RF Exposure Evaluation

FCC ID: 2A8DK-HFF86

1. Client Information

Applicant	:	Shenzhen Hongtai Technology Co., Ltd
Address	:	Room 1925, South China City Global Logistics Center, No.1, South China Blvd, Hehua Community, Pinghu Sub-district, Longgang District, Shenzhen, China
Manufacturer	:	Shenzhen Pinyu Electronics Co., Ltd.
Address	:	No.169, Xinmu Road, Xinmu Village, Pinghu Street, Longgang District, Shenzhen City, Guangdong Province, China

2. General Description of EUT

EUT Name	:	Wireless Headphone	
Model(s) No.	:	HFF86, HFF68, HHF86, HHF68	
Model Different	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name.	
Sample ID	:	RW-C-202208-0156-1-1#&RW-C-202208-0156-1-2#	
Product Description	:	Operation Frequency:	Bluetooth 5.0: 2402MHz~2480MHz
		Number of Channel:	79 channels
		RF Output Power:	4.3dBm
		Antenna Gain:	1.96dBi FPC Antenna
Power Supply	:	Input: DC 5V/0.5A DC 3.7V by 500mAh rechargeable Li-ion battery	
Software Version	:	V1.0.23.16.1	
Hardware Version	:	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.

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The RF Exposure Evaluation for FCC:

SAR Test Exclusion Calculations

FCC: According to 447498 D04 Interim General RF Exposure Guidance v01.

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula (B.2).

$$P_{\text{th}}\ (\text{mW}) = \begin{cases} ERP_{20\ \text{cm}}(d/20\ \text{cm})^{x} & d \le 20\ \text{cm} \\ ERP_{20\ \text{cm}} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases}$$

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\ \text{cm}}\sqrt{f}}\right)$$

and f is in GHz, d is the separation distance (cm), and ERP_{20cm} is per Formula (B.1). The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)										
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

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)**	**Limit P_{th}(mW)**
2.402	2.97	2.0±1	3.0	1.995	3
2.441	3.62	3.0±1	4.0	2.512	3
2.480	3.98	3.0±1	4.0	2.512	3
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)**	**Limit P_{th}(mW)**
2.402	2.93	2.0±1	3.0	1.995	3
2.441	3.64	3.0±1	4.0	2.512	3
2.480	4.00	3.5±1	4.5	2.818	3
Bluetooth Mode (8-DPSK)					
2.402	3.45	3.0±1	4.0	2.512	3
2.441	3.95	3.0±1	4.0	2.512	3
2.480	4.30	3.5±1	4.5	2.818	3
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 D04, No SAR is required.					

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