

**TEST REPORT**

**FOR**  
**AC/DC Power Supply**

**BRAND :** 

**MODEL : TPP 15-105A-J**

**SERIES MODEL : Refer to item 5.1 for more details**

**REPORT NUMBER : 4790771479A-EN-E1-V0**

**ISSUE DATE : Mar. 22, 2023**

**Prepared for**  
**TRACO ELECTRONIC AG**  
**Sihlbruggstrasse 111 CH-6340 Baar Switzerland**

**Prepared by**  
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Revision History

Rev.	Issue Date	Revisions	Revised By
--	Mar. 22, 2023	Initial Issue	Sally Lu

Summary of Test Results				
EMISSION				
Standard	Test Item	Limit	Result	Remark
CISPR 11: 2015/A2: 2019 EN55011: 2016/A11 : 2020	Conducted disturbance at mains terminals ports	Class B	PASS	N/A
	Patient-coupled cable conducted emission	24dBuA	N/A	Note 1
	Radiated disturbance below 1GHz	Class B	PASS	N/A
	Radiated disturbance above 1 GHz	Class B	N/A	Note 2
EN IEC 61000-3-2: 2019/A1: 2021 IEC 61000-3-2 : 2018/ A1:2020	Harmonic current disturbance	Class A	PASS	N/A
EN 61000-3-3: 2013/A2: 2021 IEC 61000-3-3 : 2013/A2: 2021	Voltage Fluctuations & Flicker	Refer to chapter 6.4.1	PASS	N/A

**Note 1:** There is no patient-coupled cable, so the test is unnecessary.

**Note 2:** For Group 1, in the frequency range 1 to 18GHz limits are not specified.

Summary of Test Results				
IMMUNITY				
Home healthcare facility environment				
Basic Standard	Test Item	Test Level	Criteria	Result
IEC 61000-4-2:2008 EN 61000-4-2: 2009	Electrostatic discharge immunity	Contact $\pm 8$ kV Air $\pm 15$ kV	Clause 7.1	PASS (Note 4)
IEC 61000-4-3: 2020 EN IEC 61000-4-3: 2020	Radiated, radio frequency electromagnetic field immunity	10V/m 80%, 1kHz, AM 80MHz~2.7GHz	Clause 7.1	PASS
	Proximity fields from RF wireless communications equipment	See page 6	Clause 7.1	PASS
IEC 61000-4-4:2012 EN 61000-4-4:2012	Electrical fast transient/burst immunity	2.0kV(AC Mains) 2.0kV(DC Ports) 1kV(Signal Lines) 5/50ns, 100kHz	Clause 7.1	PASS
IEC 61000-4-5: 2014 /A1: 2017 EN 61000-4-5 : 2014 /A1 : 2017	Surge immunity	AC/DC 2.0kV(Common) 1.0kV(Differential) 1.2/50us	Clause 7.1	PASS
		Signal 2.0kV(Common)	Clause 7.1	PASS
IEC 61000-4-6: 2013+ COR1: 2015 EN 61000-4-6 : 2014/ AC : 2015	Immunity to conducted disturbances, induced by radio-frequency fields	3V(rms) 80%, 1kHz AM. 0.15MHz~80MHz 6 V(rms) in ISM/ Amateur bands between 0,15 MHz and 80 MHz.(Note1)	Clause 7.1	PASS
IEC 61000-4-8:2009 EN 61000-4-8: 2010	Power frequency magnetic field immunity	50Hz, 30 A/m	Clause 7.1	PASS
IEC 61000-4-11:2020 EN IEC 61000-4-11: 2020	Voltage dips, short interruptions and voltage variations immunity	Voltage dips, 0% residual for 0.5 cycle (Note 3)	Clause 7.1	PASS
		Voltage dips, 0% residual for 1cycle (Note 3)	Clause 7.1	
		Voltage dips, 70% residual for 25/30 cycle (Note 2,3)	Clause 7.1	
		Voltage interruptions For 250/300 cycle (Note 2,3)	Clause 7.1	

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**Note 1:** The ISM (industrial, scientific and medical) bands between 0,15 MHz and 80 MHz are 6,765 MHz to 6,795 MHz; 13,553 MHz to 13,567 MHz; 26,957 MHz to 27,283 MHz; and 40,66 MHz to 40,70 MHz. The amateur radio bands between 0,15 MHz and 80 MHz are 1,8 MHz to 2,0 MHz, 3,5 MHz to 4,0 MHz, 5,3 MHz to 5,4 MHz, 7 MHz to 7,3 MHz, 10,1 MHz to 10,15 MHz, 14 MHz to 14,2 MHz, 18,07 MHz to 18,17 MHz, 21,0 MHz to 21,4 MHz, 24,89 MHz to 24,99 MHz, 28,0 MHz to 29,7 MHz and 50,0 MHz to 54,0 MHz.

**Note 2:** 25/30 or 250/300 means 25 or 250 periods at 50 Hz or 30 or 300 periods at 60 Hz.

**Note 3:** For ME EQUIPMENT and ME SYSTEMS that have multiple voltage settings or auto ranging voltage capability, the test shall be performed at the minimum and maximum RATED input voltage. ME EQUIPMENT and ME SYSTEMS with a RATED input voltage range of less than 25 % of the highest RATED input voltage shall be tested at one RATED input voltage within the range.

**Note 4:** Customers add countermeasure components to the fixture board. For the corresponding components, please refer to the appendix III."

Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communications equipment						
Test frequency	Band	Service	Modulation	Maximum power	Distance	IMMUNITY TEST LEVEL
385	380 – 390	TETRA 400	Pulse modulation 18 Hz	1,8	0,3	27
450	430 – 470	GMRS 460, FRS 460	FM ± 5 kHz deviation 1 kHz sine	2	0,3	28
710	704 – 787	LTE Band 13, 17	Pulse modulation 217 Hz	0,2	0,3	9
745						
780						
810	800 – 960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation 18 Hz	2	0,3	28
870						
930						
1720	1700 – 1990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation 217 Hz	2	0,3	28
1845						
1970						
2450	2400 – 2570	Bluetooth, WLAN,802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation 217 Hz	2	0,3	28
5240	5100 – 5800	WLAN 802.11 a/n	Pulse Modulation 217 Hz	0,2	0,3	9
5500						
5785						
NOTE: If necessary to achieve the IMMUNITY TEST LEVEL, the distance between the transmitting antenna and the ME EQUIPMENT or ME SYSTEM may be reduced to 1 m. The 1 m test distance is permitted by IEC 61000-4-3.						

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** TRACO ELECTRONIC AG  
Sihlbruggstrasse 111 CH-6340 Baar Switzerland

**MANUFACTURER:** TRACO ELECTRONIC AG  
Sihlbruggstrasse 111 CH-6340 Baar Switzerland

**EUT DESCRIPTION:** AC/DC Power Supply

**BRAND:** 

**MODEL:** TPP 15-105A-J

**SERIES MODEL :** Refer to item 5.1 for more details

**DATE of TESTED:** Oct. 19, 2022 ~ Dec. 30, 2022

APPLICABLE STANDARDS	
STANDARDS	TEST RESULTS
IEC 60601-1-2: 2014 EN 60601-1-2: 2015	PASS

Underwriters Laboratories Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

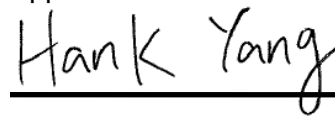
**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Prepared By:



Sally Lu Date : Mar. 22, 2023  
Project Handler

Approved and Authorized By:



Hank Yang Date : Mar. 22, 2023  
Laboratory Engineer Associate

## 2. TEST METHODOLOGY

All tests were performed in accordance with the correspond to each test item's procedure of this report and refer to each standard.

## 3. FACILITIES AND ACCREDITATION

Test Location	Underwriters Laboratories Taiwan Co., Ltd.,
Address	Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Description	All measurement facilities use to collect the measurement data are located at Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. Measuring Instrument Calibration

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. Measurement uncertainty

The decision rule refer to CISPR 16-4-2 clause 4.2 accordingly. If  $U_{lab}$  is less than  $U_{Cispr}$ , then :

- 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.

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Electromagnetic interference:

Test Item	Measurement Frequency Range	K	U(dB)
Conducted disturbance at mains terminals ports	0.15MHz ~ 30MHz	2	3.2
966-1 Test Site			
Radiated disturbance below 1 GHz	30MHz ~ 1000MHz	2	5.9

Test Item	K	Voltage(%)	Current(%)
Harmonic&Flicker	2	0.17	0.38

## Electromagnetic sensitivity:

Test Item	Measurement Frequency Range	K	U(dB)
Radiated, radio frequency electromagnetic field immunity	80MHz ~ 6000MHz	2	2.1
Immunity to conducted disturbances, induced by radio-frequency fields (CDN)	0.15MHz ~ 80MHz	2	2.4

Test Item	K	Voltage(%)	Rise Time(%)	First Peak Current (%)	Current @ 30ns (%)	Current @ 60ns (%)
Electrostatic discharge immunity	2	2.8	7.2	3.4	3.1	3.7

Test Item	K	Peak Voltage(%)	Rise Time(%)	Pulse width(%)	Burst Period (%)	Burst duration (%)	Repetition rate (%)
Electrical fast transient/burst immunity	2	3.6	3.7	1.7	0.94	0.47	0.29


Test Item	K	Phase Shifting (%)	Voltage (%)	Current (%)	Front Time (For waveform of the surge voltage)(%)	Duration (For waveform of the surge voltage)(%)	Front Time (For waveform of the surge current)(%)	Duration (For waveform of the surge current)(%)
Surge immunity	2	1.1	3.6	2.7	1.2	0.43	5.9	0.79

Test Item	K	Magnetic field Strength(%)
Power Frequency Magnetic Field Immunity Test	2	4.9%

Test Item	K	Voltage(%)	Time (%)	Phase Angle (%)
Voltage dips, short interruptions and voltage variations immunity	2	2.3	3.1	1.1

## 5. EQUIPMENT UNDER TEST

### 5.1. Description of EUT

<b>EUT Name:</b>	AC/DC Power Supply
<b>Brand:</b>	
<b>Model:</b>	TPP 15-105A-J
<b>Series Model:</b>	TPP 15-103abc(x), TPP 15-105abc(x), TPP 15-107abc(x), TPP 15-109abc(x), TPP 15-112abc(x), TPP 15-115abc(x), TPP 15-118abc(x), TPP 15-124abc(x), TPP 15-128abc(x), TPP 15-136abc(x), TPP 15-148abc(x), TPP 15-153abc(x)
<b>Power Rating :</b>	From AC power
<b>Group :</b>	Group 1
<b>Condition of EUT:</b>	Mass-Production Test sample
<b>Environments:</b>	Home healthcare facility environment
<b>Detail Description:</b>	Refer to Test Plan
<b>Sample ID:</b>	5574627
<b>DATE of Sample Receipted:</b>	Nov. 28, 2022

Note :

1. The models difference table as below:

Model Number	Input Range (Vac)	Output Voltage (Vdc)
TPP 15-103abc(x)	85 ~ 264	3.3
TPP 15-105abc(x)	85 ~ 264	5
TPP 15-107abc(x)	85 ~ 264	7.5
TPP 15-109abc(x)	85 ~ 264	9
TPP 15-112abc(x)	85 ~ 264	12
TPP 15-115abc(x)	85 ~ 264	15
TPP 15-118abc(x)	85 ~ 264	18
TPP 15-124abc(x)	85 ~ 264	24
TPP 15-128abc(x)	85 ~ 264	28
TPP 15-136abc(x)	85 ~ 264	36
TPP 15-148abc(x)	85 ~ 264	48
TPP 15-153abc(x)	85 ~ 264	53

a can be B or blank

b can be A, A2, or blank

c can be -J, -M, -D or blank

(x) can be six variables, each variable may be A through Z, 0 through 9, dash, any punctuation marks or blank.

※ All the model's rated voltage is 100 ~ 240 Vac; input range is 85 ~ 264 Vac.

2. This supplemental report was issued based on the original report with report number 4790423395A-EN-E1-V0, the differences were as below:
- Change model, series model, applicant, manufacturer and brand.
  - Remove EMI data from Mode 2.
3. According to above conditions, there is no addition test has to be performed. All test data are copied from the original test report (Report No.: 4790423395A-EN-E1-V0), and all data are verified to meet the requirements.

## 5.2. Test Mode

The Pre-test modes:

Mode	Description	Conducted Emission	Radiated Emission
Mode 1	Full Load (TPP 15-105A-J)	v	v

After pre-testing, the final test mode was displayed as below table.

Test Items		Test Mode
Emission	Conducted Emission	Mode 1
	Radiated Emission	Mode 1
	Harmonic & Flicker	Mode 1
Immunity	Electrostatic Discharge	Mode 1
	Radio Frequency Electromagnetic Field	Mode 1
	Electrical Fast Transient	Mode 1
	Surge Immunity	Mode 1
	Immunity to conducted disturbances, induced by radio-frequency fields	Mode 1
	Power frequency magnetic field immunity	Mode 1
	Voltage Dips and Interruptions	Mode 1

Note:

1. The customer only provided TPP 15-105A-J for the EMC test.

## 5.3. EUT Configuration Test Setup

Mode 1 & 2: (For Emission test)

- a. The EUT was linked to resistance load with full load during the testing.
- b. Power on the EUT and run test.

Mode 1: (For Immunity test)

- a. The EUT was linked to resistance load with full load and the resistance load was connected with a meter during the testing.
- b. Power on the EUT and run test.

## 5.4. Monitoring of EUT for All Immunity Test

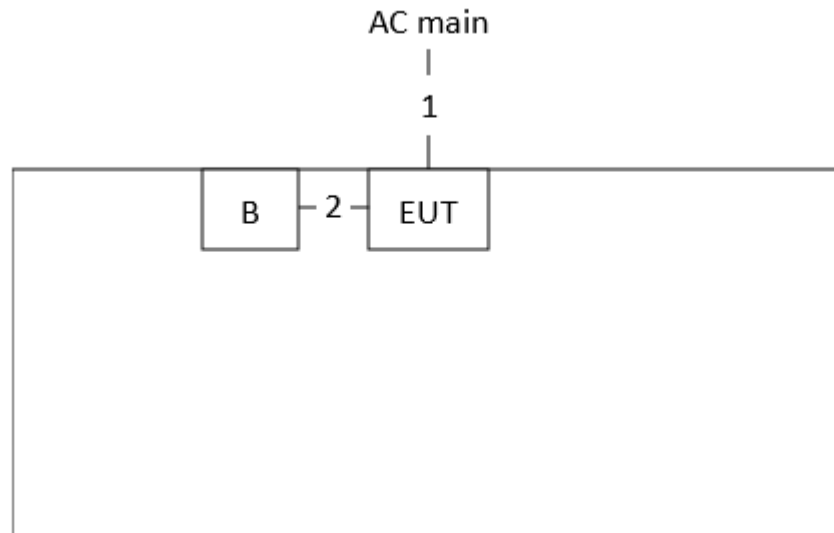
Audio	N/A
Visual	Monitor the output voltage through the meter.

## 5.5. Accessory

N/A

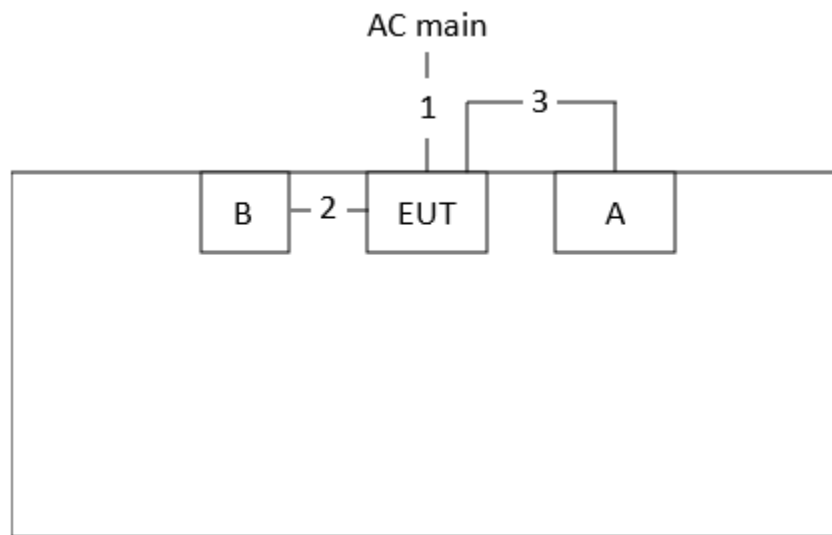
## 5.6. Block diagram showing the configuration of system tested

Mode 1 & 2: (For Emission test)

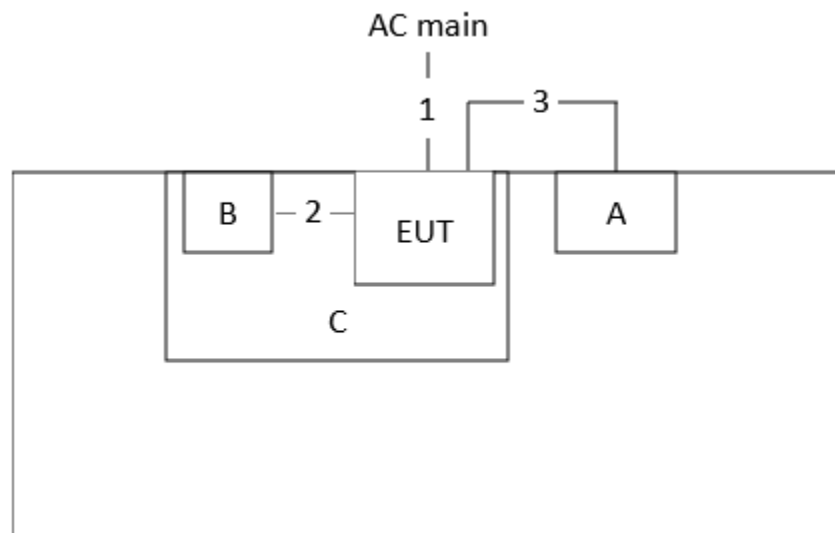




Mode 1: (For Immunity – RS, EFT, Surge, CS, PFMF, DIP test)



Mode 1: (For Immunity – ESD test)



## 5.7. Description of support units

The EUT has been tested as an independent unit together with other necessary Hardware and Software accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	FCC ID	Note
A	Voltage Meter	N/A	SD-670	N/A	N/A	N/A
B	Resistance Load	N/A	N/A	N/A	N/A	Provided by customer
C	Test board	N/A	N/A	N/A	N/A	Provided by customer

Item	Connection	Shielded Type	Note
1	AC power cable	Non-shielded	Provided by customer
2	DC Power Wire	Non-shielded	Provided by customer
3	DC Power wire	Non-shielded	N/A

## 5.8. Measuring Instrument List

Instrument					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Expired date
<b>Conducted Disturbance</b>					
EMI Test Receiver	Rohde & Schwarz	ESR7	101753	2022/11/10	2023/11/9
Two-Line V-Network	Rohde & Schwarz	ENV216	102136	2022/8/29	2023/8/28
DC AMN	SCHWARZBECK	PVDC 8300	00012	2022/8/3	2023/8/2
Two-Path V-LISN	SCHWARZBECK	NSLK 8127	8127-946	2022/11/10	2023/11/9
RF Current Probe	FCC	F-52	171502	2022/1/25	2023/1/24
Impuls-Begrenzer Pulse Limiter	Rohde & Schwarz	ESH3-Z2	102219-Qt	2022/8/30	2023/8/29
Cable	TITAN	CFD200	T0732ACFD20 020A300-2	2022/4/9	2023/4/8
Measurement Software	Farad	EZ-EMC Ver: UL-3A1.2	N/A	N/A	N/A
<b>Radiated Disturbance</b>					
<b>966-1</b>					
EMI Test Receiver	Rohde & Schwarz	ESR7	101755	2022/12/7	2023/12/6
Trilog-Broadband Antenna with 5dB Attenuator	SCHWARZBECK	VULB 9168 & N-6-05	774 & AT-N0538	2022/2/8	2023/2/7
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	1686	2021/12/13	2022/12/12
Preamplifier	EMC Instrument	EMC330E	980404	2022/5/13	2023/5/12
Preamplifier	EMC Instrument	EMC051835BE	980407	2022/1/14	2023/1/13
Cables	UltraPhase&EMC Instrument	A1K50-UP0358-A1K50-1500&EMC106-NM-SM-2500/8000	170111-3&170104/170223	2022/1/18	2023/1/17
Measurement Software	Farad	EZ-EMC Ver: UL-3A1	N/A	N/A	N/A
<b>Voltage Harmonic &amp; Flicker</b>					
single phase coupling unit	TESEQ	CCN1000-1	1652A01270	2022/3/21	2023/3/20
Programmable AC and DC Power Sources	TESEQ	NSG1007	1652A00760	2022/3/21	2023/3/20
Measurement Software	TESEQ	WIN2100 (4.28.0)	N/A	N/A	N/A

Instrument					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Expired date
<b>Electrostatic discharge</b>					
ESD Generator	TESEQ	NSG 437	1125	2022/11/23	2023/11/22
Barometer	TFA	DIVA PLUS	35.1078.10.IT	2022/6/7	2023/6/6
<b>Radio frequency electromagnetic field immunity</b>					
RF and Microwave Signal Generator	Rohde & Schwarz	SMB100A	113793	2022/2/20	2023/2/19
Power amplifier	Milmega	80RF1000-300	1077558	N/A	N/A
Power amplifier	Milmega	AS0860B	1077559	N/A	N/A
Directional coupler	Werlatone	C8719-20	111759	N/A	N/A
Directional coupler	Werlatone	C10117-10	111786	N/A	N/A
Antenna	AR	ATR80M6G	346008	N/A	N/A
Antenna	SCHWARZBECK	STLP 9149	00441	N/A	N/A
RF switch	OSP	OSP	N/A	N/A	N/A
Power Meter	Rohde & Schwarz	NRP2	105524	2022/9/13	2023/9/12
Power Sensor	Rohde & Schwarz	NRP-Z91	103732	2022/9/13	2023/9/12
Power Sensor	Rohde & Schwarz	NRP-Z91	103733	2022/9/13	2023/9/12
Measurement Software	Rohde & Schwarz	EMC32, VER.10.60.20	N/A	N/A	N/A
<b>Electrical fast transient</b>					
Ultra Compact Simulator	EM TEST	UCS 500N7	P1623180275	2022/11/24	2023/11/23
Capacitive Coupling Clamp	EM TEST	HFK	P1642185790	2022/11/25	2023/11/24
Measurement Software	TESEQ	IEC.control, VER.7.1.5	N/A	N/A	N/A
<b>Surge</b>					
Ultra Compact Simulator	EM TEST	UCS 500N7	P1623180275	2022/11/24	2023/11/23
Telecom Surge Generator	EM TEST	TSurge7	P1620180015	2022/11/23	2023/11/22
Coupling and Decoupling Network	EM TEST	CNV 508T5	P1637184038	2022/11/23	2023/11/22
Coupling and Decoupling Network	TESEQ	CDN HSS-2	45091	2022/11/23	2023/11/22
Measurement Software	TESEQ	IEC.control, VER.7.1.5	N/A	N/A	N/A

Instrument					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Expired date
<b>Immunity to conducted disturbances, induced by radio-frequency fields</b>					
Signal Generator	Rohde & Schwarz	SMC100A	105811	2022/9/26	2023/9/25
Power amplifier	Rohde & Schwarz	BBA150-A125B125	102340	N/A	N/A
Coupling and Decoupling Network	TESEQ	CDN M016	45073	2022/3/18	2023/3/17
Coupling and Decoupling Network	TESEQ	CDN T2-10	45003	2022/3/18	2023/3/17
Coupling and Decoupling Network	TESEQ	CDN T4-10	44939	2022/3/18	2023/3/17
Coupling and Decoupling Network	TESEQ	CDN T8-10	49203	2022/12/12	2023/12/11
EM Injection Clamp	TESEQ	CAL 801A & KEMZ 801A	75454.1, 75454.2 & 45181	2022/4/13	2023/4/12
Current injection Probe	TESEQ	CIP 9136A	44618	2022/10/26	2023/10/25
Power - Sensor	Rohde & Schwarz	NRP-Z91	103730	2022/12/9	2023/12/8
Power - Sensor	Rohde & Schwarz	NRP-Z91	103731	2022/12/9	2023/12/8
Measurement Software	Rohde & Schwarz	EMC32, VER.10.20.01	N/A	N/A	N/A
<b>Power frequency magnetic field immunity</b>					
Ultra Compact Simulator	EM TEST	UCS 500N7	P1623180275	2022/11/24	2023/11/23
Current Transformer	EM TEST	MC 2630	P1644186773	2022/8/22	2023/8/21
Magnetic Field Test Antena	EM TEST	MS 100N	P1627181324	2022/8/22	2023/8/21
<b>Voltage dips and interruptions</b>					
Ultra Compact Simulator	EM TEST	UCS 500N7	P1623180275	2022/11/24	2023/11/23
Motorized Variac	EM TEST	MV 2616 (varic NX1-260-16)	P1643186426	2022/11/25	2023/11/24
Measurement Software	TESEQ	IEC.control, VER.7.1.5	N/A	N/A	N/A

## 6. EMISSION TEST

### 6.1. Conducted Disturbance Measurement

#### 6.1.1. Limits of conducted disturbance voltage and common mode disturbance.

AC mains port:

FREQUENCY (MHz)	<input type="checkbox"/> Group 1 Class A (dB $\mu$ V) $\leq 20$ kVA		<input checked="" type="checkbox"/> Group 1 Class B (dB $\mu$ V)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79	66	66 - 56 *	56 - 46*
0.50 -5.0	73	60	56	46
5.0 -30.0	73	60	60	50

FREQUENCY (MHz)	<input type="checkbox"/> Group 2 Class A (dB $\mu$ V) $\leq 75$ kVA		<input type="checkbox"/> Group 2 Class B (dB $\mu$ V)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	100	90	66 - 56 *	56 - 46*
0.50 -5.0	86	76	56	46
5.0 -30.0	90 - 73 *	80 - 60 *	60	50

DC port:

FREQUENCY (MHz)	<input type="checkbox"/> Group 1 Class A (dB $\mu$ V) $\leq 20$ kVA		<input type="checkbox"/> Group 1 Class B (dB $\mu$ V)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	97 - 89*	84 - 76*	84 - 74 *	74 - 64*
0.5 -30.0	89	76	74	64

#### Limit of patient-couple port cable emission :

Frequency (MHz)	Peak Current (dB $\mu$ A)
1-30	24

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
- (3) The test result calculated as following:  
Measurement Value = Reading Level + Correct Factor  
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)  
Margin Level = Measurement Value - Limit Value

The following table is the setting of the receiver

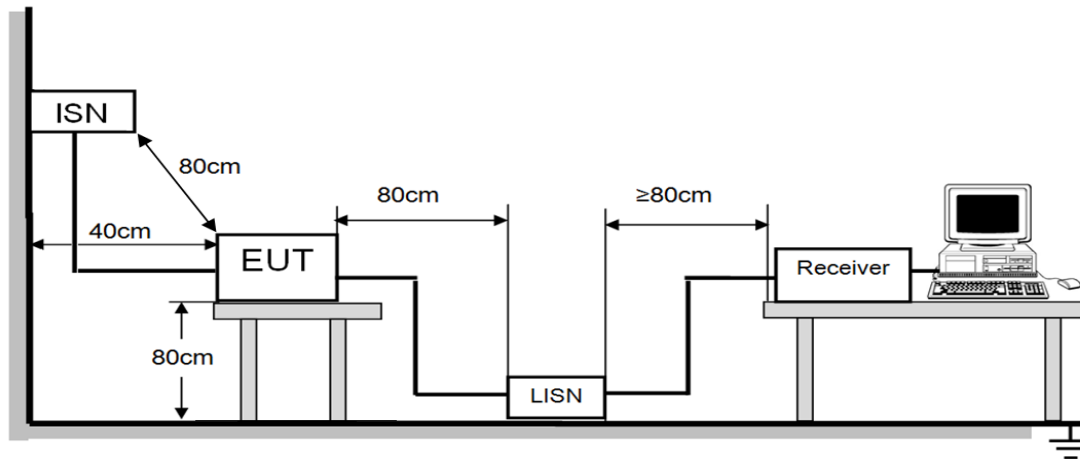
Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

### 6.1.2. Test Procedure

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall at least 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item:EUT Test Photos.

### 6.1.3. Test Setup and Configuration :

For LISN conducted emission

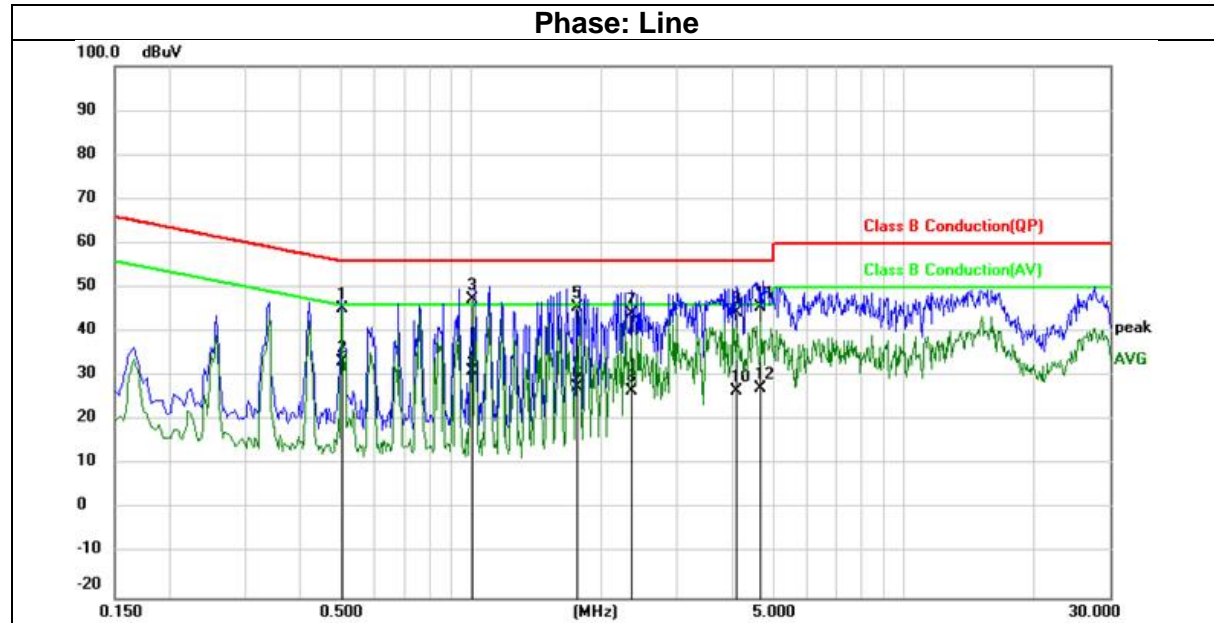


For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration.

## 6.1.4. Test Result

Mode 1 ; LISN (150k-30MHz)

Test Mode:	Mode 1	Temperature:	24℃
Test Voltage:	AC230V/50Hz	Humidity:	62%RH
Tested By:	Rupert Huang	Test Date:	Dec. 16, 2022



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.5047	25.75	19.54	45.29	56.00	-10.71	QP
2	0.5047	13.68	19.54	33.22	46.00	-12.78	AVG
3	1.0128	27.64	19.56	47.20	56.00	-8.80	QP
4	1.0128	11.46	19.56	31.02	46.00	-14.98	AVG
5	1.7628	25.97	19.58	45.55	56.00	-10.45	QP
6	1.7628	7.95	19.58	27.53	46.00	-18.47	AVG
7	2.3617	24.59	19.59	44.18	56.00	-11.82	QP
8	2.3617	7.21	19.59	26.80	46.00	-19.20	AVG
9	4.0782	24.78	19.63	44.41	56.00	-11.59	QP
10	4.0782	7.14	19.63	26.77	46.00	-19.23	AVG
11	4.6741	25.98	19.64	45.62	56.00	-10.38	QP
12	4.6741	7.57	19.64	27.21	46.00	-18.79	AVG

Remark:

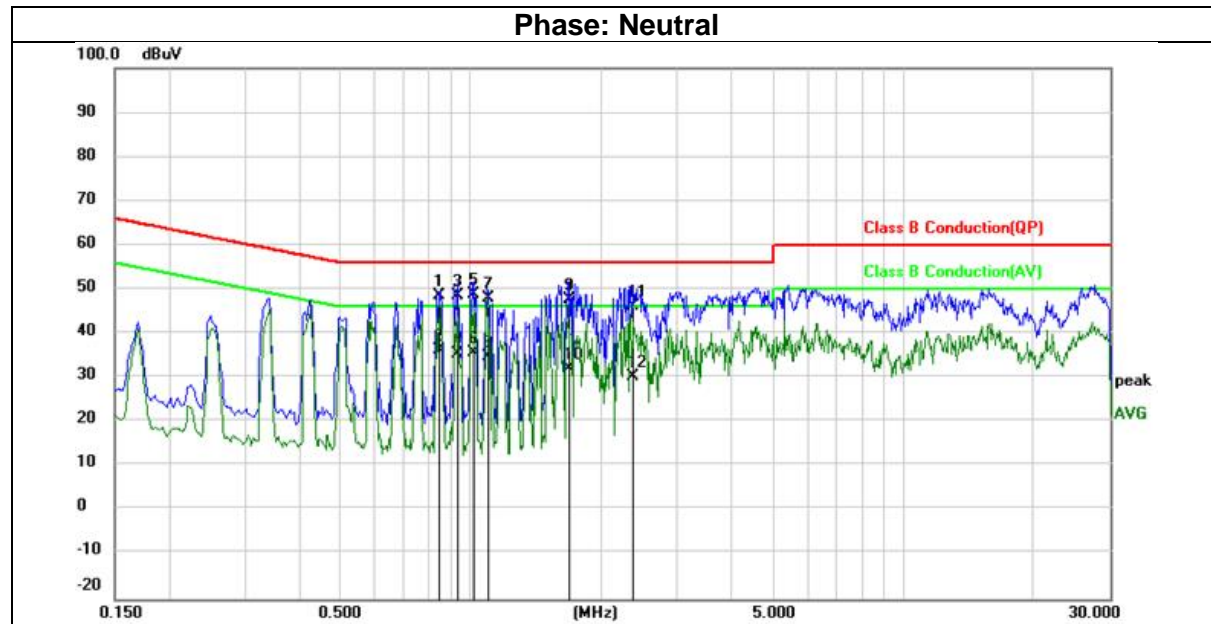
Result = Reading +Correct.

Correct = Insertion Loss + Cable Loss + Attenuator Factor.

Margin = Result - Limit.



Test Mode:	Mode 1	Temperature:	24℃
Test Voltage:	AC230V/50Hz	Humidity:	62%RH
Tested By:	Rupert Huang	Test Date:	Dec. 16, 2022



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.8443	28.97	19.56	48.53	56.00	-7.47	QP
2	0.8443	16.70	19.56	36.26	46.00	-9.74	AVG
3	0.9300	28.88	19.56	48.44	56.00	-7.56	QP
4	0.9300	15.80	19.56	35.36	46.00	-10.64	AVG
5	1.0117	29.14	19.56	48.70	56.00	-7.30	QP
6	1.0117	15.96	19.56	35.52	46.00	-10.48	AVG
7	1.0967	28.30	19.56	47.86	56.00	-8.14	QP
8	1.0967	15.34	19.56	34.90	46.00	-11.10	AVG
9	1.6825	28.08	19.58	47.66	56.00	-8.34	QP
10	1.6825	12.46	19.58	32.04	46.00	-13.96	AVG
11	2.3704	26.65	19.59	46.24	56.00	-9.76	QP
12	2.3704	10.54	19.59	30.13	46.00	-15.87	AVG

Remark:

Result = Reading + Correct.

Correct = Insertion Loss + Cable Loss + Attenuator Factor.

Margin = Result - Limit.

## 6.2. Radiated Disturbance Measurement

### 6.2.1. Limits of radiated disturbance measurement

FREQUENCY (MHz)	<input type="checkbox"/> Group 1 Class A ≤ 20 kVA		<input checked="" type="checkbox"/> Group 1 Class B	
	<input type="checkbox"/> At 10m	<input type="checkbox"/> At 3m	<input type="checkbox"/> At 10m	<input checked="" type="checkbox"/> At 3m
	Quasi-peak dBμV/m	Quasi-peak dBμV/m	Quasi-peak dBμV/m	Quasi-peak dBμV/m
30 – 230	40	50	30	40
230 – 1000	47	57	37	47

FREQUENCY (MHz)	☐ Group 2 Class A ≤ 20 kVA		FREQUENCY (MHz)	☐ Group 2 Class B		
	☐ At 3m			☐ At 3m		
	Magnetic Field Quasi-peak* dBμA/m	Electric Field Quasi-peak* dBμV/m		Magnetic Field Quasi-peak* dBμA/m	Electric Field	
					Quasi-peak* dBuV/m	Average* dBuV/m
0.15 – 0.49	82	-	0.15 - 30	39 - 3	-	-
0.49 – 1.705	72	-				
1.705 – 2.194	77	-				
2.194 – 3.95	68	-				
3.95 – 11	43.5 – 28.5*	-				
11 – 20	28.5	-				
20 – 30	18.5	-				
30 - 47	-	78	30 – 80.872	-	40	35
47 – 53.91	-	60				
53.91 – 54.56	-	60				
54.56 – 68	-	60				
68 – 80.872	-	73				
80.872 – 81.848	-	88	80.872 – 81.848	-	60	55
81.848 – 87	-	73	81.848 – 134.786	-	40	35
87 – 134.786	-	70	134.786 – 136.414	-	60	55
134.786 – 136.414	-	80	136.414 – 230	-	40	35
136.414 – 156	-	70				
156 – 174	-	84				
174 – 188.7	-	60				
188.7 – 190.979	-	70				
190.979 – 230	-	60	230 - 1000	-	47	42
230 – 400	-	70				
400 – 470	-	73				
470 – 1000	-	70				

**NOTE:**

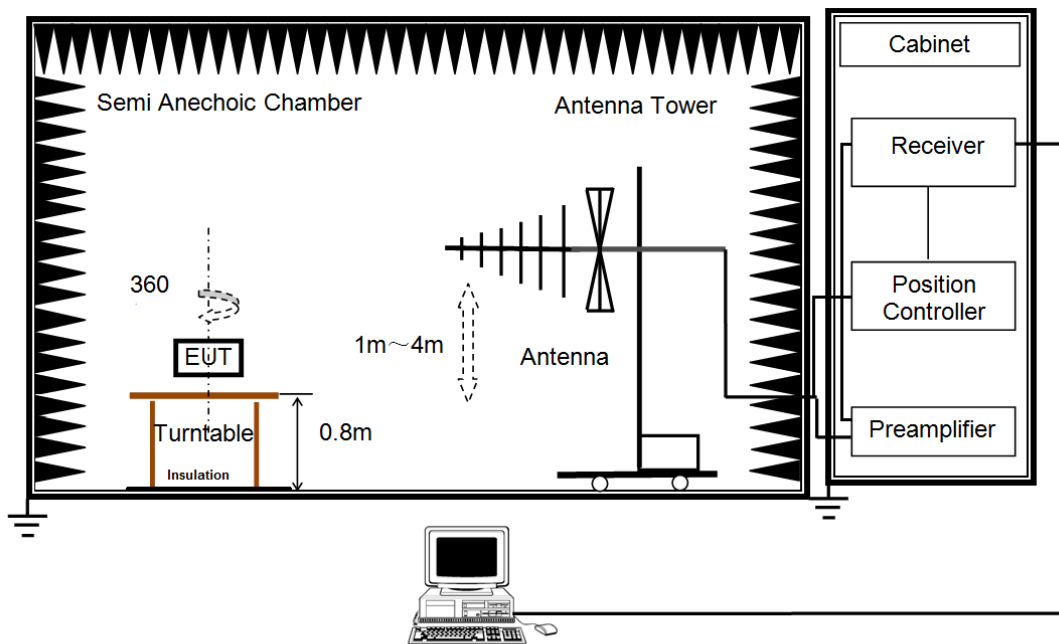
- (1) The limit for radiated test was performed according to EN55011.
- (2) The tighter limit applies at the band edges.
- (3) The test result calculated as following:  
Measurement Value = Reading Level + Correct Factor,  
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use),  
Margin Level = Measurement Value - Limit Value.
- (4) For test distance at 3m, the radiated field test, EUT shall be meet the small equipment requirement.
- (5) The average limits apply to magnetron driven equipment only. If magnetron driven equipment exceeds the quasi-peak limit at certain frequencies, then the measurement shall be repeated at these frequencies with the average detector, and the average limits specified in this table apply.
- (6) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

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## **6.2.2. Test Procedure**

- a. The measuring distance of at 3m shall be used for measurements at frequency from 30 to 1000MHz.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment shall be set at 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting radiated emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item:EUT Test Photos.

### 6.2.3. Test Setup and Configuration

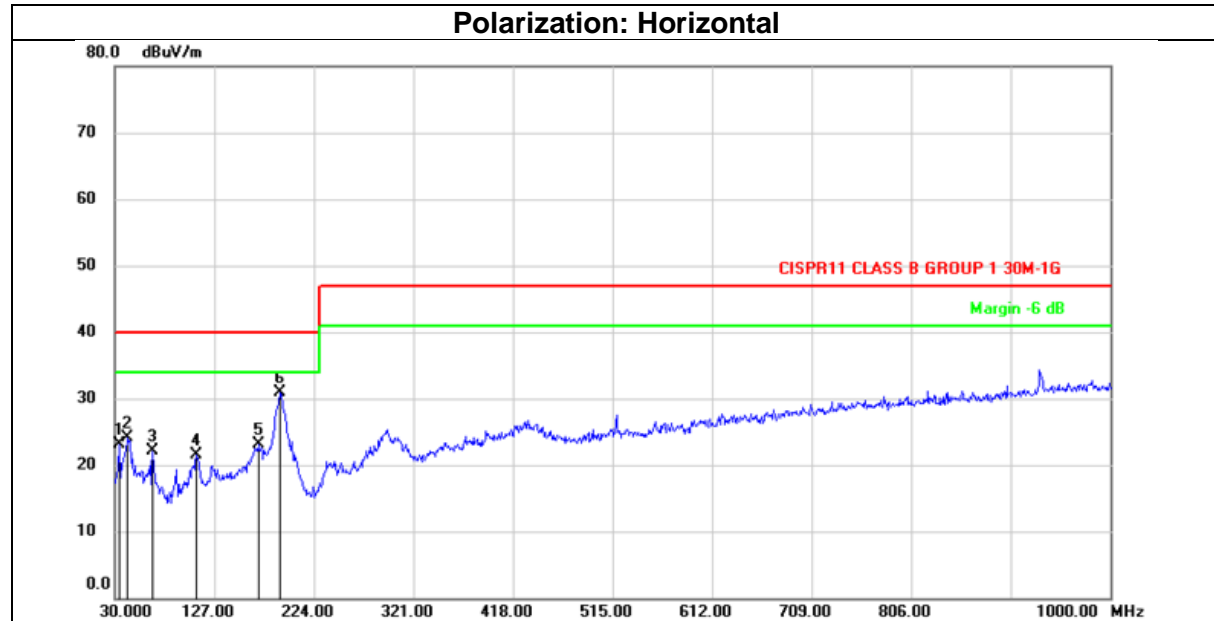


For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration.

## 6.2.4. Test Result

Mode 1 ; 30M-1GHz

Test Mode:	Mode 1	Temperature:	21 °C
Test Voltage:	AC 230V/50Hz	Humidity:	64%RH
Tested By:	Duncan Wang	Test Date:	Dec. 30, 2022



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	34.8177	36.54	-13.52	23.02	40.00	-16.98	PK
2	43.2243	36.62	-12.60	24.02	40.00	-15.98	PK
3	67.4097	36.06	-14.04	22.02	40.00	-17.98	PK
4	109.8633	37.06	-15.65	21.41	40.00	-18.59	PK
5	170.4883	35.79	-12.70	23.09	40.00	-16.91	PK
6	191.9577	45.60	-14.72	30.88	40.00	-9.12	PK

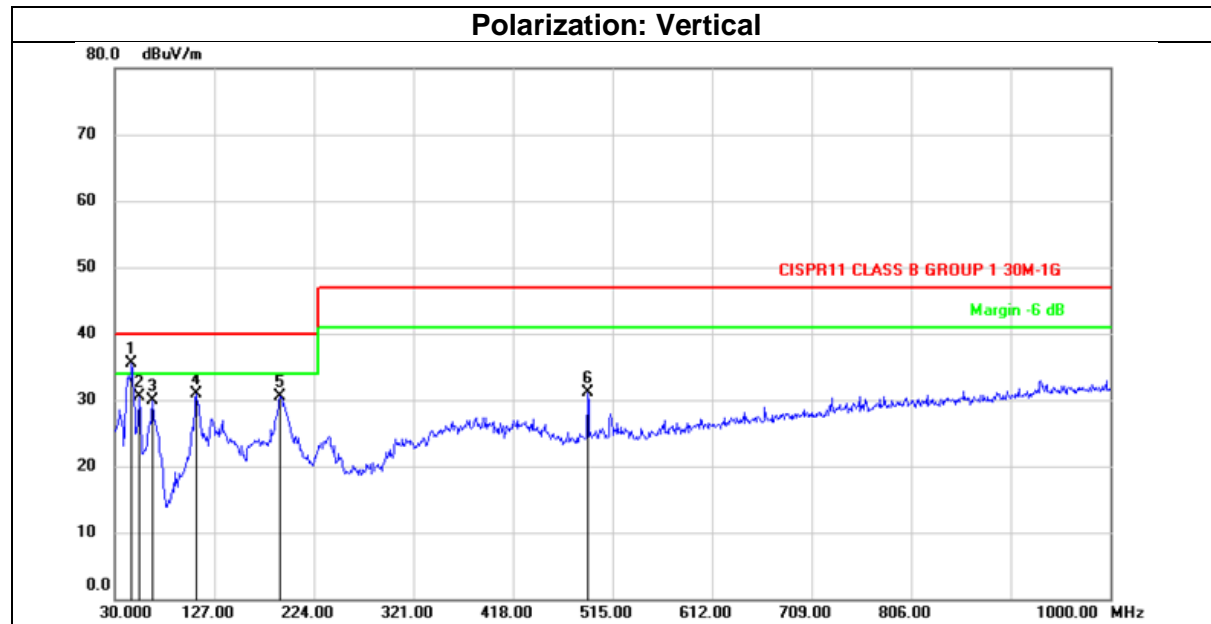
Remark:

Result = Reading +Correct.

Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain.

Margin = Result - Limit.

Test Mode:	Mode 1	Temperature:	21 °C
Test Voltage:	AC 230V/50Hz	Humidity:	64%RH
Tested By:	Duncan Wang	Test Date:	Dec. 30, 2022



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	47.1043	47.74	-12.28	35.46	40.00	-4.54	PK
2	54.1207	42.70	-12.19	30.51	40.00	-9.49	PK
3	67.4097	43.90	-14.04	29.86	40.00	-10.14	PK
4	109.7987	46.58	-15.66	30.92	40.00	-9.08	PK
5	191.7637	45.16	-14.70	30.46	40.00	-9.54	PK
6	491.5583	37.27	-6.08	31.19	47.00	-15.81	PK

Remark:

Result = Reading + Correct.

Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain.

Margin = Result - Limit.

## 6.3. Harmonic Current Disturbance Measurement

### 6.3.1. Limits of Harmonic Current

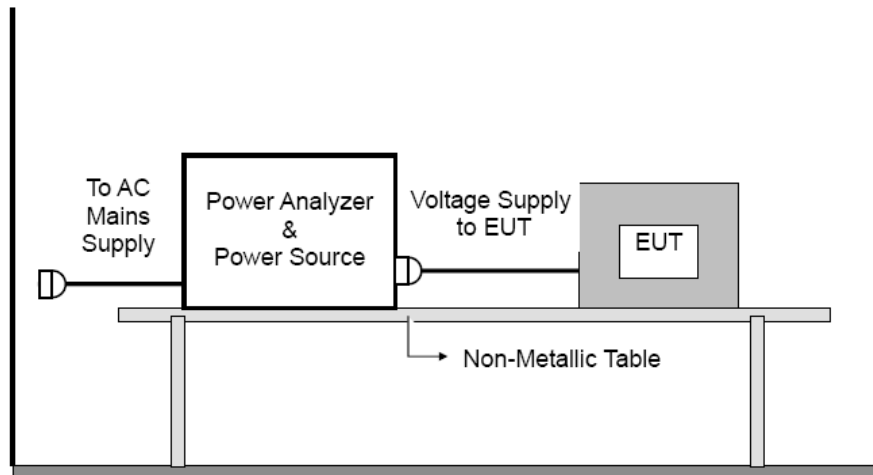
EN 61000-3-2/IEC 61000-3-2						
Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current A	Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current A                      mA/w	
Class A	Odd Harmonics		Class D	Odd Harmonics only		
	3	2.30		3	2.30	3.4
	5	1.14		5	1.14	1.9
	7	0.77		7	0.77	1.0
	9	0.40		9	0.40	0.5
	11	0.33		11	0.33	0.35
	13	0.21		13	0.21	0.30
	15≤n≤39	0.15 x 15/n		15≤n≤39	0.15 x 15/n	3.85/n
	Even Harmonics					
	2	1.08				
	4	0.43				
	6	0.30				
	8≤n≤40	0.23 x 8/n				



### 6.3.2. Test Procedure

- The EUT was placed on the top of a wooden table 0.8 meters above the ground and set to standby mode condition.
- Tests was performed according to the Test the measured values of the harmonics components of the input current in Clause 7 of IEC/EN 61000-3-2 depend on which standard adopted for compliance measurement.
- The Patient-coupled cable shall be separate connected to suitable simulator.

### 6.3.3. Test Setup and Configuration



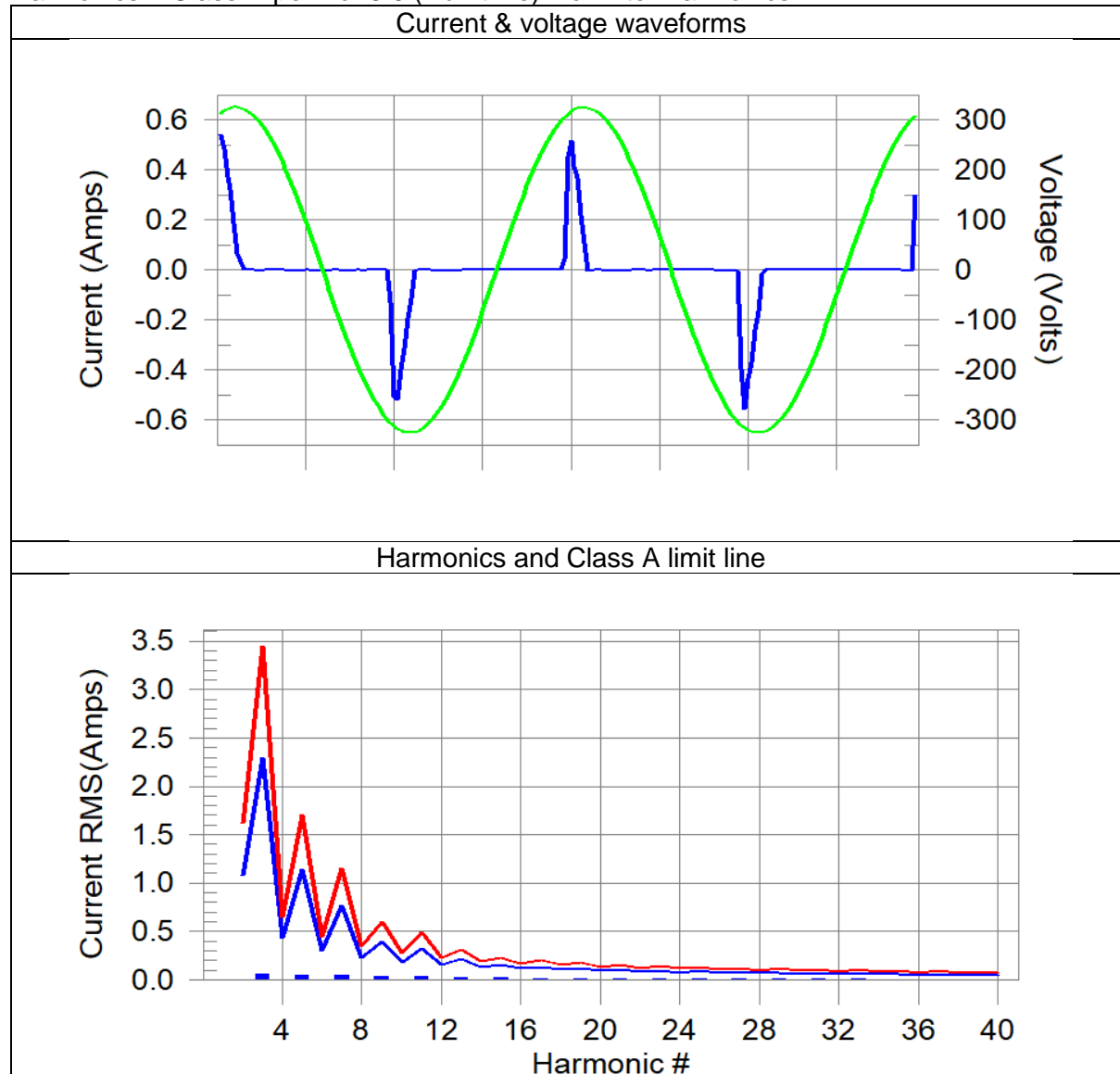
For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration.

### 6.3.4. Test Condition

Test Mode:	Mode 1	Temperature:	21 °C
Test Voltage:	230V/50Hz	Humidity:	64 %RH
Tested By:	Duncan Wang	Test Date:	Dec. 9, 2022

### 6.3.5. Test Result

Harmonics – Class-A per Ed. 5.0 (Run time) incl. inter-harmonics



Test result: Pass Worst harmonics H15-8.7% of 150% limit, H15-12.9% of 100% limit

Test Result: Pass Source qualification: Normal

THC(A):0.115	I-THD(%):190.6	POHC(A):0.024	POHC Limit(A):0.251
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Highest parameter values during test:			
V_RMS (Volts):	229.89	Frequency(Hz):	50.00
I_Peak (Amps):	0.589	I_RMS (Amps):	0.130
I_Fund (Amps):	0.060	Crest Factor:	4.534
Power (Watts):	13.6	Power Factor:	0.457

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.001	1.620	N/A	Pass
3	0.058	2.300	2.5	0.058	3.450	1.7	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.054	1.140	4.7	0.054	1.710	3.1	Pass
6	0.000	0.300	N/A	0.000	0.450	N/A	Pass
7	0.048	0.770	6.2	0.048	1.155	4.1	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.041	0.400	10.2	0.041	0.600	6.8	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.033	0.330	10.1	0.033	0.495	6.8	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.026	0.210	12.3	0.026	0.315	8.3	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.019	0.150	12.9	0.020	0.225	8.7	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.014	0.132	10.8	0.014	0.198	7.3	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.011	0.118	9.5	0.011	0.178	6.4	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.010	0.107	9.6	0.010	0.161	6.4	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.010	0.098	10.4	0.010	0.147	7.0	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.010	0.090	11.0	0.010	0.135	7.4	Pass
26	0.000	0.071	N/A	0.000	0.107	N/A	Pass
27	0.009	0.083	11.1	0.009	0.125	7.5	Pass
28	0.000	0.066	N/A	0.000	0.099	N/A	Pass
29	0.008	0.078	10.5	0.008	0.116	7.1	Pass
30	0.000	0.061	N/A	0.000	0.092	N/A	Pass
31	0.007	0.073	9.3	0.007	0.109	6.3	Pass
32	0.000	0.058	N/A	0.000	0.086	N/A	Pass
33	0.006	0.068	8.1	0.006	0.102	5.5	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.005	0.064	N/A	0.005	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.004	0.061	N/A	0.004	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.004	0.058	N/A	0.004	0.087	N/A	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

Test Result: Pass Source qualification: Normal

THC(A):0.115	I-THD(%):190.6	POHC(A):0.024	POHC Limit(A):0.251
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Highest parameter values during test:			
V_RMS (Volts):	229.89	Frequency(Hz):	50.00
I_Peak (Amps):	0.589	I_RMS (Amps):	0.130
I_Fund (Amps):	0.060	Crest Factor:	4.534
Power (Watts):	13.6	Power Factor:	0.457

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.001	1.620	N/A	Pass
3	0.058	2.300	2.5	0.058	3.450	1.7	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.054	1.140	4.7	0.054	1.710	3.1	Pass
6	0.000	0.300	N/A	0.000	0.450	N/A	Pass
7	0.048	0.770	6.2	0.048	1.155	4.1	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.041	0.400	10.2	0.041	0.600	6.8	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.033	0.330	10.1	0.033	0.495	6.8	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.026	0.210	12.3	0.026	0.315	8.3	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.019	0.150	12.9	0.020	0.225	8.7	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.014	0.132	10.8	0.014	0.198	7.3	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.011	0.118	9.5	0.011	0.178	6.4	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.010	0.107	9.6	0.010	0.161	6.4	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.010	0.098	10.4	0.010	0.147	7.0	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.010	0.090	11.0	0.010	0.135	7.4	Pass
26	0.000	0.071	N/A	0.000	0.107	N/A	Pass
27	0.009	0.083	11.1	0.009	0.125	7.5	Pass
28	0.000	0.066	N/A	0.000	0.099	N/A	Pass
29	0.008	0.078	10.5	0.008	0.116	7.1	Pass
30	0.000	0.061	N/A	0.000	0.092	N/A	Pass
31	0.007	0.073	9.3	0.007	0.109	6.3	Pass
32	0.000	0.058	N/A	0.000	0.086	N/A	Pass
33	0.006	0.068	8.1	0.006	0.102	5.5	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.005	0.064	N/A	0.005	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.004	0.061	N/A	0.004	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.004	0.058	N/A	0.004	0.087	N/A	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

## 6.4. Voltage Fluctuation and Flicker Measurement

### 6.4.1. Limits of Voltage Fluctuation and Flicker

Test items	Limits	Descriptions
$P_{st}$	$\leq 1.0, T_p=10\text{min}$	short-term flicker indicator
$P_{lt}$	$\leq 0.65, T_p=2\text{h}$	long-term flicker indicator
$d_c$	$\leq 3.3\%$	relative steady-state voltage change
$d_{max}$	$\leq 4\%$ (or $6\%$ <small>Note(1)</small> , $7\%$ <small>Note(2)</small> )	maximum relative voltage change:
$d_{(t)}$	$\leq 3.3\%$ , more than 500ms	relative voltage change characteristic

Note:

(1)6 % for equipment which is:

- a. switched manually, or
- b. switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

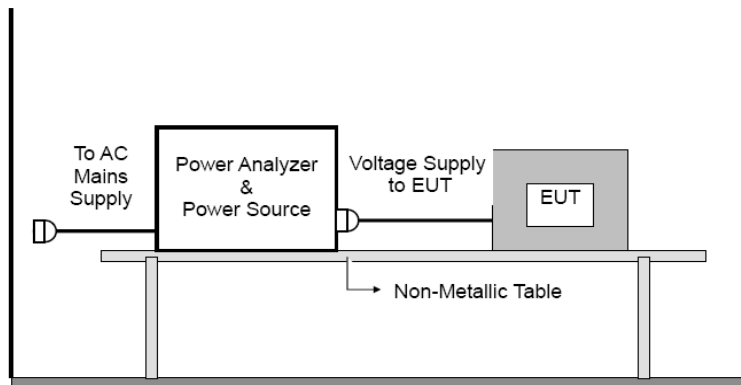
(2)7 % for equipment which is

- a. attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
- b. switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

#### 6.4.2. Test Procedure

- The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal conditions
- During the flicker measurement, the measure time shall include that part of whole operation changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.
- Tests was performed according to the Test Conditions/Assessment of Voltage Fluctuations specified in Clause 6.0/4.0 of IEC/EN 61000-3-3 depend on which standard adopted for compliance measurement.
- All types of harmonic current and/or voltage fluctuation in this report are assessed by direct measurement using flicker-meter.
- The Patient-coupled cable shall be separate connected to suitable simulator.

#### 6.4.3. Test Setup and Configuration



For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration.

#### 6.4.4. Test Condition

Test Mode:	Mode 1	Temperature:	21°C
Test Voltage:	AC 230V/50Hz	Humidity:	64%RH
Tested By:	Duncan Wang	Test Date:	Dec. 9, 2022

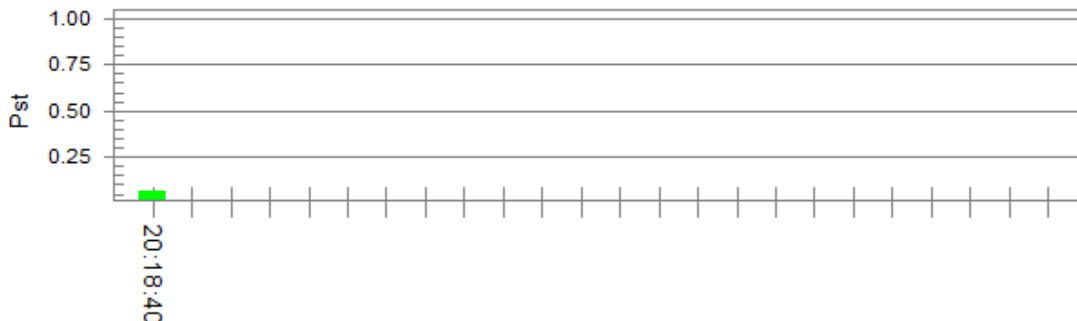
## 6.4.5. Test Result

Test Result: Pass

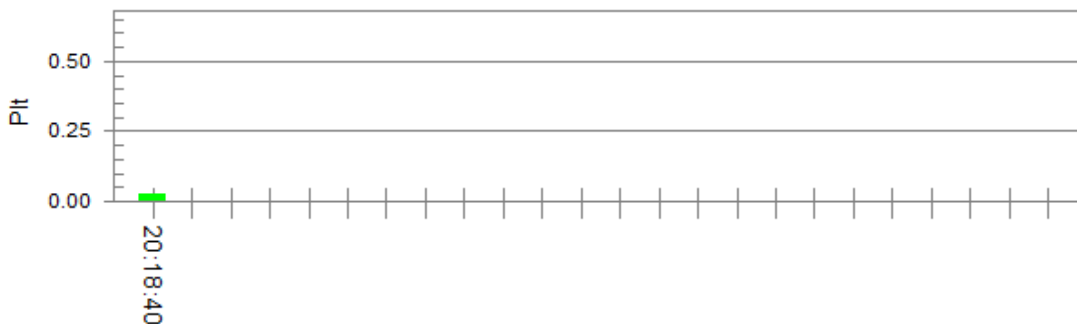
Status: Test Completed

Pst and limit line

European Limits



Plt and limit line



**Parameter values recorded during the test:**

Vrms at the end of test (Volt): 229.85

Highest dt (%):

T-max (mS): 0

Highest dc (%): 0.00

Highest dmax (%): 0.00

Highest Pst (10 min. period): 0.064

Highest Plt (2 hr. period): 0.028

Test limit (%):

Test limit (mS): 500.0 Pass

Test limit (%): 3.30 Pass

Test limit (%): 4.00 Pass

Test limit: 1.000 Pass

Test limit: 0.650 Pass

## 7. IMMUNITY TEST

### 7.1. Performance Criteria

According to EN 60601-1-2 standard, the general performance criteria as following:

Type of test	Reaction of ME EQUIPMENT or ME SYSTEM during test	How to continue with testing
Transient(a)	The ME EQUIPMENT or ME SYSTEM is permanently damaged. However, BASIC SAFETY and ESSENTIAL PERFORMANCE continue to be provided.	The test sequence shall be repeated two times with this IMMUNITY TEST LEVEL and polarity. The ME EQUIPMENT or ME SYSTEM passes the test if it continues to provide its BASIC SAFETY and ESSENTIAL PERFORMANCE. If any equipment is damaged, it can continue to be used for the IMMUNITY test for this specific phenomenon, as long as it can be proven (e.g. by RISK MANAGEMENT, engineering analysis, experience, redundancy) that the ability of the ME EQUIPMENT or ME SYSTEM to provide its BASIC SAFETY and ESSENTIAL PERFORMANCE can still be determined while using the damaged equipment. If a PORT of the ME EQUIPMENT or ME SYSTEM is damaged and the ME EQUIPMENT or ME SYSTEM has multiple identical ports, the test shall not be repeated on any of the identical ports. To test the next non-identical PORT, the ME EQUIPMENT or ME SYSTEM shall be restored to normal operation. To continue with the IMMUNITY test of the next EM phenomenon, the ME EQUIPMENT or ME SYSTEM shall be restored to normal operation.
	The ME EQUIPMENT or ME SYSTEM is permanently damaged. BASIC SAFETY or ESSENTIAL PERFORMANCE does not continue to be provided.	The ME EQUIPMENT or ME SYSTEM has failed the test.
Continuous(b)	The ME EQUIPMENT or ME SYSTEM is permanently damaged. However, BASIC SAFETY and ESSENTIAL PERFORMANCE continue to be provided.	The test sequence shall be repeated two times with this IMMUNITY TEST LEVEL and polarity or frequency. BASIC SAFETY and ESSENTIAL PERFORMANCE shall continue to be provided. To continue with the next frequency step the ME EQUIPMENT or ME SYSTEM shall be restored to normal operation.
	The ME EQUIPMENT or ME SYSTEM is permanently damaged. BASIC SAFETY or ESSENTIAL PERFORMANCE does not continue to be provided.	The ME EQUIPMENT or ME SYSTEM has failed the test.
(a) Tests according to IEC 61000-4-2, IEC 61000-4-4, IEC 61000-4-5 and IEC 61000-4-11		
(b) Tests according to IEC 61000-4-3, IEC 61000-4-6 and IEC 61000-4-8		



## 7.2. Electrostatic Discharge Immunity Test

### 7.2.1. Test Specification

<b>Standard:</b>	IEC 61000-4-2
<b>Colleteral Standard:</b>	N/A
<b>Discharge Impedance:</b>	330(1±10%)Ω / 150(1±10%)pF
<b>Discharge Voltage:</b>	Air Discharge: ±2kV/±4kV/±8kV/±15kV (Direct)
<b>Polarity:</b>	Contact Discharge: ±2kV/±4kV/±8kV (Direct/Indirect)
	10 times each polarity
<b>Discharge mode of operation:</b>	Single discharges
<b>Discharge Period:</b>	1 second minimum
<b>Repeat test time:</b>	2 times

**Note:** (1) The test performed of laboratory was according to the client requirements.

### 7.2.2. Test Procedure

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manner:

- a. Contact discharge was applied to conductive surfaces and coupling planes of the EUT.

During the test, it was performed with single discharges. For the single discharge time between successive single discharges was at least 1 second. On each pre-selected point at least 10 single discharges (in the most sensitive polarity) shall be applied. Test shall be performed at a maximum repetition rate of one discharge per second.

Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane. The four faces of the EUT will be performed with electrostatic discharge.

Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

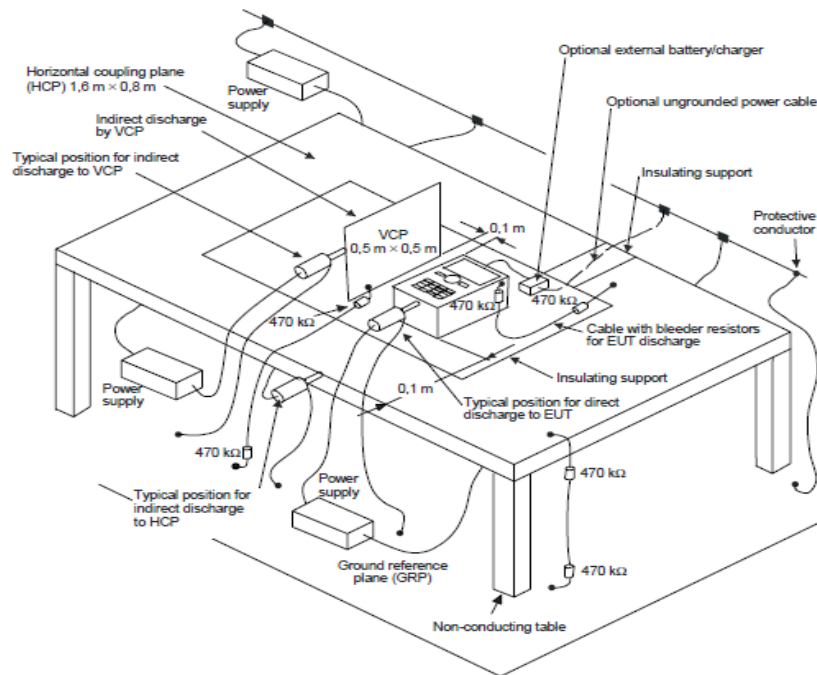
The four faces of the EUT will be performed with electrostatic discharge.

- b. Air discharges at insulation surfaces of the EUT.

It was at least ten single discharges with positive and negative at the same selected point.

- c. For the actual test configuration, please refer to the related Item :EUT Test Photos.

### 7.2.3. Test Setup and Configuration



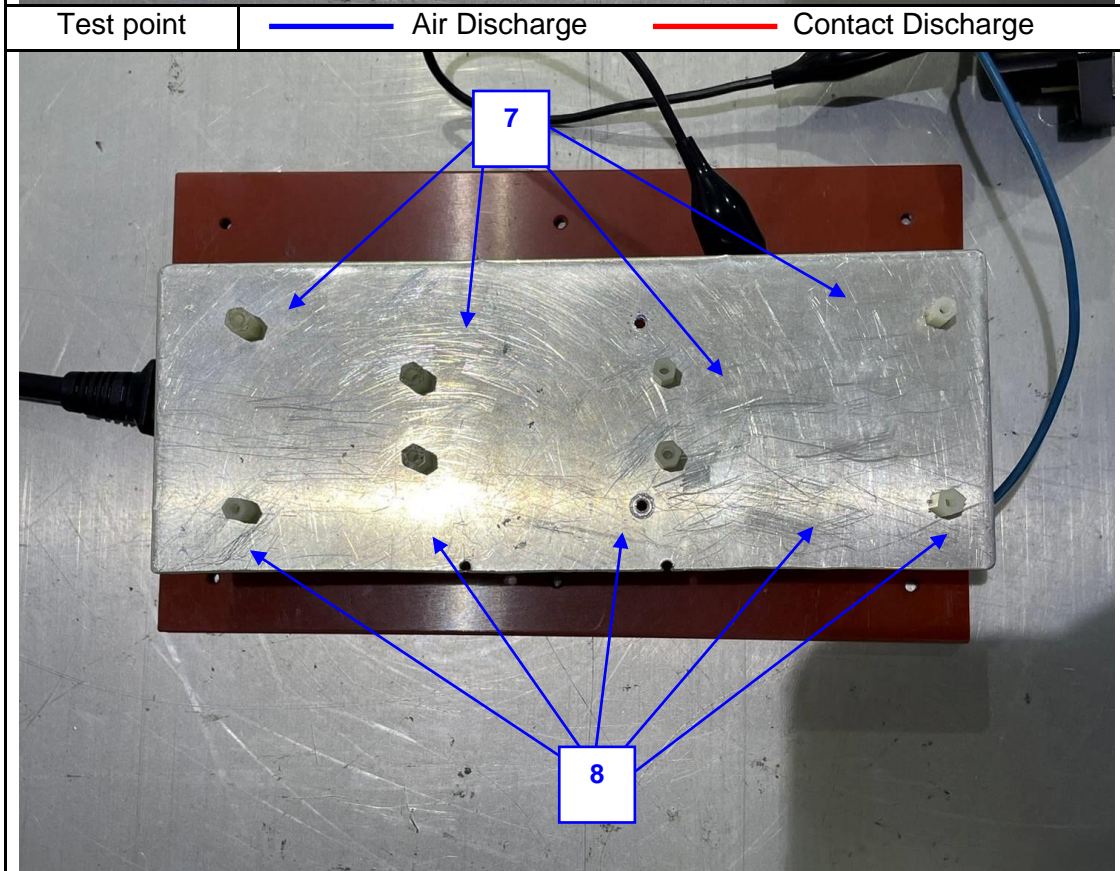
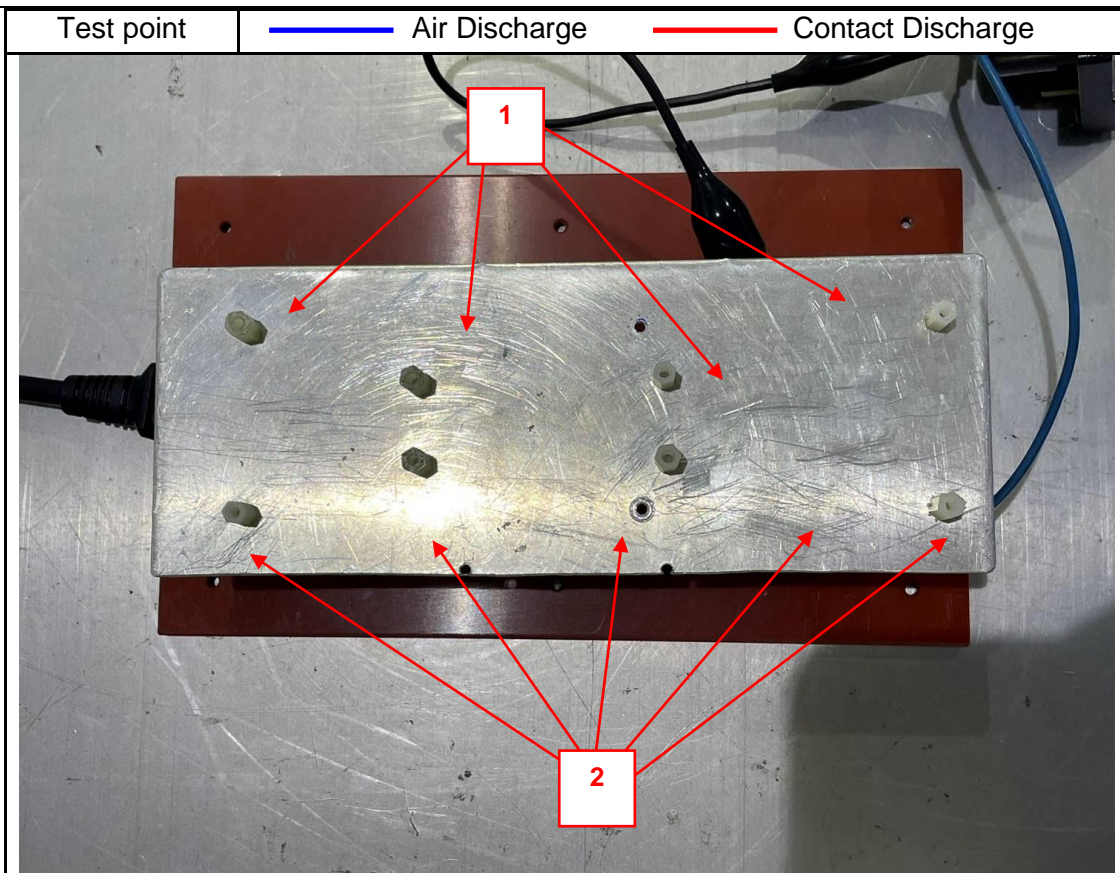
For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration.

## 7.2.4. Test Result

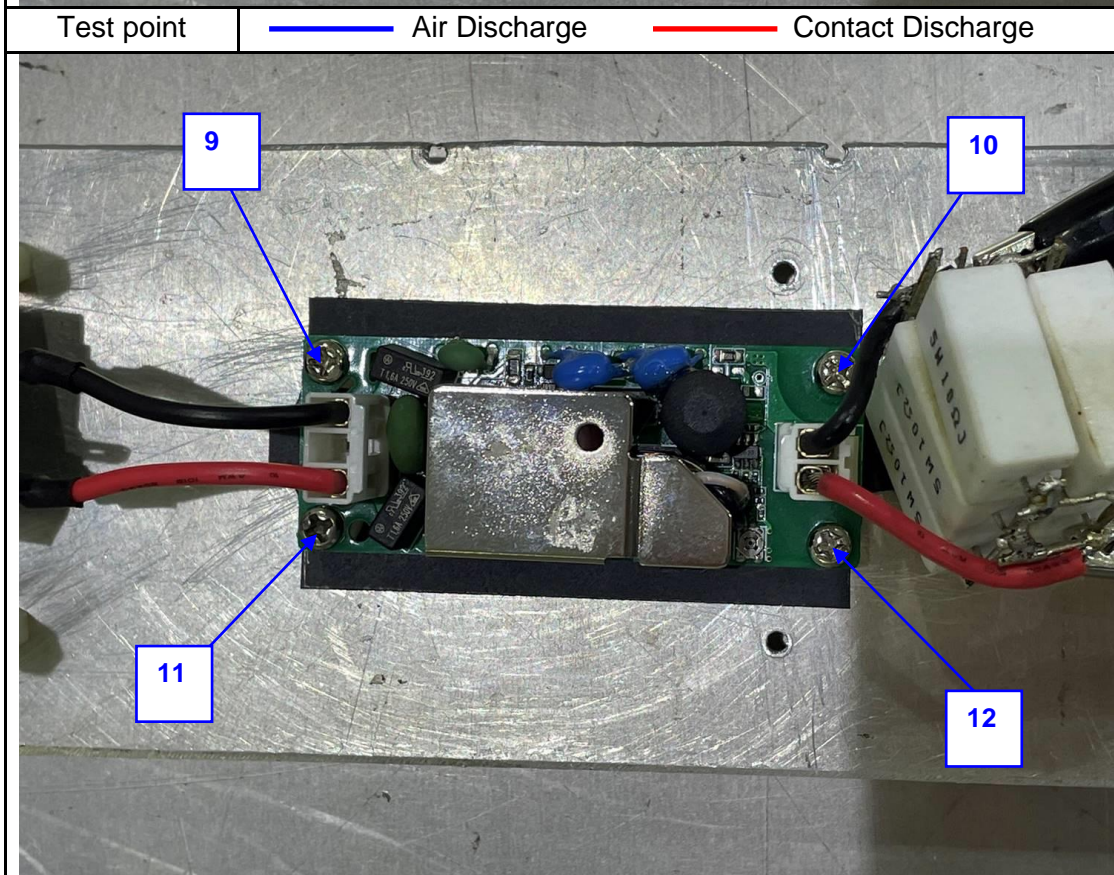
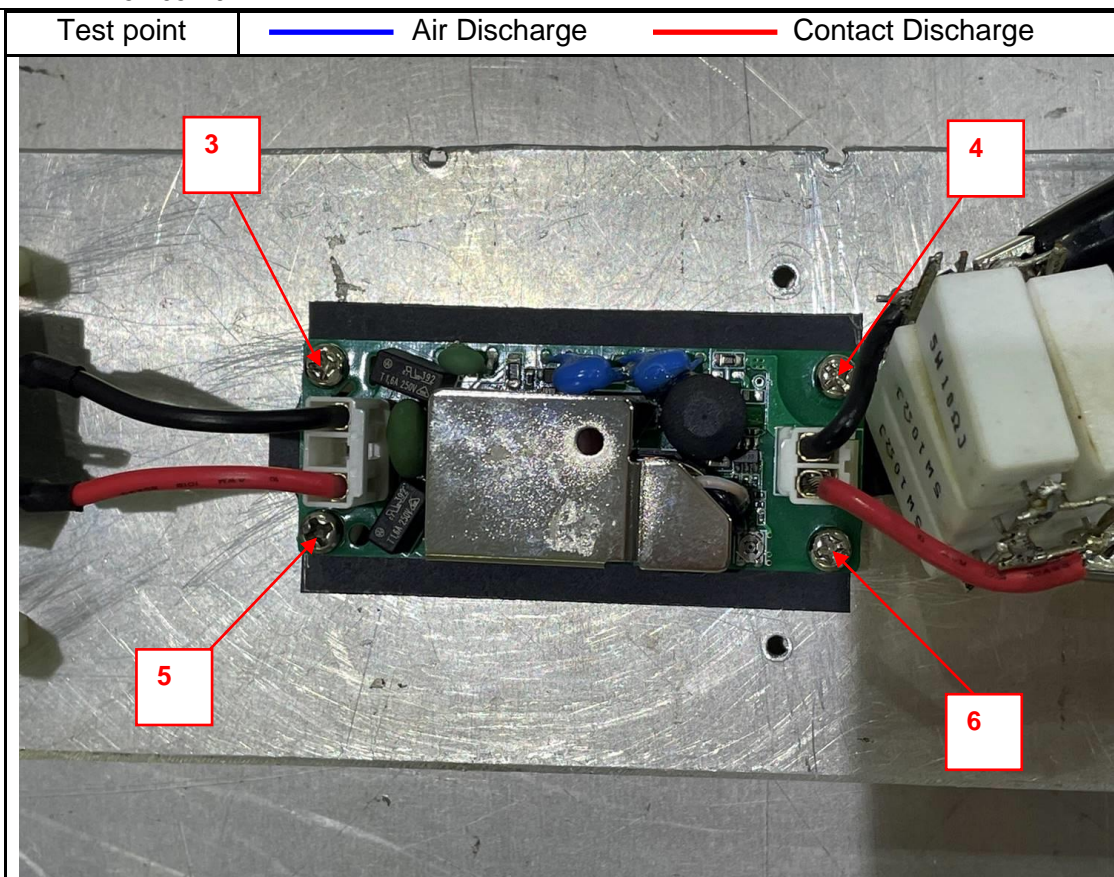
Test Mode:	Mode 1	Temperature:	22°C
Test Voltage:	AC 230V/50Hz	Humidity:	45%RH
Discharge of times:	Air: 10 times Contact: 10 times	ATM pressure	1020 hpa
Tested By:	Duncan Wang	Test Date:	Dec. 12, 2022

Mode	Air Discharge								Contact Discharge							
	2kV		4kV		8kV		15kV		2kV		4kV		8kV		-kV	
Location	+	-	+	-	+	-	+	-	+	-	+	-	+	-	-	-
1~6	-	-	-	-	-	-	-	-	Pass	Pass	Pass	Pass	Pass	Pass	-	-
7~12	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	-	-	-	-	-	-	-	-
Criterion	Please refer to 7.1															
Results	PASS															
Note	There was no abnormal situation during the test compared with initial operation. Pass means that the test performance meet Criteria A which identical with EN 55035.															

Mode	HCP Discharge								VCP Discharge							
	2kV		4kV		8kV		-kV		2kV		4kV		8kV		-kV	
Location	+	-	+	-	+	-	-	-	+	-	+	-	+	-	-	-
front	PASS	PASS	PASS	PASS	PASS	PASS	-	-	PASS	PASS	PASS	PASS	PASS	PASS	-	-
rear	PASS	PASS	PASS	PASS	PASS	PASS	-	-	PASS	PASS	PASS	PASS	PASS	PASS	-	-
left	PASS	PASS	PASS	PASS	PASS	PASS	-	-	PASS	PASS	PASS	PASS	PASS	PASS	-	-
right	PASS	PASS	PASS	PASS	PASS	PASS	-	-	PASS	PASS	PASS	PASS	PASS	PASS	-	-
Criterion	Please refer to 7.1															
Results	PASS															
Note	There was no abnormal situation during the test compared with initial operation. Pass means that the test performance meet Criteria A which identical with EN 55035.															







## 7.3. Radio Frequency Electromagnetic Field Immunity Test

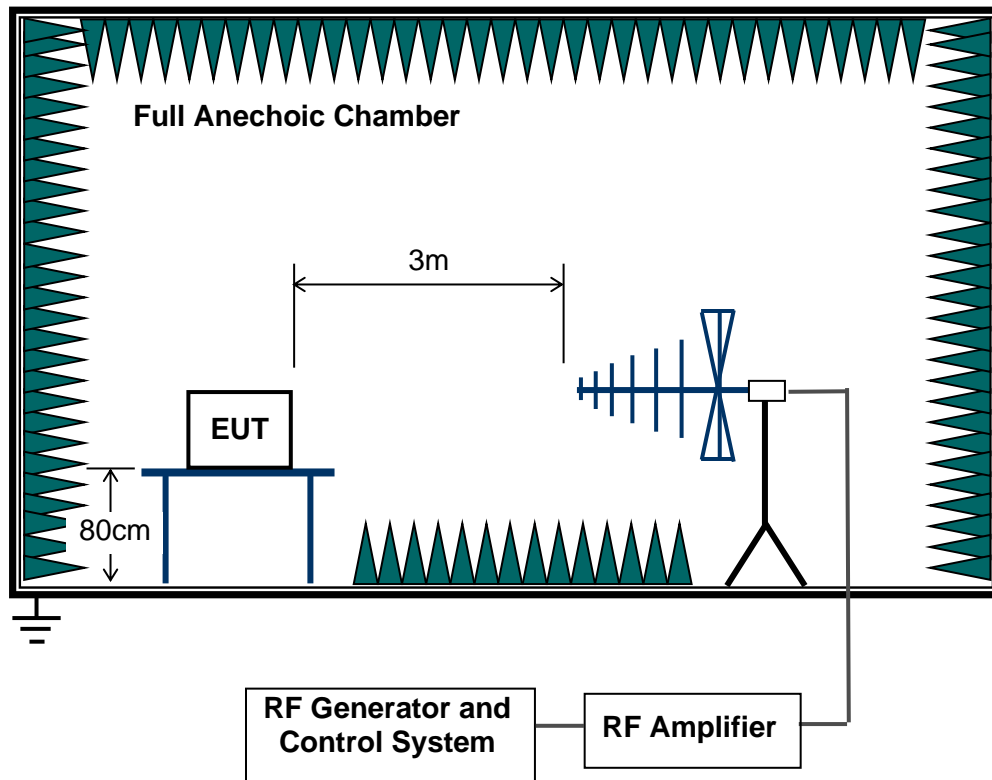
### 7.3.1. Test Specification

<b>Standard:</b>	IEC 61000-4-3
<b>Colleteral Standard:</b>	N/A
<b>Frequency Range:</b>	80 MHz to 2700MHz
<b>Field Strength:</b>	3V/m or 10V/m (unmodulated)
<b>Modulation:</b>	80%, AM(1 KHz)
<b>Frequency Step:</b>	1% of fundamental
<b>Polarity of Antenna</b>	Vertical and Horizontal
<b>Test Distance:</b>	3 meters
<b>Antenna Height:</b>	1.55 meters
<b>Dwell Time:</b>	3 s
<b>Repeat test time:</b>	2 times

### 7.3.2. Test Procedure

- The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.
- The frequency range is swept from 80 MHz to 2700MHz with the signal 80% amplitude modulated with a 1 KHz sine wave. The rate of sweep did not exceed  $1.5 \times 10^{-3}$  decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
- The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- The field strength level 80 MHz to 2700MHz was 3V/m for Professional healthcare facility environment ,80MHz to 2700MHz was 10V/m for Home healthcare environment.

### 7.3.3. Test Setup and Configuration



For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration.

#### 7.3.4. RS proximity fields from RF Wireless Communication Test Specification

<b>Standard:</b>	IEC 61000-4-3
<b>Colleteral Standard:</b>	N/A
<b>Frequency Range:</b>	See page 6
<b>Field Strength:</b>	
<b>Modulation:</b>	
<b>Polarity of Antenna</b>	Vertical and Horizontal
<b>Test Distance:</b>	3 meters
<b>Dwell Time:</b>	3 s

#### 7.3.5. Test Procedure

- The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.
- The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- The field strength and modulation was according to Page 5 table.
- The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.
- The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.

#### 7.3.6. Test Setup and Configuration

Please refer to Clause 7.3.3.



### 7.3.7. Test Result

Test Mode:		Mode 1		Temperature:		1°C	
Test Voltage:		AC 230V/ 50Hz		Humidity:		54%RH	
Tested By:		Eric T Fan		Test Date:		Oct. 19, 2022	
Freq. Range (MHz)	Position ( Face )		Polarity ( H & V )	Field Strength (V/m)	Criterion		Results
80~2700	Front		H&V	10V/m	Please refer to 7.1		PASS
80~2700	Left		H&V	10V/m	Please refer to 7.1		PASS
80~2700	Rear		H&V	10V/m	Please refer to 7.1		PASS
80~2700	Right		H&V	10V/m	Please refer to 7.1		PASS
385	Front/ Left/ Rear/ Right		H&V	27V/m	Please refer to 7.1		PASS
450	Front/ Left/ Rear/ Right		H&V	28V/m	Please refer to 7.1		PASS
710	Front/ Left/ Rear/ Right		H&V	9V/m	Please refer to 7.1		PASS
745	Front/ Left/ Rear/ Right		H&V	9V/m	Please refer to 7.1		PASS
780	Front/ Left/ Rear/ Right		H&V	9V/m	Please refer to 7.1		PASS
810	Front/ Left/ Rear/ Right		H&V	28V/m	Please refer to 7.1		PASS
870	Front/ Left/ Rear/ Right		H&V	28V/m	Please refer to 7.1		PASS
930	Front/ Left/ Rear/ Right		H&V	28V/m	Please refer to 7.1		PASS
1720	Front/ Left/ Rear/ Right		H&V	28V/m	Please refer to 7.1		PASS
1845	Front/ Left/ Rear/ Right		H&V	28V/m	Please refer to 7.1		PASS
1970	Front/ Left/ Rear/ Right		H&V	28V/m	Please refer to 7.1		PASS
2450	Front/ Left/ Rear/ Right		H&V	28V/m	Please refer to 7.1		PASS
5240	Front/ Left/ Rear/ Right		H&V	9V/m	Please refer to 7.1		PASS
5500	Front/ Left/ Rear/ Right		H&V	9V/m	Please refer to 7.1		PASS
5785	Front/ Left/ Rear/ Right		H&V	9V/m	Please refer to 7.1		PASS
Note	There was no abnormal situation during the test compared with initial operation. Pass means that the test performance meet Criteria A which identical with EN 55035.						

## 7.4. Electrical Fast Transient/Burst Immunity Test

### 7.4.1. Test Specification

<b>Standard:</b>	IEC 61000-4-4
<b>Colleteral Standard:</b>	N/A
<b>Test Voltage:</b>	2 kV for AC Mains and DC port, 1kV for signal
<b>Polarity:</b>	Positive and Negative
<b>Impulse Frequency:</b>	100 KHz
<b>Impulse wave shape:</b>	5/50 Tr/Th ns
<b>Burst Duration:</b>	0.75ms
<b>Burst Period:</b>	300ms
<b>Test Duration:</b>	1 Minute
<b>Repeat test time:</b>	2 times

### 7.4.2. Test Procedure

- The EUT was tested with 2000 volt discharges to the AC power input leads, 1000 volt discharges to the signal/control ports.
- Both positive and negative polarity discharges were applied.
- Table-top equipment and equipment normally mounted on ceilings or walls as well as built-in equipment shall be tested with the EUT located  $(0,1 \pm 0,01)$  m above the ground reference plane.
- The EUT and the auxiliary equipment were placed on a table of 0.8 m heights above a metal ground reference plane. The size of ground plane is greater than 0.8m×1m and project beyond the EUT by at least 0.1m on all sides. The ground plane is connected to the protective earth. The length of power cord between the coupling device and the EUT was less than 0.5 meters (provided by the manufacturer), The minimum distance between the EUT and all other conductive structures (including the generator, AE and the walls of a shielded room), except the ground reference plane, shall be more than 0,5 m.
- The duration time of each test sequential was 1 minute.
- The transient/burst waveform was in accordance with IEC 61000-4-4, 5/50ns.
- The patient-couple cable specified greater than 3m shall be used capacitive clamp do the test.

The diagram illustrates a power system architecture. At the top left, 'AC Main' is connected to an 'EFT/B Generator'. The generator is connected to an 'EUT Port', which in turn connects to an 'EUT' (Equipment Under Test). The 'EUT' is connected to an 'AE' (Antenna Element), which is then connected to 'AE AC Main'. Below these components is a horizontal bar representing a ground plane. A vertical dimension line on the right indicates a height of '0.8' from the 'Reference Ground' (indicated by a ground symbol at the bottom left) to the top of the components. The text 'AC Main or DC Power' is positioned to the left of the ground plane.

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#### 7.4.4. Test Result

Test Mode:	Mode 1	Temperature:	22°C
Test Voltage:	AC 230V/ 50Hz	Humidity:	65%RH
Tested By:	Duncan Wang	Test Date:	Dec. 09, 2022

Test Port		Test Levels (kV)						Criterion	Results
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0		
AC Power Port	L	-	-	-	-	PASS	PASS	Please refer to 7.1	PASS
	N	-	-	-	-	PASS	PASS	Please refer to 7.1	PASS
	L + N	-	-	-	-	PASS	PASS	Please refer to 7.1	PASS
Note		<p>There was no abnormal situation during the test compared with initial operation.</p> <p>Pass means that the test performance meet Criteria A which identical with EN 55035.</p>							

## 7.5. Surge Immunity Test

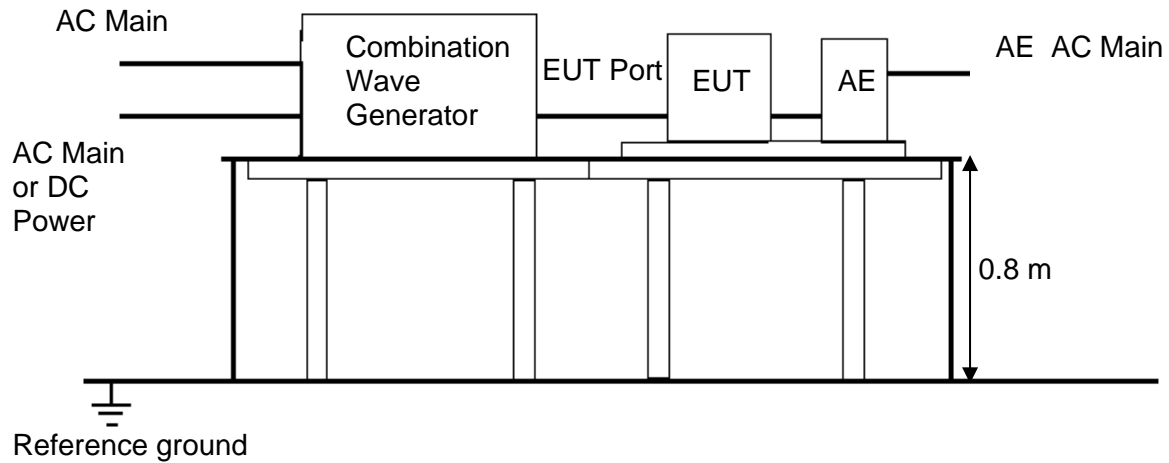
### 7.5.1. Test Specification

<b>Standard:</b>	IEC 61000-4-5
<b>Colleteral Standard:</b>	N/A
<b>Waveform:</b>	1.2/50 (8/20) Tr/Th $\mu$ s
<b>Test Voltage:</b>	0.5, 1, 2 kV
<b>Polarity:</b>	Positive and Negative
<b>Phase Angle:</b>	0°/90°/180°/270°
<b>Repetition Rate:</b>	1 per minute
<b>Discharge Times:</b>	5
<b>Repeat test time:</b>	2 times

### 7.5.2. Test Procedure

- The EUT and the auxiliary equipment were placed on a table of 0.8m heights above a metal ground reference plane. The size of ground plane is greater than 1m×1m and project beyond the EUT by at least 0.1m on all sides. The ground plane is connected to the protective earth. The length of power cord between the coupling device and the EUT was less than 2 meters (provided by the manufacturer).
- The EUT was connected to the power mains through a coupling device that directly couples the surge interference signal. The surge noise was applied synchronized to the voltage phase at the zero crossing and the peak value of the AC voltage wave (positive and negative).
- The surges were applied line to line and line(s) to earth. When testing line to earth the test voltage was applied successively between each of the lines and earth. Steps up to the test level specified increased the test voltage. All lower levels including the selected test level were tested. The polarity of each surge level included positive and negative test pulses.

### 7.5.3. Test Setup and Configuration



For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration.

#### 7.5.4. Test Result

Test Mode:	Mode 1	Temperature:	22°C
Test Voltage:	AC 230V/ 50Hz	Humidity:	65%RH
Tested By:	Duncan Wang	Test Date:	Dec. 09, 2022

Wave Form EUT Ports Tested	1.2/50(8/20)Ti/Th us						Criterion	Results
	Polarity	Phase	Voltage					
			0.5kV	1kV	2kV	-kV		
L - N	+	0°	PASS	PASS	-	-	Please refer to 7.1	PASS
	-		PASS	PASS	-	-		
	+	90°	PASS	PASS	-	-		
	-		PASS	PASS	-	-		
	+	180°	PASS	PASS	-	-		
	-		PASS	PASS	-	-		
	+	270°	PASS	PASS	-	-		
	-		PASS	PASS	-	-		
Note	There was no abnormal situation during the test compared with initial operation. Pass means that the test performance meet Criteria A which identical with EN 55035.							

## 7.6. Immunity to Conducted Disturbances Induced by RF Fields

### 7.6.1. Test Specification

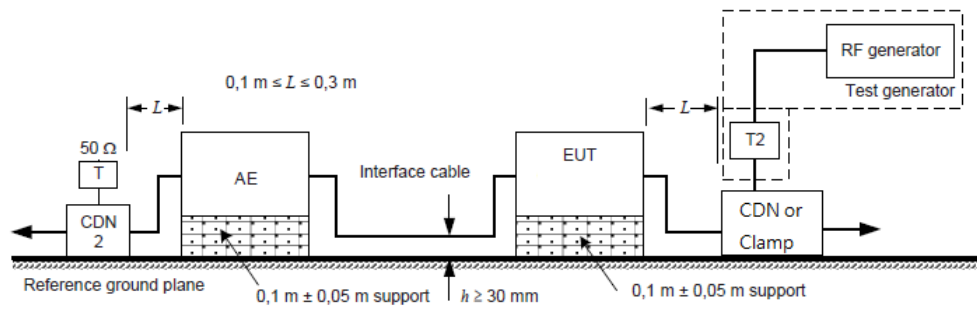
<b>Standard:</b>	IEC 61000-4-6
<b>Colleteral Standard:</b>	N/A
<b>Frequency Range:</b>	0.15-80MHz
<b>Field Strength:</b>	3V, 6V (unmodulated, r.m.s.)
<b>Modulation:</b>	80% AM (1 kHz)
<b>Frequency Step:</b>	1% of fundamental
<b>Dwell Time:</b>	3 s
<b>Repeat test time:</b>	2 times

### 7.6.2. Test Procedure

- The EUT shall be tested within its intended operating and climatic conditions.
- The test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn, while the other non-excited RF input ports of the coupling devices are terminated by a 50-ohm load resistor.
- The frequency range is swept from 150 kHz to 80 MHz, using the signal level established during the setting process and with a disturbance signal of 80% amplitude. The signal is modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or the switch coupling devices as necessary. The sweep rate shall not exceed  $1.5 \times 10^{-3}$  decades/s. The step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value where the frequency is swept incrementally.
- The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised, and able to respond. Sensitive frequencies such as clock frequencies and harmonics or frequencies of dominant interest, shall be analyzed separately.
- Attempts should be made to fully exercise the EUT during test, and to fully interrogate all exercise modes selected for susceptibility.



### 7.6.3. Test Setup and Configuration



For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration.

#### 7.6.4. Test Result

Test Mode:	Mode 1	Temperature:	22°C
Test Voltage:	AC 230V/ 50Hz	Humidity:	65%RH
Tested By:	Duncan Wang	Test Date:	Dec. 09, 2022

Test Ports (Mode)	Freq. Range (MHz)	Field Strength	CDN	Criterion	Results
AC. Power Port	0.15 ---80	3V	M016(M2)	Please refer to 7.1	PASS
AC. Power Port	ISM bands	6V	M016(M2)	Please refer to 7.1	PASS
AC. Power Port	Amateur band	6V	M016(M2)	Please refer to 7.1	PASS
Note	There was no abnormal situation during the test compared with initial operation. Pass means that the test performance meet Criteria A which identical with EN 55035.				

#### Customer Request:

Test Ports (Mode)	Freq. Range (MHz)	Field Strength	CDN	Criterion	Results
AC. Power Port	0.15 ---80	10V	M016(M2)	Please refer to 7.1	PASS
Note	There was no abnormal situation during the test compared with initial operation. Pass means that the test performance meet Criteria A which identical with EN 55035.				

## 7.7. Power frequency magnetic field immunity Test

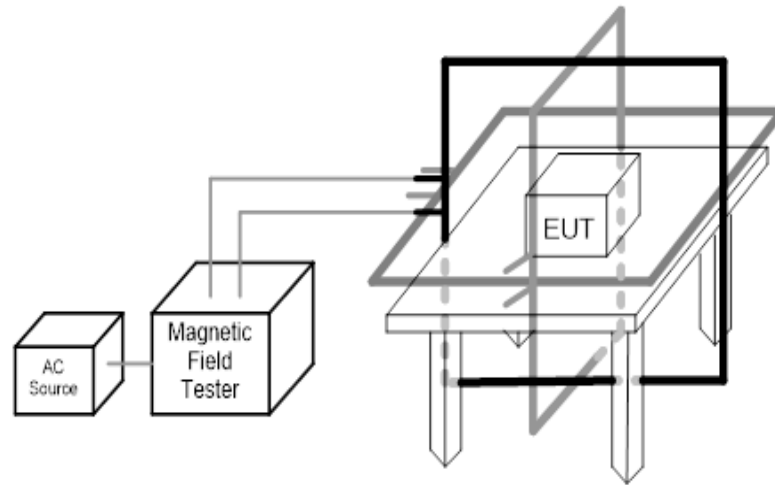
### 7.7.1. Test Specification

<b>Standard:</b>	IEC 61000-4-8
<b>Collateral Standard:</b>	N/A
<b>Frequency Range:</b>	50 Hz
<b>Field Strength:</b>	30 A/m
<b>Axis:</b>	X, Y, Z
<b>Observation Time:</b>	1 minute
<b>Inductance Coil:</b>	Rectangular type, 1mx1m
<b>Repeat test time:</b>	2 times

### 7.7.2. Test Procedure

- The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m\*1m min. and 0.65mm thick min.
- The equipment cabinets shall be connected to the safety earth directly on the GRP via the earth terminal of the EUT.
- The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.
- The EUT with coil shall be leave all magnetic material and wall 1m away in any axis during the test.
- The cable length from generator to coil shall be less than 2m
- The background noise shall be 20db less than test field strength.
- Test shall be applied to three axis X, Y, Z and disturbance over 1 minute.
- All cables shall be exposed to the magnetic field for 1m of their length.

### 7.7.3. Test Setup and Configuration



For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration.

#### 7.7.4. Test Results

Test Mode:	Mode 1	Temperature:	22°C
Test Voltage:	AC 230V/ 50Hz	Humidity:	65%RH
Tested By:	Duncan Wang	Test Date:	Dec. 09, 2022

Level	Magnetic Field Strength (A/m)	Criterion	Results		
			X	Y	Z
1	1	-	-	-	-
2	3	-	-	-	-
3	10	-	-	-	-
4	30	Please refer to 7.1	PASS	PASS	PASS
5	100	-	-	-	-
X	Special	-	-	-	-
Note	There was no abnormal situation during the test compared with initial operation. Pass means that the test performance meet Criteria A which identical with EN 55035.				

## 7.8. Voltage Dips and Short Interruptions Immunity Test

### 7.8.1. Test Specification

<b>Standard:</b>	IEC 61000-4-11
<b>Voltage Dips:</b>	0% residual(0.5 & 1cycles) ; 70% residual (25/30 cycles with 50/60Hz)
<b>Voltage Interruptions:</b>	0% residual (250/300 cycles with 50/60Hz)
<b>Voltage Phase Angle:</b>	0°/45°/90°/135°/180°/225°/270°/315°
<b>Test Voltage:</b>	100V/60Hz and 250V/50Hz
<b>Repeat test time:</b>	2 times

### 7.8.2. Test Procedure

- The power cord was used as supplied by the manufacturer. The EUT was connected to the line output of the Voltage Dips and Interruption Generator.
- Voltage reductions occur at 0 degree crossover point of the voltage waveform. The performance of the EUT was checked after the voltage dip or interruption.
- If the rated voltage smaller than 25% of the lowest rated voltage, one rated input voltage. Otherwise, minimum and maximum rated voltage shall be test.

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#### 7.8.4. Test Result

Test Mode:	Mode 1	Temperature:	20°C
Test Voltage:	AC 100-240V/ 50/60Hz	Humidity:	59%RH
Tested By:	Rupert Huang	Test Date:	Dec. 19, 2022

100V/60Hz				
Interruption & Dips	Duration (T)	Residual voltage	Perform Criteria	Results
Voltage dips	0.5	0%	Please refer to 7.1	PASS
	1	0%	Please refer to 7.1	PASS
	30	70%	Please refer to 7.1	PASS
Voltage interruptions	300	0%	Please refer to 7.1	PASS
Note	Voltage dips: There was no abnormal situation during the test compared with initial operation. Pass means that the test performance meet Criteria A which identical with EN 55035.			
	Voltage interruptions: The output voltage was lost during the test, but it will automatically return to normal conditions after the test. Pass means that the test performance meet Criteria B which identical with EN 55035.			

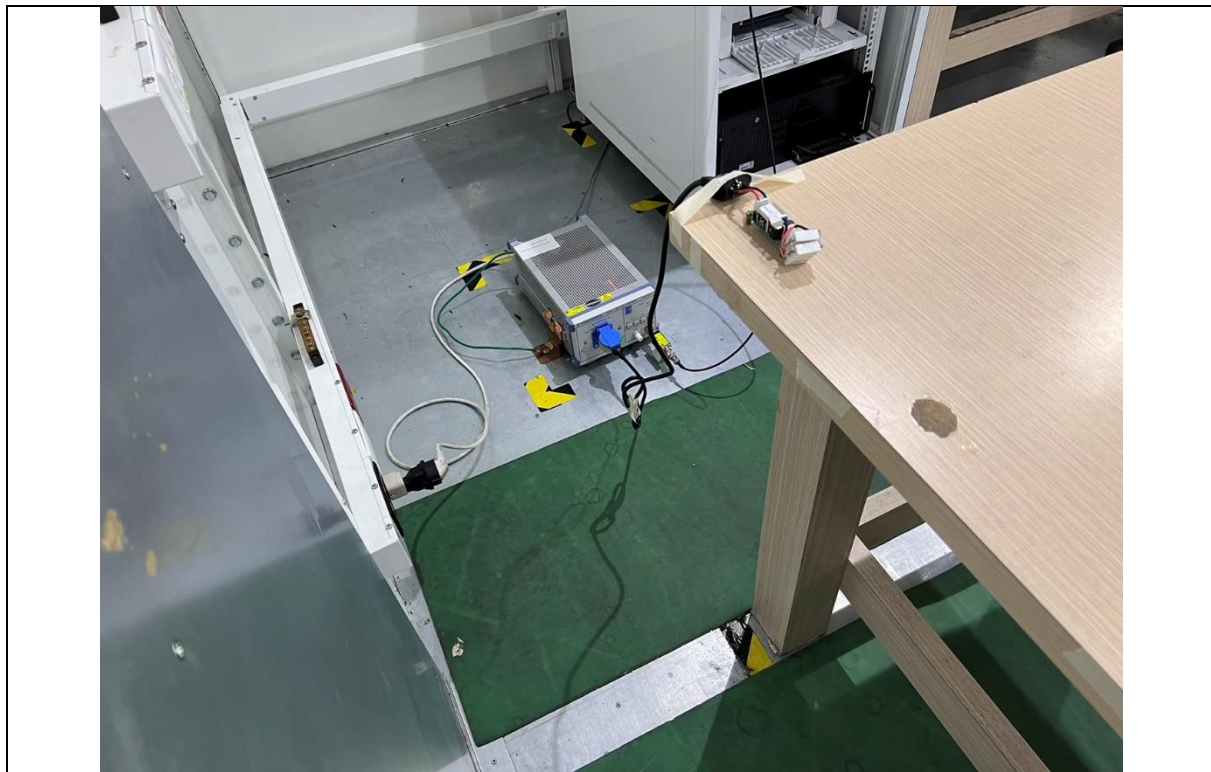
240V/50Hz				
Interruption & Dips	Duration (T)	Residual voltage	Perform Criteria	Results
Voltage dips	0.5	0%	Please refer to 7.1	PASS
	1	0%	Please refer to 7.1	PASS
	25	70%	Please refer to 7.1	PASS
Voltage interruptions	250	0%	Please refer to 7.1	PASS
Note	Voltage dips: There was no abnormal situation during the test compared with initial operation. Pass means that the test performance meet Criteria A which identical with EN 55035.			
	Voltage interruptions: The output voltage was lost during the test, but it will automatically return to normal conditions after the test. Pass means that the test performance meet Criteria B which identical with EN 55035.			

**Note:**

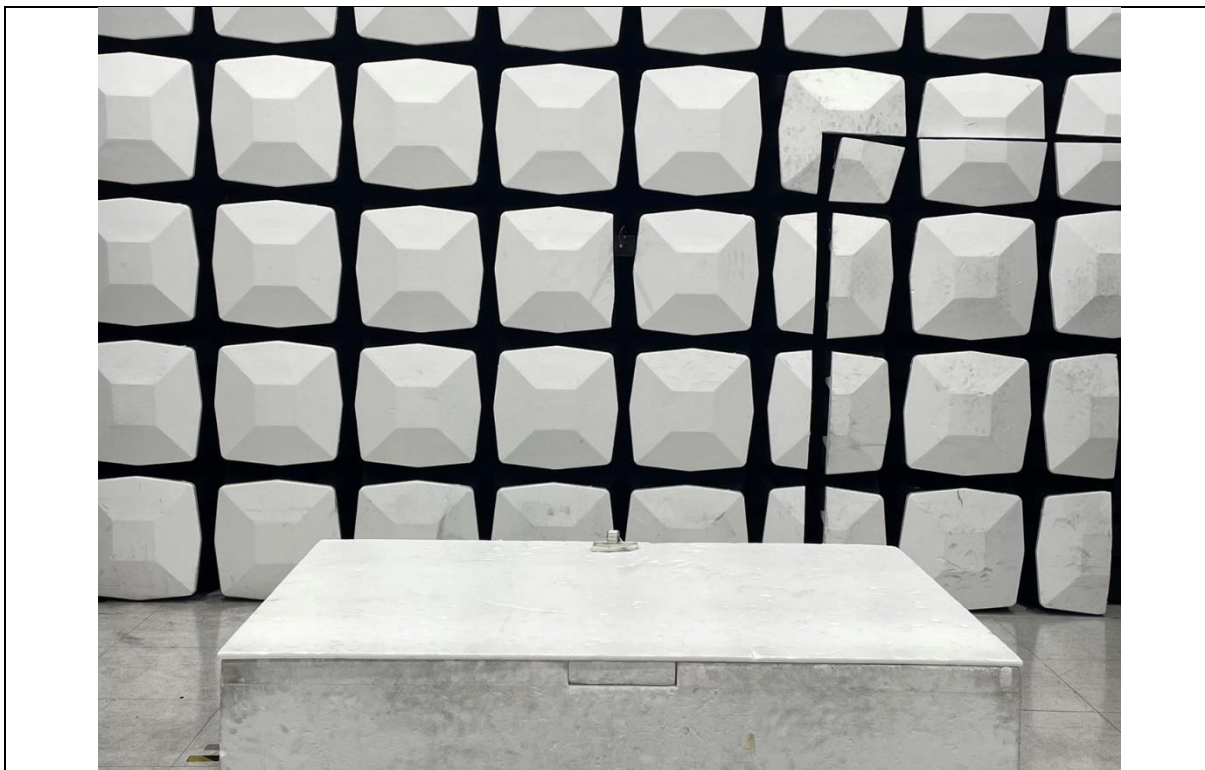
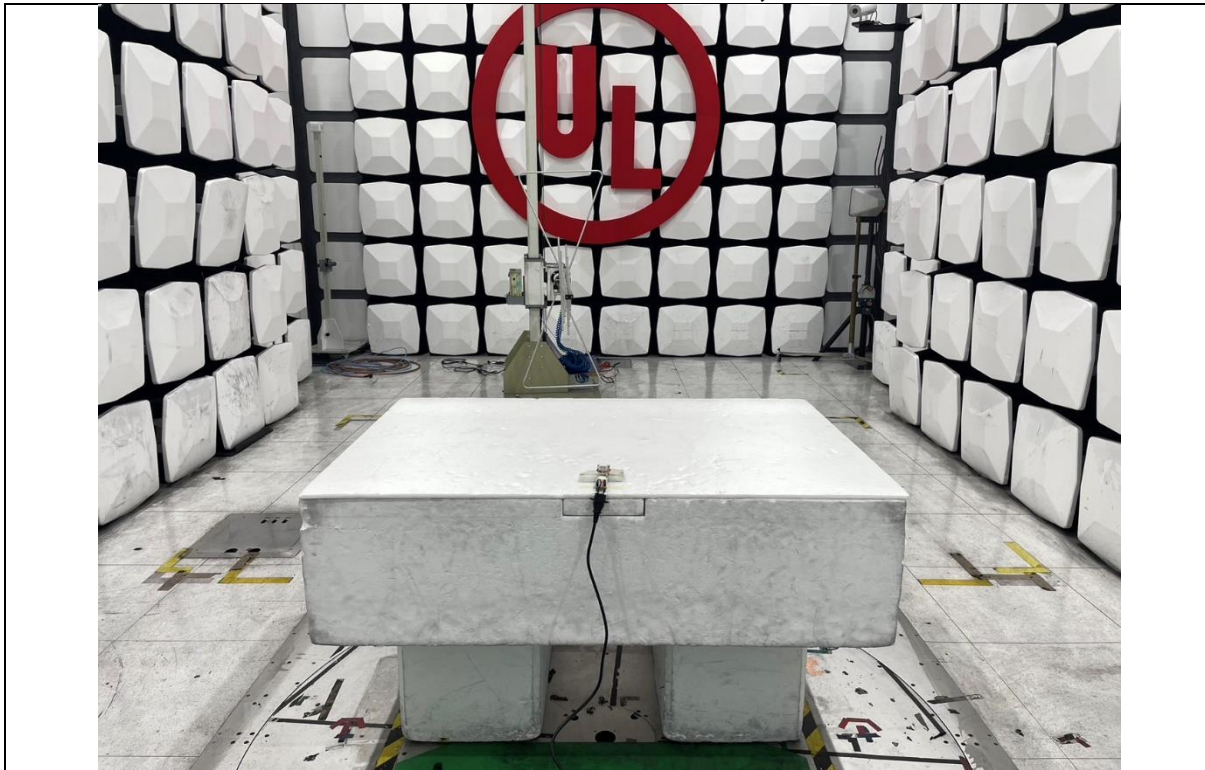
The test shall be carried out at the frequencies appropriate to the power supply frequency. Equipment intended to be used in regions where only one of these frequencies is applied needs to be tested at this specific frequency only. 25/30 or 250/300 at 50/60 Hz.



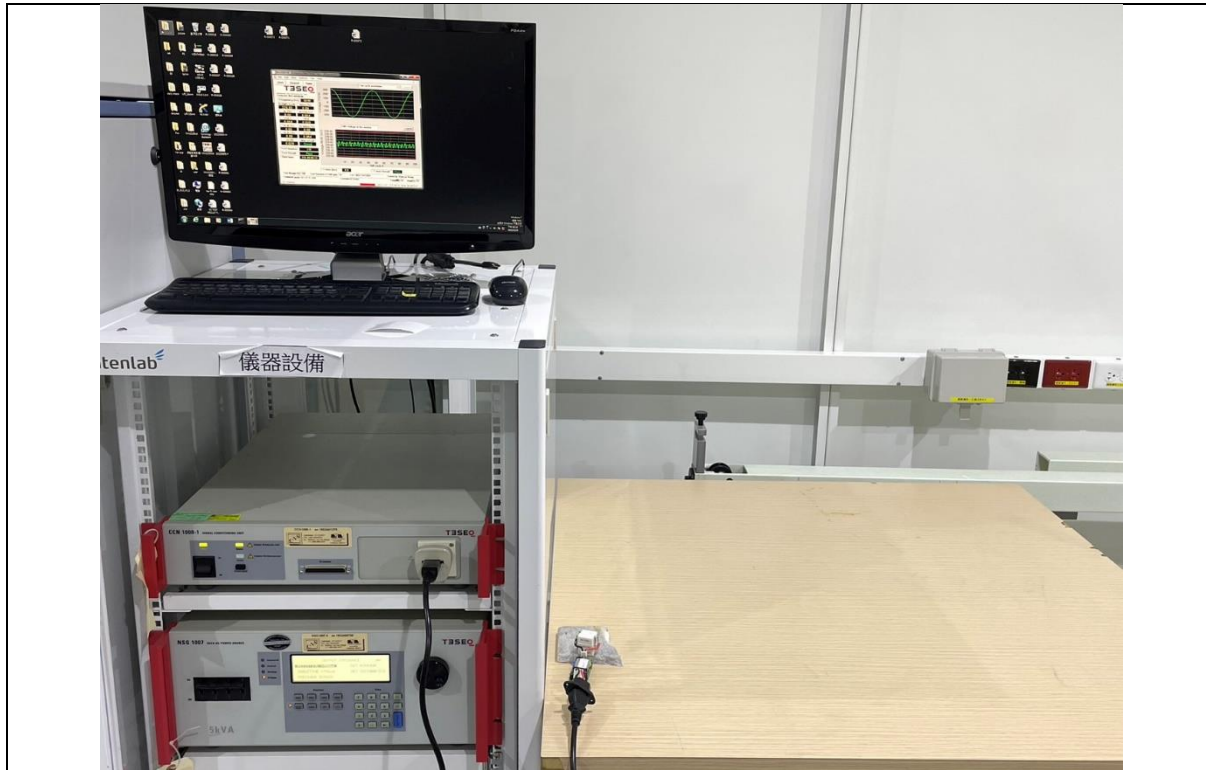
### Conducted Disturbance: Mode 1, LISN



**Radiated Disturbance: Mode 1, 30M-1GHz**

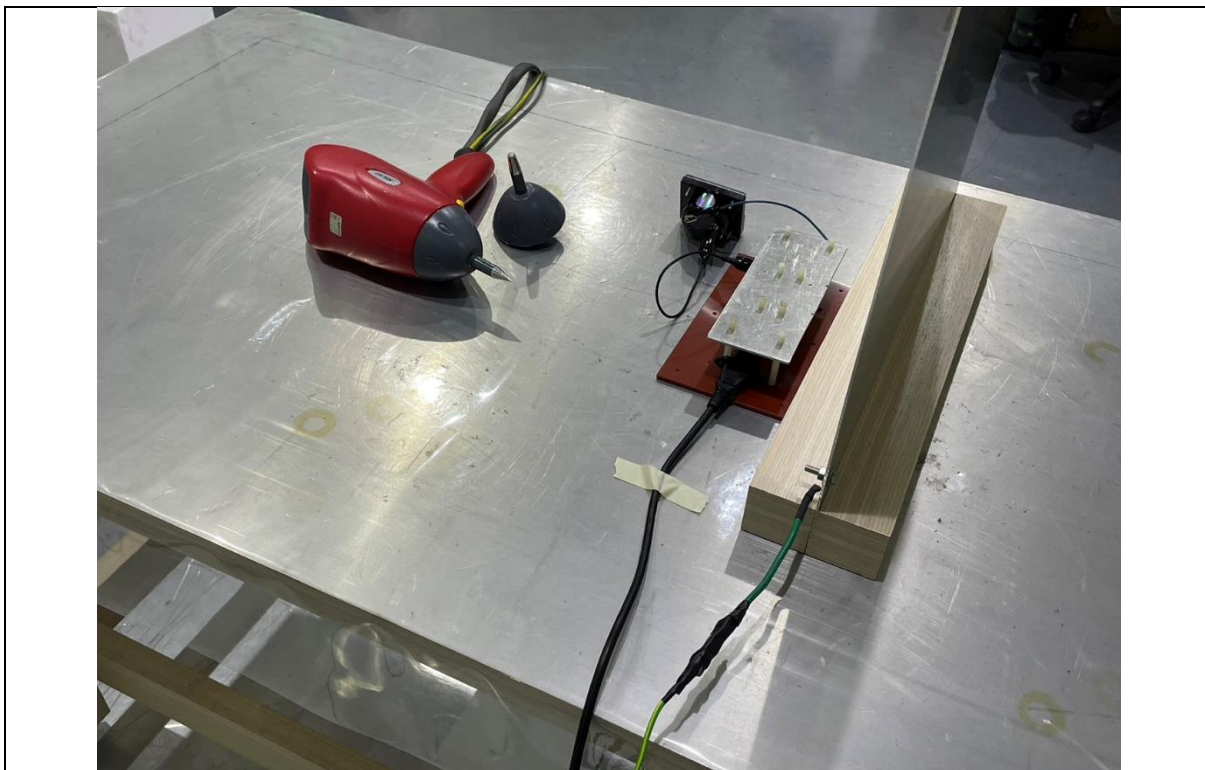
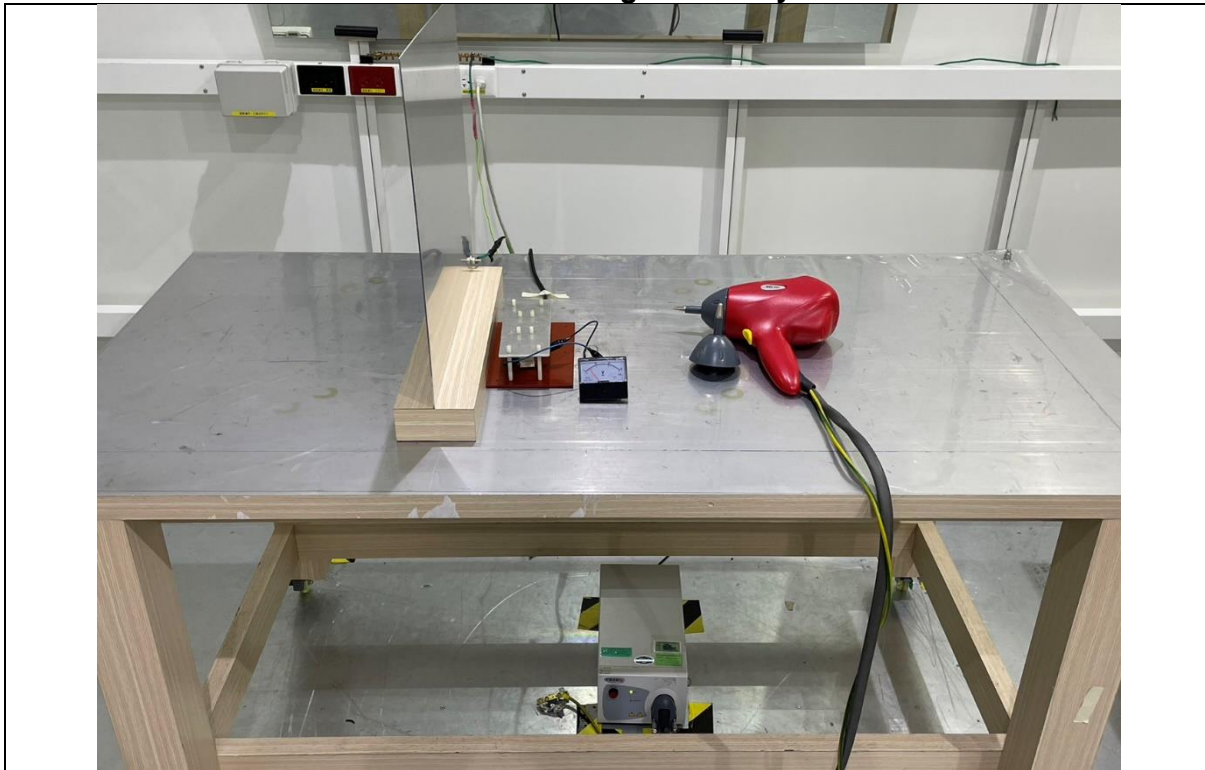


### Harmonic and Flicker: Mode 1

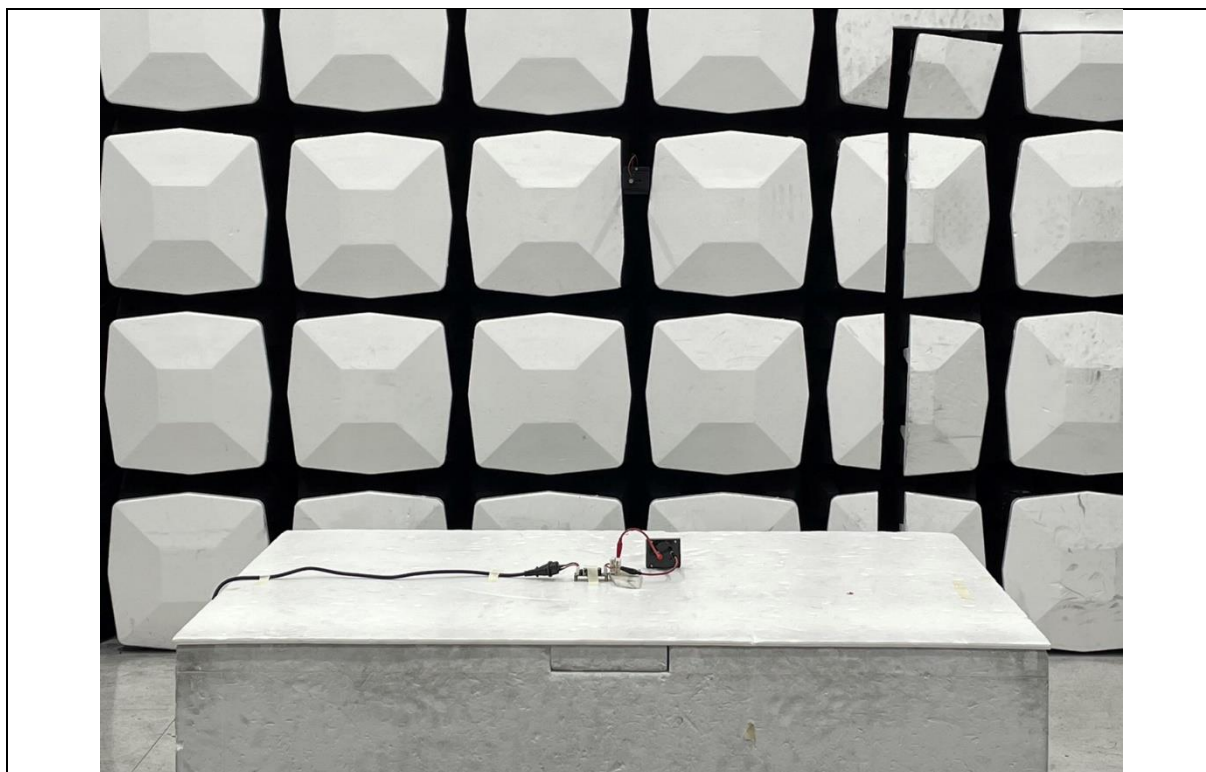
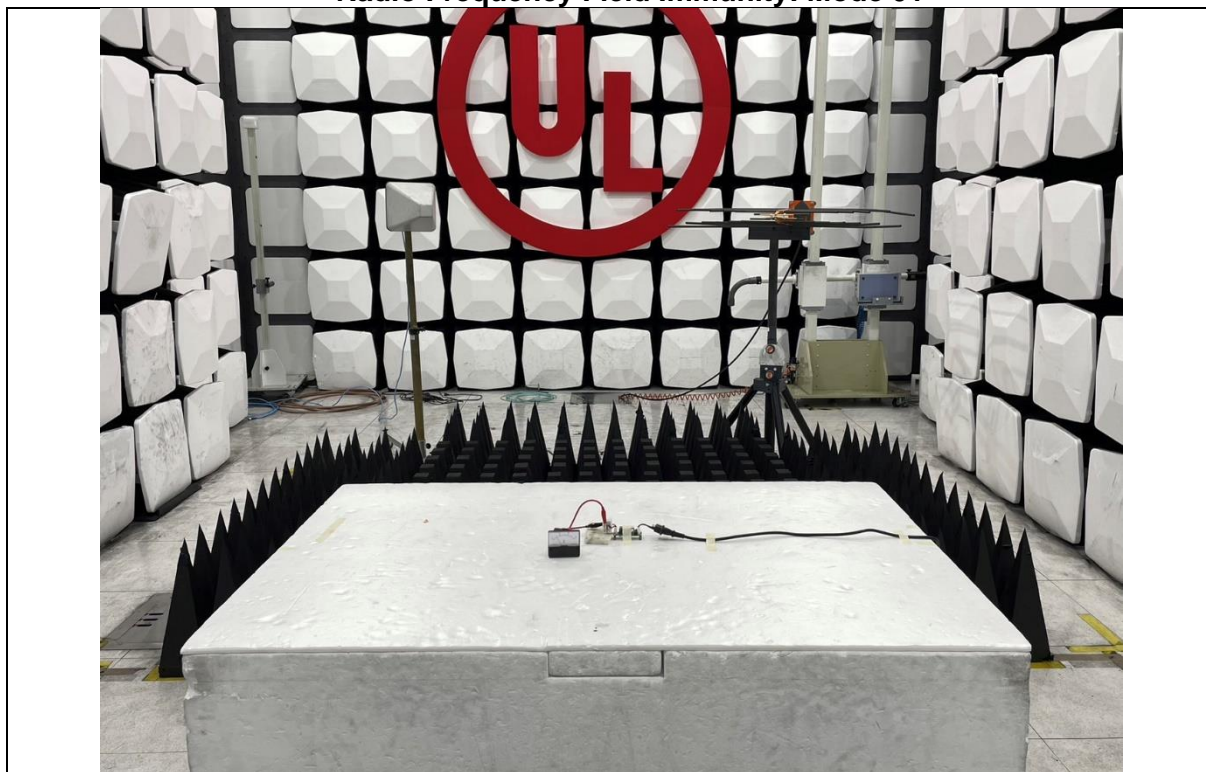




**Electrostatic Discharge Immunity: Mode 01**

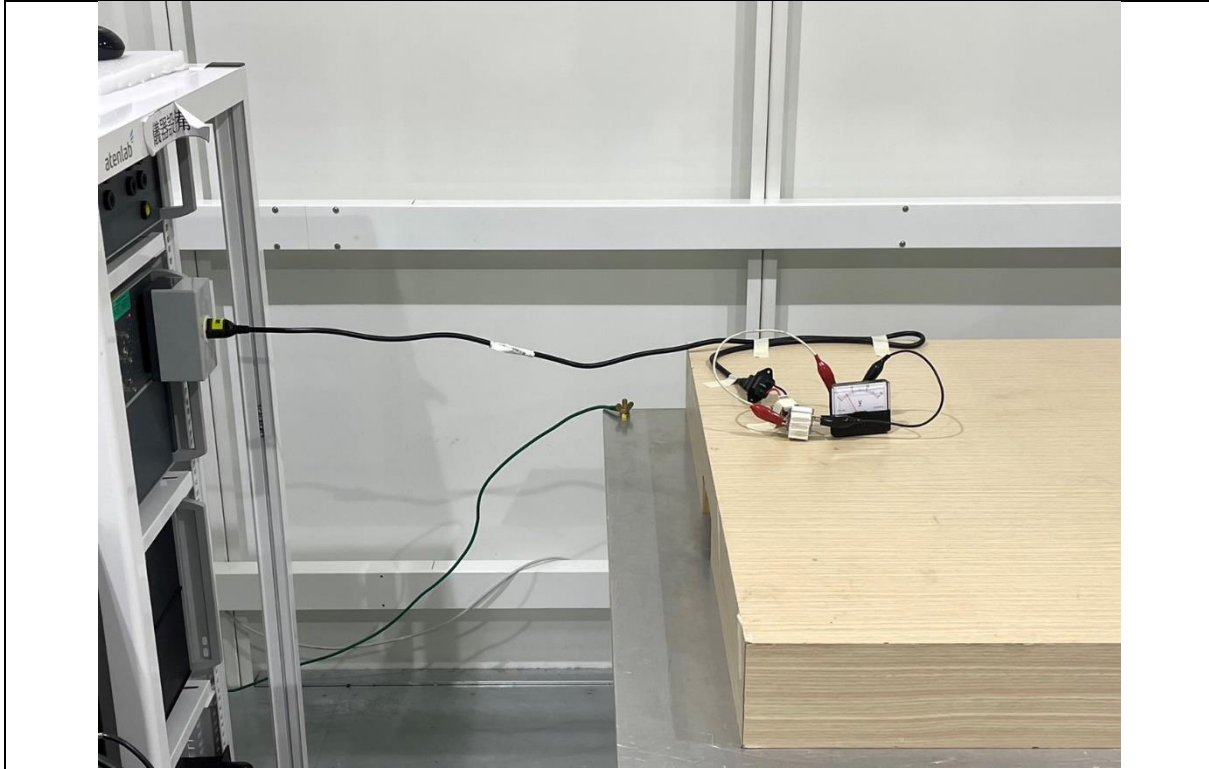


**Radio Frequency Field Immunity: Mode 01**

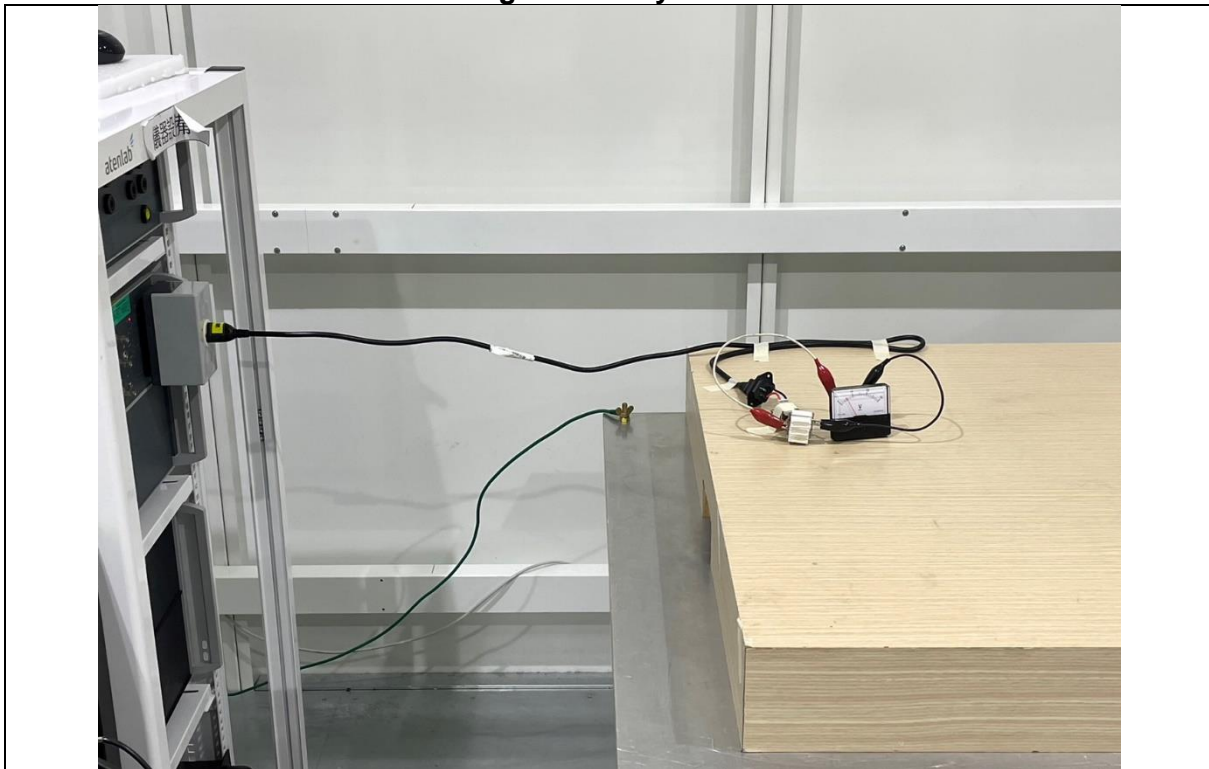




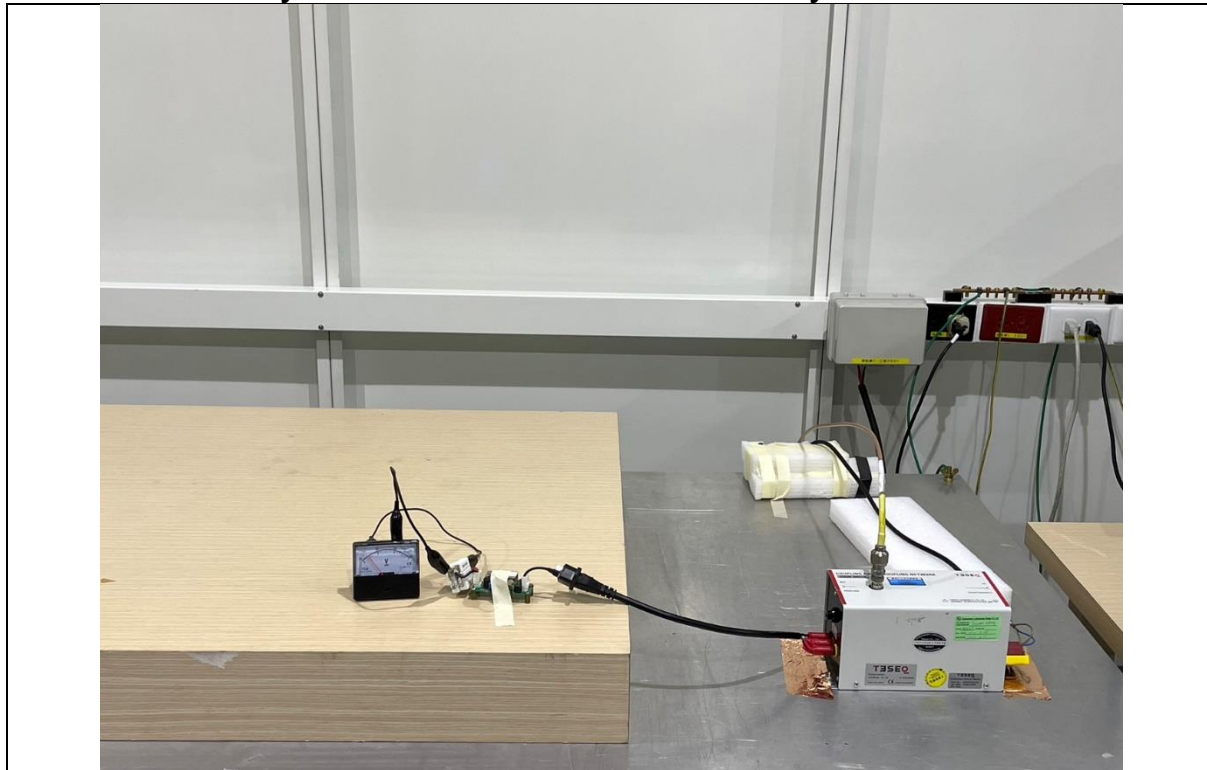
**Electrical Fast Transient Immunity: Mode 01**



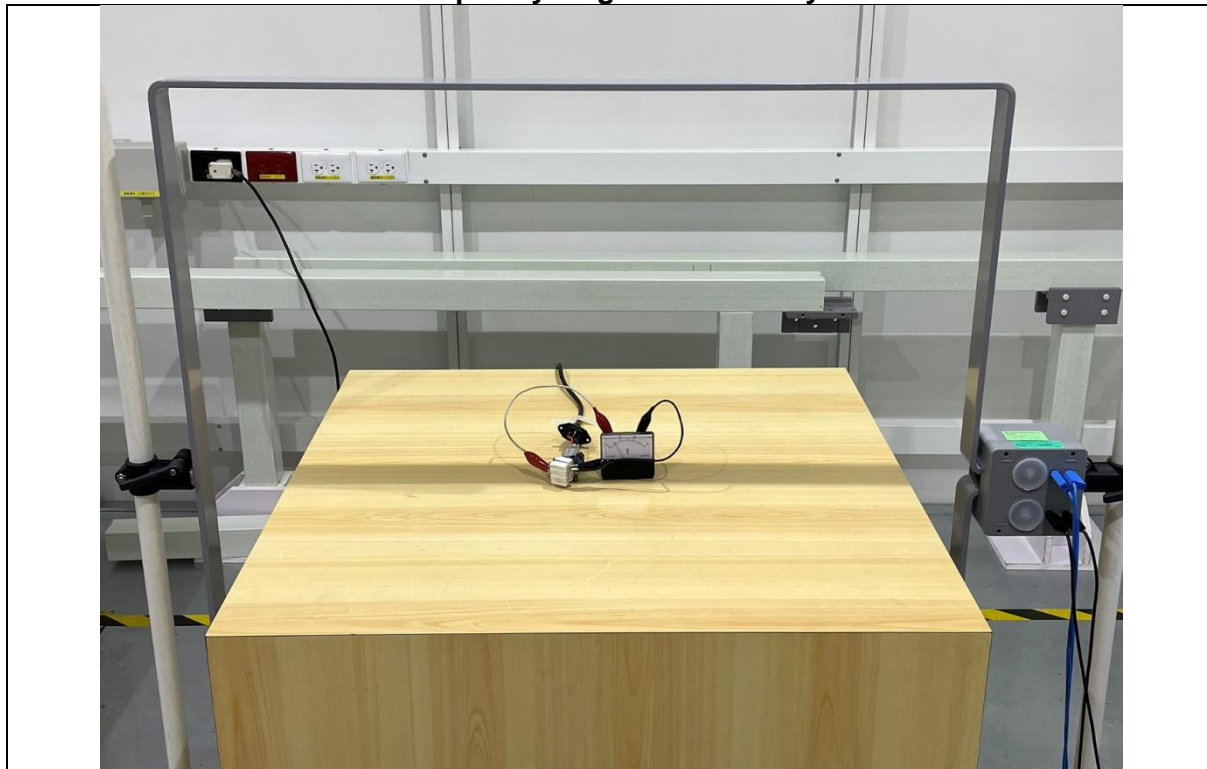
**Surge Immunity: Mode 01**



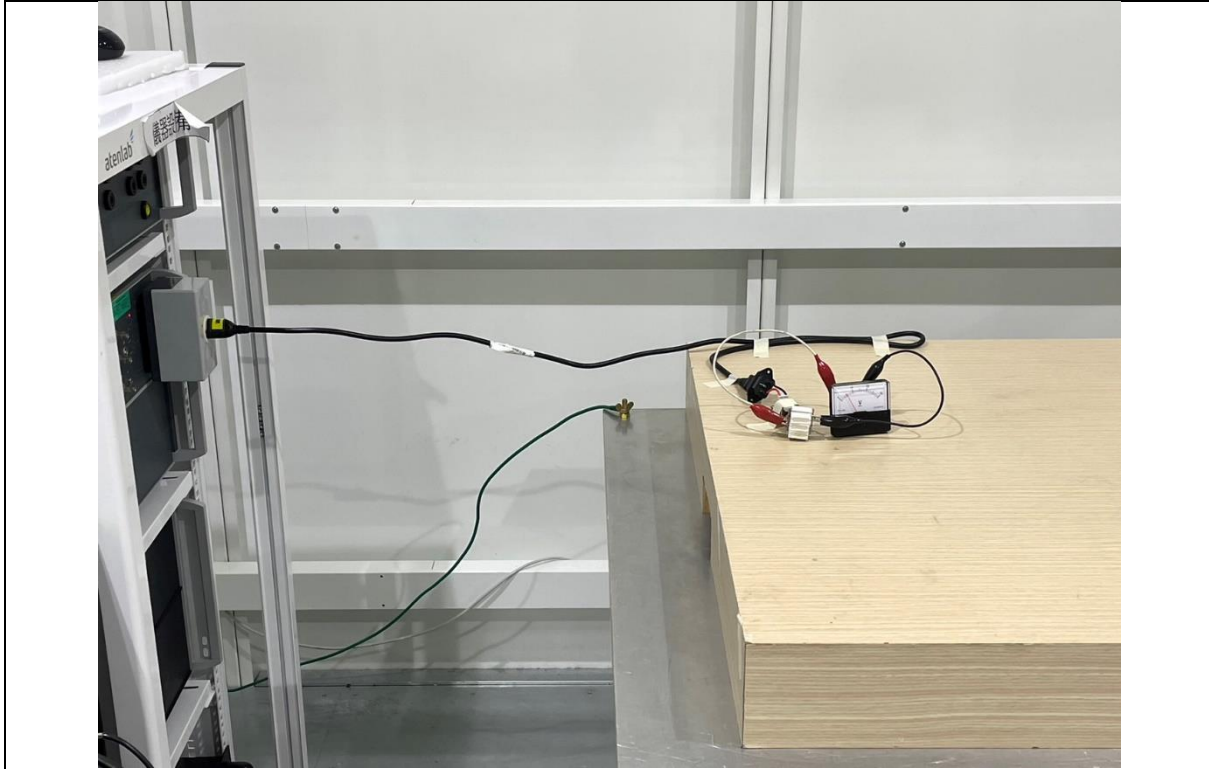
**Immunity to conducted disturbance induced by RF fields: Mode 01**



**Power Frequency Magnetic Immunity: Mode 01**



**Voltages Dips and Short Interruption Immunity: Mode 01**





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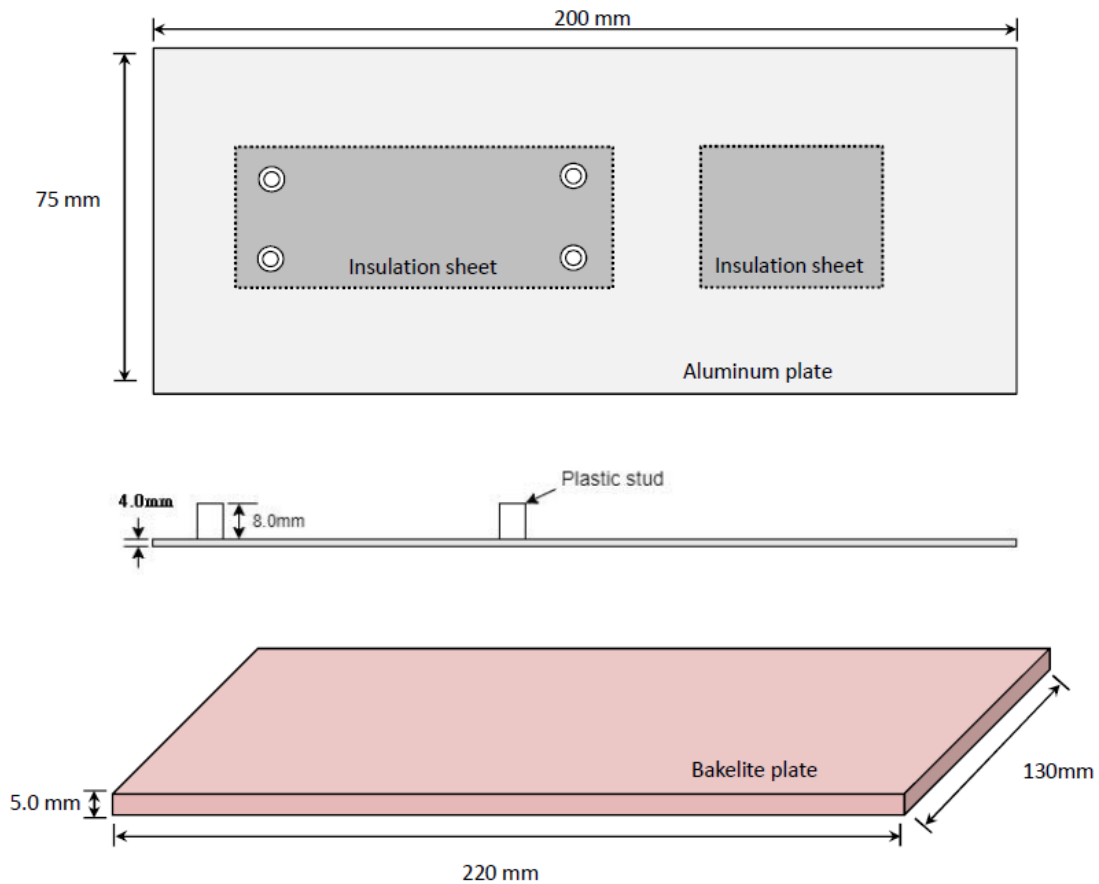
## **Appendix II: Photographs of the EUT**

Please see the photographs of EUT in the test report no.: 4790423395-EP.

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**END OF REPORT**

## Appendix III: Countermeasure file for ESD



## Annex : Additional test request by client.

### RS TEST RESULT FORM

**Project No.: 4790771479**

Applicant	TRACO	Product Name	AC/DC Power Supply
Model Name	TPP 15-105A-J	Standard	EN 60601

Test Mode:	Mode 1	Temperature:	22°C
Test Voltage:	AC 230V/ 50Hz	Humidity:	68%RH
Tested By:	Duncan Wang	Test Date:	Dec. 12, 2022

**Customer request:** H: Horizontal V: Vertical

Freq. Range (MHz)	Position ( Face )	Polarity (H or V)	Field Strength (V/m)	Criterion	Results
80-2700	Front	H / V	20	Please refer to 7.1	Pass
	Left	H / V	20	Please refer to 7.1	Pass
	Right	H / V	20	Please refer to 7.1	Pass
	Rear	H / V	20	Please refer to 7.1	Pass
Note	There was no abnormal situation during the test compared with initial operation. Pass means that the test performance meet Criteria A which identical with EN 55035.				

### CS TEST RESULT FORM

**Project No.: 4790771479**

Applicant	TRACO	Product Name	AC/DC Power Supply
Model Name	TPP 15-105A-J	Standard	EN 60601

Test Mode:	Mode 1	Temperature:	22°C
Test Voltage:	AC 230V/ 50Hz	Humidity:	65%RH
Tested By:	Duncan Wang	Test Date:	Dec. 09, 2022

Customer Request:

Test Ports (Mode)	Freq. Range (MHz)	Field Strength	CDN	Criteria	Results
AC Power	0.15 --- 80	20V	M016(M2)	Please refer to 7.1	Pass
Note	There was no abnormal situation during the test compared with initial operation. Pass means that the test performance meet Criteria A which identical with EN 55035.				