



Shenzhen Huaxia Testing Technology Co., Ltd

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +86-755-26648640

Fax: +86-755-26648637

Website: www.cqa-cert.com

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RF Exposure Evaluation Report

Report No. : CQASZ20200400226E-02

Applicant: Guangzhou Beslead Trading Co. Ltd.

Address of Applicant: 501 Rm, Building 15, 38 Xingya Road 2, Shilou Town, Panyu District, Guangzhou, Guangdong, China

Equipment Under Test (EUT):

EUT Name: Smart Wireless Bluetooth Keyboard case

Model No.: KA105B, KA105, KA106B, KA106, KA205B, KA205, KA206B, KA206, KA305B, KA305, KA306B, KA306, KA405B, KA405, KA406B, KA406, KA505B, KA505, KA506B, KA506, KA705, KA705B, KA706B, KA706, KA805, KA805B, KA806B, KA806, KA097, KA097B, KA102, KA102B, KU-001, KU-002, KU-003, KU-004, KU-005, KU-006, KU-007, KU-008, KW101, KW101B, KW102, KW102B, KW103, KW103B, KW104, KW104B, KS101, KS102, KS103, KS104, KS105, KS106, KH101, KH102, KH103, KH104, KH105, KH106, KH107, KH108, KH109, KH100, KB-001, KB-002, KB-003, KB-004, KB-005, KB-006, KB-007, KB-008, KB-009, KB-010, K97, K102, K105, F02, F04, F06

Test Model No.: KA097B

Brand Name: N/A

FCC ID: 2AV4L-KA097B

Standards: 47 CFR Part 1.1307, 47 CFR Part 2.1093, KDB447498D01 General RF Exposure Guidance v06

Date of Receipt: 2020-04-02

Date of Test: 2020-04-02 to 2020-04-08

Date of Issue: 2020-04-08

Test Result : PASS*

*In the configuration tested, the EUT complied with the standards specified above

Tested By:

Tom Chen

(Tom Chen)

Reviewed By:

Sheek Luo

(Sheek Luo)

Approved By:

Jack Ai

(Jack Ai)



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1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20200400226E-02	Rev.01	Initial report	2020-04-08

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3 General Information

3.1 Client Information

Applicant:	Guangzhou Beslead Trading Co. Ltd.
Address of Applicant:	501 Rm, Building 15, 38 Xingya Road 2, Shilou Town, Panyu District, Guangzhou, Guangdong, China
Manufacturer:	Shenzhen Defengyuan Technology Co., Ltd.
Address of Manufacturer:	9th Floor, Hengshou Tech Park Building B, Heshuikou Fourth Industrial Zone, Gongming St., Guangming New District, Shenzhen, Guangdong, China

3.2 General Description of EUT

Product Name:	Smart Wireless Bluetooth Keyboard case
Model No.:	KA105B, KA105, KA106B, KA106, KA205B, KA205, KA206B, KA206, KA305B, KA305, KA306B, KA306, KA405B, KA405, KA406B, KA406, KA505B, KA505, KA506B, KA506, KA705, KA705B, KA706B, KA706, KA805, KA805B, KA806B, KA806, KA097, KA097B, KA102, KA102B, KU-001, KU-002, KU-003, KU-004, KU-005, KU-006, KU-007, KU-008, KW101, KW101B, KW102, KW102B, KW103, KW103B, KW104, KW104B, KS101, KS102, KS103, KS104, KS105, KS106, KH101, KH102, KH103, KH104, KH105, KH106, KH107, KH108, KH109, KH100, KB-001, KB-002, KB-003, KB-004, KB-005, KB-006, KB-007, KB-008, KB-009, KB-010, K97, K102, K105, F02, F04, F06
Test Model No.:	KA097B
Trade Mark:	N/A
Hardware Version:	DFY_M031_V1.6
Software Version:	Broadcom Bluetool V1.6.8.6
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.1
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK
Transfer Rate:	1Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	Broadcom BlueTool (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	2.78dBi
Power Supply:	lithium battery:DC3.7V, Charge by DC5.0V

Model No.: KA105B, KA105, KA106B, KA106, KA205B, KA205, KA206B, KA206, KA305B, KA305, KA306B, KA306, KA405B, KA405, KA406B, KA406, KA505B, KA505, KA506B, KA506, KA705, KA705B, KA706B, KA706, KA805, KA805B, KA806B, KA806, KA097, KA097B, KA102, KA102B, KU-001, KU-002, KU-003, KU-004, KU-005, KU-006, KU-007, KU-008, KW101, KW101B, KW102, KW102B, KW103, KW103B, KW104, KW104B, KS101, KS102, KS103, KS104, KS105, KS106, KH101, KH102, KH103, KH104, KH105, KH106, KH107, KH108, KH109, KH100, KB-001, KB-002, KB-003, KB-004, KB-005, KB-006, KB-007, KB-008, KB-009, KB-010, K97, K102, K105, F02, F04, F06

Only the model KA097B was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance and model name.

4 SAR 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

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.340	-2.0±1	-1.0	0.794
Middle(2441MHz)	-0.850	-1.5±1	-0.5	0.708
Highest(2480MHz)	-0.300	-1.0±1	0	1.000

Worst case: $\pi/4$ DQPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-1.340	-2.0±1	-1.0	0.794	0.246	3.0
Middle (2441MHz)	-0.850	-1.5±1	-0.5	0.708	0.221	
Highest (2480MHz)	-0.300	-1.0±1	0	1.000	0.315	
Conclusion: the calculated value ≤ 3.0 , SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200400226E-01