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Report Template Version: V03
Report Template Revision Date: Mar.1st, 2017

# RF Exposure Evaluation Report

| | |
|---|---|
| **Report No. :** | CQASZ20180100013E-02 |
| **Applicant:** | FUZHOU EMAX ELECTRONIC CO., LTD |
| **Address of Applicant:** | Building #12-#16, CangShan Industrial Area, JuYuanZhou JinShan District, Fuhou, China. |
| **Manufacturer:** | FUZHOU EMAX ELECTRONIC CO., LTD |
| **Address of Manufacturer:** | Building #12-#16, CangShan Industrial Area, JuYuanZhou JinShan District, FuZhou, China. |
| **Factory:** | N/A |
| **Address of Factory:** | N/A |
| **Equipment Under Test (EUT):** | |
| **Product:** | BLUETOOTH SPEAKER CLOCK |
| **Model No.:** | EM9921-P2 |
| **Brand Name:** | N/A |
| **FCC ID:** | WEC-EM9921-P2 |
| **Standards:** | 47 CFR Part 1.1307<br>47 CFR Part 2.1093<br>KDB447498D01 General RF Exposure Guidance v06 |
| **Date of Test:** | 2018-03-20 to 2018-03-28 |
| **Date of Issue:** | 2018-03-28 |
| **Test Result :** | **PASS*** |

***Tested By:*** Aaron Ma

***(Aaron Ma)***

***Reviewed By:*** Owen Zhou

***(Owen Zhou)***

***Approved By:***

***( Jack Ai)***

SHENZHEN HUAXIA TESTING TECHNOLOGY CO., LTD 华夏准测 APPROVED

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

# 2 Version

**Revision History Of Report**

| Report No. | Version | Description | Issue Date |
|---|---|---|---|
| CQASZ20180100013EW-02 | Rev.01 | Initial report | 2018-03-28 |

# 3 Contents

# 4 General Information

## 4.1 Client Information

| | |
|---|---|
| Applicant: | FUZHOU EMAX ELECTRONIC CO., LTD |
| Address of Applicant: | Building #12-#16, CangShan Industrial Area, JuYuanZhou JinShan District, FuZhou, China. |
| Manufacturer: | FUZHOU EMAX ELECTRONIC CO., LTD |
| Address of Manufacturer: | Building #12-#16, CangShan Industrial Area, JuYuanZhou JinShan District, FuZhou, China. |

## 4.2 General Description of EUT

| | |
|---|---|
| Product Name: | BLUETOOTH SPEAKER CLOCK |
| Model No.: | EM9921-P2 |
| Trade Mark: | N/A |
| Hardware Version: | V1.0 |
| Software Version: | V1.0 |
| Operation Frequency: | 2402MHz~2480MHz |
| Bluetooth Version: | V4.2 |
| Modulation Technique: | Frequency Hopping Spread Spectrum(FHSS) |
| Modulation Type: | GFSK, π/4DQPSK, 8DPSK |
| Number of Channel: | 79 |
| Hopping Channel Type: | Adaptive Frequency Hopping systems |
| Sample Type: | portable production |
| Test Software of EUT: | AppoTech RF Control Kit V4.2.10 (manufacturer declare ) |
| Antenna Type: | PCB antenna |
| Antenna Gain: | 1.2dBi |
| Power Supply: | lithium battery: DC3.7V, Charge by DC5.0V |

# 5 SAR Evaluation

## 5.1 RF Exposure Compliance Requirement

### 5.1.1 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.

### 5.1.2 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

### 5.1.3 EUT RF Exposure

**For BT:**

**Measurement Data**

| GFSK mode | |
|---|---|
| Test channel | Peak Output Power (dBm) |
| Lowest | 4.84 |
| Middle | 4.41 |
| Highest | 3.72 |
| π/4DQPSK mode | |
| Test channel | Peak Output Power (dBm) |
| Lowest | 4.05 |
| Middle | 3.60 |
| Highest | 2.47 |
| 8DPSK mode | |
| Test channel | Peak Output Power (dBm) |
| Lowest | 4.23 |
| Middle | 3.59 |
| Highest | 2.74 |

The Max Conducted Peak Output Power is 4.84dBm in lowest channel(2.402GHz);

The best case gain of the antenna is 1.2dBi.

EIRP= 4.84dBm + 1.2dBi =6.04dBm

6.04dBm logarithmic terms convert to numeric result is nearly 4.02mW

According to the formula. calculate the EIRP test result:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)]

General RF Exposure = (4.02mW / 5 mm ) x √2.402GHz = 1.246 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.: CQASZ20180100013EW-01