

USER MANUAL



WIDE AREA IP 2WAY  
RADIO MODEL:

**ToooAir**  
TA-680

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**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 and charge via supplied charger.

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

**DO NOT** attempt to modify your radio in any way.

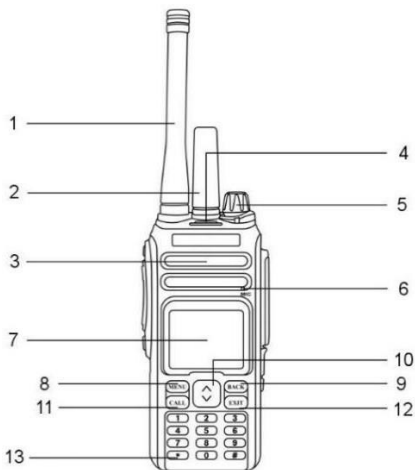
**DO NOT** allow children to operate the radio unsupervised.

**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.

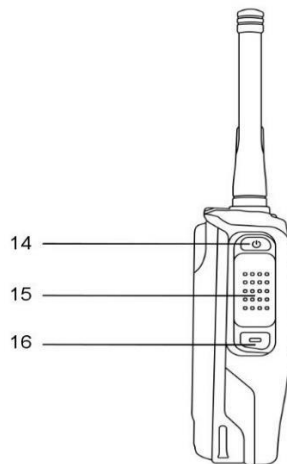
**ALWAYS** keep the antenna more than 25 mm from any part of the head or body when transmitting.

**NOTE** People with pacemakers are recommended to maintain at least 20cm separation between the radio and their pacemaker.



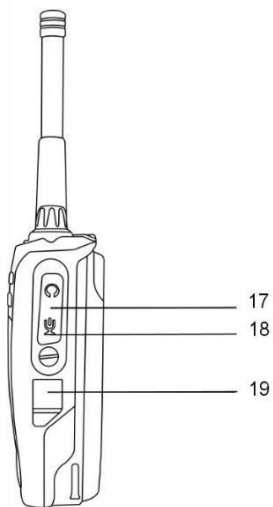
## FRONT

1. Antenna 1 (UHF)
2. Antenna 2 (Cellular)
3. Speaker
4. Indicator Lamp
  - When first powered on: LED will flash blue while radio powers up and logs into account
  - Once logged into the network, blue flash will slow to once every 5 seconds (It can take up to 20 seconds to acquire a network)
  - LED will turn red when the PTT is pushed and radio transmits
  - LED will turn blue during receive
  - LED will turn red when radio is switched off until it is logged off the network
  - When the radio is switched off and a charger connected via micro USB port, the LED will turn red while charging
5. Power Switch and Volume Control
6. Microphone
7. LCD Indicator
8. Menu/Select Key; Displays the menu or selects menu function



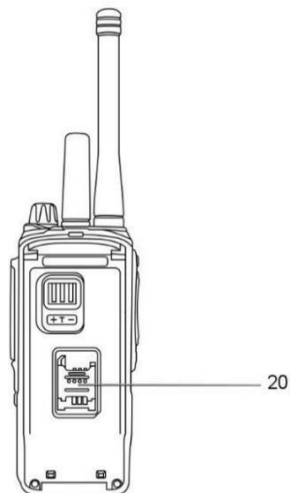
## LEFT

9. Back Key; Back to the previous menu or Cancel to stop the current operation
10. Up/Down Key; Up key, short press – chosen item in the menu or list moves up one line Down key, short press – chosen item in the menu or list moves down one line
11. Call key Broadcast to selected number
12. Exit Exit to the home screen
13. Numeric keypad
14. Squelch (Analog)-SOS Key (Network) Short press to toggle squelch open/closed Press for 3 seconds to send a broadcast SOS Press for 3 seconds to cancel broadcast SOS. (A red SOS will show on the top status line)
15. PTT (Push-to-Talk) Switch
16. Switch Mode Key Press to change between PoC and UHF Keypad lock Hold for 3 seconds to lock/unlock keypad



## RIGHT

- 17. Speaker Jack
  - 18. Microphone Jack
  - 19. Micro USB charger jack
- Radio can be charged via a standard USB micro cable



## BACK

- 20. SIM Card Slot

## Basic Settings

### Power On

1. Turn on volume switch clockwise to power on, anti-clockwise for off
2. LCD will display blue login screen
3. LCD will display logging in (This can take up to 20 seconds), UHF information, the signal strength, network type, Text Message, GPS, time and battery capacity
4. Once logged in LCD will display system platform information

### Power Off

Turn the volume switch anticlockwise to power off. The LED will illuminate red and the LCD will display "Power Off" during the shutting down process. This takes about 5 seconds.

### Switch Modes

The radio can switch between two modes, Network and UHF mode. To switch modes press "Switch mode key" Ref. 16. Located on the left side of the radio.

### Transmitting

Press the PTT and the LED will illuminate red indicating the radio is in transmit mode. When in the network mode, the LCD green status bar will indicate "my turn to talk".

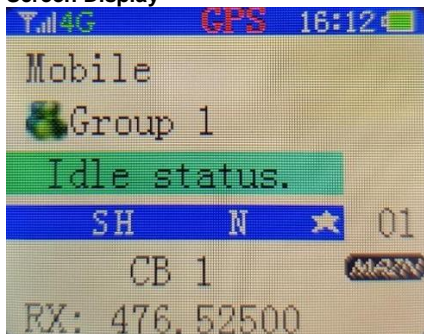
### Receiving

When the LED is illuminated blue. It indicates the radio is receiving a transmission. When in network mode the green status bar will indicate the broadcasters name or ident.

### Quick Access

The numerical keys on the keypad can be used as quick access keys. While in either group select or user list, select desired group/user and long press desired numerical key to set as quick call access to that group or user. You will be notified by a "Defined" prompt.

## Screen Display




The TA-680 has a simultaneous dual screen of both modes; Network and UHF. The upper half is the Network mode with the green status bar. The lower half is the UHF mode with the blue status bar. The **MAIN** icon shows the current active selected mode.

### UHF status bar

The radio has a blue status bar midway down the home display screen, this status bar notes key information regarding settings of the current channel that is selected.

The symbols that may be present in the status bar are as follows:

-  Received signal strength
- **S** Power save mode
- **H** High transmission power (4W)
- **L** Low transmissions power (2W)
- **CTS** Continuous Tone-Coded Squelch System (CTCSS) enabled
- **DCS** Digital Coded Squelch enabled
- **D** Duplex mode
- **N** Narrow band (12.5kHz)
- **W** Wide band (25kHz)
- **B** Busy channel lock out
- **★** Scan group

A quick press of the # key is used to toggle between frequency display and channel number.

Note; In CB mode the radio must be in channel mode to transmit.

## Settings

### SOS (Network feature only)

The radio can have the SOS feature disabled/enabled. To access SOS settings.

1. Press 'MENU' key
2. Short press ☐ once, for "Settings", press 'MENU' key to select
3. Press 'MENU' key to select "SOS Mode"
4. Short press ☐ or ☐, to choose desired setting press 'MENU' key to save selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

### Time Zone

The time the radio displays can be adjusted to suit your time zone. To access time zone settings.

1. Press 'MENU' key
2. Short press ☐ once, for "Settings", press 'MENU' key to select
3. Short press ☐ once, for "Time Zone", press 'MENU' key to select
4. Short press ☐ or ☐, to choose desired setting press 'MENU' key to save selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

Note; Time is acquired from the GPS and radio must first be used outside with to establish a GPS fix.

### Keypad Lock

You can set automatic lock or manual lock, for the keypad of the radio.

1. Press the 'MENU' key
2. Short press ☐, for "Setting", press 'MENU' key to select
3. Short press ☐ three times, for "Autolock" press 'MENU' key to select
4. Short press ☐ or ☐, to change the option On/Off press 'MENU' key to save selection

5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

When automatic lock is on, all keys other than the PTT and Squelch/SOS key will automatically lock after 10 seconds

Long press of the 'Switch mode' key on left side

of the radio will temporarily unlock keys.

### Keypad beep setting

This function can be set in "Setting" menu.

It can be set to:

On: beep sound emitted when a key press is operated

Off: No sound emitted with key press

## Advanced Settings

### MODE Selection

The radio has three different

modes; Dual mode

Analog only

IP only (Network)

To access mode selection.

1. Press 'MENU' key
2. Short press ☐ three times, for "Advanced Settings", press 'MENU' key to select
3. Press 'MENU' key to select "Working Mode"
4. Short press ☐ or ☐, to choose desired setting press 'MENU' key to save selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

Note; While in certain modes some settings may not be accessible.

## RX. Priority

The radio can give priority to receiving a broadcaster's signal. The priority can be set to Network, Analog, Dual or Sequential. In Sequential mode the radio will prioritize first transmission received.

1. Press 'MENU' key
2. Press ☐ three times, to choose "Advanced Setting" press 'MENU' key to select
3. Press ☐ three times, to choose "RX. Priority" press 'MENU' key to select
4. Short press ☐ or ☐, to choose desired setting press 'MENU' key to save
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

## TX. Selection

The radio can automatically switch between modes based on last received signal. The priority can be set to manual or auto, in auto the radio will transmit on the last received mode (Network or UHF).

1. Press 'MENU' key
2. Short press ☐ three times, to choose "Advanced Setting" press 'MENU' key to select
3. Short press ☐ twice, to choose "TX. Selection" press 'MENU' key to select
4. Short press ☐ or ☐, to choose desired setting press 'MENU' key to save selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

## PTToC Settings

### Group Switching

1. Press the 'MENU' key and then press 'MENU' key again to view/select  
"Choose Group". Short press ☐ or ☐, to choose desired group
2. Press the 'MENU' key to (Add) select  
desired group
3. The LCD display will now indicate the selected group for TX. and RX.

Note; Above feature is Programming dependent

### Individual Call

There are multiple ways to create a temporary group and call individual users. One of the ways is via a friends list or via the user list of a group. Friends List method

1. Press 'MENU' key
2. Short press ☐, for "Friend List" press 'MENU' key to select
3. Short press ☐ or ☐, to choose desired user then press 'MENU' key to select
4. Press PTT to initiate communication Note; you can only select users that are "on air" indicated by a blue colour icon.

### User List method

1. Press 'MENU' key
2. Short press ☐ twice, for "User List" press 'MENU' key to select
3. Short press ☐ or ☐, to choose desired user press 'MENU' key to select
4. Press PTT to initiate communication
5. If the PTT is not pushed within 120 seconds, the radios will revert to the default group, if you change groups the temporary



individual/group call will  
terminate and revert radios to  
default groups.

Note; you can only select users that are “on  
air”  
indicated by a blue colour icon.

## Text Message

The radio can receive text messages. On receiving of a text message an icon (Envelope) will display in the top blue status line of the LCD.

1. Press 'MENU' key
2. Short press  $\square$  five times, for "Dispatcher MSG" press 'MENU' key to select
3. Short press  $\square$  or  $\square$ , to choose desired text message press 'MENU' key to select/read message
4. Press the 'BACK' key to return to message list or press 'EXIT' key to return to home screen
5. Unread messages are identified by a closed envelope icon next to the message

Messages are limited to 20 characters.

The radio will store the last 5 messages

## Analog Settings

### Duplex Mode - CB

The radio can be placed into duplex mode on channels 1 to 8 and 41 to 48. While on channels 1 to 8 or 41 to 48, Press and hold the # key on the keypad for 4 seconds until you will see a "D" appear on the blue status bar. This notes the current channel is in duplex mode and will transmit/receive 30 channels higher. To stop duplex mode, select desired channel, press and hold the # key on the keypad for 4 seconds until you will see the "D" disappear on the blue status bar. This notes the current channel is not in duplex mode and will transmit/receive on the current channel. The display will show the receive frequency.

## Roger Beep function

This function can be set in "Analog Setting" menu

On: A beep tone is emitted when the PTT is pressed or released indicating start or end of transmission

Off: No beep tone is emitted during PTT operation

## Squelch

The radio audio can open at varying levels of received signal strength.

1. Press 'MENU' key
2. Short press  $\square$  four times, for "Analog Setting" press 'MENU' key to select
3. Short press  $\square$  seven times, for "SQL" press 'MENU' key to select
4. Short press  $\square$  or  $\square$ , to select desired level, press 'MENU' key to save selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

## BCLO

Busy Channel Lock Out is used to stop the use of the PTT if the radio is receiving a UHF transmission

1. Press 'MENU' key
2. Short press  $\square$  four times, for "Analog setting", press 'MENU' key to select
3. Short press  $\square$  six times, for "BCLO", press 'MENU' key to select
4. Short press  $\square$  or  $\square$ , to choose desired selection, press 'MENU' key to save selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

## Scan

The radio can scan through selected channels looking for transmission on the channel, the scan will scan through channels inside the scan group. A star displayed in the blue status bar, notes if the current channel is in the scan group. To scan through the scan group press and hold the \* key on the keypad for 2 seconds. Pressing the \* key again will stop the scan and revert to original channel scan was commenced from.

If the radio stops on a busy channel, pushing the PTT will stop the radio from scanning Add/Remove channels to scan group

Find a channel that is not in the scan group, noted by the star in the blue status bar

1. Press 'MENU' key
2. Short press ☐ four times, for "Analog Setting", press 'MENU' key to select
3. Short press ☐ three times, for "Scan. Add", press 'MENU' key to select
4. Short press ☐ or ☐, to change Add/Delete, press 'MENU' key to save desired selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

When you add the channel to the scan group a star will now be displayed in the blue status bar. This indicates current channel is in the scan group.

## CTCSS

To activate Continuous Tone-Coded Squelch System, select desired channel.

1. Press 'MENU' key
2. Short press ☐ four times, for "Analog setting", press 'MENU' key to select
3. Short press ☐ three times, for "RX. CDC", or Short press ☐ four times, for "TX. CDC", press 'MENU' key to select
4. Press the \* key to select a CTCSS tone, DCS tone or "off"
5. Short press ☐ or ☐, to choose desired tone then press 'MENU' key to save

If you want to change between Analog and Digital or Off

1. Press and hold the \* key on the keypad, choose desired selection, press 'MENU' key to save selection
2. Press 'BACK' key twice to return to home screen or press 'EXIT' key

The same procedure is used to select TX CTCSS or Digital coded tones.

## Store Channel for Receive only

You can store any channel from 400MHz to 480MHz as a receive only channel in memory locations 121 to 199. These can also be added to the scan group.

# UHF CB CHANNELS & FREQUENCIES

## Legend

Duplex Mode Receive	DRX
Duplex Mode Transmit	DTX
Emergency use only	E
Receive Only	RX
Inaccessible	X

## CH No. Remark

81 - 120	Commercial Pre-Programmable
121 - 199	User Programmable RX.

CH No.	Frequency (MHz)
1. DRX	476.425
2. DRX	476.450
3. DRX	476.475
4. DRX	476.500
5. E, DRX	476.525
6. DRX	476.550
7. DRX	476.575
8. DRX	476.600
9	476.625
10	476.650
11	476.675
12	476.700
13	476.725
14	476.750
15	476.775
16	476.800
17	476.825
18	476.850
19	476.875
20	476.900
21	476.925
22. RX	476.950
23. RX	476.975
24	477.000
25	477.025
26	477.050
27	477.075
28	477.100
29	477.125
30	477.150
31. DTX	477.175
32. DTX	477.200
33. DTX	477.225
34. DTX	477.250
35. E, DTX	477.275
36. DTX	477.300
37. DTX	477.325
38. DTX	477.350
39	477.375
40	477.400

CH No.	Frequency (MHz)
41. DRX	476.4375
42. DRX	476.4625
43. DRX	476.4875
44. DRX	476.5125
45. DRX	476.5375
46. DRX	476.5625
47. DRX	476.5875
48. DRX	476.6125
49	476.6375
50	476.6625
51	476.6875
52	476.7125
53	476.7375
54	476.7625
55	476.7875
56	476.8125
57	476.8375
58	476.8625
59	476.8875
60	476.9125
61. X	476.9375
62. X	476.9625
63. X	476.9875
64	477.0125
65	477.0375
66	477.0625
67	477.0875
68	477.1125
69	477.1375
70	477.1625
71. DTX	477.1875
72. DTX	477.2125
73. DTX	477.2375
74. DTX	477.2625
75. DTX	477.2875
76. DTX	477.3125
77. DTX	477.3375
78. DTX	477.3625
79	477.3875
80	477.4125

## Specifications

<b>Model Number:</b>	TA-680
<b>Dimensions:</b>	135mm x 58mm x 38mm
<b>Weight:</b>	320g
<b>Working temp:</b>	-30°C to +75°C
<b>Working Voltage:</b>	6.2V ~ 8.25V (Standard 7.6V)
<b>Working Current:</b>	500mA @ LTE 220mA @ WCDMA 1500mA @ Analog UHF
<b>Peak Current:</b>	2 A
<b>LTE FDD:</b>	Band1:2100MHz, Band3:1800MHz, B7:2600MHz, B8:900MHz, B20:800MHz
<b>WCDMA:</b>	Band1:2100MHz, Band8:900MHz
<b>UHF:</b>	400MHz - 470MHz
<b>Maximum Output power:</b>	LTE:23±2.7 dBm(Power Class 3) WCDMA:24 +1/-3dBm (Power Class 3) GSM900:33±2dBm (Power Class 4) GSM1800:30±2dBm (Power Class 1) UHF: <= 4W
<b>Receiving Sensitivity:</b>	LTE FDD ≤-100 dBm; WCDMA 900:≤-108 dBm; WCDMA 2100:≤-109 dBm; GSM900/1800 : ≤-106 dBm; UHF : <= -122dbm @ 12db SINAD
<b>GPS:</b>	GPS Positioning, 1.57542GHz;
<b>Sensitivity:</b>	Catch -144dBm, Track -159dBm;
<b>Data Speed Rate:</b>	LTE FDD -Uplink 50 Mbps /Downlink 150 Mbps WCDMA -Uplink 5.76 Mbps /Downlink 42 Mbps
<b>Protocol:</b>	Support embedded TCP& UDP Protocols Support Protocols PAP and CHAP used for PPP connection 3GPP TS27.005,27.007
<b>Band Width:</b>	Wide / Narrow
<b>Transmit Power:</b>	5W
<b>Modulation:</b>	16KQF3E / 11KQF3E
<b>Spurious Emissions:</b>	≤-36dBm / ≤-36dBm
<b>Adjacent Channel Power:</b>	≥70dB / ≥60dB
<b>(12db SINAD):</b>	0.20μV / 0.20μV
<b>Adjacent Channel Selectivity:</b>	≥60dB / ≥55dB
<b>Intermodulation Rejection:</b>	≥65dB / ≥60dB
<b>Spurious Response:</b>	≥65dB / ≥65dB