 2022-09-01

Air Discharge:

Amount of discharge	Test Voltage	Location	Actual criterion	Required performance criterion	Result (Pass/Fail)
Mini 10 /Point	±2, 4, 8 kV	Slot/Button	A	B	Pass
Mini 10 /Point	±2, 4, 8 kV	Screen	A	B	Pass

Contact Discharge

Amount of discharge	Test Voltage	Location	Actual criterion	Required performance criterion	Result (Pass/Fail)
Mini 25 /Point	±2, 4kV	Metal	A	B	Pass
Mini 25 /Point	±2, 4kV	Screw	A	B	Pass

Indirect Discharge

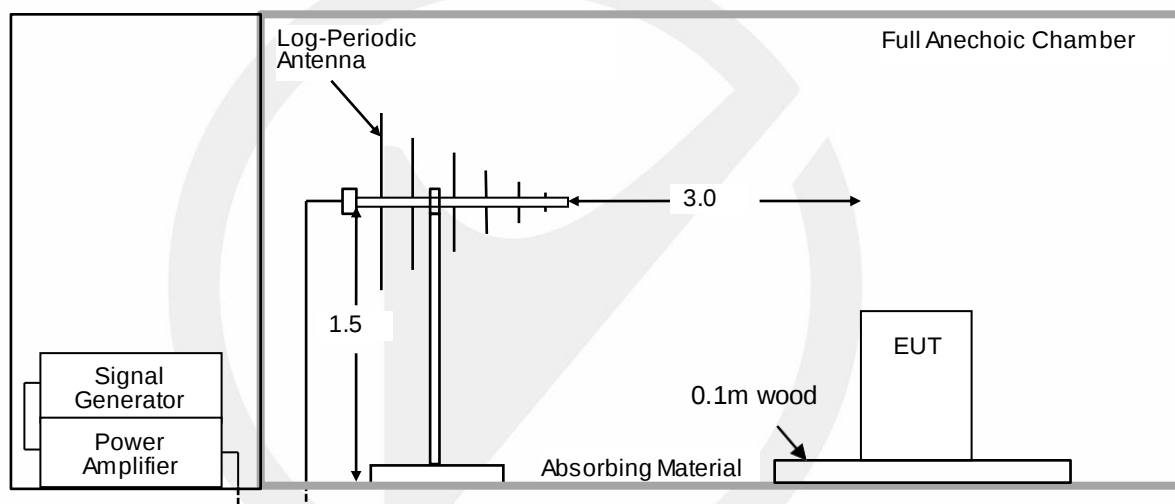
Amount of discharge	Test Voltage	Location	Actual criterion	Required performance criterion	Result (Pass/Fail)
Mini 10 /Point	±2, 4kV	VCP	A	B	Pass

8. RF FIELD STRENGTH SUSCEPTIBILITY TEST

8.1. Test Specification

Test Standard	: EN IEC 62040-2
Basic Standard	: IEC 61000-4-3
Performance criterion	: A
Test level	: 10V/m
Frequency Range	: 80M-1000MHz
Modulation	: AM 80%, 1kHz sine-wave

8.2. Block Diagram of Test Setup



8.3. Test procedure

The procedure defined in this part requires the generation of electromagnetic fields within which the test sample is placed and its operation observed. To generate fields that are useful for simulation of actual (field) conditions may require significant antenna drive power and the resultant high field strength levels. To comply with local regulations and to prevent biological hazards to the testing personnel, it is recommended that these tests be carried out in a shielded enclosure or semi-anechoic chamber.

- The antenna which is enabling the complete frequency range of 80 -1000 MHz is placed 3m away from the equipment. The required field strength is determined by placing the field strength meter(s) on top of or directly alongside the equipment under test and monitoring the field strength meter via a remote field strength indicator outside the enclosure while adjusting the continuous-wave to the antenna.
- The test is performed with the antenna facing the front and back sides of the EUT with. Both vertical and horizontal polarizations from antenna are tested.

8.4. Test results

PASS

Temperature : 24.1°C
Humidity : 52%
Atmospheric Pressure : 101kpa
Test Engineer : ZHT
Test Date : 2022-09-01

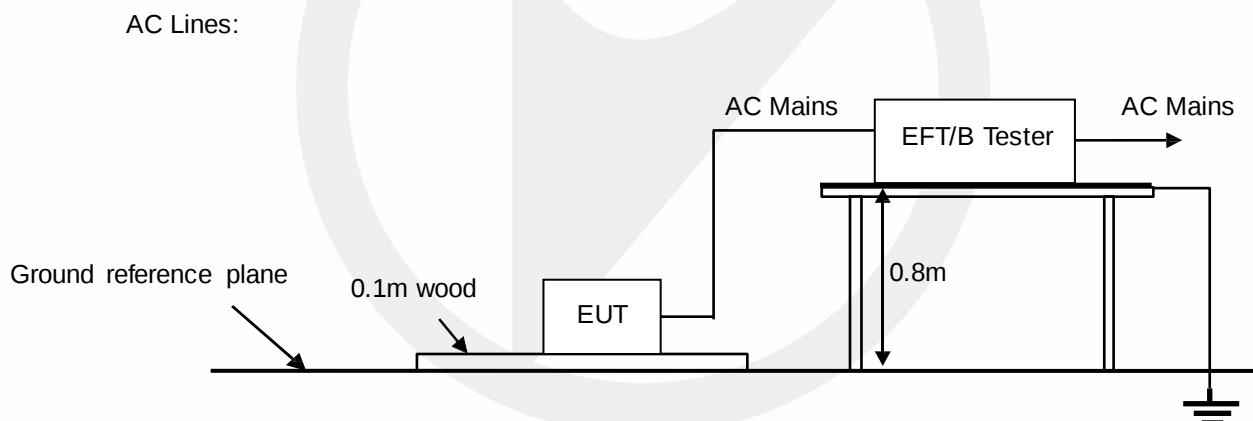
Freq. Range (MHz)	Field	Modulation	Polarity	Position (°)	Actual criterion	Required performance criterion	Result
80-1000	10V/m	AM	H / V	Front	A	A	Pass
80-1000	10V/m	AM	H / V	Right	A	A	Pass
80-1000	10V/m	AM	H / V	Back	A	A	Pass
80-1000	10V/m	AM	H / V	Left	A	A	Pass

9. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

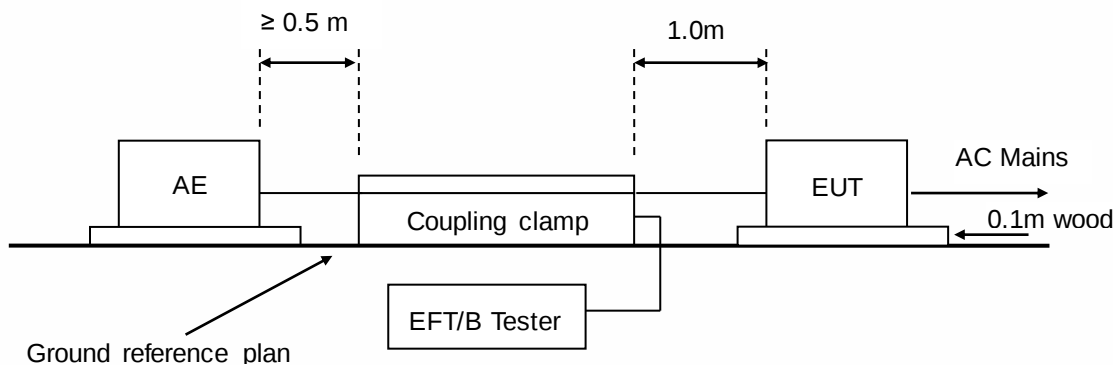
9.1. Test Specification

Test Standard	: EN IEC 62040-2
Basic Standard	: IEC 61000-4-4
Performance criterion	: B
Test level	: ☒ 2kV, AC input power ports ☒ 2kV, AC output power ports ☐ 2kV, DC port ☒ 2kV, Network port
Repetition frequency	: ☒ 5kHz, ☐ 100kHz
Tr/Th:	: 5/50ns
Burst Period	: 300ms
Test Time :	: 120s

9.2. Block Diagram of Test Setup



Signal lines:



9.3. Test Procedure

The EUT is put on the wood that is 0.1 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

9.4. Test Results

PASS

Temperature : 25.9°C
 Humidity : 53%
 Atmospheric Pressure : 101kpa
 Test Engineer : ZHT
 Test Date : 2022-09-01

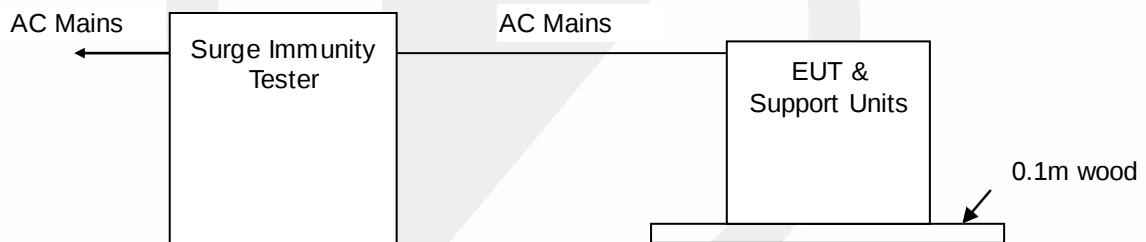
Injection Line	Voltage (kV)	Injected Method	Actual criterion	Required performance criterion	Result (Pass/Fail)
☒ AC input power ports	± 2	☒ CDN ☐ Direct injection ☐ Capacitive coupling clamp	A	B	Pass
☒ AC output power ports	± 2	☒ CDN ☐ Direct injection ☐ Capacitive coupling clamp	A	B	Pass
☐ DC port	± 4	☐ CDN ☐ Direct injection ☐ Capacitive coupling clamp	N/A	N/A	N/A
☒ Network port	± 2	☐ CDN ☐ Direct injection ☒ Capacitive coupling clamp	A	B	Pass

10.SURGE IMMUNITY TEST

10.1.Test Specification

Test Standard	: EN IEC 62040-2
Basic Standard	: IEC 61000-4-5
Test level	: ☒ 1.0kV, Line - Line, AC input power ports, Criterion B ☒ 2.0kV, Line - Earth, AC input power ports, Criterion B ☒ 1.0kV, Line - Line, AC output power ports, Criterion B ☒ 2.0kV, Line - Earth, AC output power ports, Criterion B ☐ 1.0kV, Line - Line, DC port, Criterion B ☐ 2.0kV, Line - Earth, DC port, Criterion B ☒ 1.0kV, Network ports, Criterion B
Number of surges	: 5 (for each combination of parameters)
Repetition rate	: 1 minute / time
Polarity:	: Positive / Negative
Phase angle:	: 0°, 90°, 180°, 270°

10.2.Block Diagram of Test Setup



10.3.Test Procedure

This test simulates a lightning event by inducing transients onto the AC/DC power supply lines in common mode (Line to Ground) and differential mode (Line to Line). Each device was tested in a total of two surge configurations: Line to Ground (L-G): Combination Wave, Line to Protective Earth with 9uF and 10Ohm and Neutral to Protective Earth with 9uF and 10Ohm, common mode, generator earthed.

Line to Line (L-L): Combination Wave,

Line to Neutral with 18uF, differential mode, generator floated.

2 ohm : the source impedance of the low-voltage power supply network.

12 ohm : the source impedance of the low-voltage power supply network and ground.

- If not otherwise specified the surges have to be applied synchronized to the voltage phase at the zero-crossing and the peak value of the a.c. voltage wave (positive and negative).
- The surges have to be applied line to line and line to earth. When testing line to earth, the test voltage has to be applied successively between each of the lines and earth, if there is no other specification.
- The test procedure shall also consider the non-linear current-voltage characteristics of the equipment under test. Therefore the test voltage has to be increased by steps up to the test level specified in the product standard or test plan. All lower levels including the selected test level shall be satisfied.
- For testing the secondary protection, the output voltage of the generator shall be increased up to the worst-case voltage breakdown level (let-through level) of the primary protection.
- Testing shall be performed according to a Test Plan, which shall be included in the test report.

f. To find all critical points of the duty cycle of the equipment, a sufficient number of positive and negative test pulses shall be applied.

10.4. Test results

PASS

Temperature : 25.9°C
Humidity : 53%
Atmospheric Pressure : 101kpa
Test Engineer : ZHT
Test Date : 2022-09-01

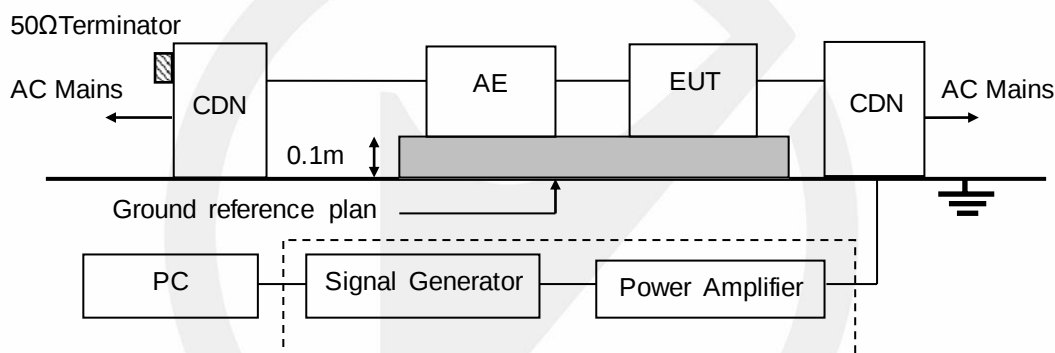
Coupling Line	Voltage (kV)	Waveform (μs)	Polarity	Actual criterion	Required performance criterion	Result (Pass/Fail)
☒ AC input power ports (Line to line)	0.5, 1	1.2/50 (8/20)	Pos./ Neg.	A	B	Pass
☒ AC input power ports (Line to earth)	0.5, 1, 2	1.2/50 (8/20)	Pos./ Neg.	A	B	Pass
☒ AC output power ports (Line to line)	0.5, 1	1.2/50 (8/20)	Pos./ Neg.	A	B	Pass
☒ AC output power ports (Line to earth)	0.5, 1, 2	1.2/50 (8/20)	Pos./ Neg.	A	B	Pass
☐ DC port (Line to line)	0.5, 1	1.2/50 (8/20)	Pos./ Neg.	N/A	B	N/A
☐ DC port (Line to earth)	0.5, 1, 2	1.2/50 (8/20)	Pos./ Neg.	N/A	B	N/A
☒ Network Ports	0.5, 1	1.2/50 (8/20)	Pos./ Neg.	A	B	Pass

11. INJECTED CURRENTS SUSCEPTIBILITY TEST

11.1. Test Specification

Test Standard	: EN IEC 62040-2
Basic Standard	: IEC 61000-4-6
Performance criterion	: A
Test level	: 10V
Frequency Range	: 0.15M-80MHz
Modulation	: AM 80%, 1kHz sine-wave
Frequency Step	: 1% of fundamental

11.2. Block Diagram of Test Setup



11.3. Test Procedure

- The EUT shall be operated within its intended climatic conditions. The temperature and relative humidity should be recorded.
- The EUT is placed on a 0.1m high test table, and a well grounded cable is connected to metallic plane above the test table.
- All cables/wires must be laid out on test plate (3cm in thickness), and the EUT is set up on test plate (10 cm in thickness) as shown in test setup photo, and the cables/wires must not be in mid-air, they should be touching the surface of test plate. Ensure that the EUT is properly connected to the accessory equipment.
- The test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn while the other non-excited RF-input ports of the coupling devices are terminated by a 50 ohm load resistor.
- The frequency range is swept from 150 kHz to 80 MHz, using the signal levels established during the setting process, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave, pausing to adjust the RF-signal level or to switch coupling devices as necessary. The rate of sweep shall no exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall no exceed 1% of the start and thereafter 1% of the preceding frequency value.
- The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised, and able to respond. Sensitive frequencies e.g. clock frequency (ies) and harmonics or frequencies of dominant interest shall be analyzed separately.
- Attempts should be made to fully exercise the EUT during testing, and to fully interrogate all exercise modes selected for susceptibility
- Testing shall be performed according to a Test Plan, which shall be included in the test report.

11.4. Test results

PASS

Temperature : 25.9°C
Humidity : 53%
Atmospheric Pressure : 101kpa
Test Engineer : ZHT
Test Date : 2022-09-01

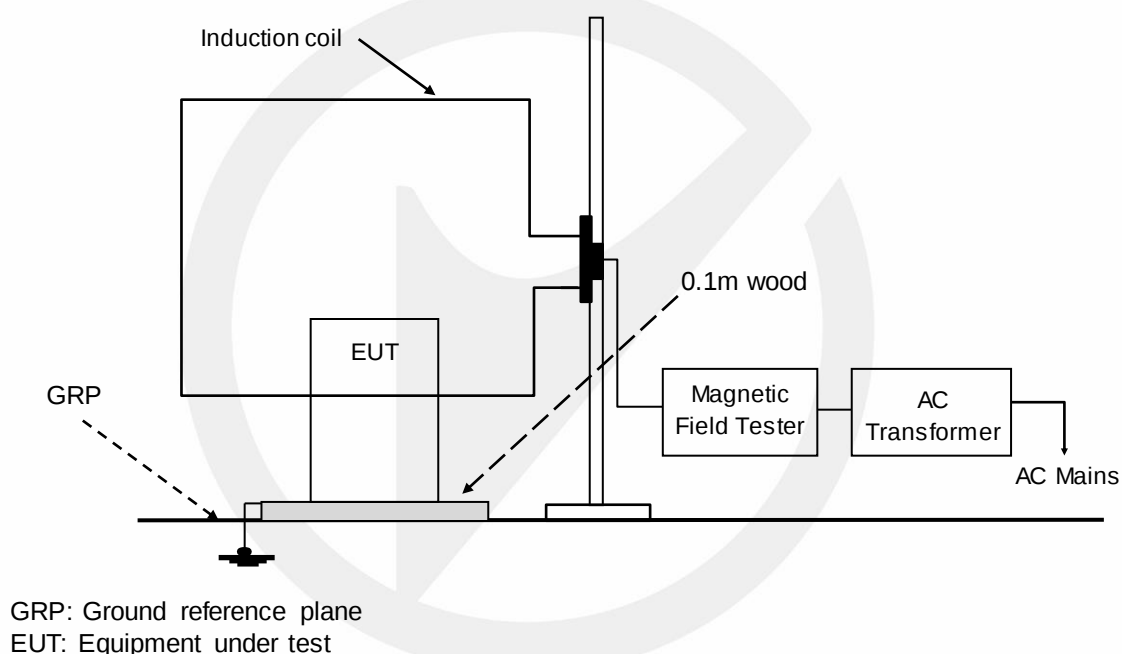
Range (MHz)	Levers	Injection port	Coupling type	Actual criterion	Required performance criterion	Result (Pass/Fail)
0.15-80	10V	☒ AC input power ports ☒ AC output power ports ☐ DC port ☐ Network port	☒ CDN ☐ EM Clamp ☐ Current Clamp ☐ Direct injection	A	A	Pass
0.15-80	10V	☐ AC input power ports ☐ AC output power ports ☐ DC port ☒ Network port	☐ CDN ☒ EM Clamp ☐ Current Clamp ☐ Direct injection	A	A	Pass

12. MAGNETIC FIELD SUSCEPTIBILITY TEST

12.1. Test Specification

Test Standard	: EN IEC 62040-2
Basic Standard	: IEC 61000-4-8
Performance criterion	: A
Test level	: 30A/m

12.2. Block Diagram of Test Setup



12.3. Test Procedure

The EUT is placed in the middle of a induction coil (1*1m), under which is a 1*1*0.1m (high) wood, this small table is also placed on a larger table, 0.8 m above the ground. Both horizontal and vertical polarization of the induction coil is set on test, so that each side of the EUT is affected by the magnetic field. Also can reach the same aim by change the position of the EUT.

12.4. Test Results

PASS

Temperature : 25.9°C
Humidity : 53%
Atmospheric Pressure : 101kpa
Test Engineer : ZHT
Test Date : 2022-09-01

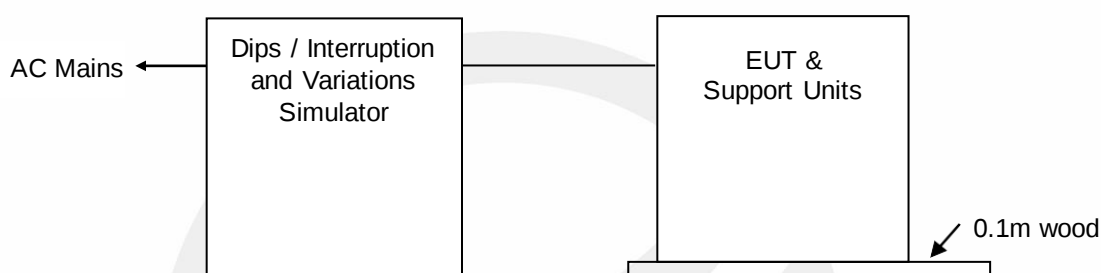
Test Level (A/m)	Frequency	Testing Duration	Coil Orientation	Actual criterion	Required performance criterion	Result (Pass/Fail)
30	☒ 50Hz ☒ 60Hz	5 mins	☒ x-axis ☒ y-axis ☒ z-axis	A	A	Pass

13.VOLTAGE DIPS AND INTERRUPTIONS TEST

13.1.Test Specification

Test Standard : EN IEC 62040-2
Basic Standard : IEC 61000-4-11

13.2.Block Diagram of Test Setup



13.3.Test Procedure

- a. Where the equipment has a rated voltage the following shall apply - If the voltage range does not exceed 20% of the lower voltage specified for the rated voltage range, a single voltage within that range may be specified as a basis for test level specification.
 - In all other cases, the test procedure shall be applied for both the lowest and highest voltages declared in the voltage range.
- b. Test Conditions
 - Select operated voltage and frequency of EUT - Test of interval : 10 sec.
 - Level and duration : Sequence of 3 dips/interrupts.
 - Voltage rise (and fall) time : 1.5 μ s.

13.4. Test results

PASS

Temperature : 25.9°C
 Humidity : 53%
 Atmospheric Pressure : 101kpa
 Test Engineer : ZHT
 Test Date : 2022-09-01

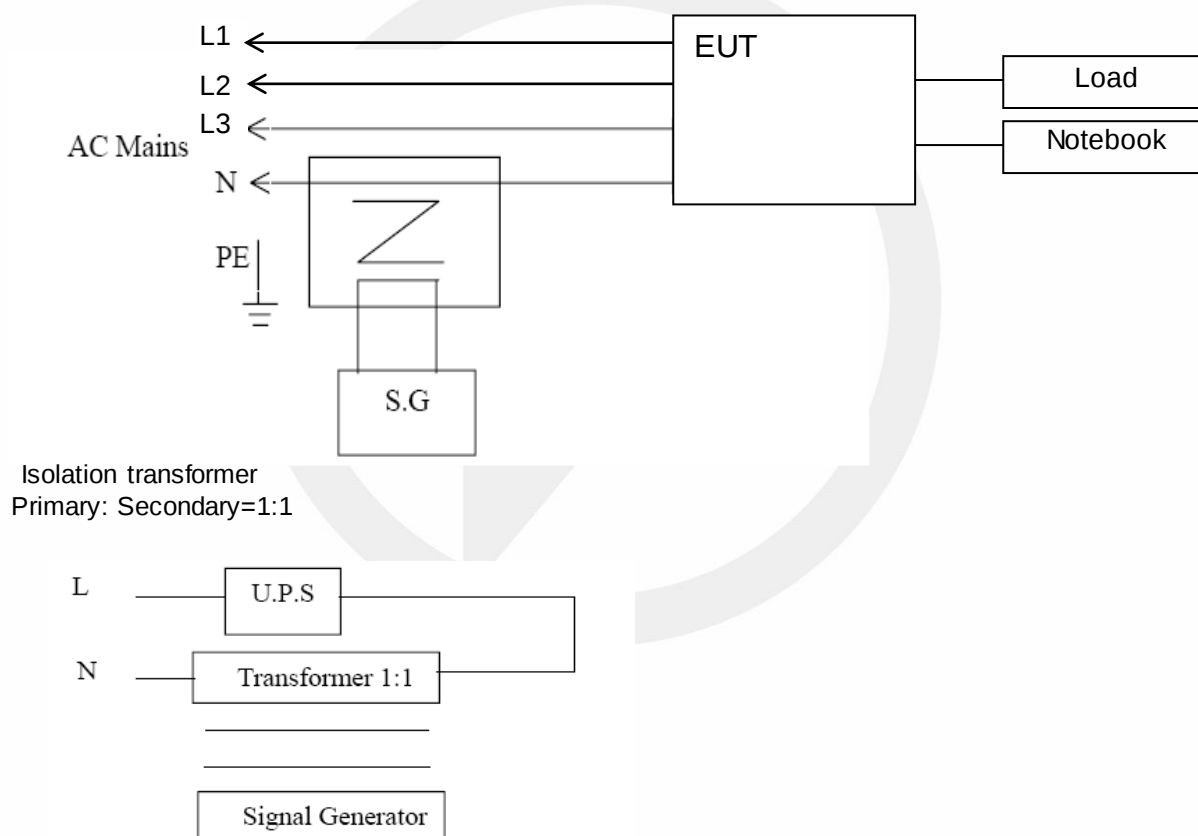
	Test Level (% UT)	Phase angle (°)	Reduction (%)	Duration (periods)	Actual criterion	Required performance criterion	Result (Pass/Fail)
Voltage Dips	0%	0°, 180°	100%	0.5	A	B	Pass
	70%	0°, 180°	30%	25	A	C	Pass
Voltage Interruption	0%	0°, 180°	100%	250	B	C	Pass
Note: When the sample drops to 0% and 250P, the working mode of the sample changes and the test ends, It can automatically recover to normal.							

14. LOW FREQUENCY SIGNALS TEST

14.1. Test Specification

Test Standard	: EN IEC 62040-2
Basic Standard	: IEC 61000-2-2
Performance criterion	: A
Test frequency	: 140-360Hz
Test level	: 10V(rms)Sinusoidal

14.2. Block Diagram of Test Setup



14.3. Test Procedure

- 1) Set up the EUT and test generator as shown on Block diagram.
- 2) Add the 10V (rms) Sinusoidal interference signal and the interference signal frequency from 140Hz ~ 360Hz to L terminal.
- 3) Repeat the second step at the N-terminus.

14.4. Test Results

PASS.

Temperature : 25.9°C
Humidity : 53%
Atmospheric Pressure : 101kpa
Test Engineer : ZHT
Test Date : 2022-09-01

Frequency Range (Hz)	Step (Hz)	Position	Strength	Result	Note
140	10	L,N	10V(rms) Sinusoidal	Pass	A
160				Pass	A
200				Pass	A
240				Pass	A
280				Pass	A
320				Pass	A
360				Pass	A

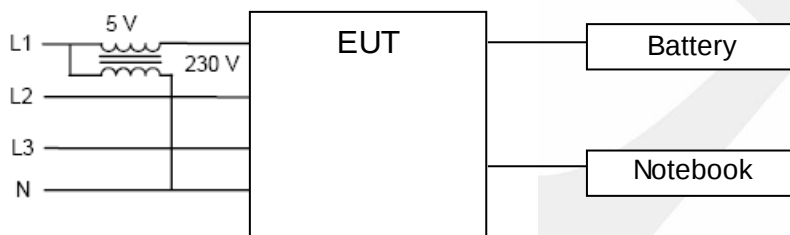
15. POWER LINE UNBALANCE (THREE-PHASE UPS SYSTEMS ONLY)

15.1. Test Specification

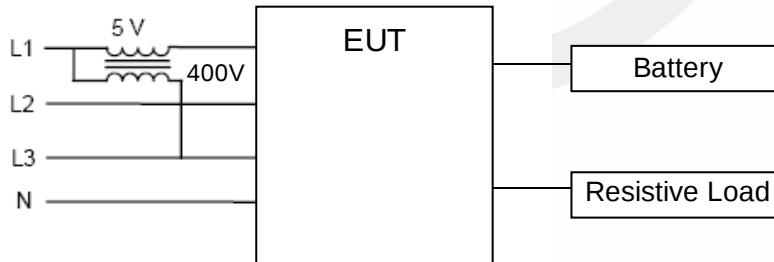
Test Standard	: EN IEC 62040-2
Performance criterion	: A
Test frequency	: 50Hz
Test level	: 5V(rms)Sinusoidal

15.2. Block Diagram of Test Setup

For Amplitude unbalance:



For Phase unbalance:



15.3. Test Results

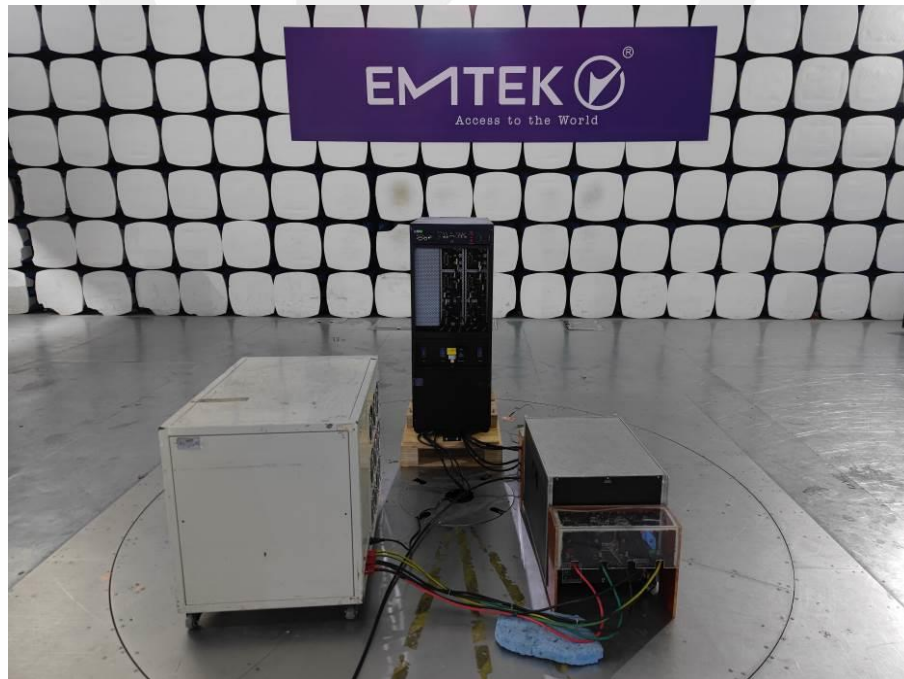
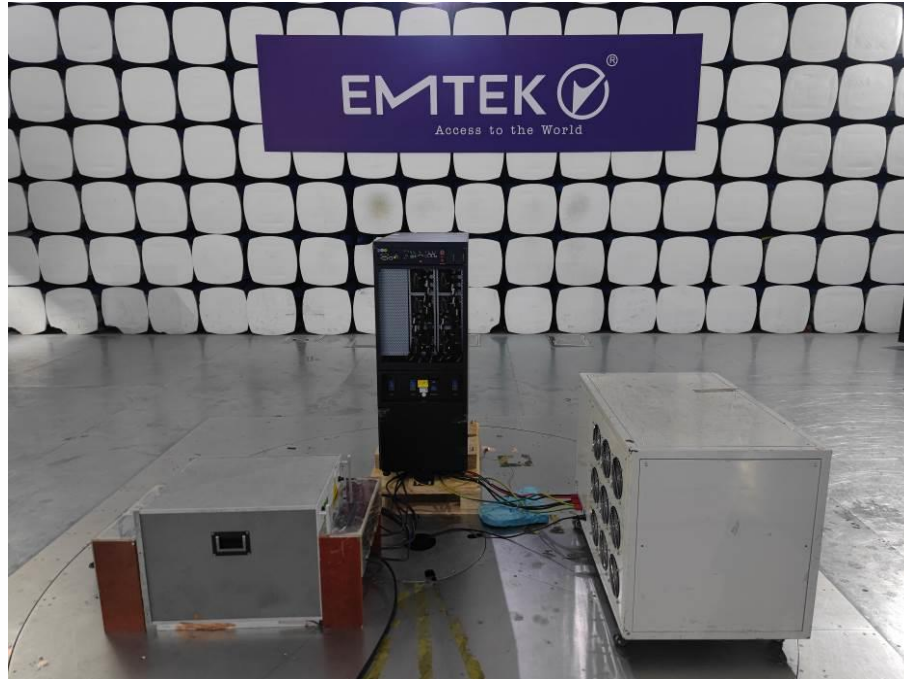
PASS.

Temperature : 25.9°C
Humidity : 53%
Atmospheric Pressure : 101kpa
Test Engineer : ZHT
Test Date : 2022-09-01

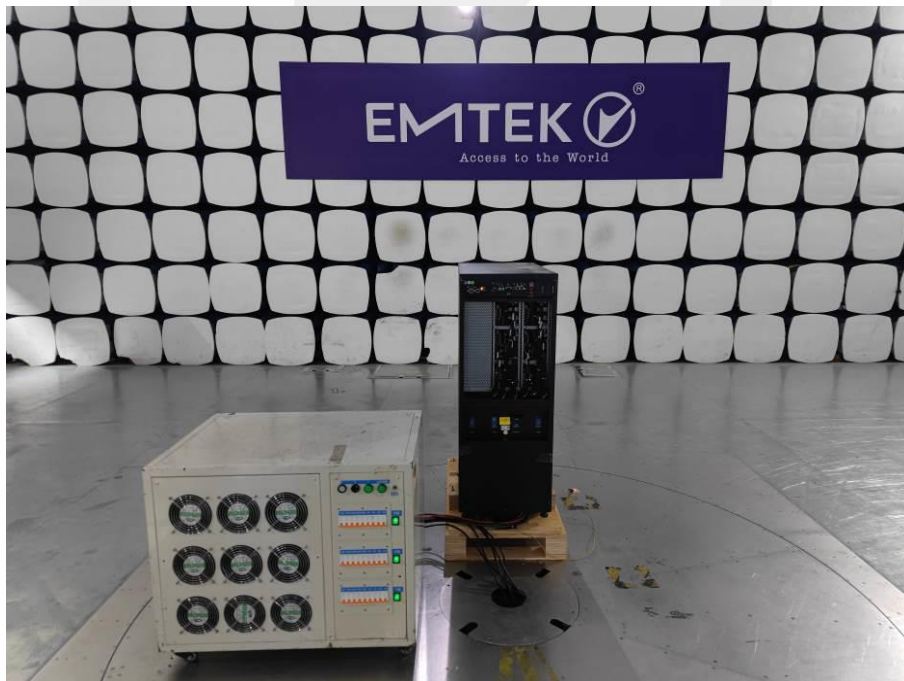
Frequency Range (Hz)	Position	Strength	Result	Note
50	L1,L2.L3, N	5V(rms) Sinusoidal	A	N/A

16.PHOTOGRAPHS

16.1.Photos of Conducted Emissions



16.2.Photos of Radiation Emission Measurement



16.3.Photo of Electrostatic Discharge Test



16.4.Photo of RF Field Strength Susceptibility Test



16.5.Photos of Electrical Fast Transient / Burst Test



16.6.Photos of Surge Test



16.7.Photos of Injected Currents Susceptibility Test



16.8.Photo of Magnetic Field Susceptibility Test



16.9.Photo of Voltage Dips and Interruption Immunity Test



16.10.Photo of Low Frequency Signals Test





APPENDIX (Photos of EUT)



End of Report

Statement

- 1 . This report is invalid without the signature of the authorized approver and "special seal for testing".
- 2 . This report shall not be copied partly without authorization.
- 3 . The test results or observations are applicable only to tested sample. Client shall be responsible for representativeness of the sample and authenticity of the material.
- 4 . The observations or tests with special mark fall outside the scope of accreditation, and are only used for purpose of commission, research, training, internal quality control etc.
- 5 . The test results or observations are provided in accordance with measured value, without taking risks caused by uncertainty into account. Without explicit stipulation in special agreements, standards or regulations, EMTEK shall not assume any responsibility.
- 6 . Objections shall be raised within 20 days from the date receiving the report.