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Lantrn Limited

TEST REPORT

SCOPE OF WORK
FCC TESTING–ZL001

REPORT NUMBER
180810024SZN-001

ISSUE DATE **[REVISED DATE]**

10 September 2018 [----------]

PAGES
52

DOCUMENT CONTROL NUMBER
FCC ID 247_b
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TEST REPORT

Intertek Report No.: 180810024SZN-001

Lantrn Limited

Application
For
Certification

FCC ID: 2AQZV-ZL001

Suitcase Lock

Model: ZL001

Brand name: Lantrn

2.4GHz Transceiver

Report No.: 180810024SZN-001

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-17]

Prepared and Checked by:

Rode Liu
Engineer

Approved by:

Kidd Yang
Technical Supervisor
Date: 10 September 2018

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LIST OF EXHIBITS

INTRODUCTION

EXHIBIT 1:	Summary of Tests
EXHIBIT 2:	General Description
EXHIBIT 3:	System Test Configuration
EXHIBIT 4:	Measurement Results
EXHIBIT 5:	Equipment Photographs
EXHIBIT 6:	Product Labeling
EXHIBIT 7:	Technical Specifications
EXHIBIT 8:	Instruction Manual
EXHIBIT 9:	Miscellaneous Information
EXHIBIT 10:	Test Equipment List

MEASUREMENT/TECHNICAL REPORT

Suitcase Lock

Model: ZL001

FCC ID: 2AQZV-ZL001

This report concerns (check one) Original Grant ___X___ Class II Change ____

Equipment Type: DTS - Part 15 Digital Transmission Systems (Bluetooth LE portion)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes _____ No ___X_

If yes, defer until : _____
date

Company Name agrees to notify the Commission by: _____
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes _____ No ___X___

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-01-17] Edition] provision.

Report prepared by:

Rode Liu
Intertek Testing Services Shenzhen Ltd.
Longhua Branch
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Table of Contents

1.0 Summary of Test results 7

2.0 General Description 9

2.1 Product Description 9
2.2 Related Submittal(s) Grants 9
2.3 Test Methodology 9
2.4 Test Facility 9

3.0 System Test Configuration 11

3.1 Justification 11
3.2 EUT Exercising Software 11
3.3 Special Accessories 11
3.4 Measurement Uncertainty 12
3.5 Equipment Modification 12
3.6 Support Equipment List and Description 12

4.0 Measurement Results 14

4.1 Maximum Conducted Output Power at Antenna Terminals 14
4.2 Minimum 6 dB RF Bandwidth 15
4.3 Maximum Power Density Reading 18
4.4 Out of Band Conducted Emissions 21
4.5 Out of Band Radiated Emissions 28
4.6 Transmitter Radiated Emissions in Restricted Bands 29
4.7 Field Strength Calculation 30
4.8 Radiated Emissions from Digital Section of Transceiver 37
4.9 Transmitter Duty Cycle Calculation and Measurements 38

5.0 Equipment Photographs 40

6.0 Product Labelling 42

7.0 Technical Specifications 44

8.0 Instruction Manual 46

9.0 Confidentiality Request 48

10.0 Discussion of Pulse Desensitization 50

11.0 Test Equipment List 52

List of attached file

Exhibit Type	File Description	Filename
Cover Letter	Letter of Agency	agency.pdf
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
Operation Description	Technical Description	descri.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Confidentiality Letter	request.pdf

EXHIBIT 1

SUMMARY OF TEST RESULTS

1.0 Summary of Test results

Suitcase Lock

Model: ZL001

FCC ID: 2AQZV-ZL001

TEST ITEM	REFERENCE	RESULTS
Max. Output power	15.247(b)(3)	Pass
6 dB Bandwidth	15.247(a)(2)	Pass
Max. Power Density	15.247(e)	Pass
Out of Band Antenna Conducted Emission	15.247(d)	Pass
Radiated Emission in Restricted Bands	15.247(d)	Pass
AC Conducted Emission	15.207	NA
Antenna Requirement	15.203	Pass (See Notes)

Notes: The EUT uses an Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

EXHIBIT 2

GENERAL DESCRIPTION

2.0 General Description

2.1 Product Description

The Equipment Under Test (EUT) is a Suitcase Lock with Bluetooth technology operating in 2402-2480MHz. The EUT is powered by battery (DC 3.0V). For more detailed features description, please refer to the user's manual.

Bluetooth Version: 4.0 BLE
Antenna Type: Integral antenna
Antenna Gain: 0 dBi
Modulation Type: GFSK

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

2.2 Related Submittal(s) Grants

This is an application for certification of transceiver for the Suitcase Lock which has Bluetooth function.

2.3 Test Methodology

Radiated emission measurement was performed according to the procedures in ANSI C63.10 (2013) and KDB 558074 D01 v05. Radiated emission measurement was performed in semi-anechoic chamber. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47

2.4 Test Facility

The Semi-anechoic chamber used to collect the radiated data is **Intertek Testing Services Shenzhen Ltd. Longhua Branch** and located at 101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, Shenzhen, P.R. China. This test facility and site measurement data have been fully placed on file with File Number: CN1188.

EXHIBIT 3

SYSTEM TEST CONFIGURATION

3.0 System Test Configuration

3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. The EUT was powered by two new AAA batteries (DC 3.0V) during the test.

For maximizing emissions, the EUT was rotated through 360°, the EUT was placed on the styrene turntable with 0.8m up to 1GHz and 1.5 m above 1GHz. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

The unit was operated standalone and placed in the centre of the turntable.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

3.2 EUT Exercising Software

The EUT exercise program (provided by client) used during testing was designed to exercise the various system components in a manner similar to a typical use.

3.3 Special Accessories

No special accessory attached.

3.4 Measurement Uncertainty

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

Uncertainty and Compliance – Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

3.5 Equipment Modification

Any modifications installed previous to testing by Lantrn Limited will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Longhua Branch.

3.6 Support Equipment List and Description

This product was tested in the following configuration:

Refer List:

Description	Manufacturer	Model No.
iPod (Provided by Intertek)	Apple	A1446

EXHIBIT 4

MEASUREMENT RESULTS

Applicant: Lantrn Limited
Date of Test: August 21, 2018 Worst case Model: ZL001

4.0 Measurement Results

4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b)(3):

[×] The antenna power of the EUT was connected to the input of a broadband peak RF power meter. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

For antennas with gains of 6 dBi or less, maximum allowed Transmitter output is 1 watt (+30 dBm).

Frequency (MHz)	Output in dBm (Peak reading)	Output in mWatt
Low Channel: 2402	-2.22	0.60
Middle Channel: 2440	-2.17	0.61
High Channel: 2480	-2.67	0.54

Cable loss: 0.5 dB External Attenuation: 0 dB

Cable loss, external attenuation has been included in OFFSET function

EUT max. output power = -2.17dBm
EUT max E.I.R.P = -2.17dBm + (0dBi) = -2.17dBm = 0.61mW

For RF Exposure, the information is saved with filename: analysis report.pdf.

4.2 Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a) (2):

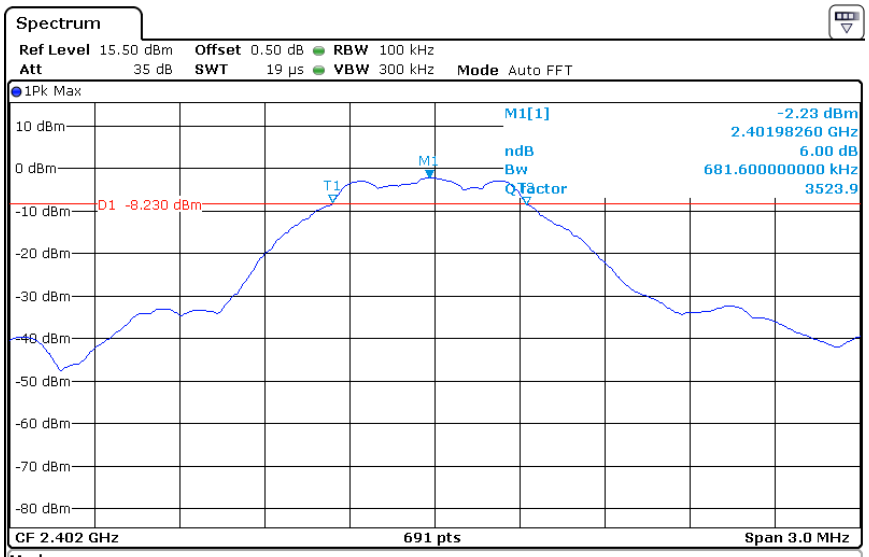
The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RBW was set to 100 KHz according to FCC KDB 558074 D01 v05. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Limit: The 6 dB Bandwidth is at least 500 kHz.

Frequency (MHz)	6 dB Bandwidth (KHz)
2402	681.6
2440	681.6
2480	686.0

The test plots are attached as below.

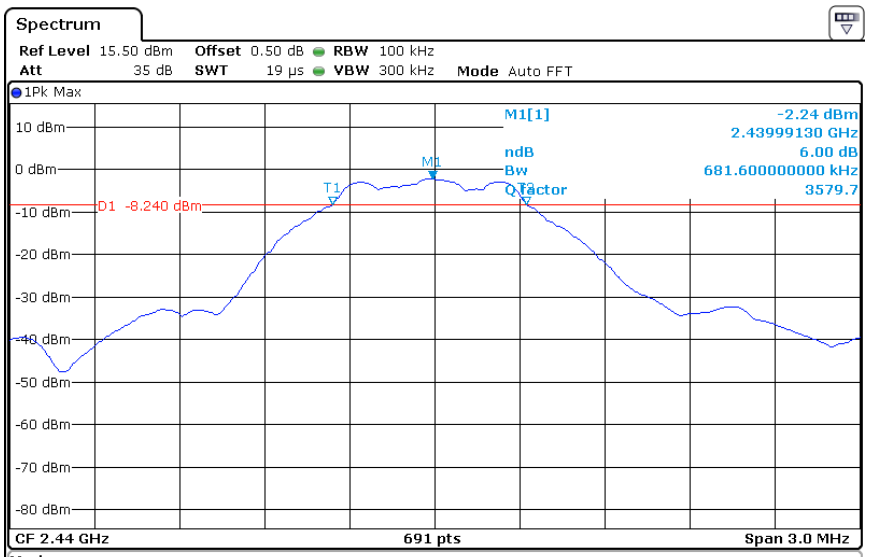
Low Channel



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4019826 GHz	-2.23 dBm	ndB down	681.6 kHz
T1		1	2.4016397 GHz	-8.05 dBm	ndB	6.00 dB
T2		1	2.4023213 GHz	-8.42 dBm	Q factor	3523.9

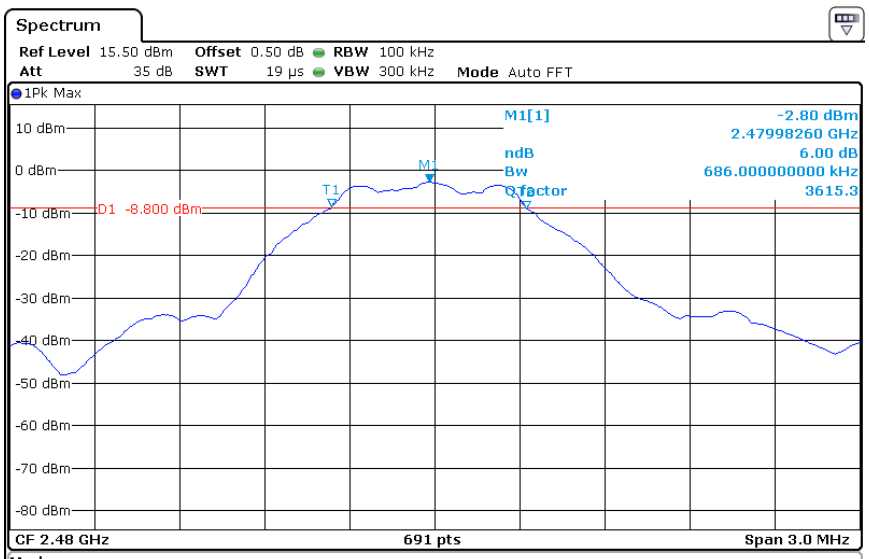
Middle Channel



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4399913 GHz	-2.24 dBm	ndB down	681.6 kHz
T1		1	2.4396397 GHz	-8.23 dBm	ndB	6.00 dB
T2		1	2.4403213 GHz	-8.41 dBm	Q factor	3579.7

High Channel



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4799826 GHz	-2.80 dBm	ndB down	686.0 kHz
T1		1	2.4796353 GHz	-8.65 dBm	ndB	6.00 dB
T2		1	2.4803213 GHz	-8.95 dBm	Q factor	3615.3

Applicant: Lantrn Limited
Date of Test: August 21, 2018 Worst case Model: ZL001

4.3 Maximum Power Density Reading, FCC Rule 15.247(e):

The Measurement Procedure PKPSD was set according to the FCC KDB 558074 D01 v05.

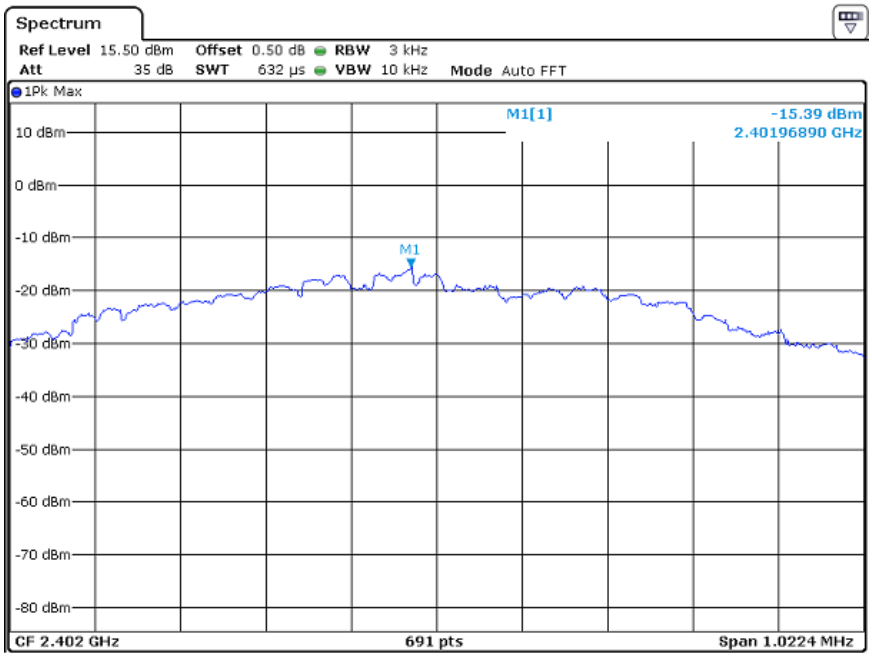
Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

Limit: The Power Density does not exceed 8dBm/3 kHz.

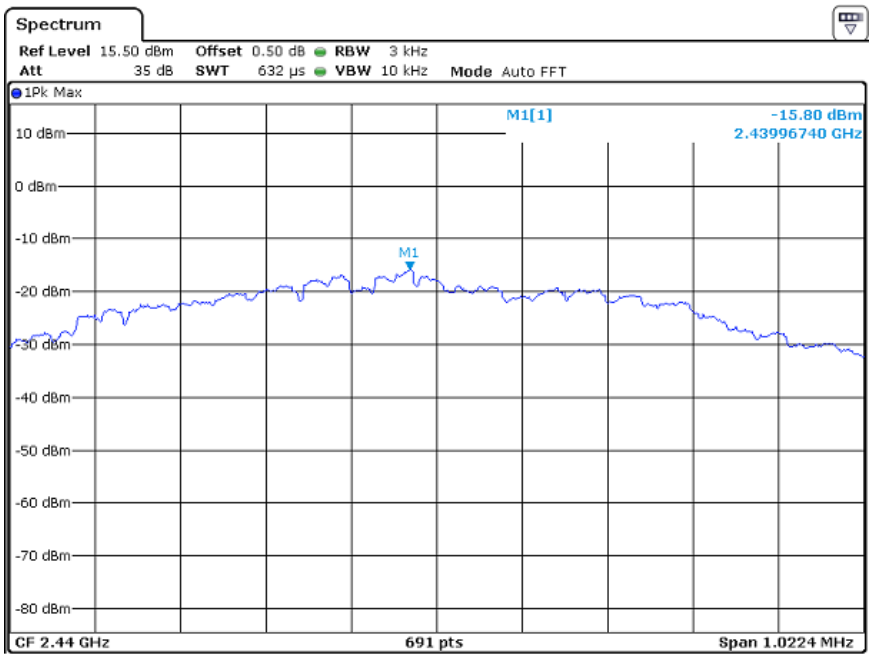
Frequency (MHz)	Power Density with RBW 3KHz
2402	-15.39
2440	-15.80
2480	-15.81

The test plots are attached as below.

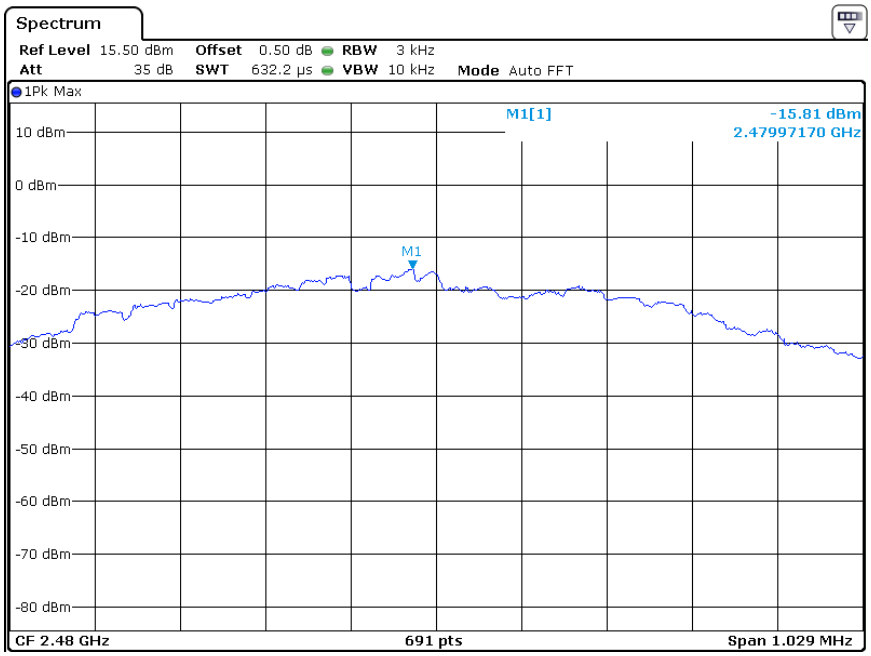
Low Channel



Middle Channel



High Channel



4.4 Out of Band Conducted Emissions, FCC Rule 15.247(d)

In any 100 kHz bandwidth outside the EUT passband, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20dB below that of the maximum in-band 100 kHz emission, or else shall meet the general limits for radiated emissions at frequencies outside the passband, whichever results in lower attenuation. The Measurement Procedure was set according to the FCC KDB 558074 D01 v05.

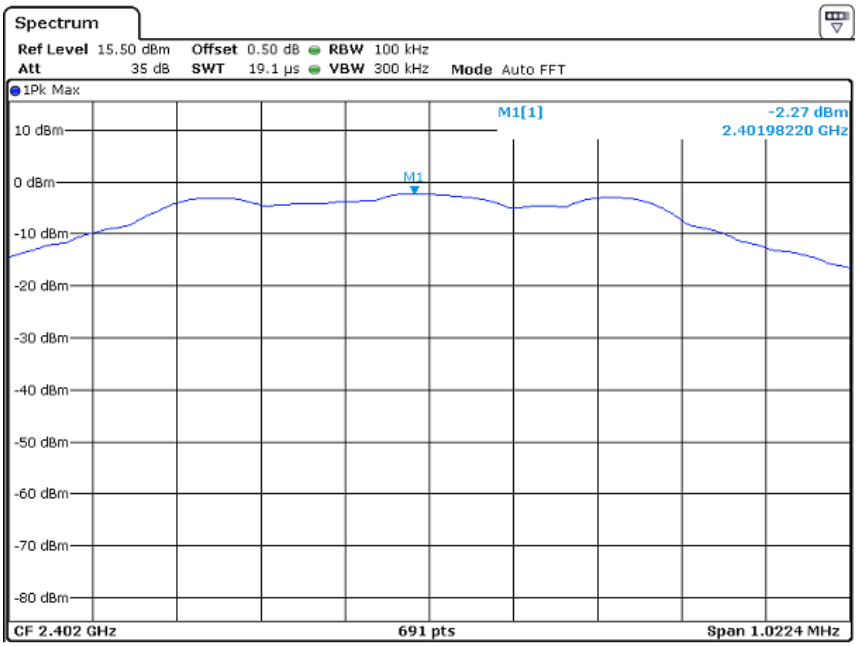
All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

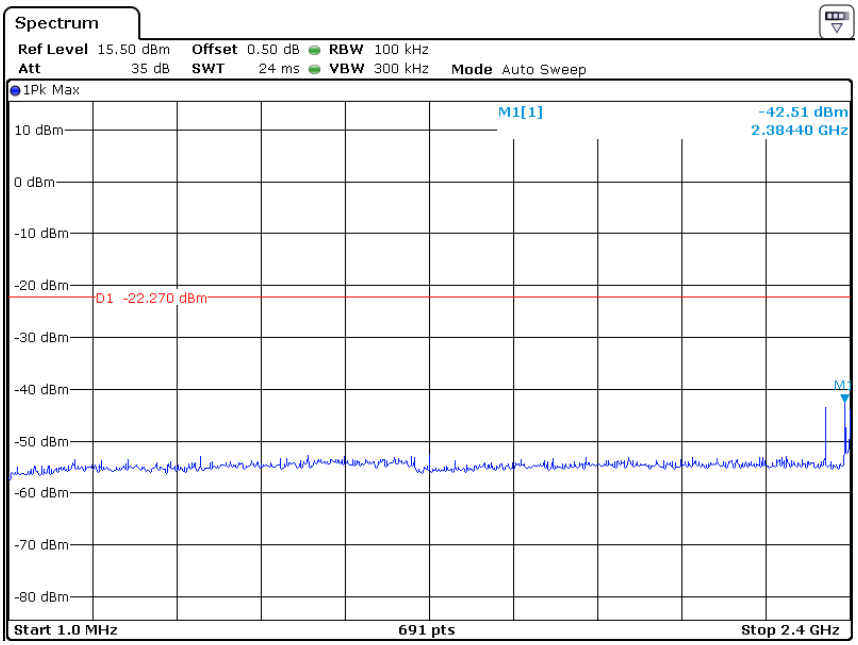
Refer to the attached test plot for out of band conducted emissions data.

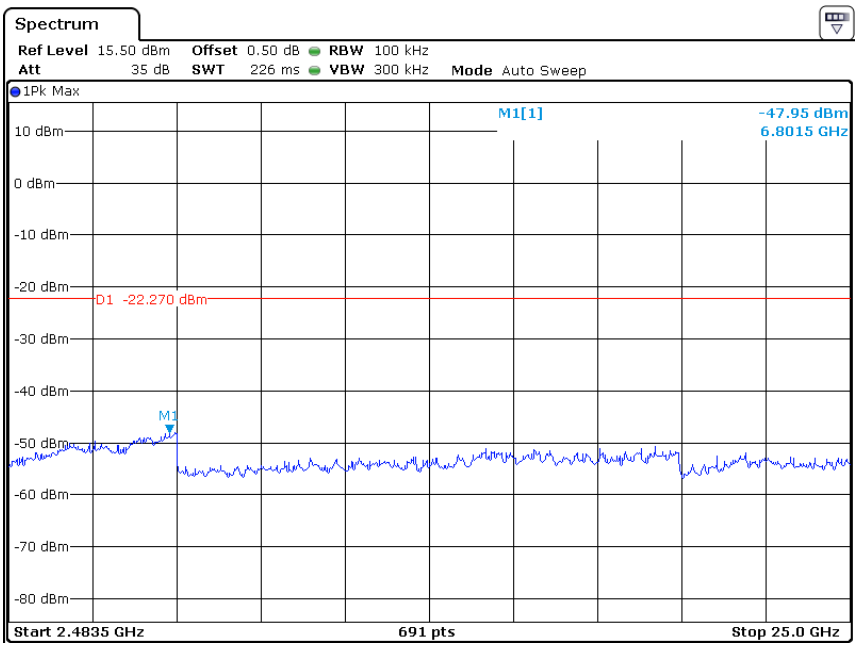
The test plots showed all spurious emission and up to the tenth harmonic were measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

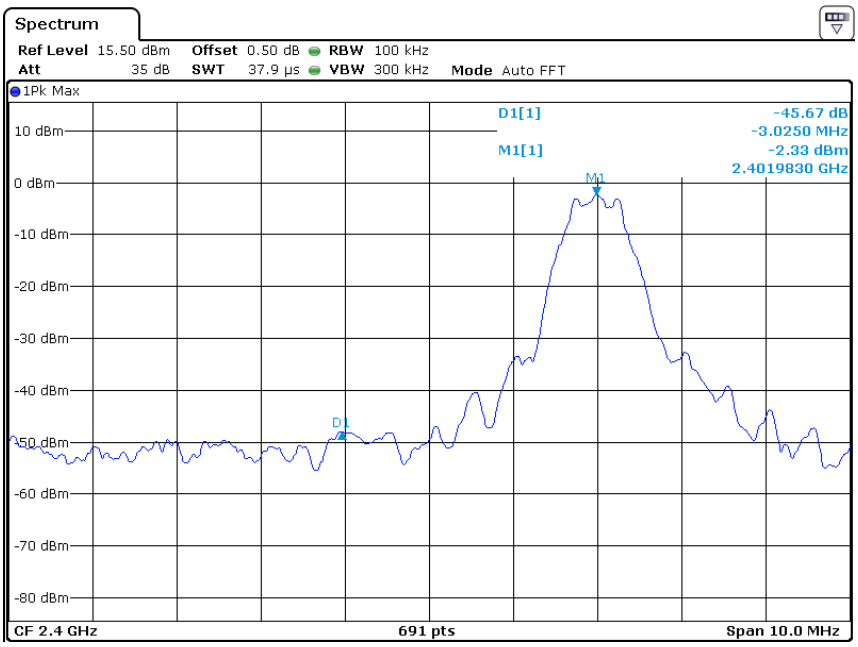
The test plots are attached as below.

Low Channel Reference Level: -2.27dBm

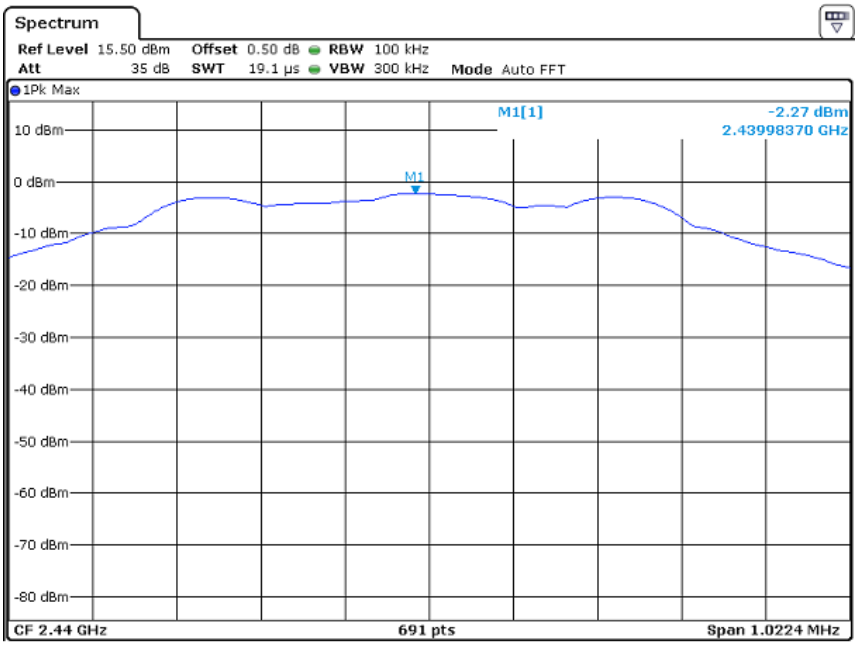


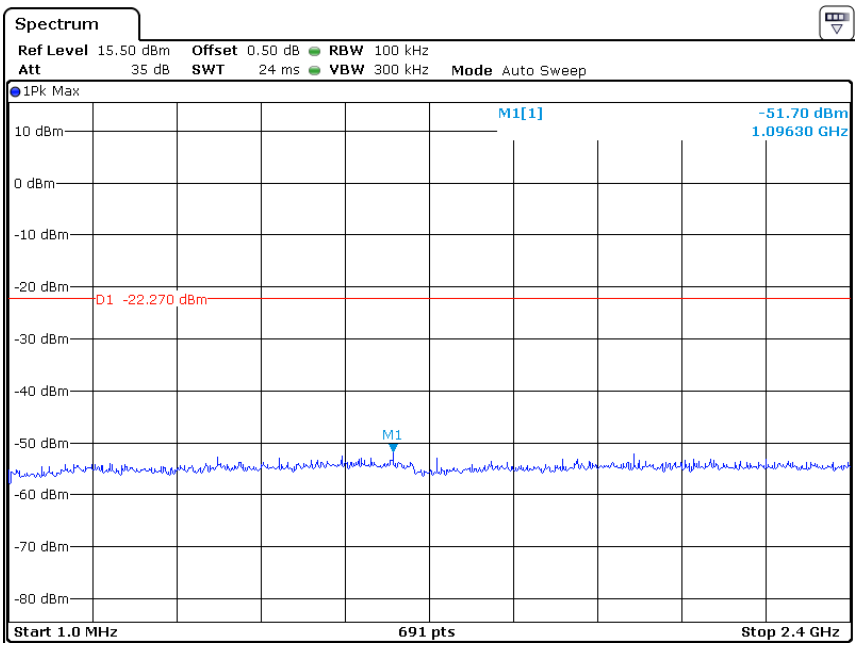


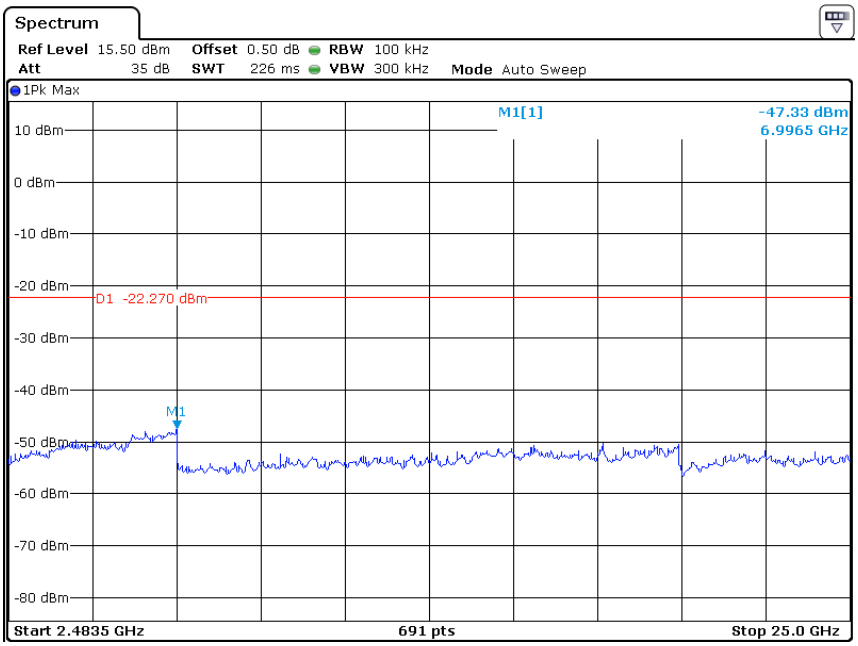

Spectrum
Ref Level 15.50 dBm Offset 0.50 dB RBW 100 kHz
Att 35 dB SWT 226 ms VBW 300 kHz Mode Auto Sweep
1Pk Max
M1[1] -47.95 dBm
6.8015 GHz
D1 -22.270 dBm
M1
Start 2.4835 GHz 691 pts Stop 25.0 GHz


Spectrum
Ref Level 15.50 dBm Offset 0.50 dB RBW 100 kHz
Att 35 dB SWT 37.9 µs VBW 300 kHz Mode Auto FFT
1Pk Max
D1[1] -45.67 dB
-3.0250 MHz
M1[1] -2.33 dBm
2.4019830 GHz
M1
D1
CF 2.4 GHz 691 pts Span 10.0 MHz

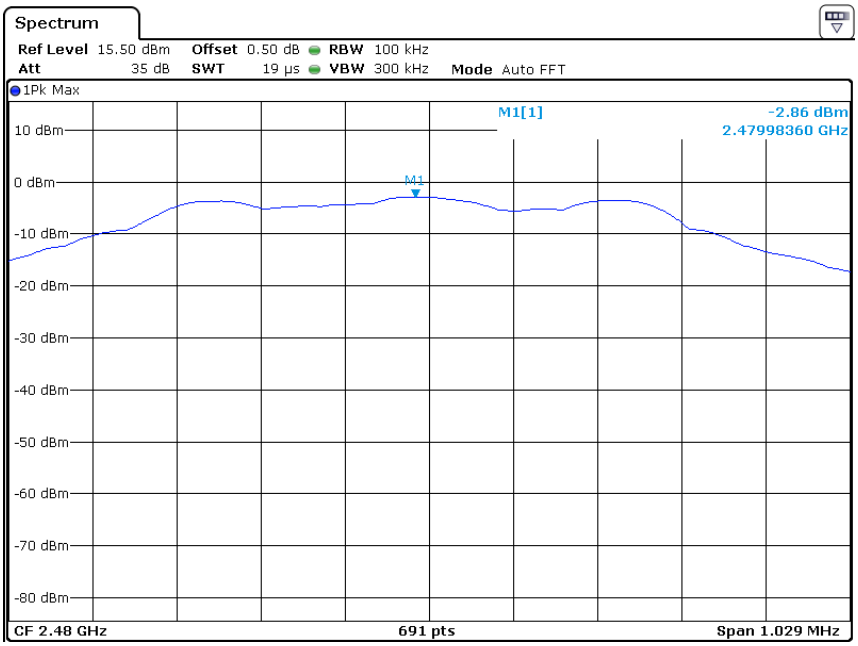
Middle Channel Reference Level: -2.27dBm

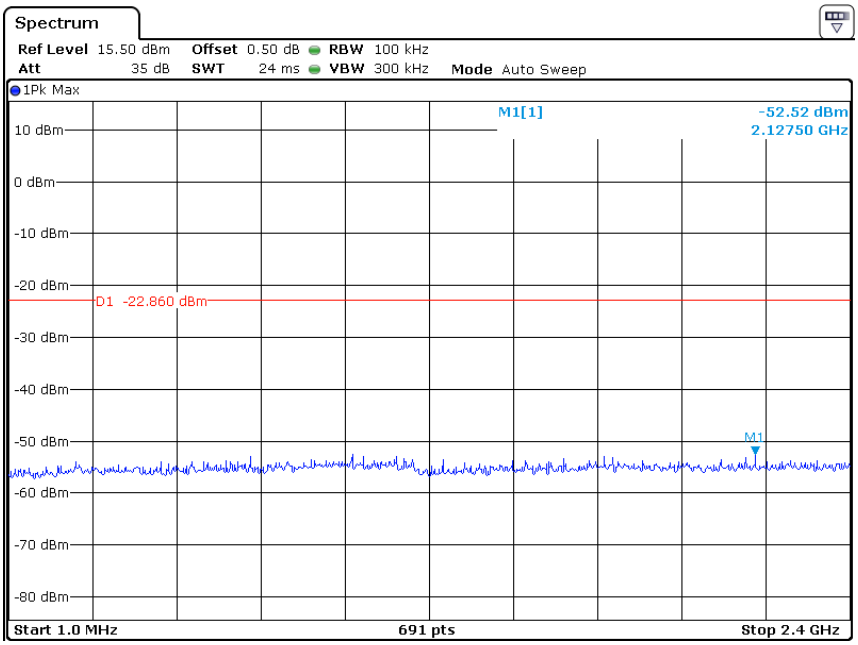


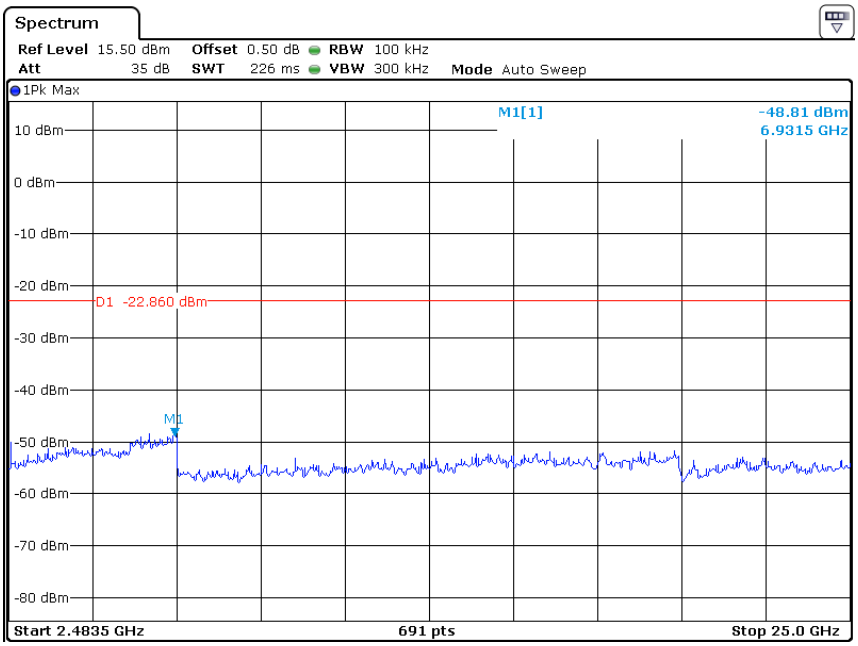


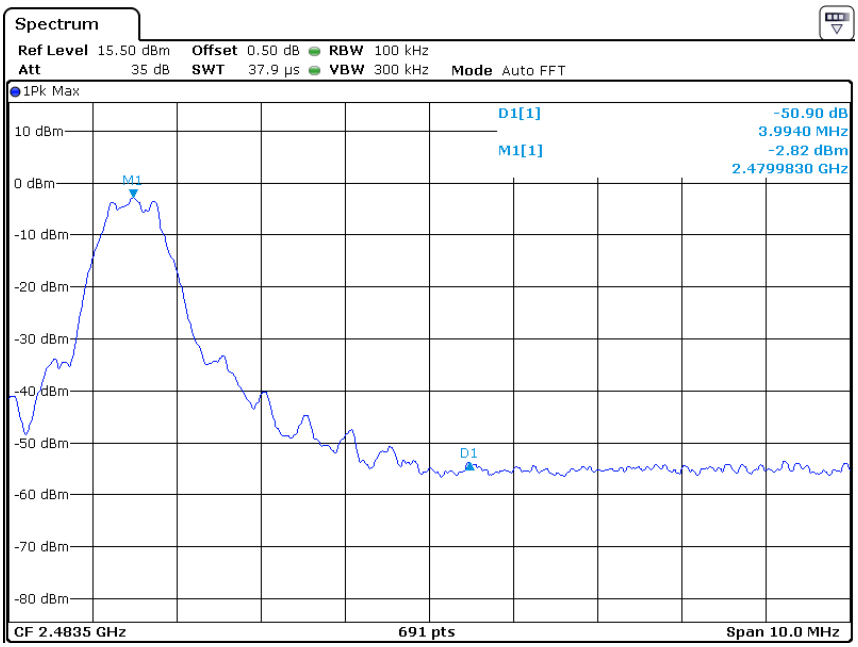

Spectrum
Ref Level 15.50 dBm Offset 0.50 dB RBW 100 kHz
Att 35 dB SWT 226 ms VBW 300 kHz Mode Auto Sweep
1Pk Max
M1[1] -47.33 dBm
6.9965 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
D1 -22.270 dBm
-30 dBm
-40 dBm
M1
-50 dBm
-60 dBm
-70 dBm
-80 dBm
Start 2.4835 GHz
691 pts
Stop 25.0 GHz

High Channel Reference Level: -2.86dBm






Spectrum
Ref Level 15.50 dBm Offset 0.50 dB RBW 100 kHz
Att 35 dB SWT 226 ms VBW 300 kHz Mode Auto Sweep
1Pk Max
M1[1] -48.81 dBm
6.9315 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
D1 -22.860 dBm
-30 dBm
-40 dBm
M1
-50 dBm
-60 dBm
-70 dBm
-80 dBm
Start 2.4835 GHz
691 pts
Stop 25.0 GHz


Spectrum
Ref Level 15.50 dBm Offset 0.50 dB RBW 100 kHz
Att 35 dB SWT 37.9 µs VBW 300 kHz Mode Auto FFT
1Pk Max
D1[1] -50.90 dB
3.9940 MHz
M1[1] -2.82 dBm
2.4799830 GHz
10 dBm
0 dBm
M1
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
D1
-60 dBm
-70 dBm
-80 dBm
CF 2.4835 GHz
691 pts
Span 10.0 MHz

4.5 Out of Band Radiated Emissions (for emissions in 4.4 above that are less than 20dB below carrier), FCC Rule 15.247(d):

For out of band emissions that are close to or that exceed the 20dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

[×] Not required, since all emissions are more than 20dB below fundamental
[ ] See attached data sheet

4.6 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b) (c):

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Applicant: Lantrn Limited
Date of Test: August 18, 2018 Worst case Model: ZL001

4.7 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD

Where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD

<u>Example</u>
Assume a receiver reading of 62.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB. The net field strength for comparison to the appropriate emission limit is 42 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 62.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0 dB
FS = 62 + 7.4 + 1.6 - 29 + 0 = 42 dBμV/m

Level in mV/m = Common Antilogarithm [(42 dBμV/m)/20] = 125.9 μV/m

4.7.1 Radiated Emission Configuration Photograph

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated photos. pdf.

4.7.2 Radiated Emissions- FCC section 15.209

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Worst Case Radiated Emission
at
695.42 MHz

Judgement: Passed by 15.2 dB

TEST PERSONNEL:

Sign on file

Rode Liu, Engineer
Typed/Printed Name

August 18, 2018
Date

Applicant: Lantrn Limited
Date of Test: August 18, 2018
Worst case Model: ZL001
Worst Case Operating Mode: BT Link

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	32.425	23.6	20.0	16.6	20.2	40.0	-19.8
Horizontal	178.895	23.8	20.0	11.4	15.2	43.5	-28.3
Horizontal	637.220	24.0	20.0	23.8	27.8	46.0	-18.2
Vertical	32.425	24.5	20.0	16.6	21.1	40.0	-18.9
Vertical	188.110	29.0	20.0	11.3	20.3	43.5	-28.5
Vertical	695.420	25.5	20.0	25.3	30.8	46.0	-15.2

NOTES:
1. Quasi-Peak detector is used for frequency below 1GHz.
2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. All emissions are below the QP limit.

4.7.3 Transmitter Spurious Emissions (Radiated) - FCC section 15.209

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Worst Case Radiated Emission

at 4804.000 MHz

Judgement: Passed by 3.5 dB

TEST PERSONNEL:

Sign on file

Rode Liu, Engineer
Typed/Printed Name

August 18, 2018
Date

Applicant: Lantrn Limited
Date of Test: August 18, 2018
Worst case Model: ZL001
Worst Case Operating Mode: TX-Channel 2402MHz

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*2387.500	56.9	36.7	28.4	48.6	74.0	-25.4
Horizontal	*4804.000	56.7	36.1	34.2	54.8	74.0	-19.2

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*2387.500	43.5	36.7	28.4	35.2	54.0	-18.8
Horizontal	*4804.000	52.4	36.1	34.2	50.5	54.0	-3.5

NOTES:

1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz/VBW=10Hz for average value.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: Lantrn Limited
Date of Test: August 18, 2018
Worst case Model: ZL001
Worst Case Operating Mode: TX-Channel 2440MHz

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4880.000	56.3	36.7	34.6	54.2	74.0	-19.8
Horizontal	*7320.000	54.4	36.6	37.1	54.9	74.0	-19.1

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4880.000	50.6	36.7	34.6	48.5	54.0	-5.5
Horizontal	*7320.000	45.3	36.6	37.1	45.8	54.0	-8.2

NOTES:

1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: Lantrn Limited
Date of Test: August 18, 2018
Worst case Model: ZL001
Worst Case Operating Mode: TX-Channel 2480MHz

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4960.000	53.3	36.8	34.6	51.1	74.0	-22.9
Horizontal	*7440.000	54.1	36.5	37.2	54.8	74.0	-19.2

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4960.000	48.1	36.8	34.6	45.9	54.0	-8.1
Horizontal	*7440.000	44.9	36.5	37.2	45.6	54.0	-8.4

NOTES:

1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: Lantrn Limited
Date of Test: August 18, 2018
Model: ZL001

4.8 Radiated Emissions from Digital Section of Transceiver, FCC Ref: 15.109

[ ] Not required - No digital part

[ ] Test results are attached

[x] Included in the separated report.

Applicant: Lantrn Limited
Date of Test: August 18, 2018
Worst case Model: ZL001

4.9 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The Transmitter ON time was determined from the resultant time-amplitude display:

	See attached spectrum analyzer chart (s) for Transmitter timing
	See Transmitter timing diagram provided by manufacturer
x	Not applicable, duty cycle was not used.

EXHIBIT 5

EQUIPMENT PHOTOGRAPHS

5.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: external photos.pdf & internal photos.pdf.

EXHIBIT 6

PRODUCT LABELLING

6.0 Product Labeling

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf.

EXHIBIT 7

TECHNICAL SPECIFICATIONS

7.0 Technical Specifications

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

EXHIBIT 8

INSTRUCTION MANUAL

8.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

EXHIBIT 9

CONFIDENTIALITY REQUEST

9.0 Confidentiality Request

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

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EXHIBIT 10

MISCELLANEOUS INFORMATION

10.0 Discussion of Pulse Desensitization

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF.*

Pulse desensitivity is not applicable for this device since the transmitter transmits the RF signal continuously.

EXHIBIT 11

TEST EQUIPMENT LIST

11.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-12	BiConiLog Antenna	ETS	3142E	00166158	20-Sep-2017	20-Sep-2018
SZ185-01	EMI Receiver	R&S	ESCI	100547	24-Jan-2018	24-Jan-2019
SZ061-08	Horn Antenna	ETS	3115	00092346	20-Sep-2017	20-Sep-2018
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	11-May-2018	11-May-2019
SZ056-03	Spectrum Analyzer	R&S	FSP 30	101148	5-Jun-2018	5-Jun-2019
SZ056-06	Signal Analyzer	R&S	FSV 40	101101	5-Jun-2018	5-Jun-2019
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	24-Jan-2018	24-Jan-2019
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	16-Jan-2017	16-Jan-2019
SZ062-02	RF Cable	RADIALL	RG 213U	--	2-Jul-2018	2-Jan-2019
SZ062-05	RF Cable	RADIALL	0.04-26.5GHz	--	09-Mar-2018	09-Sep-2018
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	09-Mar-2018	09-Sep-2018
SZ067-04	Notch Filter	Micro-Tronics	BRM50702-02	--	5-Jun-2018	5-Jun-2019

********** End of Report**********