



PROFESSIONAL DIGITAL TWO-WAY RADIO

**MOTOTRBO™**

**DP2400/DP2400e**

**NON-KEYPAD PORTABLE RADIO**

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**USER GUIDE**

en-US

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## Important Safety Information

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



**CAUTION:**

**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.

## Software Version

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All the features described in the following sections are supported by the software version **R02.21.01.0000** or later.

Contact your dealer or administrator for more information.

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## European Union (EU) Waste of Electrical and Electronic Equipment (WEEE) directive



■ 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 should not dispose of electronic and electrical equipment or accessories in household waste.

Customers or end-users in EU countries should contact their local equipment supplier representative or service centre for information about the waste collection system in their country.

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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.

# Radio Care

This section describes the basic handling precaution of the radio.

**Table 1: IP Specification**

IP Specification	Description
IP67	Allows your radio to withstand adverse field conditions such as being submersed in water.



**CAUTION:**

Do not disassemble your radio. This could damage radio seals and result in leak paths into the radio. Radio maintenance should only be done in service depot that is equipped to test and replace the seal on the radio.

- If your radio has been submersed in water, shake your radio well to remove any water that may be trapped inside the speaker grille and microphone port. Trapped water could cause decreased audio performance.
- If your radio's battery contact area has been exposed to water, clean and dry battery contacts on both your radio

and the battery before attaching the battery to radio. The residual water could short-circuit the radio.

- If your radio has been submersed in a corrosive substance (for example, saltwater), rinse radio and battery in fresh water then dry radio and battery.
- To clean the exterior surfaces of your radio, use a diluted solution of mild dishwashing detergent and fresh water (for example, one teaspoon of detergent to one gallon of water).
- Never poke the vent (hole) located on the radio chassis below the battery contact. This vent allows for pressure equalization in the radio. Doing so may create a leak path into radio and your radio's submersibility may be lost.
- Never obstruct or cover the vent, even with a label.
- Ensure that no oily substances come in contact with the vent.
- Your radio with antenna attached properly is designed to be submersible to a maximum depth of 1 m (3.28 ft) and a maximum submersion time of 30 minutes. Exceeding either maximum limit or use without antenna may result in damage to your radio.

- When cleaning your radio, do not use a high pressure jet spray on radio as this will exceed the 1 m depth pressure and may cause water to leak into your radio.

# Introduction

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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?

## 1.1

## Icon Information

Throughout this publication, the icons described are used to indicate features supported in either the conventional analog or conventional digital mode.



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.

## Getting Started

---

Getting Started provides instructions to prepare your radio for use.

### 2.1

## Charging the Battery

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

Turn off your radio when charging.

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

Batteries charge best at room temperature.

- Charge your IMPRES™ battery with an IMPRES charger for optimized battery life and valuable battery data. IMPRES batteries charged exclusively with IMPRES chargers receive a 6-month capacity

warranty extension over the standard Motorola Solutions Premium battery warranty duration.

### 2.2

## Attaching the Battery

Follow the procedure to attach the battery to your radio.

This battery mismatch alert feature is only applicable for IMPRES battery and Non-IMPRES battery with kit number programmed in Erasable Programmable Read Only Memory (EPROM).

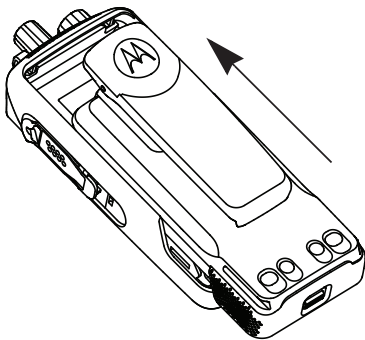
When the radio is attached with the wrong battery, a low pitched warning tone sounds, the LED blinks in red, and the Voice Announcement/Text-to-Speech sounds Wrong Battery if the Voice Announcement/Text-to-Speech is loaded by using CPS.

When the radio is attached with a non-supported battery, an alert tone sounds.

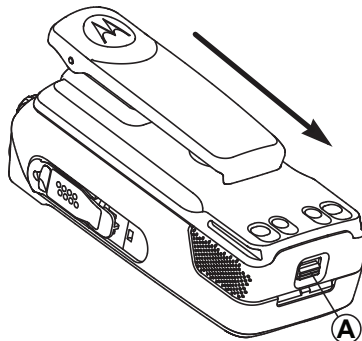
The certification of the radio is voided if you attach a UL battery to an FM approved radio or vice versa. Your radio can be preprogrammed in CPS to alert you if this battery mismatch occurs. Check with your dealer or system

administrator to determine how your radio has been programmed.

- 1 Align the battery with the rails on the back of the radio.
- 
- 2 Press the battery firmly, and slide upwards until the latch snaps into place.



- 
- 3 Slide battery latch into lock position.
- 
- 4 To remove the battery, turn the radio off. Move the battery latch marked **A** into unlock position and hold, and slide the battery down and off the rails.



### 2.3

## Attaching the Antenna

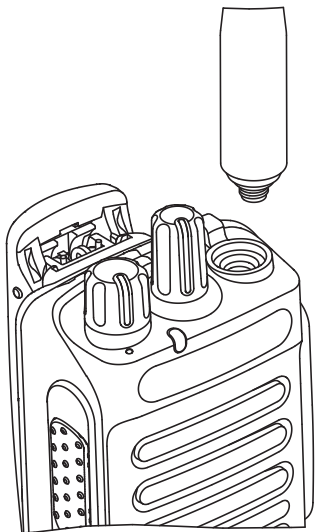
Turn off your radio.

Set the antenna in the receptacle and turn clockwise.



#### **NOTICE:**

To protect best against water and dust, ensure that antenna is tightly fitted.



**NOTICE:**

To remove the antenna, turn the antenna counterclockwise.

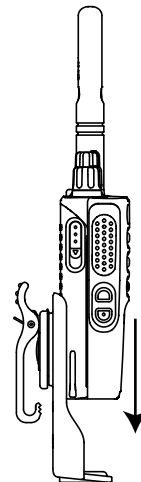


**CAUTION:**

To prevent damages, replace the faulty antenna with only MOTOTRBO antennas.

## Attaching the Carry Holster

- 1 Align the rails on the carry holster with the grooves on the battery.
- 2 Press downwards until you hear a click.



**Figure 1: Attaching the Carry Holster**



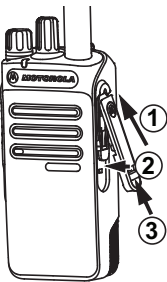
## 2.5

## Attaching the Universal Connector Cover

The universal connector is located on the antenna side of the radio. It is used to connect MOTOTRBO accessories to the radio.

Replace the universal connector cover or dust cover when the universal connector is not in use.

- 1 Insert the slanted end of the cover into the slots above the universal connector.
- 
- 2 Press downwards on the cover to seat the dust cover properly on the universal connector.



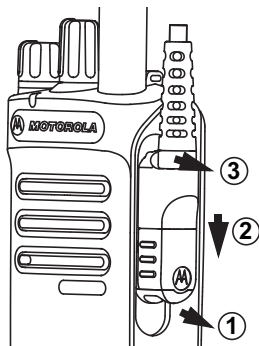
- 3 Secure the dust cover to the radio by pushing the latch upwards.
- 

## 2.6

## Attaching the Accessory Connector

The accessory connector is to be secured to the universal connector on the antenna side of the radio. Follow the procedure to attach the accessory connector to your radio.

- 1 Insert the slanted end into the slots above the universal connector.
- 
- 2 Push connector upward.
- 
- 3 Press downwards on the accessory connector until you hear a click.



## 2.7 Turning the Radio On

Rotate the **On/Off/Volume Control** knob clockwise until it clicks.

If successful, your radio shows the following indications:

- A tone sounds.



### **NOTICE:**

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

- The green LED lights up.

If your radio does not power up, check your battery. Make sure that the battery is charged and properly attached. Contact your dealer if your radio still does not power up.

## 2.8 Turning the Radio Off

Rotate the **On/Off/Volume Control** knob counterclockwise until it clicks.

## 2.9 Adjusting the Volume

To adjust the volume of your radio, perform one of the following actions:

- To increase the volume, turn the **On/Off/Volume Control** knob clockwise.

- To decrease the volume, turn the **On/Off/Volume Control** knob counterclockwise.

**NOTICE:**

Your radio can be programmed to have a minimum volume offset where the volume level cannot be lowered past the programmed minimum volume.

---

## Radio Controls

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



- 1 Channel Selector Knob
- 2 On/Off/Volume Control Knob
- 3 LED Indicator
- 4 Push-to-Talk (PTT) Button
- 5 Side Button 1<sup>1</sup>
- 6 Side Button 2<sup>1</sup>
- 7 Microphone
- 8 Speaker
- 9 Universal Connector for Accessories
- 10 Antenna

- 6 Side Button 2<sup>1</sup>
- 7 Microphone
- 8 Speaker
- 9 Universal Connector for Accessories
- 10 Antenna

### 3.1

## Programmable Buttons

Depending on the duration of a button press, your dealer can program the programmable buttons as shortcuts to radio functions.

### Short press

Pressing and releasing rapidly.

### Long press

Pressing and holding for the programmed duration.



### NOTICE:

See [Emergency Operation on page 52](#) for more information on the programmed duration of the **Emergency** button.

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

## 3.1.1

## Assignable Radio Functions

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

### Audio Toggle

Toggles audio routing between the internal radio speaker and the speaker of a wired accessory.

### Battery Strength

Indicates battery strength by using the LED Indicator.

### Call Forwarding

Toggles Call Forwarding on or off.

### Channel Announcement

Plays zone and channel announcement voice messages for the current channel.

### Emergency

Depending on the programming, initiates or cancels an emergency.

### Intelligent Audio

Toggles intelligent audio on or off.

### Manual Site Roam <sup>2</sup>

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<sup>2</sup>

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, a Quick Text message, or Home Revert.

### Permanent Monitor<sup>2</sup>

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

### Phone Exit

Ends a Phone Call.

---

<sup>2</sup> Not applicable in Capacity Plus.

### Privacy

Toggles privacy on or off.

### Repeater/Talkaround<sup>2</sup>

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

### Reset Home Channel

Sets a new home channel.

### Silence Home Channel Reminder

Mutes the Home Channel Reminder.

### Scan <sup>3</sup>

Toggles scan on or off.

### Site Lock<sup>2</sup>

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

### Transmit Interrupt Remote Dekey

Stops an ongoing interruptible call to free the channel.

### Trill Enhancement

Toggles trill enhancement on or off.

### Voice Announcement On/Off

Toggles voice announcement on or off.

### Voice Operating Transmission (VOX)

Toggles VOX on or off.

#### 3.1.2

## 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.

### Power Level

Toggles transmit power level between high and low.

#### 3.2

## 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.


---


<sup>3</sup> Not applicable in Capacity Plus–Single-Site.

- While a call is not in progress, the **PTT** button is used to make a new call (see [Calls on page 30](#)).

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.

### 3.3

## 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

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.



#### NOTICE:

Your radio also switches between digital and analog modes during a dual mode scan. See [Scan on page 46](#) for more information.

### 3.4

## 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. This is a conventional multi-site mode.

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. Contact your dealer for more information.

### 3.5

## Capacity Plus–Single-Site

Capacity Plus–Single-Site is a single-site trunking configuration of the MOTOTRBO radio system, which uses a pool of channels to support hundreds of users and up to

254 Groups. This feature allows your radio to efficiently utilize the available number of programmed channels while in Repeater Mode.

You hear a negative indicator tone if you try to access a feature not applicable to Capacity Plus–Single-Site by using a programmable button press.

Your radio also has features that are available in conventional digital mode, IP Site Connect, and Capacity Plus. However, the minor differences in the way each feature works does not affect the performance of your radio.

Check with your dealer or system administrator for more information on this configuration.

### 3.6

## Capacity Plus–Multi-Site

Capacity Plus–Multi-Site is a multi-channel trunking configuration of the MOTOTRBO radio system, combining the best of both Capacity Plus and IP Site Connect configurations.

Capacity Plus–Multi-Site allows your radio to extend trunking communication beyond the reach of a single site, by connecting to different available sites which are connected with an IP network. It also provides an increase



in capacity by efficiently utilizing the combined available number of programmed channels supported by each of the available sites.

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

If the radio is set to do this automatically, it 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. It then locks on to the repeater with the strongest 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 it.

Any channel with Capacity Plus–Multi-Site enabled can be added to a particular roam list. The radio searches these channels during the automatic roam operation to locate the best site.

**NOTICE:**

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

Similar to Capacity Plus–Single Site, icons of features not applicable to Capacity Plus–Multi-Site are not available in the menu. You hear a negative indicator tone if you try to access a feature not applicable to Capacity Plus–Multi-Site by using a programmable button press.

# Status Indicators

---

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

## 4.1

### LED Indicators

LED indicators show the operational status of your radio.

#### **Blinking Red**

Radio is indicating a battery mismatch.<sup>4</sup>

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.

Mute Mode is enabled.

#### **Solid Green**

Radio is powering up.

Radio is transmitting.

Radio is sending a Call Alert or an emergency transmission.

#### **Blinking Green**

Radio is receiving a call or data.

Radio is retrieving Over-the-Air Programming transmissions.

Radio is detecting activity over the air.



#### **NOTICE:**

This activity may or may not affect the programmed channel of the radio due to the nature of the digital protocol.

There is no LED indication when the radio is detecting activity over the air in Capacity Plus.

#### **Double Blinking Green**

Radio is receiving a privacy-enabled call or data.

#### **Solid Yellow**

Radio is monitoring a conventional channel.

#### **Blinking Yellow**

Radio is scanning for activity.

Radio has yet to respond to a Call Alert.

---

<sup>4</sup> Only applicable to models with the latest software and hardware.

Radio has Flexible Receive List enabled.  
All Capacity Plus–Multi-Site channels are busy.

**Double Blinking Yellow**

Radio has Auto Roaming enabled.  
Radio is actively searching for a new site.  
Radio has yet to respond to a Group Call Alert.  
Radio is locked.  
Radio is not connected to the repeater while in Capacity Plus.  
All Capacity Plus channels are busy.

4.2  
**Tones**

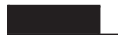
The following are the tones that sound through on the radio speaker.

- High Pitched Tone
- Low Pitched Tone

4.2.1

**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.

4.2.2

## 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 channels and zones, with a maximum of 16 channels per zone.

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

## 5.1

### Selecting Zones

Follow the procedure to select the required zone on your radio.

Press the programmed **Zone Toggle** button.

One of the following tone sounds:

#### **Positive Indicator Tone**

Radio is in Zone 2.

#### **Negative Indicator Tone**

Radio is in Zone 1.



#### **NOTICE:**

For all Non-keypad radio, you are recommended to enable Voice Announcement feature for selecting zone. The Voice Announcement feature can only be enabled through CPS.

---

## 5.2

### Selecting Channels

Follow the procedure to select the required channel on your radio.

Turn the **Channel Selector** Knob to select the channel, subscriber ID, or group ID once the required zone is displayed (if you have multiple zones in your radio).

---

# 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, Private, and Phone Calls only.

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

## Programmable Button

This method is used for Phone Calls only.

### 6.1

## 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.

### 6.1.1


## 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 Release the **PTT** button to listen.  
The green LED lights up when the target radio responds.

---
- 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 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.

---

## 6.1.2



## 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 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.

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

---

## 6.2

## 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.

## 6.2.1

## 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.
- 

- 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. A tone sounds.

---

## 6.2.2


## 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 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 Transmit Interrupt Remote Dekey feature is enabled, press the **PTT** button to stop an ongoing interruptible call and free the channel for you to respond.

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.

---

## 6.3

# 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.


### 6.3.1

## 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.


### 6.3.2

## Making All Calls

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

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

- 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.

Users on the channel cannot respond to an All Call.

---

### 6.4

## 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.


### 6.4.1

## Making Selective Calls


Your radio must be programmed for you to initiate a Selective Call. Follow the procedure to make Selective Calls on your radio.

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

- 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 lights up 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.

---

#### 6.4.2

### 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. A tone sounds.

---

#### 6.5

### Phone Calls

A Phone Call is a call from an individual radio to a telephone.

If Phone Call capability is not enabled in your radio:

- Your radio mutes the call.
- Your radio returns to the previous screen when the call ends.

During the Phone Call, your radio attempts to end the call when:

- You press the **One Touch Access** button with the deaccess code preconfigured.
- You enter the deaccess code as the input for extra digits.

During channel access, access or deaccess code, or extra digits transmission, your radio responds to the **On/Off**,

**Volume Control**, and **Channel Selector** buttons or knobs only. A tone sounds for every invalid input.



**NOTICE:**

Check with your dealer or system administrator for more information.

### 6.5.1

## Making Phone Calls with the Programmable Phone Button

Follow the procedure to make a phone call with the programmable phone button.

- 1 Press the programmed **Phone** button
- 2 Press the **PTT** button to talk. Release the **PTT** button to listen.

### 6.5.2

## Responding to Phone Calls as Group Calls

Follow the procedure to respond to Phone Calls as Group Calls on your radio.

When you receive a Phone Call as a Group Call:

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

If Phone Call capability is not enabled on your radio, your radio mutes the call.

---

Press the **PTT** button to respond to the call. Release the **PTT** button to listen.

---

### 6.5.3

## Responding to Phone Calls as Private Calls

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

When you receive a Phone Call as a Private Call:

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

Press the **PTT** button to respond to the call. Release the **PTT** button to listen.

---

#### 6.5.4

### Responding to Phone Calls as All Calls



When you receive a Phone Call as an All Call, you can respond to or end the call, only if an All Call type is assigned to the channel. Follow the procedure to respond to Phone Calls as All Calls on your radio.

When you receive a Phone Call as an All 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.

---

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

---

#### 6.6

### Initiating Transmit Interrupt

An ongoing call is interrupted, when you perform the following actions:

- Press the **Voice PTT** button.
  - Press the **Emergency** button.
  - Perform data transmission.
- 

#### 6.7

### 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.

### 6.7.1

## Making Broadcast Voice Calls

Program your radio to make Broadcast Voice Calls.

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

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

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

---
- 4 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.



### NOTICE:

Users on the channel cannot respond to Broadcast Voice Calls.

---

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

### 6.7.2

## 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.

## 6.8

### 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.

#### 6.8.1

### Making Unaddressed Calls

- 1 Select a channel with the active group alias or ID.
- 2 Do one of the following:

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

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

- 
- 4 Release the **PTT** button to listen.  
The green LED lights up when the target radio responds. A momentary tone sounds.

- 
- 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 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.

#### 6.8.2

### Responding to Unaddressed Calls

When you receive an Unaddressed Call:

- The green LED blinks.
- 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, 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.

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

---

## 6.9

### 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.

#### 6.9.1

### 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** Do one of the following:



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

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

The green LED lights up.

---

### 4 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.
- 

## 6.9.2

### 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.



#### **NOTICE:**

Recipient users are not allowed to Talkback during a Broadcast Call. If the **PTT** button is pressed during a Broadcast Call, the Talkback Prohibit Tone sounds momentarily.

### 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.

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 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.

### 7.1

## Talkaround

This feature allows you to continue communicating when your repeater is non-operational, or when your radio is out of range from the repeater but within the talk range of other radios.

The talkaround setting is retained even after powering down.

### 7.1.1

## Toggling Between Repeater and Talkaround Modes

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

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

One of the following tones sounds:

### **Positive Indicator Tone**

Radio is in talkaround mode.

### **Negative Indicator Tone**

Radio is in repeater mode.

---

### 7.2

## Monitor Feature

The feature allows you to ensure that a channel is free before transmitting.

### 7.2.1

## Monitoring Channels

Follow the procedure to monitor channels.

- 1 Long press the programmed **Monitor** button.  
If the channel is in use:
  - You hear radio activity or total silence.

- The yellow LED lights up.

If the monitored channel is free, you hear a "white noise".

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

### 7.2.2

## Permanent Monitor

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

### 7.2.2.1

## 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.

### 7.3

## Home Channel Reminder

This feature provides a reminder when the radio is not set to the home channel for a period of time.

If this feature is enabled through CPS, when your radio is not set to the home channel for a period of time, the following occurs periodically:

- The Home Channel Reminder tone and announcement sound.

You can respond to the reminder by performing one of the following actions:

- Return to the home channel.
- Mute the reminder temporarily using the programmable button.
- Set a new home channel using the programmable button.

### 7.3.1

## Muting the Home Channel Reminder

When the Home Channel Reminder sounds, you can temporarily mute the reminder.

Press the programmed **Silence Home Channel Reminder** button.

---

### 7.3.2

## Setting New Home Channels

When the Home Channel Reminder occurs, you can set a new home channel.

Press the **Reset Home Channel** programmable button to set the current channel as the new Home Channel.

---

## 7.4

## Remote Monitor

This feature is used to turn on the microphone of a target radio with a subscriber alias or ID. You can use this feature to remotely monitor any audible activity surrounding the target radio.

There are two types of Remote Monitor:

- Remote Monitor without Authentication
- Remote Monitor with Authentication.

Authenticated Remote Monitor is a purchasable feature. In Authenticated Remote Monitor, verification is required when your radio turns on the microphone of a target radio.

When your radio initiates this feature on a target radio with User Authentication, a passphrase is required. The passphrase is preprogrammed into the target radio through CPS.

Both your radio and the target radio must be programmed to allow you to use this feature.

This feature stops after a programmed duration or when there is any user operation on the target radio.

### 7.4.1

## Initiating Remote Monitor

Follow the procedure to initiate Remote Monitor on your radio.

- 1** Press the programmed **Remote Monitor** button.
-

2 Wait for acknowledgment.

If successful:

- A positive indicator tone sounds.

If unsuccessful:

- A negative indicator tone sounds.

---

7.5

## 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.

7.6

## Scan

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

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.

7.6.1

## 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 a scan list.
- 

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.

### 7.6.2

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

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

---

### 7.6.3

## 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.

---

#### 7.6.4

### 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.
  - Change the channel using the **Channel Selector Knob**.
- 

#### 7.7

### 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.

To respond to a transmission during a vote scan, see [Responding to Transmissions During Scanning on page 47](#).

#### 7.8

### Call Indicator Settings

This feature allows you to configure call or text message ringing tones.

#### 7.8.1

### Selecting a Ring Alert Type



#### NOTICE:

The programmed **Ring Alert Type** button is assigned by your dealer or system administrator. Check with your dealer or system administrator to determine how your radio has been programmed.

You can program the radio calls to one predetermined vibrate call.



The radio vibrates once if it is a momentary ring style. The radio vibrates repetitively if it is a repetitive ring style. When set to Ring and Vibrate, the radio sounds a specific ring tone if there is any incoming radio transaction (for example, Call Alert or Message). It sounds like a positive indicator tone or missed call.

For radios with batteries that support the vibrate feature and are attached to a vibrating belt clip, the available Ring Alert Type options are Silent, Ring, Vibrate, and Ring and Vibrate.

For radios with batteries that do not support the vibrate feature and are not attached to a vibrating belt clip, Ring Alert Type is automatically set to Ring. If you press the programmed **Ring Alert Type** button, a bad key tone sounds, indicating the multiple Ring Alert Type options are disabled.

You can select a Ring Alert Type by performing the following action.

- Press the programmed **Ring Alert Type** button to toggle Voice Announcement or Text-to-Speech, and the radio behavior to the following options.
  - For Silent, Voice Announcement or Text-to-Speech sounds **Ring Alert Type Silent** only.

- For Ring Only, Voice Announcement or Text-to-Speech sounds **Ring Alert Type** and the radio sounds a ring tone.
- For Vibrate Only, Voice Announcement or Text-to-Speech sounds **Ring Alert Type** and the radio vibrates.
- For Ring and Vibrate, Voice Announcement or Text-to-Speech sounds **Ring Alert Type** and the radio sounds a ring tone and vibrates.

### 7.8.2

## Configuring Vibrate Style



### NOTICE:

The programmed **Vibrate Style** button is assigned by your dealer or system administrator. Check with your dealer or system administrator to determine how your radio has been programmed.

Vibrate Style is enabled when the Vibrating Belt Clip is attached to the radio with a battery that supports the vibrate feature.

You can configure the vibrate style by performing the following action.

- Press the programmed **Vibrate Style** button to toggle to short, medium, or long option and the radio vibrates accordingly. Voice Announcement or Text-to-Speech sounds **Vibrate Style**.

### 7.8.3

## 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 Escalert.

### 7.9

## 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.

### 7.9.1

### 50

## Responding to Call Alerts

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.

---

### 7.9.2

## 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, a positive indicator tone sounds.

If the Call Alert acknowledgment is not received, a negative indicator tone sounds.

---

## 7.10

## Mute Mode

Mute Mode provides an option to silence all audio indicators on your radio.

When Mute Mode is initiated, all audio indicators are muted except higher priority features such as emergency operations.

When Mute Mode is exited, your radio resumes playing ongoing tones and audio transmissions.

**IMPORTANT:**

You can only enable either Face Down or Man Down one at a time. Both features cannot be enabled together.

## 7.10.1

### Turning On Mute Mode

Follow the procedure to turn on Mute Mode.

---

Access this feature by using the programmed **Mute Mode** button.

The following occurs when Mute mode is enabled:

- Positive Indicator Tone sounds.

- The red LED light starts blinking and remains blinking until Mute Mode is exited.
- Radio is muted.
- Mute Mode Timer begins counting down the duration that is configured.

## 7.10.2

### Exiting Mute Mode

This feature can be exited automatically once the Mute Mode Timer expires.

Do one of the following to exit Mute mode manually:

- Press the programmed **Mute Mode** button.
- Press the **PTT** button on any entry.

---

The following occurs when Mute mode is disabled:

- Negative Indicator Tone sounds.
- The blinking red LED turns off.
- Your radio unmutes and speaker state is restored.

- If the timer has not expired, Mute mode timer is stopped.



### **NOTICE:**

Mute Mode is also exited if the user transmits voice or switches to an unprogrammed channel.

## 7.11

# 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 dealer can set the duration of a button press for the programmed **Emergency** button, except for long press, which is similar with all other buttons:

### **Short Press**

Duration between 0.05 seconds and 0.75 seconds.

### **Long Press**

Duration between 1.00 second and 3.75 seconds.

The **Emergency** button is assigned with the Emergency On/Off feature. Check with your dealer for the assigned operation of the **Emergency** button.



### **NOTICE:**

If a short press to the **Emergency** button initiates Emergency mode, then a long press to the same enables the radio to exit Emergency mode.

If a long press to the **Emergency** button initiates Emergency mode, then a short press to the same enables the radio to exit Emergency mode.

Your radio supports three Emergency Alarms:

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



### **NOTICE:**

Only one of the Emergency Alarms above can be assigned to the programmed **Emergency** button.

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 the programmed *hot*

*mic* transmission period is over and/or 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. If *hot mic* is enabled, the incoming calls sound through the speaker after the programmed *hot mic* transmission period is over. The indicators only appear once you press the **PTT** button.

#### 7.11.1

## 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.



### NOTICE:

If programmed, the Emergency Search tone sounds. This tone is muted when the radio transmits or receives voice, and stops when the radio exits Emergency mode. The Emergency Search tone can be programmed through CPS.

- 
- 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.

---

#### 7.11.2

## 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.



### NOTICE:

If programmed, the Emergency Search tone sounds. This tone is muted when the radio transmits or receives voice, and stops when the radio exits Emergency mode. The Emergency Search tone can be programmed by your dealer or system administrator.

- 
- 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 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.

- 
- 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.

If you do not press the **Emergency Off** button to exit the Emergency mode, the red LED blinks and the radio stays in Emergency mode.

## 7.11.3

## 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 your radio has Emergency Cycle Mode enabled, repetitions of *hot mic* and receiving period are made for a programmed duration. During Emergency Cycle Mode, received calls sound through the speaker.

If you press the **PTT** button during the programmed receiving period, you hear a prohibit tone, indicating that you should release the **PTT** button. The radio ignores the **PTT** button 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.

## 7.11.4

## Sending Emergency Alarms with Voice to Follow

- 1 Press the programmed **Emergency On** button.  
The green LED lights up.
- 
- 2 Once the Emergency tone sounds, speak clearly into the microphone.  
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.

The red LED blinks. The radio remains in Emergency mode.

---

### 7.11.5

## Receiving Emergency Alarms

When you receive an Emergency Alarm:




- A tone sounds.
- The red LED blinks.



**NOTICE:**

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

To return to home screen, perform the following actions:

- a Press .
- b Press  or  to Yes.

- c Press  to select.

The radio returns to the home screen and the display shows the Emergency icon.

---

### 7.11.6

## Reinitiating Emergency Mode

Perform one of the following actions:

- Change the channel while the radio is in Emergency mode.



**NOTICE:**

You can reinitiate emergency mode only if you enable emergency alarm on the new channel.

- Press the programmed **Emergency On** button during an emergency initiation or transmission state.

---

The radio exits the Emergency mode, and reinitiates Emergency.



## 7.11.7

## 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).
- All retries to send the alarm have been exhausted.



### 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.

Follow the procedure to exit Emergency mode on your radio.

---

Press the programmed **Emergency Off** button.

## 7.12

## Making 5-Tone Calls

Follow the procedure to make a 5-Tone Call:

- 1 Select the 5-Tone channel.
- 2 Press the **PTT** button to call the default contact.
- 3 Wait for acknowledgment.

If successful:

- A positive indicator tone sounds.
- Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.

If unsuccessful:

- A negative indicator tone sounds.

---

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

## 7.12.1

### Receiving 5-Tone Calls

When you receive a 5-Tone Call:

- The green LED blinks.

- A tone sounds.
- 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. A tone sounds.

---

### 7.12.2

## Sending 5-Tone Emergency Alarm

Follow the procedure to send an Emergency Alarm:

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

You see the following:

- The green LED lights up.

- The Emergency tone sounds.
- 

**2** The radio exits the Emergency Alarm mode.

---

### 7.12.3

## Sending 5-Tone Emergency Alarm with Voice to Follow

Follow the procedure to send an Emergency Alarm on your radio.

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

You see the following:

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

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

The radio automatically stops transmitting when the cycling duration between *hot mic* and receiving calls expires, if Emergency Cycle Mode is enabled.

The red LED blinks. The radio remains in Emergency mode.

---

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

---

#### 7.12.4

## Receiving 5-Tone Emergency Alarm

When you receive an Emergency Alarm:

- A tone sounds.
- The red LED blinks.



#### **NOTICE:**

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

#### 7.13

## 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 supports two types of privacy, but only one can be assigned to your radio. They are:

- Basic Privacy
- Enhanced Privacy

To unscramble a privacy-enabled call or data transmission, your radio must be programmed to have the same Privacy Key for Basic Privacy, or the same Key Value and Key ID for Enhanced Privacy as the transmitting radio.

If your radio receives a scrambled call that is of a different Privacy Key, or different Key Value and Key ID, you either hear a garbled transmission for Basic Privacy or nothing at all for Enhanced Privacy.

On a privacy-enabled channel, your radio is able to receive clear or unscrambled calls, depending on how your radio is programmed. In addition, your radio may play a warning tone or not, depending on how it is programmed.

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



### **NOTICE:**

This feature is not applicable in Citizens Band channels that are in the same frequency.

#### 7.13.1

### Turning Privacy On or Off

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

Press the programmed **Privacy** button.

---

#### 7.14

### Response Inhibit

This feature helps prevent your radio from responding to any incoming transmissions.



### **NOTICE:**

Contact your dealer to determine how your radio has been programmed.

If enabled, your radio does not generate any outgoing transmissions in respond to incoming transmissions, such as Radio Check, Call Alert, Radio Disable, Remote Monitor, Automatic Registration Service (ARS), Responding to Private Messages, and Sending GNSS location reports.

Your radio cannot receive Confirmed Private Calls when this feature is enabled. However, your radio is able to manually send transmission.

#### 7.14.1

### Turning Response Inhibit On or Off

Follow the procedure to enable or disable Response Inhibit on your radio.

Press the programmed **Response Inhibit** button.

---

If successful:

- A positive indicator tone sounds.

If unsuccessful:

- A negative indicator tone sounds.

## 7.15


## 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 52](#) for more information on ways to exit Emergency.

**NOTICE:**

Check with your dealer or system administrator for more information.

## 7.16

## Password Lock

You can set a password to restrict access to your radio. Each time you turn on your radio, you are asked to enter the password.

Your radio supports a 4-digit password input.

Your radio is unable to receive calls in locked state.

## 7.16.1

### Accessing the Radio by Using Password

Turn on your radio.

- 1 Enter the four-digit password.
  - a To enter the first digit of the password, use the **Channel Selector Knob**.
  - b To enter each digit of the remaining three digits of the password, press Side Button 1 or 2.

- 2 Your radio automatically checks the validity of the password when you enter the last digit of the password.

If you enter the password correctly, the radio powers up.

If you enter the wrong password after the first and second attempt, your radio shows the following indications:

- A continuous tone sounds.

Repeat [step 1](#).

If you enter the wrong password after the third attempt, your radio shows the following indications:

- A tone sounds.
- The yellow LED double blinks.
- Your radio enters into locked state for 15 minutes.

Wait for the 15-minute locked state timer to end and then repeat [step 1](#).



**NOTICE:**

If you turn off and turn your radio on again, the 15-minute timer restarts.

7.16.2

## 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 the Radio by Using Password on page 61](#) 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 the Radio by Using Password on page 61](#) to access the radio.

7.17

## 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.

### 7.18

## **Over-the-Air Programming**

Your dealer can remotely update your radio through Over-the-Air Programming (OTAP) without any physical connection. Additionally, some settings can also be configured by using OTAP.

When your radio undergoes OTAP, the green LED blinks.

When your radio receives high volume data:

- The channel becomes busy.
- A negative tone sounds if you press the **PTT** button.

Once the programming update is complete, a tone sounds, and your radio restarts (powers off and on again).

If the programming update is unsuccessful, a tone sounds and the red LED blinks once.



#### **NOTICE:**

If the programming update is unsuccessful, the software update failure indications appear every time you turn on your radio. Contact your dealer to reprogram your radio with the latest software to eliminate the software update failure indications.

### 7.19

## **Wi-Fi Operation**

This feature allows you to set up and connect to a Wi-Fi network. Wi-Fi supports updates for radio firmware, codeplug, and resources such as language packs and voice announcement.



#### **NOTICE:**

This feature is applicable to DP2400e only.

Wi-Fi® is a registered trademark of Wi-Fi Alliance®.

Your radio supports WEP/WPA/WPA2-Personal and WPA/WPA2-Enterprise Wi-Fi networks.

### WEP/WPA/WPA2-Personal Wi-Fi network

Uses pre-shared key (password) based authentication.

Pre-shared key can be entered by using the menu or CPS/RM.

### WPA/WPA2-Enterprise Wi-Fi network

Uses certificate-based authentication.

Your radio must be pre-configured with a certificate.



**NOTICE:**

Check with your dealer or system administrator to connect to WPA/WPA2-Enterprise Wi-Fi network.

The programmed **Wi-Fi On or Off** button is assigned by your dealer or system administrator. Check with your dealer or system administrator to determine how your radio has been programmed.

Voice Announcements for the programmed **Wi-Fi On or Off** button can be customized through CPS according to user requirements. Check with your dealer or system administrator for more information.

#### 7.19.1

## Turning Wi-Fi On or Off

Press the programmed **Wi-Fi On or Off** button. Voice Announcement sounds Turning On Wi-Fi or Turning Off Wi-Fi.

---

#### 7.19.2

## Connecting to a Network Access Point

When you turn on Wi-Fi, the radio scans and connects to a network access point.



**NOTICE:**

The programmed **Wi-Fi Status Query** button is assigned by your dealer or system administrator. Voice Announcements for the programmed **Wi-Fi Status Query** button can be customized according to user requirements by using CPS. Check with your dealer or system administrator to determine how your radio has been programmed.

The WPA-Enterprise Wi-Fi network access points are pre-configured. Check with your dealer or system administrator to determine how your radio has been programmed.



Press the programmed **Wi-Fi Status Query** button for the connection status using Voice Announcement.

Voice Announcement sounds when Wi-Fi is Off, Wi-Fi is On but No Connection, or Wi-Fi is On with Connection.

---

## Utilities

---

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

### 8.1

## 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.

#### 8.1.1

## 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.

---

### 8.2

## 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.

#### 8.2.1

## 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.

- Turn the radio off and then power it on again to enable VOX.
- Change the channel by using the **Channel Selector** knob to enable VOX.
- Turn VOX on or off by using the programmed **VOX** button.
- 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.

### 8.3

## 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.



**NOTICE:**

This feature is not applicable in Citizens Band channels that are in the same frequency.

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

### 8.3.1

## 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.

## 8.4

### **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.

## 8.5

### **Turning Intelligent Audio On or Off**

Your radio automatically adjusts the audio volume to overcome current background noise in the environment, inclusive of both stationary and non-stationary noise sources. This is a receive-only feature and does not affect transmission audio. Follow the procedure to turn Intelligent Audio on or off on your radio.

Press the programmed **Intelligent Audio** button.

## 8.6

### **Turning Acoustic Feedback Suppressor On or Off**

The feature allows you to minimize acoustic feedback in received calls. Follow the procedure to turn Acoustic Feedback Suppressor on or off on your radio.

Press the programmed **AF Suppressor** button.

One of the following tone sounds:

**Positive Indicator Tone**

Acoustic Feedback Suppressor is activated.

**Negative Indicator Tone**

Acoustic Feedback Suppressor is not activated.

---

## Authorized Accessories List

Motorola Solutions provides a list of accessories to improve the productivity of your radio.

**Table 2: Antenna**

Part Number	Description
PMAD4116_	VHF, 144–165 MHz, Helical Antenna
PMAD4117_	VHF, 136–155 MHz, Helical Antenna
PMAD4118_	VHF, 152–174 MHz, Helical Antenna
PMAD4119_	VHF, 136–148 MHz, Stubby Antenna
PMAD4120_	VHF, 146–160 MHz, Stubby Antenna
PMAE4069_	UHF, 400–450 MHz, Stubby Antenna
PMAE4070_	UHF, 440–490 MHz, Stubby Antenna

Part Number	Description
PMAE4071_	UHF, 470–527 MHz, Stubby Antenna
PMAE4092_	UHF, 480–527 MHz Stubby Antenna Kit

# 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 (Including Batteries and Chargers)	One (1) Year

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

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## VII. GOVERNING LAW

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

## VIII. For Australia Only

This warranty is given by Motorola Solutions Australia Pty Limited (ABN 16 004 742 312) of Tally Ho Business Park, 10 Wesley Court, Burwood East, Victoria.

Our goods come with guarantees that cannot be excluded under the Australia Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Motorola Solutions Australia's limited warranty above is in addition to any rights and remedies you may have under the Australian Consumer Law. If you have any queries, please call Motorola Solutions Australia at 1800 457 439. You may also visit our website: [http://www.motorolasolutions.com/XA-EN/Pages/Contact\\_Us](http://www.motorolasolutions.com/XA-EN/Pages/Contact_Us) for the most updated warranty terms.

[www.motorolasolutions.com/mototrbo](http://www.motorolasolutions.com/mototrbo)

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