



MTP810Ex/MTP850Ex Feature User Guide

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



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

As defined by the WEEE directive, this cross-out trash bin label means that customers and end-users in EU countries should not dispose of electronic and electrical equipment or accessories in household waste.

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

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Chapter 1

General Information

1.1

Safety Information

RF Energy Exposure and Product Safety Guide For Two-Way Radios



IMPORTANT: Before using this product, read the RF Energy Exposure and Safety Guide shipped with your radio. The guide contains recommendations for safe usage, important RF energy awareness and control information as well as regulatory information, to help ensure compliance with applicable standards and regulations.

1.2

Icon Conventions

The documentation set is designed to give the reader more visual clues. The following graphic icons are used throughout the documentation set.



DANGER: The signal word DANGER with the associated safety icon implies information that, if disregarded, will result in death or serious injury.



WARNING: The signal word WARNING with the associated safety icon implies information that, if disregarded, could result in death or serious injury, or serious product damage.



CAUTION: The signal word CAUTION with the associated safety icon implies information that, if disregarded, may result in minor or moderate injury, or serious product damage.

CAUTION: The signal word CAUTION may be used without the safety icon to state potential damage or injury that is not related to the product.



IMPORTANT: IMPORTANT statements contain information that is crucial to the discussion at hand, but is not CAUTION or WARNING. There is no warning level associated with the IMPORTANT statement.



NOTICE: NOTICE contains information more important than the surrounding text, such as exceptions or preconditions. They also refer the reader elsewhere for additional information, remind the reader how to complete an action (when it is not part of the current procedure, for instance), or tell the reader where something is on the screen. There is no warning level associated with a notice.

1.3

Using this Guide

The following special notations are used throughout the text to highlight certain information or items:

Table 1: Special Notations

Example	Description
Menu key or PTT button	Bold words indicate a name of a key, button, or soft menu item.
<i>Entering TMO</i> tone	Italic words indicate a name of the tone.

Table continued...

Example	Description
Powering Off	Typewriter words indicate the MMI strings or messages displayed on the radio.
Setup → Tones → All Tones	Bold words with the arrow between indicate navigation structure in the menu items.

1.4

Feature and Service Availability

This guide describes all available radio features and services. Your service provider may have customized your radio to optimize its use for your individual needs. Check with your service provider to find out the differences from this guide.

Chapter 2

Getting Started

This chapter contains basic information on how to use the radio.

2.1

Product Technical Information

Table 2: Product Technical Information

Description	Value	
Maximum Voltage	7.9 V	
Maximum Current	1.2 A	
Maximum Speaker Load	1 W at 20 Ω	
Antenna Impedance	75 Ω	
Operating Temperature Range	-10 $^{\circ}$ C to +50 $^{\circ}$ C	
Operating Time	Duty Cycle	725 mAh, 7.2 V
	05/05/90	12 h

**NOTICE:**

The system (SwMI) determines radio transmit and receive times, which affect the actual radio operating time.

If the radio overheats (due to high ambient temperature or other factors), thermal protection will reduce transmitter power, which may lead to loss of communication.

You can attach a colorful o-ring to a radio antenna to distinguish radios from one another.

An RFID knob is available as an optional accessory which allows tracking radios easily. The knob contains an RFID tag which can be read by handheld scanners greatly enhancing the speed of radio identification. The knob is a retrofit option and can replace an existing volume knob.

2.2

Before Power On

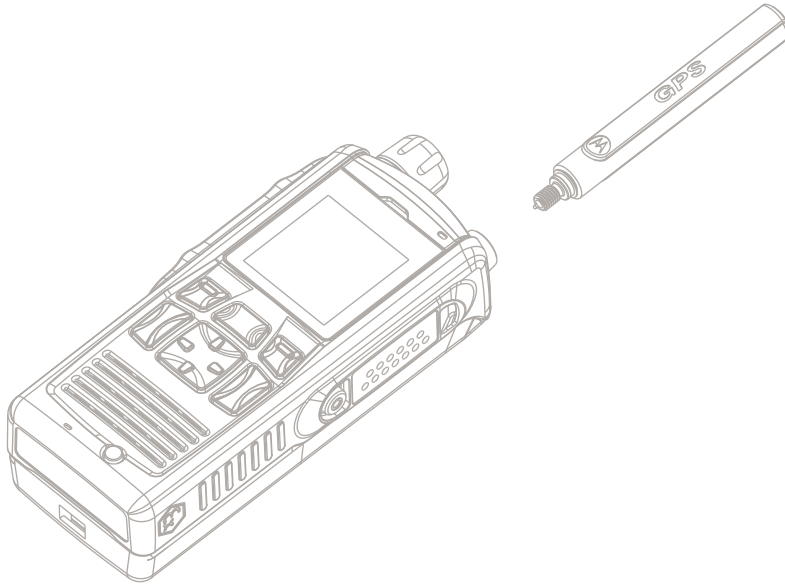
Read this section before you power on your radio for the first time.

2.2.1

Attaching the Antenna

Procedure:

- 1 Insert the screw-in base of the antenna into the antenna terminal on the top of the radio.
- 2 Turn clockwise until tight.



2.2.2

Installing the SIM Card



IMPORTANT: The following procedure must be performed only in non-hazardous environment.

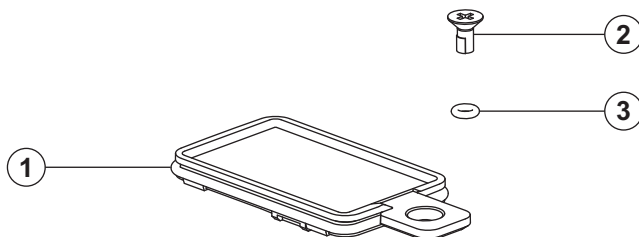
Prerequisites:

Your radio is equipped with a SIM/microSD card slot.

Prepare Phillips torque bit and 2.7+0.2/-0.0 in-lbs torque screwdriver.

Procedure:

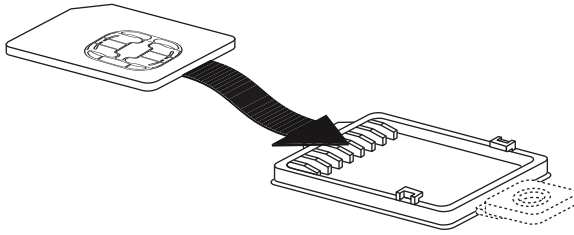
- 1 Remove the battery.
- 2 Unscrew the M2 countersunk Phillips screw that secures the SIM card door to the chassis.
- 3 Remove the SIM card door (1).



IMPORTANT:

Ensure that the screw O-ring (3) remains attached to the screw (2) all the time. If any of these elements appear damaged, replace them.

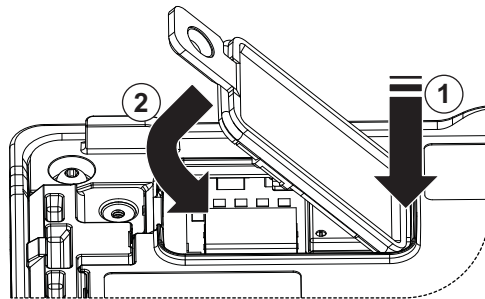
- 4 Slide the SIM card into the SIM card door. Pay attention to the correct position of the notched corner.



IMPORTANT:

Ensure that the SIM card is properly placed in the SIM card door and does not rest on the ribs.

- 5 Place the SIM card door back into its position. Start with the edge opposite to the screw.



IMPORTANT: Ensure that the SIM card door tab slots into the chassis opening.

- 6 Apply pressure on the SIM card door and tighten the M2 countersunk Phillips screw.



IMPORTANT: Ensure that the SIM card door is firmly screwed and the dark blue SIM card door O-ring cannot be seen.

- 7 Install the battery.

2.2.3

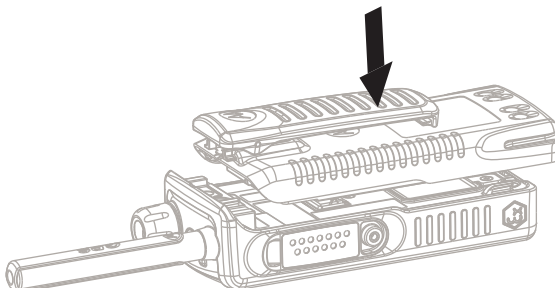
Installing the Battery



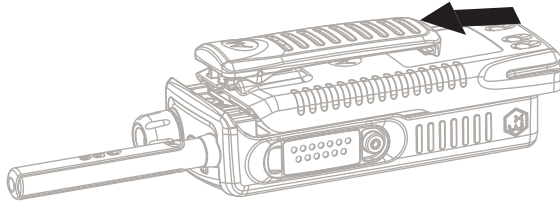
IMPORTANT: The following procedure must be performed only in non-hazardous environment.

Procedure:

- 1 Remove the battery from its protective case.
- 2 Insert the battery top into the compartment. Ensure that the latches on the radio fit into the slots on the battery.



- 3 Carefully slide the battery from the bottom toward the top of the radio until it clicks into place.



NOTICE:

- Your service provider can configure the radio to turn on automatically after you insert the battery.
- Your radio always powers up, if you remove the battery for a period shorter than 3–5 seconds.

2.2.4

Removing the Battery



IMPORTANT: The following procedure must be performed only in non-hazardous environment.

Prerequisites: Turn off the radio.

Procedure:

- 1 Move the latch in the direction indicated by the arrow and hold it.
- 2 Slide the battery toward the bottom of the radio.

2.2.5

Charging the Battery

You can charge a battery separately or attached to a radio.



IMPORTANT: Use only Motorola approved chargers which provide optimal performance. Using other chargers invalidates the warranty and may fail to fully charge, reducing the life of the battery.

Prerequisites:

Do not charge the battery in a hazardous area.

Procedure:

- 1 Connect the charger to an appropriate power source (100–240 V, 12 V), according to the specification of the charger.
- 2 Perform one of the following actions:
 - Desktop chargers – insert the battery or the radio with the battery attached into the appropriate socket of the charger. Ensure that the battery/radio made good connection with the charger and that the LED on the charger is indicating that charging is in progress.
 - Travel chargers and car chargers – connect the charger to the radio with the battery attached. Ensure that the charger is firmly connected to the radio and that the radio display is indicating that charging is in progress.

Postrequisites: The battery may heat up during charging. After charging, make sure that the battery and the radio are within the operating temperature range before using the radio.

2.2.6

Battery Charging Indications









When the radio is turned on while charging, it displays an icon of the battery in charging.

When the radio is turned off while charging, it displays the icon of the battery in charging and backlights the display.



NOTICE: To easily identify the charging status, check the Battery Charging LED Indicator. See [LED Indications on page 119](#).

Table 3: Battery Icons

Battery Capacity				Battery Charge Progress			
							
Empty	Low	Middle	Full	Empty	Low	Middle	Full
5%–10%	10%– 20%	20%– 90%	90%– 100%	5%–10%	10%– 20%	20%– 90%	90%– 100%

2.2.7

Low Battery Indication

The radio indicates low battery level by playing an audible alert when the battery charge falls to a preset level. The low battery alert can be programmed to be 5, 10, or 20 percent of remaining capacity by your service provider. The default setting is 5 percent. The service provider also configures how frequently the alert repeats.

2.3

Controls and Indicators

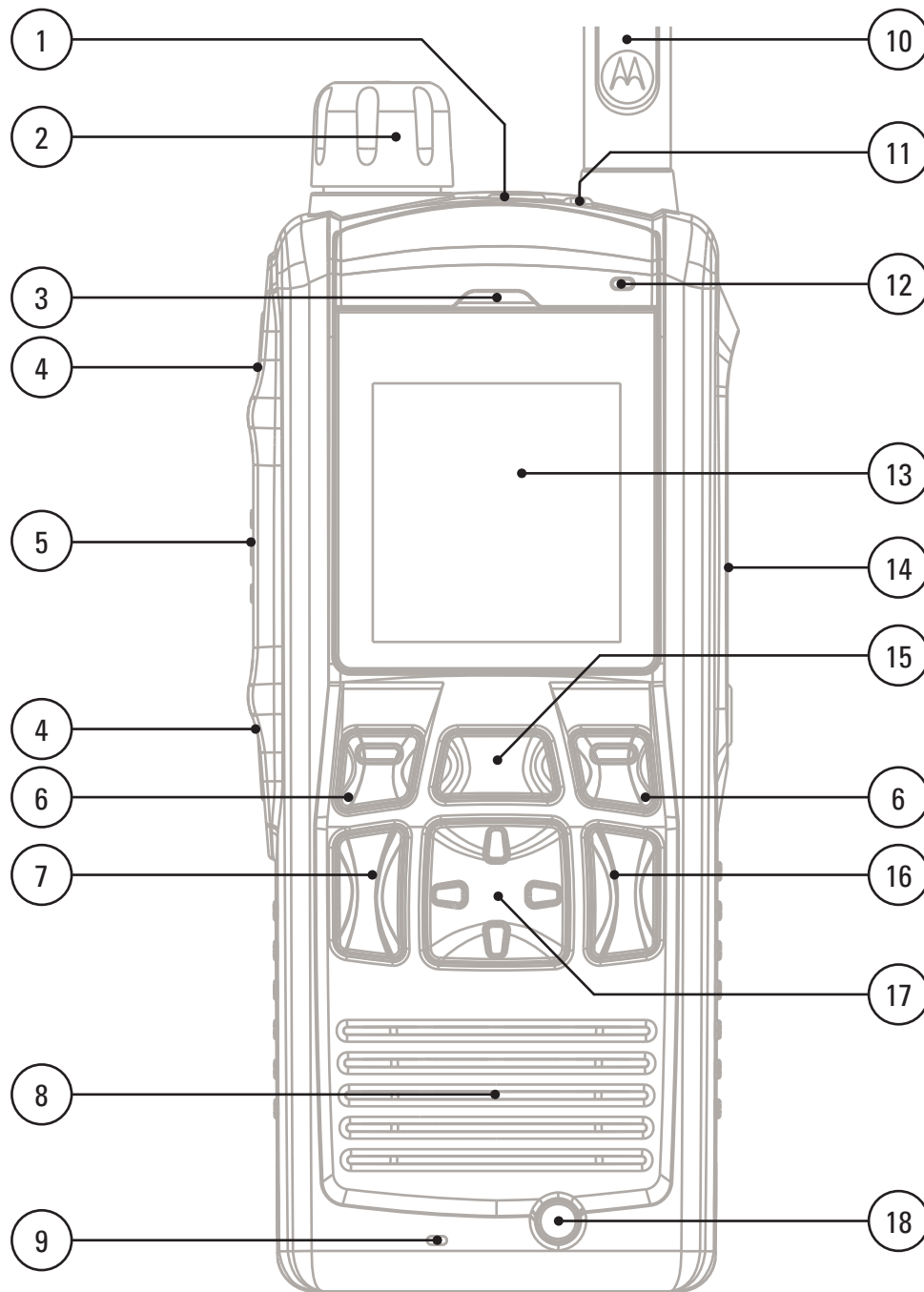


Table 4: Controls and Indicators

Annotation	Description
1	Emergency button Press and hold Emergency button to enter Emergency operation. When your radio is off, press and hold to power on in Emergency Mode.
2	Rotary Knob <ul style="list-style-type: none"> Rotate to set the volume.

Table continued...





Annotation	Description
	<ul style="list-style-type: none"> • Press and rotate to select a different talkgroup. • Press and hold the Rotary Knob to lock it, press and hold it again to unlock. Powering off also unlocks a locked Rotary Knob.
3	Earpiece
4	<p>Side button The Rotary Knob and Side buttons programming are paired. When the Rotary Knob is set to Volume or Dual, the Side buttons support the One-Touch Button feature. By default, the upper Side button is set to backlight and the lower Side button is set to screen saver.</p> <p> NOTICE: The required time to press and hold Side button to activate a One-Touch Button feature is set as default to 0,1 second.</p>
5	<p>Push-To-Talk (PTT)</p> <ul style="list-style-type: none"> • Press and hold to talk in simplex calls or to initiate a group call, release it to listen. • Press to send status and text messages.
6	<p>Soft key Press Left or Right Soft key, to select the option that appears on the screen directly above the them.</p>
7	<p>Send key Press to initiate or answer duplex calls, or send messages.</p>
8	Speaker
9	Bottom Microphone
10	Antenna
11	LED
12	<p>Top Microphone Activated during Simplex, high audio calls such as Group Calls.</p>
13	<p>Display Provides alphanumeric text and images within 65,536 colors and 130 x 130 pixels with backlight, scalable fonts, and contrast.</p>
14	<p>Side Connector Used to connect accessories and for programming.</p> <p> NOTICE: To ensure correct connection, do not press any RSM buttons when connecting the RSM to the radio.</p> <p>Your service provider can activate the Y-Cable Mode that allows you to connect a special Y-cable to the side connector. The Y-cable enables the simultaneous use of audio and data accessories. If the Y-Cable Mode is activated, you cannot attach a standard audio accessory directly to the side connector, nor use audio accessories that have the Emergency button.</p>
15	Menu key

Table continued...

Annotation	Description
	Press to enter the main menu and the context-sensitive menu.
16	<p>On/Off/End/Home key</p> <ul style="list-style-type: none"> • Press and hold to turn on/off your radio. • Press to end calls. • Press to return to the home screen.
17	<p>Navigation key</p> <p>Press Up, Down, Left or Right Navigation key for list scrolling, while moving around the menu hierarchy, or for alphanumeric text editing.</p> <p>From the home screen, press and hold to activate the One-Touch Button feature. Short press activates one of the following:</p> <ul style="list-style-type: none"> • Down Navigation key – enters Recent Calls menu item. • Up Navigation key – changes My Groups talkgroup folder. • Left and Right Navigation key – toggles through the talkgroups.
18	<p>Speaker Control key</p> <p>Press the Speaker Control key to activate the earpiece Speaker LOW or speaker Speaker HIGH.</p> <p> NOTICE: In an Emergency Group Call, the speaker is activated regardless of the speaker setting.</p>

 **NOTICE:** A detailed list of compatible accessories is included in *Accessory Leaflet*, part number: 6866588D19. To obtain the document, contact your service provider.

2.4 Display

This section presents the default home screen elements of the radio.

Figure 1: Default Home Screen with Icons

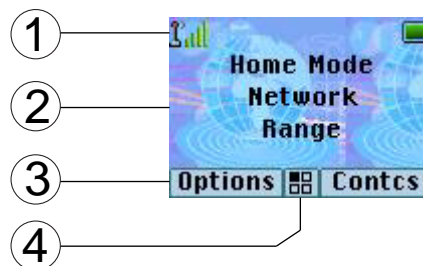


Table 5: Display

Annotation	Description
1	Status icon area
2	Text display area
3	Soft key area
4	Menu/Context sensitive icon

The color of the Soft key area changes according to the mode the radio is in.

Table 6: Colors of the Soft Key Area

Color	Mode or State
Light blue	Normal TMO and DMO Modes
Light red	Emergency Mode or Disaster Alert Call
Olive	Local Site Trunking Mode
Yellow	Call Out – Standby
Red	Call Out – Alert
Green	Call Out – Accepted
Blue	Radio Messaging Service (RMS)
Gray	Radio User Assignment (RUA) – Limited service

2.4.1

Configurable Idle Screen

Your service provider can configure the information that is displayed on the idle screen below the status icon area. Depending on the radio configuration and services supported, the following information can be displayed:

- Radio Status
- Audio profile name
- Network alias (No Service or MCC/MNC or Networks Alias)
- Range alias
- Talkgroup alias
- Home mode display
- Time and date
- RMS/FMS
- ISSI
- Operative Tactical Address (OPTA)
- BSI Registration status

Order and visibility of these items are also subject of the Configurable Idle Screen settings.

2.5

Status Icons

Status icons appear when your radio is engaged in certain activities or when you have activated certain features.

The icons can appear in normal or large size. To manually enable/disable large status icons, go to **Menu** → **Setup** → **Display** → **Extended Status Icons**.

Table 7: Status Icons











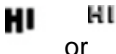




Icon	Description
Trunked Mode Operation	
	In Service
	No Service
	Signal Strength – The more bars, the stronger the signal.
	RF Power – Indicates the High RF Power is enabled. Shows the signal strength. The more bars, the stronger the signal.
	Migration – Indicates that the radio is registered to a foreign network.
	Broadcast Call – Indicates that the radio is in a Broadcast Call.
	Scan – Indicates that talkgroup scanning is activated in the radio.
	Data Connected – Indicates that data connection is idle (standby).
	Data Transmit/Receive – Indicates that active data connection. Number 1, 2, 3, or 4 indicates how much bandwidth is used during transmission (25%, 50%, 75%, or 100%).
Direct Mode Operation	
	Direct Mode Call – Indicates that the radio is receiving a Direct Mode call. The more bars, the stronger the signal.
	High RF Power: idle or transmitting – Indicates High RF Power option is enabled and the radio is either in idle mode or is transmitting a call.
	High RF Power: receiving – Indicates High RF Power option is enabled and the radio is receiving a call.
	Direct Mode – Indicates that radio is in Direct Mode (radio-to-radio communication).
	DMO Gateway Communication Mode – Indicates that gateway is selected. The icon has the following status: <ul style="list-style-type: none"> • Solid – when the radio is synchronized with the gateway. • Blinking – when the radio is not synchronized or during attachment. • No icon – during radio to radio and repeater call.
	DMO Repeater Communication Mode – Indicates that the Repeater or GW + Rep option in DMO Mode is selected. The icon has the following status: <ul style="list-style-type: none"> • Solid – when the radio has detected the repeater (for example when the radio receives a presence signal).

Table continued...

Icon	Description
	<ul style="list-style-type: none"> Blinking – when the radio has not detected the repeater or during attachment. No icon – during a radio to radio and gateway call.
General Icons	
	<p>All Tones Off and Duplex and Simplex Ring Muted – Indicates that all alert tones are off and both duplex and simplex ring volume is set to 0.</p> <ul style="list-style-type: none"> Volume is set to 0 (when Volume Adj. Mode is set to Common). Both simplex and duplex ring volume is set to 0 (when Volume Adj. Mode is set to Individual).
	Simplex Ring Muted – Indicates that simplex ring volume is set to 0 and duplex ring volume is set to more than 0.
	Duplex Ring Muted – Indicates that duplex ring volume is set to 0 and simplex ring volume is set to more than 0.
	Vibrate Only – Indicates that the radio vibrates to alert you of an incoming call.
	Vibrate then Ring – Indicates that the radio vibrates and then rings to alert you of an incoming call.
	Low Audio – Indicates that the audio mode is changed to low.
	High Audio – Indicates that the audio mode is changed to high.
	Audio Profile Selected – Indicates that an audio profile associated with a particular icon is active. The icons can be either solid or blinking. For details on audio profiles available on the radio, contact your service provider.
	Earpiece Connected – Indicates that the earpiece is connected.
	<p>GPS Icon</p> <ul style="list-style-type: none"> Solid – the radio has a location fix. Blinking – the radio is acquiring a location fix. This is an optional setting and may not be enabled on your radio.
	Battery Strength – Shows the charge of your battery.
	Battery Charging – Indicates that the battery is charging.
	<p>Emergency – Indicates that the radio is in Emergency Operation.</p> <ul style="list-style-type: none"> Solid – Emergency Operations initiated. Blinking – the radio is in emergency receiving state.
	Disaster Alert Call – Indicates that the radio is in Disaster Alert Call.

Table continued...






















Icon	Description
	List Scrolling – Indicates that the Rotary Knob is in list scrolling mode.
	New Message Has Arrived – Indicates that a new message has arrived.
	New Message(s) in Inbox – Indicates that you have unread messages in your In-box .
	Unread (New) WAP Message – Indicates that new page was loaded to the browser.
	Man Down Active – Indicates that the Man Down feature is active.
	<p>Man Down Alert – Indicates that the Man Down feature is active. This icon has the following status:</p> <ul style="list-style-type: none"> • Blinking – pre-Alert; the radio signals Man Down conditions. To exit the pre-Alert state, change the conditions or press the PTT button. • Solid – the radio enters Alert mode.
	Man Down Failure – Indicates that the Man Down device failed.
	Call-Out – Indicates Call-Out alert.
	Call-Out Alert Arrived – Indicates a receipt of a new Call-Out message.
	Call-Out Alert Unread – Indicates unread alert in the CO Box .
	<p>End-to-End Encryption (E2EE)</p> <p>Solid, when the E2EE is enabled:</p> <ul style="list-style-type: none"> • for the selected talkgroup, • for the highlighted private number, • for the manually entered private number, • when transmitting voice in Group Calls, • when transmitting voice in Simplex Private Calls. <p>Blinking, when the E2EE is enabled:</p> <ul style="list-style-type: none"> • when receiving voice in Group Calls, • when receiving voice in Simplex Private Calls, • during encrypted Duplex Private Calls.
	<p>SDS End-to-End Encryption</p> <p>Solid – Indicates the E2EE status of an SDS message, or the E2EE status of a message recipient address.</p> <p>In High Security mode, when your radio processes only the encrypted information, this icon is always visible in when you are in the messages menu, for example, In-box.</p>

Table continued...

Icon	Description
	Unread (New) WAP Message – Indicates that you have not entered WAP Box since last WAP message was received. Blinks when the priority is high.
	WAP Message Icon – Displayed next to the priority WAP message in the message list view.
	WAP Message Time – Displayed next to the create date in the message list view.
	WAP Message Expiration – Displayed next to the expiry date in the message list view.
	WAP Message Title Icon – Displayed next to the title along with the text in the message list view.
	Keys Locked – Indicates that keys are locked.
	Non-Secured Call – Air Encryption Unavailable Blinking – Indicates that Air Encryption is not available when the radio: <ul style="list-style-type: none"> • is in the Local Site Trunking Mode. • attempts to connect to a gateway.
	Non-Secured Call – Air Encryption Unavailable Blinking – Indicates that Air Encryption is not available in DMO Mode. The icon appears after the PTT button is pressed.
	Remote Control – Indicates that the radio is being remotely controlled and some commands are being executed in the background. For example, when the radio is being controlled by special SDS messages or triggered to send a GPS location report. Icon is not visible in Extra Zoom Mode.

2.6

Powering On the Radio

Procedure:

Press and hold **On** button.

Your radio performs a self-check and registration routine.
After successful registration, your radio is in service.



NOTICE: Your radio powers on without visible and audible notification if Covert Mode is activated.

2.7

Unlocking Your Radio

Your radio may be locked at power up. To unlock it after powering on, enter the code at the prompt.
Your radio enters the default home display.



NOTICE: The unlock code is originally set to 0000. Your service provider may change this number before you receive your radio.

2.8

Locking or Unlocking the Keys or Buttons

Press **Menu** key and **Left** Navigation key.



NOTICE: The **Emergency** button is not locked. Entering Emergency Mode unlocks all keys.

2.9

Holding Your Radio

The radio has two microphones: a top microphone for simplex dispatcher/private calls and a bottom microphone for duplex telephone-like calls.

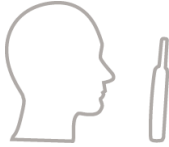
The radio is also equipped with an internal speaker for high audio (located at the middle of the unit) and an internal earpiece for low audio (located at the top of the unit). The audio can be routed either to the speaker or the earpiece using the Audio Toggle menu (**Menu** → **Setup** → **Audio** → **Audio Toggle**) or the assigned One-Touch Button.



NOTICE: For best performance speak directly into the top microphone.

Simplex Calls

When using high audio, hold the radio a vertical position with its top microphone 5 centimeters to 10 centimeters away from your mouth. Speak into the top microphone. Listen through the internal speaker. Keep the antenna at least 2.5 centimeters from your head and body.



Duplex Calls

When using low audio, hold your radio as you would a telephone. Speak into the bottom microphone. Listen via the earpiece. Keep the antenna at least 2.5 centimeters from your head and body.



Lapel/Shoulder Use

For Group and Private Calls turn your head towards your shoulder/lapel, and speak directly into the top microphone. Listen through the internal speaker.

Speakerphone Use

Place your radio 30 centimeters to 60 centimeters away from you. In a noisy environment, move the radio closer to you for better transmission.

2.10

High or Low Audio Toggle

The radio is able to switch from the external earpiece to the main speaker using **Speaker Control** key and is not required to disconnect the external earpiece or PHF.

The states of the routed audio are:

- **Speaker HIGH** — indicates that audio is routed to the main speaker.
- **Speaker LOW** — indicates that audio is routed to the earpiece or PHF earpiece, and not to the main speaker.

2.10.1

Using High Audio

When and where to use: Placing or receiving a Phone, PABX, or Duplex Private call.

Procedure:

- 1 Hold your radio in a vertical position with its top microphone 5–10 centimeters away from your mouth.
- 2 Speak into the top microphone and listen through the internal speaker.
Keep the antenna at least 2.5 centimeters from your head and body.

2.10.2

Using Low Audio

When and where to use: Placing or receiving a Phone, PABX, or Duplex Private call.

Procedure:

- 1 Hold your radio as you would a telephone.
- 2 Speak into the bottom microphone and listen through the earpiece.
Keep the antenna at least 2.5 centimeters from your head and body.

2.11

During the Call

During the call, label of the right Soft key indicates the next possible change. Accessory default setup is:

Table 8: During the Call

Soft Key Label	Audio Setting
Spkr	Audio goes to the main speaker (<i>Speaker HIGH</i> is displayed)
Erpce	Audio goes to the earpiece (<i>Speaker LOW</i> is displayed)
PHF	Audio goes to the Personal Hands Free (<i>Speaker LOW</i> is displayed)

2.12

Entering TMO or DMO Mode

Procedure:

- 1 From the home screen, press **Options**.
- 2 Select **Trunked Mode / Direct Mode**.

2.13

Selecting Talkgroups

Follow these procedures to select talkgroup manually. If the selected talkgroup is an InterSystem Interface (ISI) talkgroup, the radio can migrate to another talkgroup linked network, changing the talkgroup automatically.

Procedure:

From the home screen, use one of the following methods:

- Select **Options** → **TG by abc**. Enter a talkgroup name and select the talkgroup name from the list.
- Select **Options** → **TG by Folder**. Select a folder (for example, **Favorite**) and then a talkgroup name.



NOTICE: Your radio can access up to three levels of the folder structure.

- Press **Rotary Knob** and rotate it until the required talkgroup name is displayed. Press **Select** to confirm.



NOTICE: If the **Rotary Knob** mode is set to Scroll, then you do not need to press it to enter the scrolling mode.

2.13.1

Talkgroup Icon Selection

Table 9: Talkgroup Icon

Icon	Description
	Displayed when the talkgroup is from a different network than the one currently selected.

2.14

Using Timed Talkgroup Change

This feature allows you to switch a selected talkgroup between the currently selected talkgroup and a predefined talkgroup (TMO or DMO), making the predefined talkgroup the selected talk group for a predefined time by using a One-Touch button. After the timer expires, your radio returns to the previously selected talkgroup.

Prerequisites: Timed Talkgroup Change is assigned to a One-Touch button.

Procedure:

- 1 Press and hold the One-Touch button.
- 2 Your radio switches the selected talkgroup to the predefined talkgroup for a predefined amount of time.

During the predefined time the radio initiates or joins group communication (SDS, status SDS, or call) on the predefined talkgroup as the selected talkgroup.

Your service provider can assign a function to the second press of the One-Touch button to:

- Return to previously selected talkgroup
- Restart the predefined time
- No action

- 3 When the timer expires (potentially after being restarted a number of times) the radio switches to the previously selected talkgroup.

2.15

One-Touch Buttons

The One-Touch Button feature allows you to activate a feature by a long key press of the programmable button. Your service provider can assign one-touch functions only to the side buttons and keypad keys. If an unassigned button is pressed, the radio displays `Unassigned Button`.

Table 10: One-Touch Button Features

Feature	Description
Access Private Dialing Editor	Displays the private dialing editor.
Activation of Covert Mode	Turns Covert Mode on or off.
Change Audio Profile	Change to the specific audio profile.
Change Font Level	Scrolls through font sizes.
Change Talkgroup	Changes the talkgroup to the one programmed by your service provider.
Direct Private Number Dialing	Dials a predefined private number.
DMO Pre-emptive SDS	Sends the next DMO SDS or status message with elevated priority.
Flip Display	Rotates the display by 180 °.
LIP Report	Sends a message with the location of the radio to a dedicated address.
PABX Call Setup	Initiates a PABX call to a predefined entry in the contact list.
Phone Call Setup	Initiates a phone call to a predefined entry in the contact list.
Private Call Setup	Initiates a simplex or duplex private call to a predefined entry in the contact list or to the last group call originator.
RUI Logon or Logoff	Asks for the credential or logs off the radio.
Selecting Audio Profiles	Scrolls through all available audio profiles.
Send Double Push PTT Tone (D-PTT)	Sends the D-PTT tone to the currently used talkgroup.
Send Predefined Template (PDT)	Sends a predefined message to a dedicated address.
Send Status Message	Sends a dedicated status message to a dedicated address.
Send User-Defined Template (UDT)	Sends a user-defined message to a dedicated address.
Speaker Enable or Disable per Call	Enables or disables the loudspeaker for a duration of the ongoing call.
Switch to Previously Selected Talkgroup	Changes the talkgroup of the radio to the previously selected talkgroup (DMO or TMO).

Table continued...

Feature	Description
Timed Talkgroup Change	Makes a predefined talkgroup the selected talkgroup for a specified amount of time. While using the predefined talkgroup, the second press of the One-Touch Button results in: <ul style="list-style-type: none">• the radio returning to the previously selected talkgroup,• the radio restarting the predefined time, or• no action on the radio, depending on the configuration After the timer expires, the radio returns to the previously selected talkgroup.
Toggle Backlight	Toggles the backlight on or off.
Toggle BSI Encryption Enabled or Disabled	Enables or disables BSI encryption.
Toggle DMO or TMO	Toggles between TMO and DMO modes.
Toggle Extra Zoom	Turns Extra Zoom on or off.
Toggle Hi or Low Audio	Toggles audio high or low.
Toggle Howling Suppression	Enables or disables Howling Suppression.
Toggle Man Down On or Off	Turns Man Down feature on or off.
Toggle Screen Saver	Activates or deactivates the Screen Saver feature.
Toggle Talkgroup Scan	Turns the Talkgroup Scan feature in TMO Mode on or off.
Toggle Transmit Inhibit Mode (TXI)	Turns Transmit Inhibit Mode on or off.
Unassigned	No feature assigned to this button.
Universal Time Display	Displays universal time on the home screen.
Volume Down	Press to decrease the volume by one level. Press and hold to continuously decrease the volume to its minimum level.
Volume Up	Press to increase the volume by one level. Press and hold to continuously increase the volume to its maximum level.

Chapter 3

Modes

This chapter contains information on available modes that the radio can operate in.

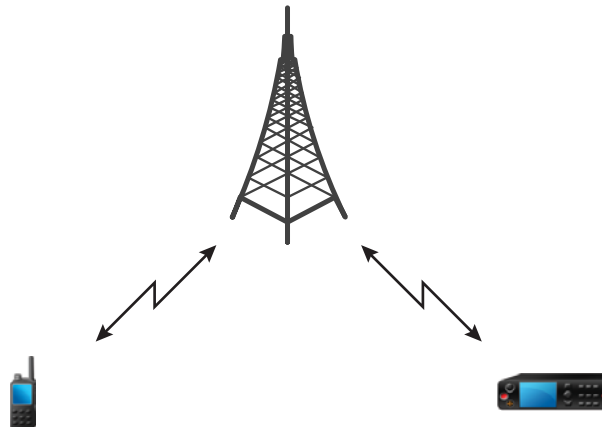
3.1

Trunked Mode Operation

Trunked Mode Operation (TMO) requires the switching and management infrastructure.

This operation mode enables various voice and data communication types, such as group calls and short data service messages, as well as access to the infrastructure-related features such as packet data.

Figure 2: Trunked Mode Operation



3.1.1

Entering TMO Mode

Procedure:

- 1 From the home screen, press **Options**.
- 2 Select **Trunked Mode**.

3.1.2

Making Group Calls in TMO

The Group Call is received by all members of the selected group who have their units turned on and are connected through the network.

Procedure:

- 1 Press and hold the **PTT** button.
- 2 Wait for the *Talk Permit* tone (if configured) and then speak into the microphone. Release the **PTT** button to listen.



NOTICE: To cancel making a group call, do one the following actions before the talk permit is granted (depending on your service provider's settings):

- Release the **PTT** button.
- Press the **END** key (default).

When the call is canceled, your radio displays `Call Cancelled` message (if configured by your service provider).

3.1.3

Receiving Group Calls in Idle

Procedure:

- 1 The radio receives a Group Call.



NOTICE: The incoming Group Call is signalled by a *Receiving Group Call* tone.

- 2 To respond, press and hold the **PTT** button.

3.1.4

Receiving Group Calls during Ongoing Group Calls

While in active Group Call, your radio receives a Group Call with a higher priority.

One of the following occurs:

- Your radio is forced to end the current group call and automatically join the incoming one.
- Your radio displays incoming group call screen with options:
 - **Join** — ends current Group Call and starts the incoming one.
 - **End** — cancels the incoming Group Call.

3.1.5

Dynamic Group Number Assignment (DGNA)

DGNA allows the network operator to dynamically manage talkgroups on your radio over the air interface. Using DGNA, the network operator can:

- Add talkgroups.
- Attach or select newly added talkgroups.
- Delete talkgroups.
- Modify parameters of existing talkgroups.

All the above operations are performed by transmitting data to your radio.

3.1.5.1

DGNA Reception

When a DGNA message is received, your radio plays a tone and displays a message `Talkgroup list updated`. If enabled by your service provider, your radio displays all added and deleted talkgroup list.

When your service provider deletes (de-assigns) the currently selected talkgroup, depending on the settings, the radio can perform one of the following actions:

- Enter the “No Group” state – the radio does not attach to any talkgroup automatically.

- Attach to the last selected TMO talkgroup. If the last selected TMO talkgroup is not available (it was deleted), the radio enters the “No Group” state.
- Attach to a default talkgroup configured by your service provider. If the default talkgroup is not available (it was deleted), the radio enters the “No Group” state.

At each talkgroup change, an appropriate notification is shown on the display.

If the DGNA message is received to delete all talkgroups, your radio displays `All Talkgroups Deleted`. To exit the DGNA display, you can use the **Back** Soft key or the **End** key.

3.1.5.2

DGNA Auto Select Group

If the DGNA Auto Select is configured, whenever your radio receives a DGNA, it switches to the added talkgroup.

3.1.5.3

DGNA Auto Reselect Group

If the DGNA Auto Reselect is configured, whenever a talkgroup assigned by the network operator via DGNA is deassigned without the user action, the radio returns to the previously selected group.

3.1.5.4

Viewing DGNA Talkgroups

Prerequisites: Your radio receives the DGNA message.

Procedure:

- 1 To view the added talkgroups details press **View**.
- 2 Scroll through the list to select required talkgroup.
- 3 To select the DGNA group, press **Attach**.

3.1.6

Broadcast Call

Broadcast Group Call (also called Site Wide Call) is a high-priority group call from the console operator (or dispatcher) to all users located at one or more sites. The radios are configured to monitor a Broadcast Call, but you cannot talk back. The call can be received as a normal Broadcast Call or an Emergency Broadcast Call. The Broadcast Call preempts an ongoing Group Call that has the same or lower call priority.

3.1.6.1

Broadcast Calls Initiated by Users

This feature allows you to make a Broadcast Call from the radio that is initiated on the predefined talkgroup. Your service provider predefines the alias and the priority of the Broadcast Call.



NOTICE: If the type of the encryption is defined by the SIM Card, the Broadcast Call is always clear. Otherwise if the radio uses other encryption service the type of the encryption used for that Call is up to the encryption settings of that service.



NOTICE: This feature is not supported on the Dimetra infrastructure.

3.1.6.2

Initializing Broadcast Calls

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Services** → **Broadcast**.
Your radio displays the predefined alias and the Broadcast Call icon.
- 3 To start the call press the **PTT** button.

3.1.7

Phone and Private Automatic Branch Exchange (PABX) Calls

Phone Call allows you to call a landline telephone number or a cellular mobile phone number. Private Automatic Branch Exchange (PABX) Call allows you to call local (office) extension numbers.

3.1.8

Assistance Call

This feature allows you make a private call to ask for assistance during normal and non-critical situations.



NOTICE: Your service provider can configure the number, priority, and the type of the call (simplex or duplex).

You can start an Assistance Call in one of the following way:

- Dial a predefined number and press **Send** key.
- **Menu** → **Services** → **Assistance Call**

3.1.9

Call Modification

Call Modification is a feature that allows your service provider to modify the call to optimize it and adjust to a current situation.

Modification can cover:

- Call priority - modified during call setup.
- Call type - modified during call setup.
- Call encryption - modified during an ongoing call, but not in the transmission phase.

When the call is modified, your radio displays `Call Modified` message.

When a recently modified call requires the **PTT** button to transmit, your radio displays `Call Modified Use PTT`.

All modifications are made by your service provider and the radio only follows them. You have no influence on ongoing call modifications.

When call priority is changed to emergency:

- The display indicates that an Emergency Group Call has been received.
- The radio plays a special audio alert.



NOTICE: If a Group Call is modified into an Emergency Group Call, no emergency-related features are triggered.

If the radio cannot follow a call modification requested by the service provider, due to its settings, the radio rejects it and displays `Service Not Available` message.

3.2

Local Site Trunking

This mode is also called as Fallback Mode and it allows more than one radio from the same site to communicate when the link between the site and the network central controller fails. Entering and exiting Local Site Trunking (that is, returning to System Wide Services) is done automatically. In this mode, some services are unavailable.



NOTICE: Your service provider can disable this mode.

3.2.1

Entering Local Site Trunking

When your radio receives a Local Site Trunking indication from the system, the following occurs:

- Your radio plays an *Entering Local Site Trunking* tone.
- Display shows the `Local Area Service` message.
- Display icons and soft keys turn olive.



NOTICE: Noticeable only on the color display.

- Any call in progress is dropped upon entering Local Site Trunking Mode.

If configured by your service provider, this message/alert is periodically repeated to remind you that your radio is still operating in Local Site Trunking Mode. The following features are available:

- Registration
- Attachment
- Group Call
- Emergency Call
- Emergency Alarm



NOTICE: Your service provider can turn on/off all the visual and audio indications, when you enter Local Site Trunking Mode.

3.2.2

Exiting Local Site Trunking

When the link with the central network controller is reestablished, your radio exits Local Site Trunking, and the following occurs:

- Your radio plays an *Exiting Local Site Trunking* tone.
- Any call in progress during Local Site Trunking is dropped.
- Display icons and soft keys turn blue.



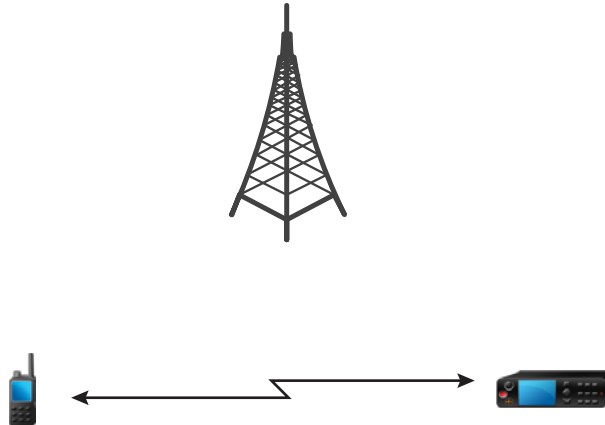
NOTICE: Your service provider can turn on/off all the visual and audio indications, when you exit Local Site Trunking Mode.

3.3

Direct Mode Operation

Direct Mode Operation (DMO) is a mode of simplex operation where radios communicate directly without the need of a network.

Figure 3: Direct Mode Operation



3.3.1

Entering DMO Mode

Procedure:

To enter the DMO Mode:

- From the home screen, press the **Menu** key. Select **More . . .** → **Networks** → **Direct Mode**.
- From the home screen, select **Options** → **Direct Mode**.

3.3.2

Making Group Calls in DMO

The Group Call is received by all members of the selected group who have their units turned on and are in range.

Procedure:

- 1 Press and hold the **PTT** button.
- 2 Wait for the *Talk Permit* tone (if configured) and then speak into the microphone. Release the **PTT** button to listen.

3.3.3

Receiving Group Calls in Idle

Procedure:

- 1 The radio receives a Group Call.



NOTICE: The incoming Group Call is signalled by a *Receiving Group Call* tone.

- 2 To respond, press and hold the **PTT** button.

3.3.4

Selecting DMO Group Call Options

When and where to use: Helps to communicate with other radio users on the same talkgroup through the Gateway or Repeater.

Procedure:

- 1 From the home screen, press **Options**.
- 2 Press **Config**.
- 3 Select one of the following:
 - **MS - MS** — Your radio can communicate only with other radios within its range.
 - **Gateway** — Your radio uses a gateway to communicate with the infrastructure.
 - **Automatic** — Your radio uses the first available gateway for that talkgroup.
 - **Specific** — Your radio uses only the Gateway with the specified Gateway address for that talkgroup. If your radio displays *Selected Gateway: None*, press **Edit** to enter the current gateway address.
 - **Repeater** — Uses the first available repeater for that talkgroup.
 - **GW + Rep** — Uses the first available gateway or repeater for that talkgroup.
 - **Automatic** — Uses the first available gateway for that talkgroup.
 - **Specific** — Uses only the Gateway with the specified Gateway address for that talkgroup. If your radio displays *Selected Gateway: None*, press **Edit** to enter the current Gateway address.



NOTICE:

When the Gateway and the Repeater cannot be communicated even though a talkgroup to use them is configured, the radio attempts the direct MS-MS communication.

When your radio detects the appropriate Gateway and/or the Repeater, the Gateway and/or Repeater icons turn solid, respectively.

3.3.5

Private Call With Presence Check

This feature allows you to see if the calling party is available in DMO. When this feature is enabled, you can only initiate a Private Call if the called radio is present on the same channel and responds with a presence check acknowledgement.

Otherwise your radio displays *Party Not Available*.

3.3.6

DMO Private Priority Call

The service provider may assign Pre-emptive Priority to outgoing DMO Private Calls. If this is the case, DMO Private Calls from this radio preempt any ongoing calls (with the exception of emergency calls or ongoing Pre-emptive Priority Private Calls) on the receiving radio, which then displays *Call-preempted*.

3.3.7

Talkgroup for Individual Calls

Talkgroup for Individual Calls is a talkgroup that operates on a separate frequency allocated for individual (private) calls only. Using this talkgroup optimizes frequency resources and helps not to block other talkgroups. The only supported call types are: private calls and emergency calls (both private and group). Use this talkgroup each time you need to make a private call.

When you select a Talkgroup for Individual Calls, your radio is not able to receive or initiate any group or broadcast calls with priority lower than Emergency.

When you have selected a Talkgroup for Individual Calls and press the **PTT** button to start a Group Call, the radio:

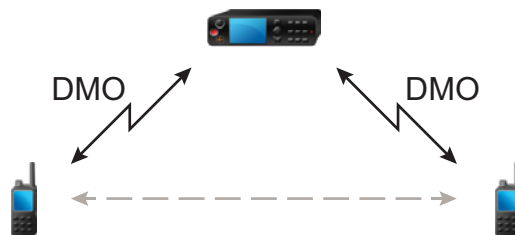
- Rejects the call
- Plays a tone
- Displays the `Individual Calls Only` message

3.3.8

Communication through Repeaters

Radios that are out of range and cannot communicate directly one with another in Direct Mode Operation (DMO) can do it through the repeater. The repeater is a radio that repeats all communication on a chosen channel, and as a result increases radios DMO range.

Figure 4: Communication through Repeaters



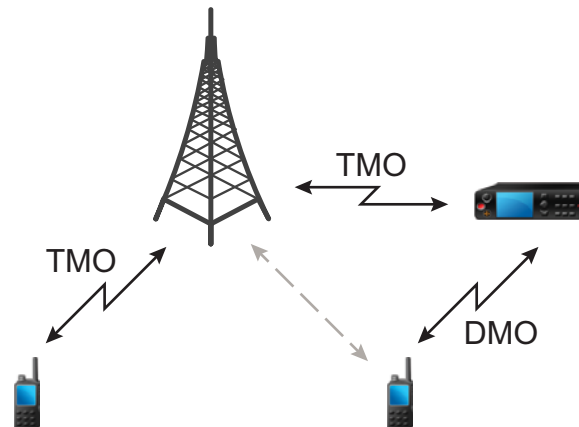
When the radio connects to a repeater, it plays a tone, displays the `Repeater available` message, and shows an appropriate icon. When the radio loses connection with the repeater, it plays a tone, displays the `Repeater not available` message, and the repeater icon is blinking.

3.3.9

Communication through Gateways

Gateway provides connectivity between radios operating in Direct Mode Operation (DMO) and the TETRA network, so that the DMO radios can communicate with the Trunked Mode Operation (TMO) radios.

Figure 5: Communication through Gateways



When the radio connects to a gateway, it plays a tone, displays the `Gateway available` message, and shows an appropriate icon. When the radio loses connection with the gateway, it plays a tone, displays the `Gateway not available` message, and the gateway icon is blinking.

3.3.10

Gateway and Repeater Synchronization

To communicate via gateways or repeaters, the radio requires synchronization with a gateway or a repeater.

A gateway or a repeater sends presence signals to radios. If a radio receives presence signals, it stays synchronized with the gateway or the repeater which sends the signals. If a radio fails to receive a presence signal it does not immediately lose synchronization. The radio waits for another successful presence for a time defined by your service provider. This function ensures that calls are not dropped due to temporary reception issues.

If a gateway or a repeater is unavailable or the radio is not synchronized with a gateway or a repeater, depending on the setup configured by your service provider, the following scenarios apply:

- The radio falls back to Direct Mode Operation (DMO).
- After pressing the **PTT** button, a prompt appears warning that the second press overrides the gateway or repeater operation mode.
- No direct DMO calls are permitted.

In the second scenario, while the radio receives individual calls and group calls, and replying to individual calls is possible, replying to group calls is not possible.

3.4

Transmit Inhibit Mode

The Transmit Inhibit (TXI) Mode is a mode in which the radio sends no radio transmissions. Activate this mode in RF sensitive areas, for example hospitals, airplanes, where safety can be jeopardized due to transmission radiation.

To activate, select **Menu** → **More...** → **Networks** → **TXI Mode** → **Activate**.

In this mode, the radio does not transmit under any circumstances except for the Emergency Calls. All the functions and keys which cause transmission, for example registration to the network, changing

talkgroup or folder, sending SDS messages, or pressing the **PTT** button are disabled. Any transmission attempt causes the radio to display **Not Allowed In TXI Mode** notification and to play a tone.

Your radio can still receive:

- Group calls.
- Messages - stored in the **Inbox**.
- Private call attempts - stored in the **Missed Calls** list, without the option to respond.

When no danger to safety exists anymore, for example, when you leave the RF sensitive area, you can deactivate the TXI Mode and the radio returns to standard operation.

You can deactivate the mode by selecting **Menu** → **More. . .** → **Networks** → **TXI Mode** → **Deactivate**, pressing One-Touch Button, or implicitly when initiating an Emergency Call.



NOTICE: RF Transmissions from the radio are prevented under the following conditions:

- TXI Mode is activated.
- Battery is removed.
- The radio is turned off.

On entering or exiting the TXI mode, when the radio is camped on a cell, it sends a specially designated Short Data Service (SDS) status message. This SDS message indicates to the SwMI that the radio is entering or exiting TXI mode.

Mobility procedures that do not require the radio to send an uplink transmission are performed except for cell reselection.

In TXI mode, the radio joins group calls for any group that the radio is monitoring, but the transmitting on that call is still prohibited.

The radio also displays any incoming SDS messages to the user. The missed call feature is active in the TXI mode and allows checking what calls were missed. However, the radio attempts to prevent call setup retransmission from being recorded as separate calls.

If you initiate an emergency call, the radio immediately leaves TXI mode and attempts to start the emergency call if the radio is in service.

If the radio is turned off in the TXI mode, on turning on, the radio asks whether to exit the TXI mode. If you choose **No**, the radio turns off.

3.5

Emergency Operations

Emergency Operations are used in critical situations.

Pressing and holding the **Emergency** button, or entering the Emergency Number and pressing the **Send** key, activates one or more services (depending on your service provider settings):

- Emergency Alarm
- SDS Status
- Silent Emergency
- Hot Microphone operation
- Emergency Individual Call (Private or MS-ISDN)



NOTICE: It is possible to turn on the radio by pressing the **Emergency** button. Depending on the service provider settings, the radio can start Emergency Operations automatically. If the radio is PIN-protected (except for SIM PIN), Emergency Operations bypass the PIN lock.

When starting Emergency Operations, any ongoing voice call is aborted or cleared down, and any packet data transfer in progress is aborted. However, the session is kept open.

During Emergency Operations, the radio rejects phone, PABX, and private calls, and does not monitor the talkgroups in the selected scan list.

To terminate Emergency Operations, press the **Right** soft key.

3.5.1

Emergency Alarm

The Emergency Alarm is a special status message sent while starting the Emergency Operations. The radio sends the message in either TMO or DMO.

Each time the radio enters the Emergency Operation, it sends the Emergency Alarm. When the Emergency Alarm is sent successfully, the respective audible tone sounds.

In addition, pressing the **Emergency** button when the radio is in the Emergency Operation resends emergency alarm (exception: during Hot Microphone transmission).

3.5.2

Emergency Group Call

The Emergency Group Call has the highest communication priority and it is a pre-emptive call. Emergency Group Call is available in both TMO and DMO. During Emergency Operations, start Emergency Group Call by pressing the **Emergency** button. The radio can also support Hot Microphone operation, which allows the Emergency Call to be conducted without pressing the **PTT** button.

When a radio receives or generates a group call with emergency priority, the display changes color to red and a red triangle icon is displayed. A special *alert* tone is played.

An emergency group call can be configured as:

- A non-tactical call – initiated on a talkgroup preprogrammed by your service provider. When in non-tactical emergency mode, you cannot switch talkgroups.
- A tactical call – initiated on the currently selected talkgroup.

Pressing the **Emergency** button during an ongoing emergency broadcast call has no effect. No new call is started and no emergency alert is sent.

When the Emergency Group Call you participate in terminates, your radio can behave in several ways, depending on your service provider settings:

- If you are the call initiator, the radio can either stay in the Emergency Mode, or return to TMO.
- If you are not the call initiator, the radio always returns to TMO.

3.5.2.1

Making Emergency Group Calls

Prerequisites: Ensure that your radio is in Emergency Mode.

Procedure:

- 1 Press and hold the **PTT** button.
- 2 Wait for the *talk permit* tone (if configured) and talk.
- 3 Release the **PTT** button to listen.



NOTICE: It is possible to cancel making an emergency group call in TMO. To do this, perform one of the following actions before the talk permit is granted (depending on your service provider settings):

- Release the **PTT** button.
- Press the **End** key (default).

When the call is canceled, your radio displays `Call Cancelled` message (if configured by your service provider).

3.5.2.2

Receiving Emergency Group Calls

The radio receives an Emergency Group Call from a selected pre-programmed group. An appropriate tone, status icon, and red color of the display indicates an incoming call.

3.5.3

Non-Tactical Emergency

In Non-Tactical Emergency, the radio switches to a designated Emergency talkgroup when starting Emergency Operations. This talkgroup is used for the complete duration of the Emergency Operations and changing talkgroup is not allowed.

In Trunked Mode Operation (TMO), it is possible to configure the radio to make Emergency Non-Tactical Group Calls without sending attachment. If set, the radio assumes implicit attachment after receiving a temporary address.

In Direct Mode Operation (DMO), the Non-Tactical Emergency proceeds on the same frequency as the previously selected talkgroup. The service provider can designate any Individual TETRA Subscriber Identity (ITSI) address to be used for Emergency Operations and this ITSI can be an Open Group - broadcast address.

After exiting from Non-Tactical Emergency, the radio goes back to the previously selected talkgroup.

3.5.4

Emergency Individual Calls (Private or MSISDN)

The Emergency Individual Calls are Simplex or Duplex Calls with emergency priority. On pressing the **Emergency** button, the radio initiates an Individual Call to the provisioned address (private or MSISDN). During this kind of call, all user indications are unavailable and all other services are rejected. Emergency Operation ends when the Emergency Individual Call is ended.

3.5.5

Emergency SDS Status

The radio sends a status message with a preprogrammed value to the destination address set by your service provider. Emergency SDS Status is available in TMO only. If no status acknowledgment or negative acknowledgment is received, the radio retries sending the message. Status is not resent when Emergency Alarm or Hot Microphone is configured.

3.5.6

Emergency Hot Microphone

The Hot Microphone allows you to talk without pressing the **PTT** button during Emergency Operation. The transmission continues for a provisioned amount of time. Pressing the **PTT** button before the Hot Microphone time expires ends the Hot Microphone operation. Then normal PTT operation in

Emergency group call takes over whereby the transmission is ongoing for the time the **PTT** button is held.

Subsequent **Emergency** button presses during the Emergency Operation restart the Hot Microphone transmission.

If a talk permit is granted to another member of the group, the Emergency Call received tone is played. If configured, the radio automatically attempts to get talk permit again.

Pressing **End** soft key or **End** key ends the Hot Microphone operation.

3.5.7

Alternating Hot Microphone

The Alternating Hot Microphone is an enhancement of the Hot Microphone. After activation, the radio alternately enters transmission phases (your microphone is active) and reception phases (you can only listen) for an amount of time precisely determined by your service provider.

If this feature is enabled, you can initiate the Alternating Hot Microphone by pressing the **Emergency** button. If you want to finish earlier or skip the transmission phase, press the **End** key.

The Alternating Hot Microphone terminates when one of the following conditions is met:

- The radio exits the Emergency Mode.
- The Alternating Hot Microphone timer expires.
- The **PTT** button is pressed.
- The **Right** soft key is pressed (only during the transmission phase).



NOTICE: When the radio goes out of the service, it enters the reception phase and the Alternating Hot Microphone is on hold. When the radio is back to the service, the Hot Microphone transmission and the Alternating Hot Microphone resume.



NOTICE: When you are in the Emergency Mode, pressing the **Emergency** button restarts the Alternating Hot Microphone.

3.5.8

Silent Emergency Mode

The Silent Emergency Mode is a type of emergency services that provides no audible indications nor keypad tones at the entrance. All the display indications are as in the home mode. However, the radio cannot use any services except for:

- Receiving Ambience Listening
- Sending Silent Emergency Alarms
- Sending GPS location reports



NOTICE: If you try to activate any other feature, it is blocked.

If the Silent Emergency feature is enabled, the radio enters Silent Emergency Mode on pressing the **Emergency** button. After entering this Mode the radio stays in TMO or switches to it, depending on the actual state. Once in TMO, the radio sends Silent Emergency Alarm.



NOTICE: If the radio is in a private or group call, the radio waits until the call ends and then enters the Silent Emergency Mode.

The radio keeps re-sending the alarm until successful sending is confirmed. After the alarm is successfully delivered, the radio stays in Silent Emergency Mode and waits for the Ambience Listening.

Your radio exits the Silent Emergency Mode, under the following conditions:

- Press **Menu** simultaneously with the **Right** Navigation key.
- No success in sending the Silent Emergency Alarm and the maximum number of retries has been reached.
- The control room terminates the Silent Ambience Listening.
- The Ambience Listening is disconnected due to another reason.

If you turn off the radio in the Silent Emergency Mode, the radio switches to pseudo power off state. In this state, the radio appears to be turned off. However, the radio is still on and in the Silent Emergency Mode. On turning the radio on during the pseudo power off state, the radio acts as during turning on and still is in the Silent Emergency Mode.

3.5.9

Invisible Emergency

It is possible for the service provider to disable visual and audible indications when performing Emergency Operation on the radio, known as Invisible Emergency. Invisible Emergency provides an extra layer of safety when using Emergency Operation in a critical situation, for example during a direct attack on the user.

3.5.10

Disaster Alert

Disaster Alert call is a broadcast emergency call initiated by the radio, with emergency pre-emptive priority that everyone in a broadcast area can hear. This feature is designed for catastrophic situations, such as earthquakes, and has the highest priority over other calls. All radios under Disaster Alert display emergency notification on their screens. The alert message, its duration, and destination talkgroup can be configured in the codeplug.

To initiate Disaster Alert, switch the radio to Disaster Alert mode and press **PTT** button. When the call ends, the radio exits the Disaster Alert state.

During Disaster Alert, other functionality is impacted:

- When Disaster Alert begins, any other ongoing services are terminated.
- No other services can interrupt this type of call.
- Hot Mic functionality cannot be used.
- Speech can only be in Clear mode, even if any of the encryption services are enabled. The only exception is E2E Encryption.



NOTICE: Not all infrastructures support this feature. Consult service provider before enabling this feature.

3.5.10.1

Initializing Disaster Alert Calls

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Services** → **Disaster Alert**.
Your radio enters Disaster Alert Mode and it displays Disaster Alert icon.
- 3 To start the call press **PTT**.
Your radio displays `Disaster Alert In Use`.

3.5.11

Exiting Emergency Operations

Prerequisites: Make sure that your radio is engaged in Emergency Operations.

Procedure:

- 1 If your radio screen displays `Emergency Mic On`, press **End**.
- 2 Press and hold **Exit**.

Your radio exits Emergency Operations.

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Chapter 4

Main Menu

This chapter contains information on items in the main menu.

You can enter the menu items during a call. If not programmed otherwise by your service provider the radio exits the menu, when a new call starts.



IMPORTANT: Some menu items are model-specific and may not be activated or available on your radio.

4.1

Scrolling through the Menu

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Scroll to the required item by pressing Navigation keys. Press the Soft key assigned as **Select** or **Right** Navigation key to select.

If the menu item contains a further set of menu items, repeat [step 2](#).

4.2

Menu Icons

The following icons make it easy to identify the menu items at first glance.

Table 11: Menu Icons


















Menu Icon	Description
	Main Menu Items / Context Sensitive Menu It is assigned to Menu when the main menu items / context-sensitive menu are active.
	Messages <ul style="list-style-type: none"> • Send status messages, • Send text messages (free text or according to user defined or predefined templates), • Received messages in Inbox.
	Contacts Add, search, edit, or erase entries in the contact list.
	Browser Starts the WAP browser.
	Man Down Allows you to activate the Man Down feature.

Table continued...

Menu Icon	Description
	Security Lets you turn on/off and verify security features, and change passwords.
	Setup Allows you to customize your radio.
	More... Contains additional setup menu items.
	Group Setup Contains additional menu items for Scanning Talkgroups features.
	Favorites Contains shortcuts to frequently used talkgroups and contact numbers.
	My Info Displays information about your radio and its numbers.
	Recent Calls Contains a list of recent calls.
	Shortcuts Allows you to view and manage shortcuts to menu items.
	Networks Allows you to select a network.
	Location Displays location of your radio.
	Packet Data Allows you to send data from your radio to other devices.
	Services Allows you to manage Broadcast, Assistance, and Disaster Calls.

4.3

Messages

This feature allows you to send and receive text messages. A message can contain up to 1000 characters, depending on your service provider settings.

Pressing the **PTT** button when a message is highlighted can cause one of the following actions, depending on your service provider settings:

- The radio ignores the **PTT** button request.
- The radio starts a Private Call with the message sender.
- The radio starts a Group Call on a currently selected talkgroup.

See [Writing Text on page 99](#) for details on writing a text message.

4.3.1

New Message

This menu item allows you to create a new message.

4.3.1.1

Sending Messages to Private/Phone

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **New Message**.
- 3 Enter your message and press **Send**.
- 4 If needed, select **Private/Phone**.
- 5 Enter recipient number or press **abc** to choose it from your contacts.



NOTICE:

For Private target selection, you can enter either Individual Short Subscriber Identity (ISSI), Individual TETRA Subscriber Identity (ITSI), or Group Short Subscriber Identity (GSSI) of the recipient.

ISSI/ITSI – a unique, individual ID assigned for each radio.

GSSI – in Dimetra called Group ID or Talkgroup ID.

- 6 Press **Send**, or **Send** key, or the **PTT** button.

4.3.1.2

Sending Messages to Groups

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **New Message**.
- 3 Type your message and press **Send**.
- 4 If needed, select **Group**.
- 5 Select a group to send the message.

4.3.1.3

Sending Store and Forward Messages

Prerequisites: Your service provider enables the Store and Forward feature.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **New Message**.
- 3 Press **Menu** key and select **Message Setup** → **On/Offline users**.
- 4 Enter your message and press **Send**.
- 5 If asked for the Target selection, select one of the following:
 - **Private** – enter the private number or press **abc** to choose the destination number from the contact list.

- **Phone** – enter the phone number or press **abc** to choose the destination number from the contact list.



NOTICE: Your service provider can enable to send a Store and Forward message to a talkgroup.

- 6 Select **Send**, or press **Send** key or **PTT** button.

4.3.1.4

Delivery Report

Delivery Report is an acknowledgment that the radio can request upon sending a message to an individual recipient. You can define what type of Delivery Report your radio requests, or turn on/off this feature.

If the Delivery Report is received shortly after the message was sent, the radio:

- Displays a pop-up with one of the following messages:
 - *Message Sent* – if no Delivery Report is requested (and when a Store and Forward message has been received at the Store and Forward server).
 - *Message Delivered* – if the Delivery Report is requested and the message has been received by the target radio.
 - *Message Read* – if the **Consumed** Delivery Report is requested and the message is opened on the target radio.
 - *Message Failed* – if the Delivery Report is requested and the message has not been received by the target radio within a defined time period.
- Saves the Delivery Report in **Outbox** along with a copy of the message.

If the Delivery Report is received after a longer period of time, the radio:

- Saves the Delivery Report in **Outbox** along with a copy of the message.
- If Delivery Report Notifications functionality is configured by your service provider, the radio also:
 - Temporarily saves a Delivery Report message in **Inbox**. The notification disappears after it is read.
 - Displays New Message icon.
 - Displays New Delivery Status notification screen (if possible).

4.3.1.4.1

Viewing Delivery Reports

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Inbox**.
- 3 Find a required message and select **Read**.
- 4 Press **Menu** key.
- 5 Select **Delivery Status**.

4.3.1.4.2

Configuring Delivery Reports

Prerequisites: Your service provider enabled the delivery report configuration.

Procedure:






- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **New Message**.
- 3 Press **Menu** key and select **Delivery Report**.
- 4 Select one of the following:
 - **None** — the radio does not request any delivery report.
 - **Received** — the radio requests reports on your messages that were received.
 - **Consumed** — the radio requests reports on your messages that were read.
 - **Both** — the radio requests reports on your messages that were received and read.

4.3.2

Inbox

It contains up to 100 new or old incoming messages, depending on the length of the messages.

Table 12: Inbox Icons

Icon	Description
	Unread (New) Message
	Read (Old) Message
	Sender Information in Message View — name or number
	Time and Date Stamp in Message View — arrival time and date
	Delivery Status Received — delivery status for Store & Forward messages

Messages sub-menu indicates the number of the messages. If the indication is for example 2/4, it means that two unread and four read messages are in the **Inbox**.

4.3.2.1

Entering the Inbox

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Inbox**.



NOTICE: The status (if any) of the list is displayed for a few seconds:

- **No New or Old Messages** — The screen returns to the previous display within a few seconds.
- **Inbox Full** — Select **OK**.

4.3.2.2

Receiving New Messages

Prerequisites: Your radio displays a New Message icon, an animation, and plays a *New Mail Received* tone.

Procedure:

Select one of the following:

- **Read** — opens the entire message.
- **Back** — dismisses the message. You can access the message later from the **Inbox**.

4.3.2.3

Using Submenus in the Inbox and the Outbox

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Inbox** or **Outbox**.
- 3 Highlight the required message and press **Menu** key.
- 4 Do one of the following:
 - **Store** — Saves a message as a template. Change the default template name and press **OK**.
 - **Delete** — Deletes the selected message. Press **Yes** to confirm.
 - **Delete All** — Deletes all the messages in the **Inbox/Outbox**. Press **Yes** to confirm.
 - **Reply** (only for **Inbox**) — Invokes the edit screen with the old message as default text and the message originator as a recipient. After editing, press **Send**, the **PTT** button, or the **Send** key to send.
 - **Resend** (only for **Outbox**) — Invokes the edit screen with previously entered text with the same recipient. After editing, press **Send**, the **PTT** button, or the **Send** key to send.
 - **Forward** — Invokes the edit screen with the old message to send it to a different participant. After editing, press **Send**, the **PTT** button, or **Send** key to send.
 - **Refresh** — Re-orders the message list and displays the new messages.
 - **Delivery Status** (only for **Outbox**) — Shows the date and time of the message when it sent, delivered, read, and expired was not delivered, expired was not read, failed unknown.

4.3.2.4

Embedded Number

This feature allows you to call a number from a message or to start a group call with the message sender talkgroup.

4.3.2.5

Storing Numbers from Messages

Prerequisites: Embedded Number feature is enabled by your service provider.

When and where to use: You can save the number of the sender or embedded number from the message to a new or existing contact.

Procedure:

- 1 From the home screen, press the **Menu** key.

- 2 Select **Messages** → **Inbox**.
- 3 Highlight the required message and select **Read**.
- 4 Press the **PTT** button.
- 5 Radio displays a list of the numbers (including the senders number).
- 6 Highlight the required number and press **Store**.
- 7 Highlight required contact and press **View**.



NOTICE: To store a number for a new contact, select **[New Contact]** and fill out the required fields. Press **Done** to save it.

- 8 Select **Edit**.
- 9 Choose the **Type** of the new number and press **Done**.

4.3.2.6

Calling Numbers in Messages

Prerequisites: Embedded Number feature is enabled by your service provider.

When and where to use: You can return a voice call to the sender of a message or to any number that is embedded in the message text.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Inbox**.
- 3 Highlight the required message and select **Read**.
- 4 Press the **PTT** button.
- 5 Radio displays a list of the numbers (including the senders number).
- 6 To call, highlight to the required number and press the **PTT** button or the **Send** key.
- 7 Select **Ctype** to choose the type of call (**Private**, **Phone**, or **PABX**).
- 8 Press the **PTT** button or the **Send** key.

4.3.2.7

Making Group Calls on the Talkgroup of the Message Sender

Prerequisites: Embedded Number feature is enabled by your service provider.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Inbox**.
- 3 Highlight the required message and press the **PTT** button.

4.3.2.8

Immediate Message



NOTICE: This feature is a paid feature.

When the new immediate message is received, radio plays the *New Mail Received* tone and displays the content overlapping your previous screen. All immediate messages are stored in the **Inbox**. If the radio is in PIN Lock state, immediate message is displayed after correct PIN is entered.


The message stays on the screen until you press the **End/Home** key.

4.3.3

Outbox

Outbox stores up to 100 sent messages arranged chronologically with the last sent message at the top of the list.

Table 13: Outbox Icons

Icon	Description
	Delivery in Progress
	Delivery Accomplished
	Delivery Failed
	Successful Outgoing Message
	Failed Outgoing Message

4.3.4

Call-Out (CO) Box

CO Box contains incoming and outgoing Call-Out messages. Clicking **Select** on a Call-Out message headline displays more detailed information on the item.

When the radio is in normal mode, you are able to browse through all messages in the **CO Box**. However, if the radio is in the Call-Out mode, you can only browse through the information regarding the currently ongoing Call-Out message.

4.3.5

Wireless Application Protocol (WAP) Box

Each WAP Push message can be loaded immediately or stored as a message in **WAP Box**. Then it can be accessed by pressing **Menu** → **Messages** → **WAP Box**. All the WAP Push messages are passed to the browser.

4.3.6

Templates

Templates box stores user-defined message templates. Each of the **Inbox** and **Outbox** message can be stored as a template. Each template name and text can be edited afterwards.

4.3.6.1

Sending User-Defined Templates

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Templates**.
- 3 Highlight the required template name and press **Send**.

- 4 Do one of the following:
 - Enter the number or press **abc** to select the name from your contact list. Press **Send**.
 - Select required talkgroup from the **TalkGroup List**.

4.3.6.2

Managing User-Defined Templates

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Templates**.
- 3 Highlight the required template and press **Menu**.
- 4 Select one of the following:
 - **View** — Displays template text.
 - **Delete** — Deletes the template.
 - **Edit Text** — Opens edit screen with the template text. Edit the text and press **Menu**. Select **Save Changes** to save edited template, or **Store** to save the edited template as a new one.
 - **Edit Name** — Opens edit screen with the template name. Press **Ok** to save the template.

4.3.7

Predefined Templates

Predefined message templates are programmed into your radio. You are allowed to perform limited edit operations of the predefined template. You can send it, but you are not able to store the edited template or erase it from the predefined template list.

4.3.7.1

Viewing Predefined Templates

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Predefined**.
- 3 Highlight the required template and press **Menu** key.
- 4 Select **View**.

4.3.7.2

Sending Predefined Templates

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Predefined**.
- 3 Highlight the required template and press **Send**, the **PTT** button, or the **Send** key.



NOTICE: You can edit the predefined template before you send it. Press the **Menu** key and select **Edit**. Edit screen opens with the template text. You are only allowed to replace the existing text.

4.3.8

Status Messages

The radio allows you to send two types of status messages: statuses and targeted statuses. Your service provider determines which type is enabled on the radio.

Statuses can be sent either to a selected talkgroup or to a private number programmed by your service provider. Targeted statuses can be sent to any talkgroup defined for the radio or to any private number (from the contact list or entered manually).

4.3.8.1

Viewing a Status Message Number

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Send Status**.
- 3 Press the **Menu** key and select **View**.

4.3.8.2

Sending Status Messages

This procedure allows you to send status messages to either a selected talkgroup or a programmed private number. Only one option can be enabled at a time.

Prerequisites:

- If sending statuses to talkgroups is enabled: switch to the talkgroup to which you want to send a status message.
- If sending statuses to private numbers is enabled: no action is needed, the private number is set up by your service provider

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Send Status**.
- 3 Highlight the required status message and press **Select**, the **PTT** button, or the **Send** key.

4.3.8.3

Targeted Status Messages

This feature enables sending status messages to user selectable addresses. By default, targeted status messages can be sent to private or talkgroup addresses. Your service provider may restrict valid addresses to numbers stored in **Contacts**.



NOTICE: This feature is not supported on Dimetra networks.

4.3.8.3.1

Sending Targeted Status Messages

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Send Status**.
- 3 Highlight the required status message and press **Select**, the **PTT** button, or the **Send** key.

- 4 Do one of the following:
 - Enter the number or press **abc** to select the name from your contact list. Press **Send**.
 - Select required talkgroup from the **TalkGroup List**.

The display shows one of the following delivery reports:

- Status Sent.
- Status Failed.

4.3.9

Additional Address

The Additional Address feature allows the radio to send RMS messages, and Local Information Protocol (LIP) reports to additionally defined recipients.

The default addresses where the radio sends RMS messages and LIP reports are defined by your service provider. If an Additional Address is selected and enabled, RMS messages and LIP reports are also sent to the recipient defined in the Additional Address.

You can create, edit, and delete Additional Addresses using the radio menu. If an Additional Address is configured by your service provider, the service provider can disable edition and deletion of the address using the radio menu.

You can define up to 30 Additional Addresses.

4.3.9.1

Enabling or Disabling Additional Address

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Additional Address** → **Enable**.
- 3 Select one of the following:
 - **On** – to activate the feature
 - **Off** – to deactivate the feature

4.3.9.2

Selecting Additional Address

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Additional Address** → **Select Address**.
Select Address display appears with an available list of aliases.
- 3 Scroll through the list to highlight your alias and press **Select**.

4.3.9.3

Viewing Additional Address

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Additional Address** → **Select Address**.

- 3 Scroll to select the alias of the Additional Address you wish view.
- 4 Press the **Menu** key.
- 5 Select one of the following:
 - **Edit** (for User Defined Additional Address alias)
 - **View** (for Pre-defined Additional Address alias)

The display shows the Alias, the ISSI/ITSI/GSSI and the Status of the address (Pre-Defined or User Defined).

4.3.9.4

Entering New Additional Address

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Additional Address** → **Select Address**.
- 3 Select **[New Address]**
- 4 Press **Change** key.
- 5 Enter new values of the Alias and ISSI/ITSI/GSSI fields, press **Done** key.

The new alias appears in the list of available aliases. There is no possibility to have two Additional Address items with the same Additional Address Alias.

4.3.9.5

Editing Additional Address

Prerequisites: Editing Additional Address is allowed only for User-Defined positions. Pre-Defined positions can only be Selected or Viewed.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Additional Address** → **Select Address**.
- 3 Highlight the alias.
- 4 Press **Menu** key.
- 5 Select **Edit**.
- 6 Press **Change**.
- 7 Enter new values of the Alias and ISSI/ITSI/GSSI fields, press **Done** key.

The changed alias appears in the list of available aliases. There is no possibility to have two Additional Address items with the same Additional Address Alias.

4.3.9.6

Deleting Additional Address

Prerequisites: Deleting Additional Address is allowed only for User-Defined positions. Pre-Defined positions can only be Selected and Viewed.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **Additional Address** → **Select Address**.

- 3 Scroll to select the alias of the Additional Address you wish delete.
- 4 Press the **Menu** key.
- 5 Select **Delete** and confirm deletion by the **OK** key.








4.4

Contacts

This menu stores all your contact numbers. Each entry requires the following information:

- **Name** — if you store more than one number to one contact, this entry is required.
- **Type** — each contact must be assigned to one of the following types:

Table 14: Contact Types

Contact Icon	Description
	Private Cannot have a speed dial number.
	Mobile
	Home
	Work
	PABX
	Other
	Pickers Indicate more than one number in a contact.


- **# (number)** — each contacts entry must contain a number.
- **Speed #** — accept the default Speed Dial number or change it.

4.4.1

Creating Contacts

Procedure:

- 1 From the home screen, press **Contcs**.
- 2 Select **[New Contact]**.
- 3 Highlight **Name** and press **Change**. Enter the name of your contact and press **Ok**.
- 4 Highlight **Type** and press **Change**. Select the required type of your contact.



NOTICE: You can use the **Left** and **Right** Navigation keys to select the type of your contact from the **Contact Details** screen.
- 5 Highlight **# (number)** and press **Change**. Enter the number of your contact and press **Ok**.

- 6 If needed, highlight **Speed #** and press **Change**. Enter the speed dial number (1– 1000) of your contact and press **OK**.



NOTICE: If the entered number exist, the radio displays *Overwrite?* message. Press **Yes** to confirm, or **No** to enter the speed dial number again.

- 7 Press **Done**.

You have create a contact with one number. To add additional number repeat steps [step 4](#) – [step 6](#).

4.4.2

Editing Contacts

Procedure:

- 1 From the home screen, press **Contcs**.
- 2 Highlight the contact you want to edit.
- 3 Press the **Menu** key.
- 4 Press **Edit**.
- 5 Highlight one of the following entries and press **Change** to edit:
 - **Name**
 - **Type**
 - **#** (number)
 - **Speed #**
- 6 Press **Done**.

4.4.3

Deleting Numbers

Procedure:

- 1 From the home screen, press **Contcs**.
- 2 Select a contact you want to edit.
- 3 Use **Left** or **Right** Navigation keys to choose the required number.
- 4 Press **Menu**.
- 5 Select **Delete number**.



NOTICE: If an entry contains only one number, deleting the number deletes the entry.

- 6 Press **Yes**.

4.4.4

Deleting Contacts

Procedure:

- 1 From the home screen, press **Contcs**.
- 2 Highlight a contact you want to delete.
- 3 Press the **Menu** key.
- 4 Select **Delete contact**.

- 5 Select **Yes**.

4.4.5

Checking Capacity

When and where to use: To see how many numbers are stored in the radio.

Procedure:

- 1 From the home screen, press **Contcs**.
- 2 Press the **Menu** key.
- 3 Select **Capacity**.
- 4 Select one of the following:
 - **Private**
 - **Phone/PABX**
 - **Contact**

4.4.6

Dialing through the Contact List

Procedure:

- 1 From the home screen, press **Contcs**.
- 2 To highlight the required contact, use **Up** and **Down** Navigation keys, or enter up to 12 characters of the contact name.
- 3 If the contact has more than one number, use **Left** and **Right** Navigation keys to select the required number.
- 4 To initiate a simplex call, press the **PTT** button with a **Private** number. Otherwise use the **Send** key to initiate a duplex call.

4.5

Browser

This menu item activates a WAP browser that allows you to browse the Internet from your radio. See [Wireless Application Protocol \(WAP\) on page 105](#).

4.6

Man Down



NOTICE: This feature is a paid feature.

Man Down alerts when no movement occurs for a set time or the radio stays at an angle of tilt below a defined value. The radio alerts you when:

- Its tilt exceeds a predefined angle value.
- No movement is detected in a predefined time interval.

In case any of the conditions are met, the radio alerts you with a Man Down pre-alert. If you do not remove the pre-alert condition, the radio switches to the Emergency Operation.

For the easier localization of the radio, visual and audible indications are started until they are deactivated. If the Emergency Hot Microphone is on, the additional audio indication is not played.

To exit Man Down, exit the Emergency Mode by pressing and holding the **Exit Soft** key, or press the **PTT** button.

4.6.1

Setting Man Down

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Man Down**.
- 3 Select one of the following:
 - **On** — Activates the feature.
 - **Off** — Deactivates the feature.

4.7

Security

This sub-menu stores all your security settings.

4.7.1

PIN Protect

This feature allows you to enable PIN code authentication at the next power on. This code protects your radio against unauthorized use.

If you are unable to unlock the radio, you can only send or receive Emergency Calls and adjust the volume level with the **Rotary Knob**.

If you are unable to unlock the radio, you can only send or receive Emergency Calls and adjust the volume level with the **Volume Knob**.

4.7.1.1

Protecting the Radio with a PIN Code

Procedure:

- 1 From the home screen, press **Menu** → **Security** → **PIN Protect**.
- 2 Select **On**.
- 3 Enter 4-digit PIN code. By default it is 0000 (four zeros).



NOTICE: To increase security, set your own PIN code.

Postrequisites: Each time you turn on the terminal, PIN code is required.

4.7.1.2

Unblocking Your Radio

Prerequisites: You blocked your radio by entering incorrect PIN code for three times (by default).

Procedure:

- 1 Radio displays `Unit Blocked Enter PUK`.
- 2 Enter 8–digit PUK (Personal Unblocking Key) number.



NOTICE: The PUK is an eight-digit master code provided by your service provider.

- 3 Enter the new PIN code twice.

4.7.1.3

Changing PIN Codes

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Security** → **Change Code**.
- 3 Radio prompts for the **Old Code**. Enter currently used 4-digit security code (default setting is 0000).
- 4 If the entered code matches the old code, radio prompts for the new code twice.

Your radio displays **Code Accepted**.

4.7.2

Keypad Lock Feature

The keypad lock feature allows locking the keypad to prevent pressing a key accidentally. The keypad lock/unlock can be invoked by using a predefined menu shortcut. Press **Menu**, and then **Left Navigation** key.



NOTICE: Additionally, from the radio menu, you can invoke the keypad lock (not the unlock) by selecting **MENU** → **Security** → **Keylock Setup** → **Lock Keypad**.

An active keypad lock additionally locks the following accessory buttons:

- No-Dot
- 1-Dot
- 2-Dot

Your service provider can determine which of the following elements are additionally inoperative while the keypad is locked:

- The PTT button (also on accessories).



NOTICE: Your service provider can determine the following elements for PTT button:

- Lock all buttons.
- Lock radio PTT button only when RSM is connected.



NOTICE: If no RSM is connected when powering up the radio, radio PTT button is useable. If an RSM is connected when powering up the radio, radio PTT button is locked. Disconnecting a connected RSM requires restarting of the radio to unlock the radio PTT button.

- Lock accessories PTT button only.



NOTICE: Bluetooth PTT is not affected.

- Volume Control.
- Talk Group Selection.
- Side buttons.
- Lock on Start-Up.

- The Soft keys.
- The Power-Off key.

The **Emergency** button is always operative.

4.7.2.1

Keypad Lock Notification

When the keypad is locked, your service provider can configure one of the following instructions:

- None — no notification is displayed.
- Notification Only — `Keys Locked` is displayed.
- Notification and Instruction — `Press Menu + Left to lock/unlock keypad` is displayed.

4.7.2.2

Setting Automatic Keylock Delay

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Security** → **Keylock Setup** → **Delay**.
- 3 Use **Up** and **Down** Navigation keys to change the minutes and press **Done**.

4.7.2.3

Setting Keylock on Startup

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Security** → **Keylock Setup** → **Start Locked**.
- 3 Select **On/Off**.

4.7.3



Air Encryption



NOTICE: This feature is a paid feature.

Air Encryption is a feature that enables encryption of entire communication between the radio and infrastructure, which results in increased security of calls, messages, and data.

If configured by your service provider, the radio plays a sound and displays `Call & Data Not Encrypted` when encryption is on and you receive a clear call (unencrypted). This feature provides service confidentiality between you and the system.

In the TMO Mode, when Air Encryption is enabled on you radio but cannot be supported due to an infrastructure failure, the following icon appears on the display: . When encryption is not available in the DMO Mode, the radio displays: .

This menu item allows you only to view air encryption state.

4.7.3.1

Viewing Air Encryption State

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Security** → **AirEncrypt**.
- 3 Your radio displays:
 - Air Encryption Is Off.
 - Air Encryption Is On.

4.7.3.2

Deleting User Keys

Prerequisites: The user key deletion is enabled in the codeplug.

Procedure:

- 1 Verify that the radio is turned on.
- 2 Press the following key sequence: **Side Button 1, Side Button 1, Side Button 1, Side Button 2, Side Button 2, Side Button 2**.



IMPORTANT: The key deletion takes up to 30 seconds. During the period, the battery must not be removed. Removing the battery during that period may lead to radio malfunction.

Encryption and/or Authentication keys are deleted. The radio enters Temporary Disable state and the service provider must manually restore it.

4.7.4

K Validity

Key (K) is a secret key the infrastructure uses to authenticate the radio in the system. It is part of the authentication that provides service confidentiality between your radio and the system.

4.7.4.1

Verifying K Validity

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Security** → **K Validity**.
- 3 Your radio displays:
 - K is Valid — the infrastructure can authenticate your radio.
 - K is Invalid — the infrastructure is unable to authenticate your radio. Please call your service provider to restore the key to your radio.

4.7.5

SCK (Air Interface Encryption Class 2)

Static Cipher Key (SCK) is a secret key used for the Air Interface Encryption Class 2. It may be used to encrypt calls and data in TMO and DMO. The SCK air interface encryption provides service confidentiality between radios and infrastructure when in TMO, and between radios when in DMO. A

radio is capable of being loaded with up to 32 SCKs. Specific keys are used for encrypting the air interface.

Any mismatch between radios and/or infrastructure impacts communication – only those using the same key as the transmitting party are able to decode and hear the communication.

4.7.5.1

TMO SCK

Your service provider can enable SCKs in TMO. The SCKs used in TMO are called TMSCKs.

4.7.5.1.1

Verifying TMSCK Validity

When and where to use: To ensure that the TMSCKs in the radio are valid and can be used for the air interface encryption.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Security** → **TMSCK Validity**.
- 3 The radio displays:
 - TMSCK is Valid – the radio can work encrypted in TMO.
 - TMSCK is Invalid – the radio cannot work encrypted in TMO. Please contact your service provider to restore SCKs to your radio.

4.7.5.2

DMO SCK

Your service provider can enable SCKs in DMO. The SCKs used in DMO are called DMSCKs.

4.7.5.2.1

Verifying DMSCK Validity

When and where to use: To ensure that the DMSCKs in the radio are valid and can be used for the air interface encryption.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Security** → **DMSCK Validity**.
- 3 The radio displays:
 - DMSCK is Valid – the radio can work encrypted in DMO.
 - DMSCK is Invalid – the radio cannot work encrypted in DMO. Please contact your service provider to restore SCKs to your radio.

4.7.5.3

Changing DMO SCK



IMPORTANT: Changing this setting may cause radios not to operate correctly.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Security** → **DMO SCK**.
- 3 Press **Next**.
- 4 Radio displays `Change to version`.
- 5 Select one of the following:
 - **Yes** — to change the key. Your radio displays `Key version changed`.
 - **No** — to leave the key. Your radio displays `Code Not Changed`.

4.7.6

Covert Mode

This feature enables you to completely shut down all visible and audible alerts and notifications making the radio unnoticeable even in a silent and dark environment.

When your radio is in the Covert Mode, you cannot enter the following menu items of the Setup menu.

- **Set Volume**
- **Tones**
- **Backlight** (in Display menu item)

When the Covert Mode is turned on:

- All tones are set to **Off** (corresponding to All Tones menu entry).
- Group audio is set to **Spkr Cntrl** (corresponding to Audio Toggle menu entry).
- The private speaker is set to **Off** (this setting causes all the calls are routed through the earpiece).
- Backlight is set to **Disabled** (corresponding to Backlight menu entry).
- The LED indicator is switched off.

The radio powers up in the mode set before turning off. Thus if the Covert Mode was set before turning off, the radio turns on in the Covert Mode .

When the Covert Mode is turned off, all the changed settings are reverted to the previous state.

This feature can be used as the One-Touch Button.

4.7.6.1

Activating Covert Mode

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Security** → **Covert Mode**.
- 3 Select one of the following:
 - **On** — all tones are set to off, and the backlight and the LED are disabled immediately. The group audio is routed to the earpiece. The radio displays `Covert Mode On`.

- **Off** — all settings for tones, backlight and audio are restored. The radio displays *Covert Mode Off*.

4.7.7

SDS Remote Control



NOTICE: This feature is a paid feature.



NOTICE: Only one type of remote control can be active on a radio; either SDS or Status.

SDS Remote Control is a feature that enables remote control and configuration of the radio via special SDS messages. The messages can be sent both in TMO and DMO (including the Repeater Mode) by any radio capable of controlling other radios. During the execution of the Remote Control messages, depending on your service provider settings, the radio can play a tone or display an appropriate icon in the status icon area.

4.7.8

Status Remote Control

Status Remote Control is a feature that provides limited control of the radio, unlike Short Data Service (SDS) Remote Control.



NOTICE: Only one type of remote control can be active on a radio; either SDS or Status.

The following tasks can be assigned remotely to a radio:

Play loud tone until user interaction

The radio plays a loud tone as in the Man Down feature until you unlock the keypad (if needed) and press the appropriate soft key labeled **Exit**. The tone is played through the speaker even if an accessory is attached.



NOTICE: The tone is not emitted when the radio is in one of the following states:

- In a call.
- Temporarily disabled.
- Pseudo Off Mode.
- Ambience Listening Mode.
- Transmit Inhibit Mode (TXI).
- Emergency Mode.
- Silent Emergency Mode.
- Covert Mode.

Send firmware version and TEI

The radio sends back an SDS message with its firmware version and TEI.



NOTICE: If the sending Individual Short Subscriber Identity (ISSI) is not on the Allowed ISSIs list, the receiving radio ignores the task.

4.7.8.1

Setting Remote Control

This procedure describes how to toggle remote control.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Security** → **Remote Control**.
- 3 Select **On** to enable, or **Off** to disable remote control.

4.8

Setup

This sub-menu allows you to change your radio configuration.

4.8.1

Ring Style


This sub-menu allows you to set the incoming call ring style.


4.8.1.1

Setting Ring Style

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Ring Style**.
- 3 Select one of the following:
 - **Duplex** — to set the new ring style to all duplex calls.
 - **Simplex** — to set the new ring style to all simplex calls.

 **NOTICE:** Upon entry into this sub-menu, the display shows the current ring style used.
- 4 Scroll to the desired style and press **Select**.

 **NOTICE:** New ring style is played immediately for a few seconds. If necessary, adjust the volume level.

4.8.2

Set Volume

This menu item allows you to adjust the Simplex, Duplex, Earpiece, Speaker, and Keypad tone volume.

4.8.2.1

Setting Volume

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Set Volume**.
- 3 Select one of the following:

- **Duplex Vol** — sets the volume level for duplex ringtones.
- **Simplex Vol** — sets the volume level for simplex ringtones.
- **Earpiece Vol** — sets the volume level for the earpiece.
- **Speaker Vol** — sets the volume level for the speaker.
- **Keypad Vol** — sets the volume level for keypad tones.



NOTICE: If the display shows only one option **Volume**, you can adjust all of the above settings at once. You have the option to change the settings individually when the **Volume Adj. Mode** is set to **Individual**.

- 4 Press **Right** or **Left** Navigation key to change the value.



NOTICE: When the battery level is low it is not recommended to attach the 4 Ohm speaker to the radio as it can cause reset or shutdown of the radio.

4.8.3

Language

This sub-menu allows you to change the language of the radio.

4.8.3.1

Setting Language

Prerequisites: The list of available languages is set by service provider.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Language**.
- 3 Select desired language.

4.8.4

Data Setup

This menu item allows you to set up your radio to transmit and receive data from the external device.

To connect your radio accessory connector to the external device, use the PMLN5237 cable. The external device must run an application complying with the TETRA standards.



NOTICE:

- Data services are available only in TMO Mode.
- Data services are blocked in TXI Mode.
- When set to Voice Only, the built-in data modem is disabled to conserve battery power.

4.8.4.1

Setting Data Function

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Data Setup**.
- 3 Select one of the following:
 - **Voice Only** — Your radio receives and transmits voice calls only.

- **Data Only** — Your radio acts as a modem. It rejects incoming and outgoing voice calls (except for Emergency Calls), status and text messages.
- **Voice & Data** — Your radio acts as a modem but voice calls have priority over data calls and can interrupt them.

4.8.5

Audio

This menu item allows you to adjust your radio audio settings.

4.8.5.1

Audio Profiles

4.8.5.1.1

Setting Audio Profiles

When and where to use: To adjust the audio parameters of the radio its current operating environment.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Audio** → **Audio Profile**.
- 3 Select a required profile.

4.8.5.2

Howling Suppression

The howling suppression is a mode increasing the stability of the acoustic feedback loop. The radio eliminates howling caused by the feedback loop from the receiving radios to the sending radio in simplex calls. You can toggle the howling suppression during an active call.

To enable this anti-howling function, you can either use the radio menu or the corresponding One-Touch Button.

4.8.5.2.1

Setting Howling Suppression

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Audio** → **Howling Suppr..**
- 3 Select required setting.



NOTICE: Your service provider can set up the state of the howling suppression on powering up the radio. Depending on the settings, the radio can either disable the howling suppression or set the last remembered state.

4.8.5.3

Audio Toggle

You can control audio routing between the speaker and earpiece for any private or group call through the dedicated **Speaker Control** key. You can also define through the menu to have all group calls in high audio or controlled by the **Speaker Control** key.

4.8.5.3.1

Setting Audio Toggle

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Audio** → **Audio Toggle**.
- 3 Select one of the following:
 - **Always Loud** — The audio sound comes from the speaker (high audio only). **SPEAKER CONTROL** key is disabled.
 - **Spkr Cntrl** — The audio goes through the earpiece or the speaker. You can switch between low and high audio by pressing **SPEAKER CONTROL** key.

4.8.6

Tones

This field sets the volume level for the tones set.



NOTICE: The radio has two tone packs: Classic Tones (default) and New Tones. Your service provider decides which tone pack is enabled.

4.8.6.1

Keypad Tone

You can activate/deactivate keypad tone at every key press.

4.8.6.1.1

Setting Keypad Tone

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Tones** → **Keypad Tone**.
- 3 Select one of the following:
 - **On** — Activates keypad tone.
 - **Off** — Deactivate keypad tone.

4.8.6.2

All Tones

You can activate/deactivate all tones.

4.8.6.2.1

Setting All Tones

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Tones** → **All Tones**.
- 3 Select one of the following:
 - **On** — Activates all the tones.
 - **Off** — Deactivates all the tones.

4.8.6.3

Talk Permit

You can set a different tone upon pressing the **PTT** button.

4.8.6.3.1

Setting Talk Permit

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Tones** → **Talk Permit**.
- 3 Select one of the following:
 - **No Tone** — No tone heard upon pressing the PTT button.
 - **Short Tone** — Short tone heard upon pressing the PTT button.
 - **Normal Tone** — Factory-default tone heard upon pressing the PTT button.

4.8.6.4

Clear to Send

You can activate/deactivate tone for the transmitting radio that the receiving radio is ready to accept the transmission.

4.8.6.4.1

Setting Clear to Send

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Tones** → **Clear to send**.
- 3 Select one of the following:
 - **Tone On** — Activate clear to send tone.
 - **Tone Off** — Deactivates clear to send tone.

4.8.6.5

Periodic Alert

You can activate/deactivate periodic tone indication for the missed calls, the unread messages, and low battery level. For each notification, your radio generates an unread message tone with the amber LED color indication.

4.8.6.5.1

Setting Periodic Alert

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Tones** → **Periodic Alert**.
- 3 Select one of the following:
 - **Alert** — Activates/deactivates periodic tone.
 - **Period** — Indicates the time between each periodic tone.

4.8.6.6

D-PTT Tones

This menu item contains the settings for the Double PTT feature.

The Double PTT feature allows you to send a tone pattern (single, double, or triple) when the radio is in idle or the Group Call mode by pressing the **PTT** button twice.

After the D-PTT tone is played, you can press and hold the **PTT** button once again to get the permission to talk. Otherwise, if you press the **PTT** button while the D-PTT tone is played, it is ignored.

After the D-PTT tone is sent keeping the **PTT** button pressed, it results in permission to talk.

The D-PTT tone is sent over the air but is not audible on the sending radio.

4.8.6.6.1

Setting D-PTT Tones

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Tones** → **D-PTT Tones**.
- 3 Select one of the following:
 - **D-PTT Mode** — Activates/deactivates D-PTT tone.
 - **Tone Style**— Indicates how many times the D-PTT tone is played.

4.8.7

Display

This menu item allows you to adjust your radio display settings.

4.8.7.1

Setting Flip Display

When and where to use:

The feature is useful for a user who has to wear the radio on a shoulder, belt, or lapel and at the same time wishes to read the display upside down.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Display** → **Flip Display**.
- 3 Select one of the following:

- **On** — to activate this feature.
- **Off** — to deactivate this feature.

4.8.7.2

Setting Font Level

When and where to use: To increase/decrease text size so you can adjust the interface readability to existing conditions.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Display** → **Font Level**.
- 3 Select one of the following:
 - **1** – small font size
 - **2** – medium font size
 - **3** – large font size



NOTICE: In some languages number of available font levels can be limited.

4.8.7.3

Setting Large Idle Font

When and where to use: To enable/disable large font on the home screen.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Display** → **Large Idle Font**.
- 3 Select **On** to enable, or **Off** to disable displaying large font on the home screen.



NOTICE: Large Idle Font is not available in some languages.

4.8.7.4

Setting Extra Zoom

Enabling Extra Zoom simultaneously changes three settings;

- switches **Font Level** to the largest possible one,
- activates **Large Idle Font**, and
- sets **Extended Status Icons** to **Idle Only**.

If you modify any of these settings, for example decrease the font level, the radio leaves the Extra Zoom Mode. However, to restore all the three previous settings, you need to manually change the values of **Font Level**, **Large Idle Font**, and **Extended Status Icons**. If you cannot restore a setting, contact your service provider.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Display** → **Extra Zoom**.
- 3 Select **On** to enable or **Off** to disable Extra Zoom.



NOTICE: Extra Zoom is not available on radios using the SIM card encryption.

4.8.7.5

Setting Extended Status Icons

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Display** → **Extended Status Icons**.
- 3 Select one of the following:
 - **Disabled** — the radio always displays icons in normal size.
 - **Idle Only** — the radio displays enlarged icons only on the home screen.
 - **Always** — the radio displays enlarged icons both on the home screen and when browsing through the radio menu.

4.8.7.6

Setting Screen Saver

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Display** → **Screen Saver** → **Activate**.
- 3 Select one of the following:
 - **Auto** — Makes the screen saver activate automatically after an amount of time.
 - **Disabled** — Disables the screen saver.

4.8.7.7

Setting Backlight

When and where to use: To save the battery power.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Display** → **Backlight**.
- 3 Select one of the following:
 - **Auto** — backlight is triggered by turning on the radio, by pressing any key on the device or on the accessory that is connected to it. Also charging or getting signal from the services like: Call-Out message, DGNA and TX timeout during priority call are going to turn on the backlight.
 - **Semi Auto** — backlight is turned on when you are switching on the radio, pressing assigned button to the backlight feature, or charging.
 - **Disabled** — backlight is disabled and the display is always dimmed.

4.8.7.8

Setting Wallpaper

When and where to use: To change the look of the home screen.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Display** → **Wallpaper**.
- 3 Select one of the following:
 - **On** — To activate this feature.
 - **Off** — To deactivate this feature.

4.8.7.9

Setting Contrast

When and where to use: This feature sets the contrast of the display to enhanced visibility of the interface.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Display** → **Contrast**.
- 3 Use **Left** and **Right** Navigation key to change the value.
- 4 Press **OK**.

4.8.8

Time and Date

This sub-menu controls the displayed time and date on the home screen.



NOTICE: If the Home Display Text Message feature is enabled, Home Mode Display Text may cover time and date, depending on the Configurable Idle Screen settings.



NOTICE: Infrastructure synchronizes the time and date. When not within the infrastructure signal range you can set the values manually.

4.8.8.1

Setting Time and Date on the Display

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Time & Date** → **Display**.
- 3 Select one of the following:
 - **Time & Date** — Your radio displays time and date.
 - **Time Only** — Your radio displays time only. Format Date sub-menu is disabled.
 - **Date Only** — Your radio displays date only. Format Time sub-menu is disabled.
 - **Off** — Your radio does not display time nor date. Format menu is disabled.

4.8.8.2

Setting the Time Format

Prerequisites: If **Menu** → **Setup** → **Time & Date** → **Display** is set to **Time & Date** or **Time Only**.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Time & Date** → **Format** → **Format Time**.
- 3 Select one of the following:
 - **12-Hour** — Displays the time with **am** (before noon) or **pm** (after noon) indication.
 - **24-Hour** — Displays the time in 24 hour format.

4.8.8.3

Setting the Time Manually

When and where to use: If the time cannot update automatically through the infrastructure.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Time & Date** → **Set** → **Set Time**.
- 3 Enter current time using Navigation keys.
- 4 Press **Done**.

4.8.8.4

Setting the Date Format

Prerequisites: If **Menu** → **Setup** → **Time & Date** → **Display** is set to **Time & Date** or **Date Only**.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Time & Date** → **Format** → **Format Date**.
- 3 Select (D — day, M — month, Y — year):
 - **DD/MM/YY**
 - **MM/DD/YY**
 - **DD-MON-YY**
 - **YY/MM/DD**

4.8.8.5

Setting the Date Manually

When and where to use: If the time cannot update automatically through the infrastructure.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Time & Date** → **Set** → **Set Date**.
- 3 Enter current time using Navigation keys.
- 4 Press **Done**.

4.8.8.6

Setting Time Offset

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Time & Date** → **Set** → **Time Offset**.
- 3 Enter time offset using Navigation keys.



NOTICE: You can adjust the offset value, with 15 minute steps, up to 14 hours ahead or behind.

- 4 Press **Done**.

4.8.8.7

Setting Automatic Updates for the Time and Date

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Time & Date** → **System Update**.
- 3 Select one of the following:
 - **Off** — All the infrastructure information are ignored. The radio uses internal time and offset.
 - **Time Only** — Time displayed is calculated from the offset programmed by your service provider added or subtracted from the infrastructure time.
 - **Time & Offset** — Time and offset are updated after receiving from the infrastructure.

4.8.9

Energy Economy

Energy Economy (EE) is a mode of operation to save battery life. Your radio does not monitor all downlink time slots of the Main Control Channel. If the radio is in the charger, Energy Economy mode is not needed.

4.8.9.1

Enabling/Disabling Energy Economy

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Energy Economy** → **EE Selection**.
- 3 Select one of the following:
 - **On** — Activates Energy Economy feature.
 - **Off** — Deactivates Energy Economy feature.

4.8.9.2

Viewing the Energy Economy Status

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Energy Economy** → **EE Status**.

- 3 The Energy Economy status is displayed as:
 - Energy Ecnmy Is Supported By System
 - Energy Economy Is Currently Not Supported By System

4.8.10

Transmission Power Class



NOTICE: This feature is a paid feature.

Transmission Power feature enables your radio to choose whether to transmit with Class 3L or Class 4. The RF Power icon indicates when the radio uses this feature.

4.8.10.1

Selecting RF Power

Use this procedure when you are entering the area that requires higher signal strength.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **RF Power**.
- 3 Select one of the following:
 - **Hi RF Power** — Activates this feature.
 - **Normal RF Pwr** — Deactivates this feature.



NOTICE:

- Changing RF Power Class to **Normal RF Pwr** during calls may result in dropping the call. The power level may be not sufficient to sustain the transmission.
- Battery consumption is higher when **Hi RF Power** is selected.

4.8.11

Rotary Knob

This menu item allows you to set all the related functionality of the **Rotary Knob**.

4.8.11.1

Setting Rotary Knob Mode

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Rotary Knob** → **Rotary Mode**.
- 3 Select one of the following:
 - **Dual** — Both modes are available. Turn the **Rotary Knob** to adjust the volume or press and then turn to switch to a different talkgroup.
 - **Volume** — The knob is used only as a volume control. Turn it clockwise to increase the audio volume level.
 - **Scroll** — The knob is used only to change the talkgroup, or in the menu to scroll menu items.



NOTICE: If you choose **Scroll** and the display shows:

- **Scroll Selected** — To adjust volume level go to the main menu, select **Setup** → **Set Volume**.
- **Function Keys are set to Adjust Volume** — You can use your **Programmable Side** buttons to adjust volume.



NOTICE: The **Rotary Knob** and the **Side** buttons are paired. When the **Rotary Knob** mode is set to **Volume** or **Dual**, the **Side** buttons support the One-Touch Button feature.

4.8.11.2

Setting Rotary Lock

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Rotary Knob** → **Rotary Lock**.
- 3 Select one of the following:
 - **Locked** — Locks **Rotary Knob**, you can unlock it by selecting **Unlocked** or by pressing and holding **Rotary Knob**.
 - **Unlocked** — Unlocks the **Rotary Knob**.
 - **Disabled** — Locking function is unavailable. Your **Rotary Knob** is unlocked all the time.

4.8.11.3

Setting In Keypad Lock

When and where to use: To set behavior of the rotary knob when the keypad is locked.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Rotary Knob** → **In Keypad Lock**.
- 3 Select one of the following:
 - **Lock None** — Scrolling and volume setting functionality is available.
 - **Lock Volume** — **Rotary Knob** can be only used for scrolling.
 - **Lock Scroll** — **Rotary Knob** can be only used for setting the volume.
 - **Lock Both** — Scrolling and volume setting functionality is unavailable.

4.8.11.4

Setting Rotary Knob Wrap Around

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Rotary Knob** → **Wrap Around**.
- 3 Select one of the following:
 - **On** — Scrolling through the talkgroup list is looped or is moved to the next folder.
 - **Off** — Scrolling through the talkgroup list stops after reaching first or last talkgroup in the current selected folder.



NOTICE: Only when **Wrap Around** is set to **On** and the **Scroll Range** is set to **Scroll To Next**, you are able to scroll through all the talkgroups and folders.

4.8.11.5

Setting Rotary Knob Scroll Range

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Rotary Knob** → **Scroll Range**.
- 3 Select one of the following:
 - **Stay In Range** — Scrolling through the talkgroups in the current folder only.
 - **Scroll To Next** — Scrolling through all the talkgroups and folders.



NOTICE: Only when **Wrap Around** is set to **On** and the **Scroll Range** is set to **Scroll To Next**, you are able to scroll through all the talkgroups and folders.

4.8.11.6

Setting Rotary Knob Talkgroup Selection

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Rotary Knob** → **Confirm TG Sel..**
- 3 Select one of the following:
 - **On** — You need to confirm the talkgroup selection by pressing **Select** or pressing the **PTT** button to immediately start a call on a new talkgroup.
 - **Off** — Attaches to the selected talkgroup without any additional prompt.

4.8.11.7

Setting Rotary Knob Function Keys

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Setup** → **Rotary Knob** → **Function Keys**.
- 3 Select one of the following:
 - **Auto** — Sets the **Side** buttons according to the **Rotary Mode**.



NOTICE: If the **Rotary Mode** is set to:

- **Dual** or **Volume** — Display shows `Auto Selected (OTB)`, volume can be set only through **Rotary Knob**.
- **Scroll** — Display shows `Auto Selected (Volume)`, volume can be set only through **Side** buttons.
- **Volume Adjust.** — Sets the **Side** buttons to adjust volume level.
- **OTB Feature** — Sets the **Side** buttons to the predefined One-Touch Button features.

4.9

Group Setup

This menu item allows you to set the operation parameters, scanning and my groups folder.

4.9.1

Setting Operations Parameters

When and where to use: If you want to define the radio mode and the talkgroup at the radio startup, and when changing modes TMO → DMO and TMO → Repeater.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Group Setup** → **Operations Parameters**.
- 3 Select **Startup**. Select one of the following:
 - **TMO** — the radio powers up in TMO mode.
 - **DMO** — the radio powers up in DMO mode.
 - **Last Selected** — the radio powers up in the mode it was in when last powered down.
- 4 Select **Home Group Startup**. Select one of the following:
 - **Last Selected** — the radio enters the TMO/DMO talkgroup which was last selected before power down.
 - **Home Group** — the radio enters the Home Group (TMO or DMO) at power up, depending on the radio mode entered at power up.
- 5 Select **HGr TMO** → **DMO/Rep**. Select one of the following:
 - **Last Selected** — when changing modes the radio enters the DMO Talkgroup last selected, i.e. the DMO Talk Group active last time the Radio was in DMO Mode. If Group Mappings are configured, they will take precedence and the DMO Talkgroup mapped to the current TMO Talkgroup is used.
 - **Group Mappings** — when changing modes the radio enters the DMO Home Group unless a Group Mapping is configured. If Group Mappings are configured, they will take precedence and the DMO Talkgroup mapped to the current TMO Talkgroup is used.
 - **Home Group** — when changing modes the radio enters the DMO Home Group, ignoring possible group mappings.
- 6 Select **TMO Home Group** — configures the TMO Home Group/Home Folder.
- 7 Select **DMO Home Group** — configures the DMO Home Group.

4.9.1.1

Standard Home Group

This menu item allows you to configure the standard home group to be used during start up and when changing modes: TMO → DMO and TMO → Repeater.

4.9.2

Scan

This menu item allows you to activate/deactivate scanning, view the active scan list, and edit the scan lists. This feature is available only for the TMO Mode. Your radio joins any group call as long as this group is defined in the scan list and scan is turned on.

4.9.2.1

Activating Talkgroup Scanning

When and where to use: If you want to monitor any TMO Group Call in the defined talkgroup list.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Group Setup** → **Scan** → **Scanning**.
- 3 Select **Select List** and then a list name.
Your radio displays list name selected.
- 4 Select **Scanning** → **On**.


Your radio is scanning on the predefined scan list.

4.9.2.2

Setting Talkgroups in the Active Scan List

When and where to use: If you want to edit talkgroups in the active scan list.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Group Setup** → **Scan** → **Active List**.
 **NOTICE:** If *Scanning is Off* is displayed, go to **Group Setup** → **Scan** → **Scanning** → **On** to enable scanning.
- 3 Select **View** and highlight the required talkgroup.
- 4 Press **Menu**.
- 5 Select one of the following:
 - **Delete** — Erases this group from the active scan list.
 - **Priority** and select new priority to **Low**, **Medium** or **High**.

4.9.2.3

Setting Scan Lists

When and where to use: If you want to set up any scan list.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Group Setup** → **Scan** → **Scan Lists**.
- 3 Highlight required scan list and press **Menu** to see additional settings:
 - **Capacity** — Displays the number of assigned and unassigned talkgroups for the scan list.
 - **Clear** — Deletes all the talkgroup assigned to that scan list.
 - **Add Group** — Adds a talkgroup to the scan list. Select one talkgroup from your talkgroup folders and assign appropriate priority.
 - **Edit** — Changes the priority of the required talkgroup or deletes it.

4.9.2.4

Deleting Talkgroups from Scan Lists

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Group Setup** → **Scan** → **Scan Lists**.
- 3 Highlight the required scan list and press **Menu** → **Edit**.
- 4 Highlight the required talkgroup and press **Menu** → **Delete**.

4.9.3

My Groups

My Groups is equivalent to **Favorites**. Both menu items contain shortcuts to favorite talkgroups and contact numbers, as well as allow to perform the same operations. For a detailed description of the feature, see [Favorites on page 91](#).

4.10

Favorites

Favorites contains shortcuts to frequently used talkgroups and contact numbers that are organized in favorite folders.

To quickly access favorite folders, from the home screen press the **Up** Navigation key. To scroll through items inside favorite folders, you can either use the Navigation keys or the **Rotary Knob**.

4.10.1

Adding Folders to Favorites

Prerequisites: **Favorites** contains less than three favorite folders.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **More . . .** → **Favorites** → **[New Folder]**

4.10.2

Adding Contact Numbers to Favorites

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Contacts**
- 3 Highlight a contact that you want to add to **Favorites** and using the **Left** or **Right** Navigation key select the required number.
- 4 Press the **Menu** key and select **Add to Favorites**.
- 5 Select a folder you want to add the contact number to and press **Select**.

4.10.3

Making Private Calls to Favorite Contact Numbers

Procedure:

- 1 To select a contact number you want to call, from the home screen do one of the following:
 - Press the **Up** Navigation key.
 - Go to **Options** → **TG by Folder**, select the required favorite folder, and highlight the contact number.
- 2 When you are in the following mode:
 - **TMO**
For a simplex call, press and release the **PTT** button. You hear a ringing tone. Otherwise, press and hold the **PTT** button. Wait for the *Talk Permit Tone* before talking, and release the **PTT** button to listen.

For a duplex call, press and release **Send** key. You hear a ringing tone.
 - **DMO**
Only simplex call is available. Press and hold the **PTT** button. Wait for the *Talk Permit Tone* before talking, and release the **PTT** button to listen.
- 3 To end the call, press the **End** key.

4.10.4

Adding Talkgroups to Favorites

Prerequisites:

To add a DMO talkgroup, ensure that the radio is in DMO.

To add a TMO talkgroup, ensure that the radio is in TMO.

Procedure:

- 1 From the home screen, press **Options**.
- 2 Select one of the following:
 - **TG by Folder** — contains talkgroups arranged by folders.
 - **TG by abc** — contains talkgroups arranged alphabetically.
- 3 Find and highlight a talkgroup that you want to add to **Favorites**.
- 4 Press the **Menu** key and select **Add to Favorites**.
- 5 Select a folder you want to add the talkgroup to and press **Select**.

4.10.5

Deleting Folders in Favorites

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Favorites**.
- 3 Highlight a required folder.
- 4 Press the **Menu** key.
- 5 Select **Delete Folder**.
- 6 Confirm the deletion by pressing **Yes**.



NOTICE: You cannot delete the last favorite folder or a folder that contains at least one non-erasable item.

4.10.6

Deleting Items from Favorites Folder

When and where to use: To delete a single contact number or a talkgroup from a favorite folder.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Favorites**.
- 3 Select a folder containing the item you want to remove.
- 4 Highlight the item and select **Delete**.

4.10.7

Deleting All Items from Favorite Folders

When and where to use: To delete all contact numbers and talkgroups stored in a favorite folder.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Favorites**.
- 3 Select a required folder.
- 4 Press the **Menu** key and select **Delete All**.

4.11

My Info

This sub-menu allows you to view your own private, phone, and radio info.

4.11.1

Viewing and Modifying Personal Information

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **My Info**.
- 3 Select one of the following:
 - **My Private Num** — displays your radio private number.
 - **My Phone Num** — displays your radio phone number.



NOTICE: To modify the displayed phone number, select **Edit**. Type the number and press **OK**.

- **Radio Info** — displays radio information: manufacturer, product type, ISSI, TEI, Serial Number, and OPTA.



NOTICE: OPTA information is optional.

4.12

Recent Calls

You can view the history of all calls:

- **Dialed** — calls you initiated.
- **Received** — calls you answered.
- **Missed** — calls you received but not answered or rejected.

Each list of calls may contain up to 50 numbers, the most recent call being at the top of the list. If the number of a recent call is stored in the contact list, the name associated with the number appears in the recent calls list. A number dialed more than once, appears only once in the list.



NOTICE: Calls missed in TXI mode are stored and can be viewed.

4.12.1

Viewing Recent Calls

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Recent Calls**.
- 3 Select one of the following:
 - **Dialed**
 - **Received**
 - **Missed**
- 4 Select a required call from the list.
- 5 Press the **Menu** key.
- 6 Select **View**.



NOTICE: Press **Down** Navigation key to bypass first two steps.



NOTICE: Call time information is only available if the time and date are set in the radio. Call duration is not available in the missed calls list.

4.12.2

Calling from Recent Calls

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Recent Calls**.
- 3 Select one of the following:
 - **Dialed** (from the home screen press **Send** key to access **Dialed Calls** list)
 - **Received**
 - **Missed**



NOTICE: From the home screen press **Down** Navigation key, to access **Recent Calls** menu item.

- 4 Highlight the required call and press **PTT** button for private calls or press **Send** key for phone call.



NOTICE: Phone calls are only available in TMO Mode.

4.12.3

Storing Recent Calls to Contacts

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Recent Calls**.
- 3 Select one of the following:

- **Dialed**
- **Received**
- **Missed**

- 4 Press **Store**.



NOTICE: If **Store** is not assigned to the **Left Soft** key, the number is already stored in your contact list.

- 5 Do one of the following:
 - To store the number as a new entry, select **[New Contact]**.
 - To store the number to an existing entry, select the entry, and press **View** then select **Edit**.
- 6 With the contact type field highlighted, scroll left or right to display the contact type you want to assign the number.
- 7 Select **Done**.

4.12.4

Deleting Recent Calls

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Recent Calls**.
- 3 Select one of the following:

- **Dialed**
- **Received**
- **Missed**

- 4 Press **Menu** on the required call.
- 5 Select **Delete**.



NOTICE: To erase all the calls, select **Delete All**.

4.13

Networks

This menu item allows you to switch between the radio operation modes.

4.13.1

Selecting Network Operation Mode

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Networks**.
- 3 Select one of the following:
 - **Network Sel** — Selects the network to which the radio is allowed to register.
 - **Trunked Mode** — Switches to the mode using infrastructure.
 - **Direct Mode** — Switches to the mode without using infrastructure.
 - **TXI Mode** — Select **Activate** to stop sending any radio transmission.



NOTICE: If the radio is in **TXI Mode**, it is not possible to switch from **Direct Mode** to **Trunked Mode**.

4.13.2

Network Select

This sub-menu item allows you to select a network to register your radio. **Network Sel** is available only in TMO or Gateway mode, otherwise your radio display *Service Restricted* message.

4.13.2.1

Selecting Your Network

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Networks** → **Network Sel** → **Home Only**.
Your radio registers to the home network.

4.13.2.2

Using Select Net Registration

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **More . . .** → **Networks** → **Network Sel** → **Select Net**.
- 3 Select the required network from the list.

Your radio registers to the selected network.

4.13.2.3

Using Any Network Registration

When and where to use: Your radio has lost its home network coverage and wants to increase the number of networks it can scan and register.

Procedure:

- 1 From the home screen, press the **Menu** key.

- 2 Select **More . . .** → **Networks** → **Network Sel** → **Any Network**.

Your radio selects and registers to the network automatically from the predefined list.

4.14

Location



NOTICE: This feature is a paid feature.

This sub-menu allows you to enable the GPS, change GPS accuracy, and view your position and testpage.

See [Global Positioning System \(GPS\) Location Service on page 103](#).

4.14.1

Enabling GPS

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **More . . .** → **Location** → **Interface**.
- 3 Select **On**.



NOTICE: Your service provider can enable this feature.

4.14.2

Viewing Your Position

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Location** → **Position**.
- 3 Scroll to view the results about the last time your location was calculated.



NOTICE: To refresh your position:

- Select **Position** — the radio refreshes its position automatically
- Press **Refresh**

4.14.3

Changing GPS Accuracy

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **More . . .** → **Location** → **Accuracy**.
- 3 Select one of the following:
 - **Medium** (default) – Power consumption optimization is combined with less position accuracy.
 - **High** – Better position accuracy is combined with less power consumption optimization.



NOTICE: If connected to an external charging device, the radio automatically enters the **High** mode.

4.15

Packet Data



NOTICE: This feature is a paid feature.

The Packet Data (PD) Service allows you to transfer data in a TETRA system using the Internet Protocol (IP).



NOTICE:

To transfer data from a standard computer over the air, connect the computer via the data cable PMLN5237 with your radio. Your service provider has to setup additional applications on your computer.

If set up by your service provider it is possible to accelerate the transmission by using the Multi-Slot Packet Data (MSPD) Service.

4.15.1

Viewing Data Statistics

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Packet Data**.



NOTICE: Data services are only available in TMO Mode. The data option must be set to **Voice & Data** or **Data Only**.

- 3 Select one of the following:
 - **Sent Data** — the number of KBs sent and throughput since current Packet Data activation is displayed.
 - **Received Data** — the number of KBs received and throughput since current Packet Data activation is displayed.
 - **Bandwidth** — active data session percentage is shown.
 - **Failed Transfer** — the percentage of failed sent/received packets.



NOTICE: N.A. — standby packet data session.

4.15.2

Viewing Encryption Status

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Packet Data** → **Encryption**.
- 3 The encryption state of the ongoing packet data session is displayed:
 - Packet Data Channel Clear
 - Packet Data Channel Encrypted
 - Encryption N/A (clear)

Chapter 5

Features

5.1

Home Display Text Message

Your radio is provided with a feature that allows your service provider to send special text messages to the display. The message stays on the home screen until a new message is received. Power cycle your radio to replace the Home Display message to the predefined one.

5.2

Terminal Temporary Disable or Enable

Your radio is provided with a feature that allows your service provider to disable it temporarily in case it is stolen. When your radio is disabled or is powered up in disabled state, it looks and acts like it is turned off.

If your radio is found, your service provider can enable it again over the air. After your radio is enabled, you may resume normal operation.

5.3

Terminal Permanent Disable



NOTICE: This feature is a paid feature.

Your radio is provided with a feature that allows your service provider to disable it permanently in case it is stolen or lost. When your radio is disabled permanently, it becomes inoperable. After a Permanent Disable your service provider cannot enable your radio. It is recommended to Permanent Disable your radio only when you do not expect to recover it. If it is recovered then a Permanent Disable radio can be reactivated by returning it to Motorola.

5.4

Writing Text

Every time that you see text entry screen, refer to this section.

To enter text, use the **Rotary Knob** or the **Up/Down** Navigation key.

To change the text entry mode, press and hold the **Right** Navigation key or press and hold the **Rotary Knob**.




5.4.1

Text Entry Icons

In the text entry screen, icons tell you which text entry mode and method you are using. A character counter displayed on the text entry icon, indicates the amount of characters that can be entered.

Press and hold **Right** Navigation key or press and hold **Rotary Knob** to toggle through the text entry modes.

Table 15: Text Entry Screen Icons

Icons	Description
	A-Z – all capitals
	a-z – no capitals
	Enter numbers and symbols: 0-9 # § ¡ ¸ ^ ~ \ } {] [¤ ¥ \$ £ € > < = * x % & + ; _ : /) (- ' ' @ ! ? , .

5.4.2

Keys Usage

Table 16: Keys Usage

Key	Description
Send	Press to send the message. You have a choice to send it to a Private user or a Group. The target can be entered manually or selected from the Contacts List.
Delete	<ul style="list-style-type: none">• Press once to delete the highlighted character.• Press and hold to clear the entire main text area.
Up Navigation key	Press to scroll through the letters, or numbers or symbols.
Down Navigation key	Press to scroll through the letters, or numbers or symbols.
Right Navigation key	<ul style="list-style-type: none">• Press to navigate to the right.• Press and hold to change entry mode.• Press to add a new letter at the end of the text (a, A or 0).
Left Navigation key	Press to navigate to the left.
Menu	Opens the Editor Menu to store the message as a template or save changes.
Rotary Knob	<ul style="list-style-type: none">• Press to add new letter (a, A or 0).• Press and hold to change entry mode.• Rotate to scroll through the letters, or numbers or symbols.

5.5

Ambience Listening (AL) Call

Ambience Listening Call allows a dispatcher to make a special call that allows listening to the conversations and background noises within the range of the microphone of a particular radio. The call is set up without any indication to the affected radio, and any lower priority ongoing voice call or packet data transfer may be preempted.

After accepting the call, the radio transmits in a simplex call without any action from or indication to the user. The Ambience Listening Call automatically ends when you initiate any voice call, switch to Emergency or TXI Mode, or send Emergency Alarm.

5.6

Private Call

Private Call, also called Point-to-Point, or individual call, enables calling between two individuals. No other radio can hear the conversation. This call type can be carried out in two ways:

- Duplex call (if the system allows), in TMO Mode. Both parties can speak at the same time. Start the conversation using the **Send** key.
- Simplex call, in TMO or DMO Mode. Only one party can speak at a time. Start the conversation using the **PTT** button.

When a DMO Private Call takes place, radios not involved in this call receive the channel busy indication. The radios are identified using its radio numbers.

5.6.1

Making Private Calls

Prerequisites:

Direct Private Number Dialing is assigned to the **Right** Navigation key.

Procedure:

- 1 From the home screen, press and hold the **Right** Navigation key and enter a number.
- 2 If **Private** is not the first type of call presented, press **Ctype** repeatedly to select it.
- 3 When you are in the following mode:
 - TMO — For simplex calls, press and release the **PTT** button. You hear a ringing tone. Otherwise, press and hold the **PTT** button. Wait for the talk permit tone before talking, and release the **PTT** button to listen. For duplex calls, press and release the **Send** key. You hear a ringing tone.
 - DMO — Only simplex calls are available. Press and hold the **PTT** button. Wait for the talk permit tone before talking, and release the **PTT** button to listen.
- 4 To end the call, press the **End** key.

5.7

Dialing through Soft Numeric Keypad

Prerequisites: Direct Private Number Dialing is assigned to a **Right** Navigation key.

Procedure:

- 1 From the home screen, press and hold **Right** Navigation.
Your radio displays dialing number prompt.
- 2 Rotate the **Rotary Knob** or press **Up** or **Down** Navigation key to choose the number, then press the **Rotary Knob** or **Right** Navigation key to go to the next digit.



NOTICE:

- You can enter **#** at the end when the Speed Dialing feature is enabled.
- The **+** sign you can enter only when you are editing the first position. Both signs are available after digit 9.

- 3 Press the **PTT** or the **Send** key (only in TMO).

5.8

Phone and Private Automatic Branch Exchange (PABX) Calls

Phone Call allows you to call a landline telephone number or a cellular mobile phone number. Private Automatic Branch Exchange (PABX) Call allows you to call local (office) extension numbers.

5.8.1

Making Phone or PABX Calls



NOTICE: This feature is only available in the TMO mode.

Prerequisites: Direct Private Number Dialing is assigned to the **Right** Navigation key.

Procedure:

- 1 From the home screen, press and hold **Right** Navigation key and enter the number.
- 2 If **Phone** or **PABX** is not the first type of call presented, press **Ctype** repeatedly to select it.
- 3 Press **Send** key.

5.9

Phone/PABX Speed Dial

This feature allows you to dial Phone/PABX by a shortened number of up to three digits instead of the full number. The Phone/PABX **Speed #** number is assigned when the dialed number is added in the contact list.



NOTICE: This feature is available only in TMO Mode.

5.9.1

Using the Phone/PABX Speed Dial

Procedure:

- 1 From the home screen, enter the predefined Phone/PABX speed dial number and **#** key.
- 2 Press **Send** key.

5.10

DTMF Overdial

This feature allows you to communicate with an automated answering device (for example, the voice mail or answering machine) during an on-going private, phone or PABX call.

While in an on-going private, phone or PABX call, press the DTMF keys (0-9, *, #). When pressed, the DTMF key sounds a tone and the entered digit is displayed on the screen.

5.11

Short Number Dial

This feature allows you to dial part of the full number of the person you wish to call. Your radio automatically completes the number.

Example: Your radio number is 4282564.

- 1 Dial 564 (instead of 4282564, the full number).
- 2 To place the call, press the **PTT** button or the **Send** key.

5.12

Global Positioning System (GPS) Location Service



NOTICE: This feature is a paid feature.

The Global Positioning System (GPS) Location Service feature uses information from GPS satellites orbiting the Earth to determine the approximate geographical location of your radio.

The GPS Location Service availability, accuracy, and the position calculation time vary depending on the environment in which you use the radio. The GPS Location Service can assist your dispatcher or colleagues in many ways such as more efficient deployment of resources or locating your radio when you trigger your emergency service.

The radio can display the location information directly on the screen or send it over the air to your dispatcher to display it in the control center. Check your radio configuration details with your service provider.



IMPORTANT:

Where the signals from satellites are not available, the GPS Location Service does not work. This situation usually happens when your radio cannot establish a view of a wide area of open sky, for example, when the GPS antenna is covered or facing the ground. Such situations include being:

- In underground locations
- Inside buildings, trains, or other covered vehicles
- Under any other metal or concrete roof or structure
- Near a powerful radio or television tower
- In extreme temperature outside the operating limits of your radio

Even if your location information can be calculated in such situations, it may take longer to do so. Therefore, in any emergency situation, always report your location to your dispatcher. Where adequate signals from multiple satellites are available, your GPS Location Service feature provides a location, most probably near to your actual location.

The radio can be triggered to send Location Reports in various circumstances, for example:

- Upon a request
- Entering Emergency Mode
- At specified time intervals
- At specified distance intervals

The Location Reports can be sent both in TMO and DMO by using:

- SDS messages
- Packet Data (in TMO mode only, with Packet Data enabled on the network by the service provider)

The radio can be configured to give audio-visual notifications upon sending the Location Reports.

Depending on the radio settings, viewing the radio position and the status of the visible satellites is available. The position may consist of longitude and latitude, UK, or Irish grid coordinates.

5.12.1

Enhance GPS Performance

Sometimes the GPS feature is unable to complete a location calculation successfully. You hear an audible tone indicating that your radio cannot see the satellites.


To maximize the ability of your radio to determine a location fix please note the following guidelines:

- Stay in the open — The GPS feature works best where there is nothing between your radio and a large amount of open sky. If possible, go outside, away from tall buildings and foliage. While the performance in a building is improved by moving closer to windows, glass with certain sun shielding films may block satellite signals.
- Position your radio to enhance reception — Signals from GPS satellites are transmitted to your GPS antenna, which is in your radio antenna. Hold your radio away from your body, giving the antenna clear access to satellite signals. Do not cover the antenna area with your fingers or anything else.
- Stand still — If possible, stand still until your radio is finished determining your location. Moving your radio at a walking pace while your radio is calculating your approximate location may substantially decrease GPS performance.

This feature works best where there is nothing between your radio and a large amount of open sky. To maximize the ability of your radio to determine a location fix, avoid closed space, tall buildings, and foliage. If possible, do not use this feature in underground parking lots, tunnels, under bridges, and close to high buildings.

5.12.2

GPS Icon

When GPS is enabled, the following icon is displayed in the status icon area: .

Depending on the current GPS state, the icon can be solid – GPS has a fix, or blinking – GPS is searching for a fix. The blinking GPS icon can be disabled/enabled by your service provider.

5.12.3

Different Location Displays

Table 17: Different Location Displays

Latitude / Longitude	UK Coordinates	Irish Coordinates	UTM Coordinates	MGRS Coordinates
Time	Time	Time	Time	Time
Latitude	2-Letter Code	1-Letter Code	3-Letter Code	3-Letter Code and 2-Letter Code
Longitude	Easting and Northing Coordinate	Easting and Northing Coordinate	Easting and Northing Coordinate	Easting and Northing Coordinate
Altitude	Altitude	Altitude	Altitude	Altitude
Satellites	Satellites	Satellites	Satellites	Satellites

- Time - indicates when the last time the location was calculated. The time is provided in Universal Time Coordinated.
- Letter Code - grid zone or square on the map for different coordinate standard

- Latitude - expressed in degrees, minutes, and seconds.
- Longitude - expressed in degrees, minutes, and seconds.
- Number of satellites - used to calculate the location. In general, more satellites make for better accuracy. The maximum is 12 satellites.
- Easting - refers to the eastward-measured distance expressed in meters.
- Northing - refers to the northward-measured distance expressed in meters.



NOTICE: Skipping each digit of easting and northing coordinates decreases the accuracy by the factor of 10.

5.12.4

Global Navigation Satellite System (GNSS) Accuracy

The Global Navigation Satellite System (GNSS) Location Service accuracy depends on the GNSS coverage and the selected accuracy mode.

In good GNSS coverage (at least -137 dBm or in open sky), the location accuracy presents as follows:

- In high accuracy mode, the accuracy is:
 - 5 m for 50% of location reports.
 - 10 m for 95% of location reports.
- In power optimized or normal mode, the accuracy is:
 - 20 m for 50% of location reports.
 - 50 m for 95% of location reports.



NOTICE:

The presented values depend on variety of factors, for example the view on the sky. To optimize the GNSS performance the radio should have the clearest possible view of the open sky.

The use of the high capacity battery is recommended, especially when high accuracy mode is used.

5.13

Wireless Application Protocol (WAP)



NOTICE: This feature is a paid feature.

Wireless Application Protocol (WAP) is a standard for application layer network communications in a wireless communication environment such as TETRA network. The protocol is used to access the mobile web from a radio through a WAP browser.

5.13.1

WAP Browser

The Openwave Mobile Browser is a Wireless Application Protocol (WAP)-compliant user agent. The WAP browser, available only in TMO mode and on a network with Packet Data enabled, provides all the basic services of a computer web browser. Depending on the CPS configuration, the display can return to the browser session automatically after an interruption by the preemptive display. The WAP browser does not support right-to-left languages (as Arabic and Hebrew); English is used instead. The characters of right-to-left scripts are not displayed.



NOTICE: Depending on the radio configuration and the network conditions, the WAP browser may not display images properly (or may display them with a delay).

5.13.2

Entering the Browser

Prerequisites: From the home screen, press the **Menu** key. Set **Setup** → **Data Setup** to **Data Only** or **Voice & Data**.

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Browser**.
- 3 Optional: Exit the browser by pressing and holding the **END** key.

5.13.3

Entering Browser Menu Panes

Prerequisites: You are in the browser.

Procedure:

- 1 Press **Menu** or **Menu** key.
- 2 Usually, it brings up the **Navigate** pane, or the last browser menu pane.



NOTICE: If the web page you navigated to has two or more soft keys/options, the **Options** pane pops up. From here, you may scroll to other panes with the **Left** or **Right** navigation keys Or you may select **Browser Menu** and then scroll to the required pane.

5.13.4

Tips for Browsing

Create and use the following steps for easy browsing.

5.13.4.1

Creating Bookmarks through the Navigate Pane

Procedure:

- 1 Enter the browser and browse to the required page.
- 2 Press **Menu** to enter the browser menu.
- 3 Select **Mark Page**.
- 4 The screen displays the title and URL of the marked page.
- 5 To save it:
 - a Press **Save** (or **Select**) to save the page in bookmarks.
 - b Select **Menu** and select an option:
 - **Save** — Confirms the bookmark creation.
 - **Edit** — Allows you to edit the title, folder, choice, and URL of the created bookmark.

5.13.4.2

Creating Bookmarks through the Bookmarks Pane

Procedure:

- 1 Enter the browser.

- 2 Scroll to **Bookmarks** pane.
- 3 Select **Organise** (if there are no saved bookmarks), or **More...** .
- 4 Select **Menu**.
- 5 Scroll to **New Bookmark**.
- 6 Enter the bookmark title and URL, and select its location.
- 7 Press **Save**.

5.13.4.3

Using Bookmarks

Procedure:

- 1 Enter the browser.
- 2 Scroll to **Bookmarks** pane.
- 3 Scroll to the required bookmark and select **Go**. The bookmark downloads the selected page from the web.

5.13.4.4

Creating Hotkeys

Procedure:

- 1 Enter the browser.
- 2 Scroll to **Bookmarks** pane.
- 3 Scroll to the required bookmark.
- 4 Press **Menu**. Select **Hotkeys**.
- 5 Select an unassigned key (1–9).
- 6 Click **Assign**. The display shows the bookmark and its assigned hotkey.

5.13.4.5

Using Hotkeys

Procedure:

- 1 Enter the browser.
- 2 Press and hold a hotkey to download the corresponding bookmarked page from the web.

5.13.4.6

Saving Pages

When and where to use: Save a page for off-line browsing.

Procedure:

- 1 Enter the browser and browse to the required page.
- 2 Press **Menu**.
- 3 Scroll to **Tools** pane.
- 4 Select **Save Page**. Edit the proposed page title if required. Scroll down and select **Save**. The page will be saved in the **Bookmarks Saved Pages** folder.

5.13.4.7

Selecting Saved Pages

Procedure:

- 1 Enter the browser.
- 2 Scroll to **Bookmarks** pane.
- 3 Select **Organise** (if there are no saved bookmarks), or **More...**
- 4 Select Go to enter the Saved Pages folder.
- 5 Select a saved page and press **OK**. The display shows the saved page. Depending on the saved page, you may browse the web from here.

5.13.5

Disabled Packet Data Service

If there is no Packet Data Service, your radio displays `Error: No Network Available` when entering the browser for the first time. Select **Left** Soft key to retry entering, or **Right** Soft key to enter the browser menu.

When re-entering the browser with previously available Packet Data, the radio displays the last browsed page, or the last page to which you navigated off-line.

5.13.6

Disabled Browser Entry

Browser entry is disabled:

- During any type of voice call, except Ambience Listening Call.
- In DMO Mode.
- During Emergency Mode.
- During PIN lock.
- Service provider has not configured this feature.
- When the radio is disabled.



NOTICE:

- Browser entry is enabled during Ambience Listening (AL) Call. If you navigate to previously stored pages, the AL state remains.
- When you activate Packet Data for the first time, AL is disconnected, and you have the same look and feel as if you were not in AL before.

5.13.7

Browser Keys Usage

When the browser is active, the following usage described occurs inside or outside the editor.

Table 18: Browser Keys Interactions

Key Press	Action
Left or Right Soft key	Selects the option that appears in the display directly above the left and right soft key (part of the page).

Table continued...

Key Press	Action
Up Navigation key	While in list of options, moves up one line.
Up Navigation key (hold)	Moves up on page.
Down Navigation key	While in list of options, moves down one line.
Down Navigation key (hold)	Moves down on page.
Left Navigation key	<ul style="list-style-type: none"> Moves to the previous pane. In the editor: moves left.
Left Navigation key (hold)	Functions as backward.
Right Navigation key	<ul style="list-style-type: none"> Moves to the next pane. In the editor: moves cursor to the right and inserts space if at the end of the word.
Right Navigation key (hold)	Functions as forward.
Center of Navigation keys (hold)	Auto-repeat.
Menu key	Brings up the browser menu.
End key	Press to deactivate the browser.
Send key	Disabled in browser active state.
Rotary Knob	<ul style="list-style-type: none"> Short press adds new letter (a, A or 0), rotate the knob to scroll through the letters.
Emergency button	Deactivates the browser. The radio enters Emergency Mode.

5.13.8

Browser Menu Panes Overview

The browser menu includes the following panes:

Table 19: Browser Menu Panes

Menu Pane	Description
Navigate	Provides access to the home page and commonly used items.
Bookmarks	Provides access, editing, and storage options to stored bookmarks and saved pages.
History	Provides access to recently visited pages and shows the position of the currently loaded page in the history stack.
Tools	Provides access to applications and utilities.

The following panes are displayed according to the context:

Table 20: Additional Menu Panes

Menu Pane	Description
Options	Displayed only when there are additional options for the pane or page.

Table continued...

Menu Pane	Description
Image	Displayed only when an image is selected. Provides access to image details, storage, and display use.
Input Text	Displayed only in text entry mode. Provides access to text entry mode (for example: symbol).

5.13.9

Navigate Pane

You can select one of the following items:

- **Home** — for loading the home page.
- **Open Page** — for entering the URL.
- **Search** — item disabled.
- **Mark Page** — for creating (saving) a bookmark for the current document. A title and URL for the bookmark are displayed, and the root folder is chosen for the location.
- **Forward** — for navigating to the document located one step forward in the navigation history. If there is no forward history, this item is disabled.
- **Reload** — for reloading the current document.
- **Advanced...** — see following section.

5.13.10

Advanced...

From the Navigation pane select **Advanced...** to see the following options:

- **Settings...**
 - **Downloads** — for setting download preferences. You may deactivate the downloading of images and objects. The browser displays a special icon instead of the images and objects.
 - **Scroll Mode** — for setting the scrolling mode and speed.
 - **Key Press Timeout** — for setting key press time-out. This time-out is used for text entry.
 - **Set Proxy** — select the WAP Proxy (1, 2, 3). The browser connects to the web via the selected proxy or gateway. The network provider installs and configures the proxy. To establish a secure session, select a secure proxy. Please ask your service provider which proxy is configured for a secure session. Though you can choose your home page, the service provider may decide to force its own home page on your terminal.
 - **Circuit Prompt** — for turning on/off the circuit prompt.
 - **Resend Data Prompt** — for turning on/off the data re-send prompt.
- **Security...**
 - **Secure Prompt** — for enabling/disabling the browser to inform you that it replaced a non-secure connection with a secure connection, and the other way around.
 - **Current Certificate** — for viewing the digital certificate identifying the server that delivers the current document. A Certificate Authority (CA) digitally signs and thus authenticates this certificate. Up to ten additional custom WTLS certificates can be added to the default list of certificates installed. Please ask your service provider if you wish to have these custom WTLS certificates added.
 - **CA Certificates** — for viewing the digital certificates installed in the browser and digitally signed by Certificate Authorities (CA).

- **Send Referrer** — for turning ON/OFF sending of the HTTP Referrer header as part of HTTP requests. The Referrer header provides the URL of the link source to the server.
- **Authentication** — for turning ON/OFF the caching of HTTP Authentication credentials. HTTP Authentication protects access to content on the server. If you try to access a protected content, you enter your credentials (user name or password).
- **Clear...** — for clearing of browser data: history, cache cookies, or auto-fill.
- **Restart Browser** — for restarting the browser.
- **About...** — for showing the information about the current version of Openwave Mobile Browser.

5.13.11

Bookmarks Pane

If there are bookmarks in the root folder, select **More...** to access the Options pane. If the root folder is empty, select **Organise...** then press **Menu** key to access the Options pane. The Options pane allows you to manage bookmarks. The **Saved Pages** folder contains snapshots of saved pages.

5.13.11.1

Working with the Options Pane for Selected Bookmarks

Procedure:

- 1 From the Bookmarks pane select **More...**
- 2 Scroll to a bookmark.
- 3 Press **Menu** to open the Options pane for that bookmark.
- 4 Select one of the following:
 - **Back** — for displaying the page associated with the bookmark (page is downloaded if not available in cache).
 - **Details** — for modifying the bookmark title and URL.
 - **Delete** — for deleting the bookmark.
 - **New Bookmark** — for creating a new bookmark.
 - **New Folder** — for creating a new folder.
 - **Move** — for moving this bookmark to a new folder (or in Bookmarks).
 - **Delete All** — for deleting all bookmarks.
 - **Hotkeys** — for assigning hotkeys to available bookmarks.

5.13.11.2

Working with the Saved Pages Folder

Procedure:

- 1 From the Bookmarks pane select **Saved Pages** folder.
- 2 The browser displays the page (snapshot) saved using Save Page in Tools pane.
- 3 Scroll to a saved page.
- 4 Press **Menu** to open the Options pane for the saved page.
- 5 Select one of the following:
 - **Back** — for displaying this page saved on its cache.
 - **Details** — for modifying the page title and URL of the saved page.

- **Update Page** — for replacing the saved version with the current version (to be downloaded from server).
- **Delete** — for deleting this page from its cache.
- **Delete All** — for deleting all the saved pages from its cache.
- **Cancel** — for exiting this pane and returning to the last page displayed.

5.13.12

History Pane

This pane displays the list of recently visited pages (up to nine history entries can be listed). Each history entry shows its title, if present. Otherwise, `No Title` is displayed.

5.13.12.1

Navigating to Recently Visited URLs

Procedure:

- 1 Select the URL.
- 2 Press **OK**.

5.13.13

Tools Pane

Procedure:

- 1 From the Tools pane select **More...**
- 2 Scroll to a document.
- 3 Select **Menu** key to open the Options pane for that document.
- 4 Select one of the following:
 - **Show URL** — For displaying the current page URL.
 - **Save Page** — For creating a snapshot for the current document.
 - **Find Text** — For finding a text string in the current document.
 - **Copy Text** — For copying text from the current document to the clipboard.

5.13.14

Options Pane

This pane is specific to the page or pane being displayed.

5.13.15

Text Input Pane

Prerequisites: This pane is visible when the browser menu is opened and text entry field is active.

When and where to use: To input the text for the URL.

Procedure:

- 1 Select the URL.
- 2 Press **abc**.

The text input pane opens up.

- 3 Select **www**.
- 4 Scroll the required extension (for example: **.com**).
- 5 Press **.com**. The screen displays the URL with the selected extension.

Table 21: Browser Text Input Icons

Mode	Soft Key	Action
Alphabetic characters - lower case	abc	Enter text in lowercase.
Alphabetic characters - upper case	ABC	Enter text in uppercase.
Numeric	123	Enter numbers and symbols.
http mode	www	Enter.

5.13.16

WAP Push**NOTICE:** This feature is a paid feature.

Wireless Application Protocol (WAP) Push allows WAP content to be pushed to a radio. This push is carried out by sending a specially formatted (Push Access Protocol) XML document to the Push Proxy Gateway, that in turn forwards the document to the radio.

A WAP push message is an encoded message including a link to a WAP address. When receiving a WAP push, a WAP enabled radio automatically gives the option to access the WAP content. The implemented WAP push is compliant with WAP 2.0 standard.

The radio supports WAP 2.0 through a proxy only. Proxyless connections are not supported.

5.13.16.1

New WAP Messages

Types of the WAP Messages and their priorities:

**NOTICE:** Your service provider sets the priority of the message.

- Push Message
 - High — animation and the icon (blinking) are displayed with the New WAP Message tone and the browser opens.
 - Medium — animation and the icon are displayed with the New WAP Message tone.
 - Low — icon is displayed with the New WAP Message tone.
 - Delete — available only if you are in WAP Box, the text **WAP Message deleted remotely** is displayed, otherwise there is no indication.

**NOTICE:** Animation is not displayed if you are in a call, or in Emergency Mode, or in Call Out, or in message editor, or PIN lock state, or switching to DMO.

- Load Push Message
 - High — browser opens to the user with the New WAP Message tone.
 - Low — the icon is displayed with the New WAP Message tone.



NOTICE: The browser does not open if you are in a call, in Emergency Mode, in Call Out, in message editor, in PIN lock state, or when switching to DMO.

5.13.16.2

Viewing WAP Messages

Procedure:

- 1 From the home screen, press the **Menu** key.
- 2 Select **Messages** → **WAP Box**.
- 3 Select the required message.
- 4 Select **Go to** to view the message in the browser.

5.14

Call-Out



NOTICE: This feature is a paid feature.

This feature allows you to receive Call-Out alerts. On receiving the Call-Out messages, the radio interrupts current services and attends to the Call-Out alert without any further delay. After the Call-Out is cleared by the dispatcher, the radio exits Call-Out mode and reverts to normal mode.

During Call-Out mode, you are only able to receive Emergency calls. However, if your service provider configures Emergency Calls to be ignored during Call-Out mode, the radio rejects them with no notification.

If your service provider temporarily blocked the use of PTT in the Call-Out, pressing **PTT** in the Call-Out mode is considered an invalid key press until the timer expires.

The time-stamp on the Call-Out alert indicates the time and date when the Call-Out is received.

To read an entire Call-Out message, scroll down the screen by pressing the **Down** Navigation key. The length of the message is indicated by the vertical bar on the left of the screen.

Figure 6: Call-Out Message



5.14.1

Types of Call-Out Alerts

There are four types of the Call-Out alerts:

Normal Call-Out

An alert message that is sent by a dispatcher either to a single radio or to a group of radios.

There two types of Normal Call-Out:

With user receipt

The radio gets to the Accepted phase when you:

- select **Accept**, **Reject**, **Standby**.
- the acknowledgment timer runs out.

Without user receipt

The radio gets to the Accepted phase when you:

- press **Menu** or any key except for the **Emergency** button, or the **Rotary Knob**.
- the acknowledgment timer runs out.

The Normal Call-Out mode is ended when the validity timer runs out.

Storm Plan

An alert message that is sent by a dispatcher to a group of radios. To raise its reliability, it is sent several times. You are not able to respond to the Call-Out alert and any key press takes you to the information phase.

Simple Call-Out

An alert with the functionality similar to full Call-Out but without the information phase.

There two types of Simple Call-Out:

With user receipt

The Call-Out mode is ended when the acknowledgment timer runs out, or when you select **Accept**, **Reject**, **Standby**, or reply with a text message

Without user receipt

The Call-Out mode is ended when the acknowledgment timer runs out, or when you press any key, except for the **Emergency** button, or the rotary knob.

Fallback Mode

An alert message that is limited only to voice communication. To initiate this type of Call-Out, press a One-Touch key predefined by your service provider. It can be cleared manually.



NOTICE: Fallback is only possible when the radio is in Local Site Trunking.

Test Call-Out

a special Call-Out alert that is sent by the dispatcher to test this feature. On receiving the Test Call-Out, the radio plays a tone and displays **Test Call-Out**. To respond and clear the alert, press the **Test OK** Soft key.

5.14.2

Call-Out Modes Interaction

Call-Out feature operation is different in other modes:

- **TXI Mode** — you can read the message but you cannot respond to it. You have an option to leave the TXI Mode by pressing soft key or reject the Call-Out message.
- **DMO Mode** — Call-Out is not supported.
- **Emergency Mode** — all Call-out alerts are ignored.

5.14.3

Call-Out Service Phases

In the Call-Out mode there are following phases:

- Alerting phase — the radio receives a Call-Out message. An alarm tone indicates the message. When the text is displayed, you have the following options:
 - **Accept**,
 - **Reject**, or
 - **Menu**.



NOTICE: If your service provider allowed it, you can stop the alert tone by pressing any key.

- Information phase — you are still in the Call-Out mode and you can receive more detailed information about the incident that occurred through subsequent text or a voice message. You can query for more information using voice group call or Call-Out text function which enables you to send a text message.

Depending on the settings configured by your service provider, you are able to respond to a Call-Out by:

- Pre-coded message — select from a list of pre-defined replies.

5.15

Shadow Groups (Address Bundle)



NOTICE: This feature is a paid feature.

The Shadow Groups feature (also known as Address Bundle) offers a way of sending messages to multiple destinations or recipients simultaneously. The following types of messages are supported by the feature:

- Status messages (including Emergency Alarms)
- GPS LIP (TETRA Location Information Protocol) reports
- RMS/FMS messages

Shadow Groups in TMO

Each Shadow Group may contain up to four target addresses. Each talkgroup may be configured to send status messages, GPS LIP reports, or RMS/FMS messages to a specific Shadow Group.

Shadow Groups in DMO

In DMO, the Shadow Group contains one target address. Each talkgroup may be configured to send status messages or GPS LIP reports to a specific Shadow Group.

Each radio can store up to 255 Shadow Groups (both in TMO and DMO).

The Shadow Groups feature may affect Emergency Calls setup time to be slightly elongated.

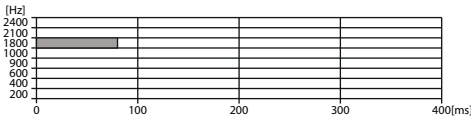
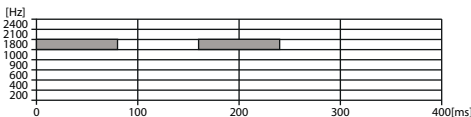
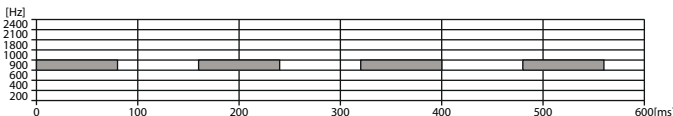
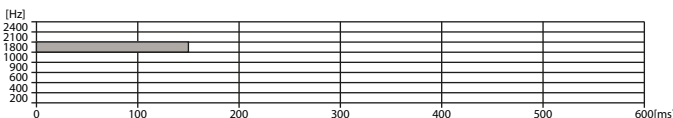
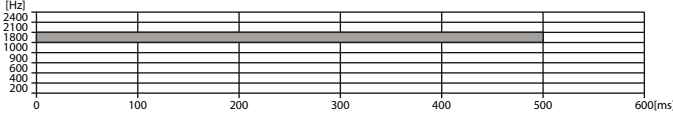
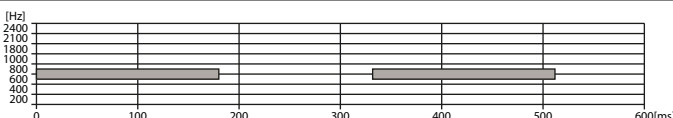
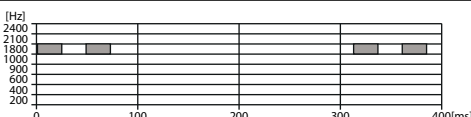
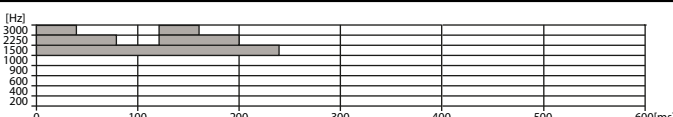
Appendix A

Tones

Table 22: Radio Tones

Tone Name	Default Tone Diagram
Back to Coverage Back to Full Service	
Clear-to-send	
Bad Key Pressed	
From Out-of-Service to In Service	
In Emergency	
Talk Permit	
<ul style="list-style-type: none"> • Talk prohibit • System busy • Time-out timer expire • Called radio not available or busy 	
Call Disconnected or Failed Due to Network	
Toggling Between DMO and TMO	

Table continued...

Tone Name	Default Tone Diagram
Entering/Exiting Local Site Trunking	
Receiving/Sending Emergency Alarm	
Emergency Alarm Failed	
Entering Emergency	
Exiting Emergency	
Entering/Exiting TXI	
Low Battery Alert	
Remote Control	



NOTICE: Your service provider can disable all the audible indications.

Appendix B

LED Indications

Table 23: LED Status Indications

Indication	Status
Solid green	<ul style="list-style-type: none">• In use.• Repeating call.
Blinking green	<ul style="list-style-type: none">• In service or idle.
Solid red	<ul style="list-style-type: none">• Out of service.• Switching between modes, for example, DMO to TMO.
Blinking red	<ul style="list-style-type: none">• Connecting to the network.• Entering DMO.
Solid orange	<ul style="list-style-type: none">• Radio is powering up.• Transmit inhibit in service.• Channel busy in DMO.• Radio interference in DMO.
Blinking orange	<ul style="list-style-type: none">• Incoming call.
No indication	<ul style="list-style-type: none">• Radio powered down.• Radio in Covert Mode.

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Appendix C

Troubleshooting

Your radio displays the following messages:

Table 24: Displayed Messages

Message	Message Description
...-Received	Call received but not answered, or rejected.
Attachment Failed	Your radio could not perform talkgroup attachment. It keeps on trying. If it does not succeed, try another talkgroup.
Authenticate Failure	Your radio could not register on an authenticated system (for example, the Authentication Key is incorrect, or authentication is disabled).
Battery level too low.	The battery charge level is too low to perform the required operation.
Call Cancelled	You have canceled the call.
Call Ended	<ul style="list-style-type: none"> Faulty channel. Please try later. You have ended the call.
Call Forwarding	The radio you are trying to call is not available and the call is being forwarded to another radio.
Call Modified	The call you are participating in has been modified.
Call Preempted	Channel being used for priority.
Decryption Failed:	An error occurred while decrypting a message or call.
Emergency In Use Wait For Mic	The Hot Microphone feature is active, but the channel transmit grant has been given to another Emergency call on the same talkgroup. Your radio microphone is not active during this time, but it automatically tries to regain talk permit after a predetermined time.
Emgcy Mic Ended	The Hot Microphone timer automatically expired, or you pressed the PTT button to cancel the Hot Microphone feature.
Emergency Mic On	The Hot Microphone feature is active, and your radio is automatically transmitting hands free emergency audio.
Empty Entry	The speed number you dialed does not exist, or the number exists but the group is non-selectable.
Faulty Unit Error	Self-test failed. An operational fault has been detected with your radio. Record the error number. Turn your radio off and contact service.
Gateway available	Your radio has connected to a gateway.

Table continued...

Message	Message Description
Gateway not available	Your radio cannot connect to a gateway, or connection has been lost.
This group already exists	The group you are attempting to add exists in the <i>My Groups</i> folder.
Individual Calls Only	You can make only individual (private) calls.
Insufficient visible data	Your radio is in the process of determining your location. This process may take several minutes to complete.
Insufficient visible satellites	Your radio is in the process of determining your location. This process may take several minutes to complete.
Invalid ID	The entered number is not valid.
Invalid Shortcut Position	The entered number is not valid.
Limited Service	Emergency Calls, Emergency Alarms, and mobility operations (for example group attachment) are allowed. All other incoming and outgoing call and data services are blocked.
List Empty	There are no programmed entries in the scrolling list. Type the entry.
List Not Attached	All talkgroups in the scan list are not attached.
List Partially Attached	The scan list is active, but not all talkgroups are attached to it.
Message Delivered	Indicates mail successfully delivered.
Message Failed	Indicates mail delivery failure.
New Delivery Status	You have received a new Delivery Status.
No Service	Your radio is outside coverage. Return to coverage.
Not allowed in repeater mode	The service or feature is not available in the Repeater Mode..
My Groups Is Empty	You cannot view/delete groups when the <i>My Groups</i> folder is empty.
My Groups Is Full	You are not allowed to add a group to the <i>My Groups</i> folder as it already contains the maximum allowed number of groups.
Network Trouble	Network problems. Please try again later.
No Answer	The called party does not answer.
No Entries	This message is displayed when accessing an empty list.
No Group	<ul style="list-style-type: none"> Attachment failed. Your radio detached from current talkgroup. Please wait until it attaches again to the current talkgroup. Displayed when you are out of the normal coverage area of your selected talkgroup. Please select a new talkgroup that is valid for your working location.

Table continued...

Message	Message Description
	<ul style="list-style-type: none"> Indicates a favorite group was removed from the My Groups folder.
No List	The network list is empty.
No New or Old Messages	Indicates there are no new or old messages in the Inbox.
No Selected Scan List	You selected an empty network list.
No Service	Your radio is out of coverage.
Not Allowed To Initiate Call	You are not allowed to dial a number which is not in the address book.
Not Allowed To Transmit	Release the PTT button and try again later. You are not allowed to send a text message or a status message to a number which is not in the address book.
Single TalkGroup Only	There is only one programmed entry in the scrolling list.
Overheating, Please Turn Radio Off	Your radio turns off. Keep it turned off for 5 minutes.
Party Busy	Called radio is busy.
Party Not Available	Called radio is out-of-range or turned off. Please try again later.
Please Try Again	You could not call.
Please Wait Connecting	A message during startup.
Registration Failure	Your radio could not register within the system. Please try again later.
Repeater available	Your radio has connected to a repeater.
Repeater not available	Your radio cannot connect to a repeater, or connection has been lost.
Service Denied	Invalid number. Call your service provider.
Service Not Available	This service is not available on the current network.
Service Restricted	This service or feature is restricted by your service provider, it has not been purchased, or it is not available.
TalkGrp... cannot be deleted	Your service provider set this group so you cannot delete it from the favorite talkgroup folder.
Try Again Later	The requested service is temporarily unavailable.
Radio Disabled	Check with your service provider.
Unit is OK Warn:	Self-test error. A minor fault has been detected. Your radio is still fully operative. If this error recur, note the error code and contact service.
Unit Not Attached	You radio could not attach to the system. The talkgroup may not be defined in the system. Please try another group.

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Appendix D

Maintenance



NOTICE:

- Before using your radio for the first time, remove the plastic lens protector from the display, and charge the battery until the LED lights green.
- Battery charging must occur only in non-hazardous areas.
- Clean the connector frequently and before the programming procedure for example, with a soft brush (do not use fluids).

D.1

Storage

- Do not store the radio in potentially acidic atmospheres. Storage in such conditions can harm the original outlook of the radio.
- New Lithium-Ion batteries may be stored in ventilated, cool and dry areas with some capacity loss in the life cycle.
- It is not recommended to store the batteries when they are fully charged or discharged.

D.2

Extending Battery Life

A battery is an expendable part and may need replacing during the life of the radio. To ensure maximum service life of your radio, always replace the battery with a genuine Motorola replacement.

D.3

Battery Charging Temperature

When the battery is fitted to the radio, it charges within the temperature range of 0 °C to 45 °C. When the battery is charged separately (without the radio), the temperature range of battery operation is from 0 °C to +45 °C in charger mode, and from -10 °C to +50 °C in discharge mode.

If, during charging, the temperature is out of range, the battery might not be fully charged since the charging is temporarily stopped until the temperature becomes suitable.

D.4

Additional Battery Warnings/Cautions

- To prevent injury, do not allow metal objects to touch the battery contacts.
- Do not disassemble.
- Do not throw in fire.
- Do not dispose of battery in household waste.

D.5

Looking after Your Radio

Never leave your radio or battery in extreme temperatures, for example, behind a windscreen in direct sunlight.

Do not immerse your radio in water.

To clean your radio, use a moistened or antistatic cloth.