

RF Exposure Evaluation

FCC ID: 2ANS8-B151

1. Client Information

Applicant : Shenzhen YiOSi Industrial Product Design Co., Ltd.
Address : 6th Floor, Building I, Chengdexuan Science Park, Lisonglang, Gongming Street, Guangming District, Shenzhen, China
Manufacturer : Shenzhen YiOSi Industrial Product Design Co., Ltd.
Address : 6th Floor, Building I, Chengdexuan Science Park, Lisonglang, Gongming Street, Guangming District, Shenzhen, China

2. General Description of EUT

EUT Name	: Bluetooth Speaker	
Models No.	: b151, ARMOR XL, XL, B10, B11, B12, B13, B14, B15, B16, B17, B18, B19, B100, B101, B102, B103, B104, B105, B106, B107, B108, B109, B140, B141, B142, B143, B144, B145, B146, B147, B148, B149, B150, B151, B152, B153, B154, B155, B156, B157, B158, B159, B160, B161, B162, B163, B164, B165, B166, B167, B168, B169	
Model Difference	: All models are identical in the same PCB layout interior structure and electrical circuits, The only difference is model name for commercial purpose and appearance color.	
Product Description	Operation Frequency:	Bluetooth V4.2: 2402~2480 MHz
	RF Output Power:	Bluetooth: -1.869dBm(Max) BLE: -0.181dBm(Max)
	Antenna Gain:	2dBi PCB Antenna
Power Supply	: DC Voltage Supply from USB Cable. DC Supply by the Li-ion Battery.	
Power Rating	: DC 5.0 V from the USB Cable. DC 3.7V by 500mAh 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:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation, mm})] * [\sqrt{f_{(\text{GHz})}}] \leq 3.0 \text{ for 1-g SAR}$$
$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation, mm})] * [\sqrt{f_{(\text{GHz})}}] \leq 7.5.0 \text{ for 10-g SAR}$$

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	-3.176	-3±1	-2	0.631	0.196	3.0
2.441	-3.271	-3±1	-2	0.631	0.197	3.0
2.480	-3.788	-3±1	-2	0.631	0.199	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	-1.869	-2±1	-1	0.794	0.246	3.0
2.441	-1.922	-2±1	-1	0.794	0.248	3.0
2.480	-2.455	-2±1	-1	0.794	0.250	3.0
BLE 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	-0.181	0±1	1	1.259	0.390	3.0
2.442	-0.370	0±1	1	1.259	0.393	3.0
2.480	-0.928	0±1	1	1.259	0.397	3.0

So standalone SAR measurements are not required.

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