



EMC Test Report

Report Number.....:	LCT-250103290245	
Applicant' s name.....:	Shenzhen Hao Mai Tongda Technology Co., Ltd.	
Address.....:	Room703, Building F, Qihang R&D Industrial Park, No.1008, Songbai Road, Sunshine Community, Xili Street, Nanshan District, Shenzhen, China	
Equipment Under Test (EUT)		
EUT Name.....:	Adapter	
Model No.....:	H3	
Serial No..... :	T8	
Brand Name..... :	N/A	
Testing Laboratory.....:	Shenzhen Lice Testing Technology Co., Ltd. Room 112-113, Building B15, Yintian Industrial Zone, Yantian, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China	
Standards..... :	EN 55032: 2015/A1: 2020; EN IEC 61000-3-2: 2019/A1: 2021 EN 61000-3-3:2013/A2:2021; EN 55035:2017/A11:2020.	
Directive.....:	EMC Directive 2014/30/EU	
Conclusions.....:	PASS	
Receipt Date.....:	2025-01-06	
Test Date.....:	2025-01-06 to 2025-01-17	
Issue Date.....:	2025-01-17	
Test/Witness Engineer.....:	Bell Lin	
Approved & Authorized..... :	Bruce Zhang	

The test results of this report relate only to the tested sample identified in this report. This report shall not be reproduced, except in full, without the written approval of the Issuing Testing Laboratory.

TABLE OF CONTENTS

1. General Information	4
1.1. Client Information	4
1.2. General Description of EUT (Equipment Under Test)	4
1.3. Block Diagram Showing The Configuration of System Tested	4
1.4. Description of Support Units	4
1.5. Performance Criterion	4
1.6. Test Facility	5
2. TEST Results Summary	6
3. Test Equipment Used	7
4. Conducted Emission Test	9
4.1. Test Standard and Limit	9
4.2. Test Setup	9
4.3. Test Procedure	9
4.4. Test Condition	10
4.5. Test Data	10
5. Radiated Emission Test	15
5.1 Test Standard and Limit	15
5.2 Test Setup	15
5.3 Test Procedure	15
5.4 Test Condition	16
5.5 Test Data	16
6. Harmonic Current Emission Test	19
6.1 Test Standard and Limit	19
6.2 Test Setup	19
6.3 Test Procedure	20
6.4 Test Condition	20
6.5 Test Data	21
7. Voltage Fluctuation and Flicker Test	22
7.1 Test Standard and Limit	22
7.2 Test Setup	22
7.3 Test Procedure	22
7.3 Test Condition	23
7.4 Test Data	23
8. Electrostatic Discharge Immunity Test	26
8.1 Test Requirements	26
8.2 Test Setup	26
8.3 Test Procedure	26
8.4 Test Data	27
9. Radiated Electromagnetic Field Immunity Test	29
9.1 Test Requirements	29
9.1 Test Setup	29
9.2 Test Procedure	29
9.3 Test Data	30
10. Electrical Fast Transient/Burst Test	32
10.1 Test Requirements	32
10.2 Test Setup	32
10.3 Test Procedure	32

10.4 Test Data	33
11. Surge Immunity Test	35
11.1 Test Requirements	35
11.2 Test Setup	35
11.3 Test Procedure	35
11.4 Test Data	36
12. Conducted Immunity Test	38
12.1 Test Requirements	38
12.2 Test Setup	38
12.3 Test Procedure	38
12.4 Test Data	39
13. Voltage Dips and Interruptions Immunity Test	41
13.1 Test Requirements	41
13.2 Test Setup	41
13.3 Test Procedure	41
13.4 Test Data	41
14. Photographs - Constructional Details	43

1. General Information

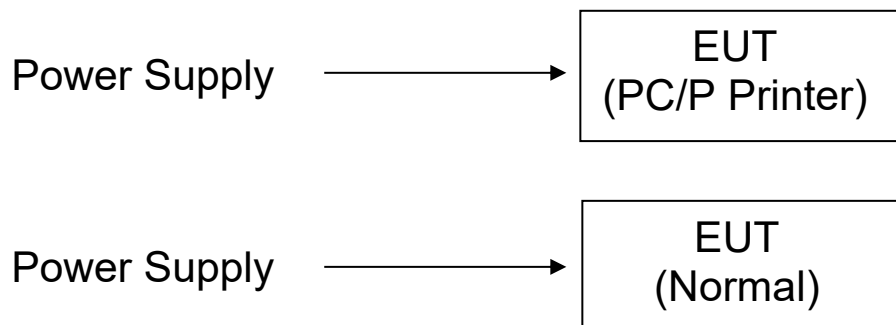
1.1. Client Information

Applicant	:	Shenzhen Hao Mai Tongda Technology Co., Ltd.
Address	:	Room703, Building F, Qihang R&D Industrial Park, No.1008, Songbai Road, Sunshine Community, Xili Street, Nanshan District, Shenzhen, China
Manufacturer	:	SHENZHEN SORGHUM RED ELECTRONICS TECHNOLOGY CO Ltd.
Address	:	XINHE RD 29 SHANGMUGU COMMUNITY PINGHU TOWN LONGGANG DISTRICT SHENZHEN, GUANGDONG 518111 CHINA

1.2. General Description of EUT (Equipment Under Test)

EUT Name	:	Adapter
Model No.	:	H3
Serial No.	:	T8
Brand Name	:	N/A
Power Supply	:	Input: AC 100-240V, 0.3A, 50/60Hz Output: DC 5V, 1A
Remark: All models are the same except for the model name; therefore, testing was performed with H3 only.		

1.3. Block Diagram Showing The Configuration of System Tested



1.4. Description of Support Units

The EUT has been tested as an independent unit.

1.5. Performance Criterion

Criterion A: 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.

Criterion B: After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is 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.

1.6. Test Facility

The testing report were performed by the Shenzhen Lice Testing Technology Co., Ltd., in their facilities located at Room 112-113, Building B15, Yintian Industrial Zone, Yantian, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China.

2. TEST Results Summary

EMISSION		
Description of test items	Standards	Results
Conducted disturbance at mains terminals	EN 55032: 2015/A1: 2020	Pass
Radiated Disturbance	EN 55032: 2015/A1: 2020	Pass
Harmonic current emissions	EN IEC 61000-3-2: 2019/A1: 2021	N/A
Voltage fluctuation and flicker	EN 61000-3-3:2013/A2:2021	Pass
IMMUNITY		
Description of test items	Standards	Results
Electrostatic Discharge (ESD)	EN 61000-4-2: 2009	Pass
Radio-frequency, Continuous radiated disturbance	EN IEC 61000-4-3:2020	Pass
EFT/B Immunity	EN 61000-4-4: 2012	Pass
Surge Immunity	EN 61000-4-5: 2014/A1:2017	Pass
Conducted RF Immunity	EN 61000-4-6: 2014	Pass
Power frequency magnetic field	EN 61000-4-8: 2010	Pass
Voltage dips, >95% reduction	EN IEC 61000-4-11:2020	Pass
Voltage dips, 30% reduction		
Voltage interruptions		
Note: N/A is an abbreviation for Not Applicable.		

3. Test Equipment Used

3.1. Test Equipment Used to Measure Conducted Emission					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LCT-EMC001	EMI Test Receiver	Rohde & Schwarz	ESCS30	Dec. 28, 2024	1 Year
LCT-EMC002	AMN	Rohde & Schwarz	ENV216	Dec. 28, 2024	1 Year
LCT-EMC003	AMN	SCHWARZBECK	NNBL 8226	Dec. 28, 2024	1 Year
3.2. Test Equipment Used to Measure Radiated Emission					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LCT-EMC004	EMI Test Receiver	Rohde & Schwarz	ESI26	Dec. 28, 2024	1 Year
LCT-EMC005	Bilog Antenna	SCHWARZBECK	VULB9163	Dec. 28, 2024	1 Year
LCT-EMC006	Positioning Controller	C&C	CC-C-1F	N/A	N/A
3.3. Test Equipment Used to Measure Harmonic Current/ Voltage Fluctuation and Flicker					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LCT-EMC007	Harmonic Flicker Test System	CI	5001ix-CTS-400	Dec. 28, 2024	1 Year
3.4. Test Equipment Used to Measure Electrostatic Discharge Immunity					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LCT-EMC008	ESD Tester	TESEQ	NSG437	Dec. 28, 2024	1 Year
3.5. Test Equipment Used to Measure Conducted Immunity					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LCT-EMC009	RF Generator	FRANKONIA	CIT-10/75	Dec. 28, 2024	1 Year
LCT-EMC010	Attenuator	FRANKONIA	59-6-33	Dec. 28, 2024	1 Year
LCT-EMC011	M-CDN	LUTHI	M2/M3	Dec. 28, 2024	1 Year
LCT-EMC012	CDN	LUTHI	AF2	Dec. 28, 2024	1 Year
LCT-EMC013	EM Injection Clamp	LUTHI	EM101	Dec. 28, 2024	1 Year
3.6. Test Equipment Used to Measure Radio Frequency Electromagnetic Fields Immunity					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LCT-EMC014	Signal Generator	Rohde & Schwarz	SMT03	Dec. 28, 2024	1 Year

LCT-EMC015	Power Meter	Rohde & Schwarz	NRVD	Dec. 28, 2024	1 Year
LCT-EMC016	Voltage Probe	Rohde & Schwarz	URV5-Z2	Dec. 28, 2024	1 Year
LCT-EMC017	Voltage Probe	Rohde & Schwarz	URV5-Z2	Dec. 28, 2024	1 Year
LCT-EMC018	Power Amplifier	AR	150W1000	Dec. 28, 2024	1 Year
LCT-EMC019	Bilog Antenna	Chase	CBL6111C	Dec. 28, 2024	1 Year
3.7. Test Equipment Used to Measure Electrical Fast Transient/Burst Immunity					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LCT-EMC020	Simulator	EMTEST	UCS500N5	Dec. 28, 2024	1 Year
LCT-EMC021	Auto-transformer	EMTEST	V4780S2	Dec. 28, 2024	1 Year
3.8. Test Equipment Used to Measure Surge Immunity					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LCT-EMC022	Simulator	EMTEST	UCS500N5	Dec. 28, 2024	1 Year
LCT-EMC023	Coupling Clamp	EMTEST	HFK	Dec. 28, 2024	1 Year
3.9. Test Equipment Used to Measure Voltage Dips and Interruptions Immunity					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LCT-EMC022	Simulator	EMTEST	UCS500N5	Dec. 28, 2024	1 Year
LCT-EMC023	Coupling Clamp	EMTEST	HFK	Dec. 28, 2024	1 Year
3.10. Test Equipment Used to Measure Power frequency Magnetic Field					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LCT-EMC026	Power Frequency Magnetic Field Generator	EVERFINE	EMS61000-8	Dec. 28, 2024	1 Year

4. Conducted Emission Test

4.1. Test Standard and Limit

4.1.1. Test Standard

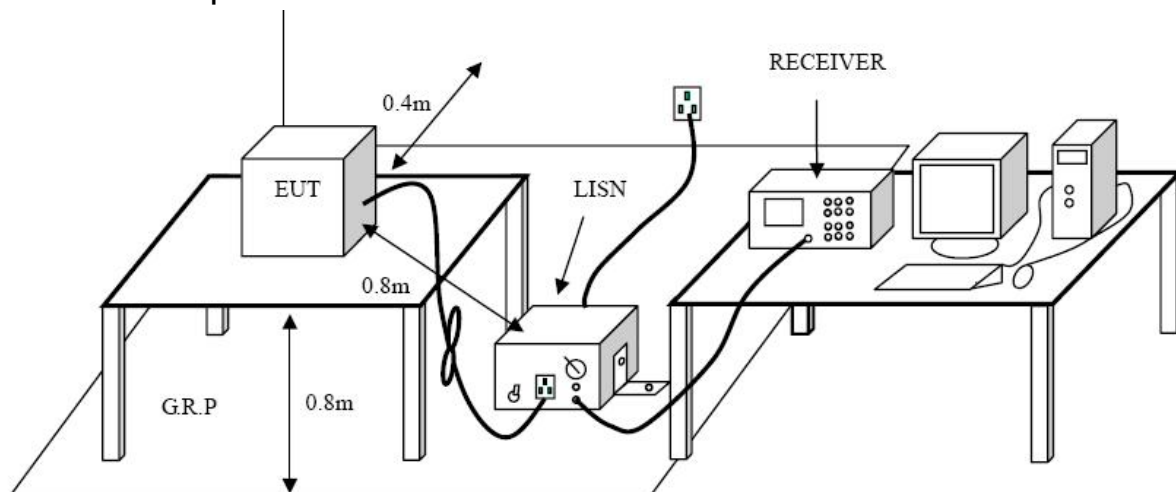
EN 55032: 2015/A1: 2020.

4.1.2. Test Limit

Conducted Disturbance Test Limit (Class B)

Frequency	Maximum RF Line Voltage (Db μ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

4.2. Test Setup



4.3. Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50U_h of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

4.4. Test Condition

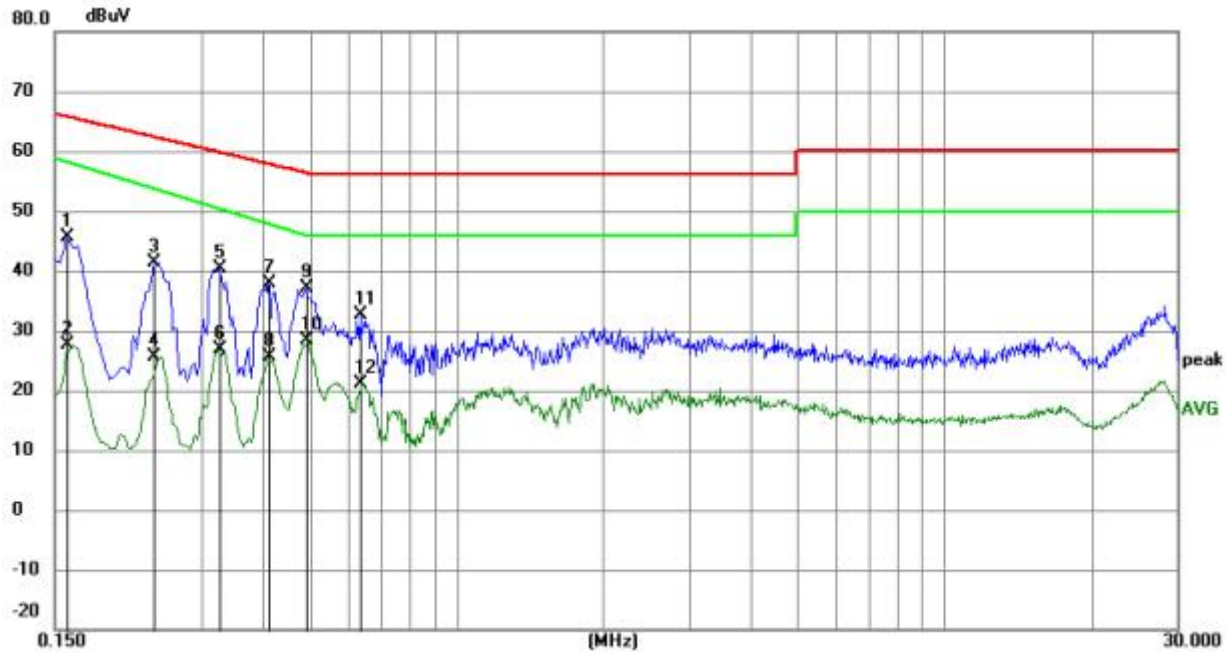
Temperature	:	25 °C
Relative Humidity	:	48 %
Pressure	:	1010 hPa
Test Power	:	AC 230V/50Hz

4.5. Test Data

Please refer to the following pages.

Operating Condition: Normal

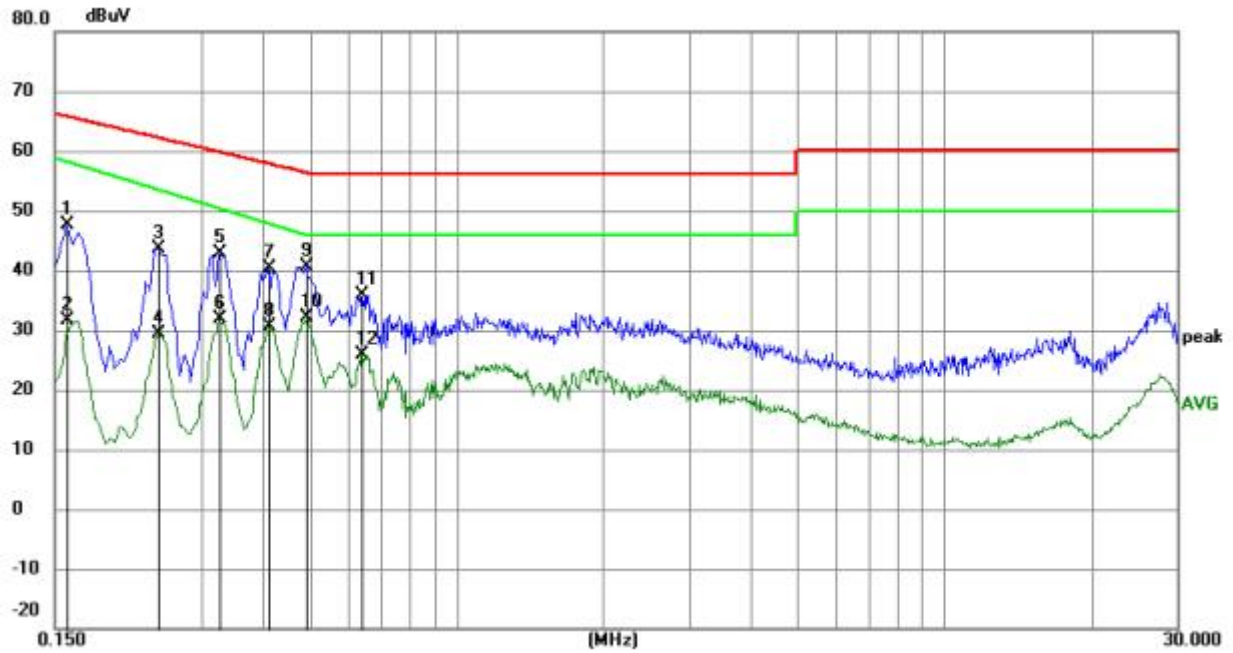
Test Specification: Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1590	33.22	12.45	45.67	65.52	-19.85	QP	P	
2	0.1590	15.23	12.45	27.68	58.37	-30.69	AVG	P	
3	0.2400	29.01	12.40	41.41	62.10	-20.69	QP	P	
4	0.2400	13.17	12.40	25.57	53.93	-28.36	AVG	P	
5	0.3255	27.91	12.36	40.27	59.57	-19.30	QP	P	
6	0.3255	14.56	12.36	26.92	50.63	-23.71	AVG	P	
7	0.4109	25.42	12.34	37.76	57.63	-19.87	QP	P	
8	0.4109	13.40	12.34	25.74	48.12	-22.38	AVG	P	
9	0.4919	24.82	12.33	37.15	56.14	-18.99	QP	P	
10	0.4919	16.07	12.33	28.40	46.18	-17.78	AVG	P	
11	0.6359	20.41	12.31	32.72	56.00	-23.28	QP	P	
12	0.6359	8.72	12.31	21.03	46.00	-24.97	AVG	P	

Operating Condition: Normal

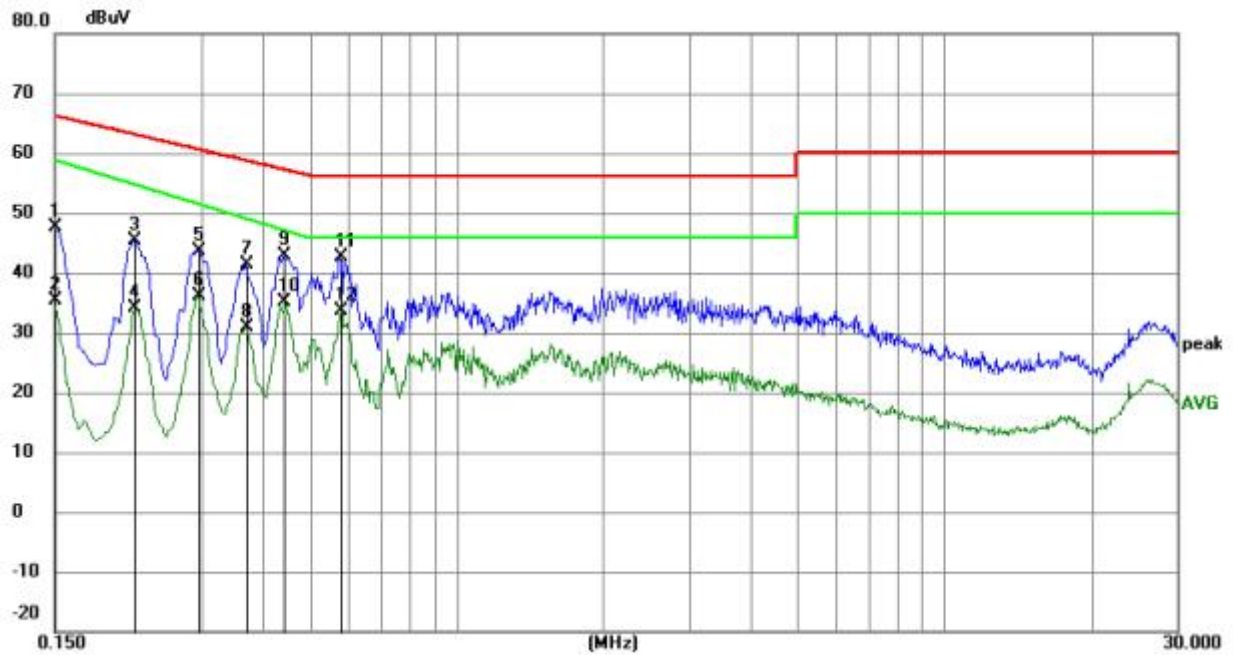
Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1590	35.28	12.45	47.73	65.52	-17.79	QP	P	
2	0.1590	19.14	12.45	31.59	58.37	-26.78	AVG	P	
3	0.2445	31.24	12.40	43.64	61.94	-18.30	QP	P	
4	0.2445	17.00	12.40	29.40	53.72	-24.32	AVG	P	
5	0.3255	30.51	12.36	42.87	59.57	-16.70	QP	P	
6	0.3255	19.58	12.36	31.94	50.63	-18.69	AVG	P	
7	0.4110	28.01	12.34	40.35	57.63	-17.28	QP	P	
8	0.4110	18.39	12.34	30.73	48.12	-17.39	AVG	P	
9	0.4920	28.20	12.33	40.53	56.13	-15.60	QP	P	
10	0.4920	19.88	12.33	32.21	46.17	-13.96	AVG	P	
11	0.6404	23.55	12.31	35.86	56.00	-20.14	QP	P	
12	0.6404	13.66	12.31	25.97	46.00	-20.03	AVG	P	

Operating Condition: Normal (PC)

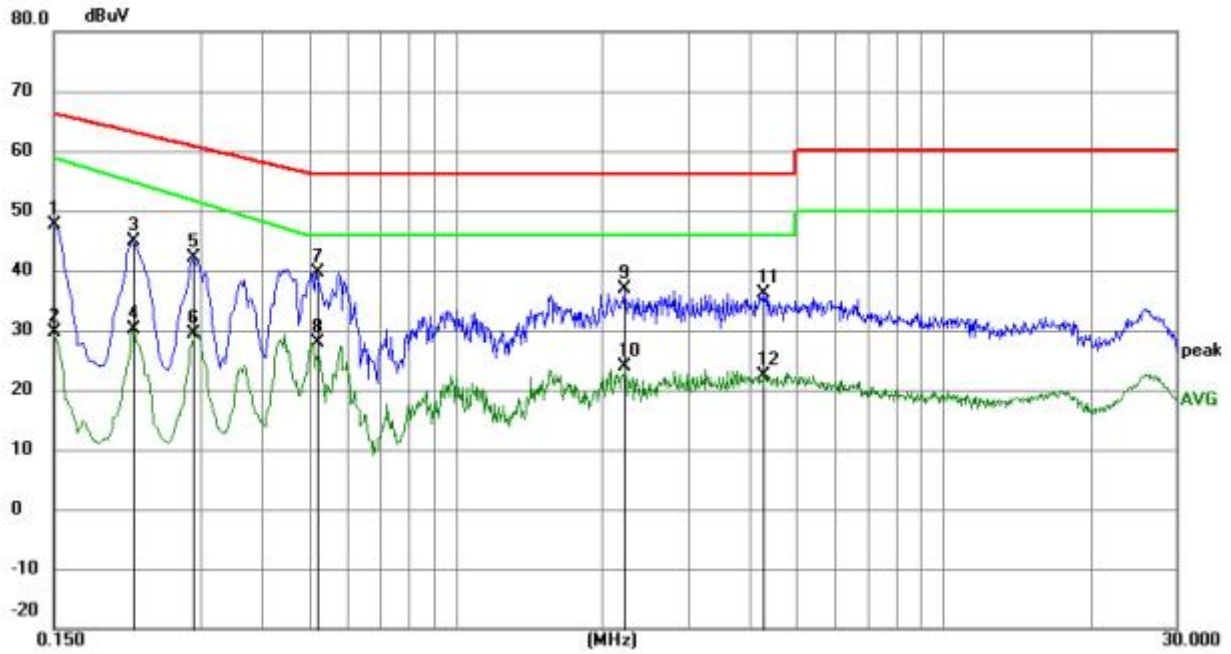
Test Specification: Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	35.23	12.46	47.69	66.00	-18.31	QP	P	
2	0.1500	23.02	12.46	35.48	59.00	-23.52	AVG	P	
3	0.2175	33.04	12.41	45.45	62.91	-17.46	QP	P	
4	0.2175	21.73	12.41	34.14	54.99	-20.85	AVG	P	
5	0.2940	31.37	12.36	43.73	60.41	-16.68	QP	P	
6	0.2940	23.69	12.36	36.05	51.73	-15.68	AVG	P	
7	0.3704	28.95	12.35	41.30	58.49	-17.19	QP	P	
8	0.3704	18.41	12.35	30.76	49.24	-18.48	AVG	P	
9	0.4425	30.63	12.34	42.97	57.01	-14.04	QP	P	
10	0.4425	22.79	12.34	35.13	47.32	-12.19	AVG	P	
11	0.5775	30.20	12.32	42.52	56.00	-13.48	QP	P	
12	0.5775	21.40	12.32	33.72	46.00	-12.28	AVG	P	

Operating Condition: Normal (PC)

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	35.27	12.46	47.73	66.00	-18.27	QP	P	
2	0.1500	17.29	12.46	29.75	59.00	-29.25	AVG	P	
3	0.2175	32.36	12.41	44.77	62.91	-18.14	QP	P	
4	0.2175	17.72	12.41	30.13	54.99	-24.86	AVG	P	
5	0.2895	29.82	12.37	42.19	60.54	-18.35	QP	P	
6	0.2895	17.02	12.37	29.39	51.90	-22.51	AVG	P	
7	0.5190	27.37	12.33	39.70	56.00	-16.30	QP	P	
8	0.5190	15.54	12.33	27.87	46.00	-18.13	AVG	P	
9	2.2244	24.53	12.26	36.79	56.00	-19.21	QP	P	
10	2.2244	11.51	12.26	23.77	46.00	-22.23	AVG	P	
11	4.2855	23.95	12.26	36.21	56.00	-19.79	QP	P	
12	4.2855	10.22	12.26	22.48	46.00	-23.52	AVG	P	

5. Radiated Emission Test

5.1 Test Standard and Limit

5.1.1. Test Standard

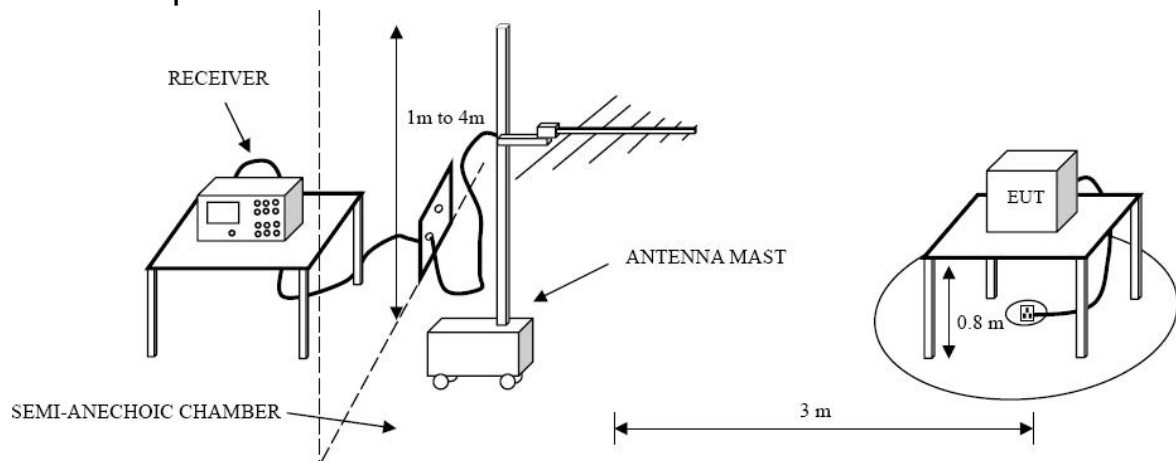
EN 55032: 2015/A1: 2020

5.1.2. Test Limit

Radiated Disturbance Test Limit (Class B)

Frequency	Limit (Db μ V/m)
	Quasi-peak Level
30MHz~230MHz	40
230MHz~1000MHz	47
Remark: 1. The lower limit shall apply at the transition frequency. 2. The test distance is 3m.	

5.2 Test Setup



5.3 Test Procedure

The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m. The table was rotated 360 degrees to determine the position of the highest radiation.

The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

The initial step in collecting radiated emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range.

If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.

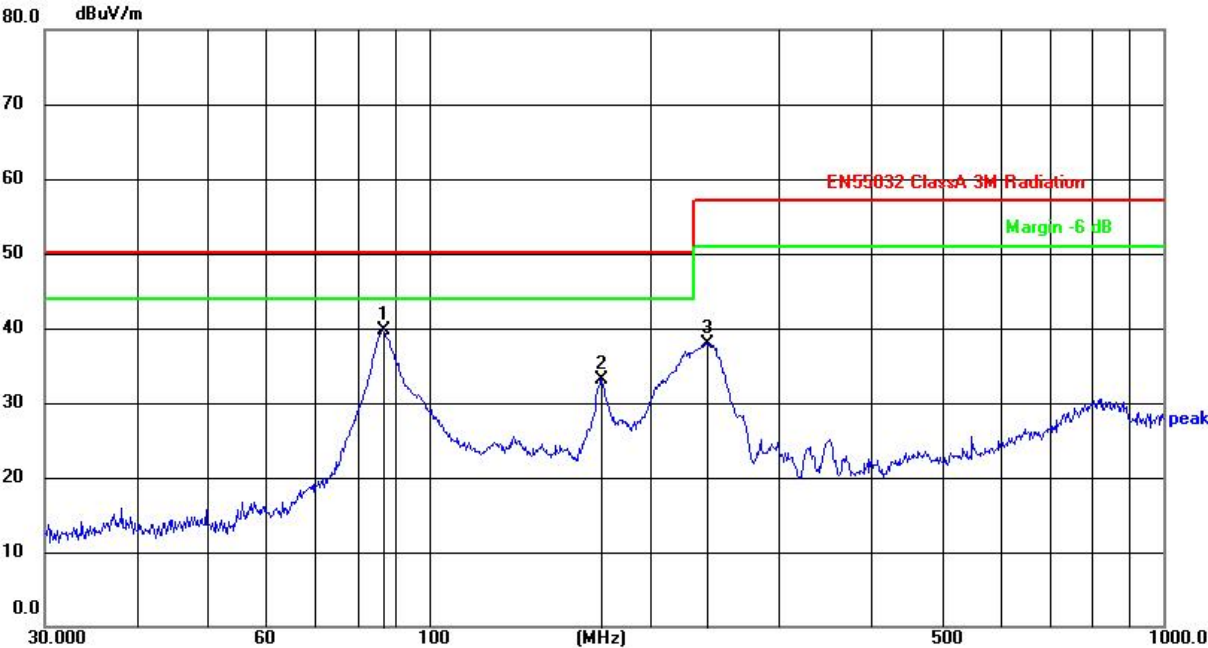
5.4 Test Condition

Temperature	:	25 °C
Relative Humidity	:	48 %
Pressure	:	1010 hPa
Test Power	:	AC 230V/50Hz

5.5 Test Data

Please refer to the following pages.

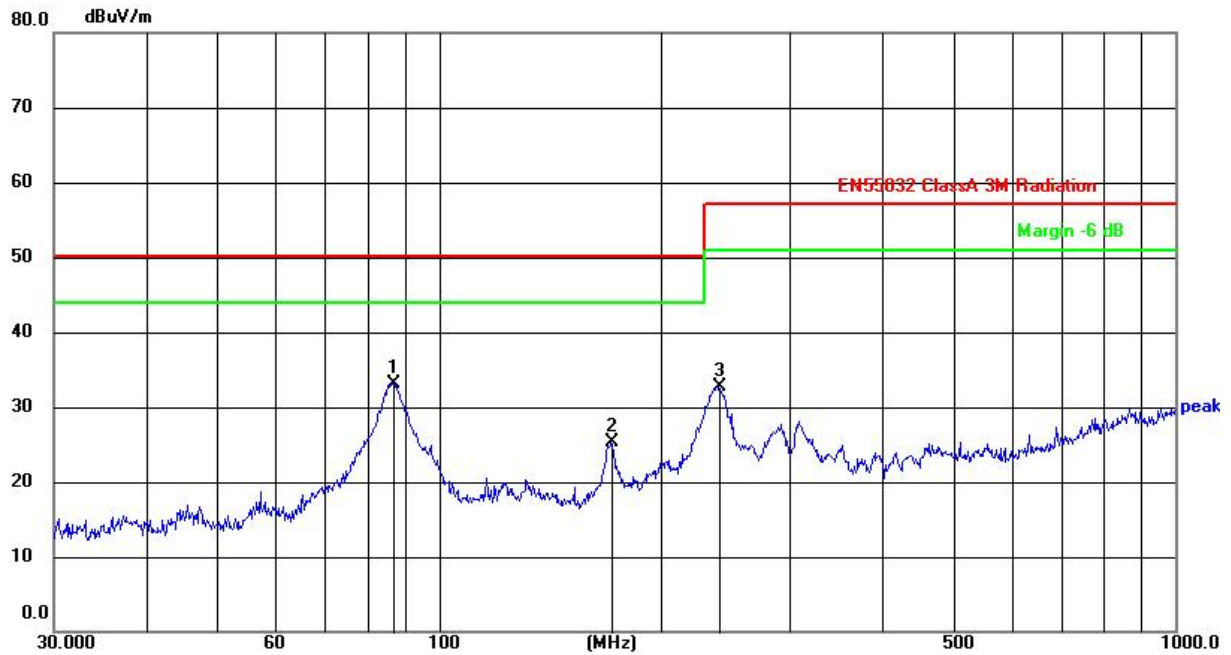
Operating Condition: Normal
Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	86.5029	59.95	-20.33	39.62	50.00	-10.38	peak				
2	171.3926	51.31	-18.20	33.11	50.00	-16.89	peak				
3	238.3102	56.37	-18.37	38.00	57.00	-19.00	peak				

Operating Condition: Normal

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	86.5029	53.32	-20.15	33.17	50.00	-16.83	peak				
2	171.3926	43.87	-18.52	25.35	50.00	-24.65	peak				
3	239.9874	51.07	-18.36	32.71	57.00	-24.29	peak				

6. Harmonic Current Emission Test

6.1 Test Standard and Limit

6.1.1. Test Standard

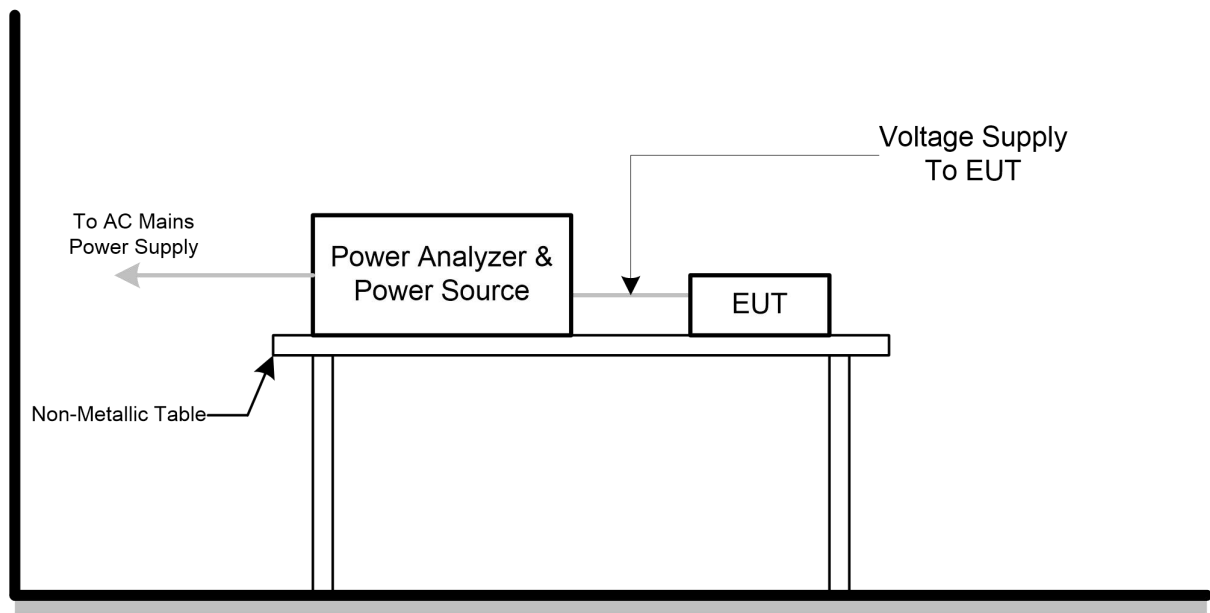
EN IEC 61000-3-2: 2019/A1: 2021

6.1.2. Limits

Harmonic Current Test Limit (Class A)

Harmonic order (n)	Maximum permissible harmonic current (A)
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
$15 \leq n \leq 39$	$0.15 \times 15/n$
Even harmonics	
2	1.08
4	0.43
6	0.30
$8 \leq n \leq 40$	$0.23 \times 8/n$

6.2 Test Setup



6.3 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.

The classification of EUT is according to section 5 of EN IEC 61000-3-2: 2019/A1: 2021. 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 and television receivers.

6.4 Test Condition

Temperature	:	25 °C
Relative Humidity	:	48 %
Pressure	:	1010 hPa
Test Power	:	AC 230V/50Hz

6.5 Test Data

The test is not applicable.

7. Voltage Fluctuation and Flicker Test

7.1 Test Standard and Limit

7.1.1. Test Standard

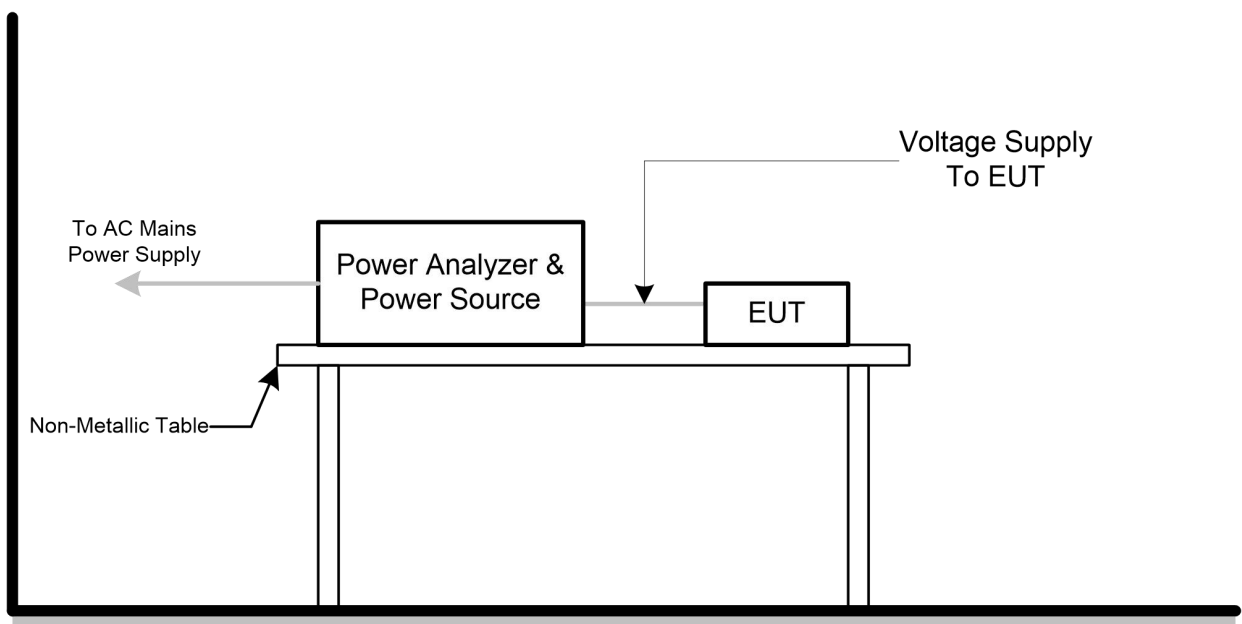
EN 61000-3-3:2013/A2:2021

7.1.2. Limit

Voltage Fluctuation and Flicker Test Limit

Test Items	Limits
Pst	1.0
dc	3.3%
dmax	4.0%
dt	Not exceed 3.3% for 500ms

7.2 Test Setup



7.3 Test Procedure

7.3.1 Harmonic Current Test

Test was performed according to the procedures specified in Clause 5.0 of IEC555-2 and/or Sub-clause 6.2 of IEC/EN 61000-3-2 depend on which standard adopted for compliance measurement.

7.3.2 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 compliance measurement.

All types of harmonic current and/or voltage fluctuation in this report are assessed by direct measurement using flicker-meter.

For the actual test configuration, please refer to the related Item –Block Diagram of system tested (please refer to 1.3).

7.3 Test Condition

Temperature	:	25 °C
Relative Humidity	:	48 %
Pressure	:	1010 hPa
Test Power	:	AC 230V/50Hz

7.4 Test Data

Please refer to the following pages.

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

Test category: All parameters (European limits)

Test Margin: 100

Tested by: LCT

Start time: 14:55:56

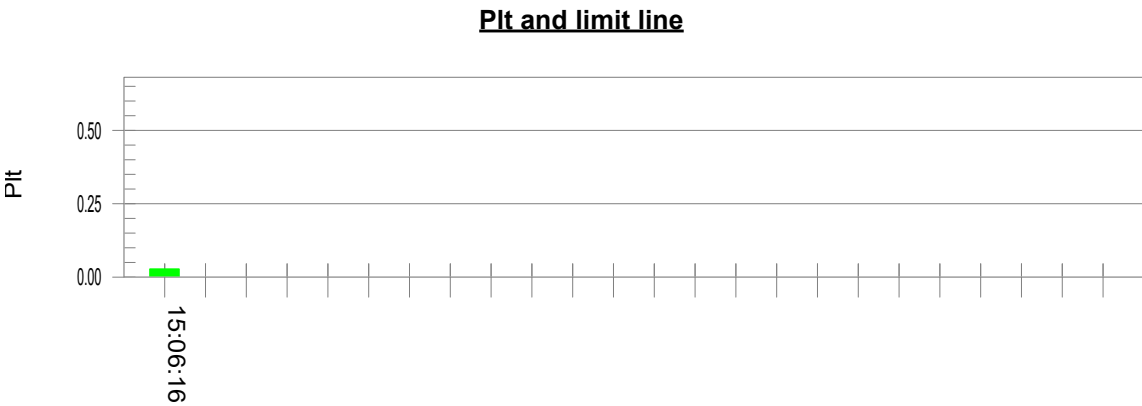
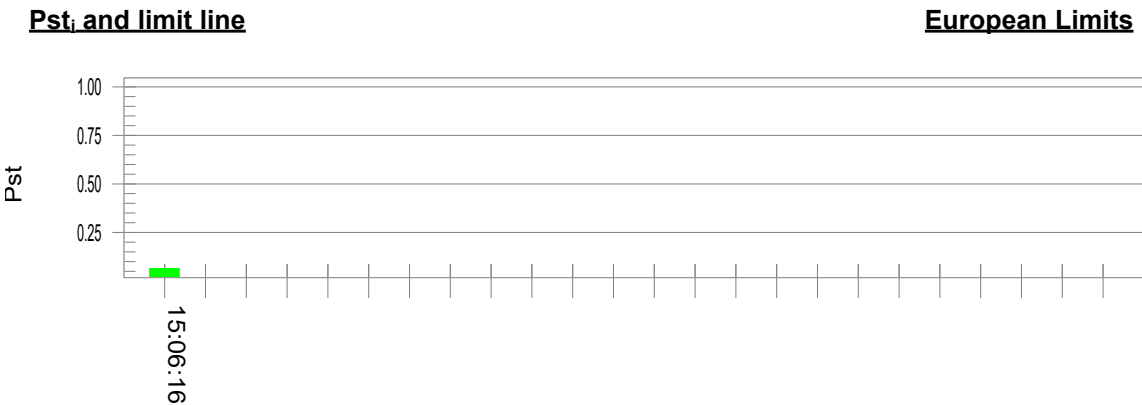
End time: 15:06:17

Test duration (min): 10

Data file name: F-000267.cts_data

Test Result: Pass

Status: Test Completed



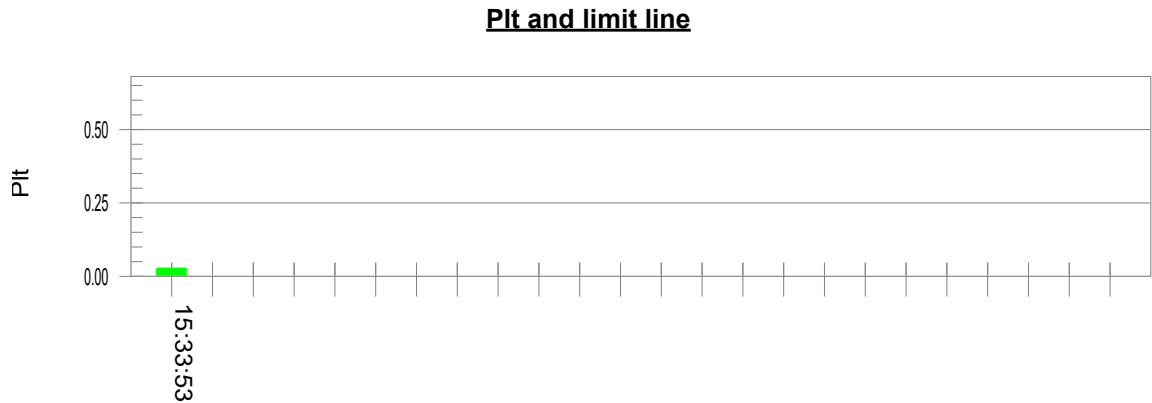
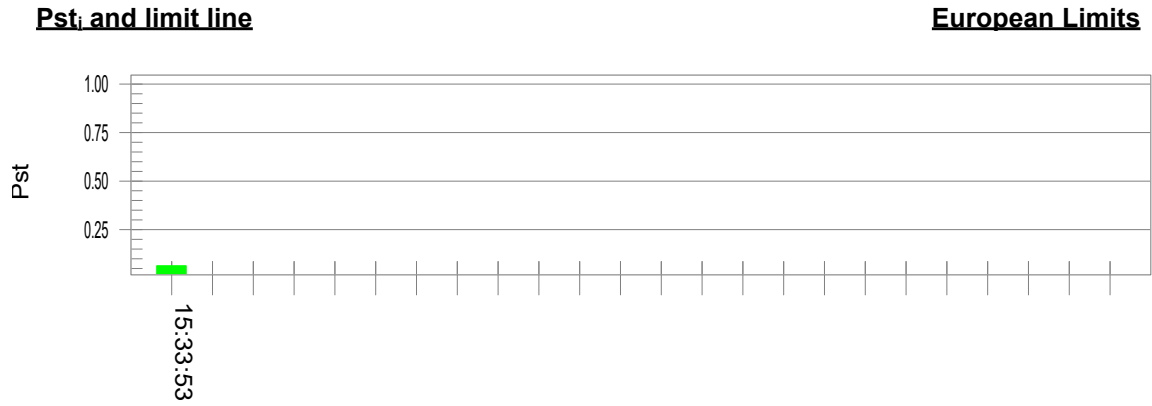
Parameter values recorded during the test:				
Vrms at the end of test (Volt): 229.91				
Highest dt (%):	0.00	Test limit (%):	3.30	Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.028	Test limit:	0.650	Pass

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

Test category: All parameters (European limits)
Test Margin: 100 **Tested by: LCT**
Start time: 15:23:33 **End time: 15:33:54**
Test duration (min): 10 **Data file name: F-000269.cts_data**

Test Result: Pass

Status: Test Completed



Parameter values recorded during the test:

Vrms at the end of test (Volt): 229.92				
Highest dt (%):	0.00	Test limit (%):	3.30	Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.028	Test limit:	0.650	Pass

8. Electrostatic Discharge Immunity Test

8.1 Test Requirements

8.1.1 Test Standard

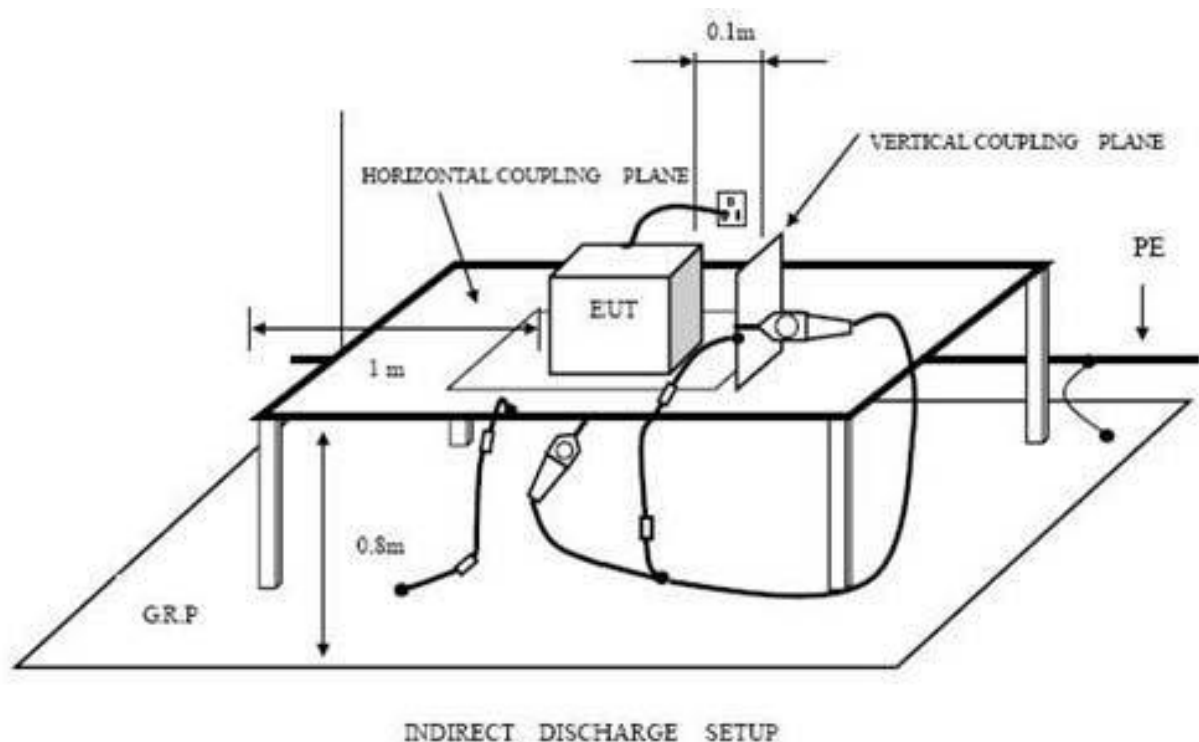
EN 55035:2017/A11:2020 (EN 61000-4-2: 2009)

8.1.2 Test Level

Level	Test Voltage Contact Discharge (Kv)	Test Voltage Air Discharge (Kv)
1	±2	±2
2	±4	±4
3	±6	±8
4	±8	±15
X	Special	Special

8.1.3 Performance criterion: **B**

8.2 Test Setup



8.3 Test Procedure

8.3.1 Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After

each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

8.3.2 Contact Discharge:

All the procedure shall be same as air discharge. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

8.3.3 Indirect discharge for horizontal coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

8.3.4 Indirect discharge for vertical coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

8.4 Test Data

Please refer to the following pages.

Electrostatic Discharge Test Result

EUT	: Adapter	M/N	: H3
Temperature	: 22°C	Humidity	: 50%
Power supply	: AC230V/50Hz	Test Mode	: Normal
Criterion: B			
Air Discharge: $\pm 8\text{kV}$ Contact Discharge: $\pm 4\text{kV}$			
For each point positive 10 times and negative 10 times discharge.			
Location	Kind A-Air Discharge C-Contact Discharge	Result	
Nonconductive Enclosure	A	PASS	
Slot of the EUT	A	PASS	
LED	A	PASS	
Port	A	PASS	
Conductive Enclosure	C	PASS	
Screw	C	PASS	
HCP	C	PASS	
VCP of front	C	PASS	
VCP of rear	C	PASS	
VCP of left	C	PASS	
VCP of right	C	PASS	
Remark:			

9. Radiated Electromagnetic Field Immunity Test

9.1 Test Requirements

9.1.1. Test Standard

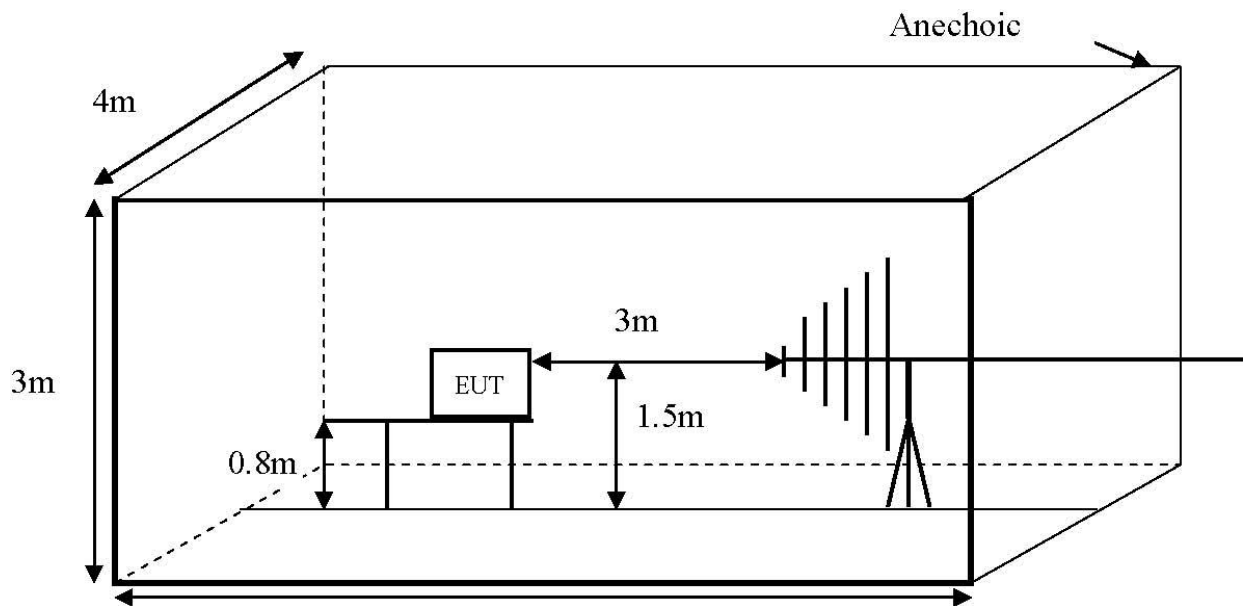
EN 55035:2017/A11:2020 (EN IEC 61000-4-3:2020)

9.1.2. Test Level

Level	Field Strength V/m
1	1
2	3
3	10
X	Special

9.1.3. Performance criterion: **A**

9.1 Test Setup



9.2 Test Procedure

The EUT are placed on a table, which is 0.8 meter high above the ground. The EUT is set 3 meters away from the transmitting antenna, which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna is set on test. Each of the four sides of the EUT must be faced this transmitting antenna and measured individually.

In order to judge the EUT performance, a camera is used to monitor its screen.

All the scanning conditions are as following:

Condition of Test	Remark
Fielded strength	3V/m (Severity Level 2)
Radiated signal	Modulated
Scanning frequency	80-1000MHz
Sweep time of radiated	0.0015 Decade/s
Dwell time	1 Sec.

9.3 Test Data

Please refer to the following pages.

RF Field Strength Susceptibility Test Results

EUT	:	Adapter	M/N	:	H3
Temperature	:	22°C	Humidity	:	50%
Power supply	:	AC230V/50Hz	Test Mode	:	Normal
Criterion: A					
Modulation: Unmodulated					
Pulse: AM 1KHz 80%					
	Frequency Rang 1		Frequency Rang 2		
	80~1000MHz		/		
	Horizontal	Vertical	Horizontal	Vertical	
Front	PASS	PASS	/	/	
Right	PASS	PASS	/	/	
Rear	PASS	PASS	/	/	
Left	PASS	PASS	/	/	
Remark:					

10. Electrical Fast Transient/Burst Test

10.1 Test Requirements

10.1.1. Test Standard

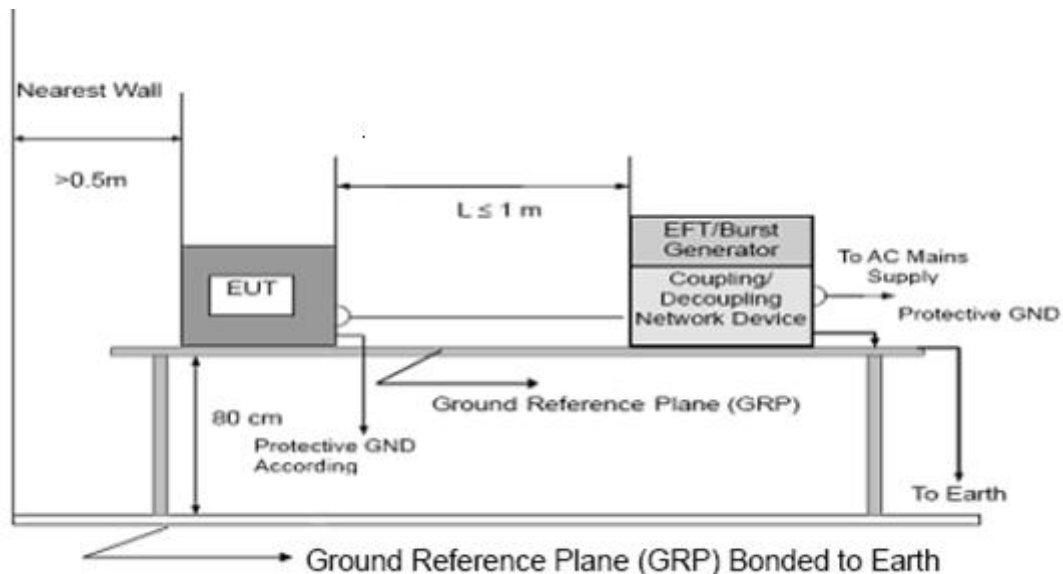
EN 55035:2017/A11:2020 (EN 61000-4-4: 2012)

10.1.2. Level

Open Circuit Output Test Voltage $\pm 10\%$		
Level	On Switching Adapter Lines	On I/O (Input/Output) Signal data and control lines
1	0.5 KV	0.25 KV
2	1 KV	0.5 KV
3	2 KV	1 KV
4	4 KV	2 KV
X	Special	Special

10.1.3. Performance criterion: B

10.2 Test Setup



10.3 Test Procedure

10.3.1 For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 1 minute.

10.3.2 For signal lines and control lines ports:

A coupling clamp is use to couple the EFT interference signal to the signal and control lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 1 minute.

10.3.3 For DC input and DC output power ports:

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 1 minute.

10.4 Test Data

Please refer to the following pages.

Electrical Fast Transient/Burst Test Results

EUT : <u>Adapter</u>	M/N : <u>H3</u>		
Temperature : <u>22°C</u>	Humidity : <u>50%</u>		
Power supply : <u>AC230V/50Hz</u>	Test Mode : <u>Normal</u>		
Criterion: B			
Line : ☒ AC Mains Coupling : ☒ Direct Line : ☐ Signal ☐ I/O Cable Coupling : ☐ Capacitive			
Line	Voltage(kV)	Result(+)	Result(-)
L	1.0	Pass	Pass
N	1.0	Pass	Pass
L-N	1.0	Pass	Pass
PE	/	/	/
L-PE	/	/	/
N-PE	/	/	/
L-N-PE	/	/	/

11. Surge Immunity Test

11.1 Test Requirements

11.1.1. Test Standard

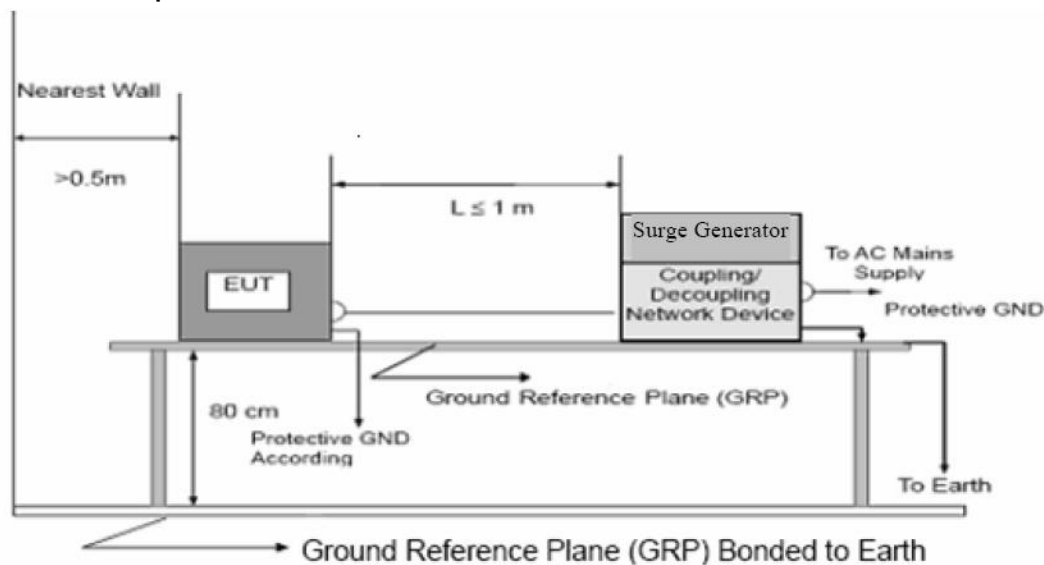
EN 55035:2017/A11:2020 (EN 61000-4-5: 2014/A1:2017)

11.1.2. Level

Severity Level	Open-Circuit Test Voltage kV
1	1.5
2	1.0
3	1.0
4	4.0
*	Special

11.1.3. Performance criterion: **B**

11.2 Test Setup



11.3 Test Procedure

11.3.1 Set up the EUT and test generator as shown on Section 11.1.2.

11.3.2 For line to line coupling mode, provide a 1.0 KV 1.2/50us voltage surge

(at open-circuit condition) and 8/20us current surge to EUT selected points.

11.3.3 At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.

11.3.4 Different phase angles are done individually.

11.3.5 Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

11.4 Test Data

Please refer to the following pages.

Surge Immunity Test Results

EUT : Adapter		M/N : H3		
Temperature : 22℃		Humidity : 50%		
Power supply : AC230V/50Hz		Test Mode : Normal		
Criterion: B				
Injected Line	Voltage(kV)	Phase	Result	
			(+)	(-)
L-N	1.0	0°	Pass	Pass
		90°	Pass	Pass
		180°	Pass	Pass
		270°	Pass	Pass
L-PE	2.0	0°	/	/
		90°	/	/
		180°	/	/
		270°	/	/
N-PE	2.0	0°	/	/
		90°	/	/
		180°	/	/
		270°	/	/
L-N-PE	2.0	0°	/	/
		90°	/	/
		180°	/	/
		270°	/	/

12. Conducted Immunity Test

12.1 Test Requirements

12.1.1. Test Standard

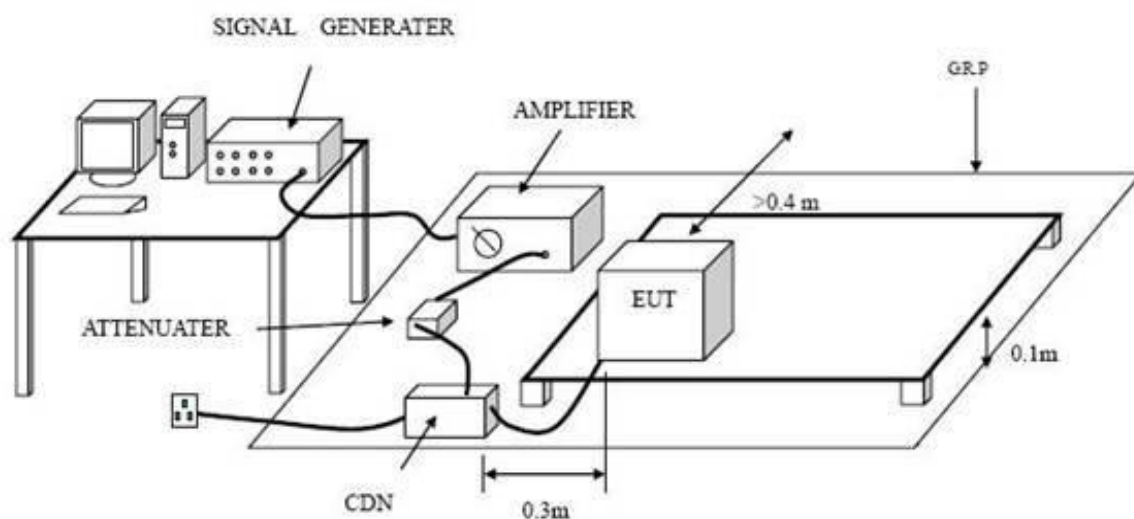
EN 55035:2017/A11:2020 (EN 61000-4-6: 2014)

12.1.2. Level

Level	Voltage Level (e.m.f.) V
1	1
2	3
3	10
X	Special

12.1.3. Performance criterion: **A**

12.2 Test Setup



12.3 Test Procedure

12.3.1 Set up the EUT, CDN and test generators.

12.3.2 Let the EUT work in test mode and test it.

12.3.3 The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

12.3.4 The disturbance signal description below is injected to EUT through CDN.

12.3.5 The EUT operates within its operational mode(s) under intended climatic conditions

after power on.

- 12.3.6 The frequency range is swept from 0.150MHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave.
- 12.3.7 The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- 12.3.8 Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

12.4 Test Data

Please refer to the following pages.

Injected Currents Susceptibility Test Results

EUT : <u>Adapter</u>		M/N : <u>H3</u>	
Temperature : <u>22°C</u>		Humidity : <u>50%</u>	
Power supply : <u>AC230V/50Hz</u>		Test Mode : <u>Transferring Video Signal</u>	
Criterion: A			
Frequency Range (MHz)	Injected Position	Voltage Level (e.m.f.)	Result
0.15 ~ 80	AC Mains	3V(rms), Unmodulated	PASS
0.15 ~ 80	DC Mains	3V(rms), Unmodulated	/
0.15 ~ 80	Signal Line	3V(rms), Unmodulated	/

13. Voltage Dips and Interruptions Immunity Test

13.1 Test Requirements

13.1.1. Test Standard

EN 55035:2017/A11:2020 (EN IEC 61000-4-11:2020)

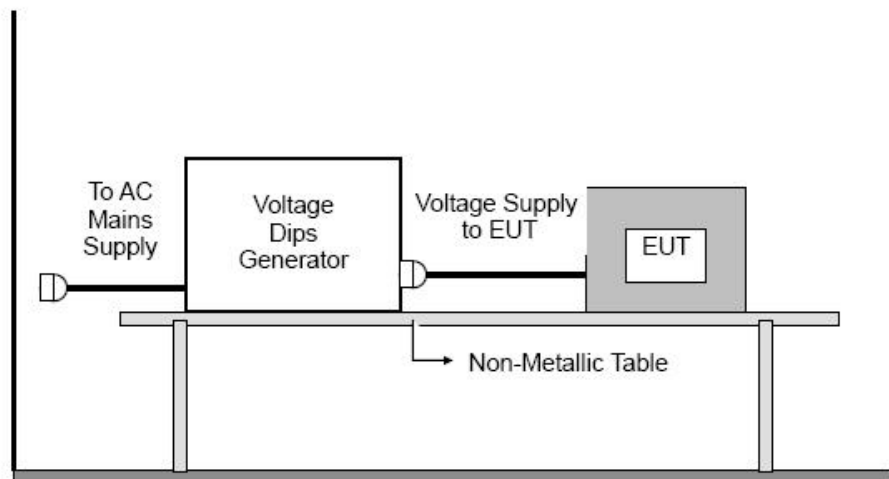
13.1.2. Level

Test Level for Voltage Dips and Interruptions

Test Level %U _T	Voltage dip and short interruptions %U _T	Duration (in period)
0	100	250
0	100	0.5
70	30	25
40	60	5

13.1.3. Performance criterion: **B&C**

13.2 Test Setup



13.3 Test Procedure

Set up the EUT and test generator as shown above. The EUT is tested for each selected combination of test level and duration with a sequence of three dips/interruptions with intervals of 10s minimum.

13.4 Test Data

Voltage Dips and Interruptions Test Results

EUT : Adapter M/N : H3

Temperature : 22°C Humidity : 50%

Power supply : AC230V/50Hz Test Mode : Normal

Criterion: B&C

Test Level % U_T	Voltage Dips & Short Interruptions % U_T	Duration (in period)	Phase Angle	Result
0	100	250P	0°~360°	PASS
70	30	25P	0°~360°	PASS
0	100	0.5P	0°~360°	PASS

Remark: U_T is the rated voltage for the equipment.

14. Photographs - Constructional Details

Photo 1 Overall view

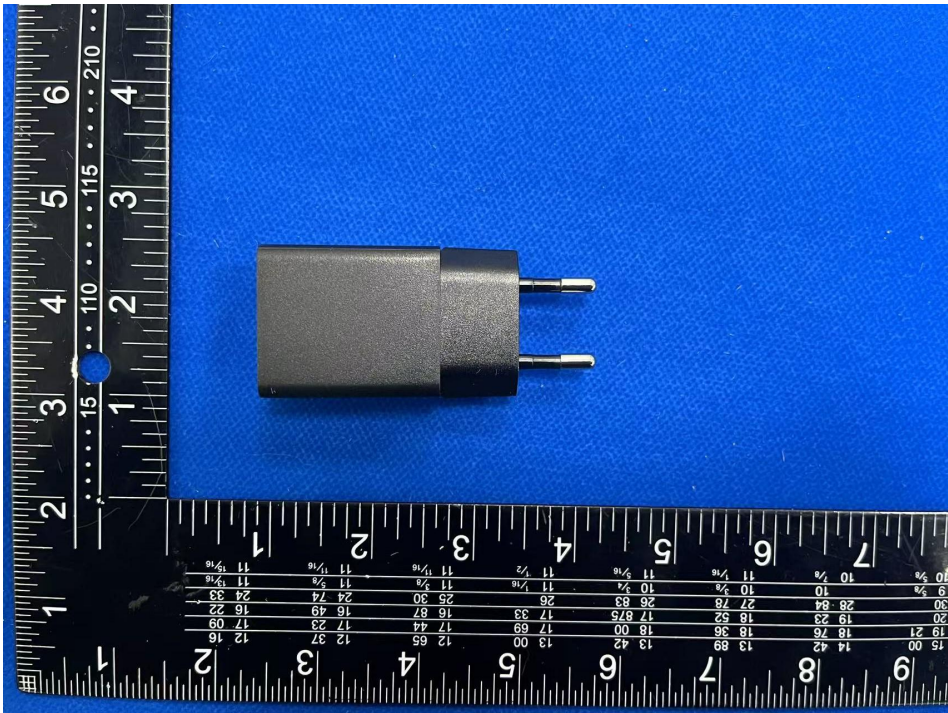


Photo 2 Overall view

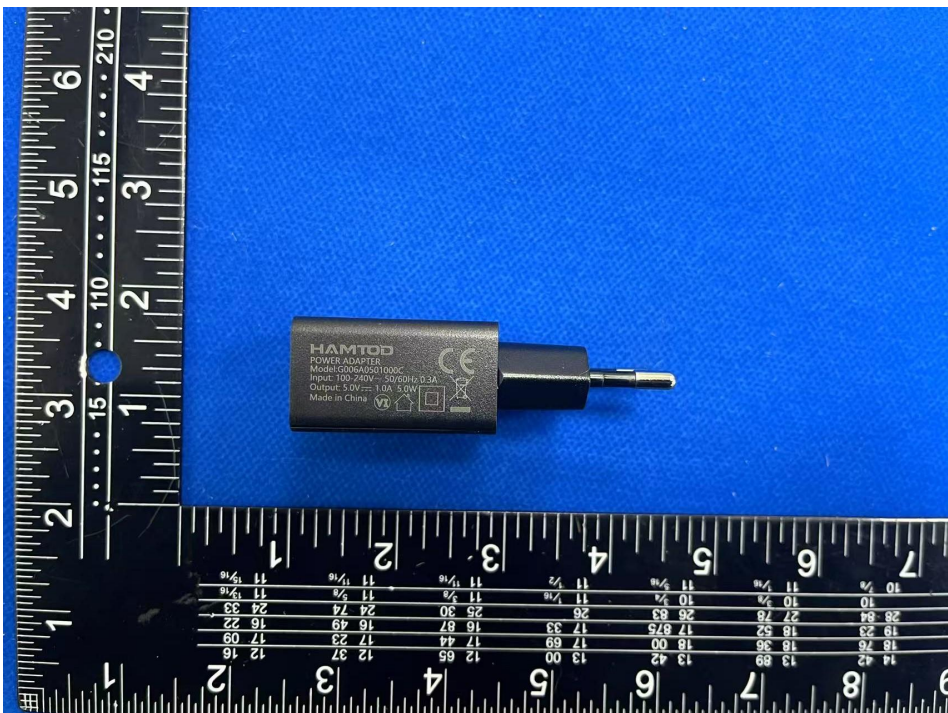


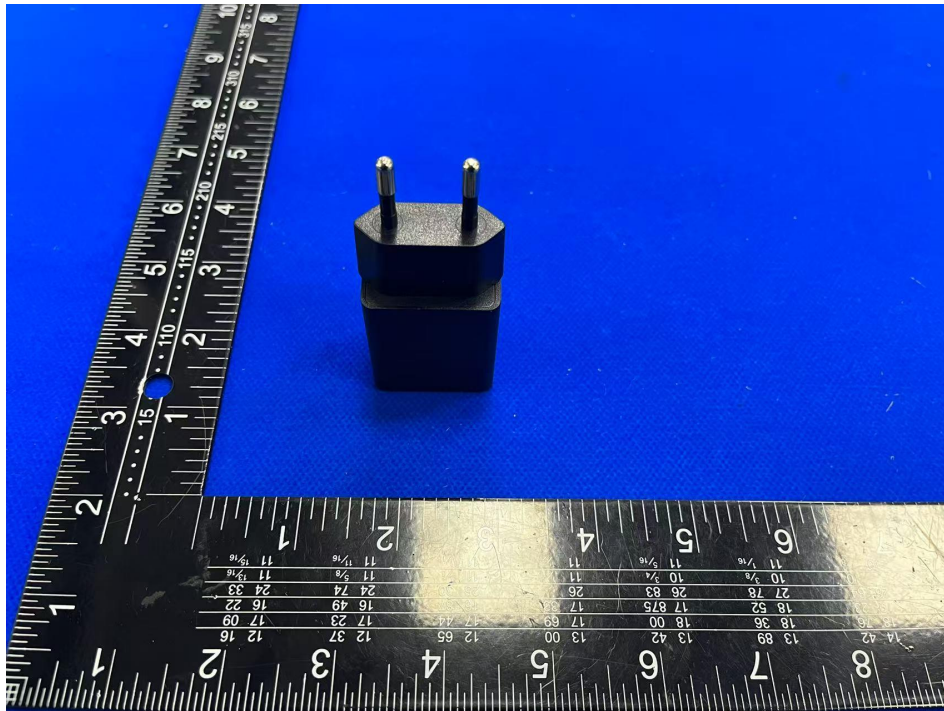
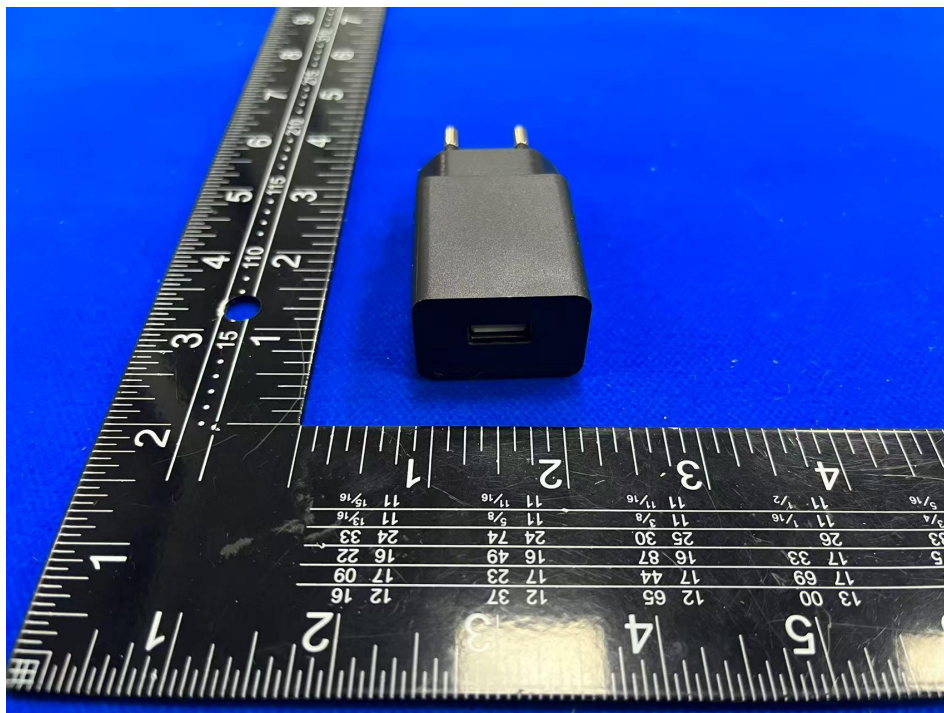
Photo 3 Overall view**Photo 4 Overall view**

Photo 5 PCB view

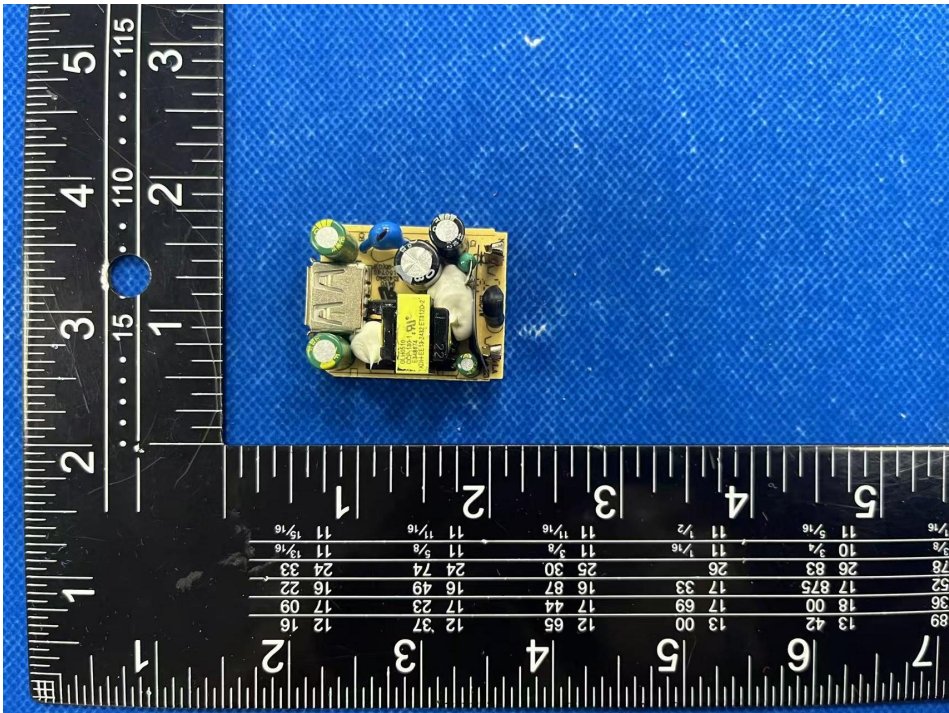


Photo 6 PCB view

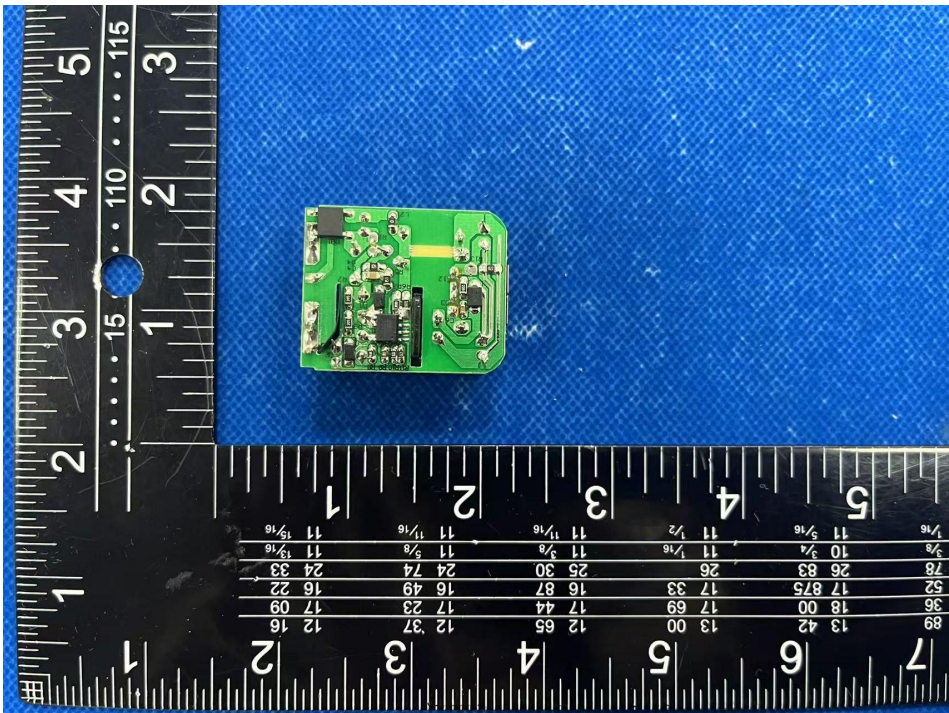
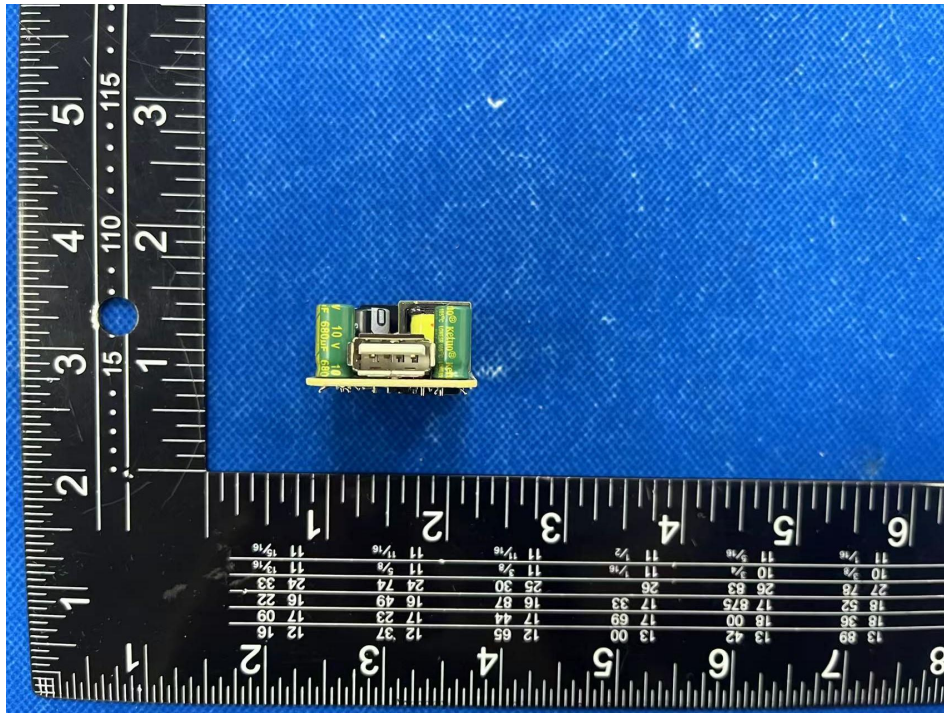


Photo 7 PCB view**END OF REPORT**