SHENZHEN LIOWN ELECTRONICS CO., LTD

TEST REPORT

SCOPE OF WORK
IC TESTING–LU5074
ADDITIONAL MODELS: 3472399, 996508, LU5674

REPORT NUMBER
SZHH01661171-002

ISSUE DATE
MAR 24, 2022

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TEST REPORT

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Intertek Report No.: SZHH01661171-002

LABORATORY MEASUREMENTS

Pursuant To ICES-003: 2020 And ANSI C63.4: 2014

Applicant / Company:	SHENZHEN LIOWN ELECTRONICS CO., LTD 13F, FINANCE CENTRE BUILDING, NO. 22, TAIZI ROAD, SHEKOU, NANSHAN DISTRICT, SHENZHEN, GUANGDONG, CHINA 518067
Equipment Under Test (EUT):	
Product Description:	2AA Battery Operated Flameless Pillar Additional Names: Premium Pumpkin Candle Natural Small Gourd, Flameless candle
Model:	LU5074 Additional Models: 3472399, 996508, LU5674
Equipment Type:	Class B Device
Sample Receipt Date:	Mar 9, 2022
Test Conducted Date:	Mar 9, 2022 to Mar 24, 2022
Issue Date:	Mar 24, 2022
Test Site and Location:	Intertek Testing Services Shenzhen Ltd. Longhua Branch 101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community GuanHu Subdistrict, LongHua District, Shenzhen, People's Republic of China
Conclusion:	The sample as received complied with the ICES-003 requirement.

Prepared and Checked by:

Sign on File
Tom Li
Engineer

Approved by:

Digitally signed by Jimmy Wen
Location: Intertek Testing Services

Jimmy Wen
Assistant Manager

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1. GENERAL INFORMATION

1.1 Client Information

Applicant:	SHENZHEN LIOWN ELECTRONICS CO., LTD

1.2 General Description of EUT

Product Description:	2AA Battery Operated Flameless Pillar
Model No.:	LU5074
Serial No.:	Not Labelled

1.3 Details of EUT

Rated Voltage:	N/A
Battery Voltage:	TX: DC 3.0V (1 x 3.0V CR2025 battery) RX: DC 3.0V (2 x 1.5V AA batteries)
Support Equipment:	N/A
Cables:	N/A
Adaptor:	N/A

For more detail features, please refer to user's Manual.

2. TEST SUMMARY

Test	Standard	Class	Result
Radiated Emission	ICES-003: 2020 Clause 3.2.2	Class B	Pass

Remark:

This test report is issued to the Company indicated based on the request of the Applicant of the product mentioned in this report.

The Models: 3472399, 996508, LU5674 are the same as the Model: LU5074 in hardware aspect. The difference in appearance and model number serves as marketing strategy.

Enclosed please find the Canadian Emissions Requirements and Labelling Requirements.

3. TEST SPECIFICATIONS

3.1 Standards

The radiated emission test was performed according to the procedures in ANSI C63.4: 2014. Test results are in compliance with the requirements of ICES-003: 2020. The EUT is battery operating device, the conducted emission is unnecessary. (DC)

The EUT setup configuration please refers to the photo of test configuration in item.

3.2 Definition of Device Classification

Information Technology Equipment (ITE):
Information Technology Equipment (ITE) is defined as devices or systems that use digital techniques for purposes such as data processing and computation. ITE is any unintentional radiator (device or system) that generates and/or uses timing signals or pulses having a rate of at least 9 kHz and employs digital techniques for purposes such as computation, display, data processing and storage, and control.

Class A ITE:
ITE intended strictly for non-residential use in commercial, industrial or business environments, and whose design or other characteristics strongly preclude the possibility of its use in a residential environment.

Class B ITE:
All ITE that cannot meet the conditions for Class A operation.

3.3 EUT Operation Condition

The EUT was powered by DC 3.0V & DC 3.0V with batteries and was running in accordance with the manufacturer's operation manual.

4. RADIATED EMISSION MEASUREMENTS (ICES-003: 2020 CLAUSE 3.2.2)

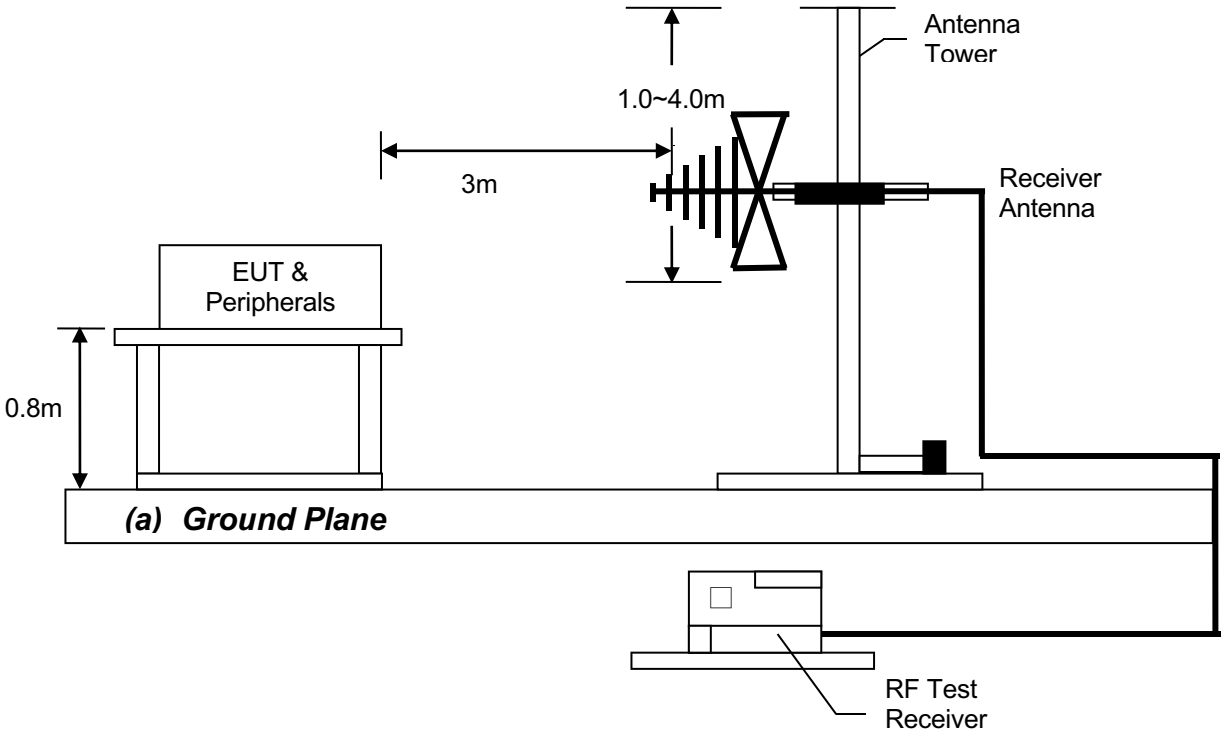
4.1 Operating Environment

Temperature: 25°C Test Voltage: TX: DC 3.0V &
RX: DC 3.0V

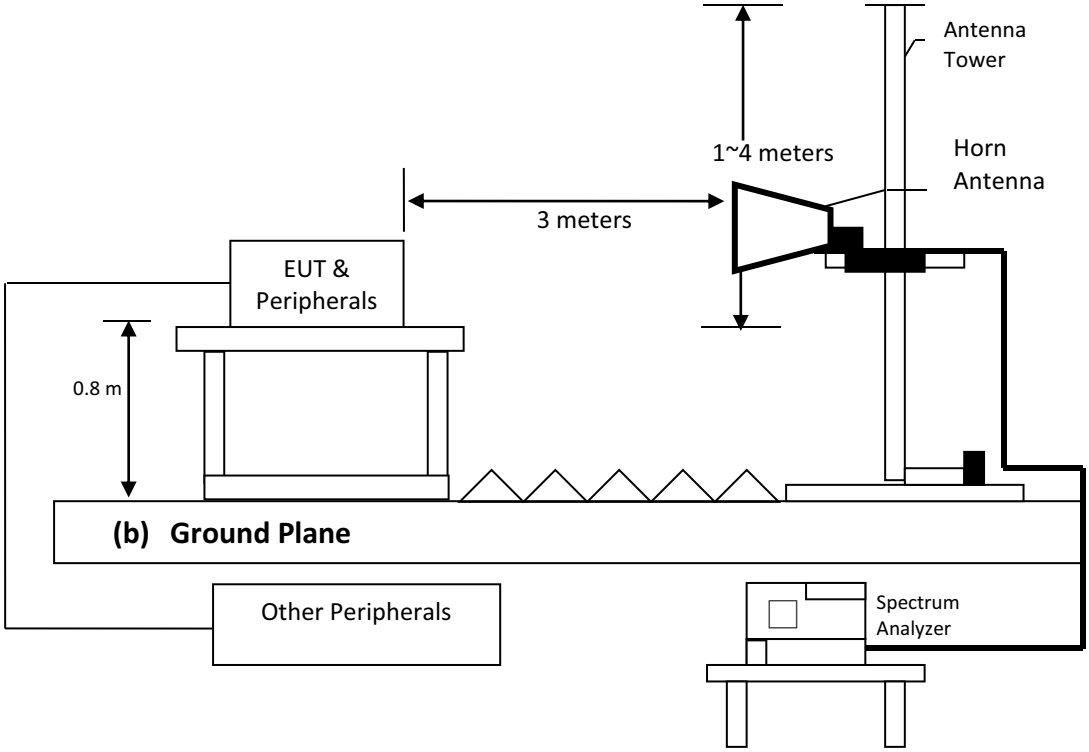
4.2 Test Setup and Procedure

The figure below shows the test setup, which is utilized to make these measurements.

The frequency spectrum from 30MHz to 1000MHz was investigated.



(Radiated Emission Measurements Test Setup for 30MHz to 1GHz)



(Radiated Emission Measurements Test Setup for above 1GHz)

For tabletop equipment, the equipment under test was placed on the top of rotation table 0.8 meter above ground plane. For floor-standing equipment, the EUT and all cables were insulated, if required, from the ground plane by up to 12 mm of insulating material.

The table was 360 degrees to determine the position of the highest radiation.

EUT is set 3 meters from the EMI receiving antenna, which is mounted on a variable height mast. The antenna height is varied between one meter and four meters above ground to find the maximum value of the field strength. Both horizontal polarization and vertical polarization of the antenna are set to make the measurement. The bandwidth was setting on the EMI meter 120 kHz for 30MHz to 1GHz, The bandwidth was setting on the Spectrum Analyzer 1MHz for above 1GHz.

The levels are quasi peak value readings for the frequency spectrum from 30MHz to 1000MHz was investigated.
The levels are peak, average value readings for the frequency spectrum from 1GHz to 6GHz was investigated.

4.3 Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ185-01	EMI Receiver	R & S	ESCI	Jul 12, 2021	Jul 12, 2022
SZ061-03	Biconilog Antenna	ETS	3142E	Jul 7, 2021	Jul 7, 2024
SZ188-01	Anechoic Chamber	ETS	FACT 3-2.0	Dec 12, 2021	Dec 12, 2024

4.4 Radiated Emission Limits

According to ICES-003: 2020 Clause 3.2.2, except for Class A ITE, the field strength of radiated emission from ITE at a distance of 3 meters shall not exceed the following values:

Class B Radiated Emission Limits:

Frequency MHz	Field Strength dBμV/m
30-88	40.0
88-216	43.5
216-230	46.0
230-960	47.0
Above 960	54.0

4.5 Uncertainty of Radiated Emission

When determining the test conclusion, the Measurement Uncertainty of test has been considered. The measurement uncertainty is 4.8dB at a level of confidence of 95%.

4.6 Radiated Emission Test Data

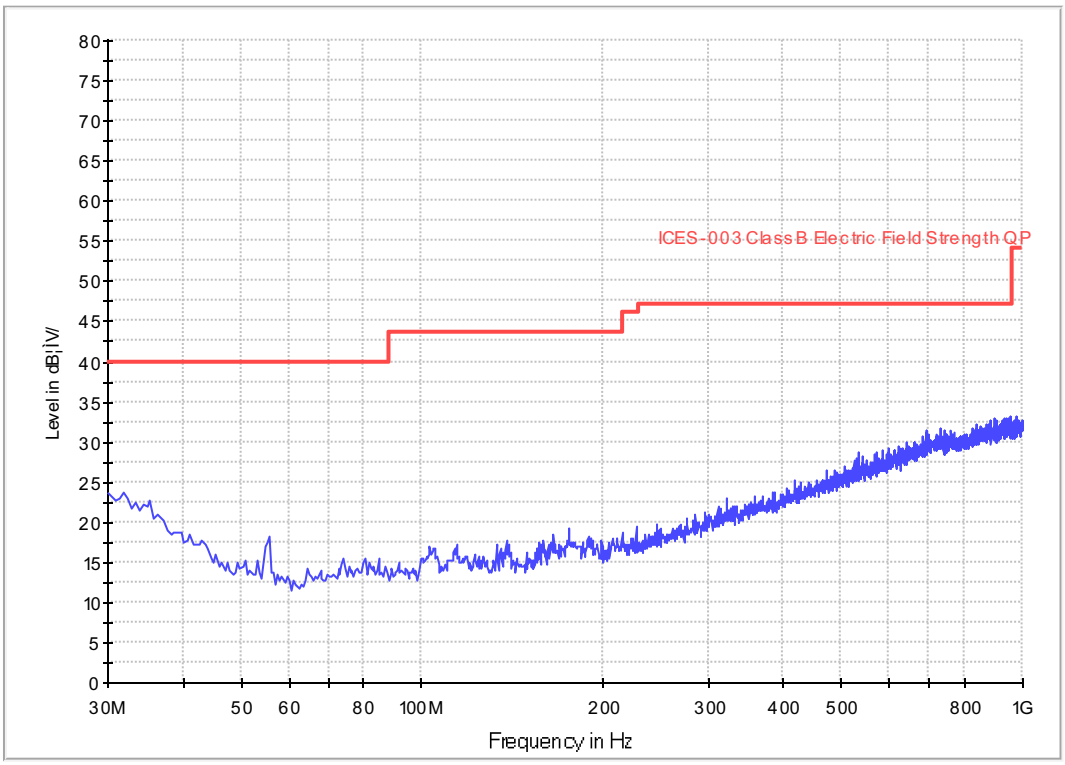
The graphic and data table consisting of the worst-case testing result were attached in the following pages.

Applicant: SHENZHEN LIOWN ELECTRONICS CO., LTD
Worst Case Operating Mode: Light Model: LU5074

Graphic / Data Table

Radiated Scan
Pursuant to ICES-003 Emissions Requirement

Horizontal



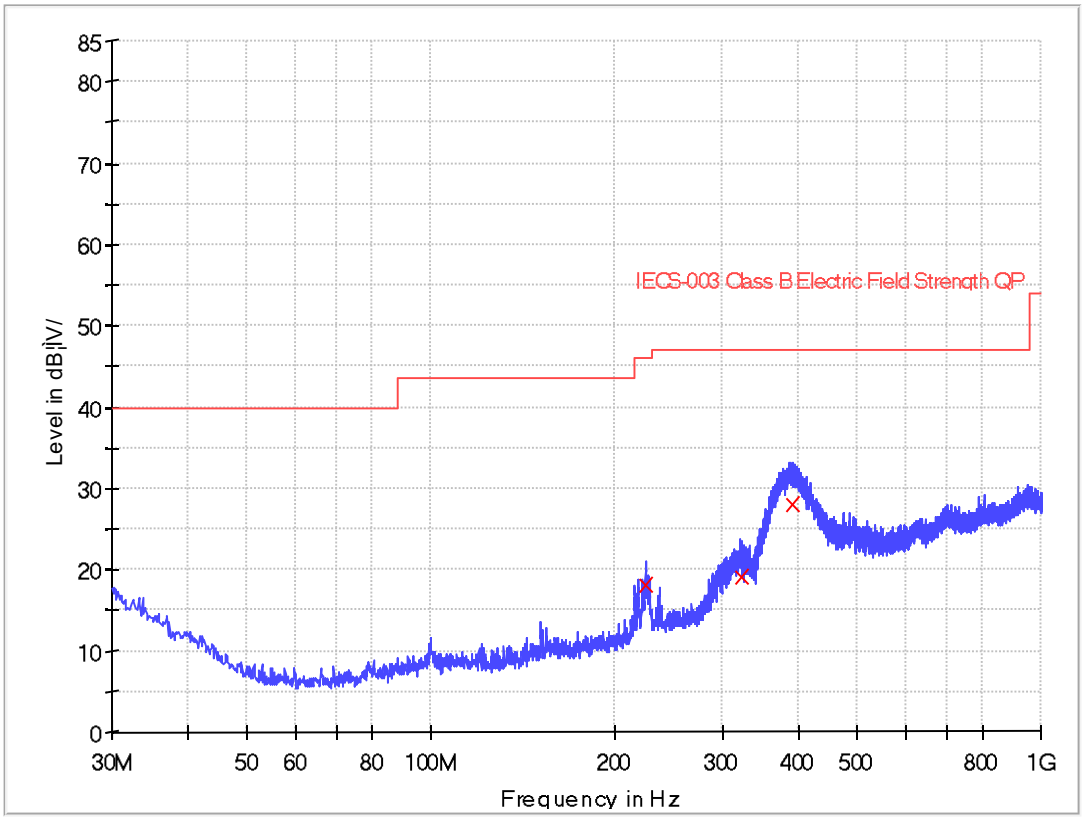
Remark: The emissions were very low against the limit in the frequency range 30MHz-1000MHz.

Applicant: SHENZHEN LIOWN ELECTRONICS CO., LTD
Worst Case Operating Mode: Light Model: LU5074

Graphic / Data Table

Radiated Scan
Pursuant to ICES-003 Emissions Requirement

Vertical



Limit and Margin

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
224.606250	18.1	1000.0	120.000	100.0	V	13.5	27.9	46.0
323.182500	19.2	1000.0	120.000	100.0	V	17.1	27.8	47.0
392.000000	28.0	1000.0	120.000	100.0	V	19.6	19.0	47.0

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (d µV/m)= Corr. (dB/m)+ Read Level (dBµV)
3. Margin (dB) = Limit QPK(dBµV/m) – QuasiPeak (dBµV/m)

Appendix A1: External Photo of EUT

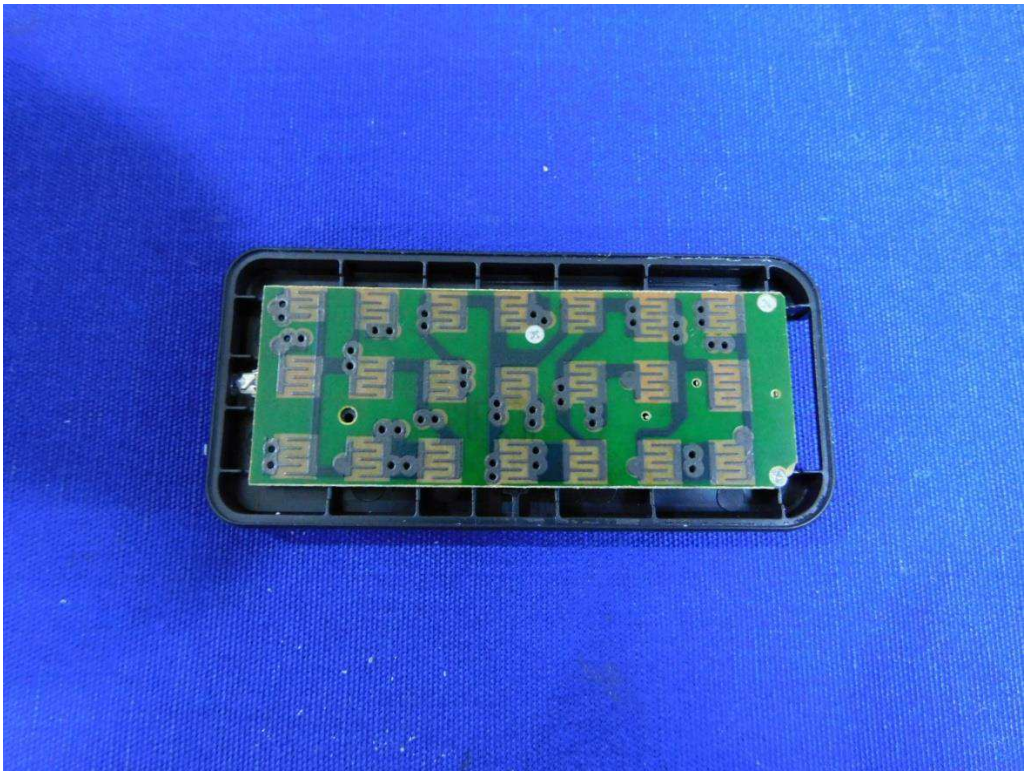
External Photo

External Photo

APPENDIX A2: INTERNAL PHOTO OF EUT

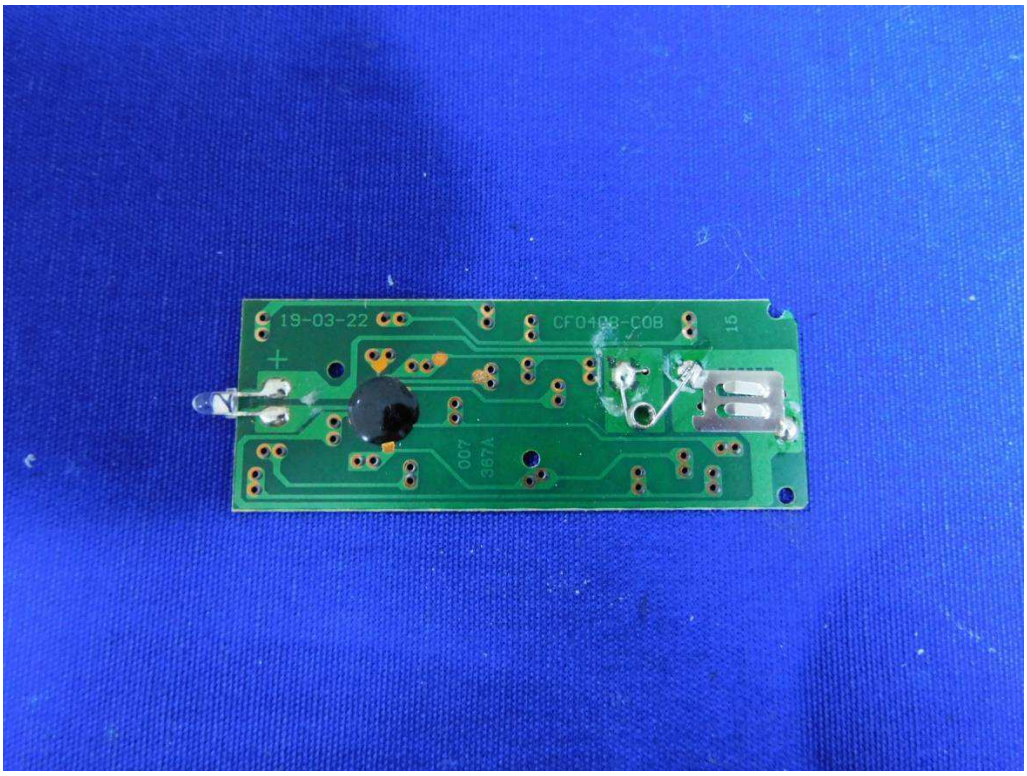
Internal Photo

Internal Photo

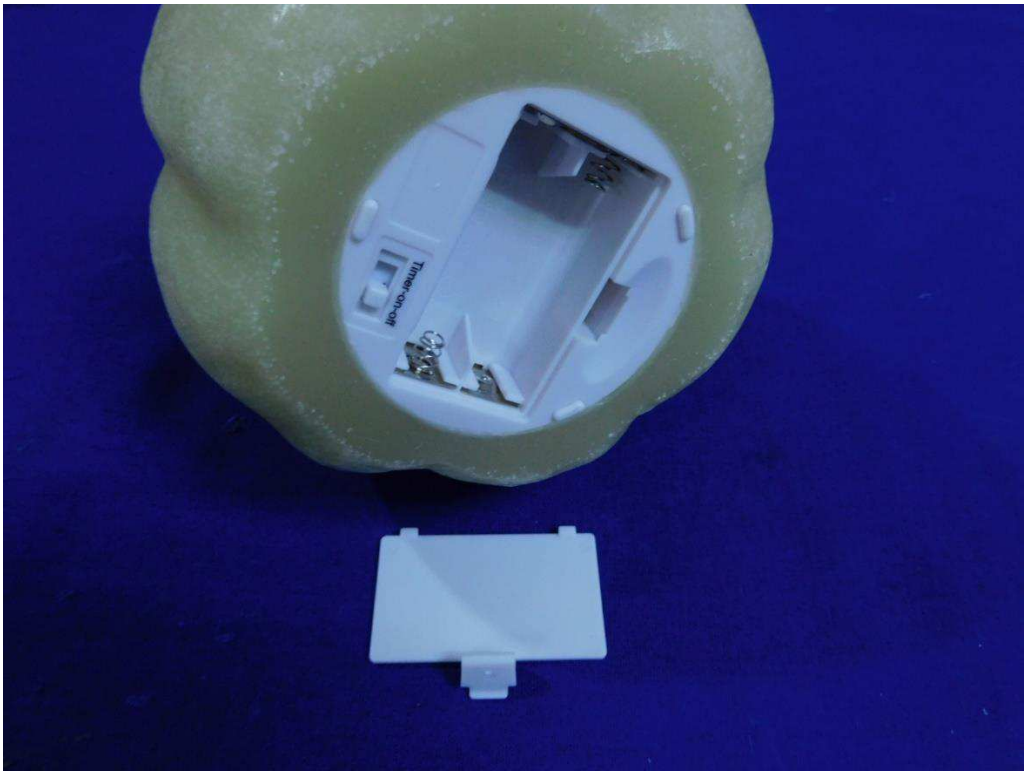


APPENDIX A2: INTERNAL PHOTO OF EUT

Internal Photo



Internal Photo



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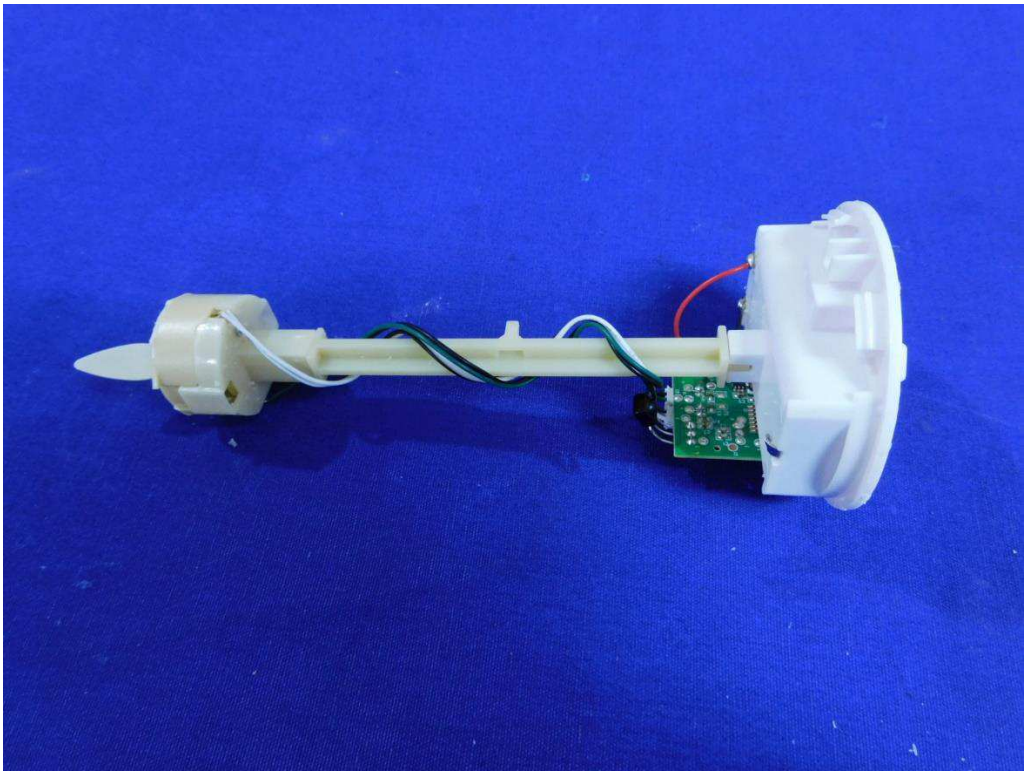
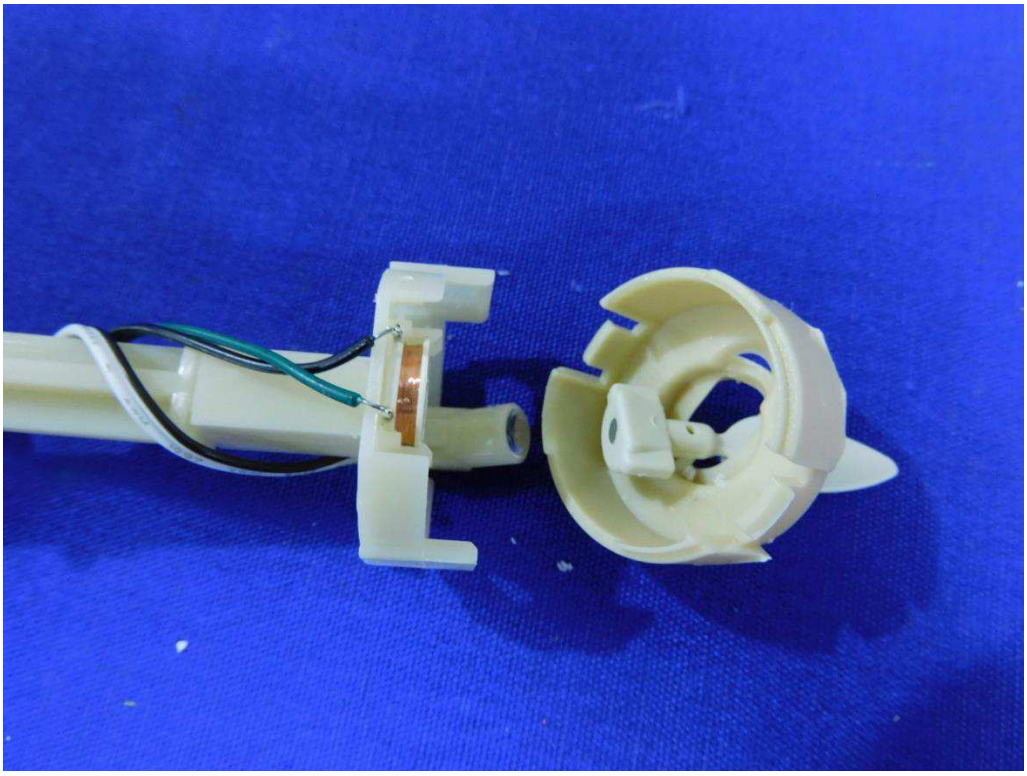


Internal Photo



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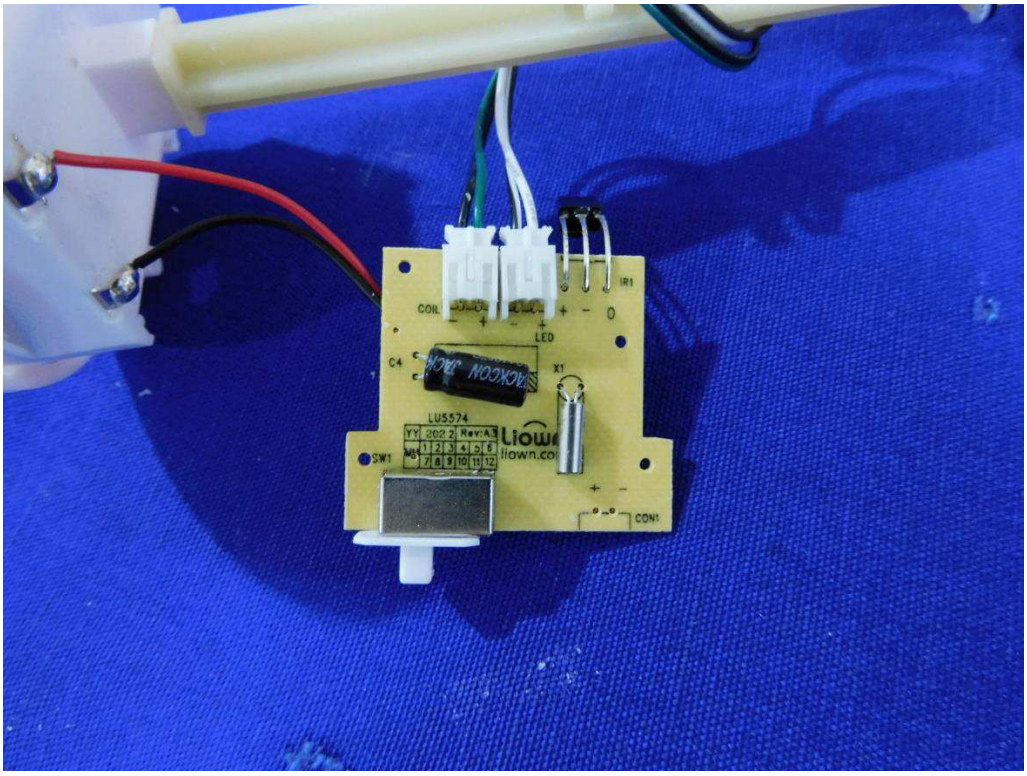
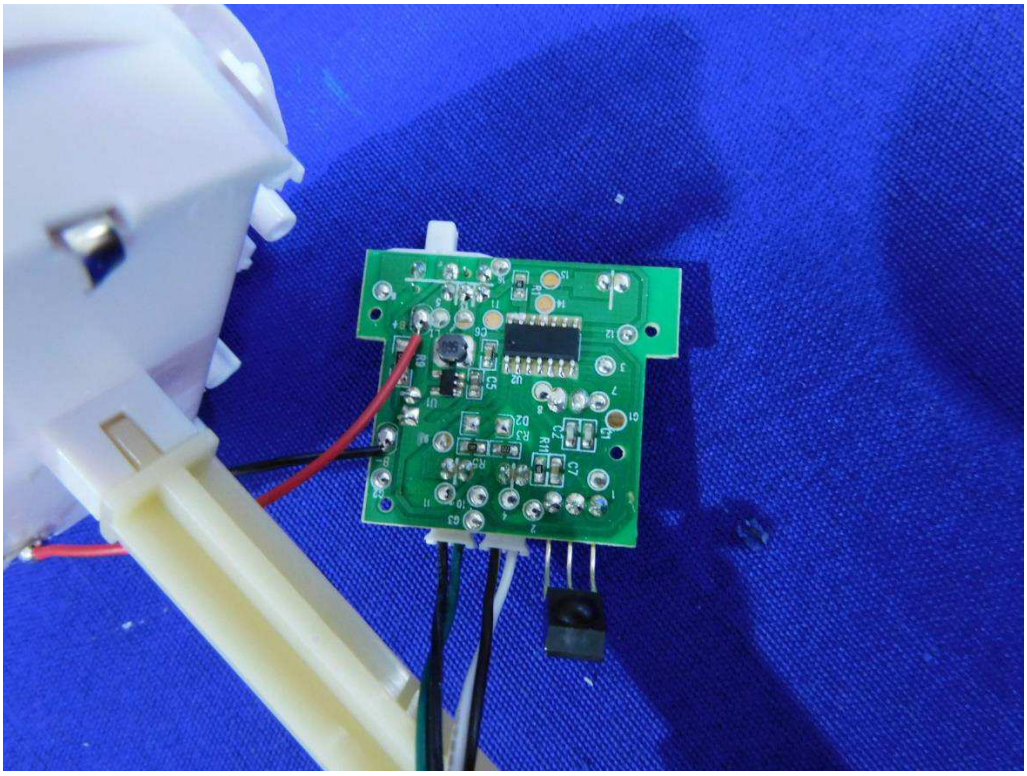
Internal Photo

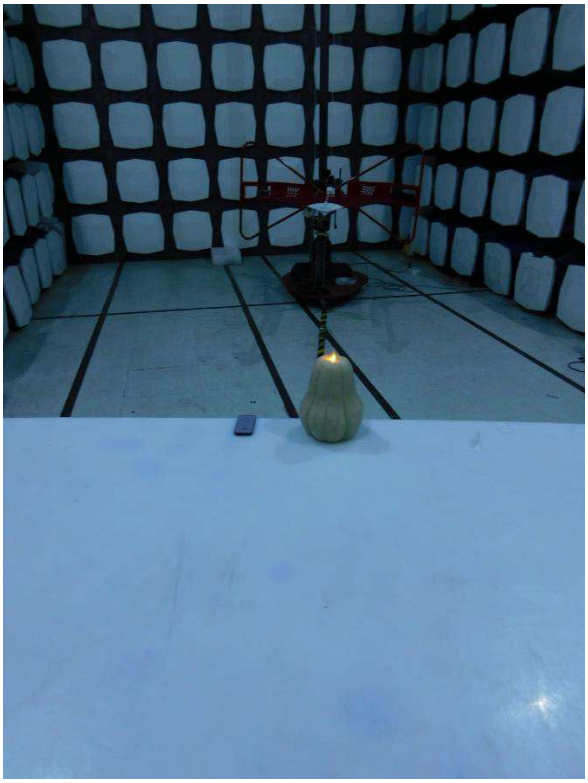


Internal Photo



Appendix B1: Radiated Emission Test Set-up

Front View



Back View

CANADIAN EMISSIONS REQUIREMENTS

The Canadian Government has announced an amendment of the radio act which will require computing equipment to comply with EMI specifications in Canada. The effective date for products imported into Canada is January 31, 1989.

The intent of the amendment is to establish Canadian Regulations which are harmonized with the existing FCC Regulations. As such, no retesting is required and devices which have been tested and comply with the FCC Specifications (Class B) also comply with the Canadian Specification (Class B).

LABELLING AND USER MANUAL REQUIREMENTS

The requirements specified in ICES-Gen shall apply. An example ISED compliance label, to be placed on each unit of an equipment model (or in the user manual, if allowed), is given below:

CAN ICES-003(*) / NMB-003(*)

** Insert either "A" or "B", but not both, to identify the applicable Class of the device used for compliance verification.*

The above label is only an example. The specific format is left to the manufacturer to decide, as long as the label includes the required information, in accordance with ICES-Gen.