RF Exposure Evaluation

FCC ID: 2AXQW-ROBIN

1. Client Information

Applicant	:	Studio Designs Limited
Address	:	B11, 3rd Fl, Wong King Ind Building, 2-4 Tai Yau Street, San Po Kong, Hong Kong
Manufacturer	:	Shen zhen Hi-FiD Electronics Tech Co., Ltd
Address	:	4F~ 5F B7 & 3F B17, Hengfeng Industrial Town, Zhoushi Road, Bao'an District, Shenzhen City, China. 518126.

2. General Description of EUT

EUT Name	:	Robin	
Model(s) No.	:	RS4S5W,RB4S5W	
Model Different	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is appearance.	
Product Description	:	Operation Frequency:	Bluetooth V4.2(BT): 2402~2480 MHz
		Number of Channel:	Bluetooth: 79 Channels
		Max Peak Output Power:	Bluetooth: 6.513dBm(8-DPSK)
		Antenna Gain:	0.5dBi PCB Antenna
		Modulation Type:	GFSK: 5.586dBm π/4-DQPSK: 6.447dBm 8-DPSK: 6.513dBm
Power Supply	:	DC 12V from Adapter: Input: AC 100-240V, 50/60Hz Output：DC 12V 1.5A DC 3.7V by 220mAh Li-ion battery	
Software Version	:	N/A	
Hardware Version	:	N/A	
Remark: The antenna gain and adapter provided by the applicant, the adapter and verified for the RF conduction test 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	1.364	1±1	2.0	1.585	0.491	**3.0**
2.441	3.835	3±1	4.0	2.512	0.785	**3.0**
2.480	5.586	5±1	6.0	3.981	1.254	**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	2.825	2±1	3.0	1.995	0.618	**3.0**
2.441	4.979	4±1	5.0	3.162	0.988	**3.0**
2.480	6.447	6±1	7.0	5.012	1.579	**3.0**
Bluetooth Mode (8-DPSK)						
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	2.958	2±1	2.0	1.585	0.491	**3.0**
2.441	5.132	5±1	5.0	3.162	0.988	**3.0**
2.480	6.513	6±1	7.0	5.012	1.579	**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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