

Versa Wireless AP Module for Cloud Services Gateway Appliances

VERSA NETWORKS

CSG-W1

User Manual

Copyright Statement

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Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device is restricted for indoor use.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

“The grantee will provide guidance to the Host Manufacturer if they need help in obtaining assistance to ensure compliance with Part 15 Subpart B requirements.”

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Versa Networks

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This device is intended only for OEM integrators under the following conditions:

This module is specified to mobile host equipment

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna,
- 3) For all products market in US, OEM has to limit the operation channels in CH1 to CH11 for 2.4G band by supplied firmware programming tool. OEM shall not supply any tool or info to the end-user regarding to Regulatory Domain change.

Ant.↕	Port↕	Brand↕	P/N↕	Antenna Type↕	Connector	cable color↕	Gain (dBi)↕
1↕	1↕	WIESON↕	GY121HT0330-016↕	Dipole Antenna↕	I-PEX↕	Gray↕	Note 1↕
2↕	2↕	WIESON↕	GY121HT0330-016↕	Dipole Antenna↕	I-PEX↕	Black↕	

Note 1:↕

Ant.↕	Port↕	Antenna Gain (dBi)↕		Cable Loss (dB)↕		True Gain (dBi)↕	
		2.4G↕	5G↕	2.4G↕	5G↕	2.4G↕	5G↕
1↕	1↕	3.10↕	4.55↕	0.75↕	1.61↕	2.35↕	2.94↕
2↕	2↕	3.10↕	4.55↕	1.00↕	1.78↕	2.10↕	2.77↕

As long as 3 conditions above are met, further transmitter test will not be required.

However, This module is intended for OEM integrator. The OEM integrator is responsible for the compliance to all the rules that apply to the product into which this certified RF module is integrated.

Additional testing and certification may be necessary when multiple modules are used.

20cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under such configuration, the FCC radiation exposure limits set forth for a population/uncontrolled environment can be satisfied.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

IMPORTANT NOTE

In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

The final end product must be labeled in a visible area with the following: “Contains **FCC ID:**” **2ARF9CSG-W1**.

Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

Europe – EU Declaration of Conformity

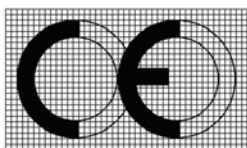
This device complies with the essential requirements of the RED Directive 2014/53/EU. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the RED Directive 2014/53/EU:

- EN60950-1:2006+A11:2009+A1:2010+A12:2011
- IEC60950-1:2005 (2nd Edition); Am 1:2009
Safety of Information Technology Equipment

- EN 62311: 2008 / Article 3(1)(a) Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz-300 GHz)

- EN 300 328 V2.1.1: 2016-11
Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU
- EN 301 893 V2.1.1: 2017-05
5 GHz RLAN; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU
- EN 301 489-1 V2.1.1: 2017-02
ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU
- EN 301 489-17 V3.1.1: 2017-02
ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU
-

In Italy the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying public access to telecommunications and/or network services.



This equipment complies with EU radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

All operational modes:

2.4GHz: 802.11b, 802.11g, 802.11n (HT20), 802.11n (HT40), 802.11ac (VHT20), 802.11ac (VHT40)

5GHz: 802.11a, 802.11n (HT20), 802.11n (HT40), 802.11ac (VHT20), 802.11ac (VHT40), 802.11ac (VHT80)

The frequency and the maximum transmitted power in EU are listed below:

2412-2472MHz: 19.97 dBm

5180-5240MHz: 22.88 dBm

5260-5320MHz: 22.94 dBm

5500-5700MHz:26.71 dBm

The device is restricted to indoor use only when operating in the 5150 to 5350 MHz frequency range.


	AT	BE	BG	HR	CY	CZ	DK
	EE	FI	FR	DE	EL	HU	IE
	IT	LV	LT	LU	MT	NL	PL
	PT	RO	SK	SI	ES	SE	UK

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1. Introduction

Thank you for purchasing the 802.11 a/b/g/n /ac AP module that provides the easiest way to wireless networking. This User Manual contains detailed instructions in the operation of this product. Please keep this manual for future reference.

2. Driver/Utility Installation

You can start using its network function without installing driver or utility.

This module is associated product for Switch host.

The following description provides a basic installation for wireless module.

For more information about the Wireless Module, please refer to your Switch manual.

Installing Wi-Fi AP module :

1. Plug the wifi AP Module to Switch with PCIe connector on wireless module
2. Power supply on internal main-board and allow Switch to load fully.

3. Technical spec.

Item	Specification
CPU	<ul style="list-style-type: none"> • IPQ4029 Dakota Quad-core A7 at 716.8MHz • 32KB I-cache & 32KB D-cache per core • 256KB L2 cache (shared) • Dynamic Frequency Scaling
Memory	<ul style="list-style-type: none"> • DDR3 256 Mbytes • NOR 32 Mbytes
PCI	<ul style="list-style-type: none"> • PCIe v2.1 (2.5GT/s)
WiFi	<ul style="list-style-type: none"> • 802.11 b/g/n 2.4GHz 2x2 • 802.11 a/n/ac 5GHz 2x2 • DBDC • 256 QAM for both 2.4GHz and 5GHz • WiFi Data Rate (Physical Layer) <ul style="list-style-type: none"> ✓ 867Mbps (max) in 802.11ac mode with 80MHz channel ✓ 300Mbps (max) in 802.11n mode with 40MHz channel ✓ 54Mbps (max) in 802.11g mode ✓ 54Mbps (max) in 802.11a mode ✓ 11Mbps (max) in 802.11b mode
Antenna	<ul style="list-style-type: none"> • 2 x WiFi 2.4GHz+5GHz u.FL connector

3.2. RF Specification

3.2.1. WiFi TX Specification

Protocol	Data rate (Mbps)	Modulation	Coding Rate	Conductive TX power (dBm)					Conductive TX EVM (dB)
				2.4 GHz		5 GHz			
				20 MHz	40 MHz	20 MHz	40 MHz	80 MHz	
802.11b	1			17 +/- 2dB	N/A	N/A			-10
	2			17 +/- 2dB					-10
	5.5			17 +/- 2dB					-10
	11			17 +/- 2dB					-10
802.11a/g	6	BPSK	1/2	17 +/- 2dB	N/A	18 +/- 2dB	N/A		-5
	9	BPSK	3/4	17 +/- 2dB		18 +/- 2dB			-8
	12	QPSK	1/2	17 +/- 2dB		18 +/- 2dB			-10
	18	QPSK	3/4	17 +/- 2dB		18 +/- 2dB			-13
	24	16-QAM	1/2	17 +/- 2dB		18 +/- 2dB			-16
	36	16-QAM	3/4	17 +/- 2dB		17 +/- 2dB			-19
	48	64-QAM	2/3	16 +/- 2dB		16 +/- 2dB			-22
	54	64-QAM	3/4	15 +/- 2dB		15 +/- 2dB			-25
802.11n/ac	MCS0	BPSK	1/2	17 +/- 2dB	17 +/- 2dB	18 +/- 2dB	18 +/- 2dB	18 +/- 2dB	-5
	MCS1	QPSK	1/2	17 +/- 2dB	17 +/- 2dB	18 +/- 2dB	18 +/- 2dB	18 +/- 2dB	-10
	MCS2	QPSK	3/4	17 +/- 2dB	17 +/- 2dB	18 +/- 2dB	18 +/- 2dB	18 +/- 2dB	-13
	MCS3	16-QAM	1/2	17 +/- 2dB	17 +/- 2dB	18 +/- 2dB	18 +/- 2dB	18 +/- 2dB	-16
	MCS4	16-QAM	3/4	17 +/- 2dB	17 +/- 2dB	17 +/- 2dB	17 +/- 2dB	17 +/- 2dB	-19
	MCS5	64-QAM	2/3	16 +/- 2dB	16 +/- 2dB	16 +/- 2dB	16 +/- 2dB	16 +/- 2dB	-22
	MCS6	64-QAM	3/4	15 +/- 2dB	15 +/- 2dB	15 +/- 2dB	15 +/- 2dB	15 +/- 2dB	-25
	MCS7	64-QAM	5/6	14 +/- 2dB	14 +/- 2dB	15 +/- 2dB	15 +/- 2dB	15 +/- 2dB	-27
	MCS8	256-QAM	3/4	N/A	N/A	14 +/- 2dB	14 +/- 2dB	14 +/- 2dB	-30
MCS9	256-QAM	5/6	N/A	N/A	N/A	14 +/- 2dB	14 +/- 2dB	-32	

3.2.2. WiFi RX Specification

Protocol	Data rate (Mbps)	Modulation	Coding Rate	Conductive		
				Minimum RX Sensitivity (dBm)		
				20 MHz	40 MHz	80 MHz
802.11b	1			-95	N/A	
	2			-93		
	5.5			-92		
	11			-89		
802.11a/g	6	BPSK	1/2	-89	N/A	
	9	BPSK	3/4	-88		
	12	QPSK	1/2	-87		
	18	QPSK	3/4	-85		
	24	16-QAM	1/2	-82		
	36	16-QAM	3/4	-79		
	48	64-QAM	2/3	-74		
	54	64-QAM	3/4	-73		
802.11n/ac	MCS0	BPSK	1/2	-89	-86	-83
	MCS1	QPSK	1/2	-85	-82	-79
	MCS2	QPSK	3/4	-83	-80	-77
	MCS3	16-QAM	1/2	-79	-76	-73
	MCS4	16-QAM	3/4	-76	-73	-70
	MCS5	64-QAM	2/3	-72	-69	-66
	MCS6	64-QAM	3/4	-71	-68	-65
	MCS7	64-QAM	5/6	-70	-67	-64
	MCS8	256-QAM	3/4	-67	-64	-62
MCS9	256-QAM	5/6	N/A	-61	-58	

3.3. Software Specification

Item	Specification
Wireless Feature	<ul style="list-style-type: none"> • DHCP client list (up to 256 WLAN clients) 2.4G/5G Hz • MAC access list • SSID broadcast enable / disable • Up to 16 SSID supported • Wireless Protected Setup (WPS) • Controllable TX power (optional) • QCA QWRAP (Qualcomm Wireless Repeater Access Point)

	<ul style="list-style-type: none"> • MRC supported
WLAN Security	<ul style="list-style-type: none"> • None • WEP (64bit / 128bit) • WPA (TKIP/AES) • WPA2 (TKIP/AES) • WPA+WPA2
Router Feature	<ul style="list-style-type: none"> • Port forwarding / DMZ (optional) • Network Time Protocol • MAC IP port filter / URL filter / Dos protection (optional) • UPNP IGD supported (optional) • LAN configuration (optional) • L2TP / PPTP / IPsec VPN pass through (optional) • QCA WiFi SON
System Management	<ul style="list-style-type: none"> • HTTP/HTTPS based remote management with IP address restriction • Administrator password and timeout • Reboot/Reset to default • System log display • Watchdog to recover from crash
Device Information	<ul style="list-style-type: none"> • Model name • Router FW version • Subnet mask • Default gateway • DNS IP address • SSID/Channel/Security/IP address/Subnet mask
Feasibility	<ul style="list-style-type: none"> • OpenWRT

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied.

The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

LABEL OF THE END PRODUCT:

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.