

TEST REPORT

Product Name : Headphones
Brand Mark : N/A
Model No. : Ravine Pro
Extension Model : Ravine Pro1,Ravine Pro2,Ravine Pro3,
Ravine Pro4,Ravine Pro5,Ravine Lite
FCC ID : 2AFGF-RAVINEPRO
Report Number : BLA-EMC-202306-A12003
Date of Sample Receipt : 2023/7/3
Date of Test : 2023/7/4 to 2023/7/12
Date of Issue : 2023/7/17
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:

Shenzhen Laishida electronic Technology Co., LTD
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Date:

2023/7/17



REPORT REVISE RECORD

Version No.	Date	Description
00	2023/7/17	Original

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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	Shenzhen Laishida electronic Technology Co., LTD
Address	1701-1706, Building 8, Zhongxi Xiangbin Shan Garden, Fenghuang Gang Community, Xixiang Street, Baoan District, Shenzhen
Manufacturer	LITE STAR Electronics Technology Co., Ltd.
Address	Star Science Park, Lianbi Road, Wulian Industrial Zone, Fenggang Town, Dongguan City, Guangdong Province
Factory	LITE STAR Electronics Technology Co., Ltd.
Address	Star Science Park, Lianbi Road, Wulian Industrial Zone, Fenggang Town, Dongguan City, Guangdong Province
Product Name	Headphones
Test Model No.	Ravine Pro
Extension Model	Ravine Pro1,Ravine Pro2,Ravine Pro3,Ravine Pro4,Ravine Pro5,Ravine Lite
Remark	All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are model name for commercial purpose.

3 GENERAL DESCRIPTION OF E.U.T.

Hardware Version	XC-308A-MAIN-V2.1
Software Version	Ravine pro-MP-C0531-Am01-D01
Operation Frequency:	2402MHz-2480MHz
Modulation Type:	GFSK,pi/4DQPSK,8DPSK
Channel Spacing:	1MHz
Number of Channels:	79
Antenna Type:	PCB Antenna
Antenna Gain:	3.5dBi(Provided by the customer)

4 LABORATORY LOCATION

All tests were performed at:

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

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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

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

$$Ant \text{ gain} = 3.5 \text{ dBi}$$

$$Max \text{ Output power} = -0.613 \text{ dBm @EDR@ } 2441 \text{ MHz}$$

$$ERP = -0.613 \text{ dBm} + 3.5 \text{ dBi} - 2.15 = 0.737 \text{ dBm}$$

So

worse case:

$$10^{0.0737} = 1.185 \text{ mW} < 2.79 \text{ mW}$$

Comply with RF exposure exemption limit.

----END OF REPORT----

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