Acuity Brands Lighting Inc.

RF Exposure Exhibit

SCOPE OF WORK
EMC TESTING – Wireless LED Light Model: RSDGR

REPORT NUMBER
104317434MPK-002

ISSUE DATE
May 11, 2020

REVISED DATE
N/A

PAGES
10

DOCUMENT CONTROL NUMBER
Non-Specific Radio Report Shell Rev. December 2017 MPK

RF Exposure Exhibit
(mobile devices)

Report Number: 104317434MPK-002
Project Number: G104317434

Report Issue Date: May 11

Product Designation: Wireless LED Light
Model Tested: RSDGR

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

to

47CFR 2.1091
RSS-102 Issue 5

for

Acuity Brands Lighting Inc.

Tested by:	**Client:**
Intertek	Acuity Brands Lighting Inc.
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Report prepared by:	**Report reviewed by:**
	
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Report No. 104317434MPK-002	
Equipment Under Test:	Wireless LED Light
Trade Name:	Acuity Brands Lighting Inc.
Model(s) Tested:	RSDGR
Applicant:	Acuity Brands Lighting Inc.
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Applicable Regulation:	47CFR 2.1091 RSS-102 Issue 5

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1.0 RF Exposure Summary

Test	Reference FCC	Reference Industry Canada	Result
Radio frequency Radiation Exposure Evaluation	47 CFR§2.1091	RSS-102 Issue 5	Complies

2.0 RF Exposure Limits

In this document, we evaluate the RF Exposure to human body due the intentional transmission from the transmitter (EUT). The limits for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 and RSS-102 are followed.

2.1 FCC Limits

According to FCC 1.1310 table 1: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
(A)Limits For Occupational / Control Exposures				
0.3 – 3.0	614	1.63	*100	6
3.0 – 30	1842/f	4.89/f	$*900/f^2$	6
30-300	61.4	0.163	1.0	6
300 - 1500	…	…	F/300	6
1500 - 100,000	…	…	5	6
(B)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 - 1500	…	…	F/1500	30
1500 - 100,000	…	…	1.0	30

F = Frequency in MHz

* = plane wave equivalent density

2.2 Industry Canada Limits

According to RSS-102, Industry Canada has adopted the SAR and RF field strength limits established in Health Canada's RF exposure guideline, Safety Code 6.

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range	Electric Field	Magnetic Field	Power Density	Reference Period
(MHz)	(V/m rms)	(A/m rms)	(W/m^2)	(minutes)
0.003-10	83	90	-	Instantaneous*
0.1-10	-	$0.73/f$	-	6**
1.1-10	$87/f^{0.5}$	-	-	6**
10-20	27.46	0.0728	-2	6
20-48	$58.07/f^{0.25}$	$0.1540/f^{0.25}$	$8.944/f0.5$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142f^{0.3417}$	$0.008335f^{0.3417}$	$0.02619f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/f^{1.2}$
150000-300000	$0.158f^{0.5}$	$4.21 \times 10\text{-}4f^{0.5}$	$6.67 \times 10^{-5}f$	$616000/f^{1.2}$

Note: f is frequency in MHz.
* Based on nerve stimulation (NS).
** Based on specific absorption rate (SAR).

3.0 Test Results (Mobile Configuration)

3.1 Classification

Radio is installed inside a mobile host device. The antenna of the product, under normal use condition, is at least 20 cm away from the body of the user and accessible to the end user. Warning statement to the user for keeping at least 20 cm or more separation distance with the antenna should be included in user's manual.

3.2 EIRP calculations

The Wireless LED Light, Model: rSDGR consists of SubGHz radio.

3.3 Maximum RF Power

Frequency Range (MHz)	RF Output (dBm)	Antenna Gain[1] (dBi)	Note
904 - 926	18.88	0.8	Conducted power measurements were taken from Report # 103986369ATL-001.

[1]As declared by the manufacturer.

3.4 RF Exposure Calculation

3.4.1 RF Exposure calculation for SubGHz radio.

Calculations for this report are based on highest power measured for each band.

Frequency Range (MHz)	EIRP[1] (dBm)	EIRP[1] (mW)	Power Density (W/m^2) @20 cm	RSS Limit (W/m^2)	Results
904 - 926	19.68	92.897	0.1848	2.789	Complies

Frequency Range (MHz)	EIRP[1] (dBm)	EIRP[1] (mW)	Power Density (mW/cm^2) @20 cm	FCC Limit (mW/cm^2)	Results
904 - 926	19.68	92.897	0.01848	0.617	Complies

[1]Note: Antenna gains below 0 are considered as 0dBi.

Appendix A: Power Density Calculation

The Power Density can be calculated using the formula

$$S = EIRP/ 4\pi D^2$$

Where: S is Power Density in mW/cm^2
D is the distance from the antenna in cm.

4.0 Document History

Revision/ Job Number	Writer Initials	Reviewer Initials	Date	Change
1.0/ G104317434	AC	KV	May 11, 2020	Original document