

TX-1446



PMR 446 TRANSCEIVER INSTRUCTION MANUAL

tti

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Thank you for purchasing this radio.

All our products are built to offer excellent value by combining advanced features, great design and manufacturing quality.

To ensure you are familiar with the operation and features of your radio, and in order to obtain the best performance, please read this manual carefully before operation.



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Caution

IMPORTANT - READ ALL INSTRUCTIONS carefully and completely before operating your radio and retain this manual for future reference.

NEVER connect the radio to a power source other than the supplied battery. This may damage your product.

NEVER operate your radio with the antenna less than 5cm from exposed parts of the body.

NEVER use the radio in or near a mining facility or other area which uses remotely triggered explosives or an area labelled "Blasting Area".

NEVER use or charge your radio in a potentially explosive atmosphere.

DO NOT place your radio in front of a vehicle airbag.

DO NOT operate your radio on board an aircraft.

DO NOT use your radio with a damaged antenna.

DO NOT attempt to modify your radio in any way.

ALWAYS charge your radio at normal room temperature.

ALWAYS switch off your radio where notices restrict the use of two-way radio or mobile telephones.

ALWAYS replace the accessory jack cover (if applicable) when the jack is not in use.

ONLY use TTI approved rechargeable batteries with the supplied charger.

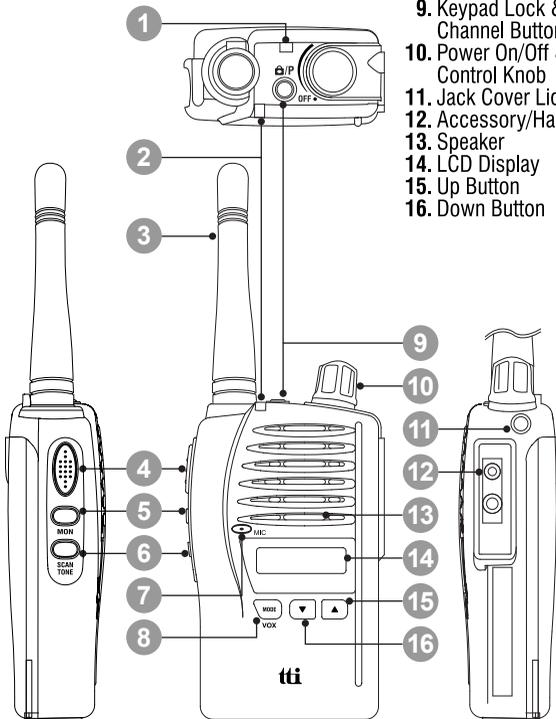
AVOID exposing your radio to water. It can withstand spray water and some rain, but has no higher waterproof class.

AVOID storing or charging your radio in direct sunlight.

AVOID storing or using your radio where temperatures are below -20°C or above +60°C.

1. Radio Controls

1. Strap Hole
2. TX/RX Indicator
3. Antenna
4. PTT Button
5. Squelch & Monitor Button
6. Scan & Tone Button
7. Microphone
8. Mode & VOX On/Off Button
9. Keypad Lock & Priority Channel Button
10. Power On/Off & Volume Control Knob
11. Jack Cover Lid Holder
12. Accessory/Hanger Jack
13. Speaker
14. LCD Display
15. Up Button
16. Down Button



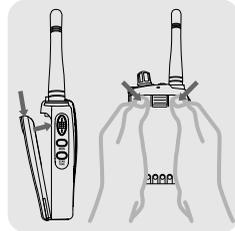
2. Equipment and Accessories Supplied

- | | | |
|---------------------------------------|---|--------|
| 1. TX-1446 radio (with fixed antenna) | □ | 1 unit |
| 2. Li-Ion Battery pack (1000mAh) | □ | 1 unit |
| 3. Charging Cradle | □ | 1 unit |
| 4. Power Adaptor | □ | 1 unit |
| 5. Instruction Manual | □ | 1 unit |

3. Fitting the Battery pack

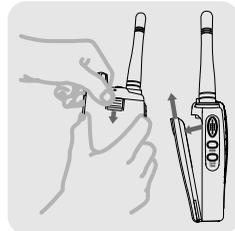
Fitting

1. Ensure that your radio is switched off.
2. Align the bottom of the battery pack with the securing slots at the back of the radio.
3. Press the top of the battery into the back of the radio until it 'clicks' home.



Removal

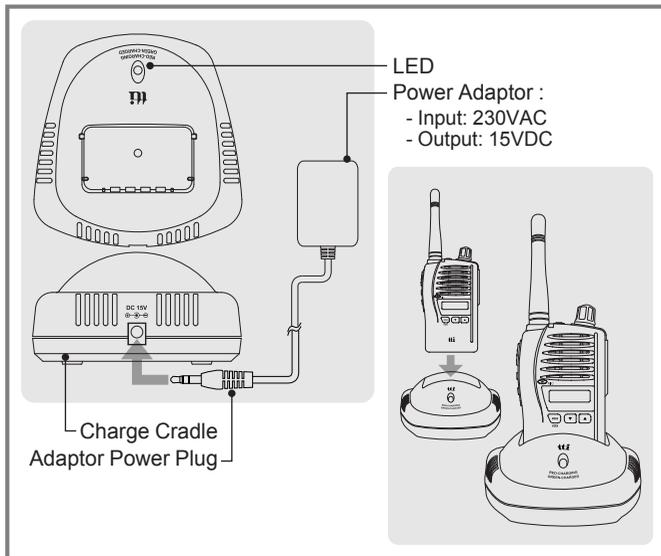
1. Ensure that your radio is switched off.
2. Press down on the battery release catch and separate the battery pack from the radio.



4. Battery Charging

To charge your radio, carefully follow these instructions:

1. Connect the power adaptor to the mains power supply and connect the adaptor power plug to the charging cradle.
2. Disconnect any radio accessories and ensure the radio is switched off.
3. Insert the radio into the charging cradle until it 'clicks' home. The charger LED will glow red and charging will start. If the charger LED blinks red and green or the charger LED does not light, re-insert the radio into the charging cradle.
4. The battery charging time is typically 12 to 15 hours. When the battery is fully charged the charger LED will turn green.



5. Radio Controls

1. Power On/Off/Volume control



Turn the knob clockwise to switch on and increase the volume and counter-clockwise to decrease the volume and switch off the radio. The radio will emit a confirmation tone when it switches on.

2. Push-To-Talk (PTT) button



Press and hold this button to speak (transmit) and release the button to hear (receive) messages. You can only communicate with other PMR446 radios when the channel and privacy code settings are the same as yours.

3. UP button



Pressing this button will increase the channel number. In some modes this button is used to adjust the function setting.

4. DOWN button



Pressing this button will decrease the channel number. In some modes this button is used to adjust the function setting.

5. MODE/VOX button



Press this button briefly to activate the function mode. Press the button again (repeatedly) to step through the function menu. Press and hold this button to activate or de-activate the VOX function.

6. SQUELCH/MONITOR button

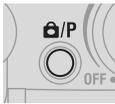


Press this button briefly to activate and de-activate the squelch level mode. Press and hold this button to activate or de-activate the MONITOR function.



7. SCAN/TONE button

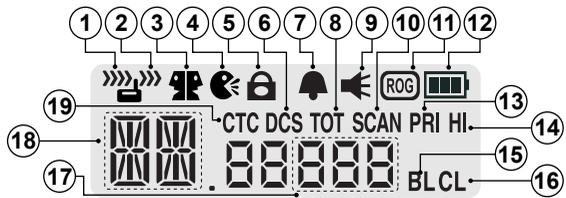
Press this button briefly to activate or de-activate the scan mode. Press and hold this button to activate or de-activate the current privacy code (CTCSS/DCS).



8. KEYPAD LOCK/PRIORITY CHANNEL button

Press this button briefly to activate or de-activate the priority channel mode. Press and hold this button to activate or de-activate the keypad lock.

6. LCD Display



1	Receiver Busy Icon	
2	Icon	
3	Transmit Icon	
4	Dual Watch Icon	
5	VOX Icon	
6	Key Lock Icon	
7	DCS Icon / Display	
8	Keytone Icon	
9	Time Out Timer Icon	
	Monitor Icon	

10	Scan Icon	
11	Roger Beep Icon	
12	Battery Icon	
13	Priority Channel Icon	
14	Hi Power Icon	
15	BCLO Icon	
16	Clone Icon	
17	Information Display	
18	Channel Display	
19	CTCSS Icon / Display	

7. Basic Radio Operation

The PMR446 service which this radio uses shares channels on a 'take turns' basis. This means that other users and groups may be using any channel and privacy code combination.

To communicate with other PMR446 radios, all units must be switched to the same channel (8 choices) and privacy code (50 CTCSS and 104 DCS choices). If the combination you have chosen is already in use please make an alternative selection.

1. Switch on your radio.
2. Check and if necessary change the channel and privacy code settings (see Function Mode).
3. To speak, hold the radio upright, about 10cm from your mouth and press the PTT. Speak slowly and clearly towards the radio. Release the PTT when you finish speaking.

You will hear messages from other radios that are within range and have the same channel and privacy code setting.

The appropriate icon will appear in the radio display when you receive or transmit a message.

8. Radio ID Editing

An up to 3 digit Radio ID can be programmed when the radio is switched on. You can customise this Radio ID to identify your radio.

To enter the Radio ID edit mode, switch on the radio whilst pressing the SCAN button and the MODE button.

1. Press the MODE button to select the first position.
2. Use the UP or DOWN button to change the character.
3. Press the MODE button to select the next letter.
4. Repeat steps 2 and 3 until the ID is complete.
5. Turn off the radio to finish editing.

9. Function Mode - User Mode

The user mode allows you to set-up and edit the basic functions (see Radio Features Explained).

To access the consumer mode, press the MODE button briefly.

Each press of the MODE button steps the radio sequentially through the different functions. The radio display indicates the current function. The present setting and associated icon flash.

Use the UP or DOWN button to change the setting. Press the PTT or MODE button or wait for 5 seconds to store your choice. If you do not press any key for 5 seconds your radio will return to standby mode automatically.

NB. Squelch level adjustment works via the SQUELCH button.

Display	Functions	Settings
CTC 88	Change Privacy Tone Code (CTCSS)	1 1 to 50 50, Off OFF
DCS 888	Change Digital Privacy Tone Code (DCS)	1 1 to 104 104, Off OFF
VOX 888	Select Hands Free Mode (VOX)	1 1 to 5 5, Off OFF
DUAL 888	Select Dual Watch Mode	1 1 to 8 8, Off OFF
ROG 888	Activate Roger Beep	On ON, Off OFF
BP 888	Activate Key Beep	On ON, Off OFF
CA 888	Change Call Alert Tone	1 1 to 5 5, Off OFF
SQ 8888	Change Squelch Level	1 1 to 15 15, Auto AUTO, Off OFF

10. Function Mode - Advanced Mode

The advanced mode allows you to program user preferences, activate features and use advanced functions (see Radio Features Explained).

To access the advanced mode, turn on the radio whilst pressing and holding the SQUELCH button and SCAN button.

Each press of the MODE button steps the radio sequentially through the different functions. The radio display indicates the current function. The present setting and associated icon flash.

Use the UP or DOWN button to change the setting. Press the PTT or MODE button or wait for 5 seconds to store your choice. If you do not press any key for 5 seconds your radio will return to standby mode automatically. If the radio is turned off and turn on again without pressing any buttons, the radio will return to the user mode.

Display	Functions	Settings
CTC to 88	Change Privacy Tone Code (CTCSS)	1 1 to 50 50, Off OFF
DCS to 888	Change Digital Privacy Tone Code (DCS)	1 1 to 104 104, Off OFF
SCAN SC 888	Select Scan Stay Timer	1 1, 2 2, 3 3, 5 5, 10 10, 15 15, 20 20, 30 30, 45 45, 60 60, Off OFF
Vo 888	Select Hands Free Mode (VOX)	1 1 to 5 5, Off OFF
BL 888 BL	Select Busy Channel Lock out Mode (Main Channel)	Carrier CA, Correct tone CE, Different tone dt, Off OFF
PRI Prch 8	Select Priority Channel	1 1 to 8 8
PRI Prt 888	Select Priority Scan Time	1 1 to 5 5, Off OFF
WR duch 888	Select Dual Watch Mode	1 1 to 8 8, Off OFF

	Activate Roger Beep	On on , Off off
	Activate Key Beep	On on , Off off
	Time-Out-Timer Settings	15 15 , 30 30 , 45 45 , 60 60 , 90 90 , 120 120 , 180 180 , 240 240 , Off off
	Change Call Alert Tone	1 1 to 5 5 , Off off
	Clone Parameters	Send tr , Receive rc , Off off
	Change Squelch Level	1 1 to 15 15 , Auto Auto , Off off

11. Radio Features Explained

Volume Level

To adjust the volume level, use the POWER On/Off/VOLUME control. To increase the volume turn this control clockwise, to decrease the volume turn this control counter-clockwise.

Channels

This radio operates on any one of the 8 PMR446 licence free channels.

To communicate with other PMR446 radios, all units must be switched to the same channel and privacy code. To change the radio channel, press the UP or DOWN button when the radio is in stand-by mode.

Power High / Low

This feature permits selection of the transmit power level to High or Low. Your radio will have the high power when you switch it on. The LCD indicator will display "HI". Using low power, the radio will have a lower transmit range but the battery life will be increased.

Pressing the PTT button, press the UP or DOWN button to select the low power. The LCD indicator, "HI" will disappear. To return to the high power, press again the PTT button and UP or DOWN button.

Privacy Codes (CTCSS and DCS Tone Codes)

This radio is fitted with 50 Analogue Privacy codes (also known as CTCSS, sub-codes or sub-channels) and 104 Digital Privacy codes (also known as DCS codes).

Only one type of Privacy code can be used on each channel. Selecting a Digital Privacy code will override any Analogue Privacy code settings. If the other unit(s) do not have privacy codes ensure your units privacy codes (analogue and digital) are set to 'Off'.

Please note that privacy codes do not prevent other radio users from hearing your conversation. They simply allow you to ignore messages that are using a different privacy code.

Selecting an Analogue Privacy Code

To change the Analogue Privacy Code, press the MODE button until the CTCSS icon and privacy code number flash. Use the UP or DOWN button to select the desired code. Press the PTT or MODE button or wait for 5 seconds to store your choice. The CTCSS icon will appear when an Analogue Privacy Code is selected.

Selecting a Digital Privacy Code

To change the Digital Privacy Code, press the MODE button until the DCS icon and privacy code number flash. Use the UP or DOWN button to select the desired code. Press the PTT or MODE button or wait for 5 seconds to store your choice. The DCS icon will appear when a Digital Privacy Code is selected.

Scan Pause Timer (Advanced mode only)

The Scan Pause Timer allows you to select the period of time that your radio will dwell on an active channel when the scan mode is activated.

Timer values from 1 second to 60 seconds and Off can be selected. If the timer value is 'Off', the radio will remain on the scanned channel until the signal disappears.

To change the Scan Pause Time, press the FUNCTION button until SC is shown in the display. Use the UP or DOWN button to select the desired setting. Press the PTT or MODE button or wait for 5 seconds to store your choice.

Hands Free (VOX) Mode

When Hands Free (VOX) Mode is selected the radio will automatically transmit when the microphone detects your voice (or other noise). It can be used with the internal microphone or a suitable audio accessory (available separately). To avoid accidental operation and reduce the effect of background noise, there are 5 microphone sensitivity settings.

To select the VOX sensitivity level, press the MODE button until the VOX icon and current setting flashes. Use the UP or DOWN button to change the sensitivity level (5 is the most sensitive). Press the PTT or MODE button or wait for 5 seconds to store your choice.

To activate the VOX mode press and hold the MODE button until the VOX icon appears. To de-activate VOX mode, press and hold the MODE button until the VOX icon disappears. VOX mode can only be activated if a sensitivity level has been selected.

Busy Channel Lock Out (BCLO) Mode (Advanced mode only)

Busy Channel Lock Out prevents you from transmitting when another signal is present. Three modes are available:

a. Carrier only (CA)

This will prevent your radio from transmitting when a signal is present on the same channel, regardless of the privacy code.

b. Correct Tone (CT)

This will prevent your radio from transmitting when a signal is present on the same channel, using the same privacy code as your current setting.

c. Different Tone (DT)

This will prevent your radio from transmitting when a signal is present on the same channel, using a different privacy code setting.

To activate and select the BCLO mode, press the MODE button until the BCLO icon and current setting flashes. Use the UP or DOWN button to change the setting. Press the PTT or MODE button or wait for 5 seconds to store your choice. A setting of 'Off' will de-activate this mode.

The BCLO icon will appear when BCLO mode is active.

Priority Channel Mode (Advanced mode only)

A 'Quick Access' Priority Channel is available by briefly pressing the KEYPAD LOCK button. This can be used as a reserve or secondary channel.

To program a Priority Channel, press the MODE button until the Priority Channel icon and current channel setting flashes. Use the UP or DOWN button to change the channel setting. Press the PTT or MODE button or wait for 5 seconds to store your choice.

The Priority Channel icon will appear when the Priority Channel is selected.

Priority Channel Scan Time

When the Priority Channel is selected, pressing the SCAN button toggles the Priority Channel scan.

Priority Channel scan is similar to channel scanning, however the priority channel is scanned in addition to the other channels. You can select how often the priority channel is checked according to your needs.

To select the Priority Channel Scan Time, press the MODE button until the Priority Channel Scan Time icon and current setting flashes. Use the UP or DOWN button to change the priority channel scan time. Set the scan time to '1' for most frequent and '5' for least frequent. Press the PTT or MODE button or wait for 5 seconds to store your choice.

Each number represents a half second, so a setting of '4' will result in the priority channel being checked every 2 seconds. A setting of '1' will cause the radio to scan the priority channel alternately with the other channels, e.g. channel 1, priority channel, channel 2, priority channel etc.

Dual Watch Mode

Dual Watch mode allows you to monitor two channels; a primary channel and the dual watch channel. When a signal is received on either channel the unit will pause for 5 seconds before resuming the dual watch.

To activate the dual watch mode, first select a radio channel (see Channels) as the primary channel. To select the dual watch channel press the MODE button until the Dual Watch Icon and current setting flashes. Use the UP or DOWN button to select the desired dual watch channel. Press the PTT or MODE button or wait for 5 seconds to store your choice and activate the dual watch.

The radio display will alternate between the primary and dual watch channels and the dual watch icon will appear.

To deactivate the dual watch press the SCAN button.

If you press the PTT button whilst receiving a signal in Dual Watch Mode the radio will transmit on the currently displayed channel. If you press the PTT button when no signal is present the radio will transmit on the primary channel.

Roger Beep

The Roger Beep is a short tone that is automatically added to the end of your transmissions to tell other users that you have finished speaking. You can activate or deactivate the Roger Beep as required.

To change the Roger Beep setting, press the MODE button until the Roger Beep icon and current setting flashes. Use the UP or DOWN button to change the setting. Press the PTT or FUNCTION button or wait for 5 seconds to store your choice.

The Roger Beep icon will appear when Roger Beep is active.

Key Beep

If the Key Beep is activated, your radio will emit a confirmation tone whenever you use the keypad. You can activate or deactivate the Key Beep as required.

To change the Key Beep setting, press the MODE button until the Key Beep icon appears. Use the UP or DOWN button to change the setting. Press the PTT or FUNCTION button or wait for 5 seconds to store your choice.

The Key Beep icon will appear when Key Beep is active.

Time Out Timer (TOT) setting (Advanced mode only)

This timer is used to limit the transmit time of your radio. By selecting a timer setting, your radio will automatically release the PTT when the selected time limit is reached.

To change or select the TOT time, press the MODE button until the TOT icon appears. Use the UP or DOWN button to change the setting. Press the PTT or FUNCTION button or wait for 5 seconds to store your choice.

The TOT icon will appear when Key Beep is active.

Call Alert

To alert other users to your message and gain their attention you can send a Call Alert melody by pressing the PTT button twice in quick succession.

There are five different call alert tones and off.

To change the Call Alert melody, press the FUNCTION button until 'CA' appears. Use the UP or DOWN button to change the setting. Press the PTT or FUNCTION button or wait for 5 seconds to store your choice.

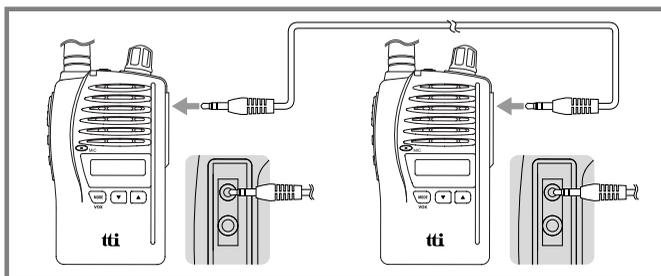
Clone (Advanced mode only)

The settings of your radio (except the Radio ID) can be transferred to or from another Tectalk PRO. To perform this function you will require a TCC-1000 Cloning cable (available separately).

1. Place the two radios side by side and connect the Cloning cable.
2. Switch on the unit whose settings are to be copied (the master unit). Press the MODE button until 'CL' appears. Use the UP or DOWN buttons and select 'OUT'. Press the PTT or FUNCTION button or wait for 5 seconds to store your choice.
3. Switch on the unit whose settings are to be changed (the slave unit). Press the MODE button until 'CL' appears. Use the UP or DOWN buttons and select 'IN'. Press the PTT or FUNCTION button or wait for 5 seconds to store your choice. The radios LED will turn green to indicate that it is ready to receive data.

4. Press the PTT button of the master radio while the slave radio LED is green. The LED of the slave radio will go off. The master radio and slave radio will emit a confirmation beep.
5. If the clone fails the slave radio sends an error beep and the LED remains green. Repeat step 4 until a confirmation beep is heard. If repeated clone attempts fail, repeat the whole procedure from step 1.

If the clone procedure was successful switch off both radios and disconnect the cloning cable. Switch on the slave radio to use the copied data.



Squelch Level Adjustment

This function allows you to adjust the squelch level of your radio.

To change the squelch level, press the Squelch/Mon button briefly. The current squelch setting will flash. Use the UP or DOWN button to change the setting. Press the PTT button or wait for 5 seconds to store your choice.

There are 15 squelch levels. Level 1 is the most sensitive (open) and level 15 is the least sensitive (closed). Auto is the optimum factory setting and 'Off' is fully open, with constant static noise.

Monitor

The Monitor function is used to briefly check for activity on the current channel, regardless of privacy code settings. It is the same as setting the squelch level to 'Off'.

To activate or deactivate the Monitor press the SQUELCH button for about 2 seconds. The Monitor icon will appear when the Monitor is active. It is normal to hear background static noise.

Display & Keypad Backlight

The display and keypad backlight will illuminate for 5 seconds whenever any buttons (except for the PTT button) are pressed.

Channel Scan

The Channel Scan can be used to find or detect users on other radio channels.

To activate/deactivate the channel scan, press the SCAN button briefly. The Scan icon will appear when the channel scan is active. Scanning will only stop when you deactivate the scan function.

The radio will scan through the 8 channels. If your radio detects a valid signal the scan will pause according to your Scan Pause Timer settings.

If you press the PTT button when your radio detects a signal, the radio will transmit on the same channel. Scanning will resume after approximately 15 seconds. Press the UP or DOWN button to resume scanning immediately.

If you press the PTT button during scanning, the radio will return to your original channel. Scanning will resume after approximately 15 seconds.

Privacy Code (CTCSS/DCS) Scan and Decode

Privacy Code Scan is used to determine which Privacy Code is in use on the current channel.

To activate the privacy code scan press the MODE button until the privacy code number flashes, then press the SCAN button briefly. The Scan icon will blink when the privacy code scan is active.

The radio will scan through the 50 CTCSS and 104 DCS codes. If your radio detects a valid signal the scan will pause for 5 seconds.

If you press the PTT button when your radio detects a signal, the radio will transmit on the same privacy code and the privacy code will be automatically selected.

If you press the PTT button during scanning, the radio will return to your original privacy code. Scanning will resume when the PTT button is released.

To stop scanning, press the SCAN button again or press the MODE button to step to the next menu setting.

To increase battery life use the scan modes sparingly.

Battery Level

The Battery icon indicates when the battery level is low and the battery needs recharging. If necessary, refer to the instructions to recharge the battery.

Power Save

To conserve battery power the radio will automatically enter Power Save mode after a short period of inactivity. There is no user setting for Power Save.

Key Lock

To toggle the key lock, press and hold the KEYPAD LOCK button. The key lock icon appears when the lock is activated.

12. Troubleshooting

If you experience problems with your TX-1446 first check the battery power level as low batteries can cause problems such as poor transmission, weak reception and reduced sound quality.

Then check the manual and radio display to ensure that a function (such as VOX or Lock) has not been activated by accident.

If these steps do not solve the problem reset your unit as follows:

1. Switch off the radio.
2. Press and hold the MODE button and PTT button together.
3. Switch on the radio.

This will reset the radio to the factory settings and should resolve most problems.

In case of further difficulty please consult your dealer or visit our websites at www.ttikorea.co.kr or www.tti.uk.com.

13. CE Declaration

CE0682 CE versions of the TX-1446 which display the CE symbol on the product label, comply with the essential requirements of the European Radio and Telecommunication Terminal Directive 1999/5/CE.

 This warning symbol indicates that this equipment operates in non-harmonised frequency bands and/or may be subject to licensing conditions in the country of use.

Be sure to check that you have the correct version of this radio or the correct programming of this radio, to comply with your national licensing requirements.

This unit can be used without license and charges in; Austria, Belgium, Denmark, Finland, France, Germany, Great Britain, Greece, Italy, Luxemburg, Netherlands, Portugal, Spain, Sweden, Switzerland

14. Safety Requirements

For charging the rechargeable batteries, only a CE approved AC adaptor complying with the following specifications must be used :

- INPUT : 230VAC 50Hz
- OUTPUT : 15VDC 300mA

15. Technical Specifications

1) Operating Frequencies (frequency shown in MHz):

Channel	Frequency	Channel	Frequency
1	446.00625	5	446.05625
2	446.01875	6	446.06875
3	446.03125	7	446.08125
4	446.04375	8	446.09375

2) Channel Spacing: 12.5kHz

3) Power Source: 1 x Li-Ion battery

4) Privacy Codes (CTCSS Tone Codes) Table (in Hz):

Ch	Freq.								
1	67.0	11	97.4	21	136.5	31	192.8	41	165.5
2	71.9	12	100.0	22	141.3	32	203.5	42	171.3
3	74.4	13	103.5	23	146.2	33	210.7	43	177.3
4	77.0	14	107.2	24	151.4	34	218.1	44	183.5
5	79.7	15	110.9	25	156.7	35	225.7	45	189.9
6	82.5	16	114.8	26	162.2	36	233.6	46	196.6
7	85.4	17	118.8	27	167.9	37	241.8	47	199.5
8	88.5	18	123.0	28	173.8	38	250.3	48	206.5
9	91.5	19	127.3	29	179.9	39	69.4	49	229.1
10	94.8	20	131.8	30	186.2	40	159.8	50	254.1

5) Digital Privacy Codes Table (DCS Tone Codes):

No	Code	No	Code	No	Code	No	Code	No	Code
1	023	22	131	43	251	64	371	85	532
2	025	23	132	44	252	65	411	86	546
3	026	24	134	45	255	66	412	87	565
4	031	25	143	46	261	67	413	88	606
5	032	26	145	47	263	68	423	89	612
6	036	27	152	48	265	69	431	90	624
7	043	28	155	49	266	70	432	91	627
8	047	29	156	50	271	71	445	92	631
9	051	30	162	51	274	72	446	93	632
10	053	31	165	52	306	73	452	94	654
11	054	32	172	53	311	74	454	95	662
12	065	33	174	54	315	75	455	96	664
13	071	34	205	55	325	76	462	97	703
14	072	35	212	56	331	77	464	98	712
15	073	36	223	57	332	78	465	99	723
16	074	37	225	58	343	79	466	100	731
17	114	38	226	59	346	80	503	101	732
18	115	39	243	60	351	81	506	102	734
19	116	40	244	61	356	82	516	103	743
20	122	41	245	62	364	83	523	104	754
21	125	42	246	63	365	84	526		

TTI products are manufactured by TTI Tech Co., Ltd.

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