

RF Exposure Evaluation

Test report
On Behalf of
FUZHOU ZHENHONG ELECTRONIC CO., LTD.
For
Karaoke Machine

Model No.: K20, K10, K30, K40

FCC ID: 2AU9Y-K20

Prepared for : **FUZHOU ZHENHONG ELECTRONIC CO., LTD.**
4th Floor, B Building, No.1, Cha Shan Road, Mawei District, Fuzhou,
Fujian, China

Prepared By : **Shenzhen HUAK Testing Technology Co., Ltd.**
1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai
Street, Bao'an District, Shenzhen City, China

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Date of Report: Sep. 04, 2020

1 General Description of EUT

Product Name:	Karaoke Machine
Model/Type reference:	K20
Serial Model:	K10,K30,K40
Trade Mark	N/A
FCC ID	2AU9Y-K20
Hardware Version:	V1.0
Software Version:	V1.5
Version:	Supported BR/EDR
Modulation:	GFSK, π/4DQPSK
Operation frequency:	2402MHz~2480MHz
Channel number:	79CH
Channel separation:	1MHz
Antenna type:	PCB Antenna
Antenna gain:	0 dBi
Power supply:	DC12V from battery

2 RF Exposure Compliance Requirement

2.1 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.

2.2 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:

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

$f(\text{GHz})$ 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

3 EUT RF Exposure

GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-6.260	-6±1	-5	0.316	0.098	3.0
Middle (2441MHz)	-4.950	-4±1	-3	0.501	0.157	
Highest (2480MHz)	-4.153	-4±1	-3	0.501	0.158	

Conclusion: the calculated value ≤3.0, SAR is exempted.

π/4DQPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-5.524	-6±1	-5	0.316	0.098	3.0
Middle (2441MHz)	-4.204	-4±1	-3	0.501	0.157	
Highest (2480MHz)	-3.216	-4±1	-3	0.501	0.158	

Conclusion: the calculated value ≤3.0, SAR is exempted.

Remark: The Max Conducted Peak Output Power data refer to report Report No.: HK2009042436-E