

RADIO FREQUENCY EXPOSURE EVALATION

General Information

Applicant : LIVOLO INTERNATIONAL ELECTRIC LTD.
EUT Description : Wireless module
Model No. : TLR8258
Radio Tech : IEEE 802.15.4 (OQPSK)
Frequency : 2405MHz

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

Results

The EUT is one module, and it can operated as portable device, and it is compliant with the RF Exposure Exemption.



For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Producer :

Huimin Yan

HUIMIN YAN / Assistant

Authorized Signature(s)

Jarey Lu

JAREY LU / Deputy Assistant Manager

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	Output Power		Antenna Gain	Maximum EIRP		Threshold P_{th}	Verdict
	(MHz)	(dBm)	(mW)	(dBi)	(dBm)	(mW)	(mW)	
802.15.4	2405	-0.424	0.91	2	1.576	1.437	2.78	Compliant

Note1: For this EUT which can operated as portable device, the separation distance is 0.5 cm.

Note2: The Conducted output power and Maximum EIRP both no greater than the threshold P_{th} , that meets the exemption, the RF exposure evaluation is not required.

Note3: Maximum EIRP (dBm)=Output Power (dBm)+ Antenna Gain (dBi).

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