

Wireless Regulatory Information

Intel WiFi Adapters, 802.11n Compliant

The information in this section applies to the following products:

- Intel® Centrino® Wireless-N 2200
- Intel® Centrino® Wireless-N 2230
- Intel® Centrino® Advanced-N 6205
- Intel® Centrino® Advanced-N 6235

Information for the User

USA/FCC – Radio Frequency Exposure

The FCC with its action in ET Docket 96-8 has adopted a safety standard for human exposure to radio frequency (RF) electromagnetic energy emitted by FCC certified equipment. The wireless adapter meets the Human Exposure limits found in OET Bulletin 65, supplement C, 2001, and ANSI/IEEE C95.1, 1992. Proper operation of this radio according to the instructions found in this manual will result in exposure substantially below the FCC's recommended limits.

The following safety precautions should be observed:

- Do not touch or move antenna while the unit is transmitting or receiving.
- Do not hold any component containing the radio such that the antenna is very close or touching any exposed parts of the body, especially the face or eyes, while transmitting.
- Do not operate the radio or attempt to transmit data unless the antenna is connected; this behavior may cause damage to the radio.
- Use in specific environments:
 - The use of wireless adapters in hazardous locations is limited by the constraints posed by the safety directors of such environments.
 - The use of electronic devices with wireless adapters on airplanes is governed by the rules of each commercial airlines operator.
 - The use of wireless adapters in hospitals is restricted to the limits set forth by each hospital.

Explosive Device Proximity Warning



Warning: Do not operate a portable transmitter (including this wireless adapter) near unshielded blasting caps or in an explosive environment unless the transmitter has been modified to be qualified for such use.

Antenna Warnings



Warning: The wireless adapter is not designed for use with high-gain directional antennas

Local Restrictions on 802.11a, 802.11b, 802.11g and 802.11n Radio Usage

Caution: Due to the fact that the frequencies used by 802.11a, 802.11b, 802.11g and 802.11n wireless LAN devices may not yet be harmonized in all countries, 802.11a, 802.11b, 802.11g and 802.11n products are designed for use only in specific countries, and are not allowed to be operated in countries other than those of designated use. As a user of these products, you are responsible for ensuring that the products are used only in the countries for which they were intended and for verifying that they are configured with the correct selection of frequency and channel for the country of use. The device transmit power control (TPC) interface is part of the Intel® PROSet/Wireless WiFi Connection Utility Software. Operational restrictions for Equivalent Isotropic Radiated Power (EIRP) are provided by the system manufacturer. Any deviation from the permissible power and frequency settings for the country of use is an infringement of national law and may be punished as such.

Wireless Interoperability

The wireless adapter is designed to be interoperable with other wireless LAN products that are based on direct sequence spread spectrum (DSSS) radio technology and to comply with the following standards:

- IEEE Std. 802.11b compliant Standard on Wireless LAN
- IEEE Std. 802.11g compliant Standard on Wireless LAN
- IEEE Std. 802.11a compliant Standard on Wireless LAN
- IEEE Std. 802.11n draft 2.0 compliant on Wireless LAN
- Wireless Fidelity certification, as defined by the Wi-Fi Alliance

The Wireless Adapter and Your Health

The wireless adapter, like other radio devices, emits radio frequency electromagnetic energy. The level of energy emitted by the wireless adapter, however, is less than the electromagnetic energy emitted by other wireless devices such as mobile phones. The wireless adapter operates within the guidelines found in radio frequency safety standards and recommendations. These standards and recommendations reflect the consensus of the scientific community and result from deliberations of panels and committees of scientists who continually review and interpret the extensive research literature. In some situations or environments, the use of the wireless adapter may be restricted by the proprietor of the building or responsible representatives of the applicable organization. Examples of such situations may include:


- Using the wireless adapter on board airplanes, or
- Using the wireless adapter in any other environment where the risk of interference with other devices or services is perceived or identified as being harmful.

If you are uncertain of the policy that applies to the use of wireless adapters in a specific organization or environment (an airport, for example), you are encouraged to ask for authorization to use the adapter before you turn it on.

Regulatory Information

Local Restriction of 802.11a, 802.11b, 802.11g, and 802.11n Radio Usage

The following statement on local restrictions must be published as part of the compliance documentation for all 802.11a, 802.11b, 802.11g and 802.11n products.

-  **Caution:** Due to the fact that the frequencies used by 802.11a, 802.11b, 802.11g and 802.11n wireless LAN devices may not yet be harmonized in all countries, 802.11a, 802.11b, 802.11g and 802.11n products are designed for use only in specific countries, and are not allowed to be operated in countries other than those of designated use. As a user of these products, you are responsible for ensuring that the products are used only in the countries for which they were intended and for verifying that they are configured with the correct selection of frequency and channel for the country of use. Any deviation from permissible settings and restrictions in the country of use could be an infringement of national law and may be punished as such.
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USA—Federal Communications Commission (FCC)

This device is restricted to indoor use due to its operation in the 5.15 to 5.25 GHz and 5.470 to 5.725 GHz frequency ranges. FCC requires this product to be used indoors for the frequency ranges 5.15 to 5.25 GHz and 5.470 to 5.725 GHz to reduce the potential for harmful interference to co-channel mobile satellite systems. No configuration controls are provided for this wireless adapter allowing any change in the frequency of operations outside the FCC grant of authorization for U.S operation according to Part 15.407 of the FCC rules.

- This device cannot be co-located with any other transmitter unless approved by the FCC.

This device complies with Part 15 of the FCC Rules. Operation of the device is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference that may cause undesired operation.

Interference Statement

This wireless adapter 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 wireless adapter generates, uses, and can radiate radio frequency energy. If the wireless adapter is not installed and used in accordance with the instructions, the wireless adapter may cause harmful interference to radio communications. There is no guarantee, however, that such interference will not occur in a particular installation. If this wireless adapter 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 taking one or more of the following measures:

- Reorient or relocate the receiving antenna of the equipment experiencing the interference.
 - Increase the distance between the wireless adapter and the equipment experiencing the interference.
 - Connect the computer with the wireless adapter to an outlet on a circuit different from that to which the equipment experiencing the interference is connected.
 - Consult the dealer or an experienced radio/TV technician for help.
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Low Halogen

Applies only to brominated and chlorinated flame retardants (BFRs/CFRs) and PVC in the final product. Intel components as well as purchased components on the finished assembly meet JS-709 requirements, and the PCB / substrate meet IEC 61249-2-21 requirements. The replacement of halogenated flame retardants and/or PVC may not be better for the environment.

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.

Cet appareil se conforme à Canada d'Industrie normes de RSS permis-exempt. L'opération est assujetti au suivre deux conditions : (1) cet appareil ne peut pas causer l'intervention, et (2) cet appareil doit accepter de l'intervention, y compris l'intervention qui peut causer l'opération non désirée de l'appareil.

Caution: When using IEEE 802.11a wireless LAN, this product is restricted to indoor use due to its operation in the 5.15- to 5.25-GHz frequency range. Industry Canada requires this product to be used indoors for the frequency range of 5.15 GHz to 5.25 GHz to reduce the potential for harmful interference to co-channel mobile satellite systems. High power radar is allocated as the primary user 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 to this device. The maximum allowed antenna gain for

use with this device is 6dBi in order to comply with the E.I.R.P limit for the 5.25- to 5.35 and 5.725 to 5.85 GHz frequency range in point-to-point operation. To comply with RF exposure requirements all antennas should be located at a minimum distance of 20cm, or the minimum separation distance allowed by the module approval, from the body of all persons.

Attention: l'utilisation d'un réseau sans fil IEEE802.11a est réstrainte à une utilisation en intérieur à cause du fonctionnement dans la bande de fréquence 5.15-5.25 GHz. Industry Canada requiert que ce produit soit utilisé à l'intérieur des bâtiments pour la bande de fréquence 5.15-5.25 GHz afin de réduire les possibilités d'interférences nuisibles aux canaux co-existants des systèmes de transmission satellites. Les radars de puissances ont fait l'objet d'une allocation primaire de fréquences dans les bandes 5.25-5.35 GHz et 5.65-5.85 GHz. Ces stations radar peuvent créer des interférences avec ce produit et/ou lui être nuisible. Le gain d'antenne maximum permissible pour une utilisation avec ce produit est de 6 dBi afin d'être conforme aux limites de puissance isotropique rayonnée équivalente (P.I.R.E.) applicable dans les bandes 5.25-5.35 GHz et 5.725-5.85 GHz en fonctionnement point-à-point. Se pour conformer aux conditions d'exposition de RF toutes les antennes devraient être localisées à une distance minimum de 20 cm, ou la distance de séparation minimum permise par l'approbation de module, du corps de toutes les personnes."

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.

Cet appareil se conforme à Canada d'Industrie normes de RSS permis-exempt. L'opération est assujetti au suivre deux conditions : (1) cet appareil ne peut pas causer l'intervention, et (2) cet appareil doit accepter de l'intervention, y compris l'intervention qui peut causer l'opération non désirée de l'appareil.

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.

Sous les règlements de Canada d'Industrie, cet émetteur de radio peut fonctionner utilisant seulement une antenne d'un type et un maximum (ou moindre) le gain a approuvé pour l'émetteur par Canada d'Industrie. Pour réduire l'intervention potentielle de radio aux autres utilisateurs, le type d'antenne et son gain devrait être si choisie que l'équivalent a rayonné d'isotropiquement le pouvoir (e.i.r.p.) n'est pas plus que ce nécessaire pour la communication réussie.

European Union

The low band 5.15 -5.35 GHz is for indoor use only.

This equipment complies with the essential requirements of the European Union directive 1999/5/EC. See [Statements of European Union Compliance](#).

European Union Declarations of Conformity

To view the European Union Declaration of Conformity for your adapter, perform these steps

1. Open this web site: http://developer.intel.com/design/litcentr/ce_docs/index.htm
2. Under the **Wireless Products** menu select your adapter.
3. Click **Go**

To view additional regulatory information for your adapter, perform these steps

1. Open this web site: <http://www.intel.com/support/wireless/wlan/>
2. Click on the *link for your adapter*.
3. Click **Document and Guides**
4. Under **Regulatory Information**, click Regulatory documents *for your adapter*.

Japan

Indoor use only in the 5Ghz band.

Korea

당해 무선설비는 운용 중 전파혼신 가능성이 있음

Mexico

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.

Morocco

The operation of this product in the radio channel 2 (2417 MHz) is not authorized in the following cities: Agadir, Assa-Zag, Cabo Negro, Chaouen, Goulmima, Oujda, Tan Tan, Taourirt, Taroudant and Taza.

The operation of this product in the radio channels 4, 5, 6 et 7 (2425 - 2442 MHz) is not authorized in the following cities: Aéroport Mohamed V, Agadir, Aguelmous, Anza, Benslimane, Béni Hafida, Cabo Negro, Casablanca, Fès, Lakbab, Marrakech, Merchich, Mohammédia, Rabat, Salé, Tanger, Tan Tan, Taounate, Tit Mellil, Zag.

Pakistan

"PTA APPROVED MODEL"

Taiwan

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，指依電信法規定作業之無線電通信。

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。

在5.25-5.35 兆赫頻帶內操作之無線資訊傳輸設備，限於室內使用。

Singapore

Complies with IDA Standards DB02941

Modular Regulatory Certification Country Markings

A list of countries requiring regulatory markings is available. Note that the lists include only countries requiring marking but not all certified countries. To find the regulatory country marking information for your adapter, perform these steps

1. Open this web site: <http://www.intel.com/support/wireless/wlan/>
2. Click on the *link for your adapter*.
3. Click **Document and Guides**
4. Under **Regulatory Information**, click Regulatory documents *for your adapter*.

Information for OEMs and Host Integrators

The guidelines described within this document are provided to OEM integrators installing Intel® wireless adapters in notebook and tablet PC host platforms. Adherence to these requirements is necessary to meet the conditions of compliance with FCC rules, including RF exposure. When all antenna type and placement guidelines described herein are fulfilled the Intel® wireless adapters may be incorporated into notebook and tablet PC host platforms with no further restrictions. If any of the guidelines described herein are not satisfied it may be necessary for the OEM or integrator to perform additional testing and/or obtain additional approval. The OEM or integrator is responsible to determine the required host regulatory testing and/or obtaining the required host approvals for compliance.

- Intel® wireless adapters are intended for OEMs and host integrators only
- The Intel® wireless adapter FCC Grant of Authorization describes any limited conditions of modular approval.
- The Intel® wireless adapters must be operated with an access point that has been approved for the country of operation.
- Changes or modification to Intel® wireless adapters by OEMs, integrators or other third parties is not permitted. Any changes or modification to Intel® wireless adapters by OEMs, integrators or other third parties will void authorization to operate the adapter.

Antenna Types and Gains

Only antennas of the same type and with equal or less gains as shown below may be used with the Intel® wireless adapters. Other types of antennas and/or higher gain antennas may require additional authorization for operation.

Antenna Type	Antenna Location (Main/Aux)	2.4GHz Peak Gain in dBi*	2.6GHz Peak Gain in dBi*	5.2GHz Peak Gain in dBi*	5.5GHz Peak Gain in dBi*	5.7GHz Peak Gain in dBi*
PIFA	Main	3.24	3.47	3.73	4.77	4.97
	Aux					
	MIMO					
*All Antenna gains include cable loss						

Antenna Placement Within the Host Platform

To ensure RF exposure compliance the antenna(s) used with the Intel® wireless adapters must be installed in notebook or tablet PC host platforms to provide a minimum separation distance from

all persons, in all operating modes and orientations of the host platform, with strict adherence to the table below. The antenna separation distance applies to both horizontal and vertical orientation of the antenna when installed in the host system.

Intel® Wireless Adapter	Minimum required antenna-to-user separation distance (mm)
Intel® Centrino® Wireless-N 2200	9
Intel® Centrino® Wireless-N 2230	9
Intel® Centrino® Advanced-N 6205	12
Intel® Centrino® Advanced-N 6235	12

Simultaneous transmission of Intel® Wireless Adapters with Other Integrated or Plug-In Transmitters

Based upon FCC Knowledge Database publication number 616217 D03 Supplement <https://fjallfoss.fcc.gov/kdb/GetAttachment.html?id=30257> , when there are multiple transmitting devices installed in a host device, an RF exposure transmitting assessment shall be performed to determine the necessary application and test requirements. OEM integrators must identify all possible combinations of simultaneous transmission configurations for all transmitters and antennas installed in the host system. This includes transmitters installed in the host as mobile devices (>20cm separation from user) and portable devices (<20cm separation from user). OEM integrators should consult the actual FCC KDB 616217 D03 Supplement document for all details in making this assessment to determine if any additional requirements for testing or FCC approval is necessary.

Statement of European Compliance

Each of the adapters listed below comply with the essential requirements of the European Union directive 1999/5/EC.

- Intel® Centrino® Wireless-N 2200
- Intel® Centrino® Wireless-N 2230
- Intel® Centrino® Advanced-N 6205
- Intel® Centrino® Advanced-N 6235

Česky [Czech]	Tímto Intel ® Corporation prohlašuje, že toto zařízení je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice EU 1999/5/ES.
Dansk [Danish]	Herved, Intel ® Corporation, erklærer, at dette udstyr er i overensstemmelse med de væsentlige krav og øvrige relevante bestemmelser i EU-direktiv 1999/5/EF.

Deutsch [German]	Hiermit erklärt Intel ® Corporation, dass dieses Gerät in Übereinstimmung mit den grundlegenden Anforderungen und anderen relevanten Bestimmungen der EU Richtlinie 1999/5/EG befindet.
Esti [Estonian]	Käesolevaga Intel ® Corporation teatab, et see seade on vastavuses põhinõuete ja teistele asjakohastele sätetele Euroopa Liidu direktiivis 1999/5/EÜ.
English	Hereby, Intel® Corporation, declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Español [Spanish]	Por este medio, Intel ® Corporation, declara que este equipo cumple con los requisitos esenciales y otras disposiciones pertinentes de la Directiva Europea 1999/5/CE.
Ελληνική [Greek]	Δια του παρόντος, η Intel ® Corporation, δηλώνει ότι ο εξοπλισμός αυτός είναι σε συμμόρφωση με τις βασικές απαιτήσεις και άλλες σχετικές διατάξεις της κοινοτικής οδηγίας 1999/5/EK.
Français [French]	Par la présente, Intel ® Corporation, déclare que cet équipement est en conformité avec les exigences essentielles et autres dispositions pertinentes de la directive européenne 1999/5/CE.
Italiano [Italian]	Con la presente, Intel ® Corporation, dichiara che questa apparecchiatura è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti della direttiva UE 1999/5/CE.
Latviski [Latvian]	Ar šo, Intel ® Corporation paziņo, ka šī tehnika ir atbilstība būtiskajām prasībām un citiem svarīgajiem nosacījumiem ES Direktīvas 1999/5/EK.
Lietuvių [Lithuanian]	Šiuo dokumentu, Intel ® Corporation ", pareiškia, kad šis įrenginys atitinka esminius reikalavimus ir kitus reikiamus ES Direktyvos 1999/5/EB.
Nederlands [Dutch]	Hierbij Intel ® Corporation, verklaart dat deze apparatuur in overeenstemming is met de essentiële eisen en andere relevante bepalingen van EU-richtlijn 1999/5/EG.
Malti [Maltese]	Hawnhekk, Intel ® Korporazzjoni, jiddikjara li dan it-tagħmir huwa konformi mar-rekwiziti essenzjali u dispożizzjonijiet oħra rilevanti tal-UE-Direttiva 1999/5/KE.
Magyar [Hungarian]	Ezáltal, az Intel ® Corporation kijelenti, hogy ez a berendezés megfelel az alapvető követelményeknek és más vonatkozó uniós 1999/5/EK irányelv.
Norsk [Norwegian]	Erklærer herved Intel ® Corporation, at dette utstyret er i samsvar med de grunnleggende kravene og andre relevante bestemmelser i EU direktiv 1999/5/EC.
Polski [Polish]	Niniejszym Intel ® Corporation, deklaruje, że ten sprzęt jest zgodny z zasadniczymi wymaganiami oraz pozostałymi stosownymi postanowieniami dyrektywy UE 1999/5/WE.
Português [Portuguese]	Nisto, a Intel ® Corporation, declara que este equipamento está em conformidade com os requisitos essenciais e outras disposições relevantes da Directiva da UE 1999/5/CE.
Slovensko [Slovenian]	S tem, Intel ® Corporation, izjavlja, da je ta oprema v skladu z bistvenimi zahtevami in drugimi relevantnimi določili direktive 1999/5/ES EU.
Slovensky [Slovak]	Týmto Intel ® Corporation prehlasuje, že toto zariadenie je v zhode so základnými požiadavkami a ďalšími príslušnými ustanoveniami smernice EÚ 1999/5/ES.

Suomi [Finnish]	Täten Intel ® Corporation vakuuttaa, että tämä laite on direktiivin olennaisten vaatimusten ja muiden määräysten EU-direktiivin 1999/5/EY.
Svenska [Swedish]	Härmed förklarar Intel ® Corporation, att denna utrustning är i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser i EU-direktivet 1999/5/EC.
Íslenska [Icelandic]	Hér með lýsir, Intel ® Corporation, segir að þessi búnaður er í samræmi við grunnkröfur og önnur viðeigandi ákvæði ESB tilskipun 1999/5/EB.
