

LABORATORY MEASUREMENTS

**Pursuant To
FCC Part 15: 2013
And
ANSI C63.4: 2009**

Applicant Name & Address: iDevices, LLC
136 Simsbury Road, Bldg. 12, Avon, CT 06001, USA

Equipment Under Test (EUT):
Product Description: Consumer Product
Model: IDEV00001
Brand Name: iDevices Switch
Equipment Type: Class B Device
Sample Receipt Date: May 12, 2015
Test Conducted Date: May 12, 2015 to June 12, 2015
Issue Date: June 19, 2015
Test Site Location: Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch
6/F., Block D, HuaHan Building, Langshan Road,
Nanshan District, Shenzhen, China.

Conclusion: The sample complied with the FCC Part 15 &
IC Regulation ICES-003 requirement.

Prepared and Checked by:

Approved by:

Sign on File

**Leo Lai
Project Engineer**

**Andy Yan
Senior Project Engineer**

- This summary is part of the full report and should be read in conjunction with it.
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TRF No.: FCC/IC -V_b

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1. General Information

1.1 Client Information

Applicant: iDevices, LLC

1.2 General Description of EUT

Product Description: Consumer Product
Model No.: IDEV00001

1.3 Details of EUT

Rated Voltage: 120Vac60Hz

Support Equipment:
Lamp Philips,200W
(Provided by Intertek)

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

2. Test Summary

Test	Standard	Class	Result
Conducted Emission	FCC Part 15 Section 15.107	Class B	Pass
Radiated Emission	FCC Part 15 Section 15.109	Class B	Pass

Remark:

The EUT has been tested and pass the FCC Part 15 and Canadian Emissions Requirements without modification.

Enclosed please find the FCC and Canadian Labelling and Instruction Manual Requirements.

3. Test Specifications

3.1 Standards

Both conducted and radiated emission tests were performed according to the procedures in ANSI C63.4: 2009. Test results are in compliance with the requirements of FCC Part 15: 2013.

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

3.2 Definition of Device Classification

Unintentional radiator:

A device which is not intended to emit RF energy by radiation or induction.

Class A Digital Device:

A digital device which is marketed for use in commercial or business environment.

Class B Digital Device:

A digital device which is marketed for use by the general public or in a residential environment.

Note:

A manufacturer may also qualify a device intended to be marketed in a commercial, business or industrial environment as a Class B digital device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B Digital Device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B Digital Device, Regardless of its intended use.

3.3 EUT Operation Condition

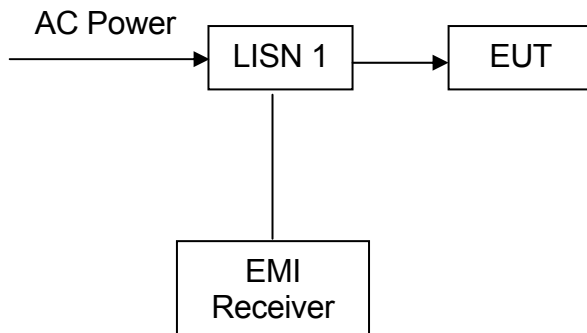
The EUT was powered by 120Vac60Hz and was running in accordance with the manufacturer's operation manual.

4. Conducted Emission Measurements (FCC 15.107)

4.1 Operating Environment

Temperature: $25^{\circ}\text{C} \pm 10^{\circ}\text{C}$ Test Voltage: 120Vac, 60Hz

4.2 Test Setup and Procedure



For tabletop equipment, the EUT along with its peripherals were placed on a 1.0m(W)×1.5m(L) and 0.8m in height wooden table. 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 EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN), which provided 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. The excess power cable between the EUT and the LISN was bundled.

All connecting cables of EUT and peripherals were moved to find the maximum emission.

The EUT setup configuration please refers to the photo of test configuration in Appendix B1.

4.3 Test Equipment

Equipment No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
SZ187-01	LISN	R & S	ENV216	1-Nov-14	1-Nov-15
SZ187-02	LISN	R & S	ENV216	1-Nov-14	1-Nov-15
SZ185-02	EMI Test Receiver	R&S	ESCI	16-Jun-14	16-Jun-15
SZ188-03	Shielding Room	ETS	RFD-100	23-Aug-14	23-Aug-15

4.4 Conducted Emission Limits

Freq. (MHz)	Maximum RF Line Voltage			
	Class A (dB μ V)		Class B (dB μ V)	
	Q.P.	Ave.	Q.P.	Ave.
0.15~0.50	79	66	66~56	56~46
0.50~5.00	73	60	56	46
5.00~30.0	73	60	60	50

4.5 Uncertainty of Conducted Emission

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

4.6 Conducted Emission Data

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

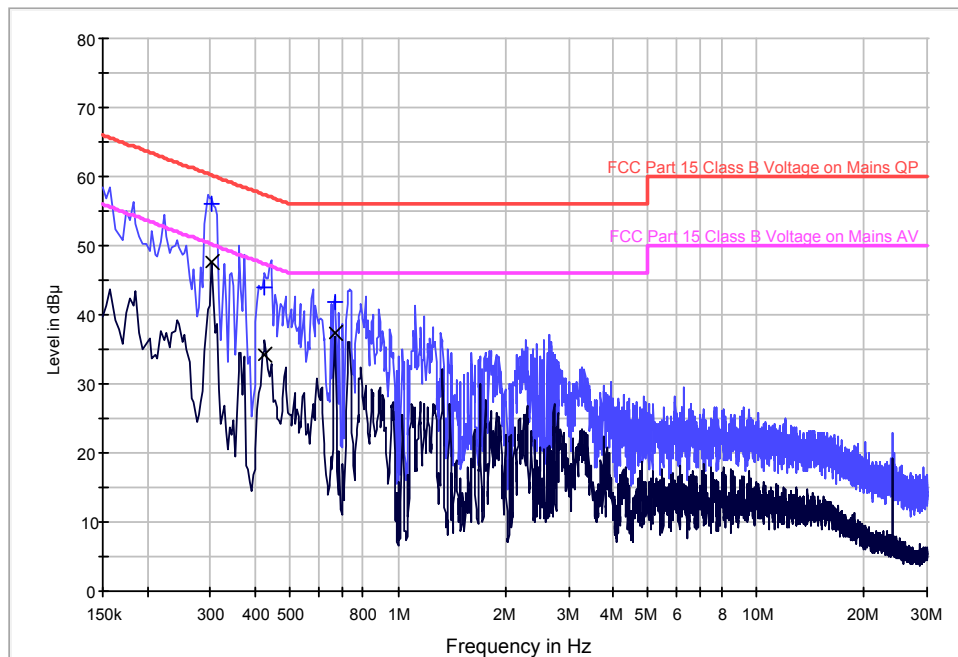


Applicant: iDevices, LLC
Model: IDEV00001
Worst Case Operating: Normal Operation

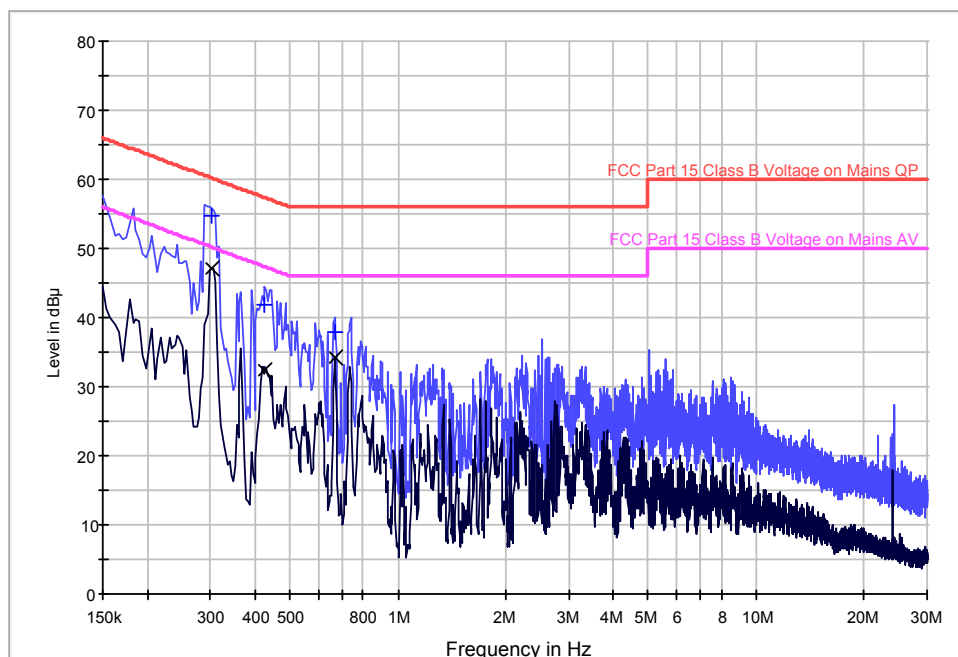
Graphic Table

Conducted Emissions Pursuant to FCC 15.107: Emissions Requirement

Live Line



Neutral Line





Applicant: iDevices, LLC
Model: IDEV00001
Worst Case Operating: Normal Operation

Data Table

Conducted Emissions Pursuant to FCC 15.107: Emissions Requirement

Live Line

Frequency	Quasi-Peak		Average	
[MHz]	Disturbance level dB(μ V)	Permitted limit dB(μ V)	Disturbance level dB(μ V)	Permitted limit dB(μ V)
0.302	56.0	60.2	47.5	50.2
0.426	44.0	57.3	34.2	47.3
0.666	41.9	56.0	37.4	46.0

☐ No emissions significantly above equipment noise floor.

Neutral Line

Frequency	Quasi-Peak		Average	
[MHz]	Disturbance level dB(μ V)	Permitted limit dB(μ V)	Disturbance level dB(μ V)	Permitted limit dB(μ V)
0.302	54.7	60.2	47.2	50.2
0.426	41.8	57.3	32.5	47.3
0.666	37.8	56.0	34.3	46.0

☐ No emissions significantly above equipment noise floor.

5. Radiated Emission Measurements (FCC 15.109)

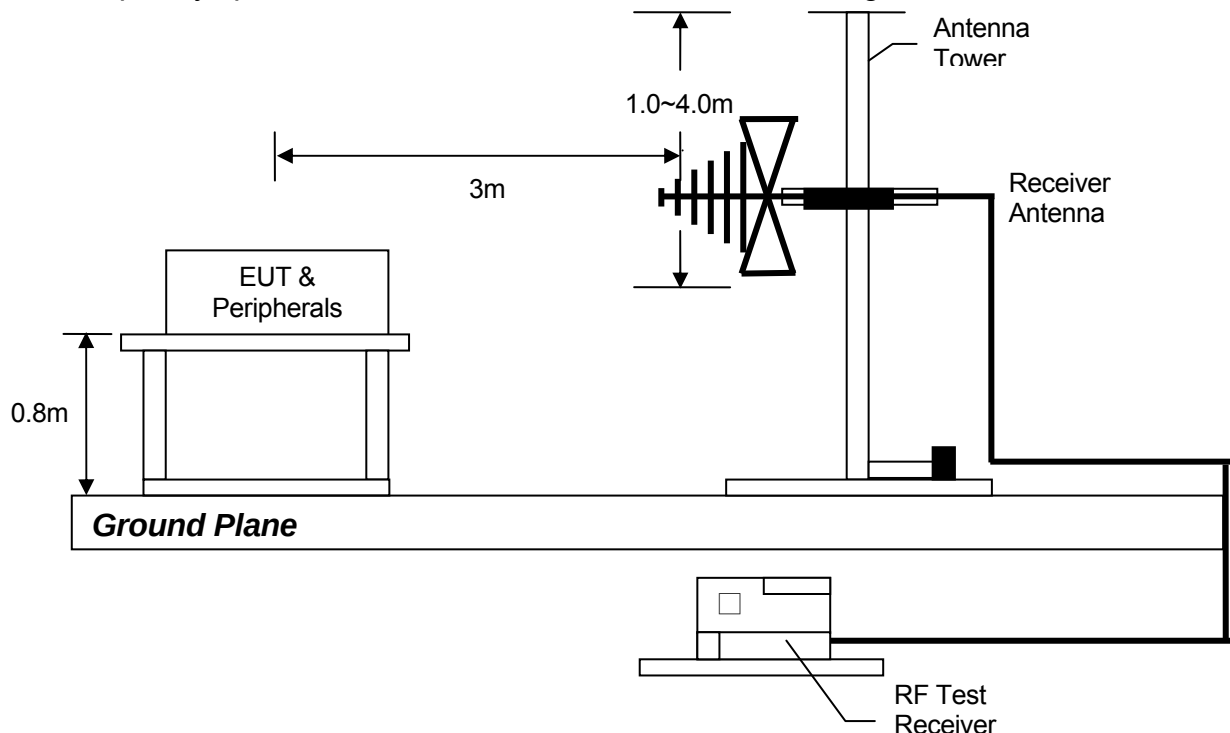
5.1 Operating Environment

Temperature: $25^{\circ}\text{C} \pm 10^{\circ}\text{C}$ Test Voltage: 120Vac, 60Hz

5.2 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.



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.

The levels are quasi peak value readings. The frequency spectrum from 30MHz to 1000MHz was investigated.

The EUT setup configuration please refers to the photo of test configuration in Appendix B2.

5.3 Test Equipment

Equipment No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
SZ185-01	EMI Receiver	R & S	ESCI	7-Feb-15	7-Feb-16
SZ061-04	Biconilog Antenna	ETS	3142C	28-Jun-14	28-Jun-15
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	19-Apr-14	19-Apr-16

5.4 Radiated Emission Limits

According to FCC 15.109, except for Class A digital device, the field strength of radiated emission from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Class B Radiated Emission Limits:

Frequency MHz	Field Strength dB μ V/m
30-88	40.0
88-216	43.5
216-960	46.0
Above 960	54.0

5.5 Uncertainty of Radiated Emission

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

5.6 Radiated Emission Test Data

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

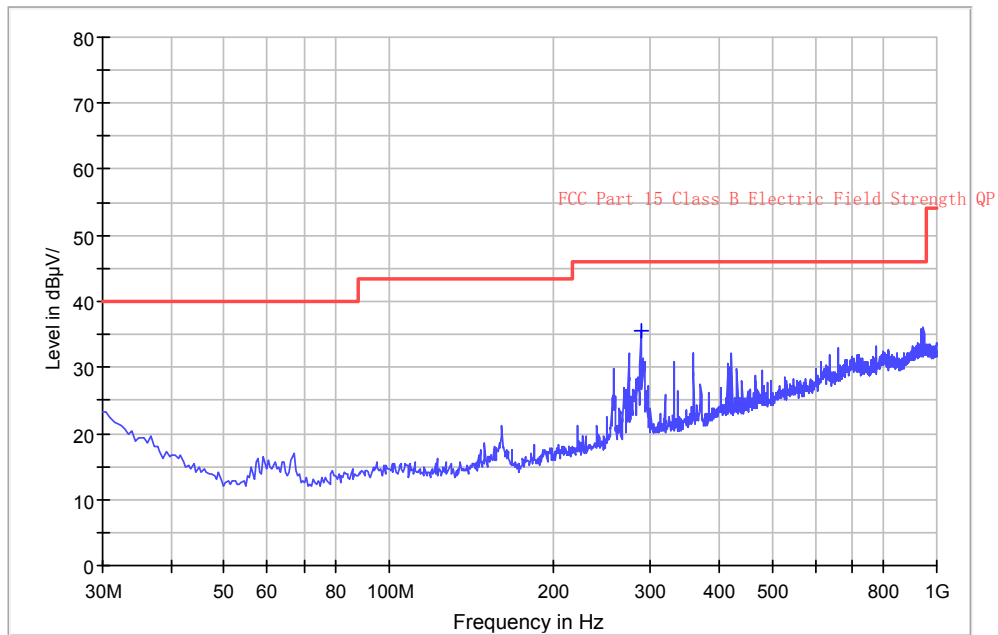


Applicant: iDevices, LLC
Model: IDEV00001
Worst Case Operating: Normal Operation

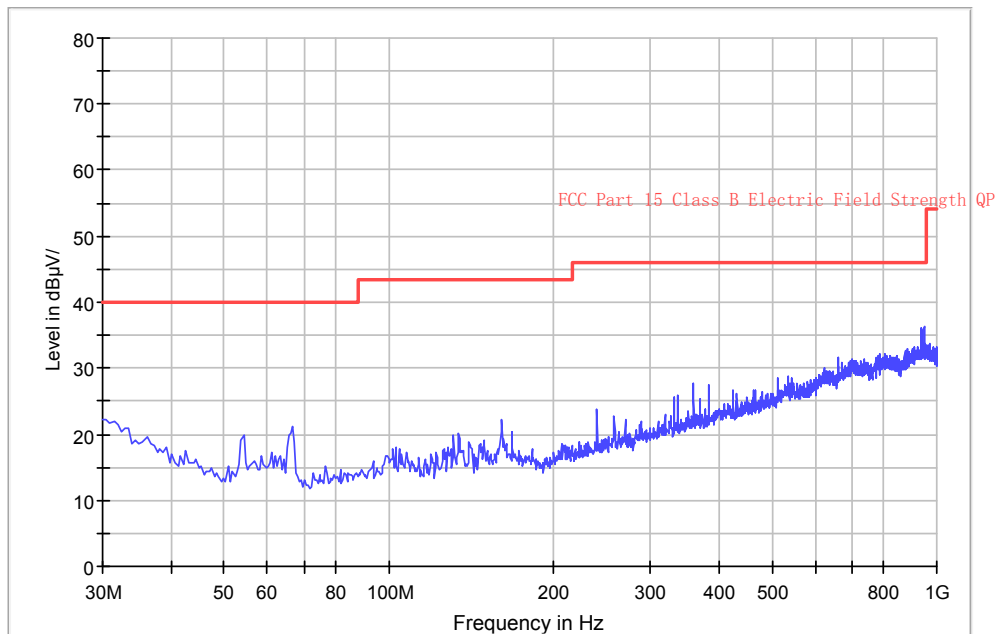
Graphic Table

Radiated Scan Pursuant to FCC 15.109: Emissions Requirement

Horizontal



Vertical





Applicant: iDevices, LLC
Model: IDEV00001
Worst Case Operating: Normal Operation

Data Table

Radiated Scan Pursuant to FCC 15.109: Emissions Requirement

Polarization	Frequency (MHz)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
Horizontal	264.720	31.1	46.0	-14.9
Horizontal	288.035	35.7	46.0	-10.3
Horizontal	367.915	32.8	46.0	-13.2
Vertical	30.720	20.9	40.0	-19.1
Vertical	67.092	19.7	40.0	-20.3
Vertical	173.646	22.8	43.5	-20.7

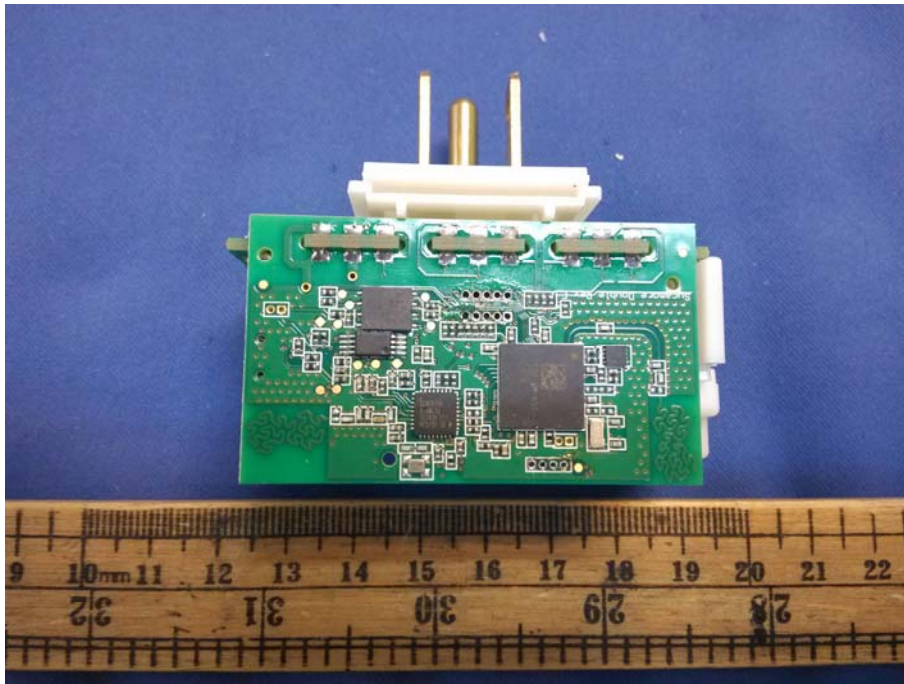
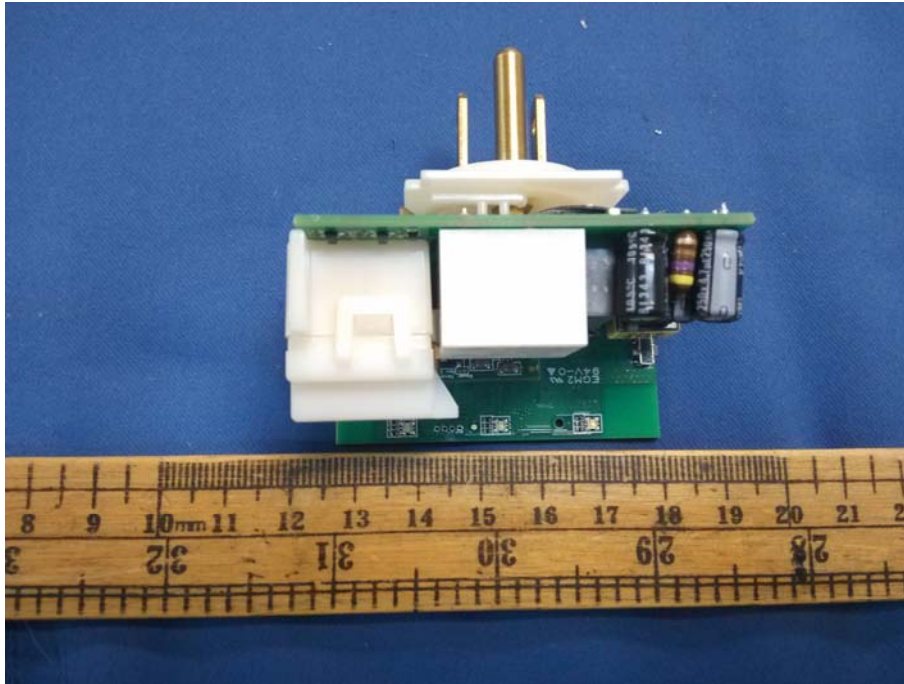
- Notes:
1. Negative signs (-) in the margin column signify levels below the limit.
 2. Quasi-Peak detector is used except for others stated.

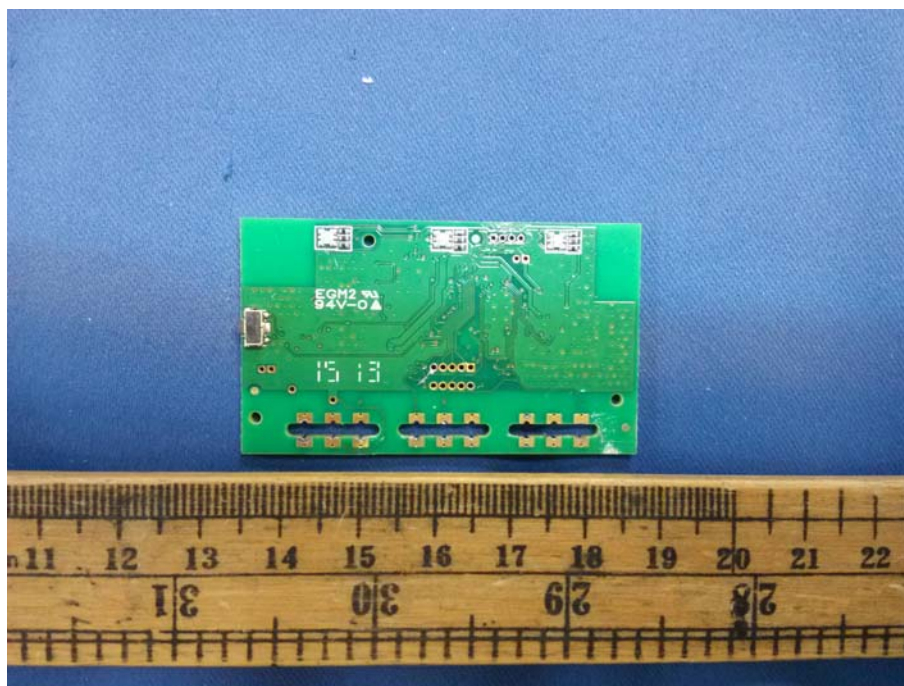
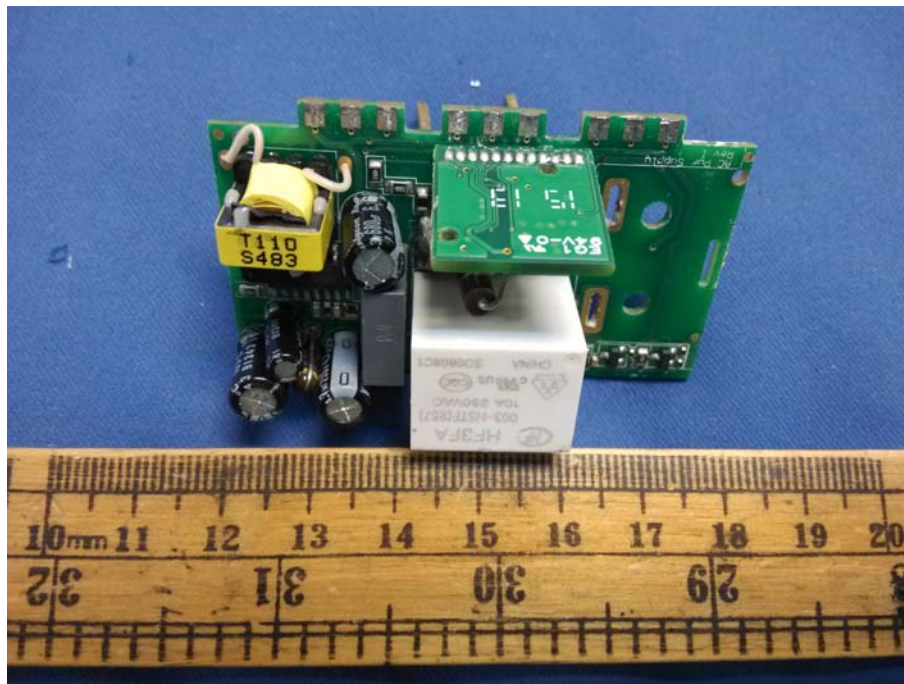
Appendix A1: External Photo

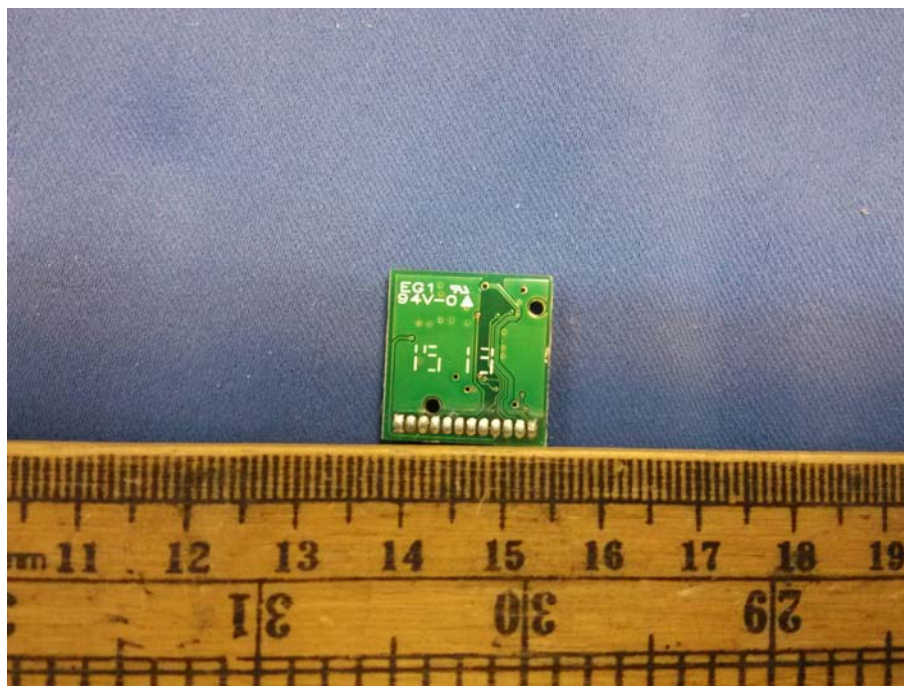
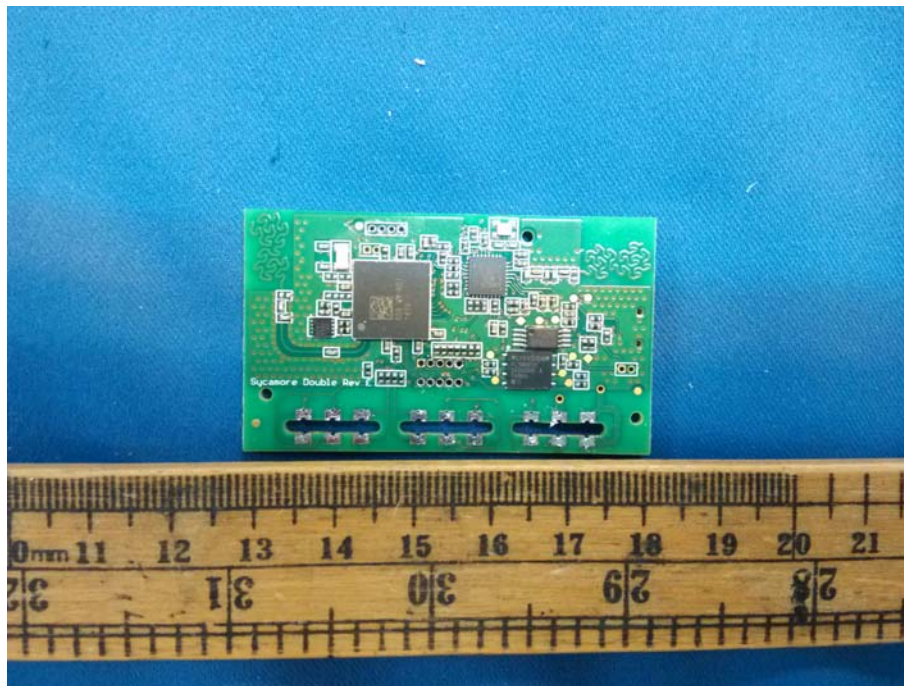


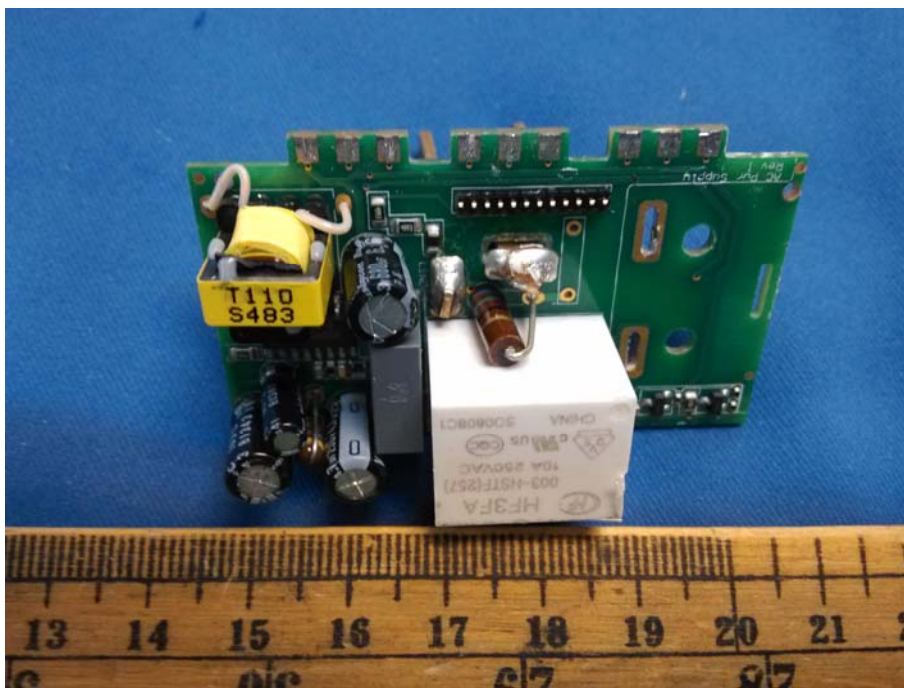
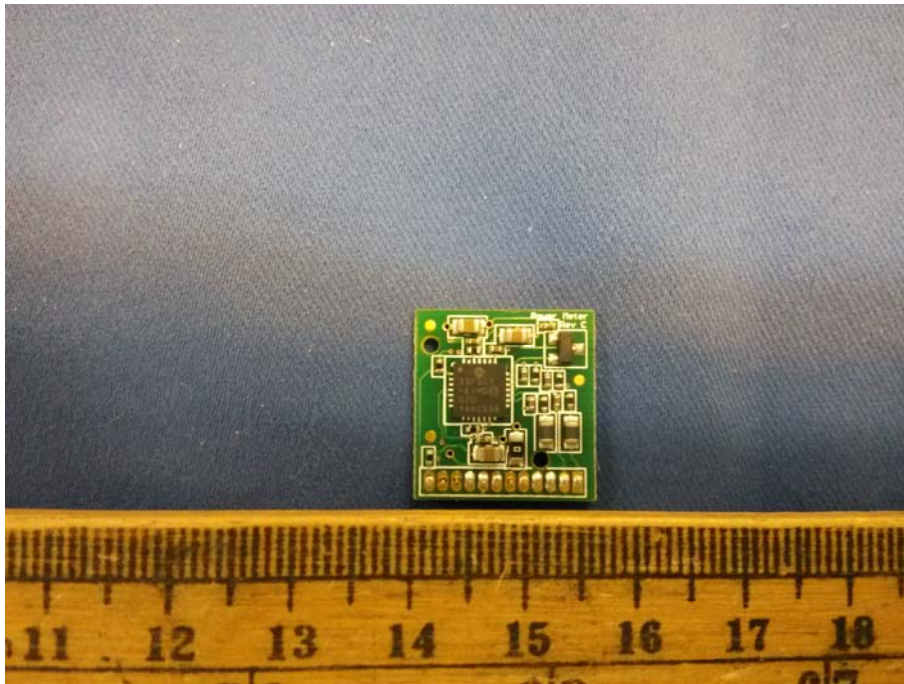


Appendix A2: Internal Photo









Appendix B1: Conducted Emission Test Set-up

Front View



Left Side View



Appendix B2: Radiated Emission Test Set-up

Front View



Back View



---- E N D ----

FCC LABELLING AND INSTRUCTION MANUAL REQUIREMENTS

Devices subject to FCC Part 15, Subpart B verification (not certification) must be labelled with the following statement. The label can be affixed at any space external to the product except the battery door or detachable parts.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

In addition, for a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- **Reorient or relocate the receiving antenna.**
- **Increase the separation between the equipment and receiver.**
- **Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
- **Consult the dealer or an experienced radio/ TV technician for help.**

If shielded cables or other specialized accessories are necessary for the unit to achieve compliance, a statement similar to the following should be added:

Shielded cables must be used with this unit to ensure compliance with the Class B FCC limits.

FCC LABELLING AND INSTRUCTION MANUAL REQUIREMENTS

Receivers associated with the operation of a licensed radio service subject to FCC Part 15, Subpart B verification (not certification) must be labelled with the following statement. The label can be affixed at any space external to the product except the battery door or detachable parts.

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

In addition, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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 REQUIREMENTS

The manufacturer, importer or supplier shall meet the labelling requirements set out in this section for every ITE unit:

- (i) Prior to marketing in Canada, for ITE manufactured in Canada, and;
- (ii) Prior to importation into Canada, for imported ITE.

The presence of the label on the ITE represents the manufacturer's or importer's Self-Declaration of Compliance (SDoC) to Industry Canada ICES-003. Each unit of an ITE model shall bear a label indicating the model's compliance with ICES-003.

The label shall be permanently affixed to the ITE or displayed electronically and its text must be clearly legible. When the dimension of the device is too small or it is otherwise not practical to place the label on the ITE, the label shall be placed in a prominent location in the user manual supplied with the ITE. The user manual may be in an electronic format and must be readily available.

Industry Canada ICES-003 Compliance Label for Class B ITE:

CAN ICES-3 (B)/NMB-3(B)

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