User's Manual

The attachment is the part of the user's manual of the specific host device (Lenovo ThinkPad X60 Tablet Series) that indicates the regulatory notice concerning the FCC Part 2/22/24 for the applying WWAN modular transmitter, Model: MC8755.

Also the following electronic manual referred in the notice is also attached.

- Antenna location of each wireless features
- Operation/Installation instruction of wireless features

ThinkPad® Regulatory Notice

Read first — regulatory information

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

ThinkPad 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 computer in strict accordance with the instructions as described hereafter.

USA — Federal Communications Commission (FCC)

i) FCC ID of the wireless module

The Wireless WAN Adapter (Model: MC8755) was certified under the FCC ID: N7NMC8755, but there is no FCC ID for the card 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. The FCC ID is affixed on the approved module installed in the Mini PCI Express Card slot.

ii) Installation of the approved wireless module

If no integrated wireless WAN Mini PCI Express Card has been preinstalled in your ThinkPad computer, you can install one, provided by Lenovo as an option. Plug the wireless card option into the Mini PCI Express Card slot. For the location of the slot, see the About your computer section in Access Help, your online manual.

Attention: The ThinkPad computers contain an authentication mechanism If you install an unauthorized wireless WAN Mini PCI Express Card that is not approved for use in your computer, the computer will not start, but only displays an error message and emits beeps.

iii) RF safety compliance

The total radiated energy from all the antennas connected to the Wireless WAN adapter (Model: MC8755), the Wireless LAN Mini PCI Express adapter (Model: AR5BXB6 or AR5BXB72), and the Bluetooth module (Model: J07H081) conforms to the FCC limit of the SAR (Specific Absorption Rate) requirement regarding 47 CFR Part 2 section 1093.

For the location of the antenna, see the About your computer section in Access Help, your online manual.

iv) Emergency Calls
The Wireless WAN adapters embedded in the ThinkPad computer do not support voice calls, hence their use for essential communication is not possible, including emergency calls regarding the E911 rule.

v) Simultaneous use of RF transmitters
If your ThinkPad computer contains the Model: WM3945ABG (Intel PRO/Wireless 3945ABG Network Connection), you are required to disable it when you are traveling in the USA, because this WLAN radio carries EU specification and is not authorized by the FCC for use in the USA.

If your ThinkPad computer contains the Wireless LAN Mini PCI Express adapter (Model: AR5BXB6 (FCC ID: PPD-AR5BXB6) or AR5BXB72 ((FCC ID: PPD-AR5BXB72-L)) or the Bluetooth module (FCC ID: MCLJ07H081), the Wireless WAN module Model: N7NMC8755 is approved for simultaneous use with these two radio devices.

Please make sure of the following conditions on use of these wireless features:
1. When you use any other RF option device, all other wireless features including the above integrated devices in your ThinkPad computer are required to be turned off.
2. Users must follow the RF Safety instructions on wireless option devices that are included in the RF option device's user's manual.

Electronic emission notices
Federal Communications Commission (FCC) Statement
- Model: AR5BXB6
- Model: AR5BXB72
- Model: MC8755

Note: The compliances of the FCC Part 15 Subpart B for Bluetooth device (Model: J07H081) were proceeded by certification under the FCC ID: MCLJ07H081, thus the FCC ID: MCLJ07H081 includes both compliances for Part 15 Subpart B and C/E.

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:
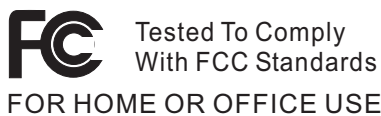
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized dealer or service representative for help.

Lenovo is not responsible for any radio or television interference caused by 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) Inc.
    One Manhattanville Road
    Purchase, New York 10577
    Telephone: (919) 254-0532

FCC Tested To Comply With FCC Standards
FOR HOME OR OFFICE USE

Trademarks

The following terms are trademarks of Lenovo in the United States, other countries, or both:
    Lenovo
    ThinkPad

Other company, product, and service names may be trademarks or service marks of others.

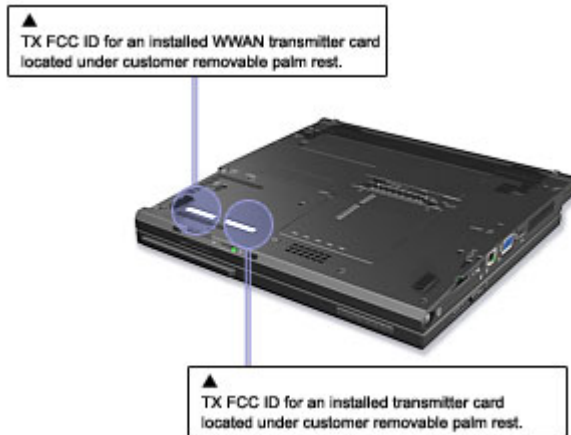# Extracts from electronic manual indicated on the LCD screen

WWAN antenna location

17. UltraConnect(TM) wireless WAN antenna

Some ThinkPad(R) models feature an integrated diversity antenna system built into the display for optimal reception, enabling wireless communication wherever you are.

If your computer has the wireless WAN feature, the antenna is on the top right side of the computer display.

Location of the FCC ID label

There is no FCC ID for the PCI Express Mini Card (wireless module) shown on the enclosure of your ThinkPad computer. Instead you will find an indicator pointing to the location of the FCC ID for the installed transmitter card on the bottom side of your ThinkPad as shown below. The FCC ID label is affixed on the card installed in the Mini PCI Express Card slot of your ThinkPad computer.

TX FCC ID for an installed WWAN transmitter card located under customer removable palm rest.

TX FCC ID for an installed transmitter card located under customer removable palm rest.

If no integrated wireless PCI Express Mini Card has been preinstalled in your ThinkPad computer, you can install one. To do this, follow the procedure in Installing and replacing the PCI Express Mini Card for wireless LAN connection or Replacing the PCI Express Mini Card for wireless WAN connection.

Power-status indicators

The computer has status indicators that show the mode (standby, hibernation, or normal), AC power status, and the status of the battery. The following shows the location and the meaning of the indicators:

1. Standby status
- **Green:** The computer is in standby mode.
- **Blinking green:** The computer is entering standby or hibernation mode, or is resuming normal operation.

2. AC power status
- **Green:** The ac adapter is connected and the computer is operating on ac power. If a battery is installed in the computer, it is charged when this indicator is green.
- **Off:** The computer is operating on battery power.

3. Battery status
- **Green:** The battery has more than 20% charge.
- **Orange:** The battery has between 5% and 20% charge.
- **Fast blinking orange:** The battery has less than 5% charge.

  ✳ **Note:** The battery may be charging.

- **Slow blinking orange:** The battery is being charged. When it reaches 20%, the blinking color changes to green.
- **Slow blinking green:** The battery has between 20% and 80% charge, and charging is continuing. When the battery reaches 80% charge, blinking stops, but the charging may continue until the battery is 100% charged.

  ✳ **Note:** If the computer is operating on battery power, the Battery status indicator does not work while the computer is turned off or it is in standby mode or hibernation mode.

If your computer is shipped with a wireless feature and a *Bluetooth* feature, you can use the following indicators:

4. Wireless WAN status
- **Green:** The wireless WAN feature is on, and the radio link is ready for use.
- **Blinking green:** Data is being transmitted.

5. *Bluetooth* status
- **Green:** The *Bluetooth* feature is on, and the radio link is ready for use.
- **Blinking green:** Data is being transmitted.

6. Wireless LAN status
- **Green:** The wireless feature (the IEEE 802.11 standard) is on, and the radio link is ready for use.
- **Blinking green:** Data is being transmitted.

Before you start, print these instructions.

Some ThinkPad(R) models have a PCI Express Mini Card slot for wireless WAN connection. To replace the PCI Express Mini Card with a new one, follow the procedure below.

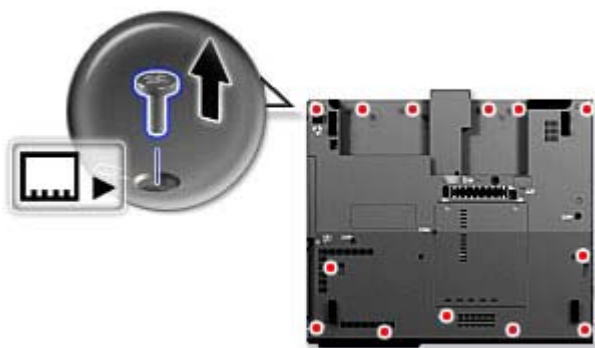To find the position of the PCI Express Mini Card for wireless WAN connection in your computer, click here .

⚠️ **Danger:** During electrical storms, do not connect the cable to or disconnect it from the telephone outlet on the wall.

⚠️ **Danger:** Electric current from power, telephone, and communication cables is hazardous. To avoid shock hazard, disconnect the cables before opening the cover of this slot.

◉ **Attention:** Before you start installing a PCI Express Mini Card, touch a metal table or a grounded metal object. This action reduces any static electricity from your body. The static electricity could damage the card.

To replace the PCI Express Mini Card, do as follows:

1. Turn off the computer; then disconnect the ac adapter and all cables from the computer. Wait for a few minutes, till the inside of the computer cools, before you start the following procedures.
2. Close the computer display, and turn the computer over.
3. Remove the battery.
4. Remove the Tablet Digitizer Pen.
5. Remove the keyboard.
6. Close the computer display, and turn the computer over.
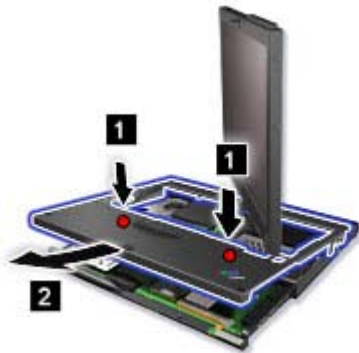7. Remove the screws that secure the upper case.

8. Open the display to about 90 degrees; then rotate the display clockwise 45 degrees as shown in the drawing.
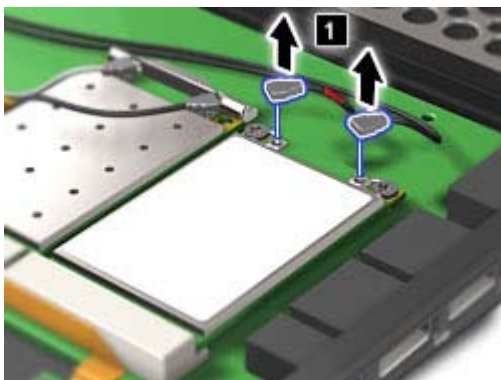
9. Push the upper edge of the palm rest downward slightly **(1)**, while lifting up the lower edge of the palm rest and pulling the upper case towards you **(2)** to remove it from the lower case.

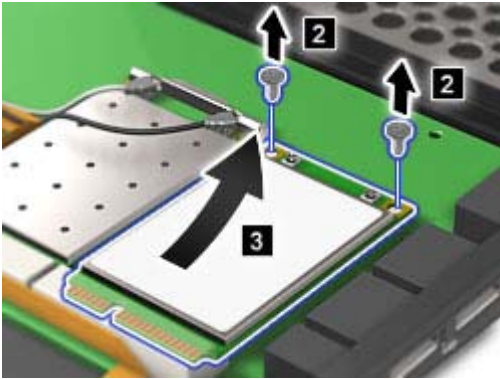   ✱ **Note:** Pull up slightly to release the edges on the right side of the palm rest.

10. If a tool for removing connectors is included in the package with the new card, use it to disconnect the cables from the card **(1)**. If no such tool is included, disconnect the cables from the card **(1)** by picking up the connectors with your fingers and gently unplugging them. Then peel off the antenna **(2)**.

    ✱ **Note:** Depending on the system configuration of your computer, the card may have only one connector.

11. Remove the screws **(3)**. The card pops up **(4)**. Remove the card **(3)**.

12. Align the contact edge of the new Wireless WAN Card with the corresponding socket contact of the computer.

13. Pivot the card until you can snap it into place by pressing the upper side of the connectors; then secure the card with the two screws. Reattach the antenna, and connect the cables to the new card.

   ✴ **Note:** Depending on the system configuration of your computer, the card may have only one connector.

14. Replace the upper case and push down on the front and sides of the upper case.

15. Rotate the display counterclockwise 45 degrees and close it. Turn the machine over and tighten the screws you have removed in step 7.

16. Store the Tablet Digitizer Pen back in its slot.

17. Reinstall the keyboard.

18. Reinstall the battery.

19. Turn the computer over again. Connect the ac adapter and cables to the computer; then turn it on.

Wireless connections

You can connect to the Internet without connecting a wire to your computer by setting up a wireless access point or residential gateway. A wireless access point does not connect you to the Internet directly. Instead, it connects to a wired connection such as a cable modem, a DSL modem, or a phone line.

Certain types of wireless connections, such as wireless LAN (the IEEE 802.11 standard), are being used to connect to an access point.

To connect to an access point, you will need several pieces of information. You will need to know the network name (obtain this from your administrator), and your MAC address (which should have come with your computer or wireless networking card). You may also need to set up encryption. Contact your administrator for your network name and encryption settings. You may need to register your MAC address with your network administrator before connecting to your company network. A residential gateway is the consumer version of an access point. Consult your residential gateway instructions for setup.

Be careful to disable the wireless function when you are not using it because it uses power even when you are not connected to the network. Some models have an integrated Wireless LAN antenna and hardware. If your computer did not come with integrated wireless, you can purchase a PC Card as an option. Wireless LAN gives you a high-speed connection to an access point.

If your computer comes with the built-in wireless LAN card, refer to Making wireless LAN connections for more information.

If your computer has the Integrated *Bluetooth* features and/or comes with the built-in wireless WAN card, refer to Using *Bluetooth* and Using wireless WAN connections for more information.

Making wireless LAN connections

You can stay connected to your network while you are in the office, in a meeting room, or at home, with no need for a wired connection. Some ThinkPad(R) models come with a built-in wireless networking card and a configuration utility to help you make wireless connections and monitor the status of your connection.

⊙ **Attention:** If you carry your ThinkPad computer with the wireless LAN feature into an airplane, you need to disable it before boarding. To disable it, refer to the instructions in Enabling or disabling the wireless feature.

Wireless networking setup
Wireless security features
Checking wireless connection status
Enabling or disabling the wireless feature
Wireless upgradeable ThinkPad models

✳ **Note:** Some models come with a wireless networking card and a wireless LAN configuration utility built-in. If your computer does not come with these features, you can purchase the wireless networking card as an option. For more information, refer to Finding ThinkPad options.

✳ **Note:** If you use the wireless LAN feature, place your computer so that there are as few obstacles as possible between the wireless LAN access point and the computer. Also for the best connection of the wireless LAN feature, open your computer display to an angle of slightly more than 90 degrees.

✳ **Note:** If you use the computer in tablet mode, do not cover the UltraConnect(TM) wireless antennas built into the display.

Wireless networking setup

To use the built-in wireless networking card (the IEEE 802.11 standard) to communicate, click this button to start Access Connections, and follow the instructions on the screen.

❇ **Note:** Before you start setting up wireless networking connections by using Access Connections, obtain a Network Name (SSID) and your encryption information from your network administrator.

Access Connections, a connectivity assistant program, can easily enable one network adapter and disable the other adapters on demand. After setting up your wireless networking connection, you can use the program to quickly switch the network settings.

Wireless security features

Advances in wireless technology require that we manage your security more reliably than ever. Therefore, Lenovo has extended its Embedded Security Subsystem to encompass virtually all of our ThinkPad(R) and desktop computer lines. This security subsystem helps protect data, hardware, network access and communications - both wired and wireless - on select ThinkPad and desktop PCs.

The Embedded Security Subsystem provides hardware-based protection of critical security information, including passwords, encryption keys, and electronic credentials. It also helps identify computer users involved in transactions, and helps establish that data transmissions are authentic, confidential and intact.

Security and Privacy Services for wireless risk assessment and wireless solution design can help you assess the risks based on your business needs, identify your information risk position, and integrate security strategies, policies, and architectures to help you achieve your wireless e-business objectives. To effectively manage risk on an ongoing basis, organizations must have a sound security strategy. By understanding threats and vulnerabilities at an early stage, we can help define the necessary scope and features of your wireless e-business security infrastructure.

For more information on wireless security offerings, click the following link:

http://www.pc.ibm.com/us/think/thinkvantagetech/security.html

Checking wireless connection status

You can check the signal strength and status of your wireless connection either by opening Access Connections, or by double-clicking the **Access Connections** wireless status icon in the system tray.

The Access Connections wireless status icon displays the signal strength and status of your wireless connection as follows:

No link or a very poor one

Usable but weak link

Strong link

Wireless radio is disabled

Note: If you have trouble in making a connection, try moving your computer closer to your wireless access point.

Enabling or disabling the wireless feature

To enable or disable the wireless feature, press Fn+F5. A list of wireless features appears in the Wireless Radio Control window. You can turn the feature on and off with a single click.

You can also enable or disable the feature by the following procedures.

To enable the wireless feature, do as follows:

1. Click the Wireless Icon in the system tray.

2. Click **Power On Wireless Radio**.

To disable the wireless feature, do as follows:

1. Click the Wireless Icon in the system tray.

2. Click **Power Off Wireless Radio**.

✳ **Note:** To enable the wireless radio, do as follows:

1. Select **Enabled** for the Internal Wireless Device in the <u>BIOS Setup Utility</u>.
2. Select the On position of the wireless radio switch on the computer.
3. Click the Wireless Icon in the system tray and select **Power On Wireless Radio**. Or press Fn+F5 to open the Wireless Radio Control window, and then turn the feature on.

✳ **Note:** You can use the wireless radio switch to disable the wireless radio of all the wireless devices on your computer.

✳ **Note:** You can also use the <u>Tablet Shortcut Menu</u> to enable or disable the wireless feature if you are using your computer in tablet mode.

Enabling or disabling the wireless feature

To enable or disable the wireless feature, press Fn+F5. A list of wireless features appears in the Wireless Radio Control window. You can turn the feature on and off with a single click.

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Note: You can use the wireless radio switch to disable the wireless radio of all the wireless devices on your computer.

Note: You can also use the Tablet Shortcut Menu to enable or disable the wireless feature if you are using your computer in tablet mode.

8 Wireless upgradeable ThinkPad models

Depending on the model, your ThinkPad(R) computer might be wireless upgradeable. This means that your computer has an antenna that can support wireless LAN access when wireless LAN access points are available. Wireless devices are available from Lenovo: Finding ThinkPad options.

Using the tablet mode

In the tablet mode, you can use your ThinkPad(R) computer in a creative and intuitive way by jotting down notes and illustrations with the Tablet Digitizer Pen and then storing them digitally.

To use your ThinkPad(R) computer in the tablet mode, do as follows:

1. Unlock the display latch **(1)** and open the computer display **(2)** slowly, holding the upper left and right sides of the display with both hands. Your computer is now in the **notebook mode**.

2. Open the display by at least 45 degrees, preferably by 90 degrees. Grasp the center of one side of the computer display with one hand while holding the keyboard bezel with the other hand; then rotate the display slowly clockwise until the back of the display is facing the keyboard. Your computer is now in the **picture frame mode**.

   ✱ Note: While rotating the display, do not press the upper edge of either side of the display.

   ✱ Note: In the notebook mode, you can rotate the computer display only clockwise. In the tablet mode, you can rotate it only counterclockwise. Do not force it to rotate in the wrong direction.
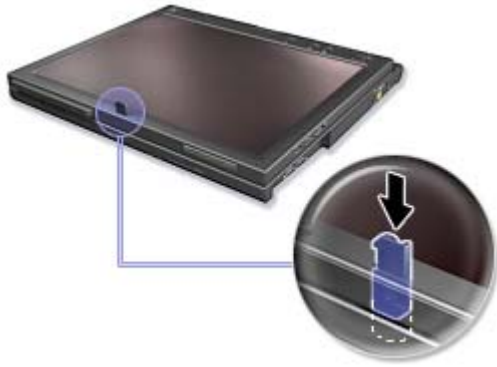
3. Close the computer display slowly, holding the upper left and right sides with both hands.

   ✱ Note: Make sure that the display is rotated at 180 degrees, so that the back of the display faces the keyboard.

4. Press the center latch down to lock the display.

Note: Do not rotate, twist, or bend the center latch of the display.

Your computer is now in the **tablet mode**.

To return your ThinkPad computer to the notebook mode, do as follows:

Unlatch the display latch and open the display by at least 45 degrees, preferably by 90 degrees. Then rotate the display slowly counter-clockwise until the front of the display is facing the keyboard.

Your computer is now in the **notebook mode**.

Tips on using your computer in the tablet mode

- To close the computer display, first make sure that the display either faces the keyboard or is positioned at 180 degrees to the keyboard, so that the back of the display faces the keyboard.
- Do not pick up or hold the computer by the display only.
- Do not hit, vibrate, or bump the computer display.
- To allow free ventilation, do not place any obstacle, such as a thick-piled carpet or a soft cushion, in front of the fan.
- When you use the computer in the picture frame mode, hold the display with one hand and use the Tablet Digitizer Pen.
- If you hold the computer with one hand while using it in the tablet mode, do not expose it to excessive vibration, shock, or rotation.
- Do not use the computer outdoors. Do not expose it to rain.
- If you put your computer in a carrying case, put it into notebook mode and close the display.

Using the Tablet Digitizer Pen and the touch panel feature

The Tablet Digitizer Pen and its accessories are shipped in a separate box within the ThinkPad(R) shipping box. You can use the pen to control your computer just as you would with a mouse or keyboard.

✳ **Note:** This pen is not waterproof. Take care not to soak it or dip it in water.

You can store the pen in the slot on the left side of the ThinkPad computer. Press it gently into the slot until you hear a click.

To remove the pen from its slot, press it gently into the slot **(1)** to release it; then pull it out **(2)**.

✳ **Note:** The pen contains pressure sensors. Do not push the tip of the pen for an extended period of time. Do not subject the pen to shock or vibration.

The Tablet Digitizer Pen consists of a tip **(2)**, a click button **(3)**, and an eraser tip **(4)**. Hold the pen and point the tip at the display to move the cursor **(1)**.

To make a selection (single click), tap the display once with the pen. To double-click, tap twice without pausing. To do a right-click, tap the display once and then hold the tip of the pen on the display; the right-click icon appears.

Pressing the click button **(3)** is the same as a right-click. The eraser tip **(4)** functions like an eraser in applications that support this function.

✳ **Note:** You can enable or disable the pen buttons in the Tablet and Pen Settings panel of the Tablet Shortcut Menu.

✳ **Note:** The Digitizer Pen shipped with the ThinkPad X60 Tablet computer is for use with that computer only. Do not insert it into the pen slot of the ThinkPad X41 Tablet computer.

✳ **Note:** The Digitizer Pen shipped with the ThinkPad X41 Tablet computer is for use with that computer only. Do not insert it into the pen slot of the ThinkPad X60 Tablet computer.

Besides functioning as a basic selection tool, the Tablet Digitizer Pen also enables you to write text or draw on the screen, as you would with a pen on paper. Different methods of input can be chosen from the Tablet PC Input Panel on the Windows taskbar.

To configure the Tablet Digitizer Pen settings, use the Tablet and Pen Settings panel of the Tablet Shortcut Menu.

Replacing the Tablet Digitizer Pen tip

The tip of the Tablet Digitizer Pen may wear out. Replacement tips and a tip removal tool are included in the pen box shipped with your computer.

✱ **Note:** Your computer is shipped with five replacement tips for the Digitizer Pen. Be sure to store the pen tips in a secure place for future use. The pen tips will not be covered under the warranty for the digitizer pen or the computer.

To replace a pen tip, do as follows:

1. Grip the pen tip with the tip removal tool, and pull it out.

2. Insert a replacement pen tip fully into the Tablet Digitizer Pen.

Using the touch panel

Some modes have the touch panel feature. The touch panel feature makes the interaction with your ThinkPad computer even more natural, because you can use your finger instead of a pen for navigation on the go.

To make a selection (single click), tap the display once with your finger. To double-click, tap twice without pausing. To do a right-click, tap the display once and then hold your finger on the display until the right-click icon appears.

Tips on using the touch panel

- The touch panel is a glass panel covered with a plastic film. For input you can use either your finger of the Tablet Digitizer Pen shipped with your computer. Do not use any pen other than the specified one, or any metallic object, because to do so might damage the touch panel or cause it to malfunction.
- If you put your computer in a carrying case, put it into notebook mode and close the display. Do not carry your computer in tablet mode.
- If you use both your finger and the Tablet Digitizer Pen simultaneously for input to the screen, only data entered by use of the Digitizer Pen will be processed.
- If you use your finger to input to the touch panel, touch only one point at a time. If you touch several points simulatneously, the input will not be processed correctly.
- With the touch panel, gradually a discrepancy may start to appear between the point you touched with your finger during the finger point, and its actual position on the screen. To avoid this, regularly correct the accuracy of the finger input by use of the touch panel Settings Utility.

Cleaning the touch panel display

1. To remove fingerprints, etc., from the touch panel display, use a dry, soft, lint-free cloth. (A piece of absorbent cotton will also serve the purpose.) Do not apply solvents to the cloth.
2. Gently wipe foreign particles and dust from the touch panel with one side of the cloth.
3. Wipe smudges or fingerprints with the other side of the cloth, or with a clean cloth.
4. After using the cloth, wash it with a neutral detergent.