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 — Project Engineer

Approved by: Jacob Kong — Manager

Prepared by:

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

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NVLAP TESTING NVLAP LAB CODE 600335-0

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Revision History

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

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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/cm^2);
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 is10dBi, 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---