

Product Specification

305GLUSBGA51AC & 305GLUSBGA51AC-L3

IEEE 802.11n USB2.0 Adapter with 350mm antenna

Arcadyan P/N: FICPV7511000J

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Revision History

<i>Edition #</i>		<i>Reason for revision</i>	<i>Issue date</i>	<i>Written by</i>
V 01	◆	Initial Document	Nov 18 2009	Troy Chen
V 02	◆	Add Pin-definition	Nov 19 2009	Troy Chen
	◆	Revise Main chipset configuration		
V 03	◆	Update PCB outline & antenna spec.	Jul 30 2010	Andre Lin
V 04	◆	Update chip info & antenna spec.	Aug 17 2010	Andre Lin

Chapter 1 Introduction

1. Introduction

305GLUSBGA51AC (350mm antenna) and 305GLUSBGA51AC-L3 (350mm antenna) are wireless 1x1 802.11n USB Adapter which enables wireless networking systems to attain data communication speeds up to 150 megabits-per-second (Mbps), while remaining backward compatible to the existing installed base of Wi-Fi systems worldwide. It supports operation to the IEEE 802.11b and IEEE 802.11g ,and draft IEEE 802.11n standards.

305GLUSBGA51AC (350mm) and 305GLUSBGA51AC-L3 (350mm) will enable a next generation of high-data-rate platforms for operation in the 2.4 GHz band that deliver a five-fold speed increase. The cost and performance advantages will make it an ideal solution for high bandwidth enterprise applications, such as wireless video conferencing and large file transfers. It is compatible with 802.11g standard's mandatory modulation schemes—Complementary Code Keying (CCK), which is used in 802.11b, and Orthogonal Frequency Division Multiplexing (OFDM), used in 802.11g and draft 802.11n. Using CCK ensures backward-compatibility with the installed Wi-Fi 802.11b base, while OFDM provides the speed required for today's high-bandwidth applications.

1.1 Product Features

- ◆ High speed for wireless LAN connection, RX up at 150 Mbps data rate.
- ◆ Backward compatible to the existing IEEE 802.11b/g WLAN infrastructure.
- ◆ Support USB2.0
- ◆ Single stream 802.11n support for both 20MHz and 40MHz channels provide PHY layer rate up to MCS7 (150Mbps) for typical upper layer throughput in excess of 70Mbps

1.2 Applications

- ◆ WiFi Module for TV

Chapter 2 Hardware

2.1 General Overview

- ◆ USB 2.0 Interface and 802.11 n chipset-on-board design.
- ◆ 1 antenna connector (Reserve one more antenna for diversity)

2.2 Hardware Architecture

BRCM 4319

2.3 Main Chipset Information

BRCM 4319G: Single-band 2.4 GHz 802.11 b, g, and n. integrated with MAC/Baseband/RF

BRCM 4319X: Dual-band 2.4 GHz and 5 GHz 802.11 a, b, g, and n. integrated with MAC/Baseband/RF


2.4 PCB dimension


55.4x40mm

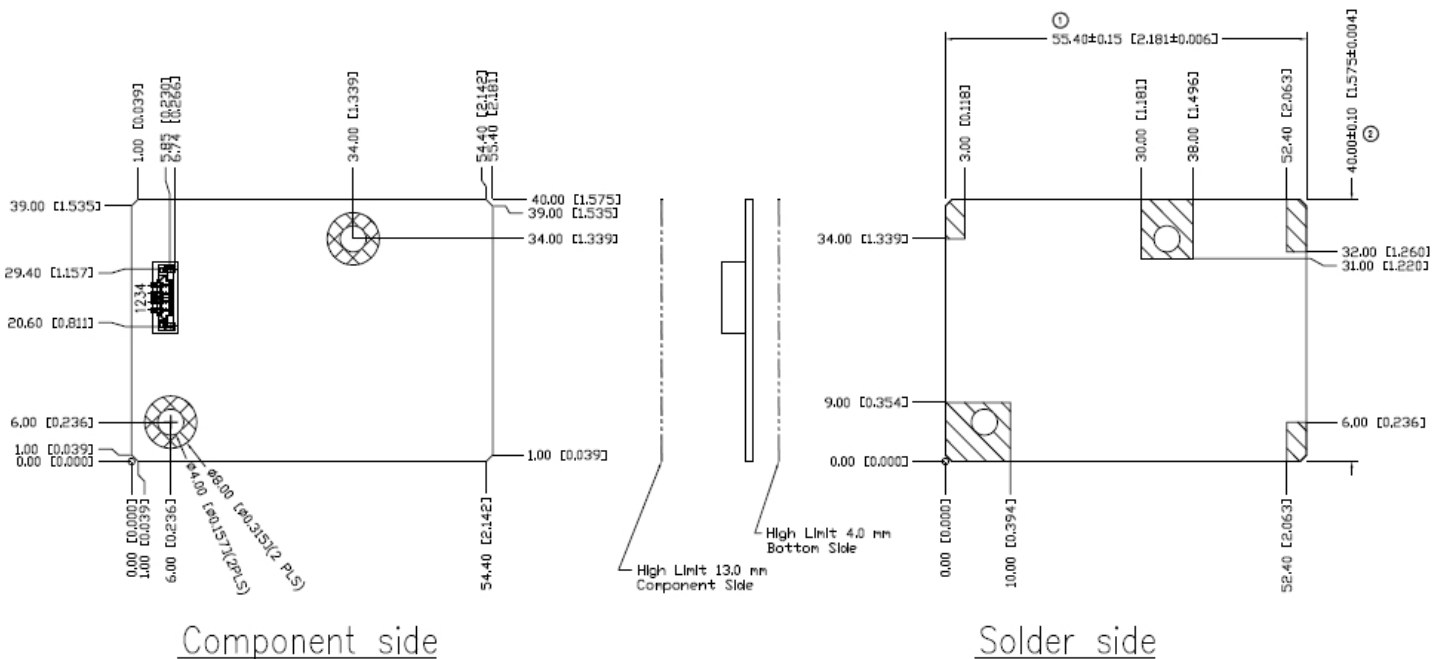
As for the those area highlighted with color orange/blue indicate the “restricted area”

NOTES:

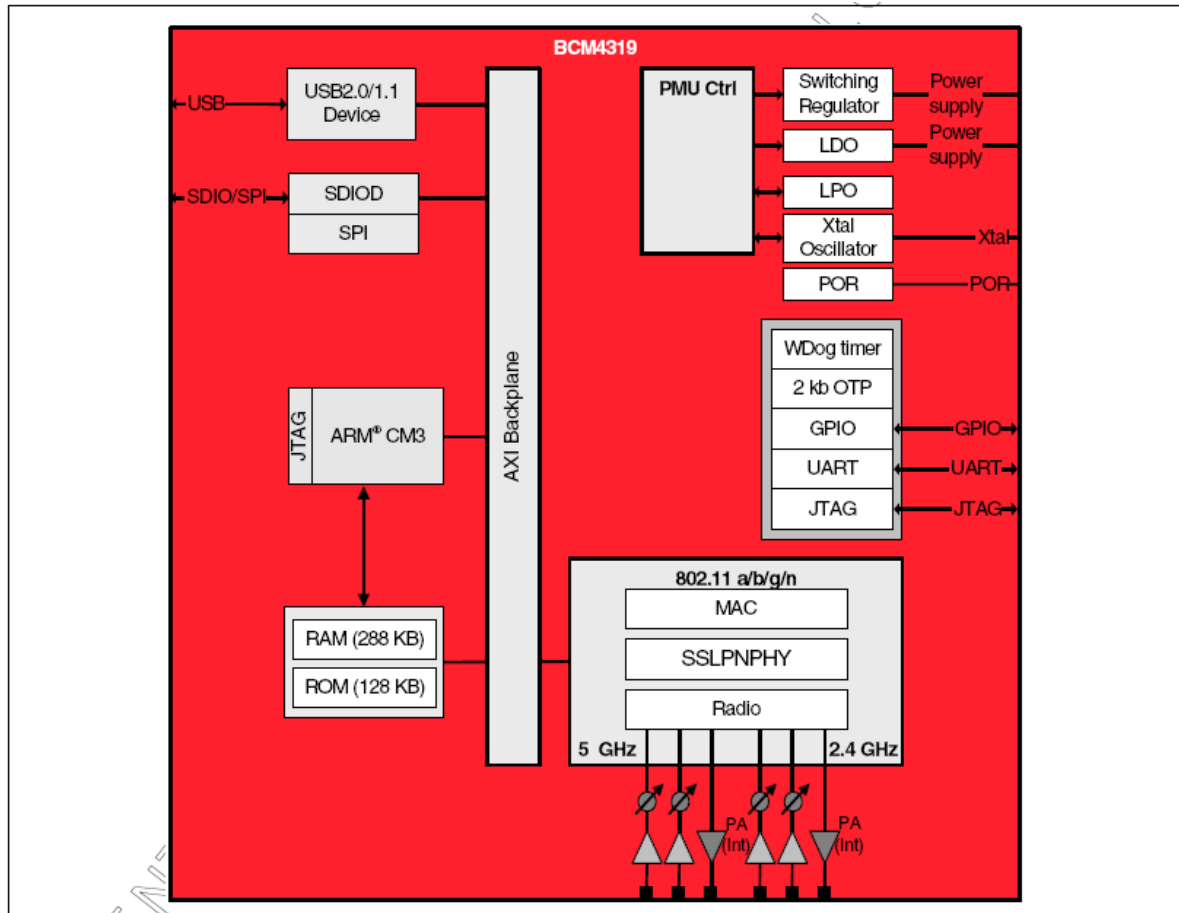
1. Donut marks are IQ inspection dimension
2. ALL PITCH DIMENSIONS WITHOUT ACCUMULATED.
3. ALL EXTERNAL SURFACE WITHOUT OIL STAINS, BURRS.
4. UNSPECIFIED DIMENSION TOLERANCE ARE ±0,10 mm.

 No Component Area

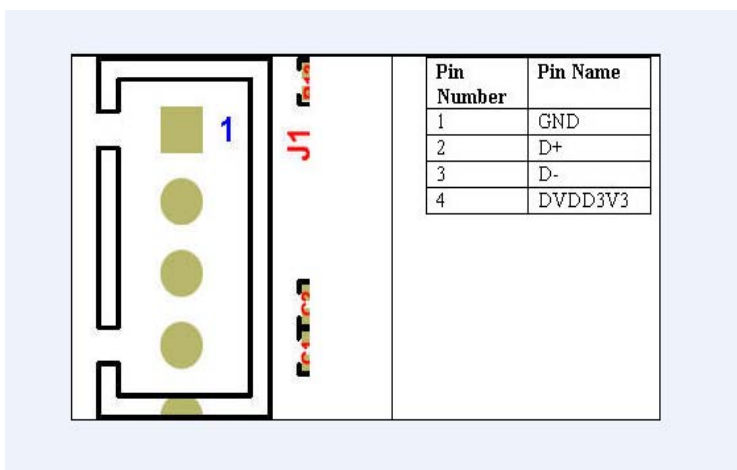
 No Component Area on Both Side



2.5 Block Diagram



2.6 Pin-definition



Chapter 3 Software

3.1 Operating System Supported

- ◆ Windows 2000, XP, Vista

3.2 Wireless Mode Supported

- ◆ AP (Infrastructure) Client mode

3.3 Security

- ◆ AP (Infrastructure) mode supports
 - ◆ Static WEP that support both 64 and 128 bit keys.
 - ◆ WPA(TKIP) with PSK
- ◆ Ad-hoc mode supports
 - ◆ None (plaintext)
 - ◆ Static WEP that supports both 64 and 128 bit keys

Chapter 4 Specifications

◆ Frequency Band:

Draft 802.11n Radio: 2.4 GHz

802.11g Radio: 2.4 GHz

802.11b Radio: 2.4 GHz

USA – FCC

2412~2462MHz (Ch1~Ch11)

◆ Operating Channels:

IEEE 802.11b/g/n compliant:

11 channels (US, Canada)

◆ Transmit Power and Sensitivity:

TX Output Power:(Typical)

11b 15 +/- 1.5 dBm

11g 14 +/- 1.5 dBm

11n (HT20) 13 +/- 1.5 dBm

11n (HT40) 12 +/- 1.5 dBm

Rx Sensitivity:(Typical)

-88 dBm @6 Mbps

-87 dBm @9 Mbps

-84 dBm @12 Mbps

-81dBm @18 Mbps

-79dBm @24 Mbps

-75dBm @36 Mbps

-71dBm @48 Mbps

-70 dBm @54 Mbps

-64 dBm @64-QAM, 20MHz channel spacing

-61 dBm @64-QAM, 40MHz channel spacing

◆ Modulation

DBPSK @1Mbps

DQPSK@2Mbp

CCK@5.5/11Mbps

BPSK@6/9 Mbps

QPSK@12/18Mbps

16-QAM@24Mbps

64-QAM@48/54Mpb and above, RX up to 135Mbps

◆ Data rate:

11b/g:

54, 48, 36, 24, 18, 12, 9, 6, 11, 5.5, 2,1 Mbps

11n:

20MHz BW: 65, 58.5, 52, 39, 26, 19.5, 13, and 6.5Mbps

40MHz BW: 135, , 121.5, 108, 81, 54, 40.5, 27and 13.5Mbps

◆ Current Consumption (5V DC)

TX: 170mA, HT20; 180mA, HT40 at 3.3V

RX: 160mA, HT20; 160 mA HT40 at 3.3V

Idle: 90mA

Radio off 52mA

◆ Operating Temperature: 0 ~ 40 °C ambient

◆ Storage Temperature: -10 ~ 70 °C ambient

◆ Humidity: 5 ~ 90% and must be non-condensing

◆ Regulation and certification compliance available:

FCC

References

- ◆ BRCM Reference Design Functional Specification
- ◆ IEEE 802.11b Standard Specification
- ◆ IEEE 802.11g Standard Specification
- ◆ IEEE 802.11n draft Standard Specification

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FCC Statement

Federal Communication Commission Interference Statement

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 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 this equipment.

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.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

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

FCC Radiation Exposure Statement:

This equipment complies with FCC 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.

IMPORTANT NOTE:

This module is intended for OEM integrator. The OEM integrator is still responsible for the FCC compliance requirement of the end product, which integrates this module.

20cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of 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.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: ARS-B4319-A-WL ". If the size of the end product is larger than 8x10cm, then the following FCC part 15.19 statement has to also be available on the label: This device complies with Part 15 of 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.