



EMF TEST REPORT

Product Name: High Precision GNSS Receiver

Model Number: T50, T50basic, T50Pro

FCC ID: 2BCUE-T50

Issued For : Guangzhou Toksurvey Information Technology Co., Ltd
No.9, Caipin Road, Building B, Room 801-6, Huangpu
District, Guangzhou, China

Issued By : Shenzhen LGT Test Service Co., Ltd.
Room 205, Building 13, Zone B, Zhenxiong Industrial Park,
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Report Number: LGT26D042HA02

Sample Received Date: April 08, 2026

Date of Test: April 08, 2026 ~ May 18, 2026

Date of Issue: May 18, 2026

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TEST REPORT CERTIFICATION

Applicant: Guangzhou Toksurvey Information Technology Co., Ltd
Address: No.9, Caipin Road, Building B, Room 801-6, Huangpu District, Guangzhou, China
Manufacturer: Guangzhou Toksurvey Information Technology Co., Ltd
Address: No.9, Caipin Road, Building B, Room 801-6, Huangpu District, Guangzhou, China
Product Name: High Precision GNSS Receiver
Trademark: TOKNAV
Model Number: T50, T50basic, T50Pro
Sample Status: Normal

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC 47 CFR §2.1091 KDB 447498 D01 General RF Exposure Guidance v06	PASS

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Revision History

Rev.	Issue Date	Revisions
00	May 18, 2026	Initial Issue



1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF THE EUT

Product Name:	High Precision GNSS Receiver	
Test Model Number:	T50	
Series Number:	T50basic, T50Pro	
Model Difference:	T50basic has AR module, T50 has AR module, laser module, laser camera, T50Pro has AR module, camera.	
Frequency Bands:	Bluetooth	2402-2480MHz
	2.4G WLAN	IEEE 802.11b/g/n(20MHz): 2412~2462MHz IEEE 802.11n(40MHz):2422~2452MHz
	5G WLAN	IEEE 802.11a/n(HT20)/ac(VHT20): 5.180GHz-5.240GHz IEEE 802.11n(HT40)/ac(VHT40): 5.190GHz- 5.230GHz IEEE 802.11ac(VHT80): 5.210GHz
		IEEE 802.11a/n(HT20)/ac(VHT20): 5.745GHz-5.825GHz IEEE 802.11a/n(HT40)/ac(VHT40): 5.755GHz-5.795GHz IEEE 802.11ac(VHT80): 5.775GHz
	GSM	850: 824 MHz ~ 849MHz 1900: 1850 MHz ~ 1910MHz
	WCDMA	Band V: 824 MHz ~ 849 MHz Band II: 1850 MHz ~ 1910 MHz Band IV: 1710 MHz ~ 1755 MHz
	LTE	LTE Band 2:1850~1910MHz LTE Band 4:1710~1755MHz LTE Band 5: 824~849MHz LTE Band 7:2500~2570MHz LTE Band 12: 699-716MHz LTE Band 13: 777-787MHz LTE Band 25: 1850-1915MHz LTE Band 26: 814-824MHz/824-849MHz LTE Band 38: 2570-2620MHz LTE Band 40: 2305-2315MHz/2350-2360MHz LTE Band 41: 2496-2690MHz
Adapter:	Input: AC 100-240V 50/60HZ 0.8A MaxOutput: 3.3-11.0V 2.72A 29.92W or 5.0V 3.0A 15.0W or 9.0V 3.0A 27.0W or 12.0V 2.5A 30.0W or 15.0V 2.0A 30.0W	
Battery:	Capacity: 6500mAh Rated Voltage: 7.4V	
Hardware Version:	T86J-PCBA.1.2.250615	
Software Version:	T86-FMW3.2.635.2507.2767	



1.2 TEST LABORATORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China
Accreditation Certificate:	FCC Registration No.: 746540
	CAB ID: CN0136



2. FCC 47CFR §2.1091 REQUIREMENT

2.1 TEST STANDARDS

The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. The gain of the antennas used in the product is extracted from the Antenna data sheets provided and also the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.

Although the Friis Transmission formula is far field assumption, the calculated result of that is an over-prediction for near field power density. It is taken as worst case to specify the safety range.

2.2 LIMIT

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of the human exposure to radio-frequency (RF) radiation as specified in 1.1307 (b)

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)
Limits for Occupational / controlled Exposures			
0.3-3.0	614	1.63	*(100)
3.0-30	1842/f	4.89/f	*(900/f ²)
30-300	61.4	0.163	1.0
300 - 1500	--	--	F/300
1500 – 100000	--	--	5.0
Limits for General population / Uncontrolled Exposure			
0.3-1.34	614	1.63	*(100)
1.34-30	824/f	2.19/f	*(180/f ²)
30-300	27.5	0.073	0.2
300 - 1500	--	--	F/1500
1500 – 100000	--	--	1.0

F= Frequency in MHz

* = Plane-wave equivalent power density.

Friss Formula

Friss Transmission Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = Distance between observation point and the center of radiator in cm

If we know the maximum gain of the antenna and the total output power to the antenna, through calculation, we will know MPE value at distance 20cm.



2.3 EUT OPERATION CONDITION

EUT was enabled to transmit and receive at lowest, middle and highest channels.

2.4 CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm or more separation distance from the antenna should be included in the User manual. So, this device is classified as Mobile device.



2.5 TEST RESULT

Turn up Result

Mode	Turn up Power
GSM 850	30.5±1dBm
GSM 1900	26.5±1dBm
WCDMA B2	24±1dBm
WCDMA B4	24±1dBm
WCDMA B5	24±1dBm
LTE B2	24±1dBm
LTE B4	24.5±1dBm
LTE B5	24±1dBm
LTE B7	23±1dBm
LTE B12	24±1dBm
LTE B13	24±1dBm
LTE B25	23.5±1dBm
LTE B26	24.5±1dBm
LTE B38	23.5±1dBm
LTE B40	23.5±1dBm
LTE B41	24±1dBm
BT-GFSK	3±1dBm
BT- π /4-DQPSK	4±1dBm
BT-8DPSK	3.5±1dBm
BLE 1M-GFSK	-3±1dBm
2.4G WIFI-802.11b	15±1.5dBm
2.4G WIFI-802.11g	14.5±1dBm
2.4G WIFI-802.11n(HT20)	14±1dBm
2.4G WIFI-802.11n(HT40)	14±1dBm
5G WIFI-802.11a	12.5±1dBm
5G WIFI-802.11n(HT20)	11±1dBm
5G WIFI-802.11n(HT40)	11.5±1dBm
5G WIFI-802.11ac(VHT20)	11±1.5dBm
5G WIFI-802.11ac(VHT40)	11.5±1dBm
5G WIFI-802.11ac(VHT80)	11±1dBm



The MPE result of worst mode:

RF Function	Max Turn up Power (dBm)	Duty cycle factor	Max Power (dBm)	Max Power (mW)	ANT Gain (dBi)	ANT Gain (gain of antenna in linear scale)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Ratio	Result
GSM 850(1Slot)	31.5	-9.03	22.47	176.60	-4.83	0.33	0.012	0.549	0.021	Pass
GSM 1900(1Slot)	27.5	-9.03	18.47	70.31	2.24	1.67	0.023	1.000	0.023	Pass
WCDMA Band 2	25	0	25	316.23	2.24	1.67	0.105	1.000	0.105	Pass
WCDMA Band 4	25	0	25	316.23	-1.24	0.75	0.047	1.000	0.047	Pass
WCDMA Band 5	25	0	25	316.23	-4.83	0.33	0.021	0.549	0.038	Pass
LTE Band 2	25	0	25	316.23	2.24	1.67	0.105	1.000	0.105	Pass
LTE Band 4	25.5	0	25.5	354.81	-1.24	0.75	0.053	1.000	0.053	Pass
LTE Band 5	25	0	25	316.23	-4.83	0.33	0.021	0.549	0.038	Pass
LTE Band 7	24	0	24	251.19	-3.5	0.45	0.022	1.000	0.022	Pass
LTE Band 12	25	0	25	316.23	-4.83	0.33	0.021	0.466	0.044	Pass
LTE Band 13	24	0	24	251.19	-4.83	0.33	0.016	0.518	0.032	Pass
LTE Band 25	24.5	0	24.5	281.84	2.24	1.67	0.094	1.000	0.094	Pass
LTE Band 26	25.5	0	25.5	354.81	-4.83	0.33	0.023	0.543	0.043	Pass
LTE Band 38	24.5	-1.99	22.51	178.24	-2.29	0.59	0.021	1.000	0.021	Pass
LTE Band 40	24.5	-1.99	22.51	178.24	-1.48	0.71	0.025	1.000	0.025	Pass
LTE Band 41	25	-1.99	23.01	199.99	-2.29	0.59	0.023	1.000	0.023	Pass

RF Function	Max Turn up Power (dBm)	Max Turn up Power (mW)	ANT Gain (dBi)	ANT Gain (gain of antenna in linear scale)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Ratio	Result
BLE	-2	0.63	2.08	1.61	0.0002	1	0.0002	Pass
BT	5.00	3.16	2.08	1.61	0.001	1	0.001	Pass
2.4G WIFI	16.50	44.67	2.08	1.61	0.014	1	0.014	Pass
5G WIFI	13.50	22.39	1.54	1.43	0.006	1	0.006	Pass



Multiple transmission: 2.4G WIFI +LTE Band2=0.014+0.105=0.119 < 1

Note:

1. The RF Exposure is less than the limit, complies with the exemption requirements.

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