Mobile Release 14.0

MTM5x00

FEATURE USER GUIDE - USA and Canadian version

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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 trashbin label on the product (or the package in some cases).

As defined by the WEEE directive, this cross-out trashbin 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.

Open Source Software (OSS) Legal Notices

For details on OSS Legal Notices visit Motorola Online (emeaonline.motorolasolutions.com) or browse the CPS Plus disc.

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Chapter 1

General Information

Icon Conventions

The documentation set is designed to give the reader more visual clues. The following graphic icons are used throughout the documentation set. These icons and their associated meanings are described below.

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 located on the screen. There is no warning level associated with a notice.

Declaration of Conformity

NOTICE: Typical use case for MTM5x00 series radio is installation in a vehicle.

Declaration of Conformity is applicable to your radio only if your radio is labeled with the FCC logo shown below.

DECLARATION OF CONFORMITY

Per FCC CFR 47 Part 2 Section 2.1077(a)

Responsible Party Name:

Motorola Solutions, Inc.

Address:

1303, East Algonquin Road, Schaumburg, Illinois 60196, U.S.A. Phone Number: 1-800-927-2744

Hereby declares that the product:

Model Name: MTM5x00

conforms to the following regulations:

FCC Part 15, subpart B, section 15.107(a), 15.107(d) and section 15.109(a)

Class B Digital Device

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

1 This device may not cause harmful interference, and

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

NOTICE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. While the device is communicating with the laptop, the laptop charger must be disconnected.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Important Safety Information

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

CAUTION: Before using this product, read the RF Energy Exposure and Safety Guide For Two-Way Radios that ships with the radio. The Guide contains operating instructions for safe usage, important RF energy awareness and control information as well as regulatory information, to help ensure compliance with applicable standards and regulations. This radio is restricted to occupational use only. Any modification to this device, not expressly authorized by Motorola, may void the user's authority to operate this device.

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

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

Notice to Users (FCC and Industry Canada)

This device complies with Part 15 of the FCC rules and RSS 210 of the Industry Canada rules per the conditions listed below:

1 This device may not cause harmful interference.

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

3 Changes or modifications made to this device, not expressly approved by Motorola, could void the user's authority to operate this equipment.

Informations importantes sur la sécurité

Exposition aux radiofréquences et sécurité du produit pour radios bidirectionnelles portatives

CAUTION: Cette radio ne doit être utilisée qu'à des fins professionnelles. Avant d'utiliser la radio, lisez le guide Exposition aux radiofréquences et sécurité du produit pour radios bidirectionnelles portatives, qui contient d'importantes instructions de fonctionnement pour une utilisation sécuritaire et des informations sur l'exposition aux fréquences radioélectriques afin d'assurer la conformité aux normes et règlements applicables.

Selon la règlementation d'Industrie Canada, cet émetteur radio ne peut être utilisé qu'avec une antenne dont le type et le gain maximal (ou minimal) sont approuvés par Industrie Canada pour cet émetteur. Afin de limiter les interférences radio pour les autres utilisateurs, le type et le gain de l'antenne doivent être choisis de façon à ce que la puissance isotrope rayonnée équivalente (P.I.R.E.) ne soit pas plus forte qu'il ne le faut pour établir la communication.

Le présent émetteur a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne agréés par Motorola et ayant un gain admissible maximal ainsi que l'impédance requise pour chaque type d'antenne indiqué. Les types d'antenne non inclus, dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Avis aux utilisateurs (FCC et Industrie Canada)

Cet appareil est conforme à la Partie 15 des règlements de la FCC et RSS 210 du règlement d'Industrie Canada selon les conditions énumérées ci-dessous:

1 Ce dispositif ne doit pas causer d'interférences nuisibles.

2 Cet appareil doit accepter toute interférence reçue, y compris les interférences qui peuvent perturber le fonctionnement.

3 Les changements ou les modifications apportées à ce dispositif, non expressément approuvées par Motorola, peuvent annuler le droit de l'utilisateur à utiliser cet équipement.

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 EMERGENCY button	Capital letters indicate a name of a key or button.
Entering TMO tone	Italic words indicate a name of the tone.
Powering Off	Bold words indicate the soft menu items, 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.

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 you service provider to find out the differences from this guide.

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Chapter 2

Getting Started

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

Product Technical Information

Table 2: Product Technical Information

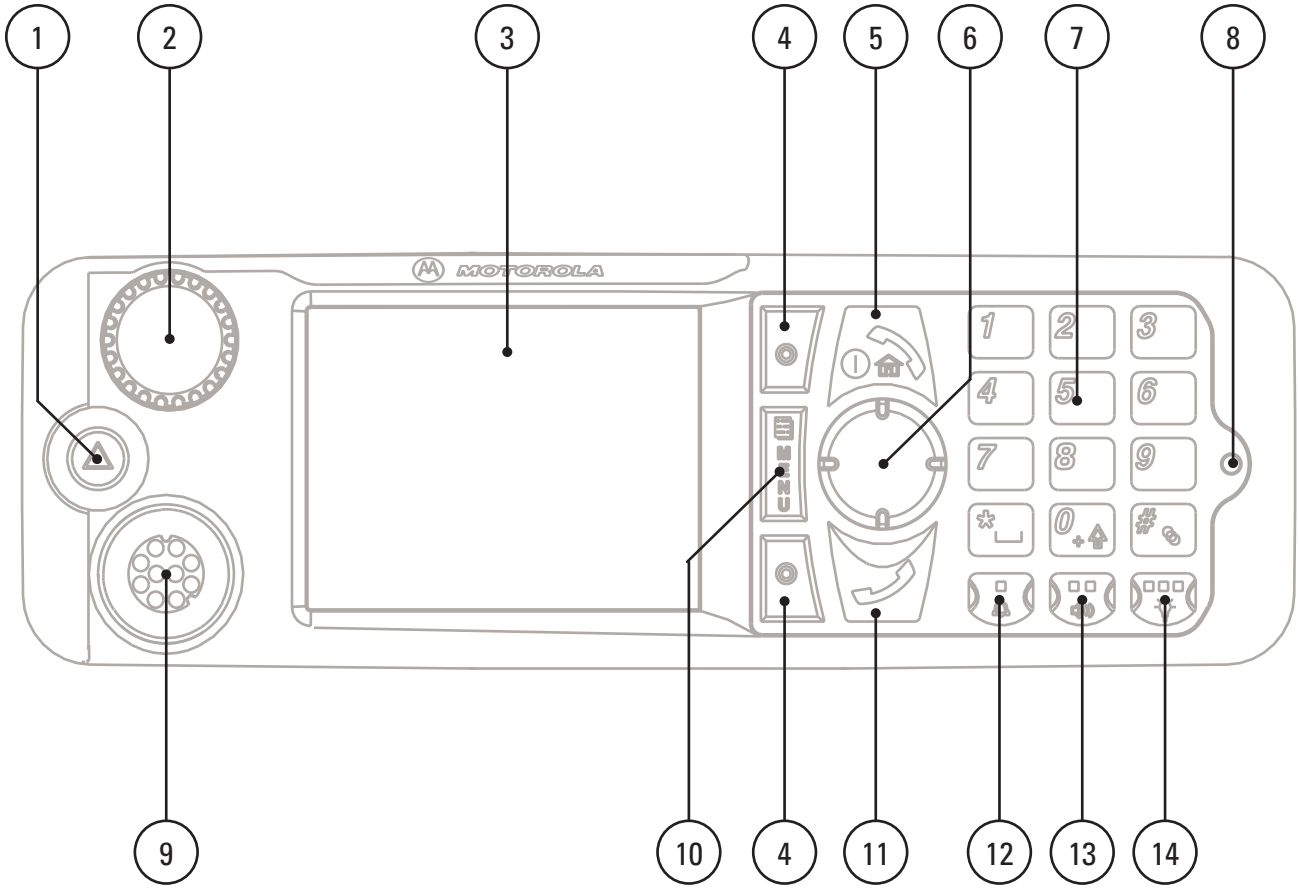
Description	Value
Rated RF Power	10 W
Maximum Speaker Load	10 W at 4 Ω
Antenna Impedance	50 Ω
Ambient Temperature Range	-30 °C to +60 °C **NOTICE:** If the radio is in service, the surface temperature can rise up to 70 °C. Do not touch the hot surface.
Operating Time	Continuous/Intermittent
Enhanced Data Transfer	Support of TETRA Enhanced Data Service (TEDS).

NOTICE: The communication system determines the radio transmit and receive time (operating cycle time). During overload, or beyond the systems specifications at high ambient temperatures, the thermal control cuts down the RF power output, which reduces the radio coverage range.
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.

Controls and Indicators

New Generation Control Head (NGCH) / Remote Ethernet Control Head (RECH)



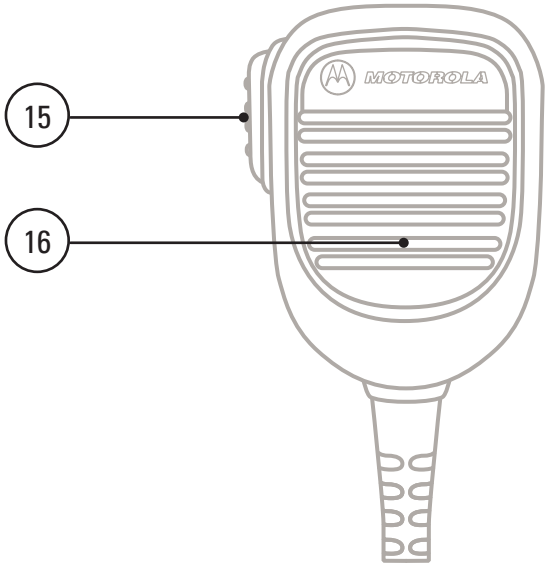


Table 3: Controls and Indicators — New Generation Control Head (NGCH) / Remote Ethernet Control Head (RECH)

Annotation	Description
1	EMERGENCY button Press and hold EMERGENCY button to enter Emergency operation. By default, when your radio is off, press and hold to power on in Emergency Mode.
2	ROTARY KNOB • Press and hold to turn your radio on. • Rotate to set the volume. • Press and rotate to select a different talkgroup. • Press and hold the ROTARY KNOB to lock/unlock it. Powering off also unlocks a locked ROTARY KNOB.
3	DISPLAY Provides alphanumeric text and images within 65,536 colors and 640 x 480 pixels with backlighting and scalable fonts. **NOTICE:** Before using your radio for the first time, remove the plastic lens protector from the display.
4	SOFT key Press upper or lower SOFT key, to select the option that appears on the screen next to it.
5	ON/OFF/END/HOME key • Press and hold to turn on/off your radio. • Press to end calls. • Press to return to the home screen.
6	NAVIGATION key Press up, down, left or right NAVIGATION key for list scrolling, while moving around the menu hierarchy, or for alphanumeric text editing. From the home screen, press to activate one of the following: • 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.
7	Alphanumeric KEYPAD Use the keypad to enter alphanumeric characters for dialing, contact entries, and text messages.
8	LED Status Indicator
9	MOBILE MICROPHONE PORT Provides connection for accessories such as fist microphone with PTT.
10	MENU key Press to enter the main menu and the context-sensitive menu.
11	SEND key Press to initiate or answer duplex calls, or send messages.

Table continued…

Annotation	Description
	Press in home screen to enter Recent Dialed Calls.
12	FUNCTION key 1 By default: • Short press — activates/deactivates the horn and lights feature. • Long press — adjusts backlight.
13	FUNCTION key 2 By default: • Short press — turns the speaker on/off. • Long press — activates/deactivates screen saver.
14	FUNCTION key 3 By default: • Short press — adjusts backlight. • Long press — unassigned.
15	PTT (Push-To-Talk) button • Press and hold to talk in simplex calls or to initiate a group call, release it to listen.
16	MICROPHONE

NOTICE: While pressing the expansion PTT (on the expansion head), other PTT press on an accessory connected to the control head is ignored. This only applies to MTM5200, MTM5400, and MTM800 FuG.

Telephone Style Control Head (TSCH)

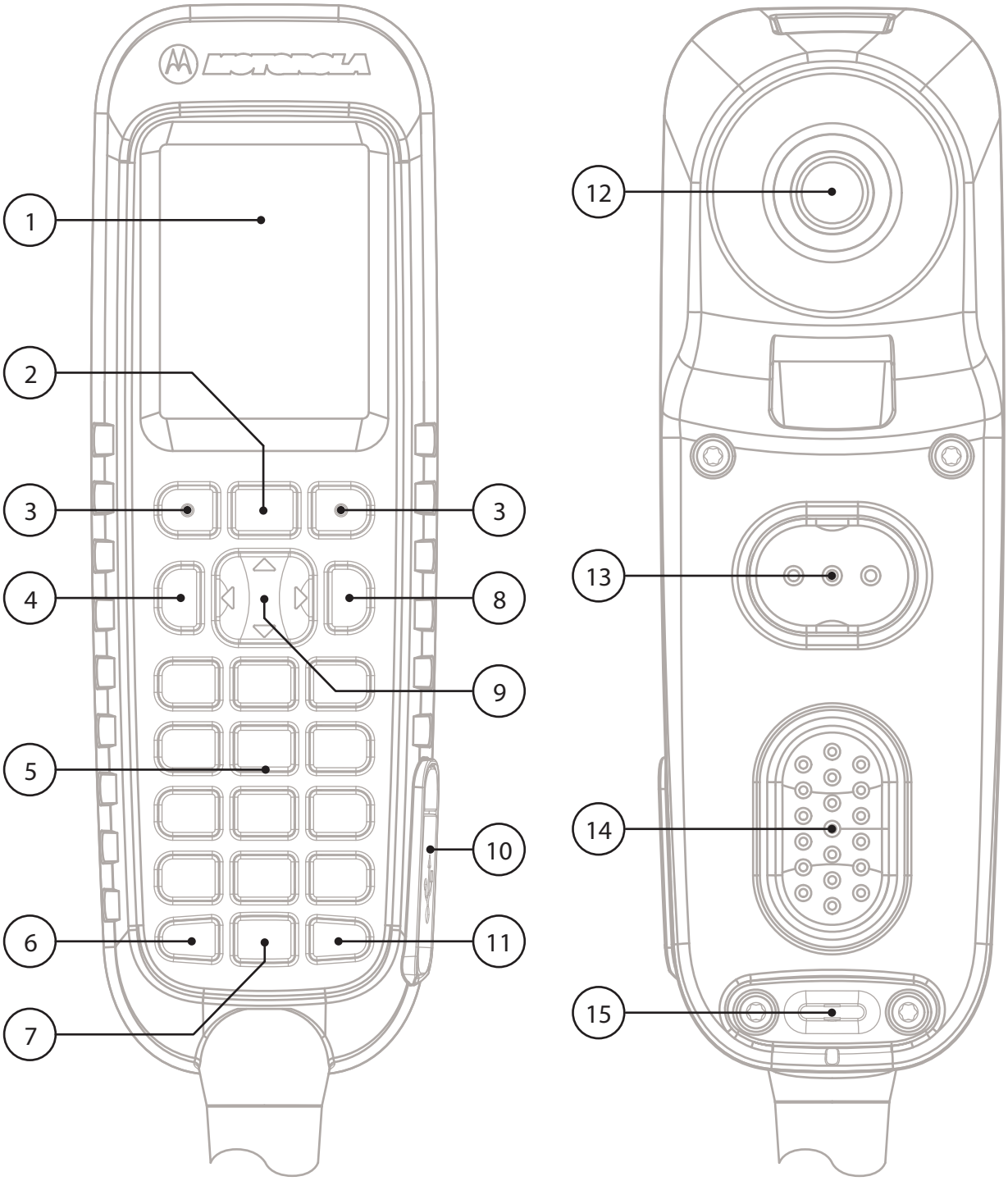


Table 4: Controls and Indicators — Telephone Style Control Head (TSCH)

Annotation	Description
1	DISPLAY Provides alphanumeric text and images within 65,536 colors and 240 x 320 pixels with backlighting and scalable fonts.

Table continued…

Annotation	Description
	NOTICE: Before using your radio for the first time, remove the plastic lens protector from the display.
2	MENU key Press to enter the main menu and the context-sensitive menu.
3	SOFT keys Press left or right SOFT key, to select the option that appears on the screen above it.
4	SEND key Press to initiate or answer duplex calls, or send messages. Press in home screen to enter Recent Dialed Calls.
5	Alphanumeric KEYPAD Use the keypad to enter alphanumeric characters for dialing, contact entries, and text messages.
6	FUNCTION key 1 By default: • Short press — activates/deactivates the horn and lights feature. • Long press — adjusts backlight.
7	FUNCTION key 2 By default: • Short press — turns the speaker on/off. • Long press — activates/deactivates screen saver.
8	ON/OFF/END/HOME key • Press and hold to turn on/off your radio. • Press to end calls. • Press to return to the home screen.
9	NAVIGATION key Press up, down, left or right NAVIGATION key for list scrolling, while moving around the menu hierarchy, or for alphanumeric text editing. From the home screen, press to activate one of the following: • 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.
10	MICRO USB PORT Provides connection between the radio and a computer.
11	FUNCTION key 3 By default: • Short press — adjusts backlight. • Long press — unassigned.
12	EARPIECE

Table continued…

Annotation	Description
13	Upper PTT (Push-To-Talk) button By default, this PTT button is disabled. However, your service provider can assign one of the following functions to it: • Upper PTT button works in the same way as the lower PTT button (you can use both interchangeably). • Upper PTT supports a roof speaker. Roof speaker allows sound to be transferred through an external speaker connected to the transceiver.
14	Lower PTT (Push-To-Talk) button • Press and hold to talk in simplex calls or to initiate a group call, release it to listen.
15	MICROPHONE

Cradle

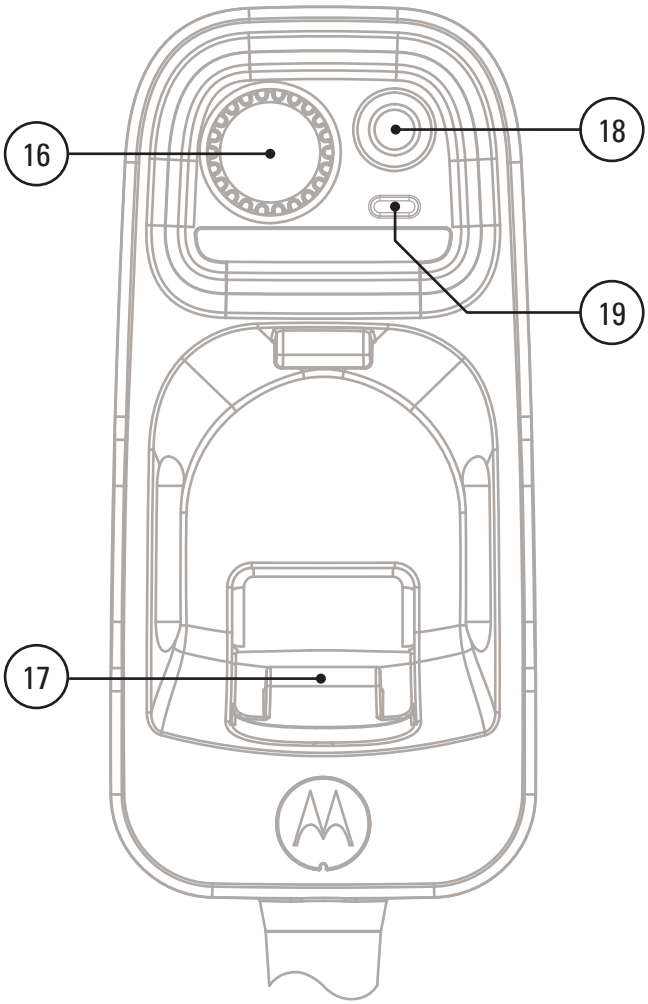


Table 5: Controls and Indicators — Cradle

Annotation	Description
16	ROTARY KNOB

Table continued…

Annotation	Description
	• Press and hold to turn your radio on. • Rotate to set the volume. • Press and rotate to select a different talkgroup. • Press and hold the ROTARY KNOB to lock/unlock it. Powering off also unlocks a locked ROTARY KNOB. • Press to make the ROTARY KNOB operate like left/right navigation keys.
17	HOOK
18	EMERGENCY button Press and hold EMERGENCY button to enter Emergency operation. By default, when your radio is off, press and hold to power on in Emergency Mode.
19	LED Status Indicator

NOTICE:

- It is recommended to turn off the terminal before connecting any of the accessories.
- A detailed list of compatible accessories is included in *Accessory Leaflet*, part number: 68015000182. To obtain the document, contact your service provider.

Related Links

Interactions between Control Heads on page 117
Dual Control Head on page 116

Display

This section presents the radio's default home screen elements.

Table 6: 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 7: 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)
Grey	Radio User Assignment (RUA) — Limited service

Related Links

Display on page 93

Display Orientation

The display on the Telephone Style Control Head can rotate, which increases its readability and facilitates operation. When a single TSCH or a combination of TSCH and RECH (Remote Ethernet Control Head) is used, the following display orientation is possible:

- When the TSCH is off-hook, its display orientation is portrait.
- When the TSCH is on-hook, its display orientation can take one of the following positions (depending on your service provider configuration):
  - Fixed portrait
  - Clockwise
  - Counter clockwise

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:

- Network alias
- Range alias
- Talkgroup alias
- Time and date
- Home mode display
- RMS/FMS
- ISSI
- Radio status
- Audio profile name
- Radios with the gateway feature enabled: gateway TMO zone, gateway TMO talkgroup, gateway DMO zone, gateway DMO talkgroup

Status Icons

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

Table 8: Status Icons

Icon	Description
Trunked Mode Operation	
	In Service
	No Service
	Signal Strength – The more bars, the stronger the signal.
	Migration — Displayed when your radio is registered to the foreign network.
	Broadcast Call — Displayed when the radio is in the Broadcast Call.
	Gateway Mode — Displayed when the radio is switched to work as a gateway in Gateway Mode.
	Scan — Indicates talkgroup scanning is activated in the radio.
	Packet Data / Multi-Slot Packet Data (MSPD) / TETRA Enhanced Data Services (TEDS) — The more blue sections on the icon, the faster the data transfer. Possible five states: • Four gray sections: context activated – data idle • One blue (from the left): Packet Data active • Two blue (from the left): Multi Slot Packet Data active • Three blue (from the left): TEDS 25 kHz active • Four blue: TEDS 50 kHz active
Direct Mode Operation	
	Direct Mode Call — Displayed when the radio is receiving a Direct Mode call. The more bars, the stronger the signal.
	Direct Mode — Displayed when the radio is in Direct Mode (radio-to-radio communication).
	Repeater Mode — Displayed when the radio is switched to work as a repeater in Repeater Mode.
	DMO Gateway Communication Mode — Indicates that gateway is selected. The icon has the following states: • Solid — while the radio is synchronized with the gateway. • Blinking — while the radio is not synchronized or during attachment. • No icon — during a radio to radio and repeater call.

Table continued…

Icon	Description
	DMO Repeater Communication Mode — Displayed when the **Repeater** or **GW + Rep** option in DMO Mode is selected. This icon has the following states: • Solid — while the radio has detected the repeater (for example when the radio receives a presence signal). • Blinking — while the radio has not detected the repeater or during attachment. • No icon — during a radio to radio and gateway call.
General Icons	
	All Tones Off and Duplex and Simplex Ring Muted — Indicates that all alert tones are off and both duplex an simplex ring volume is set to 0. • 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.
	Speaker Off — Indicates that audio will not sound through the speaker.
	Audio Profile Selected — Indicates that an audio profile associated with a particular icon is active. For details on audio profiles available on the radio, contact your service provider.
	Horn and Lights — Indicates that an external alarm (for example, horn and lights) is activated.
	GPS Icon • 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.
	RUI Logged on — Indicates that you are logged on into the radio.
	RUI Pseudo Log On — Indicates that you are in pseudo logged on state.
	RUI Packet Data — Indicates Pseudo Log On state when the Packet Data feature is activated and active data session is in progress.
	RUI Packet Data — Indicates Pseudo Log On state when the Packet Data feature is activated and the external device sets up data connection with the radio.
	Emergency — Appears while the radio is in Emergency Operation.
	Disaster Alert Call — Appears while the radio is in the Disaster Alert Call.
	List Scrolling — Displayed to indicate that the ROTARY KNOB is in list scrolling mode.

Table continued…

Icon	Description
	New Message Has Arrived — Indicates a new message just arrived.
	New Message(s) in Inbox — Indicates that you have unread messages in your **Inbox**.
	Unread (New) WAP Message — Indicates that new page was loaded to the browser.
	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**.
	End-to-End Encryption (E2EE) Solid, when the E2EE is enabled • 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. Blinking, when the End-to-End Encryption is enabled • when receiving voice in Group Calls, • when receiving voice in Simplex Private Calls, • during encrypted Duplex Private Calls.
	SDS End-to-End Encryption Solid, when the E2E status of an SDS message, or the E2E status of a message recipient address. 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, **Inbox**).
	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 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.

Table continued…

Icon	Description
	Non Secured Call — Air Encryption Unavailable Blinking, indicates that Air Encryption is not available when the radio: • Is in the Local Site Trunking Mode. • Attempts to connect to a gateway.
	Not Secured Call — Air Encryption Unavailable Alternately blinking, indicates that Air Encryption is not available when the radio: • Is in TMO Mode. • Communicates through a gateway.
	Not 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 controlled via special SDS messages or triggered to send a GPS location report.
Enhanced Dual Control Head	
	Dual Control Head — Indicates that Dual Control Head feature is enabled, and both control heads are connected to the transceiver.
	Single Control Head — Indicates that Dual Control Head feature is enabled, but only one control head is connected to the transceiver.
	Link Error — Indicates that connection between the control head and the transceiver has been lost, for example, due to an error.
	Key Press Token — In Dual Control Head operation, blinking icon indicates that key press token is reserved by one of the control heads.
	CH1 — Indicates that particular activities/settings apply to Control Head 1. Control Head 1 is a control head connected to port 1 on the expansion head.
	CH2 — Indicates that particular activities/settings apply to Control Head 2. Control Head 2 is a control head connected to port 2 on the expansion head.
	Speaker 1 Off (Low Audio) — Indicates that audio will not sound through the speaker of the Control Head 1.
	Speaker 2 Off (Low Audio) — Indicates that audio will not sound through the speaker of the Control Head 2.
	Speakers Off (Low Audio) — Indicates that speakers of both control heads are off.
	All Tones Off/Duplex and Simplex Ring Muted — Indicates that all alert tones are off, or both simplex ring volume is set to 0 and duplex ring volume is set to 0. Applicable to Control Head 1.
	Simplex Ring Muted — Indicates that simplex ring volume is set to 0 and duplex ring volume is set to more than 0. Applicable to Control Head 1.
	Duplex Ring Muted — Indicates that duplex ring volume is set to 0 and simplex ring volume is set to more than 0. Applicable to Control Head 1.

Table continued…

Icon	Description
	All Tones Off/Duplex and Simplex Ring Muted — Indicates that all alert tones are off, or both simplex ring volume is set to 0 and duplex ring volume is set to 0. Applicable to Control Head 2.
	Simplex Ring Muted — Indicates that simplex ring volume is set to 0 and duplex ring volume is set to more than 0. Applicable to Control Head 2.
	Duplex Ring Muted — Indicates that duplex ring volume is set to 0 and simplex ring volume is set to more than 0. Applicable to Control Head 2.

Related Links

Air Encryption on page 85

Powering On the Radio

Procedure:

1. Press and hold On button.
2. Your radio performs a self-check and registration routine.
3. After successful registration, your radio is in service.

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

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.

Related Links

PIN Protect on page 83
Changing PIN Codes on page 84
Writing Text on page 41

Unblocking Your Radio

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

Procedure:

1. Radio displays **Unit BlockedEnter 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.

Locking/Unlocking the Keys/Buttons

Press Menu key and * key.

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

Related Links

Keylock Setup on page 84

External SIM Card Priority

When you insert a SIM card into the external SIM reader, it gets priority over the internal SIM card. The internal SIM card remains deactivated as long as an external SIM card is plugged in.

Entering TMO / DMO Mode

Procedure:

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

Related Links

Selecting Network Operation Mode on page 109
Networks on page 109

Transmit Inhibit Mode

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

To activate, select MENU → **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 trial 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, you leave the RF sensitive area), you can deactivate the Transmit Inhibit Mode and the radio returns to standard operation.

You can deactivate the mode by selecting MENU → **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.
- The radio is turned off.

On entering or exiting the transmit inhibit mode, when the radio is camped on a cell, it sends a specially designated SDS status message. This SDS message indicates to the SwMI that the radio is entering or exiting transmit inhibit mode.

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

In transmit inhibit 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 transmit inhibit 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 transmit inhibit mode and attempts to start the emergency call if the radio is in service.

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

Selecting Talkgroups

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

- Press left or right NAVIGATION key. Press **Select** to confirm.
- Select **Optns** → **TG by abc**. Enter a talkgroup name and select the talkgroup name from the list.
- Select **Optns** → **TG by Folder**. Select a folder and then a talkgroup name.
- 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.

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

Talkgroup Icon Selection

Table 9: Talkgroup Icon

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

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 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.

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.

Related Links

Scan on page 102

Broadcast Call

The 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.

Ambience Listening (AL) Call

This feature allows a dispatcher to make a special call that allows listening to the conversations and background noises within the range of a particular radio's microphone. 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.

One-Touch Button Feature

The One-Touch Button feature allows for quick activation of functions by pressing and holding keys or buttons assigned to those functions.

Table 10: One-Touch Button Features

Feature	Description
BSI Encryption Enabled/Disabled	Toggles BSI encryption feature.
Backlight Adjustment	Toggles the backlight on or off.

Table continued…

Feature	Description
Change Talkgroup	Changes the talkgroup to the programmed one by your service provider.
Change Talkgroup to the Previously Selected Talkgroup	Changes the selected talkgroup of the radio to the talkgroup (DMO or TMO) that was selected previously.
Covert Mode	Turns on/off the Covert Mode.
Default Setting	Resets all radio settings to the default ones.
Display Time	Displays universal time on the home screen.
Sending of Double Push PTT (D-PTT)	Sends the D- PTT tone to the currently used talkgroup.
GPS LIP Report	Sends a message with the radio's GPS location to a dedicated address.
Hi/Low Audio	Toggles high/low audio.
Horn&Lights	Toggles the horn and lights indication.
HSM (Hearer Speaker Microphone) Secondary Accessory Toggle	Activates/Deactivates the Hearer Speaker Microphone Secondary Accessory.
Initiate Call-Out Fallback Alert	Sends Call-Out Fallback Alert.
PABX Call	Initiates a PABX call to a predefined entry in the contact list.
Phone Call	Initiates a phone call to a predefined entry in the contact list.
Private Call	Initiates a private call (simplex or duplex) to a predefined entry in the contact list or to the last group call originator.
Rotary Switches Lock/Unlock	Locks/unlocks the Rotary Switches.
LOG ON <-> LOG OFF RUI	Asks for the credential or logs off the radio.
Screen Saver Activation	Turns on/off the Screen Saver feature.
Sending Predefined Message	Sends a predefined message to a dedicated address.
Sending Status	Sends a dedicated status message to a dedicated address.
Sending User Defined Message	Sends a user defined message to a dedicated address.
Speaker Enable/Disable Per Call	Enables the loudspeaker for a duration of the ongoing call.
Timed TG Change	Makes a predefined talkgroup the selected talk group for a specified amount of time. While using the predefined talkgroup, the second press of the One-Touch Button results in: returning to the previously selected talkgroup, restarting the predefined time, or no action (depending on configuration). After the timer expires, the radio returns to the previously selected talkgroup.
TMO / DMO Switch	Toggles between TMO and DMO modes.
TMO Talkgroup Scan	Turns on/off the Talkgroup Scan feature in TMO Mode.
Transmit Inhibit Mode (TXI)	Turns on/off the Transmit Inhibit Mode.
Turn On/Off Gateway Mode	Turns on/off the Gateway Mode.
Turn On/Off Repeater Mode	Turns on/off the Repeater Mode.

Your service provider can assign one-touch functions only to the side buttons and keypad keys.

NOTICE: If the One-Touch Button feature is enabled, the One-Touch Dial is disabled. If no feature is assigned to a button, your radio displays an **Unassigned Button** message.

Terminal Temporary Disable/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.

Terminal Permanent Disable

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.

NOTICE: This is a selling feature.

During the Call

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

Table 11: During the Call

Soft Key Label	Audio Setting
Spkr	Audio goes to the main speaker (**Speaker HIGH** is displayed)
Erpce	Audio goes to the earpiece (**Speaker LOW** is displayed)

Writing Text

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

Related Links

Unlocking Your Radio on page 36

Selecting Text Entry Modes

Prerequisites: Your radio displays the text entry screen.

Procedure:

1. Press MENU → **Entry Mode**.
2. Select one of the following:
   - **Primary** — for entering alphanumeric characters.
   - **Numeric** — for entering numbers only.
   - **Symbol** — for entering symbols only.

- **Secondary** — for entering alphanumeric characters (this mode is optional and you have to add it to the list). It is convenient when you use one language, and sometimes wish to switch to another one.

NOTICE: In the text entry screen, you can also press # key repeatedly to toggle through the entry modes.

Selecting Text Entry Methods and Languages

Prerequisites: Your radio displays the text entry screen.

Procedure:

1. Press MENU → **Entry Setup**.
2. Select one of the following:
   - **TAP** — Enter letters, numbers, and symbols by pressing an alphanumeric key one or more times.
   - **iTAP** — Let the radio predict each word as you press an alphanumeric key.

NOTICE: You can use these methods in the languages programmed in the radio.

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 the # key to toggle through the text entry modes.

Table 12: Text Entry Screen Icons

Primary Icon	Secondary Icons	Description
abc1	abc2	TAP — no capitals
Abc1	Abc2	TAP — capitalise first letter only
ABC1	ABC2	TAP — all capitals
abc	abc	iTAP — no capitals
Abc	Abc	iTap — capitalise first letter only
ABC	ABC	iTap — all capitals

Numeric Icon	Description
123	Enter numbers.

Symbolic Icon	Description

Table continued…

@	Enter punctuation and symbols.

Keys Usage

List of keys and characters in Alphanumeric Mode (TAP/iTAP).

Table 13: Keys Usage

Key	Alphanumeric Mode (TAP/iTAP)	Symbol Mode
0 to 9 keys	Numeric Mode: • Press to enter digit at insertion point. • Press and hold any numeric key to enter TAP alphanumeric mode. • To exit TAP alphanumeric mode, press and hold any numeric key.	
0 key	Press to cycle through single shift, caps lock, and lower case.	+ - × * / \ [ ] = < > § #
1 key	. , ? ! 0 1 @ ' " - ( ) / : _ ; + & % × * = < > € £ $ ¥ ¤ [ ] { } \ ~ ^ ¿ ¡ § #	
2 key	A B C 2 a b c 2	@ _ \
3 key	D E F 3 d e f 3	/ , ;
4 key	G H I 4 g h i 4	" & '
5 key	J K L 5 j k l 5	( ) [ ] { }
6 key	M N O 6 m n o 6	¿ ¡ ~
7 key	P Q R S 7 p q r s 7	= < >
8 key	T U V 8 t u v 8	€ £ $ ¥ ¤
9 key	W X Y Z 9 w x y z 9	# % *

Table 14: Other Keys

Key	Description
Any numeric key	• In TAP press any key to reject word completion and continue with text entry A new completion will be displayed, if available, after the time-out for TAP expires. • Press and hold to enter Numeric mode from TAP or iTAP alphanumeric.
* key	• Press to insert a space. • In TAP press to dismiss a word completion and insert a space. • Enter a newly created word into the user dictionary. • Press and hold to enter a carriage return.
# key	• Press once to cycle through all entry modes (**Symbol**, **Numeric**, **Primary**, and **Secondary** (if configured). • Press and hold to return to the default entry mode.
Select	Press to select the highlighted choice and place it in the main text area.
Delete	• Press once to delete the last entered character. • Press and hold to clear the entire main text area.
Up NAVIGATION key	• In TAP press to reject word completion and scroll up. • In TAP press to change previously entered small letter to capital.
Down NAVIGATION key	• In TAP press to reject word completion and scroll within the text area. • In TAP press to change previously entered capital letter to small.
Left NAVIGATION key	• Press to navigate to the left. Press and hold to repeat. • In TAP, if a word completion is available, press to reject the completion.
Right NAVIGATION key	• Press to navigate to the right. Press and hold to repeat. • In TAP if a word completion is available, press to accept the word.
MENU	If a context-sensitive menu is active, opens the Context Sensitive Menu.

Writing in iTAP Alphanumeric

Prerequisites: Your radio displays the text entry screen.

When and where to use: It allows you to write quicker. For example, try to write **David 232!**

Procedure:

1. Press MENU → **Entry Setup** → **Prim.**.
2. Select **iTAPEnglish** and press **Back**.
3. Press MENU → **Entry Mode**.
4. Select **Primary**.
5. Press 3 key.
   The alternative row opens and shows **D E F 3**.

6 Continue entering the letters by pressing one key for each letter. Press 2, 8, 4, and 3 keys.

NOTICE: Automatic shift to upper case is used at the beginning of a message, after punctuation followed by space, or for the first letter of a word created as a new contact entry.

The alternative row highlights **David**.

7 Press * key.

8 Press 2 key and scroll the alternative row by pressing right NAVIGATION key to reach **2**.
It automatically changes the entry mode to **Numeric**.

9 Press 3 and 2 keys.

10 Press and hold 1 key until **0** at the end changes to **.**.
The alternative row highlights **232.**.

11 Scroll the alternative row by pressing the right NAVIGATION key to reach the required symbol.

12 Press **Select**.

You have entered **David 232!**.

Writing in TAP Alphanumeric

Prerequisites: Your radio displays the text entry screen.

Procedure:

1 Press MENU → **Entry Setup** → **Seco.**.

2 Select **TAPEnglish** and press **Back**.

3 Press MENU → **Entry Mode**.

4 Select **Secondary**.

5 Press the key labeled with the desired character, once for the first character, twice for the second, and so on.

Example: To enter letter s, press 7 key four times. To enter number 7, press the 7 key five times. If you do not press a key for a few seconds, the character is accepted, and the cursor moves to the next position.

Word Locking

Prerequisites: Your radio displays the text entry screen.

When and where to use: To add the words that are not in the dictionary.

Procedure:

1 Press MENU → **Entry Setup**.

2 Select **iTAPEnglish**.

3 Try to enter the word. Scroll the alternate line for a word option. Each option is successively highlighted and partially locked.

4 Enter the second part of the word. The first part remains unchanged (locked). The newly entered letters are highlighted and then locked while you scroll to the next word option.

5 Press * key. The word is placed in the text area with a space and automatically added to the dictionary.

Adding Words to the Dictionary

Each language comes with its own dictionary. You can create words (including alphanumeric abbreviations). Once you enter a word followed by space, it is automatically stored in the dictionary and appears as a choice whenever you press the same key combination in the future.

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.

Chapter 3

Modes

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

Using Networks

Procedure:

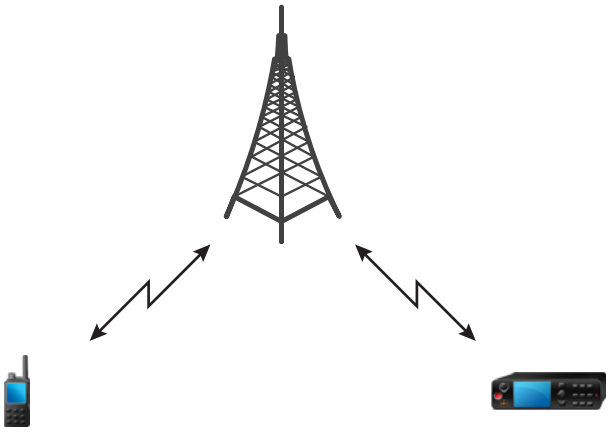
1. From the home screen, press the MENU key.
2. Select **Networks**.
3. Select one of the following:
   - **Trunked Mode**
   - **Direct Mode**
   - **Repeater Mode**
   - **Gateway Mode**
   - **TXI Mode**

Your radio switches to the selected mode.

Trunked Mode Operation

Trunked Mode Operation requires the switching and management infrastructure. This operation mode enables various voice and data communication types (for example, group calls, short data service messages) and access to the infrastructure-related features (for example, packet data).

Figure 1: Trunked Mode Operation



Entering TMO Mode

Procedure:

1. From the home screen, press **Optns**.

2 Select **Trunked Mode**.

Selecting Talkgroups

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

- Press left or right NAVIGATION key. Press **Select** to confirm.
- Select **Optns** → **TG by abc**. Enter a talkgroup name and select the talkgroup name from the list.
- Select **Optns** → **TG by Folder**. Select a folder and then a talkgroup name.
- 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.

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

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 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.

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).

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.

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.

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.

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.

DGNA Auto Select Group

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

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.

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**.

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.

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.

Phone and PABX Calls

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

Private Call

The 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.
- Simplex call, in TMO or DMO Mode. Only one party can speak at a time.

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.

Interaction with the accessories:

- Fist Microphone — during the Private Call, if you hang the microphone into the clip the call ends or the audio switches to the speakers (if connected). Exact behavior depends on your service provider settings.
- Telephone Style Handset — during the Private Call, if you hand the handset into the holder, the call ends or the audio switches to the speakers (if connected). Exact behavior depends on your service provider settings.

NOTICE: To end the Private Call if audio was switched to the speaker, press ON/OFF/END/ HOME key.

To answer a Private Call, use one of the following methods:

- Press the PTT button.
- Take the Fist Microphone or Telephone Style Handset off hook. If the Handset is off hook, the radio’s external speaker mutes and the Handset’s internal speaker activates.
- Press the SEND key on the control head. Audio is routed to audio input devices in the following order, depending on their availability:
  1. A visor microphone.

2 A microphone of the device that is off hook.

3 A microphone that was last in use (if two devices are off hook).

Related Links

Emergency Individual Calls (Private or MS-ISDN) on page 59

Making Private Calls

Procedure:

1 From the home screen, 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:

   a 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.

   b 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.

NOTICE: If you are using the fist microphone or the telephone style handset, replace it firmly on it's clip or holder when done.

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**

Call Modification

Call Modification is a feature that allows your service provider to modify the call in order 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 ModifiedUse 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 call modification requested by your service provider cannot be followed by the radio (due to its settings), the radio rejects it and displays **Service Not Available** message.

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.

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.

Exiting Local Site Trunking

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

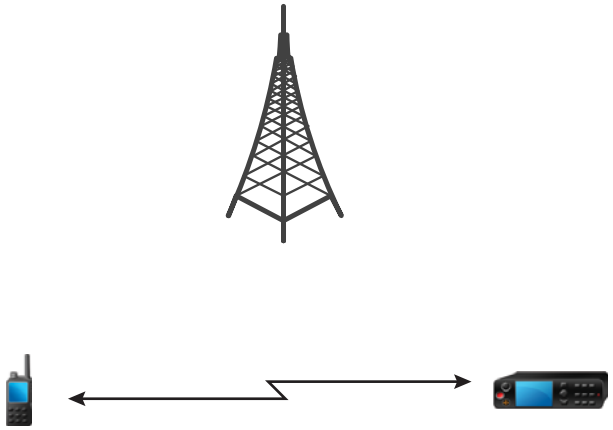
- Your radio plays an Exiting Local Site Trunking tone.
- Any call in progress during Local Site Trunking is dropped.
- Display icons and soft keys turn blue.

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

Direct Mode Operation

Direct Mode Operation is a mode of simplex operation where radios communicate directly.

Figure 2: Direct Mode Operation



Entering DMO Mode

To enter the DMO Mode:

- From the home screen, press the MENU key. Select **Networks** → **Direct Mode**.
- From the home screen, select **Optns** → **Direct Mode**.

Selecting Talkgroups

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

- Press left or right NAVIGATION key. Press **Select** to confirm.
- Select **Optns** → **TG by abc**. Enter a talkgroup name and select the talkgroup name from the list.
- Select **Optns** → **TG by Folder**. Select a folder and then a talkgroup name.
- 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.

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

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.

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.

Private Call

The 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.
- Simplex call, in TMO or DMO Mode. Only one party can speak at a time.

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.

Interaction with the accessories:

- Fist Microphone — during the Private Call, if you hang the microphone into the clip the call ends or the audio switches to the speakers (if connected). Exact behavior depends on your service provider settings.
- Telephone Style Handset — during the Private Call, if you hand the handset into the holder, the call ends or the audio switches to the speakers (if connected). Exact behavior depends on your service provider settings.

NOTICE: To end the Private Call if audio was switched to the speaker, press ON/OFF/END/ HOME key.

To answer a Private Call, use one of the following methods:

- Press the PTT button.
- Take the Fist Microphone or Telephone Style Handset off hook. If the Handset is off hook, the radio's external speaker mutes and the Handset's internal speaker activates.
- Press the SEND key on the control head. Audio is routed to audio input devices in the following order, depending on their availability:
  1 A visor microphone.
  2 A microphone of the device that is off hook.
  3 A microphone that was last in use (if two devices are off hook).

Related Links

Emergency Individual Calls (Private or MS-ISDN) on page 59

Making Private Calls

Procedure:

1 From the home screen, 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:

a 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.

b 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.

NOTICE: If you are using the fist microphone or the telephone style handset, replace it firmly on it's clip or holder when done.

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**.

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**.

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.

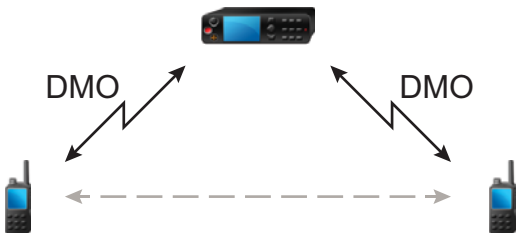
When you select a Talkgroup for Individual Calls, your radio is not able to receive or initiate any group or broadcast calls with priority lower than Emergency.

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

Communication through Repeaters

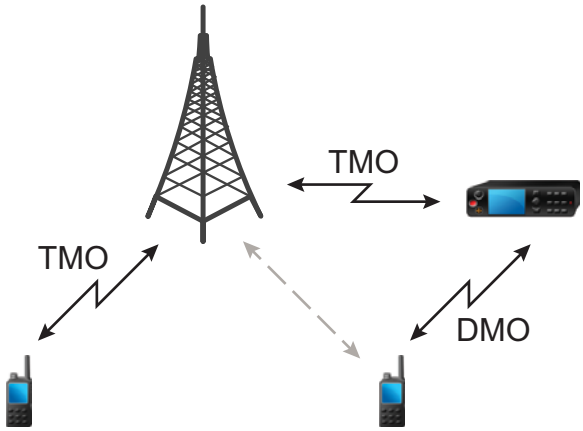
Radios that are out of range and cannot communicate directly one with another in DMO Mode can do it through the repeater. The repeater is a radio that repeats all communication on a chosen channel, and as a result increases radios' DMO range.



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

Communication through Gateways

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



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

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 **Optns**.
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 turns solid, respectively.

Transmit Inhibit Mode

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

To activate, select MENU → **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 trial 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, you leave the RF sensitive area), you can deactivate the Transmit Inhibit Mode and the radio returns to standard operation.

You can deactivate the mode by selecting MENU → **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.
- The radio is turned off.

On entering or exiting the transmit inhibit mode, when the radio is camped on a cell, it sends a specially designated SDS status message. This SDS message indicates to the SwMI that the radio is entering or exiting transmit inhibit mode.

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

In transmit inhibit 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 transmit inhibit 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 transmit inhibit mode and attempts to start the emergency call if the radio is in service.

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

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)
- GPS location information

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 will bypass the PIN lock for the duration of the Emergency Operations.

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 upperSOFT key.

Emergency Group Call

The Emergency Group Call has the highest communication priority that means it is the pre-emptive kind of call. Emergency Group Call is available in both TMO and DMO. During Emergency Operations, Emergency Group Call can be started by pressing 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.

If the radio receives an incoming group call with emergency priority, the display shows that an emergency call has been received, and a special audio alert 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.

In TMO, if the radio enters Emergency Operations while the Emergency Broadcast Call is active, the radio continues on the call without initiating any calls and sends the Emergency Alarm.

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.

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).

Receiving Emergency Group Calls

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

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 (you cannot change the talkgroup).

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

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

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

Emergency Individual Calls (Private or MS-ISDN)

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 MS-ISDN). During this kind of call all user indications are unavailable and all other services are rejected. Emergency Operation ends as soon as the Emergency Individual Call is ended.

Related Links

Private Call on page 50

Emergency Alarm

The Emergency Alarm is a special status message sent to the infrastructure while starting the Emergency Operations. The radio can wait for infrastructure acknowledgment for this alarm and attempts retries.

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, once the radio is in the Emergency Operation on pressing the EMERGENCY button, an additional emergency alarm is sent (exception: during Hot Microphone transmission).

The message can be dispatched both in TMO and DMO.

Emergency SDS Status

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 resend if Emergency Alarm or Hot Microphone is configured.

Emergency Hot Microphone

The Hot Microphone allows you to talk without pressing the PTT button during Emergency Operations. 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 (that is, the transmission is ongoing for the time the PTT button is held).

Subsequent EMERGENCY button presses during the Emergency Operation restarts 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.

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 upper 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.

Silent Emergency Mode

The Silent Emergency Mode is a type of emergency services that provides no audible indications and no 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 and then # key within 3 seconds.
- Press MENU simultaneously with right NAVIGATION key.
- Press both SOFT keys simultaneously.
- 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.

Invisible Emergency

It is possible for the service provider to disable visual and audible indications of performing Emergency Operations on the radio. The purpose of this feature is to hide the fact of using Emergency Operations in a critical situation (e.g. direct attack on the user) and thus to provide additional layer of safety.

Emergency Mode by Dialing

This feature allows you to trigger Emergency Mode by dialing a predefined number. It initiates the same Emergency services as you would use the EMERGENCY button. Your radio can store up to eight Emergency numbers.

NOTICE: If this Emergency Mode was triggered by Emergency number (not by EMERGENCY button), you can press the END key to exit the Emergency Mode.

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 specifically 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.

In order to initiate Disaster Alert, switch the radio to Disaster Alert mode and press PTT button. When the call ends, the radio will exit 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. Please consult with your service provider before enabling this feature.

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 AlertIn Use**.

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**.

   NOTICE: If an Emergency Operation was triggered by Emergency number (not by EMERGENCY button), you can press the END key to exit the Emergency Operation.
3. If your radio displays **Do you want to exit?**, press **Yes** to exit.

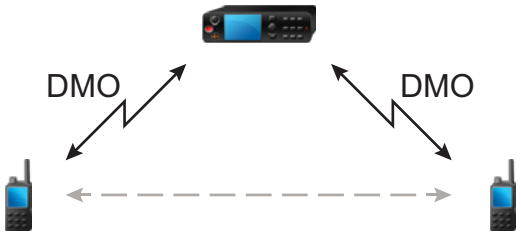
Your radio exits Emergency Operations.

Repeater Mode

NOTICE: Repeater Mode does not apply to MTM5200 radio.

The Repeater Mode provides repeater connectivity between radios operating in the DMO Mode.

Figure 3: Repeater Mode Operation



A DMO repeater is used to extend the DMO range by retransmitting received information from one radio to another. It retransmits group calls, private calls and data on a given frequency.

The repeater sends presence signal periodically on a free channel to allow other radios to synchronize on a given frequency.

Only the radios on the same talkgroup can communicate with each other through the repeater.

NOTICE: This is a selling feature.

Entering the Repeater Mode

To enter Repeater Mode, use one of the following ways:

- From the home screen, select **Optns** → **Repeater Mode**.
- From the home screen, press MENU key. Select → **Networks** → **Repeater Mode**.

Setting Monitor Option

Procedure:

1. From the home screen, press **Optns**.
2. Press **Monitor**.
3. Select one of the following:
   - **Off** — Your radio works as a repeater only, no operation is available.
   - **Receive Only** — Allows you to listen.
   - **Receive&Transmit** — Allows you to listen and transmit by pressing PTT.

Encryption in the Repeater Mode

While in the Repeater Mode, the radio supports Air Encryption and is able to repeat encrypted calls and messages.

If SCK keys installed on the radio are invalid:

- The radio transfers calls and messages without deciphering them (provided that the encryption level is not the highest).

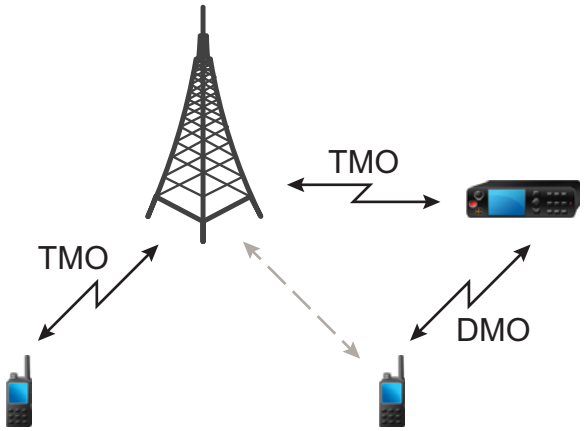
- The LED indicator turns orange.
- On pressing the PTT button, **Channel Busy** or **DMSCK is Invalid** message appears.
- You cannot make any call.

Gateway Mode

NOTICE: Repeater Mode does not apply to MTM5200 radio.

The Gateway Mode allows your radio to work as a gateway and thus provide connectivity among radios operating in DMO and TMO Modes.

Figure 4: Gateway Mode Operation



A DMO/TMO gateway is used to provide gateway connectivity between radio operation in the DMO and the TETRA TMO network. In other words, the gateway mode provides the interface between TETRA DMO and TMO modes.

While in the gateway mode, any individual call from both DMO and TMO cannot be answered. If the call is incoming from TMO, it is rejected with disconnect cause as the called party is busy. The missed call is added to the missed call list. If the call is incoming from DMO, it is ignored.

While in the gateway mode, group calls are supported. When the gateway receives a group call addressed to its current selected TMO talkgroup, it forwards the call on to the respective mapped DMO talkgroup. If the DMO channel is not free, and the incoming call has Emergency priority, then preemption request is sent.

When the gateway receives a group call addressed to its current selected DMO talkgroup, it forwards the call on to the respective mapped TMO talkgroup. The DMO radio that initiated the call requires correct setup for gateway calls (otherwise the call is rejected).

NOTICE: This is a selling feature.

Entering Gateway Mode

Procedure:

1. From the home screen, press **Optns**.
2. Select **Gateway Mode**.

NOTICE: When the Gateway Mode is enabled, you cannot make any call.

Standby Mode

Your radio enters Standby mode if there is another Gateway on the same DMO frequency. Gateway icon flashes and no transmission is forwarded through the gateway. To exit Standby Mode you can:

- Choose another DMO talkgroup
- Wait untill the other gateway is out of coverage and is no longer present on that DMO talkgroup

Forwarding Group Calls

Your radio shows the source and destination talkgroup of the Group call.

Setting Monitor Options

Procedure:

1. From the home screen, press **Optns**.
2. Press **Config** and Select one of the following:
   - **Off** — Audio of the calls are not routed to the speakers of the gateway.
   - **Receive Only** — Audio of the calls are routed to the speakers of the gateway.

Emergency Calls in Gateway Mode

Press the EMERGENCY button to enter the TMO Emergency mode and start an Emergency Group call. Check with your service provider if the Emergency Group call starts on a tactical or non-tactical talkgroup. If the radio that is in the Gateway mode receives an Emergency Group call, it forwards it to the respective TMO/DMO talkgroup that is currently switched to.

Encryption in Gateway Mode

While in the Gateway Mode, the radio supports Air Encryption and is able to transmit encrypted calls among radios operating in TMO and DMO.

If SCK keys installed on the radio are invalid, the radio cannot function as a gateway and transmit calls.

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Chapter 4

GPS Location Service

The GPS Location Service feature uses information from Global Positioning System (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

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.

NOTICE: This is a selling feature.

Related Links

Location on page 111

Enhancing 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.

The GPS 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 GPS in underground parking lots, tunnels, under bridges, and close to high buildings.

Enabling GPS

Procedure:

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

NOTICE: Your service provider can enable this feature.

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.

GPS Different Location Displays

Table 15: 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.

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**

GPS – Things to Keep in Mind

Where adequate signals from multiple satellites are not available, the GPS feature of your radio does not work. Such situations include but are not limited to:

- In underground locations
- Inside of buildings, trains, or other covered vehicles
- Under any other metal or concrete roof or structure
- Near a powerful radio or television tower
- When your GPS antenna is covered (for example, by your hand or other object) or facing the ground
- In temperature extremes outside the operating limits of your radio

Even where location information can be calculated in such situations, it may take longer to do so. Therefore, in any emergency situation, confirm your location with your dispatcher.

Furthermore, please note that even where adequate signals from multiple satellites are available, your GPS feature provides only an approximate location, often within 20–100 meters from your actual location.

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Chapter 5

Main Menu

This chapter contains information on items in the main menu.

You can enter the menu items during a call. If you are viewing a menu when a new call starts, the radio exits the menu.

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

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.

NOTICE: You can use shortcuts to access frequently used items.

Menu Icons

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

Table 16: 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 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.
	Security Lets you turn on/off and verify security features, and change passwords.

Table continued…

Menu Icon	Description
	Setup Allows you to customize your radio.
	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.
	RUI Allows you to log in and log out of the radio.
	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.

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.

New Message

This menu item allows you to create a new message.

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) or Group Short Subscriber Identity (GSSI) of the recipient.

   ISSI – 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.

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.

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.

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).

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**.

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.

Inbox

It contains up to 100 new or old incoming messages.

Table 17: 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**.

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**.

Receiving New Messages

Procedure:

1. New message received.
   Your radio displays an animation and plays a *New Mail Received* tone.
2. Select one of the following:
   - **Read** — opens the entire message.
   - **Back** — dismisses the message. You can access the message later from the **Inbox**.

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 Select 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.

Embedded Number

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

Storing Numbers from Messages

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

When and where to use: You can save the sender's 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**.

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.

Making Group Calls on theTalkgroup 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.

Immediate Message

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.

NOTICE: This is a selling feature.

Outbox

Outbox stores all sent messages.

Table 18: Outbox Icons

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

CO Box

CO Box contains incoming and outgoing Call-Out messages arranged chronologically with the newest at the top of the list. 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.

Related Links

Call-Out on page 127

RMS Box

RMS Box stores all incoming and outgoing Radio Messaging System (RMS) messages, both Status messages and Free Text messages.

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.

Related Links

WAP on page 118
WAP Push on page 126

Templates

This feature is used to store up to 100 predefined and your message templates. Each of the **Inbox** and **Outbox** message can be stored as a template. Each template name and text can be edited afterwards.

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**.

Setting 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.

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.

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**.

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.

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).

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**.

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. Do one of the following:
   - Highlight the required status message and press **Select**, the PTT button, or the SEND key.
   - If the status list is empty, enter a 5 digit status message number and press **Send**.

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**.

Sending Targeted Status Messages

Procedure:

1. From the home screen, press the MENU key.
2. Select **Messages** → **Send Status**.
3. Do one of the following:
   - Highlight the required status message and press **Select**, the PTT button, or the SEND key.
   - If the status list is empty, enter a 5 digit status message number 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**.

The display shows one of the following delivery reports:

- **Status Sent**.
- **Status Failed**.

Contacts

This sub-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 19: 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.

Creating Contacts

Procedure:

1. From the home screen, select **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 4–6.

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**.

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**.

Deleting Contacts

Procedure:

1 From the home screen, select **Contcs**.
2 Highlight a contact you want to delete.
3 Press the MENU key.
4 Select **Delete contact**.
5 Select **Yes**.

Checking Capacity

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

Procedure:

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

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. Press the PTT button to initiate a simplex call with a **Private** number. Otherwise use the SEND key to initiate a duplex call.

Browser

This menu item activates a WAP browser that allows you to browse the Internet from your radio.

Related Links

WAP on page 118

Security

This sub-menu stores all your security settings.

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.

Related Links

Unlocking Your Radio on page 36
Changing PIN Codes on page 84

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.

Unblocking Your Radio

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

Procedure:

1. Radio displays **Unit BlockedEnter 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.

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**.

Related Links

Unlocking Your Radio on page 36
PIN Protect on page 83

Keylock Setup

The keypad lock feature allows locking the keypad to prevent pressing a key accidentally. The keypad lock/unlock can be invoked by using an appropriate option from the radio menu or by using a predefined menu shortcut. By default press MENU, and then * key.

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

- The PTT button
- Side buttons
- The ROTARY KNOB

The ON/OFF/END/HOME key is always inoperative and the EMERGENCY button is always operative.

Related Links

Locking/Unlocking the Keys/Buttons on page 36

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 * to lock/unlock keypad** is displayed.

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**.

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**.

Air Encryption

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.

NOTICE: This is a selling feature.

Related Links

Status Icons on page 32

Viewing the Air Encryption State

Procedure:

1 From the home screen, press the MENU key.

2 Select **Security** → **AirEncrypt**.

3 Your radio displays:

a **Air Encryption Is Off**.

b **Air Encryption Is On**.

Air Encryption Key Deletion

Please check with your service provider whether the radio is provided with Air interface encryption keys. You can delete the Air interface encryption keys from the radio by entering the following sequence: **00##.

NOTICE:

- It takes a minute for this feature to delete all the encryption keys from the radio.
- Deletion is performed in idle TMO/DMO or Emergency Operation.

CAUTION: Using this feature will disable the radio, and your service provider will need to re-enable the radio.

K Validity

K (Key) 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.

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.

SCK (Air Interface Encryption Class 2)

SCK (Static Cipher Key) 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.

TMO SCK

Use of SCKs in TMO needs to be enabled by your service provider. The SCKs used in TMO are called TMSCKs.

DMO SCK

Use of SCKs in DMO needs to be enabled by your service provider. The SCKs used in DMO are called DMSCKs.

Changing DMO SCK

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**.

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.

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.

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).
- The private speaker is set to **Off**.
- The dimmer state is set to covert (this state is not selectable using the BACKLIGHT key.)
- The wallpaper is disabled.
- The screen saver is disabled.
- The Covert Mode color palette is activated.

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.

When using the Covert Mode, a low audio accessory should be connected to the radio. The correct low audio accessory is the GCAI Handset, or the older style handset connected through the junction box.

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

Activating the 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**.

SDS Remote Control

SDS Remote Control is a feature that enables to remotely control behavior 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, vibrate, or display an appropriate icon in the status icon area.

NOTICE: This is a selling feature.

Setting SDS Remote Control

When and where to use: To enable/disable support of special SDS messages that allow remote control of the radio.

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.

Setup

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

Ring Style

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

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.

Set Volume

This menu item allows you to adjust **Voice**, **Duplex**, **Simplex**, **Keypad**, and **Tones** volume for the Speaker and the Earpiece.

Related Links

Volume Adjustment Mode on page 91

Setting Volume

Procedure:

1 From the home screen, press the MENU key.

2 Select **Setup** → **Set Volume**.

3 Select **Speaker** or **Earpiece**.

4 Select one of the following:

- **Voice** — sets the volume level for voice.
- **Duplex** — sets the volume level for duplex ringtones.
- **Simplex** — sets the volume level for simplex ringtones.
- **Keypad** — sets the volume level for keypad tones.
- **Tones** — sets the volume level for alert 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**.

5 Press right or left NAVIGATION key to change the value.

Related Links

Setting Volume Adjustment Mode on page 91

Language

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

Setting Language

Procedure:

1 From the home screen, press the MENU key.

2 Select **Setup** → **Language**.

3 Select desired language.

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 PMKN4104 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.

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.

Audio

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

Audio Profiles

An audio profile is a set of audio parameters, such as the volume of alert tones, that are configured by your service provider to fit a particular operating environment. For example, the audio parameters can be adjusted to situations when the radio operates on a noisy street.

If programmed, the radio displays a name of a currently used audio profile (on the home screen) and/or an appropriate icon associated with the profile (in the status icon area). Your service provider can configure a maximum of two audio profiles.

For a detailed description of a specific audio profile, contact your service provider.

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.

Volume Adjustment Mode

You can set the volume to **Individual** or **Common**. When it is set to **Individual**, the volume level for **Voice**, **Duplex**, **Simplex**, **Earpiece**, **Speaker** and **Keypad** can be set per user preferences. When set to **Common**, the audio has one setting for all items.

Related Links

Set Volume on page 89

Setting Volume Adjustment Mode

Procedure:

1. From the home screen, press the MENU key.
2. Select **Setup** → **Audio** → **Volume Adj. Mode**.
3. Select one of the following:
   - **Individual** — You can set **Duplex**, **Simplex**, **Earpiece**, **Speaker** and **Keypad** per your preferences in MENU → **Setup** → **Set Volume**.
   - **Common** — You can set one value for all the items in MENU → **Setup** → **Set Volume**.

Related Links

Setting Volume on page 89

Tones

This field sets the volume level for the tones set.

Keypad Tone

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

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.

All Tones

You can activate/deactivate all tones.

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:

a **On** — Activates all the tones.

b **Off** — Deactivates all the tones.

Talk Permit

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

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.

Clear to Send

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

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.

Periodic Alert

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

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.

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, the user can press and hold the PTT button once again to get the permission to talk. Otherwise, if the user presses 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 not audible on a sending radio.

NOTICE: This feature needs to be enabled by your service provider.

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.

Display

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

Related Links

Display on page 30

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** – default size of the text.
   - **2** – large size of the text. Keep in mind that less text can be displayed.

   In some languages number of available font levels can be decreased.

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.

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 though the radio menu.

Setting Screen Saver

Procedure:

1 From the home screen, press the MENU key.

2 Select **Setup** → **Display** → **Screen Saver**.

3 Select one of the following:

- **Activate** — To activate/deactivate this feature.
- **Text** — To set the text on the screen saver when this feature is activated.

Setting Backlight

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 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 turning on when you are switching on the radio or pressing a button assigned to the backlight feature.
- **Manual** – backlight is toggled by pressing the BACKLIGHT key.
- **On** – backlight is always on.

NOTICE: Setting the backlight intensity level by pressing the BACKLIGHT key changes the LED, keypad backlight, and EMERGENCY button backlight intensity.

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.

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.

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.

Related Links

Display on page 30
Display on page 93

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**.

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 or keypad.
4. Press **Done**.

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**

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 or keypad.
4. Press **Done**.

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**.

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 informations 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.

Active Accry (Accessory) Type

This menu item allows you to choose which of the accessory selection mode is active.

Selecting the Active Accessory (Accry) Type

When and where to use: Use this menu item to determine which microphone has priority during Alternating Hot Microphone or Ambience Listening.

Procedure:

1. From the home screen, press the MENU key.
2. Select **Setup** → **Active Accessory Type**.
3. Select one of the following:
   - **Control Head Accry** — Higher priority is given to the microphone connected to the control head.
   - **Transceiver Accry** — Higher priority is given to the microphone connected to the transceiver.
   - **Control Head Accry** — Higher priority is given to the microphone connected to the control head. Applicable to RECH.
   - **Transceiver Accry** — Higher priority is given to the microphone connected to the transceiver. Applicable to RECH.
   - **Front Accry** — Higher priority is given to the microphone connected to the front accessory connector. Applicable to TSCH.
   - **Rear Accry** — Higher priority is given to the microphone connected to the rear accessory connector. Applicable to TSCH.

   NOTICE: In case the PTT on any connected accessory is pressed, the highest priority is assigned to that accessory.

Volume Cntrl (Control)

This menu item allows you to determine which audio output device, speaker or earpiece, is being adjusted when you turn the ROTARY KNOB.

Setting Volume Cntrl (Control)

Procedure:

1. From the home screen, press the MENU key.

2 Select **Setup** → **Volume Cntrl**.

3 Select one of the following:

- **Earpiece** — By turning the ROTARY KNOB you control earpiece volume.
- **Speaker** — By turning the ROTARY KNOB you control speaker volume.

Accry (Accessory) Setup

This menu item allows you to manually configure audio accessories that do not install automatically after plugging them in. Accessories intended for the control head and the transceiver differ and are configured separately.

NOTICE: One control head can support only one external speaker at the same time, either a speaker connected to the control head, or to the transceiver. When you select one external speaker, the other becomes unselectable from the menu.

Configuring Control Head Accessories

When and where to use: Use this menu item to configure audio accessories for the control head.

Procedure:

1 From the home screen, press the MENU key.

2 Select **Setup** → **Accry Setup** → **CH Accry**.

3 Select one of the following:

- **GCAI Fronthead** — Contains a list of preconfigured accessories that can be connected to the front connector on the RECH.
- **Secondary Accry** — Contains a list of preconfigured accessories that can be connected to Hearer Speaker Microphone (HSM).
- **GCAI Backhead** — Contains a list of preconfigured accessories that can be connected to the back connector on the RECH.
- **Visor Mic Backhead** — Contains a list of preconfigured visor microphones that can be connected to the back connector on the RECH.
- **Ext Speaker Backhead** — Contains a list of preconfigured external speakers that can be connected to the back connector on the RECH.
- **Second Mic Cradle** — Contains a list of preconfigured microphones that can be connected to the TSCH cradle.
- **Ext Speaker Cradle** — Contains a list of preconfigured speakers that can be connected to the TSCH cradle.

NOTICE: Lists of accessories are configured by your service provider.

Configuring Transceiver Accessories

When and where to use: Use this menu item to configure audio accessories for the transceiver.

Procedure:

1 From the home screen, press the MENU key.

2 Select **Setup** → **Accry Setup** → **Transceiver Accry**.

3 Select one of the following:

- **Visor Mic Rear Accry** — Contains a list of preconfigured visor microphones.
- **Handset Rear Accry** — Contains a list of preconfigured handsets.
- **Fist Mic Rear Accry** — Contains a list of preconfigured fist microphones.
- **Ext Spkr Rear Accry** — Contains a list of preconfigured external speakers.

All accessories from the above lists must be connected to the connector at the rear of the transceiver

NOTICE: Lists of accessories are configured by your service provider. Lists that do not contain any accessory do not appear in the menu structure.

Book On

This menu item allows you to edit RUA/RUI feature settings to automatically accept or reject book on requests.

Related Links

RUI on page 108
RUA/RUI on page 118

Editing Book On Settings

Procedure:

1. From the home screen, press the MENU key.
2. Select **Setup** → **Book on Setup**.
3. Select one of the following:
   - **Book on Accept** — Radio accepts all the book on requests.
   - **Book on Reject** — Radio rejects all the book on requests without any notification.

Rotary Knob

This menu item allows you to set all the related functionality of the ROTARY KNOB.

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.

Related Links

One-Touch Button Feature on page 39

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.

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.

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.

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.

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

Group Setup

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

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.

Related Links

Operations Parameters on page 101

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.

Related Links

Standard Home Group on page 101

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.

Related Links

Activating Talkgroup Scanning on page 39

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.

Related Links

Scan on page 102

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**.

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:
   - **Rename** — Enters new name for that scan list.
   - **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.

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**.

My Groups

My Groups is equivalent to **Favorites** (next section). 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, please refer to **Favorites**.

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.

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 right or left NAVIGATION key.
   - Go to **Optns** → **TG by Folder**, select the required favorite folder, and highlight the contact number.
2. When you are in the following mode:
   a. 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.
   b. 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.

NOTICE: If you are using the fist microphone or the telephone style handset, replace it firmly on it's clip or holder when done.

Adding Folders to Favorites

Prerequisites: Favorites contains less than three favorite folders.

Procedure:

1. From the home screen, press the MENU key.
2. Select **Favorites** → **[New Folder]**
3. Enter a name and select **Ok**.

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**.

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 the **Optns** key.
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**.

Related Links

Entering DMO Mode on page 53

Managing 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 one of the following:
   - **Rename Folder** – changes the name of the folder. Enter a new folder name and press **Ok**.
   - **Delete Folder** – removes the selected folder from **Favorites**. Press **Yes** to confirm deletion.

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

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**. Press **Yes** to confirm deletion.

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**. Press **Yes** to confirm deletion.

My Info

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

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.

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.

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.

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 the PTT button for private calls or press theSEND key to make a phone call.

   NOTICE: Phone calls are only available in TMO Mode.

Storing Recent Calls to Contacts

Procedure:

1. From the home screen, press the MENU key.
2. Select **Recent Calls**.
3. Select **Dialed**, **Received** or **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. To store the number as a new entry, select **[New Contact]**. Or, 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**.

Deleting Recent Calls

Procedure:

1. From the home screen, press the MENU key.
2. Select **Recent Calls**.
3. Select **Dialed**, **Received** or **Missed**.
4. Press MENU on the required call.

5 Select **Delete**.

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

Shortcuts

This sub-menu allows you to set up shortcuts to access frequently used menu items.

Creating Menu Shortcuts

When and where to use: To assign a shortcut for the menu item.

Procedure:

1 From the home screen, press the MENU key.
2 Scroll to the item you want as a shortcut.
3 Press and hold MENU when the item is highlighted.

Example: Creating a shortcut to the **All Tones** options.

1 From the home screen, press the MENU key.
2 Select **Setup** → **Tones**.
3 Highlight **All Tones** and press and hold MENU until **Assign Shortcut for:All Tones** is displayed.
4 Select **Yes** and **ShortcutsKey:**1 is displayed.
5 Press **Done**.

NOTICE: To use this shortcut, from the home screen, press MENU and the key 1.

Editing Menu Shortcut Lists

Procedure:

1 From the home screen, press the MENU key.
2 Select **Shortcuts**.
3 Highlight a required shortcut and press MENU.
4 Select one of the following:
- **Edit** — Changes the assigned key. Type required number and press **Ok**.

  NOTICE: Type a number between 1–20.
- **Delete** — Erases highlighted shortcut. Select **Yes** to confirm.
- **Delete All** — Erases all the shortcuts. Select **Yes** to confirm.

RUI

This menu item allows you to log in/out to the radio.

Related Links

RUA/RUI on page 118

Book On on page 99

Logging On

Procedure:

1. From the home screen, press the MENU key.
2. Select **RUI** → **Log on**.
3. Highlight:
   - **User ID** and press **Select** to enter **User ID List**. If you are a new user on this radio, select **[New User ID]** and enter your user ID. Otherwise select your user ID from the list.
   - Second line and press **Edit**, to enter user ID and press **Ok**.
4. Select **User PIN**, enter your credentials, and press **Ok**.
5. Logging screen is displayed.

Logging Off

Procedure:

1. From the home screen, press the MENU key.
2. Select **RUI** → **Log off**.
3. Press **Accept**.

Networks

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

Related Links

Entering TMO / DMO Mode on page 37
Selecting Network Operation Mode on page 109

Selecting Network Operation Mode

Procedure:

1. From the home screen, press the MENU key.
2. Select **Networks**.
3. Select one of the following:
   - **Networks 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.
   - **Repeater Mode** — Switches to the Repeater Mode.
   - **Gateway Mode** — Switches to Gateway Mode.
   - **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** or **Repeater Mode**, or **Gateway Mode**.

Related Links

Entering TMO / DMO Mode on page 37
Networks on page 109

Selecting Your Network

Procedure:

1. From the home screen, press the MENU key.
2. Select **Networks** → **Networks Sel** → **Home Only**.
3. Your radio registers to the home network. If several home networks are defined, the radio registers to the first available network on the list.

Using the Select Net Registration

Procedure:

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

Your radio registers to the selected network.

Using the Foreign Network Registration

When and where to use: Use this feature to migrate to another predefined network, when you are out of the range of your network and your radio displays the **No Service** message.

Procedure:

1. From the home screen, press the MENU key.
2. Select **Networks** → **Networks Sel** → **Foreign Nets**.

Using Any Network

When and where to use: Your radio has lost its home network coverage and can register to any network. Only clear authentication is supported on any network.

Procedure:

1. From the home screen, press the MENU key.
2. Select **Networks** → **Networks Sel** → **Any Network**.
3. Your radio selects and registers to the network automatically from the predefined list.

Using the Migrate To Registration

When and where to use: Use this feature to migrate to another predefined network, when you are out of the range of your network and your radio displays the **No Service** message.

Procedure:

1. From the home screen, press the MENU key.
2. Select **Networks** → **Networks Sel** and choose one of the following option:

- **Migrate to...** — Selects the required network form the list. To view the network ID press MENU key then press Select.
- **Auto** — Your radio automatically attaches to the predefined network.

Location

See the GPS Location Service for more information.

Related Links

GPS Location Service on page 67

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**

Viewing Testpage

Procedure:

1. From the home screen, press the MENU key.
2. Select **Location** → **Testpage**.
3. Select one of the following:
   - **Position** – displays detailed information on radio's current position: time, **N** (latitude), **E** (longitude), **H** (height), **Sats Used** (a number of tracked satellites), **B** (bearing), **HS** (horizontal speed), **LC** (level of confidence).
   - **Power** – displays detailed information on a particular satellite: **PRN** code, **Status**, **Mode**, **C/N** (carrier-to-noise ratio).
   - **Version** – displays detailed information on GPS version: **SW** (software version), **HW** (hardware version), **ASIC** (application-specific integrated circuit), **RC** (release code).

Packet Data

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 PMKN4104 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.

NOTICE: This is a selling feature.

TETRA Enhanced Data Services (TEDS)

TETRA Enhanced Data Services (TEDS) is an enhancement of the Packet Data feature and allows for increased speed of data transfer.

When TEDS is enabled, an appropriate icon is displayed in the status icon area. The icon is visible even if an infrastructure does not support TEDS – in such a situation the data is transferred by using the standard Packet Data.

NOTICE: This is a selling feature.

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.

Viewing Encryption Status

Procedure:

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

Chapter 6

Features

Private Call

The 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.
- Simplex call, in TMO or DMO Mode. Only one party can speak at a time.

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.

Interaction with the accessories:

- Fist Microphone — during the Private Call, if you hang the microphone into the clip the call ends or the audio switches to the speakers (if connected). Exact behavior depends on your service provider settings.
- Telephone Style Handset — during the Private Call, if you hand the handset into the holder, the call ends or the audio switches to the speakers (if connected). Exact behavior depends on your service provider settings.

NOTICE: To end the Private Call if audio was switched to the speaker, press ON/OFF/END/HOME key.

To answer a Private Call, use one of the following methods:

- Press the PTT button.
- Take the Fist Microphone or Telephone Style Handset off hook. If the Handset is off hook, the radio's external speaker mutes and the Handset's internal speaker activates.
- Press the SEND key on the control head. Audio is routed to audio input devices in the following order, depending on their availability:
  1. A visor microphone.
  2. A microphone of the device that is off hook.
  3. A microphone that was last in use (if two devices are off hook).

Related Links

Emergency Individual Calls (Private or MS-ISDN) on page 59

Making Private Calls

Procedure:

1. From the home screen, 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:
   a. 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.

b 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.

NOTICE: If you are using the fist microphone or the telephone style handset, replace it firmly on it's clip or holder when done.

Radio Messaging System (RMS)

The Radio Messaging System (RMS) feature enables radio to receive and send RMS messages through the TETRA network using the Short Data Service.

There are two types of RMS messages:

- RMS Status – a predefined code that is sent bidirectionally between the radio and the service provider. The radio can have up to ten statuses that are assigned to numeric keys from 0 to 9. The latest received or sent RMS status is kept on the home screen until the next power cycle. A received RMS status is displayed in blue color font on the home screen.

  RMS Free Text – a unidirectional message containing free text that is sent to the radio by the service provider. Since this type of message is longer, the radio displays only its beginning on the home screen and to read its remaining part, you need to go to **Menu** → **Messages** → **RMS Box**. The latest RMS free text is kept on the home screen until the next power cycle.

RMS free text messages and incoming and outgoing RMS statuses (with the exception of RMS statuses sent) are stored in the **RMS Box**. Its capacity is maximum ten entries for incoming and outgoing RMS messages. If the **RMS Box** is full, any new incoming or outgoing RMS message overwrites the oldest message (received or sent).

The radio receives and sends RMS messages only from and to the numbers predefined by your service provider.

NOTICE: This is a selling feature.

RMS Icons

Table 20: RMS Icons

Icon	Description
	RMS Status Received Indicates a new RMS status message just arrived.
	RMS Status Sent
	RMS Box Read Message
	RMS Box Unread Message

Sending an RMS Status

Prerequisites: Your service provider enabled this feature and the radio is in the RMS mode.

When and where to use: To send a predefined RMS status using numeric keys.

Procedure:

1 Press and hold a required key. If you press the key for too short, the radio initiates a Private/ Phone/PABX call.

One-Touch Dial

This feature allows you to call by pressing and holding one of the keys (1-9).

NOTICE: If the One-Touch Button feature is enabled, One-Touch Dial is disabled. If no feature is assigned to a button, your radio displays an **Unassigned Button** message.

Talkgroup Dialing by Index

This feature allows you to attach to any talkgroup by dialing its index, instead of choosing it from the talkgroup folders and lists.

NOTICE: It is also known as Talkgroup Speed Dial.

Viewing the Talkgroup Speed Number

Procedure:

1 From the home screen, press **Optns**.

2 Select one of the following:

- **TG by Folder** then select the folder and highlight the required talkgroup.
- **TG by abc** enter up to 15 characters to narrow the talkgroup names and highlight the required talkgroup.

3 Press MENU → **View**.

Example: Radio displays **SpeedNum1***, which means that this talkgroup speed number is 1.

Selecting Talkgroups by Index

Procedure:

1 From the home screen, enter talkgroup speed number and *.

2 Press **Attach**.

NOTICE: To start a group call, press the PTT button.

Phone and PABX Calls

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

Making Phone or PABX Calls

Procedure:

1 From the home screen, enter the number.

2 If **Phone** or **PABX** are not the first type of call presented, press **Ctype** repeatedly to select it.

3 Press SEND key.

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.

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.

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.

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.

Dual Control Head

This feature allows you to use two control heads with one transceiver. The control heads are of equal importance and have almost identical functionality, the only difference is second PTT installed on the Telephone Style Control Head.

In Dual Control Head mode, when you press MENU → **Setup** you can choose between two control heads: **CH1** and **CH2**. Almost all menu items inside them are common for both control heads, except for: **Set Volume**, **Accry Setup**, and **Font Level** (provided that control heads are different). These menu items are configured separately for each control head.

NOTICE: If this feature is enabled by your service provider, appropriate icons appear on the display.

Check with your service provider default accessory selections and the radio behavior for all types of calls as each control head can have different setup.

Related Links

Controls and Indicators on page 24

Interactions between Control Heads

Your service provider can connect to one transceiver either two the same control heads (two Remote Ethernet Control Heads, or two Telephone Style Control Heads), or two different control heads (one Remote Ethernet Control Head and one Telephone Style Control Head).

You can use both control heads interchangeably for the same activity (for example, writing a message). If you start an activity on one control head you can continue it on the second, provided that token is free.

Token is a right to use a key or button for a period of time. If you press a key/button on one control head, token activates on it, and no one can press anything on the second control head until token time passes. After you release the key/button, token becomes available again and can be taken over by the second control head. When token is activated, *Key Press Token* icon is visible on the display. By default, token time is set to 3 seconds.

NOTICE: Token does not apply to EMERGENCY button and ON/OFF/END/HOME key. These can be pressed on both control heads at any time.

If control heads are different, when you operate on one control head, the second one displays screen saver.

Related Links

Controls and Indicators on page 24

Dual Control Head Link

Dual Control Head Link is a connection that occurs when both control heads are properly connected to the transceiver and can communicate.

When the Dual Control Head Link is established, control heads play a tone and display *Dual Control Head* icon. Full functionality is available on both devices.

When one control head cannot connect to the transceiver upon power up, the radio displays *Single Control Head* icon and enters Single Control Head mode.

When one control head disconnects from the transceiver during operation:

- The active control head displays *Link Error* icon.
- The inactive control head displays *Link Error* and shows *Link Error* display (if power is available).

Turning on/off one control head results in simultaneous turning on/off the second control head.

Audio Accessories

Depending on a call type, voice can be routed to control heads and audio accessories connected to them in different ways.

During an outogoing group call, voice can be heard either on one control head or on both control heads (depending on your service provider's settings).

During an incoming group call, voice is always heard on both control heads. However, if two accessories are connected to one control head (to the front and the rear connector), voice is transferred through only one of them, the one with higher priority. Priority is following (from the highest): handset (must be off-hook), HSM, external speaker.

Private calls are always transferred to the control head that receives a call.

Only one microphone/PTT can be opened at a time. The microphone that is pressed as first is allowed to initiate the transmission.

Keys Interactions

If any key except EMERGENCY button and ON/OFF/END/HOME key are pressed on any control head, *Key Press Token* icon is displayed and all keys on the other control head are blocked. This behavior is called *token* and means the right to use a key or button for a period of time.

NOTICE: Your service provider can adjust the time that the keypad is blocked on the other control head. At any time EMERGENCY button and ON/OFF/END/HOME key can be pressed on both control heads.

RUA/RUI

Radio User Assignment (RUA) and Radio User Identity (RUI) enables authentication service. Only the successful logon on any temporary radio, provides the full access and your permanent radio functionality, so you can be still reached with your permanent number. A logon failure results in limited service.

You can differentiate the RUA/RUI state by the interface color:

- Blue — you are logged on
- Gray — you are logged off

Radio States

- Full Service — user logon was successful. Your radio has full functionality.
- Limited Service — user not logged on. Specified by the service provider.
- Pseudo Log On — occurs only in the Local Site Trunking (LST). You radio has full functionality available (depending on the service provider settings) except some services like forwarding calls. The RUI Pseudo Log On icon is displayed.

Book On

Your service provider assigns particular radio to one person for a predefined period of time. You are only going to see the screen with your login and the full service is granted.

Force Off

Your service provider can log you off. Radio displays **Force Off**.

NOTICE: This is a selling feature.

Related Links

RUI on page 108
Book On on page 99

WAP

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.

NOTICE: This is a selling feature.

Related Links

WAP Box on page 78
WAP Push on page 126

WAP Browser

The Openwave Mobile Browser is a WAP-compliant user agent. The WAP browser provides all of the basic services of a computer-based web browser. Whenever any preemptive display interrupts the browser session, the browser needs manual reactivating to return. The WAP browser does not support right-to-left languages (as Arabic and Hebrew); English is used instead. For the content in these languages, the characters 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).

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.

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.

Tips for Browsing

Create and use the following for easy browsing.

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.

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**.

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.

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 (0–9).
6. Click **Assign**. The display shows the bookmark and its assigned hotkey.

Using Hotkeys

Procedure:

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

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.

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.

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.

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.

Keys Usage

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

Table 21: Browser Keys Usage

Key Press	Action
0–9 key	In the editor: enters a digit and/or character depending on the text entry mode selected. Outside the editor: in a numbered list, selects the required item list.
0–9 key (hold)	In the editor: standard use. Outside the editor: hotkey for navigating to the numbered bookmark.
* key (press or hold)	In the editor, inserts a space.
# key (press or hold)	Brings up the Text Input pane, while in editor. Otherwise, sounds a wrong key press.
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).
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	Moves to the previous pane. In the editor: moves left.
Left NAVIGATION key (hold)	Functions as backward.
Right NAVIGATION key	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	Used for volume adjustment only.
EMERGENCY button	Deactivates the browser. The radio enters Emergency Mode.

Browser Menu Panes Overview

The browser menu includes the following panes:

Table 22: Browser Menu Panes

Menu Pane	Description
Navigate	Provides access to the home page and commonly used items.

Table continued…

Menu Pane	Description
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 23: Additional Menu Panes

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

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.

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.

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.

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.

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:
   a **Back** — for displaying this page saved on its cache.
   b **Details** — for modifying the page title and URL of the saved page.
   c **Update Page** — for replacing the saved version with the current version (to be downloaded from server).
   d **Delete** — for deleting this page from its cache.
   e **Delete All** — for deleting all the saved pages from its cache.
   f **Cancel** — for exiting this pane and returning to the last page displayed.

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.

Navigating to Recently Visited URLs

Procedure:

1 Select the URL.
2 Press **Ok**.

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.

Options Pane

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

Image Pane

This pane appears in the browser menu when you enabled the download of images through Navigate pane > **Advanced...** > **Settings...** .

The following items are available:

- **Save** — for saving the image in the terminal.

- **[Send]** — for sending the image to the destination of your choice.
- **Reload** — for reloading the image.
- **Details** — for displaying the image details.
- **Show Image** — for showing the image on its own page.

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 24: 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

WAP Push

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. On receiving a WAP push, a WAP enabled radio automatically gives the option to access the WAP content. The implemented WAP push is compliant to WAP 2.0 standard.

The radio supports WAP 2.0 through a proxy only. Proxy-less connections are not supported.

This is a selling feature.

Related Links

WAP Box on page 78
WAP on page 118

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.
  - 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 is 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: Browser does not open 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.

Viewing WAP Messages

Procedure:

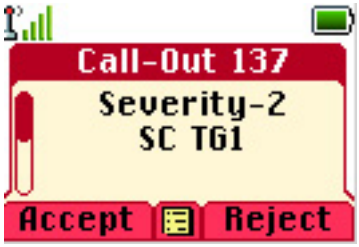
1. From the home screen, press the MENU key.
2. Select **Messages** → **WAP Box**.
3. Select the required message.
4. Select **Go to** to view the message in the browser.

Call-Out

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 call-out alert has been cleared, the radio exits Call-Out mode and reverts to normal mode. During Call-Out mode you are only able to receive Emergency Calls.

NOTICE: 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 red bar on the left of the screen.

Figure 5: Call-Out Message



NOTICE: This is a selling feature.

Related Links

CO Box on page 78

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.
- 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.
- 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.

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.

Call-Out Service Phases

In the Call-Out mode there are following phases:

- Alerting phase — receives a Call-Out message. The alarm tone indicates the message. Text is displayed and you have following options to use: **Accept**, **Reject** or MENU. If you accept the alert, no other service from this point can interrupt.

  NOTICE: You can stop the alert tone by pressing PTT or any of the soft keys.

- 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 the 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. You can always respond and send back the text or the voice message using voice group call.

Shadow Groups (Address Bundle)

The Shadow Groups feature (also known as Address Bundle) offers a way of sending messages to multiple destinations or recipients simultaneously. Three 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.

NOTICE: This is a selling feature and needs to be enabled by your service provider.

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Appendix A

Tones

NOTICE: The radio has two tone packs – Classic Tones (default) and New Tones. Your service provider decides which tone pack is enabled. To listen to the audio signal tones samples, click .

Table 25: Radio Tones

New Tone	Classic Tone	Tone Description
		Default Beep – Played when pressing a key.
		Invalid Action Examples: • Pressing an invalid key. • Dialing an invalid number. • Talk prohibit.
		System Notification Examples: • The radio changed its status from out-of-range to in service. • The radio returned to the home network. • Toggling between the TMO and DMO modes.
		System Error Examples: • The radio changed its status from in service to out-of-range. • Call disconnected.
		General Notification Examples: • Entering Local Site Trunking. • Entering the Transmit Inhibit Mode.
		Positive Notification – Message sending succeeded.
		Negative Notification – Message sending failed.
		Item Received – A new message received.
		Talk Permit – The radio user is allowed to transmit their message (after pressing the PTT button).
		Clear-to-send – Data transmission ready to begin.
		Emergency – The Emergency Call received.

Table continued…

New Tone	Classic Tone	Tone Description
		Emergency 2 – The Emergency Call received (optional tone)
		Low Battery – The battery charge level is low.
		Over the Air 1 – Single D-PTT tone.
		Over the Air 2 – Double D-PTT tone.
		Over the Air 3 – Triple D-PTT tone.
		Phone Busy – The called radio is busy.
		Phone Ring Back – Played on the initiating phone when the Phone Call is being setup.
		Private Ring Back – Played on the initiating phone when the Private Call is being setup.
		Ringtone 1.
		Ringtone 2.
		Ringtone 3.
		Ringtone 4.
		Ringtone 5.
		Simplex Volume Set – Played when adjusting simplex volume.
		Duplex Volume Set – Played when adjusting duplex volume.

Appendix B

LED Indications

Table 26: LED Indications

Indication	Status
Solid green	In use Repeating call
Blinking green	In service
Solid red	Out of service
Blinking red	Connecting to the network Entering DMO
Solid orange	Transmit inhibit in service Channel busy in DMO
Blinking orange	Incoming call
No indication	Radio in Covert Mode Radio powered down

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Appendix C

Troubleshooting

Your radio displays the following messages:

Table 27: 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).
Call Cancelled	You have canceled the call.
Call Ended	• 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.
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 **My Groups** folder.

Table continued…

Message	Message Description
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 **My Groups** folder is empty.
My Groups Is Full	You are not allowed to add a group to the **My Groups** 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	• Attachment failed. Your radio detached from current talk-group. Please wait until it attaches again to the current talk-group. • 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. • 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.

Table continued…

Message	Message Description
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.
Unassigned Button	The message is displayed when no feature is assigned to a button.

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