

**Lucent Technologies**  
Bell Labs Innovations



**DEFINITY<sup>®</sup> Wireless Business System**  
**9601 Wireless Terminal User's Guide**

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Issue 5  
May 1999

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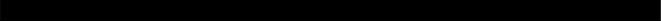
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## About This Book

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### Introduction

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The DEFINITY<sup>®</sup> *Wireless Business System Wireless Terminal User's Guide* explains how to use, maintain, and troubleshoot your DEFINITY Wireless Business System (DWBS) 9601 Wireless Terminal (WT).

### Audience

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This guide is intended for anyone using the DWBS 9601 WT.

## **Electromagnetic Compatability Warning**

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### **Important Safety Guidelines for Users**

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For safe and efficient operation of your DWBS 9601 WT, observe these guidelines.

Your WT is a radio transmitter and receiver. When the battery is installed, the WT is on and it receives and also sends out radio frequency (RF) energy. The WT operates in the frequency range of 1920-1930 MHz. Your handheld WT uses the digital Time Division Multiple Access (TDMA) mode; the power is transmitted in bursts at a 100 Hz-pulsed repetition rate. The peak envelope transmit power is 100 mW or less.

### **Exposure to Radio Frequency Energy**

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The design of your WT complies with the latest safety levels from the Institute of Electrical and Electronic Engineers (IEEE) and the American National Standards Institute (ANSI) with respect to human exposure to RF energy. Of course, if you would like to limit RF exposure even further, you may choose to control the duration of your calls.

### **Cardiac Pacemakers**

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The Health Industry Manufacturers Association recommends that a minimum separation distance of six inches be maintained between a handheld WT 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.

- Always keep the WT more than six inches from the pacemaker whenever the battery is in the WT.
- Do not carry the WT in a breast pocket.
- Use the ear opposite the pacemaker to minimize the potential for interference.

If you have any reason to suspect that interference is taking place, take the battery out of your WT immediately.

## **Hearing Aid Compatibility**

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Most electronic equipment, such as equipment in hospitals, is shielded from RF energy. However, RF energy from WTs may affect some electronic equipment.

Although the DWBS WT is compatible with inductively coupled hearing aids, you should consult your physician or hearing aid manufacturer to determine if your hearing aid is adequately shielded from external RF energy. The operation of inadequately shielded medical devices may be adversely affected when a portable WT is operating in close proximity.

## **Organization**

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This rest of the document is organized as follows:

- **Chapter 1, “Overview,”** provides an overview of the DWBS, the 9601 WT, and the battery charger.
- **Chapter 2, “General Care,”** provides battery charger and general care instructions to ensure dependable and uninterrupted service.
- **Chapter 3, “Features and Operations,”** provides information and diagrams needed to make full use of the DWBS 9601 WT.
- **Chapter 4, “Audible Information Tones and Error Messages,”** identifies and describes the DWBS 9601 WT incoming call ring patterns, error beeps, error tone, confirmation tone, and warning tones. The chapter also identifies and describes in-line errors and user-lever error messages for the WT.
- **Appendix A, “Safety Instructions,”** discusses the appropriate safety instructions for the 9601 WT and the charger.
- **Appendix B, “Specifications,”** provides various specifications for the DWBS.

A glossary and index are also included.

## Related Information

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Other books in the DWBS series are as follows:

- *DEFINITY ECS Interface for the DEFINITY Wireless Business System Guide, 555-232-108*
- *DEFINITY Wireless Business System Installation and Test, 555-232-102*
- *DEFINITY Wireless Business System Maintenance, 555-232-103*
- *DEFINITY Wireless Business System Site Planning, 555-232-601*
- *DEFINITY Wireless Business System 9601 WT Quick Reference Card, 555-232-104*
- *DEFINITY Wireless Business System 9630 Series WT User Guide, 555-232-701*
- *DEFINITY Wireless Business System 9630 Series WT Quick Reference Card, 555-232-702*

## Typographic Conventions

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The following typographic conventions are used in this book to convey information consistently and quickly.

- *This typeface* is used for references to titles of other information and for emphasis within other typefaces.
- **This typeface** emphasizes key words to help clarify meaning in a sentence or to call attention to a distinction.
- The following note icon identifies additional information pertinent to the text preceding it.

 **NOTE:**

---

## Overview

# 1

---

### Introduction

This chapter provides an overview of the following:

- DEFINITY Wireless Business System (DWBS)
- 9601 WT, including its features and benefits
- Battery charger for the WT
- DWBS capacity and coverage

### DEFINITY Wireless Business System

The DWBS is a wireless telecommunications system that offers mobility around the workplace. It integrates wireless capabilities into the DEFINITY Enterprise Communications Server® (ECS). The DWBS radio components operate in the unlicensed part of the Emerging Technologies band (1920 MHz-1930 MHz); this negates the need to obtain a license to use the DWBS.

### 9601 WT

The 9601 WT is a pocket-size, portable phone that provides wireless mobility as well as access to full business features and many DEFINITY ECS features. The WT provides multiple call appearances, a 3-line by 16-character liquid crystal display (LCD) that supports your business communication needs, an array of keys designed to help you use the many features of the DEFINITY ECS, and a 12-button dial pad.

The 9601 WT is not physically connected by a cord to the DEFINITY ECS or any other DWBS component. Instead, the phone is wireless and communicates via a radio link to a network of Wireless Fixed Bases (WFBs), which in turn connect the phone to the DEFINITY ECS.

 **NOTE:**

The following figure shows the 9601 WT. Chapter 3 of this guide describes the 9601 WT in detail and contains instructions on how to use the phone.

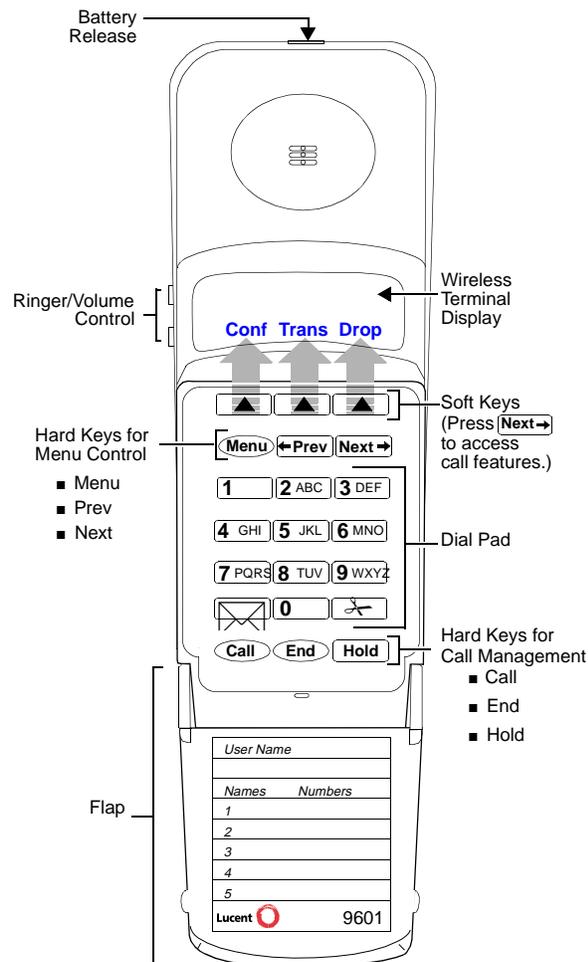


Figure 1-1. 9601 WT

**NOTE:**  
The soft key labels may change based on the WT functions.

## Features and Benefits

---

The DWBS 9601 WT includes the following business features and benefits.

**Table 1-1. 9601 WT Features and Benefits**

<b>Feature</b>	<b>Benefit</b>
Small, lightweight structure	Easily fits into you pocket and is easy to carry
Built-in antenna	No external antenna to handle
Display screen	Shows caller's name, allowing user to control all calls
Multiple call appearances	Flexibility to handle several calls at once
Business features, including conference, transfer, hold, and drop	Convenience of features normally found only on a wired desk phone
Soft key user interface	Easy-to-use menus to access features
Talk and standby time	Provides uninterrupted communications
Rapid battery recharge time	No lengthy wait for battery to recharge in order to be mobile
Warning tones and indicators	Audible and visual alerts provides phone status, such as low battery and message waiting
Remote firmware update	Easy-to-update features using a download from a Radio Controller (RC) to the WT
Bridging	No missed calls; allows both the WT and desk phone to ring at the same time
Hot battery swap	Can change the phone battery while a call is in progress

## **Battery Charger**

---

A DWBS battery charger, a battery, and a spare battery pack are provided with each WT.

The DWBS battery charger is a desktop charger; however, the charger can be mounted on either a wall or desktop. The charger charges a fully discharged battery in less than one and one-half hours.

Your 9601 WT must be charged before you use it for the first time. All instructions and a diagram for this process are provided in Chapter 2, "General Care."

## **DWBS Capacity and Coverage**

---

The DWBS 9601 WT is designed to provide the highest quality of mobility service that wireless technology permits. Your system is designed to provide full functionality and excellent voice quality throughout the areas where service is provided as defined by your company's communications director.

Since this system uses RF signals for the communications channel to your WT, there are situations when you may notice a difference in service from your wired voice terminal. These situations may exist because it is difficult, if not economically unreasonable, to provide flawless coverage in all areas (for example, behind large metal storage or file cabinets, in a vault, or in a cold storage locker). In many of these cases, your company decided, at the time your system was designed, that perfect service in areas such as these is not warranted.

While the DWBS features the highest capacity possible within the Federal Communications Commission (FCC) regulations and Personal Wireless Telephony (PWT) standards, the number of radio channels available is limited and dependent on the amount of radio equipment installed. To put this in perspective by relating it to your public branch exchange (PBX), a central office (CO) trunk (dial 9) is not provided for every user; in fact, a ratio of one CO trunk per 10 users is common. Likewise, with DWBS, a radio channel is not available for each user throughout your defined coverage area. Therefore, if a large number of users attempts to use the system by either making or receiving calls at the same time and in the same area, a radio channel may not be available; this results in a "No Channel Available" condition. An example of this would be if a large number of users were to attend a training course on the DWBS and, after the WTs were distributed at the end of the class, more users attempted to call each other beyond the number of radio channels available in the area.

As you move about your premises, the system may not be able to find an idle radio channel to allow you to continue an active call because the area you are entering is very busy. This may result in a less-than-excellent connection indication, even when you are in an area that usually provides good coverage. Most likely, the difficulty is capacity-related; however, an intermittent system

malfunction could occur. If the problem is transient, it is a capacity issue and does not require any action on your part. If the area usually has good coverage and the problem persists, a portion of your system may not be functioning correctly. **In either case, we recommend reporting the problem to your telecommunications group or system administrator.**

Your understanding and consideration of this information will help us and your telecommunications group satisfy your mobility communications requirements.

### Introduction

This chapter describes the battery charger and explains how to use the battery pack properly. It includes general care instructions, including display message and light-emitting diode (LED) interpretation, to ensure that your 9601 WT provides dependable and uninterrupted service.

### Charging the 9601 WT for the First Time

The 9601 WT is powered by a rechargeable battery. Before using the WT for the first time, you must place the battery pack into the charger for approximately one and one-half hours or until the green light appears.



**NOTE:**

The WT can ring while it is in the charger. It can also display and update information.

Use the following steps to charge the WT:

1. Place the WT with battery into the battery charger. Ensure that the charger is plugged into a properly grounded three-prong wall outlet.
2. Ensure that the WT LED indicator is yellow (refer to Figure 2-1).



**NOTE:**

If the WT LED indicator is red, the WT is not seated in the charger properly. If the WT LED indicator is blinking green, the charger is evaluating the state of the battery before going into the appropriate charging mode.

Once the WT LED indicator turns green, the WT is fully charged and ready for use.

 **NOTE:**

The WT can be removed when the light is yellow; however, both the talk time and standby time are reduced.

When the WT is removed from the charger, it begins to consume power during both talk time and standby time. A fully charged battery pack provides about four hours of talk time and 48 hours of standby time. However, after 48 hours of standby time, there is no talk time available.

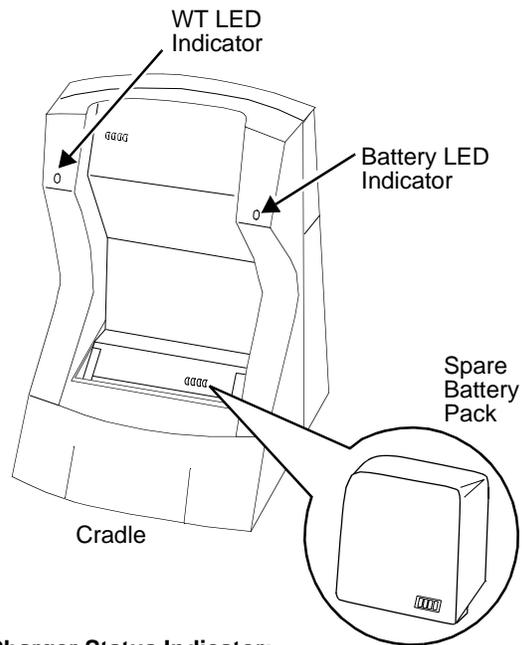
 **WARNING:**

*The rechargeable battery packs contain nickel and cadmium. Do not burn or puncture these batteries. Like other batteries of this type, if they are burned or punctured, they could release toxic material, which could cause injury. Also, do not dispose of the battery packs with ordinary trash. For information about recycling or proper disposal, consult your local solid waste (trash) collection or disposal organization.*

## **Interpreting the Low Battery Indication**

---

When the battery power is low, the WT emits a warning tone, and the “LOW BATT” message appears on the WT display. When this occurs, you have approximately 20 minutes of talk time left.



**Charger Status Indicator:**

<b>LED Indicators</b>	<b>Charge Status</b>
Yellow	Rapid Charge
Green	Slow Charge
Blinking Green	Evaluation and Standby Mode
Red	Battery Fault (Reseat battery.)

---

**Figure 2-1. 9601 WT Battery Charger**

## **Using the 9601 WT Battery Charger**

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The 9601 WT Battery Charger has two LED indicators that can display yellow, green, flashing green, or red. The left indicator is labeled "PHONE," and the right indicator is labeled "BATTERY." Refer to Figure 2-1 for the location of these indicators on the 9601 WT Battery Charger.

### **WT LED Indicator**

---

Whenever the WT with battery is placed into its proper position in the battery charger, the WT indicator is lit to reflect a specific condition, as described in the following list:

- Yellow — WT is fast-charging and can be used at this time, but it is not fully charged.
- Steady green — WT is fully charged.
- Flashing green — WT is in evaluation and standby mode.
- Red — WT is not properly seated in the charger, or there is some other problem. (Reseat the battery.)

### **Battery LED Indicator**

---

The optional spare battery pack should be stored in the charger's spare battery compartment to ensure that a fully charged battery pack is always available for use. The charger charges both the WT (with battery) and the spare battery pack whenever these items are in their proper receptacle. Whenever the spare battery pack is placed into its proper position in the charger, the color of the battery indicator is lit to reflect a specific condition, as described in the following list:

- Yellow — spare battery is charging and can be used at this time, but it is not fully charged.
- Steady green — spare battery is fully charged.
- Flashing green — spare battery is getting ready to fast-charge. (The indicator turns yellow when it begins to fast-charge.)
- Red/flashing red — spare battery is not properly seated in the charger, or there is a problem with the battery pack. (Reseat the battery.)

### **Inserting a Spare Battery Pack into the Charger**

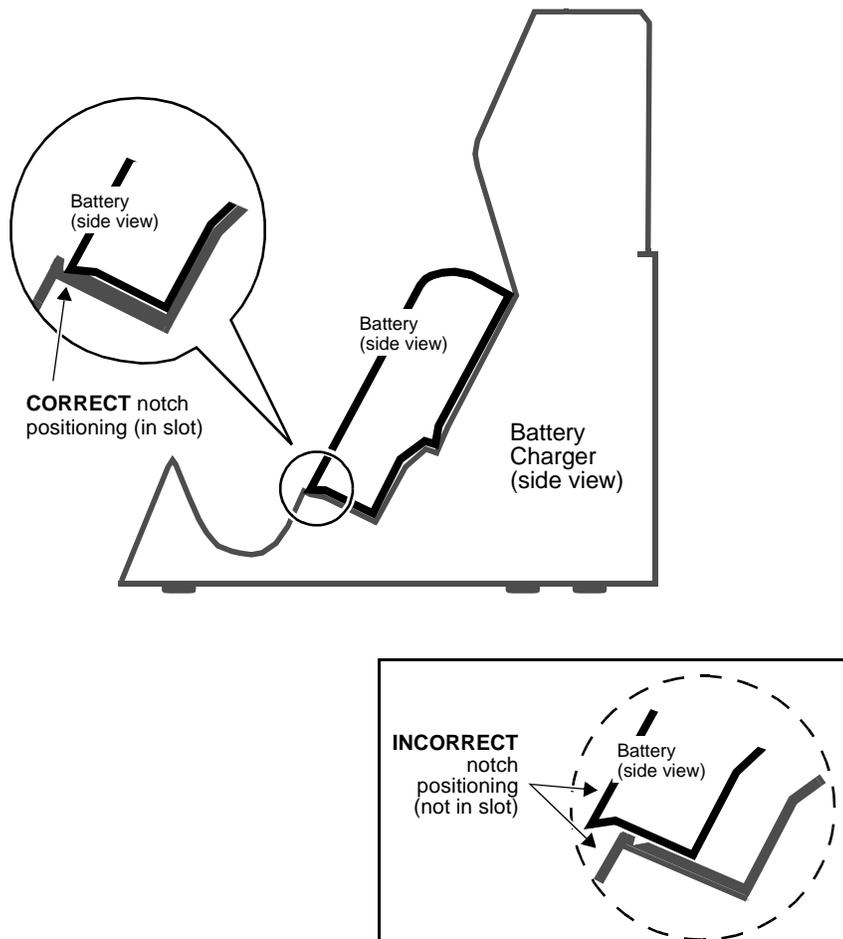
The "LOW BATT" message appears on the WT display window whenever it is time to insert a charged spare battery. Use the following steps to insert a spare battery pack into the charger.

1. Remove the battery pack from the WT by moving the latch on top of the WT forward until it releases the battery pack. Slide the battery pack off the WT.
2. Place the spare battery pack into the spare battery pack cradle.



**NOTE:**

The battery pack must be placed behind the lip of the cradle. (See the following figure.)



---

**Figure 2-2. Inserting the Spare Battery Pack into the Charger**

3. Ensure that the battery indicator is yellow.



**NOTE:**

Whenever the battery indicator changes from yellow to steady green, the spare battery pack is fully charged. It can remain in the charger until needed.

### **Removing a Spare Battery Pack from the Charger**

Use the following steps to remove a spare battery pack from the charger.

1. Ensure that the battery indicator is steady green.



**NOTE:**

The spare battery can be removed from the spare battery pack cradle if the light is yellow; however, the battery is not fully charged.

2. Remove the spare battery pack from the spare battery pack cradle.

### **Inserting the 9601 WT With Battery into the Charger**

Use the following steps to insert a WT with battery into the charger.

1. Slide the WT into the WT cradle.
2. Ensure that the WT indicator is yellow.



**NOTE:**

Whenever the WT indicator changes from yellow to steady green, the WT is fully charged. It can remain in the charger until needed.

### **Removing the 9601 WT from the Charger**

Use the following steps to remove a WT from the charger.

1. Ensure that the WT indicator is steady green.



**NOTE:**

Whenever the WT is placed into the charger, the WT indicator is initially yellow for a few seconds. You can answer a WT call during this time if the battery is not fully drained.

2. Remove the WT from the cradle.



### Introduction

This chapter provides information needed to make full use of your 9601 WT. The first portion of this chapter provides a detailed description and diagram of the WT. The second section is presented in a “how to” format and focuses on feature identification and access.

### 9601 WT Features

The DEFINITY ECS 9601 WT is a portable multiple call appearance wireless voice terminal with a display. It is a small (6 in x 2.5 in x 1.1 in), lightweight (approximately 7.5 oz.) WT that requires no external antenna. As shown on the next page in Figure 3-1, the WT 9601 has a three-line by 16-character display, three soft keys for menu item interface, three hard keys for display control, and three hard keys for call management. Each of these features is explained in the following pages.

Among its many benefits, the 9601 WT includes the following essential business features normally found only on a wired desk phone. The “Operating the 9601 WT” section in this chapter gives specific instructions for these features.

- **Conference** — enables you to add additional people to your telephone call.
- **Transfer** — enables you to transfer a call to another phone number.
- **Drop** — enables you to disconnect the last person added to a conference call.
- **Hold** — enables you to place a call on hold.

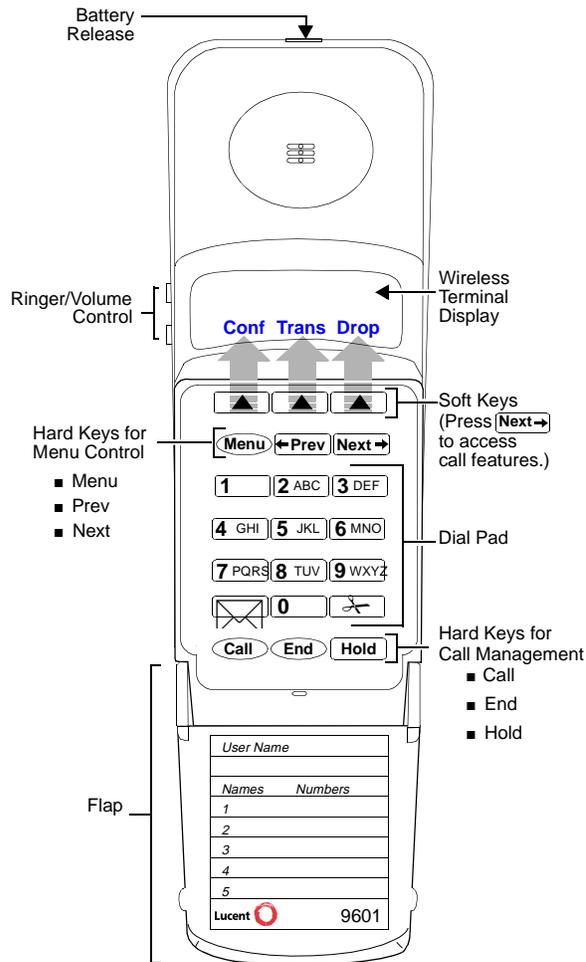


Figure 3-1. 9601 WT

In general, the 9601 WT has the following features:

- Hard Key Interface
- Soft Key Interface
- Ringer/Volume Control Buttons
- Battery Charging Contacts
- Display
- Dial Pad
- Low Battery Indicator

## **Hard Key Interface**

---

The 9601 WT has several hard keys. Hard keys are buttons with labels and functions that do not change. The WT has the following hard keys.

### **Hard Keys for Menu Control**

The hard keys for menu control include the following:

- **Menu** — to access local control functions and soft key mode (see the next section)
- **Prev** (Previous) — to access soft key features and calling screens
- **Next** — to access soft key features and calling screens

### **Hard Keys for Call Management**

The hard keys for call management include the following:

- **Call** — to place and answer calls
- **End** — to disconnect (end) calls or clear misdialed digits
- **Hold** — to place calls on hold

## **Soft Key Interface**

---

The 9601 WT has a row of three soft keys located immediately below the display. Soft keys are buttons with preprogrammed labels and functions that can change dynamically as you perform functions and make selections. Soft keys provide access to calling functions, and they are intended to provide a user-friendly interface to additional functionality.

The soft keys are marked as follows:



### **⇒ NOTE:**

Because each soft key can have multiple functions, the third line (bottom row) on the display is used for displaying associated soft key function labels. You can access the conference and transfer features with your soft keys by pressing **Next**. You can access other features by pressing **Menu** first. (See the previous figure and also the “Operating the 9601 WT” section in this chapter.)

## **Ringer/Volume Control Buttons**

---

The WT has two volume control buttons. These buttons are located on the left side of the WT, and they are labeled with up- and down-arrows. Each button is used for adjusting the receiver volume in the earpiece as well as the ringer volume. Specifically, these buttons enable you to adjust the receiver volume (higher or lower) after pressing **[Call]** and to adjust the ringer volume (higher or lower) before pressing **[Call]**.

## **Battery Charging Contacts**

---

The WT includes a removable and rechargeable battery pack. Battery charging contacts, which are located on the removable battery pack, enable the phone to charge when contact is made with the DWBS charger.

## **Display**

---

The WT display is a three-line by 16-character alphanumeric display that enables you to view various WT screens. These screens display the following:

- DEFINITY ECS display messages (including Automatic Numbering Identification [ANI] numbers, if provided from the network)
- Message waiting indicator
- Menu-driven feature operations
- Low battery message
- Personalized extension of the WT
- Unique serial number and firmware and hardware version numbers
- Soft key labels
- Radio link/connection status Information
- Dialed digits displayed
- Visual dial tone indicator
- Service messages (described in Chapter 4)

## **Dial Pad**

---

The WT dial pad includes the standard 12 buttons for dialing telephone numbers and accessing the DEFINITY ECS call features.

## **Low Battery Indicator**

---

Whenever the battery power is low, the WT emits a warning tone, and the "LOW BATT" message appears on the WT display.

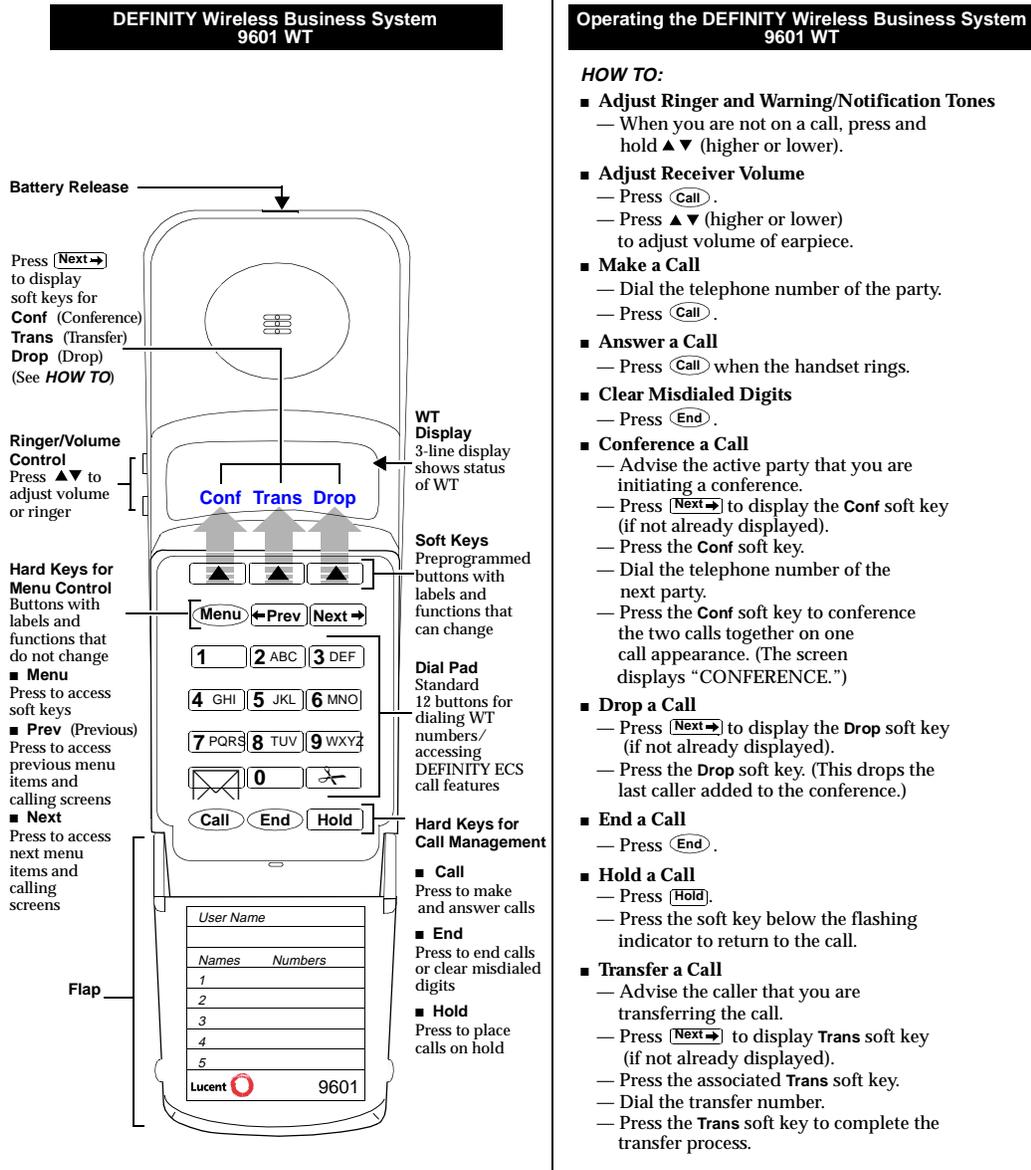


Figure 3-2. 9601 WT Quick Reference of Basic Functions

## Operating the 9601 WT

---

This section provides information needed to make full use of your 9601 WT. The information presented focuses on feature identification and access.

### NOTE:

If you are using your 9601 WT for the first time and cannot perform the operations described in the following “how to” section, call your administrator. A WT must be administered before you can use it to access any switch service.

The following “how to” information is arranged in a logical order. See the diagram on the previous page for button and key locations. If you are experiencing difficulty, press  twice; this should allow you to begin your operation again.

## Adjusting the Receiver Volume

---

The volume control buttons enable you to adjust the receiver volume. To do so, you must be in the coverage area and either on a call or listening to a dial tone.

To adjust the receiver volume:

1. Press .
2. Press and hold either the up-volume control button or down-volume control button until the appropriate volume level for the earpiece is reached.
3. Press  to end the call.

The receiver volume remains at the level set until you press a volume control button while you are on a call.

## Adjusting Ringer and Warning/Notification Tones

---

The volume control buttons enable you to adjust the ringer and warning/notification tones (higher or lower).

To adjust the ringer and warning/notification tones, press and hold either the up-volume control button or the down-volume control button until the appropriate volume level is reached.

### NOTE:

The  button is not used during this procedure. Pressing this button before performing this procedure causes an adjustment in the receiver volume.

## Making Calls

To make a call:

1. Dial the telephone number of the party.
2. Press **[Call]**.



**NOTE:**

Press **[End]** to clear misdialed digits.

If you prefer, you can also make a call by pressing one of the idle line appearances instead of **[Call]** and then dialing the digits.

## Answering Calls

To answer an incoming call:

1. Press **[Call]** when the WT rings. The call will be answered and the conversation can begin.



**NOTE:**

If you prefer, you can also answer a call by pressing one of the idle line appearances instead of **[Call]**.

## Muting and Unmuting the WT

The WT cannot be muted unless it is within a coverage area and on a call. You must be on a call to mute or unmute a WT.

To mute a WT, do the following:

1. From the calling screen, press either **[Prev]** once or **[Next]** twice.
2. Press the **Mute** soft key. If the WT is muted, this causes "Mute" to flash.

To unmute the WT, first ensure that "Mute" is flashing. Then press the **Mute** soft key.

## Activating and Deactivating Silent Mode

The WT can be optioned for Silent Mode operation via display screens and soft key activation. The "SILENT" message appears in the WT display window.

Whenever Silent Mode is enabled, only priority ringing, intercom ringing, or manual signaling is sounded at the voice terminal. A low battery tone is generated in Silent Mode only in response to call initiation.

The WT displays a message indicating that it is being rung, and it also displays the appropriate flashing icon-like character indicating the call appearance status.

To activate Silent Mode, do the following:

1. Press **Menu**.
2. Press **Next**.
3. Press the **Silent** soft key.
4. Press the **Yes** soft key to activate Silent Mode.

To deactivate Silent Mode, do the following:

1. Press **Menu**.
2. Press **Next**.
3. Press the **Silent** soft key.
4. Press the **Yes** soft key to deactivate Silent Mode.

## **Transferring Calls**

---

The 9601 WT enables you to transfer a call from one extension to another.

To transfer a call:

1. Advise the caller that you are transferring the call.
2. Press **Next** to display the **Trans** soft key (if it is not already displayed).
3. Press the associated **Trans** soft key. Another call appearance appears on the display.
4. Dial the transfer number.
5. Press the **Trans** soft key to complete the transfer process.



**NOTE:**

**When all Call Appearance indicators are in use, you cannot transfer additional parties or receive and make other calls.**

## **Conferencing Calls**

---

The Conference Call feature enables you to conference up to six parties.

To activate a conference call:

1. Inform the active party that you are initiating a conference call and to hold on.
2. Press **Next** to display the **Conf** soft key (if it is not already displayed).
3. Press the **Conf** soft key.

 **NOTE:**

The active call is automatically placed on hold, and the second call appearance indicator is activated.

4. Dial the telephone number of the next party.
5. Press the **Conf** soft key to conference the two calls together on one call appearance. The screen displays "CONFERENCE."

 **NOTE:**

**Whenever all Call Appearance indicators are in use, you cannot conference additional parties or receive and make other calls.**

## **Holding Calls**

---

To place a call on hold:

1. Press .

 **NOTE:**

The call is placed on hold and the call appearance indicator flashes.

2. Press the soft key below the flashing indicator to return to the call.

## **Ending Calls**

---

To end a call, press .

## **Dropping Calls**

---

This feature enables you to drop the last person you added to the conference call.

To drop a call:

1. Press  to display the **Drop** soft key (if it is not already displayed).
2. Press the **Drop** soft key. This drops the last caller who was added to the conference.

## **Locking and Unlocking the WT**

---

The lock function prevents the user from accessing soft key mode as well as from placing and answering calls. Whenever the WT is in the “locked state,” the lock icon is displayed. Also, all functions, except for the WT ringing on incoming calls, are inactive. The display message associated with ringing is displayed.

The lock and unlock operations require creating and/or using a user-generated password. The password can be created, entered, changed, or deleted via soft key screens.

The WT can be unlocked during an incoming call. To unlock the WT, the user must enter the appropriate 4-digit password. In case of an error, this password can be reentered or cleared by pressing (End) .

### **Creating an Initial Password**

To create a password to lock the WT initially, do the following:

1. Press (Menu) .
2. Press the **Lock** soft key.
3. Press the **Yes** soft key to create a password.
4. Enter a 4-character password (choosing from 0 through 9).
5. Reenter the password for verification. If you enter a different password, return to the previous step.

### **Lock Operation**

#### **NOTE:**

A WT cannot be locked whenever the WT either is active on a call or has a call on hold.

If you have previously created a password, you can lock the WT with the same password or with a new password (see the next section).

To lock the WT, do the following:

1. Press (Menu) (if you are not already on the lock screen).
2. Press the **Lock** soft key.
3. Enter the correct password.

The WT is now locked. This is indicated by a padlock icon on the display.

## Changing the Password

To change your password, do the following:

1. Press **Menu**.
2. Press the **Lock** soft key.
3. Press the **Change** soft key to change the password.
4. Enter the old password, as prompted. Let's assume you enter the correct password.
5. Enter the new password, as prompted.
6. Reenter the password for verification. You have created a new password for locking the WT.

## Deleting the Password

To delete your password, do the following:

1. Press **Menu**.
2. Press the **Lock** soft key.
3. Press the **Del** soft key to delete the password.
4. Enter your old password.

## Unlock Operation

If a WT is locked and linked to the system, a padlock icon appears on the display.

To unlock a WT, enter the 4-character password that you entered to lock the WT. If the password is correct, the WT is unlocked, and the calling screen is displayed. If the password is incorrect, you are prompted to try again.

### NOTE:

If you cannot unlock the WT, see your system administrator to reset the password.

## Redialing Calls

---

The WT provides a local Redial capability.

The **Redial** soft key allows you to redial the last number dialed from the keypad. The redial number is indicated on the display. The WT stores the first 24 digits dialed in the off-hook state.

To redial a call:

1. From the calling screen, press  and ensure that the third soft key is labeled **Redial**.
2. Press the **Redial** soft key. On the display, you will see “a=” followed by either the name of the party you are calling or some other identifier.

 **NOTE:**

Do not enter digits while you are on a call; this corrupts the most recent number stored via redial.

---

# Audible Information Tones and Error Messages

# 4

---

## Introduction

The DWBS is provisioned with a single audible information tone. This tone provides several services. The 9601 WT provides various error codes and messages.

## Incoming Call Ring Patterns

Incoming calls are subject to the following ring patterns:

- **One ring** — call from another extension
- **Two rings** — call from outside or from the attendant
- **Three rings** — priority call from another extension or from an Automatic Callback call you placed
- **Ring-ping (half ring)** — call redirected from your telephone to another because the Call Forwarding or Send All Calls (SAC) feature is active

## Error Beep

An error beep occurs whenever a hard key or any of the soft keys are pressed but are not applicable at the moment.

## Warning Tone

A warning tone sounds and a message appears on the display for a low battery condition.

## **User-Level Error Messages**

---

The following table presents the user-level error messages that may appear on the WT, along with corrective actions, if required.

**Table 4-1. User-Level Error Messages and Corrective Actions for the WT**

<b>User-Level Error Messages</b>	<b>Corrective Actions</b>
"NO CHANNEL AVAIL"	None actually required because the problem is corrected once a channel becomes available. Try moving to another cell.
"PLEASE WAIT"	None required. The DWBS should automatically reset the WT within 10 seconds.
"NO SERVICE"	See the system administrator, as prompted by the subsequent message "SEE SYS ADMIN."

---

# Safety Instructions



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## Introduction

This section contains instructions related to safety labels on the product.

---

## Using the Product

Take note of all the information in this section whenever you are using the product.

 **WARNING:**

indicates the presence of a hazard that can cause severe or fatal personal injury if the hazard is not avoided.

 **CAUTION:**

indicates the presence of a hazard that will or can cause minor personal injury or property damage if not avoided.

Always follow these basic safety precautions when using this product to reduce risk of injury from fire or electric shock.

 **WARNING:**

*Failure to ground charger properly results in a risk of electrical shock, which can cause serious personal injury. This product requires a 3-prong AC*

*power receptacle for safe operation. You should have your receptacle checked by a qualified electrician before connecting this equipment.*

**▲ WARNING:**

*The rechargeable battery contains nickel and cadmium. Do not burn or puncture the battery. Like other batteries of this type, if it is burned or punctured, it could release toxic material, which could cause injury. Do not dispose of it in household garbage. For information about recycling or proper disposal, consult your local solid waste (garbage) collection or disposal organization.*

- Read and understand all instructions in this booklet before using this product.
- Observe all warnings and instructions marked on the product.
- Do not use the battery charger near water or when you are wet. If the battery charger comes in contact with any liquids, unplug the power cord immediately. Do not plug the product back in until it has dried thoroughly.
- Never push objects of any kind into this product through housing slots because the objects may touch hazardous voltage points or short out parts that could result in a risk of electric shock. Never spill liquid of any kind on the WT or battery charger.
- Never place this product near or over a radiator or heat register.
- Slots and openings in the housing and the back or bottom are provided for ventilation. To protect the housing from overheating, these openings must not be blocked or covered. Therefore, do not place the product on a bed, sofa, rug, or other similar surface. Also, do not place this product in an enclosed area unless proper ventilation is provided.
- Use only the correct power source. If you are not sure of the power supply to your location, consult your local power company.
- This battery charger uses a 3-prong plug in continental US locations. Such plugs are designed for your safety. Do not attempt to defeat this purpose. If your wall outlet does not accept the plug, the outlet should be replaced by an electrician.
- Do not allow anything to rest on the power cord of the battery charger. Do not locate this product where the cord will be abused by persons walking on it. Do not overload wall outlets as this can result in the risk of fire or electric shock. Do not staple or otherwise attach the power cord to building surfaces.
- Use only the type of battery pack shipped with this product.
- If you suspect a gas leak, report it immediately, but use a telephone away from the area in question. The telephone's electrical contacts could generate a tiny spark. While unlikely, it is possible that this spark could

ignite a heavy concentration of gas. This product is not approved for use in areas labeled by the Occupational Safety and Health Administration (OSHA) as “explosive environments.” Only “Explosive Atmosphere Telephones” may be used in such hazardous environments.

- Unplug the battery charger from wall outlets before cleaning. Clean exposed parts with a soft, damp cloth. Do not use liquid or aerosol cleaners.
- Unplug the battery charger from the wall outlet, and refer servicing to qualified service personnel under the following conditions:
  - Power cord or plug on the battery charger is damaged or frayed.
  - WT does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions because improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
  - Product has been dropped and the housing has been damaged.
- This product should be serviced by (or taken to) a qualified service center when service or repair work is required. Do not open the product; there are no user serviceable components inside. See your system administrator.

## **Maintaining the WT**

---

### **NOTE:**

The cautions and warnings in the previous section are also applicable to this section, as are the safety instructions.

This telephone is designed to provide trouble-free performance without any special maintenance procedures. To reduce the risk of accidental damage, do the following.

- Keep the telephone in an area free of dust, smoke, and moisture.
- Do not place the telephone near a heating duct, radiator, or other heat source, and do not drop or expose it to excessive shock or vibration.
- Unplug the battery charger if its power cord is damaged, if liquid is spilled into it, or if its housing becomes cracked or otherwise damaged.
- To clean the telephone, wipe the outside housing with a soft, dust-free cloth. If absolutely necessary, you may use a cloth slightly dampened with a mild soap and water solution. Dry the WT quickly with a soft cloth.

 **CAUTION:**

*Your telephone contains sensitive electronic parts. Never submerge it in any kind of liquid, and never use detergents, alcohols, solvents, abrasive cleaners, or an excessive amount of water when cleaning the housing and faceplate. To do so could result in irreparable damage.*

*Also, battery contacts should be covered to prevent their possible exposure to loose metal bits (for example, coins or chains in a pocket).*

---

## Specifications

# B

---

### Introduction

This appendix provides various specifications for the DWBS.

### System Capacity and Coverage

The following support is provided.

- Maximum of:
  - 260 pocket phones
  - 30 Radio Controllers (RCs)
  - 60 Wireless Fixed Bases (WFBs)
  - 240 Cell Antenna Units (CAUs)
- Radio capacity of 12 channels (calls) per band and eight bands of 1.25 MHz

### Base Stations

The following support is provided.

- Two base station options providing maximum coverage for your business premises, including:
  - WFBs, which are the main base station components in the system antenna infrastructure
  - CAUs, which are used to extend the effective coverage area of the WFBs

- WFBs interface to the integrated DEFINITY ECS RC port card
- Maximum distance of 5,000 ft from the DEFINITY ECS to the WFB
- Out-of-band signaling
- Personal Wireless Telecommunications- (PWT-) based architecture (that is, the evolving US wireless standard)
- Time Division Multiple Access (TDMA)
- Operation within the isochronous (1920 MHz-1930 MHz) part of the emerging technology band (Unlicensed Personal Communications System [PCS])
- 32 Kbps Adaptive Post Code Modulation (ADPCM) encoding for voice

## **Operating Temperatures**

The WT should be used within the 55° F to 95° F temperature range.

---

# Glossary

---

## A

### **access rights**

Air interface procedure that assigns to the WT a Temporary Portable User Identifier (TPUI) and its extension number. The WT initiates this procedure each time it enters a system. A successful completion of the procedure includes an implicit Location Registration.

### **Auto-Reconnect**

Feature that enables a calling party to reconnect to a called party if the latter walks out of the coverage area and then back into the coverage area within 60 seconds.

---

## B

### **Bridging**

Feature that allows both the WT and the wired phone to ring at the same time.

---

## C

**CAU.** See **Cell Antenna Unit.**

### **cell**

Radio coverage area of a CAU or WFB with an internal antenna cluster. Also, cells supported by all the WFBs connected to one RC.

### **Cell Antenna Unit (CAU)**

Optional remote antenna that connects to a Wireless Fixed Base. It contains a transmit power amplifier, transmit/receive switch, low-noise receive amplifier, and antenna.

---

## D

### **DEFINITY Management Terminal**

Data terminal used for the administration and maintenance of the DEFINITY ECS.

---

## E

### **Emerging Technologies Band**

20 MHz of unlicensed spectrum for Personal Communication Service (PCS) in North America. The band is isochronous (1920-1930 MHz) with eight channels of 1.25 MHz bandwidth per channel primarily for voice, and asynchronous (1910-1930 MHz) primarily for data.

**Estimator**

Tool within the WiSE Expert Design System that is used to gather information about the customer site. This tool is used to provide an initial price quote and to configure the DWBS.

---

**F**

**FCC.** See **Federal Communications Commission**

**FDMA.** See **Frequency Division Multiple Access**

**Federal Communications Commission (FCC)**

Government agency within the US that is responsible for assigning and regulating the radio spectrum so that it can be shared by many users without unacceptable interference.

**fixed part**

Part of the DWBS radio infrastructure that is not portable. This includes the Radio Controllers, Wireless Fixed Bases, and Cell Antenna Units.

**Frequency Division Multiple Access (FDMA)**

Radio access method for which each call uses a different carrier frequency. FDMA allows one conversation per radio.

---

**H**

**hard keys**

Dedicated buttons on the WT that are labeled for particular functions (for example, making calls).

**hardware vintage**

Numbering scheme for identifying the components and physical design of a DWBS part, such as a circuit pack.

---

**I**

**I2**

Interface between a Radio Controller and a Wireless Fixed Base.

**I3**

Interface between a Wireless Fixed Base and a Cell Antenna Unit.

**Initialization and Administration System**

Services support system for PBX administration and maintenance.

**International Portable Equipment Identity**

Unique number used to identify a WT for administration and through-the-air communication. This number is sent by the WT to the fixed part during the access rights procedure.

**International Portable User Identity**

Number sent by the fixed part to a WT during the access rights procedure. Also, this number is sent by the WT to the fixed part during the location registration procedure.

**IPEI.** See **International Portable Equipment Identity**

**IPUI.** See **International Portable User Identity**

---

## **L**

### **local features**

Features that are supported by the WT.

### **local tones**

Tones produced locally in the WT. Includes the following tones: ringer, warning, error, error beep, confirmation, and key click.

### **Location Registration**

Through-the-air procedure used by the WT to inform the fixed part that it has moved to a new cluster. If the WT is active on a call, Location Registration is implied whenever there is an inter-RC or connection handover.

---

## **M**

### **Mobility Manager (MM)**

Software added to the DEFINITY system to control and track pocket phones as they change location within the DWBS coverage area. The Mobility Manager directs all control and voice information to the appropriate Radio Controller for each WT. It is also responsible for the maintenance and administration of the DWBS and pocket phones.

---

## **P**

### **pre-origination dialing**

Dialing that occurs before dial tone is granted.

### **portable part**

Part of the DWBS radio infrastructure that is portable (most notably, the pocket phones).

### **post-origination dialing**

Dialing that occurs after dial tone is granted.

### **Predictor**

Tool within the WiSE Expert Design System that uses site information as input to determine the optimal placement of the antennas within the DWBS.

---

## **R**

### **Radio Controller (RC)**

Circuit pack that provides the interface between the DEFINITY system and the radio subsystem. It controls one or more Wireless Fixed Bases.

---

**Radio Propagation Measurement Tool (RPMT)**

Tool within the WiSE Expert Design System that is used to provide basic radio measurements. The RPMT looks like a WT and, once it is administered, it can also initiate and receive phone calls. The RPMT can supplement the Predictor, serve as a troubleshooting device, and be used at site surveys.

**RC.** See **Radio Controller**

**RPMT.** See **Radio Propagation Measurement Tool**

---

**S**

**soft keys**

Buttons whose labels appear on an associated display and whose labels and functions can change dynamically as the user performs functions and makes selections.

---

**T**

**TDMA.** See **Time Division Multiple Access**

**Terminal Portable User Identifier (TPUI)**

Number returned by the fixed part to the WT during the Location Registration procedure.

**Time Division Multiple Access (TDMA)**

Radio access method for which each call uses a different time slot. TDMA permits multiple conversations per radio.

**TPUI.** See **Terminal Portable User Identifier**

---

**U**

**UTAM**

Group charged by the Federal Communications Commission to coordinate the relocation of microwave incumbents out of the unlicensed spectrum (1910-1930 MHz) and to coordinate the deployment of unlicensed devices and systems in that spectrum.

---

**W**

**Wireless Fixed Base (WFB)**

Component that houses the fixed radio hardware. It provides the radio functions to transmit digitally to the pocket phones and to receive digital signals from the pocket phones. A WFB can support a maximum of four external Cell Antenna Units.

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