



FCC RADIO EXPOSURE TEST REPORT

FCC ID : 2ARF9CSG1K3K

Equipment : Cloud Service Gateway

Brand Name : Versa Networks

Model Name : CSG1300,CSG1500,CSG3300,CSG3500

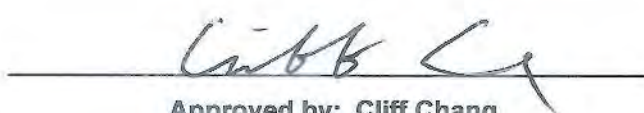
Applicant : Versa Networks
6001 America Center Dr, 4th floor, Suite 400, San Jose, CA 95002, USA

Manufacturer : Accton Technology Corporation
1, Creation Road3, Hsinchu Science Park Hsinchu 20077, Taiwan

Standard : 47 CFR Part 2.1091

The product was received on Aug. 10, 2020, and testing was started from Aug. 12, 2020 and completed on Sep. 01, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.


Approved by: Cliff Chang

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
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Photographs of EUT v01



History of this test report

[illegible]



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
2	-	Exposure evaluation	PASS	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen

Report Producer: Viola Huang



1 General Description

1.1 EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) VHT: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5700 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Bluetooth	2400-2483.5	2402-2480	LE: GFSK
Evaluation Mode	Uplink Frequency Range (MHz)	Downlink Frequency Range (MHz)	Modulation Type
WCDMA	Band 2:1850-1910 Band 5:824-849	Band 2:1930-1990 Band 5:869-894	BPSK, QPSK
LTE	Band 2:1850-1910 Band 4:1710-1755 Band 5:824-849 Band 12:699-716 Band 13:777-787	Band 2:1930-1990 Band 4:2110-2155 Band 5:869-894 Band 12:729-746 Band 13:746-756	QPSK, 16QAM

Note: This device contains transmitter module (WLAN FCC ID:2ARF9CSG-W1, WWAN FCC ID: N7NEM75).



1.2 Table for Multiple Listing

EUT	Model Name	CPU	RAM
1	CSG1300	Intel Denvention 16 cores C3958 Soc	DDR4 64GB
2	CSG1500	Intel Skylake D14 cores D2177NT Soc	DDR4 128GB
3	CSG3300	Intel Denvention 16 cores C3958 Soc	DDR4 64GB
4	CSG3500	Intel Skylake D14 cores D2177NT Soc	DDR4 128GB

From the above models, model: CSG1300 was selected as representative model for the test and its data was recorded in this report.

1.3 The telecommunication ports of the EUT is shown as below

EUT	Telecommunication Port	Description
1~4	RJ-45 10GbE ports*2	1Gbps/10Gbps
	SFP+ 10GbE ports*2	1Gbps/10Gbps
	SFP+ 10GbE ports*4	1Gbps/10Gbps
	RJ-45 1GbE PoE (30W) ports*8	10/100/1000Mbps
	RJ-45 1G Ethernet	10/100/1000Mbps
	RJ-45 Serial console port *1	-
	2.0 USB port*2	-

1.4 Table of WLAN & WWAN Module Function

Brand Name	Model Name	FCC ID	Function
VERSA NETWORKS	CSG-W1	2ARF9CSG-W1	WiFi: 2.4GHz / 5GHz Band 1~4
Sierra	EM7565	N7NEM75	LTE: B2/B4/B5/B12/B13 & WCDMA: B2/B5

1.5 Testing Location

Testing Location		
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

2 Maximum Permissible Exposure

2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Method

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$



2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	2.26	25.47	27.73	0.50	28.23	0.66527	20	0.13235	1.00000
5.8G;D1D	2.83	26.29	29.12	0.50	29.62	0.91622	20	0.18227	1.00000
2.4G;BT-LE	-5.59	8.34	2.75	0.50	3.25	0.00211	20	0.00042	1.00000
WCDMA Band 5	3.20	24.00	27.20	0.50	27.70	0.58884	20	0.11714	0.54933
LTE Band 12	3.20	24.00	27.20	0.50	27.70	0.58884	20	0.11714	0.46600

Simultaneous Transmission Analysis Mode:

WLAN 2.4GHz + WLAN 5GHz + Bluetooth + LTE

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;D1D	2.26	25.47	27.73	0.50	28.23	0.66527	20	0.13235	1.00000	0.13235
5.8G;D1D	2.83	26.29	29.12	0.50	29.62	0.91622	20	0.18227	1.00000	0.18227
2.4G;BT-LE	-5.59	8.34	2.75	0.50	3.25	0.00211	20	0.00042	1.00000	0.00042
LTE Band 12	3.20	24.00	27.20	0.50	27.70	0.58884	20	0.11714	0.46600	0.25137
									Sum Ratio	0.56641
									Ratio Limit	1

WLAN 2.4GHz + WLAN 5GHz + Bluetooth + WCDMA

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;D1D	2.26	25.47	27.73	0.50	28.23	0.66527	20	0.13235	1.00000	0.13235
5.8G;D1D	2.83	26.29	29.12	0.50	29.62	0.91622	20	0.18227	1.00000	0.18227
2.4G;BT-LE	-5.59	8.34	2.75	0.50	3.25	0.00211	20	0.00042	1.00000	0.00042
WCDMA Band 5	3.20	24.00	27.20	0.50	27.70	0.58884	20	0.11714	0.54933	0.21324
									Sum Ratio	0.52828
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

————THE END————