SILICON LABS RS9116 B00 SIP Module User Manual

Contents

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This document is and Addendum to the RS9116N Open Source Technical Reference Manual, and is used for the Compliance and Certification Standards for the RS9116 B00 module. The document highlights the FCC and IC statements required for certification purposes. The RS9116N Open Source Driver is a group of simple and efficient kernel modules which currently supports RS9116N chipsets and it can be ported to any embedded platform in-addition to X-86 platform. It supports the following protocols:

- Wi-Fi (Client and Access Point mode)
- Bluetooth Classic
- Bluetooth Low Energy

RS9116 B00 Compliance and Certification Update

RS9116 – B0014 module is FCC/IC/CE certified. This section outlines the regulatory information for the RS9116 – B0014 module. This allows integrating the module in an end product without the need to obtain subsequent and separate approvals from these regulatory agencies. This is valid in the case no other intentional or un-intentional radiator components are incorporated into the product and no change in the module circuitry. Without these certifications, an end product cannot be marketed in the relevant regions. RF Testing Software is provided for any end product certification requirements.

Federal Communication Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the Federal Communications Commission (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 causes 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 doing 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 that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution
Any changes or modifications not expressly approved by the party responsible for compliance could void the user‘s authority to operate the equipment. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement:
This equipment must be installed and operated in accordance with provided instructions and the antenna(s) 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.

FCC Label Instructions:

The outside of final products that contains this module device must display a label referring to the enclosed module. This exterior label can use wording such as: “Contains Transmitter Module FCC ID: XF6-B001P4V2P1”,or “Contains FCC ID: XF6-B001P4V2P1”, Any similar wording that expresses the same meaning may be used.

Industry Canada / ISED Statement
This product meets the applicable Innovation, Science and Economic Development Canada technical specifications. Ce produit repond aux specifications techniques applicables a l’innovation, Science et Developpement economique Canada.

Radiation Exposure Statement:
This equipment complies with IC 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 complies with Industry Canada license-exempt RSSs. 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.

Innovation, Science and Economic Development Canada ICES003 Compliance Label
The RS9116 – B0014 module has been labeled with its own IC ID number (8407A-B001P4V2P1) and if the IC ID is not visible when the module is installed inside another device, then the outside of the finished product into which the module is installed must also display a label referring to the enclosed module. This exterior label can use following wording:

- Contains Transmitter Module IC : 8407A-B001P4V2P1
- Contains IC : 8407AB001P4V2P1

  User manuals for license-exempt radio apparatus shall contain the above mentioned statement or equivalent notice in a conspicuous location in the user manual or alternatively on the device or both

List of applicable FCC rules
This device complies with part 15.247 of the FCC Rules.

Summarize the specific operational use conditions
This module can be used in household electrical appliances as well as lighting equipment(s). The input voltage to the module should be nominally 1.8-3.3 Vdc, typical and the ambient temperature of the module should not exceed
85°C. This module using two kinds of antennas, PCB antenna with maximum gain is 1.00 dBi. Other antenna arrangement is not covered

Limited module procedures
Not applicable

Trace antenna designs

Not applicable

Antennas
Provision for Chip Antenna or other Antennae

Information on test modes and additional testing requirements

- The modular transmitter has been fully tested by the module grantee on the required number of channels, modulation types, and modes, it should not be necessary for the host installer to re-test all the available transmitter modes or settings. It is recommended that the host product manufacturer, installing the modular transmitter, perform some investigative measurements to confirm that the resulting composite system does not exceed the spurious emissions limits or band edge limits (e.g., where a different antenna may be causing additional emissions).
- The testing should check for emissions that may occur due to the intermixing of emissions with the other transmitters, digital circuitry, or due to physical properties of the host product (enclosure). This investigation is especially important when integrating multiple modular transmitters where the certification is based on testing each of them in a stand-alone configuration. It is important to note that host product manufacturers should not assume that because the modular transmitter is certified that they do not have any responsibility for final product compliance.
- If the investigation indicates a compliance concern the host product manufacturer is obligated to mitigate the issue. Host products using a modular transmitter are subject to all the applicable individual technical rules as well as to the general conditions of operation in Sections 15.5, 15.15, and 15.29 to not cause interference. The operator of the host product will be obligated to stop operating the device until the interference has been corrected

Additional testing, Part 15 sub part B disclaimer
The final host / module combination need to be evaluated against the FCC Part 15Bcriteria for unintentional radiators in order to be properly authorized for operation as a Part15 digital device.

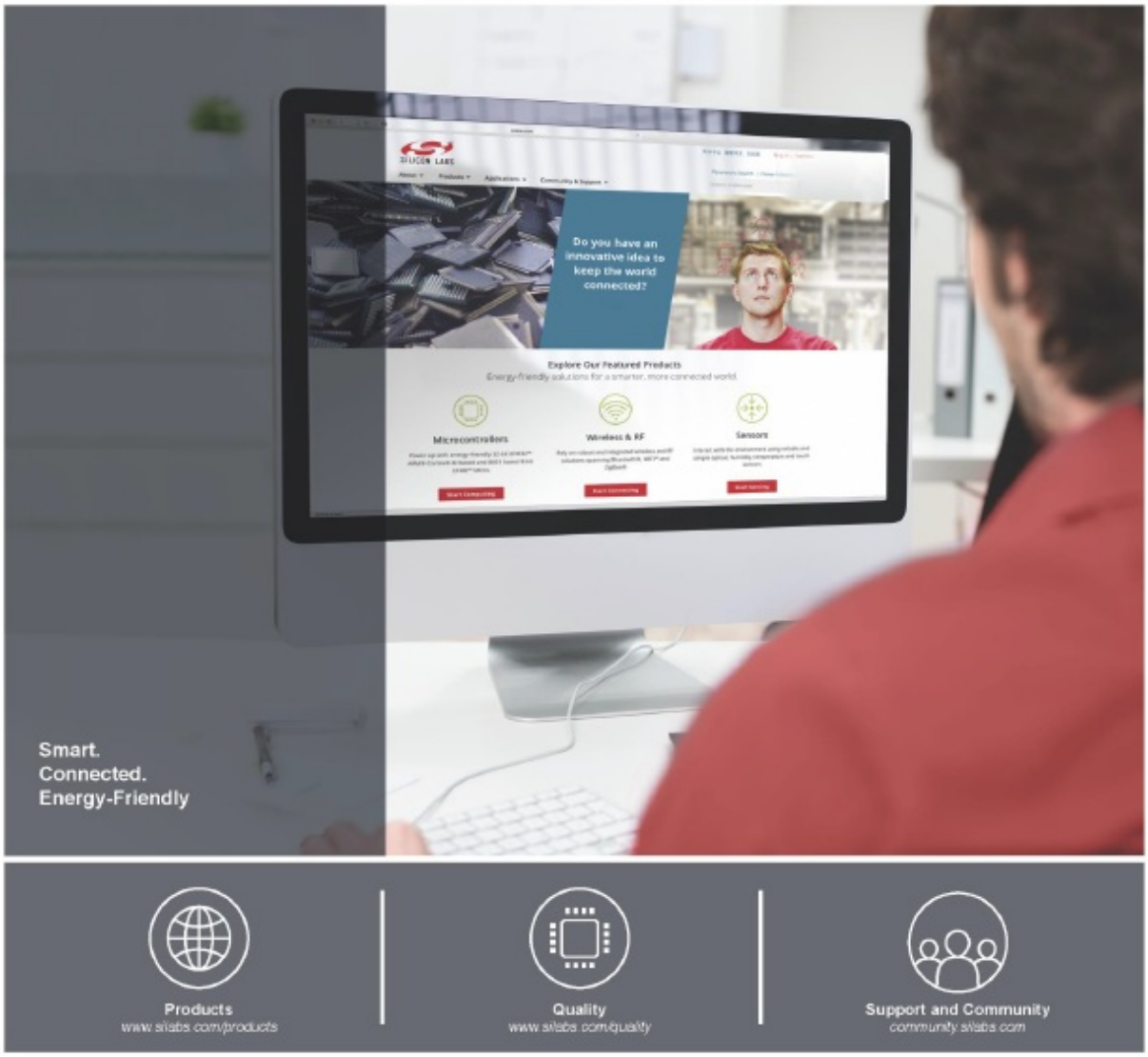
Below are steps for TX verification
Already in the manual

Other in User Manual

The host integrator installing this module into their product must ensure that the final composite product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules, including the transmitter operation and should refer to guidance in KDB 996369.

Frequency spectrum to be investigated
For host products with certified modular transmitter, the frequency range of investigation of the composite system is specified by rule in Sections 15.33(a)(1) through (a)(3), or the range applicable to the digital device, as shown in Section 15.33(b)(1), whichever is the higher frequency range of investigation.

Operating the host product
When testing the host product, all the transmitters must be operating. The transmitters can be enabled by using publicly-available drivers and turned on, so the transmitters a reactive. In certain conditions it might be appropriate to use a technology-specific call box(test set) where accessory devices or drivers are not available. When testing for emissions from the unintentional radiator, the transmitter shall be placed in the receive mode or idle mode, if possible. If receive mode only is not possible then, the radio shall be passive (preferred) and/or active scanning. In these cases, this would need to enable activity on the communication BUS (i.e., PCIe, SDIO, USB) to ensure the unintentional radiator circuitry is enabled. Testing laboratories may need to add attenuation or filters depending on the signal strength of any active beacons (if applicable)from the enabled radio(s). See ANSI C63.4, ANSI C63.10
and ANSI C63.26 for further general testing details.



DISCLAIMER

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Documents / Resources

	**SILICON LABS RS9116 B00 SIP Module** [pdf] User Manual B001P4V2P1, XF6-B001P4V2P1, XF6B001P4V2P1, RS9116 B00 SIP Module, RS9116 B00, SIP Module