TEST REPORT

Reference No.	:	WTX24X07153344W005
Manufacturer	:	Shenzhen Qianyan Technology LTD
Address	:	No. 3301, Block C, Section 1, Chuangzhi Yuncheng Building, Liuxian Avenue, Xili Community, Xili Street, Nanshan District, Shenzhen, China
Product Name	:	Govee Curtain Lights
Model No.	:	H70BC
Standards	:	**EN IEC 55015:2019+A11:2020** **EN 61547:2009** **EN IEC 61000-3-2:2019+A1:2021** **EN 61000-3-3:2013+A2:2021**
Date of Receipt sample	:	2024-07-01
Date of Test	:	2024-07-01 to 2024-07-09
Date of Issue	:	2024-07-09
Test Report Form No.	:	WTX_EN IEC 55015_2019_B
Test Result	:	**Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of approver.

Prepared By:

Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70 Bao'an District, Shenzhen, Guangdong, China

Tel.: +86-755-33663308 Fax.: +86-755-33663309 Email: sem@waltek.com.cn

Tested by:

Mike Shi

Approved by:

Jason Su

TABLE OF CONTENTS

Report version

Version No.	Date of issue	Description
Rev.00	2024-07-09	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

General Description of EUT	
Product Name:	Govee Curtain Lights
Trade Name:	Govee
Model No.:	H70BC
Adding Model(s):	/
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC5V
Rated Current:	/
Rated Power:	/
Power Adaptor Model:	MODEL NO.:RKPO-DE0505000DP-5 INPUT:220-240V~50/60Hz 0.2A OUTPUT:DC5V,3000mA 15W
Highest Internal Frequency:	Below 108MHz

1.2 Test Standards

The tests were performed according to following standards:

EN IEC 55015:2019+A11:2020: Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment.

EN 61547:2009: Electromagnetic for general lighting purposes - EMC immunity requirements.

EN IEC 61000-3-2:2019+A1:2021: Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase).

EN 61000-3-3:2013+A2:2021: Electromagnetic compatibility (EMC) -- Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission/immunity should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with the standards EN IEC 55015, EN IEC 61000-3-2, EN 61000-3-3 and EN 61547 for general lighting purposes equipment, and all related testing and measurement techniques intentional standards.

1.4 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission/immunity level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List			
Test Mode	Description	Remark	Power Supply Mode
TM1	Light on mode	Connect to the Adapter,	AC230V 50Hz for adapter; and Light on mode.
TM2	Light off mode	Connect to the Adapter,	AC230V 50Hz for adapter; and Light off mode.

EUT Cable List and Details				
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite	With / Without Chip
/	/	/	/	/

Special Cable List and Details				
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite	With / Without Chip
/	/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
/	/	/	/

1.5 Performance Criteria for EMS

All the test data has been collected, reduced, and analyzed within this report in accordance with Immunity requires the following as specific performance criteria:

A. The apparatus shall continue to operate as intended during and after the test. The manufacturer specifies some minimum performance level. The performance level may be specified by the manufacturer as a permissible loss of performance.
B. The apparatus shall continue to operate as intended after the test. This indicates that the EUT does not need to function at normal performance levels during the test, but must recover. Again some minimal performance is defined by the manufacturer. No change in operating state or loss of data is permitted.
C. Temporary loss of function is allowed. Operation of the EUT may stop as long as it is either automatically reset or can be manually restored by operation of the controls.

1.6 Test Equipment List and Details

Description	Manufacturer	Model	Serial No.	Cal. Date	Due. Date
☐Chamber A:Below 1GHz					
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2024-02-24	2025-02-23
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2024-03-19	2025-03-18
Trilog Broadband Antenna	Schwarz beck	VULB9163	9163-333	2023-03-20	2026-03-19
Loop Antenna	Schwarz beck	FMZB 1516	9773	2024-02-26	2025-02-25
Amplifier	HP	8447F	2805A03475	2024-02-24	2025-02-23
EMI Test Software (Radiated Emission A)	Farad	EZ-EMC	RA-03A1 (1.1.4.2)	/	/
☐Chamber A:Above 1GHz					
Amplifier	C&D	PAP-1G18	2002	2024-02-27	2025-02-26
Horn Antenna	ETS	3117	00086197	2024-02-26	2025-02-25
EMI Test Software (Radiated Emission A)	Farad	EZ-EMC	RA-03A1 (1.1.4.2)	/	/
☐Chamber B:Below 1GHz					
Trilog Broadband Antenna	Schwarz beck	VULB9163(B)	9163-635	2024-03-17	2027-03-16
Amplifier	Agilent	8447D	2944A10457	2024-02-24	2025-02-23
EMI Test Receiver	Rohde & Schwarz	ESPI	101391	2024-02-24	2025-02-23
EMI Test Software (Radiated Emission B)	Farad	EZ-EMC	RA-03A1 (1.1.4.2)	/	/
☒Chamber C:Below 1GHz					
EMI Test Receiver	Rohde & Schwarz	ESIB 26	100401	2024-02-27	2025-02-26
Trilog Broadband Antenna	Schwarz beck	VULB 9168	1194	2024-04-18	2027-04-17
Amplifier	HP	8447F	2944A03869	2024-02-24	2025-02-23
EMI Test Software (Radiated Emission C)	Farad	EZ-EMC	RA-03A1-2 (1.1.4.2)	/	/
☒Chamber C:Above 1GHz					
Horn Antenna	POAM	RTF-118A	1820	2023-03-10	2026-03-09
Amplifier	Tonscend	TAP01018050	AP22E806235	2024-02-27	2025-02-26
EMI Test Software (Radiated Emission C)	Farad	EZ-EMC	RA-03A1-2 (1.1.4.2)	/	/
☐Conducted Room 1#					

EMI Test Receiver	Rohde & Schwarz	ESCI	100525	2023-12-12	2024-12-11
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2024-02-24	2025-02-23
AC LISN	Schwarz beck	NSLK8126	8126-279	2024-02-24	2025-02-23
8-WIRE ISN CAT5	Schwarz beck	8158	CAT5-8158-0117	2024-02-24	2025-02-23
EMI Test Software (Conducted Emission Room 1#)	Farad	EZ-EMC	3A1*CE-RE 1.1.4.3	/	/
☒Conducted Room 2#					
EMI Test Receiver	Rohde & Schwarz	ESPI	101259	2024-02-24	2025-02-23
LISN	Rohde & Schwarz	ENV 216	100097	2024-02-24	2025-02-23
EMI Test Software (Conducted Emission Room 2#)	SKET	EMC-I	1.3.0.2	/	/
☒Radiated Electromagnetic Disturbances (9KHz-30MHz)					
Loop Antenna	ZHINAN	ZN30401	19037	2023-02-25	2025-02-24
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2023-02-25	2024-02-24
EMI Test Software (Radiated Electromagnetic Disturbances)	Farad	EZ-EMC	3A1*CE-RE 1.1.4.3	/	/
☒Harmonics &Flicker					
Digital Power Analyzer	California Instrument	CTS	72831	2024-02-24	2025-02-23
Power Source	California Instrument	5001IX-CTS-400	60077	2024-02-24	2025-02-23
Test Software (Harmonics &Flicker)	AMETEK	CTS4	4.30	/	/
☒Electrostatic discharges					
ESD Generator	LIONCEL	ESD-203B	0170901	2024-02-26	2025-02-25
☒Power-frequency magnetic field (PFMF)					
PMF Generator	LIONCEL	PMF-801C-C	0171101	2024-02-24	2025-02-23
PMF Antenna	LIONCEL	PMF-801C-A	0180302	2024-02-24	2025-02-23
Instantaneous PMF Generator Module	LIONCEL	PMF-801C-T	0171001	2024-02-24	2025-02-23
☒Electronic fast transient(EFT)/Surges/Dips					
Transient 2000	EMC PARTNER	TRA2000	836	2024-03-19	2025-03-18
Couple Clamp	EMC PARTNER	CN-EFT1000	513	2024-03-19	2025-03-18
☒Radio frequency, continuous conducted (C/S)					
CONDUCTED IMMUNITY TEST SYSTEM	FRANKONIA	CIT-10/75	126B1247/2013	2024-02-27	2025-02-26

Attenuator	EMTEST	MA-5100/6BF2	1009	2024-02-27	2025-02-26
CDN	Luthi	L-801M2/M3	2665	2024-02-27	2025-02-26
CDN	LIONCEL	CDN-T8	0210401	2024-02-24	2025-02-23
EM Clamp	TESEQ	KEMZ801A	45028	2024-02-26	2025-02-25
Test Software (Radio frequency, Continuous conducted)	SKET	EMC-S	V1.4.0.16	/	/
☒Radio frequency electromagnetic Field (R/S)					
Signal Generator	HP	8665B	3438A00604	2024-02-27	2025-02-26
Power Sensor	Agilent	E9301A	MY52450001	2024-02-27	2025-02-26
Power Sensor	Agilent	E9304A	MY55081055	2024-02-27	2025-02-26
RF Power Amplifier	MicoTop	MPA-80-1000-250	MPA1906239	2024-02-27	2025-02-26
RF Power Amplifier	MicoTop	MPA-1000-6000-100	MPA1906238	2024-02-27	2025-02-26
Antenna	SCHWARZBECK	STLP 9129	9129 114	/	/
Power Meter	Agilent	E4419B	GB42420578	2024-02-27	2025-02-26
Test Software (Radio frequency electromagnetic Field)	EMtrace	EM3	V1.2.6.2	/	/

2. SUMMARY OF TEST RESULTS

Standards	Description of Test Item	Result
EN IEC55015	Disturbance Voltages	Compliant
	Radiated Electromagnetic Disturbances (Frequency range 9kHz to 30MHz)	Compliant
	Radiated Electromagnetic Disturbances (Frequency range 30MHz to 1000MHz)	Compliant
EN IEC 61000-3-2	Harmonic Current Emission	Compliant
EN 61000-3-3	Voltage Fluctuation And Flicker	Compliant
EN 61547	Electrostatic Discharge Immunity in accordance with EN 61000-4-2	Compliant
	Radio-Frequency Electromagnetic Field Immunity in accordance with EN IEC 61000-4-3	Compliant
	Electrical Fast Transient/Burst Immunity in accordance EN 61000-4-4	Compliant
	Surges Immunity in accordance with EN 61000-4-5	Compliant
	Injected Currents Immunity in accordance with EN 61000-4-6	Compliant
	Power-frequency Magnetic Field Immunity in accordance with EN 61000-4-8	Compliant
	Voltage Dips/Interruptions Immunity in accordance with EN IEC 61000-4-11	Compliant

N/A: not applicable

3. Conducted Emission

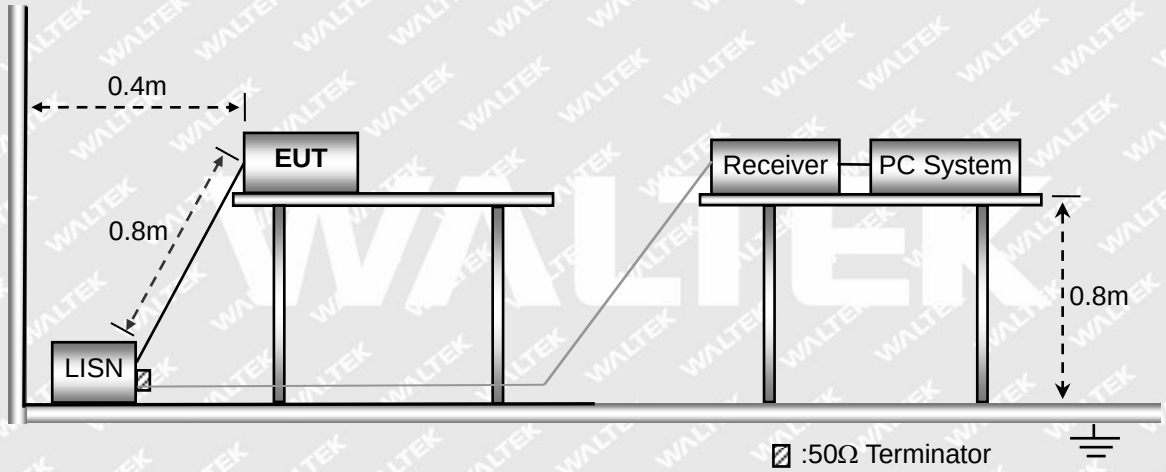
3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement:

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	9-150kHz ±3.74dB
		0.15-30MHz ±3.34dB

3.2 Basic Test Setup Block Diagram

AC port



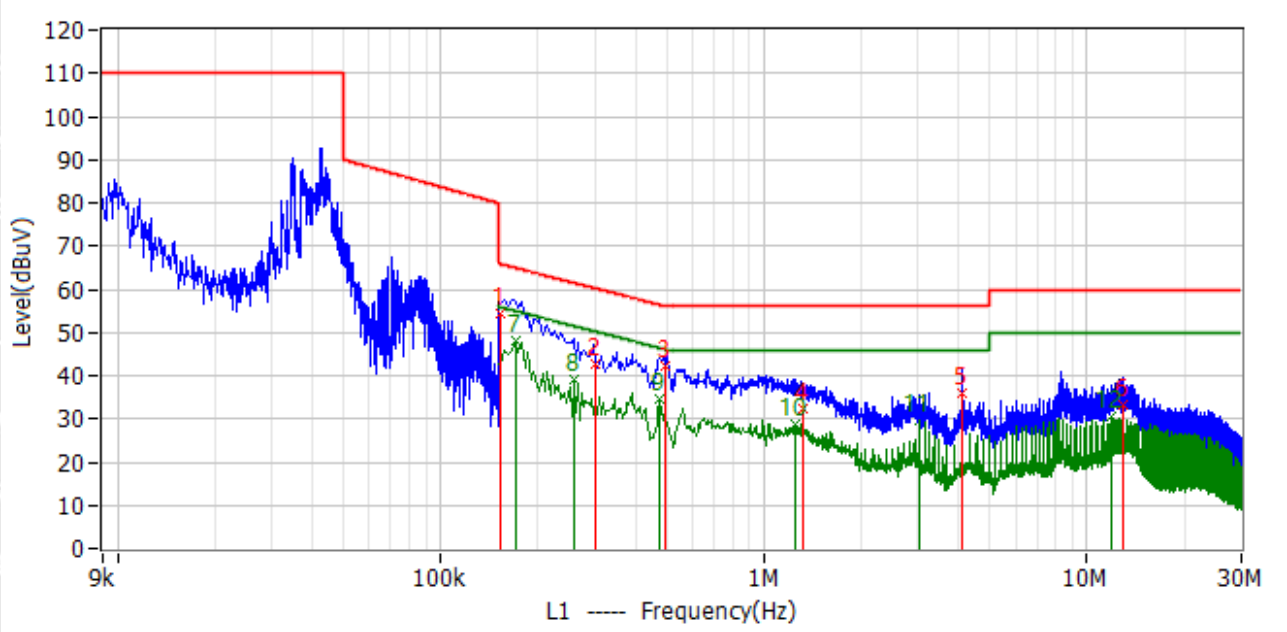
3.3 Environmental Conditions

Temperature:	25° C
Relative Humidity:	45%
ATM Pressure:	1015 mbar

3.4 Summary of Test Results

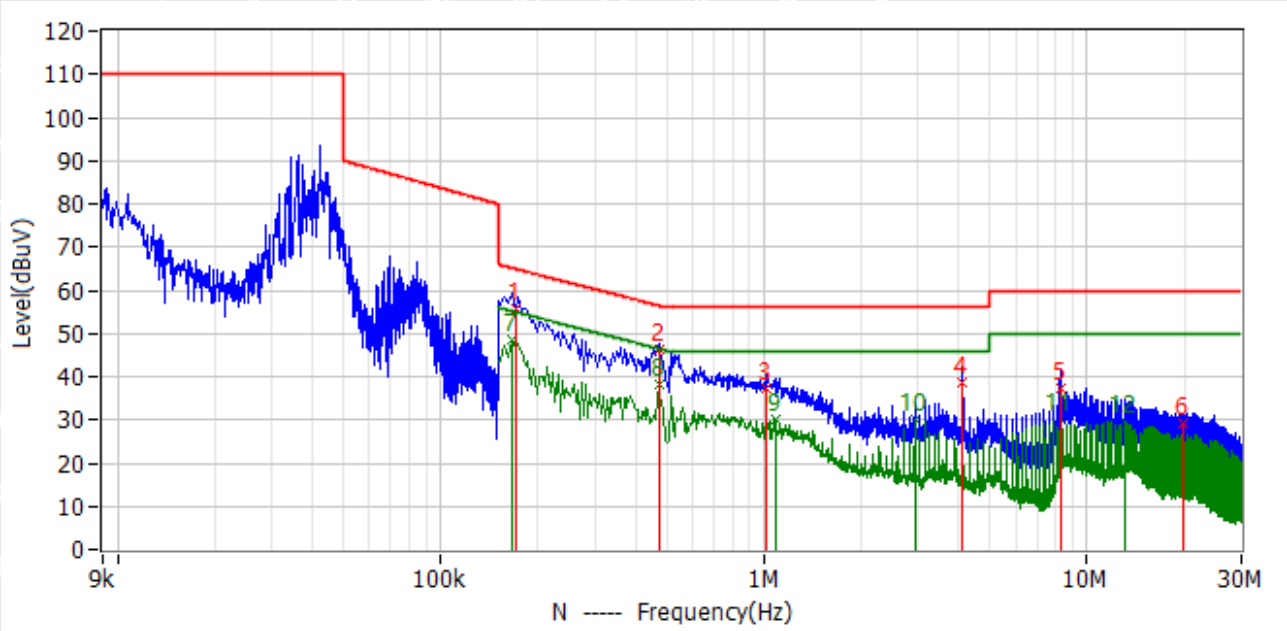
Please find the results below:

Test mode:	TM1	Polarity:	Line



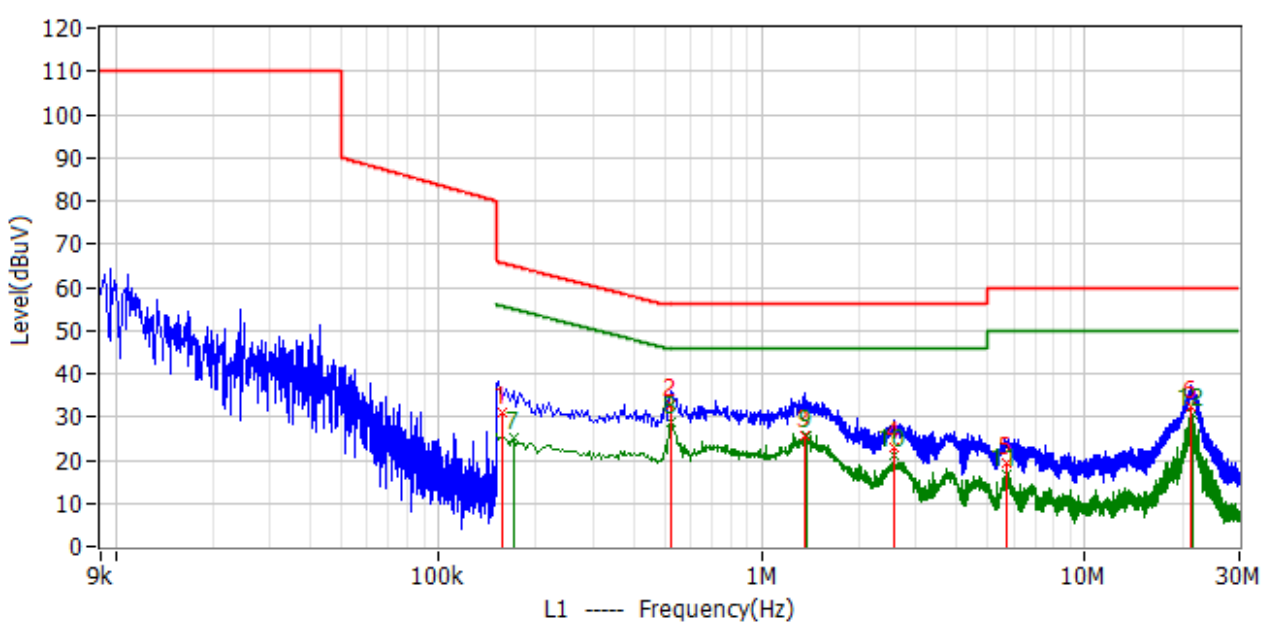
No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Delta dB	Detector
1	154.000kHz	44.4	9.9	54.3	65.8	-11.5	QP
2	302.000kHz	32.6	10.1	42.7	60.2	-17.5	QP
3	494.000kHz	32.5	9.7	42.2	56.1	-13.9	QP
4	1.326MHz	22.5	9.8	32.3	56.0	-23.7	QP
5	4.126MHz	26.2	9.9	36.1	56.0	-19.9	QP
6	13.002MHz	23.4	9.8	33.2	60.0	-26.8	QP
7*	170.000kHz	38.3	9.8	48.1	55.0	-6.9	AV
8*	258.000kHz	29.2	9.9	39.1	51.5	-12.4	AV
9*	474.000kHz	25.1	9.7	34.8	46.4	-11.6	AV
10*	1.254MHz	19.0	9.8	28.8	46.0	-17.2	AV
11*	3.034MHz	19.8	9.9	29.7	46.0	-16.3	AV
12*	11.918MHz	20.6	9.8	30.4	50.0	-19.6	AV

Test mode:	TM1	Polarity:	Neutral



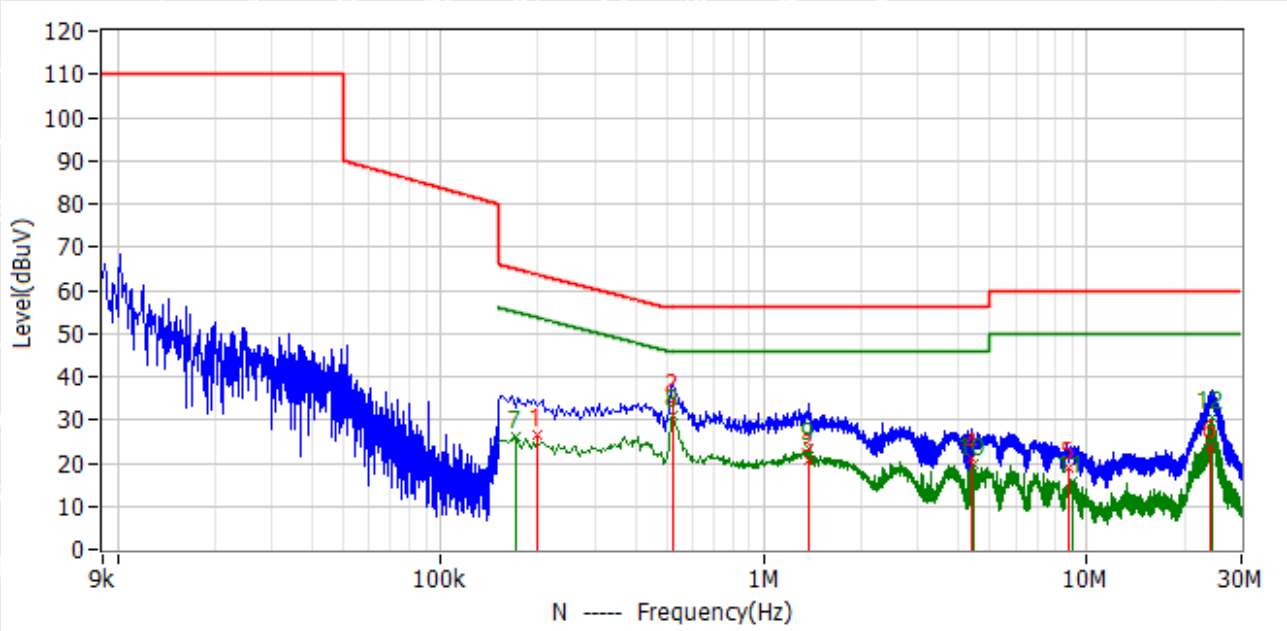
No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Delta dB	Detector
1	170.000kHz	45.9	9.7	55.6	65.0	-9.4	QP
2	474.000kHz	36.5	9.7	46.2	56.4	-10.2	QP
3	1.022MHz	27.5	9.7	37.2	56.0	-18.8	QP
4	4.122MHz	28.7	9.8	38.5	56.0	-17.5	QP
5	8.242MHz	27.6	9.9	37.5	60.0	-22.5	QP
6	19.946MHz	19.2	9.8	29.0	60.0	-31.0	QP
7*	166.000kHz	39.0	9.7	48.7	55.2	-6.5	AV
8*	474.000kHz	28.6	9.7	38.3	46.4	-8.1	AV
9*	1.082MHz	20.5	9.7	30.2	46.0	-15.8	AV
10*	2.930MHz	20.3	9.8	30.1	46.0	-15.9	AV
11*	8.242MHz	20.1	9.9	30.0	50.0	-20.0	AV
12*	13.014MHz	19.8	9.8	29.6	50.0	-20.4	AV

Test mode:	TM2	Polarity:	Line



No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Delta dB	Detector
1	158.000kHz	21.2	9.7	30.9	65.6	-34.7	QP
2	526.000kHz	23.0	9.7	32.7	56.0	-23.3	QP
3	1.350MHz	16.1	9.6	25.7	56.0	-30.3	QP
4	2.566MHz	13.1	9.6	22.7	56.0	-33.3	QP
5	5.686MHz	9.8	9.7	19.5	60.0	-40.5	QP
6	21.370MHz	22.2	10.1	32.3	60.0	-27.7	QP
7*	170.000kHz	15.3	9.7	25.0	55.0	-30.0	AV
8*	526.000kHz	19.2	9.7	28.9	46.0	-17.1	AV
9*	1.370MHz	16.2	9.6	25.8	46.0	-20.2	AV
10*	2.554MHz	11.4	9.6	21.0	46.0	-25.0	AV
11*	5.710MHz	6.8	9.7	16.5	50.0	-33.5	AV
12*	21.426MHz	20.4	10.1	30.5	50.0	-19.5	AV

Test mode:	TM2	Polarity:	Neutral



No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Delta dB	Detector
1	198.000kHz	16.8	9.5	26.3	63.7	-37.4	QP
2	522.000kHz	24.7	9.7	34.4	56.0	-21.6	QP
3	1.374MHz	11.0	9.6	20.6	56.0	-35.4	QP
4	4.402MHz	11.7	9.6	21.3	56.0	-34.7	QP
5	8.730MHz	9.1	9.7	18.8	60.0	-41.2	QP
6	24.154MHz	14.0	10.0	24.0	60.0	-36.0	QP
7*	170.000kHz	16.2	9.7	25.9	55.0	-29.1	AV
8*	522.000kHz	21.2	9.7	30.9	46.0	-15.1	AV
9*	1.374MHz	13.6	9.6	23.2	46.0	-22.8	AV
10*	4.446MHz	10.2	9.6	19.8	46.0	-26.2	AV
11*	8.974MHz	6.1	9.7	15.8	50.0	-34.2	AV
12*	24.538MHz	20.5	10.0	30.5	50.0	-19.5	AV

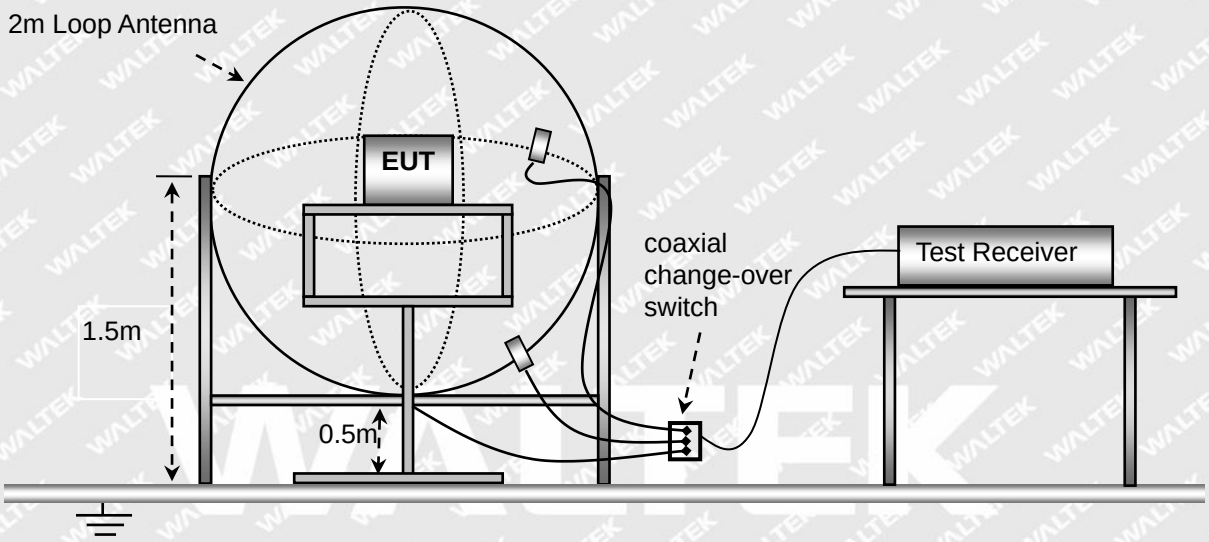
4. Radiated Electromagnetic Disturbances (9kHz to 30MHz)

4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 3.6 dB.

4.2 Basic Test Setup Block Diagram

The Radiation Electromagnetic Disturbance (9kHz to 30MHz) test was performed in accordance with the EN IEC 55015



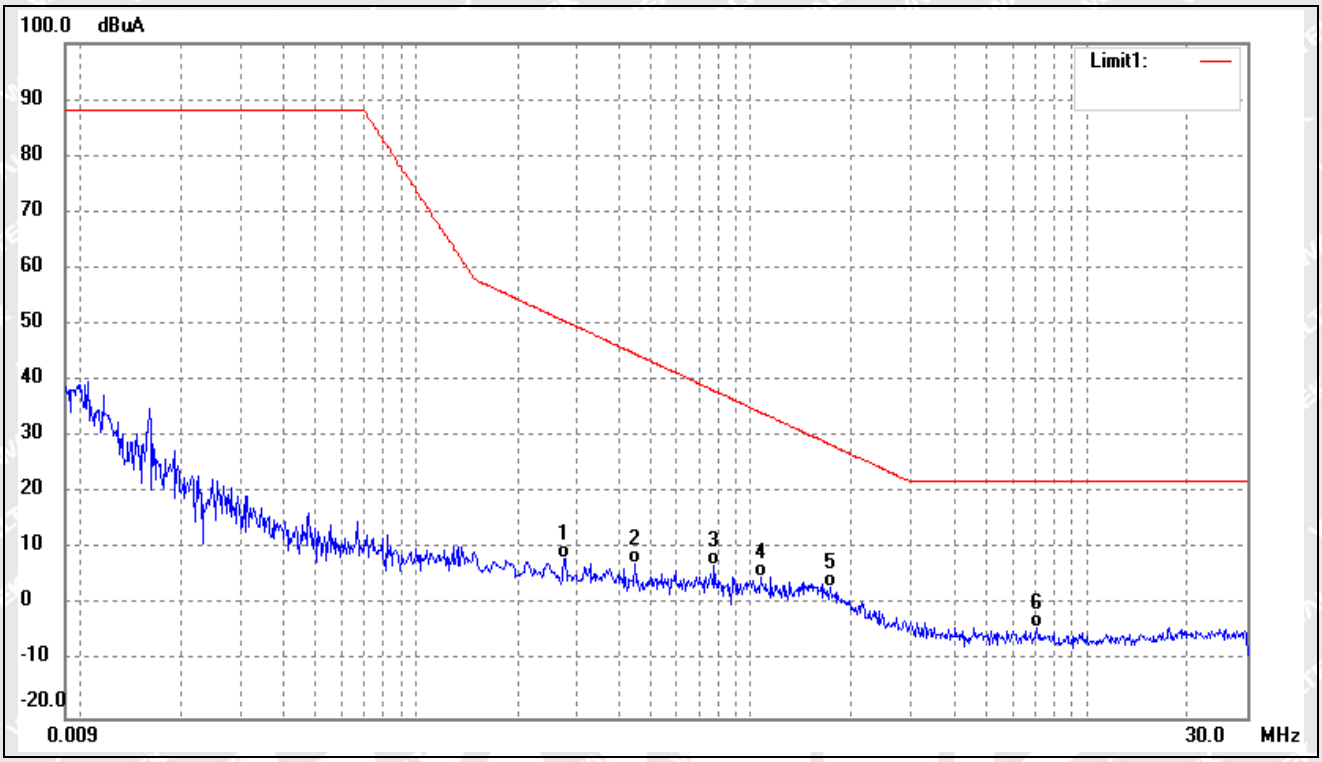
4.3 Environmental Conditions

Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1015 mbar

4.4 Summary of Test Results

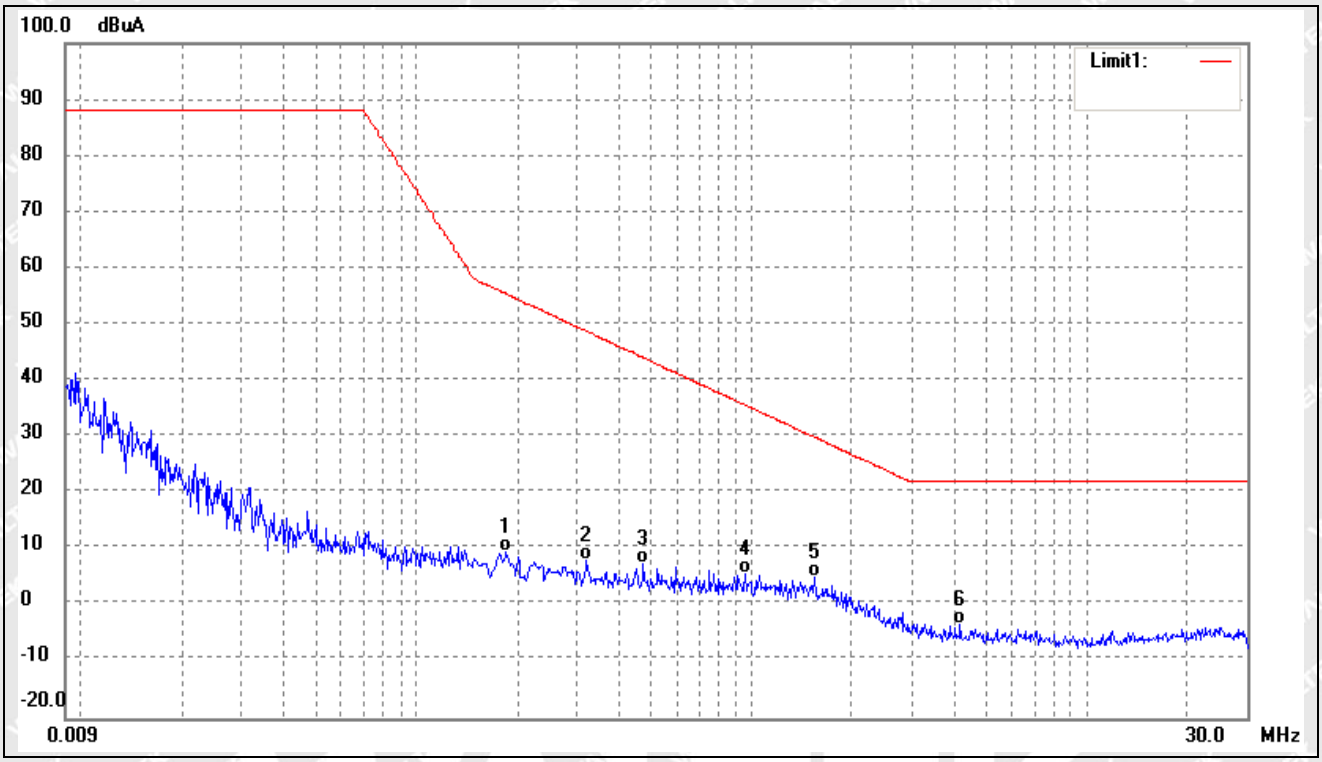
Please find the results below:

Test mode:	TM1	Polarity:	X



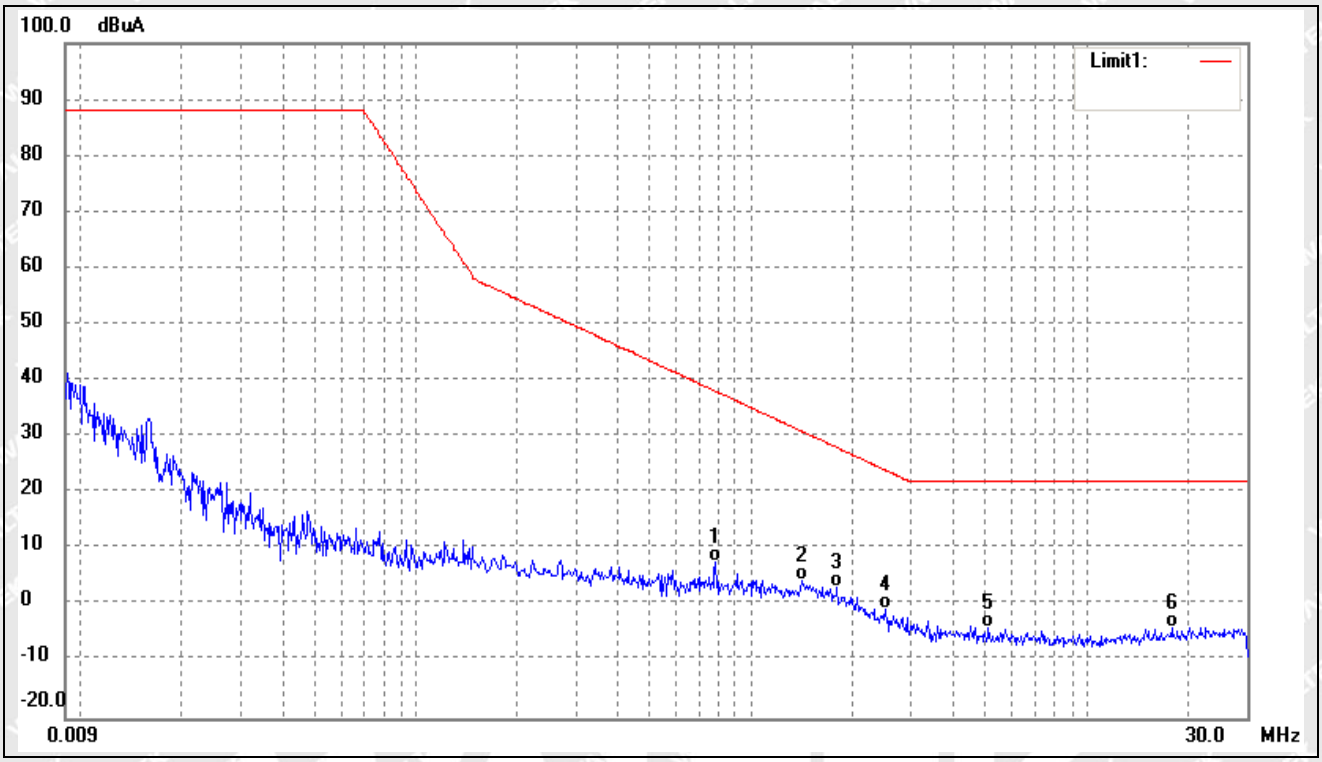
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuA)	(dB/m)	(dBuA)	(dBuA)	(dB)	
1	0.2779	-12.09	20.54	8.45	50.58	-42.13	QP
2	0.4500	-12.88	20.31	7.43	44.79	-37.36	QP
3	0.7740	-13.04	20.07	7.03	38.28	-31.25	QP
4	1.0620	-14.97	20.09	5.12	34.48	-29.36	QP
5*	1.7220	-17.15	20.42	3.27	28.67	-25.40	QP
6	7.1300	-24.42	20.53	-3.89	22.00	-25.89	QP

Test mode:	TM1	Polarity:	Y



No.	Frequency (MHz)	Reading (dBuA)	Correct (dB/m)	Result (dBuA)	Limit (dBuA)	Margin (dB)	Detector
1	0.1860	-11.35	20.79	9.44	55.41	-45.97	QP
2	0.3220	-12.28	20.48	8.20	48.82	-40.62	QP
3	0.4780	-12.86	20.28	7.42	44.07	-36.65	QP
4	0.9620	-14.33	20.06	5.73	35.67	-29.94	QP
5*	1.5460	-15.26	20.33	5.07	29.97	-24.90	QP
6	4.1860	-24.09	20.67	-3.42	22.00	-25.42	QP

Test mode:	TM1	Polarity:	Z



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuA)	(dB/m)	(dBuA)	(dBuA)	(dB)	
1	0.7820	-12.40	20.07	7.67	38.16	-30.49	QP
2	1.4140	-15.96	20.27	4.31	31.04	-26.73	QP
3	1.7980	-17.25	20.46	3.21	28.15	-24.94	QP
4*	2.5100	-21.28	20.59	-0.69	24.14	-24.83	QP
5	5.0780	-24.54	20.71	-3.83	22.00	-25.83	QP
6	17.9940	-25.15	21.06	-4.09	22.00	-26.09	QP

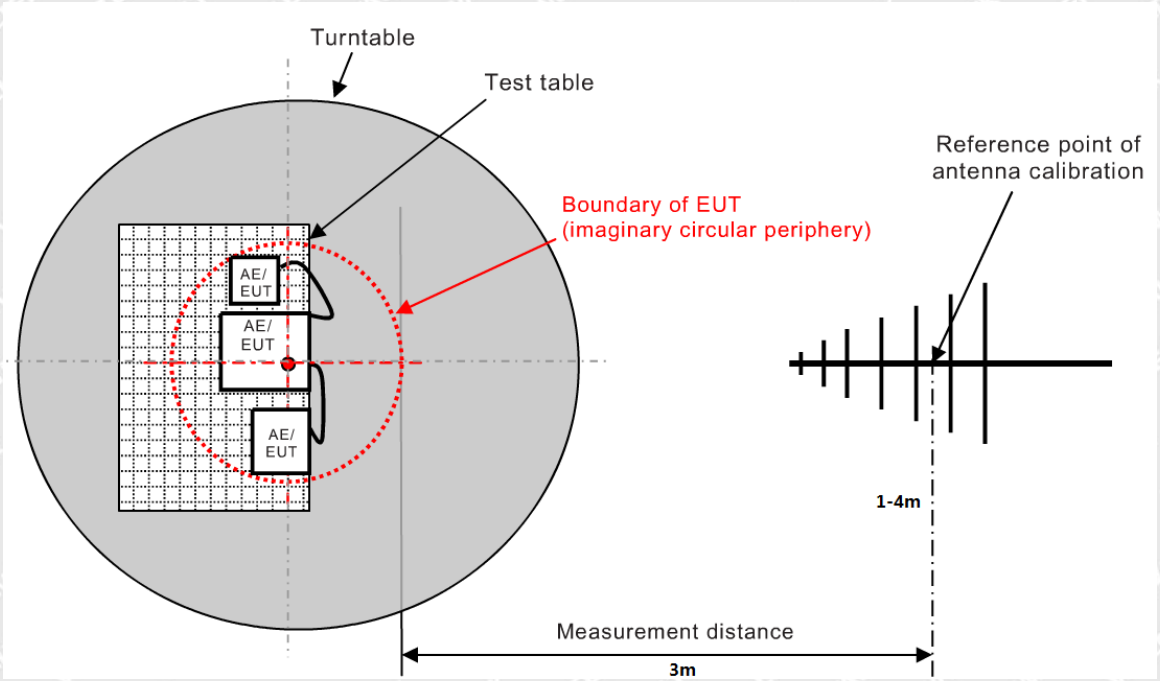
5. Radiated Electromagnetic Disturbances (30MHz to 1000MHz)

5.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement:

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Radiated Emissions	Radiated	30-200MHz ±4.52dB
		0.2-1GHz ±5.56dB
		1-6GHz ±3.84dB
		6-18GHz ±3.92dB

5.2 Basic Test Setup Block Diagram



5.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Correct

Correct=Ant.Factor + Cable Loss - Ampl.Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for a lighting device. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – EN IEC 55015 Limit

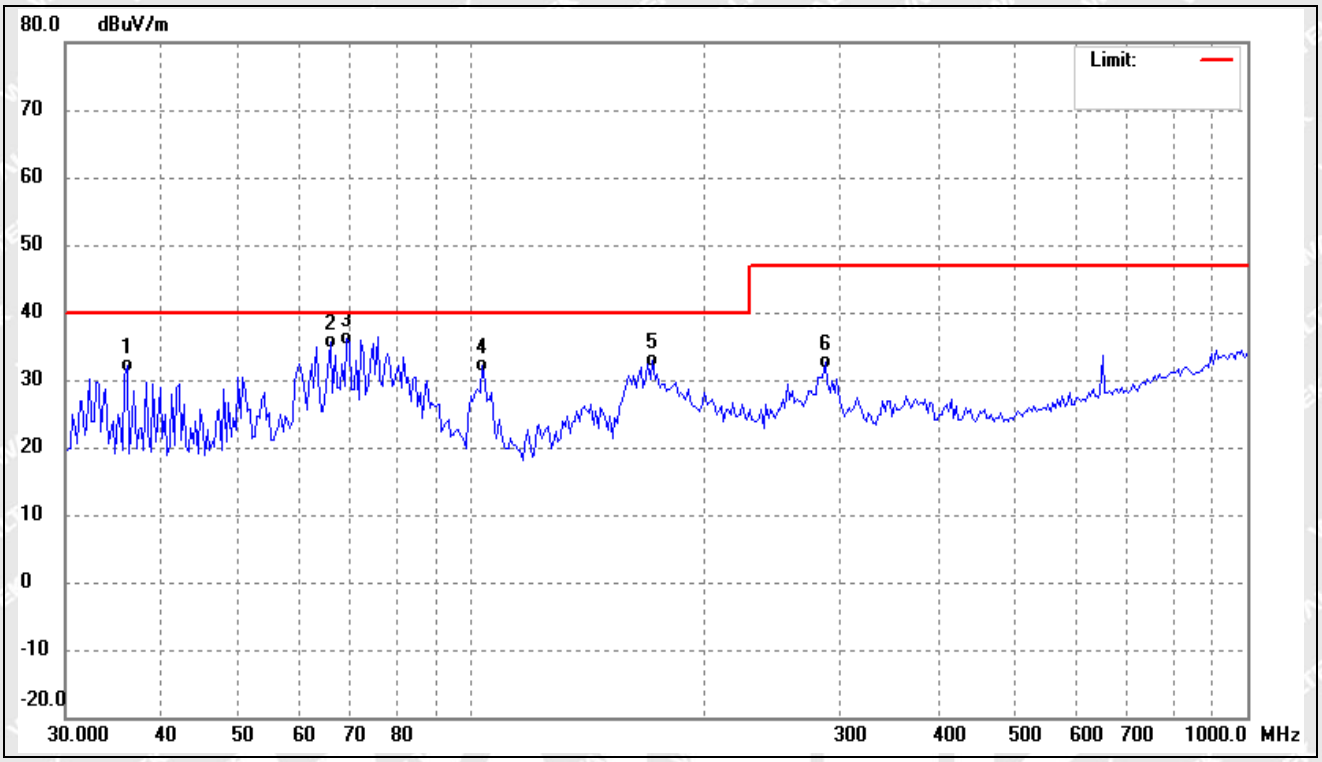
5.4 Environmental Conditions

Temperature:	22.5 ° C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

5.5 Summary of Test Results

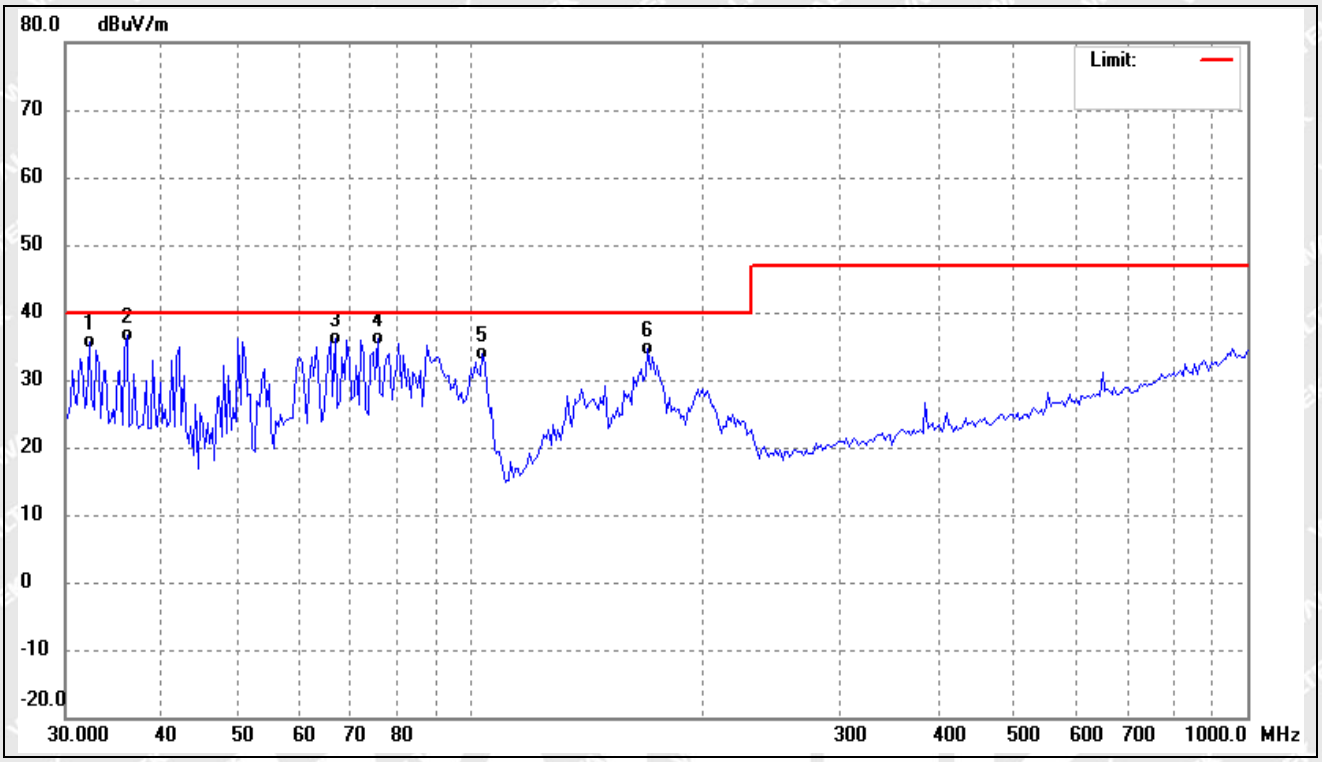
Please find the results below:

Test mode:	TM1	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	36.0138	40.93	-8.80	32.13	40.00	-7.87	-	-	QP
2	65.9067	45.25	-9.51	35.74	40.00	-4.26	-	-	QP
3	69.2297	46.14	-10.11	36.03	40.00	-3.97	-	-	QP
4	103.3353	43.83	-11.68	32.15	40.00	-7.85	-	-	QP
5	171.3889	41.42	-8.51	32.91	40.00	-7.09	-	-	QP
6	286.2652	40.81	-8.30	32.51	47.00	-14.49	-	-	QP

Test mode:	TM1	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	32.1840	44.95	-9.37	35.58	40.00	-4.42	-	-	QP
2	36.0139	45.42	-8.80	36.62	40.00	-3.38	-	-	QP
3	66.8395	45.87	-9.67	36.20	40.00	-3.80	-	-	QP
4	75.8520	47.76	-11.54	36.22	40.00	-3.78	-	-	QP
5	103.3353	45.64	-11.68	33.96	40.00	-6.04	-	-	QP
6	168.9970	42.93	-8.29	34.64	40.00	-5.36	-	-	QP

Remark:‘-’Means’ the test Degree and Height are not recorded by the test software and only show the worst case in the test report.

6. Harmonic Current Emissions

6.1 Test Procedure

Test is conducted under the description of EN IEC 61000-3-2.

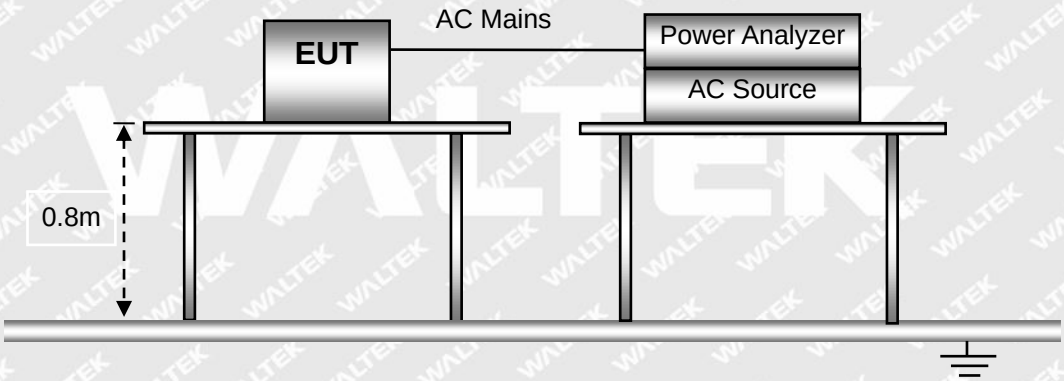
6.2 Test Standards

EN IEC 61000-3-2, Clause 7.4 Limits for Class C equipment.

6.3 Environmental Conditions

Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1022 mbar

6.4 Basic Test Setup Block Diagram



6.5 Harmonic Current Emissions Test Data

Harmonics – Class-C (>=5W and <= 25W)

Test category: Class-C (European limits) **Test Margin: 100**

Test date: 2024/7/8 **Start time: 11:32:54** **End time: 11:35:35**

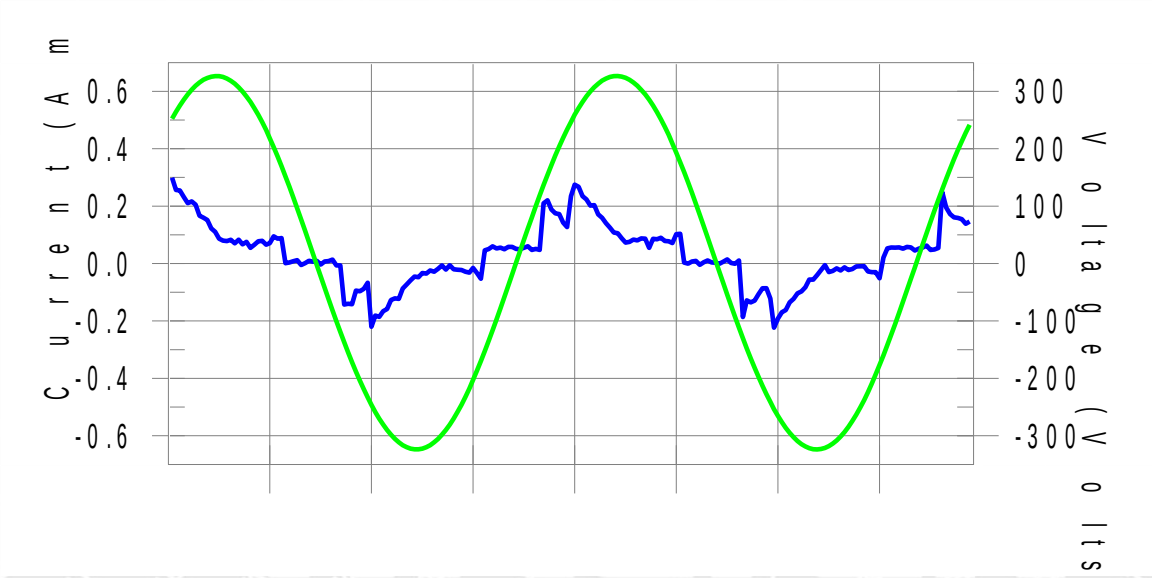
Test duration (min): 2.5 **Data file name: H-000077.cts_data**

Comment: Comments

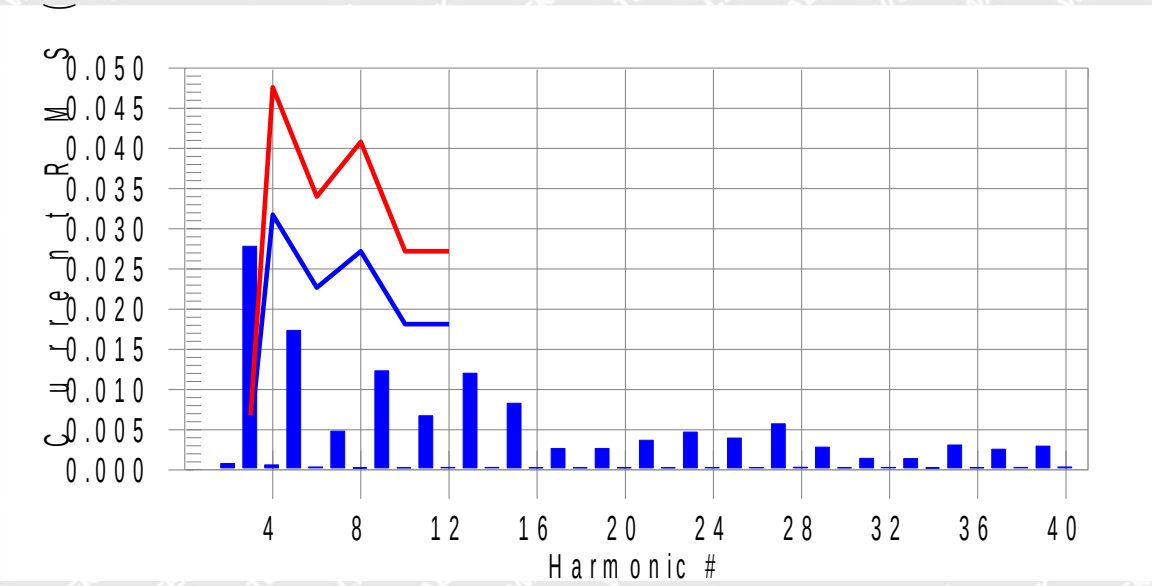
Customer: Customer information

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class C(70% THD with associated harmonic limits) **European Limits**



Test result: Pass THD & Harmonics < limit

Current Test Result Summary (Run time)

Test category: Class-C (European limits) **Test Margin: 100**
Test date: 2024/7/8 **Start time: 11:32:54** **End time: 11:35:35**
Test duration (min): 2.5 **Data file name: H-000077.cts_data**
Comment: Comments
Customer: Customer information

Test Result: Pass **Source qualification: Normal**

THC(A): 0.041 **I-THD(%): 44.8** **POHC: N/A** **POHC Limit: N/A**

Highest parameter values during test:

V_RMS (Volts):	230.07	Frequency (Hz):	
I_Peak (Amps):	0.333	I_RMS (Amps):	0.107
I_Fund (Amps):	0.091	Crest Factor:	3.503
Power (Watts):	17.5	Power Factor:	0.762

Harm#	Harms	100%Limit	%of Limit	
2	0.79	4.54	17.4	Pass
3	27.83	31.75	87.7	Pass
5	17.36	22.68	76.6	Pass
7	4.81	27.21	17.7	Pass
9	12.34	18.14	68.0	Pass
11	6.74	18.14	37.2	Pass

THD : 44.76 % **Limit : 70 %** **Pass**

Waveform fails phase angle spec :

Peak current (Ipeak) = 333.16 mA (333.16 mA absolute)
Peak current max. phase angle = 58 degree (Pos) **Pass**

Min. Current at 60 deg (I_60) = -148.73 mA (Neg) **Limit = 16.66 mA** **Pass**

I_h3 : 27.83 **Limit : 78.01** **Pass**

I_h5 : 17.36 **Limit : 55.33** **Pass**

Voltage Source Verification Data (Run time)

Test category: Class-C (European limits) **Test Margin: 100**
Test date: 2024/7/8 **Start time: 11:32:54** **End time: 11:35:35**
Test duration (min): 2.5 **Data file name: H-000077.cts_data**
Comment: Comments
Customer: Customer information

Test Result: Pass **Source qualification: Normal**

Highest parameter values during test:

Voltage (Vrms):	**230.07**	**Frequency(Hz):**	
I_Peak (Amps):	**0.333**	**I_RMS (Amps):**	**0.107**
I_Fund (Amps):	**0.091**	**Crest Factor:**	**3.503**
Power (Watts):	**18.5**	**Power Factor:**	**0.762**

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.063	0.460	13.71	OK
3	0.504	2.070	24.32	OK
4	0.081	0.460	17.64	OK
5	0.067	0.920	7.30	OK
6	0.033	0.460	7.16	OK
7	0.034	0.690	4.91	OK
8	0.014	0.460	3.14	OK
9	0.016	0.460	3.52	OK
10	0.011	0.460	2.38	OK
11	0.010	0.230	4.38	OK
12	0.011	0.230	4.82	OK
13	0.015	0.230	6.43	OK
14	0.007	0.230	2.84	OK
15	0.018	0.230	7.77	OK
16	0.009	0.230	3.73	OK
17	0.015	0.230	6.50	OK
18	0.010	0.230	4.55	OK
19	0.011	0.230	4.70	OK
20	0.016	0.230	6.97	OK
21	0.007	0.230	3.13	OK
22	0.004	0.230	1.71	OK
23	0.010	0.230	4.13	OK
24	0.003	0.230	1.51	OK
25	0.007	0.230	3.08	OK
26	0.003	0.230	1.24	OK

27	**0.012**	**0.230**	**5.24**	**OK**
28	**0.005**	**0.230**	**2.13**	**OK**
29	**0.012**	**0.230**	**5.42**	**OK**
30	**0.004**	**0.230**	**1.64**	**OK**
31	**0.006**	**0.230**	**2.81**	**OK**
32	**0.003**	**0.230**	**1.27**	**OK**
33	**0.005**	**0.230**	**2.09**	**OK**
34	**0.003**	**0.230**	**1.19**	**OK**
35	**0.008**	**0.230**	**3.36**	**OK**
36	**0.003**	**0.230**	**1.43**	**OK**
37	**0.006**	**0.230**	**2.48**	**OK**
38	**0.003**	**0.230**	**1.28**	**OK**
39	**0.007**	**0.230**	**3.20**	**OK**
40	**0.009**	**0.230**	**3.93**	**OK**

7. Voltage Fluctuation Flicker

7.1 Test Procedure

Test is conducted under the description of EN 61000-3-3.

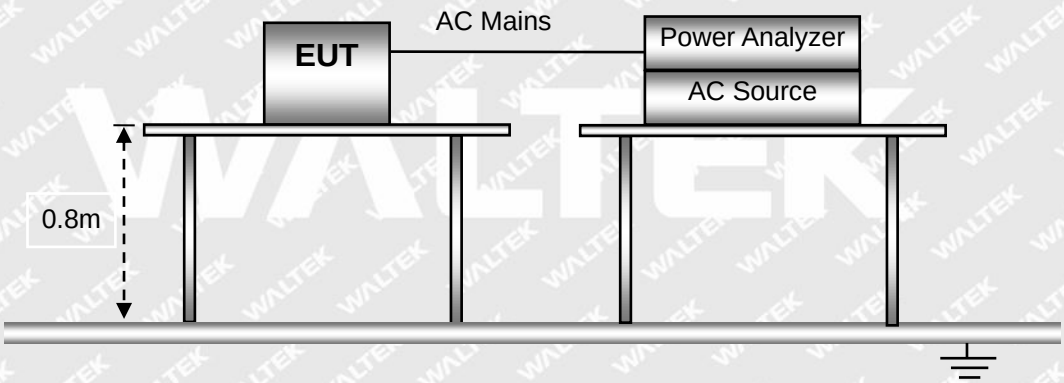
7.2 Test Standards

EN 61000-3-3, Limit: Clause 5.

7.3 Environmental Conditions

Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1022 mbar

7.4 Basic Test Setup Block Diagram

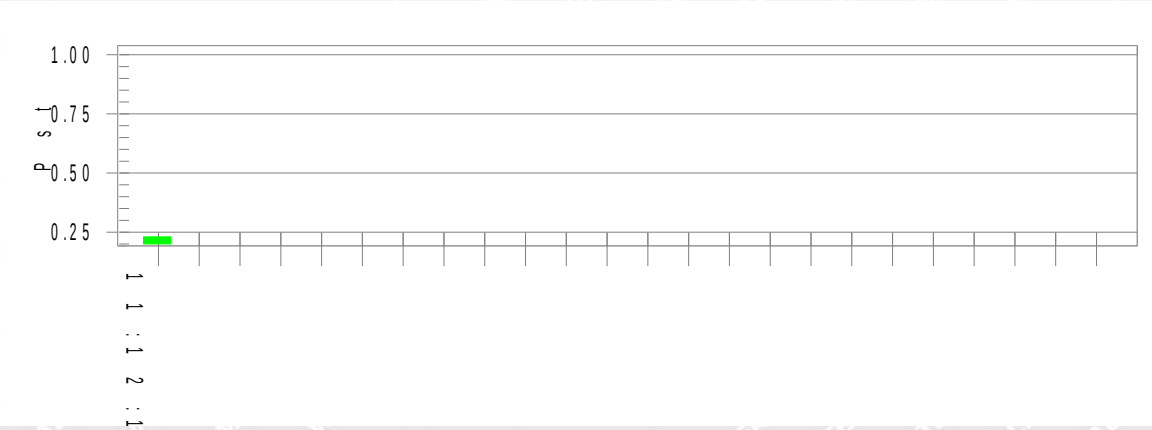


7.5 Voltage Fluctuation and Flicker Test Data

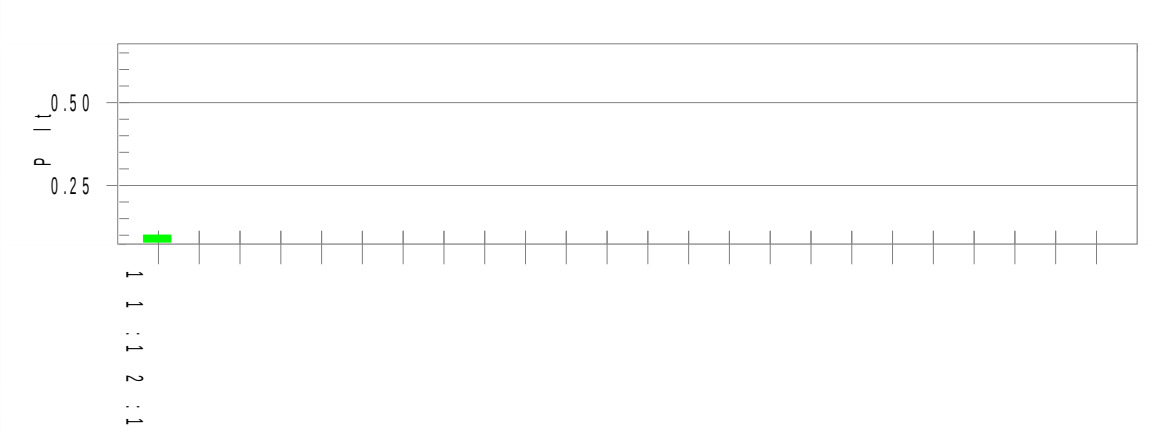
Test mode:	TM1

Test Result: Pass **Status: Test Completed**

Pst_1 and limit line **European Limits**



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 230.00

Highest dt (%):		**Test limit (%):**		
T-max (mS):	**0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.00**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.230**	**Test limit:**	**1.000**	**Pass**
Highest Plt (2 hr. period):	**0.101**	**Test limit:**	**0.650**	**Pass**

8. Electrostatic Discharges (ESD)

8.1 Test Procedure

Test is conducted under the description of EN 61000-4-2.

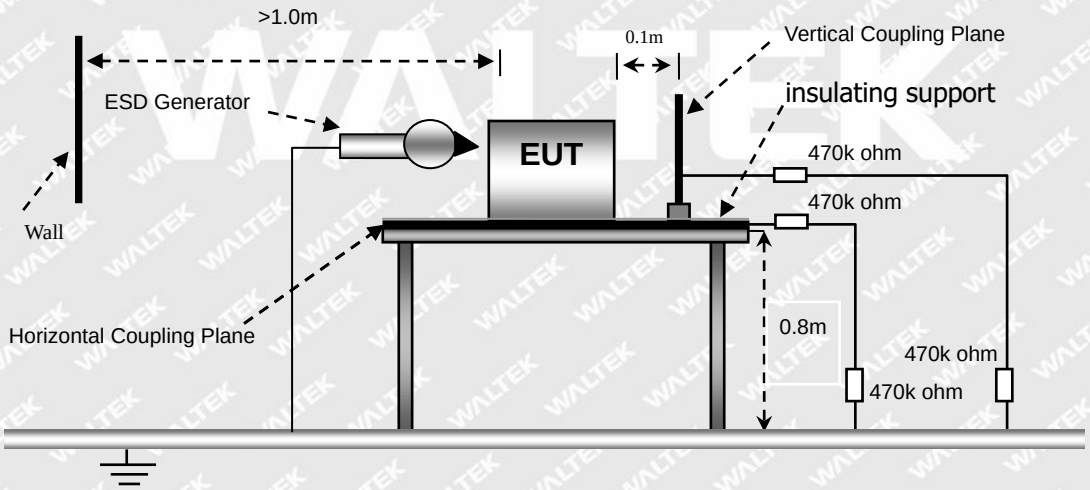
8.2 Test Performance

Performance Criterion: B

8.3 Environmental Conditions

Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

8.4 Basic Test Setup Block Diagram



8.5 Electrostatic Discharge Immunity Test Data

Test Mode: TM1, TM2

Table 1: Electrostatic Discharge Immunity (Air Discharge)

EN 61000-4-2	Test Voltage (kV)									
Test Points	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
MIC port	A	A	A	A	A	A	B	B	/	/
Button	A	A	A	A	A	A	A	A	/	/
Enclosure	A	A	A	A	A	A	A	A	/	/

Table 2: Electrostatic Discharge Immunity (Direct Contact)

EN 61000-4-2	Test Voltage (kV)									
Test Points	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
/	/	/	/	/	/	/	/	/	/	/

Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP & VCP)

EN 61000-4-2	Test Voltage (kV)									
Test Points	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
HCP (6 Sides)	A	A	A	A	/	/	/	/	/	/
VCP (4 Sides)	A	A	A	A	/	/	/	/	/	/

Test Result: Pass

9. Continuous RF electromagnetic field Disturbances (RS)

9.1 Test Procedure

Test is conducted under the description of EN IEC 61000-4-3.

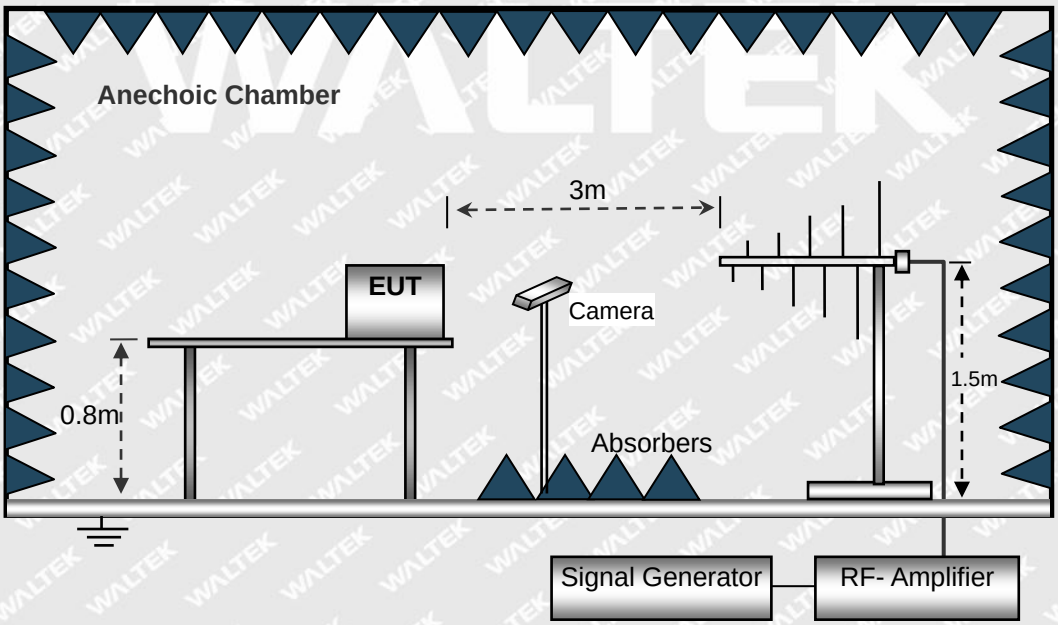
9.2 Test Performance

Performance Criterion: A

9.3 Environmental Conditions

Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1010 mbar

9.4 Basic Test Setup Block Diagram



9.5 Continuous Radiated Disturbances Test Data

Frequency step: 1% of fundamental
Dwell time: 1 second
Modulation: AM by 1kHz sine wave with 80% modulation depth
Test Mode: TM1, TM2

Frequency Range(MHz)	Field (V/m)	Front		Rear		Left Side		Right Side	
		VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	3	A	A	A	A	A	A	A	A

Test Result: Pass

10. Electrical Fast Transients (EFT)

10.1 Test Procedure

Test is conducted under the description of EN 61000-4-4.

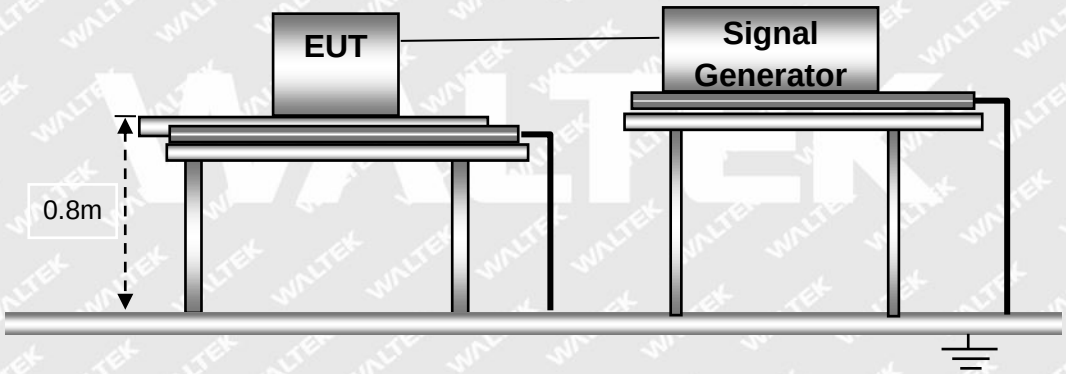
10.2 Test Performance

Performance Criterion: B

10.3 Environmental Conditions

Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

10.4 Basic Test Setup Block Diagram



10.5 Electrical Fast Transients Test Data

Test Mode: TM1, TM2

EN 61000-4-4 Test Points		Test Voltage (kV)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
Power Supply Power Port of EUT	L	/	/	A	A	/	/	/	/
	N	/	/	A	A	/	/	/	/
	PE	/	/	/	/	/	/	/	/
	L+N	/	/	A	A	/	/	/	/
	L+PE	/	/	/	/	/	/	/	/
	N+PE	/	/	/	/	/	/	/	/
	L+N+PE	/	/	/	/	/	/	/	/
Signal ports	RJ45	/	/	/	/	/	/	/	/

Test Result: Pass

11. Surges

11.1 Test Procedure

Test is conducted under the description of EN 61000-4-5.

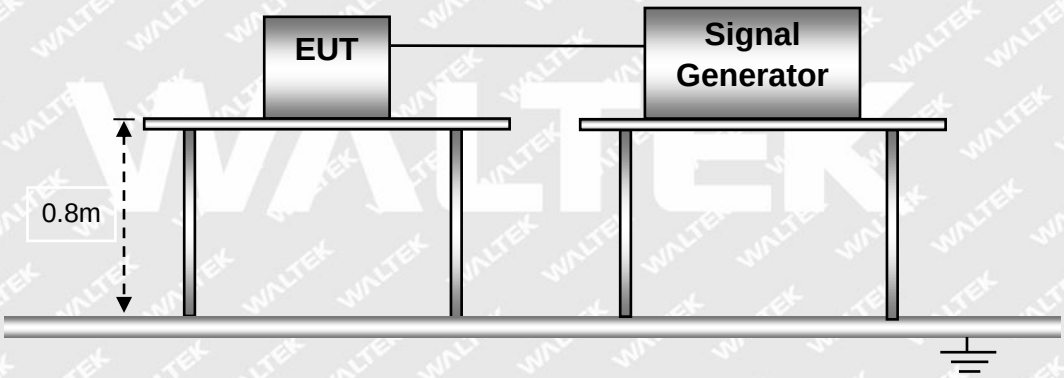
11.2 Test Performance

Performance Criterion: C

11.3 Environmental Conditions

Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

11.4 Basic Test Setup Block Diagram



11.5 Surge Test Data

Test Mode: TM1, TM2

Test Voltage	Poll	Path	Pass	Fail
0.5kV	±	L-N	A	/
1kV	±	L-N	/	/
2kV	±	L-PE, N-PE	/	/
4kV	±	L-N, L-PE, N-PE	/	/

Test Result: Pass

12. Continuous Induced RF Disturbances (C/S)

12.1 Test Procedure

Test is conducted under the description of EN 61000-4-6.

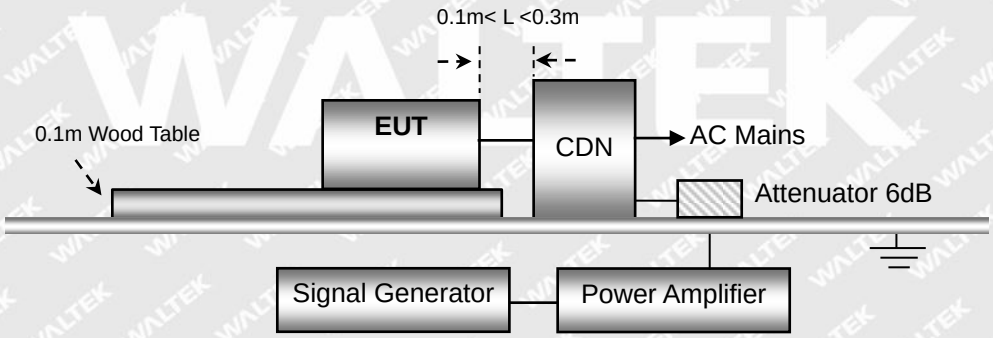
12.2 Test Performance

Performance Criterion: A

12.3 Environmental Conditions

Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

12.4 Basic Test Setup Block Diagram



12.5 Continuous Conducted Disturbances Test Data

Sweep frequency range: 0.15 MHz to 80 MHz
Frequency step: 1% of fundamental
Dwell time: 1 second
Test Mode: TM1, TM2
AC Port

Frequency MHz	Injected Position	Voltage level (e.m.f.)	Observations (Performance Criterion)	Result
0.15-80	AC Mains	1V	/	/
0.15-80	AC Mains	3V	A	Pass
0.15-80	AC Mains	10V	/	/

Test Result: Pass

13. Power-Frequency Magnetic Fields (PFMF)

13.1 Test Procedure

Test is conducted under the description of EN 61000-4-8.

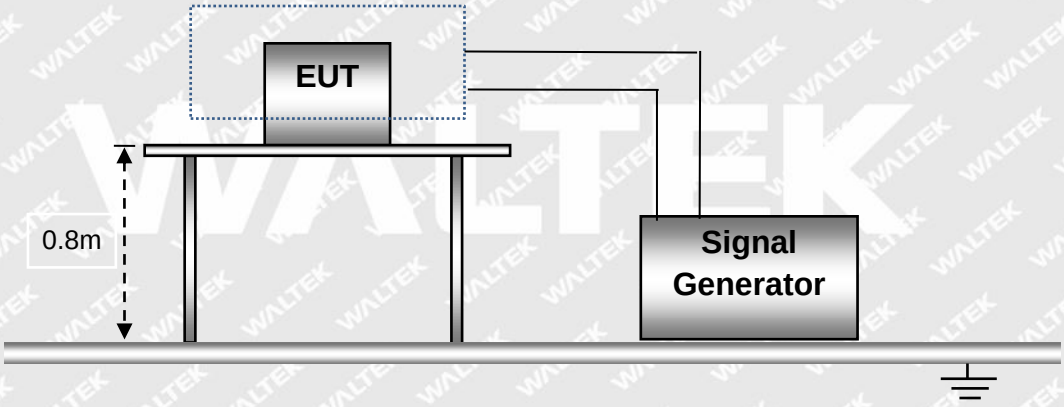
13.2 Test Performance

Performance Criterion: A

13.3 Environmental Conditions

Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

13.4 Basic Test Setup Block Diagram



13.5 Power-Frequency Magnetic Field Test Data

Test Mode: TM1, TM2

Level	Magnetic Field Strength (r.m.s) A/m	Frequency Hz	Induction Coil Postion	Pass	Fail
1	1	50/60	X, Y, Z	/	/
2	3	50/60	X, Y, Z	A	/
3	10	50/60	X, Y, Z	/	/
X	Special	/	/	/	/

Test Result: Pass

14. Voltage Dips and Interruptions

14.1 Test Procedure

Test is conducted under the description of EN IEC 61000-4-11.

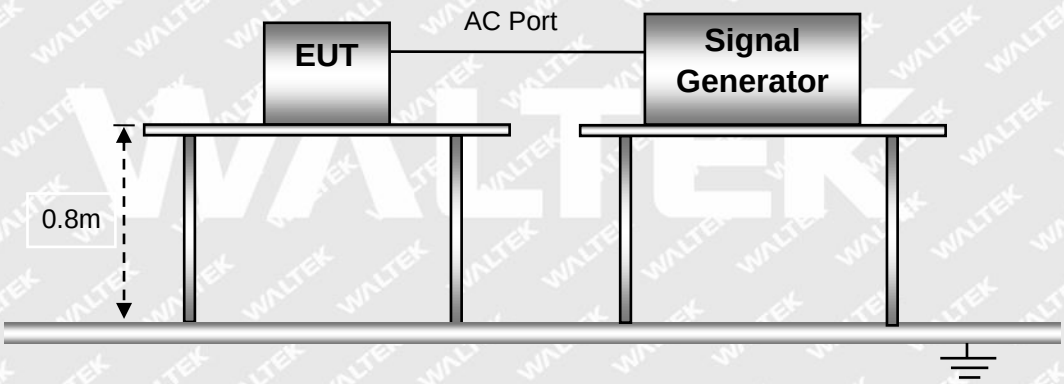
14.2 Test Performance

Performance Criterion: B/C

14.3 Environmental Conditions

Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

14.4 Basic Test Setup Block Diagram



14.5 Voltage Dips And Interruptions Test Data

Test Mode: TM1, TM2

U: Vlotage dips in % U_T (U_T is rated voltage for the EUT)

T: Test duration

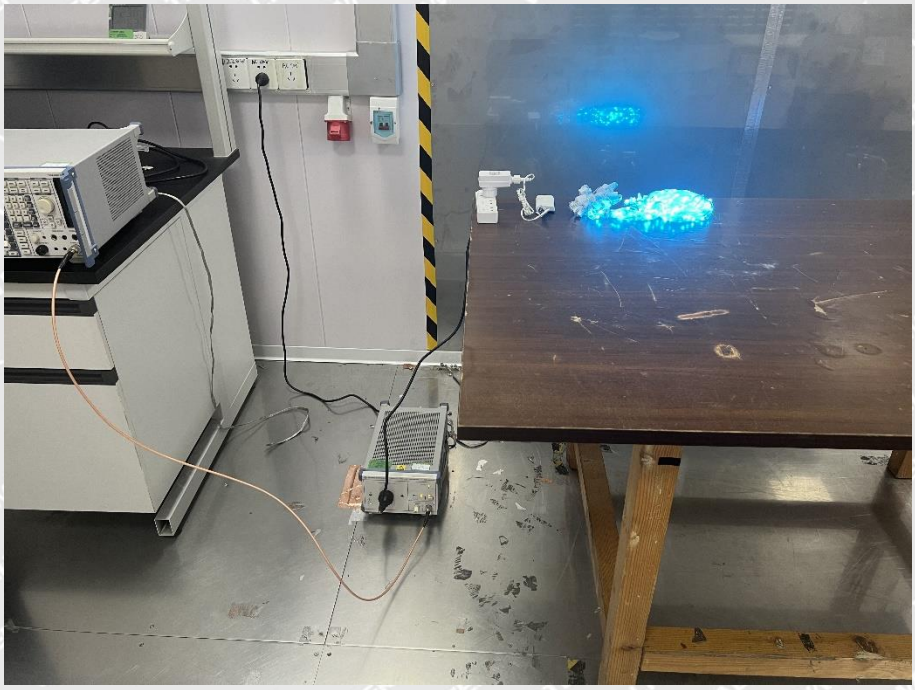
Level	U	T	Phase Angle	N	Pass	Fail
1	30%	200ms	0/90/180/270	3	B	/
2	100%	10ms	0/90/180/270	3	A	/

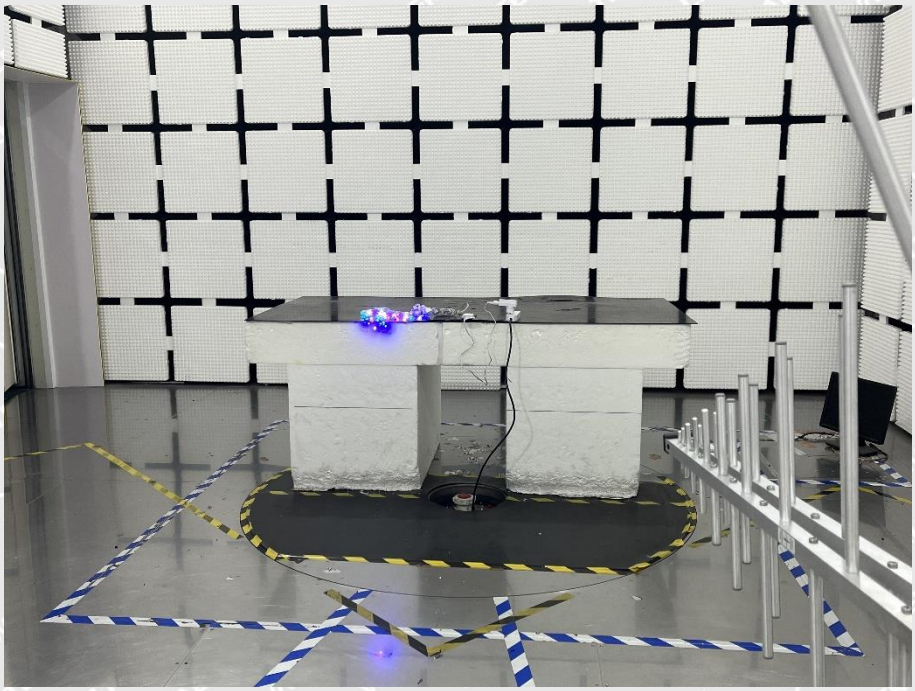
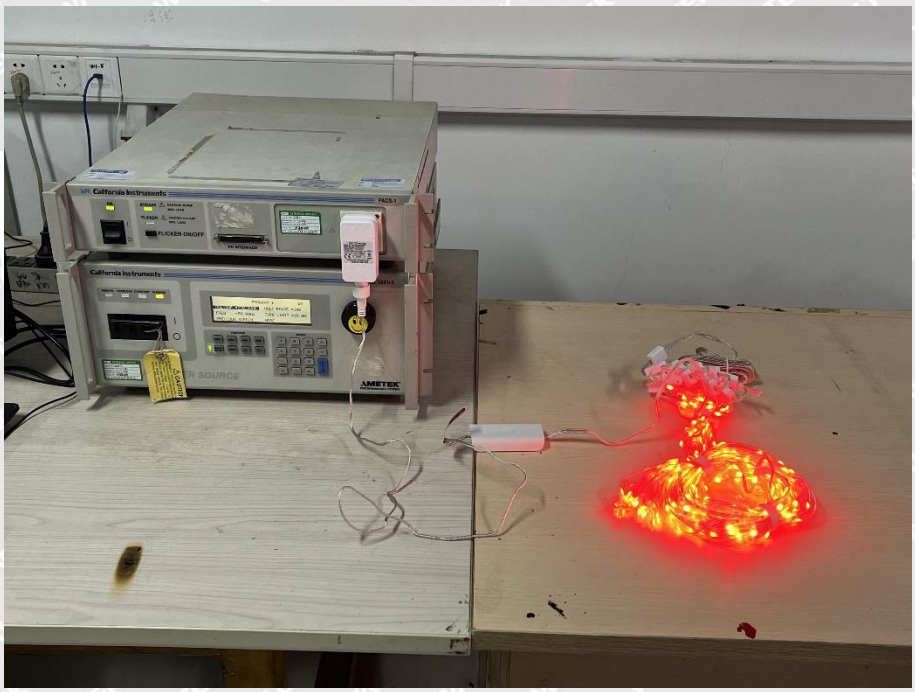
Test Result: Pass

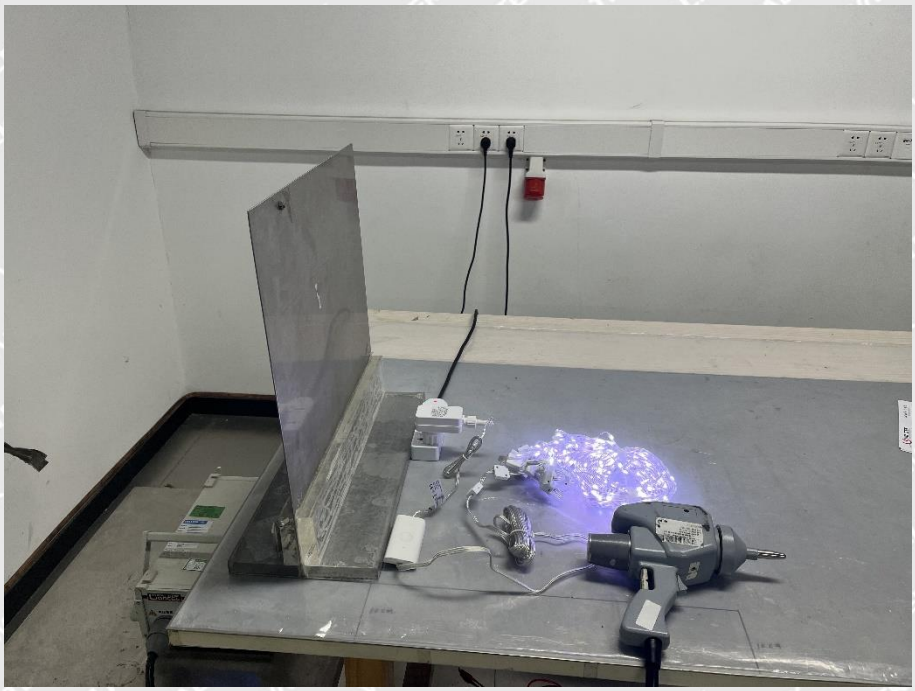
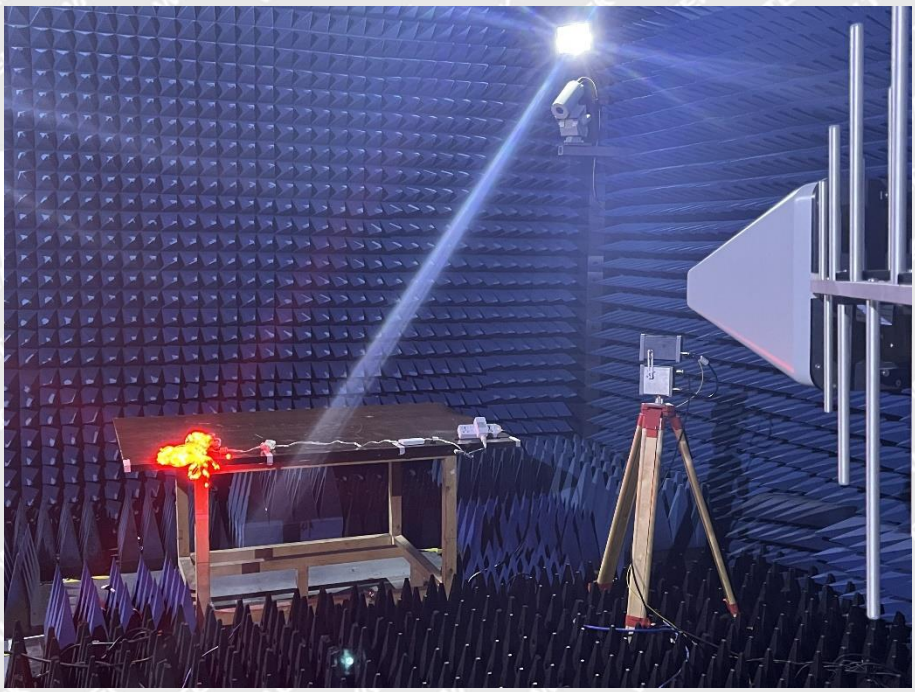
EXHIBIT 1 - EUT PHOTOGRAPHS

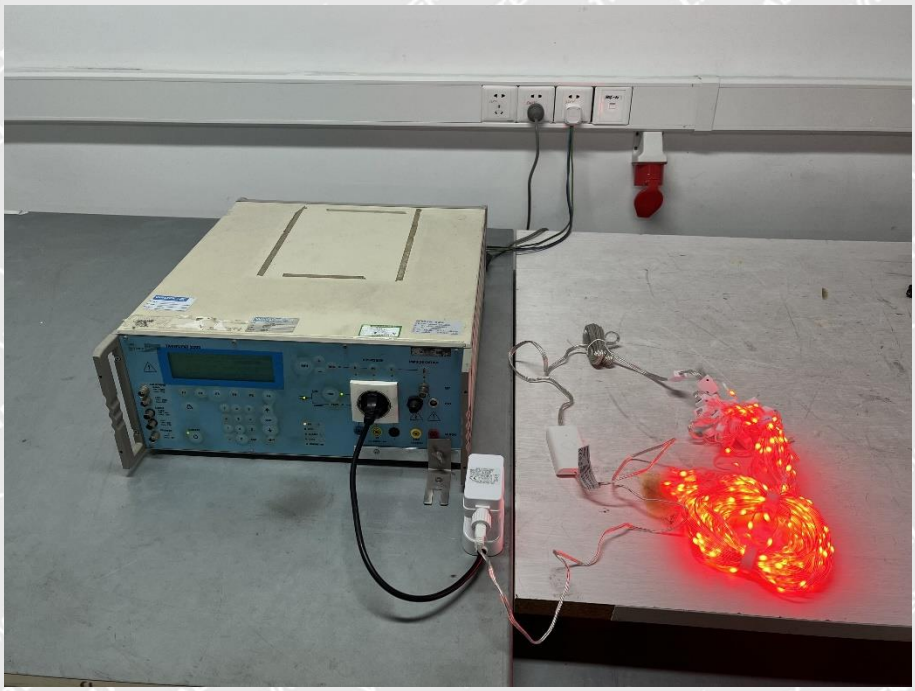
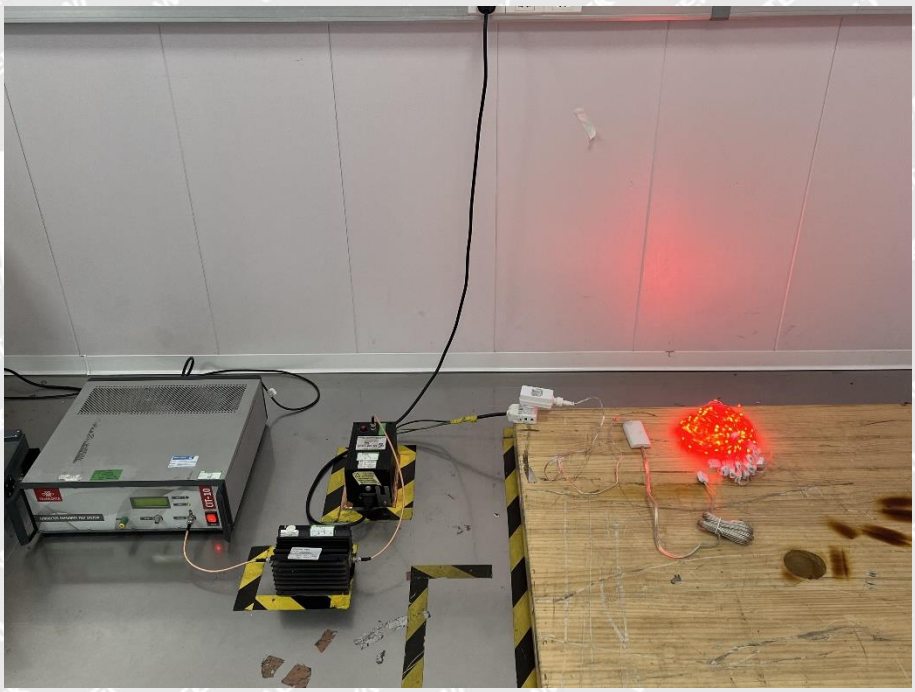
Please refer to “ANNEX”.

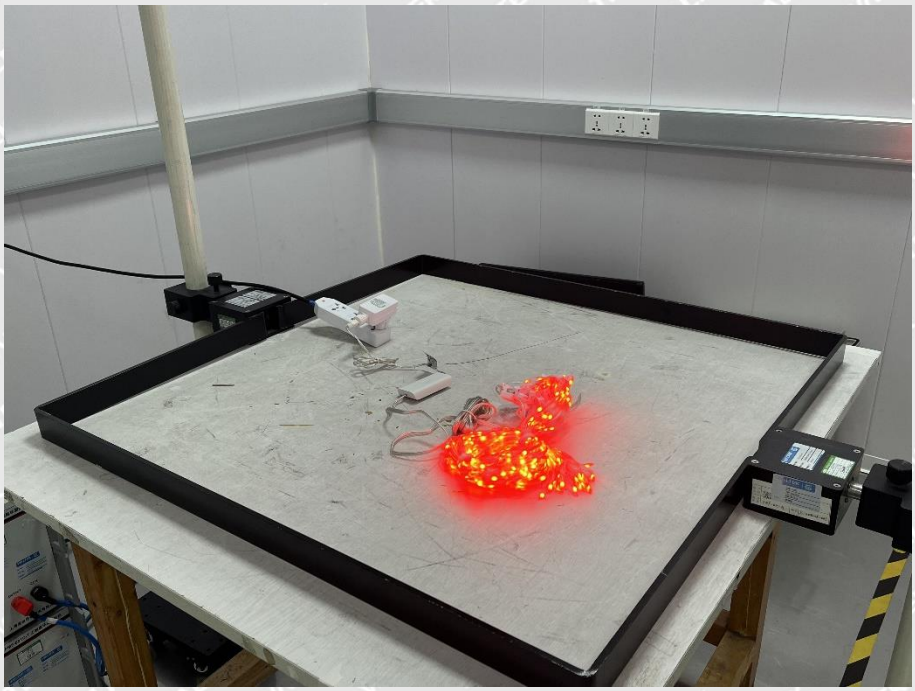
EXHIBIT 2 - TEST SETUP PHOTOGRAPHS

Conducted Emission Test Setup	
Radiation Emission Test View (9kHz~30MHz)	

Radiation Emission Test View(30MHz to 1GHz)	
Harmonic/Flicker Test View	

EN 61000-4-2 Test View	
EN 61000-4-3 Test View	

EN 61000-4-4/5/11 Test View	
EN 61000-4-6 Test View	

EN 61000-4-8 Test View	

******* END OF REPORT *******