

RF Exposure Evaluation

FCC ID: 2AFSGMA-2241

1. Client Information

Applicant	: Dongguan Jin wen hua digital technology Co., LTD.
Address	: Floor 4, Building E, No. 655-90, Qiming Road, Yinzhou Investment & Innovation Center, Ningbo, China
Manufacturer	: Dongguan Jin wen hua digital technology Co., LTD.
Address	: Floor 4, Building E, No. 655-90, Qiming Road, Yinzhou Investment & Innovation Center, Ningbo, China

2. General Description of EUT

EUT Name	: Bluetooth speaker
Models No.	: MA-2241, A6
Model difference	: All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name for commercial.
Product Description	Operation Frequency: Bluetooth 2.1+EDR:2402~2480MHz
	Number of Channel: Bluetooth:79 Channels
	Max Peak Output Power: Bluetooth: 0.753 dBm(GFSK)
	Antenna Gain: 2 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 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 v05r02.

(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 (mw)	Calculation Value	Threshold Value
2.402	0.753	±0.5	1.334	0.414	3.0
2.441	0.236	±0.5	1.185	0.370	3.0
2.480	-0.131	±0.5	1.089	0.343	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	-0.211	±0.5	1.069	0.331	3.0
2.441	-0.698	±0.5	0.955	0.299	3.0
2.480	-1.155	±0.5	0.860	0.271	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	-0.598	±0.5	0.978	0.303	3.0
2.441	-0.635	±0.5	0.969	0.303	3.0
2.480	-1.543	±0.5	0.787	0.248	3.0

So standalone SAR measurements are not required.