



SB5GCOM31

Datasheet:

-Model: SB5GCOM31

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1 Overview

This manual describes the operation of the SB5GCOM31 RF module.

The SB5GCOM31 embedded RF modules provide wireless connectivity to end-point devices in ZigBee mesh networks. Utilizing the ZigBee PRO Feature Set, these modules are interoperable with other ZigBee devices, including devices from other vendors.



SB5GCOM31 RF Modul

2 Specification

Specifications of the SB5GCOM31

Specification	SB5GCOM31
Performance	
Indoor/Urban Range	Up to 300 ft. (90 m)
Outdoor RF line-of-sight Range	Up to 2 miles (3200 m)
Transmit Power Output	63mW (+18 dBm, adjustable to 0 dBm) Channel 26 max power is +3dBm
RF Data Rate	250,000 bps
Receiver Sensitivity	-101 dBm
Power Requirements	
Supply Voltage	10.0V - 15.0V
Operating Current	100mA @ 12V, +18dBm
General	
Operating Frequency Band	ISM 2.4 - 2.5 GHz
Dimensions	16 cm x 12 cm x 3 cm
Operating Temperature	-40 to 85° C (industrial)
Antenna Options	SMB Connector
Networking & Security	
Supported Network Topologies	Point-to-point, Point-to-multipoint, Peer-to-peer, and Mesh
Number of Channels	16 Direct Sequence Channels
Interface Immunity	11 to 26
Addressing Options	PAN ID and Addresses, Cluster IDs and End-points (optional)
Interface Options	
UART	115200 Baud
Agency Approvals	
United States (FCC Part 15.247)	FCC ID: SVF-SCOM31
Industry Canada (IC)	IC: 9440B-SCOM31

3 Agency Certifications

3.1 United States FCC

The SB5GCOM31 RF Module complies with Part 15 of the FCC rules and regulations. Compliance with the labeling requirements, FCC notices and antenna and cable usage guidelines is required.

To fulfill FCC Certification, the OEM must comply with the following regulations:

1. The system integrator must ensure that the text on the external label provided with this device is placed on the outside of the final product.
2. SB5GCOM RF Module may only be used with antennas and cable that have been tested and approved for use with this module [refer to the tables in this document].

OEM Labeling Requirements



WARNING: The Original Equipment Manufacturer (OEM) must ensure that FCC labeling requirements are met. This includes a clearly visible label on the outside of the final product enclosure that displays the contents shown in the figure below.

Required FCC Label for OEM products containing the SB5GCOM31 RF Module

Contains FCC ID: SVF-SCOM31 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 Notices



IMPORTANT: The SB5GCOM31 RF Module have been certified by the FCC for use with other products without any further certification (as per FCC section 2.1091). Modifications not expressly approved by SMA could void the user's authority to operate the equipment.



IMPORTANT: OEMs must test final product to comply with unintentional radiators (FCC section 15.107 & 15.109) before declaring compliance of their final product to Part 15 of the FCC Rules.



IMPORTANT: The RF module has been certified for remote and base radio applications. If the module will be used for portable applications, the device must undergo SAR testing. 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: Re-orient or relocate the receiving antenna, Increase the separation between the equipment and receiver, Connect equipment and receiver to outlets on different circuits, or Consult the dealer or an experienced radio/TV technician for help.

FCC-Approved Antennas (2.4 GHz)

The SB5GCOM31 RF Module can be installed utilizing antennas and cables constructed with standard connectors (Type-N, SMA, TNC, etc.). The modul is FCC approved for fixed base station and mobile applications for the channels indicated in the tables below. If the antenna is mounted at least 20cm (8 in.) from nearby persons, the application is considered a mobile application. Antennas and cable not listed in the table must be tested to comply with FCC Section 15.203 (Unique Antenna Connectors) and Section 15.247 (Emissions).

SB5GCOM31 RF Modules: SB5GCOM31 RF Modules have been tested and approved for use with all the antennas listed in the tables below. (Cable-loss IS required when using gain antennas as shown below.) The antennas and cable in the tables below have been approved for use with this module.

Antennas approved for use with the SB5GCOM31 RF Modules

SMA Part Number	Type (Description)	Cable Loss	Gain	Applicance	Min Separation
32-90217	Dipole(RPSMA)	N/A	1,5dBi	Fixed	20cm

Cable approved for use with the SB5GCOM31 RF Modules

Part Number	Type (Description)	Cable Loss
41-5003908	RF-cable <ul style="list-style-type: none"> • Lenth: 230mm • RPSMA Bulkhead Jack • SMB Angle Jack 	0,44dB @ 2,4Ghz

RF Exposure

WARNING: To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance are not recommended. The antenna used for this transmitter must not be co-located in conjunction with any other antenna or transmitter.

3.2 Canada (IC)

Labeling Requirements

Labeling requirements for Industry Canada are similar to those of the FCC. A clearly visible label on the outside of the final product enclosure must display the following text:

Contains Model SB5GCOM31 Radio, IC: 9440B-SCOM31
The integrator is responsible for its product to comply with IC ICES-003 & FCC Part 15, Sub. B - Unintentional Radiators. ICES-003 is the same as FCC Part 15 Sub. B and Industry Canada accepts FCC test report or CISPR 22 test report for compliance with ICES-003.

Transmitters for Detachable Antennas

This device has been designed to operate with the antennas and cable listed in the previous table and having a maximum of 1.5 dBi and a minimum length of 230mm (= 9.1 Inch). Antennas not included in this list or having a gain greater than 1.5 dBi are strictly prohibited for use with this device. Cable not included in this list or having a length less than 230mm (= 9.1 Inch) are strictly prohibited for use with this device. The required antenna and cable impedance is 50 ohms.

Detachable Antenna

To reduce potential radio interference to other users, the antenna type and gain should be so chosen that the equivalent, isotropically radiated power (EIRP) is not more than permitted for successful communication.

4 Change history

Dokument SB5GCOM31	Version	Notice	author
-41:XD2912	1.0	Initial edition	T. Rickheim