

Nokia 2651 User Guide

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CE 168

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A copy of the Declaration of Conformity can be found at http://www.nokia.com/phones/declaration_of_conformity/.

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PART NO. 9233772, ISSUE NO. 1

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Printed in Canada, August 2004.

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This device may contain commodities, technology, or software subject to export laws and regulations from the U.S. 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 condition that this device does not cause harmful interference.

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4868846	4945633	4969192	5001372	5083240	5101175	5124672
5151946	5152004	5173927	5212834	5230091	5241583	5266782
5271056	5311151	5311179	5317283	5331638	5335362	5341149
5353328	5371481	5378935	5384782	5390223	5392460	5396657
5400949	5408504	5416435	5430740	5442521	5444816	5446364
5446422	5477422	5479476	5487084	5526366	5534878	5548616
5551067	5553125	5557639	5565821	5566201	5570369	5581244
5594797	5600708	5606548	5613235	5625274	5640395	5664053
5675611	5677620	5692032	5697074	5699482	5701392	5722074
5729534	5729541	5754976	5760568	5782646	5787341	5794142
5797102	5802465	5802465	5805301	5809413	5819165	5821891
5822366	5827082	5835858	5835889	5839101	5842141	5844884
5845219	5850607	5857151	5859843	5862178	5870683	5884103
5884190	5887266	5889770	5892475	5898775	5898925	5903832
5903839	5907823	5912570	5914690	5914796	5915440	5917868
5920826	5926138	5926147	5929813	5930233	5946651	5953665
5956332	5956625	5956633	5960354	5960389	5963901	5966374
5966378	5970059	5977887	5983081	5987137	5987639	5991716
5991857	6005857	6006114	6009328	6011853	6011971	6014113
6014551	6014573	6025802	6026161	6028567	6029128	6031827
6035189	6035194	6038238	6043760	6047196	6049796	6050415
6054954	6054966	6055439	6060193	6069923	6072787	6073001
6079993	6081534	6081732	6084471	6084855	6084920	6084962
6088746	6094587	6097964	6105784	6112099	6115617	6118775
6119002	6119180	6121846	6122498	6128322	6128509	6130650
6133884	6137789	6138091	6140966	6144243	6144676	6148209
6151485	6151507	6163609	6164547	6167038	6167248	6167273
6170073	6171127	6178535	6182101	6184592	6185295	6185302
6185422	6188909	6195338	6198928	6199035	6201712	6201876
6202109	6219560	6223037	6223059	6230020	6240076	6240079
6249584	6259312	6262735	6266321	6266330	6269126	6271794

6272361	6282436	6285888	6292668	6295286	6307512	6308084
6310609	6311054	6314166	6317083	6324389	6333716	6347218
6356759	6359865	6359904	6363259	6370362	6370389	6377803
6377820	6381468	6385254	6385451	6392605	6392660	6400958
6417817	6430163	6434133	6437711	6438370	6445932	6453179
6456237	6456826	6463278	6470470	6487397	6487424	6510148
6522670	6591116	6606508				

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1 For your safety

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 on the phone 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.



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

Don't use the phone at a refueling point. Don't use near fuel or chemicals.



SWITCH OFF NEAR BLASTING

Follow any restrictions. Don't use the phone where blasting is in progress.



USE SENSIBLY

Use only in the normal position as explained in the product documentation. Don't touch the antenna unnecessarily.



QUALIFIED SERVICE

Only qualified personnel may install or repair this product.



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.



BACKUP COPIES

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



EMERGENCY CALLS

Ensure the phone is switched on and in service. Press **C** as many times as needed to clear the display and return to the main screen. Enter the emergency number; then select **Call**. Give your location. Do not end the call until told to do so.

About your device

The wireless device described in this guide is approved for use on the GSM 850 and GMS 1900 networks. Contact your service provider for more information about networks.

When using the features in this device, obey all laws and respect privacy and legitimate rights of others.



Warning: To use any features in this device, other than the alarm clock, the phone must be switched on. Do not switch the device on when wireless phone use may cause interference or danger.

Network Services

To use the phone you must have service from a wireless service provider. Many of the features in this device depend on features in the wireless network to function. These Network Services may not be available on all networks or you may have to make specific arrangements with your service provider before you can utilize Network Services. Your service provider may need to give you additional instructions for their use and explain what charges will apply. Some networks may have limitations that affect how you can use Network Services. For instance, some networks may not support all language-dependent characters and services.

Your service provider may have requested that certain features be disabled or not activated in your device. If so, they will not appear on your device menu. Contact your service provider for more information.

Shared memory

The following features may share memory: contact list, text messages, and reminders. Use of one or more of these features may reduce the memory available for the remaining features sharing memory. Your phone may display a message that the memory is full when you try to use a shared memory feature. In this case, delete some of the information or entries stored in the shared memory features before continuing.

Accessibility solutions

Nokia is committed to making mobile phones easy to use for all individuals, including those with disabilities. For more information about phone features, enhancements, alternate format user guides, and other Nokia products designed with your needs in mind, visit the Web site at www.nokiaaccessibility.com.

Your phone is compatible with TTY devices that comply with the TSB 121 industry standard. Please check with the manufacturer of your TTY device to ensure that it supports digital wireless transmission. By using the Nokia HDA-9 adapter, your phone can be connected to a "cellular ready" or "cellular compatible" TTY/TDD device by using a special cable. If this cable was not provided with your TTY device, contact your TTY device manufacturer to purchase the connector cable.



Once your TTY/TDD device is connected, select **Menu > Settings > Enhancement settings > TTY/TDD** to enable the TTY/TDD mode.

2 Get started

Find the label

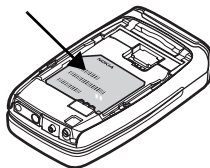
If you ever need to call Nokia Customer Care or your service provider, you must provide specific information about your phone. This information appears on the phone label.

The label is on the back of the phone (under the battery). It shows the following:

- Model number (Nokia 2651)
- Phone type and FCC ID
- International mobile equipment identity (IMEI)

Do not remove or deface the label.

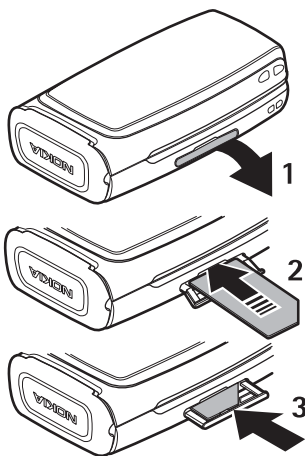
Information label



Insert the SIM card

Keep all SIM cards out of the reach of small children. For availability and information on using SIM card services, contact your SIM card vendor. This may be the service provider, network operator, or other vendor.

- 1 Open the SIM cover on the side of the phone by pulling it out and bending it down (1).
- 2 Insert the SIM card into the phone with the bevelled corner facing right and the gold-colored contacts on the card facing downward (toward the front side of the phone) (2).
- 3 Push the SIM card in and close the SIM cover (3).



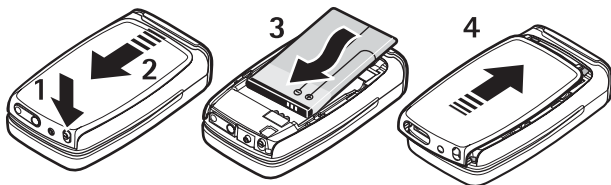
Insert the battery



Note: Avoid touching electronic components while changing the covers. Always store and use the phone with the covers attached.

Always switch the device off and disconnect the charger before removing the battery.

While pressing the release catch (1), remove the back cover (2). Insert the battery so that the gold-colored connectors on the battery align with the connectors on the phone (3). Replace the back cover (4).



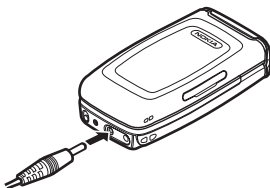
Charge the battery

Do not charge the battery if the phone covers are removed.

- 1 Connect the charger to an ac wall outlet.
- 2 Connect the charger plug into the connector in the phone. The battery indicator bar starts scrolling.

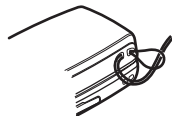
When the battery is fully charged, the bar stops scrolling.

- 3 Disconnect the charger from the phone and the ac outlet.



Attach the wrist strap

Thread the strap through the hole as shown, and tighten it.



Open the fold

To use the phone, you must first open the fold. Do not try to force the fold to open more than the hinge allows.

Close the fold by pushing from the top part of the phone, not from the hinge.

Keys, indicators, and connectors

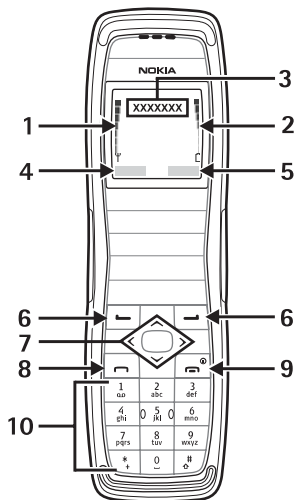
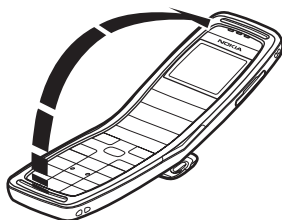
- 1 Signal intensity of the cellular network at your current location
- 2 Battery charge level
- 3 Cellular network in use or the operator logo
- 4 Current function of the **Left selection** key
- 5 Current function of the **Right selection** key
- 6 Selection keys—perform the function displayed above them.
- 7 4-way scroll key for scrolling through names, phone numbers, menus, or settings. Scroll left or right to adjust the earpiece volume during a call.

In the standby mode, scroll up or down to show names and phone numbers saved in **Contacts**. Scroll left to write a message.

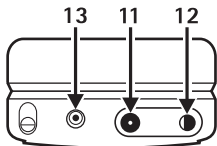
- 8 **Call** key—dials a phone number and answers calls or shows the most recently dialed numbers when pressed in the standby mode.
- 9 **End** key—ends an active call or rejects an incoming call. Press to exit from any function. Closing the fold also exits from any function.

The **End** key also switches the phone on and off. When the phone is on and in the standby mode, quickly press the **End** key to access a list of profiles (see "Profiles" on page 20), or for 3 seconds to switch the phone off.

- 10 Use keys **0** through **9** to enter numbers and characters.
Use the ***** and **#** for various purposes in different functions.



- 11 Charger connector
- 12 Headset connector
- 13 Microphone



Switch on and off



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

The phone does not have a dedicated key for turning the phone on and off; the on-off function is combined with the **End** key.

Press and hold the **End** key. If the phone is on, you will be shown the standby mode, followed by the list of profiles, before the phone switches off.

When switching the phone on, it may request a PIN code or security code; key in the code, and select **OK**. The preset security code is 12345. See "Security settings" on page 23 for more information on phone codes.

If the phone displays **Insert SIM card** even though the SIM card is properly inserted, or **SIM card not supported**, contact your network operator or service provider. Your phone does not support 5-V SIM cards.

Internal antenna

Your device has an internal antenna.

As with any other radio transmitting device, do not touch the antenna area unnecessarily when the device is switched on. Contact with the antenna affects call quality and may cause the phone to operate at a higher power level than otherwise needed. Avoid contact with the antenna area when operating the phone to optimize the antenna performance and the battery life.



3 Call functions

Make a call

- 1 Open the fold, and key in the phone number including the area code.
Select **Clear** to delete the last entered digit.
- 2 Press **Call**. During the call, scroll left or right to adjust the volume of the earpiece or headset.
- 3 Press **End** or close the fold to end the call or cancel the call attempt.

Make a call with Contacts

In the standby mode, scroll up or down to find the name or number you want. Press **Call** to call the number.

Call a recently dialed number

To redial one of the last 20 phone numbers that you have called or attempted to call, press **Call**, scroll to the name or number you want, and press **Call** again.

Call your voice mailbox

To program your phone to dial your voice mailbox, do the following:

- 1 Select **Contacts > Settings > Voice mailbox number**.
- 2 Enter the phone number of your voice mailbox, and press **OK**.

To call your voice mailbox, from the standby mode, press and hold the **1** key.

1-touch dialing

You can set the keys **2–9** as 1-touch dialing keys. After assigning a number to a key, press and hold the key in standby mode to make a call. Or press the number and the **Call** key.

To assign a phone number to a key, do the following:

- 1 Select **Contacts > 1-touch dial. > Edit**.
- 2 Scroll to the desired key, and select **Assign**.
If a phone number is already assigned to the key, select **Options** to view, change, or delete the number assignment.
- 3 Select **Assign to SMS** to store the key assignment in the SIM, select the contact from your phonebook that you want to assign to the selected key, and press **Select**.

1-touch dialing must be turned on before it can be used. To turn it on, select **Contacts > 1-touch dial. > On**.

Answer a call

Open the fold and press **Call**. If you do not press **Call** the call will go to your voice mailbox. To reject a call without answering it, open the fold and quickly close it, or press **End**.

If **Delayed answering** is selected in the **Fold call handling** menu, there will be a short delay after you open the phone until you can answer the call.

In-call operations

During a call, select **Options** for some of the following functions: **Lock keys** (if a headset is attached), **Hold/Unhold**, **New call**, **End active call**, **Touch tones**, **Contacts**, **Menu**, **Mute/Unmute**, and **Hold**.

Conference calls (network service)

To join two calls into a conference call, do the following:

- 1 Call the first participant.
- 2 To call a new participant, select **Options > New call**.
- 3 Enter the new number or select it from the contacts list, and select **Call**.
The first call is put on hold and the second number is dialed.
- 4 When the call is answered, select **Options > Swap** to switch between the two calls, or select **Options > Conference** to join the conference call.
- 5 To have a private conversation with one of the participants, select **Private call** and the participant. To rejoin the call, select **Options > Conference**.
- 6 To end the conference call, press **End**.

Call waiting (network service)

You can answer a call while you have another call in progress if you have activated the **Call waiting** function in the **Call settings** menu (network service). To answer the waiting call, select **Options > Answer** or press **Call**. See also "Call settings" on page 21.

Number screening

You can set your phone to screen calls and messages from certain numbers. When you receive a call from a screened number, there is no ringing tone or vibration, no matter which profile is selected. The call information is stored under **Call log > Missed calls**.

Add a number

To add a number to the list of screened numbers, select **Contacts > No. screening > Options > Add number**, enter the number you want to screen, and select **OK**.

Remove a number

To remove a number from the list, select **Menu > Contacts > No. screening**, scroll to the number you want to remove, and select **Options > Delete from list**.


The **No. screening** option is also available in the **Messages > Screened messages** menu and in the **Settings > Call settings** menu.

View screened calls and messages

When you receive a call or message from a screened number, an alert message is displayed. To view the call or message, select **View**.


Lock the keypad (keyguard)

The keypad lock prevents accidental key presses. To lock or unlock the keypad, press the **Left selection** key, and quickly press *****. Keyguard is not activated when you close the fold.

When the keypad is locked, the  icon is shown at the top of the display. You can still answer a call by pressing **Call**.

When keyguard is on, it may still be possible to call the official emergency number programmed into your phone. Key in the emergency number, and press **Call**.

4 Writing text

To enter text, use the traditional text input (indicated with the  icon) or use predictive text input (indicated with ).

When writing text, select **Options > Predictive text > English**.

To revert to traditional text input, select **Options > Predictive text > Prediction off**.

Predictive text input

Predictive text input is an easy way to write text. It is based on a built-in dictionary to which you can also add new words.

- 1 Key in the word you want by pressing each key once for one letter. The word changes after each keystroke. For example, to write "Nokia" when the English dictionary is selected, press **6 6 5 4 2**.

- To delete the character to the left of the cursor, select **Clear**. To clear the screen, select and hold **Clear**.
 - To switch between upper and lowercase or between traditional and predictive text input, press **#** repeatedly, and check the icon at the top of the display.
 - To switch between letters and numbers, press and hold **#**.
 - To get a list of special characters, press and hold *****, select the character that you want, and select **Insert**.
 - To insert a number, press and hold the number key you want. To insert several numbers, press and hold **#**, and key in the numbers.
- 2 If the displayed word is the that one you want, press **0** to create a space, and start writing the next word.
- To change the word, press ***** repeatedly until the word that you want appears.
 - If **?** is displayed after the word, the word is not in the dictionary. To add the word to the dictionary, select **Spell**, key in the word (using traditional text input), and select **OK**.

Traditional text input

Repeatedly press the key marked with the letter that you want until the letter appears.

Use the following functions to edit the text:

- To move the cursor, press the scroll keys.
- To add a space, press **0**.
- To delete the character to the left of the cursor, select **Clear**. To clear the screen, select and hold **Clear**.
- To switch between upper and lowercase or between traditional and predictive text input, press **#** repeatedly and check the icon at the top of the display.
- To switch between letters and numbers, press and hold **#**.
- To add a number, press and hold the desired key.
- To add a punctuation mark or special character, press *****; select the desired character and **Insert**.
- To key in a letter that is on the same key as the previous one, scroll up or down (or wait until the cursor appears), and key in the new letter.

5 Menu functions

You can use the menus in the following ways:

Scrolling

- 1 Select **Menu** in the standby mode.
- 2 Scroll up or down to the main menu you want, and select it.
- 3 If the menu contains submenus, select the one you want. Select **Back** to return to the previous menu level, or press **End** to exit to the standby mode.

Shortcuts

The menus, submenus, and setting options are numbered. The shortcut number of the menu is shown at the top right of the display.

In the standby mode, select **Menu**, and quickly key in the shortcut number of the menu you want to access. Repeat for submenus.

Messages



Before sending messages, you must set your message settings. For more information, see "Message settings" on page 15.

Linked messages

Your phone can send and receive long text messages (network service). Text messages that exceed 160 characters are automatically split into multiple messages and sent as a series. The series of messages is linked by the compatible phone when received and displayed as a single SMS message. For this feature to work properly, the receiving phone must also support linked messages.

While you write a message, the number of available characters and the current part number of linked message (for example, 120/2) are shown in the top right corner of the display.

If there are special characters in your message, the indicator may not show the message length correctly. Before the message is sent, the Nokia 2651 phone tells you if the message exceeds the maximum length allowed for one message. To cancel sending, select **Cancel**, or save the message in the inbox.

Write messages

To send a message, the phone number of your message center must be saved in the phone. See "Message settings" on page 15.


- 1 Select **Menu > Messages > Create message**, and enter the message.
The number of available characters and the current part number are shown on the top right of the display.
- 2 While writing the message, select **Options** to access other options.

- 3 When the message is complete, select **Options > Send**; enter the recipient's phone number, or select **Find** to search for it in contacts; and select **OK**.
OR

Select **Options > Sending options > Send to many, Send to list, Send later, or Sending profile**.

When sending messages, your device may display **Message Sent**. This is an indication that the message has been sent by your device to the message center number programmed into your device. This is not an indication that the message has been received at the intended destination. For more details about messaging services, check with your service provider.

Read a text message (Inbox)

When you have received text messages in the standby mode, the number of new messages and the new message icon () are shown on the display.

- 1 Select **Read** to view the message immediately.
To view the message later, press **Exit**. When you are ready to read the message, select **Menu > Messages > Inbox** and the message that you want to read. Scroll up and down to browse through the message.
- 2 While reading the message, select **Options** to access other options.

Sent items and drafts

The **Sent items** folder stores copies of the messages that you have sent. The **Drafts** folder stores messages that you saved while you were writing them. (To save a message while writing, select **Options > Save message**.)

While viewing a message, select **Options** to access other options..

Picture messages

You can receive and send messages that contain pictures (network service). Picture messages are saved in the phone. Note that each picture message is comprised of several text messages. Therefore, sending one picture message may cost more than one text message.



Note: Picture message function can be used only if it is supported by your network operator or service provider. Only compatible devices that offer picture message features can receive and display picture messages.

Create a picture message

- 1 Select **Menu > Messages > Picture messages**.
- 2 Scroll to the desired picture, and select **Use**.
- 3 To add text and send the message, see "Write messages" on page 12, and follow the prompts.

Receive a picture message

- 1 Select **Read** to view the message immediately.

To view the message later, press **Exit**. When you are ready to read the message, select **Menu > Messages > Inbox** and the message that you want to read. Scroll up and down to browse through the message.

- 2 While reading the message, select **Options** to access other options.

Distribution lists

If you need to send messages frequently to a fixed group of recipients, you can define a distribution list, and use it when sending a message. You can define up to 6 distribution lists with up to 10 recipients in each. The phone sends a text message to each recipient separately.

Create a list

- 1 Select **Menu > Messages > Distribution lists > Options > Add list**.
- 2 Enter a name for the list, and select **OK**.
- 3 To add a contact to the list, select **Options > View list > Options > Add contact** and the contact or contacts that you want to add to the list.
- 4 When you are through adding contacts, press **Back**.

Send to a list

- 1 Creating the message.
- 2 Select **Options > Sending options > Send to list**, and the desired distribution list.
- 3 Select **OK** to confirm your decision.

If a message fails to be sent to one or more recipients, a report is displayed listing the number successfully sent and the number failed. Screened messages

Screened messages

This feature allows messages from unwanted numbers to be filtered out by adding the sender to a list of screened numbers. See "Number screening" on page 9.

Delete messages

- Select **Menu > Messages > Delete messages**.
- To delete all read messages from all folders, select **All read**. When **Delete read messages from all folders?** appears, select **OK**.
- To delete all the read messages in a particular folder, scroll to the folder, and select **OK**. When **Delete all read messages from folder?** appears, select **OK**.

Message counter

- 1 Select **Menu > Messages > Message counter**.
- 2 Scroll down to view the numbers of sent and received messages.
The number of messages appears at the bottom right of the display.
- 3 To reset message counters, select **Clear counters** and the counter that you want to reset.

The **Message counter** submenu is also located under the **Call log** main menu.

Message settings

Select **Menu > Messages > Message settings** and one of the following:

Info service—Receive messages from the network on various topics, such as traffic conditions (network service). Contact your service provider for more information.

Templates—View, edit, or delete preset message templates.

Smileys—Use preset smileys, such as :-), in messages. You can also edit and delete the existing smileys and create new smileys.

Signatures—Add a signature file to your messages. Select **Signature text** to create or edit your signature. Select **Include sig. > On** or **Off** to set automatic signature insertion on or off.

Sending profile—Set up your message sending profile. Select a profile, then select each of the following:

- **Message center number**—Save the phone number needed for sending messages. Contact your service provider for this number.
- **Messages sent as**—Select **Text, Fax, Paging, or E-mail** (network service).
- **Message validity**—Choose how long the network should attempt to deliver your message (network service).
- **Rename sending profile**—Change the name of the sending profile.

Delivery reports—Request the network to send delivery reports for your sent messages (network service). Select **On** or **Off**.

Reply via same center—Allow the recipient of your message to send you a reply through your message center (network service). Select **Yes** or **No**.

Character support—Select **Full** to send all Unicode characters to compatible phones, or **Reduced** to attempt to convert Unicode characters into the corresponding non-Unicode characters (network service).

No. screening—See "If a message fails to be sent to one or more recipients, a report is displayed listing the number successfully sent and the number failed. Screened messages" on page 14.

Service command editor

You can send service requests to your service provider (network service).

Select **Menu > Messages > Service com. editor**, enter the characters you want, and select **Send** to send the request.



Contact your service provider for more information.

Contacts

You can save names and phone numbers in phone memory and in SIM card memory. The phone memory can store up to 200 names.

Search for a name and phone number

- 1 In the standby mode, select **Contacts > Find**.
- 2 Enter the first (or more) letters of the name you are looking for, and select **Find**.
- 3 Scroll to find the name you want.
- 4 To call the number, select **Call**.

If the name or phone number is saved in SIM card memory,  is shown at the upper right corner of the display; if it is saved in phone internal memory,  is shown instead.

For a quick search, scroll down in the standby mode, enter the first letter of the name, and scroll to find the name you want.

Options

The following submenus are available in the **Contacts** menu:

Find—Search for a name in the contact list.

Add name—Save names and phone numbers in the phone book.

Delete—Delete names and phone numbers from the phone book one by one or all at once.

Edit—Edit the names and numbers in **Contacts**.

Assign tone—Set the phone to play the ringing tone you want when you receive a call from a particular phone number. Select the phone number or name you want and select **Assign**; then select the desired ringing tone. This function only works when both the network and the phone are able to identify and send the caller's identity.

Send phone number—Send a person's phone number as an over the air (OTA) message (network service).

Copy—Copy names and phone numbers all at once or one by one from phone memory to SIM card memory, or vice versa.

Settings—Modify the contacts settings. See "Contacts settings" on page 17.

1-touch dial.—Activate the 1-touch dialing feature and edit the numbers assigned to the 1-touch dialing keys. See "1-touch dialing" on page 8.

Own numbers—Display the phone number of your phone.

No. screening—Set up a list of screened phone numbers. See "If a message fails to be sent to one or more recipients, a report is displayed listing the number successfully sent and the number failed. Screened messages" on page 14.

Service numbers—Call the service numbers of your service provider if the numbers are included on your SIM card (network service).

Info numbers—Call the info numbers of your service provider if the numbers are included on your SIM card (network service).

Contacts settings

In the standby mode, select **Contacts > Settings** and one of the following:

Voice mailbox number—Save and change the phone number of your voice mailbox (network service).

Memory in use—Select whether the names and phone numbers are saved in **SIM card** or **Phone**. Note that when you change the SIM card, **SIM card** memory is automatically selected.

Contacts view—Select how the names and phone numbers are shown. Select either **Name and no.** (one name and number at a time), **Name list** (names only, four names at a time), or **Name only** (names only, three names at a time, in a larger font).

Memory status—Check how many names and phone numbers are already saved and how many can still be saved in each phone book.

Call log

The call log records the phone numbers of missed, received, and dialed calls, the approximate length of your calls, and the number of sent and received messages. For call log to work properly, the following conditions must be met:

- You must be in a digital network, your service provider must support caller ID, and it must be enabled in the phone.
- Your calls cannot be blocked.
- Your phone must be on and within the service area or in a compatible network if roaming.



Missed, received, or dialed calls

- 1 Select **Menu > Call log > Missed calls, Received calls, or Dialed numbers.**

- 2 Scroll through the list of numbers and highlight your selection.
- 3 Select **Options** and one of the following:
 - Send message**—Send a text message to the person who called you or whom you called.
 - Send number**—Send the phone number as a message to a compatible device.
 - Time of call**—Show the time when the call was connected.
 - Edit number**—Edit the number and save it with a name to your phone book.
 - Save**—Enter a name for the number and save both to your phone book.
 - Delete**—Erase the number from the call list.
 - Add to scrn. list**—Add the number to the list of screened numbers.

Delete recent call lists

You cannot undo this operation.

Select **Menu > Call log > Delete recent call lists > All, Missed, Received, or Dialed**.

Call timers

Your phone tracks the approximate amount of time you spend on each call.



Note: The actual time invoiced for calls by your service provider may vary, depending on network features, rounding off for billing, taxes, etc.



Note: Some timers may be reset during service or software upgrades.

Select **Menu > Call log > Call timers** and one of the following:

Duration of last call—Show the approximate call duration of the last call.

Duration of received calls—Show the approximate duration of all received calls.

Duration of dialed calls—Show the approximate duration of all calls dialed.

Duration of all calls—Show the approximate call duration of all calls that have been made and received since you reset the timers.

Clear timers—Clear all call timers for the currently selected phone number. (Your phone includes separate timers for each number used.) You need to enter your security code to clear timers. This action cannot be undone.

Prepaid credit



Note: This feature is not available in all areas and may not appear in the menu. Check with your service provider for availability.

When using a prepaid SIM card, you can make calls only when there are enough credit units on the SIM card (network service). Options are **Credit info display** (show or hide remaining units in the standby mode), **Credit available** (amount of remaining units), **Last event costs**, and **Recharge status**.



Note: When no more charging units or currency units are left, calls may only be possible to the official emergency number programmed into the phone.

Settings

In this menu you can adjust various settings of the phone. You can also reset some menu settings to their default values by choosing **Restore factory set**.



Tone settings

In this menu you can change the settings of the currently selected profile. See "Profiles" on page 20 for more information.

Select **Menu > Settings > Tone settings** and one of the following:

Ringing tone—Set the tone that you hear when you receive a call.

Ringing volume—Set the volume level for the ringing and message alert tones.

Vibrating alert—Set the phone to vibrate when you receive a call or a text message. The vibrator does not operate when the phone is connected to a charger.

Message alert tone—Set the tone that you hear when you receive a text message.

Keypad tones—Set the volume for keypad tones.

Warning tones—Set the phone to sound tones (for example, when the battery is almost discharged).

Display settings

Select **Menu > Settings > Display settings** and one of the following:

Themes—Choose a theme to customize the appearance of your phone display screen. Themes control the display background, the wallpaper, and the appearance of the signal and battery bars in the standby mode. Highlight the desired theme, and select **Options** and one of the following:

- **Activate**—Select **For current profile** or **For all profiles**.
- **Preview**—View the appearance of the theme.
- **Edit**—Select the wallpaper, the menu background, and the signal and battery bars.

Menu view—Set the main menu display format. Select **List** or **Grid**.

Power saver clock—Set the phone to show the digital clock and all the main display icons as a screen saver. The displayed icons indicate missed calls, keypad lock, silent mode and received messages.

Cell info display—Set the phone to indicate when it is used in a cellular network that is based on microcellular network (MCN) technology (network service).

Backlight time—Select whether the backlights are switched on for 15 seconds (**Normal**), for 30 seconds (**Extended**), or not at all (**Off**). Even if the backlight is set to off, it stays on for 15 seconds when the phone is switched on.

Brightness—Modify the display brightness by scrolling left and right.

Screen saver—Set the elapsed time before the screen saver is activated (select **Time-out** and the desired length of time). Choose the picture you want to use for a screen saver (select **Screen saver**, the desired picture, then **Options > Use**). Select **On** or **Off** to activate or deactivate the screen saver.

Profiles

You can customize the phone for different events and environments. After you have personalized a profile you can activate the profile whenever you want to use it.

Activate

Select **Menu > Settings > Profiles**, the desired profile, then **Activate**.

To activate a profile in the standby mode, press the power key briefly, scroll to the desired profile, and select **OK**.

Customize

Select **Menu > Settings > Profiles**, the desired profile, then **Customize**. Select the option you want and follow the prompts.

As well as other settings, **Lights** can also be customized. From the **Customize** menu of a selected profile, select **Lights > Alert lights, Notification lights, or Coverage lights**.

You can also change the settings of the currently selected profile in **Tone settings** (see "Tone settings" on page 19) and in **Display settings** (see "Display settings" on page 19).

Timed

Timed profiles can be used to prevent missed calls. For example, suppose you attend an event that requires your phone be set to **Silent** before the event starts, but you forget to return it to **Normal** until long after the event. During this time, you have missed several calls because the ringing tone was silent.

With the timed profile feature, you can set a profile to expire after any length of time up to 24 hours. When the profile expires, your phone automatically returns to the default profile.

- 1 Select **Menu > Settings > Profiles**, the desired profile, then **Timed**.
- 2 Enter the date and time for the profile to expire.

The profile you have set for expiration is now active and appears in the

standby mode along with a small clock icon.

Time settings

Select **Menu > Settings > Time settings** and one of the following:

Clock—Set the phone to show or hide the current time in the standby mode, set the time, and select the 12- or 24-hour time format. If the battery was removed from the phone, you may need to set the time again.

Date setting—Set the date. If the battery was removed from the phone, you may need to set the date again.


Auto-update of date and time—Set the phone to update the date and time from the network when you turn the phone on (network service). If the clock in your phone is 30 seconds or more off the network time, the phone will be updated automatically to reflect the network time. Select **On**, **Confirm first**, or **Off**. If you select **Confirm first**, the network will request confirmation before updating the time. You can accept or decline the update.

The automatic update of date and time does not change the time you have set for the alarm clock or the reminder notes. Updating may cause some alarms to expire without sounding.

Call settings

Select **Menu > Settings > Call settings** and one of the following:

Call forwarding—Forward incoming calls to your voice mailbox or to some other phone number (network service).

- Select the forwarding option you want. For example, select **Forward if busy** to forward the calls when you are on a call or when you reject a call.
- Several forwarding options may be active at the same time. When **Forward all voice calls** is active,  appears in the standby mode.
- Set the selected option on (**Activate**) or off (**Cancel**), check whether the option is activated by selecting **Check status**, or specify a delay for certain forwarding options in **Set delay time** (not available for all forwarding options).

Fold call handling—Set your phone for **Delayed answering**, **Instant answering**, or **Off**.

Automatic redial—Set your phone to redial up to ten times after an unsuccessful call attempt. Select **On** or **Off**.

Call waiting—Set your phone to notify you of a new incoming call while you have a call in progress (network service). Select **Answer** to answer the waiting call and put the first call on hold. Select **End** to end the active call.

Send my caller ID—Set your phone number to appear to (**On**) or be hidden from (**Off**) the person you are calling (network service). When you select **Default**, the setting agreed with your service provider is used.

Line for outgoing calls—Select either phone line 1 or 2 for making calls, or prevent line selection, if supported by your SIM card (network service).

No. screening—See "Number screening" on page 9.

Phone settings

Select **Menu > Settings > Phone settings** and one of the following:

Language—Select the language for the display texts.

Keypadlock settings—Automatically lock the phone keypad after a preset time delay. The phone must be idle in the standby mode. Select one of the following:

- **Automatic keypadlock > On**—When **Set delay** appears, set the time. You can set the time from 10 seconds to 60 minutes. To deactivate the automatic keypadlock, select **Off**.
- **Keypadlock code**—Enter the security code, and select **OK**. After you have selected **On**, the phone asks for the security code every time you select **Unlock**. To deactivate the security keypadlock, select **Off**.

Network selection—Select **Automatic** to have the phone automatically select a cellular network available in your area. Select **Manual** to select the network manually. The network you select must have a roaming agreement with your home network.

Start-up tone—Switch on or off the tone that sounds when the phone is switched on.

Welcome note—Enter a message that will be shown briefly on the display when the phone is switched on.

Confirm SIM service actions—Set the phone to show or hide confirmation messages when you use the SIM card services. See "SIM services" on page 28.

Cost control



Note: The actual invoice for calls and services from your service provider may vary, depending on network features, rounding off for billing, taxes, and so forth.

Select **Menu > Settings > Cost settings** and one of the following:

In-call timer—Turn on or off the display of call time while calling.

Call summary—Turn on or off the report of approximate call time after calling.

Call costs—Show the approximate cost of your last call or all calls in terms of units specified within the **Show costs in** function (network service).

Fixed dialling—Restrict your outgoing calls to selected phone numbers, if allowed by your SIM cards.

Prepaid credit—When using a prepaid SIM card, you can make calls only when there are enough credit units on the SIM card (network service).



Note: When no more charging units or currency units are left, calls may only be possible to the official emergency number programmed into the device.

Enhancement settings

You can use your phone with many Nokia enhancements. The **Enhancement settings** menu appears only after an enhancement has been connected to the phone at least once.

Select **Menu > Settings > Enhancement settings > Headset, Handsfree, Loopset**, or **TTY/TDD** and one of the following, depending on the enhancement:

Default profile—Select the profile the phone uses when the enhancement is connected.

Automatic answer—Set the phone to automatically answer an incoming call after 5 seconds.

Security settings

Your phone uses several types of codes to help prevent unauthorized use:

- The security code, supplied with the phone, helps to protect your phone against unauthorized use. The preset code is 12345.
- The PIN code, supplied with the SIM card, helps to protect the card against unauthorized use. The preset code is 1234. If you enter the PIN code incorrectly three times in succession, the SIM card is blocked. You must enter the PUK code to unblock the SIM card and set a new PIN code.
- The PIN2 code is supplied with some SIM cards and is required to access certain services, such as charging unit counters. If you enter the PIN2 code incorrectly three times in succession, **PIN2 code blocked** appears on the display, and you will be asked for the PUK2 code.
- The PUK and PUK2 codes may be supplied with the SIM card. If this is not the case, contact your local service provider.

When security features that restrict calls are in use (such as call restriction, closed user group, and fixed dialling), calls still may be possible to the official emergency number programmed into your phone.

Select **Menu > Settings > Security settings** and one of the following:

PIN code request—Set your phone to ask for the PIN code of the SIM card when the phone is switched on. Some SIM cards do not allow this function at all times.

Call restrictions—Set your phone to restrict various types of incoming and outgoing calls (network service). Choose an option and select **Activate**, **Cancel**, or check whether a service is activated (**Check status**). When security features that restrict calls are in use, calls still may be possible to the official emergency number programmed into your phone.

Closed user group—Specify a group of people whom you can call and who can call you (network service). Select **On**, **Off**, or **Default**. If you select **On**, enter the group number provided by your service provider.

Security level—The security level determines your access to features when a non-owner SIM card is used. A non-owner SIM card is one (other than the original) that is inserted after you power off the phone. There are three security levels:

- **Off**—Owner and non-owner cards are treated the same.
- **Memory**—The phone asks for the security code when the SIM card memory is selected, and you want to change the memory in use or copy from one memory to another.
- **Phone**—The security code is required whenever a new SIM card is inserted.

When you change the security level, all the recent calls lists may be cleared, including missed calls, received calls, and dialed numbers.

Change access codes—Lets you change the security code, PIN code, PIN2 code, or restriction password. These codes can include the numbers 0 to 9 only.

Avoid using access codes similar to the emergency numbers, such as 911, to prevent accidental dialing of the emergency number.

Right navigation key setting

When you scroll right in the standby mode, the phone displays a list of shortcuts to various functions. To define the functions to be shown in this list, select **Menu > Settings > R. navigation key settings** and one of the following:

Select options—Scroll to each function that you want as a shortcut and select **Mark**. The functions are listed in the shortcut list in the order you select them. When you have selected all desired functions, select **Back > Yes**. To exit the menu without saving, press **Back** twice.

Organize—Scroll to the function you want to move. Select **Move** and the moving option that you want. When you are finished organising functions, select **Back > Yes** to save the changes. To exit the menu without saving, press **Back** twice.

Restore factory settings

You can reset some of the menu settings to their original values.

- 1 Select **Menu > Settings > Restore factory set**.

- 2 Enter the security code and select **OK**.

The names and phone numbers saved in the phone book are not deleted.

Alarm clock



You can set the alarm to sound at the time you want just once, or repeatedly (for example, every working day).

- 1 Select **Menu > Alarm clock > Alarm time**, enter the time for the alarm, and select **OK**.
- 2 Select **Alarm tone** to choose the tone for the alarm.
- 3 Select **Repeat alarm > Alarm once** to set the alarm to sound only once, or select **Repeat alarm > Repeat alarm** to select the days on which you want the alarm to sound.

When the alarm sounds, press **End** to stop it. If you select **Snooze**, the alarm stops and rings again in 10 minutes.

If the alarm time is reached while the phone is switched off, the phone switches itself on and starts sounding the alarm tone. If you press **End**, the phone asks whether you want to activate the phone for calls. Press **End** to switch off the phone, or select **Yes** to make and receive calls. Do not select **Yes** when wireless phone use may cause interference or danger.

Reminders



You can save short text notes with or without an alarm. The alarm is activated when the set date and time is reached.

Select **Menu > Reminders > Add new, View all, Calendar, Delete, or Alarm tone**.

When the reminder time is reached, to stop the alarm, press **End**. If you select **Snooze**, the alarm sounds again in 10 minutes.

While viewing a reminder, you can select **Options > Delete, Edit, or Send**.

Games



The phone has several games. Each game is provided with a brief help text.

To play a game, select **Menu > Games** and the desired game; then select **Instructions** for an explanation of how to play the game and how to use the other options.

To set the game settings, select **Games > Settings > Games sounds or Shakes**.

When **Warning tones** is off, there may be no sound even if **Game sounds** is on. When **Vibrating alert** is off, the phone does not vibrate even if **Shakes** is on.

Extras



Calculator

The phone is provided with a calculator that can also be used for rough currency conversions.



Note: This calculator has limited accuracy and is designed for simple calculations.

Select **Menu > Extras > Calculator**.

Make a calculation

- 1 Enter the first number in the calculation.
Press a number key (1-0) to insert a digit. Press # to insert a decimal point.
Press **Clear** to delete the last digit. To change the sign, select **Options > Change sign**.
- 2 Press * once for add (+), twice for subtract (-), three times for multiply (x), and four times for divide (/).
- 3 Enter the second number in the calculation, and select **Options > Equals**.
- 4 Press **Clear** to clear the display for a new calculation.

Currency conversion

To save the exchange rate, select **Menu > Extras > Calculator > Options > Exchange rate > To home** or **To foreign**, enter the value (press # for a decimal point), and select **OK**.

To make the conversion, enter the currency amount to be converted, and select **Options > To home** or **To foreign**.



Note: When you change base currency, you must enter the new rates.

Spreadsheet

The spreadsheet lets you calculate your expenses on a daily or monthly basis. The daily spreadsheet can total expenses for up to a month, and the monthly spreadsheet can total expenses for up to a year.

- 1 Select **Menu > Extras > Spreadsheet > Daily account** or **Monthly account**, and scroll to highlight various cells in the spreadsheet.
- 2 With a cell highlighted, select **Options** and one of the following:
Edit—Edit an expense value, an expense category name, or the spreadsheet name (depending on where the cursor is when you select **Options**).
Add row or **Delete row**—Add a new expense category or delete an existing

expense category.

Delete all data—Erase all the data in the current view.

Set row value—Insert the same value for each day or month on the selected expense category.

Save—Save the spreadsheet. If you modify a spreadsheet and then try to exit without saving, the phone prompts you to save.

View details—View the details of the selected cell. To view details you can also press and hold #.

Sync. expense—Synchronize the values from a daily spreadsheet to the corresponding month in a monthly spreadsheet. This option is available only under **Monthly account**.

Converter

The converter lets you convert measurements between different systems, such as Fahrenheit and Celsius. In addition to five preset conversions, you can define up to five custom conversions. You can also view the last five conversions that you performed.

Select **Menu > Extras > Converter > Last five conversions, Temperature, Weight, Length, Area, Volume, or My conversion** (to define custom conversions).

Calendar


To view a calendar for the current month, select **Menu > Extras > Calendar**. Scroll to go to another date.

Countdown timer

You can set an alarm to sound after a period of lapsed time.

- 1 Select **Menu > Extras > Countd. tim.**
- 2 Enter the alarm time, and select **OK**.
- 3 Enter a note for the alarm, if desired, and select **OK**.


While the timer is running, you can select **Menu > Extras > Countd. tim. > Change time or Stop timer**.

When the timer is running,  is shown in the standby mode. When the alarm time is reached, a tone sounds, the display flashes, and the alarm note appears. Press any key to stop the alarm.

Stopwatch

The stopwatch can be used for time measurement, such as in sports.

- 1 Select **Menu > Extras > Stopwatch**.

- 2 Select **Start** to start timing.
- 3 To record the time, select **Stop**.
- 4 When the timing is stopped, select **Options > Start, Reset, or Exit**.
If you select **Start**, timing continues from the previous stop time. **Reset** stops the current timing and sets the time to zero.
To set the timing to continue in the background, press and hold **Back**. While the time is running,  is flashing in the standby mode.

Using the stopwatch or allowing it to run in the background when using other features increases the demand on battery power and reduces the battery life.

Composer

You can create your own ringing tones.

- 1 Select **Menu > Extras > Composer**.
A tone name in a location is a tone that you have previously created. **(empty)** indicates an empty and available location for a new ringing tone.
- 2 Select an **(empty)** location.
- 3 Enter the notes of the musical scale as shown in the picture. For example, press **4** for note **F**.
Press **8** (-) to shorten and **9** (+) to lengthen the duration of the note or rest.
Press **0** to insert a rest.
Press ***** to set the octave and **#** to make the note sharp (not available for notes **E** and **B**).
Scroll left and right to move the cursor left or right through the notes of your tone.
Press **Clear** to delete a note or rest to the left of the cursor.
- 4 When the tone is complete, select **Options > Save**, enter a name for your tone, select **OK**, and select a location for your ringing tone.
- 5 When the notes of your tone are displayed, you can select **Options** to access **Play, Save, Tempo, Send, Clear screen, or Exit**.

c	d	e
f	0 g 0	a
b	-	+
123	—	#

SIM services

This menu appears only if your SIM card provides additional services. The name and contents of this menu depend on the services available.



For availability, rates, and information on using SIM services, contact your SIM card vendor or service provider.

Prepaid

With prepaid service, you buy wireless network services in advance. Your phone works the same way it did before, with some additional features. You can check your prepaid balance, add money to your account, and call customer service.

Prepaid service may not be available from your wireless service provider. Contact your service provider for details.

In the **Prepaid** menu, you can activate and deactivate prepaid service, replenish your prepaid credits, and provide other information requested by the prepaid service provider.

Select **Menu > Prepaid > Code entry mode, IMEI number, SIM serial number, Phone number, Airtime tank info, Airtime display, or Redeem airtime.**

6 Reference information

Battery information

Charging and discharging

Your device is powered by a rechargeable BL-4C standard battery. The full performance of a new battery is achieved only after two or three complete charge and discharge cycles. The battery can be charged and discharged hundreds of times but it will eventually wear out. When the talk and standby times are noticeably shorter than normal, buy a new battery. Use only Nokia approved batteries, and recharge your battery only with Nokia approved chargers designated for this device.

Unplug the charger from the electrical plug and the device when not in use. Do not leave the battery connected to a charger. Overcharging may shorten its lifetime. If left unused, a fully charged battery will lose its charge over time. Temperature extremes can affect the ability of your battery to charge.

Use the battery only for its intended purpose. Never use any charger or battery that is damaged.

Do not short-circuit the battery. Accidental short-circuiting can occur when a metallic object such as a coin, clip, or pen causes direct connection of the positive (+) and negative (-) terminals of the battery. (These look like metal strips on the battery.) This might happen, for example, when you carry a spare battery in your pocket or purse. Short-circuiting the terminals may damage the battery or the connecting object.

Leaving the battery in hot or cold places, such as in a closed car in summer or winter conditions, will reduce the capacity and lifetime of the battery. Always try to keep the battery between 59°F and 77°F (15°C and 25°C). A device with a hot or cold battery may not work temporarily, even when the battery is fully charged. Battery performance is particularly limited in temperatures well below freezing.

Do not dispose of batteries in a fire, as they may explode. They may also explode if damaged. Dispose of batteries according to local regulations. Please recycle when possible. Do not dispose as household waste.

Enhancements

A few practical rules about accessories and enhancements:

- Keep all accessories and enhancements out of the reach of small children.
- When you disconnect the power cord of any accessory or enhancement,



grasp and pull the plug, not the cord.

- Check regularly that enhancements installed in a vehicle are mounted and are operating properly.
- Installation of any complex car enhancements must be made by qualified personnel only.

Enhancements, batteries, and chargers

Check the model number of any charger before use with this device. This device is intended for use when supplied with power from charger ACP-7, or other compatible charger. See "Compatible Nokia enhancements" on page 31.



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. See also "Insert the battery" on page 4 and "Charge the battery" on page 5.

Your device and its enhancements may contain small parts. Keep them out of reach of small children.

Compatible Nokia enhancements

Headset audio

- Headset (HDC-5, HDB-5, HDE-2)
- Dual headset (HDD-1, HS-7)
- Music player (HDR-1)
- Mobile inductive loopset (LPS-3)

Car

- Plug-in HF car kit (PPH-1)
- Microphone (HFM-8)
- Headrest handsfree (BHF-2)

Accessibility

- Phone adapter (HDA-9)

Battery

- Standard 760 Li-Ion battery (BL-4C)

Chargers

- Standard charger (ACP-7)
- Travel charger (ACP-8, ACP-12)
- Retractable travel charger (AC-1)
- Mobile charger (LCH-9, LHC-12)

Other

- Carrying cases
- Wrist strap wearables

Care and maintenance

Your device is a product of superior design and craftsmanship and should be treated with care. The suggestions below will help you protect your warranty coverage and enjoy your device for many years.

- Keep the device dry. Precipitation, humidity, and all types of liquids or moisture can contain minerals that will corrode electronic circuits. If your device does get wet, remove the battery and allow the device to dry completely before replacing it.
- Do not use or store the device in dusty, dirty areas. Its moving parts and electronic components can be damaged.
- Do not store the device in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.
- Do not store the device in cold areas. When the device returns to its normal temperature, moisture can form inside the device and damage electronic circuit boards.
- Do not attempt to open the device other than as instructed in this guide.
- Do not drop, knock, or shake the device. Rough handling can break internal circuit boards and fine mechanics.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the device.
- Do not paint the device. Paint can clog the moving parts and prevent proper operation.
- Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could damage the device and may violate regulations governing radio devices.
- Use chargers indoors.

All of the suggestions apply equally to your device, battery, charger, or any enhancement. If any device is not working properly, take it to the nearest authorized service facility for service.

Additional safety information

Operating environment

Remember to follow any special regulations in force in any area and always switch off your device when its use is prohibited or when it may cause interference or danger. Use the device only in its normal operating positions. This device meets RF exposure guidelines when used either in the normal use position against the ear or when positioned at least 5/8 inch (1.5 cm) away from the body. When a carry case, belt clip, or holder is used for body-worn operation, it should not contain metal and should position the device at least 5/8 inch (1.5 cm) away from your body.

In order to transmit data files or messages, this device requires a quality connection to the network. In some cases, transmission of data files or messages may be delayed until such a connection is available. Ensure the above separation distance instructions are followed until the transmission is completed.

Medical devices

Operation of any radio transmitting equipment, including wireless phones, may interfere with the functionality of inadequately protected medical devices.

Consult a physician or the manufacturer of the medical device to determine if they are adequately shielded from external RF energy or if you have any questions. Switch off your phone in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF energy.

Pacemakers

Pacemaker manufacturers recommend that a minimum separation of 6 inches (15.3 cm) be maintained between a wireless phone and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with the independent research by and recommendations of Wireless Technology Research. To minimize the potential for interference, persons with pacemakers should

- Always keep the device more than 6 inches (15.3 cm) from their pacemaker when the device is switched on
- Not carry the device in a breast pocket
- Hold the device to the ear opposite the pacemaker

If you have any reason to suspect that interference is taking place, switch off your device immediately.

Hearing aid

Some digital wireless devices may interfere with some hearing aids. If interference occurs, consult your service provider.

Vehicles

RF signals may affect improperly installed or inadequately shielded electronic systems in motor vehicles such as electronic fuel injection systems, electronic antiskid (antilock) braking systems, electronic speed control systems, air bag systems. For more information, check with the manufacturer or its representative of your vehicle or any equipment that has been added.

Only qualified personnel should service the device, or install the device in a vehicle. Faulty installation or service may be dangerous and may invalidate any warranty that may apply to the device. Check regularly that all wireless device equipment in your vehicle is mounted and operating properly. Do not store or carry

flammable liquids, gases, or explosive materials in the same compartment as the device, its parts, or enhancements. For vehicles equipped with an air bag, remember that air bags inflate with great force. Do not place objects, including installed or portable wireless equipment in the area over the air bag or in the air bag deployment area. If in-vehicle wireless equipment is improperly installed and the air bag inflates, serious injury could result.

Aircraft

FCC regulations prohibit using your wireless device while in the air. The use of wireless telephones in an aircraft may be dangerous to the operation of the aircraft, disrupt the wireless telephone network, and may be illegal.

Failure to observe these instructions may lead to suspension or denial of telephone services to the offender, legal action, or both.

Potentially explosive environments

Switch off your device when in any area with a potentially explosive atmosphere and obey all signs and instructions. Potentially explosive atmospheres include areas where you would normally be advised to turn off your vehicle engine. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death. Switch off the device at refuelling points such as near gas pumps at service stations. Observe restrictions on the use of radio equipment in fuel depots, storage, and distribution areas, chemical plants or where blasting operations are in progress. Areas with a potentially explosive atmosphere are often but not always clearly marked. They include below deck on boats, chemical transfer or storage facilities, vehicles using liquefied petroleum gas (such as propane or butane), and areas where the air contains chemicals or particles such as grain, dust or metal powders.

EMERGENCY CALLS



Important: Wireless phones, including this phone, operate using radio signals, wireless networks, landline networks, and user-programmed functions. Because of this, connections in all conditions cannot be guaranteed. You should never rely solely on any wireless phone for essential communications like medical emergencies.

To make an emergency call:

- 1 If the phone is not on, switch it on. Check for adequate signal strength. Some networks may require that a valid SIM card is properly inserted in the phone.
- 2 Press the **End** key as many times as needed to clear the display and ready the phone for calls. You may need to disable any security features activated on the phone.
- 3 Key in the official emergency number for your present location. Emergency numbers vary by location.

4 Press the **Call** key.

If certain features are in use, you may first need to turn those features off before you can make an emergency call. Consult this guide or your service provider. When making an emergency call, give all the necessary information as accurately as possible. Your wireless phone may be the only means of communication at the scene of an accident. Do not end the call until given permission to do so.

CERTIFICATION INFORMATION (SAR)

THIS MODEL PHONE MEETS THE GOVERNMENT'S REQUIREMENTS FOR EXPOSURE TO RADIO WAVES.

Your mobile device is a radio transmitter and receiver. It is designed and manufactured not to exceed the limits for exposure to radio frequency (RF) energy adopted by the governments of the USA through the Federal Communications Commission (FCC) and Canada through Industry Canada (IC). These limits establish permitted levels of RF energy for the general population. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons, regardless of age and health.

The exposure guidelines for mobile devices employ a unit of measurement known as the Specific Absorption Rate or SAR. The SAR limit adopted by the USA and Canada is 1.6 watts/kilogram (W/kg) averaged over one gram of tissue. The limit incorporates a substantial margin of safety to give additional protection for the public and to account for any variations in measurements. 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 well 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 value reported to the FCC and IC for this device type when tested for use at the ear is 0.87 W/kg, and when properly worn on the body is 0.87 W/kg. SAR information on file with the FCC can be found under the Display Grant section of <http://www.fcc.gov/oet/fccid> after searching on FCC ID QTKRH-54. SAR values reported in other countries may vary depending on differences in reporting and testing requirements and the network band. Additional SAR information may be provided under product information at www.nokia.com.

Technical information

Weight	3.41 oz (97 g) with 760-mAh Li-Ion battery
Size	Volume: 4.7 in ³ (77 cc) Length: 3.39 in (86 mm) Width: 1.81 in (46 mm) Thickness: 0.90 in (22.9 mm)
Frequency range	GSM850 824–849 MHz (TX) 869–894 MHz (RX) GSM1900 1850–1910 MHz (TX) 1930–1990 MHz (RX)
Transmitter output power	Up to 2 W
Battery voltage	3.7 V
Operating temperature	14°F to + 131°F (-10°C to +55°C)
^aTalk time, standby time	Talk time: up to 3 hours Standby time: up to 300 hours

- a. Battery talk and standby times are estimates only and depend on signal strength, network conditions, features used, battery age and condition (including the effect of charging habits), temperatures to which battery is exposed, use in digital mode, and many other factors. Please note that the amount of time a phone is used for calls will affect its standby time. Likewise, the amount of time that the phone is turned on and in the standby mode will affect its talk time.

Nokia one-year limited warranty

Nokia Inc. ("Nokia") warrants that this cellular phone ("Product") is free from defects in material and workmanship that result in Product failure during normal usage, according to the following terms and conditions:

- 1 The limited warranty for the Product extends for ONE (1) year beginning on the date of the purchase of the Product. This one year period is extended by each whole day that the Product is out of your possession for repair under this warranty.
- 2 The limited warranty extends only to the original purchaser ("Consumer") of the Product and is not assignable or transferable to any subsequent purchaser/end-user.
- 3 The limited warranty extends only to Consumers who purchase the Product in the United States of America.
- 4 During the limited warranty period, Nokia will repair, or replace, at Nokia's sole option, any defective parts, or any parts that will not properly operate for their intended use with new or refurbished replacement items if such repair or replacement is needed because of product malfunction or failure during normal usage. No charge will be made to the Consumer for any such parts. Nokia will also pay for the labor charges incurred by Nokia in repairing or replacing the defective parts. The limited warranty does not cover defects in appearance, cosmetic, decorative or structural items, including framing, and any non-operative parts. Nokia's limit of liability under the limited warranty shall be the actual cash value of the Product at the time the Consumer returns the Product for repair, determined by the price paid by the Consumer for the Product less a reasonable amount for usage. Nokia shall not be liable for any other losses or damages. These remedies are the Consumer's exclusive remedies for breach of warranty.
- 5 Upon request from Nokia, the Consumer must prove the date of the original purchase of the Product by a dated bill of sale or dated itemized receipt.
- 6 The Consumer shall bear the cost of shipping the Product to Nokia in Melbourne, Florida. Nokia shall bear the cost of shipping the Product back to the Consumer after the completion of service under this limited warranty.
- 7 The Consumer shall have no coverage or benefits under this limited warranty if any of the following conditions are applicable:
 - a) The Product has been subjected to abnormal use, abnormal conditions, improper storage, exposure to moisture or dampness, unauthorized modifications, unauthorized connections, unauthorized repair, misuse, neglect, abuse, accident, alteration, improper installation, or other acts which are not the fault of Nokia, including damage caused by shipping.
 - b) The Product has been damaged from external causes such as collision with an object, or from fire, flooding, sand, dirt, windstorm, lightning, earthquake or damage from exposure to weather conditions, an Act of God, or battery leakage, theft, blown fuse, or improper use of any electrical source, damage caused by computer or internet viruses, bugs, worms, Trojan Horses, cancelbots or damage caused by the connection to other products not recommended for

- interconnection by Nokia.
- c Nokia was not advised in writing by the Consumer of the alleged defect or malfunction of the Product within fourteen (14) days after the expiration of the applicable limited warranty period.
 - d The Product serial number plate or the enhancement data code has been removed, defaced or altered.
 - e The defect or damage was caused by the defective function of the cellular system or by inadequate signal reception by the external antenna, or viruses or other software problems introduced into the Product.
- 8** Nokia does not warrant uninterrupted or error-free operation of the Product. If a problem develops during the limited warranty period, the Consumer shall take the following step-by-step procedure:
- a) The Consumer shall return the Product to the place of purchase for repair or replacement processing.
 - b If "a" is not convenient because of distance (more than 50 miles) or for other good cause, the Consumer shall ship the Product prepaid and insured to:
Nokia Inc., Attn: Repair Department
795 West Nasa Blvd.
Melbourne, FL 32901
 - c The Consumer shall include a return address, daytime phone number and/or fax number, complete description of the problem, proof of purchase and service agreement (if applicable). Expenses related to removing the Product from an installation are not covered under this limited warranty.
 - d The Consumer will be billed for any parts or labor charges not covered by this limited warranty. The Consumer will be responsible for any expenses related to reinstallation of the Product.
 - e Nokia will repair the Product under the limited warranty within 30 days after receipt of the Product. If Nokia cannot perform repairs covered under this limited warranty within 30 days, or after a reasonable number of attempts to repair the same defect, Nokia at its option, will provide a replacement Product or refund the purchase price of the Product less a reasonable amount for usage. In some states the Consumer may have the right to a loaner if the repair of the Product takes more than ten (10) days. Please contact the Customer Service Center at Nokia at the telephone number listed at the end of this warranty if you need a loaner and the repair of the Product has taken or is estimated to take more than ten (10) days.
 - f If the Product is returned during the limited warranty period, but the problem with the Product is not covered under the terms and conditions of this limited warranty, the Consumer will be notified and given an estimate of the charges the Consumer must pay to have the Product repaired, with all shipping charges billed to the Consumer. If the estimate is refused, the Product will be returned freight collect. If the Product is returned after the expiration of the limited warranty period, Nokia's normal service policies shall apply and the Consumer will be responsible for all shipping charges.

- 9** You (the Consumer) understand that the product may consist of refurbished equipment that contains used components, some of which have been reprocessed. The used components comply with Product performance and reliability specifications.
- 10** ANY IMPLIED WARRANTY OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE OR USE, SHALL BE LIMITED TO THE DURATION OF THE FOREGOING LIMITED WRITTEN WARRANTY. OTHERWISE, THE FOREGOING LIMITED WARRANTY IS THE CONSUMER'S SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. NOKIA SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF ANTICIPATED BENEFITS OR PROFITS, LOSS OF SAVINGS OR REVENUE, LOSS OF DATA, PUNITIVE DAMAGES, LOSS OF USE OF THE PRODUCT OR ANY ASSOCIATED EQUIPMENT, COST OF CAPITAL, COST OF ANY SUBSTITUTE EQUIPMENT OR FACILITIES, DOWNTIME, THE CLAIMS OF ANY THIRD PARTIES, INCLUDING CUSTOMERS, AND INJURY TO PROPERTY, RESULTING FROM THE PURCHASE OR USE OF THE PRODUCT OR ARISING FROM BREACH OF THE WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT, OR ANY OTHER LEGAL OR EQUITABLE THEORY, EVEN IF NOKIA KNEW OF THE LIKELIHOOD OF SUCH DAMAGES. NOKIA SHALL NOT BE LIABLE FOR DELAY IN RENDERING SERVICE UNDER THE LIMITED WARRANTY, OR LOSS OF USE DURING THE PERIOD THAT THE PRODUCT IS BEING REPAIRED.
- 11** Some states do not allow limitation of how long an implied warranty lasts, so the one year warranty limitation may not apply to you (the Consumer). Some states do not allow the exclusion or limitation of incidental and consequential damages, so certain of the above limitations or exclusions may not apply to you (the Consumer). This limited warranty gives the Consumer specific legal rights and the Consumer may also have other rights which vary from state to state.
- 12** Nokia neither assumes nor authorizes any authorized service center or any other person or entity to assume for it any other obligation or liability beyond that which is expressly provided for in this limited warranty including the provider or seller of any extended warranty or service agreement.
- 13** This is the entire warranty between Nokia and the Consumer, and supersedes all prior and contemporaneous agreements or understandings, oral or written, relating to the Product, and no representation, promise or condition not contained herein shall modify these terms.
- 14** This limited warranty allocates the risk of failure of the Product between the Consumer and Nokia. The allocation is recognized by the Consumer and is reflected in the purchase price.
- 15** Any action or lawsuit for breach of warranty must be commenced within eighteen (18) months following purchase of the Product.
- 16** Questions concerning this limited warranty may be directed to:
Nokia Inc.
Attn: Customer Service
7725 Woodland Center Blvd., Ste. 150

Tampa, FL 33614

Telephone: 1-888-NOKIA-2U (1-888-665-4228)

Facsimile: (813) 249-9619

TTY/TDD Users Only: 1-800-24-NOKIA (1-800-246-6542)

17The limited warranty period for Nokia supplied attachments and accessories is specifically defined within their own warranty cards and packaging.

Appendix A Message from the CTIA (Cellular Telecommunications & Internet Association) to all users of mobile phones

© 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, 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.

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"

Below are safety tips to follow while driving and using a wireless phone which should be easy to remember.

- 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.
- 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, 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.
 - 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 call for help. Your wireless phone is one of the greatest tools you 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!
 - 9 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.
 - 10 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 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.

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>

Appendix B Message from the FDA

**(U.S. Food and Drug Administration) to all
users of mobile phones**

©July 18, 2001 For updates: <http://www.fda.gov/cdrh/phones>

Consumer Update on Wireless Phones

U.S. Food and Drug Administration

1. 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 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.

2. 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 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
 - 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.

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 subject of the safety questions discussed in this document.

3. What kinds of phones are the subject of this update?

The term wireless phone refers here to hand-held wireless phones with built-in antennas, often called cell mobile or PCS phones. These types of wireless phones can expose the user to measurable radiofrequency energy (RF) because of the short distance between the phone and the user's head. These RF exposures are limited by Federal Communications Commission safety guidelines that were developed with the advice of FDA and other federal health and safety agencies. When the phone is located at greater distances from the user, the exposure to RF is drastically lower because a person's RF exposure decreases rapidly with increasing distance from the source. The so-called cordless phones; which have a base unit connected to the telephone wiring in a house, typically operate at far lower power levels, and thus produce RF exposures far below the FCC safety limits.

4. What are the results of the research done already?

The research done thus far has produced conflicting results, and many studies have suffered from flaws in their research methods. Animal experiments investigating the effects of radiofrequency energy (RF) exposures characteristic of wireless phones have yielded conflicting results that often cannot be repeated in other laboratories. A few animal studies, however, have suggested that low levels of RF could accelerate the development of cancer in laboratory animals. However, many of the studies that showed increased tumor development used animals that had been genetically engineered or treated with cancer-causing chemicals so as to be pre-disposed to develop cancer in the absence of RF exposure. Other studies exposed the animals to RF for up to 22 hours per day. These conditions are not similar to the conditions under which people use wireless phones, so we don't know with certainty what the results of such studies mean for human health.

Three large epidemiology studies have been published since December 2000. Between them, the studies investigated any possible association between the use of wireless phones and primary brain cancer, glioma,

meningioma, or acoustic neuroma, tumors of the brain or salivary gland, leukemia, or other cancers. None of the studies demonstrated the existence of any harmful health effects from wireless phone RF exposures. However, none of the studies can answer questions about long-term exposures, since the average period of phone use in these studies was around three years.

5. What research is needed to decide whether RF exposure from wireless phones poses a health risk?

A combination of laboratory studies and epidemiological studies of people actually using wireless phones would provide some of the data that are needed. Lifetime animal exposure studies could be completed in a few years. However, very large numbers of animals would be needed to provide reliable proof of a cancer promoting effect if one exists. Epidemiological studies can provide data that is directly applicable to human populations, but 10 or more years follow-up may be needed to provide answers about some health effects, such as cancer. This is because the interval between the time of exposure to a cancer-causing agent and the time tumors develop - if they do - may be many, many years. The interpretation of epidemiological studies is hampered by difficulties in measuring actual RF exposure during day-to-day use of wireless phones. Many factors affect this measurement, such as the angle at which the phone is held, or which model of phone is used.

6. 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 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 B 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 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.

7. How can I find out how much radiofrequency energy exposure I can get by using my wireless phone?

All phones sold in the United States must comply with Federal Communications Commission (FCC) guidelines that limit radiofrequency energy (RF) exposures. FCC established these guidelines in consultation with FDA and the other federal health and safety agencies. The FCC limit for RF exposure from wireless telephones is set at a Specific Absorption Rate (SAR) of 1.6 watts per kilogram (1.6 W/kg). The FCC limit is consistent with the safety standards developed by the Institute of Electrical and Electronic Engineering (IEEE) and the National Council on Radiation Protection and Measurement. The exposure limit takes into consideration the body's ability to remove heat from the tissues that absorb energy from the wireless phone and is set well below levels known to have effects.

Manufacturers of wireless phones must report the RF exposure level for each model of phone to the FCC. The FCC website (<http://www.fcc.gov/oet/rfsafety>) gives directions for locating the FCC identification number on your phone so you can find your phone's RF exposure level in the online listing.

8. What has FDA done to measure the radiofrequency energy coming from wireless phones?

The Institute of Electrical and Electronic Engineers (IEEE) is developing a technical standard for measuring the radiofrequency energy (RF) exposure from wireless

phones and other wireless handsets with the participation and leadership of FDA scientists and engineers. The standard, Recommended Practice for Determining the Spatial-Peak Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques, sets forth the first consistent test methodology for measuring the rate at which RF is deposited in the heads of wireless phone users. The test method uses a tissue-simulating model of the human head.

Standardized SAR test methodology is expected to greatly improve the consistency of measurements made at different laboratories on the same phone. SAR is the measurement of the amount of energy absorbed in tissue, either by the whole body or a small part of the body. It is measured in watts/kg (or milliwatts/g) of matter. This measurement is used to determine whether a wireless phone complies with safety guidelines.

9. 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, 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.

10. 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 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.

11. What about wireless phone interference with medical equipment?

Radiofrequency energy (RF) from wireless phones can interact with some electronic devices. For this reason, FDA helped develop a detailed test method to measure electromagnetic interference (EMI) of implanted cardiac pacemakers and defibrillators from wireless telephones. This test method is now part of a standard sponsored by the Association for the Advancement of Medical Instrumentation (AAMI). The final draft, a joint effort by FDA, medical device manufacturers, and many other groups, was completed in late 2000. This standard will allow manufacturers to ensure that cardiac pacemakers and defibrillators are safe from wireless phone EMI. FDA has tested hearing aids for interference from handheld wireless phones and helped develop a voluntary standard sponsored by the Institute of Electrical and Electronic Engineers (IEEE). This standard specifies test methods and performance requirements for hearing aids and wireless phones so that no interference occurs when a person uses a compatible phone and a accompanied hearing aid at the same time. This standard was approved by the IEEE in 2000.

FDA continues to monitor the use of wireless phones for possible interactions with other medical devices. Should harmful interference be found to occur, FDA will conduct testing to assess the interference and work to resolve the problem.

12. Where can I find additional information?

For additional information, please refer to the following resources:

- FDA web page on wireless phones
<http://www.fda.gov/cdrh/phones/index.html>
- Federal Communications Commission (FCC) RF Safety Program
<http://www.fcc.gov/oet/rfsafety>
- International Commission on Non-Ionizing Radiation Protection
<http://www.icnirp.de>
- World Health Organization (WHO) International EMF Project
<http://www.who.int/emf>
- National Radiological Protection Board (UK)
<http://www.nrpb.org.uk/>

July 18, 2001 For updates: <http://www.fda.gov/cdrh/phones>

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