User's Manual
for ThinkPad T40 Series

(Including LCD 15 inch model)

Attached is the user's manual for the specified host device (IBM ThinkPad T40 Series, including LCD 15 inch model).

The descriptions on pages 3 through 10 are related to the FCC Part 15, Subpart E.

Prepared by S. Motoki

ThinkPad® T40 Series Regulatory Notice

ThinkPad® T40 Series Regulatory Notice

First Edition (April 2004)

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Read first — Regulatory information

Regulatory Notice for ThinkPad T40 Series

This notice is a supplementary document of the *ThinkPad® T40 Series Service and Troubleshooting Guide*. Please read this document before you use the ThinkPad T40 Series computer.

The ThinkPad T40 Series computer complies with the radio frequency and safety standards of any country or region in which it has been approved for wireless use. You must install and use your ThinkPad computer in strict accordance with the instructions as described hereafter.

Avis de réglementation pour les ThinkPad T40 Series

Le présent avis est un document qui vient compléter le *Guide de maintenance et d'identification des incidents* ThinkPad T40 Series. Veuillez lire ce document avant d'utiliser l'ordinateur ThinkPad T40 Series.

L'ordinateur ThinkPad T40 Series est conforme aux normes de sécurité et de radiofréquence du pays ou de la région où son utilisation sans fil est agréée. Vous devez installer et utiliser votre ordinateur ThinkPad en respectant scrupuleusement les instructions décrites ci-après.

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USA — Federal Communications Commission (FCC)

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.

User installable wireless modules

- Mini-PCI Cards

  - FCC ID: ANO20020201CLK, Model: WM3B2100 (Intel® PRO/Wireless LAN 2100 3B Mini PCI Adapter)

  - FCC ID: ANO20030400LEG, Model: PH12127-E (IBM® 11a/b/g Wireless LAN Mini PCI Adapter)

  - FCC ID: ANO20040501CX2, Model: WM3B2200BG (Intel PRO/Wireless 2200BG Mini-PCI Adapter from IBM)

  - FCC ID: ANO20030500CMR, Model: T60H786-U (IBM 11b/g Wireless LAN Mini PCI Adapter)

  - FCC ID: ANOU58H004, Model: U58H004 (Cisco Aironet Wireless 802.11b)
- Communication Daughter Card (CDC)

  - FCC ID: ANO20020100MTN, Model: BMDC200 (IBM Integrated *Bluetooth* III with 56K Modem)

WM3B2200BG (Intel PRO/Wireless 2200BG Mini-PCI Adapter from IBM) or T60H786-U (IBM 11b/g Wireless LAN Mini PCI Adapter) marketed in US and Canada does not support nor function in the extended channels (12ch, 13ch).

i) FCC ID of wireless modules

There is no FCC ID for Mini-PCI Cards shown on the enclosure of your ThinkPad computer. Instead you will find an indicator pointing to the location of the FCC ID on the bottom side of your ThinkPad computer as shown in the figure i-1). Also the location of the FCC ID's indicator for CDC is shown in the figure i-2). The FCC IDs are affixed on each approved module installed in the Mini-PCI Card slot or the CDC slot.

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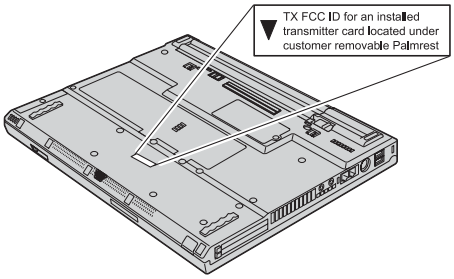
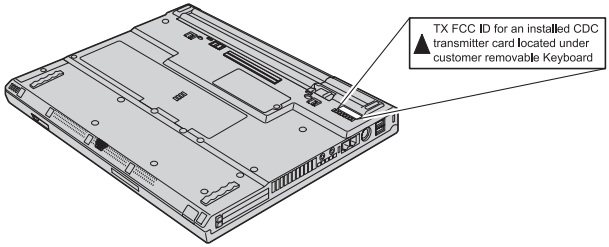
i-1) Mini-PCI Cards:

- FCC ID: ANO20020201CLK, Model: WM3B2100
- FCC ID: ANO20030400LEG, Model: PH12127-E
- FCC ID: ANO20040501CX2, Model: WM3B2200BG
- FCC ID: ANO20030500CMR, Model: T60H786-U
- FCC ID: ANOU58H004, Model: U58H004



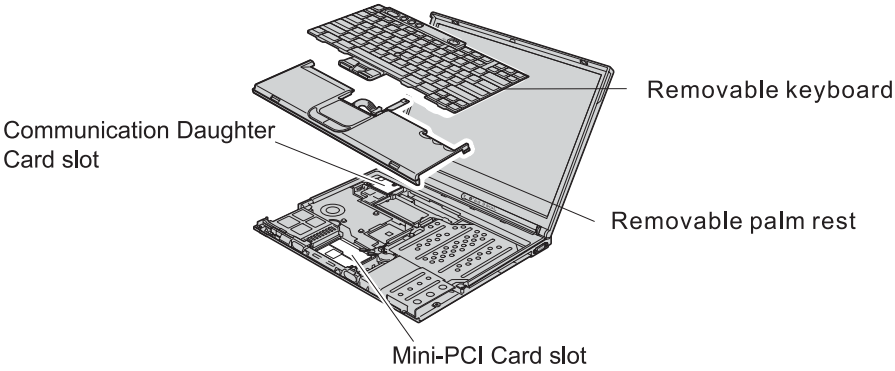
i-2) CDC (FCC ID: ANO20020100MTN, Model: BMDC200)



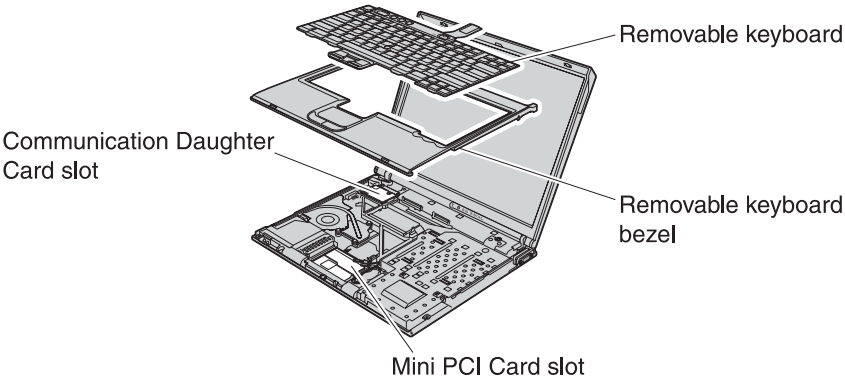
ii) Installation of approved wireless modules

If no integrated wireless LAN Mini-PCI Card or RF CDC module is preinstalled in your ThinkPad computer, you can install one, provided by IBM as an option. Plug the wireless card option into the Mini-PCI Card slot or CDC slot located under the keyboard of your ThinkPad computer as shown below.

ThinkPad T40 Series 14-inch model



ThinkPad T40 Series 15-inch model



Attention: The ThinkPad T40 Series computer contains an authentication mechanism

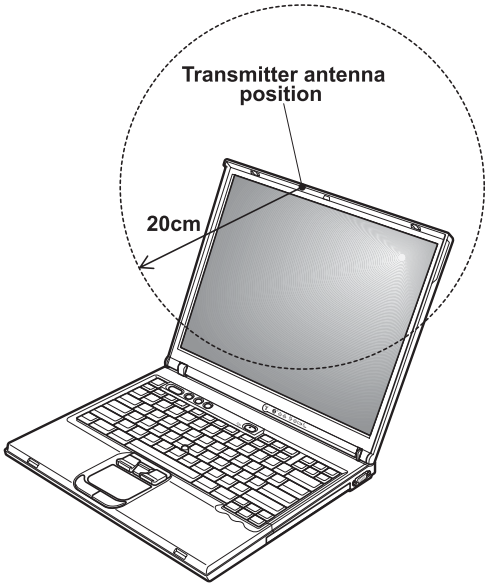
If you install an unauthorized wireless LAN Mini-PCI Card or RF CDC module that is not approved for use in the ThinkPad T40 Series computer, the computer will not start, but only displays an error message and emits beeps.

iii) The FCC RF safety requirement

The radiated output power of the Wireless LAN Mini-PCI Cards or RF CDC module authorized to use for the ThinkPad T40 Series computer is far below the FCC radio frequency exposure limits. Nevertheless, the ThinkPad T40 Series computer shall be used in such a manner that the potential for human contact during normal operation is minimized as follows:

Caution: To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm (8 inches) must be maintained between the antenna for the integrated Wireless LAN Mini-PCI Card built in to the screen section and all persons. You are not allowed to disable "standby mode" for the power management function, if you cannot maintain the sufficient antenna separation (at least 20 cm) in any case the LCD is left opened or closed.

FCC ID: ANO20020201CLK, Model: WM3B2100

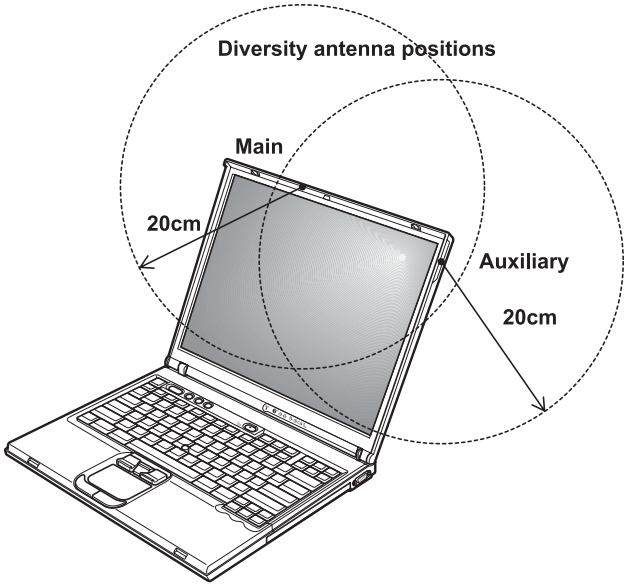


FCC ID: ANO20030400LEG, Model: PH12127-E

FCC ID: ANO20040501CX2, Model: WM3B2200BG

FCC ID: ANO20030500CMR, Model: T60H786-U

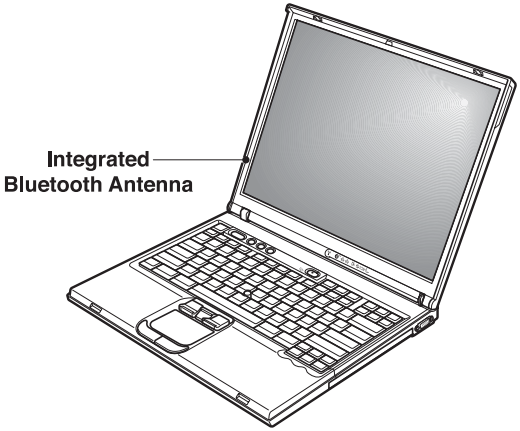
FCC ID: ANOU58H004, Model: U58H004



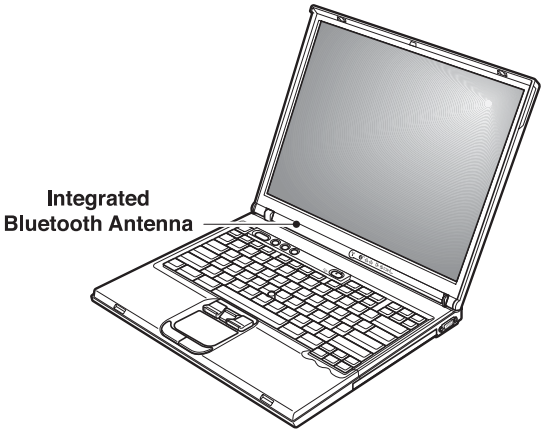
Note: The transmission diversity function is implemented for the four cards listed above (models PH12127-E, WM3B2200BG, T60H786-U, U58H004). The function does not emit radio frequencies simultaneously from both antennas. One of the antennas is selected automatically or manually (by users) to have good quality of radiocommunication.

FCC ID: ANO20020100MTN, Model: BMDC200

ThinkPad T40 Series 14-inch model



ThinkPad T40 Series 15-inch model



Note: The antenna of IBM Integrated *Bluetooth* III with 56K Modem is located on the left side of the computer lid in the ThinkPad T40 Series 14-inch model, or on the bottom of the computer lid in the ThinkPad T40 Series 15-inch model. Transmitted energy from the *Bluetooth* device is very low compared to other RF devices. Therefore a 20 cm separation from the *Bluetooth* antenna is not required.

Use of wireless options

Your ThinkPad computer is approved for use of one of the granted Wireless LAN Mini-PCI Cards together with the granted *Bluetooth* module in the CDC slot and *Bluetooth* PC Card II option in the PC Card slot simultaneously. Please make sure of the following conditions on use of these wireless features.

1. Visit the IBM site at **www.ibm.com/pc/qtechinfo/MIGR-43693.html** and confirm the updated list of RF option devices that have been approved to cooperate with the integrated wireless feature.
2. When you use any other RF option device that is not listed on the IBM site, all other wireless features including the integrated transmitter in your ThinkPad computer are required to be turned off.
3. Users must follow the RF Safety instructions on wireless option devices that are included in the RF option device's user's manual.

iv) Radio Frequency interference requirements

An improper installation or unauthorized use may cause harmful interference to radio communications. Also any tampering of the internal antenna will void the FCC certification and your warranty. Refer to the "Appendix C. Notices, Electronic emission notices" of the *ThinkPad T40 Series Service and Troubleshooting Guide* for more detail.

When you use the model PH12127-E (IBM 11a/b/g Wireless LAN Mini PCI Adapter):

- 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 the frequency range 5.15 to 5.25 GHz to reduce the potential for harmful interference to co-channel Mobile Satellite systems.
- High power radar 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.

Canada — Industry Canada (IC)

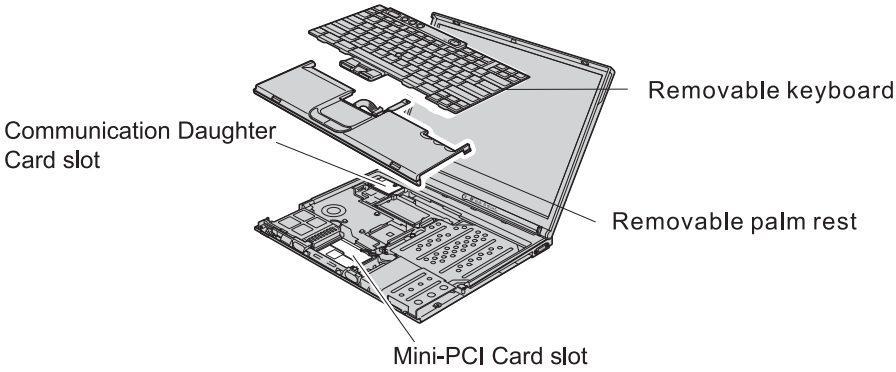
Certification number

The certification number of Industry Canada for each approved Mini-PCI wireless card or RF Communication Daughter Card (CDC) is affixed on each module installed in the Mini-PCI Card slot or the CDC slot as shown below.

The applied wireless cards are:

- IC: 349E-WM3B2100, Model: WM3B2100 (Intel PRO/Wireless LAN 2100 3B Mini PCI Adapter)
- IC: 349E-PH12127E, Model: PH12127-E (IBM 11a/b/g Wireless LAN Mini PCI Adapter)
- IC: 349E-WM3B22BG, Model: WM3B2200BG (Intel PRO/Wireless 2200BG Mini-PCI Adapter from IBM)
- IC: 349E-T60H786U, Model: T60H786-U (IBM 11b/g Wireless LAN Mini PCI Adapter)
- IC: 349E-U58H004, Model: U58H004 (Cisco Aironet Wireless 802.11b)
- IC: 349E-BMDC200, Model: BMDC200 (IBM Integrated *Bluetooth* III with 56K Modem)

ThinkPad T40 Series 14-inch model



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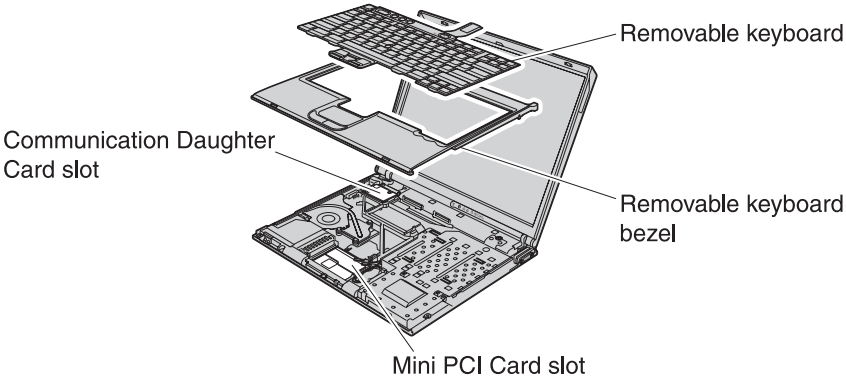
ThinkPad T40 Series 15-inch model



WM3B2200BG (Intel PRO/Wireless 2200BG Mini-PCI Adapter from IBM) or T60H786-U (IBM 11b/g Wireless LAN Mini PCI Adapter) marketed in US and Canada does not support nor function in the extended channels (12ch, 13ch).

Attention: The ThinkPad T40 Series computer contains an authentication mechanism

You can install or remove each wireless feature by yourself. If you install an unauthorized wireless adapter that is not approved for use in the ThinkPad T40 Series computer, the computer will not start, but only displays an error message and emits beeps.

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

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.

When you use the model PH12127-E (IBM 11a/b/g Wireless LAN Mini PCI Adapter):

- The device for the band 5150–5250 MHz is 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.

Exposure of humans to RF fields (RSS-102)

ThinkPad T40 Series 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 www.hc-sc.gc.ca/rpb

Numéro d'homologation

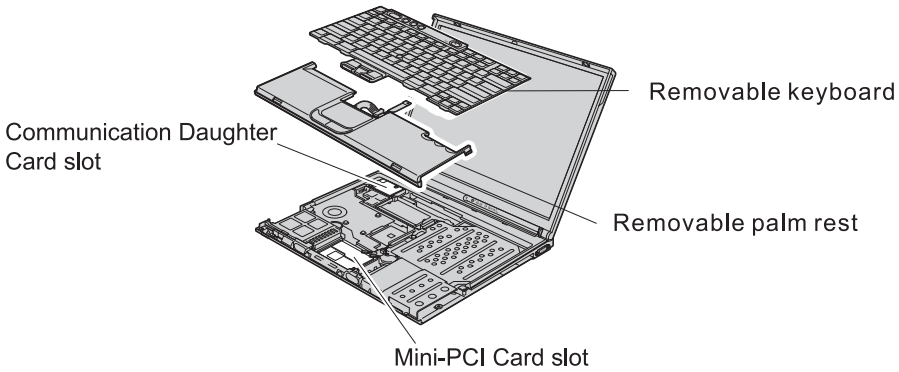
Le numéro d'homologation d'Industrie Canada pour chaque carte Mini-PCI sans fil homologuée ou carte RF CDC (Communication Daughter Card) est indiqué sur chaque module installé dans l'emplacement Mini-PCI Card ou CDC comme illustré ci-dessous.

Les cartes sans fil applicables sont les suivantes:

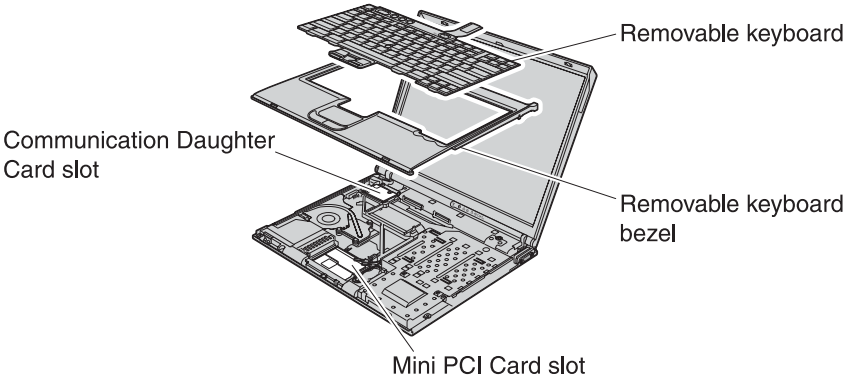
- IC: 349E-PH12127E, Model: 349E-PH12127E (IBM 11a/b/g Wireless LAN Mini PCI Adapter)
- IC: 349E-WM3B2100, Model: WM3B2100 (Intel PRO/Wireless LAN 2100 3B Mini PCI Adapter)
- IC: 349E-WM3B22BG, Model: WM3B2200BG (Intel PRO/Wireless 2200BG Mini-PCI Adapter from IBM)
- IC: 349E-T60H786U, Model: T60H786-U (IBM 11b/g Wireless LAN Mini PCI Adapter)
- IC: 349E-U58H004, Model: U58H004 (Cisco Aironet Wireless 802.11b)
- IC: 349E-BMDC200, Model: BMDC200 (IBM Integrated *Bluetooth* III with 56K Modem)

La carte WM3B2200BG (Intel PRO/Wireless 2200BG Mini-PCI Adapter from IBM) ou la carte T60H786-U (IBM 11b/g Wireless LAN Mini PCI Adapter) commercialisée aux Etats-Unis et au Canada ne prend pas en charge/ne fonctionne pas sur les réseaux étendus (12 et 13 canaux).

ThinkPad T40 Series 14-inch model



ThinkPad T40 Series 15-inch model



Attention: L'ordinateur ThinkPad T40 Series contient un mécanisme d'authentification

Vous pouvez installer ou désinstaller tout dispositif sans fil. Si vous installez une carte sans fil qui n'est pas homologuée pour l'ordinateur ThinkPad T40 Series, l'ordinateur ne démarrera pas; un message d'erreur sera affiché et des bips sonores seront émis.

Remarque relative aux appareils de communication radio de faible puissance sans licence (RSS-210)

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

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

Lorsque vous utilisez le modèle PH12127-E (carte IBM 11a/b/g Wireless LAN Mini PCI Adapter) :

- 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.

Exposition des êtres humains aux champs radioélectriques (RF) (RSS-102)

Le ThinkPad T40 Series utilise des antennes intégrales à faible gain qui n'émettent pas un champ électromagnétique supérieur aux normes imposées par le Ministére de la santé canadien pour la population. Consultez le Safety Code 6 sur le site Web du Ministére de la santé canadien à l'adresse "www.hc-sc.gc.ca/rpb".

Telecommunication notices

Federal Communications Commission (FCC) and Telephone Company Requirements (Part 68 of the FCC Rules)

1. The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent, and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual.

   In order to program this information into your computer, you should be sure to follow the installation instructions for your fax software package.
2. This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.
3. The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. The REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3).
4. If the built-in modem causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But, if advance notice isn't practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC.
5. Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of your equipment. If they do, you will be given advance notice so as to give you an opportunity to maintain uninterrupted service.
6. If you experience trouble with this built-in modem, contact your IBM Authorized Seller, or the IBM Corporation, 500 Columbus Avenue, Thornwood, NY 10594, 1-800-772-2227, for repair/warranty information. The telephone company may ask you to disconnect this equipment from

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the network until the problem has been corrected, or until you are sure the equipment is not malfunctioning.

7. No customer repairs are possible to the modem. If you experience trouble with this equipment, contact your Authorized Seller or the IBM Corporation for information.
8. The modem may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs. Contact your state public utility commission or corporation commission for information.
9. When ordering network interface (NI) service from the Local Exchange Carrier, specify service arrangement USOC RJ11C.
10. A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.
11. If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this Data/Fax Modem does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.
12. The software contained in this Data/Fax Modem to allow user access to the network must be upgraded to recognize newly established network area codes and exchange codes as they are placed into service.

Industry Canada requirements

Notice
This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of communication. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs of alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution
Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The Ringer Equivalence Number (REN) for this terminal equipment is 0.0. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.

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Avis
Le présent matériel est conforme aux spécifications techniques d'Industrie Canada applicables au matériel terminal. Cette conformité est confirmée par le numéro d'enregistrement. Le sigle IC, placé devant le numéro d'enregistrement, signifie que l'enregistrement s'est effectué conformément à une déclaration de conformité et indique que les spécifications techniques d'Industrie Canada ont été respectées. Il n'implique pas qu'Industrie Canada a approuvé le matériel.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. Dans certains cas, les fils intérieurs de l'entreprise utilisés pour un service individuel à ligne unique peuvent être prolongés au moyen d'un dispositif homologué de raccordement (cordon prolongateur téléphonique interne). L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empechent pas la dégradation du service dans certaines situations. Actuellement, les entreprises de télécommunication ne permettent pas que l'on raccorde leur matériel à des jacks d'abonné, sauf dans les cas précis prévus par les tarifs paticuliers de ces entreprises.

Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement
L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques, ou à électricien, selon le cas.

L'indice d'équivalence de la sonnerie (IES) du présent matériel est de 0.0. L'IES assigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5.

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ThinkPad

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