REPORT No . : SZ18080125S01

FCC RF EXPOSURE EVALUATION REPORT

APPLICANT	:	iTrax, Inc.
PRODUCT NAME	:	GPS Asset Tracker
MODEL NAME	:	SVR4
BRAND NAME	:	NA
FCC ID	:	2AH3LSVR4
STANDARD(S)	:	47CFR 2.1091 KDB 447498
ISSUE DATE	:	2018-08-27

Tested by: Gan Yueming

Gan Yueming(Test engineer)

Approved by: Peng Huarui

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MORLAB

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DIRECTORY

Change History		
Issue	**Date**	**Reason for change**
1.0	2018-08-27	First edition

1. Technical Information

Note: Provide by manufacturer.

1.1 Applicant and Manufacturer Information

Applicant:	iTrax, Inc.
Applicant Address:	963 Topsy Lane,Suite 306 - 359,Carson City, Nevada, 89705, United States
Manufacturer:	Shenzhen Concox Information Technology Co.,Ltd
Manufacturer Address:	Floor 4th, Building B, Gaoxinqi Industrial Park, Liuxian 1st Road, District 67, Bao'an, Shenzhen, China

1.2 Equipment Under Test (EUT) Description

EUT Type:	GPS Asset Tracker
Hardware Version:	NFC109-V3.0
Software Version:	GT720S_20_S1A1_D23_R0_V06_WM_20180515_0928
Frequency Bands:	GSM 850: 824.2 MHz ~ 848.8 MHz GSM 1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz
Modulation Mode:	GPRS: GMSK, EDGE: 8PSK WCDMA: QPSK
Antenna Type:	Monople Antenna
Antenna Gain:	-2.5dBi

1.3 Photographs of the EUT

1. **EUT front view**

2. **EUT rear view**

1.4 Identification of all used EUT

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
1#	NFC109-V3.0	GT720S_20_S1A1_D23_R0_V06_WM_20180515_0928

1.5 Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR§2.1091	Radio frequency Radiation Exposure Evaluation: mobile devices
2	KDB 447498 D01v06	General RF Exposure Guidance

2. Device Category and RF Exposure Limit

Per user manual, Based on 47CFR 2.1091, this device belongs to mobile device category with General Population/Uncontrolled exposure.

Mobile Devices:

47CFR 2.1091(b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term “fixed location” means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

GENERAL POPULATION / UNCONTROLLED EXPOSURE

The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

TABLE 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)
(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

3. Measurement of RF Output Power

<GSM Bands>

GSM850	Burst Average Power (dBm)			Tune-up	Frame-Average Power (dBm)			Tune-up
TX Channel	128	190	251	Limit	128	190	251	Limit
Frequency (MHz)	824.2	836.6	848.8	(dBm)	824.2	836.6	848.8	(dBm)
GPRS 1 Tx slot	32.54	32.60	32.76	33.00	23.54	23.60	23.76	24.00
GPRS 2 Tx slots	30.45	30.55	30.76	31.00	24.45	24.55	24.76	25.00
GPRS 3 Tx slots	28.56	28.68	28.91	29.00	24.30	24.42	24.65	24.74
GPRS 4 Tx slots	26.53	26.56	26.78	27.00	23.53	23.56	23.78	24.00
EDGE 1 Tx slot	32.55	32.60	32.77	33.00	23.55	23.60	23.77	24.00
EDGE 2 Tx slots	30.42	30.51	30.71	31.00	24.42	24.51	24.71	25.00
EDGE 3 Tx slots	28.53	28.64	28.74	29.00	24.27	24.38	24.48	24.74
EDGE 4 Tx slots	26.54	26.62	26.80	27.00	23.54	23.62	23.80	24.00

GSM1900	Burst Average Power (dBm)			Tune-up	Frame-Average Power (dBm)			Tune-up
TX Channel	512	661	810	Limit	512	661	810	Limit
Frequency (MHz)	1850.2	1880	1909.8	(dBm)	1850.2	1880	1909.8	(dBm)
GPRS 1 Tx slot	28.47	28.39	28.96	29.00	19.47	19.39	19.96	20.00
GPRS 2 Tx slots	27.78	27.71	27.54	28.00	21.78	21.71	21.54	22.00
GPRS 3 Tx slots	26.02	25.94	25.91	26.50	21.76	21.68	21.65	22.24
GPRS 4 Tx slots	23.94	23.97	23.93	24.50	20.94	20.97	20.93	21.50
EDGE 1 Tx slot	30.03	29.95	30.44	31.00	21.03	20.95	21.44	22.00
EDGE 2 Tx slots	27.69	27.63	27.45	28.00	21.69	21.63	21.45	22.00
EDGE 3 Tx slots	26.01	25.92	25.75	26.50	21.75	21.66	21.49	22.24
EDGE 4 Tx slots	24.04	23.91	23.67	24.50	21.04	20.91	20.67	21.50

Time slot consignations:

No. of Slots	Slot 1	Slot 2	Slot 3	Slot 4
Slot Consignation	1Up4Down	2Up3Down	3Up2Down	4Up1Down
Duty Cycle	1:8.3	1:4.15	1:2.77	1:2.08
Correct Factor	-9.03dB	-6.02dB	-4.26dB	-3.01dB

<WCDMA Bands>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		4132	4182	4233	
Rx Channel		9662	9800	9938		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		826.4	836.4	846.6	
3GPP Rel 99	RMC 12.2Kbps	23.18	23.34	23.05	23.50	25.60	23.62	24.59	26.00

Note: According to KDB 447498, maximum source-based time-average power will be used for calculating MPE.

4. RF Exposure Evaluation

Standalone transmission MPE evaluation

Bands	Frequency (MHz)	Maximum Tune-up Limit (dBm)	Antenna Gain (dBi)	EIRP (mW)	Power density (mW/cm²)	Limit for MPE (mW/cm²)
GSM850	848.8	31.0	-2.5	707.95	0.141	0.566
GSM1900	1850.2	26.5	-2.5	251.189	0.05	1.0
WCDMA II	1880	23.5	-2.5	125.893	0.025	1.0
WCDMA V	826.4	26.0	-2.5	223.872	0.045	0.551

Note:

MPE calculation method

$$\text{Power Density} = EIRP/4\pi R^2$$

Where: EIRP = P·G

P = Conducted output power

G = Antenna gain

R = Separation distance (20cm)

Annex A General Information

1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Department:	Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Responsible Test Lab Manager:	Mr. Su Feng
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2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
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END OF REPORT