



TEST REPORT

No. C20T00044-SAR01

For

Client: Shanghai Wanway Digital Technology Co.,Ltd.

Production: GPS Tracker

FCC ID 2AWBA-GS05

Hardware Version: GS05-V1.0-20191202

Software Version: GS05_WW_V_1_1-20200610

Issued date: 2021-01-15

Industrial Internet Innovation Center (Shanghai) Co.,Ltd.

NOTE

1. The test results in this test report relate only to the devices specified in this report.
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3. For the test results, the uncertainty of measurement is not taken into account when judging the compliance with specification, and the results of measurement or the average value of measurement results are taken as the criterion of the compliance with specification directly.
4. It has been confirmed with the customer that the Highest Frame-Averaged Output Power and Antenna gain information provided by the customer may affect the validity of the measurement results in this report, and the impact and consequences will be borne by the customer.

Test Laboratory:

Industrial Internet Innovation Center (Shanghai) Co.,Ltd.

Add: Building 4, No.766, Jingang Road, Pudong, Shanghai, P. R. China

Tel: +86 21 63843300



Revision Version

Report Number	Revision	Date	Memo
C20T00044-SAR01	00	2020-12-21	Initial creation of test report
C20T00044-SAR01	01	2021-01-15	Second creation of test report



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1. Test Laboratory

1.1. Testing Location

Company Name	Industrial Internet Innovation Center (Shanghai) Co.,Ltd.
Address	Building 4, No.766, Jingang Road, Pudong, Shanghai, P. R. China
Postal Code	201206
Telephone	+86 21 63843300
FCC Registration No:	958356
FCC Designation No:	CN1177

1.2. Testing Environment

Normal Temperature	18°C-25°C
Relative Humidity	25%-75%

1.3. Project Data

Project Leader	Xu Yuting
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1.4. Signature

Gong Jiawei
(Prepared this test report)

Yan Hang
(Reviewed this test report)

Song Kaihua
(Approved this test report)



2. Client Information

2.1. Applicant Information

Company Name	Shanghai Wanway Digital Technology Co.,Ltd.
Address	Floor 23,Yibo Building,No.1999,Wenchuan Road Baoshan District,Shanghai
Telephone	18516719968
Postcode	N/A

2.2. Manufacturer Information

Company Name	Shanghai Wanway Digital Technology Co.,Ltd.
Address	Floor 23,Yibo Building,No.1999,Wenchuan Road Baoshan District,Shanghai
Telephone	18516719968
Postcode	N/A

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

EUT Description	GPS Tracker
Model name	GS05
GSM Frequency Band:	GSM850/GSM900/GSM1800/GSM1900
UMTS Frequency Band:	WCDMA Band I/II/V/VI
Additional Communication Function	GPS;BDS

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
N18	--	GS05-V1.0-20191202	GS05_WW_V_1_1-20200610	2020-11-24

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Type	Manufacturer
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*AE ID: is used to identify the test sample in the lab internally.

4. Reference Documents for FCC

4.1. Documents supplied by applicant

All technical documents are supplied by the client or manufacturer, which is the basis of evaluation.

4.2. Reference Documents

The following documents listed in this section are referred for evaluation.

Reference	Title	Version
FCC CFR 47	Part 2 FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS. Oct 1,2011 Section 2.1091 Radiofrequency radiation exposure evaluation: mobile devices, June 23, 2015	2015

4.3. Criteria

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 limit for maximum permissible exposure. In accordance with the reference this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

Limits for Occupational / Controlled Exposure				
Frequency (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3 – 3.0	614	1.63	(100)*	6
3.0 – 30	1824/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1	6
300 – 1500	--	--	F/300	6
1500 - 100000	--	--	5	6
Limits for General Population / Uncontrolled Exposure				
Frequency (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3 – 1.34	614	1.63	(100)*	30
1.34 – 30	824/f	2.19/f	(180/f)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	--	--	F/1500	30
1500 - 100000	--	--	1	30
Note:				
f = frequency in MHz; * Plane-wave equivalent power density.				

For the DUT, the limits for General Population / Uncontrolled Exposure are applicable.

4.4. Calculation

For conservative evaluation consideration, only maximum power of each frequency band based on the tighter limits respectively are used to calculate the boundary power density.

Based on the FCC KDB 447498 D01 and 47 CFR §2.1091, the DUT is evaluated as a mobile device.

$$S = \frac{P \times G}{4\pi d^2}$$

Where

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter



5. Evaluation Summary and Statement of Compliance

5.1. RF Power Output

Band	Frequency	Highest Output Power (dBm)	Highest Output Power (mW)	Antenna Gain(dBi)
GSM850	824.2	33	1995.26	0.6
GSM1900	1850.2	30	1000.00	0.6
WCDMA Band 2	1852.4	24	251.19	0.7
WCDMA Band 5	826.4	24	251.19	0.7



5.2. Evaluation Summary

Band	Frequency	Highest Output Power (dBm)	Highest Output Power (mW)	Antenna Gain(dBi)	Numeric antenna gain	Power density at 20cm	MPE limit (mW/cm ²)
GSM850	824.2	33	1995.26	0.6	1.148	0.456	0.549
GSM1900	1850.2	30	1000.00	0.6	1.148	0.228	1.000
WCDMA Band 2	1852.4	24	251.19	0.7	1.175	0.059	1.000
WCDMA Band 5	826.4	24	251.19	0.7	1.175	0.059	0.551

The product is under the MPE limits. All is pass.

*****End of the Report*****