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RF Exposure Evaluation Report

Report No. : CQASZ20180800067E-03

Applicant: BRIGHT INDUSTRIES COMPANY LIMITED

Address of Applicant: UNIT 16 17F GOLDEN ERA PLAZA NO 39-55 SAI YEE STREET MONG KOK HONG KONG

Manufacturer: DONG GUAN JIA SHENG LIGHTING TECHNOLOGY CO.,LTD

Address of Manufacturer: Shutian Village, Humen Town, Dongguan City, Guangdong Province, China

Equipment Under Test (EUT):

Product: LED Lighting speaker

All Model No.: FWS-17, FLM-17

Test Model No.: FWS-17

Brand Name: MoriMori

FCC ID: 2AJ8KSP1701

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

Date of Test: 2018-08-17 to 2018-08-22

Date of Issue: 2018-08-22

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
CQASZ20180800067E-03	Rev.01	Initial report	2018-08-22

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3 General Information

3.1 Client Information

Applicant:	BRIGHT INDUSTRIES COMPANY LIMITED
Address of Applicant:	UNIT 16 17F GOLDEN ERA PLAZA NO 39-55 SAI YEE STREET MONG KOK HONG KONG
Manufacturer:	DONG GUAN JIA SHENG LIGHTING TECHNOLOGY CO.,LTD
Address of Manufacturer:	Shutian Village, Humen Town, Dongguan City, Guangdong Province, China

3.2 General Description of EUT

Product Name:	LED Lighting speaker
All Model No.:	FWS-17, FLM-17
Test Model No.:	FWS-17
Trade Mark:	MoriMori
Hardware Version:	V2.1
Software Version:	V0.1
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.0
Modulation Type:	BT classic: GFSK, $\pi/4$ DQPSK BLE: GFSK
Number of Channel:	BT classic:79 BLE:40
Sample Type:	portable production
Test Software of EUT:	FCCAssist 2.4 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	-0.58dBi
Power Supply:	lithium battery:DC3.7V, 1700mAh, 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 BT: Measurement Data

GFSK mode	
Test channel	Peak Output Power (dBm)
Lowest	-2.110
Middle	-1.870
Highest	-2.110
$\pi/4$ DQPSK mode	
Test channel	Peak Output Power (dBm)
Lowest	-1.090
Middle	-0.950
Highest	-1.220

Remark: The Conducted Peak Output Power data refer to report Report No.: CQASZ20180800067E-01

For BLE:

Measurement Data

GFSK mode	
Test channel	Peak Output Power (dBm)
Lowest	0.82
Middle	0.9
Highest	0.57

Remark: The Conducted Peak Output Power data refer to report Report No.: CQASZ20180800067E-02

BDR, EDR and BLE can not simultaneous transmitting at same time.

The worst case data: BLE_GFSK_middle channel

The Max Conducted Peak Output Power is 0.9dBm in middle channel(2.441GHz);

The best case gain of the antenna is -0.58dBi.

EIRP= 0.9dBm - 0.58dBm= 0.32dBm

0.32dBm logarithmic terms convert to numeric result is nearly 1.1mW

According to the formula. calculate the EIRP test result:

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

General RF Exposure = $(1.1\text{mW} / 5 \text{ mm}) \times \sqrt{2.441\text{GHz}} = 0.34$ ①

SAR requirement:

S= 3.0 ② ;

① < ②.

So the SAR report is not required.