



SAR Evaluation Report

Application No.: SZCR2103020294ET(SGS SZ No.:T52110240179EM)
Applicant: MGA Entertainment (HK) Ltd.
Address of Applicant: Suite 301, 3/F, Chinachem Golden Plaza, No.77 Mody Road, Tsim Sha Tsui East, Kowloon, Hong Kong
Manufacturer: teamway international development limited
Address of Manufacturer: 602 6/F, Nan Fung Commercial Center, 19 Lam Lok Street, Kowloon Bay, Kowloon, Hong Kong
Equipment Under Test (EUT):
EUT Name: Tobi 2 Interactive Karaoke Machine
Model No.: 657566, 657566C, 657566C3, 657566DF, 657566EUC, 657566GR ♣
♣ Please refer to section 4.1 of this report which indicates which model was actually tested and which were electrically identical.
P.O. No.: HKPO21000816
Labelled Age Grading 6+YEARS
Country of Origin: CHINA
FCC ID: LU9657566
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2021-03-31
Date of Test: 2021-04-14 to 2021-04-19
Date of Issue: 2021-07-19

Test Result :	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

This report supersedes our previous report SZCR210302029404, issued on 2021-04-19, which is hereby deemed null and void.

Kenx. Xu

Kenx Xu
EMC Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch Testing Center EMC Laboratory

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2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-04-19		Original
02		2021-07-19		New

Authorized for issue by:				
		Gebin Sun		
		Gebin Sun/Project Engineer		
		Eric Fu		
		Eric Fu/Reviewer		



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4 General Information

4.1 General Description of EUT

Power supply:	6V DC(1.5V x 4 "AA" Size Batteries)
Cable(s):	Microphone cable:40cm unshielded
For BT:	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.1 Dual mode
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, pi/4DQPSK, 8DPSK
Number of Channels:	79
Channel Spacing:	1MHz
Antenna Type:	Integral
Antenna Gain:	-0.58dBi
For BLE:	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.1 Dual mode
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Data rate:	1Mb/s
Antenna Type:	Integral
Antenna Gain:	-0.58dBi

Remark:

Model No.: 657566, 657566C, 657566C3, 657566DF, 657566EUC, 657566GR

Only the model 657566 was tested. According to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on model No.



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4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

4.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.4 Deviation from Standards

None.

4.5 Abnormalities from Standard Conditions

None.

4.6 Other Information Requested by the Customer

None.



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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:

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

$f(\text{GHz})$ 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

5.1.3 EUT RF Exposure

For BT

The Max. power (including tune-up tolerance) is 0.51 dBm on the middle channel 2.441 GHz (*)

0.51 dBm logarithmic terms convert to numeric result is nearly 1.12 mW

According to the formula. calculate the test exclusion thresholds:

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

$$\text{General RF Exposure} = (1.12 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.441 \text{ GHz}} = 0.35 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$(1) < (2)$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZCR210302029406



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For BLE

The Max. power (including tune-up tolerance) -0.81 dBm on the middle channel 2.44 GHz (*)
-0.81 dBm logarithmic terms convert to numeric result is nearly 0.83 mW

According to the formula, calculate the test exclusion thresholds:

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

$$\text{General RF Exposure} = (0.83 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.44 \text{ GHz}} = 0.26 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZCR210302029407

- End of the Report -



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