



CRYSTAL

# User Manual

DBH10R – 80 Channel 1 watt UHF Hand held  
DBH20R – 80 Channel 2 watt UHF Hand held



## **INTRODUCTION**

Thank you for purchasing this CRYSTAL CB Radio. Please ensure that you have read the product manual and instructions in full, prior to installation and use. Failure to do so may result in product failure/damage or incorrect operation and therefore impact the product performance.

There are many government rules and regulations surrounding the use of UHF radio so please familiarise yourself with local legislation and the safety information contained within this product manual before use.

## **BOX CONTENTS**

Parts supplied include:

- 2 x Hand held UHF radios
- 2 x Rechargeable batteries
- 2 x Belt clips
- 1 x Twin charging dock
- 1 x 240V Adaptor

## **SAFETY INFORMATION AND WARNINGS**

### **Information on Safe Operation**

Read This Information Before Using Your CRYSTAL Radio. The operation of your UHF radio in Australia is subject to conditions in the following license: In Australia the ACMA Radio communications (Citizen Band Radio Stations) and in New Zealand by MED the General User Radio License for Citizen Band Radio.

### **Radio Antenna**

Do not use any radio that has a damaged antenna. If a damaged antenna comes in contact with the skin, a minor burn may result. Unauthorized antennas, modifications, or attachments could damage the radio and violate compliance. Do NOT change or modify the antenna.

Do NOT hold the antenna when the radio is "IN USE." Holding the antenna reduces range and may cause bodily harm.

### **Safety and general use whilst in a vehicle**

Check the State and Federal laws and regulations regarding the use of two-way radios in the area where you drive, and always obey them.

### **For Vehicles fitted with Airbags**

Do not place your radio in the area over an air bag or in the air bag deployment area. Air bags inflate with great force. If a radio is placed in the air bag deployment area and the air bag inflates, the radio may be propelled with great force and cause serious injury to the occupants of the vehicle.

## **Batteries**

All batteries can cause property damage and/or bodily injury such as burns if conductive material such as jewellery, keys, or beaded chains touches exposed terminals. The material may complete an electrical circuit (short circuit) and become quite hot. Exercise care in handling any charged battery, particularly when placing it inside a pocket, purse, or other container with metal objects.

Do not replace or charge batteries in a potentially explosive atmosphere. Contact sparking may occur while installing or removing batteries and cause an explosion.

## **Potentially Explosive Atmospheres**

Turn your radio OFF when in any area with a potentially explosive atmosphere. Sparks in such areas could cause an explosion or fire resulting in injury or even death. NOTE: Areas with potentially explosive atmospheres are often, but not always clearly marked. They include fuelling areas such as below deck on boats; fuel or chemical transfer or storage facilities; areas where the air contains chemicals or particles, such as grain, dust, or metal powders; and any other area where you would normally be advised to turn off your vehicle engine.

## **Blasting Caps and Areas**

To avoid possible interference with blasting operations, turn your radio OFF near electrical blasting caps or in a "blasting area" or in areas posted: "Turn off the two way radio." Obey all signs and instructions.

## **Exposure to Radio Frequency Energy**

Your CRYSTAL two-way radio complies with Australian Communications Authority Radio communications (Electromagnetic Radiation-Human Exposure) Standard, 2003. To assure optimal radio performance and make sure human exposure to radio frequency electromagnetic energy is within the guidelines set out in the above standards always adhere to the following procedures.

### **Transmit and Receive Procedure**

Your two-way radio contains a transmitter and a receiver. To control your exposure and ensure compliance with the general population/uncontrolled environment exposure limits, always adhere to the following procedure:

- Transmit no more than 50% of the time.

- To receive calls, release the PTT button.
- To transmit (talk), press the Push to Talk (PTT) button.

Transmitting 50% of the time, or less, is important because the radio generates measurable RF energy exposure only when transmitting (in terms of measuring standards compliance). Always hold the radio approximately 5cm in front of your mouth with the antenna pointing away from your head.

## **Radio Operation and EME Exposure**

Unauthorized antennas, modifications, or attachments could damage the radio and violate compliance. Do NOT hold the antenna when the radio is "IN USE." Holding the antenna reduces the effective range. Do not use the radio if the antenna is damaged. If a damaged antenna makes contact with your skin, a minor burn can result. If you wear a radio on your body when transmitting, always fit the radio on the belt clip (supplied). Always ensure the radio and its antenna are at least 5cm from your body when transmitting.

## **Electromagnetic Interference/Compatibility**

Nearly every electronic device is susceptible to electromagnetic interference (EMI). To avoid the possibility of electromagnetic interference and/or compatibility conflicts, turn off your radio in any location where posted notices instruct you to do so such as health care facilities.

## **Aircraft**

When instructed to do so, turn off your radio when onboard an aircraft. Any use of a radio must be in accordance with applicable regulations per airline crew instructions.

## **Medical Devices – Pacemakers**

The Advanced Medical Technology Association recommends that a minimum separation of 6 inches (15cm) be maintained between a handheld wireless radio and a pacemaker. These recommendations are consistent with the independent research by and recommendations of the U.S. Food and Drug Administration.

People with pacemakers should:

- ALWAYS keep the radio more than 15cm from their pacemaker when the radio is turned ON.
- Not carry the radio in the breast pocket.
- Use the ear opposite the pacemaker to minimize the potential for interference.
- Turn the radio OFF immediately if there is any reason to suspect that interference is taking place.

## **Medical Devices - Hearing Aids**

Some radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

## **Other Medical Devices**

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from RF energy. Your physician may be able to assist you in obtaining this information.

## **General warnings**

Never use your radio outdoors during a thunderstorm. Keep the radio out of reach of babies and young children.



## **INSTALLING THE BATTERY & BELT CLIP**

### **Belt clip**

The supplied belt clip simply slides into the back of the main radio and clicks in place to lock.

### **Battery pack**

Your unit comes with a rechargeable battery pack. Also included, is a desktop charger. The desktop charger will only charge the battery pack provided and not other types of rechargeable batteries. If fitted, remove the belt clip by lifting the top tab away from the main unit and slide the belt clip up. Slide the battery cover down approximately 5mm, then lift away the cover. Insert the battery making sure the batteries label is facing outwards with “up” at the top of the battery. Be sure to leave the batteries removal ribbon facing outwards. Replace the battery cover ensuring the battery removal ribbon is laying flat against the battery. If desired, replace the Belt clip.



### **FOR USE OF NON RECHARGEABLE BATTERIES:**

Slide down the battery compartment cover. Insert 4 x AAA batteries (not supplied). Position the batteries according to the polarity marking on the battery compartment. After placing batteries into correct positions, replace the battery cover.

## RADIO LAYOUT



## LCD DISPLAY ICONS

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**88** CTCSS Code. Changes from 1 to 38 as selected by the user.

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**||||** Displays the Battery charge level. When the bars are reduced, the battery needs recharging.

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**TX** Displayed when transmitting a signal.

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**RX** Displayed when receiving a signal.

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**DCM** Displayed when the Dual Watch function is turned ON.

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**VOX** Displayed when the VOX feature is enabled.

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**🔑** Displayed when the Key Lock feature is activated.

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**||||** Displays the current Speaker volume level.

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## **RADIO OPERATION**

### **Turning unit on/off**

#### 1- Switching on

Press and hold the **MENU/PWR** until you hear a beep sound and the display will light up.

#### 2- Switching off

Press and hold the **MENU/PWR** until you hear a beep sound and the display will black out.

### **Adjusting the Volume**

You have 8 preset volume levels. They are displayed on the LCD screen. To raise the volume press the up button and to decrease the volume, press the down button. Once the desired volume level has been selected, press the “**(MON) BUTTON**” and this will save the selected volume and the radio will return to the default screen.

### **Changing Channels**

You have a maximum of 80 channels at your disposal. To communicate with another device, you must both be on the same channel.

Press the “**(MENU/PWR) BUTTON**”, the channel number on the display will start flashing. Press the “**UP ARROW**” or “**DOWN ARROW**” to scroll to the desired channel. Once the desired channel has been selected, press the “**(MON) BUTTON**” and this will save the selected channel and the radio will return to the default screen with the new channel displayed.

Your **DBH10R/20R** is simplex “one way at a time”. While you are speaking, you cannot receive a transmission.

Your **DBH10R/20R** is an open-license band. Always identify yourself when transmitting on the same channel.

**NOTE:** Channels 05 and 35 are reserved for emergency use only.

### **Scanning**

The scan feature will enable the radio to automatically scan through selected channels at 20 channels per 3 seconds.

To scan, press and hold the “**(MON) BUTTON**” for 3 seconds the unit will scan through all 80 channels. The word SCAN will appear in the top left of the screen to indicate it is scanning. The direction of the scan can simply be changed by using the “**UP ARROW**” or “**DOWN ARROW**”.

To stop scanning, press the “**(MON) BUTTON**” and the radio will go back to the original channel set before scanning.

The user can still transmit on the selected channel at anytime by pressing the “**(PTT) BUTTON**” on the radio, once the transmission is complete the radio will continue scanning after 20 seconds.

**IMPORTANT:** Before transmitting on a UHF channel listen to ensure it is not already in use.

## Transmitting (sending speech)

The unit is continuously in the Receive mode when the unit is turned ON and not transmitting. When a signal is received on the current channel, "RX" icon will be displayed on the LCD screen. a. Press and hold the **(PTT) BUTTON** (Push to Talk) button to transmit your voice. The transmit signal icon "TX" will display on the LCD screen. b. Hold the unit in a vertical position with the Mic (Microphone) 5 cm away from the mouth. While holding the **(PTT) BUTTON**, speak into the microphone in a normal tone of voice. c. Release the **(PTT) BUTTON** when you have finished transmitting.

For others to receive your transmission, they must be on the same channel as you.

## Keypad lock

Press and hold the **"(CALL) BUTTON"** for 3 seconds to lock the keypad. A small key symbol will appear under the channel number to indicate the keypad is locked. The **"(PTT) BUTTON"** will still function in this mode. To unlock the keypad, press and hold the **"(CALL) BUTTON"** for 3 seconds. The small key symbol will now disappear from the display and the keypad will be functional.

## Call-Ring tone

You can use the CALL button to send a tone to other users on the same channel. To activate this feature; a. With the unit in normal mode, press and release the **"(CALL) BUTTON"**. The unit will transmit a 2-second page tone to the other unit/s set with the same channel within transmitting range.

**NOTE:** This function is only possible every 60 seconds.

## Squelch control

The DBH10R/20R has automatic squelch control, which silences the constant background noise during periods of inactivity. The radio will still receive transmissions when a signal is present, however it will eliminate background noise when a signal is not present.

To open the squelch (turn off automatic squelch control), press the **"(MON) BUTTON"**, RX will appear on the display and a constant static noise can be heard. The radio is now allowing all signals to be heard.

To turn the automatic squelch control on, press the **"(MON) BUTTON"**, RX will no longer be displayed and the background noise will stop.

## Low Battery Meter Indicator

The radio can detect the low battery level when the battery voltage goes low. The battery icon will display the low battery status

When battery voltage is low, the empty battery symbol will appear and continue to blink. The battery symbol will continuously blink until it totally drains the battery voltage where then you will have to replace the batteries.

## **MAIN MENU**

To access the main menu, while the radio is powered on, press the “**(MENU/PWR) BUTTON.**” To navigate through each menu option, press the “**(MENU/PWR) BUTTON**” multiple times until the desired feature is reached.

Menu options include:

1. Channel selection
2. CTCSS/DCS code settings
3. Voice operated exchange
4. Call tone
5. Turn Off Time
6. Roger beep
7. Button beep
8. Dual channel monitoring
9. Duplex mode (see note below)

**NOTE:** Duplex Mode also known as Repeater is only available/displayed on selected channels (1-8 and 41-48). It will not display on the menu as an option when the radio is on another channel

To exit the menu press the “**(MON) BUTTON**” and the default channel screen will reappear, this will also save any settings you changed. Alternatively, do not press any buttons for 8 seconds and the radio will automatically exit the menu and automatically save any changed settings.

### **What is CTCSS & DCS**

CTCSS (Continuous Tone-Coded Squelch System) and DCS (Digitally Coded Squelch) modify the transmission signal to allow multiple users to share the same channel without disturbing each other. This is an important feature on a radio when there are many radio users in the same area.

CTCSS continuously superimposes any one of about 50 low-pitch audio tones on the transmitted signal, ranging from 67 to 254 Hz. DCS was designed as the digital replacement for CTCSS. DCS adds a 134.4 bps (sub-audible) bit stream to the transmitted audio. CTCSS or DCS is enabled by on the radio through selectable sub channels. When CTCSS or DCS is enabled, incoming signals must be on the same CTCSS or DCS sub channel as the receiving radio or they will be filtered out.

### **Setting CTCSS & DCS functions**

Press the “**(MENU/PWR) BUTTON**” twice, the CTCSS/DCS channel number on the LCD will start flashing.

To enable CTCSS, press the “**UP ARROW**” or “**DOWN ARROW**” until CTCSS appears on the screen, channel selection can be made between 1-38. Once the desired setting is selected, press the “**(MON) BUTTON**” to save the setting. The unit will automatically change back to the default screen with the CTCSS sub channel now on display.

To enable DCS, press the “**UP ARROW**” or “**DOWN ARROW**” until DCS appears on the

screen, channel selection can be made between 1-83. Once the desired setting is selected, press the “**(MON) BUTTON**” to save the setting. The unit will automatically change back to the default screen with the DCS sub channel now on display.

To turn off CTCSS and DCS, press the “**UP ARROW**” or “**DOWN ARROW**” until “00” appears. Press the “**(MON) BUTTON**” to save the setting. The unit will automatically change back to the default screen and CTCSS/DCS will no longer be displayed.

## **FUNCTION- VOX**

### **What is VOX?**

VOX stands for Voice Operated Exchange, the feature allows a user to transmit simply by talking into the radio without having to press the (PTT) BUTTON.

### **Setting VOX Mode**

To access VOX mode, press the “**(MENU/PWR) BUTTON**” three times, VOX will display at the top of the LCD. Press the “**UP ARROW**” or “**DOWN ARROW**” to select an option, “OFF-1-2-3” (1 is low voice sensitivity and will only pick up loud noises, while 3 is high sensitivity and will pick up soft noises). Once the desired option has been selected, press the “**(MON) BUTTON**” and this will save the selected channel and the radio will return to the default screen with the “VOX” displayed at the top. When VOX is activated, every time the radio detects a noise it will automatically transmit.

**NOTE:** The use of VOX is not recommended in environments where noise is present (wind or general loud background noise).

## **FUNCTION- CALL TONE**

### **What is Call Tone?**

A call tone is a 2 second signal that is sent out from the radio to let other users know you would like to talk to them. It is an alternative option from just speaking into the MIC to make the user stand out. The RR10PK has 10 call tone options.

To transmit a call tone, press the “**(CALL) BUTTON**”.

**NOTE:** Legislation only allows the call tone to be used once per minute, if the call button is pressed more than once in a minute, the radio simply will not resend the call tone again.

### **Setting Call Tone**

Press the “**(MENU/PWR) BUTTON**” four times, CA will on the LCD. Press the “**UP ARROW**” or “**DOWN ARROW**” to select an option, “1-10”. Once the desired option has been selected, press the “**(MON) BUTTON**” and this will save the selected channel and the radio will return to the default screen.

## **FUNCTION- TURN OFF TIME (TOT)**

### **What is Turn Off Time (TOT)?**

Turn Off Time (TOT) automatically cuts off the radio transmission after a certain period of time.

### **Setting Turn Off Time (TOT)**

To access the TOT feature, press the “**(MENU/PWR) BUTTON**” five times, “TO” will

display on the screen. Press the **“UP ARROW”** or **“DOWN ARROW”** to select an option, **“OFF-30-60”** (30-60 refer to the seconds the radio will transmit continuously for before it stops transmitting). Once the desired option has been selected, press the **“(MON) BUTTON”** and this will save the selected option and the radio will return to the default screen.

## **FUNCTION- ROGER BEEP**

### **What is Roger Beep?**

When the PTT is released after transmission, the radio will send a short beep to indicate the transmission has finished. This is known as a roger beep.

### **Setting Roger Beep**

To access the roger beep feature, press the **“(MENU/PWR) BUTTON”** six times, **“RO”** will display on the screen. Press the **“UP ARROW”** or **“DOWN ARROW”** to select an option **“on or off”**. Once the desired option has been selected, press the **“(MON) BUTTON”** and this will save the selected option and the radio will return to the default screen.

## **FUNCTION- BUTTON BEEP**

### **What is Button Beep?**

When buttons are pressed on the radio (exc. PTT Button), the radio emits a beep tone to indicate the button has been pressed. The radio has button beep default on.

### **Selecting Roger Beep**

To access the button beep feature, press the **“(MENU/PWR) BUTTON”** seven times, a **“BELL SYMBOL”** will display at the bottom of the screen. Press the **“UP ARROW”** or **“DOWN ARROW”** to select an option **“on or off”**. Once the desired option has been selected, press the **“(MON) BUTTON”** and this will save the selected option and the radio will return to the default screen. If you have selected the button beep **“ON”**, the **BELL SYMBOL** will stay displayed at the bottom of the default screen.

## **FUNCTION- DUAL CHANNEL MONITOR (DCM)**

### **What is Dual Channel Monitor (DCM)?**

Generally on a UHF only one channel can be monitored at a time (unless the radio is in scan mode). Dual channel monitor allows two channels to be monitored simultaneously.

### **Setting Dual Channel Monitor (DCM)**

To access dual channel monitor, press the **“(MENU/PWR) BUTTON”** eight times, **“DCM”** will display on the screen. Press the **“UP ARROW”** or **“DOWN ARROW”** to select an option, **“on or off”**.

To select a second channel to be monitored, press the **“(MENU/PWR) BUTTON”** eight times, **“DCM”** will display on the screen. Press the **“UP ARROW”** or **“DOWN ARROW”** to select an option, **“ON”**. Now press the **“(MENU/PWR) BUTTON”** once and a channel number will flash, press the **“UP ARROW”** or **“DOWN ARROW”** to select the second channel to be monitored. Now press the **“(MENU/PWR) BUTTON”** again and the CTCSS/DCS sub channel will flash, press the **“UP ARROW”** or **“DOWN ARROW”** to select the CTCSS/DCS sub channel to be monitored. To finalise the selection press the **“(MON) BUTTON”** and this will save the selected option and the radio will return to the default screen.

When DCM has been activated, the default screen will display DCM and the radio will continue cycling between the current channel and the monitored channel automatically.

## **FUNCTION- DUPLEX MODE**

### **What is Duplex?**

The duplex mode on the radio helps increase the range of the radio using repeater stations. In duplex mode, the fixed position station forwards the signal it receives from repeater input stations (31-38)/(71-78) to the corresponding output stations (1-8)/(41-48). Any transmissions sent on non-duplex channels are sent in simplex mode, or directly between radios without the use of a repeater.

### **Setting Duplex mode**

Duplex mode can only be selected when the radio is on a duplex channel (1 – 8 or 41-48). The following steps will only enable duplex operation on the selected channel. If you wish to enable duplex on another channel, you will need to follow the procedure again on the selected channel.

To access duplex mode, press the “**(MENU/PWR) BUTTON**” nine times, “RPT” will display on the screen. Press the “**UP ARROW**” or “**DOWN ARROW**” to select an option, “on or off”. Once the desired option has been selected, press the “**(MON) BUTTON**” and this will save the selected option and the radio will return to the default screen. If you have selected the duplex mode “ON”, RPT will stay displayed at the top of the default screen.

## **FUNCTION- USING THE UHF RADIO**

### **Transmit & receive procedure**

Your UHF radio contains a transmitter and receiver. To control your exposure and ensure compliance with the general population/uncontrolled environment exposure limits, always adhere to the following procedure:

Transmit no more than 50% of the time.

To receive calls, release the “**(PTT) BUTTON**” on the microphone handpiece.

To transmit (talk), press the “**(PTT) BUTTON**” on the microphone handpiece.

When powered on and not transmitting, the radio is always in receive mode. When a signal is received RX will display on the screen, when transmitting TX display on the LCD.

For others to receive your transmission, they must be on the same channel as you and if CTCSS or DCS is enabled, the same sub channel must also be selected.

**NOTE:** Before transmitting on a UHF channel, always listen to ensure it is not already in use.

**NOTE:** Transmitting 50% of the time, or less, is important because the radio generates measurable RF energy exposure only when transmitting (in terms of measuring standards compliance).

**NOTE:** Do not transmit between two radios that are less than 1.5m apart, otherwise you may experience interference.



**NOTE:** The UHF radio is simplex “one way at a time”. While you are speaking, you cannot receive a transmission.

**NOTE:** The UHF radio is an open licence band. Always identify yourself when transmitting.

### **TRANSMITTING RANGE**

The transmitting range will depend on the antenna, terrain, surroundings and environment, it will be affected by obstructions such as hills, buildings and foliage. The use of duplex mode will extend the transmission range in areas where a repeater station is present.

## **Duplex operation via Repeaters**

This feature allows to use local repeater stations that are designed to automatically re-transmit your broadcast over a large area thus giving you increased range.

Repeaters stations are privately operated radio systems installed throughout Australia.

For example, if you wish to access a repeater station in your area which operates on channel 2 you only need to set the Duplex access on this Channel.

So, if you are in the range of a local repeater which transmits on channel 2, after setting your radio to allow access of the repeater on that channel, you will select channel 2 as normal, but during transmit operation your radio will automatically transmit to the repeater on channel 32.

Turning on/off Duplex on channels

- a. Select the required channel to suit the repeater station you wish to access (Channels 1 – 8 and 41 – 48).
- b. Press the Menu button twice, “RPT” icon will display
- c. Press the UP or DOWN button to set the Duplex function to On or Off.
- d. Press the PTT button to confirm your setting.
- e. The RPT icon will display to indicate that Duplex is set on that channel.

Receive Channel	1	2	3	4	5*	6	7	8
Transmit channel	31	32	33	34	35*	36	37	38
Receive Channel	41	42	43	44	45	46	47	48
Transmit channel	71	72	73	74	75	76	77	78

\* Channel 5 is emergency channel only

Channel 5 and 35 (paired for Duplex repeaters) are reserved as emergency channels and should be used only in an emergency. CTCSS and DCS will not operate on channels 5 and 35.

A list of currently authorised channels can be obtained from the ACMA website in Australia and the MED website in New Zealand. Channel 11 is a calling channel generally used to call others and channel 40 is the customary road vehicle channel.

Once contact is established on the calling channel, both stations should move to another unused "SIMPLEX" channel to allow others to use the calling channel. Channels 22 and 23 are for Telemetry and Telecommand use, voice communications are not allowed on these channels by law. Channel 9 and above are the best choices for general use in Simplex mode.

### Radio communications (Citizen Band Radio Stations) Class Licence 2002

No licence is required to own or operate this radio in Australia and New Zealand. The Radio communications (Citizen Band Radio Stations) Class Licence 2002 contains the technical parameters, operating requirements, conditions of licence and relevant standards for Citizen Band (CB) radios. CB radios must comply with the class licence for their use to be authorised under the class licence.

### UHF channels and frequencies

IMPORTANT NOTE: The operation of your UHF radio in Australia and New Zealand is subject to conditions in the following licenses: In Australia the ACMA Radio communications (Citizen Band Radio Stations) and in New Zealand by MED the General User Radio License for Citizen Band Radio.

### Channel and Frequency (MHz) Australia (80CHS)

Channel		Tx Freq MHZ	Rx Freq MHZ	Channel		Tx Freq MHZ	Rx Freq MHZ
01*		476.4250	476.4250	21		476.9250	476.9250
	41*	-	476.4375		61 * *	-	-
02*		476.4500	476.4500	22 *		476.9500	476.9500
	42*	-	476.4625		62 * *	-	-
03*		476.4750	476.4750	23 *		476.9750	476.9750
	43*	-	476.4875		63 * *	-	-
04*	44*	476.5000	476.5000	24		477.0000	477.0000
		-	476.5125		64	477.0125	477.0125

05*		476.5250	476.5250	25		477.0250	477.0250
06*	45*	-	476.5375		65	477.0375	477.0375
	46*	476.5500	476.5500	26		477.0500	477.0500
		-	476.5625		66	477.0625	477.0625
07*	47*	476.5725	476.5750	27		477.0750	477.0750
		-	476.5875		67	477.0875	477.0875
08*		476.6000	476.6000	28		477.1000	477.1000
9	48*	-	476.6125		68	477.1125	477.1125
		476.6250	476.6250	29		477.1250	477.1250
	49	476.6375	476.6375		69	477.1375	477.1375
10		476.6500	476.6500	30		477.1500	477.1500
11	50	476.6625	476.6625		70	477.1625	477.1625
		476.6750	476.6750	31*		477.1750	477.1750
12	51	476.6875	476.6875		71*	477.1875	-
		476.7000	476.7000	32*		477.2000	477.2000
	52	476.7125	476.7125		72*	477.2125	-
13		476.7250	476.7250	33*		477.2250	477.2250
14	53	476.7375	476.7375		73*	477.2325	-
		476.7500	476.7500	34*		477.2500	477.2500
15	54	476.7625	476.7625		74*	477.2625	-
		476.7750	476.7750	35*		477.2750	477.2750
	55	476.7875	476.7875		75*	477.2875	-
16		476.8000	476.8000	36*		477.3000	477.3000
17	56	476.8125	476.8125		76*	477.3125	
		476.8250	476.8250	37*		477.3250	477.3250
18	57	476.8375	476.8375		77*	477.3375	
		476.8500	476.8500	38*		477.3500	477.3500
	58	476.8625	476.8625		78*	477.3625	
19		476.8750	476.8750	39		477.3750	477.3750
20	59	476.8875	476.8875		79	477.3875	477.3875
		476.9000	476.9000	40		477.4000	477.4000
	60	476.9125	476.9125		80	477.4125	477.4125

**Important note:**

The operation of your UHF radio in Australia and New Zealand is subject to conditions in the following licenses:

In Australia the ACMA radio communications (Citizen band radio stations) and in New Zealand by MED the general user radio license for citizen band radio.

\* The primary use for these channels is repeater operation using 750kHz offset. Channels 1-8 and 41-48 inclusive are used for mobile reception and channels 31-38 and 71-78 for mobile transmission. In addition, any designated repeater channel maybe used for simplex operation in areas where it is not used for repeater operation.

\* Speech telephony shall be inhibited on these channels.

\* At the time of production channels 61,62 and 63 are guard channels and are not available for use.

A list for currently authorized channels can be obtained from the ACMA.

website in Australia and MED website in New Zealand. Channel 11 is a calling channel generally used to call others and channel 40 is the customary road vehicle channel.

Once contact is established on the calling channel, both stations should move to another unused "SIMPLEX" channel to allow others to use the calling channel.

**38 CTCSS CODE LIST**

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

**Radio communications (Citizen Band Radio Stations)**

## Technical Assistance

If you need assistance setting up or using your CRYSTAL product now or in the future, call CRYSTAL Support.

Australia

TEL: 03 – 8587 8898

FAX: 03 – 8587 8866

Mon-Fri 9am – 5pm AEST



Please retain this user guide for future reference.

If you would like to download a digital copy of this manual, or other Crystal manuals/software, please visit the <http://crystalm.com.au/> website. This manual is considered correct at time of printing but is subject to change. For latest manuals and updates refer to the website.



## CRYSTAL MOBILES WARRANTY AGAINST DEFECTS

This warranty against manufacturing defects is given by TDJ Australia Pty Ltd ACN 006 385 191). Our contact details are set out in clause 2.7.

### 1. Consumer guarantee

1.1 Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major (*description according to Australian Consumer Laws*) failure and compensation for any other reasonably foreseeable (*description according to Australian Consumer Laws*) loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to meet manufacturers specifications and the failure does not amount to a major failure.

1.2 To the extent we are able, we exclude all other conditions, warranties and obligations which would otherwise be implied.

### 2. Warranty against defects

2.1 This Warranty is in addition to and does not limit, exclude or restrict your rights under the Competition and Consumer Act 2010 (Australia) or any other mandatory protection laws that may apply. [Consumer guarantees](#) are a set of rules that apply to goods and

services purchased by consumers under the Australian Consumer Law (ACL). These rules set out the circumstances under which a business is required to provide a consumer with a remedy.

The consumer guarantees automatically apply regardless of any voluntary or extended warranty given by a seller or manufacturer of goods and services, or if such a warranty has expired.

2.2 We warrant our goods to be free from defects in materials and workmanship for the warranty period from the date of original sale (or another period we agree to in writing). Subject to our obligations under clause 1.2, we will at our option, either repair or replace goods which we are satisfied do not meet manufacturers specifications. We warrant any replacement parts for the remainder of the period of warranty for the goods into which they are incorporated.

2.3 To the extent permitted by law, our sole liability for breach of a condition, warranty or other obligation implied by law is limited (a) in the case of goods we supply, to any one of the following as we decide - (i) the replacement of the goods or the supply of equivalent goods; (ii) the repair of the goods; (iii) the cost of repairing the goods or of acquiring equivalent goods; (b) in the case of services we supply, to any one of the following as we decide - (i) the supplying of the services again; (ii) the cost of having the services supplied again.

2.4 For repairs outside the warranty period, we warrant our repairs to be free from defects in materials and workmanship for three months from the date of the original repair. We agree to re-repair or replace (at our option) any materials or workmanship which we are satisfied do not meet manufacturers specifications.

2.5 We warrant that we will perform services with reasonable care and skill and agree to investigate any complaint regarding our services made in good faith. If we are satisfied that the complaint is justified, and as our sole liability to you under this warranty (to the extent permitted at law), we agree to supply those services again at no extra charge to you.

2.6 To make a warranty claim you must before the end of the applicable warranty period, at your own cost, return the goods you allege do not meet manufacturers specifications, provide written details of the alleged defect, and give us an original or copy of the purchase receipt, sales invoice or some other evidence showing details of the transaction.

2.7 Send your claim to: TDJ Australia PTY LTD. 78 Mills Road, Braeside Melbourne Victoria 3195, Australia,  
TEL: 03 8587 8898 FAX: 03 8587 8866  
Email: [tdj-service-team@tdj.com.au](mailto:tdj-service-team@tdj.com.au)

2.8 If we determine that your goods do not meet manufacturers specifications, we will pay for the cost of returning the repaired or replaced goods to you. If we find your goods meet manufacturers specifications and no major defect is found, we will contact you to arrange the return of the goods at your expense.

### **3. What this warranty does not cover**

3.1 This warranty will not apply in relation to: (a) goods modified or altered in any way; (b) defects and damage caused by use with non Standard Communications products; (c) repairs performed other than by our authorized *service team*; (d) defects or damage resulting from misuse, accident, impact or neglect; (e) goods improperly installed or used in a manner contrary to the relevant instruction manual; or (f) goods where the serial number has been removed or made illegal.

#### **4. Warranty period**

4.1 We provide the following warranty on Crystal Mobile products. No repair or replacement during the warranty period will renew or extend the warranty period past the period from original date of purchase.

***This products warranty period is 2 years from date of purchase***