

RF Exposure Evaluation

FCC ID:2AXZT-RLBT-14CD

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	:	Boombox with or without CD
Model(s) No.	:	RLBT-14CD,RLBT-14, RLBT-14CD-AM, SC-509BT
Model Different	:	The product with the difference is with CD and without CD and CD-AM function differenc. All these models are identical in the same PCB, layout and electrical circuit, the only difference is appearance.(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: 2.444dBm (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	:	DC 5.3V from adapter: Input:100V-240V,50Hz~60Hz,0.4A Output:DC 5.3V,1.3A 4*1.5AA battery
Software Version	:	v1.2
Hardware Version	:	BT14 V1.2
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.

TB-RF-074-1.0

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:

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

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation, mm})] * [\sqrt{f(\text{GHz})}] \leq 7.5.0$ 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	2.444	2±1	3.0	1.995	0.618	3.0
2.441	2.363	2±1	3.0	1.995	0.623	3.0
2.480	1.826	1±1	2.0	1.585	0.499	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	2.285	2±1	3.0	1.995	0.618	3.0
2.441	2.326	2±1	3.0	1.995	0.623	3.0
2.480	1.809	1±1	2.0	1.585	0.499	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	0.62	0±1	1.0	1.2589	0.390	3.0
2.442	0.886	0±1	1.0	1.2589	0.393	3.0
2.480	0.392	0±1	1.0	1.2589	0.397	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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