# TP9500 DMR Portable Radio

## User's Guide

MPG-00001 - Issue 01 - December 2019

www.taitradio.com

# 1 Contents


**Contact Information** ..... **7**

**About This Guide** ..... **8**

Scope of Manual ..... 8

Alerts ..... 8

Associated Documentation ..... 8

Acronyms ..... 9

Publication Record ..... 9

**1 For your safety** ..... **10**

Radio frequency exposure information ..... 10

Radio frequency emissions limits in the USA ..... 11

Radio frequency emissions limits in Canada ..... 11

USA public safety bands (764–776MHz and 794–806MHz) ..... 12

EMC regulatory compliance in Australia ..... 12

Frequency band reserved for distress beacons ..... 12

Health, safety and electromagnetic compatibility in Europe ..... 12

Interference with electronic devices ..... 13

Potentially explosive atmospheres and blasting areas ..... 13

Radio installation and operation in vehicles ..... 14

Vehicle charger installation and operation ..... 14

Multicharger safety information ..... 14

Electromagnetic compatibility in European vehicles ..... 15

Unapproved modifications or changes to radio ..... 15

**2 Before Using the Radio** ..... **17**

For your safety — battery warning ..... 17

Attaching labels to the radio or battery ..... 18

Attaching a label to the front panel ..... 18

Charging the battery before first use ..... 20

Attaching the battery ..... 20

Removing the battery ..... 21

Attaching the antenna ..... 21
Removing the antenna ..... 21
Attaching a belt clip ..... 22
Removing a belt clip ..... 22
Installing an audio accessory ..... 22

**3 Getting Started ..... 24**
About Your Radio ..... 24
About the Radio Controls ..... 25
Understanding the Radio Display ..... 27
Understanding the Radio Indicators ..... 28
Using Function Keys to Access Frequently Used Features ..... 30
Navigating the Radio's Menus ..... 31
Using the Alphanumeric Keys to Search a List ..... 32

**4 Basic Operation ..... 33**
Turning the Radio On and Off ..... 33
Adjusting the Speaker Volume ..... 34
Locking and Unlocking the Keypad ..... 34
Using a Wireless Headset ..... 34
Wearing the Headset ..... 35
Pairing and disconnecting a wireless headset with the radio ..... 35
Managing your headsets ..... 36
Changing the Radio's Operating Mode ..... 37
Setting and Viewing the Radio's Time and Date ..... 37

**5 Using the Address Book ..... 39**
Opening the Address Book ..... 39
Changing the Default Address Book ..... 39
Navigating the Address Book ..... 40
Filtering Address Book Lists ..... 40
Maintaining Personal Address Book Entries ..... 40

**6 Operating in Conventional Mode ..... 43**
Selecting a Zone ..... 44

Selecting a Channel ..... 45
Selecting a Scan or Voting Group ..... 47
Understanding Talkgroups ..... 48
Making a Call ..... 49
Making an Individual Call ..... 51
Making a Preset Call ..... 51
Making a Call Using the Address Book ..... 51
Making a Local Call ..... 52
Dialing a Radio Call ..... 52
Making a Phone Call ..... 53
Making a DTMF Patch Call ..... 53
Making an Emergency Call ..... 55
Setting your Status ..... 55
Sending and Receiving Status Messages ..... 56
Sending and Receiving Text Messages ..... 57
Checking the Queue ..... 59
Call Alert ..... 60
Radio Check ..... 61
Radio Monitor ..... 61
Radio Inhibit and Uninhibit ..... 62
Resending Calls Automatically ..... 63
Transmitting at Low Power ..... 63
Ending Active Calls ..... 64
Using Monitor and Squelch Override (on Analog Channels) ..... 65
Bypassing the Repeater (on Analog Channels) ..... 66
Using the Radio in Different Repeater Areas ..... 66
Scanning a Group of Channels ..... 67

**7 Operating in Trunked Mode ..... 71**
Checking that your Network is Available ..... 71
Changing the Network ..... 72
Making a Call Using an Address Book ..... 72
Making a Preset Call ..... 72
About Trunked Zones and Workgroups ..... 73

About Emergency Operation ..... 75
Dialing a PABX Number ..... 76
Dialing a PSTN Number ..... 77
Receiving a Call ..... 77
Re-establishing a Call ..... 78
Checking the Queue ..... 79
About Status Messages ..... 80
About Trunked Text Messages ..... 81
Placing the Radio in Do-Not-Disturb Mode ..... 84
Switching to Conventional Channels or Conventional Groups ..... 84

**8 Dialing Calls in Trunked Mode ..... 86**
MPT 1343 Dialing ..... 86
DMR Dialing ..... 87
Nokia ANN Fleet Calls ..... 88
Accessing Common Trunking Functions ..... 89

**9 Location Services ..... 93**
About Location Information ..... 93
About Location Statuses ..... 93
Viewing Location Information ..... 94

**10 Loneworker Monitoring ..... 96**
Activating Loneworker Monitoring ..... 96
Responding to a Loneworker Alarm ..... 97

**11 Encryption ..... 98**
About Encryption ..... 98
Encrypting Calls ..... 98
Making an Encrypted Call ..... 99
Receiving an Encrypted Call ..... 99
Removing Encryption Keys from the Radio ..... 99

**12 Customizing Radio Settings ..... 101**
Changing the Color Mode ..... 101

Changing the Volume of all Audible Indicators ..... 102
Changing the Volume of Keypress Tones ..... 102
Changing to Quiet Operation ..... 103
Changing to Silent Operation ..... 104
Turning On Active Noise Cancellation ..... 104
Turning on Backlighting ..... 105
Rotating the Display ..... 106

**13 Charging and Caring for Batteries ..... 107**
About the Chargers ..... 107
6-Way Charger Safety Information ..... 108
Before Using the Charger ..... 109
Charging Temperatures ..... 109
Leaving the Battery on Charge ..... 110
Receiving Calls while Charging ..... 110
Low Battery Warning ..... 110
Inserting the Radio into the Vehicle Charger ..... 111
Charging a Battery ..... 111
LED Behavior ..... 112
Removing the Battery from the Charger ..... 113
Maintaining Battery Life and Performance ..... 113
Storing Batteries ..... 113
Disposing of Batteries ..... 113

**14 Troubleshooting ..... 114**
The Radio Won't Turn On ..... 114
Identifying the Radio's Audible Tones ..... 114
Viewing Radio Information ..... 114
General Care ..... 115
Changing the Radio ID ..... 116
Running Diagnostic Tests ..... 116

**Simplified Declaration of Conformity ..... 118**

**Tait Software License Agreement ..... 122**

# Contact Information

## Tait Communications Corporate Head Office

Tait International Limited
P.O. Box 1645
Christchurch
New Zealand

For the address and telephone number of regional offices, refer to our website: www.taitradio.com

## Copyright and Trademarks

All information contained in this document is the property of Tait International Limited. All rights reserved. This document may not, in whole or in part, be copied, photocopied, reproduced, translated, stored, or reduced to any electronic medium or machine-readable form, without prior written permission from Tait International Limited.

The word TAIT and the TAIT logo are trademarks of Tait International Limited.

All trade names referenced are the service mark, trademark or registered trademark of the respective manufacturers.

## Disclaimer

There are no warranties extended or granted by this document. Tait International Limited accepts no responsibility for damage arising from use of the information contained in the document or of the equipment and software it describes. It is the responsibility of the user to ensure that use of such information, equipment and software complies with the laws, rules and regulations of the applicable jurisdictions.

## Enquiries and Comments

If you have any enquiries regarding this document, or any comments, suggestions and notifications of errors, please contact your regional Tait office.

## Updates of Manual and Equipment

In the interests of improving the performance, reliability or servicing of the equipment, Tait International Limited reserves the right to update the equipment or this document or both without prior notice.

## Intellectual Property Rights

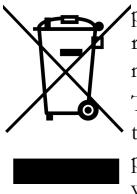
This product may be protected by one or more patents or designs of Tait International Limited together with their international equivalents, pending patent or design applications, and registered trade marks: NZ409837, NZ409838, NZ415277, NZ415278, NZ508806, NZ530819, NZ534475, NZ547713, NZ577009, NZ579051, NZ579364, NZ586889, NZ610563, NZ615954, NZ700387, NZ708662, NZ710766, NZ711325 , NZ726313, NZ733434, NZ593887, AU2015215962, AU339127, AU339391, AU2016259281, AU2016902579, AU2017204526, EU000915475-0001, EU000915475-0002, GB1518031.8, GB1710543.8, GB2532863, US14/834609 Div. no 1, US15/346518 Div.no 2, US15/350332, US15/387026 Div., US29/614639, US62/713910, US62/729478, US62/730107, US62/767041, US62/781642, US62/778238, US9794940 Div. no 1, US20150085799, US20160044572, US20160057051, US20170142646, US20170055267 Div. no 2, US20180006844, US640974, US640977, US698339, US702666, US7758996, US8902804, US9107231, US9504034, US9559967.

This product may also be made under license under one or more of the following patents:
- US7203207, AU2004246135, CA2527142, GB2418107, HK1082608, MY134526, US8306071
- US7339917, AU2004246136, CA2526926, GB2418812, MY134217
- US7499441, AU2005262626, CA2570441, GB2430333, JP4690397, NZ551231, KR100869043, RU2351080, BRP10512052, MXPA06015241
- US 7200129, AU2005226531, CA2558551, CN1930809, GB2429378, JP4351720, BRP10508671, NZ549124, KR848483, RU2321952

The AMBE+2™ voice coding Technology embodied in this product is protected by intellectual property rights including patent rights, copyrights and trade secrets of Digital Voice Systems, Inc. This voice coding Technology is licensed solely for use within this Communications Equipment. The user of this Technology is explicitly prohibited from attempting to decompile, reverse engineer, or disassemble the Object Code, or in any other way convert the Object Code into a human-readable form.

## Environmental Responsibilities

Tait International Limited is an environmentally responsible company which supports waste minimization, material recovery and restrictions in the use of hazardous materials.



The European Union's Waste Electrical and Electronic Equipment (WEEE) Directive requires that this product be disposed of separately from the general waste stream when its service life is over. For more information about how to dispose of your unwanted Tait product, visit the Tait WEEE website at www.taitradio.com/weee. Please be environmentally responsible and dispose through the original supplier, or contact Tait International Limited.

Tait International Limited also complies with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive in the European Union.

In China, we comply with the Measures for Administration of the Pollution Control of Electronic Information Products. We will comply with environmental requirements in other markets as they are introduced.

# About This Guide

## Scope of Manual

This manual provides information about all TP9500 DMR Portable Radios.

The radio behavior described in this guide applies to radios with firmware 2.25. To check the radio's firmware version, see "Viewing Radio Information" on page 114. If the radio does not operate as expected, please contact the radio provider for assistance.

## Alerts

Please follow exactly any instruction that appears in the text as an ‘alert’. An alert provides necessary safety information as well as instructions about the proper use of the product. This manual uses the following types of alert:

**Warning. This alert is used when there is a hazardous situation which, if not avoided, could result in death or serious injury.**

**Caution** This alert is used when there is a hazardous situation which, if not avoided, could result in minor or moderate injury.

**Notice** This alert is used to highlight information that is required to ensure procedures are performed correctly. Incorrectly performed procedures could result in equipment damage or malfunction.

This alert is used to highlight significant information that may be required to ensure that you perform procedures correctly, or to draw your attention to ways of doing things that can improve your efficiency or effectiveness.

## Associated Documentation

The following associated documentation for this product is available on the Tait support website.

- MPD-00002-xx TP8000/TP9000 Battery Charging Guide
- MTA-00011-xx TM8000/TP8000/TM9000/TP9000/TU2000 Safety and Compliance Information
- MPG-00003-xx TP9500 Specs Manual
- TD-0058-xx TP9500/TP9600 Operational Description

The characters **xx** represent the issue number of the documentation.

Technical notes are published from time to time to describe applications for Tait products, to provide technical details not included in manuals, and to offer solutions to any problems that arise. Look for new or updated technical notes on the Tait technical support website.

# Acronyms

| Acroynym | Definition |
|---|---|
| OTAP | Over The Air Programming |
| OTAR | Over The Air Rekeying |
| PTT | Push To Talk |
| RSM | Remote Speaker Microphone |
| SFE | Software license key |
| UTM | Universal Transverse Mercator |

# Publication Record

| Issue | Publication Date | Description |
|---|---|---|
| 1 | December 2019 | First release |

# 1 For your safety

Before using your radio, please read the following important safety and compliance information.

## Radio frequency exposure information

For individual safety and to ensure compliance with the radio frequency (RF) exposure guidelines of the United States Federal Communication Commission's (FCC), Industry Canada, and those from other administrations, please read the following information before using this radio.

### Using this radio

This radio should only be used for work-related purposes (it is not authorized for any other use) and when the user is fully aware of, and can exercise control over, exposure to RF energy. To prevent exceeding FCC RF exposure limits, the user must control the amount and duration of RF that they and other people are exposed to.

It is also important that you:

- Do not remove the RF Exposure label from the radio.
- Ensure this RF exposure information accompanies the radio when it is transferred to other users.
- Do not use the radio if you do not adhere to the guidelines on controlling your exposure to RF.

### Controlling exposure to RF energy

This radio emits radio frequency (RF) energy or radio waves primarily when calls are made. RF is a form of electromagnetic energy (as is sunlight), and there are recommended levels of maximum RF exposure.

To control your exposure to RF and comply with the maximum exposure limits for occupational/controlled environments, follow these guidelines:

- Do not talk (transmit) on the radio more than the rated transmit duty cycle. This is important because the radio radiates more energy when it is transmitting than when it is receiving.
- When listening and talking on the radio, hold it upright in front of your face so that it is at least one inch (2.5cm) away from any part of your face. Keeping the radio at the recommended distance is important because exposure to RF decreases rapidly the further away the antenna is from your body.
- Keep the antenna at least one inch (2.5cm) from your face at all times.
- If you wear your radio, you must always put it in a carrying accessory that has been specifically approved by Tait for this radio. Using non-approved body-worn accessories may mean you expose yourself to higher levels of RF than recommended by the FCC's occupational/controlled environment RF exposure limits.
- Ensure you only use Tait-approved antennas, batteries, and accessories.

For more information on what RF energy is and how to control your exposure to it, visit the FCC website at www.fcc.gov/oet/rfsafety/rf-faqs.html.

### Compliance with RF energy exposure standards

This two-way radio complies with these RF energy exposure standards and guidelines:

- United States Federal Communications Commission, Code of Federal Regulations; 47 CFR §§ 1.1307, 1.1310, and 2.1093.
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95.1-1992.
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition.
- European Directive 2004/40/EC on minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields).

This radio complies with the IEEE and ICNIRP exposure limits for occupational/controlled RF exposure environments at operating duty factors of up to 50% talk to 50% listen.

### Conformité aux normes d’exposition à l’énergie RF

Cette radio émetteur-récepteur se conforme aux normes et aux règlements d’exposition à l’énergie RF :

- La Commission fédérale de la communication des Etats-Unis, Code de règlements fédéraux (CFR) Titre 47 Sections 1.1307, 1.1310 et 2.1091 (radios mobiles) ou 2.1093 (radios portatives).
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992.
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition.
- La directive européenne 2004/40/EC concernant les prescriptions minimales de sécurité et de santé relatives à l'exposition des travailleurs aux risques dus aux agents physiques (champs électromagnétiques).

Cette radio se conforme aux limites d’exposition de l’IEEE (FCC) et ICNIRP pour les environnements d’exposition au rayonnement RF professionnel et contrôlé aux cycles de marche de 50% en mode transmission et 50% en mode réception.

## Radio frequency emissions limits in the USA

**CFR Title 47 Part 15.19 (a) (1) - Receivers**

Part 15 of the FCC Rules imposes RF emission limits on receivers. This radio complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

**CFR Title 47 Part 15.19 (a) (3) - All other devices**

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.

## Radio frequency emissions limits in Canada

This device complies with Industry Canada licence exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

# USA public safety bands (764–776MHz and 794–806MHz)

The Code of Federal Regulations (CFR) Title 47 Subpart R deals with the use of frequencies in the 764 to 776MHz and 794 to 806MHz bands.

**Low-power channels**

This radio complies with §90.531 (b) (3) and §90.531 (b) (4) of 47 CFR. These sections state that only low-power transmission is permitted on the following channels:

- Regional Planning channels, as defined in §90.531 (b) (3).
- Itinerant channels, as defined in §90.531 (b) (4).

**Use of encryption**

This radio complies with §90.553 (a) of 47 CFR. This states that:

- Encryption is not permitted on the nationwide Interoperability calling channels. These channels are defined in §90.531 (b) (1) (ii).
- Radios using encryption must have a readily accessible switch or control to allow the radio user to disable encryption.

# EMC regulatory compliance in Australia

This product meets all ACMA regulatory requirements for electromagnetic compatibility (EMC). For more information about EMC compliance, visit the ACMA website at www.acma.gov.au.

# Frequency band reserved for distress beacons

Frequency band 406 to 406.1 MHz is reserved for use by distress beacons. Transmissions should not be made within this frequency band.

# Health, safety and electromagnetic compatibility in Europe

In the European Community, radio and telecommunications equipment is regulated by Directive 2014/3/EU. The requirements of this directive include protection of health and safety of users, as well as electromagnetic compatibility.

**Intended purpose of product**

This product is an FM radio transceiver. It is intended for radiocommunication in the Private Mobile Radio (PMR) or Public Access Mobile Radio (PAMR) services, to be used in all member states of the European Union (EU) and states within the European Economic Area (EEA).

**Restrictions**

This product can be programmed to transmit on frequencies that are not harmonized throughout the EU/EEA, and will require a licence to operate in each member state.

This product can be programmed for frequencies or emissions that may make its use illegal. Where applicable, a license must be obtained before this product is used. All license requirements must be observed. Limitations may apply to transmitter power, operating frequency, channel spacing, and emission.

**Declaration of conformity**

Brief Declarations of Conformity appear on page 118 of this booklet. To download the formal declaration of conformity, go to www.taitradio.com/eudoc.

# Interference with electronic devices

**Some electronic devices may be prone to malfunction due to the lack of protection from RF energy that is present when your radio is transmitting.**

Examples of electronic devices that may be affected by RF energy are:

- aircraft electronic systems
- vehicular electronic systems such as fuel injection, anti-skid brakes, and cruise control
- medical devices such as pacemakers and hearing aids
- medical equipment in hospitals or health care facilities.

Switch off the radio before boarding an aircraft. Using your radio while in the air is not permitted.

Consult the manufacturer (or its representative) of any such electronic devices to determine whether electronic circuits in those devices will perform normally when the radio is transmitting.

**If you have a pacemaker:**

- immediately turn off the radio if you suspect it is interfering with the pacemaker
- keep the radio at least 6 inches (15cm) from the pacemaker while the radio is on
- use the radio on the side opposite to the pacemaker to minimize interference
- never carry the radio in a breast pocket.

If there is interference between your hearing aid and the radio, please discuss an alternative solution with the hearing aid manufacturer.

# Potentially explosive atmospheres and blasting areas

**Unless the radio is specifically certified for use in a potentially explosive atmosphere, turn off the radio before entering such an atmosphere. An explosion could cause serious injury or death. Examples of potentially explosive atmospheres**

**include filling stations, and any environment where there are flammable liquids, gases, or dusts.**

**Turn off the radio before approaching blasting caps, a blasting area, or any area where you are instructed to turn off a two-way radio. Obey all signs and instructions. Interference with blasting operations could cause serious injury or death.**

## Radio installation and operation in vehicles

**Keep the radio away from airbags and airbag deployment areas. Do not install, charge, or place a radio near such areas. An activated airbag can propel a portable radio with sufficient force to cause serious injury to vehicle occupants. An airbag may not perform to specification if obstructed by a radio.**

**To avoid damage to existing wiring, airbags, fuel tanks, fuel and brake lines, or battery cables, refer to the installation guide for the radio, and to the vehicle manufacturer's manual, before installing electronic equipment in the vehicle.**

Using a handheld microphone or a radio while driving a vehicle may violate the laws and legislation that apply in your country or state. Please check the vehicle regulations in your area.

## Vehicle charger installation and operation

For detailed instructions necessary to the safe installation and operation of the vehicle charger, please refer to the documentation supplied with the vehicle charger.

## Multicharger safety information

**This device must be connected to an earthed mains socket-outlet.**

Norsk (no): Apparatet må tilkoples jordet stikkontakt.

Suomi (fi): Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.

Svenska (sv): Apparaten skall anslutas till jordat uttag.

# Electromagnetic compatibility in European vehicles

In the European Community, radio equipment fitted to automotive vehicles is regulated by UNECE Regulation R10 Revision 5 and its amendments. The requirements of this regulation cover the electromagnetic compatibility of electrical or electronic equipment fitted to automotive vehicles.

# Unapproved modifications or changes to radio

The radio is designed to satisfy the applicable compliance regulations. Do not make modifications or changes to the radio that are not expressly approved by Tait. Failure to do so could invalidate compliance requirements and void the user's authority to operate the radio.

## Attaching of labels

**Do not obstruct the vent hole on the battery or the vent hole on the radio chassis label. If the vent on the battery is obstructed, the battery may explode, causing personal injury and/or damage to property. If the vent on the radio is obstructed, audio quality and/or key function may deteriorate and radio seals may be damaged.**

**Caution** Tait recommends that you do not affix additional labels to the surfaces between the radio chassis and the battery. The fit between these surfaces is intentionally firm and any added thickness will damage the points of attachment between radio and battery. If you must attach a customized label, use only a thin gummed paper label applied to the bottom 25% of the radio chassis label and/or to the top 25% of the battery label. Do not obstruct the vent holes (see Warning above). Do not allow the paper label to extend beyond the recessed label area or to conceal relevant product information.

## Use of lithium-ion batteries

**A damaged battery can cause an explosion or fire, and can result in personal injury and/or property damage. To prevent personal injury and/or damage to property, read the important safety information supplied with the battery.**

## Short-circuiting battery contacts

**Do not short-circuit the battery contacts, neither intentionally nor accidentally, e.g. by placing the battery with conductive materials such as keys or jewelry inside a pocket or container. Short-circuiting the battery contacts can heat up the conductive material and cause personal injury and/or damage to property.**

# 2 Before Using the Radio

Once the radio has been unpacked, there are a few tasks that must be completed before use. The most important of these is to charge the battery for the first time. Allow up to 3 hours for this.

### This section covers:


Attaching labels to the radio or battery

Charging the battery before first use

Attaching the battery

Removing the battery

Attaching the antenna

Removing the antenna

Attaching a belt clip

Removing a belt clip

Installing an audio accessory


## For your safety — battery warning

**This radio uses a Lithium-ion battery. If the battery is damaged or handled in an unsafe manner, it can cause personal injury and/or damage to property. Read the important safety information included with the battery.**

# Attaching labels to the radio or battery

**Do not cover the battery vent hole or the vent hole on the radio chassis. If the vent on the battery is obstructed, the battery may explode, causing personal injury and/or damage to property. If the vent on the radio is obstructed, audio quality and/or key function may deteriorate and radio seals may be damaged.**

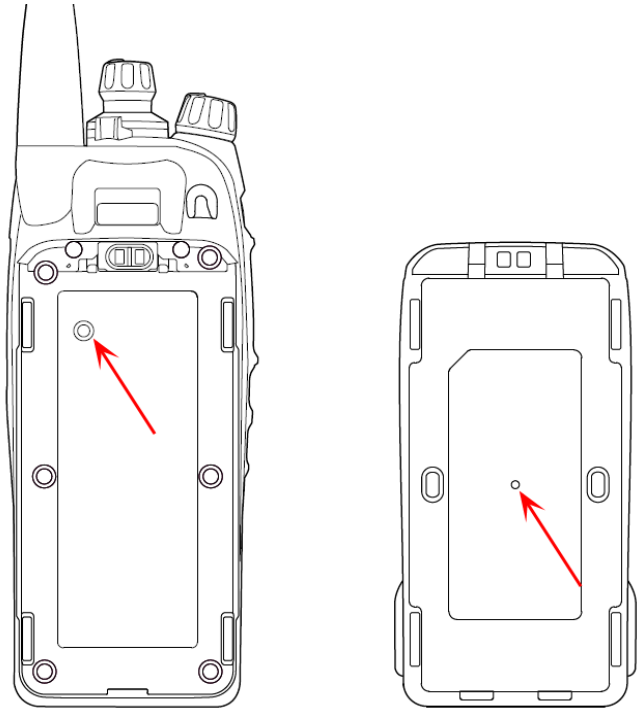


**Figure 2.1 Radio chassis and battery vent holes**

**Notice** Tait recommends that additional labels are not applied to the surfaces between the radio chassis and the battery. The fit between these surfaces is intentionally firm and any added thickness will damage the points of attachment between radio and battery.

If a customer requires a customized label, use only a thin gummed paper label with a maximum thickness of 1/32 inch (0.1mm). Attach the customized label in the spare label recess in the chassis (if available), or over an existing label. The customized label may be applied to the bottom 25% of the radio chassis label and/or to the top 25% of the battery label.

Do not obstruct the battery vent hole (see Warning above). Do not allow the paper label to extend beyond the recessed label area or to conceal relevant product information.

# Attaching a label to the front panel

If a customer requires an additional label, attach the label in the spare label recess in the bottom surface of the radio front panel. In this position, the label is still visible while the battery is attached to the radio.

**Figure 2.2 Spare label recess**

The diagram below shows the specified dimensions of the label.

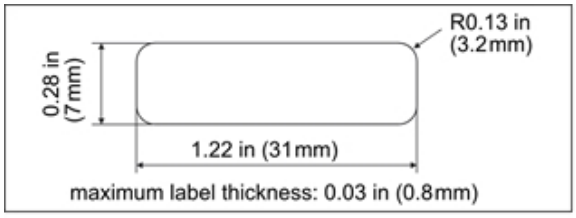



**Figure 2.3 Spare label dimensions**

4-key models have a specially designed recess for custom labels.

Users can also stick labels over the top of the model label. This recess will accommodate 1/4" label maker labels. Please ensure the labels have a suitable adhesive surface before application.

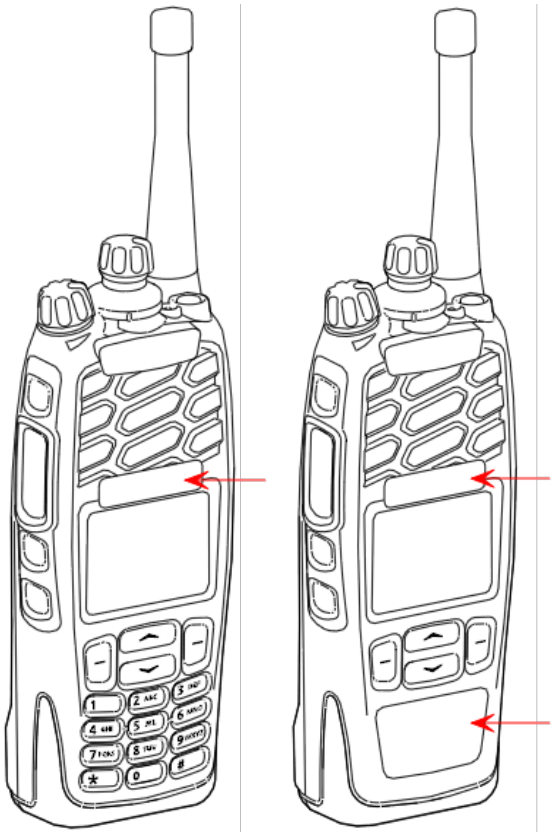


**Figure 2.4 Location of model and custom labels**

Tait offers custom labelling for TP9500 DMR Portable Radios. Contact your Tait representative for more information.

## Charging the battery before first use

Before using the battery for the first time, it must be charged. Follow the instructions included with your Tait charger. This information is repeated in the section "Charging and Caring for Batteries" on page 1.

For best charging performance, switch off the radio before placing it in the charger.

See Charging and Caring for Batteries for detailed instructions on how to charge your battery.

**Li-ion batteries**

Fully charge a Li-ion battery before using it for the first time. This will take up to 2.5 hours. It is not necessary to prime a Li-ion battery.

## Attaching the battery

**Use only genuine Tait manufactured batteries with Tait radios. Fitting a battery that is not Tait-approved may damage the radio or cause harm.**

**Notice** Fit the bottom edge of the battery to the radio, then the top edge. Attempting to fit the top edge first may damage the contacts.

1. Rotate the power/volume control switch counterclockwise to turn off the radio.

If the battery has been attached while the radio is turned on, turn the radio off and then on again before use.

2. Holding the radio firmly, align the back of the battery with the back of the chassis.
3. Place the two lugs at the bottom edge of the battery into the two slots in the bottom of the front panel.
4. Lightly press the top of the battery towards the radio until the battery catch clicks.
5. Make sure that the battery is firmly in position.

# Removing the battery

**Do not change the battery in a hazardous location. An explosion could cause serious injury or death.**

The battery is secured to the radio by a battery catch in the radio's rear panel.

To remove the battery from the radio so that the battery can be charged or replaced:

1. Rotate the power/volume control switch counterclockwise to turn off the radio.

If the battery has been removed while the radio is turned on, turn the radio off and then on again before use.

2. Slide the battery catch up.
3. From the sides, pull (tilt) thetop end of the battery away from the radio.
4. Lift the lugs at the bottom of the battery upwards out of the mating features at the bottom of the radio body.

# Attaching the antenna

Before using the radio, screw the antenna clockwise into the antenna connector. The antenna should be screwed sufficiently tight so that it doesn't unscrew easily. This is important as it creates a seal.

# Removing the antenna

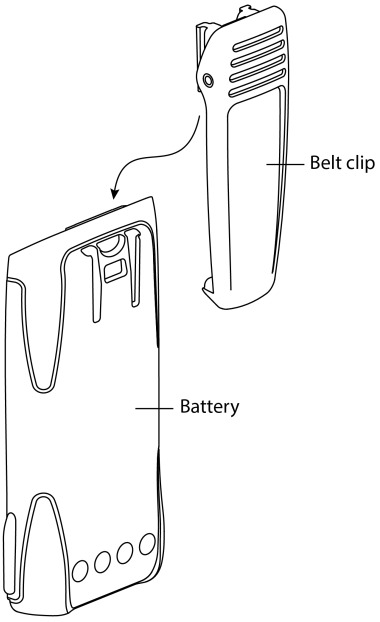
**Do not change the antenna in a hazardous location. An explosion could cause serious injury or death.**

Use a firm grip and turn the antenna counterclockwise half a turn. Use a lighter grip to fully unscrew the antenna, and carefully remove it.

# Attaching a belt clip

### To attach a belt clip to the radio:

1. Slide the belt clip into the two grooves at the top of the battery.
2. Press down on the belt clip until it snaps into place.




# Removing a belt clip

The belt clip has been designed to prevent accidental removal, but it can be removed, if required.

To remove a belt clip from a battery:

1. Insert a flat screwdriver blade or similar flat object under the lip of the release lock (that is, between it and the metal slider).
2. Lift the release lock up (away from the metal slider) and hold it in position.
3. Slide the belt clip out.

# Installing an audio accessory

**Use only Tait-supplied, or Tait-approved audio accessories with Tait radios. Fitting an audio accessory that is not Tait-approved exposes the customer to a risk of explosion which could cause serious injury or death. For an up-to-date list of approved audio accessories, contact your regional Tait office.**

Audio accessories plug into the radio's accessory connector. The accessory connector is protected by a cover, which needs to be removed before an accessory can be installed.

**Notice** The accessory cover protects the accessory connector from electrostatic discharge. Keep the cover in place unless the connector is in use.

### To remove the accessory cover and install an audio accessory:

1. Use a coin or other blunt object to loosen the screw that secures the accessory cover to the radio.
2. Remove the accessory cover and store it in a safe place.

3. Plug the accessory into the accessory connector.
4. Tighten the screw.

The screw only needs to be finger tight when assembling the accessory and replacing the accessory cover.

# 3 Getting Started

This section provides an overview of the TP9500 DMR Portable Radio, describes the radio's controls and indicators, and explains how the radio menus are organized.

### This section covers:


About Your Radio

About the Radio Controls

Understanding the Radio Display

Understanding the Radio Indicators

Using Function Keys to Access Frequently Used Features

Navigating the Radio's Menus

Using the Alphanumeric Keys to Search a List


## About Your Radio

DMR digital radios can be programmed for DMR conventional or DMR trunked operation. Analog conventional and MPT operation is also available.

DMR and MPT trunking operation is controlled by a software license (SFE) and may not be available with your radio.

In DMR and MPT trunking operation, dual-mode networks are able to receive both digital and analog calls.

Differences may be noticed between digital and analog calls in terms of:

- static noise in low signal areas, and
- radio coverage in marginal reception areas.

### Lack of static noise

On digital networks there is no static noise, even in low signal areas. This lack of static is because the digital radio removes the 'noise' from the call, so that only clear voice is audible.

### Active Noise Cancellation

Active noise cancellation uses a secondary microphone on the back of the radio to actively filter out background noise in loud environments. When safety features such as Loneworker Monitoring or Radio Monitor are activated, the

listener may lose awareness of the noisy environment. Tait recommends users implement supplementary procedures to account for this.

### Coverage

With digital networks, a call remains clear and then drops off quickly at the border of a coverage area. The reason for this is that a digital call is either received or it isn't. With analog networks, the background noise in a call gets progressively worse when the user is in fringe areas or even slightly outside normal coverage areas.

### What is audible on an analog channel

On analog channels, the radio may be programmed so that all conversations on a channel can be heard, or one user group may be segregated from other user groups through special signaling. The special signaling is used to control the muting and unmuting of radios, so that your radio is muted when other user groups are talking and unmuted for members of your user group.

There are two muting controls that operate in your radio:

- signaling mute
- squelch

Signaling mute

The radio's signaling mute only allows the radio to unmute if the incoming call carries the tones specific to your user group. Your user group may use tones that are either audible, subaudible or both.

Squelch

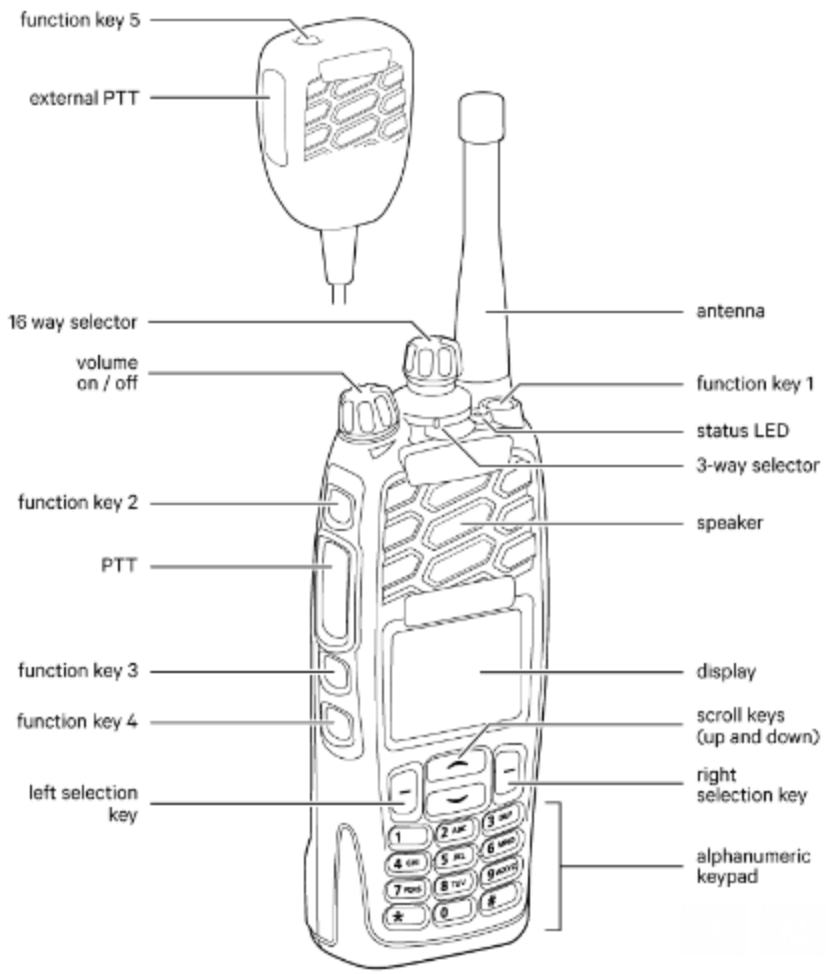
The radio's squelch allows the radio to unmute only when the strength of the incoming signal is above a predetermined threshold. This means that only signals of reasonable intelligibility are made audible.

# About the Radio Controls

The radio controls are the PTT key, power/volume control, channel selector (does not apply in trunked mode), 3-way selector control, scroll keys, selection keys, and function keys. Some keys have functions assigned to both short and long key presses:

- a short key press is less than 0.75 s, and
- a long key press is usually more than 0.75 s.

The radio controls and their functions are described in the following sections.




| Name | **Function** |
|---|---|
| PTT key | Press and hold to transmit and release to listen |
| Power/volume control | Rotate to turn the radio on and change the speaker volume |
| Channel selector | Select and change channels |
| 3-way selector | Select frequently used features |
| Left and right selection keys | Action determined by the text above the selection key |
| Scroll keys | Scroll up and down through a list of menu options, scroll left and right in messages, or access a pre-programmed menu |
| Function keys | Programmed for frequently used options |

| Name | Function |
|---|---|
| Alphanumeric keys | Used to enter letters and numbers |

# Understanding the Radio Display

The messages and icons on the radio display depend on the mode in which the radio is operating and the way it is programmed.

## Radio display icons

These are some of the icons you may see on your radio display:

| Icon | Meaning |
|---|---|
| | Battery indicator: shows how much charge is available in the battery |
| | Scanning: your radio is monitoring a group of channels or workgroups for activity |
| | Silent operation: your radio's audible tones have been turned off |
| | Low-power transmit: the radio is transmitting in low power |
| | Transmit: the radio is transmitting |
| | Automatic/Manual mode: automatic channel or zone selection has been turned on/off |
| | Headset connected: there is a wireless headset connected to your radio<br>Flashing: your radio is attempting to connect to a headset, or the headset connection has been lost |
| | Scrambler: the voice-inversion scrambler is turned on (analog channels only) |
| | Signal strength indicator: the more bars, the stronger the signal being received by the radio |
| | Scrolling: you can use or to move through a list, or access a pre-programmed menu |
| | Queuing: there are calls or messages in the queue |
| **Trunked mode icons** | |

| Icon | Meaning |
|---|---|
| | Scanning: scanning has been turned off |
| | Homegroup: your radio has been returned to the homegroup using the homegroup toggle function key |
| | Network (steady): the radio is registered on a DMR or MPT trunked network<br>Network (flashing): the radio is hunting for a trunked network |
| | 'Full' queuing activated: all calls and messages are sent directly to the queue (see Checking the Queue) |
| | Trunking: your radio has established a call and you are now able to speak to the other party |
| **Conventional mode icons** | |
| | Monitor or squelch override: monitor or squelch override is turned on |
| | Scanning: your radio is monitoring a group of channels for activity, and the currently selected channel is a member of the scan group. |
| | Repeater talkaround: your radio is operating in repeater talkaround mode, or you are on a simplex channel |
| | Zone: this letter represents the zone in which your radio is operating, where A is zone 1, Z is zone 26 (for example, K represents zone 11) |

# Understanding the Radio Indicators

The status LED indicator and the radio's audible tones—together with the radio display—all combine to provide information about the state of the radio.

The most common way the indicators work is described in the following sections.

The way these indicators behave may be affected by the way the radio is programmed.

## Status Indicators

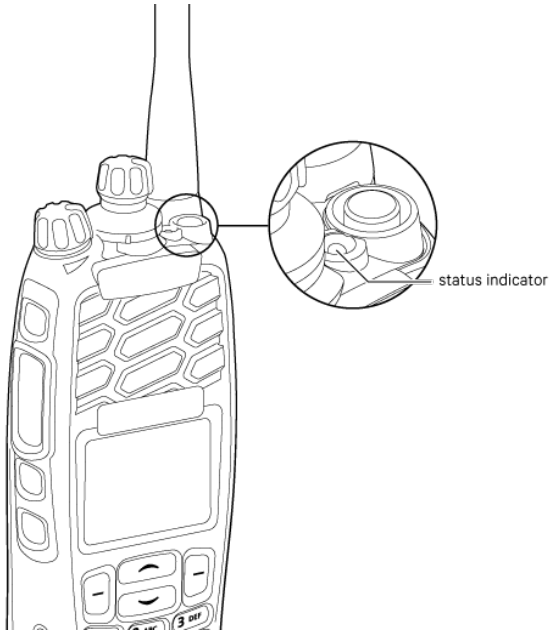



**Figure 3.1 Location of LED status indicator**

| Color | | Meaning |
|---|---|---|
| Red (transmit) | | Glowing: the radio is transmitting<br>Flashing: the transmit timer is about to expire |
| Green (receive) | | Glowing: the current channel is busy<br>Flashing: the radio has received a call (analog channel only) |
| Orange (network) | | Flashing: the radio is registered on a trunked network |
| All LEDs off | | Trunked: network not available, or the radio is attempting to register on a trunked network<br>Conventional: receive standby |

## Audible Tones

The radio uses audible tones to alert the user to its status:

- Radio controls and keypress tones—the tones and beeps that are audible when the radio's keys are pressed or the controls are used.
- Incoming call tone—when the radio is receiving a call.
- Warning tones—when there is an error, or the battery is low, for example.

**If quiet or silent mode is turned on, you will not hear any alert tones.**

Some of the more common audible tones are described below:

| Tone | Meaning |
|---|---|
| One short beep | Valid keypress: The action you have attempted is permitted.<br>Function activated: A function has been turned on (using a function key). |
| One short, low-pitched beep | Function deactivated: A function has been turned off (using a function key). |
| One long, low-pitched beep | Invalid keypress: The action you have attempted is not permitted.<br>Transmission inhibited: You have attempted to transmit, but for some reason you cannot make a call at this time. |
| Two short beeps | Radio turned on: The radio is powered on and ready to use.<br>Radio is revived: The radio has been made operable by your service provider. |
| Three long beeps | Transmit timeout imminent: Your transmit timer will expire and your current transmission will be terminated. |
| One short, high-pitched beep | Radio is stunned: The radio has been made inoperable by your service provider. |
| Two low-pitched beeps | Radio's temperature is high: The radio's temperature is in the high-temperature range, but the radio will continue to operate. |
| Two high-pitched beeps | Radio's temperature is very high: The radio's temperature is in the very high temperature range and all transmissions will now be at low power; if the radio's temperature rises outside this range, transmissions will be inhibited. Turn off the radio and allow it to cool down. |
| Continuous low-pitched tone | Radio system error: A system error has occurred and the radio may be inoperable. Contact your radio provider. |
| Two long high-low pitched tone pairs | Synthesizer is out-of-lock: The radio's synthesizer is out-of-lock on the current channel and you cannot operate on that channel (**Out of lock** appears on the display). |

### Voice annunciation

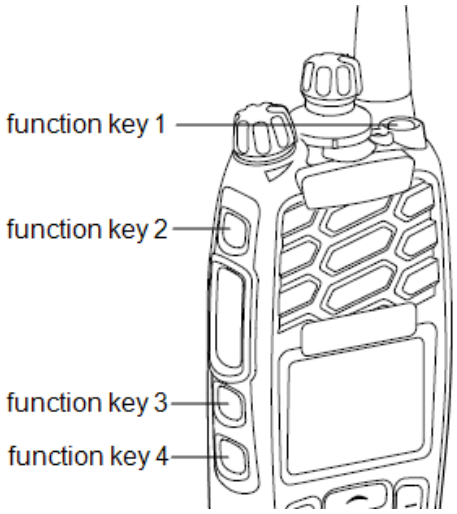
In conventional mode, your radio may be programmed to play a pre-recorded message for the start-up zone and channel, and when changing the zone or channel.

In trunked mode, your radio may be programmed to play a pre-recorded message for the start-up zone, workgroup or preset, and when changing the zone, workgroup or preset.

In both modes, your radio may be programmed to play a pre-recorded message for the battery condition or when lone-worker monitoring has been turned on or off.

## Using Function Keys to Access Frequently Used Features

The function keys provide access to some of the features you will use most often. These features are assigned to the function keys when the radio is programmed. Some keys may have a feature associated with both a short key press and a long key press.




### Viewing the function key settings

Use the Main menu to check the features assigned to your radio's function keys:

1. Press **Menu** and select **Radio settings** > **Radio info** > **Key settings**.
2. In the **Key Settings** menu, scroll through the list of function keys.
3. Press **Select** to view details of the function associated with a particular function key.
4. Press **Back** to return to the **Key Settings** menu.

Use the following table to record the function keys programmed for your radio:

| | Short key press | Long key press |
|---|---|---|
| F1 | | |
| F2 | | |
| F3 | | |
| F4 | | |
| F5[1] | | |
| F6[1] | | |

For more information about the function keys that can be programmed on your radio, contact your radio provider.

## Navigating the Radio's Menus

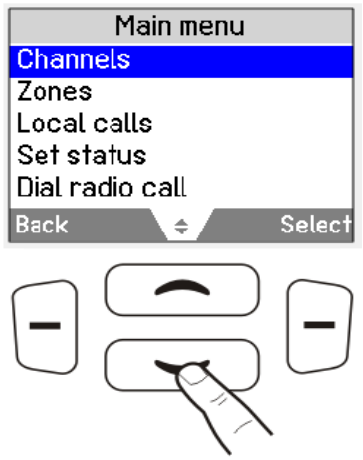
Your radio has a number of menus, each containing lists or sub-menus. The menus available depend on the way your radio is programmed.

[1] On speaker microphone (if fitted)

### Using the Main Menu

To access the Main menu, press the right selection key whenever **Menu** appears above it.

Use the scroll keys to move through the menu list.




When the desired menu item is highlighted, press **Select** to open.

Your radio may be programmed to use the scroll keys or the left selection key to directly access a menu.

To quickly exit the menu system, press and hold the left selection key when the word **Cancel** or **Back** appears above it.

## Using the Alphanumeric Keys to Search a List

This feature is only available for radios with alphanumeric keys.

If a blinking cursor appears when you select a list, you are able to search for the menu item you want using the alphanumeric keys. This is of particular benefit if you have a large number of items in a list.

Lists that you may be able to search are channels, zones, workgroups, and preset calls.

To search a list, enter the required name using the keypad.

# 4 Basic Operation

This section describes the basic operation of your radio.

### This section covers:


Turning the Radio On and Off

Adjusting the Speaker Volume

Locking and Unlocking the Keypad

Using a Wireless Headset

Changing the Radio's Operating Mode

Setting and Viewing the Radio's Time and Date


## Turning the Radio On and Off

Rotate the power/volume control switch clockwise to turn the radio on. Rotate the switch counterclockwise to turn the radio off.

When the radio is first turned on, the status LED briefly glows red, and the radio gives two short beeps.

The radio may not turn on if its battery is very low. See Low Battery Warning.

### Security lock on power-up feature

Your radio may be automatically locked each time it is powered-up. If the message **Enter PIN** appears on the display, enter your assigned PIN (personal identification number). See "Turning the Radio On and Off" above below.

#### Locking the radio

1. Press **Menu** and select **Radio settings** > **Functions** > **Lock radio**. (Depending on how your radio is programmed, you may be able to press a function key to turn radio lock on and off.)

2. Scroll to either **On** or **Off** and press **Select**. (The current setting is highlighted.) The radio is now locked, and the message **Enter PIN** appears on the display. The radio remains locked until the correct sequence of keys is pressed. If you forget the unlock sequence or you do not know it, contact your radio provider for assistance.

#### Unlocking the radio

- To unlock your radio, use the unlock sequence you have been given. (This is a pre-programmed sequence of four keys).

# Adjusting the Speaker Volume

Rotate the power/volume control clockwise to increase the speaker volume and counterclockwise to decrease the volume.

The volume control also changes the volume level of the radio's audible indicators.

# Locking and Unlocking the Keypad

The keypad lock feature prevents keys being pressed accidentally. The number of keys that are locked depends on the way the radio is programmed.

### To lock the keypad:

- Press and hold the right selection key for about one second.

Depending on the radio model and the way it is programmed, the radio may have a 3-way selector that can be used to lock the keypad, or the left selection key can be configured to lock the keypad.

The message **Keypad locked** briefly appears on the display, and **Unlock** appears above the right selection key, in place of **Menu**.
When any of the locked keys are pressed, the message **Keypad lock active** appears.

The left selection key can also be configured for the keypad lock function.

### To unlock the keypad:

- Press and hold the right selection key for about one second.

# Using a Wireless Headset

This feature is controlled by a software license (SFE) and may not be available with the radio.

A Bluetooth® wireless headset may be connected to a radio using the **Wireless headset** menu or a function key.

When a menu option has been selected in the **Wireless headset** menu, calls can still be received and replied to without interrupting the selected operation.

### Headset Compatibility with Tait Radios

Bluetooth wireless devices may operate with Tait radios, provided the accessory:

- is compatible with the Bluetooth Specification Version 2.0 or higher. Tait recommends Bluetooth Specification Version 2.1 or higher.
- Includes Bluetooth Headset Profile (HSP) adopted version 1.1 or 1.2, or Bluetooth Handsfree Profile (HFP) version 1.5 or 1.6.

# Wearing the Headset

Headsets come as an over-the-head accessory, or as a remote speaker microphone.

With a headset worn over the head, place it on the ear. Depending on which ear the headset will be worn, simply adjust the ear hook accordingly.

### To get the best performance from the headset:

1. Do not block the device's internal antenna (see the device's user documentation). The human body can interfere with a Bluetooth signal.
2. If the radio is used with the right hand, wear the over-the-head headset on the right ear.
3. Avoid coming in contact with the internal antenna of a headset or radio.
4. When using a remote speaker microphone with active noise cancellation turned on, the RSM should be turned toward the mouth when speaking.

# Pairing and disconnecting a wireless headset with the radio

Before attempting to connect a wireless headset, Tait recommends that the headset is fully charged. Refer to the headset installation instructions for charging instructions.

Pairing creates a unique and encrypted wireless link between the Bluetooth-capable radio, and the Bluetooth headset. To use a headset with a radio, the devices must first be paired.

When connecting to a wireless headset for the first time, instruct the radio to search for compatible headsets using Bluetooth wireless technology. The search should take less than one minute.

### To pair a wireless headset with the radio:

1. Turn on the radio.
2. Put the wireless headset into pairing mode.
3. Press **Menu** and select **Wireless headset** > **Find new devices**.

   The **New devices** menu opens, and while the radio searches for the new device, the message **Searching ...** appears.
4. Select Connect when the required accessory appears in the list of new devices, then **Yes** to add the headset to **My Headsets**.

The message **Connecting** appears, while the radio attempts to pair with the headset.

5. When the message **Calling. Answer on headset** appears, press the **Answer** button on the headset to confirm the connection.

6. Repeat the previous steps to add other headsets.

While the wireless headset is connected, the wireless headset icon appears on the display.

# Managing your headsets

Once a headset has been added to My Headsets, the **Manage headsets** menu item appears under the **Wireless headsets** menu. The **Manage headsets** menu shows the headsets currently in My Headsets, along with the following information:

- **+** This headset is currently connected.
- **a** This headset will be automatically connected.
- **c** The radio will ask for confirmation before connecting this **accessory**.

Press **Options** to disconnect or connect a headset (**Disconnect**, **Connect**), change the priority order of the headsets (**Move down**), or remove a headset from My Headsets (**Remove**, **Remove all**).

## Disconnecting the headset

To disconnect the headset from the radio:

- Press **Menu** and select **Wireless headset** > **Disconnect**.
  Alternatively, in the **My headsets** menu select **Options** > **Disconnect**.

## Reconnecting the headset

The radio may be programmed so that each time the headset is turned on, it will automatically reconnect to the radio.

If the radio does not automatically reconnect to the headset:

1. On the radio, press **Menu** and select **Wireless headset** > **Reconnect last**.

   The radio then prompts to connect to the headsets in My Headsets, in priority order.

2. Select **Yes** to connect, or **No** to choose another headset.

## Changing the way the Headset Reconnects

The **Power-on option** in the menu can be used to change the way the radio reconnects with a headset when the radio is first turned on. The choices are:

- None: The radio does not connect to any headsets, and will need to be manually connected or reconnected to the headset.
- Reconnect last: The radio connects to the previously connected headset.

- Connect: The radio will attempt to connect to the headsets in My Headsets, in priority order.

To change the power-on option:

1. Press **Menu** and select **Wireless headset** > **Options** > **Power-on option**, and change to the required option.

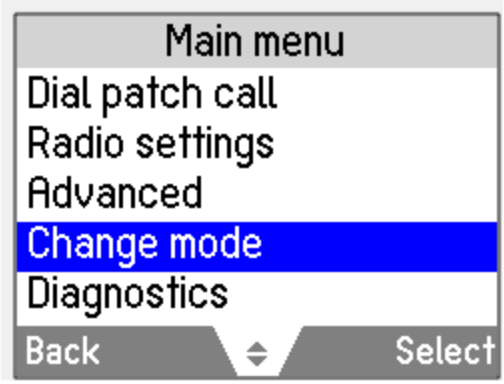
## Changing the Radio's Operating Mode

The way the radio performs basic functions, such as sending and receiving calls, depends on the network operating mode. The two operating modes that may be available on the radio are:

- conventional mode (see Operating in Conventional Mode), and
- trunked mode (see Operating in Trunked Mode).

To change the operating mode:

1. Press **Menu** and select **Change mode**.




Depending on how the radio is programmed, the function key may be pressed to change mode.

2. Select **Yes** to confirm your selection, and your radio now shows the default display for either trunked or conventional.

## Setting and Viewing the Radio's Time and Date

The radio may be programmed to use its internal real-time clock. It may be possible to view the time and date via a function key or via the radio menu. Other features may also make use of the radio's time and date by showing entries based on the current clock setting.

### To set the time, date, and time format:

The radio may be programmed to allow you to set time and date manually, or time and date can be updated using a GPS source.

1. Press **Menu** and select **Time and Date** and the corresponding option.
2. Follow the prompts on the display.

## To view the time and date:

- Press **Menu** and select **Time and Date** > **View clock** (Depending on how the radio is programmed, it may be possible to press a function key to view the time and date).

# 5 Using the Address Book

The radio may have a standard address book (with pre-programmed entries) and a personal address book which allows the user to maintain their own entries.

The address book only shows entries that are relevant to the radio's current mode of operation (conventional or trunked), and network.

The standard address book may be grouped by roles, but it can also be used to display all entries.

The standard address book can also contain entries that are hidden from the radio user. These hidden entries are used to identify incoming calls from known sources.

### This section covers:


Opening the Address Book

Changing the Default Address Book

Navigating the Address Book

Filtering Address Book Lists

Maintaining Personal Address Book Entries


## Opening the Address Book

To open the address book:

- Press **Menu** and select **Address book**.

The radio may be programmed to use the left selection key (**Ad. book**) or a function key to open the address book.

When opening the address book for the first time after turning on the radio or changing the mode, the default address book must be selected.

The radio will now default to the selected address book.

## Changing the Default Address Book

To change the default address book:

1. Press **Menu** and select **Address book**.

The standard or personal address book appears.

2. Press **Back**.

The default address book can now be selected.

# Navigating the Address Book

In the standard address book, each entry may have been assigned to a role. Roles are used to categorize entries into logical groups. When opening the standard address book, all entries can be viewed or filtered by a particular role.

The personal address book always lists all entries.

1. Press **Menu** and select **Address book**.

In the standard address book, select to view all entries or select to view the entries of a role, is now available.

2. Scroll to the desired role, and press **Select**.

All entries associated with the selected role are now displayed.

3. Scroll to the desired entry.
4. Press the PTT key to make a call.
5. You can also press **Options** to:

- call the address or select the channel (same as pressing PTT)
- send a status, text message, emergency or priority call (depending on the type of entry)
- view the entry details
- add an entry of the standard address book to your personal address book

If the number of an incoming or dialed call occurs in both the standard and the personal address books, the radio will display the name defined in the personal address book.

When adding an entry from the standard address book to the personal address, the role is added as well.

- add, edit or delete entries in the personal address book, including adding the last call

# Filtering Address Book Lists

This method can be used to select a role or entry if its name is known.

- In the roles or entries list, start typing the name (e.g. for 'Jonathan' press **5** (J) and **6** (o)) until the desired role or entry appears.

# Maintaining Personal Address Book Entries

The personal address book allows users to:

- create, edit and delete entries

- add the last caller
- copy entries from the standard address book

The personal address book can contain up to 100 entries.

New address book entries are only relevant to the radio's current mode of operation (conventional or trunked) and network.

## Creating, editing and deleting personal address book entries

To manually create a personal address book entry:

To edit or delete entries, select the corresponding option.

1. Press **Menu** and select **Address book**.

If the standard address book appears, press **Back** and switch to the personal address book.

2. Press **Options** and select **New entry**.
3. Enter the name.

Press **Clear** to correct any mistakes.

Press **Options** and select **Next**.

4. In conventional mode, select the **Entry type** > **Select**.
5. Enter the number or channel.
6. Press **Options** and select **Save**.

## Adding the last caller to the personal address book

If an individual call or a text message is received, the caller can be added to the personal address book:

1. Press **Menu** and select **Address book**.

If the standard address book appears, press **Back** and switch to the personal address book.

2. Press **Options** and select **Add last call**.

**Add last caller** only appears, if an individual call is received (all modes except analog conventional) or a text message.

3. Enter or edit the name.

   Press **Clear** to correct any mistakes.

Press **Options** and select **Next**.

4. In trunked mode, the number of the last call appears on the display.

   If the number needs to be edited, press **Change**.
   Otherwise, press **Options** and select **Save**.

5. In conventional mode, select the **Entry details** screen appears showing the radio ID of the last caller:

   If the details need to be edited, press **Change**.
   Otherwise, press **Options** and select **Save**.

## Copying a standard address book entry to the personal address book

To copy a standard address book entry to the personal address book:

1. Press **Menu** and select **Address book**.

If the personal address book appears, press **Back** and switch to the standard address book.

2. Select a standard address book entry (from a role or all entries) and press **Select**.

The entry types Talkgroup and Status Update cannot be copied to the personal address book.

3. Press **Options** and select **Add to personal**.

In the personal address book, the new entry can now me changed to make corrections to the name or number.

If the number of an incoming or dialed call occurs in both the standard and the personal address books, the radio will display the name defined in the personal address book.

If the entry from the standard address book has a role assigned, the role will also be copied to the personal address book. In this case the personal address book will display the role in a second line.

# 6 Operating in Conventional Mode

This section explains how to operate your radio on a conventional network (digital and analog).

### This section covers:


Bypassing the Repeater (on Analog Channels)

Call Alert

Checking the Queue

Dialing a Radio Call

Ending Active Calls

Making a Call

Making a Call Using the Address Book

Making a DTMF Patch Call

Making a Local Call

Making a Phone Call

Making a Preset Call

Making an Emergency Call

Making an Individual Call

Radio Check

Radio Inhibit and Uninhibit

Radio Monitor

Receiving a Call

Resending Calls Automatically

Scanning a Group of Channels

Selecting a Channel

Selecting a Scan or Voting Group

Selecting a Zone

Sending and Receiving Status Messages

Sending and Receiving Text Messages

Setting your Status

Transmitting at Low Power

Understanding Talkgroups

Using Monitor and Squelch Override (on Analog Channels)

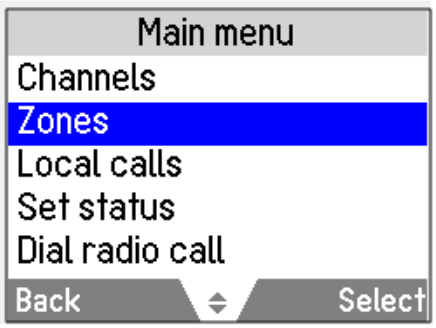
Using the Radio in Different Repeater Areas

# Selecting a Zone

The radio may be programmed to use zones, which are collections of channels and groups. When a zone is selected, only the channels and groups assigned to that zone are available.

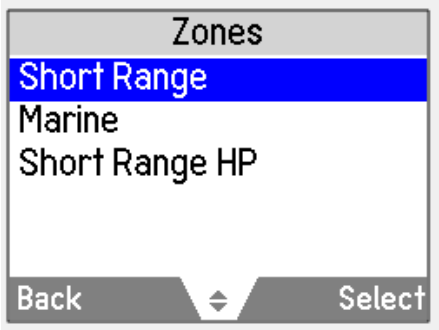
**Using the Main menu:**

1. Press **Menu** and select **Zones**.




Depending on how the radio is programmed, scroll keys or left selection keys may be used to select the **Zones** menu.

2. In the **Zones** menu, scroll through the list of zones until the desired one appears.




3. Press **Select**, and the zone indication appears either below the channel information, beside the RSSI icon, or in both positions. These can also be set to not be displayed.

## Other ways of selecting a zone

The following controls may also be used to select a zone:

- 3-way selector (see About the Radio Controls)

If the 3-way selector is turned while pressing the PTT key, the zone will change after the PTT key is released.

- left selection key (see Using the left selection key Quick Access menu)
- scroll keys (see Using the scroll key Quick Access menu)

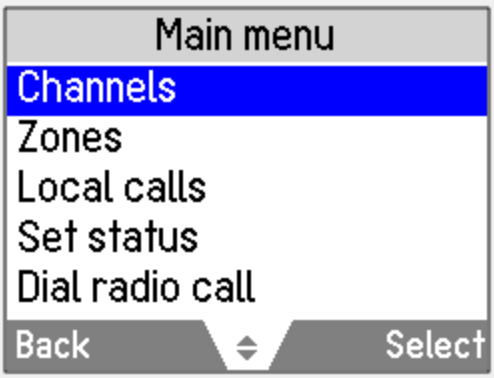
- function keys to scroll through zones

# Selecting a Channel

For DMR digital channels, a talkgroup will be assigned to a channel. For more information, see Understanding Talkgroups.

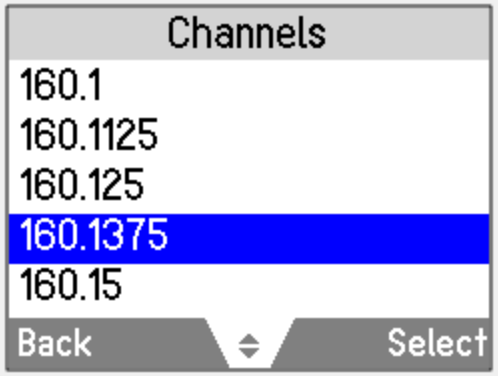
### Using the Main menu:

1. Press **Menu** and select **Channels**.




Depending on how the radio is programmed, the scroll keys, the left selection key, or a function key may be used to select the **Channels** menu.

2. In the **Channels** menu, scroll through the list of channels until the desired channel appears.




3. Press **Select**, and the programmed channel is now shown on the display.

### Using the scroll keys:

The radio may be programmed to use the scroll keys to scroll through the channels.

## Using the channel selector

The channel selector can be used to either select 16 channels, or continuously scroll through all available channels if the continuous selector model has been purchased.

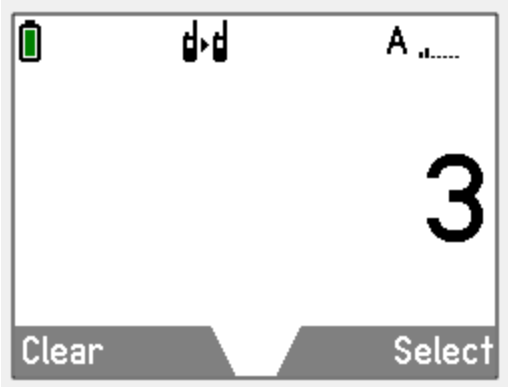
If the channel selector is turned while pressing the PTT key, the channel will change after the PTT key is released.

## Using the keypad

This feature is only available for radios with alphanumeric keys.

Dialing a channel may be available from the radio's idle display but is always available while in the **Channels** menu.

1. Dial the number associated with the channel using the alphanumeric keys.




To delete a digit that you have dialed incorrectly, press **Clear**.

2. Press **Select** or **#**, and the programmed channel is now shown on the display.

## Automatic channel selection

The radio may be configured to change channels automatically based on current location. The automatic mode icon A will be visible on the display.

Selecting a channel manually as described above will end automatic mode, and the manual mode icon M will appear on the display.

The radio may be configured to use a timer or a function key to return to automatic mode.

## Other ways of selecting a channel

The following controls may also be used to select a channel:

- function key (see Accessing Frequently Used Menus)
- left selection key (see Using the left selection key Quick Access menu)

- scroll keys (see Using the scroll key Quick Access menu)

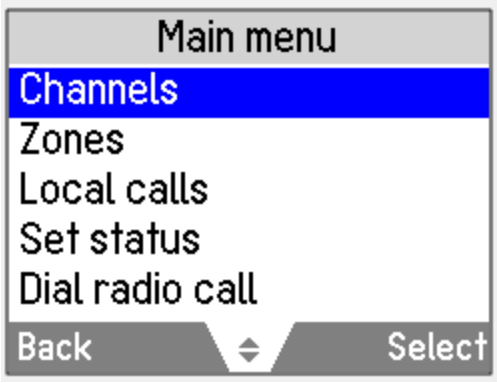
# Selecting a Scan or Voting Group

A scan or voting group is a collection of channels that are grouped together for either scanning or voting. In the **Channels** menu, the scan or voting group is shown as being a single channel item, e.g. “Scan1”.

The sections Using the Radio in Different Repeater Areas and Scanning a Group of Channels explain how the radio operates once a scan or voting group has been selected.

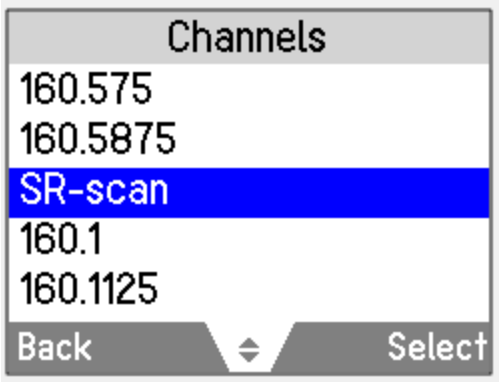
## Using the Main menu

1. Press **Menu** and select **Channels**.




Depending on how the radio is programmed, a function key, the scroll keys or left selection key may be used to select a group.

2. In the **Channels** menu, scroll through the list of channels and groups until the desired group appears.




3. Press **Select**, and the programmed scan or voting group is now shown on the display. The scanning icon appears on the display.

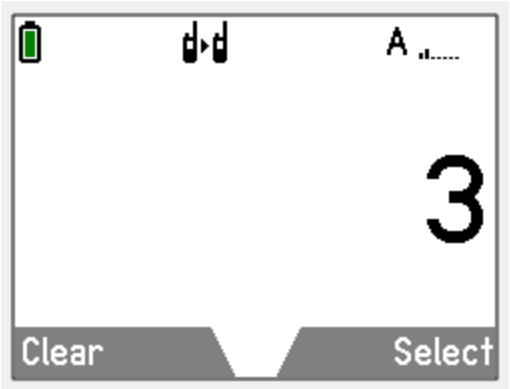
### Dialing a scan or voting group

This feature is only available for radios with alphanumeric keys.

Dialing a scan or voting group may be available from the radio's idle display but is always available while in the **Channels** menu.

To dial the group number from the default display:

1. Dial the number associated with the scan or voting group using the alphanumeric keys.




2. Press **Select**, and the programmed scan or voting group is now shown on the display. The scanning icon appears on the display.

## Understanding Talkgroups

This feature is available for DMR digital channels only.

A talkgroup is a collection of radio users with whom to have private conversations. For example, a state's public safety agencies could have the following talkgroups:

- Local talkgroups—used by a specific agency to communicate within their own local agency. It may even be made up of a county of public safety officers.
- Regional talkgroups—used by large state agencies that have regional divisions.

- Statewide talkgroups—used by an agency to communicate with public safety members in other regions. Statewide talkgroups, as their name suggests, enable public safety agencies to communicate with each other from one end of the state to the other.
- Special event talkgroups—may be used to manage emergencies encompassing a large area, or even events such as visits by heads of state.

Talkgroups are configured during set up and cannot be created by the radio user.

Talkgroups can be assigned to each channel, to allow a users to:

- initiate a call to a talkgroup by pressing PTT
- listen and respond to conversations on none, one or multiple talkgroups

The channel may be named to reflect its talkgroup association. When making a call, the talkgroup name will appear.

Your radio may also be programmed to show the **Talkgroups** menu which allows users to change the talkgroup they want to call and listen to on the current channel.

### Making a talkgroup call

1. Press the PTT key.

### Changing a talkgroup

This option may not be available.

1. Press **Menu** and select **Talkgroups**.

Depending on how the radio is programmed, it may be possible to use a Quick Access menu to go to the Talkgroup menu.

2. Scroll through the list of talkgroups to the desired one and press **Select**.
3. Press the PTT key to make a call to the currently selected talkgroup.

## Making a Call

The radio's behavior when making a call changes depending on the type of channel selected.

Channels can be programmed for:

- DMR calls over a DMR network
- DMR calls between radios
- analog calls between radios
- analog calls over an analog network

If the selected programmed channel is for calls over a network, the green LED indicates whether the network is active. By default, the network is inactive (green LED is off).
Initiating a call will activate the network which will remain active for a programmed time. While the network is active (green LED glows), the call can be completed, and a new call can begin.

If the current channel is programmed for DMR or analog calls between radios (without a radio network), the green LED indicates activity on the channel, i.e. whether someone is talking.

For all DMR calls (over the network or radio to radio), a go-ahead double-beep may sound after pressing the PTT key (if programmed).

The radio may be programmed to ring or beep when a new DMR call is received.

DMR calls have an inactivity timeout. If a pause in the conversation exceeds the timeout, the next press of the PTT key will establish a new call.

## To make a call:

1. Select the required channel or scan group.

The desired zone may need to be selected first, then the channel or group from that zone.

2. On channels programmed for DMR or analog calls between radios (without a radio network): Check that the channel is clear. If the LED is glowing green, the channel is busy and the radio may not be able to transmit.

3. Users should hold the radio so that the microphone is about one inch (2.5cm) from the mouth, and then press the PTT key to transmit.

4. On a DMR channel: Wait for the go-ahead double-beep (if programmed).

5. Speak clearly into the microphone and release the PTT key when the conversation is over.

While transmitting, the LED glows red and the transmit icon appears on the display.

If the channel selector is turned while pressing the PTT key, the channel will change after the PTT key is released.

## Limiting call time

Your radio may limit the amount of time you can talk (transmit) continuously. This is known as the ‘transmit timer’ or ‘time-out timer’ and allows other radio users to make calls on that channel.

The message **Transmit Timeout Imminent** appears on the display.

If the transmit timer has timed out, you must release the PTT before you can transmit again.

Your radio may be configured with a lockout time which prevents you from immediately starting a new transmission after the transmit timer has timed out.

# Making an Individual Call

This feature is available for DMR digital channels only. For analog individual calls, see Making a Local Call

### To make a call to one person:

1. Press **Menu** and select **Individual call**.

> If no address book is configured, a preconfigured list appears. The person to whom the last individual call was made is highlighted.

2. Scroll to the desired person to call and press the PTT key to make the call immediately.

Alternatively, press **Call** and then PTT.

> If an address book is configured, it's possible to either dial a number or show the address book.

# Making a Preset Call

The radio may be programmed to use a function key to initiate a call to an individual or group that may or may not be part of the current talkgroup (e.g. the dispatcher).

# Making a Call Using the Address Book

The **Address book** menu has a programmed list of calls.

When on a DMR conventional channel, the address book will show the DMR entries available on the current channel as well as all analog entries. When on an analog channel, the address book will show all analog entries. When selecting an analog entry, the radio will change channel if necessary.

Address book calls may also be used to send status information, such as “at lunch” or “on site”, or to change to a channel or group.
For more information, see Using the Address Book.

1. Press **Menu** and select **Address book**.

> Depending on how the radio is programmed, the scroll keys, left selection key or a function key may be used to select the **Address book** menu.

2. In the **Address book** menu, scroll through the list of calls until the desired call appears.
3. Press **Options** and **Call**, or press PTT.

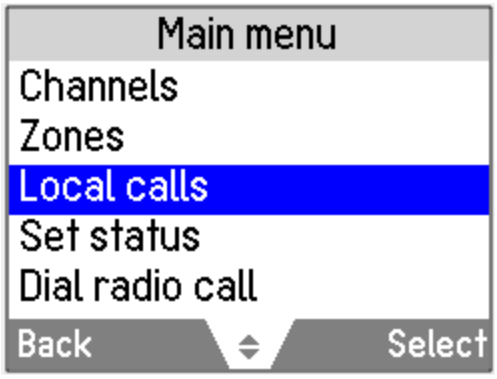
The call details appear on the display, the LED glows red, and appears on the display.

# Making a Local Call

For analog channels, each channel on the radio may have one or more local calls programmed. For digital radio-to-radio calls, see Making an Individual Call.

### Using the Main menu

1. Select the required channel.
2. Press **Menu** and select **Local calls**.




3. In the **Local calls** menu, scroll through the list of local calls until the desired call appears.
4. Press **Send**.

The call details appear on the display, the LED glows red, and the transmit, , or low power transmit, , icon appears on the display.

# Dialing a Radio Call

This feature is only available for radios with alphanumeric keys.

### To dial a call to another radio, or group of radios (analog only):

1. Select the required channel.
2. Press **Menu** and select **Dial radio call**.

Alternatively, the radio may be programmed so a call can be dialed directly from the default display. In this case, it's possible start dialing the call without selecting the menu option.

On an analog channel, a series of **X** and **S** characters may appear, prompting the user to dial over them.

3. Dial the number using the alphanumeric keys.

On an analog channel, the radio may be programmed so it can dial group tones using the asterisk (*) and hash keys (#). Dial asterisk (*) to fill one **X**. Dial hash (#) to fill the current **X** and all subsequent **X** characters in the current burst.

4. For DMR conventional calls, press the PTT key to make the call immediately. Alternatively, press **Call** and then the PTT btton.

For analog calls, press **Send**.

The call details appear on the display, the LED glows red, and appears on the display.

On an analog channel, when the called party receives your call, the message **Ack received** may appear on the display.

# Making a Phone Call

This feature is available for DMR digital channels only.

A telephone network can be directly connected to by manually dialing the number or using preset dialing sequences.

1. Select the required channel.
2. Press **Menu** and select **Phone call**.
3. If an address book is configured, the options shown are to either dial a number or show the address book. Otherwise, the only option is to dial a number.
4. Press **Call**.

The call details appear on the display, the LED glows red, and appears on the display.

# Making a DTMF Patch Call

DTMF patch dialing may be used to connect to a telephone network or signal another device by dialing the number manually, or using preset dialing sequences.

Users may either:

- use a programmed function key
- use the Main menu to dial the call
- make a local call (see Making a Local Call)
- use the address book (see Making a Call Using the Address Book)
- dial DTMF tones (overdialing)

## Using a function key

Depending on how DTMF patch calls are programmed, some or the following steps may not be necessary.

1. Select the required channel.
2. Press the function key programmed for DTMF patch call.

The radio may send tones to capture the line.

3. Press **Send**, or press the function key a second time, to send the preset number.

There may be telephone dialing and ringing tones.

4. Proceed with the call.
5. Press **End**, or give a long press on the function key, to end the call.

The radio may send tones to release the line.

## Using the Main menu

This feature is only available for radios with alphanumeric keys.

Depending on how DTMF patch calls are programmed, some or the following steps may not be necessary.

1. Select the required channel.
2. Press **Menu** and select **Dial patch call**.
3. Dial the required number using the alphanumeric keys.
4. Press **Send**.

The radio may send tones to capture the line.

5. Press **Send** to send the number dialed in step "Making a DTMF Patch Call" on the previous page.

There may be telephone dialing and ringing tones.

6. Proceed with the call.
7. Once the call has finished, press **End**.

The radio may send tones to release the line.

### Dialing DTMF tones (overdialing)

The radio may be programmed to allow dialing of DTMF tones using the numeric keypad while on a channel or in a call. The dialing may be either sent out immediately (as it's typed) or sent after pressing **Send**.

## Making an Emergency Call

Users may be able to activate emergency mode by using a programmed function key.

1. Press the function key programmed for Emergency Mode and an emergency call is sent to the dispatcher, or some other predetermined location.

While emergency mode is active, the radio may automatically cycle between receive and transmit, so that the dispatcher can hear any activity near the radio.

2. Reset the radio to normal operation at any time by turning the radio off and then on.

Emergency mode may be programmed to end after a fixed period of time. In this case, there is no need to turn the radio off and then on in order to return the radio to normal operation.

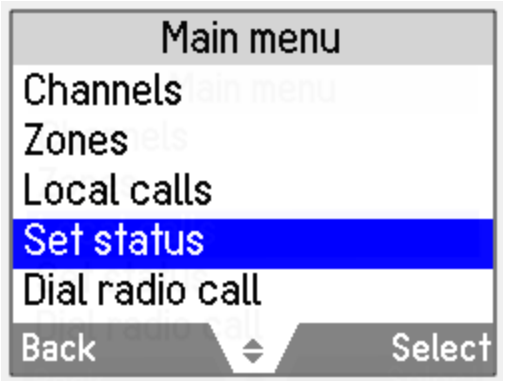
If the function key has been enabled as a toggle key, a second press of the function key will cancel emergency mode.

## Setting your Status

The radio may be able to maintain a record of its current status. This status may be sent with outgoing calls programmed to contain status information. If the radio receiving the call has been programmed with the same status messages, it will decode and display its status. The status indicates the current activity or location, such as “en route” or “at lunch”.

### To change the current status:

1. Press **Menu** and select **Set status**.




2. In the **Set status** menu, scroll through the list of status messages until the desired message appears.
3. Press **Select**. The message **Status updated** appears on the display.

# Sending and Receiving Status Messages

A status message is sent to another party to indicate current activity or location, such as “en route” or “at lunch”. If the radio receiving the message has been programmed with the same status messages, it will decode and display the message. If a status message is received, the message is automatically queued, since a response is not expected.

Status messages can also be used to control external devices.

## Sending a status message

1. Press **Menu** and select **Services** > **Status update**.
2. In the **Status update** menu, scroll through the list of status messages until the desired message appears.
3. When a message has been chosen, press **Select**.

Depending on how radio is programmed, the message may be sent directly to a pre-configured radio or group, or the user will be presented with options to select a destination.

The call details appear on the display.

## Receiving a status message

If the radio is programmed for call queuing, incoming status messages are added to the queue. For more information, see Checking the Queue.

Press **Options** and select whether to reply, call or delete.

The radio may be programmed to automatically view status messages on receipt.

If the radio is not programmed for call queuing, incoming status messages are displayed briefly.

# Sending and Receiving Text Messages

The radio may be programmed so that it can send text messages. The three options for creating text messages are selecting a preset text message, editing a draft text message, or creating a new text message.

To either edit or enter a text message, the radio must have alphanumeric keys.

## Using the alphanumeric keys to enter text

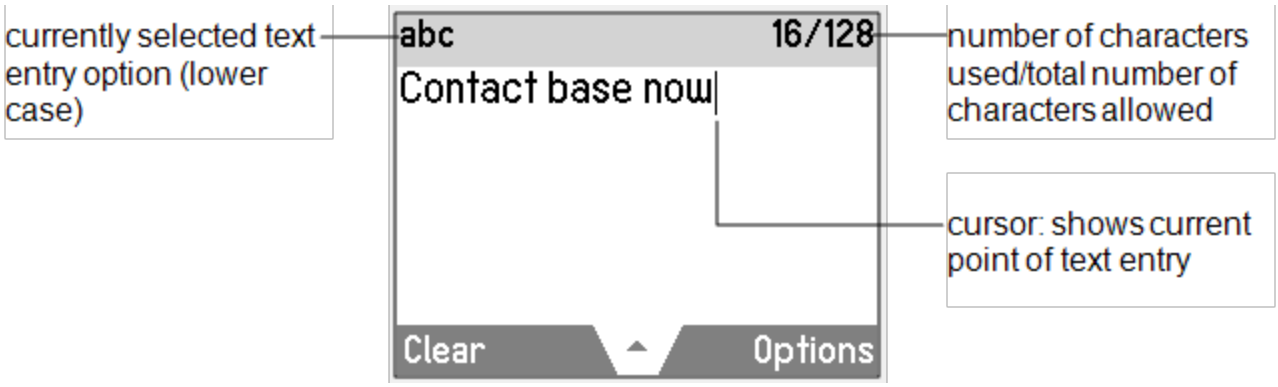
When the alphanumeric keys are used to enter a text message, they have special functions.

- Use the **#** key to select the type of text entry: upper and lower case characters (**ABC**, **abc**), initial capitals (**Abc**), or numbers (**123**).
- Use the left selection key (**Clear**) to delete a character from the display.
- Use the scroll keys to move through a message.

Repeated presses of these keys will provide the characters shown in the following table:

| Key | Characters |
|---|---|
| 1 | . , ? ! - / 1 |
| 2 ABC | A B C 2 |
| 3 DEF | D E F 3 |
| 4 GHI | G H I 4 |
| 5 JKL | J K L 5 |
| 6 MNO | M N O 6 |
| 7 PQRS | P Q R S 7 |
| 8 TUV | T U V 8 |
| 9 WXYZ | W X Y Z 9 |
| 0 | space 0 |

In the example below, a preset text message has been selected, and is being edited.




## Sending a preset text message

1. Press **Menu** and select **Services** > **Text message** > **Preset message**.

In the **Preset message** menu, a short label representing each message is displayed.

2. Scroll through the list of preset message labels until the desired one appears.
3. Press **Select**, and the chosen text message is now displayed.
4. Press **Send** to send the message, or **Edit** to change the message.

Pressing ⌒ will place the cursor at the start of the message. Pressing ⌣ will place the cursor at the end of the message.

5. When the message is complete, press **Options** and select **Send**.

## Creating a new text message

1. Press **Menu** and select **Services** > **Text message** > **New message**.
2. Use the alphanumeric keys to add characters and the **Clear** key to delete them. Use the scroll keys to move through the characters.
3. When the message is complete, press **Options** and select **Send**.

If canceling out of editing a text message or receiving a call while editing, the current draft will be saved and is available for editing later.

## Editing a draft text message

1. Press **Menu** and select **Services** > **Text message** > **Edit message**.

The last sent or edited text message will appear.

2. Use the scroll keys to move through the characters. Use the alphanumeric keys to add characters and the **Clear** key to delete them.

3. When the message is complete, press **Options** and select **Send**.

If canceling out of editing a text message or receiving a call while editing, the current draft will be saved and is available for editing later.

### Sending a text message

1. When a message has been chosen or entered, press **Options** and the **Text options** menu opens.

2. In the **Text options** menu, scroll through the list of options until the desired one appears.

3. Select **Send** and press **Select**.

4. If an address book is configured, it's possible to either dial a number or show the address book. Otherwise a preset list of radios will appear.

The call details appear on the display.

### Receiving a text message

If the radio is programmed for call queuing, incoming text messages are added to the queue. For more information, see Checking the Queue.

Press **Options** and select whether to reply, call or delete.

The radio may be programmed to automatically view text messages on receipt.

If the radio is not programmed for call queuing, incoming text messages will not be stored or displayed.

## Checking the Queue

If an incoming call or call alert has been missed, or if a status message or text message has been received, it may be stored in the queue. The queue icon appears and information about the missed call or message may be shown on the display.

The queue can be programmed to store multiple calls or messages or just the last call or message.

Press **Options** to either view, reply, call back, look at the entry details, or delete the entry.

The radio may be also programmed to automatically view the full status update or text message on receipt.

If there are calls or messages in the queue, the radio may emit a warble tone for a period of time. The notification starts again when the radio is restarted or another call is received.

### Accessing the queue

1. If the call or message information is not shown already, press **Menu** > **Call queue**.

Depending on how the radio is programmed, a function key may be used to access the queue.

2. Use the scroll keys to move through the calls or messages in the queue until the desired item appears.
3. Press **Options**.

   The options available depend on the type of call it is. For a voice call, select **Call** to return the call.

   For a status message or a text message, select **View** to read the message, **Reply** to reply, or **Call** to return the call.

The radio may be also programmed to automatically view the full status update or text message on receipt.

Selected call or messages, or all queued calls and messages can all be deleted.

# Call Alert

This feature is available for DMR digital channels only.

Users can let other radio users know they wish to communicate by sending them a call alert page. When the other radio user receives the call alert page, they can call back when it is convenient.

If on a DMR conventional channel, users can send a call alert to any other radio on the same DMR conventional channel.

## To send a call alert page:

1. Press **Menu** and select **Services** > **Call alert**.

Users can also send a call alert from the **Options** > **Services** menu of an address book entry.

2. If an address book is configured, it's possible to either select to either dial a number or show the address book. Otherwise a preset list of radios will appear.
3. Select the desired radio to page.
4. Press **Send to**.

A message appears in the display. The LED glows red and a message will be displayed to advise whether the call alert has been sent successfully or not.

If an acknowledgment is not received from the recipient's radio, users will have the option of either canceling or resending the request.

## Answering a Call Alert Page

If a call alert page is received from another radio user, the message **Call alert** and the name of the caller appears on the display.

Select **Call** to return the page or **Clear** to delete it. If the call alert page is missed, a call alert entry is added to the queue. See Checking the Queue.

# Radio Check

This feature is available for DMR digital channels only.

If users want to find out whether a particular radio is available on the same DMR conventional channel, they can use the radio check feature. This sends a radio check message to the radio that's been specified.

1. Press **Menu** and select **Services** > **Radio check**.

Radios can also be checked from the **Options** menu of its address book entry.

2. If an address book is configured, users can select to either dial a number or show the address book. Otherwise a preset list of radios will appear.
3. Scroll to the radio that needs checking.
4. Press **Send to**.

The LED glows red and a message showing the destination appears in the display.

If the radio is available on the system, an acknowledgment message is displayed.

If an acknowledgment is not received from the recipient's radio, users will have the option to either cancel or resend the request.

# Radio Monitor

The radio unit monitor feature can be used when concerned about the safety of a radio user on the same DMR conventional channel. When sending a radio-unit monitor request to a radio, it calls the user back without giving any indication that it is making a call. Users can hear any activity near the radio for up to 120 seconds.

## To send a radio unit monitor request:

1. Press **Menu** and select **Services** > **Radio monitor**.

Users can also send a radio unit monitor request from the **Options** menu of an address book entry.

2. If an address book is configured, it is possible to select to either dial a number or show the address book. Otherwise a preset list of radios will appear.
3. Scroll to the radio to be monitored.
4. Press **Send to**.

The LED glows red and a message appears in the display.

If the other radio has received the user's request, it will now call them, so that they can monitor activity near the radio.

If an acknowledgment is not received from the recipient's radio, the user will have the option of either canceling or resending the request.

If Active Noise Cancellation is turned on, the user may not be able to hear any background noise.

# Radio Inhibit and Uninhibit

**When a radio is immobilized ('inhibited'), the encryption keys may be automatically deleted from the radio.**

If another radio needs to be uninhibited on the same DMR conventional channel, use the radio inhibit feature. This feature is also known as 'stun'.

On the inhibited radio, **Radio stunned** will appear briefly on the display, and the radio will return to the idle display. The radio remains inoperable even if it is turned off and then on again.

The radio cannot return to normal operation until it receives an uninhibit request. This is also known as 'revive'.

## To send a radio inhibit request:

1. Press **Menu** and select **Services** > **Radio inhibit**.

Another radio can also be inhibited from the **Options** menu of its address book entry.

2. If an address book is configured, a number can be dialled, or the address book can be shown. Otherwise a preset list of radios will appear.

3. Scroll to the desired radio to make it inoperable.

4. Press **Send to**.

The LED glows red and a message appears in the display.

If the radio has been successfully immobilized, an acknowledgment message is displayed.

## To send a radio uninhibit request:

1. Press **Menu** and select **Services** > **Radio uninhibit**.

Another radio can also be inhibited from the **Options** menu of its address book entry.

2. If an address book is configured, select to either dial a number or show the address book. Otherwise a preset list of radios will appear.

3. Scroll to the radio to be made operable.

4. Press **Send to**.

The LED glows red and a message appears in the display.

If the radio has been successfully returned to operation, the uninhibited radio will briefly display **Radio revived**.

If an acknowledgment is not received from the recipient's radio, users will have the option of either canceling or resending the request.

# Resending Calls Automatically

On an analog channel, your radio may have been programmed to resend individual and group calls when transmission is refused because the channel is busy.

There are two automatic callback features:

- deferred calling
- no acknowledgment retries

**Deferred calling**

When you attempt to make a call on a channel that is busy, the radio can store and send the call once the channel is free. The radio gives a low-pitched beep if the channel is busy, and then waits until the channel is free to retry the call.

A deferred calling time limit may have been configured. Once the time limit has expired the radio will no longer attempt to retry the call.

Any user interaction (such as pressing PTT) will cancel a deferred call.

**No acknowledgment retries**

When you send a call and there is no reply, the call is resent.

Any user interaction (such as pressing PTT) will cancel a call that is being resent.

# Transmitting at Low Power

When low power transmit is turned on, appears on the display and calls are made at low power rather than at the programmed power setting.

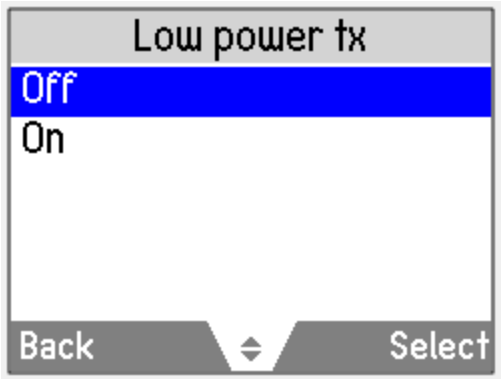
Some channels may always transmit at low power.

To turn low power transmit on or off for all channels:

### Using the Main Menu

1. Press **Menu** and select **Radio settings** > **Functions** > **Low power tx**.
2. Scroll to **On** (or **Off**) and press **Select**.

The current setting is highlighted.




The message **Low power tx activated** (or **deactivated**) appears on the display.

### Using a function key

1. Press the function key programmed for low-power transmit to transmit at low power on your current channel and any channels subsequently used.

The message **Low power tx activated** appears briefly, and the low-power transmit icon appears on the display.

2. Press the low-power transmit function key again to turn low-power transmit off, and the message **Low power tx deactivated** appears on the display.

## Ending Active Calls

For analog channels, a function key may be programmed to either end the current call, or end the current call and all other active calls in your group. This can be done either by:

- using the function key programmed for reset monitor to end the current call,
- using the function key programmed for call cleardown to end the current call and all other calls in the group, or
- using the function key programmed for both reset monitor and call cleardown.

### Using a function key to end your current call

- Press the function key programmed for reset monitor. The radio's monitor is turned off, ending the current call. The LED stops flashing green, and the monitor icon disappears from the display.

### Using a function key to end all active calls

- Press the function key programmed for call cleardown and monitor is turned off for all radios in the radio group.

  The LED stops flashing green, and the monitor icon disappears from the display.

### Using the function key programmed for reset monitor/call cleardown to end active calls

The function key programmed for reset monitor may be programmed so that a short key press ends the current call, and a long key press ends all active calls in the group.

## Using Monitor and Squelch Override (on Analog Channels)

The monitor function allows users to override some or all of the radio's mutes, and hear if there is any traffic on a channel before they make a call.

The squelch override function lets the radio user override the squelch (carrier) mute and hear all noise on a channel, including weak signals that are below the programmed squelch threshold.

### To turn monitor on and off:

1. Press **Menu** and select **Radio settings** > **Functions** > **Monitor**.
2. Scroll to **On** (or **Off**) and press **Select.**

While monitor is on, the LED slowly flashes green and the monitor icon appears in the display.

The radio may be programmed so that monitor turns off automatically after a short time.

### To turn squelch on and off:

1. Press **Menu** and select **Radio settings** > **Functions** > **Squelch o'ride**.

Squelch is often programmed as a long keypress of the same function key that turns monitor on and off.

2. Scroll to **On** (or **Off**) and press **Select**.

This allows even faint and noisy signals to be heard. While squelch override is on, the LED flashes green, and the squelch override icon appears on the display.

Press the monitor function key again to return the radio to a quiet state.

Squelch cannot be overridden when the radio is scanning.

# Bypassing the Repeater (on Analog Channels)

For analog channels, users can bypass the radio repeater and communicate directly with another radio. This feature is known as repeater talkaround. This can be done, for example, when you are out of range of the repeater, or if the repeater is busy or stops working. While repeater talkaround is active, all transmissions are made on the receive frequency of the channel you are on.

To activate repeater talkaround, you may be able to either use a programmed function key, or use the Main menu.

## Using the Main menu

1. Select the required channel.
2. Press **Menu** and select **Radio settings** > **Functions** > **Talkaround**.
3. In the **Talkaround** menu, choose **On**.
4. Press **Select**. The message **Talkaround activated** appears briefly, and the repeater talkaround icon appears on the display.
5. Proceed with your call.
6. To turn repeater talkaround off, either change the channel, or choose **Off** in the **Talkaround** menu.

## Using a function key

1. Select the required channel.
2. Press the programmed function key to turn repeater talkaround on. The message **Talkaround activated** appears briefly, and the repeater talkaround icon appears on the display.
3. Proceed with your call.
4. To turn repeater talkaround off, either change the channel, or press the function key again.

# Using the Radio in Different Repeater Areas

The radio may have a group of channels programmed as a voting group. The channels in the voting group all carry the same traffic, but from different repeaters. As the radio moves in and out of different repeater coverage areas, the best communication channel is automatically selected for use.

This channel is known as the 'home' channel, and will be the channel used to make and receive calls. While voting is active, the scanning icon appears on the display.

The section Selecting a Scan or Voting Group explains how to select a group. A group can be either a voting or a scanning group.

### Suspending a channel from a voting group

Users may be able to use the function key programmed for nuisance delete to temporarily delete one of the channels from the voting group.

When that voting group is next selected, or after the radio has been turned off and then on, the deleted channel is again part of the voting group.

Alternatively, the function key programmed for voting may be programmed so that a short key press turns on voting, and a long key press activates nuisance delete.

- Press and hold the function key programmed for voting to remove the current channel from the voting group.

If the operation has been successful, the message **Channel nuisance deleted** appears on the display.

## Scanning a Group of Channels

The scan function is used to monitor a programmed group of channels, looking for activity. While the radio is scanning for activity, the scanning icon appears on the display. When activity is detected on a channel in the scan group, the radio stops on that channel. The radio unmutes and the call can be heard. Scanning resumes once the channel is no longer busy.

The section Selecting a Scan or Voting Group explains how to activate scanning.

### Standard and background scanning

The two types of scanning that may be available on the radio are standard scanning, and background scanning. Background scan can only be activated by using a function key programmed for background scan. It differs from standard scanning in that the channel that was selected when background scan was activated is also included as a scan-group member.

### Making a call while scanning

To make a call while your radio is scanning:

1. Press the PTT key to transmit. If background scan is active, the radio will now call the currently selected channel.
2. If standard scan is active and there has been no recent activity on the channel, then the channel that is called depends on the way the radio has been programmed. The possible options are:
    - the radio calls a predetermined channel e.g. the dispatcher,
    - the radio calls the channel where activity was last detected, or
    - the radio calls the last free channel.
3. When the called party responds, proceed with the conversation.

### Suspending a channel from a scanning group

If a member channel of a scan group is busy for a long time and the user does not wish to hear the conversation, the user may be able to use the function key programmed for nuisance delete to temporarily delete it from the scan group.

When the scan group is next selected, or after the radio has been turned off and then on, the deleted channel is again part of the scan group.

Alternatively, the function key programmed for scanning may be programmed so that a short key press turns on scanning, and a long key press activates nuisance delete.

- Press and hold the function key programmed for scanning to remove the current channel from the scanning group.

If the operation has been successful, the message **Channel deleted from group** appears on the display.

## Adding or deleting member channels of a group

The radio may be programmed so users can add or delete channels in a voting or scanning group. Changes made are permanent, and will remain after restarting the radio.

1. Select the group. See Scanning a Group of Channels.
2. Press **Edit**.

If there is no edit option for the left selection key, the group cannot be changed.

Alternatively, users may be able to edit groups by pressing **Menu** and selecting **Advanced** > **Program groups**, then select the group they wish to edit.

3. In the **Edit group** menu, choose **Add channel** or **Delete channel**.
4. Press **Select**.
5. Press the scroll keys to select the desired channel to add or delete.
6. Press **OK**.

If successful, the message **Channel added** or **Channel deleted** appears.

To check the new group details, press **Back** and select the **Group members** menu option.

## Changing a group's transmit channel

Users may be able to change the transmit channel of a standard scanning group. The transmit channel is identified by the **Tx** icon.

1. Select the group. See Selecting a Scan or Voting Group.
2. Press **Edit**.

If there is no edit option for the left selection key, the group cannot be changed.

Alternatively, users may be able to edit groups by pressing **Menu** and selecting **Advanced** > **Program groups**, then select the group they wish to edit.

3. In the **Edit group** menu, choose **Change tx**.
4. Press **Select**.

5. Press the scroll keys to select the new transmit channel.
6. Press **OK**.

If successful, the message **Tx channel changed** appears.

To check the new group details, press **Back** and select the **Group members** menu option. The new transmit channel has the **Tx** icon next to it.

## Changing a group's first or second priority channel

Users may be able to change the priority channels of a scanning group. Priority channels are scanned more frequently than other channels in the group. If valid activity is found on another channel, the radio continues to scan the priority channel or channels at regular intervals. The first priority channel is identified by the P1 icon, and the second priority channel is identified by the P2 icon.

1. Select the group. See Selecting a Scan or Voting Group.
2. Press **Edit**.

If there is no edit option for the left selection key, the group cannot be changed.

Alternatively, users may be able to edit groups by pressing **Menu** and selecting **Advanced** > **Program groups**, then select the group they wish to edit.

3. In the **Edit group** menu, choose **Change P1** or **Change P2**.
4. Press **Select**.
5. Press the scroll keys to select the new priority channel.
6. Press **OK**.

If successful, the message **P1 channel changed** or **P2 channel changed** appears.

To check the new group details, press **Back** and select the **Group members** menu option. The new priority channel has the P1 or P2 icon next to it.

## Icon and messages that may appear when changing group details

The following icons may appear when viewing group membership details, adding or deleting channels from a group, or changing a group's transmit or priority channels.

| Icon | Meaning |
|---|---|
| Tx | This channel is used to transmit on when there has been no recent activity. Users cannot delete this channel (it will not appear under **Delete channel**). |
| P1 | This channel is the group's first priority channel. Users cannot delete this channel (it will not appear under **Delete channel**). |

| Icon | Meaning |
|---|---|
| P2 | This channel is the group's second priority channel. Users cannot delete this channel (it will not appear under **Delete channel**). |
| + | There is more than one instance of this channel in the group (the channel will be scanned more often). If users delete this channel, the radio will attempt to delete all instances of the channel. |

The following messages may appear when using nuisance delete to temporarily delete a channel from a group, when adding or deleting channels from a group, or changing a group's transmit or priority channels.

| Message | Meaning |
|---|---|
| **Scanning not on** | Users cannot use nuisance delete to temporarily delete a channel from a group, as there is no group currently selected. |
| **No channel captured** | Users cannot use nuisance delete to temporarily delete a channel from the group, as there is no channel currently captured. |
| **Not enough channels in group** | Users cannot use nuisance delete to temporarily delete the channel from the group, as the captured channel is the last remaining group member. |
| **Cannot delete channel** | Users cannot use nuisance delete to temporarily delete the channel from the group. The captured channel may be the selected channel in a background scan group. |
| **Cannot delete priority chan** | Users cannot use nuisance delete to temporarily delete the channel from the group, as the captured channel is a priority channel. |
| **Only two channels in group** | Users cannot delete a channel from the group, as there would be only one group member left. |
| **No items in list** | The action users are attempting is not allowed. Either:<br>the group does not have a preset transmit channel or priority channels programmed, or<br>the user has added all the channels in the zone to the current group. |
| **Group full** | Users cannot add any more channels to the group, as the maximum number of members (50) has been reached. |

# 7 Operating in Trunked Mode

This section explains how the radio operates on a DMR (digital), MPT (analog) or dual-mode trunked network.

These features are controlled by software licenses (SFE) and may not be available with your radio.

Your radio must have trunking functionality programmed before it can operate in DMR or MPT trunked mode.

### This section covers:


Checking that your Network is Available

Changing the Network

Making a Call Using the Address Book

Making a Preset Call

About Trunked Zones and Workgroups

About Emergency Operation

Dialing a PABX Number

Dialing a PSTN Number

Receiving a Call

Re-establishing a Call

Checking the Queue

About Status Messages

About Trunked Text Messages

Placing the Radio in Do-Not-Disturb Mode

Switching to Conventional Channels or Conventional Groups


## Checking that your Network is Available

Check that the orange LED is flashing and the network icon appears on the display. These are the indications that the radio has access to a trunked network.

If the network icon is flashing and **No service** appears on the display, the radio is attempting to access the trunked network. If this icon remains flashing, the radio may be out of the network coverage area.

If **Limited service** appears on the display, one of the network sites or the connection between the network sites has been interrupted. Users can still make calls to radios covered by the same site but not to radios on other sites.

# Changing the Network

The radio may be programmed to operate in up to four completely separate trunking networks, either DMR (digital), MPT (analog) or both (dual mode). Users may wish to change networks because they are out of the network coverage area, or they need to have access to another trunking network.

To change the radio's operating network, users may be able to either use the main menu or dial the new network using the alphanumeric keys.

Changing the radio's workgroup may also change the network in which users are operating.

## Using the Main menu

1. Press **Menu** and select **Change network**.
2. In the **Change network** menu, scroll through the list of networks until the desired network appears.
3. Press **Select**.

The radio will restart and display the name of the new network.

## Dialing a new network

This feature is only available for radios with alphanumeric keys.

1. Dial ***700#** to display the name of the current trunked network.
2. Dial ***70n#** to change to a new network, where **n** is the number of the new network (1 to 4).

The radio will restart and display name of the new network.

# Making a Call Using an Address Book

The **Address book** menu programmed for the radio may contain calls to other radios, to PABX extensions or to PSTN numbers.

Address book calls may also be used to send status information, such as "at lunch" or "on site". For more information, see "Using the address book".

1. Press **Menu** and select **Address book**.
2. In the **Address book** menu, scroll through the list of calls until the desired call appears.
3. Press **Options** and **Call**, or press PTT.

The call details appear on the display, the LED glows red, and the two zig-zag arrows appear on the display.

# Making a Preset Call

The preset calls programmed for the radio may be to other radios, to PABX extensions or to PSTN numbers.

1. Press **Menu** and select **Preset calls**.
2. In the **Preset calls** menu, scroll through the list of calls until the required call appears, then press **Send**.

While the call is being setup, it can be canceled by pressing **Clear**.

### Dialing a preset call

This feature is only available for radios with alphanumeric keys.

It may be possible to dial preset calls, if preset calls are programmed for your radio and you know the number associated with the preset call.

1. Dial **p**, where **p** is the number of the preset call.

If your preset call number is the same as a call to another radio, then you need to dial a leading **0**. For example, dial **23#** to call radio 23 and dial **023#** for preset call number 23.

2. Press **Send** or the **#** or PTT key.

While the call is being setup, it can be canceled by pressing **Cancel**.

## About Trunked Zones and Workgroups

Trunked zones and workgroups are used to manage the calls on the trunked system. Zones, if used, typically define geographic areas (towns, suburbs or counties), or branches of an organization. Workgroups span multiple zones, and typically define functions, work areas or job roles.

When the radio belongs to a workgroup, it is said to be ‘subscribed’, and users receive all calls directed to that group of users. A group’s members are dynamic, in that a group only contains radios that are currently registered on the system and subscribed to the same group.

The radio may be programmed to use different names for a ‘zone’ and ‘workgroup’. For example, ‘district’ or ‘area’ may be used in place of zone, and ‘role’ or ‘group’ may be used in place of workgroup.

### Selecting a zone

1. Press **Menu** and select **Set zone**.
2. In the **Set zone** menu, scroll through the list of zones until the desired zone appears.
3. Press **Select**.
4. Check that the network icon appears on the display.

## Automatic zone selection

The radio may be configured to change zones automatically based on a user location.

Selecting a zone manually as described above will end automatic mode, so the automatic mode icon will disappear and the manual mode icon will appear on the display.

The radio may be configured to use a timer or a function key to return to automatic mode.

## Selecting a workgroup

1. Press **Menu** and select **Set workgroup**.
2. In the **Set workgroup** menu, scroll through the list of workgroups until the desired workgroup appears.
3. Press **Select**.
4. Check that the network icon appears on the display.

## Making a call to a workgroup

Different types of calls may be associated with user workgroups. These calls can be any types of calls.

To make a call to a workgroup:

1. Select the required zone. See Selecting a zone.
2. Select the required workgroup. See Selecting a workgroup.
3. Press the PTT key, and a call to that workgroup is made.

## Dialing a workgroup call

This feature is only available for radios with alphanumeric keys.

It may be possible to dial workgroup calls, if the number associated with the workgroup is known.

1. Dial **w**, where **w** is the number of the workgroup.

If the workgroup call number is the same as a call to another radio, then the user needs to dial a leading **0**. For example, dial **23#** to call radio 23 and dial **023#** for workgroup call number 23.

2. Press **Send** or the **#** or PTT key.

While the call is being setup, users can cancel the call by pressing **Cancel**.

## Selecting the homegroup

'Homegroup' is the workgroup in which the radio usually operates. To return to the homegroup at any time, users may be able to use the main menu, or an allocated function key.

### Using the Main menu

1. Press **Menu** and select **Go to homegroup**.
2. Press **Select**, and the radio now shows the homegroup in the default display.

### Using function keys

Users may be able to use function keys to go to their homegroup or to toggle between the homegroup, and the currently selected zone and workgroup.

- Press the function key programmed to go to the homegroup.

  The radio now shows the homegroup on the default display.
- Press the function key programmed to toggle between the homegroup and the currently selected zone and workgroup.

  The radio now shows the homegroup on the default display, along with the homegroup icon .

The homegroup icon only appears if using a function key to toggle between the homegroup and the currently selected zone and workgroup.

### Scanning workgroups

The 'My Workgroups' list comprises the current workgroup, the homegroup, and other programmed groups. When scanning is active, the radio will receive activity from any subscribed groups in the My Workgroups list.

### To activate scanning:

1. Press **Menu** and select **Scanning**.
2. Scroll to **On** (or **Off**) and press **Select**.

## About Emergency Operation

In an emergency, users may be able to summon help by sending an emergency call. After making the call, the radio may be programmed to enter emergency mode. While emergency mode is active, the radio may cycle between receive and transmit, so that the dispatcher or the called party can hear any activity near the radio.

On most networks, an emergency call takes precedence over other call types, and existing calls are cleared down so that the emergency call can proceed.

To make an emergency call from a radio, users may be able to either:

- use a function key programmed for emergency mode
- make an emergency call using
  - the address book (see Making a Call Using the Address Book)
  - a workgroup (see Making a call to a workgroup)
  - a preset (see Making a Preset Call)
- dial the emergency call using the alphanumeric keys

### Dialing an emergency call

Dialing is only available for radios with alphanumeric keys.

1. Dial ***9**.
2. Press **Send** or the **#** or PTT key.

An emergency call is now sent to the emergency location that has been programmed for the radio.

If users wish to send an emergency call to another radio, they may be able to dial ***9*n** then press the **#** or PTT key. In this case, **n** is the radio unit number or group number users wish to send the emergency call to and may be a two- or three-digit number.

### Activating emergency mode

Users can activate emergency mode using a function key programmed for emergency mode. Once emergency mode is activated, the radio makes an emergency call to a dispatcher or some other predetermined location. The radio then enters emergency mode.

While emergency mode is active, the radio may cycle between receive and transmit, so that the dispatcher can hear any activity near the radio.

The radio may send an emergency alarm status before the call, and an emergency end alarm status after the call.

The radio may only send an emergency alarm status and then remain in emergency mode, where any call made will be made as an emergency call until the user cancel's emergency mode.

### Cancelling emergency mode

Reset the radio to normal operation at any time by turning the radio off and then on.

Emergency mode may be programmed to end after a fixed period of time. In this case, there is no need to turn the radio off and then on in order to return the radio to normal operation.

If the function key has been enabled as a toggle key, a second press of the function key will cancel emergency mode.

## Dialing a PABX Number

Dialing is only available for radios with alphanumeric keys.

### To dial a PABX extension for MPT1327, MPT1343 and Nokia ANN:

1. Dial **n**, where **n** is the PABX extension desired to call.
2. Press **Send** or the **#** or PTT key.

The call details appear on the display. While the call is being setup, users can cancel the call by pressing **Cancel**.

### To dial a PABX extension for DMR:

1. Dial 02n, where n is the PABX number.
2. Press Send or the # or PTT key.

The call details appear on the display. While the call is being setup, users can cancel the call by pressing **Cancel**.

## Dialing a PSTN Number

Dialing is only available for radios with alphanumeric keys.

### To dial a PSTN number for MPT1327, MPT1343 and Nokia ANN:

1. Dial **0n**, where **n** is the PSTN number desired to call.

The numbers dialed before the 0 depend on the way a user's network operates.

2. Press **Send** or the **#** or PTT key.

The call details appear on the display. While the call is being setup, users can cancel the call by pressing **Cancel**.

### To dial a PSTN extension for DMR:

1. Dial 01n, where n is the PSTN number.
2. Press Send or the # or PTT key.

The call details appear on the display. While the call is being setup, users can cancel the call by pressing **Cancel**.

## Receiving a Call

When the radio receives a call, it may:

- automatically accept the call. The GO icon appears on the display. The radio may also be programmed to beep or ring. In this case, the caller will usually talk first.
- ring like a telephone. Press **Answer** to accept the call. The radio gives a beep and the GO icon appears in the display. You may also be able to accept the call if you press the PTT key. In this case, you will usually talk first.

Once the GO icon appears, you can proceed with the call, as follows:

1. Hold the microphone about 2 inches (5cm) from your mouth.
2. Press and hold the PTT key to transmit.
3. Speak clearly into the microphone and release the PTT key when you have finished talking.

While you are transmitting, the LED glows red and appears in the display.

End the call by pressing **End**. The network may also end the call if neither you nor the other party transmits for a pre-determined time or if your call time limit is exceeded.

### Transmit timer

Your radio may have a transmit timer that limits the amount of time you can transmit continuously.

When the transmit timer is about to expire, the message **Transmit timeout imminent** appears in the display, the LED flashes red, and the radio gives three beeps.

If the transmit timer times out, the call clears down.

### Call time limit

In trunked mode, the length of your call may be limited by the network or by your radio. Your radio may be programmed to display the time remaining for your call.

## Re-establishing a Call

The last number recall, unanswered call and callback functions may allow users to re-establish calls using the PTT key.

### Last number recall

When an outgoing call has ended, the message **Last call to** and the called unit's identity may appear on the display.

To make a call to that person again, briefly press the PTT key.

This function needs to be configured.

### Unanswered call

When an incoming call is missed, the message **Missed call** and the caller's identity may appear in the display.

To return the call, briefly press the PTT key.

### Callback

When an incoming call has been ended, the message **Last call from** and the caller's identity may appear in the display.

To make a call to that person, briefly press the PTT key.

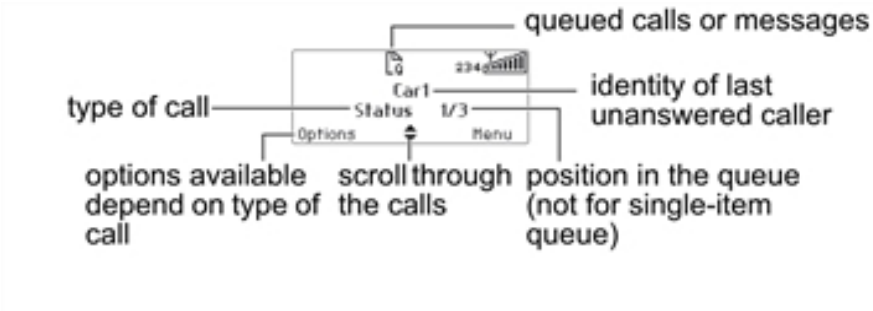
This function needs to be configured.

## Checking the Queue

If an incoming call has been missed, or a status message or text message has been received, it may be stored in the queue. The queue icon appears and information about the missed call or message may be shown on the display.

The queue can be programmed to store multiple calls or messages or just the last call or message.

In the example below, a status message was received from Car 1. This is the first of three calls or messages stored in the queue.




Press **Options** to either view, reply, call back, look at the entry details, or delete the entry.

The radio may be also programmed to automatically view the full status message or text message on receipt.

If there are calls or messages in the queue, the radio may emit a warble tone for a period of time. The notification starts again when the radio is restarted or another call is received.

### Accessing the queue

1. If the call or message information is not shown already, press **Menu** > **Call queue**.
2. Use the scroll keys to move through the calls or messages in the queue until the desired item appears.
3. Press **Options**.

The options available depend on the type of call it is. For a voice call, select **Call** to return the call.

For a status message or a text message, select **View** to read the message, **Reply** to reply, or **Call** to return the call.

The radio may be also programmed to automatically view the full status message or text message on receipt.

Users can also delete the selected call or messages, or delete all queued calls and messages.

### Changing the queue settings

The radio may be programmed so that they are able to change queuing between “unanswered” and “full”.

In “unanswered” queuing, incoming individual voice calls are only queued if unanswered.

In “full” queuing, incoming individual voice calls are queued immediately and users don’t get an option to answer the call.

In both cases, all status and text messages are queued immediately.

If the radio has alphanumeric keys, users may be able to change the call queuing setting using the keypad.

To activate “full” queuing:

- press **Menu** and select **Radio settings** > **Call settings** > **Call queuing** and choose **On**
- press the function key programmed for Call queuing, or
- dial ***48** then press the **#** or PTT key

The message **Call queuing activated** appears.

To change call queuing to “unanswered” queuing:

- press **Menu** and select **Radio settings** > **Call settings** > **Call queuing** and choose **Off**
- press the function key programmed for Call queuing, or
- dial **#48** then press the **#** or PTT key

The message **Call queuing deactivated** appears.

## About Status Messages

A status message is sent to another party to indicate the users' current activity or location, such as “en route” or “at lunch”. If the radio receiving the message has been programmed with the same status messages, it will decode and display the users' message. If the user receives a status message, the message is automatically queued, since a response is not expected.

### Selecting a status message

1. Press **Menu** and select **Send** > **Status**.
2. In the **Status** menu, scroll through the list of status messages until the desired message appears.

### Sending a status message

1. When a message has been chosen, press **Send** and the **Send to** menu opens.
2. In the **Send to** menu, scroll through the list of options until the desired choice appears.

If the radio has alphanumeric keys, the user can choose the option **Dialed**, then dial the number of the party they wish to call.

If **Address book** or **Preset** is selected, scroll to the desired entry and press **Select**.

3. Press **Select**.

The call details appear on the display. While the call is being setup, the user can cancel the call by pressing **Cancel**.

### Dialing a status message

If the radio has alphanumeric keys, the status messages programmed for the radio can be dialed. To dial the message, the user will need to know the number associated with the status message.

To dial a status message:

1. Dial ***0s*n**, where **s** is the number of the status message and **n** is the called party's number.
2. Alternatively, dial ***0s*p**, where **p** is the number of a preset call or workgroup. See Dialing a preset call or Dialing a workgroup call.
3. Press **Send** or the **#** or PTT key.

The call details appear on the display. While the call is being setup, the user can cancel the call by pressing **Cancel**.

### Receiving a status message

If the radio is programmed for call queuing, incoming status messages are added to the queue. For more information, see Checking the Queue.

Press **Options** and select whether to reply, call or delete.

The radio may be programmed to automatically view status messages on receipt.

If the radio is not programmed for call queuing, incoming status messages will not be stored or displayed.

## About Trunked Text Messages

The radio may be programmed so that a user can send text messages. The three options for creating text messages are selecting a preset text message, editing a draft text message, or creating a new text message.

To either edit or enter a text message, the radio must have alphanumeric keys.

### Using the alphanumeric keys to enter text

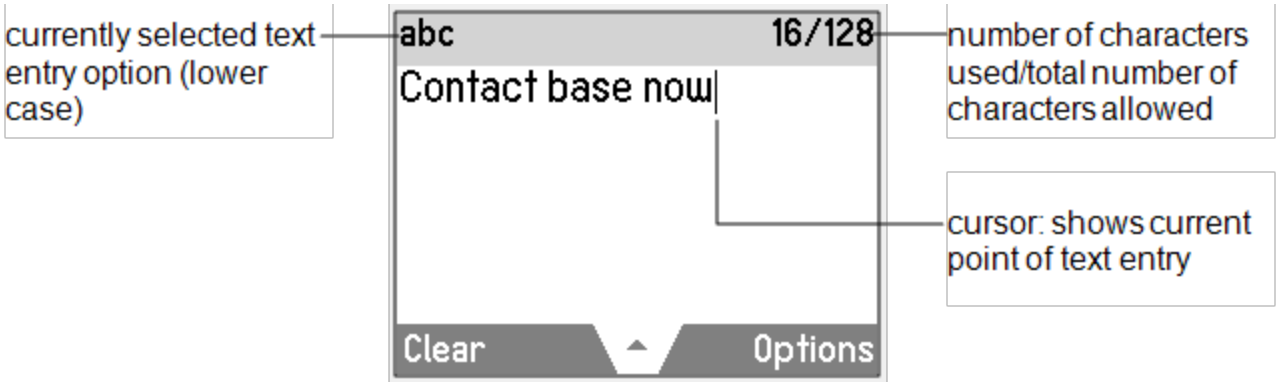
When the alphanumeric keys are used to enter a text message, they have special functions:

- Use the **#** key to select the type of text entry: upper and lower case characters (**ABC**, **abc**), initial capitals (**Abc**), or numbers (**123**).
- Use the left selection key (**Clear**) to delete a character from the display.
- Use the scroll keys to move through a message.

Repeated presses of these keys will give you the characters shown in the following table.

| Key | Characters |
|---|---|
| 1 | . , ? ! - / 1 |
| 2 ABC | A B C 2 |
| 3 DEF | D E F 3 |
| 4 GHI | G H I 4 |
| 5 JKL | J K L 5 |
| 6 MNO | M N O 6 |
| 7 PQRS | P Q R S 7 |
| 8 TUV | T U V 8 |
| 9 WXYZ | W X Y Z 9 |
| 0 | space 0 |

In the example below, a preset text message has been selected, and is being edited.




## Sending a preset text message

1. Press **Menu** and select **Send** > **Text message** > **Preset message**. In the **Preset message** menu, a short label representing each message is displayed.

2. Scroll through the list of preset message labels until the desired one appears.

3. Press **Select**, and the text message that's been chosen is now displayed.

4. Press **Send** to send the message, or **Edit** to change the message.

Pressing ⁀ will place the cursor at the start of the message. Pressing ‿ will place the cursor at the end of the message. When the message is complete, press **Options** and select **Send**.

## Creating a new text message

1. Press **Menu** and select **Send** > **Text message** > **New message**.

2. Use the alphanumeric keys to add characters and the **Clear** key to delete them. Use the scroll keys to move through the characters.

3. When the message is complete, press **Options** and select **Send**.

If the user wishes to cancel out of editing a text message or receive a call while editing, the current draft will be saved and is available for editing later.

## Sending a text message

1. Once the message has been edited, press **Options** and the **Text options** menu opens.

2. In the **Text options** menu, select **Send**.

3. In the **Send to** menu, scroll through the list of options until the desired choice appears.

If the radio has alphanumeric keys, users can choose the option **Dialed**, then dial the number of the party they wish to call.

If **Address book** or **Preset,**is selected, scroll to the desired entry and press **Select**.

4. Press **Select**.

The call details appear on the display. While the call is being setup, users can cancel the call by pressing **Cancel**.

## Editing a draft text message

1. Press **Menu** and select **Send** > **Text message** > **Edit message**.

The last sent or edited text message will appear.

2. Use the scroll keys to move through the characters. Use the alphanumeric keys to add characters and the **Clear** key to delete them.

3. When the message is complete, press **Options** and select **Send**.

If the user decides to cancel out of editing a text message or receive a call while editing, the current draft will be saved and is available for editing later.

### Receiving a text message

If the radio is programmed for call queuing, incoming text messages are added to the queue. For more information, see Checking the Queue.

Press **Options** and select whether to reply, call or delete.

The radio may be programmed to automatically view text messages on receipt.

If the radio is not programmed for call queuing, incoming text messages will not be stored or displayed.

## Placing the Radio in Do-Not-Disturb Mode

If a user doesn't want to accept calls for a while, they can place the radio in 'do-not-disturb mode', so that incoming calls can be ignored. Users can still make outgoing calls in the usual way.

While do-not-disturb mode is active, incoming calls cannot be stored in the call queue.

### Using a function key

1. Press the function key programmed for do not disturb, to activate the do-not-disturb function.

The message **Do not disturb activated** appears on the display. The radio will now ignore all incoming calls.

2. To deactivate the do-not-disturb function, press the do-not-disturb function key again.

The message **Do not disturb deactivated** appears on the display.

### Using the Main menu

1. Press **Menu** and select **Radio Settings** > **Call Settings** > **Do not disturb**.
2. In the **Do not disturb** menu, choose **On**.
3. Press **Select**.

The message **Do not disturb activated** appears on the display. The radio will now ignore all incoming calls.

## Switching to Conventional Channels or Conventional Groups

You may be able to dial conventional channels or groups, using **101** to **110**. The channels or groups called using these numbers are programmed for your radio.

**Notice** Only valid for MPT1327, MPT1343 and Nokia ANN dialing schemes. Does not apply to DMR.

## To call a conventional channel or group:

1. Dial the number for the channel or group that is being called.
2. Press **Send** or the **#** or PTT key.

The radio switches to the conventional channel programmed for that number.

# 8 Dialing Calls in Trunked Mode

If the radio has alphanumeric keys, users can make dialed calls from their radio. The numbers dialed and the dialing features available depend on the way the radio is programmed and the way the users' network operates. Contact the radio provider for further assistance.

### This section covers:

Accessing Common Trunking Functions

DMR Dialing

MPT 1343 Dialing

Nokia ANN Fleet Calls

## MPT 1343 Dialing

If a user's MPT or DMR trunked network uses the MPT 1343 dialing scheme, the radio's unique number on the network consists of:

- a three-digit prefix,
- a four-digit fleet number, and
- a two- or three-digit radio unit number.

The user may also be part of a group, with a two- or three-digit group number.

### Finding the radio's MPT number

To find the radio's full MPT number:

1. Dial ***700**.
2. Press the **#** or PTT key.

The name associated with the user's network and the radio's full MPT number appears.

### MPT 1343 dialed calls

The following table summarizes the way calls are dialed to other radios and groups of radios using the MPT 1343 dialing scheme, and gives an example of each type of call.

In the following examples, the final **#** may be replaced by a short press of the PTT key.

| Call to | Dialing code and example |
|---|---|
| Radio **23** in the same fleet as the user | 23 # |

| Call to | Dialing code and example |
|---|---|
| Radio **234** in the same fleet as the user | 234 # |
| Radio **23** in fleet **3078** with the same prefix as the user | 3078 23 # |
| Radio **234** in fleet **3078** with the same prefix as the user | 3078 234 # |
| Radio **234** in fleet **3078** with a different prefix to the user (**300**) | 300 3078 234 # |
| Group **92** in the same fleet as the user | 92 # |
| Group **923** in the same fleet as the user | 932 # |

# DMR Dialing

If the users' trunked network uses the DMR dialing scheme, the radio's unique number on the network consists of:

- a three-digit prefix
- a two-digit fleet number, and
- a three-digit unit number

The user may also be part of a group, with a three-digit group number.

## Finding the radio's DMR number

To find the radio's full DMR number:

1. Dial ***700**.
2. Press the **#** or PTT key.

The name associated with the users' network and the radio's full DMR number appears.

## DMR dialed calls

The following table summarizes the way the user dials calls to other radios and groups of radios using the DMR dialing scheme, and gives an example of each type of call.

In the following examples, the final **#** may be replaced by a short press of the PTT key.

| Call to | Dialing code and example |
|---|---|
| Radio **332** in the same fleet as the user | 332 # |
| Radio **521** in the same fleet as the user | 521 # |

| Call to | Dialing code and example |
|---|---|
| Radio **332** in fleet **78** with the same prefix as the user | 78 332 # |
| Radio **521** in fleet **78** with the same prefix as the user | 78 521# |
| Radio **332** in fleet **78** with a different prefix to the user(**350**) | 350 78 332 # |
| Group **990** in the same fleet as the user | 990 # |
| Group **923** in the same fleet as the user | 923 # |

# Nokia ANN Fleet Calls

If the users' trunked network uses Nokia ANN dialing, the numbers they dial will depend on their fleet size. Fleets are defined as either large, small or mini. The radio's unique number on the network consists of:

- a lead number **7**, **8** or **9**, depending on the fleet size,
- a zero-, one-, two- or three-digit prefix,
- a one- or two-digit fleet number, and
- a two- or three-digit radio unit number.

See the radio provider or network administrator for Nokia ANN call details.

## Finding the radio's Nokia ANN number

To find the radio's full Nokia ANN number:

1. Dial ***700**.
2. Press the **#** or PTT key.

The name associated with the users' network and their radio's full Nokia ANN number appears.

The number is in the form: Lead-Prefix-Fleet-Radio Unit Number

## Nokia ANN Dialed Calls

The following table summarizes the way the user will dial calls to other radios and gives an example of each type of call.

In the following examples, the final **#** may be replaced by a short press of the PTT key.

| Call to | Dialing code and example |
|---|---|
| Radio **23** in the same fleet as the user | **23 #** |

| Call to | Dialing code and example |
|---|---|
| Group **923** in the same fleet as the user | **923 #** |
| **Large fleet:** | |
| Call to radio **234** in fleet **1** with the same prefix as the user | **7 1 234 #** |
| Call to radio **235** in fleet **2** with a different prefix to the user (**32**) | **7 32 2 235 #** |
| Call to radio **236** in fleet **2** with the same lead and prefix[1] | **2 236 #** |
| **Small fleet:** | |
| Call to radio **23** in fleet **51** with the same prefix as the user | **7 51 23 #** |
| Call to radio **24** in fleet **52** with a different prefix to the user (**126**) | **7 126 52 24 #** |
| Call to radio **25** in fleet **53** with the same lead and prefix[1] | **53 25 #** |
| **Mini fleet:** | |
| Call to radio **23** in fleet **80** with the same prefix as the user | **7, 8 or 9 80 23 #** |
| Call to radio **24** in fleet **81** with a different prefix to the user (**3**) | **7, 8 or 9 3 81 24 #** |
| Call to radio **25** in fleet **81** with the same lead and prefix[1] | **81 25 #** |

# Accessing Common Trunking Functions

The following tables explain how users can access special MPT or DMR trunking functions using the * and # keys. The availability of these functions is dependent on the way your radio is programmed and the way your network operates.

In the following examples, the final # may be replaced by a short press of the PTT key.

[1] If 4-digit-dialing is configured in the programming application.

| *... # functions | | |
|---|---|---|
| **Dialing code** | **Functions** | **Example** |
| **#** | Accept an incoming FOACSU call | |
| ***#** | Clear call or displayed item, or decline an incoming FOACSU call | |
| ***0#**<br>**#0#** | Request base dispatcher to call user back<br>Cancel request | |
| ***0*n#**<br>**#0*n#** | Request another dispatcher to call user back<br>Cancel request | ***0*234#**<br>**#0*234#** |
| ***0s*n#**<br>***0s#** | Status call to radio **n** (**s** = status 0 to 31, MPT, or 0 to 99, DMR)<br>Status call to dispatcher | ***015*23#**<br>***015#** |
| **g#** | Conference call to group **g** | **92#** |
| ***11*g#** | Broadcast call to group **g** | ***11*92#** |
| ***41*n#**<br>**#41#** | Divert own calls to radio **n**<br>Cancel divert | ***41*23#** |
| ***41*0n#**<br>**#41#** | Divert own calls to PSTN **n**<br>Cancel divert | ***41*03456798#** |
| ***44*n*m#** [1] | Divert 3rd party calls **n** to **m** | ***44*23*21#** |
| **44*n#** [1] | Cancel divert of 3rd party calls | **#44*23#** |
| ***441*m#**<br>**#441#** | Divert of speech calls to **m**<br>Cancel divert of speech calls | ***441*21#**<br>**#441#** |
| ***442*m#**<br>**#442#** | Divert of packet data calls to **m**<br>Cancel divert of packet data calls | ***442*21#**<br>**#442#** |
| ***451#** | Cancel incoming call diversions (speech only) | |
| ***452#** | Cancel incoming call diversions (packet data only) | |
| ***453#** [2] | Cancel incoming call diversions (SDM only) | |
| ***454#**[2] | Cancel incoming call diversions (status only) | |
| ***46#** [3] | Toggle encryption | |
| *461# [3] | Turn encryption off | |

| *... # functions | | |
|---|---|---|
| **Dialing code** | **Functions** | **Example** |
| *462# [3] | Turn encryption on | |
| ***47#** [3] | Display the current network and the users' full radio number | |
| ***48#**<br>**#48#** | Queue incoming calls<br>Cancel queue | |
| ***49#**<br>**#49#** | Do not disturb<br>Cancel do not disturb | |
| ***491#**<br>**#491#** | DMR: Do not disturb (SDM calls)<br>MPT: Do not disturb (voice calls only)<br>DMR: Cancel do not disturb (SDM calls)<br>MPT: Cancel do not disturb (voice calls only) | |
| ***492#**<br>**#492#** | Do not disturb—data calls only<br>Cancel do not disturb—data calls only | |
| ***50*n#** [1] | Select channel **n** (site-select diagnostic function, enabled during programming) | |
| ***50*xnnnnn#**[2] | Select channel **xnnnn**, where **x** is the logical channel and **nnnn** is the physical channel (site-select diagnostic function, enabled during programming) | |
| **#50#** | Resume normal channel hunting (site-select diagnostic function, enabled during programming) | |
| ***700#** | Display the current network and the users' full radio number | |
| ***70n#** | Change to network **n** (1 to 4) | ***702#** |
| ***8*n#**[4] | Priority call (DMR: highest, MPT: high) to radio **n** | ***8*23#** |
| ***8*g#**[4] | Priority conference call (DMR: highest, MPT: high) to group **g** | ***8*923#** |
| ***81*n#**[4] | Priority call (DMR: highest, MPT: high) to radio **n** | ***81*23#** |
| ***81*g#**[4] | Priority conference call (DMR: highest, MPT: high) to group **g** | ***81*923#** |
| ***82*n#**[4] | Priority call (DMR: high) to radio **n** | ***82*23#** |
| ***82*g#**[4] | Priority conference call (DMR: high) to group **g** | ***82*923#** |
| ***83*n#**[4] | Priority call (DMR: medium) to radio **n** | ***83*23#** |
| ***83*g#**[4] | Priority conference call (DMR: medium) to group **g** | ***83*923#** |
| ***9*n#** | Emergency call to radio **n** | ***9*23#** |

| *... # functions | | |
|---|---|---|
| **Dialing code** | **Functions** | **Example** |
| ***9*g#** | Emergency conference call to group **g** | ***9*923#** |
| ****n#** [1] | Abbreviated dialed codes (1-49) | ****3#** |

[1]MPT only

[2]DMR only

[3]DMR dialing scheme only

[4]DMR has three priority levels and MPT has one priority level. *8 adn *81 are interchangeable. Dialing *82 or *83 in MPT mode has the same effect as dialing *8 or *81.

# 9 Location Services

This section explains how to use the location services that may be available on the radio.

This feature is controlled by a software license (SFE) and may not be available with the radio.

### This section covers:

About Location Information

About Location Statuses

Viewing Location Information

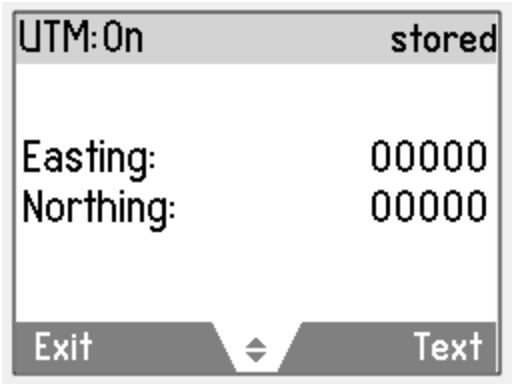
## About Location Information

The radio can display location information such as latitude and longitude, true course, speed, and coordinated universal time. The radio can also display universal transverse mercator (UTM) information such as the UTM zone, and northing and easting coordinates.

The radio may also be set up to send and log location information.

## About Location Statuses

In the **Own location** screen, location status information appears on the display.




- **Trk**: the receiver is displaying up-to-date satellite information.
- **stored**: the receiver is having trouble connecting to satellites and the radio is displaying stored information that may not be current.
- **no cnx:** the radio has lost serial communications with the receiver.

The information displayed can be sent as a text message by pressing the right selection key.

# Viewing Location Information

1. Press **Menu** and select **Location Svs** > **Own location**.

Location information is now shown in the display, if it is available and has been configured as visible. The images below show a selection of available options.

The radio may be programmed to show any of these displays.

Immediately after the radio is turned on, location reporting is set to all zeros, until the first satellite fix is achieved.

2. Use the scroll keys to scroll though the **Own location** displays.

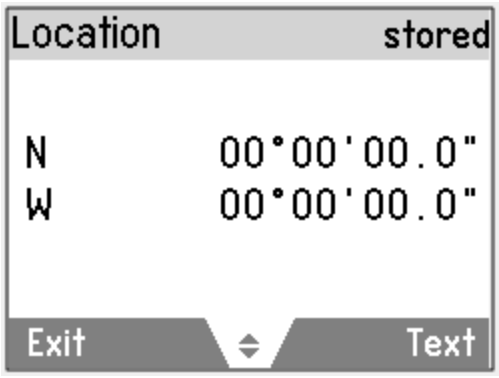



**Figure 9.1 Latitude and longitude in degrees, minutes and decimal seconds**

Latitude and longitude can be displayed in various formats depending on configuration.

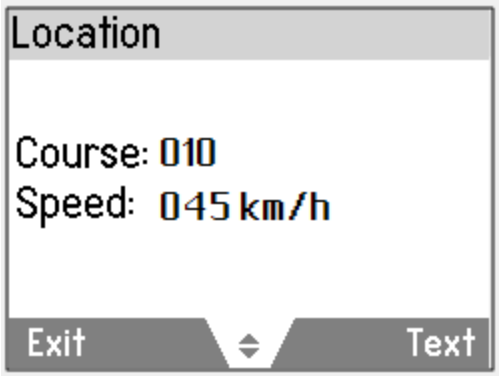



**Figure 9.2 The radio's current course and speed**

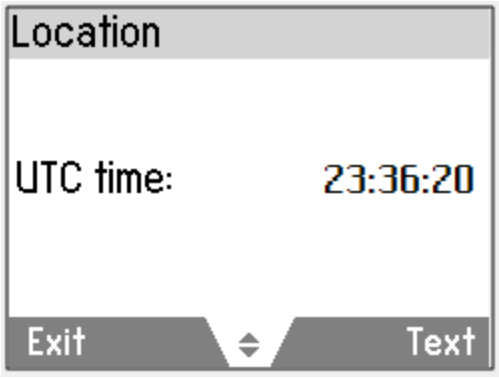



**Figure 9.3 UTC: Coordinated Universal Time, 24-hour clock**

3. Press **Exit** to exit the location display.

In certain situations, the radio may automatically exit the location display.

# 10 Loneworker Monitoring

Loneworker monitoring is a safety feature for people who work alone. Loneworker monitoring may be programmed to be on or off at all times, or can be switched on and off by the user using a programmed function key or the menu.

A loneworker alarm is activated if for a predetermined period of time:

- the radio has been tilted by more than the configured number of degrees (man down)
- the radio has not moved
- there has been no user activity

The radio may be programmed to respond to a combination of these events.

When the predetermined time has expired, an audible warning is given and the user will have a predetermined time to respond to the loneworker situation.

If the user is unable to respond, the radio either enters emergency mode or (in digital mode) sends a status update to a predetermined person or talkgroup.

### This section covers:

Activating Loneworker Monitoring

Responding to a Loneworker Alarm

## Activating Loneworker Monitoring

1. Press **Menu** and select **Radio Settings** > **Extra features** > **Loneworker**.
2. In the **Loneworker** menu, choose **On**.

A vertical scroll bar on the right-hand side of the display indicates the remaining activity timeout. To reset the count-down bar, press any key.

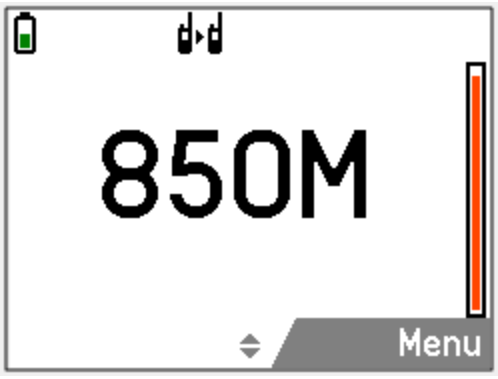



**Figure 10.1 Radio display when loneworker is activated**

# Responding to a Loneworker Alarm

If the radio beeps to indicate that the radio is expecting a response from the user to acknowledge they are safe, the message **Loneworker awaiting** and a horizontal scroll bar appear indicating the remaining time until an emergency action is triggered.

- Press any key,
- Move the radio,
- If using the man down feature, restore the radio to an upright position.

Otherwise the radio will activate emergency mode or (in digital mode) send a status update.

# 11 Encryption

This section describes how to use encryption to make users' communications completely private.

This feature is controlled by a software license (SFE) and may not be available with the radio.

### This section covers:

About Encryption

Encrypting Calls

Making an Encrypted Call

Receiving an Encrypted Call

## About Encryption

The encryption feature is available for digital and dual-mode networks only.

To make communications with other users on a users' system completely private, the users' radio may be able to encrypt outgoing calls, using a confidential encryption key. The radio receiving a users' call must have the same encryption key installed before it can hear an encrypted call.

## Encrypting Calls

The radio may be able to turn encryption on and off. While encryption is on, outgoing calls are encrypted on networks programmed for encryption, and the encryption icon remains in the display.

This setting only affects outgoing calls. Incoming calls will still be decoded by the radio so long as the key required to decode the call is stored in the radio.

### To turn encryption on or off:

1. Press **Menu** and select **Security** > **Encryption**. (Depending on how the radio is programmed, users may be able to press a function key to turn encryption on and off.)
2. Scroll to **On** (or **Off**) and press **Select**.

The message **Encryption activated** (or **deactivated**) appears in the display.

If a user attempts to transmit with encryption turned on but they don't have any keys loaded, the message **Key fail** appears.

# Making an Encrypted Call

1. Select the desired network to operate on.
2. Check that encryption is on (encryption key is showing in the display).
3. Press and hold the PTT key to transmit.

While transmitting, the LED glows red and appears in the display.

If users transmit or receive an unencrypted call on an encrypted network, disappears and the radio may be programmed to issue an audible alert.

# Receiving an Encrypted Call

When receiving encrypted call, the radio unmutes and clear speech can be heard, so long as the key required to decode the call is stored in the radio.

If the key required to decode the call is not stored in the radio, then the radio remains muted and the message **Key fail** appears.

If users transmit or receive an unencrypted call on an encrypted network, the encryption key icon disappears and the radio may be programmed to issue an audible alert.

# Removing Encryption Keys from the Radio

It may be possible for users to delete encryption keys from their radio.

**When emergency mode is activated, or when the radio is immobilized ('inhibited'), encryption keys may be automatically deleted from the radio.**

If the encryption keys are deleted, the message **Key fail** appears and a warning tone will periodically sound. The message **Cannot transmit** will be displayed if the user tries to transmit.

## Deleting an encryption key

1. Press **Menu** and select **Security** > **Zeroize key**.
2. Scroll to the desired key and press **Select**. The message **Single key zeroized** briefly appears in the display.

## Deleting all encryption keys

1. Press **Menu** and select **Security** > **Zeroize all**. The message **Zeroize all keys?** appears in the display.
2. Press **OK** and the message **All keys zeroized** briefly appears in the display.

# 12 Customizing Radio Settings

This section describes ways of customizing the radio.

These features are common to radios operating in either trunked or conventional mode.

### This section covers:


Adjusting the Display Contrast

Changing the Color Mode

Changing the Volume of all Audible Indicators

Changing the Volume of Keypress Tones

Changing to Quiet Operation

Changing to Silent Operation

Rotating the Display

Turning On Active Noise Cancellation

Turning on Backlighting


## Changing the Color Mode

The display colors can be changed to suit the environment. For example, Red/Black is suited for night display while Color - Dark is ideal for bright environments. The default setting is Color - Light.

### To change the color mode:

1. Press **Menu** and select **Radio settings** > **Display settings** > **Color mode**.
2. Scroll to the desired mode and press **Select**.

The color modes are:

| Mode | Description |
|---|---|
| Color - Dark | Dark background, light text. |
| Color - Light | Default setting. Light background, dark text. Best suited for day time display. |
| Black/White | White background, black text. |
| White/Black | Black background, white text. |

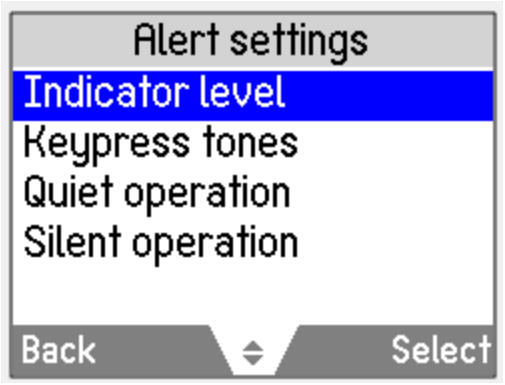
| Mode | Description |
|---|---|
| Red/Black | Black background, red text. Best suited for night display. |

# Changing the Volume of all Audible Indicators

Users can set the volume of all the audible indicators to either high or low. Audible tones include incoming call tones, warning tones and confirmation tones.

### To change the volume of the radio's audible tones:

1. Press **Menu** and select **Radio settings** > **Alert settings** > **Indicator level**.




Depending on how the radio is programmed, users may be able to press a function key to change the level of indicators.

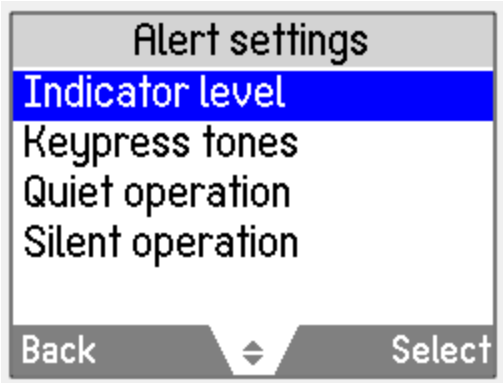
2. Scroll to **High** (or **Low**) and press **Select**.

# Changing the Volume of Keypress Tones

Whenever you press the radio keys, the keypress tones give you an audible indication as to whether or not your action is allowed. A short, medium-pitched beep indicates that an action is allowed. A long, low-pitched beep indicates that the action is not allowed.

### To change the volume of your radio's keypress tones:

1. Press **Menu** and select **Radio settings**> **Alert settings** > **Keypress tones**.




2. Scroll to either **Off**, **Low** or **High** and press **Select**.

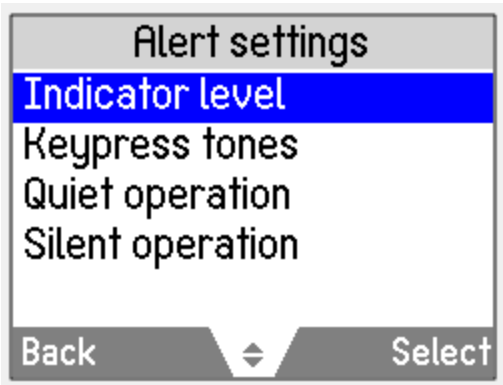
Depending on how your radio is programmed, you may be able to press a function key to toggle keypress tones on and off, and to change between high and low volume.

## Changing to Quiet Operation

When quiet operation is on, keypress tones and confirmation tones are turned off. Incoming call tones, signaling tones and warning tones all remain audible.

### To turn quiet operation on or off:

1. Press **Menu** and select **Radio settings** > **Alert settings** > **Quiet operation**.




Depending on how your radio is programmed, you may be able to press a function key to toggle quiet operation on and off.

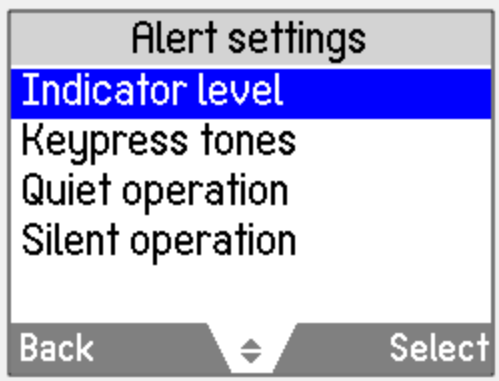
2. Scroll to **On** (or **Off**) and press **Select**.

# Changing to Silent Operation

When silent operation is on, all the radio's audible tones are turned off, and only channel traffic can be heard.

### To turn silent operation on or off:

1. Press **Menu** and select **Radio settings** > **Alert settings** > **Silent operation**.




2. In the **Silent operation** menu, scroll to either **On** or **Off** and press **Select**.

Depending on how your radio is programmed, you may be able to press a function key to toggle silent operation on and off.

While silent operation is on, the icon appears in the display.

# Turning On Active Noise Cancellation

Active noise cancellation uses a secondary microphone on the back of the radio to actively filter out noise in loud environments, making it easier for recipients to discern the speech of the talking party who is in a noisy environment.

Active noise cancellation can be left on regardless of environment. However, when safety features such as Lone-worker Monitoring or Radio Monitor are activated, the listener may lose awareness of the noisy environment. Tait recommends users implement supplementary procedures to account for this.

The complementary feature of microphone sensitivity allows the internal and external microphones to be configured to suit the type of environment the user is in, further improving audio quality. When active noise cancellation is enabled, sensitivity should be decreased. In a quiet environment, increasing the sensitivity is suggested.

For best results, Tait recommends holding the radio 2.5 - 5 cm (1 - 2 inches) from the mouth and speaking directly into the radio speaker/mic.

### To turn active noise cancellation on or off:

1. Press **Menu** and select **Radio settings** > **Functions** > **Noise cancellation**.

Depending on how your radio is programmed, you may be able to press a function key to toggle active noise cancellation on and off.

2. Scroll to either **On** or **Off** and press **Select**.

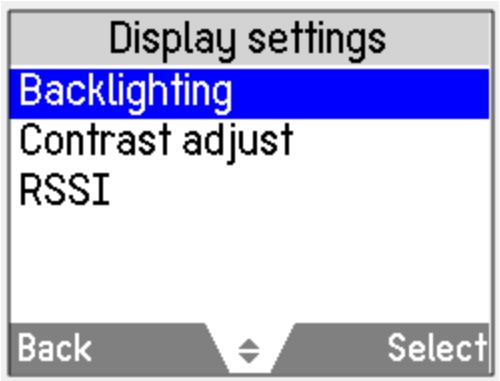
Covering the microphone on the back of the radio may reduce the effectiveness of the function.

# Turning on Backlighting

If configured, whenever a key is pressed or a call is received, the keypad and display will light up automatically. Backlighting only remains on for a few seconds, unless there is further radio activity. When backlighting is turned on, it remains on until the setting is changed to **Off**, regardless of radio activity.

## To turn backlighting on or off:

1. Press **Menu** and select **Radio settings** > **Display settings** > **Backlighting**.




Depending on how your radio is programmed, you may be able to press a function key to toggle backlighting on and off, or between 'with activity' and 'on'.

2. Scroll to either **On** or **Off** and press **Select.**

## Turning backlighting on momentarily

You may be able to use a programmed function key to turn backlighting on momentarily, as long as backlighting has been configured to 'with activity'.

- Press the assigned function key to turn backlighting on. Backlighting remains on for a few seconds, and then turns off.

Alternatively, the function key may be programmed so that:

- a short key press turns backlighting on momentarily, and
- a long key press turns backlighting on, and it remains on until there is a further long key press.

# Rotating the Display

When the display is rotated, everything appears upside down.

### To rotate the display:

1. Press **Menu** and select **Radio settings** > **Display settings** > **Rotate display**.
2. Scroll to **On** (or **Off**) and press **Select**.

Depending on how your radio is programmed, you may be able to press a function key to toggle rotate display on and off.

# 13 Charging and Caring for Batteries

This section describes how to charge your Tait radio battery as well as care for it, to ensure safe operation, maximum performance and prolonged battery life.

### This section covers:


About the Chargers

6-Way Charger Safety Information

Before Using the Charger

Charging Temperatures

Leaving the Battery on Charge

Receiving Calls while Charging

Low Battery Warning

Inserting the Radio into the Vehicle Charger

Charging a Battery

LED Behavior

Removing the Battery from the Charger

Maintaining Battery Life and Performance

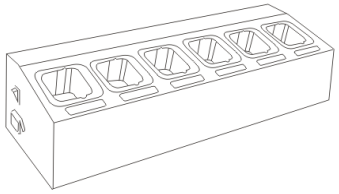
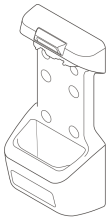
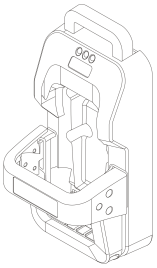
Storing Batteries

Disposing of Batteries


## About the Chargers

Unless otherwise indicated, the charging advice and instructions in this document apply to all chargers.

The following chargers are available for Tait radios and batteries:

| Part Number Range | Designation | |
|---|---|---|
| T03-00012-xxxx | Desktop charger for non-IS/NI batteries | |
| T03-00013-xxxx | 6-way charger for non-IS/NI batteries |  |
| T03-00014-AAAA | Battery-only vehicle charger for non-IS/NI batteries |  |
| T03-00014-Bxxx | Vehicle charger for non-IS/NI batteries |  |

## 6-Way Charger Safety Information

**This device must be connected to an earthed mains socket-outlet.**

**Norsk (no): Apparatet må tilkoples jordet stikkontakt.**

**Suomi (fi): Laite on liitettävä suojamaadoitus-koskettimilla varustettuun pistorasiaan.**

**Svenska (sv): Apparaten skall anslutas till jordat uttag.**

# Before Using the Charger

Check the battery label and charger label to see if the charger is compatible with the battery. See also About the Chargers"About the Chargers" on page 107

**Handle the battery safely. Failure to observe the following handling recommendations could result in personal injury and/or equipment damage.**

- Before using a Li-ion battery, read the Li-ion Battery Safety Information (MPD-00002-xx) included with your battery, and follow the instructions it provides. Incorrect use of a Li-ion battery can cause explosion or fire.
- Do not short-circuit the battery contacts to the radio, neither intentionally nor accidentally, e.g. by placing the battery with conductive materials such as keys or jewelry inside a pocket or container. Short-circuiting the battery contacts can heat up the conductive material.
- Do not obstruct the vent hole(s) on the battery. If the vent on the battery is obstructed the battery may explode, causing personal injury and/or equipment damage. If the vent on the radio is obstructed, audio quality and/or key function may deteriorate and radio seals may be damaged.

**Notice** Turn the radio off before removing the battery, and turn it on again after attaching the battery. This ensures that the radio powers down and up correctly. Failing to follow this procedure may require the radio to be turned off then on again to operate correctly.

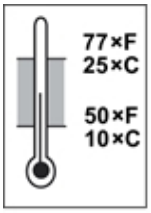
# Charging Temperatures

**Notice** Do not expose a battery to very high or very low temperatures for extended periods of time. Doing so will shorten the usable life (‘service life’) of the battery.

To achieve the best results when charging the battery:

- Before beginning to charge the battery, ensure that the battery temperature is close to the room temperature in which the battery is to be charged.
- If possible, charge the battery in temperatures between 50°F and 77°F (between 10°C and 25°C).This temperature range is the optimal charging range.

Charging only starts when the battery is between 32°F to 104°F (0°C to 40°C).



When the battery temperature is outside the normal charging range, the orange LED on the charger is lit. Charging will start or resume once the temperature is within normal limits, and no action is required.

# Leaving the Battery on Charge

A battery/radio can be left in the charger once charging is complete. Leaving a battery in the charger will not over-charge or damage it.

A battery/radio can be removed from the charger at any time without harming the battery, the radio, or the charger. When the battery/radio is returned to the charger, charging is automatically resumed.

### Vehicle chargers only

It is safe to switch off the ignition while there is still a battery in the charger. But if the vehicle will not be used again for some time, check whether charging will continue while the ignition is off, and consider what effect this might have on the vehicle battery.

To check, place the battery in the charger and switch off the vehicle ignition:

- If no charger LED stays lit, the charger will resume charging only when the ignition is switched on again. Minimal charger standby power will be drawn from the vehicle battery until then.
- If a charger LED stays lit, the charger will continue to charge the radio battery even while the ignition is off, and will continue to draw power from the vehicle battery. Once the battery is charged, the charger draws minimal current and has little effect on a healthy vehicle battery.

# Receiving Calls while Charging

Does not apply to battery-only vehicle chargers

**Notice** For best charging performance, switch off the radio before placing it in the charger.

Calls can be received while the radio is in the charger, but radio performance may be degraded. If the radio is removed from the charger to answer a call, the call will not be disrupted.

Removing the radio from the charger to make or receive a call ends the charging process. Charging safely recommences when the radio is reinserted into the charger.

If a radio was turned on while being charged, the battery indicator may not be accurate when the radio is initially removed from the charger. After a few seconds, the battery indicator is updated to display the amount of charge available in the battery

# Low Battery Warning

**Notice** Do not allow a radio battery to fully discharge every time it is used, or the service life of the battery will be shortened.

When the battery is low, the radio provides warnings in the following ways:

- The battery symbol on the radio display looks empty.
- The status LED on the radio slowly flashes red.
- A high-pitched beep sounds.

The battery should be recharged or replaced as soon as possible.

When the battery is completely empty, the message **Battery is flat** appears on the display. The radio emits a long, low-pitched beep and then turns off. Turn off the radio.

# Inserting the Radio into the Vehicle Charger

1. Place the radio in the charger with the battery attached.

**When the portable radio is used inside a vehicle, radio performance is degraded. Use a mobile radio for all critical communications. If the portable radio must be left switched on while it is in the charger, removing the radio from the charger will improve radio performance. Check your local regulations about using a portable radio in a vehicle.**

2. Firmly press the retention bar towards the radio.

If the larger battery is attached to the radio, there will be an audible click as the catches engage. If the smaller battery is attached to the radio, there will be two audible clicks as the catches engage. If the catches do not engage, remove the radio. Press once firmly on the release bar, then try again.

# Charging a Battery

## Charging a Battery for the First Time

Fully charge a battery before using it for the first time.

The red LED stays lit while the battery charges.

## Charging a Battery

**Notice** For best charging performance, switch off the radio before placing it in the charger (not for battery-only vehicle charger).

- **Desktop charger:** Connect the charger to the correct Tait power adaptor.
- **6-way charger and vehicle charger:** Power on the charger.

Initially, all three LEDs are lit for 2 seconds.

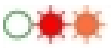
- Place just a battery in the charger, or a radio with a battery attached (desktop charger or 6-way charger only). There is no need to remove a belt clip, antenna, or any accessory that is attached to the accessory connector.

The red LED lights up and stays lit while the battery charges.

When charging is complete, the green LED stays lit.

## LED Behavior

If there is a battery in the charger when power is supplied to the charger, the LEDs behave as follows:

| | **Meaning** |
|---|---|
| (briefly) | The charger has been connected to a power supply. |
| (steady) | The battery is charging. |
| (steady) | Charging complete. Remove the battery, or leave it in the charger. |
| (steady) | The battery temperature is outside the normal charging range. Charging will start or resume once the temperature is within normal limits. No action is required by you.<br><br>There is a fault. Contact your dealer. |
| or  (flashing) | If the LEDs for all charger slots continuously flash orange, or red then orange, the charger itself may be faulty (e.g. the 6-way charger fan may be jammed). Contact your dealer. |
| (all off) | There is a fault. Contact your dealer. |

If the charger does not behave as expected:

- Make sure the radio or battery is seated properly in the charger. For the vehicle charger, see also Inserting the Radio into the Vehicle Charger.
- Check that the charger is properly plugged into the originally supplied power supply.
- Check that the battery and charger contacts are clean. To clean, wipe the contacts with a dry lint-free cloth to remove any dirt, oil or grease.

# Removing the Battery from the Charger

- **Desktop charger and 6-way charger:** Lift the battery/radio out of the charger.
- **Battery-only vehicle charger:** Pull up the top clip of the vehicle charger, and then lift out the battery.
- **Vehicle charger:** Press down once firmly on the release bar at the top of the vehicle charger, and then lift out the radio.

A battery/radio can be removed from the charger at any time without harming the battery, the radio, or the charger. When the battery/radio is returned to the charger, charging is automatically resumed. A battery/radio can also be left in the charger once charging is complete.

# Maintaining Battery Life and Performance

With proper care and maintenance you will maintain the performance and life of the battery. It is recommended that you:

- Use only Tait chargers and batteries.
- Do not expose a battery to very high or very low temperatures for extended periods of time. Doing so will shorten the service life of the battery.

Very high: above 140°F (60°C)
Very low: less than –4°F (–20°C)

- Charge the battery at a room temperature of between 50°F and 77°F (between 10°C and 25°C). This temperature range is the optimal charging range.
- Wipe excess moisture and dirt from the radio, radio contacts and battery contacts before charging the battery.
- Store batteries properly when not in use. See Storing Batteries.

# Storing Batteries

When not in use for a month or more, batteries should be stored correctly to prolong their life.

- Remove the battery from the radio before storage.
- Fully charge the battery if storing for less than one month.
- Charge batteries to about 30% if storing for longer than one month.
- Store in a cool dry place.

Batteries that have been stored for any length of time must be charged before being used. See Charging a Battery.

# Disposing of Batteries

Run the battery flat before disposing of it. When disposing of the battery, be sure to do so in an environmentally sensitive manner. Please contact your radio provider for information on recycling programs in your area. See Environmental Responsibilities on page 1 for more information.

# 14 Troubleshooting

This section describes troubleshooting procedures and basic maintenance.

If you are experiencing difficulty operating your radio, you may find the following sections helpful. Consult your radio provider for assistance, if necessary.

### This section covers:


The Radio Won't Turn On

Identifying the Radio's Audible Tones

Viewing Radio Information

General Care


## The Radio Won't Turn On

If the radio LED doesn't light up red briefly when the radio is turned on, power is likely not reaching the radio. Check the following:

- Is the battery firmly attached to the radio?
- Is the battery sufficiently charged?
- Is the battery charger working properly?

If all appears to be in order, but the radio still fails to operate properly, contact your radio provider for further assistance.

## Identifying the Radio's Audible Tones

The radio's audible tones can help you identify a potential problem. See Audible Tones.

## Viewing Radio Information

Use the **Radio info** menu to view information such as the hardware and firmware version of your radio, function key settings, the radio serial number, and various radio identities.

1. Press **Menu** and select **Radio settings** > **Radio info**.
2. Scroll to the radio information you want to view and press **Select**.

### Checking the version of your radio using the PTT key

1. Turn off the radio.
2. Hold down the PTT key and turn on the radio.

The firmware and hardware versions, and your radio's frequency band is briefly displayed.

# General Care

The only radio maintenance required is ensuring the battery has sufficient charge and that the antenna and battery are not damaged.

**Notice** To prevent permanent damage to the radio case, do not allow the radio to come into contact with detergents, alcohol, aerosol sprays, or petroleum-based products.

For general battery care, see Maintaining Battery Life and Performance.

### Cleaning the Radio

**Risk of permanent damage to the radio housing! Do not clean the radio with solvents or alcohol based products. This includes (but is not limited to) ethylene glycol (antifreeze), propanone (acetone), ethanol (methylated spirits), isopropyl alcohol, and pool chlorine (calcium hypochlorite).**

**To clean the radio:**

1. Use a lint-free, dry cloth to remove surface dirt, oil, or grease.
2. Use an alcohol-free, antibacterial wipe to disinfect the radio.

**Notice** **Risk of internal damage!** To avoid damaging the inside of the radio, do not allow excess liquid to enter the radio body (speaker grille, keypad, buttons, and connectors).

3. Use a water-dampened, lint-free, microfibre cloth to remove any remaining dirt.
4. If the damp cloth is ineffective, dilute a (5 to 10%) solution of alcohol-free dishwashing liquid in clean water, on a cloth, to remove remaining dirt.

**Health risk! Always use protective equipment (gloves, face mask) when handling bleach.**

5. If the dishwashing liquid solution is ineffective, use a solution of one part household bleach to two parts clean water, on a cloth, to wipe away remaining dirt.

### Cleaning the Contacts of the Battery

**Notice** Do not scratch or scrape the contacts of the battery. If necessary, wipe the contacts of the battery with a dry, lint-free cloth to remove any dirt, oil or grease.

## Changing the Radio ID

The radio ID can be changed if the current ID is not correct.

To change the radio ID your radio must have alphanumeric keys.

1. Press **Menu** and select **Radio settings** > **Radio info** > **Radio ID**.
2. Press the right selection key.
3. If **Enter PIN** appears in the display, enter the correct sequence of keys (known as the technician access PIN).
4. Press **Clear** to delete the current ID, and use a combination of the scroll keys and alphanumeric keys to enter a new ID.
5. Press **Options** > **Store** to save the new ID.

## Running Diagnostic Tests

Diagnostics tests are available via the main menu.

This feature is controlled by a software license (SFE) and may not be available with your radio.

1. Press **Menu** and select **Diagnostics**.
2. Scroll to the name of the required test and press **Select**.

The following table lists diagnostics tests may be available on your radio.

**Notice** The radio may transmit when you select some tests. Make sure you have a suitable load or antenna connected before running diagnostics tests.

| Test | Description |
|---|---|
| Audio loopback test | Routes audio from an external accessory microphone to the radio's internal speaker.<br>Before running this test, turn the volume down to limit interference and reduce the impact of audio artefacts. |
| Display freq | Displays the transmit and receive frequencies of the current channel. Also displays the channel status (CNV, TCH, CCH[1]) and the mode (ANA, PH1 or PH2[2]). If the radio is scanning, this information may not be available. |
| Display test | Displays a test screen of all colors that appear on the screen. Useful for identifying dead pixels. |
| GPS NMEA data | Displays the last raw data received from the radio's internal GPS. The radio will display all supported sentence formats received (for example $GPRMC and $GPGGA sentences). Note that the display will not automatically refresh when new data is received. |
| Keypad test | Sounds an audible tone when a key is pressed or released on the radio, or the 16-way and 3-way selectors are moved. The radio also displays the key or selector name along with "pressed" or "released" or the new selector position. |
| QoS (P25 channels only) | Displays information about the quality of service (received signal strength (RSSI) with an indication of digital voice quality). Also displays the channel status (CNV, TCH, CCH[1]) and the mode (PH1 or PH2[1]). |
| RSSI | Displays the received signal strength (RSSI) of the current channel. |
| Rx Tone | Receives a 1011Hz or 1031Hz tone and displays the received signal strength (RSSI) and the bit error rate (BER) of the received signal. Also displays the channel status (CNV, TCH, CCH[1]) and the mode (PH1 or PH2[1]). On a P25 conventional channel, the user can select whether to receive a 1011Hz (Phase 1) or 1031Hz (Phase 2) tone. On a P25 trunked channel, the network selects whether 1011Hz or 1031Hz is used. |
| Site display | Shows the channel number, signal strength and system-identity code (SYSCODE) for the currently registered trunked site. |
| Site measure | Lists the current trunked site (indicated with an asterisk) and up to six detected adjacent sites, with received signal strength (RSSI) information. |
| Tone test | Generates an audible tone for the duration of the test. |
| Tx Tone | Transmits a tone of 1011Hz or 1031Hz on the current P25 channel. |
| Tx Tone Cal | Transmits a 1011Hz or 1031Hz tone on the current channel with a bit error rate (BER) of 5%. |
| Tx power test | Displays hardware-related information while the radio is transmitting. Information includes the final PA current (in mA). |

[1]CNV = conventional, TCH = traffic channel, CCH = control channel

[2]ANA = analog, PH1 = P25 Phase 1, PH2 = P25 Phase 2

# Simplified Declaration of Conformity

**EN** Hereby, Tait International Limited declares that the radio equipment type TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.taitradio.com/eudoc

**BG** С настоящото Tait International Limited декларира, че този тип радиосъоръжение TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A е в съответствие с Директива 2014/53/ЕС. Цялостният текст на ЕС декларацията за съответствие може да се намери на следния интернет адрес: www.taitradio.com/eudoc

**ES** Por la presente, Tait International Limited declara que el tipo de equipo radioeléctrico TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A es conforme con la Directiva 2014/53/UE. El texto completo de la declaración UE de conformidad está disponible en la dirección Internet siguiente: www.taitradio.com/eudoc

**CS** Tímto Tait International Limited prohlašuje, že typ rádiového zařízení TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese: www.taitradio.com/eudoc

**DA** Hermed erklærer Tait International Limited, at radioudstyrstypen TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A er i overensstemmelse med direktiv 2014/53/EU. EU-overensstemmelses-erklæringens fulde tekst kan findes på følgende internetadresse: www.-taitradio.com/eudoc

DE Hiermit erklärt Tait International Limited, dass der Funkanlagentyp TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A der Richtlinie 2014/53/EU entspricht. Der vollständige Text der EU-Konformitätserklärung ist unter der folgenden Internetadresse verfügbar: www.-taitradio.com/eudoc

**ET** Käesolevaga deklareerib Tait TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A vastab direktiivi 2014/53/EL nõuetele. ELi vastavusdeklaratsiooni täielik tekst on kättesaadav järgmisel internetiaadressil: www.taitradio.com/eudoc

**EL** Με την παρούσα ο/η Tait International Limited, δηλώνει ότι ο ραδιοεξοπλισμός TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A πληροί την οδηγία 2014/53/ΕΕ. Το πλήρες κείμενο της δήλωσης συμμόρφωσης ΕΕ διατίθεται στην ακόλουθη ιστοσελίδα στο διαδίκτυο: www.-taitradio.com/eudoc

**FR** Le soussigné Tait International Limited, déclare que l'équipement radioélectrique du type TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A est conforme à la directive 2014/53/UE. Le texte complet de la déclaration UE de conformité est disponible à l'adresse internet suivante: www.taitradio.com/eudoc

**HR** Tait International Limited ovime izjavljuje da je radijska oprema tipa TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A u skladu s Direktivom 2014/53/EU. Cjeloviti tekst EU izjave o sukladnosti dostupan je na sljedećoj internetskoj adresi: www.taitradio.com/eudoc

**IT** Il fabbricante, Tait International Limited, dichiara che il tipo di apparecchiatura radio TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A è conforme alla direttiva 2014/53/UE. Il testo completo della dichiarazione di conformità UE è disponibile al seguente indirizzo Internet: www.-taitradio.com/eudoc

**LV** Ar šo Tait International Limited deklarē, ka radioiekārta TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A atbilst Direktīvai 2014/53/ES. Pilns ES atbilstības deklarācijas teksts ir pieejams šādā interneta vietnē: www.-taitradio.com/eudoc

**LT** Aš, Tait International Limited, patvirtinu, kad radijo įrenginių tipas TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A atitinka Direktyvą 2014/53/ES. Visas ES atitikties deklaracijos tekstas prieinamas šiuo interneto adresu: www.taitradio.com/eudoc

**HU** Tait International Limited igazolja, hogy a TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A típusú rádióberendezés megfelel a 2014/53/EU irányelvnek. Az EU-megfelelőségi nyilatkozat teljes szövege elérhető a következő internetes címen: www.taitradio.com/eudoc

**MT** B'dan, Tait International Limited, niddikjara li dan it-tip ta' tagħmir tar-radju TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C,

TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A huwa konformi mad-Direttiva 2014/53/UE. It-test kollu tad-dikjarazzjoni ta' konformità tal-UE huwa disponibbli f'dan l-indirizz tal-Internet li ġej: www.-taitradio.com/eudoc

**NL** Hierbij verklaar ik, Tait International Limited, dat het type radioapparatuur TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A conform is met Richtlijn 2014/53/EU. De volledige tekst van de EU-conformiteitsverklaring kan worden geraadpleegd op het volgende internetadres: www.-taitradio.com/eudoc

**PL** Tait International Limited niniejszym oświadcza, że typ urządzenia radiowego TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A jest zgodny z dyrektywą 2014/53/UE. Pełny tekst deklaracji zgodności UE jest dostępny pod następującym adresem internetowym: www.-taitradio.com/eudoc

**PT** O(a) abaixo assinado(a) Tait International Limited declara que o presente tipo de equipamento de rádio TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A está em conformidade com a Diretiva 2014/53/UE. O texto integral da declaração de conformidade está disponível no seguinte endereço de Internet: www.taitradio.com/eudoc

**RO** Prin prezenta, Tait International Limited declară că tipul de echipamente radio TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A este în conformitate cu Directiva 2014/53/UE. Textul integral al declarației UE de conformitate este disponibil la următoarea adresă internet: www.-taitradio.com/eudoc

**SK** Tait International Limited týmto vyhlasuje, že rádiové zariadenie typu TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A je v súlade so smernicou 2014/53/EÚ. Úplné EÚ vyhlásenie o zhode je k dispozícii na tejto internetovej adrese:

**SL** Tait International Limited potrjuje, da je tip radijske opreme TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A skladen z Direktivo 2014/53/EU. Celotno besedilo izjave EU o skladnosti je na voljo na naslednjem spletnem naslovu: www.taitradio.com/eudoc

**FI** Tait International Limited vakuuttaa, että radiolaitetyyppi TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A on direktiivin 2014/53/EU mukainen. EU-vaatimusten-

mukaisuus-vakuutuksen täysimittainen teksti on saatavilla seuraavassa internetosoitteessa: www.-taitradio.com/eudoc

**SV** Härmed försäkrar Tait International Limited att denna typ av radioutrustning TMAA4A, TMAA4C, TMAB1A, TMAB1C, TMAB1E, TMAC0A, TMAC0C, TMAH5A, TMAH5C, TMAH5E, TMAH6A, TMAH6C, TMAH6E, TMBB1A, TMBC0A, TMBH5A, TMBH7A, TMBM1A, TPAB1A, TPAH5A, TPAH6A, TPCB1A, TPCC0A, TPCH5A, TPCH6A, TPDB1A, TPDB1B, TPDB1C, TPDB1D, TPDC0A, TPDC0D, TPDH5A, TPDH5D, TPDH7A, TPDH7D, TPDHBB, TPDHKC, TPDH7C, TUFM2D, TUFM3A, TPGB1A, TPGHKA & TPGH7A överensstämmer med direktiv 2014/53/EU. Den full-ständiga texten till EU-försäkran om överensstämmelse finns på följande webbadress: www.-taitradio.com/eudoc

# Tait Software License Agreement

This Software License Agreement ("Agreement") is between you (“Licensee”) and Tait International Limited (“Tait").

By using any of the Software items embedded and preloaded in the related Tait Designated Product, included on CD, downloaded from the Tait website, or provided in any other form, you agree to be bound by the terms of this Agreement. If you do not agree to the terms of this Agreement, do not install or use any of the Software. If you install or use any of the Software, that will be deemed to be acceptance of the terms of this Agreement.

For good and valuable consideration, the parties agree as follows:

**Section 1 DEFINITIONS**

“Confidential Information” means all or any information supplied to or received by Licensee from Tait, whether before or after installation or use and whether directly or indirectly pertaining to the Software and Documentation supplied by Tait, including without limitation all information relating to the Designated Products, hardware, software; copyright, design registrations, trademarks; operations, processes, and related business affairs of Tait; and including any other goods or property supplied by Tait to Licensee pursuant to the terms of this Agreement.

**“Designated Products”** means products provided by Tait to Licensee with which or for which the Software and Documentation is licensed for use.

**“Documentation”** means product and software documentation that specifies technical and performance features and capabilities; user, operation, and training manuals for the Software; and all physical or electronic media upon which such information is provided.

**“Executable Code”** means Software in a form that can be run in a computer and typically refers to machine language, which is comprised of native instructions the computer carries out in hardware. Executable code may also refer to programs written in interpreted languages that require additional software to actually execute.

**“Intellectual Property Rights”** and **“Intellectual Property”** mean the following or their substantial equivalents or counterparts, recognized by or through action before any governmental authority in any jurisdiction throughout the world and including, but not limited to all rights in patents, patent applications, inventions, copyrights, trademarks, trade secrets, trade names, and other proprietary rights in or relating to the Software and Documentation; including any adaptations, corrections, decompilations, disassemblies, emulations, enhancements fixes, modifications, translations and updates to or derivative works from, the Software or Documentation, whether made by Tait or another party, or any improvements that result from Tait processes or, provision of information services.

**“Licensee”** means any individual or entity that has accepted the terms of this License.

**“Open Source Software”** means software with freely obtainable source code and license for modification, or permission for free distribution.

**“Open Source Software License”** means the terms or conditions under which the Open Source Software is licensed.

**“Person”** means any individual, partnership, corporation, association, joint stock company, trust, joint venture, limited liability company, governmental authority, sole proprietorship, or other form of legal entity recognized by a governmental authority.

**“Security Vulnerability”** means any flaw or weakness in system security procedures, design, implementation, or internal controls that if exercised (accidentally triggered or intentionally exploited) could result in a security breach such that data is compromised, manipulated, or stolen, or a system is damaged.

**“Software”** (i) means proprietary software in executable code format, and adaptations, translations, de-compilations, disassemblies, emulations, or derivative works of such software; (ii) means any modifications, new versions and new releases of the software provided by Tait; (iii) means any upgrades, enhancements or other functions or features to the Software provided by Tait; and (iv) may contain one or more items of software owned by a third-party supplier. The term "Software" includes the applicable “Software Key” and does not include any third-party software provided under separate license or not licensable under the terms of this Agreement.

**“Source Code”** means software expressed in human readable language necessary for understanding, maintaining, modifying, correcting, and enhancing any software referred to in this Agreement and includes all

states of that software prior to its compilation into an executable programme.

**"Software Key"** means a code or key that is supplied by Tait to access, enable and use the Software or certain functions or features of the Software.

**"Tait"** means Tait International Limited and includes its Affiliates.

**Section 2 SCOPE**

This Agreement contains the terms and conditions of the license Tait is providing to Licensee, and of Licensee's use of the Software and Documentation. Tait and Licensee enter into this Agreement in connection with Tait delivery of certain proprietary Software and/or products containing embedded or pre-loaded proprietary Software.

**Section 3 GRANT OF LICENSE**

3.1. Subject to the provisions of this Agreement and the payment of applicable license fees, Tait grants to Licensee a personal, limited, non-transferable (except as permitted in Section 7), and non-exclusive license to use the Software in executable code form, and the Documentation, solely in connection with Licensee's use of the Designated Products for the useful life of the Designated Products. This Agreement does not grant any rights to source code.

3.2. The Licensee acknowledges that one or more Software Keys may be required from Tait for the Software or certain functions or features of the Software. The Licensee may only access, enable and use such Software or functions or features of the Software with Software Keys issued by Tait. Tait may provide the Licensee with a Software Key for the Software or certain functions or features of the Software agreed to by the parties as part of this Agreement. The Software Key may control the functions or features of the Software licensed in accordance with this Agreement. The Licensee's license to the Software Key is limited to a license to use the Software Key only to access, enable and use the Software or certain functions or features of the Software that Tait has agreed to provide to the Licensee and only in accordance with the Documentation.

3.3. If the Software licensed under this Agreement contains or is derived from Open Source Software, the terms and conditions governing the use of such Open Source Software are in the Open Source Software Licenses of the copyright owner and not in this Agreement. If there is a conflict between the terms and conditions of this Agreement and the terms and conditions of the any applicable Open Source Software Licenses, the terms and conditions of the Open Source Software Licenses will take precedence. For information about Open Source Components contained in Tait products and the related Open Source licenses, see: https://www.taitradio.com/opensource

**Section 4 LIMITATIONS ON USE**

4.1. Licensee may use the Software only for Licensee's internal business purposes and only in accordance with the Documentation. Any other use of the Software is strictly prohibited. Without limiting the general nature of these restrictions, Licensee will not make the Software available for use by third parties on a "time sharing," "application service provider," "service bureau" basis, or for any other similar commercial rental or sharing arrangement.

4.2. Licensee will not, and will not directly or indirectly allow or enable any third party to: (i) reverse engineer, disassemble, extract components, decompile, reprogram, or otherwise reduce the Software or any portion thereof to a human perceptible form or otherwise attempt to recreate the source code; (ii) modify, adapt, create derivative works of, or merge the Software; (iii) copy, reproduce, distribute, lend, or lease the Software or Documentation to any third party; (iv) grant any sublicense or other rights in the Software or Documentation to any third party; (v) take any action that would cause the Software or Documentation to be placed in the public domain; (vi) remove, or in any way alter or obscure any copyright notice or other notice of Tait or third-party licensor's proprietary rights; (vii) provide, copy, transmit, disclose, divulge or make the Software or Documentation available to, or permit the use of the Software by, any third party or on any machine except as expressly authorized by this Agreement; or (viii) use, or permit the use of, the Software in a manner that would result in the production of a copy of the Software by any means whatsoever other than what is permitted in this Agreement. Licensee may make one copy of the Software to be used solely for archival, back-up, or disaster recovery purposes; provided that Licensee may not operate that copy of the Software at the same time as the original Software is being operated. Licensee may make as many copies of the Documentation as it may reasonably require for the internal use of the Software.

4.3. Unless otherwise authorized by Tait in writing, Licensee will not, and will not enable or allow any third party to: (i) install a copy of the Software on more than one unit of a Designated Product; or (ii) copy or transfer Software installed on one unit of a Designated Product

to any other device. Licensee may temporarily transfer Software installed on a Designated Product to another device if the Designated Product is inoperable or malfunctioning. Temporary transfer of the Software to another device must be discontinued when the original Designated Product is returned to operation and the Software must be removed from the other device.

4.4. Licensee will maintain, during the term of this Agreement and for a period of two years thereafter, accurate records relating to this license grant to verify compliance with this Agreement. Tait, or a third party nominated by Tait, may inspect Licensee's premises, books and records, upon reasonable prior notice to Licensee, during Licensee's normal business hours and subject to Licensee's facility and security regulations. Tait is responsible for the payment of all expenses and costs of the inspection, provided that Licensee shall indemnify Tait for all costs (including audit costs and legal costs on a solicitor client basis) if Licensee has breached the terms of this Agreement. Any information obtained by Tait during the course of the inspection will be kept in strict confidence by Tait and used solely for the purpose of verifying Licensee's compliance with the terms of this Agreement.

**Section 5 OWNERSHIP AND TITLE**

Tait, its licensors, and its suppliers retain all of their Intellectual Property Rights in and to the Software and Documentation, in any form. No rights are granted to Licensee under this Agreement by implication, estoppel or otherwise, except for those rights which are expressly granted to Licensee in this Agreement. All Intellectual Property developed, originated, or prepared by Tait in connection with providing the Software, Designated Products, Documentation, or related services, remains vested exclusively in Tait, and Licensee will not have any shared development or other Intellectual Property Rights.

**Section 6 LIMITED WARRANTY; DISCLAIMER OF WARRANTY**

6.1. The commencement date and the term of the Software warranty will be a period of one (1) year from Tait shipment of the Software. If Licensee is not in breach of any obligations under this Agreement, Tait warrants that the unmodified Software, when used properly and in accordance with the Documentation and this Agreement, will be free from a reproducible defect that eliminates the functionality or successful operation of a feature critical to the primary functionality or successful operation of the Software. Whether a defect has occurred will be determined solely by Tait. Tait does not warrant that Licensee's use of the Software or the Designated Products will be uninterrupted, error-free, completely free of Security Vulnerabilities, or that the Software or the Designated Products will meet Licensee's particular requirements. Tait makes no representations or warranties with respect to any third-party software included in the Software.

6.2 Tait sole obligation to Licensee, and Licensee's exclusive remedy under this warranty, is to use reasonable efforts to remedy any material Software defect covered by this warranty. These efforts will involve either replacing the media or attempting to correct significant, demonstrable program or documentation errors or Security Vulnerabilities. If Tait cannot correct the defect within a reasonable time, then at Tait option, Tait will replace the defective Software with functionally equivalent Software, license to Licensee substitute Software which will accomplish the same objective, or terminate the license and refund Licensee's paid license fee. If Tait investigation of the perceived defect reveals that no such defect in fact exists, Tait may recover its costs in respect of such investigation from Licensee.

6.3. Tait disclaims any and all other warranties relating to the Software or Documentation other than the express warranties set forth in this Section 6. Warranties in Section 6 are in lieu of all other warranties whether express or implied, oral or written, and including without limitation any and all implied warranties of condition, title, non-infringement, merchantability, or fitness for a particular purpose or use by Licensee (whether Tait knows, has reason to know, has been advised of, or is otherwise aware of any such purpose or use), whether arising by law, by reason of custom or usage of trade, or by course of dealing. In addition, Tait disclaims any warranty to any person other than Licensee with respect to the Software or Documentation.

**Section 7 TRANSFERS**

7.1. Licensee will not transfer the Software or Documentation to any third party without specific prior written consent from Tait. Tait may withhold such consent or at its own discretion make the consent conditional upon the transferee paying applicable license fees and agreeing to be bound by this Agreement.

7.2. In the case of a value-added reseller or distributor of Tait Designated Products, the consent referred to in Section 7.1 may be contained in a Tait Reseller or Tait Distributor Agreement.

7.3. If the Designated Products are Tait vehicle-mounted mobile products or hand-carried portable radio products and Licensee transfers ownership of the Tait

mobile or portable radio products to a third party, Licensee may assign its right to use the Software which is embedded in or furnished for use with the radio products and the related Documentation; provided that Licensee transfers all copies of the Software and Documentation to the transferee.

7.4. 7.4. For the avoidance of any doubt, Section 7.3 excludes TaitNet Infrastructure, or the products listed at any time under network products at: http://www.-taitradio.com.

7.5. If Licensee, as a contractor or subcontractor (integrator), is purchasing Tait Designated Products and licensing Software not for its own internal use but for end use only by a Customer, the Licensee may transfer such Software, but only if a) Licensee transfers all copies of such Software and the related Documentation to the transferee and b) Licensee has first obtained from its Customer (and, if Licensee is acting as a subcontractor, from the interim transferee(s) and from the ultimate end user sub license) an enforceable sublicense agreement that prohibits any other transfer and that contains restrictions substantially identical to the terms set forth in this Software License Agreement. Except as stated in the foregoing, Licensee and any transferee(s) authorised by this Section may not otherwise transfer or make available any Tait Software to any third party nor permit any party to do so. Licensee will, on request, make available evidence reasonably satisfactory to Tait demonstrating compliance with all the foregoing.

**Section 8 TERM AND TERMINATION**

8.1. Licensee's right to use the Software and Documentation will commence when the Designated Products are supplied by Tait to Licensee and will continue for the life of the Designated Products with which or for which the Software and Documentation are supplied, unless Licensee breaches this Agreement, in which case this Agreement and Licensee's right to use the Software and Documentation may be terminated immediately upon notice by Tait.

8.2. Within thirty (30) days after termination of this Agreement, Licensee must certify in writing to Tait that all copies of the Software have been removed or deleted from the Designated Products and that all copies of the Software and Documentation have been returned to Tait or destroyed by Licensee and are no longer in use by Licensee.

8.3. Licensee acknowledges that Tait made a considerable investment of resources in the development, marketing, and distribution of the Software and Documentation and that Licensee's breach of this Agreement will result in irreparable harm to Tait for which monetary damages would be inadequate. If Licensee breaches this Agreement, Tait may terminate this Agreement and be entitled to all available remedies at law or in equity including immediate injunctive relief and repossession of all non-embedded Software and associated Documentation. Licensee shall pay all Tait costs (on an indemnity basis) for the enforcement of the terms of this Agreement.

**Section 9 CONFIDENTIALITY**

Licensee acknowledges that the Software and Documentation contain proprietary and Confidential Information valuable to Tait and are Tait trade secrets, and Licensee agrees to respect the confidentiality of the information contained in the Software and Documentation.

**Section 10 LIMITATION OF LIABILITY**

10.1. In no circumstances shall Tait be under any liability to Licensee, or any other person whatsoever, whether in Tort (including negligence), Contract (except as expressly provided in this Agreement), Equity, under any Statute, or otherwise at law for any losses or damages whether general, special, exemplary, punitive, direct, indirect, or consequential arising out of or in connection with any use or inability of using the Software.

10.2. Licensee's sole remedy against Tait will be limited to breach of contract and Tait sole and total liability for any such claim shall be limited at the option of Tait to the repair or replacement of the Software or the refund of the purchase price of the Software.

**Section 11 GENERAL**

11.1. COPYRIGHT NOTICES. The existence of a copyright notice on the Software will not be construed as an admission or presumption of publication of the Software or public disclosure of any trade secrets associated with the Software.

11.2. COMPLIANCE WITH LAWS. Licensee acknowledges that the Software may be subject to the laws and regulations of the jurisdiction covering the supply of the Designated Products and will comply with all applicable laws and regulations, including export laws and regulations, of that country.

11.3. ASSIGNMENTS AND SUBCONTRACTING. Tait may assign its rights or subcontract its obligations under this Agreement, or encumber or sell its rights in any Software, without prior notice to, or consent of, Licensee.

11.4. GOVERNING LAW. This Agreement shall be subject to and construed in accordance with New Zealand law and disputes between the parties concerning the provisions hereof shall be determined by the New Zealand Courts of Law. Provided however Tait may at its election bring proceedings for breach of the terms hereof or for the enforcement of any judgment in relation to a breach of the terms hereof in any jurisdiction Tait considers fit for the purpose of ensuring compliance with the terms hereof or obtaining relief for breach of the terms hereof.

11.5. THIRD-PARTY BENEFICIARIES. This Agreement is entered into solely for the benefit of Tait and Licensee. No third party has the right to make any claim or assert any right under this Agreement, and no third party is deemed a beneficiary of this Agreement. Notwithstanding the foregoing, any licensor or supplier of third-party software included in the Software will be a direct and intended third-party beneficiary of this Agreement.

11.6. SURVIVAL. Sections 4, 5, 6.3, 7, 8, 9, 10, and 11 survive the termination of this Agreement.

11.7. ORDER OF PRECEDENCE. In the event of inconsistencies between this Agreement and any other Agreement between the parties, the parties agree that, with respect to the specific subject matter of this Agreement, this Agreement prevails.

11.8 SECURITY. Tait uses reasonable means in the design and writing of its own Software and the acquisition of third-party Software in order to limit Security Vulnerabilities. While no software can be guaranteed to be free from Security Vulnerabilities, if a Security Vulnerability is discovered, Tait will take the steps specified in Section 6 of this Agreement.

11.9 EXPORT. Licensee will not transfer, directly or indirectly, any Designated Product, Documentation or Software furnished hereunder or the direct product of such Documentation or Software to any country for which New Zealand or any other applicable country requires an export license or other governmental approval without first obtaining such license or approval.

11.10 SEVERABILITY. In the event that any part or parts of this Agreement shall be held illegal or null and void by any court or administrative body of competent jurisdiction, such determination shall not affect the remaining terms which shall remain in full force and effect as if such part or parts held to be illegal or void had not been included in this Agreement. Tait may replace the invalid or unenforceable provision with a valid and enforceable provision that achieves the original intent and economic effect of this Agreement.

11.11 CONSUMER GUARANTEES. Licensee acknowledges that the licenses supplied in terms of this agreement are supplied to Licensee in business, and that the guarantees and other provisions of prevailing consumer protection legislation shall not apply.

11.12 WHOLE AGREEMENT. Licensee acknowledges that it has read this Agreement, understands it and agrees to be bound by its terms and conditions. Licensee also agrees that, subject only to the express terms of any other agreement between Tait and Licensee to the contrary, this is the complete and exclusive statement of the Agreement between it and Tait in relation to the Software. This Agreement supersedes any proposal or prior agreement, oral or written, and any other communications between Licensee and Tait relating to the Software and the Designated Products.