TEST REPORT

Application No.:	SHEM2505003149MI
Applicant:	Acrel Co.,Ltd
Address of Applicant:	No.253, Yulv Road, Jiading, Shanghai, China
Manufacturer:	Acrel Co.,Ltd
Address of Manufacturer:	No.253, Yulv Road, Jiading, Shanghai, China
Factory:	Jiangsu Acrel Electrical Manufacturing Co., Ltd.
Address of Factory:	No.5 Dongmeng Road, Nanzha, Jiangyin, Jiangsu, China
Equipment Under Test (EUT):	
EUT Name:	Energy Meters
Model No.:	ADL200-NK, ADL200-NK/F
Remark:	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standard(s) :	EN IEC 61326-1: 2021
Date of Receipt:	2025-05-14
Date of Test:	2025-05-15 to 2025-05-19
Date of Issue:	2025-05-23
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

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2025-05-23	/

Authorized for issue by:				
Tested By		Sunny Zhou		
		Sunny Zhou/Project Engineer		
Approved By		Parlam Zhan		
		Parlam Zhan / Reviewer		

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2 Test Summary

Emission Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Emissions at AC Mains Power Port (150kHz-30MHz)	EN IEC 61326-1: 2021	EN 55011:2016+A2:2021	Group 1 Class B	Pass
Radiated Emission (30MHz-1GHz)		EN 55011:2016+A2:2021	Group 1 Class B	Pass
Harmonic Current Emission		EN IEC 61000-3-2:2019+A1:2021+A2:2024	Class A	N/A
Voltage Fluctuations and Flicker		EN 61000-3-3:2013+A1:2019+A2:2021	Clause 5	Pass

N/A: Not applicable, please refer to section 6.3 of this report for more details.

Immunity Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Electrostatic Discharge	EN IEC 61326-1: 2021	EN 61000-4-2:2009	4kV Contact Discharge, 8kV Air Discharge	Pass
Radiated Immunity (80MHz-1GHz,1.4GHz-6GHz)		EN IEC 61000-4-3: 2020	10V/m 80MHz to 1GHz, 3V/m 1.4GHz to 6GHz, Modulation: 1kHz,80% Amp. Mod, 1% increment	Pass
Electrical Fast Transients Burst at AC Mains Power Port		EN 61000-4-4:2012	2kV,5/50ns Tr/Td,5kHz Repetition Frequency	Pass
Electrical Fast Transients&Burst at Signal Port		EN 61000-4-4:2012	2kV,5/50ns Tr/Td,5kHz Repetition Frequency	Pass
Conducted Immunity at AC Mains Power Port (150kHz-80MHz)		EN 61000-4-6:2014	3 Vrms: 0.15MHz - 80MHz,80%,1kHz Amp. Mod.	Pass
Conducted Immunity at Signal Port (150kHz-80MHz)		EN 61000-4-6:2014	3 Vrms: 0.15MHz - 80MHz,80%,1kHz Amp. Mod.	Pass
Surge at AC Mains Power Port		EN 61000-4-5:2014 +A1:2017	1.2/50μs Tr/Td, 1.0kV Line to Line, 2.0kV Line to Ground	Pass
Surge at Signal Port		EN 61000-4-5:2014 +A1:2017	1.2/50μs Tr/Td, 1.0kV Line to Line, 2.0kV Line to Ground	Pass
Power Frequency Magnetic Field		EN 61000-4-8:2010	50Hz, 60Hz 30A/m	Pass
Voltage Dips and Interruptions		EN IEC 61000-4-11:2020	0% of UT (Supply Voltage) for 1 Cycle; 40% of UT for 10 Cycles; 0% of UT for 250 Cycles; 70% of UT for 25 Cycles;	Pass

Note: There are series models mentioned in this report and they are the similar in electrical and electronic characters. Only the model ADL200-NK was tested since their differences were model number.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

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 Conducted Emissions at AC Mains Power Port (150kHz-30MHz) 13
6.1.1 E.U.T. Operation 13
6.1.2 Test Mode Description 13
6.1.3 Test Setup Diagram 13
6.1.4 Measurement Procedure and Data 13
6.2 Radiated Emission (30MHz-1GHz) 16
6.2.1 E.U.T. Operation 16
6.2.2 Test Mode Description 16
6.2.3 Test Setup Diagram 16
6.2.4 Measurement Procedure and Data 16
6.3 Harmonic Current Emission 19
6.4 Voltage Fluctuations and Flicker 20
6.4.1 E.U.T. Operation 20
6.4.2 Test Mode Description 20
6.4.3 Test Setup Diagram 20
6.4.4 Measurement Procedure and Data 20

7 Immunity Test Results 21

7.1 Electrostatic Discharge 22
7.1.1 Test Setup Diagram 22
7.1.2 E.U.T. Operation 22
7.1.3 Test Mode Description 22
7.1.4 Test Condition and Results: 22
7.2 Radiated Immunity (80MHz-1GHz,1.4GHz-6GHz) 24
7.2.1 Test Setup Diagram 24
7.2.2 E.U.T. Operation 24
7.2.3 Test Mode Description 24
7.2.4 Test Condition and Results: 24
7.3 Electrical Fast Transients Burst at AC Mains Power Port 26
7.3.1 Test Setup Diagram 26
7.3.2 E.U.T. Operation 26
7.3.3 Test Mode Description 26
7.3.4 Test Condition and Results: 26
7.4 Electrical Fast Transients&Burst at Signal Port 27
7.4.1 Test Setup Diagram 27

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7.4.2 E.U.T. Operation 27
7.4.3 Test Mode Description 27
7.4.4 Test Condition and Results: 27
7.5 Conducted Immunity at AC Mains Power Port (150kHz-80MHz) 28
7.5.1 Test Setup Diagram 28
7.5.2 E.U.T. Operation 28
7.5.3 Test Mode Description 28
7.5.4 Test Condition and Results: 28
7.6 Conducted Immunity at Signal Port (150kHz-80MHz) 29
7.6.1 Test Setup Diagram 29
7.6.2 E.U.T. Operation 29
7.6.3 Test Mode Description 29
7.6.4 Test Condition and Results: 29
7.7 Surge at AC Mains Power Port 30
7.7.1 Test Setup Diagram 30
7.7.2 E.U.T. Operation 30
7.7.3 Test Mode Description 30
7.7.4 Test Condition and Results: 30
7.8 Surge at Signal Port 32
7.8.1 Test Setup Diagram 32
7.8.2 E.U.T. Operation 32
7.8.3 Test Mode Description 32
7.8.4 Test Condition and Results: 32
7.9 Power Frequency Magnetic Field 33
7.9.1 Test Setup Diagram 33
7.9.2 E.U.T. Operation 33
7.9.3 Test Mode Description 33
7.9.4 Test Condition and Results: 33
7.10 Voltage Dips and Interruptions 34
7.10.1 Test Setup Diagram 34
7.10.2 E.U.T. Operation 34
7.10.3 Test Mode Description 34
7.10.4 Test Condition and Results: 34

8 Test Setup Photo 35

9 EUT Constructional Details (EUT Photos) 42

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

4 General Information

4.1 Details of E.U.T.

Power supply:	AC230V 50/60Hz Test voltage:AC230V/50Hz Sample No.: SHEM2505003149MI-M1

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	LENOVO	L460	-

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.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

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: Monitor the work status

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

5 Equipment List

Conducted Emissions at AC Mains Power Port (150kHz-30MHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2024/12/18	2025/12/17
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2024/12/18	2025/12/17
Line impedance stabilization network	EMCO	3816_2	SHEM019-1	2024/12/18	2025/12/17
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2024/12/18	2025/12/17
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2023/12/19	2026/12/18
CE test Cable	/	9kHz-30MHz	SHEM172-2	2024/12/18	2025/12/17
Passive Voltage probe	Rohde & Schwarz	ESH2-Z3	SHEM028-2	2024/12/18	2025/12/17
Capacitive Voltage Probe	SCHWARZBECK	CVP9222 B	SHEM169-1	2024/07/31	2025/07/30
Current Probe	SCHWARZBECK	SW9605	SHEM170-1	2024/07/31	2025/07/30
Test Software	ESE	e3	Version: 6.191211	N/A	N/A
3 Phase LISN	SCHWARZBECK	NNLK 8129 RC	SHME035-4	2024/09/19	2025/09/18
3 Phase LISN	Beijing Kehuan	KH3765-100	SHEM292-1	2024/07/31	2025/07/30

Radiated Emission (30MHz-1GHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2024/12/18	2025/12/17
EMI test receiver	Rohde & Schwarz	ESR7	SHEM201-1	2024/07/31	2025/07/30
CONTROLLER	INNCO	CO2000	SHEM047-1	N/A	N/A
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A
Broadband UHF-VHF ANTENNA	SCHWARZBECK	VULB9168	SHEM048-1	2023/09/03	2025/09/02
Broadband UHF-VHF ANTENNA	SCHWARZBECK	VULB9168	SHEM202-1	2025/04/12	2027/04/11
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2023/05/06	2026/05/05
Pre-amplifier	HP	8447D	SHEM236-1	2024/12/18	2025/12/17
Pre-amplifier	HP	8447D	SHEM143-1	2024/12/18	2025/12/17
RE test Cable	/	/	SHEM217-2	2024/12/18	2025/12/17
Test Software	ESE	e3	Version: 6.191211	N/A	N/A
Semi/Fully Anechoic	TIANDE	9*6*6M	SHEM198-1	2024/05/06	2027/05/05

Harmonic Current Emission					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Harmonic&Flicker analyzer	AMETEK	PACS-1	SHEM024-2	2024/07/31	2025/07/30
AC Power Source 5KVA	AMETEK	5001iX	SHEM025-2	2024/07/31	2025/07/30
Test Software	AMETEK	CTS4	Version: 4.24.0	N/A	N/A
Harmonic&Flicker	EM TEST	DPA500	SHEM024-1	2024/07/31	2025/07/30

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

analyzer					
AC Power Source 6KVA	EM TEST	ACS500	SHEM025-1	2024/07/31	2025/07/30
Test Software	EM TEST	DPA	Version: 5.4.8.0	N/A	N/A
Harmonic & Flicker test system	DEWETRON	DEWE2-A4	SHEM274-1	2024/07/31	2025/07/30

Voltage Fluctuations and Flicker					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Harmonic&Flicker analyzer	AMETEK	PACS-1	SHEM024-2	2024/07/31	2025/07/30
AC Power Source 5KVA	AMETEK	5001iX	SHEM025-2	2024/07/31	2025/07/30
Test Software	AMETEK	CTS4	Version: 4.24.0	N/A	N/A
Harmonic&Flicker analyzer	EM TEST	DPA500	SHEM024-1	2024/07/31	2025/07/30
AC Power Source 6KVA	EM TEST	ACS500	SHEM025-1	2024/07/31	2025/07/30
Test Software	EM TEST	DPA	Version: 5.4.8.0	N/A	N/A
Harmonic & Flicker test system	DEWETRON	DEWE2-A4	SHEM274-1	2024/07/31	2025/07/30

Electrostatic Discharge					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Electrostatic Discharge Simulator	TESEQ	NSG 437	SHEM041-2	2024/07/31	2025/07/30
Electrostatic Discharge Simulator	3CTEST	EDS20H	SHEM199-1	2024/12/18	2025/12/17
Electrostatic discharge simulator	EM TEST	dito	SHEM289-1	2025/02/10	2026/02/09

Radiated Immunity (80MHz-1GHz,1.4GHz-6GHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Signal generator	Rohde & Schwarz	SMB100A	SHEM141-1	2024/12/18	2025/12/17
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2024/07/31	2025/07/30
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-4	2024/07/31	2025/07/30
Antenna	SCHWARZBECK	STLP9128D	SHEM130-1	N/A	N/A
Antenna	SCHWARZBECK	STLP9149	SHEM131-1	N/A	N/A
Amplifier	MILMEGA	AS0840-55-55	SHEM133-1	2024/12/18	2025/12/17
Amplifier	MILMEGA	80RF1000-250	SHEM132-1	2024/12/18	2025/12/17
Amplifier	Rohde & Schwarz	BBA150-E60	SHEM171-1	2024/12/18	2025/12/17
Power meter sensor	Rohde & Schwarz	NRP-Z22	SHEM136-1	2024/07/31	2025/07/30
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6105	SHEM134-1	2024/08/16	2025/08/15
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2023/05/06	2026/05/05
Test Software	Rohde & Schwarz	EMC32	Version: 10.20.01	N/A	N/A
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-5	2024/12/18	2025/12/17

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

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	2024/12/18	2025/12/17
Test Software	EMC-PARTNER	GENECS	Version: 3.29	N/A	N/A
Immunity Test System	TESEQ	NSG 3060	SHEM224-1	2024/07/31	2025/07/30
Coupling / Decoupling Network (CDN)	TESEQ	CDN 3061	SHEM224-3	2024/07/31	2025/07/30
EFT & Surge Generator	PRIMA	PRM61045TB	SHEM200-1	2024/09/27	2025/09/26
CDN for EFT & Surge	PRIMA	PRM-CDN	SHEM200-2	2024/09/27	2025/09/26

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	2024/12/18	2025/12/17
Test Software	EMC-PARTNER	GENECS	Version: 3.29	N/A	N/A
Immunity Test System	TESEQ	NSG 3060	SHEM224-1	2024/07/31	2025/07/30
Coupling / Decoupling Network (CDN)	TESEQ	CDN 3061	SHEM224-3	2024/07/31	2025/07/30
Capacitive Coupling Clamp	EM TEST	HFK	SHEM026-2	2024/12/18	2025/12/17
EFT & Surge Generator	PRIMA	PRM61045TB	SHEM200-1	2024/09/27	2025/09/26
CDN for EFT & Surge	PRIMA	PRM-CDN	SHEM200-2	2024/09/27	2025/09/26
Capacitive coupling clamp	PRIMA	EFT-CLAMP	SHEM200-4	2024/12/18	2025/12/17

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	SHEM141-1	2024/12/18	2025/12/17
Power Amplifier	HAEFFLY	PAMP250	SHEM023-1	2024/12/18	2025/12/17
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2024/12/18	2025/12/17
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2024/07/31	2025/07/30
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-4	2024/07/31	2025/07/30
Coupling and Decoupling Network (CDN)	LUTHI	L-801 M1	SHEM023-5	2024/12/18	2025/12/17
Coupling and Decoupling Network (CDN)	LUTHI	L-801 M2/M3	SHEM023-6	2024/12/18	2025/12/17
Shielding Room	ZHONGYU	5*3*3M	SHEM079-6	2022/12/20	2025/12/19
Coupling and Decoupling Network	Teseq	CDN M016	SHEM168-1	2024/07/31	2025/07/30
Test Software	Rohde & Schwarz	EMC32	Version: 10.20.01	N/A	N/A
CDN	TESEQ	CDN M532	SHEM250-3	2024/12/18	2025/12/17
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-5	2024/12/18	2025/12/17
Current Injection Probe	PRANA	IP-DR250	SHEM273-1	2024/12/18	2025/12/17
Test System for	TESEQ	NSG 4070	SHEM295-1	2024/12/18	2025/12/17

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Conducted Immunity					

Conducted Immunity at Signal Port (150kHz-80MHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Signal generator	Rohde & Schwarz	SMB100A	SHEM141-1	2024/12/18	2025/12/17
Power Amplifier	HAEFFLY	PAMP250	SHEM023-1	2024/12/18	2025/12/17
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2024/12/18	2025/12/17
Coupling clamp	LUTHI	EM 101	SHEM027-1	2025/04/30	2026/04/29
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2024/07/31	2025/07/30
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-4	2024/07/31	2025/07/30
Shielding Room	ZHONGYU	5*3*3M	SHEM079-6	2022/12/20	2025/12/19
Test Software	Rohde & Schwarz	EMC32	Version: 10.20.01	N/A	N/A
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-5	2024/12/18	2025/12/17
Current Injection Probe	PRANA	IP-DR250	SHEM273-1	2024/12/18	2025/12/17
Test System for Conducted Immunity	TESEQ	NSG 4070	SHEM295-1	2024/12/18	2025/12/17

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	2024/12/18	2025/12/17
Test Software	EMC-PARTNER	GENECS	Version: 3.29	N/A	N/A
Immunity Test System	TESEQ	NSG 3060	SHEM224-1	2024/07/31	2025/07/30
Coupling / Decoupling Network (CDN)	TESEQ	CDN 3061	SHEM224-3	2024/07/31	2025/07/30
EFT & Surge Generator	PRIMA	PRM61045TB	SHEM200-1	2024/09/27	2025/09/26
CDN for EFT & Surge	PRIMA	PRM-CDN	SHEM200-2	2024/09/27	2025/09/26

Surge 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	2024/12/18	2025/12/17
Test Software	EMC-PARTNER	GENECS	Version: 3.29	N/A	N/A
Immunity Test System	TESEQ	NSG 3060	SHEM224-1	2024/07/31	2025/07/30
Coupling / Decoupling Network (CDN)	TESEQ	CDN 3061	SHEM224-3	2024/07/31	2025/07/30
EFT & Surge Generator	PRIMA	PRM61045TB	SHEM200-1	2024/09/27	2025/09/26
CDN for EFT & Surge	PRIMA	PRM-CDN	SHEM200-2	2024/09/27	2025/09/26
Data coupling network 4 line	EM TEST	CNV 504	SHEM026-3	2024/12/18	2025/12/17
Telecom surge (10 / 700us) extension unit	TESEQ	NSG 3060-TS-EXT	SHEM224-2	2024/07/31	2025/07/30
CDN for unsymmetrical interconnection lines (1.2/50us)	SCHAFFNER	CDN 117	SHEM224-5	2024/07/31	2025/07/30
CDN for symmetric datalines & Resistor	SCHAFFNER	CDN 118 &	SHEM224-6 &	2024/07/31	2025/07/30

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

network (Surge 1.2/50 or 10/700 us)		INA172	SHEM224-7		

Power Frequency Magnetic Field					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Compliance Test System	AMETEK	PACS-1	SHEM024-2	2024/07/31	2025/07/30
AC Power Source 5KVA	AMETEK	5001iX	SHEM025-2	2024/07/31	2025/07/30
Current transformer for magnetic field coil	EM TEST	MC2630	SHEM026-7	2025/04/30	2026/04/29
Current transformer for magnetic field coil	EM TEST	MC26100	SHEM026-8	2025/04/30	2026/04/29
Magnetic field coil	EM TEST	MS100	SHEM026-9	2025/04/30	2026/04/29

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	2024/12/18	2025/12/17
Test Software	EMC-PARTNER	GENECS	Version: 3.29	N/A	N/A
Immunity Test System	TESEQ	NSG 3060	SHEM224-1	2024/07/31	2025/07/30
Coupling / Decoupling Network (CDN)	TESEQ	CDN 3061	SHEM224-3	2024/07/31	2025/07/30
Manual step transformer	TESEQ	INA 6501	SHEM224-4	2024/07/31	2025/07/30
3 phase voltage dips & interruptions simulator	LIONCEL	VDS-1132A & TGL-332	SHME143-1～SHME143-4	2025/04/30	2026/04/29

General used equipment					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Atmospheric Pressure Meter	Nanjing XiangRuiDe	DYM3	SHEM082-2	2024-01-18	2027-01-17
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-9~10	2024-12-22	2025-12-21
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-5	2024-07-13	2025-07-12
Digital Temperature& humidity recorder	Jianda Renke	RS-WS-N01-6J	SHEM247-1~8	2025-01-06	2026-01-05
Digital Multimeter	FLUKE	17B+	SHEM271-7	2024-07-13	2025-07-12
Autoformer regulator	Guangzhou bao de	TDGC2-5KVA	SHEM150-1	N/A	N/A
Multi-purpose tong tester	FLUKE	317	SHEM001-2	2024-10-30	2025-10-29

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

6 Emission Test Results

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

Test Requirement: EN IEC 61326-1: 2021

Test Method: EN 55011:2016+A2:2021

Limit:

0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

6.1.1 E.U.T. Operation

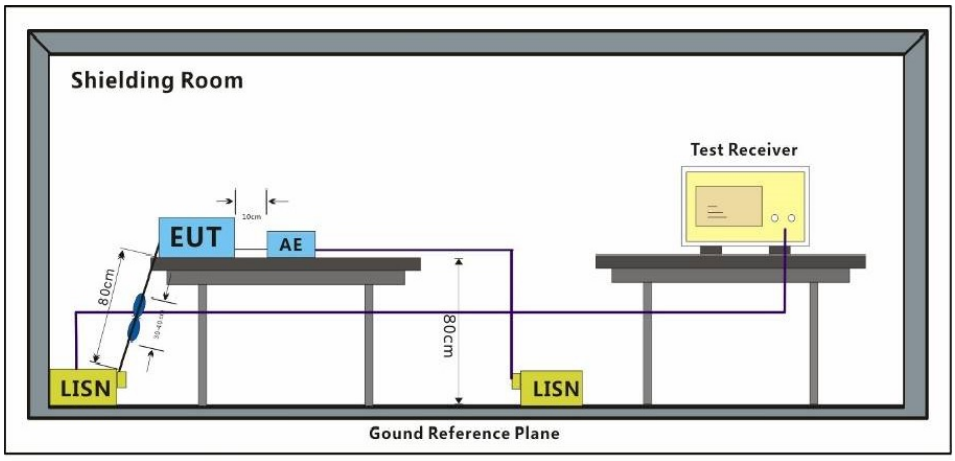
Operating Environment:

Temperature: 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	Measuring mode:Keep the EUT measuring continual

6.1.3 Test Setup Diagram



6.1.4 Measurement Procedure and Data

Frequency range: 150kHz-30MHz

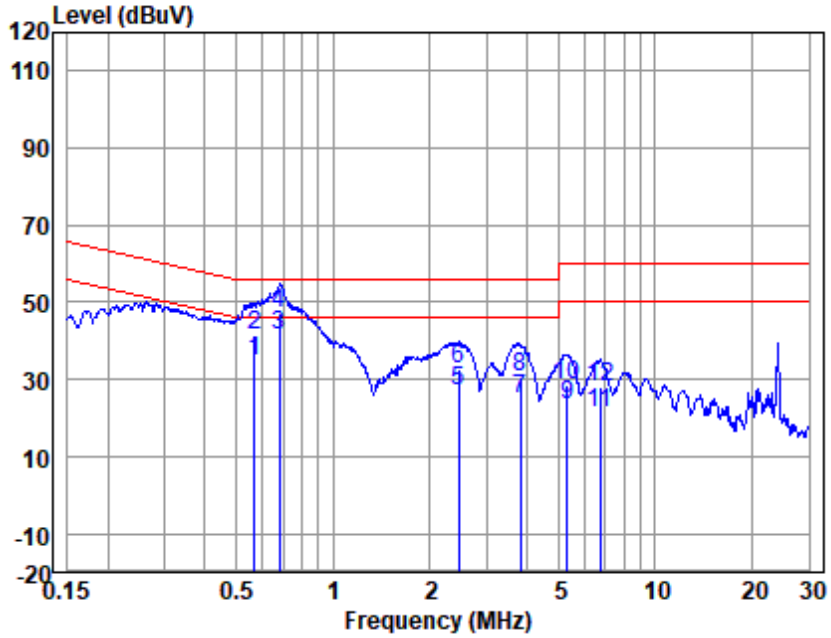
An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

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

Measured Level = Read level + Cable Loss + LISN Factor

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Test Mode: 00; Line: Live line



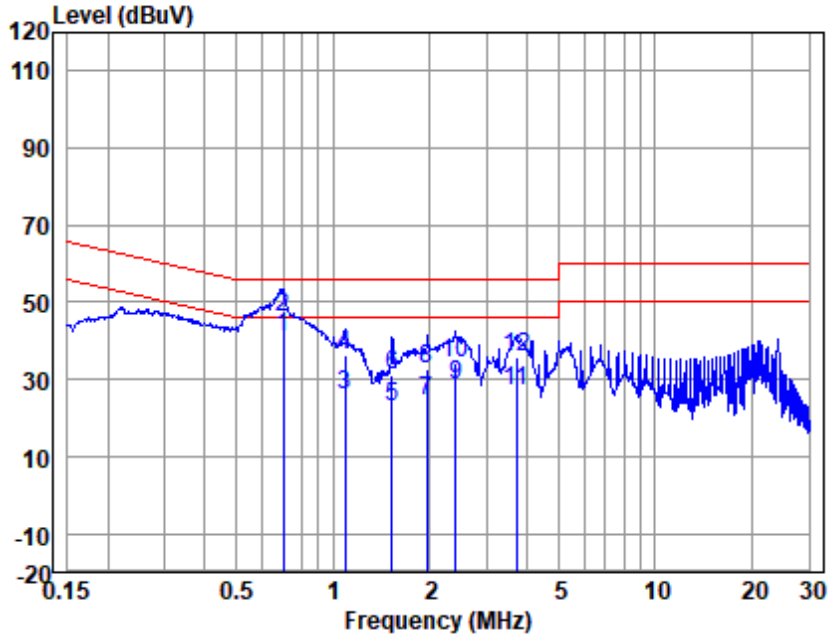
LISN : LINE
EUT/Project No : 3149MI
Test Mode : 00

	Freq	Read level	LISN Factor	Cable Loss	Emission Level	Limit	Over Limit	Remark
	(MHz)	(dBuV)	(dB)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.57	24.53	0.30	9.90	34.73	46.00	-11.27	Average
2	0.57	31.06	0.30	9.90	41.26	56.00	-14.74	QP
3	0.68	31.32	0.30	9.90	41.52	46.00	-4.48	Average
4	0.68	36.75	0.30	9.90	46.95	56.00	-9.05	QP
5	2.45	16.65	0.30	9.90	26.85	46.00	-19.15	Average
6	2.45	22.27	0.30	9.90	32.47	56.00	-23.53	QP
7	3.82	14.78	0.30	9.90	24.98	46.00	-21.02	Average
8	3.82	20.46	0.30	9.90	30.66	56.00	-25.34	QP
9	5.33	13.43	0.32	9.90	23.65	50.00	-26.35	Average
10	5.33	18.56	0.32	9.90	28.78	60.00	-31.22	QP
11	6.73	10.93	0.39	9.97	21.29	50.00	-28.71	Average
12	6.73	17.55	0.39	9.97	27.91	60.00	-32.09	QP

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

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Test Mode: 00; Line: Neutral Line



LISN : NEUTRAL
EUT/Project No : 3149MI
Test Mode : 00

	Freq	Read level	LISN Factor	Cable Loss	Emission Level	Limit	Over Limit	Remark
	(MHz)	(dBuV)	(dB)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.70	30.91	0.30	9.90	41.11	46.00	-4.89	Average
2	0.70	36.00	0.30	9.90	46.20	56.00	-9.80	QP
3	1.09	15.74	0.30	9.90	25.94	46.00	-20.06	Average
4	1.09	26.27	0.30	9.90	36.47	56.00	-19.53	QP
5	1.53	12.45	0.30	9.90	22.65	46.00	-23.35	Average
6	1.53	21.18	0.30	9.90	31.38	56.00	-24.62	QP
7	1.96	14.41	0.30	9.90	24.61	46.00	-21.39	Average
8	1.96	22.40	0.30	9.90	32.60	56.00	-23.40	QP
9	2.40	18.21	0.34	9.90	28.45	46.00	-17.55	Average
10	2.40	23.87	0.34	9.90	34.11	56.00	-21.89	QP
11	3.70	16.92	0.43	9.90	27.25	46.00	-18.75	Average
12	3.70	25.62	0.43	9.90	35.95	56.00	-20.05	QP

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

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

6.2 Radiated Emission (30MHz-1GHz)

Test Requirement: EN IEC 61326-1: 2021
Test Method: EN 55011:2016+A2:2021
Measurement Distance: 3m

Limit:

FREQUENCY (MHz)	dB(μV/m) (at 10m)	dB(μV/m) (at 3m)
30MHz-230MHz	30	40
230MHz-1GHz	37	47
Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz		

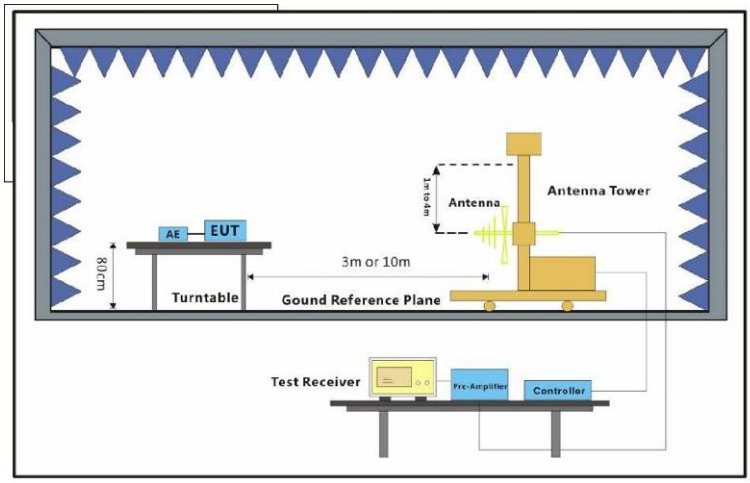
6.2.1 E.U.T. Operation

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	Measuring mode:Keep the EUT measuring continual

6.2.3 Test Setup Diagram



6.2.4 Measurement Procedure and Data

Frequency range: 30MHz-1GHz

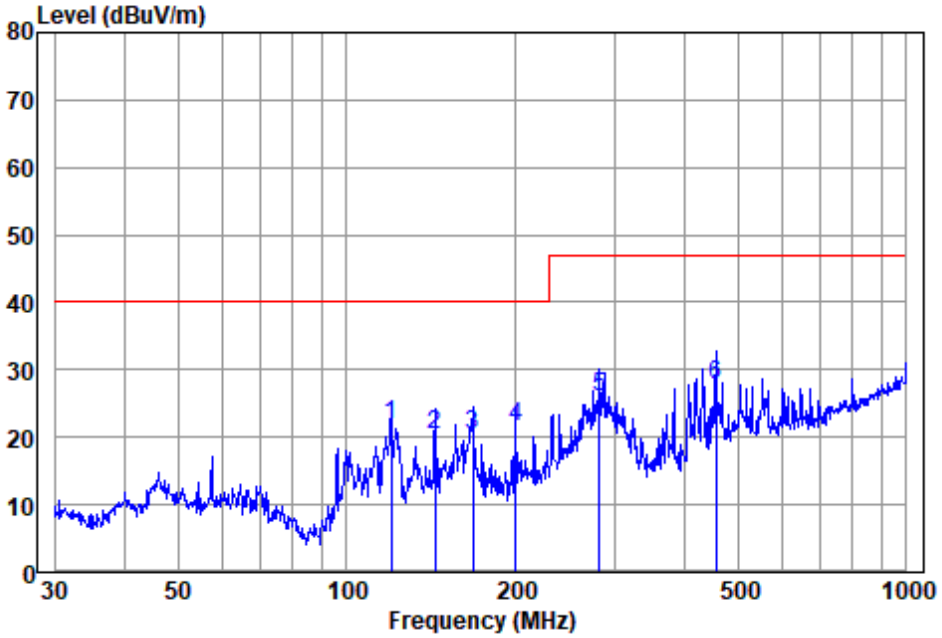
An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

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

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

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Test Mode: 00; Polarity: Horizontal



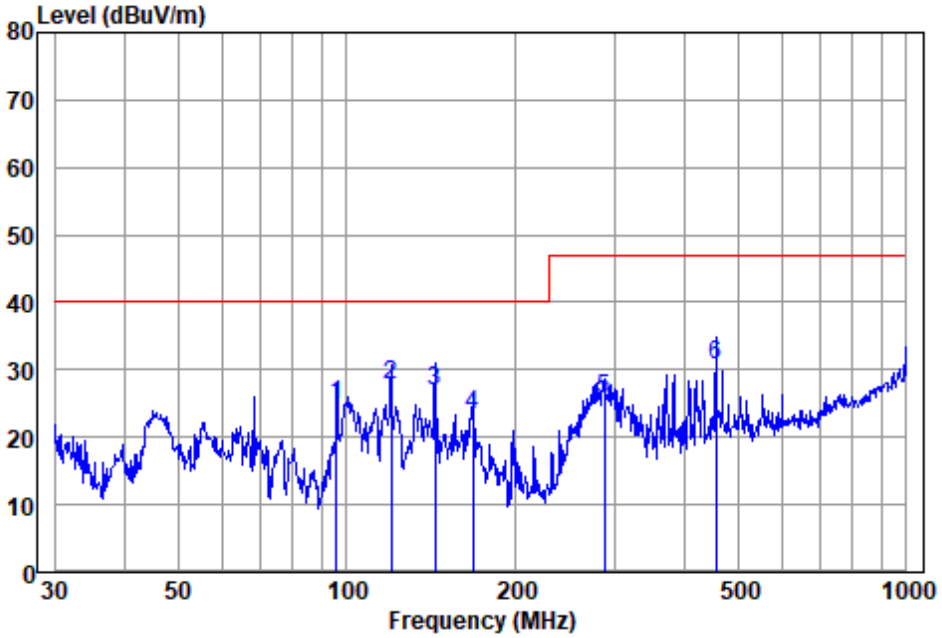
Antenna Polarity :HORIZONTAL
EUT/Project :3149MI
Test mode :00

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	119.856	41.67	11.10	2.21	33.11	21.87	40.00	-18.13	QP
2	143.830	37.20	13.50	2.55	33.02	20.23	40.00	-19.77	QP
3	167.824	37.73	12.90	2.86	33.00	20.49	40.00	-19.51	QP
4	199.986	41.61	10.00	3.00	33.00	21.61	40.00	-18.39	QP
5	282.985	42.42	12.89	3.58	32.87	26.02	47.00	-20.98	QP
6	455.906	38.32	17.31	4.78	32.71	27.70	47.00	-19.30	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Test Mode: 00; Polarity: Vertical



Antenna Polarity :VERTICAL
EUT/Project :3149MI
Test mode :00

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	95.762	47.67	8.33	2.02	33.20	24.82	40.00	-15.18	QP
2	119.856	47.46	11.10	2.21	33.11	27.66	40.00	-12.34	QP
3	143.830	43.83	13.50	2.55	33.02	26.86	40.00	-13.14	QP
4	167.824	40.69	12.90	2.86	33.00	23.45	40.00	-16.55	QP
5	287.990	42.05	13.04	3.55	32.88	25.76	47.00	-21.24	QP
6	455.906	41.31	17.31	4.78	32.71	30.69	47.00	-16.31	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

6.3 Harmonic Current Emission

Test Requirement: EN IEC 61326-1: 2021

Test Method: EN IEC 61000-3-2:2019+A1:2021+A2:2024

Remark: N/A

There is no requirement for lighting equipment with a rated power less than but not equal to 5 W, for details please refer to clause 7.1 of EN IEC 61000-3-2: 2019+A1:2021.

For the following categories of equipment, limits are not specified in this document:

– lighting equipment with a rated power less than but not equal to 5 W

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

6.4 Voltage Fluctuations and Flicker

Test Requirement: EN IEC 61326-1: 2021
Test Method: EN 61000-3-3:2013+A1:2019+A2:2021

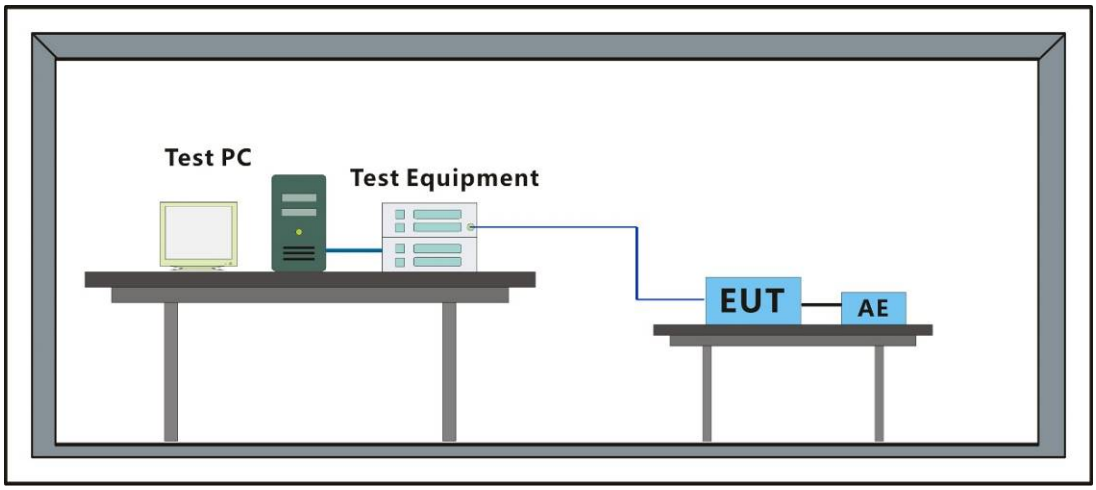
6.4.1 E.U.T. Operation

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	Measuring mode:Keep the EUT measuring continual

6.4.3 Test Setup Diagram



6.4.4 Measurement Procedure and Data

Test Mode: 00

Vrms at the end of test (Volt):		230.12		
T-max (mS):	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.223	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.101	Test limit:	0.650	Pass

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7 Immunity Test Results

Performance Criteria Description in EN IEC 61326-1:2021

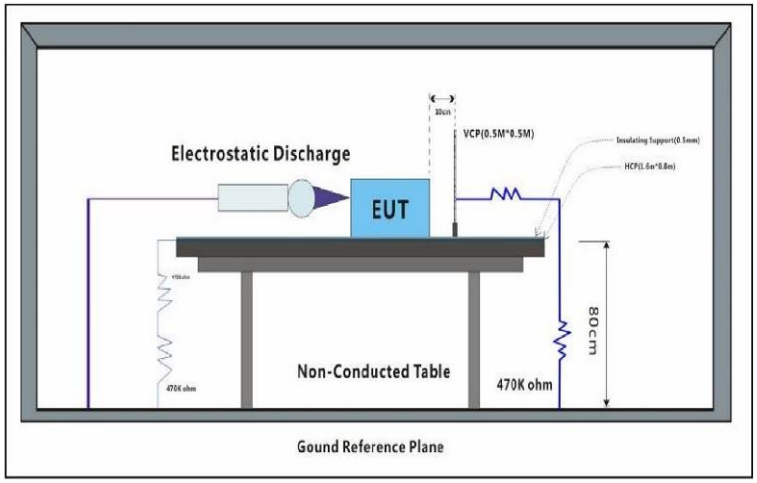
Criterion A	The equipment shall continue to operate as intended during and after the test. No DEGRADATION OF PERFORMANCE or LOSS OF FUNCTION is allowed below a PERFORMANCE LEVEL specified in the user documentation, when the equipment is used as intended. In the case of applying immunity tests with continuous electromagnetic phenomena, the PERFORMANCE LEVEL may be replaced by a permissible LOSS OF PERFORMANCE which shall recover, without user intervention. A permissible LOSS OF PERFORMANCE is allowed within the PERFORMANCE LEVEL only when this information is clearly provided to the end user via documentation, such as the product user manual. No change in the operating state is allowed nor is loss of data.
Criterion B	The equipment shall continue to operate as intended after the test. No DEGRADATION OF PERFORMANCE or LOSS OF FUNCTION is allowed below a PERFORMANCE LEVEL specified in the user documentation, when the equipment is used as intended. During the test, the equipment PERFORMANCE LEVEL may be replaced by a permissible LOSS OF PERFORMANCE if such LOSS OF PERFORMANCE is detailed in the EMC test plan. A permissible LOSS OF PERFORMANCE is allowed within the PERFORMANCE LEVEL only when this information is clearly provided to the end user via documentation, such as the product user manual. An unintended change of the operating state is allowed if self-recoverable. No loss of stored data is allowed.
Criterion C	LOSS OF FUNCTION is allowed, provided the function is self-recoverable or can be restored by the operation of the controls. Recovery procedure shall be included in the user documentation. No permanent damage to the equipment is allowed.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7.1 Electrostatic Discharge

Test Requirement: EN IEC 61326-1: 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	Measuring mode:Keep the EUT measuring continual

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.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

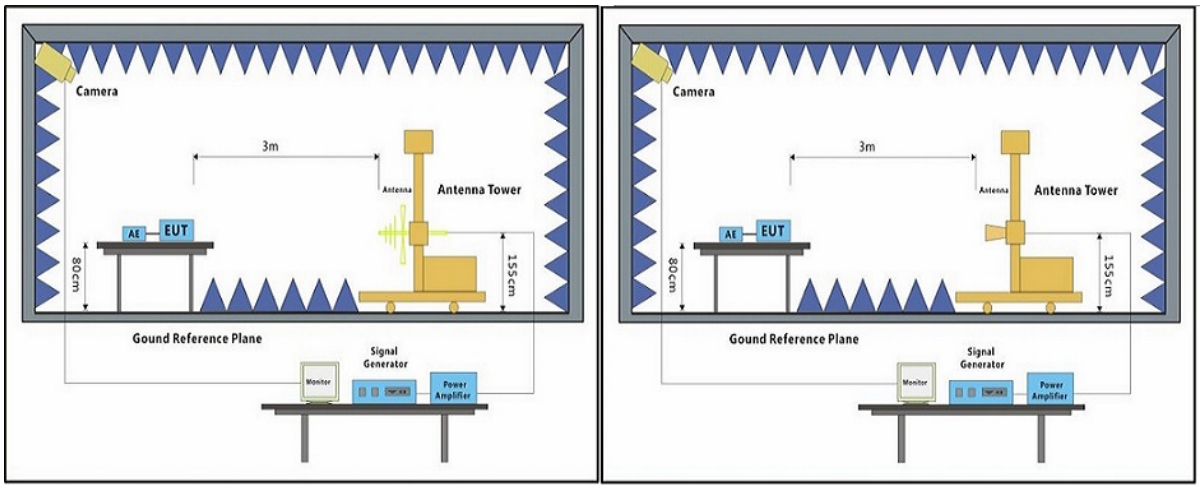
Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	A
Air Discharge	2,4,8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A
A: No degradation in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

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7.2 Radiated Immunity (80MHz-1GHz,1.4GHz-6GHz)

Test Requirement: EN IEC 61326-1: 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	Measuring mode:Keep the EUT measuring continual

7.2.4 Test Condition and Results:

Performance Criterion:A
Frequency Range:80MHz to 1GHz, 1.4GHz to 6GHz.
Antenna Polarisation:Vertical and Horizontal
Modulation:1kHz,80% Amp. Mod,1% increment
Test Distance:3m

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

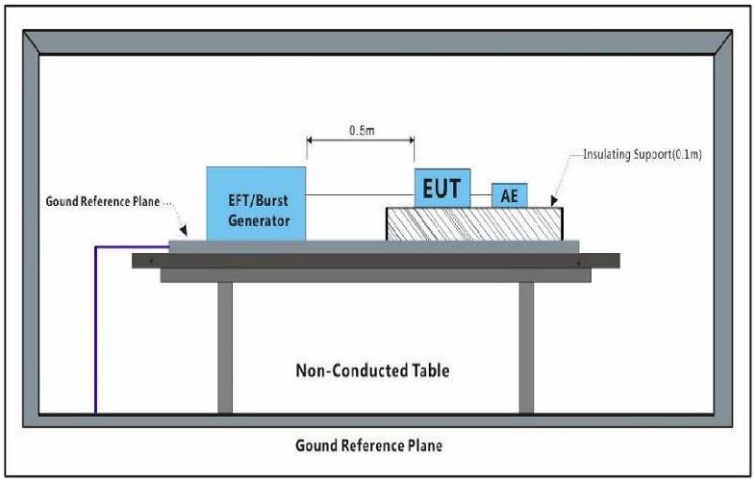
Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	10	Front	3s	A
80MHz-1GHz	10	Back	3s	A
80MHz-1GHz	10	Left	3s	A
80MHz-1GHz	10	Right	3s	A
80MHz-1GHz	10	Top	3s	A
80MHz-1GHz	10	Underside	3s	A
1.4GHz-6GHz	3	Front	3s	A
1.4GHz-6GHz	3	Back	3s	A
1.4GHz-6GHz	3	Left	3s	A
1.4GHz-6GHz	3	Right	3s	A
1.4GHz-6GHz	3	Top	3s	A
1.4GHz-6GHz	3	Underside	3s	A
A: No degradation in the performance of the EUT was observed				

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7.3 Electrical Fast Transients Burst at AC Mains Power Port

Test Requirement: EN IEC 61326-1: 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	Measuring mode:Keep the EUT measuring continual

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 for equipment
intended to be used in a BASIC or a CONTROLLED ELECTROMAGNETIC ENVIRONMENT;
±2.0kV for equipment intended
to be used in an INDUSTRIAL ELECTROMAGNETIC ENVIRONMENT.
Polarity:Positive & Negative

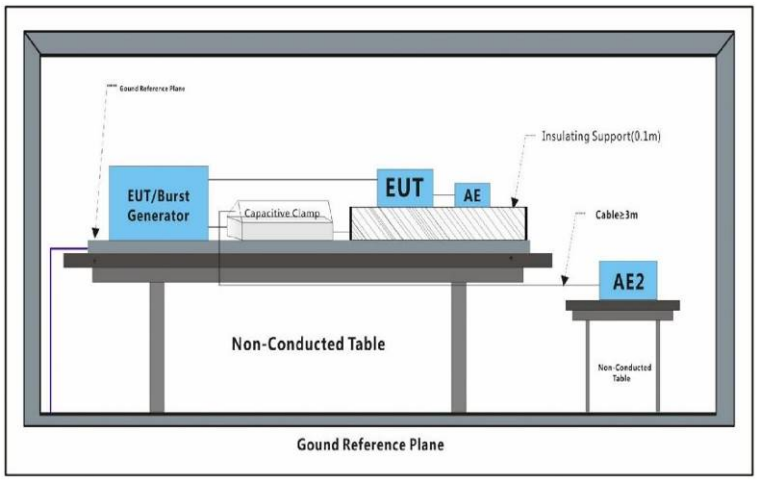
Test Line	Level (kV)	Polarity	CDN/Clamp	Result / Observations
AC power port	2	+	CDN	A
AC power port	2	-	CDN	A
A: No degradation in the performance of the EUT was observed				

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7.4 Electrical Fast Transients&Burst at Signal Port

Test Requirement: EN IEC 61326-1: 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	Measuring mode:Keep the EUT measuring continual

7.4.4 Test Condition and Results:

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

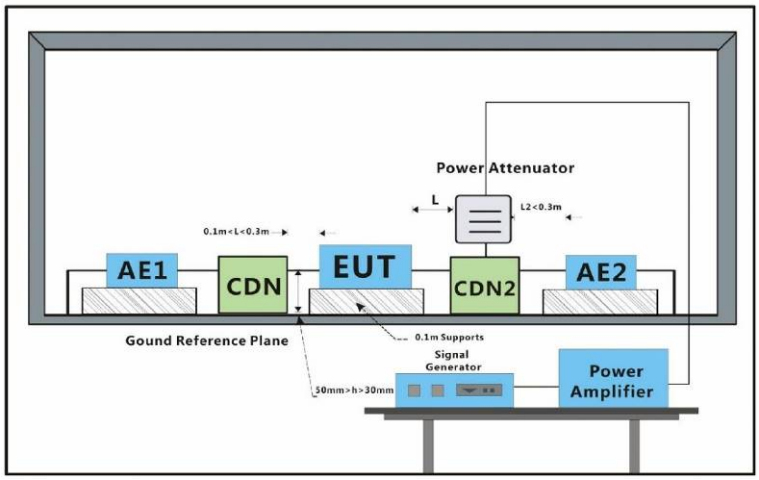
Test Line	Level (kV)	Polarity	CDN/Clamp	Result / Observations
Signal port	2	+	Clamp	A
Signal port	2	-	Clamp	A
A: No degradation in the performance of the EUT was observed				

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

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

Test Requirement: EN IEC 61326-1: 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 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.5.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Measuring mode:Keep the EUT measuring continual

7.5.4 Test Condition and Results:

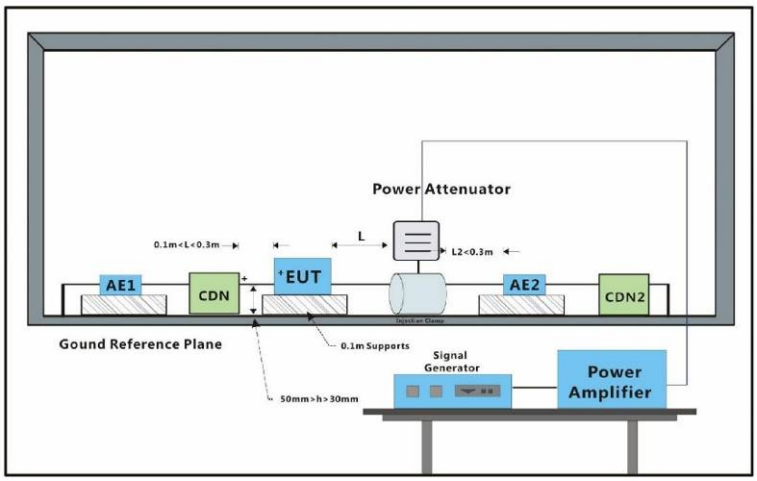
Performance Criterion: A
Frequency Range: 0.15MHz to 80MHz
Modulation: 80%, 1kHz Amplitude Modulation
Step Size: 1%

Cable port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
AC power port	3(0.15MHz-80MHz)	CDN	3s	A
A: No degradation in the performance of the EUT was observed				

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

Test Requirement: EN IEC 61326-1: 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	Measuring mode:Keep the EUT measuring continual

7.6.4 Test Condition and Results:

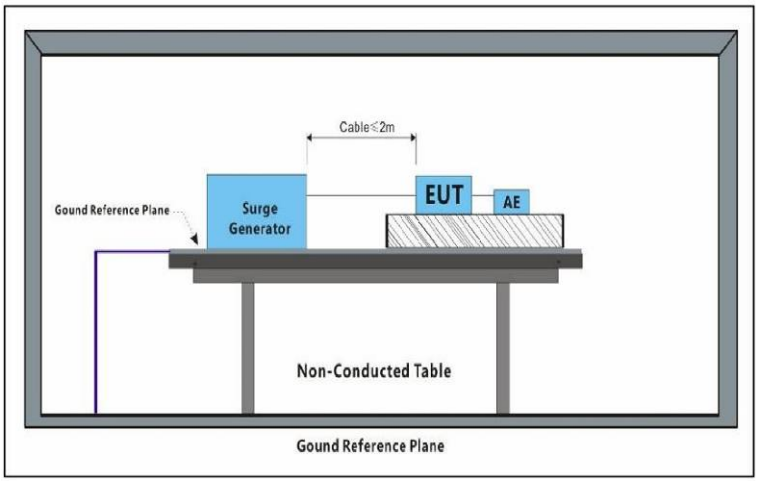
Performance Criterion: A
Frequency Range: 0.15MHz to 80MHz
Modulation: 80%, 1kHz Amplitude Modulation
Step Size: 1%

Cable port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
signal line	3(0.15MHz-80MHz)	Clamp	3s	A
A: No degradation in the performance of the EUT was observed				

7.7 Surge at AC Mains Power Port

Test Requirement: EN IEC 61326-1: 2021
Test Method: EN 61000-4-5:2014 +A1:2017

7.7.1 Test Setup Diagram



7.7.2 E.U.T. Operation

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

7.7.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Measuring mode:Keep the EUT measuring continual

7.7.4 Test Condition and Results:

Performance Criterion:B
Interval:60s between each surge
Polarity:Positive & Negative
Generator source impedance:2Ω
CDN coupling impedance(Line-to-ground):10Ω
Trigger Mode:Internal
No. of surges:5 positive at 0°,90°,180°,270° 5 negative at 0°,90°,180°,270°.

Test Level:±0.5, 1kV Live to Neutral, ±1, 2kV Live, Neutral to Earth

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

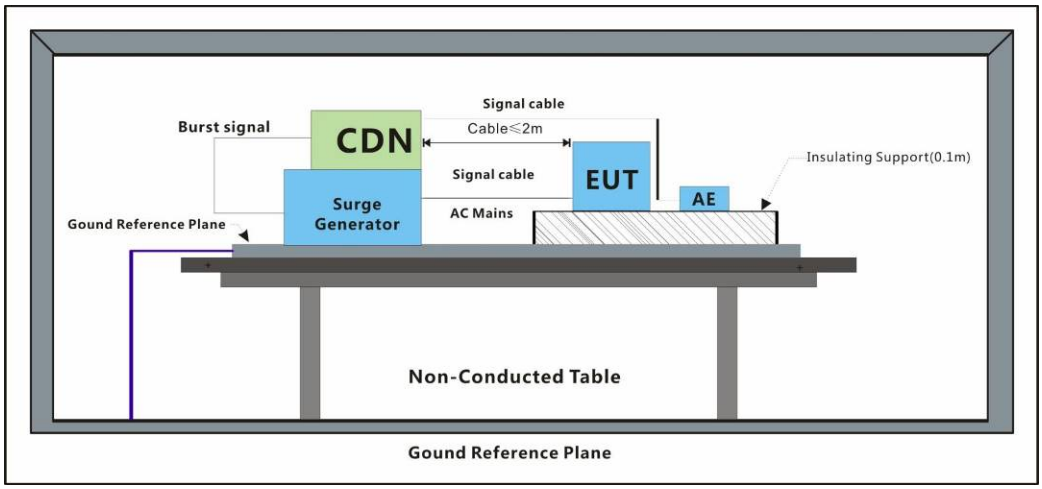
Test Line	Level (kV)	Polarity	Phase (deg)	Result / Observations
L-N	1	+	0°	A
L-N	1	-	0°	A
L-N	1	+	90°	A
L-N	1	-	90°	A
L-N	1	+	180°	A
L-N	1	-	180°	A
L-N	1	+	270°	A
L-N	1	-	270°	A
A: No degradation in the performance of the EUT was observed				

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7.8 Surge at Signal Port

Test Requirement: EN IEC 61326-1: 2021
Test Method: EN 61000-4-5:2014 +A1:2017

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	Measuring mode:Keep the EUT measuring continual

7.8.4 Test Condition and Results:

Performance Criterion: B
Interval: 60s between each surge
Polarity: Positive & Negative
Generator source impedance: 2Ω
CDN coupling impedance:40Ω
Trigger Mode: Internal
No. of surges: 5 positive 5 negative.

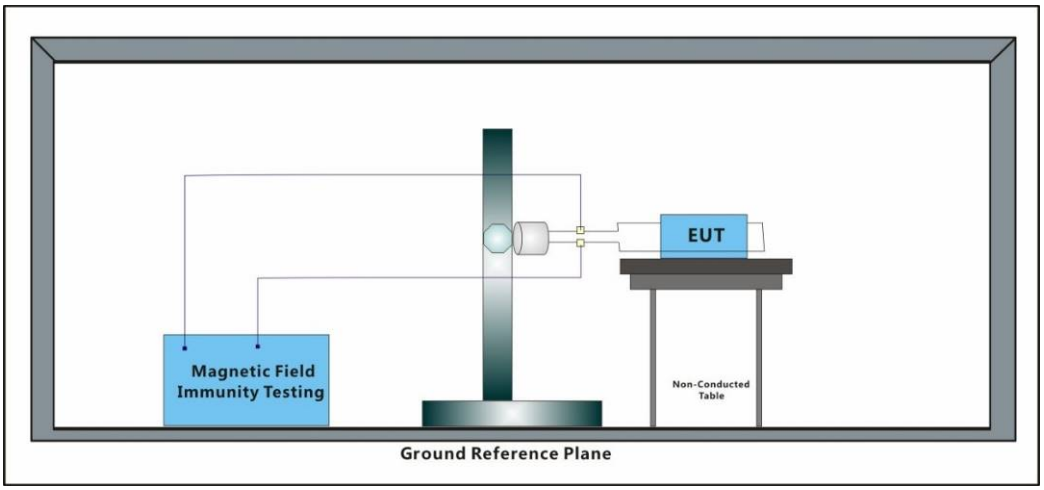
Test Line	Level (kV)	Polarity	Result / Observations
Line to line (Signal)	1	+	A
Line to line (Signal)	1	-	A
Line to ground (Signal)	2	+	A
Line to ground (Signal)	2	-	A
A: No degradation in the performance of the EUT was observed			

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7.9 Power Frequency Magnetic Field

Test Requirement: EN IEC 61326-1: 2021
Test Method: EN 61000-4-8:2010

7.9.1 Test Setup Diagram



7.9.2 E.U.T. Operation

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

7.9.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Measuring mode:Keep the EUT measuring continual

7.9.4 Test Condition and Results:

Performance Criterion: A

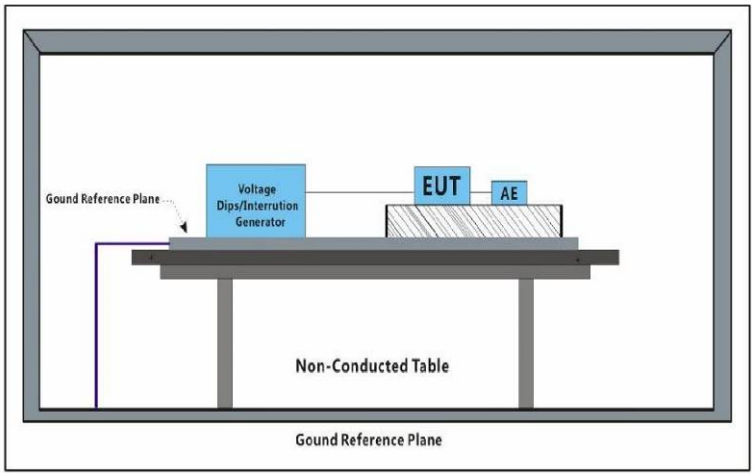
Frequency	Level (A/m)	Axial	Magnetic Field Type	Result / Observations
50Hz/60Hz	30	X	Continuous filed	A
50Hz/60Hz	30	Y	Continuous filed	A
50Hz/60Hz	30	Z	Continuous filed	A
A: No degradation in the performance of the EUT was observed				

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7.10 Voltage Dips and Interruptions

Test Requirement: EN IEC 61326-1: 2021
Test Method: EN IEC 61000-4-11:2020

7.10.1 Test Setup Diagram



7.10.2 E.U.T. Operation

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

7.10.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Measuring mode:Keep the EUT measuring continual

7.10.4 Test Condition and Results:

Performance Criterion:
0% of UT (Supply Voltage) for 1 Cycle:B;
40% of UT for 10 Cycles:C;
70% of UT for 25 Cycles:C;
0% of UT for 250 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°	1 Cycle	3	A
0	180°	1 Cycle	3	A
40	0°	10 Cycles/12 Cycles	3	A
40	180°	10 Cycles/12 Cycles	3	A
70	0°	25 Cycles/30 Cycles	3	A
70	180°	25 Cycles/30 Cycles	3	A
0	0°	250 Cycles/300 Cycles	3	A
0	180°	250 Cycles/300 Cycles	3	A
A: No degradation in the performance of the EUT was observed				

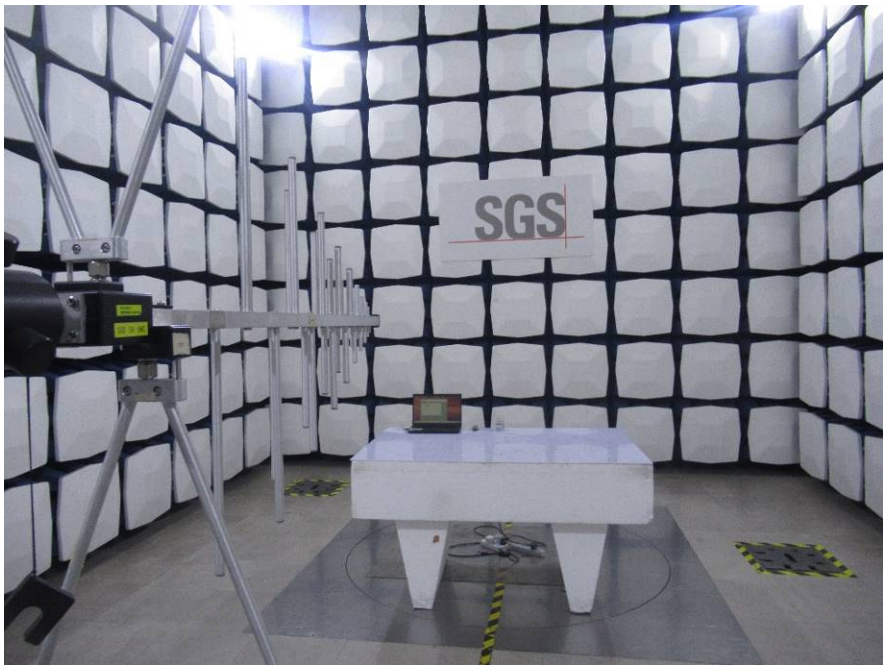
Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8 Test Setup Photo

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



Radiated Emission (30MHz-1GHz)



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Voltage Fluctuations and Flicker

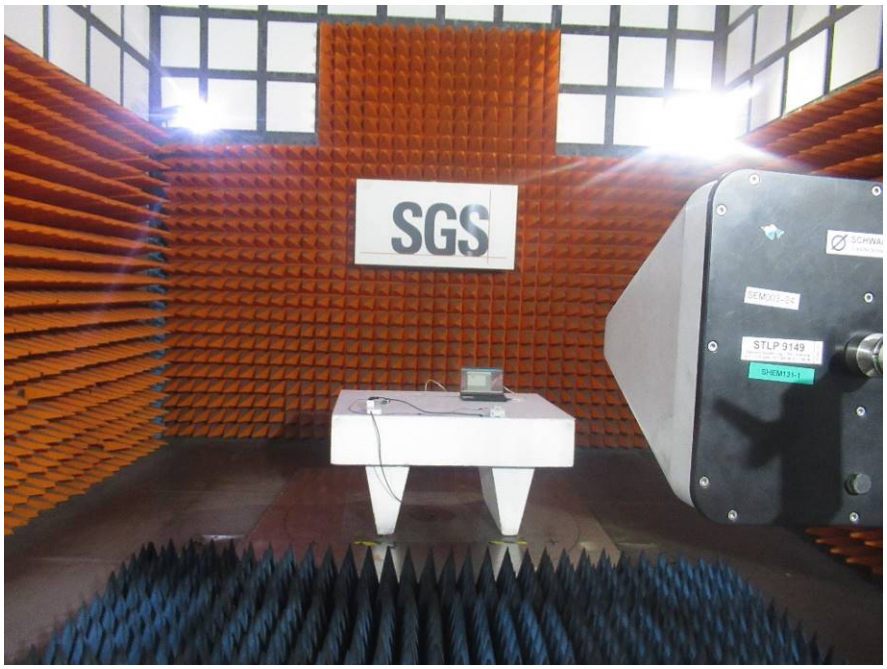


Electrostatic Discharge



Radiated Immunity (80MHz-1GHz,1.4GHz-6GHz)





Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Electrical Fast Transients Burst at AC Mains Power Port

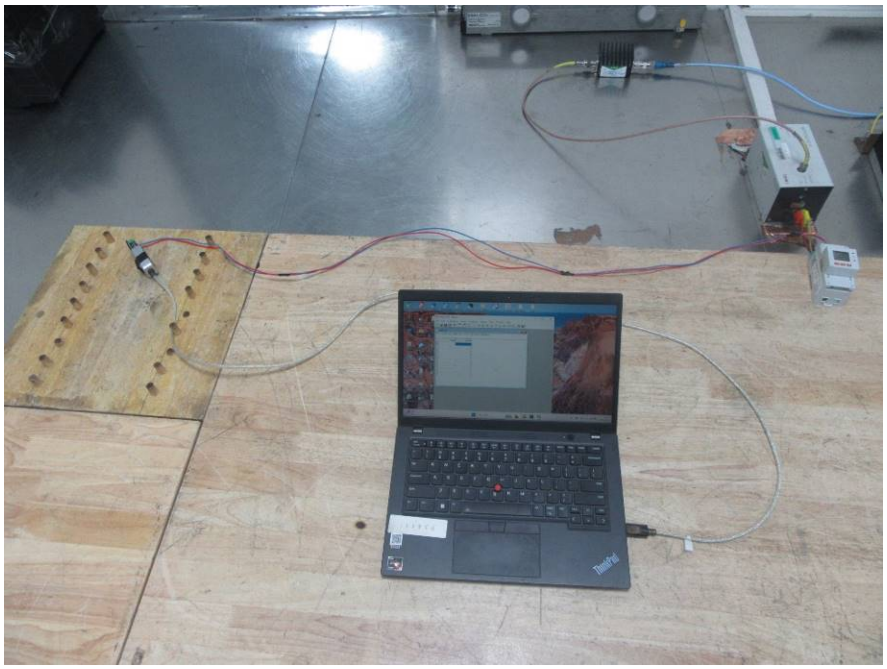


Electrical Fast Transients&Burst at Signal Port

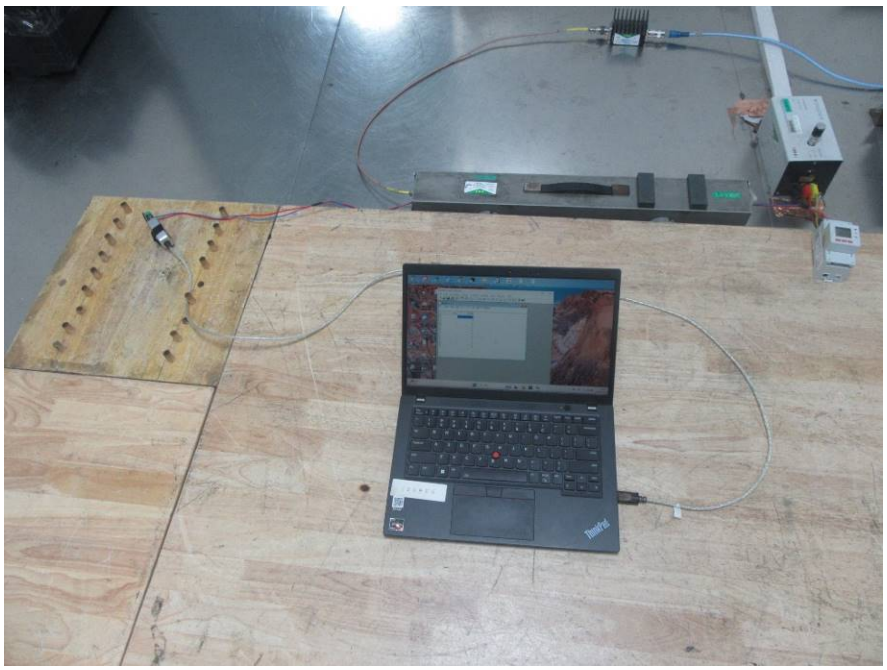


Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

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



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



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Surge at AC Mains Power Port

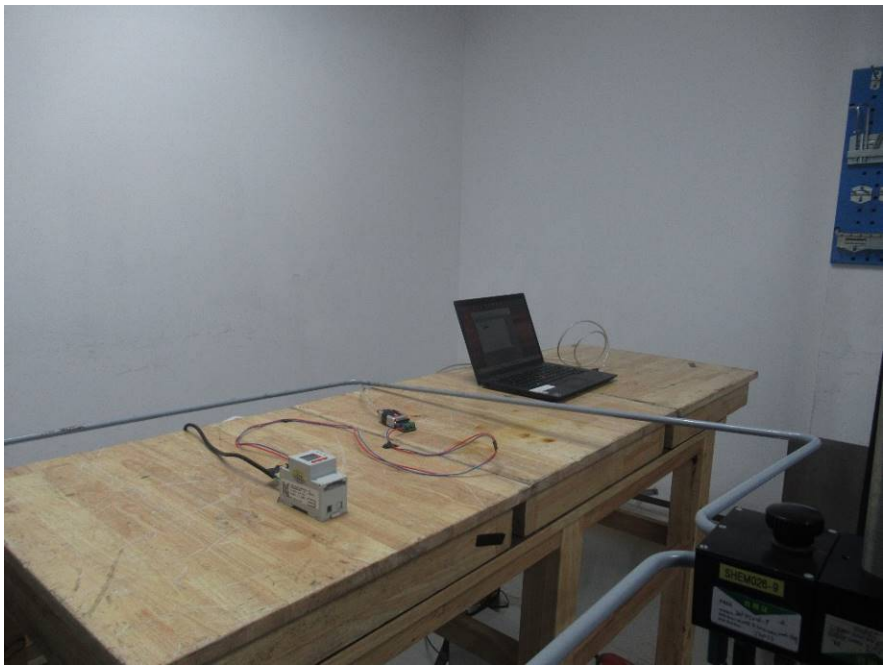


Surge at Signal Port



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Power Frequency Magnetic Field

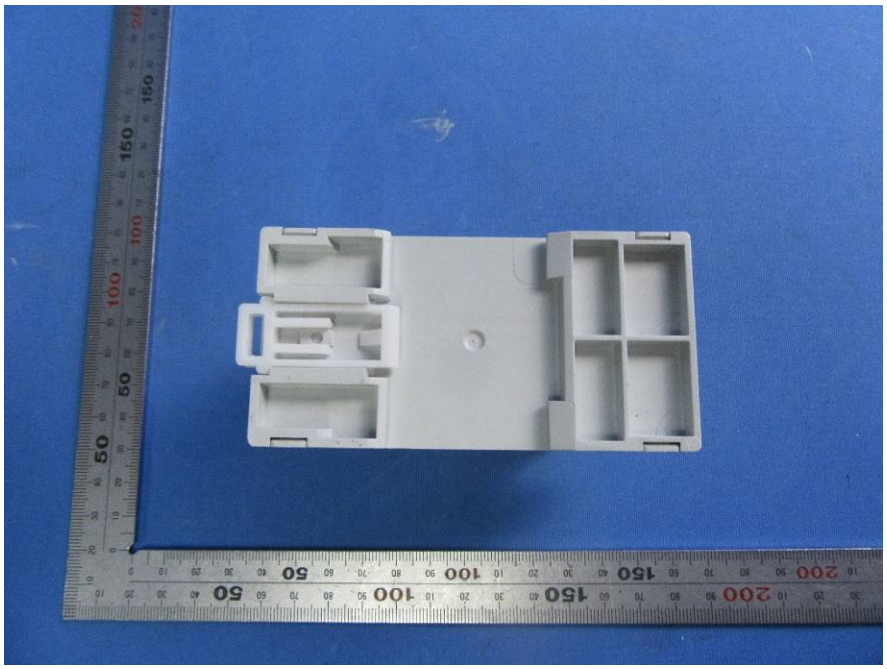


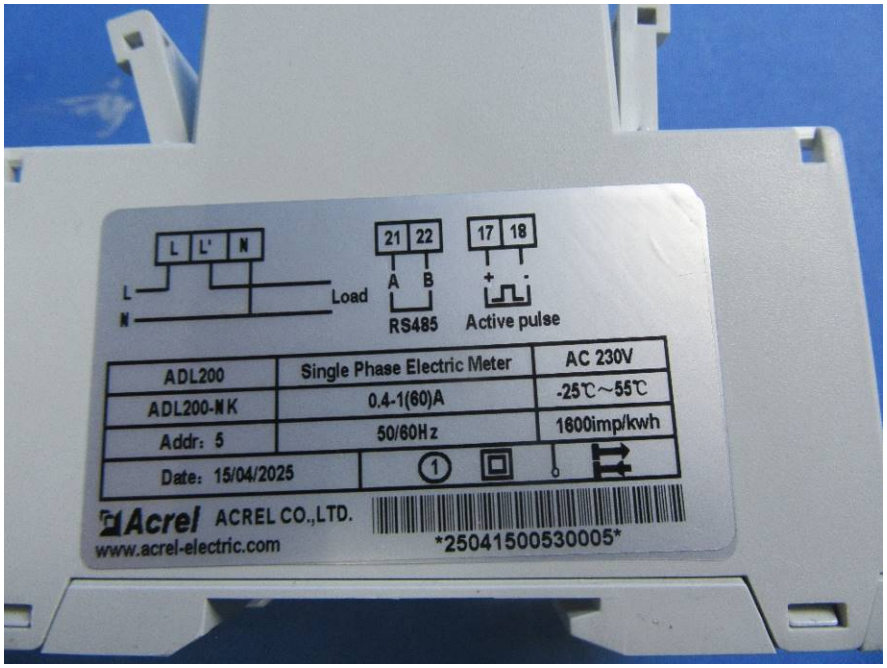
Voltage Dips and Interruptions

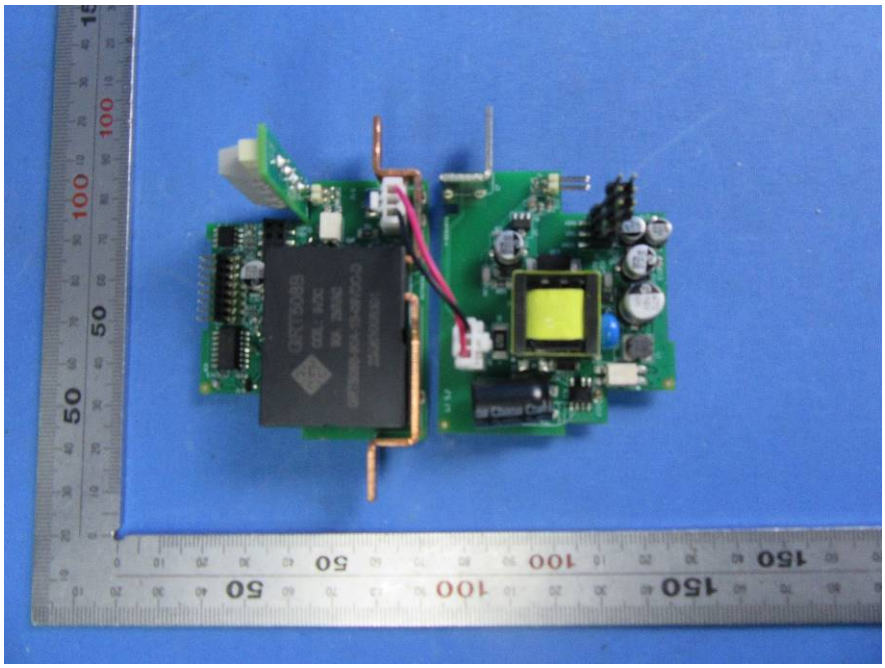


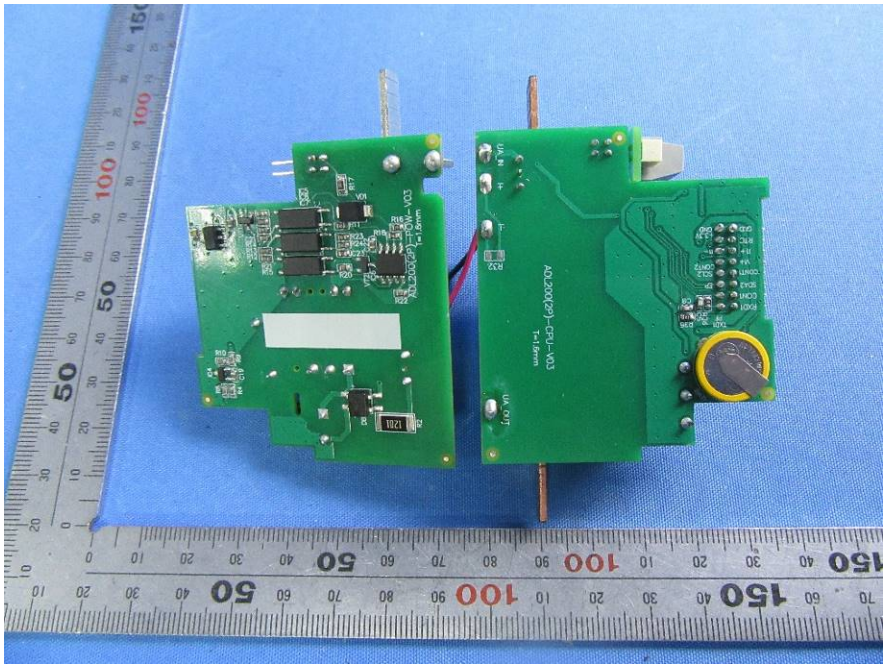
9 EUT Constructional Details (EUT Photos)

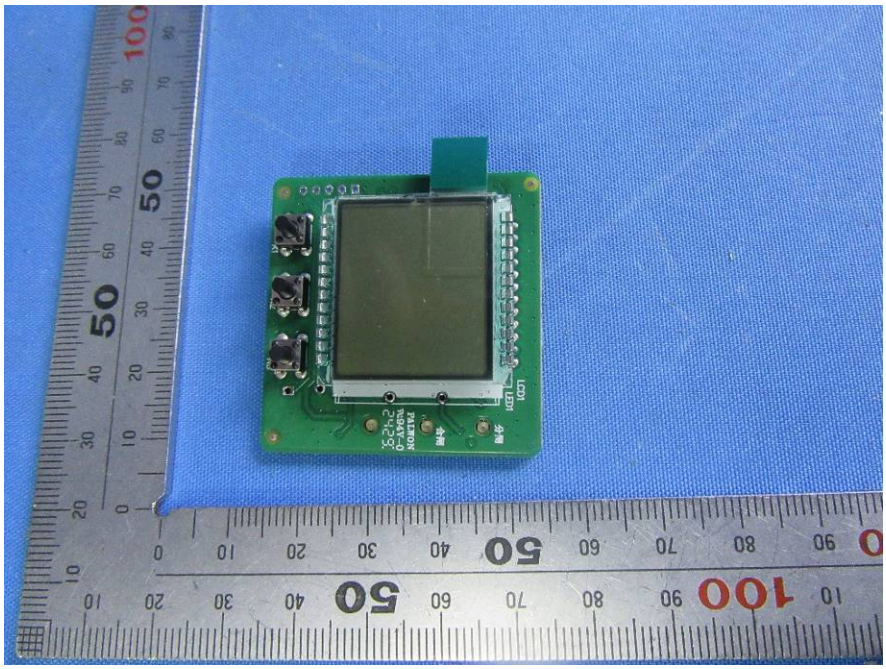


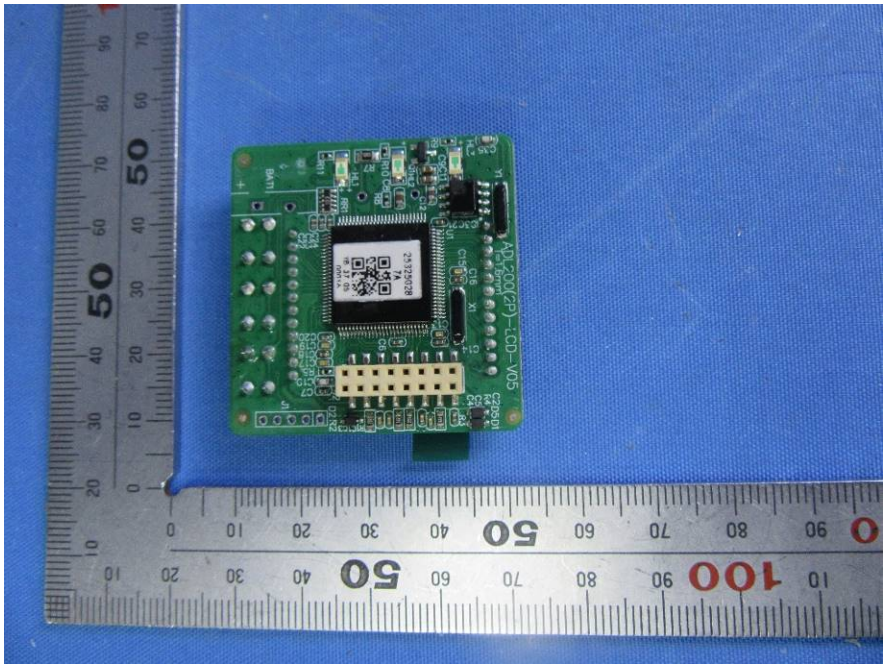



L
L'
N
Load
21
22
A
B
RS485
17
18
Active pulse
ADL200
Single Phase Electric Meter
AC 230V
ADL200-NK
0.4-1(60)A
-25℃~55℃
Addr：5
50/60Hz
1600imp/kwh
Date：15/04/2025
Acrel
ACREL CO.,LTD.
www.acrel-electric.com
25041500530005









- End of the Report -