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RF Exposure Evaluation Report

Report No. : CQASZ20190700633E-02
Applicant: ZAGG Inc.
Address of Applicant: 910 West Legacy Center Way, Midvale, Utah 84047, USA
Manufacturer: ZAGG Inc.
Address of Manufacturer: 910 West Legacy Center Way, Midvale, Utah 84047, USA
Factory: ZAGG Inc.
Address of Factory: 910 West Legacy Center Way, Midvale, Utah 84047, USA
Equipment Under Test (EUT):
Product: ZAGG Keyboard
Model No.: ZKB11RTB41, ZKB11FB41, ZKB79FB41
Brand Name: ZAGG
FCC ID: QTG-ZKPIB
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Test: 2019-04-04 to 2019-04-09 and 2019-07-24 to 2019-07-29
Date of Issue: 2019-07-29
Test Result : PASS*

Tested By:

Daisy Qin

(Daisy Qin)

Reviewed By:

Aaron Ma

(Aaron Ma)

Approved By:

Jack Ai
(Jack Ai)



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

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
CQASZ20190400219E-02	Rev.01	Initial report	2019-04-09
CQASZ20190700633E-02	Rev.02	See the note	2019-07-29

Note: 1) Add tow models(ZKB11FB41, ZKB79FB41) and trademark(ZAGG) on the original report.

2) Change the product name from Keyboard to ZAGG Keyboard

3) The antenna gain of the product changes from 0dBi to 1.87dBi

4) These three models of motherboards are the same, the difference is the size of the product, product model, product appearance. Specific differences see product photos.

5)Considering to the difference, The radiated spurious emissions and conducted emission was fully tested.

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3 General Information

3.1 Client Information

Applicant:	ZAGG Inc.
Address of Applicant:	910 West Legacy Center Way, Midvale, Utah 84047, USA
Manufacturer:	ZAGG Inc.
Address of Manufacturer:	910 West Legacy Center Way, Midvale, Utah 84047, USA
Factory:	ZAGG Inc.
Address of Factory:	910 West Legacy Center Way, Midvale, Utah 84047, USA

3.2 General Description of EUT

Product Name:	ZAGG Keyboard
Model No.:	ZKB11RTB41, ZKB11FB41, ZKB79FB41
Test Model No.:	ZKB11RTB41
Trade Mark:	ZAGG
Hardware Version:	V1.0
Software Version:	V1.0
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:	Pixart BLE Tool v 1.0.10 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	1.87dBi
EUT Power Supply:	lithium battery:DC3.7V, 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

1) For BLE

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.86	1±1	2	1.585
Middle(2441MHz)	1.16	1±1	2	1.585
Highest(2480MHz)	0.55	1±1	2	1.585

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)	0.86	1±1	2	1.585	0.49	3.0
Middle (2440MHz)	1.16	1±1	2	1.585	0.50	
Highest (2480MHz)	0.55	1±1	2	1.585	0.50	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20190700633E-01