



**BEC INCORPORATED**

**CLASS II PERMISSIVE CHANGE TEST REPORT**

**TEST STANDARDS:**

**FCC Part 15 Subpart C, IC RSS-Gen, IC RSS-247  
DTS Intentional Radiator**

**EUT:**

**Legrand Model WNRCB46 and Model WZ3RCB46  
radiant 4-Button Scene Controller**

**FCC ID: 2AU5D-WRCB4**

**ISED ID: 25764-WRCB4**

**REPORT#: BEC-2272-04**

**TEST DATES: 08/31/2023 – 09/26/2023**

**CUSTOMER:**

**Pass & Seymour/Legrand  
50 Boyd Avenue  
Syracuse, NY 13209**

**PREPARED BY:**

**JR Fanella, Test Engineer**

**REVIEWED and APPROVED BY:**

**Steve Fanella, Quality Manager**

The results described in this report relate only to the item(s) tested. This document shall not be reproduced except in full without prior written permission of BEC Incorporated





## TABLE OF CONTENTS

<b>Notice to Customer .....</b>	<b>4</b>
<b>Revision History .....</b>	<b>4</b>
<b>1.0 Administrative Information .....</b>	<b>5</b>
1.1 Project General Information .....	5
1.2 Preface .....	6
1.3 Laboratory and Customer Information .....	6
1.4 Measurement Uncertainty .....	7
1.5 Test Result Summary Table .....	8
1.6 Condition of Received Sample .....	9
1.7 Climatic Environment .....	9
1.8 Test Equipment .....	9
<b>2.0 Equipment Under Test .....</b>	<b>10</b>
2.1 EUT Description .....	10
2.2 Product Category .....	10
2.3 Product Classification .....	10
2.4 Test Configuration .....	11
2.5 Test Configuration Rationale .....	11
2.6 Test Configuration Diagrams – Zigbee Radio .....	11
2.6.1 Zigbee Configuration – Conducted Measurement .....	11
2.6.2 Zigbee Configuration – Radiated Measurement .....	12
2.7 EUT Information, Interconnection Cabling and Support Equipment .....	12
2.8 Test Signals and Test Modulation .....	13
2.8.1 Zigbee Radio - Test Signals and Modulation .....	13
2.9 Grounding .....	13
2.10 EUT Modifications .....	13
<b>3.0 Applicable Requirements, Methods, and Procedures .....</b>	<b>14</b>
3.1 Applicable Requirements .....	14
3.1.1 FCC Requirements .....	14
3.1.2 Industry Canada Requirements .....	14
3.1.3 Basic Test Methods and Test Procedures .....	14
3.2 Deviations or Exclusions from the Requirements .....	14
<b>4.0 Test Results .....</b>	<b>15</b>
4.1 Conducted Emissions AC Power Port (47 CFR 15.207)(RSS-Gen 7.2) .....	15
4.1.1 Conducted Emissions Test Procedure .....	15
4.1.2 Conducted Emissions Test Information .....	16
4.1.3 Conducted Emissions 150 kHz to 30 MHz FCC 15.207 and RSS-Gen 7.2 Limits Test Results .....	17
4.2 Emissions in Non-Restricted and Restricted Frequency Bands 1 GHz - 25 GHz (47 CFR 15.205, 15.209)(RSS-GEN 8.9, 8.10) .....	29
4.2.1 Radiated Spurious Emissions Test Facility .....	30
4.2.2 Emissions in Non-Restricted and Restricted Frequency Bands Test Procedure .....	31
4.2.3 Emissions in Frequency Bands 1 - 18 GHz WNRCB46 with Zigbee Radio Test Results (09/25/2023 and 09/26/2023) .....	32
4.3 Maximum Conducted (Average) Output Power and EIRP (FCC Part 15.247(b)(3), RSS-247 Section 5.4(d)) .....	34



4.3.1	Maximum Conducted (Average) Output Power Test Procedure.....	34
4.3.1.1	Maximum Conducted (Average) Output Power Legrand WNRCB46 with Zigbee Radio O-QPSK Modulation Test Results (09/22/2023) .....	35
4.3.2	EIRP Level WNRCB46 with Zigbee Radio Test Results (09/22/2023) .....	39
4.3.2.1	EIRP Level WNRCB46 Zigbee Radio Test Results.....	39
<b>Appendix A – Test Equipment.....</b>		<b>40</b>



## Notice to Customer

This report and any recommendations it contain represent the result of BEC's testing and assessment on behalf of your company. Testing has been conducted according to accepted engineering standards and practices. This report reflects testing and assessment of product samples provided by your company and may not reflect the characteristics of other samples, especially those produced at different times. This report and its findings and recommendations, if implemented, should not be construed as an assurance or implied warranty for the continuing electromagnetic compatibility (EMC) of the product. **BEC shall not be liable for incidental or consequential damages, even if advised of the possibility thereof.**

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The BEC Decision Rule: Measurement Uncertainty is not applied to any testing measurements or test results provided to the customer by BEC Incorporated at this time.

## Revision History

Revision #	Description of Changes	Date of Changes	Date Released
0	Test Report Initial Release	N/A	10/19/2023
1	Added the statement on Page 31 that we scanned the models from 30 MHz to 1000 MHz for spurious emissions.	12/13/2023	12/13/2023



## 1.0 Administrative Information

### 1.1 Project General Information

<b>Project Number</b>	BEC-2272	
<b>Manufacturer</b>	Legrand	
<b>Models</b>	WNRCB46 and WZ3RCB46	
<b>Description</b>	radiant 4-Button Scene Controller	
<b>EUT Test Sample Model</b>	WNRCB46	
<b>EUT Test Types</b>	SMA connector at antenna port and radio test software	Standard antenna and radio test software
<b>EUT Serial Numbers</b>	None	None
<b>EUT Samples</b>	2272-15	2272-16
<b>FCC ID</b>	2AU5D-WRCB4	
<b>ISED ID</b>	25764- WRCB4	
<b>Zigbee Radio Chip Manufacturer</b>	Atmel	
<b>Zigbee Radio Chip Model</b>	SAMR21E	
<b>Radio Type</b>	Zigbee	
<b>Frequency of Operation</b>	2405 – 2480 MHz	
<b>Modulation Type</b>	O-QPSK	
<b>Antenna Gain</b>	+ 4.28 dBi	
<b>FCC Classification</b>	Digital Transmission System (DTS)	
<b>Samples Received</b>	08/30/2023	
<b>Condition Received</b>	Suitable for test	
<b>Sample Type</b>	Production units	
<b>Firmware Version</b>	TestRadio_WNRL23.bin	
<b>Applicable FCC Rules</b>	FCC Rules Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz Direct Sequence System	
<b>Applicable ISED Rules</b>	RSS-Gen: General Requirements for Compliance of Radio Apparatus & RSS-247: Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and License-Exempt Local Area Network (LE-LAN) Devices	



## 1.2 Preface

This report documents product testing conducted to verify compliance of the specified EUT with applicable standards and requirements as identified herein. EUT, test instrument configurations, test procedures, and recorded data are generally described in this report. The reader is referred to the applicable test standards for detailed procedures. The following table summarizes the test results obtained during this evaluation.

## 1.3 Laboratory and Customer Information

<b>Test Laboratory Location</b>	BEC Incorporated 970 East High Street Pottstown, PA 19464
<b>Test Personnel</b>	Steve Fanella / JR Fanella
<b>BEC Laboratory Number FCC Registration</b>	US1118
<b>BEC Laboratory Number ISED Registration</b>	7342A-1
<b>Test Performed For</b>	Pass & Seymour/Legrand 50 Boyd Avenue Syracuse, NY 13209
<b>Customer Technical Contacts</b>	Fred Duffy
<b>Customer Reference Number</b>	PO # SP319415-802



## 1.4 Measurement Uncertainty

Measurement	Measurement Distance	Range	Measurement Limit	Expanded Uncertainty
Radiated Disturbance Open Area Test Site	3 Meter	30 MHz – 1 GHz	Class A or B	4.63
Conducted Disturbance AC Mains	N/A	150 kHz – 30 MHz	Class A or B	2.69
Radio Frequency	N/A	1 MHz – 26.5 GHz	N/A	±0.027 ppm
RF power, conducted	N/A	1 MHz – 26.5 GHz	N/A	±1.45 dB
Conducted spurious emission of transmitter, valid up to 6 GHz	N/A	150 kHz – 26.5 GHz	N/A	±0.9 dB
Occupied Bandwidth	N/A	1 MHz – 26.5 GHz	N/A	±2 %
Temperature	N/A	15 – 35° C	N/A	±0.5 °C
Humidity	N/A	20 – 95 %	N/A	±2.5%

No adjustments to measured data presented in this report are required because all values of uncertainty are less than the CISPR 16-4-2:2018 recommendations. These uncertainties have a coverage factor of  $k = 2$ , which yields approximately a 95% level of confidence for the near-normal distribution typical of most measurement results.



## 1.5 Test Result Summary Table

The Legrand Model WNRCB46 was tested and found to be compliant to the sections of the FCC Part 15 Subpart C and RSS-Gen RSS-247 standards listed below. The testing reflects specific testing to show compliance for a Class II Permissive Change:

Report Section	FCC Part 15, Subpart C	RSS-Gen	RSS-247	Test Description	Result
	15.203(b)	Annex A 10(g)		Antenna Requirement	Previously Reported
	15.204	8.3		External RF power amplifiers and antenna modifications	Previously Reported
<a href="#">4.1</a>	15.207	7.2		Conducted Limits (AC Power) 150 kHz – 30 MHz	<b>PASS</b>
<a href="#">4.2</a>	15.205(a) 15.209	8.9, 8.10	3.3	Radiated Emissions in Non-Restricted and Restricted Frequency Band 1 GHz – 18 GHz	<b>PASS</b>
	15.247(a)(2)		5.2 (a)	6 dB Occupied Bandwidth	Previously Reported
		6.7		99% Occupied Bandwidth	Previously Reported
<a href="#">4.3</a>	15.247(b)(3)		5.4 (d)	Maximum Conducted (Peak) Power Output and EIRP	<b>PASS</b>
	15.247(d)		5.5	Antenna Conducted Emissions in Restricted Frequency Bands 30 MHz – 25 GHz	Previously Reported
	15.247(e)		5.2 (b)	DTS maximum power spectral density level in the fundamental emission	Previously Reported
	15.247(d)		5.5	DTS band-edge emission measurements	Previously Reported

**Previously Reported Results:** The EUT was previously tested with results are documented in report BEC-2195-01.





## **1.6 Condition of Received Sample**

An evaluation of the EUT was conducted in order to verify test subject identity and condition and to ensure suitability for testing. No evidence of physical damage was noted. The test item condition was deemed acceptable for the performance of the requested test services.

## **1.7 Climatic Environment**

Unless noted elsewhere in this report, the following were the ambient conditions in the laboratory during testing:

Temperature:  $22^{\circ} \pm 5^{\circ}$

Humidity:  $50\% \pm 20\%$

Barometric Pressure:  $1000\text{mb} \pm 20\%$

## **1.8 Test Equipment**

All test equipment is checked to manufacturer's specifications and, when applicable, have current N.I.S.T. traceable, ISO 9002 conforming certificates of calibration. Test equipment used for the tests described herein is listed in Appendix A.



## 2.0 Equipment Under Test

Unless otherwise noted in the individual test results sections, testing was performed on the EUT as follows.

### 2.1 EUT Description

The radiant 4-Button Scene Controller is comprised of two identical devices that are identified as the Model WNRCB46 which is the radiant 4-Button Netatmo Scene Controller and the Model WZ3RCB46 which is the radiant 4-Button Hospitality Scene Controller.

The radiant 4-Button Scene Controller is a wireless switch from the Radiant collection, manufactured by Legrand. The switch uses 120 VAC / 60 Hz input to power the EUT with Zigbee radio that operates at 2.4 GHz controlled by the Netatmo Smart Lighting System. The scene controller allows for an end user configurable, preset lighting scene that adds four customized scenes to a connected installation.

The Model WNRCB46 radiant 4-Button Netatmo Scene Controller and the Model WZ3RCB46 radiant 4-Button Hospitality Scene Controller are identical in construction and functionality. There are no differences except cosmetics and the differences in model numbers are for marketing purposes.

### 2.2 Product Category

FCC Part 15, Subpart C (Section 15.247), IC RSS-Gen, IC RSS-247

### 2.3 Product Classification

47 CFR Part 15, Subpart C, Section 15.247 “DTS Operation within the band of 900 – 928 MHz, 2400 – 2483.5 MHz, and 5725 – 5850 MHz.”



## 2.4 Test Configuration

Samples of the Legrand Model WNRCB46 and WZ3RCB46 radiant 4-Button Scene Controller with Zigbee, were tested at the Low Channel 11 at 2405 MHz, Middle Channel 18 at 2440 MHz and High Channel 26 at 2480 MHz. The Legrand models with Zigbee radio samples contained control software that can utilize the O-QPSK modulation used in normal operation. The control software sets the EUT with the maximum output power when in Transmit Mode (With and Without Modulation). The control software also allowed the tester to select an un-modulated transmit signal for the radio of the unit under test or to place the radio in a receive mode. The highest amplitude was determined to be when the radio transmitted with modulation.

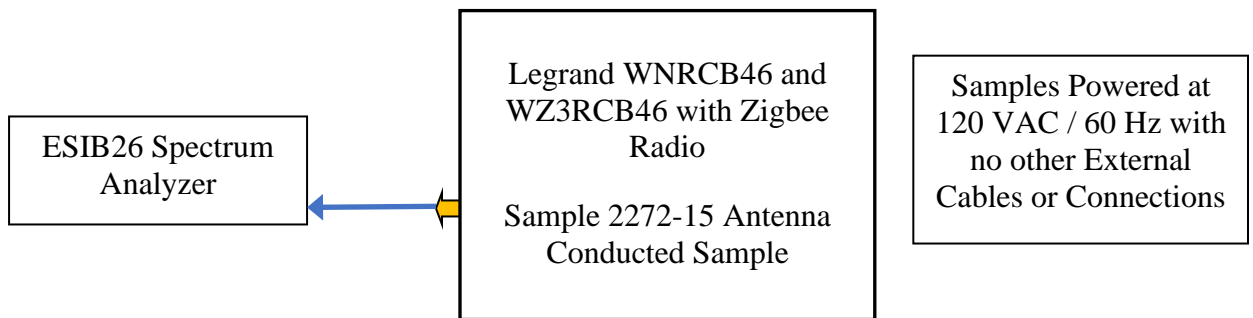
## 2.5 Test Configuration Rationale

Samples of the Legrand Models WNRCB46 and WZ3RCB46 with Zigbee radio, were powered externally at 120 VAC / 60 Hz and were supplied with software which controlled the operation of the Zigbee radio in a manner consistent with normal use.

## 2.6 Test Configuration Diagrams – Zigbee Radio

Block diagrams of the EUT configuration showing interconnection cables are illustrated below. The drawing shows the physical hardware layout used for the tests along with I/O cables and AC power distribution. Diagrams show the Conducted Measurement configuration connection and Radiated Measurement configuration connection when testing the Zigbee Radio.

### 2.6.1 Zigbee Configuration – Conducted Measurement



← BEC-926, 1 Meter SMA Cable Connecting the SMA Connection from the Zigbee Radio Output to the Input of the Rohde and Schwarz ESIB26 Measurement Analyzer

↔ SMA Adapter Connected from the Zigbee Radio for connection to the SMA Cable



## 2.6.2 Zigbee Configuration – Radiated Measurement

Legrand WNRCB46 and WZ3RCB46 Radiated Emissions Test Sample 2272-16	Samples Powered at 120 VAC / 60 Hz with no other External Cables or Connections
--	--

## 2.7 EUT Information, Interconnection Cabling and Support Equipment

### EUT Hardware

Description	Manufacturer	Model	Serial Number	Sample Number
radiant 4-Button Scene Controller - Antenna Conducted Test Sample	Legrand	WNRCB46 and WZ3RCB46	None	2272-15
radiant 4-Button Scene Controller - Radiated Test Sample				2272-16

### Interconnection Cable List (Conducted Measurement Test Setup)

Manufacturer	Model	Type	Shielding	Length	Description
Suhner	S04272B	High Frequency RF Cable 1 to 40 GHz	Double Braid	1 Meter	Measurement Cable from the Antenna SMA Connector to the R&S ESIB26 Receiver. Asset # BEC-962



## 2.8 Test Signals and Test Modulation

By design this product does not have an external modulation input connector, therefore, normal internally generated modulation was used. When evaluating the type of signal that would generate the highest output amplitude there was no difference between the un-modulated carrier and the modulated carrier. The testing was performed using modulated signals.

### 2.8.1 Zigbee Radio - Test Signals and Modulation

The EUT transmits to a discrete frequency on a specific channel. The Legrand WNRCB46 and WZ3RCB46 with Zigbee radio has 16 Channels available. The 16 Channels and frequencies that can be transmitted by the EUT are as follows:

Zigbee Channel	Frequency (MHz)	Zigbee Channel	Frequency (MHz)
11	2405	19	2445
12	2410	20	2450
13	2415	21	2455
14	2420	22	2460
15	2425	23	2465
16	2430	24	2470
17	2435	25	2475
18	2440	26	2480

For the required testing, the EUT was configured to transmit at low Channel 11 (2405 MHz), middle Channel 18 (2440 MHz) and high Channel 26 (2480 MHz). The Zigbee radio utilizes one modulation, O-QPSK.

## 2.9 Grounding

There was no ground connection to the EUT during test. This presents the worst-case scenario of an ungrounded device; either by failing to attach ground at installation or breakage of ground wire.

## 2.10 EUT Modifications

With the exception for the attachment of an SMA connector directly to the antenna output on the main board of the Legrand Model WNRCB46 and Model WZ3RCB46, no modifications were made to the test samples.



## **3.0 Applicable Requirements, Methods, and Procedures**

### **3.1 Applicable Requirements**

The results of the measurement of the radio disturbance characteristics of the EUT described herein may be applied and where appropriate, provide a presumption of compliance to one or more of the following requirements or to other requirements at the discretion of the customer, regulatory agencies, or other entities.

#### **3.1.1 FCC Requirements**

Code of Federal Regulations: Title 47 – Telecommunication

Chapter I - Federal Communications Commission

Sub-chapter A – General

Part 15 – Radio Frequency Devices

Subpart C - Intentional Radiators

#### **3.1.2 Industry Canada Requirements**

RSS-Gen Issue 5: General Requirements for Compliance of Radio Apparatus

RSS-247 Issue 2: Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices.

#### **3.1.3 Basic Test Methods and Test Procedures**

558074 D01 DTS Meas Guidance v05r02, Guidance for Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating under Section 15.247 of the FCC Rules.

ANSI C63.10-2013, American National Standard for Compliance Testing of Unlicensed Wireless Devices.

### **3.2 Deviations or Exclusions from the Requirements**

No deviations or exclusions were made.



## 4.0 Test Results

### 4.1 Conducted Emissions AC Power Port (47 CFR 15.207)(RSS-Gen 7.2)

The Legrand Model WNRCB46 with Zigbee radio is powered externally at 120 VAC / 60 Hz and therefore requires the Conducted Emissions AC Power Port testing.

#### 4.1.1 Conducted Emissions Test Procedure

##### AC Power Line

Conducted emissions at the power line input of the EUT were measured with an EMI receiver set to the appropriate detector and CISPR bandwidth, which was connected to the RF output of a 50  $\Omega$ , 50  $\mu$ H Line Impedance Stabilization Network (LISN) installed in each power line.

Measurements were made over the frequency range of 150 kHz to 30 MHz while the EUT was operating as described in the EUT section of this report. The significant amplitudes of emissions measured on the AC power lines of the EUT were recorded as follows:

Emission (dB $\mu$ V) = Meter Reading (dB $\mu$ v) + Cable Loss (dB) + LISN Factor (dB) + Limiter Loss (dB)

Note: An EMI receiver set to peak mode was used to measure and record the spectrum for expediency. To determine compliance, the peak detector sweep is graphed against the appropriate average limit. This type of measurement is valid because the peak reading will always be greater than or equal to the average or quasi-peak reading. Peak emissions that are greater than or equal to 1 dB below the average limit are remeasured using either a manually tuned receiver with the detector function set to quasi-peak and then to average, or a receiver under remote control with quasi-peak and average detector functions.



#### 4.1.2 Conducted Emissions Test Information

The following information is related to the testing performed for AC Conducted Emissions in the frequency range of 150 kHz to 30 MHz.

<b>Frequency Range</b>	150 kHz to 30 MHz
<b>Test Standards</b>	FCC Part 15.207 and RSS-Gen 7.2
<b>Class Limits</b>	Class B Device
<b>BEC Test Area</b>	Screen Room 1
<b>Manufacturer</b>	Legrand
<b>Model</b>	WNRCB46
<b>Serial Number</b>	No Serial Number
<b>Sample Number</b>	2272-16
<b>Sample Type</b>	Radiated Emissions Sample Type
<b>Test Configuration</b>	During testing of the Transmitter, the EUT was tested at Maximum Output Power with typical modulation. The Transmitter Low Channel, Middle Channel and High Channel were tested along with the Transmitter in Rx Mode.
<b>Port Tested</b>	AC Mains Port of the EUT
<b>EUT Power</b>	120 VAC / 60 Hz
<b>Test Date</b>	09/06/2023
<b>Temperature</b>	24°C
<b>Humidity</b>	52 %
<b>Test Date</b>	09/22/2023
<b>Temperature</b>	23°C
<b>Humidity</b>	52 %





### 4.1.3 Conducted Emissions 150 kHz to 30 MHz FCC 15.207 and RSS-Gen 7.2 Limits Test Results

The following graphs and tables show the conducted emissions recorded on the AC Power Port of the EUT displayed against the FCC Part 15.207 and RSS-Gen 7.2 Limits. EUT was powered at 120 Vac / 60 Hz.

EUT Transmitting at 2.405 GHz Low Channel Tables

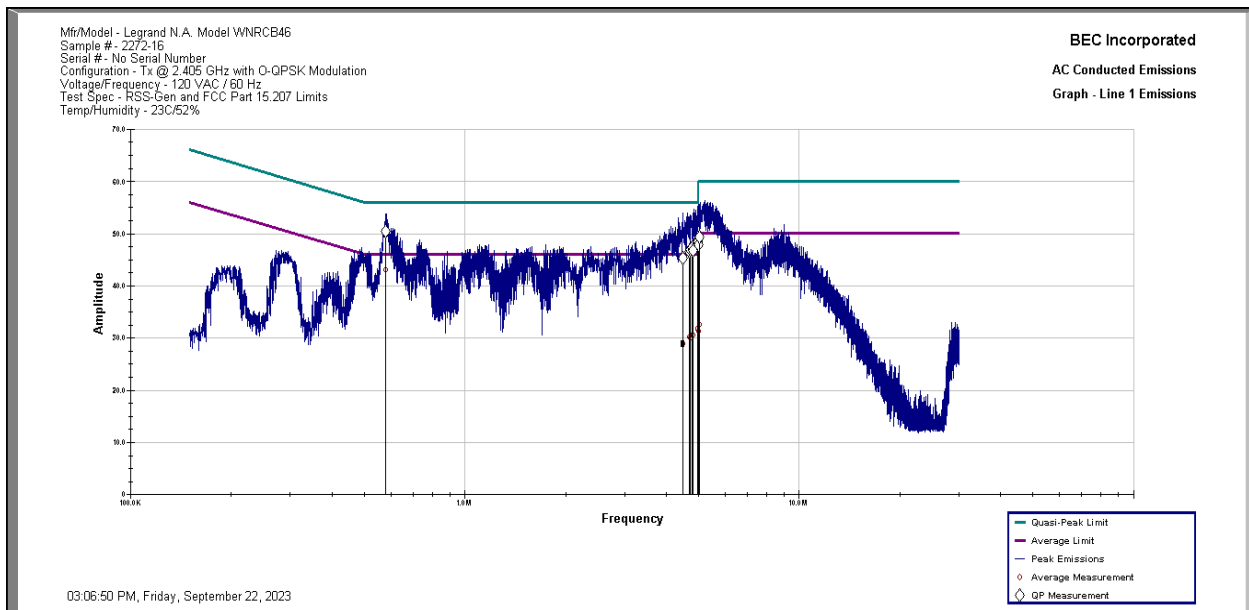
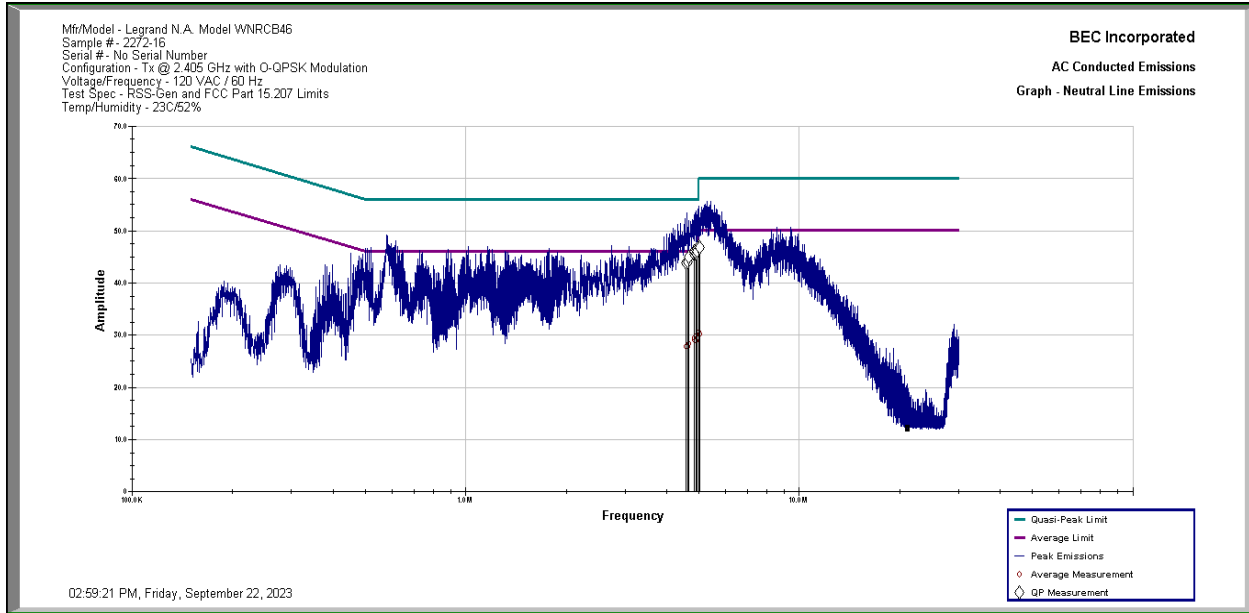
BEC Incorporated							
Neutral Line Conducted Emissions							
02:59:21 PM, Friday, September 22, 2023							
	1	2	3	4	5	6	7
Frequency	AVG	AVG	AVG	QP	QP	QP	Corr
MHz	dBuV	Limit	Margin	dBuV	Limit	Margin	Factor
4.575 MHz	27.85	46.00	-18.15	43.83	56.00	-12.17	10.27
4.621 MHz	27.81	46.00	-18.19	44.01	56.00	-11.99	10.27
4.651 MHz	28.44	46.00	-17.56	44.86	56.00	-11.14	10.27
4.825 MHz	29.07	46.00	-16.93	45.54	56.00	-10.46	10.28
4.851 MHz	29.41	46.00	-16.59	46.10	56.00	-9.90	10.28
4.887 MHz	29.82	46.00	-16.18	46.17	56.00	-9.83	10.28
4.911 MHz	28.99	46.00	-17.01	45.59	56.00	-10.41	10.28
4.919 MHz	29.51	46.00	-16.49	46.11	56.00	-9.89	10.28
4.982 MHz	30.48	46.00	-15.52	46.87	56.00	-9.13	10.28
5.015 MHz	30.20	50.00	-19.80	46.70	60.00	-13.30	10.28
Mfr/Model - Legrand N.A. Model WNRCB46							
Sample # - 2272-16							
Serial # - No Serial Number							
Configuration - Tx @ 2.405 GHz with 0-QPSK Modulation							
Voltage/Frequency - 120 VAC / 60 Hz							
Test Spec - RSS-Gen and FCC Part 15.207 Limits							
Temp/Humidity - 23C/52%							



<b>BEC Incorporated</b>							
<b>Line 1 Conducted Emissions</b>							
<b>03:06:50 PM, Friday, September 22, 2023</b>							
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>Frequency</b>	<b>AVG</b>	<b>AVG</b>	<b>AVG</b>	<b>QP</b>	<b>QP</b>	<b>QP</b>	<b>Corr</b>
<b>MHz</b>	<b>dBuV</b>	<b>Limit</b>	<b>Margin</b>	<b>dBuV</b>	<b>Limit</b>	<b>Margin</b>	<b>Factor</b>
577.709 KHz	43.17	46.00	-2.83	50.35	56.00	-5.65	10.15
4.494 MHz	28.85	46.00	-17.15	45.35	56.00	-10.65	10.29
4.687 MHz	30.10	46.00	-15.90	46.57	56.00	-9.43	10.29
4.724 MHz	30.08	46.00	-15.92	46.90	56.00	-9.10	10.29
4.786 MHz	30.64	46.00	-15.36	47.32	56.00	-8.68	10.30
4.812 MHz	30.61	46.00	-15.39	46.70	56.00	-9.30	10.30
4.945 MHz	31.68	46.00	-14.32	48.54	56.00	-7.46	10.30
4.973 MHz	31.84	46.00	-14.16	48.37	56.00	-7.63	10.30
5.007 MHz	31.28	50.00	-18.72	47.96	60.00	-12.04	10.30
5.031 MHz	32.56	50.00	-17.44	49.29	60.00	-10.71	10.30
<b>Mfr/Model - Legrand N.A. Model WNRCB46</b>							
<b>Sample # - 2272-16</b>							
<b>Serial # - No Serial Number</b>							
<b>Configuration - Tx @ 2.405 GHz with O-QPSK Modulation</b>							
<b>Voltage/Frequency - 120 VAC / 60 Hz</b>							
<b>Test Spec - RSS-Gen and FCC Part 15.207 Limits</b>							
<b>Temp/Humidity - 23C/52%</b>							



## EUT Transmitting at 2.405 GHz Low Channel Graphs



**Results:** All conducted emissions measured on the AC Power Port of the Legrand Model WNRCB46 Sample 2272-16 in Tx Mode Low Channel at 2.405 GHz are below the limit specified by FCC Part 15.207 and RSS-Gen 7.2 Limits by a margin of 2.83 dB.



EUT Transmitting at 2.440 GHz Middle Channel Tables

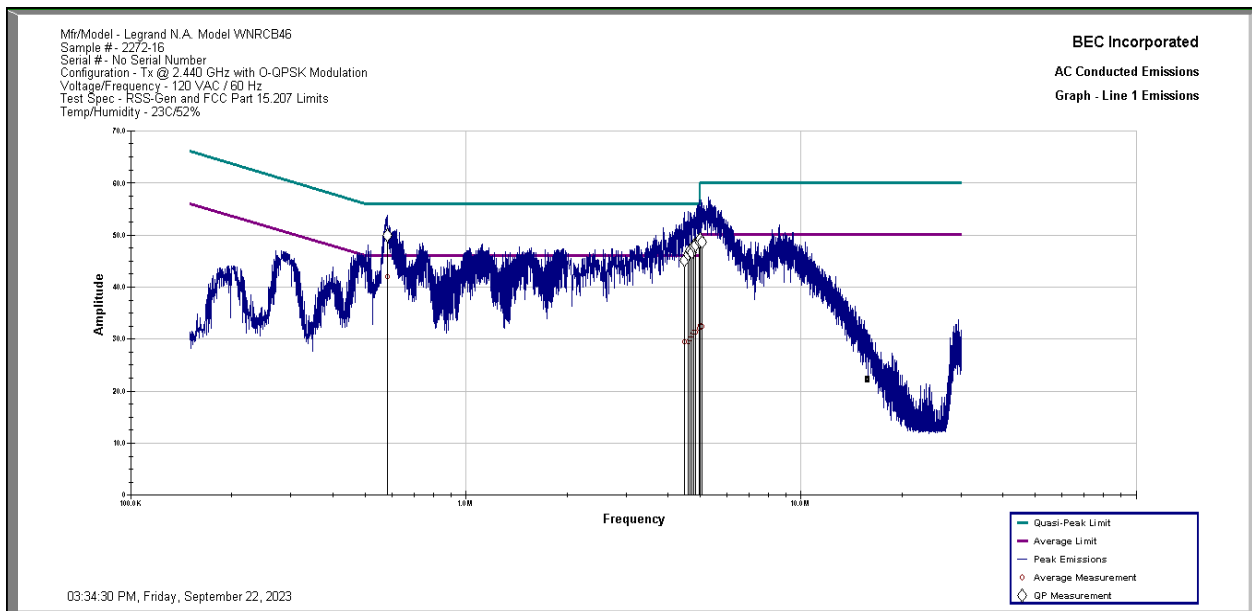
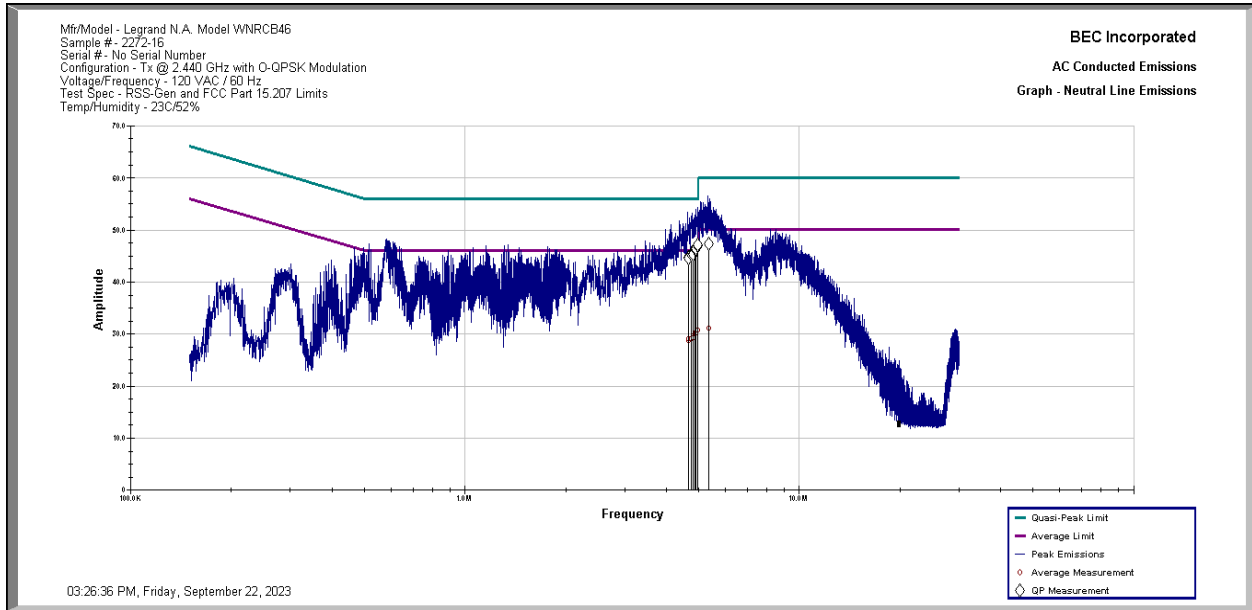
<b>BEC Incorporated</b> <b>Neutral Line Conducted Emissions</b> <b>03:26:36 PM, Friday, September 22, 2023</b>							
	1	2	3	4	5	6	7
Frequency	AVG	AVG	AVG	QP	QP	QP	Corr
MHz	dBuV	Limit	Margin	dBuV	Limit	Margin	Factor
4.647 MHz	28.70	46.00	-17.30	44.75	56.00	-11.25	10.27
4.671 MHz	29.03	46.00	-16.97	44.48	56.00	-11.52	10.27
4.735 MHz	29.07	46.00	-16.93	45.29	56.00	-10.71	10.27
4.799 MHz	29.64	46.00	-16.36	45.42	56.00	-10.58	10.28
4.816 MHz	29.37	46.00	-16.63	45.37	56.00	-10.63	10.28
4.875 MHz	30.11	46.00	-15.89	46.36	56.00	-9.64	10.28
4.884 MHz	30.17	46.00	-15.83	46.47	56.00	-9.53	10.28
4.972 MHz	30.74	46.00	-15.26	47.02	56.00	-8.98	10.28
4.974 MHz	30.66	46.00	-15.34	47.06	56.00	-8.94	10.28
5.358 MHz	31.14	50.00	-18.86	47.38	60.00	-12.62	10.30
<b>Mfr/Model - Legrand N.A. Model WNRCB46</b>							
<b>Sample # - 2272-16</b>							
<b>Serial # - No Serial Number</b>							
<b>Configuration - Tx @ 2.440 GHz with O-QPSK Modulation</b>							
<b>Voltage/Frequency - 120 VAC / 60 Hz</b>							
<b>Test Spec - RSS-Gen and FCC Part 15.207 Limits</b>							
<b>Temp/Humidity - 23C/52%</b>							



<b>BEC Incorporated</b>							
<b>Line 1 Conducted Emissions</b>							
<b>03:34:30 PM, Friday, September 22, 2023</b>							
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>Frequency</b>	<b>AVG</b>	<b>AVG</b>	<b>AVG</b>	<b>QP</b>	<b>QP</b>	<b>QP</b>	<b>Corr</b>
<b>MHz</b>	<b>dBuV</b>	<b>Limit</b>	<b>Margin</b>	<b>dBuV</b>	<b>Limit</b>	<b>Margin</b>	<b>Factor</b>
581.410 KHz	42.00	46.00	-4.00	49.85	56.00	-6.15	10.15
4.481 MHz	29.56	46.00	-16.44	45.17	56.00	-10.83	10.29
4.590 MHz	29.48	46.00	-16.52	46.30	56.00	-9.70	10.29
4.661 MHz	30.06	46.00	-15.94	46.90	56.00	-9.10	10.29
4.709 MHz	30.74	46.00	-15.26	46.51	56.00	-9.49	10.29
4.785 MHz	31.32	46.00	-14.68	47.83	56.00	-8.17	10.30
4.847 MHz	31.25	46.00	-14.75	48.01	56.00	-7.99	10.30
4.972 MHz	32.12	46.00	-13.88	48.79	56.00	-7.21	10.30
4.978 MHz	32.52	46.00	-13.48	49.17	56.00	-6.83	10.30
5.060 MHz	32.48	50.00	-17.52	48.55	60.00	-11.45	10.30
<b>Mfr/Model - Legrand N.A. Model WNRCB46</b>							
<b>Sample # - 2272-16</b>							
<b>Serial # - No Serial Number</b>							
<b>Configuration - Tx @ 2.440 GHz with 0-QPSK Modulation</b>							
<b>Voltage/Frequency - 120 VAC / 60 Hz</b>							
<b>Test Spec - RSS-Gen and FCC Part 15.207 Limits</b>							
<b>Temp/Humidity - 23C/52%</b>							



## EUT Transmitting at 2.440 GHz Middle Channel Graphs



**Results:** All conducted emissions measured on the AC Power Port of the Legrand Model WNRCB46 Sample 2272-16 in Tx Mode Middle Channel at 2.440 GHz are below the limit specified by FCC Part 15.207 and RSS-Gen 7.2 Limits by a margin of 4.0 dB.



EUT Transmitting at 2.480 GHz High Channel Tables

<b>BEC Incorporated</b> <b>Neutral Line Conducted Emissions</b> <b>03:44:56 PM, Friday, September 22, 2023</b>							
	1	2	3	4	5	6	7
Frequency	AVG	AVG	AVG	QP	QP	QP	Corr
MHz	dBuV	Limit	Margin	dBuV	Limit	Margin	Factor
4.147 MHz	26.39	46.00	-19.61	39.08	56.00	-16.92	10.26
4.359 MHz	28.29	46.00	-17.71	40.96	56.00	-15.04	10.27
4.629 MHz	29.62	46.00	-16.38	42.36	56.00	-13.64	10.27
4.718 MHz	30.53	46.00	-15.47	42.98	56.00	-13.02	10.27
4.778 MHz	31.32	46.00	-14.68	44.06	56.00	-11.94	10.28
4.809 MHz	31.50	46.00	-14.50	43.84	56.00	-12.16	10.28
4.896 MHz	31.91	46.00	-14.09	44.72	56.00	-11.28	10.28
4.897 MHz	31.83	46.00	-14.17	44.47	56.00	-11.53	10.28
4.994 MHz	32.28	46.00	-13.72	44.86	56.00	-11.14	10.28
5.404 MHz	32.65	50.00	-17.35	45.58	60.00	-14.42	10.30
<b>Mfr/Model - Legrand N.A. Model WNRCB46</b>							
<b>Sample # - 2272-16</b>							
<b>Serial # - No Serial Number</b>							
<b>Configuration - Tx @ 2.480 GHz with O-QPSK Modulation</b>							
<b>Voltage/Frequency - 120 VAC / 60 Hz</b>							
<b>Test Spec - RSS-Gen and FCC Part 15.207 Limits</b>							
<b>Temp/Humidity - 23C/52%</b>							

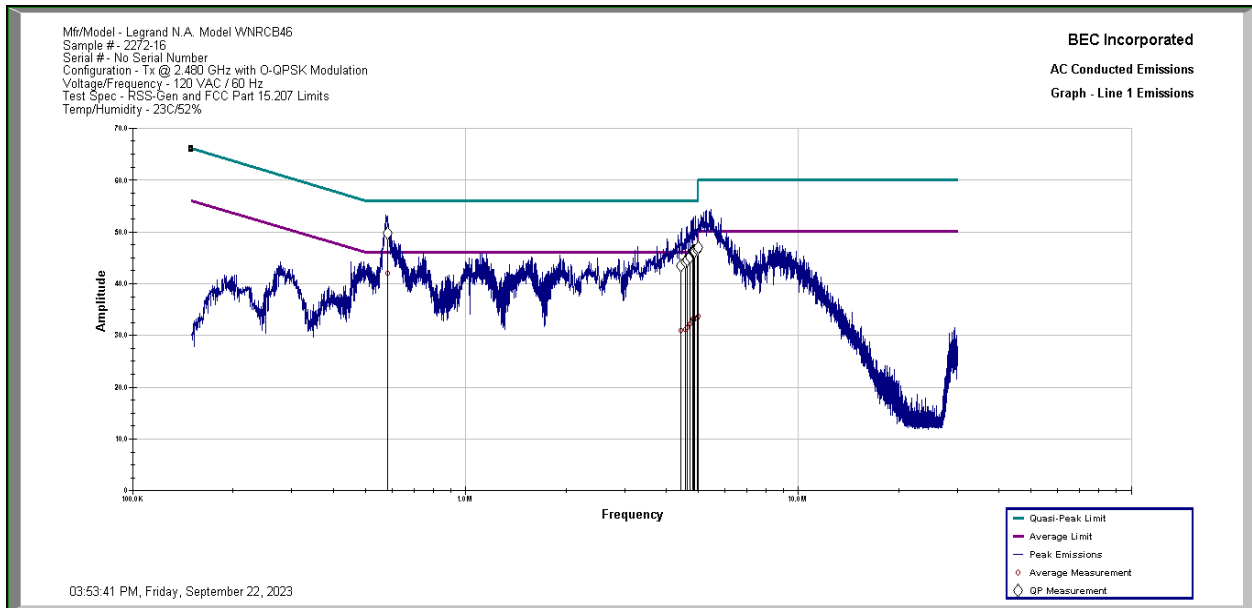
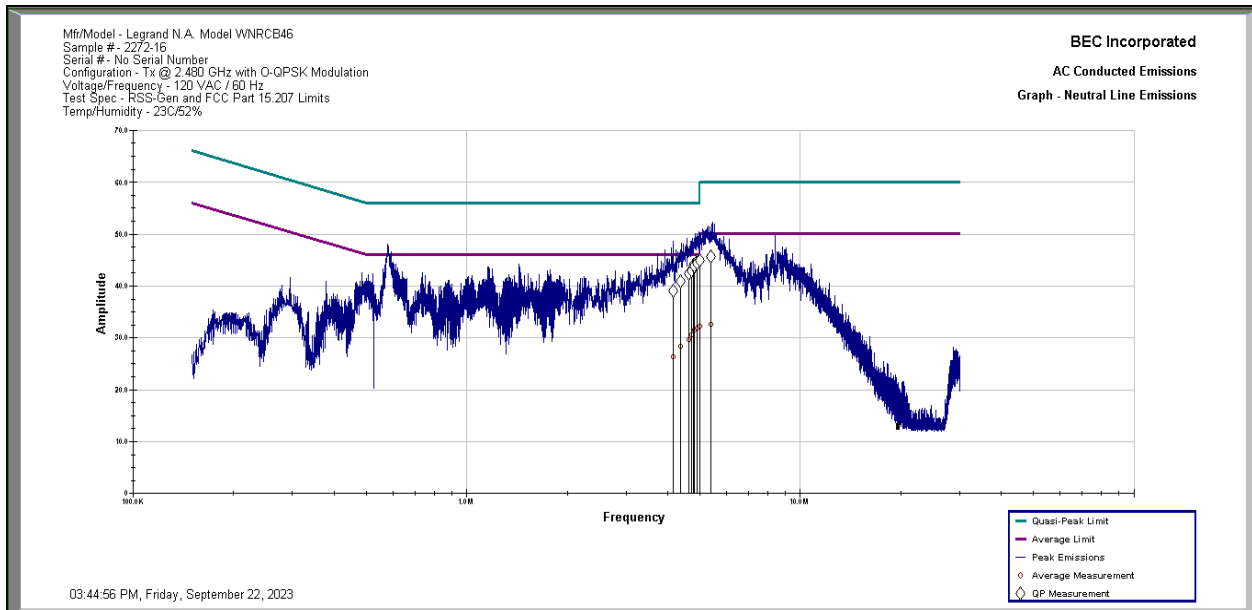


BEC Incorporated							
Line 1 Conducted Emissions							
03:53:41 PM, Friday, September 22, 2023							
	1	2	3	4	5	6	7
Frequency	AVG	AVG	AVG	QP	QP	QP	Corr
MHz	dBuV	Limit	Margin	dBuV	Limit	Margin	Factor
580.761 KHz	42.05	46.00	-3.95	49.63	56.00	-6.37	10.15
4.425 MHz	30.90	46.00	-15.10	43.49	56.00	-12.51	10.29
4.573 MHz	31.08	46.00	-14.92	44.28	56.00	-11.72	10.29
4.631 MHz	31.50	46.00	-14.50	44.62	56.00	-11.38	10.29
4.705 MHz	32.19	46.00	-13.81	45.04	56.00	-10.96	10.29
4.809 MHz	33.14	46.00	-12.86	46.16	56.00	-9.84	10.30
4.850 MHz	32.99	46.00	-13.01	46.14	56.00	-9.86	10.30
4.865 MHz	33.40	46.00	-12.60	46.24	56.00	-9.76	10.30
4.958 MHz	33.37	46.00	-12.63	46.61	56.00	-9.39	10.30
4.993 MHz	33.72	46.00	-12.28	47.02	56.00	-8.98	10.30
<b>Mfr/Model - Legrand N.A. Model WNRCB46</b>							
<b>Sample # - 2272-16</b>							
<b>Serial # - No Serial Number</b>							
<b>Configuration - Tx @ 2.480 GHz with O-QPSK Modulation</b>							
<b>Voltage/Frequency - 120 VAC / 60 Hz</b>							
<b>Test Spec - RSS-Gen and FCC Part 15.207 Limits</b>							
<b>Temp/Humidity - 23C/52%</b>							





## EUT Transmitting at 2.480 GHz High Channel Graphs



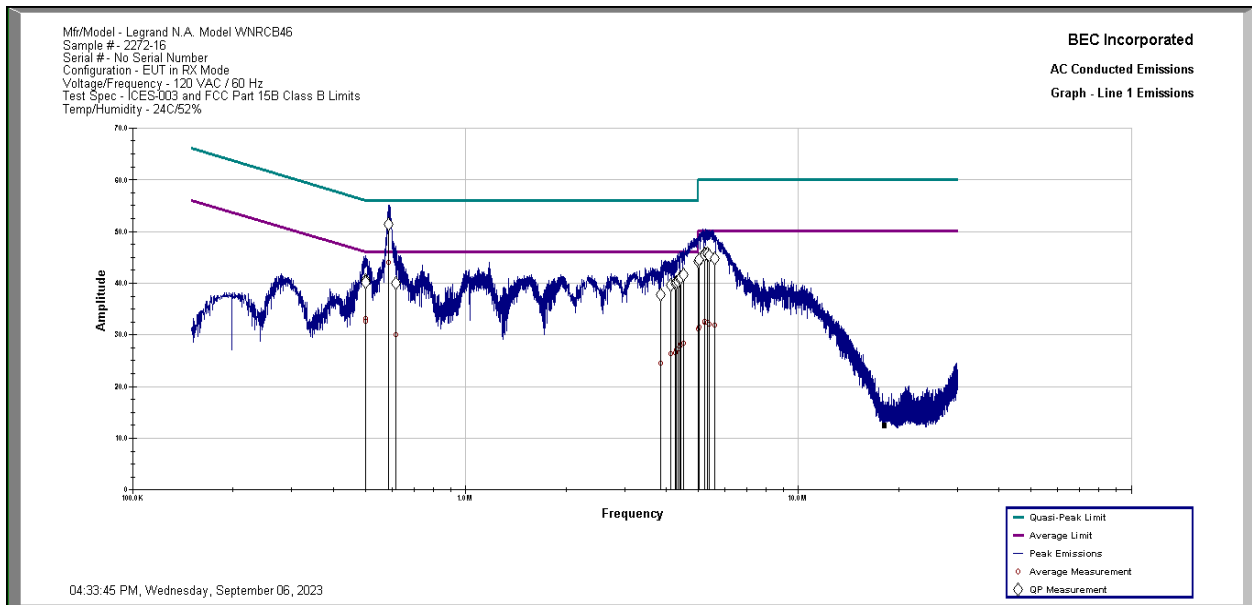
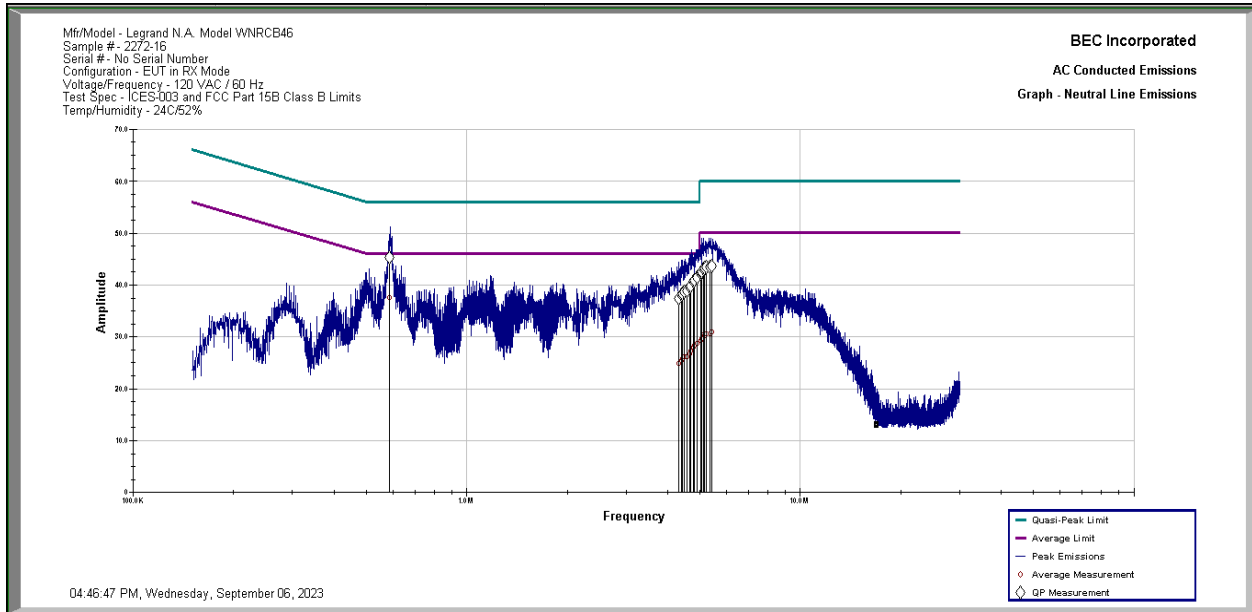
**Results:** All conducted emissions measured on the AC Power Port of the Legrand Model WNRCB46 Sample 2272-16 in Tx Mode High Channel at 2.480 GHz are below the limit specified by FCC Part 15.207 and RSS-Gen 7.2 Limits by a margin of 3.95 dB.







## EUT Configured in Rx Mode Graphs



**Results:** All conducted emissions measured on the AC Power Port of the Legrand Model WNRCB46 Sample 2272-16 in Rx Mode are below the limit specified by FCC Part 15.207 and RSS-Gen 7.2 Limits by a margin of 1.93 dB.



## 4.2 Emissions in Non-Restricted and Restricted Frequency Bands 1 GHz - 25 GHz (47 CFR 15.205, 15.209)(RSS-GEN 8.9, 8.10)

The emissions from the Legrand Model WNRCB46 with Zigbee Radio, which fall in the restricted bands of operation, detailed in this section, comply with the limits of 15.209. The Legrand Model WNRCB46 was tested at three frequencies: Low (2.405 GHz), Middle (2.440 GHz) and High (2.480 GHz). The modulation was O-QPSK.

Measurement of the signals was performed with the EUT on a turntable and a variable height antenna mast at 3 meters distance. The signals residing in restricted bands of operation are designated in the tables in the results section.

<b>Frequency Range</b>	1 GHz to 18 GHz
<b>Test Standards</b>	FCC Part 15.205 and 15.209 and RSS-Gen 8.9 and 8.10
<b>Limits</b>	FCC Part 15.205 and 15.209 and RSS-Gen 8.9 and 8.10 Limits
<b>Manufacturer</b>	Legrand
<b>Model</b>	WNRCB46
<b>Serial Number</b>	No Serial Number
<b>Sample Number</b>	2272-16
<b>Sample Type</b>	Radiated Emissions Sample Type
<b>Test Configuration</b>	During testing of the Transmitter, the EUT was tested at Maximum Output Power with typical modulation. The Transmitter Low Channel, Middle Channel and High Channel were tested along with the Transmitter in Rx Mode.
<b>Port Tested</b>	Enclosure Port of the EUT
<b>EUT Power</b>	120 VAC / 60 Hz
<b>Test Date</b>	09/25/2023
<b>Temperature</b>	21°C
<b>Humidity</b>	61 %
<b>Test Date</b>	09/26/2023
<b>Temperature</b>	21°C
<b>Humidity</b>	61 %



## **4.2.1 Radiated Spurious Emissions Test Facility**

### **OATS**

The Open Area Test Site (OATS) is an all-weather facility with a wooden enclosure that contains a ground level 4-foot diameter turntable capable of rotating equipment 360 degrees. The enclosure is free of reflective metallic objects and extraneous electromagnetic signals. This non-metallic enclosure and the 3 and 10 meter test range existing outside the enclosure rest upon a protective insulating material, which in turn covers a flat, metal, continuous ground plane.

Instrumentation for remote control of the antenna mast, turntable, and other equipment are controlled by personnel indoors. The EUT and support peripherals required for EUT operation were placed on a table 80 cm high for tabletop equipment or directly on the turntable surface for floor standing equipment.

The test site complies with the attenuation measurements specified in ANSI C63.4.

### **SR#1**

The Semi-Anechoic Shielded Room (SR#1) is a ferrite and absorber lined chamber which houses a 5-foot diameter turntable capable of rotating equipment 360 degrees and antenna mast for Horizontal and Vertical polarity measurements. The enclosure is free of reflective metallic objects and extraneous electromagnetic signals. This 3-meter shielded enclosure has a raised computer floor with metal tile bottoms providing a continuous ground plane.

Instrumentation for remote control of the antenna mast, turntable, and other equipment are controlled by personnel outside the chamber. The EUT and support peripherals required for EUT operation were placed on a table 80 cm high for tabletop equipment or directly on the turntable surface for floor standing equipment.



## 4.2.2 Emissions in Non-Restricted and Restricted Frequency Bands Test Procedure

### Radiated Emissions 30 MHz – 40 GHz

The EMI receiver was set to quasi-peak mode for frequencies from 30 MHz to 1 GHz and the appropriate CISPR bandwidths were employed. The receiver was set to average mode for frequencies above 1 GHz with the appropriate CISPR bandwidths were employed.

Three orthogonal positions of the EUTs were evaluated for maximum emissions. The position of the EUTs placed in an upright position horizontal with buttons facing the measurement antenna on the horizontal surface of the 80-cm table was determined to be the axis that produced the highest emissions for the Legrand Model WNRCB46.

Significant emissions found during the preliminary scans were maximized by rotating the turntable and varying the antenna height. Both horizontal and vertical antenna polarities were also investigated for suspect emissions. The signals are maximized and measured using the in house generated RADE or off the shelf TILE software. The support equipment and test item(s) were powered off in turn to determine the source of the emissions where appropriate.

Field strengths were calculated as follows:

$$\text{Field Strength (dB}\mu\text{V/m)} = \text{Meter Reading (dB}\mu\text{V)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Amplifier Gain (dB)}$$

The Legrand Model WNRCB46 EUT was tested in the 30 MHz to 1000 MHz frequency range and 1 to 18 GHz frequency range with the radio transmitting at low, middle and high frequencies and while in receive mode (non-transmission). The Zigbee radio was tested with O-QPSK modulated transmission signals at maximum output.

The following tables are the highest emissions recorded and summarized. The use of the 15.209 limit table for restricted band emissions is not required but ensures compliance to 15.205 and 15.209. The signals in the tables that fall into the restricted bands, described in 15.205, are marked with an asterisk.

### Spectrum Analyzer Settings

RBW	1 MHz
VBW	3 MHz
Sweep	Auto
Reference Level	80 dBuV
Attenuation	10 dB
Detectors	Peak and Average
Frequency Range	1 GHz to 18 GHz



### 4.2.3 Emissions in Frequency Bands 1 - 18 GHz WNRCB46 with Zigbee Radio Test Results (09/25/2023 and 09/26/2023)

Radiated emissions scans, 1 – 18 GHz, were made for the EUT configured for the low, middle and high transmission frequencies and in Rx mode. The Transmit Frequencies were measured with O-QPSK Modulation at maximum output. Peak and Average levels shown in the table are corrected values.

#### Legrand Model WNRCB46 Zigbee Radio, Low Channel 11, 2.405 GHz, Modulated

Frequency	Peak Measured	Average Measured	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factors	FCC 15.205/209: RSS-GEN/RSS-247 Average Limit	FCC 15.205/209: RSS-GEN/RSS-247 Average Margin	FCC 15.205/209: RSS-GEN/RSS-247 Peak Limit	FCC 15.205/209: RSS-GEN/RSS-247 Peak Margin	Result
GHz	dBuV/m	dBuV/m	H/V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
* 4.80938	39.30	27.02	V	210	125	1.67	53.98	-26.96	73.98	-34.68	PASS
* 4.82187	38.70	27.19	H	146	162	1.72	53.98	-26.79	73.98	-35.28	PASS
7.2053	42.71	32.82	V	283	144	4.14	53.98	-21.16	73.98	-31.27	PASS
* 7.2658	43.65	33.46	H	328	140	4.49	53.98	-20.52	73.98	-30.33	PASS
* 8.07314	46.46	35.76	H	188	187	5.29	53.98	-18.22	73.98	-27.52	PASS
* 8.10113	45.40	35.87	V	128	182	5.32	53.98	-18.12	73.98	-28.58	PASS
9.6221	46.20	36.59	H	143	156	6.29	53.98	-17.39	73.98	-27.78	PASS
9.6223	44.66	35.37	V	211	116	6.29	53.98	-18.61	73.98	-29.32	PASS
* 11.1375	47.21	37.42	V	029	101	6.44	53.98	-16.56	73.98	-26.77	PASS
* 12.0207	47.74	38.15	V	001	234	7.74	53.98	-15.83	73.98	-26.24	PASS
* 12.0351	49.55	38.19	H	143	225	7.73	53.98	-15.79	73.98	-24.43	PASS
*Restricted Band Signal											

#### Legrand Model WNRCB46 Zigbee Radio, Middle Channel 18, 2.440 GHz, Modulated

Frequency	Peak Measured	Average Measured	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factors	FCC 15.205/209: RSS-GEN/RSS-247 Average Limit	FCC 15.205/209: RSS-GEN/RSS-247 Average Margin	FCC 15.205/209: RSS-GEN/RSS-247 Peak Limit	FCC 15.205/209: RSS-GEN/RSS-247 Peak Margin	Result
GHz	dBuV/m	dBuV/m	H/V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
* 4.87401	36.11	27.62	V	127	132	1.87	53.98	-26.36	73.98	-37.87	PASS
* 4.87976	37.35	27.51	H	189	161	1.88	53.98	-26.47	73.98	-36.63	PASS
* 7.31337	43.17	33.53	H	222	140	4.73	53.98	-20.45	73.98	-30.82	PASS
* 7.32192	44.54	33.00	V	172	202	4.74	53.98	-20.98	73.98	-29.44	PASS
* 7.65878	44.18	34.13	H	077	228	4.65	53.98	-19.85	73.98	-29.80	PASS
* 8.36444	46.89	35.56	V	270	102	5.63	53.98	-18.42	73.98	-27.09	PASS
9.7583	46.24	35.60	V	135	113	6.17	53.98	-18.38	73.98	-27.74	PASS
9.7746	45.73	35.45	H	325	163	6.13	53.98	-18.53	73.98	-28.25	PASS
* 11.092	48.02	37.03	V	221	101	6.40	53.98	-16.95	73.98	-25.96	PASS
* 11.2348	46.51	37.29	H	278	234	6.50	53.98	-16.69	73.98	-27.47	PASS
*Restricted Band Signal											





### Legrand Model WNRCB46 Zigbee Radio, High Channel 26, 2.480 GHz, Modulated

Frequency	Peak Measured	Average Measured	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factors	FCC 15.205/209-RSS-GEN/RSS-247 Average Limit	FCC 15.205/209-RSS-GEN/RSS-247 Average Margin	FCC 15.205/209-RSS-GEN/RSS-247 Peak Limit	FCC 15.205/209-RSS-GEN/RSS-247 Peak Margin	Result
GHz	dBuV/m	dBuV/m	H/V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
* 4.95976	36.69	26.46	V	311	134	1.83	53.98	-27.52	73.98	-37.29	PASS
* 4.96304	36.40	26.54	H	128	233	1.83	53.98	-27.44	73.98	-37.58	PASS
* 7.4209	42.25	33.52	V	131	100	4.75	53.98	-20.46	73.98	-31.73	PASS
* 7.43179	42.81	33.31	H	006	171	4.75	53.98	-20.67	73.98	-31.17	PASS
* 8.05356	45.27	35.84	V	195	136	5.27	53.98	-18.14	73.98	-28.71	PASS
* 8.15661	46.10	35.98	H	188	141	5.34	53.98	-18.00	73.98	-27.88	PASS
9.9317	46.22	36.07	V	153	138	6.32	53.98	-17.91	73.98	-27.76	PASS
9.9585	45.93	36.27	H	151	203	6.33	53.98	-17.71	73.98	-28.05	PASS
* 11.0493	47.44	37.01	V	167	105	6.42	53.98	-16.97	73.98	-26.54	PASS
* 11.2064	46.77	37.31	H	259	101	6.49	53.98	-16.67	73.98	-27.21	PASS
*Restricted Band Signal											

### Legrand Model WNRCB46 Zigbee Radio, Rx Mode

Frequency	Peak Measured	Average Measured	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factors	FCC 15.205/209-RSS-GEN/RSS-247 Average Limit	FCC 15.205/209-RSS-GEN/RSS-247 Average Margin	FCC 15.205/209-RSS-GEN/RSS-247 Peak Limit	FCC 15.205/209-RSS-GEN/RSS-247 Peak Margin	Result
GHz	dBuV/m	dBuV/m	H/V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
6.7949	43.78	32.64	V	335	206	3.58	53.98	-21.34	73.98	-30.20	PASS
* 8.02851	46.13	35.58	H	014	171	5.21	53.98	-18.40	73.98	-27.85	PASS
* 8.07645	46.64	35.86	V	095	173	5.30	53.98	-18.12	73.98	-27.35	PASS
* 8.22856	46.44	35.95	H	009	155	5.46	53.98	-18.03	73.98	-27.54	PASS
* 11.1134	46.18	37.47	H	180	121	6.41	53.98	-16.51	73.98	-27.80	PASS
* 11.5858	49.25	38.08	V	040	114	7.26	53.98	-15.90	73.98	-24.73	PASS
12.9276	51.04	41.36	H	342	192	8.65	53.98	-12.62	73.98	-22.94	PASS
13.0263	51.79	42.00	H	228	181	9.10	53.98	-11.98	73.98	-22.19	PASS
13.4677	52.43	43.13	V	111	228	10.59	53.98	-10.85	73.98	-21.55	PASS
*Restricted Band Signal											

**Test Results:** The Legrand Model WNRCB46 with Zigbee Radio complies with the requirements of 47 CFR Part 15.205, 15.209 and RSS-Gen Section 8.10 for non-restricted and restricted bands of operation between 1 – 18 GHz with an Average Margin of 10.85 dB.



### 4.3 Maximum Conducted (Average) Output Power and EIRP (FCC Part 15.247(b)(3), RSS-247 Section 5.4(d))

#### 4.3.1 Maximum Conducted (Average) Output Power Test Procedure

A conducted power measurement of the output frequency of the Zigbee radio was measured according to the guidance of KDB 550874 D01, Section 8.3.1.2. The modulated, transmitter output signal is wide-band and noise-like. Further guidance from the KDB document identified ANSI C63.10, Section 11.9.2.2.2., (Method AVGSA-1), as the measurement procedure. The 99% Occupied Bandwidth is used to determine Spectrum Analyzer settings. The SA parameters are listed for the Zigbee radio maximum conducted (average) output power. Maximum Conducted Output Power measurements were made for the EUT configured for the low, middle and high transmission frequencies. The Transmit Frequencies were measured with O-QPSK Modulation at maximum output. The un-modulated carrier at maximum output was also measured for comparison.

Spectrum Analyzer Settings for Zigbee Radio Measurements for Maximum Output Power and EIRP.

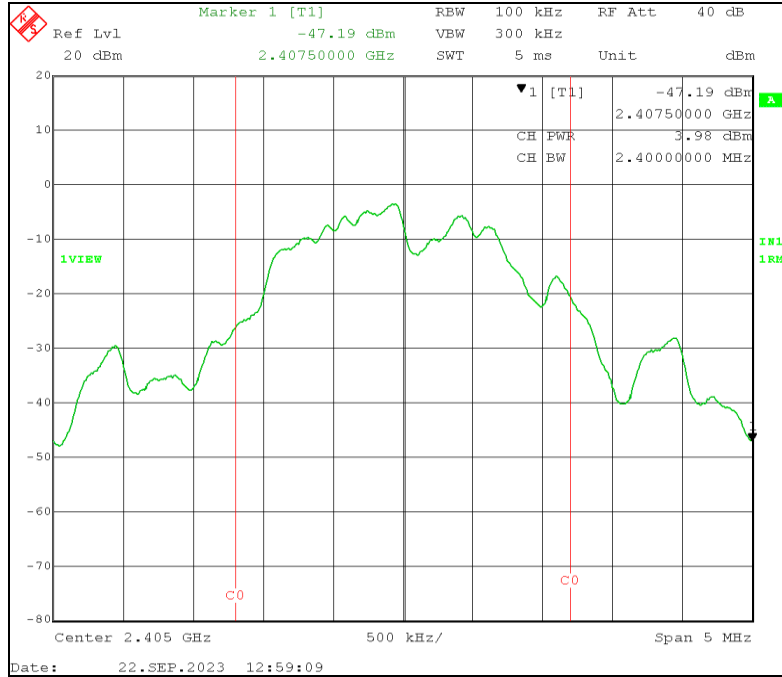
Spectrum Analyzer Settings			ANSI C63.10, 11.9.2.2 requirement
Span	5	MHz	$\geq 1.5 \times \text{OBW}$
RBW	100	kHz	1% - 5% of the OBW (not to exceed 1 MHz)
VBW	300	kHz	$\geq 3 \times \text{RBW}$
Sweep Time	5	ms	Auto

The spectrum analyzer utilized RMS Detection, averaged 100 traces, for measurement.

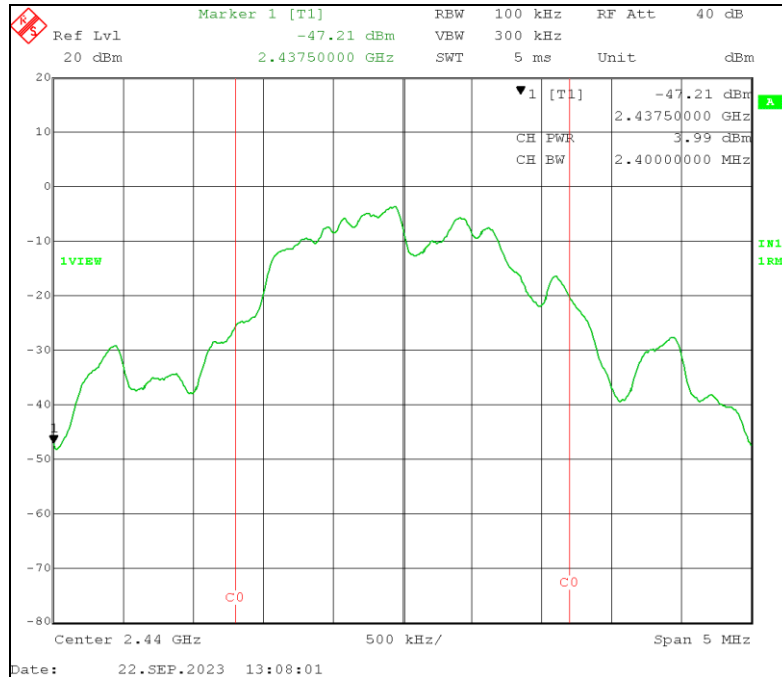


### 4.3.1.1 Maximum Conducted (Average) Output Power Legrand WNRCB46 with Zigbee Radio O-QPSK Modulation Test Results (09/22/2023)

Legrand Model WNRCB46 Zigbee Radio Low Channel 11, 2.405 GHz, O-QPSK Modulation

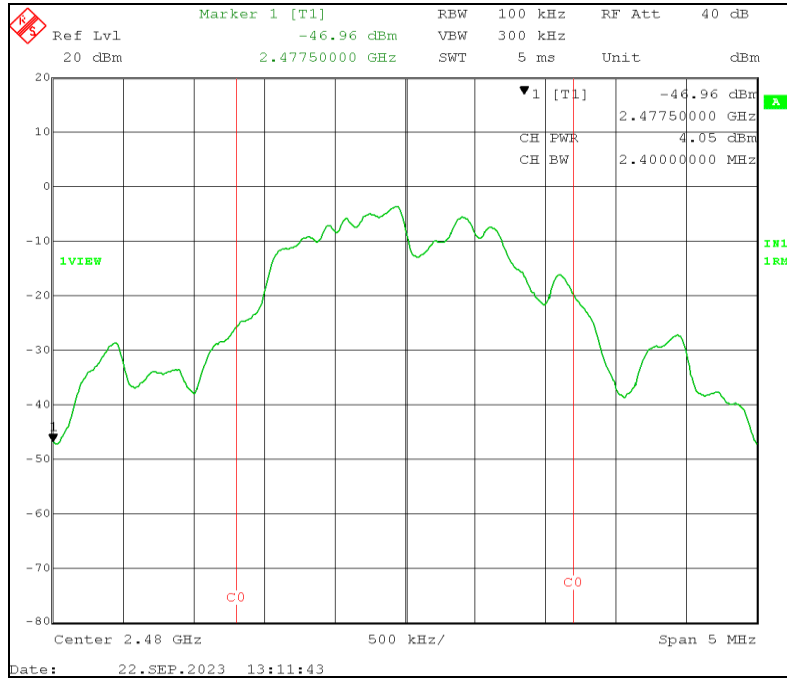


Legrand Model WNRCB46 Zigbee Radio Middle Channel 18, 2.440 GHz, O-QPSK Modulation

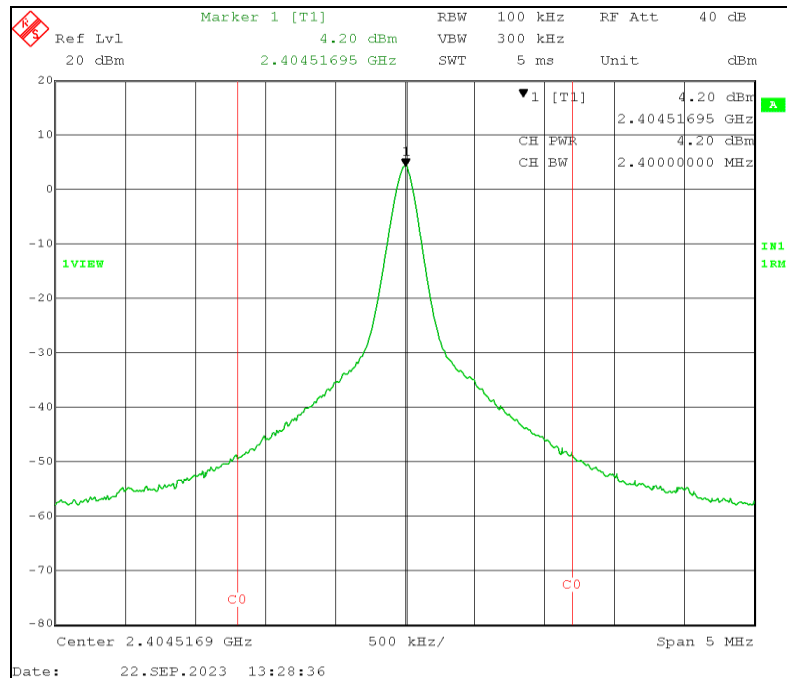




### Legrand Model WNRCB46 Zigbee Radio High Channel 26, 2.480 GHz, O-QPSK Modulation

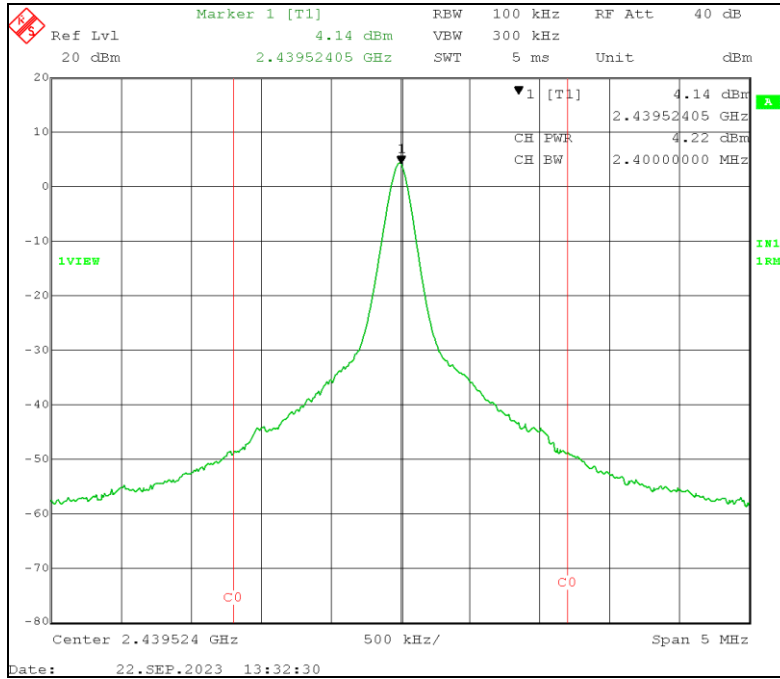


### Legrand Model WNRCB46 Zigbee Radio Low Channel 11, 2.405 GHz, No modulation

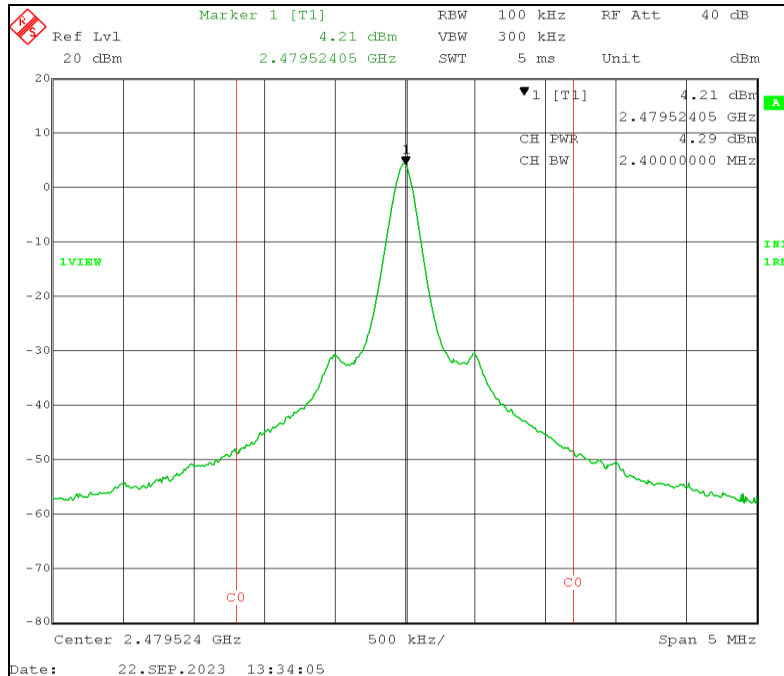




Legrand Model WNRCB46 Zigbee Radio Middle Channel 18, 2.440 GHz, No modulation



Legrand Model WNRCB46 Zigbee Radio High Channel 26, 2.480 GHz, No modulation





Maximum Conducted Output Power Measurement Summary Tables

EUT Tested	Legrand WNRCB46 Radiant Zigbee Radio EUT-Conducted EUT										
Sample #	2272-15										
Test Configuration	EUT Tested With O-QPSK Modulation and Without Modulation (CW)										
Channel	Modulation	Frequency (GHz)	Measured Level (dBm)	Cable # 962	Total		Limit		Margin		Result
					dBm	Watts	dBm	Watts	dBm	Watts	
11	O-QPSK	2405.0	3.98	0.47	4.45	0.0028	30.00	1.000	-25.55	-0.997	Pass
18		2440.0	3.99	0.47	4.46	0.0028	30.00	1.000	-25.54	-0.997	Pass
26		2480.0	4.05	0.47	4.52	0.0028	30.00	1.000	-25.48	-0.997	Pass
Channel	Modulation	Frequency (GHz)	Measured Level (dBm)	Cable # 962	Total		Limit		Margin		Result
					dBm	Watts	dBm	Watts	dBm	Watts	
11	None	2405.0	4.20	0.47	4.67	0.0029	30.00	1.000	-25.33	-0.997	Pass
18		2440.0	4.22	0.47	4.69	0.0029	30.00	1.000	-25.31	-0.997	Pass
26		2480.0	4.29	0.47	4.76	0.0030	30.00	1.000	-25.24	-0.997	Pass

Test Results: The Maximum Conducted (Average) Power Output measurements for the Legrand Model WNRCB46 with Zigbee Radio, modulated with O-QPSK and un-modulated, are compliant to the requirements of 47 CFR Part 15.247(b)(3) and ISED, RSS-247 Section 5.4(d).



### 4.3.2 EIRP Level WNRCB46 with Zigbee Radio Test Results (09/22/2023)

The Innovation, Science and Economic Development Canada (ISED), RSS-247 requires the calculation of the Effective Isotropic Radiated Power (EIRP) for the Legrand Model WNRCB46 Zigbee Radio. Below is the tabular data, using measured power levels from the previous section in which measurements were made for the EUT configured for the low, middle and high transmission frequencies. The Transmit Frequencies were measured with O-QPSK Modulation at maximum output. The un-modulated carrier at maximum output was also measured for comparison.

#### 4.3.2.1 EIRP Level WNRCB46 Zigbee Radio Test Results

Antenna Gain of Legrand WNRCB46 is +4.28 dBi.													
Channel	Modulation	Frequency (GHz)	Transmitter Output Total		Antenna Gain		RSS-247, Section 5.4 (d) EIRP						Result
			dBm	Watts	Isotropic	Numeric	Total		Limit		Margin		
							dBm	Watts	dBm	Watts	dBm	Watts	
11	O-QPSK	2405.0	4.45	0.0028	4.28	2.679	8.73	0.0075	36.00	4.00	-27.27	-3.9925	Pass
18		2440.0	4.46	0.0028	4.28	2.679	8.74	0.0075	36.00	4.00	-27.26	-3.9925	Pass
26		2480.0	4.52	0.0028	4.28	2.679	8.80	0.0076	36.00	4.00	-27.20	-3.9924	Pass
Channel	Modulation	Frequency (GHz)	Transmitter Output Total		Antenna Gain		RSS-247, Section 5.4 (d) EIRP						Result
			dBm	Watts	Isotropic	Numeric	Total		Limit		Margin		
							dBm	Watts	dBm	Watts	dBm	Watts	
11	None	2405.0	4.67	0.0029	4.28	2.679	8.95	0.0079	36.00	4.00	-27.05	-3.9921	Pass
18		2440.0	4.69	0.0029	4.28	2.679	8.97	0.0079	36.00	4.00	-27.03	-3.9921	Pass
26		2480.0	4.76	0.0030	4.28	2.679	9.04	0.0080	36.00	4.00	-26.96	-3.9920	Pass

Test Results: The Effective Isotropic Radiated Power measurements for the Legrand Model WNRCB46 with Zigbee Radio, modulated with O-QPSK and un-modulated, are compliant to the requirements of ISED, RSS-247 Section 5.4(d).



## Appendix A – Test Equipment

Equipment	Manufacturer	Model #	Serial #	BEC #	Calibration Date	Calibration Cycle	Calibration Due Date
EMI Receiver (20 Hz – 26.5 GHz)	Rohde & Schwarz	ESIB 26	836119/006	1010	12/09/22	3 Years	12/09/25
Antenna (30 MHz - 6 GHz)	Sunol Sciences	JB6	A022108	712	06/21/21	3 Years	06/21/24
OATS Site (30 MHz – 1 GHz)	BEC	N/A	N/A	705	10/07/22	1 Year	10/07/23
EMC Analyzer (9 kHz - 3 GHz)	Agilent	E7402A	US39440162	883	06/21/21	3 Years	06/21/24
Antenna (30 MHz - 6 GHz)	Sunol Sciences	JB6	A020714	882	05/24/21	3 Years	05/24/24
Amplifier (.09 – 1300 MHz)	Hewlett Packard	8447F	3313A06658	807	01/13/21	3 Years	01/13/24
EMC Analyzer (9 kHz - 1.8 GHz)	Hewlett Packard	8593EM	3710A00214	1026	03/23/20	5 Years	03/23/25
Amplifier System (0.5 – 50 GHz)	Hewlett Packard	83015A 83017A	3123A00360 & 3332A00219	1027	06/16/21	3 Years	06/16/24
Double Ridged Horn Antenna (1 - 18 GHz)	EMCO	3115	9705-5225	1028	11/24/21	3 Years	11/21/24
Intentional Radiator Testing High Frequency RF Test Cable	Suhner	S04272B	N/A	962	07/16/23	3 Years	07/16/26
Temp/Humidity Meter	Control Company	4096	221672460	780	07/21/22	3 Years	07/21/25
Software (Tile Instrument Control System)	Quantum Change/EMC Systems	Version 3	N/A	N/A	No Cal. Required	No Cal. Required	No Cal. Required
Radiated Emissions Test Software	BEC	RADE	2.2	N/A	No Cal. Required	No Cal. Required	No Cal. Required