

Qualcomm Atheros AR4100 SiP Modular Certification

Instructions to OEM Integrators

June-11



© 2000–2010 by Qualcomm Atheros, Inc. All rights reserved.

Atheros®, Qualcomm Atheros Driven®, Qualcomm Atheros XR®, Driving the Wireless Future®, ROCm®, Super AG®, Super G®, Total 802.11n®, and Wake on Wireless® are registered by Qualcomm Atheros, Inc. Qualcomm Atheros SST™, Signal-Sustain Technology™, the Air is Cleaner at 5-GHz™, XSPAN™, Wireless Future. Unleashed Now.™, and 5-UP™ are trademarks of the Qualcomm Atheros, Inc. The Qualcomm Atheros logo is a registered trademark of Qualcomm Atheros, Inc. All other trademarks are the property of their respective holders.

Notice

The information in this document has been carefully reviewed and is believed to be accurate. Nonetheless, this document is subject to change without notice, and Qualcomm Atheros, Inc. (Atheros) assumes no responsibility for any inaccuracies that may be contained in this document, and makes no commitment to update or to keep current the contained information, or to notify a person or organization of any updates. Qualcomm Atheros reserves the right to make changes, at any time, in order to improve reliability, function or design and to attempt to supply the best product possible. Qualcomm Atheros does not represent that products described herein are free from patent infringement or from any other third party right.

No part of this document may be reproduced, adapted or transmitted in any form or by any means, electronic or mechanical, for any purpose, except as expressly set forth in a written agreement signed by Atheros. Qualcomm Atheros or its affiliates may have patents or pending patent applications, trademarks, copyrights, maskwork rights or other intellectual property rights that apply to the ideas, material and information expressed herein. No license to such rights is provided except as expressly set forth in a written agreement signed by Atheros.

QUALCOMM ATHEROS MAKES NO WARRANTIES OF ANY KIND WITH REGARD TO THE CONTENT OF THIS DOCUMENT. IN NO EVENT SHALL QUALCOMM ATHEROS BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL SPECULATORY OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, QUALCOMM ATHEROS SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA TRANSMITTED OR OTHERWISE USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, INTEGRATING, INSTALLING OR RECOVERING SUCH HARDWARE, SOFTWARE OR DATA. QUALCOMM ATHEROS SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AS THEY MIGHT OTHERWISE APPLY TO THIS DOCUMENT AND TO THE IDEAS, MATERIAL AND INFORMATION EXPRESSED HEREIN.

Revision History

Revision	Description of Changes
June 2011	Initial Release

Read in Conjunction with This Document

This document must be read in conjunction with the document **“AR4100 SiP Module - Certified Antennas”**.

This document describes the required conditions/limitations and actions by end integrator. Failure to follow the requirements in this document will invalidate the FCC Certification.

Regulatory Warning regarding allowed Antennas and SiP module implementation by End Integrators

The Qualcomm Atheros AR4100 SiP module (FCC ID: PPD-AR4100) may only be used with the antenna options specified in the separate document referenced above.

You must contact your Qualcomm Atheros, Inc. representative to discuss any proposed deviations from the specifications below. No deviation may be made without prior written agreement with Qualcomm Atheros, Inc. Any such deviation may require retesting and additional FCC certification submissions before being accepted.

Introduction

This document describes mandatory steps required by the OEM integrator when designing and manufacturing any system utilizing an Qualcomm Atheros SiP (System in Package) radio module which will be referred to as the “SiP integrating system”. Also refer to the *Qualcomm Atheros Regulatory Compliance Guide* available on the Qualcomm Atheros customer support site and from your Qualcomm Atheros customer support contact person.

This document lists the mandatory responsibilities and actions of the OEM integrator. Failure to comply with all requirements and conditions in this document may result in non-compliance of the “SiP integrating system” with FCC rules and invalidate the Qualcomm Atheros FCC certification for the module.

This guide applies to WLAN Client modules that act under control of an Access Point. This document does not apply to a Client module or Access Point with radar detection feature.

Allowed Antennas to be used with the Radio Module

The Integrator must request from Qualcomm Atheros sales or regulatory contact person the current version of the document the **document “AR4100 SiP Module – Certified Antennas”** which specifies the allowable antennas and connection method for use with the certified SiP Module.

You must contact the Qualcomm Atheros Regulatory Group to discuss necessary actions where alternate antenna models or connection schemes are desired by the end integrator. Any such deviations from the Certified Antenna specification provided by Qualcomm Atheros must not be implemented without prior written acceptance. Unauthorized deviations may invalidate the FCC certification of the SiP Module.

Antenna Placement and RF Hazard (SAR) Compliance

For “SiP integrating systems” or systems certified as FCC Mobile Category devices, the FCC Grant of approval for the Atheros module is only valid when the Integrator ensures antenna placement in the host system maintains at least 6 mm separation between any part of the antenna element(s) and any part of the end user’s body (considering their likely or usual operation position and grip). This spacing is naturally met by non-Mobile systems such as Access Points or Desktop PCs. Laptop PCs typically have integrated antennas placed high in the LCD display assembly. However, many of the host devices that use an Atheros SiP module will fall under FCC Portable Category.

Additional certification testing including RF Exposure (SAR) testing and an FCC certification submission are required to gain permission to place antennas closer than 20cmm to the end-user (e.g. a WLAN radio in a handheld personal organizer, Netbook or Tablet PC where the antennas will be close to the users hands or lap. Such “SiP integrating systems” will require certification per FCC rules for a **Mobile Category** host.

This restriction is specified on the FCC modular grant of approval:

"The antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons

You must contact the Qualcomm Atheros Regulatory Group to evaluate need for RF Exposure evaluation and additional FCC testing and submission for host PCs where antenna element will not maintain at least 6mm separation from end user per above description.

Colocation of Radio Module with Other Integrated or Plug-In Radios

The FCC Grant of approval for the radio module includes a restriction that no other radio be operated inside the same host system. If other radio devices are to be integrated with the Atheros module, then additional evaluation and FCC submission may be required - outside of the scope of the existing Atheros modular approval.

Also, the end-user instructions (provided by the integrator of the Atheros module) must warn end users to turn off the radio while any other plug-in radio is being operated in the same host system.

This restriction is specified on the FCC modular grant of approval:

"The antenna used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter."

You must contact the Qualcomm Atheros Regulatory Group to evaluate need for additional FCC evaluation for cases where any co-located radio exists in the same host PC as the Qualcomm Atheros module.

Required Host System Labeling

FCCID and Industry Canada ID on Host System

The Integrator must affix the module's FCC ID on the product. Since the Atheros SiP module is too small to be labeled with the FCC ID and it is not visible when installed in the host system, the FCC ID label must appear on the outside of the host system visible to the user.

Example wording to appear somewhere on the outside of the host system visible to the end user:

Contains FCC ID: PPD-AR4100

FCC Logo on the Host System

The FCC logo shown below must appear on the host system signifying declared compliance of the system with FCC digital emissions rules.



- * The AR4100 component will also be produced using the designation AR6103. There is no difference in the hardware. This is done for marketing purposes.

Required User Manual Wording for Host System

The FCC requires the following text (or equivalent) included in the user documentation provided to the end user:

Example text which can be used by the Integrator in the end user instructions are:

Satisfying RF exposure compliance and Radio compliance.

FCC ID: PPD-AR4100

This device generates and radiates radio-frequency energy in compliance with FCC radio frequency radiation exposure guidelines for an uncontrolled environment. This equipment must be installed and operated while maintaining a minimum body-to-antenna distance of 6 mm.

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.

This product does not contain any user serviceable components. Any unauthorized product changes or modifications will invalidate warranty and all applicable regulatory certifications and approvals.

Include the following co-location statement (unless special permission was granted allowing co-location of additional radios with the Qualcomm Atherosmodule:

“This radio module may not be operated with any other radio or transmitting antenna, unless the Qualcomm Qualcomm Atherosmodule is disabled”

FCC Part 15 Digital Emissions Compliance

We [System Manufacturer Name, Address, Telephone], declare under our sole responsibility that the product [System Name] 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.

WARNING: 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 or more 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 the one the receiver is connected to.

Consult the dealer or an experienced radio/TV technician for help.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

The Interference Handbook

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 004-000-00345-4.

Industry Canada Requires the following wording to the end user in French and English:

Industry Canada Notice:

This device complies with Canadian RSS-210.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmitting antenna) that is installed outdoors is subject to licensing. The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's web site www.hc-sc.gc.ca/rpb.

"This Class B digital apparatus complies with Canadian ICES-003"

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada

Avis de Conformité à la Réglementation d'Industrie Canada:

Pour empêcher toute interférence aux services faisant l'objet d'une licence, cet appareil doit être utilisé à l'intérieur seulement et devrait être placé loin des fenêtres afin de fournir un écran de blindage maximal. L'installateur du présent matériel radio doit s'assurer que l'antenne est située ou pointée de manière à ce que cette dernière n'émette pas de champs radioélectriques supérieurs aux limites spécifiées par Santé Canada pour le grand public; consulter le Code de sécurité 6, disponible sur le site Web de Santé Canada, à l'adresse suivante: www.hc-sc.gc.ca/rpb.

End of Required User Manual Wording to end user



Qualcomm Atheros, Inc.

1700 Technology Drive

San Jose, CA 95110

t: 408/773-5200

f: 408/773-9940

www.qca.qualcomm.com