



**Module Installation Instructions**  
**And**  
**Regulatory Approval Condition**  
**802.11 a/b/g/n 3x3 MIMO Module**  
**Model No: BCM94331CSAX**  
**FCC ID: QDS-BRCM1062**  
**IC: 4324A-BRCM1062**

**Date: June 26, 2012**

**Revision: A1**

## A. Conditions on using BRCM regulatory approvals:

1. Antennas must be installed to provide 20 cm separation distance from the transmitting antenna to the body of user during normal operating condition AND only those antennas filed under FCC ID: QDS-BRCM1062 with same type and lesser gain can be used with this device.

- I. Approved Antenna Type and Antenna Gain:

FCC/IC/NCC FMA - BCM94331CSAX								
FCC ID: QDS-BRCM1062								
IC ID: 4324A-BRCM1062								
No.	Antenna Manufacturer	Antenna Type	Model	Peak gain @ 2412, 2422, 2432MHz,	Peak gain (5150-5250MHz)	Peak gain (5250-5350MHz) @5320MHz	Peak gain (5470-5725MHz) @5500,	Peak gain (5725-5850MHz) @5785,
1	Ampheno/Molex	802.11abgn WLAN Antenna	604-2961 Wi-Fi1	1.42	5.94	5.05	4.07	3.52
1	Ampheno/Molex	802.11abgn WLAN/BT Antenna	604-2961 Wi-Fi2 & Bluetooth	4.97	6.41	6.56	6.39	6.01
1	Ampheno/Molex	802.11abgn WLAN Antenna	604-2961 Wi-Fi3	3.93	2.38	3.01	4.09	3.59
			Composite 2x2	7.49	9.19	8.88	8.40	7.976724045
			Composite 3x3	8.45	10.01	9.88	9.76	9.31

2. When the Module is installed in a netbook/notebook/laptop/tablet PC where the antenna location is less than 20 cm separation distance to the body of the user, additional equipment authorization is required except the conditions evaluated for the specific host (MacBook Pro Model A1398) listed below :
  - I. Antenna must be installed at the position to provide at least 6 mm to the body of user. Antenna-to-user distance is measured by positioning display screen open 90 degree to the keyboard. For antenna is not embedded in the display section, the distance is measured between the nearest point between antenna to the edge/surface of device; and
  - II. Antenna-to-Antenna separation distance shall be greater than 5 cm between each of transmitting antenna; and
  - III. Antenna structures must be similar to the one documented in FCC filing. Variation on the antenna structure may contribute difference SAR readings even if antenna is the same type. If the antenna(s) used is different than the ones in FCC filing; it is required for host integrator to consult with Broadcom in determining applicability of approval condition.
3. The regulatory label on the final system must include the statement:“Contains FCC ID: QDS-BRCM1062”or using electronic labeling method as documented in KDB 784748.
4. 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.
5. Simultaneous Transmission Requirements
  - I. When multiple transmitters and antennas transmit simultaneously in a laptop/notebook/netbook /tablet, the following may be used to determine simultaneous transmission SAR evaluation reduction or exclusion requirements.
    - (i) Identify all possible combinations of simultaneous transmission configurations for all transmitters and antennas installed in the display screen and keyboard of the intended host computer configurations
    - (ii) Drawings showing antenna locations and separation distances between each of simultaneous transmitting antenna(s) and antenna-to-user.
    - (iii) FCC ID of all transmitters, maximum average conducted output power in each transmission mode and frequency band, operating configurations and exposure conditions approved for the individual transmitters.
    - (iv) The type and physical dimensions of antennas incorporated in the intended host configurations
    - (v) Antenna gain specified by the antenna manufacturer for antennas qualified for mobile exposure conditions

(vi) other relevant information and restrictions required by the equipment certifications of individual transmitters, including antenna changes

For each simultaneous transmission configuration identified in 5.I, if the conditions in a) or b) below are satisfied and fully documented in the SAR report or Class I permissive change documentation, simultaneous transmission SAR evaluation is not required for that configuration

a) When the  $[(\Sigma \text{ of the highest measured 1-g SAR for each portable transmitter/antenna included in the simultaneous transmission configuration}) / 1.6 \text{ W/kg}] + \Sigma \text{ of } [(the \text{ highest MPE for each mobile transmitter/antenna included in the simultaneous transmission configuration}) / (the \text{ corresponding MPE limit})] < 1$ ; or

b) For antennas included in the simultaneous transmission configuration that require SAR evaluation, when the separation distance between each antenna pair is greater than  $5 \cdot [(SAR1 + SAR2) / 1.6]^{1.5}$  cm, rounded to the nearest cm, and the  $\Sigma$  of  $[(the \text{ highest MPE for each mobile transmitter/antenna included in the simultaneous transmission configuration}) / (the \text{ corresponding MPE limit})] < 1$

Where:  $\Sigma$  in a) excludes antennas that do not require SAR evaluation, and MPE does not apply to displays < 10" diagonal for both a) and b)

(Above simultaneous assessment guideline can be found at FCC web site under KDB 616217.

<https://apps.fcc.gov/oetcf/kdb/forms/FTSSearchResultPage.cfm?switch=P&id=33240>

6. If simultaneous transmission condition does not meet requirements described above, please contact Broadcom who is responsible for product compliance to determine the applicable simultaneous transmission SAR evaluation procedures and applicable equipment authorization procedure. Module must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

## B. Regulatory Compliance Statement in the User Manual

A user's manual or instruction manual must be included with the customer product that contains the text as required by applicable law. Without limitation of the foregoing, an example (for illustration purposes only) of possible text to include is set forth below:

- a. **FCC COMPLIANCE STATEMENT:** 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 equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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. If not installed and used in accordance with the instructions, it 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 tuning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna

-Increase the distance between the equipment and the receiver.

-Connect the equipment to 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.

CAUTION: (this only applicable to 5GHz device) this device is restricted to indoor use due to its operation in the 5.15 to 5.25 GHz frequency range. FCC requires this product to be used

indoors for frequency range 5.15 to 5.25 GHz to reduce the potential for harmful interference to co-channel Mobile Satellite systems. High power radars are allocated as primary users of the 5.25 to 5.35 GHz and 5.65 to 5.85 GHz bands. These radar stations can cause interference with and/or damage this device.

**b. Canada - Industry Canada (IC)**

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 this device.” L ‘ utilisation de ce dispositif est autorisée seulement aux conditions suivantes : (1) il ne doit pas produire de brouillage et (2) l’ utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

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

This device has been designed to operate with a 802.11abgn antenna, having a maximum gain of 4.97dBi/2.4GHz and 6.56dBi/5GHz. Different types of antennas or the same type of antenna having a gain greater than 4.97dBi/2.4GHz and 6.56dBi/5GHz are strictly prohibited for use with this device. The required antenna impedance is 50ohms.

**Caution: (this only applicable to UNII device)**

(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

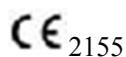
(iii) the maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate. High power radars are allocated as primary users of the 5.25 to 5.35 GHz and 5.65 to 5.85 GHz bands. These radar stations can cause interference with and/or damage this device.

**Caution: Exposure to Radio Frequency Radiation.**

To comply with RSS 102 RF exposure compliance requirements, for mobile configurations, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

**c. Europe - EU Restrictions**

This equipment needs to be marked with the



 symbol and can be used throughout the European community.

 indicates that usage restrictions apply. Marking by the symbol

Information to be supplied to the users:

802.11a Restrictions:

- . This product is for indoor use only when using channels 36, 40, 44, 48, 52, 56, 60, or 64 (5150– 5350 MHz).
- . DFS and TPC must remain enabled to ensure product compliance with EC regulations.
- . To ensure compliance with local regulations, be sure to select the country in which the access point is installed.
- . This product can be used as shown in the table below:

Caution: Exposure to Radio Frequency Radiation. To comply with RF exposure compliance requirements, for mobile configurations, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

**Czech:**

User's Manual in Czech language and a statement of conformity with Directive 1999/5/EC in Czech language must be enclosed to each product.

5 GHz wireless LAN IEEE 802.11a	Indoor Use Only	A, AND, B, CH, D, CY, CZ, DK, ES, EST, F, FIN, FL, FR, GB, GR, H, I, IRL, IS, L, LT, M, MC, N, NL, P, PL, RSM, S, SK, SLO, V
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**France:**

2.4GHz for Metropolitan France: In all Metropolitan départements, wireless LAN frequencies can be used under the following conditions, either for public or private use:

- Indoor use: maximum power (EIRP\*) of 100 mW for the entire 2400-2483.5 MHz frequency band
- Outdoor use: maximum power (EIRP\*) of 100 mW for the 2400-2454 MHz band and with maximum power (EIRP\*) of 10 mW for the 2454-2483 MHz band

**Note for system integrators:**

- The module is tested to comply with the requirement of the R&TTE Directive. System integrators are responsible for compliance of the final device with the R&TTE Directive.
- Packaging: CE Marking must also be on the outer packaging of the product. The outer packaging must also provide an indication as to where the device is intended to be used and OR conversely, where there may be restrictions for use.

**d. Taiwan - NCC Statement to be included in the user guide****Statement- For general products**

低功率電波輻射性電機管理辦法第十二條經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信規定作業之無線電信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

**Additional Statement - For 5G Band products**

在5.25G ~5.35G頻帶內操作之無線資訊傳輸設備僅適於室內使用

**Translation:**

Article 12 Without permission, any company, firm or user shall not alter the frequency, increase the power, or change the characteristics and functions of the original design of the certified lower power frequency electric machinery. Article 14 The application of low power frequency electric machineries shall not affect the navigation safety nor interfere a legal communication, if an interference is found, the service will be suspended until improvement is made and the interference no longer exists.

The foregoing legal communication refers to the wireless telecommunication operated according to the telecommunications laws and regulations. The low power frequency electric machinery should be able to tolerate the interference of the electric wave radiation electric machineries and equipment for legal communications or industrial and scientific applications.

Radio devices using 5.25-5.35GHz bands are restricted to indoor use only.

Appendix:

模組認證合格標籤 (ID):

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如果使用本模組之平台,無法在外部看見審驗合格標籤時,應在該 平台的外部明顯標示

“內含射頻模組



**e. Korea**

Include the following statement either on the label or in the User Guide.

“당해 무선설비가 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없음”

**f. Argentina**

The current approval is in the name of Broadcom’s local representative. It may be necessary to obtain regulatory approval in the name of the local distributor or importer. We suggest manufacturers check with their local distributors and importers in Argentina.

**g. Brazil - Anatel**

Before using Broadcom Anatel approvals,

1 PC- OEM must make arrangement for its local offices or distributors to provide maintenance, technical assistance or replace any faulty products sold in Brazil.

2 All warranty services will be provided by the distributors or PC-OEM sales support in Brazil. An official agreement stating warranty responsibilities must be signed and made available to Broadcom.

Interference statement to be included in the Users Guide

**"Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário."**

Translation: "This equipment operates in secondary character. It can be affected by harmful interference. However, it cannot cause interference to systems operating in primary character."

**h. South Africa – ICASA**

PC-OEMs must make arrangement for importers to supply spare parts and carry out repairs in South Africa.

**i. 9. Indonesia - POSTEL**

PC-OEMs must make arrangement for importers to provide product warranty and after sales services.

**j. 10. Japan – MIC**

Radio devices using 5.15-5.35GHz bands are restricted to indoor use only.

**k. 11. Mexico**

PC-OEMs must make arrangement for importers to provide User Manual in Spanish in Mexico.

The User Manual must feature the following mandatory statement:

**“La operación de este equipo está sujeta a las siguientes dos condiciones:  
(1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2)  
este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que  
pueda causar su operación no deseada.”**

***Translation:***

The operation of this device is subject to the following two conditions:

- (1) this equipment or device must not cause harmful interference and
- (2) this equipment or device must accept any interference, including interference which could otherwise cause its undesired operation.