SAR Exclusion Evaluation Report

Applicant	:	Immerex Inc., dba LUCI
Product Type	:	Remote
Trade Name	:	LUCI
Model Number	:	VRP2011BA
Date of Received	:	May 14, 2018
Test Period	:	Sep. 25, 2018
Date of Issued	:	Sep. 26, 2018

Issue by

Approved By : Yung-Tan Tsai (Yung Tan Tsai)

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Taiwan Accreditation Foundation accreditation number: 1330

Test Firm MRA designation number: TW0010

Revision History

Rev.	Issue Date	Revisions	Revised By
00	Sep. 26, 2018	Initial Issue	Shelly Chen

Contents

1. Description of Equipment under Test (EUT)

Applicant	Immerex Inc., dba LUCI 2755 Great America Way, Suite 155 Santa Clara CA 95054 United States	
Manufacturer	ShenZhen IPEGA Electronics Technology Co.,Ltd. 1-3/F,Building 4A,Block 88,Long Wang Miao Industrial Zone,Bai Shi Xia,Fuyong Street,Bao'an District,Shenzhen City	
Product Type	Remote	
Trade Name	LUCI	
Model Number	VRP2011BA	
FCC ID	2AMPVVRP2011BA	
Frequency Range	Operate Band	Frequency Range (MHz)
	Bluetooth LE	2402 ~ 2480
Antenna Information	Type	Max. Gain (dBi)
	PCB Antenna	0

The above equipment was tested by A Test Lab Techno Corp. For compliance with the requirements set forth in 47 CFR § 2.1093. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

2. Reference Testing Standards

Standard	Description	Version
ANSI/IEEE C95.1	American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300 kHz to 100 GHz, New York.	1992
IEEE 1528	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head From Wireless Communications Devices: Measurement Techniques.	2013
FCC 47 CFR Part 2.1093	Radiofrequency radiation exposure evaluation: portable devices.	---
FCC KDB 447498 D01	General RF Exposure Guidance - provides guidance pertaining to RF exposure requirements for mobile and portable device equipment authorizations.	v06

3. SAR Test Exclusion

As RF exposure evaluation of portable device, SAR test is not required when the evaluation results. According to KDB 447498 4.3.1, unless excluded by specific FCC test procedures, portable devices shall include SAR data for equipment approval. SAR test necessity will be based on the exclusion result.

The test exclusion refers KDB 447498 as below:

≤50mm:

[(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR

>50mm and <200mm:

a) [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz

b) [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

3.1 Conducted Power

The conducted power turn-up tolerance, please reference manufacturer specification.

Operate Band	Modulation Type	Data Rate (Mbps)	Frequency (MHz)	Average Power (dBm)
Bluetooth LE	GFSK	1	2402	-9.91
			2440	-10.85
			2480	-11.35

3.2 Antenna Location

Transmitter and antenna implementation	
Operate Band	Bluetooth Antenna
Bluetooth LE	V

Ant. Used	Antenna to user distance (mm)					
	Front	Back	Side 1	Side 2	Side 3	Side 4
Bluetooth Antenna	5	5	5	5	5	5

3.3 Evaluation Results

The evaluation of SAR test reduction according to KDB447498

SAR test is not required when the results showed “EXEMPT”.

SAR test reduction										
Ant. Used	Band	Frequency (GHz)	Tune-Power		Calculated threshold value					
			(dBm)	(mW)	Front	Back	Side 1	Side 2	Side 3	Side 4
Bluetooth Antenna	Bluetooth LE (GFSK)	2.48	-9.5	0	0	0	0	0	0	0
					EXEMPT	EXEMPT	EXEMPT	EXEMPT	EXEMPT	EXEMPT

Exclusion Considerations: SAR is not required

Note:
1. Calculated Value include string "mW",that is meam through compare output power with threshold, if the output power more than threshold value the SAR test should be perform. Otherwise,the SAR test could be exempt. (> 50 mm)
2. Calculated Value only inculde number format, that is mean through compare output power with threshold, if the Calculated value more than 3, the SAR test should be perform. Otherwise, the SAR test could be exempt. (<50 mm)
3. When an antenna qualifies for the standalone SAR test exclusion of KDB 447498 section 4.3.1 and also transmits simultaneously with other antennas, the standalone SAR value must be estimated according to KDB 447498 section "4.3.2. Simultaneous transmission SAR test exclusion considerations b) "
4. We used highest frequency and power,that result should be evaluated the worst case.
5. Power and distance are rounded to the nearest mW and mm before calculation.
6. The result is rounded to one decimal place for comparison.
7. We use a minimum distance of 5 mm for bluetooth function.