



RF EXPOSURE REPORT

REPORT NO.: SA130911E03

MODEL NO.: S4A340A

FCC ID: UXX-S4A340A

RECEIVED: Sep. 11, 2013

TESTED: Sep. 23 to 25, 2013

ISSUED: Oct. 24, 2013

APPLICANT: Cradlepoint, Inc

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ISSUED BY: Bureau Veritas Consumer Products Services
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA130911E03	Original release	Oct. 24, 2013

1. CERTIFICATION

PRODUCT: Integrated Mobile Broadband Router
BRAND NAME: cradlepoint
MODEL NO.: S4A340A
TEST SAMPLE: ENGINEERING SAMPLE
APPLICANT: Cradlepoint, Inc
TESTED DATE: Sep. 23 to 25, 2013
STANDARDS: FCC Part 2 (Section 2.1091)
FCC OET Bulletin 65, Supplement C (01-01)
IEEE C95.1

The above equipment (Model: S4A340A) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

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(Midoli Peng, Specialist)

APPROVED BY : May Chen , **DATE:** Oct. 24, 2013
(May Chen, Manager)

2. RF EXPOSURE LIMIT

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

FREQUENCY RANGE (MHz)	ELECTRIC FIELD STRENGTH (V/m)	MAGNETIC FIELD STRENGTH (A/m)	POWER DENSITY (mW/cm ²)	AVERAGE TIME (minutes)
LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE				
300-1500	F/1500	30
1500-100,000	1.0	30

F = Frequency in MHz

3. MPE CALCULATION FORMULA

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

r = distance between observation point and center of the radiator in cm

4. CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

This product could be applied with one USB Cellular Modem device, and the safe distance is 37 cm for collocated radio.

5. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

For WLAN:

For 15.247(2.4GHz):

FREQUENCY- (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm ²)	LIMIT (mW/cm ²)
2412-2462	557.816	4.03	20	0.28069	1

FREQUENCY- (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm ²)	LIMIT (mW/cm ²)
2412-2462	557.816	4.03	37	0.08201	1

For 15.247(5GHz):

FREQUENCY (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm ²)	LIMIT (mW/cm ²)
5745 ~ 5825	747.107	4.59	20	0.42767	1

FREQUENCY (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm ²)	LIMIT (mW/cm ²)
5745 ~ 5825	747.107	4.59	37	0.12496	1

For 15.407(5GHz):

FREQUENCY (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm ²)	LIMIT (mW/cm ²)
5180 ~ 5240	48.870	4.59	20	0.02798	1

FREQUENCY (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm ²)	LIMIT (mW/cm ²)
5180 ~ 5240	48.870	4.59	37	0.00817	1

For USB Cellular Modem:

DEVICE	MAX POWER (mW)	MAX POWER (dBm)	DISTANCE (cm)	POWER DENSITY (mW/ cm ²)	LIMIT (mW/cm ²)
USB Cellular Modem	7000	38.45	37	0.40690	0.55

This product can operate with a plug-in USB Cellular Modem device which has maximum of 7W output power.

CONCLUSION:

Both of the WLAN and plug-in USB Cellular Modem device can transmit simultaneously, the formula of calculated the MPE is:

$$CPD_1 / LPD_1 + CPD_2 / LPD_2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

Therefore, the worst-case situation is $0.08201 / 1 + 0.12496 / 1 + 0.40690 / 0.55 = 0.946$, which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

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