



中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)



RF EXPOSURE EVALUATION REPORT

Applicant: SHENZHEN TOPFLYtech CO., LIMITED.

Address: Rm409 Scientific Research Building TsinghuaHi-tech Park Hi-tech Industrial
Nanshan District Shenzhen China

FCC ID: 2ASWY23PIONEERX100

Product Name: GPS Tracker

Standard(s): 47 CFR §1.1310

The above equipment has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: CR230836391-00B

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Reviewed By: Calvin Chen

Title: RF Engineer

Reviewed By: Sun Zhong

Title: Manager

Test Laboratory: China Certification ICT Co., Ltd (Dongguan)

No. 113, Pingkang Road, Dalang Town, Dongguan,
Guangdong, China
Tel: +86-769-82016888

Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

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. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “▲”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR230836391-00B	Original Report	2023/10/6

1. RF EXPOSURE EVALUATION

1.1 Applicable Standard

According to subpart subpart §1.1310, 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 of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
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;

According to §1.1310 and §2.1091 RF exposure is calculated.

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);

1.1.2 EUT WWAN Information ▲ :

Operation Modes	Operation Frequency (MHz)	Maximum Conducted Power including Tune-up Tolerance (dBm)	Antenna Gain (dBi)	Max Gain Allowed (dBi)
GSM850(1TX-slot)	824-849	35	-0.34	3.5
GSM850(2TX-slots)		32		
GSM850(3TX-slots)		31		
GSM850(4TX-slots)		29		
GSM1900(1TX-slot)	1850-1910	31	0.48	2.0
GSM1900(2TX-slots)		30		
GSM1900(3TX-slots)		28		
GSM1900(4TX-slots)		26		
LTE B2	1850-1910	25	0.48	2.0
LTE B4	1710-1755	25	0.1	5.0
LTE B5	824-849	25	-0.34	3.5
LTE B7	2500-2570	25	1.04	8.0
LTE B12	699-716	25	-2.98	8.7
LTE B13	777-787	25	-1.69	9.2
LTE B17	704-716	25	-2.98	8.7
LTE B25	1850-1915	25	0.48	2.0
LTE B26	814-849	25	-0.34	3.5
LTE B38	2570-2620	25	-0.12	8.0
LTE B41	2496-2690	25	1.04	8.0
LTE B66	1710-1780	25	0.1	5.0

1.2 Measurement Result

Mode	Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
BDR/EDR	2402-2480	1.70	1.48	6	3.98	20	0.0012	1
BLE	2402-2480	1.70	1.48	6	3.98	20	0.0012	1
GSM850	824-849	-0.34	0.92	26.74	472.06	20	0.0864	0.549
GSM1900	1850-1910	0.48	1.12	23.98	250.03	20	0.0557	1
LTE B2	1850-1910	0.48	1.12	25	316.23	20	0.0705	1
LTE B4	1710-1755	0.10	1.02	25	316.23	20	0.0642	1
LTE B5	824-849	-0.34	0.92	25	316.23	20	0.0579	0.549
LTE B7	2500-2570	1.04	1.27	25	316.23	20	0.0799	1
LTE B12	699-716	-2.98	0.5	25	316.23	20	0.0315	0.466
LTE B13	777-787	-1.69	0.68	25	316.23	20	0.0428	0.518
LTE B17	704-716	-2.98	0.5	25	316.23	20	0.0315	0.469
LTE B25	1850-1915	0.48	1.12	25	316.23	20	0.0705	1
LTE B26	814-849	-0.34	0.92	25	316.23	20	0.0579	0.543
LTE B38	2570-2620	-0.12	0.97	25	316.23	20	0.0610	1
LTE B41	2496-2690	1.04	1.27	25	316.23	20	0.0799	1
LTE B66	1710-1780	0.10	1.02	25	316.23	20	0.0642	1

Note:

1. For GSM850 and GSM1900

To average the power, the division factor is as follows:

1TX-slot = 1 transmit time slot out of 8 time slots => conducted power divided by (8/1) => -9.03Db

GSM850: 35-9.03=25.97 (dBm), GSM1900: 31-9.03= 21.97 (dBm)

2TX-slots = 2 transmit time slots out of 8 time slots => conducted power divided by (8/2) => -6.02dB

GSM850: 32-6.02=25.98 (dBm), GSM1900: 30-6.02= 23.98 (dBm)

3TX-slots = 3 transmit time slots out of 8 time slots => conducted power divided by (8/3) => -4.26dB

GSM850: 31-4.26=26.74 (dBm), GSM1900: 28-4.26= 23.74(dBm)

4TX-slots = 4 transmit time slots out of 8 time slots => conducted power divided by (8/4) => -3.01dB

GSM850: 29-3.01=25.99 (dBm), GSM1900: 26-3.01= 22.99 (dBm)

2. The device contains a certified Module, FCC ID: 2ASWY23EG912UGL,

Bluetooth Date of Grant: 09/27/2023, WWAN Date of Grant: 08/22/2023.

3. The Conducted output power comes from module report.

4. The WWAN and Bluetooth cannot transmit simultaneously

Result: The device meet FCC MPE at 20 cm distance.

===== END OF REPORT =====