



BEC INCORPORATED

CERTIFICATION APPLICATION TEST REPORT

TEST STANDARDS:

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

Equipment Under Test (EUT):

**Lutron Model C2P-R1BRL
Rotary Controller with BLE Radio**

FCC ID: JPZ0160

ISED ID: 2851A-JPZ0160

REPORT#: BEC-2438-02

REPORT DATE: 07/15/2026

CUSTOMER:

**Lutron Electronics Company Incorporated
7200 Suter Road
Coopersburg, PA 18036**

PREPARED BY:

JR Fanella, Test Engineer

REVIEWED and APPROVED BY:

Steve Fanella, Quality Manager

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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	07/15/2026
1	DRAFT Watermark Removed and Appendix A added an area for Equipment Used Only For Pre-Compliance	08/13/2026	08/13/2026



1.0 Administrative Information

1.1 Project Details

Project Number	BEC-2438
EUT Manufacturer	Lutron Electronics
EUT Model Number	C2P-R1BRL
EUT Description	Rotary Controller
EUT Sample Type	Antenna Conducted Test Sample
EUT Sample Number	2438-03
EUT Serial Number	DUT 3
EUT Sample Type	Radiated Emissions Sample
EUT Sample Number	2438-04
EUT Serial Number	DUT 1
FCC ID	JPZ0160
ISED ID	2851A-JPZ0160
HVIN	CRD1
PMN	C2P-R1BRL
FVIN	v0.0.0
Radio Type	BLE
Frequency of Operation	2400 – 2480 MHz
Frequencies Tested	Low (2402 MHz), Middle (2440 MHz), High (2480 MHz)
Antenna Gain	+ 4.95 dBi / + 2.80 dBd
Antenna Type	Monopole on PCB
Modulation	GFSK With 1 Mbps Data Rate
FCC Classification	Digital Transmission System (DTS)
Date Samples Received	05/15/2026
Test Dates	06/01/2026 – 06/09/2026
EUT Test Software	Lutron Radio Certification GUI Version 1.1.6
Sample Types	Production Units Suitable for Test



Applicable FCC Rules	FCC Rules Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz Direct Sequence System
Applicable ISED Rules	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

Test Laboratory Location	BEC Incorporated 970 East High Street Pottstown, PA 19464
BEC Test Personnel	JR Fanella / Steve Fanella
BEC Laboratory Number FCC Registration	US1118
BEC Laboratory Number ISED Registration	7342A-1
Test Performed For	Lutron Electronics Company Incorporated 7200 Suter Road Coopersburg, PA 18036
Customer Technical Contacts	Dan Osle
Customer Reference Number	PO # 4500040951



1.4 Measurement Uncertainty

Measurement	Measurement Distance	Frequency Range	Measurement Limit	Expanded Uncertainty (dB)
Radiated Disturbance	3 Meter	30 MHz – 1 GHz	Class A or B	4.78
Radiated Disturbance Fully Anechoic Chamber	3 Meter	1 GHz – 18 GHz	Class A or B	5.33
Conducted Disturbance AC Mains	N/A	150 kHz – 30 MHz	Class A or B	2.69

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.

FCC Registered Test Site Number: US1118
ISED Registered Test Site Number: 7342A-1

Test Measurement	ETSI TR 100 028 and CISPR 16-4-2 Limits	BEC Value
Radio Frequency	± 0.5 ppm	± 0.027 ppm
RF Power, Conducted	± 1.5 dB	± 1.45 dB
Conducted Spurious Emission of Transmitter, Valid up to 6 GHz	± 3 dB	± 0.9 dB
Radiated Emission of Transmitter, Valid up to 6 GHz	± 5.2 dB	± 4.87 dB
Radiated Emission of Receiver, Valid up to 6 GHz	± 5.2 dB	± 4.87 dB
Radiated Emission of Transmitter, Valid up to 18 GHz	± 5.5 dB	± 4.90 dB
Radiated Emission of Receiver, Valid up to 18 GHz	± 5.5 dB	± 4.90 dB
Occupied Bandwidth	± 5 %	± 2 %
Temperature	± 2.5 °C	± 0.5 °C
Humidity	± 10 %	± 2.5 %

These uncertainties have a coverage factor of $k = 1.96$ or $k = 2$, (which provide confidence levels of respectively 95 % and 95.45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)). Principles for the calculation of measurement uncertainty are contained in ETSI TR 100 028 [i.3], in particular in annex D of ETSI TR 100 028-2 [i.3].



1.5 Test Result Summary Table

The Lutron Model C2P-R1BRL Rotary Controller with BLE Radio was tested and found to be compliant to the sections of the FCC Part 15 Subpart C and ISSED standards listed below:

Report Section	FCC Part 15, Subpart C	RSS-Gen	RSS-247	Test Description	Result
4.1	15.203	Annex A 10(g)		Antenna Requirement	PASS
4.2	15.204	8.3		External RF power amplifiers and antenna modifications	PASS
4.3	ANSI C63.10, Section 11.6			Duty Cycle	Measured
4.4	15.247(d)		6.1	DTS Emissions in non-restricted frequency Bands 30 MHz to 25 GHz Conducted Spurious Emission	PASS
4.5	15.205, 15.209 15.35(b)	8.9, 8.10	6.3	DTS Emissions in restricted frequency Bands 30 MHz to 25 GHz Radiated Spurious Emission	PASS
4.6	15.247(a)(2)		6.3.1	6 dB Occupied Bandwidth	PASS
4.7	2.1049(h)	6.7		99% Occupied Bandwidth	PASS
4.8	15.247(b)(3)		6.3.2	Maximum Conducted Output Power and EIRP	PASS
4.9	15.247(e)		6.3.1	Antenna Port, Power Spectral Density	PASS
4.10	15.247(d)			Band Edge Measurement	PASS
4.11	15.207	8.8		AC Mains Conducted Emissions	Not Applicable



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

The following were the general environmental conditions inside the laboratory during testing:

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

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

Barometric Pressure: $1010 - 1050\text{ mb} \pm 20\%$

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 Lutron Model C2P-R1BRL Rotary Controller is a series of wireless lighting controllers. The controllers are powered at 3 V DC by a single CR2032 coin battery. The controllers use BLE wireless frequencies to connect to lighting devices.

2.2 Product Category

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

2.3 Product Classification

Intentional Radiator Testing Requirements, DTS Operation within the band of 2400 – 2483.5 MHz.

2.4 Test Configuration

The Lutron Model C2P-R1BRL Sample # 2438-03 was tested for all antenna conducted measurements. For Antenna Conducted Testing, the Lutron Model C2P-R1BRL was powered at 3 V DC using an external DC Power Supply because of the low life duration of the CR2032 Coin Battery (5 Minutes when Continuously Transmitting).

The Lutron Model C2P-R1BRL Sample # 2438-04 was tested for all radiated emissions measurements. For Radiated Emissions Testing, the Lutron Model C2P-R1BRL was powered at 3 V DC using Qty 2 D Cell Batteries because of the low life duration of the CR2032 Coin Battery (5 Minutes when Continuously Transmitting).

The radio test software allowed the tester to choose the BLE transmissions of low Channel 37 (2402 MHz), middle Channel 17 (2440 MHz) and high Channel 39 (2480 MHz) for the 1 Mbps Data Rate. The transmission was tested in maximum output power with the choice of transmitting with GFSK Modulation or without Modulation.

2.5 Test Configuration Rationale

The mode of operation provides the worst case for all EMC; all devices on board are active and functioning normally



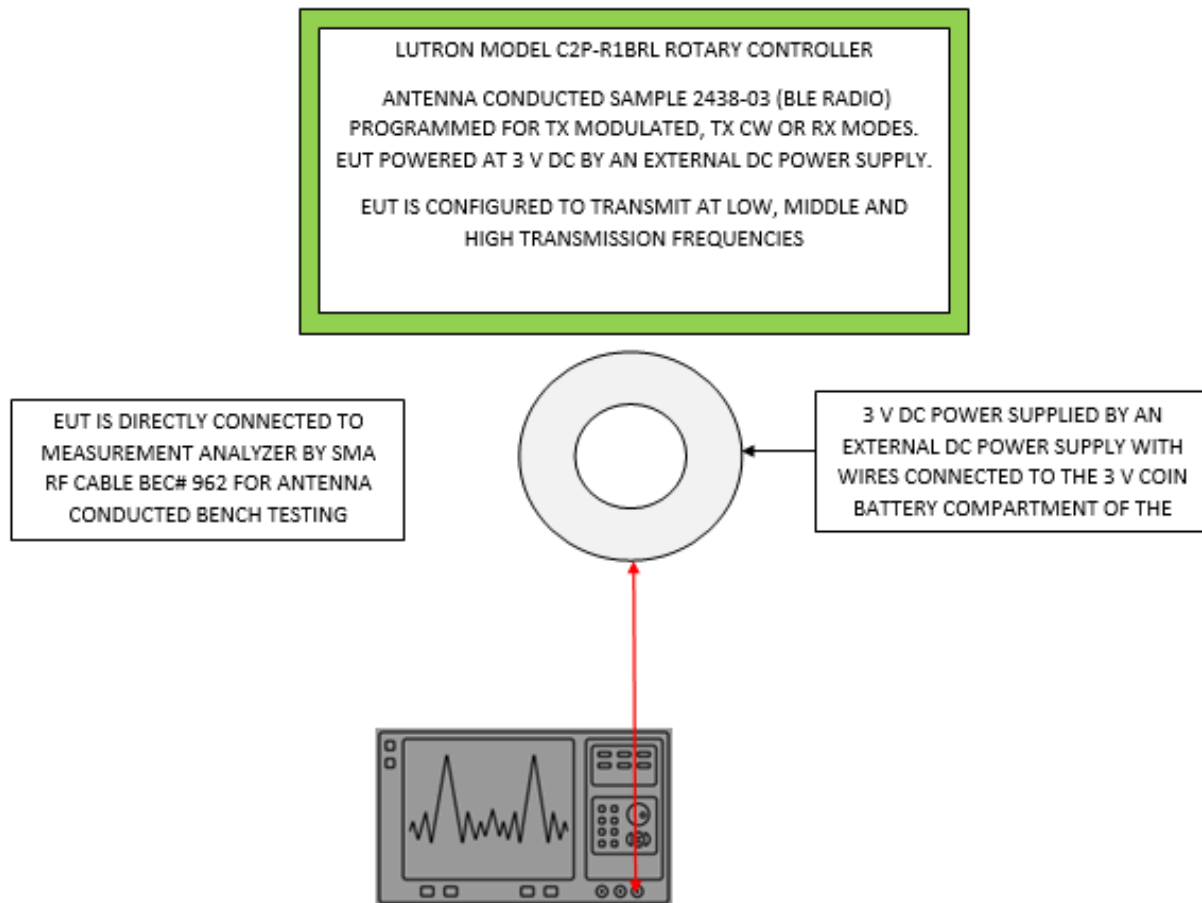
2.6 Test Configuration Diagrams

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.

Antenna Conducted Test Configuration
(EUT modified with SMA connector in place of antenna)

LUTRON MODEL C2P-R1BRL

ANTENNA CONDUCTED TEST SETUP DIAGRAM

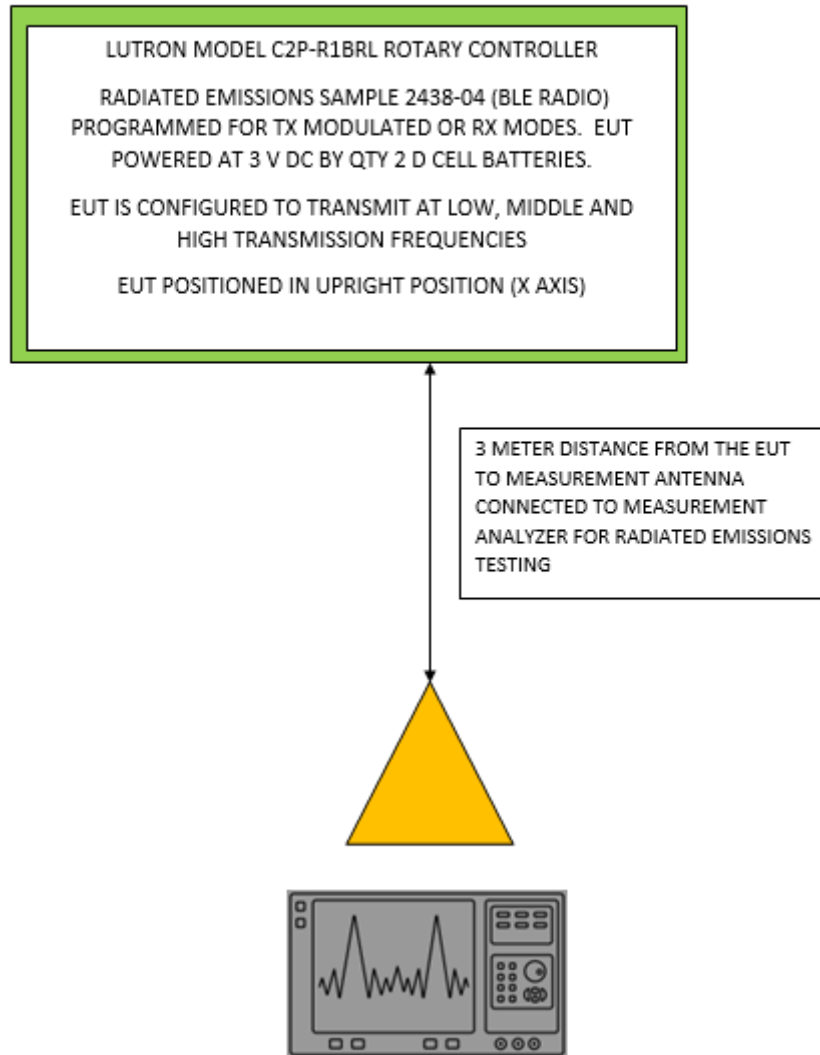




Radiated Emission Test Configuration

LUTRON MODEL C2P-R1BRL

RADIATED EMISSIONS TEST SETUP DIAGRAM





2.7 EUT Information, Interconnection Cabling and Support Equipment

EUT Hardware

Description	Manufacturer	Model	Sample Number	Serial Number
Rotary Controller with BLE Radio Antenna Conducted Sample	Lutron Electronics	C2P-R1BRL	2438-03	DUT 3
Rotary Controller with BLE Radio Radiated Emissions Sample	Lutron Electronics	C2P-R1BRL	2438-04	DUT 1

Interconnection Cable List

Part Number	Shielding	Length	Description
Unknown	None	1 Ft	Qty 2 Wires from D Battery Holder to C2032 Coin Battery Compartment on EUT
Suhner S04272B	Double Braid	1 Meter	High Frequency RF Measurement Cable from the Antenna SMA Connector of the Sample 2438-03 Under Test to the R&S ESIB26 Receiver. Asset # BEC-962

Support Equipment

Description	Manufacturer	Model/Part #	Serial #
Laptop Computer-Programming the EUT Radio Transmitter Software	Dell	Inspiron 15-3567	E4B4B16C-F475-4A3F-9795-A06C5CB4AB43
DC Power Supply (0-30V/90W)	Tektronix	PS281	TW50114
Light Switch Fixture to hold the C2P-R1BRL Rotary Controller into place during Radiated Emissions Testing	Lutron	Hand-Made	None



2.8 Test Signals and Test Modulation

By design this product does not have an external Modulation input connector, therefore, normal operating modulation was used for all testing reported herein. The only test where modulation was not active was during testing of the Maximum Peak Power Output FCC Section 15.247(b) (3) (Section 4.6 of this report) to ensure that the un-modulated carrier was not higher than the modulated carrier.

The control unit in this product is a digital frequency transmitter. The EUT transmits to a discrete frequency on a specific channel. The Lutron Model C2P-R1BRL has 40 Channels available for 1 Mbps. The Channels and frequencies that can be transmitted by the EUT are as follows:

BLE Channels	Frequency (MHz)		BLE Channels	Frequency (MHz)
37	2402		17	2440
0	2404		18	2442
1	2406		19	2444
2	2408		20	2446
3	2410		21	2448
4	2412		22	2450
5	2414		23	2452
6	2416		24	2454
7	2418		25	2456
8	2420		26	2458
9	2422		27	2460
10	2424		28	2462
38	2426		29	2464
11	2428		30	2466
12	2430		31	2468
13	2432		32	2470
14	2434		33	2472
15	2436		34	2474
16	2438		35	2476
			36	2478
Low- 1 Mbps	2402 MHz		39	2480
Middle	2440 MHz			
High	2480 MHz			

For the required testing, the EUT was configured to transmit at low Channel 37 (2402 MHz), middle Channel 17 (2440 MHz) and high Channel 39 (2480 MHz) for 1 Mbps. The EUT operates with a 1.1 MHz Operational Channel Bandwidth. The EUT has the option to be programmed to operate with maximum output power with GFSK modulation or with Constant Wave (CW) signal.



2.9 Antenna Gain

The antenna gain was documented by Lutron at + 4.95 dBi

2.10 Grounding

The EUT has no ground when installed.

2.11 EUT Modifications

An SMA connector was added to replace the antenna on the PCB of the Lutron Model C2P-R1BRL Antenna Conducted Test Sample 2438-03. No other modifications were done on any of the other 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
15.247 Operation within the bands 902-928 MHz,
2400-2483.5 MHz, and 5725-5850 MHz.

3.1.2 Innovation, Science and Economic Development Canada (ISED)

RSS-Gen Issue 5 Feb 2021 Amendment 1: General Requirements for Compliance of Radio Apparatus

RSS-247 Issue 4 July 2025: Digital Transmission Systems, Frequency Hopping Systems and Licence-Exempt Local Area Network Devices in 902-928 MHz, 2400-2483.5 MHz, 5150-5350 MHz, and 5470-5895 MHz bands.

3.1.3 Basic Test Methods and Test Procedures

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

ANSI C63.10-2020+Cor.1-2023+A1-2024, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

3.1.4 Deviations or Exclusions from the Requirements

No deviations or exclusions were made.



4.0 Test Results

4.1 Antenna Requirement (47 CFR 15.203)(RSS-GEN ANNEX A (10)(g))

The antenna used by the Lutron C2P-R1BRL Rotary Controller is a monopole soldered onto the PCB. The antenna is a stamped metal piece made of stainless steel. The antenna connection points are permanently attached to the DUT and cannot be modified or replaced by the user as they are behind the reflector inside the plastic enclosure.

4.2 External RF power amps/antenna modifications (47 CFR 15.204)(RSS-GEN 8.3)

There are no RF power amplifier kits available to be used with the Lutron Model C2P-R1BRL Rotary Controller. There are no detachable parts of the antenna. The antenna is not replaceable, nor changeable, and therefore complies with the requirements of this section.

4.3 Duty Cycle of the DTS Fundamental Transmission

The duty cycle of the DTS transmission shall be greater than or equal to 98%. This ensures that the various emissions measured for this certification test will be made with the transmitter fully active. Duty cycles less than 98% can be used and a duty cycle correction factor can be calculated to reduce the peak level of the emission for radiated emission tests. The procedure of ANSI C63.10, Section 11.6 can be used to evaluate the duty cycle of this device.

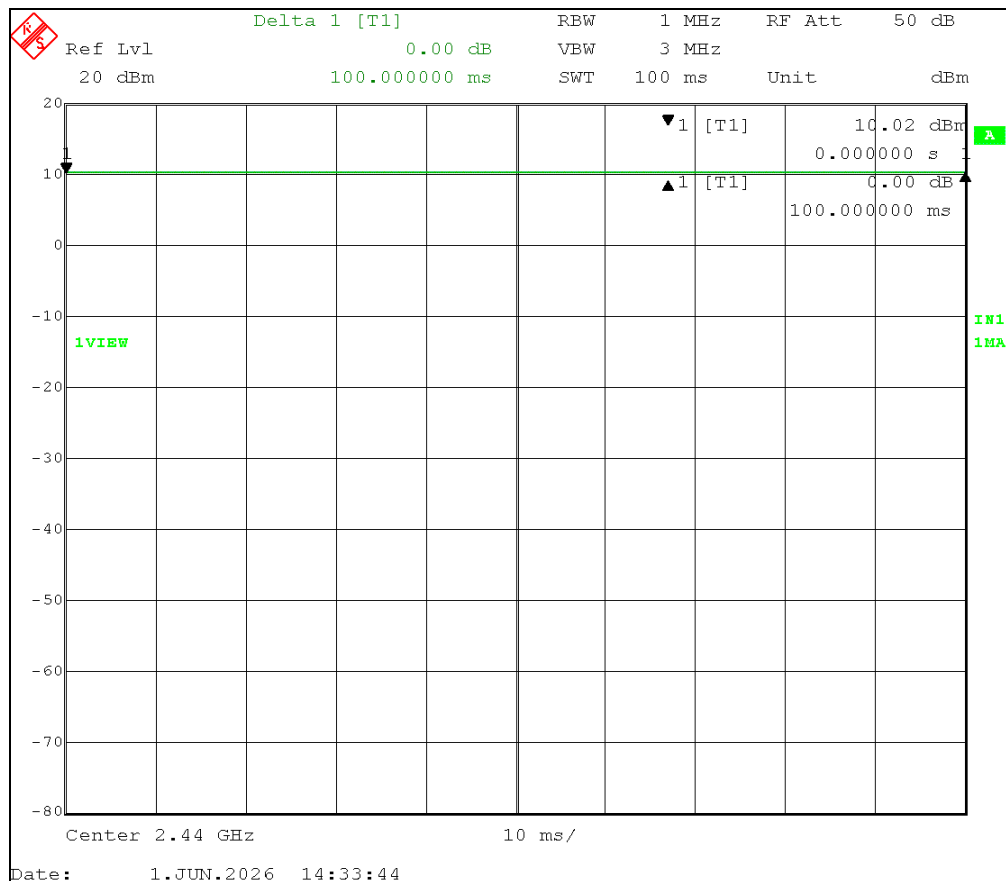
Spectrum Analyzer Settings

RBW	1	MHz
VBW	3	MHz
Span	Zero	MHz
Sweep Time	100	ms
Attenuation	50	dB
Reference Level	20	dBm



4.3.1 Duty Cycle Measurement Results Lutron Model C2P-R1BRL Rotary Controller Sample 2438-03 (06/01/2026)

BEC Incorporated tested the duty cycle of the BLE Radio from the Lutron Model C2P-R1BRL Rotary Controller. Transmission was set to maximum output at middle channel of 2440 MHz with GFSK modulation at 1 Mbps using the radio control test software. The Duty Cycle of the transmitter was measured to be 100% and no duty cycle correction factor was required to be calculated.





4.4 Antenna Conducted Spurious Emissions in Non-restricted Frequency Bands (FCC Section 15.247(d), RSS-247 Clause 6.1)

4.4.1 Antenna Conducted Spurious Emissions in Non-restricted Frequency Bands Test Procedure

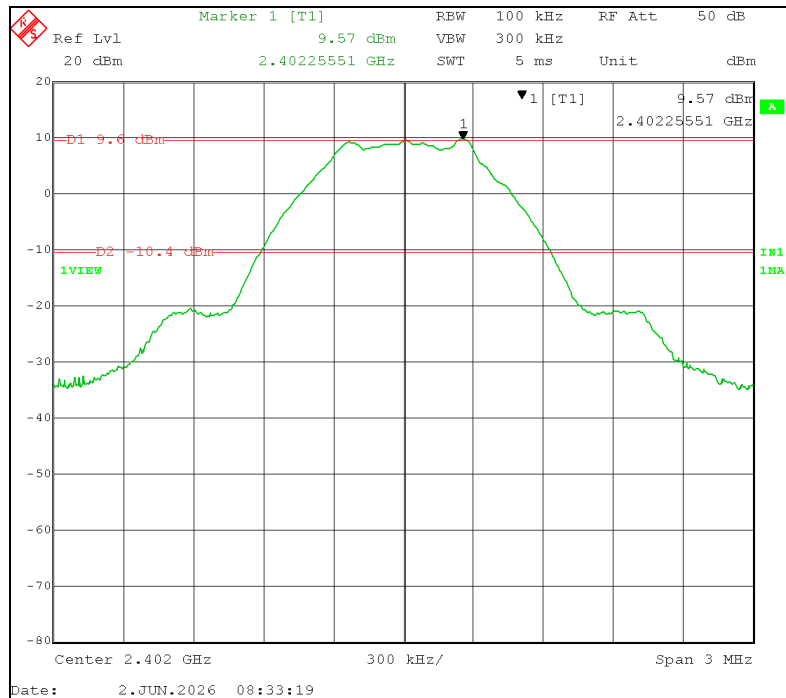
Measurements of the emissions in non-restricted frequency bands were made at the low Channel 37 (2402 MHz), middle Channel 17 (2440 MHz) and high Channel 39 (2480 MHz). The EUT was set to transmit a signal at maximum output power of + 10 dBm with GFSK modulation with a 1 Mbps data rate. The procedure for the test is ANSI C63.10, Section 11.11. The frequency spectrum from 30 MHz to 25 GHz was divided into separate bands: 30 - 500 MHz, 500 - 1000 MHz, 1 – 10 GHz and 10 - 15 GHz, 15- 20 GHz and 20 - 25 GHz. Each of the three fundamental test frequencies was measured for the reference value to determine the -20 dBc value.

Spectrum Analyzer Settings

Emission Level: BLE Radio, GFSK modulation			
Spectrum Analyzer Settings			ANSI C63.10 requirement
Span	Varies	-	Encompass spectrum divided into bands
RBW	100 kHz		47 CFR Part 15.247 (d)
VBW	300 kHz		$\geq 3 \times \text{RBW}$
Sweep	Varies		Auto



4.4.2 Antenna Conducted Spurious Emissions in Non-restricted Frequency Bands Reference Measurement 2402 MHz Lutron Model C2P-R1BRL Rotary Controller Sample 2438-03 (06/02/2026)

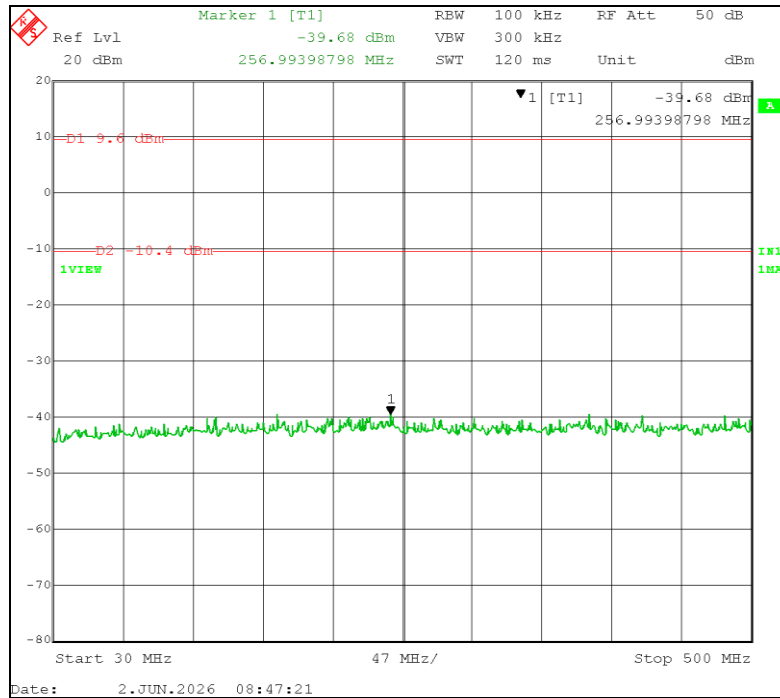


The peak level of 9.6 dBm is the maximum peak output of the Lutron Model C2P-R1BRL Rotary Controller. The conducted spurious emissions from the antenna port must be 20 dB down from this peak. The resultant limit is therefore -10.4 dBm and is displayed on the plots in this section for Channel 37 (2402 MHz).

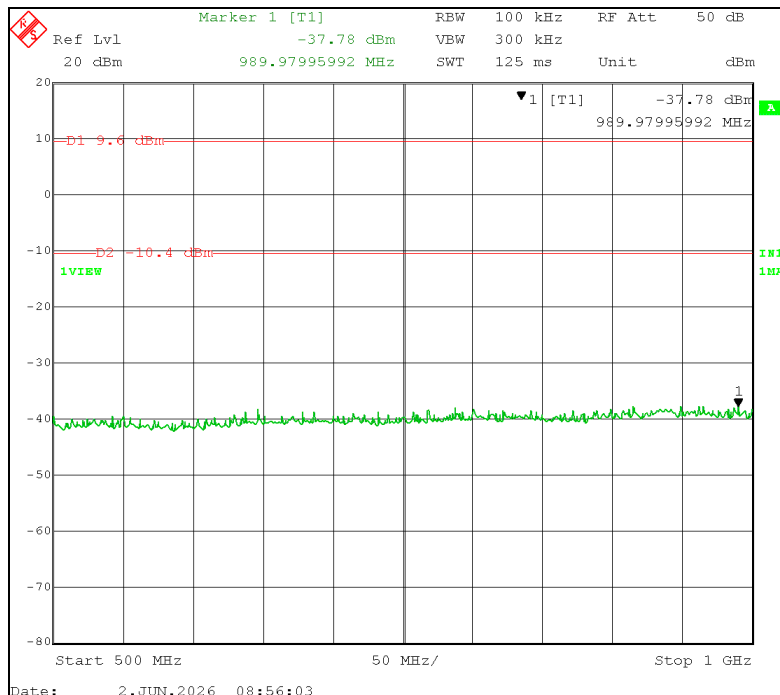


4.4.3 Antenna Conducted Spurious Emissions in Non-restricted Frequency Bands 2402 MHz Channel 37 Test Results

30 MHz – 500 MHz

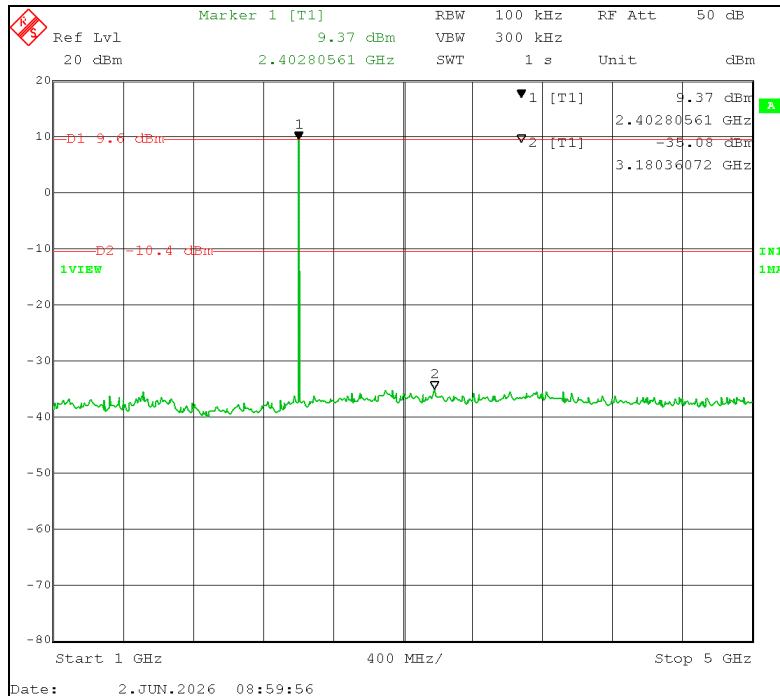


500 MHz – 1000 MHz

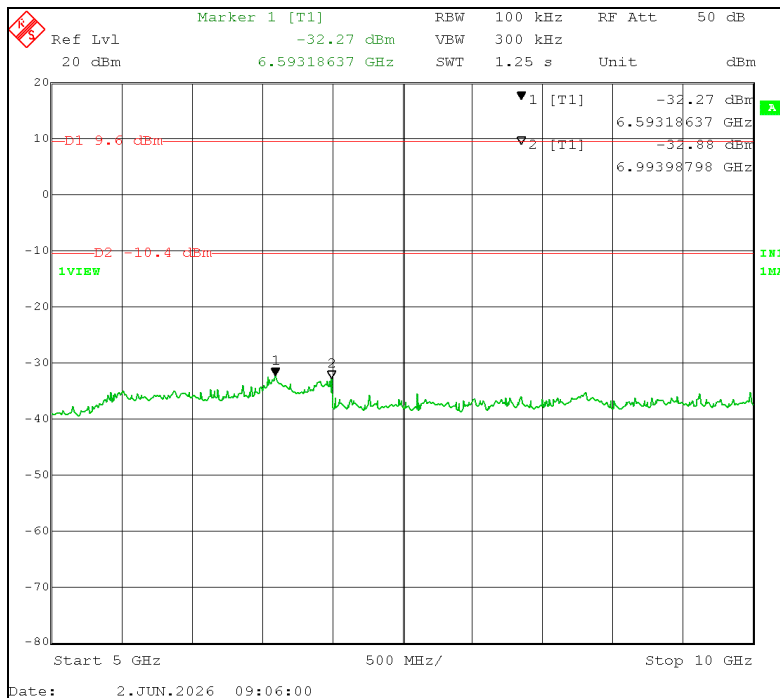




1 GHz – 5 GHz

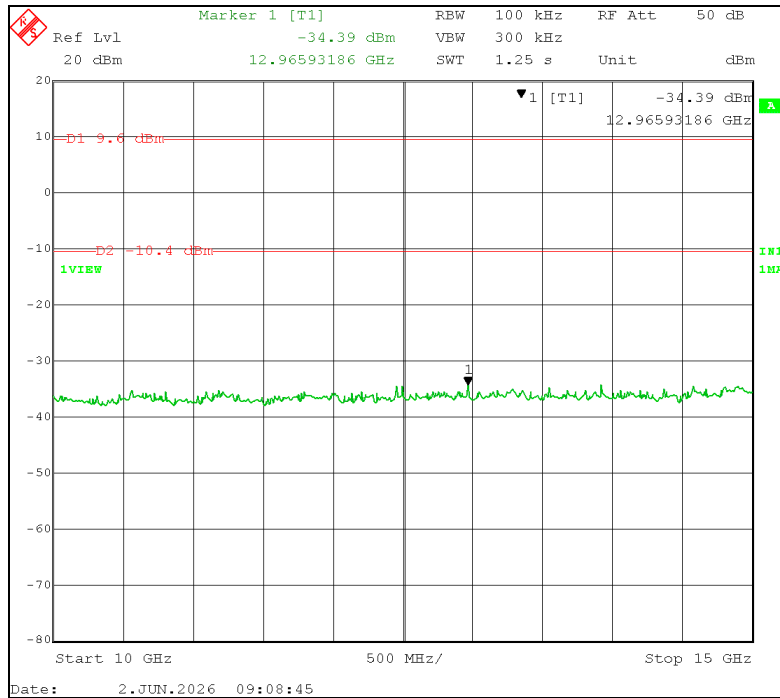


5 GHz – 10 GHz

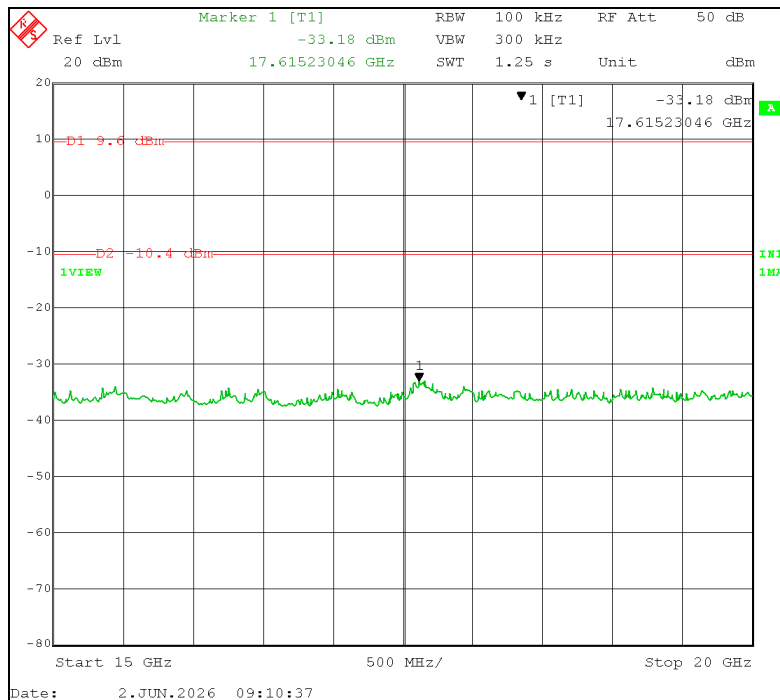




10 GHz – 15 GHz

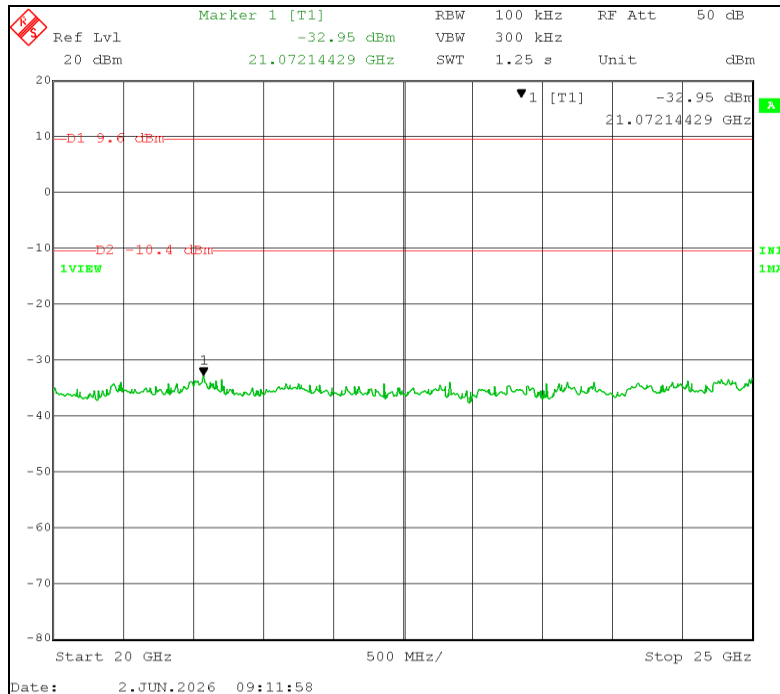


15 GHz – 20 GHz





20 GHz – 25 GHz

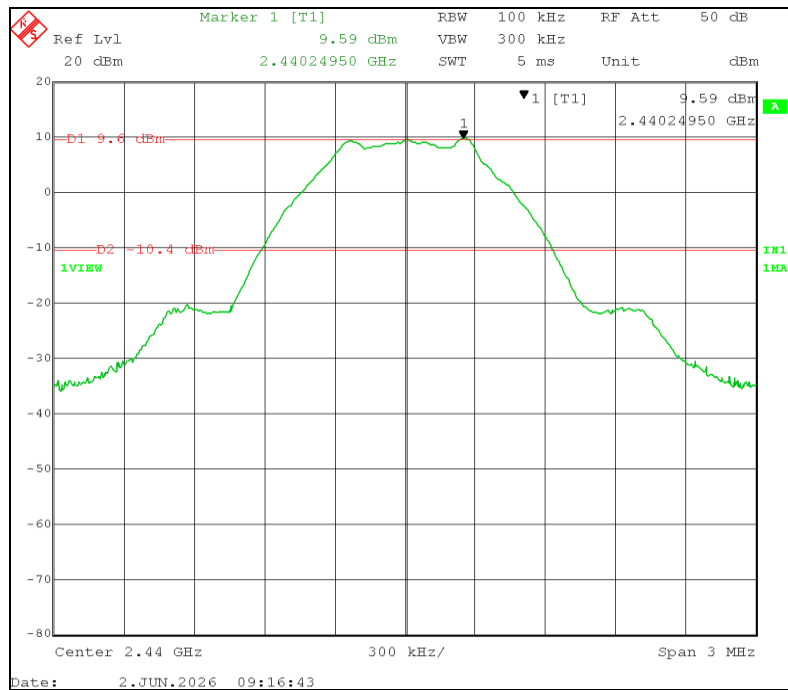


Test Results of Highest Emissions: Channel 37 (Frequency 2402.0 MHz)

Frequency	Peak	20 dB below Max Peak Reference	Margin	Result
MHz	dBm	dBc	dB	
6593.186	-32.27	-10.40	-21.87	PASS
6993.987	-32.88	-10.40	-22.48	PASS
21072.443	-32.95	-10.40	-22.55	PASS



4.4.4 Antenna Conducted Spurious Emissions in Non-restricted Frequency Bands Reference Measurement 2440 MHz Lutron Model C2P-R1BRL Rotary Controller Sample 2438-03 (06/02/2026)

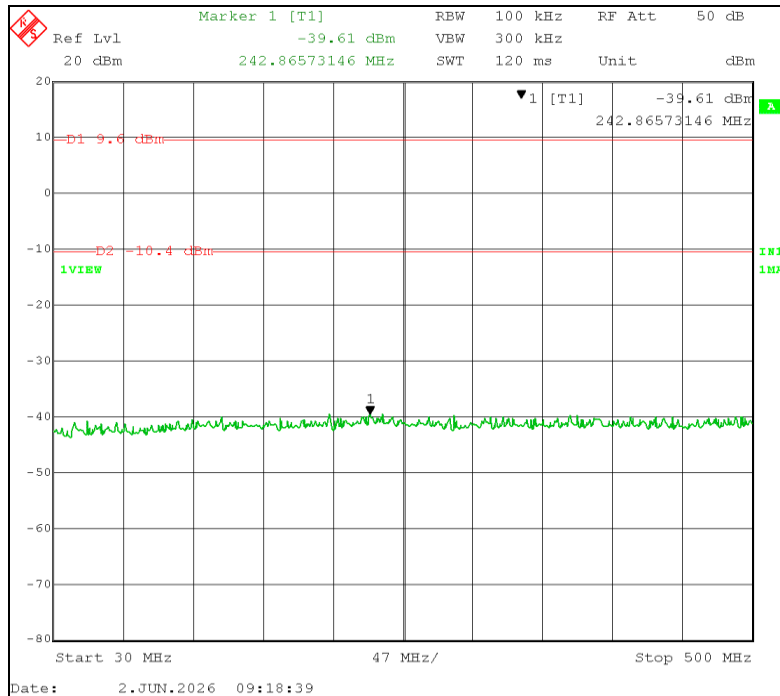


The peak level of 9.6 dBm is the maximum peak output of the Lutron Model C2P-R1BRL Rotary Controller. The conducted spurious emissions from the antenna port must be 20 dB down from this peak. The resultant limit is therefore -10.4 dBm and is displayed on the plots below.

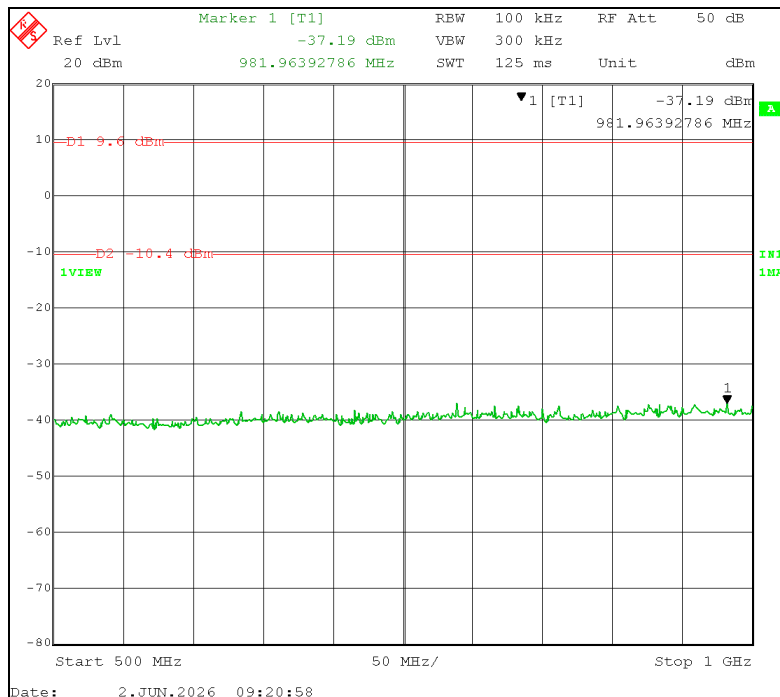


4.4.5 Antenna Conducted Spurious Emissions in Non-restricted Frequency Bands 2440 MHz Channel 17 Test Results

30 MHz – 500 MHz

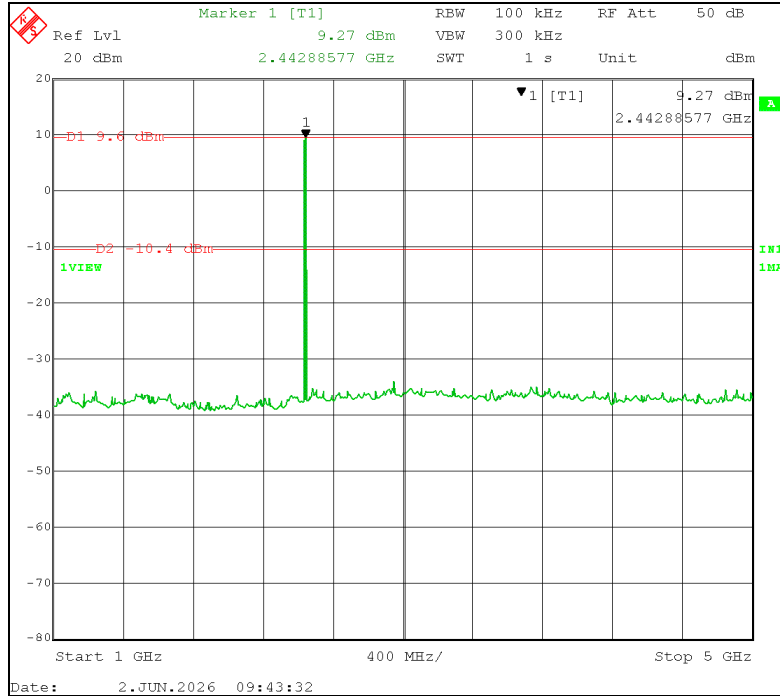


500 MHz – 1000 MHz

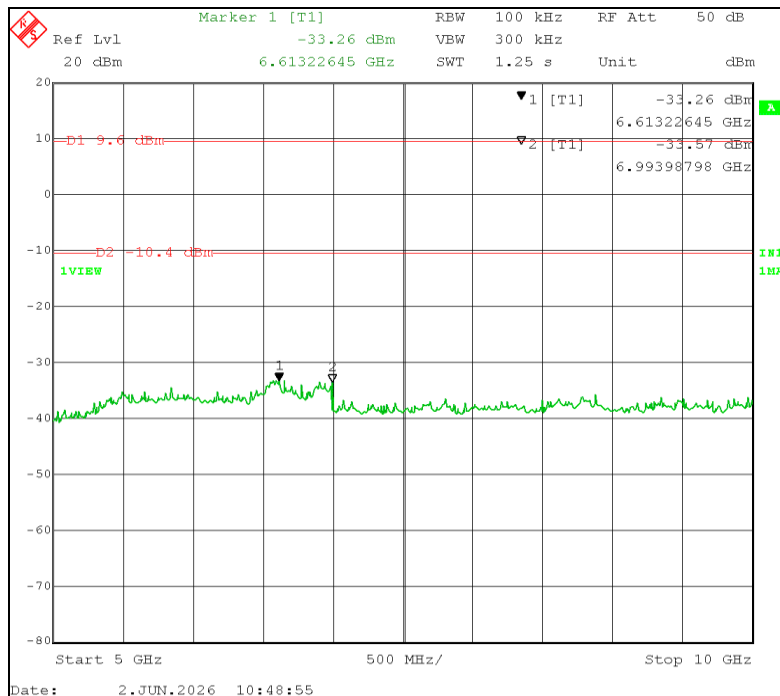




1 GHz – 5 GHz

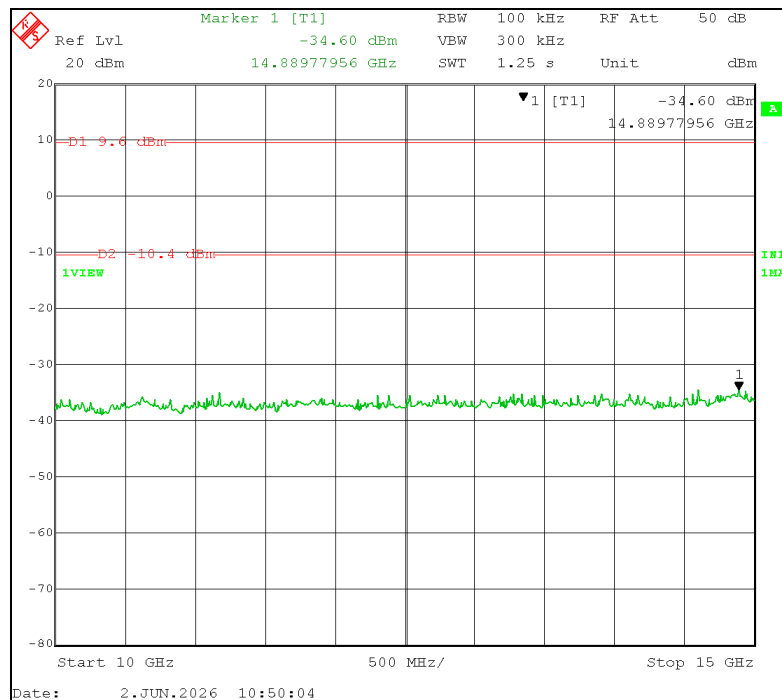


5 GHz – 10 GHz

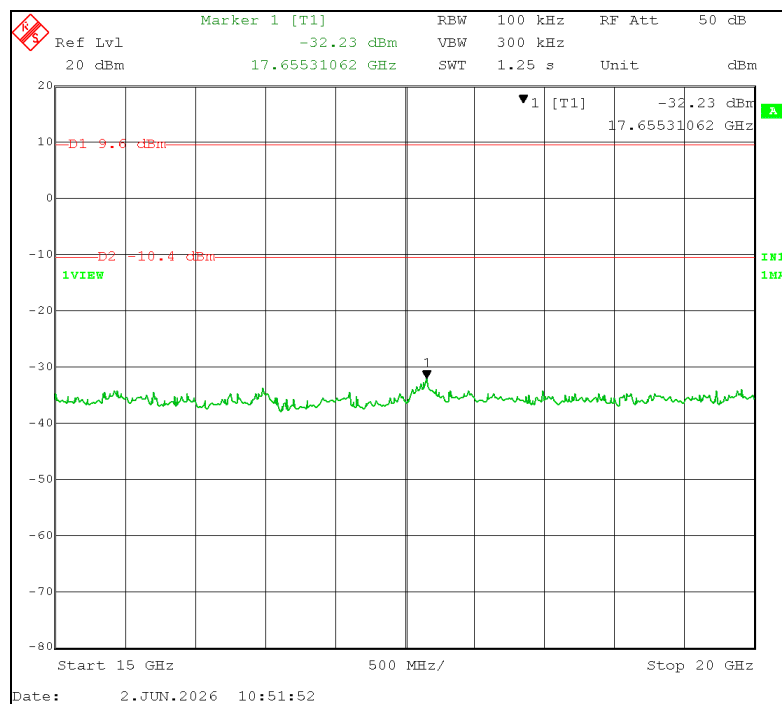




10 GHz – 15 GHz

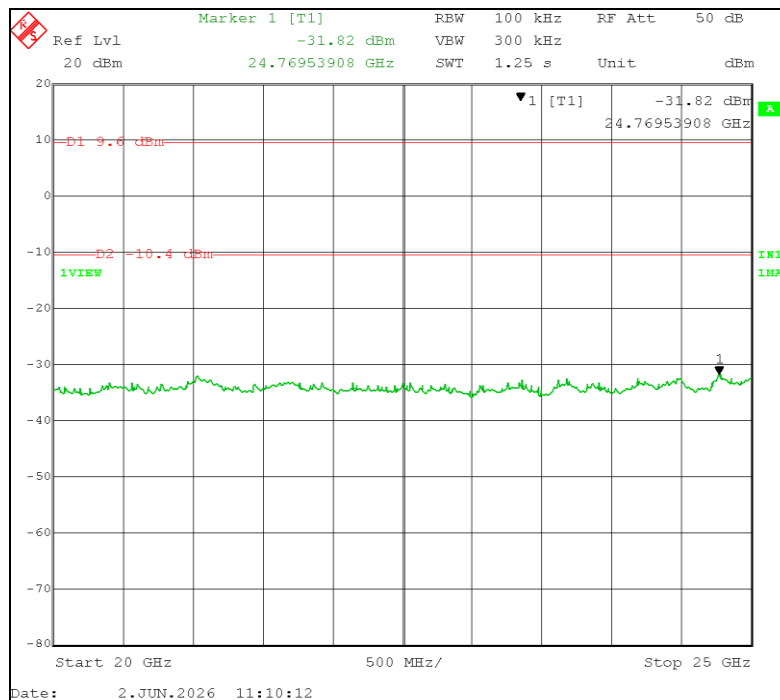


15 GHz – 20 GHz





20 GHz – 25 GHz

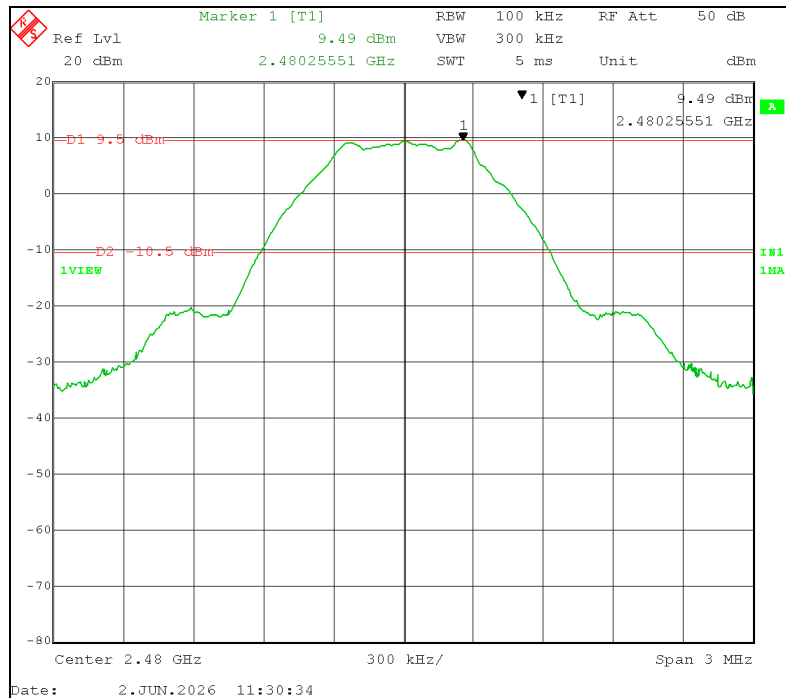


Test Results Table Highest Emissions: Channel 17 (2440.0 MHz)

Frequency	Peak	20 dB below Max Peak Reference	Margin	Result
MHz	dBm	dBc	dB	
6613.226	-33.26	-10.40	-22.86	PASS
6993.987	-33.57	-10.40	-23.17	PASS
24769.539	-31.82	-10.40	-21.42	PASS



4.4.6 Antenna Conducted Spurious Emissions in Non-restricted Frequency Bands Reference Measurement 2480 MHz Lutron Model C2P-R1BRL Rotary Controller Sample 2438-03 (06/02/2026)

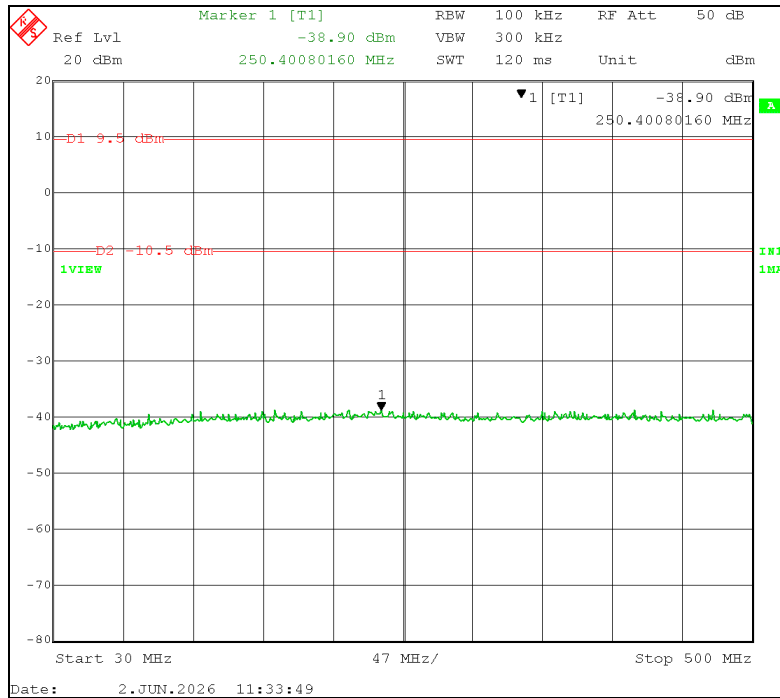


The peak level of 9.5 dBm is the maximum peak output of the Lutron Model C2P-R1BRL Rotary Controller. The conducted spurious emissions from the antenna port must be 20 dB down from this peak. The resultant limit is therefore -10.5 dBm and is displayed on the plots below.

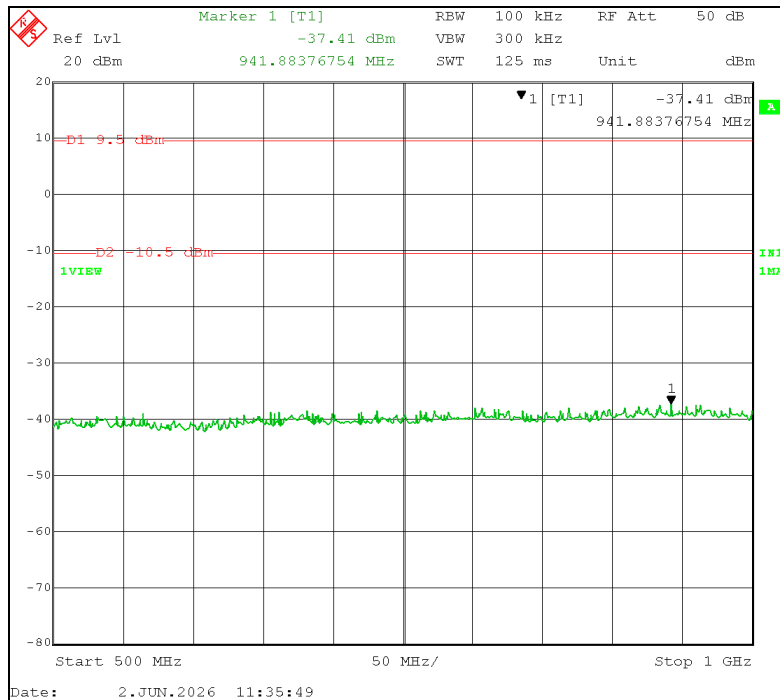


4.4.7 Antenna Conducted Spurious Emissions in Non-restricted Frequency Bands 2480 MHz Channel 39 Test Results

30 MHz – 500 MHz

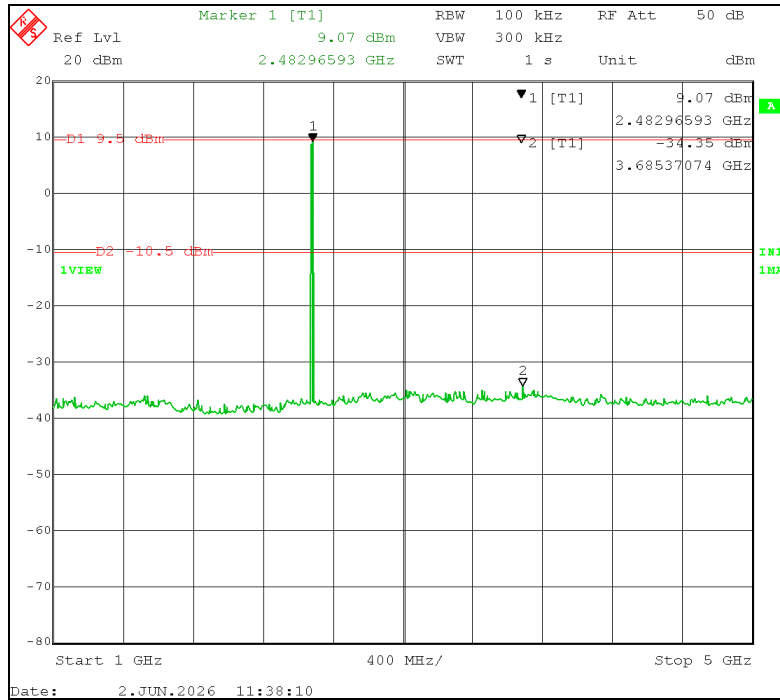


500 MHz – 1000 MHz

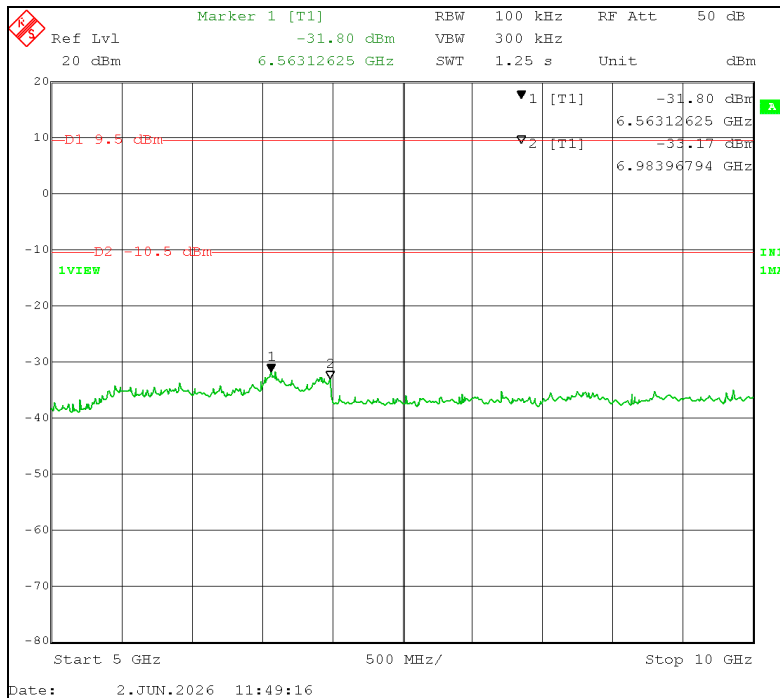




1 GHz – 5 GHz

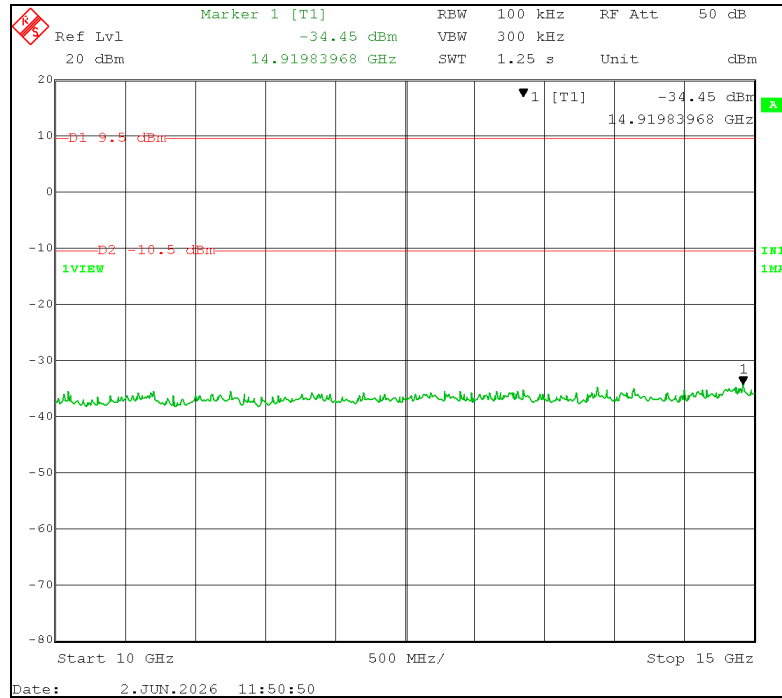


5 GHz – 10 GHz

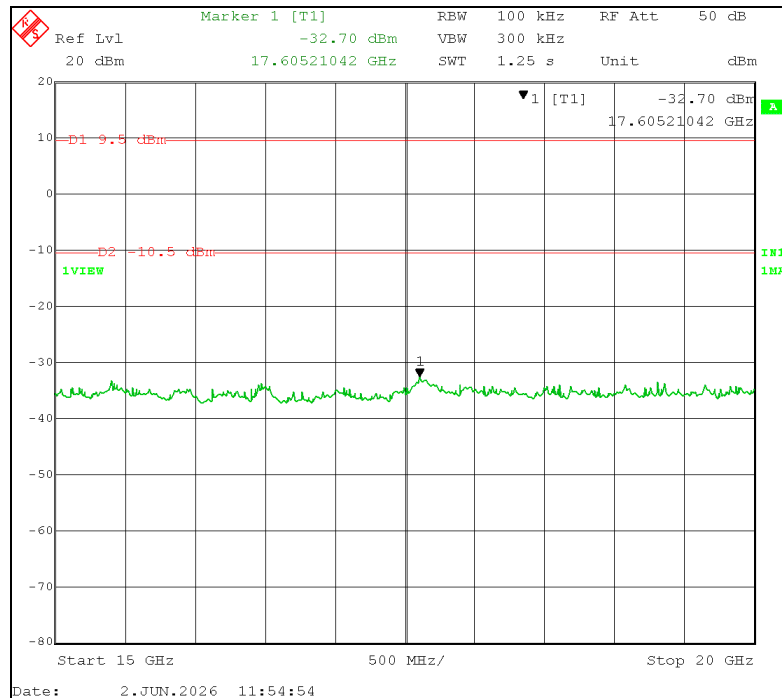




10 GHz – 15 GHz

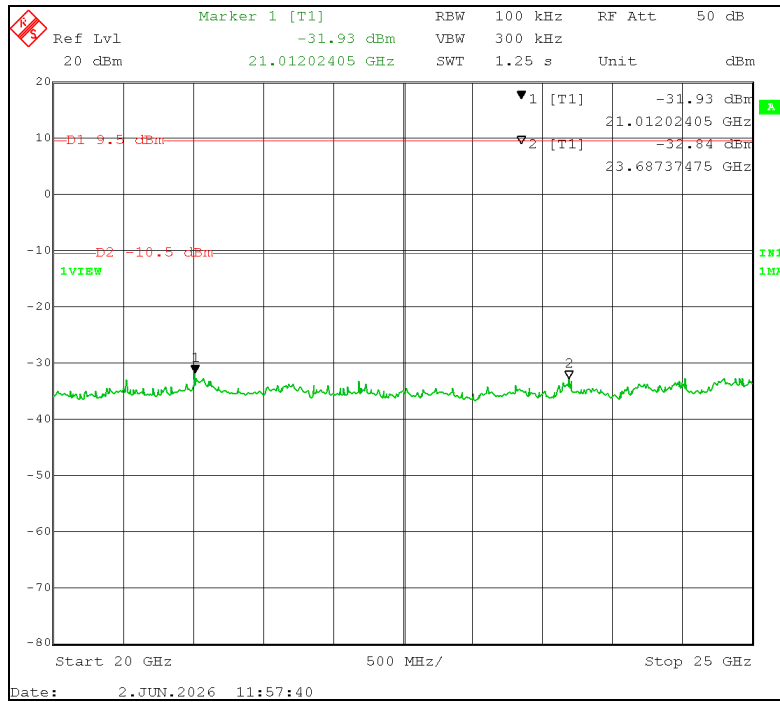


15 GHz – 20 GHz





20 GHz – 25 GHz



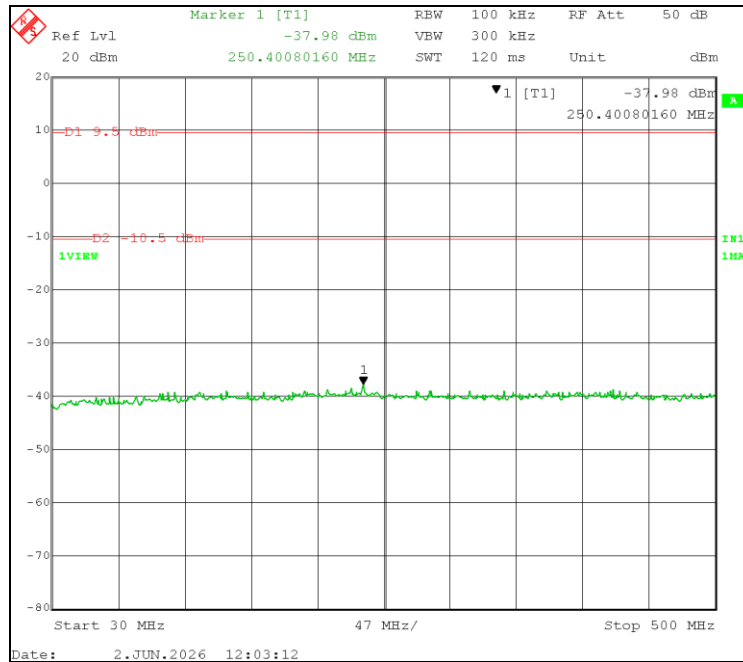
Test Results of Highest Emissions: Channel 39 (Frequency 2480.0 MHz)

Frequency	Peak	20 dB below Max Peak Reference	Margin	Result
MHz	dBm	dBc	dB	
6563.126	-31.80	-10.50	-21.30	PASS
6983.968	-33.17	-10.50	-22.67	PASS
17605.210	-32.70	-10.50	-22.20	PASS

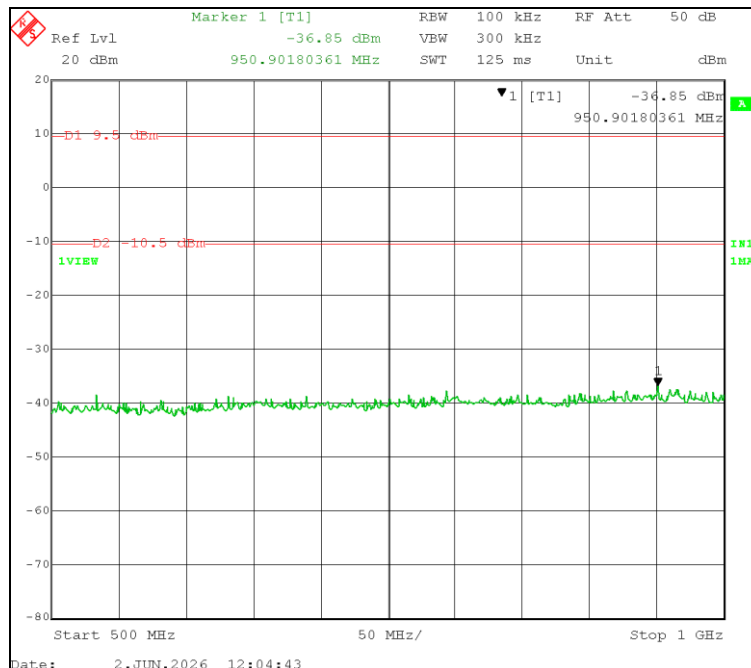


4.4.8 Antenna Conducted Spurious Emissions in Non-restricted Frequency Bands Rx Mode Test Results Lutron Model C2P-R1BRL Rotary Controller Sample 2438-03 (06/02/2026)

30 MHz – 500 MHz

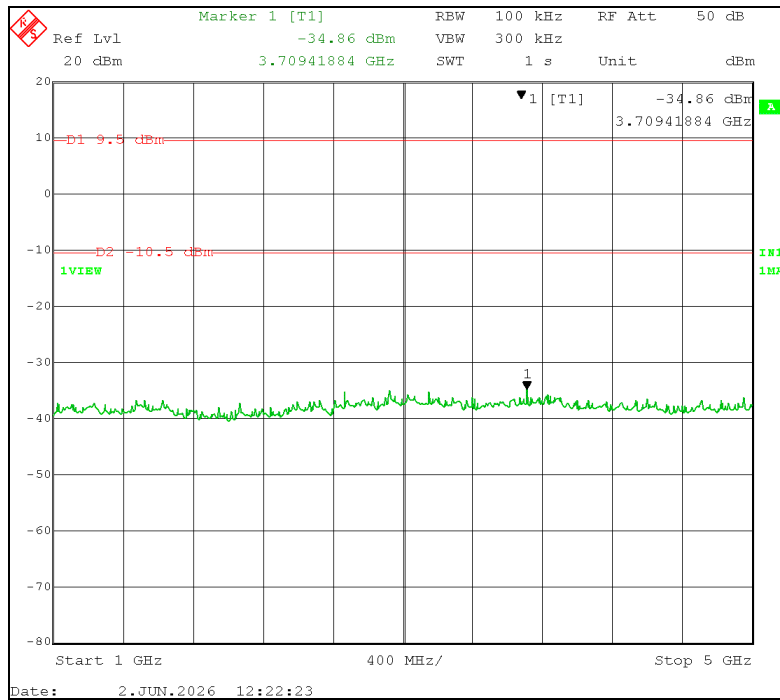


500 MHz – 1000 MHz

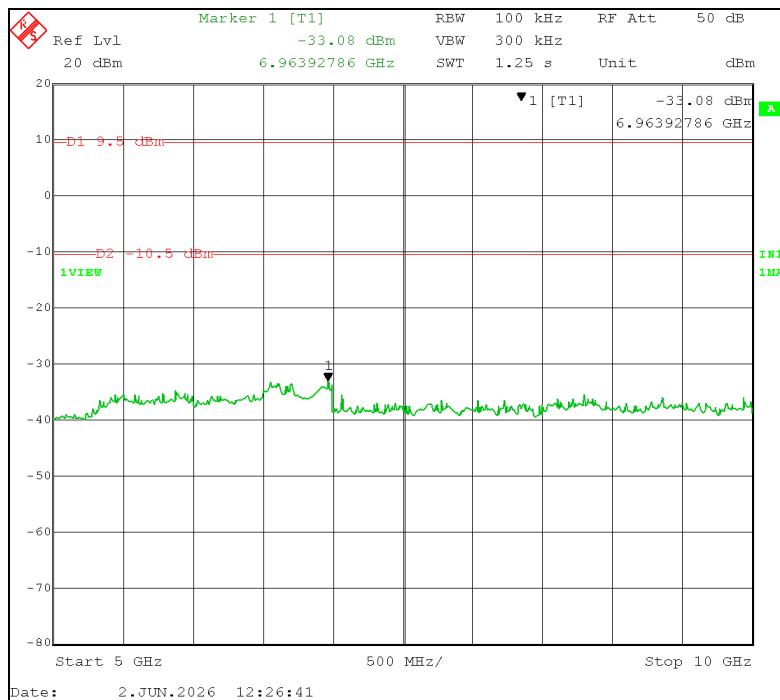




1 GHz – 5 GHz

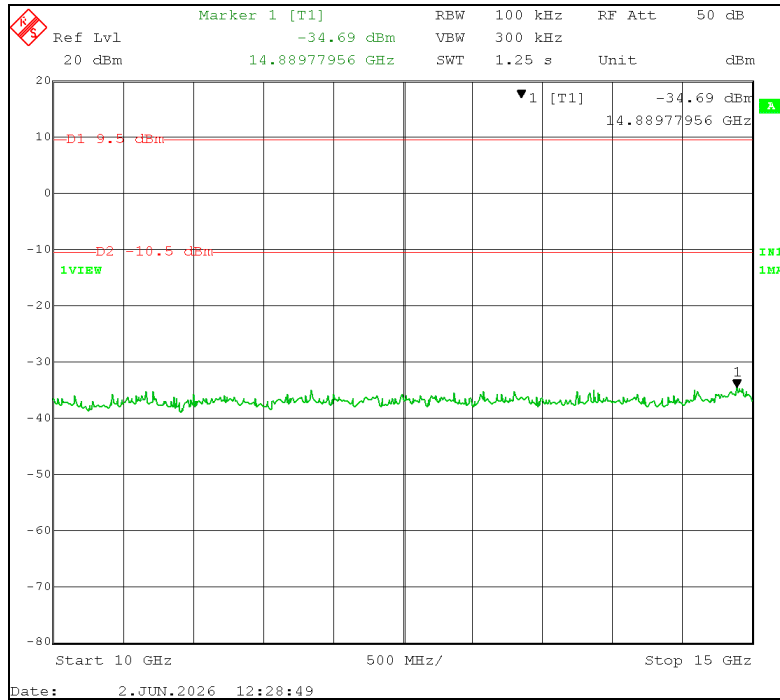


5 GHz – 10 GHz

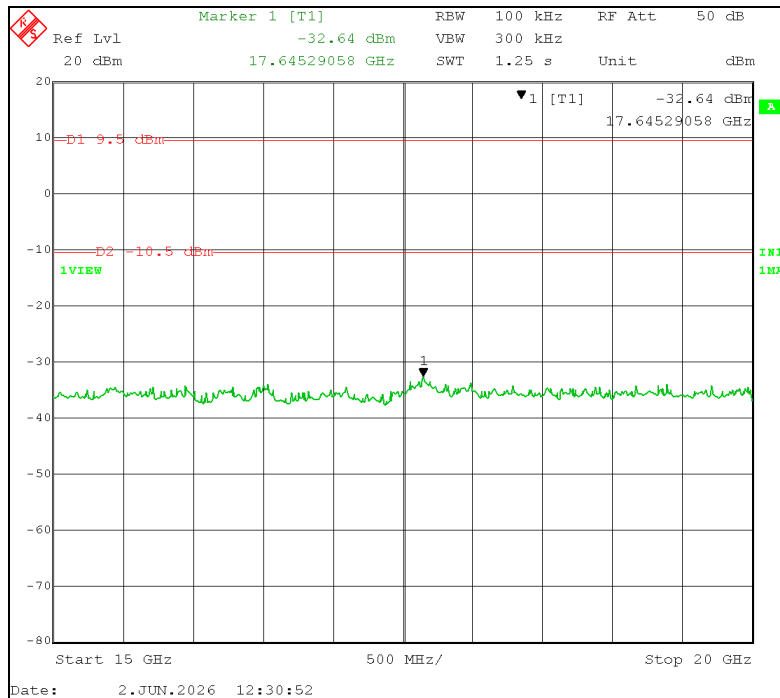




10 GHz – 15 GHz

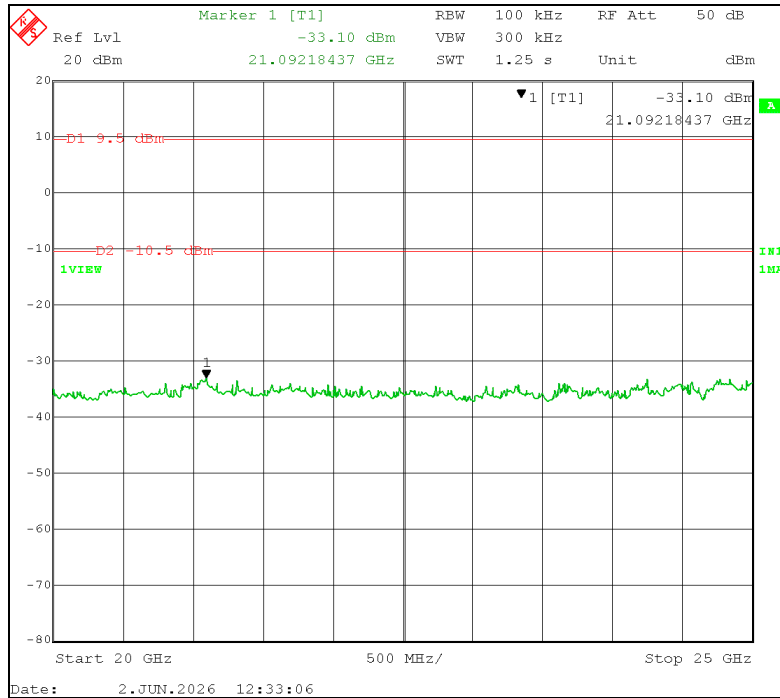


15 GHz – 20 GHz





20 GHz – 25 GHz



Frequency	Peak	20 dB below Max Peak Reference	Margin	Result
MHz	dBm	dBc	dB	
6963.927	-33.08	-10.50	-22.58	PASS
14889.779	-34.69	-10.50	-24.19	PASS
17645.291	-32.64	-10.50	-22.14	PASS

Test Results: The Antenna Conducted Spurious Emissions of the Lutron Model C2P-R1BRL Rotary Controller, at Low, Middle and High Frequencies, are below the carrier 20 dBc limit and therefore compliant with the limits specified in FCC Section 15.247(d).



4.5 Radiated Spurious Emissions in Non-restricted and Restricted Frequency Bands, 30 MHz – 25 GHz (47 CFR 15.205 & 15.209)(RSS-GEN Clause 8.9 & 8.10)

The emissions from the Lutron Model C2P-R1BRL Rotary Controller, which fall in the restricted bands of operation and unrestricted bands of operation, detailed in this section, comply with the limits of 15.209. The Lutron Model C2P-R1BRL Rotary Controller was tested at the low Channel 37 (2402 MHz), middle Channel 17 (2440 MHz) and high Channel 39 (2480 MHz) for 1 Mbps. The EUT was set to transmit a signal at maximum output power (setting of +10 dBm) with GFSK modulation. The EUT was also tested in the Rx Mode.

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 indicated in the tables below.

4.5.1 Non-Restricted and Restricted Bands 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 meter 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 requirements of ANSI C63.4 and ANSI C63.10.

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. The 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.

The chamber complies with the requirements of ANSI C63.4 and ANSI C63.10.



4.5.2 Non-restricted and Restricted Bands Radiated Spurious Emissions 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 EUT was evaluated for maximum emissions. The position of the EUT with the front side of the controller installed on the Light Switch Fixture Front facing the measurement antenna was determined to be the axis that produced the highest emissions (X Axis), therefore all of the radiated emissions testing was performed with the EUTs in this position.

Measurements were taken using the Lutron Model C2P-R1BRL Radiated Sample 2438-04. The Lutron Model C2P-R1BRL Rotary Controller was tested at the low Channel 37 (2402 MHz), middle Channel 17 (2440 MHz) and high Channel 39 (2480 MHz) for 1 Mbps. The EUT was set to transmit a signal at maximum output power (setting of +10 dBm) with GFSK modulation. 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.

Field strengths were calculated as follows:

Field Strength (dBμV/m) = Meter Reading (dBμV) + Antenna Factor (dB/m) + Cable Loss (dB) – Amplifier Gain (dB)

The following tables are the highest emissions recorded and summarized. Restricted band signals are marked with an asterisk. Other spurious emissions are shown to demonstrate compliance of the EUT to 15.209 limits.

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
*0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

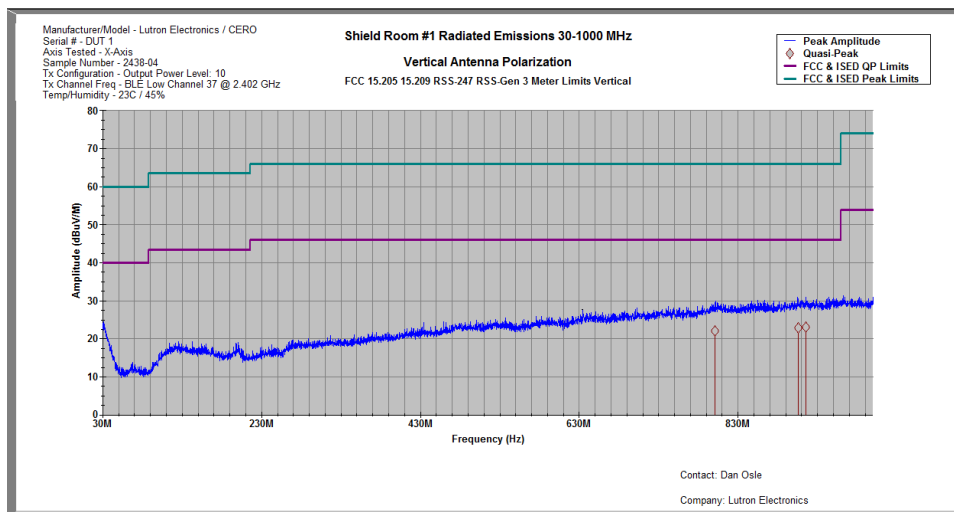
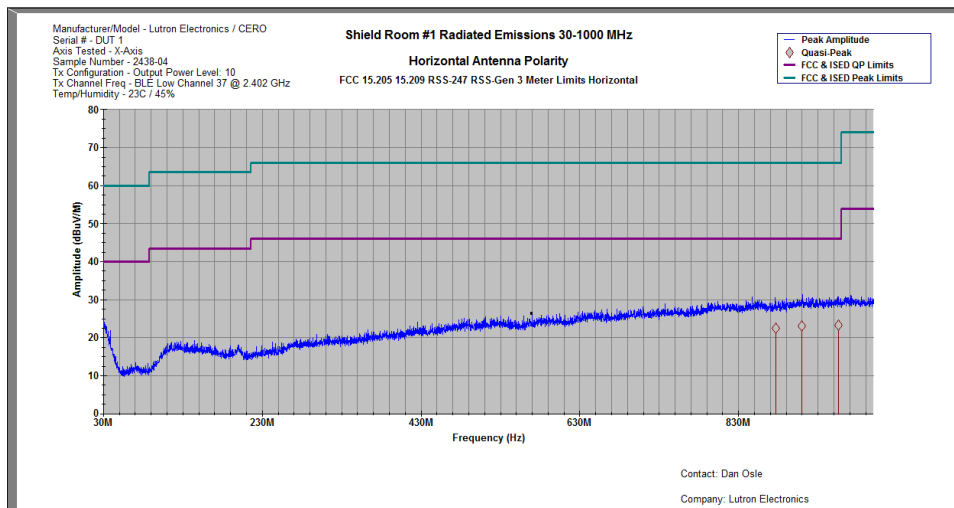


4.5.3 Radiated Spurious Emissions in Non-restricted and Restricted Bands of Operation, 30 MHz – 1000 MHz Test Results Lutron Model C2P-R1BRL Rotary Controller Sample 2438-04 (06/03/2026)

Low Channel 37 (2402 MHz)

Frequency	Corrected		Antenna Polarity	Turntable Angle	Antenna Height	Correction Factor	FCC Part15.205/209 RSS-GEN/247		FCC Part15.205/209 RSS-GEN/247		Result
	Peak Level	QP Level					Peak Limit	Peak Margin	QP Limit	QP Margin	
MHz	dBuV/m	dBuV/m	H/V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
876.607	25.35	22.45	H	185	136	3.61	66.02	-40.67	46.02	-23.57	Pass
910.054	24.42	23.15	H	201	208	4.14	66.02	-41.60	46.02	-22.87	Pass
955.948	23.32	23.37	H	250	171	4.60	66.02	-42.70	46.02	-22.65	Pass
801.001	22.01	22.05	V	014	152	2.92	66.02	-44.01	46.02	-23.97	Pass
906.166	25.68	22.96	V	250	163	4.13	66.02	-40.34	46.02	-23.06	Pass
915.619	27.43	23.02	V	209	127	4.21	66.02	-38.59	46.02	-23.00	Pass

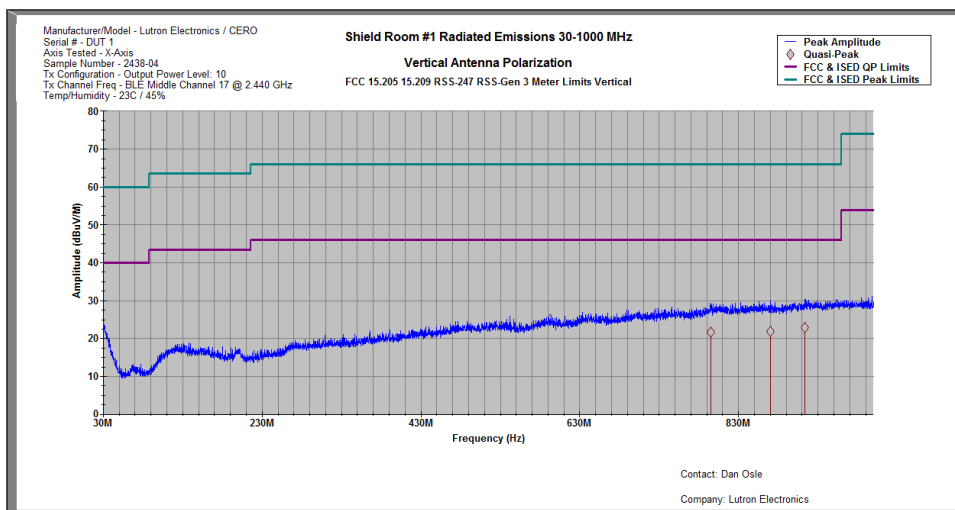
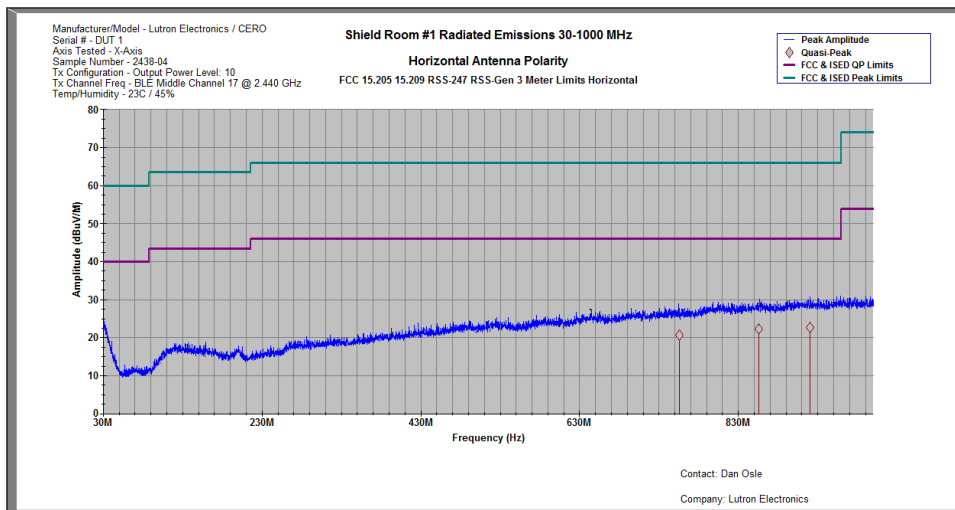
* Restricted Band Signal (No Restricted Band Signals Measured)





Middle Channel 18 (2440 MHz)

Frequency	Corrected		Antenna Polarity	Turntable Angle	Antenna Height	Correction Factor	FCC Part15.205/209 RSS-GEN/247		FCC Part15.205/209 RSS-GEN/247		Result
	Peak Level	QP Level					Peak Limit	Peak Margin	QP Limit	QP Margin	
MHz	dBuV/m	dBuV/m	H/V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
755.309	23.20	20.58	H	230	242	1.81	66.02	-42.82	46.02	-25.44	Pass
856.133	24.46	22.19	H	040	111	3.45	66.02	-41.56	46.02	-23.83	Pass
919.896	25.00	22.75	H	017	163	4.19	66.02	-41.02	46.02	-23.27	Pass
795.377	21.82	21.63	V	203	157	2.80	66.02	-44.20	46.02	-24.39	Pass
870.565	23.98	21.96	V	311	214	3.47	66.02	-42.04	46.02	-24.06	Pass
913.350	25.74	22.79	V	231	105	4.19	66.02	-40.28	46.02	-23.23	Pass
* Restricted Band Signal (No Restricted Band Signals Measured)											

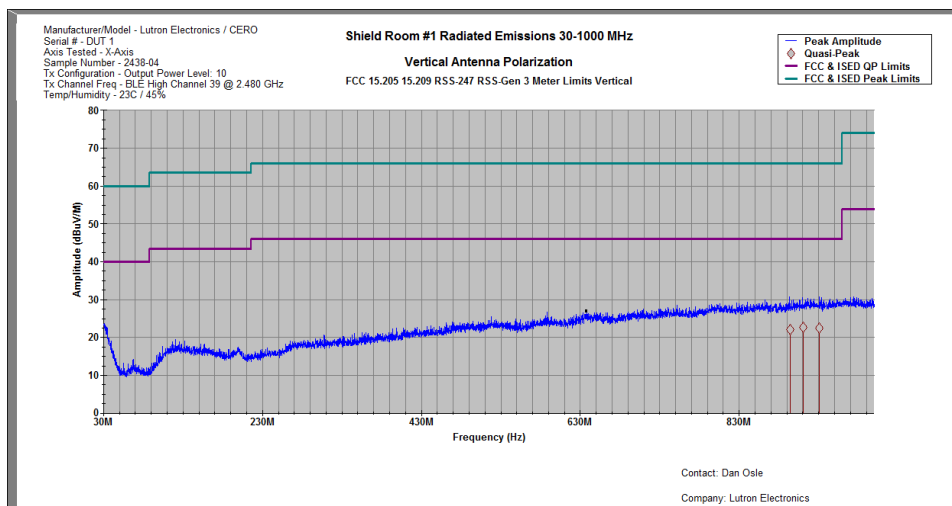
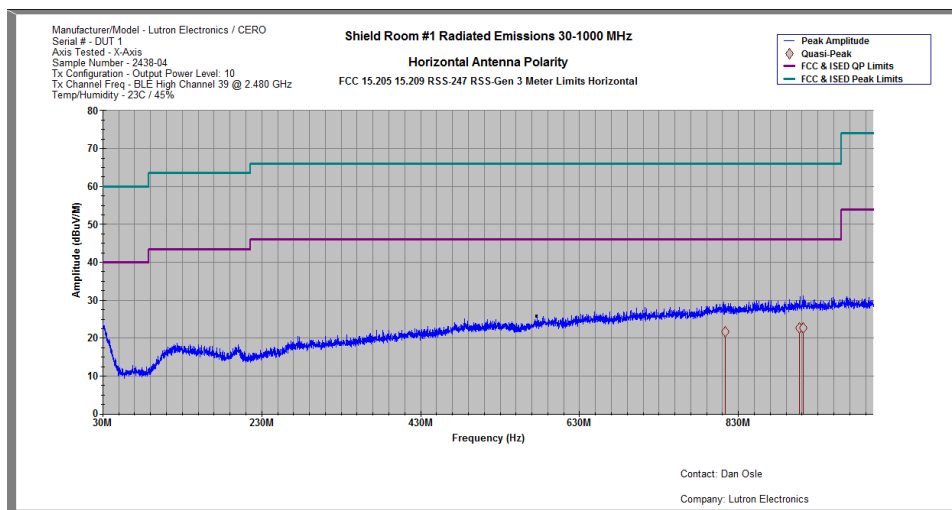




High Channel 26 (2480 MHz)

Frequency	Corrected		Antenna Polarity	Turntable Angle	Antenna Height	Correction Factor	FCC Part15.205/209 RSS-GEN/247		FCC Part15.205/209 RSS-GEN/247		Result
	Peak Level	QP Level					Peak Limit	Peak Margin	QP Limit	QP Margin	
MHz	dBuV/m	dBuV/m	H/V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
812.948	24.64	21.69	H	101	208	3.11	66.02	-41.38	46.02	-24.33	Pass
906.701	23.83	22.70	H	156	101	4.13	66.02	-42.19	46.02	-23.32	Pass
911.339	25.89	22.69	H	339	146	4.14	66.02	-40.13	46.02	-23.33	Pass
894.672	23.74	22.07	V	048	148	3.87	66.02	-42.28	46.02	-23.95	Pass
910.257	22.00	22.62	V	184	222	4.14	66.02	-44.02	46.02	-23.40	Pass
930.995	25.45	22.53	V	221	147	4.39	66.02	-40.57	46.02	-23.49	Pass

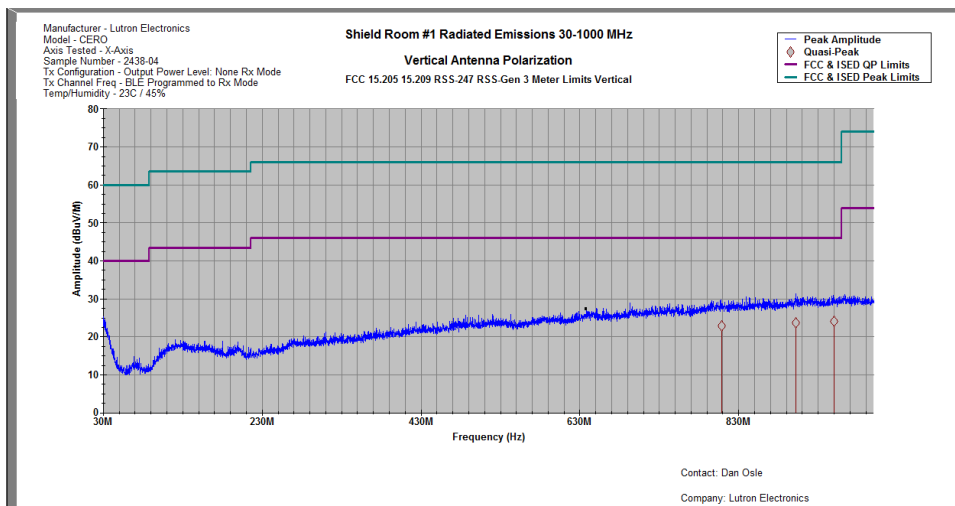
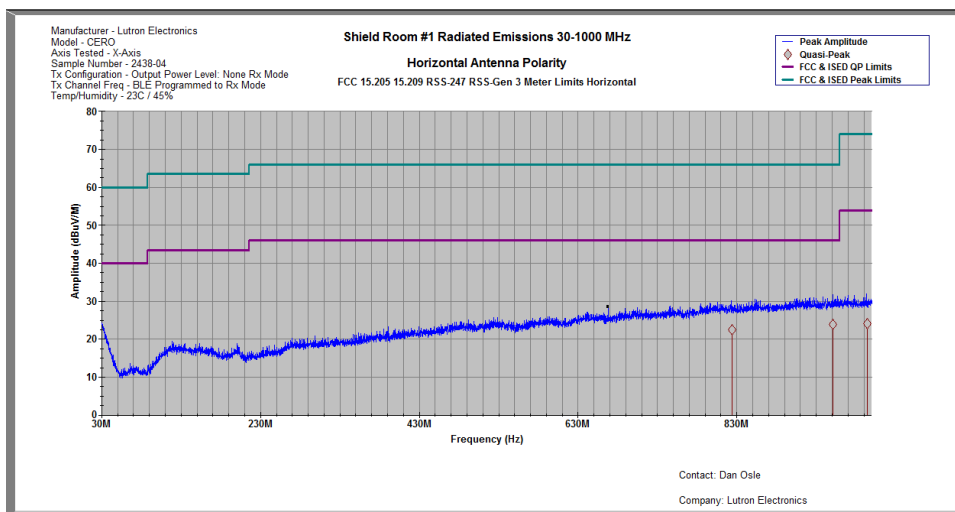
* Restricted Band Signal (No Restricted Band Signals Measured)





Receive Mode

Frequency	Corrected		Antenna Polarity	Turntable Angle	Antenna Height	Correction Factor	FCC Part15.205/209 RSS-GEN/247		FCC Part15.205/209 RSS-GEN/247		Result
	Peak Level	QP Level					Peak Limit	Peak Margin	QP Limit	QP Margin	
MHz	dBuV/m	dBuV/m	H/V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
824.233	24.53	22.55	H	130	156	3.11	66.02	-41.49	46.02	-23.47	Pass
951.377	25.93	23.85	H	277	120	4.57	66.02	-40.09	46.02	-22.17	Pass
* 994.182	26.72	23.99	H	298	255	4.94	73.98	-47.26	53.98	-29.99	Pass
808.521	26.23	22.88	V	046	252	3.06	66.02	-39.79	46.02	-23.14	Pass
901.952	25.05	23.57	V	035	209	4.00	66.02	-40.97	46.02	-22.45	Pass
950.080	24.67	24.02	V	046	153	4.64	66.02	-41.35	46.02	-22.00	Pass
*Restricted Band Signal											



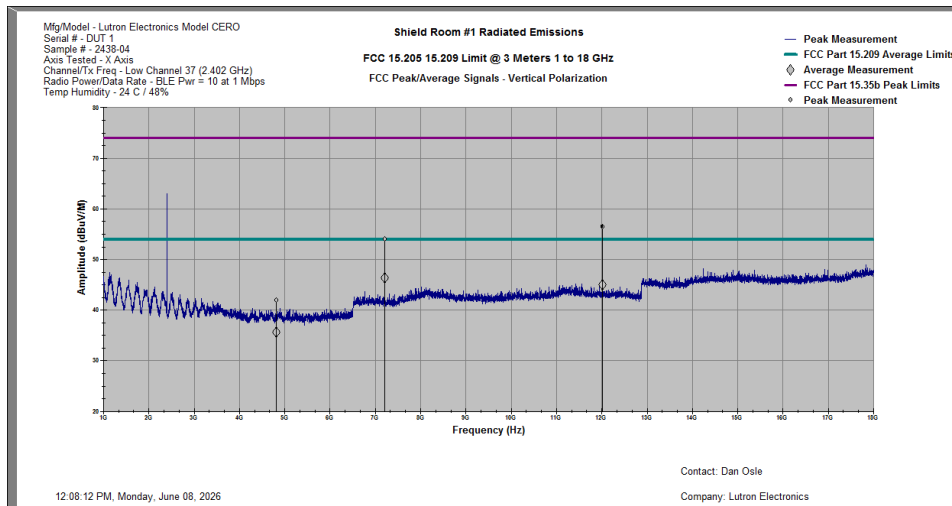
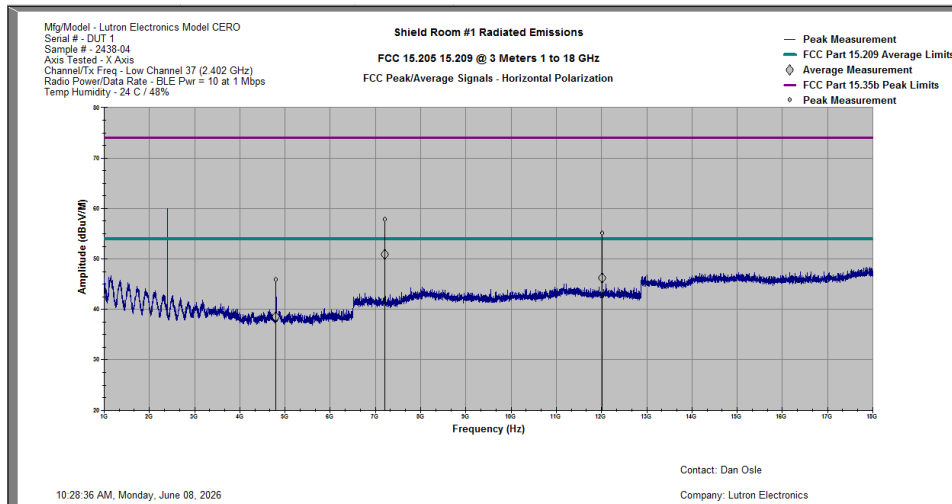
Test Results: The Lutron Model C2P-R1BRL Rotary Controller Sample 2438-04 operating in DTS mode and receive mode, comply with the requirements of 47 CFR Part 15.205 and RSS-Gen Section 8.10 for restricted bands of operation with a margin of 22.00 dB.



4.5.4 Radiated Spurious Emissions in Non-Restricted and Restricted Bands of Operation, 1 GHz – 18 GHz Test Results Lutron Model C2P-R1BRL Rotary Controller Sample 2438-04 (06/04/2026 and 06/08/2026)

Low Channel 37 (2402 MHz)

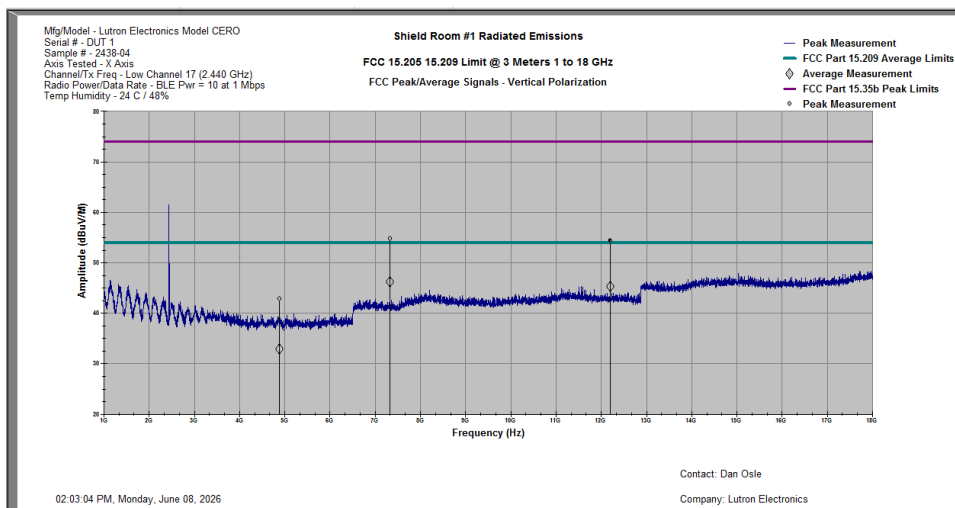
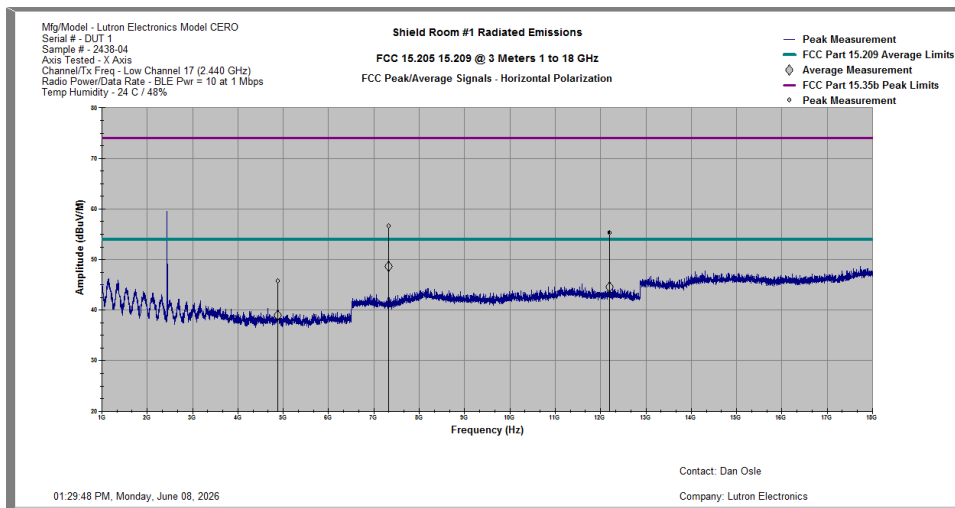
Frequency	Peak Corrected	Average Corrected	Antenna Polarity	Turntable Angle	Antenna Height	Antenna/Cable/ Amplifier CF	FCC 15.205/209: RSS-GEN/RSS-247 Average Limit	FCC 15.205/209: RSS-GEN/RSS-247 Average Margin	FCC 15.205/209: RSS-GEN/RSS-247 Peak Limit	FCC 15.205/209: RSS-GEN/RSS-247 Peak Margin	Result
GHz	dBuV/m	dBuV/m	H/V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
* 4.80354	45.95	38.53	H	040	172	3.48	53.98	-15.45	73.98	-28.03	PASS
7.205	57.86	50.90	H	039	110	6.14	53.98	-3.08	73.98	-16.12	PASS
* 12.0088	55.11	46.14	H	051	114	9.19	53.98	-7.84	73.98	-18.87	PASS
* 4.80471	42.07	35.68	V	345	186	3.49	53.98	-18.30	73.98	-31.91	PASS
7.205	54.09	46.30	V	325	125	6.14	53.98	-7.68	73.98	-19.89	PASS
* 12.0112	56.46	45.00	V	057	104	9.19	53.98	-8.98	73.98	-17.52	PASS
*Restricted Band Signal											





Middle Channel 17 (2440 MHz)

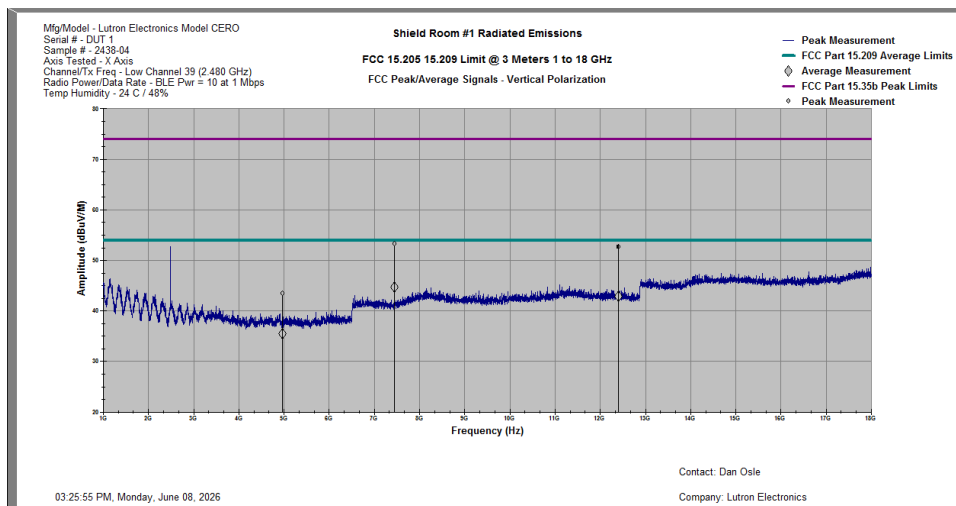
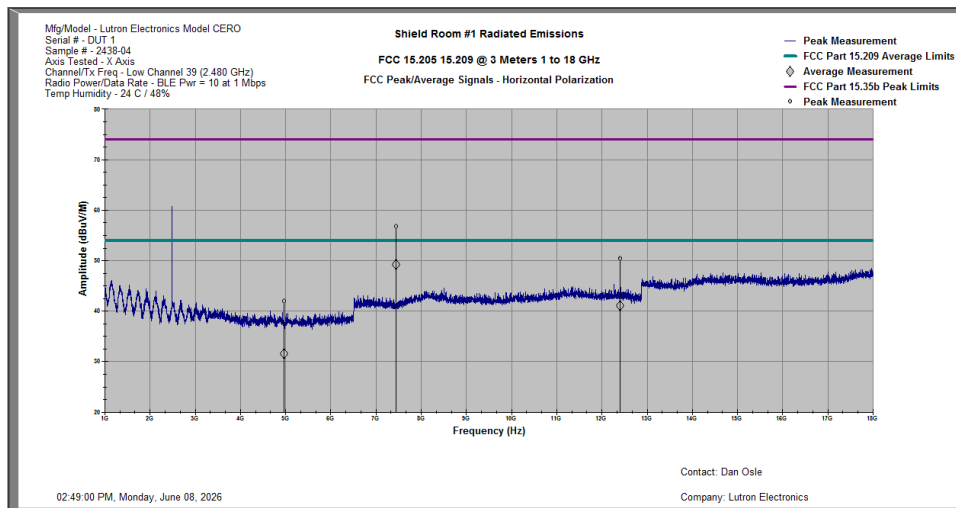
Frequency	Peak Corrected	Average Corrected	Antenna Polarity	Turntable Angle	Antenna Height	Antenna/Cable/ Amplifier CF	FCC 15.205/209: RSS-GEN/RSS-247 Average Limit	FCC 15.205/209: RSS-GEN/RSS-247 Average Margin	FCC 15.205/209: RSS-GEN/RSS-247 Peak Limit	FCC 15.205/209: RSS-GEN/RSS-247 Peak Margin	Result
GHz	dBuV/m	dBuV/m	H/V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
* 4.87978	45.71	38.99	H	044	173	3.72	53.98	-14.99	73.98	-28.27	PASS
* 7.3192	56.64	48.60	H	001	203	6.32	53.98	-5.38	73.98	-17.34	PASS
* 12.2012	55.33	44.55	H	062	126	9.05	53.98	-9.43	73.98	-18.65	PASS
* 4.87963	42.87	32.93	V	010	101	3.72	53.98	-21.05	73.98	-31.11	PASS
* 7.32069	54.86	46.18	V	337	105	6.32	53.98	-7.80	73.98	-19.12	PASS
* 12.2013	54.33	45.26	V	358	202	9.05	53.98	-8.72	73.98	-19.65	PASS
*Restricted Band Signal											





High Channel 39 (2480 MHz)

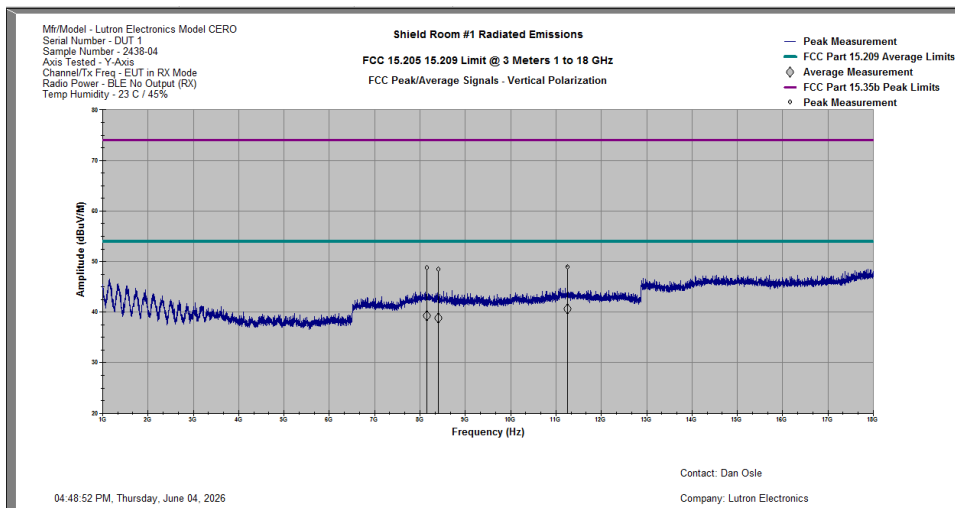
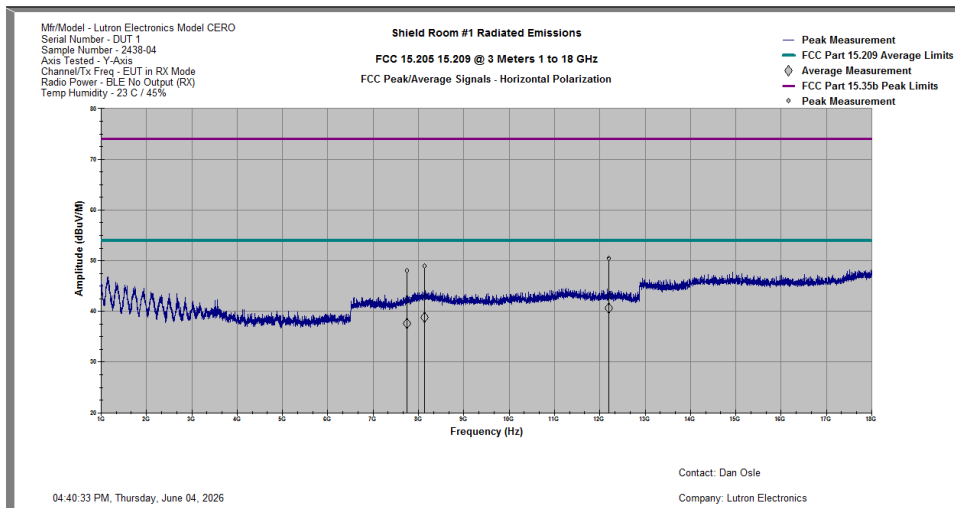
Frequency	Peak Corrected	Average Corrected	Antenna Polarity	Turntable Angle	Antenna Height	Antenna/Cable/ Amplifier CF	FCC 15.205/209: RSS-GEN/RSS-247 Average Limit	FCC 15.205/209: RSS-GEN/RSS-247 Average Margin	FCC 15.205/209: RSS-GEN/RSS-247 Peak Limit	FCC 15.205/209: RSS-GEN/RSS-247 Peak Margin	Result
GHz	dBuV/m	dBuV/m	H/V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
* 4.96074	41.95	31.54	H	104	156	3.66	53.98	-22.44	73.98	-32.03	PASS
* 7.4392	56.76	49.22	H	032	160	6.51	53.98	-4.77	73.98	-17.23	PASS
* 12.3937	50.44	41.11	H	217	242	9.07	53.98	-12.87	73.98	-23.54	PASS
* 4.9603	43.54	35.54	V	312	206	3.66	53.98	-18.44	73.98	-30.44	PASS
* 7.43946	53.30	44.76	V	307	101	6.51	53.98	-9.22	73.98	-20.68	PASS
* 12.3987	52.64	42.93	V	352	121	9.05	53.98	-11.05	73.98	-21.34	PASS
*Restricted Band Signal											





Receive Mode

Frequency	Peak Corrected	Average Corrected	Antenna Polarity	Turntable Angle	Antenna Height	Antenna/Cable/ Amplifier CF	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	
* 7.748	48.05	37.59	H	190	164	6.24	53.98	-16.39	73.98	-25.93	PASS
* 8.13108	49.00	38.76	H	223	154	7.06	53.98	-15.22	73.98	-24.98	PASS
* 12.2061	50.45	40.58	H	100	200	9.06	53.98	-13.40	73.98	-23.53	PASS
* 8.14762	48.70	39.24	V	272	173	7.16	53.98	-14.75	73.98	-25.28	PASS
* 8.40555	48.50	38.90	V	285	151	7.45	53.98	-15.08	73.98	-25.48	PASS
* 11.2613	48.99	40.57	V	106	185	8.10	53.98	-13.41	73.98	-24.99	PASS
*Restricted Band Signal											

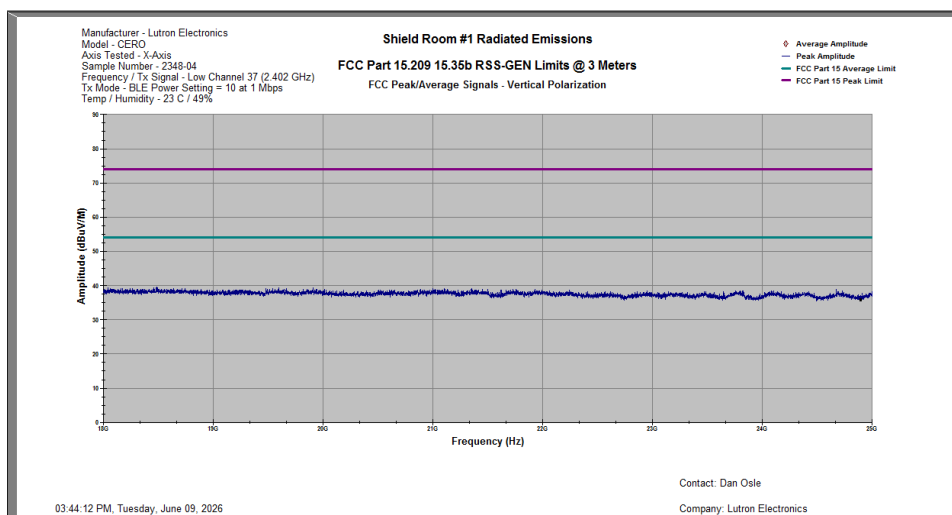
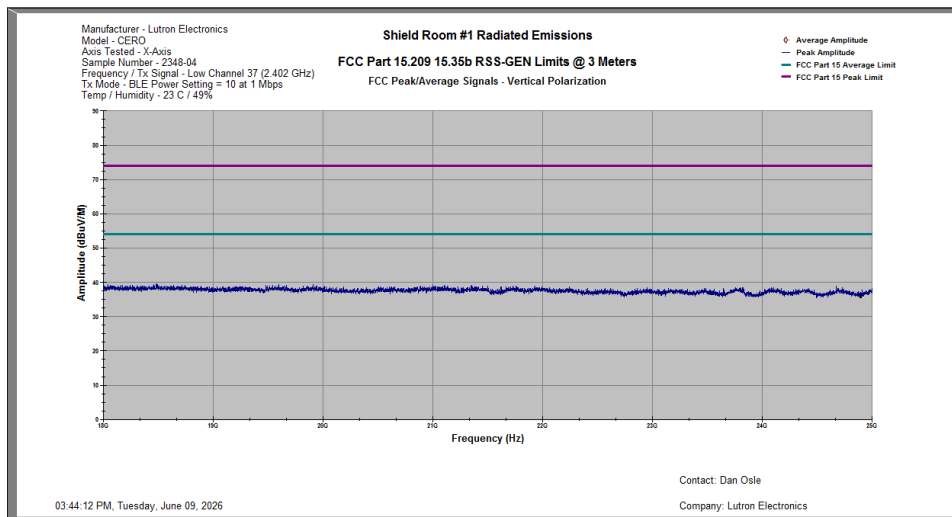


Test Results: The Lutron Model C2P-R1BRL Rotary Controller Sample 2438-04 operating in DTS and receive modes, comply with the requirements of 47 CFR Part 15.205 and RSS-Gen Section 8.10 with an Average Margin of 3.08 dB.



4.5.5 Radiated Spurious Emissions in Non-Restricted and Restricted Bands of Operation, 18 GHz – 25 GHz Test Results Lutron Model C2P-R1BRL Rotary Controller Sample 2438-04 (06/09/2026)

Measurements were made in the frequency range of 18 GHz to 25 GHz for the Lutron Model C2P-R1BRL Rotary Controller Samples 2438-04. The sample was programmed to transmit at the low Frequency 2402 MHz (Channel 37), middle Frequency 2440 MHz (Channel 17) and high Frequency 2480 MHz (Channel 39) and in the Rx Mode. There were no significant signals found when testing the EUT in this frequency range. Test results for all configurations tested are available upon request. The results of the closest amplitude Graphs are shown below.





4.6 DTS 6 dB Bandwidth (FCC Section 15.247(a)(2) RSS-247 Clause 6.3.1)

4.6.1 DTS 6 dB Bandwidth – Test Procedure

The minimum DTS (6 dB) bandwidth, specified in FCC Section 15.247(a) (2) was measured using a Spectrum Analyzer with 100 kHz resolution bandwidth and 300 kHz video bandwidth. Measurements were taken using the Lutron Model C2P-R1BRL Antenna Conducted Sample 2438-03. The Lutron Model C2P-R1BRL Rotary Controller was tested at the low Channel 37 (2402 MHz), middle Channel 17 (2440 MHz) and high Channel 39 (2480 MHz) for 1 Mbps. The EUT was set to transmit a signal at maximum output power (setting of +10 dBm) with GFSK modulation. The test procedure of ANSI C63.10, Section 11.8, Option 1, was used.

Spectrum Analyzer Settings:

RBW	100	kHz
VBW	300	kHz
Span	5	MHz
Sweep Time (Auto)	5	ms

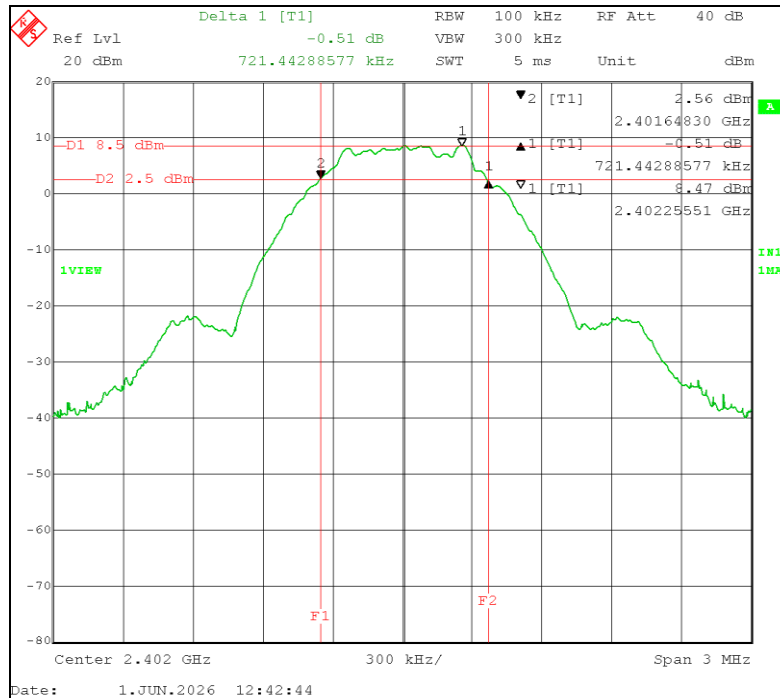
4.6.2 DTS 6 dB Bandwidth Lutron Model C2P-R1BRL Rotary Controller Antenna Conducted Sample 2438-03 Test Results (06/01/2026)

Channel	Frequency	Measured 6 dB BW	47 CFR 15.247(a)(2) & RSS-247 5.2 Minimum Limit	Margin	Result
	MHz	kHz	kHz	kHz	
37	2402.0	721.44	500.00	221.44	PASS
17	2440.0	721.44	500.00	221.44	PASS
39	2480.0	721.44	500.00	221.44	PASS

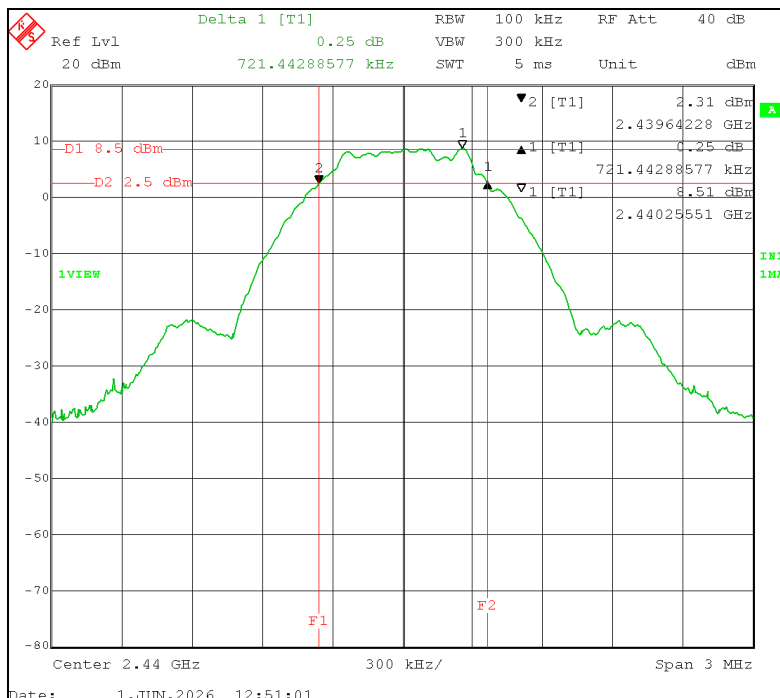


4.6.3 DTS 6 dB Bandwidth Analyzer Screen Captures

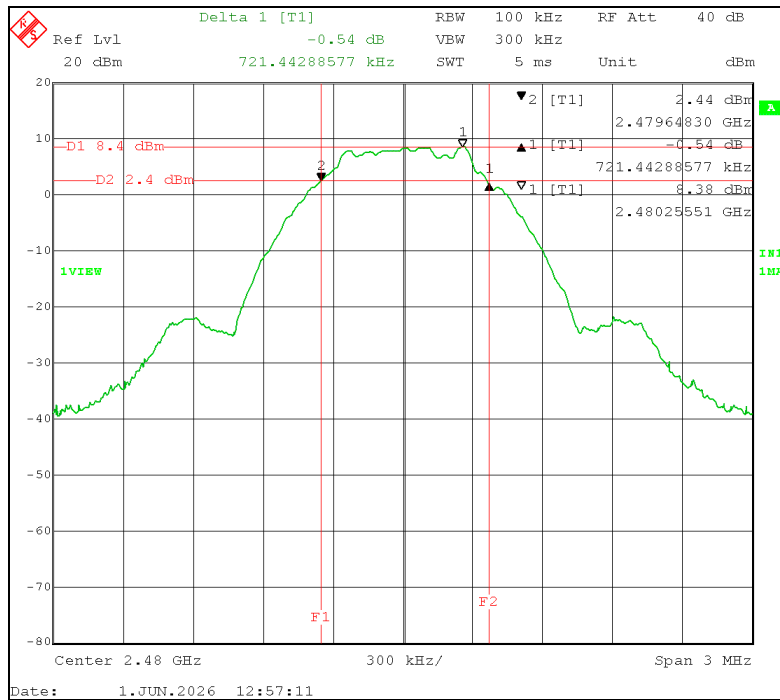
Channel 37: 2402 MHz



Channel 17: 2440 MHz



Channel 39: 2480 MHz



Test Results: The DTS 6 dB Bandwidth measurements for the Lutron Model C2P-R1BRL Rotary Controller Antenna Conducted Sample 2438-03 were measured and are compliant to FCC and ISED requirements.



4.7 99% Occupied Bandwidth RSS-Gen Clause 6.7

4.7.1 99% Occupied Bandwidth – Test Procedure

The 99% Occupied Bandwidth measurement per RSS-Gen Section 6.7 was measured using a Spectrum Analyzer with 100 kHz resolution bandwidth and 300 kHz video bandwidth. Measurements were taken using the Lutron Model C2P-R1BRL Antenna Conducted Sample 2438-03. The Lutron Model C2P-R1BRL Rotary Controller was tested at the low Channel 37 (2402 MHz), middle Channel 17 (2440 MHz) and high Channel 39 (2480 MHz) for 1 Mbps. The EUT was set to transmit a signal at maximum output power (setting of +10 dBm) with GFSK modulation. The test procedure of ANSI C63.10, Section 6.9.3 was used.

Spectrum Analyzer Settings:

RBW	30	kHz
VBW	100	kHz
Span	3	MHz
Sweep Time (Auto)	5	ms
Attenuation	40	dB
Reference Level	20	dBm

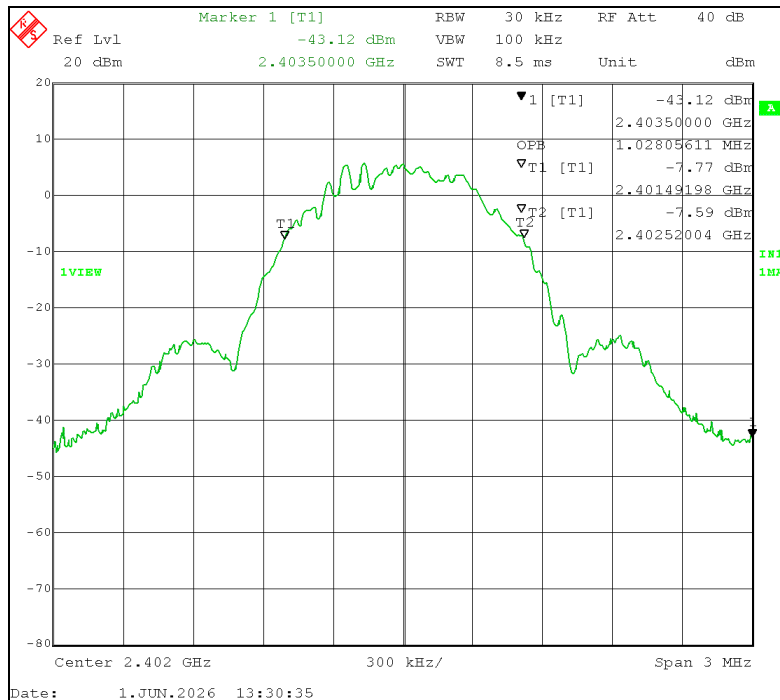
4.7.2 99% Occupied Bandwidth Lutron Model C2P-R1BRL Rotary Controller Antenna Conducted Sample 2438-03 Test Results (06/01/2026)

BLE Tx Channel	Frequency (MHz)	Measured 99% Occupied BW (MHz)
37	2402.0	1.028
17	2440.0	1.028
39	2480.0	1.028

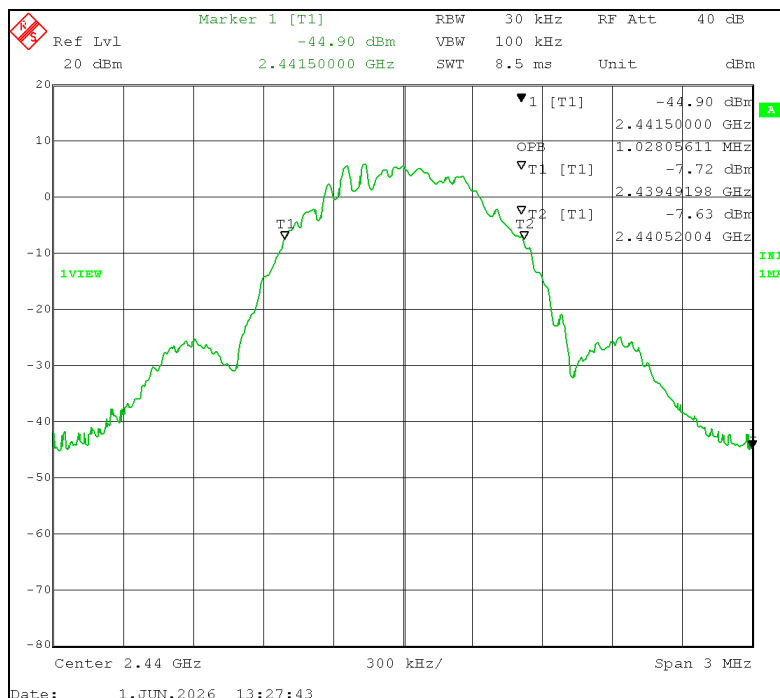


4.7.3 99% Occupied Bandwidth Analyzer Screen Captures

Channel 37: 2402 MHz

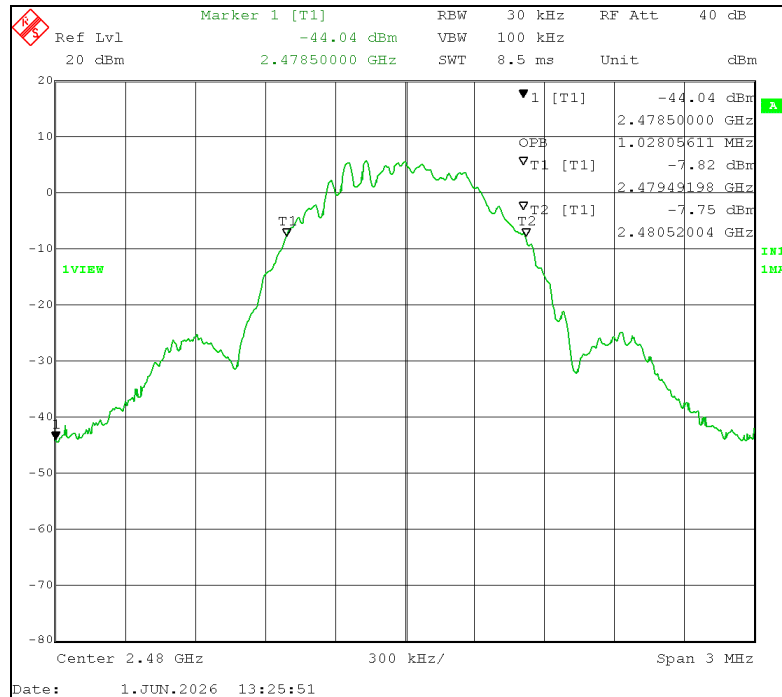


Channel 17: 2440 MHz





Channel 39: 2480 MHz



Test Results: The 99% Occupied Bandwidth measurements for the Lutron Model C2P-R1BRL Rotary Controller Antenna Conducted Sample 2438-03 were measured for RSS-Gen Section 6.7 requirement.



4.8 Maximum Conducted Output Power and EIRP (FCC Part 15.247(b)(3), RSS-247 Clause 6.3.2)

4.8.1 Maximum Conducted Output Power Test Procedure

A conducted power measurement of the output frequency was measured according to ANSI C63.10, Section 11.9.1.1. Spectrum Analyzer Resolution Bandwidth and Frequency Span were based upon the Operating Bandwidth (OBW) measured in the previous section. Measurements were taken using the Lutron Model C2P-R1BRL Antenna Conducted Sample 2438-03. The Lutron Model C2P-R1BRL Rotary Controller was tested at the low Channel 37 (2402 MHz), middle Channel 17 (2440 MHz) and high Channel 39 (2480 MHz) for 1 Mbps. The EUT was set to transmit a signal at maximum output power (setting of +10 dBm) with GFSK modulation and with no modulation (CW).

Spectrum Analyzer Settings:

Measurement Analyzer Settings	
Span	3 MHz
RBW	1 MHz
VBW	3 MHz
Sweep Time	5 ms
Attenuation	50 dB
Ref Level	20 dBm

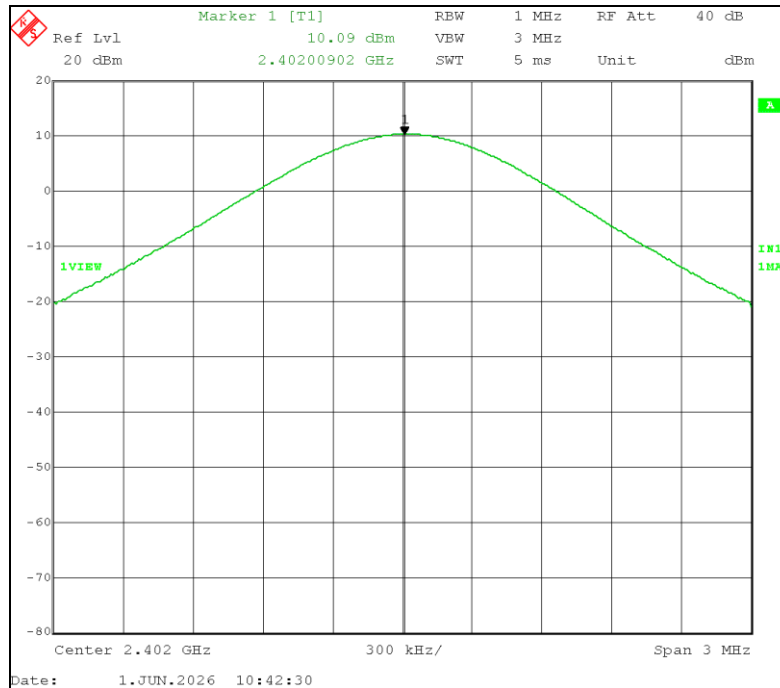
4.8.2 Maximum Conducted Output Power Lutron Model C2P-R1BRL Rotary Controller Antenna Conducted Sample 2438-03 Test Results (06/01/2026)

BLE Tx Channel	Modulation	Frequency (MHz)	Uncorrected Peak Level (dBm)	Cable # 962 Loss (dB) Correction Factor	Corrected Peak Level		Limit		Margin	
					dBm	Watts	dBm	Watts	dBm	Watts
37	None	2402.0	10.09	0.377	10.47	0.011	30.00	1.000	-19.53	-0.989
17		2440.0	10.15	0.375	10.53	0.011	30.00	1.000	-19.48	-0.989
39		2480.0	10.02	0.377	10.40	0.011	30.00	1.000	-19.60	-0.989
37	GFSK (1 Mbps)	2402.0	10.09	0.377	10.47	0.011	30.00	1.000	-19.53	-0.989
17		2440.0	10.15	0.375	10.53	0.011	30.00	1.000	-19.48	-0.989
39		2480.0	10.02	0.377	10.40	0.011	30.00	1.000	-19.60	-0.989

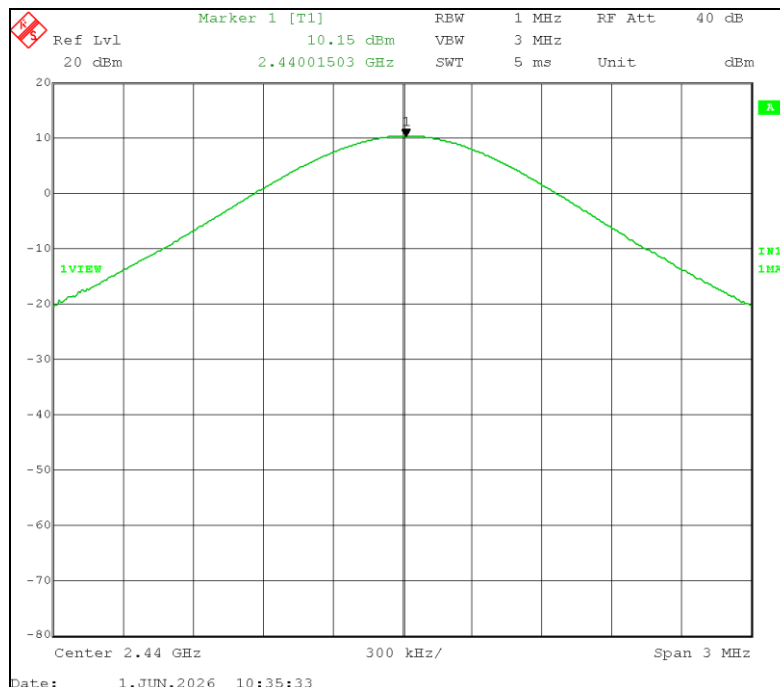


4.8.3 Maximum Conducted Output Power Analyzer Screen Captures

Channel 37: 2402 MHz No Modulation

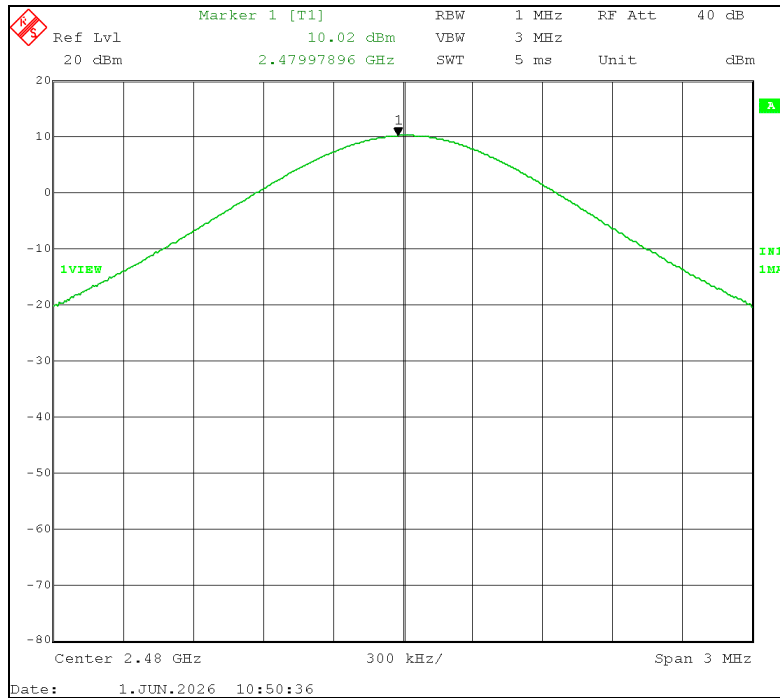


Channel 17: 2440 MHz No Modulation

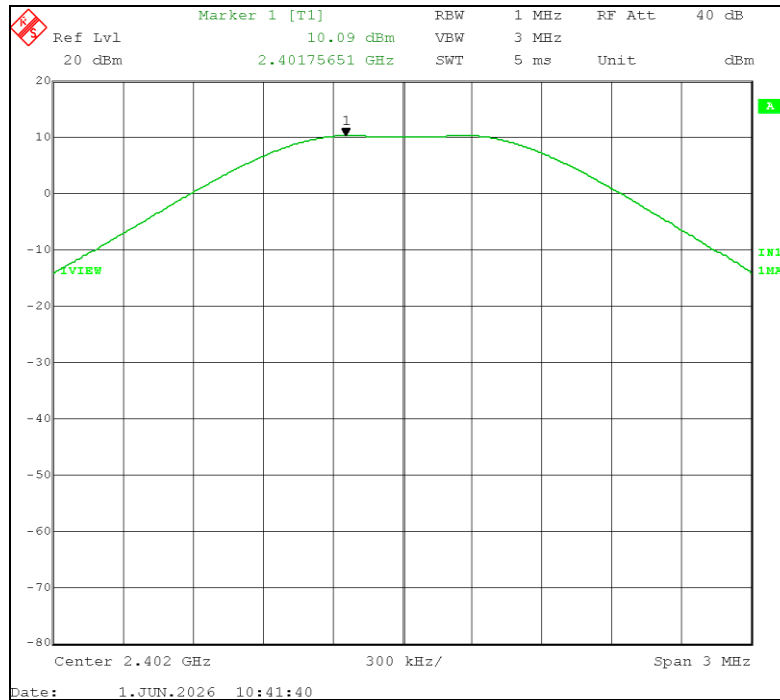




Channel 39: 2480 MHz No Modulation

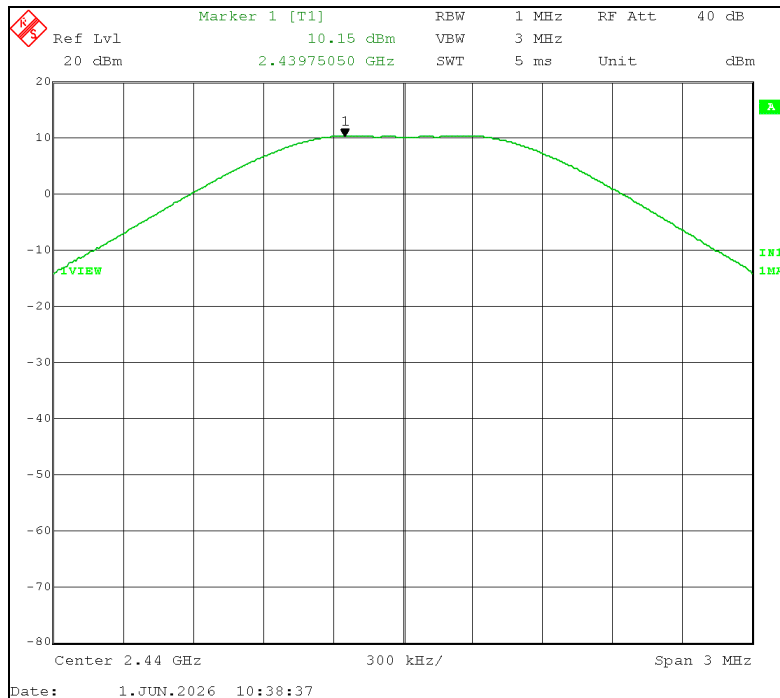


Channel 37: 2402 MHz O-QPSK Modulation

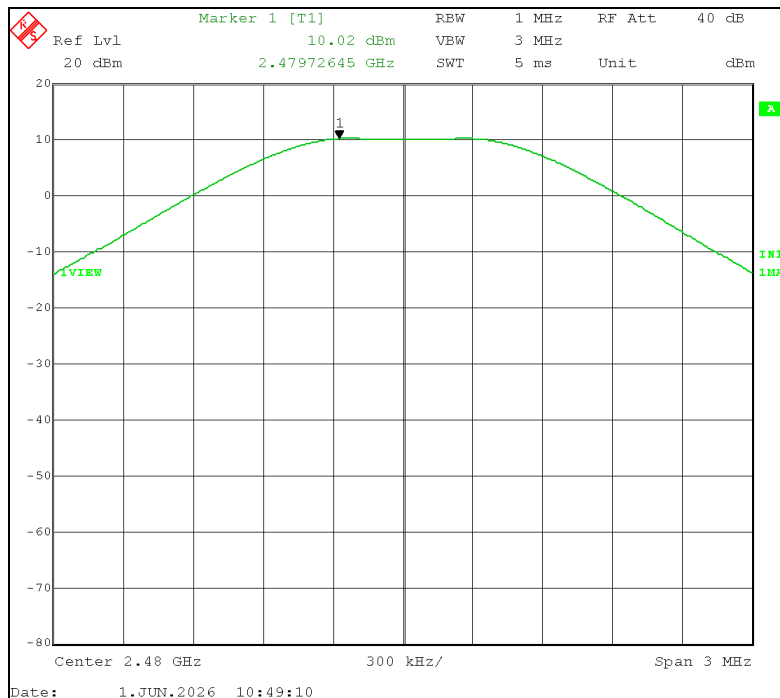




Channel 17: 2440 MHz O-QPSK Modulation



Channel 39: 2480 MHz O-QPSK Modulation



Test Results: The Maximum Conducted Output Power peak measurements for the Lutron Model C2P-R1BRL Rotary Controller Antenna Conducted Sample 2438-03 with and without modulation are compliant with the limits specified in FCC Section 15.247(b)(3).



4.8.4 EIRP Calculation RSS-247 (06/01/2026)

The gain of the antenna used in the Lutron Model C2P-R1BRL Rotary Controller Antenna is + 4.95 dBi. Applying the antenna gain to the maximum peak transmitter output produces the following values of EIRP.

BLE Tx Channel	Modulation	Frequency (MHz)	Corrected Measured Level		Antenna Gain		EIRP				Result
			dBm	Watts	Isotropic (dBi)	Numeric	Total		Limit	Margin	
							dBm	Watts	Watts	Watts	
37	None	2402.0	10.47	0.0111	4.95	3.126	15.42	0.035	4.00	-3.965	PASS
17		2440.0	10.53	0.0113			15.48	0.035		-3.965	PASS
39		2480.0	10.40	0.0110			15.35	0.034		-3.966	PASS
37	GFSK (1 Mbps)	2402.0	10.47	0.0111			15.42	0.035		-3.965	PASS
17		2440.0	10.53	0.0113			15.48	0.035		-3.965	PASS
39		2480.0	10.40	0.0110			15.35	0.034		-3.966	PASS

Test Results: The results in the above table show compliance to the ISSED requirements for EIRP limits of RSS-247.



4.9 Power Spectral Density (FCC Section 15.247(e), RSS-247 Clause 6.3.1)

4.9.1 Power Spectral Density Test Procedure

Power Measurements were taken using the Lutron Model C2P-R1BRL Antenna Conducted Sample 2438-03. The Lutron Model C2P-R1BRL Rotary Controller was tested at the low Channel 37 (2402 MHz), middle Channel 17 (2440 MHz) and high Channel 39 (2480 MHz) for 1 Mbps. The EUT was set to transmit a signal at maximum output power (setting of +10 dBm) with GFSK modulation. The test procedure of ANSI C63.10, Section 11.10.2 (PKPSD) was used.

Spectrum Analyzer Settings:

Measurement Analyzer Settings		
6 dB BW	0.731	MHz
RBW (Between 3 kHz and 100 kHz)	3	kHz
VBW (3 X RBW)	10	kHz
Span (1.5 X the OCW Bandwidth)	1.0965	MHz
Sweep (Auto)	0.31	seconds
Attenuation	40	dB
Ref Level	0	dBm

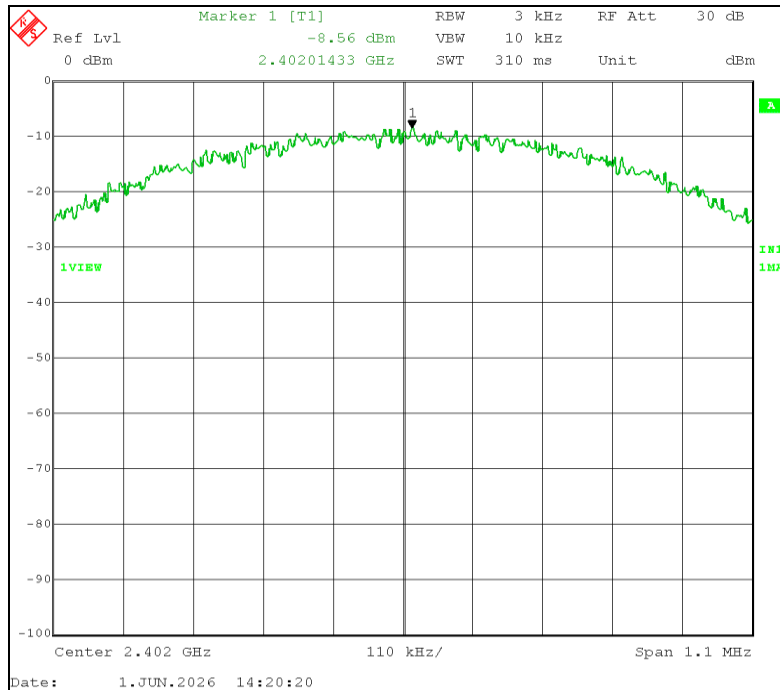
4.9.2 Power Spectral Density Lutron Model C2P-R1BRL Rotary Controller Antenna Conducted Sample 2438-03 Test Results (06/01/2026)

Channel	Modulation Information	Frequency (MHz)	Measured Peak PSD Level	Cable #BEC-962 Correction Factor	Corrected Peak PSD Measurement	Limit	Margin
			dBm	dB	dBm	dBm	dBm
37	GFSK (1 Mbps)	2402.0	-8.56	0.377	-8.18	8.00	-16.18
17		2440.0	-8.54	0.375	-8.17	8.00	-16.17
39		2480.0	-8.57	0.377	-8.19	8.00	-16.19

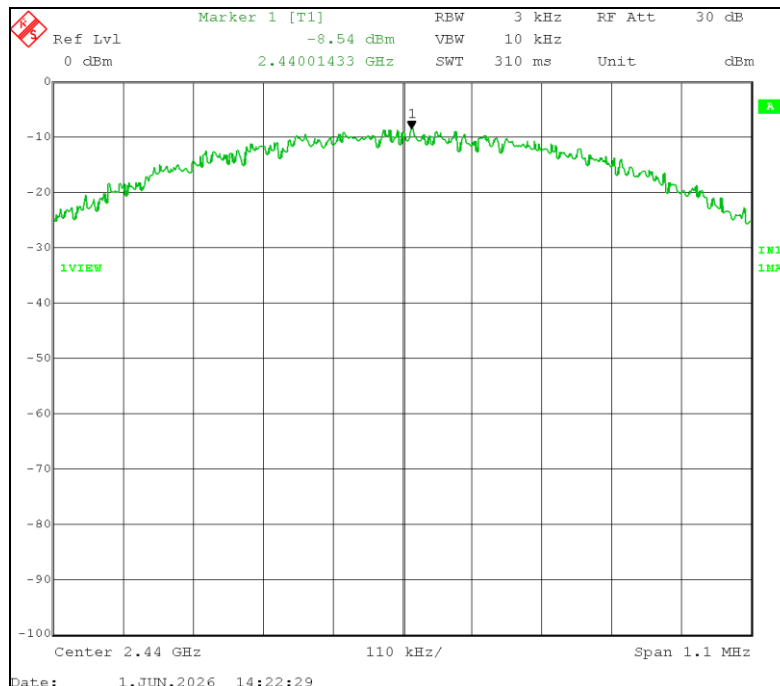


4.9.3 Power Spectral Density Analyzer Screen Captures

Channel 37, 2402 MHz, O-QPSK Modulation

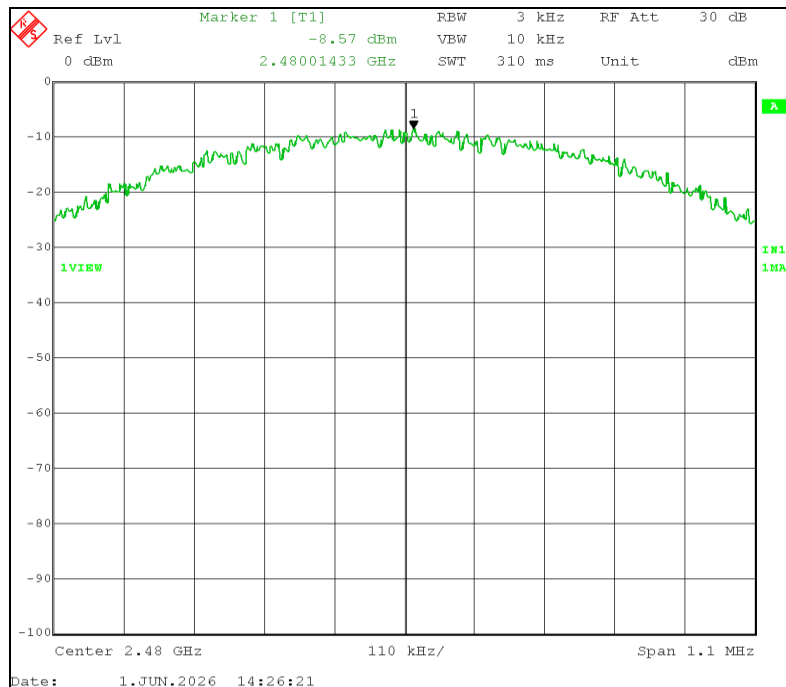


Channel 17, 2440 MHz, O-QPSK Modulation





Channel 39, 2480 MHz, O-QPSK Modulation



Test Results: The Power Spectral Density measurements of the Lutron Model C2P-R1BRL Rotary Controller Antenna Conducted Sample 2438-03 are compliant with the limits specified in FCC Section 15.247(e) and RSS-247.



4.10 Band Edge Measurement (FCC Part 15.247(d))

4.10.1 Band Edge Measurement Test Procedure

Band edge Measurements were taken using the Lutron Model C2P-R1BRL Antenna Conducted Sample 2438-03. The Lutron Model C2P-R1BRL Rotary Controller was tested at the low Channel 37 (2402 MHz), middle Channel 17 (2440 MHz) and high Channel 39 (2480 MHz) for 1 Mbps. The EUT was set to transmit a signal at maximum output power (setting of +10 dBm) with GFSK modulation. The Authorized Band Edge measurements were made using the Relative Method of Section 6.10.4 of ANSI C63.10. The Spectrum Analyzer Screens below show emissions between the modulated carrier, at low and high frequencies and the lower and upper band edges.

Spectrum Analyzer Settings:

Measurement Analyzer Settings	
RBW	100 kHz
VBW	300 kHz
Span	Varies
Sweep	5 ms

	Lower Edge	Upper Edge
Authorized Band:	2400 MHz	2483.5 MHz
Nearest Restricted Bands:	2310-2390 MHz	2483.5-2500 MHz



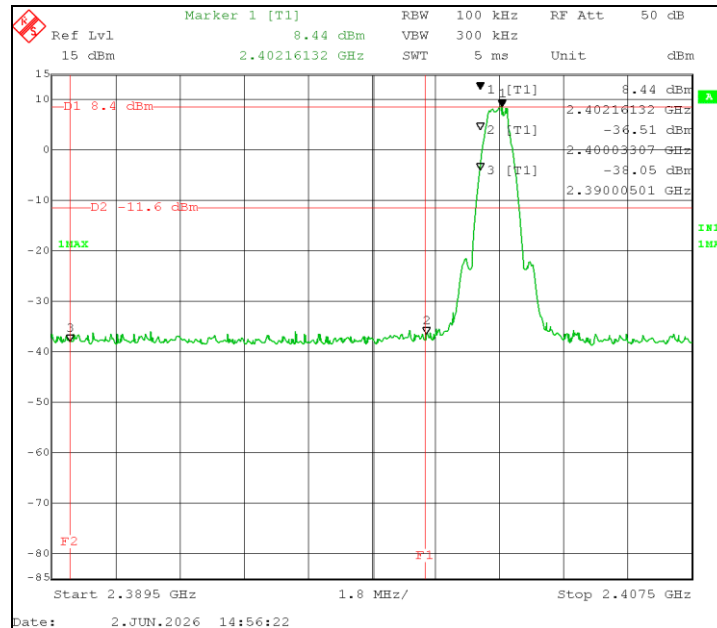
4.10.2 Band Edge Measurement Lutron Model C2P-R1BRL Rotary Controller Antenna Conducted Sample 2438-03 Test Results (06/02/2026)

Test Mode	Frequency (MHz)	Peak Measurement of Transmitter @ 2.402 GHz (dBm)	Band Edge Measurement Low Tx Channel				Result
			Measured Peak Level (dBm) @ Lower Band Edge of 2.4 GHz and Showing Peak Emissions at the Restricted Band of 2310 MHz - 2390 MHz	Limit (dB) 20 dB Below the Tx Peak Amplitude (-20 dBc)		Margin	
Low Tx Channel 37 at Maximum Output Power with Modulation	2402.0	8.44	-36.45	-11.60		-24.85	PASS
Test Mode	Frequency (MHz)	Peak Measurement of Transmitter @ 2.480 GHz (dBm)	Band Edge Measurement High Tx Channel				Result
			Measured Peak Level (dBm) @ High Band Edge of 2.4835 GHz and Showing Peak Emissions at the Restricted Band of 2483.5 MHz - 2500.0 MHz	Limit (dB) 20 dB Below the Tx Peak Amplitude (-20 dBc)		Margin	
High Tx Channel 39 at Maximum Output Power with Modulation	2480.0	8.42	-35.41	-11.60		-23.81	PASS

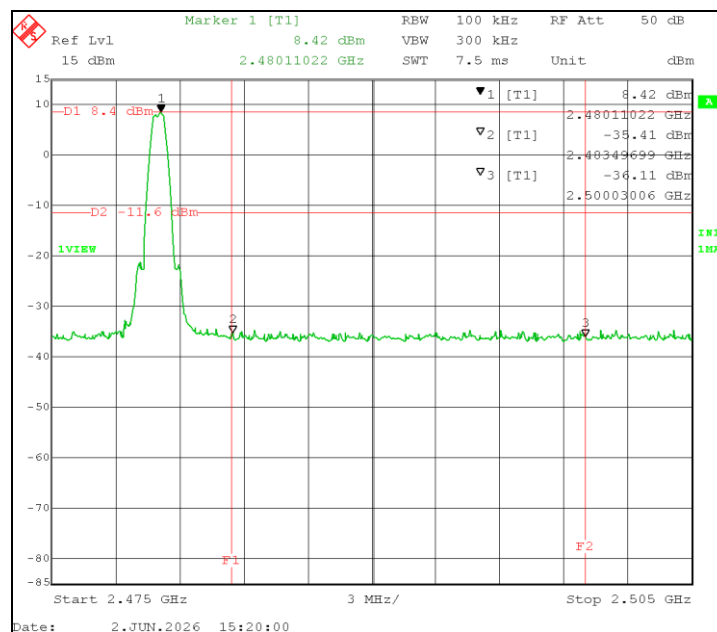


4.10.3 Band Edge Measurement Analyzer Screen Captures

Low Channel 37, 2402 MHz



High Channel 39, 2480 MHz



Test Results: The Band Edge measurements of the Lutron Model C2P-R1BRL Rotary Controller Antenna Conducted Sample 2438-03 show that emissions at the band edges of the Operating Frequency Bandwidth are below the Carrier Peak Level – 20 dBc required by 47 CFR Part 15.247(d) and ISSED RSS-247, Section 5.5.



4.11 Conducted Emissions

4.11.1 Conducted Emissions AC Power Port 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 Ω , 50 μ 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 μ V) = Meter Reading (dB μ v) + Cable Loss (dB) + LISN Factor (dB) + Limiter Loss (dB)

Results: The Lutron Model C2P-R1BRL Rotary Controller is a battery powered device and does not require AC Mains Conducted Emissions testing.



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	05/19/26	3 Years	05/19/29
Antenna (30 MHz - 6 GHz)	Sunol Sciences	JB6	A022108	712	06/27/24	3 Years	06/27/27
EMC Analyzer (9 kHz - 26.5 GHz)	Hewlett Packard	8593EM	3710A00214	1026	04/16/25	3 Years	04/16/28
Amplifier System (0.5 – 50 GHz)	Hewlett Packard	83015A 83017A	3123A00360 & 3332A00219	1027	06/16/24	3 Years	06/16/27
Double Ridged Horn Antenna (1 - 18 GHz)	EMCO	3115	9705-5225	1028	12/05/24	3 Years	12/05/27
Antenna (18 - 26.5 GHz)	Hewlett Packard	84125- 80008	N/A	1056	01/21/25	3 Years	01/21/28
OATS Site (30 MHz – 1 GHz)	BEC	N/A	N/A	705	10/08/25	1 Year	10/08/26
Temp/Humidity Meter	Control Company	4096	250064603	780	02/04/25	2 Years	02/04/27
3.5 GHz High Pass Filter	Hewlett Packard	84300- 80038	005	779	09/09/25	3 Years	09/09/28
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



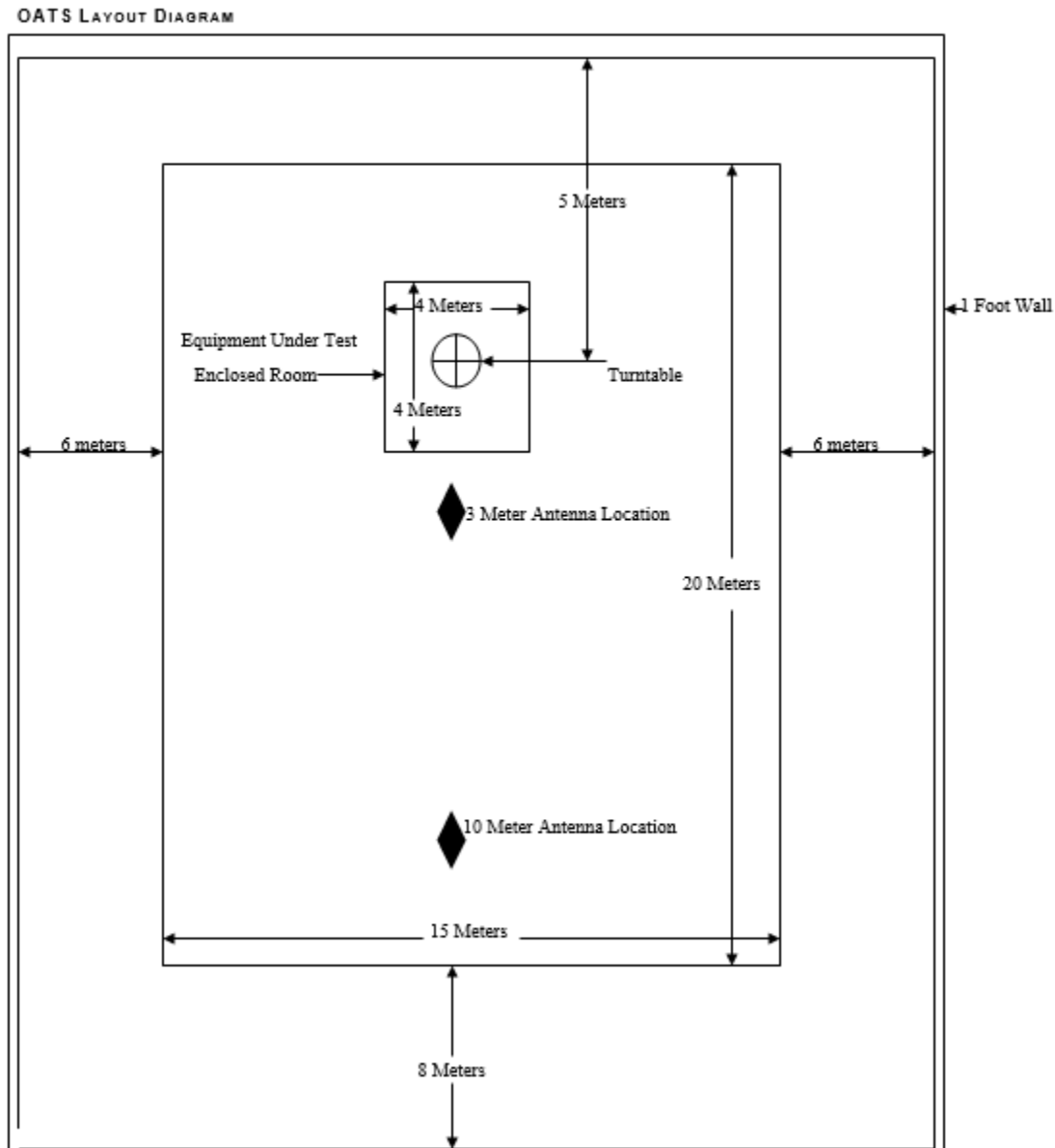
Screen Room	ETS Lindgren	26W-2/2-0	6065	880	No Cal. Required	No Cal. Required	No Cal. Required
DC Power Supply	Tektronix	PS281	TW50114	922	No Cal. Required	No Cal. Required	No Cal. Required
SMA RF Cable-Antenna Conducted Test Setup	Suhner	04272	None	962	07/14/23	3 Years	07/14/26

Equipment Used Only for Pre-Compliance

Equipment	Manufacturer	Model #	Serial #	BEC #	Calibration Date	Calibration Cycle	Calibration Due Date
9 kHz-3 GHz Pre-Scan EMC Analyzer	Agilent	E7402A	US39440162	883	06/21/21	5 Years	06/21/26
Pre-Scan Amplifier (.09 – 1300 MHz)	Hewlett Packard	8447F	3313A06658	807	01/13/26	5 Years	01/13/31



Appendix B – Open Area Test Site Layout Diagram





Appendix C – Emissions Shielded Room Layout Diagram

SITE DESCRIPTION

The chamber is a 3 Meter semi-anechoic chamber with the ferrite absorbers on all walls and ceiling and is re-categorized as a Fully anechoic chamber when absorbers are added in between the test area and measurement antenna. The turn-table and mast are controlled externally by the ETS Lindgren 2090 Controller. The metal computer floor provides the ground plane for the site. Inside room dimensions are 22' Long by 13' Wide by 11'5" High. Outside room dimensions are 22'8" Long by 14' Wide by 12'9" High.

