LG
Life's Good

User Guide

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LG
Life's Good

User Guide

- Screen displays and illustrations may differ from those you see on actual phone.
- Some of the contents of this guide may not apply to your phone, depending on the software and your service provider. All information in this document is subject to change without notice.
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Table of contents

Important notice

Please read this before you start using your phone!

Please check to see whether any problems you encountered with your phone are described in this section before taking the phone in for service or calling a service representative.

1. Phone memory

When there is less than 10MB of space available in your phone memory, your phone cannot receive new messages. You need to check your phone memory and delete some data, such as applications or messages, to make more memory available.

To uninstall applications:
1. From the Home screen, tap 🌐 > **Apps** tab (if necessary) > **Settings** ⚙ > **Apps**.
2. Once all applications appear, scroll to and select the application you want to uninstall.
3. Tap **Uninstall**, then tap **OK** to confirm.

2. Optimizing battery life

Extend your battery's life between charges by turning off features that you don't need to have running constantly in the background. You can monitor how applications and system resources consume battery power.

Extending your phone's battery life:
- Turn off radio communications when you're not using. If you are not using Wi-Fi, Bluetooth or GPS, turn them off.

- Reduce screen brightness and set a shorter screen timeout.
- Turn off automatic syncing for Gmail, Calendar, Contacts and other applications.
- Some applications you have downloaded may reduce battery power.

To check the battery power level:

- From the Home screen, tap 🌐 > **Apps** tab (if necessary) > **Settings** ⚙ > **About phone** > **Battery**.

The battery status (charging or discharging) and battery level (percentage charged) is displayed.

To monitor and control how battery power is being used:

- From the Home screen, tap 🌐 > **Apps** tab (if necessary) > **Settings** ⚙ > **About phone** > **Battery** > **Battery use**.

Battery usage time is displayed on the screen. It tells you how long it has been since you last connected your phone to a power source or, if currently connected, how long the phone was last running on battery power. The screen shows the applications or services using battery power, listed in order from the greatest to smallest amount used.

3. Before installing an open source application and operating system (OS)

> ⚠ **WARNING**
> If you install and use an OS other than the one provided by the manufacturer it may cause your phone to malfunction. In addition, your phone will no longer be covered by the warranty.

4. Using a screen lock

Set a screen lock to secure your phone and prevent unauthorized use. From the Home screen, tap 🌐 > **Apps** tab (if necessary) > **Settings** ⚙ > **Lock screen** > **Select screen lock** > **Knock Code**, **Pattern**, **PIN**, or **Password**. Some options will prompt you to create a Backup PIN as a safety measure in case you forget your screen lock.

Caution: Create a Google account before setting a screen lock and remember the Backup PIN you created when creating your screen lock.

⚠ **WARNING**

Precautions to take when using a screen lock.

It is very important to remember the screen lock you set. You will not be able to access your phone if you use an incorrect screen lock 5 times. If you have used all 5 opportunities, you can try again after 30 seconds.

5. Opening and switching applications

Multi-tasking is easy with Android because you can keep more than one application running at the same time. There is no need to quit an application before opening another one. Use and switch between several open applications. Android manages each application, stopping and starting them as needed to ensure that idle applications don't consume resources unnecessarily.

To stop applications:

1 From the Home screen, tap 🌐 > **Apps** tab (if necessary) > **Settings** 🔧 > **Apps** > **RUNNING** tab.
2 Tap the desired application and tap **Stop** to stop it.

6. Transferring music, photos and videos using Media device (MTP)

1 Connect the phone to your PC using the USB cable provided with your phone.
2 Drag the Status Bar down and tap the current USB connection.
3 Tap the **Media device (MTP)** option.
4 Select the **Open device to view files** option on your PC. You can then view media contents on your PC and transfer the files.
5 Copy the files from your PC to the drive folder or vice versa.
6 Drag the Status Bar down and tap **Media device (MTP)** > **Charge phone**.
7 Disconnect the USB cable from your phone.

7. Hold your phone upright

Hold your cell phone vertically, as you would a regular phone. Your phone has an internal antenna. Be careful not to scratch or damage the back of the phone, as this may affect performance.

When making/receiving calls or sending/receiving data, avoid holding the lower part of the phone where the antenna is located. Doing so may affect call quality.

Getting to know your phone

Phone overview

Earpiece

Proximity Sensor

Volume Keys
Allow you to adjust the ringer, media volume, or the volume during a call.

Power/Lock Key
Turn your phone on/off, restart, lock/unlock the screen, turn airplane mode on or off, and change the ringer type.

Back Key
Return to the previous screen.

Recent Apps Key

Home Key
Return to the Home screen from any screen. Press and hold to access Google Now.

NOTE: Proximity sensor
When receiving and making calls, the proximity sensor automatically turns the backlight off and locks the touch screen by sensing when the phone is near your ear. This extends battery life and prevents you from unintentionally activating the touch screen during calls.
Do not cover the proximity sensor with protective film. This could cause the sensor to malfunction.

⚠ WARNING

Placing a heavy object on the phone or sitting on it can damage the LCD and touch screen functions.

Volume Keys
- **On the Home screen**: Control ringer volume.
- **During a call**: Control your earpiece volume.
- **When playing audio/video:** Control volume continuously.

Power/Lock Key

3.5mm Headset Jack

Charger/ USB Port

Microphone

Back cover

Camera Lens

Speaker

microSD Card slot

Battery

Installing the battery

Before you can start exploring your new phone, you'll need to set it up.

1 To remove the back cover, hold the phone firmly in one hand. With your other hand, place your thumbnail in the Charger/USB Port at the bottom of the phone as shown in the illustration below.

NOTE: Make sure to turn the phone off before removing the battery.

2 Insert the battery into the battery compartment by aligning the gold contacts on the phone and the battery ❶ and pressing it down until it clicks into place ❷.

3 Align the back cover over the battery compartment ❶ and press down along the outer edges of the back cover ❷.

Charging the phone

Your phone comes with a USB cable and a charging adapter. The Charger/USB Port is at the bottom of the phone. Insert one end of the USB cable into the phone and plug the charging adapter into an electrical outlet.

NOTE:
• The battery must be fully charged initially to improve battery lifetime.
• Do not open the back cover while your phone is charging.

Using the memory card

Make sure to unmount the SD card in the Storage menu before removing it.

1 Remove the back cover.
2 Insert the memory card into the slot. Make sure the gold contact area is facing downwards.

Locking and unlocking the screen

If you do not use the phone for a while, the screen will be automatically turned off and locked. This helps to prevent accidental taps and saves battery power.

When you are not using your phone, press the **Power/Lock Key** ▬ to lock your phone.

If there are any programs running when you lock your screen, they may be still running in Lock mode. It is recommended that you exit all programs before entering Lock mode to avoid unnecessary charges (e.g. phone calls, web access and data communications).

To wake up your phone, press the **Power/Lock Key** ▬. The Lock screen will appear. Touch and slide the Lock screen in any direction to unlock the screen. The last screen you viewed will open.

Your Home screen

Touch screen tips

Here are some tips on how to navigate on your phone.

Touch or tap – A single finger tap selects items, links, shortcuts and letters on the on-screen keyboard.

Touch and hold – Touch and hold an item on the screen by touching it and not lifting your finger until an action occurs. For example, to open a contact's available options, touch and hold the contact in the Contacts list until the context menu opens.

Drag – Touch and hold an item for a moment and then, without lifting your finger, move your finger on the screen until you reach the target position. You can drag items on the Home screen to reposition them.

Swipe or slide – To swipe or slide, quickly move your finger across the surface of the screen, without pausing when you first touch it (so you don't drag an item instead). For example, you can slide the screen up or down to scroll through a list or browse through the different Home screens by swiping from left to right (and vice versa).

Double-tap – Double-tap to zoom on a webpage or a map. For example, quickly double-tap a section of a webpage to adjust that section to fit the width of the screen. You can also double-tap to zoom in and out when viewing a picture and when using maps.

Pinch-to-Zoom – Use your index finger and thumb in a pinching or spreading motion to zoom in or out when using the browser, maps, or when viewing pictures.

Rotate the screen – From many applications and menus, the orientation of the screen adjusts to the device's physical orientation.

NOTE:
- To select an item, tap the center of the icon.
- Do not press too hard; the touch screen is sensitive enough to pick up a light, yet firm tap.
- Use the tip of your finger to tap the option you want. Be careful not to tap any other keys.

Home screen

Simply swipe your finger to the left or right to view the Home screen panels. You can customize each panel with pre-loaded and downloaded apps, widgets, and wallpapers.

The Quick Keys are available at the bottom of the Home screen. Quick Keys provide easy and one-tap access to the functions you use the most.

Tap the **Phone** icon to bring up the dialpad to make a call.

Tap the **Contacts** icon to open your contacts.

Tap the **Messaging** icon to access the Messaging application, where you can view and create text and multimedia messages.

Tap the **Apps** icon to view all of your installed applications. To open any application, simply tap the icon in the applications list.

NOTE: To add an icon, drag it to the Quick Keys bar and release it. To remove an icon, drag it out of the Quick Keys bar.

Your Home screen

Customizing the Home screen

You can customize your Home screen by adding apps, downloads, widgets or wallpapers. For more convenience using your phone, add your favorite apps and widgets to the Home screen.

To add items on your Home screen:

1 Touch and hold the empty part of the Home screen.
2 Tap the desired tab. Choose from **Apps** or **Widget**.
3 Drag the desired app icon to the preferred location and lift your finger.

To remove an item from the Home screen:

• Touch and hold the icon you want to remove, then drag it to 🗑 and release it.

NOTE: To add an icon, drag it to the Quick Keys bar and release it. To remove an icon, drag it out of the Quick Keys bar.

TIP! Using folders
You can combine several app icons in a folder to help keep you organized. Drop one app icon over another one on a Home screen and a folder will be created with both icons in it.

Notifications

Notifications alert you to the arrival of new messages, calendar events, and alarms, as well as to ongoing events, such as video downloads.

From the Notifications Panel, you can view your phone's current status and pending notifications.

When a notification arrives, its icon appears at the top of the screen. Icons for pending notifications appear on the left and system icons, such as Wi-Fi or battery strength, on the right.

Pending notifications

System notifications
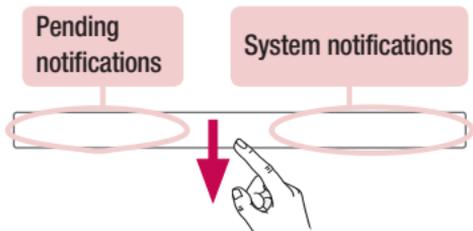
Accessing notifications

Swipe the Status Bar downwards to open the Notifications Panel. To close the Notifications Panel, swipe the panel upwards or tap the **Back Key** .

Quick Settings

Use the Quick Settings to easily toggle function settings like Wi-Fi, manage display brightness and more. To access the Quick Settings, open the Notifications Panel. The Quick Settings bar is located at the top of the Notifications Panel.

Your Home screen

To rearrange Quick Setting items on the Notification Panel

Swipe the Quick Settings bar to the left and tap **Edit** 🔘. Touch and hold ☰ next to the items you want to move and drag it to the desired location. Tap the checkbox next to each item to add and remove them from the Quick Settings bar.

> **NOTE:** Touch and hold an icon on the Quick Settings bar to directly access its settings menu.
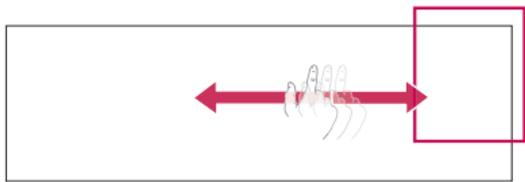
Notification icons on the Status Bar

Notification icons appear on the Status Bar at the top of the screen to report missed calls, new messages, calendar events, device status and more.

[   ]

The icons listed in the table below are some of the most common ones.

Icon	Description	Icon	Description
	No signal		Battery fully charged
	Airplane mode		Battery is charging
	Connected to a Wi-Fi network		Downloading data
	Wired headset		Uploading data
	Wired headset (with no mic) connected		Call in progress
	Acquiring GPS		Data is syncing
	Missed call		New Gmail message
	Bluetooth is on		System warning

Your Home screen

Icon	Description		Icon	Description
🕐	Alarm is set		💬	New Hangouts message
📧	New voicemail		😊	New text or multimedia message
🔇	Ringer is silenced		🎵	Song is playing
🍃	Battery saver is on		🔌	Phone is connected to PC via USB cable

NOTE: The icon locations in the Status Bar may differ depending on the functions, features, and apps being used.

On-screen keyboard

You can enter text using the on-screen keyboard. The on-screen keyboard appears automatically on the screen when you need to enter text. To manually display the keyboard, simply tap a text field where you want to enter text.

Using the keypad & entering text

⬆ Tap once to capitalize the next letter you type. Double-tap for all caps (the arrow turns blue).

☺1# abc Tap to switch to the numbers and symbols keyboard.

⚙ Tap to access the LG Keyboard settings. Touch and hold to access voice input mode.

⎵ Tap to enter a space.

⏎ Tap to create a new line in the message field.

⌫ Tap to delete the previous character.

Entering special characters

The LG Keyboard allows you to enter special characters (e.g. "á") when entering text. For example, to enter "á", touch and hold the "a" key until the additional characters are displayed. Then select the special character you want to enter.

Google account setup

The first time you open a Google application on your phone, you will be required to sign in with your existing Google account. If you do not have a Google account, you will be prompted to create one.

Creating your Google account

1 From the Home screen, tap 🌐 to open the applications screen.

2 Tap **Settings** ⚙ > **Accounts & sync** > **Add account** > **Google** > **New** to start the Google Account set up wizard.

3 Tap a text field to open the keyboard and enter your name and username for your Google account. When entering text, you can move to the next text field by tapping **Next** on the keyboard.

4 When you have finished entering your name and username, tap ▶. Your phone then communicates with Google servers and checks for username availability.

5 Enter and re-enter your password. Then follow the instructions and enter the required and optional information about the account. Wait while the server creates your account.

Signing in to your Google account

1 On the Google Account setup screen, tap **Existing**, enter your e-mail address and password, then tap ▶.

2 Once you have set up your Google account on your phone, it will be automatically synchronized with your Google account on the web (depending on your synchronization settings).

After signing in, you can use Gmail, and Play Store; back up your settings to Google servers; and take advantage of other Google services on your phone.

Connecting to Networks and Devices

Wi-Fi

With Wi-Fi, you can use high-speed Internet access within the coverage of the wireless access point (AP). Enjoy wireless Internet using Wi-Fi, without extra charges.

Connecting to Wi-Fi networks

To use Wi-Fi on your phone, you need to access a wireless access point or 'hotspot'. Some access points are open and you can simply connect to them. Others are hidden or use security features and you must configure your phone to be able to connect to them.

Turn off Wi-Fi when you're not using it to extend the life of your battery.

> **NOTE:** If you are out of the Wi-Fi zone or have set Wi-Fi to off, additional charges may be applied by your mobile service provider for mobile data use.

Turning Wi-Fi on and connecting to a Wi-Fi network

1 From the Home screen, tap > **Apps** tab (if necessary) > **Settings** > **Wi-Fi**.
2 Tap the switch to turn Wi-Fi on and start scanning for available Wi-Fi networks.
   • Secured networks are indicated by a lock icon.
3 Tap a network to connect to it.
   • If the network is secured, you are prompted to enter a password or other credentials. (Ask your network administrator for details)
4 The Status Bar displays icons that indicate your Wi-Fi status.

Bluetooth

Bluetooth allows you to share data with other Bluetooth-enabled devices and connect to Bluetooth headsets.

> **NOTE:**
> • LG is not responsible for the loss, interception or misuse of data sent or received via the Bluetooth wireless feature.
> • Always ensure that you share and receive data with devices that are trusted and properly secured. If there are obstacles between the devices, the operating distance may be reduced.
> • Some devices, especially those that are not tested or approved by Bluetooth SIG, may be incompatible with your device.

Turning on Bluetooth and pairing up your phone with a Bluetooth device

You must pair your phone with another device before you connect to it.

1 From the Home screen, tap 🔘 > **Apps** tab (if necessary) > **Settings** ⚙ > **Bluetooth**.
2 Tap the switch ⬤▢ to turn Bluetooth on.
3 Tap the check box next to your phone's name to make your phone visible to other Bluetooth devices.

> **NOTE:** To select the length of time that your device will be visible, tap the **Menu icon** 🔢 > **Visibility timeout**.

4 A list of available devices will be displayed. Choose the device you want to pair with from the list.

5 Depending on the type of device, you may have to enter matching codes, confirm matching codes, or the devices will automaticall pair.

Once the paring is successful, your device will connect to the other device.

NOTE: Some devices, especially headsets or hands-free car kits, may have a fixed Bluetooth PIN, such as 0000. If the other device has a PIN, you will be asked to enter it.

Send data using the Bluetooth wireless feature

1 Select a file or item, such as a contact, calendar event or media file, from an appropriate application or from the **Downloads** app.

2 Select the option for sending data via Bluetooth.

NOTE: The method for selecting an option may vary by data type.

3 Search for and pair with a Bluetooth-enabled device (if necessary).

Receive data using the Bluetooth wireless feature

1 Pair both devices and send a file from the other device to yours.

2 Tap **Accept** to confirm that you are willing to receive data from the device.

Connecting to Virtual Private Networks

Virtual private networks (VPNs) allows you to connect to resources inside a secure local network, from outside that network.

To add a VPN

1 From the Home screen, tap > **Apps** tab (if necessary) > **Settings** > **More**... > **VPN**.

NOTE: You must configure a screen lock to use VPN.

2 Tap **Add VPN network**.
3 Tap the type of VPN you want to add.
4 In the screen that opens, follow the instructions from your network administrator to configure each component of the VPN settings.
5 Tap **Save**. The VPN will be added to the list on the VPN settings screen.

PC connections with a USB cable

Learn to connect your device to a PC with a USB cable using the different USB connection modes.

Transferring music, photos and videos using Media device (MTP)
1 Connect your phone to a PC using the USB cable provided with your phone.
2 Drag the Status Bar down and tap the current USB connection.
3 Tap the **Media device (MTP)** option.

Synchronize with Windows Media Player

Ensure that Windows Media Player is installed on your PC.

1 Use the USB cable to connect the phone to a PC on which Windows Media Player has been installed.

2 Select the **Media device (MTP)** option. When connected, a pop-up window will appear on the PC.

3 Open Windows Media Player to synchronize music files.

4 Edit or enter your device's name in the pop-up window (if necessary).

5 Select and drag the music files you want to the sync list.

6 Start synchronization.

• The following requirements must be satisfied to synchronize with Windows Media Player.

Items	Requirement
OS	Microsoft Windows XP SP2, Vista or higher
Window Media Player version	Windows Media Player 10 or higher

• If the Windows Media Player version is lower than 10, install version 10 or higher.

Calls

Making a call

1 From the Home screen, tap 📞 to open the dial pad.

2 Enter the number using the dial pad. To delete a digit, tap ⌫ .

3 Tap 📞 to make a call.

4 To end a call, tap 📞 .

> **TIP!** To enter "+" to make international calls, touch and hold 0 + .

Calling your contacts

1 From the Home screen, tap 👤 to open your contact list.

2 Scroll through the contact list or tap the **Search contacts** box and enter the contacts name. You can also scroll the alphabet bar along the right side of the screen.

3 In the list, tap 📞 next to the desired contact to make the call.

Answering and rejecting a call

- Swipe 📞 in any direction to answer the incoming call.
- Swipe 📞 in any direction to decline an incoming call.

> **TIP! Decline with message**
> You can send a message quickly using this function. This is useful if you need to reject a call during a meeting.

Calls

Adjusting the in-call volume

To adjust the in-call volume during a call, use the Volume Up and Volume Down Keys on the left side of the phone.

Making a second call

1 During your first call, tap **Menu** icon ⋮ , touch **Add call** and dial the number. You can also go to the recently dialed numbers list by tapping **Call logs** or search contacts by tapping **Contacts** and selecting the contact you want to call.
2 Tap 📞 to make the call.
3 Your initial call is placed on hold.
4 Tap 👤 if you want to start a conference call.
5 To end active calls, tap 📵 .

NOTE: You are charged for each call you make.

Viewing your call logs

From the Home screen, tap 📞 and choose the **Call logs** tab. A complete list of all dialed, received and missed calls is displayed.

TIP!
• Tap any call log entry to view the date, time and duration of the call.
• Tap the **Menu** icon ⋮ , then tap **Delete all** to delete all the recorded items or tap **Delete** to delete individual items.

Call settings

You can configure phone call settings such as call forwarding, as well as other special features offered by your provider.

1 From the Home screen, tap [phone icon].
2 Tap the **Menu** icon [menu icon].
3 Tap **Call settings** and choose the options that you wish to adjust.

Contacts

Add contacts to your phone and synchronize them with the contacts in your Google account or other accounts that support contact syncing.

Searching for a contact

1 From the Home screen, tap 🔘 to open your contact list.

2 Tap the **Search contacts** box and enter the contacts name. You can also scroll the alphabet bar along the right side of the screen.

Adding a new contact

1 From the Home screen, tap 📞 and enter the new contact's number.

2 Tap the **Menu** icon 📋 > **Add to Contacts** > **New contact**.

3 If you want to add a picture to the new contact, tap 🔘. Choose from **Take photo** or **Select from Gallery**.

4 Tap ⬚ at the top of the screen and select the account you want to save the contact to.

5 Tap a category of contact information and enter the details about your contact.

6 Tap **Save**.

Favorite contacts

You can classify frequently called contacts as favorites.

Adding a contact to your favorites

1 From the Home screen, tap 🔲 to open your contact list.
2 Tap a contact to view its details.
3 Tap the star at the top right corner of the screen. The star will turn yellow.

Removing a contact from your favorites list

1 From the Home screen, tap 🔲 to open your contact list.
2 Tap the **Favorites** tab and choose a contact to view its details.
3 Tap the yellow color star at the top right corner of the screen. The star turns gray and the contact is removed from your favorites.

Creating a group

1 From the Home screen, tap 🔲 to open your contact list.
2 Tap the **Groups** tab, then tap the **Menu** icon 🔲 > **New group**.
3 Enter a name for the new group. You can also set a ringtone for the newly created group.
4 Tap **Add members** to add contacts to the group.
5 Tap **Save** to save the group.

> **NOTE:** If you delete a group, the contacts assigned to that group will not be lost. They will remain in your contacts.

Messaging

Your phone combines text and multimedia messages into one intuitive, easy-to-use menu.

Sending a message

1 Tap on the Home screen and tap to compose a new message.

2 Enter a contact name or contact number in the **To** field. As you enter the contact name, matching contacts will appear. You can tap a suggested recipient. You can add more than one contact.

NOTE: You will be charged for each text message you send to every person.

3 Tap the text field and begin composing your message.

4 Tap the **Menu** icon to access the messaging options.

TIP! You can tap the icon to attach a file you want to share.

NOTE: All functions of the Messaging app will be limited if the LG Messaging app is not set as the default message app. To set the default message app, open **Settings** > **Default message app** > **Messaging**.

5 Tap **Send** (or **Send MMS**) to send your message.

> ⚠ **WARNING**
> • The 160-character limit may vary from country to country, depending on the language and how the text message is coded.
> • If an image, video or audio file is added to an text message, it is automatically converted into a multimedia message and you are charged accordingly.

View mode for the Messaging app

Unread messages are located at the top. Other messages exchanged with another party are displayed in threads and in chronological order so that you can conveniently see an overview of your conversation.

Changing your message settings

Your phone message settings are pre-defined, so you can send messages immediately. You can change the settings according to your preferences.
• Open the **Messaging** app and tap the **Menu** icon [≡] > **Settings**.

E-mail

You can use the Email application to read emails from services like Gmail. The Email application supports the following account types: POP3, IMAP and Exchange.

Your service provider or system administrator can provide you with the account settings you need.

Managing an email account

The first time you open the Email application, a setup wizard opens to help you to set up an email account.

After the initial setup, the Email application displays the contents of your inbox. If you have added more than one account, you can switch among accounts.

To add another email account:

• Open the **Email** application and tap the **Menu** icon ▐ > **Settings** > **Add account**.

To change an email account's settings:

• Open the **Email** application and tap the **Menu** icon ▐ > **Settings**. Then tap **General settings** to configure settings for all accounts or tap an individual account to configure settings only for that particular account.

To delete an email account:

• Open the **Email** application and tap the **Menu** icon ▐ > **Settings** > **Menu** icon ▐ > **Remove account** > tap an account > **Remove** > **Yes**.

Working with account folders

Open the **Email** application and tap the **Menu** icon ▮▮ > **Folders**.
Each account has an Inbox, Outbox, Sent and Drafts folder. Depending on the features supported by your account's service provider, you may have additional folders.

Composing and sending email

To compose and send a message

1 While in the **Email** application, tap ▯.
2 Enter an address for the message's intended recipient. As you enter text, matching addresses will be proposed from your Contacts. Separate multiple addresses using semicolons.
3 Tap the **Cc/Bcc** field to copy recipients. Tap ▯ to attach files, if needed.
4 Tap the message field and enter your message.
5 Tap ▯ to send the email.
   If you aren't connected to a network, for example, if you're working in airplane mode, the messages that you send will be stored in your Outbox folder until you connect to a network again.

Camera and Video

To open the Camera application, tap 😊 from the Home screen, then tap **Camera** 📷.

> **TIP!** You can quickly access the Camera app without unlocking your phone first.
> • While the screen is off, press and hold the **Volume Down Key** 🔲 or **Volume Up Key** 🔲 on the left side of the phone.

Getting to know the viewfinder

❶

❸

❹

❺

❷

❻

❶ **Menu** – Tap to display camera options on the viewfinder screen.
❷ **Settings** – Tap this icon to open the settings menu.
❸ **Gallery** – Tap to view the last photo or video you captured. This enables you to access your Gallery and view saved photos or videos while in camera mode.
❹ **Record** – Tap to start recording a video.

❺ Capture – Tap to capture a photo.

❻ Back Key – Tap to exit the camera.

NOTE: The memory capacity may differ depending on the configured camera settings.

Using the advanced settings

In the viewfinder, tap ![icon] to open the advanced options. You can change the camera settings by scrolling through the list. After selecting the option, tap the **Back Key** ![icon].

![icon]	This option sets the image and video size (resolution). Choose from **3M(2048x1536)**, **W2M(2048x1350)**, **2M(1536x1536)** and **1M(1280x960)** for pictures. For videos, the option is **WVGA(800x480)**.
![icon]	This option enables you to take a picture using a voice command. Choose **On** or **Off**. If set to On, say **Cheese**, **Smile**, **Whiskey**, **Kimchi**, or **LG** to take a photo.
![icon]	This option sets a delay after the Capture/Record button is tapped. This is ideal if you want to be in the photo or video. Choose from **Off**, **3 sec**, and **10 sec**.

⊞	This option displays grid lines so that you can easily take pictures and record videos.
🖼️ 🖼️	This option sets the location where you want to save your images and videos. Choose **SD card** or **Internal storage**. This menu is displayed only when the microSD card is inserted.
⊘	This option provides a quick help guide.

Taking a quick photo

1 Open the **Camera** app.
2 Point the lens toward the subject you want to photograph.
3 Tap the **Capture** button 🔘 to take the photo.

Once you've taken a photo

1 Tap the image preview next to the Record button to view the last photo you captured.
2 Tap **Gallery**, then tap **OK**.

TIP! To make one of the available apps the default viewing app, make sure that the **Use as default app option** is selected.

NOTE: You can also choose the Photos app to view and edit your photo.

The following icons appear at the top of the Gallery screen:

✏	Tap to edit the photo (such as cropping, rotating, tuning, adding effects, and more).
⬛	Tap to take another photo immediately.
⬱	Tap to send your photo to others or share it via social network services.
🗑	Tap to delete the photo.
☆	Tap to set the picture to your Favorites folder.

Tap the **Menu** icon ⋮ to open the following advanced options.
Set image as – Tap to use the photo as a **Contact photo**, **Home screen wallpaper**, **Lock screen wallpaper**, or **Wallpaper**.
Move – Tap to move the photo or video to another album.
Copy – Tap to copy the selected photo or video and save it to another album.
Slideshow – Tap to display a slideshow using all of your photos.
Rotate left/right – Tap to rotate the picture to the left or right.
Crop – Tap to crop your photo.
Add location – Tap to add location information to your photo.
Rename – Tap to change the name of the selected photo or video.
Print – Tap to print the photo.
Details – Tap to display information about the photo or video.

Viewing your saved photos and videos

You can access your saved photos and videos when in camera mode. Just tap the image preview next to the Record button and your Gallery will be displayed.

• To view more photos, scroll left or right.
• To zoom in or out, double-tap the screen or place two fingers and spread them apart (move your fingers closer together to zoom out).

Recording a video

1 Open the **Camera** app, then tap the **Record** button ◯.
2 The video camera viewfinder appears on the screen.
3 Point the lens toward the subject you want to capture in your video.
4 Tap the **Record** button ◯ once to start recording.
5 A timer showing the length of the video is displayed.
6 Tap the **Stop** button ◼ to stop recording.

> **NOTE:**
> • Tap ◙ to capture a screen shot while you record.
> • Tap ❚❚ to pause while recording a video.
> • While recording a video, place two fingers on the screen and pinch to use the Zoom function.

After recording a video

Tap the image next to the Record button to view the last video you recorded.

◎	Tap to record another video immediately.
⦦	Tap to send your video to others or share it via social network services.
🗑	Tap to delete the video.

Watching your saved videos

1 In the viewfinder, tap the image preview next to the Record button.
2 Your Gallery will appear on the screen.
3 Tap ▶ to play the video.

Adjusting the volume when viewing a video

To adjust the volume of a video while it is playing, use the Volume Keys on the left side of the phone.

Unique LG Features

Guest Mode

To protect your privacy or limit some applications to your children, you can use the Guest mode. When you lend your phone to others, you can limit the applications to be displayed.

1 From the Home screen, tap > **Apps** tab (if necessary) > **Settings** > **Guest mode**.

2 Tap **Lock screen type** to set the pattern used to enter Guest mode.

3 Tap **Allowed app** to select the apps you want to allow others to view under Guest mode.

4 Tap **Wallpaper** to change the wallpaper for the Guest mode Home screen.

5 Tap the switch to enable Guest mode.

NOTE: If you have not set a lock code, you will be prompted to create one.

Knock Code

The Knock Code feature allows you to instantly access your Home screen by tapping a customized pattern anywhere on the screen.

To activate the Knock Code feature

1 From the Home screen, tap > **Apps** tab (if necessary) > **Settings** > **Lock screen** > **Select screen lock** > **Knock Code**.

2 A screen that guides you through setting up a Knock Code will be displayed. You have to create a Backup PIN as a safety measure in case you forget your Knock Code.

KnockON

The KnockON feature allows you to turn the screen on and off by simply double tapping on it.

Using KnockON

• When the screen is off, double-tap the center of it quickly to unlock it.
• To lock the screen, double-tap the Status Bar in any screen (except on the camera viewfinder) or an empty area on the Home screen.

QuickMemo+

The QuickMemo+ feature allows you to capture screen shots and use them to create memos. You can use QuickMemo+ to easily create memos during a call, with a saved picture or on the current phone screen.

1 Access the **QuickMemo+** feature by pressing both Volume Keys for one second on the screen you want to capture.

OR   **OR**

Drag the Status Bar down and and tap 🔲 on the Quick Settings Bar.

2 Create a memo using the toolbar options.

3 Tap ☐ in the Edit menu to save the memo to the QuickMemo+ app or your Gallery.

NOTE: Please use a fingertip while using the QuickMemo+ function. Do not use your fingernail.

Using QuickMemo+ toolbar options

The QuickMemo+ toolbar options allow you to easily create memos. Tap the toolbar tab to access and hide the QuickMemo+ toolbar icons.

↩	Tap to undo the most recent action.
↪	Tap to redo the most recently deleted action.
T	Tap to type text in your memo.
✎	Tap to select the pen type and color. You can also select its thickness and transparency.
◆	Tap to use the eraser to erase pen marks from the memo.
▤	Tap to save the memo you've created to your Gallery or to the QuickMemo+ app.
⋮	Tap to access additional options.

QuickMemo+ Menu Options

From the QuickMemo+ screen, tap the **Menu** icon to access the following options.

- Tap **Insert** to insert files stored in your phone/memory card into the memo.
- Tap **Move** to move the current memo into another folder.
- Tap **Delete** to delete the current memo.
- Tap **Export** to export the current memo to internal storage or the SD card.
- Tap **Share** to share the memo with others.
- Tap **Paper style** to set the paper background for your memo.

To exit the QuickMemo+ feature

Tap the **Back Key** to exit the QuickMemo+ feature.

Viewing saved memos

Memos are saved in the **Gallery** app or **QuickMemo+** app.

- From the Home screen, tap 🌐 > the **Apps** tab (if necessary) > **Gallery** , then tap the **QuickMemo+** album.
- From the Home screen, tap 🌐 > the **Apps** tab (if necessary) > **QuickMemo+** , then tap the your memo.

Multimedia

Gallery

You can store multimedia files in the internal and external memory for easy access to all your multimedia files. Use this application to view multimedia files like pictures and videos.

• From the Home screen, tap 🔘 > **Apps** tab (if necessary) > **Gallery** 🖼.

> **NOTE:**
> • Some file formats are not supported, depending on the software installed on the device.
> • Some files may not play properly, depending on how they are encoded.

Viewing pictures

Open the Gallery to display your available albums. When some applications save a picture, a folder might be automatically created to contain the picture. For example, capturing a screenshot automatically creates the Screenshots folder.

Pictures are displayed by creation date in a folder. Select a picture to view it full screen. Scroll left or right to view the next or previous image.

Zooming in and out

Use one of the following methods to zoom in on an image:

• Double-tap anywhere to zoom in.
• Spread two fingers apart on any place to zoom in. Pinch to zoom out, or double-tap to return.

Multimedia

Playing videos

Video files show the ▶ icon in the preview. Select a video to watch it and tap ▶.

> **NOTE:**
> • Some file formats are not supported, depending on the device software.
> • If the file size exceeds the available memory, an error can occur when you open files.

Editing photos

When viewing a photo, tap the **Edit** ✎ and use the advanced editing options.

Deleting images

Use one of the following methods:

• In an album, tap 🗑 and select photos/videos by tapping them, then tap **Delete**.
• When viewing a photo or video preview, tap 🗑.

Setting a photo as the wallpaper

When viewing a photo, tap the **Menu** icon ⋮ and select **Set image as** to set the image as the Home screen or Lock screen wallpaper.

Videos

Your phone has a video player that lets you play all of your favorite videos.

Playing a video

1 From the Home screen, tap ⊕ > **Apps** tab (if necessary) > **Gallery** 🖼.
2 Open the album that contains the desired video and tap it to play it.

⏸	Tap to pause video playback.
▶	Tap to resume video playback.
⏩	Touch and hold to fast-forward in 3 second increments. Tap once to fast-forward 10 seconds.
⏪	Touch and hold to rewind in 3 second increments. Tap once to rewind 10 seconds.
🔊	Tap to adjust the video volume.
🔒	Tap to lock a video screen.

To change the volume while watching a video, press the Volume Keys on the left side of the phone.

Touch and hold a video in the list to access **Share**, **Delete**, **Rename** and **Details**.

Multimedia

NOTE: While watching a video, slide the left side of the screen up and down to adjust the brightness. Slide the right side of the screen up and down to adjust the volume. You can also slide the bottom part of the screen to the right or left to fast-forward and rewind.

Music

Your phone has a music player that lets you play all your favorite tracks. To access the music player, from the Home screen, tap ⊞ > **Apps** tab (if necessary) > **Music** ♫.

Playing a song

1 From the Home screen, tap ⊞ > **Apps** tab (if necessary) > **Music** ♫.
2 Tap the **Songs** tab.
3 Select the song you want to play.

★	Tap to add the song to your Favorites playlist.
✕	Tap to set shuffle mode.
⟳	Tap to set repeat mode.
◀»	Tap to adjust the music volume.
ⅠⅠ	Tap to pause playback.
▶	Tap to resume playback.

(⊞)	Tap to skip to the next track on the album or in the playlist. Touch and hold to fast-forward in 3 second increments.
(⊞)	Tap to go back to the beginning of the song. Tap twice to return to the previous song. Touch and hold to rewind in 3 second increments.
☰	Tap to see the current playlist.
⋮	Tap to access additional settings.

To change the volume while listening to music, press the Volume Keys on the left side of the phone.

Touch and hold any song in the list to access **Play**, **Add to playlist**, **Delete**, **Share**, **Set as ringtone**, **Details**, and **Search**.

> **NOTE:**
> • Some file formats are not supported, depending on the device software.
> • If the file size exceeds the available memory, an error can occur when you open files.
> • Music file copyrights may be protected by international treaties and national copyright laws. Therefore, it may be necessary to obtain permission or a licence to reproduce or copy music.
> In some countries, national laws prohibit private copying of copyrighted material. Before downloading or copying the file, check the national laws of the relevant country concerning the use of such material.

Tools

Setting your alarm

1 From the Home screen, tap 🔵 > **Apps** tab (if necessary) > **Clock** 🕐 > ➕.
2 Set the time and select **AM** or **PM**.
3 Set **Repeat**, **Snooze duration**, **Vibration**, **Alarm sound**, **Alarm volume**, **Auto app starter**, **Puzzle lock** and **Memo**.
4 Tap **Save** to save the alarm.

NOTE: To change alarm settings, tap the **Menu** icon 📋 on the Alarms screen and select **Settings**.

Using your calculator

1 From the Home screen, tap 🔵 > **Apps** tab (if necessary) > **Calculator** 🧮.
2 Tap the number keys to enter numbers.
3 For simple calculations, tap the function you want to perform (+, −, × or ÷) followed by ⊜.

NOTE: You can use the scientific calculator for more complex calculations when you rotate the screen horizontally.

NOTE: To check your previous calculation history, tap the **Menu** icon 📋, select **Calculation history**.

Adding an event to your calendar

1 From the Home screen, tap 🔘 > **Apps** tab (if necessary) > **Calendar** 🗓.
2 Tap 🗒 and choose from **Day, Week, Month, Year,** or **Agenda** to change the month view.
3 Tap the date for which you wish to add an event and touch ➕.
4 Tap the **Event name** field and enter the event name.
5 Tap the **Location** field and enter the location. Check the date and enter the time you wish your event to start and finish.
6 If you wish to add a note to your event, tap the **Description** field and enter the details.
7 If you wish to repeat the alarm, set the **Repeat** option. You can also set the **Reminders** option, if necessary.
8 Tap **Save** to save the event in the calendar.

Voice Recorder

Use the voice recorder to record voice memos or other audio files.

Recording a sound or voice

1 From the Home screen, tap 🔘 > **Apps** tab (if necessary) > **Voice Recorder** 🎙.
2 Tap ⦿ to begin recording.
3 Tap ▪ to end the recording.
4 Tap ▶ to listen to the recording.

NOTE: Tap 🗐 to access the list of recordings. You can listen to any saved recordings from the list. The available recording time may differ from actual recording time.

Polaris Office

Polaris Office allows you to use various types of documents, such as MS Office documents and PDFs.

• From the Home screen, tap 🌐 > **Apps** tab (if necessary) > **Polaris Office**.

Google+

Use this application to stay connected with people via Google's social network service.

• From the Home screen, tap 🌐 > **Apps** tab (if necessary) > **Google** folder 🌀 > **Google+** 8+.

NOTE: This application may not be available depending on the region or service provider.

Voice Search

Use this application to search webpages using voice.

1 From the Home screen, tap ⊕ > **Apps** tab (if necessary) > **Google** folder 🔵 > **Voice Search** 🎤.
2 Say a keyword or phrase when **Speak now** appears on the screen. Select one of the suggested keywords that appear.

NOTE: This application may not be available depending on the region or service provider.

Downloads

Use this application to see what files have been downloaded through the applications.

• From the Home screen, tap ⊕ > **Apps** tab (if necessary) > **Downloads** ⬇.

Browsing the Web

Browser

Use this application to browse the Internet. The Browser gives you a fast, full-color world of games, music, news, sports, entertainment and much more, right on your mobile phone wherever you are and whatever you enjoy.

NOTE: Additional charges apply when connecting to these services and downloading content. Check data charges with your network provider.

From the Home screen, tap 🌐 > **Apps** tab (if necessary) > **Browser** 🌐.

Using the Browser toolbar

Scroll towards the top of the page to display the Browser toolbar. The following options are available.

⇐	Tap to go back one page.
⇨	Tap to go forward one page. This is the opposite of what happens when you tap the **Back Key** ⌫, which takes you to the previous page.
⌂	Tap to go to the Home page.
⊡	Tap to add a new window.
🔖	Tap to access bookmarks.

Viewing webpages

Tap the address field, enter the web address and tap Go on the keyboard.

Opening a page

To open a new page, tap `1` > `+`.
To go to to an open page, tap `2`, scroll up or down, and tap the page to select it.

Searching the web by voice

Tap the address field, tap `🎤`, speak a keyword, and then select one of the suggested keywords that appear.

> **NOTE:** This feature may not be available depending on the region or service provider.

Bookmarks

To bookmark the current webpage, tap the **Menu** icon `⋮` > **Add to bookmarks** > **OK**.
To open a bookmarked webpage, tap `📑` > and select the desired bookmark.

History

To open a web page from the list of recently visited web pages, tap `📑` > **History** tab. To clear the history, tap `🗑` > **Yes**.

Chrome

Use Chrome to search for information and browse webpages.
From the Home screen, tap `⬛` > **Apps** tab (if necessary) > **Chrome** `🌐`.

Browsing the Web

Viewing webpages

Tap the address field, enter a web address or search criteria, and tap [Go] on the keyboard.

Opening a page

To open a new page, tap [▤] > **+ New tab**.

To go to an open page, tap [▤], scroll up or down and tap the page to select it.

Searching the web by voice

Tap the address field, tap [🎤], speak a keyword and select one of the suggested keywords that appear.

> **NOTE:** This feature may not be available depending on the region or service provider.

Syncing with other devices

Sync open tabs and bookmarks to use with Chrome from other devices when you are logged in with the same Google account.

To view open tabs on other devices, tab [▤] > **+ New tab** > **Recent tabs** [ru]. Select a webpage to open.

Access bookmarks

To view bookmarks, touch and hold the **Recent Apps Key** [▭] > **Bookmarks**.

Settings

Access the Settings menu

1 From the Home screen, tap 🔘 > **Apps** tab (if necessary) > **Settings** ⚙.
2 Select a setting option and configure the desired settings.

Wireless Networks settings

< Airplane mode >

Airplane mode – Activating airplane mode disables all wireless connections.

< Wi-Fi >

Wi-Fi – Turns on Wi-Fi to connect to available Wi-Fi networks. You can also set various other Wi-Fi settings.

TIP! How to obtain the MAC address
To set up a connection in some wireless networks with MAC filters, you may need to enter the MAC address of your phone in the router.
To find the MAC address, access the Wi-Fi settings and tap the **Menu** icon
🔘 > **Advanced Wi-Fi** > **MAC address**.

< Bluetooth >

Turn the Bluetooth wireless feature on or off. You can also set various other Bluetooth settings.

< Mobile data >

Displays the data usage and allows you to set a mobile data usage limit.

Settings

< Call >

Voicemail – Allows you to set various options for your provider's voicemail service.

Auto retry – Sets the amount of time to wait before automatically redialing a call that failed to connect. Choose from Off, 10 sec, 30 sec, or 60 sec.

Incoming voice call pop-up – If you select this function, the incoming call pop-up will be displayed when using applications.

Decline with message – When you want to reject a call, you can send a quick message using this function. This is useful if you need to reject a call during a meeting.

Privacy keeper – Hides the caller name and number for an incoming call.

Auto answer – Allows you to enable or disable Auto answer with hands-free.

TTY mode – Sets the TTY mode to communicate with TTY devices.

Hearing aids – Checkmark to turn on hearing aid compatibility.

Save unknown numbers – Add unknown numbers to your contact list after a call.

Power key ends call – Checkmark to allow you to end voice calls by pressing the Power/Lock Key.

DTMF tones – Sets the length of the DTMF tones. Choose **Normal** or **Long**.

Call restrictions – Allows you to restrict incoming or outgoing calls.

Call duration – View the duration for the last call made, all outgoing calls, all incoming calls and all calls combined. Tap an option to reset the counter.

Voice privacy – Checkmark to enable enhanced privacy mode.

< More ... >

Mobile networks – Allows you to manage mobile data.

VPN – Allows you to set up and manage Virtual Private Networks (VPNs).

> **NOTE:** You must set a pattern, PIN or password before you can use credential storage.

Device settings

< Sound >

Sound profile – Set the sound profile to **Sound**, **Vibrate only**, or **Silent**.

Volumes – Manage the volume for **Ringtone**, **Notification sound**, **Touch feedback & system**, and **Music**, **video**, **games & other media**.

Quiet mode – Allows you to set a schedule to configure the sound profile to silent. This mutes all sounds except alarms and media and allows repeat calls or calls from certain contacts to ring.

Ringtone – Sets the ringtone for calls. You can also add a ringtone by tapping the **New** icon ⊞ (at the upper-right corner of the screen).

Notification sound – Sets the sound for notifications. You can also add a notification sound by tapping the **New** icon ⊞ (at the upper-right corner of the screen).

Ringtone with vibration – Checkmark to set the phone to vibrate in addition to the ringtone when you receive calls.

Settings

Vibration type – Sets the incoming call vibration options. Choose from **Long Lasting**, **Rapid**, **Short repeated**, **Standard**, and **Ticktock**. Tap the **New** icon ➕ (at the upper-right corner of the screen) to create your own vibration pattern.

Vibrate on tap – Checkmark to vibrate when you touch the screen (e.g., touch keys and make selections).

Sound effects – Tap to set dial pad touch tones, touch sounds, screen lock sound, and emergency tone.

Message/call voice notifications – Allows the phone to announce incoming calls and messages out loud.

< Display >

Brightness – Allows you to adjust the screen brightness. Checkmark **Night brightness** to set brightness at 0% automatically between 12:00 AM ~ 06:00 AM.

Screen timeout – Set the amount of time before the screen times out.

Screen-off effect – Set the animation effect used when the screen turns off.

Auto-rotate screen – Set to switch orientation automatically when you rotate the phone.

Daydream – Allows the screensaver to display when the phone is sleeping while docked and/or charging.

Font type – Change the display font type.

Font size – Change the size of the display font.

< Home screen >

Wallpaper – Sets the wallpaper to use on your Home screen. Select it from **Gallery**, **Live wallpapers**, **Photos**, or **Wallpaper gallery**.

Screen swipe effect – Sets the animation effect used when you swipe to change screens. Choose from **Slide**, **Breeze**, **Accordion**, **Panorama**, **Carousel**, **Layer**, and **Domino**.

Allow Home screen looping – Checkmark to set the Home screen to scroll continuously, eliminating the need to scroll back in the opposite direction when you reach either end.

Home backup & restore – Backup and restore app layouts and the wallpaper.

Help – Displays some useful tips for the Home screen.

< Lock screen >

Select screen lock – Set a screen lock to secure your phone. Set **None**, **Swipe**, **Knock Code**, **Pattern**, **PIN** or **Password**.

Wallpaper – Select the wallpaper for your lock screen from the **Gallery** or **Wallpaper gallery**.

Widgets – Allows you to show widgets on the lock screen. To add widgets while on the lock screen, slide the top part of the screen towards the right and tap the Add widget icon

Shortcuts – Customize the shortcuts on the lock screen.

Contact info for lost phone – Show contact info on Lock screen in the event your phone is lost.

Lock timer – Allows you to choose a quantity of time to lock your phone after the screen times out.

Power button instantly locks – Allows you to lock the phone when the Power/Lock Key is pressed.

Settings

< Gestures >

Silence incoming calls – Flip the device to silence incoming calls.

Snooze or stop alarm – Flip the device to snooze or stop the alarm.

Pause video – Flip the device to pause the video.

Help – Touch to get information on using the Gesture functions of your device.

Motion sensor calibration – Improve the accuracy of the tilt and speed of the sensor.

< Storage >

Internal Storage – Allows you to view information about the internal storage usage.

SD Card – Check total available SD card space. Tap **Unmount SD card** for safe removal of the SD card. If no SD card is mounted, tap **Mount SD card**. Tap **Erase SD card** if you want to delete all data from the SD card.

< Battery >

The Battery charge information is displayed on a battery graphic along with the percentage of the remaining charge and its status. Tap the Battery charge icon to display the Battery use screen to see battery usage level and battery use details. It displays which components and applications are using the most battery power. Tap one of the entries to see more detailed information.

Battery percentage on status bar – Checkmark to display the battery level percentage on the Status Bar next to the battery icon.

Battery saver – Tap the switch ⟨●━━⟩ to toggle between On and Off.

Turn Battery saver on – Choose to turn battery saver on when the battery charge gets to a certain battery level. Choose from **Immediately**, **10% battery**, **20% battery**, **30% battery** and **50% battery**.

Auto-sync – Turns off Auto-sync.

Wi-Fi – Turns off Wi-Fi if data is not in use.

Bluetooth – Turns off Bluetooth if it's not connected to a device.

Vibrate on tap – Turns off touch feedback.

Brightness – Adjusts the brightness.

Screen timeout – Adjusts the screen timeout.

Help – Displays information about the battery saver feature.

< Apps >

Use the Apps menu to view details about the applications installed on your phone, manage their data, and force them to stop.

Swipe left and right to select one of the three tabs across the top of the screen to view detailed information for **Downloaded**, **On SD Card**, **Running**, and **All** applications.

Tap an entry to view more information, tap **Stop** (or **Force stop**), then **OK** to stop it from running.

< Default message app >

Sets your default messaging app. Choose from **Messaging**, **Hangouts**, or any other available downloaded application.

Settings

Personal settings

< Accounts & sync >

Permits applications to synchronize data in the background, whether or not you are actively working in them. Deselecting the **Auto-sync data** setting can save battery power and lower (but not eliminate) data usage.

< Guest mode >

Use Guest mode when you let someone else use your phone. They will only be able to use the applications that you've selected. Once you set it up, you can easily put your phone in Guest mode by drawing the guest pattern on the Lock screen, which is different from your normal unlock pattern. Tap **Help** for more information.

NOTE: You must set a pattern, PIN or password before you can use credential storage.

< Location >

E911 Location – E911 Location cannot be turned off on any mobile phone.

Mode

High accuracy (GPS and networks) – Use GPS, Wi-Fi and mobile networks to estimate location.

Battery saving (Networks only) – Use Wi-Fi and mobile networks to estimate location.

Device sensors only (GPS only) – Use GPS to pinpoint your location.

Recent Location Request

Displays apps that have recently requested location information.

Location Services

Allows you to view and manage your Google location settings.

< Security >

Encrypt phone – Allows you to encrypt the phone to keep it secure. After encryption, a PIN or password needs to be entered each time you power the phone on.

Encrypt SD card storage – Allows you to encrypt the SD card data to keep it secure. After encryption, you will not be able to use it in other devices.

Password typing visible – Shows the last character of the hidden password as you type.

Phone administrators – Allows you to view or deactivate device administrators.

Unknown sources – Checkmark to allow installation of non-Play Store apps.

Verify apps – Checkmark to disallow or warn before installation of apps that may cause harm to your phone.

Notification access – Allows applications to have the ability to be notified when notifications are posted or removed from the system.

Storage type – Displays the storage type for credential storage.

Trusted credentials – Displays trusted CA certificates.

Install from storage – Allows you to install encrypted certificates.

Clear credentials – Allows you to remove all certificates.

Settings

< Language & input >

Language – Allows you to choose a the language to use on your device.

Default – Sets the default on-screen keyboard to use when entering text.

LG Keyboard – Tap ⚙ to change the following LG Keyboard settings:

Input language and keyboard layout – Sets the keyboard language and layout (QWERTY/Phone).

Keyboard height and layout – Allows you to adjust the keyboard's bottom row keys, keyboard height, and keyboard theme.

Show word suggestions – Shows words through text prediction.

Auto-correction – Allows you to choose the level of auto-correction.

Update word suggestions – Allows you to update word suggestions.

Additional settings – Allows you to set the following options.

Vibrate on keypress – Checkmark to provide a vibration when you tap the keyboard keys.

Sound on keypress – Checkmark to provide a sound when you tap the keyboard keys.

Pop-up on keypress – Checkmark to display a bubble with each character as you type.

Auto-capitalization – Capitalize the first word of each sentence automatically.

Auto-punctuation – Automatically inserts a period when the space key is double-tapped.

Spell checker – Checkmark to show spelling errors.

Clear word suggestion history – Clear history of words suggested based on your input.

Personal dictionary – Add words to your word suggestions.

Help – Displays helpful information about the LG Keyboard.

Google voice typing – Checkmark to allow use of the Google voice typing feature to enter text. Tap ⚙ to change the desired settings.

Voice Search – Allows you to set the following voice search options.

Language – Sets the language for the Google voice search feature.

Speech output – Sets when to use speech output. Choose from **On**, **Hands-free only**, and **Off**. To turn on speech output only when you've got a headset attached to your phone, select Hands-free only.

"Ok Google" Detection – Allows you to start the Google Search app simply by saying "OK Google".

Block offensive words – Checkmark to hide offensive voice results.

Audio History – Activation is required when using voice activation commands, such as "Ok Google" or touching a microphone icon. A recording of the next thing you say, plus a few seconds before, may be used and stored by Google and associated with your Google Account to help recognize your voice and improve speech recognition.

Manage Audio History – Allows you to manage your audio history.

Bluetooth headset – Checkmark to record audio through a connected Bluetooth headset.

Text-to-speech output – Sets the preferred speech engine and speech rate (slow vs. fast). Also plays a short demonstration of speech synthesis.

Pointer speed – Sets the pointer speed using a slide bar to select it.

< Backup & reset >

Back up my data – Backup your app data, Wi-Fi passwords, and other settings to Google servers.

Backup account – Allows you to set the account to which you want to backup data to.

Automatic restore – When reinstalling an app, restore backed up settings and data.

Factory data reset – Reset your settings to the factory default values and delete all your data.

System settings

Shortcut key

Tap the **Shortcut key** switch ⊙ (at the upper-right corner of the screen) to toggle it On or Off. On allows quick access to apps by pressing and holding the Volume Keys.

< Date & time >

Automatic date & time – Checkmark to use the network-provided date and time.

Automatic time zone – Checkmark to use the network-provided time zone.

Set date – Tap to manually set the date to use for your phone. This setting is grayed-out when the Automatic date & time setting is checkmarked.

Set time – Tap to manually set the time to use for your phone. This setting is grayed-out when the Automatic date & time setting is checkmarked.

Select time zone – Tap to select select a time zone other than the one provided by the network. This setting is grayed-out when the Automatic time zone setting is checkmarked.

Use 24-hour format – Checkmark to display the time using the 24-hour time format (for example, 13:00 instead of 1:00 pm).

Select date format – Sets the format for displaying dates.

< Accessibility >

Use the Accessibility settings to configure accessibility plug-ins you have installed on your phone.

TalkBack – Allows you to set up the TalkBack function which assists people with impaired vision by providing verbal feedback. Tap the switch ⊙ to turn it on. Tap **Settings** at the bottom of the screen to adjust the TalkBack settings.

Font size – Sets the font size. Choose from **Normal** and **Large**.

Touch zoom – Tap the **Touch zoom** switch ⊙ to toggle it On or Off. On allows you to zoom in and out by triple-tapping the screen.

Message/call voice notifications – Tap the switch ⊙ to toggle it On or Off. On allows you to hear automatic spoken alerts for incoming calls and messages.

Screen shade – Checkmark to dim the screen's backlight for a darker contrast.

Accessibility shortcut – Tap the Accessibility shortcut switch ⊙ to toggle it On or Off. On quickly enables accessibility features.

Text-to-speech output – Sets the text-to-speech preferred engine and speech rate setting. Also plays a short demonstration of speech synthesis. Text-to-speech output provides an audible readout of text, for example, the contents of text messages, and the Caller ID for incoming calls.

Settings

Audio type – Sets the audio type. Choose **Mono** or **Stereo**.

Sound balance – Routes the sound through both the right and left channel when a headset is connected. To manually set the audio route, move the slider on the sound balance slide bar to set it.

Turn off all sounds – Checkmark to turn off all sounds.

Captions – Tap the **Captions** switch ⚫ to toggle it On or Off. On customizes caption settings for those with hearing impairments. Set **Language**, **Font size**, and **Caption style**.

Touch feedback time – Sets the touch feedback. Choose from **Short**, **Medium**, and **Long**.

Touch assistant – Tap the Touch assistant switch ⚫ to toggle it On or Off. On shows a touch board with easy access to common actions.

Screen timeout – Sets the screen timeout. Choose from **30 sec**, **1 min**, **2 min**, **5 min**, **10 min**, **15 min**, and **Keep screen turned on**.

Touch control areas – Tap the **Touch control areas** switch ⚫ to toggle it On or Off. On allows you to select an area of the screen to limit touch control. Press the **Volume Down Key** and tap the **Home Key** at the same time to activate and deactivate this feature.

Auto-rotate screen – Checkmark to allow the device to rotate the screen depending on the device orientation (portrait or landscape).

Password voice confirmation – Checkmark to allow voice confirmation of characters when entering passwords.

Power key ends call – Checkmark so that you can end voice calls by pressing the Power/Lock Key.

Home key answers call – Checkmark so that you can answer voice calls by tapping the Home Key.

Accessibility settings shortcut – Sets quick, easy access to selected features when you triple-tap the **Home Key** ⌂. Choose from **Off**, **Show all**, **TalkBack**, **Touch assistant**, and **Accessibility settings**.

One-touch input – Checkmark to enable one-touch input. It allows each finger touch to enter letter or character on the LG keyboard.

< Printing >

Cloud Print – This menu allows you to access your cloud print services.

< About phone >

This menu allows you to manage your software updates and view various information relating to your device.

Phone name – Allows you to change your phone name. This will be your phone name for Bluetooth, Wi-Fi Direct, etc.

Update Center – Check updates for apps and software provided by LG Electronics.

Network – Allow you to view your network, network type and strength, service state, roaming status, mobile network state, and IP address.

Status – Allow you to view your phone number, MIN, PRL version, ESN, MEID HEX, MEID DEC.

Battery – Allows you to view the battery status, battery level, and battery use information.

Hardware info – Allows you to view the model number, up time, Wi-Fi MAC address and Bluetooth address.

Settings

Software info – Allows you to view the Android version, baseband version, kernel version, build number, and software version.

Legal info – Allow you to view LG apps rights agreement, open source licenses and Google legal information.

Patent information – Display LG patent information.

Phone software update

Update your smart phone without a PC (FOTA)

This feature allows you to conveniently update your phone's software to a newer version via Firmware Over-the-Air (FOTA), without connecting to a PC with a USB cable.

1 From the Home screen, tap 🌐 > **Apps** tab (if necessary) > **Settings** 🔧 > **About phone** > **Update Center** > **Software Update**.

2 Select the desired option.

Update now – You can check the new software update and conduct the update.

Check current version – You can check the current software version.

Last update – Displays the date of the last software update.

> **NOTE**
> - After the download is complete, you can install the software immediately or select a later time for the installation.
> - Each software version is updated sequentially. Even after the update is completed, check if there is any newer version available.
> - LG reserves the right to make firmware updates available only for selected models at its own discretion and does not guarantee the availability of the newer version of the firmware for all phone models.

Phone software update

Notice: Open Source Software
To obtain the source code under GPL, LGPL, MPL, and other open source licenses, that is contained in this product, please visit
http://opensource.lge.com.
In addition to the source code, all referred license terms, warranty disclaimers and copyright notices are available for download.
LG Electronics will also provide open source code to you on CD-ROM for a charge covering the cost of performing such distribution (such as the cost of media, shipping, and handling) upon email request to opensource@lge.com. This offer is valid for three (3) years from the date on which you purchased the product.

Accessories

These accessories are available for use with your phone. **(Items described below may be optional and sold separately.)**

Charger

USB cable
Connect your phone
and PC.

Battery

User Guide
Learn more about
your phone.

SD card

NOTE:
- Always use genuine LG accessories. Failure to do this may void your warranty.
- Accessories may vary in different regions.

FAQ

Please check to see if any problems you have encountered with your phone are described in this section before taking the phone in for service or calling a service representative.

Category Sub-Category	Question	Answer
Bluetooth Bluetooth Devices	What are the functions available via Bluetooth?	You can connect Bluetooth audio device such as Stereo/Mono headset, Car Kit and share pictures, videos, contacts, etc via Gallery/Contacts menu. Also when FTP server is connected to a compatible device, you can share contents stored in the microSD card.
Data Contacts Backup	How can I back up Contacts?	The Contacts data can be synchronized between your phone and Gmail™.
Data Synchronization	Is it possible to set up one-way sync with Gmail?	Only two-way synchronization is available.
Data Synchronization	Is it possible to synchronize all the Email folders?	The Inbox is automatically synchronized. You can view other folders by tapping the **Menu** icon and tap **Folders** to choose a folder.
Google™ Service Gmail Log-In	Should I have to log into Gmail whenever I want to access Gmail?	Once you log into Gmail, you don't need to log in Gmail again.
Google Service Google Account	Is it possible to filter emails?	No, email filtering is not supported via the phone.
Phone Function YouTube™	Is it possible to play YouTube videos?	Yes, YouTube videos are supported but may have to be viewed through the YouTube application (and not the browser).

Category / Sub-Category	Question	Answer
Phone Function Email	What happens when I execute another application while writing an email?	Your email will automatically be saved as a draft.
Phone Function Ringtone	Is there a file size limitation for when I want to use a MP3 file as a ringtone?	There is no file size limitation.
Phone Function Message Time	My phone does not display the time of receipt for messages older than 24 hrs. How can I change this?	1. Open the message thread that contains the message you want to check. 2. Touch and hold the message. In the context menu, tap **Details**.
Phone Function microSD Card	What is the maximum supported size for a memory card?	32 GB memory cards are compatible.
Phone Function Navigation	Is it possible to install another navigation application on my phone?	Any application that is available on Play Store and is compatible with the hardware can be installed and used.
Phone Function Synchronization	Is it possible to synchronize my contacts from all my email accounts?	Only Gmail and MS Exchange server(Company Email Server) contacts can be synchronized.

FAQ

Category Sub-Category	Question	Answer
Phone Function Wait and Pause	Is it possible to save a contact with Wait and Pause in the numbers?	If you transferred a contact with the wait and pause functions saved into the number, you will not be able to use those features. You will need to re-save each number. **How to save with Wait and Pause:** 1. From the Home screen, tap the **Phone Key** 📞. 2. Enter the number, then tap the **Menu** icon ⋮. 3. Tap **Add 2-sec pause** or **Add wait**.
Phone Function Security	What are the phone's security functions?	You are able to set the phone to require the entry of a screen lock (Pattern, PIN, Password) before the phone can be accessed or used.
Phone Function Unlock Pattern	What should I do if I forget my the Unlock Pattern?	After attempting the Unlock Pattern 5 times, you can tap the **Forget Pattern?** option and use your Google account information or backup PIN to unlock your phone.
Phone Function Unlock Pattern	How do I create the Unlock Pattern?	1. From the Home screen, tap 🌐 > **Apps** tab (if necessary) > **Settings** ⚙ > **Lock screen.** 2. Tap **Select screen lock** > **Pattern**. The first time you do this, a short tutorial about creating an Pattern appears. 3. Set up by drawing your pattern once, then again for confirmation.
Phone Function Memory	Will I know when my memory is full?	Yes, you will receive a notification.

Category / Sub-Category	Question	Answer
Phone Function Language Support	Is it possible to change the language?	The phone has bilingual capabilities. **To change the language:** 1. From the Home screen, tap 🌐, then tap **Settings** ⚙. 2. Tap **Language & input** > **Language**. 3. Tap the desired language.
Phone Function VPN	How do I set up a VPN?	VPN access configuration is different according to each company. To configure VPN access from your phone, you must obtain the details from your company's network administrator.
Phone Function Screen time out	My screen turns off after only 15 seconds. How can I change the amount of time for the backlight to turn off?	1. From the Home screen, tap 🌐 > **Apps** tab (if necessary) > **Settings** ⚙ > **Display**. 2. Tap **Screen timeout**. 3. Tap the preferred screen backlight timeout time.
Phone Function Audible tap tones	When I dial a number, the phone plays tones. How do I turn this off?	1. From the Home screen, tap 🌐 > **Apps** tab (if necessary) > **Settings** ⚙ > **Sound** > **Sound effects**. 2. Tap **Dial pad touch tones** to remove the checkmark and disable the function.
Phone Function Wi-Fi & 3G	When Wi-Fi and 3G are both available, which service will my phone use?	When using data, your phone may default to the Wi-Fi connection (if Wi-Fi connectivity on your phone is set to On). However, there will be no notification when your phone switches from one to the other. To know which data connection is being used, view the 3G or Wi-Fi icon at the top of your screen.
Phone Function Home screen	Is it possible to remove an application from the Home screen?	Yes. Just touch and hold the icon until the trash can icon appears at the top of the screen. Then, without lifting your finger, drag the icon to the trash can.

FAQ

Category Sub-Category	Question	Answer
Phone Function Application	I downloaded an application and it causes a lot of errors. How do I remove it?	1. From the Home screen, tap 🔲 > **Apps** tab (if necessary) > **Settings** 🔘 > **Apps.** 2. Tap a tab at the top of the screen and the application. 3. Then tap **Uninstall** and **OK** to confirm.
Phone Function Charger	Is it possible to charge my phone by USB cable without installing the necessary USB driver?	Yes, the phone will get charged by the USB cable irrespective of whether the necessary drivers are installed or not.
Phone Function Ringtones	Can I use music files for my ringtone?	Yes. After saving a music file you can use it for your ringtone. • Touch and hold a song in a library list. In the menu that opens, tap **Set as ringtone**.
Phone Function Alarm	Will my alarm be audible or will it go off if the phone is turned off?	No, this is not supported.
Phone Function Alarm	If my Ringer Volume is set to Off or Vibrate, will I hear my Alarm?	Your Alarm is programmed to be audible even in these scenarios.
Phone Spec Band	Which wireless bands are supported by the phone?	Your phone is able to operate on the GSM (850MHz, 900MHz,1800MHz,1900MHz), UMTS (850MHz, 1900MHz) bands.

Category Sub-Category	Question	Answer
Recovery Solution Factory Reset	How do I perform a factory reset?	1. From the Home screen, tap 2. Tap **Settings** > **Backup & reset** > **Factory data reset**. 3. Read the warning and tap **Reset phone**. 4. Tap **Delete all** and **OK** to confirm. **Attention:** **If a factory reset is performed, all installed application and user data will be erased. Please remember to back up any important data before performing a factory reset.**

For your safety

Safety Information

Please read and observe the following information for safe and proper use of your phone and to prevent damage.

WARNING! This product contains chemicals known to the State of California to cause cancer and birth defects or reproductive harm.
Wash hands after handling.

Caution: Violation of the instructions may cause minor or serious damage to the product.

• For your safety, do not remove the battery incorporated in the product.
• Do not disassemble or open crush, bend or deform, puncture or shred.
• Repairs under warranty, at LG's option, may include replacement parts or boards that are either new or reconditioned, provided that they have functionality equal to that of the parts being replaced.
• Do not modify or remanufacture, attempt to insert foreign objects into the battery, immerse or expose to water or other liquids, expose to fire, explosion or other hazard.
• Avoid dropping the phone. If the phone is dropped, especially on a hard surface, and the user suspects damage, take it to a service center for inspection.
• For those host devices that utilize a USB port as a charging source, the host device's user manual shall include a statement that the phone shall only be connected to products that bear the USB-IF logo or have completed the USB-IF compliance program.

Charger and Adapter Safety

- The charger and adapter are intended for indoor use only.
- Insert the battery pack charger vertically into the wall power socket.
- Unplug the power cord and charger during lightning storms to avoid electric shock or fire.
- Use the correct adapter for your phone when using the battery pack charger abroad.

Battery Information and Care

- Please read the manual of specified charger about charging method.
- Do not damage the power cord by bending, twisting, or heating. Do not use the plug if it is loose as it may cause electric shock or fire. Do not place any heavy items on the power cord. Do not allow the power cord to be crimped as it may cause electric shock or fire.
- Unplug the power cord prior to cleaning your phone, and clean the power plug pin when it's dirty. When using the power plug, ensure that it's firmly connected. If not, it may cause excessive heat or fire. If you put your phone in a pocket or bag without covering the receptacle of the phone (power plug pin), metallic articles (such as a coin, paperclip or pen) may short-circuit the phone. Short-circuit of the terminal may damage the battery and cause an explosion. Always cover the receptacle when not in use.
- Charging temperature range is between 0°C/32°F and 45°C /113 °F. Do not charge the battery out of recommended temperature range. Charging out of recommended range might cause the generating heat or serious damage of

battery. And also, it might cause the deterioration of battery's characteristics and cycle life.

- The battery pack has protection circuit to avoid the danger. Do not use near places that can generate static electricity more than 100V which could damage the protection circuit. Damaged protection circuits may generate smoke, rupture or ignite.
- When using the battery for the first time, if it emits a bad smell, you see rust on it, or anything else abnormal, do not use the equipment and bring the battery to the shop which it was bought.
- Do not handle the phone with wet hands while it is being charged. It may cause an electric shock or seriously damage your phone.
- Do not place or answer calls while charging the phone as it may short-circuit the phone and/or cause electric shock or fire.
- Do not use harsh chemicals (such as alcohol, benzene, thinners, etc.) or detergents to clean your phone. This could cause a fire.
- Always unplug the charger from the wall socket after the phone is fully charged to save unnecessary power consumption of the charger.

Care and Maintenance

Your mobile device 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 your Mobile Device away from:
Liquids of any kind

Keep the mobile device dry. Precipitation, humidity, and liquids contain minerals that will corrode electronic circuits. If the mobile device does get wet, do not accelerate drying with the use of an oven, microwave, or dryer, because this may damage the mobile device and could cause a fire or explosion.

Do not use the mobile device with a wet hand.

Doing so may cause an electric shock to you or damage to the mobile device.

Extreme heat or cold

- Avoid temperatures below 0°C /32°F or above 45°C /113°F.
- Use your phone in temperatures between 0°C /32°F and 40°C /104°F, if possible. Exposing your phone to extremely low or high temperatures may result in damage, malfunction, or even explosion.

Microwaves

Do not try to dry your mobile device in a microwave oven. Doing so may cause a fire or explosion.

Dust and dirt

Do not expose your mobile device to dust, dirt, or sand.

Sunscreen lotion

Do not expose or wear your device to any liquid like sunscreen lotion.
Doing so may cause your device to or damage to the mobile device.

For your safety

Cleaning solutions

Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the mobile device.

Wipe it with a soft cloths lightly dampened in a mild soap-and-water solution.

Shock or vibration

Do not drop, knock, or shake the mobile device.

Rough handling can break internal circuit boards.

Paint

Do not paint the mobile device. Paint can clog the device's moving parts or ventilation openings and prevent proper operation.

General Notice

- An emergency call can be made only within a service area. For an emergency call, make sure that you are within a service area and that the phone is turned on.
- Do not place items containing magnetic components such as a credit card, phone card, bank book, or subway ticket near your phone. The magnetism of the phone may damage the data stored in the magnetic strip.
- Talking on your phone for a long period of time may reduce call quality due to heat generated during use.
- When the phone is not used for a long period time, store it in a safe place with the power cord unplugged.
- Using the phone in proximity to receiving equipment (i.e., TV or radio) may cause interference to the phone.

- Do not use the phone if the antenna is damaged. If a damaged antenna contacts skin, it may cause a slight burn. Please contact an LG Authorized Service Center to replace the damaged antenna.
- The data saved in your phone might be deleted due to careless use, repair of the phone, or upgrade of the software. Please backup your important phone numbers. (Ringtones, text messages, voice messages, pictures, and videos could also be deleted.) The manufacturer is not liable for damage due to the loss of data.
- When you use the phone in public places, set the ringtone to vibration so you don't disturb others.
- Do not turn your phone on or off when putting it to your ear.
- Your phone is an electronic device that generates heat during normal operation. Extremely prolonged, direct skin contact in the absence of adequate ventilation may result in discomfort or minor burns. Therefore, use care when handling your phone during or immediately after operation.

Use accessories, such as earphones and headsets, with caution. Ensure that cables are tucked away safely and do not touch the antenna unnecessarily.

Part 15.19 statement

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 causes undesired operation.

For your safety

Bodily Contact During Operation

This device was tested for typical use with the back of the phone kept 0.59 inches (1.5 cm) from the body. To comply with FCC RF exposure requirements, a minimum separation distance of 0.59 inches (1.5 cm) must be maintained between the user's body and the back of the phone. Third-party belt-clips, holsters, and similar accessories containing metallic components may not be used. Avoid the use of accessories that cannot maintain 0.59 inches (1.5 cm) distance between the user's body and the back of the phone and have not been tested for compliance with FCC RF exposure limits.

Consumer Information About Radio Frequency Emissions

Your wireless phone, which contains a radio transmitter and receiver, emits radio frequency energy during use. The following consumer information addresses commonly asked questions about the health effects of wireless phones.

Are wireless phones safe?

Scientific research on the subject of wireless phones and radio frequency ("RF") energy has been conducted worldwide for many years, and continues. In the United States, the Food and Drug Administration ("FDA") and the Federal Communications Commission ("FCC") set policies and procedures for wireless phones. The FDA issued a website publication on health issues related to cell phone usage where it states, "The scientific community at large …believes that the weight of scientific evidence does not show an association between exposure to radiofrequency (RF) from cell phones and adverse health outcomes. Still the scientific community does recommend conducting additional research to address gaps in knowledge. That research is being

conducted around the world and FDA continues to monitor developments in this field. You can access the joint FDA/FCC website at http://www.fda.gov (under "c" in the subject index, select Cell Phones > Research). You can also contact the FDA toll-free at (888) 463-6332 or (888) INFO-FDA. In June 2000, the FDA entered into a cooperative research and development agreement through which additional scientific research is being conducted. The FCC issued its own website publication stating that "there is no scientific evidence that proves that wireless phone usage can lead to cancer or a variety of other problems, including headaches, dizziness or memory loss." This publication is available at http://www.fcc.gov/cgb/cellular.html or through the FCC at (888) 225-5322 or (888) CALL-FCC.

What does "SAR" mean?

In 1996, the FCC, working with the FDA, the U.S. Environmental Protection Agency, and other agencies, established RF exposure safety guidelines for wireless phones in the United States. Before a wireless phone model is available for sale to the public, it must be tested by the manufacturer and certified to the FCC that it does not exceed limits established by the FCC. One of these limits is expressed as a Specific Absorption Rate, or "SAR." SAR is a measure of the rate of absorption of RF energy in the body. Tests for SAR are conducted with the phone transmitting at its highest power level in all tested frequency bands. Since 1996, the FCC has required that the SAR of handheld wireless phones not exceed 1.6 watts per kilogram, averaged over one gram of tissue. Although the SAR is determined at the highest power level, the actual SAR value of a wireless phone while operating can be less than the reported SAR value. This is because the SAR value may vary from call to call, depending on factors such as proximity to a cell site, the proximity of the phone to the body while

in use, and the use of hands-free devices. For more information about SARs, see the FCC's OET Bulletins 56 and 65 at http://www.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins or visit the Cellular Telecommunications Industry Association website at http://www.ctia.org/consumer_info/index.cfm/AID/10371. You may also wish to contact the manufacturer of your phone.

Can I minimize my RF exposure?

If you are concerned about RF, there are several simple steps you can take to minimize your RF exposure. You can, of course, reduce your talk time. You can place more distance between your body and the source of the RF, as the exposure level drops off dramatically with distance. The FDA/FCC website states that "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." Also, if you use your wireless phone while in a car, you can use a phone with an antenna on the outside of the vehicle. You should also read and follow your wireless phone manufacturer's instructions for the safe operation of your phone.

Do wireless phones pose any special risks to children?

The FDA/FCC website states that "the scientific evidence does not show a danger to users of wireless communication devices, including children." The FDA/FCC website further states that "some groups sponsored by other national governments have advised that children be discouraged from using wireless phones at all". For example, the Stewart Report from the United Kingdom ["UK"] made such a recommendation in December 2000. In this report a group of independent experts noted that no evidence exists that using a cell phone causes brain tumors or other ill effects. [The UK's] recommendation to limit cell phone use by children was strictly precautionary; it was not based on scientific evidence that any health hazard exists. A copy of the UK's leaflet is available at http://www.dh.gov.uk (search "mobile"), or you can write to: NRPB, Chilton, Didcot, Oxon OX11 ORQ, United Kingdom. Copies of the UK's annual reports on mobile phones and RF are available online at www.iegmp.org.uk and http://www.hpa.org.uk/radiation/ (search "mobile"). Parents who wish to reduce their children's RF exposure may choose to restrict their children's wireless phone use.

Where can I get further information about RF emissions?

For further information, see the following additional resources (websites current as of April 2005):

U.S. Food and Drug Administration

FDA Consumer magazine November-December 2000 Telephone: (888) INFO-FDA http://www.fda.gov (Under "c"in the subject index, select Cell Phones > Research.)

For your safety

U.S. Federal Communications Commission

445 12th Street, S.W. Washington, D.C. 20554 Telephone: (888) 225-5322 http://www.fcc.gov/oet/rfsafety

Independent Expert Group on Mobile Phones

http://www.iegmp.org.uk

Royal Society of Canada Expert Panels on Potential Health Risks of Radio Frequency Fields from Wireless Telecommunication Devices

283 Sparks Street Ottawa, Ontario K1R 7X9 Canada Telephone: (613) 991-6990 http://www.rsc.ca/index.php?page=Expert_Panels_RF&Lang_id=120

World Health Organization

Avenue Appia 20
1211 Geneva 27
Switzerland
Telephone: 011 41 22 791 21 11
http://www.who.int/mediacentre/factsheets/fs193/en/

International Commission on Non-Ionizing

Radiation Protection c/o Bundesamt fur Strahlenschutz
Ingolstaedter Landstr. 1
85764 Oberschleissheim

Germany
Telephone: 011 49 1888 333 2156
http://www.icnirp.de

American National Standards Institute

1819 L Street, N.W., 6th Floor
Washington, D.C. 20036
Telephone: (202) 293-8020
http://www.ansi.org

National Council on Radiation Protection and Measurements

7910 Woodmont Avenue, Suite 800
Bethesda, MD 20814-3095
Telephone: (301) 657-2652
http://www.ncrponline.org

Engineering in Medicine and Biology Society, Committee on Man and Radiation (COMAR) of the Institute of Electrical and Electronics Engineers

http://ewh.ieee.org/soc/embs/comar/

TIA Safety Information

The following is the complete TIA Safety Information for wireless handheld phones.

For your safety

Exposure to Radio Frequency Signal

Your wireless handheld portable phone is a low power radio transmitter and receiver. When ON, it receives and sends out Radio Frequency (RF) signals.

In August, 1996, the Federal Communications Commissions (FCC) adopted RF exposure guidelines with safety levels for handheld wireless phones. Those guidelines are consistent with the safety standards previously set by both U.S. and international standards bodies:

ANSI C95.1 (1992) *
NCRP Report 86 (1986)
ICNIRP (1996)

* American National Standards Institute; National Council on Radiation Protection and Measurements; International Commission on Non-Ionizing Radiation Protection

Those standards were based on comprehensive and periodic evaluations of the relevant scientific literature. For example, over 120 scientists, engineers, and physicians from universities, government health agencies, and industry reviewed the available body of research to develop the ANSI Standard (C95.1).

The design of your phone complies with the FCC guidelines (and those standards).

Antenna Care

Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could damage the phone and may violate FCC regulations.

Phone Operation

NORMAL POSITION: Hold the phone as you would any other telephone with the antenna pointed up and over your shoulder.

Tips on Efficient Operation

For your phone to operate most efficiently:

Don't touch the antenna unnecessarily when the phone is in use. Contact with the antenna affects call quality and may cause the phone to operate at a higher power level than otherwise needed.

Electronic Devices

Most modern electronic equipment is shielded from RF signals. However, certain electronic equipment may not be shielded against the RF signals from your wireless phone.

Pacemakers

The Health Industry Manufacturers Association recommends that a minimum separation of six (6) inches be maintained between a handheld wireless phone and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with the independent research by and recommendations of Wireless Technology Research.

Persons with pacemakers:

- Should ALWAYS keep the phone more than six (6) inches from their pacemaker when the phone is turned ON;
- Should not carry the phone in a breast pocket;
- Should use the ear opposite the pacemaker to minimize the potential for interference;
- Should turn the phone OFF immediately if there is any reason to suspect that interference is taking place.

For your safety

Hearing Aids

Some digital wireless phones may interfere with some hearing aids. In the event of such interference, you may want to consult your service provider (or call the customer service line to discuss alternatives).

Other Medical Devices

If you use any other personal medical device, 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.

Health Care Facilities

Turn your phone OFF in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may use 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.

Posted Facilities

Turn your phone OFF in any facility where posted notices so require.

Aircraft

FCC regulations prohibit using your phone while in the air. Switch OFF your phone before boarding an aircraft.

Blasting Areas

To avoid interfering with blasting operations, turn your phone OFF when in a "blasting area" or in areas posted: "Turn off two-way radio". Obey all signs and instructions.

Potentially Explosive Atmosphere

Turn your phone OFF 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.

Areas with a potentially explosive atmosphere are often, but not always marked clearly. Potential areas may include: fueling areas (such as gasoline stations); below deck on boats; fuel or 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.

For Vehicles Equipped with an Air Bag

An air bag inflates with great force. DO NOT place objects, including either installed or portable wireless equipment, in the area over the air bag or in the air bag deployment area. If in-vehicle wireless equipment is improperly installed and the air bag inflates, serious injury could result.

FDA Consumer Update

The U.S. Food and Drug Administration's Center for Devices and Radiological Health Consumer Update on Mobile Phones:

For your safety

1. Do wireless phones pose a health hazard?

The available scientific evidence does not show that any health problems are associated with using wireless phones.

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

2. What is the FDA's role concerning the safety of wireless phones?

Under the law, the 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 (RF) energy at a level that is hazardous to the user. In such a case, the 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 does not justify FDA regulatory actions, the 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.

The 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
- Occupational Safety and Health Administration
- National Telecommunications and Information Administration

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

The 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. The FCC relies on the FDA and other health agencies for safety questions about wireless phones.

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

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

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

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

The research done thus far has produced conflicting results, and many studies have suffered from flaws in their research methods. Animal experiments investigating the effects of Radio Frequency (RF) energy 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 do not know with certainty what the results of such studies mean for human health. Three large epidemiology studies

have been published since December 2000. Between them, the studies investigated any possible association between the use of wireless phones and primary brain cancer, glioma, meningioma, or acoustic neuroma, tumors of the brain or salivary gland, leukemia, or other cancers. None of the studies demonstrated the existence of any harmful health effects from wireless phone RF exposures. However, none of the studies can answer questions about long-term exposures, since the average period of phone use in these studies was around three years.

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

A combination of laboratory studies and epidemiological studies of people actually using wireless phones would provide some of the data that are needed. Lifetime animal exposure studies could be completed in a few years. However, 166 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 ten or more years followup 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 do — may be many, many years. The interpretation of epidemiological studies is hampered by difficulties in measuring actual RF exposure during day-to-day use of wireless phones. Many factors affect this measurement, such as the angle at which the phone is held, or which model of phone is used.

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

The 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 (RF) energy.

The FDA has been a leading participant in the World Health Organization International Electro Magnetic 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.

The FDA and the Cellular Telecommunications & Internet Association (CTIA) have a formal Cooperative Research And Development Agreement (CRADA) to do research on wireless phone safety. The FDA provides the scientific oversight, obtaining input from experts in government, industry, and academic organizations. CTIA-funded research is conducted through contracts with independent investigators. The initial research will include both laboratory studies and studies of wireless phone users. The CRADA will also include a broad assessment of additional research needs in the context of the latest research developments around the world.

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

All phones sold in the United States must comply with Federal Communications Commission (FCC) guidelines that limit Radio Frequency (RF) energy exposures. The FCC established these guidelines in consultation with the FDA and the other federal health and safety agencies. The FCC limit for RF exposure from wireless phones is set at a Specific Absorption Rate (SAR) of 1.6 watts per kilogram (1.6 W/kg). The FCC limit is consistent with the safety standards developed by the Institute of Electrical and Electronic Engineering (IEEE) and the National Council on Radiation Protection

and Measurement. The exposure limit takes into consideration the body's ability to remove heat from the tissues that absorb energy from the wireless phone and is set well below levels known to have effects. Manufacturers of wireless phones must report the RF exposure level for each model of phone to the FCC. The FCC website (http://www.fcc.gov/oet/rfsafety) gives directions for locating the FCC identification number on your phone so you can find your phone's RF exposure level in the online listing.

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

The Institute of Electrical and Electronic Engineers (IEEE) is developing a technical standard for measuring the Radio Frequency (RF) energy exposure from wireless phones and other wireless handsets with the participation and leadership of FDA scientists and engineers. The standard, "Recommended Practice for Determining the Spatial-Peak Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques", sets forth the first consistent test methodology for measuring the rate at which RF is deposited in the heads of wireless phone users. The test method uses a tissue-simulating model of the human head. Standardized SAR test methodology is expected to greatly improve the consistency of measurements made at different laboratories on the same phone. SAR is the measurement of the amount of energy absorbed in tissue, either by the whole body or a small part of the body. It is measured in watts/kg (or milliwatts/g) of matter. This measurement is used to determine whether a wireless phone complies with safety guidelines.

9. What steps can I take to reduce my exposure to 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 (RF) energy. 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 does not demonstrate that wireless phones are harmful. But if you are concerned about the RF exposure from these products, you can use measures like those described above to reduce your RF exposure from wireless phone use.

10. What about children using wireless phones?

The scientific evidence does not show a danger to users of wireless phones, including children and teenagers. If you want to take steps to lower exposure to Radio Frequency (RF) energy, the measures described above would apply to children and teenagers using wireless phones. Reducing the time of wireless phone use and increasing the distance between the user and the RF source will reduce RF exposure. Some groups sponsored by other national governments have advised that children be discouraged from using wireless phones at all. For example, the government in the United Kingdom distributed leaflets containing such a recommendation in December 2000. They noted that no evidence exists that using a wireless phone causes brain

tumors or other ill effects. Their recommendation to limit wireless phone use by children was strictly precautionary; it was not based on scientific evidence that any health hazard exists.

11. What about wireless phone interference with medical equipment?

Radio Frequency (RF) energy from wireless phones can interact with some electronic devices. For this reason, the FDA helped develop a detailed test method to measure Electro Magnetic 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 the 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.

The 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.

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

12. Where can I find additional information?

For additional information, please refer to the following resources:

Federal Communications Commission (FCC) RF Safety Program

(http://www.fcc.gov/oet/rfsafety)

International Commission on Non-Ionizing Radiation Protection
(http://www.icnirp.de)
World Health Organization (WHO) International EMF Project
(http://www.who.int/emf)
National Radiological Protection Board (UK)
(http://www.hpa.org.uk/radiation/)

Driving

Check the laws and regulations on the use of wireless phones in the areas where you drive and always obey them. Also, if using your phone while driving, please observe the following:

• Give full attention to driving -- driving safely is your first responsibility;
• Use hands-free operation, if available;
• Pull off the road and park before making or answering a call if driving conditions or the law require it.

Consumer Information on SAR (Specific Absorption Rate)

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 radiofrequency (RF) energy set by the Federal Communications Commission (FCC) of the U.S. Government. These FCC exposure limits are derived from the recommendations of two expert organizations, the National Counsel on Radiation Protection and

Measurement (NCRP) and the Institute of Electrical and Electronics Engineers (IEEE). In both cases, the recommendations were developed by scientific and engineering experts drawn from industry, government, and academia after extensive reviews of the scientific literature related to the biological effects of RF energy.

The exposure limit for wireless mobile phones employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR is a measure of the rate of absorption of RF energy by the human body expressed in units of watts per kilogram (W/kg). The FCC requires wireless phones to comply with a safety limit of 1.6 watts per kilogram (1.6 W/kg). The FCC exposure limit incorporates a substantial margin of safety to give additional protection to the public and to account for any variations in measurements.

Tests for SAR 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 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. Because the phone is designed to operate at multiple power levels 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 phone model 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 FCC has granted an Equipment Authorization for this model phone with all reported SAR levels evaluated as in compliance with the FCC RF emission guidelines.

For your safety

The highest SAR value for this model phone when tested for use at the ear is 1.13 W/Kg (1g) and when worn on the body, as described in this user's manual, is 1.05 W/Kg (1g). While there may be differences between SAR levels of various phones and at various positions, they all meet the government requirement for safe exposure.

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/ea/fccid/ after searching on FCC ID ZNFL16C.

To find information that pertains to a particular model phone, this site uses the phone FCC ID number which is usually printed somewhere on the case of the phone. Sometimes it may be necessary to remove the battery pack to find the number. Once you have the FCC ID number for a particular phone, follow the instructions on the website and it should provide values for typical or maximum SAR for a particular phone.

Additional information on Specific Absorption Rates (SAR) can be found on the Cellular Telecommunications Industry Association (CTIA) website at http://www.ctia.org/

*In the United States 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.

HAC

This phone has been tested and rated for use with hearing aids for some of the wireless technologies that it uses.

However, there may be some newer wireless technologies used in this phone that have not been tested yet for use with hearing aids. It is important to try the different features of this phone thoroughly and in different locations, using your hearing aid or cochlear implant, to determine if you hear any interfering noise. Consult your service provider or the manufacturer of this phone for information on hearing aid compatibility. If you have questions about return or exchange policies, consult your service provider or phone retailer.

FCC Hearing-Aid Compatibility (HAC) Regulations for Wireless Devices

On July 10, 2003, the U.S. Federal Communications Commission (FCC) Report and Order in WT Docket 01-309 modified the exception of wireless phones under the Hearing Aid Compatibility Act of 1988 (HAC Act) to require digital wireless phones be compatible with hearing-aids. The intent of the HAC Act is to ensure reasonable access to telecommunications services for persons with hearing disabilities.

While some wireless 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 a rating system for wireless phones, to assist hearing device users to find 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 located 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 generate less interference to hearing devices than phones that are not labeled. T4 is the better/ higher of the two ratings.

Hearing devices may also be rated. Your hearing device manufacturer or hearing health professional may help you find this rating.

Higher ratings mean that the hearing device is relatively immune to interference noise.

The hearing aid and wireless phone rating values are then added together. A sum of 5 is considered acceptable for normal use. A sum of 6 is considered for best use.
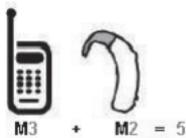
In the example to the left, if a hearing aid meets the M2 level rating and the wireless phone meets the M3 level rating, the sum of the two values equal M5. This should provide the hearing aid user with "normal usage" while using their hearing aid with the particular wireless phone. "Normal usage" in this context is defined as a signal quality that's acceptable for normal operation.

The M mark is intended to be synonymous with the U mark. The T mark is intended to be synonymous with the UT mark. The M and T marks are recommended by the Alliance for Telecommunications Industries Solutions (ATIS). The U and UT marks are referenced in Section 20.19 of the FCC Rules. The HAC rating and measurement procedure are described in the American National Standards Institute (ANSI) C63.19

standard. To ensure that the Hearing Aid Compatibility rating for your phone is maintained, secondary transmitters such as Bluetooth and WLAN components must be disabled during a call.

When you're talking on a cell phone, it's recommended that you turn the BT (Bluetooth) or WLAN mode off for HAC.

For information about hearing aids and digital wireless phones

Wireless Phones and Hearing Aid Accessibility

http://www.accesswireless.org/

Gallaudet University, RERC

http://tap.gallaudet.edu/Voice/

FCC Hearing Aid Compatibility and Volume Control

http://www.fcc.gov/cgb/dro/hearing.html

The Hearing Aid Compatibility FCC Order

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-03-168A1.pdf

Hearing Loss Association of America [HLAA]

http://hearingloss.org/content/telephones-and-mobile-devices

Part 15.105 statement

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 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.
  * Service not available everywhere.
  * Information subject to change.

Part 15.21 statement

Changes or modifications that are not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Battery information and care

Always unplug the charger from the wall socket after the phone is fully charged to save unnecessary power consumption of the charger.

7.11 Warranty Laws

The following laws govern warranties that arise in retail sales of consumer goods:

- The California Song-Beverly Consumer Warranty Act [CC §§1790 et seq],
- The California Uniform Commercial Code, Division Two [Com C §§2101 et seq], and
- The federal Magnuson-Moss Warranty Federal Trade Commission Improvement Act [15 USC §§2301 et seq; 16 CFR Parts 701– 703]. A typical Magnuson-Moss Act warranty is a written promise that the product is free of defects or a written promise to refund, repair, or replace defective goods. [See 15 USC §2301(6).] Remedies include damages for failing to honor a written warranty or service contract or for violating disclosure provisions. [See 15 USC §2310(d).] Except for some labeling and disclosure requirements, the federal Act does not preempt state law. [See 15 USC §2311.]

The Consumer Warranty Act does not affect the rights and obligations of parties under the state Uniform Commercial Code, except the provisions of the Act prevail over provisions of the Commercial Code when they conflict. [CC §1790.3.]

For purposes of small claims actions, this course will focus on rights and duties under the state laws.