

RF Exposure Evaluation

FCC ID: 2AIZD-X19

1. Client Information

Applicant : X-INNOVATION INDUSTRY LIMITED
Address : B8, 1st Industrial Park, Xixiang Town, Bao'an District, Shenzhen, China
Manufacturer : X-INNOVATION INDUSTRY LIMITED
Address : B8, 1st Industrial Park, Xixiang Town, Bao'an District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Mini bluetooth speaker	
Models No.	:	X19	
Model Difference	:	N/A	
Product Description	:	Operation Frequency: Bluetooth 3.0: 2402~2480MHz	
	:	Number of Channel:	Bluetooth:79 Channels
	:	Max Peak Output Power:	Bluetooth: -3.558dBm(GFSK)
	:	Antenna Gain:	0 dBi PCB Antenna
	:	Modulation Type:	GFSK 1Mbps(1 Mbps) π /4-DQPSK(2 Mbps) 8-DPSK(3 Mbps)
Power Supply	:	DC Voltage supplied from Host System by USB cable. DC power by Li-ion Battery.	
Power Rating	:	DC 5.0V by USB cable. DC 3.7V by 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 (mw)	Calculation Value	Threshold Value
2.402	-5.619	± 0.5	0.308	0.095	3.0
2.441	-6.348	± 0.5	0.260	0.081	3.0
2.480	-7.537	± 0.5	0.198	0.062	3.0
Bluetooth Mode ($\pi/4$ -DQPSK)					
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	-3.987	± 0.5	0.448	0.139	3.0
2.441	-4.967	± 0.5	0.358	0.112	3.0
2.480	-6.152	± 0.5	0.272	0.086	3.0
Bluetooth Mode(8-DPSK)					
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	-3.558	± 0.5	0.495	0.153	3.0
2.441	-4.581	± 0.5	0.391	0.122	3.0
2.480	-5.582	± 0.5	0.310	0.098	3.0

So standalone SAR measurements are not required.

-----End of Report-----