



PROFESSIONAL DIGITAL TWO-WAY RADIO

**MOTOTRBO™**

**DP1400**

**NON-KEYPAD PORTABLE RADIO**

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## USER GUIDE

en-US	ru-RU
de-DE	tr-TR
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fr-FR	
it-IT	
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**APRIL 2019**

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## Important Safety Information

### RF Energy Exposure and Product Safety Guide for Portable Two-Way Radios

#### **ATTENTION!**

**This radio is restricted to Occupational use only.** Before using the radio, read the RF Energy Exposure and Product Safety Guide for Portable Two-Way Radios which contains important operating instructions for safe usage and RF energy awareness and control for Compliance with applicable standards and Regulations.

For a list of Motorola Solutions-approved antennas, batteries, and other accessories, visit the following website:

<http://www.motorolasolutions.com>

## Software Version

All the features described in the following sections are supported by the software version **R01.01.40.0000** or later.

Check with your dealer or system administrator for more information.

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■ The European Union's WEEE directive requires that products sold into EU countries must have the crossed out trash bin label on the product (or the package in some cases).

As defined by the WEEE directive, this cross-out trash bin label means that customers and end users in EU countries

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This voice coding Technology is licensed solely for use within this Communications Equipment. The user of this Technology is explicitly prohibited from attempting to decompile, reverse engineer, or disassemble the Object Code, or in any other way convert the Object Code into a human-readable form.

U.S. Pat. Nos. #5,870,405, #5,826,222, #5,754,974, #5,701,390, #5,715,365, #5,649,050, #5,630,011, #5,581,656, #5,517,511, #5,491,772, #5,247,579, #5,226,084 and #5,195,166.

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<https://emeaonline.motorolasolutions.com>

## Handling Precautions

The MOTOTRBO Series Digital Portable radio meets IP54 specifications, allowing your radio to withstand adverse field conditions such as being exposed to water or dust.

- Keep your radio clean and exposure to water should be avoided to help ensure proper functionality and performance.
- To clean the exterior surfaces of the radio, use a diluted solution of mild dishwashing detergent and fresh water (for example, one teaspoon of detergent to one gallon of water).
- These surfaces should be cleaned whenever a periodic visual inspection reveals the presence of smudges, grease, and/or grime.



**CAUTION:**

The effects of certain chemicals and their vapors can have harmful results on certain plastics. Avoid using aerosol sprays, tuner cleaners, and other chemicals.

## Introduction

This user guide covers the operation of your radios.

Your dealer or system administrator may have customized your radio for your specific needs. Check with your dealer or system administrator for more information.

You can consult your dealer or system administrator about the following:

- Is your radio programmed with any preset conventional channels?
- Which buttons have been programmed to access other features?
- What optional accessories may suit your needs?
- What are the best radio usage practices for effective communication?
- What maintenance procedures that helps promote longer radio life?

## Icon Information



Indicates a conventional **Analog Mode-Only** feature.



Indicates a conventional **Digital Mode-Only** feature.

For features that are available in **both** conventional analog and digital modes, both icons are **not** shown.

## Conventional Analog and Digital Modes

Each channel in your radio can be configured as a conventional analog or conventional digital channel.



**1 : Channel Selector Knob**

For Analog-only radios, each channel can only be configured as a conventional analog channel. Use the Channel Selector Knob to switch between an analog or a digital channel.

Certain features are unavailable when switching from digital to analog mode.

Your radio also has features available in both analog and digital modes. The minor differences in the way each feature works do **not** affect the performance of your radio.

A Software License Key sold separately is required to upgrade analog-only radios to digital radios.



### **NOTICE:**

Your radio also switches between digital and analog modes during a dual mode scan. See [Scan on page 36](#) for more information.

## IP Site Connect

This feature allows your radio to extend conventional communication beyond the reach of a single site by connecting to different available sites by using an Internet Protocol (IP) network.

When the radio moves out of range from one site and into the range of another, the radio connects to the repeater of the new site to send or receive calls or data transmissions. This is done either automatically or manually depending on your settings.

In an automatic site search, the radio scans through all available sites when the signal from the current site is weak or when the radio is unable to detect any signal from the current site. The radio then locks on to the repeater with

the strongest Received Signal Strength Indicator (RSSI) value.

In a manual site search, the radio searches for the next site in the roam list that is currently in range but which may not have the strongest signal and locks on to the repeater.



**NOTICE:**

Each channel can only have either Scan or Roam enabled, not both at the same time.

Channels with this feature enabled can be added to a particular roam list. The radio searches the channels in the roam list during the automatic roam operation to locate the best site. A roam list supports a maximum of 16 channels, including the selected channel.



**NOTICE:**

You cannot manually add or delete an entry in the roam list. Check with your dealer or system administrator for more information.

## Basic Operations

This chapter explains the operations to get you started on using the radio.

### Charging the Battery

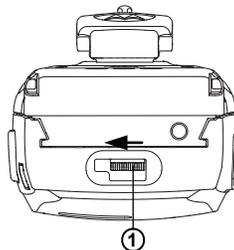
Your radio is powered by a Nickel Metal-Hydride (NiMH) or Lithium-Ion (Li-Ion) battery.

- To comply with warranty terms and avoid damages, charge the battery using a Motorola Solutions charger exactly as described in the charger user guide.
- Charge a new battery 14 to 16 hours before initial use for best performance. Prior to charging a battery with the radio, Motorola Solutions recommends to turn the radio off.

### Attaching the Battery

Follow the procedure to attach the battery to your radio.

- 1 Ensure that the battery latch is unlocked before attaching the battery.



**1: Battery Latch**

- 2 Slide the battery latch to the right and slide downwards to unlock the battery.



- 3 Align the battery with the rails on the back of the radio.

- 4 Press the battery firmly, and slide upwards until the latch snaps into place.

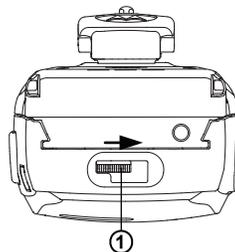


- 
- 5 Slide battery latch into lock position.
- 

## Removing the Battery

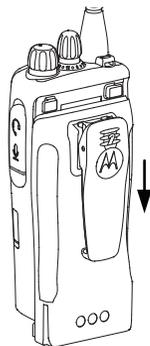
Follow the procedure to remove the battery from your radio. Ensure that the radio is turned off.

- 1 Move the battery latch into unlock position and hold.



**1 : Battery Latch**

- 
- 2 Slide the battery down and lift off the rails.

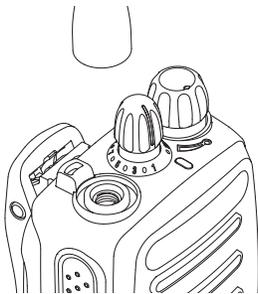


## Attaching the Antenna

Follow the procedure to attach the antenna to your radio.

Ensure that the radio is turned off.

Set the antenna in the receptacle and turn clockwise until snug to provide best protection against water and dust.



### NOTICE:

To remove the antenna, turn the antenna counterclockwise.



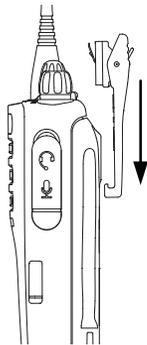
### CAUTION:

If the antenna must be replaced, ensure that only MOTOTRBO antennas are used. Neglecting this damages your radio. See [Antenna](#) for a list of available antennas.

## Attaching the Belt Clip

Follow the procedure to attach the belt clip to your radio.

Align the grooves on the clip with those on the battery and press downwards until you hear a click.



## Removing the Belt Clip

Follow the procedure to remove the belt clip from your radio.

- 1 To remove the clip, press the belt clip tab away from the battery using a key.
- 2 Slide the clip upwards and away from the radio.

## Powering Up the Radio

Follow the procedure to power up your radio.

Rotate the **On/Off/Volume Control Knob** clockwise until a click sounds.

If successful:

- A tone sounds.
- The green LED lights up.

If the Tones/Alerts function is disabled, there is no tone upon powering up.

Check your battery if your radio does not power up. Make sure that it is charged and properly attached. Contact your dealer if your radio still does not power up.

## Powering Off the Radio

Follow the procedure to power off your radio.

Rotate the **On/Off/Volume Control Knob** counterclockwise until a click sounds.

## Adjusting the Volume

Follow the procedure to change the volume level of your radio.

Do one of the following:

- Turn the **On/Off/Volume Control Knob** clockwise to increase the volume.
- Turn the **On/Off/Volume Control Knob** counterclockwise to decrease the volume.

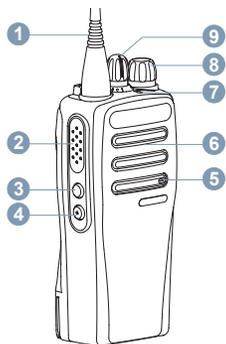
**NOTICE:**

Your radio can be programmed to have a minimum volume offset where the volume level cannot be lowered past the programmed minimum volume. Check with your dealer or system administrator for more information.

---

## Radio Controls

This chapter explains the buttons and functions to control the radio.



- 1 Antenna
- 2 Push-to-Talk (PTT) Button
- 3 Side Button 1<sup>1</sup>
- 4 Side Button 2<sup>1</sup>
- 5 Microphone
- 6 Speaker

---

<sup>1</sup> These buttons are programmable.

- 7 LED Indicator
- 8 On/Off/Volume Control Knob
- 9 Channel Selector Knob

## Programmable Buttons

Depending on the duration of a button press, your dealer can program the programmable buttons as shortcuts to **radio functions** or **preset channels/groups**.

### Short press

Pressing and releasing rapidly.

### Long press

Pressing and holding for the programmed duration.

### Hold down

Keeping the button pressed.

The programmed duration of a button press is applicable to all assignable radio/utility functions or settings.

## Assignable Radio Functions

The following radio functions can be assigned to the programmable buttons.

### Analog Scrambling

Toggles analog scrambling on or off.

### Battery Strength

Indicates battery strength by using the LED Indicator.

### Emergency

Depending on the programming, initiates or cancels an emergency.

### Manual Site Roam

Starts the manual site search.

### Mic AGC

Toggles the internal microphone automatic gain control (AGC) on or off.

### Monitor

Monitors a selected channel for activity.

### Nuisance Channel Delete

Temporarily removes an unwanted channel, except for the Selected Channel, from the scan list. The Selected Channel refers to the selected zone or channel combination of the user from which scan is initiated.

### One Touch Access

Directly initiates a predefined Private, Phone or Group Call, a Call Alert, or Home Revert.

### Permanent Monitor

Monitors a selected channel for all radio traffic until function is disabled.

### Privacy

Toggles privacy on or off.

### Repeater/Talkaround

Toggles between using a repeater and communicating directly with another radio.

### Scan

Toggles scan on or off.

### Site Lock

When toggled on, the radio searches the current site only. When toggled off, the radio searches other sites in addition to the current site.

### Trill Enhancement

Toggles trill enhancement on or off.

### Voice Announcement

Plays zone, channel and programmable button announcement voice messages for the current channel.

This function is unavailable when Voice Announcement is disabled.

### Voice Announcement On/Off

Toggles voice announcement on or off.

### Voice Operating Transmission (VOX)

Toggles VOX on or off.

## Assignable Settings or Utility Functions

The following radio settings or utility functions can be assigned to the programmable buttons.

### Tones/Alerts

Toggles all tones and alerts on or off.

### Analog Scrambling Codes

Toggles scrambling codes between 3.29 kHz and 3.39 kHz.

### Power Level

Toggles transmit power level between high and low.

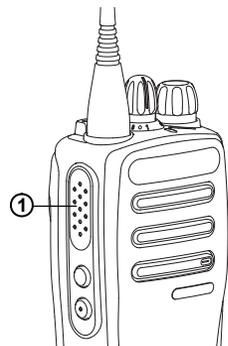
### Squelch

Toggles squelch level between tight and normal.

## Push-To-Talk Button

The Push-to-Talk (**PTT**) button serves two basic purposes:

- While a call is in progress, the **PTT** button allows the radio to transmit to other radios in the call. The microphone is activated when the **PTT** button is pressed.
- While a call is not in progress, the **PTT** button is used to make a new call.



**1: Push-to-Talk button**

Long press the **PTT** button to talk. Release the **PTT** button to listen.

If the Talk Permit Tone or the PTT Sidetone  is enabled, wait until the short alert tone ends before talking.

- If the Channel Free Indication feature is enabled on your radio (programmed by your dealer), you hear a short alert tone the moment the target radio (the radio that is receiving your call) releases the **PTT** button, indicating the channel is free for you to respond.
- You hear a continuous Talk Prohibit Tone if your call is interrupted. You should release the **PTT** button if you hear a continuous Talk Prohibit Tone.

## Status Indicators

This chapter explains the status indicators and audio tones used in the radio.

### LED Indicators

LED indicators show the operational status of your radio.

#### Blinking Red

Radio has failed the self-test upon powering up.

Radio is receiving an emergency transmission.

Radio is transmitting in low battery state.

Radio has moved out of range if Auto-Range Transponder System is configured.

#### Solid Green

Radio is powering up.

Radio is transmitting.

Indicates full battery capacity when the programmed **Battery Strength** button is pressed.

#### Blinking Green

Radio is receiving a call or data.

Radio is detecting activity over the air.



#### NOTICE:

While in conventional mode, when the LED blinks green, it indicates the radio detects activity over the air. Due to the nature of the digital protocol, this activity may or may not affect the radio's programmed channel.

#### Double Blinking Green

Radio is receiving a privacy-enabled call or data.

#### Solid Yellow

Radio is monitoring a conventional channel.

Indicates fair battery capacity when the programmed **Battery Strength** button is pressed.

#### Blinking Yellow

Radio is scanning for activity.

Radio has yet to respond to a Call Alert.

#### Double Blinking Yellow

Radio has yet to respond to a Group Call Alert.

Radio is locked.

# Tones

The following are the tones that sound through on the radio speaker.



High Pitched Tone



Low Pitched Tone

# Audio Tones

Audio tones provide you with audible indications of the status, or response to data received on the radio.



## Continuous Tone

A monotone sound. Sounds continuously until termination.



## Periodic Tone

Sounds periodically depending on the duration set by the radio. Tone starts, stops, and repeats itself.



## Repetitive Tone

A single tone that repeats itself until it is terminated by the user.



## Momentary Tone

Sounds once for a short duration set by the radio.

# Indicator Tones

Indicator tones provide you with audible indications of the status after an action to perform a task is taken.



Positive Indicator Tone



Negative Indicator Tone

# Zone and Channel Selections

This chapter explains the operations to select a zone or channel on your radio. A zone is a group of channels.

Your radio supports up to 32 channels and 2 zones, with a maximum of 16 channels per zone.

Each channel can be programmed with different features and/or support different groups of users.

## Selecting Channels

Follow the procedure to select the required channel on your radio after you have selected a zone.

Turn the **Channel Selector** Knob to select the channel, subscriber ID, or group ID.

---

# Calls

This chapter explains the operations to receive, respond to, make, and stop calls.

You can select a subscriber alias or ID, or group alias or ID after you have selected a channel by using one of these features:

## Programmed One Touch Access Button

This method is used for Group and Private Calls only.

You can only have one ID assigned to a **One Touch Access** button with a short or long programmable button press. Your radio can have multiple **One Touch Access** buttons programmed.

Your radio must have the Privacy feature enabled on the channel to send a privacy-enabled transmission. Only target radios with the same Privacy Key as your radio will be able to unscramble the transmission. See [Privacy on page 45](#). 

## Volume/Channel Selector Knob

This method manually selects a subscriber alias or ID, or group alias or ID.

# Group Calls

Your radio must be configured as part of a group to receive a call from or make a call to the group of users.

## Making Group Calls

Follow the procedure to make Group Calls on your radio.

- 1 Do one of the following:
  - Select a channel with the active group alias or ID.
  - Press the programmed **One Touch Access** button.

---
- 2 Press the **PTT** button to make the call.  
The green LED lights up.

---

- 3 Do one of the following:
  - Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
  -  Wait for the **PTT** Sidetone to end and speak clearly into the microphone if enabled.

---

### 4 Release the **PTT** button to listen.

The green LED blinks when the target radio responds.

---

- 5  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.

The call ends when there is no voice activity for a predetermined period.

---

## Responding to Group Calls

To receive a call from a group of users, your radio must be configured as part of that group. Follow the procedure to respond to Group Calls on your radio.

When you receive a Group Call:

- The green LED blinks.

- Your radio unmutes and the incoming call sounds through the speaker.

- 1  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.

The green LED lights up.

---

- 2  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.

The green LED lights up.

---

- 3 Do one of the following:

- Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
  -  Wait for the **PTT** Sidetone to end and speak clearly into the microphone if enabled.
- 

- 4 Release the **PTT** button to listen.

The call ends when there is no voice activity for a predetermined period.

---

## Private Calls

A Private Call is a call from an individual radio to another individual radio.

There are two ways to set up a Private Call. The first type sets up the call after performing a radio presence check, while the second type sets up the call immediately. Only one of these types can be programmed to your radio by your dealer.

Use the Call Alert features to contact an individual radio. See [Call Alert Operation on page 39](#) for more information.

## Making Private Calls

Your radio must be programmed to initiate a Private Call. If this feature is not enabled, a negative indicator tone sounds when you initiate the call. Follow the procedure to make Private Calls on your radio.

- 1 Do one of the following:

- Select a channel with the active subscriber alias or ID.
  - Press the programmed **One Touch Access** button.
- 

- 2 Press the **PTT** button to make the call.

The green LED lights up.

---

- 3 Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
- 

- 4 Release the **PTT** button to listen.

The green LED blinks when the target radio responds.

---

- 5  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.

The call ends when there is no voice activity for a predetermined period.

---

## Responding to Private Calls

Follow the procedure to respond to Private Calls on your radio.

When you receive a Private Call:

- The green LED blinks.
  - Your radio unmutes and the incoming call sounds through the speaker.
- 1  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.

The green LED lights up.

---

- 2 Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
- 

- 3 Release the **PTT** button to listen.

The call ends when there is no voice activity for a predetermined period.

---

## All Calls

An All Call is a call from an individual radio to every radio on the channel. An All Call is used to make important announcements, requiring full attention from the user. The users on the channel cannot respond to an All Call.

## Receiving All Calls

When you receive an All Call:

- A tone sounds.
- The green LED blinks.
- Your radio unmutes and the incoming call sounds through the speaker.

An All Call does not wait for a predetermined period before ending.

 If the Channel Free Indication feature is enabled, you hear a short alert tone when the transmitting radio releases the **PTT** button, indicating the channel is free for you to use.

You cannot respond to an All Call.

**NOTICE:**

The radio stops receiving the All Call if you switch to a different channel while receiving the call. You are **not** able to continue with any programmed button functions until the end of an All Call.

## Selective Calls

A Selective Call is a call from an individual radio to another individual radio. It is a Private Call on an analog system.

## Responding to Selective Calls

Follow the procedure to respond to Selective Calls on your radio.

When you receive a Selective Call:

- The green LED blinks.
- Your radio unmutes and the incoming call sounds through the speaker.

- 1 Press the **PTT** button to respond to the call.  
The green LED lights up.
- 

- 2 Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
- 

- 3 Release the **PTT** button to listen.

The call ends when there is no voice activity for a predetermined period.

---

## Broadcast Voice Calls

A Broadcast Voice Call is a one-way voice call from any user to an entire talkgroup.

The Broadcast Voice Call feature allows only the call initiating user to transmit to the talkgroup, while the recipients of the call cannot respond (no Call Hang Time).

Your radio must be programmed to allow you to use this feature. Check with your dealer or system administrator for more information.

## Making Broadcast Voice Calls

Program your radio to make Broadcast Voice Calls.

- 1 Select a channel with the active group alias or ID.
-

- 2 Press the **PTT** button to make the call.
- 

The radio returns to the previous menu after the call ends.

## Receiving Broadcast Voice Calls

When you receive a Broadcast Voice Call:

- A tone sounds.
- The green LED blinks.
- Your radio unmutes and the incoming call sounds through the speaker.

A Broadcast Voice Call does not wait for a predetermined period before ending.

You cannot respond to a Broadcast Voice Call.



### **NOTICE:**

The radio stops receiving the Broadcast Voice Call if you switch to a different channel while receiving the call. You **cannot** continue with any programmed button functions until the end of the Broadcast Voice Call.

## Unaddressed Calls

An Unaddressed Call is a group call to one of the 16 predefined group IDs.

This feature is configured using CPS-RM. A contact for one of the predefined IDs is required to initiate and/or receive an Unaddressed Call. Check with your dealer or system administrator for more information.

## Making Unaddressed Calls

- 1 Select a channel with the active group alias or ID.
- 
- 2 Press the **PTT** button to make the call.
-

### 3 Release the **PTT** button to listen.

A momentary tone sounds.

---

### 4 If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating that the channel is free for you to respond. Press the **PTT** button to respond to the call.

The call ends when there is no voice activity for a predetermined period.

---

indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.

- If the Voice Interrupt feature is enabled, press the **PTT** button to interrupt the audio from the transmitting radio and free the channel for you to respond.
- 

### 2 Release the **PTT** button to listen.

The call ends when there is no voice activity for a predetermined period.

---

## Responding to Unaddressed Calls

When you receive an Unaddressed Call:

- 
- A momentary tone sounds.
- Your radio unmutes and the incoming call sounds through the speaker.

### 1 Do one of the following:

- If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button,

## Open Voice Channel Mode (OVCM)

An Open Voice Channel Mode (OVCM) allows a radio that is not preconfigured to work in a particular system to both receive and transmit during a group or individual call.

The OVCM group call also supports broadcast calls. Program your radio to use this feature. Check with your dealer or system administrator for more information.

## Making OVCM Calls

Your radio must be programmed for you to make an OVCM Call. Follow the procedure to make OVCM Calls on your radio.

- 1 Select a channel with the active group alias or ID.
  - 2 Press the **PTT** button to make the call.
- 

## Responding to OVCM Calls

When you receive an OVCM Call:

- The green LED blinks.
  - Your radio unmutes and the incoming call sounds through the speaker.
- 1 Do one of the following:
    - If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.

- If the Voice Interrupt feature is enabled, press the **PTT** button to interrupt the audio from the transmitting radio and free the channel for you to respond.
- 

- 2 Release the **PTT** button to listen.

The call ends when there is no voice activity for a predetermined period.

---

## Advanced Features

This chapter explains the operations of the features available in your radio.

Your dealer or system administrator may have customized your radio for your specific needs. Check with your dealer or system administrator for more information.

### Talkaround

This feature allows you to continue communication when your repeater is not operational, or when your radio is out of range from the repeater but within talking range of other radios.

The talkaround setting is retained even after powering down.

### Toggling Between Repeater and Talkaround Modes

Follow the procedure to toggle between Repeater and Talkaround modes on your radio.

- 1 Press the programmed **Repeater/Talkaround** button.

---

- 2 One of the following tones sounds:

#### **Positive Indicator Tone**

Radio is in talkaround mode.

#### **Negative Indicator Tone**

Radio is in repeater mode.

---

### Monitor Feature

The monitor feature is used to make sure that a channel is free before transmitting.

### Monitoring Channels

Follow the procedure to monitor channels.

- 1 Long press the programmed **Monitor** button.

---

- 2 Depending on how your radio is programmed, you hear radio activity or total silence. This indicates that the channel is in use.
- 3 If you do not hear radio activity, the silence indicates that the channel is free. Press the **PTT** button to talk. Release the **PTT** button to listen.

## Permanent Monitor

The Permanent Monitor feature is used to continuously monitor a selected channel for activity.

### Turning Permanent Monitor On or Off

Follow the procedure to turn Permanent Monitor on or off on your radio.

Press the programmed **Permanent Monitor** button.

When the radio enters the mode:

- An alert tone sounds.
- The yellow LED lights up.

When the radio exits the mode:

- An alert tone sounds.

- The yellow LED turns off.

---

## Scan Lists

Scan lists are created and assigned to individual channels or groups. Your radio scans for voice activity by cycling through the channel or group sequence specified in the scan list for the current channel or group.

Your radio can support up to 250 scan lists, with a maximum of 16 members in a list.

Each scan list supports a mixture of both analog and digital entries.

## Scan

Your radio cycles through the programmed scan list for the current channel looking for voice activity when you start a scan.

During a dual-mode scan, if you are on a digital channel, and your radio locks onto an analog channel, it automatically switches from digital mode to analog mode for the duration of the call. This is also true for the reverse.

There are two ways of initiating scan:

### Main Channel Scan (Manual)

Your radio scans all the channels or groups in your scan list. On entering scan, your radio may, depending on the settings, automatically start on the last scanned active channel or group, or on the channel where scan was initiated.

### Auto Scan (Automatic)

Your radio automatically starts scanning when you select a channel or group that has Auto Scan enabled.

## Turning Scan On or Off

Follow the procedure to turn scan on or off on your radio.

Do one of the following:

- Press the programmed **Scan** button to start or stop Scan.
- Turn the **Channel Selector Knob** to select a channel programmed with Auto Scan enabled.

If scan is enabled:

- The yellow LED blinks.
- A positive indicator tone sounds.

If scan is disabled:

- The LED turns off.
- A negative indicator tone sounds.

## Responding to Transmissions During Scanning

During scanning, your radio stops on a channel or group where activity is detected. The radio stays on that channel for a programmed duration known as hang time. Follow the procedure to respond to transmissions during scanning.

- 1  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button during hang time.

The green LED lights up.

- 2 Do one of the following:

- Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
-  Wait for the **PTT** Sidetone to end and speak clearly into the microphone if enabled.

- 3 Release the **PTT** button to listen.

The radio returns to scanning other channels or groups if you do not respond within the hang time.

---

## Deleting Nuisance Channels

If a channel continually generates unwanted calls or noise, (termed a "nuisance" channel), you can temporarily remove the unwanted channel from the scan list. This capability does not apply to the channel designated as the Selected Channel. Follow the procedure to delete nuisance channels on your radio.

- 1 When your radio locks on to an unwanted or nuisance channel, press the programmed **Nuisance Channel Delete** button until you hear a tone.
- 

- 2 Release the programmed **Nuisance Channel Delete** button.

The nuisance channel is deleted.

---

## Restoring Nuisance Channels

Follow the procedure to restore nuisance channels on your radio.

Do one of the following:

- Turn the radio off and then power it on again.
  - Stop and restart a scan using the programmed **Scan** button.
  - Change the channel using the **Channel Selector Knob**.
- 

## Vote Scan

Vote Scan provides you with wide area coverage in areas where there are multiple base stations transmitting identical information on different analog channels.

Your radio scans analog channels of multiple base stations and performs a voting process to select the strongest received signal. Once that is established, your radio receives transmissions from that base station.

During a vote scan, the yellow LED blinks.

Follow the same procedures as [Responding to Transmissions During Scanning on page 37](#), to respond to a transmission during a vote scan.

## Call Indicator Settings

This feature allows the radio users to configure call or text message ringing tones.

## Alarm Tone Volume Escalation

Your radio can be programmed by your dealer to continually alert you when a radio call remains unanswered.

This is done by automatically increasing the alarm tone volume over time. This feature is known as Escalater.

## Call Alert Operation

Call Alert paging enables you to alert a specific radio user to call you back.

This feature is accessible using a programmed **One Touch Access** button.

## Making Call Alerts

Follow the procedure to make Call Alerts on your radio.

- 1 Press the programmed **One Touch Access** button.  
The green LED lights up.
- 

- 2 Wait for acknowledgment.

If the Call Alert acknowledgment is received, two chirps sound.

If the Call Alert acknowledgement is not received, a low pitch tone sounds.

---

## Responding to Call Alerts

Follow the procedure to respond to Call Alerts on your radio.

When you receive a Call Alert:

- A repetitive tone sounds.

- The yellow LED blinks.

Press the **PTT** button within 4 seconds of receiving a Call Alert page to respond with a Private Call.

---

## Emergency Operation

An Emergency Alarm is used to indicate a critical situation. You are able to initiate an Emergency at any time even when there is activity on the current channel.

Your radio supports these Emergency Alarms:

- Emergency Alarm 
- Emergency Alarm with Call 
- Emergency Alarm with Voice to Follow 

In addition, each alarm has the following types:

### Regular

Radio transmits an alarm signal and shows audio and/or visual indicators.

### Silent

Radio transmits an alarm signal without any audio or visual indicators. Radio receives calls without any sound through the speaker, until you press the **PTT** button.

### Silent with Voice

Radio transmits an alarm signal without any audio or visual indicators, but allow incoming calls to sound through the speaker.

## Sending Emergency Alarms

This feature allows you to send an Emergency Alarm, a non-voice signal, which triggers an alert indication on a group of radios. Your radio does not display any audio or visual indicators during Emergency mode when it is set to Silent.

Follow the procedure to send Emergency Alarms on your radio.

- 1 Press the programmed **Emergency On** button.  
The green LED lights up.

- 
- 2 Wait for acknowledgment.

If successful:

- The Emergency tone sounds.
- The red LED blinks.

If unsuccessful after all retries have been exhausted:

- A low-pitched tone sounds.

The radio exits the Emergency Alarm mode.

---

## Sending Emergency Alarms with Call

This feature allows you to send an Emergency Alarm with Call to a group of radios. Upon acknowledgement by a radio within the group, the group of radios can communicate over a programmed Emergency channel. Follow the procedure to send Emergency Alarms with call on your radio.

- 1 Press the programmed **Emergency On** button.

The green LED lights up.

---

- 2 Wait for acknowledgment.

If successful:

- The Emergency tone sounds.
  - The red LED blinks.
- 

- 3 Press the **PTT** button to make the call.

The green LED lights up.

---

- 4 Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
- 

- 5 Release the **PTT** button to listen.
- 

- 6  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.
- 

- 7 To exit the Emergency mode once the call ends, press the **Emergency Off** button.
- 

## Emergency Alarms with Voice to Follow

This feature allows you to send an Emergency Alarm with Voice to Follow to a group of radios. Your radio microphone is automatically activated, allowing you to communicate

with the group of radios without pressing the **PTT** button. This activated microphone state is also known as *hot mic*.

If you press the **PTT** button during the programmed *hot mic* transmission period, the radio ignores the **PTT** press and remains in Emergency mode.

If you press the **PTT** button during *hot mic*, and continue to press it after the *hot mic* duration expires, the radio continues to transmit until you release the **PTT** button.

If the Emergency Alarm request fails, the radio does not retry to send the request, and enters the *hot mic* state directly.



### NOTICE:

Some accessories may not support *hot mic*. Check with your dealer or system administrator for more information.

## Sending Emergency Alarms with Voice to Follow

Follow the procedure to send Emergency Alarms with voice to follow on your radio.

- 1 Press the programmed **Emergency On** button.  
The green LED lights up.

- 
- 2 Once the Emergency tone sounds, speak clearly into the microphone.

When *hot mic* has been enabled, the radio automatically transmits without a **PTT** press until the *hot mic* duration expires. The green LED lights up while transmitting.

The radio automatically stops transmitting when:

- The cycling duration between *hot mic* and receiving calls expires, if Emergency Cycle Mode is enabled. 
- The *hot mic* duration expires, if Emergency Cycle Mode is disabled. 

### 3 Do one of the following:

- Press the **PTT** button to transmit again.
- Press the **Emergency Off** button to exit the Emergency mode.



#### NOTICE:

If your radio is set to Silent with Voice, it will not display any audio or visual indicators during Emergency mode when you are making the call with hot mic, but allow sound through the speaker when the target radio responds after the programmed hot mic transmission period is over.

The indicators will only appear when you press the PTT button.

- An Emergency Exit Telegram is received.
- All retries to send the alarm have been exhausted.
- The **Emergency Off** button is pressed.
- Turn the radio off and then power it on again if your radio has been programmed to remain on the Emergency Revert channel even after acknowledgement is received.



#### NOTICE:

If your radio is powered off, it exits the Emergency mode. The radio does not reinitiate the Emergency mode automatically when it is turned on again.

## Exiting Emergency Mode After Sending the Emergency Alarm

This feature is only applicable to the radio sending the Emergency Alarm.

Your radio exits Emergency mode when:

- An acknowledgment is received (for Emergency Alarm only).

## Receiving Emergency Alarms

Follow the procedure to receive Emergency Alarms on your radio.

When you receive an Emergency Alarm:

- A tone sounds.
- The red LED blinks.

You can silence the tone. Do one of the following:

- Press the **PTT** button to call the group of radios which received the Emergency Alarm.
- Press any programmable button.
- Exit Emergency mode.



### **NOTICE:**

Your radio automatically acknowledges the Emergency Alarm (if enabled).

- If your radio is set to Silent, it will not display any audio or visual indicators during Emergency mode, or allow any received calls to sound through the speaker, until the programmed hot mic transmission period is over, and you press the **PTT** button.

## Exiting Emergency Mode After Receiving the Emergency Alarm

Do one of the following to exit Emergency mode after receiving Emergency alarm:

- Change the channel.
- Power down the radio.

- Press the **Emergency Off** button.

## Reinitiating Emergency Mode

This feature is only applicable to the radio sending the Emergency Alarm. Follow the procedure to reinitiate Emergency mode on your radio.

Do one of the following:

- Change the channel while the radio is in Emergency mode. The radio exits the Emergency mode, and reinitiates Emergency, if Emergency Alarm is enabled on the new channel.
  - Press the programmed **Emergency On** button during an Emergency initiation or transmission state. The radio exits this state, and reinitiates Emergency.
-

## Text Messaging Features

Your radio is able to send data, for example a text message to another radio.

### Sending a Quick Text Message with the One Touch Access Button

You can send Quick Text messages using the programmable button programmed by your dealer.

Press the programmed **One Touch Access** button to send a predefined Quick Text message to a predefined alias.

The green LED lights up.

---

If the message is sent, two chirps sound.

If the message cannot be sent, a low tone sounds.

## Privacy

This feature helps to prevent eavesdropping by unauthorized users on a channel by the use of a software-

based scrambling solution. The signaling and user identification portions of a transmission are not scrambled.

Your radio must have privacy enabled on the channel to send a privacy-enabled transmission, although this is not a necessary requirement for receiving a transmission. While on a privacy-enabled channel, the radio is still able to receive clear or unscrambled transmissions.

Some radio models may not offer Privacy feature, or may have a different configuration. Check with your dealer or system administrator for more information.

Your radio only supports Basic Privacy.

To unscramble a privacy-enabled call or data transmission, your radio must be programmed to have the same Privacy Key as the transmitting radio. If your radio receives a scrambled call that is of a different Privacy Key, you hear a garbled transmission.

The green LED lights up when the radio is transmitting, and blinks rapidly when the radio is receiving an ongoing privacy-enabled transmission.

## Turning Privacy On or Off

Follow the procedure to turn privacy on or off on your radio.

Press the programmed **Privacy** button.

---

## Analog Scrambling

This is an analog-only feature designed to prevent eavesdropping by unauthorized users on a channel by the use of a software-based scrambling solution. The signaling and user identification portions of a transmission are not scrambled.

Your radio must have analog scrambling enabled on the channel to send and receive an analog scrambling-enabled transmission. While on an analog scrambling-enabled channel, the radio is **not** able to receive clear or unscrambled transmissions.

Your radio supports two analog scrambling codes that can be toggled via the programmable button.

## Turning Analog Scrambling On or Off

Follow the procedure to turn analog scrambling on or off on your radio.

Press the programmed **Analog Scrambling** button to enable or disable this function.

---

## Multi-Site Controls

These features are applicable when your current radio channel is part of an IP Site Connect or Capacity Plus–Multi-Site configuration.

## Starting Automatic Site Search

The radio only scans for a new site if the current signal is weak or when the radio is unable to detect any signal from the current site.

If the current channel is a multi-site channel with an attached roam list and is out of range, the radio also performs an automatic site search, where the site unlocks with a **PTT** button press or data transmission.

If the RSSI value is strong, the radio remains on the current site. Follow the procedure to start automatic site search:

Press the programmed **Site Lock On/Off** button.

- A tone sounds.
  - The LED blinks yellow rapidly when the radio is actively searching for a new site.
  - The yellow LED turns off once the radio locks on to a site.
- 

## Stopping Automatic Site Search

Follow the procedure to stop automatic site search when your radio is actively searching for a new site.

Press the programmed **Site Lock On/Off** button.

- A tone sounds.
  - The LED turns off.
- 

## Starting Manual Site Search

Follow the procedure to start manual site search when the received signal strength is poor in order to attempt to find a site with better signal.

Press the programmed **Manual Site Roam** button.

- A tone sounds.
  - The green LED blinks.
- 

If the radio finds a new site:

- A positive indicator tone sounds.
- The LED turns off.

If the radio fails to find a new site:

- A negative indicator tone sounds.
- The LED turns off.

## Lone Worker

This feature prompts an emergency to be raised if there is no user activity, such as any radio button press or channel selection, for a predefined time.

Following no user activity for a programmed duration, the radio pre-warns you using an audio indicator once the inactivity timer expires.

If there is still no acknowledgment by you before the predefined reminder timer expires, the radio initiates an Emergency Alarm.

Only one of the following Emergency Alarms is assigned to this feature:

- Emergency Alarm 
- Emergency Alarm with Call
- Emergency Alarm with Voice to Follow 

The radio remains in the emergency state, allowing voice messages to proceed until action is taken. See [Emergency Operation on page 40](#) for more information on ways to exit Emergency.



### NOTICE:

This feature is limited to radios with this function enabled. Check with your dealer or system administrator for more information.

## Password Lock Features

This feature allows you to restrict access to the radio by asking for a password when the device is turned on.

Your radio supports a 4-digit password input.

Use the Channel Selector Knob and the two Side Buttons to enter password.

- Channel Selector Knob positions 1 to 9 represent numbers 1 to 9, and position 10 represents number 0.
- Side Buttons 1 and 2 represent numbers 1 and 2.

## Accessing Radios by Using Passwords

Follow the procedure to access your radio by using a password.

- 1 Power up the radio.  
A continuous tone sounds.
-

- 2 Enter the current four-digit password.
- Use the **Channel Selector Knob** to enter the first digit of the password.
  - Press Side Button 1 or 2 to enter each digit of the remaining three digits of the password. When the second digit of the password is entered, your radio ignores any Channel Selector Knob position change.

A positive indicator tone sounds for every digit entered.

- 3 Your radio automatically checks the validity of the password when the last digit of the four-digit password is entered.

If successful, the radio powers up.

If unsuccessful:

- You hear a continuous tone. Repeat [step 2](#).
- After the third attempt, your radio enters into locked state. A tone sounds. The yellow LED double blinks. Your radio enters into locked state for 15 minutes.



**NOTICE:**

In locked state, your radio responds to inputs from **On/Off/Volume Control Knob** only. The radio is unable to receive calls while in locked state.

---

## Unlocking Radios in Locked State

Your radio is unable to receive calls in locked state. Follow the procedure to unlock your radio in locked state.

Do one of the following:

- If the radio is powered on, wait for 15 minutes and then repeat the steps in [Accessing Radios by Using Passwords on page 48](#) to access the radio.
- If the radio is powered off, power up the radio. Your radio restarts the 15-minute timer for locked state. A tone sounds. The yellow LED double blinks.

Wait for 15 minutes and then repeat the steps in [Accessing Radios by Using Passwords on page 48](#) to access the radio.

## Auto-Range Transponder System

The Auto-Range Transponder System (ARTS) is an analog-only feature designed to inform you when your radio is out-of-range of other ARTS-equipped radios.

ARTS-equipped radios transmit or receive signals periodically to confirm that they are within range of each other.

Your radio provides indications of states as follows:

### **First-Time Alert**

A tone sounds.

### **ARTS-in-Range Alert**

A tone sounds, if programmed.

### **ARTS-Out-of-Range Alert**

A tone sounds. The red LED rapidly blinks.



### **NOTICE:**

Check with your dealer or system administrator for more information.

## Utilities

This chapter explains the operations of the utility functions available in your radio.

### Squelch Levels

You can adjust the squelch level to filter out unwanted calls with low signal strength or channels with noise higher than normal background.

#### Normal

This is the default setting.

#### Tight

This setting filters out unwanted calls and/or background noise. Calls from remote locations may also be filtered out.

### Setting Squelch Levels

Follow the procedure to set the squelch levels on your radio.

Press the programmed **Squelch** button.

One of the following tone sounds:

#### Positive Indicator Tone

Radio is operating in tight squelch.

#### Negative Indicator Tone

Radio is operating in normal squelch.

### Power Levels

You can customize the power setting to high or low for each channel.

#### High

This enables communication with radios located at a considerable distance from you.

#### Low

This enables communication with radios in closer proximity.

### Setting Power Levels

Follow the procedure to set the power levels on your radio.

Press the programmed **Power Level** button.

If successful:

- The Positive Indicator Tone sounds.

- Radio transmits at low power.

If unsuccessful:

- The Negative Indicator Tone sounds.
  - Radio transmits at high power.
- 

## Voice Operating Transmission

The Voice Operating Transmission (VOX) allows you to initiate a hands-free voice-activated call on a programmed channel. The radio automatically transmits, for a programmed period, whenever the microphone on the VOX-capable accessory detects voice.

You can enable or disable VOX by doing one of the following:

- Turn the radio off and then power it on again to enable VOX.
- Prior to powering up the radio, connect the VOX-capable accessory to the accessory connector to enable VOX.
- Press the programmed **VOX** button and connect the VOX-capable accessory to the accessory connector to enable VOX.

- Change the channel by using the **Channel Selector** knob to enable VOX.
- Press the **PTT** button during radio operation to disable VOX.



### NOTICE:

Turning this feature on or off is limited to radios with this function enabled. Check with your dealer or system administrator for more information.

## Turning Voice Operating Transmission On or Off

Follow the procedure to turn VOX on or off on your radio.

Press the programmed **VOX** button to toggle the feature on or off.

---



### NOTICE:

If the Talk Permit Tone is enabled, use a trigger word to initiate the call. Wait for the Talk Permit Tone to finish before speaking clearly into the microphone. See [Turning Talk Permit Tone On or Off](#) for more information.

## Turning Voice Announcement On or Off

This feature enables the radio to audibly indicate the current zone or channel the user has just assigned, or the programmable button the user has just pressed.

This audio indicator can be customized according to customer requirements. Follow the procedure to turn Voice Announcement on or off on your radio.

Press the programmed **Voice Announcement** button.

If successful:

- The Positive Indicator Tone sounds.
- All tones and alerts are turned on.

If unsuccessful:

- The Negative Indicator Tone sounds.
  - All tones and alerts are turned off.
- 

## Turning Trill Enhancement On or Off

You can enable this feature when you are speaking in a language that contains many words with alveolar trill (rolling "R") pronunciations. Follow the procedure to turn Trill Enhancement on or off on your radio.

Press the programmed **Trill Enhancement** button to toggle the feature on or off.

If successful:

- The Positive Indicator Tone sounds.
- All tones and alerts are turned on.

If unsuccessful:

- The Negative Indicator Tone sounds.
  - All tones and alerts are turned off.
- 

## Turning Radio Tones/Alerts On or Off

You can enable and disable all radio tones and alerts, if needed, except for incoming Emergency alert tone . Follow

the procedure to turn tones and alerts on or off on your radio.

Press the programmed **All Tones/Alerts** button.

If successful:

- The Positive Indicator Tone sounds.
- All tones and alerts are turned on.

If unsuccessful:

- The Negative Indicator Tone sounds.
- All tones and alerts are turned off.

- The LED lights up solid green indicating full battery capacity.

---

## Checking Battery Strength

Follow the procedure to check the battery level of your radio.

Press the programmed **Battery Strength** button.

One of the following occurs:

- The LED lights up solid yellow indicating fair battery capacity.

# Batteries Warranty

## The Workmanship Warranty

The workmanship warranty guarantees against defects in workmanship under normal use and service.

All MOTOTRBO Batteries	24 Months
------------------------	-----------

## The Capacity Warranty

The capacity warranty guarantees 80% of the rated capacity for the warranty duration.

Nickel Metal-Hydride (NiMH) or Lithium-Ion (Li-Ion) Batteries	12 Months
---	-----------

# Limited Warranty

## MOTOROLA SOLUTIONS COMMUNICATION PRODUCTS

### I. WHAT THIS WARRANTY COVERS AND FOR HOW LONG:

Motorola Solutions, Inc. ("Motorola Solutions") warrants the Motorola Solutions manufactured Communication Products listed below ("Product") against defects in material and workmanship under normal use and service for a period of time from the date of purchase as scheduled below:

Portable Radios	Two (2) Years
Product Accessories	One (1) Year
MagOne Accessories	Six (6) Months

Motorola Solutions, at its option, will at no charge either repair the Product (with new or reconditioned parts), replace it (with a new or reconditioned Product), or refund the purchase price of the Product during the warranty

period provided it is returned in accordance with the terms of this warranty. Replaced parts or boards are warranted for the balance of the original applicable warranty period. All replaced parts of Product shall become the property of Motorola Solutions.

This express limited warranty is extended by Motorola Solutions to the original end user purchaser only and is not assignable or transferable to any other party. This is the complete warranty for the Product manufactured by Motorola Solutions. Motorola Solutions assumes no obligations or liability for additions or modifications to this warranty unless made in writing and signed by an officer of Motorola Solutions.

Unless made in a separate agreement between Motorola Solutions and the original end user purchaser, Motorola Solutions does not warrant the installation, maintenance or service of the Product.

Motorola Solutions cannot be responsible in any way for any ancillary equipment not furnished by Motorola Solutions which is attached to or used in connection with the Product, or for operation of the Product with any ancillary equipment, and all such equipment is expressly excluded from this warranty. Because each system which may use the Product is unique, Motorola Solutions

disclaims liability for range, coverage, or operation of the system as a whole under this warranty.

## II. GENERAL PROVISIONS

This warranty sets forth the full extent of Motorola Solutions responsibilities regarding the Product. Repair, replacement or refund of the purchase price, at Motorola Solutions option, is the exclusive remedy. THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY. IN NO EVENT SHALL MOTOROLA SOLUTIONS BE LIABLE FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT, FOR ANY LOSS OF USE, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS, LOST PROFITS OR SAVINGS OR OTHER INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE SUCH PRODUCT, TO THE FULL EXTENT SUCH MAY BE DISCLAIMED BY LAW.

## III. STATE LAW RIGHTS:

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION OR EXCLUSIONS MAY NOT APPLY.

This warranty gives specific legal rights, and there may be other rights which may vary from state to state.

## IV. HOW TO GET WARRANTY SERVICE

You must provide proof of purchase (bearing the date of purchase and Product item serial number) in order to receive warranty service and, also, deliver or send the Product item, transportation and insurance prepaid, to an authorized warranty service location. Warranty service will be provided by Motorola Solutions through one of its authorized warranty service locations. If you first contact the company which sold you the Product (for example, dealer or communication service provider), it can facilitate your obtaining warranty service. You can also call Motorola Solutions at 1-800-927-2744.

## V. WHAT THIS WARRANTY DOES NOT COVER

- 1 Defects or damage resulting from use of the Product in other than its normal and customary manner.
- 2 Defects or damage from misuse, accident, water, or neglect.
- 3 Defects or damage from improper testing, operation, maintenance, installation, alteration, modification, or adjustment.
- 4 Breakage or damage to antennas unless caused directly by defects in material workmanship.
- 5 A Product subjected to unauthorized Product modifications, disassembles or repairs (including, without limitation, the addition to the Product of non-Motorola Solutions supplied equipment) which adversely affect performance of the Product or interfere with Motorola Solutions normal warranty inspection and testing of the Product to verify any warranty claim.
- 6 Product which has had the serial number removed or made illegible.
- 7 Rechargeable batteries if:
  - any of the seals on the battery enclosure of cells are broken or show evidence of tampering.
  - the damage or defect is caused by charging or using the battery in equipment or service other than the Product for which it is specified.
- 8 Freight costs to the repair depot.
- 9 A Product which, due to illegal or unauthorized alteration of the software/firmware in the Product, does not function in accordance with Motorola Solutions published specifications or the FCC certification labeling in effect for the Product at the time the Product was initially distributed from Motorola Solutions.
- 10 Scratches or other cosmetic damage to Product surfaces that does not affect the operation of the Product.
- 11 Normal and customary wear and tear.

## VI. PATENT AND SOFTWARE PROVISIONS

Motorola Solutions will defend, at its own expense, any suit brought against the end user purchaser to the extent that it is based on a claim that the Product or parts infringe a United States patent, and Motorola Solutions will pay those

costs and damages finally awarded against the end user purchaser in any such suit which are attributable to any such claim, but such defense and payments are conditioned on the following:

- 1 Motorola Solutions will be notified promptly in writing by such purchaser of any notice of such claim,
- 2 Motorola Solutions will have sole control of the defense of such suit and all negotiations for its settlement or compromise, and
- 3 Should the Product or parts become, or in Motorola Solutions opinion be likely to become, the subject of a claim of infringement of a United States patent, that such purchaser will permit Motorola Solutions, at its option and expense, either to procure for such purchaser the right to continue using the Product or parts or to replace or modify the same so that it becomes non-infringing or to grant such purchaser a credit for the Product or parts as depreciated and accept its return. The depreciation will be an equal amount per year over the lifetime of the Product or parts as established by Motorola Solutions.

Motorola Solutions will have no liability with respect to any claim of patent infringement which is based upon the combination of the Product or parts furnished hereunder with software, apparatus or devices not furnished by

Motorola Solutions, nor will Motorola Solutions have any liability for the use of ancillary equipment or software not furnished by Motorola Solutions which is attached to or used in connection with the Product. The foregoing states the entire liability of Motorola Solutions with respect to infringement of patents by the Product or any parts thereof.

Laws in the United States and other countries preserve for Motorola Solutions certain exclusive rights for copyrighted Motorola Solutions software such as the exclusive rights to reproduce in copies and distribute copies of such Motorola Solutions software. Motorola Solutions software may be used in only the Product in which the software was originally embodied and such software in such Product may not be replaced, copied, distributed, modified in any way, or used to produce any derivative thereof. No other use including, without limitation, alteration, modification, reproduction, distribution, or reverse engineering of such Motorola Solutions software or exercise of rights in such Motorola Solutions software is permitted. No license is granted by implication, estoppel or otherwise under Motorola Solutions patent rights or copyrights.

## VII. GOVERNING LAW

This Warranty is governed by the laws of the State of Illinois, U.S.A.