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RF Exposure Evaluation Report

Report No. : CQASZ20191001026E-02
Applicant: Binatone Electronics International Ltd.
Address of Applicant: Floor 23A, 9 Des Voeux Road West, Sheung Wan Hong Kong, China
Equipment Under Test (EUT):
EUT Name: TWS Bluetooth Headset
Model No.: SH055
Brand Name: Motorola
FCC ID: VLJ-SH055
Standards: 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2019-10-12
Date of Test: 2019-10-12 to 2019-10-29
Date of Issue: 2019-10-30
Test Result : **PASS***

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

Tested By:

Tom Chen

(Tom Chen)

Reviewed By:

Sheek Luo

(Sheek Luo)

Approved By:

Jack Ai

(Jack Ai)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20191001026E-02	Rev.01	Initial report	2019-10-30

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3 General Information

3.1 Client Information

Applicant:	Binatone Electronics International Ltd.
Address of Applicant:	Floor 23A, 9 Des Voeux Road West, Sheung Wan Hong Kong, China
Manufacturer:	Binatone Electronics International Ltd.
Address of Manufacturer:	Floor 23A, 9 Des Voeux Road West, Sheung Wan Hong Kong, China

3.2 General Description of EUT

Product Name:	TWS Bluetooth Headset
Model No.:	SH055
Trade Mark:	Motorola
Hardware Version:	V1.2
Software Version:	V062
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.1
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK
Transfer Rate:	1Mbps/2Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Test Software of EUT:	FCC Assist 1.0.1.2 (manufacturer declare)
Antenna Type:	Integral antenna
Antenna Gain:	-7.34dBi
USB Cable	13cm(Unshielded)
AUX Cble	88cm(Unshielded)
Headphone Cable	70cm(Unshielded)
Power Supply:	Case:300mAh,3.7V, Charge by DC5V, 0.5A Earbud: 3.7V,222mWh, Charge by DC5V

Note:

1. Only one model number: SH055, but it comes in tow colors (black, white), only white samples were tested.
2. Since the RF parameters of the left and right earplugs are the same, only the right ear was tested in this report.

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:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{(\text{min. test separation distance, mm}) \cdot \sqrt{f(\text{GHz})}} \right] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

$f(\text{GHz})$ 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

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-6.370	-6±1	-5	0.316
Middle(2441MHz)	-6.010	-6±1	-5	0.316
Highest(2480MHz)	-5.190	-5±1	-4	0.398
$\pi/4$ DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-5.620	-5±1	-4	0.398
Middle(2441MHz)	-5.230	-5±1	-4	0.398
Highest(2480MHz)	-4.430	-4±1	-3	0.501

Worst case: $\pi/4$ DQPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-5.620	-5±1	-4	0.398	0.12	3.0
Middle (2441MHz)	-5.230	-5±1	-4	0.398	0.12	
Highest (2480MHz)	-4.430	-4±1	-3	0.501	0.16	
Conclusion: the calculated value ≤ 3.0 , SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20191001026E-02