

# CE EMC TEST REPORT

for

**WiFi+Bluetooth 5.2 System on Module**

**MODEL: PIXI-IW416**

Issued to:

**TechNexion Ltd.**

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23511, New Taipei City, Taiwan**

Issued by:

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**Issued Date: July 26, 2023**

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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**Revision History**

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		July 26, 2023		Initial Issue	ALL	Linda Wu

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# 1 TEST CERTIFICATION

**Product:** WiFi+Bluetooth 5.2 System on Module

**Model:** PIXI-IW416

**Brand:** TechNexion

**Applicant:** TechNexion Ltd.

16F-5, No. 736, Zhongzheng Road, ZhongHe District,  
23511, New Taipei City, Taiwan

**Manufacturer:** TechNexion Ltd.

16F-5, No. 736, Zhongzheng Road, ZhongHe District,  
23511, New Taipei City, Taiwan

**Tested:** May 24, 2023

**Applicable Standards:** ETSI EN 301 489-1 V2.2.3 (2019)

ETSI EN 301 489-17 V3.2.4 (2020)

EN 55032: 2015 + A11: 2020

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

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

EN 61000-4-2: 2009

EN IEC 61000-4-3: 2020

EN 61000-4-4: 2012

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

EN 61000-4-6: 2014 + AC: 2015

EN IEC 61000-4-11: 2020 + AC: 2022-10

## Note

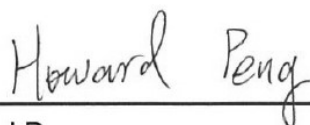
This test report can be used for CE and UKCA marking application which is based on equivalent requirements between UK and EU. It is appropriate using designated standards to provide presumption of conformity with GB law.

## Statements of Conformity

Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

The above equipment has been tested by Compliance Certification Services Inc., and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

**Approved by:**



Howard Peng  
Technology Team Leader

**Reviewed by:**



Eva Fan  
Supervisor of report document dept.

## 2 TEST RESULT SUMMARY

EMISSION			
Standard	Item	Result	Remarks
EN 55032: 2015 + A11: 2020	Conducted (Power Port)	PASS	Meet Class B limit
	Conducted (Wired Network Ports)	N/A	Please see the page 17
	Radiated	PASS	Meet Class B limit
EN IEC 61000-3-2: 2019 + A1: 2021	Harmonic current emissions	N/A	Please see the page 26
EN 61000-3-3: 2013 + A1: 2019 + A2: 2021	Voltage fluctuations & flicker	N/A	Please see the page 28

IMMUNITY 【 ETSI EN 301 489-1 V2.2.3 (2019) 】			
Standard	Item	Result	Remarks
EN 61000-4-2: 2009	ESD	PASS	Meets the requirements of Performance Criterion CT&CR
EN IEC 61000-4-3: 2020	RS	PASS	Meets the requirements of Performance Criterion CT&CR
EN 61000-4-4: 2012	EFT	PASS	Meets the requirements of Performance Criterion CT&CR
EN 61000-4-5: 2014 + A1: 2017	Surge	N/A	Please see the page 44
EN 61000-4-6: 2014 + AC: 2015	CS	PASS	Meets the requirements of Performance Criterion CT&CR
EN IEC 61000-4-11: 2020 + AC: 2022-10	Voltage dips & voltage variations	N/A	Please see the page 49

### 3 EUT DESCRIPTION

Product	WiFi+Bluetooth 5.2 System on Module
Brand Name	TechNexion
Model	PIXI-IW416
Applicant	TechNexion Ltd.
Housing material	N/A
Received Date	May 16, 2023
EUT Power Rating	5VDC from Notebook
AC Power During Test	230VAC / 50Hz to Notebook

#### I/O PORT

I/O PORT TYPES	Q'TY	TESTED WITH
1. Micro USB Port	1	1
2. USB Type-C Port	1	1
3. Antenna Port	1	1

**Note:** Client consigns only one model sample to test (Model Number: PIXI-IW416).

## 4 TEST METHODOLOGY

### 4.1. DECISION OF FINAL TEST MODE

The EUT was tested together with the below additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The test configuration modes are as the following:

**Modes:**

1	Antenna(short)+BT Mode
2	Antenna(long)+BT Mode
3	Antenna(short)+BT Mode / Standby Mode
4	Antenna(short)+BT Mode / WIFI 2.4G Mode

**Worst:**

**Conduction:** Mode 1

**Radiation:** Mode 1

### 4.2. EUT SYSTEM OPERATION

1. EUT connect to NB, run Putty.exe and perform operations SOP to test EUT.

**Note:** Test program is self-repeating throughout the test.

## 5 SETUP OF EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF SUPPORT UNITS

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

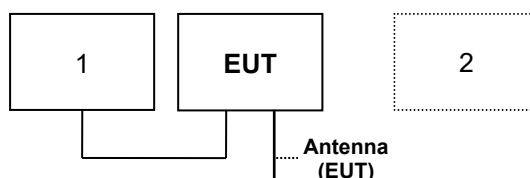
#### Peripherals Devices:

No.	Equipment	Model No.	Serial No.	FCC ID / BSMI ID	Brand Name	Data Cable	Power Cord
1	Host Notebook	TThinkpad T470	PF-0WAUYH	BSMI: R33B65	Lenovo	Micro USB: Shielded, 1.0m USB Type-C: Shielded, 0.9m	Unshielded, 1.8m
2	Wireless AP	DGL-4300	N/A	N/A	D-Link	N/A	Unshielded, 1.8m

#### Note:

- 1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2) Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

### 5.2. CONFIGURATION OF SYSTEM UNDER TEST





## 6 FACILITIES AND ACCREDITATIONS

### 6.1. FACILITIES

All measurement facilities used to collect the measurement data are located at CCS Taiwan Xindian Lab. at No.163-1, Jhongsheng Rd., Xindian Dist., New Taipei City, Taiwan.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. All receiving equipment conforms to CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-3, CISPR 16-1-4 and CISPR 16-1-5.

### 6.2. ACCREDITATIONS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

<b>Taiwan</b>	TAF
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The measuring facility of laboratories has been authorized or registered by the following approval agencies.

<b>Canada</b>	Industry Canada
<b>Japan</b>	VCCI
<b>Taiwan</b>	BSMI
<b>USA</b>	FCC

### 6.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Uncertainty
Conducted emissions (Power port)	0.15MHz ~ 30MHz	± 2.8
Conducted emissions (Wired network ports)	0.15MHz ~ 30MHz	N/A
Radiated emissions	30MHz ~ 1000MHz	± 5.1
	1000MHz ~ 6000MHz	N/A

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

Consistent with industry standard (e.g. CISPR 22: 2005, clause 11, Measurement Uncertainty) determining compliance with the limits shall be base on the results of the compliance measurement. Consequently the measure emissions being less than the maximum allowed emission result in this be a compliant test or passing test.

The acceptable measurement uncertainty value without requiring revision of the compliance statement is base on conducted and radiated emissions being less than  $U_{CISPR}$  which is 3.8dB(AMN); 5.0dB(AAN); 6.3dB(30MHz~1GHz) and 5.5dB(1-6GHz) respectively. CCS values (called  $U_{Lab}$  in CISPR 16-4-2) is less than  $U_{CISPR}$  as shown in the table above. Therefore, MU need not be considered for compliance.

## 7 EMISSION TEST

### 7.1. CONDUCTED EMISSION MEASUREMENT

#### 7.1.1. LIMITS

FREQUENCY (MHz)	Class A (dBUV)		Class B (dBUV)	
	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

**NOTE:**

- (1) The lower limit shall apply at the transition frequencies.
- (2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
- (3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

#### 7.1.2. TEST INSTRUMENTS

Conducted Emission room # A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Pulse Limiter	Schwarzbeck	VTSD 9561-F	BNC#211	03/19/2024
BNC CABLE	EMEC	EMG178	BNC#A9	03/19/2024
EMI Test Receiver	R&S	ESCI	100234	04/18/2024
LISN	Schwarzbeck	NNLK 8129	8129-286	07/20/2023
LISN(EUT)	Schwarzbeck	NSLK 8127	8127527	07/20/2023
Thermo-Hygro Meter	Wisewind	201A	SD-R038	06/21/2023
Test S/W	EZ-EMC Ver.CCS-03A1			

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. N.C.R = No Calibration Request.

### 7.1.3. TEST PROCEDURES

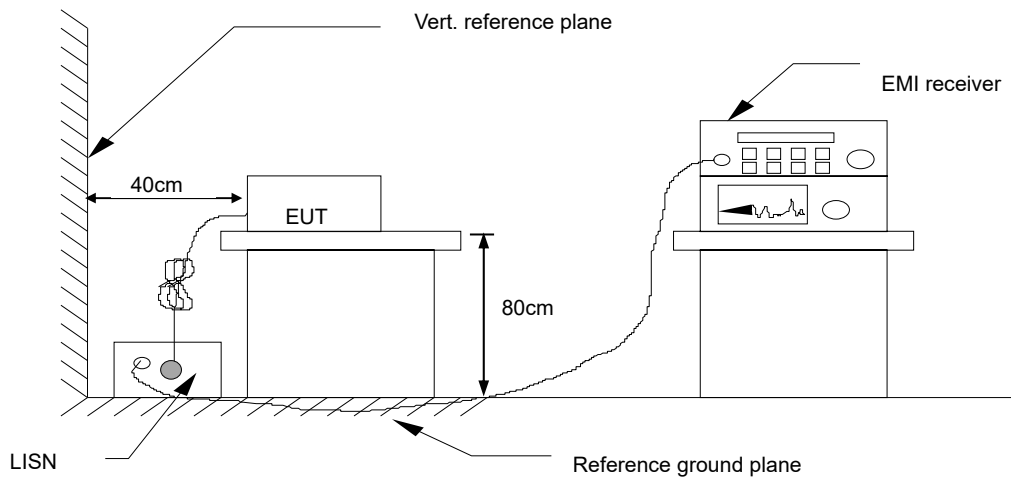
#### **Procedure of Preliminary Test**

- The EUT and Support equipment, if needed, was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per EN 55032 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor standing equipment, it is placed on the ground plane, which has a 15 cm non-conductive covering to insulate the EUT from the ground plane.
- All I/O cables were positioned to simulate typical actual usage as per EN 55032.
- The test equipment EUT installed received AC main power, through a Line Impedance Stabilization Network (LISN), which supplied power source and was grounded to the ground plane.
- All support equipment power received from a second LISN.
- The EUT test program was started. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.
- The Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.
- During the above scans, the emissions were maximized by cable manipulation.
- The test mode(s) described in Item 4.1 were scanned during the preliminary test.
- After the preliminary scan, we found the test mode described in Item 4.1 producing the highest emission level.
- The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

#### **Procedure of Final Test**

- EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.
- The test data of the worst-case condition(s) was recorded.

## 7.1.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

## 7.1.5. DATA SAMPLE

Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
x.xx	42.95	0.55	43.50	56	-12.50	Q	L1

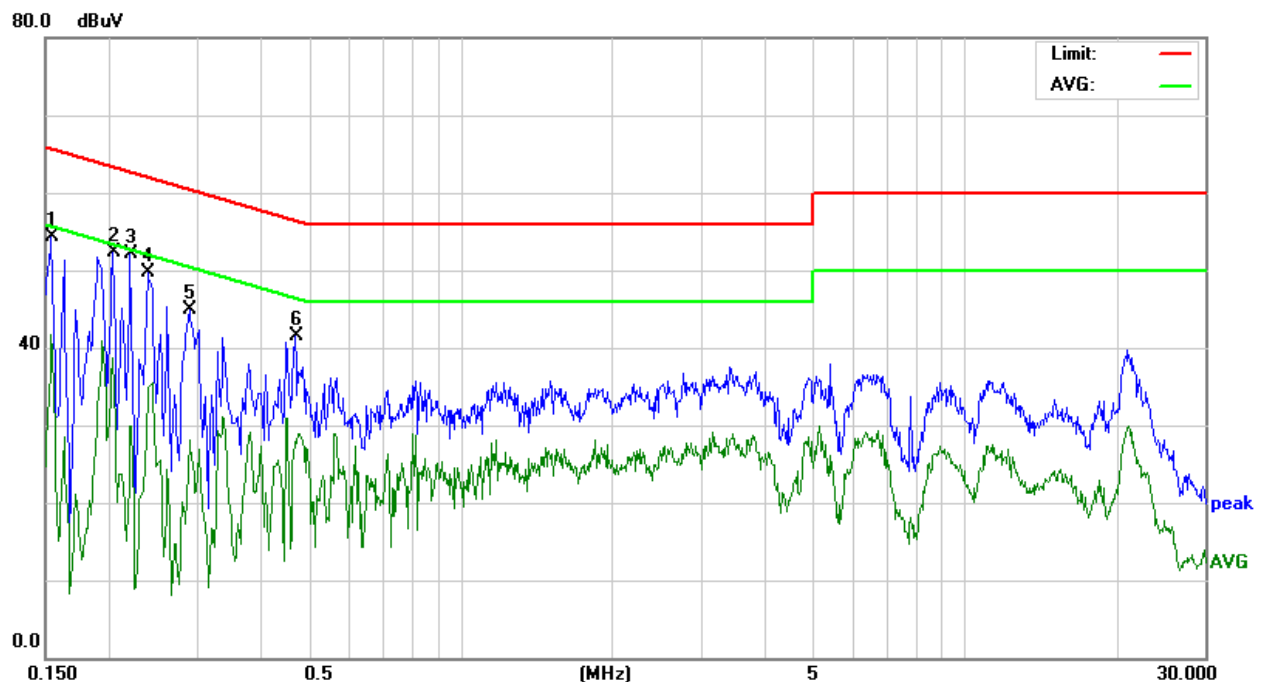
Freq. = Emission frequency in MHz  
 Reading = Uncorrected Analyzer/Receiver reading  
 Factor = Insertion loss of LISN + Cable Loss + Pulse Limit  
 Result = Reading + Factor  
 Limit = Limit stated in standard  
 Margin = Reading in reference to limit  
 P = Peak Reading  
 Q = Quasi-peak Reading  
 A = Average Reading  
 L1 = Hot side  
 L2 = Neutral side

### Calculation Formula

Margin (dB) = Result (dBuV) – Limit (dBuV)

## 7.1.6. TEST RESULTS

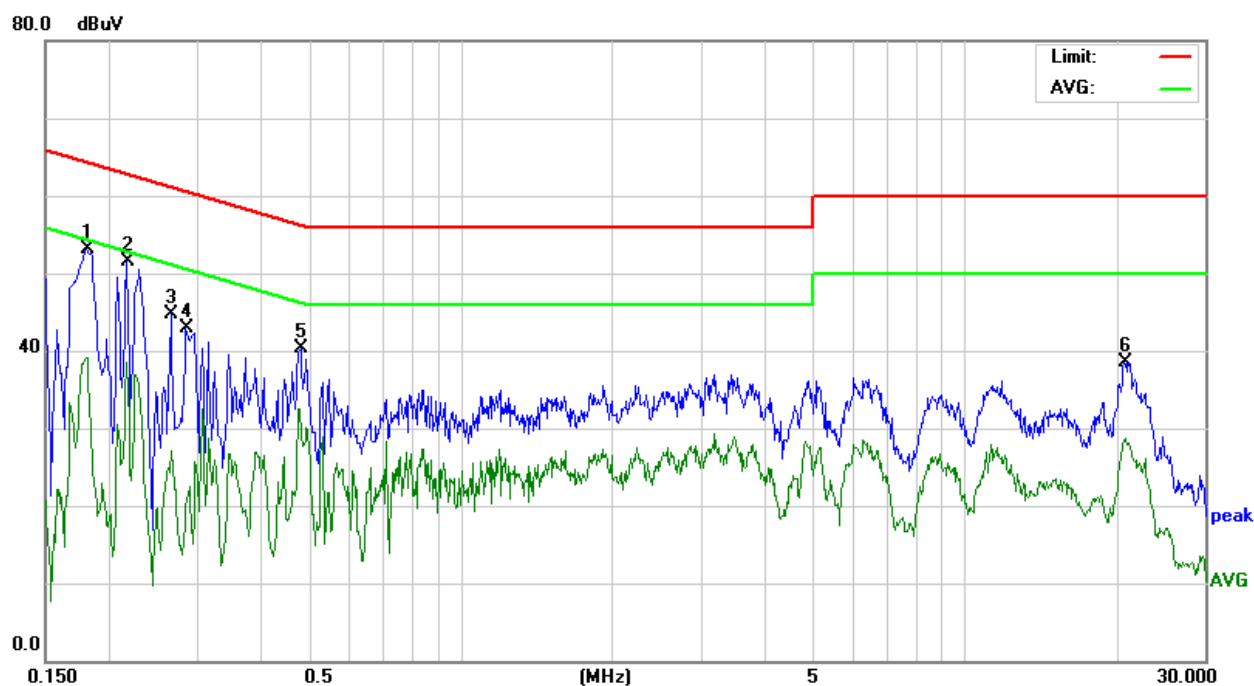
<b>Model No.</b>	PIXI-IW416	<b>6dB Bandwidth</b>	9 kHz
<b>Environmental Conditions</b>	25.1°C, 52% RH	<b>Test Mode</b>	Mode 1
<b>Tested by</b>	Long Liao	<b>Phase</b>	L1
<b>Standard</b>	EN 55032 CLASS B		



Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1545	44.09	10.26	54.35	65.75	-11.40	P	L1
0.2040	41.98	10.27	52.25	63.44	-11.19	P	L1
0.2220	41.89	10.27	52.16	62.74	-10.58	P	L1
0.2400	39.33	10.28	49.61	62.09	-12.48	P	L1
0.2895	34.61	10.29	44.90	60.54	-15.64	P	L1
0.4695	31.16	10.32	41.48	56.52	-15.04	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Model No.	PIXI-IW416	6dB Bandwidth	9 kHz
Environmental Conditions	25.1°C, 52% RH	Test Mode	Mode 1
Tested by	Long Liao	Phase	L2
Standard	EN 55032 CLASS B		



Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1815	42.82	10.24	53.06	64.41	-11.35	P	L2
0.2175	41.29	10.24	51.53	62.91	-11.38	P	L2
0.2670	34.37	10.25	44.62	61.21	-16.59	P	L2
0.2850	32.59	10.26	42.85	60.67	-17.82	P	L2
0.4830	30.10	10.29	40.39	56.29	-15.90	P	L2
20.7330	27.55	11.01	38.56	60.00	-21.44	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

## 7.2. REQUIREMENTS FOR ASYMMETRIC MODE CONDUCTED EMISSIONS

### 7.2.1. LIMITS

For Class A Equipment

FREQUENCY (MHz)	Voltage Limit (dBuV)		Current Limit (dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 ~ 0.5	97 ~ 87	84 ~ 74	53 ~ 43	40 ~ 30
0.5 ~ 30.0	87	74	43	30

**NOTE:** The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

For Class B Equipment

FREQUENCY (MHz)	Voltage Limit (dBuV)		Current Limit (dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	84 ~ 74	74 ~ 64	40 ~ 30	30 ~ 20
0.5 - 30.0	74	64	30	20

**NOTE:** The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

### 7.2.2. TEST INSTRUMENTS

Conducted Emission room #				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due

**NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. N.C.R = No Calibration Request.

## 7.2.3. TEST PROCEDURE

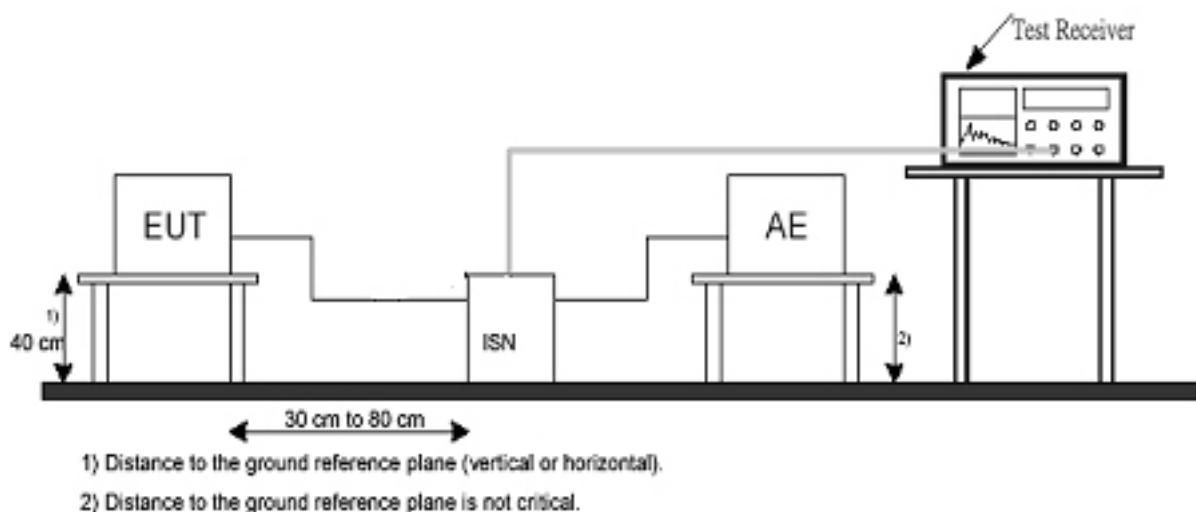
- Selecting AAN for unscreened cable or a current probe for screened cable to take measurement.
- The port of the EUT was connected to the remote side support equipment through the AAN/Current Probe and communication in normal condition.
- Making a overall range scan by using the test receiver controlled by controller and record at least six highest emissions for showing in the test report.
- Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.
- In case of measuring on the screened cable, the current limit shall be applied; otherwise the voltage limit should be applied.
- The following test modes was scanned during the preliminary test:

N/A

- After the preliminary scan, we found the following test mode(s) producing the highest emission level and test data of the worst case was recorded.

N/A

## 7.2.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



### 7.2.5. DATA SAMPLE

Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
x.xx	62.95	0.55	63.50	84	-20.50	Q

Freq. = Emission frequency in MHz  
 Reading = Uncorrected Analyzer/Receiver reading  
 Factor = Insertion loss of LISN + Cable Loss + Pulse Limit  
 Result = Reading + Factor  
 Limit = Limit stated in standard  
 Margin = Reading in reference to limit  
 P = Peak Reading  
 Q = Quasi-peak Reading  
 A = Average Reading

#### Calculation Formula

Margin (dB) = Result (dBuV) – Limit (dBuV)

### 7.2.6. TEST RESULTS

<b>Model No.</b>	N/A	<b>6dB Bandwidth</b>	N/A
<b>Environmental Conditions</b>	N/A	<b>Test Mode</b>	N/A
<b>Tested by</b>	N/A		

**Note:** No applicable, the EUT doesn't have LAN port or Modem port.

### 7.3. RADIATED EMISSION MEASUREMENT

#### 7.3.1. LIMITS

##### Below 1GHz

FREQUENCY (MHz)	dBuV/m (At 10m)		dBuV/m (At 3m)	
	Class A	Class B	Class A	Class B
30 ~ 230	40	30	50	40
230 ~ 1000	47	37	57	47

##### Above 1GHz

Frequency (MHz)	Class A (dBuV/m) (At 3m)		Class B (dBuV/m) (At 3m)	
	Average	Peak	Average	Peak
1000 ~ 3000	56	76	50	70
3000 ~ 6000	60	80	54	74

**NOTE:** The lower limit shall apply at the transition frequencies.

According to EN 55032: 2015 + A11: 2020 Table 1 the measurement frequency range shown in the following table:

Table 1 – Required highest frequency for radiated measurement

Highest internal frequency ( $F_x$ )	Highest internal frequency
$F_x \leq 108$ MHz	1 GHz
$108 \text{ MHz} < F_x \leq 500$ MHz	2 GHz
$500 \text{ MHz} < F_x \leq 1$ GHz	5 GHz
$F_x > 1$ GHz	$5 \times F_x$ up to a maximum of 6 GHz
NOTE 1 For FM and TV broadcast receivers, $F_x$ is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies.	
NOTE 2 $F_x$ is defined in 3.1.19.	

Where  $F_x$  is unknown, the radiated emission measurements shall be performed up to 6 GHz.

#### 7.3.2. TEST INSTRUMENTS

Open Area Test Site # H				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Bilog Antenna	Teseq	CBL 6112D	35411	05/03/2024
Cable	EMEC	CFD400E-LW	SD-R074	08/10/2023
EMI Test Receiver	R&S	ESCI	101340	02/03/2024
Pre-Amplifier	HP	8447D	1937A01554	09/21/2023
Thermo-Hygro Meter	Wisewind	201A	SD-R038	06/21/2023
Test S/W	EZ-EMC Ver.CCS-03A1			

**NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. N.C.R = No Calibration Request.

### 7.3.3. TEST PROCEDURE

#### **Procedure of Preliminary Test**

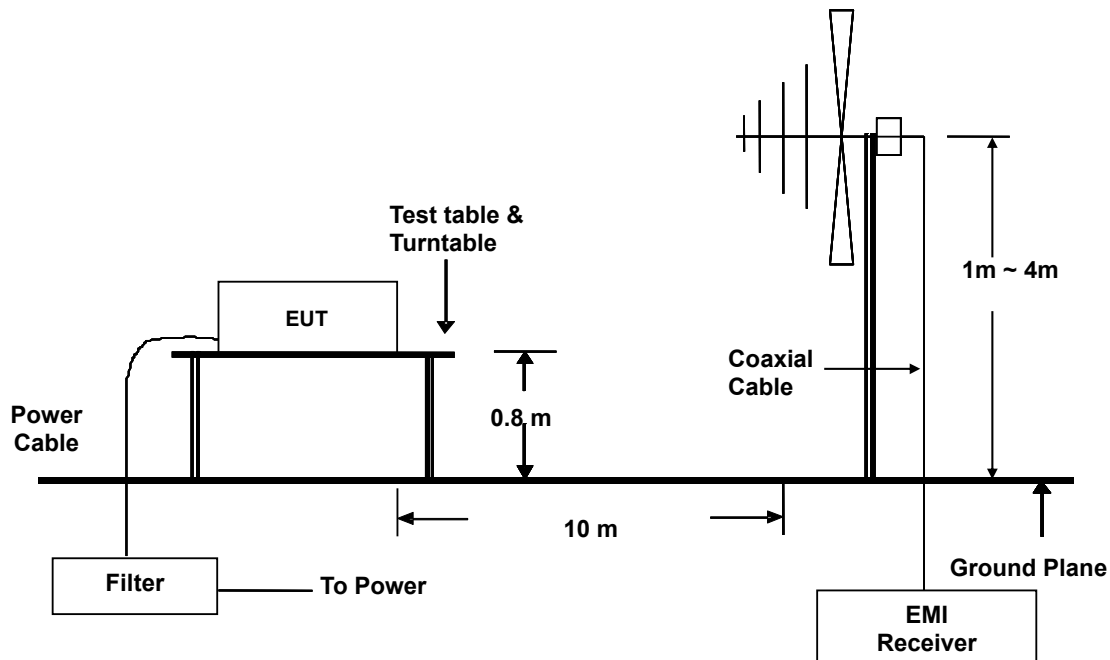
- The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is a floor standing equipment, it is placed on the ground plane which has a 15 cm non-conductive covering to insulate the EUT from the ground plane.
- Support equipment, if needed, was placed as per EN 55032.
- All I/O cables were positioned to simulate typical usage as per EN 55032.
- The EUT received AC power source from the outlet socket under the turntable. All support equipment power received from another socket under the turntable.
- The antenna was placed at 3 or 10 meter away from the EUT as stated in EN 55032. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.
- The Analyzer / Receiver quickly scanned from 30MHz to 6000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- The test mode(s) described in Item 4.1 were scanned during the preliminary test:
- After the preliminary scan, we found the test mode described in Item 4.1 producing the highest emission level.
- The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

#### **Procedure of Final Test**

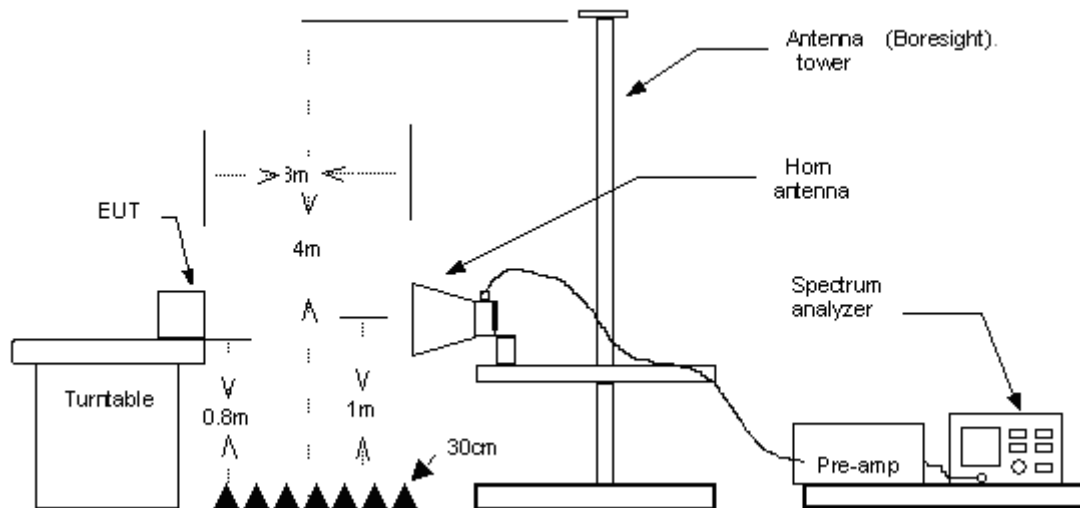
- EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test.
- The Analyzer / Receiver scanned from 30MHz to 6000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. Below 1GHz the Q.P. reading and above 1GHz the Peak and Average reading are presented.
- The test data of the worst-case condition(s) was recorded.

## 7.3.4. TEST SETUP

### Below 1GHz



### Above 1GHz



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

### 7.3.5. DATA SAMPLE

#### Below 1GHz

Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
x.xx	14.0	12.2	26.2	30	-3.8	Q	H

#### Above 1GHz

Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/A)	Pol. (H/V)
x.xx	42.95	0.55	43.50	54	-10.50	A	H

Freq. = Emission frequency in MHz  
 Reading = Uncorrected Analyzer/Receiver reading  
 Factor = Antenna Factor + Cable Loss - Amplifier Gain  
 Result = Reading + Factor  
 Limit = Limit stated in standard  
 Margin = Reading in reference to limit  
 P = Peak Reading  
 Q = Quasi-peak Reading  
 A = Average Reading  
 H = Antenna Polarization: Horizontal  
 V = Antenna Polarization: Vertical

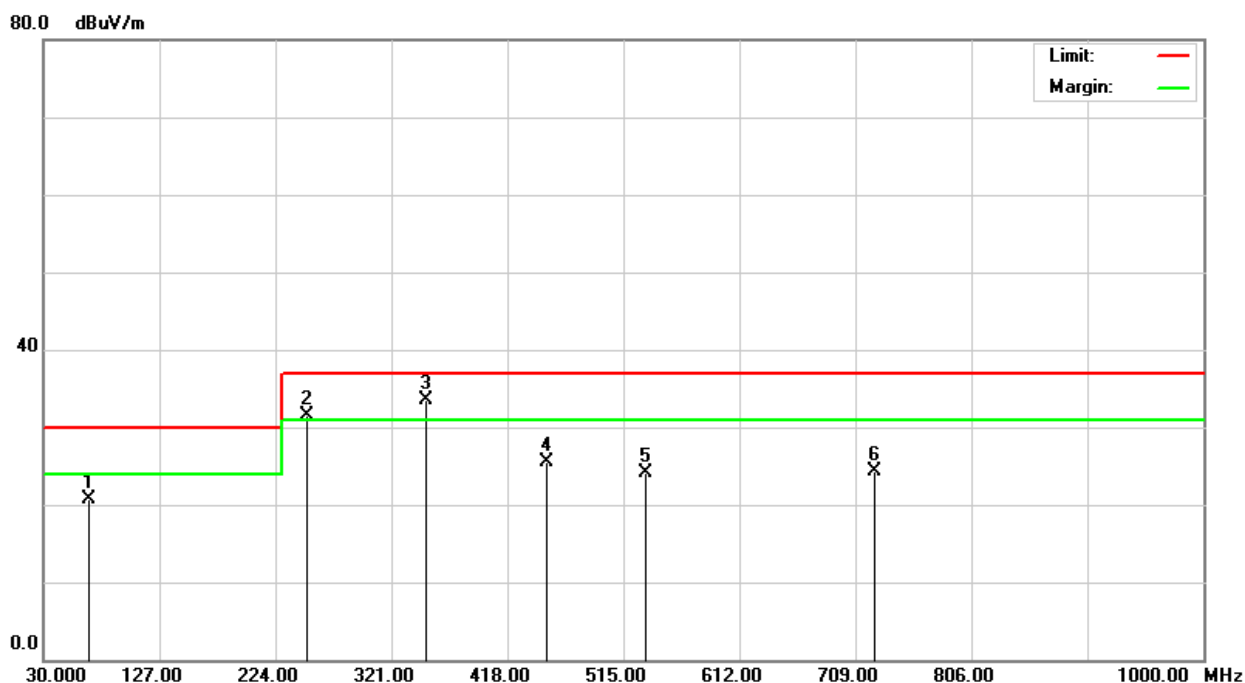
#### Calculation Formula

Margin (dB) = Result (dBuV/m) – Limit (dBuV/m)

## 7.3.6. TEST RESULTS

### Below 1GHz

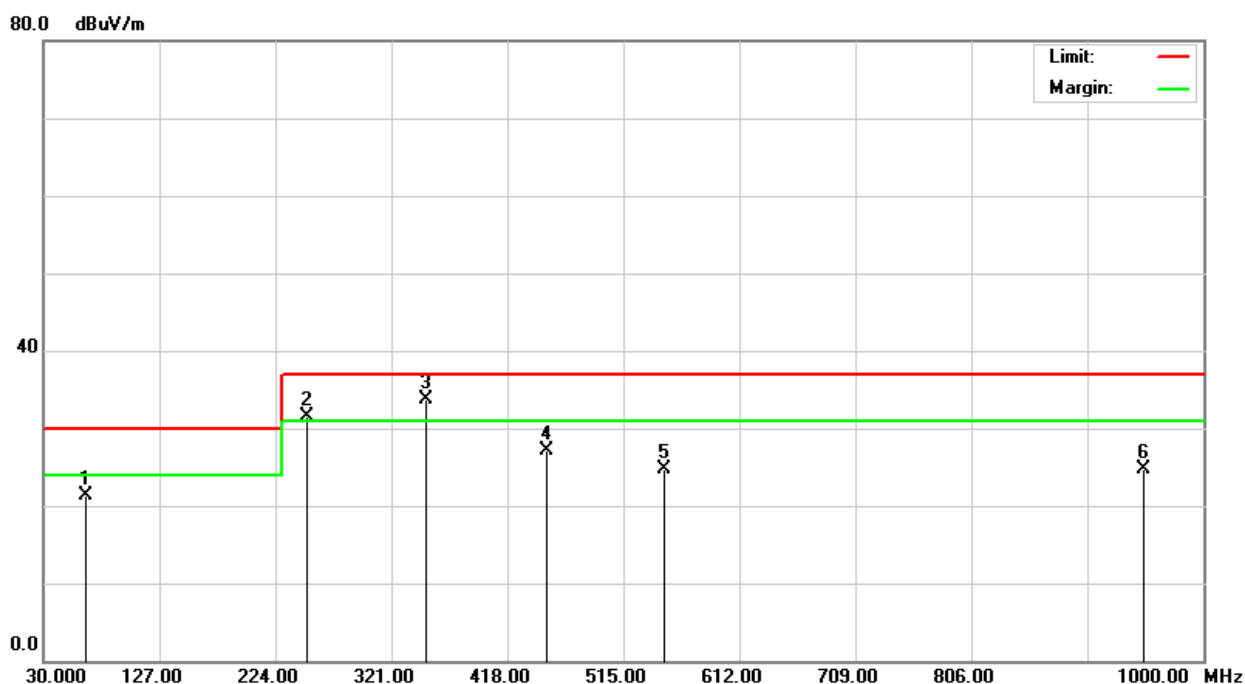
Model No.	PIXI-IW416	Test Mode	Mode 1
Environmental Conditions	26.3°C, 63% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Long Liao
Standard	EN 55032 CLASS B		



Radiated Emission Readings									
Frequency Range Investigated					30 MHz to 1000 MHz at 10m				
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Detector (P/Q)	Pol. (H/V)
68.2699	34.60	-13.90	20.70	30.00	-9.30	100	177	Q	V
250.3400	38.40	-6.95	31.45	37.00	-5.55	100	112	Q	V
350.4400	38.20	-4.71	33.49	37.00	-3.51	100	108	Q	V
450.6100	27.20	-1.76	25.44	37.00	-11.56	400	233	Q	V
533.8200	23.90	0.24	24.14	37.00	-12.86	400	251	Q	V
725.2600	21.60	2.61	24.21	37.00	-12.79	400	166	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Model No.	PIXI-IW416	Test Mode	Mode 1
Environmental Conditions	26.3°C, 63% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Long Liao
Standard	EN 55032 CLASS B		



Radiated Emission Readings									
Frequency Range Investigated					30 MHz to 1000 MHz at 10m				
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Detector (P/Q)	Pol. (H/V)
65.9300	35.60	-14.34	21.26	30.00	-8.74	400	134	Q	H
250.1600	38.40	-6.97	31.43	37.00	-5.57	400	229	Q	H
350.4300	38.50	-4.71	33.79	37.00	-3.21	400	277	Q	H
450.3400	28.80	-1.76	27.04	37.00	-9.96	100	152	Q	H
549.6700	23.80	0.91	24.71	37.00	-12.29	100	167	Q	H
950.1300	20.40	4.38	24.78	37.00	-12.22	100	285	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

### Above 1GHz

<b>Model No.</b>	PIXI-IW416	<b>Test Mode</b>	N/A
<b>Environmental Conditions</b>	N/A	<b>6dB Bandwidth</b>	N/A
<b>Antenna Pole</b>	N/A	<b>Antenna Distance</b>	N/A
<b>Highest frequency generated or used</b>	26MHz	<b>Upper frequency</b>	See note
<b>Detector Function</b>	N/A	<b>Tested by</b>	N/A

**Note:** No applicable, when the highest frequency of the internal sources of the EUT is less than 108MHz, the measurement shall only be made up to 1 GHz.



## 7.4. HARMONICS CURRENT MEASUREMENT

### 7.4.1. LIMITS OF HARMONICS CURRENT MEASUREMENT

Limits for Class A equipment		Limits for Class D equipment		
Harmonics Order n	Max. permissible harmonics current A	Harmonics Order n	Max. permissible harmonics current per watt mA/W	Max. permissible harmonics current A
Odd harmonics		Odd Harmonics only		
3	2.30	3	3.4	2.30
5	1.14	5	1.9	1.14
7	0.77	7	1.0	0.77
9	0.40	9	0.5	0.40
11	0.33	11	0.35	0.33
13	0.21	13	0.30	0.21
15<=n<=39	0.15x15/n	15<=n<=39	3.85/n	0.15x15/n
Even harmonics				
2	1.08			
4	0.43			
6	0.30			
8<=n<=40	0.23x8/n			

- NOTE:** 1. Class A and Class D are classified according to item 7.4.3.  
2. According to section 7 of EN IEC 61000-3-2, the above limits for all equipment except for lighting equipment having an active input power > 75 W and no limits apply for equipment with an active input power up to and including 75 W.

### 7.4.2. TEST INSTRUMENTS

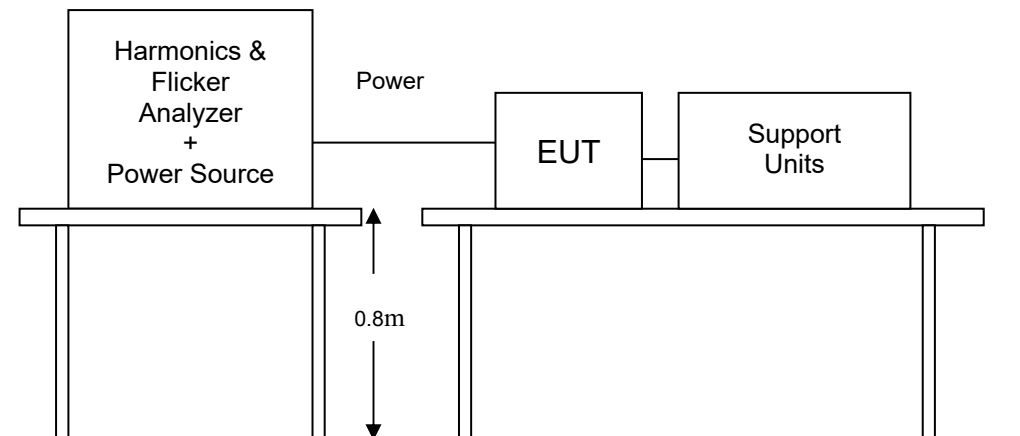
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due

- NOTE:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

### 7.4.3. TEST PROCEDURE

- The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.
- The classification of EUT is according to section 5 of EN IEC 61000-3-2.
- The EUT is classified as follows:  
 Class A: Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.  
 Class B: Portable tools; Arc welding equipment which is not professional equipment.  
 Class C: Lighting equipment.  
 Class D: Equipment having a specified power less than or equal to 600 W of the following types: Personal computers and personal computer monitors; television receivers and refrigerators and freezers having one or more variable-speed drives to control compressor motor(s).
- The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

### 7.4.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

### 7.4.5. TEST RESULTS

Power Consumption	N/A	Test Results	N/A
Environmental Conditions	N/A	Limits	Class <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
Test Mode	N/A	Tested by	N/A

**NOTE:** The subject equipment is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

## 7.5. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

### 7.5.1. LIMITS OF VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

TEST ITEM	LIMIT	REMARK
$P_{st}$	1.0	$P_{st}$ means short-term flicker indicator.
$P_{lt}$	0.65	$P_{lt}$ means long-term flicker indicator.
$T_{dt}$ (ms)	500	$T_{dt}$ means maximum time that dt exceeds 3 %.
$d_{max}$ (%)	4%	$d_{max}$ means maximum relative voltage change.
dc (%)	3.3%	dc means relative steady-state voltage change

### 7.5.2. TEST INSTRUMENTS

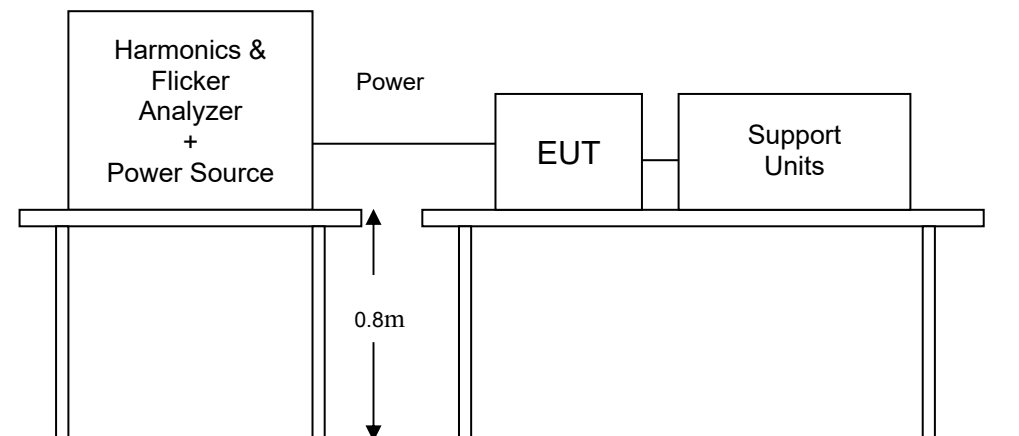
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due

**NOTE:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

### 7.5.3. 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 operating conditions.
- During the flick measurement, the measure time shall include that part of whole operation cycle in which the EUT produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

## 7.5.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

## 7.5.5. TEST RESULTS

Observation Period (Tp)	N/A	Test Mode	N/A
Environmental Conditions	N/A	Tested by	N/A

TEST PARAMETER	MEASUREMENT VALUE	LIMIT	REMARK
$P_{st}$	N/A	1.0	N/A
$P_{lt}$	N/A	0.65	N/A
$T_{dt}$ (ms)	N/A	500	N/A
$d_{max}$ (%)	N/A	4%	N/A
dc (%)	N/A	3.3%	N/A

**NOTE:** The subject equipment is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

## 8 IMMUNITY TEST

### 8.1. GENERAL DESCRIPTION

Product Standard	ETSI EN 301 489-1 V2.2.3 (2019)	
	Test Type	Minimum Requirement
<b>Basic Standard, Specification, and Performance Criterion required</b>	EN 61000-4-2	Electrostatic Discharge – ESD: 8kV air discharge, 4kV Contact discharge, Performance Criterion TT&TR
	EN IEC 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test – RS: 80 ~ 6000MHz, 3V/m, 80% AM(1kHz) Performance Criterion CT&CR
	EN 61000-4-4	Electrical Fast Transient/Burst - EFT, AC Power Port: 1kV DC Power Port: 0.5kV Signal Port: 0.5kV Performance Criterion TT&TR
	EN 61000-4-5	Surge Immunity Test: 1.2/50 $\mu$ s Open Circuit Voltage, 8 /20 $\mu$ s Short Circuit Current, 10/700 $\mu$ s Open Circuit Voltage AC Power Port ~ line to line: 1kV, line to earth: 2kV Signal Port ~ line to line: 0.5kV, line to earth: 1kV (Outdoor Cable) Signal Port ~ line to earth: 0.5kV (Indoor Cable) Performance Criterion TT&TR
	EN 61000-4-6	Conducted Radio Frequency Disturbances Test –CS: AC Power Port; DC Power Port; Signal Port: 0.15 ~ 80 MHz, 3Vrms, 80% AM, 1kHz, Performance Criterion CT&CR
	EN IEC 61000-4-11	Voltage Dips: 1) 0% residual 0.5 cycle Performance TT or TR 2) 0% residual 1 cycle Performance TT or TR 3) 70% residual 25 cycles Performance TT or TR 4) 0% residual 250 cycles Performance TT or TR

## 8.2. GENERAL PERFORMANCE CRITERIA DESCRIPTION

### General performance criteria

The performance criteria are:

- performance criteria A for immunity tests with phenomena of a continuous nature;
- performance criteria B for immunity tests with phenomena of a transient nature;
- performance criteria C for immunity tests with power interruptions exceeding a certain time.

The equipment shall meet the minimum performance criteria as specified in the following clauses.

### Performance table

**Table 1: Performance criteria**

Criteria	During test	After test
A	Shall operate as intended. (see note 1). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance (see note 3). Shall be no loss of function. Shall be no loss of stored data or user programmable functions.
B	May show loss of function (one or more). May show degradation of performance (see note 2). Shall be no unintentional transmissions.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no degradation of performance (see note 3). Shall be no loss of stored data or user programmable functions
C	May be loss of function (one or more).	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no degradation of performance (see note 3).

NOTE 1: Operate as intended during the test allows a level of degradation not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

NOTE 2: Degradation of performance during the test is understood as a degradation to a level not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

NOTE 3: No degradation of performance after the test is understood as no degradation below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. After the test no change of actual operating data or user retrievable data is allowed. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

## Performance criteria for Continuous phenomena applied to Transmitters (CT)

The performance criteria A shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an ACKnowledgement (ACK) or Not ACKnowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

## Performance criteria for Transient phenomena applied to Transmitters (TT)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply. Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) or not-acknowledgement.

(NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

## Performance criteria for Continuous phenomena applied to Receivers (CR)

The performance criteria A shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

## Performance criteria for Transient phenomena applied to Receivers (TR)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration for which performance criteria C shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

### 8.3. ELECTROSTATIC DISCHARGE (ESD)

#### 8.3.1. TEST SPECIFICATION

<b>Basic Standard:</b>	EN 61000-4-2
<b>Discharge Impedance:</b>	330 ohm / 150 pF
<b>Discharge Voltage:</b>	Air Discharge: 2 ; 4 ; 8 kV (Direct) Contact Discharge: 2 ; 4 kV (Direct/Indirect)
<b>Polarity:</b>	Positive & Negative
<b>Number of Discharge:</b>	Minimum 10 times at each test point
<b>Discharge Mode:</b>	Single Discharge 1 second minimum

#### 8.3.2. TEST INSTRUMENT

IMMUNITY SHIELDED ROOM				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Aneroid Barometer	SATO	7610-20	89090	08/03/2023
ESD Simulator	Teseq	NSG 437	1812	12/18/2023
Thermo-Hygro Meter	Wisewind	201A	SD-S041	12/22/2023

**NOTE:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.



### 8.3.3. TEST PROCEDURE

The discharges shall be applied in two ways:

a) Contact discharges to the conductive surfaces and coupling planes:

The EUT shall be exposed to at least 20 discharges, 10 each at negative and positive polarity, at a minimum of four test points. One of the test points shall be subjected to at least 10 indirect discharges to the center of the front edge of the Horizontal Coupling Plane (HCP). The remaining three test points shall each receive at least 10 direct contact discharges. If no direct contact test points are available, then at least 20 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.

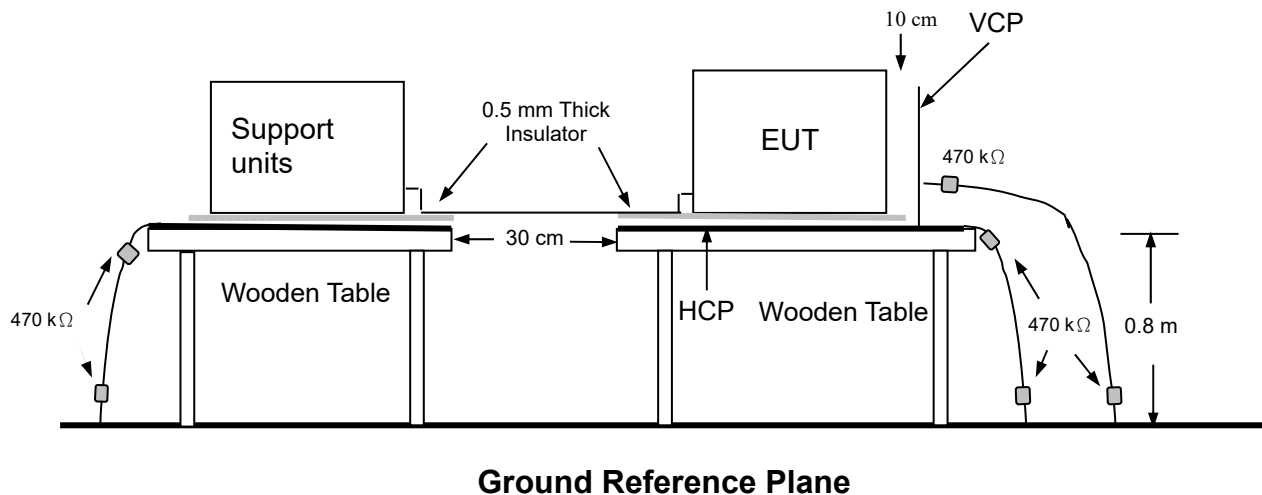
b) Air discharges at slots and apertures and insulating surfaces:

On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur. Such points are tested using the air discharge method. This investigation should be restricted to those area normally handled by the user. A minimum of 10 single air discharges shall be applied to the selected test point for each such area.

The basic test procedure was in accordance with EN 61000-4-2:

- a) The EUT was located 0.1 m minimum from all side of the **HCP** (dimensions 1.6m x 0.8m).
- b) The support units were located another table 30 cm away from the EUT, but direct support unit was/were located at same location as EUT on the HCP and keep at a distance of 10 cm with EUT.
- c) The time interval between two successive single discharges was at least 1 second.
- d) Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- e) Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
- f) At least ten single discharges (in the most sensitive polarity) were applied at the front edge of each **HCP** opposite the center point of each unit of the EUT and 0.1 meters from the front of the EUT. The long axis of the discharge electrode was in the plane of the **HCP** and perpendicular to its front edge during the discharge.
- g) At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the **Vertical Coupling Plane (VCP)** in sufficiently different positions that the four faces of the EUT were completely illuminated. The **VCP** (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the EUT.

## 8.3.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

### NOTE:

#### TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the **Ground Reference Plane**. The **GRP** consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A **Horizontal Coupling Plane** (1.6m x 0.8m) was placed on the table and attached to the **GRP** by means of a cable with 940k ohm total impedance. The equipment under test, was installed in a representative system as described in section 7 of EN 61000-4-2, and its cables were placed on the **HCP** and isolated by an insulating support of 0.5mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

#### FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of EN 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

### 8.3.5. TEST RESULTS

#### Normal Mode

Temperature	18.5°C	Humidity	50% RH
Pressure	1002mbar	Tested By	Long Liao
Required Passing Performance		Criterion TT&TR	

Air Discharge								
Test Points	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Front	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CT / <input type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2
Back	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CT / <input type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2
Left	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CT / <input type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2
Right	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CT / <input type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2
Top	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CT / <input type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2
Bottom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CT / <input type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2

Discharge To Horizontal Coupling Plane								
Side of EUT	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2

Discharge To Vertical Coupling Plane								
Side of EUT	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2

**NOTE:** 1. There was no change compared with initial operation during the test.  
2. Not applicable.

### Standby Mode

Temperature	18.5°C	Humidity	50% RH
Pressure	1002mbar	Tested By	Long Liao
Required Passing Performance		Criterion TT&TR	

Air Discharge								
Test Points	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Front	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CT / <input type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2
Back	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CT / <input type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2
Left	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CT / <input type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2
Right	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CT / <input type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2
Top	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CT / <input type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2
Bottom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CT / <input type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2

Discharge To Horizontal Coupling Plane								
Side of EUT	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2

Discharge To Vertical Coupling Plane								
Side of EUT	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR	<input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2

**NOTE:** 1. There was no change compared with initial operation during the test.  
2. Not applicable.

## 8.4. RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD (RS)

### 8.4.1. TEST SPECIFICATION

<b>Basic Standard:</b>	EN IEC 61000-4-3
<b>Frequency Range:</b>	80 MHz ~ 6000 MHz
<b>Field Strength:</b>	3 V/m
<b>Modulation:</b>	1kHz Sine Wave, 80%, AM Modulation
<b>Frequency Step:</b>	1 % of preceding frequency value
<b>Polarity of Antenna:</b>	Horizontal and Vertical
<b>Test Distance:</b>	3 m
<b>Antenna Height:</b>	1.5m

### 8.4.2. TEST INSTRUMENT

844 RS Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Electric Field Probe	AR	FL7006	0356656	03/18/2024
Field of Calibration	CCS	Chamber#RS	80-1000MHz	02/19/2024
RF Power Meter	Boonton	4242	17419	02/13/2024
Power Sensor	Boonton	51011A-EMC	36833	02/13/2024
Power Sensor	Boonton	51011A-EMC	36834	02/13/2024
Thermo-Hygro Meter	Wisewind	N/A	SD-S019	09/28/2023
Broadband Antenna	AR	AT1080	311819	N.C.R
Power Amplifier	Teseq	CBA1G-600D	1098099	N.C.R
Analog Signal Generator	Agilent	E8257D	MY48051214	06/13/2023
Field of Calibration	CCS	Chamber#RS	1000-6000MHz	02/16/2024
Microwave Antenna	Schwarzbeck	STLP 9149	767	N.C.R
Power Amplifier	Teseq	CBA6G-100D	1087370	N.C.R
Software	EmcwareVer. 2.6.0.16			

**NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

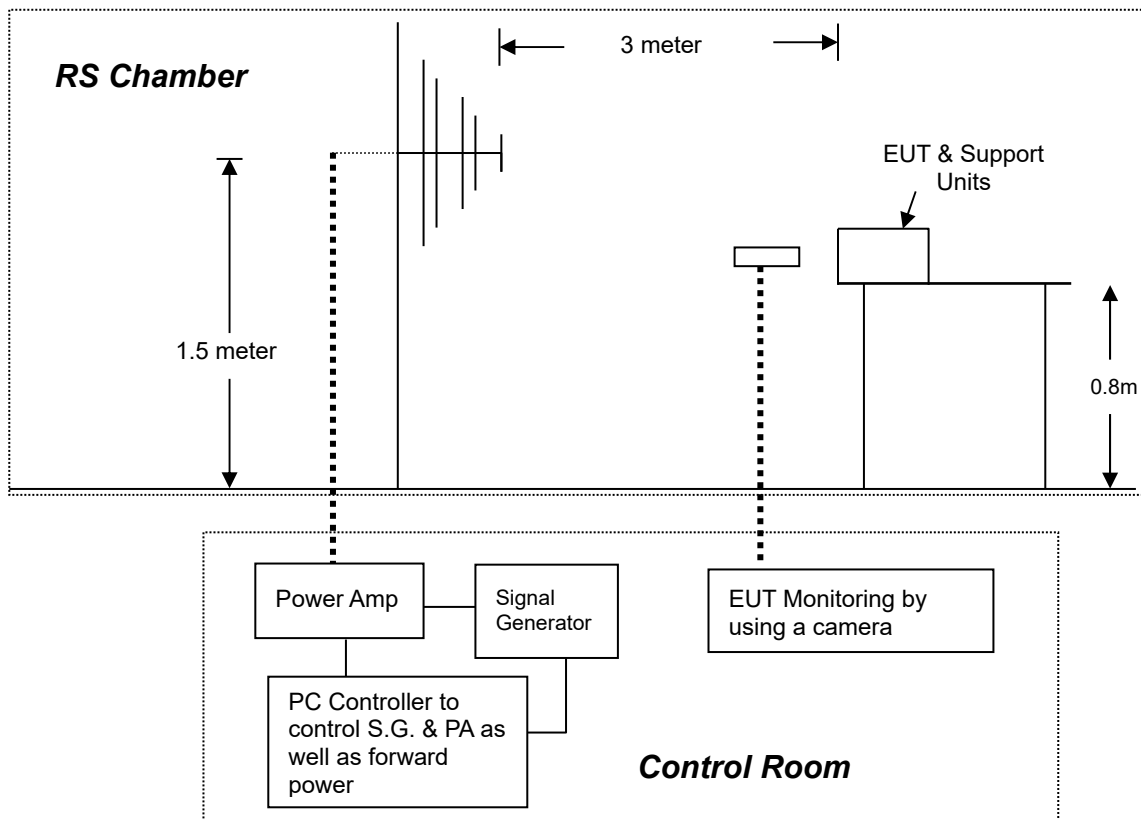
2. N.C.R.= No Calibration required.

### 8.4.3. TEST PROCEDURE

The test procedure was in accordance with EN IEC 61000-4-3

- 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 6000 MHz, with the signal 80% amplitude modulated with a 1kHz 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 preceding frequency value.
- The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

### 8.4.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

#### NOTE:

##### TABLETOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN IEC 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

##### FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN IEC 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

### 8.4.5. TEST RESULTS

#### Normal Mode

Temperature	22.8°C	Humidity	52% RH
Pressure	1006mbar	Dwell Time	3 sec.
Tested By	Long Liao	Required Passing Performance	Criterion CT&CR

Frequency (MHz)	Polarity	Azimuth	Field Strength (V/m)	Performance Criterion	Observation	Result
80 ~ 6000	V&H	0	3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 6000	V&H	90	3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 6000	V&H	180	3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 6000	V&H	270	3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with the initial operation during the test.

#### Standby Mode

Temperature	22.8°C	Humidity	52% RH
Pressure	1006mbar	Dwell Time	3 sec.
Tested By	Long Liao	Required Passing Performance	Criterion CT&CR

Frequency (MHz)	Polarity	Azimuth	Field Strength (V/m)	Performance Criterion	Observation	Result
80 ~ 6000	V&H	0	3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 6000	V&H	90	3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 6000	V&H	180	3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 6000	V&H	270	3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with the initial operation during the test.

#### WIFI 2.4G Mode

Temperature	22.8°C	Humidity	52% RH
Pressure	1006mbar	Dwell Time	3 sec.
Tested By	Long Liao	Required Passing Performance	Criterion CT&CR

Frequency (MHz)	Polarity	Azimuth	Field Strength (V/m)	Performance Criterion	Observation	Result
80 ~ 6000	V&H	0	3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 6000	V&H	90	3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 6000	V&H	180	3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 6000	V&H	270	3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with the initial operation during the test.

## 8.5. ELECTRICAL FAST TRANSIENT (EFT)

### 8.5.1. TEST SPECIFICATION

<b>Basic Standard:</b>	EN 61000-4-4
<b>Test Voltage:</b>	AC Power Port: 1kV
<b>Polarity:</b>	Positive & Negative
<b>Impulse Frequency:</b>	5 kHz
<b>Impulse Wave-shape:</b>	5/50 ns
<b>Burst Duration:</b>	15 ms
<b>Burst Period:</b>	300 ms
<b>Test Duration:</b>	Not less than 1 min.

### 8.5.2. TEST INSTRUMENT

Immunity Shield Room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Capacitive Clamp	EMC-Partner	CN-EFT1000	589	02/20/2024
EMC Immunity Tester	EMC Partner	TRANSINT 2000	1117	02/21/2024
Software	GenecsVer. 3.27			

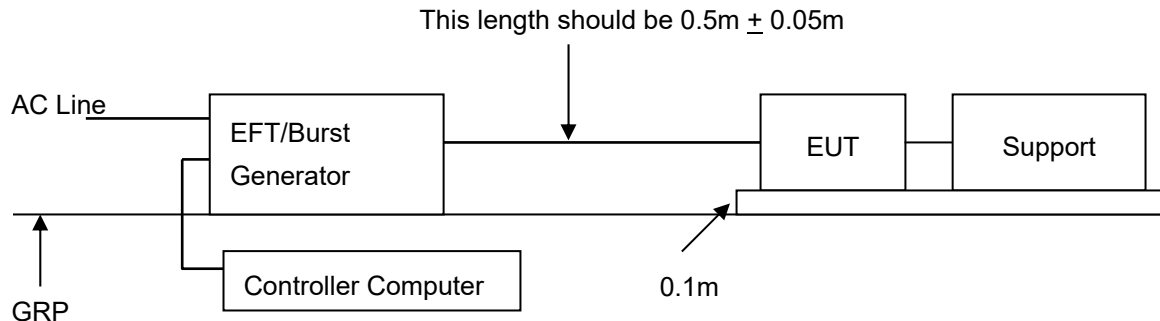
**NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. N.C.R.= No Calibration required.

### 8.5.3. TEST PROCEDURE

- All types of cables, including their length, and the interface port of the EUT to which they were connected.
- Both positive and negative polarity discharges were applied.
- The length of the “hot wire” from the coaxial output of the EFT generator to the terminals on the EUT should not exceed 0.5 meter.
- The duration time of each test sequential was 1 minute.
- The transient/burst waveform was in accordance with EN 61000-4-4, 5/50ns.



## 8.5.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

### NOTE:

#### TABLETOP EQUIPMENT

The configuration consisted of a wooden table (0.1m high) standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.

#### FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN 61000-4-4 and its cables, were isolated from the Ground Reference Plane by an insulating support that is 0.1-meter thick. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system.

### 8.5.5. TEST RESULTS

#### Normal Mode

Temperature	24.7°C	Humidity	54% RH
Pressure	1007mbar	Tested By	Long Liao
Required Passing Performance		Criterion TT&TR	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – N	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
PE	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – PE	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N – PE	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – N – PE	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

#### Standby Mode

Temperature	24.7°C	Humidity	54% RH
Pressure	1007mbar	Tested By	Long Liao
Required Passing Performance		Criterion TT&TR	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – N	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
PE	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – PE	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N – PE	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – N – PE	+/-	1	<input checked="" type="checkbox"/> CT / <input checked="" type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

## 8.6. SURGE IMMUNITY TEST

### 8.6.1. TEST SPECIFICATION

<b>Basic Standard:</b>	EN 61000-4-5
<b>Wave-Shape:</b>	Combination Wave 1.2/50 $\mu$ s Open Circuit Voltage 8/20 $\mu$ s Short Circuit Current
<b>Test Voltage:</b>	AC Power Port ~ line to line: 1kV, line to ground: 2kV
<b>Surge Input/Output:</b>	AC Power Line: L-N / L-PE / N-PE
<b>Generator Source Impedance:</b>	2 ohm between networks 12 ohm between network and ground
<b>Polarity:</b>	Positive/Negative
<b>Phase Angle:</b>	0° / 90° / 180° / 270°
<b>Pulse Repetition Rate:</b>	1 time / min. (maximum)
<b>Number of Tests:</b>	5 positive and 5 negative at selected points

### 8.6.2. TEST INSTRUMENT

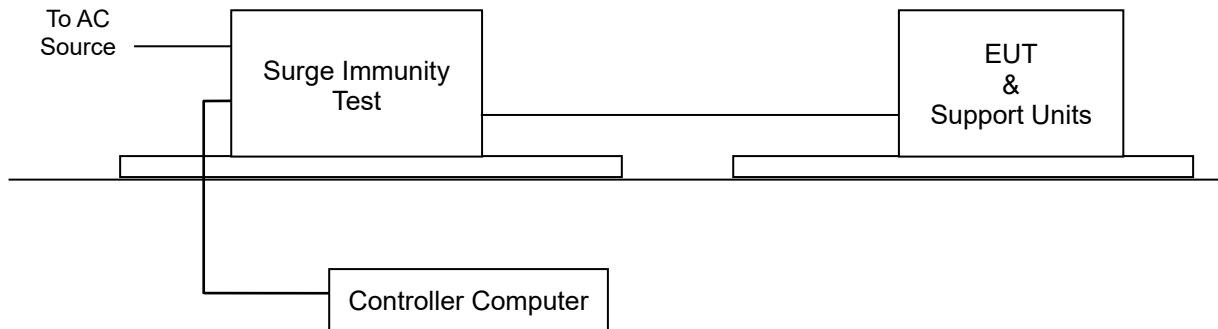
Immunity Shield Room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due

**NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. N.C.R.= No Calibration required.

### 8.6.3. TEST PROCEDURE

- a) For EUT power supply:  
The surge is applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.
- b) For test applied to unshielded un-symmetrically operated interconnection lines of EUT:  
The surge was applied to the lines via the capacitive coupling. The coupling / decoupling networks didn't influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.
- c) For test applied to unshielded symmetrically operated interconnection / telecommunication lines of EUT:  
The surge was applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestor were not specified. The interconnection line between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.

## 8.6.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

## 8.6.5. TEST RESULTS

Temperature	N/A	Humidity	N/A
Pressure	N/A	Tested By	N/A
Required Passing Performance		Criterion TT&TR	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L - N	+/-	1	<input type="checkbox"/> CT / <input type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A
L - PE	+/-	1	<input type="checkbox"/> CT / <input type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A
N - PE	+/-	1	<input type="checkbox"/> CT / <input type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A

**NOTE:** 1. The subject equipment is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

## 8.7. CONDUCTED RADIO FREQUENCY DISTURBANCES (CS)

### 8.7.1. TEST SPECIFICATION

<b>Basic Standard:</b>	EN 61000-4-6
<b>Frequency Range:</b>	0.15 MHz ~ 80 MHz
<b>Field Strength:</b>	3 Vrms
<b>Modulation:</b>	1kHz Sine Wave, 80%, AM Modulation
<b>Frequency Step:</b>	1 % of preceding frequency value
<b>Coupled cable:</b>	Power Mains, Unshielded
<b>Coupling device:</b>	CDN-M3

### 8.7.2. TEST INSTRUMENT

CS Room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
CDN	Teseq	CDN S751A	46649	10/23/2023
CDN	Teseq	CDN M016	35821	10/23/2023
CDN	FCC	FCC-801-M3-25A	9973	10/23/2023
Compact Immunity Test System	TESEQ	NSG 4070B-35	39581	10/25/2023
Software	NSG 4070 Control Program V1.2.0			

**NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. N.C.R.= No Calibration required.

### 8.7.3. TEST PROCEDURE

The EUT shall be tested within its intended operating and climatic conditions.

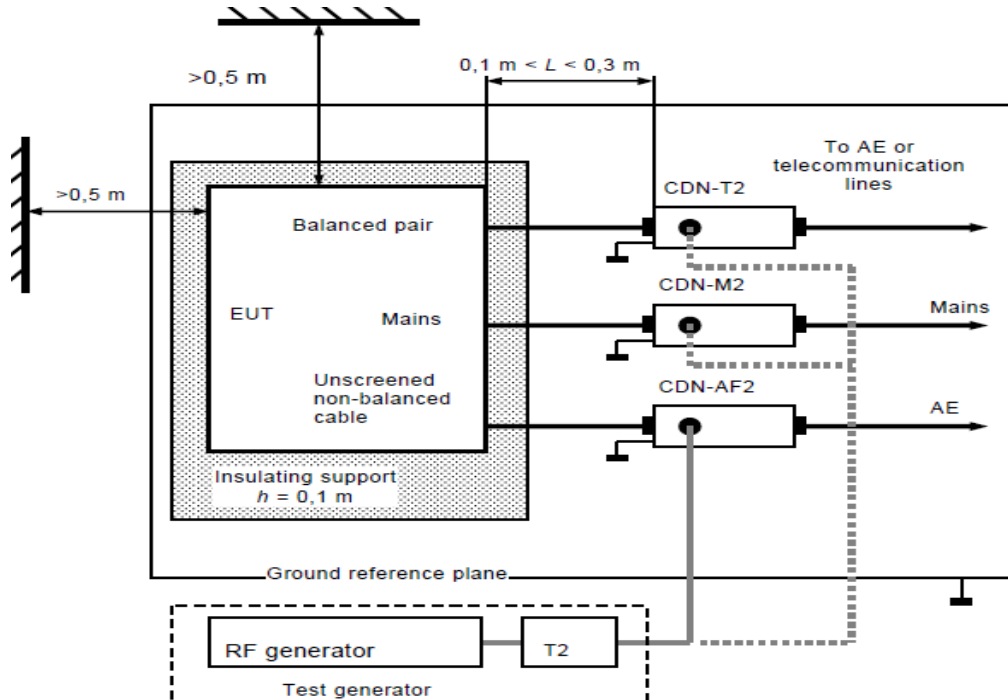
The test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn, while the other non-excited RF input ports of the coupling devices are terminated by a 50-ohm load resistor.

The frequency range was 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 was modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or the switch coupling devices as necessary. The sweep rate was  $1.5 \times 10^{-3}$  decades/s. Where the frequency range is swept incrementally, the step size was 1 % of preceding frequency value from 150 kHz to 80 MHz.

The dwell time at each frequency was less than the time necessary for the EUT to be exercised, and able to respond. Sensitive frequencies such as clock frequency(ies) and harmonics or frequencies of dominant interest, was analyzed separately.

Attempts were made to fully exercise the EUT during testing, and to fully interrogate all exercise modes selected for susceptibility.

## 8.7.4. TEST SETUP



**Note:** 1. The CDNs and / or EM clamp used for real test depends on ports and cables configuration of EUT.  
2. The EUT clearance from any metallic obstacles shall be at least 0.5m

- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

### NOTE:

#### TABLE-TOP AND FLOOR-STANDING EQUIPMENT

The equipment to be tested is placed on an insulating support of 0.1 meters height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.

### 8.7.5. TEST RESULTS

#### Normal Mode

Temperature	23.8°C	Humidity	53% RH
Pressure	1006mbar	Dwell Time	3 sec.
Tested By	Long Liao	Required Passing Performance	Criterion CT&CR

Frequency Band (MHz)	Field Strength (Vrms)	Cable	Injection Method	Performance Criterion	Observation	Result
0.15 ~ 80	3	AC Power Line (0.3m)	CDN-M3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

#### Standby Mode

Temperature	23.8°C	Humidity	53% RH
Pressure	1006mbar	Dwell Time	3 sec.
Tested By	Long Liao	Required Passing Performance	Criterion CT&CR

Frequency Band (MHz)	Field Strength (Vrms)	Cable	Injection Method	Performance Criterion	Observation	Result
0.15 ~ 80	3	AC Power Line (0.3m)	CDN-M3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

#### WIFI 2.4G Mode

Temperature	23.8°C	Humidity	53% RH
Pressure	1006mbar	Dwell Time	3 sec.
Tested By	Long Liao	Required Passing Performance	Criterion CT&CR

Frequency Band (MHz)	Field Strength (Vrms)	Cable	Injection Method	Performance Criterion	Observation	Result
0.15 ~ 80	3	AC Power Line (0.3m)	CDN-M3	<input checked="" type="checkbox"/> CT <input checked="" type="checkbox"/> CR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

## 8.8. VOLTAGE DIPS & VOLTAGE INTERRUPTIONS

### 8.8.1. TEST SPECIFICATION

**Basic Standard:** EN IEC 61000-4-11

**Test duration time:** Minimum three test events in sequence

**Interval between event:** Minimum 10 seconds

**Angle:** 0~360 degree

**Step:** 45 degree

### 8.8.2. TEST INSTRUMENT

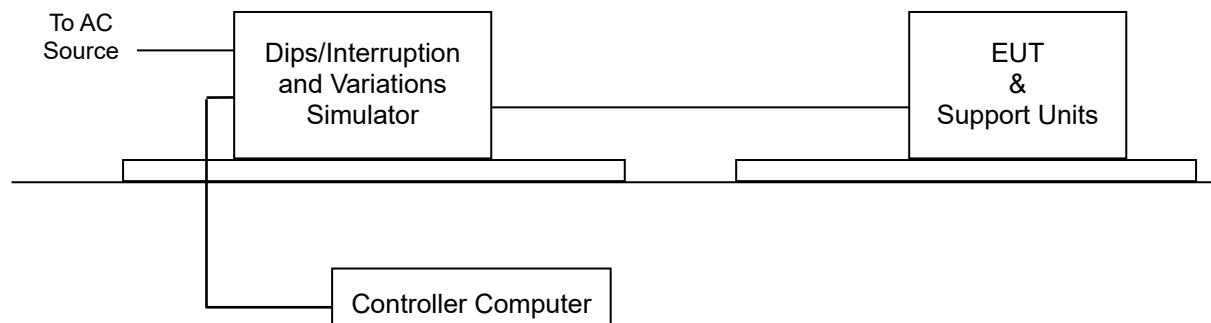
Immunity shielded room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due

**NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. N.C.R.= No Calibration required.

### 8.8.3. TEST PROCEDURE

1. The EUT and support units were located on a wooden table, 0.8 m away from ground floor.
2. Setting the parameter of tests and then perform the test software of test simulator.
3. Conditions changes to occur at 0 degree crossover point of the voltage waveform.
4. Recording the test result in test record form.

### 8.8.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



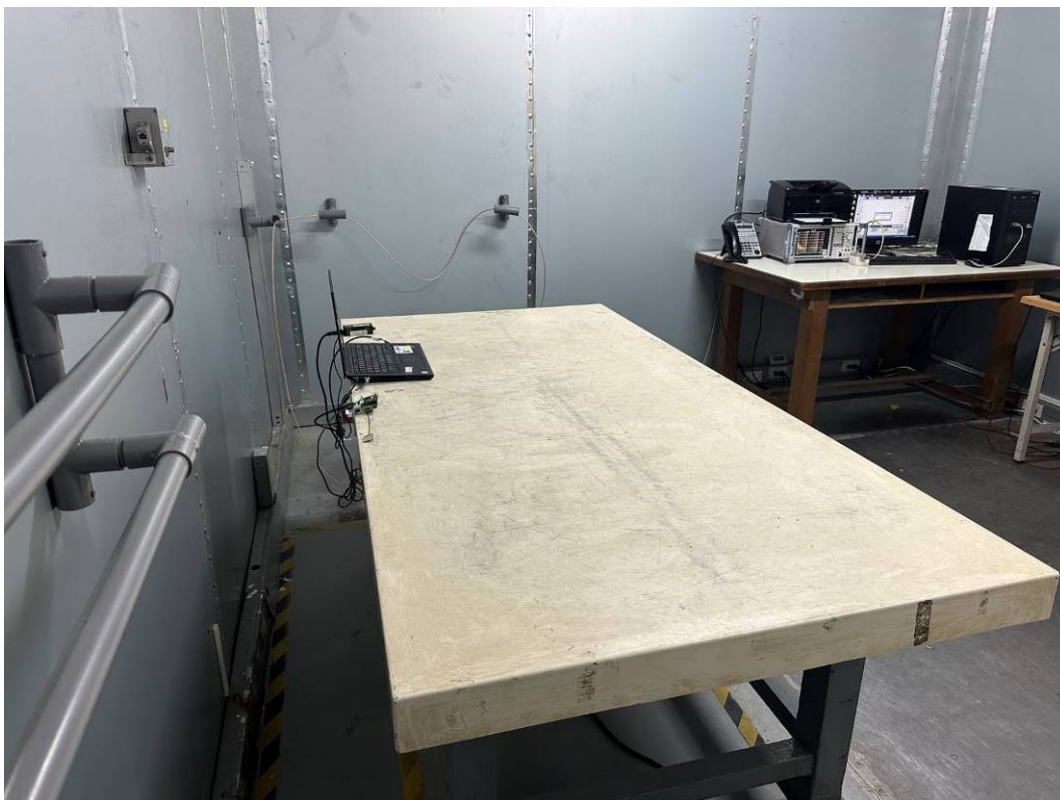
### 8.8.5. TEST RESULTS

Temperature	N/A	Humidity	N/A
Pressure	N/A	Tested By	N/A
Required Passing Performance	TT or TR: 0% residual 0.5 cycle 0% residual 1 cycle 70% residual 25 cycles TT or TR: 0% residual 250 cycles		

Test Power: 230Vac, 50Hz				
Voltage (% Residual)	Duration (Cycle)	Performance Criterion	Observation	Test Result
0	0.5	<input type="checkbox"/> CT / <input type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A
0	1	<input type="checkbox"/> CT / <input type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A
70	25	<input type="checkbox"/> CT / <input type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A
0	250	<input type="checkbox"/> CT / <input type="checkbox"/> CR <input type="checkbox"/> TT / <input type="checkbox"/> TR	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A

**NOTE:** 1. The subject equipment is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

## 9 PHOTOGRAPHS OF THE TEST CONFIGURATION CONDUCTED EMISSION TEST

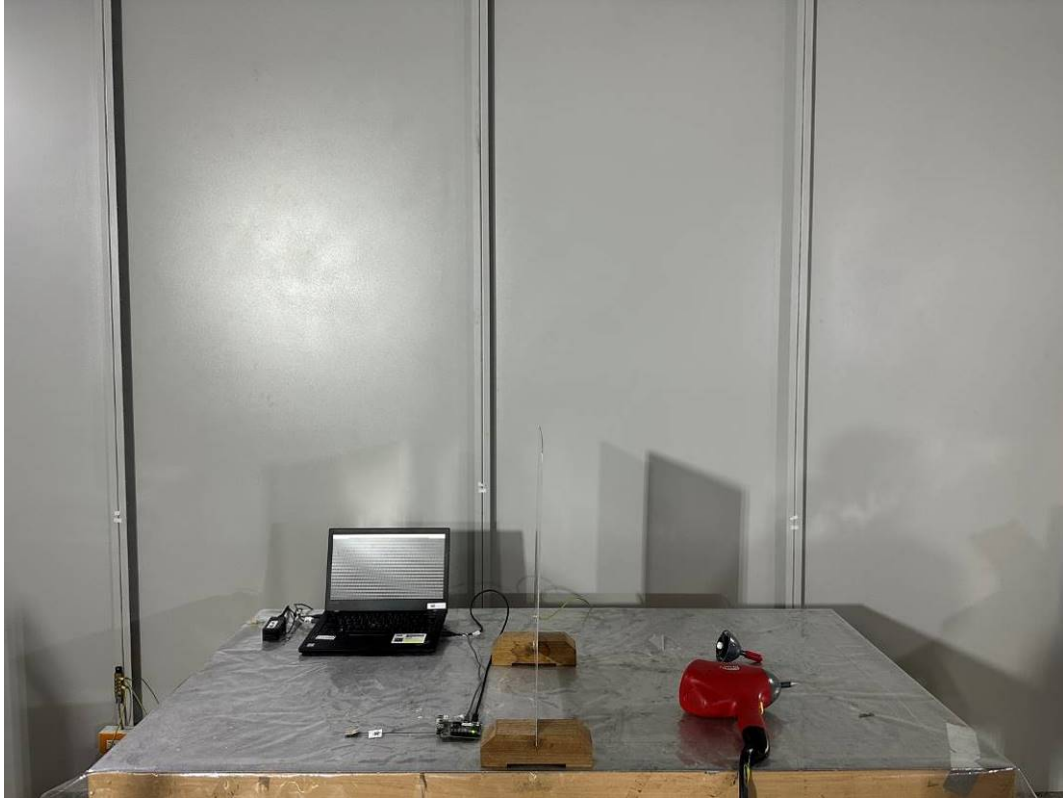




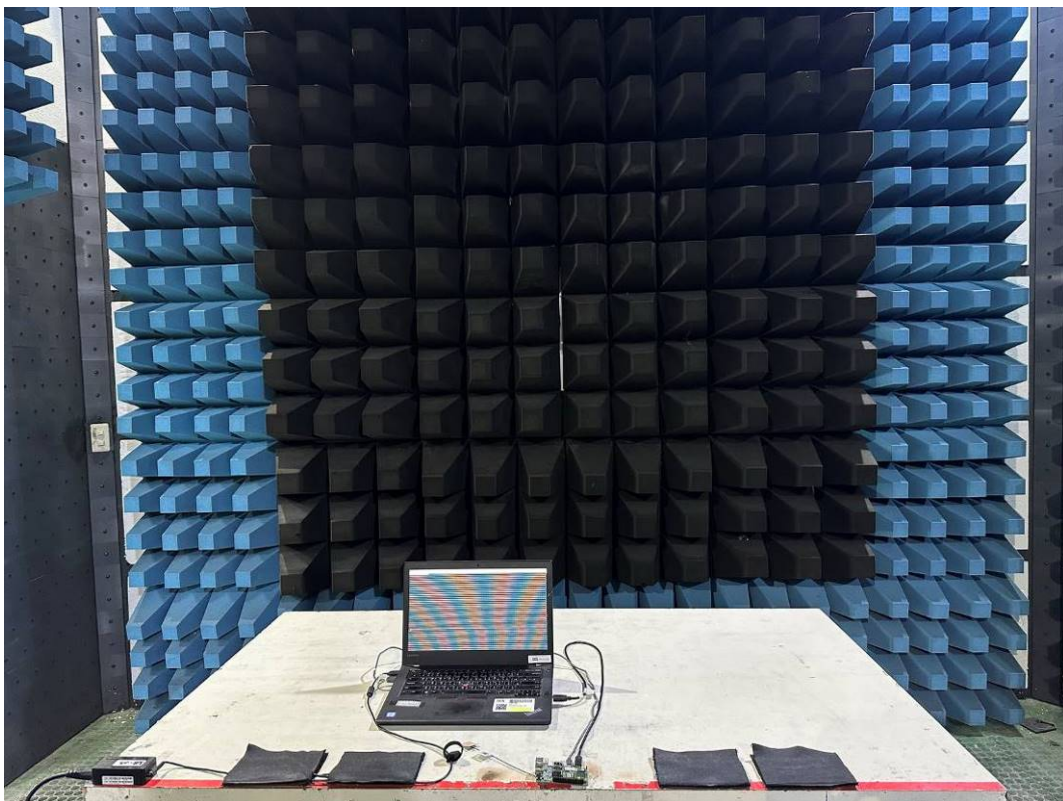
## RADIATED EMISSION TEST (Below 1GHz)



## ESD Test



## RS Test





## EFT Test



## CS Test



## APPENDIX 1 - PHOTOGRAPHS OF EUT

