

RF Exposure Evaluation

FCC ID: 2A12I-MAGBY01

1. Client Information

Applicant : iVue Pty Ltd
Address : 79 Britannia Road, Castle Hill, NSW 2154, Sydney, Australia
Manufacturer : David Hao
Address : 4F, B7 Building, Hengfeng industrial City, Hezhou Village, Xixiang Town, Bao'an District, Shenzhen City, China

2. General Description of EUT

EUT Name	:	Wireless Waterproof Speaker	
Models No.	:	MagBy01, MagBBy01	
Brand Name	:	Magtunes	
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: Bluetooth4.0 : 2402~2480MHz	
	:	Number of Channel:	Bluetooth:79 Channels BLE: 40 Channels
	:	Max Peak Output Power:	Bluetooth: 4.682 dBm(GFSK) BLE: 5.777 dBm
	:	Antenna Gain:	0.5 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 4400mAh 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	4.560	± 0.5	3.206	0.994	3.0
2.441	4.682	± 0.5	3.298	1.030	3.0
2.480	4.533	± 0.5	3.186	1.004	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	3.102	± 0.5	2.292	0.710	3.0
2.441	3.242	± 0.5	2.367	0.740	3.0
2.480	3.158	± 0.5	2.322	0.731	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	3.233	± 0.5	2.362	0.732	3.0
2.441	3.363	± 0.5	2.434	0.761	3.0
2.480	3.252	± 0.5	2.372	0.747	3.0
BLE 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	5.777	± 0.5	4.243	1.315	3.0
2.441	5.530	± 0.5	4.009	1.253	3.0
2.480	5.657	± 0.5	4.128	1.300	3.0

So standalone SAR measurements are not required.