EMC TEST REPORT

Report No.: ZYT-230907006-03R

Issued for

Shantou Chenghai District Jinniu handicraft factory

Guangfeng Industrial Zone, Dengfeng Road, Guangyi Street, Chenghai District, Shantou City, Guangdong Province

Product Name	:	Hand warmer
Trade Mark	:	N/A
Model Name	:	PCX168138
Test Standard	:	BS EN 55032:2015/A1:2020 BS EN 55035:2017/A11:2020 BS EN IEC 61000-3-2:2019/A1:2021 BS EN 61000-3-3:2013/A2:2021

Test Report Certification

Applicant's Name.....:	Shantou Chenghai District Jinniu handicraft factory
Address.....:	Guangfeng Industrial Zone, Dengfeng Road, Guangyi Street, Chenghai District, Shantou City, Guangdong Province
Manufacturer's Name.....:	Shantou Chenghai District Jinniu handicraft factory
Address.....:	Guangfeng Industrial Zone, Dengfeng Road, Guangyi Street, Chenghai District, Shantou City, Guangdong Province
Product Name.....:	Hand warmer
Model Name .....:	PCX168138、PCX168138A、PCX168138B、PCX168138C、PCX168138D、PCX168139、PCX168139A、PCX2022001、PCX2022002、PCX2022003、PCX2022004、PCX2022005、PCX2022006、PCX2022007、PCX2022008、PCX2022009、PCX2022010、PCX8001、PCX8002、PCX8003、PCX8004、PCX8005、PCX8006、PCX8007、PCX8008、PCX8009、PCX8010、PCX8011、PCX8012、PCX8013、PCX8014、PCX8015、PCX8016、PCX8017、PCX8018、PCX8019、PCX8020、PCX8021、PCX8022、PCX8023、PCX8024、PCX8034、PCX8035、PCX8036、PCX8037、PCX8038、PCX8039、PCX8040、PCX8041、PCX8042、PCX8043、PCX8044、PCX8045、PCX8046、PCX8047、PCX8048、PCX8049、PCX8050、PCX8051
Trade Mark .....:	N/A
Standards .....:	BS EN 55032:2015/A1:2020 BS EN 55035:2017/A11:2020 BS EN IEC 61000-3-2:2019/A1:2021 BS EN 61000-3-3:2013/A2:2021

This device described above has been tested by Promise, and the test results show that the equipment under test (EUT) is in PASS with the EMC Directive ***SI 2016 No.1091/UK*** requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test..... :

Date (s) of Performance of Tests ..... : March 17-30, 2023

Date of Issue ..... : March 30, 2023

Test Result..... : **Pass**

Prepared By :

Reviewed by :

Approved by :

(Jack Yang)

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	September 07.2023	Valid	Original Report

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1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
BS EN 55032:2015/A1:2020	Conducted Emission on AC and Telecom Port 150kHz to 30MHz	Class B	PASS	
	Radiated Emissions	Class B	PASS	Note (1)
BS EN IEC 61000-3-2:2019/A1:2021	Harmonic Current Emission	------	N/A	Note (2)
BS EN 61000-3-3:2013/A2:2021	Voltage Fluctuations & Flicker	------	N/A	
EMC Immunity				
Section BS EN 55035:2017+A11:2020	Test Item	Performance Criteria	Judgment	Remark
BS EN 61000-4-2:2009	Electrostatic discharges	B	PASS	
BS EN IEC 61000-4-3:2020	Electromagnetic field	A	PASS	
BS EN 61000-4-4:2012	Electrical fast transients/burst	B	PASS	
BS EN 61000-4-5:2014/A1:2017	Surges	B	PASS	
BS EN 61000-4-6:2014+AC:2015	Continuous induced RF disturbances	A	PASS	
BS EN IEC 61000-4-11:2020	Voltage dips and interruptions	B / C / C	PASS	Note (3)

Note: (1) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz.

If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.

If the highest frequency of the internal sources of the EUT is between 500 MHz and 1GHz, the measurement shall only be made up to 5 GHz.

If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times of the highest frequency or 6 GHz, whichever is less.

(2) The power consumption of EUT is less than 75W and no Limits apply.

(3) Voltage Dip: residual voltage＜5% – Performance Criteria **B**

Voltage Dip: residual voltage70% – Performance Criteria **C**

Voltage Interruption: residual voltage＜5% – Performance Criteria **C**

(4) “N/A” denotes test is not applicable in this Test Report

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OFTHE EUT

Product Name	Hand warmer
Trade Mark	N/A
Model Name	PCX168138
Sampling model	/
Product Description	The EUT is an AC/DC Adapter . More details of EUT technical specification, please refer to the User's Manual.
Power Source	Input: DC3.7V--5V/1A
EUT Highest internal frequency:	☒ Fx≤108MHz ☐ 108＜Fx≤500MHz ☐ 500MHz＜Fx≤1GHz ☐ Fx＞1GHz
Hardware Version Number	N/A
Software Version Number	N/A

2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	(USB-A, USB-C) 5V⎓3A
Mode 2	USB-A 12V⎓1.5A, Type-C 12.0V⎓1.67A
Mode 3	(USB-A+ Type-C) 5V⎓1.5A+5V⎓1.5A

Conducted Test	
Final Test Mode	Description
Mode 2	(Type-C) 12V⎓1.67A

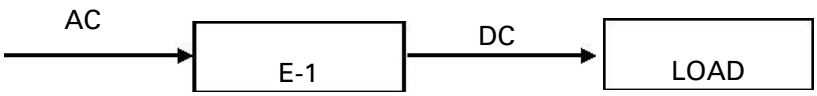
Radiated Test	
Final Test Mode	Description
Mode 2	(Type-C) 12V⎓1.67A

EMS Test	
Pretest Mode	Description
Mode 1	(USB-A, USB-C) 5V⎓3A
Mode 2	USB-A 12V⎓1.5A, Type-C 12V⎓1.67A
Mode 3	(USB-A+ Type-C) 5V⎓1.5A+5V⎓1.5A

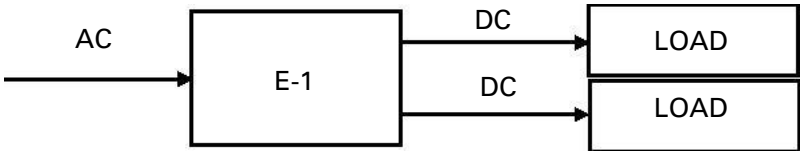
Note:

1. For conducted emission test, test mode 1 was the worst case and only this mode was presented in this report.
2. For radiated emission test, test mode 1 was the worst case and only this mode was presented in this report.

2.3 TEST CONFIGURATION DIAGRAM



(Mode 1, Mode 2)



(Mode 3)

2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

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.

Accessories	equipment			
Item	Equipment	Manufacturer	ModelNo.	SerialNo.
N/A	N/A	N/A	N/A	N/A

Auxiliary	equipment			
Item	Equipment	Manufacturer	ModelNo.	SerialNo.
N/A	N/A	N/A	N/A	N/A

Cable	Type			
Item	Signal Cable Type	Shielded Type	Ferrite Core	Length
N/A	N/A	N/A	N/A	N/A

Note:

(1) The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

(3) “YES” means “shielded” “with core”; “NO” means “unshielded” “without core”.

2.5 LABORATORY INFORMATION

Company Name:	Shenzhen Promise Test Technology Co., Ltd.
Address:	103, Building 1, Yibaolai Industrial City, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	N/A

Company Name:	Shenzhen TCT Testing Technology Co., Ltd.
Address:	2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Telephone:	N/A

2.6 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y±U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

A. Conducted Measurement:

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
Conducted Emission	CISPR 16-4-2	9kHz ~ 0.15MHz	3.83	
		0.15MHz ~ 30MHz	3.07	

B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
Radiated Emission	CISPR 16-4-2	30MHz ~ 1000MHz	5.51	

2.7 MEASUREMENT INSTRUMENTS LIST

Conducted Emission Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
843 Shielded Room	ChengYu	843 Room	843	May. 20, 2021	May. 19, 2024
EMI Receiver	R&S	ESCI3	100306	May. 10, 2022	May. 09, 2023
LISN	ETS-LINDGREN	3810/2	00045732	May. 10, 2022	May. 09, 2023
Attenuator	SUHNER	ESH3-Z2	100243	May. 10, 2022	May. 09, 2023
843 Cable 1#	FUJIKURA	843C1#	001	May. 10, 2022	May. 09, 2023
Test software	FALA	EZ-EMC	EMC-CON 3A1.1		--

Radiation Emission Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
966 chamber	ChengYu	966 Room	966	May. 20, 2021	May. 19, 2024
Spectrum Analyzer	Agilent	N9020A	MY54440442	May. 10, 2022	May. 09, 2023
Amplifier	HP	8447D	2727A05439	May. 10, 2022	May. 09, 2023
Log-periodic Antenna	Dublin	JB6	A121411	May. 10, 2022	May. 09, 2023
EMI Receiver	R&S	ESCI3	100306	May. 10, 2022	May. 09, 2023
966 Cable 1#	CHENGYU	966	003	May. 10, 2022	May. 09, 2023
Test software	FALA	EZ-EMC	FA-03A2 RE+		--

For Harmonics/ Flickers Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Harmonic, Flicker Power Analyzer	LAPLACE	AC 2000	/	May. 10, 2022	May. 09, 2023

For Electrostatic Discharge/ Electrical Fast Transients/ Voltage Dips and Interruptions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Combined interference generator	Prima	EED2005TG	PR20033568	May. 10, 2022	May. 09, 2023
Capacitive coupling clamp	Prima	EFT-CLAMP	EFT-198	May. 10, 2022	May. 09, 2023
ESD generator	Prima	EED2005TG	PR20033568	May. 18, 2021	May. 17, 2022

For Surges Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Lightning surge generator	Prima	SUG61005TB	PR210554993	May 10, 2022	May 09, 2023

Radiated, radio-frequency, electromagnetic field immunity (RS) (TCT)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Antenna	SKET	STLP 9129_Plus	/	/	/
Signal Generator	Agilent	N5182A	MY47070282	Jul. 04, 2022	Jul. 03, 2023
Amplifier	SKET	HAP_80M01G-250W	/	Feb. 25, 2022	Feb. 24, 2023
Amplifier	SKET	HAP_01G03G-75W	202104180	Jul. 04, 2022	Jul. 03, 2023
Amplifier	SKET	HAP_03G06G-80W	202004044	Jul. 04, 2022	Jul. 03, 2023
Field Probe	Narda	EP-601	611WX80256	Jul. 14, 2022	Jul. 13, 2023
USB Power Sensor	Agilent	U2001A	MY53410013	Feb. 25, 2022	Feb. 24, 2023
USB Power Sensor	Agilent	U2001A	MZ54330012	Feb. 25, 2022	Feb. 24, 2023

Immunity to conducted disturbances, induced by radio-frequency fields (CS)(TCT)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Conducted Immunity Test System	Schloder	CDG-6000-75	126B1290/2014	Apr. 05, 2022	Apr. 04, 2023
CDN	Schloder	CDN M2+M3-16	A2210281/2014	Jul. 04, 2022	Jul. 03, 2023
EM-Clamp	Schloder	EMCL-20	132A1194/2014	Jul. 04, 2022	Jul. 03, 2023
RF Attenuator	PE	75W 6dB	N/A	Jul. 04, 2022	Jul. 03, 2023

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 REQUIREMENTS FOR CONDUCTED EMISSIONS FROM THE AC MAINS POWER PORTSOF THE CLASS A EQUIPMENT

FREQUENCY (MHz)	Coupling device	Detector type / bandwidth	Class A limits dB(μV)
0.15 -0.5	AMN	Quasi Peak / 9 kHz	79
0.50 - 30			73
0.15 -0.5	AMN	Average / 9 kHz	66
0.50 - 30			60

3.1.2 REQUIREMENTS FOR CONDUCTED EMISSIONS FROM THE AC MAINS POWER PORTSOF THE CLASS B EQUIPMENT

FREQUENCY (MHz)	Coupling device	Detector type / bandwidth	Class B limits dB(μV)
0.15 -0.5	AMN	Quasi Peak / 9 kHz	66 - 56*
0.50 -5			56
5 - 30			60
0.15 -0.5	AMN	Average / 9 kHz	56 - 46*
0.50 -5			46
5 - 30			50

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.

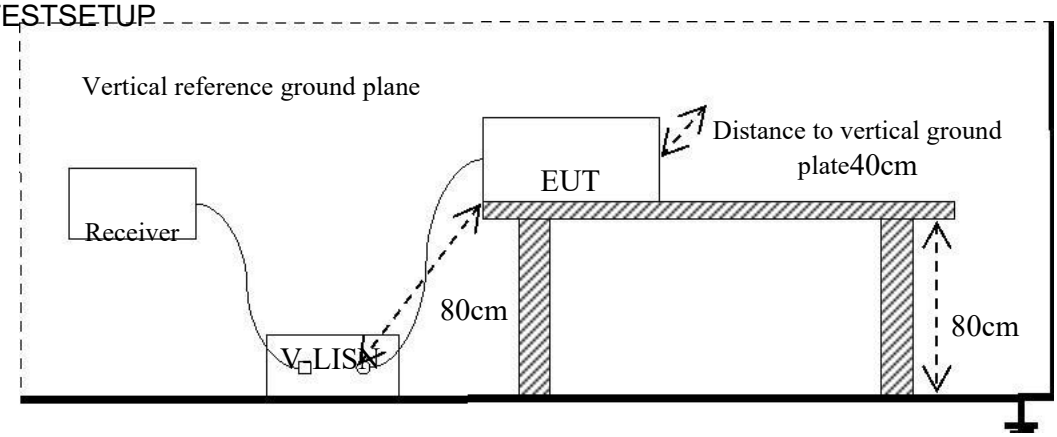
The following table is the setting of the receiver

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

3.1.3 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. 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.
c. 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 not exceed 1 m.
d. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.4 TESTSETUP

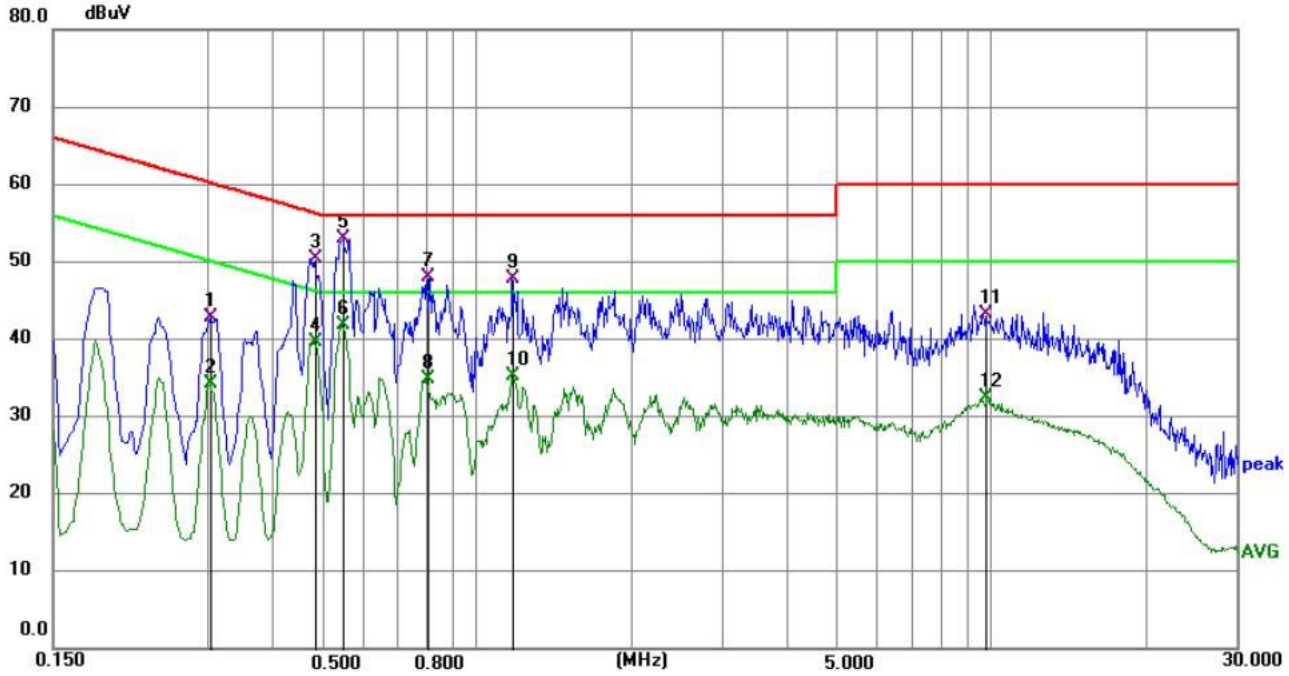


3.1.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the following during the testing.

3.1.6 TEST RESULTS

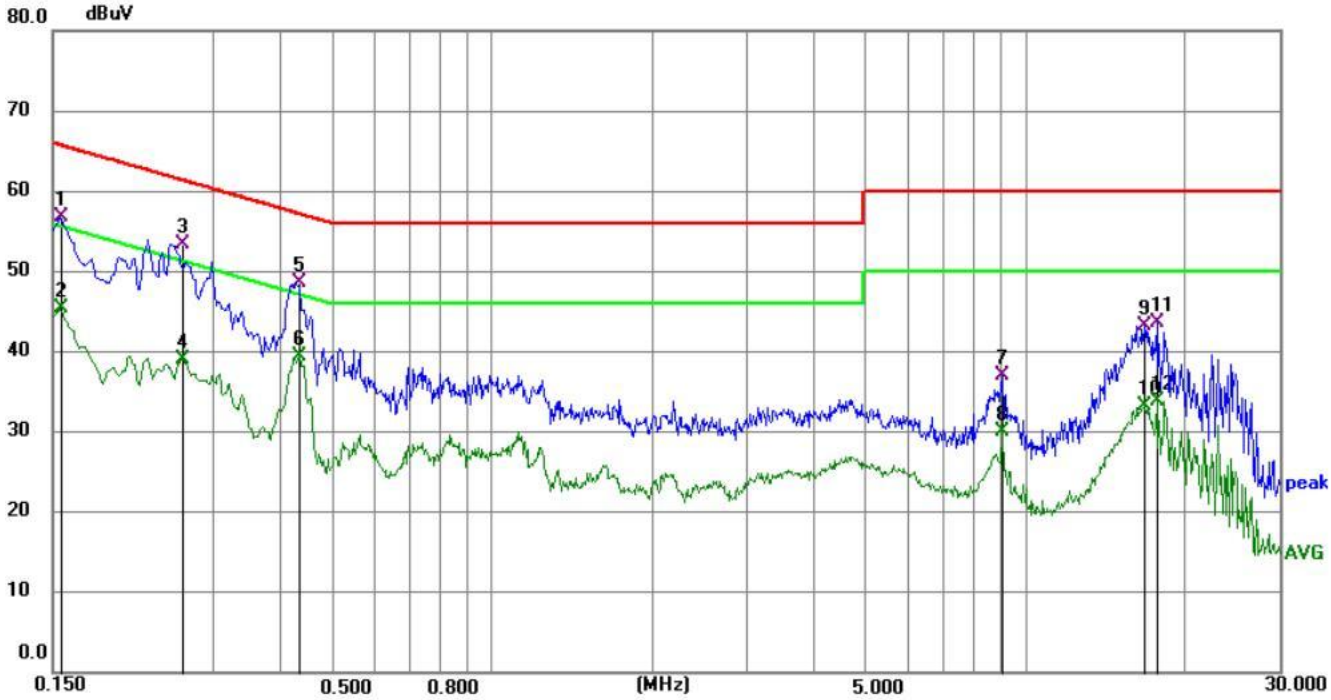
Temperature:	26℃	Relative Humidity:	54%
Phase:	L	Test Mode:	Mode 2(Type-C)
Test Voltage:	DC3.7V--5V/1A	Test Date:	2023.08.30



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3030	32.89	9.90	42.79	60.16	-17.37	QP
2	0.3030	24.33	9.90	34.23	50.16	-15.93	AVG
3	0.4830	40.46	9.88	50.34	56.29	-5.95	QP
4	0.4830	29.75	9.88	39.63	46.29	-6.66	AVG
5	0.5460	43.06	9.88	52.94	56.00	-3.06	QP
6	0.5460	32.01	9.88	41.89	46.00	-4.11	AVG
7	0.8025	38.04	9.89	47.93	56.00	-8.07	QP
8	0.8025	25.00	9.89	34.89	46.00	-11.11	AVG
9	1.1760	37.91	9.89	47.80	56.00	-8.20	QP
10	1.1760	25.24	9.89	35.13	46.00	-10.87	AVG
11	9.8159	32.87	10.41	43.28	60.00	-16.72	QP
12	9.8159	21.99	10.41	32.40	50.00	-17.60	AVG

Remark:
1. All readings are Quasi-Peak and Average values
2. Margin = Level (Level=Reading + Factor)–Limit
3. Factor = Insertion loss + Cable loss

Temperature:	26℃	Relative Humidity:	54%
Phase:	N	Test Mode:	Mode 2(Type-C)
Test Voltage:	DC3.7V--5V/1A	Test Date:	2023.08.30



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1545	46.79	9.92	56.71	65.75	-9.04	QP
2	0.1545	35.54	9.92	45.46	55.75	-10.29	AVG
3	0.2625	43.56	9.90	53.46	61.35	-7.89	QP
4	0.2625	29.08	9.90	38.98	51.35	-12.37	AVG
5	0.4335	38.69	9.88	48.57	57.19	-8.62	QP
6	0.4335	29.45	9.88	39.33	47.19	-7.86	AVG
7	9.0825	26.57	10.34	36.91	60.00	-23.09	QP
8	9.0825	19.77	10.34	30.11	50.00	-19.89	AVG
9	16.7775	32.17	11.00	43.17	60.00	-16.83	QP
10	16.7775	22.25	11.00	33.25	50.00	-16.75	AVG
11	17.6955	32.55	11.11	43.66	60.00	-16.34	QP
12	17.6955	22.79	11.11	33.90	50.00	-16.10	AVG

Remark:
1. All readings are Quasi-Peak and Average values
2. Margin = Level (Level=Reading + Factor)–Limit
3. Factor = Insertion loss + Cable loss

3.1.7CONDUCTED EMISSIONS MEASUREMENT FOR ASYMMETRIC MODE

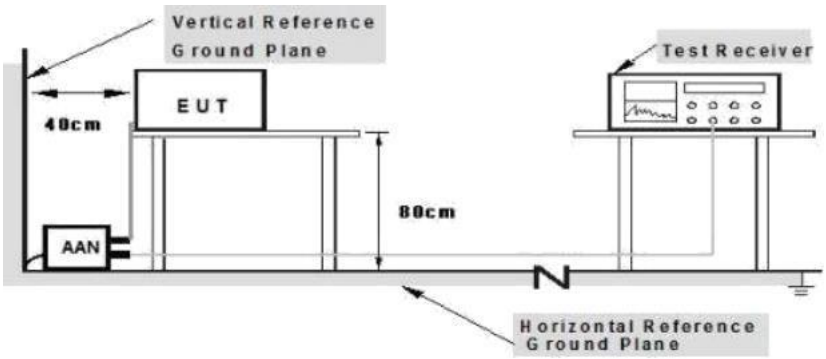
Limit:

Asymmetric Mode – Coupling Device: AAN [a]				
Frequency (MHz)	Limits dB (μV) – Class A		Limits dB (μV) – Class B	
	Quasi-Peak	Average	Quasi-Peak	Average
0.15 to 0.5	97 to 87	84 to 74	84 to 74	74 to 64
0.5 to 30	87	74	74	64
Asymmetric mode – Coupling Device: CVP [b]				
Frequency (MHz)	Limits dB (μV) – Class A		Limits dB (μV) – Class B	
	Quasi-Peak	Average	Quasi-Peak	Average
0.15 to 0.5	97 to 87	84 to 74	84 to 74	74 to 64
0.5 to 30	87	74	74	64
Asymmetric mode – Coupling Device: Current Probe				
Frequency (MHz)	Limits dB (μA) – Class A		Limits dB (μA) – Class B	
	Quasi-Peak	Average	Quasi-Peak	Average
0.15 to 0.5	53 to 43	40 to 30	40 to 30	30 to 20
0.5 to 30	43	30	30	20

Note:
1. Asymmetric Artificial Network
2. b-Capacitive Voltage Probe

Test Procedure:
All power was connected to the system through Artificial Mains Network (AMN). All tested telecommunications lines were connected to an Asymmetric Artificial Network (AAN) and conducted voltage measurements on telecommunications lines were made at the output of the AAN. Where an AAN was not appropriate or available measurements were made using a Capacitive Voltage Probe and Current probe.

Test Setup



TEST RESULTS

NOTE: There are no applicable limits for this product.

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF THE RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Distance （m）	Detector type/ bandwidth	Class A dBuV/m	Class B dBuV/m
30 - 230	3	Quasi peak/ 120 kHz	50	40
230 - 1000	3	Quasi peak/ 120 kHz	57	47
1000-3000	3	Peak/1 MHz	76	70
3000-6000	3	Peak/1 MHz	80	74
1000-3000	3	AV/1 MHz	56	50
3000-6000	3	AV/1 MHz	60	54

Notes:

(1) The tighter limit applies at the band edges.

(2) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2 TEST PROCEDURE

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. EUT as the center to the edge of the auxiliary device, the distance from the maximum edge to the center of the antenna is 3 meters.

c. The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.

f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz

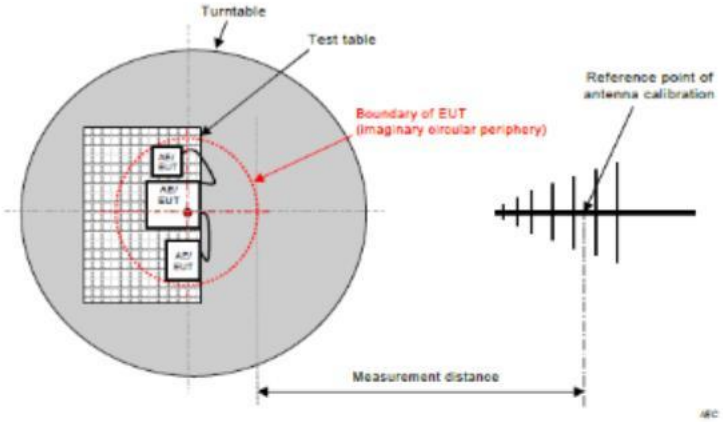


Figure C.1 – Measurement distance

(B) Radiated Emission Test Set-Up Frequency Above 1GHz

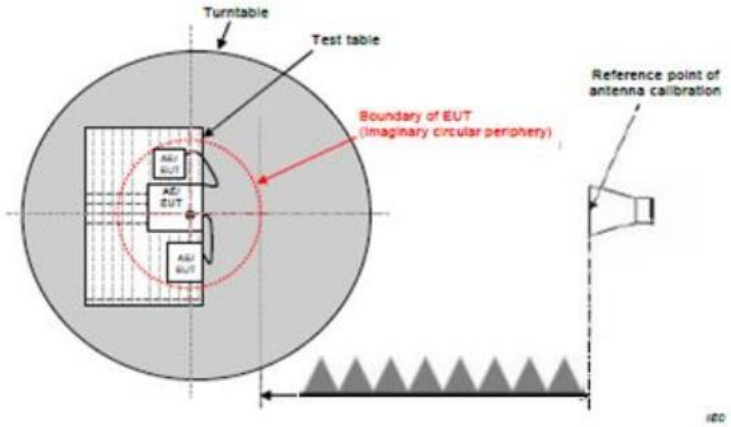


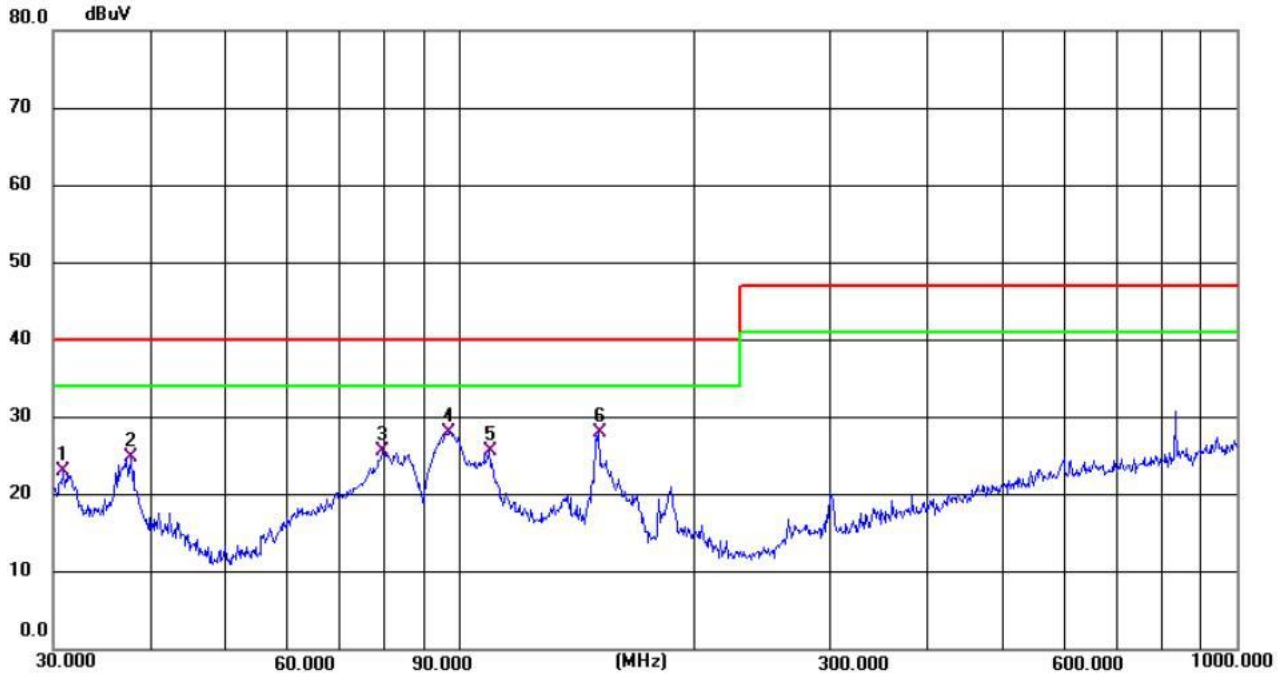
Figure C.1 – Measurement distance

3.2.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the following during the testing.

3.2.5 TEST RESULTS

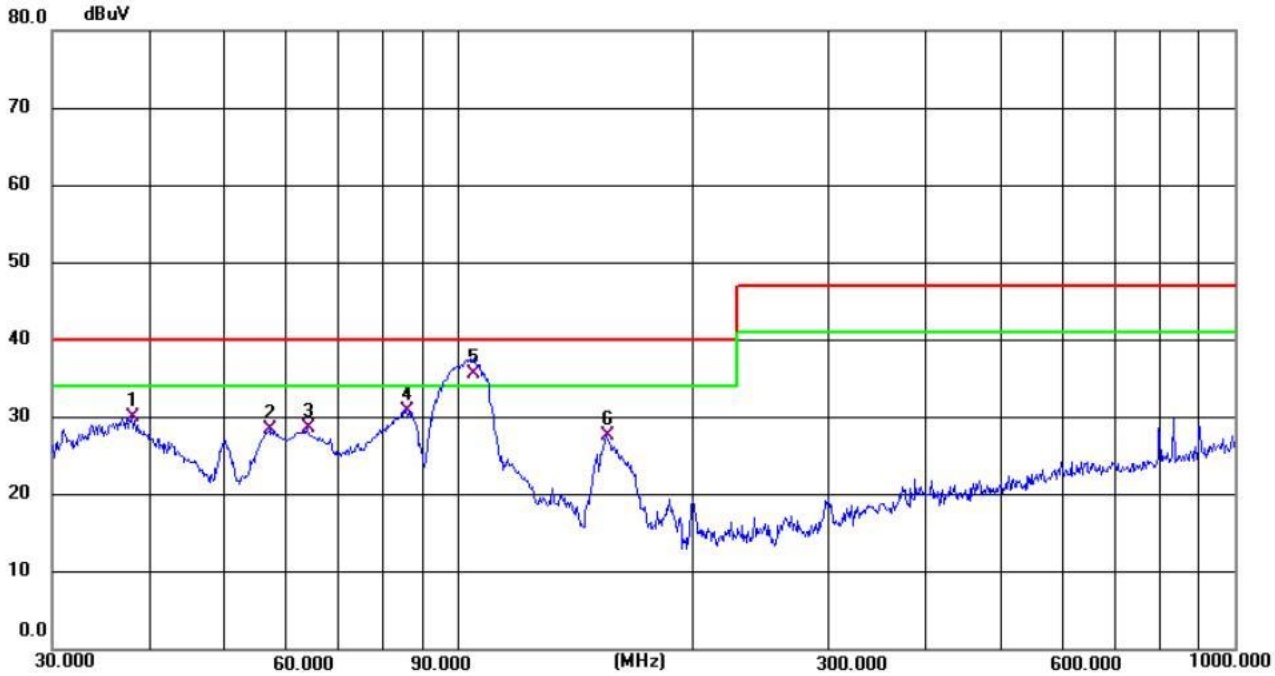
Temperature:	26℃	Relative Humidity:	54%
Phase:	Horizontal	Test Mode:	Mode 2(Type-C)
Test Voltage:	DC3.7V--5V/1A	Test Date:	2023.08.30



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.9618	31.39	-8.28	23.11	40.00	-16.89	QP
2	37.8121	33.03	-8.23	24.80	40.00	-15.20	QP
3	79.5209	42.28	-16.70	25.58	40.00	-14.42	QP
4	96.7749	43.39	-15.29	28.10	40.00	-11.90	QP
5	109.0286	39.27	-13.73	25.54	40.00	-14.46	QP
6	151.0666	38.32	-10.21	28.11	40.00	-11.89	QP

Remark:
1. All readings are Quasi-Peak
2. Margin = Level (Level=Reading + Factor)–Limit
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain

Temperature:	26℃	Relative Humidity:	54%
Phase:	Vertical	Test Mode:	Mode 2(Type-C)
Test Voltage:	DC3.7V--5V/1A	Test Date:	2023.08.30



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	37.9450	40.23	-10.19	30.04	40.00	-9.96	QP
2	57.1914	47.06	-18.59	28.47	40.00	-11.53	QP
3	63.9828	47.20	-18.65	28.55	40.00	-11.45	QP
4	85.5977	49.67	-18.82	30.85	40.00	-9.15	QP
5	104.5361	50.46	-14.87	35.59	40.00	-4.41	QP
6	155.3644	41.03	-13.43	27.60	40.00	-12.40	QP

Remark:
1. All readings are Quasi-Peak
2. Margin = Level (Level=Reading + Factor)–Limit
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain

3.3 HARMONICS CURRENT

3.3.1 LIMITS OF THE HARMONICS CURRENT

IEC 555-2					
Table - I			Table - II		
Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current (in Ampers)	Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current (in Ampers)
Non Portable Tools or TV Receivers	Odd Harmonics		TV Receivers	Odd Harmonics	
	3	2.30		3	0.80
	5	1.14		5	0.60
	7	0.77		7	0.45
	9	0.40		9	0.30
	11	0.33		11	0.17
	13	0.21		13	0.12
	15≤n≤39	0.15 · 15/n		15≤n≤39	0.10 · 15/n
	Even Harmonics			Even Harmonics	
	2	1.08		2	0.30
	4	0.43		4	0.15
	8	0.30			
	8≤n≤40	0.23 · 8/n		DC	0.05

EN 61000-3-2/IEC 61000-3-2					
Equipment Category	Max. Permissible Harmonic Current (in Ampers)	Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current (in A)	(mA/w)
Class A	Same as Limits Specified in 4-2.1, Table - I, but only odd harmonics required	Class D	3	2.30	3.4
			5	1.14	1.9
			7	0.77	1.0
			9	0.40	0.5
			11	0.33	0.35
			13≤n≤39	see Table I	3.85/n
			only odd harmonics required		

3.3.2 TEST PROCEDURE

a. 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.

b. The classification of EUT is according to section 5 of BS 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. Portable tools.; Arc welding equipment which is not professional equipment.

Class C: Lighting equipment.

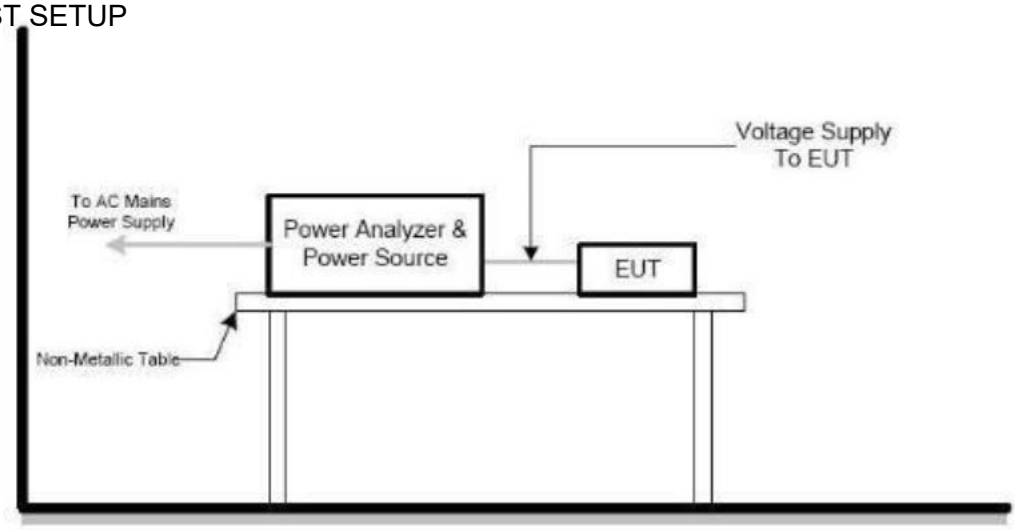
Class D: Equipment having a specified power less than or equal to600W of the following types: Personal computers and personal computer monitors and television receivers.

c. 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.

3.3.3 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the following during the testing.

3.3.4 TEST SETUP



3.3.5 TEST RESULTS

Note: 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 75W..

3.4 VOLTAGE FLUCTUATION AND FLICKERS

3.4.1LIMITS OF THE VOLTAGE FLUCTUATION AND FLICKERS

Tests	Measurement Value	Limit	Descriptions
	IEC555-3	IEC/EN 61000-3-3	
P_{st}	≤ 1.0,Tp= 10 min.	≤ 1.0,Tp= 10 min.	Short Term Flicker Indicator
P_{lt}	N/A	≤0.65,Tp=2 hr.	Long Term Flicker Indicator
$T_{dt(s)}$	≤ 3%	≤ 3.3%	Relative Steady-State V-Chang
d_{max}(%)	≤ 4%	≤ 4%	Maximum Relative V-Chang
d_c(%)	N/A	≤3.3% for > 500ms	Relative V-change Characteristic

3.4.2 TEST PROCEDURE

a. Fluctuation and Flickers Test:

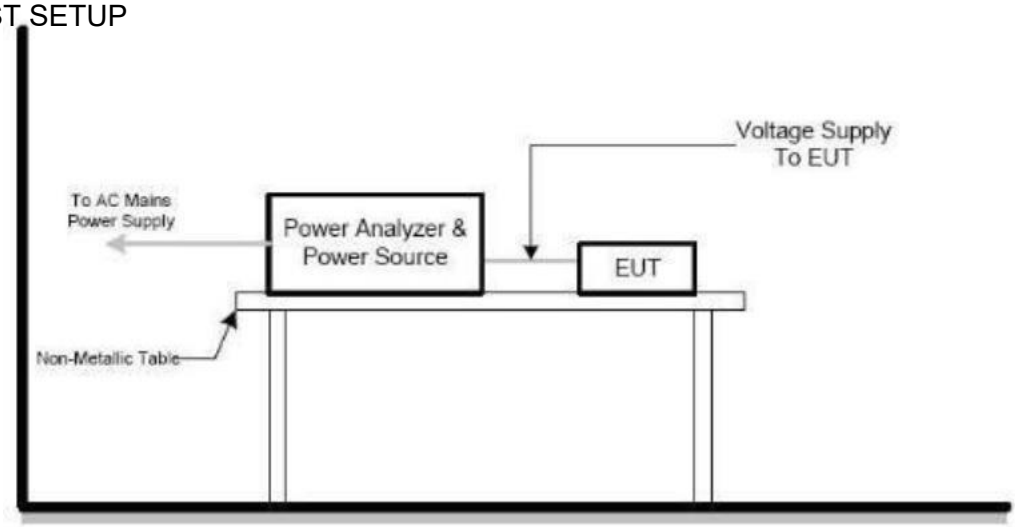
Tests was performed according to the Test Conditions/Assessment of Voltage Fluctuations specified in Clause 5.0/6.0 of IEC555-3 and/or Clause 6.0/4.0 of IEC/EN 61000-3-3 depend on which standard adopted for PASS measurement.

b. All types of voltage fluctuation in this report are assessed by direct measurement using flicker-meter.

3.4.3 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the following during the testing.

3.4.4 TEST SETUP



3.4.5 TEST RESULTS

The maximum active input power of the EUT is around 20W, which unlikely to produce significant voltage fluctuation. The refore no test was applied.
See clause 6.1***
*** EN 61000-3-3:2013+A1+A2, clause 6.1:" ... Tests need not be made on equipment which is unlikely to produce significant voltage fluctuations or flicker. ...

4. EMC IMMUNITY TEST

4.1 STANDARD PASS/SERVRITY LEVEL/CRITERIA

Tests Standard No.	TEST SPECIFICATION	Test Mode Test Ports	Perform. Criteria
1. ESD IEC/BS EN 61000-4-2	8kV air discharge 4kV contact discharge	Direct Mode	B
	4kV HCP discharge 4kV VCP discharge	Indirect Mode	B
2. RS IEC/BS EN IEC 61000-4-3	80 MHz - 1000 MHz,1800MHz,2600MHz,3500MHz,5000MHz, 1000Hz, 80%, AM modulated	Enclosure	A
3. EFT/Burst IEC/BS EN 61000-4-4	5/50ns Tr/Th 5kHz Repetition Freq.	Power Supply Port	B
	5/50ns Tr/Th 5kHz Repetition Freq.	CTL/Signal Data Line Port	B
4. Surges IEC/BS EN 61000-4-5	1.2/50(8/20) Tr/Th us	L-N	B
	1.2/50(8/20) Tr/Th us	L-PE N-PE	B
5. Injected Current IEC/BS EN 61000-4-6	0.15 MHz to 80 MHz, 1000Hz 80％, AM Modulated 150Ω source impedance	CTL/Signal Port	A
	0.15 MHz to 80 MHz, 1000Hz 80％, AM Modulated 150Ω source impedance	AC Power Port	A
	0.15 MHz to 80 MHz, 1000Hz 80％, AM Modulated 150Ω source impedance	DC Power Port	A
6. Volt. Interruptions Volt. Dips IEC/BS EN IEC 61000-4-11	Voltage dip(residual voltage＜5%) Voltage dip(residual voltage70%） Interruption (residual voltage＜5%)	AC Power Port	B C C

4.2 GENERAL PERFORMANCE CRITERIA

According to **BS EN 55035**standard, the general performance criteria as following:

Criterion A	The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion B	During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test. After the test, the equipment shall continue to operate as intended without operator intervention; no degradation of performance or loss of function is allowed, below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level (or the permissible performance loss), or recovery time, is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion C	Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A reboot or re-start operation is allowed. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

4.2.1 GENERAL PERFORMANCE CRITERIA TEST SETUP

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the following during the testing.

4.3 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

4.3.1 TEST SPECIFICATION

Basic Standard:	IEC/BS EN 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Required Performance:	B
Discharge Voltage:	Air Discharge：2kV/4kV/8kV (Direct) Contact Discharge：2kV/4kV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	Air Discharge: min. 20 times at each test point Contact Discharge: min. 200 times in total 20 times at each test point
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum

4.3.2 TEST PROCEDURE

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

a. Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal operation
The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.

The time interval between two successive single discharges was at least 1 second.

The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the EUT.

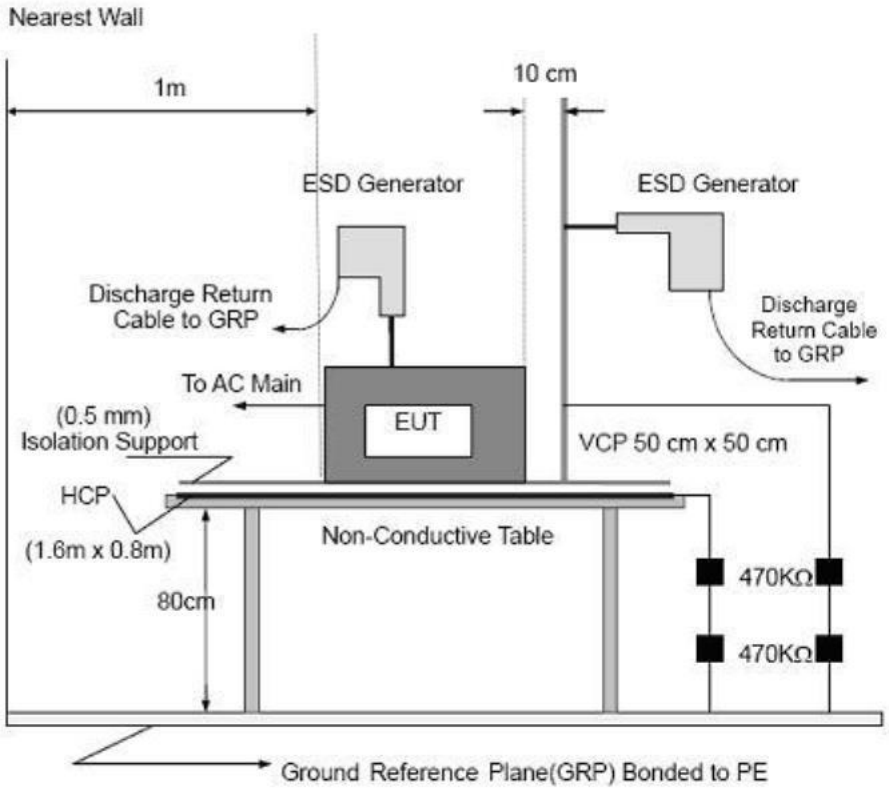
Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.

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.

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.

4.3.3 TEST SETUP



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. 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 940kΩ total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC /EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of0.8-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 IEC/EN 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of0.1meter thickness. The GRP was consisted of a sheet of aluminum that is at least 0.25mm thick, and extended at least 0.5 meters from the EUT on all sides.

4.3.4 TEST RESULTS

Temperature:	22.3℃	Relative Humidity:	47%
Pressure:	1010hPa	Test Voltage:	DC3.7V--5V/1A
Test Mode:	Mode 1/2/3	Test Date:	2023.09.04

Discharge Level(kV)	Polarity	Test Points	Contact Discharge	Air Discharge	Criterion	Test Result
4	+/-	VCP/HCP	NOTE	N/A	A	PASS
2,4	+/-	Green Dot	NOTE	N/A	A	PASS
2,4,8	+/-	Red Dot	N/A	NOTE	A	PASS

Note: The EUT function was correct during the test
Red Dot —Air Discharged
Green Dot —Contact Discharged

4.4 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS)

4.4.1 TEST SPECIFICATION

Basic Standard:	IEC/BS EN IEC 61000-4-3
Required Performance:	A
Test Frequency Range:	80 MHz-1000 MHz,
Additional Comprehensive Functional Test Frequencies:	80 MHz; 120 MHz; 160 MHz; 230 MHz; 434 MHz; 460 MHz; 600 MHz; 863 MHz and 900 MHz
Field Strength:	3 V/m
Modulation: Frequency Step:	1kHz Sine Wave, 80%, AM Modulation 1 % of fundamental
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5 m
Dwell Time:	1.5x 10 decade/s

4.4.2 TEST PROCEDURE

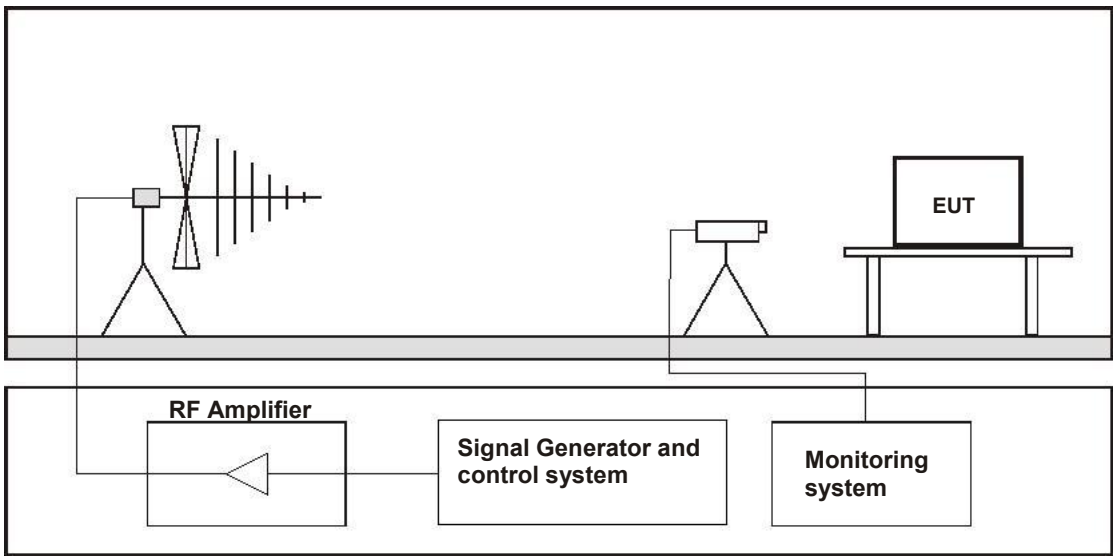
a. The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.

b. The frequency range is swept from 80 MHz; 120 MHz; 160 MHz; 230 MHz; 434 MHz; 460 MHz; 600 MHz; 863 MHz and900 MHz, with the signal 80% amplitude modulated with a 1kHz sine-wave. The rate of sweep did not exceed 1.5 x 10 decade/s, where the frequency range is swept incrementally, the step size was 1% of preceding frequency value.

c. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.

e. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

4.4.3 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 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 IEC/EN 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.

4.4.4 TEST RESULTS

Temperature:	23.8℃	Relative Humidity:	54%
Test Voltage:	DC3.7V--5V/1A	Test Date:	2023.09.04
Test Mode:	Mode 1/2/3		

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Perform. Criteria	Results	Judgment
80MHz - 1000MHz	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	A	A	PASS
			Rear			
			Left			
			Right			
1800MHz	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	A	A	PASS
			Rear			
			Left			
			Right			
2600MHz	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	A	A	PASS
			Rear			
			Left			
			Right			
3500MHz	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	A	A	PASS
			Rear			
			Left			
			Right			
5000MHz	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	A	A	PASS
			Rear			
			Left			
			Right			

4.5 ELECTRICAL FAST TRANSIENT (EFT)

4.5.1 TEST SPECIFICATION

Basic Standard:	IEC/BS EN 61000-4-4
Required Performance:	B
Test Voltage:	Power Line: 1 kV Signal/Control Line: 0.5 kV DC network power port: 0.5 kV
Polarity:	Positive & Negative
Impulse Frequency:	5 kHz
Impulse Wave shape :	5/50 ns
Burst Duration:	15ms
Burst Period:	300ms
Test Duration:	Not less than 1 min.

4.5.2 TEST PROCEDURE

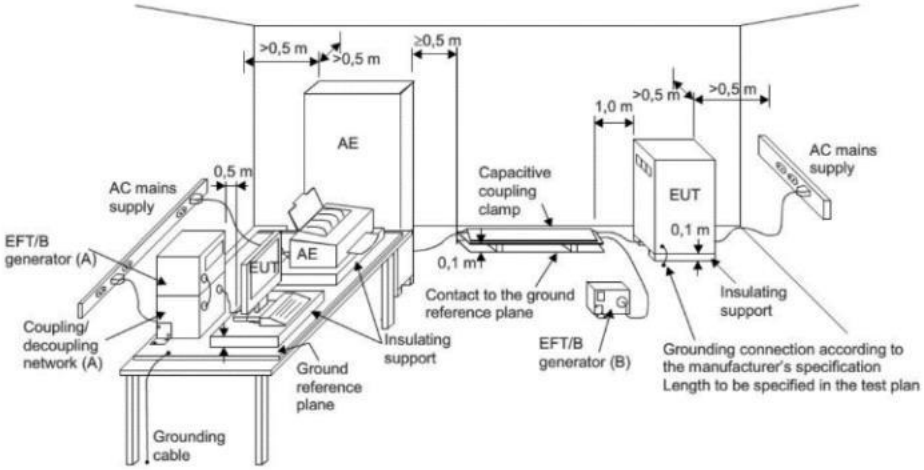
The ground reference plane shall be a metallic sheet (copper or aluminum) of 0.25 mm minimum thickness; other metallic materials may be used, but they shall have at least 0.65 mm minimum thickness.
The other condition need as following manners:

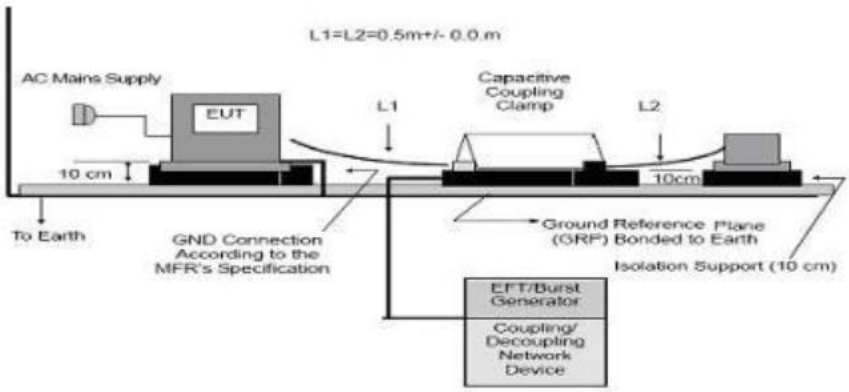
a. The length of power cord between the coupling device and the EUT should not exceed 1 meter.

b. Both positive and negative polarity discharges were applied.

c. The duration time of each test sequential was 1 minute.

4.5.3 TEST SETUP





Note:

TABLE-TOP EQUIPMENT

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 ± 0.01) m above the ground reference plane.

Testing of large table-top equipment or multiple systems can be performed on the floor; maintaining the same distances as for the test setup of table-top equipment.

The test generator and the coupling/decoupling network shall be bonded to the ground reference plane.

The ground reference plane shall be a metallic sheet (copper or aluminum) of 0.25mm minimum thickness; other metallic materials may be used , but they shall have at least 0.65 mm minimum thickness.

The minimum size of the ground reference plane is 0.8m x 1m The actual size depends on the dimensions of the EUT.

The ground reference plane shall project beyond the EUT by at least 0.1m on all sides.

The ground reference plane shall be connected to the earth (PE) for safety reasons.

The EUT shall be arranged and connected to satisfy its functional requirements, according to the equipment installation specifications.

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 0.5m.

AII cables to The EUT shall be placed on The insulation support 0.1m above The ground reference plane. Cables not subject to electrical fast transients shall be routed as far as possible from the cable under test to minimize the coupling between the cables.

The EUT shall be connected to the earth system in accordance with the manufacturer's installation specifications; no additional earth connections are allowed.

The connection impedance of the coupling/decoupling network earth cables to the ground reference plane and all connectors shall provide a low inductance

Either a direct coupling network or a capacitive clamp shall be used for the application of the test voltages. The test voltages shall be coupled to all of the EUT ports in turn including those between two units of equipment involved in the test, unless the length of the interconnecting cable makes it impossible to test.

FLOOR-STANDING EQUIPMENT

When using the coupling clamp, the minimum distance between the coupling plates and all other conductive surfaces (including the generator), except the ground reference plane beneath the coupling clamp and beneath the EUT, shall be at least 0.5m.

The distance between any coupling devices and the EUT shall be (0.5 - 0/+0.1) m for tabletop equipment testing, and (1.0 ± 0.1) m for floor standing equipment, unless otherwise specified in product standards. When it is not physically possible to apply the distances mentioned above, other distances can be used and shall be recorded in the test report.

The cable between the EUT and the coupling device, if detachable, shall be as short as possible to comply with the requirements of this clause. If the manufacturer provides a cable exceeding the distance between the coupling device and the point of only of the EUT, the excess length of this cable shall be bundled and situated at a distance of 0,1m above the ground reference plane. When a capacitive clamp is used as a coupling device, the excess cable length shall be bundled at the AE side.

Parts of the EUT with interconnecting cables of a length less than 3m, which are not tested, shall be placed on the insulating support. The parts of the EUT shall have a distance of 0,5mbetween them. Excess cable length shall be bundled.

4.5.4 TEST RESULTS

Temperature:	22.4℃	Relative Humidity:	46%
Test Voltage:	DC3.7V--5V/1A	Test Date:	2023.09.04
Test Mode:	Mode 1/2/3		

Coupling Line		Test level	Perform. Criteria	Results	Judgment
AC line	L	±1kV	B	A	PASS
	N	±1kV		A	PASS
	PE	N/A		N/A	N/A
	L+N	±1kV		A	PASS
	L+PE	N/A		N/A	N/A
	N+PE	N/A		N/A	N/A
	L+N+PE	N/A		N/A	N/A
DC network power port Line		N/A		N/A	N/A
Signal Line		N/A		N/A	N/A

Note: 1) N/A - denotes test is not applicable in this test report.

4.6 SURGE TESTING

4.6.1 TEST SPECIFICATION

Basic Standard:	IEC/BS EN 61000-4-5
Required Performance:	B
Wave-Shape:	Combination Wave 1.2/50us Open Circuit Voltage
Test Voltage:	Power line ~ line to line: 1kV line to ground: 2kV Telecommunication line: 0.5kV DC network power port:0.5kV
Surge Input/Output:	L-N, L-PE, N-PE
Generator Source:	(L-N)2 ohm between networks
Impedance: Polarity:	(L-PE, N-PE)12 ohm between network and ground Positive/Negative
Phase Angle:	0°/90°/180°/270°
Pulse Repetition Rate:	1 time / min. (maximum)
Number of Tests:	5 positive and 5 negative at selected points

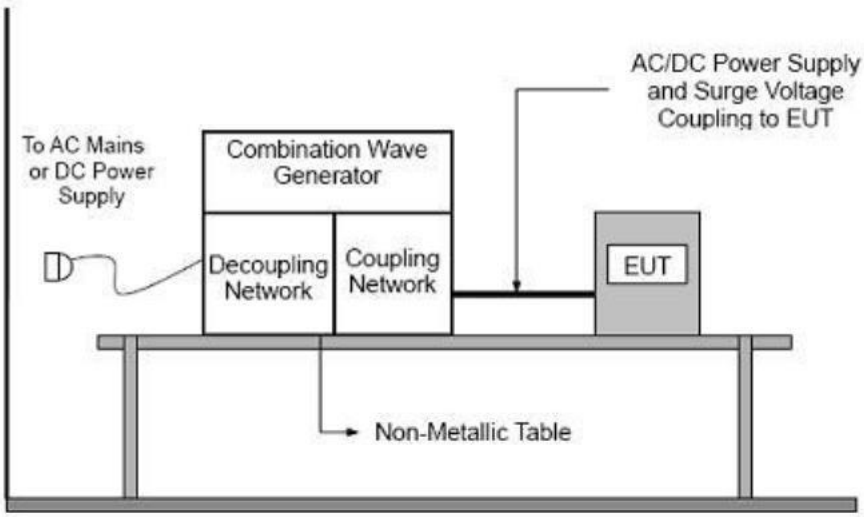
4.6.2 TEST PROCEDURE

a. For EUT power supply:
The surge is to be 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 shall be 2meters in length (or shorter).

b. For test applied to unshielded unsymmetrical operated interconnection lines of EUT:

The surge is applied to the lines via the capacitive coupling. The coupling /decoupling networks shall not influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

4.6.3 TEST SETUP



4.6.4 TEST RESULTS

Temperature:	21.9℃	Relative Humidity:	47%
Test Voltage:	DC3.7V--5V/1A	Test Date:	2023.09.04
Test Mode:	Mode 1/2/3		

Coupling Line		Test level	Perform. Criteria	Results	Judgment
AC line	L-N	±1kV	B	A	PASS
	L-PE	N/A		N/A	N/A
	N-PE	N/A		N/A	N/A
DC network power port		N/A		N/A	N/A
Signal Line		N/A		N/A	N/A

Note: 1) N/A - denotes test is not applicable in this test report.

4.7 CONDUCTED RADIO FREQUENCY DISTURBANCES (CS)

4.7.1 TEST SPECIFICATION

Basic Standard:	IEC/BS EN 61000-4-6
Required Performance:	A
Test Frequency Range:	0.15 MHz-80 MHz
Additional Comprehensive Functional Test Frequencies:	0.2 MHz; 1 MHz; 7.1 MHz; 13.56 MHz; 21 MHz; 27.12 MHz and 40.68 MHz
Field Strength:	0.15 MHz - 10 MHz,3V 10MHz - 30 MHz,3V to 1V 30MHz - 80 MHz,1V
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step: Dwell Time:	1 % of fundamental 1.5x 10 decade/s

4.7.2 TEST PROCEDURE

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

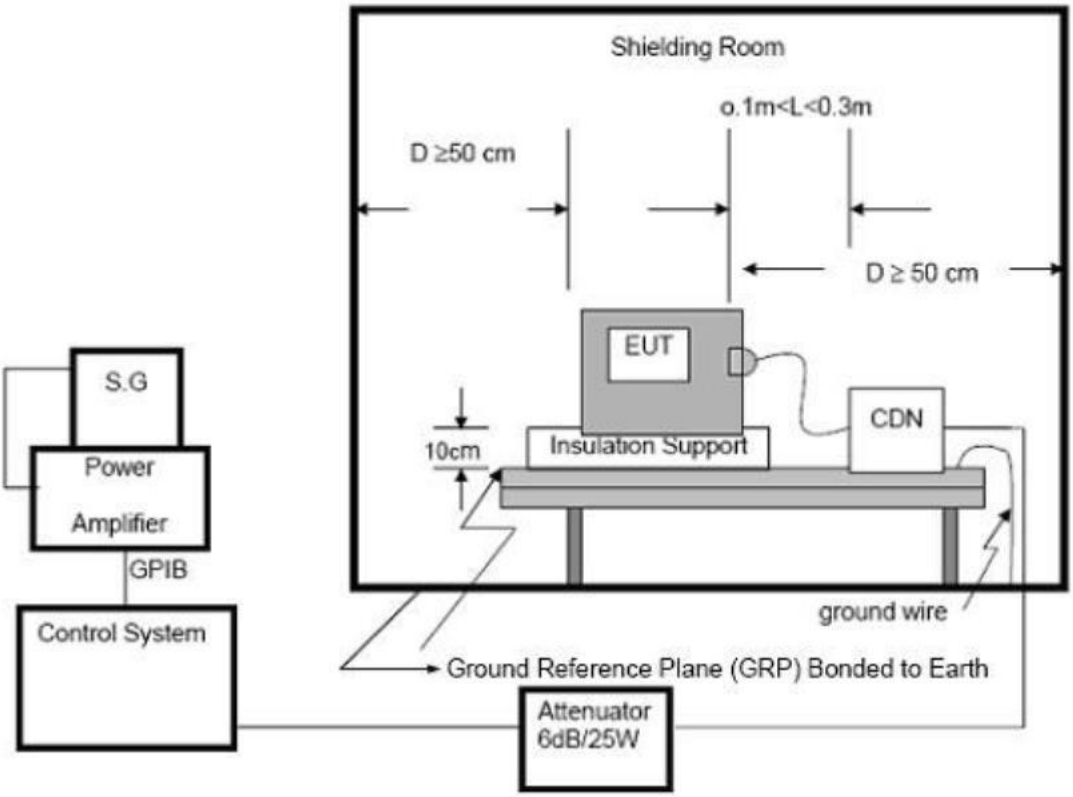
The test shell performed with the test generator connected to each of the coupling and decoupling devices in turn, while the other non-excited RF input ports of the coupling devices are terminated by a 50-ohm load resistor.

The frequency range was swept from 150 kHz to 10 MHz, 10 MHz to 30 MHz , 30 MHz 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 x 10 decades/s. Where the frequency range is swept incrementally, the step size was 1 % of preceding frequency value from 150 kHz to 80MHz.

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

4.7.3 TEST SETUP



NOTE:
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.

4.7.4 TEST RESULTS

Temperature:	21.5℃	Relative Humidity:	47%
Test Voltage:	DC3.7V--5V/1A	Test Date:	2023.09.04
Test Mode:	Mode 1/2/3		

Test Ports (Mode)	Freq. Range MHz)	Field Strength	Perform. Criteria	Results	Judgment
Input/ Output AC. Power Port	0.15 - 10	3V(rms) AM Modulated 1000Hz, 80%	A	A	PASS
	10 - 30	3V to 1V(rms) AM Modulated 1000Hz, 80%			
	30 - 80	1V(rms) AM Modulated 1000Hz, 80%			
Input/ Output DC. Power Port	0.15 - 10	3V(rms) AM Modulated 1000Hz, 80%	N/A	N/A	N/A
	10 - 30	3V to 1V(rms) AM Modulated 1000Hz, 80%			
	30 - 80	1V(rms) AM Modulated 1000Hz, 80%			
Signal Line	0.15 - 10	3V(rms) AM Modulated 1000Hz, 80%	N/A	N/A	N/A
	10 - 30	3V to 1V(rms) AM Modulated 1000Hz, 80%			
	30 - 80	1V(rms) AM Modulated 1000Hz, 80%			

Note: 1) N/A - denotes test is not applicable in this test report.

4.8 VOLTAGE INTERRUPTION/DIPS TESTING (DIPS)

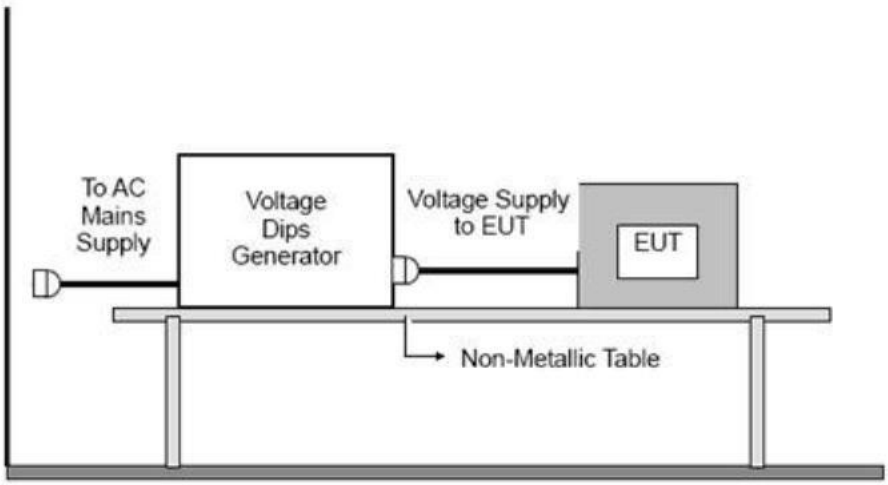
4.8.1 TEST SPECIFICATION

Basic Standard:	IEC/BS EN IEC 61000-4-11
Required Performance:	B Voltage dip residual voltage＜5%, 0.5 Cycle C Voltage dip residual voltage70%, 25 Cycles(50Hz),30 Cycles(60Hz) C Interruption residual voltage＜5%, 250 Cycles(50Hz),300 Cycles(60Hz)
Test Duration Time:	Minimum three test events in sequence
Interval between Event:	Minimum ten seconds
Phase Angle:	0°/45°/90°/135°/180°/225°/270°/315°/360°
Test Cycle:	3 times

4.8.2 TEST PROCEDURE

The EUT shall be tested for each selected combination of test levels and duration with a sequence of three dips/interruptions with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested. Abrupt changes in supply voltage shall occur at zero crossings of the voltage waveform.

4.8.3 TEST SETUP



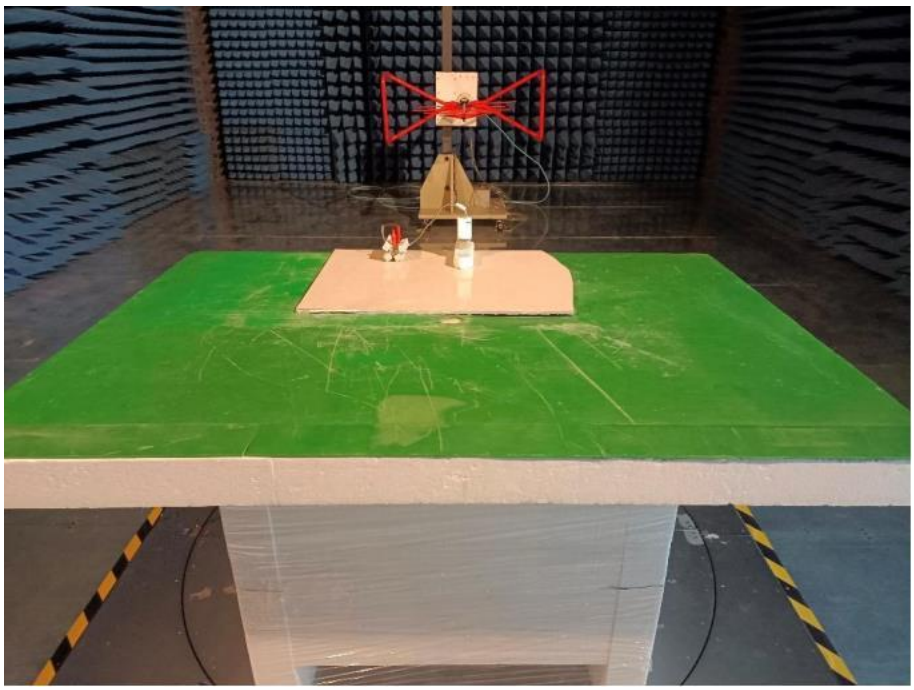
4.8.4 TEST RESULTS

Temperature:	22℃	Relative Humidity:	50%
Test Voltage:	DC3.7V--5V/1A	Test Date:	2023.09.04
Test Mode:	Mode 1/2/3		

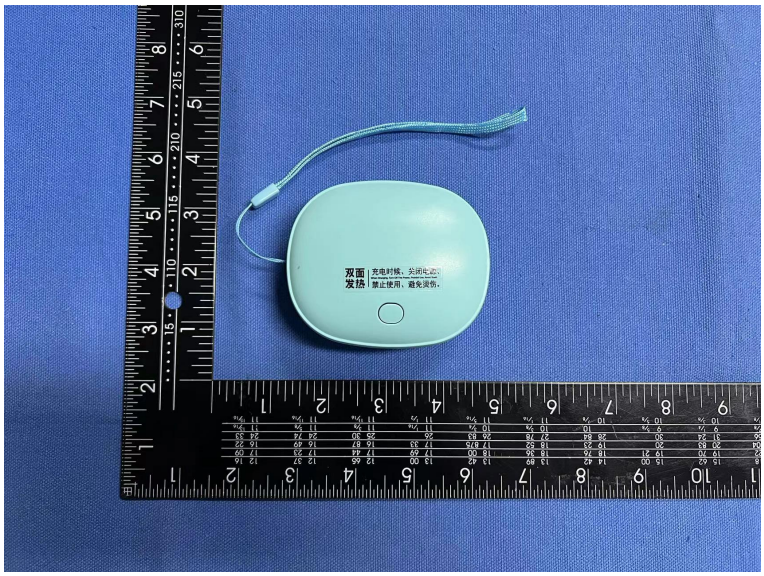
Voltage residual	Duration (cycle)	Perform Criteria	Results	Judgment
Voltage dip(residual voltage ＜5%)	0.5	B	B	PASS
Voltage dip(residual voltage70%)	25/30	B	B	PASS
Voltage interruptions(residual voltage＜5%)	250/300	C	C	PASS

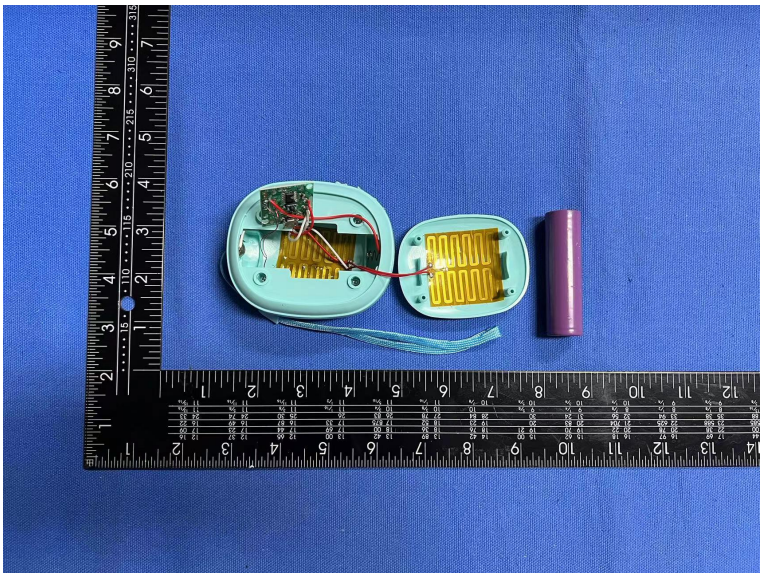
APPENDIX 1-TEST SETUP

Radiated Measurement Photo



Photos





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