

TEST REPORT

Applicant: NETPRISMA INC.
Address: 1301 6th Ave., Seattle, Washington State, 98101-2304, United States
Equipment Type: LTE Module
Model Name: LCUH22-LD
Brand Name: Vrileg
FCC ID: 2BEY3LCUH22LDA
Test Standard: 47 CFR Part 2.1091
KDB 447498 D04 v01
Sample Arrival Date: Nov. 15, 2023
Test Date: Nov. 15, 2023 - Nov. 27, 2023
Date of Issue: May 14, 2024

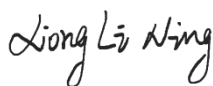
ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

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(Testing Director)



Revision History		
Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Jan.11, 2024</u>	<u>Initial Issue</u>
<u>Rev. 02</u>	<u>May 07, 2024</u>	<u>Updated model name, brand name, FCC ID, applicant and manufacturer information.</u>
<u>Rev. 03</u>	<u>May 14, 2024</u>	<u>Updated section 5 ASSESSMENT RESULT.</u>

TABLE OF CONTENTS

1	GENERAL INFORMATION.....	3
1.1	Test Laboratory	3
1.2	Test Location	3
2	PRODUCT INFORMATION	4
2.1	Applicant Information	4
2.2	Manufacturer Information.....	4
2.3	General Description for Equipment under Test (EUT).....	4
2.4	Technical Information	5
3	SUMMARY OF TEST RESULT	6
3.1	Test Standards	6
4	DEVICE CATEGORY AND LEVELS LIMITS	7
5	ASSESSMENT RESULT	9
5.1	Output Power	9
5.2	Tune-up power	10
5.3	RF Exposure Evaluation Result	10
5.4	Conclusion.....	10

1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	<input checked="" type="checkbox"/> Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	<input type="checkbox"/> 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	NETPRISMA INC.
Address	1301 6th Ave., Seattle, Washington State, 98101-2304, United States

2.2 Manufacturer Information

Manufacturer	NETPRISMA INC.
Address	1301 6th Ave., Seattle, Washington State, 98101-2304, United States

2.3 General Description for Equipment under Test (EUT)

EUT Name	LTE Module
Model Name Under Test	LCUH22-LD
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	R1.0
Software Version	LCUH22LDBL0701
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	3G Network WCDMA/HSDPA/HSUPA 2/4/5 4G Network FDD LTE Band 2/4/5/12/13/25/26
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The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	WCDMA; LTE		
Frequency Range	WCDMA Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	WCDMA Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	LTE Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	LTE Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 12	TX: 699 ~ 716 MHz	RX: 729 ~ 746 MHz
	LTE Band 13	TX: 777 ~ 787 MHz	RX: 746 ~ 756 MHz
	LTE Band 25	TX: 1850 ~ 1915 MHz	RX: 1930 ~ 1995 MHz
	LTE Band 26	TX: 814 ~ 824 MHz	RX: 859 ~ 869 MHz
		TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
Antenna Type	WWAN	External Antenna	
Exposure Category	General Population/Uncontrolled Exposure		
Product Type	Mobile Device		

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2.1091	Radiofrequency radiation exposure evaluation: mobile devices
2	KDB 447498 D04 v01	447498 D04 Interim General RF Exposure Guidance v01

4 DEVICE CATEGORY AND LEVELS LIMITS

Mobile Device:

CFR Title 47 §2.1091(b)

(b) For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

FCC KDB 447498 D04 General RF Exposure Guidance v01 Limit

Evaluation of compliance with the exposure limits in § 1.1310 is necessary if the ERP of the device is greater than ERP_{20cm} in Formula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

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

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i. e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole.

SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

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).

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

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

5 ASSESSMENT RESULT

5.1 Output Power

WCDMA			
Mode	Band 2	Band 4	Band 5
Conducted Power (dBm)	23.27	23.37	23.25
Antenna Gain (dBi)	1.59	2.00	2.53
EIRP/ERP (dBm)	24.86	25.37	23.63

Note: This report listed the worst case power value, please refer to BL-SZ23B0761-501 report for more details.

LTE								
Mode	LTE Band2	LTE Band4	LTE Band5	LTE Band12	LTE Band13	LTE Band25	LTE Band26 (part22)	LTE Band26 (part90)
Conducted Power (dBm)	23.73	23.44	23.59	23.47	23.40	23.81	23.90	23.39
Antenna Gain (dBi)	1.59	2.00	2.53	3.95	4.45	1.59	2.53	3.19
EIRP/ERP (dBm)	25.32	25.44	23.97	25.27	25.70	25.40	24.28	24.43

Note: This report listed the worst case power value, please refer to BL-SZ23B0761-501 report for more details.

5.2 Tune-up power

Mode		Conducted Power Range (dBm)	EIRP Range (dBm)	ERP Range (dBm)
WCDMA	Band 2	[22.00, 24.00]	[23.59, 25.59]	[21.44, 23.44]
	Band 4	[22.00, 24.00]	[24.00, 26.00]	[21.85, 23.85]
	Band 5	[22.00, 24.00]	/	[22.38, 24.38]
LTE	Band 2	[22.00, 24.00]	[23.59, 25.59]	[21.44, 23.44]
	Band 4	[22.00, 24.00]	[24.00, 26.00]	[21.85, 23.85]
	Band 5	[22.00, 24.00]	/	[22.38, 24.38]
	Band 12	[22.00, 24.00]	/	[23.80, 25.80]
	Band 13	[22.00, 24.00]	/	[24.30, 26.30]
	Band 25	[22.00, 24.00]	[23.59, 25.59]	[21.44, 23.44]
	Band26(part 22)	[22.00, 24.00]	/	[22.38, 24.38]
	Band26(part 90)	[22.00, 24.00]	/	[23.04, 25.04]

Note1: ERP= EIRP -2.15dB.
Note2: According KDB 447498 D04, used the greater of maximum conducted power and ERP to compare with the threshold value Pth.

5.3 RF Exposure Evaluation Result

Evolution mode	Maximum power (dBm)	Maximum power (mw)	Distance (mm)	Threshold Power (mW)	Verdict
WCDMA Band2	24.00	251.19	200	3060.00	Pass
WCDMA Band4	24.00	251.19	200	3060.00	Pass
WCDMA Band5	24.38	274.16	200	1680.96	Pass
LTE Band2	24.00	251.19	200	3060.00	Pass
LTE Band4	24.00	251.19	200	3060.00	Pass
LTE Band5	24.38	274.16	200	1672.80	Pass
LTE Band12	25.80	380.19	200	1425.96	Pass
LTE Band13	26.30	426.58	200	1585.08	Pass
LTE Band25	24.00	251.19	200	3060.00	Pass
LTE Band26 (part 22)	24.38	274.16	200	1672.80	Pass
LTE Band26 (part 90)	25.04	319.15	200	1652.40	Pass

5.4 Conclusion

This EUT is deemed to comply with the reference level limits, therefore the basic restrictions are compliant with human exposure limits.

Statement

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--END OF REPORT--