

RF Exposure Evaluation

FCC ID: 2ARZ3-BT-X49

1. Client Information

Applicant	:	Technaxx Deutschland GmbH & Co. KG
Address	:	Kruppstrasse 105, 60388 Frankfurt am Main, Germany
Manufacturer	:	Technaxx Deutschland GmbH & Co. KG
Address	:	Kruppstrasse 105, 60388 Frankfurt am Main, Germany

2. General Description of EUT

EUT Name	:	TWS earphone
Models No.	:	BT-X49
Model Difference	:	N/A
Product Description	:	Operation Frequency: Bluetooth 5.0(BT): 2402MHz~2480MHz
	:	RF Output Power: GFSK:1.608dBm Pi/4-DQPSK: 2.422dBm 8-DPSK: 3.104dBm
	:	Antenna Gain: 2.71dBi Chip Antenna
Power Supply	:	DC Voltage Supply from charging compartment. DC Voltage supplied by Li-ion battery.
Power Rating	:	charging compartment: Input: DC 5.0V by adapter Output: DC 3.7V by 320mAh Li-ion battery TWS earphone :DC 3.7V by 55mAh Li-ion battery
Software Version	:	N/A
Hardware Version	:	LXW_Z1350-QFN24_V1.7
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	Threshold Value
2.402	1.456	1±1	2	1.585	0.491	3.0
2.441	1.608	1±1	2	1.585	0.495	3.0
2.480	0.811	0±1	1	1.259	0.397	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	2.366	2±1	3	1.995	0.618	3.0
2.441	2.422	2±1	3	1.995	0.623	3.0
2.480	1.63	2±1	3	1.995	0.628	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	Threshold Value
2.402	3.104	3±1	4	2.512	0.779	3.0
2.441	3.094	3±1	4	2.512	0.785	3.0
2.480	2.293	3±1	4	2.512	0.791	3.0

Test separation: 5mm		
The worst RF Exposure Evaluation		
Worst Calculation Value	Total Calculation Value	Threshold Value
Bluetooth Mode		
0.791	0.791	3.0

The worst RF Exposure Evaluation is calculated as $0.791 / \text{cm}^2 < \text{limit } 3.0$, So standalone SAR measurements are not required.

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