

# 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:

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**Revision History**

| <u>Version</u> | <u>Issue Date</u>   | <u>Revisions Content</u>                                                               |
|----------------|---------------------|----------------------------------------------------------------------------------------|
| <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>                                            |

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# 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<br>4G Network FDD LTE Band 2/4/5/12/13/25/26 |
|-----------------------------------|---------------------------------------------------------------------------------|

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<sub>20cm</sub> 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<br>Band2 | LTE<br>Band4 | LTE<br>Band5 | LTE<br>Band12 | LTE<br>Band13 | LTE<br>Band25 | LTE<br>Band26<br>(part22) | LTE<br>Band26<br>(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--