

RF Exposure Evaluation

FCC ID:2AXZT-RLBT-16CD

1. Client Information

Applicant	:	Shenzhen Ruilin Industrial Co., Ltd
Address	:	22D, NanJingYuan Bldg, Chang'Xing Rd, Nanshan District, Shenzhen, China
Manufacturer	:	Shenzhen XiangShengChang Electronics Co., Ltd
Address	:	4th Floor, Bldg 3, Li'Bang Industrial Park, Xi'Tian, GongMing Town, GuangMing District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Radia Boombox with or without CD	
Model(s) No.	:	RLBT-16CD, BX200, RLBT-16	
Model Different	:	Product with or without CD, functional difference. (Test with CD)	
Product Description	:	Operation Frequency:	Bluetooth V5.0(BT): 2402~2480 MHz
		Number of Channel:	Bluetooth 5.0(BT): 79 channels Bluetooth 5.0(BLE):40 channels
		RF Output Power:	2.449dBm (Max)
		Antenna Gain:	0.68dBi PCB Antenna
		Modulation Type:	GFSK, π /4-DQPSK, BLE(GFSK)
		Bit Rate of Transmitter:	GFSK(1Mbps) Pi/4-DQPSK(2Mbps) BLE(GFSK1Mbps)
Power Supply	:	Input:100V-240V,50Hz~60Hz 4*1.5AA battery	
Software Version	:	v2.0	
Hardware Version	:	BT16 V2.0	
Remark: The antenna gain provided by the applicant, the adapter and verified for the RF conduction test and adapter provided by TOBY test lab.			

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:

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

- [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)] * $\sqrt{f(\text{GHz})}$ $\leq 7.5.0$ 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	1.198	1±1	2	1.585	0.491	3.0
2.441	1.301	1±1	2	1.585	0.495	3.0
2.480	0.711	0±1	1	1.259	0.397	3.0
Bluetooth Mode (π/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	0.292	0±1	1	1.259	0.390	3.0
2.441	0.455	0±1	1	1.259	0.393	3.0
2.480	-0.054	0±1	1	1.259	0.397	3.0
Bluetooth Mode (BLE1Mbps)						
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	2.071	2±1	3	1.995	0.618	3.0
2.442	2.449	2±1	3	1.995	0.624	3.0
2.480	1.951	1±1	2	1.585	0.499	3.0

Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

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