



## **802.11 a/n/ac Wireless Mini PCIE**

# **SMC-QCA9880DB5 User Manual**

SMC Networks  
20 Mason  
Irvine, CA 92618  
U.S.A.

Copyright © 2014 SMC Networks  
All Rights Reserved

Information furnished by SMC Networks, Inc. (SMC) is believed to be accurate and reliable. However, no responsibility is assumed by SMC for its use, or for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SMC. SMC reserves the right to change specifications at any time without notice

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or stored in a database or retrieval system for any purpose without the express written permission of SMC.

Microsoft and Windows are registered trademarks of Microsoft Corporation. Apple and Macintosh are registered trademarks of Apple, Inc. All other brands, product names, trademarks, or service marks are property of their respective owners.

### 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 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.

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.

**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 device and its antenna(s) must not be co-located with any other transmitters except in accordance with FCC multi-transmitter product procedures.

Referring to the multi-transmitter policy, multiple-transmitter(s) and module(s) can be operated simultaneously without C2P.

This device is going to be operated in 5.15~5.25GHz frequency range, it is restricted in indoor environment only.

**IMPORTANT NOTE:**

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.

**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. If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users manual: 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:

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: JI5-QCA9880DB5 ". If the size of the end product is larger than 8x10cm, then the following FCC part 15.19 statement has to also be available on the label: 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.

## 注意 ！

依據 低功率電波輻射性電機管理辦法

第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信指依電信規定作業之無線電信。低功率射頻電機須忍受合法通信或工業科學及醫療用電波輻射性電機設備之干擾。

# Contents

<b>Compliance .....</b>	<b>iii</b>
<b>Contents .....</b>	<b>vi</b>
<b>About this Manual.....</b>	<b>7</b>
<b>1 Introduction.....</b>	<b>8</b>
Features .....	8
What is Wireless LAN .....	9
Wireless LAN Modes .....	10
Notes on Wireless LAN Configuration .....	10

## About this Manual

This User's Manual describes how to install and operate your 802.11a/n/ac Wireless LAN Module. Please read this manual before you install the product. This manual includes the following topics:

- Product description and features.

# 1 Introduction

The JI5-QCA9880DB5, which is based on the QCA9880 solution, is a single-band mode 802.11 a/n/ac wireless LAN embedded Mini-PCI module for Wireless Cable Gateway Router. JI5-QCA9880DB5 will be a RF module of AP board. Additionally, provide new feature to existing Wireless Cable Gateway Router products.

## Features

Embedded to any AP with Mini-PCI type -B slot.

- IEEE 802.11 a/n/ac compatible.
- Backward compatible with IEEE 802.11a /n standard.
- Wire-free access to networked resources from anywhere beyond the desktop.
- Delivers data rate up to 1.3Gbps.
- Support 20/ 40/80MHz Channel and 256 QAM to maximize bandwidth efficiency.
- Uses 5GHz frequency band, which complies with worldwide requirement
- Ensures great security by providing the 64/128/256 Wired Equivalent Privacy (WEP) and WPA/PWA2.
- 802.11i standards support.
- WMM support.



## What is Wireless LAN

Wireless Local Area Network (WLAN) systems offer a great number of advantages over traditional wired systems. WLAN is flexible and easy to setup and manage. They are also more economical than wired LAN systems.

Using radio frequency (RF) technology, WLAN transmit and receive data through the air. WLAN combine data connectivity with user mobility. For example, users can roam from a conference room to their office without being disconnected from the LAN.

Using WLAN, users can conveniently access-shared information, and network administrators can configure and augment networks without installing or moving network cables.

WLAN technology provides users with many convenient and cost saving features:

- **Mobility:** WLAN provide LAN users with access to real-time information anywhere in their organization, providing service opportunities that are impossible with wired networks.
- **Ease of Installation:** Installing is easy for novice and expert users alike, eliminating the need to install network cables in walls and ceilings.
- **Scalability:** WLAN can be configured in a variety of topologies to adapt to specific applications and installations. Configurations are easily changed and range from peer-to-peer networks suitable for a small number of users to full infrastructure networks of thousands of users roaming over a broad area.

## Wireless LAN Modes

Wireless LANs can be configured in one of two ways:

### 1. Infrastructure Networking

Infrastructure networking differs from ad-hoc networking in that it includes an access point. Unlike the ad-hoc structure where users on the LAN contend the shared bandwidth, on an infrastructure network the access point can manage the bandwidth to maximize bandwidth utilization.

Additionally, the access point enables users on a wireless LAN to access an existing wired network, allowing wireless users to take advantage of the wired networks resources, such as Internet, email, file transfer, and printer sharing.

Infrastructure networking has the following advantages over ad-hoc networking:

- **Extended range:** each wireless LAN computer within the range of the access point can communicate with other wireless LAN computers within range of the access point.
- **Roaming:** the access point enables a wireless LAN computer to move through a building and still be connected to the LAN.
- **Wired to wireless LAN connectivity:** the access point bridges the gap between wireless LANs and their wired counterparts.

## Notes on Wireless LAN Configuration

When configuring a wireless LAN (WLAN), be sure to note the following points:

- Optimize the performance of the WLAN by ensuring that the distance between access points is not too far. In most buildings, WLAN Adapters operate within a range of 100 ~ 300 feet, depending on the thickness and structure of the walls.
- Radio waves can pass through walls and glass but not metal. If there is interference in transmitting through a wall, it may be that the wall has reinforcing metal in its structure. Install another access point to circumvent this problem.

- Floors usually have metal girders and metal reinforcing struts that interfere with WLAN transmission.



20 Mason  
Irvine, CA. 92618  
U.S.A.  
<http://na.smc.com>

Document number: JI5-QCA8990DB5