

**BCG001912**

---

# **BCG001912 Product Manual**

## **WCS 2.3 GHz WLAN Radio Module**

---

Document Date:	26 June, 2009
Document Number :	PM-BCG001912
Document Version Number :	2
Document Status:	Release

© Copyright 2009 by BelAir Networks.  
All rights reserved.



## Contents

<b>About this Document .....</b>	<b>3</b>
<b>Introduction.....</b>	<b>4</b>
<b>Conditions of Use.....</b>	<b>5</b>
<b>Module Installation and Service.....</b>	<b>7</b>
<b>Final Product Requirements.....</b>	<b>8</b>
<b>Regulatory Statements.....</b>	<b>10</b>

## About this Document

This document is a product manual for the BCG001912 WCS 2.3 GHz WLAN Radio Module, including its limitations on use in any product marketed or offered for sale. It is intended as a supplement to training and documentation by BelAir Networks Inc. or its authorized agents.

## Introduction

The BCG001912 (hereafter referred to as “the module”) is a 2.3 GHz radio module compatible with the IEEE 802.11g standard for Wireless LAN operation. It is designed to be interoperable with WLAN products which are based on OFDM radio technology.

The module contains a complete 802.11g radio and Medium Access Control (MAC) protocol engine which allows implementation of an 802.11g module.

The module is not intended for stand-alone operation. It will only be marketed as a complete product, in conjunction with a package, DC power supply and antenna (hereafter referred to as “the product” or the “final product”). It will only be used with final products designed and authorized specifically for that purpose by BelAir Networks.

## Conditions of Use

### General Conditions of Use

This manual is intended to supplement training provided by BelAir Networks or authorized parties. The module BCG001912 is only intended for use in BelAir Networks products and is not for sale to the general public as a stand-alone module.

Please read this entire document, including the Regulatory Statements section before attempting to install or operate the module.

**Warning:** Any use of BCG001912 in any manner which is not expressly specified within this manual or specifically approved by BelAir Networks or its authorized agents will void the user's right to operate this module, and is expressly forbidden by BelAir Networks. This includes any modification of the module, installation of the module in a configuration or used with an antenna which is not expressly listed in this document or approved by BelAir Networks.

### List of Approved Final Products

The BCG001912 module is only approved for use in the following BelAir Networks products:

- BelAir100. See BelAir100 documentation for complete manufacturing instructions.
- BelAir20. See BelAir20 documentation for complete manufacturing instructions.

Operation of the module within the products expressly listed above is required to ensure compliance to all FCC regulations. Any modification of the module, or its use in any configuration not expressly listed above may void the user's right to operate this module.

### Country of Use

BCG001912 is certified with limited modular approval for use as an Intentional Radiator in the United States as device: FCC ID: RAR20100520. Please read all regulatory statements at the end of this document before any attempt to install or operate this module.

The module is only certified for operation in the United States. Before attempting to install and operate this module in any other country, contact BelAir Networks for approval.

## **Module Labeling**

One or more labels are applied to the module during manufacture, including a label which identifies the FCC identification numbers. Do not attempt to remove any labels from the module.

## Module Installation and Service

### Installation into a Product

The module shall only be installed by a technician trained by BelAir Networks or its authorized agents. It should only be installed into an approved product (see above) following all manufacturing and service procedures for that product. The module should only be installed into a final product in a manufacturing or service depot site.

**Caution:** BCG001912 is an electro-static discharge (ESD) sensitive device. All appropriate ESD measures must be taken when handling the module. Failure to employ appropriate ESD protection may damage the module.

### Module Service

The module is not intended as a field-serviceable unit. It contains no field-replaceable or field-serviceable parts, or any external adjustable mechanisms. The module should only be serviced in a manufacturing or service depot site approved by BelAir Networks or its authorized agents.

## Final Product Requirements

The requirements below apply to any final product in which the BCG001912 module is installed.

### Antenna Usage and Module Transmit Power

BCG001912 module shall only be operated on the following frequencies in conjunction with the following antenna types as outlined in the tables that follow:

#### 2.3 GHz – Part 27

For operation in the 2.3 GHz band, the BCG001912 may be set to operate on 2.5 or 5 MHz channel bandwidths as follows:

Channel Bandwidth [MHz]	Sub-band ID	Channel Center Frequency [MHz]	Maximum Avg. Conducted Transmit Power [dBm]
5	A1	2307.5	13.0
5	B1	2312.5	13.5
5	A2	2352.5	14.5
5	B2	2357.5	16.5

Channel Bandwidth [MHz]	Sub-band ID	Channel Center Frequency [MHz]	Maximum Avg. Conducted Transmit Power [dBm]
2.5	A1L	2306.25	12.5
2.5	A1U	2308.75	12.5
2.5	B1L	2311.25	13.5
2.5	B1U	2313.75	13.5
2.5	CL	2316.25	11.0
2.5	DU	2348.75	13.5
2.5	A2L	2351.25	15.0



2.5	A2U	2353.75	15.0
2.5	B2L	2356.25	15.5
2.5	B2U	2358.75	15.5

<b>Antenna List</b>
BMHG50002-A BelAir Networks, 8 dBi directional antenna
MT-344026/N, MTi, 15.5 dBi directional antenna
MFBW23008, Maxrad, 8 dBi omni-directional antenna
BNCKG0071, BelAir Networks, 3 dBi omni-directional antenna

**Warning:** Use of this module in conjunction with any antenna not expressly listed above will void authority to install or operate this equipment.

## Product Installation

Products which contain BCG001912 shall only be installed by professional installers trained by BelAir Networks or its authorized agents. This product is to be installed on fixed permanent structures. In addition to normal installation procedures and good installation practice, professional installers are responsible to ensure that:

1. Only an approved antenna (see above) is connected to the module, and,
2. The antenna is mounted in such a manner and in such a location that access to the antenna by the general population is minimized. Access to the antenna by the general population should be limited to more than the minimum safety distance. These distances are outlined according to product type and whether high gain antennas are used. See “RF Exposure” section below for details.

Adherence to these rules by the professional installer is mandatory. See full installation procedures for the particular product for details.

## Product Labeling

The following permanent label, or one containing equivalent information, must be affixed in a conspicuous location on the exterior of every product containing this module:

FCC ID: RAR20100520
---------------------

## Regulatory Statements

The following regulatory notes apply to the product which contains module BCG001912. The following sections or equivalent information shall appear in the user-manual of the final product.

### Regulatory Information and Disclaimers

Installation and use of this device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications to this product not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

The manufacturer is not responsible for any interference to radio or television equipment caused by unauthorized modification of this device, or attachment of any antennas or equipment other than those specified by the manufacturer. The manufacturer or its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

### Manufacturer's FCC Conformity Statement

This device complies with Part 27 of the FCC Rules.

### FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 and Part 90 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 that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## RF Exposure Statement

This Wireless LAN radio device has been evaluated under FCC Bulletin OET 65C and found to be compliant to the requirements set forth in CFR 47 27.52 addressing RF exposure from radio frequency devices.

This device complies with FCC RF radiation exposure limits for an uncontrolled environment. The radiated output power of this Wireless LAN device is below the FCC radio frequency exposure limits. However, this device should still be installed and used in such a manner that the potential for human contact during normal operation is minimized. In order to comply with RF exposure limits established in the ANSI C95.1 standard, this equipment should be installed and operated at a minimum distance between the radiator and a human body. This minimum distance is shown below, based on product and antenna configuration:

Radio and Antenna Combinations					
	RAR20100520 (2.3 GHz)	RAR20180001 (2.4 GHz)	RAR20180002 (5.2, 5.6, 5.8 GHz)	RAR20000003 (2.4 GHz)	RAR20021001 / RAR20031001 (5.8 GHz)
BelAir20	up to 15.5 dBi	n/a	n/a	n/a	n/a
Safety Distance	15 cm (6 inches)				
BelAir20	up to 15.5 dBi	4 dBi	5 dBi	n/a	n/a
Safety Distance	16.5 cm (6.5 inches)				
BelAir100T	up to 15.5 dBi	n/a	n/a	Any	n/a
Safety Distance	21 cm (8.3 inches)				
BelAir100T	up to 15.5 dBi	n/a	n/a	Any	up to 15 dBi
Safety Distance	26 cm (10.2 inches)				
BelAir100T	up to 15.5 dBi	n/a	n/a	Any	up to 19 dBi
Safety Distance	33 cm (13.0 inches)				
BelAir100T	up to 15.5 dBi	n/a	n/a	Any	up to 23 dBi
Safety Distance	45 cm (17.7 inches)				

**BelAir Networks Inc.**  
603 March Road  
Kanata, Ontario  
Canada  
K2K 2M5  
613-254-7070

**Sales**  
[sales@belairnetworks.com](mailto:sales@belairnetworks.com)  
**Support**  
[support@belairnetworks.com](mailto:support@belairnetworks.com)  
**General Information**  
[Info@belairnetworks.com](mailto:Info@belairnetworks.com)