

RF Exposure Evaluation

FCC ID: 2ARZ3-BT-X45

1. Client Information

Applicant	:	Technaxx Deutschland GmbH & Co. KG
Address	:	Kruppstrasse 105, 60388 Frankfurt am Main, Germany
Manufacturer	:	Shenzhen Teana Technology Co.,ltd
Address	:	2nd Floor, Building 6, Nanling Village, Nanwan Street, Longgang District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Karaoke Mikrophone Elegance	
Models No.	:	BT-X45	
Model Difference	:	N/A	
Product Description	:	Operation Frequency:	Bluetooth 4.2(BT): 2402MHz~2480MHz
		RF Output Power:	GFSK:-3.812dBm π /4-DQPSK:-2.619dBm
		Antenna Gain:	0dBi PCB Antenna
Power Supply	:	DC Voltage Supply from Adapter DC Voltage supplied by Li-ion battery.	
Power Rating	:	Iutput: DC 5.0V 1A by adapter DC 3.7V by 1000mAh Li-ion battery	
Software Version	:	N/A	
Hardware Version	:	N/A	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

Note: More test information about the EUT please refer the RF Test Report.

SAR Test Exclusion Calculations

1. FCC: According to KDB 447498 D01 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.

- (1) Clause 4.3: General SAR test reduction and exclusion guidance

- Sub clause 4.31: Standalone SAR test exclusion considerations

- 1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6GHz at test separation distance ≤ 5 mm are determined by:

- $$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation, mm})] * [\sqrt{f_{\text{(GHz)}}}] \leq 3.0 \text{ for 1-g SAR}$$

- $$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation, mm})] * [\sqrt{f_{\text{(GHz)}}}] \leq 7.5.0 \text{ for 10-g SAR}$$

2. Calculation:

Test separation: 5mm						
Bluetooth Mode (GFSK)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dbm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	-4.656	-4 ± 1	-3	0.501	0.155	3.0
2.441	-3.970	-4 ± 1	-3	0.501	0.157	3.0
2.480	-3.812	-4 ± 1	-3	0.501	0.158	3.0
Bluetooth Mode ($\pi/4$ -DQPSK)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dbm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	-3.450	-3 ± 1	-2	0.631	0.196	3.0
2.441	-2.766	-3 ± 1	-2	0.631	0.197	3.0
2.480	-2.619	-3 ± 1	-2	0.631	0.199	3.0

Test separation: 5mm		
The worst RF Exposure Evaluation		
Worst Calculation Value	Total Calculation Value	Threshold Value
Bluetooth Mode ($\pi/4$ -DQPSK)		
0.199	0.199	3.0

The worst RF Exposure Evaluation is calculated as $0.199 / \text{cm}^2 < \text{limit } 3.0$, So standalone SAR measurements are not required.

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