

# Nokia 6234 Extended Quick Start Guide

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FCC Draft

Further detailed information is given in the full Nokia 6234 user guide (available for download at [www.nokia.com/support](http://www.nokia.com/support)). Do not use this quick guide in place of the complete user guide, which provides important safety and maintenance information.

#### DECLARATION OF CONFORMITY

Hereby, NOKIA CORPORATION declares that this RM-145 product is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

A copy of the Declaration of Conformity can be found from [http://www.nokia.com/phones/declaration\\_of\\_conformity/](http://www.nokia.com/phones/declaration_of_conformity/).

# CE 0434



The crossed-out wheeled bin means that within the European Union the product must be taken to separate collection at the product end-of-life. This applies to your device but also to any enhancements marked with this symbol. Do not dispose of these products as unsorted municipal waste. For more information, see product Eco-Declaration or country specific information at [www.nokia.com](http://www.nokia.com).

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This device may contain commodities, technology or software subject to export laws and regulations from the US and other countries. Diversion contrary to law is prohibited.

FCC/INDUSTRY CANADA NOTICE

Your device may cause TV or radio interference (for example, when using a telephone in close proximity to receiving equipment). The FCC or Industry Canada can require you to stop using your telephone if such interference cannot be eliminated. If you require assistance, contact your local service facility. 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. Any changes or modifications not expressly approved by Nokia could void the user's authority to operate this equipment.

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FCC Draft

## Contents

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### For your safety 6

### Get started 9

Install the SIM card and the battery 9

Install a memory card 12

Charge the battery 14

Switch the phone on and off 15

Keys and parts 17

Standby mode 19

Make a call 20

Camera & video 22

Radio 23

Text messages (SMS) 25

Multimedia messages 27

Calendar 30

Contacts 31

Configuration settings service 32

Nokia PC Suite 33

Nokia Care web support 34

### APPENDIX 37

A message from the CTIA 37

Message from the FDA 45

For your safety

## For your safety

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Read these simple guidelines. Not following them may be dangerous or illegal. Read the complete user guide for further information.



### SWITCH ON SAFELY

Do not switch the phone on when wireless phone use is prohibited or when it may cause interference or danger.



### ROAD SAFETY COMES FIRST

Obey all local laws. Always keep your hands free to operate the vehicle while driving. Your first consideration while driving should be road safety.



### INTERFERENCE

All wireless phones may be susceptible to interference, which could affect performance.

For your safety



**SWITCH OFF IN HOSPITALS**

Follow any restrictions. Switch the phone off near medical equipment.



**SWITCH OFF IN AIRCRAFT**

Follow any restrictions. Wireless devices can cause interference in aircraft.



**SWITCH OFF WHEN REFUELING**

Do not use the phone at a refueling point. Do not use near fuel or chemicals.



**SWITCH OFF NEAR BLASTING**

Follow any restrictions. Do not use the phone where blasting is in progress.



**USE SENSIBLY**

Use only in the normal position as explained in the product documentation. Do not touch the antenna unnecessarily.



**QUALIFIED SERVICE**

Only qualified personnel may install or repair this product.

## For your safety



### ENHANCEMENTS AND BATTERIES

Use only approved enhancements and batteries.  
Do not connect incompatible products.



### WATER-RESISTANCE

Your phone is not water-resistant. Keep it dry.



### BACK-UP COPIES

Remember to make back-up copies or keep a written record of all important information stored in your phone.



### CONNECTING TO OTHER DEVICES

When connecting to any other device, read its user guide for detailed safety instructions. Do not connect incompatible products.



### EMERGENCY CALLS

Ensure the phone is switched on and in service. Press the end key as many times as needed to clear the display and return to the start screen. Enter the emergency number, then press the call key. Give your location. Do not end the call until given permission to do so.

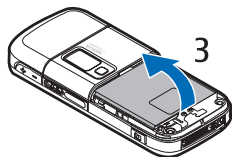
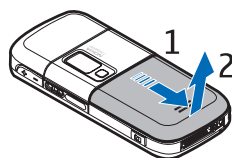


## Get started

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### ■ Install the SIM card and the battery

1. With the back of the phone facing you, slide the back cover (1) to remove it from the phone (2).
2. To remove the battery, lift it as shown (3).



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### Get started

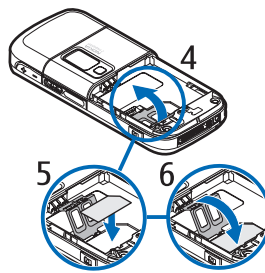
3. To release the SIM card holder, gently pull the locking clip of the card holder, and open it (4)

Insert the SIM card into the SIM card holder (5).

Make sure that the SIM

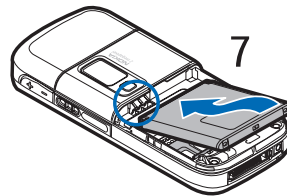
card is properly inserted and that the gold-colored contact area on the card is facing downwards.

Close the SIM card holder (6), and press it until it snaps into position.

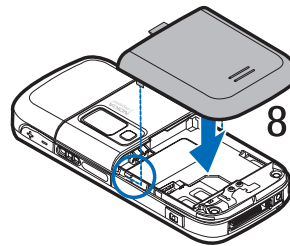


Get started

4. Replace the battery (7)



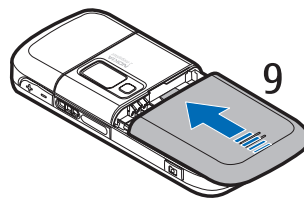
5. Place the back cover in the correct position (8).



FCC Draft

Get started

6. Slide the back cover into place (9).



## ■ Install a memory card

Use only compatible microSD cards with this device. Other memory cards, such as Reduced Size MMCs, do not fit in the memory card slot and are not compatible with this device. Using an incompatible memory card may damage the memory card as well as the device, and data stored on the incompatible card may be corrupted.

You can use a memory card to extend the memory of *My Items*.

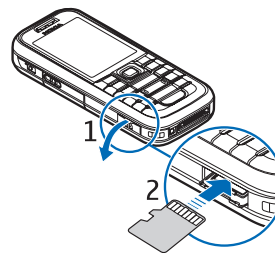
You can insert or change the memory card without switching the phone off.

## Get started



**Important:** Do not remove the memory card in the middle of an operation when the card is being accessed. Removing the card in the middle of an operation may damage the memory card as well as the device, and data stored on the card may be corrupted.

To insert the memory card, open the memory card holder as shown (1). Place the memory card in the card holder (2). Make sure that the memory card is properly inserted—that it clicks into the holder—and that the gold-colored contact area on the card is facing upwards. Close the memory card holder.



Get started

## ■ Charge the battery

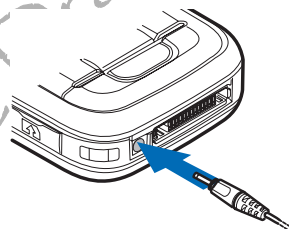
Check the model number of any charger before use with this device. This device is intended for use when supplied with power from the AC-4, AC-1, AC-3, or DC-4 charger.



Warning: Use only batteries, chargers, and enhancements approved by Nokia for use with this particular model. The use of any other types may invalidate any approval or warranty, and may be dangerous.

For availability of approved enhancements, please check with your dealer. When you disconnect the power cord of any enhancement, grasp and pull the plug, not the cord.

1. Connect the charger to a wall outlet.
2. Connect the plug from the charger into the CA-44 charging adapter



## Get started

(not provided with the phone), and the adapter plug into the jack on the bottom of your phone.

If the battery is completely discharged, it may take a few minutes before the charging indicator appears on the display or before any calls can be made.

The charging time depends on the charger and the battery used. For example, charging a BP-6M Li-Ion battery with the AC-4 charger takes about 1 hour and 55 minutes while the phone is in the standby mode.

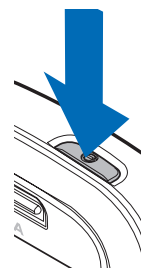
### ■ Switch the phone on and off



Warning: Do not switch the phone on when wireless phone use is prohibited or when it may cause interference or danger.

### Get started

Press and hold the power key as shown.  
If the phone asks for a PIN or UPIN code, enter the code, and select **OK**.



### Set the time, time zone, and date

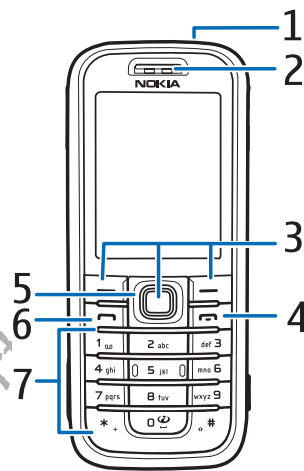
Enter the local time, select the time zone of your location in terms of the time difference with respect to Greenwich Mean Time (GMT), and enter the date.

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### ■ Keys and parts

1. Power key
2. Earpiece
3. Left, middle, and right selection keys
4. End key
5. 4-way navigation key
6. Call key
7. Number keys



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Get started

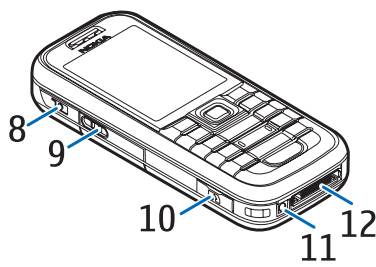
8. Push To Talk  
key

9. Loudspeaker

10. Memory card  
slot

11. Charger  
connector

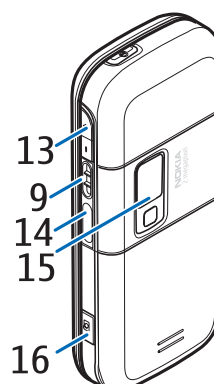
12. Enhancements  
connector



FCC Draft

## Get started

- 13. Volume keys
- 14. Infrared (IR) port
- 15. Camera lens
- 16. Camera key



### ■ Standby mode

#### Enable/disable active standby from idle

To enable the active standby mode, select **Menu > Settings > Display > Standby mode settings > Active standby > My active standby**.

## Get started

To disable the active standby mode, select **Menu** > *Settings* > *Display* > *Standby mode settings* > *Active standby* > *Off*.

## Standby mode shortcuts

- To access the list of dialed numbers, press the call key once.
- To call your voice mailbox (network service) when you have saved your voice mailbox number in the phone, press and hold 1.
- To connect to a browser service, press and hold 0.

## ■ Make a call

1. Enter the phone number, including the area code.  
For international calls, press \* twice for the international prefix (the + character replaces the international access code), enter the country

## Get started

code, the area code without the leading 0, if necessary, and the phone number.

2. To call the number, press the call key.
3. To end the call, or to cancel the call attempt, press the end key.

To access the list of phone numbers you have most recently called or attempted to call, in the standby mode, press the call key once. To call the number, scroll to the number or name you want, and press the call key.

### **Answer or reject a call**

To answer a call, press the call key.

To mute the ringing tone before you answer the call, select **Silence**.

To end the call or reject a call, press the end key.

Get started

## ■ Camera & video

When taking and using images or video clips, obey all laws and respect local customs as well as privacy and legitimate rights of others.

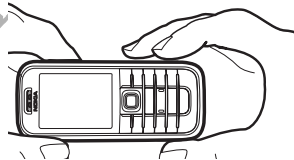
To start the camera, press the camera key, or select **Menu > Media > Camera**. To start video, select **Menu > Media > Video > Record**. You can also press and hold the camera key.

To zoom in or out, press the volume key up or down, or the left/right navigation key.

### Take a photo

To take a photo, press the camera key, or select Capture.

The phone saves the photo in *My Items > Images*.



## **Record a video clip**

Select **Menu** > *Media* > *Video* > **Record**. To stop the recording, select **Stop**. The phone saves the recording in *My Items* > *Video clips*.

## **■ Radio**

The FM radio depends on an antenna other than the wireless device's antenna. A compatible headset or enhancement needs to be attached to the device for the FM radio to function properly.



**Warning:** Listen to music at a moderate level. Continuous exposure to high volume may damage your hearing. Do not hold the device near your ear when the loudspeaker is in use, because the volume may be extremely loud.

Select **Menu** > *Media* > *Radio*.

### Get started

To use the graphical keys ▲, ▼, ◀, or ▶ on the display, scroll left or right to the desired key, and select it.

### Save radio channels

1. To start the channel search, select and hold ◀ or ▶. To change the radio frequency in 0.05 MHz steps, briefly press ◀ or ▶.
2. To save the channel to a memory location, 1 to 9, press and hold the corresponding number key. To save the channel to a memory location from 10 to 20, press briefly 1 or 2, and press and hold the desired number key, 0 to 9.
3. Enter the name of the channel, and select OK.

### Listen to the radio

Select **Menu** > *Media* > *Radio*. To scroll to the desired channel, select ▲ or ▼, or press the



headset key. To select a radio channel location, briefly press the corresponding number keys. To adjust the volume, press the volume keys.



**Note:** This feature may not be available in your product due to your subscription (network service).

## ■ Text messages (SMS)

With the short message service (SMS) you can send and receive text messages (network service).

### Write and send SMS messages

1. Select **Menu** > *Messaging* > *Create message* > *Text message*.
2. Enter the recipient's phone number in the *To:* field. To retrieve a phone number from *Contacts*, select **Add** > *Contact*. To send the message to multiple recipients, add the desired contacts one

## Get started

by one. Scroll right to add new contacts manually in the *To:* field. To send the message to persons in a group, select *Contact group* and the desired group. To retrieve the contacts to which you recently sent messages, select **Add** > *Recently used*.

3. Scroll down, and write your message in the *Message:* field.

To insert a template into the message, select **Options** > *Use template*.


4. To send the message, select **Send**; or press the call key.

## Read and reply to an SMS message

*1 message received* or the number of new messages with *messages received* are shown when you have received a message.

## Get started

1. To view a new message, select **Show**. To view it later, select **Exit**.

To read the message later, select **Menu > Messaging > Inbox**. If more than one message is received, select the message you want to read.  is shown if you have unread messages in *Inbox*.

2. To reply to a message, select **Reply > Text message, Multimedia, Flash message, or Audio message**.

If you want to change the message type for your reply message, select **Options > Change message type**.

3. To send the message, select **Send**; or press the call key.

### ■ Multimedia messages

A multimedia message can contain text, sound, pictures, video clips, a business card, and a calendar

## Get started

note. If the message is too large, the phone may not be able to receive it. Some networks allow text messages that include an Internet address where you can view the multimedia message.

## Write and send a multimedia message

1. Select **Menu** > *Messaging* > *Create message* > *Multimedia*.
2. Enter your message.
3. To insert a slide in the message, select **New**; or select **Options** > *Insert* > *Slide*.  
To insert a file in the message, select **Insert** or **Options** > *Insert*.
4. To view the message before sending it, select **Options** > *Preview*.
5. Enter the recipient's phone number in the *To:* field. To retrieve a phone number from *Contacts*, select **Add** > *Contact*

6. To send the message, select **Send**; or press the call key.

### Read and reply to a multimedia message



**Important:** Exercise caution when opening messages. Multimedia message objects may contain malicious software or otherwise be harmful to your device or PC.

*Multimedia message received* or the number of new messages with *messages received* is shown when you receive a new multimedia message.

1. To read the message, select **Show**. To view it later, select **Exit**.

To read the message later, select **Menu > Messaging > Inbox**. Scroll to the message that you want to view, and select it.

#### Get started






2. To view the whole message if the received message contains a presentation, select **Play**. To view the files in the presentation or the attachments, select **Options** > *Objects* or *Attachments*.
3. To reply to the message, select **Options** > *Reply* > *Text message*, *Multimedia*, *Flash message*, or *Audio message*. Write the reply message.
4. To send the message, select **Send**; or press the call key.

#### ■ Calendar

The Calendar enables you to make a note, delete, edit, move or repeat a note; copy a note to another day; send a note with Bluetooth technology; or send a note to the calendar of another compatible phone as a text message or multimedia message.

Select Menu > *Organizer* > *Calendar*.

## **Make a calendar note**

Select **Menu** > *Organizer* > *Calendar*. Scroll to the date you want, select **Options** > *Make a note* and one of the following note types:  *Meeting*,  *Call*,  *Birthday*,  *Memo*, or  *Reminder*. Fill in the fields for the note.

## **■ Contacts**

You can save names and phone numbers (contacts) in the phone memory and in the SIM card memory.

The phone memory may save contacts with additional details, such as various phone numbers and text items.

## **Search for a contact**

Select **Menu** > *Contacts* > *Names*. Scroll through the list of contacts, or enter the first characters of the name.

Get started

### **Save names and phone numbers**

Names and numbers are saved in the used memory. To save a name and phone number, select **Menu** > *Contacts* > *Names* > **Options** > *Add new contact*. Enter the last name, first name, and the phone number.

### **Edit contact details**

Search for the contact you want to edit, and select **Details**. To edit a name, number, text item, or to change the image, select **Options** > *Edit*. You cannot edit an ID when it is on the *IM contacts* list.

### **■ Configuration settings service**

Before you use multimedia messaging, instant messaging and presence, push to talk, e-mail, synchronization, streaming, and the browser, you must have the proper configuration settings on your



phone. For information on availability, contact your network operator, service provider, or nearest authorized Nokia dealer.

### **Plug and play service**

When you switch on your phone for the first time, and the phone is in the standby mode, you may be asked to get the configuration settings from your service provider (network service). Confirm or decline the query.

#### **■ Nokia PC Suite**

With Nokia PC Suite you can synchronize contacts, calendar, notes, and to-do notes between your phone and the compatible PC or a remote Internet server (network service). You may find more information and PC Suite on the Nokia Web site at [www.nokia.com/support](http://www.nokia.com/support).

Get started

### ■ Nokia Care web support

Nokia Care web support services include the latest tools, downloads, and other resources which help you enhance the benefits of your Nokia product. All web support services are conveniently available to you through [www.nokia.com/support](http://www.nokia.com/support) or your local Nokia Web site.

### ■ Certification information (SAR)

THIS MOBILE DEVICE MEETS GUIDELINES FOR EXPOSURE TO RADIO WAVES.

Your mobile device is a radio transmitter and receiver. It is designed not to exceed the limits for exposure to radio waves recommended by international guidelines. These guidelines were developed by the independent scientific organization ICNIRP and include safety margins designed to assure the protection of all persons, regardless of age and health.

## Get started

The exposure guidelines for mobile devices employ a unit of measurement known as the Specific Absorption Rate or SAR. The SAR limit stated in the ICNIRP guidelines is 2.0 watts/kilogram (W/kg) averaged over 10 grams of tissue. Tests for SAR are conducted using standard operating positions with the device transmitting at its highest certified power level in all tested frequency bands. The actual SAR level of an operating device can be below the maximum value because the device is designed to use only the power required to reach the network. That amount changes depending on a number of factors such as how close you are to a network base station. The highest SAR values under the ICNIRP guidelines for use of the device at the ear is 1.31 W/kg.

Use of device accessories and enhancements may result in different SAR values. SAR values may vary depending on national reporting and testing

#### Get started

requirements and the network band. Additional SAR information may be provided under product information at [www.nokia.com](http://www.nokia.com).

Your mobile device is also designed to meet the requirements for exposure to radio waves established by the Federal Communications Commission (USA) and Industry Canada. These requirements set a SAR limit of 1.6 W/kg averaged over 1 gram of tissue. The highest SAR value reported under this standard during product certification for use at the ear is 1.29 W/kg and when properly worn on the body is 0.36 W/kg. Information about this device model can be found at

<http://www.fcc.gov/oet/fccid> by searching the equipment authorization system using FCC ID: QTKRM-123b.

## APPENDIX

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### ■ A message from the CTIA

© 2001 Cellular Telecommunications & Internet Association. All Rights Reserved. 1250 Connecticut Avenue, NW Suite 800, Washington, DC 20036. Phone: (202) 785-0081

Safety is the most important call you will ever make.

A Guide to Safe and Responsible Wireless Phone Use

Tens of millions of people in the U.S. today take advantage of the unique combination of convenience, safety and value delivered by the wireless telephone. Quite simply, the wireless phone gives people the powerful ability to communicate by voice--almost anywhere, anytime--with the boss, with a client, with the kids, with emergency personnel or even with the police. Each year,

## A P P E N D I X

Americans make billions of calls from their wireless phones, and the numbers are rapidly growing.

But an important responsibility accompanies those benefits, one that every wireless phone user must uphold. When driving a car, driving is your first responsibility. A wireless phone can be an invaluable tool, but good judgment must be exercised at all times while driving a motor vehicle--whether on the phone or not.

The basic lessons are ones we all learned as teenagers. Driving requires alertness, caution and courtesy. It requires a heavy dose of basic common sense---keep your head up, keep your eyes on the road, check your mirrors frequently and watch out for other drivers. It requires obeying all traffic signs and signals and staying within the speed limit. It means using seatbelts and requiring other passengers to do the same.

## A P P E N D I X

But with wireless phone use, driving safely means a little more. This brochure is a call to wireless phone users everywhere to make safety their first priority when behind the wheel of a car. Wireless telecommunications is keeping us in touch, simplifying our lives, protecting us in emergencies and providing opportunities to help others in need.

When it comes to the use of wireless phones, safety is your most important call.

### Wireless phone "Safety Tips"

1. Get to know your wireless phone and its features such as speed dial and redial. Carefully read your instruction manual and learn to take advantage of valuable features most phones offer, including automatic redial and memory. Also, work to memorize the phone keypad so you can use the speed dial function without taking your attention off the road.

## A P P E N D I X

2. When available, use a hands free device. A number of hands free wireless phone accessories are readily available today. Whether you choose an installed mounted device for your wireless phone or a speaker phone accessory, take advantage of these devices if available to you.
3. Position your wireless phone within easy reach. Make sure you place your wireless phone within easy reach and where you can grab it without removing your eyes from the road. If you get an incoming call at an inconvenient time, if possible, let your voice mail answer it for you.
4. .Suspend conversations during hazardous driving conditions or situations. Let the person you are speaking with know you are driving; if necessary, suspend the call in heavy traffic or hazardous weather conditions. Rain, sleet, snow and ice can be hazardous, but so is heavy traffic. As a driver,



## APPENDIX

your first responsibility is to pay attention to the road.

5. Do not take notes or look up phone numbers while driving. If you are reading an address book or business card, or writing a "to do" list while driving a car, you are not watching where you are going. It's common sense. Don't get caught in a dangerous situation because you are reading or writing and not paying attention to the road or nearby vehicles.
6. Dial sensibly and assess the traffic; if possible, place calls when you are not moving or before pulling into traffic. Try to plan your calls before you begin your trip or attempt to coincide your calls with times you may be stopped at a stop sign, red light or otherwise stationary. But if you need to dial while driving, follow this simple tip-- dial only a few numbers, check the road and your mirrors, then continue.

## A P P E N D I X

7. Do not engage in stressful or emotional conversations that may be distracting. Stressful or emotional conversations and driving do not mix--they are distracting and even dangerous when you are behind the wheel of a car. Make people you are talking with aware you are driving and if necessary, suspend conversations which have the potential to divert your attention from the road.
8. Use your wireless phone to help others in emergencies. Your wireless phone provides you a perfect opportunity to be a "Good Samaritan" in your community. If you see an auto accident, crime in progress or other serious emergency where lives are in danger, call 9-1-1 or other local emergency number, as you would want others to do for you.
9. Use your wireless phone to call for help. Your wireless phone is one of the greatest tools you

## A P P E N D I X

can own to protect yourself and your family in dangerous situations--with your phone at your side, help is only three numbers away. Dial 9-1-1 or other local emergency number in the case of fire, traffic accident, road hazard or medical emergency. Remember, it is a free call on your wireless phone!

10. Use your wireless phone to help others in emergencies. Your wireless phone provides you a perfect opportunity to be a "Good Samaritan" in your community. If you see an auto accident, crime in progress or other serious emergency where lives are in danger, call 9-1-1 or other local emergency number, as you would want others to do for you.

11. Call roadside assistance or a special wireless non-emergency assistance number when necessary. Certain situations you encounter while driving may require attention, but are not urgent enough

## APPENDIX

to merit a call for emergency services. But you still can use your wireless phone to lend a hand. If you see a broken-down vehicle posing no serious hazard, a broken traffic signal, a minor traffic accident where no one appears injured or a vehicle you know to be stolen, call roadside assistance or other special non-emergency wireless number.

Careless, distracted individuals and people driving irresponsibly represent a hazard to everyone on the road. Since 1984, the Cellular Telecommunications Industry Association and the wireless industry have conducted educational outreach to inform wireless phone users of their responsibilities as safe drivers and good citizens. As we approach a new century, more and more of us will take advantage of the benefits of wireless telephones. And, as we take to the roads, we all have a responsibility to drive safely.

## A P P E N D I X

The wireless industry reminds you to use your phone safely when driving.

For more information, please call 1-888-901-SAFE.

For updates: <http://www.wow-com.com/consumer/issues/driving/articles.cfm?ID=85>

### ■ Message from the FDA

The U.S. Food and Drug Administration (FDA) provides the following consumer information about wireless phones.

See <http://www.fda.gov/cellphones/> for updated information.

#### Do wireless phones pose a health hazard?

The available scientific evidence does not show that any health problems are associated with using wireless phones. There is no proof, however, that wireless phones are absolutely safe. Wireless phones emit low levels of radiofrequency energy (RF) in the

## APPENDIX

microwave range while being used. They also emit very low levels of RF when in the stand-by mode. Whereas high levels of RF can produce health effects (by heating tissue), exposure to low level RF that does not produce heating effects causes no known adverse health effects. Many studies of low level RF exposures have not found any biological effects. Some studies have suggested that some biological effects may occur, but such findings have not been confirmed by additional research. In some cases, other researchers have had difficulty in reproducing those studies, or in determining the reasons for inconsistent results.

### **What is FDA's role concerning the safety of wireless phones?**

Under the law, FDA does not review the safety of radiation-emitting consumer products such as wireless phones before they can be sold, as it does with new drugs or medical devices. However, the

## A P P E N D I X

agency has authority to take action if wireless phones are shown to emit radiofrequency energy (RF) at a level that is hazardous to the user. In such a case, FDA could require the manufacturers of wireless phones to notify users of the health hazard and to repair, replace or recall the phones so that the hazard no longer exists.

Although the existing scientific data do not justify FDA regulatory actions, FDA has urged the wireless phone industry to take a number of steps, including the following:

- Support needed research into possible biological effects of RF of the type emitted by wireless phones;
- Design wireless phones in a way that minimizes any RF exposure to the user that is not necessary for device function; and

## A P P E N D I X

- Cooperate in providing users of wireless phones with the best possible information on possible effects of wireless phone use on human health.

FDA belongs to an interagency working group of the federal agencies that have responsibility for different aspects of RF safety to ensure coordinated efforts at the federal level. The following agencies belong to this working group:

- National Institute for Occupational Safety and Health
- Environmental Protection Agency
- Federal Communications Commission
- Occupational Safety and Health Administration
- National Telecommunications and Information Administration

The National Institutes of Health participates in some interagency working group activities, as well.



## A P P E N D I X

FDA shares regulatory responsibilities for wireless phones with the Federal Communications Commission (FCC). All phones that are sold in the United States must comply with FCC safety guidelines that limit RF exposure. FCC relies on FDA and other health agencies for safety questions about wireless phones.

FCC also regulates the base stations that the wireless phone networks rely upon. While these base stations operate at higher power than do the wireless phones themselves, the RF exposures that people get from these base stations are typically thousands of times lower than those they can get from wireless phones. Base stations are thus not the primary subject of the safety questions discussed in this document.

### **What is FDA doing to find out more about the possible health effects of wireless phone RF?**

FDA is working with the U.S. National Toxicology Program and with groups of investigators around the

## A P P E N D I X

world to ensure that high priority animal studies are conducted to address important questions about the effects of exposure to radiofrequency energy (RF). FDA has been a leading participant in the World Health Organization International Electromagnetic Fields (EMF) Project since its inception in 1996. An influential result of this work has been the development of a detailed agenda of research needs that has driven the establishment of new research programs around the world. The Project has also helped develop a series of public information documents on EMF issues. FDA and the Cellular Telecommunications & Internet Association (CTIA) have a formal Cooperative Research and Development Agreement (CRADA) to do research on wireless phone safety. FDA provides the scientific oversight, obtaining input from experts in government, industry, and academic organizations. CTIA-funded research is conducted through

## A P P E N D I X

contracts to independent investigators. The initial research will include both laboratory studies and studies of wireless phone users. The CRADA will also include a broad assessment of additional research needs in the context of the latest research developments around the world.

### **What steps can I take to reduce my exposure to radiofrequency energy from my wireless phone?**

If there is a risk from these products--and at this point we do not know that there is--it is probably very small. But if you are concerned about avoiding even potential risks, you can take a few simple steps to minimize your exposure to radiofrequency energy (RF). Since time is a key factor in how much exposure a person receives, reducing the amount of time spent using a wireless phone will reduce RF exposure.

If you must conduct extended conversations by wireless phone every day, you could place more distance between your body and the source of the RF,

## A P P E N D I X

since the exposure level drops off dramatically with distance. For example, you could use a headset and carry the wireless phone away from your body or use a wireless phone connected to a remote antenna

Again, the scientific data do not demonstrate that wireless phones are harmful. But if you are concerned about the RF exposure from these products, you can use measures like those described above to reduce your RF exposure from wireless phone use.

### **What about children using wireless phones?**

The scientific evidence does not show a danger to users of wireless phones, including children and teenagers. If you want to take steps to lower exposure to radiofrequency energy (RF), the measures described above would apply to children and teenagers using wireless phones. Reducing the time of wireless phone use and increasing the distance between the user and the RF source will

## A P P E N D I X

reduce RF exposure. Some groups sponsored by other national governments have advised that children be discouraged from using wireless phones at all. For example, the government in the United Kingdom distributed leaflets containing such a recommendation in December 2000. They noted that no evidence exists that using a wireless phone causes brain tumors or other ill effects. Their recommendation to limit wireless phone use by children was strictly precautionary; it was not based on scientific evidence that any health hazard exists.

### **Do hands-free kits for wireless phones reduce risks from exposure to RF emissions?**

Since there are no known risks from exposure to RF emissions from wireless phones, there is no reason to believe that hands-free kits reduce risks. Hands-free kits can be used with wireless phones for convenience and comfort. These systems reduce the absorption of RF energy in the head because the

## A P P E N D I X

phone, which is the source of the RF emissions, will not be placed against the head. On the other hand, if the phone is mounted against the waist or other part of the body during use, then that part of the body will absorb more RF energy. Wireless phones marketed in the U.S. are required to meet safety requirements regardless of whether they are used against the head or against the body. Either configuration should result in compliance with the safety limit.

### **Do wireless phone accessories that claim to shield the head from RF radiation work?**

Since there are no known risks from exposure to RF emissions from wireless phones, there is no reason to believe that accessories that claim to shield the head from those emissions reduce risks. Some products that claim to shield the user from RF absorption use special phone cases, while others involve nothing more than a metallic accessory attached to the phone. Studies have shown that these products

## A P P E N D I X

generally do not work as advertised. Unlike "hand-free" kits, these so-called "shields" may interfere with proper operation of the phone. The phone may be forced to boost its power to compensate, leading to an increase in RF absorption. In February 2002, the Federal Trade Commission (FTC) charged two companies that sold devices that claimed to protect wireless phone users from radiation with making false and unsubstantiated claims. According to FTC, these defendants lacked a reasonable basis to substantiate their claim.

### **How does FCC Audit Cell Phone RF?**

After FCC grants permission for a particular cellular telephone to be marketed, FCC will occasionally conduct "post-grant" testing to determine whether production versions of the phone are being produced to conform with FCC regulatory requirements. The manufacturer of a cell phone that does not meet FCC's regulatory requirements may be required to

## A P P E N D I X

remove the cell phone from use and to refund the purchase price or provide a replacement phone, and may be subject to civil or criminal penalties. In addition, if the cell phone presents a risk of injury to the user, FDA may also take regulatory action. The most important post-grant test, from a consumer's perspective, is testing of the RF emissions of the phone. FCC measures the Specific Absorption Rate (SAR) of the phone, following a very rigorous testing protocol. As is true for nearly any scientific measurement, there is a possibility that the test measurement may be less than or greater than the actual RF emitted by the phone. This difference between the RF test measurement and actual RF emission is because test measurements are limited by instrument accuracy, because test measurement and actual use environments are different, and other variable factors. This inherent variability is known as "measurement uncertainty." When FCC conducts



## A P P E N D I X

post-grant testing of a cell phone, FCC takes into account any measurement uncertainty to determine whether regulatory action is appropriate. This approach ensures that when FCC takes regulatory action, it will have a sound, defensible scientific basis.

FDA scientific staff reviewed the methodology used by FCC to measure cell phone RF, and agreed it is an acceptable approach, given our current understanding of the risks presented by cellular phone RF emissions. RF emissions from cellular phones have not been shown to present a risk of injury to the user when the measured SAR is less than the safety limits set by FCC (an SAR of 1.6 w/kg). Even in a case where the maximum measurement uncertainty permitted by current measurement standards was added to the maximum permissible SAR, the resulting SAR value would be well below any level known to produce an acute effect.

## A P P E N D I X

Consequently, FCC's approach with measurement uncertainty will not result in consumers being exposed to any known risk from the RF emitted by cellular telephones.

FDA will continue to monitor studies and literature reports concerning acute effects of cell phone RF, and concerning chronic effects of long-term exposure to cellular telephone RF (that is, the risks from using a cell phone for many years). If new information leads FDA to believe that a change to FCC's measurement policy may be appropriate, FDA will contact FCC and both agencies will work together to develop a mutually-acceptable approach.

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