

# **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**

**Date of Test:       Aug. 19, 2020 ~ Sep. 04, 2020**

**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, $\pi/4$ DQPSK
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  $\leq 50$  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 calculation<sup>17</sup>

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  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