Some of the contents in this manual may differ from your phone depending on the software of the phone or your service provider.

SAMSUNG ELECTRONICS

SAMSUNG

Samsung M8800L
user manual

Draft

SAMSUNG

using this manual

This user manual has been specially designed to guide you through the functions and features of your mobile phone. To get started quickly, refer to "introducing your mobile phone," "assembling and preparing your mobile phone," and "using basic functions."

Instructional icons

Before you start, familiarise yourself with the icons you will see in this manual:

Warning—situations that could cause injury to yourself or others

Caution—situations that could cause damage to your phone or other equipment

Note—notes, usage tips, or additional information

▶ **Refer to**—pages with related information; for example: ▶ p.12 (represents "see page 12")

→ **Followed by**—the order of options or menus you must select to perform a step; for example: In Menu mode, select **Messages → Create message** (represents **Messages**, followed by **Create message**)

[ ] **Square brackets**—phone keys; for example: [⚫] (represents the Power/ Menu exit key)

Copyright information

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- Bluetooth® is a registered trademark of the Bluetooth SIG, Inc. worldwide—Bluetooth QD ID: B0XXXXX.
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- Windows Media Player® is a registered trademark of Microsoft Corporation.
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using this manual

ABOUT DIVX VIDEO

DivX® is a digital video format created by DivX, Inc. This is an official DivX Certified device that plays DivX video. Plays DivX® video up to 320x240. May play DivX® video up to 720x480.

ABOUT DIVX VIDEO-ON-DEMAND

This DivX® Certified device must be registered with DivX in order to play DivX Video-on-Demand (VOD) content. First generate the DivX VOD registration code for your device and submit it during the registration process. [Important: DivX VOD content is protected by a DivX DRM (Digital Rights Management) system that restricts playback to registered DivX Certified devices. If you try to play DivX VOD content not authorized for your device, the message "Authorization Error" will be displayed and your content will not play.] Learn more at www.divx.com/vod.

contents

safety and usage information

Comply with the following precautions to avoid dangerous or illegal situations and ensure peak performance of your mobile phone.

⚠️ **WARNING** **Safety warnings**

Keep your phone away from small children and pets

Keep your phone and all accessories out of the reach of small children or animals. Small parts may cause choking or serious injury if swallowed.

Protect your hearing

Listening to a headset at high volumes can damage your hearing. Use only the minimum volume setting necessary to hear your conversation or music.

Install mobile phones and equipment with caution

Ensure that any mobile phones or related equipment installed in your vehicle are securely mounted. Avoid placing your phone and accessories near or in an air bag deployment area. Improperly installed wireless equipment can cause serious injury when air bags inflate rapidly.

Handle and dispose of batteries and chargers with care

- Use only Samsung-approved batteries and chargers specifically designed for your phone. Incompatible batteries and chargers can cause serious injuries or damage to your phone.
- Never dispose of batteries or phones in a fire. Follow all local regulations when disposing used batteries or phones.

- Never place batteries or phones on or in heating devices, such as microwave ovens, stoves, or radiators. Batteries may explode when overheated.
- Never crush or puncture the battery. Avoid exposing the battery to high external pressure, which can lead to an internal short circuit and overheating.

Avoid interference with pacemakers

Maintain a minimum of 15 cm (6 inches) between mobile phones and pacemakers to avoid potential interference, as recommended by manufacturers and the independent research group, Wireless Technology Research. If you have any reason to suspect that your phone is interfering with a pacemaker or other medical device, turn off the phone immediately and contact the manufacturer of the pacemaker or medical device for guidance.

Turn off the phone in potentially explosive environments

Do not use your phone at refueling points (service stations) or near fuels or chemicals. Turn off your phone whenever directed by warning signs or instructions. Your phone could cause explosions or fire in and around fuel or chemical storage and transfer areas or blasting areas. Do not store or carry flammable liquids, gases, or explosive materials in the same compartment as the phone, its parts, or accessories.

Reduce the risk of repetitive motion injuries

When sending text messages or playing games on your phone, hold the phone with a relaxed grip, press the keys lightly, use special features that reduce the number of keys you have to press (such as templates and predictive text), and take frequent breaks.

Safety precautions

Drive safely at all times

Avoid using your phone while driving and obey all regulations that restrict the use of mobile phones while driving. Use hands-free accessories to increase your safety when possible.

Follow all safety warnings and regulations

Comply with any regulations that restrict the use of a mobile phone in a certain area.

Use only Samsung-approved accessories

Using incompatible accessories may damage your phone or cause injury.

Turn off the phone near medical equipment

Your phone can interfere with medical equipment in hospitals or health care facilities. Follow all regulations, posted warnings, and directions from medical personnel.

Turn off the phone or disable the wireless functions when in an aircraft

Your phone can cause interference with aircraft equipment. Follow all airline regulations and turn off your phone or switch to a mode that disables the wireless functions when directed by airline personnel.

Protect batteries and chargers from damage

- Avoid exposing batteries to very cold or very hot temperatures (below 0° C/32° F or above 45° C/113° F). Extreme temperatures can reduce the charging capacity and life of your batteries.
- Prevent batteries from contacting metal objects, as this can create a connection between the + and - terminals of your batteries and lead to temporary or permanent battery damage.
- Never use a damaged charger or battery.

Handle your phone carefully and sensibly

- Do not allow your phone to get wet—liquids can cause serious damage. Do not handle your phone with wet hands. Water damage to your phone can void your manufacturer's warranty.

- Avoid using or storing your phone in dusty, dirty areas to prevent damage to moving parts.
- Your phone is a complex electronic device—protect it from impacts and rough handling to avoid serious damage.
- Do not paint your phone, as paint can clog moving parts and prevent proper operation.
- Avoid using the phone's camera flash or light close to the eyes of children or animals.
- Your phone and memory cards may be damaged by exposure to magnetic fields. Do not use carrying cases or accessories with magnetic closures or allow your phone to come in contact with magnetic fields for extended periods of time.

CAUTION

Avoid interference with other electronic devices

Your phone emits radio frequency (RF) signals that may interfere with unshielded or improperly shielded electronic equipment, such as pacemakers, hearing aids, medical devices, and other electronic devices in homes or vehicles. Consult the manufacturers of your electronic devices to solve any interference problems you experience.

✐ Important usage information

Use your phone in the normal position

Avoid contact with your phone's internal antenna.

Allow only qualified personnel to service your phone

Allowing unqualified personnel to service your phone may result in damage to your phone and will void your warranty.

Ensure maximum battery and charger life

- Avoid charging batteries for more than a week, as overcharging may shorten battery life.
- Over time, unused batteries will discharge and must be recharged before use.

- Disconnect chargers from power sources when not in use.
- Use batteries only for their intended purpose.

Handle SIM cards and memory cards with care

- Do not remove a card while the phone is transferring or accessing information, as this could result in loss of data and/or damage to the card or phone.
- Protect cards from strong shocks, static electricity, and electrical noise from other devices.
- Frequent writing and erasing will shorten the life span of memory cards.
- Do not touch gold-colored contacts or terminals with your fingers or metal objects. If dirty, wipe the card with a soft cloth.

Ensure access to emergency services

Emergency calls from your phone may not be possible in some areas or circumstances. Before traveling in remote or undeveloped areas, plan an alternate method of contacting emergency services personnel.

introducing your mobile phone

In this section, learn about your mobile phone's layout, keys, display, and icons.

Unpack

Check your product box for the following items:

- Mobile phone
- Battery
- Travel adapter (charger)
- User manual

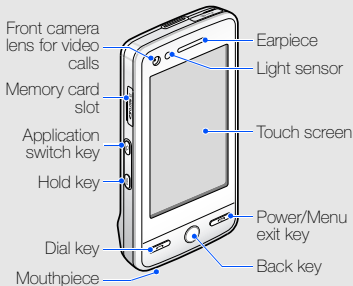> The items supplied with your phone may vary depending on the software and accessories available in your region or offered by your service provider.
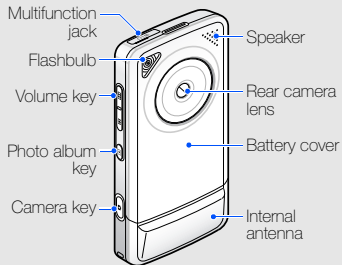> You can obtain additional accessories from your local Samsung dealer.

Phone layout

The front of your phone includes the following keys and features:

Front camera lens for video calls

Memory card slot

Application switch key

Hold key

Dial key

Mouthpiece

Earpiece

Light sensor

Touch screen

Power/Menu exit key

Back key

The rear of your phone includes the following keys and features:

Multifunction jack

Flashbulb

Volume key

Photo album key

Camera key

Speaker

Rear camera lens

Battery cover

Internal antenna

You can lock the touch screen and keys to prevent any unwanted phone operations. To lock, press [**HOLD**].

Keys

Key		Function
📞	Dial	Make or answer a call; In Idle mode, retrieve recently dialed, missed, or received numbers
◯	Back	In Menu mode, return to the previous level
📞	Power/ Menu exit	Turn the phone on and off (press and hold); End a call; In Menu mode, return to the main menu screen or return to Idle mode
📲	Application switch	Open the application switch window to access other applications without exiting the current application
🔒	Hold	Look or unlock the touch screen and keys

Key		Function
🔊	Volume	Adjust the phone's volume
🖼	Photo album	In Idle mode, open your photos or videos
📷	Camera	In Idle mode, turn on the camera (press and hold); In Camera mode, take a photo or record a video; From the dialing screen, make a video call

Display

Your phone's display consists of the following areas:

Icon line
Displays various icons

Text and graphic area
Displays messages, instructions, and information you enter

Softkey line
Displays the current actions assigned to each area

| Keypad | Phonebook | Messages | Menu |
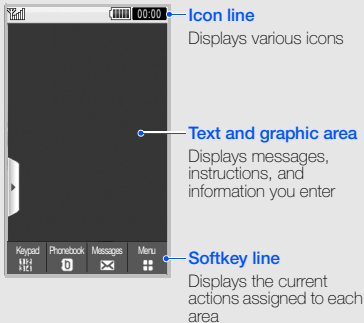
Icons

Learn about the icons that appear on your display.

Icon	Definition
	Signal strength
	GPRS network connected
	Transferring data via GPRS network
	EDGE network connected
	Transferring data via EDGE network
	UMTS network connected
	Transferring data via UMTS network
	HSDPA network connected
	Transferring data via HSDPA network

Icon	Definition
	Voice call in progress
	Video call in progress
	Alarm activated
	Browsing the web
	Connected to secured web page
	Roaming (outside of normal service area)
	Call diverting activated
	Bluetooth activated
	Bluetooth hands-free car kit or headset connected
	Synchronized with PC
	Memory card inserted

Icon	Definition
	New text message (SMS)
	New multimedia message (MMS)
	New email message
	New voice mail message
	New push message
	New configuration message
	New video message
	Text message full
	Multimedia message full
	Email message full
	Voice mail message full
	Push message full

introducing your mobile phone

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Icon	Definition
	Configuration message full
	Normal profile activated
	Silent profile activated
	Driving profile activated
	Meeting profile activated
	Outdoor profile activated
	Offline profile activated
	Battery power level
10:00	Current time

assembling and preparing your mobile phone

Get started by assembling and setting up your mobile phone for its first use.

Install the SIM or USIM card and battery

When you subscribe to a cellular service, you will receive a Subscriber Identity Module, or SIM card, with subscription details, such as your personal identification number (PIN) and optional services.

To use UMTS services, you can purchase a Universal Subscriber Identity Module (USIM) card.

To install the SIM or USIM card and battery,

1. Remove the battery cover.
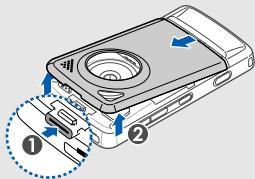
⚠️ If the phone is on, press and hold [📞] to turn it off.

2. Insert the SIM or USIM card.
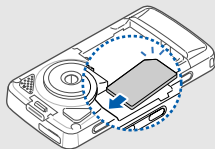
⚠️
  • Place the SIM or USIM card in the phone with the gold-colored contacts facing down.
  • Without inserting a SIM or USIM card, you can use your phone's non-network services and some menus.

3. Insert the battery.
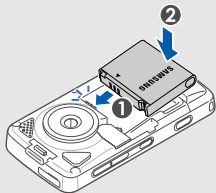
4. Replace the battery cover.
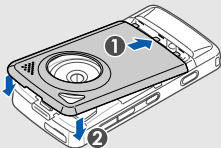
Charge the battery

Before using the phone for the first time, you must charge the battery.

1. Open the cover to the multifunction jack and plug the small end of the travel adapter into the multifunction jack.

With the triangle facing up
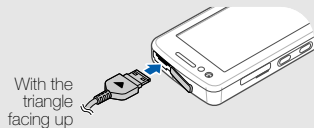
Improperly connecting the travel adapter can cause serious damage to the phone. Any damages by misuse are not covered by the warranty.

2. Plug the large end of the travel adapter into a power outlet.

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3. When the battery is fully charged (the ▯▯▯▯ icon is no longer moving), unplug the travel adapter from the power outlet.
4. Unplug the travel adapter from the phone.
5. Close the cover to the multifunction jack.

☑ **About the low battery indicator**
When your battery is low, the phone will emit a warning tone and a low battery message. The battery icon will also be empty and blinking. If the battery level becomes too low, the phone will automatically power off. Recharge your battery to continue using your phone.

Insert a memory card (optional)

To store additional multimedia files, you must insert a memory card. Your phone accepts microSD™ memory cards up to 8 GB (depending on memory card manufacturer and type).

1. Open the cover to the memory card slot on the side of the phone.
2. Insert a memory card with the label side facing up.
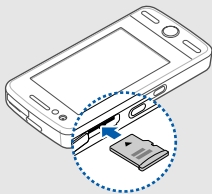
3. Push the memory card in the memory card slot until it locks in place.

To remove the memory card, push it gently until it disengages from the phone, and then pull the memory card out of the memory card slot.

using basic functions

Learn how to perform basic operations and use the main features of your mobile phone.

Turn your phone on and off

To turn your phone on,

1. Press and hold [⏻].
2. Enter your PIN and tap **Confirm** (if necessary).

To turn your phone off, repeat step 1 above.

Switch to the offline profile

By switching to the offline profile, you can use your phone's non-network services in areas where wireless devices are prohibited, such as airplanes and hospitals.

To switch to the offline profile, in Menu mode, tap **Settings** → **Phone profiles** → **Offline**.

> Follow all posted warnings and directions from official personnel when in areas where wireless devices are prohibited.

Access menus

To access your phone's menus,

1. In Idle mode, tap **Menu** to access Menu mode.
2. Select a menu or option.
3. Press the Back key to move up one level; Press [🔚] twice to return to Idle mode.

Switch applications

Learn to switch to other applications from a menu, without closing the menu screen you are using.

1. While using a menu, press [🔄].
   The following applications are available:
   - **Call**: open the dialing screen
   - **Music player**: launch the music player
   - **Messages**: access the **Messages** menu

- **Browser**: launch the web browser
- **Main menu**: access the main menu screen

2. Select an application.

Use widgets

Learn to use widgets on the toolbar.

Open the toolbar

In Idle mode, tap the arrow at the bottom left of the screen to open the toolbar. You can rearrange widgets on the toolbar or move them to the idle screen.

> Depending on your region or service provider, available widgets may vary.

Add the widgets to the idle screen

1. Open the toolbar.
2. Drag a widget from the toolbar to the idle screen. You can position the widget anywhere on the screen.

Change the widgets

1. In Menu mode, tap **Settings** → **Display and light** → **Widget**.
2. Select the widgets you want to include to the toolbar and tap **Save**.

Customize your phone

Get more from your phone by customizing it to match your preferences.

Adjust the volume of the key tones

In Idle mode, press the Volume key up or down to adjust the key tone volume.

Adjust the vibration intensity on the touch screen

You can adjust the intensity of the vibration when you tap the phone screen.

1. In Idle mode, press the Volume key up or down.
2. Tap **Vibration** and press the Volume key up or down to adjust the intensity of the vibration.

Switch to or from the silent profile

In Idle mode, tap **Keypad** and tap and hold **#** to silence or unsilence your phone.

Change your ringtone

1. In Menu mode, tap **Settings** → **Phone profiles**.
2. Tap ⟩⟩ next to the profile you are using.
3. Tap **Voice call ringtone** or **Video call ringtone**.

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4. Select a ringtone from the list and tap **Save**.

5. Tap **Save**.

Select a wallpaper (Idle mode)

1. In Menu mode, tap **Settings** → **Display and light** → **Wallpaper**.

2. Scroll left or right to an image.

3. Tap **Set**.

Lock your phone

1. In Menu mode, tap **Settings** → **Security**.

2. Tap **On** under **Phone lock**.

3. Enter a new 4- to 8-digit password and tap **Confirm**.

4. Enter the new password again and tap **Confirm**.

Use basic call functions

Learn to make or answer calls and use basic call functions.

> During a call, your phone automatically locks the touch screen to prevent accidental inputs. To unlock, press [**HOLD**].

Make a call

1. In Idle mode, tap **Keypad** and enter an area code and a phone number.

2. Press [📞] or tap **Voice call** to dial the number.

   For a video call, tap **More** → **Video call** or press [📷].

3. To end the call, press [📵].

Answer a call

1. When a call comes in, press [📞].

2. For a video call, press [📞] and tap **Show me**.

3. To end the call, press [📵].

Adjust the volume

To adjust the volume during a call, press the Volume key up or down.

Use the speakerphone feature

1. During a call, tap **Speaker** → **Yes** to activate the speaker.
2. To switch back to the earpiece, tap **Speaker**.

Use the headset

By plugging the supplied headset into the phone, you can make and answer calls:

- To redial the last call, press and hold the headset button, and then press again and hold.
- To answer a call, press the headset button.
- To end a call, press the headset button.

Send and view messages

Learn to send and view text (SMS), multimedia (MMS), and email messages.

Send a text or multimedia message

1. In Menu mode, tap **Messages** → **Create message** → **Message**.
2. Tap **Tap to add recipient** → **Enter manually**.
3. Enter a destination number and tap **Done**.
4. Tap **Tap to add text**.
5. Enter your message text and tap **Done**.
   ▶ p. 24
   For sending as a text message, skip to step 7. For attaching multimedia, continue with step 6.
6. Tap **Add media** and add an item.
7. Tap **Send** to send the message.

Send an email

1. In Menu mode, tap **Messages** → **Create message** → **Email**.
2. Tap **Tap to add recipient** → **Enter manually**.
3. Enter an email address and tap **Done**.
4. Tap **Tap to add subject**.
5. Enter a subject and tap **Done**.
6. Tap **Tap to add text**.
7. Enter your email text and tap **Done**.
8. Tap **Add files** and attach a file (if necessary).
9. Tap **Send** to send the message.

Enter text

With your phone's touch screen, you can enter text and create messages or notes.

Change the text input method

When you open the text input field, the virtual keypad appears. Tap the down arrow next to **Keypad** and select one of the following input methods for entering text:

- Keypad
- Handwr. full sc.
- Handwriting box 1
- Handwriting box 2

You can use a wide keyboard when you rotate the phone anti-clockwise to landscape view when entering text.

Enter text using the keypad

1. Change the text input method to **Keypad**.
2. Tap the appropriate virtual key to enter text.
   - To change case or use numbers or symbols, tap **Abc**.
   - To enter text in T9 mode, tap **T9**.

You can use the following text input modes:

Mode	Function
ABC	Tap the appropriate virtual key until the character you want appears on the display.
T9	1. Tap the appropriate virtual key to enter an entire word. 2. When the word displays correctly, tap ⊔ ↵ to insert a space. If the correct word does not display, select an alternate word from the list that appears.
Number	Tap the appropriate virtual key to enter a number.

Mode	Function
Symbol	Tap the appropriate virtual key to select a symbol.

Enter text using the handwriting full screen

1. Change the text input method to **Handwr. full sc.**
2. Write each character anywhere on the screen.

   To change case or use numbers or symbols, tap **Abc**.

Enter text using the handwriting box1

1. Change the text input method to **Handwriting box 1**.
2. Write each character in the writing area at the bottom of the screen.

   Write numbers and symbols in the **?1** column at the bottom right of the writing area.

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Enter text using the handwriting box2

1. Change the text input method to **Handwriting box 2**.
2. Write each character in the writing area at the bottom of the screen.

   To change case or use numbers or symbols, tap **Abc**.

View text or multimedia messages

1. In Menu mode, tap **Messages** → **Inbox**.
2. Select a text or multimedia message.

View an email

1. In Menu mode, tap **Messages** → **Email inbox**.
2. Select an account.
3. Tap **Download**.
4. Select an email or a header.
5. If you selected a header, tap **Retrieve** to view the body of the email.

Add and find contacts

Learn the basics of using the phonebook feature.

Add a new contact

1. In Idle mode, tap **Keypad** and enter a phone number.
2. Tap **More** → **Add to Phonebook** → **New**.
3. Tap **Phone** or **SIM**.
4. Enter contact information.
5. Tap **Save** to add the contact to memory.

Find a contact

1. In Menu mode, tap **Phonebook**.
2. Drag ▷ to select the first letter of the name you want to find.
3. Select the contact's name from the search list.

Once you have found a contact, you can:
- call the contact by tapping 📞
- edit the contact information by tapping **Edit**

Use basic camera functions

Learn the basics to capture and view photos and videos.

When you turn on the camera, the display may appear blank due to temporary electrostatic discharge. Try restarting the phone to solve the problem.

Capture photos

1. Rotate the phone anti-clockwise to landscape view.
2. In Idle mode, press and hold [📷] to turn on the camera.
3. Aim the lens at the subject and make any adjustments.

4. Press [📷] to take a photo.
   The photo is saved automatically.

View photos

In Menu mode, tap **My files** → **Images** → **My photos** → a photo file.

To categorize and view photos in a wide view,

1. In Menu mode, tap **Photo browser**.
2. Rotate the phone anti-clockwise to landscape view.
3. Tap 🖼 and select a category to display the photos.
4. Scroll left or right to view photos.

Capture videos

1. Rotate the phone anti-clockwise to landscape view.
2. In Idle mode, press and hold [📷] to turn on the camera.
3. Tap 📷 to switch to Recording mode.
4. Aim the lens at the subject and make any adjustments.
5. Press [📷] to start recording.
6. Press [📷] to stop recording.
   The video is saved automatically.

View videos

In Menu mode, tap **My files** → **Videos** → **My video clips** → a video file.

Tag faces in your photos

Learn to tag faces in your photos and make calls or send messages from photos. Before making calls or sending messages, you must create face tags.

To tag faces in your photos,

1. Select a photo by pressing [▶].
2. Tap 🔲 to add a tag to a person's face.
3. Tap 🔲, move or resize the rectangle on a face, and tap 🆗 (if necessary).
4. Tap **Add** → **Add name**.
5. Enter a name of the face tag and tap **Done**.
6. Tap **Options** → **Edit** → **Link to Phonebook** → **Create contact** to save a new contact with the face tag to the phonebook.

To make calls or send messages from photos,

1. Select a photo with a face tag by pressing [▶].
2. Tap 🐷. The face tag appears with the name.
3. Tap **Options** → **Call** or **Message**.

Listen to music

Learn how to listen to music via the music player or FM radio.

Listen to the FM radio

1. Plug the supplied headset into the phone's multifunction jack.
2. In Menu mode, tap **Applications** → **FM radio**.

3. Tap **Yes** to start automatic tuning.
   The radio scans and saves available stations automatically.

ℹ️ The first time you access the FM radio, you will be prompted to start automatic tuning.

4. Tap ◁ or ▷ to select a radio station.
   If you want to get information about the song you hear, tap **More** → **Music recognition**. ▶ p. 39
5. To turn off the FM radio, tap ■.

Listen to music files

Start by transferring files to your phone or memory card:

- Download from the wireless web. ▶ p. 30
- Download from a PC with the optional Samsung PC Studio. ▶ p. 36
- Receive via Bluetooth. ▶ p. 41

- Copy to your memory card. ▶ p. 36
- Synchronize with Windows Media Player 11. ▶ p. 37

After transferring music files to your phone or memory card,

1. In Menu mode, tap **Music** → **Music player**.
2. Select a music category → a music file.
3. Control playback using the following icons:

Icon	Function
❚❚	Pause playback
▶	Play playback
◀◀	Skip backward; Scan backward in a file (tap and hold)
▶▶|	Skip forward; Scan forward in a file (tap and hold)
🔊	Adjust the volume up or down

Browse the web

Learn to access and bookmark your favorite web pages.

Browse web pages

1. In Menu mode, tap **Applications** → **Browser** → **Home** to launch your service provider's homepage.
2. Navigate web pages using the following icons:

Icon	Function
◀ ▶	Move backward or forward on a web page
↻	Refresh the current web page
⌂	Return to the homepage
🔍	Zoom on a web page
📑	Add a bookmark

Icon	Function
★	Open a list of saved bookmarks
⌗	Change the view mode

Bookmark your favorite web pages

1. In Menu mode, tap **Applications** → **Browser** → **Bookmarks**.
2. Tap **Add**.
3. Enter a page title and a web address (URL).
4. Tap **Save**.

using advanced functions

Learn how to perform advanced operations and use additional features of your mobile phone.

Use advanced call functions

Learn about your phone's additional calling capabilities.

View and dial missed calls

Your phone will display calls you have missed on the display. To dial the number of a missed call,

1. Tap the missed call you want to dial from the event alert widget.
2. Press [⬚] to dial.

Call a recently dialed number

1. In Idle mode, press [⬚] to display a list of recent numbers.
2. Scroll to the number you want and tap ⬚.

Hold a call or retrieve a held call

Tap **Hold** to place a call on hold or tap **Retrieve** to retrieve a held call.

Dial a second call

If your network supports this function, you can dial another number during a call:

1. Tap **Hold** to place the first call on hold.
2. Tap **Keypad**, enter the second number to dial, and press [➡].
3. Tap **Swap** to switch between the two calls.
4. To end the call on hold, tap **On hold** and tap 📵.
5. To end the current call, press [📵].

Answer a second call

If your network supports this function, you can answer a second incoming call:

1. Press [➡] to answer the second call. The first call is automatically placed on hold.
2. Tap **Swap** to switch between the calls.

Make a multiparty call (conference call)

1. Call the first party you want to add to the multiparty call.
2. While connected to the first party, call the second party.
   The first party is automatically placed on hold.
3. When connected to the second party, tap **Join**.
4. Repeat steps 2 and 3 to add more parties (if necessary).
5. To end the multiparty call, press [📵].

Call an international number

1. In Idle mode, tap **Keypad** and tap and hold **0** to insert the **+** character.
2. Enter the complete number you want to dial (country code, area code, and phone number), and then press [➡] to dial.

Call a contact from the phonebook

You can call numbers directly from the phonebook using stored contacts. ▶ p. 26

1. In Menu mode, tap **Phonebook**.
2. Scroll to the number you want to dial and tap 📞.

Use advanced phonebook functions

Learn to create namecards, set speed dial numbers and create groups of contacts.

Create a namecard

1. In Menu mode, tap **Phonebook** → **More** → **My namecard**.
2. Enter your personal details.
3. Tap **Save**.

> You can send your namecard by attaching it to a message or email or transferring it via the Bluetooth wireless feature.

Set speed dial numbers

1. In Menu mode, tap **Phonebook**.
2. Tap the down arrow next to the **Contacts** box and select **Favourites**.
3. Tap **Add**.
4. Select a contact.

   The contact is saved to the speed dial number.

> The first five speed dial numbers will be assigned to the favorite contacts (📇) on the widget toolbar.

Create a group of contacts

By creating groups of contacts, you can assign group names, ringtones, caller ID photos, and vibration type to each group or send messages and emails to an entire group. Start by creating a group:

1. In Menu mode, tap **Phonebook**.
2. Tap the down arrow next to the **Contacts** box and select **Groups**.

3. Tap **Create group**.
4. Set a group name, the caller ID photo, a group ringtone, and vibration type.
5. Tap **Save**.

Use advanced messaging functions

Learn to create templates and use templates to create new messages.

Create a text template

1. In Menu mode, tap **Messages** → **Templates** → **Text templates**.
2. Tap **Create** to open a new template window.
3. Tap the screen.
4. Enter your text and tap **Done**.
5. Tap **More** → **Save as template**.

Create a multimedia template

1. In Menu mode, tap **Messages** → **Templates** → **Multimedia templates**.
2. Tap **Create** to open a new template window.
3. Create a multimedia message, with a subject and desired attachments, to use as your template. ▶ p. 23
4. Tap **More** → **Save as template**.

Insert text templates in new messages

1. To start a new message, in Menu mode, tap **Messages** → **Create message** → a message type.
2. Tap **More** → **Insert** → **Text template** → a template.

Create a message from a multimedia template

1. In Menu mode, tap **Messages** → **Templates** → **Multimedia templates**.
2. Select the template you want.
3. Tap **Edit**.

   Your template opens as a new multimedia message.

Use advanced music functions

Learn to prepare music files, create playlists, and store radio stations.

Copy music files via Samsung PC Studio

1. In Menu mode, tap **Settings** → **Phone settings** → **PC connections** → **Samsung PC studio** → **Save**.

2. Using an optional PC data cable, connect the multifunction jack on your phone to a PC.
3. Run Samsung PC Studio and copy files from the PC to the phone.

   Refer to the Samsung PC Studio help for more information.

Copy music files to a memory card

1. Insert a memory card.
2. In Menu mode, tap **Settings** → **Phone settings** → **PC connections** → **Mass storage** → **Save**.
3. Press [⊷] to return to Idle mode.
4. Using an optional PC data cable, connect the multifunction jack on your phone to a PC.

   When connected, a pop-up window will appear on the PC.

5. Select **Open folder to view files** in the pop-up window on the PC.
6. Copy files from the PC to the memory card.

Synchronize your phone with Windows Media Player

1. Insert a memory card.
2. In Menu mode, tap **Settings** → **Phone settings** → **PC connections** → **Media player** → **Save**.
3. Press [🔚] to return to Idle mode.
4. Using an optional PC data cable, connect the multifunction jack on your phone to a PC with Windows Media Player installed. When connected, a pop-up window will appear on the PC.
5. Select **Sync digital media files to this device** in the pop-up window on the PC.
6. Edit or enter your phone's name in the pop-up window (if necessary), and then click **Finish**.

7. Select and drag the music files you want to the sync list.
8. Click **Start Sync**.

Create a playlist

1. In Menu mode, tap **Music** → **Music player** → **Playlists**.
2. Tap **Create**.
3. Tap the text input field.
4. Enter a title for your new playlist and tap **Done**.
5. To assign an image to the playlist, tap **Tap to edit** and select an image or capture a new photo.
6. Tap **Save**.
7. Select the new playlist.
8. Tap **Add** → **Tracks**.
9. Select the files you want to include and tap **Add**.

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Customize your music player settings

1. In Menu mode, tap **Music** → **Music player**.
2. Tap **Settings**.
3. Adjust the settings to customize your music player.
4. Tap **Save**.

Record songs from the FM radio

1. Plug the supplied headset into the phone's multifunction jack.
2. In Menu mode, tap **Applications** → **FM radio**.
3. Tap to ▶ start the FM radio.
4. Tap **More** → **Record** to start recording.

5. When you are finished recording, tap **Stop**. The music file will be saved in **Radio clips** (tap **My files** → **Sounds**).

The recording feature is developed for voice recording only. The quality of the recording will be much lower than digital media.

Store radio stations automatically

1. In Menu mode, tap **Applications** → **FM radio**.
2. Tap **More** → **Self-tuning**.
3. Tap **Yes** to confirm (if necessary). The radio scans and saves available stations automatically.

Find information of music

Learn to access an online music service and get information about the songs you hear while on the move.

1. In Menu mode, tap **Music** → **Music recognition**.
2. Select **Music recognition** to connect to the server.
3. When your phone is successfully registered, tap 🔴 to record a part of music you want to find.

⊛ Some service providers may not support this service and the database may not have information for all songs.

using tools and applications

Learn how to work with your mobile phone's tools and additional applications.

Use the Bluetooth wireless feature

Learn about your phone's ability to connect to other wireless devices for exchanging data and using hands-free features.

Turn on the Bluetooth wireless feature

1. In Menu mode, tap **Applications** → **Bluetooth**.
2. Tap the circle in the center to turn on the Bluetooth wireless feature.
3. To allow other devices to locate your phone, tap **Settings** → **My phone's visibility** → **On** → **Save**.

    If you select **Custom**, set duration that your phone is visible.

Find and pair with other Bluetooth-enabled devices

1. In Menu mode, tap **Applications** → **Bluetooth** → **Search**.
2. Select and drag a device icon into the center.
3. Enter a PIN for the Bluetooth wireless feature or the other device's Bluetooth PIN, if it has one, and tap **Done**.
    When the owner of the other device enters the same code or accepts the connection, pairing is complete.

Send data using the Bluetooth wireless feature

1. Select the file or item from one of your phone's applications that you want to send.
2. Tap **Send via** → **Bluetooth**.

Receive data using the Bluetooth wireless feature

1. Enter the PIN for the Bluetooth wireless feature and tap **OK** (if necessary).
2. Tap **Yes** to confirm that you are willing to receive data from the device (if necessary).

Use Remote SIM mode

In Remote SIM mode, you can make or answer calls only with a connected Bluetooth hands-free car kit via the SIM or USIM card on your phone.

To activate Remote SIM mode,

1. In Menu mode, tap **Applications** → **Bluetooth** → **Settings**.
2. Tap **Remote SIM mode** → **On**.
3. Tap **Save**.

To use Remote SIM mode, start the Bluetooth connection from a Bluetooth hands-free car kit.

> The Bluetooth hands-free car kit must be authorized. To authorize, tap the device and select **Authorise device**.

Activate and send an SOS message

When you have an emergency, you can send an SOS message asking for help.

> This feature may not be available depending on your region or service provider.

1. In Menu mode, tap **Messages** → **SOS messages** → **Sending options**.
2. Tap **On** to turn on the SOS messaging feature.
3. Tap **Recipients** to open the recipient list.
4. Tap **Contacts** to open your contact list.
5. Select the contacts you want and tap **Add**.

6. Select a phone number (if necessary).
7. Tap **OK** to save the recipients.
8. Tap **Repeat** and set the number of times to repeat the SOS message.
9. Tap **Save** → **Yes**.

To send an SOS message, the keys must be locked. Press the Volume key four times.

> Once you send an SOS message, all phone functions will be suspended until you press [**HOLD**].

Activate the mobile tracker

When someone inserts a new SIM or USIM card in your phone, the mobile tracker feature will automatically send the contact number to two recipients to help you locate and recover your phone. To activate the mobile tracker,

1. In Menu mode, tap **Settings** → **Security** → **uTrack**.
2. Enter your password and tap **Confirm**.

3. Tap **On** to turn on the mobile tracker.
4. Tap **Recipients** to open the recipient list.
5. Tap the recipient field.
6. Enter a phone number and tap **Done**.
7. Tap **OK** to save the recipients.
8. Tap **Sender**.
9. Enter the sender's name and tap **Done**.
10. Tap **Save** → **Accept**.

View the phone display on a TV

Learn to view files by connecting your phone to a TV.

1. With the TV on, connect your phone to the TV with a TV out cable.
2. Switch the TV to the appropriate external input mode.

   If you cannot view the phone via the TV, try changing the TV-out settings: In Menu mode, tap **Settings** → **Phone settings** → **TV-out** → a video encoding system.

Your files may not display correctly, due to differences in video systems or quality of the TV display. The Bluetooth stereo headset and zoom functions will not work in TV-out mode.

Record and play voice memos

Learn to operate your phone's voice recorder.

Record a voice memo

1. In Menu mode, tap **Applications** → **Voice recorder**.
2. Tap ● to start recording.
3. Speak your memo into the microphone.
4. When you are finished speaking, tap ■. Your memo is saved automatically.

Play a voice memo

1. In Menu mode, tap **My files** → **Sounds** → **Voice clips**.
2. Select a file.

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3. Control the playback using the following icons:

Icon	Function
❙❙	Pause playback
▶	Play playback
◀◀	Scan backward in a file
▶▶	Scan forward in a file
🔊	Adjust the volume up or down

Edit images

Learn to edit images and apply fun effects.

Apply effects to images

1. In Menu mode, tap **My files** → **Images** → **My photos** → a photo file.
2. Tap 📝.
3. Tap **Edit** → **Effects** → an effect option.

4. Select a variation of the effect to apply and tap **Done**.

   To apply a blur effect to a specific area of an image, move or resize the rectangle and tap **Blur** → **Done**.

5. When you are finished with applying effects, tap **Files** → **Save as**.
6. Select a memory location (if necessary).
7. Enter a new file name for the image and tap **Done**.

Adjust an image

1. In Menu mode, tap **My files** → **Images** → **My photos** → a photo file.
2. Tap 📝.
3. Tap **Edit** → **Adjust** → an adjustment option (brightness, contrast, or color).

   To adjust the image automatically, select **Auto level**.

4. Adjust the image as desired and tap **Done**.

5. When you are finished with adjustment, tap **Files** → **Save as**.

6. Select a memory location (if necessary).

7. Enter a new file name for the image and tap **Done**.

Transform an image

1. In Menu mode, tap **My files** → **Images** → **My photos** → a photo file.

2. Tap 🖼.

3. Tap **Edit** → **Transform** → **Resize**, **Rotate**, or **Flip**.

4. Rotate or flip the image as desired and tap **Done**.

   To resize the image, select a size and tap **Save** → **Done**.

5. When you are finished with transforming options, tap **Files** → **Save as**.

6. Select a memory location (if necessary).

7. Enter a new file name for the image and tap **Done**.

Crop an image

1. In Menu mode, tap **My files** → **Images** → **My photos** → a photo file.

2. Tap 🖼.

3. Tap **Edit** → **Crop**.

4. Move the rectangle over the area you want to crop and tap **Crop** → **Done**.

5. When you are finished cropping, tap **Files** → **Save as**.

6. Select a memory location (if necessary).

7. Enter a new file name for the image and tap **Done**.

Insert a visual feature

1. In Menu mode, tap **My files** → **Images** → **My photos** → a photo file.

2. Tap 🖼.

3. Tap **Edit** → **Insert** → a visual feature (frame, image, clip art, emoticon, or text).

4. Select a visual feature or enter text.

5. Tap **Done**.

6. When you are finished adding visual features, tap **Files** → **Save as**.

7. Select a memory location (if necessary).

8. Enter a new file name for the image and tap **Done**.

Add a memo

1. In Menu mode, tap **My files** → **Images** → **My photos** → a photo file.

2. Tap 🖼.

3. Tap **Edit** → **Memo on screen**.

4. Select a color and enter a memo on the screen.

5. Tap **Done**.

6. When you are finished, tap **Files** → **Save as**.

7. Select a memory location (if necessary).

8. Enter a new file name for the image and tap **Done**.

Print images

Learn to print your image with an optional PC data cable or the Bluetooth wireless feature.

To print an image using an optional PC data cable,

1. Connect the multifunction jack on your phone to a compatible printer.

2. Open an image. ▶ p. 27

3. Tap **More** → **Print via** → **USB**.

4. Set print options and print the image.

To print an image using the Bluetooth wireless feature,

1. Open an image. ▶ p. 27

2. Tap **More** → **Print via** → **Bluetooth**.

3. Select a Bluetooth-enabled printer and pair with the printer. ▶ p. 41

4. Set print options and print the image.

Edit videos

Learn to edit video files and apply visual effects.

Trim any segment

1. In Menu mode, tap **Applications** → **Video editor**.

2. Tap **Files** → **Import image** or **Import video**.

3. Select an image or video category → an image or video → **Add**.

   For an image, select the duration that the image displays.

4. Tap **More** → **Files** to add more images or videos.

5. Tap **Edit** → **Trim**.

6. Tap ▶ to play the video and tap **Start mark** at the point where you want the new video to begin.

7. Tap **End mark** at the point where you want the new video to end.

8. Tap **Trim**.

9. When you are finished, tap **More** → **Export** → **Video** → **Yes**.

   To save the project for future use, tap **More** → **Files** → **Save project**. The project will be saved in **Other files**.

10. Enter a new file name and tap **Done**.

11. To check the file, tap **Yes** (if necessary).

Split videos

1. In Menu mode, tap **Applications** → **Video editor**.

2. Tap **Files** → **Import image** or **Import video**.

3. Select an image or video category → an image or video → **Add**.

   For an image, select the duration that the image displays.

4. Tap **More** → **Files** to add more images or videos.

5. Tap **Edit** → **Split**.

6. Tap ▶ to play the video and tap **Split point** → **Split** to divide the file into two clips.

7. Insert an image or video as desired between the clips.

8. When you are finished, tap **More** → **Export** → **Video** → **Yes**.

   To save the project for future use, tap **More** → **Files** → **Save project**. The project will be saved in **Other files**.

9. Enter a new file name and tap **Done**.

10. To check the file, tap **Yes** (if necessary).

Insert text

📝 Inserting text to a video may not be available depending on your service provider.

1. In Menu mode, tap **Applications** → **Video editor**.

2. Tap **Files** → **Import image** or **Import video**.

3. Select an image or video category → an image or video → **Add**.

   For an image, select the duration that the image displays.

4. Tap **More** → **Files** to add more images or videos.

5. Tap **Edit** → **Insert** → **Text**.

6. Tap ▶ to play the video and tap **Start mark** at the point where you want the text to be displayed.

7. Tap **End mark** at the point where you want the text to be disappeared.

8. Tap **Insert**.

9. Enter text and tap **Done**.

10. Move or resize the text and tap **Done**.

11. When you are finished, tap **More** → **Export** → **Video** → **Yes**.

   To save the project for future use, tap **More** → **Files** → **Save project**. The project will be saved in **Other files**.

12. Enter a new file name and tap **Done**.

13. To check the file, tap **Yes** (if necessary).

Add sound track

1. In Menu mode, tap **Applications** → **Video editor**.

2. Tap **Files** → **Import image** or **Import video**.

3. Select an image or video category → an image or video → **Add**.

   For an image, select the duration that the image displays.

4. Tap **More** → **Files** to add more images or videos.

5. Tap **Additional audio track** → **Import sound**.

6. Tap **Sounds** → a sound category → a sound → **Add**.

7. When you are finished, tap **More** → **Export** → **Video** → **Yes**.

   To save the project for future use, tap **More** → **Files** → **Save project**. The project will be saved in **Other files**.

8. Enter a new file name and tap **Done**.

9. To check the file, tap **Yes** (if necessary).

Synchronize data

Learn to synchronize Phonebook, Calendar, Task, and Memo with the web server you have specified.

> This feature may not be available depending on your region or service provider.

Create a synchronization profile

1. In Menu mode, tap **Applications** → **Synchronise**.

2. Tap **Add** and specify profile parameters.

3. When you are finished, tap **Save**.

Start synchronization

1. In Menu mode, tap **Applications** →
   Synchronise.
2. Select a synchronization profile.
3. Tap **Continue** to start synchronization with
   the web server you have specified.

Use RSS reader

Learn to use RSS reader to get the latest news
and information from your favorite websites.

Create feeds

1. In Menu mode, tap **Applications** → **RSS
   reader**.
2. Tap **Add**.
3. Tap the URL input field.
4. Enter the address of an RSS feed and tap
   Done.
5. Tap **OK**.

Read RSS feeds

1. In Menu mode, tap **Applications** → **RSS
   reader**.
2. Tap **Update** → a feed → **Update** → **Yes**.
3. Select a feed category → an updated feed.

Customize RSS reader settings

1. In Menu mode, tap **Applications** → **RSS
   reader**.
2. Tap **More** → **Settings** → **Network
   settings**.
3. Tap ⏩ next to a profile you want.
4. Change the settings to customize your RSS
   reader.
5. Tap **Save**.

Use Java-powered games and applications

Learn to use games and applications powered by award-winning Java technology.

📝 Depending on the software of the phone, the download of java files may not be supported.

Play games

1. In Menu mode, tap **Applications** → **Games and more**.
2. Select a game from the list and follow the onscreen instructions.

📝 Available games may vary, depending on your service provider or region. Game controls and options may vary.

Launch applications

1. In Menu mode, tap **Applications** → **Games and more** → an application.

2. Tap **More** to access a list of various options and settings for your application.

Create and view world clocks

Learn to view the time in another city and set world clocks to appear on your display.

Create a world clock

1. In Menu mode, tap **Organiser** → **World clock**.
2. Tap **Add**.
3. Scroll left or right to a time zone.
4. Tap **OK** to create your world clock.
5. To add more clocks, repeat steps 2-4 above.

Add a world clock to your display

In Dual Clock Display mode, you can view clocks with two different time zones on your display.

After you have created a world clock,

1. In Menu mode, tap **Organiser** → **World clock**.
2. Tap **Set as 2nd clock**.
3. Select the world clock you want to add.
4. Tap **Set**.

Set and use alarms

Learn to set and control alarms for important events.

Set a new alarm

1. In Menu mode, tap **Alarms**.
2. Tap **Create alarm**.
3. Set alarm details.
4. Tap **Save**.

> ✎ The auto power-up feature sets the phone to automatically turn on and sound the alarm at the designated time if the phone is turned off.

Stop an alarm

When the alarm sounds,

- Drag the slider to **Stop** to stop an alarm without snooze.
- Drag the slider to **Stop** to stop an alarm with snooze or drag the slider to **Snooze** to silence the alarm for the snooze period.

Deactivate an alarm

1. In Menu mode, tap **Alarms**.
2. Tap **Off** next to the alarm you want to deactivate.

Use the calculator

1. In Menu mode, tap **Organiser** → **Calculator**.
2. Use the keys that correspond to the calculator display to perform basic mathematical operations.

Convert currencies or measurements

1. In Menu mode, tap **Organiser** →
   Convertor → a conversion type.
2. Enter the currencies or measurements and
   units in the appropriate fields.

Set a countdown timer

1. In Menu mode, tap **Applications** → **Timer**.
2. Enter the length of time to count down.
3. Tap **Start** to begin the countdown.
4. Tap **Stop** to pause the countdown.
5. When the timer expires, drag the slider to
   Stop to stop the alerts.

Use the stopwatch

1. In Menu mode, tap **Applications** →
   Stopwatch.
2. Tap **Start** to begin the stopwatch.
3. Tap **Lap** to record lap times.
4. When you are finished, tap **Stop**.
5. Tap **Reset** to clear recorded times.

Create a new task

1. In Menu mode, tap **Organiser** → **Task**.
2. Tap **Create task**.
3. Enter the details of the task.
4. Tap **Save**.

Create a text memo

1. In Menu mode, tap **Organiser** → **Memo**.
2. Tap **Create memo**.
3. Enter your memo text and tap **Done**.

Create sketches

Learn to create sketches with various sketch tools.

1. In Menu mode, tap **Applications** → **Live pix**.
2. From the sketch toolbar, tap ✏ to change the tool type. You have the following tools:

Tool		Function
✏	Pen	Select the line type; Select the line thickness; Select the line color

Tool		Function
⬭	Shape	Add a circle or rectangle; Change the line thickness; Change the line color; Select the color to fill the figure
T	Text	Enter text to insert; Change the font size; Change the attribute; Change the text color
👤	Stamp	Insert a stamp or an image

3. Using the tools, make a sketch.
4. To add motion to the sketch, use one of the following methods:
   - Tap **More** → **Motion** → **Preset** → an object → a motion type → **OK**.
   - Tap **More** → **Motion** → **Motion line** → an object. Draw a line to track and tap **OK**.

5. When you are finished, tap **File** → **Save as flash** or **Save as image**.

6. Enter a file name and tap **Done**.

Manage your calendar

Learn to change the calendar view and create events.

Change the calendar view

1. In Menu mode, tap **Organiser** → **Calendar**.

2. Tap **More** → **View by day** or **View by week**.

Create an event

1. In Menu mode, tap **Organiser** → **Calendar**.

2. Tap **Create schedule**.

3. Enter the details of the event as required.

4. Tap **Save**.

troubleshooting

If you are having trouble with your mobile phone, try these troubleshooting procedures before contacting a service professional.

While using your phone, the following messages may appear:

Message	Try this to solve the problem:
Insert SIM card to access network services	Ensure that the SIM or USIM card is installed correctly.
Phone lock	When the phone lock feature is enabled, you must enter the password you set for the phone.

Message	Try this to solve the problem:
PIN code	When using the phone for the first time or when the PIN requirement is enabled, you must enter the PIN supplied with the SIM or USIM card. You can disable this feature by using the PIN lock menu.
PUK code	Your SIM or USIM card is blocked, usually as a result of entering your PIN incorrectly several times. You must enter the PUK supplied by your service provider.

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Your phone displays "Service unavailable" or "Network error."

- When you are in areas with weak signals or poor reception, you may lose reception. Move to another area and try again.
- You cannot access some options without a subscription. Contact your service provider for more details.

You enter a number, but the call is not dialed.

- Ensure that you have pressed the Dial key: [⌐].
- Ensure that you have accessed the right cellular network.
- Ensure that you have not set call barring for the phone number.

Another caller cannot reach you.

- Ensure that your phone is turned on.
- Ensure that you have accessed the right cellular network.
- Ensure that you have not set call barring for the phone number.

Another caller cannot hear you speaking.

- Ensure that you are not covering the built-in microphone.
- Ensure that the microphone is close to your mouth.
- If using a headset, ensure that it is properly connected.

The phone beeps and the battery icon flashes.

Your battery is low. Recharge or replace the battery to continue using the phone.

The audio quality of the call is poor.

- Ensure that you are not blocking the phone's internal antenna.
- When you are in areas with weak signals or poor reception, you may lose reception. Move to another area and try again.

You select a contact to call, but the call is not dialed.

- Ensure that the correct number is stored in the contact list.
- Re-enter and save the number, if necessary.

The battery does not charge properly or sometimes the phone turns itself off.

- The battery terminals may be dirty. Wipe both gold-colored contacts with a clean, soft cloth and try charging the battery again.
- If the battery will no longer charge completely, dispose of the old battery properly and replace it with a new battery.

Your phone is hot to the touch.

When you use several applications at once, your phone requires more power and may heat up.

This is normal and should not affect your phone's lifespan or performance.

index

index

Exposure to Radio Frequency (RF) Signals

Your wireless phone is a radio transmitter and receiver. It is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission (FCC) of the U.S. Government. These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. The guidelines are based on the safety standards that were developed by independent scientific organizations through periodic and through 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 standard for wireless phones employs a unit of measurement known as Specific Absorption Rate (SAR). The SAR limit recommended by the FCC is 1.6W/kg.[*]

SAR tests are conducted using standard operating positions specified by the FCC with the phone transmitting at its highest certified power level in all tested frequency bands.

Although the SAR is determined at the highest certified power level, the actual SAR level of the phone while operating can be well below the maximum value. This is because the phone is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the lower the power output of the phone.

Before a new model phone is available for sale to the public, it must be tested and certified to the FCC that it does not exceed the limit established by the government adopted requirement for safe exposure.

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* In the U.S. and Canada, the SAR limit for mobile phones used by the public is 1.6 watts/kg (W/kg) averaged over one gram of tissue. The standard incorporates a substantial margin of safety to give additional protection for the public and to account for any variations in measurements.

The tests are performed in positions and locations (e.g., at the ear and worn on the body) as required by the FCC for each model. While there may be differences between the SAR levels of various phones and at various positions, they all meet the government requirement.

The FCC has granted an Equipment Authorization for this model phone with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this model phone is on file with the FCC and can be found under the Display Grant section of http://www.fcc.gov/oet/fccid after searching on FCC ID printed in the label on the phone.

For body operation

For body worn operation, this model phone has been tested and meets the FCC RF exposure guidelines when used with a Samsung-supplied or approved accessory designated for this product or when used with and accessory that contains no metal and that positions the handset a minimum from the body.

The minimum distance for this model phone is written in the FCC certification information from the body. None compliance with the above conditions may violate FCC RF exposure guidelines.

For more Information concerning exposure to radio frequency signals, see the following websites:

Federal Communications Commission (FCC)
http://www.fcc.gov

Cellular Telecommunications Industry Association (CTIA):
http://www.wow-com.com

U.S.Food and Drug Administration (FDA)
http://www.fda.gov/cdrh/consumer

World Health Organization (WHO)
http://www.who.int/peh-emf/en

Precautions when using batteries

- Never use any charger or battery that is damaged in any way.
- Use the battery only for its intended purpose.
- If you use the phone near the network's base station, it uses less power; talk and standby time are greatly affected by the signal strength on the cellular network and the parameters set by the network operator.
- Battery charging time depends on the remaining battery charge, the type of battery and the charger used. The battery can be charged and discharged hundreds of times, but it will gradually wear out. When the operation time (talk time and standby time) is noticeably shorter than normal, it is time to buy a new battery.
- If left unused, a fully charged battery will discharge itself over time.

- Use only Samsung-approved batteries and recharge your battery only with Samsung-approved chargers. When a charger is not in use, disconnect it from the power source. Do not leave the battery connected to a charger for more than a week, since overcharging may shorten its life.

- Extreme temperatures will affect the charging capacity of your battery: it may require cooling or warming first.

- Do not leave the battery in hot or cold places, such as in a car in summer or winter conditions, as you will reduce the capacity and lifetime of the battery. Always try to keep the battery at room temperature. A phone with a hot or cold battery may temporarily not work, even when the battery is fully charged. Li-ion batteries are particularly affected by temperatures below 0 °C (32 °F).

- Do not short-circuit the battery. Accidental short-circuiting can occur when a metallic object (coin, clip or pen) causes a direct connection between the + and – terminals of the battery (metal strips on the battery), for example when you carry a spare battery in a pocket or bag. Short-circuiting the

terminals may damage the battery or the object causing the short-circuiting.

- Dispose used batteries in accordance with local regulations. Always recycle. Do not dispose batteries in a fire.

Road safety

Your wireless phone gives you the powerful ability to communicate by voice, almost anywhere, anytime. But an important responsibility accompanies the benefits of wireless phones, one that every user must uphold.

When driving a car, driving is your first responsibility. When using your wireless phone behind the wheel of a car, practice good common sense and remember the following tips:

- Get to know your wireless phone and its features, such as speed dial and redial. If available, these features help you to place your call without taking your attention off the road.

- When available, use a hands-free device. If possible, add an extra layer of convenience and

safety to your wireless phone with one of the many hands-free accessories available today.

• Position your wireless phone within easy reach. Be able to access your wireless phone without removing your eyes from the road. If you get an incoming call at an inconvenient time, let your voice mail answer it for you.

• 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, ice, and even heavy traffic can be hazardous.

• Do not take notes or look up phone numbers while driving. Jotting down a To Do list or flipping through your Address Book takes your attention away from your primary responsibility, driving safely.

• Dial sensibly and assess the traffic; if possible, place calls when you are not moving or before pulling into traffic. Try to plan calls when your car will be stationary. If you need to make a call while moving, dial only a few numbers, check the road and your mirrors, then continue.

• Do not engage in stressful or emotional conversations that may be distracting. Make the people with whom you are talking aware that you are driving and suspend conversations that have the potential to divert your attention from the road.

• Use your wireless phone to call for help. Dial the emergency number in the case of fire, traffic accident or medical emergencies. Remember, it is a free call on your wireless phone!

• Use your wireless phone to help others in emergencies. If you see a car accident, crime in progress or other serious emergency where lives are in danger, call the emergency number, as you would want others to do for you.

- 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 any other special non-emergency wireless number.

Operating environment

Remember to follow any special regulations in force in any area and always switch off your phone whenever it is forbidden to use it, or when it may cause interference or danger.

When connecting the phone or any accessory to another device, read its user's guide for detailed safety instructions. Do not connect incompatible products.

As with other mobile radio transmitting equipment, users are advised that for the satisfactory operation of the equipment and for the safety of personnel, it is recommended that the equipment should only be used in the normal operating position (held to your ear with the antenna pointing over your shoulder).

Electronic devices

Most modern electronic equipment is shielded from radio frequency (RF) signals. However, certain electronic equipment may not be shielded against the RF signals from your wireless phone. Consult the manufacturer to discuss alternatives.

Pacemakers

Pacemaker manufacturers recommend that a minimum distance of 15 cm (6 inches) be maintained between a wireless phone and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with the independent research and recommendations of Wireless Technology Research.

Persons with pacemakers:
- should always keep the phone more than 15 cm (6 inches) from their pacemaker when the phone is switched on.
- should not carry the phone in a breast pocket.
- should use the ear opposite the pacemaker to minimize potential interference.

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

Hearing aids

Some digital wireless phones may interfere with some hearing aids. In the event of such interference, you may wish to consult your hearing aid manufacturer to discuss alternatives.

Other medical devices

If you use any other personal medical devices, consult the manufacturer of your device to determine if it is adequately shielded from external RF energy. Your physician may be able to assist you in obtaining this information. 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.

Vehicles

RF signals may affect improperly installed or inadequately shielded electronic systems in motor vehicles. Check with the manufacturer or its representative regarding your vehicle. You should also consult the manufacturer of any equipment that has been added to your vehicle. You should also consult the manufacturer of any equipment that has been added to your vehicle.

Posted facilities

Switch off your phone in any facility where posted notices require you to do so.

Potentially explosive environments

Switch off your phone when in any area with a potentially explosive atmosphere and obey all signs and instructions. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death.

Users are advised to switch off the phone while at a refueling point (service station). Users are reminded of the need to observe restrictions on the use of radio equipment in fuel depots (fuel 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 the areas below deck on boats, chemical transfer or storage facilities, vehicles using liquefied petroleum gas (such as propane or butane), areas where the air contains chemicals or particles, such as grain, dust or metal powders, and any other area where you would normally be advised to turn off your vehicle engine.

Emergency calls

This phone, like any wireless phone, operates using radio signals, wireless and landline networks as well as user-programmed functions, which cannot guarantee connection in all conditions. Therefore, you should never rely solely on any wireless phone for essential communications (medical emergencies, for example).

Remember, to make or receive any calls the phone must be switched on and in a service area with adequate signal strength. Emergency calls may not be possible on all wireless phone networks or when certain network services and/or phone features are in use. Check with local service providers.

To make an emergency call:

If the phone is not on, switch it on.

1. Key in the emergency number for your present location (for example, 911 or other official emergency number). Emergency numbers vary by location.

2. Press [**TALK**].

If certain features are in use (call barring, for example), you may first need to deactivate those features before you can make an emergency call. Consult this document and your local cellular service provider.

When making an emergency call, remember to give all the necessary information as accurately as possible. Remember that your 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.

Other important safety information

- Only qualified personnel should service the phone or install the phone in a vehicle. Faulty installation or service may be dangerous and may invalidate any warranty applicable to the device.
- Check regularly that all wireless phone 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 phone, its parts or accessories.

- For vehicles equipped with an air bag, remember that an air bag inflates with great force. Do not place objects, including both installed or portable wireless equipment in the area over the air bag or in the air bag deployment area. If wireless equipment is improperly installed and the air bag inflates, serious injury could result.
- Switch off your phone before boarding an aircraft. The use of wireless phones in aircraft is illegal and may be dangerous to the aircraft's operation.
- Failure to observe these instructions may lead to the suspension or denial of telephone services to the offender, or legal action, or both.

Care and maintenance

Your phone is a product of superior design and craftsmanship and should be treated with care. The suggestions below will help you fulfill any warranty obligations and allow you to enjoy this product for many years:

- Keep the phone and all its parts and accessories out of the reach of small children's.
- Keep the phone dry. Precipitation, humidity and liquids contain minerals that will corrode electronic circuits.
- Do not use the phone with a wet hand. Doing so may cause an electric shock to you or damage to the phone.
- Do not use or store the phone in dusty, dirty areas, as its moving parts may be damaged.
- Do not store the phone in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.
- Do not store the phone in cold areas. When the phone warms up to its normal operating temperature, moisture can form inside the phone, which may damage the phone's electronic circuit boards.
- Do not drop, knock or shake the phone. Rough handling can break internal circuit boards.

- Do not use harsh chemicals, cleaning solvents or strong detergents to clean the phone. Wipe it with a soft cloth slightly dampened in a mild soap-and-water solution.
- Do not paint the phone. Paint can clog the device's moving parts and prevent proper operation.
- Do not put the phone in or on heating devices, such as a microwave oven, a stove or a radiator. The phone may explode when overheated.
- Use only the supplied or an approved replacement antenna. Unauthorized antennas or modified accessories may damage the phone and violate regulations governing radio devices.
- If the phone, battery, charger or any accessory is not working properly, take it to your nearest qualified service facility. The personnel there will assist you, and if necessary, arrange for service.

Acknowledging Special Precautions and the FCC and Industry Canada Notice

FCC Notice

- This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1)This device may not cause harmful interference, and (2)This device must accept any interference received,including interference that may cause undesired operation.

- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

The phone may cause TV or radio interference if used in close proximity to receiving equipment. The FCC can require you to stop using the phone if such interference cannot be eliminated. Vehicles using liquefied petroleum gas (such as propane or butane) must comply with the National Fire Protection Standard (NFPA-58). For a copy of this standard, contact the National Fire Protection Association, One Battery march Park, Quincy, MA 02269, Attn: Publication Sales Division.

Cautions

Changes or modifications made in the radio phone, not expressly approved by Samsung, will void the user's authority to operate the equipment.

Only use approved batteries, antennas and chargers. The use of any unauthorized accessories may be dangerous and void the phone warranty if said accessories cause damage or a defect to the phone.

Although your phone is quite sturdy, it is a complex piece of equipment and can be broken. Avoid dropping, hitting, bending or sitting on it.

Appendix A: CERTIFICATION INFORMATION (SAR)

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

Your wireless phone is a radio transmitter and receiver. It is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government. These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. The guidelines are based on safety 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 standard for wireless mobile phones employs a unit of measurement known as the Specific Absorption Rate (SAR). The SAR limit set by the FCC is 1.6 W/kg. SAR Tests are conducted using standard

operating positions accepted by the FCC with the phone transmitting at its highest certified power level in all tested frequency bands. Although the SAR is determined at the highest certified power level, the actual SAR level of the phone while operating can be well below the maximum value. This is because the phone is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the lower the power output.

Before a new model phone is available for sale to the public, it must be tested and certified to the FCC that it does not exceed the limit established by the government adopted requirement for safe exposure. The tests are performed in positions and locations(e.g., at the ear and worn on the body) as required by the FCC for each model.

The highest SAR values of this model phone as reported to FCC are,

[GSM850] Head Max:0.656 W/Kg, Body Max: 0.774 W/Kg,
[GSM1900] Head Max: 0.487 W/Kg, Body Max: 0.773 W/Kg,
[UMTS FDD2] Head Max:0.782 W/Kg, Body Max: 0.571 W/Kg

[UMTS FDD5] Head Max:0.505 W/Kg, Body Max: 0.543 W/Kg

Body-worn operations are restricted to Samsung-supplied, approved or none Samsung designated accessories that have no metal and must provide at least 1.5cm separation between the device, including its antenna whether extended or retracted, and the user's body. None compliance to the above restrictions may violate FCC RF exposure guidelines.

The FCC has granted an Equipment Authorization for this model phone with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this model phone is on file with the FCC and can be found under the Display Grant section of http://www.fcc.gov/oet/fccid after searching on FCC ID A3LSWDM8800L.[*]

*In the United States and Canada, the SAR limit for mobile phones used by the public is 1.6 watts/kilogram (W/kg) averaged over one gram of tissue. The standard incorporates a substantial ma gin of safety togive additional protection for the public and to account for any variations in measurements.

Appendix B: Guide to Safe and Responsible Wireless Phone Use

Cellular Telecommunications & Internet Association "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 seat belts 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."

Cellular Telecommunications & Internet Association
For more information, please call 1-888-901-SAFE.
For updates: http://www.wow-com.com/consumer/issues/driving/articles.cfm?ID =85

Appendix C: Consumer Update on Wireless Phones

U.S. Food and Drug Administration

1. 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 radio frequency 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 well within the FCC's compliance limits.

2. 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 radio frequency 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.

3. 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 radio frequency 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 primary subject of the safety questions discussed in this document.

4. 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 radio frequency energy (RF).

FDA has been a leading participant in the World Health Organization International Electromagnetic Fields (EMF) Project since its inception in 1996. An influential result of this work has been the development of a detailed agenda of research needs that has driven the establishment of new research programs around the world. The Project has also helped develop a series of public information documents on EMF issues.

FDA and the Cellular Telecommunications & Internet Association (CTIA) have a formal Cooperative Research and Development Agreement (CRADA) to do research on wireless phone safety. FDA provides the scientific oversight, obtaining input from experts in government, industry, and academic organizations. CTIA-funded research is conducted through 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.

5. What steps can I take to reduce my exposure to radio frequency 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 radio frequency 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.

6. 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 radio frequency 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.

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

Since there are no known risks from exposure to RF emissions from wireless phones, there is no reason to believe that hands-free kits reduce risks. Hands-free kits can be used with wireless phones for convenience and comfort. These systems reduce the absorption of RF energy in the head because the phone, which is the source of the RF emissions, will not be placed against the head. On the other hand, if the phone is mounted against the waist or other part of the body during use, then that part of the body will absorb more RF energy. Wireless phones marketed in the U.S. are required to meet safety requirements regardless of whether they are used against the head or against the body. Either configuration should result in compliance with the safety limit.

8. Do wireless phone accessories that claim to shield the head from RF radiation work?

Since there are no known risks from exposure to RF emissions from wireless phones, there is no reason to believe that accessories that claim to shield the head from those emissions reduce risks. Some products that claim to shield the user from RF absorption use special phone cases, while others involve nothing more than a metallic accessory attached to the phone. Studies have shown that these products generally do not work as advertised. Unlike "hand-free" kits, these so-called "shields" may interfere with proper operation of the phone. The phone may be forced to boost its power to compensate, leading to an increase in RF absorption. In February 2002, the Federal trade Commission (FTC) charged two companies that sold devices that claimed to protect wireless phone users from radiation with making false and unsubstantiated claims. According to FTC, these defendants lacked a reasonable basis to substantiate their claim.

9. What about wireless phone interference with medical equipment?

Radio frequency 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 compatible 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.

10. 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 radio frequency 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, gioma, 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.

11. 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.

12. Which other federal agencies have responsibilities related to potential RF health effects?

Additional information on the safety of RF exposures from various sources can be obtained from the following organizations.

FCC RF Safety Program:
http://www.fcc.gov/oet/rfsafety/

Environmental Protection Agency (EPA):
http://www.epa.gov/radiation/

Occupational Safety and Health Administration's (OSHA):
http://www.osha-slc.gov/SLTC/
radiofrequencyradiation/index.html

National Institute for Occupational Safety and Health (NIOSH):
http://www.cdc.gov/niosh/emfpg.html

World health Organization (WHO):
http://www.who.int/peh-emf/

International Commission on Non-Ionizing Radiation Protection:
http://www.icnirp.de

National Radiation Protection Board (UK):
http://www.nrpb.org.uk

Updated 4/3/2002: US Food and Drug Administration
http://www.fda.gov/cellphones