GlobaTrac LLC

CheckSmart

Main Model: CheckSmart Luggage Tracker
Serial Model: SKU601169

January 14, 2016
Report No.: 15071232-FCC-H1
(This report supersedes NONE)

Modifications made to the product : None

This Test Report is Issued Under the Authority of:		
William Long	Herve Idoko	
William Long **Compliance Engineer**	**Herve Idoko** **Technical Manager**	

This test report may be reproduced in full only.
Test result presented in this test report is applicable to the representative sample only.

RF Exposure Evalution Report

SIEMIC, INC.
Accessing global markets

To: FCC 2.1091: 2014

Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management through out a project. Our extensive experience with China, Asia Pacific, North America, European, and international compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC , RF/Wireless , Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless , Telecom
Taiwan	BSMI , NCC , NIST	EMC, RF, Telecom , Safety
Hong Kong	OFTA , NIST	RF/Wireless ,Telecom
Australia	NATA, NIST	EMC, RF, Telecom , Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF , Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC , RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom , Safety

Accreditations for Product Certifications

Country/Region	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC , RF , Telecom
Canada	IC FCB , NIST	EMC , RF , Telecom
Singapore	iDA, NIST	EMC , RF , Telecom
EU	NB	EMC & R&TTE Directive
Japan	MIC, (RCB 208)	RF , Telecom
Hong Kong	OFTA (US002)	RF , Telecom

This page has been left blank intentionally.

CONTENTS

1. EXECUTIVE SUMMARY & EUT INFORMATION

The purpose of this test programme was to demonstrate compliance of the GlobaTrac LLC, CheckSmart and model: CheckSmart Luggage Tracker against the current Stipulated Standards. The CheckSmart has demonstrated compliance with the FCC 2.1091: 2014.

EUT Information

EUT Description	:	**CheckSmart**
Main Model	:	**CheckSmart Luggage Tracker**
Serial Model		**SKU601169**
Antenna Gain	:	**GPRS850: 2.0 dBi** **GPRS1900: 2.0 dBi** **BLE: 3.0 dBi**
Input Power	:	**3 V DC**
Maximum Conducted Peak Power to Antenna	:	**GPRS850: 31.79 dBm** **GPRS1900: 29.19 dBm** **BLE: 1.083 dBm**
Classification Per Stipulated Test Standard	:	**FCC 2.1091: 2014**

2. REPORT REVISION HISOTROY

Report No.	Report Version	Description	Issue Date
15071232-FCC-H1	V1	Original	December 24,2015
15071232-FCC-H1	V2	Change Testing Data and Setup Photos	January 14, 2016

3. TECHNICAL DETAILS

Purpose	**Compliance testing of CheckSmart with stipulated standard**
Applicant / Client	**GlobaTrac LLC 2930 Westwood Blvd., Suite 250, Los Angeles, CA. 90064 USA**
Manufacturer	**Anpinda Precision Industry (Huizhou)Co.Ltd Jizhun(Foxconn) Huizhou Technology Park,12 Gou Di Duan, Dame n Group, Xialiao Village Committee, Longxi Town, Boluo County, Huizhou City, Guangdong Province, China**
Laboratory performing the tests	**SIEMIC Nanjing (China) Laboratories NO.2-1,Longcang Dadao, Yuhua Economic Development Zone, Nanjing, China Tel:+86(25)86730128/86730129 Fax:+86(25)86730127 Email:info@siemic.com**
Test report reference number	**15071232-FCC-H1**
Date EUT received	**11st December, 2015**
Standard applied	**FCC 2.1091: 2014**
Dates of test	**14th December, 2015 to 14th January, 2016**
No of Units	**#1**
Trade Name	**N/A**
RF Operating Frequency (ies)	**GPRS850 TX : 824.2 ~ 848.8 MHz; RX : 869.2 ~ 893.8 MHz GPRS1900 TX : 1850.2 ~ 1909.8 MHz; RX : 1930.2 ~ 1989.8 MHz BLE: 2402-2480MHz**
Number of Channels	**299CH (GPRS1900) and 124CH (GPRS850) BLE: 40 CH**
Modulation	**GSM: GMSK Bluetooth: GFSK**
FCC ID	**2AADDVIC**

4. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

FCC §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to §1.1307(b)(1), 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.

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

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	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

Test Data

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

Where: S = 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)

GSM Mode:

Burst Average Power (dBm);								
Band	GSM850				PCS1900			
Channel	128	190	251	Tune up Power tolerant	512	661	810	Tune up Power tolerant
Frequency (MHz)	824.2	836.6	848.8	/	1850.2	1880	1909.8	/
GSM Voice (1 uplink),GMSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GPRS Multi-Slot Class 8 (1 uplink),GMSK	**31.79**	31.76	31.76	32±1	28.3	**28.61**	28.49	29±1
GPRS Multi-Slot Class 10 (2 uplink) GMSK	31.36	31.39	31.38	32±1	28.11	28.52	28.31	29±1
GPRS Multi-Slot Class 12 (4 uplink) GMSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Remark :

GPRS, CS1 coding scheme.

Multi-Slot Class 8 , Support Max 4 downlink, 1 uplink , 5 working link

Multi-Slot Class 10 , Support Max 4 downlink, 2 uplink , 5 working link

Multi-Slot Class 12 , Support Max 4 downlink, 4 uplink , 5 working link

	Source Based time Average Power (dBm)									
Band	GSM850					PCS1900				
Channel	128	190	251	Time Average factor	Tune up Power tolerant	512	661	810	Time Average factor	Tune up Power tolerant
Frequency (MHz)	824.2	836.6	848.8	/	/	1850.2	1880	1909.8	/	/
GSM Voice (1 uplink),GMSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GPRS Multi-Slot Class 8 (1 uplink) GMSK	22.76	22.73	22.73	-9.03	23±1	19.27	19.58	19.46	-9.03	20±1
GPRS Multi-Slot Class 10 (2 uplink) GMSK	25.34	25.37	25.36	-6.02	26±1	22.09	22.5	22.29	-6.02	23±1
GPRS Multi-Slot Class 12 (4 uplink) GMSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Remark :

GPRS, CS1 coding scheme.

Multi-Slot Class 8 , Support Max 4 downlink, 1 uplink , 5 working link

Multi-Slot Class 10 , Support Max 4 downlink, 2 uplink , 5 working link

Multi-Slot Class 12 , Support Max 4 downlink, 4 uplink , 5 working link

•

-
- BLE Mode

Type	Test mode	CH	Freq (MHz)	Conducted Power (dBm)	Tune Up Power (dBm)
Output power	GFSK	Low	2402	1.083	0.5±1
		Middle	2440	0.503	0.5±1
		High	2480	-0.242	0.5±1

•

GSM 850 :

Maximum peak output power at antenna input terminal: 27.0 (dBm)
Maximum peak output power at antenna input terminal:501.19 (mW)

Prediction distance: >20 (cm)
Predication frequency: 824.2 (MHz)
Antenna Gain (typical): 2.0 (dBi)
Antenna Gain (typical): 1.585 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.158 (mW/cm^2)
MPE limit for general population exposure at prediction frequency: 0.549 (mW/cm^2)

0.158 (mW/cm^2) < 0.549 (mW/cm^2)

Result: Pass

PCS 1900 :

Maximum peak output power at antenna input terminal: 24.0 (dBm)
Maximum peak output power at antenna input terminal: 251.19 (mW)

Prediction distance: >20 (cm)
Predication frequency: 1880 (MHz)
Antenna Gain (typical): 2.0 (dBi)
Antenna Gain (typical): 1.585 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.079 (mW/cm^2)
MPE limit for general population exposure at prediction frequency: 1.0 (mW/cm^2)

0.079 (mW/cm^2) < 1.0 (mW/cm^2)

Result: Pass

BLE :

Maximum peak output power at antenna input terminal: 1.5 (dBm)
Maximum peak output power at antenna input terminal: 1.413 (mW)

Prediction distance: >20 (cm)
Predication frequency: 2402 (MHz)
Antenna Gain (typical): 3 (dBi)
Antenna Gain (typical): 1.995 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.0005 (mW/cm^2)
MPE limit for general population exposure at prediction frequency: 1.0 (mW/cm^2)

0.0006 (mW/cm^2) < 1.0 (mW/cm^2)

Result: Pass