

RF Exposure Evaluation

FCC ID: 2BDRN-D68F

1. Client Information

Applicant	:	Shenzhen Visual Beat Technology Co., Ltd
Address	:	2805, Block 9, Huating Phase 2, Manjinghua Joyful Lane, No. 6 Yincui Road, Nanlian Community, Shenzhen, Guangdong, China
Manufacturer	:	Shenzhen Visual Beat Technology Co., Ltd
Address	:	2805, Block 9, Huating Phase 2, Manjinghua Joyful Lane, No. 6 Yincui Road, Nanlian Community, Shenzhen, Guangdong, China

2. General Description of EUT

EUT Name	:	Bluetooth Speaker	
Model(s) No.	:	D68F	
Model Difference	:	----	
Product Description	:	Operation Frequency:	Bluetooth V5.3: 2402MHz~2480MHz
		Number of Channel:	79 channels
		Antenna Gain:	-0.58dBi PCB Antenna
		Modulation Type:	GFSK, Pi/4-DQPSK, 8-DPSK
		Bit Rate of Transmitter:	1/2/3Mbps
Power Supply	:	Input: DC 5V/1A	
Li-ion Polymer Battery	:	3.7V by 1200mAh Rechargeable Li-ion battery	
Software Version	:	(D68F)_65E_F8A1(WC1)+D68F_C987_20230802(ufw)	
Hardware Version	:	D68F-M_V2.0	
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.

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)] * $\sqrt{f_{\text{GHz}}}$ ≤ 3.0 for 1-g SAR

- [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)] * $\sqrt{f_{\text{GHz}}}$ $\leq 7.5.0$ 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	0.948	1±1	2	1.585	0.491	3.0
2.441	1.073	1±1	2	1.585	0.495	3.0
2.480	0.877	1±1	2	1.585	0.499	3.0
Bluetooth Mode (Pi/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	1.747	2±1	3	1.995	0.618	3.0
2.441	1.848	2±1	3	1.995	0.623	3.0
2.480	1.658	2±1	3	1.995	0.628	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	2.356	2±1	3	1.995	0.618	3.0
2.441	2.464	2±1	3	1.995	0.623	3.0
2.480	2.334	2±1	3	1.995	0.628	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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