APX™ P25 Mobile
Two-Way Radio

APX NEXT™
APX NEXT™XE
User Guide

OCTOBER 2020

Chapter 1

Read Me First

This User Guide covers the basic operation of the radio. However, your dealer or system administrator may have customized your radio for your specific needs. Check with your dealer or system administrator for more information.

If you attempt to use features which are mutually exclusive, one or more of the following occurs:

- The feature control or icon is grayed out.
- A negative tone sounds.
- The radio displays `Feature not allowed`.

1.1
Notations Used in This Manual

Throughout the text in this publication, you will notice the use of **Warning**, **Caution**, and **Notice**. These notations are used to emphasize that safety hazards exist, and the care that must be taken or observed.

> **WARNING:** An operational procedure, practice, or condition and so on, which may result in injury or death if not carefully observed.

> **CAUTION:** An operational procedure, practice, or condition and so on, which may result in damage to the equipment if not carefully observed.

> **NOTICE:** An operational procedure, practice, or condition and so on, which is essential to emphasize.

You will also notice the icons used to indicate the methods available for you to carry out a function or enable a feature.

Icon	Description
	Execute the function using the Top Controls of the radio.
	Execute the function using the touch screen of the radio.

1.2
What's New in this Release

The following section is updated with the APX NEXT XE information:

- Radio Overview on page 6

1.3
What Your Dealer/System Administrator Can Tell You

If the radio is to be operated in extreme temperatures (less than -30 °C or more than +60 °C), check with your system administrator for the correct radio settings.

NOTICE:
To ensure radio longevity, front display, LTE, Wi-Fi, Bluetooth, and GPS are not available when radio internal temperature is below -20 ºC. The top display indicates `Cold Temp Mode` in this temperature.

On the other hand, LMR radio communication is not available when the temperature reaches -30 ºC.

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?

NOTICE: Specifications may vary for different radio models. Contact your system administrator for more information.

Chapter 2

Radio Care

Proper radio usage and care ensure efficient operation and long life of the product.

⚠️ **CAUTION:** Use the radio according to the following recommendations and warnings.

- Your radio casing has a vent port for pressure equalization in the radio. Never poke this vent with objects such as needles, tweezers, or screwdrivers. Poking the vent could create leak paths into the radio and the radio submergibility will be lost.

- Never obstruct or cover the vent port, even with a label.

- Ensure that no oily substances come in contact with the vent port.

- Your radio is designed to be submerged to a maximum depth of 6 feet and maximum time of 2 hours. Exceeding either maximum limit may result in damage to the radio.

- Elastomer seals used in portable radios age with time and environmental exposure. To ensure the waterseal integrity of the radio, Motorola Solutions recommends that radios be checked annually as a preventive measure. The disassembly, test, and reassembly procedures along with necessary test equipment are available in the *Service Manual*.

- If the radio battery contacts are exposed to water without the battery attached, dry and clean the radio battery contacts before attaching a battery to the radio. Turn the radio over with the battery contact facing down and shake the radio so any trapped water can escape. A short circuit of the contacts could occur if they are not dried properly.

- If the radio has been submerged in water, shake the radio to remove any water that is trapped inside the speaker grille and microphone port. Otherwise, the water decreases the audio quality of the radio.

- If an accessory is not attached to the radio, ensure that the accessory connector cover is attached to the radio side accessory connector.

- If the radio is submerged or exposed to a high force water spray, such as from a hose, remove the accessory or accessory connector cover immediately and ensure that no water is forced into the accessory connector/radio interface. Rinse and dry the area and re-attach the accessory or accessory connector cover if leakage occurs.

- If the radio is exposed to a corrosive environment, such as salt water or corrosive gases or liquids, rinse and clean the radio immediately to prevent damage to radio materials, especially plated surfaces. Remove the battery and the antenna before cleaning.

- Do **not** disassemble the radio as you could damage radio seals and result in leak paths into the radio. Any radio maintenance should be performed only by a qualified radio technician.

- Only Underwriter Laboratory (UL) approved service centers can open and service UL certified radios. Opening or repairing at unauthorized locations invalidates hazardous location rating of the radio.

- Do **not** pound, drop, or throw the radio unnecessarily.

- Turn off the radio when charging the radio using a wall-mounted charger. Otherwise, the Man Down Alert and Emergency may be accidentally triggered.

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

2.1
Cleaning Your Radio

⚠ **CAUTION:** Do not use solvents or disinfectants to clean your radio as these chemicals may permanently damage the radio housing, seals, and adhesives.

To clean the external surfaces of your radio, follow the procedure described next.

Procedure:

1 Combine one teaspoon of mild dishwashing detergent to one gallon of water (0.5% solution).

2 Apply the solution sparingly with a stiff, non-metallic, shortbristled brush, making sure that excess detergent does not get entrapped near the connectors, controls, or crevices. Rinse and then dry the radio thoroughly with a soft, lint-free cloth.

3 Clean battery contacts with a lint-free cloth to remove dirt or grease.

2.2
Radio Service and Repair

Proper repair and maintenance procedures ensure efficient operation and long life of this radio. A Motorola Solutions maintenance agreement provides expert service to keep the radio and all other communication equipment in perfect operating condition.

A nationwide service organization is provided by Motorola Solutions to support maintenance services. Through its maintenance and installation program, Motorola Solutions makes the finest service available to those desiring reliable continuous communications on a contract basis.

For a contract service agreement, contact your nearest Motorola Solutions service or sales representative, or an authorized Motorola Solutions dealer.

2.3
Battery Recycling and Disposal

In the U.S. and Canada, Motorola Solutions participates in the nationwide Call2Recycle program for battery collection and recycling. Many retailers and dealers participate in this program.

For the location of the drop-off facility closest to you, go to http://www.call2recycle.org/ or call 1-800-8-BATTERY. This website and telephone number also provide other useful information concerning recycling options for consumers, businesses, and governmental agencies.

Chapter 3

Radio Overview

This section describes the buttons and functions available on the radio.

Table 1: Front View Description

No.	Description
1	High Dynamic Range (HDR) Mic 1
2	Purple (Side Top) Programmable Button
3	Push-to-Talk (PTT) Button
4	Touch Screen
5	Middle Side (1-Dot) Programmable Feature Button
6	Lower Side (2-Dot) Programmable Feature Button
7	Display Sleep/Wake (Short Press)
	Home Button (Long Press)
8	Battery Latch

Table 2: Rear View Description

No.	Description
9	RF Antenna
10	Concentric Programmable Switch (2-position)
11	Channel Selector (16-position)
12	On/Off and Volume Control Knob
13	High Dynamic Range (HDR) Mic 2
14	Speaker Grille (3-Dot) Programmable Feature Button
15	Speaker
16	NFC Antenna
17	Battery
18	Charging Contacts
19	Accessory Connector

Table 3: Top View Description

No.	Description
20	Status LED
21	ABC Programmable Switch (3-position)
22	Top Display
23	Top (Orange) Button

3.1
Assignable Radio Functions

Your system administrator can program the programmable buttons or switches as shortcuts to radio functions depending on the duration of a button press. Contact your system administrator to learn more about the radio functions assigned to the programmable buttons and switches of your radio.

Table 4: Assignable Radio Functions

Function	Description
Audio Playback	Short press – plays the last saved call audio followed by other saved audio in the sequence from oldest to newest.
	Long press – saves the received call audio into your radio.
	NOTICE: These programmable buttons do not function if the radio is in the **Recents** menu.
Bluetooth On/Off	Toggles Bluetooth between on and off.
Bluetooth Configuration	Allows you to access the **Bluetooth** menu.
Bluetooth Audio Reroute	Allows you to toggle the audio route between the radio speaker or the Remote Speaker Microphone and the Bluetooth headset.
Bluetooth Headset PTT	Keys up the Bluetooth Headset microphone.
Call Alert	Allows the radio to function like a pager, or helps you verify if a radio is active on the system.
Call Response	Allows you to answer a private call.
Channel Up/Down	Allows you to scroll up or down to other channels within the current Zone.
Chanel Select	Allows you to select a channel from the switch.
Channel Search	Allows you to search for a channel.
Dynamic Priority (Conventional Only)	Allows any channel in a Scan List (except for a Priority-One channel) to temporarily replace the Priority-Two channel.
Emergency	Depending on the programming, initiates or cancels an emergency alarm or call.
Internet Protocol Address	Displays the Internet Protocol (IP) address, device name, and status of the radio.
Light/Flip	Short press – toggles the display backlight on and off.
	Long press – flips the screen orientation of the top display.
Location	Displays the current location (latitude, longitude, time, and date), and also the distance and bearing to another location, or toggles GPS/Location between on and off.Toggles the GPS/Location capabilities on and off.
Monitor (Conventional Only)	Monitors a selected channel for all radio traffic until the function is disabled.
Nuisance Delete	Temporarily removes from the scan list an unwanted channel, except for priority channels and the designated transmit channel.

Function	Description
Private Call (Trunking Only)	Allows a call from one individual radio to another.
Priority Dispatch	Allows you to call the dispatcher on a different talkgroup.
Rekey Request	Notifies the dispatcher that a new encryption key is needed.
Repeater Access Button (RAB) (Conventional Only)	Allows you to manually send a repeater access codeword.
Reprogram Request (Trunking Only)	Notifies the dispatcher that a new dynamic regrouping assignment is needed.
Request-To-Talk (Conventional Only)	Notifies the dispatcher that you want to send a voice call.
Scan	Short press – toggles the scan function between on and off. Long press – enables Scan List Programming and selects the scan list for editing. NOTICE: If this function is preprogrammed to a radio switch, you cannot change the scan mode on the **Radio Quick Settings** menu.
Secure Transmission Select	Toggles the Secure Transmission on and off when the Secure/Clear Strapping field is set to **Select** for the current channel.
Selective Call (Conventional Only)	Calls an assigned radio.
Site Display/Search (Trunking Only)	Short press – displays the current site ID and Received Signal Strength Indicator (RSSI) value. Long press – performs site search for Automatic Multiple Site Select (AMSS) or SmartZone operation.
Site Lock/Unlock (Trunking Only)	Allows your radio to lock onto a specific site.
Status (Trunking Only)	Sends data calls to the dispatcher about a predefined status.
Status	Sends data calls to the dispatcher about a predefined status.
Talkaround/Direct (Conventional Only)	Toggles between using a repeater or communicating directly with another radio. NOTICE: If this function is preprogrammed to a radio switch, you cannot change the talkaround/direct mode on the **Radio Quick Settings** menu.
Talkgroup (Conventional Only)	Allows a call from an individual radio to a group of radios.
Text Messaging Service (TMS)	Allows you to access the **Text Messaging Service (TMS)** menu.
TMS Quick Text	Selects a predefined message.
User	Allows you to log on to the server with a personally identifiable user name.
Voice Announcement	Audibly indicates the current feature mode, zone, or channel that you are assigned to.
Volume Set Tone	Sets the volume set tone.
Zone Bank Up	Scrolls through the zone banks in ascending order.

Function	Description
Zone Bank Down	Scrolls through the zone banks in descending order.
Zone Select	Allows you to select a zone from the switch.

3.2
ViQi

ViQi is a virtual assistant that helps you manage your radio and perform information lookups using voice commands. This feature is purpose-built for public safety and is active when you press the assigned **ViQi** button on the radio or an associated Remote Speaker Microphone (RSM).

NOTICE: This feature is a selling feature.

ViQi Voice Control

To perform queries you are required to log in to CommandCentral. See .

ViQi Voice Control allows you to operate the radio with your voice, for example, to change zones, channels, or volume.

Table 5: ViQi Voice Control Commands

The following table shows the functions supported by the ViQi Voice Control feature and their respective commands.

Feature	Examples
Zone and Channel	To identify your current zone and channel, say: • "What is my zone and channel" • "Current zone and channel" • "Zone and channel" To change to a new zone and channel, say: • "Zone *<Zone Name>*, channel *<Channel Name>*" • "Change zone to *<Zone Name>*, channel to *<Channel Name>*" • "Switch zone to *<Zone Name>*, channel to *<Channel Name>*"
Zone	To identify your current zone, say: • "What is my zone" • "Current zone" • "Zone" To change to a new zone, say: • "Zone *<Zone Name>*" • "Change zone to *<Zone Name>*" • "Switch zone to *<Zone Name>*"
Channel	To identify your current channel, say:

Feature	Examples
	"What is my channel" "Current channel" "Channel"
	To change to a new channel, say: "Channel *<Channel Name>*" "Change channel to *<Channel Name>*" "Switch channel to *<Channel Name>*"
Home Channel	To change to your home channel, say: "Home channel" "Change to home channel" "Switch to home channel"
Volume	To identify the volume level of your radio, say: "What is my volume" "Current volume" "Volume"
	To change the volume level of your radio, say "Volume *<Volume Level>*". The available commands and their respective volume levels are as follows: *<Low>* – 10% *<Medium>* – 50% *<High>* – 100% *<1>* to *<10>* – 10% to 100%
Cancel Last Command	To cancel your previous command, say "Cancel". **NOTICE:** Cancel command works within a five-second window after the last command.
Profile	To change to a new profile, say: "*<Profile Name>* profile" "Change to *<Profile Name>* profile" "Switch to *<Profile Name>* profile"
Scan	To start or stop scanning, say: "Start scan" "Stop scan" "Start scanning" "Stop scanning"
Battery	To identify your battery level, say: "What is my battery level"

Feature	Examples
	• "Battery level"
	• "Battery"
Time	To identify current time, say:
	• "What is the time"
	• "What time is it"
	• "Current time"
	• "Time check"
	• "Time"
Initiate ViQi Virtual Partner	"Hey ViQi"
	"Look up information"
	NOTICE: These commands are used to initiate Virtual Partner when both Voice Control and Virtual Partner are programmed on the same ViQi button.

ViQi Virtual Partner

ViQi Virtual Partner helps you to look up information such as license plate, driver's license, and Vehicle ID Number (VIN), and she responds with a result to your query.

Table 6: ViQi Virtual Partner Queries

The following table shows the queries supported by the ViQi Virtual Partner feature and their respective commands. Use the following commands followed by the supported query instructions to initiate ViQi Virtual Partner:

- "Look up..."
- "Check..."
- "Run a..."

Query	Examples
License plate	"Run a *<State>* license plate *<Alphanumeric String>*"
	"Check a *<State>* license plate"
	"Look up *<State>* license plate *<Alphanumeric String>*"
Driver's license	"Run a *<State>* driver's license *<Alphanumeric String>*"
	"Check the state of *<State>* driver's license *<Alphanumeric String>*"
	"Look up *<State>* driver's license *<Alphanumeric String>*"
Vehicle Identification Number	"Check Vehicle Identification Number *<Alphanumeric String>*"
	"VIN check *<Alphanumeric String>*"
	"Run a VIN"
	NOTICE: You can use variations such as *<Vehicle Identification Number>*, *<VIN>*, and *<Vehicle Number>*.

You are also able to receive and listen to LMR and Virtual Partner over broadband audio simultaneously. These audio mixing is configurable and must be preprogrammed by a qualified radio technician. Check with your dealer or system administrator for more information.

3.2.1
Using ViQi

Perform the following procedure to activate ViQi for the Voice Control or Virtual Partner features.

Prerequisites: See ViQi on page 10 for the queries supported by this feature.

Procedure:

    1 Press and hold the assigned **ViQi** button.

    2 After you hear a tone, speak your request into the microphone.

    3 Release the assigned programmable button and wait for ViQi to respond.

    4 Throughout your session, repeat steps step 1 through step 3 when responding to ViQi. Depending on your query, you can also say the following requests:

        • To play the available results, say "Play results".

        • To request for more details, say "More details".

        • To complete the Virtual Partner session, say "Complete".

Chapter 4

Getting Started

This section provides instructions to prepare your radio for use.

Attaching and Removing the Battery

The radio notifies you if it detects a non-Motorola Solutions battery when it is powering up, charging, or removed from the charger.

Attaching the Battery

Procedure:

- To attach the battery, align the battery with the bottom rails on the back of the radio. Slide the battery into the radio frame until the side latches click into place.

Removing the Battery

Procedure:

- To remove the battery, perform the following actions:

   a. Press the latches on both sides.

   b. Pull the battery away from the radio.

4.2
Attaching and Removing the Antenna

Attaching the Antenna

Prerequisites: When attaching the antenna, ensure that the radio is turned off.

Procedure:

To attach the antenna, perform the following actions:

a Set the antenna in the receptacle.

b Turn the antenna clockwise and tighten the antenna securely to the radio.

Removing the Antenna

Prerequisites: When removing the antenna, ensure that the radio is turned off.

Procedure:

To remove the antenna, turn the antenna counterclockwise, then remove it from the receptacle.

4.3

Attaching and Removing the Accessory Connector Cover

To prevent damage to the accessory connector, shield it with the connector cover when not in use.

Attaching the Accessory Connector Cover

Procedure:

To attach the Accessory Connector Cover, perform the following actions:

a Insert the hooked end of the cover into the slot above the connector.

b Press the top of the cover down to seat it in the slot.

c Rotate the thumbscrew clockwise to tighten the cover.

Removing the Accessory Connector Cover

Procedure:

To remove the Accessory Connector Cover, perform the following actions:

a Rotate the thumbscrew counterclockwise until it disengages from the radio.

b Rotate outwards and lift the connector cover to disengage it from the radio.

4.4

Using the Carry Holder

Procedure:

1 To insert the radio into the carry holder, perform the following actions:

    a Position the radio within the carry holder with the main speaker facing outward.

    b Slide the radio down into the carry holder until it clicks in place.

2 To remove the radio from the carry holder, perform the following actions:

    a Place the tip of your fingers on the ledge of the carry holder.

    b Push the bottom of the radio until it is released from the carry holder.

4.5

Charging the Radio

Prerequisites:

> ⚠️ **WARNING:**
> To avoid possible explosion:
>
> • Do **not** replace the battery in any area labeled **Hazardous Atmosphere**.
>
> • Do **not** discard batteries in a fire.

Procedure:

1 Turn off the radio while charging in a single or multi-unit charger.

2 Place the radio in a Motorola Solutions-approved charger.

> 📝 **NOTICE:** If the radio must remain powered on in the multi-unit charger, LMR PTT is not allowed as possible degradation in performance may occur.

4.6

Turning the Radio On and Off

Turning On the Radio

Prerequisites: Ensure that the battery is fully charged before the first use.

Procedure:

• To turn on the radio, rotate the **On/Off/Volume Control Knob** clockwise until you hear a click.

Turning Off the Radio

Procedure:

- To turn off the radio, rotate the **On/Off/Volume Control Knob** counterclockwise until you hear a click.

4.7
Adjusting the Volume of the Radio

Procedure:

Perform one of the following actions:

- To increase the volume, rotate the **On/Off/Volume Control Knob** clockwise.
- To decrease the volume, rotate the **On/Off/Volume Control Knob** counterclockwise.

4.8
Adjusting Display Brightness

Procedure:

1 From the **Home** screen, tap **Brightness**.
2 Perform one of the following actions:

- Drag the **Brightness Slider** to set a custom brightness level.
- Tap **Auto Brightness** to automatically adjust the screen brightness based on the lighting conditions.

4.9
Turning On Night Mode

Procedure:

From the **Home** screen, tap **Night Mode**.

4.10
Setting the Clock

Procedure:

1 From the **Home** screen, tap **System Settings**.
2 Tap **Clock**, then perform one of the following actions:

If…	Then…
To toggle use 24-hour format on and off,	tap **Use 24-hour format**.
To toggle automatic time zone on and off,	tap **Set Automatic**.
To manually select time zone,	a Toggle **Set Automatic** to off. b Tap **Select Time Zone**.

4.11
Setting the Front Display Timer

This setting determines the period before the front display dims and turns off due to inactivity.

Procedure:

1   From the **Home** screen, tap ⚙ **System Settings**.

2   Tap **Display → Front Display Timer**.

3   Select the required period.

4.12
Keyboard Overview

Use the keyboard in portrait or landscape orientation to enter alphanumeric text on your radio. The keyboard supports auto-capitalization and word suggestions in the Messaging feature.
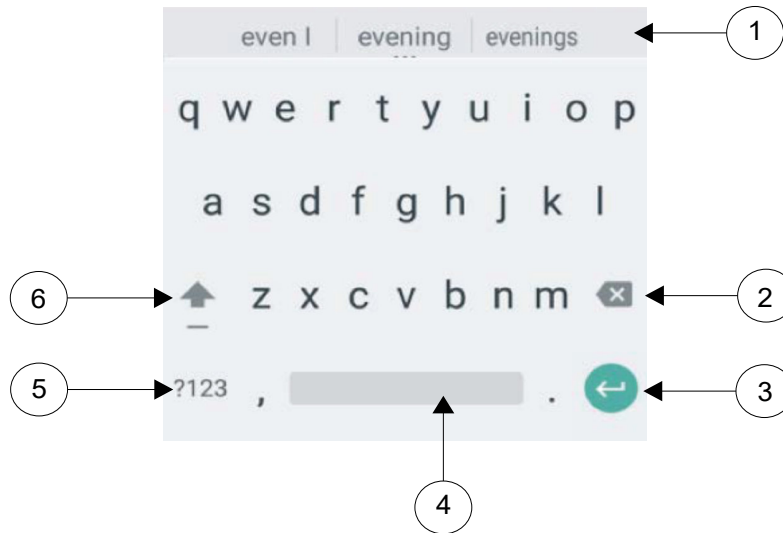
No.	Description
1	Predictive text
2	Backspace
3	Enter
4	Tap to insert space. Double-tap to insert a period.
5	Tap to input numbers, punctuation, or symbols.
6	Tap to type in uppercase. Double-tap for caps lock.

Based on the language settings of your radio, you can also tap and hold a character to input alternate characters.

Chapter 5

Home Screen

No.	Name	Description
1	Status Bar	Status icons appear in the status bar to provide device status and feature notifications.
2	Identity and Status Widget	Displays the identity of the radio with either the Radio Alias, Soft ID, or User Login.
		Allows you to send the operational status from the Home screen.
3	Channel Status Icons	Provides information or status specific to the selected channel.
4	Transmit and Receive Indicator	Reflects the active call state of the radio.
5	Radio Control Widget	Displays channel errors, trunking statuses, call states, and notifications.
		Allows you to change zone and channel from the Home screen.
6	Location Widget	Displays the current location of your radio.
		Allows you to view and manage all location-related features. Depending on the RadioCentral configuration of your radio, the widget opens the Waypoints or SmartMapping application.
7	Settings Widget	Provides shortcuts to radio settings.
		System Settings contains other settings in the radio.

No.	Name	Description
8	Menu Feature Launcher Widget	Displays the top two priority features provisioned in the CPS. The ●●● **More** option contains all other programmed menu items.
9	Home Channel Revert	Allows you to revert to the Home Channel or Talkgroup.
10	Radio Quick Settings	Allows you to quickly toggle the radio communication settings. The settings are channel specific.
11	Shift Manager Launcher	Depending on the radio programming, this shortcut allows you to access your Radio Alias, User Login, Soft ID, CommandCentral Login, or Status list.

5.1

Identity and Status Widget

The Identity and Status Widget displays the identity of the radio with either the Radio Alias, Soft ID, or User Login. This widget also allows you to send the operational status directly from the home screen.

5.1.1

Managing Operational Status

Procedure:

1 From the **Home** screen, tap the **Identity and Status Widget**.

2 Select the available status.

5.1.2

User Login Feature

This feature allows you to take on a friendly username for (Example: Text Messaging Service).

You can still send text messages without logging in as a user. The user login feature only enables the recipient of your message to identify you as the sender by assigning a username to your message.

5.1.2.1

Logging In to Automatic Registration Service

Procedure:

1 From the **Home** screen, tap 🗒 **Shift Manager Launcher**.

2 Tap **User Login**, then perform one of the following actions:

If…	Then…
To log in with an existing ID,	Tap the ID.
To log in with a new ID,	a Tap **Login with new ID**. b Enter the User Login ID, then tap ✓ **Done**.

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3 Enter the authorized PIN, then tap ✓ **Done**.

If a PIN is not assigned to the ID, skip this step.

The display shows the **Progress** screen. If the channel does not support Automatic Registration Service login, the display shows the status as `Offline`.

4 While sign in is in progress, tap **Hide**.

After the login is completed, the **Identity and Status Widget** shows the login ID.

5.1.2.2
Logging Out of Automatic Registration Service

Procedure:

1 From the **Home** screen, tap 📋 **Shift Manager Launcher**.

2 Tap your ID, then tap **Yes** to confirm the request.

3 Perform one of the following actions:

- To clear the private data, tap **Yes**.
- To keep your private data, tap **No**.

5.1.3
Entering the Soft ID

Soft ID entry is only allowed if it is enabled and User Login is not used.

Procedure:

1 From the **Home** screen, tap 📋 **Shift Manager Launcher**.

2 Tap **Soft ID**, then enter your Soft ID.

3

Tap ✓ **Done** to confirm.

> 📝 **NOTICE:** If you leave the Soft ID empty, the **Work Manager Widget** displays the Radio Alias ID if it is enabled.

5.1.4
CommandCentral Authentication Login

To log into the CommandCentral for the first time, simply follow the First-Time Login steps as follows.

> 📝 **NOTICE:** After selecting **Remember my username**, the First-Time Login steps will be skipped on subsequent logins.

5.1.4.1
Logging In to CommandCentral (First-Time Login)

Procedure:

1 From the **Home** screen, tap 📋 **Shift Manager Launcher**.

   2 Tap **CommandCentral Login**, then enter your username or email address followed by your password.

   3 Tap **Sign On**.

   4 Scroll down and tap the **Received passcodes via email** button.

   5 Enter the passcode and tap **Verify** to complete the log in.

5.1.4.2
Logging In to CommandCentral (Subsequent Login)

Procedure:

   1 From the **Home** screen, tap 📋 **Shift Manager Launcher**.

   2 Tap **CommandCentral Login**, then enter your username or email address followed by your password.

   3 Tap **Sign On**, then enter the verification code generated by your device (if 2-factor authentication is enabled).

> 📝 **NOTICE:**
> You can request to resend the code to the connected device.
>
> The code is 8 characters and can be alphanumeric.

   4 Tap ✓ to complete the log in.

5.2
Status Indicators

This section explains the status indicators of the radio.

5.2.1
Battery Charge Status

If you press the PTT button when your battery is low, the LED blinks red and you hear a short, high-pitched tone.
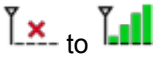
5.2.2
Radio Icons

These icons appear at the status bar to provide device-specific information or status.

Icon	Name	Description
▮ (Front display) 🔋 (Top display)	Battery	Indicates the remaining battery level of the radio. The icon blinks when the battery level drops to 10% or lower.
✳	Bluetooth On	Steady – Bluetooth is on and ready for Bluetooth connection. Inverted – Bluetooth is connected to an external Bluetooth device.

Icon	Name	Description
	GPS	GPS is enabled and its signal is available.
	No SIM	SIM card is not inserted or detected.
to	LTE Network Strength	The radio is connected to an LTE network. The number of bars represents the signal strength of the LTE network.
	LTE No Service	The radio is not connected to an LTE network.
	Data Disabled	The radio is connected to an LTE network but the data is disabled.
	Downloading Data	Indicates the updates are downloading.
	Notification (Top display only)	The radio receives notification of an activity or event.
	Unread Notification	Indicates there is an unread notification that requires action from the user.
12:30	Time	Indicates the current time.
	Wi-Fi	The radio is connected to a Wi-Fi network. The number of bars represents the signal strength of the Wi-Fi network.

These icons appear at the Radio Control Widget to provide information or status of LMR-specific features.

Icon	Name	Description
to	Received Signal Strength Indicator (RSSI)	The number of bars represents the received signal strength of the current site in trunking mode.
	Receiving	The radio is receiving a call or data.
	Transmitting	The radio is transmitting a call or data.
	Roaming	The radio has roamed to and is registered to a foreign system.
	View/Program Mode (Top display only)	Steady – Radio is in View mode. Blinking – Radio is in Program mode.
	Monitor (Carrier Squelch)	The selected channel is being monitored in conventional operation.
	Secure Operation	Blinking – The radio is receiving an encrypted voice call.

Icon	Name	Description
		Steady – The radio is operating in a secure channel.
	AES Secure Operation	Blinking – The radio is receiving an AES-encrypted voice call.
		Steady – The radio is operating in an AES-secure channel.
	Scan	The radio is scanning a scan list.
	Priority Channel Scan	Blinking – The radio detects activity on the designated Priority-One channel.
		Steady – The radio detects activity on the designated Priority-Two channel.
	Vote Scan	The Vote Scan feature is enabled.
	Direct	The radio is configured for direct radio-to-radio communication in conventional operation.
	SmartConnect	Inverted – The current channel is currently connected through the SmartConnect feature.
		Steady – The current channel supports SmartConnect.
	Power Level	Off – The radio is set at high power.
		On – The radio is set at low power.
	Zone Bank	Basic Zone Bank – Icons "A" to "F" indicates that the radio is in the dedicated zone.
		Enhanced Zone Bank – Icons "A" to "Y" indicates that the radio is in the dedicated zone bank.
	User Login Indicator (IP Packet Data)	Steady – The user is associated with the radio.
		Blinking – The device registration or user registration with the server failed due to an invalid username or pin.
		Inverted – The user is logged on to the secured IP packet data.
	Data Activity	Data activity is present on the radio.

5.2.3
LED Indications

The Status LED shows the operational status of your radio. A qualified technician can permanently disable the LED indication by preprogramming it.
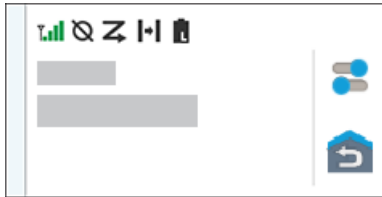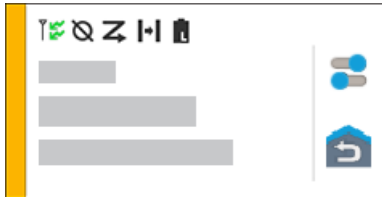
Table 7: LED Indications

Indication	Status
Solid red	Radio is transmitting.
Double blinking red	Radio is transmitting an emergency alarm or call.
Rapid blinking red	Radio has failed the self-test upon powering up or encountered a fatal error.
Solid yellow	Channel is busy in conventional mode.
Blinking yellow	Radio is receiving a secured transmission.
Solid green	Radio is powering up.
Blinking green	Radio is receiving an individual or telephone call.

5.2.4
Transmit and Receive Indicator

The Transmit and Receive Indicator indicates the active call state of the radio.

Color	Call State
Light Blue	Open/Standby
Yellow	Receiving and Unmuted
Red	Voice Transmission
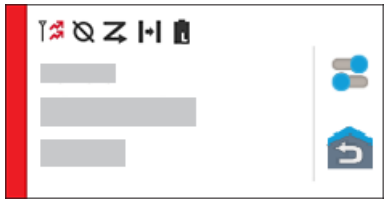
Color	Call State
Gray	Unprogrammed
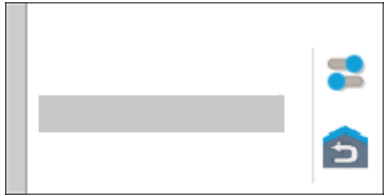
Chapter 6

Responding to Notifications

The **Notification Center** provides concise information about an activity or event.

Procedure:

1 Drag down the **Status Bar** to open the **Notification Center**.

2 Perform one of the following actions:

- To respond to a notification, tap the assigned action message.

- To clear all notifications, tap **Clear All**.

3 Swipe up from the bottom of the screen to close the **Notification Center**.

Chapter 7

General Radio Operation

This chapter explains the general operations of your radio.

7.1
Scan Lists

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

Your radio supports different types of Scan Lists:

• Conventional Scan List

• Multi-System Talkgroup Scan

• Trunking Priority Monitor Scan List

Refer to a qualified radio technician for the maximum number of Scan Lists to be preprogrammed in your radio.

7.1.1
Managing the Scan List

Procedure:

1 From the **Home** screen, tap **Scan List**.

2 Tap **Scan List** or **Channels**.

3 Tap the required channel and perform one of the following options:

   • To assign Priority-One status to the channel, select **Priority 1**.

   • To assign Priority-Two status to the channel, select **Priority 2**.

   • To remove priority from this channel, select **No Priority**.

   • To remove the channel from the scan list, select **Remove from Scan**.

   • To add the channel to the scan list, from the **Channels** tab, select **Add to Scan List**.

7.2
Scan

This feature allows you to monitor traffic on different channels by scanning a preprogrammed list of channels. Scanning is halted if you initiate a call and resumes when the call has ended.

7.2.1
Toggling the Scan Feature On and Off

Procedure:

Perform one of the following actions:

If…	Then…
	To turn on Scan, turn the preprogrammed **2–Position Concentric** switch to the scan position.
	a From the **Home** screen, tap **Radio Quick Settings**. **b** To toggle the scan feature on and off, tap **Scan**.

7.2.2
Making a Dynamic Priority Change (Conventional Scan Only)

While the radio is scanning, the dynamic priority change feature allows you to temporarily change any channel in a scan list (except for the Priority-One channel) to the Priority-Two channel. This change remains in effect until scan is turned off. Scan then reverts to the default setting.

Procedure:

From the **Home** screen, tap .

7.2.3
Deleting Nuisance Channels

If a channel continually generates unwanted calls or noise (termed "nuisance" channel), you can temporarily remove the unwanted channel from the scan list. This capability does not apply to priority channels or the designated transmit channel.

Procedure:

From the **Home** screen, tap **Nuis Del**.

7.2.4
Restoring a Nuisance Channel

Procedure:

To restore the deleted nuisance channel, perform one of the following actions:

- Stop and restart a scan.
- Mode change to another channel and back to the original channel.
- Turn off the radio and then turn it on again.

7.3
Selecting a Zone

Procedure:

1 Use one the following methods to select a zone.

If…	Then…
	Slide the **ABC Programmable Switch** to the required position.

	a From the **Home** screen, tap the **Radio Control Widget**.
	
	b Perform one of the following actions:
	
	  a Select **Current Zone** *<Zone Name>*, then select the required zone followed by the required channel.
	
	    NOTICE: If the default or last known channel is configured on the radio, it automatically highlights that channel for easier selection.
	
	  b Select **Recents** followed by one of the recently used zones and channels.

7.4

Selecting Zones from Zone Banks

A Zone Bank consists of three zones. The Basic Zone Bank feature supports two zone banks and a total of six zones. The zones are indicated by the "A" to "F" icons. The Enhanced Zone Bank feature supports 25 zone banks, which are indicated by the "A" to "Y" icons.

Procedure:

1 To change zone banks, perform one of the following actions:

- To change Basic Zone Banks, press the preprogrammed **Basic Zone Bank** button.

- To change Enhanced Zone Banks, press the preprogrammed **Enhanced Zone Bank Up** or **Enhanced Zone Bank Down** button.

    NOTICE: For the Enhanced Zone Bank feature, you can press and hold the preprogrammed **Zone Bank Up** or **Zone Bank Down** button for faster scrolling.

One of the following scenarios occur:

- For the Basic Zone Bank feature, the radio displays the icon of the selected zone.

- For the Enhanced Zone Bank feature, the radio displays the icon of the selected zone bank.

2 To change zones, change the position of the **ABC Programmable Switch**.

7.5

Selecting a Channel

Procedure:

Use one the following methods to select a channel:

If…	Then…
	Rotate the **Channel Selector** to the required position.

If…	Then…
	a From the **Home** screen, tap the **Radio Control Widget**.
	b Perform one of the following actions:
	a On the **Channel** tab, select the required channel.
	b On the **Recents** tab, select the recently used zone and channel.
	c To search for the required channel, tap 🔍 **Search**.

7.5.1

Channel Error Messages

If there is a channel error, your radio displays error messages on the Radio Control Widget.

Type	Description
Unprogrammed	The mode is set to an unprogrammed channel.
Fail 001	The selected channel is assigned to an incorrect frequency band.

7.6

Managing Mode Select Menus

The Mode Select feature allows you to save the current zone and channel on your radio to one of the five Mode Select feature menus in the **Menu Feature Launcher** screen. After that, the menus on the **Home** screen function as shortcuts to the saved zone and channel.

Prerequisites: Navigate to the zone and channel that you want to save.

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 Perform one of the following actions:
   - To save the current zone and channel to one of the Mode Select menus, tap and hold the desired **Mode Select** menu.
   - To change to the preset zone and channel of the Mode Select menu, tap the **Mode Select** menu.

7.7

Toggling the Controls and Buttons Tones On and Off

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 To toggle the controls and buttons tones on and off, tap 🎵 **Tones**.

Chapter 8

General Radio Information

Use this menu item to view the general information of your radio.

The available information are:

- Radio Information
- IP Display
- SIM Status
- Control Assignments

8.1
Accessing the Radio Information

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 Tap ⓘ **Info** → **Radio Information**.

The radio displays the following information:

- Software Version
- Host Version
- Secure Version
- Model Number
- DSP Version
- Flash Code
- Serial Number
- Codeplug Alias
- RF Band(s)
- (KG) Secure Algorithms
- MAC Address
- ESN Numbers
- IMEI/ICCID

3 To close the **Radio Information** screen, tap **Close**.

8.2
Viewing the Control Assignments

This feature displays the programmable radio functions assigned to the controls of your radio for the currently selected channel.

See Programmable Features for more information on the various programmable features of your radio.

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 Tap ⓘ **Info** → **Control Map**.

8.3
Checking Device Status

Procedure:

1 From the **Home** screen, tap ⚙ **System Settings**.

2 Tap **My Device**.

Chapter 9

Selecting a Radio Profile

This feature allows you to manually switch the visual and audio settings of the radio. The display, backlight, alert tones, and audio settings are defined according to the preprogrammed radio settings of each radio profile.

Procedure:

1 From the **Home** screen, tap ● ● ● **More**.

2 Tap 📻 **Profiles**, then select the required profile.

Chapter 10

Toggling the Transmit Power Level between High and Low

This feature allows you to reduce the transmit power level for a specific case that requires a lower power level. The reduced transmit power level does not affect the receiving performance of your radio nor diminish the data functionality of the radio.

Low power level enables a shorter transmitting distance and helps conserve power. High power level enables a longer transmitting distance.

> **NOTICE:** If this function is preprogrammed to a radio switch, you are unable to change the transmit power level on the **Radio Quick Settings** menu.

Procedure:

1 From the **Home** screen, tap **Radio Quick Settings**.

2 To toggle the power level between low and high power, tap **Low Power**.

Chapter 11

Types of Radio Calls

Your radio can make talkgroup, private, and enhanced private calls in conventional and/or trunking mode.

Call Type	Conventional Mode	Trunking Mode	SmartConnect
Talkgroup Call A Talkgroup Call is a point-to-multi-point call operation. Your radio must be configured as a member of the talkgroup for you to communicate within the talkgroup.	✔	✔	✔
Private Call A Private Call is a call from one individual radio to another.	✘	✔	✘
Enhanced Private Call This feature allows you to send a follow up Call Alert Page immediately after a private call to a target radio is unanswered.	✘	✔	✘
Selective Call A Selective Call is a call from an individual radio to another individual radio with privacy.	✔	✘	✘
Call Alert Page Allows the radio to function like a pager, or to verify if a radio is active on the system.	✔	✔	✔

11.1
Making Calls on the Radio

Procedure:

1 Perform one of the following actions based on the type of radio call:

If…	Then…
Talkgroup Call	a See Selecting a Zone on page 32 and Selecting a Channel on page 33 to ensure that you are in the preferred zone and channel. b To transmit, press and hold the **PTT** button.

If…	Then…

	c Perform one of the following actions:
	   • Trunking – Wait for the Talk Permit tone, then speak into the microphone.
	   • Conventional – Speak into the microphone.
	d To listen, release the **PTT** button to.
	
	   NOTICE: You cannot transmit longer than the preset Time-Out Timer setting. If you attempt to do so, the radio automatically stops your transmission, and you hear a negative tone.

Call Alert Page	**a** From the **Home** screen, tap ![contacts icon] **Contacts**. **b** Tap ![FAB icon] **FAB** → **Dialer**. **c** Enter the required number. **d** Tap ●●● **More** → **Page**. **e** Tap ![page icon] **Page**.
Private Call or Selective Call	**a** From the **Home** screen, tap ![contacts icon] **Contacts**. **b** Tap ![FAB icon] **FAB** → **Dialer**. **c** Enter the required number. **d** Tap ●●● **More** → **Private Call**. **e** To start the call, press the **PTT** button. **f** To end the call, tap **End**. **NOTICE:** If Enhanced Private Call is enabled and there is no answer from the target radio, press the **PTT** button to send a Call Alert Page.
Dual Tone Multi-Frequency (DTMF) Transmission	Perform one of the following actions: If Hot Keypad mode enabled: **a** From the **Menu Feature Launcher**, tap ![dialer icon] **Dialer** → ●●● **More** → **DTMF**.

If…	Then…
	b Press the **PTT** button while entering the DTMF number. If DTMF Mic enabled: **a** From the **Menu Feature Launcher**, tap ⠿ **Dialer** → ●●● **More** → **DTMF**. **b** Enter the DTMF number.

11.2
Receiving Calls on the Radio

Procedure:

Perform one of the following actions based on the type of radio calls:

If…	Then…
Talkgroup Call	No action is required. Your radio automatically plays the transmission from the talkgroup call.
Call Alert Page	Tap **Okay** to accept the Call Alert Page.
Private Call or Selective Call	Perform one of the following actions: • To accept the call, tap **Accept**. To end the call, tap **End**. • To dismiss the call, tap **Dismiss**.

Chapter 12

Emergency Operation

The Emergency feature is used to indicate a critical situation. An emergency signal overrides any other communication over the selected channel.

Your radio supports the following Emergency modes:

- Emergency Alarm
- Emergency Call
- Emergency Alarm with Emergency Call

One channel supports only one Emergency mode. The radio responds differently when pressing the preprogrammed **Emergency** button in each channel.

Your radio is also programmed to operate in one of the following conditions:

Tactical/Non-Revert
The radio sends an emergency alarm and/or makes an emergency call on the current channel.

Non-Tactical/Revert for Conventional System
The radio reverts to the preprogrammed emergency channel to send an alarm and/or make an emergency call.

Non-Tactical/Revert for Trunking System
The radio reverts to the preprogrammed emergency talkgroup (trunking system) or channel (conventional system) to send an alarm and/or make an emergency call.

Man Down is an alternate way to activate the Emergency feature. For more information, see .

Contact your system administrator for more information.

12.1
Special Considerations for Emergency Operation

The following scenarios apply during Emergency operation:

Table 8: Emergency Operation Scenarios

If...	Then...
If you press the **Emergency** button while in a channel that has no Emergency capability,	a low-pitched tone sounds.
If you change to a channel/mode with no Emergency capability while in Emergency operation,	the following occurs: - The display shows `No emergency`. - A continuous low-pitched tone sounds until you select a valid Emergency channel/mode or until you disable the Emergency operation.
If you change to a channel/mode with Emergency capability while in Emergency operation,	the Emergency Alarm and/or Emergency Call continues on the new channel/mode.
If the radio is out-of-range of the system or the emergency alarm is not acknowledged,	a tone sounds and the display shows `No acknowledge`.

12.2
Emergency Keep-Alive

This feature prevents the radio from being turned off when it is in Emergency mode. If this feature is enabled, you are required to exit Emergency mode before turning off your radio.

12.3
Sending Emergency Alarms

This feature allows you to send a data transmission, which identifies the radio sending the emergency, to the dispatcher.

Procedure:

Press the preprogramed **Emergency** button.

Your radio shows the following indications:

- A tone sounds
- The LED blinks red momentarily
- The radio displays `Emergency`

When you receive an acknowledgment from the dispatcher (and the central controller if you are in a trunking system), your radio shows the following indications:

- A high-pitched tone sounds (Trunking only)
- The display shows `Acknowledge Received`
- Four audio tones sound
- The alarm ends
- The radio exits the Emergency Alarm mode

12.4
Making Emergency Calls (Trunking Only)

You radio is programmed to support emergency calls with or without Hot Mic. When emergency call with Hot Mic is enabled, the microphone of your radio is automatically activated, allowing you to communicate with a group of radios without pressing the **PTT** button.

The microphone remains active for the Hot Mic time specified in the codeplug programming of the radio.

Procedure:

1 Press the preprogramed **Emergency** button.

2 Perform one of the following actions based on the type of emergency call:

If…	Then…
Emergency Call	**a** Press and hold the **PTT** button. **b** Speak into the microphone. **c** To end the transmission and wait for a response from the dispatcher, release the **PTT** button.
Emergency Call with Hot Mic	Speak into the microphone.

If…	Then…
	✎ **NOTICE:** The Hot Mic applies to the first voice transmission from your radio during the Emergency call. For subsequent transmissions in the same Emergency call, you must press the **PTT** button.

3 To exit Emergency Call, see .

12.5
Sending Emergency Alarms with Emergency Calls

Procedure:

1 Press the preprogrammed **Emergency** button.

Your radio shows the following indications:

- The radio displays the confirmation message of a successful or unsuccessful acknowledgment from the dispatcher.

- The radio exits Emergency Alarm and enters the Emergency Call state.

2 Perform one of the following actions based on the type of emergency call:

If…	Then…
Emergency Call	**a** Press and hold the **PTT** button. **b** Speak into the microphone. **c** To end the transmission and wait for a response from the dispatcher, release the **PTT** button.
Emergency Call with Hot Mic	Speak into the microphone. ✎ **NOTICE:** The Hot Mic applies to the first voice transmission from your radio during the Emergency call. For subsequent transmissions in the same Emergency call, you must press the **PTT** button.

3 To exit Emergency Call, see .

12.6
Exiting Emergency Operation

If an Emergency operation is triggered on your radio, the dispatch console or radios configured as Supervisor can also exit the Emergency operation.

Procedure:

Perform one of the following actions:

If…	Then…
	Press and hold the preprogrammed **Emergency** button until you hear the emergency exit tone.
	a From the **Home** screen, swipe down the **Status Bar**. b Tap **Cancel** and confirm the action by tapping **Yes**.

12.7
Exiting Emergency as Supervisor (Trunking Only)

Radios configured as Supervisor are able to cancel emergency mode of other radios. The dispatch console must be preprogrammed to use this feature. Check with your dealer or system administrator for more information on dispatch console supporting this feature.

Procedure:

1 Perform one of the following actions:

If…	Then…
If the emergency mode is initiated by other radios,	press and hold the **1-Dot (Side Middle)** button and press the **Emergency** button.
If the emergency mode is initiated by the Supervisor,	Perform one of the following actions: • Press and hold the **Emergency** button. • Press and hold the **1-Dot (Side Middle)** button and press the **Emergency** button. • Wait for console to clear emergency.

 NOTICE: The following buttons combinations are supported:

- Radio **1-Dot (Side Middle)** and **Top (Orange)** buttons.
- Radio **1-Dot (Side Middle)** and accessory **Top (Orange)** buttons.
- Accessory **1-Dot Button** and radio **Top (Orange)** button.
- Accessory **1-Dot Button** and accessory **Orange** button.

Chapter 13

Man Down

Man Down is a supporting feature of the Emergency operation. The Emergency feature must be programmed for Man Down to operate.

Your radio activates the Man Down feature when it achieves or exceeds a tilt angle threshold or a combination of the angle threshold and radio motion below the motion sensitivity level. The radio must stay in this condition for a programmed period before the Emergency Alarm or Call is activated.

> **NOTICE:** Because Man Down may be triggered accidentally, consider the following scenarios when using your radio:
>
> • If the radio is programmed to a horizontal position only, it must be worn in a vertical position.
>
> • If the radio is programmed with the Man Down feature, turn off the radio when charging it with a wall-mounted charger.
>
> • When you dismiss Man Down and keep the radio horizontal, no emergency will be sent and no further Man Down notification will occur until the device is rotated back to normal (portrait) mode.

13.1
Radio Alerts When Man Down is Triggered

When Man Down is triggered, your radio plays an alert tone and the display shows `Man Down Detected`.

Man Down Enhanced

Your radio also supports Man Down Enhanced where it plays an alert tone for a preprogrammed period. This tone is louder than the preprogrammed minimum level or the current level of the speaker and it acts as a beacon that helps to find the radio.

When the alert tone is active, changing to another channel with a different setup triggers a different response from the radio:

• The alert tone is inhibited when you change to a channel without Emergency feature.

• The alert tone is inhibited when you change to a channel with Emergency but no Man Down feature.

• The current alert tone is inhibited and is replaced with a different alert tone when you change to a channel with Emergency feature and a different Man Down configuration.

• The alert tone continues when you change to a channel with Emergency and similar Man Down configuration.

13.2
Testing the Man Down Feature

Prerequisites: Ensure that Man Down is configured on your radio.

Procedure:

1 Turn on the radio and place it in a vertical position for at least five seconds.

2 Lay the radio down in a horizontal position.

The radio plays an alert tone and the display shows `Man Down Detected`.

Postrequisites: If Man Down is configured but the condition does not trigger the activation of the feature, send the radio to a qualified technician.

13.3
Exiting Man Down

Procedure:

To exit Man Down mode, press **Cancel**.

13.4
Re-Initiating Man Down

Procedure:

To re-initiate Man Down after exiting Emergency Operation, perform one of the following actions:

- Return the radio to a vertical position.
- If motion sensitivity is enabled, shake the radio.

Chapter 14

Secure Operations

Secure radio operation provides the highest commercially available level of voice security on both trunked and conventional channels.

By default, the radio automatically enters the encrypted environment without having to manually select or clear the secure transmission.

14.1

Toggling between Secure and Clear Transmission

Procedure:

> Turn the **Secure/Clear** switch to the required position.
>
> If the Secure/Clear selection differs from the security settings of the channel when you attempt to transmit, the **Radio Control Widget** shows `Secure Tx Only` or `Clear Tx Only`.

14.2

Selecting Encryption Keys (Conventional Only)

This feature allows you to change the encryption key from an active keyset.

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 Tap Select Key, then select the required encryption key.

14.3

Changing Encryption Keysets

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 Tap Change Keyset, then select the required encryption keyset.

3 Tap **Change** to confirm the request.

14.4

Infinite UKEK Retention

This feature enables Unique Key Encryption Key (UKEK) to be permanently stored in the radio even when all the encryption keys are erased. Without this UKEK key, the radio cannot be rekeyed over the air. The Infinite UKEK Retention settings can be different for each secure profile.

> **NOTICE:** This feature must be preprogrammed by a qualified radio technician. Check with your dealer or system administrator for more information.

14.5
Requesting Rekey

Over-the-Air Rekey (OTAR), allows the system administrator to remotely reprogram encryption keys in the radio. The Rekey Request feature allows you to request for the reprogramming of the encryption keys.

Prerequisites: Ensure that at least one initial secret Unique Key Encryption Key (UKEK) has been provisioned. This secret UKEK must be established before a Rekey Request delivers the updated keys.

Procedure:

From the **Home** screen, tap ●●● **More** → 🔍 **Request Rekey** → **Continue**.

Chapter 15

SmartProgramming

The SmartProgramming service enables radio programming and updates over LTE broadband connection while the radios are in use. Seamless updates of firmware (full and differential), radio configuration and security updates are scheduled by the radio system administrator and the radio user is given a choice to install immediately or delay for later.
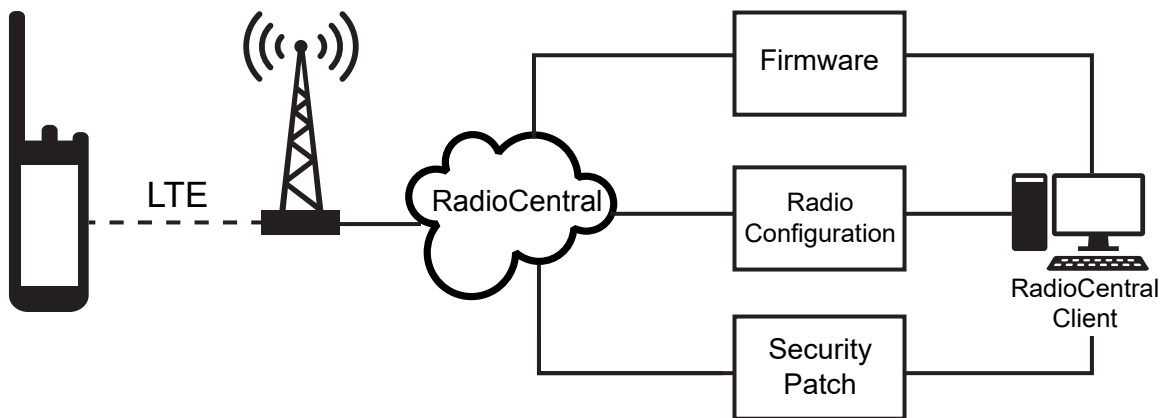
With SmartProgramming, you can apply a software feature to your radios on the go. Shortly after the purchase, the new software features license is loaded into RadioCentral and a provisioning job can be scheduled to enable the feature through LTE. Your radio service provider can also schedule a software update for your radio. When an update is available, your radio automatically downloads the update package. After the package is downloaded, you can install it immediately or later.

You or your service provider can reset your radio to factory settings by using this feature.

NOTICE: This feature is a selling feature.

NOTICE: The Remote Speaker Microphone (RSM) firmware updates are carried out by the radio. Your radio will not show any notification as the updates are happening in the background.

Chapter 16

Connectivity

This section explains the management of connections between your radio and a variety of networks and other devices.

16.1
LTE

Your radio is set up with Long Term Evolution (LTE) broadband connection to enable Smart Programming out-of-the box, and also the SmartConnect and SmartLocate features.

The LTE SIM is installed into the radio at the Motorola Solutions factory and locked to the specific radio, so it cannot operate in any other radio or device. The SIM is located at a slot in the rear chassis. Do not remove the SIM, even if LTE is not active or in use.

16.2
SmartConnect

SmartConnect allows your radio to maintain voice communication when LMR is out of range by switching to an LTE network.

Before switching broadband connections, your radio compares the relative signal strength of the various broadband connection types to one another, as well as LMR. Your radio remains or returns to LMR connection when the other broadband connections fall below the quality threshold. In addition, a radio operating on a lower priority broadband connection returns to the higher priority or quality connection while idle on SmartConnect.

> 📝 **NOTICE:** This feature must be preprogrammed by a qualified radio technician. Contact your system administrator for more information.

Your radio displays the SmartConnect capable icon 🌙 on the SmartConnect enabled channel, once the device is connected to an available network, the radio displays SmartConnect connection icon

🌙 .

Your radio displays `Out of Range` when both LMR and SmartConnect are unavailable.

16.3
Wi-Fi

You can connect your radio to a Wi-Fi network for wireless programming. Your service administrator preprograms the Wi-Fi Service Set Identifier (SSID) or network name that your radio can connect to. This feature is enabled by default on your radio.

16.4
Bluetooth®

This feature allows your radio to extend its functionality by connecting to external proprietary Motorola Solutions accessories.

By default, Bluetooth is activated on your radio. Your radio supports the following Bluetooth devices or profiles:

• Headset (HSP)

• Serial Port (SPP)

16.4.1
Toggling Bluetooth On and Off

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 Tap ✶ **Bluetooth**.

3 To toggle Bluetooth on and off, tap **Bluetooth**.

16.4.2
Searching and Pairing the Bluetooth Device

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 Tap ✶ **Bluetooth**.

3 Tap ＋ .

Your radio starts to search for nearby pairable devices.

4 Tap the name of the Bluetooth device that you want to pair with, then tap **Pair**.

> **NOTICE:** If the Bluetooth Pairing PIN feature is enabled, verify that the codes are correct before you begin pairing.

16.4.3
Toggling Bluetooth Audio On and Off

Bluetooth Spkr will not be available if no Bluetooth audio device is connected.

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 Tap ✶ **Bluetooth**.

3 To toggle Bluetooth Audio on and off, tap **Bluetooth Spkr**.

16.4.4
Viewing and Clearing the Bluetooth Device Information

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 Tap ✱ **Bluetooth**.

3 To view the device information, tap ⓘ next to the name of the device.

4 Tap **Forget** twice, to confirm the request.

16.5
P25 Digital Vehicular Repeater System

Motorola Solutions offers an MSI Certified APX compatible, third party, P25 Digital Vehicular Repeater System (DVRS) that provides low-cost portable radio coverage in areas where only mobile radio coverage is available and portable radio coverage is either intermittent or non-existent.

> **NOTICE:** Portable subscriber units enabled in the system for Radio Authentication shall be able to authenticate regardless of whether they are communicating directly on the system or by using a DVRS.

<div style="background:#1070c9;color:white;padding:8px;font-weight:bold">Chapter 17</div>

Location

The Global Navigation Satellite System (GNSS) integrates information from the Global Positioning System (GPS) and the Global Navigation Satellite System (GLONASS) to determine the approximate geographical location of your radio.

The radio also supports the following features:

Indoor Positioning

This feature allows your radio location to be tracked through Wi-Fi or cellular modem when satellite signal is unavailable. Your radio is able to continually report the current location to the CommandCentral Aware through SmartLocate, even when you are located indoors.

> **NOTICE:** This feature is enabled through RadioCentral. Contact your system administrator for more information.

SmartLocate

The SmartLocate feature allows the radio to send its own location securely over broadband or LMR depending on how the radio is configured. The radio is capable of sending location while operating in any system.

> **NOTICE:** This feature is a selling feature.

SmartMapping

This feature allows you to view your current location and the location of other devices/units in a map or list view.

> **NOTICE:** This feature is a selling feature.

The dispatcher can always request the system to determine the real-time location of the radio.

> **NOTICE:** The Location feature is sometimes referred to as GPS in the manual, as the naming convention of the buttons and strings follows that of the legacy GPS feature.

17.1
Toggling Location On and Off

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 To toggle location services on and off, tap 📍 **Location**.

17.2
Viewing My Location

Procedure:

1 From the **Home** screen, tap the **Location Widget**.

2 Perform one of the following actions:

| If…	Then…
If SmartMapping is enabled	Perform one of the following actions: • In **Map** view, tap **My Location** and tap the address. • In **List** view, tap the address in **My Location**.
If SmartMapping is disabled	Tap the address in **My Location**.

17.3
Waypoints

This feature shows the location coordinates and the saved waypoints on your radio. Waypoints are saved manually or automatically whenever an Emergency operation is triggered from your radio. If the Saved Waypoints list is full when Emergency operation is triggered, the radio deletes the oldest generated Emergency waypoint.

17.3.1
Creating Waypoints

Procedure:

1 From the **Home** screen, tap ••• **More → 📍 Waypoints**.

2 To create a waypoint, tap ➕ **Add**.

3 Enter a name for the waypoint, then tap ✓ **Done**.

17.3.2
Editing Waypoints

Procedure:

1 From the **Home** screen, tap ••• **More → 📍 Waypoints**.

2 Tap the required waypoint, then tap ⋮ **More** to perform one of the following actions:

If…	Then…
To edit waypoint name	a Tap **Edit Name**. b Enter a waypoint name, then tap ✓ **Done**.
To update waypoint location	Tap **Set to current loc. → Update**.
To delete waypoint	Tap **Delete**.

By default, the radio has a **HOME** waypoint. It starts as an empty waypoint with no coordinates. You can edit it and assign it to your current location.. In the **Map** view, select the home waypoint to reset the map to the **Home** location.

17.3.3
Managing Waypoints

Procedure:

1 From the **Home** screen, tap ●●● **More** → 📍≡ **Waypoints**.

2 Select Waypoint from the list.

3 Tap ⋮ **More** to perform one of the following actions:

If…	Then…
To search waypoints	**a** Tap **Search waypoints**, then enter the name of the waypoint. **b** To view the waypoint details, tap the required waypoint.
To delete waypoints	**a** Tap **Delete waypoints**. **b** Select the waypoints that you want to delete, then tap 🗑 **Delete**.
To change location settings	**a** Tap **Location settings** and perform one of the following actions: • To change or disable the friendly location format, tap **Friendly format**. • To change the coordinate format, tap **Coordinate format**. **b** Select the required format setting.

17.4
SmartMapping

This feature allows you to view your current location and the location of other devices/units in a map or list view.

Table 9: SmartMapping Icons

Icons are used in the map to provide event indications and also user functions when selected. Contact your system administrator for other icons supported on your radio.

Icon	Name	Description
Map List	Map/List Tab	Allows you to toggle between Map and List view.
🔵	My Location	Shows the location of your radio. Appears in gray when there is no GPS signal, internet connection, or when location is disabled.

Icon	Name	Description
+ −	Zoom In/Zoom Out	Enlarges or reduces the view of the map.
	Center Location	Brings ⬤ **My Location** to the center of the map. Appears when ⬤ **My Location** is not at the map center.
	Waypoint	Indicates the waypoints saved in your radio.
	Police unit	Indicates other talkgroup units that are logged in to CommandCentral.
	Police unit in Emergency	Indicates that the unit is in Emergency mode.
	Smartphone	Indicates other Smartphones that are logged in to CommandCentral.

17.4.1
Viewing Units/Devices

Procedure:

1 From the **Home** screen, tap the **Location Widget**.

2 Perform one of the following actions:

   • To view units/devices in **Map** view, tap the desired unit/device icon then tap the address.

   • To view units/devices in **List** view, tap the desired unit/device then tap the address.

3 To view the device details of a unit, tap the name or icon of the device.

4 While in the **Device details** menu, perform one of the following actions:

   • To view the location of the device on the map, tap 🗺⊙ **View on Map**.

   • To view the contact information of the selected device, tap ▣ **Contact Detail**.

   Depending on whether the contact is saved in your radio, the radio opens the Dialer feature with or without the contact information.

17.4.2
Creating Waypoints in Map View

Procedure:

1 From the **Home** screen, tap the **Location Widget**.

2 From the **Map** view, long press a location on the map.

3 Tap **Add Waypoint**.

4 Enter a name for the waypoint, then tap **Done**.

17.4.3
Editing Waypoints in Map View

Procedure:

1 From the **Home** screen, tap the **Location Widget**.

2 From the **Map** view, tap a waypoint then tap ⋮ **More**.

3 Perform one of the following actions:

If…	Then…
To edit waypoint name	**a** Tap **Edit Name**. **b** Enter a waypoint name, then tap ✓ **Done**.
To set a waypoint to current location location	Tap **Set to current loc.** → **Update**.
To delete waypoint	Tap **Delete**.

17.4.4
Managing Options in Map View

Procedure:

1 From the **Home** screen, tap the **Location Widget**.

2 Tap **Map** → ⋮ **More** and perform one of the following actions:

If…	Then…
To search for other devices/units	**a** Tap **Search**, then enter the Unit/Device name. **b** To view the location details, tap the required device/unit.
To filter and display group and Waypoints options	**a** Tap **Filter**. **b** Select the desired groups or Waypoints, then tap ✓ **Done**.
To change map view	Tap **Map layers**, then select the required map view.
To view Waypoints	Tap **Waypoints**.
To open Location settings	Tap **Settings**.

If…	Then…
To view map details	Tap **About map**.

Managing Options in List View

Procedure:

1 From the **Home** screen, tap the **Location Widget**.

2 Tap **List** → ⁞ **More** and perform one of the following actions:

If…	Then…
To search for other devices/units	**a** Tap **Search**, then enter the Unit/Device name. **b** To view the location details, tap the desired device/unit.
To filter and display group and Waypoints options	**a** Tap **Filter**. **b** Select the desired groups or Waypoints, then tap ✓ **Done**.
To view Waypoints	Tap **Waypoints**.
To open Location settings	Tap **Settings**.

Chapter 18

Contacts

This feature provides "address-book" capabilities on your radio. Each entry corresponds to an alias (name) and ID (number) that you use to initiate a call. Contact entries are alphabetically sorted according to the entry alias.

Also, each entry, depending on context (conventional or trunking), associates with one or up to five IDs according to the following types of calls:

- Private Call
- Selective Call
- Call Alert

Each entry within Contacts contains the following information:

- Call Alias (Name)
- Call ID (Number)
- Call Type (Icon)
- WACN ID (ASTRO 25 Trunking IDs only)
- System ID

NOTICE: Your radio must be preprogrammed to allow you to add, edit, or delete the contact entries.

NOTICE: Your radio is preprogrammed with a few contacts per Call Lists. Check with your dealer or system administrator for more information.

18.1
Contacts Tab

When you select a contact from the **Contacts** list, you can view the available call types and the associated call IDs in the **Contact Details** tab.

You can view the assigned IDs for a call type by tapping the drop-down list of an ID.

The Floating Action Button (FAB) allows you to add a **New Contact** or access the **Dialer** feature.

18.2
Call List Tab

Your radio supports a maximum of 50 Call Lists. Each list can store up to 100 IDs.

The Floating Action Button (FAB) on the **Call List** screen allows you to:

- **Edit Current Call List**
- Access the **Dialer** feature
- **See Radio List**

18.3
Dialer

This feature allows you to dial a number to make calls. The ⏰ **Recents** screen shows the 50 most recent calls on your radio with local date and time timestamp.

Dialer can be accessed either from the ☰ **FAB** or the **Menu Feature Launcher** screen.

Icon	Description
✓	Missed Call
❗	Emergency Call
👥	Private Call
▭	Page
〰	Dual Tone Multi-Frequency (DTMF)
No icon	Dispatch Call

18.4
Searching Contacts

Procedure:

1 From the **Home** screen, tap 👥 **Contacts**.

2 Tap 🔍 **Search**, then enter the name of the contact.

18.5
Creating New Contacts

Procedure:

1 From the **Home** screen, tap 👥 **Contacts**.

2 Tap ☰ → **New Contact**.

3 Enter the name of the contact, then tap **More Numbers**.

4 Select the contact type.

5 Enter the contact information, then tap ✓ **Done**

6 Perform one of the following actions:

• To add more numbers, repeat steps step 3 through step 5.

- To exit contact creation, tap ✓ **Done**.

18.6
Viewing Contact Details

Procedure:

1 From the **Home** screen, tap 👥 **Contacts**.

2 Tap the required contact, then tap ▼ **Down** to view the secondary information of the contact.

18.7
Managing Contacts

Procedure:

1 From the **Home** screen, tap 👥 **Contacts**.

2 Tap the required contact, then tap ⋮ **More** to perform one of the following actions:

If…	Then…
Edit Contact	**a** Tap **Edit Contact** → ✏ **Edit**. **b** Make the required changes, then tap ✓ **Done**. 📝 **NOTICE:** If a contact alias is updated in the provisioning system, this update is reflected on your radio when you receive a group call from the contact. The new alias will be saved to your Call List, after you power cycle your radio.
Delete Contact	Tap **Delete Contact** → **Delete**.
Edit Call List	**a** Tap **Edit Call List**. **b** Tap the contact that you want to remove, then approve the confirmation message. **c** Tap ✓ **Done**.
Add to Call List	This option is only available if the contact is not on the call list. **a** Tap **Add to Call List**, then tap the available slot on the call list. **b** Tap ✓ **Done**.

18.8
Making Calls from the Contacts Screen

Procedure:

1 From the **Home** screen, tap Contacts.
2 Select the required contact.
3 To initiate the call, press the **PTT** button.
4 To end the call, tap **End**.

18.9
Changing Call Types in Contacts

Procedure:

1 From the **Home** screen, tap Contacts.
2 Scroll the contact list to the contact that you want to modify.
3 Tap and hold the call icon.
4 From the drop down list, select the new call type.

Chapter 19

Instant Recall

This feature allows you to playback the recent received calls and save them in your radio. Check with your system administrator for the duration of the recorded calls that your radio supports. All saved calls are removed upon radio power cycle.

19.1
Playing Received Calls

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 Tap ⏱ **Recents** and perform one of the following actions:

   • To play a recent call audio, tap 📻 **All conv.** and tap the call that you want to play. The radio autoplays the audio that you have selected up to the newest received audio.

   • To play a saved call audio, tap 🎙 **Saved conv.** and tap the call that you want to play. The radio autoplays the audio that you have selected up to the newestsaved audio.

19.2
Saving Received Calls

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 Tap ⏱ **Recents** → 📻 **All conv.**.

3 Tap ⋮ **Context Menu** → **Save all**.

Chapter 20

Messages

This feature allows you to quickly send and receive messages directly from your radios. The maximum length of a text message is 200 characters. Local date and time is timestamped on the messages.

NOTICE: This feature must be preprogrammed by a qualified radio technician. Check with your dealer or system administrator for more information.

20.1

Composing and Sending Text Messages

Procedure:

1 From the **Home** screen, tap ![icon] **New Message**.

2 Perform one of the following actions:

If…	Then…
the recipient is on the User List,	tap the target user.
the recipient is not on the User List,	**a** Tap **New Conversation**. **b** Enter the user name or ID.

3 Use the keyboard to compose your message.

You can also tap ![icon] **Quick Message** to reply using one of the canned messages.

4 To send the message, tap ![icon] **Send**.

5 If a message delivery fails, tap ![icon] to retry.

20.2

Viewing Messages

Procedure:

1 From the **Home** screen, tap ![icon] **All Messages**.

2 To view message history, tap any selected conversation and view the message history in the conversation view.

3 To search message history, type either contact name or keyword at ![icon] **Search History** and the searched results will appear.

20.3
Deleting Selected Messages

Procedure:

1 From the **Home** screen, tap **All Messages**.

2 Perform one of the following actions:

If…	Then…
To delete a single message,	Tap and hold the message that you want to delete.
To delete more than one message,	**a** Tap ⋮ **More → Select to Delete**. **b** Select the messages that you want to delete.

3 Tap 🗑 **Delete**.

20.4
Deleting All Messages

Procedure:

1 From the **Home** screen, tap **All Messages**.

2 Tap ⋮ **More → Delete All**.

3 Tap **Delete** to delete all messages.

Chapter 21

SmartMessaging

SmartMessaging allows you to send or receive messages over a broadband connection. This feature also includes advanced messaging capabilities such as multimedia attachments.

You are required to log in to CommandCentral to use this feature. See Logging In to CommandCentral (Subsequent Login) on page 25.

NOTICE: This feature is a selling feature.

21.1
Composing and Sending a New Text Message

Procedure:

1 From the **Home** screen, tap **New Message**.

2 Perform one of the following actions:

If…	Then…
the recipient is on the User List,	tap the target user.
the recipient is not on the User List,	**a** Tap 🔍 **Search**. **b** Enter the user name or ID. **c** Tap the target user.

3 Use the keyboard to enter your message.

4 Send your message by tapping ▶ .

5 If the message delivery fails, tap ⚠ to retry.

21.2
Sending a Quick Text Message

Procedure:

1 From the **Home** screen, tap **New Message**.

2 Perform one of the following actions:

If…	Then…
If the recipient is on the User List,	tap the target user.
If the recipient is not on the User List,	**a** Tap 🔍 **Search**.

If…	Then…
	b Enter the user name or ID.
	c Tap the target user.

3 Tap **Double Down Arrows** in the text entry box.

4 Tap one of the canned messages.

5 To send the message, tap .

21.3
Adding a New Quick Text Message

Procedure:

1 From the text input screen, tap **Double Down Arrows** → **Add Quick Text**.

2 Use the keyboard to enter your message.

3 Tap **Check** to save your message.

21.4
Editing a Quick Text Message

Procedure:

1 From the text input screen, tap **Double Down Arrows** → **Edit**.

2 Tap the message that is going to be edited.

3 Use the keyboard to enter your message.

4 Tap **Check** to save the new message.

21.5
Deleting a Quick Text Message

Procedure:

1 From the text input screen, tap **Double Down Arrows** → **Edit**.

2 Tap **Delete** next to the message that is going to be deleted.

3 Tap **Yes** to confirm the action.

21.6
Viewing Multimedia Attachment

NOTICE: This feature is applicable for SmartMessaging only.

Procedure:

1 From the **Home** screen, tap **All Messages**.

2 Select the desired conversation and perform one of the following actions:

   • If you want to view an image attachment, tap the image.

   • If you want to view a video attachment, tap the video and tap **Play**.

   • If you want to listen to a audio attachment, tap **Play**.

21.7
Forwarding a Multimedia Attachment

NOTICE: This feature is applicable for SmartMessaging only.

Procedure:

1 From the **Home** screen, tap **All Messages**.

2 Open an attachment from the selected message.

3 Tap **Forward Multimedia**.

4 Choose any individual or group contact that you want to forward the attachment to.

21.8
Sending a Group Message

NOTICE: This feature is applicable for SmartMessaging only.

Procedure:

1 From the **Home** screen, tap **New Message**.

2 Tap **Groups** and select the group from the **Group List**.

3 Use the keyboard to enter your message.

4 Send the message by tapping .

21.9
Viewing Message History

Procedure:

1 From the **Home** screen, tap **All Messages**.

2 Tap the selected conversation.

3 View message history in the conversation view.

21.10
Searching Message History

Procedure:

1 From the **Home** screen, tap **All Messages**.

2 Type either contact name or keyword at **Search History** and the searched results will appear.

Chapter 22

Voice Announcement

This feature enables the radio to audibly indicate the current feature mode, zone, or channel assigned to the user.

The available voice announcement priority options are:

High
Voice announcement is enabled even when the radio is receiving calls.

Low
Voice announcement is disabled when the radio is receiving calls.

Chapter 23

Radio Inhibit

This feature allows the system administrator to put a radio into a non-functional state when the radio is missing or in an unknown hand. The radio stays in this state regardless of its power changes.

> **NOTICE:**
> If the radio has Inter-system roaming capability, the system administrator is able to put the radio into a non-functional state when the missing radio roams to another system.

The radio can only be uninhibited by receiving an uninhibited command from the system administrator.

Chapter 24

Conventional Squelch Operation

This feature filters out unwanted calls with low signal strength or channels that have a higher than normal background noise.

Analog Options

Tone Private Line, Digital Private-Line, and carrier squelch is available (preprogrammed) per channel.

Option	Result
Carrier squelch	You hear all traffic on a channel.
Tone Private Line or Digital Private-Line	The radio responds only to your messages.

Digital Options

One or more of the following options may be preprogrammed in your radio. Contact your system administrator for more information.

Option	Result
Digital Carrier-Operated Squelch	You hear all digital traffic.
Normal Squelch	You hear any digital traffic having the correct network access code.
Selective Switch	You hear any digital traffic having the correct network access code and correct talkgroup.

Chapter 25

Using the PL Defeat Feature

This feature allows you to override any coded squelch that preprogrammed to a channel. The radio also unmutes to any digital activity on a digital channel. When this feature is active, the Carrier Squelch status indicator is displayed.

Procedure:

Place the preprogrammed **PL Defeat** switch in the PL Defeat position.

One of the following occurs:

- The radio plays the active transmission on the channel.
- If no activity is present, the radio is muted

Chapter 26

Digital PTT ID Support

This feature allows you to see the radio ID (number) of the radio from whom you are currently receiving a transmission. The receiving radio and the dispatcher can view the ID, which consists of up to a maximum of eight characters.

The ID number of your radio is also automatically sent every time you press the **PTT** button. This feature is preprogrammed per channel. For digital voice transmissions, the ID of your radio is sent continuously during the voice message.

Chapter 27

Smart PTT (Conventional Only)

Smart PTT is a per-personality, programmable feature used to keep radio users from talking over other radio conversations. When Smart PTT is enabled in your radio, you cannot transmit on an active channel.

The following table shows the variations of Smart PTT.

Mode	Description
Transmit Inhibit on Busy Channel with Carrier	You cannot transmit if traffic is detected on the channel.
Transmit Inhibit on Busy Channel with Wrong Squelch Code	You cannot transmit on an active channel with a squelch code or (if secure-equipped) encryption key other than your own. If the PL code is the same as yours, the transmission is not prevented.
Quick-Key Override	Your radio must be preprogrammed to allow you to use Quick-Key Override. This feature works with either one of the two above variations. You can override the transmit-inhibit state by quick-keying the radio (press **PTT** button twice within the preprogrammed time limit).

Chapter 28

Toggling between Repeater and Direct Operation

Repeater operation increases radio coverage area by connecting with other radios through a repeater. Direct or "talkaround" operation bypasses the repeater and connects directly to another radio. You can select either one of these operations on your radio.

Procedure:

1 From the **Home** screen, tap **Radio Quick Settings**.

2 To toggle between repeater and direct operation, tap **Direct**.

Chapter 29

Trunking System Controls

This chapters explain the trunking system control features in your radio.

29.1
Operating in Failsoft System

The failsoft system ensures continuous radio communication during a trunked system failure. When the radio goes into failsoft operation, it automatically switches to a failsoft channel which allows your radio to transmit and receive in conventional operation on a predetermined frequency.

When in failsoft operation, the radio emits a medium-pitched tone and the display shows `Failsoft`. When the trunking system returns to normal operation, your radio automatically leaves failsoft operation and returns to trunked operation.

Procedure:

If you want to communicate with other talkgroups during failsoft operation, rotate the **Channel Selector** to a different repeater frequency and press **PTT** to talk.

29.2
Imbalanced Coverage

Imbalanced coverage occurs when the radio is able to receive the control channel but is unable to transmit back to the system. The radio generates a periodic tone and displays `No Comms`.

29.3
Out-of-Range Radio

When your radio goes out of the range of the system, it can no longer lock onto a control channel.

You hear a low-pitched tone and/or the display shows the currently selected zone/channel combination and Out of range notification. Your radio remains in this out-of-range condition until it locks onto a control channel or failsoft channel, or if it is turned off.

29.4
Site Trunking Feature

If the Zone Controller loses communication with any site, that site reverts to site trunking. When this occurs, you can communicate only with the radios within your trunking site.

The display shows the currently selected zone/channel and the Site Trunking message.

Chapter 30

Dynamic Regrouping (Trunking Only)

This feature allows the dispatcher to temporarily reassign selected radios to a particular channel to communicate with each other.

When your radio is dynamically regrouped, it receives a dynamic regrouping command and automatically switches to the dynamically regrouped channel. You hear a tone and the display shows the name of the dynamically regrouped channel.

When the dispatcher cancels dynamic regrouping, the radio automatically returns to the previous zone and channel.

If you access a zone or channel that has been reserved as a dynamically regrouped mode for other users, you hear an invalid tone.

30.1
Classification of Regrouped Radios

The dispatcher can classify regrouped radios into Select Enabled or Select Disabled categories.

Select Enabled
Select-enabled radios are free to change to any available channel, including the dynamic-regrouping channel, once you have selected the dynamic-regrouping position.

Select Disabled
Select-disabled radios cannot change channels while dynamically regrouped. The radio is forced to remain on the dynamic-regrouping channel.

The Scan and Private Call features are unavailable when your radio is Select Disabled.

30.2
Requesting a Reprogram

Procedure:

1 From the **Home** screen, tap ●●● **More**.

2 To request a new dynamic regrouping assignment, tap 📻 **Reprogram**.

Chapter 31

Accessories

Not all accessories are FCC certified to operate with all radio models and/or bandsplits. Refer to the radio price pages for a list of FCC certified accessories or contact your sales representative for accessory compatibility.

Visit http://www.motorolasolutions.com to know more about the accessories supported by this radio.

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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.

Declaration of Conformity

This declaration is applicable to your radio only if your radio is labeled with the following FCC logo.

Per FCC CFR 47 Part 2 Section 2.1077(a)

Responsible Party

Name: Motorola Solutions, Inc.

Address: 2000 Progress Pkwy, Schaumburg, IL 60196-1078, U.S.A.

Phone Number: 1-800-927-2744

Hereby declares that **APX NEXT and APX NEXT XE** conforms to FCC Part 15, subpart B, section 15.107(a), 15.107(d), and section 15.109(a)

Class B Digital Device

As a personal computer peripheral, this device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1 This device may not cause harmful interference, and

2 This device must accept any interference received, including interference that may cause undesired operation.

> **NOTICE:**
> This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
>
> If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
>
> • Reorient or relocate the receiving antenna.
>
> • Increase the separation between the equipment and receiver.
>
> • Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
>
> • Consult the dealer or an experienced radio or TV technician for help.

Important Safety Information

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.

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

http://www.motorolasolutions.com

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This radio transmitter is approved by Industry Canada to operate with a Motorola Solutions-approved antenna with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Notice to Users (FCC)

This device complies with Part 15 of the FCC rules per the following conditions:

- This device may not cause harmful interference.

- The device must accept any interference received, including interference that may cause undesired operation.

- Changes or modifications made to this device, not expressly approved by Motorola Solutions, could void the authority of the user to operate this equipment.

FCC Licensing Information

This device complies with Parts 90 and 15 of the Federal Communications Commission (FCC) Rules.

Operation is subject to the condition that this device does not cause harmful interference. The radio operates on radio frequencies that are regulated by the Federal Communications Commission (FCC). To transmit on these frequencies, you are required to have a license issued by the FCC. Application is made available on FCC Form 601 and Schedules D, H, and Remittance Form 159.

To obtain these FCC forms, request document 000601 which includes all forms and instructions. If you wish to have the document faxed, mailed or have questions, use the following contact information.

Fax

Contact the Fax-On-Demand system at 1-202-418-0177

Mail

Call the FCC forms hotline at 1-800-418-FORM or 1-800-418-3676

Contact

For questions regarding FCC license, contact 1-888-CALL-FCC, 1-888-225-5322, or http://www.fcc.gov.

Before filling out your application, you must decide which frequency you can operate on. For questions on determining the radio frequency, call Motorola Solutions Product Services at: 1-800-448- 6686. Changes or modifications not expressly approved by Motorola Solutions may void the user authority granted by the FCC to operate this radio and should not be made. To comply with FCC requirements,

transmitter adjustments should be made only by or under the supervision of a person certified as technically qualified to perform transmitter maintenance and repairs in the private land mobile and fixed services as certified by an organization representative of the user of those services.

Replacement of any transmitter component such as crystal, semiconductor, and others not authorized by the FCC equipment authorization for this radio could violate FCC rules.

NOTICE: Use of this radio outside the country where it was intended to be distributed is subject to government regulations and may be prohibited.

Applying for Canadian License

The operation of your Motorola Solutions radio is subject to the Radiocommunications Act and must comply with rules and regulations of the Federal Government's department of Industry Canada. Industry Canada requires that all operators using Private Land Mobile frequencies obtain a radio license before operating their equipment.

Prerequisites: Obtain the latest Canadian License Application form at http://www.ic.gc.ca/ic_wp-pa.htm.

Procedure:

1 Fill in the items as per the instructions. Be sure to print legibly.

 If you need additional space for any item, use the reverse side of the application.

2 Make a copy of your files.

3 Prepare a cheque or money order payable to the "Receiver General for Canada", for an amount for each radio purchased.

 The license is renewed on April 1st each year, and issued for a period of 12 months.

4 Mail your completed application along with your cheque or money order to the closest Industry Canada District office.

Maritime Radio Use in the VHF Frequency Range

Special Channel Assignments

Emergency Channel

If you are in imminent and grave danger at sea and require emergency assistance, use VHF Channel 16 to send a distress call to nearby vessels and the United States Coast Guard. Transmit the following information, in this order:

1 "MAYDAY, MAYDAY, MAYDAY."

2 "THIS IS _____, CALL SIGN _____." State the name of the vessel in distress 3 times, followed by the call sign or other identification of the vessel, stated 3 times.

3 Repeat "MAYDAY" and the name of the vessel.

4 "WE ARE LOCATED AT _____." State the position of the vessel in distress, using any information that will help responders to locate you, e.g.:

   - latitude and longitude

   - bearing (state whether you are using true or magnetic north)

   - distance to a well-known landmark

   - vessel course, speed or destination

5 State the nature of the distress.

6 Specify what kind of assistance you need.

7 State the number of persons on board and the number needing medical attention, if any.

8 Mention any other information that would be helpful to responders, such as type of vessel, vessel length and/or tonnage, hull color, etc.

9 "OVER."

10 Wait for a response.

11 If you do not receive an immediate response, remain by the radio and repeat the transmission at intervals until you receive a response. Be prepared to follow any instructions given to you.

Non-Commercial Call Channel

For non-commercial transmissions, such as fishing reports, rendezvous arrangements, repair scheduling, or berthing information, use **VHF Channel 9**.

Operating Frequency Requirements

A radio designated for shipboard use must comply with Federal Communications Commission Rule Part 80 as follows:

- on ships subject to Part II of Title III of the Communications Act, the radio must be capable of operating on the 156.800 MHz frequency.

- on ships subject to the Safety Convention, the radio must be capable of operating:

   - in the simplex mode on the ship station transmitting frequencies specified in the 156.025–157.425 MHz frequency band, and

- in the semiduplex mode on the two frequency channels specified in the table below.

NOTICE:
Simplex channels 3, 21, 23, 61, 64, 81, 82, and 83 cannot be lawfully used by the general public in US waters.

Additional information about operating requirements in the Maritime Services can be obtained from the full text of FCC Rule Part 80 and from the US Coast Guard.

Table 10: VHF Marine Channel List

Channel Number	Frequency (MHz)	
	Transmit	Receive
1	156.050	160.650
2	156.100	160.700
*	156.150	160.750
4	156.200	160.800
5	156.250	160.850
6	156.300	–
7	156.350	160.950
8	156.400	–
9	156.450	156.450
10	156.500	156.500
11	156.550	156.550
12	156.600	156.600
13**	156.650	156.650
14	156.700	156.700
15**	156.750	156.750
16	156.800	156.800
17**	156.850	156.850
18	156.900	161.500
19	156.950	161.550
20	157.000	161.600
*	157.050	161.650
22	157.100	161.700
*	157.150	161.750
24	157.200	161.800
25	157.250	161.850
26	157.300	161.900
27	157.350	161.950
28	157.400	162.000
60	156.025	160.625

*	156.075	160.675
62	156.125	160.725
63	156.175	160.775
*	156.225	160.825
65	156.275	160.875
66	156.325	160.925
67**	156.375	156.375
68	156.425	156.425
69	156.475	156.475
71	156.575	156.575
72	156.625	–
73	156.675	156.675
74	156.725	156.725
75	***	***
76	***	***
77**	156.875	–
78	156.925	161.525
79	156.975	161.575
80	157.025	161.625
*	157.075	161.675
*	157.125	161.725
*	157.175	161.775
84	157.225	161.825
85	157.275	161.875
86	157.325	161.925
87	157.375	161.975
88	157.425	162.025

NOTICE:
*Simplex channels 3, 21, 23, 61, 64, 81, 82, and 83 cannot be **lawfully used** by the general public in US waters.*

*** Low power (1 W) only.*

**** Guard band.*

NOTICE: A – in the Receive column indicates that the channel is transmit only.

Declaration of Compliance for the Use of Distress and Safety Frequencies

The radio equipment does not employ a modulation other than the internationally adopted modulation for maritime use when it operates on the distress and safety frequencies specified in RSS-182 Section 7.3.

Technical Parameters for Interfacing External Data Sources

	RS232	USB	SB9600
Input Voltage (Volts Peak-to-peak)	18 V	3.6 V	5 V
Max Data Rate	115 Kbps	12 Mbps	9.6 Kbps
Impedance	5000 Ω	90 Ω	120 Ω

Limited Warranty

MOTOROLA SOLUTIONS COMMUNICATION PRODUCTS

I. WHAT THIS WARRANTY COVERS AND FOR HOW LONG:

MOTOROLA SOLUTIONS, INC. ("MOTOROLA") 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:

ASTRO APX NEXT Radio	One (1) Year
Product Accessories	One (1) Year

For LACR region:

ASTRO APX NEXT Radio	Three (3) Years
Product Accessories	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.

MOTOROLA SOLUTIONS offers the following optional extended service contracts.

DEVICE MANAGED SERVICES (DMS) ACCIDENTAL DAMAGE

Provides for extended hardware repair coverage INCLUDING CHEMICAL, LIQUID, FIRE, AND OTHER PHYSICAL DAMAGE. Accidental damage coverage is available in conjunction with MOTOROLA SOLUTIONS'S standard Commercial Warranty and starts from the FIRST DAY the radio is put into use. Service performed under this plan consists of repair or replacement of the covered equipment as set forth in the terms and conditions. Repairs will be made only at the designated MOTOROLA SOLUTIONS repair depot. Local services are not included. MOTOROLA SOLUTIONS will pay the inbound shipping charges only with use of the MOTOROLA SOLUTIONS designated

delivery service. MOTOROLA SOLUTIONS will pay for outbound shipping via MOTOROLA SOLUTIONS'S normal shipping methods.

DEVICE MANAGED SERVICES (DMS) STANDARD HARDWARE

Provides extended hardware normal wear and tear repair coverage beginning AFTER MOTOROLA SOLUTIONS'S standard Commercial Warranty period expires. Service performed under this plan consists of repair of the covered equipment as set forth in the terms and conditions. Repairs will be made only at the designated MOTOROLA SOLUTIONS repair depot. Local services are not included. MOTOROLA SOLUTIONS will pay for outbound shipping via MOTOROLA SOLUTIONS'S normal shipping methods.

II. GENERAL PROVISIONS:

This warranty sets forth the full extent of MOTOROLA SOLUTIONS'S responsibilities regarding the Product. Repair, replacement or refund of the purchase price, at MOTOROLA SOLUTIONS's 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 (e.g., dealer or communication service provider), it can facilitate your obtaining warranty service. You can also call MOTOROLA SOLUTIONS at 1-800-927-2744 US/Canada.

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's 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's 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 that MOTOROLA SOLUTIONS will be notified promptly in writing by such purchaser of any notice of such claim,

2 that 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's 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.

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 for the most updated warranty terms.