

TECHNICAL REPORT



Report No.: EMC 2005211
File reference No.: 2020-05-21

Applicant: Mid Ocean Brands B.V.

Product: Magnetic Light Stick

Brand Name: N/A

Model No.: MO8225

Test Standards: EN 55015: 2013+A1:2015
EN 61547: 2009
EN 61000-3-2: 2014
EN 61000-3-3:2013

Test result: The EMC testing has been performed on the submitted samples and found in compliance with council EMC Directive 2014/30/EU.

Approved By

Terry Tang

Manager

Dated: May 21, 2020

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES.

**Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road
West, Tong Le Village, Nanshan District, Shenzhen, China**

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Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

Industry Canada (IC) —Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01



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1.0 General Details

1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TESTING LABORATORIES
Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West,
Tong Le Village, Nanshan District, Shenzhen, China
Telephone: (086) 755-83448688
Fax: (086) 755-83442996

1.2 Applicant Details

Applicant: Mid Ocean Brands B.V.
Address: 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Telephone: --
Fax: --

1.3 Description of EUT

Product: Magnetic Light Stick
Manufacturer: Mid Ocean Brands B.V.
Address: 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Brand Name: N/A
Model Number: MO8225
Adding Model Number: N/A

Note: This is an addition test report based on original one: EMC1906248. The applicant and address are changed, but the sample remains the same.

1.4 Submitted Sample

2 sample

1.5 Test Duration

Date of Receipt of Test Item: May 21, 2020
Date of Test: May 21, 2020 ~ May 21, 2020

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB
Radiated Emissions Uncertainty =4.7dB

1.7 Test or witness Engineer

The sample tested by

Print Name: Leo Lau

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2.0 List of Measurement Equipment

2.1 Conducted Emission Test

Name	Model No.	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
EMI Test Receiver	ESH3	860905/006	RS	2019.06.21	1 Year
Spectrum Analyzer	ESA-L1500A	US37451154	HP	2019.06.21	1 Year
PULSE LIMITER	ESH3-Z2	100281	RS	2019.06.21	1 Year
LISN	ESH3-Z5	100294	RS	2019.06.21	1 Year
LISN	ESH3-Z5	100253	RS	2019.06.21	1 Year
LISN	NNB42	00012	SCHAFFNER	2020.01.07	1 Year

2.2 Radiated Disturbance Test

Name	Model No	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
EMI Test Receiver	ESPI 3	100379	RS	2019.06.21	1 Year
Spectrum Analyzer	E4407B	MY50441392	HP/Agilent	2019.06.21	1 Year
Amplifier	BBV9743	#218	HP/Agilent	2019.06.21	1 Year
Bilog Antenna	VULB9163	9163/340	Schwarebeck	2018.07.04	3 Year
Horn Antenna	BBHA 9120D	9120D-631	RS	2018.07.09	3 Year
Amplifier	8449B	3008A00160	HP/Agilent	2019.06.21	1 Year

2.3 Harmonic & Flicker Test

Name	Model No.	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
Harmonics Flicker Test System	PACS-1	72305	CI	2019.09.28	1 Year
5K VA AC Power Source	5001iX	56060	CI	2019.09.28	N/A

2.4 ESD Test

Name	Model No.	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
ESD Simulator	DITO	0404-24	EM TEST	2019.06.21	1 Year

2.5 RF field Strength Susceptibility

Name	Model No.	Serial No.	Manufacturer	Calibration	Calibration
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				Date	Cycle
Signal Generator	SMT03	100059	RS	2019.06.21	1 Year
Power Meter	NRVS	---	RS	2019.06.21	1 Year
Voltage Probe	URV5-Z2	100012	RS	2019.06.21	1 Year
Voltage Probe	URV5-Z2	100013	RS	2019.06.21	1 Year
Power Amplifier	150W1000	300999	AR	2019.06.21	1 Year
Power Amplifier	25S1G4AM1	305993	AR	2019.06.21	1 Year
Field Probe	CBL6111C	2576	Holaday	2019.06.21	1 Year
Bilog Antenna	MCDC	---	Chase	2019.06.21	1 Year

2.6 Electrical Fast Transient/Burst (EFT/B) Immunity test

Name	Model No.	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
EFT Generator	UCS 500 M4	0304-42	EM TEST	2019.06.21	1 Year
Power Source	MV2616	0104-14	EM TEST	2019.06.21	1 Year

2.7 Surge Test

Name	Model No.	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
Ultra Compact Simulator	UCS 500 M4	0304-42	EM TEST	2019.06.21	1 Year
Power Source	MV2616	0104-14	EM TEST	2019.06.21	1 Year

2.8 Conducted Immunity Test

Name	Model No.	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
Continuous Wave Simulator	CWS 500C	0407-05	EM TEST	2019.06.21	1 Year

2.9 Power-frequency Magnetic Field

Name	Model No.	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
Continuous Wave Simulator	UCS 500 M4	0304-42	EM TEST	2019.06.21	1 Year
Power Source Network	MV 2616	0104-14	EM TEST	2019.06.21	1 Year
Current Transformer	MC2630	--	EM TEST	2019.06.21	1 Year

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Magnetic Coil	MS100	0304-42	EM TEST	2019.06.21	1 Year
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2.10 Voltage Dips/Interruption Immunity Test

Name	Model No.	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
Ultra Compact Simulator	UCS 500 M4	0304-42	EM TEST	2019.06.21	1 Year
Power Source	MV2616	0104-14	EM TEST	2019.06.21	1 Year

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3.0 Technical Details

3.1 Investigations Requested

Perform Electromagnetic Interference [EMI] & Electromagnetic Susceptibility [EMS] tests for CE Marking

3.2 Test Standards

Test Standards		
EN 55015: 2013+A1:2015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	
EN 61000-3-2: 2014	Electromagnetic compatibility(EMC)- Part 3-2:Limits-Limits for harmonic current emissions(equipment input current $\leq 16A$ per phase)	
EN61000-3-3: 2013	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 $\leq 16A$ per phase and not subject to conditional connection	
EN 61547: 2009	Equipment for general lighting purposes—EMC immunity requirements	
	EN 61000-4-2:2009	Electrostatic discharge
	EN 61000-4-3:2006	RF field strength susceptibility
	EN 61000-4-4:2012	Electrical Fast transients
	EN 61000-4-5:2014	Surge
	EN 61000-4-6:2009	Conducted susceptibility
	EN 61000-4-8:2010	Magnetic Field
	EN 61000-4-11:2004	Dips/Voltage Interruption Variation

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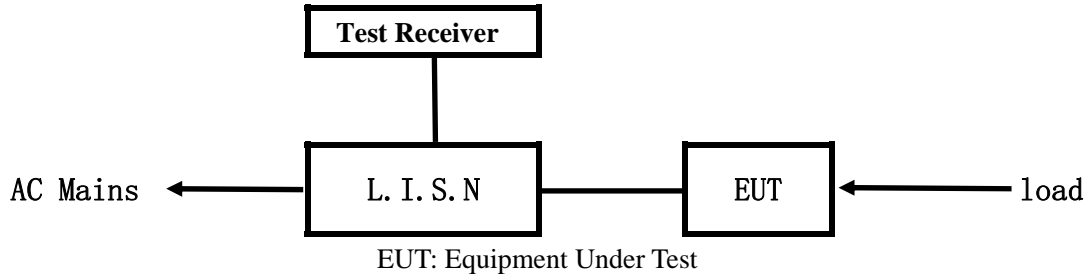
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4.0 Disturbance Voltage Test

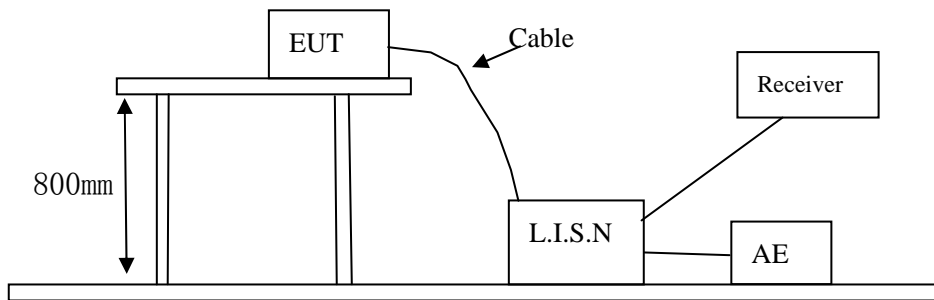
4.1 Schematics of the test



4.2 Test Method:

The test was performed in accordance with EN 55015: 2013+A1:2015

Block diagram of Test setup



4.3 Disturbance Voltage Limits

A Disturbance Voltage Limits at mains terminals

Frequency(MHz)	Limits dB(μ V)	
	Quasi-peak Level	Average Level
9kHz to 50kHz	110	--
50kHz to 150kHz	90 to 80	--
150kHz to 0.5MHz	66 to 56	56 to 46
0.5MHz to 2.51MHz	56	46
2.51MHz to 3.0MHz	73	63
3.0MHz to 5.0MHz	56	46
5.0MHz to 30.0MHz	60	50

Notes: 1. decreasing linearly with logarithm of the frequency in the range 50kHz to 150kHz and 150kHz to 0.5MHz.

2. The lower limit shall apply at the transition frequencies

B Disturbance Voltage Limits at load terminals

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Frequency(MHz)	Limits dB(μ V)	
	Quasi-peak Level	Average Level
0.15MHz to 0.50MHz	80	70
0.50MHz to 30MHz	74	64

*At the transition frequency, the lower limit applies.

C Disturbance Voltage Limits at Control terminals

Frequency(MHz)	Limits dB(μ V)	
	Quasi-peak Level	Average Level
0.15MHz to 0.50MHz	84 to 74	74 to 64
0.50MHz to 30MHz	74	64

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

4.4 Test Results : N/A

Limits for Conducted Emission test, Please refer to limit line (Quasi-peak) in the following diagram labelled as (QP)

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5.0 Radiated electromagnetic disturbances

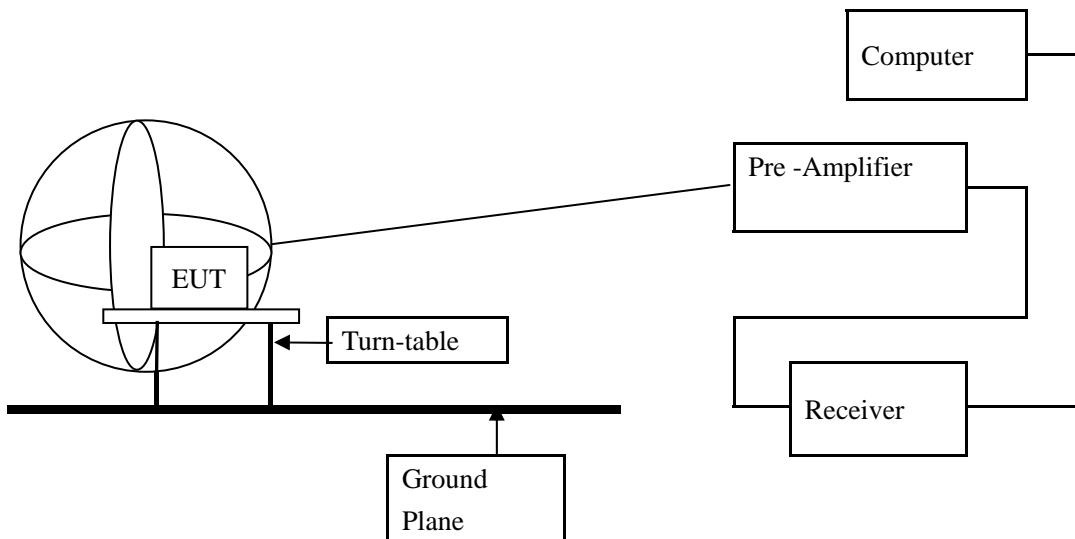
5.1 Schematics of the test



5.2 Test Method:

The test was performed in accordance with EN 55015: 2013+A1:2015

Block diagram of Test setup



5.3 Radiated electromagnetic disturbances Limits

Frequency Range (MHz)	Limits for loop diameter (dB μ A)		
	2m	3m	4m
9kHz to 70kHz	88	81	75
70kHz to 150kHz	88 to 58	81 to 51	75 to 45
150kHz to 2.2MHz	58 to 26	51 to 22	45 to 16
2.2MHz to 3.0MHz	58	51	45
3.0Hz to 30MHz	22	15 to 16	9 to 12

- Note: 1.The lower limit shall apply at the transition frequencies
 2.Decreasing linearly with the logarithm of the frequency.
 3.Increasing linearly with the logarithm of the frequency.

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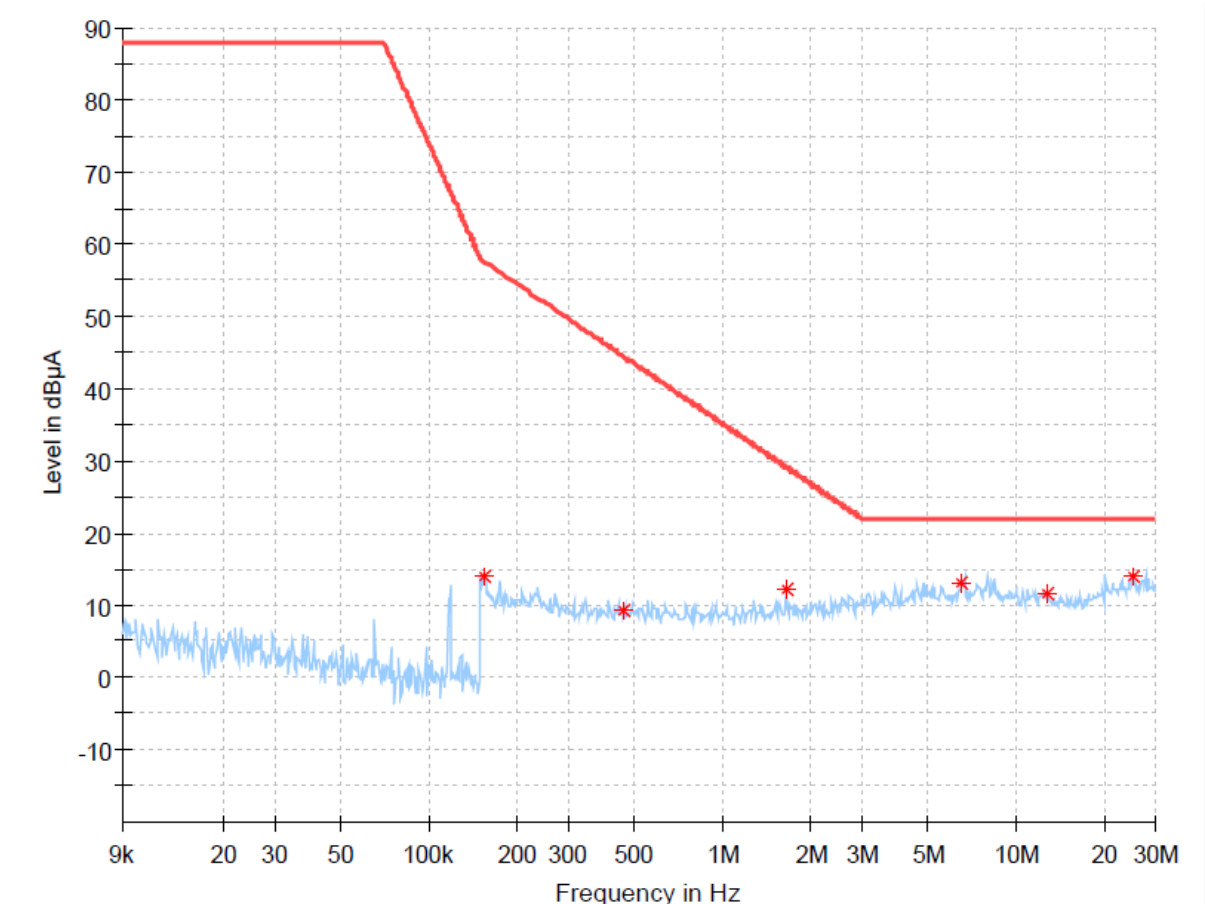


5.4 Radiated electromagnetic disturbances in X (9kHz to 30MHz)

EUT set Condition: ON

Results: Pass

Please refer to following diagram for individual



Critical Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Corr. (dB)
0.154545	13.94	57.64	43.70	6.0
0.457178	9.24	44.61	35.36	6.0
1.650223	12.10	29.18	17.09	6.0
6.579814	13.27	22.00	8.73	6.1
12.815797	11.63	22.00	10.37	6.2
25.211521	14.13	22.00	7.87	6.3

Final Result

Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Corr. (dB)
---	---	---	---	---

The test data shows much less than the limit, no necessary take the results.

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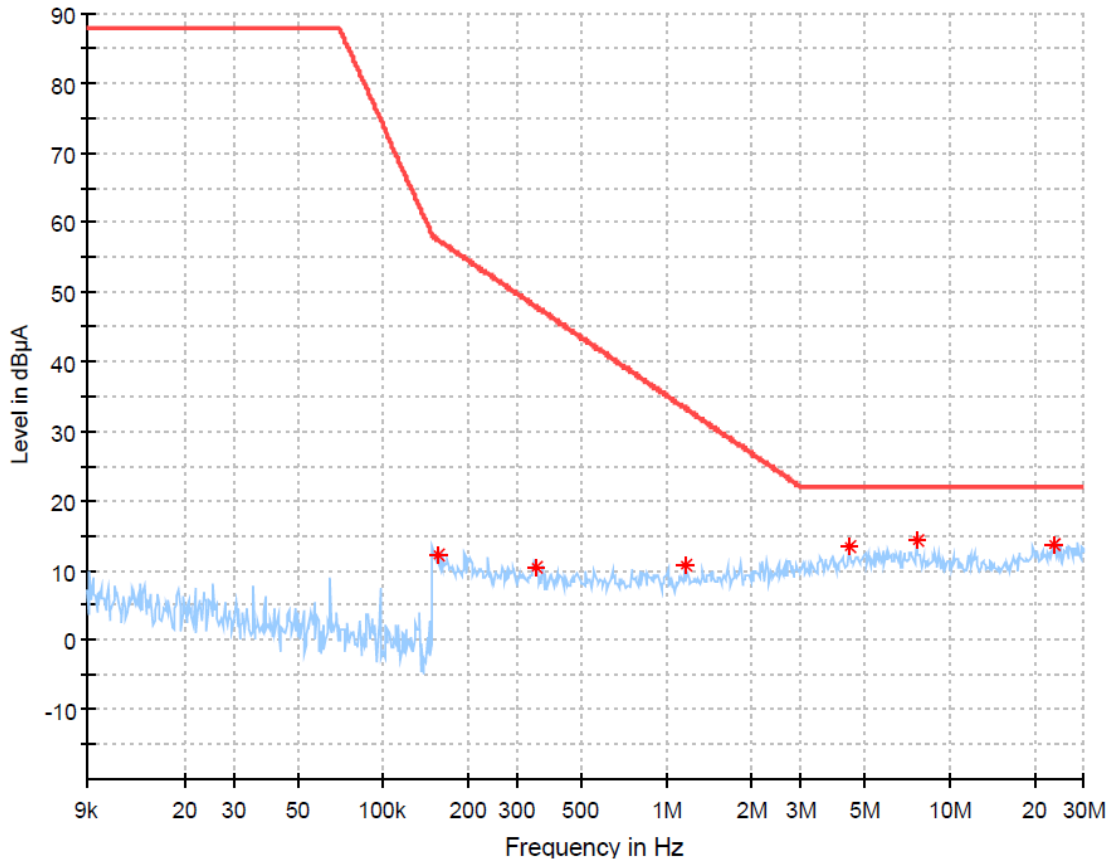


Radiated electromagnetic disturbances in Y (9kHz to 30MHz)

EUT set Condition: ON

Results: Pass

Please refer to following diagram for individual



Critical Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Corr. (dB)
0.156091	12.21	57.52	45.31	6.0
0.349469	10.34	47.84	37.49	6.0
1.164916	10.80	33.37	22.56	6.0
4.419352	13.33	22.00	8.67	6.1
7.715349	14.20	22.00	7.80	6.1
23.515241	13.78	22.00	8.22	6.2

Final Result

Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Corr. (dB)
---	---	---	---	---

The test data shows much less than the limit, no necessary take the results.

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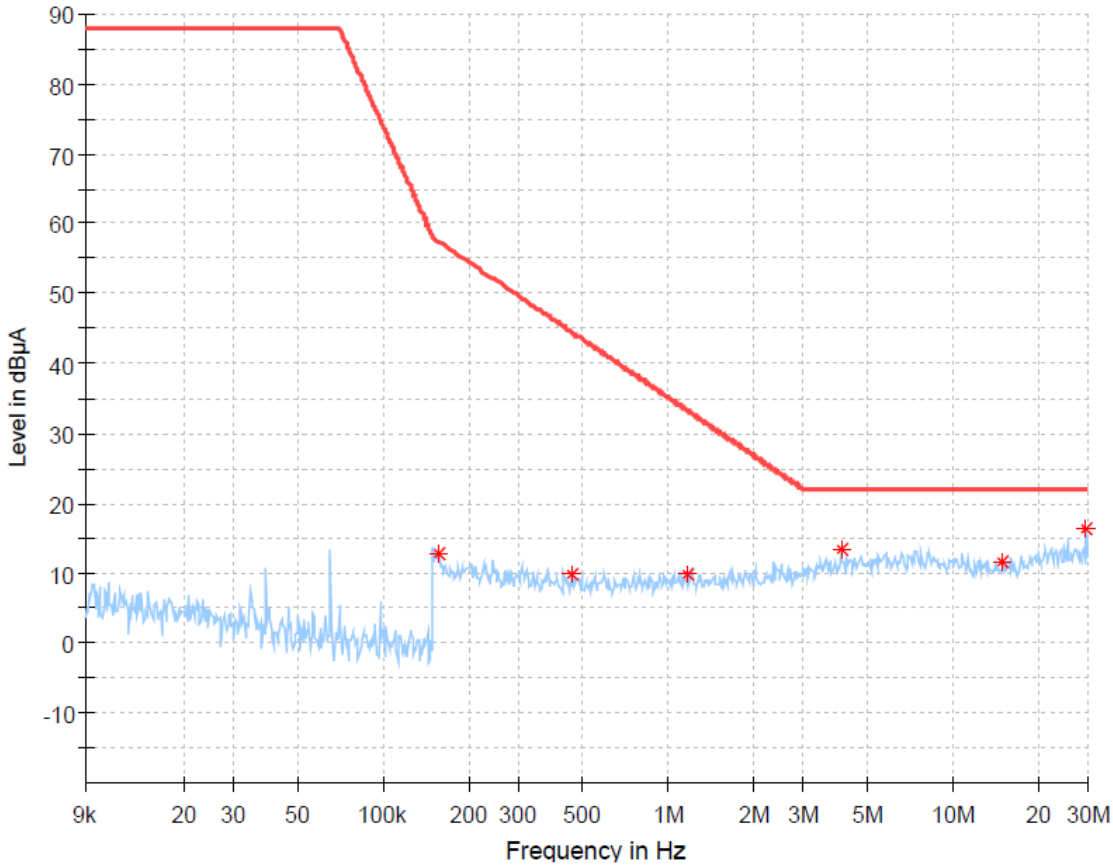


Radiated electromagnetic disturbances in Z (9kHz to 30MHz)

EUT set Condition: ON

Results: Pass

Please refer to following diagram for individual



Critical Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Corr. (dB)
0.157652	12.97	57.40	44.43	6.0
0.457178	9.88	44.61	34.73	6.0
1.176565	9.93	33.25	23.32	6.0
4.081198	13.47	22.00	8.53	6.1
15.027530	11.64	22.00	10.36	6.2
29.562491	16.35	22.00	5.65	6.3

Final Result

Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Corr. (dB)
---	---	---	---	---

The test data shows much less than the limit, no necessary take the results.

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6.0 Radiated Disturbance Test

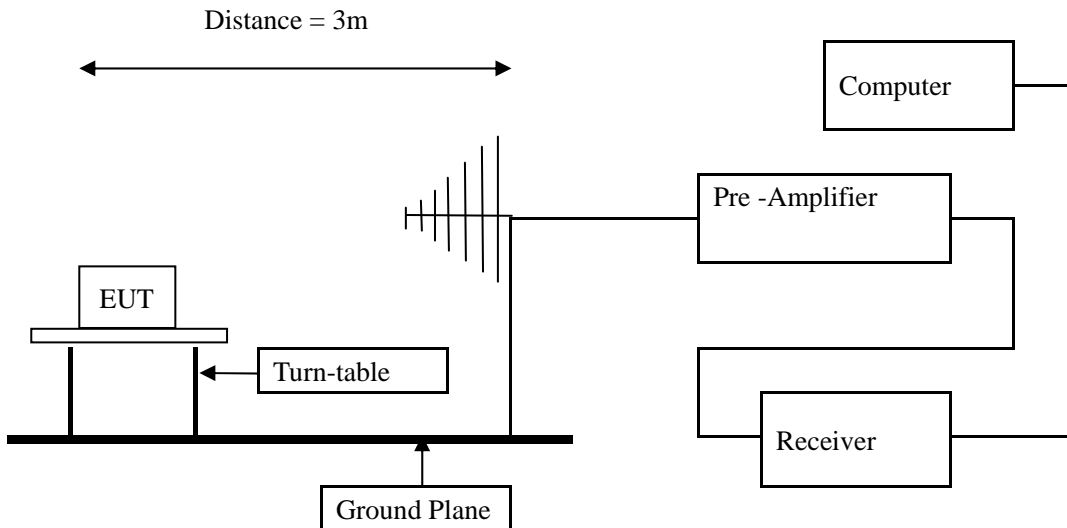
6.1 Schematics of the test



6.2 Test Method:

The test was performed in accordance with EN 55015: 2013+A1:2015

Block diagram of Test setup



6.3 Power line conducted Emission Limit

Frequency Range (MHz)	Quasi-Peak limits (dB μ V/m)
30-230	40.00
230-300	47.00

Note: The lower limit shall apply at the transition frequencies

6.4 Test result

Please refer to following table

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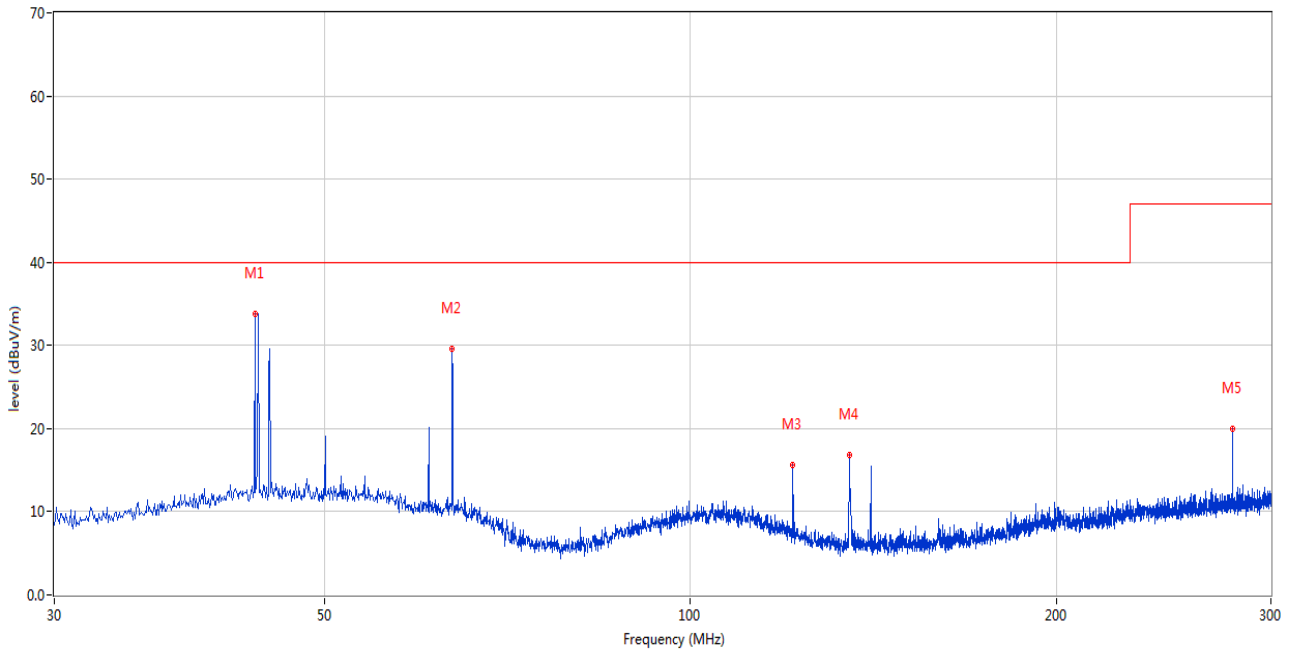
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A: Radiated Disturbance In Horizontal (30MHz----1000MHz)

Project Number:	CASE1	Test Engineer:	Haven
EUT Name:	Magnetic Light Stick	Test Standard:	EN 55015
Manufacturer:	Mid Ocean Brands B.V.	Work Addition:	WORKING
Model:	MO8225	Load:	
Temp.(°C):	25	Remark:	
Hum.:	65%		

CE_EN 55015 30MHz-300MHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	43.834	33.81	-11.84	40.0	-6.19	Peak	164.00	200	H	Pass
2	63.674	29.66	-13.81	40.0	-10.34	Peak	180.00	100	H	Pass
3	121.372	15.70	-16.32	40.0	-24.30	Peak	4.00	200	H	Pass
4	135.071	16.84	-17.89	40.0	-23.16	Peak	302.00	200	H	Pass
5	279.013	19.91	-12.54	47.0	-27.09	Peak	330.00	100	H	Pass

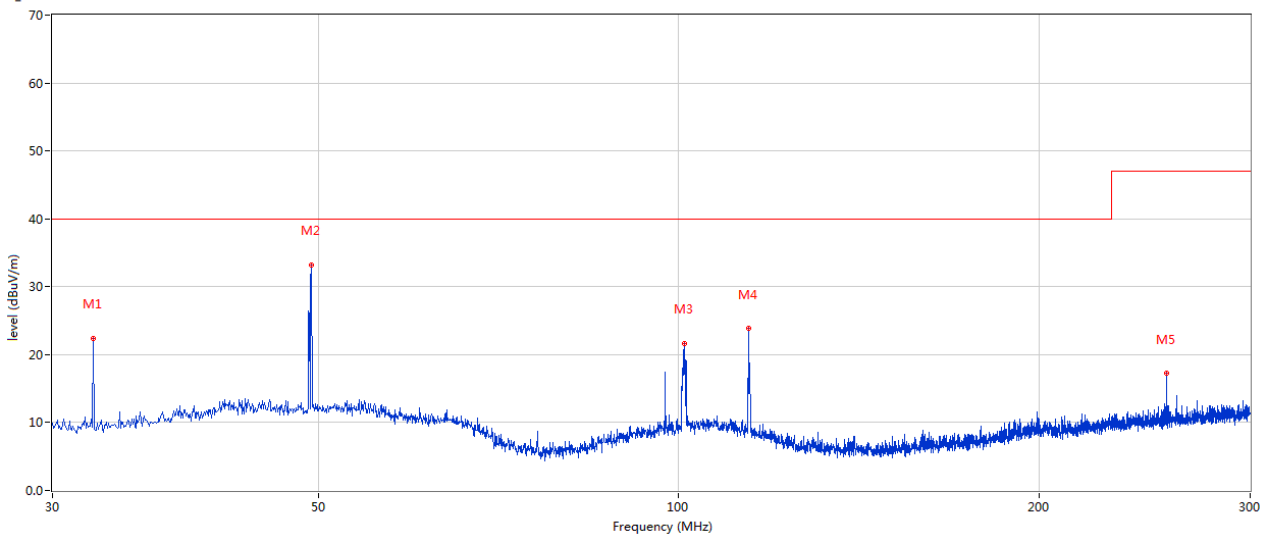
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B: Radiated Disturbance In Vertical (30MHz----1000MHz)

Project Number:	CASE1	Test Engineer:	Haven
EUT Name:	Magnetic Light Stick	Test Standard:	EN 55015
Manufacturer:	Mid Ocean Brands B.V.	Work Addition:	WORKING
Model:	MO8225	Load:	
Temp.(°C):	25	Remark:	
Hum.:	65%		

CE_EN 55015 30MHz-300MHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	32.429	22.45	-14.72	40.0	-17.55	Peak	261.00	100	V	Pass
2	49.368	33.27	-11.70	40.0	-6.73	Peak	346.00	200	V	Pass
3	101.195	21.69	-14.07	40.0	-18.31	Peak	0.00	100	V	Pass
4	114.286	23.82	-14.97	40.0	-16.18	Peak	257.00	200	V	Pass
5	255.596	17.24	-12.96	47.0	-29.76	Peak	354.00	100	V	Pass

The report refers only to the sample tested and does not apply to the bulk.

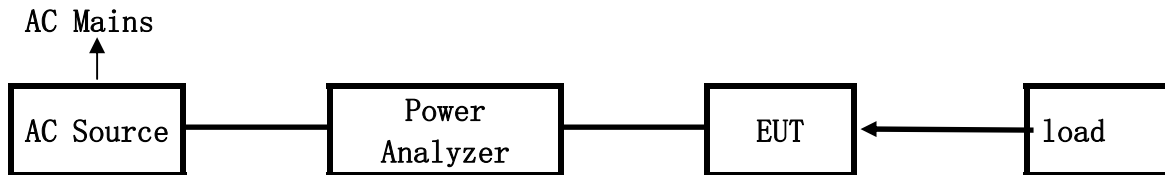
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7.0 Voltage Fluctuations & Flicker Test

7.1 Schematic of the test



EUT: Equipment Under Test

7.2 Test Method:

The test was performed in accordance with EN 61000-3-3: 2013

7.3 Test Results

Result: N/A

N/A ---DC Operation

Please refer to the following pages

Maximum Occurring Levels:

Ut: 230.01 (EUT Test RMS Voltage)

Pst:	Limit=	1.0	(The Highest short Term Flicker Value)
Plt:	Limit=	0.65	(The Highest Long Term Flicker Value)
dt(%):	Limit=	3.3%	(The Highest instantaneous Voltage Change (10ms))
dc(%):	Limit=	3.3%	(The highest Relative steady state voltage change (1sec))
dmax:	Limit=	4%	(The highest Max Relative voltage change)
Tdt:	Limit=	500ms	(The Max Time(in milli-sec) that dt exceeds 3%)

The report refers only to the sample tested and does not apply to the bulk.

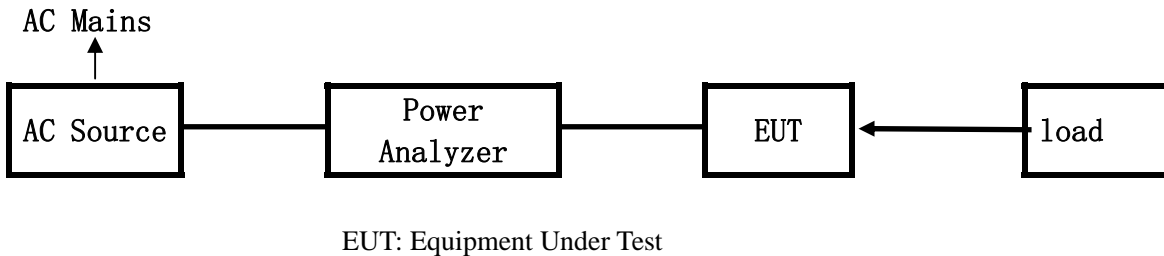
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8.0 Harmonic Current Emission Test

8.1 Schematic of the test



8.2 Test Method

The test was performed in accordance with EN 61000-3-2: 2014

*: The Level of the product is: CLASS C (Below 25W LED drivers is Class A)

8.3 Test Results: N/A

The report refers only to the sample tested and does not apply to the bulk.

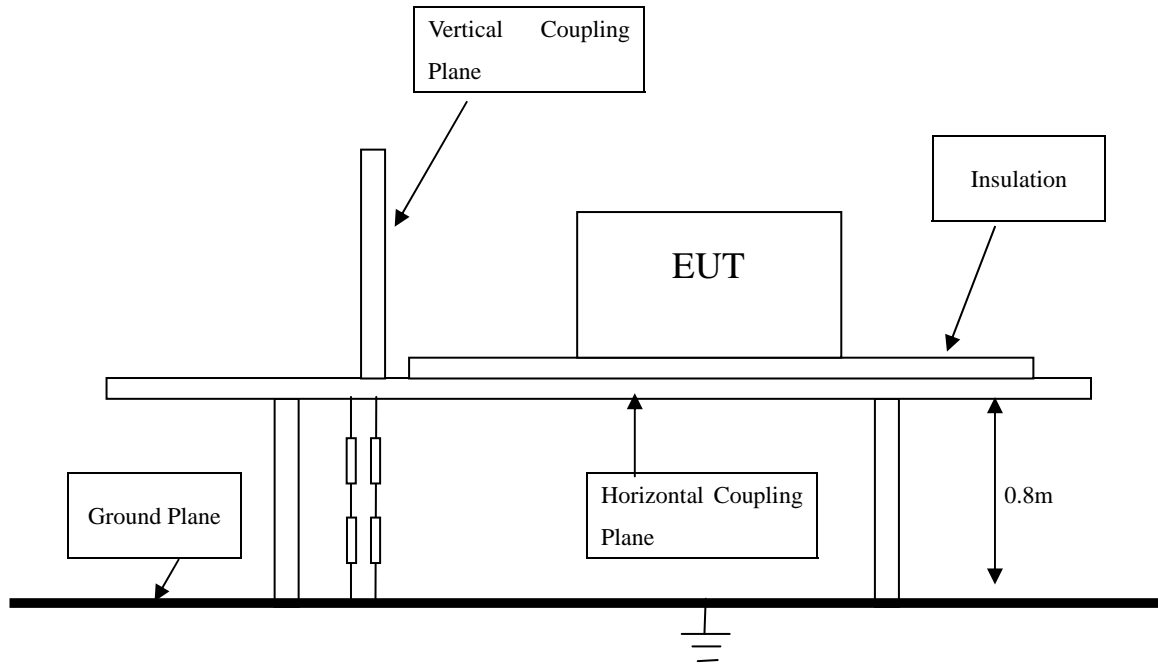
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9.0 Electrostatic Discharge

9.1 Schematic of the test



9.2 Test method

The test was performed in accordance with EN 61000-4-2:2009

9.3 Test severity

- ±4kV for direct & in-direct Contact Discharge
- ±8kV for air Discharge

Performance Criterion Require: B (Please see following table)

9.4 Susceptibility performance Criteria and Severity level

A	Normal performance within the specification limits
B	Temporary degradation or loss of function or performance which is self recoverable
C	Temporary degradation or loss of function or performance which requires operator intervention or system reset
D	Degradation or loss of function which is not recoverable due to damage of equipment(components) or software, or loss of data

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Severity Level

Level	Test Voltage Direct & in-direct contact Discharge (kV)	Test Voltage Air discharge(kV)
1	± 2kV	± 2kV
2	± 4kV	± 4kV
3	± 6kV	± 8kV
4	± 8kV	± 15kV

9.5 Test Result

Please refer to the following table for individual results.

Location	Discharge Method	Test Voltage	Results
HCP (Horizontal coupling plane)	In-Direct	± 2kV, ± 4kV	Pass
VCP (Vertical Coupling plane)	In-Direct	± 4kV ± 4kV	Pass
Shell	In-Direct	± 2kV, ± 4kV	Pass
Shell	Air Discharge	± 2kV, ± 4kV, ± 8kV	Pass
Gap	Air Discharge	± 2kV, ± 4kV, ± 8kV	Pass
Cable	Air Discharge	± 2kV, ± 4kV, ± 8kV	Pass
Connector	Air Discharge	± 2kV, ± 4kV, ± 8kV	Pass

Remark: Calculated measurement uncertainty= 0.2kV

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10.0 RF field strength susceptibility (80MHz----- 1000MHz)

10.1 Schematics of the test



10.2 Test Method:

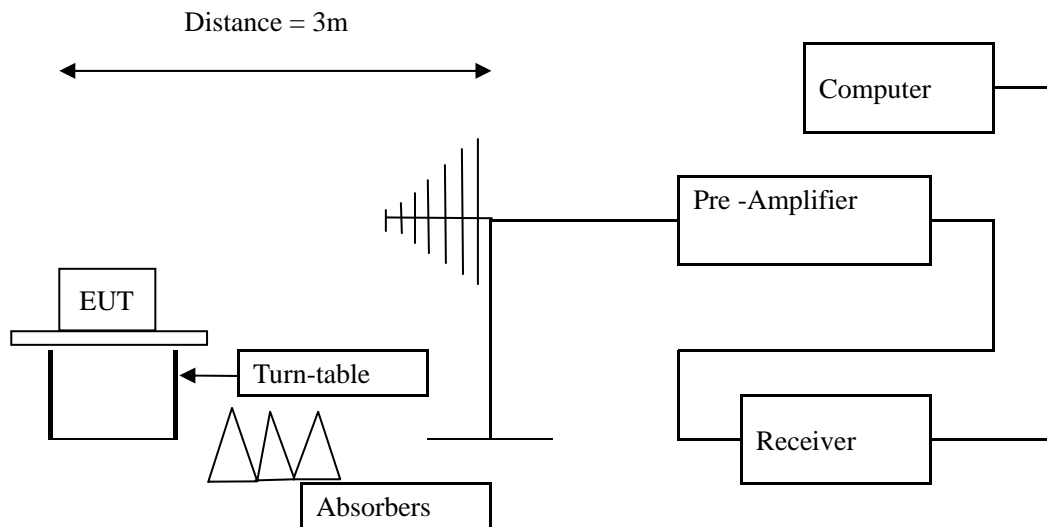
The test was performed in accordance with EN 61000-4-3: 2006

Severity: Level 2 (3V/m)

Modulation: 80% AM

Performance Criterion Require: A (Please see following table)

Block diagram of Test setup



10.3 Susceptibility performance Criteria and severity Level

Susceptibility performance Criteria

A	Normal performance within the specification limits
B	Temporary degradation or loss of function or performance which is self recoverable
C	Temporary degradation or loss of function or performance which requires operator intervention or system reset
D	Degradation or loss of function which is not recoverable due to damage of equipment(components) or software, or loss of data

Severity Level

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Level	Field Strength (V/m)
1	1
2	3
3	10

10.4 Test Result:

Please refer to the following table for individual results.

Frequency (MHz)	Face	Polarity	Level (V/m)	Dwell Time(s)	Sweep Rate (%)	Results
80-1000	0°	Horizontal	3	1	1	Pass
80-1000	90°	Horizontal	3	1	1	Pass
80-1000	180°	Horizontal	3	1	1	Pass
80-1000	270°	Horizontal	3	1	1	Pass
80-1000	0°	Vertical	3	1	1	Pass
80-1000	90°	Vertical	3	1	1	Pass
80-1000	180°	Vertical	3	1	1	Pass
80-1000	270°	Vertical	3	1	1	Pass

Remark: Calculated measurement uncertainty= 80MHz to 1000MHz (+3.7/ -1.3) V/m

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11.0 Electrical Fast Transient/Burst (EFT/B) immunity test

11.1 Schematics of the test



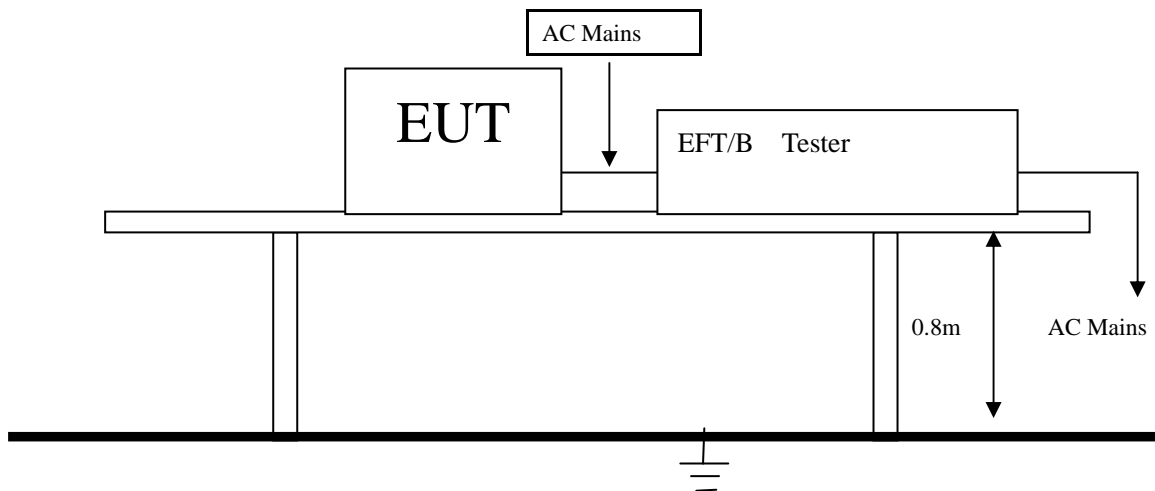
11.2 Test Method

The test was performed in accordance with EN 61000-4-4: 2012

Severity: Level 2 (1kV)

Performance Criterion Require: B (Please see following table)

Block diagram of Test setup



11.3 Susceptibility performance Criteria and Severity Level

Susceptibility performance Criteria

A	Normal performance within the specification limits
B	Temporary degradation or loss of function or performance which is self recoverable
C	Temporary degradation or loss of function or performance which requires operator intervention or system reset
D	Degradation or loss of function which is not recoverable due to damage of equipment(components) or software, or loss of data

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Severity Level

Open Circuit output Test Voltage $\pm 10\%$		
Level	On power Supply Lines	On I/O (Input/output) Signal data and control lines
1	0.5kV	0.5kV
2	1kV	1kV
3	2kV	2kV
4	4kV	4kV
X	Special	Special

11.4 Test Results

Please refer to following page.

Inject location:

Inject Line	Voltage kV	Inject Times (s)	Method	Results
L	± 1	120	Direct	N/A
N	± 1	120	Direct	N/A
L-N	± 1	120	Direct	N/A

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12.0 Surge test

12.1 Schematics of the test

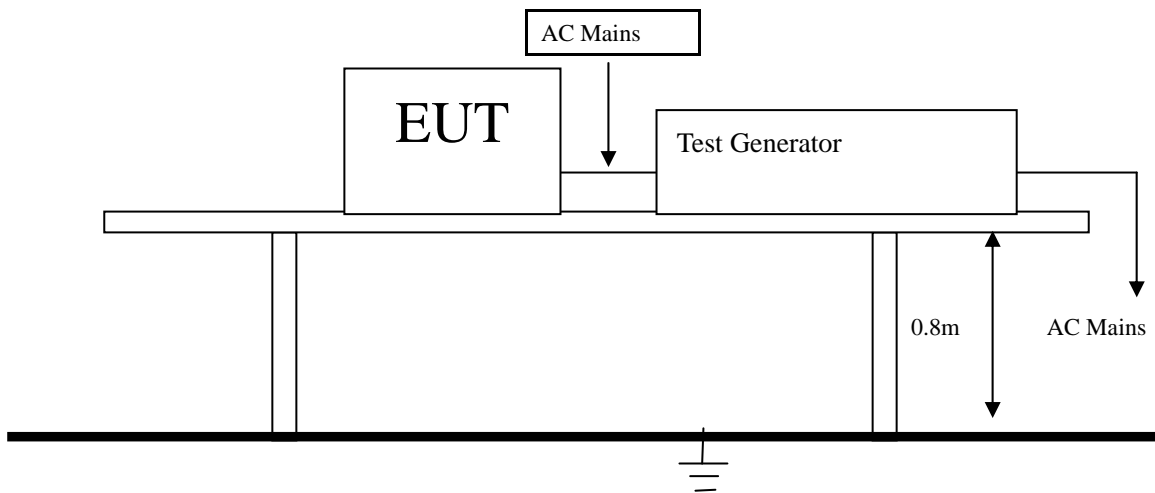


12.2 Test Method:

The test was performed in accordance with EN 61000-4-5: 2014
 Severity: Level 2 (Below 25W Line to Neutral at 0.5kV)

Performance Criterion Require: C (Please see following table)

Block diagram of Test setup



12.3 Susceptibility performance Criteria and Severity Level

Susceptibility performance Criteria

A	Normal performance within the specification limits
B	Temporary degradation or loss of function or performance which is self recoverable
C	Temporary degradation or loss of function or performance which requires operator intervention or system reset
D	Degradation or loss of function which is not recoverable due to damage of equipment(components) or software, or loss of data

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Severity Level

Severity Level	Open-Circuit Test Voltage kV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

12.4 Test Results

Please refer to following page.

Test location:

Location	Polarity	Phase Angle	No of Pulse	Pulse Voltage(kV)	Results
L-N	+	90	10	0.5	N/A
	-	270	10	0.5	N/A

The report refers only to the sample tested and does not apply to the bulk.

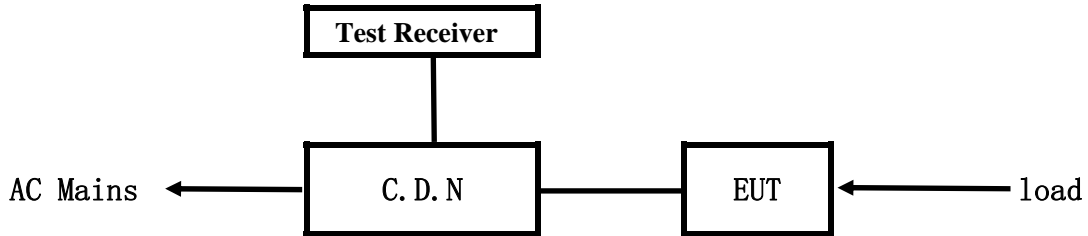
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13.0 Conducted Immunity test

13.1 Schematics of the test



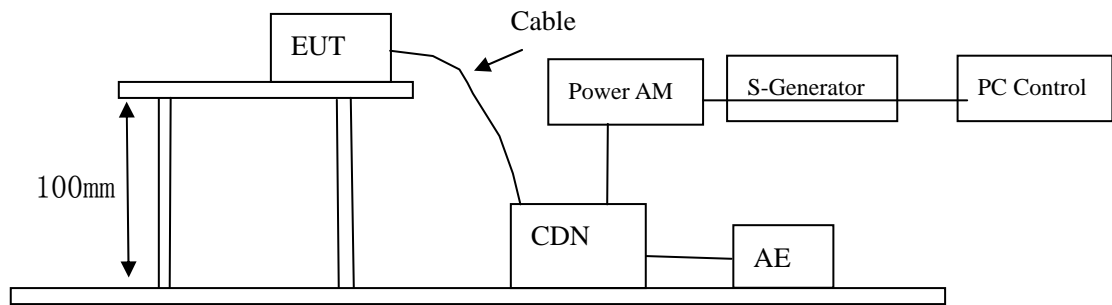
13.2 Test Method

The test was performed in accordance with EN 61000-4-6: 2009

Severity: Level 2 (3 V rms), 0.15MHz—80MHz

Performance Criterion Require: A (Please see following table)

Block diagram of Test setup



13.3 Susceptibility performance Criteria and Severity Level

Susceptibility performance Criteria

A	Normal performance within the specification limits
B	Temporary degradation or loss of function or performance which is self recoverable
C	Temporary degradation or loss of function or performance which requires operator intervention or system reset
D	Degradation or loss of function which is not recoverable due to damage of equipment(components) or software, or loss of data

Severity Level

Severity Level	Field Strength V/m
1	1
2	3
3	10
*	Special

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13.4 Test Results

Please refer to the following page

Frequency Range (MHz)	Injected Position	Strength	Criterion	Result
0.15 - 20	AC Line	3V (rms) Unmodulated	A	N/A
20 - 80	AC Line	3V (rms) Unmodulated	A	N/A

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14.0 Power Frequency magnetic field test

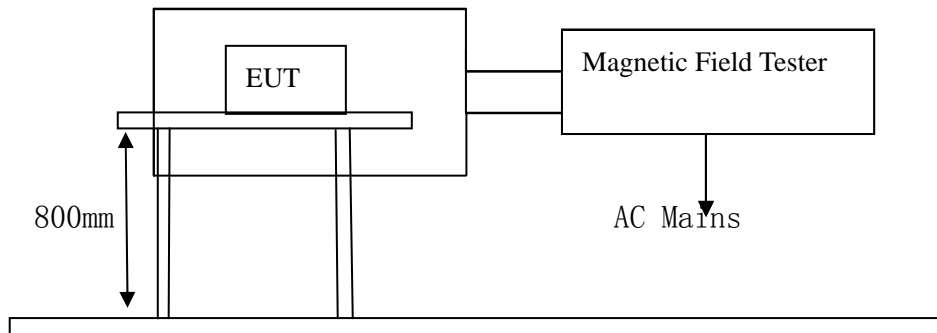
14.1 Schematics of the test



14.2 Test Method

The test was performed in accordance with EN 61000-4-8: 2010
 Severity: Level 2 (3A/m),
 Performance Criterion Require: A (Please see following table)

Block diagram of Test setup



14.3 Susceptibility performance Criteria and Severity Level

Susceptibility performance Criteria

A	Normal performance within the specification limits
B	Temporary degradation or loss of function or performance which is self recoverable
C	Temporary degradation or loss of function or performance which requires operator intervention or system reset
D	Degradation or loss of function which is not recoverable due to damage of equipment(components) or software, or loss of data

Severity Level

Severity Level	Magnetic Field Strength A/m
1	1
2	3
3	10

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4	30
5	100
*	Special

14.4 Test Results:

Please refer to the following page

Test Level	Testing Duration	Coil Orientation	Criterion	Result
3A/m	5 Mins	Horizontal	A	N/A
3A/m	5 Mins	Vertical	A	N/A

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15.0 Voltage Dips/Interruptions immunity test

15.1 Schematics of the test

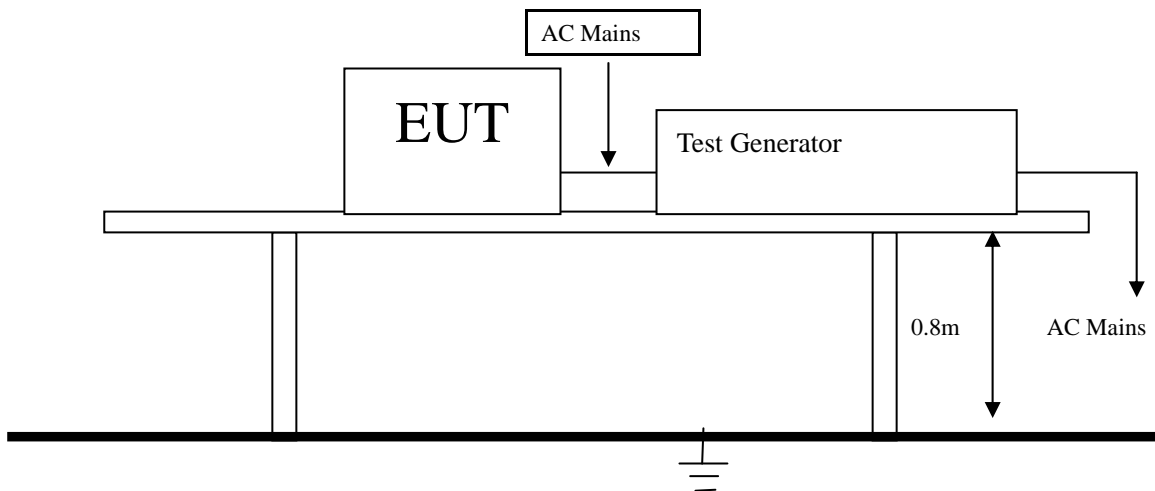


15.2 Test Method:

The test was performed in accordance with EN 61000-4-11: 2004

Performance Criterion Require: C&B (Please see following table)

Block diagram of Test setup



15.3 Susceptibility performance Criteria and Severity Level

Susceptibility performance Criteria

A	Normal performance within the specification limits
B	Temporary degradation or loss of function or performance which is self recoverable
C	Temporary degradation or loss of function or performance which requires operator intervention or system reset
D	Degradation or loss of function which is not recoverable due to damage of equipment(components) or software, or loss of data

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Severity Level

Test Level % Ut	Voltage dip and short interruptions % Ut	Duration(in period)
0	100	0.5 1
40	60	5 10
70	30	25 50 *

15.4 Test Result:

Please refer to the following page

Test Level % Ut	Voltage dips & short interruptions % Ut	Duration(in period)	Phase Angle	Criterion	Result
0	100	0.5P	0° - 360°	B	N/A
70	30	10P	0° - 360°	C	N/A

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16.0 Product Labelling

16.1 CE Mark label specification

Text of the mark is black or white in color and is left justified. Labels are printed in indelible ink on permanent adhesive backing and shall be affixed at a conspicuous location on the EUT or silk-screened onto the EUT.



16.2 Mark Location: Rear enclosure

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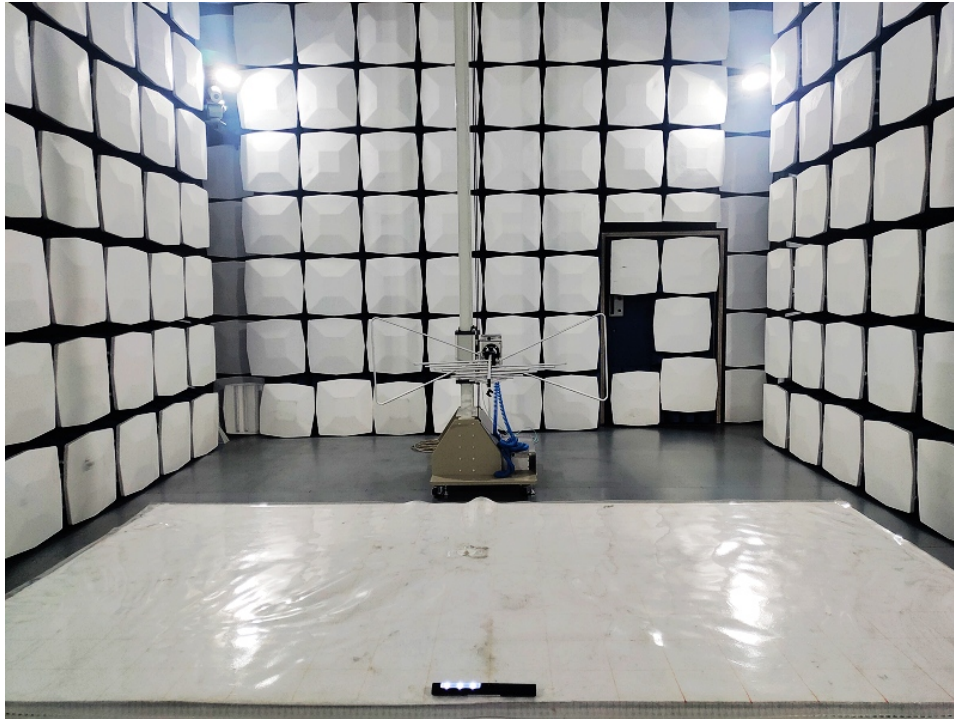
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Appendix:

Photos of Testing

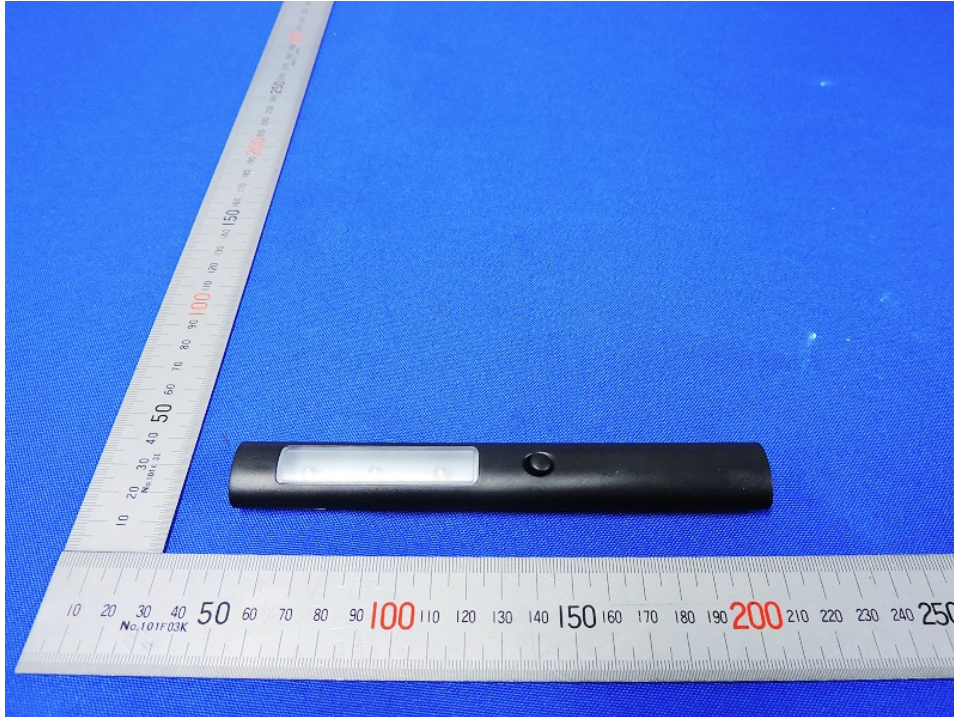


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Appendix:
Photos of the Product



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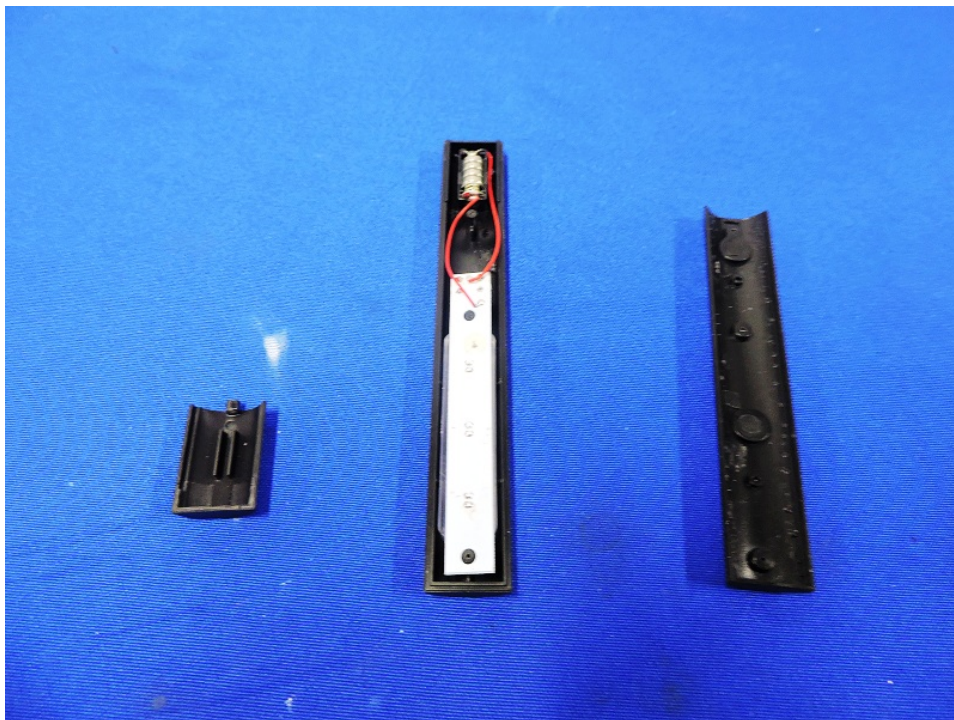
Appendix:
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Appendix:

Photos of Testing



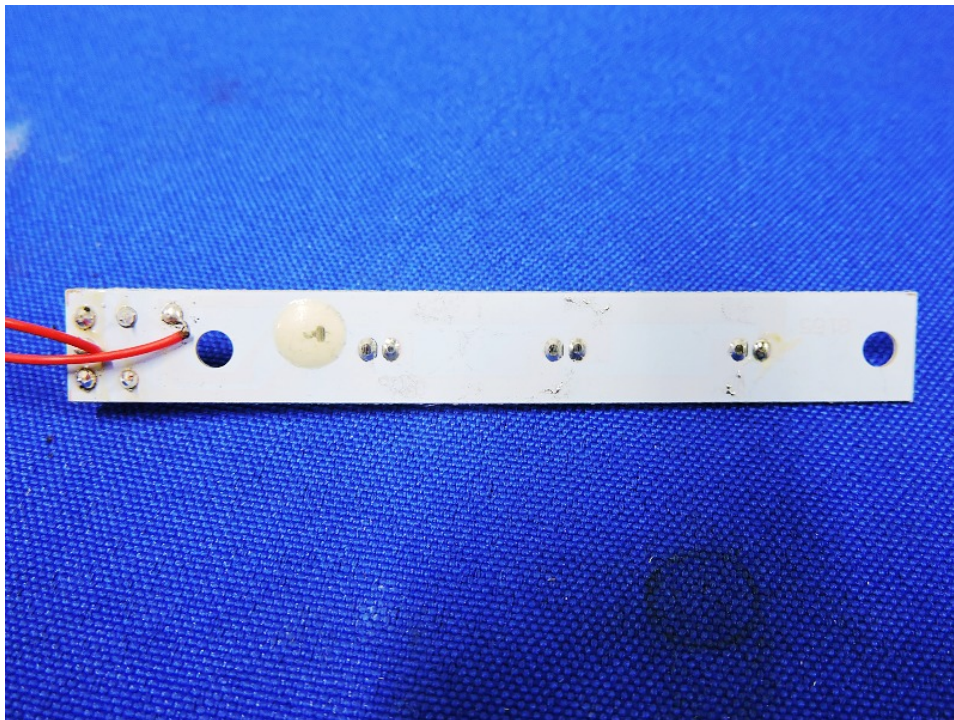
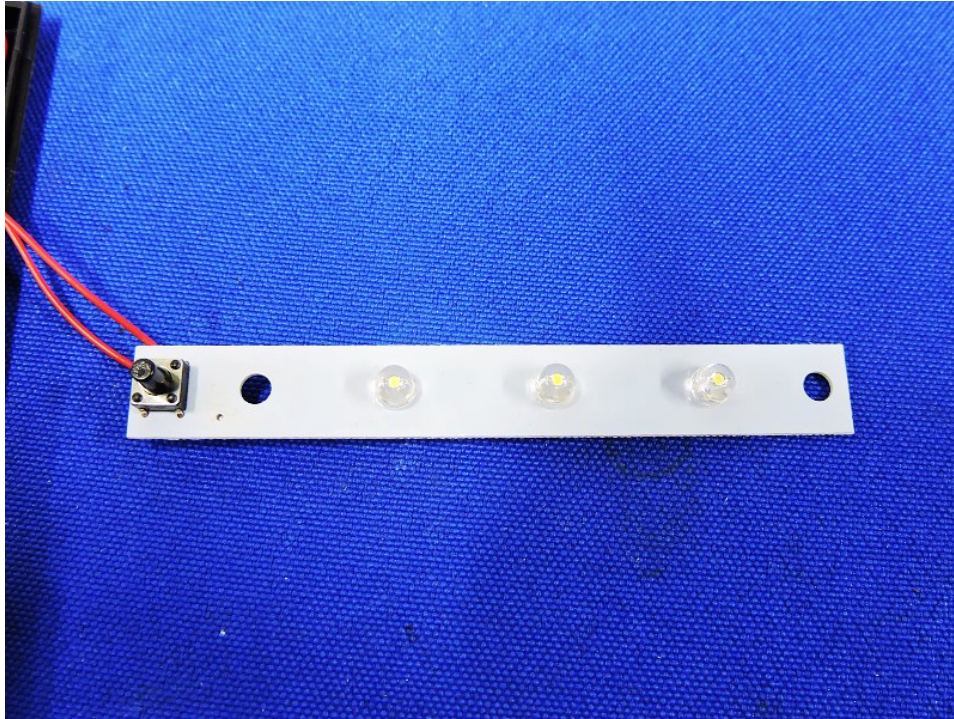
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Appendix:
Photos of the Product



-End of the report-

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