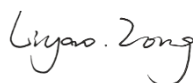


# TEST REPORT

**Applicant:** Shenzhen Jimi IoT Co., Ltd.  
**Address:** 3-4/F, Block A, Building #7, Shenzhen International Innovation Valley, Dashi 1st Road, Nanshan District, Shenzhen, Guangdong, China  
**Equipment Type:** LTE CAT1 ASSET GNSS TRACKER  
**Model Name:** LL705 (refer to section 2.3)  
**Brand Name:** JimiIoT  
**FCC ID:** 2AMLF-LL705  
**Test Standard:** 47 CFR Part 2.1091  
KDB 447498 D04 v01  
**Sample Arrival Date:** Jul. 15, 2024  
**Test Date:** Jul. 17, 2024 - Aug. 14, 2024  
**Date of Issue:** Aug. 21, 2024

**ISSUED BY:**

Shenzhen BALUN Technology Co., Ltd.

**Tested by:** Xu Rui**Checked by:** Zong Liyao**Approved by:** Tolan Tu  
(Testing Director)

**Revision History**

| <u>Version</u> | <u>Issue Date</u>    | <u>Revisions Content</u> |
|----------------|----------------------|--------------------------|
| <u>Rev. 01</u> | <u>Aug. 21, 2024</u> | <u>Initial Issue</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 type="checkbox"/> Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China                                                                              |
|                           | <input checked="" 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 | Shenzhen Jimi IoT Co., Ltd.                                                                                                            |
| Address   | 3-4/F, Block A, Building #7, Shenzhen International Innovation Valley,<br>Dashi 1st Road, Nanshan District, Shenzhen, Guangdong, China |

### 2.2 Manufacturer Information

|              |                                                                                                                                        |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer | Shenzhen Jimi IoT Co., Ltd.                                                                                                            |
| Address      | 3-4/F, Block A, Building #7, Shenzhen International Innovation Valley,<br>Dashi 1st Road, Nanshan District, Shenzhen, Guangdong, China |

### 2.3 General Description for Equipment under Test (EUT)

|                                           |                                                                                                                                                            |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EUT Name                                  | LTE CAT1 ASSET GNSS TRACKER                                                                                                                                |
| Model Name Under Test                     | LL705                                                                                                                                                      |
| Series Model Name                         | JM-LL705, L750, JM-L750, LL705(GL), JM-LL705(GL)                                                                                                           |
| Description of Model name differentiation | All models are same with electrical parameters and internal circuit structure, but only differ in model name. (this information provided by the applicant) |
| Hardware Version                          | TBT200-MB-V1.1                                                                                                                                             |
| Software Version                          | TBT200_L750_WAAP_XQGL_V1.1_240614.1333                                                                                                                     |
| Dimensions (Approx.)                      | N/A                                                                                                                                                        |
| Weight (Approx.)                          | N/A                                                                                                                                                        |

### 2.4 Technical Information

|                                   |                                                                                                                                                                    |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network and Wireless connectivity | 2G Network GSM/GPRS 850/1900 MHz<br>4G Network LTE FDD Band 2/4/5/7/12/17/18/19/25/26/66<br>LTE TDD Band 38/41<br>Bluetooth (BR+EDR+BLE)<br>GPS, GLONASS, LBS, BDS |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|

The requirement for the following technical information of the EUT was tested in this report:

|                 |                 |                     |                     |
|-----------------|-----------------|---------------------|---------------------|
| Operating Mode  | WWAN, Bluetooth |                     |                     |
| Frequency Range | GSM 850         | TX: 824 ~ 849 MHz   | RX: 869 ~ 894 MHz   |
|                 | GSM 1900        | TX: 1850 ~ 1910 MHz | RX: 1930 ~ 1990 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 7      | TX: 2500 ~ 2570 MHz | RX: 2620 ~ 2690 MHz |

|                   |                                             |                     |                     |
|-------------------|---------------------------------------------|---------------------|---------------------|
|                   | LTE Band 12                                 | TX: 699 ~ 716 MHz   | RX: 729 ~ 746 MHz   |
|                   | LTE Band 17                                 | TX: 704 ~ 716 MHz   | RX: 734 ~ 746 MHz   |
|                   | LTE Band 18                                 | TX: 814~ 824 MHz    | RX: 860 ~ 869 MHz   |
|                   |                                             | TX: 824~ 830 MHz    | RX: 869 ~ 875 MHz   |
|                   | LTE Band 19                                 | TX: 830 ~ 845 MHz   | RX: 875 ~ 890 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   |
|                   | LTE Band 66                                 | TX: 1710 ~ 1780 MHz | RX: 2110 ~ 2180 MHz |
|                   | LTE Band 38                                 | TX: 2570 ~ 2620 MHz | RX: 2570 ~ 2620 MHz |
|                   | LTE Band 41                                 | TX: 2496 ~ 2690 MHz | RX: 2496 ~ 2690 MHz |
| Bluetooth         | 2400 ~ 2483.5 MHz                           |                     |                     |
| Antenna Type      | WWAN: FPC Antenna<br>Bluetooth: FPC 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   | KDB 447498 D04 v01 | 447498 D04 Interim General RF Exposure Guidance v01 |

#### 3.2 Limit Standards

| No. | Identity           | Document Title                                               |
|-----|--------------------|--------------------------------------------------------------|
| 1   | 47 CFR Part 2.1091 | Radiofrequency radiation exposure evaluation: mobile devices |

## 4 DEVICE CATEGORY AND LEVELS LIMITS

### Mobile Devices:

CFR Title 47 §2.1091(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

| GSM                  |                          |                |              |                  |                            |                |              |
|----------------------|--------------------------|----------------|--------------|------------------|----------------------------|----------------|--------------|
| GSM850 Band          | Burst Average Power(dBm) |                |              | Division Factors | Frame-Averaged power (dBm) |                |              |
| Channel              | Low Channel              | Middle Channel | High Channel |                  | Low Channel                | Middle Channel | High Channel |
| GSM (GMSK, 1-Slot)   | 32.35                    | 32.41          | 32.42        | 9.19             | 23.16                      | 23.22          | 23.23        |
| GPRS (GMSK, 1-Slot)  | 26.43                    | 26.45          | 26.37        | 9.19             | 17.24                      | 17.26          | 17.18        |
| GPRS (GMSK, 2-Slots) | 26.71                    | 26.65          | 26.76        | 6.13             | 20.58                      | 20.52          | 20.63        |
| GPRS (GMSK, 3-Slots) | 26.40                    | 26.35          | 26.43        | 4.42             | 21.98                      | 21.93          | 22.01        |
| GPRS (GMSK, 4-Slots) | 26.38                    | 26.31          | 26.44        | 3.18             | 23.20                      | 23.13          | 23.26        |
| GSM1900 Band         | Burst Average Power(dBm) |                |              | Division Factors | Frame-Averaged power(dBm)  |                |              |
| Channel              | Low Channel              | Middle Channel | High Channel |                  | Low Channel                | Middle Channel | High Channel |
| GSM (GMSK, 1-Slot)   | 29.65                    | 29.75          | 29.81        | 9.19             | 20.46                      | 20.56          | 20.62        |
| GPRS (GMSK, 1-Slot)  | 23.35                    | 23.50          | 23.61        | 9.19             | 14.16                      | 14.31          | 14.42        |
| GPRS (GMSK, 2-Slots) | 23.51                    | 23.60          | 23.69        | 6.13             | 17.38                      | 17.47          | 17.56        |
| GPRS (GMSK, 3-Slots) | 23.38                    | 23.70          | 23.69        | 4.42             | 18.96                      | 19.28          | 19.27        |
| GPRS (GMSK, 4-Slots) | 23.44                    | 23.80          | 23.71        | 3.18             | 20.26                      | 20.62          | 20.53        |

Note: This table listed the worst case power value, please refer to BL-SZ2470754-501 report for more details.

| Mode                  | GSM    |         |
|-----------------------|--------|---------|
|                       | GSM850 | GSM1900 |
| Conducted Power (dBm) | 23.26  | 20.62   |
| Antenna Gain (dBm)    | -1.06  | -1.48   |
| ERP/EIRP (dBm)        | 20.05  | 19.14   |

Note: This table listed the worst case power value, please refer to BL-SZ2470754-501 report for more details.

| LTE                   |        |        |        |        |         |         |                  |                  |
|-----------------------|--------|--------|--------|--------|---------|---------|------------------|------------------|
| Mode                  | Band 2 | Band 4 | Band 5 | Band 7 | Band 12 | Band 17 | Band 18 (part22) | Band 18 (part90) |
| Conducted Power (dBm) | 22.87  | 22.97  | 23.94  | 23.62  | 22.90   | 22.48   | 22.12            | 22.25            |
| Antenna Gain (dBi)    | -1.48  | -0.92  | -1.06  | -1.50  | -2.60   | -2.60   | -1.61            | -1.66            |
| ERP/EIRP (dBm)        | 21.39  | 22.05  | 20.73  | 22.12  | 18.15   | 17.73   | 18.36            | 18.44            |

Note: This table listed the worst case power value, please refer to BL-SZ2470754-501 report for more details.

| LTE                   |         |         |                     |                     |         |         |         |
|-----------------------|---------|---------|---------------------|---------------------|---------|---------|---------|
| Mode                  | Band 19 | Band 25 | Band 26<br>(part22) | Band 26<br>(part90) | Band 66 | Band 38 | Band 41 |
| Conducted Power (dBm) | 22.33   | 22.94   | 23.18               | 23.37               | 23.12   | 22.37   | 23.09   |
| Antenna Gain (dBi)    | -1.06   | -1.48   | -1.06               | -1.66               | -0.92   | -1.67   | -1.50   |
| ERP/EIRP (dBm)        | 19.12   | 21.46   | 19.97               | 19.56               | 22.20   | 20.70   | 21.59   |

Note: This table listed the worst case power value, please refer to BL-SZ2470754-501 report for more details.

| Mode                  | Bluetooth |
|-----------------------|-----------|
| Conducted Power (dBm) | 6.09      |
| Antenna Gain (dBi)    | 2.81      |
| EIRP (dBm)            | 8.90      |

Note: This table listed the worst case power value, please refer to BL-SZ2470754-601 report for more details.

## 5.2 Tune-up power

| Mode               | Conducted Power Range<br>(dBm) | EIRP Range (dBm) | ERP Range (dBm) |
|--------------------|--------------------------------|------------------|-----------------|
| GSM850             | [22.00,24.00]                  | /                | [18.85,20.85]   |
| GSM1900            | [19.00,21.00]                  | [18.00,20.00]    | [15.85,17.85]   |
| LTE Band2          | [22.00,24.00]                  | [20.00,22.00]    | [17.85,19.85]   |
| LTE Band4          | [22.00,24.00]                  | [21.00,23.00]    | [18.85,20.85]   |
| LTE Band5          | [23.00,25.00]                  | /                | [19.85,21.85]   |
| LTE Band7          | [23.00,25.00]                  | [21.00,23.00]    | [18.85,20.85]   |
| LTE Band12         | [22.00,24.00]                  | /                | [16.85,18.85]   |
| LTE Band17         | [21.00,23.00]                  | /                | [16.85,18.85]   |
| LTE Band18(part22) | [21.00,23.00]                  | /                | [17.85,19.85]   |
| LTE Band18(part90) | [21.00,23.00]                  | /                | [17.85,19.85]   |
| LTE Band19         | [21.00,23.00]                  | /                | [17.85,19.85]   |
| LTE Band25         | [22.00,24.00]                  | [20.00,22.00]    | [17.85,19.85]   |
| LTE Band26(part22) | [22.00,24.00]                  | /                | [18.85,20.85]   |
| LTE Band26(part90) | [22.00,24.00]                  | /                | [18.85,20.85]   |
| LTE Band66         | [22.00,24.00]                  | [21.00,22.00]    | [17.85,19.85]   |
| LTE Band38         | [21.00,23.00]                  | [19.00,21.00]    | [16.85,18.85]   |
| LTE Band41         | [22.00,24.00]                  | [21.00,22.00]    | [17.85,19.85]   |
| Bluetooth          | [5.00,7.00]                    | [8.00,10.00]     | [5.85,7.85]     |

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) | Power / Limit | Verdict |
|--------------------|---------------------|--------------------|---------------|----------------------|---------------|---------|
| GSM850             | 24.00               | 251.19             | 200           | 1731.96              | 0.145         | Pass    |
| GSM1900            | 21.00               | 125.89             | 200           | 3060.00              | 0.041         | Pass    |
| LTE Band2          | 24.00               | 251.19             | 200           | 3060.00              | 0.082         | Pass    |
| LTE Band41         | 24.00               | 251.19             | 200           | 3060.00              | 0.082         | Pass    |
| LTE Band5          | 25.00               | 316.23             | 200           | 1731.96              | 0.183         | Pass    |
| LTE Band7          | 25.00               | 316.23             | 200           | 3060.00              | 0.103         | Pass    |
| LTE Band12         | 24.00               | 251.19             | 200           | 1460.64              | 0.172         | Pass    |
| LTE Band17         | 23.00               | 199.53             | 200           | 1460.64              | 0.137         | Pass    |
| LTE Band18(part22) | 23.00               | 199.53             | 200           | 1680.96              | 0.119         | Pass    |
| LTE Band18(part90) | 23.00               | 199.53             | 200           | 1693.20              | 0.118         | Pass    |
| LTE Band19         | 23.00               | 199.53             | 200           | 1723.80              | 0.116         | Pass    |
| LTE Band25         | 24.00               | 251.19             | 200           | 3060.00              | 0.082         | Pass    |
| LTE Band26(part22) | 24.00               | 251.19             | 200           | 1680.96              | 0.149         | Pass    |
| LTE Band26(part90) | 24.00               | 251.19             | 200           | 1731.96              | 0.145         | Pass    |
| LTE Band66         | 24.00               | 251.19             | 200           | 3060.00              | 0.082         | Pass    |
| LTE Band38         | 23.00               | 199.53             | 200           | 3060.00              | 0.065         | Pass    |
| LTE Band41         | 24.00               | 251.19             | 200           | 3060.00              | 0.082         | Pass    |
| Bluetooth          | 7.85                | 6.10               | 200           | 3060.00              | 0.002         | Pass    |

## 5.4 Collocated Power Calculation

| Evolution mode | Frequency(MHz)    | Power /Limit | $\Sigma(\text{Power / Limit})$<br>of<br>WWAN + BT | Verdict |
|----------------|-------------------|--------------|---------------------------------------------------|---------|
| LTE Band12     | 699 ~ 716 MHz     | 0.172        | <b>0.174</b>                                      | Pass    |
| Bluetooth      | 2400 ~ 2483.5 MHz | 0.002        |                                                   |         |

Note:

1.  $\Sigma(\text{Power / Limit})$ : This is a summation of [(power for each transmitter/ antenna included in the simultaneous transmission)/ (corresponding Power limit)], for WWAN+BT.
2. Both of the WWAN/BT can transmit simultaneously, the formula of calculated the Power is  

$$\text{CP1} / \text{LP1} + \text{CP2} / \text{LP2} + \dots \text{etc.} < 1$$

CP = Calculation power  
LP = Limit of power
3. The worst-case situation is 0.174, which is less than "1". This confirmed that the device comply with FCC KDB 447498 D04 Power limit.
4. The DUT work frequency range used is 2400 MHz ~ 2483.5 MHz, 699 MHz ~ 716 MHz the result close to the limit by the above formula, so we select worst case power to calculate the exclusion power threshold.

## 5.5 Conclusion

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

## Statement

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
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--END OF REPORT--