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Report No.: SHEM110400036401  
Page: 1 of 16

## ***TEST REPORT***

**Application No.:** SHEM110400036401

**Applicant:** Sierra Wireless Inc.

**FCC ID:** N7NAC754S

**Equipment Under Test (EUT):**

**NOTE:** The following sample(s) submitted was/were identified on behalf of the client as

**Product Name:** Mobile Hotspot

**Brand Name:** AirCard

**Model Name:** AirCard 754S

**Standards:** FCC PART 15: 2009 Subpart B

**Date of Receipt:** Apr 11, 2011

**Date of Test:** Apr. 15, 2011

**Date of Issue:** Apr. 18, 2011

<b>Test Result :</b>	<b>PASS*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.



Tino Pan  
E&E Section Manager  
SGS-CSTC(Shanghai) Co., Ltd.



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## 4 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission 30MHz-1000MHz	CFR 47 Part 15.109	ANSI C63.4: 2003	Class B	PASS
Conducted Emission 150KHz-30MHz	CFR 47 Part 15.107	ANSI C63.4: 2003	Class B	PASS

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## 6 General Information

### 6.1 Client Information

Applicant: Sierra Wireless Inc.  
 Address of Applicant: 13811 Wireless Way Richmond, British Columbia, Canada, V6V 3A4.  
 Manufacturer: Sierra Wireless Inc.  
 Address of Manufacturer: 13811 Wireless Way Richmond, British Columbia, Canada, V6V 3A4.

### 6.2 General Description of E.U.T.

Product Name: AirCard 754S  
 Brand Name: AirCard  
 Support Frequency Band: GSM 850/1900, WCDMA Band II/V, HSDPA, HSUPA, HSDPA+, WiFi.  
 Test Frequency Bands: GSM 850/1900, WCDMA Band II/V  
 Hardware Version: 4.1  
 Software Version: SWI9200H\_00.01.00.02AP

### 6.3 Details of E.U.T.

Power Supply: 5VDC (USB port supply)

### 6.4 Details of support units

Name / Function	Model No.	Remark
Laptop	ThinkPad X100e	N/A
AC Adapter	Lenovo 65W 20V	N/A
Mouse	Lenovo M-UAE119	N/A
Monitor	IBM 6734-AC1	N/A

### 6.5 Standards Applicable for Testing

The standards used were CFR 47 Part 15B:

**Table 1 : Tests Carried Out Under CFR 47 Part 15B :**

Standard	Status
FCC Part 15 Subpart B Radiated Emission	√
FCC Part 15 Subpart B Conducted Emission	√

× Indicates that the test is not applicable  
 √ Indicates that the test is applicable

## **6.6 Test Location**

All the tests were performance at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

No.588 West Jindu Road, Songjiang District, Shanghai, China. 201612.

Tel: +86 21 6191 5666 Fax: +86 21 6191 5655

## **6.7 Test Confident level**

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. 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. Date of expiry: 2011-07-29.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2012-03-17.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A. Expiry Date: 2011-09-29.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3172 and C-3514 respectively. Date of Registration: 2009-11-30. Date of Expiry: 2012-03-17.

## 6.8 Measurement Uncertainty

According to CISPR 16-4-2.

Test Item	Frequency Range	Measurement Uncertainty
Conducted Emission	150KHz – 30MHz	3.5dB
Radiated Emission	30MHz – 1000MHz	4.0dB

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

## 7 Equipment Used during Test

### Radiated Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2010-06-03	2011-06-02
2	ANTENNA	SCHWARZBECK	VULB9168	9168-313	2010-06-03	2011-06-02
3	ANTENNA	SCHWARZBECK	BBHA9120D	9120D-679	2010-06-03	2011-06-02
4	ANTENNA	SCHWARZBECK	BBHA9170	9170-373	2010-06-03	2011-06-02
5	TURNTABLE	INNCO	DS 2000S-1T	/	/	/
6	UNIVERSAL RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMU 200	112012	2010-08-25	2011-08-24

### Conducted Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2010-06-04	2011-06-03
2	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2010-05-07	2011-05-06
3	Line impedance stabilization network	ETS	3816/2	00034161	2010-08-02	2011-08-01
4	UNIVERSAL RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMU 200	112012	2010-08-25	2011-08-24

### General Equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	Atmosphere pressure meter	Shanghai ZhongXuan Electronic Co;Ltd	BY-2003P	/	2010-10-15	2011-10-14
2	Digital Multimeter	FLUKE	17B	10560713	2010-09-16	2011-09-15
3	Temperature & humidity recorder	ShangHai weather meter work	ZJ 1-2B	0804181	2010-07-22	2011-07-21
4	Digital illuminance meter	TES electrical electronic Corp.	TES-1330A	050602219	2010-10-16	2011-10-15

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## 8 Emission Test Results

### 8.1 Radiated Emissions

Test Requirement: CFR 47 Part 15.109  
Test Method: ANSI C63.4:2003  
Test Date: Apr. 15, 2011  
Frequency Range: 30MHz to 1GHz  
Measurement Distance: 3m  
Class: Class B  
Detector: Peak for pre-scan (120kHz resolution bandwidth)  
Result: **PASS**

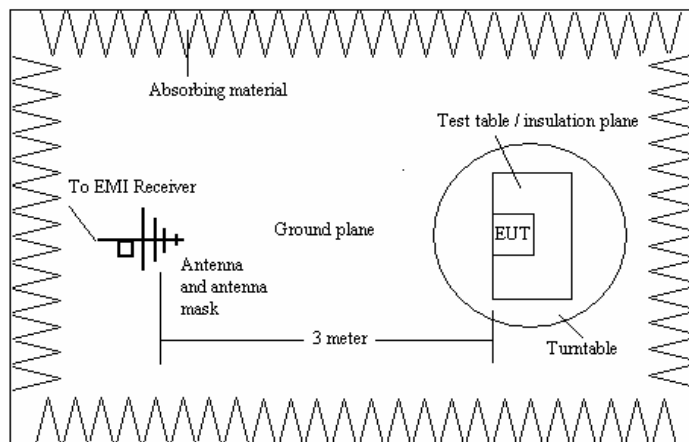
#### 8.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24.0°C Humidity: 48 % RH Atmospheric Pressure: 1012 mbar

EUT Operation: Test EUT connected with laptop in idle mode.

#### 8.1.2 Test setup:

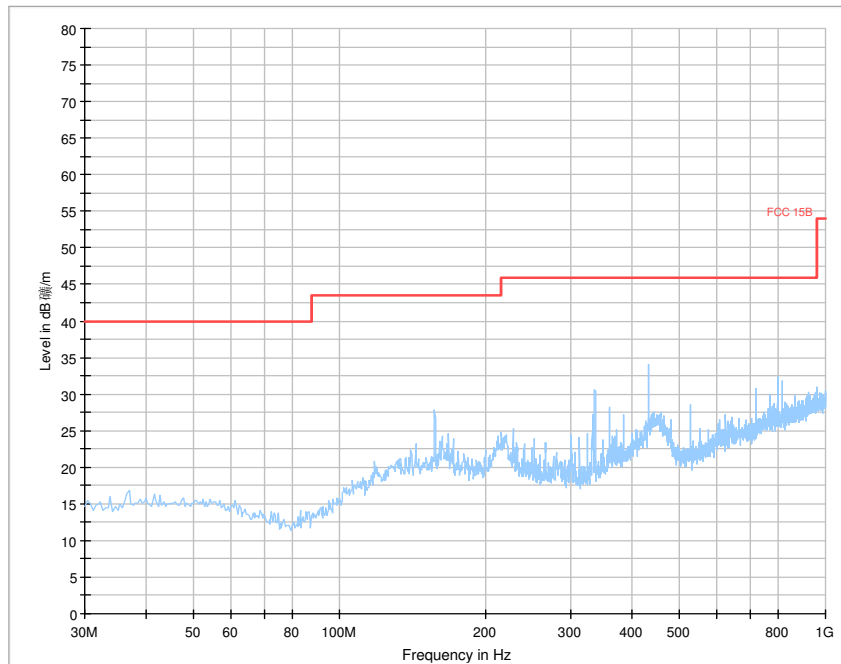




**8.1.3 Measurement Data:**

**Note:** Red limit line - Quasi-peak limit;  
Blue plots - Peak detector scan plots.

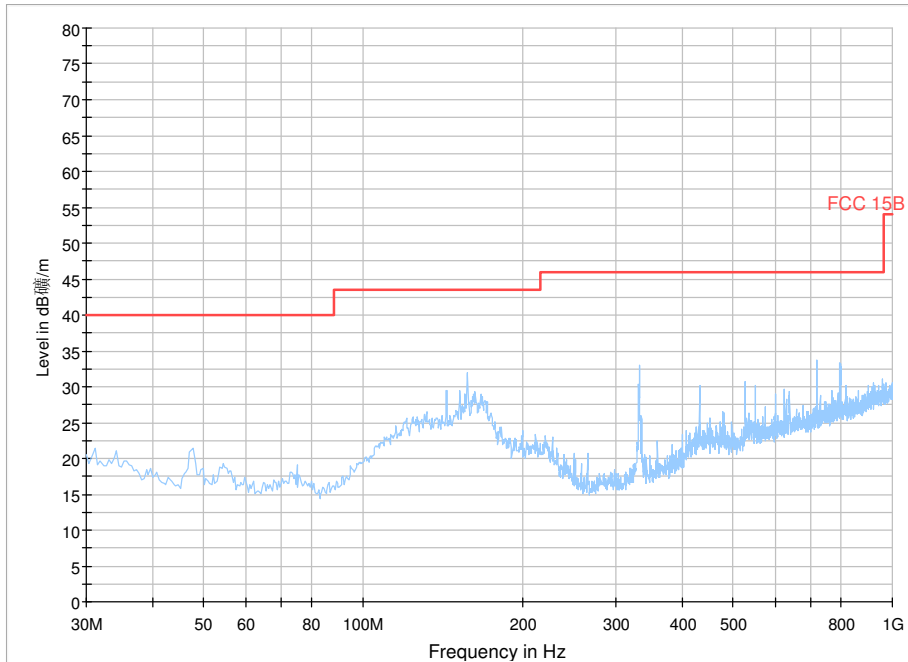
Test in idle mode.  
Horizontal(30MHz -1GHz)



Frequency (MHz)	Actual Level QP (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.00	*	40.0	*
100.00	*	43.5	*
160.00	*	43.5	*
200.00	*	43.5	*
800.00	*	46.0	*
1000.00	*	54.0	*

“\*” means the emission level is 6dB lower than the relevant limit.

Vertical (30MHz -1GHz):



Frequency (MHz)	Actual Level QP (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.00	*	40.0	*
100.00	*	43.5	*
160.00	*	43.5	*
200.00	*	43.5	*
800.00	*	46.0	*
1000.00	*	54.0	*

“\*” means the emission level is 6dB lower than the relevant limit.

## 8.2 Conducted Emissions

Test Requirement: CFR 47 part 15.107  
Test Method: ANSI C63.4:2003  
Test Date: Apr 15, 2011  
Frequency Range: 150kHz to 30MHz  
Class: Class B  
Limit:

Frequency of Emission (MHz)	Conducted Limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\* Decreases with the logarithm of the frequency.

Result: **PASS**

### 8.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0°C Humidity: 45% RH Atmospheric Pressure: 1010 mbar

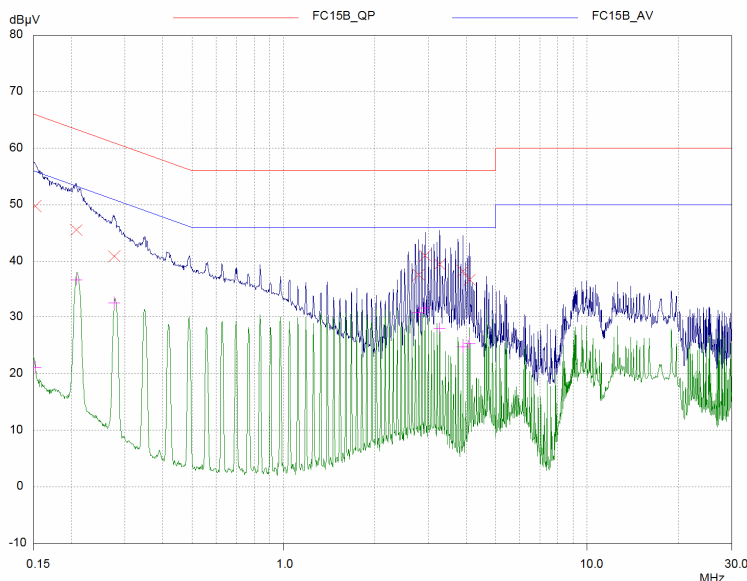
EUT Operation: Test EUT connected with laptop in idle mode.

### 8.2.2 Test Result and Measurement Data

**Note:** Blue limit line - AV limit, Red limit line - Quasi-peak limit;  
Blue plots - Peak detector scan plots, Green plots - AV detector scan plots.

Test in idle mode.

L Line(for the adapter of the laptop):



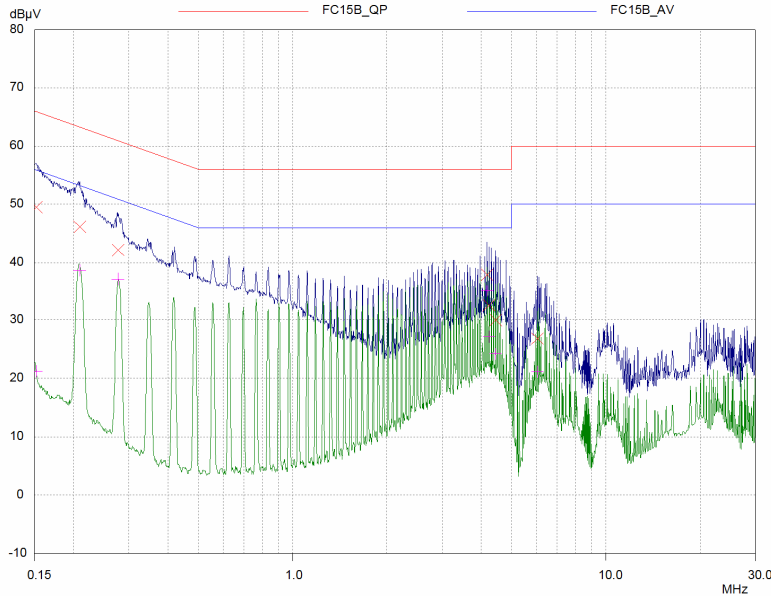
**Final Measurement Results**

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB
0.1518	49.76	65.90	16.14
0.20726	45.52	63.31	17.79
0.27627	40.88	60.93	20.05
2.7872	37.62	56.00	18.38
2.92397	41.04	56.00	14.96
3.26977	39.48	56.00	16.52
3.89763	38.26	56.00	17.74
4.10524	36.76	56.00	19.24

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB
0.1518	21.13	55.90	34.77
0.20726	36.76	53.31	16.55
0.27627	32.50	50.93	18.43
2.7872	30.74	46.00	15.26
2.92397	31.55	46.00	14.45
3.26977	27.95	46.00	18.05
3.89763	24.72	46.00	21.28
4.10524	25.41	46.00	20.59

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N Line(for the adapter of the laptop):



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB
0.1518	49.50	65.90	16.40
0.20892	46.14	63.25	17.11
0.27738	42.16	60.89	18.73
4.17131	37.94	56.00	18.06
4.23846	32.52	56.00	23.48
4.44645	29.98	56.00	26.02
6.04657	26.82	60.00	33.18

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB
0.1518	21.18	55.90	34.72
0.20892	38.63	53.25	14.62
0.27738	37.14	50.89	13.75
4.17131	35.03	46.00	10.97
4.23846	27.10	46.00	18.90
4.44645	24.18	46.00	21.82
6.04657	21.13	50.00	28.87

## **9 EQUIPMENT UNDER TEST PICTURES**

### **9.1.1 Radiated Emission Test Setup**



### **9.1.2 Conducted Emission Test Setup**



9.1.3 EUT Constructional Details



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*End of Report~*