

## About this manual

This manual contains regulatory information for the ThinkPad® S230u.

## Read first - regulatory information

Read this document before using your computer. This computer complies with the radio frequency and safety standards of any country or region in which it has been approved for wireless use. Install and use your computer according to the following instructions.

The latest Regulatory Notice has been uploaded on the Web site. To refer to it, go to <http://www.lenovo.com/think/support>, and then click **User Guides & Manuals**.

Veillez lire le présent document avant d'utiliser votre ordinateur. Cet ordinateur est conforme aux normes de fréquence radio et de sécurité de tous les pays ou régions dans lesquels son utilisation sans fil a été homologuée. Installez et utilisez l'ordinateur en respectant les instructions qui suivent.

La version la plus récente de la Notice relative à la réglementation a été chargée sur le site Web. Pour la consulter, accédez à <http://www.lenovo.com/think/support>, puis sur **User Guides & Manuals**.

## USA - Federal Communications Commission (FCC)

This ThinkPad computer contains the following wireless devices and underwent the certification process of FCC CFR 47 Part 2 section 1093, Part 15 Subpart C and Subpart E, Part 22 Subpart H, and Part 24 Subpart E under each respective FCC ID below:

- FCC ID: PD92230BNHU
  - Wireless LAN and Bluetooth Combo Card (2230BNHMMW)
- FCC ID: GKR-TP00042ABR
  - Wireless LAN and Bluetooth Combo Card (BCM943228HMB)
- FCC ID: GKR-TP00042AHJ
  - Wireless LAN and Bluetooth Combo Card (2230BNHMMW)
  - Wireless WAN Card (H5321)
- FCC ID: GKR-TP00042AHB
  - Wireless LAN and Bluetooth Combo Card (BCM943228HMB)
  - Wireless WAN Card (H5321)

The FCC ID is indicated as the label affixed on the bottom side of your computer.

**Notes:**

- The wireless LAN and the Bluetooth features operate at different frequencies exclusively, and transmit radio frequencies simultaneously.
- The wireless LAN feature marketed in the U.S.A. does not support or function in the extended channels (12ch, 13ch).

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## **Preinstalled integrated wireless features**

The wireless LAN and Bluetooth Combo Card and the wireless WAN Card are preinstalled by Lenovo®, and are exclusive for your ThinkPad computer. You are prohibited to replace it with any other wireless features.

If the wireless LAN and Bluetooth Combo Card or the wireless WAN Card requires replacement during warranty it must be serviced by a Lenovo authorized servicer.

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## **Exposure to Radio Frequency Radiation**

The radiated output power of your computer is below the FCC radio frequency exposure limits. Nevertheless, it should be used in such a manner that the potential for human contact is minimized during normal operation of your computer.

**CAUTION:**

**The radiated energy from the antennas conforms to the FCC limit of the SAR (Specific Absorption Rate) requirement regarding 47 CFR Part 2 Section 1093, when the computer operates in the conventional setting. The SAR is determined to measure at the highest power level in each frequency band. However, the actual SAR level of ThinkPad S230u in the cellular operation bands is well below the maximum value in some measurement plots. Because ThinkPad S230u adjusts the cellular transmission power automatically based upon the proximity to the human body and orientation. Namely, the closer distance to you from ThinkPad S230u will lower the cellular transmission power level. ThinkPad S230u has been tested and found to meet the FCC RF exposure guidelines.**

To know the location of transmission antennas for the wireless LAN and Bluetooth Combo Card and the wireless WAN Card,, see “Location of the UltraConnect wireless antennas” in the *User Guide*.

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## **Emergency Calls**

The wireless WAN feature does not support voice calls, hence their use for essential communication is not possible, including emergency calls regarding the E911 rule.

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## Simultaneous use of RF transmitters

Your computer is approved for simultaneous use of the integrated wireless LAN, wireless WAN and Bluetooth transmitters.

Make sure of the following conditions when you use any other external wireless option device:

- When you use any other RF option device, you are requested to confirm that the device conforms to the RF Safety requirement and is approved to use for your computer.
- You must follow the RF Safety instructions of wireless option devices that are included in the user manual of the RF option device.
- If wireless options are prohibited to use in conjunction with another transmitters, you must turn off all other wireless features in your computer.

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## Radio Frequency interference requirements

Each device has been tested and found to comply with the limits for a Class B digital device pursuant to FCC Part 15 Subpart B. Refer to “Electronic emissions notices” on page 7 .

When you use a wireless LAN adapter in the 802.11 a/n transmission mode:

- Each device is restricted to indoor use due to its operation in the 5150 to 5250 MHz frequency range. FCC requires these products to be used indoors for the frequency range 5150 to 5250 MHz to reduce the potential for harmful interference to co-channel Mobile Satellite systems.
- High power radars are allocated as primary users of the 5250 to 5350 MHz and 5650 to 5850 MHz bands. These radar stations can cause interference with and/or damage this device.

## Canada - Industry Canada (IC)

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### IC certification number

This section presents the IC certification and model number of each wireless device. Your ThinkPad computer contains the following wireless devices, and the IC certification number for the wireless device is affixed on the label at the bottom of your computer.

- IC: 1000M-2230BNHU
  - Wireless LAN and Bluetooth Combo Card (2230BNHMW)

- IC: 2533B-TP00042ABR
  - Wireless LAN and Bluetooth Combo Card (BCM943228HMB)
- IC: 2533B-TP00042AHJ
  - Wireless LAN and Bluetooth Combo Card (2230BNHMW)
  - Wireless WAN Card (H5321)
- IC: 2533B-TP00042AHB
  - Wireless LAN and Bluetooth Combo Card (BCM943228HMB)
  - Wireless WAN Card (H5321)

**Notes:**

- The wireless LAN and the Bluetooth features operate at different frequencies exclusively, and transmit radio frequencies simultaneously.
- The wireless LAN feature marketed in Canada does not support or function in the extended channels (12ch, 13ch).

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## **Preinstalled integrated wireless features**

The wireless LAN and Bluetooth Combo Card and the wireless WAN Card are preinstalled by Lenovo, and are not removable by you. You are prohibited to replace them with any other wireless features. If the wireless LAN and Bluetooth Combo Card or the wireless WAN Card requires replacement during warranty it must be serviced by a Lenovo authorized servicer.

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## **Low power license-exempt radiocommunication devices (RSS-210)**

Operation is subject to the following two conditions:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.

The transmitter devices have been designed to operate with the antennas integrated in the computer, and having a maximum gain of within 3 dBi.

The maximum antenna gain permitted for devices in the 5250-5350 MHz, 5470-5725 MHz, and 5725-5825 MHz bands complies with the e.i.r.p. limit in section A9.2 of RSS-210.

When you use a wireless LAN adapter in the 802.11 a/n transmission mode:

- The devices for the band 5150–5250 MHz are only for indoor usage to reduce potential for harmful interference to co-channel Mobile Satellite systems.

- High power radars are allocated as primary users (meaning they have priority) of 5250–5350 MHz and 5650–5850 MHz and these radars could cause interference and/or damage to LELAN (Licence-Exempt Local Area Network) devices.

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## **Exposure of humans to RF fields (RSS-102)**

The computers employ low gain integral antennas that do not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's Web site at <http://www.hc-sc.gc.ca/>

The radiated energy from the antennas connected to the wireless adapters conforms to the Canada Portable RF exposure limit regarding IC RSS-102 Issue 4 clause 4.1 set forth for an uncontrolled environment, and are safe for intended operation in the conventional setting. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

## **Canada - Industrie Canada (IC)**

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### **Numéro de certification IC**

Cette section fournit le numéro de modèle et le numéro de certification de chaque périphérique sans fil. Votre ordinateur ThinkPad contient les périphériques sans fil suivants et le numéro de certification IC du périphérique sans fil est apposé sur l'étiquette sur le dessous de l'ordinateur.

- IC: 1000M-2230BNHU
  - Wireless LAN and Bluetooth Combo Card (2230BNHMMW)
- IC: 2533B-TP00042ABR
  - Wireless LAN and Bluetooth Combo Card (BCM943228HMB)
- IC: 2533B-TP00042AHJ
  - Wireless LAN and Bluetooth Combo Card (2230BNHMMW)
  - Wireless WAN Card (H5321)
- IC: 2533B-TP00042AHB
  - Wireless LAN and Bluetooth Combo Card (BCM943228HMB)
  - Wireless WAN Card (H5321)

## Remarques :

- Les fonctions de réseau local sans fil et Bluetooth sont opérationnelles à des fréquences différentes exclusivement et émettent des fréquences radio simultanément.
- La fonction de réseau local sans fil commercialisée au Canada ne prend pas en charge les canaux étendus (12ch, 13ch) et ne fonctionne donc pas sur de tels canaux.

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## Fonctions sans fil intégrées et préinstallées

Les cartes Wireless LAN and Bluetooth Combo Card et Wireless WAN Card sont préinstallées par Lenovo et ne peuvent pas être retirées par l'utilisateur. Vous ne devez pas les remplacer par une autre fonction sans fil. Si la carte Wireless LAN and Bluetooth Combo Card ou la carte Wireless WAN Card doit être remplacée pendant la période de garantie, l'opération doit être effectuée par un prestataire de services agréé par Lenovo.

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## Appareils de radio-communication basse tension sans licence d'utilisation (CNR-210)

Le fonctionnement de ce type d'appareil est soumis aux deux conditions suivantes :

- Cet appareil ne doit pas perturber les communications radio.
- Cet appareil doit supporter toute perturbation, y compris les perturbations qui pourraient provoquer son dysfonctionnement.

Les appareils émetteurs ont été conçus pour fonctionner avec les antennes intégrées à l'ordinateur et avoir un gain d'antenne maximal de 3 dBi.

Le gain d'antenne maximal pour les périphériques dans les bandes de fréquence 5250-5350 MHz, 5470-5725 MHz, et 5725-5825 MHz est conforme à la limite p.i.r.e énoncée dans la section A9.2 de la CNR-210.

Lorsque vous utilisez la carte pour réseau local sans fil en mode de transmission 802.11 a/n:

- Tout appareil destiné à la bande 5150-5250 MHz devra être exclusivement utilisé en intérieur afin de réduire les risques de perturbations électromagnétiques gênantes sur les systèmes de satellite mobile dans un même canal.
- Les radars à forte puissance sont désignés comme les utilisateurs principaux (c'est-à-dire qu'ils sont prioritaires) des bandes 5250-5350 MHz et 5650-5850 MHz. Ils peuvent provoquer des perturbations électromagnétiques sur les appareils de type LELAN (réseau de communication local sans licence) ou les endommager.

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## **Conformité des appareils de radiocommunication aux limites d'exposition humaine aux radiofréquences (CNR-102)**

L'ordinateur utilise des antennes intégrales à faible gain qui n'émettent pas un champ électromagnétique supérieur aux normes imposées par Santé Canada pour la population. Consultez le Code de sécurité 6 sur le site Internet de Santé Canada à l'adresse suivante : <http://www.hc-sc.gc.ca/>

L'énergie émise par les antennes reliées aux cartes sans fil respecte la limite d'exposition aux radiofréquences émises par les appareils portables au Canada telle que définie par Industrie Canada dans la clause 4.1 du document CNR-102, version 4 pour un environnement non contrôlé et permet d'affecter sans danger le produit à l'usage auquel il est destiné. La réduction de l'exposition aux radiofréquences est possible si le produit peut être conservé aussi loin que possible du corps de l'utilisateur ou en définissant une puissance de sortie plus faible si une telle fonction est disponible.

## **Electronic emissions notices**

The following information refers to ThinkPad S230u (machine type 3347).

## **Federal Communications Commission (FCC) Declaration of Conformity**

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 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 an authorized dealer or service representative for help.

Lenovo is not responsible for any radio or television interference caused by using other than specified or recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the 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.

Responsible Party:  
Lenovo (United States) Incorporated  
1009 Think Place - Building One  
Morrisville, NC 27560  
Phone Number: 919-294-5900



### **Industry Canada Class B emission compliance statement**

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

### **Wireless interoperability**

Wireless LAN PCI Express Mini Card is designed to be interoperable with any wireless LAN product that is based on Direct Sequence Spread Spectrum (DSSS), Complementary Code Keying (CCK), and/or Orthogonal Frequency Division Multiplexing (OFDM) radio technology, and is compliant to:

- The 802.11b/g Standard on Wireless LAN, as defined and approved by the Institute of Electrical and Electronics Engineers.
- The Wireless Fidelity (WiFi) certification as defined by the Wi-Fi Alliance.

Bluetooth device is designed to be interoperable with any Bluetooth product that is compliant to Bluetooth Specification 4.0 as defined by the Bluetooth SIG. Following profiles are supported by Bluetooth device:

- A2DP
- AVRCP
- HFP
- HID
- DUN
- PAN
- HCRP
- SPP
- OPP



- GATT
- Proximity
- Find Me
- Immediate Alert
- Battery Status

## **Usage environment and your health**

Wireless LAN feature and Bluetooth feature emit radio frequency electromagnetic energy like other radio devices. However, the level of energy emitted is far much less than the electromagnetic energy emitted by wireless devices like for example mobile phones.

Due to the fact that wireless LAN feature and Bluetooth feature operate within the guidelines found in radio frequency safety standards and recommendations, Lenovo believes the integrated wireless features are safe for use by consumers. 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 situation or environment, the use of wireless LAN feature or Bluetooth feature may be restricted by the proprietor of the building or responsible representatives of the organization. These situations and areas may for example include:

- Using the integrated wireless features on board of airplanes, in hospitals or near petrol stations, blasting areas (with electro-explosive devices), medical implants or body-worn electronic medical devices, e.g. pace makers.
- In any other environment where the risk of interference to other devices or services is perceived or identified as harmful.

If you are uncertain of the policy that applies on the use of wireless devices in a specific organization (e.g., airport or hospital), you are encouraged to ask for authorization to use wireless LAN feature or Bluetooth feature prior to turning on the computer.

## **Precautions against electrostatic discharges (ESD) in inserting or removing the SIM card**

Do not touch the SIM card connectors. As a precaution, always make sure that your computer is in your hand before you insert or remove the SIM card.

# Trademarks

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ThinkPad

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**First Edition (September 2012)**

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Printed in China

(1P) P/N: 0C10317

