Certification Test Report

FCC ID: 2ADCB-RMODIT
IC: 6715C-RMODIT

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

Report Number: AT72151894-1P1

Manufacturer: Acuity Brands Lighting, Inc.
Model: RMODIT

Test Begin Date: July 18, 2019
Test End Date: July 26, 2019

Report Issue Date: August 27, 2019

FOR THE SCOPE OF ACCREDITATION UNDER Certificate Number: 2955.09

This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the Federal Government.

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This report contains 24 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 a Class II Permissive Change.

The purpose of this permissive change is to add a new antenna and additional diplexer circuitry for the 2.4GHz and 900MHz radios.

1.2 Product Description

The RMODIT 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 a 2.4GHz Bluetooth Radio. The other radio is a proprietary 904-926MHz (915MHz) Implementation. The 904MHz-926MHz radio is 100kbps O-QPSK DSSS 8 symbols/bit. These radios are capable of transmitting and receiving at the same time.

This report documents the 904 – 926MHz transmitter only. The 2.4GHz transmitter evaluation is documented in a separate report.

Technical Information:

Detail	Description
Frequency Range	904 – 926 MHz
Number of Channels	12
Modulation Format	O-QPSK
Data Rates	100kbps
Operating Voltage	3.3Vdc Nominal
Antenna Type(s) / Gain(s)	Johanson 0915AT43A0026 Chip Antenna (original): 1.0dBi Taoglas TI.09.A.0111 Dipole Antenna (original): 0.0dBi Amphenol Monopole Antenna (original): 0.0dBi Printed Trace Antenna (original): 0.5dBi Pulse W3911B0300 Dual Band Antenna (original): 1.3dBi Pulse W1990XXX Dual Band Monopole Antenna (new): 1.5dBi

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

Test Sample Serial Number: 190605001-2

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

1.3 Test Methodology and Considerations

All modes of operation, including all available data rates, were evaluated. The data presented in this report represents the worst case where applicable.

For radiated emissions, the EUT was evaluated in three orthogonal orientations. The worst-case orientation was Y-orientation. See test setup photos for more information. The EUT was programmed to generate a continuously modulated signal on each channel evaluated.

For power line conducted emissions, the EUT was evaluated with a representative, non-modified, off-the-shelf wall wart power supply.

For RF Conducted measurements, the EUT was coupled to the measurement equipment via a U.FL connector on the carrier board including the diplexer and associated circuitry. For testing, the EUT was programmed to generate a continuously modulated signal on each channel evaluated.

This device contains two independent radios which can transmit simultaneously. Radiated intermodulation testing was performed for all combinations of simultaneous transmission and found to be in compliance. Conducted intermodulation testing was performed in addition to radiated intermodulation testing due to the diplexer transmission configuration.

Software power setting during test: 200

2 TEST FACILITIES

2.1 Location

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

TÜV SÜD America, Inc.
5945 Cabot Pkwy, Suite 100
Alpharetta, GA 30005
Phone: (678) 341-5900

2.2 Laboratory Accreditations/Recognitions/Certifications

TÜV SÜD America, Inc. is accredited to ISO/IEC 17025 by the American Association for Laboratory Accreditation/A2LA accreditation program and has been issued certificate number 2955.09 in recognition of this accreditation.

Unless otherwise specified, all tests methods described within this report are covered under the ISO/IEC 17025 scopes of accreditation.

The Semi-Anechoic Chamber Test Sites and Conducted Emissions Sites 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 Designation Accreditation Number:	US1233
ISED Canada Lab Code:	23932
VCCI Member Number:	1831
• VCCI Registration Number	A-0295

2.3 Radiated Emissions Test Site Description

2.3.1 Semi-Anechoic Chamber Test Site – Chamber A

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 5’ in diameter and is located 5’6” 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 EMCO Model 1060 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 chase from the turntable to the pit that allows 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 chamber rear wall is covered with a mixture of Siepel pyramidal absorber. The side walls of the chamber are partially covered with Siepel pyramidal absorber.

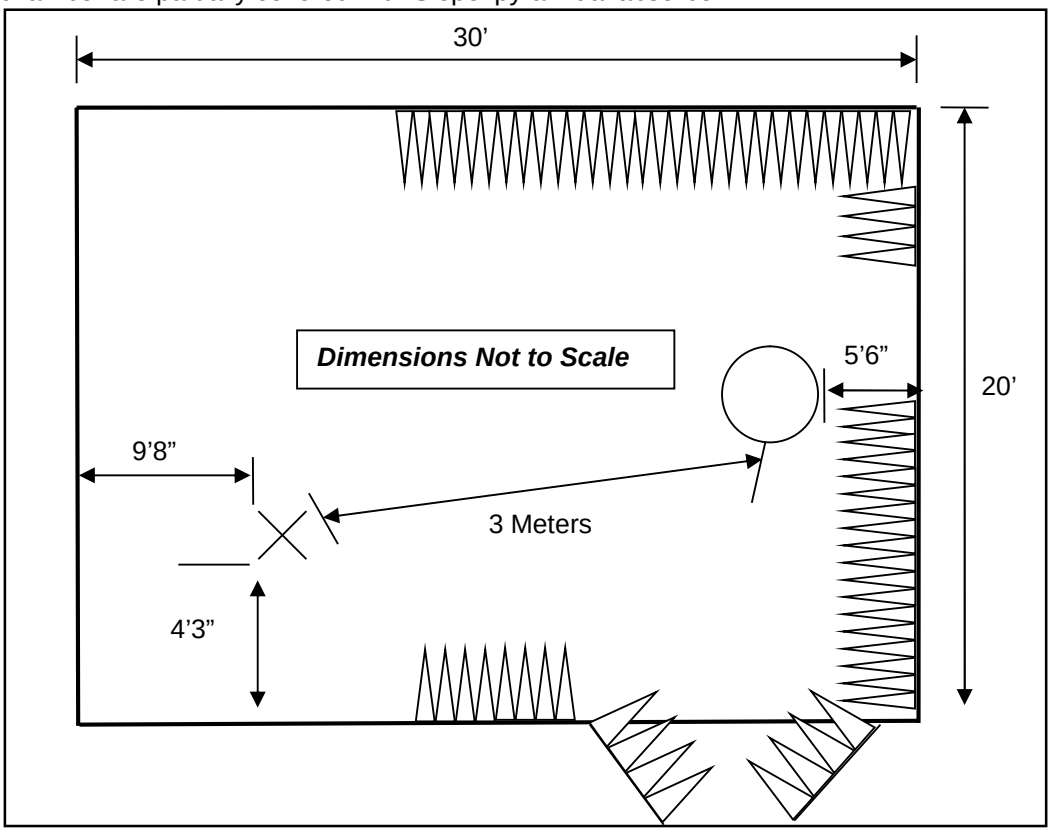

Figure 2.3.1-1: Semi-Anechoic Chamber Test Site – Chamber A

2.3.2 Semi-Anechoic Chamber Test Site – Chamber B

The Semi-Anechoic Chamber Test Site consists of a 20'W x 30'L x 20'H shielded enclosure. The chamber is lined with ETS-Lindgren Ferrite Absorber, model number FT-1500. The ferrite tile 600 mm x 600 mm (2.62 in x 23.62 in) panels and are mounted directly on the inner walls of the chamber shield.

The specular regions of the chamber are lined with additional ETS-Lindgren PS-600 hybrid absorber to extend its frequency range up to 18GHz and beyond.

The turntable is a 2m ETS-Lindgren Model 2170 and installed off the center axis is located 5'6" 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 shield using #8 solid copper wire.

The antenna mast is an EMCO 1060 and is remotely controlled from the control room for both antenna height and polarization.

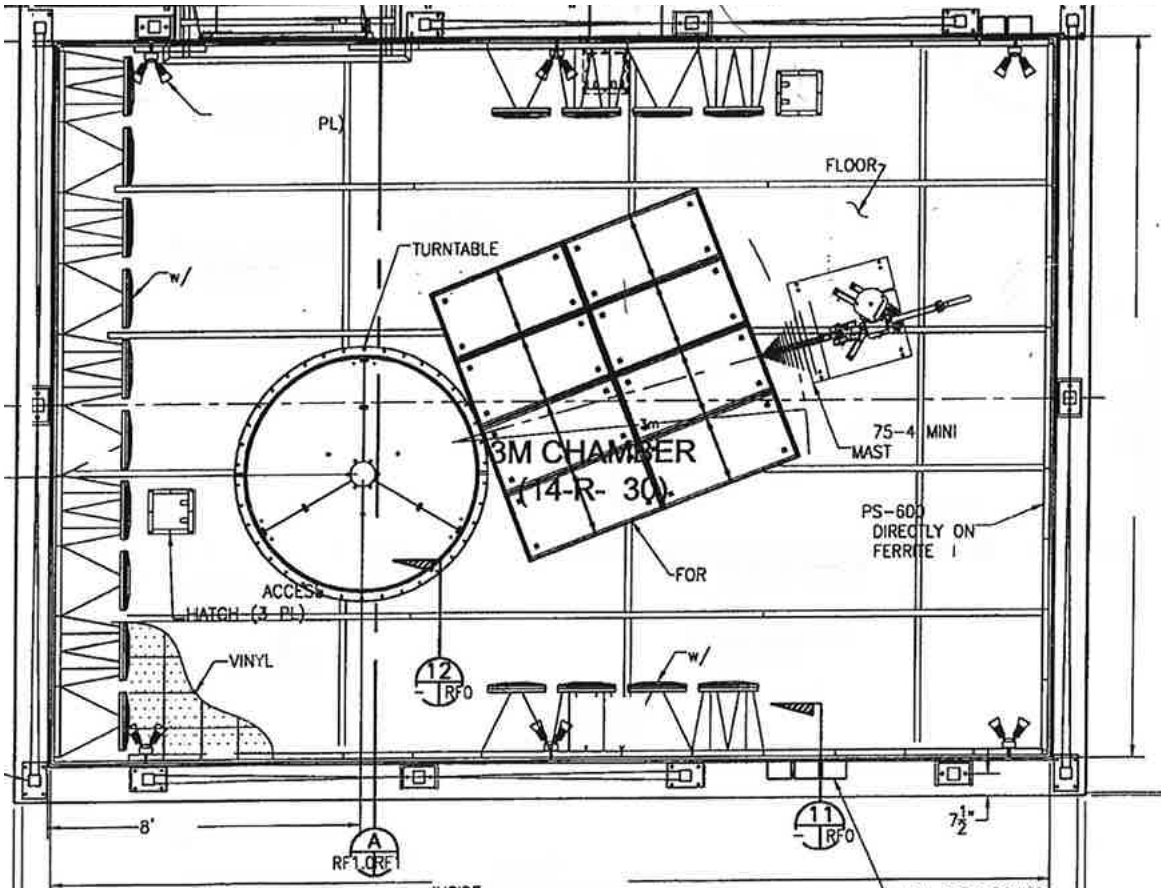

Figure 2.3.2-1: Semi-Anechoic Chamber Test Site – Chamber B

2.4 Conducted Emissions Test Site Description

2.4.1 Conducted Emissions Test Site

The AC mains conducted EMI site is located in the main EMC lab. It consists of a 12' x 10' horizontal coupling plane (HCP) as well as a 12'x8' vertical coupling plane (VCP). The HGP is constructed of 4' x 10' sheets of particle board sandwiched by galvanized steel sheets. These panels are bonded using 11AWG 1/8" x 2" by 10' galvanized sheet steel secured to the panels via by screws. The VCP is constructed of three 4'x8' sheets of 11AWG solid aluminum.

The HCP and VCP are electrically bonded together using 1"x1" angled aluminum secured with screws.

The site is of sufficient size to test table top and floor standing equipment in accordance with section 6.1.4 of ANSI C63.10.

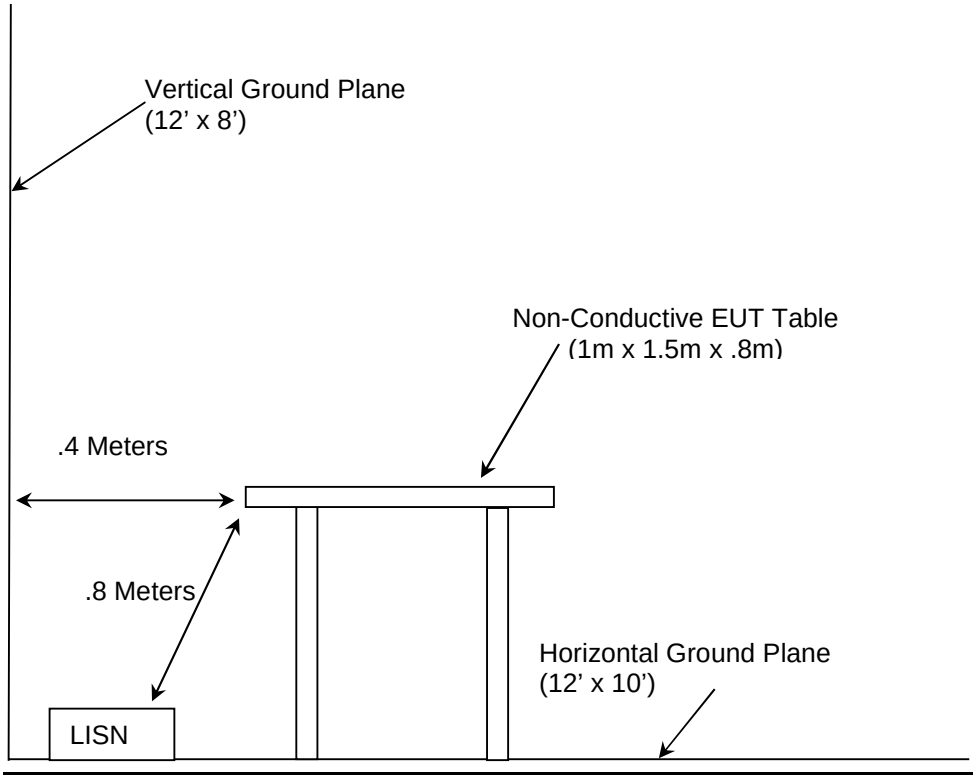

Figure 2.4.1-1: AC Mains Conducted EMI Site

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, 2019
- US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2019
- FCC KDB 558074 D01 DTS Meas Guidance v05r02 - Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247, April 2, 2019
- 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, February 2017.
- ISED Canada Radio Standards Specification: RSS-GEN – General Requirements for Compliance of Radio Apparatus, Issue 5, April 2018 + Amendment 1, March 2019

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 Number	Last Calibration Date	Calibration Due Date
30	Spectrum Technologies	DRH-0118	1-18GHz Horn Antenna	970102	05/29/2019	05/29/2021
213	TEC	PA 102	Amplifier	44927	07/22/2019	07/22/2020
324	ACS	Belden	Conducted EMI Cable	8214	03/19/2019	03/19/2020
331	Microwave Circuits	H1G513G1	Microwave Bandpass Filter	31417	05/31/2019	05/31/2020
338	Hewlett Packard	8449B	High Frequency Pre-Amp	3008A01111	07/15/2019	07/15/2021
622	Rohde & Schwarz	FSV40 (v3.40)	FSV Signal Analyzer 10Hz to 40GHz	101338	07/30/2018	07/30/2020
628	EMCO	6502	Active Loop Antenna 10kHz-30MHz	9407-2877	02/11/2019	11/02/2021
813	PMM	9010	EMI Receiver; RF Input 50ohm; 10Hz-50MHz; 10Hz-30MHz	697WW30606	02/25/2019	02/25/2020
819	Rohde & Schwarz	ESR26	EMI Test Receiver	101345	11/06/2018	11/06/2019
851	TUV ATLANTA	FMC0101951-100CM	ASAC Cable Set Consisting of 566, 619, and 564	N/A	09/26/2018	09/26/2019
852	Teseq	CBL 6112D	Bilog Antenna; Attenuator	51617	10/15/2018	10/15/2019
3010	Rohde & Schwarz	ENV216	Two-Line V-Network	3010	07/10/2019	07/10/2020

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	Battery Back	N/A	N/A	N/A
2	AC-DC Power Adaptor	TRIAD	WS2U240-0500	N/A

Table 5-2: Cable Description

Cable	Cable Type	Length	Shield	Termination
A	DC Power Cable	10 cm	No	EUT to Battery Pack
B	DC Power Cable	200 cm	No	EUT to AC-DC Power Adaptor

6 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM

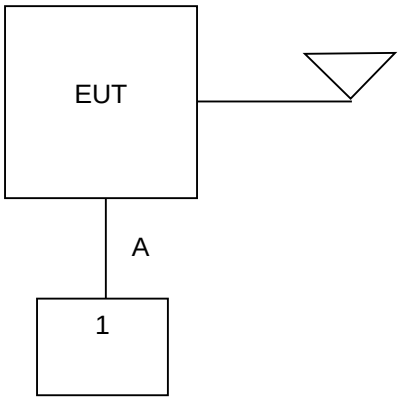

Figure 6-1: Test Setup Block Diagram – Radiated Spurious Emissions

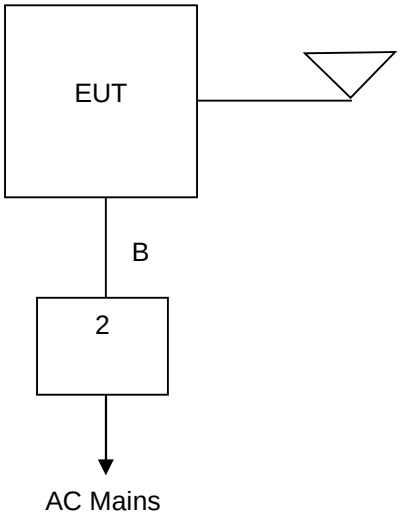

Figure 6-2: Test Setup Block Diagram – AC Power Line Conducted Emissions

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

In addition to the previously approved antennas, the EUT was evaluated with a dual band monopole antenna. The RMODIT utilizes a castellated edge to the control board with diplexer and couples to the antenna via a U.FL connector which meets the unique antenna connector requirements in 15.203. The dual band monopole antenna has 1.5dBi gain in the 900MHz band.

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

7.2.1 Measurement Procedure

ANSI C63.10 was the guiding document for this evaluation. Conducted emissions were performed from 150kHz to 30MHz with the spectrum analyzer's resolution bandwidth set to 9kHz and the video bandwidth set to 30kHz. 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: Art Sumner

Table 7.2.2-1: Conducted EMI Results - Line 1

Frequency (MHz)	Corrected Reading		Limit		Margin		Correction (dB)
	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average	
	(dBµV)	(dBµV)	(dBµV)	(dBµV)	(dB)	(dB)	
0.15	42.02	23.48	66	56	23.98	32.52	9.45
0.158	41.58	23.76	65.57	55.57	23.99	31.81	9.45
0.166	41.4	23.26	65.16	55.16	23.76	31.9	9.46
0.186	38.95	25	64.21	54.21	25.26	29.21	9.46
0.202	35.3	15.53	63.53	53.53	28.23	38	9.47
0.226	35.15	16	62.6	52.6	27.45	36.6	9.48
0.254	36.47	25.58	61.63	51.63	25.16	26.05	9.49
0.27	36.52	26.59	61.12	51.12	24.6	24.53	9.49
0.298	35.99	26.35	60.3	50.3	24.31	23.95	9.5
0.318	35.28	27.02	59.76	49.76	24.48	22.74	9.5

Table 7.2.2-2: Conducted EMI Results - Line 2

Frequency (MHz)	Corrected Reading		Limit		Margin		Correction (dB)
	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average	
	(dBµV)	(dBµV)	(dBµV)	(dBµV)	(dB)	(dB)	
0.154	37.56	14.69	65.78	55.78	28.22	41.09	9.43
0.19	37.56	16.63	64.04	54.04	26.48	37.41	9.44
0.206	37.41	16.91	63.37	53.37	25.96	36.46	9.44
0.222	36.37	3.94	62.74	52.74	26.37	48.8	9.44
0.234	33.4	12.66	62.31	52.31	28.91	39.65	9.44
0.25	36.48	21.81	61.76	51.76	25.28	29.95	9.44
0.27	37.08	23.6	61.12	51.12	24.04	27.52	9.45
0.29	36.58	20.13	60.52	50.52	23.94	30.39	9.45
0.822	35.12	31.21	56	46	20.88	14.79	9.55
0.91	32.66	24.59	56	46	23.34	21.41	9.56

7.3 Fundamental Emission Output Power – FCC: Section 15.247(b)(3); ISED Canada: RSS-247 5.4(d)

7.3.1 Measurement Procedure

The maximum conducted output power was measured in accordance with FCC KDB 558074 D01 DTS Meas Guidance utilizing the RBW ≥ DTS Bandwidth procedure. The RF output of the equipment under test was directly connected to the input of the spectrum analyzer applying suitable attenuation. The Resolution Bandwidth was set greater than the DTS Bandwidth and the Video Bandwidth was set greater than 3 x RBW. The span was set to great than 3 x RBW and the sweep time was auto coupled. A peak detector was used with a max hold trace mode.

7.3.2 Measurement Results

Performed by: Ryan McGann

Table 7.3.2-1: Maximum Conducted Peak Output Power

Frequency (MHz)	Level (dBm)
904	19.25
914	19.09
926	18.98

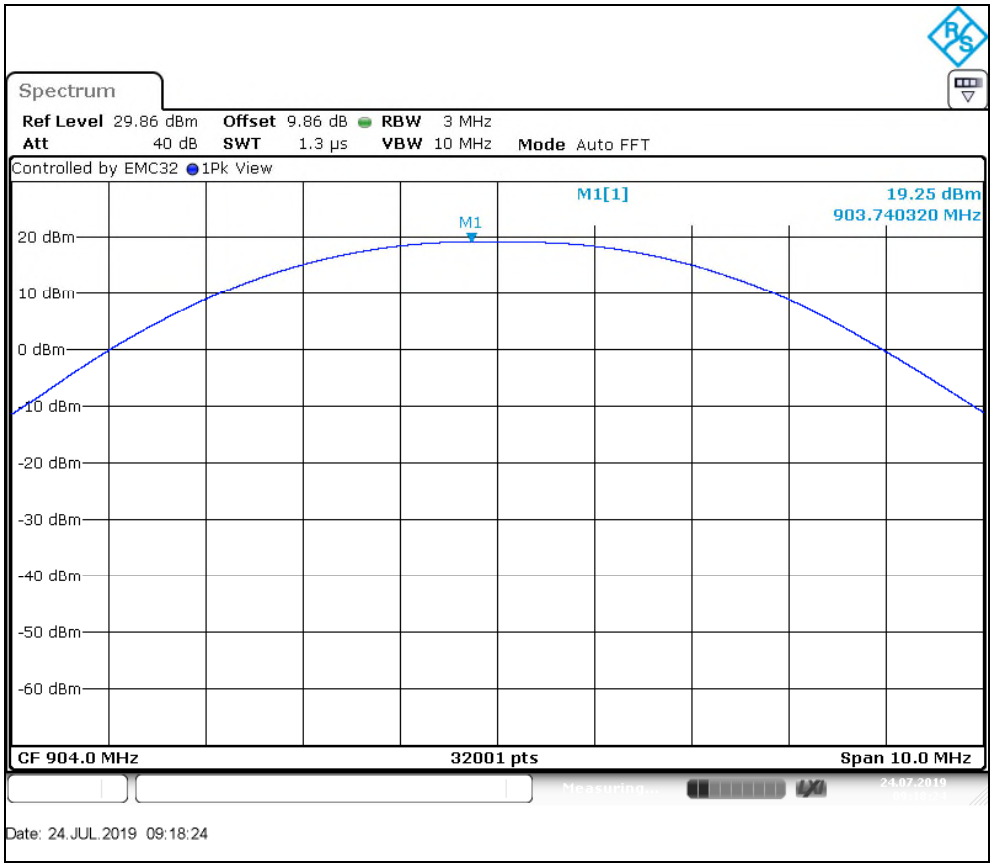

Figure 7.3.2-1: Maximum Conducted Peak Output Power – Sample Plot

7.4 Emission Levels

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

7.4.1.1 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 centered on each channel evaluated. 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 10 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 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power.

7.4.1.2 Measurement Results

Performed by: Ryan McGann

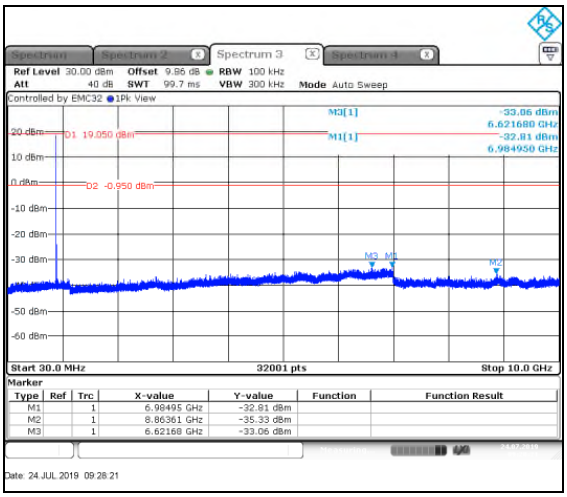

Figure 7.4.1.2-1: Conducted Spurious Emissions – Sample Plot

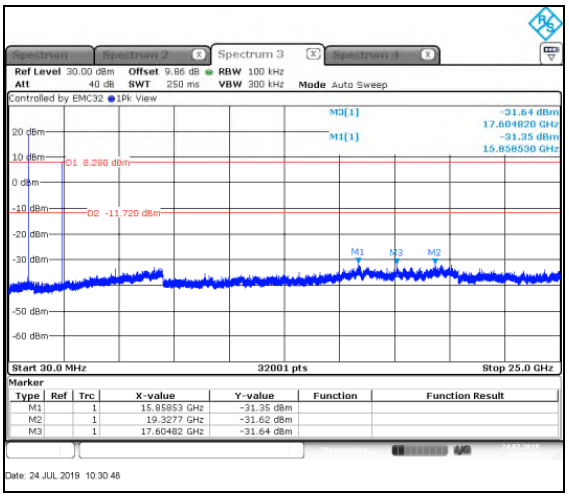

Figure 7.4.1.2-2: Conducted Spurious Emissions – Simultaneous Tx

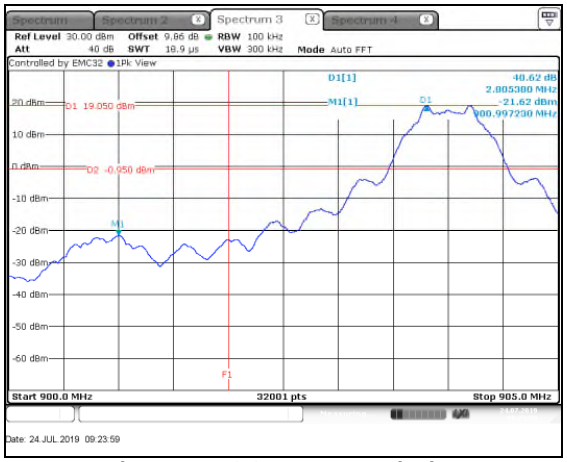

Figure 7.4.1.2-3: Lower Band-edge

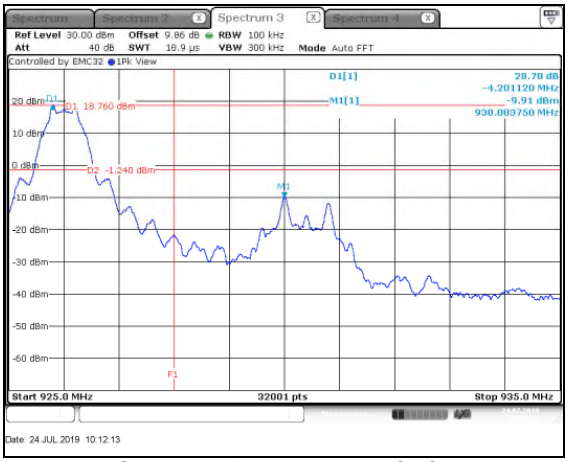

Figure 7.4.1.2-4: Upper Band-edge

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

7.4.2.1 Measurement Procedure

The unwanted emissions into restricted bands were measured radiated over the frequency range of 9 kHz to 10 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 and average measurements were made with RBW and VBW of 1 MHz and 3 MHz respectively.

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. Emissions not reported were below the noise floor of the measurement system. Peak data below 30MHz was more than 20dB below the applicable limits.

7.4.2.2 Duty Cycle Correction Factor

For average radiated measurements, using a 30.48% duty cycle, the measured level was reduced by a factor of 10.32dB. The duty cycle correction factor is determined using the formula: 20 x log (30.48/100) = -10.32dB.

The duty cycle for the RMODIT is hardwired to the device and limited by the software of the radio device, therefore the duty cycle is not accessible by the end user. A detailed analysis of the duty cycle timing is provided in the Theory of Operations accompanying the application of the original certification.

7.4.2.3 Measurement Results

Performed by: Art Sumner

Table 7.4.2.3-1: Radiated Spurious Emissions Tabulated Data

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBµV/m)		Limit (dBµV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Lowest Channel										
2712	59.75	53.90	H	-1.25	58.50	42.33	74.0	54.0	15.5	11.7
2712	65.20	59.80	V	-1.25	63.95	48.23	74.0	54.0	10.0	5.8
3616	58.60	50.50	H	1.72	60.32	41.90	74.0	54.0	13.7	12.1
3616	62.30	55.10	V	1.72	64.02	46.50	74.0	54.0	10.0	7.5
4520	46.10	33.50	H	4.42	50.52	27.60	74.0	54.0	23.5	26.4
4520	51.10	38.80	V	4.42	55.52	32.90	74.0	54.0	18.5	21.1
5424	45.20	31.80	H	6.15	51.35	27.63	74.0	54.0	22.7	26.4
5424	44.70	31.80	V	6.15	50.85	27.63	74.0	54.0	23.2	26.4
Middle Channel										
2742	59.50	52.20	H	-1.05	58.45	40.83	74.0	54.0	15.6	13.2
2742	66.30	59.80	V	-1.05	65.25	48.43	74.0	54.0	8.8	5.6
3656	59.20	51.70	H	1.92	61.12	43.30	74.0	54.0	12.9	10.7
3656	64.70	58.00	V	1.92	66.62	49.60	74.0	54.0	7.4	4.4
4570	47.80	34.40	H	4.51	52.31	28.59	74.0	54.0	21.7	25.4
4570	50.10	38.40	V	4.51	54.61	32.59	74.0	54.0	19.4	21.4
Highest Channel										
964.2	---------	28.53	H	3.06	---------	31.59	--------	54.0	---------	22.4
964.2	---------	34.61	V	3.06	---------	37.67	--------	54.0	---------	16.3
2778	61.50	54.50	H	-0.82	60.68	43.36	74.0	54.0	13.3	10.6
2778	68.50	62.00	V	-0.82	67.68	50.86	74.0	54.0	6.3	3.1
3704	61.70	54.50	H	2.15	63.85	46.33	74.0	54.0	10.1	7.7
3704	67.30	60.80	V	2.15	69.45	52.63	74.0	54.0	4.5	1.4
4630	49.50	37.50	H	4.62	54.12	31.80	74.0	54.0	19.9	22.2
4630	50.60	39.70	V	4.62	55.22	34.00	74.0	54.0	18.8	20.0
7408	47.30	34.10	H	9.55	56.85	33.33	74.0	54.0	17.2	20.7
7408	47.60	34.10	V	9.55	57.15	33.33	74.0	54.0	16.9	20.7
8334	48.10	33.90	H	10.96	59.06	34.54	74.0	54.0	14.9	19.5
8334	47.90	33.80	V	10.96	58.86	34.44	74.0	54.0	15.1	19.6

Table 7.4.2.3-2: Radiated Spurious Emissions Tabulated Data – Simultaneous Tx

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBµV/m)		Limit (dBµV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Simultaneous Transmission										
211.8	---------	50.84	H	-10.17	---------	40.67	--------	43.5	---------	2.8
211.8	---------	40.01	V	-10.17	---------	29.84	--------	43.5	---------	13.7
951	---------	36.82	V	2.85	---------	39.67	--------	46.0	---------	6.3
2736	58.81	54.54	H	-1.09	57.72	43.13	74.0	54.0	16.3	10.9
2736	62.99	57.42	V	-1.09	61.90	46.01	74.0	54.0	12.1	8.0

7.4.2.4 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 – Highest Channel – 3704MHz

Corrected Level: 67.30 + 2.15 = 69.45dBuV/m
Margin: 74dBuV/m – 69.45dBuV/m = 4.5dB

Example Calculation: Average – Highest Channel – 3704MHz

Corrected Level: 60.80 + 2.15 – 10.32 = 52.63dBuV
Margin: 54dBuV – 52.63dBuV = 1.4dB

7.5 Maximum Power Spectral Density – FCC: Section 15.247(e) ISED Canada: RSS-247 5.2(b)

7.5.1 Measurement Procedure

The power spectral density was measured in accordance with the FCC KDB 558074 D01 DTS Meas Guidance utilizing the PKPSD method. 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 detector was set to peak and the trace mode was set to max hold. The marker to peak function was then used to find the highest PSD within the emission envelope.

7.5.2 Measurement Results

Performed by: Ryan McGann

Table 7.5.2-1: Power Spectral Density

Frequency (MHz)	PSD Level (dBm)
904	6.74
914	6.62
926	6.55

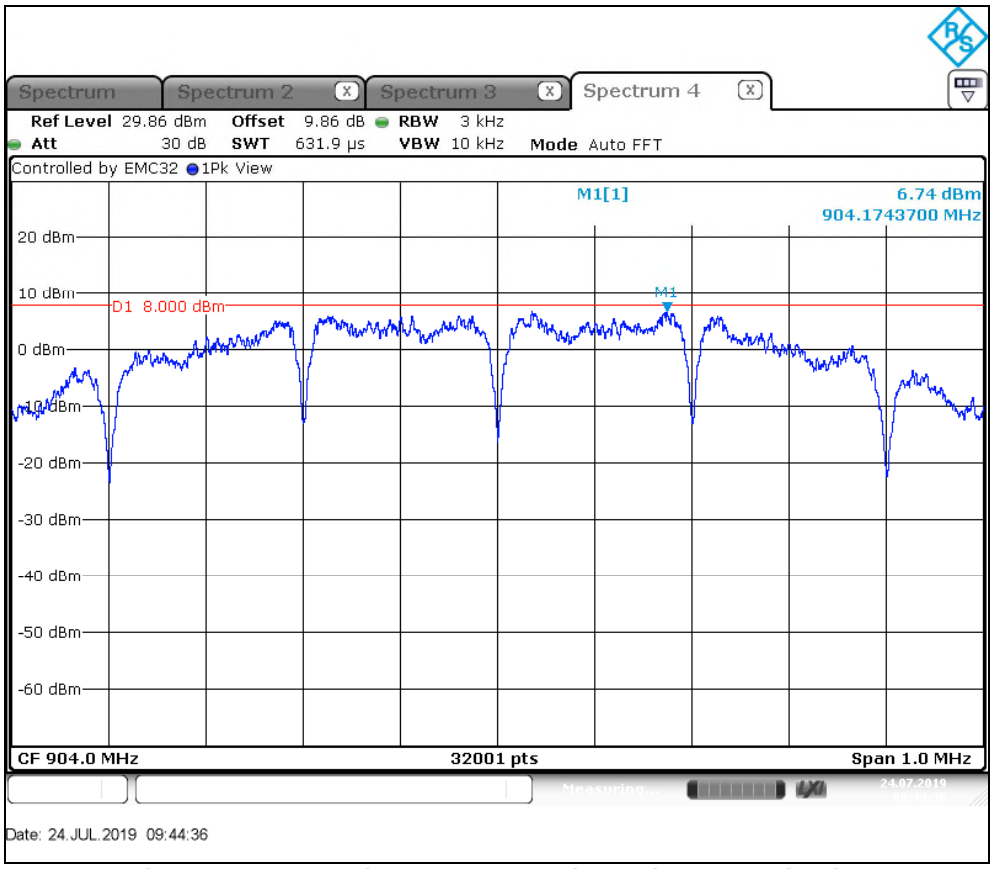

Figure 7.5.2-1: Peak Power Spectral Density – Sample Plot

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	± 0.009 %
RF Conducted Output Power	± 0.349 dB
Power Spectral Density	± 0.372 dB
Antenna Port Conducted Emissions	± 1.264 dB
Radiated Emissions ≤ 1 GHz	± 5.814 dB
Radiated Emissions > 1 GHz	± 4.318 dB
Temperature	± 0.860 °C
Radio Frequency	± 2.832 x 10^{-8}
AC Power Line Conducted Emissions	± 3.360 dB

9 CONCLUSION

In the opinion of TÜV SÜD America, Inc. the RMODIT, manufactured by Acuity Brands Lighting, Inc. meets the requirements of FCC Part 15 subpart C and ISED Canada's Radio Standards Specification RSS-247 for Class II Permissive Change for the tests documented in this test report.

Appendix A: Plots

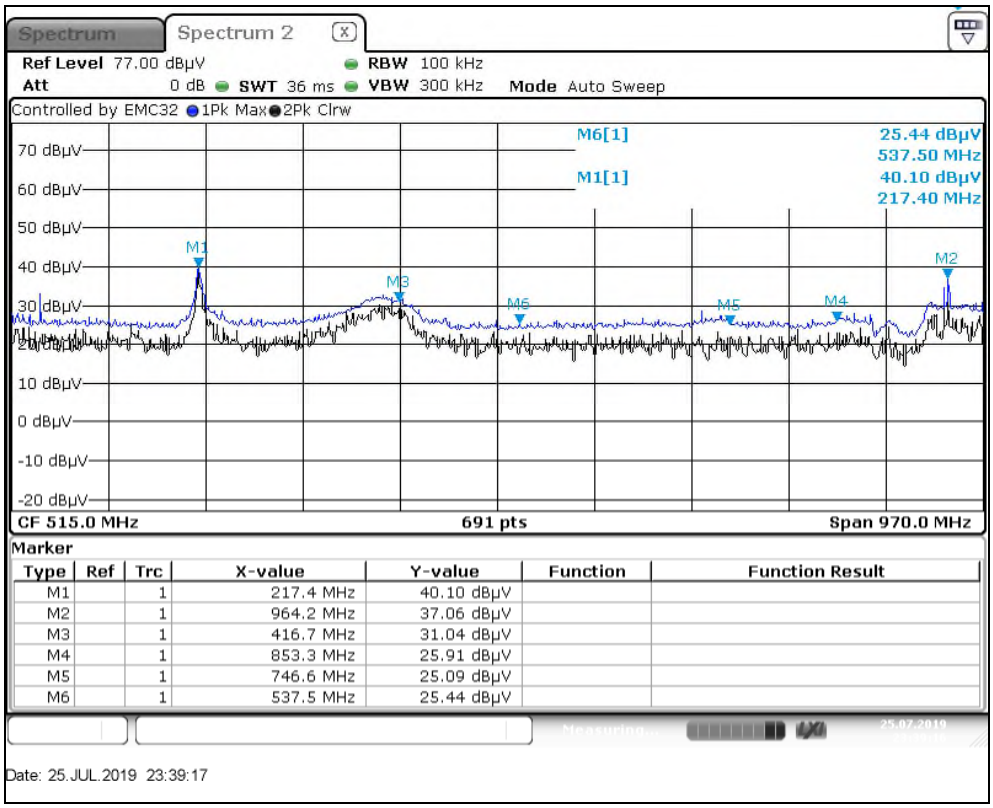

Figure A-1: 30MHz-1GHz – Radiated Emissions

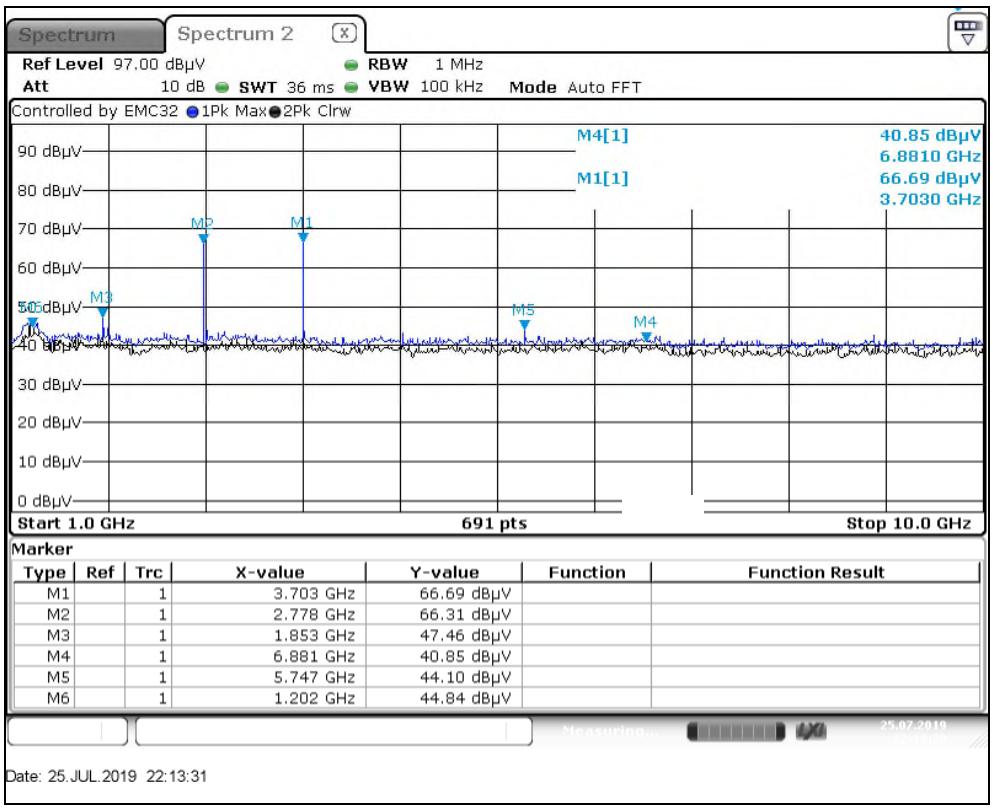

Figure A-2: 1GHz-10GHz – Radiated Emissions

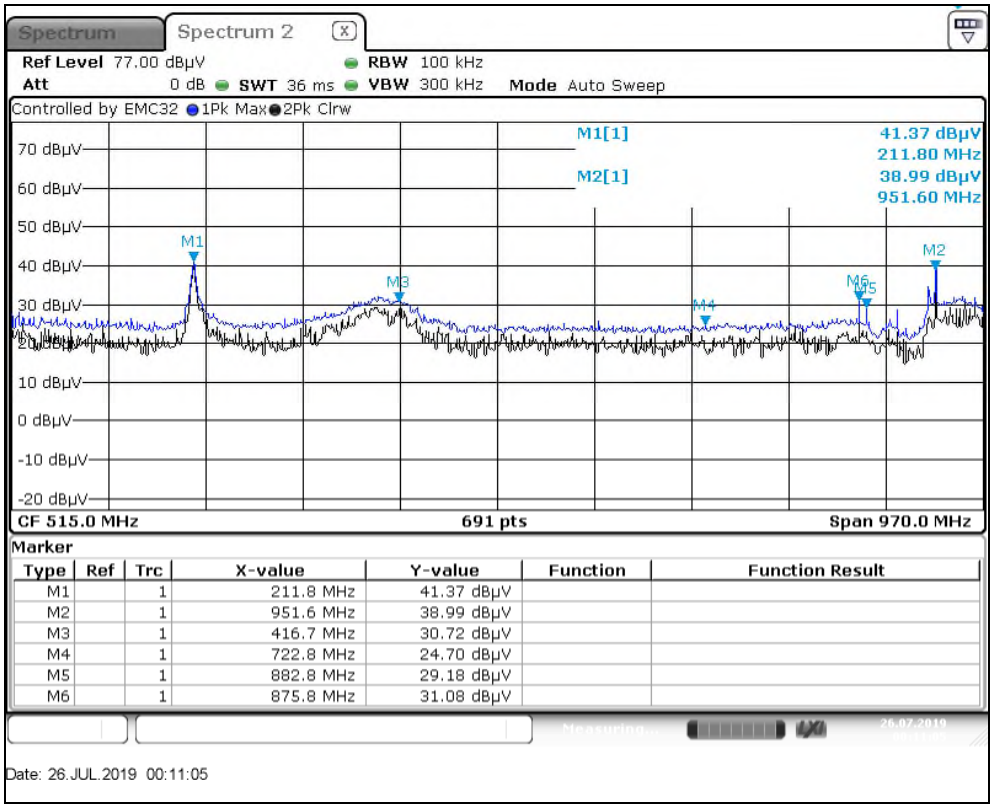

Figure A-3: 30MHz-1GHz – Radiated Emissions – Simultaneous Tx

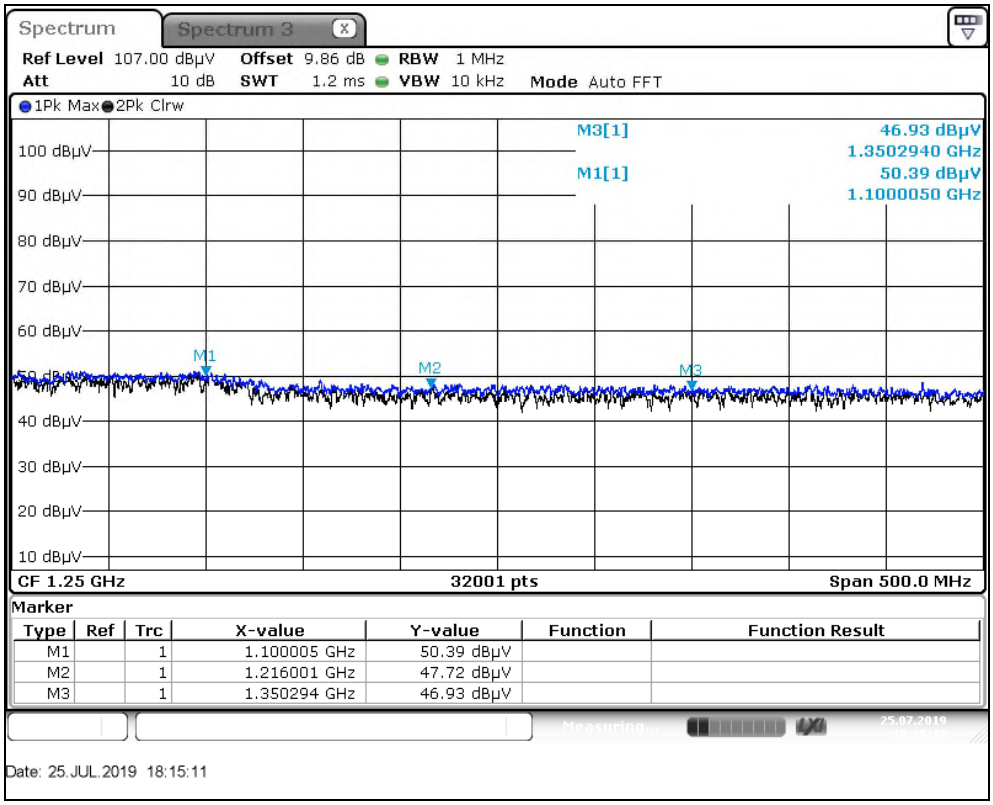

Figure A-4: 1GHz-1.5GHz – Radiated Emissions – Simultaneous Tx

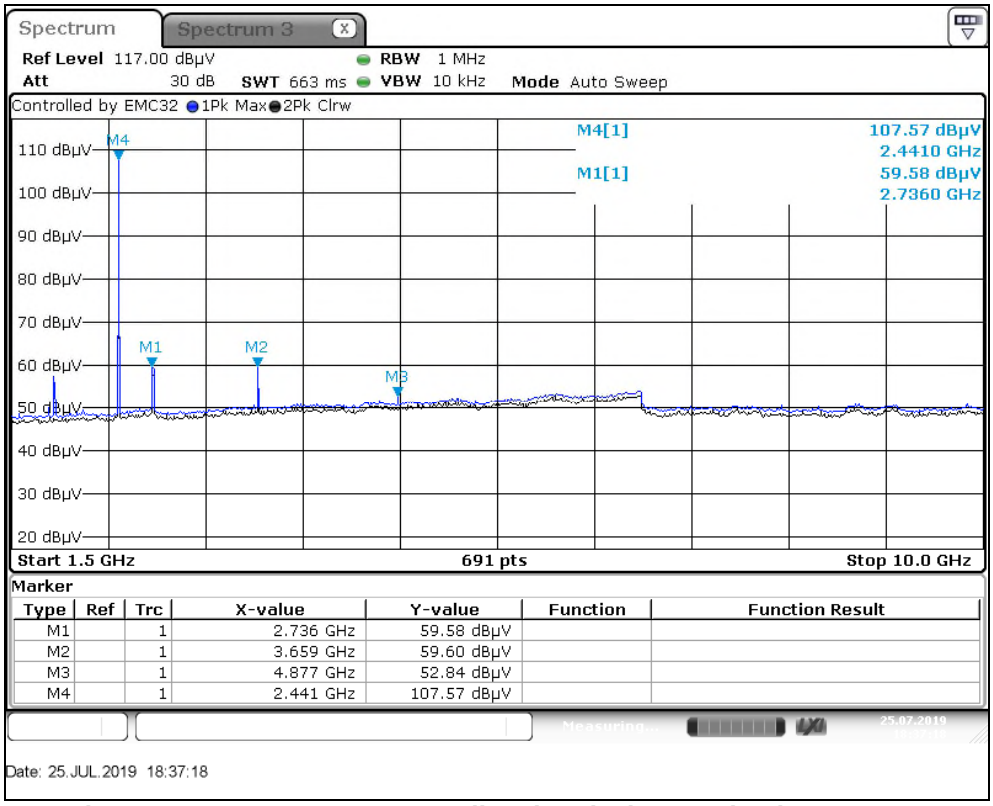

Figure A-5: 1.5GHz-10GHz – Radiated Emissions – Simultaneous Tx

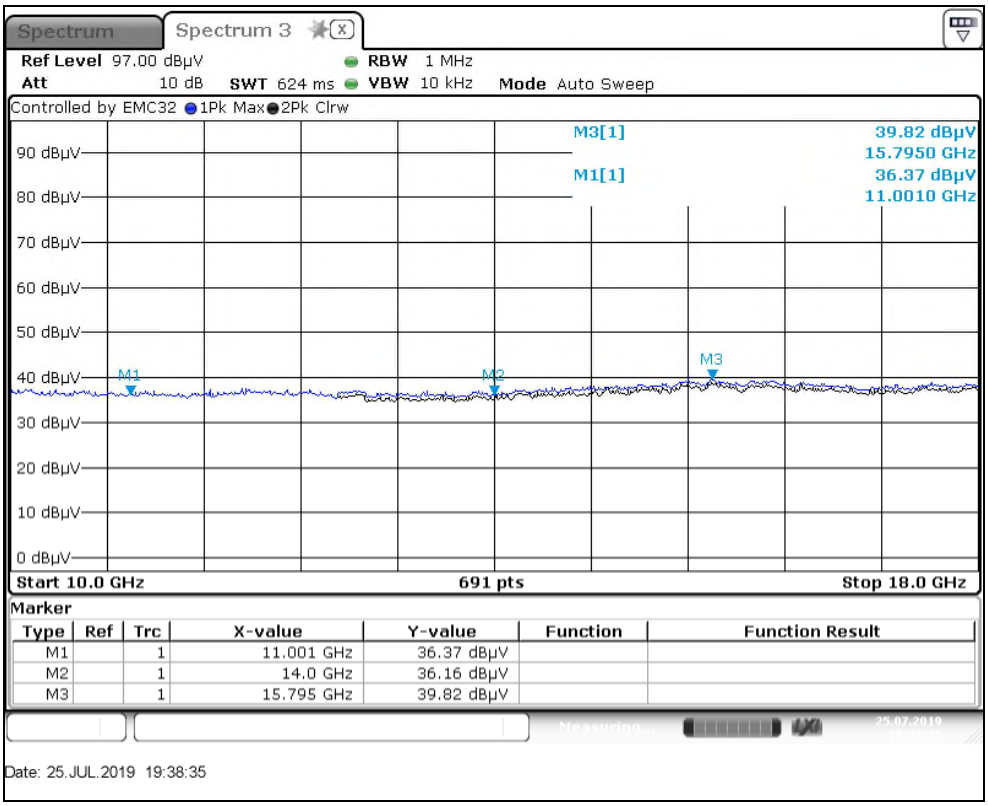

Figure A-6: 10GHz-18GHz – Radiated Emissions – Simultaneous Tx

END REPORT