

RF Exposure Evaluation Report

Report No.: 2405S27918EC

Applicant: GUANGZHOU GEOSURV INFORMATION TECHNOLOGY Co., Ltd

Address: Room C401 TOPS Beidou Base No 83 Kaiyuan Avenue, Guangzhou, China, 510700

Product Name: 5W Long-distance Wireless Data transreceiver Module

Product Model: T500L

Multiple Models: N/A

Trade Mark: N/A

FCC ID: 2BDE5-T500L

Standards: 47 CFR §1.1310
KDB 447498 D01 General RF Exposure Guidance v06

Test Date: 2024-05-29

Test Result: Complied

Report Date: 2024-06-04

Reviewed by:

Frank Yin

Approved by:

Jacob Kong

Frank Yin

Project Engineer

Jacob Kong

Manager

Prepared by:

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China



This report may contain data that are not covered by the NVLAP accreditation and shall be marked with an asterisk “★”

Announcement

1. This test report shall not be reproduced except in full, without the written approval of World Alliance Testing & Certification (Shenzhen) Co., Ltd
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.
5. The information marked “#” is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.

Revision History

Version No.	Issued Date	Description
00	2024-06-04	Original

Contents

1	General Information	4
1.1	Client Information	4
1.2	Product Description of EUT	4
1.3	Laboratory Location.....	4
2	RF Exposure Evaluation	5
2.1	Standard	5
2.2	Result.....	6

1 General Information

1.1 Client Information

Applicant:	GUANGZHOU GEOSURV INFORMATION TECHNOLOGY Co., Ltd
Address:	Room C401 TOPS Beidou Base No 83 Kaiyuan Avenue, Guangzhou, China, 510700
Manufacturer:	GUANGZHOU MERCURY NAVIGATION TECHNOLOGY CO., LTD
Address:	A403, TOPS Beidou Innovation Base, No.83, Kaiyuan Avenue, Huangpu, Guangzhou, Guangdong, China

1.2 Product Description of EUT

Sample Serial Number	2KQ8-2 (assigned by WATC)
Sample Received Date	2024-04-30
Sample Status	Good Condition
Frequency Range	410-470MHz
Rated Output Power [#]	5Watts, 3Watts
Modulation Technology	GMSK
Antenna Gain [#]	4dBi
Spatial Streams	SISO (1TX, 1RX)
Power Supply	DC 7.5V
Adapter Information	N/A
Modification	Sample No Modification by the test lab

1.3 Laboratory Location

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China

Tel: +86-755-29691511, Email: qa@watc.com.cn

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 463912, the FCC Designation No. : CN5040.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0160.

2 RF Exposure Evaluation

2.1 Standard

According to §1.1310, radio frequency devices 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.

Table 1 to § 1.1310(e)(1)—Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
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
300–1,500			f/300	<6
1,500–100,000			5	<6
(ii) 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
300–1,500			f/1500	<30
1,500–100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

Calculation formula:

Prediction of power density at the distance of the applicable MPE limit

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

2.2 Result

Radio	Frequency (MHz)	Maximum Conducted Power including Tune-up Tolerance		Maximum Antenna Gain		Min. safety separation distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBm)	(W)	(dBi)	(numeric)			
UHF	410-470	37.6	5.8	4.0	2.51	30	1.29	1.37

Note:

- 1. The Maximum Conducted Power including Tune-up Tolerance was declared by manufacturer.*
- 2. The maximum allowed Antenna gain is 10dBi, which provided by manufacturer.*
- 3. To maintain compliance with the RF exposure guidelines, keep at least a 30cm distance from antenna to nearby person/body.*

Result: Complied.

---End of Report---