TEST REPORT

Application No.:	GZCR2505000680HS
Applicant:	BAUF HOME GmbH
Address of Applicant:	Frankfurter Straße 16, 74072 Heilbronn, Germany
Manufacturer:	BAUF HOME GmbH
Address of Manufacturer:	Frankfurter Straße 16, 74072 Heilbronn, Germany
Factory:	TCL Air Conditioner (Zhong Shan) Co., Ltd.
Address of Factory:	59 Nantou Road West, Nantou, Zhongshan, Guangdong, China
Product Name:	Air conditioner
Model No.:	BRAC-SP-INE2-9-R3 (Indoor unit: BRAC-SP-INE2-9-R3-I, Outdoor unit: BRAC-SP-INE2-9-R3-O) ♣
♣	Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.
Trade Mark:	BAUF
Standard(s) :	EN IEC 55014-1: 2021 EN IEC 55014-2: 2021 EN IEC 61000-3-2: 2019+A1:2021+A2:2024 EN 61000-3-3: 2013+ A1:2019+A2:2021
Date of Receipt:	2024-11-06
Date of Test:	2024-11-20 to 2024-12-03
Date of Issue:	2025-07-03
Test Result:	**Pass***

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

Jerry Chan
Manager

Revision Record			
Version	**Report No.**	**Date**	**Remark**
01	GZCR241100132301	2024-12-24	Original
C01	GZCR241100132301C01	2025-07-03	Amendment report: Changed applicant, manufacturer, product name, model No. & trademark; updated standard.

Authorized for issue by:				
		Pank Feng **Pank Feng/Project Engineer**		
		Vico Cui **Vico Cui/Reviewer**		

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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 55014-1: 2021	CISPR 16-2-1: 2014+A1:2017	Table 5	Pass
Conducted Emissions at Load Terminals and Additional Terminals		CISPR 16-2-1: 2014+A1:2017	Table 5	Pass
Disturbance Power		CISPR 16-2-2:2010	Table 7 & 8	Pass
Harmonic Current Emission	EN IEC 61000-3-2: 2019+A1:2021 +A2:2024	EN IEC 61000-3-2: 2019+A1:2021	Class A	Pass
Voltage Fluctuations and Flicker	EN 61000-3-3: 2013+ A1:2019+A2:2021	EN 61000-3-3: 2013+ A1:2019+A2:2021	Clause 5	Pass
Discontinuous Disturbance (150kHz-30MHz)	EN IEC 55014-1: 2021	EN IEC 55014-1: 2021	Clause 4.4.2	Pass

Immunity Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Electrostatic Discharge	EN IEC 55014-2: 2021	EN 61000-4-2:2009	4kV Contact Discharge, 8kV Air Discharge	Pass
Electrical Fast Transients Burst at AC Mains Power Port		EN 61000-4-4:2012	1kV, 5/50ns Tr/Td, 5kHz Repetition Frequency	Pass
Electrical Fast Transients Burst at Signal Port		EN 61000-4-4:2012	0.5kV, 5/50ns Tr/Td, 5kHz Repetition Frequency	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
Conducted Immunity at AC Mains Power Port (150kHz-230MHz)		EN 61000-4-6: 2014	3Vrms (emf),80%,1kHz Amp. Mod.	Pass
Conducted Immunity at Signal Port (150kHz-230MHz)		EN 61000-4-6: 2014	1Vrms (emf),80%,1kHz Amp. Mod.	Pass
Voltage Dips and Interruptions		EN IEC 61000-4-11: 2020	For 50Hz: 0 % UT for 0.5cycle, 40 % UT for 10cycles, 70 % UT for 25cycles, UT is Supply Voltage	Pass

Note:

E.U.T./EUT means Equipment Under Test.

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

♣ Declaration of EUT Family Grouping:

Model No.:

TAC-09CHSD(080002)/*I (Series * = Z, HA, IA, KA, HC, JC, KC, HD, KD, JE, KE, WE, LF, IF, KF, VA, VB, VC, VD, VE, VF, XA11, XA21, XA31, XA41, XA51, XA61, XA71, XA72, XA81, XA82, XA91, XAA1, XAB1, XAC1, XAD1, XAE1, YA11, YA21, YA31, TP11, TP21, TP31, TP41, TP51, TP61, TP71,TP72, TP81, TP91, TPA1,TPB1, TPG11, TPH21, TPG21, TPG31, UA11, UA12, UG11, UG21, UG31, UA21, TPH11, TPH21, DWA, LGA), S09P9S1 (Indoor unit:SN09P9S1, Outdoor unit:ST09P3),

TAC-09CHSD/UG11V3A

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference on the color of panel.

Therefore, only one model TAC-09CHSD(080002)/UA11I was tested in this report.

Remark:

All models are with removeable RF module, each model can be with RF module or without RF module. Main test model TAC-09CHSD(080002)/UA11I with RF module.

♣Remark for the report GZCR241100132301C01:

This report GZCR241100132301C01 is based on original report GZCR241100132301, with the following changes:

1. Changed applicant and manufacturer.

2. Changed product name.

3. Changed model No. to BRAC-SP-INE2-9-R3 (Indoor unit: BRAC-SP-INE2-9-R3-I, Outdoor unit: BRAC-SP-INE2-9-R3-O).

According to the declaration from the applicant, the model BRAC-SP-INE2-9-R3 (Indoor unit: BRAC-SP-INE2-9-R3-I, Outdoor unit: BRAC-SP-INE2-9-R3-O) in this report and model TAC-09CHSD(080002)/UA11I in original report are totally same in the electrical circuit design, layout, components used and internal wiring, only being different in the model name and trade mark.

4. Changed trademark to BAUF.

5. Updated below standard:

Standard in original report	Standard in report
EN IEC 61000-3-2: 2019+A1:2021	EN IEC 61000-3-2: 2019+A1:2021+A2:2024

Reviewed the updated standards, all the technical requirements for the product between original and the newest standards' versions are identical, therefore it's acceptable to update standard without further testing.

Therefore, test data in GZCR241100132301 was kept in this report GZCR241100132301C01.

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3 Contents

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4 General Information

4.1 Details of E.U.T.

Power supply: AC 220-240V 50Hz
Clock frequency:<15MHz
Test Voltage: AC 230V

Cable(s): AC mains cable:3 wires 2.0m unshielded
signal cable:5.0m unscreened

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Mains Power Port (150kHz-30MHz)	3.22dB (150kHz to 30MHz)
Conducted Emissions at Load Terminals and Additional Terminals	2.50dB (150kHz to 30MHz):CVP; 2.04dB (150kHz to 30MHz):CP
Disturbance Power	3.60dB (30MHz-300MHz)

Remark:

The U_{lab} (lab Uncertainty) is less than U_{cispr} (CISPR Uncertainty) or U_{ETSI}(ETSI Uncertainty).

Emission decision rule:

– Compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit, marked as Pass in the report.

– Non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit, marked as Fail in the report.

Immunity decision rule:

– Pass means the observation meets the Performance Criterion requirement.

– Fail means the observation doesn't meet the Performance Criterion requirement.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,

No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663

Tel: +86 20 82155555

No tests were sub-contracted.

4.5 Test Facility

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

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 EMS Monitor

Visual: Monitor the motor running statue of the EUT

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5 Equipment List

Conducted Emissions at AC Mains Power Port (150kHz-30MHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Coaxial Cable	HangTianXing	2m	EMC0107	2023-08-24	2025-08-23
Shielding Room	ChangZhou ZhongYu	8m x 3m x 3.8m	EMC0306	2022-10-16	2025-10-15
Two-Line V-Network-GZ	Rohde & Schwarz	ENV216	EMC2135	2024-09-02	2025-09-01
EMI Test Receiver (9kHz-3.6GHz)	Rohde & Schwarz	ESR3	EMC2221	2024-05-13	2025-05-12
Test Software E3r	Audix	Ver.6.191211	GZE100-77	N/A	N/A
Artificial Mains Network (LISN)	AFJ Instruments	LT32C	EMC2046	2024-10-14	2025-10-13

Conducted Emissions at Load Terminals and Additional Terminals					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Coaxial Cable	HangTianXing	2m	EMC0107	2023-08-24	2025-08-23
Voltage Probe (10kHz-30MHz)	SCHWARZBECK MESS-ELEKTRONIK	TK 9421	EMC0106	2024-05-13	2025-05-12
Shielding Room	ChangZhou ZhongYu	8m x 3m x 3.8m	EMC0306	2022-10-16	2025-10-15
Two-Line V-Network-GZ	Rohde & Schwarz	ENV216	EMC2135	2024-09-02	2025-09-01
EMI Test Receiver (9kHz-3.6GHz)	Rohde & Schwarz	ESR3	EMC2221	2024-05-13	2025-05-12
Test Software E3r	Audix	Ver.6.191211	GZE100-77	N/A	N/A
Current Probe (10kHz-200MHz)	TESEQ GmbH	CSP 9160A	EMC2106	2022-12-20	2024-12-19

Harmonic Current Emission					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Digital power analyzer for harmonics & flicker testing	EMTEST	DPA 500N	EMC2235	2024-04-19	2025-04-18
Programmable multifunctional ac/dc power source	EMTEST	NETWAVE 7-400	EMC2234	2024-04-19	2025-04-18
NET.Control	EMTEST	Ver 3.2.3	GZE100-80	N/A	N/A

Disturbance Power					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Shielding Room	ChangZhou ZhongYu	8m x 3m x 3.8m	EMC0306	2022-10-16	2025-10-15
EMI Test Receiver (9kHz-3.6GHz)	Rohde & Schwarz	ESR3	EMC2221	2024-05-13	2025-05-12
Test Software E3r	Audix	Ver.6.191211	GZE100-77	N/A	N/A
Slide Bar RP (KMS560)	HD-GmbH	KMS560	EMC0103	N/A	N/A
Slide Bar Controller (HD50)	HD-GmbH	HD50	EMC0305	N/A	N/A
Absorbing Clamp-AUX	Beijing Dazhe Co. Ltd.	ZN23201	EMC2040	2023-12-04	2024-12-03
Absorbing Clamp-Main	Rohde & Schwarz	MDS-21	EMC2184	2024-02-20	2025-02-19
6 dB Attenuator with 8m length cable	Rohde & Schwarz	MDS-21	EMC2185	2024-02-19	2025-02-18

Voltage Fluctuations and Flicker					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Digital power analyzer for harmonics & flicker testing	EMTEST	DPA 500N	EMC2235	2024-04-19	2025-04-18
Programmable multifunctional ac/dc power source	EMTEST	NETWAVE 7-400	EMC2234	2024-04-19	2025-04-18
NET.Control	EMTEST	Ver 3.2.3	GZE100-80	N/A	N/A

Discontinuous Disturbance (150kHz-30MHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Click Analyzer (PMM CA0010)	Narda Safety Test Solutions	PMM CA0010	EMC2182	2024-09-02	2025-09-01
EMI Receiver (10Hz-30MHz)	Narda Safety Test Solutions	PMM 9010F	EMC2183	2024-09-02	2025-09-01
Test Software PMM Click Analysis	Narda Safety Test Solutions	Ver 1.06	GZE100-76	N/A	N/A

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Electrostatic Discharge					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
ESD Ground Plane	SGS-EMC	3m x 3m	EMC0804	N/A	N/A
Aneroid Barometer	Shanghai Meteorological Instrument Factory Co., Ltd.	YM3	EMC2181	2024-10-31	2025-10-30
ESD Simulator-E	EMTEST	NX30	EMC2186	2024-02-20	2025-02-19

Electrical Fast Transients Burst at AC Mains Power Port					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Oscilloscope	Tektronix	TDS3052C	EMC2055	2024-10-14	2025-10-13
EMC Immunity Test System	TESEQ AG	NSG 3060&CDN306 1&INA 6502 CIB	EMC2072	2023-12-15	2024-12-14
Test Software WIN 3000	TESEQ AG	Ver 1.3.2	GZE100-68	N/A	N/A

Electrical Fast Transients Burst at Signal Port					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Oscilloscope	Tektronix	TDS3052C	EMC2055	2024-10-14	2025-10-13
EFT/burst capacitive coupling clamp	TESEQ AG	CDN3425	EMC2072-AE1	2023-12-15	2024-12-14
EMC Immunity Test System	TESEQ AG	NSG 3060&CDN306 1&INA 6502 CIB	EMC2072	2023-12-15	2024-12-14
Test Software WIN 3000	TESEQ AG	Ver 1.3.2	GZE100-68	N/A	N/A

Surge at AC Mains Power Port					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Oscilloscope	Tektronix	TDS3052C	EMC2055	2024-10-14	2025-10-13
EMC Immunity Test System	TESEQ AG	NSG 3060&CDN306 1&INA 6502 CIB	EMC2072	2023-12-15	2024-12-14
Test Software WIN 3000	TESEQ AG	Ver 1.3.2	GZE100-68	N/A	N/A

Conducted Immunity at AC Mains Power Port (150kHz-230MHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Dual Directional coupler	Werlatone Inc.	C1795	EMC1105	2024-05-13	2025-05-12
CDN M2	Schaffner Chase	CDN-M2-16	EMC1107	2024-10-14	2026-10-13
CDN M2/M3	Elektronik-Feinmechanik	L-801:M2/M3	EMC2048	2024-06-17	2025-06-16
Test System for Conducted and Radiated Immunity	TESEQ AG	NSG 4070B-80	EMC2115	2024-10-14	2025-10-13
Audio Analyzer	Keysight	U8903B	EMC2180	2024-08-30	2025-08-29
Test Software NSG4070_Ctrl1	TESEQ AG	Ver.1.3.0.1	GZE100-72	N/A	N/A
Oscilloscope	Tektronix	TDS3052C	EMC2055	2024-10-14	2025-10-13
6dB Attenuator	Shanghai Huaxiang	WDTS150-6-2.5-B	EMC2116	2024-06-17	2025-06-16

Conducted Immunity at Signal Port (150kHz-230MHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Dual Directional coupler	Werlatone Inc.	C1795	EMC1105	2024-05-13	2025-05-12
EM Clamp(10k-1000MHz)	TESEQ	KEMZ801B	EMC2255	2024-08-19	2025-08-18
RF Attenuation Clamp(150k-1000MHz)	TESEQ	KEMA801B	EMC2256	2024-08-19	2025-08-18
CDN M2/M3	Elektronik-Feinmechanik	L-801:M2/M3	EMC2048	2024-06-17	2025-06-16
COUPLING AND DECOUPLING NETWORK (150kHz-230MHz)	TESEQ AG	CDN ST08A	EMC2112	2023-07-04	2025-07-03
CDN S502A	TESEQ AG	CDN S502A	EMC2113	2023-07-04	2025-07-03
Coupling Decouping Network (150kHz-230MHz)	TESEQ AG	CDN USB3.0	EMC2114	2023-07-04	2025-07-03
Test System for Conducted and Radiated Immunity	TESEQ AG	NSG 4070B-80	EMC2115	2024-10-14	2025-10-13
Audio Analyzer	Keysight	U8903B	EMC2180	2024-08-30	2025-08-29
Test Software NSG4070_Ctrl1	TESEQ AG	Ver.1.3.0.1	GZE100-72	N/A	N/A
Oscilloscope	Tektronix	TDS3052C	EMC2055	2024-10-14	2025-10-13
6dB Attenuator	Shanghai Huaxiang	WDTS150-6-2.5-B	EMC2116	2024-06-17	2025-06-16

Voltage Dips and Interruptions					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Oscilloscope	Tektronix	TDS3052C	EMC2055	2024-10-14	2025-10-13
EMC Immunity Test System	TESEQ AG	NSG 3060&CDN3061&INA 6502 CIB	EMC2072	2023-12-15	2024-12-14
Test Software WIN 3000	TESEQ AG	Ver 1.3.2	GZE100-68	N/A	N/A

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
DMM	Fluke	73	EMC0006	2024-06-13	2025-06-12
DMM	Fluke	73	EMC0007	2024-06-13	2025-06-12

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6 Emission Test Results

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

Test Requirement: EN IEC 55014-1: 2021

Test Method: CISPR 16-2-1:2014+A1:2017

Limit:

0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 59dB(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

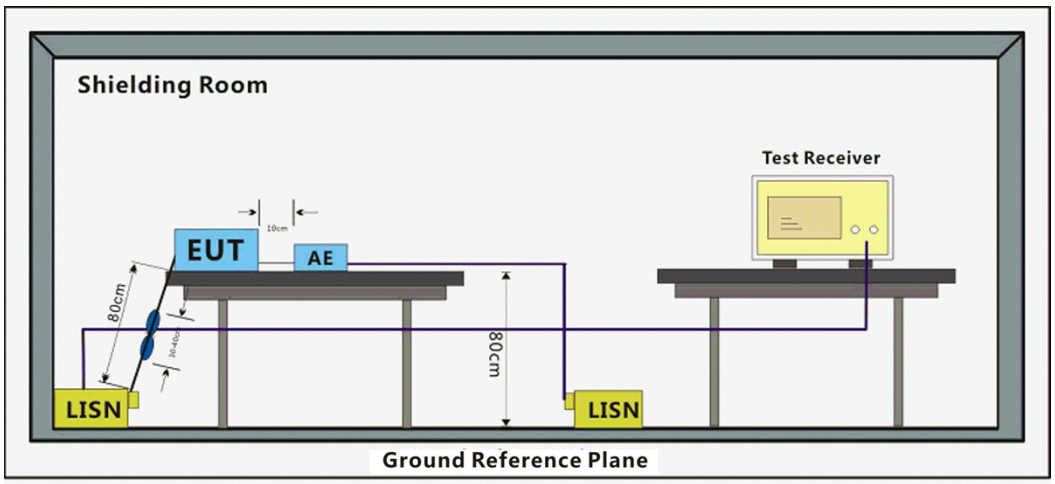
Operating Environment:

Temperature: 24.5 °C Humidity: 56.1 % RH Atmospheric Pressure: 1013 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Test the EUT in cooling mode, and adjust the EUT temperature at the lowest temperature position.
Pre-scan	05	Test the EUT in heating mode, and adjust the EUT temperature at the highest temperature position.

6.1.3 Test Setup Diagram



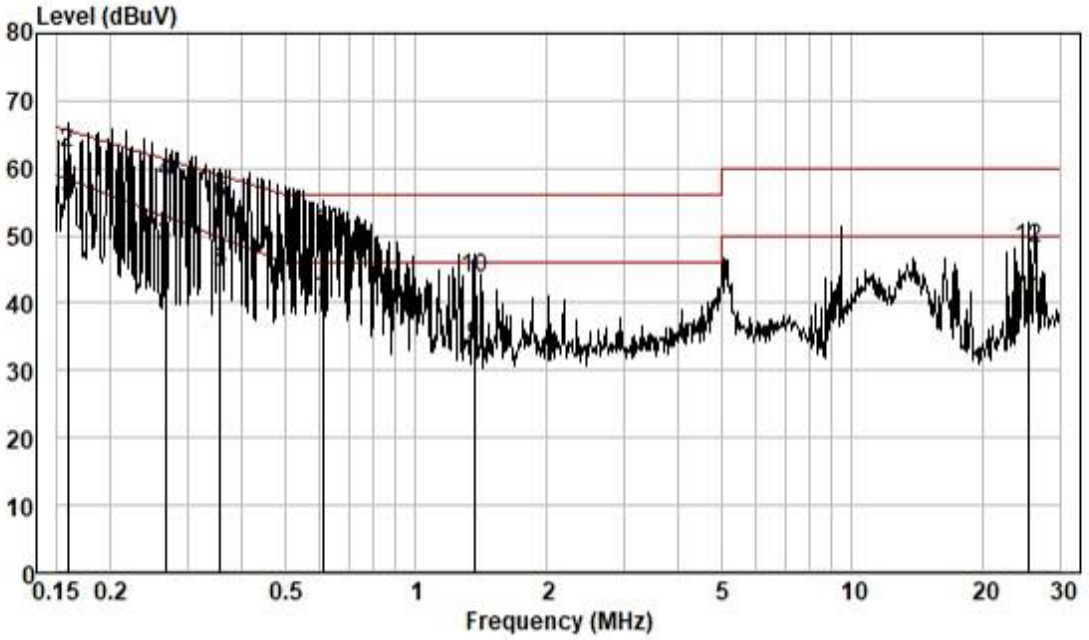
6.1.4 Measurement Procedure and Data

Frequency Range: 150kHz to 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

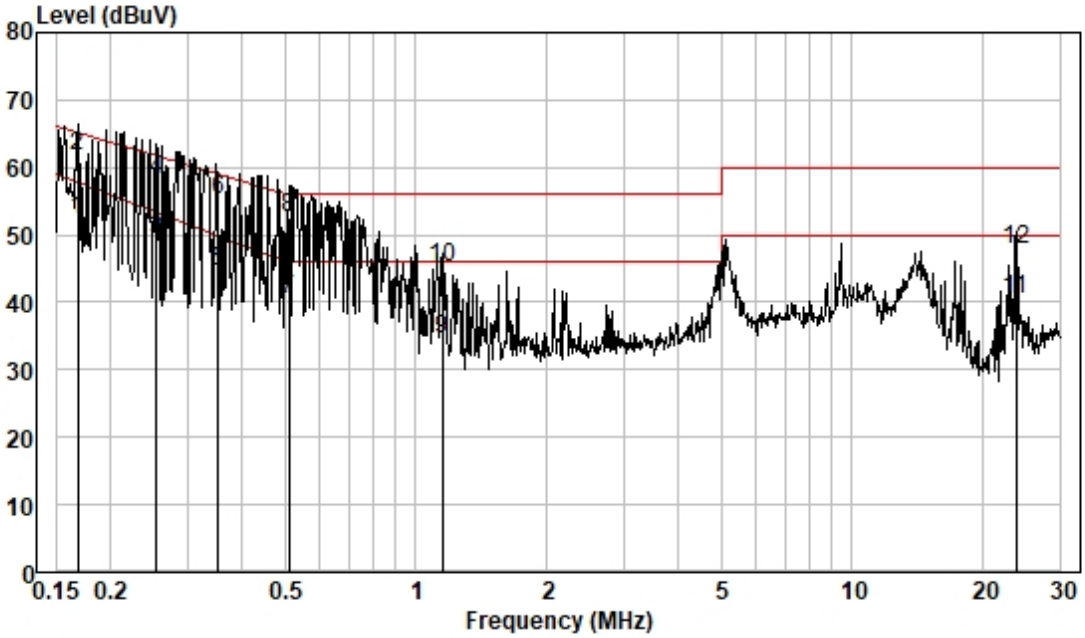
Test Mode: 04; Line: Live line



Pol :LINE
Mode :
Model :
Power :

	Frequenc MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
1	0.159	44.36	0.04	9.56	53.96	58.37	-4.41	Average
2	0.159	52.75	0.04	9.56	62.35	65.52	-3.17	QP
3	0.267	38.92	0.04	9.58	48.54	52.76	-4.22	Average
4	0.267	48.30	0.04	9.58	57.92	61.20	-3.28	QP
5	0.356	34.86	0.05	9.58	44.49	49.67	-5.18	Average
6	0.356	44.93	0.05	9.58	54.56	58.83	-4.27	QP
7	0.611	30.51	0.06	9.55	40.12	46.00	-5.88	Average
8	0.611	40.46	0.06	9.55	50.07	56.00	-5.93	QP
9	1.359	24.12	0.09	9.57	33.78	46.00	-12.22	Average
10	1.359	34.00	0.09	9.57	43.66	56.00	-12.34	QP
11	25.456	30.22	0.43	9.84	40.49	50.00	-9.51	Average
12	25.456	37.93	0.43	9.84	48.20	60.00	-11.80	QP

Test Mode: 04; Line: Neutral Line



Pol :NEUTRAL
Mode :
Model :
Power :

	Frequenc MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
1	0.168	42.78	0.04	9.54	52.36	57.80	-5.44	Average
2	0.168	52.13	0.04	9.54	61.71	65.08	-3.37	QP
3	0.255	39.64	0.04	9.53	49.21	53.28	-4.07	Average
4	0.255	48.45	0.04	9.53	58.02	61.60	-3.58	QP
5	0.352	34.90	0.05	9.51	44.46	49.79	-5.33	Average
6	0.352	45.65	0.05	9.51	55.21	58.91	-3.70	QP
7	0.513	30.89	0.05	9.58	40.52	46.00	-5.48	Average
8	0.513	42.90	0.05	9.58	52.53	56.00	-3.47	QP
9	1.147	25.02	0.08	9.56	34.66	46.00	-11.34	Average
10	1.147	35.57	0.08	9.56	45.21	56.00	-10.79	QP
11	23.762	30.02	0.42	9.96	40.40	50.00	-9.60	Average
12	23.762	37.48	0.42	9.96	47.86	60.00	-12.14	QP

6.2 Conducted Emissions at Load Terminals and Additional Terminals

Test Requirement: EN IEC 55014-1: 2021

Test Method: CISPR 16-2-1:2014+A1:2017

Limit:

Disturbance current limits

0.15MHz – 0.5MHz	40dB(μA)-30dB(μA) quasi-peak
	30dB(μA)-20dB(μA) average
0.5MHz – 30MHz	30dB(μA) quasi-peak, 20dB(μA) average

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

6.2.1 E.U.T. Operation

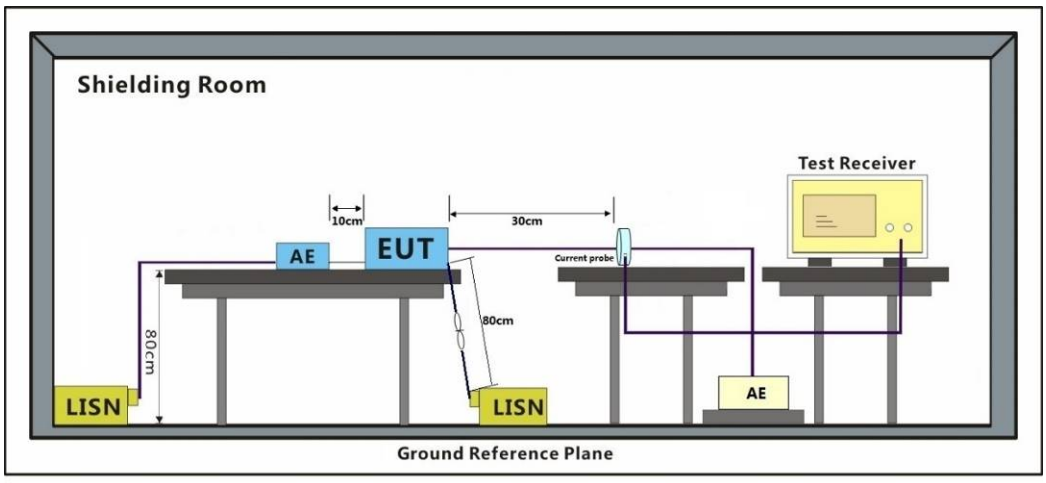
Operating Environment:

Temperature: 24.5 °C Humidity: 56.1 % RH Atmospheric Pressure: 1013 mbar

6.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Test the EUT in cooling mode, and adjust the EUT temperature at the lowest temperature position.
Pre-scan	05	Test the EUT in heating mode, and adjust the EUT temperature at the highest temperature position.

6.2.3 Test Setup Diagram



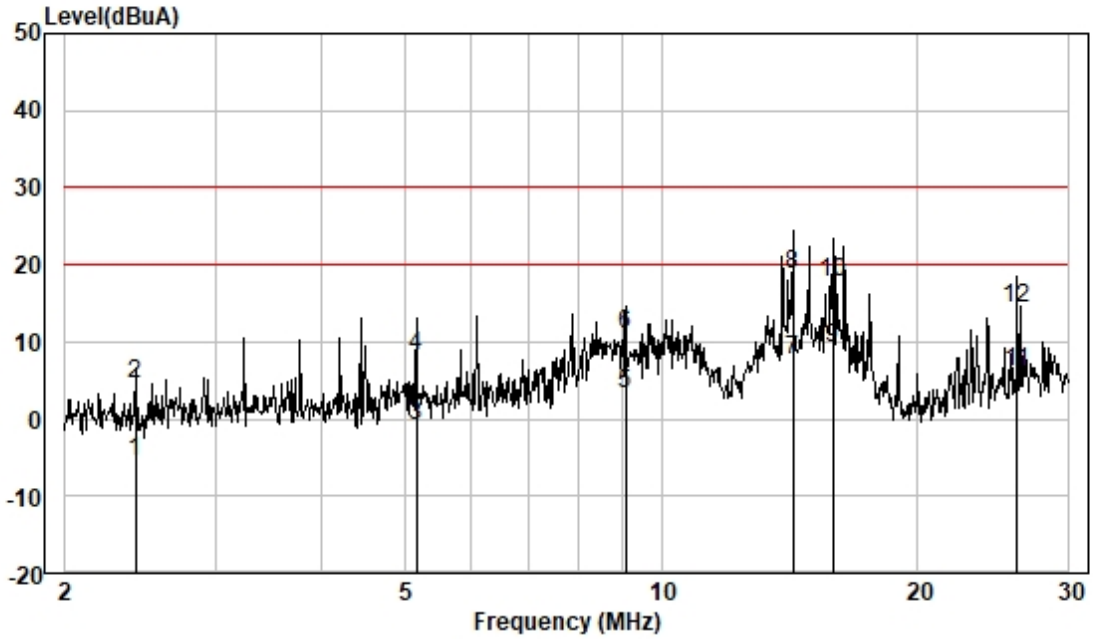
6.2.4 Measurement Procedure and Data

Frequency Range: 150kHz to 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 + Probe Factor

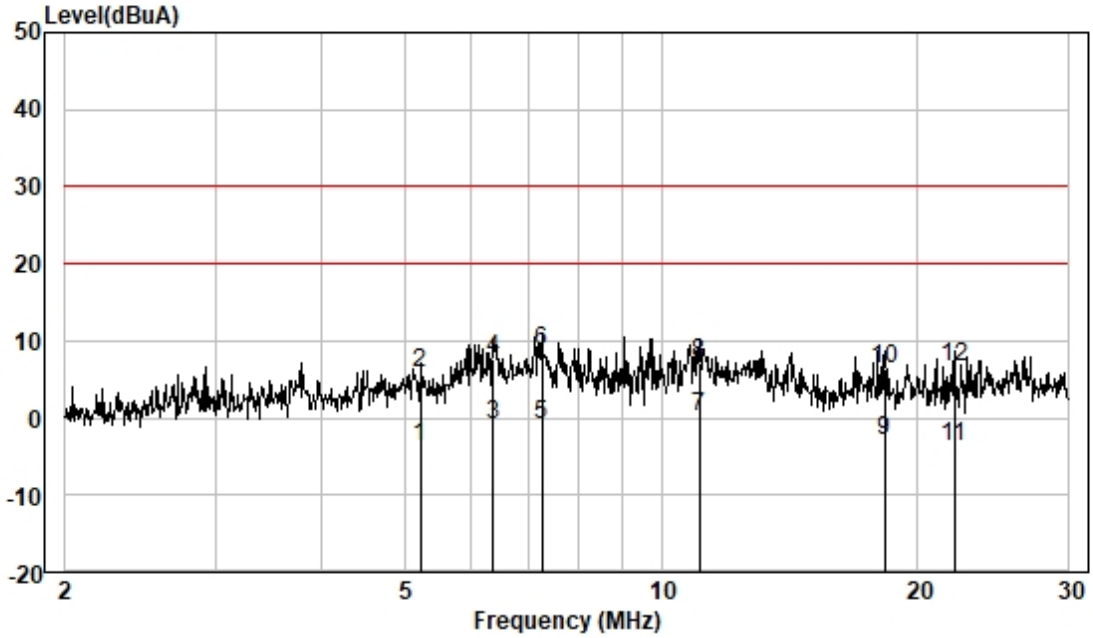
Test Mode: 04



Mode :EUT 1
Model :
Power :

	Frequenc MHz	Read Level dBuV	Cable Loss dB	Probe Factor dBS	Measured Level dBuA	Limit Line dBuA	Over Limit dB	Remark
1	2.424	-5.99	0.14	0.30	-5.55	20.00	-25.55	Average
2	2.424	4.07	0.14	0.30	4.51	30.00	-25.49	QP
3	5.174	-1.35	0.20	0.30	-0.85	20.00	-20.85	Average
4	5.174	7.56	0.20	0.30	8.06	30.00	-21.94	QP
5	9.088	2.83	0.24	0.30	3.37	20.00	-16.63	Average
6	9.088	10.50	0.24	0.30	11.04	30.00	-18.96	QP
7	14.285	7.01	0.32	0.30	7.63	20.00	-12.37	Average
8	14.285	18.22	0.32	0.30	18.84	30.00	-11.16	QP
9	15.876	8.66	0.34	0.30	9.30	20.00	-10.70	Average
10	15.876	16.95	0.34	0.30	17.59	30.00	-12.41	QP
11	26.130	5.37	0.43	0.23	6.03	20.00	-13.97	Average
12	26.130	13.79	0.43	0.23	14.45	30.00	-15.55	QP

Test Mode: 04



Mode :EUT 2
Model :
Power :

	Frequenc MHz	Read Level dBuV	Cable Loss dB	Probe Factor dBS	Measured Level dBuA	Limit Line dBuA	Over Limit dB	Remark
1	5.230	-4.15	0.20	0.30	-3.65	20.00	-23.65	Average
2	5.230	5.43	0.20	0.30	5.93	30.00	-24.07	QP
3	6.357	-1.27	0.21	0.30	-0.76	20.00	-20.76	Average
4	6.357	7.17	0.21	0.30	7.68	30.00	-22.32	QP
5	7.259	-1.46	0.22	0.30	-0.94	20.00	-20.94	Average
6	7.259	8.23	0.22	0.30	8.75	30.00	-21.25	QP
7	11.074	-0.50	0.27	0.30	0.07	20.00	-19.93	Average
8	11.074	6.54	0.27	0.30	7.11	30.00	-22.89	QP
9	18.277	-3.55	0.37	0.30	-2.88	20.00	-22.88	Average
10	18.277	5.57	0.37	0.30	6.24	30.00	-23.76	QP
11	22.091	-4.45	0.40	0.28	-3.77	20.00	-23.77	Average
12	22.091	5.95	0.40	0.28	6.63	30.00	-23.37	QP

6.3 Disturbance Power

Test Requirement: EN IEC 55014-1: 2021

Test Method: CISPR 16-2-2:2010

Limit:

30MHz- 300MHz: 45dB(pW)-55dB(pW) quasi-peak, 35dB(pW)-45dB(pW) average

200MHz- 300MHz: 0dB(pW)-10dB(pW) quasi-peak (reduction limit)

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30MHz to 300MHz

6.3.1 E.U.T. Operation

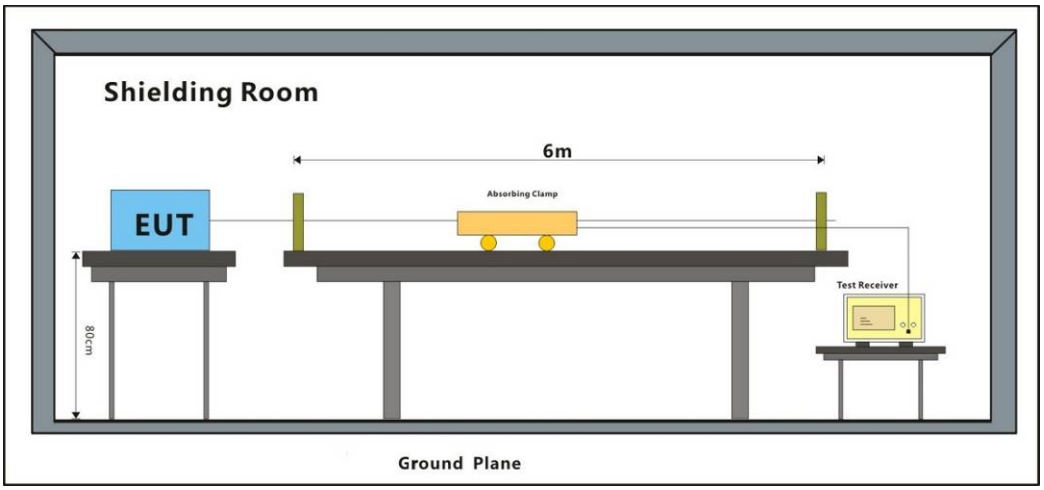
Operating Environment:

Temperature: 24.5 °C Humidity: 56.1 % RH Atmospheric Pressure: 1013 mbar

6.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Test the EUT in cooling mode, and adjust the EUT temperature at the lowest temperature position.
Pre-scan	05	Test the EUT in heating mode, and adjust the EUT temperature at the highest temperature position.

6.3.3 Test Setup Diagram



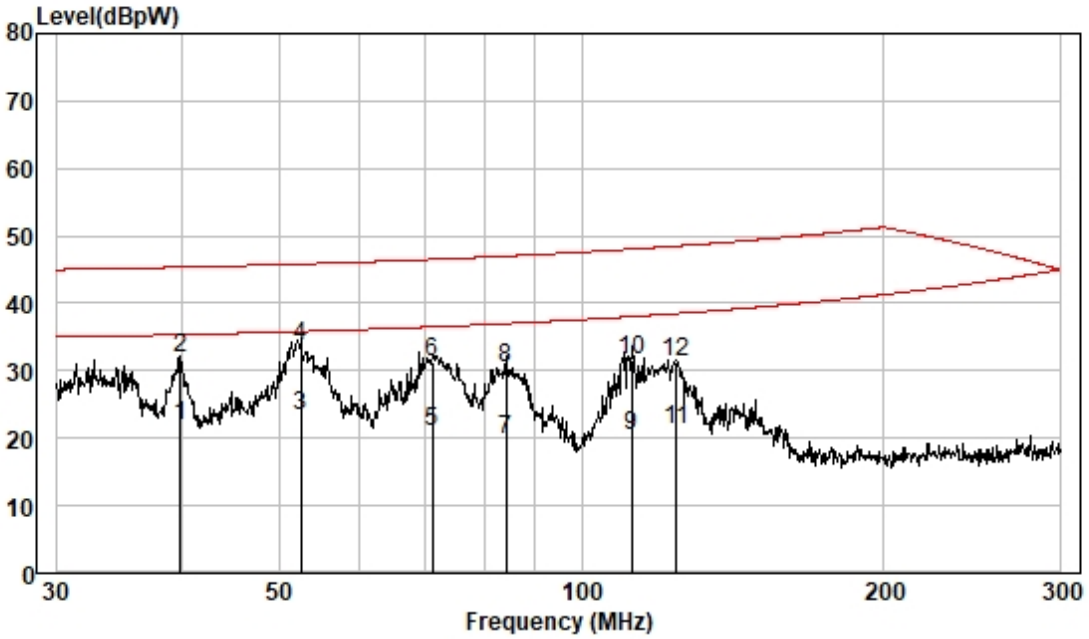
6.3.4 Measurement Procedure and Data

Frequency Range: 30MHz to 300MHz

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 + Clamp Factor

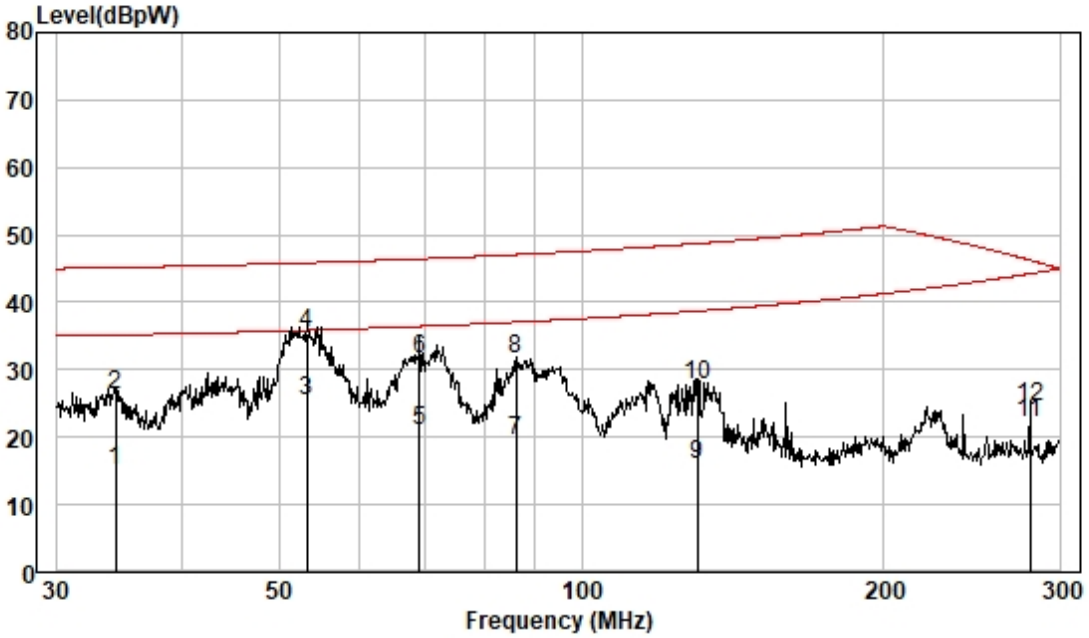
Test Mode: 04



Mode : AC
Model :
Power :

	Frequency MHz	Read level dBuV	Cable Loss dB	Clamp Factor dB	Measured level dBpW	Limit Line dBpW	Over limit dB	Remark
1	39.822	15.04	6.71	0.10	21.85	35.36	-13.51	Average
2	39.822	25.01	6.71	0.10	31.82	45.36	-13.54	QP
3	52.495	17.20	6.82	-0.62	23.40	35.83	-12.43	Average
4	52.495	27.39	6.82	-0.62	33.59	45.83	-12.24	QP
5	70.978	14.99	6.97	-0.92	21.04	36.52	-15.48	Average
6	70.978	25.33	6.97	-0.92	31.38	46.52	-15.14	QP
7	84.163	14.33	7.06	-1.56	19.83	37.01	-17.18	Average
8	84.163	24.87	7.06	-1.56	30.37	47.01	-16.64	QP
9	112.233	15.18	7.24	-2.15	20.27	38.05	-17.78	Average
10	112.233	26.60	7.24	-2.15	31.69	48.05	-16.36	QP
11	124.486	17.06	7.32	-3.20	21.18	38.50	-17.32	Average
12	124.486	27.30	7.32	-3.20	31.42	48.50	-17.08	QP

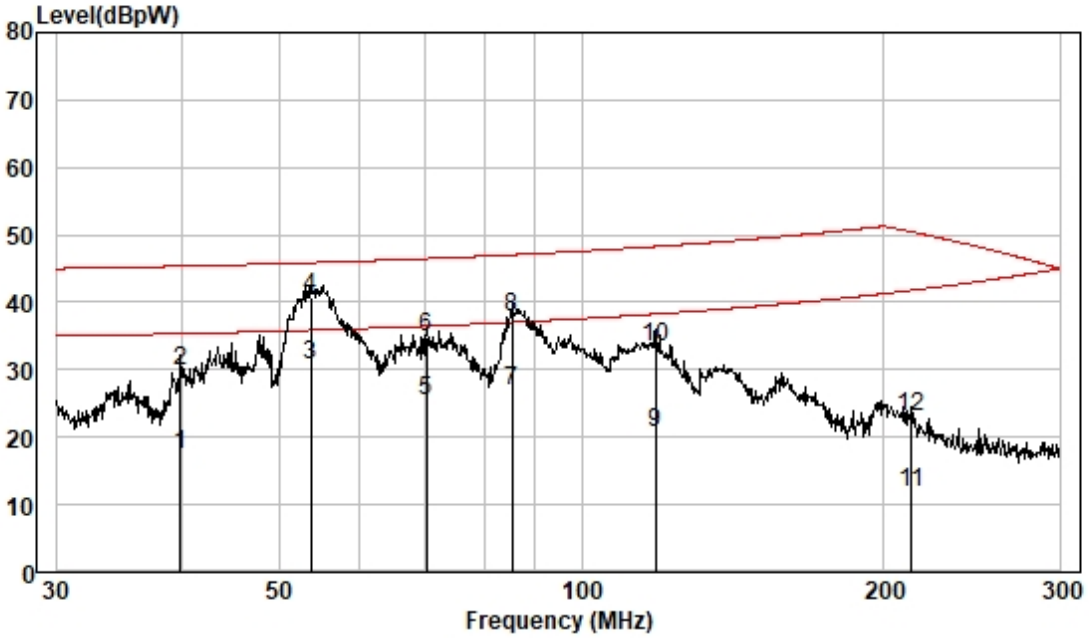
Test Mode: 04



Mode : LINK IN
Model :
Power :

	Frequency MHz	Read level dBuV	Cable Loss dB	Clamp Factor dB	Measured level dBpW	Limit Line dBpW	Over limit dB	Remark
1	34.365	7.55	6.66	0.80	15.01	35.16	-20.15	Average
2	34.365	18.69	6.66	0.80	26.15	45.16	-19.01	QP
3	53.226	19.19	6.83	-0.58	25.44	35.86	-10.42	Average
4	53.226	29.05	6.83	-0.58	35.30	45.86	-10.56	QP
5	69.043	15.10	6.95	-1.08	20.97	36.45	-15.48	Average
6	69.043	25.63	6.95	-1.08	31.50	46.45	-14.95	QP
7	86.123	14.30	7.08	-1.76	19.62	37.08	-17.46	Average
8	86.123	26.23	7.08	-1.76	31.55	47.08	-15.53	QP
9	130.353	12.43	7.36	-3.70	16.09	38.72	-22.63	Average
10	130.353	24.23	7.36	-3.70	27.89	48.72	-20.83	QP
11	279.976	17.94	8.03	-3.90	22.07	44.26	-22.19	Average
12	279.976	20.34	8.03	-3.90	24.47	46.26	-21.79	QP

Test Mode: 04



Mode : LINK OUT
Model :
Power :

	Frequency MHz	Read level dBuV	Cable Loss dB	Clamp Factor dB	Measured level dBpW	Limit Line dBpW	Over limit dB	Remark
1	39.822	10.68	6.71	0.10	17.49	35.36	-17.87	Average
2	39.822	23.14	6.71	0.10	29.95	45.36	-15.41	QP
3	53.718	24.41	6.83	-0.58	30.66	35.88	-5.22	Average
4	53.718	34.36	6.83	-0.58	40.61	45.88	-5.27	QP
5	70.165	19.45	6.96	-1.00	25.41	36.49	-11.08	Average
6	70.165	28.90	6.96	-1.00	34.86	46.49	-11.63	QP
7	85.334	21.43	7.07	-1.60	26.90	37.05	-10.15	Average
8	85.334	32.31	7.07	-1.60	37.78	47.05	-9.27	QP
9	118.610	15.86	7.28	-2.52	20.62	38.28	-17.66	Average
10	118.610	28.64	7.28	-2.52	33.40	48.28	-14.88	QP
11	213.364	7.91	7.75	-3.88	11.78	41.79	-30.01	Average
12	213.364	19.24	7.75	-3.88	23.11	50.46	-27.35	QP

6.4 Harmonic Current Emission

Test Requirement: EN IEC 61000-3-2: 2019+A1:2021

Test Method: EN IEC 61000-3-2: 2019+A1:2021

6.4.1 E.U.T. Operation

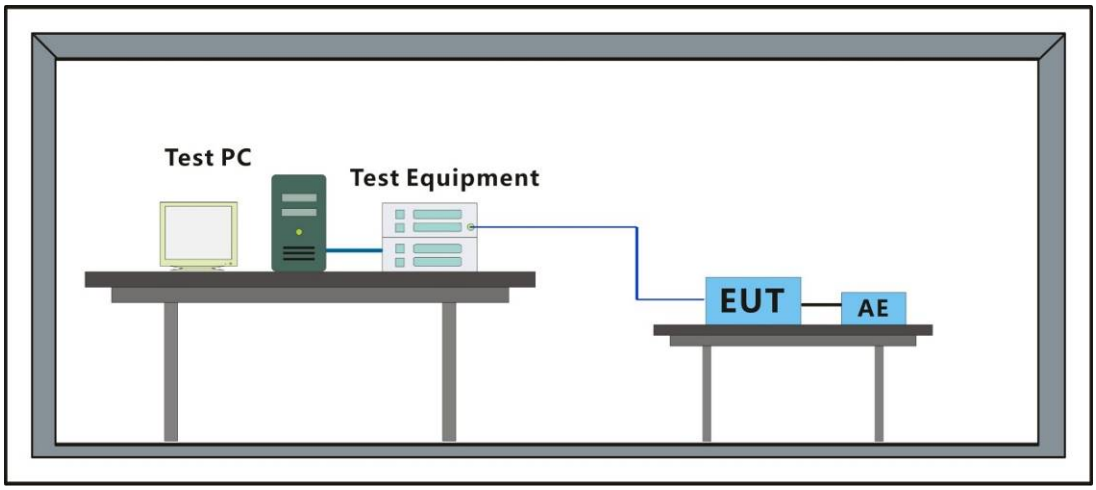
Operating Environment:

Temperature: 22.3 °C Humidity: 53.8 % RH Atmospheric Pressure: 1013 mbar

6.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Test the EUT in cooling mode, and adjust the EUT temperature at the lowest temperature position.
Pre-scan	05	Test the EUT in heating mode, and adjust the EUT temperature at the highest temperature position.

6.4.3 Test Setup Diagram



6.4.4 Measurement Procedure and Data

Frequency Range: 100Hz to 2kHz

Test Mode: 05

Standard Specific Results for IEC 61000-3-2 (Edition 5.1)

Standard Group:	Industry
Standard Name:	IEC 61000-3-2 (Edition 5.1)
	Limits for harmonic current emissions (equipment input current < 16 A per phase)
Device Under Test:	PASS
Power Source:	PASS
Connection Type:	L - N
Main Line:	230 V, 50 Hz
Classification:	Class A
Appli. of Limits:	less than or equal to 150 % (Without POHC Enhancement)
Test Duration:	2 min 30 s

Check Harmonics 2..40			
First detected harmonic order > 150 %			
Line 1:	None		
Harmonics orders > 150 %			
Line 1:	None		
Harmonics orders with average > 100 %			
Line 1:	None		

Measured values			
Fundamental Current			
Line 1:	2.126 A		
Active input Power			
Line 1:	480.953 W *		
Circuit power factor			
Line 1:	0.948 *		

** Absolute value.*

Prerequisite for simplified method			
First time window with THD(I) > 15 %			
Line 1:	None		
Time window with max THD(I) > 15 %			
Line 1:	None		
Current emission below 60 % of the applicable limits			
Line 1:	No		
Active Input Power			
Line 1:	481 W *		

** Absolute value.*

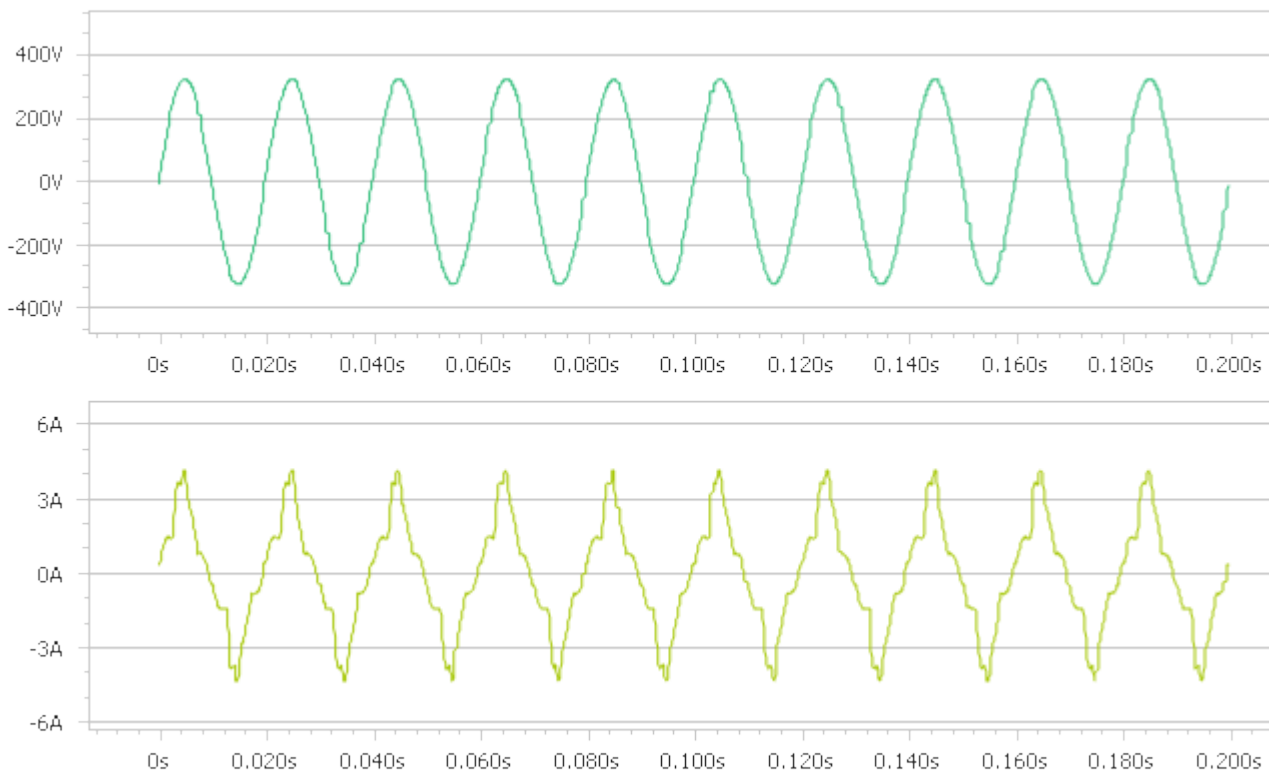
Current Test Result

Average and Maximum harmonic current results									
Hn	Average				Maximum				Harmonic Result
	Ieff [A]	of Limit [%]	Limit [A]	Result	Ieff [A]	of Limit [%]	Limit [A]	Result	
1	2.112				2.126				
2	0.022	2.062	1.080	PASS	0.023	1.421	1.620	PASS	PASS
3	0.493	21.439	2.300	PASS	0.498	14.423	3.450	PASS	PASS
4	0.013	3.042	0.430	PASS	0.013	2.087	0.645	PASS	PASS
5	0.310	27.218	1.140	PASS	0.312	18.252	1.710	PASS	PASS
6	0.010	3.455	0.300	n/a	0.011	2.369	0.450	n/a	PASS
7	0.077	9.970	0.770	PASS	0.078	6.747	1.155	PASS	PASS
8	0.010	4.522	0.230	n/a	0.011	3.106	0.345	n/a	PASS
9	0.062	15.458	0.400	PASS	0.063	10.466	0.600	PASS	PASS
10	0.008	4.449	0.184	n/a	0.008	3.078	0.276	n/a	PASS
11	0.105	31.676	0.330	PASS	0.107	21.673	0.495	PASS	PASS
12	0.007	4.773	0.153	n/a	0.008	3.307	0.230	n/a	PASS
13	0.087	41.448	0.210	PASS	0.089	28.254	0.315	PASS	PASS
14	0.006	4.219	0.131	n/a	0.006	2.977	0.197	n/a	PASS
15	0.064	42.964	0.150	PASS	0.069	30.648	0.225	PASS	PASS
16	0.004	3.689	0.115	n/a	0.005	2.651	0.173	n/a	PASS
17	0.031	23.463	0.132	PASS	0.036	18.139	0.199	PASS	PASS
18	0.003	3.185	0.102	n/a	0.004	2.625	0.153	n/a	PASS
19	0.014	11.973	0.118	PASS	0.018	9.939	0.178	PASS	PASS
20	0.003	2.831	0.092	n/a	0.003	2.202	0.138	n/a	PASS
21	0.008	7.557	0.107	n/a	0.011	6.724	0.161	n/a	PASS
22	0.002	2.662	0.084	n/a	0.003	2.210	0.125	n/a	PASS
23	0.012	12.554	0.098	n/a	0.016	10.579	0.147	PASS	PASS
24	0.002	2.278	0.077	n/a	0.002	1.825	0.115	n/a	PASS
25	0.015	16.591	0.090	PASS	0.017	12.759	0.135	PASS	PASS
26	0.002	2.317	0.071	n/a	0.002	1.760	0.106	n/a	PASS
27	0.006	7.061	0.083	n/a	0.006	5.045	0.125	n/a	PASS
28	0.001	2.172	0.066	n/a	0.002	1.613	0.099	n/a	PASS
29	0.009	11.517	0.078	n/a	0.009	8.057	0.116	n/a	PASS
30	0.001	2.099	0.061	n/a	0.001	1.582	0.092	n/a	PASS
31	0.007	9.753	0.073	n/a	0.007	6.872	0.109	n/a	PASS
32	0.001	2.112	0.058	n/a	0.001	1.557	0.086	n/a	PASS
33	0.009	12.716	0.068	n/a	0.009	8.952	0.102	n/a	PASS
34	0.001	2.086	0.054	n/a	0.001	1.552	0.081	n/a	PASS
35	0.005	7.854	0.064	n/a	0.006	6.090	0.096	n/a	PASS
36	0.001	2.220	0.051	n/a	0.001	1.638	0.077	n/a	PASS
37	0.004	6.901	0.061	n/a	0.005	5.697	0.091	n/a	PASS
38	0.001	2.098	0.048	n/a	0.001	1.593	0.073	n/a	PASS
39	0.003	5.804	0.058	n/a	0.004	4.726	0.087	n/a	PASS
40	0.001	2.270	0.046	n/a	0.001	1.709	0.069	n/a	PASS

Note: Harmonic currents less than 0.6 % of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

Time Window 1

Time Domain of Time Window 1

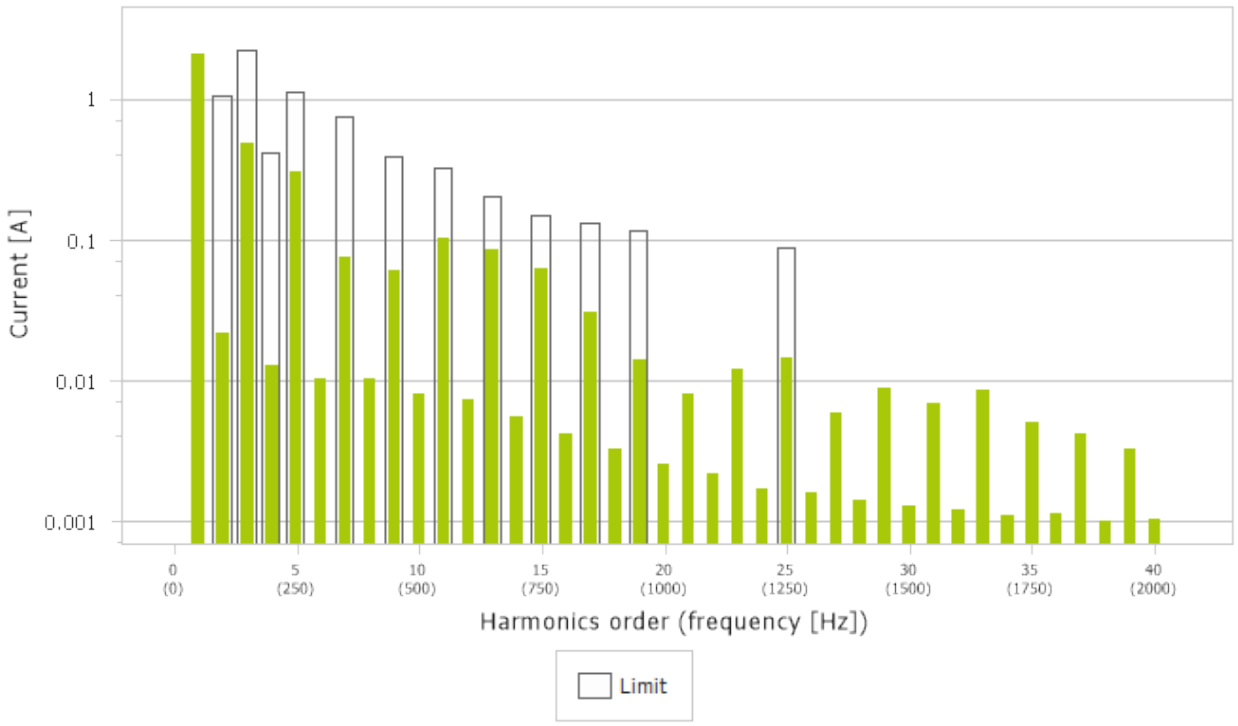


Maximum / Average Values

	Line 1
Maximum Values	
Frequency	50 Hz
Voltage RMS	229.3 V
Current RMS	2.220 A
Peak Current	4.307 A
Fundamental Current	2.149 A
Current Crest Factor	1.953
Active Power P	486.1 W
Power Factor	0.9479
Total Harmonic Current (THC)	0.6148 A
Instantaneous Partial Odd Harmonic Current (Inst. POHC)	0.02891 A
Total Harmonic Distortion Current (THDC)	0.2892
Average Values	
Total Harmonic Current (THC)	0.6122 A
Instantaneous Partial Odd Harmonic Current (Inst. POHC)	0.02729 A
Total Harmonic Distortion Current (THDC)	0.2880

Average Harmonics

Average Harmonics (Line 1)



No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 t (86-20) 82155555 www.sgsgroup.com.cn
中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编：510663 t (86-20) 82155555 sgs.china@sgs.com

6.5 Voltage Fluctuations and Flicker

Test Requirement: EN 61000-3-3: 2013+ A1:2019+A2:2021

Test Method: EN 61000-3-3: 2013+ A1:2019+A2:2021

6.5.1 E.U.T. Operation

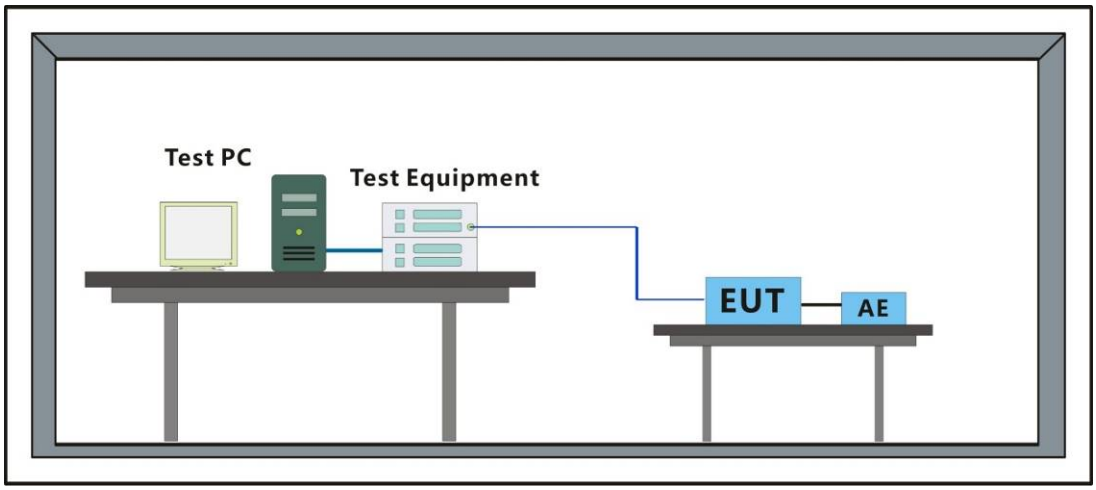
Operating Environment:

Temperature: 22.3 °C Humidity: 53.5 % RH Atmospheric Pressure: 1013 mbar

6.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Test the EUT in cooling mode, and adjust the EUT temperature at the lowest temperature position.
Pre-scan	05	Test the EUT in heating mode, and adjust the EUT temperature at the highest temperature position.

6.5.3 Test Setup Diagram



6.5.4 Measurement Procedure and Data

Test Mode: 05

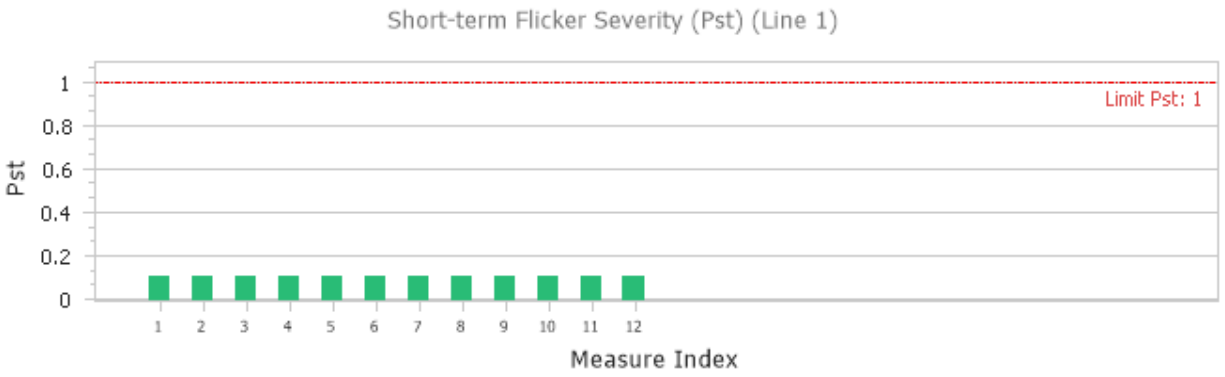
Flicker Results	
Standard Specific Results for IEC 61000-3-3 (Edition 3.2)	
Standard Group:	Industry
Standard Name:	IEC 61000-3-3 (Edition 3.2) Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection
Test Condition:	Tumbler dryers
Analysis Status:	PASS

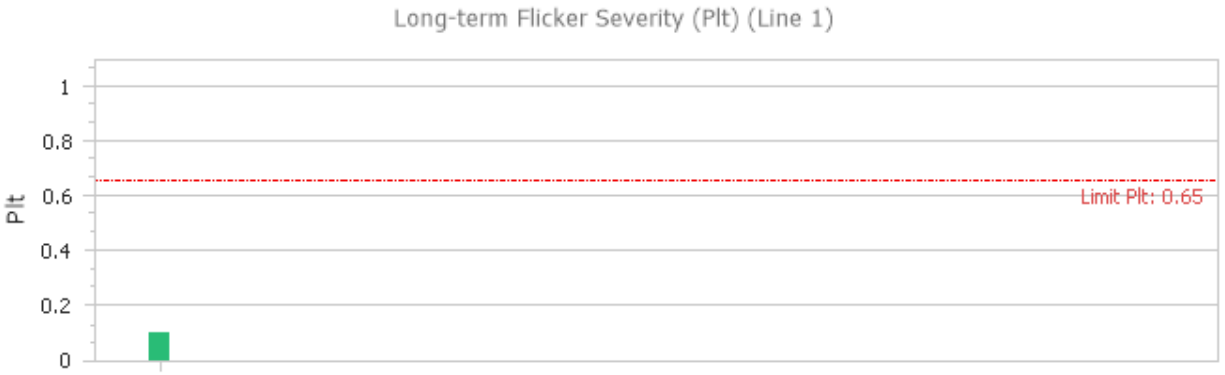
Flicker Measurements Settings	
Main Line:	230V, 50Hz
Flicker Meter:	230V / 50Hz
Flicker Impedance:	Zref
Observation Time:	12 × 10 min
Measurements:	12

Flicker Measurements					
	P_{lt}	Max P_{st}	Max d_c	Max d_{max}	Max T_{max}
Line 1:	0.11	0.11	0.354	0.466	0
Limits:	0.65	1	3.3	6	0.5
Results:	PASS	PASS	PASS	PASS	PASS

Flicker Individual Measurements												
Measurement	P_{st} [ ]			d_c [%]			d_{max} [%]			T_{max} [s]		
	Value	Limit	Result	Value	Limit	Result	Value	Limit	Result	Value	Limit	Result
#1	0.11	1.00	PASS	0.08	3.30	PASS	0.37	6.00	PASS	0.00	0.50	PASS
#2	0.11	1.00	PASS	0.00	3.30	PASS	0.17	6.00	PASS	0.00	0.50	PASS
#3	0.11	1.00	PASS	0.00	3.30	PASS	0.17	6.00	PASS	0.00	0.50	PASS
#4	0.11	1.00	PASS	0.00	3.30	PASS	0.17	6.00	PASS	0.00	0.50	PASS
#5	0.11	1.00	PASS	0.00	3.30	PASS	0.17	6.00	PASS	0.00	0.50	PASS
#6	0.11	1.00	PASS	0.00	3.30	PASS	0.17	6.00	PASS	0.00	0.50	PASS
#7	0.11	1.00	PASS	0.00	3.30	PASS	0.17	6.00	PASS	0.00	0.50	PASS
#8	0.11	1.00	PASS	0.35	3.30	PASS	0.47	6.00	PASS	0.00	0.50	PASS
#9	0.11	1.00	PASS	0.00	3.30	PASS	0.17	6.00	PASS	0.00	0.50	PASS
#10	0.11	1.00	PASS	0.00	3.30	PASS	0.16	6.00	PASS	0.00	0.50	PASS
#11	0.11	1.00	PASS	0.00	3.30	PASS	0.17	6.00	PASS	0.00	0.50	PASS
#12	0.11	1.00	PASS	0.00	3.30	PASS	0.17	6.00	PASS	0.00	0.50	PASS

Pst Data





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6.6 Discontinuous Disturbance (150kHz-30MHz)

Test Requirement: EN IEC 55014-1: 2021

Test Method: EN IEC 55014-1: 2021

Limit:

Provision	Click Rate (N)		
1	All clicks ≤ 20 ms	90 % click ≤ 10 ms	N≤5
2	N < 0,2	L_q [b]= L^a + 44	Clicks [c] ≤ 25% exceed L_q [b]
3	30 > N ≥ 0,2	L_q [b]= L^a + 20 lg(30/N)	Clicks [c] ≤ 25% exceed L_q [b]

[a] The limits L of Conducted Emissions apply also to discontinuous disturbances from all equipment which produce:

1) disturbances other than clicks, or

2) clicks with a click rate *N* equal to or greater than 30

[b] The click limit Lq is calculated by increasing the relevant quasi-peak limit L for continuous disturbances by certain value.

The click limit applies to the disturbance assessed according to the upper quartile method

[c] a quarter of the number of the clicks registered during the observation time T is allowed to exceed the click limit Lq

6.6.1 E.U.T. Operation

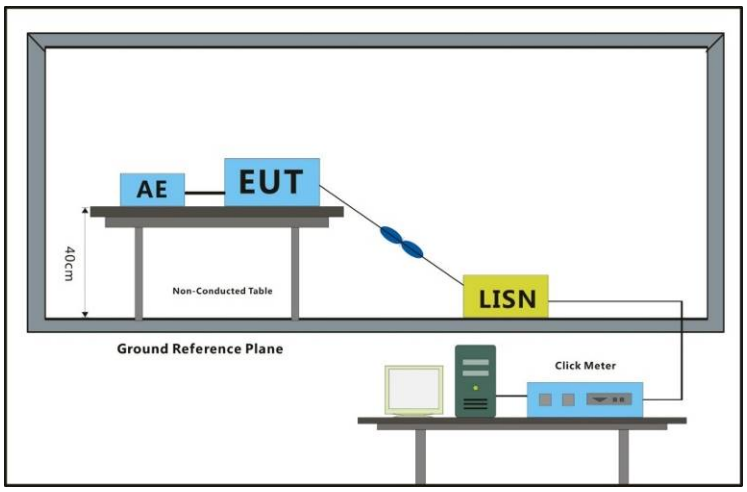
Operating Environment:

Temperature: 22.3 °C Humidity: 53.3 % RH Atmospheric Pressure: 1013 mbar

6.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Test the EUT in cooling mode, and adjust the EUT temperature at the lowest temperature position.
Pre-scan	05	Test the EUT in heating mode, and adjust the EUT temperature at the highest temperature position.

6.6.3 Test Setup Diagram



6.6.4 Measurement Procedure and Data

Frequency Range: 150kHz to 30MHz

Test Mode: 05

Lq Calculation										
Frequency MHz	Limit dBuV	<=10ms	<=20ms	<=0.2s	From Exception E4	Other than click ms	Total Clicks	Time min.	N rate	+Lq dB
0.15	66.0	0	0	0	0	0	0	120.0	0.0	PASS
0.50	56.0	0	0	0	0	0	0	120.0	0.0	PASS
1.40	56.0	0	0	0	0	0	0	120.0	0.0	PASS
30.00	60.0	0	0	0	0	0	0	120.0	0.0	PASS

7 Immunity Test Results

Performance Criteria Description

Criterion A: The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Criterion B: The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation and from what the user may reasonably expect from the apparatus if used as intended.

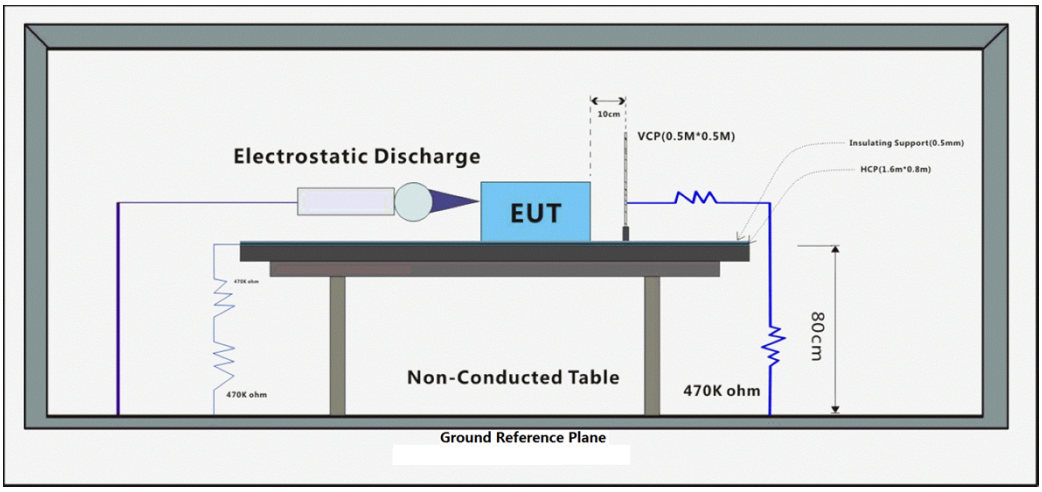
Criterion C: Temporary loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

7.1 Electrostatic Discharge

Test Requirement: EN IEC 55014-2: 2021

Test Method: EN 61000-4-2:2009

7.1.1 Test Setup Diagram



7.1.2 E.U.T. Operation

Operating Environment:

Temperature: 22.3 °C Humidity: 53.4 % RH Atmospheric Pressure: 1013 mbar

7.1.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Test the EUT in cooling mode, and adjust the EUT temperature at the lowest temperature position.
Final test	05	Test the EUT in heating mode, and adjust the EUT temperature at the highest temperature position.
Final test	06	Test the EUT in idle mode.

7.1.4 Test Condition and Results

Performance Criterion: B
Discharge Impedance: 330 Ω / 150 pF
Discharge Voltage: Air Discharge: 8 kV; Contact Discharge:4 kV; VCP/HCP: 4 kV.
Polarity: Positive & Negative
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 & seams.
Test Point 2: All accessible metal parts of the enclosure.
Test Point 3: All sides.

Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	8	+	1	A
Air Discharge	8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	N/A
Horizontal Coupling	4	-	3	N/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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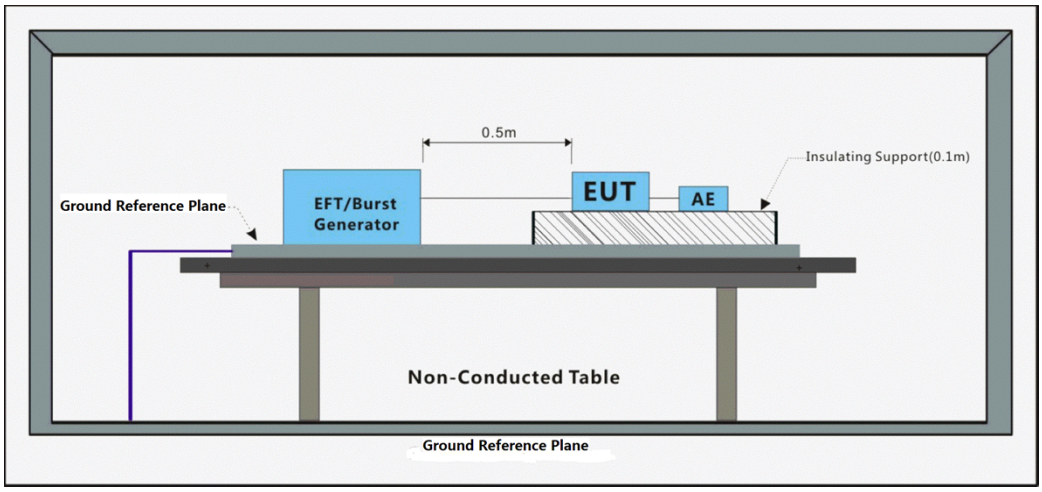
7.2 Electrical Fast Transients Burst at AC Mains Power Port

Test Requirement: EN IEC 55014-2: 2021

Test Method: EN 61000-4-4:2012

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 22.4 °C Humidity: 71.5 % RH Atmospheric Pressure: 1013 mbar

7.2.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Test the EUT in cooling mode, and adjust the EUT temperature at the lowest temperature position.
Final test	05	Test the EUT in heating mode, and adjust the EUT temperature at the highest temperature position.
Final test	06	Test the EUT in idle mode.

7.2.4 Test Condition and Results

Performance Criterion: B
Repetition Frequency: 5kHz
Burst Period: 300ms
Test Duration: 2 minute per level & polarity
Test Level: 1.0kV
Polarity: Positive & Negative

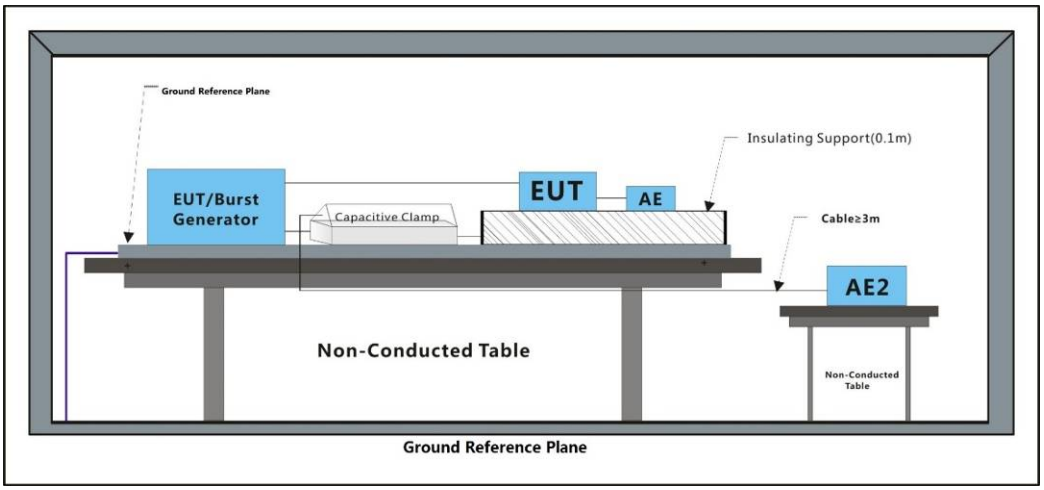
Port	Level (kV)	Polarity	Repetition Frequency:	CDN/Clamp	Result / Observations
AC power port	1	+	5kHz	CDN	A
AC power port	1	-	5kHz	CDN	A
A: No degradation in the performance of the EUT was observed					

7.3 Electrical Fast Transients Burst at Signal Port

Test Requirement: EN IEC 55014-2: 2021

Test Method: EN 61000-4-4:2012

7.3.1 Test Setup Diagram



7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 22.4 °C Humidity: 71.5 % RH Atmospheric Pressure: 1013 mbar

7.3.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Test the EUT in cooling mode, and adjust the EUT temperature at the lowest temperature position.
Final test	05	Test the EUT in heating mode, and adjust the EUT temperature at the highest temperature position.
Final test	06	Test the EUT in idle mode.

7.3.4 Test Condition and Results

Performance Criterion: B
Repetition Frequency: 5kHz
Burst Period: 300ms
Test Duration: 2 minute per level & polarity
Test Level: 0.5kV
Polarity: Positive & Negative

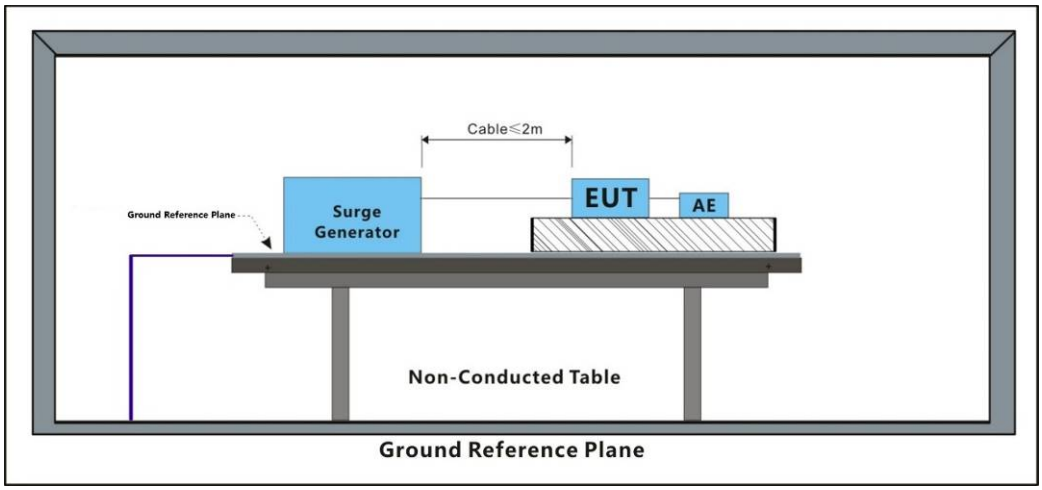
Port	Level (kV)	Polarity	Repetition Frequency:	CDN/Clamp	Result / Observations
Signal	0.5	+	5kHz	Clamp	A
Signal	0.5	-	5kHz	Clamp	A
A: No degradation in the performance of the EUT was observed					

7.4 Surge at AC Mains Power Port

Test Requirement: EN IEC 55014-2: 2021

Test Method: EN 61000-4-5:2014+A1:2017

7.4.1 Test Setup Diagram



7.4.2 E.U.T. Operation

Operating Environment:

Temperature: 22.4 °C Humidity: 71.5 % RH Atmospheric Pressure: 1013 mbar

7.4.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Test the EUT in cooling mode, and adjust the EUT temperature at the lowest temperature position.
Final test	05	Test the EUT in heating mode, and adjust the EUT temperature at the highest temperature position.
Final test	06	Test the EUT in idle mode.

7.4.4 Test Condition and Results

Performance Criterion: B
Interval: 60s between each surge
Test Level: ±1kV Live to Neutral; ±2kV Live, Neutral to Earth
Polarity: Positive & Negative
Generator source impedance: 2Ω
CDN coupling impedance(Line-to-ground):10Ω
Trigger Mode: Internal
No. of surges: 5 positive at 90°, 5 negative at 270°.

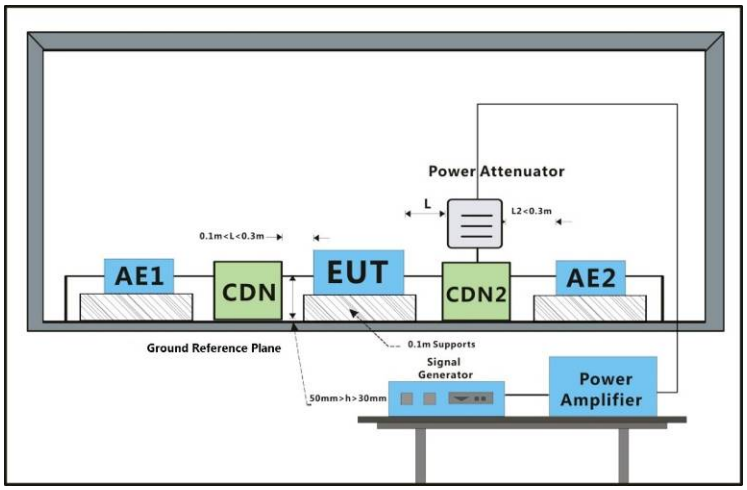
Test Line	Level (kV)	Polarity	Phase (deg)	Result / Observations
L-N	1	+	90°	A
L-N	1	-	270°	A
L-PE	2	+	90°	A
L-PE	2	-	270°	A
N-PE	2	+	90°	A
N-PE	2	-	270°	A
A: No degradation in the performance of the EUT was observed				

7.5 Conducted Immunity at AC Mains Power Port (150kHz-230MHz)

Test Requirement: EN IEC 55014-2: 2021

Test Method: EN 61000-4-6: 2014

7.5.1 Test Setup Diagram



7.5.2 E.U.T. Operation

Operating Environment:

Temperature: 22.4 °C Humidity: 71.5 % RH Atmospheric Pressure: 1013 mbar

7.5.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Test the EUT in cooling mode, and adjust the EUT temperature at the lowest temperature position.
Final test	05	Test the EUT in heating mode, and adjust the EUT temperature at the highest temperature position.
Final test	06	Test the EUT in idle mode.

7.5.4 Test Condition and Results

Performance Criterion: A

Step Size: 1%

Frequency Range: 0.15MHz to 230MHz

Modulation: 80%, 1kHz Amplitude Modulation

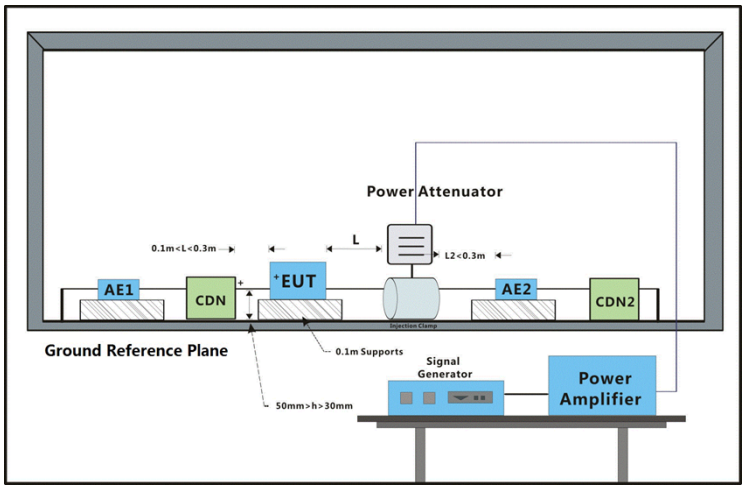
Cable Port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
AC power port	3	CDN	2s	A
A: No degradation in the performance of the EUT was observed				

7.6 Conducted Immunity at Signal Port (150kHz-230MHz)

Test Requirement: EN IEC 55014-2: 2021

Test Method: EN 61000-4-6: 2014

7.6.1 Test Setup Diagram



7.6.2 E.U.T. Operation

Operating Environment:

Temperature: 22.4 °C Humidity: 71.5 % RH Atmospheric Pressure: 1013 mbar

7.6.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Test the EUT in cooling mode, and adjust the EUT temperature at the lowest temperature position.
Final test	05	Test the EUT in heating mode, and adjust the EUT temperature at the highest temperature position.
Final test	06	Test the EUT in idle mode.

7.6.4 Test Condition and Results

Performance Criterion: A

Step Size: 1%

Frequency Range: 0.15MHz to 230MHz

Modulation: 80%, 1kHz Amplitude Modulation

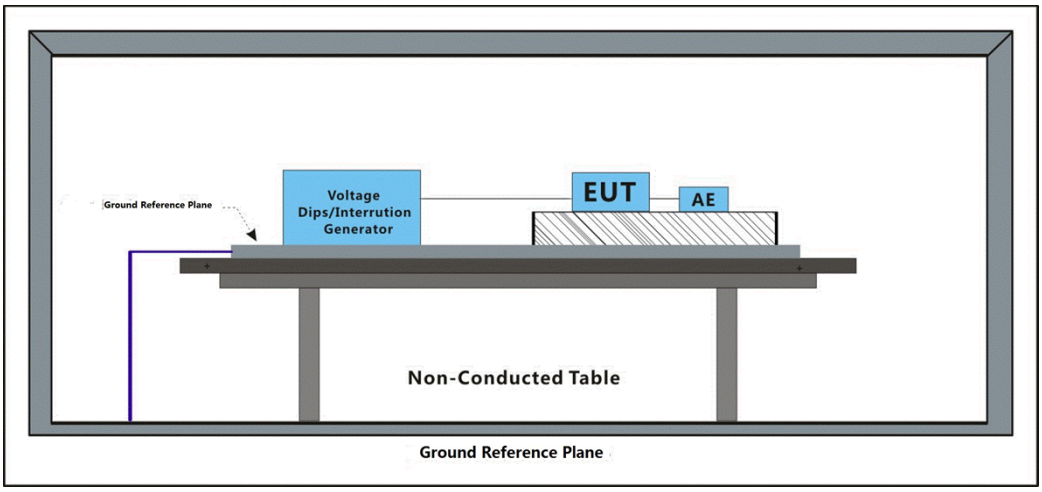
Port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
Signal Port	1	Clamp	2s	A
A: No degradation in the performance of the EUT was observed				

7.7 Voltage Dips and Interruptions

Test Requirement: EN IEC 55014-2: 2021

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

7.7.1 Test Setup Diagram



7.7.2 E.U.T. Operation

Operating Environment:

Temperature: 22.4 °C Humidity: 71.5 % RH Atmospheric Pressure: 1013 mbar

7.7.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Test the EUT in cooling mode, and adjust the EUT temperature at the lowest temperature position.
Final test	05	Test the EUT in heating mode, and adjust the EUT temperature at the highest temperature position.
Final test	06	Test the EUT in idle mode.

7.7.4 Test Condition and Results

Performance Criterion:

For 50Hz: 0% of UT (Rated Voltage) for 0.5 Cycle: C; 40% of UT for 10 Cycles: C; 70% of UT for 25 Cycles: C.

For 60Hz: 0% of UT (Rated Voltage) for 0.5 Cycle: C; 40% of UT for 12 Cycles: C; 70% of UT for 30 Cycles: C.

No. of Dips / Interruptions: 3 per Level

Time between dropout: 10s

Level % UT	Phase (deg)	Duration	No. of Dips / Interruptions	Result / Observations
0	0°	0.5 Cycle for 50Hz	3	A
0	180°	0.5 Cycle for 50Hz	3	A
40	0°	10 Cycles for 50Hz	3	A
40	180°	10 Cycles for 50Hz	3	A
70	0°	25 Cycles for 50Hz	3	A
70	180°	25 Cycles for 50Hz	3	A
A: No degradation in the performance of the EUT was observed				

8 Test Setup Photo

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

Conducted Emissions at Load Terminals and Additional Terminals

Disturbance Power

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Harmonic Current Emission

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Voltage Fluctuations and Flicker

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Discontinuous Disturbance (150kHz-30MHz)

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Electrostatic Discharge

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Electrical Fast Transients Burst at AC Mains Power Port

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Electrical Fast Transients Burst at Signal Port

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Surge at AC Mains Power Port

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Conducted Immunity at AC Mains Power Port (150kHz-230MHz)

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Conducted Immunity at Signal Port (150kHz-230MHz)

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Voltage Dips and Interruptions

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9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for GZCR2411001323HS

- End of the Report -

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