



BEC INCORPORATED

MAXIMUM PERMISSABLE EXPOSURE (MPE) REPORT

TEST STANDARDS:

U.S. Title 47 Chapter 1 Subchapter A Part 2 Subpart J

Equipment Under Test (EUT):

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

FCC ID: JPZ0160

REPORT#: BEC-2438-06

REPORT DATE: 07/15/2026

CUSTOMER:

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

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Testing Cert #2957.01



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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	08/13/2026	08/13/2026



1.0 Administrative Information

1.1 General Information Table

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
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
Tune Up Tolerance	+/- 1 dBm
Modulation	GFSK With 1 Mbps Data Rate
FCC Classification	Digital Transmission System (DTS)
Applicable FCC Rules	47 CFR Part 2.1091, OET Bulletin 65
Separation Distance	The separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm.
RF Exposure Environment	General Public. Uncontrolled Use



1.2 Maximum Permissible Exposure Limits and Calculation

§1.1307 Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.

(b)(1) *Requirements.* (i) With respect to the limits on human exposure to RF provided in §1.1310 of this chapter, applicants to the Commission for the grant or modification of construction permits, licenses or renewals thereof, temporary authorities, equipment authorizations, or any other authorizations for radiofrequency sources must either:

(A) Determine that they qualify for an exemption pursuant to §1.1307(b)(3);

(B) Prepare an evaluation of the human exposure to RF radiation pursuant to §1.1310 and include in the application a statement confirming compliance with the limits in §1.1310; or

(C) Prepare an Environmental Assessment if those RF sources would cause human exposure to levels of RF radiation in excess of the limits in §1.1310

TABLE 1 TO § 1.1310(E)(1)—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(ii) LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE				
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f ²)	<30
30-300	27.5	0.073	0.2	<30
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

The use of OET Bulletin 65 was used to calculate the Power Density based upon EIRP levels of the Lutron Model C2P-R1BRL Rotary Controller measured and reported by this laboratory during testing for compliance to 47 CFR Part 15C.

$$S = \frac{PG}{4\pi R^2} \quad (3)$$

where: S = Power Density (in appropriate units, e.g., mW/cm²)
P = Power input to the antenna (in appropriate units, e.g., mW)
G = Power Gain of the antenna in the direction of interest to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

or:
$$S = \frac{\text{EIRP}}{4\pi R^2} \quad (4)$$

where: EIRP = equivalent (or effective) isotropically radiated power (mw)



1.3 Maximum Permissible Exposure (MPE)

Antenna power is the highest measured level among the low, middle and high frequencies of the transmitter contained in each model identified above. The measurements below were taken from a test sample of the Lutron Model C2P-R1BRL Rotary Controller with BLE Radio. The table below identifies the transmitter output level to achieve the EIRP level. The tune up tolerance of +/- 1 dBm was added to the Antenna Conducted Maximum Output Power for the transmitter measurements. The Power Density is then calculated using Formula (4) of OET Bulletin 65.

Antenna Conducted Maximum Output Power Measurement (06/01/2026)

Radio Transmit Channel	Modulation	Tx Frequency (MHz)	Measured Peak Output Power Level (dBm)	Cable # 962 Loss (dB)	Tune Up Tolerance (+/- 1 dBm)	Corrected Peak Output Power		Limit		Margin	
						dBm	Watts	dBm	Watts	dBm	Watts
37	GFSK @ 1 Mbps	2402.0	10.09	0.377	1.000	11.47	0.014	30.00	1.000	-18.53	-0.986
17		2440.0	10.15	0.375	1.000	11.53	0.014	30.00	1.000	-18.48	-0.986
39		2480.0	10.02	0.377	1.000	11.40	0.014	30.00	1.000	-18.60	-0.986
Radio Transmit Channel	Modulation	Tx Frequency (MHz)	Measured Peak Output Power Level (dBm)	Cable # 962 Loss (dB)	Tune Up Tolerance (+/- 1 dBm)	Corrected Peak Output Power		Limit		Margin	
						dBm	Watts	dBm	Watts	dBm	Watts
37	None (Constant Wave)	2402.0	10.09	0.377	1.000	11.47	0.014	30.00	1.000	-18.53	-0.986
17		2440.0	10.15	0.375	1.000	11.53	0.014	30.00	1.000	-18.48	-0.986
39		2480.0	10.02	0.377	1.000	11.40	0.014	30.00	1.000	-18.60	-0.986

Power Density Calculation Results

Channel	Modulation	Frequency	Antenna Max Output Power With Tune Up Tolerance of 1 dBm	Antenna Gain	EIRP	Calculated Power Density @ 20 cm	1.1310 Limit	Margin
		MHz	dBW	dBi	dBW	mW/cm ²	mW/cm ²	
37	GFSK @ 1 Mbps	2402.0	0.0140	4.95	4.9640	0.008724	1.00	-0.9913
17		2440.0	0.0142	4.95	4.9642	0.008846	1.00	-0.9912
39		2480.0	0.0138	4.95	4.9638	0.008585	1.00	-0.9914
Channel	Modulation	Frequency	Antenna Max Output Power With Tune Up Tolerance of 1 dBm	Antenna Gain	EIRP	Calculated Power Density @ 20 cm	1.1310 Limit	Margin
		MHz	dBW	dBi	dBW	mW/cm ²	mW/cm ²	
37	None	2402.0	0.0140	4.95	4.9640	0.008724	1.00	-0.9913
17		2440.0	0.0142	4.95	4.9642	0.008846	1.00	-0.9912
39		2480.0	0.0138	4.95	4.9638	0.008585	1.00	-0.9914

Results: The highest calculated Power Density, 0.008846 mW/cm², is based upon the EIRP measurements for the Lutron Model C2P-R1BRL Rotary Controller with BLE Radio. This level complies with the limit Table 1(ii) of 47 CFR Part 1.1310 at a separation distance of 20 cm.



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
Temp/Humidity Meter	Control Company	4096	250064603	780	02/04/25	2 Years	02/04/27
SMA RF Cable-Antenna Conducted Test Setup	Suhner	04272	None	962	07/14/23	3 Years	07/14/26