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# RF Exposure Evaluation Report

**Report No. :** CQASZ20180700067E-02

**Applicant:** ZAGG Inc.

**Address of Applicant:** 910 West Legacy Center Way Midvale, Utah, United States, 84047

**Manufacturer:** ZAGG Inc.

**Address of Manufacturer:** 910 West Legacy Center Way Midvale, Utah, United States, 84047

**Factory:** Dongguan Kailai Eletronic Co.,Ltd.

**Address of Factory:** No 36# Industrial Main Road, 2nd District (Shahukou), Eastern Industrial Park, Changping Town, Dongguan City, Guangdong Province, China

**Equipment Under Test (EUT):**

**Product:** IFROGZ AUDIO

**Model No.:** IFIEPP29, IFIEDP29, IFOETP29

**Test Model No.:** IFOETP29

**Brand Name:** IFROGZ

**FCC ID:** QTG-IAIYP

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

**Date of Test:** 2018-07-20 to 2018-07-24

**Date of Issue:** 2018-07-24

**Test Result :** **PASS\***

**Tested By:**

*Martin Lee*

( Martin Lee)

**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
CQASZ20180700067E-02	Rev.01	Initial report	2018-07-24

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### 3 General Information

#### 3.1 Client Information

Applicant:	ZAGG Inc.
Address of Applicant:	910 West Legacy Center Way Midvale, Utah, United States, 84047
Manufacturer:	ZAGG Inc.
Address of Manufacturer:	910 West Legacy Center Way Midvale, Utah, United States, 84047
Factory:	Dongguan Kailai Eletronic Co.,Ltd.
Address of Factory:	No 36# Industrial Main Road, 2nd District (Shahukou), Eastern Industrial Park, Changping Town, Dongguan City, Guangdong Province, China

#### 3.2 General Description of EUT

Product Name:	IFROGZ AUDIO
Model No.:	IFIEPP29, IFIEDP29, IFOETP29
Test Model No.:	IFOETP29
Trade Mark:	IFROGZ
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Sample Type:	portable production
Test Software of EUT:	Non Signaling Test Tool (manufacturer declare )
Antenna Type:	PCB antenna
Antenna Gain:	3.0dBi
Power Supply:	lithium battery: Model: EN501227 DC3.7V, Charge by DC5.0V

Note:

All model: IFIEPP29, IFIEDP29, IFOETP29

Only the model IFOETP29 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  $\leq 50$  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 calculation<sup>17</sup>

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  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 BT:

Measurement Data

GFSK mode	
Test channel	Peak Output Power (dBm)
Lowest	-0.350
Middle	0.270
Highest	-0.320
π/4DQPSK mode	
Test channel	Peak Output Power (dBm)
Lowest	-0.130
Middle	0.580
Highest	0.130
8DPSK mode	
Test channel	Peak Output Power (dBm)
Lowest	0.440
Middle	1.250
Highest	0.700

The Max Conducted Peak Output Power is 1.25dBm in middle channel(2.441GHz);

The best case gain of the antenna is 3.0dBi.

EIRP= 1.25dBm + 3.0dBi = 4.25dBm

4.25dBm logarithmic terms convert to numeric result is nearly 2.661mW

According to the formula. calculate the EIRP test result:

$$\left[ \frac{\text{max. power of channel, including tune-up tolerance, mW}}{(\text{min. test separation distance, mm})} \right] \cdot \sqrt{f(\text{GHz})}$$

General RF Exposure =  $(2.661\text{mW} / 5 \text{ mm}) \times \sqrt{2.441\text{GHz}} = 0.831$  ①

SAR requirement:

S= 3.0 ② ;

① < ②.

So the SAR report is not required.

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20180700067E-01