

# TEST REPORT

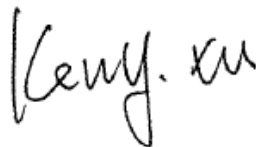
**Application No.:** SZEM2212008890BA(KSEM2212002552AT)  
**Applicant:** NINGBO DEYE ESS TECHNOLOGY CO., LTD  
**Address of Applicant:** No. 18, Zhenlong 2 Road, Binhai Economic Development Zone, Cixi, Ningbo, Zhejiang, China.  
**Manufacturer:** NINGBO DEYE ESS TECHNOLOGY CO., LTD  
**Address of Manufacturer:** No. 18, Zhenlong 2 Road, Binhai Economic Development Zone, Cixi, Ningbo, Zhejiang, China.  
**Factory:** NINGBO DEYE ESS TECHNOLOGY CO., LTD  
**Address of Factory:** No. 18, Zhenlong 2 Road, Binhai Economic Development Zone, Cixi, Ningbo, Zhejiang, China.

### Equipment Under Test (EUT):

**EUT Name:** Rechargeable Li-ion Battery System  
**Model No.:** GB-L  
**Trade Mark:** Deye  
**Standard(s) :** EN IEC 61000-6-3: 2021  
EN IEC 61000-6-1: 2019  
**Date of Receipt:** 2022-12-29  
**Date of Test:** 2023-01-05 to 2023-01-20  
**Date of Issue:** 2023-02-03

<b>Test Result:</b>	<b>Pass*</b>
---------------------	--------------

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



Keny Xu  
EMC Laboratory Manager



## SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

SZEMC-TRF-01 Rev. A/0 Aug01,2022

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Revision Record			
Version	Description	Date	Remark
00	Original	2023-02-07	/

Authorized for issue by:			
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## 2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at AC Mains Power Port (150kHz-30MHz)	EN IEC 61000-6-3: 2021	CISPR 16-2-1	Table 4.3	Pass
Radiated Emissions (30MHz-1GHz)		CISPR 16-2-3	Table 3.1	Pass
Radiated Emissions (Above 1GHz)		CISPR 16-2-3	Table 3.4	Pass
Harmonic Current Emission		EN 61000-3-12: 2011	Clause 5.2	Pass
Voltage Fluctuations and Flicker		EN IEC 61000-3-11: 2019	Clause 6.3.2	Pass

Immunity Part				
Item	Standard	Method	Requirement	Result
Conducted Immunity at AC Mains Power Port (150kHz-80MHz)	EN IEC 61000-6-1: 2019	EN 61000-4-6:2014	3Vrms (emf),80%,1kHz Amp. Mod.	Pass
Electrical Fast Transients Burst at AC Mains Power Port		EN 61000-4-4:2012	1kV 5/50ns Tr/Td 5kHz/100kHz Repetition Frequency	Pass
Electrostatic Discharge		EN 61000-4-2:2009	±4kV Contact Discharge, ±8kV Air Discharge	Pass
Radiated Immunity (80MHz-6GHz)		EN IEC 61000-4-3: 2020	3V/m, 80%, 1kHz Amp. Mod.	Pass
Surge at AC Mains Power Port		EN 61000-4-5:2014+A1:2017	1.2/50µs Tr/Td 1kV Line to Line 2kV Line to Ground	Pass
Voltage Dips and Interruptions		EN IEC 61000-4-11:2020	0 % UT for 0.5cycle 0 % UT for 1cycle 70 % UT for 25cycles 0 % UT for 250cycles UT is Supply Voltage	Pass



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply:	DC 102.4V/40A Test Voltage: AC 400V/50Hz&DC 102.4V
Cable(s):	DC Power cable

### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Load	Resistance	N/A	N/A
Power Source	APC	APF400	N/A

### 4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty ( $U_{LAB}$ ) *	$U_{CISPR}$
1	Conducted Emission at mains port using AMN	2.4dB (9kHz to 150kHz)	3.8dB (9kHz to 150kHz)
		2.2dB (150kHz to 30MHz)	3.4dB (150kHz to 30MHz)
2	Conducted Emission at telecommunication port using AAN	4.0 dB (150kHz to 30MHz)	5.0dB (150kHz to 30MHz)
3	Radiated Power	3.2dB	4.5dB (30MHz to 300MHz)
4	Radiated Emission (10m)	4.1 dB	6.3dB (30MHz-1GHz)
5	Radiated Emission (3m)	4.6 dB (30MHz-1GHz)	6.3dB (30MHz-1GHz)
		5.0dB (1GHz-6GHz)	5.2dB (1GHz-6GHz)
		5.2dB (6GHz-18GHz)	5.5dB (6GHz-18GHz)
		5.3dB (18GHz-40GHz)	N/A

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

#### Decision Rule:

- CISPR 16-4-2 for emission measurements is as below described.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

$U_{LAB}$  less than  $U_{CISPR}$ , therefore:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit.
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.
- For immunity testing no decision rule is applicable.



### 4.4 Test Location

All tests were sub-contracted at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

Note:

1.SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).

2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

### 4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

#### • A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

#### • FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

#### • ISED

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

#### • VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

### 4.6 Deviation from Standards

None

### 4.7 Abnormalities from Standard Conditions

None



## 5 Equipment List

Conducted Emissions at AC Mains Power Port (150kHz-30MHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMI TEST RECEIVER	R&S	ESCI	KS301101	01/22/2022	01/21/2023
TWO-LINE V-NETWORK	R&S	ENV216	KS301197	01/22/2022	01/21/2023
V (V-LISN)	SCHWARZBECK	NNLK 8129	KS301091	01/22/2022	01/21/2023
Pulse LIMITER	R&S	ESH3-Z2	KUS1902E001	01/22/2022	01/21/2023
Software	Faratronic	EZ EMC-v 3A1	N/A	N/A	N/A

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMI Test Receiver	R&S	ESCI	KS301044	01/22/2022	01/21/2023
EMI Test Receiver	R&S	ESCI	KS301195	08/22/2022	08/21/2023
Bilog Antenna	Sunol	JB1	CZ301033	02/28/2022	02/27/2023
Bilog Antenna	Sunol	JB1	KS301013	04/12/2022	04/11/2023
Pre-Amplifier	Anritsu	MH648A	KS610098	01/22/2022	01/21/2023
Pre-Amplifier	Mini-circuits	ZFL-1000VH2	CZ301013	01/22/2022	01/21/2023
Software	Faratronic	EZ EMC-v 3A1	N/A	N/A	N/A

Radiated Emissions (Above 1GHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Spectrum Analyzer	R&S	FSU26	KS301206	04/01/2022	03/31/2023
Preamplifier	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-2	01/22/2022	01/21/2023
Horn-antenna	SCHWARZBECK	BBHA9120D	KS301079	04/02/2022	04/01/2024
Software	Faratronic	EZ EMC-v 3A1	N/A	N/A	N/A

Harmonic Current Emission					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Harmonic & Flicker Tester	SCHAFFNER	CCN 1000-1	KS301033	08/22/2022	08/21/2023
AC Power Source	SCHAFFNER	NSG 1007	KS301087	08/22/2022	08/21/2023
Software	TESEQ	CTS4-v 4.24.0	N/A	N/A	N/A
Harmonic/Flicker Analyzer	KIKUSUI	KHA3000	KUS2009M002-1	04/01/2022	03/31/2023
Line Impedance Network	KIKUSUI	SPEC71116	KUS2009M002	04/01/2022	03/31/2023



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Switcher	KIKUSUI	SPEC71092	KUS2009M002-2	04/01/2022	03/31/2023
AC Power Supply(Master)	KIKUSUI	PCR24000WE2	KUS2009M002-3	04/01/2022	03/31/2023
AC Power Supply(Slave)	KIKUSUI	PCR24000WE2	KUS2009M002-4	04/01/2022	03/31/2023
Software	KIKUSUI	HarmoCapture 3-vv 2.5.2.00	N/A	N/A	N/A

## Voltage Fluctuations and Flicker

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Harmonic & Flicker Tester	SCHAFFNER	CCN 1000-1	KS301033	08/22/2022	08/21/2023
AC Power Source	SCHAFFNER	NSG 1007	KS301087	08/22/2022	08/21/2023
Software	TESEQ	CTS4-v 4.24.0	N/A	N/A	N/A
Harmonic/Flicker Analyzer	KIKUSUI	KHA3000	KUS2009M002-1	04/01/2022	03/31/2023
Line Impedance Network	KIKUSUI	SPEC71116	KUS2009M002-1	04/01/2022	03/31/2023
Switcher	KIKUSUI	SPEC71092	KUS2009M002-2	04/01/2022	03/31/2023
AC Power Supply(Master)	KIKUSUI	PCR24000WE2	KUS2009M002-3	04/01/2022	03/31/2023
AC Power Supply(Slave)	KIKUSUI	PCR24000WE2	KUS2009M002-4	04/01/2022	03/31/2023
Software	KIKUSUI	HarmoCapture 3-vv 2.5.2.00	N/A	N/A	N/A

## Conducted Immunity at AC Mains Power Port (150kHz-80MHz)

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Test System for Conducted and Radiated Immunity	TESEQ	NSG 4070B	KSZ201705E003	01/22/2022	01/21/2023
Amplifier	TESEQ	SCCXE75	KSZ201705E004	01/22/2022	01/21/2023
EM-Koppelzange	SCHAFFNER	KEMZ 801	CZ301002	01/22/2022	01/21/2023
Attenuator	EURO MC	7860 ORGEVAL	CZ301084	04/01/2022	03/31/2023
Directional Coupler	HIGH POWER	C21A8	CZ750021	09/06/2022	09/05/2023
CDN (Coupling and Decoupling Network)	SCHAFFNER	CDN M216	CZ301085	04/01/2022	03/31/2023
CDN (Coupling and	SCHAFFNER	CDN M316	CZ301025	04/01/2022	03/31/2023



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Decoupling Network)					
CDN (Coupling and Decoupling Network)	TESEQ	CDN S751	KS301184-2	04/01/2022	03/31/2023
CDN (Coupling and Decoupling Network)	TESEQ	CDN M116	KS301184-1	04/01/2022	03/31/2023
CDN	TESEQ	CDN T2-10S	KS301286	04/01/2022	03/31/2023
CDN	TESEQ	CDN T4-10S	KS301287	04/01/2022	03/31/2023
CDN	TESEQ	CDN T8-10S	KS301288	04/01/2022	03/31/2023
Current Clamp	TESEQ	IP-DR250	KS201703E001	04/01/2022	03/31/2023
CDN	TESEQ	CDN M432	KUS2003M001-1	01/22/2022	01/21/2023
CDN	TESEQ	CDN M432-3LN	KUS2003M001-2	01/22/2022	01/21/2023
CDN	TESEQ	CDN M532	KUS2003M001-3	01/26/2022	01/25/2023
CDN	TESEQ	CDN M232	KSZ201706E001	04/01/2022	03/31/2023
CDN	TESEQ	CDN M332	KSZ201706E002	04/01/2022	03/31/2023
Software	TESEQ	NSG 4070-v1.3.0.1	N/A	N/A	N/A

## Electrical Fast Transients Burst at AC Mains Power Port

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMC Immunity Tester	EMC PARTNER	Transient2000	KS301188-1	08/22/2022	08/21/2023
Coupling Network	EMC PARTNER	CN-EFT1000	KS301188-3	08/22/2022	08/21/2023
Burst Generator	SANKI	EFT-0404S	KUS2009M002-7	04/01/2022	03/31/2023
Coupling and Decoupling Network	SANKI	CDN-4350	KUS2009M002-8	04/01/2022	03/31/2023

## Electrostatic Discharge

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
ESD Simulator	EM TEST	DITO 509030	KS301147	01/26/2022	01/25/2023

## Radiated Immunity (80MHz-6GHz)

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Synthesized Signal Generator	AGILENT	83732B	KS301183	01/22/2022	01/21/2023
Laser probe interface	AR Worldwide	FI7000	KS301193-2	04/01/2022	03/31/2023



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E-Field Sensor	AR Worldwide	FL7006 100K-6G	KS301193-1	04/01/2022	03/31/2023
Amplifier Research (80~1000MHz 150w)	AR Worldwide	150W1000M1	KS301139	08/22/2022	08/21/2023
Amplifier Research (1~6GHz 50w)	AR Worldwide	50S1G6M1	KS301231	08/22/2022	08/21/2023
Dual Directional Coupler (1-11G)	AR Worldwide	C1-A47NFNF 35dB	KS301193-5	N.C.R	N.C.R
Dual Directional Coupler (80~1000MHz 400w)	AR Worldwide	DC6180	KS301193-6	N.C.R	N.C.R
RF POWER METER	BOONTON	4232A-01	KS301022	01/22/2022	01/21/2023
POWER SENSOR	BOONTON	51085	H3010235-1	01/22/2022	01/21/2023
POWER SENSOR	BOONTON	51085	H3010235-2	01/22/2022	01/21/2023
Antenna	AR Worldwide	TP1000A	CZ301029	N.C.R	N.C.R
Software	AR	emc ware-v 3.2.0.4	N/A	N/A	N/A

## Surge at AC Mains Power Port

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMC Immunity Tester	EMC PARTNER	TRA2006	KS301188-1	08/22/2022	08/21/2023
Coupling and Decoupling Network	EMC PARTNER	CDN-UTP8	KS301188-2	08/22/2022	08/21/2023
Surge Generator	SANKI	LSG-0506S	KUS2009M002-5	04/01/2022	03/31/2023
Coupling and Decoupling Network	SANKI	CDN-5350	KUS2009M002-6	04/01/2022	03/31/2023

## Voltage Dips and Interruptions

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMC Immunity Tester	EMC PARTNER	TRA2006	KS301188-1	08/22/2022	08/21/2023
Switcher	KIKUSUI	SPEC71092	KUS2009M002-2	04/01/2022	03/31/2023
AC Power Supply(Master)	KIKUSUI	PCR24000WE 2	KUS2009M002-3	04/01/2022	03/31/2023
AC Power Supply(Slave)	KIKUSUI	PCR24000WE 2	KUS2009M002-4	04/01/2022	03/31/2023
Software	KIKUSUI	Quick Immunity Sequencer 2-v 4.0.3.02	N/A	N/A	N/A



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General used equipment					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Digital Pressure Meter	Mengde	DYM3	CZ750023	02/01/2022	01/31/2023
Temperature & Humidity Recorder	Anymetre	TH603	CZ720001-1 CZ720001-2 CZ720001-3 CZ720001-4 CZ720001-5 CZ720001-6 CZ720001-7	10/13/2022	10/12/2023



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## 6 Emission Test Results

### 6.1 Conducted Emissions at AC Mains Power Port (150kHz-30MHz)

Test Requirement: EN IEC 61000-6-3: 2021

Test Method: CISPR 16-2-1

Limit:

0.15M-0.5MHz 66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average

0.5M-5MHz 56dB(μV) quasi-peak, 46dB(μV) average

5M-30MHz 60dB(μV) quasi-peak, 50dB(μV) average

Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

#### 6.1.1 E.U.T. Operation

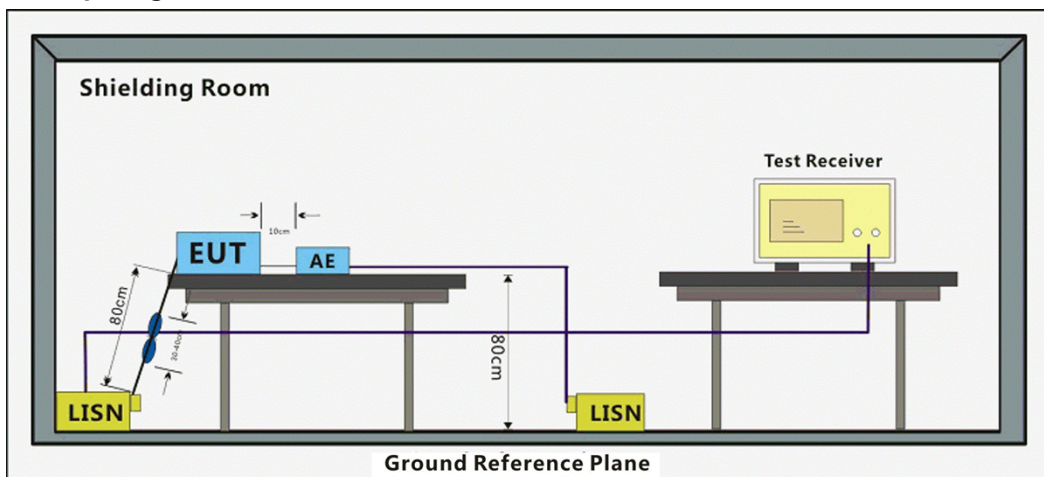
Operating Environment:

Temperature: 18.7 °C Humidity: 38.8 % RH Atmospheric Pressure: 1010 mbar

#### 6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Charging Mode.

#### 6.1.3 Test Setup Diagram



### 6.1.4 Measurement Procedure and Data

Frequency range: 150KHz-30MHz

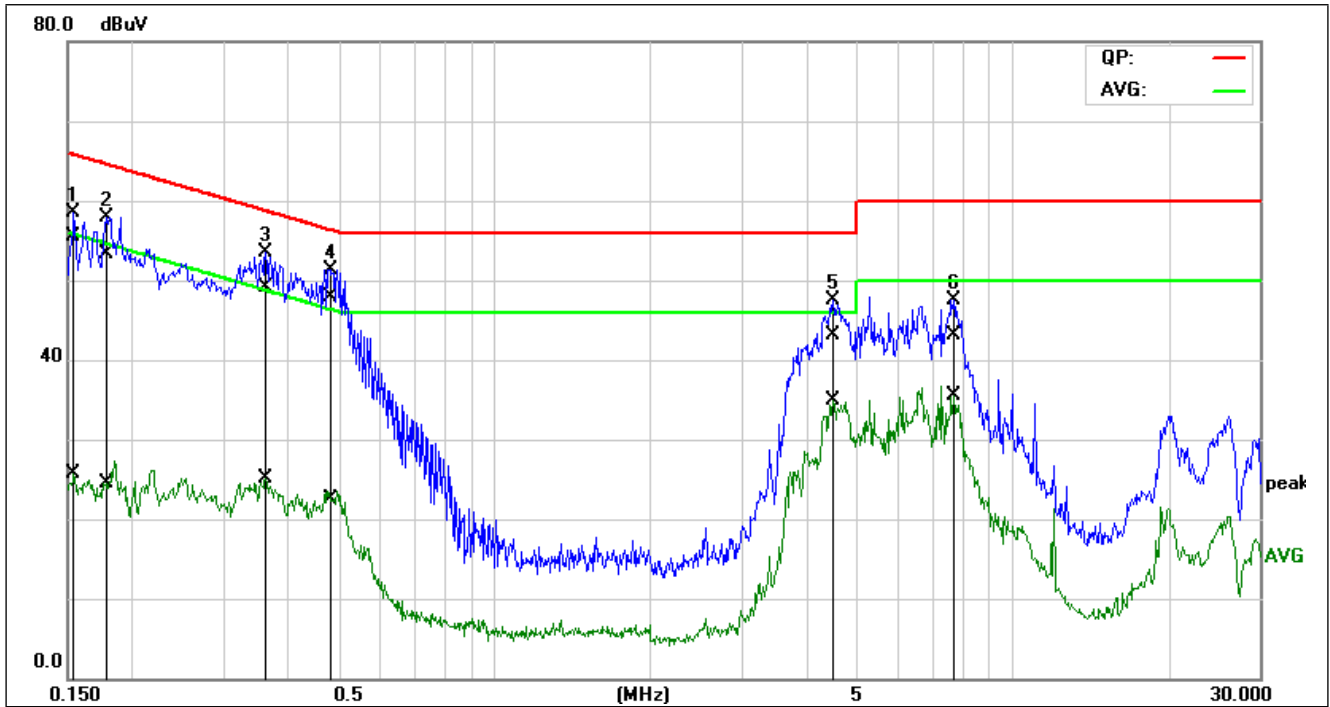
An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

The red line show in graphic is the limit in standard used in this section.

Measured Level = Read level + Cable Loss + LISN Factor



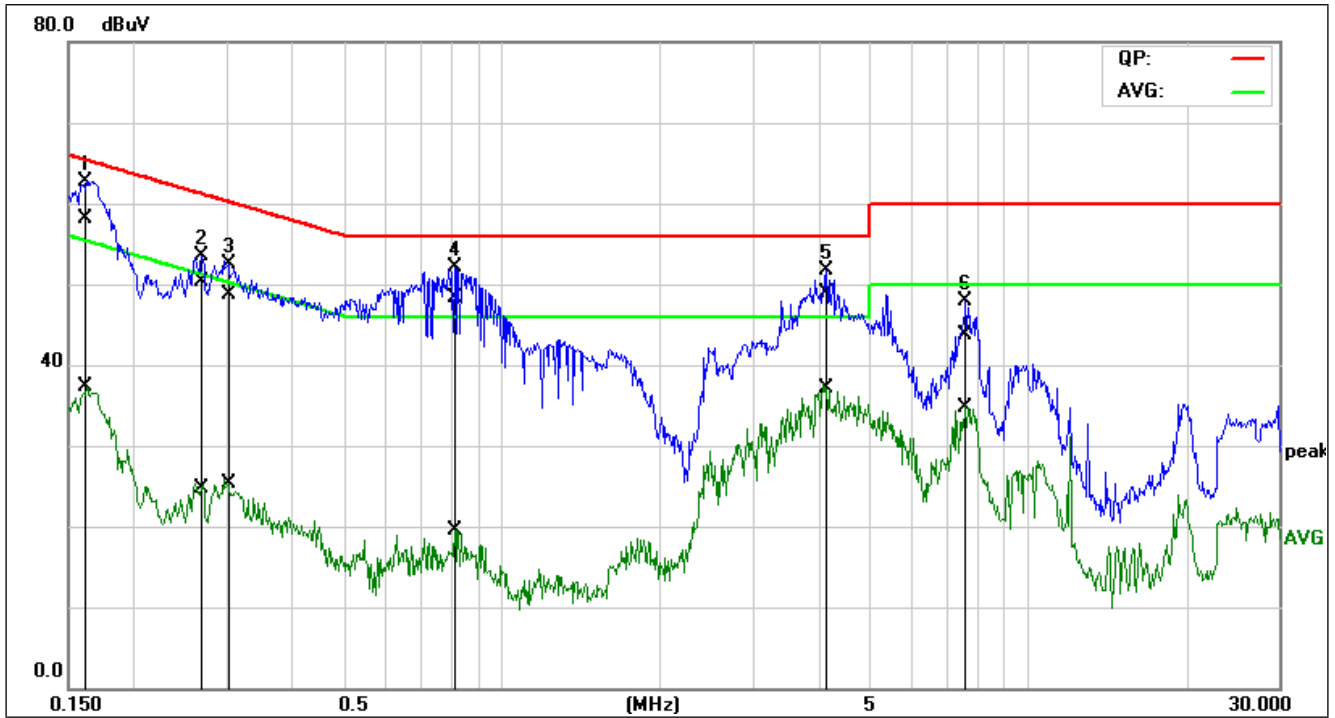
Test Mode: 00; Line: Live line



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1540	45.49	15.70	9.97	55.46	25.67	65.78	55.78	-10.32	-30.11	Pass
2	0.1780	43.31	14.43	9.98	53.29	24.41	64.57	54.58	-11.28	-30.17	Pass
3	0.3620	39.15	15.04	10.01	49.16	25.05	58.68	48.68	-9.52	-23.63	Pass
4*	0.4820	37.79	12.42	10.05	47.84	22.47	56.30	46.30	-8.46	-23.83	Pass
5	4.5100	32.92	24.61	10.23	43.15	34.84	56.00	46.00	-12.85	-11.16	Pass
6	7.6980	32.69	25.13	10.38	43.07	35.51	60.00	50.00	-16.93	-14.49	Pass



Test Mode: 00; Line: Live line



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1623	48.03	27.24	10.01	58.04	37.25	65.34	55.35	-7.30	-18.10	Pass
2	0.2700	40.29	14.71	10.00	50.29	24.71	61.12	51.12	-10.83	-26.41	Pass
3	0.3020	38.76	15.36	10.00	48.76	25.36	60.19	50.19	-11.43	-24.83	Pass
4	0.8140	38.17	9.42	10.07	48.24	19.49	56.00	46.00	-7.76	-26.51	Pass
5*	4.1380	38.72	26.92	10.21	48.93	37.13	56.00	46.00	-7.07	-8.87	Pass
6	7.6100	33.40	24.43	10.37	43.77	34.80	60.00	50.00	-16.23	-15.20	Pass





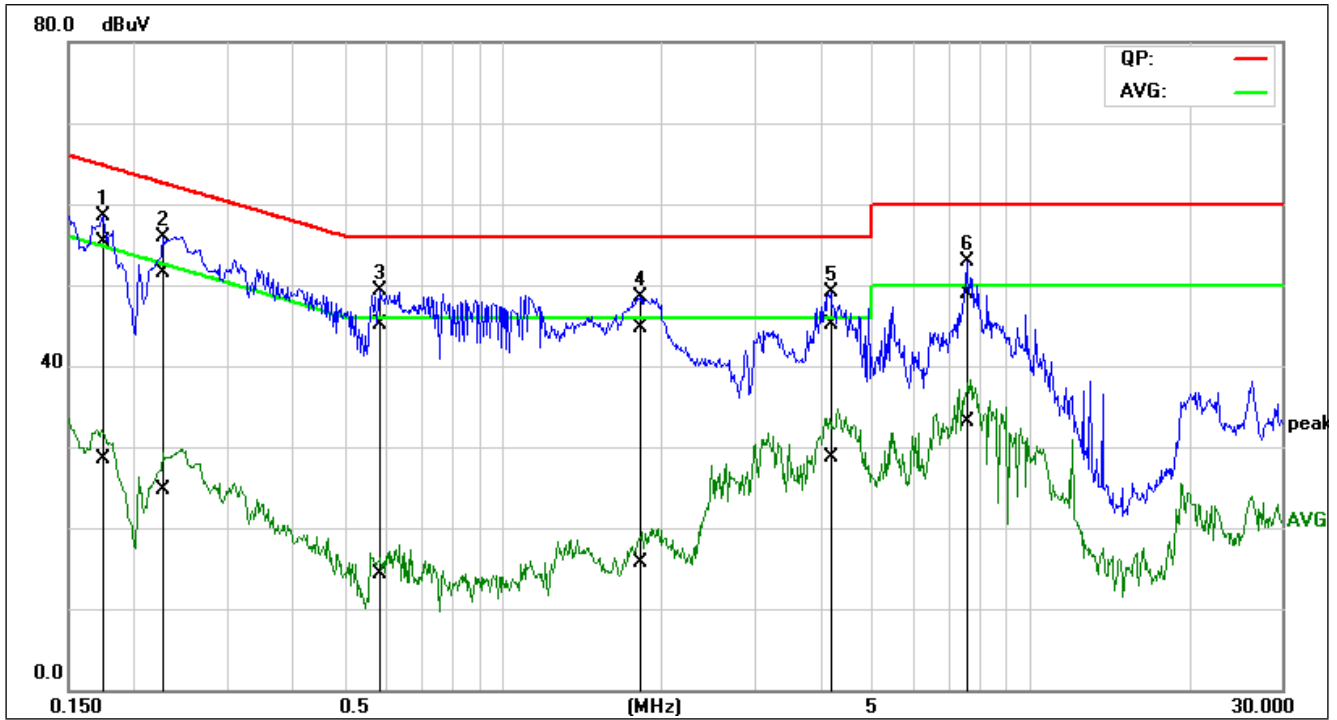
Test Mode: 00; Line: Live line



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1516	46.73	24.40	10.01	56.74	34.41	65.91	55.91	-9.17	-21.50	Pass
2	0.1786	47.33	24.06	10.01	57.34	34.07	64.55	54.55	-7.21	-20.48	Pass
3	0.2300	44.03	19.76	10.00	54.03	29.76	62.45	52.45	-8.42	-22.69	Pass
4	0.3900	40.15	17.22	10.02	50.17	27.24	58.06	48.06	-7.89	-20.82	Pass
5*	0.8660	38.88	8.33	10.08	48.96	18.41	56.00	46.00	-7.04	-27.59	Pass
6	4.1740	36.64	20.91	10.21	46.85	31.12	56.00	46.00	-9.15	-14.88	Pass



Test Mode: 00; Line: Neutral Line



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.1740	45.36	18.53	10.03	55.39	28.56	64.76	54.77	-9.37	-26.21	Pass
2	0.2268	41.40	14.76	10.03	51.43	24.79	62.56	52.57	-11.13	-27.78	Pass
3	0.5860	34.98	4.25	10.08	45.06	14.33	56.00	46.00	-10.94	-31.67	Pass
4	1.8260	34.56	5.48	10.16	44.72	15.64	56.00	46.00	-11.28	-30.36	Pass
5	4.1900	34.88	18.53	10.23	45.11	28.76	56.00	46.00	-10.89	-17.24	Pass
6	7.6060	38.53	22.77	10.40	48.93	33.17	60.00	50.00	-11.07	-16.83	Pass



### 6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN IEC 61000-6-3: 2021

Test Method: CISPR 16-2-3

Limit:

Test Distance: 10m

30MHz-230MHz 30 dB(μV/m) quasi-peak

230MHz-1GHz 37 dB(μV/m) quasi-peak

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30MHz to 1000MHz

Test Distance: 3m

30MHz-230MHz 40 dB(μV/m) quasi-peak

230MHz-1GHz 47 dB(μV/m) quasi-peak

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30MHz to 1000MHz

#### 6.2.1 E.U.T. Operation

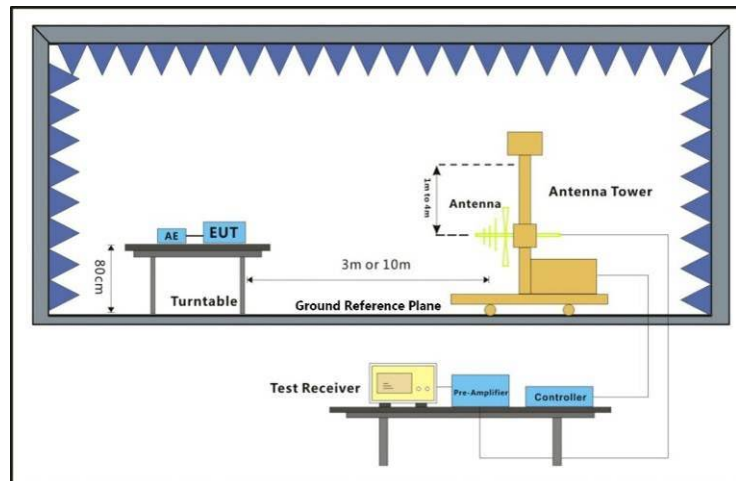
Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

#### 6.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Charging Mode.
Final test	01	Discharging Mode.

#### 6.2.3 Test Setup Diagram



### 6.2.4 Measurement Procedure and Data

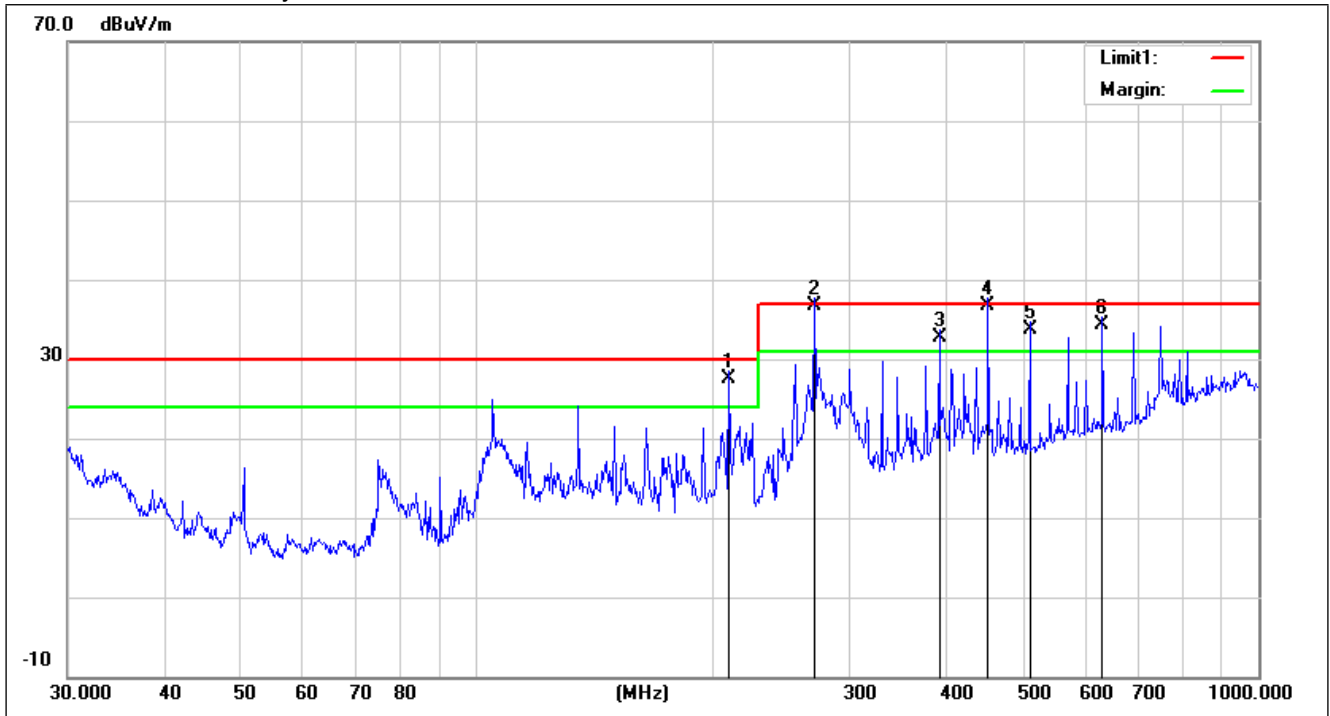
Frequency range: 30MHz-1GHz

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities. The red line show in graphic is the limit in standard used in this section.

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor



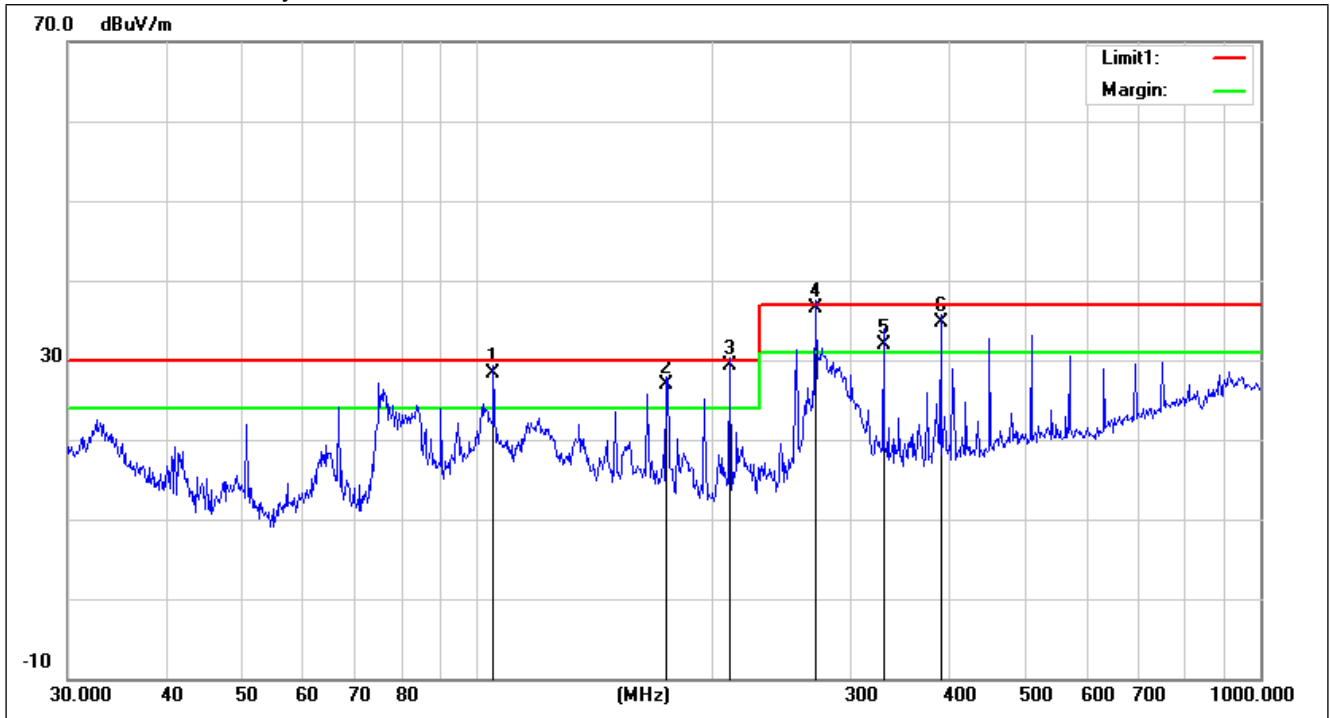
Test Mode: 00; Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg)	Remark
1	210.0482	45.02	-17.47	27.55	30.00	-2.45	100	306	QP
2	270.3747	51.14	-14.49	36.65	37.00	-0.35	400	147	QP
3	390.7226	44.81	-12.17	32.64	37.00	-4.36	300	48	QP
4	451.1350	46.77	-9.99	36.78	37.00	-0.22	200	62	QP
5	510.0436	43.35	-9.62	33.73	37.00	-3.27	200	55	QP
6	631.6884	41.37	-7.04	34.33	37.00	-2.67	200	42	QP



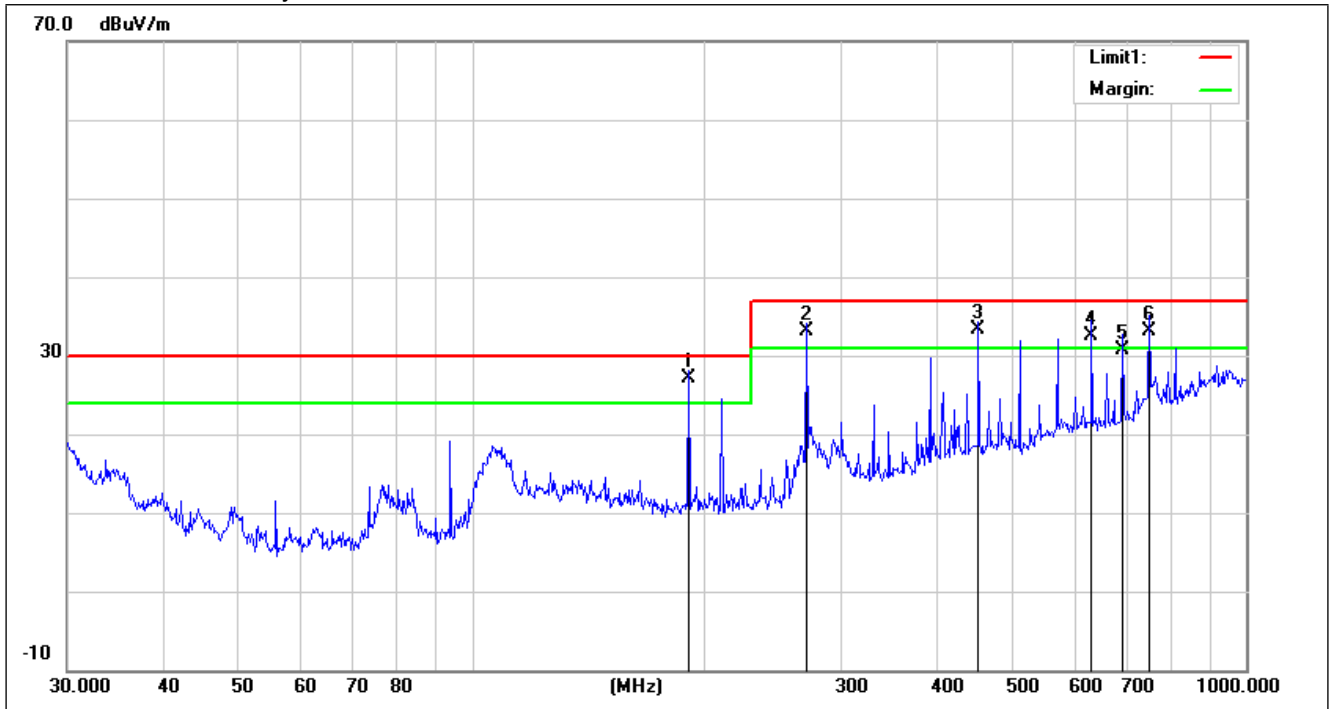
Test Mode: 00; Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg)	Remark
1	104.9033	43.07	-14.78	28.29	30.00	-1.71	100	93	QP
2	174.4241	41.61	-14.63	26.98	30.00	-3.02	300	136	QP
3	210.0482	44.84	-15.49	29.35	30.00	-0.65	100	306	QP
4	270.3747	48.33	-11.80	36.53	37.00	-0.47	100	112	QP
5	330.1950	42.36	-10.40	31.96	37.00	-5.04	300	284	QP
6	390.7226	43.99	-9.34	34.65	37.00	-2.35	100	36	QP



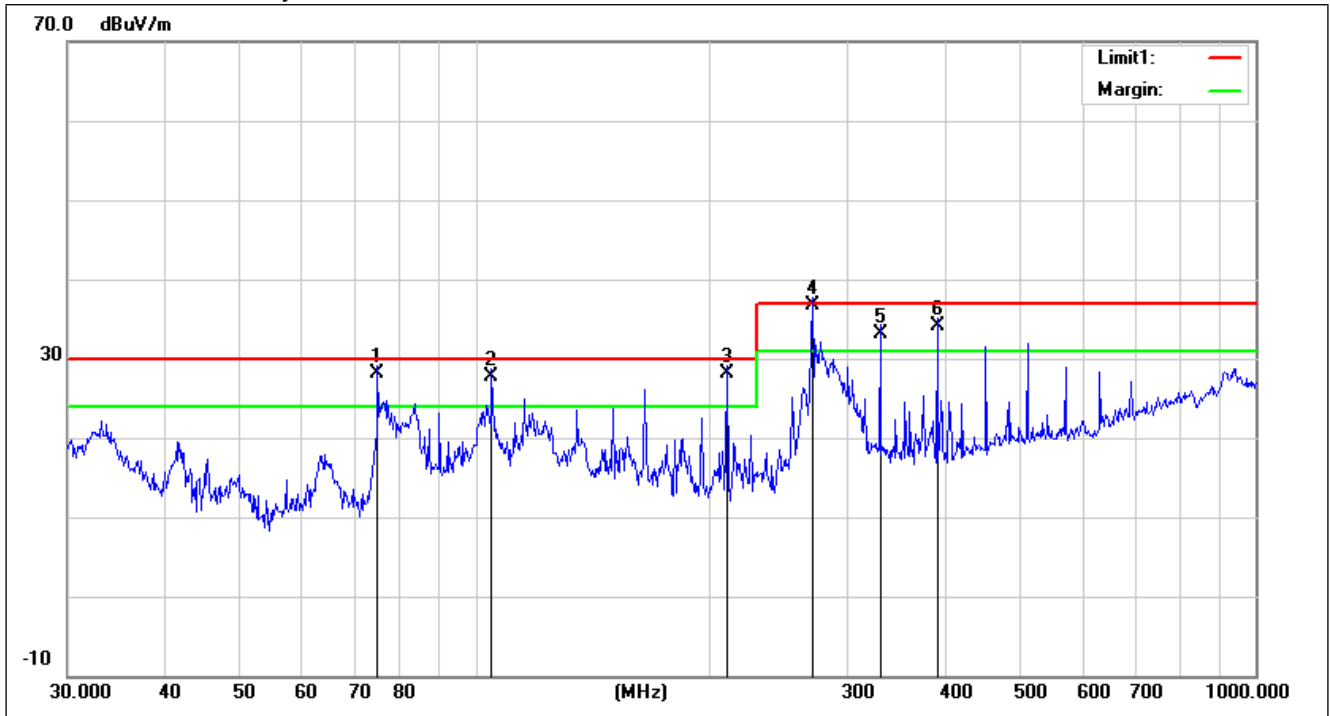
Test Mode: 01; Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg)	Remark
1	190.4050	43.89	-16.82	27.07	30.00	-2.93	400	114	QP
2	270.3748	47.58	-14.49	33.09	37.00	-3.91	300	211	QP
3	451.1350	43.30	-9.99	33.31	37.00	-3.69	100	71	QP
4	631.6884	39.47	-7.04	32.43	37.00	-4.57	400	56	QP
5	691.9867	36.72	-5.96	30.76	37.00	-6.24	200	63	QP
6	750.1083	38.29	-5.10	33.19	37.00	-3.81	400	50	QP



Test Mode: 01; Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg)	Remark
1	74.9191	46.89	-18.88	28.01	30.00	-1.99	100	114	QP
2	104.9033	42.39	-14.78	27.61	30.00	-2.39	100	53	QP
3	210.0482	43.68	-15.49	28.19	30.00	-1.81	400	313	QP
4	270.3748	48.49	-11.80	36.69	37.00	-0.31	100	285	QP
5	330.1949	43.60	-10.40	33.20	37.00	-3.80	100	289	QP
6	390.7226	43.49	-9.34	34.15	37.00	-2.85	200	40	QP





**6.3 Radiated Emissions (Above 1GHz)**

Test Requirement: EN IEC 61000-6-3: 2021

Test Method: CISPR 16-2-3

Limit:

Frequency range (MHz)	Radiated emissions limit(dBμV/m)	
	Peak	Average
1000-3000	70	50
3000-6000	74	54

**6.3.1 E.U.T. Operation**

Operating Environment:

Temperature: 21.1 °C

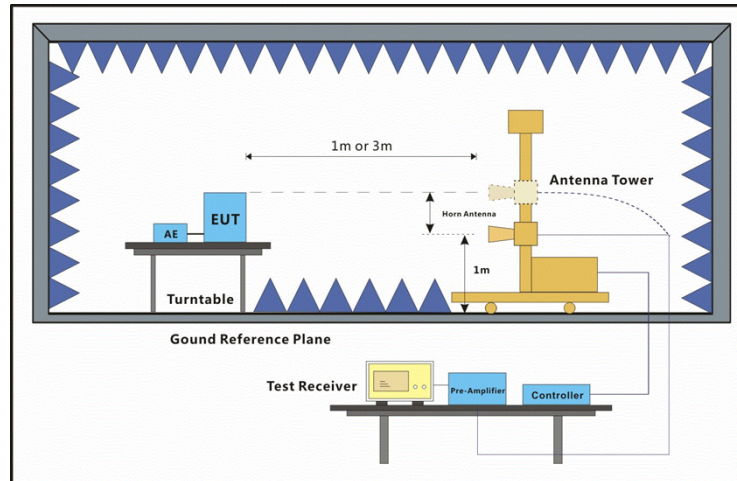
Humidity: 34.8 % RH

Atmospheric Pressure: 1010 mbar

**6.3.2 Test Mode Description**

Pre-scan / Final test	Mode Code	Description
Final test	00	Charging Mode.
Final test	01	Discharging Mode.

**6.3.3 Test Setup Diagram**



### 6.3.4 Measurement Procedure and Data

Frequency range: Above 1GHz

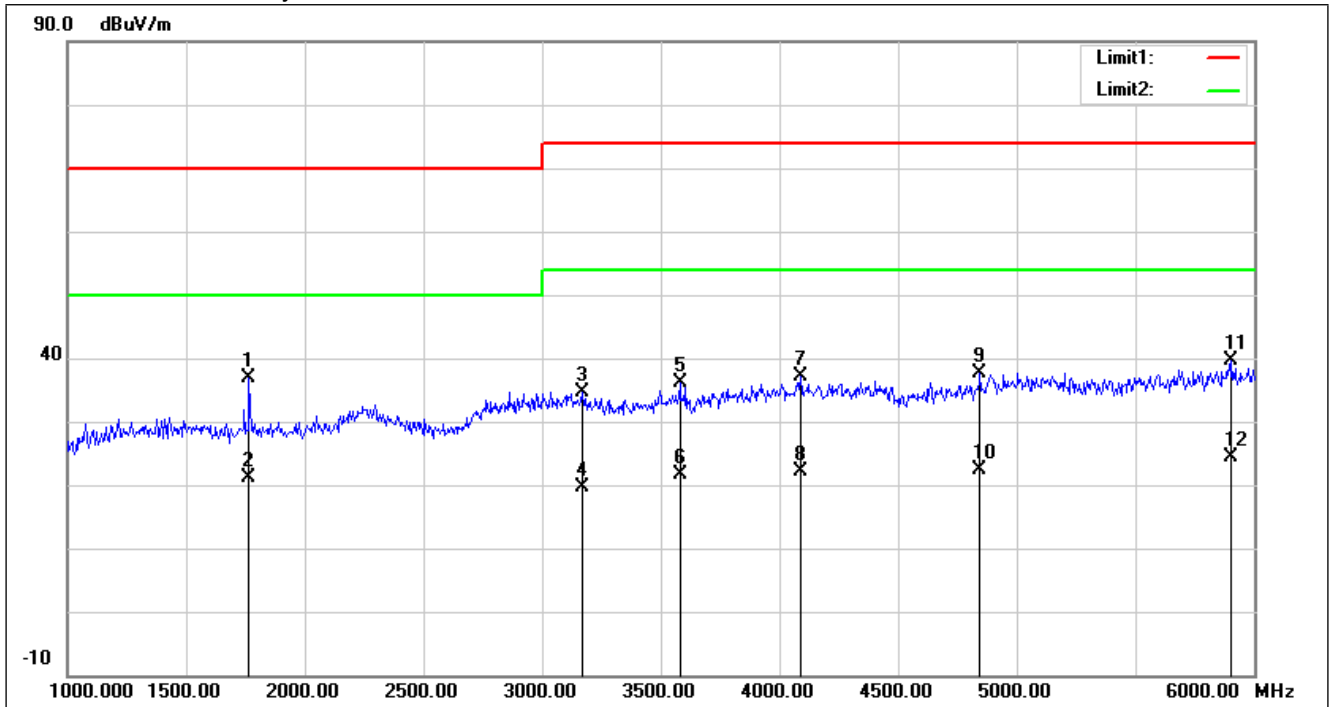
An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The red line show in graphic is the limit in standard used in this section.

The EUT was measured by Horn antenna with 2 orthogonal polarities.

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor



Test Mode: 00; Polarity: Horizontal



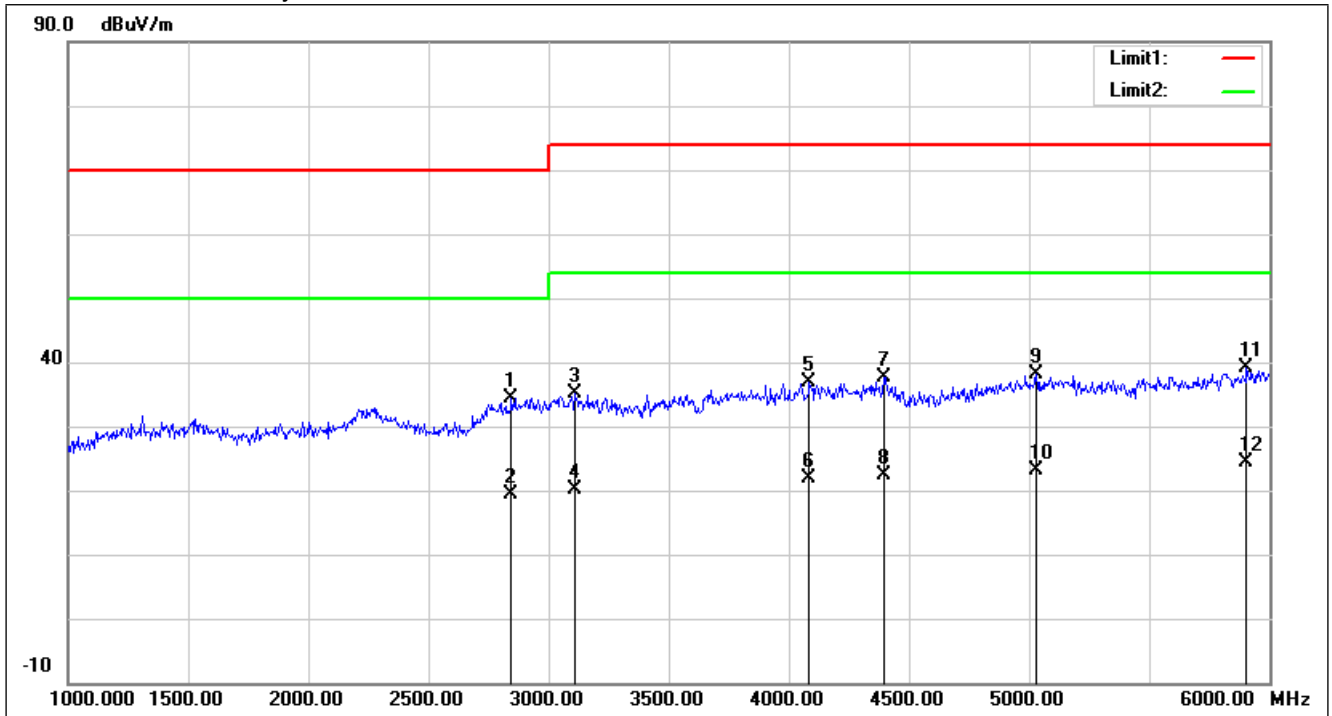
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1765.000	59.57	-22.73	36.84	70.00	-33.16	100	68	peak
2	1765.000	43.78	-22.73	21.05	50.00	-28.95	100	68	AVG
3	3170.000	52.11	-17.43	34.68	74.00	-39.32	200	148	peak
4	3170.000	37.06	-17.43	19.63	54.00	-34.37	200	148	AVG
5	3580.000	52.79	-16.71	36.08	74.00	-37.92	200	147	peak
6	3580.000	38.40	-16.71	21.69	54.00	-32.31	200	147	AVG
7	4090.000	51.84	-14.71	37.13	74.00	-36.87	100	324	peak
8	4090.000	36.88	-14.71	22.17	54.00	-31.83	100	324	AVG
9	4845.000	51.17	-13.56	37.61	74.00	-36.39	100	256	peak
10	4845.000	36.03	-13.56	22.47	54.00	-31.53	100	256	AVG
11	5905.000	51.45	-11.92	39.53	74.00	-34.47	200	315	peak
12	5905.000	36.31	-11.92	24.39	54.00	-29.61	200	315	AVG



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Test Mode: 00; Polarity: Vertical

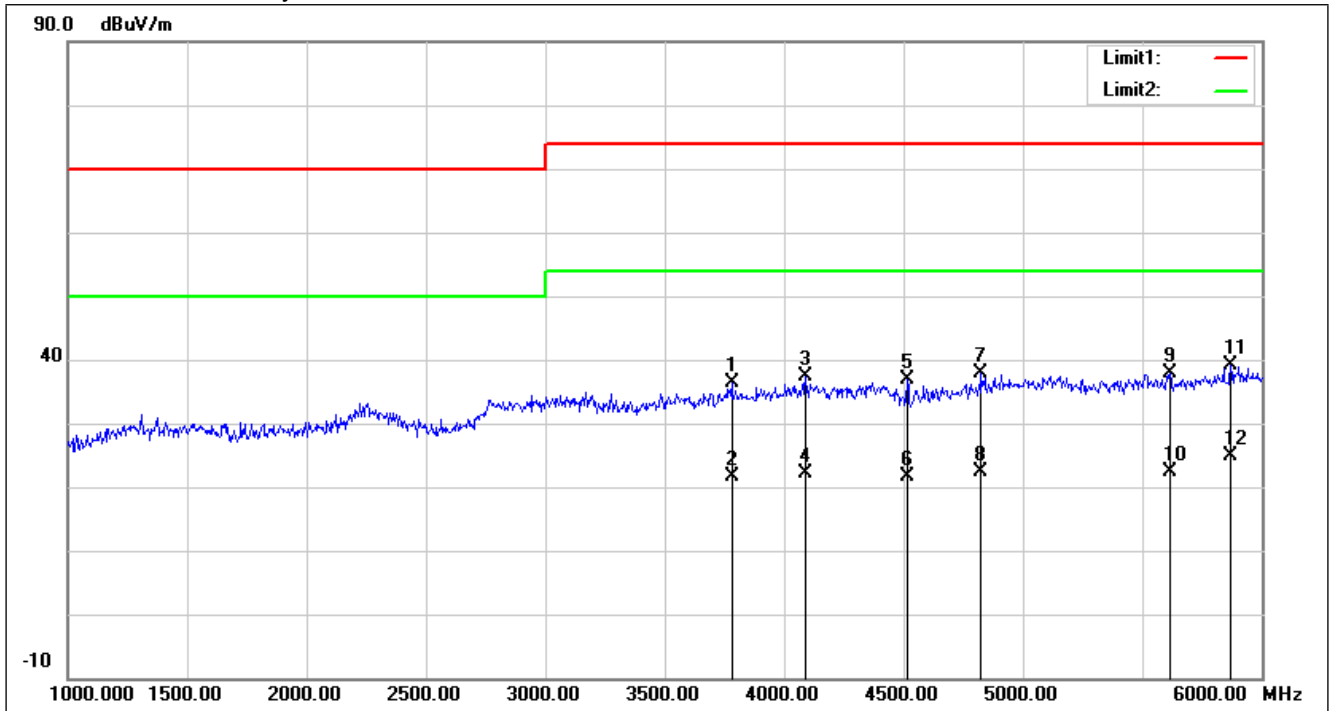


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2845.000	52.57	-18.17	34.40	70.00	-35.60	200	190	peak
2	2845.000	37.50	-18.17	19.33	50.00	-30.67	200	190	AVG
3	3110.000	52.51	-17.45	35.06	74.00	-38.94	200	311	peak
4	3110.000	37.51	-17.45	20.06	54.00	-33.94	200	311	AVG
5	4085.000	51.50	-14.71	36.79	74.00	-37.21	100	267	peak
6	4085.000	36.60	-14.71	21.89	54.00	-32.11	100	267	AVG
7	4395.000	51.84	-14.21	37.63	74.00	-36.37	200	156	peak
8	4395.000	36.62	-14.21	22.41	54.00	-31.59	200	156	AVG
9	5030.000	51.27	-13.19	38.08	74.00	-35.92	100	68	peak
10	5030.000	36.25	-13.19	23.06	54.00	-30.94	100	68	AVG
11	5905.000	51.08	-11.92	39.16	74.00	-34.84	100	357	peak
12	5905.000	36.19	-11.92	24.27	54.00	-29.73	100	357	AVG



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Test Mode: 01; Polarity: Horizontal

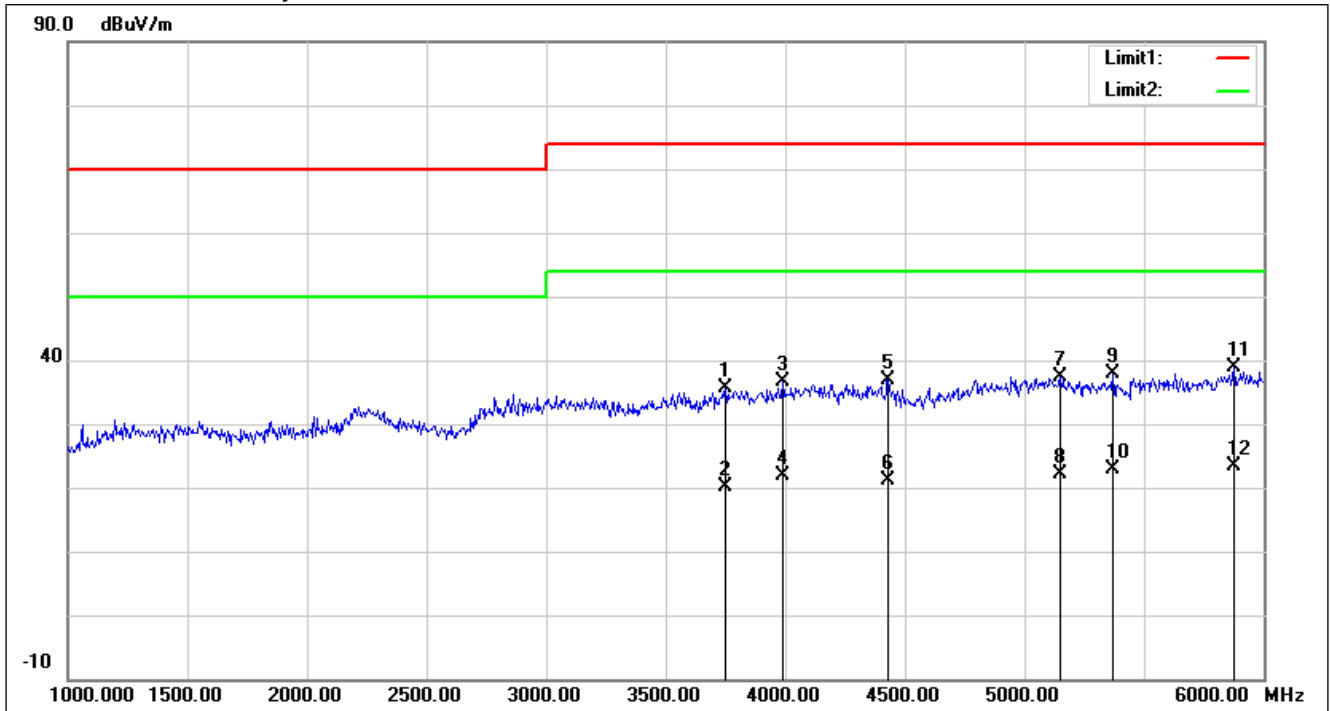


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	3780.000	52.13	-15.66	36.47	74.00	-37.53	200	360	peak
2	3780.000	37.23	-15.66	21.57	54.00	-32.43	200	360	AVG
3	4090.000	52.20	-14.71	37.49	74.00	-36.51	100	124	peak
4	4090.000	36.74	-14.71	22.03	54.00	-31.97	100	124	AVG
5	4515.000	51.14	-14.34	36.80	74.00	-37.20	100	307	peak
6	4515.000	36.03	-14.34	21.69	54.00	-32.31	100	307	AVG
7	4825.000	51.47	-13.57	37.90	74.00	-36.10	200	98	peak
8	4825.000	36.04	-13.57	22.47	54.00	-31.53	200	98	AVG
9	5615.000	50.49	-12.70	37.79	74.00	-36.21	200	238	peak
10	5615.000	35.20	-12.70	22.50	54.00	-31.50	200	238	AVG
11	5870.000	51.14	-12.00	39.14	74.00	-34.86	100	267	peak
12	5870.000	36.89	-12.00	24.89	54.00	-29.11	100	267	AVG



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Test Mode: 01; Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	3750.000	51.46	-15.80	35.66	74.00	-38.34	100	241	peak
2	3750.000	35.87	-15.80	20.07	54.00	-33.93	100	241	AVG
3	3990.000	51.40	-14.73	36.67	74.00	-37.33	200	145	peak
4	3990.000	36.62	-14.73	21.89	54.00	-32.11	200	145	AVG
5	4430.000	51.19	-14.26	36.93	74.00	-37.07	200	59	peak
6	4430.000	35.32	-14.26	21.06	54.00	-32.94	200	59	AVG
7	5150.000	50.32	-12.95	37.37	74.00	-36.63	100	59	peak
8	5150.000	35.08	-12.95	22.13	54.00	-31.87	100	59	AVG
9	5370.000	51.05	-13.08	37.97	74.00	-36.03	200	268	peak
10	5370.000	35.94	-13.08	22.86	54.00	-31.14	200	268	AVG
11	5875.000	50.75	-11.99	38.76	74.00	-35.24	100	147	peak
12	5875.000	35.43	-11.99	23.44	54.00	-30.56	100	147	AVG



### 6.4 Harmonic Current Emission

Test Requirement: EN IEC 61000-6-3: 2021

Test Method: EN 61000-3-12: 2011

#### 6.4.1 E.U.T. Operation

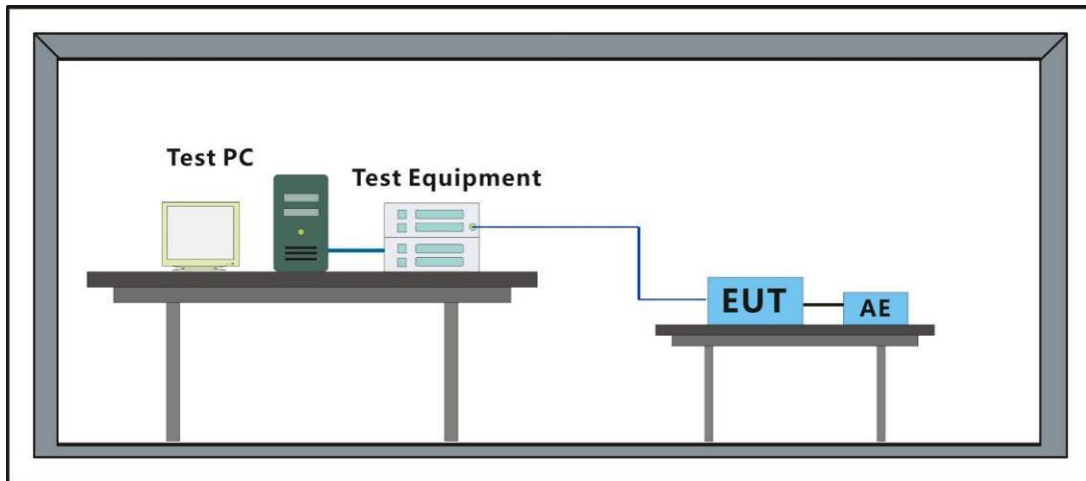
Operating Environment:

Temperature: 21.6 °C Humidity: 34.5 % RH Atmospheric Pressure: 1010 mbar

#### 6.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Charging Mode.

#### 6.4.3 Test Setup Diagram



#### 6.4.4 Measurement Procedure and Data

Frequency Range: 100Hz to 2kHz



Test Mode: 00

Judgment	
Final Test Result	Pass
L1 Test Result	Pass
L2 Test Result	Pass
L3 Test Result	Pass

Test Data of Total Values	
Total Current (max)	17.54 A
Total Power (max)	12.062 kW
Total Power Factor (max)	0.9986
Total Apparent Power (max)	12.080 kVA
Total Reactive Power (max)	-0.667 kvar



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Test Mode: 00

Voltage (max)	229.60 V	Rated Current I <sub>equ</sub> (max)	17.5400 A
Current (max)	17.540 A	Sequ (max)	6987.44 VA
Reference Current I <sub>ref</sub> (ave)	17.33 A	Ssc (max)	230585.5 W
Minimum R <sub>sce</sub> (measured)	33.0	Z (max)	0.69 ohm

Order	Limit1[%]	Limit2[%]	Reading(I <sub>n</sub> /I <sub>ref</sub> )		Reading		Judge
			Ave[%]	Max[%]	Ave[A rms]	Max[A rms]	
1	----	----	----	----	17.32	17.53	N/A
2	8.00	12.00	0.34	0.35	0.06	0.06	Pass
3	----	----	0.17	0.17	0.03	0.03	N/A
4	4.00	6.00	0.24	0.29	0.04	0.05	Pass
5	10.70	16.05	0.47	0.69	0.08	0.12	Pass
6	2.66	3.99	0.31	0.35	0.05	0.06	Pass
7	7.20	10.80	0.70	0.81	0.12	0.14	Pass
8	2.00	3.00	0.27	0.29	0.05	0.05	Pass
9	----	----	0.26	0.35	0.04	0.06	N/A
10	1.60	2.40	0.41	0.46	0.07	0.08	Pass
11	3.10	4.65	0.63	0.69	0.11	0.12	Pass
12	1.33	1.99	0.36	0.40	0.06	0.07	Pass
13	2.00	3.00	0.72	0.75	0.12	0.13	Pass
14	----	----	0.38	0.40	0.07	0.07	N/A
15	----	----	0.33	0.40	0.06	0.07	N/A
16	----	----	0.46	0.52	0.08	0.09	N/A
17	----	----	0.79	0.87	0.14	0.15	N/A
18	----	----	0.46	0.52	0.08	0.09	N/A
19	----	----	0.80	0.87	0.14	0.15	N/A
20	----	----	0.45	0.52	0.08	0.09	N/A
21	----	----	0.46	0.52	0.08	0.09	N/A
22	----	----	0.48	0.52	0.08	0.09	N/A
23	----	----	0.65	0.75	0.11	0.13	N/A
24	----	----	0.45	0.52	0.08	0.09	N/A
25	----	----	0.60	0.69	0.10	0.12	N/A
26	----	----	0.42	0.46	0.07	0.08	N/A
27	----	----	0.40	0.46	0.07	0.08	N/A
28	----	----	0.38	0.40	0.07	0.07	N/A
29	----	----	0.40	0.46	0.07	0.08	N/A
30	----	----	0.32	0.40	0.06	0.07	N/A
31	----	----	0.37	0.40	0.06	0.07	N/A
32	----	----	0.30	0.35	0.05	0.06	N/A
33	----	----	0.27	0.35	0.05	0.06	N/A
34	----	----	0.25	0.29	0.04	0.05	N/A
35	----	----	0.26	0.29	0.05	0.05	N/A
36	----	----	0.23	0.29	0.04	0.05	N/A
37	----	----	0.26	0.35	0.04	0.06	N/A
38	----	----	0.25	0.35	0.04	0.06	N/A
39	----	----	0.18	0.23	0.03	0.04	N/A
40	----	----	0.18	0.23	0.03	0.04	N/A
THC/I <sub>ref</sub> [%]	13.00	19.50	0.00	0.00	----	----	Pass
PWHC/I <sub>ref</sub> [%]	22.00	33.00	0.00	0.00	----	----	Pass

N/A: Not Apply



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Test Mode: 00

Order	Limit1[%]	Limit2[%]	Reading(ln/lref)		Reading		Judge
			Ave[%]	Max[%]	Ave[A rms]	Max[A rms]	
1	----	----	----	----	17.32	17.53	N/A
2	8.00	12.00	0.11	0.17	0.02	0.03	Pass
3	----	----	0.17	0.23	0.03	0.04	N/A
4	4.00	6.00	0.33	0.35	0.06	0.06	Pass
5	10.70	16.05	0.66	0.87	0.11	0.15	Pass
6	2.66	3.99	0.19	0.23	0.03	0.04	Pass
7	7.20	10.80	0.81	0.87	0.14	0.15	Pass
8	2.00	3.00	0.29	0.35	0.05	0.06	Pass
9	----	----	0.43	0.52	0.08	0.09	N/A
10	1.60	2.40	0.39	0.46	0.07	0.08	Pass
11	3.10	4.65	0.59	0.63	0.10	0.11	Pass
12	1.33	1.99	0.32	0.40	0.06	0.07	Pass
13	2.00	3.00	0.78	0.87	0.14	0.15	Pass
14	----	----	0.41	0.52	0.07	0.09	N/A
15	----	----	0.41	0.52	0.07	0.09	N/A
16	----	----	0.52	0.63	0.09	0.11	N/A
17	----	----	0.88	0.98	0.15	0.17	N/A
18	----	----	0.50	0.63	0.09	0.11	N/A
19	----	----	0.88	0.98	0.15	0.17	N/A
20	----	----	0.55	0.63	0.09	0.11	N/A
21	----	----	0.57	0.69	0.10	0.12	N/A
22	----	----	0.57	0.69	0.10	0.12	N/A
23	----	----	0.74	0.87	0.13	0.15	N/A
24	----	----	0.53	0.58	0.09	0.10	N/A
25	----	----	0.73	0.81	0.13	0.14	N/A
26	----	----	0.53	0.63	0.09	0.11	N/A
27	----	----	0.50	0.63	0.09	0.11	N/A
28	----	----	0.48	0.58	0.08	0.10	N/A
29	----	----	0.49	0.58	0.08	0.10	N/A
30	----	----	0.42	0.52	0.07	0.09	N/A
31	----	----	0.44	0.52	0.08	0.09	N/A
32	----	----	0.36	0.46	0.06	0.08	N/A
33	----	----	0.32	0.40	0.06	0.07	N/A
34	----	----	0.30	0.40	0.05	0.07	N/A
35	----	----	0.29	0.35	0.05	0.06	N/A
36	----	----	0.25	0.35	0.04	0.06	N/A
37	----	----	0.31	0.46	0.05	0.08	N/A
38	----	----	0.30	0.40	0.05	0.07	N/A
39	----	----	0.22	0.29	0.04	0.05	N/A
40	----	----	0.22	0.29	0.04	0.05	N/A
THC/lref[%]	13.00	19.50	0.00	0.00	----	----	Pass
PWHC/lref[%]	22.00	33.00	0.00	0.00	----	----	Pass

N/A: Not Apply



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Shenzhen Branch

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Test Mode: 00

Order	Limit1[%]	Limit2[%]	Reading(In/Iref)		Reading		Judge
			Ave[%]	Max[%]	Ave[A rms]	Max[A rms]	
1	----	----	----	----	17.32	17.53	N/A
2	8.00	12.00	0.34	0.35	0.06	0.06	Pass
3	----	----	0.12	0.12	0.02	0.02	N/A
4	4.00	6.00	0.14	0.17	0.02	0.03	Pass
5	10.70	16.05	0.43	0.58	0.07	0.10	Pass
6	2.66	3.99	0.40	0.46	0.07	0.08	Pass
7	7.20	10.80	0.76	0.87	0.13	0.15	Pass
8	2.00	3.00	0.18	0.23	0.03	0.04	Pass
9	----	----	0.29	0.35	0.05	0.06	N/A
10	1.60	2.40	0.36	0.46	0.06	0.08	Pass
11	3.10	4.65	0.64	0.69	0.11	0.12	Pass
12	1.33	1.99	0.45	0.52	0.08	0.09	Pass
13	2.00	3.00	0.75	0.81	0.13	0.14	Pass
14	----	----	0.34	0.40	0.06	0.07	N/A
15	----	----	0.35	0.46	0.06	0.08	N/A
16	----	----	0.42	0.52	0.07	0.09	N/A
17	----	----	0.78	0.87	0.13	0.15	N/A
18	----	----	0.52	0.63	0.09	0.11	N/A
19	----	----	0.78	0.87	0.14	0.15	N/A
20	----	----	0.44	0.52	0.08	0.09	N/A
21	----	----	0.46	0.52	0.08	0.09	N/A
22	----	----	0.48	0.58	0.08	0.10	N/A
23	----	----	0.68	0.75	0.12	0.13	N/A
24	----	----	0.48	0.58	0.08	0.10	N/A
25	----	----	0.59	0.69	0.10	0.12	N/A
26	----	----	0.41	0.46	0.07	0.08	N/A
27	----	----	0.42	0.52	0.07	0.09	N/A
28	----	----	0.40	0.46	0.07	0.08	N/A
29	----	----	0.44	0.52	0.08	0.09	N/A
30	----	----	0.37	0.40	0.06	0.07	N/A
31	----	----	0.36	0.40	0.06	0.07	N/A
32	----	----	0.29	0.35	0.05	0.06	N/A
33	----	----	0.29	0.35	0.05	0.06	N/A
34	----	----	0.27	0.35	0.05	0.06	N/A
35	----	----	0.28	0.35	0.05	0.06	N/A
36	----	----	0.24	0.29	0.04	0.05	N/A
37	----	----	0.24	0.29	0.04	0.05	N/A
38	----	----	0.23	0.29	0.04	0.05	N/A
39	----	----	0.20	0.23	0.03	0.04	N/A
40	----	----	0.19	0.23	0.03	0.04	N/A
THC/Iref[%]	13.00	19.50	0.00	0.00	----	----	Pass
PWHC/Iref[%]	22.00	33.00	0.00	0.00	----	----	Pass

N/A: Not Apply



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### 6.5 Voltage Fluctuations and Flicker

Test Requirement: EN IEC 61000-6-3: 2021  
 Test Method: EN IEC 61000-3-11: 2019

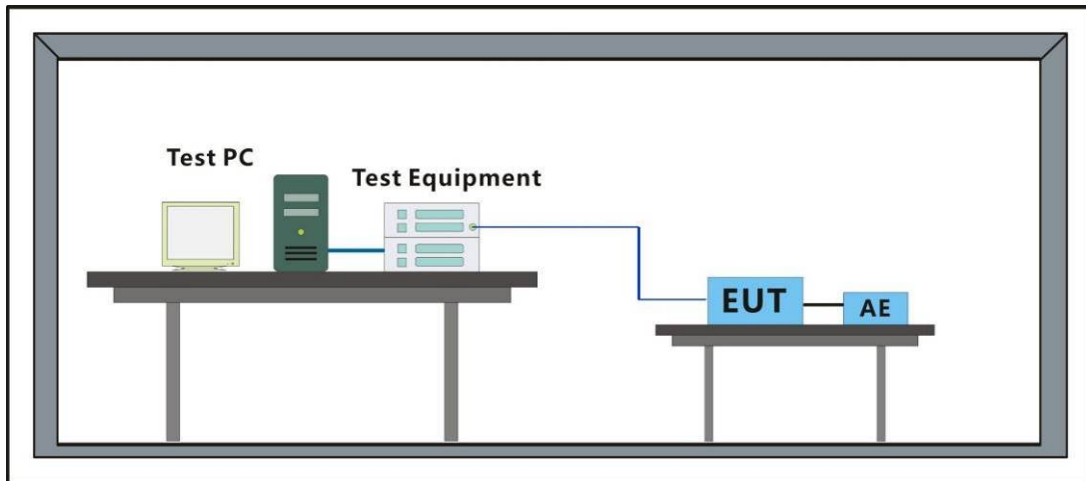
#### 6.5.1 E.U.T. Operation

Operating Environment:  
 Temperature: 21.6 °C Humidity: 34.6 % RH Atmospheric Pressure: 1010 mbar

#### 6.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Charging Mode.

#### 6.5.3 Test Setup Diagram



#### 6.5.4 Measurement Procedure and Data



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Test Mode: 00

## Summary of Test Condition

Wiring Method	3-Phase 4-Wire	Pst Measurement Time	600 s
Nominal Voltage	230.0 V	Pst Measurement Count	1
Nominal Frequency	50.0 Hz	Flicker Margin	100 %
		d Measurement Margin	100 %
		Z test	Ra test 0.15 ohm
			Xa test 0.15 ohm
			Rn test 0.10 ohm
			Xn test 0.10 ohm

## Judgment

Final Test Result	<b>Pass</b>
L1 Test Result	<b>Pass</b>
L2 Test Result	<b>Pass</b>
L3 Test Result	<b>Pass</b>

Test Mode: 00

## L1 Flicker List

Segment	Pst	P0.1	P1S	P3S	P10S	P50S
Seg. 1	0.060	0.026	0.006	0.004	0.002	0.001



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Test Mode: 00

**L2 Segment Information**

Segment	dc [s]	dmax [s]	d(t)>3.3% [s]	Steady Count
Seg. 1	0.0 → 1.0	0.0 → 1.0	----	1

Test Mode: 00

**Test Data of L3 Voltage Fluctuation and Flicker**

Segment	Pst	dmax[%]	dc[%]	d(t)>3.3%[ms]	Z sys1-3 [ohm]	Judge
Limit	1.000	4.000	3.300	500		
Seg. 1	0.030	0.013	0.000	0	54.467 (sys3)	Pass

Plt	Value	Z sys4 [ohm]	Judge	Z max [ohm]
Limit	0.650			
Measurement	0.013	100.062	Pass	54.467



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Test Mode: 00

### L1 Flicker List

Segment	Pst	P0.1	P1S	P3S	P10S	P50S
Seg. 1	0.060	0.026	0.006	0.004	0.002	0.001

### L2 Flicker List

Segment	Pst	P0.1	P1S	P3S	P10S	P50S
Seg. 1	0.032	0.005	0.001	0.001	0.001	0.001

Test Mode: 00



### L1 Segment Information

Segment	dc [s]	dmax [s]	d(t)>3.3% [s]	Steady Count
Seg. 1	0.0 → 1.0	0.0 → 1.0	----	1

Test Mode: 00

### L3 Segment Information

Segment	dc [s]	dmax [s]	d(t)>3.3% [s]	Steady Count
Seg. 1	----	0.0 → 1.0	----	1

Test Mode: 00

### Setting List

Items	Contents
Limitation Standard	IEC 61000-3-11 Ed1.0
Measurement Technic	IEC 61000-4-15 Ed2.0 (2010)
Voltage Range	L1 600V, L2 600V, L3 600V
Current Range	L1 40 A, L1 40 A, L1 40 A,
Nominal Voltage	230 V
Nominal Frequency	50 Hz
Wiring Method	3P4W
PLL Source	Voltage L1
Pst Measurement Time	10min 0s
Pst Measurement Count	1
dmax Limit Value	4 %
Flicker Margin	100 %
d Margin	100 %
Judge Factor	Plt:Yes, Pst:Yes, dc:Yes, dmax:Yes, d(t)>3.3%:Yes
Test Impedance Z test	0.15 ohm + jn0.15 ohm (3P)
Test Impedance Ra test, Xa test	---
Test Impedance Rn test, Xn test	---
Current Input Terminal	L1 BNC, L2 BNC, L3 BNC
Reference Impedance	Use
Reference Impedance Value	Z3



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Test Mode: 00

### Test Data of L1 Voltage Fluctuation and Flicker

Segment	Pst	dmax[%]	dc[%]	d(t)>3.3%[ms]	Z sys1-3 [ohm]	Judge
Limit	1.000	4.000	3.300	500		
Seg. 1	0.060	0.024	0.000	0	19.257 (sys3)	Pass

Plt	Value	Z sys4 [ohm]	Judge	Z max [ohm]
Limit	0.650			
Measurement	0.026	35.377	Pass	19.257

Test Mode: 00

### Test Data of L2 Voltage Fluctuation and Flicker

Segment	Pst	dmax[%]	dc[%]	d(t)>3.3%[ms]	Z sys1-3 [ohm]	Judge
Limit	1.000	4.000	3.300	500		
Seg. 1	0.032	0.019	0.000	0	49.441 (sys3)	Pass

Plt	Value	Z sys4 [ohm]	Judge	Z max [ohm]
Limit	0.650			
Measurement	0.014	89.535	Pass	49.441



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Test Mode: 00

### L1 Flicker List

Segment	Pst	P0.1	P1S	P3S	P10S	P50S
Seg. 1	0.060	0.026	0.006	0.004	0.002	0.001



## 7 Immunity Test Results

### Performance Criteria Description in EN IEC 61000-6-1:2019

#### Criterion A

The EUT shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the EUT is used as intended. If the performance level is not specified by the manufacturer, this may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

#### Criterion B

The EUT shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. However, during the test degradation of performance is allowed but no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

#### Criterion C

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

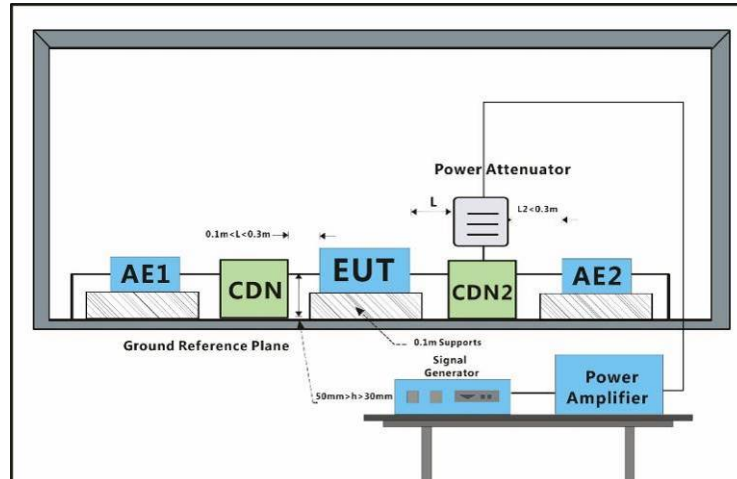


### 7.1 Conducted Immunity at AC Mains Power Port (150kHz-80MHz)

Test Requirement: EN IEC 61000-6-1: 2019

Test Method: EN 61000-4-6:2014

#### 7.1.1 Test Setup Diagram



#### 7.1.2 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

#### 7.1.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Charging Mode.

#### 7.1.4 Test Condition and Results:

Performance Criterion: A  
 Frequency Range: 0.15MHz to 80MHz  
 Modulation: 80%, 1kHz Amplitude Modulation  
 Step Size: 1%

Cable port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
AC power port	3(0.15MHz-80MHz)	CDN	3s	A

A: No degradation in the performance of the EUT was observed

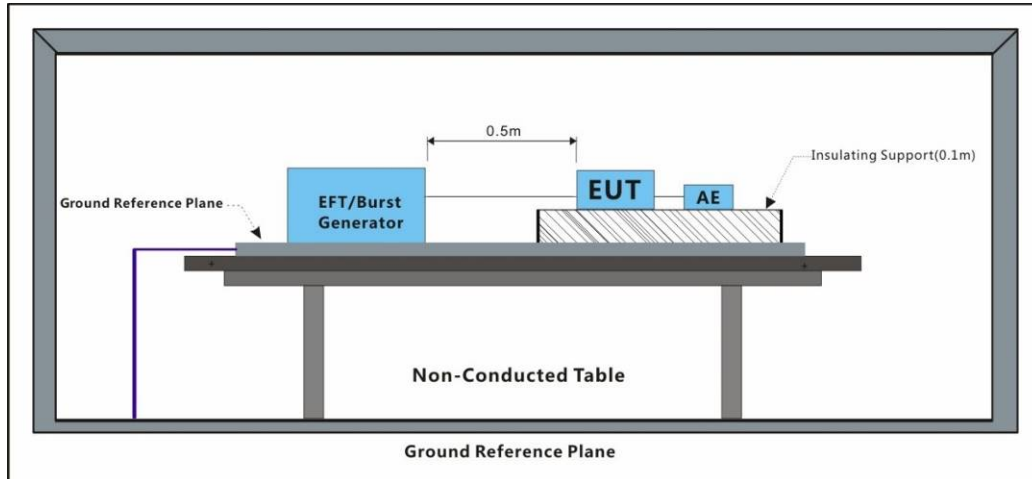


### 7.2 Electrical Fast Transients Burst at AC Mains Power Port

Test Requirement: EN IEC 61000-6-1: 2019

Test Method: EN 61000-4-4:2012

#### 7.2.1 Test Setup Diagram



#### 7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

#### 7.2.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Charging Mode.

#### 7.2.4 Test Condition and Results:

Performance Criterion: B  
 Repetition Frequency: 5kHz or 100kHz  
 Burst Period: 300ms  
 Test Duration: 2 minute per level & polarity

Test Line	Level (kV)	Polarity	CDN/Clamp	Result / Observations
AC power port	1	+	CDN	A
AC power port	1	-	CDN	A

A: No degradation in the performance of the EUT was observed



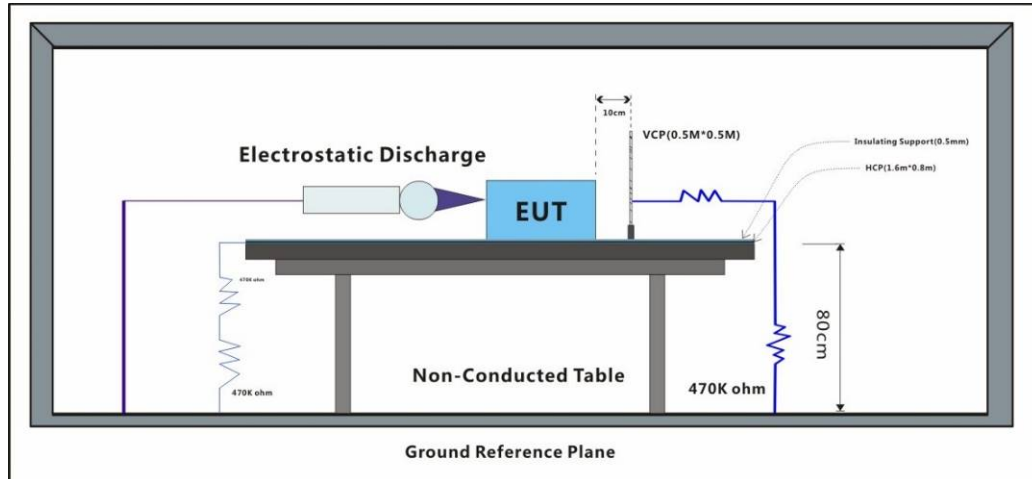
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### 7.3 Electrostatic Discharge

Test Requirement: EN IEC 61000-6-1: 2019

Test Method: EN 61000-4-2:2009

#### 7.3.1 Test Setup Diagram



#### 7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

#### 7.3.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Charging Mode.
Final test	01	Discharging Mode.

#### 7.3.4 Test Condition and Results:

Performance Criterion: B  
 Discharge Impedance: 330Ω/150pF  
 Number of Discharge: Minimum 10 times at each test point  
 Discharge Mode: Single Discharge  
 Discharge Period: 1 second minimum  
 Test Point: 1. All insulated enclosure and seams.  
 2. All accessible metal parts of the enclosure.  
 3. All side



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Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	A
Air Discharge	2,4,8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A

A: No degradation in the performance of the EUT was observed



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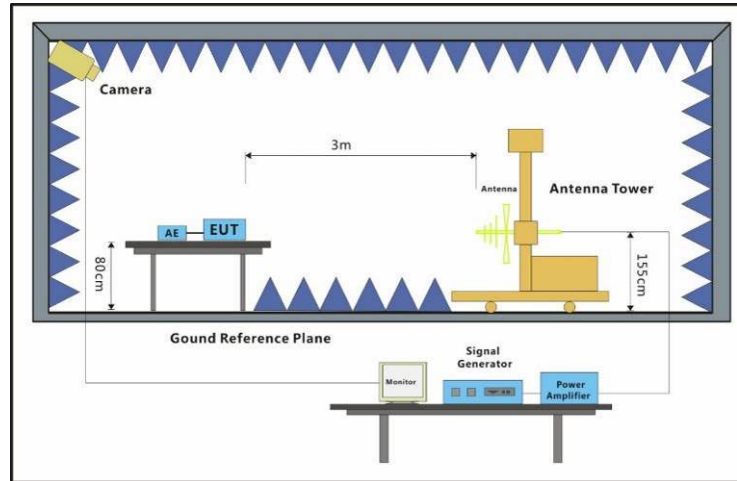
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### 7.4 Radiated Immunity (80MHz-6GHz)

Test Requirement: EN IEC 61000-6-1: 2019

Test Method: EN IEC 61000-4-3: 2020

#### 7.4.1 Test Setup Diagram



#### 7.4.2 E.U.T. Operation

Operating Environment:

Temperature: 21.3 °C      Humidity: 34.6 % RH      Atmospheric Pressure: 1010 mbar

#### 7.4.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Charging Mode.
Final test	01	Discharging Mode.

#### 7.4.4 Test Condition and Results:

Performance Criterion:A

Antenna Polarisation:Vertical and Horizontal

Modulation:1kHz,80% Amp. Mod,1% increment

Frequency Range:80MHz to 1GHz, 1.4GHz to 6GHz





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Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	3	Front	3s	A
80MHz-1GHz	3	Back	3s	A
80MHz-1GHz	3	Left	3s	A
80MHz-1GHz	3	Right	3s	A
80MHz-1GHz	3	Top	3s	A
80MHz-1GHz	3	Underside	3s	A
1.4GHz-6GHz	3	Front	3s	A
1.4GHz-6GHz	3	Back	3s	A
1.4GHz-6GHz	3	Left	3s	A
1.4GHz-6GHz	3	Right	3s	A
1.4GHz-6GHz	3	Top	3s	A
1.4GHz-6GHz	3	Underside	3s	A

A: No degradation in the performance of the EUT was observed



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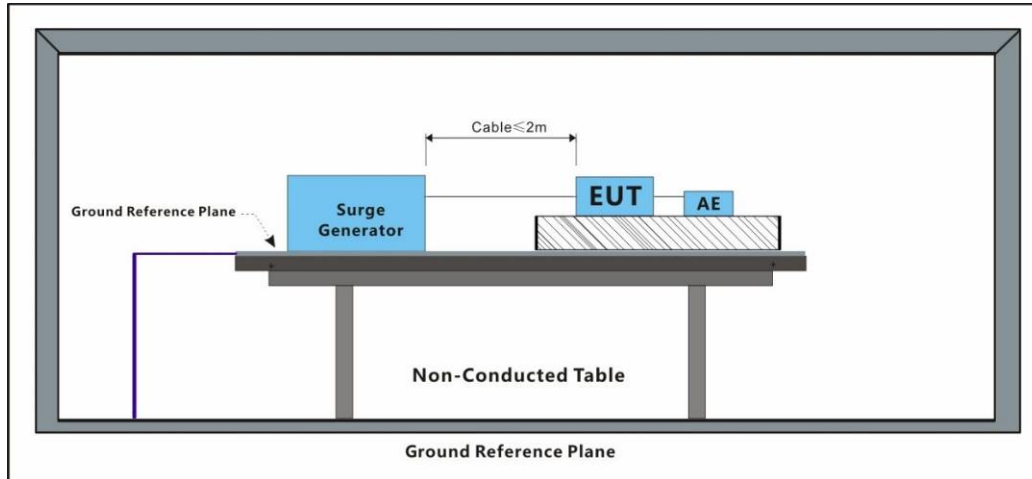
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### 7.5 Surge at AC Mains Power Port

Test Requirement: EN IEC 61000-6-1: 2019  
 Test Method: EN 61000-4-5:2014+A1:2017

#### 7.5.1 Test Setup Diagram



#### 7.5.2 E.U.T. Operation

Operating Environment:  
 Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

#### 7.5.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Charging Mode.

#### 7.5.4 Test Condition and Results:

Performance Criterion: B  
 Interval: 60s between each surge  
 No. of surges: 5 positive, 5 negative at 0°, 90°, 180°, 270°.

Test Line	Level (kV)	Polarity	Phase (deg)	Result / Observations
L1-L2	1	±	0°	A
L1-L2	1	±	90°	A
L1-L2	1	±	180°	A
L1-L2	1	±	270°	A



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L2-L3	1	±	0°	A
L2-L3	1	±	90°	A
L2-L3	1	±	180°	A
L2-L3	1	±	270°	A
L3-L1	1	±	0°	A
L3-L1	1	±	90°	A
L3-L1	1	±	180°	A
L3-L1	1	±	270°	A
N-L1	1	±	0°	A
N-L1	1	±	90°	A
N-L1	1	±	180°	A
N-L1	1	±	270°	A
N-L2	1	±	0°	A
N-L2	1	±	90°	A
N-L2	1	±	180°	A
N-L2	1	±	270°	A
N-L3	1	±	0°	A
N-L3	1	±	90°	A
N-L3	1	±	180°	A
N-L3	1	±	270°	A
L1-PE	2	±	0°	A
L1-PE	2	±	90°	A
L1-PE	2	±	180°	A
L1-PE	2	±	270°	A
L2-PE	2	±	0°	A
L2-PE	2	±	90°	A
L2-PE	2	±	180°	A
L2-PE	2	±	270°	A
L3-PE	2	±	0°	A
L3-PE	2	±	90°	A
L3-PE	2	±	180°	A
L3-PE	2	±	270°	A
L3-PE	2	±	0°	A
L3-PE	2	±	90°	A
L3-PE	2	±	180°	A
L3-PE	2	±	270°	A



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N-PE	2	±	0°	A
N-PE	2	±	90°	A
N-PE	2	±	180°	A
N-PE	2	±	270°	A

A: No degradation in the performance of the EUT was observed



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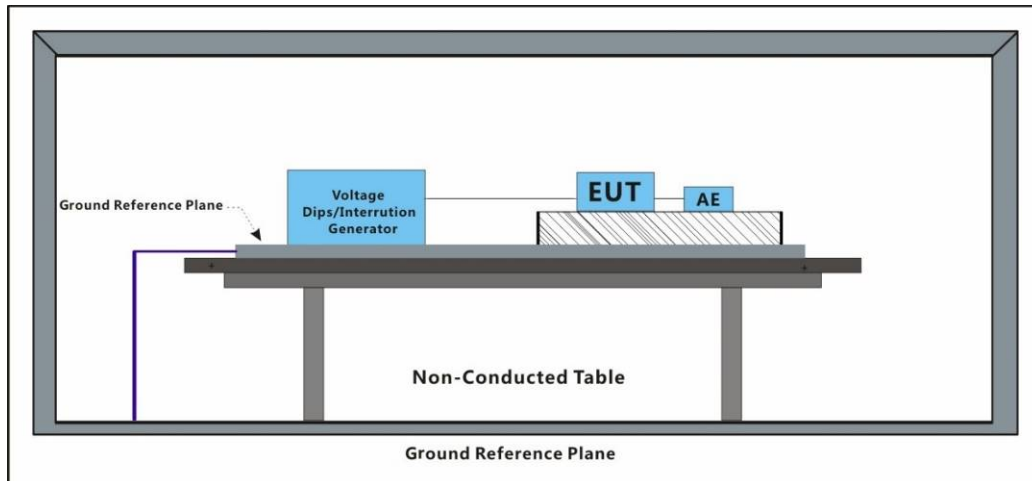
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### 7.6 Voltage Dips and Interruptions

Test Requirement: EN IEC 61000-6-1: 2019

Test Method: EN IEC 61000-4-11:2020

#### 7.6.1 Test Setup Diagram



#### 7.6.2 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

#### 7.6.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Charging Mode.

#### 7.6.4 Test Condition and Results:

Performance Criterion:

0% of UT (Supply Voltage) for 0.5 Cycle:B;

0% of UT for 1 Cycle:B;

0% of UT for 250 Cycles:C;

70% of UT for 25 Cycles:C;

No. of Dips / Interruptions: 3 per Level

Time between dropout 10s



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Level % UT	Phase (deg)	Duration	No. of Dips / Interruptions	Result / Observations
0	0°	0.5 Cycles	3	A
0	180°	0.5 Cycles	3	A
0	0°	1 Cycles	3	A
0	180°	1 Cycles	3	A
70	0°	25 Cycles	3	A
70	180°	25 Cycles	3	A
0	0°	250 Cycles	3	C
0	180°	250 Cycles	3	C

A: No degradation in the performance of the EUT was observed

C: During the test EUT stop working when power supply drop,  
After the test by manual operation can work normally.



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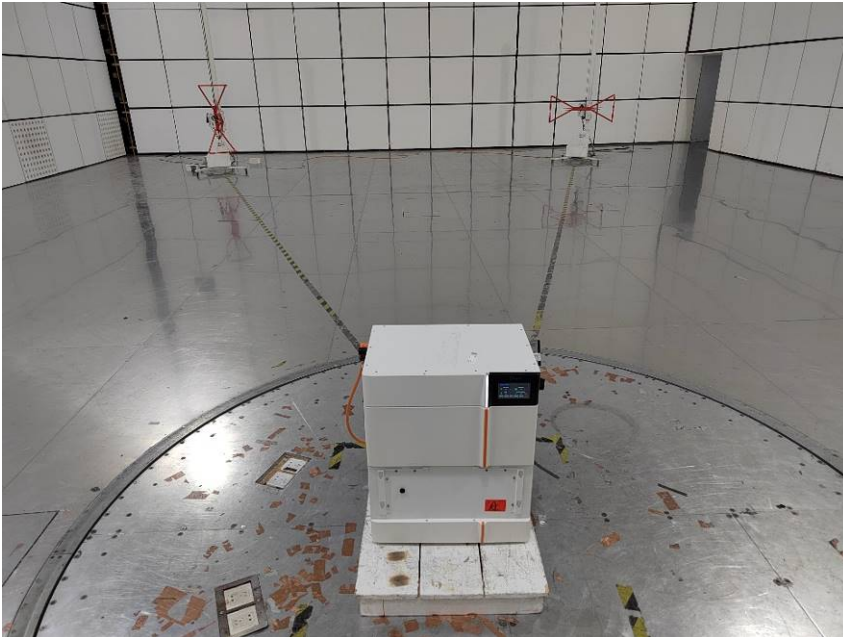
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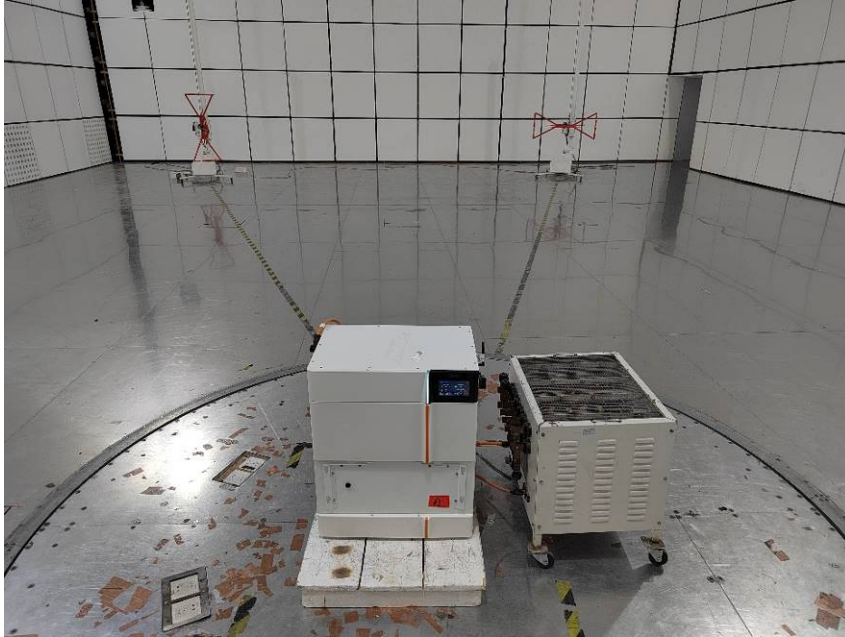
### 8 Test Setup Photo

#### Conducted Emissions at AC Mains Power Port (150kHz-30MHz)

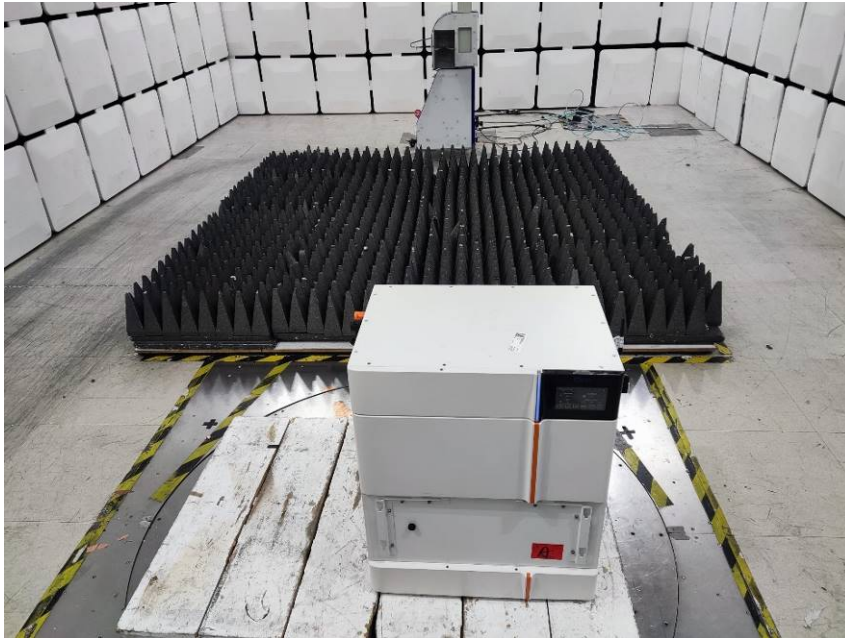


#### Radiated Emissions (30MHz-1GHz)





### Radiated Emissions (Above 1GHz)







### Harmonic Current Emission



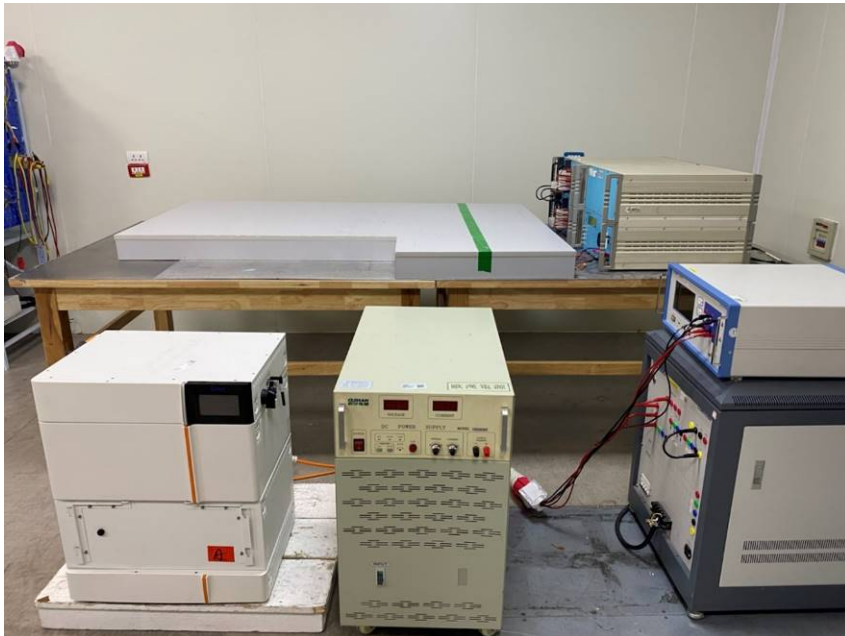
### Voltage Fluctuations and Flicker



### Conducted Immunity at AC Mains Power Port (150kHz-80MHz)



### Electrical Fast Transients Burst at AC Mains Power Port



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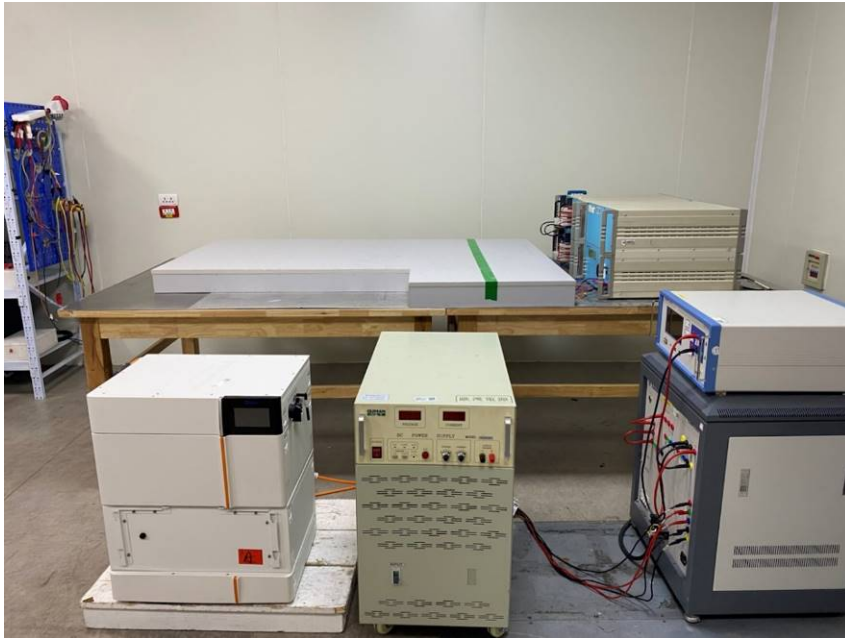
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### Electrostatic Discharge





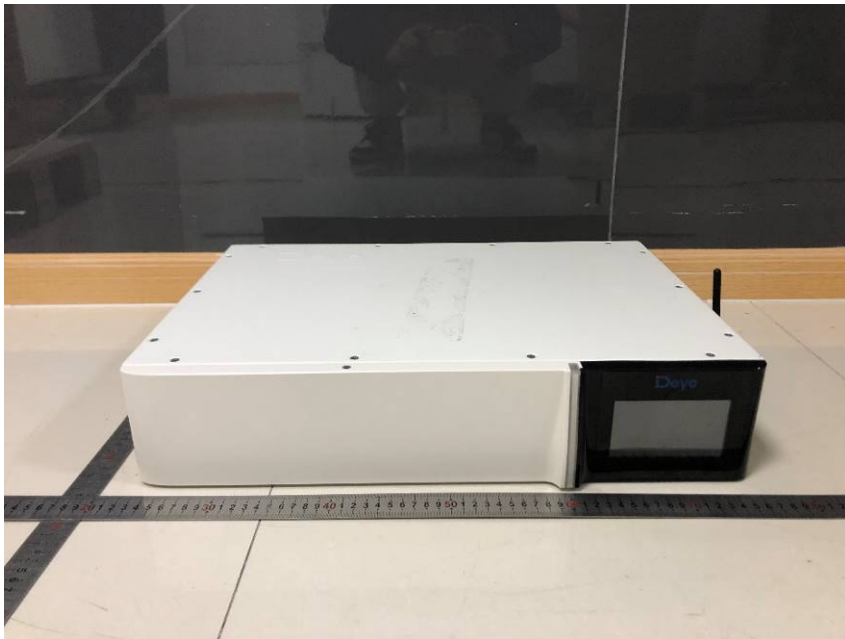
### Surge at AC Mains Power Port



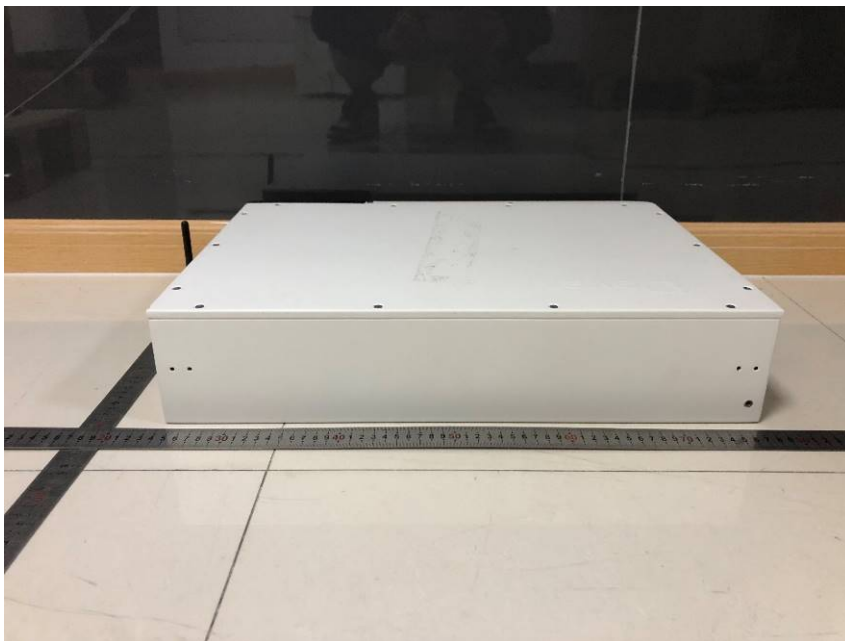
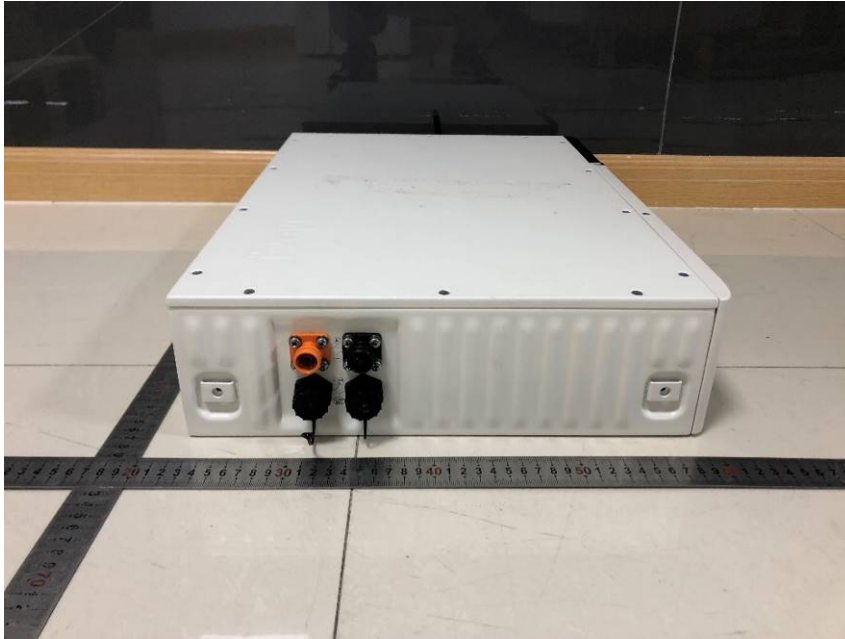
### Voltage Dips and Interruptions



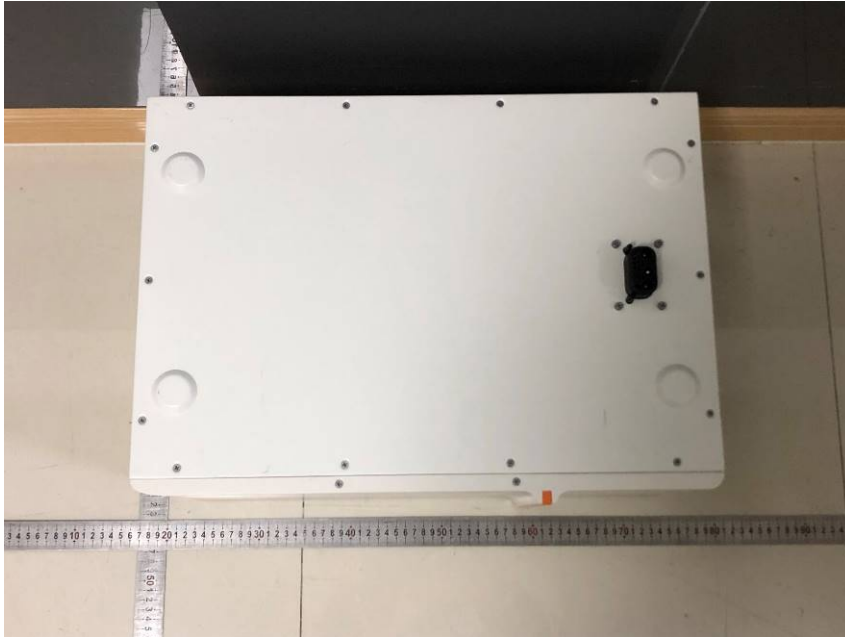
### 9 EUT Constructional Details (EUT Photos)

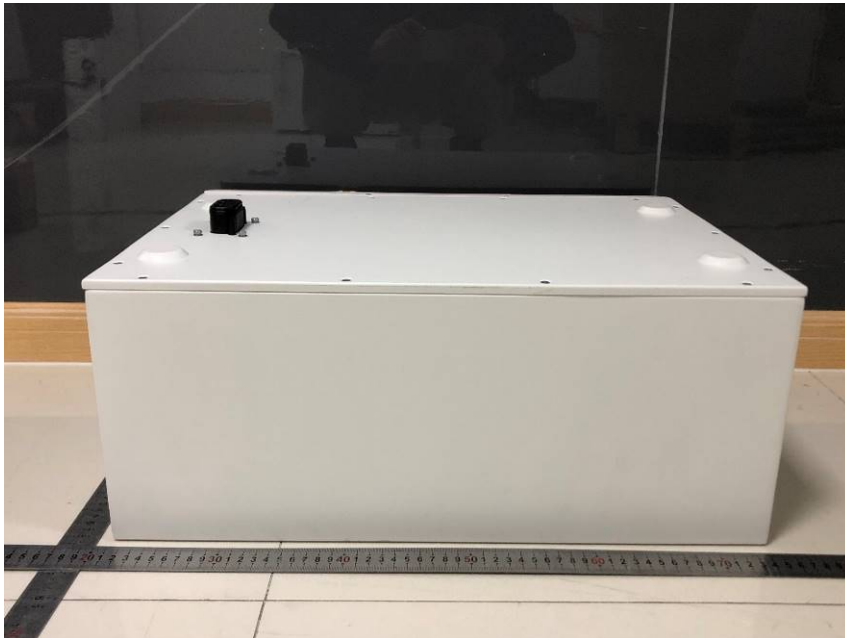












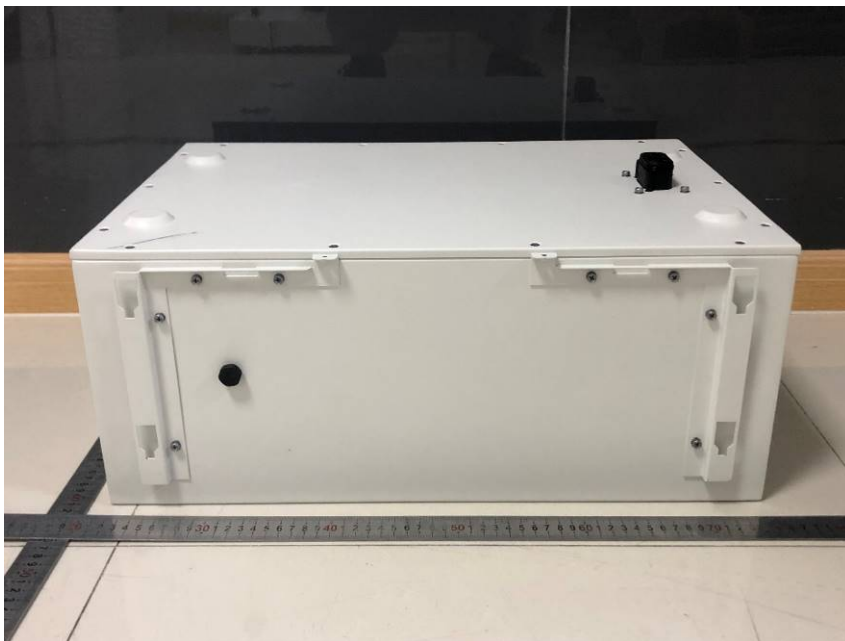
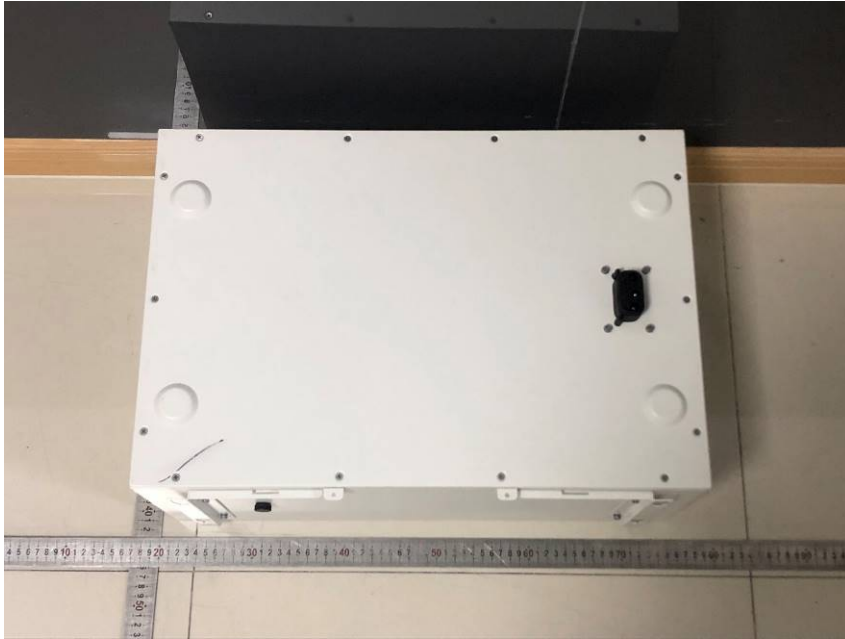
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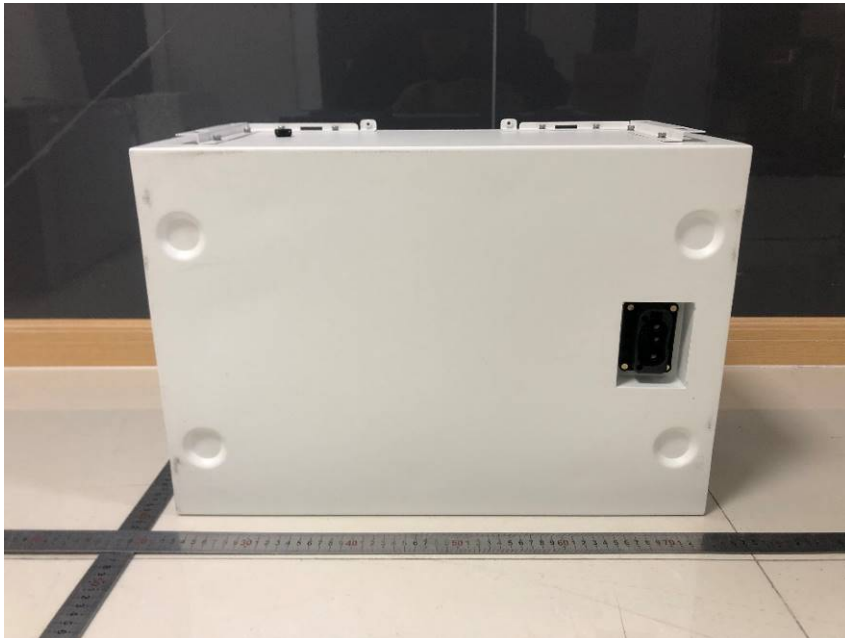
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