

TEST REPORT

Product Name : True Wireless Earbuds
Brand Mark : HAYLOU
Model No. : X1C
FCC ID : 2AMQ6-X1C
Report Number : BLA-EMC-202307-A3603
Date of Sample Receipt : 2023/7/14
Date of Test : 2023/7/17 to 2023/7/28
Date of Issue : 2023/7/31
Test Standard : 47 CFR Part 15, Part1.1307
47 CFR Part 15, Part2.1093
KDB447498D04 General RF Exposure
Guidance v01
Test Result : Pass

Prepared for:

Dongguan Liesheng Electronic Co., Ltd
Room 401-410, Building 1, No.86 Hongtu Road, Nancheng
District,Dongguan City, Guangdong, China

Prepared by:

BlueAsia of Technical Services(Shenzhen) Co.,Ltd.
Building C, No. 107, Shihuan Road, Shiyuan Sub-District, Baoan District,
Shenzhen, Guangdong Province, China
TEL: +86-755-23059481

Compiled by:

Lucas

Review by:

Sueels

Approved by:

Blue Zheng

Date:

2023/7/31



REPORT REVISE RECORD

Version No.	Date	Description
00	2023/7/31	Original

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TABLE OF CONTENTS

1 TEST SUMMARY	4
2 GENERAL INFORMATION	5
3 GENERAL DESCRIPTION OF E.U.T.....	5
4 LABORATORY LOCATION	6
5 RF EXPOSURE COMPLIANCE REQUIREMENT	7
5.1 STANDARD REQUIREMENT	7
5.2 LIMITS	7

1 TEST SUMMARY

Test item	Test Requirement	Test Method	Class/Severity	Result
RF Exposure	47 CFR Part 1.1307, Part 2.1093, KDB 447498	CFR 47 Part 2.1093	CFR 47 Part 2.1093	PASS

2 GENERAL INFORMATION

Applicant	Dongguan Liesheng Electronic Co., Ltd
Address	Room 401-410, Building 1, No.86 Hongtu Road, Nancheng District,Dongguan City, Guangdong, China
Manufacturer	Dongguan Liesheng Electronic Co., Ltd
Address	Room 401-410, Building 1, No.86 Hongtu Road, Nancheng District,Dongguan City, Guangdong, China
Factory	Dongguan Zhengrong Electronics Co., Ltd
Address	No . 4 , Shugang Avenue , Hongmei Town , Dongguan City , Guangdong Province
Product Name	True Wireless Earbuds
Test Model No.	X1C

3 GENERAL DESCRIPTION OF E.U.T.

Hardware Version	V1.1
Software Version	V0.3.3
Operation Frequency:	2402MHz-2480MHz
Modulation Type:	GFSK,pi/4DQPSK
Channel Spacing:	1MHz
Number of Channels:	79
Antenna Type:	Chip Antenna
Antenna Gain:	2.36dBi(Provided by the customer)

4 LABORATORY LOCATION

All tests were performed at:

BlueAsia of Technical Services(Shenzhen) Co.,Ltd.

Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673

No tests were sub-contracted.

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5 RF EXPOSURE COMPLIANCE REQUIREMENT

5.1 STANDARD REQUIREMENT

According to 447498 D04 Interim General RF Exposure Guidance v01

Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

5.2 LIMITS

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

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).

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

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

$$EIRP = p_t \times g_t = (E \times d)^2 / 30$$

where:

p_t = transmitter output power in watts,

g_t = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, --- $10((dBuV/m)/20)/106$

d = measurement distance in meters (m)---3m

$$S_{opt} = (E \times d)^2 / 30 \times g_t$$

$$\text{Ant gain} = 2.36 \text{ dBi}$$

$$\text{Max Output power} = -2.014 \text{ dBm @EDR@ } 2441 \text{ MHz}$$

$$ERP = -2.014 \text{ dBm} + 2.36 \text{ dBi} - 2.15 = -1.804 \text{ dBm}$$

So

worse case:

$$10^{-0.1804} = 0.660 \text{ mW} < 2.79 \text{ mW}$$

Comply with RF exposure exemption limit.

----END OF REPORT----

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