

# SAR Exclusion REPORT

**REPORT NUMBER:**

**B15W50007-FCC-SAR Exclusion\_Rev2**

**ON**

**Type of Equipment:** GPS Tracker

**Type of Designation:** All-In-One 3

**Manufacturer:** Presidio Networked Solutions, Inc.

**ACCORDING TO**

**FCC CFR 47, Part 2, FREQUENCY ALLOCATIONS AND RADIO  
TREATY MATTERS; GENERAL RULES AND REGULATIONS**

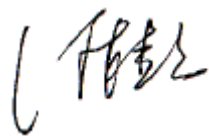
**FCC KDB 447498 D01 General RF Exposure Guidance v05r02**

**China Telecommunication Technology Labs.**

*Month date, year*

*June, 27, 2015*

*Signature*

A handwritten signature in black ink, appearing to read 'He Guili', is written over a white background.

He Guili  
Director

FCC Part 2.1091  
Equipment: All-In-One 3

REPORT NO.: B15W50007-FCC-SAR Exclusion\_Rev2

**FCC ID:** 2AD2ZAI03

**Report Date:** 2015-06-27

**Test Firm Name:** China Telecommunication Technology Labs

**Registration Number:** 840587

Statement

The report is a SAR exclusion report according to FCC KDB 447498 D01 v05r02.

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## 1 General Information

### 1.1 Notes

The SAR exclusion report was carried out on a sample equipment to demonstrate compliance with FCC KDB 447498 D01 v05r02.

The test results of this report relate exclusively to the item(s) tested as specified in section 2.

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## 1.2 Editor

Editor of this test report:

Name: Li Guoqing  
Position: Engineer  
Department: Department of EMC test  
Date: 2015-06-27  
Signature: 李国庆

Technical responsibility for area of testing:

Name: Zou Dongyi  
Position: Manager  
Department: Department of EMC test  
Date: 2015-06-27  
Signature: 邹东屹

### 1.3 Testing Laboratory information

#### 1.3.1 Location

Name: China Telecommunication Technology Labs.  
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Chongqing, P. R. China  
Postal Code: 401336  
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#### 1.3.2 Details of accreditation status

Accredited by: China National Accreditation Service for Conformity  
Assessment (CNAS)  
Registration number: CNAS Registration No. CNAS L0570  
Standard: ISO/IEC 17025:2005

#### 1.3.3 Test location, where different from section 1.3.1

Name: -----  
Address: -----

## 1.4 Details of applicant or manufacturer

### 1.4.1 Applicant

Name: Presidio Networked Solutions, Inc.  
Address: 5337 Millenia Lakes Blvd, Suite 300, ORLANDO  
Country: USA  
Telephone: 01 407 409 8208  
Fax: 01 407 650 9786  
Contact: Thomas  
Telephone: 01 407 409 8208  
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### 1.4.2 Manufacturer (if different from applicant in section 1.4.1)

Name: eSky Wireless  
Address: 22-303,#328 Xinghu Road  
Suzhou Industrial Park  
Jiangsu Province  
City: Suzhou  
Country: China

### 1.4.3 Manufactory (if different from applicant in section 1.4.1)

Name: eSky Wireless  
Address: 22-303,#328 Xinghu Road  
Suzhou Industrial Park  
Jiangsu Province  
City: Suzhou  
Country: China

## 2 Test Item

### 2.1 General Information

Manufacturer: eSky Wireless  
 Name: GPS Tracker  
 Model Number: All-In-One 3  
 Serial Number: --  
 Production Status: Product  
 Receipt date of test item: 2015-01-08

### 2.2 Outline of EUT

E.U.T. is a GSM850/ PCS1900 bands GPRS/EGPRS and UMTS/HSDPA/HSUPA II/IV/V bands Terminal Equipment. For GPRS, the multi class is 10 (maximum 2 up timeslots) and for EGPRS, it is 10 (maximum 2 up timeslots).

### 2.3 Modifications Incorporated in EUT

The EUT has not been modified from what is described by the brand name and unique type identification stated above.

### 2.4 Equipment Configuration

Equipment configuration list:

Item	Generic Description	Manufacturer	Type	Serial No.	Remarks
A	GPS Tracker	eSky Wireless	All-In-One 3	--	None
B	Battery	None	None	--	None
C	Adaptor	None	None	--	None

### 2.5 Other Information

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### 3 Summary of Results

A brief summary of the tests carried out is shown as following.

Specification Clause	Name of Test	Result
KDB 447498 D01 v05r02	SAR exclusion	Pass
Note: --		

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## 4 Results

### 4.1 Applicable Standards

(1) Appendix A of FCC KDB 447498 D01 General RF Exposure Guidance v05r02 SAR Test Exclusion Thresholds for 100 MHz - 6 GHz and  $\leq 50$  mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table. The equation and threshold in section 4.3.1 must be applied to determine SAR test exclusion.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	SAR Test Exclusion Threshold (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

Note: In this report, the Test Separation Distance is 5 mm.

At 5 mm distance, the SAR Test Exclusion Threshold for 835 MHz is 16 mW, and it is 11 mW for 1900 MHz.

(2) Standalone SAR test exclusion considerations

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

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

- $f(\text{GHz})$  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

- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  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 according to 5) in section 4.1 is applied to determine SAR test exclusion.

(3) SAR Test Exclusion Threshold Values

According to the Formula, for WCDMA band IV, the SAR Test Exclusion Threshold for 1710 MHz, which is selected to consider the conservativeness, is 11 mW. So

the SAR Test Exclusion Threshold values are as following table:

Frequency (MHz)	SAR Test Exclusion Threshold (mW)
835	16
1710	11
1900	11
Note: the Test Separation Distance is 5 mm.	

## 4.2 Tune-up procedure

According to the tune-up procedure, the maximum power the each band is as following table:

Mode	Time slot No.	Frequency band	Maximum power (dBm)	Maximum power (mW)	Duty cycle
GPRS/ EGPRS	1	<1 GHz	25	316	0.125
		>1 GHz	27	501	0.125
	2	<1 GHz	25	316	0.25
		>1 GHz	27	501	0.25
WCDMA Band II		>1 GHz	25	316	1
WCDMA Band IV		>1 GHz	24	251	1
WCDMA Band V		<1 GHz	24	251	1

## 4.3 Antenna Gain

From the antenna specifications provided by the applicant, the typical antenna gain is 1.8 dBi for <1GHz and 1.5 dBi for >1GHz.

## 4.4 Duty Cycle

The AIO3 tracking device reports position data based on the users requirements. The user sets two parameters to determine when a report message is to be sent to the server, delta time and delta distance. Delta time can be set from 5 seconds to 5 minutes and delta distance can be set from 3 to 500 meters. The algorithm used by the AIO3 is that the unit checks the current position against its last know position and if it's more than the user defined value it then checks its current time against the time of the last reported position and if it's more than the user defined value it queues the message for it to be downloaded to the server. If it is successfully delivered to the server it is not saved in the AIO3, if not it stores the message and sends when it has access to the server.

For each report, the data length is 76 bytes, or 608 bits.

For the worst case, the duty cycle used for calculation should be the possible maximum value, which in this case, the transmitting time should be the

maximum and the transmitting interval should be minimum.

To get the maximum time, the transmitting data should be the minimum for each technology, which can be computed as the following table:

Data length	Technology and mode	Min data rate	Max Transmitting time
608 bits	GPRS CS1	8kbps/slot	0.076s
	EGPRS MCS1	8.8kbps/slot	0.069s
	WCDMA	12.2kbps	0.050s

To get the minimum transmitting interval, the minimum value should be used, i.e., 5 s.

Based on above analysis, the maximum duty cycle can be calculated as the following table:

Technology	Max Transmitting time	Min transmitting interval	Max duty cycle
GPRS CS1	0.076s	5s	1.52%
EGPRS MCS1	0.069s	5s	1.38%
WCDMA	0.050s	5s	1%

#### 4.5 SAR Exclusion Evaluation

According the section 4.1 to 4.4, the SAR exclusion evaluation can be calculated as following:

Technology and Frequency band	Max tune-up procedure (mW)	Antenna Gain (dBi)	Antenna Gain	Duty Cycle	Max power	Threshold (mW)	Compliance
GSM 835MHz	316	1.8	1.51	1.52%	7.28	16	Pass
GSM 1900MHz	501	1.5	1.41	1.52%	10.76	11	Pass
WCDMA 835 MHz	251	1.8	1.51	1%	3.80	16	Pass
WCDMA 1710 MHz	251	1.5	1.41	1%	3.54	11	Pass
WCDMA 1900 MHz	316	1.5	1.41	1%	3.55	11	Pass

So, the device can be excluded for SAR test.

### The End of this Report