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Report No.: SZEM141100609203

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# **SAR Evaluation Report**

Application No.: SZEM1411006092HR

Applicant: Aspenta International FZ-LLC

Product Name: GPS Tracker Model No.(EUT): PLT-001

Trade Mark:

aspenta

FCC ID: 2ADTO-PLT-001

**Standards:** 47 CFR Part 2.1093 (2014)

KDB447498D01 General RF Exposure Guidance v05r20

Tracking Number: 340466

**Date of Receipt:** 2014-11-06

**Date of Test:** 2014-12-16 to 2015-01-08

**Date of Issue:** 2015-02-11

Test Result : PASS\*

#### Authorized Signature:



Jack Zhang EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.



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# 2 Version

Revision Record					
Version	Chapter	Date	Modifier	Remark	
00		2015-02-11		Original	

Authorized for issue by:			
Tested By	(Chris Zhong) /Project Engineer	2015-01-08  Date	
Prepared By	(Hedy Wen) /Clerk	2015-02-11  Date	
Checked By	Emen _ L <sub>1</sub>	2015-02-11  Date	

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### 4 General Information

### 4.1 Client Information

Address of Applicant:  Premises:155 Floor:01 building:17	Applicant:	Aspenta International FZ-LLC
Address of Applicant: building:17		
	Address of Applicant:	
		Dubai, United Arab Emirates

### 4.2 General Description of EUT

Product Name:	GPS Tracker		
Model No.:	PLT-001		
Trade Mark:	aspenta Reddining Councosity		
EUT Function:	GPS; GSM 850/1900; BT		
Operation Frequency:	<b>GSM850</b> 824MHz~849MHz; 869MHz~894MHz		
	PCS1900 1850MHz~1910MHz; 1930MHz~1990MHz		
	Bluetooth 2402MHz~2480MHz		
	<b>GPS</b> 1.575GHz		
Bluetooth Version:	4.0		
Modulation Type:	GSM:GMSK, QPSK		
	BT: GFSK		
Sample Type:	Portable production		
Antenna Type:	Integral		
Antenna Gain:	900MHz : 3dBi		
	1800MHz : 3dBi		
	2.4GHz : 3.4dBi		
Power Supply:	Input:AC110-240V 50/60Hz 0.15A		
	Output:DC5V 500mA		
Battery:	Li recharge battery 3.7V 3000mAh		
USB cable:	80cm (unshielded)		

### 4.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

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## 4.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

### CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

#### VCCI

The 10m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

### FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

#### Industry Canada (IC)

Two 3m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1 & 4620C-2.

### 4.5 Deviation from Standards

None.

### 4.6 Abnormalities from Standard Conditions

None

### 4.7 Other Information Requested by the Customer

None.



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### 5 SAR Evaluation

## 5.1 RF Exposure Compliance Requirement

### 5.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v05r20

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

#### 5.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]  $\cdot$  [ $\sqrt{f(GHz)}$ ]  $\leq$  3.0 for 1-g SAR and  $\leq$  7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

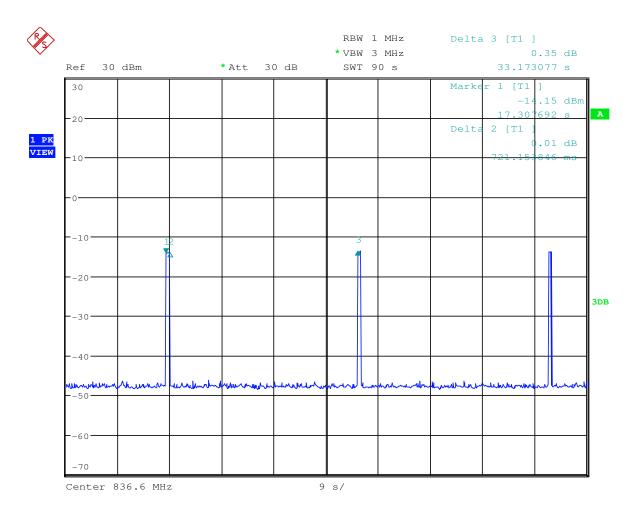


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### 5.1.3 Duty Cycle Measurement

#### **GSM 850:**

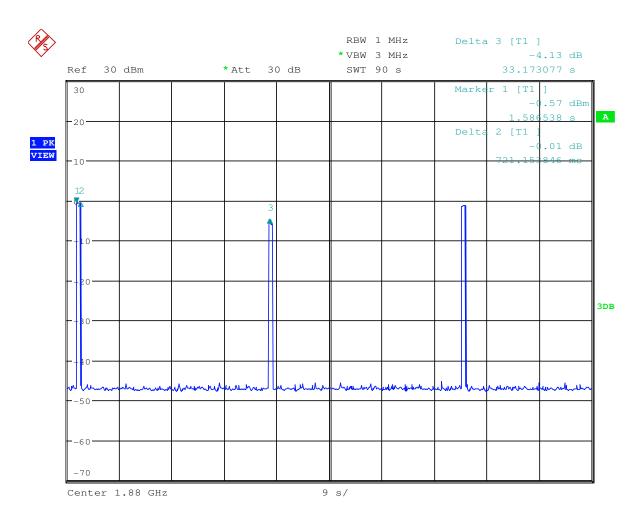




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#### GSM 1900:



For GSM 850 and GSM1900, it support GSM only,contain 1 time slot. The time of a frame for GSM network is 4.615ms, every frame contains 8 timeslots, so the maximum transmission time is 4.615/8=0.576875 ms,and the minimum time (shortest interval) between transmissions is 33.173077s

So the Duty Factor=10log(0.576875/33173.077)=-47.60dB

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### 5.1.4 Conducted power measurement and calculation

Frequency band	Test ch./Freq.	Coducted Output Power(dBm)	Tune Up Max. Power(dBm)	Duty Cycle(dB)	Max. Average Output Power(dBm)	Max. Average Output Power(mW)
CCMOEO	128/824.2	33.13	34	-47.60	-13.6	0.044
GSM850 ( GSM only )	190/836.6	33.12				
	251/848.8	33.04				
CSM4000	512/1850.2	28.85	32		-15.6	0.028
GSM1900 ( GSM only )	661/1880	28.65				
( GSW Offly )	810/1909.8	28.34				
	0/2402	-0.5	0	0	0	1
ВТ	19/2440	-1.08				
	39/2480	-1.61				

### 5.1.5 Stand-alone SAR test evaluation

Per FCC KDB 447498 D01 v05r02, the SAR exclusion threshold for distances <50mm is defined by the following equation:

$$\frac{\text{Max Power of Channel(mW)}}{\text{Test Separation Dist(mm)}} * \sqrt{\text{Frequency(GHz)}} \le 3.0$$

#### Note:

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

- 1) Based on the Max. Average Output Power of GSM 850 and the antenna to use separation distance 5mm, Stand-alone SAR evaluation is not required for GSM 850;  $[(0.044/5)^* \sqrt{0.8488}] = 0.008 < 3.0$ .
- 2) Based on the Max. Average Output Power of GSM 1900 and the antenna to use separation distance 5mm, Stand-alone SAR evaluation is not required for GSM 1900;  $[(0.028/5)^* \sqrt{1.9098}] = 0.008 < 3.0$
- Based on the Max. Average Output Power of BT and the antenna to use separation distance 5mm, Stand-alone SAR evaluation is not required for BT;  $[(1.0/5)^* \sqrt{2.480}] = 0.31 < 3.0$