

# RF Exposure Evaluation

## FCC ID: 2A2P7-HA02D

### 1. Client Information

Applicant	:	Shenzhen Warmwave Technology Co.,Ltd.
Address	:	1001-10K, Building 11, Shenzhen Software Park (Phase 2), No.1, Of No.2 Hi-tech Middle Road, Nanshan District, Shenzhen, China
Manufacturer	:	Shenzhen Warmwave Technology Co.,Ltd.
Address	:	1001-10K, Building 11, Shenzhen Software Park (Phase 2), No.1, Of No.2 Hi-tech Middle Road, Nanshan District, Shenzhen, China

### 2. General Description of EUT

EUT Name	:	Smart Helmet
Model(s) No.	:	HA02D, HA06D, HA08D, HT6, HT8, HG4, HG7
Model Different	:	All these models are the same in the same PCB, layout and circuit, the only difference is the model name and appearance.
Product Description	Operation Frequency:	Bluetooth V5.0(BT): 2402~2480 MHz
	Number of Channel:	Bluetooth 5.0(BT): 79 channels
	RF Output Power:	2.706dBm (Max)
	Antenna Gain:	1dBi PCB Antenna
	Modulation Type:	GFSK
	Bit Rate of Transmitter:	1Mbps
Power Supply	:	Input: DC 5V DC 3.7V by 1200mAh Li-ion battery
Software Version	:	CBL-V2021MP-1
Hardware Version	:	V202106MP-1

Remark: The antenna gain 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.

**TB-RF-074-1.0**

## 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  $\leq 5$  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 (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	2.584	2±1	3.0	1.995	0.618	3.0
2.441	2.706	2±1	3.0	1.995	0.623	3.0
2.480	2.060	2±1	3.0	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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