

RM Series Two-Way Radio User Guide

RMU2080d

FEBRUARY 2025

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European Union (EU) and United Kingdom (UK) Waste of Electrical and Electronic Equipment (WEEE) Directive



The European Union's WEEE directive and the UK's WEEE regulation require that products sold into EU countries and the UK must have the crossed-out wheeled bin label on the product (or the package in some cases). As defined by the WEEE directive, this crossed-out wheeled bin label means that customers and end users in EU and UK countries should not dispose of electronic and electrical equipment or accessories in household waste.

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

Disclaimer

Please note that certain features, facilities, and capabilities described in this document may not be applicable to or licensed for use on a specific system, or may be dependent upon the characteristics of a specific mobile subscriber unit or configuration of certain parameters. Please refer to your Motorola Solutions contact for further information.

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Legal and Compliance Statements

Supplier's Declaration of Conformity

Supplier's Declaration of Conformity

Per FCC CFR 47 Part 2 Section 2.1077(a)



Responsible Party

Name: Motorola Solutions, Inc.

Address: 2000 Progress Pkwy, Schaumburg, IL. 60196

Phone Number: 1-800-927-2744

Hereby declares that the product:

Model Name: **RMU2080d**

conforms to the following regulations:

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.



NOTE:

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 device frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to device communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to device 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 device or TV technician for help.

Safety and Compliance Information

RF Energy Exposure and Product Safety Guide for Two-way Radios



CAUTION:

Before using this product, read the operating instructions for safe usage contained in the Product Safety and RF Exposure booklet enclosed with your radio which contains important operating instructions for safe usage and RF energy awareness and control for Compliance with applicable Standards and Regulations.

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.
- This 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 <https://www.fcc.gov/>

Before filling out your application, you must decide which frequency you can operate on. Refer to [Frequencies and Bandwidths](#) for frequency information. 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.



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

Batteries and Chargers Safety Information

This document contains important safety and operating instructions. Read these instructions carefully and save them for future reference. Before using the battery charger, read all the instructions and cautionary markings on:

- The charger
 - The battery
 - The radio attached with battery
1. To reduce risk of injury, charge only the rechargeable Motorola Solutions-authorized batteries. Charging the other batteries may cause explosion, personal injury, and damage.
 2. Use of accessories not recommended by Motorola Solutions may result in fire, electric shock, or injury.
 3. To reduce damage to the electric plug and cord, pull by plug rather than the cord when disconnecting the charger.
 4. Do not use an extension cord unless necessary. Use of an improper extension cord may result in fire and electric shock. If an extension cord must be used, make sure that the cord size is 18 AWG for lengths up to 100 ft (30.48 m), and 16 AWG for lengths up to 150 ft (45.72 m).
 5. Do not operate the charger if it has been broken or damaged in any way. Take it to any qualified Motorola Solutions service representatives.
 6. Do not disassemble the charger; it is not repairable and replacement parts are not available. Disassembly of the charger may result in risk of electrical shock or fire.
 7. To reduce risk of electric shock, unplug the charger from the AC outlet before attempting any maintenance or cleaning.

Operational Safety Guidelines

- Turn off the radio while charging.
- The charger is not suitable for outdoor. Use only in dry locations or conditions.
- Disconnect charger from line voltage by removing the main plug.
- Connect the equipment to an outlet, which is easy to access and near.
- For equipment using fuses, fuse replacements must comply with the type and rating specified in the equipment instructions.
- The maximum ambient temperature around the power supply equipment must not exceed 40 °C (104 °F).
- Power output from the power supply unit must not exceed the ratings stated on the product label located at the bottom of the charger.
- Make sure that the cord is not stepped on, tripped over, subjected to water, damage, or stress.

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Chapter 1

Introduction

This user guide covers the operation of your radio.

This user guide covers multiple RM Series models, and may detail some features your radio does not have. The radio model information is provided at the bottom of the radio.

Table 1: RM Series Radio Specifications

Model	Frequency Band	Transmit Power (W)	Number of Channels	Antenna
RMU2080d	UHF	2	8	Non-removable

1.1

Package Content

Your product package contains the following products and manuals:

- Radio
- Holster
- Lithium-Ion Battery
- Power Supply
- Quick Reference Guide
- Warranty Card
- Drop-in Tray Charger
- Product Safety & RF Exposure Booklet

For product information, refer to https://www.motorolasolutions.com/en_us/products/two-way-radios/commercial-business-two-way-radio-systems/on-site-business-radios/rm-series.html.

For product-related questions, contact the following numbers:

- 1-800-448-6686 in the USA
- 1-800-461-4575 in Canada
- 1-888-390-6456 on Text Telephone (TTY)

1.2

Use and Care

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

Table 2: Radio Cleaning Guideline

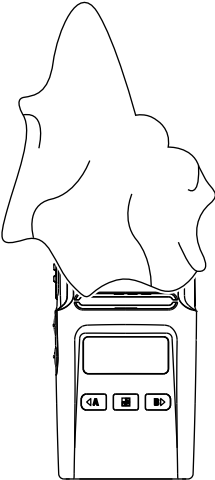
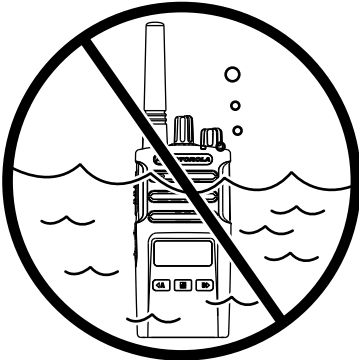
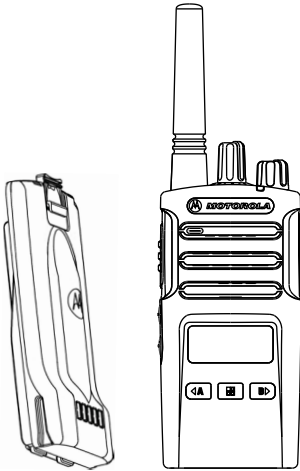
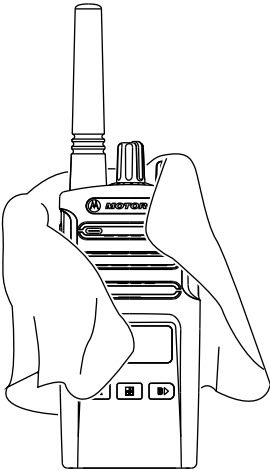
		
Use a soft damp cloth to clean the exterior.	Do not immerse in water.	Do not use alcohol or cleaning solutions.

Table 3: Guideline for Submerged Radio in Water

		
Turn off your radio and remove the batteries.	Dry with soft cloth.	Do not use your radio until completely dry.

Chapter 2

Radio Overview

This chapter explains the buttons, functions, and LED indicators of your radio.

Figure 1: Radio Overview

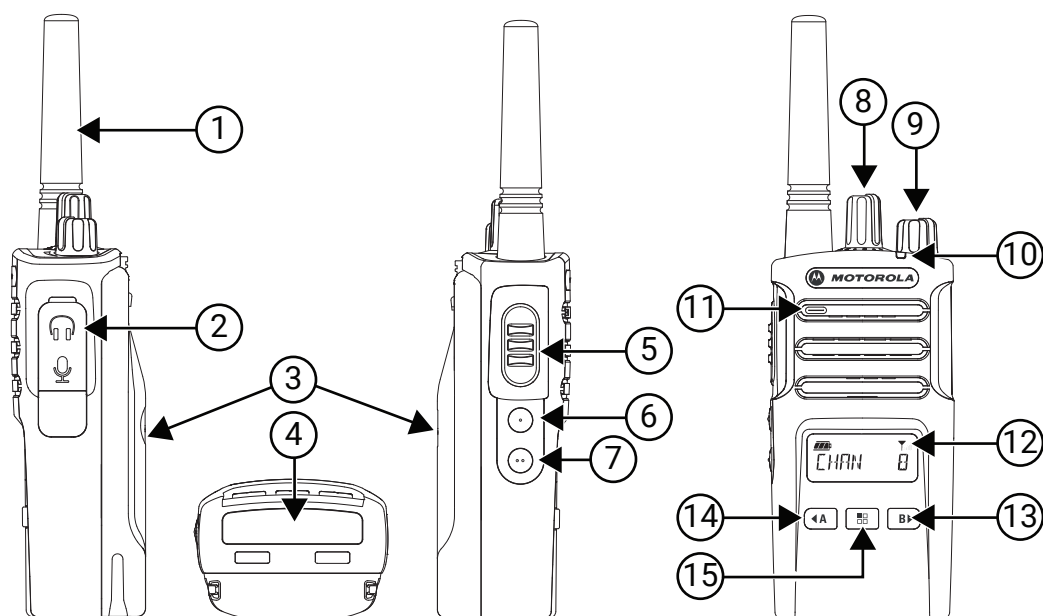


Table 4: Radio Overview

Label	Item	Description
1	Antenna	The antenna is non-removable for the RMU2080d model.
2	Accessory Connector	Allows you to connect compatible audio accessories to your radio.
3	Battery	All RM Series radios come with a Lithium-Ion (Li-Ion) battery.
4	Model Label	Indicates the model of your radio.
5	Push-to-Talk (PTT) button	Allows you to press and hold down this button to talk, and release it to listen.
6	Side button 1 (SB1)	A general button that is configurable using the Customer Programming Software (CPS). The default setting of SB1 is Monitor.
7	Side button 2 (SB2)	A general button that is configurable using the CPS. The default setting of SB2 is Scan or Nuisance Channel Delete.
8	Channel Selector Knob	Allows you to switch the radio to different channels.

Label	Item	Description
9	On/Off/Volume Control Knob	Allows you to turn the radio on or off, and adjust the volume.
10	LED Indicator	Provides battery status, power-up status, radio call information, and scan status.
11	Microphone	The radio microphone.
12	Display	The radio display screen.
13	Right Navigation Arrow/Programmable Button B	Programmable button of an assignable radio function. The default setting is the backlight mode.  NOTE: When you press the button, the radio tunes to the preset channel and sounds a tone. You can assign different functions to the button through the CPS.
14	Left Navigation Arrow/Programmable Button A	Programmable button of an assignable radio function. The default setting is to generate the current programmed call tone.  NOTE: When you press the button, the radio tunes to the preset channel and sounds a tone. You can assign different functions to the button through the CPS.
15	Menu	Allows you to scroll through and select all the features while in Programming Mode The default setting is to preset Channel 1.

2.1 LED Indicators

Table 5: Radio LED Indicators

Radio Status	LED Indication
Channel Busy	Solid orange
Cloning Mode	Double blinking orange
Cloning in Progress	Solid orange
Fatal Error at Power Up	Alternating green, orange, and green for four seconds
Low Battery	Blinking orange
Low Battery Shutdown	Rapid blinking orange
Monitor	LED is off
Power Up	Solid red for two seconds
Idle Programming Mode /Channel Mode	Blinking green

Radio Status	LED Indication
Scan Mode	Rapid blinking red
Transmit (Tx)/Receive (Rx)	Solid red
Transmit in Low Power Select	Solid orange
VOX/iVOX Mode	Double blinking red

Chapter 3

Getting Started

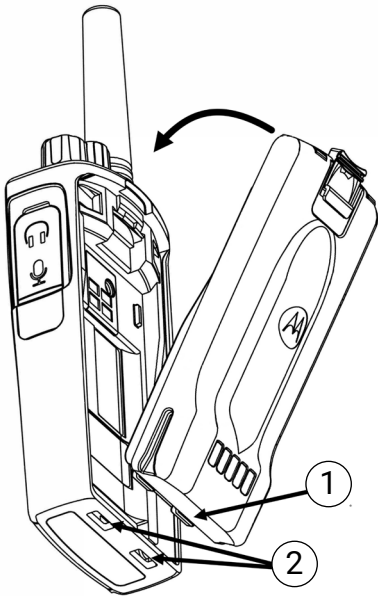
This chapter describes the basic radio operations.

3.1 Installing the Battery

Your radio uses a rechargeable Lithium Ion (Li-Ion) battery.

Procedure:

- 1. Turn off your radio.
- 2. Fit the battery tab into the slots at the bottom of the radio.
- 3. Push the top of the battery down until a click is heard.

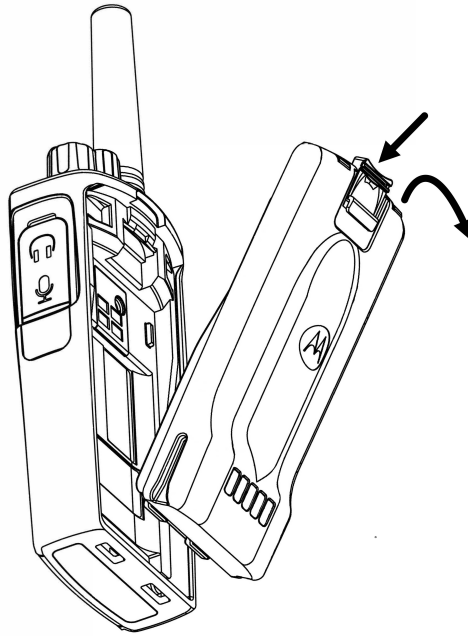


Label	Name
1	Tab
2	Slots

3.2 Removing the Battery

Procedure:

- 1. Turn off your radio.
- 2. Push down the battery latch and hold it while removing the battery.
- 3. Pull the battery away from the radio.



3.3

Battery Specifications

Battery life is determined by several factors. The critical ones are overcharging of batteries and the average depth of discharge each cycle. The greater the overcharge and the deeper the average discharge, the fewer cycles a battery lasts. A battery which is overcharged and discharged 100 % for several times a day, lasts fewer cycles than a battery that overcharges less and is discharged to 50 % per day. Battery with minimal overcharge and has an average of 25 % discharge, lasts even longer.

Motorola Solutions batteries are designed specifically to be used with a Motorola Solutions charger and vice versa. Charging batteries with non-Motorola Solutions equipment may lead to battery damage and void the battery warranty. Whenever possible, maintain the battery temperature to 77 °F (25 °C) (room temperature). Charging a cold battery (below 50 °F [10 °C]) may result in leakage of electrolyte and ultimate failure of the battery. Charging a hot battery (above 95 °F [35 °C]) results in reducing discharge capacity and affecting the performance of the radio. Motorola Solutions rapid-rate battery chargers contain a temperature-sensing circuit to ensure that batteries are charged within the temperature limits.

3.3.1

Battery Recycling and Disposal

Lithium-ion rechargeable batteries can be recycled. However, recycling facilities may not be available in all areas. Under various U.S. state laws and the laws of several other countries, batteries must be recycled and cannot be disposed of in landfills or incinerators. Contact your local waste management agency for specific requirements and information in your area. Motorola Solutions fully endorses and encourages the recycling of Lithium-Ion batteries.

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, access Call2Recycle website at <https://www.call2recycle.org/> or call 1-800-8-BATTERY. The internet site and telephone number also provide other useful information concerning recycling options for consumers, businesses, and governmental agencies.

3.3.2

Battery Life

The battery life lasts longer when the Battery Save feature is turned on. The Battery Save feature is enabled by default.

 **NOTE:** Battery life is estimated based on 5 % transmit, 5 % receive, and 90 % standby standard duty cycle.

3.3.3

Battery Meter

The battery meter located in the upper left corner of the radio display indicates how much battery power the radio has remaining.

Table 6: Li-Ion Battery Meter

Battery Meter		
3 Bars	2 Bars	1 Bar
		
100–70 %	70–30 %	35–0 % (≤10 % when blinking)

3.4

Charging the Battery

The RM Series radio offers two types of power supplies:

- Standard Power Supply
- Rapid Power Supply

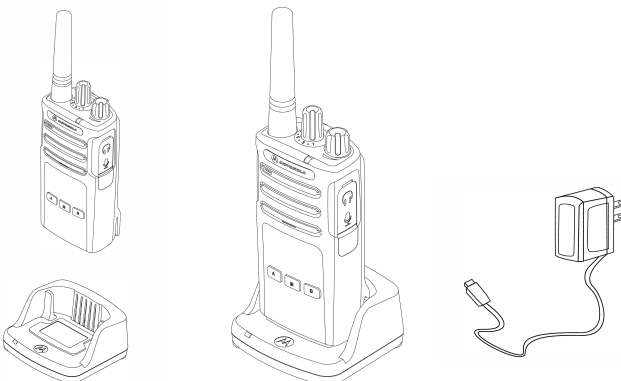
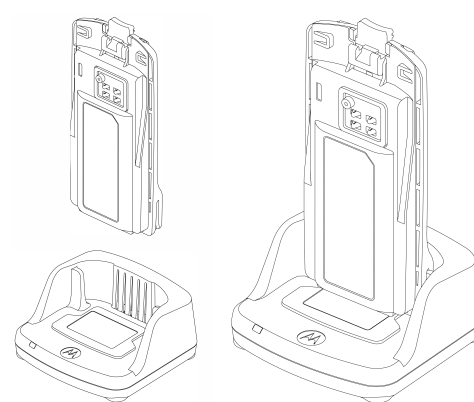
To charge the battery with the radio attached, place it in a Motorola Solutions-approved Drop-in Tray Single-Unit Charger (SUC) or Drop-in Tray Multi-Unit Charger (MUC).

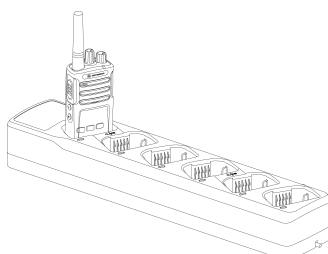
 **NOTE:** Your radio comes with the standard power supply.

Procedure:

1. Turn off the radio.
2. Place the charger (SUC or MUC) on a flat surface.
3. Depending on the charger, insert the power cord plug as follows:
 - Charger port on the back of the SUC.
 - Dual pin connector at the bottom of the MUC.
4. Plug the power cord into an AC outlet.

5. To charge batteries, perform one of the following actions:

If	Then
Charging radio (battery installed) using the SUC	Insert the radio (with battery installed) into the charger. 
Charging a stand-alone battery using the SUC	a. Insert the battery into the charger. (Inside surface of the battery facing the front of the charger). b. Align the slots in the battery with the alignment ribs in the charger. 

If	Then
Charging batteries using Multi-Unit Charger (MUC)	Insert the radio or battery into the charging pocket with the radio or battery facing away from the contacts.  NOTE: The MUC allows drop-in charging of up to six radios or batteries. Batteries can be charged inside the radios or removed and placed in the MUC separately. Each of the six charging pockets can hold a radio or battery, but not both. 

3.4.1

Charger LED Indication

Ensure that the radio or the stand-alone battery is inserted correctly in the charger, and there is power to the outlet.

Perform one of the following actions if there is no LED indication:

- Check if the radio with battery, or the battery alone, is inserted correctly.
- Ensure the power supply cable is securely plugged into the charger socket using an appropriate AC outlet and there is power to the outlet.
- Confirm that the battery being used with the radio is listed in [Authorized Accessories List](#) on page 53.

The following table explains the LED Indicator shown on the chargers.

Table 7: Charger LED Indication

Indication		Status
Green for approximately one second		Power On
Steady red		Charging
Steady green		Charged

Indication		Status
Fast blinking red		Error  NOTE: Re-position the battery pack to fix the error.
Slowly blinking amber		Standby  NOTE: Battery temperature is too warm or too cold or wrong power voltage is used.
Blink red one time		Battery level is low
Blink amber two times		Battery level is medium
Blink green three times		Battery level is high
No LED Indication	-	The battery is depleted

3.4.2

Estimated Charging Time

This section provides the estimated charging time of the battery.

Table 8: Estimated Charging Time

Charging Solution	Battery Type
	Standard Lithium-Ion Battery
Standard	≤ 4.5 Hours
Rapid	≤ 2.5 Hours

3.5

Using the Holster

Procedure:

1. Slide the bottom of the radio into the holster until it snaps into place.
2. To remove, detach the hooks on the holster and pull the radio away from the holster.

3.6

Turning the Radio On

Procedure:

To turn on the radio, rotate the **On/Off/Volume** knob clockwise.

The radio plays one of the followings:

- The radio sounds a tone and announces the channel number.
- The radio announces the battery level and channel numbers.
- The radio is silent. Audible tones are disabled.

The LED blinks red briefly.

3.7

Turning the Radio Off

Procedure:

To turn off the radio, rotate the **On/Off/Volume** knob counterclockwise until you hear a tone, and the LED indicator turns off.

3.8

Adjusting Volume

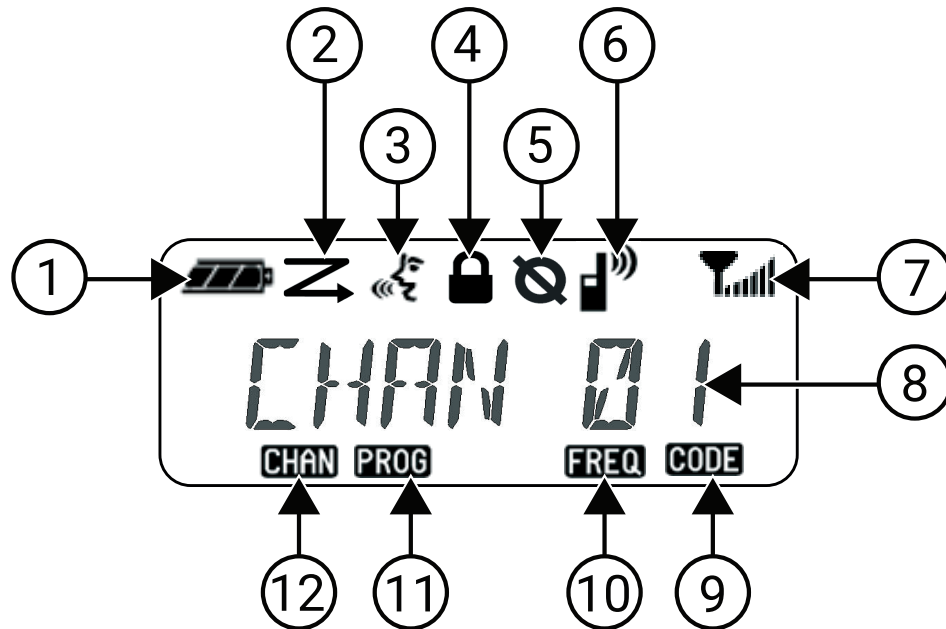
Turn the **On/Off/Volume** knob clockwise to increase the volume, or counterclockwise to decrease the volume.



NOTE: Do not hold the radio too close to your ear when the volume is high or while adjusting the volume.

3.9

Home Screen Overview



Item Number	Icons	Description
1	Battery Level	Provides the remaining battery level information.
2	Scan	Displays when the radio is set to SCAN mode.
3	Internal Voice Operated Transmission (iVOX) or Voice Operated Transmission (VOX)	Displays when iVOX/VOX is enabled, programming MIC, or MIC gain features.
4	Keypad Lock	Displays when the Keypad lock feature is enabled.
5	Scramble	Displays when scramble is enabled.
6	High Power	Displays when the channel is transmitting or set to a high-power selection.
7	Signal Strength	Displays the strength of the received signal.
8	Channel Number	Displays the current channel number.
9	Interference Eliminator Code Indicator	Displays when programming codes features.
10	Frequency Indicator	Displays when programming frequency features.
11	Programming Mode Indicator	Displays when the radio is set to Programming Mode.

Item Number	Icons	Description
12	Channel Indicator	Displays when programming channel features.



NOTE:

The channel and code radio display can be different for each radio depending on the pre-programmed radio defaults and features available in the particular model or region.

The backlight turns on when pressing any button except the **PTT** button.

Chapter 4

Basic Radio Operations

This chapter explains the basic operations that you can perform on your radio.

4.1

Selecting Channels

Procedure:

- To select a channel, rotate the **Channel Selector** knob until you reach the required channel.
- You hear the selected channel voice prompt from your radio.
- Each channel has its own frequency, interference eliminator code, and scan settings.

4.2

Talking and Monitoring

Monitor the traffic before transmitting to avoid talking over someone who is already transmitting.

Procedure:

1. To access the channel traffic, press and hold the **SB1** button.
If no activity is present, you can hear a static tone.
 2. To release, press the **SB1** button again.
 3. To talk, press the **PTT** button after the channel traffic is cleared.
When transmitting, the LED illuminates in solid red.
 4. To listen to all activity on the current channel, press the **SB1** button to set the Continuous Tone-Controlled Squelch Systems (CTCSS) /Digital Private-Line (DPL) code to 0.
-  **NOTE:** This feature is called the CTCSS/DPL Defeat. The squelch is set to Silent and the **SB1** button is not programmed for a different mode.

4.3

Receiving Calls

Procedure:

1. Select a channel by rotating the **Channel Selector** knob until you reach the required channel.
You hear the selected channel voice prompt from your radio.
Ensure the **PTT** button is released and listen for voice activity.
The LED illuminates in solid red when the radio is receiving calls.
2. To respond, press the **PTT** button.
3. To listen, release the **PTT** button.

4.4

Signal Strength Indicator and Channel Busy Indicators

When there is an activity on a frequency, the Signal Strength indicator icon illuminates and the radio LED blinks.

When your radio is in the receiving mode and there is activity on the same frequency and code as your radio, the Signal Strength indicator icon can change from 1 (weakest) to 6 (strongest) depending on the radio reception coverage.



NOTE: Obstacles blocking the signal path may affect the incoming signal.

4.5

Talk Range

For two-way communication, the radios must be on the same channel, frequency, and interference eliminator codes.

Table 9: Talk Range

Model	Industrial (Inside steel/concrete Industrial buildings)	Multi-Level (Inside multi-level buildings)
UHF 2 W	Up to 250,000 square feet	Up to 20 floors

The talk range depends on the following stored profile that has been preprogrammed on the radio.

Channel

Current channel that the radio is using, depending on the radio model.

Frequency

The frequency the radio uses to transmit or receive.

Interference Eliminator Code:

Minimizes the interference by providing a choice of code combination.

Scramble Code

Codes that makes the transmissions sound garbled to anyone listening who is not set to that specific code.

Bandwidth

Some frequencies have selectable channel spacing and must match to other radios for optimum audio quality. Only available for RMU2043.

For details on how to set up frequencies and Continuous Tone-Controlled Squelch Systems (CTCSS) /Digital Private-Line (DPL) codes in the channels, refer to [Advanced Configuration Mode on page 28](#).

4.6

Voice Operating Transmission

Voice Operating Transmission (VOX) allows you to make hands-free voice-activated calls on a VOX-capable accessory.

You can set the VOX feature through the **Menu** button.

4.6.1

Setting VOX with Compatible VOX Accessories

Prerequisites:

The default factory setting for Voice Operated Transmission (VOX) sensitivity level is OFF, level 0. Before using VOX, set the level to other level than the default setting by using Customer Programming Software (CPS).

Procedure:

1. Turn the radio off.
2. Open the accessory cover.
3. Insert the audio accessory plug into the accessory port.
4. Turn the radio on.

The LED indicator blinks red twice.

5. Lower the radio volume before placing the accessory near your ear.
6. To transmit, speak into an accessory microphone.

VOX can be temporarily disabled by pressing the **PTT** button or by removing the audio accessory.



NOTE: To order accessories, refer to the followings:

- a. <http://www.motorolasolutions.com/RMseries>
- b. 1800-448-6686
- c. Contact your Motorola Solutions point of purchase.

4.6.2

Setting iVOX without Accessories

Procedure:

To enable Internal Voice Operated Transmission (iVOX), press the **PTT** button while turning on the radio.

Result:



NOTE:

The VOX icon blinks.

Pressing the **PTT** button temporarily disables iVOX.

Pressing the **PTT** button again enables iVOX.

There is a short delay between the time that you start talking and when your radio transmits.

4.6.3

Enabling Power Up Tone Mode

Procedure:

To enable or disable the power up tone mode, press **SB1** and **SB2** buttons simultaneously for two to three seconds while powering up the radio.

You hear one of the following tones and audible voice announcement:

- The radio sounds a tone and announces the channel number.
- The radio announces the battery level and channel numbers.

- The radio is silent. Audible tones are disabled.

4.6.4

Resetting to Factory Default

This feature sets all radio features back to the default settings.

Procedure:

Press **PTT**, **SB1**, and **SB2** simultaneously while turning on the radio until you hear a tone.

4.6.5

Enabling Voice Prompt in User Mode

Procedure:

To enable or disable the voice prompt in User mode, press the **SB1** button while turning on the radio.



NOTE: The default setting is set to On.

4.6.6

Setting the Keypad Sounds

Procedure:

Perform one of the following actions:

- To enable the keypad sounds, press the **SB2** button while turning on your radio until you hear a tone.
- To disable the keypad sounds, press the **SB2** button while turning on your radio until you hear a tone.

4.6.7

Locking or Unlocking the Keypad

Procedure:

Perform one of the following actions:

- To lock the keypad, press and hold the **Menu** button for four seconds.
- To unlock the keypad, press and hold the **Menu** button for four seconds.



NOTE: The keypad locking feature does not apply to the PTT button and programmable button that have been assigned the Call Tone feature.

4.7

Accessing Menu

Procedure:

1. To access the radio menu, press the **Menu** button.
2. To navigate the menu, press the left and right navigation buttons.
3. Once you are at the desired option settings, perform one of the following actions:

- To save the configured settings, press the **Menu** button.
- To save and exit from the menu, press and hold the **PTT** button.
- To exit the menu without saving, turn off your radio.



NOTE: If no activity is detected, your radio exits the menu automatically.

4.7.1

Setting Sensitivity Levels for VOX or iVOX

You can adjust the VOX or iVOX sensitivity settings by using the **Menu** button or Customer Programming Software (CPS).

Prerequisites: Ensure that VOX or iVOX is enabled.

Procedure:

1. Press the **Menu** button.
 - If iVOX is enabled, your radio display **I VOX** and the current sensitivity level.
 - If accessory is connected to the radio and VOX is enabled, your radio display **VOX** and the current sensitivity level.
2. To change the sensitivity level, use the left and right navigation buttons.

Table 10: Sensitivity Levels

Sensitivity Level	Description
0	Off (For VOX accessories only)
1	Low sensitivity
2	Medium sensitivity (Default sensitivity for VOX)
3	High sensitivity (Default sensitivity for iVOX)

3. Perform one of the following actions:
 - To save the selected sensitivity level, press the **Menu** button.
 - To exit the settings without saving the changes, turn off your radio.

Chapter 5

Programming Features

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

5.1 Advanced Configuration Mode

Advanced Configuration mode allows you to configure additional features through the radio front panel.

You can customize the following features:

- Frequency Selection
- Codes (CTCSS/DPL)
- Scramble
- Maximum Channels
- Call Tone
- Microphone Gain
- Scan
- Weather Channel

Table 11: Advanced Configuration Mode Feature Customization

Feature	Description
Frequency Selection	Allows you to choose frequencies from a predefined list.
Codes (CTCSS/DPL)	Allows you to minimize interference by providing combinations of codes that filter out static, noise, and unwanted messages.
Scramble	The scramble feature makes your transmissions sound garbled to anyone listening without the same scramble code. While this feature does not ensure absolute confidentiality, it adds an extra layer of privacy by making unauthorized interception and comprehension more challenging.
Maximum Channels	Allows you to configure the maximum number of channels for your radio.
Call Tone	Allows you to transmit an audible tone to other radios on the same channel to alert them that you are about to talk or to alert them without speaking.
Microphone Gain	Allows you to configure the microphone gain level.
Scan	Allows you to monitor other channels to detect conversations.
Weather Channel	Allows you to alternate the channel function two-way radio channel and weather channel. There are seven received frequencies for the weather channel.

Perform one of the following actions after the feature customization:

- To continue programming, press the **PTT** button.
- To save settings and enter the Idle Programming mode, press and hold the **PTT** button.
- To exit Idle Programming mode, press and hold the **PTT** button twice.
- To exit the programming mode without saving, turn off the radio.



NOTE:

When you return to the beginning of the programming mode options, the radio automatically saves all the changes made even if you turn off the radio.

5.1.1

Entering Advanced Configuration Mode

Advanced Configuration mode allows you to configure special settings in your radio without the need of a computer.

Procedure:

To set the radio to Advanced Configuration mode, press and hold the **PTT** and **SB1** buttons simultaneously for three seconds while turning on the radio.

Result:

Your radio shows the following indications:

- The green LED blinks.
- The Advanced Configuration mode defaults to the Idle Programming mode.
- The program icon displays.
- The current channel name blinks indicating that you can rotate the Channel Selector Knob to select the channel you want to program.



NOTE: The Idle Programming mode is where the radio waits for you to start the radio programming cycle.

5.1.2

Programming the Receive Frequencies

Procedure:

1. Select a channel to program and press the **PTT** button until the radio displays the frequency icon.
2. To program the frequency, navigate to the frequency code value using either **Right Navigation Arrow/Programmable Button B** or **Left Navigation Arrow/Programmable Button A** buttons.
3. Perform one of the following actions:
 - To save and exit the programming mode, press and hold the **PTT** button.
 - To continue to the next programming feature without saving, press the **PTT** button.

5.1.3

Programming the Receive CTCSS or DPL Codes

Procedure:

1. Select a channel to program and press the **PTT** button until the radio displays the CTCSS/DPL icon.
2. To program the code, navigate to the CTCSS/DPL code value using either **Right Navigation Arrow/Programmable Button B** or **Left Navigation Arrow/Programmable Button A** buttons.

3. Perform one of the following actions:

- To save and exit the programming mode, press and hold the **PTT** button.
- To continue to the next programming feature without saving, press the **PTT** button.

5.1.4

Programming the Scramble Code

The scramble feature makes your transmissions sound garbled to anyone listening without the same scramble code. While this feature does not ensure absolute confidentiality, it adds an extra layer of privacy by making unauthorized interception and comprehension more challenging.

Prerequisites: Ensure your radio is in the Advance Configuration mode.

Procedure:

1. Select a channel to program and press the **PTT** button until the radio displays the scramble icon.
The scramble code blinks.
2. Using either **Right Navigation Arrow/Programmable Button B** or **Left Navigation Arrow/Programmable Button A** buttons, select one of the following scramble codes options:
 - 0
 - 1
 - 2
 - 3



NOTE: The values available for scrambling are dependent to the values programmed through the Customer Programming Software (CPS). The default scramble mode is off and disabled when the value is set to 0.

3. Perform one of the following actions:
 - To save and exit the programming mode, press and hold the **PTT** button.
 - To continue to the next programming feature without saving, press the **PTT** button.

5.1.5

Programming the Maximum Number of Channels

Prerequisites: Ensure your radio is in the Advance Configuration mode.

Procedure:

1. Press the **PTT** button until the radio displays **MAX CH**.
The radio blinks the current maximum number of channels programmed.
2. To select the maximum number of channels value, press either **Right Navigation Arrow/Programmable Button B** or **Left Navigation Arrow/Programmable Button A** buttons.
3. Perform one of the following actions:
 - To save and exit the programming mode, press and hold the **PTT** button.
 - To continue to the next programming feature without saving, press the **PTT** button.



NOTE: The values available for maximum channel settings depend on the maximum number of channels that your radio supports.

5.1.6

Programming the Call Tones

Call Tones feature allows you to transmit an audible tone to other radios on the same channel to alert them that you are about to talk or to alert them without speaking. In the Call Tone Selection Mode, you can configure the type of call tone for your radio.

Prerequisites: Ensure your radio is in the Advance Configuration mode.

Procedure:

1. Press the **PTT** button until the radio displays **TONE**.
The radio blinks the current call tone setting.
2. Using either **Right Navigation Arrow/Programmable Button B** or **Left Navigation Arrow/Programmable Button A** buttons, select one of the following scramble codes options:
 - 0
 - 1
 - 2
 - 3
3. Perform one of the following actions:
 - To save and exit the programming mode, press and hold the **PTT** button.
 - To continue to the next programming feature without saving, press the **PTT** button.



NOTE: The values available for call tones settings are dependent to the values programmed through the Customer Programming Software (CPS). Call tone is disabled when the value is set to 0.

5.1.7

Programming the Microphone Gain Level

Prerequisites: Ensure that the radio is in the Advanced Configuration mode.

Procedure:

1. To scroll up or down through the programming modes, press the **PTT** button or **Menu** button until your radio displays **IMIC**.
The radio blinks the current microphone gain level setting.
2. To select the desired microphone gain level, press either **Right Navigation Arrow/Programmable Button A** or **Right Navigation Arrow/Programmable Button B** buttons.
 - 1 = Low Gain
 - 2 = Medium Gain
 - 3 = High Gain
3. Perform one of the following actions:
 - To save and exit the programming mode, press and hold the **PTT** button.
 - To continue to the next programming feature without saving, press the **PTT** button.



NOTE: The values available for microphone gain level settings are dependent on the maximum number of microphone gain level your radio supports.

5.1.8

Programming Microphone Accessory Gain Level

Prerequisites: Ensure the radio is in the Advanced Configuration mode.

Procedure:

1. To scroll up or down through the programming modes, short press the **PTT** button or **Menu** button until your radio displays **MIC**.

The radio blinks the current microphone accessory gain level setting.

2. To select the desired microphone accessory gain level, press either **Left Navigation Arrow/Programmable Button A** or **Right Navigation Arrow/Programmable Button B** buttons.

- 1 = Low Gain
- 2 = Medium Gain
- 3 = High Gain



NOTE: The values available for microphone accessory gain level settings are dependent on the maximum number of microphone accessory gain level your radio supports.

3. Perform one of the following actions:
 - To save and exit the programming mode, press and hold the **PTT** button.
 - To continue to the next programming feature without saving, press the **PTT** button.

5.2

Other Programming Features

This section provides information on the other programming features available for this radio.

5.2.1

Scan

Scan allows you to monitor other channels to detect conversations.

When the radio detects a transmission, it stops scanning and stops at the active channel. This allows you to listen and talk to people in that channel without having to change the channel manually. If there are transmissions on another channel, you are not able to hear the activity once the radio has stopped scanning. Once the activity on the transmitting channel stops, the radio waits for five seconds before resuming the scan again.

5.2.1.1

Scanning Channels

Procedure:

1. To start scanning, press the **SB1** or **SB2** button.

The LED blinks red.



NOTE:

If auto scan is enabled, the radio scans automatically without pressing the SB1 or SB2 button.

When the radio detects channel activity, the radio stops on that channel until activity on that channel ends. You can talk without having to switch channels by pressing the **PTT** button.

By pressing the **PTT** button while the radio is scanning, the radio transmits on the channel that was previously selected before the scan is activated. If no transmission occurs within five seconds, scanning resumes.

To scan a channel without the Interference Eliminator Codes (CTCSS/DPL), set the code settings for the channels to 0 in the CTCSS/DPL Programming Selection mode.

2. To stop scanning, press the **SB1** or **SB2** button again.

5.2.1.2

Programming the Scan List

Prerequisites: Ensure the radio is in the Advanced Configuration mode.

Procedure:

1. To navigate to the Scan Programming mode, press the **PTT** button or **Menu** button.
The channel number and the current scan setting on your radio display blinks.
2. To set the channel number, rotate the **Channel Selector** knob until your radio displays the required channel number.
3. Press **SB2** button to perform one of the following actions:
 - To enable the scan list, select **YES**.
 - To disable the scan list, select **NO**.



NOTE: If the **Maximum Channel** setting in the radio is set to 1, the Scan Programming option is disabled and is not displayed on your radio screen.

4. Perform one of the following actions:
 - To save and exit the programming mode, press and hold the **PTT** button.
 - To continue to the next programming feature without saving, press the **PTT** button.

5.2.1.3

Programming the Weather Channel

Prerequisites: Ensure the radio is in the Advanced Configuration mode.

Procedure:

1. To navigate to the Weather Channel Programming mode, press the **PTT** button or **Menu** button.
2. Perform one of the following actions:
 - To enable the Weather Channel Programming mode, select **YES**.
 - To disable the Weather Channel Programming mode, select **NO**.
3. Perform one of the following actions:
 - To save and exit the programming mode, press and hold the **PTT** button.
 - To continue to the next programming feature without saving, press the **PTT** button.

5.2.2

Editing the Channel Alias Name

Procedure:

1. To edit the channel alias name, press and hold the **PTT** and **Left Navigation Arrow/Programmable Button A** button simultaneously for three seconds.

Your radio shows the following indications:

- Upon entering Channel Alias Mode, your radio sounds a tone.
- The channel number and the current scan setting on your radio display blinks.

2. To select the channel number to edit, rotate the **Channel Selector** knob.

3. To edit the channel alias name, press the **PTT** button or **Menu** button.

The character to be changed starts blinking. The cursor starts blinking when the channel alias name has a blank character.

4. To change a character, press the **Left Navigation Arrow/Programmable Button A** or **Right Navigation Arrow/Programmable Button B** button until your radio displays the desired character.

5. To move to the next character on the right, press the **Menu** button.

The character sequence is A-Z, blank space, 0-9, and special characters. A lower case is not allowed.

6. Perform one of the following actions:

- To save the changes and return to the Channel Alias mode, press and hold the **PTT** button.
- To exit, continue to edit the next channel without saving or turn off your radio.



NOTE: You cannot save the alias name if the channel alias name is left blank.

5.2.3

Nuisance Channel Delete

The Nuisance Channel Delete feature allows you to temporarily remove channels from the Scan List.

5.2.3.1

Deleting the Nuisance Channel

Procedure:

1. To start the scan mode, press the programmed **SB2** button.
2. To delete the channel, press and hold the **SB2** button once the radio stops at the channel you want to delete.

You cannot delete the channel with scan enabled (home channel).

3. To scan the channel again, exit the scan mode by pressing the **SB2** button or by turning off the radio and turning on again.

5.3

Weather Channel

NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service office.

NWR broadcasts official Weather Service warnings, watches, forecasts, and other hazard information 24 hours a day, 7 days a week. Working with the Federal Communication Commission's (FCC) Emergency Alert System, NWR is an "All Hazards" radio network, making it your single source for comprehensive weather and emergency information.

In conjunction with Federal, State, and Local Emergency Managers and other public officials, NWR also broadcasts warning and post-event information for all types of hazards. This covers a range of situations, including natural disasters like earthquakes and avalanches, environmental incidents such as chemical spills and oil leaks, public safety emergencies, which include AMBER alerts and 911 telephone outages."

NWR, known as the "Voice of NOAA's National Weather Service," is a public service provided by the National Oceanic and Atmospheric Administration (NOAA), which is part of the Department of Commerce. With a network of 1000 transmitters, NWR reaches all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and U.S. Pacific Territories. To access NWR broadcasts, you need a special radio receiver or scanner designed to pick up its signal.

Broadcasts are found in the VHF public service band at these seven frequencies:

- 162.400
- 162.425
- 162.450
- 162.475
- 162.500
- 162.525
- 162.550

The channel position 8 on all RM Series radios with a channel selector knob is configured at the factory to access NOAA Weather Radio. This feature can be disabled or reconfigured to any other available channel position using the Customer Programming Software (CPS) or in Advanced Configuration Mode.

When a channel with the NOAA Weather Radio feature is selected, the RM radio provides an audible voice announcement indicating the channel and weather frequency number. For example, Channel 8: Weather 1. The announced weather frequency number corresponds to one of the seven NOAA national frequencies to which the weather radio is currently tuned.

You can change the weather frequency in Weather Channel Programming mode by pressing the **SB2** button to access the Weather menu and then using the **SB1** button to toggle up or the **SB2** button to toggle down. The PTT button acts as the menu button to progress to the channel menu or weather alert menu.

5.3.1

NOAA Weather Alert

The RM series radio is capable of monitoring the NOAA frequency for any alerts issued by the National Weather Service.

When the Weather Alert feature is enabled, the radio mutes the daily weather broadcast. You can then switch the channel to a standard two-way radio frequency and continue with normal communications.

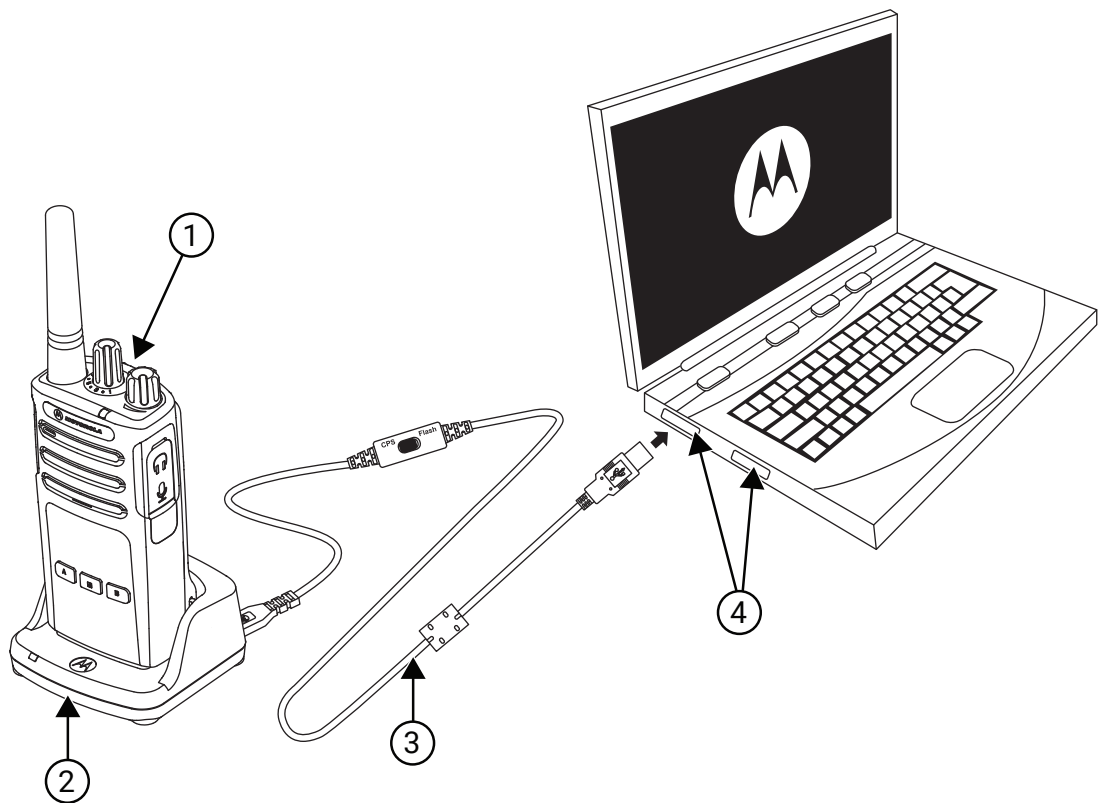
The Weather Alert enables the radio to detect a Warning Alarm Tone (WAT) from the National Weather Service. If a WAT is detected, the weather radio unmutes, allowing the message to be heard on the RM radio. When the RM radio is set to a two-way channel and the weather alert feature is activated, the radio unmutes and broadcasts the message upon detecting a WAT.

While you are monitoring an alert, pressing the PTT button, or changing channels exits the weather alert mode and return the radio to normal operation.

 **NOTE:** Using the Weather Alert Feature impacts normal battery life.

5.4 Customer Programming Software

You can program your radio by connecting your radio to the Drop-in Charger Tray and Customer Programming Software (CPS) Programming cable.



Label	Description
1	Radio to be programmed
2	Drop-In Tray Charger Tray
3	CPS Programming Cable
4	USB Ports

CPS Software is available for free as web based down-loadable software at <http://www.motorolasolutions.com/RMseries>.

CPS allows you to program the following features:

- Frequencies
- PL/DPL Codes

- Bandwidth Select
- Time-out Timer
- Power Select
- Scan List
- Call Tones
- Scramble
- Reverse Burst

CPS can lock the Front-Panel Radio Programming or restrict any specific radio feature to be changed, ensuring preset radio configurations are not accidentally erased.

CPS also provides security by giving the option to set up a password for profile radio management.



NOTE: CPS Programming cable, HKKN4027_ is an accessory sold separately. Contact your Motorola Solutions point of purchase for more information.

5.4.1

Time-Out Timer

Time-Out Timer allows you to set a fixed duration for a transmission before the transmission is automatically terminated by pressing the **PTT** button.

5.4.2

Power Select

Power Select feature allows you to select between high and low transmission power per frequency in each channel.

You can toggle the power levels between 1 W and 2 W.



NOTE: Some frequencies may have FCC transmit power limit that restrict you from setting the frequencies to a higher power level.

5.4.3

Call Tones

Call Tones feature allows you to transmit an audible tone to other radios on the same channel to alert them that you are about to talk or to alert them without speaking.

5.4.4

Scramble Code

Scramble Code feature makes transmissions sound garbled to anyone listening without the same code.

The default code value is **OFF**.

5.4.5

Reverse Burst

Reverse Burst feature eliminates unwanted noise (squellch tail) during loss of carrier detection.

You can select 180 or 240 to match other radios.

5.5

Clone Radio Settings

You can clone your radio profiles from the source to a target radio.

You can use one of the following unit chargers and cables for cloning:

- Multi-Unit Charger (optional accessory)
- Two Single-Unit Chargers (SUC) and a radio-to-radio cloning cable (optional accessory)
- Customer Programming Software (CPS)

5.5.1

Clone Mode in Multi-Unit Charger

You can clone radio profiles in a Multi-Unit Charger (MUC).

When in cloning mode, you must have at least two radios.

- A source radio where the profiles are copied or cloned to a target radio.
- A target radio where the profiles are cloned from the source radio.

The placement for source radio in MUC is in pocket 1 and 4. The placement for target radio in MUC is in pocket 2 or 5.

Match the placement for source and target radios in MUC as follows:

- 1 and 2
- 4 and 5

 **NOTE:** Read MUC pocket numbers from left to right with the Motorola Solutions logo facing front.

When pairing the source and target radio, use the same band type for successful cloning mode.

When cloning, the MUC does not need to be connected to a power source.

Figure 2: Cloning Mode in Multi-Unit Charger

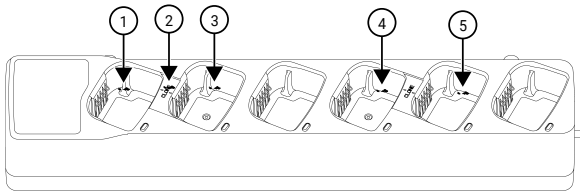


Table 12: Cloning Mode in Multi-Unit Charger

Number	Item
1	Pocket 1
2	"CLONE" symbol
3	Pocket 2

Number	Item
4	Pocket 4
5	Pocket 5

5.5.1.1

Configuring Cloning Mode in Multi-Unit Charger

Prerequisites: Ensure that all radios are fully charged.

Procedure:

1. Turn on the target radio.
2. Place the target radio into the Multi-Unit Charger (MUC) target pocket. See [Clone Mode in Multi-Unit Charger on page 38](#) for the correct placement.
3. To turn on the source radio, press **PTT** and **SB2** buttons simultaneously for three seconds.
A tone sounds.
4. Place the source radio into the paired MUC target pocket. See [Clone Mode in Multi-Unit Charger on page 38](#) for the correct placement.
5. Press and release the **SB1** button.
The voice announcement sounds, indicating that the cloning is successful or unsuccessful.
6. To exit cloning mode, turn off your radio and then turn it back on.



NOTE:

- For more information on cloning radios using the MUC, refer to the instruction sheet provided with the MUC.
- When ordering MUC, ensure to order MUC with part number PMLN6384_.

5.5.2

Clone Mode Using CPS and Cloning Cables (Optional Accessory)

Both Customer Programming Software (CPS) and Cloning cables are compatible with RM Series radios. The cloning cable supports a mix of RM and RDX series radios.

CPS Cable

CPS cable allows you to program the RM series radios. Ensure that the cable switch is in the flash position.

Figure 3: CPS Cable

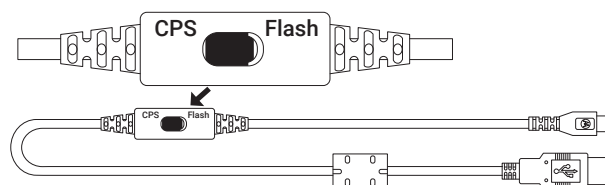


Figure 4: USB Converter



Cloning Cable

Cloning cable allows you to clone the following radios:

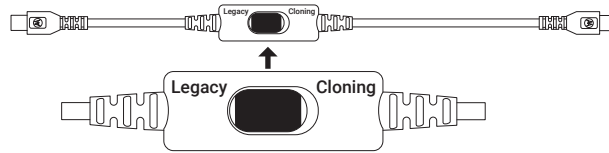
RM Series radios

Ensure that the switch is in cloning or legacy position.

RM Series and RDX Series radios

Ensure that the switch is in legacy position and uses a USB converter to the RDX single unit charger.

Figure 5: Cloning Cable



5.5.2.1

Configuring Cloning Mode Using Radio to Radio Cloning Cable (Optional Accessory)

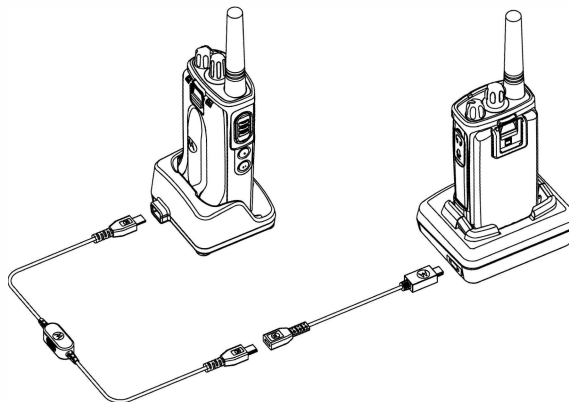
Prerequisites:

Ensure that all radios are fully charged.

Required devices/tools:

- Cloning cable
- One or two Single-Unit Chargers (SUC)

Figure 6: Radio to Radio Cloning



Procedure:

1. Turn the radio off.
2. Unplug the cables from the SUC.

3. Plug one side of the cloning cable mini USB connector to the first SUC, and the other end to the second SUC.



NOTE: During the cloning process, no power is being applied to the SUC. The batteries are not charged. Only data communication is established between the two radios.

4. Turn on the target radio and place it into one of the SUCs.
5. To turn on the source radio, press **PTT** and **SB2** buttons simultaneously.
6. Place the source radio in the SUC and press and hold the **SB1** button for three seconds.

A tone sounds, indicating that the cloning process has started. Once cloning is completed, the voice announcement sounds, indicating that the cloning is successful or unsuccessful.

When cloning is in progress, the display shows `Cloning` if the source radio is a display model.

When cloning is completed, the displays shows `Pass` or `Fail` if the source radio is a display model.

7. To exit the clone mode when the process is completed, perform one of the following actions:
 - Turn off and on your radio.
 - Press and hold the **PTT** button.

5.5.2.2

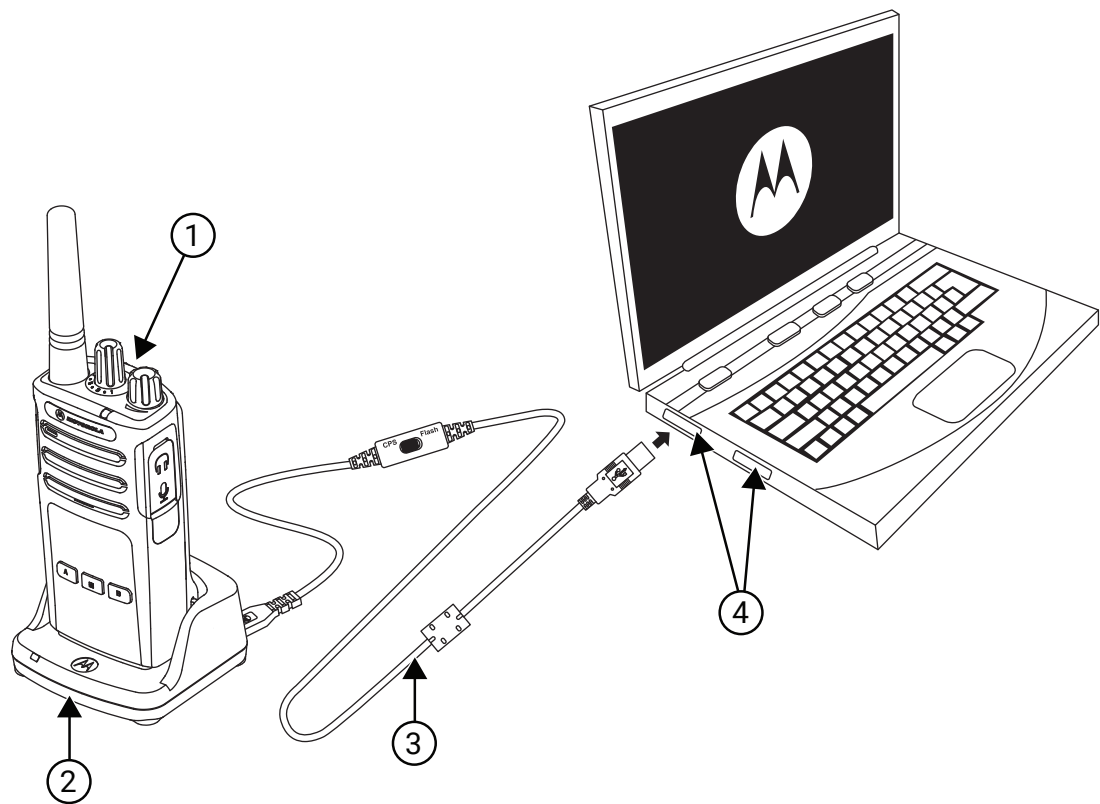
Configuring Cloning Mode Through CPS

Prerequisites: Download and install the Customer Programming Software (CPS) software on your computer.

Procedure:

1. Set up the drop-in tray charger, CPS programming cable, and computer.
To order the CPS Programming cable, refer to part number HKKN4028_.

Figure 7: Configuring Cloning Mode Through CPS Setup



Label	Item
1	Drop-in Tray charger
2	Radio to be programmed
3	CPS programing cable
4	USB ports

2. To access the information on how to perform cloning using CPS, refer to one of the following documentations:
- Select **Cloning Radios** from the **Content** and **Index** section of the CPS Help File.
 - CPS Programing Cable Accessory Leaflet.

5.5.3

Troubleshooting Cloning Mode

If the voice announcement from your radio indicates that the cloning process has failed, perform the following actions before attempting to restart the cloning process.

Procedure:

1. Ensure that the batteries on both radios are fully charged.
2. Check the cloning cable connection on both Single-Unit Chargers (SUC).

3. Ensure that the battery is engaged properly on the radio.
4. Ensure that there is no debris in the charging tray or on the radio contacts.
5. Ensure that the target radio is turned on.
6. Ensure that the source radio is in cloning mode.
7. Ensure that the two radios are both from the same frequency band, region, and have the similar transmission power.



NOTE:

The cloning cable is designed to operate only with compatible Motorola Solutions SUC (RLN6175 and PMLN6394).

When ordering a cloning cable kit, refer to part number HKKN4028_.

For more information about the accessories, see [Authorized Accessories List](#) on page 53.

Chapter 6

Troubleshooting

Troubleshoot your radio from the list of common problems, causes, and solutions.

Problems	Causes	Solutions
Your radio does not turn on.	● The battery is depleted. ● Extreme battery temperature.	Recharge or replace the Li-Ion battery.
You can hear other noises or conversation on a channel.	Frequency or Interference Eliminator Code may be in use.	Perform one of the following actions: ● Confirm that the Interference Eliminator Code is set. ● Change frequencies or codes on all radios. ● Ensure that the radio is at the right frequency and code when transmitting.
Message Scrambled.	The scramble Code might be set to ON .	Match the scramble code setting with the other radio settings.
Audio quality is weak.	Radio settings are not matching up correctly.	Check frequencies, codes, and bandwidths to make sure the settings are identical in all radios.
Limited talk range.	● Steel and/or concrete structures, heavy foliage, buildings, or vehicles can affect the range. ● Wearing a radio close to the body such as in a pocket or on a belt decreases range.	Perform one of the following actions: ● Check for clear line of sight to improve transmission. ● Change the location of the radio on your body. ● To increase range and coverage, you can reduce obstructions or increase power. UHF radios provide greater coverage in industrial and commercial buildings. Increasing power provides greater signal range and increased penetration through obstructions.
Message not transmitted or received.	● Radio settings ● Faulty battery ● Obstructions and operating indoors, or in vehicles, may interfere ● Scan mode	● Make sure the PTT button is completely pressed when transmitting. ● Confirm that the radios have the same Channel, Frequency, Interference Eliminator Code and Scramble Code settings. ● Recharge, replace, and/or reposition batteries. ● Change the location of the radio. ● Verify that the radio is not in Scan mode.
Heavy static or interference.	● Radios are too close; they must be	Change the location of the radio.

Problems	Causes	Solutions
	at least five feet apart. • Radios are too far apart or obstacles are interfering with transmission.	
Low battery.	• The battery is depleted. • Extreme battery temperature.	Recharge or replace the battery.
Drop-in Charger LED light does not blink.	Improper radio, battery, or charger installation.	Perform one of the following actions: • Check that the radio or the battery is properly inserted. • Check the battery or charger contacts to ensure that they are clean and the charging pin is inserted correctly.
The low battery indicator is blinking although new batteries are inserted.	-	Refer to Installing the Battery on page 14 .
Cannot activate Voice Operating Transmission (VOX).	• VOX feature might be set to OFF. • Accessory is not working or not compatible.	Ensure that the VOX Sensitivity level is not set to 0 through CPS.
The battery does not charge although it is placed in the drop-in charger for a while.	• Drop-in charger connection issue. • Faulty battery.	• Check that the drop-in tray charger is properly connected and correspond to a compatible power supply. • Check the charger LED indicator to see if the battery has a problem.



NOTE: If a radio feature does not match the default or preset values, verify whether the radio has been configured with a customized profile using the Computer Programming Software (CPS).

Chapter 7

Frequency and Code Chart

The tables shows the Digital and Analogue frequency and code chart.

7.1

RM UHF Frequencies Chart

Table 13: UHF Frequencies

Frequency Number	Frequency (MHz)	Bandwidth
1	464.5000	12.5 kHz
2	464.5500	12.5 kHz
3	467.7625	12.5 kHz
4	467.8125	12.5 kHz
5	467.8500	12.5 kHz
6	467.8750	12.5 kHz
7	467.9000	12.5 kHz
8	467.9250	12.5 kHz
9	461.0375	12.5 kHz
10	461.0625	12.5 kHz
11	461.0875	12.5 kHz
12	461.1125	12.5 kHz
13	461.1375	12.5 kHz
14	461.1625	12.5 kHz
15	461.1875	12.5 kHz
16	461.2125	12.5 kHz
17	461.2375	12.5 kHz
18	461.2625	12.5 kHz
19	461.2875	12.5 kHz
20	461.3125	12.5 kHz
21	461.3375	12.5 kHz
22	461.3625	12.5 kHz
23	462.7625	12.5 kHz
24	462.7875	12.5 kHz
25	462.8125	12.5 kHz
26	462.8375	12.5 kHz
27	462.8625	12.5 kHz

Frequency Number	Frequency (MHz)	Bandwidth
28	462.8875	12.5 kHz
29	462.9125	12.5 kHz
30	464.4875	12.5 kHz
31	464.5125	12.5 kHz
32	464.5375	12.5 kHz
33	464.5625	12.5 kHz
34	466.0375	12.5 kHz
35	466.0625	12.5 kHz
36	466.0875	12.5 kHz
37	466.1125	12.5 kHz
38	466.1375	12.5 kHz
39	466.1625	12.5 kHz
40	466.1875	12.5 kHz
41	466.2125	12.5 kHz
42	466.2375	12.5 kHz
43	466.2625	12.5 kHz
44	466.2875	12.5 kHz
45	466.3125	12.5 kHz
46	466.3375	12.5 kHz
47	466.3625	12.5 kHz
48	467.7875	12.5 kHz
49	467.8375	12.5 kHz
50	467.8625	12.5 kHz
51	467.8875	12.5 kHz
52	467.9125	12.5 kHz
53	469.4875	12.5 kHz
54	469.5125	12.5 kHz
55	469.5375	12.5 kHz
56	469.5625	12.5 kHz
57	462.1875	12.5 kHz
58	462.4625	12.5 kHz
59	462.4875	12.5 kHz
60	462.5125	12.5 kHz
61	467.1875	12.5 kHz
62	467.4625	12.5 kHz
63	467.4875	12.5 kHz

Frequency Number	Frequency (MHz)	Bandwidth
64	467.5125	12.5 kHz
65	451.1875	12.5 kHz
66	451.2375	12.5 kHz
67	451.2875	12.5 kHz
68	451.3375	12.5 kHz
69	451.4375	12.5 kHz
70	451.5375	12.5 kHz
71	451.6375	12.5 kHz
72	452.3125	12.5 kHz
73	452.5375	12.5 kHz
74	452.4125	12.5 kHz
75	452.5125	12.5 kHz
76	452.7625	12.5 kHz
77	452.8625	12.5 kHz
78	456.1875	12.5 kHz
79	456.2375	12.5 kHz
80	456.2875	12.5 kHz
81	456.3375	12.5 kHz
82	456.4375	12.5 kHz
83	456.5375	12.5 kHz
84	456.6375	12.5 kHz
85	457.3125	12.5 kHz
86	457.4125	12.5 kHz
87	457.5125	12.5 kHz
88	457.7625	12.5 kHz
89	457.8625	12.5 kHz

7.2

UHF Default Frequencies Chart

Table 14: RM UHF 8CH Radios Default Frequencies Chart (RMU2080)

Channel	Frequency Number	Frequency (MHz)	Code Number	Code	Bandwidth
1	2	464.5500	1	67.0 Hz	12.5 KHz
2	8	467.9250	1	67.0 Hz	12.5 KHz
3	5	467.8500	1	67.0 Hz	12.5 KHz
4	6	467.8750	1	67.0 Hz	12.5 KHz

Channel	Frequency Number	Frequency (MHz)	Code Number	Code	Bandwidth
5	10	461.0625	1	67.0 Hz	12.5 KHz
6	12	461.1125	1	67.0 Hz	12.5 KHz
7	14	461.1625	1	67.0 Hz	12.5 KHz
8	Weather Channel Frequency	162.4000	1	67.0 Hz	12.5 KHz

7.3

Interference Eliminator Codes

Table 15: Interference Eliminator Codes

Code Number	Code (Hz)	Code Number	Code (Hz)	Code Number	Code (Hz)
1	67.0	14	107.2	27	167.9
2	71.9	15	110.9	28	173.8
3	74.4	16	114.8	29	179.9
4	77.0	17	118.8	30	186.2
5	79.7	18	123.0	31	192.8
6	82.5	19	127.3	32	203.5
7	85.4	20	131.8	33	210.7
8	88.5	21	136.5	34	218.1
9	91.5	22	141.3	35	225.7
10	94.8	23	146.2	36	233.6
11	97.4	24	151.4	37	241.8
12	100.0	25	156.7	38	250.3
13	103.5	26	162.2	122 ¹	69.3

7.4

Digital Interference Eliminator Codes

Table 16: Digital Interference Eliminator Codes

Code Number	Code (Hz)	Code Number	Code (Hz)	Code Number	Code (Hz)
39	023	99	503	160	Inverted DPL 69
40	025	100	506	161	Inverted DPL 70
41	026	101	516	162	Inverted DPL 71
42	031	102	532	163	Inverted DPL 72

¹ New CTCSS code.

Code Number	Code (Hz)	Code Number	Code (Hz)	Code Number	Code (Hz)
43	032	103	546	164	Inverted DPL 73
44	043	104	565	165	Inverted DPL 74
45	047	105	606	166	Inverted DPL 75
46	051	106	612	167	Inverted DPL 76
47	054	107	624	168	Inverted DPL 77
48	065	108	627	169	Inverted DPL 78
49	071	109	631	170	Inverted DPL 79
50	072	110	632	171	Inverted DPL 80
51	073	111	654	172	Inverted DPL 81
52	074	112	662	173	Inverted DPL 82
53	114	113	664	174	Inverted DPL 83
54	115	114	703	175	Inverted DPL 84
55	116	115	712	176	Inverted DPL 85
56	125	116	723	177	Inverted DPL 86
57	131	117	731	178	Inverted DPL 87
58	132	118	732	179	Inverted DPL 88
59	134	119	734	180	Inverted DPL 89
60	143	120	743	181	Inverted DPL 90
61	152	121	754	182	Inverted DPL 91
62	155	123	654	183	Inverted DPL 92
63	156	124	Customized PL	184	Inverted DPL 93
64	162	125	Customized PL	185	Inverted DPL 94
65	165	126	Customized PL	186	Inverted DPL 95
66	172	127	Customized PL	187	Inverted DPL 96
67	174	128	Customized PL	188	Inverted DPL 97
68	205	129	Customized PL	189	Inverted DPL 98
69	223	130	Inverted DPL 39	190	Inverted DPL 99
70	226	131	Inverted DPL 40	191	Inverted DPL 100
71	243	132	Inverted DPL 41	192	Inverted DPL 101
72	244	133	Inverted DPL 42	193	Inverted DPL 102
73	245	134	Inverted DPL 43	194	Inverted DPL 103
74	251	135	Inverted DPL 44	195	Inverted DPL 104

Code Number	Code (Hz)	Code Number	Code (Hz)	Code Number	Code (Hz)
75	261	136	Inverted DPL 45	196	Inverted DPL 105
76	263	137	Inverted DPL 46	197	Inverted DPL 106
77	265	138	Inverted DPL 47	198	Inverted DPL 107
78	271	139	Inverted DPL 48	199	Inverted DPL 108
79	306	140	Inverted DPL 49	200	Inverted DPL 109
80	311	141	Inverted DPL 50	201	Inverted DPL 110
81	315	142	Inverted DPL 51	202	Inverted DPL 111
82	331	143	Inverted DPL 52	203	Inverted DPL 112
83	343	144	Inverted DPL 53	204	Inverted DPL 113
84	346	145	Inverted DPL 54	205	Inverted DPL 114
85	351	146	Inverted DPL 55	206	Inverted DPL 115
86	364	147	Inverted DPL 56	207	Inverted DPL 116
87	365	148	Inverted DPL 57	208	Inverted DPL 117
88	371	149	Inverted DPL 58	209	Inverted DPL 118
89	411	150	Inverted DPL 59	210	Inverted DPL 119
90	412	151	Inverted DPL 60	211	Inverted DPL 120
91	413	152	Inverted DPL 61	212	Inverted DPL 121
92	423	153	Inverted DPL 62	213	Inverted DPL 123
93	431	154	Inverted DPL 63	214	Customized DPL
94	432	155	Inverted DPL 64	215	Customized DPL
95	445	156	Inverted DPL 65	216	Customized DPL

Code Number	Code (Hz)	Code Number	Code (Hz)	Code Number	Code (Hz)
96	464	157	Inverted DPL 66	217	Customized DPL
97	465	158	Inverted DPL 67	218	Customized DPL
98	466	159	Inverted DPL 68	219	Customized DPL

Chapter 8

Authorized Accessories List

This section contains a list of Motorola Solutions-approved accessories for RM Series radios.

Table 17: Audio Accessories

Part Number	Description
HKLN4599_	Earpiece with PTT, Mic, Slim Plug, PVC Free
HKLN4601_	Dual Pin Surveillance with PTT, Slim Plug, PVC Free
HKLN4604_	Swivel Earpiece with PTT, Slim plug, PVC Free
HKLN4606_	Remote Speaker Mic with PTT, Slim Plug, PVC Free
53866_	Earbud with PTT, Mic, PVC Free

Table 18: Batteries

Part Number	Description
PMNN4434_R	Standard Li-Ion Battery
PMNN4453_R	High Capacity Li-Ion Battery

Table 19: Carry Accessories

Part Number	Description
HKLN4510_	Swivel Holster

Table 20: Cables

Part Number	Description
HKKN4028_	Radio to Radio Cloning Cable
HKKN4027_	CPS Programming Cable

Table 21: Chargers

Part Number	Description
PMLN6384_	Multi-Unit Charger (MUC) Kit (North America)
PMLN6394_	Standard Drop-In Tray Charger

Table 22: Software Applications

Part Number	Description
82012694001	Customer Programming Software (CPS)

Chapter 9

Motorola Solutions Limited Warranty for the United States and Canada

9.1

Warranty

Subject to the exclusions contained below, Motorola Solutions, Inc. warrants its two way radios to be free from defects in materials and workmanship under normal consumer usage for the period(s) outlined.

This limited warranty is a consumer's exclusive remedy, and applies as follows to new Motorola Solutions Products, Accessories and Software purchased by consumers in Latin American countries, which are accompanied by this written warranty.

9.2

Products and Accessories

The table shows the length of coverage of products and accessories.

Table 23: Products and Accessories

Products Covered	Length of Coverage
Business two-way radio accessories	One (1) year from the date of purchase by the first purchaser of the product.
Products and accessories that are repaired or replaced	The balance of the original warranty or for 90 days from the date returned to the consumer, whichever is longer.
Two-way radio	Two (2) years from the date of purchase by the first purchaser of the product.

9.3

Exclusions

Normal Wear and Tear

Periodic maintenance, repair, and replacement of parts due to normal wear and tear are excluded from coverage.

Batteries

Only batteries whose fully charged capacity falls below 80% of their rated capacity and batteries that leak are covered by this limited warranty.

Abuse and Misuse

Defects or damage that result from:

- Improper operation, storage, misuse or abuse, accident or neglect, such as physical damage (cracks, scratches, and more.) to the surface of the product resulting from misuse.
- Contact with liquid, water, rain, extreme humidity or heavy perspiration, sand, dirt, or the like, extreme heat, or food.

- Use of the Products or Accessories for commercial purposes or subjecting the Product or Accessory to abnormal usage or conditions.
- Other acts that are not the fault of Motorola Solutions, are excluded from coverage.

Use of Non-Motorola Solutions Products and Accessories

Defects or damage that result from the use of Non-Motorola Solutions branded or certified Products, Accessories, Software, or other peripheral equipment are excluded from coverage.

Unauthorized Service or Modification

Defects or damages resulting from service, testing, adjustment, installation, maintenance, alteration, or modification in any way by someone other than Motorola Solutions, or its authorized service centers, are excluded from coverage.

Altered Products

Products or Accessories with:

- Serial numbers or date tags that have been removed, altered, or obliterated.
- Broken seals or that show evidence of tampering.
- Mismatched board serial numbers.
- Nonconforming or non-Motorola Solutions housings, or parts, are excluded from coverage.

Communication Services

Defects, damages, or the failure of Products, Accessories, or Software due to any communication service or signal you may subscribe to or use with the Products Accessories or Software is excluded from coverage.

9.4

Software

Table 24: Software Warranty Table

Products Covered	Length of Coverage
Software Applies only to physical defects of the media that embodies the copy of the software.	90 days from the date of purchase.

Exclusions

Software Embodied in Physical Media

The warranty does not cover that the software will meet your requirements or will work in combination with any hardware or software applications provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected.

Software not Embodied in Physical Media

Software that is not embodied in physical media (for example, software downloaded from the internet), is provided "as is" and without warranty.

9.5

Warranty Coverage

This warranty extends only to the first consumer purchaser, and is not transferable.

9.6

Warranty Service or Other Information

Contact your Motorola Solutions point of purchase.

- 1-800-448- 6686 in the USA
- 1-800-461-4575 in Canada
- 1-866-522-5210 on your TTY (Text Telephone)

Ship the Products to us with freight, duties, and insurance prepaid. Along with the products you must include:

- A copy of your receipt, bill of sale or other comparable proof of purchase.
- A written description of the problem.
- The name of your service provider (if this product requires a subscription service).
- The name and location of the installation facility (if applicable).
- Your address and telephone number. If requested, you must also return all detachable parts such as antennas, batteries, and chargers.

9.7

Software Copyrights Notice

The Motorola Solutions products described in this manual may include copyrighted Motorola Solutions computer programs stored in semiconductor memories or other media. Laws in the United States and other countries preserve for Motorola Solutions certain exclusive rights for copyrighted computer programs including, but not limited to, the exclusive right to copy or reproduce in any form the copyrighted computer program. Accordingly, any copyrighted Motorola Solutions computer programs contained in the Motorola Solutions products described in this manual may not be copied, reproduced, modified, reverse-engineered, or distributed in any manner without the express written permission of Motorola Solutions.

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9.8

Patent Notice

This product is covered by one or more of the following United States patents.

5896277 5894292 5864752 5699006 5742484 D408396 D399821 D387758 D389158 5894592 5893027
5789098 5734975 5861850 D395882 D383745 D389827 D389139 5929825 5926514 5953640 6071640
D413022 D416252 D416893 D433001

9.9

Export Law Assurances

This product is controlled under the export regulations of the United States of America. The Government of the United States of America may restrict the exportation or re-exportation of this product to certain destinations.

For further information, contact the U.S. Department of Commerce.