

# TEST REPORT

Report No.: SHATBL2412023W06

**Applicant** : Tersus GNSS Inc.

**Product Name** : GNSS Receiver

**Brand Name** : N/A

**Model Name** : LUKA

**FCC ID** : 2AMDJ-LUKA

**Test Standard** : FCC 47 CFR Part 2.1091

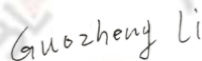
**Date of Test** : 2025.01.03-2025.04.29

**Report Prepared by** :



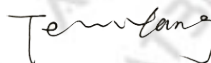
(Emily)

**Report Approved by** :



(Guozheng Li)

**Authorized Signatory** :



(Terry Yang)



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## REVISION HISTORY

Rev.	Issue Date	Revisions	Revised by
00	2025.04.29	Initial Release	Guozheng Li

## DECLARATION OF REPORT

1. The device has been tested by ATBL, and the test results show that the equipment under test (EUT) is in compliance with the requirements of 47 CFR Part 2.1091. And it is applicable only to the tested sample identified in the report.

2. This report shall not be reproduced except in full, without the written approval of ATBL, this document only be altered or revised by ATBL, personal only, and shall be noted in the revision of the document.

3. The general information of EUT in this report is provided by the customer or manufacture, ATBL is only responsible for the test data but not for the information provided by the customer or manufacture.

4. The results in this report is only apply to the sample as tested under conditions. The customer or manufacturer is responsible for ensuring that the additional production units of this model have the same electrical and mechanical components.

## 1. GENERAL DESCRIPTION

### 1.1. Applicant

Name : Tersus GNSS Inc.

Address : Rm 601, Bldg E2, No. 88, Jinjihu Ave, Suzhou, China

### 1.2. Manufacturer

Name : Tersus GNSS Inc.

Address : Rm 601, Bldg E2, No. 88, Jinjihu Ave, Suzhou, China

### 1.3. Factory

Name : Tersus GNSS Inc.

Address : Rm 601, Bldg E2, No. 88, Jinjihu Ave, Suzhou, China

#### 1.4. General Information of EUT

General Information	
Equipment Name	GNSS Receiver
Brand Name	N/A
Model Name	LUKA
Series Model	N/A
Model Difference	N/A
Sample No	202411200019003
Adapter	Model:QL015-0503100U1 Brand:/ Input:100-240V~50/60Hz 0.5A Output:5V DC 0.01-3.0A
Battery	Model:SNLB-958 Brand:/ Rated Voltage:7.4V DC Charge Limit Voltage:5V DC Capacity:7000mah
Hardware version	V1.2
Software version	2.0.90
Connecting I/O Port(s)	Refer to the remark below.

Remark:

The above information of EUT was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

### 1.5. Equipment Specification

Equipment Specification		
BR&EDR		2402~2480 MHz
Antenna Information	Antenna Type:	Built-in
	Antenna Gain:	The antenna gain of all bands is 1.25 dBi.

Equipment Specification		
BLE 1M&2M		2402~2480 MHz
Antenna Information	Antenna Type:	Built-in
	Antenna Gain:	The antenna gain of all bands is 1.25 dBi.

Equipment Specification		
WLAN	2.4GHz	2412~2462 MHz
Antenna Information	Antenna Type:	Built-in
	Antenna Gain:	The antenna gain of all bands is 1.25 dBi.

Equipment Specification					
WWAN	Band		Tx (MHz)	Rx (MHz)	Antenna Gain
	LTE	Band 38	2570 ~ 2620	2570 ~ 2620	1.44 dBi
		Band 41	2535 ~ 2655	2535 ~ 2655	1.44 dBi
Antenna Information		Antenna Type:	Built-in		

Equipment Specification		
UHF		410~470MHz
Antenna Information	Antenna Type:	Rod Antenna
	Antenna Gain:	The antenna gain of all bands is 1.25 dBi.

## 1.6. Modification of EUT

No modifications are made to the EUT during all test items.

## 1.7. Laboratory Information

Company Name	:	Shanghai ATBL Technology Co., Ltd.
Address	:	Building 8, No.160 Basheng Road, Waigaoqiao Free Trade Zone, Pudong New Area, Shanghai
Telephone	:	+86(0)21-51298625
FCC Test Firm registration Number	:	485917
A2LA Number	:	6184.01
CNAS Number	:	CNAS L14531
CAB Identifier	:	CN0116

## 1.8. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

Standard	Description
47 CFR Part 15.247	Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.
47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
47 CFR Part 27	Subpart C - Technical Standards
47 CFR Part 90	Primarily concerns the frequency allocation, operational standards, and technical requirements of this frequency band in the private land - mobile radio service. For example, in Subpart K (Special Frequency or Band Standards), it specifies the management of the 450–470 MHz frequency band.
47 CFR Part 2.1091	Radiofrequency radiation exposure evaluation: mobile devices.
KDB 447498 D01 V06	Rf Exposure Procedures And Equipment Authorization Policies For Mobile And Portable Devices

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.

## 2. FCC 47CFR §2.1091 Requirement

### 2.1. Test Standards

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

KDB447498 D01: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

### 2.2. Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f <sup>2</sup> )*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

\*=Plane-wave equivalent power density

### 2.3. MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=PG/4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

### 2.4. Antenna Information

EUT can only use antennas certificated as follows provided by manufacturer;

Transmitter Circuit	Operating Band	Peak Gain (dBi)	Antenna Type
Chain 0	BT+2.4G WIFI	1.25	Built-in
Chain 1	LTE	1.44	Built-in
Chain 2	UHF	1.25	Rod Antenna

### 2.5. Manufacturing Tolerance

Function	Target (dBm)	Tolerance ± (dB)
2.4GHz	27.00	1.00
BR&EDR	8.00	1.00
BLE	4.00	1.00
LTE Band38	26.00	1.00
LTE Band41	26.00	1.00
UHF	30.00	1.00

Note: The target power has included the maximum transmission power and tolerance values.

## 2.6. Test Result

As declared by the Applicant, the EUT is a wireless device used in a Mobile application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance,  $r = 20\text{cm}$ , as well as the gain of the used antenna is refer to section 4, the RF power density can be obtained.

Modulation Type	Output power (Target)		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	dBm	mW				
2.4GHz	27.00	501.19	1.25	1.334	0.1330	1.0000
BR&EDR	8.00	6.31	1.25	1.334	0.0017	1.0000
BLE	4.00	2.51	1.25	1.334	0.0007	1.0000
LTE Band38	26.00	398.11	1.44	1.393	0.1103	1.0000
LTE Band41	26.00	398.11	1.44	1.393	0.1103	1.0000
UHF	30.00	1000.00	1.25	1.334	0.2654	0.2733

Note:

1. If nothing else, the report will only record the worst power.
2. The Maximum power is less than the limit, complies with the exemption requirements.
3. Output power (AVG) including turn-up tolerance;
4. The calculated distance is 20 cm.

\*\*\*\*\*END OF THE REPORT\*\*\*\*\*