

# Safety and General Information Guide



# Lenovo

## Safety and General Information Guide

## Note

- Before using the product, be sure to read “Chapter 1. Important safety information” first.

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# Chapter 1. Important safety information

This information can help you safely use your notebook personal computer. Follow and retain all information included with your computer. The information in this document does not alter the terms of your purchase agreement or the Lenovo Limited Warranty.

Customer safety is important. Our products are developed to be safe and effective. However, personal computers are electronic devices. Power cords, power adapters, and other features can create potential safety risks that can result in physical injury or property damage, especially if misused. To reduce these risks, follow the instructions in this document carefully. By carefully following the information contained in this document and provided with your product, you can help protect yourself from hazards and create a safer computer work environment.

## ■ ■ Conditions that require immediate action

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Products can become damaged due to misuse or neglect. Some product damage is serious enough that the product should not be used again until it has been inspected and, if necessary, repaired by an authorized servicer.

As with any electronic device, pay close attention to the product when it is turned on. On very rare occasions, you might notice an odor or see a puff of smoke or sparks vent from your product. Or you might hear sounds like popping, cracking or hissing. These conditions might merely mean that an internal electronic component has failed in a safe and controlled manner. Or, they might indicate a potential safety issue. However, do not take risks or attempt to diagnose the situation yourself. Contact the customer support center for further guidance. For a list of service and support phone numbers, go to <http://support.lenovo.com>.

Frequently inspect your computer and its components for damages or signs of danger. If you have any question about the condition of a component, do not use the product. Contact the customer support center or the product manufacturer for instructions on how to inspect the product and have it repaired, if necessary.

In the unlikely event that you notice any of the following conditions, or if you have any safety concerns with your product, stop using the product and unplug it from the power source and telecommunication lines until you can speak to the customer support center for further guidance.

## Chapter 1. Important safety information

- Power cords, plugs, power adapters, extension cords, surge protectors, or power supplies that are cracked, broken, or damaged
- Signs of overheating, smoke, sparks, or fire
- Damage to a battery (such as cracks, dents, or creases), discharge from a battery, or a buildup of foreign substances on the battery
- A cracking, hissing or popping sound, or strong odor that comes from the product
- Signs that liquid has been spilled or an object has fallen on to the computer product, the power cord or power adapter
- The computer product, power cord, or power adapter has been exposed to water
- The product has been dropped or damaged in any way
- The product does not operate normally when you follow the operating instructions

Note: If you notice these conditions with a product (such as an extension cord) that is not manufactured for or by Lenovo, stop using that product until you can contact the product manufacturer for further instructions, or until you get a suitable replacement.

### ■ Safety guidelines

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Always observe the following precautions to reduce the risk of injury and property damage.

### ■ Service and upgrades

Do not attempt to service a product yourself unless instructed to do so by the customer support center or your documentation.

**Note:** Some computer parts can be upgraded or replaced by the customer.

Replacement parts approved for customer installation are referred to as Customer Replaceable Units, or CRUs. Lenovo provides documentation with instructions when it is appropriate for customers to install options or replace CRUs. You must closely follow all instructions when installing or replacing parts. The Off state of a power indicator does not necessarily mean that voltage levels inside a product are zero. Before you remove the covers from a product equipped with an AC power cord, always make sure that the power is turned off and that the product is unplugged from any power source.

Before replacing any CRUs, turn off the computer and wait three to five minutes to let the computer cool before opening the cover.

### ■ Power cords and power adapters

Use only the power cords and power adapters supplied by the product manufacturer. The power cord and power adapter are intended for use with this product only. They should never be used with any other product.

The power cords shall be safety approved. For Germany, it shall be H05VV-F, 3G, 0.75 mm<sup>2</sup>, or better. For other countries, the suitable types shall be used accordingly.

Never wrap a power cord around a power adapter or other object. Doing so can stress the cord in ways that can cause the cord to fray, crack, or crimp. This can present a safety hazard.

Always route power cords or any other cables so that they will not be walked on, tripped over, or pinched by objects.



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Protect power cords and power adapters from liquids. For instance, do not leave your power cord or power adapter near sinks, tubs, toilets, or on floors that are cleaned with liquid cleansers. Liquids can cause a short circuit, particularly if the power cord or power adapter has been stressed by misuse. Liquids also can cause gradual corrosion of power cord terminals and/or the connector terminals on a power adapter, which can eventually result in overheating.

Always connect power cords and signal cables in the correct order and ensure that all power cord connectors are securely and completely plugged into receptacles.

Do not use any power adapter that shows corrosion at the ac input pins or shows signs of overheating (such as deformed plastic) at the ac input or anywhere on the power adapter.

Do not use any power cords where the electrical contacts on either end show signs of corrosion or overheating or where the power cord appears to have been damaged in any way.

### ■ Extension cords and related devices

Ensure that extension cords, surge protectors, uninterruptible power supplies, and power strips that you use are rated to handle the electrical requirements of the product. Never overload these devices. If power strips are used, the load should not exceed the power strip input rating. Consult an electrician for more information if you have questions about power loads, power requirements, and input ratings.

### ■ Plugs and outlets

If a receptacle (power outlet) that you intend to use with your computer equipment appears to be damaged or corroded, do not use the outlet until it is replaced by a qualified electrician.

Do not bend or modify the plug. If the plug is damaged, contact the manufacturer to obtain a replacement.

Do not share an electrical outlet with other home or commercial appliances that draw large amounts of electricity; otherwise, unstable voltage might damage your computer, data, or attached devices.

## Chapter 1. Important safety information

Some products are equipped with a three-pronged plug. This plug fits only into a grounded electrical outlet. This is a safety feature. Do not defeat this safety feature by trying to insert it into a non-grounded outlet. If you cannot insert the plug into the outlet, contact an electrician for an approved outlet adapter or to replace the outlet with one that enables this safety feature.

Never overload an electrical outlet. The overall system load should not exceed 80 percent of the branch circuit rating. Consult an electrician for more information if you have questions about power loads and branch circuit ratings.

Be sure that the power outlet you are using is properly wired, easily accessible, and located close to the equipment. Do not fully extend power cords in a way that will stress the cords.

Be sure that the power outlet provides the correct voltage and current for the product you are installing.

Carefully connect and disconnect the equipment from the electrical outlet.

### ■ Power supply statement

Never remove the cover on a power supply or any part that has the following label attached.



Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.



### ■ External devices

Do not connect or disconnect any external device cables other than USB and 1394 cables while the computer power is on; otherwise, you might damage your computer. To avoid possible damage to attached devices, wait at least five seconds after the computer is shut down to disconnect external devices.

## Chapter 1. Important safety information

### ■ Batteries

Personal computers manufactured by Lenovo contain a coin cell battery to provide power to the system clock. In addition, many mobile products, such as notebook computers, utilize a rechargeable battery pack to provide system power when in portable mode. Batteries supplied by Lenovo for use with your product have been tested for compatibility and should only be replaced with approved parts.

Never attempt to open or service any battery. Do not crush, puncture, or incinerate batteries or short circuit the metal contacts. Do not expose the battery to water or other liquids. Only recharge the battery pack strictly according to instructions included in the product documentation.

Battery abuse or mishandling can cause the battery to overheat, which can cause gasses or flame to “vent” from the battery pack or coin cell. If your battery is damaged, or if you notice any discharge from your battery or the buildup of foreign materials on the battery leads, stop using the battery and obtain a replacement from the battery manufacturer.

Batteries can degrade when they are left unused for long periods of time. For some rechargeable batteries (particularly Lithium Ion batteries), leaving a battery unused in a discharged state could increase the risk of a battery short circuit, which could shorten the life of the battery and can also pose a safety hazard. Do not let rechargeable Lithium-Ion batteries completely discharge or store these batteries in a discharged state.

### ■ Rechargeable battery notice

Do not attempt to disassemble or modify the battery pack. Attempting to do so can cause an explosion, or liquid leakage from the battery pack. A battery pack other than the one specified by Lenovo, or a disassembled or modified battery pack is not covered by the warranty.

If the rechargeable battery pack is incorrectly replaced, there is danger of an explosion. The battery pack contains a small amount of harmful substances. To avoid possible injury:

- Replace only with a battery of the type recommended by Lenovo.
- Keep the battery pack away from fire.
- Do not expose it to water or rain.
- Do not attempt to disassemble it.
- Do not short-circuit it.

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- Keep it away from children.
- Do not drop the battery pack.

Do not put the battery pack in trash that is disposed of in landfills. When disposing of the battery, comply with local ordinances or regulations.

**If the battery pack is to be stored separately, place it in a dry environment of a temperature between 10-35 °C and keep it away from direct sunlight. To extend battery life, we recommend you charge the battery to approximately 30 to 50% capacity and recharge it every three months to prevent the battery from over-discharging.**

**This system does not support batteries that are not genuine Lenovo-made or authorized. The system will continue to boot, but may not charge unauthorized batteries.**

### ■ Lithium coin cell battery notice

Danger of explosion if battery is incorrectly replaced.

When replacing the lithium coin cell battery, use only the same or an equivalent type that is recommended by the manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

Do not:

- Throw or immerse into water
- Heat to more than 100°C (212°F)
- Repair or disassemble

Dispose of the battery as required by local ordinances or regulations.

The following statement applies to users in the state of California, U.S.A.  
California Perchlorate Information:

Products containing manganese dioxide lithium coin cell batteries may contain perchlorate.

Perchlorate Material — special handling may apply.

See <http://www.dtsc.ca.gov/hazardouswaste/perchlorate>.

## Chapter 1. Important safety information

### ■ Heat and product ventilation

Computers, AC adapters, and many accessories can generate heat when turned on and when batteries are charging. Notebook computers can generate a significant amount of heat due to their compact size. Always follow these basic precautions:

- When your computer is turned on or the battery is charging, the base, the palm rest, and some other parts may become hot. Avoid keeping your hands, your lap, or any other part of your body in contact with a hot section of the computer for any extended length of time. When you use the keyboard, avoid keeping your palms on the palm rest for a prolonged period of time. Your computer generates some heat during normal operation. The amount of heat depends on the amount of system activity and the battery charge level. Extended contact with your body, even through clothing, could cause discomfort or even a skin burn. Periodically take breaks from using the keyboard by lifting your hands from the palm rest; and be careful not to use the keyboard for any extended length of time.
- Do not operate your computer or charge the battery near flammable materials or in explosive environments.
- Ventilation slots, fans and/or heat sinks are provided with the product for safety, comfort, and reliable operation. These features might inadvertently become blocked by placing the product on a bed, sofa, carpet, or other flexible surface. Never block, cover, or disable these features.
- When the AC adapter is connected to an electrical outlet and your computer, it generates heat. Do not place the adapter in contact with any part of your body while using it. Never use the AC adapter to warm your body. Extended contact with your body, even through clothing, may cause a skin burn.

For your safety, always follow these basic precautions with your computer:

- Keep the cover closed whenever the computer is plugged in.
- Regularly inspect the outside of the computer for dust accumulation.
- Remove dust from vents and any perforations in the bezel. More frequent cleanings might be required for computers in dusty or high-traffic areas.
- Do not restrict or block any ventilation openings.
- Do not operate your computer inside furniture, as this might increase the risk of overheating.
- Airflow temperatures into the computer should not exceed 35°C (95°F).

### ■ Laser compliance statement

Some personal computer models are equipped from the factory with a CD or DVD drive. CD and DVD drives are also sold separately as options. CD and DVD drives are laser products. The drive's classification label (shown below) is on the surface of the drive.

CLASS 1 LASER PRODUCT

LASER KLASSE 1

LUOKAN 1 LASERLAITE

APPAREIL A LASER DE CLASSE 1

KLASS 1 LASER APPARAT



Example of the label

These drives are certified in the U.S. to conform to the requirements of the Department of Health and Human Services 21 Code of Federal Regulations (DHHS 21 CFR) Subchapter J for Class 1 laser products. Elsewhere, these drives are certified to conform to the requirements of the International Electrotechnical Commission (IEC) 60825-1 and CENELEC EN 60825-1 for Class 1 laser products.

Class 1 laser products are not considered hazardous. The design of the laser system and the optical storage drive ensures that there is no exposure to laser radiation above a Class 1 level during normal operation, user maintenance, or servicing.

**When a CD or DVD drive is installed, note the following handling instructions.**

Use of controls, adjustments, or performance of procedures other than those specified herein might result in hazardous radiation exposure.

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Do not remove the drive covers. Removing the covers of the CD or DVD drive could result in exposure to hazardous laser radiation. There are no serviceable parts inside the CD or DVD drive.

**Some CD and DVD drives contain an embedded Class 3A or Class 3B laser diode. Note the following statement.**

Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

### ■ Electrical current safety information

Electric current from power, telephone, and communication cables is hazardous. To avoid a shock hazard:

- Do not use your computer during a lightning storm.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- Connect all power cords to a properly wired and grounded electrical outlet.
- Connect to properly wired outlets any equipment that will be attached to this product.
- Whenever possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, battery pack, and all the cables before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Do not use your computer until you have closed the cover. Never use the computer when the cover is open.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To connect:

1. Turn everything OFF.
2. First, attach all cables to devices.
3. Attach signal cables to connectors.
4. Attach power cords to outlets.

5. Turn devices ON.

To disconnect:

1. Turn everything OFF.
2. First, remove power cords from outlets.
3. Remove signal cables from connectors.
4. Remove all cables from devices.

The power cord must be disconnected from the wall outlet or receptacle before installing all other electrical cables connected to the Lenovo computer.

The power cord may be reconnected to the wall outlet or receptacle only after all other electrical cables have been connected to the computer.

### ■ Liquid crystal display (LCD) notice

For products with mercury-containing fluorescent lamps: (non-LED LCD)  
The fluorescent lamp in the liquid crystal display contains mercury; dispose according to local, state, or federal laws.

The LCD is made of glass, and rough handling or dropping the computer can cause the LCD to break. If the LCD breaks and the internal fluid gets into your eyes or on your hands, immediately wash the affected areas with water for at least 15 minutes; if any symptoms are present after washing, get medical care.

### ■ Using headphones or earphones

If your computer has both a headphone connector and an audio-out connector, always use the headphone connector for headphones (also called a headset) or earphones.

Excessive sound pressure from earphones and headphones can cause hearing loss. Adjustment of the equalizer to maximum increases the earphones and headphones output voltage and therefore the sound pressure level.

Excessive use of headphones or earphones for a long period of time at high volume can be dangerous if the output of the headphones or earphone connectors do not comply with specifications of EN 50332-2. The headphone output connector of your computer complies with EN 50332-2 Sub clause 7.



## Chapter 1. Important safety information

This specification limits the computer's maximum wide band true RMS output voltage to 150 mV. To help protect against hearing loss, ensure that the headphones or earphones you use also comply with EN 50332-2 (Clause 7 limits) for a wide band characteristic voltage of 75 mV. Using headphones that do not comply with EN 50332-2 can be dangerous due to excessive sound pressure levels.

If your Lenovo computer came with headphones or earphones in the package, as a set, combination of the headphones or earphones and the computer already complies with the specifications of EN 50332-1. If different headphones or earphones are used, ensure that they comply with EN 50332-1 (Clause 6.5 Limitation Values). Using headphones that do not comply with EN 50332-1 can be dangerous due to excessive sound pressure levels.

### ■ Additional safety information

Plastic bags can be dangerous. Keep plastic bags away from babies and children to avoid danger of suffocation.

#### **(Safety Notice for users in Australia)**

Do not connect phone line while using tablet mode.

#### **(Notice for users in the U.S.A.)**

Handling the cord on this product or cords associated with accessories sold with this product will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling.

## Chapter 2. Use and care Information

### ■ ■ Caring for your computer

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Though your computer is designed to function reliably in normal work environments, you need to use common sense in handling it. By following these important tips, you will get the most use and enjoyment out of your computer.

#### ■ Operating environment

Temperature:

Operating: 5.0(°C) to 35.0 (°C) (41(°F) to 95 (°F)

Non-operating: 5.0 (°C) to 43.0 (°C) (41 (°F) to 109 (°F))

Relative humidity:

Operating: 8% to 80%

Non-operating: 5% to 95%

#### ■ Being careful about where and how you work.

- Do not eat or smoke over your keyboard. Particles that fall into your keyboard can cause damage.
- Store packing materials safely out of the reach of children to prevent the risk of suffocation from plastic bags.
- Keep your computer away from magnets, activated cellular phones, electrical appliances, or speakers (within 13 cm or 5 in).
- Avoid subjecting your computer to extreme temperatures (below 5°C/41°F or above 35°C/95°F).
- Some appliances, such as certain portable desktop fans or air purifiers, can produce negative ions. If a computer is close to such an appliance, and is exposed for an extended time to air containing negative ions, it may become electrostatically charged. Such a charge may be discharged through your hands when you touch the keyboard or other parts of the computer, or through connectors on I/O devices connected to it. Even though this kind of electrostatic discharge (ESD) is the opposite of a discharge from your body or clothing to the computer, it poses the same risk of a computer malfunction.

Your computer is designed and manufactured to minimize any effects of electrostatic charge. An electrostatic charge above a certain limit, however, can increase the risk of ESD. Therefore, when using the computer close to

## Chapter 2. Use and care Information

an appliance that can produce negative ions, give special attention to the following:

- Avoid directly exposing your computer to the air from an appliance that can produce negative ions.
- Keep your computer and peripherals as far as possible from such an appliance.
- Wherever possible, ground your computer to facilitate safe electrostatic discharge.

### ■ Notice of static-electricity

When you handle options or CRUs, or perform any work inside the computer, take the following precautions to avoid static-electricity damage:

- Limit your movement. Movement can cause static electricity to build up around you.
- Always handle components carefully. Handle adapters, memory modules, and other circuit boards by the edges. Never touch exposed circuitry.
- Prevent others from touching components.
- When you install a static-sensitive option or CRU, touch the static-protective package containing the part to a metal expansion-slot cover or other unpainted metal surface on the computer for at least two seconds. This reduces static electricity in the package and your body.
- Whenever possible, remove the static-sensitive part from the static-protective packaging and install the part without setting it down. When this is not possible, place the static-protective packaging on a smooth, level surface and place the part on it.
- Do not place the part on the computer cover or other metal surface.

### ■ Being gentle with your computer

- Avoid placing any objects (including paper) between the display and the keyboard or under the keyboard.
- Do not drop, bump, scratch, twist, hit, vibrate, push, or place heavy objects on your computer, display, or external devices.

### ■ Carrying your computer properly

- Before moving your computer, be sure to remove any media, turn off attached devices, and disconnect cords and cables.
- Be sure your computer is in sleep or hibernation mode, or turned off, before moving it. This will prevent damage to the hard disk drive and data loss.
- When picking up your open computer, hold it by the bottom. Do not pick up or hold your computer by the display.
- Use a quality carrying case that provides adequate cushion and protection. Do not pack your computer in a tightly packed suitcase or bag.

### ■ For outdoor use

- Backup your critical data before you take your computer outdoors.
- Ensure that the battery is full.
- Be sure to turn off the power and close the LCD well.
- When you leave the computer in your car, place it on the back seat to avoid being insulated.
- Carry the AC adapter and power cord with the computer.

### ■ Handling storage media and drives properly

- If your computer comes with an optical drive, do not touch the surface of a disc or the lens on the tray.
- Wait until you hear the CD or DVD click into the center pivot of an optical drive before closing the tray.
- When installing your hard disk, follow the instructions shipped with your hardware, and apply pressure only where needed on the device.

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### ■ Data safety

- Do not delete unknown files or change the name of files or directories that were not created by you; otherwise, your computer software might fail to work.
- Be aware that accessing network resources can leave your computer vulnerable to computer viruses, hackers, spyware, and other malicious activities that might damage your computer, software, or data.
- It is your responsibility to ensure that you have adequate protection in the form of firewalls, antivirus software, and anti-spyware software and keep this software up to date.

### ■ Taking care in setting passwords

- Remember your passwords. If you forget a supervisor or hard disk password, Lenovo authorized service providers will not reset it, and you might have to replace your system board or hard disk drive.

### ■ Cleaning the cover of your computer

Occasionally clean your computer as follows:

- ① Prepare a mixture of a gentle kitchen-use detergent (one that does not contain abrasive powder or strong chemicals such as acid or alkaline). Use 5 parts water to 1 part detergent.
- ② Absorb the diluted detergent into a sponge.
- ③ Squeeze excess liquid from the sponge.
- ④ Wipe the cover with the sponge, using a circular motion and taking care not to let any excess liquid drip.
- ⑤ Wipe the surface to remove the detergent.
- ⑥ Rinse the sponge with clean running water.
- ⑦ Wipe the cover with the clean sponge.
- ⑧ Wipe the surface again with a dry, soft lint-free cloth.
- ⑨ Wait for the surface to dry completely and remove any cloth fibers from the computer surface.

**Note:** Shut down the computer and then disconnect the power cord before cleaning the computer.

### ■ Cleaning your computer keyboard

- ❶ Absorb some isopropyl rubbing alcohol on a soft, dust-free cloth.
- ❷ Wipe each keytop surface with the cloth. Wipe the keys one by one; if you wipe several keys at a time, the cloth may hook onto an adjacent key and possibly damage it. Make sure that no liquid drips onto or between the keys.
- ❸ Allow to dry.
- ❹ To remove any crumbs and dust from beneath the keys, you can use a camera blower with a brush or cool air from a hair drier.

**Note:** Avoid spraying cleaner directly on the display or the keyboard.

### ■ Cleaning your computer display

- ❶ Gently wipe the display with a dry, soft lint-free cloth. If you see a scratchlike mark on your display, it might be a stain transferred from the keyboard when the cover was pressed from the outside.
- ❷ Wipe or dust the stain gently with a soft, dry cloth.
- ❸ If the stain remains, moisten a soft, lint-free cloth with water or a 50-50 mixture of isopropyl alcohol and water that does not contain impurities.
- ❹ Wring out as much of the liquid as you can.
- ❺ Wipe the display again; do not let any liquid drip into the computer.
- ❻ Be sure to dry the display before closing it.

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### ■ Other important tips

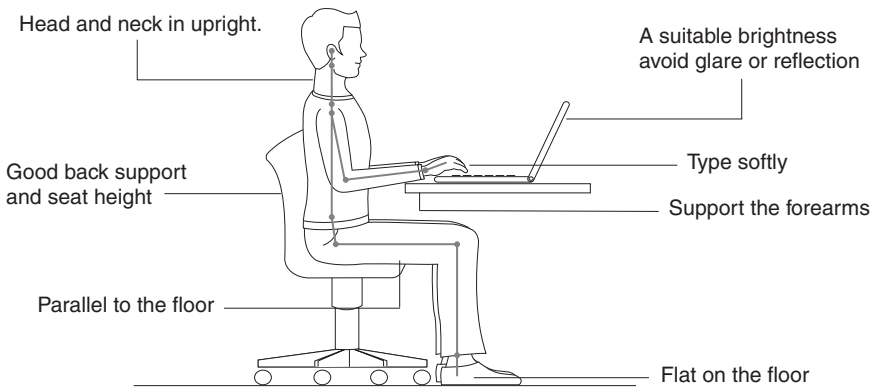
- Do not put the battery pack in trash that is disposed of in landfills. When disposing of the battery, comply with local ordinances or regulations and your company's safety standards.
- Register your Lenovo products with Lenovo (refer to the Web page: <http://support.lenovo.com>). This can help authorities return your computer to you if it is lost or stolen. Registering your computer also enables Lenovo to notify you about possible technical information and upgrades.
- Only an authorized Lenovo repair technician should disassemble and repair your computer.
- Do not modify or tape the latches to keep the display open or closed.
- Take care not to turn your computer over while the AC adapter is plugged in. This could break the adapter plug.
- Turn off your computer if you are replacing a device, or else verify that the device is warm- or hot-swappable.
- Before you install any of the following devices, touch a metal table or a grounded metal object. This action reduces any static electricity from your body. The static electricity could damage the device.
  - Memory Card, such as SD Card, Memory Stick, MultiMediaCard, and Memory Stick Pro card.
  - Memory module
- When transferring data to or from a Flash Media Card, such as an SD card, do not put your computer in sleep or hibernation mode before the data transfer is complete. To do so might cause damage to your data.

### ■ ■ Accessibility and comfort

#### ■ Ergonomic information

Working in the virtual office may mean adapting to frequent changes in your environment. Following some simple rules will make things easier and bring you the maximum benefits of your computer. Keeping in mind such basics as good lighting and proper seating, for example, can help you improve your performance and achieve greater comfort.

**Note:** This example shows someone in a conventional setting. Even if you work in a casual, less conventional setting, many of the tips in this section still apply. Develop good habits, and they will serve you well.



#### ■ What if you are traveling?

It may not be possible to observe the best ergonomic practices when you are using your computer while on the move or in a casual setting. Regardless of the setting, try to observe as many of the tips as possible. Sitting properly and using adequate lighting, for example, will help you maintain desirable levels of comfort and performance.

#### ■ Questions about vision?

Your computer's visual display screen is designed to meet the highest standards and to provide you with clear, crisp images and large, bright displays that are easy to see, yet easy on the eyes. Of course, any concentrated and sustained visual activity can be tiring. If you have questions on eye fatigue or visual discomfort, consult a vision care specialist for advice.



### ■ ■ Maintenance

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An important part of owning your computer is maintenance. With proper care, you can avoid common problems. The following sections provide information that can help you to keep your computer running smoothly.

#### ■ General tips for maintenance

- ❶ Check the capacity of your hard disk drive from time to time. If the hard disk drive gets too full, the operating system will slow down and might produce errors.
- ❷ Empty your recycle bin on a regular basis.
  - To free up disk space, uninstall unused application programs.
  - Clean out your Inbox, Sent, and Trash folders from your e-mail client program.
  - At least once a week, make a point to back up your data. If critical data is present, it is a good idea to perform a daily backup. Lenovo has many backup options available for your computer. CD-RW drives and CD-RW/DVD drives are available for most computers and are easily installed.
  - Use or schedule System Restore to take a system snapshot periodically.

**Note:** Always take a system snapshot before installing new drivers, updating software, or installing new software.

- Update device drivers and BIOS when needed.
- Profile your machine at <http://support.lenovo.com> to keep up to date with current drivers and revisions.
- Keep up to date on device drivers on other non-Lenovo hardware. You might want to read the device driver information release notes prior to updating for compatibility or known issues.
- Keep a log book. Entries might include major hardware or software changes, driver updates, minor issues you have experienced and how you resolved them.
- If required, you can find your country's customer support center at the following Web address: <http://support.lenovo.com>. When calling the customer support center, please make sure you have your machine type, model, and serial number available and the computer is in front of you. Also, if the machine is producing error codes, it is helpful to have the error screen on or the message written down.

## Chapter 3. Getting help and service

If you need help, service, technical assistance, or just want more information about Lenovo computers, you will find a wide variety of sources available from Lenovo to assist you. This section contains information about where to go for additional information about Lenovo computers, what to do if you experience a problem with your computer, and whom to call for service should it be necessary.

Microsoft Service Packs are the latest software source for Windows product updates. They are available by means of a Web download (connection charges may apply) or from a disc. For more specific information and links, go to the Microsoft Web site at <http://www.microsoft.com/>. Lenovo offers Up and Running technical assistance with installation of, or questions related to, Service Packs for your Lenovo-preinstalled Microsoft Windows product.

## Chapter 3. Getting help and service

### ■ ■ Getting help on the Web

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The Lenovo Web site on the World Wide Web has up-to-date information about Lenovo computers and support. You can find support information for your Lenovo computer at <http://support.lenovo.com>. Research this Web site to learn how to solve problems, find new ways to use your computer, and learn about options that can make working with your Lenovo computer even easier.

### ■ ■ Calling the customer support center

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If you have tried to correct the problem yourself and still need help, during the warranty period, you can get help and information by telephone through the customer support center. The following services are available during the warranty period:

- Problem determination - Trained personnel are available to assist you with determining if you have a hardware problem and deciding what action is necessary to fix the problem.
- Lenovo hardware repair - If the problem is determined to be caused by Lenovo hardware under warranty, trained service personnel are available to provide the applicable level of service.
- Engineering change management - Occasionally, there might be changes that are required after a product has been sold. Lenovo or your reseller, if authorized by Lenovo, will make selected Engineering Changes (ECs) available that apply to your hardware.

The following items are not covered:

- Replacement or use of parts not manufactured for or by Lenovo or non warranted parts
- Identification of software problem sources
- Changes, modifications, or upgrades to device drivers
- Installation and maintenance of network operating systems (NOS)
- Installation and maintenance of application programs

**Note:** To determine if your Lenovo hardware product is under warranty and when the warranty expires, go to <http://support.lenovo.com>.

## Chapter 3. Getting help and service

Refer to your Lenovo hardware warranty for a full explanation of Lenovo warranty terms. Be sure to retain your proof of purchase to obtain warranty service.

If possible, be near your computer when you make your call in case the technical assistance representative needs to help you resolve a computer problem. Please ensure that you have downloaded the most current drivers and system updates, and recorded information before you call. When calling for technical assistance, please have the following information available:

- Machine Type and Model
- Serial number of your computer and your proof of purchase
- Description of the problem
- Hardware and software configuration information for your system

**Note:** For the latest list of customer support center telephone numbers and hours of operation, go to <http://support.lenovo.com>. If the number for your country or region is not listed, contact your Lenovo reseller or Lenovo marketing representative.

## Chapter 3. Getting help and service

### ■ ■ Getting help around the world

If you travel with your computer or relocate it to a country where your Lenovo machine type is sold, your computer might be eligible for International Warranty Service, which automatically entitles you to obtain warranty service throughout the warranty period. Service will be performed by service providers authorized to perform warranty service.

Service methods and procedures vary by country, and some services might not be available in all countries. Service centers in certain countries might not be able to service all models of a particular machine type. In some countries, fees and restrictions might apply at the time of service.

**Note:** To determine whether your computer is eligible for International Warranty Service and to view a list of the countries where service is available, go to <http://support.lenovo.com>.

### ■ ■ Lenovo product service information for Taiwan

台灣 Lenovo 產品服務資訊如下：  
荷蘭商聯想股份有限公司台灣分公司  
台北市堤頂大道二段89號5樓  
服務電話：0800-000-702

# Appendix A. Notices

## ■ ■ Notices

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Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service.

Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

*Lenovo (United States), Inc.  
1009 Think Place - Building One  
Morrisville, NC 27560  
U.S.A.*

*Attention: Lenovo Director of Licensing*

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This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

## Appendix A. Notices

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary.

Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk.

Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems.

Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

The software interface and hardware configuration described in all the manuals included with your computer may not match the actual configuration of the computer you purchased.

### ■ ■ Export classification notice

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This product is subject to the United States Export Administration Regulations (EAR) and has an Export Classification Control Number (ECCN) of 4A994.b. It can be re-exported except to any of the embargoed countries in the EAR E1 country list.

## ■ ■ Notice on deleting data from your hard disk

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As computers spread into every corner of life, they process more and more information. The data on your computer, some of it sensitive, is stored on a storage device called the hard disk. Before you dispose of, sell, or hand over your computer, you need to delete that data.

Handing your computer over to someone else without deleting the loaded software, such as operating systems and application software, may even violate License Agreements. You are advised to check the terms and conditions of those Agreements.

Deleting the data from the hard disk is not easy.

There are methods that seem to delete the data:

- Move the data to the recycle bin, and then choose the Empty recycle bin command.
- Use the Delete command.
- Format your hard disk, using the software for initializing it.
- Using the preinstalled recovery program, bring the hard disk back to factory-ship state.

These operations, however, only change the file allocation of the data; they do not delete the data itself. In other words, the data retrieval processing is disabled under an operating system such as Windows. The data is still there, even though it seems to be lost. Thus, it is sometimes possible to read the data by use of special software for data recovery. There is a risk that people of bad faith may read and misuse the critical data on hard disks for unexpected purposes.

To prevent the leakage of data, it becomes very important that you take responsibility for deleting all the data from the hard disk when you dispose of, sell, or hand over your computer. You can destroy the data physically by smashing the hard disk with a hammer, or magnetically by means of strong magnetic power, thus making the data unreadable. But we recommend that you make use of the software (payware) or service (pay service) specifically developed for the purpose.



## Appendix B. Safety statements

### ■ ■ Wireless related information

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#### ■ 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 IEEE 802.11a/b/g/n Standard on Wireless LANs, 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* Daughter Card is designed to be interoperable with any *Bluetooth* product that is compliant to *Bluetooth* Specification 2.1 + EDR as defined by the Bluetooth SIG. Following profiles are supported by *Bluetooth* Daughter Card:

- Generic Access
- Service Discovery
- Serial Port
- Dial-up Networking
- FAX
- LAN Access using PPP
- Personal Area Network
- Generic Object Exchange
- Generic Object Push
- File Transfer
- Synchronization
- Audio Gateway
- Headset
- Printer
- Human Interface Devices (Keyboard/Mouse)
- Basic Image
- Handsfree
- AV

### ■ Usage environment and your health

Wireless LAN PCI Express Mini Card and *Bluetooth* Daughter Card 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 PCI Express Mini Card and *Bluetooth* Daughter Card operate within the guidelines found in radio frequency safety standards and recommendations, Lenovo believes the integrated wireless cards 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 PCI Express Mini Card or *Bluetooth* Daughter Card may be restricted by the proprietor of the building or responsible representatives of the organization. These situations may for example include:

- Using the integrated wireless cards on board of airplanes, or in hospitals
- 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 PCI Express Mini Card or *Bluetooth* Daughter Card prior to turning on the computer.

## Appendix B. Safety statements

### ■ ■ TV tuner information

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#### ■ Products with television tuner options installed

The notice below applies to products containing television (TV) tuner devices that connect to external antennas or to cable/CATV systems, or both, and that are intended to be installed in North America. Users and installers in other countries should follow local codes and ordinances when installing appliances that connect to external antennas and cable/CATV systems. If local codes are not applicable, it is recommended that users/installers follow guidelines similar to those that follow.

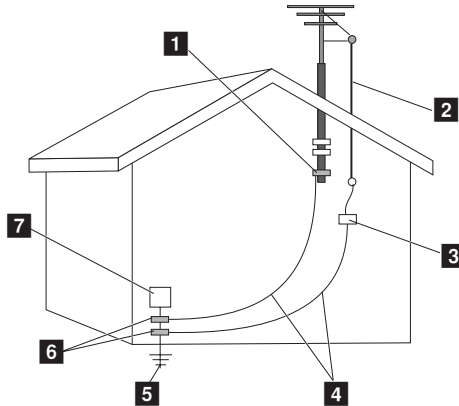
The TV tuner should connect to TNV-1 circuit only.

When install the coaxial cable to the TV tuner should make sure its metal shield is reliable connected to protective earthing system of the building.

#### ■ Note to CATV system installer

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the National Electrical Code (NEC) that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close as possible to the point of cable entry as practical.

### ■ Example of antenna grounding



- 1** Ground clamp
- 2** Antenna lead-in wire
- 3** Antenna discharge unit (NEC Section 810-20)
- 4** Grounding conductors (NEC Section 810-21)
- 5** Power service grounding electrode system (NEC Article 250, Part H)
- 6** Ground clamps
- 7** Electronic service equipment

The following notice applies to all countries and regions:

**\* Danger:**

- **Outdoor antenna grounding**  
If an outside antenna or cable system is connected to the equipment, be sure the antenna or cable system is grounded as to provide some protection against voltage surges and built-up static charges.
- **Lightning**  
For added protection for this equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the video product due to lightning and power line surges.

## Appendix B. Safety statements

- Power lines

An outside antenna system should not be located in the vicinity of overhead power lines or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them may be fatal.

### ■ Risk of hazard connecting Class I equipment to cable distribution networks

For Class I equipment in Norway, intended to be connected to cable distribution systems, the screen of a coaxial cable is required to be galvanic isolated from the protective earth.

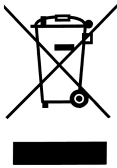
- Connection to a Cable Distribution System is to be provided through a galvanic isolator.
- Må Kun tilkoples kabel-TV nett via galvanisk isolator.

## Appendix C. Environmental, WEEE, and recycling statements

Lenovo encourages owners of information technology equipment to responsibly recycle their equipment when it is no longer needed. Lenovo offers a variety of programs and services to assist equipment owners in recycling their IT products. Information on product recycling offerings can be found on Lenovo's Internet site at [http://www.lenovo.com/social\\_responsibility/us/en/](http://www.lenovo.com/social_responsibility/us/en/).

### ■ ■ Important WEEE information

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The WEEE marking on Lenovo products applies to countries with WEEE and e-waste regulations (for example, European Directive 2002/96/EC, India E-Waste Management & Handling Rules, 2011) . Appliances are labeled in accordance with local regulations concerning waste electrical and electronic equipment (WEEE). These regulations determine the framework for the return and recycling of used appliances as applicable within each geography. This label is applied to various products to indicate that the product is not to be thrown away, but rather put in the established collective systems for reclaiming these end of life products.

Users of electrical and electronic equipment (EEE) with the WEEE marking must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to them for the return, recycle, and recovery of WEEE and to minimize any potential effects of EEE on the environment and human health due to the presence of hazardous substances. For additional WEEE information go to: <http://www.lenovo.com/recycling>

### ■ ■ Declarações de Reciclagem no Brasil

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#### Descarte de um Produto Lenovo Fora de Uso

Equipamentos elétricos e eletrônicos não devem ser descartados em lixo comum, mas enviados à pontos de coleta, autorizados pelo fabricante do produto para que sejam encaminhados e processados por empresas especializadas no manuseio de resíduos industriais, devidamente certificadas pelos órgãos ambientais, de acordo com a legislação local.

A Lenovo possui um canal específico para auxiliá-lo no descarte desses produtos. Caso você possua um produto Lenovo em situação de descarte, ligue para o nosso SAC ou encaminhe um e-mail para: [reciclar@lenovo.com](mailto:reciclar@lenovo.com), informando o modelo, número de série e cidade, a fim de enviarmos as instruções para o correto descarte do seu produto Lenovo.

### ■ ■ Battery recycling marks

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#### United States and Canada



#### US & Canada Only

#### European Union

EU



Notice: This mark applies only to countries within the European Union (EU).

## Appendix C. Environmental, WEEE, and recycling statements

Batteries or packaging for batteries are labeled in accordance with European Union Directive 2006/66/EC concerning batteries and accumulators and waste batteries and accumulators. The Directive determines the framework for the return and recycling of used batteries and accumulators as applicable throughout the European Union. This label is applied to various batteries to indicate that the battery is not to be thrown away, but rather reclaimed upon end of life per this Directive.

In accordance with the European Directive 2006/66/EC, batteries and accumulators are labeled to indicate that they are to be collected separately and recycled at end of life. The label on the battery may also include a chemical symbol for the metal concerned in the battery (Pb for lead, Hg for mercury, and Cd for cadmium). Users of batteries and accumulators must not dispose of batteries and accumulators as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and treatment of batteries and accumulators. Customer participation is important to minimize any potential effects of batteries and accumulators on the environment and human health due to the potential presence of hazardous substances. For proper collection and treatment, go to <http://www.lenovo.com/lenovo/environment>

### Taiwan



廢電池請回收

### ■ California BC mark

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## Appendix C. Environmental, WEEE, and recycling statements

### ■ China WEEE statement

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《废弃电器电子回收处理管理条例》提示性说明  
联想鼓励拥有联想品牌产品的用户当不再需要此类产品时，遵守国家废弃电器电子产品回收处理相关法律法规，将其交给当地具有国家认可的回收处理资质的厂商进行回收处理。更多回收服务信息，请点击  
<http://support.lenovo.com.cn/activity/551.htm>。

### ■ Japan recycling statements

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#### ■ Collecting and recycling a disused Lenovo computer or monitor

If you are a company employee and need to dispose of a Lenovo computer or monitor that is the property of the company, you must do so in accordance with the Law for Promotion of Effective Utilization of Resources. Computers and monitors are categorized as industrial waste and should be properly disposed of by an industrial waste disposal contractor certified by a local government. In accordance with the Law for Promotion of Effective Utilization of Resources, Lenovo Japan provides, through its PC Collecting and Recycling Services, for the collecting, reuse, and recycling of disused computers and monitors. For details, go to:

<http://www.lenovo.com/recycling/japan>

Pursuant to the Law for Promotion of Effective Utilization of Resources, the collecting and recycling of home-used computers and monitors by the manufacturer was begun on October 1, 2003. This service is provided free of charge for home-used computers sold after October 1, 2003. For details, go to: <http://www.lenovo.com/recycling/japan>

## **Appendix C. Environmental, WEEE, and recycling statements**

### **■ Disposing of a Lenovo computer components**

Some Lenovo computer products sold in Japan may have components that contain heavy metals or other environmental sensitive substances. To properly dispose of disused components, such as a printed circuit board or drive, use the methods described above for collecting and recycling a disused computer or monitor.

### **■ Disposing of disused lithium batteries from Lenovo computers**

A button-shaped lithium battery is installed on the system board of your Lenovo computer to provide power to the computer clock while the computer is off or disconnected from the main power source. If you want to replace it with a new one, contact your place of purchase or ask for a repair service provided by Lenovo. If you have replaced it by yourself and want to dispose of the disused lithium battery, insulate it with vinyl tape, contact your place of purchase, and follow their instructions. If you use a Lenovo computer at home and need to dispose of a lithium battery, you must comply with local ordinances and regulations.

### **■ Disposing a disused battery pack from Lenovo notebook computers**

Your Lenovo notebook computer has a lithium ion battery pack or a nickel metal hydride battery pack. If you are a company employee who uses a Lenovo notebook computer and need to dispose of a battery pack, contact the proper person in Lenovo sales, service, or marketing, and follow that person's instructions. You also can refer to the instructions at <http://www.lenovo.com/jp/ja/environment/recycle/battery/>.

If you use a Lenovo notebook computer at home and need to dispose of a battery pack, you must comply with local ordinances and regulations. You also can refer to the instructions at <http://www.lenovo.com/jp/ja/environment/recycle/battery/>.

### ■ ■ Restriction of Hazardous Substances (RoHS) statements

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#### ■ European Union RoHS

Lenovo products sold in the European Union, on or after 3 January 2013 meet the requirements of Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("RoHS recast" or "RoHS 2").

For more information about Lenovo progress on RoHS, go to:

[http://www.lenovo.com/social\\_responsibility/us/en/RoHS\\_Communication.pdf](http://www.lenovo.com/social_responsibility/us/en/RoHS_Communication.pdf)

#### ■ Ukraine RoHS

Цим підтверджуємо, що продукція Леново відповідає вимогам нормативних актів України, які обмежують вміст небезпечних речовин.

#### ■ India RoHS

RoHS compliant as per E-Waste (Management & Handling) Rules, 2011.

#### ■ Turkish statement of compliance

The Lenovo product meets the requirements of the Republic of Turkey Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (EEE).

Bu Lenovo ürünü, T.C. Çevre ve Orman Bakanlığı'nın "Elektrik ve Elektronik Eşyalarda Bazı Zararlı Maddelerin Kullanımının Sınırlandırılmasına Dair Yönetmelik (EEE)" direktiflerine uygundur.

EEE Yönetmeliğine Uygundur.

Appendix C. Environmental, WEEE, and recycling statements

China RoHS

The information in the following table is applicable for products manufactured on or after March 1, 2007 for sale in the People’s Republic of China.

为满足中国《电子信息产品污染控制管理办法》（中华人民共和国工业和信息化部第 39 号令）的相关规定和要求，联想公司对其所生产及销售的笔记本电脑产品中有毒有害物质，按部件分类，声明如下：

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE )
印刷电路板组件 *	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
光驱	×	○	○	○	○	○
液晶面板	×	○	○	○	○	○
键盘	×	○	○	○	○	○
内存	×	○	○	○	○	○
电池	×	○	○	○	○	○
电源适配器	×	○	○	○	○	○
鼠标	×	○	○	○	○	○
机箱 / 外壳 / 扬声器 / 附件	×	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。

×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。

备注：表中标有“×”的所有部件均符合欧盟 RoHS 法规

\* 印刷电路板组件包括印刷电路板及其零部件，电容和连接器等

笔记本的锂电池属于可拆离电脑的部件，并且可以单独回收

根据电脑型号的不同，您所购买的电脑可能不会含有以上的所有部件



在中华人民共和国境内销售的电子信息产品必须标识此标志，标志内的数字代表在正常的使用状态下产品的环保使用期限

# Appendix D. Regulatory statements

## Japanese VCCI Class B Statement

この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としています。この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。  
取扱説明書に従って正しい取り扱いをして下さい。

VCCI-B

## Japan compliance statement for power line harmonics

A statement of compliance to the IEC 61000-3-2 harmonics standard is required for all products connecting to the power mains and rated less than 20A per phase.

日本の定格電流が 20A/相 以下の機器に対する高調波電流規制  
高調波電流規格 JIS C 61000-3-2 適合品

## Korea Class B

B급 기기(가정용 방송통신기자재)

이 기기는 가정용(B급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다

## Brazil regulatory notices

Ouvir sons com mais de 85 decibéis por longos períodos pode provocar danos ao sistema auditivo.

### ■ ■ Compliance marks

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#### ■ EurAsian compliance mark



Product models released prior to 2013/02/14 have been certified according to GOST R certification system and/or according to the Customs Union applicable regulatory requirements effective at the moment. These models are subject to GOST R marking.

Product models released after 2013/02/14 have been certified according to the applicable Technical Directives effective for CU countries and subject to EAC marking.

# Trademarks

Lenovo is the trademark of Lenovo in the United States, other countries, or both.

Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both.

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



**If your product is not working correctly,  
DO NOT RETURN IT TO THE STORE.**

For technical assistance, contact a Lenovo support specialist 24 hours a day by calling toll free **1-877-4 LENOVO (1-877-453-6686)**.

Additionally, you can find support information and updates on the Lenovo Web site located at **<http://support.lenovo.com>**.

\* Only for the users from the United States.



