

# RADIO FREQUENCY EXPOSURE EVALATION

## General Information

Applicant : Savant Technologies LLC, dba GE Lighting, a Savant company  
EUT Description : Direct Connect Full Color BR30,  
Direct Connect Reveal Full Color BR30  
Model No. : CLEDR309CD1@, CLEDR309CDRV@  
Radio Tech : BLE 5.0, IEEE 802.11 b/g/n.

## Description of Test Facility

Name of Firm : Audix Technology (Shanghai) Co., Ltd.  
Site Location : 3F, Building 34, No. 680 Guiping Rd.,  
Caohejing, Hi-Tech Park, Shanghai 200233, China  
NVLAP, Lab Code : 200371-0  
FCC Designation Number : CN5027  
Test Firm Registration Number: 954668

## Evaluation Method

*KDB 447498 D04 Interim General RF Exposure Guidance v01*

## Applicable Standard:

*KDB 447498 D04 v01:*

*Section 2.1.3: SAR-Based Exemption.*

A more comprehensive exemption, considering a variable power threshold that depends on both the separation distance and power, is provided in § 1.1307(b)(3)(i)(B). This exemption is applicable to the frequency range between 300 MHz and 6 GHz, with test separation distances between 0.5 cm and 40 cm, and for all RF sources in fixed, mobile, and portable device exposure conditions. Accordingly, a RF source is considered an RF exempt device if its available maximum time-averaged (matched conducted) power or its effective radiated power (ERP), whichever is greater, are below a specified threshold. This exemption threshold was derived based on general population 1-g SAR requirements and is detailed in Appendix C.

*FCC CFR 47 §1.1307(b)(3)(i)(B):*

A single RF source is exempt if the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold  $P_{th}$  (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive).  $P_{th}$  is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left( \frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

$d$  = the separation distance (cm);

### RF Exposure evaluation:

Mode	Frequency	Max output power		Ant. Gain	Max E.I.R.P		P <sub>th</sub>
	MHz	dBm	mW	dBi	dBm	mW	mW
BLE1M	2480	10.553	11.36	-0.99	9.563	9.043	3060
BLE2M	2480	10.305	10.73	-0.99	9.315	8.541	3060
802.11b	2412	16.79	47.75	-0.99	15.8	38.019	3060
802.11g	2437	14.64	29.11	-0.99	13.65	23.174	3060
802.11n20	2437	14.42	27.67	-0.99	13.43	22.029	3060
802.11n40	2422	13.58	22.80	-0.99	12.59	18.155	3060

Note1: For this EUT, and the separation distance is 20 cm. And the Bluetooth and WIFI can not transmit at the same time.

Note2: The Conducted output power and Maximum EIRP both no greater than the threshold P<sub>th</sub>, that meets the exemption, the RF exposure evaluation is not required.

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