

## RF Exposure Report

**Report No.:** SA181119C14

**Test Model:** CSG750

**Series Model:** CSG7xxxxxxxx (Where x can be 0-9, A-Z, a-z, any alphanumeric character or blank)

**Received Date:** Nov. 19, 2018

**Issued Date:** Dec. 12, 2018

**Applicant:** Sierra Wireless Inc.

**Address:** 13811 Wireless Way Richmond, BC V6V 3A4 Canada

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

**FCC Registration/  
Designation Number:** 788550 / TW0003



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### Release Control Record

Issue No.	Description	Date Issued
SA181119C14	Original release	Dec. 12, 2018

## 1 Certificate of Conformity

**Product:** Cloud Services Gateway

**Brand:** Versa

**Test Model:** CSG750

**Series Model:** CSG7xxxxxxxx (Where x can be 0-9, A-Z, a-z, any alphanumeric character or blank)

**Sample Status:** Engineering sample

**Applicant:** Sierra Wireless Inc.

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1

The above equipment 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 RF characteristics under the conditions specified in this report.

**Prepared by :** Celine Chou , **Date:** Dec. 12, 2018  
Celine Chou / Senior Specialist

**Approved by :** Bruce Chen , **Date:** Dec. 12, 2018  
Bruce Chen / Project Engineer

## 2 RF Exposure

### 2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	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

### 2.2 MPE Calculation Formula

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

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

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

### 2.3 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**.

### 3 Calculation Result of Maximum Tune up Power

For WWAN: (Base on WWAN module report (Model: MC7455, FCC ID: N7NMC7455))

Function	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WCDMA Band 2	1852.4-1907.6	23.52	0.49	20	0.050	1
WCDMA Band 4	1712.4-1752.6	23.45	0.55	20	0.050	1
WCDMA Band 5	826.4-846.6	23.51	2.54	20	0.080	0.550
LTE Band 4	1720.0-1745.0	23.97	0.33	20	0.054	1
LTE Band 7	2502.5-2567.5	22.93	-0.67	20	0.033	1
LTE Band 12	699.7-715.3	23.99	0.83	20	0.060	0.466
LTE Band 13	779.5-784.5	23.93	1.00	20	0.062	0.521
LTE Band 25	1850.7-1914.3	23.99	0.49	20	0.056	1
LTE Band 26	814.7-848.3	23.98	2.54	20	0.089	0.546
LTE Band 30	2307.5-2312.5	22.95	0.27	20	0.042	1
LTE Band 41	2498.5-2687.5	21.53	-0.67	20	0.024	1

**Conclusion:**

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

1. LTE Band 26 (WWAN Module 1) + WCDMA Band 5 (WWAN Module 2) =  $0.089 / 0.546 + 0.080 / 0.550 = 0.308$
2. LTE Band 26 (WWAN Module 1) + LTE Band 25 (WWAN Module 2) =  $0.089 / 0.546 + 0.056 / 1 = 0.219$
3. LTE Band 26 (WWAN Module 1) + LTE Band 12 (WWAN Module 2) =  $0.089 / 0.546 + 0.060 / 0.466 = 0.292$
4. WCDMA Band 5 (WWAN Module 1) + LTE Band 26 (WWAN Module 2) =  $0.080 / 0.550 + 0.089 / 0.546 = 0.308$
5. LTE Band 25 (WWAN Module 1) + LTE Band 26 (WWAN Module 2) =  $0.056 / 1 + 0.089 / 0.546 = 0.219$
6. LTE Band 25 (WWAN Module 1) + WCDMA Band 2 (WWAN Module 2) =  $0.056 / 1 + 0.050 / 1 = 0.106$
7. LTE Band 25 (WWAN Module 1) + LTE Band 12 (WWAN Module 2) =  $0.056 / 1 + 0.060 / 0.466 = 0.185$
8. LTE Band 25 (WWAN Module 1) + LTE Band 26 (WWAN Module 2) =  $0.056 / 1 + 0.089 / 0.546 = 0.142$
9. LTE Band 12 (WWAN Module 1) + LTE Band 26 (WWAN Module 2) =  $0.060 / 0.466 + 0.089 / 0.546 = 0.292$
10. LTE Band 12 (WWAN Module 1) + LTE Band 25 (WWAN Module 2) =  $0.060 / 0.466 + 0.056 / 1 = 0.185$
11. LTE Band 12 (WWAN Module 1) + LTE Band 4 (WWAN Module 2) =  $0.060 / 0.466 + 0.054 / 1 = 0.183$
12. LTE Band 12 (WWAN Module 1) + LTE Band 26 (WWAN Module 2) =  $0.060 / 0.466 + 0.089 / 0.546 = 0.292$
13. LTE Band 26 (WWAN Module 1) + WCDMA Band 5 (WWAN Module 2) =  $0.089 / 0.546 + 0.080 / 0.550 = 0.308$
14. LTE Band 26 (WWAN Module 1) + LTE Band 25 (WWAN Module 2) =  $0.089 / 0.546 + 0.056 / 1 = 0.219$
15. LTE Band 26 (WWAN Module 1) + LTE Band 12 (WWAN Module 2) =  $0.089 / 0.546 + 0.060 / 0.466 = 0.292$

Therefore the maximum calculations of above situations are less than the "1" limit.

**---END---**