



EMC Test Report



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Report No.: DNT2408300260E1350-01949
Applicant Name: Collection Design Tel Aviv
Address: Hadkalim 8,4881000 KFAR KASEM,ISRAEL
The samples and sample information for the following tests are provided and confirmed by the applicant
Product Description: LED light
Brand Name: STYLISTIC
Tested Model: Lamp M
Electrical Rating: DC 5V
Received Date: 2024-09-03
Tested Date: 2024-09-03 ~ 2024-09-05
Issued Date: 2024-09-24
Test Standards: EN IEC 55015:2019+A11:2020
EN IEC 61547:2023
Test Result: Pass

Prepared By: Leo Lu (Test Engineer)

Reviewed By: mark wu (Project Engineer)

Approved By: Heise Shan (Manager)

Note: If there is any objection to the results in this report, please submit a written inquiry to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp, and is issued by the company in accordance with the requirements of the "Conditions of Issuance of Test Reports" printed in the attached page. Unless otherwise stated, the results presented in this report only apply to the samples tested this time. Partial reproduction of this report is not allowed unless approved by the company in writing.

Dongguan DN Testing Co., Ltd.

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V2.0	/	2024-09-24	Original Report	/

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information	
Applicant:	Collection Design Tel Aviv
Address of applicant:	Hadkalim 8,4881000 KFAR KASEM,ISRAEL
Manufacturer:	Nowgo International Co.,Ltd
Address of manufacturer:	1903, Building 2, Manjinghua Science and Technology Innovation Workshop, No.6 Songjiang Road, Shapu Community, Songgang Street, Baoan District, Shenzhen

General Description of EUT	
Product Name:	LED light
Model No.:	Lamp M
Additional Model(s):	/
Difference description:	/
Rated Voltage:	DC 5V

1.2 EUT Operation Mode and test details

Test Mode List		
Test Mode	Description	Remark
1	Normal working	N/A
2	Charging	N/A

Remark: Prescan all test mode, and performed the final measure on the mode of maximum emission and recorded the test data.
“ * ” means it's the worst mode.

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

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



1.3 Measurement Uncertainty

Parameter	Frequency	Measurement uncertainty
Conducted Emission (with AMN)	150kHz~30MHz	U= 2.7dB K=2
Radiated Emission	30MHz-1000MHz	U= 5.0dB K=2
Radiated Emission	Above 1000MHz	U= 5.4dB K=2

1.4 Test Facility

Test Site	Dongguan DN Testing Co., Ltd.
Test Location	No. 1, West Fourth Street, South Xinfu Road, Wusha Liwu, Chang 'an Town, Dongguan City, Guangdong P.R.China

1.5 Test Equipment List and Details

Test Equipment for Conducted Emission					
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Receiver	R&S	ESCI3	101152	2023-10-31	2024-10-30
LISN	R&S	ENV216	102874	2023-10-31	2024-10-30
ISN	R&S	ENY81-CA6	0295	2023-10-31	2024-10-30
Test Equipment for Radiated Emission					
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Receiver	R&S	ESR7	102497	2023-10-31	2024-10-30
RF Cable	ETS-LINDGR EN	RFC-NMS-100- NMS-350-IN	/	2023-10-31	2024-10-30
Log periodic antenna	ETS-LINDGR EN	VULB 9168	01475	2023-10-31	2024-10-30
Horn Antenna	ETS-LINDGR EN	3117	00252566	2023-10-31	2024-10-30
Preamplifier	Schwarzbeck	BBV9743B	00423	2023-10-31	2024-10-30
Preamplifier	ETS-LINDGR EN	3117-PA	00252566	2023-10-31	2024-10-30
Preamplifier	ETS-LINDGR EN	3116C-PA	00251779	2023-10-31	2024-10-30
Test Equipment for ESD					
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
ESD Gun	TESEQ	NSG437	1240	2023-10-31	2024-10-30
Test Equipment for EFT					
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Signal Generator	3CTEST	EFT 500S	ES027000222 034	2023-10-31	2024-10-30
Dip Controller	TESEQ	INA 6502	2037	/	/



Test Equipment for DIPS					
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Power failure simulator	3CTEST	PFS 2216S	ES049001322012	2023-10-31	2024-10-30
Test Equipment for CS					
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Generator	TESEQ	NSG4070	59501	2023-10-31	2024-10-30
6dB attenuator	TESEQ	75-A-MFN-06	0063373	2023-10-31	2024-10-30
CDN	TESEQ	M016S	59085	2023-10-31	2024-10-30
Test Equipment for RS					
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Stack log-periodic antennas	S&B	STLP-9129	00225	2023-10-31	2024-10-30
Transmit antenna	Keysight	N9010A	MY52221458	2023-10-31	2024-10-30
Power amplifier	ETS-LINDGR EN	8000-002	00163152	2023-10-31	2024-10-30
Power amplifier	ETS-LINDGR EN	8100-045	00163616	2023-10-31	2024-10-30
Generator	Keysight	N5182B	MY57300617	2023-10-31	2024-10-30
Test Equipment for Harmonic/Flicker					
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Harmonic&Flicker Module	APS	LFZ-1-16	20006	2024-04-03	2025-04-02
PACIFIC POWER SOURCE	APS	140AMX-UPC1 2/S	1792	2024-04-03	2025-04-02
Test Equipment for Surges					
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Surge Generator	3CTEST	CWS 600	ES058001022005	2023-10-31	2024-10-30
Signal line coupling decoupling network	3CTEST	CDN 405T8	ES064004222004	2023-10-31	2024-10-30
Test Equipment for Power Frequency Magnetic Field Immunity					
Power Frequency Magnetic Field Immunity Test System	3CTEST	MFT400	ES046000122020	2023-10-31	2024-10-30
Coupled decoupled network	3CTEST	TCXS111	TCXS22045989	2023-10-31	2024-10-30



1.6 Performance Criteria for EMS

According to Clause 4 of EN 61547:2009:

A functional description of performance criteria, during or as a consequence of the immunity testing, shall be provided by the manufacturer and noted in the test report.

The performance of lighting equipment shall be assessed by monitoring:

- the luminous intensity of the luminaire or of the lamp(s);
- the functioning of the control in the case of equipment which includes a regulating control or concerns the regulating control itself;
- the functioning of the starting device, if any.

- Performance criterion A

During the test, no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.

- Performance criterion B

During the test, the luminous intensity may change to any value. After the test, the luminous intensity shall be restored to its initial value within 1 min. Regulating controls need not function during the test, but after the test, the mode of the control shall be the same as before the test provided that during the test no mode changing commands were given.

- Performance criterion C

During and after the test, any change of the luminous intensity is allowed and the lamp(s) may be extinguished. After the test, within 30 min, all functions shall return to normal, if necessary by temporary interruption of the mains supply and/or operating the regulating control.

Additional requirement for lighting equipment incorporating a starting device: After the test, the lighting equipment is switched off. After half an hour, it is switched on again. The lighting equipment shall start and operate as intended.



2. SUMMARY OF TEST RESULTS

EN IEC 55015:2019+A11:2020 Emissions		
Test Standards	Description of Test Item	Result
EN IEC 55015:2019+A11:2020	Conducted Emissions	PASS
	Radiated Emissions	PASS

EN 61547:2009 Immunity		
Test Standards	Description of Test Item	Result
EN IEC 61547:2023	Electrostatic Discharge	PASS
	Continuous radiated disturbances	PASS
	Electrical Fast Transients	PASS
	Surges	PASS
	Continuous conducted disturbances	PASS
	Voltage Dips and Interruptions	PASS

EN IEC 61000-3-2:2019+A1:2021		
Rule	Description of Test Item	Result
EN IEC 61000-3-2:2019+A1:2021	Harmonic Current Emissions	N/A

EN 61000-3-3:2013+A1:2019+A2:2021		
Rule	Description of Test Item	Result
EN 61000-3-3:2013+A1:2019+A2:2021	Voltage Fluctuations & Flicker	N/A

*Note1: N/A means not applicable.



3. GENERAL REMARKS

When applying the basic standard in this test report, the latest amendment is always included.

3.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix 1: Test Result

3.2 Result Level & Over Limit Calculation

The Measurement (Result Level) is calculated by Reading Level adding the Correct Factor(maybe including LISN Factor and the Cable Factor etc.), The basic equation is as follows:

Measurement = Reading Level + Correct Factor(including LISN Factor ,Cable Factor etc.)

The “Over Limit” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a “Over Limit” of -6dB means the emission is 6dB below the maximum limit for device. The equation for “over limit” calculation is as follows:

Over Limit = Measurement(Result Level) –Limit



4. Conducted Emissions

4.1 Conducted Emission Limit

Disturbance voltage limit at the electric power supply interface

Frequency Range(MHz)	Quasi Peak(dB μ V)	Average(dB μ V)
0.009-0.05	110	-
0.05-0.15	90-80	-
0.15-0.5	66-56	56-46
0.5-5	56	46
5-30	60	50

Note1 The lower limit shall apply at the transition frequencies.

Note2 The limit decreases linearly with the logarithm of the frequency in the ranges 50 kHz to 150 kHz and 150 kHz to 0,5 MHz.

Note3 For lighting equipment incorporating exclusively electrodeless lamps, the limit in the frequency range of 2,2 MHz to 3,0 MHz is 73 dB(μ V) quasi-peak and 63 dB(μ V) average.

Disturbance voltage limit at wired network interfaces other than power supply

Frequency Range(MHz)	Quasi Peak(dB μ V)	Average(dB μ V)
0.15-0.5	84-74	74-64
0.5-30	74	64

Note1 The lower limit shall apply at the transition frequencies.

Note2 The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

Note3 The disturbance voltage limits are derived for use with an artificial asymmetrical network (AAN) which presents a common mode (asymmetric mode) impedance of 150 Ω to the measured interface.

Disturbance voltage limit at wired network interfaces other than power supply

Frequency Range(MHz)	Quasi Peak(dB μ A)	Average(dB μ A)
0.15-0.5	40-30	30-20
0.5-30	30	20

Note1 The lower limit shall apply at the transition frequencies.

Note2 The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

Note3 The disturbance current limits are derived for use of a common mode (asymmetric mode) impedance of 150 Ω . Hence the conversion factor applied is $20 \log(150) = 44 \text{ dB } \Omega$.



Electrical power supply interface of non-restricted ELV lamps

Frequency Range(MHz)	Quasi Peak(dB μ V)	Average(dB μ V)
0.009-0.05	136	-
0.05-0.15	116-106	-
0.15-0.5	92-82	82-72
0.5-5	82	72
5-30	86	76
Note1 The lower limit shall apply at the transition frequencies.		
Note2 The limit decreases linearly with the logarithm of the frequency in the ranges 50 kHz to 150 kHz and 150 kHz to 0,5 MHz.		
Note3 The limits in this table apply if no 26 dB attenuator is applied.		

Local wired ports other than electrical power supply interface of ELV lamp

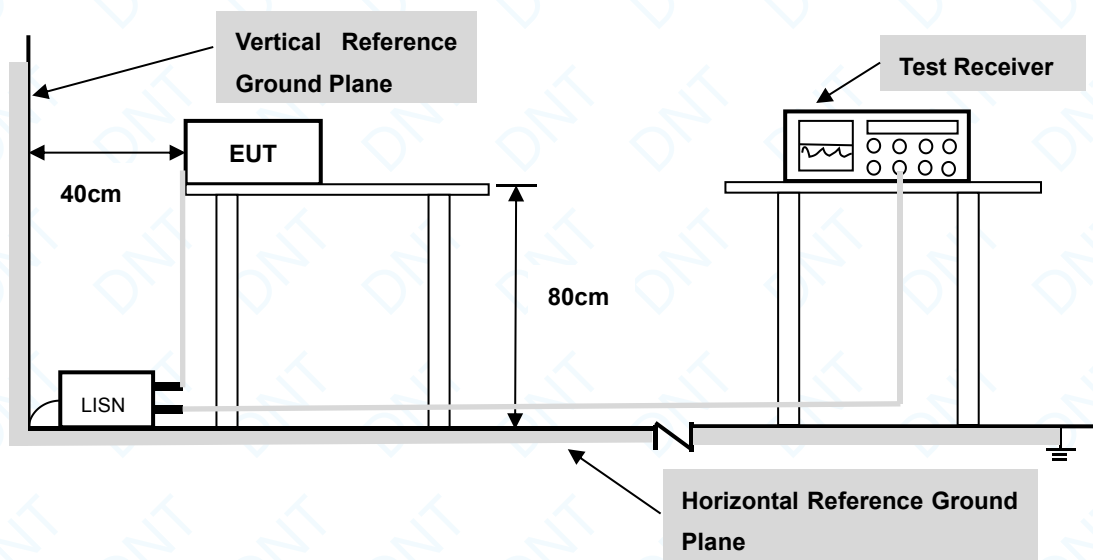
Frequency Range(MHz)	Quasi Peak(dB μ V)	Average(dB μ V)
0.15-0.5	80	70
0.5-30	74	64
Note1 The lower limit shall apply at the transition frequencies.		

Local wired ports other than electrical power supply interface of ELV lamp

Frequency Range(MHz)	Quasi Peak(dB μ A)	Average(dB μ A)
0.15-0.5	40-30	30-20
0.5-30	30	20
Note1 The lower limit shall apply at the transition frequencies.		
Note2 The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		
Note3 The current disturbance limits are derived for use of a common mode (asymmetric mode) impedance of 150 Ω , and the conversion factor applied is $20 \log(150) = 44 \text{ dB } \Omega$.		



4.2 Block Diagram of Test Setup



4.3 Test Procedure

During the conducted emissions test, the adapter was connected to the main outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the Quasi-peak and average detection mode.

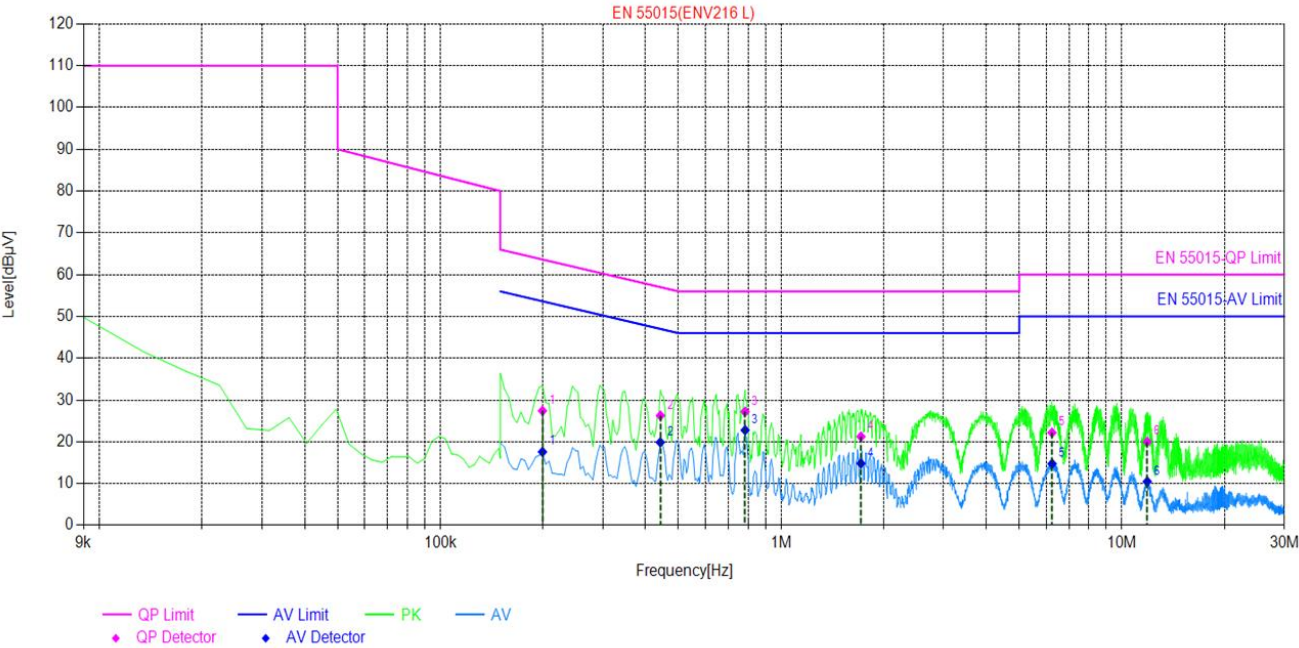
4.4 Environmental Conditions

Temperature:	25°C
Relative Humidity:	60%
Atmospheric Pressure:	101.3 KPa
Test Voltage:	DC 5V from adapter by AC 230V/50Hz
Test Date:	2024-09-09
Tested By:	Eric Huang



4.5 Test Data and Result

L:

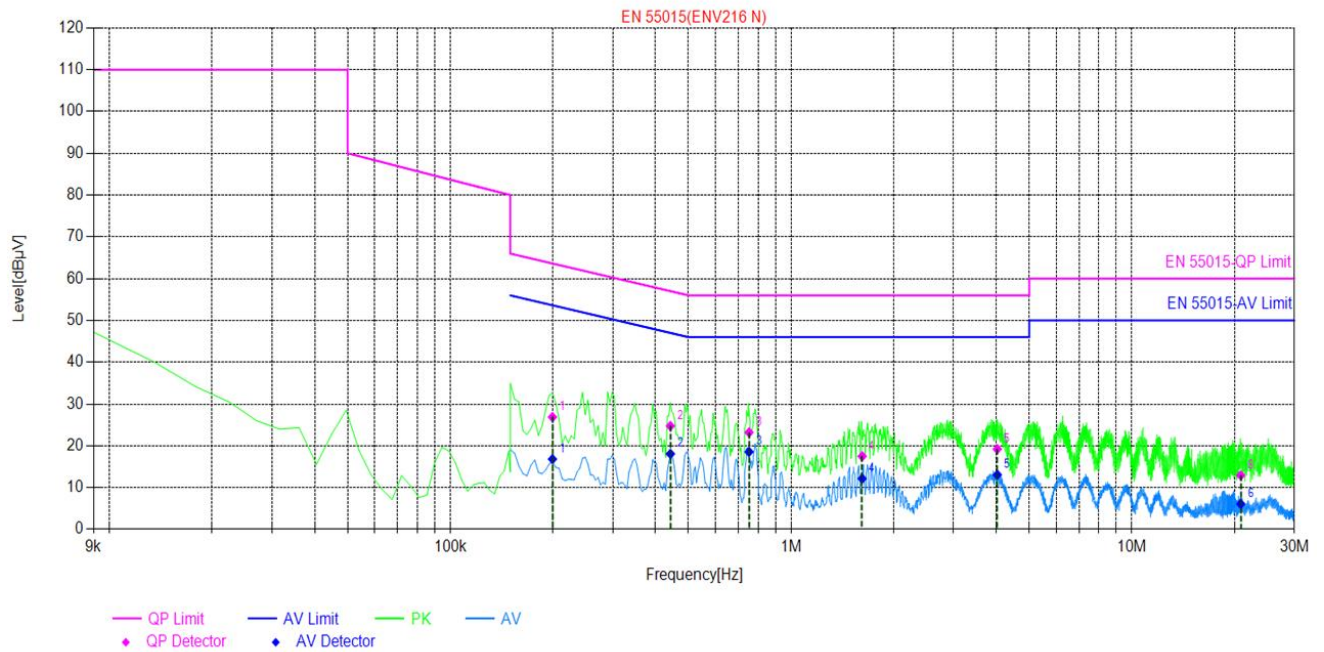


Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Verdict
1	0.1995	9.93	27.42	63.63	36.21	17.59	53.63	36.04	PASS
2	0.4425	9.82	26.27	57.01	30.74	19.87	47.01	27.14	PASS
3	0.7845	9.75	27.20	56.00	28.80	22.78	46.00	23.22	PASS
4	1.7160	9.73	21.25	56.00	34.75	14.82	46.00	31.18	PASS
5	6.2430	9.84	22.19	60.00	37.81	14.76	50.00	35.24	PASS
6	11.8770	9.90	20.00	60.00	40.00	10.49	50.00	39.51	PASS



N:



Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Verdict
1	0.1995	9.86	26.88	63.63	36.75	16.81	53.63	36.82	PASS
2	0.4425	9.81	24.74	57.01	32.27	18.07	47.01	28.94	PASS
3	0.7530	9.83	23.21	56.00	32.79	18.55	46.00	27.45	PASS
4	1.6170	9.74	17.49	56.00	38.51	12.15	46.00	33.85	PASS
5	4.0290	9.96	19.21	56.00	36.79	13.06	46.00	32.94	PASS
6	20.8815	10.08	12.93	60.00	47.07	6.09	50.00	43.91	PASS



5. Radiated Emissions

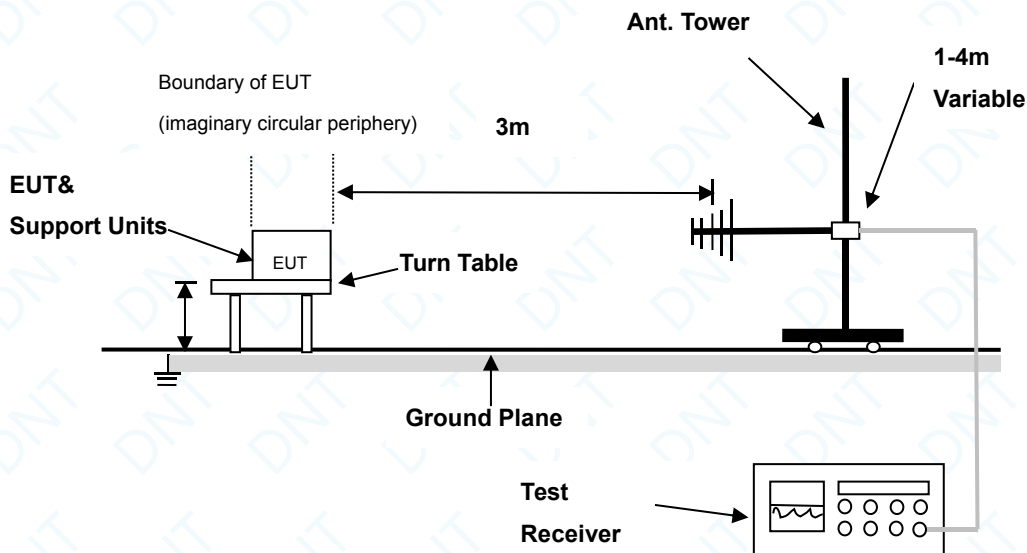
5.1 Radiated Emission Limit

Requirements for radiated emissions at frequencies up to 1GHz .

Frequency range (MHz)	Measurement		Limits dB(μ V/m)
	Distance (m)	Detector type/bandwidth	
30 ~ 230	3	Quasi Peak/120kHz	40
230 ~ 1000			47

5.2 Block Diagram of Test Setup

Radiated Emissions Frequency: 30MHz to 1000MHz:



5.3 Test Procedure

- (1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual.
- (2) Support equipment, if needed, was placed as per EN 55015. All I/O cables were positioned to simulate typical actual usage as per EN 55015.
- (3) The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- (4) Recorded at least the six highest emissions.

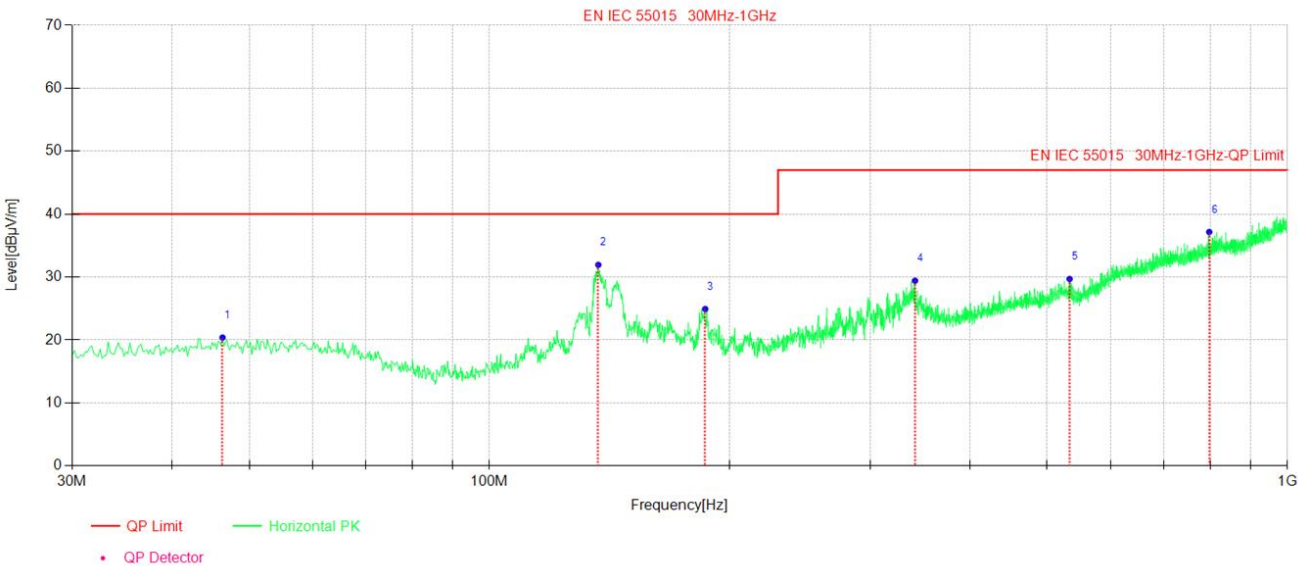


5.4 Environmental Conditions

Temperature:	25℃
Relative Humidity:	60%
Atmospheric Pressure:	101.3 KPa
Test Voltage:	DC 5V from adapter by AC 230V/50Hz
Test Date:	2024-09-04
Tested By:	Leo Lu

5.5 Test Data and Result

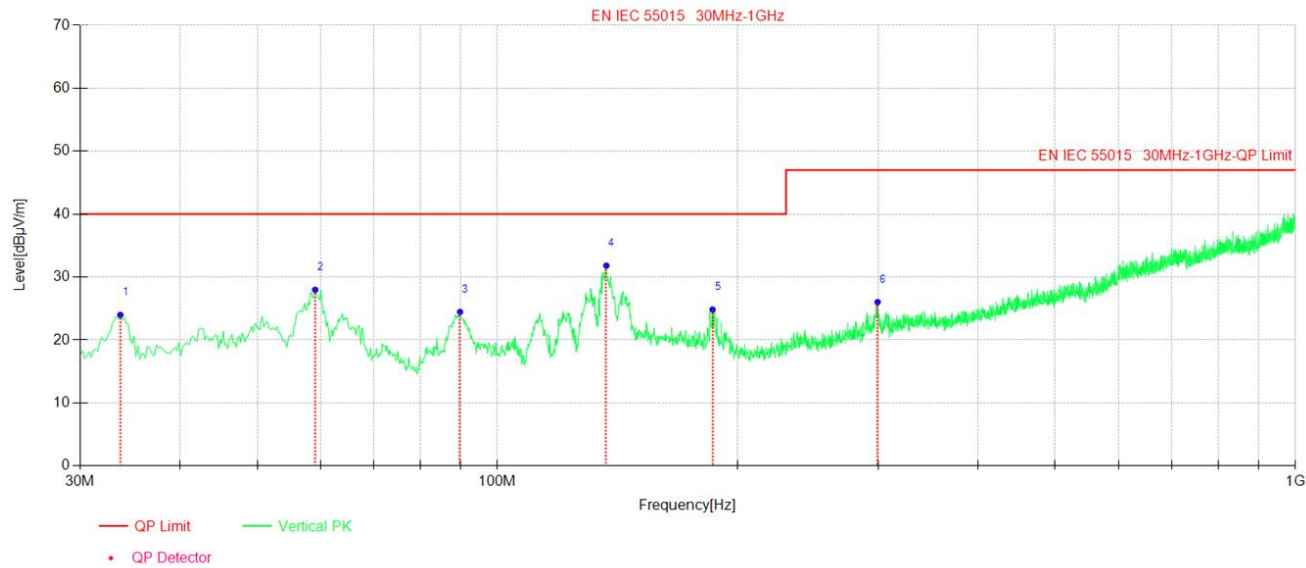
Horizontal:



Suspected Data List										
NO.	Freq. [MHz]	Level [dBμV/m]	Factor[dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Trace	Polarity	Verdict
1	46.299	20.40	-8.18	40.00	19.60	100	197	PK	Horizontal	PASS
2	136.91	31.95	-8.78	40.00	8.05	200	352	PK	Horizontal	PASS
3	186.39	24.93	-10.15	40.00	15.07	200	250	PK	Horizontal	PASS
4	341.43	29.43	-5.89	47.00	17.57	100	214	PK	Horizontal	PASS
5	533.33	29.70	-1.16	47.00	17.30	100	333	PK	Horizontal	PASS
6	798.00	37.17	4.18	47.00	9.83	100	187	PK	Horizontal	PASS



Vertical:



Suspected Data List										
NO.	Freq. [MHz]	Level [dBμV/m]	Factor[d B]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Trace	Polarity	Verdict
1	33.686	23.99	-9.45	40.00	16.01	100	302	PK	Vertical	PASS
2	59.105	27.99	-8.67	40.00	12.01	100	98	PK	Vertical	PASS
3	89.763	24.46	-13.85	40.00	15.54	100	324	PK	Vertical	PASS
4	136.91	31.82	-8.78	40.00	8.18	100	355	PK	Vertical	PASS
5	186.00	24.85	-10.10	40.00	15.15	100	86	PK	Vertical	PASS
6	299.51	26.03	-7.01	47.00	20.97	200	75	PK	Vertical	PASS



6. Harmonic current emissions

6.1 Classification of equipment

For the purpose of harmonic current limitation, equipment is classified as follows:

Class A:

- balanced three-phase equipment;
- household appliances, excluding equipment identified as Class D;
- tools, excluding portable tools;
- dimmers for incandescent lamps;
- audio equipment.

Equipment not specified in one of the three other classes shall be considered as Class A equipment.

Class B:

- portable tools;
- arc welding equipment which is not professional equipment.

Class C:

- lighting equipment.

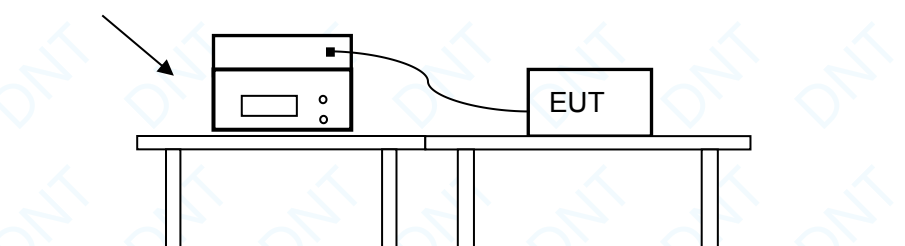
Class D:

Equipment having a specified power according to 6.2.2 less than or equal to 600 W, of the following types:

- personal computers and personal computer monitors;
- television receivers;
- refrigerators and freezers having one or more variable-speed drives to control compressor motor(s).

6.2 Block Diagram of Test Setup

Harmonic/Flicker
Analyzer



6.3 Environmental Conditions

Temperature:	/
Relative Humidity:	/
Atmospheric Pressure:	/
Test Date:	/
Tested By:	/



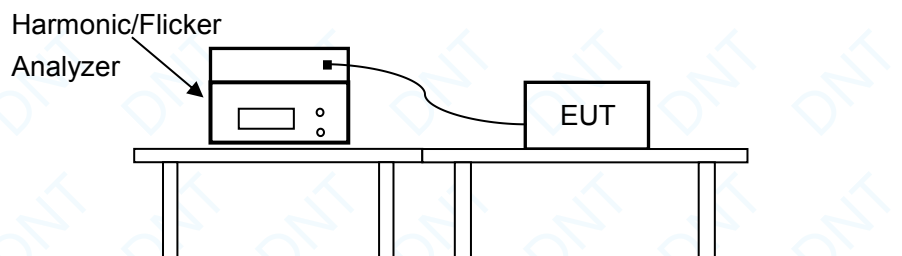
7. Voltage fluctuations and flicker

7.1 Limits

The following limits apply:

- the value of Pst shall not be greater than 1,0;
- the value of Plt shall not be greater than 0,65;
- Tmax, the accumulated time value of d(t) with a deviation exceeding 3,3% during a single voltage change at the EUT terminals, shall not exceed 500ms;
- the maximum relative steady-state voltage change, dc, shall not exceed 3,3%;
- the maximum relative voltage change d max, shall not exceed:
 - a) 4% without additional conditions;
 - b) 6% for equipment which is:
 - switched manually, or
 - switched automatically more frequently than twice per day, and also has either a delayed restart(the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.
 - c) 7% for equipment which is:
 - attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
 - switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart after a power supply interruption.

7.2 Block Diagram of Test Setup



7.3 Environmental Conditions

Temperature:	--
Relative Humidity:	--
Atmospheric Pressure:	--
Test Voltage:	--
Test Date:	--
Tested By:	--

7.4 Test Data and Result

N/A

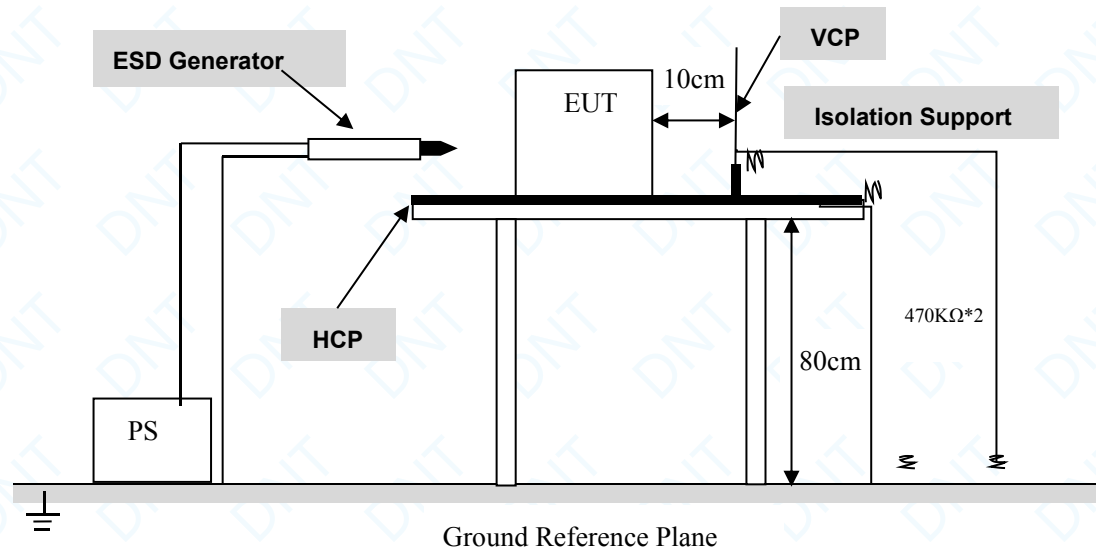


8. Electrostatic Discharge

8.1 ESD Immunity Requirements

Environmental Phenomenon	Port	Test Specification	Basic Standard	Performance criterion
Electrostatic discharge	Enclosure port	$\pm 4\text{kV}$ (Contact Discharge)	IEC 61000-4-2	B
		$\pm 8\text{kV}$ (Air Discharge)		

8.2 Block Diagram of Test Setup



8.3 Test Procedure

Air Discharges:

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

Contact Discharges:

All the procedure shall be same as Section 8.3.1 of EN 61000-4-2, except that the tip of the Discharges electrode shall touch the EUT before the Discharges switch is operated.

Indirect Discharges for HCP

At least 20 single Discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The Discharges electrode positions vertically at a distance of 0.1 m from the EUT and with the Discharges electrode touching the coupling plane.

Indirect Discharges for VCP

At least 20 single Discharges 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 Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	50%
Atmospheric Pressure:	101.3 KPa
Test Voltage:	DC 5V from adapter by AC 230V/50Hz
Test Date:	2024-09-09
Tested By:	Eric Huang

8.5 Test Data and Result

EN 61000-4-2 Test Points	Test Levels (kV)							
	-2	+2	-4	+4	-8	+8	-15	+15
Air Discharge								
Non metallic sections	A	A	A	A	A	A	/	/

EN 61000-4-2 Test Points	Test Levels (kV)							
	-2	+2	-4	+4	-6	+6	-8	+8
Contact Discharge								
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

EN 61000-4-2 Test Points	Test Levels (kV)							
	Indirect Contact Discharge (HCP)				Indirect Contact Discharge (VCP)			
	-2	+2	-4	+4	-2	+2	-4	+4
Front Side	A	A	A	A	A	A	A	A
Back Side	A	A	A	A	A	A	A	A
Left Side	A	A	A	A	A	A	A	A
Right Side	A	A	A	A	A	A	A	A

Remark:

A: No degradation was found.

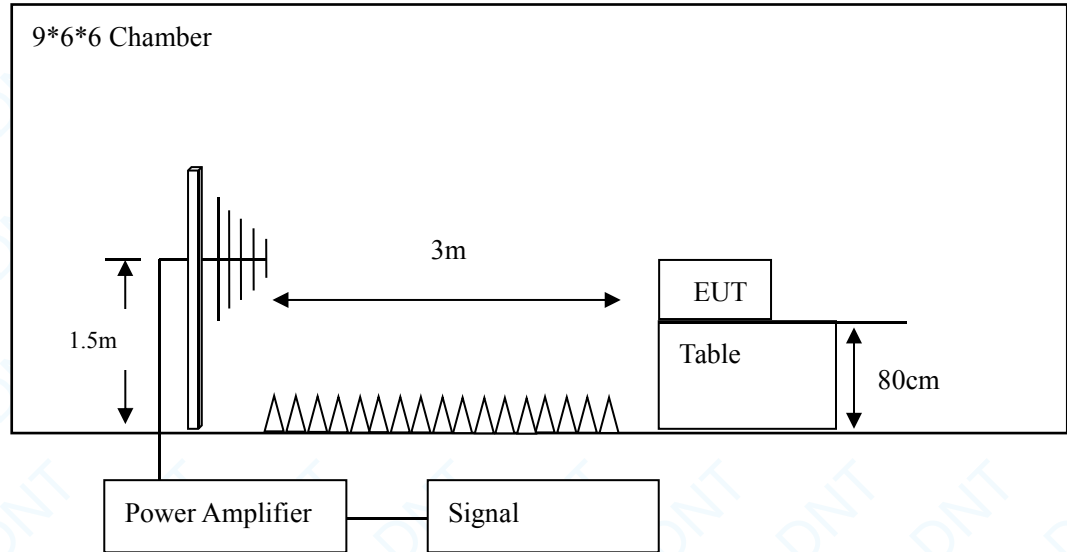


9. Radio Frequency Electromagnetic Field

9.1 RS Immunity Requirements

Environmental Phenomenon	Port	Test Specification	Basic Standard	Performance criterion
Radio-frequency electromagnetic field Amplitude modulated	Enclosure port	80-1000MHz 3V/m(unmodulated, r.m.s) 80% AM(1kHz)	IEC 61000-4-3	A

9.2 Block Diagram of Test Setup



9.3 Test Procedure

- a) Test is conducting under the description of IEC61000-4-3.
- (1)The EUT was switched on and allowed to warm up to its normal operating condition.
 - (2)The EUT was exercised and monitored in the manner specified by the customer.
 - (3)All test instruments were PC controlled, via their IEEE 488.2 bus interfaces, and the test conducted in the following manner:
The testing frequencies were swept over the required frequency range, with a step frequency equal to 1% of fundamental. The sweep rate was 1.0×10^{-3} decades/s. For each frequency tested, the signal generator output level was adjusted automatically until the unmodulated field strength registered by the field monitor reached the desired level. This level was held constant for the specified dwell time.
 - (4)The EUT was continuously monitored during the test in accordance with the Pass / Fail criteria declared by the customer.
 - (5)The test was done in both horizontal and vertical antenna polarizations, and for all necessary sides of the EUT.



9.4 Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	50%
Atmospheric Pressure:	101.3 KPa
Test Voltage:	DC 5V from adapter by AC 230V/50Hz
Test Date:	2024-09-09
Tested By:	Eric Huang

9.5 Test Data and Result

Field Strength: 3V/m
Frequency step: 1% of fundamental
Dwell time: 1 second
Modulation: AM by 1kHz sine wave with 80% modulation depth

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

Remark:
A: No degradation was found.

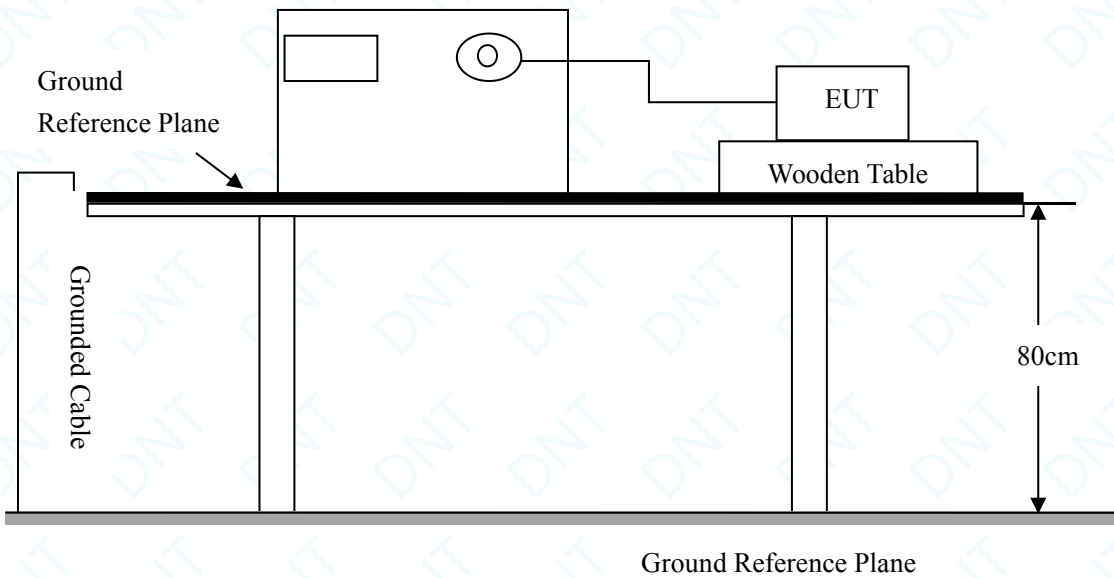


10. Electrical fast transients

10.1 EFT Immunity Requirements

Environmental Phenomenon	Port	Test Specification	Basic Standard	Performance criterion
Electrical fast transients	Input a.c. power ports	$\pm 1\text{kV}(\text{peak})$ Tr/Th:5/50ns Repetition frequency:5kHz	IEC 61000-4-4	B
	Input d.c. power ports	$\pm 0.5\text{kV}(\text{peak})$ Tr/Th:5/50ns Repetition frequency:5kHz		B
	Single/Control lines	$\pm 0.5\text{kV}(\text{peak})$ Tr/Th:5/50ns Repetition frequency:5kHz		B

10.2 Block Diagram of Test Setup



10.3 Test Procedure

- (1)The EUT was switched on and allowed to warm up to its normal operating condition.
- (2)D.C./A.C. Power Line Test
The EFT/B test system has a built-in coupling/decoupling network which couples the generated EFT bursts into the EUT power supply lines connected to it. The EFT bursts were coupled to the selected lines (one at a time) of the EUT.
- (3)Signal & Control Line Test
The interference impulses were capacitively coupled to the EUT's signal cables.
- (4)The EUT was monitored during the test in accordance with the Pass /Fail criteria declared by the customer.
- (5)The test was performed with EFT bursts in the positive and negative polarities and repeated on all necessary lines.



10.4 Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	50%
Atmospheric Pressure:	101.3 KPa
Test Voltage:	DC 5V from adapter by AC 230V/50Hz
Test Date:	2024-09-09
Tested By:	Eric Huang

10.5 Test Data and Result

IEC61000-4-4 Test Points		Test Levels(kV)					
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0
AC mains power input port	L	/	/	A	A	/	/
	N	/	/	A	A	/	/
	L+N	/	/	A	A	/	/
	PE	/	/	/	/	/	/
	L+PE	/	/	/	/	/	/
	N+PE	/	/	/	/	/	/
	L+N+PE	/	/	/	/	/	/

Remark:

A: No degradation was found.

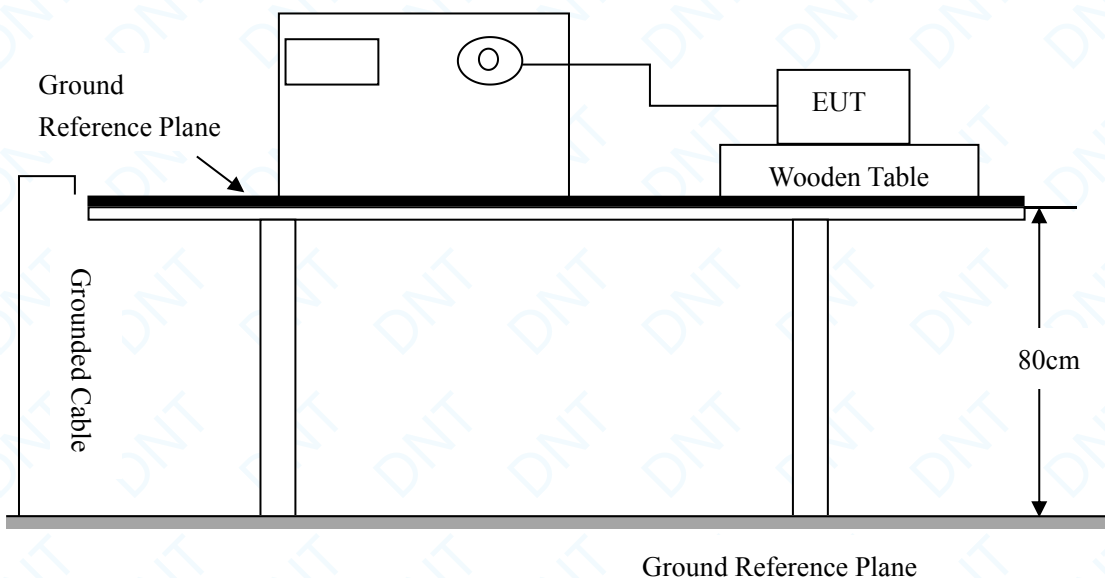


11. Surges

11.1 Surges Immunity Requirements

Environmental Phenomenon	Port	Input Power	Test Specification	Basic Standard	Performance criterion
Surges	Input a.c. power ports	Less 25W	Tr/Th:1,2/50 μ s ± 0.5 kV (line to line) ± 1 kV(line to earth)	IEC 61000-4-5	B
		More than 25W	Tr/Th:1,2/50 μ s ± 1 kV (line to line) ± 2 kV(line to earth)		

11.2 Block Diagram of Test Setup



11.3 Test Procedure

- (1)The power supply to EUT was switched on and allowed to warm up to its normal operating condition.
- (2)The surge generator phase shifter was set to different angle.
- (3)The correct open-circuit test level was set with the surge generator disconnected from the coupling network.
- (4)The output of the generator was then reconnected back to the coupling network.
- (5)Five discharges, generated by the voltage surge generator, were made on each relevant line, for each polarity, at each test level, with the relevant discharge interval.
- (6)The EUT was observed during, and checked after the test to determine the result.
- (7)These tests are carried out according to IEC 61000-4-5, with test levels as given in Table 10 of this standard. Lower levels need not to be tested. Pulses shall be applied to the a.c. voltage wave as follows; five positive polarity pulses at the 90° phase angle, five negative polarity pulses at the 270° phase angle. Two test levels are given for different types of lighting equipment.



11.4 Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	50%
Atmospheric Pressure:	101.3 KPa
Test Voltage:	DC 5V from adapter by AC 230V/50Hz
Test Date:	2024-09-09
Tested By:	Eric Huang

11.5 Test Data and Result

IEC61000-4-5 Test Points		Test Levels(kV)					
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0
AC mains power input port	L-N	/	/	A	A	/	/
	L-PE	/	/	/	/	/	/
	N-PE	/	/	/	/	/	/

Remark:

A: No degradation was found.

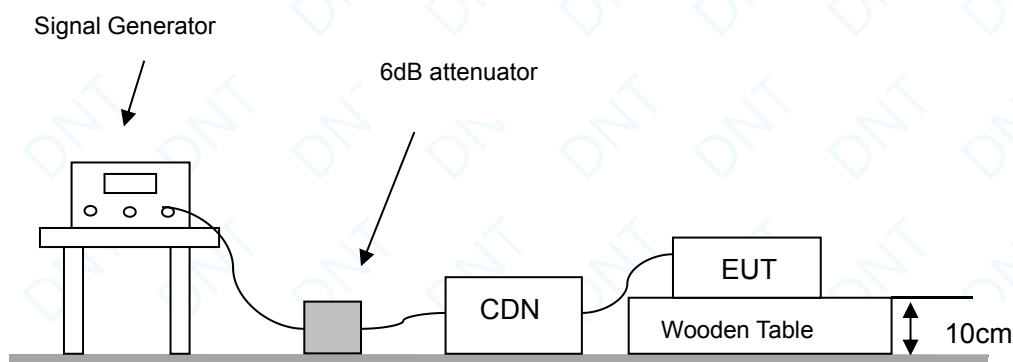


12. Radio-Frequency Continuous Conducted

12.1 CS Immunity Requirements

Environmental Phenomenon	Port	Test Specification	Basic Standard	Performance criterion
Radio-frequency continuous conducted	Input a.c. power ports	0,15~80MHz,3V	IEC 61000-4-6	A
Note: Only applicable to Signal /control and a.c power port interfacing with cables whose total length, according to the manufacturer's specification, may exceed 3 m.				

12.2 Block Diagram of Test Setup



12.3 Test Procedure

- (1) The EUT was switched on and allowed to warm up to its normal operating condition.
- (2) The EUT are placed on an insulating support 0.1 m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3 m 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).
- (3) The frequency range is swept from 150 kHz to 80 MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave.
- (4) 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. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.
- (5) The EUT was continuously monitored during the test in accordance with the PASS/FAIL criteria declared by the customer.



12.4 Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	50%
Atmospheric Pressure:	101.3 KPa
Test Voltage:	DC 5V from adapter by AC 230V/50Hz
Test Date:	2024-09-09
Tested By:	Eric Huang

12.5 Test Data and Result

IEC61000-4-6 Test Point	Frequency Range (MHz)	Strength (Vrms)	Modulation	Result
Power Line	0.15~80	3	AM	A

Remark:

A: No degradation was found.

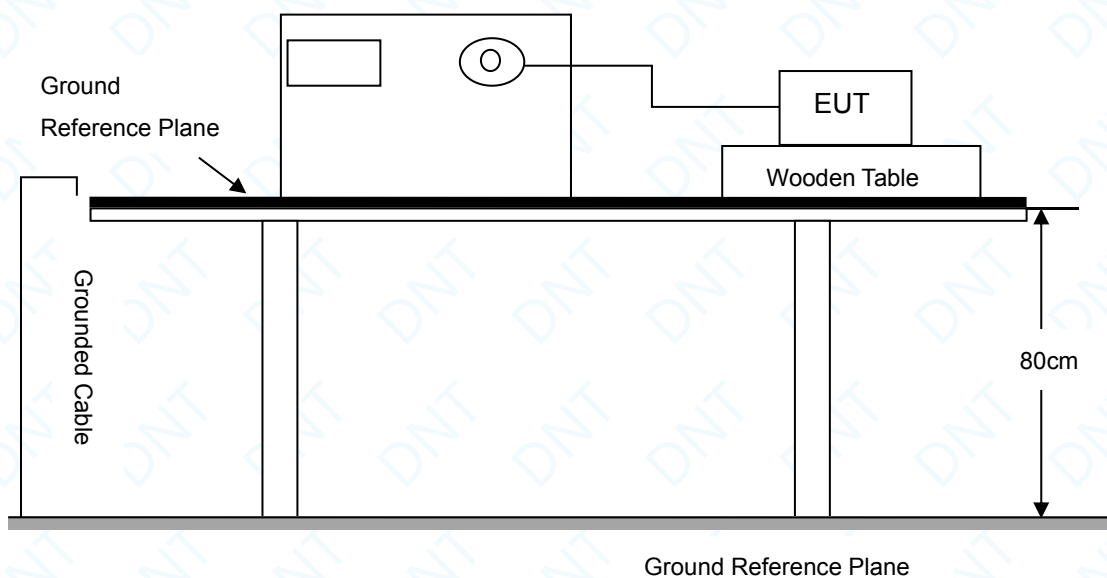


13. Voltage Dips and Interruptions Test Result

13.1 DIPS Immunity Requirements

Environmental Phenomenon	Port	Test Specification	Basic Standard	Performance criterion
Voltage dips	Input a.c power ports	30% reduction 10 period	IEC 61000-4-11	C
Voltage short interruptions		0% reduction 0.5 period		B

13.2 Block Diagram of Test Setup



13.3 Test Procedure

- (1)The interruption is introduced at selected phase angles with specified duration.
- (2)Record any degradation of performance.

13.4 Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	50%
Atmospheric Pressure:	101.3 KPa
Test Voltage:	DC 5V from adapter by AC 230V/50Hz
Test Date:	2024-09-09
Tested By:	Eric Huang



13.5 Test Data and Result

Environmental Phenomenon	Test Level %U _T	Reduction (%)	Duration (periods)	Result
Voltage Dips	70	30	10	A
Voltage interruptions	0	100	0.5	B

Remark:

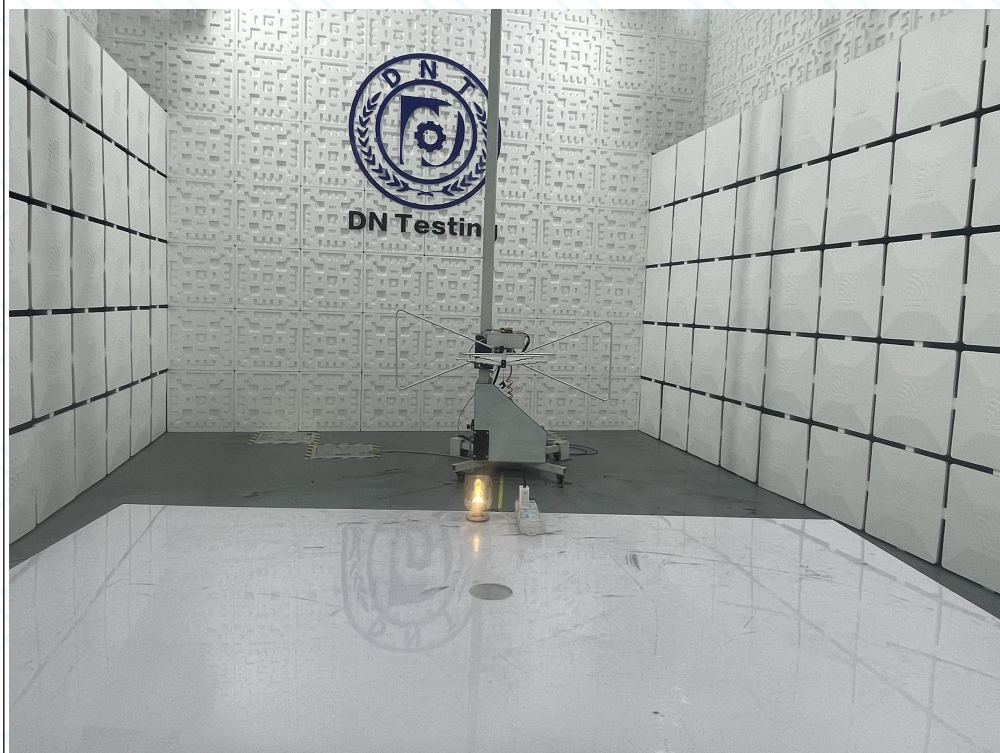
A: No degradation was found.



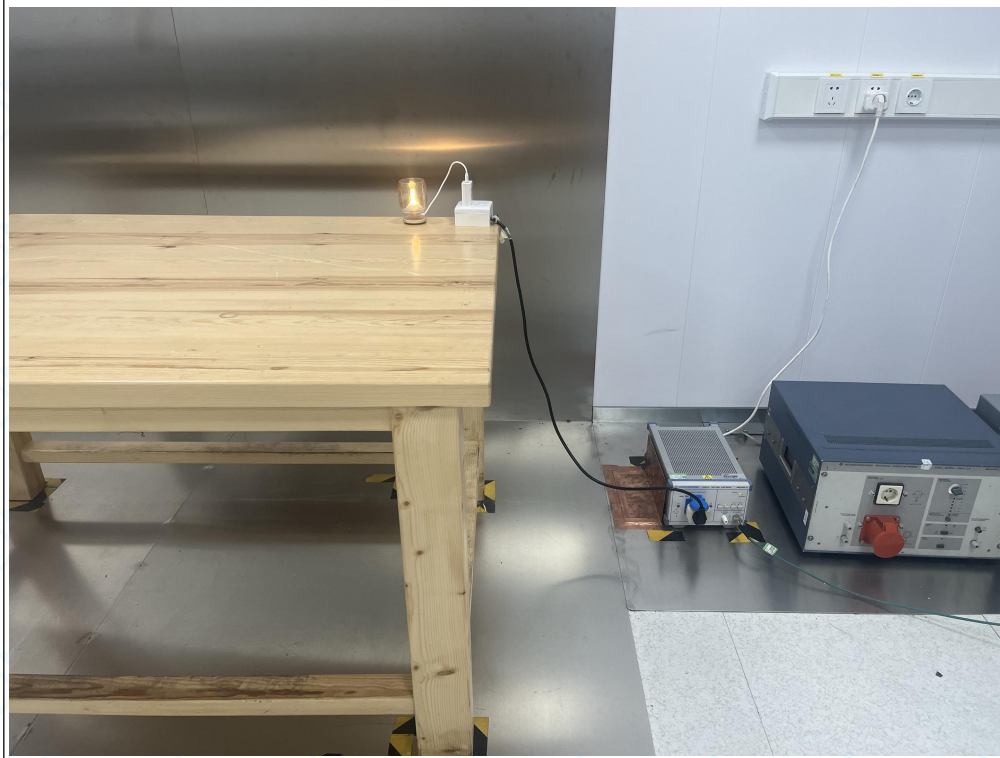


EXHIBIT A – PHOTOGRAPHS OF TEST SETUP

Radiated Emission Test View



Conducted Emission Test View

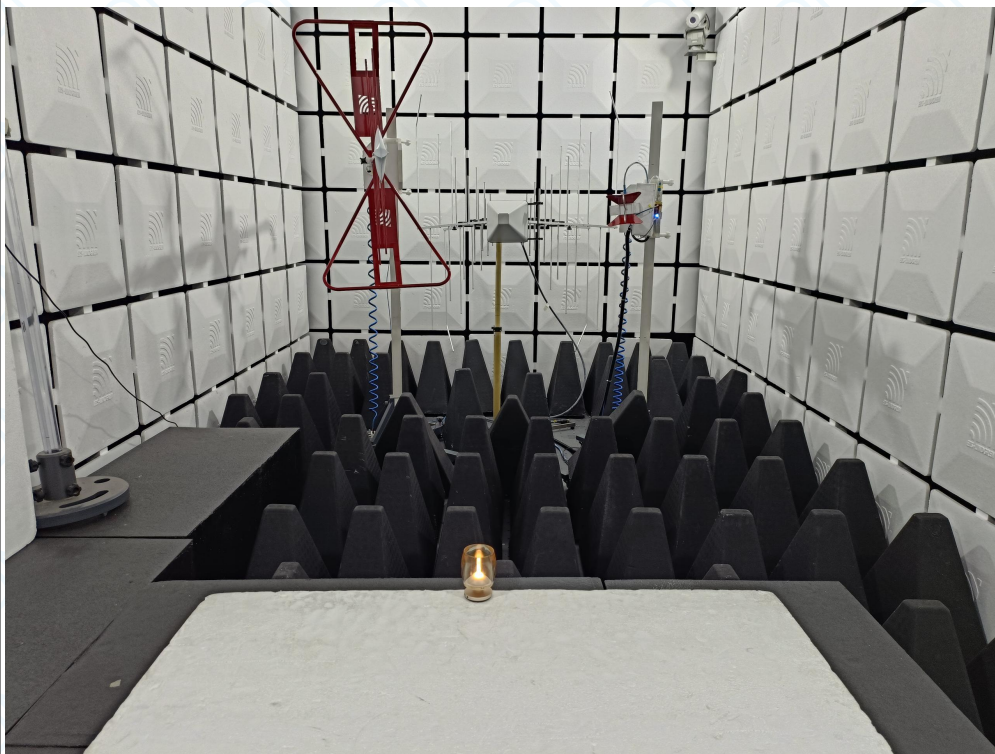




ESD Test View

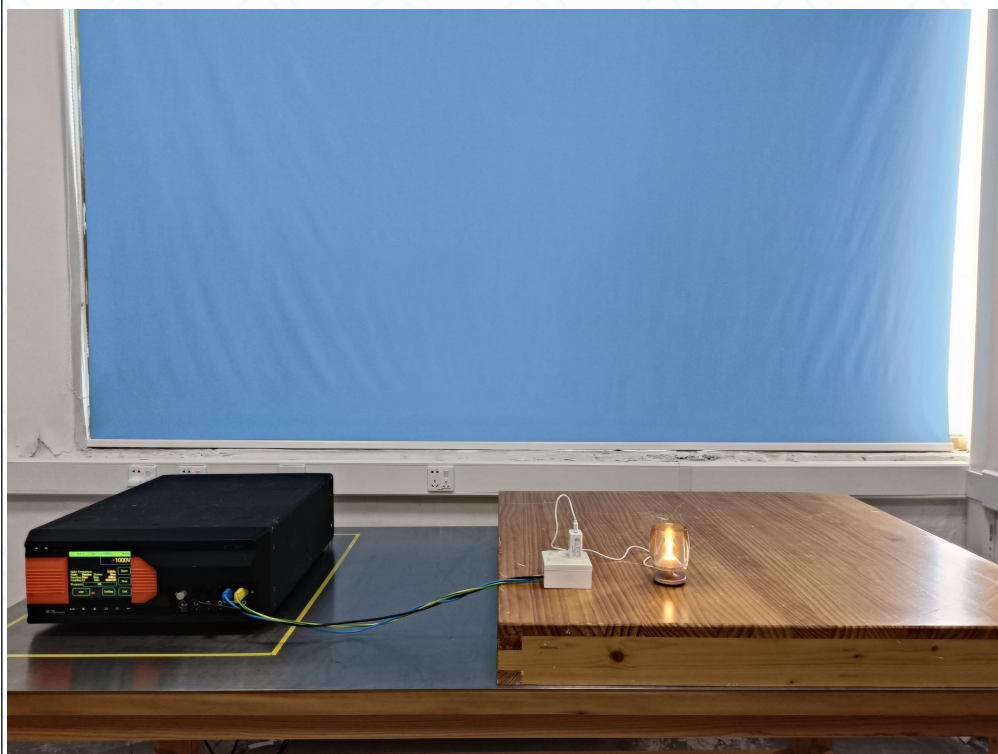


RS Test View





EFT Test View

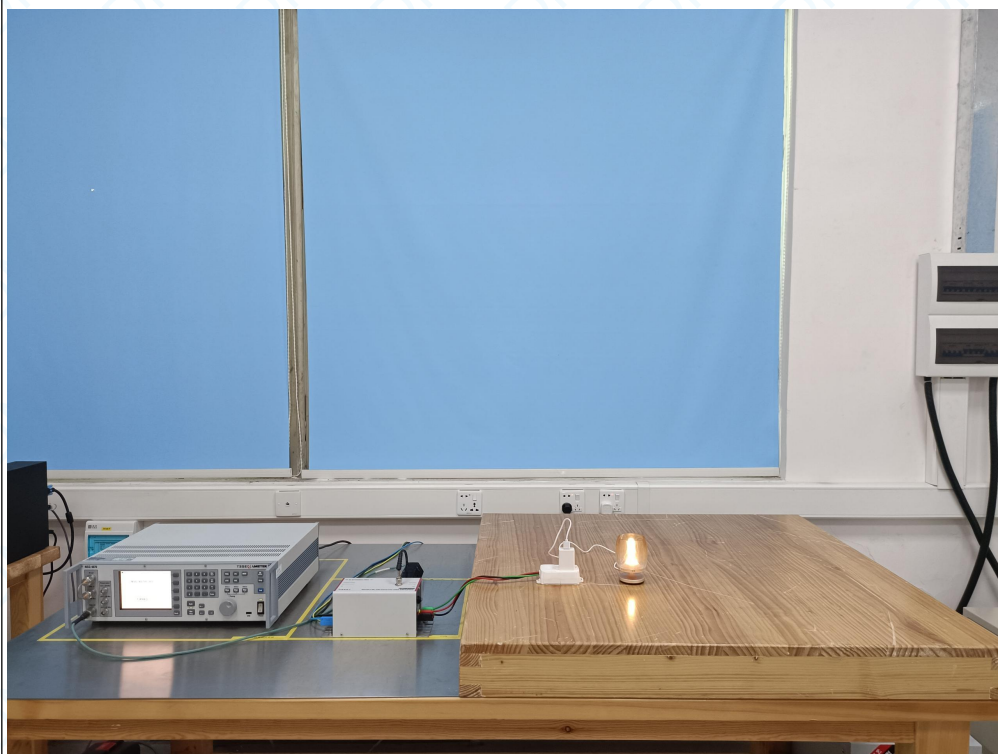


Surge Test View





CS Test View

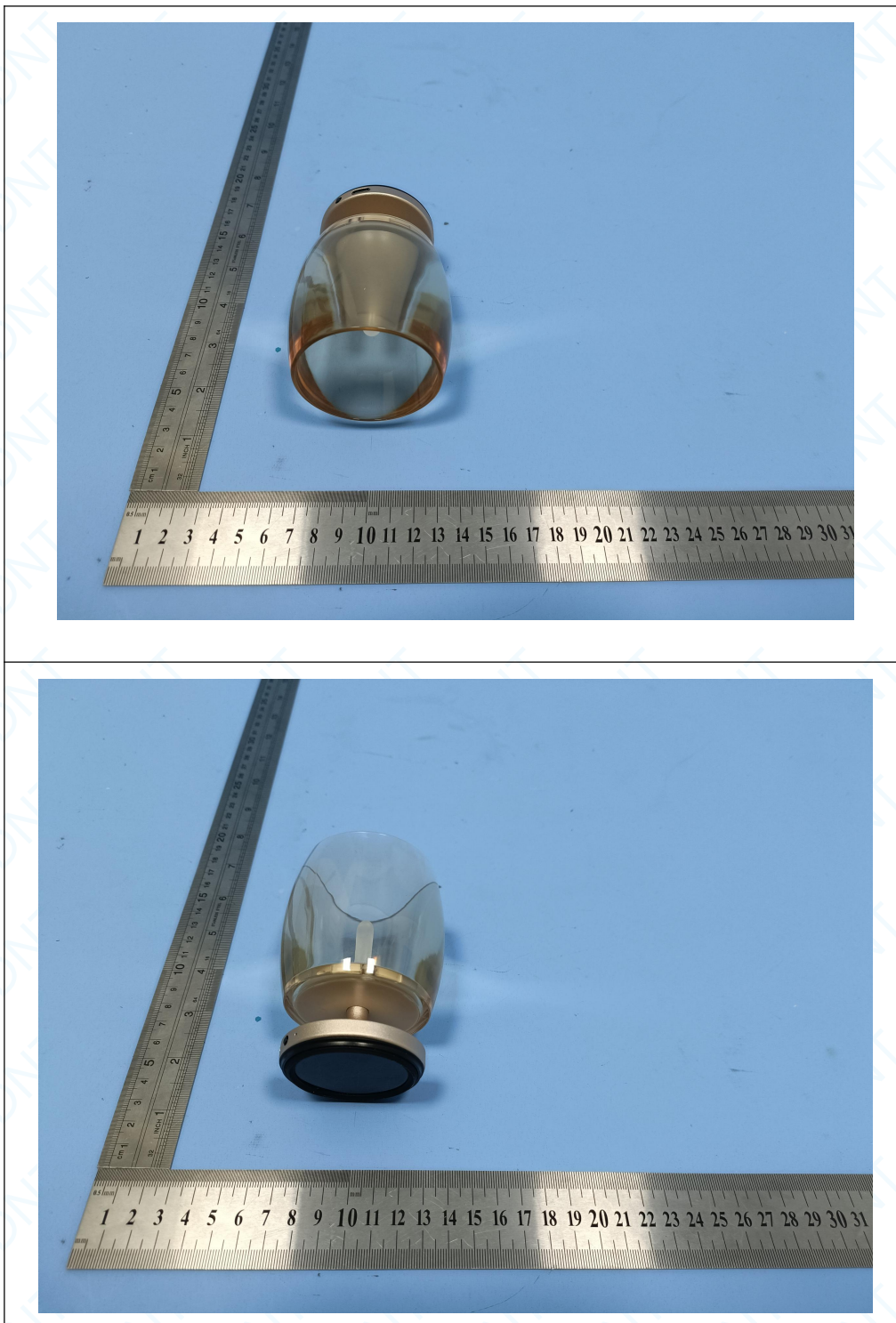


DIPS Test View





EXHIBIT B – PHOTOGRAPHS OF EUT





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