RF Exposure Evaluation

FCC ID: 2AAZR-HSD8033A

1. Client Information

Applicant	:	SHENZHEN HIGHSTAR ELECTRICAL CO.,LTD
Address	:	2F,4&5F,Building6,Ya Lian Highstar Industrial Zone, 5022 Wuhe Avenue,Bantian Street,Longgang District, Shenzhen, China
Manufacturer	:	SHENZHEN HIGHSTAR ELECTRICAL CO.,LTD
Address	:	2F,4&5F,Building6,Ya Lian Highstar Industrial Zone, 5022 Wuhe Avenue,Bantian Street,Longgang District, Shenzhen, China

2. General Description of EUT

EUT Name	:	MINI BLUETOOTH SPEAKER WITH FAN	
Models No.	:	HSD8033A	
Model Difference	:	N/A	
Product Description	:	Operation Frequency:	Bluetooth 4.2(BT): 2402MHz~2480MHz
		RF Output Power:	GFSK:-3.947dBm π/4-DQPSK: -2.799dBm
		Antenna Gain:	-0.68dBi PCB Antenna
Power Supply	:	DC Voltage Supply from Adapter DC Voltage supplied by Li-ion battery.	
Power Rating	:	Iutput: DC 5.0V 1.5A by adapter DC 3.7V by 2200mAh Li-ion battery	
Software Version	:	N/A	
Hardware Version	:	N/A	
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.

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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	-3.985	-3±1	-2	0.631	0.196	**3.0**
2.441	-3.947	-3±1	-2	0.631	0.197	**3.0**
2.480	-4.958	-4±1	-3	0.501	0.158	**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	-2.925	-2±1	-1	0.794	0.246	**3.0**
2.441	-2.799	-2±1	-1	0.794	0.248	**3.0**
2.480	-3.775	-3±1	-2	0.631	0.199	**3.0**

Test separation: 5mm		
The worst RF Exposure Evaluation		
Worst Calculation Value Bluetooth Mode	Total Calculation Value	Threshold Value
0.248	0.248	**3.0**

The worst RF Exposure Evaluation is calculated as *0.248 / cm2 < limit 3.0*, So standalone SAR measurements are not required.

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