- * Depending on the software installed or your service provider, some of the description in this manual may differ from your phone.
- * Depending on your country, your phone and accessories may appear different from the illustrations in this manual.

SAMSUNG ELECTRONICS



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SGH-T209 User's Manual





Important safety precautions

 $\overline{\mathbf{V}}$

Failure to comply with the following precautions may be dangerous or illegal.

Use road safety at all times

Do not use a hand-held phone while driving. Park the vehicle first.

Switch off the phone when refuelling

Do not use the phone at a refuelling point (service station) or near fuels or chemicals.

Switch off in an aircraft

Wireless phones can cause interference. Using them in an aircraft is both illegal and dangerous.

Switch off the phone near all medical equipment

Hospitals or health care facilities may be using equipment that could be sensitive to external radio frequency energy. Follow any regulations or rules in force.

Interference

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

Be aware of special regulations

Meet 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.

Water resistance

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

Sensible use

Use only in the normal position (held to the ear). Avoid unnecessary contact with the antenna when the phone is switched on.

Emergency calls

Key in the emergency number for your present location, then press \bigcirc .

Keep your phone away from small children

Keep the phone and all its parts, including accessories, out of the reach of small children.

Accessories and batteries

Use only Samsung-approved accessories and batteries. Use of any unauthorised accessories could damage your phone and may be dangerous.



- The phone could explode if the battery is replaced with an incorrect type.
- Dispose of used batteries according to the manufacturer's instructions.

Qualified service

Only qualified service personnel may repair your phone.

For more detailed safety information, see "Health and safety information" on page 34.

About this Guide

This User's Guide provides you with condensed information about how to use your phone. To quickly learn the basics for your phone, please refer to "Get started".

In this guide, the following instruction icons appear:

- Indicates that you need to pay careful attention to the subsequent information regarding safety or phone features.
- Indicates that you can get more information on the referenced page.
- Indicates that you need to press the Navigation keys to scroll to the specified option and then select it.
- Indicates a soft key, whose function is displayed on the phone screen. For example, Menu>





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Overview of menu functions

To access Menu mode, press <**Menu**> in Idle mode.

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Unpack

Make sure you have each item



You can obtain the following accessories from your local Samsung dealer:

- Car Adapter
- Headset
- Data Link KIT
- · Stylish Handfree Car Kit



The items supplied with your phone and the accessories at your Samsung dealer may vary, depending on your country or service provider.

Your phone

Buttons, features, and locations



Get started

First steps to operating your phone

SIM card information

When you subscribe to a cellular network, you receive a plug-in SIM (Subscriber Identity Module) card loaded with your subscription details, such as your PIN, and available optional services.

Install and charge the phone

1 Remove the battery.



If the phone is already on, first turn it off by holding [].

2 Insert the SIM card.



Make sure that the goldcoloured contacts on the card face down into the phone. 3 Install the battery.



4 Plug the travel adapter into the phone.



5 Plug the adapter into a standard AC wall outlet.

When the phone is completely charged (the battery icon stops blinking), unplug the adapter from the power outlet.

Get started

Remove the adapter from the phone.



Low battery indicator

When the battery is low:

- a warning tone sounds,
- · the battery low message displays, and
- the empty battery icon blinks.

If the battery level becomes too low, the phone automatically turns off. Recharge your battery.

Power on or off

Switch on	1. Open the phone.
Do not turn on	2. Press and hold [🔊] to turn on the phone.
the phone when mobile phone use is prohibited.	3. If necessary, enter the PIN and press < OK >.
Switch off	1. Open the phone.
	2. Press and hold [6].

Keys and display

Key(s)	Description
	Perform the function indicated on the bottom line of the display.
MOKH	In Idle mode, access your favourite menus, directly. In Menu mode, scroll through the menu options.
OK	In Idle mode, launch the Wireless Application Protocol (WAP) browser. In Menu mode, select the highlighted menu option.
©	Delete characters from the display. In Menu mode, return to the previous menu level.

\mathcal{Q}	Send or answer a call. In Idle mode, retrieve the recent numbers dialled, missed, or received.
Ø	End a call. Hold down to switch the phone on and off. In Menu mode, cancel input and return the phone to Idle mode.
(T _{EE})	Enter numbers, letters, and some special characters. In Idle mode, hold [1] down to access your voice mail server. Hold [0] down to enter the international call prefix.
# **	Enter special characters. Hold [#] down to activate or deactivate Quiet mode.
(on the left)	Adjust the phone volume. In Idle mode, with the phone open, adjust the keypad tone volume. With the phone closed, hold down to turn on the backlight.

Display

Layout Icons display various icons. Text and graphics display messages, instructions, and information you enter. **Soft key function indicators** show the current functions assigned to the two soft keys. Icons* Received signal strength Call in progress Out of your service area; you cannot send or receive calls Alarm set \times New text message New multimedia message 四 New voicemail message

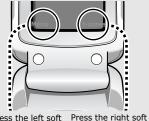
Icons (continued)	<u></u> ₩	New e-mail received or being sent
(continued)		One of the message Inboxes is full
	℮	Call diverting feature is active
	G	GPRS network
	â	Home Zone, if you have registered for the appropriate service
		Office Zone, if you have registered for the appropriate service
	18	Call ringer set to vibrate
	Ж	Quiet mode is active
	•	Battery power level

^{*} The icons shown on the display may vary, depending on your country or service provider.

Access menu functions

Use the soft keys

The roles of the soft keys vary depending on the function you are using. The bottom line of the display indicates their current role.



Press the left soft key to access Menu mode.

Press the right key to access Options.

Select ar option

- 1. Press the appropriate soft key.
- Press the Navigation keys to move to the next or previous option.
- Press < Select> or [@] to confirm the function displayed or option highlighted.
- 4. To exit, choose either of the following methods.
 - Press < Back > or < C > to move up one level.
 - Press [@] to return to Idle mode.

Use shortcuts

Press the number key corresponding to the option you want.

Customise your phone

Display language

- In Idle mode, press <Menu> and select Settings → Phone settings → Language.
- 2. Select a language.

Call ringer melody

- In Idle mode, press <Menu> and select Settings → Sound settings → Incoming call → Ring tone.
- 2. Press [Left] or [Right] to select a ringer category.
- 3. Press [Up] or [Down] to scroll through ringer melodies.
- 4. Select a ringer melody you want.
- 5. Press < Save > .

Idle mode wallpaper

You can set your wallpaper for the main or external display.

- In Idle mode, press < Menu> and select Settings → Display settings → Wallpaper → Main display or Cover display.
- 2. Select an image category and then an image.

For **Cover display**, you can select **Cover title** to enter text to be displayed on the external display.

3. Press [@].

Menu	mode
skin c	olour

You can change the colour for the display components, such as title bars and highlight bars.

- In Idle mode, press <Menu> and select Settings → Display settings → Skin.
- 2. Select a colour pattern.

Quiet mode

You can switch to Quiet mode to avoid disturbing other people with your phone sound.

Press and hold [#] in Idle mode.

Menu shortcuts

You can use the Navigation keys as shortcut keys to access specific menus directly from Idle mode.

To assign a menu to a key:

- In Idle mode, press <Menu> and select Settings → Phone settings → Short cut.
- 2. Select a key.
- Press **Options**> and select **Change**.
- 4. Scroll to a menu to be assigned to the key.
- Press **Save**.

Phone lock

You can protect the phone against unauthorised use with a phone password. The phone will require the password on powerup.

- In Idle mode, press <Menu> and select Settings → Security → Change password.
- Enter the default password, "00000000" and press < OK>.
- Enter a new 4- to 8- digit password and press < OK>.
- 4. Enter the new password again and press **OK**>.
- 5. Select Phone lock.
- 6. Select Enable.
- 7. Enter the password and press <**OK**>.

Make/Answer calls

Make a call

- 1. In Idle mode, enter an area code and phone number.
- 2. Press [**↑**].
- 3. To end the call, press [].

Answer a call

- 1. When the phone is ringing, press [↑].

Adjust the volume during a call

Press [▲/▼].

Enter text

ABC, T9, Number, and Symbolic mode

You can enter text for some features such as messaging, Phonebook, or Calendar, using ABC mode, T9 mode, Number mode, and Symbolic mode.

Changing the text input mode

The text input mode indicator appears when the cursor is in a text field.

- Press the right soft key to change the text input mode. () Eng: T9 mode, | AEng: ABC mode, | LEng: Number mode, and | Eng: Symbolic mode)
- Press and hold [#] to switch to Symbolic mode.

Using ABC mode

Press the appropriate key until the character you want appears on the screen.

Key		Characters in order displayed													
Rey			Up	per	cas	se					Lo	we	r ca	se	
1		,	- ?	'!	′	@	:	1							
2	Α	В	С	2					а	b	С	2			
3	D	Е	F	3					d	е	f	3			
4	G	Н	Ι	4					g	h	i	4			
5	J	K	L	5					j	k	I	5			
6	М	Ν	0	6					m	n	0	6			
7	Р	Q	R	S	7				р	q	r	S	7		
8	Т	U	V	8					t	u	٧	8			
9	W	Χ	Υ	Z	9				W	Χ	У	Z	9		
0	0														

Tips for using ABC mode

- To enter the same letter twice or to enter a different letter on the same key, wait for the cursor to move to the right automatically or press [Right]. Then, enter the next letter.
- Press [#] to change case. Lower case (No indicator), Initial capital (♠), and Capital lock (♠) are available.
- Press [#] to insert a space.
- · Press the Navigation keys to move the cursor.
- Press [C] to delete characters one by one. Press and hold [C] to clear the display.
- Depending on your country, you may be able to access an input mode for your specific language by holding the [#] key.

Using T9 mode

T9 is a predictive text input mode that allows you to key in any character using single keystrokes.

Entering a word in T9 mode

- Press [2] to [9] to start entering a word. Press each key once for each letter.
 For example, press [4], [3], [5], [5], and [6] to
 - enter HELLO in T9 mode.
 T9 predicts the word that you are typing, and it may change with each key that you press.
- 2. Enter the whole word before editing or deleting characters.
- When the word displays correctly, go to step 4.
 Otherwise, press [0] to display alternative word choices for the keys that you have pressed.
 For example, OF and ME use [6] and [3].
- Press [#] to insert a space and enter the next word.

Tips for using T9 mode

- Press [1] to enter periods or apostrophes automatically.
- Press [#] to change case. Lower case (No indicator), Initial capital (♠), and Capital lock (♠) are available.

- Press [#] to insert a space.
- Press the Navigation keys to move the cursor.
- Press [C] to delete characters one by one. Press and hold [C] to clear the display.

Adding a new word to the T9 dictionary

This feature may not be available for some languages.

- 1. Enter the word that you want to add.
- Press [0] to display alternative words for your key presses. When there are no more alternative words, Spell appears on the bottom line.
- 3. Press **Spell**>.
- Enter the word you want using ABC mode and press < OK>.

Using Number mode

Number mode enables you to enter numbers.

Press the keys corresponding to the digits you want.

Using Symbolic mode

Symbolic mode enables you to insert symbols.

То	Press
display more symbols	[Up] or [Down].
select a symbol	the corresponding number key.
clear the entered symbol(s)	[C].
insert the symbol(s)	< OK >.

Call functions

Advanced calling features

Making a call

- In Idle mode, enter the area code and phone number.
- 2. Press [**↑**].
 - Press [C] to clear the last digit or press and hold [C] to clear the whole display. You can move the cursor to edit an incorrect digit.

Making an international call

- In Idle mode, press and hold [0]. The + character appears.
- Enter the country code, area code, and phone number, then press [].

Redialling recent numbers

- In Idle mode, press [↑] to display the list of recent numbers.
- 2. Scroll to the number you want and press [\scroll].

Making a call from Phonebook

Once you have stored a number in Phonebook, you can dial the number by selecting it from Phonebook.

You can also use the speed dial feature to assign your most frequently called numbers to specific number keys.

Dialling a number from the SIM card

- 1. In Idle mode, enter the location number for the phone number you want and press [#].
- Press [Left] or [Right] to scroll through other numbers.
- 3. Press <**Dial**> or $[\]$ to dial the number you want.

Ending a call

Close the phone or press [#].

Answering a call

When you receive an incoming call, the phone rings and displays the incoming call image.

Press **<Accept>** or [**↑**] to answer the call.

Tips for answering a call

- When Anykey answer in the Extra settings menu is active, you can press any key, except for <Reject>, [#], or [*/ *].
- When Active folder in the Extra settings menu is active, you can simply open the phone.
- Press < Reject > or [#] to reject a call.
- Depending on the setting in the Side key menu, press and hold [A/v] to mute a call ringer or reject a call.

Viewing missed calls

If you have missed calls, the screen displays how many calls you have missed.

- Press < View >.
- 2. If necessary, scroll through the missed calls.

3. Press [**↑**] to dial the number you want.

Using the headset

Use the headset to make or answer calls without holding the phone.

Connect the headset to the jack on the left side of the phone.

The buttons on the headset work as listed below:

То	Press
redial the last call	and hold the button twice.
answer a call	the button.
end a call	the button.

Options during a call

You can access a number of functions during a call.

Adjusting the volume during a call

Use $[\blacktriangle / \blacktriangledown]$ to adjust the earpiece volume during a call.

Call functions

Press [▲] to increase the volume level and [▼] to decrease the volume level.

Using the external speaker

Use the optional external speaker to talk and listen with the phone a short distance away. First, you must plug the speaker into the phone.

- During a call, press [<a>(<a>)] to listen and talk to the other person hands-free. The <a>(icon appears.
- Press [again to return to normal phone mode. The icon appears.

Placing a call on hold/Retrieving

Press < Hold> or < Retrieve> to place a call on hold or retrieve the call.

Making a second call

You can make another call if your network supports it.

- 1. Press < Hold > to put the call on hold.
- 2. Make the second call in the normal way.
- 3. Press **Swap**> to switch between the calls.

- Press < Options> and select End held call to end the call on hold.
- 5. To end the current call, press [].

Answering a second call

You can answer an incoming call while already on the phone, if your network supports it and you have activated the call waiting feature.

- Press [↑] to answer the call. The first call is automatically put on hold.
- 2. Press **<Swap>** to switch between the calls.
- Press < Options> and select End held call to end the call on hold.

Transferring a call

You can transfer the currently active call to a caller on hold, if your network supports it. With this option, the two callers can talk to each other, but you are disconnected from the call.

Press **<Options>** and select **Transfer**.

Using a Bluetooth headset

Use an optional Bluetooth headset to talk on the phone without holding the phone to your ear. To use this feature, you first need to register your headset and connect it to the phone.

Press <Options> and select Switch to headset or Switch to phone.

Using the voice clarity feature

This feature increases the microphone's sensitivity so that the person with when you are speaking can hear you clearly even though you may be whispering.

Press **Options**> and select **Voice clarity on** or **Voice clarity off**.

Switching off the microphone (Mute mode)

You can temporarily switch off your phone's microphone so that the person on the phone cannot hear you.

Press **<Options>** and select **Mute** or **Unmute**.

Muting or sending key tones

You can turn the key tones off or on.

Press **<Options>** and select **Mute keys** or **Send keys**.



To communicate with answering machines or computerised telephone systems, **Send keys** must be selected.

Sending a sequence of DTMF tones

Dual tone multi-frequency (DTMF) tones are the tones used in phones for tone dialling.

You can send DTMF tones as a group after entering the entire number you need to send or retrieving a number from Phonebook. This feature is helpful for entering a password or an account number when you call an automated system, like a banking service.

- When connected with a teleservice system, press <Options> and select Send DTMF.
- Enter the number you need to send and press <**OK**>.

Call functions

Using Phonebook

You can access the **Phonebook** menu to locate or store entries.

Press **Options**> and select **Phonebook**.

Using SIM services

The **SIM service** menu is available if you use a SIM card in your phone. A SIM card provides services such as news, weather, sports, entertainment, and location services.

For details, see your SIM card instructions or contact your service provider.

Making a multi-party call

Use this feature to allow as many as six people to join a multi-party call, or conference call.

Your service provider must support multi-party calls for you to use this feature.

Setting up a multi-party call

- 1. Call the first participant.
- 2. Call the second participant. The first call is automatically put on hold.

- Press **Options**> and select **Join**. The first participant is added to the multi-party call.
- 4. If desired, call another person or answer an incoming call.
- 5. Press < Options > and select Join.
- 6. Repeat steps 4 and 5 as desired.

Having a private conversation with one participant

- Press **Options**> and select **Private**.
- Select a name or number from the participant list. You can talk privately with that person, while the other participants converse with each other.
- To return to the multi-party call, press < Options > and select Join.

Dropping one participant

- 1. Press <Options> and select Remove.
- 2. Select a name or number from the participant list.

The participant is dropped from the call, but the call continues with the other parties.

Menu functions

All menu options listed

Voice notes (Menu 1)

Use this menu to record a voice memo and then immediately send it by a MMS (Multimedia Message Service) message.

To access this menu, press **Menu** in Idle mode and select **Voice notes**.

Call records (Menu 2)

Use this menu to view the calls you have dialed, received, or missed, and the length of your calls.

To access this menu, press **Menu** in Idle mode and select **Call records**.

Missed calls

This menu displays the most recent calls that you did not answer.

Incoming calls

This menu displays the most recent calls you have received.

Outgoing calls

This menu displays the most recent calls you have dialled.

Delete all

Use this menu to delete all of the records in each call type.

Call Time

This menu displays the time log for calls made and received. The actual time invoiced by your service provider will vary. You can also reset all of timers.

Call costs

t-zone (Menu 3)

The Wireless Application Protocol (WAP) browser on your phone allows you to access the wireless web. Using the WAP browser, you can access up-to-theminute information and a wide variety of media content, such as wallpapers, ring tones, and music files.

To access this menu, press **Menu** in Idle mode and select **t-zones**.

Home

Use this menu to connect your phone to the network and load the homepage of t-zones, WAP services provided by T-mobile.

Favorite

Use this menu to store the URL addresses of your favorite websites and quickly access the sites.

Go to URL

Use this menu to enter the URL address of a website and access the website.

Clear cache

Use this menu to clear the cache, which is the temporary memory that stores the web pages you have recently accessed.

IM (Menu 4)

Instant Messenger (IM) is a way of sending short, simple messages that are delivered immediately to users online at that moment.

Before using this feature, you need to subscribe to a messenger service. For further details, contact your service provider.

To access this menu, press **Menu** in Idle mode and select **IM**.

Messages

Use the **Messages** menu to send and receive short messages, multimedia messages, and e-mails. You can also use WAP push message, Voice mail, and Cell broadcast message features.

To access this menu, press ${\bf Menu}$ in Idle mode and select ${\bf Messages}.$

Text messages

Short message service (SMS) allows you to send and receive text messages that include simple pictures, animated images, and sounds.

In this menu, you can:

- create and send SMS messages to other people.
- view SMS messages you have received, sent, and saved for later use.
- delete all of your SMS messages.

Picture messages

Multimedia message service (MMS) allows you to send and receive messages that include text, an audio, and an image.

In this menu, you can:

- create and send MMS messages to other people.
- view MMS messages you have received, sent, and saved for later use.
- · delete all of your MMS messages.

Browser messages

Your phone can receive WAP push messages from WAP servers.

In this menu, you can:

- view WAP push messages you have received.
- change the settings for receiving WAP push messages.
- Delete all of WAP push messages.

Voice mail

If you are unable to answer a call, the caller will be guided to leave a voice message in your voicemail box, if your service provider supports it.

Use this menu to connect your voicemail server to access received voicemails and store the service number of your voicemail server.

Broadcast

Your phone can receive broadcast messages of various topic, such as sports, traffic, news, or weather forecast, sent by service provider.

In this menu, you can:

- · view broadcast messages you have received.
- change the settings for receiving broadcast messages.
- set up a broadcast channel list.
- select languages in which broadcast messages are displayed.

Settings

Use this menu to customize the settings for SMS and $\ensuremath{\mathsf{MMS}}.$

Memory status

Use this menu to check the total amount of memory for storing messages and the amount of memory currently being used in each message box.

Fun & Apps (Menu 6)

The **Fun & Apps** menu allows you to access media contents, such as photos, sounds, and games, stored in the phone's memory.

To access this menu, press **Menu** in Idle mode and select **Fun & Apps**.

t-zones

This menu displays web contents you have downloaded from t-zones, WAP services provided by T-mobile.

File manager

The **File manager** menu allows you to access images, videos, music files, and sound files stored in the phone's memory.

Games

This menu displays JavaTM-based games that are preinstalled in your phone or downloaded from the wireless web.

Organizer

The Organizer feature enables you to keep track of your schedule and tasks and use convenient applications, such as voice recorder, converter, calculator, timer, and stopwatch.

To access this menu, press Menu in Idle mode and select Organizer.

Get More Help (Menu 7)

Phonebook (Menu 8)

You can store phone numbers on your SIM card and in your phone's memory. The SIM card and phone's memory are physically separate, but they are used as a single entity called Phonebook.

To access this menu, press **Ph.Book** in Idle mode.

Search

Use this menu to search for numbers in Phonebook.

New entry

Use this menu to add a new contact to Phonebook.

Speed dial

Use this menu to assign speed dial numbers (2 to 9) for eight of your most frequently called numbers.

Copy all to phone

Use this menu to copy all of the contacts in the phone's memory to the SIM card.

Delete all

Use this menu to delete all contacts in Phonebook at the same time.

Group settings

Use this menu to organize your contacts in caller groups.

Own number

Use this feature to check your phone numbers, or to assign a name to each of the numbers.

Changes made here do not affect the actual subscriber numbers on your SIM card.

Memory status

Use this menu to check how many contacts you have stored in the phone's memory and the SIM card, respectively.

SDN

This menu is available if your SIM card supports Service Dialling Numbers (SDN). Use this menu to view the list of SDNs assigned by your service provider, including emergency numbers, directory enquiries, and voice mail numbers.

Settings (Menu 9)

Use this menu to customize your phone settings. You can also reset the settings to their default values.

To access this menu, press **Menu** in Idle mode and select **Settings**.

Time & Date

Use this menu to change the time and date displayed on your phone. Before setting the time and date, specify your time zone in the **World time** menu

Phone Settings

Many different features of your phone's system can be customised to suit your preferences.

Display settings

Use this menu to change settings for the display and light.

You can:

Menu functions

- change the background image that is displayed in Idle mode.
- select a skin color pattern for Menu mode.
- select the length of time the backlight and the display stay on.
- adjust the brightness of the display for varying lighting conditions.

Sound settings

Use this menu to customize various sound settings. You can:

- download new ring tones and access downloaded ring tones.
- select a ring tone, alert type and volume level for incoming calls.
- select the tone that the phone sounds when you press a key.
- set up the ringer for incoming messages.
- select the melody that the phone sounds when it is switched on or off.

- set how the phone acts to alert you to a specific event in Quiet mode, instead of making sounds.
- activate or deactivate additional tones for the phone.

Network services

Use this menu to access network services. Please contact your service provider to check their availability and subscribe to them, if you wish.

You can:

- reroute incoming calls to a phone number that you specify.
- set the phone to inform you when someone is trying to reach you while you are on another call.
- select the network used when roaming outside of your home area.
- prevent your phone number from being displayed on the phone of the person being called.
- select the network band you want to use.

Security

Use this menu to protect the phone against unauthorized use by managing the several access codes of your phone and SIM card.

In this menu, you can:

- activate the PIN check feature which let the phone prompt you to enter the PIN code each time you turn on the phone.
- change your PIN/PIN2 code or phone password.
- lock your phone.
- · lock your media contents.
- activate the Fixed Dialing Number (FDN) mode to restrict outgoing calls, except to numbers on the SIM card.

Memory status

Use this menu to check the amount of memory being used for storing data in **Messages**, **File manager**, **Calendar**, **Phonebook**, and **Java world**. You can also check **Shared memory** for MMS, Email, and File manager.

Reset settings

Use this menu to reset the phone settings and sound settings, individually. You can also reset all of these settings at the same time.

Slove problems

Help and personal needs

To save the time and expense of an unnecessary service call, perform the simple checks in this section before contacting a service professional.

When you switch on your phone, the following messages may appear:

"Insert SIM card"

- Be sure that the SIM card is correctly installed.
- "Phone lock"
- The automatic locking function has been enabled. You must enter the phone's password before you can use the phone.

"Enter PIN"

- You are using your phone for the first time. You must enter the PIN supplied with the SIM card.
- The PIN check feature is enabled. Every time the phone is switched on, the PIN has to be entered. To disable this feature, use the PIN check menu.

"Enter PUK"

 The PIN code has been entered incorrectly three times in succession, and the phone is now blocked. Enter the PUK supplied by your service provider.

"No service," "Network failure," or "Not done" displays

- The network connection has been lost. You may be in a weak signal area. Move and try again.
- You are trying to access an option for which you have no subscription with your service provider. Contact the service provider for further details.

You have entered a number but it was not dialled

- Be sure that you have pressed [\sqrt{!}].
- Be sure that you have accessed the right cellular network.
- Be sure that you have not set an outgoing call barring option.

Your correspondent cannot reach you

- Be sure that your phone is switched on. ([pressed for more than one second.)
- Be sure that you are accessing the correct cellular network.

 Be sure that you have not set an incoming call barring option.

Your correspondent cannot hear you speaking

- Be sure that you have switched on the microphone.
- Be sure that you are holding the phone close enough to your mouth. The microphone is located at the bottom of the phone.

The phone starts beeping and "Battery low" flashes on the display

Your battery is insufficiently charged. Recharge the battery.

The audio quality of the call is poor

- Check the signal strength indicator on the display
 (*||...|||). The number of bars indicates the signal strength from strong (*||...|||) to weak (*||...|).
- Try moving the phone slightly or moving closer to a window if you are in a building.

No number is dialled when you re-call a Phonebook entry

- Use the Contact list feature to ensure the number has been stored correctly.
- Re-store the number, if necessary.

If the above guidelines do not help you to solve the problem, take note of:

- The model and serial numbers of your phone
- · Your warranty details
- A clear description of the problem

Then contact your local dealer or Samsung after-sales service.

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. The tests are performed in positions and locations

^{*} 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.

(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 Samsungapproved 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 of used batteries in accordance with local regulations. Always recycle. Do not dispose of 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.

- Key in the emergency number for your present location (for example, 911 or other official emergency number). Emergency numbers vary by location.
- 2. Press \searrow .

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.

FCC Notice and Cautions

FCC Notice



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

Any changes or modifications to your phone not expressly approved in this document could void your

warranty for this equipment, and void your authority to operate this 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.

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-andwater 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

Cautions

Modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Compliance information

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.

Information to user

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.

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.

When approval test is done, no Samsung supplied accessories are avialable but maybe available later after approval.

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 estabilished by the FCC. Tests are performed in positions and locations (e.g. at the ear and worn on the body) as required by the FCC.

The highest SAR values for this model phone as reported to the FCC are

Head: GSM850 1.29 W/Kg, GSM1900 0.498 W/Kg, Body-worn: GSM850 0.710 W/Kg, GSM1900 0.691 W/Kg.

For body worn operation, this model phone has been tested and meets the FCC RF exposure guidelines when used with a Samsung accessory designated for this product or when used with an accessory that contains no

metal and that positions the handset a minimum of (1.5 cm) from the 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 A3LSGHT209.

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 to give 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:

 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 brokendown 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." $\hspace{-0.1cm}$

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 cancercausing agent and the time tumors develop - if they domay 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

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Batteries 1 Year

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Other Phone Accessories 1 Year

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Hearing Aid Compatibility with Mobile Phones

When some mobile phones are used near some hearing devices (hearing aids and cochlear implants), users may detect a buzzing, humming, or whining noise. Some hearing devices are more immune than others to this interference noise, and phones also vary in the amount of interference they generate.

The wireless telephone industry has developed ratings for some of their mobile phones, to assist hearing device users in finding phones that may be compatible with their hearing devices. Not all phones have been rated. Phones that are rated have the rating on their box or a label on the box.

The ratings are not guarantees. Results will vary depending on the user's hearing device and hearing loss. If your hearing device happens to be vulnerable to interference, you may not be able to use a rated phone successfully. Trying out the phone with your hearing device is the best way to evaluate it for your personal needs.

M-Ratings: Phones rated M3 or M4 meet FCC requirements and are likely to generate less interference to hearing devices than phones that are not labeled. M4 is the better/higher of the two ratings.

T-Ratings: Phones rated T3 or T4 meet FCC requirements and are likely to be more usable with a hearing device's telecoil ("T Switch" or "Telephone Switch") than unrated phones. T4 is the better/higher of the two ratings. (Note that not all hearing devices have telecoils in them.)

Hearing devices may also be measured for immunity to this type of interference. Your hearing device manufacturer or hearing health professional may help you find results for your hearing device. The more immune your hearing aid is, the less likely you are to experience interference noise from mobile phones.