User Manual

LG-VC100

Ver. 1.0
2014. 06. 05

LIMITED WARRANTY STATEMENT

1. WHAT THIS WARRANTY COVERS:

LG offers you a limited warranty that the enclosed subscriber unit and its enclosed accessories will be free from defects in material and workmanship, according to the following terms and conditions:

(1) The limited warranty for the product extends for ONE (1) year beginning on the data of purchase of the product.

(2) The limited warranty extends on to the original purchaser of the product and is not assignable or transferable to any subsequent purchaser/end user.

(3) This warranty is good only to the original purchaser of the product during the warranty period as long as it is in the U.S., including Alaska, Hawaii, U.S. Territories and Canada.

(4) The external housing and cosmetic parts shall not be covered under these limited warranty terms.

(5) Upon request from LG, the consumer must provide information to reasonably prove the date of purchase.

(6) The customer shall bear the cost of shipping the product to the Customer Service Department of LG. LG shall bear the cost of shipping the product back to the consumer after the completion of service under this limited warranty.

2. WHAT THIS WARRANTY DOES NOT COVER:

(1) Defects or damages resulting from use of the product in other than its normal and customary manner.

(2) Defects or damages from abnormal use, abnormal conditions, improper storage, exposure to moisture or dampness, unauthorized modifications, unauthorized connections, unauthorized repair, misuse, neglect, abuse, accident, alteration, improper installation, or other acts which are not the fault of LG, including damage caused by shipping blown fuses spills of food or liquid.

(3) Breakage or damage to antennas unless caused directly by defects in material or workmanship.

(4) That the Customer Service Department at LG was net notified by consumer of the alleged defect or malfunction of the product during the applicable limited warranty period.

(5) Products which have had the serial number removed or made illegible.

(6) The limited warranty is in lieu of all other warranties, express or implied either in fact or by operations law, statutory or otherwise, including, but limited to any implied warranty of marketability or fitness for a particular use.

(7) Damage resulting from use of non-LG approved accessories.

(8) All plastic surfaces and all other externally exposed parts that are scratched or damaged due to normal customer use.

(9) Products operated outside published maximum ratings.

(10) Products used or obtained in a rental program.

(11) Consumables (such as fuses).

3. STATE LAW RIGHTS:

No other express warranty is applicable to this product. THE DURATION OF ANY IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTY OF MARKETABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN. LG INFOCOMM INC. SHALL NOT BE LIABLE FOR THE LOSS OF THE USE OF THE PRODUCT, INCONVENIENCE, LOSS OR ANY OTHER DAMAGES, DIRECT OR CONSEQUENTIAL, RISING OUT OF THE USE OF, OR INABILITY TO USE, THIS PRODUCT OR FOR ANY BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, INCLUDING THE IMPLIED WARRANTY OF MARKETABILITY APPLICABLE TO THIS PRODUCT. Some states do not allow the exclusive of imitation of incidental or consequential damages or limitations on how long an implied warranty lasts; so these limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

4. HOW TO GET WARRANTY SERVICE:

To obtain warranty service, please call the following telephone number from anywhere in the continental United States:

LG Infocomm Inc.
201 James Record Road Huntsville, AL 35824
Tel. 1-800-793-8896 Fax. 1-800-448-4026
www.lgeservice.com

DO NOT RETURN YOUR PRODUCT TO THE ABOVE ADDRESS. Please call or write for the location of the LG Electronics, Inc authorized service center nearest you and for the procedures for obtaining warranty claims.

SUBJECT

The LGVC100 has been designed to operate on the latest digital mobile communication technology, Code Division Multiple Access (CDMA). The LGVC100 support 72poly Audio, etc. This device operates in one of tri band Quad mode - 800Mhz CDMA, 1900Mhz PCS, 1500Mhz GPS.

CDMA Standard	Designator	Description
Basic air interface	TIA/EIA-95A TSB-74 ANSI J-STD-008 TIA/EIA-IS2000	CDMA Dual-Mode Air Interface 14.4kbps radio link protocol and inter-band operations IS-95 adapted for PCS frequency band CDMA2000 1xRTT Air Interface
Network	TIA/EIA/IS-634 TIA/EIA/IS/651 TIA/EIA/IS-41-C TIA/EIA/IS-124	MAS-BS PCSC-RS Intersystem operations Nom-signaling data comm.
Service	TIA/EIA/IS-96-B TIA/EIA/IS-637 TIA/EIA/IS-657 IS-801	Speech CODEC Short message service Packet data Position Determination Service (gpsOne)
Performance	TIA/EIA/IS-97 TIA/EIA/IS-98 ANSI J-STD-018 ANSI J-STD-019 TIA/EIA/IS-125	Cellular base station Cellular mobile station PCS personal station PCS base station Speech CODEC

* TSB –74: Protocol between an IS-95A system and ANSI J-STD-008

Introduction

Highlights

Congratulations! Your new mobile device will change your way of communicating and is a compact, lightweight personal communication system with added features for the person on the go. Our advanced digital mobile communication technology allows you to do the followings

1) Main Chipset : QSC6055, Memory(Memory (Flash+RAM 1Gb/512Mb)
2) CMX 5.0 compliant (72 Poly)
3) GPS(gpsOne)

Important Information

This user's guide provides important information on the use and operation of the device. Please read all the information carefully prior to using the device for the best performance and to prevent any anticipated damage to or misuse of the device. Any unapproved change or modification will void your warranty.

Check Accessories

Your wearable device comes with standard accessory of a one-slot desktop charger. Please make sure that this accessory is included.

Before You Start

Safety Instructions

WARNING! To reduce the electric shock, do not expose your device in high humidity areas, such as the bathroom, swimming pool.

IMPORTANT! Please read the SAFETY AND GENERAL INFORMATION on page 68 prior to using your device.

FCC RF Exposure Information

WARNING! *Read this information before operating the device.*

In August 1996 the Federal Communications (FCC) of the United States with its action in Report and Order FCC 96-326 adopted an updated safety standard for human exposure to radio frequency (RF) electromagnetic energy emitted by FCC regulated transmitters. Those guidelines are consistent with the safety standard previously set by both U.S. and international standards bodies. The design of this product complies with the FCC guidelines and these international standards.

CAUTION

Use only the supplied or and approved antenna. Use of unauthorized antennas, modifications could impair call quality, damage the device or result in violation of FCC regulations. Do not use the device with the damaged antenna. If the damaged antenna comes into contact with the skin, a minor burn may result. Please contact your local dealer for replacement of the antenna.

Body-worn Operation

This device was tested for typical bodyworn(Wrist) operations with the back of the device kept 0 inches (0cm) between the user’ s body(Wrist) and the back of the device.

And this device was tested for typical Next-to-Mouth(Face) operations with the front of the device kept 0.39 inches (1cm) between the user’ s mouth(Face) and the front of the device.

To comply with FCC/IC RF exposure requirements, a minimum separation distance of 0.39 inches (1cm) must be maintained between the user’ s mouth(Face) and the front of the device.

Any accessories containing metallic components may not be used.

Specific Absorption Rate (SAR) values

Your product is a radio transmitter and receiver. It is designed and manufactured not to exceed the emission limits for exposure to Radio Frequency (RF) energy set by the Federal Communications Commission of the U.S. Government. The standards include a substantial

safety margin designed to assure the safety of all persons, regardless of age and health.
The exposure standard for wireless mobile phones employs a unit of measurement known as the Specific Absorption Rate, or SAR. In the United States and Canada,
the SAR limit for wrist watch used by the public is 1.6 watts/kg (W/kg) averaged over one gram of tissue or 4.0 watts/kg (W/kg) averaged over ten gram of tissue.
Tests for SAR are conducted using standard operating positions specified by the FCC with the product 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 product during operation can be well below the maximum value.
Because the product is designed to operate at multiple power levels and 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.
The highest SAR value for this model product when tested for use at Next-to-Mouth(Face) is 0.76 W/kg(1g) and for body-worn(Wrist) is 2.30 W/kg(10g).
While there may be differences between SAR levels of various phones and at various positions, they all meet the government requirement for safe exposure.
The FCC has granted an Equipment Authorization for this model product with all reported SAR levels evaluated as in compliance with the FCC RF emission guidelines.
SAR information on this model product is on file with the FCC and can be found under the Display Grant section of http://transition.fcc.gov/oet/ea/fccid/ after searching on FCC ID ZNFVC100.
Additional information on Specific Absorption Rates (SAR) can be found on the Cellular Telecommunications Industry Association (CTIA) website at http://www.ctia.org/.
* Product meets current FCC & IC Radio Frequency Exposure Guidelines

FCC Part 15.19 Statement

This device and its accessories comply with part 15 of FCC rules. Operation is subject to the following two conditions: (1) This device and its accessories may not cause harmful interference, and (2) this device and its accessories must accept any interference received, including interference that cause undesired operation.

FCC Part 15.21 Statement

Change or Modifications that are not expressly
approved by the manufacturer could void the user’ s authority to operate the equipment.

FCC 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 with 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, you can 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.

Caution For Battery Use

- Do not disassemble.
- Do not short-circuit.
- Do not exposure to high temperature : 60 (140)
- Do not incinerate.

Caring for Battery Use

- Must be recycled or disposed of properly

Consumer Recycling Information and Logo

Wireless…The New Recyclable

Your wireless device can be recycled. Recycling your wireless device reduces the amount of waste disposed in landfills and allows recycled materials to be incorporated into new products.

CTIA and its members encourage consumers to recycle their devices and have taken steps to promote the collection and environmentally sound recycling of end-of-life wireless devices.

As a wireless device user, you have an important role in ensuring that this device is recycled properly. When it comes time to give this device up or trade it in for a new one, please remember that the device, the charger, and many of its accessories can be recycled. It's easy. To learn more about CTIA's Recycling Program for Used Wireless Devices, including information on where to recycle wireless devices near you, please visit www.recyclewirelessphones.com.

Caution For Adapter (Charger) Use

- Using the wrong battery charger could cause damage to your device and void your warranty may burst causing injury to person and damage.
- The charger or adapter is intended for indoor use only.

Do not expose the battery charger or adapter to direct sunlight nor use it in any place of high humidity, such as the bathroom.

Getting Started

Names and Functions of Parts

Note:

Do not put on the product too tightly nor too loosely.

Be careful not to let it hurt your skin or finger nails when you put on the product.

Do not pull or bend the product forcedly.

Turning Product On/Off

- Press the button for two seconds until the power is turned on.
- Press the button for 8 seconds until the power is turned off.

Colors of Button LED

Red

Blinks when the power of the battery is insufficient.

The light changes slowly while the battering is charging.

Green

Blinks when the product is working normally.

Blinks when a call is incoming.

Blue

Blinks while giving/receiving a call.

Charging Battery

- Open the USB cap and connect the charging cable to charge the battery.

Note:

Do not use the product while charging the battery.

Once charging is completed, unplug the charging cable.

Use the charging cable that comes with the product.

Putting On Product

1. Bend the rubber band around your wrist and insert the fixing pin into an appropriate

hole.

2. Ensure that both the top and bottom holes of the clip are fixed firmly by the fixing pin.

Note:

Do not put on the product too tightly nor too loosely.

Be careful not to let it hurt your skin or nails when you put on the product.

Do not pull or bend the product forcedly.

If the product is not taken off well, do not try to do it forcedly but ask for help from the others around. Otherwise, the product may be damaged or you may be hurt.

Establishing Connection

- **Entering Guardian's Number**

  Visit Google Play Store or LG Mobile website at http://www.lgmobile.co.kr to download and install the KizON app. Register this product to the app to enter the guardian's number.

- **Entering Guest's number**

  Register this product to the KizON app and go to 'Setup > Manage KizON Contacts' screen to register the guest's number.

Note:

Please keep the registration code you received during the initiation. You will need it to set up the contacts.

The device you want to connect the KizON app to should be powered by Android OS 4.1 or later.

You can register up to two guardians and up to four guests.

You can set up calls, locations, moving path of the product user and other details.

The product uses the location information and you need to agree on the terms of use before you can use this function.

If the power of battery of the product that has the function of low-battery alarm is 25% or less, the information on the location of the product user and message for charging the battery is sent to the guardian.

The content of this manual is subject to changes as the app is upgraded frequently if necessary.

Calling and Hanging Up by Product User

1. Pressing the button shortly will play the fun sound, which is stored in advance. To make a call, press the button a little longer. (Press the button 0.6 second or longer to hear a sound which means calling is available. Release the button to start calling.)
2. If the primary guardian refuses the call or switch the call to the voicemail box, the call is not switched to the secondary guardian.

Note:

The user cannot call to the guest. The user can only receive a call from a guest.
If KizON calls to the mother's number and voicemail box service is activated, you cannot enter keys on KizON.

Safety Guideline

Provided herein is the TIA Safety Information for wireless devices. Inclusion of this text in the terminal unit's owner's manual is required for CTIA Certification.

TIA Safety Information

Provided herein is the complete TIA Safety Information for wireless devices. Inclusion of the text covering Pacemakers, Hearing Aids, and Other Medical Devices is required in the owner's manual for CTIA Certification. Use of the remaining TIA language is encouraged when appropriate.

EXPOSURE TO RADIO FREQUENCY SIGNALS

Your wireless portable device is a low power radio transmitter and receiver. When it is ON, it receives and also sends out radio frequency (RF) signals.

In August, 1996, the Federal Communications Commissions (FCC) adopted RF exposure guidelines with safety levels for hand-held 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)

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).

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

The design of your device 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 device and may violate FCC regulations.

DEVICE OPERATION

NORMAL POSITION: Wear the device as you would do with any other wrist bands or watches.

TIPS ON EFFICIENT OPERATION:

- For your device to operate most efficiently:
- Extend your antenna fully.

Do not touch the antenna unnecessarily when the device is in use. Contact with the antenna affects call quality and may cause the device to operate at a higher power level than otherwise needed.

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

DRIVING

Check the laws and regulations on the use of wireless devices in the areas where you drive. Always obey them. Also, if using your devices while driving, please:

- 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 is in progress.

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 device.

Pacemakers

The Health Industry Manufacturers Association recommends that a minimum separation of six (6") inches be maintained between a handheld wireless device 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 device more than six inches from their pacemaker when the device is turned ON;
- Should not carry the device in a breast pocket;
- Should use the ear opposite the pacemaker to minimize the potential for interference .
- If you have any reason to suspect that interference is taking place, turn your device OFF immediately

Hearing Aids

Some digital wireless devices 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.] Optional for each phone manufacturer.

Other Medical Devices

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

Turn your device OFF in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF energy.

Vehicles

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

Posted Facilities

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

AIRCRAFT

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

BLASTING AREAS

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

POTENTIALLY EXPLOSIVE ATMOSPHERES

Turn your device 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.

Consumer Recycling Information and Logo

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devices near you, please visit www.recyclewirelessphones.com.

FDA Consumer Update

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

1. **Do wireless devices pose a health hazard?**

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

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

   Under the law, FDA does not review the safety of radiation-emitting consumer products such as wireless devices before they can be sold, as it does with new drugs or medical devices. However, the agency has authority to take action if wireless devices are shown to emit radiofrequency energy (RF) at a level that is hazardous to the user. In such a case, FDA could require the manufacturers of wireless devices to notify users of the health hazard and to repair, replace or recall the devices so that the hazard no longer exists.

   Although the existing scientific data do not justify FDA regulatory actions, FDA has urged the wireless device 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 devices;
- Design wireless devices 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 devices with the best possible information on possible effects of wireless device use on human health.

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

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

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

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

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

3. What kinds of wireless devices are the subject of this update?

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

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

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

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

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

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

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

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

FDA is working with the U.S. National Toxicology Program and with groups of investigators around the world to ensure that high priority animal studies are conducted to address important questions about the effects of exposure to radiofrequency energy (RF).

FDA has been a leading participant in the World Health Organization International Electromagnetic Fields (EMF) Project since its inception in 1996. An influential result of this work has been the development of a detailed agenda of research needs that has driven the establishment of

new research programs around the world. The Project has also helped develop a series of public information documents on EMF issues.

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

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

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

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

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

The Institute of Electrical and Electronic Engineers (IEEE) is developing a technical standard for measuring the radiofrequency energy (RF) exposure from wireless phones and other wireless handsets with the participation and leadership of FDA scientists and engineers. The standard, "Recommended Practice for Determining the Spatial-Peak Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques," sets forth the first consistent test methodology for measuring the rate at which RF is deposited in the heads of wireless device 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 device. 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 device complies with safety guidelines.

9. What steps can I take to reduce my exposure to radiofrequency energy from my wireless device?

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

- If you must conduct extended conversations by wireless device 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 device away from your body or use a wireless device connected to a remote antenna

Again, the scientific data do not demonstrate that wireless devices 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 device use.

10. What about children using wireless devices?

The scientific evidence does not show a danger to users of wireless devices, including children and teenagers. If you want to take steps to lower exposure to radiofrequency energy (RF), the measures described above would apply to children and teenagers using wireless devices. Reducing the time of wireless device 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 devices 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 device causes brain tumors or other ill effects. Their recommendation to limit wireless device use by children was strictly precautionary; it was not based on scientific evidence that any health hazard exists.

11. What about portable wireless device interference with medical equipment?

Radiofrequency energy (RF) from wireless devices can interact with some electronic devices. For this reason, FDA helped develop a detailed test method to measure electromagnetic interference (EMI) of implanted cardiac pacemakers and defibrillators from wireless devices. This test method is now part of a standard sponsored by the Association for the Advancement of Medical instrumentation (AAMI). The final draft, a joint effort by FDA, medical device manufacturers, and many other groups, was completed in late 2000. This standard will allow manufacturers to ensure that cardiac pacemakers and defibrillators are safe from wireless device EMI.

FDA has tested hearing aids for interference from handheld wireless devices 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 devices so that that no interference occurs when a person uses a “compatible” device and a “compatible” hearing aid at the same time. This standard was approved by the IEEE in 2000.

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

12. Where can I find additional information?

For additional information, please refer to the following resources:

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