

RF Exposure Evaluation

FCC ID: 2ARZ3-BT-X47

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 Microphone		
Models No.	:	BT-X47		
Model Difference	:	N/A		
Product Description	:	Operation Frequency:	Bluetooth: 2402~2480 MHz	
		Number of Channel:	Bluetooth: 79 Channels See Note 2	
	:	RF Output Power:	Bluetooth: -7.176 dBm(GFSK)	
		Antenna Gain:	0dBi PIFA Antenna	
		Modulation Type:	GFSK (1 Mbps) Pi/4-DQPSK (2 Mbps) 8-DPSK (3 Mbps)	
Power Supply	:	DC Voltage supplied by USB Cable DC Voltage supplied by Li-ion batter		
Power Rating	:	DC 5V by USB Cable DC 7.4V by 1000mAh Li-ion battery		
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:

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

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

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	Thres hold Value
2.402	-7.176	-7±1	-6	0.251	0.078	3.0
2.441	-8.836	-9±1	-8	0.158	0.050	3.0
2.480	-10.426	-10±1	-9	0.126	0.040	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	Thres hold Value
2.402	-7.235	-7±1	-6	0.251	0.078	3.0
2.441	-9.016	-9±1	-8	0.158	0.050	3.0
2.480	-10.639	-10±1	-9	0.126	0.040	3.0
Bluetooth Mode (8-DPSK)						
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	Thres hold Value
2.402	-7.270	-7±1	-6	0.251	0.078	3.0
2.442	-8.919	-9±1	-8	0.158	0.050	3.0
2.480	-10.530	-10±1	-9	0.126	0.040	3.0

Test separation: 5mm	
The worst RF Exposure Evaluation	
Worst Calculation Value	Threshold Value
0.078	3.0

The worst RF Exposure Evaluation is **0.078 / cm² < limit 3.0**, So standalone SAR measurements are not required.

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