



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR250200040501

Page: 1 of 52

TEST REPORT

Application No.: SHCR2502000405HS
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: AUX AIR CONDITIONER CO., LTD.
Address of Factory: 1166 NORTH MINGGUANG ROAD, JIANGSHAN, YINZHOU, NINGBO, 315191 ZHEJIANG, CHINA

Equipment Under Test (EUT):

EUT Name: air conditioner
Model No.: BRAC-SP-IM1-24-R3-I/BRAC-SP-IM1-24-R3-O,
ASW-H24G3A4/MAR3DI-B9

Remark: Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

Standard(s) : EN 61000-3-3: 2013+ A1:2019+A2:2021
EN IEC 55014-1: 2021
EN IEC 61000-3-2: 2019+A1:2021
EN IEC 55014-2: 2021

Date of Receipt: 2023-09-04
Date of Test: 2023-09-14 to 2023-09-19
Date of Issue: 2025-02-27

Test Result:	Pass*
---------------------	--------------

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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Member of the SGS Group (SGS SA)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR250200040501

Page: 2 of 52

Revision Record			
Version	Description	Date	Remark
00	Co-license	2025-02-27	Base on SHCR231100244601 (Original Report No.: SHCR230900177101)

Authorized for issue by:				
Tested By		Bill Wu		
		Bill Wu/Project Engineer		
Approved By		Parlam Zhan		
		Parlam Zhan / Reviewer		

2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
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
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
Discontinuous Disturbance (150kHz-30MHz)		EN IEC 55014-1: 2021	Clause 4.4.2	Pass
Disturbance Power		CISPR 16-2-2:2010	Table 7 & 8	Pass
Harmonic Current Emission	EN IEC 61000-3-2: 2019+A1:2021	EN IEC 61000-3-2: 2019+A1:2021	Class A	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
Radiated Immunity (80MHz-1GHz)		EN IEC 61000-4-3: 2020	3V/m, 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 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-80MHz)		EN 61000-4-6: 2014	3Vrms (emf), 80%, 1kHz Amp. Mod.	Pass
Conducted Immunity at Signal Port (150kHz-80MHz)		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

Note1: There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model ASW-H24G3A4/MAR3DI-B9 was tested since their differences were the model number and appearance.

Note2: This report was an additional report copied from the report SHCR231100244601, just changing the model name, applicant, manufacturer and photos. Since the electrical circuit design, layout, components used and internal wiring for the model BRAC-SP-IM1-24-R3-I/BRAC-SP-IM1-24-R3-O in this report was exactly the same as the model ASW-H24G3A4/MAR3DI-B9 in the report SHCR231100244601.

3 Contents

	Page
1 COVER PAGE	1
2 TEST SUMMARY	3
3 CONTENTS	4
4 GENERAL INFORMATION	6
4.1 DETAILS OF E.U.T.	6
4.2 DESCRIPTION OF SUPPORT UNITS	6
4.3 MEASUREMENT UNCERTAINTY & DECISION RULE	6
4.4 TEST LOCATION.....	7
4.5 TEST FACILITY	7
4.6 DEVIATION FROM STANDARDS	7
4.7 ABNORMALITIES FROM STANDARD CONDITIONS	7
4.8 EMS MONITOR.....	7
5 EQUIPMENT LIST	8
6 EMISSION TEST RESULTS.....	13
6.1 VOLTAGE FLUCTUATIONS AND FLICKER	13
6.1.1 <i>E.U.T. Operation</i>	13
6.1.2 <i>Test Mode Description</i>	13
6.1.3 <i>Test Setup Diagram</i>	13
6.1.4 <i>Measurement Procedure and Data</i>	14
6.2 CONDUCTED EMISSIONS AT AC MAINS POWER PORT (150kHz-30MHz)	15
6.2.1 <i>E.U.T. Operation</i>	15
6.2.2 <i>Test Mode Description</i>	15
6.2.3 <i>Test Setup Diagram</i>	15
6.2.4 <i>Measurement Procedure and Data</i>	15
6.3 CONDUCTED EMISSIONS AT LOAD TERMINALS AND ADDITIONAL TERMINALS	20
6.3.1 <i>E.U.T. Operation</i>	20
6.3.2 <i>Test Mode Description</i>	20
6.3.3 <i>Test Setup Diagram</i>	20
6.3.4 <i>Measurement Procedure and Data</i>	21
6.4 DISCONTINUOUS DISTURBANCE (150kHz-30MHz).....	22
6.4.1 <i>E.U.T. Operation</i>	22
6.4.2 <i>Test Mode Description</i>	22
6.4.3 <i>Test Setup Diagram</i>	23
6.4.4 <i>Measurement Procedure and Data</i>	23
6.5 DISTURBANCE POWER	24
6.5.1 <i>E.U.T. Operation</i>	24
6.5.2 <i>Test Mode Description</i>	24
6.5.3 <i>Test Setup Diagram</i>	24
6.5.4 <i>Measurement Procedure and Data</i>	24
6.6 HARMONIC CURRENT EMISSION.....	27
6.6.1 <i>E.U.T. Operation</i>	27
6.6.2 <i>Test Mode Description</i>	27
6.6.3 <i>Test Setup Diagram</i>	27
6.6.4 <i>Measurement Procedure and Data</i>	27
7 IMMUNITY TEST RESULTS	30
7.1 ELECTROSTATIC DISCHARGE.....	31
7.1.1 <i>Test Setup Diagram</i>	31
7.1.2 <i>E.U.T. Operation</i>	31

7.1.3	Test Mode Description	31
7.1.4	Test Condition and Results:	31
7.2	RADIATED IMMUNITY (80MHZ-1GHZ)	33
7.2.1	Test Setup Diagram	33
7.2.2	E.U.T. Operation	33
7.2.3	Test Mode Description	33
7.2.4	Test Condition and Results:	33
7.3	ELECTRICAL FAST TRANSIENTS BURST AT AC MAINS POWER PORT	35
7.3.1	Test Setup Diagram	35
7.3.2	E.U.T. Operation	35
7.3.3	Test Mode Description	35
7.3.4	Test Condition and Results:	35
7.4	ELECTRICAL FAST TRANSIENTS BURST AT SIGNAL PORT	36
7.4.1	Test Setup Diagram	36
7.4.2	E.U.T. Operation	36
7.4.3	Test Mode Description	36
7.4.4	Test Condition and Results:	36
7.5	SURGE AT AC MAINS POWER PORT	37
7.5.1	Test Setup Diagram	37
7.5.2	E.U.T. Operation	37
7.5.3	Test Mode Description	37
7.5.4	Test Condition and Results:	37
7.6	CONDUCTED IMMUNITY AT AC MAINS POWER PORT (150KHZ-80MHZ)	39
7.6.1	Test Setup Diagram	39
7.6.2	E.U.T. Operation	39
7.6.3	Test Mode Description	39
7.6.4	Test Condition and Results:	39
7.7	CONDUCTED IMMUNITY AT SIGNAL PORT (150KHZ-80MHZ)	40
7.7.1	Test Setup Diagram	40
7.7.2	E.U.T. Operation	40
7.7.3	Test Mode Description	40
7.7.4	Test Condition and Results:	40
7.8	VOLTAGE DIPS AND INTERRUPTIONS	41
7.8.1	Test Setup Diagram	41
7.8.2	E.U.T. Operation	41
7.8.3	Test Mode Description	41
7.8.4	Test Condition and Results:	41
8	TEST SETUP PHOTO	43
9	EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)	51

4 General Information

4.1 Details of E.U.T.

Power supply:	AC 220-240V 50Hz
Test Voltage:	AC 230V 50Hz
Maximum clock frequency:	<30MHz

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty & Decision Rule

Measurement Uncertainty:

No.	Item	Measurement Uncertainty (U_{Lab})	U_{CISPR}
1	Conducted Emission at mains port using AMN	3.4dB (9kHz to 150kHz)	3.8dB (9kHz to 150kHz)
		2.9dB (150kHz to 30MHz)	3.4dB (150kHz to 30MHz)
2	Conducted Emission at mains port using VP	2.2dB (9kHz to 30MHz)	2.9dB (9kHz to 30MHz)
3	Conducted Emission at telecommunication port using AAN	4.6dB (150kHz to 30MHz)	5.0dB (150kHz to 30MHz)
4	Radiated Power	3.4dB (30MHz to 300MHz)	4.5dB (30MHz to 300MHz)
5	Radiated emission	5.7dB (30MHz-1GHz)	6.3dB (30MHz-1GHz)
		4.8dB (1GHz-6GHz)	5.2dB (1GHz-6GHz)
		5.0dB (6GHz-18GHz)	5.5dB (6GHz-18GHz)
6	Radiated disturbance (disturbance current in a LLAS)	2.6dB (9kHz to 30MHz)	3.3dB (9kHz to 30MHz)

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.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

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).
3. Sample source: sent by customer.

4.5 Test Facility

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

- **A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

- **FCC (Designation Number: CN1301)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

- **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.
Company Number: 8617A

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 EMS Monitor

Visual: Working status of EUT.

5 Equipment List

Voltage Fluctuations and Flicker					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Harmonic&Flicker analyzer	AMETEK	PACS-1	SHEM024-2	2023/8/01	2024/7/31
AC Power Source 5KVA	AMETEK	5001iX	SHEM025-2	2023/8/01	2024/7/31
Test Software	AMETEK	CTS4	Version: 4.24.0	N/A	N/A
Harmonic&Flicker analyzer	EM TEST	DPA500	SHEM024-1	2023/8/01	2024/7/31
AC Power Source 6KVA	EM TEST	ACS500	SHEM025-1	2023/8/01	2024/7/31
Test Software	EM TEST	DPA	Version: 5.4.8.0	N/A	N/A

Conducted Emissions at AC Mains Power Port (150kHz-30MHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2022/12/20	2023/12/19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2022/12/20	2023/12/19
Line impedance stabilization network	EMCO	3816_2	SHEM019-1	2022/12/20	2023/12/19
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2022/12/20	2023/12/19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2020/12/20	2023/12/19
CE test Cable	/	/	SHEM172-1	2022/12/20	2023/12/19
Test Software	ESE	e3	Version: 6.191211	N/A	N/A

Conducted Emissions at Load Terminals and Additional Terminals					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2022/12/20	2023/12/19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2022/12/20	2023/12/19
Line impedance stabilization network	EMCO	3816_2	SHEM019-1	2022/12/20	2023/12/19
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2022/12/20	2023/12/19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2020/12/20	2023/12/19
CE test Cable	/	/	SHEM172-1	2022/12/20	2023/12/19
Passive Voltage probe	Rohde & Schwarz	ESH2-Z3	SHEM028-1	2022/9/29	2023/9/28
Capacitive Voltage Probe	SCHWARZBECK	CVP9222 B	SHEM169-1	2023/8/01	2024/7/31
Current Probe	SCHWARZBECK	SW9605	SHEM170-1	2023/8/01	2024/7/31
Test Software	ESE	e3	Version: 6.191211	N/A	N/A

Discontinuous Disturbance (150kHz-30MHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Click analyzer	SCHAFFNER	DIA1512D	SHEM013-1	2022/12/20	2023/12/19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2022/12/20	2023/12/19

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR250200040501

Page: 9 of 52

Line impedance stabilization network	EMCO	3816_2	SHEM019-1	2022/12/20	2023/12/19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2020/12/20	2023/12/19
Test Software	SCHAFFNER	DIS9966	Version: 2.5	N/A	N/A

Disturbance Power

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2022/12/20	2023/12/19
Absorbing clamp	LUTHI	MDS21	SHEM014-1	2022/12/20	2023/12/19
DE coupling clamp	LUTHI	FTC101	SHEM027-2	N/A	N/A
Attenuator	HUAXIANG	TS2-6dB-2G-B	SHEM208-1	2022/12/20	2023/12/19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2020/12/20	2023/12/19
DP test Cable	/	/	SHEM179-1	2022/12/20	2023/12/19
Test Software	ESE	e3	Version: 6.191211	N/A	N/A

Harmonic Current Emission

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Harmonic&Flicker analyzer	AMETEK	PACS-1	SHEM024-2	2023/8/01	2024/7/31
AC Power Source 5KVA	AMETEK	5001iX	SHEM025-2	2023/8/01	2024/7/31
Test Software	AMETEK	CTS4	Version: 4.24.0	N/A	N/A
Harmonic&Flicker analyzer	EM TEST	DPA500	SHEM024-1	2023/8/01	2024/7/31
AC Power Source 6KVA	EM TEST	ACS500	SHEM025-1	2023/8/01	2024/7/31
Test Software	EM TEST	DPA	Version: 5.4.8.0	N/A	N/A

Electrostatic Discharge

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Electrostatic Discharge Simulator	TESEQ	NSG 437	SHEM041-2	2023/8/01	2024/7/31
Electrostatic Discharge Simulator	3CTEST	EDS20H	SHEM199-1	2022/12/20	2023/12/19

Radiated Immunity (80MHz-1GHz)

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMB100A	SHEM194-1	2022/12/20	2023/12/19
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2023/8/01	2024/7/31
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-3	2023/8/01	2024/7/31
Antenna	SCHWARZBECK	STLP9128D	SHEM130-1	N/A	N/A
Amplifier	MILMEGA	80RF1000-250	SHEM132-1	2022/12/20	2023/12/19
Power meter sensor	Rohde & Schwarz	NRP-Z22	SHEM136-1	2023/8/01	2024/7/31
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6105	SHEM134-1	2023/8/24	2024/8/23
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2023/5/6	2026/5/5
Test Software	Rohde & Schwarz	EMC32	Version: 10.20.01	N/A	N/A

Electrical Fast Transients Burst at AC Mains Power Port					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2022/12/20	2023/12/19
Test Software	EMC-PARTNER	GENECS	Version: 3.29	N/A	N/A
Immunity Test System	TESEQ	NSG 3060	SHEM224-1	2023/8/01	2024/7/31
Coupling / Decoupling Network (CDN)	TESEQ	CDN 3061	SHEM224-3	2023/8/01	2024/7/31
EFT & Surge Generator	PRIMA	PRM61045TB	SHEM200-1	2022/9/29	2023/9/28
CDN for EFT & Surge	PRIMA	PRM-CDN	SHEM200-2	2022/9/29	2023/9/28

Electrical Fast Transients Burst at Signal Port					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2022/12/20	2023/12/19
Test Software	EMC-PARTNER	GENECS	Version: 3.29	N/A	N/A
Immunity Test System	TESEQ	NSG 3060	SHEM224-1	2023/8/01	2024/7/31
Coupling / Decoupling Network (CDN)	TESEQ	CDN 3061	SHEM224-3	2023/8/01	2024/7/31
Capacitive Coupling Clamp	EM TEST	HFK	SHEM026-2	2022/12/20	2023/12/19
EFT & Surge Generator	PRIMA	PRM61045TB	SHEM200-1	2022/9/29	2023/9/28
CDN for EFT & Surge	PRIMA	PRM-CDN	SHEM200-2	2022/9/29	2023/9/28
Capacitive coupling clamp	PRIMA	EFT-CLAMP	SHEM200-4	2020/9/29	2023/9/28

Surge at AC Mains Power Port					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2022/12/20	2023/12/19
Test Software	EMC-PARTNER	GENECS	Version: 3.29	N/A	N/A
Immunity Test System	TESEQ	NSG 3060	SHEM224-1	2023/8/01	2024/7/31
Coupling / Decoupling Network (CDN)	TESEQ	CDN 3061	SHEM224-3	2023/8/01	2024/7/31
EFT & Surge Generator	PRIMA	PRM61045TB	SHEM200-1	2022/9/29	2023/9/28
CDN for EFT & Surge	PRIMA	PRM-CDN	SHEM200-2	2022/9/29	2023/9/28
CDN for unsymmetrical interconnection lines (1.2/50us)	SCHAFFNER	CDN 117	SHEM224-5	2023/8/01	2024/7/31
CDN for symmetric datalines & Resistor network (Surge 1.2/50 or 10/700 us)	SCHAFFNER	CDN 118 & INA172	SHEM224-6 & SHEM224-7	2023/8/01	2024/7/31

Conducted Immunity at AC Mains Power Port (150kHz-80MHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMB100A	SHEM194-1	2022/12/20	2023/12/19
Power Amplifier	HAEFFLY	PAMP250	SHEM023-1	2022/12/20	2023/12/19

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR250200040501

Page: 11 of 52

6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2022/12/20	2023/12/19
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2023/8/01	2024/7/31
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-3	2023/8/01	2024/7/31
Coupling and Decoupling Network (CDN)	LUTHI	L-801 M2/M3	SHEM023-6	2022/12/20	2023/12/19
Shielding Room	ZHONGYU	5*3*3M	SHEM079-6	2022/12/20	2025/12/19
Coupling and Decoupling Network	Teseq	CDN M016	SHEM168-1	2023/8/01	2024/7/31
RF Generator	SCHAFFNER	NSG 2070	SHEM221-1	2022/8/02	2024/8/01
Test Software	Rohde & Schwarz	EMC32	Version: 10.20.01	N/A	N/A

Conducted Immunity at Signal Port (150kHz-80MHz)

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMB100A	SHEM194-1	2022/12/20	2023/12/19
Power Amplifier	HAEFFLY	PAMP250	SHEM023-1	2022/12/20	2023/12/19
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2022/12/20	2023/12/19
Coupling clamp	LUTHI	EM 101	SHEM027-1	2023/06/05	2024/06/04
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2023/8/01	2024/7/31
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-3	2023/8/01	2024/7/31
Coupling and Decoupling Network (CDN)	LUTHI	L-801 M2/M3	SHEM023-6	2022/12/20	2023/12/19
Shielding Room	ZHONGYU	5*3*3M	SHEM079-6	2022/12/20	2025/12/19
Coupling and Decoupling Network	Teseq	CDN M016	SHEM168-1	2023/8/01	2024/7/31
RF Generator	SCHAFFNER	NSG 2070	SHEM221-1	2022/8/02	2024/8/01
Test Software	Rohde & Schwarz	EMC32	Version: 10.20.01	N/A	N/A

Voltage Dips and Interruptions

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2022/12/20	2023/12/19
Test Software	EMC-PARTNER	GENECS	Version: 3.29	N/A	N/A
Immunity Test System	TESEQ	NSG 3060	SHEM224-1	2023/8/01	2024/7/31
Coupling / Decoupling Network (CDN)	TESEQ	CDN 3061	SHEM224-3	2023/8/01	2024/7/31
Manual step transformer	TESEQ	INA 6501	SHEM224-4	2023/8/01	2024/7/31



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR250200040501

Page: 12 of 52

General used equipment					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Digital pressure meter	YONGZHI	DYM3-01	SHEM082-1	2021-01-22	2024-01-21
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-9~10	2022-12-31	2023-12-30
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-5	2023-07-23	2024-07-22
Digital Temperature& humidity recorder	Jianda Renke	RS-WS-N01-6J	SHEM247-1~8	2023-01-13	2024-01-12
Digital Multimeter	FLUKE	17B+	SHEM271-1	2023-07-19	2024-07-18
Autoformer regulator	Guangzhou bao de	TDGC2-5KVA	SHEM150-1	N/A	N/A
Multi-purpose tong tester	FLUKE	317	SHEM001-2	2022-11-14	2023-11-13

6 Emission Test Results

6.1 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

6.1.1 E.U.T. Operation

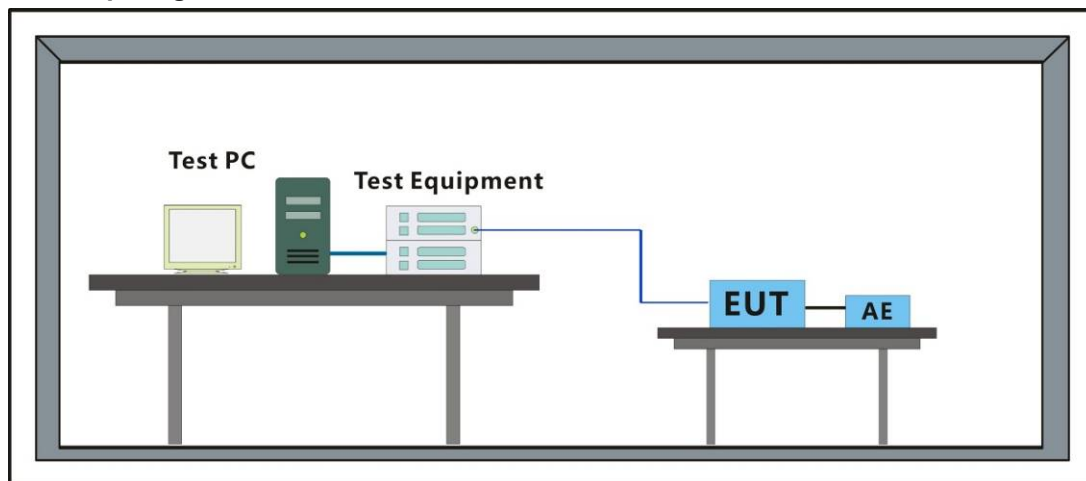
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be (30 ± 5) °C.
Pre-scan	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be (15 ± 5) °C.
Pre-scan	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Pre-scan	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Pre-scan	04	Idel mode_Keep the EUT in idle mode.

6.1.3 Test Setup Diagram



6.1.4 Measurement Procedure and Data

Maximum Flicker results

	EUT values	Limit	Result
Pst	0.160	1.00	PASS
Plt	0.143	0.65	PASS
dc [%]	0.082	3.30	PASS
dmax [%]	0.674	6.00	PASS
Tmax [s]	0.000	0.50	PASS

6.2 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

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C

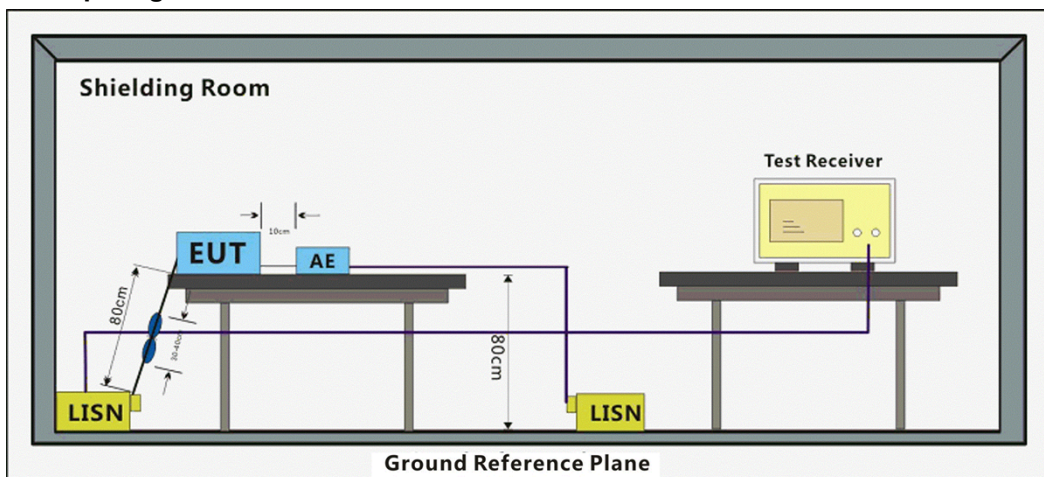
Humidity: 50 % RH

Atmospheric Pressure: 1010 mbar

6.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be (30 ± 5) °C.
Pre-scan	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be (15 ± 5) °C.
Pre-scan	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Pre-scan	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Pre-scan	04	Idle mode_Keep the EUT in idle mode.

6.2.3 Test Setup Diagram



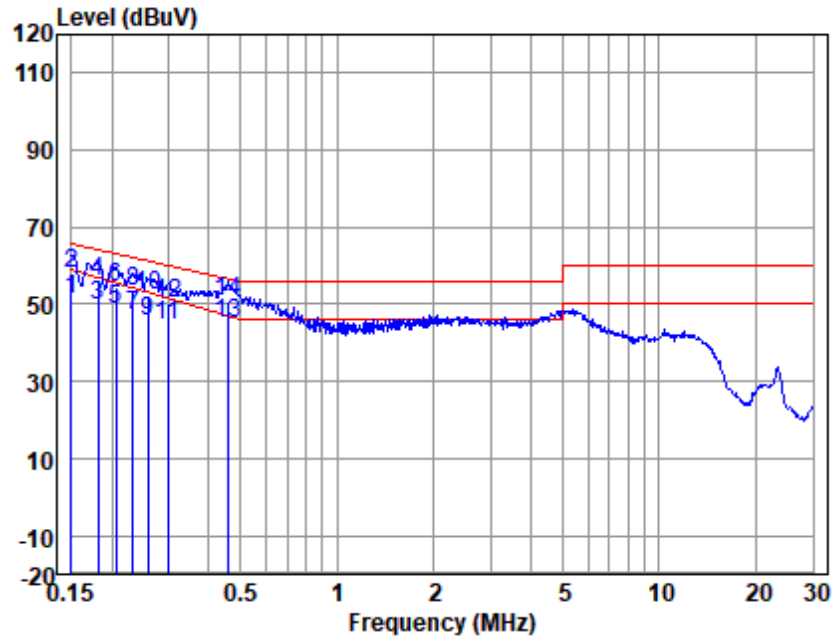
6.2.4 Measurement Procedure and Data

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 + LISN Factor

Test Mode: 00; Line: Live line

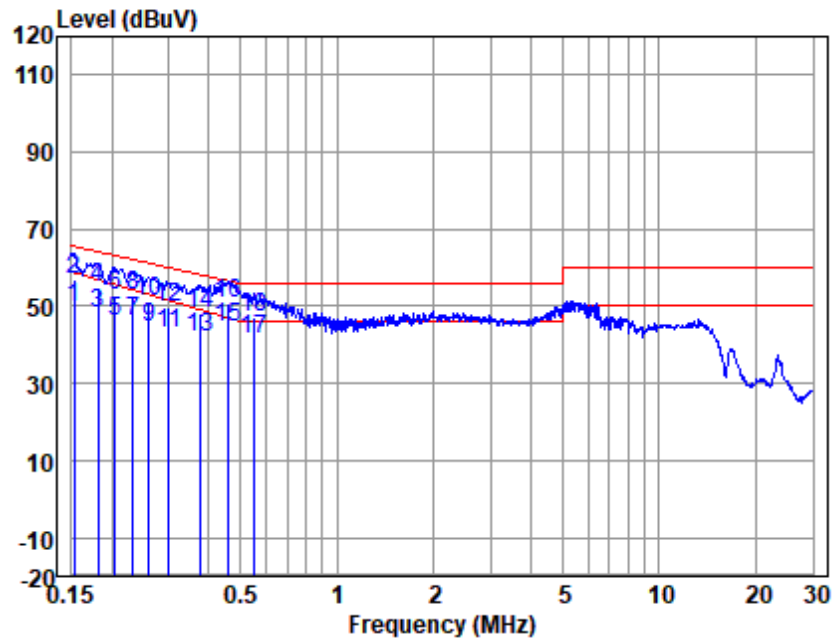


LISN : LINE
EUT/Project No : 01771HS
Test Mode : 00

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.15	41.05	0.40	9.87	51.32	59.00	-7.68	Average
2	0.15	47.99	0.40	9.87	58.26	66.00	-7.74	QP
3	0.18	39.32	0.40	9.87	49.59	56.94	-7.35	Average
4	0.18	45.46	0.40	9.87	55.73	64.42	-8.69	QP
5	0.21	38.28	0.39	9.87	48.54	55.57	-7.03	Average
6	0.21	44.29	0.39	9.87	54.55	63.36	-8.81	QP
7	0.23	36.92	0.37	9.87	47.16	54.25	-7.09	Average
8	0.23	43.24	0.37	9.87	53.48	62.35	-8.87	QP
9	0.26	35.55	0.34	9.87	45.76	53.11	-7.35	Average
10	0.26	42.24	0.34	9.87	52.45	61.47	-9.02	QP
11	0.30	34.16	0.31	9.87	44.34	51.56	-7.22	Average
12	0.30	40.29	0.31	9.87	50.47	60.28	-9.81	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss

Test Mode: 00; Line: Neutral Line



LISN : NEUTRAL
EUT/Project No : 01771HS
Test Mode : 00

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.15	39.74	0.34	9.87	49.95	58.83	-8.88	Average
2	0.15	46.92	0.34	9.87	57.13	65.87	-8.74	QP
3	0.18	38.01	0.31	9.87	48.19	56.94	-8.75	Average
4	0.18	44.48	0.31	9.87	54.66	64.42	-9.76	QP
5	0.20	35.75	0.30	9.87	45.92	55.68	-9.76	Average
6	0.20	42.75	0.30	9.87	52.92	63.45	-10.53	QP
7	0.23	35.74	0.30	9.87	45.91	54.25	-8.34	Average
8	0.23	42.59	0.30	9.87	52.76	62.35	-9.59	QP
9	0.26	34.34	0.30	9.87	44.51	53.05	-8.54	Average
10	0.26	41.26	0.30	9.87	51.43	61.42	-9.99	QP
11	0.30	32.87	0.30	9.87	43.04	51.51	-8.47	Average
12	0.30	39.79	0.30	9.87	49.96	60.24	-10.28	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR250200040501

Page: 19 of 52

Test Mode: 00; Line: Neutral Line

	Freq	Read	LISN	Cable	Emission		Over	
	(MHz)	level	Factor	Loss	Level	Limit	Limit	Remark
		(dBuV)	(dB)	(dB)	(dBuV)	(dBuV)	(dB)	
13	0.38	32.04	0.30	9.87	42.21	49.05	-6.84	Average
14	0.38	38.09	0.30	9.87	48.26	58.34	-10.08	QP
15	0.46	34.38	0.30	9.86	44.54	46.99	-2.45	Average
16	0.46	40.48	0.30	9.86	50.64	56.76	-6.12	QP
17	0.55	31.08	0.30	9.86	41.24	46.00	-4.76	Average
18	0.55	36.87	0.30	9.86	47.03	56.00	-8.97	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss

6.3 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 voltage limits

0.15MHz – 0.5MHz 80dB(μV) quasi-peak, 70dB(μV) average

0.5MHz – 30MHz 74dB(μV) quasi-peak, 64dB(μV) average

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

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

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C

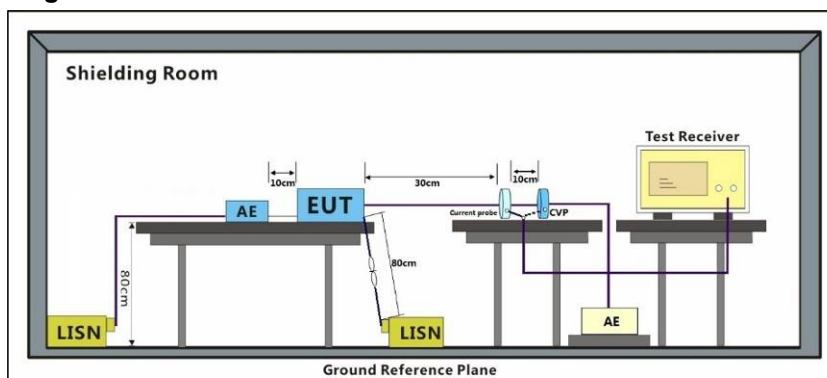
Humidity: 50 % RH

Atmospheric Pressure: 1010 mbar

6.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be (30 ± 5) °C.
Pre-scan	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be (15 ± 5) °C.
Pre-scan	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Pre-scan	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Pre-scan	04	Idle mode_Keep the EUT in idle mode.

6.3.3 Test Setup Diagram



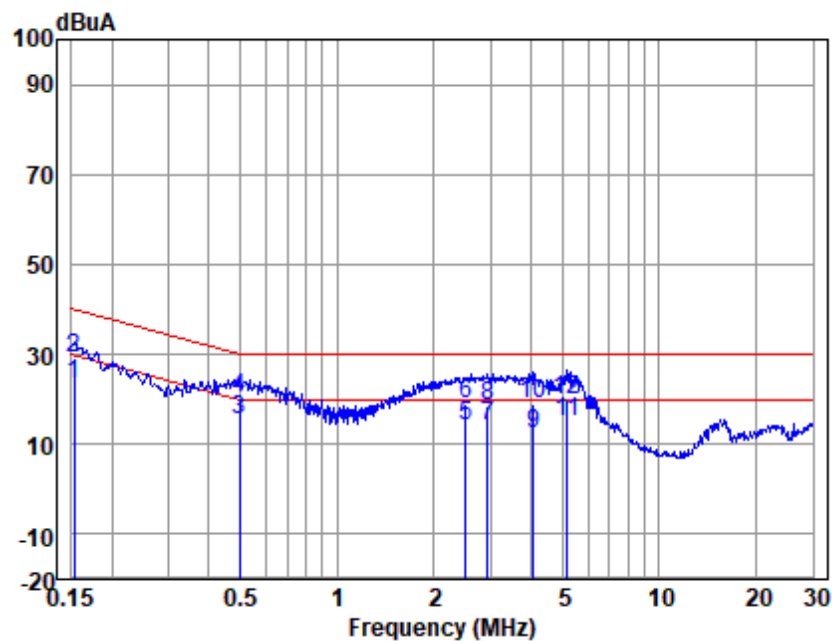
6.3.4 Measurement Procedure and Data

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: 00



Current Probe : SW 9605

EUT/Project No : 01771HS

Test Mode : 00

	Freq (MHz)	Read level (dBuV)	SW Factor (dBS)	Cable Loss (dB)	Emission Level (dBuA)	Limit (dBuA)	Over Limit (dB)	Remark
1	0.15	12.97	0.57	9.87	23.41	29.87	-6.46	Average
2	0.15	18.54	0.57	9.87	28.98	39.87	-10.89	QP
3	0.50	5.68	-0.10	9.86	15.44	20.01	-4.57	Average
4	0.50	10.65	-0.10	9.86	20.41	30.01	-9.60	QP
5	2.50	4.51	-0.10	9.87	14.28	20.00	-5.72	Average
6	2.50	9.15	-0.10	9.87	18.92	30.00	-11.08	QP
7	2.93	4.18	-0.10	9.87	13.95	20.00	-6.05	Average
8	2.93	8.94	-0.10	9.87	18.71	30.00	-11.29	QP
9	4.07	2.42	-0.10	9.88	12.20	20.00	-7.80	Average
10	4.07	9.20	-0.10	9.88	18.98	30.00	-11.02	QP
11	5.19	5.14	-0.10	9.97	15.01	20.00	-4.99	Average
12	5.19	10.15	-0.10	9.97	20.02	30.00	-9.98	QP

Notes: Emission Level = Read Level + SW Factor + Cable loss

6.4 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	$N \leq 5$
2	$N < 0,2$	$L_q^b = L^a + 44$	Clicks $^c \leq 25\%$ exceed L_q^b
3	$30 > N \geq 0,2$	$L_q^b = L^a + 20 \lg(30/N)$	Clicks $^c \leq 25\%$ 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 L_q 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 L_q			

6.4.1 E.U.T. Operation

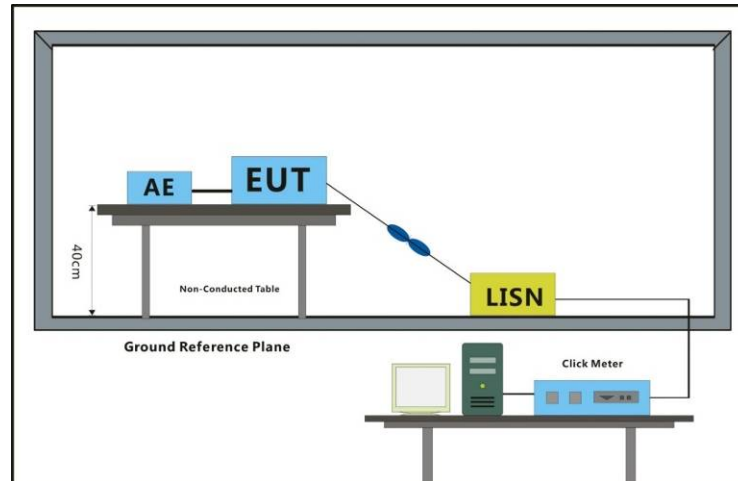
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

6.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be (30 ± 5) °C.
Pre-scan	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be (15 ± 5) °C.
Pre-scan	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Pre-scan	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Pre-scan	04	Idel mode_Keep the EUT in idle mode.

6.4.3 Test Setup Diagram



6.4.4 Measurement Procedure and Data

Frequency Range: 150kHz to 30MHz

Run A Observation time T1= 120mins				
Switching Operation: -			Factor: -	
Frequency (MHz)	150kHz	500kHz	1.4MHz	30MHz
Limit value (L) (dBμV)	66	56	56	60
Short clicks	1	1	0	0
long clicks	0	0	0	0
Total (short + long) n	1	1	0	0
Click Rate:	0.01	0.01	0.00	0.00
☒ EUT has a click rate N of not more than five and which has instantaneous switching (the duration of each click is less than 10ms) shall be deemed to comply the limits, independent of the amplitude of the clicks.				

6.5 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

6.5.1 E.U.T. Operation

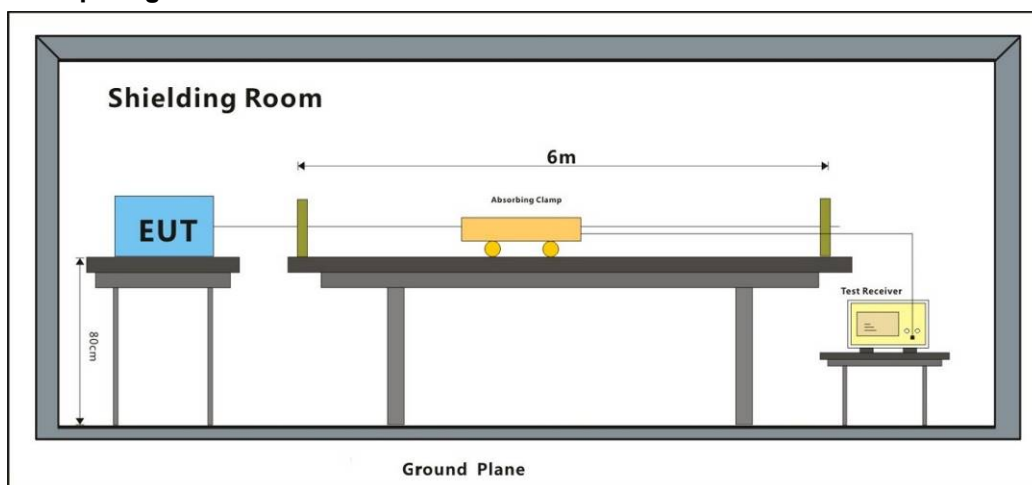
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

6.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be $(30 \pm 5) ^\circ\text{C}$.
Pre-scan	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be $(15 \pm 5) ^\circ\text{C}$.
Pre-scan	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Pre-scan	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Pre-scan	04	Idel mode_Keep the EUT in idle mode.

6.5.3 Test Setup Diagram



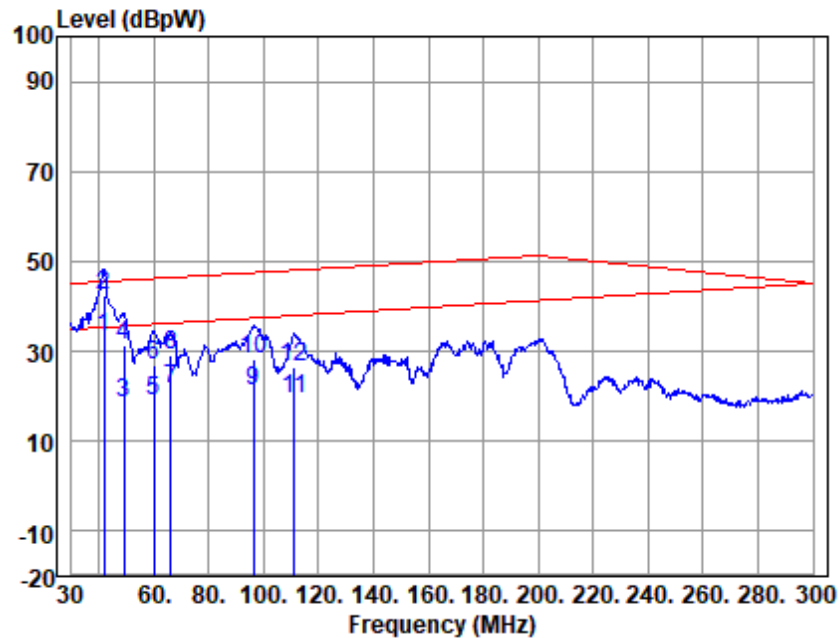
6.5.4 Measurement Procedure and Data

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: 00



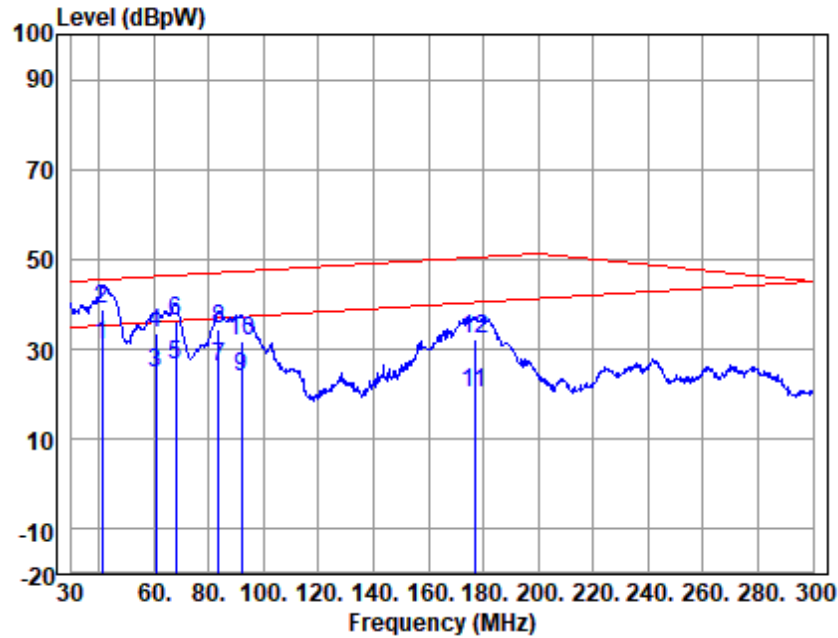
EUT/Project No : 01771HS

Test Mode : 00

	Freq (MHz)	Read level (dBpW)	Aux Factor (dB)	Cable Loss (dB)	Emission Level (dBpW)	Limit (dBpW)	Over Limit (dB)	Remark
1	41.88	8.19	18.21	6.80	33.20	35.45	-2.25	Average
2	41.88	17.39	18.21	6.80	42.40	45.45	-3.05	QP
3	49.17	-4.99	16.73	6.88	18.62	35.72	-17.10	Average
4	49.17	7.73	16.73	6.88	31.34	45.72	-14.38	QP
5	59.97	-5.15	17.20	7.00	19.05	36.12	-17.07	Average
6	59.97	2.81	17.20	7.00	27.01	46.12	-19.11	QP
7	66.18	-2.30	17.01	7.06	21.77	36.35	-14.58	Average
8	66.18	5.05	17.01	7.06	29.12	46.35	-17.23	QP
9	96.15	-2.71	16.75	7.36	21.40	37.46	-16.06	Average
10	96.15	4.25	16.75	7.36	28.36	47.46	-19.10	QP
11	111.27	-4.90	16.80	7.49	19.39	38.02	-18.63	Average
12	111.27	2.26	16.80	7.49	26.55	48.02	-21.47	QP

Notes: Emission Level = Read Level +Aux Factor + Cable loss

Test Mode: 00



EUT/Project No : 01771HS

Test Mode : 00(s)

	Freq (MHz)	Read level (dBpW)	Aux Factor (dB)	Cable Loss (dB)	Emission Level (dBpW)	Limit (dBpW)	Over Limit (dB)	Remark
1	41.07	6.08	18.03	6.80	30.91	35.42	-4.51	Average
2	41.07	14.06	18.03	6.80	38.89	45.42	-6.53	QP
3	60.78	0.44	17.18	7.01	24.63	36.15	-11.52	Average
4	60.78	9.58	17.18	7.01	33.77	46.15	-12.38	QP
5	67.80	2.67	16.96	7.08	26.71	36.41	-9.70	Average
6	67.80	12.04	16.96	7.08	36.08	46.41	-10.33	QP
7	83.73	1.69	17.19	7.24	26.12	37.00	-10.88	Average
8	83.73	9.87	17.19	7.24	34.30	47.00	-12.70	QP
9	91.83	-0.39	16.92	7.32	23.85	37.30	-13.45	Average
10	91.83	7.56	16.92	7.32	31.80	47.30	-15.50	QP
11	176.88	-2.11	14.49	8.02	20.40	40.45	-20.05	Average
12	176.88	9.57	14.49	8.02	32.08	50.45	-18.37	QP

Notes: Emission Level = Read Level +Aux Factor + Cable loss

6.6 Harmonic Current Emission

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

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

6.6.1 E.U.T. Operation

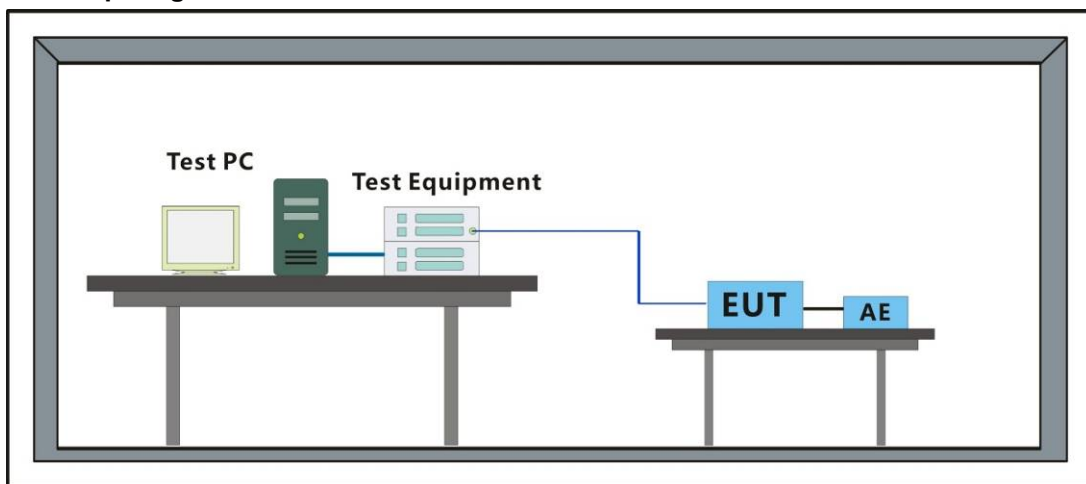
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

6.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be (30 ± 5) °C.
Pre-scan	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be (15 ± 5) °C.
Pre-scan	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Pre-scan	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Pre-scan	04	Idle mode_Keep the EUT in idle mode.

6.6.3 Test Setup Diagram



6.6.4 Measurement Procedure and Data

Frequency Range: 100Hz to 2kHz



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR250200040501

Page: 28 of 52

Highest parameter values during test:

V_RMS (Volts): 230.24
I_Peak (Amps): 16.006
I_Fund (Amps): 9.420
Power (Watts): 2150.0

Frequency(Hz): 50.00
I_RMS (Amps): 9.500
Crest Factor: 1.806
Power Factor: 0.988

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.004	1.080	N/A	0.005	1.620	N/A	Pass
3	0.401	2.300	17.5	0.473	3.450	13.7	Pass
4	0.003	0.430	N/A	0.004	0.645	N/A	Pass
5	0.262	1.140	22.9	0.284	1.710	16.6	Pass
6	0.002	0.300	N/A	0.005	0.450	N/A	Pass
7	0.209	0.770	27.2	0.218	1.155	18.9	Pass
8	0.002	0.230	N/A	0.005	0.345	N/A	Pass
9	0.129	0.400	32.2	0.140	0.600	23.4	Pass
10	0.003	0.184	N/A	0.004	0.276	N/A	Pass
11	0.182	0.330	55.2	0.186	0.495	37.5	Pass
12	0.003	0.153	N/A	0.005	0.230	N/A	Pass
13	0.022	0.210	N/A	0.028	0.315	N/A	Pass
14	0.002	0.131	N/A	0.004	0.197	N/A	Pass
15	0.111	0.150	74.2	0.117	0.225	51.9	Pass
16	0.002	0.115	N/A	0.004	0.173	N/A	Pass
17	0.086	0.132	65.0	0.093	0.198	47.2	Pass
18	0.002	0.102	N/A	0.005	0.153	N/A	Pass
19	0.036	0.118	N/A	0.049	0.178	N/A	Pass
20	0.002	0.092	N/A	0.006	0.138	N/A	Pass
21	0.079	0.107	73.9	0.087	0.161	53.9	Pass
22	0.002	0.084	N/A	0.004	0.125	N/A	Pass
23	0.053	0.098	N/A	0.060	0.147	N/A	Pass
24	0.002	0.077	N/A	0.004	0.115	N/A	Pass
25	0.049	0.090	N/A	0.055	0.135	N/A	Pass
26	0.002	0.071	N/A	0.003	0.107	N/A	Pass
27	0.057	0.083	N/A	0.061	0.125	N/A	Pass
28	0.002	0.066	N/A	0.005	0.099	N/A	Pass
29	0.030	0.078	N/A	0.037	0.116	N/A	Pass
30	0.004	0.061	N/A	0.005	0.092	N/A	Pass
31	0.029	0.073	N/A	0.035	0.109	N/A	Pass
32	0.003	0.058	N/A	0.004	0.086	N/A	Pass
33	0.036	0.068	N/A	0.043	0.102	N/A	Pass
34	0.004	0.054	N/A	0.008	0.081	N/A	Pass
35	0.024	0.064	N/A	0.043	0.096	N/A	Pass
36	0.004	0.051	N/A	0.011	0.077	N/A	Pass
37	0.030	0.061	N/A	0.056	0.091	N/A	Pass
38	0.004	0.048	N/A	0.010	0.073	N/A	Pass
39	0.025	0.058	N/A	0.030	0.087	N/A	Pass
40	0.003	0.046	N/A	0.005	0.069	N/A	Pass

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



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR250200040501

Page: 29 of 52

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.056	0.460	12.21	OK
3	0.482	2.071	23.25	OK
4	0.072	0.460	15.74	OK
5	0.062	0.921	6.77	OK
6	0.037	0.460	7.99	OK
7	0.065	0.691	9.45	OK
8	0.017	0.460	3.66	OK
9	0.056	0.460	12.20	OK
10	0.027	0.460	5.95	OK
11	0.070	0.230	30.26	OK
12	0.030	0.230	12.84	OK
13	0.028	0.230	12.19	OK
14	0.010	0.230	4.41	OK
15	0.056	0.230	24.36	OK
16	0.009	0.230	4.13	OK
17	0.061	0.230	26.65	OK
18	0.012	0.230	5.15	OK
19	0.032	0.230	14.08	OK
20	0.013	0.230	5.73	OK
21	0.062	0.230	27.11	OK
22	0.005	0.230	2.04	OK
23	0.052	0.230	22.53	OK
24	0.005	0.230	2.33	OK
25	0.045	0.230	19.49	OK
26	0.005	0.230	2.14	OK
27	0.053	0.230	22.85	OK
28	0.007	0.230	3.02	OK
29	0.040	0.230	17.51	OK
30	0.007	0.230	2.94	OK
31	0.037	0.230	16.08	OK
32	0.006	0.230	2.71	OK
33	0.046	0.230	20.15	OK
34	0.005	0.230	2.32	OK
35	0.029	0.230	12.49	OK
36	0.006	0.230	2.60	OK
37	0.041	0.230	18.01	OK
38	0.006	0.230	2.82	OK
39	0.039	0.230	17.10	OK
40	0.009	0.230	3.88	OK

7 Immunity Test Results

Performance Criteria Description

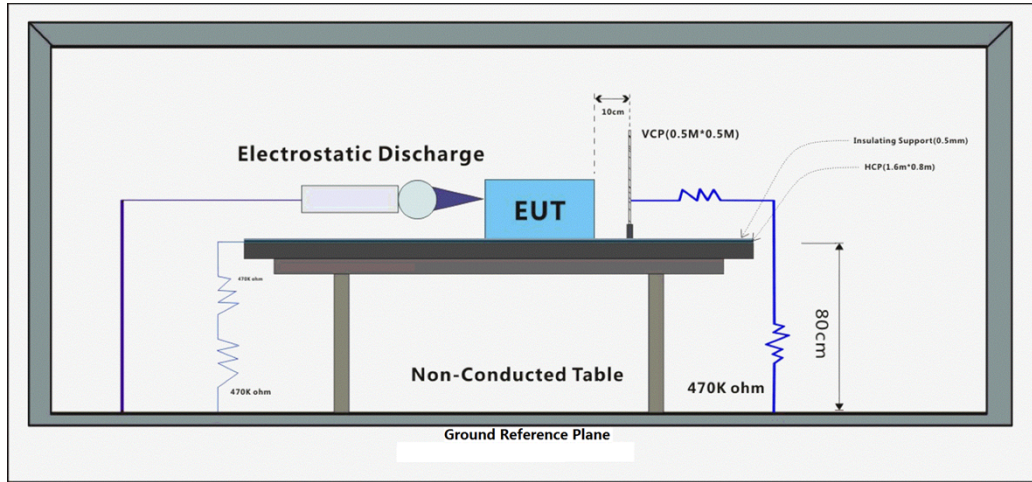
- Criterion A:** The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance 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 °C

Humidity: 50 % RH

Atmospheric Pressure: 1010 mbar

7.1.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be (30 ± 5) °C.
Final test	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be (15 ± 5) °C.
Final test	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Final test	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Final test	04	Idle mode_Keep 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.



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR250200040501

Page: 32 of 52

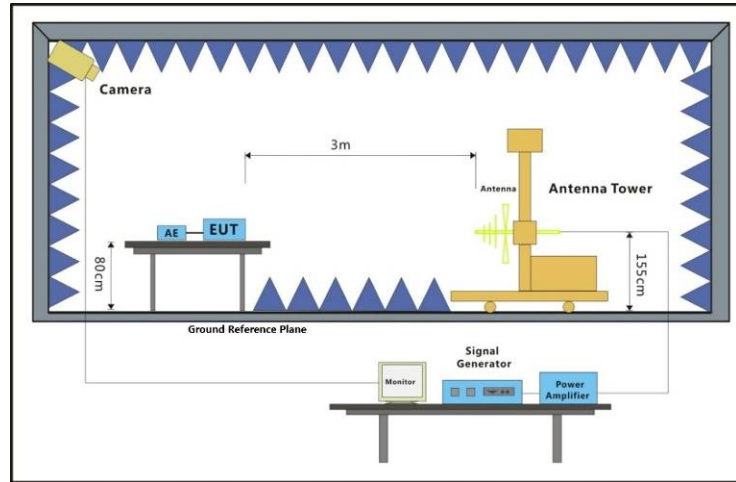
Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	8	+	1	A
Air Discharge	8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A
A: No degradation in the performance of the EUT was observed				

7.2 Radiated Immunity (80MHz-1GHz)

Test Requirement: EN IEC 55014-2: 2021

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

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C

Humidity: 50 % RH

Atmospheric Pressure: 1010 mbar

7.2.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be $(30 \pm 5) ^\circ\text{C}$.
Final test	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be $(15 \pm 5) ^\circ\text{C}$.
Final test	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Final test	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Final test	04	Idle mode_Keep the EUT in idle mode.

7.2.4 Test Condition and Results:

Performance Criterion: A

Frequency Range: 80MHz to 1GHz

Antenna Polarisation: Vertical and Horizontal

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



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR250200040501

Page: 34 of 52

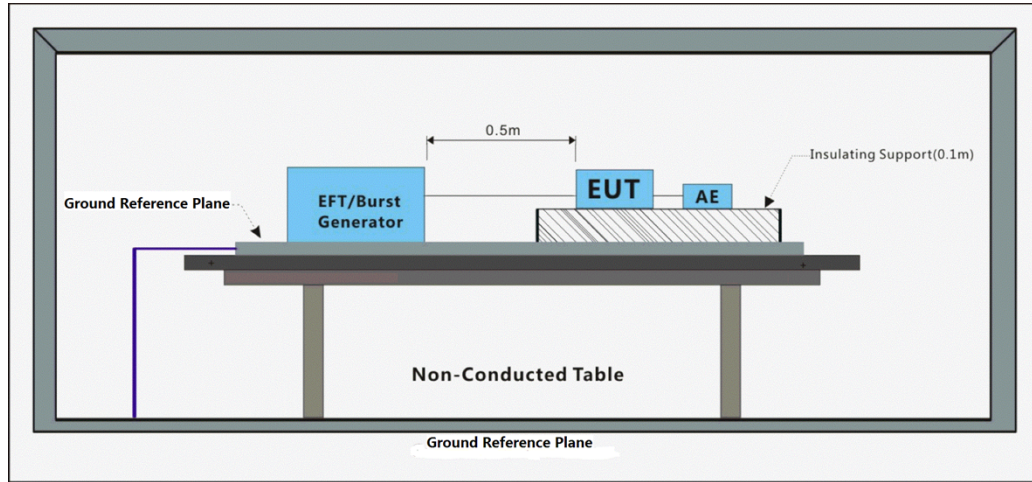
Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	3	Front	3s	A
80MHz-1GHz	3	Back	3s	A
80MHz-1GHz	3	Left	3s	A
80MHz-1GHz	3	Right	3s	A
80MHz-1GHz	3	Top	3s	A
80MHz-1GHz	3	Underside	3s	A
A: No degradation in the performance of the EUT was observed				

7.3 Electrical Fast Transients Burst at AC Mains Power 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 °C

Humidity: 50 % RH

Atmospheric Pressure: 1010 mbar

7.3.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be $(30 \pm 5) ^\circ\text{C}$.
Final test	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be $(15 \pm 5) ^\circ\text{C}$.
Final test	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Final test	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Final test	04	Idle mode_Keep 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: 1.0kV

Polarity: Positive & Negative

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

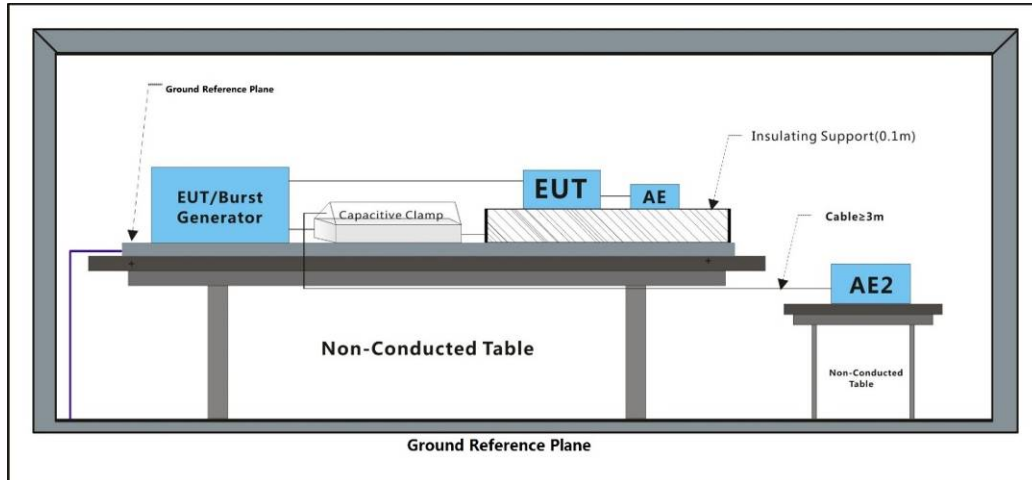
A: No degradation in the performance of the EUT was observed

7.4 Electrical Fast Transients Burst at Signal Port

Test Requirement: EN IEC 55014-2: 2021

Test Method: EN 61000-4-4:2012

7.4.1 Test Setup Diagram



7.4.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C

Humidity: 50 % RH

Atmospheric Pressure: 1010 mbar

7.4.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be $(30 \pm 5) ^\circ\text{C}$.
Final test	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be $(15 \pm 5) ^\circ\text{C}$.
Final test	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Final test	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Final test	04	Idle mode_Keep the EUT in idle mode.

7.4.4 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	CDN/Clamp	Result / Observations
Signal	0.5	+	Clamp	A
Signal	0.5	-	Clamp	A

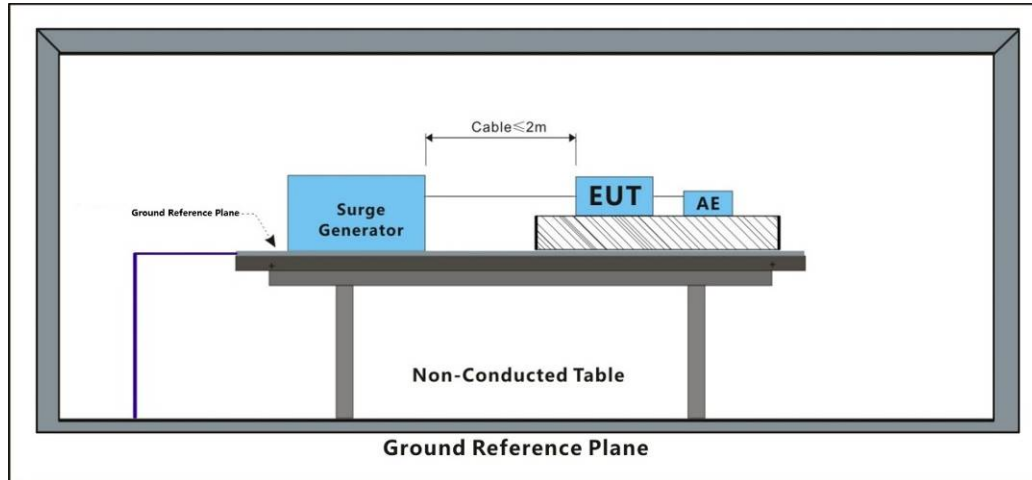
A: No degradation in the performance of the EUT was observed

7.5 Surge at AC Mains Power Port

Test Requirement: EN IEC 55014-2: 2021

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: 22 °C

Humidity: 50 % RH

Atmospheric Pressure: 1010 mbar

7.5.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be $(30 \pm 5) ^\circ\text{C}$.
Final test	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be $(15 \pm 5) ^\circ\text{C}$.
Final test	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Final test	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Final test	04	Idle mode_Keep the EUT in idle mode.

7.5.4 Test Condition and Results:

Performance Criterion: B

Interval: 60s between each surge

Test Level: $\pm 1\text{kV}$ Live to Neutral; $\pm 2\text{kV}$ 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° .



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR250200040501

Page: 38 of 52

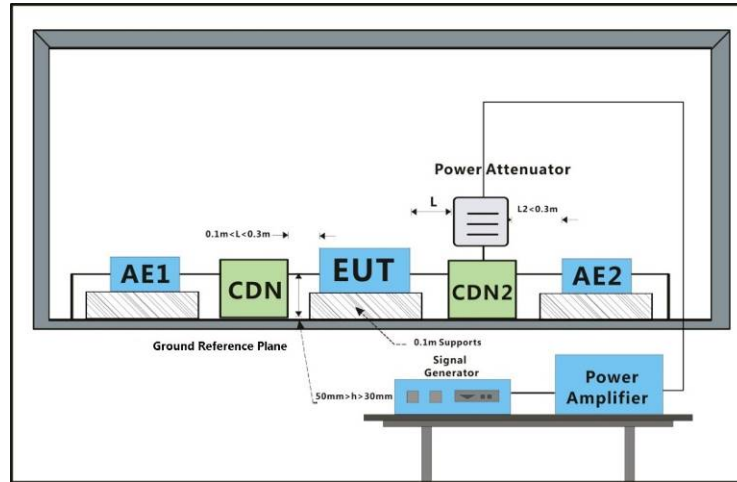
Test Line	Level (kV)	Polarity	Phase (deg)	Result / Observations
L-N	1	+	90°	A
L-N	1	-	270°	A
L-PE	2	+	90°	A
L-PE	2	-	270°	A
N-PE	2	+	90°	A
N-PE	2	-	270°	A
A: No degradation in the performance of the EUT was observed				

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

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 °C

Humidity: 50 % RH

Atmospheric Pressure: 1010 mbar

7.6.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be $(30 \pm 5) ^\circ\text{C}$.
Final test	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be $(15 \pm 5) ^\circ\text{C}$.
Final test	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Final test	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Final test	04	Idle mode_Keep the EUT in idle mode.

7.6.4 Test Condition and Results:

Performance Criterion: A

Step Size: 1%

Frequency Range: 0.15MHz to 80MHz

Modulation: 80%, 1kHz Amplitude Modulation

Cable Port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
AC power port	3	CDN	3s	A

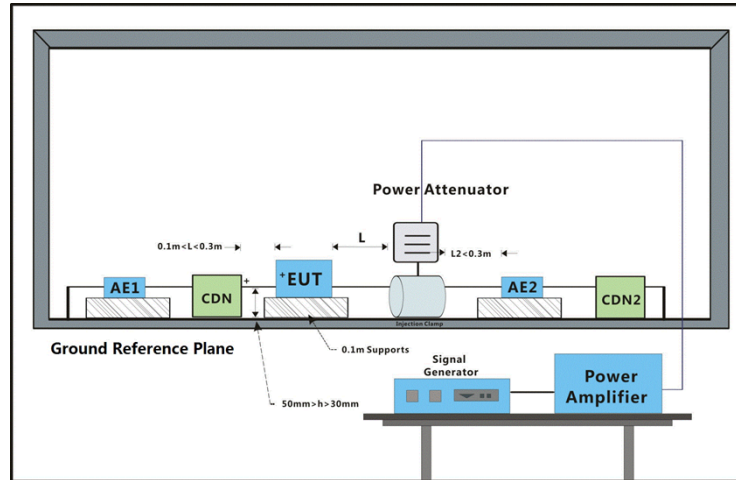
A: No degradation in the performance of the EUT was observed

7.7 Conducted Immunity at Signal Port (150kHz-80MHz)

Test Requirement: EN IEC 55014-2: 2021

Test Method: EN 61000-4-6: 2014

7.7.1 Test Setup Diagram



7.7.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C

Humidity: 50 % RH

Atmospheric Pressure: 1020 mbar

7.7.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be $(30 \pm 5) ^\circ\text{C}$.
Final test	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be $(15 \pm 5) ^\circ\text{C}$.
Final test	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Final test	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Final test	04	Idle mode_Keep the EUT in idle mode.

7.7.4 Test Condition and Results:

Performance Criterion: A

Step Size: 1%

Frequency Range: 0.15MHz to 80MHz

Modulation: 80%, 1kHz Amplitude Modulation

Port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
Signal Port	1	Clamp	3s	A

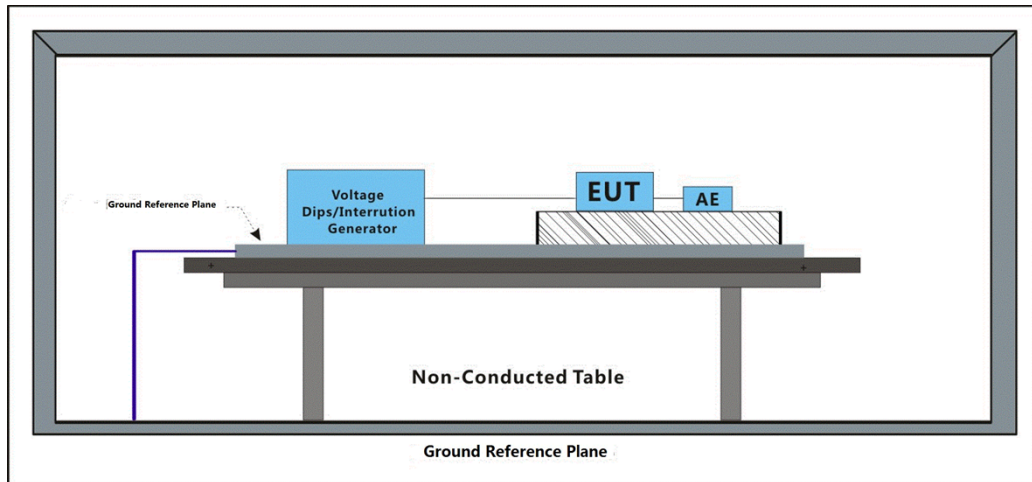
A: No degradation in the performance of the EUT was observed

7.8 Voltage Dips and Interruptions

Test Requirement: EN IEC 55014-2: 2021

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

7.8.1 Test Setup Diagram



7.8.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C

Humidity: 50 % RH

Atmospheric Pressure: 1010 mbar

7.8.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Cooling mode_Keep the EUT temperature controller setting at the lowest position ,The ambient temperature for EUT shall be $(30 \pm 5) ^\circ\text{C}$.
Final test	01	Heating mode_Keep the EUT temperature controller setting at the highest position ,The ambient temperature for EUT shall be $(15 \pm 5) ^\circ\text{C}$.
Final test	02	Dehumidification mode_Keep the EUT in dehumidification mode.
Final test	03	Fan mode_Keep the EUT in fan mode, keep swinging at high speed.
Final test	04	Idle mode_Keep the EUT in idle mode.

7.8.4 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



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR250200040501

Page: 42 of 52

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

Voltage Fluctuations and Flicker



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



Conducted Emissions at Load Terminals and Additional Terminals



Discontinuous Disturbance (150kHz-30MHz)



Disturbance Power



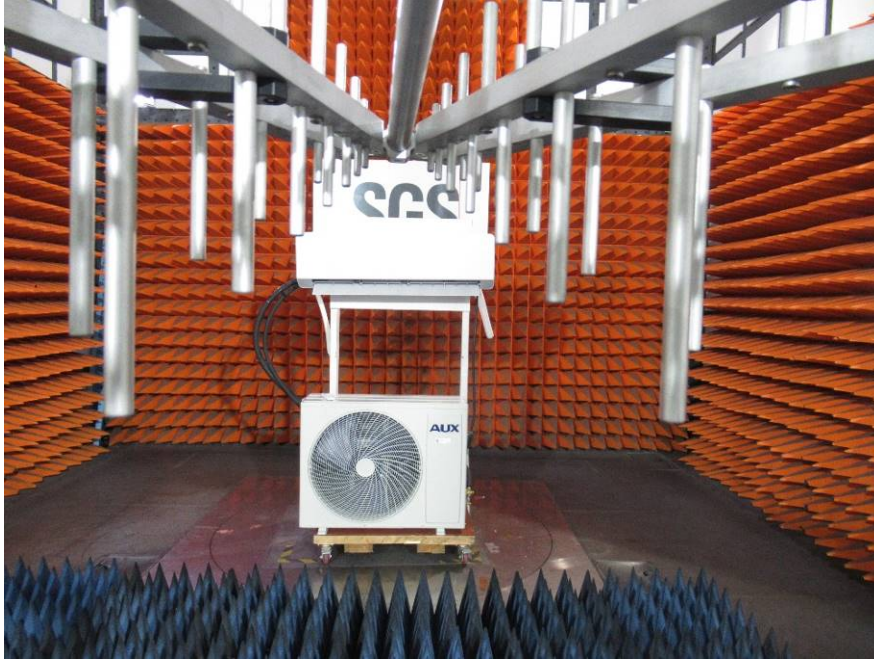
Harmonic Current Emission



Electrostatic Discharge



Radiated Immunity (80MHz-1GHz)



Electrical Fast Transients Burst at AC Mains Power Port



Electrical Fast Transients Burst at Signal Port



Surge at AC Mains Power Port



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



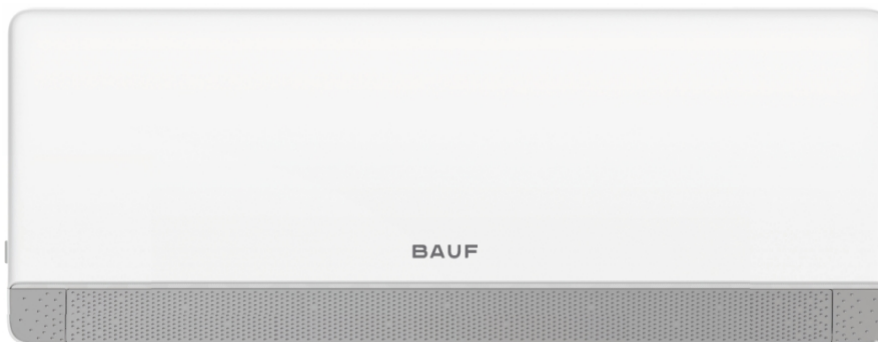
Conducted Immunity at Signal Port (150kHz-80MHz)

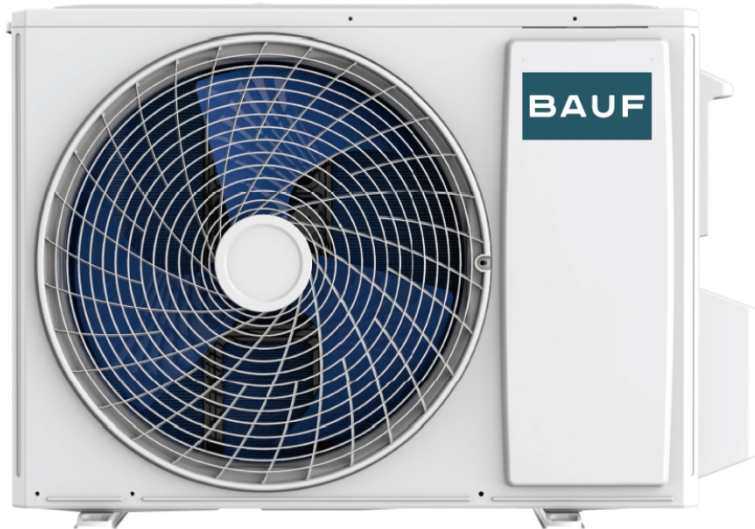


Voltage Dips and Interruptions



9 EUT Constructional Details (EUT Photos)





- End of the Report -