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RF Exposure Evaluation Report

Report No. :	CQASZ20190700645E-02
Applicant:	AKSys Co., Ltd.
Address of Applicant:	A706, Ace Cheonggye Tower, 53 Seonggogae-ro, Uiwang-si, Gyeonggi-do, Korea
Equipment Under Test (EUT):	
Product:	WIRELESS CONTROLLER
Model No.:	Gamepad S1
Brand Name:	SHAKS
FCC ID:	2AQKJ-S1
Standards:	47 CFR Part 1.1307 47 CFR Part 1.1310 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2019-07-29
Date of Test:	2019-07-29 to 2019-07-30
Date of Issue:	2019-07-30
Test Result :	**PASS***

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

Tested By: _____
(Tom Chen)

Reviewed By: _____
(Aaron Ma)

Approved By: _____
(Jack Ai)

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20190700645E-02	Rev.01	Initial report	2019-07-30

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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

3.2 General Description of EUT

Name:	WIRELESS CONTROLLER
Model No.:	Gamepad S1
Trade Mark :	SHAKS
Hardware Version:	V1.3
Software Version:	170706
Frequency Range:	2402 MHz ~ 2480MHz
Modulation Type:	GFSK
Number of Channels:	79(declared by the client)
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
Antenna Type:	PCB antenna
Antenna Gain:	-2.21dBi
Power Supply:	lithium battery:DC3.7V, Charge by DC5.0V

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:

[(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, where

f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation[17]
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

4.2 EUT RF Exposure Evaluation

1) For 2.4G

eirp = pt x gt = $(E \times d)^2/30$

where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, ---$10^{((dB\mu V/m)/20)}/10^6$,

d = measurement distance in meters (m)---3m,

So pt = $(E \times d)^2/30$ / gt

The worst case (refer to report CQASZ20190700645E-01) is below:

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Polarization
2480	88.27	Peak
2480	86.98	Average

For 2480MHz wireless:

Field strength = 88.27dBμV/m @3m

Ant. gain -2.21dBi; so Ant numeric gain=0.6

So pt={$[10^{(88.27/20)}/10^6 x3]^2/30$ /0.6}x1000mW =0.335mW

So (0.335mW/5mm)x √2.480GHz = 0.106,

0.106<3.0 for 1-g SAR

So the SAR report is not required.