



Certification Test Report

**FCC ID: 2ADCB-RMODITHP
IC: 6715C-RMODITHP**

**FCC Rule Part: 15.247
ISED Canada Radio Standards Specification: RSS-247**

Report Number: AT72130604-2C2

**Manufacturer: Acuity Brands Lighting, Inc.
Model: RMODITHP**

**Test Begin Date: November 16, 2017
Test End Date: January 30, 2018**

Report Issue Date: February 15, 2018



FOR THE SCOPE OF ACCREDITATION UNDER Certificate Number: AT-2021

This report must not be used by the client to claim product certification, approval, or endorsement by ANAB, NIST, or any agency of the Federal Government.

Prepared by:

**Ryan McGann
Senior Engineer
TÜV SÜD America Inc.**

Reviewed by:

**Thierry Jean-Charles
EMC Engineer
TÜV SÜD America Inc.**

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This report contains 22 pages

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1 GENERAL

1.1 Purpose

The purpose of this report is to demonstrate compliance with Part 15 Subpart C of the FCC's Code of Federal Regulations and Innovation, Science, and Economic Development Canada's Radio Standards Specification RSS-247 Certification for modular approval.

1.2 Manufacturer Information

Acuity Brands Lighting, Inc.
One Lithonia Way
Conyers, GA 30012

1.3 Product Description

Product Marketing Name: nLight Air RF Module Indoor Temperature High Powered

The nLight Air High Powered RF Module is a device designed to solder directly to another PCB using castellated edges. The product is intended to allow a variety of Acuity Brands devices to communicate in a wireless network. This can either be done by using an external host processor, or by using the processor on the module.

There are two radios on the module. One radio is 2.4GHz BLE MAC and PHY. The other radio is a proprietary 902-928MHz (915MHz) implementation. The physical layer is based on IEEE 802.15.4 using 100kbps O-QPSK DSSS 8 symbols/bit modulation. These two radios are capable of transmitting and receiving at the same time instance. The high-powered version of the module adds an RF front end to increase output power and receive sensitivity.

This product will only be used in Acuity Brands products, and Acuity Brands will have full control of all designs using this product.

This test report documents the compliance of the Bluetooth LE transceiver only.

Technical Information:

Detail	Description
Frequency Range	2402 – 2480 MHz
Number of Channels	40
Modulation Format	GFSK
Data Rates	1 MBPS
Operating Voltage	3.3 Vdc
Antenna Type / Gain	PCB Trace Antenna / -0.9 dBi
Firmware Version	1.20
Hardware Revision	C

Test Sample Serial Number: Radiated Emissions: 171107000043
Power Line Conducted Emissions: 17110700049
RF Conducted Emissions: 17110700282

Test Sample Condition: The test samples were provided in good working order with no visible defects.

1.4 Test Methodology and Considerations

All modes of operation, including all data rates, were evaluated and the data presented in this report represents the worst case where applicable. The manufacturer provided test software to configure and exercise the transmitter.

For radiated emissions, the EUT was evaluated in three orthogonal orientations. The worst-case orientation was X-orientation for spurious emissions and Z-orientation for band-edges. See test setup photos for more information.

For AC power line conducted emissions the EUT was evaluated with a commercially available, off-the-shelf wall wart power supply.

For RF Conducted Emissions, the EUT was modified with a temporary SMA connector to facilitate connection to the test equipment.

Radiated inter-modulation testing was performed for all combinations of simultaneous transmission and found to comply.

Power setting during test: 100

2 TEST FACILITIES

2.1 Location

The radiated and conducted emissions test sites are located at the following address:

TÜV SÜD America, Inc.
5015 B.U. Bowman Drive
Buford, GA 30518
Phone: (770) 831-8048
Fax: (770) 831-8598

2.2 Laboratory Accreditations/Recognitions/Certifications

TÜV SÜD America, Inc. is accredited to ISO/IEC 17025 by the ANSI-ASQ National Accreditation Board/ANAB accreditation program, and has been issued certificate number AT-2021 in recognition of this accreditation. Unless otherwise specified, all tests methods described within this report are covered under the ISO/IEC 17025 scope of accreditation.

The Semi-Anechoic Chamber Test Site, Open Area Test Site (OATS) and Conducted Emissions Site have been fully described, submitted to, and accepted by the FCC, ISED Canada and the Japanese Voluntary Control Council for Interference by information technology equipment.

FCC Registration Number: 391271

ISED Canada Lab Code: IC 23597

VCCI Member Number: 1831

- VCCI OATS Registration Number R-1526
- VCCI Conducted Emissions Site Registration Number: C-1608

2.3 Radiated Emissions Test Site Description

2.3.1 Semi-Anechoic Chamber Test Site

The Semi-Anechoic Chamber Test Site consists of a 20' x 30' x 18' shielded enclosure. The chamber is lined with Toyo Ferrite Grid Absorber, model number FFG-1000. The ferrite tile grid is 101 x 101 x 19mm thick and weighs approximately 550 grams. These tiles are mounted on steel panels and installed directly on the inner walls of the chamber.

The turntable is 150cm in diameter and is located 160cm from the back wall of the chamber. The chamber is grounded via 1 - 8' copper ground rod, installed at the center of the back wall, it is bound to the ground plane using 3/4" stainless steel braided cable.

The turntable is all steel, flush mounted table installed in an all steel frame. The table is remotely operated from inside the control room located 25' from the range. The turntable is electrically bonded to the surrounding ground plane via steel fingers installed on the edge of the turn table. The steel fingers make constant contact with the ground plane during operation.

Behind the turntable is a 3' x 6' x 4' deep shielded pit used for support equipment if necessary. The pit is equipped with 1 - 4" PVC chases from the turntable to the pit that allow for cabling to the EUT if necessary. The underside of the turntable can be accessed from the pit so cables can be supplied to the EUT from the pit.

A diagram of the Semi-Anechoic Chamber Test Site is shown in Figure 2.3-1 below:

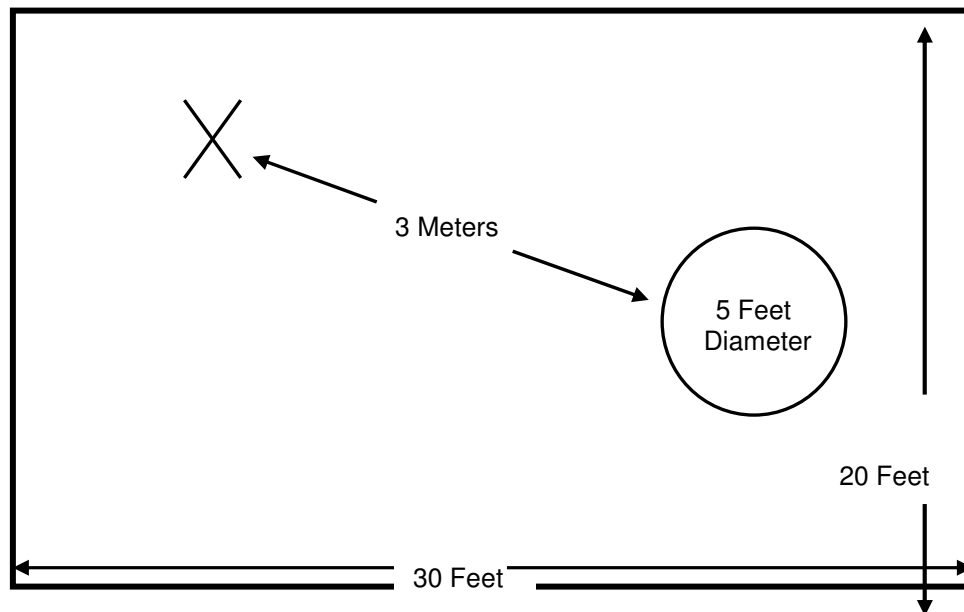


Figure 2.3-1: Semi-Anechoic Chamber Test Site

2.3.2 Open Area Tests Site (OATS)

The open area test site consists of a 40' x 66' concrete pad covered with a perforated electro-plated galvanized sheet metal. The perforations in the sheet metal are 1/8" holes that are staggered every 3/16". The individual sheets are placed to overlap each other by 1/4" and are riveted together to provide a continuous seam. Rivets are spaced every 3" in a 3 x 20 meter perimeter around the antenna mast and EUT area. Rivets in the remaining area are spaced as necessary to properly secure the ground plane and maintain the electrical continuity.

The entire ground plane extends 12' beyond the turntable edge and 16' beyond the antenna mast when set to a 10 meter measurement distance. The ground plane is grounded via 4 - 8' copper ground rods, each installed at a corner of the ground plane and bound to the ground plane using 3/4" stainless steel braided cable.

The turntable is an all aluminum 10' flush mounted table installed in an all aluminum frame. The table is remotely operated from inside the control room located 40' from the range. The turntable is electrically bonded to the surrounding ground plane via steel fingers installed on the edge of the turn table. The steel fingers make constant contact with the ground plane during operation.

Adjacent to the turntable is a 7' x 7' square and 4' deep concrete pit used for support equipment if necessary. The pit is equipped with 5 - 4" PVC chases from the pit to the control room that allow for cabling to the EUT if necessary. The underside of the turntable can be accessed from the pit so cables can be supplied to the EUT from the pit. The pit is covered with 2 sheets of 1/4" diamond style re-enforced steel sheets. The sheets are painted to match the perforated steel ground plane; however the underside edges have been masked off to maintain the electrical continuity of the ground plane. All reflecting objects are located outside of the ellipse defined in ANSI C63.4.

A diagram of the Open Area Test Site is shown in Figure 2.3-2 below:

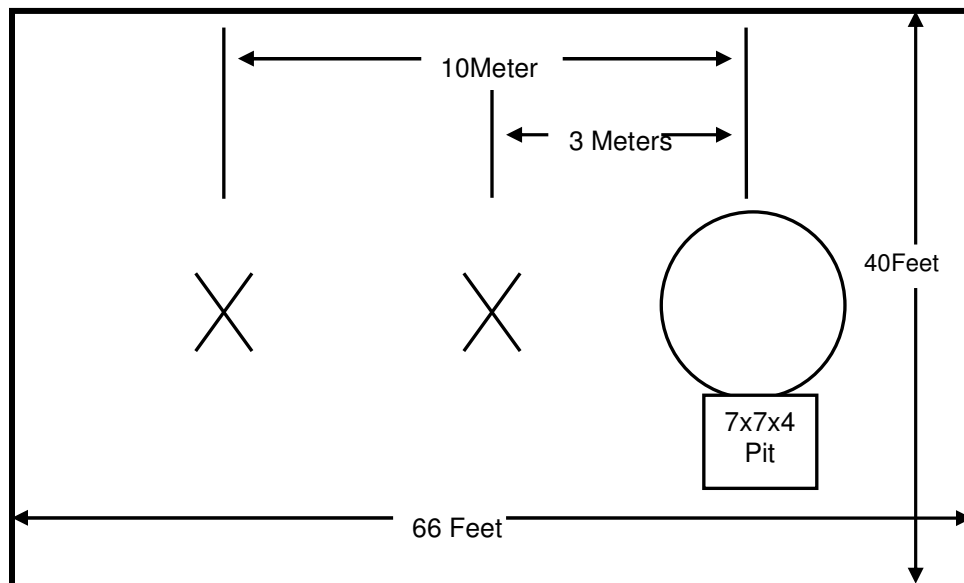


Figure 2.3-2: Open Area Test Site

2.4 Conducted Emissions Test Site Description

The AC mains conducted EMI site is located in the main EMC lab. It consists of an 8' x 8' solid aluminum horizontal ground reference plane (GRP) bonded every 3" to an 8' X 8' vertical ground plane.

The site is of sufficient size to test table top and floor standing equipment in accordance with ANSI C63.10.

A diagram of the room is shown below in figure 2.4-1:

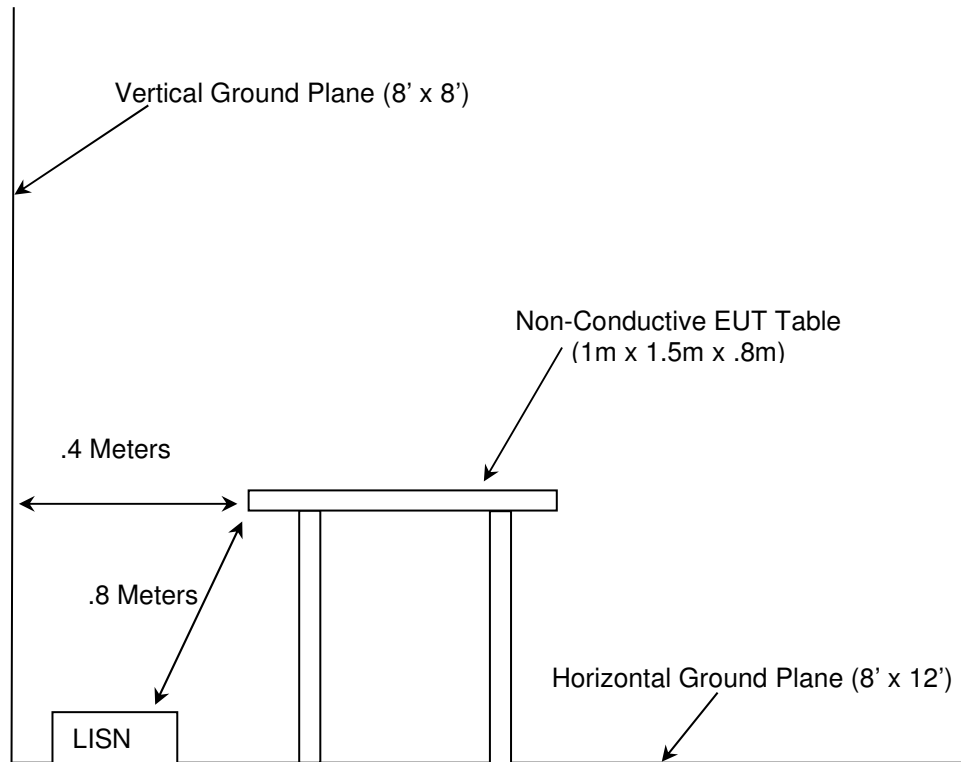


Figure 2.4-1: AC Mains Conducted EMI Site

3 APPLICABLE STANDARD REFERENCES

The following standards were used:

- ❖ ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.
- ❖ US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures, 2018
- ❖ US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2018
- ❖ FCC KDB 558074 D01 DTS Meas Guidance v04 - Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247, April 5, 2017
- ❖ ISED Canada Radio Standards Specification: RSS-247 – Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices, Issue 2, Feb 2017.
- ❖ ISED Canada Radio Standards Specification: RSS-GEN – General Requirements for Compliance of Radio Apparatus, Issue 4, Nov 2014.

4 LIST OF TEST EQUIPMENT

The calibration interval of test equipment is annually or the manufacturer's recommendations. Where the calibration interval deviates from the annual cycle based on the instrument manufacturer's recommendations, it shall be stated below.

Table 4-1: Test Equipment

Asset ID	Manufacturer	Model #	Equipment Type	Serial #	Last Calibration Date	Calibration Due Date
30	Spectrum Technologies	DRH-0118	Antennas	970102	5/9/2017	5/9/2019
40	EMCO	3104	Antennas	3211	6/8/2016	6/8/2018
73	Agilent	8447D	Preamplifier	2727A05624	7/24/2017	7/24/2018
167	ACS	Chamber EMI Cable Set	Cable Set	167	9/29/2017	9/29/2018
267	Agilent	N1911A	Meters	MY45100129	8/22/2017	8/22/2019
268	Agilent	N1921A	Sensors	MY45240184	8/22/2017	8/22/2019
324	ACS	Belden	Cables	8214	3/21/2017	3/21/2018
334	Rohde & Schwarz	3160-09	Antennas	00049404	11/04/2010	NCR
335	Suhner Sucoflex	SF-102A	Cables	882/2A	7/11/2017	7/11/2018
338	Hewlett Packard	8449B	Amplifiers	3008A01111	7/11/2017	7/11/2019
340	Aeroflex / Weinschel	AS-20	Attenuators	7136	7/10/2017	7/10/2018
345	Suhner Sucoflex	102A	Cables	1077/2A	7/10/2017	7/10/2018
412	Electro Metrics	LPA-25	Antennas	1241	8/8/2016	8/8/2018
422	Florida RF	SMS-200AW-72.0-SMR	Cables	805	10/27/2016	11/27/2017
422	Florida RF	SMS-200AW-72.0-SMR	Cables	805	11/27/2017	11/27/2018
432	Microwave Circuits	H3G020G4	Filters	264066	5/13/2017	5/13/2018
616	Florida RF Cables	SMRE-200W-12.0-SMRE	Cables	N/A	10/7/2017	10/7/2018
622	Rohde & Schwarz	FSV40	Analyzers	101338	7/15/2016	7/15/2018
676	Florida RF Labs	SMS-290AW-480.0-SMS	Cables	MFR2Y194	11/4/2016	12/4/2017
676	Florida RF Labs	SMS-290AW-480.0-SMS	Cables	MFR2Y194	12/2/2017	12/2/2018
676	Florida RF Labs	SMS-290AW-480.0-SMS	Cables	MFR2Y194	1/8/2018	1/8/2019
813	PMM	9010	Receiver	697WW30606	2/6/2017	2/6/2018
819	Rohde & Schwarz	ESR 26	Receiver	101345	10/31/2017	10/31/2018
3010	Rohde & Schwarz	ENV216	LISN	3010	7/11/2017	7/11/2018
RE135	Rohde & Schwarz	FSP30	Receivers	835618/031	10/31/2016	10/31/2017

NCR = No Calibration Required

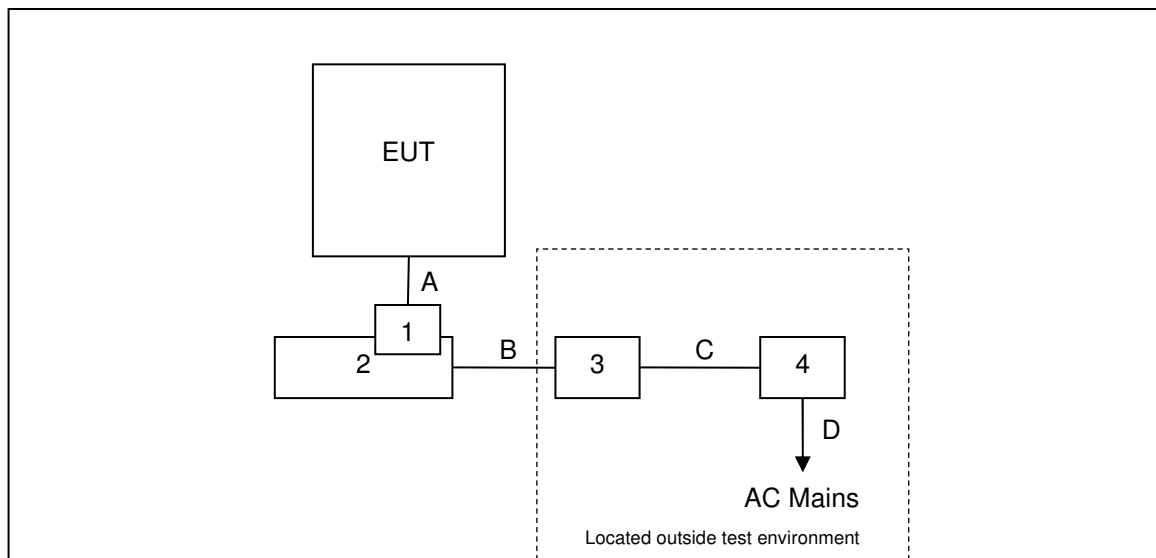
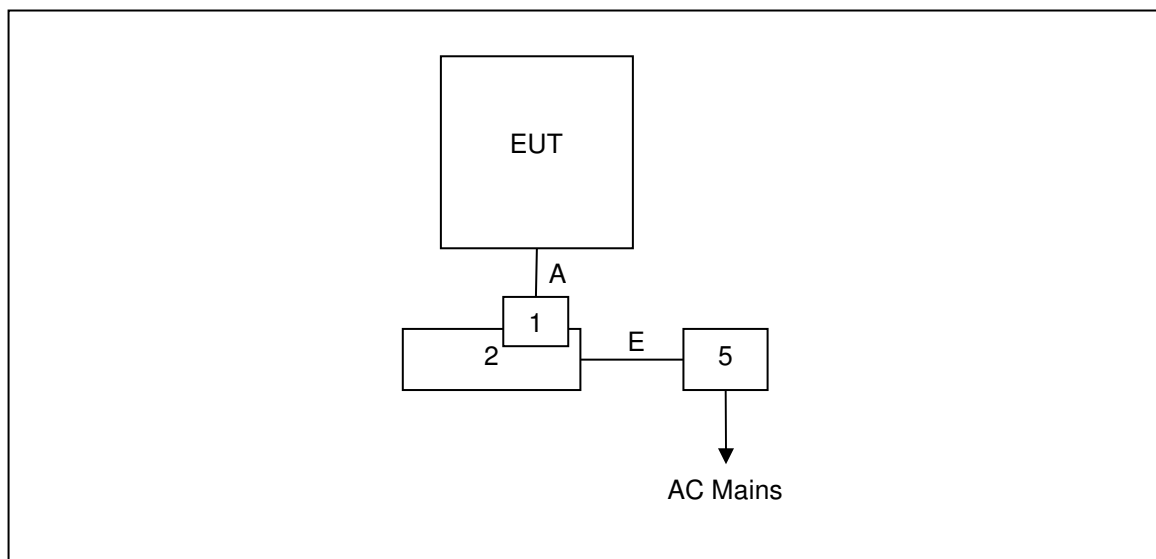
NOTE: All test equipment was used only during active calibration cycles.

5 SUPPORT EQUIPMENT**Table 5-1: Support Equipment**

Item	Equipment Type	Manufacturer	Model/Part Number	Serial Number
1	Communication Board	Acuity Brands Lighting, Inc.	AC-3-0 3217-08	101
2	Development Board	Silicon Labs	PCB4001 rev A03	151704660
3	Laptop Computer	Microsoft	Surface	014948264753
4	Laptop Power Supply	Microsoft	1706	0CI30D0ICNF68
5	USB Power Supply	Samsung	EP-TA20JWE	R37HBXD2GB3SE3

Table 5-2: Cable Description

Cable	Cable Type	Length	Shield	Termination
A	Ribbon Cable	23 cm	No	EUT – Communication Board
B	USB Cable	1000 cm	Yes	Development Board – Laptop
C	DC Power Cable	145 cm	No	Laptop – Laptop Power Supply
D	AC Power Cable	100 cm	No	Laptop Power Supply – AC Mains
E	USB Cable	130 cm	No	Development Board – USB Power Supply

6 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM**Figure 6-1: Test Setup Block Diagram – Radiated Emissions****Figure 6-2: Test Setup Block Diagram – Power Line Conducted Emissions**

7 SUMMARY OF TESTS

Along with the tabular data shown below, plots were taken of all signals deemed important enough to document.

7.1 Antenna Requirement – FCC: Section 15.203

The EUT utilizes a PCB Trace antenna. The antenna is integral to the device and cannot be removed or replaced by the end user. The gain of the antenna is -0.9 dBi.

7.2 Power Line Conducted Emissions – FCC: Section 15.207; ISED Canada: RSS-Gen 8.8

7.2.1 Measurement Procedure

Conducted emissions were performed from 150 kHz to 30 MHz with the spectrum analyzer's resolution bandwidth set to 9 kHz and the video bandwidth set to 30 kHz. The calculation for the conducted emissions is as follows:

Corrected Reading = Analyzer Reading + LISN Loss + Cable Loss

Margin = Applicable Limit - Corrected Reading

7.2.2 Measurement Results

Performed by: Alton Smith

Table 7.2.2-1: Conducted EMI Results – Line 1

Frequency (MHz)	Corrected Reading		Limit		Margin		
	Quasi-Peak (dBuV)	Average (dBuV)	Quasi-Peak (dBuV)	Average (dBuV)	Quasi-Peak (dB)	Average (dB)	Correction (dB)
0.15	40.81	30.56	66	56	-25.19	-25.44	9.59
0.166	31.41	22.97	65.16	55.16	-33.75	-32.19	9.58
0.19	37.29	27.67	64.04	54.04	-26.75	-26.37	9.58
0.21	35.78	23.97	63.21	53.21	-27.43	-29.24	9.58
0.218	35.73	29.35	62.89	52.89	-27.16	-23.54	9.58
0.234	34.9	27.76	62.31	52.31	-27.41	-24.55	9.58
0.682	38.55	31.67	56	46	-17.45	-14.33	9.59
0.694	38.84	31.36	56	46	-17.16	-14.64	9.59
0.762	37.61	30.85	56	46	-18.39	-15.15	9.59
11.674	26.69	23.04	60	50	-33.31	-26.96	9.8

Table 7.2.2-2: Conducted EMI Results – Line 2

Frequency (MHz)	Corrected Reading		Limit		Margin		
	Quasi-Peak (dBuV)	Average (dBuV)	Quasi-Peak (dBuV)	Average (dBuV)	Quasi-Peak (dB)	Average (dB)	Correction (dB)
0.15	37.13	26.93	66	56	-28.87	-29.07	9.59
0.174	38.09	27.6	64.77	54.77	-26.68	-27.17	9.58
0.194	37.35	27.7	63.86	53.86	-26.51	-26.16	9.58
0.21	35.89	21.24	63.21	53.21	-27.32	-31.97	9.58
0.23	31.99	19.43	62.45	52.45	-30.46	-33.02	9.58
0.326	31.44	26.54	59.55	49.55	-28.11	-23.01	9.59
0.674	32.39	25.3	56	46	-23.61	-20.7	9.59
0.694	35.49	27.92	56	46	-20.51	-18.08	9.59
1.762	30.96	13.8	56	46	-25.04	-32.2	9.69
2.29	27.75	22.87	56	46	-28.25	-23.13	9.71

7.3 6 dB / 99 % Bandwidth – FCC: Section 15.247(a)(2); ISED Canada: RSS-247 5.2(a)

7.3.1 Measurement Procedure

The 6 dB bandwidth was measured in accordance with the FCC KDB 558074 D01 DTS Meas Guidance. The Resolution Bandwidth (RBW) of the spectrum analyzer was set to 100 kHz. The Video Bandwidth (VBW) was set to ≥ 3 times the RBW. The trace was set to max hold with a peak detector active. The marker-delta function of the spectrum analyzer was utilized to determine the 6 dB bandwidth of the emission.

The occupied bandwidth measurement function of the spectrum analyzer was used to measure the 99 % bandwidth. The span of the analyzer was set to capture all products of the modulation process, including the emission sidebands. The resolution bandwidth was set from 1 % to 5 % of the occupied bandwidth and the video bandwidth set to at least 3 times the resolution bandwidth. A peak detector was used.

7.3.2 Measurement Results

Performed by: Mark Afroozi, Ryan McGann

Table 7.3.2-1: 6 dB / 99 % Bandwidth

Frequency [MHz]	6 dB Bandwidth [kHz]	99 % Bandwidth [kHz]
2402	770.76	1107.09
2440	773.41	1114.33
2480	772.32	1114.33

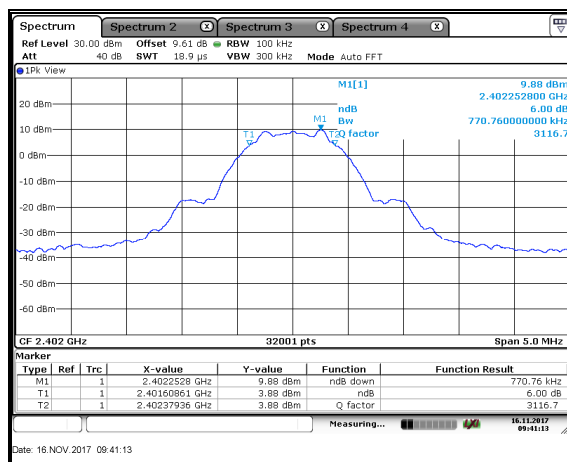


Figure 7.3.2-1: 6dB Bandwidth – LCH

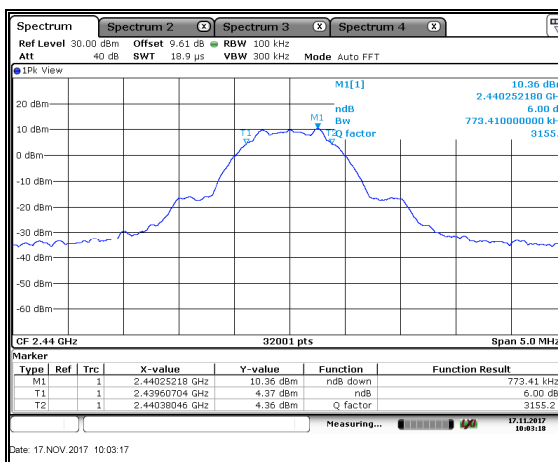


Figure 7.3.2-2: 6dB Bandwidth – MCH

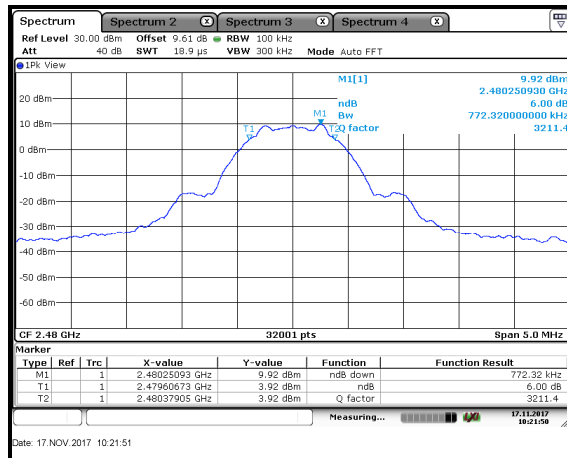


Figure 7.3.2-3: 6dB Bandwidth – HCH

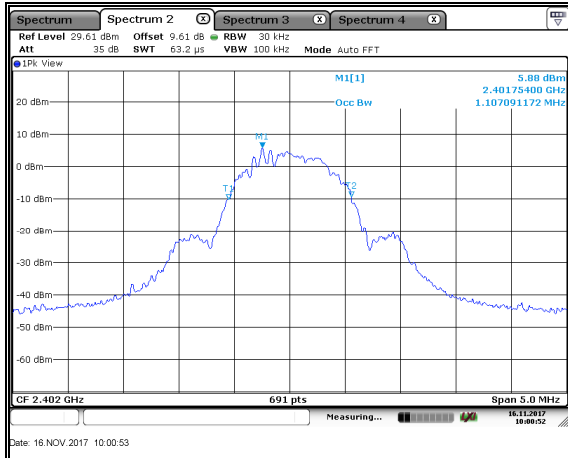


Figure 7.3.2-4: 99% Occupied Bandwidth– LCH

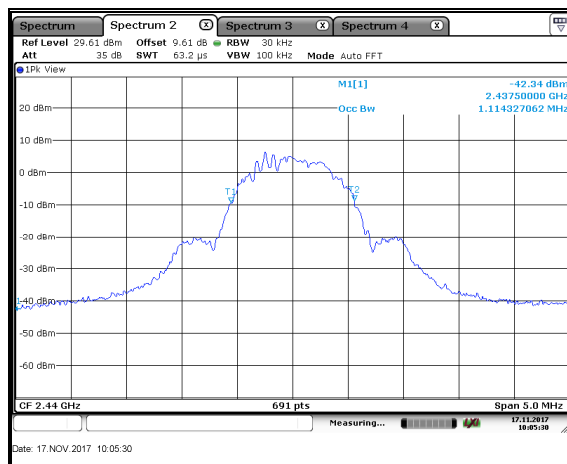


Figure 7.3.2-5: 99% Occupied Bandwidth – MCH

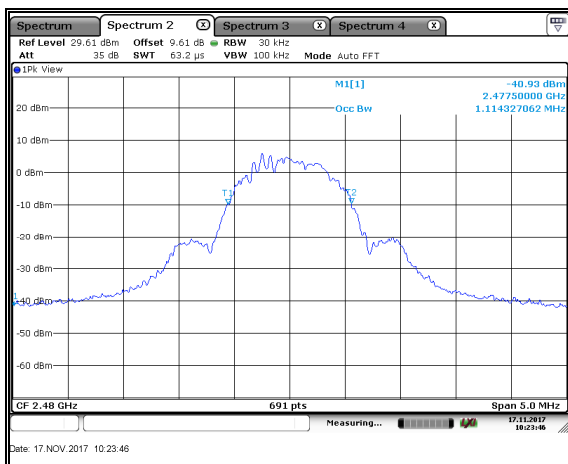


Figure 7.3.2-6: 99% Occupied Bandwidth – HCH

7.4 Fundamental Emission Output Power – FCC: Section 15.247(b)(3); ISED Canada: RSS-247 5.4(d)**7.4.1 Measurement Procedure**

The maximum conducted output power was measured in accordance with FCC KDB 558074 D01 DTS Meas Guidance utilizing the PKPM1 procedure. The RF output of the equipment under test was directly connected to the input of the power meter applying suitable attenuation.

7.4.2 Measurement Results

Performed by: Mark Afroozi, Ryan McGann

Table 7.4.2-1: Maximum Peak Conducted Output Power

Frequency [MHz]	Level [dBm]
2402	11.58
2440	11.29
2480	10.88

7.5 Emission Levels

7.5.1 Emissions into Non-restricted Frequency Bands – FCC: Section 15.247(d); ISED Canada: RSS-247 5.5

7.5.1.1 Measurement Procedure

The unwanted emissions into non-restricted bands were measured conducted in accordance with FCC KDB 558074 D01 DTS Meas Guidance. The RF output of the equipment under test was directly connected to the input of the spectrum analyzer applying suitable attenuation. The Resolution Bandwidth (RBW) of the spectrum analyzer was set to 100 kHz. The Video Bandwidth (VBW) was set to ≥ 300 kHz. Span was set to 1.5 times the DTS bandwidth. The trace was set to max hold with a peak detector active. The resulting spectrum analyzer peak level was used to determine the reference level with respect to the 20 dBc limit. The spectrum span was then adjusted for the measurement of spurious emissions from 30 MHz to 25 GHz, 10 times the highest fundamental frequency.

Band-edge compliance was determined using the conducted marker-delta method in which the radio frequency power that is produced by the EUT is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power.

7.5.1.2 Measurement Results

Performed by: Mark Afroozi, Ryan McGann

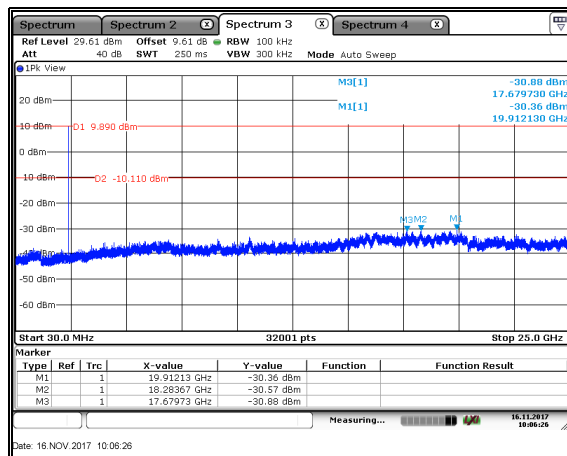


Figure 7.5.1.2-1: RF Conducted Emissions – LCH

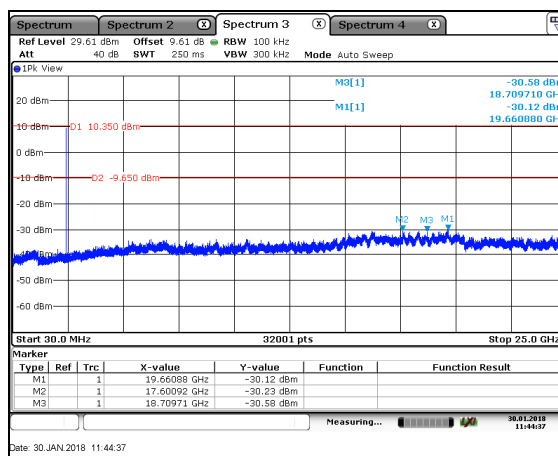


Figure 7.5.1.2-2: RF Conducted Emissions – MCH

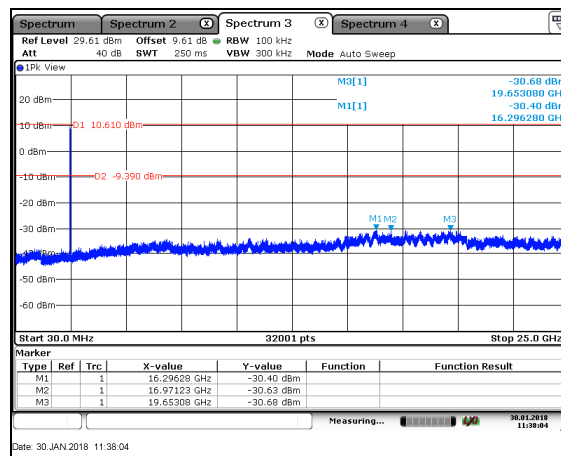


Figure 7.5.1.2-3: RF Conducted Emissions – HCH

7.5.2 Emissions into Restricted Frequency Bands – FCC: 15.205, 15.209; ISED Canada: RSS-Gen 8.9 / 8.10

7.5.2.1 Measurement Procedure

The unwanted emissions into restricted bands were measured radiated over the frequency range of 30 MHz to 25 GHz, 10 times the highest fundamental frequency.

The EUT was rotated through 360° and the receive antenna height was varied from 1 meter to 4 meters so that the maximum radiated emissions level would be detected. For frequencies below 1000 MHz, quasi-peak measurements were made using a resolution bandwidth RBW of 120 kHz and a video bandwidth VBW of 300 kHz. For frequencies above 1000 MHz, peak measurements were taken with RBW and VBW of 1 MHz and 3 MHz respectively. Average measurements were taken in linear amplitude mode with a reduced video bandwidth of 200 Hz.

Each emission found to be in a restricted band as defined by section 15.205, including any emission at the operational band-edge, was compared to the radiated emission limits as defined in section 15.209.

7.5.2.2 Measurement Results

Performed by: Mark Afroozi, Tyler Leeson, Arthur Sumner

Table 7.5.2.2-1: Radiated Spurious Emissions Tabulated Data

Frequency (MHz)	Level (dBuV)		Antenna Polarity (H/V)	Correction Factors (dB)	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg			pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Lowest Channel										
2390	51.40	36.44	H	-5.10	46.30	31.34	74.0	54.0	27.7	22.7
2390	49.70	35.39	V	-5.10	44.60	30.29	74.0	54.0	29.4	23.7
4804	53.50	46.20	H	2.86	56.36	49.06	74.0	54.0	17.6	4.9
4804	52.60	45.00	V	2.86	55.46	47.86	74.0	54.0	18.5	6.1
Middle Channel										
4880	52.30	44.30	H	3.14	55.44	47.44	74.0	54.0	18.6	6.6
4880	55.00	48.30	V	3.14	58.14	51.44	74.0	54.0	15.9	2.6
Highest Channel										
2483.5	69.90	54.12	H	-4.70	65.20	49.42	74.0	54.0	8.8	4.6
2483.5	62.30	46.82	V	-4.70	57.60	42.12	74.0	54.0	16.4	11.9
4960	52.10	43.80	H	3.44	55.54	47.24	74.0	54.0	18.5	6.8
4960	53.40	46.40	V	3.44	56.84	49.84	74.0	54.0	17.2	4.2

7.5.2.3 Sample Calculation:

$$R_C = R_U + CF_T$$

Where:

CF_T	=	Total Correction Factor (AF+CA+AG)-DC (Average Measurements Only)
R_U	=	Uncorrected Reading
R_C	=	Corrected Level
AF	=	Antenna Factor
CA	=	Cable Attenuation
AG	=	Amplifier Gain
DC	=	Duty Cycle Correction Factor

Example Calculation: Peak

Corrected Level: $51.40 - 5.10 = 46.30\text{dBuV/m}$

Margin: $74\text{dBuV/m} - 46.30\text{dBuV/m} = 27.7\text{dB}$

Example Calculation: Average

Corrected Level: $36.44 - 5.10 - 0 = 31.34\text{dBuV}$

Margin: $54\text{dBuV} - 31.34\text{dBuV} = 22.7\text{dB}$

7.6 Maximum Power Spectral Density in the Fundamental Emission – FCC: Section 15.247(e); ISD Canada: RSS-247 5.2(b)

7.6.1 Measurement Procedure

The power spectral density was measured in accordance with the FCC KDB 558074 D01 DTS Meas Guidance utilizing the PKPSD (peak PSD) method as a worst case. The RF output of the equipment under test was directly connected to the input of the spectrum analyzer applying suitable attenuation. The Resolution Bandwidth (RBW) of the spectrum analyzer was set to 3 kHz. The Video Bandwidth (VBW) was set to 10 kHz. Span was set to 1.5 times the DTS bandwidth. The trace was set to max hold with a peak detector active.

7.6.2 Measurement Results

Performed by: Mark Afroozi, Ryan McGann

Table 7.6.2-1: Power Spectral Density

Frequency [MHz]	PSD Level [dBm]
2402	-6.54
2440	-7.08
2480	-7.51

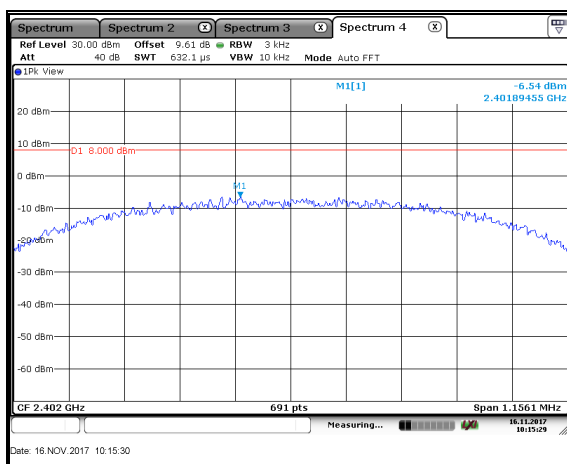


Figure 7.6.2-1: Power Spectral Density – LCH

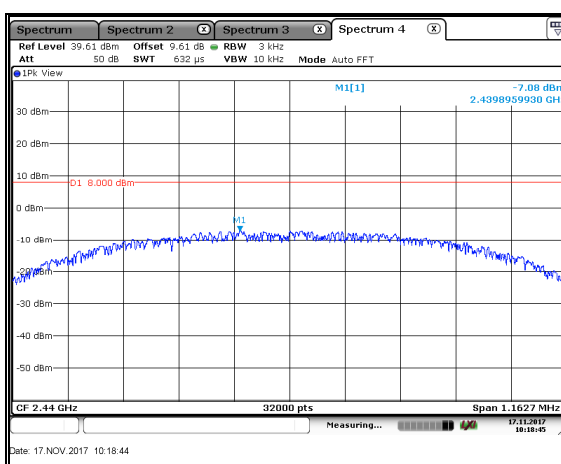


Figure 7.6.2-2: Power Spectral Density – MCH

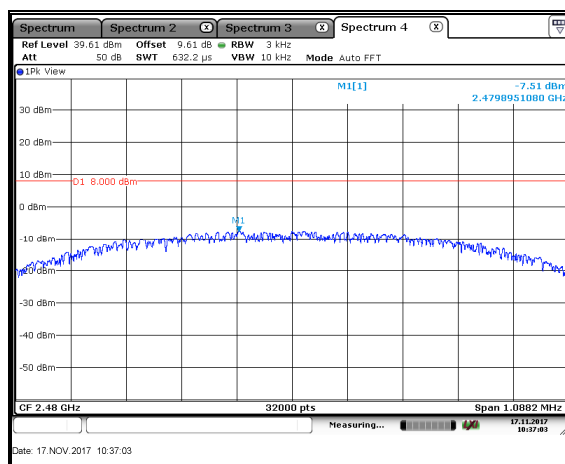


Figure 7.6.2-3: Power Spectral Density – HCH

8 ESTIMATION OF MEASUREMENT UNCERTAINTY

The expanded laboratory measurement uncertainty figures (U_{Lab}) provided below correspond to an expansion factor (coverage factor) $k = 1.96$ which provide confidence levels of 95%.

Parameter	U_{lab}
Occupied Channel Bandwidth	$\pm 0.009 \%$
RF Conducted Output Power	$\pm 0.349 \text{ dB}$
Power Spectral Density	$\pm 0.372 \text{ dB}$
Antenna Port Conducted Emissions	$\pm 1.264 \text{ dB}$
Radiated Emissions $\leq 1 \text{ GHz}$	$\pm 5.814 \text{ dB}$
Radiated Emissions $> 1 \text{ GHz}$	$\pm 4.318 \text{ dB}$
Temperature	$\pm 0.860 \text{ }^{\circ}\text{C}$
Radio Frequency	$\pm 2.832 \times 10^{-8}$
AC Power Line Conducted Emissions	$\pm 3.360 \text{ dB}$

9 CONCLUSION

In the opinion of TÜV SÜD America, Inc. the RMODITHP, manufactured by Acuity Brands Lighting, Inc. meets the requirements of FCC Part 15 subpart C and Innovation, Science, and Economic Development Canada's Radio Standards Specification RSS-247 for the tests documented in this test report.

END REPORT