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RF Exposure Evaluation Report

Report No. : CQASZ20200500401E-02
Applicant: AKSys Co., Ltd.
Address of Applicant: A706, Ace Cheonggye Tower, 53 Seonggogae-ro, Uiwang-si, Gyeonggi-do, Korea
Equipment Under Test (EUT):
EUT Name: WIRELESS CONTROLLER
Mode No.: Gamepad S1+
Brand Name: SHAKS
FCC ID: 2AQKJ-S1P
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2020-05-19
Date of Test: 2020-05-19 to 2020-05-26
Date of Issue: 2020-05-26
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)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20200500401E-02	Rev.01	Initial report	2020-05-26

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3 General Information

3.1 Client Information

Applicant:	AKSys Co., Ltd.
Address of Applicant:	A706, Ace Cheonggye Tower, 53 Seonggogae-ro, Uiwang-si, Gyeonggi-do, Korea
Manufacturer:	AKSys Co., Ltd.
Address of Manufacturer:	A706, Ace Cheonggye Tower, 53 Seonggogae-ro, Uiwang-si, Gyeonggi-do, Korea
Factory:	Shenzhen Chenxi Electronic Technology Co., Ltd.
Address of Factory:	Floor 4, Building 3, Jiuyang Industrial Park, Hepingvillage, Fuyong town, Baoan District, Shenzhen

3.2 General Description of EUT

Product Name:	WIRELESS CONTROLLER
Model No.:	Gamepad S1+
Trade Mark:	SHAKS
Hardware Version:	V1.1
Software Version:	V1.1
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.2
Modulation Type:	GFSK
Transfer Rate:	1Mbps
Number of Channel:	40
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	Beken BLE RF Test_v1.0 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	1.03dBi
EUT Power Supply:	Li-ion battery:DC3.7V 500mAh, Charge by DC5.0V

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

For BLE

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.87	-2.0±1	-1.0	0.794
Middle(2440MHz)	-2.26	-2.0±1	-1.0	0.794
Highest(2480MHz)	-2.69	-2.0±1	-1.0	0.794

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-1.87	-2.0±1	-1	0.794	0.246	3.0
Middle (2440MHz)	-2.26	-2.0±1	-1	0.794	0.248	
Highest (2480MHz)	-2.69	-2.0±1	-1	0.794	0.250	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200500401E-01.