

Versa Networks

MPE ASSESSMENT REPORT

Report Type:

FCC Part §2.1091, §2.1093 and §1.1307(b) assessment report

Model:

CSG350-2LA, CSG350-LA, CSG350

REPORT NUMBER:

200101244SHA-002

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Manufacturer: Versa Networks
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Manufacturing site: Jabil Circuit Sdn Bhd.
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11900, Malaysia

Product Name: Cloud Services Gateway

Type/Model: CSG350-2LA, CSG350-LA, CSG350

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06
FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

PREPARED BY:



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Revision History

Report No.	Version	Description	Issued Date
200101244SHA-002	Rev. 01	Initial issue of report	February 24, 2020

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Cloud Services Gateway
Type/Model:	CSG350-2LA, CSG350-LA, CSG350
Description of EUT:	The EUT is an SDN gateway, with Bluetooth BLE 4.2 for configuration. the EUT provide three slots for optional wireless modules. maximum two LTE modules can be equipped.
Rating:	DC 12V 5A (Powered by external AC/DC power supply model: DA-60Z12)
Software Version:	/
Hardware Version:	/
Sample received date:	December 16, 2019
Date of test:	December 16, 2019 ~ January 10, 2020

1.2 Technical Specification

Frequency Range:	2400MHz ~ 2483.5MHz
Support Standards:	Bluetooth 4.2 (BLE)
Type of Modulation:	GFSK
Channel Number:	40 (0-39)
Data Rate:	1Mbps
Power Class:	Class II
Channel Separation:	2 MHz

Antenna information:			
No.	Antenna Type	Gain (dBi)	Note
1	Internal PCB antenna	0.55dBi	/

Note: For LTE module and WIFI module, please refer its datasheet or user manual.

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1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN1175
	IC Registration Lab CAB identifier.: CN0051
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

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2 MPE Assessment

Test result: Pass

2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (uT)	Equivalent plane wave power density S_{eq} (W/m ²)
0-1 Hz	-	$3,2 \times 10^4$	4×10^4	-
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	$4\ 000/f$	$5\ 000/f$	-
0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	-
0,8-3 kHz	$250/f$	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	$0,73/f$	$0,92/f$	-
1-10 MHz	$87/f^{1/2}$	$0,73/f$	$0,92/f$	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

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2.2 Assessment Results

Power density (S) is calculated according to the formula:

$$S = PG / (4\pi R^2)$$

Where S = power density in mW/cm²
 P = Radiated transmit power in mW
 G = numeric gain of transmit antenna
 R = distance (cm)

As we can see from the test report 200101244SHA-001 and LTE module (FCC ID: N7NEM7455) reports:

For BT module:

Frequency band	Power		Antenna Gain		R	S
(MHz)	dBm	mW	dBi	(Numeric)	(cm)	(mW/cm ²)
2402 - 2480	-10.41	0.09	0.55	1.14	20	0.00002

For LTE module:

Operating Mode	TX Freq Range (MHz)		Power		Antenna Gain	Cable loss	Total Gain	Numeric	R	S
			dBm	mW	dBi	dB	dBi		(cm)	(mW/cm ²)
WCDMA Band II	1850	1910	24	250	1.94	0.5	1.44	1.39	20	0.069
WCDMA Band IV	1710	1755	24	250	2.21	0.5	1.71	1.48	20	0.074
WCDMA Band V	824	849	24	250	1.86	0.3	1.56	1.43	20	0.071
LTE Band 2	1850	1910	24	250	1.94	0.5	1.44	1.39	20	0.069
LTE Band 4	1710	1755	24	250	2.21	0.5	1.71	1.48	20	0.074
LTE Band 5	824	849	24	250	1.86	0.3	1.56	1.43	20	0.071
LTE Band 7	2500	2570	23	200	2.94	0.6	2.34	1.71	20	0.068
LTE Band 12	699	716	24	250	1.41	0.3	1.11	1.29	20	0.064
LTE Band 13	777	787	24	250	0.05	0.3	-0.25	0.94	20	0.047
LTE Band 25	1850	1915	24	250	1.94	0.5	1.44	1.39	20	0.069
LTE Band 26	814	849	24	250	1.86	0.3	1.56	1.43	20	0.071
LTE Band 30	2305	2315	23	200	1.25	0.6	0.65	1.16	20	0.046
LTE Band 41	2496	2690	23	200	2.94	0.6	2.34	1.71	20	0.068

Note: 1 mW/cm² from 1.310 Table 1

Consider the simultaneous transmission for the EUT:

Max power density (LTE 1+ LTE 2 + BT) = 0.074+0.074+0.00002 = 0.14802 mW/cm²

Conclusion: therefore, the maximum calculations of the above simultaneous are less the limit.

Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

***** END *****