RF Exposure Evaluation
FCC ID: 2AXWO-M200

1. Client Information

Applicant	:	Doors Korea Co., Ltd
Address	:	1F, 27, Mangu-ro 81-gil, Jungnang-gu, Seoul,South Korea
Manufacturer	:	TIAN JIN PACHEM ELCTRONICS CO.,LTD
Address	:	Dagang Development Area,Binhai New Area,Tianjin,China 300270

2. General Description of EUT

EUT Name	:	Miracle, m M200 Wireless portable karaoke speaker	
Model(s)	:	M200, M220, M230	
Model Different	:	All PCB boards and circuit diagrams are the same, the only difference is that different customers have different names.	
Product Description	:	Operation Frequency:	Bluetooth V5.0(BT): 2402~2480 MHz
		Number of Channel:	Bluetooth 5.0(BT): 79 channels
		RF Output Power:	5.477dBm (Max)
		Antenna Gain:	0.5dBi PCB Antenna
		Modulation Type:	GFSK π/4-DQPSK 8DPSK
		Bit Rate of Transmitter:	1/2/3Mbps
Power Supply	:	DC 7.4V by 2500mAh Li-ion battery	
Software Version	:	VE31	
Hardware Version	:	V3.2	
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.

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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:
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)]*[$\sqrt{f_{(GHz)}}$] ≤3.0 for 1-g SAR
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)]*[$\sqrt{f_{(GHz)}}$] ≤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	2.931	3±1	4.0	2.51	0.78	**3.0**
2.441	0.763	0±1	1.0	1.26	0.57	**3.0**
2.480	-0.919	0±1	1.0	1.26	0.40	**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	5.108	5±1	6.0	3.98	1.23	**3.0**
2.441	2.958	3±1	4.0	2.51	1.15	**3.0**
2.480	1.172	1±1	2.0	1.58	0.50	**3.0**
Bluetooth Mode (8DPSK)						
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	5.477	5±1	6.0	3.98	1.23	**3.0**
2.441	3.294	3±1	4.0	2.51	1.15	**3.0**
2.480	1.547	2±1	3.0	1.58	0.50	**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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