Rigado Inc.
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QCA6234 Modular Certification

OEM Integrator Instructions

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1. Introduction

This document describes the steps that the OEM integrator must follow when designing and manufacturing a system utilizing a certified SiP (System-in-Package) radio module (the "Module").

Failure to follow the instructions in this document may invalidate the radio certifications and authorization to market the host product.
The Rigado, Inc. modular certifications described in this document apply only to radio conformance for the Module. The OEM integrator is responsible for all system-level EMI/EMC, Product Safety and RF Safety testing and certification that apply to the host system in countries where the system will be marketed or sold.

This document must be read in conjunction with the document "QCA6234 SiP Module Certified Layout" which describes the allowable PCB layout, and schematic which must be implemented in the host design in order to use the SiP modular certifications.

To obtain the above referenced document and other design documents, please contact your Rigado Inc account representative.

Throughout this document, the term Certified Module and Certified SiP have the same meaning. Rigado Inc offers modular certification for the SiP component. In this case, the SiP is considered "the Module".

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2. Applicable Module

This document applies specifically and solely to the following component:

- Model: QCA6234
- FCCID: 2AA9B08
- IC: 12208A-08

3. Deviation from Specifications for Host Layout, BOM, and Schematics

The FCC requires that host systems using SiP modular approvals copy exactly the antenna trace design, matching component and layout used for the originally certified Rigado Inc design. The certified design is specified in the document “QCA6234 SiP Module Certified Layout”.
An OEM integrator may wish to deviate from that specification and still utilize the available SiP modular approvals offered by Rigado Inc. For example a host design may require modified antenna trace length and layout, alternate PCB antenna design or use of other filter types not specified in “QCA6234 SiP Module Certified Layout” document. Some deviations would not be allowed and would instead require a full/new certification for FCC and other countries. For example addition of any active components in the RF path on the host PCB would require full/new radio certifications for the host device.
Generally, alternate PCB layout, stackup, alternate matching component values and passive filters or diplexers may be authorized using the FCC permissive change process. However, the required steps and responsibilities of the host integrator for the permissive change process, is not detailed in this document. An evaluation must be done on a case-by-case basis and agreed with Rigado Inc. Please take the steps below:

Request for Review of Deviation from Rigado Inc Design Specification:
1. Email host product details, description of deviations, proposed schematic of RF section on host PCB (if available) to: modules@rigado.com
Sample Text for Subject Line of email: Request for review of deviation from SiP PCB design, Company ABCD, Host Model 12345
2. The Rigado Inc Regulatory team will respond within 14 days requesting further details, informing whether the requested deviation will be allowed with a proposed plan for the OEM Integrator to follow if agreed.
NOTE: If a permissive change test and submission to FCC is proposed by Rigado Inc, the OEM Integrator will be responsible for managing the project and resulting test and filing costs.

4. Validation of SiP Radio Conformance as Implemented in Host

When a host systems copies exactly the antenna trace design, matching component and layout specified in “QCA6234 SiP Module Certified Layout”, there is still a need to validate that the final product design maintains compliance with radio conformance rules. Minor electrical variations in PCB trace design, stackup and possible coupling with nearby circuits in the end system may result in different emissions characteristics compared to the original SiP design used for standalone modular certification testing performed by Rigado Inc.

Therefore radiated spurious emissions testing must be performed on each unique host device that uses a certified SiP.

The host integrator must follow these steps:
Request a quote from any competent third party test lab for Radiated Spurious emissions testing including restricted bands per FCC 15.247(d) for 2.4 GHz and 15.407(b) for 5 GHz.
This type of testing may be referred to as “permissive change” testing. However, it is not normally required to submit the report to the regulator. A Class 2 Permissive Change filing is Not required and should not be quoted by the test lab. Testing and a report is sufficient.
Testing may be performed conveniently at the same test lab and at the same time as the FCC Part 15B, digital emissions testing which is mandatory for every host design. However, the spurious emission testing normally requires radio test software on the host device.
It is acceptable and desirable to perform the 15.247 / 15.407 radiated spurious testing early in the design process - as soon as a final PCB design and functional system is available. This validation testing need not be done using the final production version, as long as PCB and RF design is not modified.
The third party lab report showing 15.247 / 15.407 compliance must be submitted to Rigado Inc using the email address: modules@rigado.com.

Please contact your Rigado Inc Account Representative or email any questions to above email address for assistance preparing for the Radiated Spurious emissions testing. Rigado Inc can provide further instructions if the OEM Integrator is not familiar with the Rigado Inc test software used to support radio testing.

5. Additional Regulatory Conformance Testing and/or Submissions Required by the Integrator

The modular certifications provided by Rigado Inc apply to radio conformance for the Module only. The OEM integrator is responsible for additional system-level EMI/EMC, Product Safety and RF Exposure testing and certification that applies in the U.S. and other countries. This includes, but is not limited to, Federal Communications Commission (“FCC”) Part 15 Class B Digital Emissions, ETSI EN 301 489-17, and others.
System-level EMC tests are to be done with the Module installed and included in the scope of the submission.

6. Allowable Antennas to Use with the SiP Module

The module is certified for use only with certain antennas as described in the separate document “QCA6234 SiP Module Certified Layout”. Specifically, a PCB Trace antenna. The document “QCA6234 SiP Module Certified Layout” specifies a Trace Antenna design and reference a required Gerber file. Using this design, the exact PCB trace antenna layout must be implemented on the host device.
WARNING: Use of a Trace Antenna design different than specified in the document is not allowed without additional conformance testing and agreement from Rigado Inc. If an alternate antenna is desired by the integrator, please contact Rigado Inc with details on the product and requested deviation from the allowed antenna specifications referenced above. You may contact your Rigado Inc account representative or email: modules@rigado.com.

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7. FCC Statement:

This device has been tested and found to comply with 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 the 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.

Operation is subjected to the following two conditions: (1) This device may no cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Note: Modification to this product will void the user's authority to operate this equipment.

Note: Modification to this product will void the users' authority to operate this equipment.

8. FCC Important Notes:

(1) FCC Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter should be installed and operated with a minimum distance of 20 centimeters between the radiator and any human body and must not be co-located or operating in conjunction with any other antenna or transmitter.
This equipment complies with Part 15 of the FCC Rules. Operation is subject 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 devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

Caution!

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modification could void the user authority to operate the equipment.

(2) Co-location Warning:

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

(3) OEM integration instructions :

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

The antenna must be installed such that 20 cm is maintained between the antenna and users, and the transmitter module may not be co-located with any other transmit or antenna. The module shall be only used

with the integral antenna(s) that has been originally tested and certified with this module.

As long as the three (3) conditions above are met, further transmitter testing will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements with this module installed (for example, digital device emission, PC peripheral requirements, etc.)

(4) OEM integration instructions：

In the event that these conditions cannot be met (for example certain laptop configuration or co-location with another transmitter), then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module cannot be used on the final product. In these and circumstance, the OEM integrator will be responsible for re-evaluating. The end product (including the transmitter) and obtaining a separate FCC authorization.

(5) End product labeling：

The final end product must be labeled in a visible area with the following: “Contains **FCC ID: 2AA9B08**”. Any similar wording that expresses the same meaning may be used.

The FCC Statement below should also be included on the label. When not possible, the FCC Statement should be included in the User Manual of the host device.

> “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. (2) This device must accept any interference received, including interference that may cause undesired operation.“

(6) Information that must be placed in the end user manual：

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.

9. IC Statement:

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF exposure warning: The equipment complies with RF exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Avertissement d'exposition RF: L'équipement est conforme aux limites d'exposition aux RF établies pour un incontrôlés environnement. L'antenne (s) utilisée pour ce transmetteur ne doit pas être co-localisés ou onctionner en conjonction avec toute autre antenne ou transmetteur .

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10. IC Important Notes:

1. 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 manual of the end product.
The user manual which is provided by OEM integrators for end users must include the following information in a prominent location.

2. To comply with IC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter, except in accordance with IC multi-transmitter product procedures.

3. The final system integrator must ensure there is no instruction provided in the user manual or customer documentation indicating how to install or remove the transmitter module except such device has implemented two-ways authentication between module and the host system.

4. The host device shall be properly labelled to identify the module within the host device. The final end product must be labeled in a visible area with the following: “Contains **IC: 12208A-08**”.
Any similar wording that expresses the same meaning may be used.

The IC Statement below should also be included on the label. When not possible, the IC Statement should be included in the User Manual of the host device.

> “This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
>
> Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le onctionnement.”

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11. Module Label

Rigado, Inc.
Model: QCA6234
FCC ID: 2AA9B08
IC: 12208A-08
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. (2) This device must accept any interference received, including interference that may cause undesired operation.

11.1 FCC/IC labeling on the Module/SiP

Due to the extreme size constraints, the FCC and IC have granted an exemption for the QCA6234 module from requiring the FCC ID and IC number to be physically located on the module. However, the host product is still required to affixed the **FCC ID: 2AA9B08** and **IC: 12208A-08** to the outside of the host product and in the user manual.
NOTE: Please email questions regarding labeling rules to: modules@rigado.com.

11.2 Rest of world labeling on the Module

Other regions rules allow radio certification labeling to appear in the user manual and on the outside of the host product. The Integrator must ensure the host product and user manual includes all required regulatory labeling (including radio certification numbers and logos for all target countries). The system integrator is responsible to confirm the final regulatory label contains all required certification IDs for all countries in which the system will be marketed or sold.

NOTE: These instructions refer to regulatory labeling to be affixed to the outside of the host product – not on the SiP itself. The FCC requires the FCCID on the outside of the host product.

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12. Required Regulatory Wording for User Guide/Installation Manual

The integrator must include the text below or equivalent in the user documentation.
NOTE: Text in red font must be replaced.

12.1 FCC compliance information

This device contains a certified radio module:
FCCID: 2AA9B08
IC ID: 12208A-08

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, including authority to operate this device.
FCC Part 15 Digital Emissions Compliance
We **[System Integrator Company 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 and radiates 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.

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

(RF exposure statement)

Radiation Exposure Statement:
The product complies with the FCC RF exposure limit set forth for an uncontrolled environment and is safe for intended operation as described in this manual. Further RF exposure reduction can be achieved if the product is kept as far as possible from the user body (greater than 20cm).

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12.2 Industry Canada notice

This device complies with Canadian RSS-210.
This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Caution:
(i) The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;
(ii) The maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall comply with the e.i.r.p. limit; and
iii) The maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate.
(iv) Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

Avertissement:
Le guide d'utilisation des dispositifs pour réseaux locaux doit inclure des instructions précises sur les restrictions susmentionnées, notamment :
(i) les dispositifs fonctionnant dans la bande 5 150-5 250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;
(ii) le gain maximal d'antenne permis pour les dispositifs utilisant les bandes 5 250-5 350 MHz et 5 470-5 725 MHz doit se conformer à la limite de p.i.r.e.;
(iii) le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5 725-5 825 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.
(iv) De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5 250-5 350 MHz et 5 650-5 850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

(RF exposure statement)

Radiation Exposure Statement:
The product complies with the Canada portable RF exposure limit set forth for an uncontrolled environment and is safe for intended operation as described in this manual. Further RF exposure reduction can be achieved if the product is kept as far as possible from the user body (greater than 20cm).

13. Document History

Revision	Date	Changes / Notes
1.0	8/22/2017	Initial release