



## **RF EXPOSURE EVALUATION**

Report No. : AB0056733(2) Date: 2022-11-11

Application No. : LB026744(1)

Applicant : Shenzhen Shenglai Technology Co., Limited  
Room 3110, Block C, Xintian Century Business Centre, Fuming Road,  
Futian District, Shenzhen, China

Buyer : CLAIRE's EUEOPEAN DISTRIBUTION LTD.  
UNIT 4, BROMFORD GATE, BROMFORD LANE,  
BIRMINGHAM B24 8DW, UK.

Sample Description : One(1) item of submitted sample stated to be

Product Description : Bluetooth Headphone  
Radio Frequency : 2402 – 2480MHz  
Supply voltage : DC3.7V (Li-ion rechargeable battery)  
USB 5V (Charging port)

No. of submitted sample : 3

FCC ID : 2AL9B-CLAIRESRMX

Date Received : 2022-10-24

Evaluation Period : 2022-11-07 to 2022-11-11

Evaluation Method : 447498 D04 Interim General RF Exposure Guidance v01 - RF Exposure Procedure  
and Equipment Authorization Policies for Mobile and Portable Devices

Conclusion : The source-based time-averaged maximum power was satisfied RF exposure  
requirements.

*For and on behalf of*  
CMA Industrial Development Foundation Limited

Authorized Signature : \_\_\_\_\_

Wong Lap Pong / Andrew  
Deputy Technical Manager

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The conformity statement stated in Conclusion above is based on the decision rule agreed with applicant and listed in [www.cmateesting.org/qac/statement-of-conformity.pdf](http://www.cmateesting.org/qac/statement-of-conformity.pdf).  
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### **Simultaneous power**

No Simultaneous transmission

### **RF Exposure Evaluation**

According to KDB 447498 D04 clause 2.1.2, if the available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption applies to all operating configurations and exposure conditions, for the frequency range 100 kHz to 100 GHz, regardless of fixed, mobile, or portable device exposure conditions.

### **Result**

- Frequency : 2.402 – 2.480GHz
- Max. peak output power, including tune-up tolerance : 1.324mW (1.22dBm)
- Minimum test separation distances : <5mm

From test report, the conducted power = 1.8dBm

EIRP = Conducted power + antenna gain = 1.8 + (-0.58) = 1.22dBm

$P = 10^{(1.22/10)} = 1.423\text{mW}$

The maximum peak output power is greater than 1mW and further evaluation is needed.

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Human exposure to RF emissions from portable devices (47 CFR §2.1093), as defined by the FCC, must be evaluated with respect to the FCC-adopted limits for SAR. Evaluation of mobile devices, as defined by the FCC, may also be performed with respect to SAR limits, but in such case, it is usually simpler and more cost-effective to evaluate compliance with respect to field strength or power density limits. For certain devices that are designed to be used in both mobile and portable configurations similar to those described in 47 CFR §2.1091(d)(4), such as certain desktop phones and wireless modem modules, compliance for mobile configurations is also satisfied when the same device is evaluated for SAR compliance in portable configurations.

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B.2})$$

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  $ERP_{20 \text{ cm}}$  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

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm and for transmission frequencies between 300 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion.



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EIRP = 1.423mW < 2.72mW

Note:

1. Limited =  $3060 * (0.5/20)^x$ ,  $x = -\log(60/(3060 * \sqrt{f}))$ .
2. Choosing  $f = 2.48\text{GHz}$  (Highest frequency operate) to calculate MPE limit as higher frequency will have lower MPE limits.
3. SAR Test Exclusion Thresholds is 2.72mW for separation distance 5mm. Therefore, SAR test is not required

### **Conclusion**

The corresponding SAR was satisfied 2.1.3 requirements. Further measurement is not required.

\*\*\*\*\* End of Evaluation \*\*\*\*\*