



BROADCOM CORPORATION
190 Mathilda Place
Sunnyvale, CA 94806

Date: April 9, 2015

Phone: 408-543-3300
Fax: 408-543-3399

Letter of Authorization

Subject: Letter of Authorization to Use Broadcom Regulatory Approvals

To: Lenovo ("Lenovo")
何志君 June He/Homologation / Safety
ThinkPad Compliance China Lab, TP PA
Email: hezj1@lenovo.com
Tel: +86 18911779790
Shangdi west Road NO.6, Hiadian District, Beijing 100085

Broadcom Corporation ("Broadcom") hereby authorizes LENOVO to use the Broadcom regulatory approvals described in Exhibit 1 and the test reports to the extent permitted by law. LENOVO's authorization to use such approvals and test reports are expressly conditioned upon LENOVO's compliance with all applicable laws and FCC regulations and any conditions set forth in Exhibit 2, and may be revoked by Broadcom at any time in the event of any violation by LENOVO of such conditions or laws. LENOVO may not modify the configuration of the product in any manner that would change critical regulatory parameters or in any way that would violate the approved certification. LENOVO may not distribute any tools/applications that could modify the configuration of the product in any manner that would change critical regulatory parameters or in any way that would violate the approved certification. LENOVO must provide adequate means of software version verification to ensure that no unauthorized software updates can be used by the end user. LENOVO agrees to indemnify, defend and hold harmless Broadcom and its affiliates from and against any liabilities, actions, losses, judgments, payments made in settlement, costs, suits, proceedings, demands or claims from third parties incurred by Broadcom or any affiliate of Broadcom resulting from LENOVO's failure to comply with any conditions set forth in Exhibit 2 or any applicable laws.

This Letter of Authorization is valid only for the following Broadcom product in countries listed in Exhibit 1.

Product Name: 802.11a/b/g/n/ac WLAN + Bluetooth PCI-E NGFF 2230 Card

Model Name: BCM94350ZAE

This Letter of Authorization shall be governed by the laws of the State of California, without reference to its conflict of law principles, and is subject to the non-exclusive jurisdiction of the courts located therein. This authorization may be extended or withdrawn at any time, at the discretion of Broadcom Corporation.

Please indicate your agreement with the terms of this Letter of Authorization by signing below and returning a copy to me.

Best Regards,

Daniel Lawless
Director of Engineering, Systems Operations
Broadcom Corp
Tel: 408-922-5870
Email: dlawless@broadcom.com

Acknowledged and agreed:

Ruth Wu

Name: 吴守初
Title: +86 18116118477

EXHIBIT 1
Broadcom Radio Regulatory Approval Country List

Albania	France	Malawi	Serbia
Angola	Germany	Malaysia (Lenovo)	Seychelles
Argentina	Ghana	Malta	Singapore
Australia	Greece	Mauritius	Slovakia
Austria	Guinea (Conakry)	Mayotte	Slovenia
Bahrain	Hong Kong	Mexico	Somalia
Bangladesh	Hungary	Moldova	South Africa
Belgium	Iceland	Montenegro	Spain
Bolivia	India	Morocco	Sri Lanka
Bosnia	Indonesia	Netherlands	Sweden
Botswana	Ireland	Netherlands Antilles	Switzerland
Brazil	Israel	New Zealand	Taiwan
Bulgaria	Italy	Nigeria	Tanzania
Canada	Ivory Coast (Côte d'Ivoire)	Norway	Thailand
Chile	Jamaica	Pakistan	Trinidad
China	Japan	Panama	Tunisia
Colombia	Jordan	Paraguay	Turkey
Croatia	Kazakhstan	Peru	UAE
Cyprus	Kenya	Philippines	Uganda
Czech Rep	Korea	Poland	UK
Denmark	Kuwait	Portugal	Ukraine
Ecuador	Latvia	Qatar	Uruguay
Egypt	Lebanon	Romania	USA
Eritrea	Lesotho	Russia	Venezuela
Estonia	Liechtenstein	Rwanda	Vietnam
EU	Lithuania	Sao Tome & Principe	Western Sahara
Finland	Luxembourg	Saudi Arabia	Zimbabwe
FR Southern Territories	Macedonia	Senegal	

EXHIBIT 2

Conditions Applicable to Letter of Authorization

- A. The BCM94350ZAE is a Broadcom custom designed PCIe interfaced WiFi Module. LENOVO acknowledges that any modifications to Broadcom's design may invalidate regulatory approvals in relation to the LENOVO Product, or may necessitate notifications to the relevant regulatory authorities.
- B. LENOVO is responsible for ensuring that antennas used with the product are of the same type (WLAN antenna, PIFA), with same or lower gains (5.98dBi in 2.4GHz, 6.61dBi in 5GHz) as approved and providing antenna reports to Broadcom.
- C. LENOVO is responsible for informing Broadcom about changes that would affect Broadcom's approvals such as changes due to new antennas, and portable RF exposure safety compliance.
- D. LENOVO must get Broadcom authorization when a Class II permissive change (C2PC) filing against a Broadcom ID is required. LENOVO is responsible for addressing FCC/TCB audits when required. FCC/IC C2PC filings under BCM IDs will be submitted to the same TCBs as in the original filing, or as authorized by Broadcom. Broadcom has the right to revoke the C2PC grants when audit requirement is not fulfilled.
- E. Appropriate labels must be affixed to the LENOVO Product that comply with applicable regulations in all respects.
- F. The Broadcom radio is approved as a client/slave device; to ensure compliance with local regulations, the device should be set to the country domain in which the access point is installed. The BCM94350ZAE has been programmed at the contract manufacturers wireless module factory with a separate FCC SKU. All direct sales within the US and its territories should be delivered with the FCC SKU only. For all sales conducted by distributors, channel partners or other third parties there should be sales agreements requiring the buyers to ship only the FCC version to US destinations and to abide by FCC regulations.
- G. A user's manual or instruction manual must be included with the LENOVO 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:

1. USA—Federal Communications Commission (FCC)

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.

INFORMATION TO USER:

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.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the 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.

System integrators must include the FCC ID on the end product.

FCC Radio-Frequency Exposure & Approval Conditions:

1. Antennas must be installed in the display section of Netbook/notebook/laptop computer to provide at least 20 cm separation distance from the transmitting antenna to the body of user during normal operating condition.

2. Transmitting antenna(s) can only be installed at the display section of computer. When this device is installed other than notebook computers, at least 20 cm separation distance shall be maintained between the transmitting antenna(s) to the body of user or nearby person.
3. The antenna(s) used for this transmitter must not be collocated or operating in conjunction with any other antenna or transmitter within a host device, except in accordance with FCC multi-transmitter product procedures.
4. Only those antennas with same type and lesser gain filed under this FCC ID number can be used with this device.
5. The Host user manual must include an FCC user guide statement detailing that the antenna position is in the screen and at an antenna-to-body position of YY cm during normal operation.
6. The regulatory label on the final system must include the statement: "Contains FCC ID: QDS-BRCM1087 "or using electronic labeling method as documented in KDB 784748.
7. The final system integrator must ensure there is no instruction provided in the user manual or LENOVO documentation indicating how to install or remove the transmitter module except such device has implemented two-ways authentication between module and the host system.
8. The final host manual shall include the following regulatory statement:

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.

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.

2. Canada - Industry Canada (IC)

This device complies with Industry Canada licence-exempt RSS standard(s). 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.

French:

Cet appareil est conforme avec Industrie Canada exempts de licence standard RSS (s). 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.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

French:

Sous la réglementation d'Industrie Canada, ce transmetteur radio ne peut fonctionner en utilisant une antenne d'un type et un maximum (ou moins) gain approuvées pour l'émetteur par Industrie Canada. Pour réduire le risque d'interférence aux autres utilisateurs, le type d'antenne et son gain doivent être choisis de manière que la puissance isotrope rayonnée équivalente (PIRE) ne dépasse pas ce qui est nécessaire pour une communication réussie.

This radio transmitter, IC ID: 4324A-BRCM1087, has been approved by Industry Canada to operate with the onboard antenna or a detachable WLAN antenna with a maximum gain of 3.9dB/2.4GHz and 5.8dBi/5GHz. Any other detachable antennas, with a different type or having a gain greater than 3.9dB/2.4GHz and 5.8dBi/5GHz are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

French:

Cet émetteur radio, IC ID: 4324A-BRCM1087, a été approuvé par Industrie Canada pour fonctionner avec l'antenne intégrée ou une antenne amovible PIFA avec un gain maximum de 3.9dBi/2.4GHz, 5.8dBi/5GHz. Toute autre antenne détachable, avec un type différent ou ayant un gain supérieur à 3.9dBi, 5.8dBi est strictement interdit pour une utilisation avec cet appareil. L'impédance d'antenne requise est de 50 ohms.

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.

Pour se conformer aux exigences de conformité 102 RSS RF exposition, pour des configurations mobiles, une distance de séparation d'au moins 20 cm doit être maintenue entre l'antenne de cet appareil et toutes les personnes. Cet appareil ne doit pas être co-localisés ou fonctionnant en conjonction avec une autre antenne ou transmetteur. System integrators must include the IC ID on the end product. Industry Canada user statements should be provided in both English and French, at the time each product is offered for sale or lease in Canada.

3. Europe - EU Restrictions

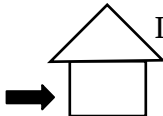
This equipment needs to be marked with the **CE** 0984  symbol and can be used throughout the European community.

Marking by the symbol  indicates that usage restrictions apply.

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:

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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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.

France (Removed after July 1, 2012):

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

Italy:

For private use, a general authorisation is required if WAS/RLAN's are used outside own premises. For public use, a general authorisation is required

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.

4. 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 equipments 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):

“ CCXXxxLPyyyZz ”

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  CCXXxxLPyyyZz” .

5. 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"

6. 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.

7. 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."

8. South Africa – ICASA

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

9. Indonesia – POSTEL, Kenya – CCK, Nepal - NTA

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

10. Japan – MIC

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

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.

12. CB Certifications

PC-OEMs must provide User Guides in the language suitable for the countries when shipping products to countries listed in the CB reports.

13. Moldova- Labeling to be included

Proper Marking must be included on each certified unit shipping into Moldova,