

Maximum Permissible Exposure Evaluation

FCC ID: 2AYLE-KS-G3B-13M-M

1. Client Information

Applicant	:	Shenzhen Oneking Technologies co.,Ltd.
Address	:	F5, Bldg7, YuSheng Industrial Park, Gushu Xixiang 107 National Road Baoan, Shenzhen, China
Manufacturer	:	Shenzhen Oneking Technologies co.,Ltd.
Address	:	F5, Bldg7, YuSheng Industrial Park, Gushu Xixiang 107 National Road Baoan, Shenzhen, China

2. General Description of EUT

EUT Name	:	Wireless Conferencing Speakerphone with Expansion Microphone(s)	
Models No.	:	KS-G3B-13M, KS-G3B-13M, KS-G3B-11M, KS-G3B-12M, KS-G3B-21M, KS-G3B-22M, KS-G3B-23M, KS-G3B-11N, KS-G3B-12N, KS-G3B-13N	
Model Difference	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is color.	
Sample ID	:	20210412-31-01 & 20210412-31-02	
Product Description	:	Operation Frequency:	2.4G: 2404MHz~2476MHz 5.8G: 5732MHz~5848MHz
Power Rating	:	DC 12V from adapter: Input: AC 100-240V 50/60Hz 0.6A Max Output: DC 12V2A DC 7.6V from Li-ion Battery	
Software Version	:	KO-CT-speaker-chunyingping_1.02	
Hardware Version	:	KO-CT-speaker-Main-V1.5A	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

TB-RF-073-3.0

MPE Calculations

1. Antenna Gain:

Antenna	Brand	Model Name	Type	2.4G Antenna Gain(dBi)
/	N/A	N/A	Internal	6.0

Antenna	Brand	Model Name	Type	5.8G Antenna Gain(dBi)
/	N/A	N/A	Internal	3.49

2. EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna

4. Simultaneous transmission MPE Considerations

According to KDB447498 :All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1.Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0 .

This means that:

$$\sum \text{ of MPE ratios } \leq 1.0$$

5. Test Result:

Worst Maximum MPE Result								
Mode	N _{TX}	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]
2.4G	1	2404	17.510	17±1	18	6.0	20	0.0500
		2440	16.462	16±1	17	6.0	20	0.0397
		2476	15.080	15±1	16	6.0	20	0.0315

Note:

(1) N_{TX}= Number of Transmit Antennas

(2) RF Output power specifies that Maximum Conducted Peak Output Power.

Worst Maximum MPE Result									
Mode	N _{TX}	Freq. (MHz)	Field strength (max) (dBuV/m)	EIRP(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]
5.8G	1	5732	97.82	2.56	2±1	3	3.49	20	0.0008
		5780	97.84	2.58	2±1	3	3.49	20	0.0008
		5848	99.17	3.91	3±1	4	3.49	20	0.0011

Note:

$$E = \text{EIRP} - 20\log D + 104.8$$

where:

E = electric field strength in dBuV/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

(3) $\text{EIRP} = E - 104.8 + 20\log D$, D=3(4) N_{TX}= Number of Transmit Antennas

6. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/ cm ²)
300-1,500	F/1500
1,500-100,000	1.0

For 2.4G (2404~2476 MHz)

For 5.8G (5732~5848 MHz)

2.4G and 5G Maximum Simultaneous transmission MPE Ratios is $0.0500 + 0.0011 = 0.0511 \leq 1.0$.

MPE limit S: 1 mW/ cm²

The MPE is calculated as $0.0511 \text{ mW} / \text{cm}^2 < \text{limit } 1 \text{ mW} / \text{cm}^2$. So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR 2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

7. Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

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