




TEST REPORT

FCC ID..... :	2BLV5-22X02	
Test Report No..... :	TCT240919E025	
Date of issue..... :	Oct. 23, 2024	
Testing laboratory..... :	SHENZHEN TONGCE TESTING LAB	
Testing location/ address:	2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China	
Applicant's name..... :	LOCOSYS Technology Inc.	
Address..... :	20F.-13, No.79, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 22101, Taiwan	
Manufacturer's name ... :	LOCOSYS Technology Inc.	
Address..... :	20F.-13, No.79, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 22101, Taiwan	
Standard(s)..... :	FCC CFR Title 47 Part 1.1307	
Product Name..... :	RTK Base Station	
Trade Mark..... :	LOCOSYS	
Model/Type reference..... :	GB-104B, GB-10WB, GB-30WB, GB-34WB	
Rating(s)..... :	Rechargeable Li-ion Battery DC 3.7V	
Date of receipt of test item..... :	Sep. 19, 2024	
Date (s) of performance of test..... :	Sep. 19, 2024 ~ Oct. 23, 2024	
Tested by (+signature) ... :	Rleo LIU	
Check by (+signature).... :	Beryl ZHAO	
Approved by (+signature):	Tomsin	



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Table of Contents

1. General Product Information	3
1.1. EUT description	3
1.2. Model(s) list.....	3
2. General Information.....	4
2.1. Test environment and mode.....	4
2.2. Description of Support Units.....	4
3. Facilities and Accreditations	5
3.1. Facilities	5
3.2. Location	5
4. Test Results and Measurement Data	6

1. General Product Information

1.1. EUT description

Product Name:	RTK Base Station
Model/Type reference:	GB-104B
Sample Number:	TCT240919E022-0101
Operation Frequency	For BLE: 2402MHz~2480MHz For GSM: TX: GPRS 850: 824.2MHz ~ 848.8MHz GPRS 1900: 1850.2MHz ~ 1909.8MHz RX: GPRS 850: 869.2MHz ~ 893.8MHz GPRS 1900: 1930.2MHz ~ 1989.8MHz LTE Band 5: TX: 824 MHz ~ 849 MHz, RX: 869 MHz ~ 894 MHz LTE Band 7: TX: 2500 MHz ~ 2570 MHz, RX: 2620 MHz ~ 2690 MHz LTE Band 41: TX: 2496 MHz ~ 2690 MHz RX: 2496 MHz ~ 2690 MHz
Modulation Type:	For BLE: GFSK For GSM: GPRS: GMSK For LTE: QPSK/16QAM
Antenna Type:	PIFA Antenna
Antenna Gain:	For BLE: 1.05dBi For GSM GPRS 850: -1.89dBi GPRS 1900:0.23dBi For LTE: LTE Band 5: -1.89dBi LTE Band 7: 0.16dBi LTE Band 41: 0.16dBi
Rating(s):	Rechargeable Li-ion Battery DC 3.7V

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

1.2. Model(s) list

No.	Model No.	Tested with
1	GB-104B	<input checked="" type="checkbox"/>
Other models	GB-10WB, GB-30WB, GB-34WB	<input type="checkbox"/>

Note: GB-104B is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names. So the test data of GB-104B can represent the remaining models.

2. General Information

2.1. Test environment and mode

Item	Normal condition
Temperature	+25°C
Voltage	DC 3.7V
Humidity	56%
Atmospheric Pressure:	1010 mbar
Test Mode:	
Transmitting Mode:	Keep the EUT in continuous transmitting by select channel

2.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
3. For conducted measurements (Output Power, 20dB Occupied Bandwidth, Carrier Frequencies Separation, Hopping Channel Number, Dwell Time, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

3. Facilities and Accreditations

3.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098

SHENZHEN TONGCE TESTING LAB

Designation Number: CN1205

The testing lab has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A

SHENZHEN TONGCE TESTING LAB

CAB identifier: CN0031

The testing lab has been registered by Innovation, Science and Economic Development Canada for radio equipment testing.

3.2. Location

SHENZHEN TONGCE TESTING LAB

Address: 2101 & 2201, Zhenchang Factory Renshan Industrial Zone, Fuhai Subdistrict,
Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China

TEL: +86-755-27673339

4. Test Results and Measurement Data

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

Remark: 1) **For BLE:** The maximum output power for antenna is -4.71dBm (0.34mW) at 2402MHz, 1.05dBi antenna gain(with 1.27 numeric antenna gain.)

For GPRS850: The maximum output power for antenna is 32.62dBm (1828.10mW) at 824.2MHz, -1.89dBi antenna gain(with 0.65 numeric antenna gain.)

For GPRS1900: The maximum output power for antenna is 29.96dBm (990.83mW) at 1880.0MHz, 0.23dBi antenna gain(with 1.05 numeric antenna gain.)

For LTE Band 5: The maximum output power for antenna is 24.22dBm (264.24mW) at 824.7MHz, -1.89dBi antenna gain(with 0.65 numeric antenna gain.)

For LTE Band 7: The maximum output power for antenna is 23.95dBm (248.31mW) at 2507.5MHz, 0.16dBi antenna gain(with 1.04 numeric antenna gain.)

For LTE Band 41: The maximum output power for antenna is 23.52dBm (224.91mW) at 2605MHz, 0.16dBi antenna gain(with 1.04 numeric antenna gain.)

2) For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20cm, even if the calculation indicate that the MPE distance would be lesser.

Calculation:

Given $E = \frac{\sqrt{30 \cdot P \cdot G}}{d}$ & $S = \frac{E^2}{3770}$

Where $E =$ Field strength in Volts / meter

$P =$ Power in Watts

$G =$ Numeric antenna gain

$d =$ Distance in meters

$S =$ Power density in milliwatts / square centimeter

Substituting the MPE safe distance using $d=20\text{cm}$ into above equation.

Yields: $S=0.000199 \cdot P \cdot G$

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	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

RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

Mode	Power(mW)	numeric antenna gain	Power density (mW/cm ²)	Limit (mW/cm ²)	Result
BLE	0.34	1.27	0.000086	1	PASS
GPRS850	1828.10	0.65	0.236465	0.549467	
GPRS1900	990.83	1.05	0.207034	1	
LTE Band 5	264.24	0.65	0.034179	0.552667	
LTE Band 7	248.31	1.04	0.051390	1	
LTE Band 41	224.91	1.04	0.046547	1	

The device contain transmitters (BLE & GSM, BLE & LTE) can transmit multiple transmission modes at the same time.

Maximum Emissions Level			
Mode	Total MPE	Limit	Result
BLE & GSM	0.430439	1.0	Pass
BLE & LTE	0.051476		

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