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RF Exposure Evaluation Report

Report No. : CQASZ20210500027EX-04

Applicant: Dongguan Lingjie Electronics & Technology Co., Ltd

Address of Applicant: Building A(Floor 1-4) and B(Floor 1-5), No. 16 Zhenxing North Road, Taiyuan Community, Xiegang Town, Dongguan City, Guangdong Province, 523590, P.R.C

Manufacturer: Dongguan Lingjie Electronics & Technology Co., Ltd

Address of Manufacturer: Building A(Floor 1-4) and B(Floor 1-5), No. 16 Zhenxing North Road, Taiyuan Community, Xiegang Town, Dongguan City, Guangdong Province, 523590, P.R.C

Equipment Under Test (EUT):

Product: Wireless Keyboard

All Model: K911T, K922T, K901T, K933T, K913T, K902T, K903T, K921T, K923T, K912T

Test Model No.: K911T

Brand Name: N/A

FCC ID: 2ANBU-K911T

Standards: 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB447498D01 General RF Exposure Guidance v06

Date of Test: Apr. 23, 2021 to May 10, 2021

Date of Issue: May 10, 2021

Test Result : PASS

Tested By:

Lewis Zhou

(Lewis Zhou)

Reviewed By:

Timo Lei

(Timo Lei)

Approved By:

Sheek Luo

(Sheek Luo)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210500027EX-04	Rev.01	Initial report	May 10, 2021

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3 General Information

3.1 Client Information

Applicant:	Dongguan Lingjie Electronics & Technology Co., Ltd
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3.2 General Description of EUT

Product Name:	Wireless Keyboard
Test Model No.:	K911T
Trade Mark:	N/A
Hardware Version:	V1.0
Software Version:	V1.8
Product Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
EUT Power Supply:	battery: 3.0V(2*1.5V)

3.3 General Description of 2.4G

Operation Frequency:	2402-2480MHz
Modulation Type:	GFSK
Transfer Rate:	1Mbps
Number of Channel:	16
Fixed frequency mode	Combine buttons to enter engineering mode
Product Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Antenna Type:	PCB antenna

3.4 General Description of EDR

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V3.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK
Transfer Rate:	1Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Antenna Type:	PCB antenna

3.5 General Description of BLE

Operation Frequency:	2402-2480MHz
Modulation Type:	GFSK
Transfer Rate:	1Mbps(Test software see page 6)
Number of Channel:	40
Product Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Antenna Type:	PCB antenna
Antenna Gain:	0dBi

4 RF Exposure Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

4.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\left[\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

4.1.3 EUT RF Exposure Evaluation

1) For 2.4G

Antenna Gain: 0dB

Measurement Data

GFSK mode				
Test Channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.947	0±1	1	1.259
Middle(2441MHz)	0.871	0±1	1	1.259
Highest(2480MHz)	0.915	0±1	1	1.259

2) For BLE

GFSK mode				
Test Channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.540	-1±1	0	1.00
Middle(2440MHz)	-1.525	-1±1	0	1.00
Highest(2480MHz)	-1.577	-1±1	0	1.00

2) For EDR

GFSK mode				
Test Channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.495	-1±1	0	1.00
Middle(2441MHz)	-1.439	-1±1	0	1.00
Highest(2480MHz)	-1.383	-1±1	0	1.00

Worst case:						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tuneup Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	0.947	0±1	1	1.259	0.390	3.0
Middle (2441MHz)	0.871	0±1	1	1.259	0.393	
Highest (2480MHz)	0.915	0±1	1	1.259	0.397	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20210500027EX-01, CQASZ20210500027EX-02 and CQASZ20210500027EX-03