BAOFENG
TWO-WAY RADIO

UV-B5
USER'S MANUAL

Dual Band, Dual Display, Dual Standby
Priority Channel Scanning
DTMF Encoded
FM Radio Built-in
Emergency Alarm
Noise Reduction
U/V Cross Band Dual Watch
1750HZ Relay Forwarding Confirmed
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SAFETY INFORMATION

The following safety precautions shall always be observed during operation, service and repair of this equipment.

- This equipment shall be serviced by qualified technicians only.
- Do not modify the radio for any reason.
- Use only SAOFENG supplied or approved batteries and chargers.
- Do not use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn can result.
- Turn off your radio prior to entering any area with explosive and flammable materials.
- Do not charge your battery in a location with explosive and flammable materials.
- To avoid electromagnetic interference and/or compatibility conflicts, turn off your radio in any area where posted notices instruct you to do so.
- Turn off your radio before boarding an aircraft. Any use of a radio must be in accordance with airline regulations or crew instructions.
- Turn off your radio before entering a blasting area.
- For vehicles with an air bag, do not place a radio in the area over an air bag or in the air bag deployment area.
- Do not expose the radio to direct sunlight for a long time, nor place it close to heating source.
- When transmitting with a portable radio, hold the radio in a vertical position with the microphone 3 to 4 centimeters away from your lips. Keep antenna at least 2.5 centimeters away from your body when transmitting.

WARNING: If you wear a radio on your body, ensure the radio and its antenna are at least 2.5 centimeters away from your body when transmitting.

FEATURES AND FUNCTIONS

1. Frequency Range:
   - Commercial FM radio 65-108MHz (only for reception)
   - VHF 136-174 (RX/TX) UHF 400-470MHz (RX/TX) dual band
2. Mode: "FO Channel Mode"
3. Comm/col FM radio
4. Dual Display/Dualband
5. DTMF encoding
6. Incorporates 104 codes "DCS" and 50 privacy codes "CTCSS" programmable.
7. CTCSS and DCS setting in different MENU
8. Transmitter transmission (TOT)
9. Frequency step (5/6.25/10/12.5/20/25kHz)
10. Battery saving function
11. VOX (Voice operated transmission)
12. BCL (Busy channel lockout)
13. Low battery warning
14. Auto LCD illumination
15. Channel mode display (Name,Frequency,Channel #)
16. DTMF tone of transmitting code.
17. Scan resume method (TO/CO/SE)
18. PTT-ID (Press or release the PTT to transmit code,Press and release the PTT to transmit code)
19. Under frequency mode, band shift setting for accessing repeater
20. Offset frequency range 0-69.995MHz
21. Direct entering numerical key to select MENU
22. Channel capacity 99
23. Reverse function
24. Alarm function
25. Audio companding
26. PC programming
UNPACKING AND CHECKING EQUIPMENTS

Carefully unpack the transceiver. We recommend that you identify the items listed in the following before discarding the packing material. If any items are missing or have been damaged during shipment, please contact your dealers immediately.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transceiver Unit</td>
<td>1</td>
</tr>
<tr>
<td>Antenna</td>
<td>1</td>
</tr>
<tr>
<td>Handstrap</td>
<td>1</td>
</tr>
<tr>
<td>Charger</td>
<td>1</td>
</tr>
<tr>
<td>Battery</td>
<td>1</td>
</tr>
<tr>
<td>Beltclip</td>
<td>1</td>
</tr>
<tr>
<td>USER'S MANUAL</td>
<td>1</td>
</tr>
</tbody>
</table>

Note:
- Items included in the package may differ from those listed in the table above depending on the country of purchase. For more information, consult your dealer or vendor.
- Consult the dealer or retailer for information about options available.

BATTERY CHARGING

Use only the charger specified by the manufacturer. The charger's LED indicates the charging progress.

Please follow these steps:
1. Plug the AC connector of the adapter into the AC outlet socket.
2. Place the radio with the battery attached, or the battery alone, in the charger.
3. Make sure the battery is in good contact with the charging terminals. The charging process initiates when the red LED lights.
4. The green LED lights about 4 hours later indicating the battery is fully charged. Then remove the radio with the battery attached or the battery alone from the charger.
BATTERY INFORMATION

INITIAL USE
New batteries are shipped uncharged fully from the factory. Charge a new battery for 5 hours before initial use. The maximum battery capacity and performance is achieved after three full charge/discharge cycles. If you notice the battery power runs low, please recharge the battery.

WARNING:
- To reduce the risk of injury, charge only the battery specified by the manufacturer.
- Other batteries may burst, causing bodily injury and property damage.
- To avoid risk of personal injury, do not dispose of batteries in a fire!
- Dispose of batteries according to local regulations (e.g. recycling). Do not dispose as household waste.
- Never attempt to disassemble the battery.

BATTERY TIPS
1. When charging your battery, keep it at a temperature among 5°C - 40°C. Temperature out of the limit may cause battery leakage or damage.
2. When charging a battery attached to a radio, turn the radio off to ensure a full charge.
3. Do not cut off the power supply or remove the battery when charging a battery.
4. Never charge a battery that is wet. Please dry it with a soft cloth prior to charge.
5. The battery will eventually wear out. When the operating time (talk-time and standby time) is noticeably shorter than normal performance, it is time to buy a new battery.

PROLONG BATTERY LIFE
1. Battery performance will be greatly decreased at a temperature below 0°C. A spare battery is necessary in cold weather. The cold battery unable to work in this situation may work under room temperature, so keep it for later use.
2. The dust on the battery contact may cause the battery cannot work or charge. Please use a clean dry cloth to wipe it before attaching the battery to the radio.

BATTERY STORAGE
1. Fully charge a battery before you store it for a long time, to avoid battery damage due to over-discharge.
2. Recharge a battery after several months’ storage (Li-ion batteries: 6 months), to avoid battery capacity reduction due to over-discharge.
3. Store your battery in a cool and dry place under room temperature, to reduce self-discharge.
INSTALLATION OF ACCESSORIES

INSTALLING THE ANTENNA
Install the antenna as shown in the figure below and turn it clockwise until it stops.

Note:
- When installing the antenna, don’t rotate it by its top holding it by its base and turn.
- If you use an external antenna, make sure the ‘SWR’ is about 1.5:1 or less, to avoid damage to the transceiver’s final transistors.
- Do not hold the antenna with your hand or wrap the outside of it to avoid bad operation of the transceiver.
- Never transmit without an antenna.

INSTALLING THE BELT CLIP
If necessary, install the belt clip at the rear of the battery compartment cover as shown in the figure below.

Note:
- Do not use any kind of glue to fix the screw on the belt clip. The solvents Glue may damage the battery casing.

MICRO-HEADSET INSTALLATION OF EXTERNAL
Plug the external micro-headset connector into the jack of ‘SP. & MIC’ of the transceiver as shown in the figure below.

BATTERY INSTALLATION
- When attaching the battery, make sure the battery is in parallel and in good contact with the aluminum chassis. The battery bottom is about 1 to 2 centimeters below the bottom of the radio’s body.
- Align the battery with the guide rails on the aluminum chassis and slide it upwards until a ‘click’ is heard.
- The battery latch at the bottom locks the battery.
- Turn off the radio before removing the battery.
- Slide the battery latch, at the bottom of the radio’s body, in the direction indicated by the arrow.
- Slide down the battery for about 1 to 2 centimeters, and then remove the battery from the radio’s body.
PARTS, CONTROLS AND KEYS

RADIO OVERVIEW

A: LED indicator
B: Knob (Channel)
C: Knob (ON/OFF, volume)
D: PTT Key (push-to-talk)
E: Monitor
F: SP & MIC Jack
G: Alarm Button
H: LCD
I: Speaker
J: Keypad
K: Mic

BASIC OPERATION

RADIO ON-OFF
- Make sure the antenna and battery are installed correctly and the battery charged.
- Rotate the knob clockwise to turn the radio on, and rotate the knob fully counter-clockwise until a ‘click’ is heard to turn the radio off.

VOLUME CONTROL
Press and hold the MONI button, then rotate the knob clockwise or counter-clockwise, to adjust the volume.

SELECTING A FREQUENCY OR CHANNEL
Press the key [UP] or [DOWN] to select the desired frequency/channel you want. Also, you may directly enter the numeric to select frequency/channel. The display shows the frequency/channel selected.
Note:
- You cannot select a channel if not previously stored.

TRANSMITTING
- To transmit, press and hold [PTT] and speak into the microphone in your normal tone of voice. The LED indicator lights continuously red when transmitting.
- To maximize sound clarity at the receiving station, hold the transceiver 2 to 3 inches from mouth and talk in normal tone of voice.
- Release [PTT] to receive.
**COMMAND / KEY DEFINITION**

[MENU] KEY
1. Press [MENU] key, then press [UP] or [DOWN] key to choose each menu. All menu parameters and channel saving are confirmed by pressing [AB / ( ] key.
2. Press and hold [MENU] key for 2 seconds to lock the keypad or unlock the keypad.

[UP] / [DOWN] KEY
1. Press and hold [UP] or [DOWN] key for frequency/channel up or down fast.
2. Under scanning mode, press [UP] or [DOWN] key, the scanning will be opposite.

[AB / ( ]
- While come into menu, press [AB / ( ] key, to set all menu parameter.
- Under VFO/Channel mode, press [AB / ( ] key to switch Frequency A/Channel A and Frequency B/Channel B.

FM
- Press [FM] key to turn on the FM radio.
- Press and hold on [FM] key to delete the stored FM radio channel.

VM/SCAN
- Press [VM/SCAN] key to switch VFO mode and channel mode.
- Press [MENU] key, then press [VM/SCAN] key to scan the frequency/channel.
- Press and hold on [VM/SCAN] about 2 seconds to store frequency. Now press [UP] or [DOWN] key, if the left top numeric flashes, that means it is blank; and if it doesn’t flash, that means there are stored channel, you press [AB / ( ] key to confirm saving or cover the stored channel. Press any numeric key to cancel saving.

**NUMERIC KEY**
- Use for entering frequency, channel #, menu #, menu parameter etc.

PTT
- Push PTT to transmit, release PTT to receive.

MONI
- Press and hold (Squelch OFF) to hear the background noise; Release to return to normal operation.
## COMBINATION KEY FUNCTION

### 1750 Hz TONE FOR ACCESS TO REPEATERS

- The user needs to establish long distance communications through an amateur radio repeater which is activated after receiving a 1750 Hz tone. Press and hold on the PTT then press the MONI button to transmit a 1750 Hz tone.

### RESET (Restore to default setting)

- Press and hold on [FM] key, then switch on to reset the radio, the LCD displays 'VFO' (Frequency reset) or 'ALL' (All reset), choose which one you want, press [AB-<J] to confirm.

### RESET (Restore to default setting)

- Press and hold on [FM] key, then switch on, to reset the radio, the LCD displays 'VFO' (Frequency reset) or 'ALL' (All reset), choose which one you want, press [AB-<J] to confirm.

## ADVANCED OPERATION

You can program your transceiver operating in the setup menu to suit your needs or preferences.

### SET MENU DESCRIPTION

<table>
<thead>
<tr>
<th>Menu</th>
<th>Function/Description</th>
<th>Available settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>STEP (Frequency step)</td>
<td>5/6.25/10/12.5/20/25kHz</td>
</tr>
<tr>
<td>2</td>
<td>SCL (Squelch level)</td>
<td>0—9</td>
</tr>
<tr>
<td>3</td>
<td>SAVE (Battery save)</td>
<td>OFF/ON</td>
</tr>
<tr>
<td>4</td>
<td>TPR (Transmit power)</td>
<td>HIGH/Low</td>
</tr>
<tr>
<td>5</td>
<td>RXGE (Receive transmission tone)</td>
<td>OFF/ON</td>
</tr>
<tr>
<td>6</td>
<td>TCT (Transmission timer)</td>
<td>1min-7min</td>
</tr>
<tr>
<td>7</td>
<td>VOX (Voice operated transmission)</td>
<td>OFF/1/9</td>
</tr>
<tr>
<td>8</td>
<td>BEEP (Keypad beep)</td>
<td>ON/OFF</td>
</tr>
<tr>
<td>9</td>
<td>VOIC (Voice prompt)</td>
<td>ON/OFF</td>
</tr>
<tr>
<td>10</td>
<td>TDR (Dual watch)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>RCODE (Reception Continuous Tone Coded Squelch)</td>
<td>OFF</td>
</tr>
<tr>
<td>12</td>
<td>TCODE (Transmission Continuous Tone Coded Squelch)</td>
<td>OFF</td>
</tr>
<tr>
<td>13</td>
<td>ABR (display illumination)</td>
<td>OFF/OFF</td>
</tr>
<tr>
<td>14</td>
<td>PTT-ID (press the PTT button to transmit the signal code)</td>
<td>ON/OFF</td>
</tr>
</tbody>
</table>
### ADVANCED OPERATION

<table>
<thead>
<tr>
<th>Menu</th>
<th>Function/Description</th>
<th>Available settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>ANI (automatic number identification of the radio)</td>
<td>0-9, A-F</td>
</tr>
<tr>
<td>16</td>
<td>PTIDM (the mode of transmitting the signal code)</td>
<td>OFF/BCD/EOT/BOTH</td>
</tr>
<tr>
<td>17</td>
<td>DTST (the DTMF tone of transmitting code)</td>
<td>OFF/ON</td>
</tr>
<tr>
<td>18</td>
<td>MDF-1 (under channel mode, F1 channel displays)</td>
<td>FREQ/CHAN/NAME</td>
</tr>
<tr>
<td>19</td>
<td>MDF-2 (under channel mode, F2 channel displays)</td>
<td>FREQ/CHAN/NAME</td>
</tr>
<tr>
<td>20</td>
<td>BCL (busy channel lockout)</td>
<td>ON/OFF</td>
</tr>
<tr>
<td>21</td>
<td>SFTD (direction of frequency shift)</td>
<td>0, +, -</td>
</tr>
<tr>
<td>22</td>
<td>OFFSET (frequency shift)</td>
<td>0...69.995M</td>
</tr>
<tr>
<td>23</td>
<td>SCRM (scan resume method)</td>
<td>TO/CO/SE</td>
</tr>
<tr>
<td>24</td>
<td>TXAB (transmitting selection while in dual watch/reception)</td>
<td>OFF/F1/F2</td>
</tr>
<tr>
<td>25</td>
<td>REV (reverse frequency)</td>
<td>ON/OFF</td>
</tr>
<tr>
<td>26</td>
<td>STE (Tone Elimination)</td>
<td>ON/OFF</td>
</tr>
<tr>
<td>27</td>
<td>NAME (channel name)</td>
<td>0-9</td>
</tr>
<tr>
<td>28</td>
<td>W/N (wide/narrow bandwidth)</td>
<td>WIDE/NARRO</td>
</tr>
<tr>
<td>29</td>
<td>COMP (Noise reduction)</td>
<td>ON/OFF</td>
</tr>
</tbody>
</table>

### ADVANCED OPERATION

1. **FREQUENCY HOPPING “STEP”**

   Schedule frequent breaks to select the receive and transmit frequency hopper. Perform the following steps to select the desired frequency hopping:
   - Press the [MENU] then press [UP]/[DOWN] to select the Menu 01 “STEP”.
   - Press [AB/], then press [UP]/[DOWN] to select 05/25/10/12.5/20/25kHz.
   - Press [AB/] to save the setting.
   - Press [MENU] or any numeric key to exit.

2. **SQUELCH THRESHOLD SETTING “SQL”**

   The squelch mute the speaker when no signal transceiver reception extending the duration of the battery. To adjust the squelch threshold, perform the following steps:
   - Press the [MENU] then press [UP]/[DOWN] to select the Menu 02 “SQL”.
   - Press [AB/], then Press [UP]/[DOWN] to select the desired level between 0 and 9 (level default setting is 5).
   - It is recommended that you begin to adjust from Level 1, selecting the level where the background noise in the absence of signal.
   - Press [AB/] to save the setting.
   - Press [MENU] or any numeric key to exit.

3. **BATTERY SAVER “SAVE”**

   This transceiver incorporates a battery saver, if you have acts of active follows. If we receive a very strong signal and we have a transceiver with high transmit power, the transceiver is automatically set to the low transmission power. With this option, extend the life of the battery of the transceiver. Follow the steps below to enable or disable this feature:
   - Press the [MENU] then press [UP]/[DOWN] to select the Menu 03 “SAVE”.
   - Press [AB/], then press [UP]/[DOWN] to to select ON/OFF.
   - Press [AB/] to save the setting.
   - Press [MENU] or any numeric key to exit.
4. SELECTING TRANSMIT POWER "POWER"

Select the transmission power high or low in the transceiver, following the procedure detailed below:
1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 04 "POWER"
2. Press [AB/↓], then press [UP]/[DOWN] to select HIGH/LOW.
3. Press [AB/↓] to save the setting.
4. Press [MENU] or any numeric key to exit.

5. SELECTING OFF TRANSMISSION TONE "ROGE"

If you want the same group to know when you release the PTT, off transmission, you may activate this function, please follow the steps:
1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 05 "ROGE"
2. Press [AB/↓] to select ON/OFF.
3. Press [AB/↓] to save the setting.
4. Press [MENU] or any numeric key to exit.

6. TIMER TRANSMISSION "TOT"

This function can automatically control the time we transmit each time you press [PTT] on the transceiver. This feature is very useful to avoid overheating if power transistor works excessively.

Follow the steps below to set the timer transmission:
1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 06 "TOT"
2. Press [AB/↓] to select timer ON/2min/5min/7min.
3. Press [AB/↓] to save the setting.
4. Press [MENU] or any numeric key to exit.

7. FUNCTION "VOX" (VOICE OPERATED TRANSMISSION)

This function is not necessary to push the [PTT] on the transceiver for a transmission. Transmission is activated automatically by detecting the radio voice. When finishing speaking, the transmission automatically terminated and the transceiver will automatically receive signal. Be sure to adjust the VOX Gain level to an appropriate sensitivity to allow smooth transmission.

To enable or disable this feature, follow the steps below:
1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 07 "VOX"
3. Press [AB/↓] to save the setting.
4. Press [MENU] or any numeric key to exit.

Note:
- Levels 7 to 9 are most sensitive, is used in quiet environments.
- Levels 4 to 6 are medium-speed, is used in normal environments.
- Levels 1 through 3 are less sensitive, is used in high ambient noise conditions.

8. FUNCTION "BEEP" KEYPAD

When activated, you will hear a "beep" each time you press a key on the transceiver. If you select "OFF" will not hear any "beep". To enable or disable this feature, follow the procedure outlined below:
1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 08 "BEEP"
2. Press [AB/↓], then press [UP]/[DOWN] to select OFF/ON.
3. Press [AB/↓] to save the setting.
4. Press [MENU] or any numeric key to exit.

9. VOICE PROMPT "VOIC"

To select the desired language of voice prompt, please follow the steps:
1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 09 "VOIC"
2. Press [AB/↓], then press [UP]/[DOWN] to select OFF/ON.
ADVANCED OPERATION

3. Press [AB ∕] to save the setting.
4. Press [MENU] or any numeric key to exit.

10. DUAL WATCH/DUAL STANDBY "TDR"
This feature allows you to operate between UHF and VHF VFO mode. Periodically, the transceiver checks whether a signal is received on another frequency that we have scheduled. If you receive a signal, the unit will remain in the frequency until the received signal disappears. Perform the following procedure to enable or disable this feature:
1. Press [MENU], then press [UP] / [DOWN] to select the Menu 10 "TDR".
3. Press [AB ∕] to save the setting.
4. Press [MENU] or any numeric key to exit.

11. SUBTONES / CODES FOR RECEIVING "R CODE"
In some cases only want to establish communications in a closed user group at a particular frequency or channel, for it will use "CTCSS" or code "DCS" for reception. The "squelch" opens only when receiving a frequency with "CTCSS" or codes "DCS" same as the programmed in your transceiver. If codes of the received signal differs from the programmed in your transceiver, the "squelch" will not open and the received signal can be heard. Do as following steps to set:
1. Press the [MENU], then press [UP] / [DOWN] to select the Menu 11 "R CODE".
2. Press [AB ∕] then press [MENU] to select CTCSS,DCS,OFF.
4. Press [AB ∕] to save the setting.
5. Press [MENU] or any numeric key to exit.

12. SUBTONES / CODES FOR TRANSMITTING "T CODE"
In some cases only want to establish communications in a closed user group at a particular frequency or channel, for it will use "CTCSS" or code "DCS" for transmission. The "squelch" opens only when transmitting a frequency with "CTCSS" or codes "DCS" same as the programmed in your transceiver. If codes of the transmitted signal differs from those programmed in your transceiver, the "squelch" will not open and the received signal can be heard. Do as following steps to set:
1. Press the [MENU], then press [UP] / [DOWN] to select the Menu 12 "T CODE".
2. Press [AB ∕] then press [MENU] to select CTCSS,DCS,OFF.
4. Press [AB ∕] to save the setting.
5. Press [MENU] or any numeric key to exit.

13. DISPLAY ILLUMINATION "ABR"
This transceiver incorporates a display illumination from light for use in low ambient light. There are two lighting options:
ON: The display and keypad lights up when you press any key.
OFF: The illumination will remain always off.
To select the type of lighting desired, follow the steps below.
1. Press the [MENU], then press [UP] / [DOWN] to select the Menu 13 "ABR".
3. Press [AB ∕] to save the setting.
4. Press [MENU] or any numeric key to exit.

14. SENDING SIGNAL CODE "PTT ID"
This transceiver comes with encoding ability. When pressing the PTT to send signal code, the other transceiver with coding ability will know who you are.
ADVANCED OPERATION

Perform the following procedure to enable or disable this feature:
1. Press the [MENU] then press [UP]/[DOWN] to select the Menu 14 “PTT ID”
2. Press [AB,-], then press [UP]/[DOWN] to select OFF/ON.
3. Press [AB,-] to save the setting.
4. Press [MENU] or any numeric key to exit.

15. AUTOMATIC NUMBER IDENTIFICATION “ANI”
ANI (Automatic Number Identification) is also known as PTT ID because an ID is transmitted when the PTT button of the radio is pressed and/or released. This ID tells the dispatcher which field radio was keyed. Follow the steps below to set ANI code:
1. Press the [MENU] then press [UP]/[DOWN] to select the Menu 13 “ANI”
2. Press [AB,-] then press [UP]/[DOWN] to select from (0-9-A-F), press #9 to set next digit, press #7 to set previous digit.
3. Press [AB,-] to save the setting.
4. Press [MENU] or any numeric key to exit.

16. MODE OF TRANSMITTING SIGNAL CODE “PTIDM”
There are three different ways to send the signal code:
BOT: Push the [PTT] to send signal code.
EOT: Release the [PTT] to send signal code.
BOTH: Push or release the [PTT] to send signal code.
Follow the steps below to select different way to send code:
1. Press the [MENU] then press [UP]/[DOWN] to select the Menu 16 “PTIDM”
2. Press [AB,-] then press [UP]/[DOWN] to select OFF/BOT/EOT/BOTH.
3. Press [AB,-] to save the setting.
4. Press [MENU] or any numeric key to exit.

17. DTMF TONE “DTST”
Under transmitting code, you can hear the DTMF tone, if you set “DTST” as ON. Please do as follows:
1. Press the [MENU] then press [UP]/[DOWN] to select the Menu 17 “DTST”
2. Press [AB,-] then press [UP]/[DOWN] to select OFF/ON.
3. Press [AB,-] to save the setting.
4. Press [MENU] or any numeric key to exit.

18. DISPLAY OF FREQUENCY1* MDF1
Under channel mode, you may have your favorite display, NAME/CHAN/FREQ. Please do as following steps:
1. Press the [MENU] then press [UP]/[DOWN] to select the Menu 18 “MDF1”
2. Press [AB,-] then press [UP]/[DOWN] to select FREQ/CHAN/NAMEx.
3. Press [AB,-] to save the setting.
4. Press [MENU] or any numeric key to exit.

19. DISPLAY OF FREQUENCY2* MDF2
Under channel mode, you may have your favorite display, NAME/CHAN/FREQ. Please do as following steps:
1. Press the [MENU] then press [UP]/[DOWN] to select the Menu 19 “MDF2”
2. Press [AB,-] then press [UP]/[DOWN] to select FREQ/CHAN/NAMEx.
3. Press [AB,-] to save the setting.
4. Press [MENU] or any numeric key to exit.

20. BUSY CHANNEL LOCKOUT “BCL”
This function disables the transmission when the transceiver is receiving a signal in the selected
ADVANCED OPERATION

frequency or channel, in order not to interfere with communication.

Follow the steps below to enable or disable this feature:

1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 20 “BCL.”
2. Press [AB/±], then press [UP]/[DOWN] to set ON/OFF.
3. Press [AB/±] to save the setting.
4. Press [MENU] or any numeric key to exit.

21. DIRECTION OF FREQUENCY SHIFT "SHIFT"

When communicating via a repeater, the direction of displacement of frequency should be timed to the displacement of the transmission frequency is higher or lower than the receiving frequency.

Example:
If we want to make a communication through amateur radio repeater whose frequency input is 145.000 MHz and 145.600 MHz is output, we select the "OFFSET" of the previous section in 0500 and the direction of change "SHIFT" programmed to [−], so the transceiver will always 145.600 MHz in frequency and whenever you press [PTT] to transmit, the frequency will automatically move to 145.000 MHz.

Set the frequency offset, using the following procedures under VFO mode:

1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 21 "SHIFT".
2. Press [AB/±], then press [UP]/[DOWN] to select "±", "−".
3. Press [AB/±] to save the setting.
4. Press [MENU] or any numeric key to exit.

Note:
- When [0] the frequency of reception and transmission will be the same.
- When [+] the transmission frequency is above the receiving frequency according to "OFFSET" programmed.
- When [−] the transmission frequency is below the reception frequency according to "OFFSET" programmed.

22. FREQUENCY SHIFT "OFFSE"T

The "OFFSET" is the difference or offset between the reception frequency and the frequency of transmission for access to amateur radio repeaters. Set the "OFFSET" according to the "OFFSET" amateur radio repeater through which want to communicate.

Follow these steps to set the "OFFSET" Frequency:

1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 22 "OFFSE".
2. Press [AB/±], then directly enter digits (VHF: 0.37, 950 MHz, UHF: 0.69, 950 MHz).
3. Press [AB/±] to save the setting.
4. Press [MENU] or any numeric key to exit.

23. SCAN TYPE "SCANN"

This transceiver allows you to scan memory channels, all the bands or part of the bands. When the transceiver detects a communication, the scan will stop automatically.

Set the desired scanning type, using the following procedure:

1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 23 "SCANN".
2. Press [AB/±], then press [UP]/[DOWN] to select: SE/TO/CO.
3. Press [AB/±] to save the setting.
4. Press [MENU] or any numeric key to exit.

Note:
- "TO" (Time Operation):
  Scanning will stop when it detects an active signal. The scanning will stop on each channel or active time for a predetermined time, after that time the scan will resume automatically.
- "CO" (Carrier Operation):
  The scanning will stop and remain in the frequency or channel, until the active signal disappears.
- "SE" (Search Operation):
  The scanning will stop and remain in the frequency or channel after it detects an active signal.
ADVANCED OPERATION

24. PRIORITY TRANSMITTING “TXAB”
When activate function “Dual Watch”, the frequency display will switch between F1 and F2. If you come to MENU 24, select F1 or F2, the TX will be selected. Please see the following steps:
1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 24 “TXAB”.
2. Press [A[»]/[«] then press [UP]/[DOWN] to select F1/F2/ON/OFF.
3. Press [A[»]/[«]] to save the setting.
4. Press [MENU] or any numeric key to exit.

25. REVERSED DUPLEX MODE “REV”
When the reversed duplex mode is selected, the receive frequency shifts (Transmit frequency shifts in normal duplex mode.) Each receive and transmit frequency is shown in the table below with the following conditions:

<table>
<thead>
<tr>
<th>Input Frequency</th>
<th>Direction</th>
<th>Offset frequency</th>
<th>Reversed (ON)</th>
<th>Reversed (OFF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>435.625 MHz</td>
<td>- (negative)</td>
<td>0.6 MHz</td>
<td>435.025 MHz</td>
<td>435.625 MHz</td>
</tr>
</tbody>
</table>

1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 25 “REV”.
2. Press [A[»]/[«]] then press [UP]/[DOWN] to select ON/OFF.
3. Press [A[»]/[«]] to save the setting.
4. Press [MENU] or any numeric key to exit.

26. TONE END OF TRANSMISSION “STE”
This function is used to activate or deactivate the transmission end of the transceiver. This final tone transmission only be used in communications between transceivers and not in communications through a repeater, which must be deactivated.
Follow the steps below to enable or disable this feature:
1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 26 “SCANM”.

27. NAME OF CHANNEL “NAME”:
Under channel mode, any memory channel could be named (4 digits) as any name you want, for example, Call Letters. Cities etc. Do as following steps to set:
1. Press the [MENU], then press [UP]/[DOWN] to select Menu 27 “NAME”.
2. Press [A[»]/[«]], then press [UP]/[DOWN] to select numeric, letters or marks “0-9, A-Z, ., +,”.
3. Press [6], go next digit; press [7], go previous.
4. Press [A[»]/[«]] to save the setting.
4. Press [MENU] or any numeric key to exit.

28. WIDE BAND OR NARROW BAND “WN”
Use the narrow band for communication in areas where RF signal is saturated. Therefore you must use the narrow band of Transmission avoiding interference in adjacent channels. Select the broadband (Wide) or band narrow (Narrow) using the following steps:
1. Press the [MENU], then press [UP]/[DOWN] to select Menu 28 “WN”.
2. Press [A[»]/[«]], then press [UP]/[DOWN] to select WIDE/NARROW.
3. Press [A[»]/[«]] to save the setting.
4. Press [MENU] or any numeric key to exit.

29. AUDIO COMPANDING “COMP”
Audio companding technology compresses the transmission signal available and then expand the signal at the receiving terminal. So decrease the background noise, increase the talk quality.
ADVANCED OPERATION

Follow the steps below to enable or disable this feature:
1. Press the [MENU], then press [UP]/[DOWN] to select the Menu 29 “COMP”.
2. Press [AB, -], then press [UP]/[DOWN] to select ON/OFF.
3. Press [AB, -] to save the setting.
4. Press [MENU] or any numeric key to exit.

ADDIONAL FEATURES AND SETTINGS

1. STORED IN MEMORY CHANNEL.
   You can store up to 99 channels in the transceiver memory.
   Follow the steps below to save the channels:
   1. Select the desired frequency in VFO mode and the undertones “CTCSS” codes “DCS”, and the frequency shift and direction of travel for access to repeaters.
   2. Press and hold on [VM/SCAN] about 2 seconds, the display will flash “Channel 01-99”. (If the display won’t flash, it means there are stored channel.) press [UP]/[DOWN] to select the channel you want to memorize.
   3. Press [AB, -] to save the channel.
   4. Repeat the above procedure to store more channels.

2. ALARM FUNCTION
   1. Hold down the alarm button (Radio Overview F) to activate the alarm. It transmits an alarm signal in the selected channel or frequency while the speaker will sound the alarm.
   2. Press the [PTT] or Alarm Button to deactivate the alarm.

3. COMMERCIAL FM RADIO
   1. Press [FM] key to enter the commercial FM radio mode.
   2. Press [UP]/[DOWN] to select the frequency of the desired FM radio station (frequency range 65 MHz to 108 MHz tuning steps of 100 kHz).
   3. Press [VM/SCAN] to switch radio channel mode and FM radio mode.

4. MEMORIZING FM RADIO STATIONS
   You can store up to 16 FM radio stations in memory of the transceiver. Follow the steps below to
ADDITIONAL FEATURES AND SETTINGS

store the desired FM radio station:
1. Under FM radio mode (VFO), press and hold down [VM/SCAN] about 2 seconds, the display will flash “01-16”.
2. Press [UP]/[DOWN] to select the memory location in which to store the radio station.
4. Repeat the above procedure to store more radio stations.

5. ALARM FUNCTION
1. Hold down the alarm button (Radio Overview F) to activate the alarm. It transmits an alarm signal in the selected channel or frequency while the speaker will sound the alarm.
2. Press the [PTT] or Alarm Button to deactivate the alarm.
   Note: if the location in which there is one radio station, the new radio station will replace the old one.

6. SCANNING FM RADIO STATIONS
   In operating mode of commercial FM radio, press [MENU], then press the [VM/SCAN] to start scanning all radio stations. Press [UP]/[DOWN], to change the direction of scanning stations. Press any key to exit the scan function. If during the scan, you want to store the radio station, press any key to exit the scan and memorize the station using the steps described in the previous section.
   Note: The communication between different transceivers is a priority. Therefore, if the transceiver is in commercial FM radio mode, and a signal of another transceiver is detected, the transceiver automatically will deactivate mode of commercial FM radio.

CTCSS TABLE

<table>
<thead>
<tr>
<th>No.</th>
<th>Tone (Hz)</th>
<th>No.</th>
<th>Tone (Hz)</th>
<th>No.</th>
<th>Tone (Hz)</th>
<th>No.</th>
<th>Tone (Hz)</th>
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## DCS TABLE

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## TECHNICAL SPECIFICATION

### GENERAL
- **Frequency range:** 65MHz-108MHz (Only commercial FM radio reception)
- **VHF:** 136MHz-174MHz (Rx/Tx).
- **UHF:** 400MHz-470MHz (Rx/Tx).
- **Memory channels:** Up to 99 channels
- **Frequency stability:** ±2.5ppm.
- **Frequency step:** 5kHz, 6.25kHz, 10kHz, 12.5kHz, 20kHz, 25kHz.
- **Antenna impedance:** 50Ω.
- **Operating temperature:** -20 °C to +60 °C.
- **Supply voltage:** Rechargeable Lithium-ion mAh 7.4V/1800.
- **Mode of operation:** Simplex or semi-duplex.
- **Duty cycle:** 03/03/54 mn. (Rx / Tx / Standby).

### TRANSMITTER
- **RF power:** 5W/1W.
- **Type of modulation:** F3E
- **Maximum deviation:** ±5 kHz/±2.5 kHz (WN).
## TECHNICAL SPECIFICATION

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious emissions</td>
<td>≤7.5uW</td>
</tr>
<tr>
<td>Adjacent channel power</td>
<td>≤-65dB/≤-60dB</td>
</tr>
<tr>
<td><strong>RECEIVER</strong></td>
<td></td>
</tr>
<tr>
<td>Receiver sensitivity</td>
<td>0.2 µV(at 12 dB SNAD)</td>
</tr>
<tr>
<td>Intermodulation</td>
<td>65 dB</td>
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<tr>
<td>Audio output</td>
<td>1W</td>
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<tr>
<td>Adjacent channel selectivity</td>
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<tr>
<td>Spurious response</td>
<td>65dB</td>
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<tr>
<td>Receiving current</td>
<td>≤380mA</td>
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**Note:** All specifications shown are subject to change without notice.

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## TROUBLESHOOTING

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible cause / solution</th>
</tr>
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<tbody>
<tr>
<td>The radio does not start.</td>
<td>The battery is low, replace the battery with a charged battery or proceed to the battery. The battery is not installed correctly, remove the battery and reattach it.</td>
</tr>
<tr>
<td>The battery runs down quickly.</td>
<td>The battery life has come to an end, replace the battery with a new one. The battery is fully charged, make sure the battery is in good condition.</td>
</tr>
<tr>
<td>The receiving indicator LED lights but do not hear the speaker.</td>
<td>Make sure the volume setting is too low. Make sure the undertones “CTCSS” or code “DCS” are the same as those programmed in the transceiver of the other members of your group.</td>
</tr>
<tr>
<td>When transmitting, the other members of his group do not receive the communication.</td>
<td>Make sure the undertones “CTCSS” or code “DCS” programmed in your transceiver are the same as those programmed in the transceiver of the other members of your group. Your partner or you, are too far. You or your partner are in a bad area of RF signal propagation.</td>
</tr>
</tbody>
</table>
# TROUBLESHOOTING

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible cause / solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>In &quot;standby&quot; mode, the transceiver transmits without pressing the &quot;PTT&quot;</td>
<td>Check the level adjustment function &quot;VOX&quot; is not set too sensitive.</td>
</tr>
<tr>
<td>Receive communications from other user groups while communicating with your group.</td>
<td>Change frequency or channel. Change the undertones &quot;CTCSS&quot; or code &quot;DCS&quot; in your group.</td>
</tr>
<tr>
<td>Communication with other members of your group is poor or low quality.</td>
<td>You or your partner is too far away or in an area of poor radio signal propagation, such as inside a tunnel, inside an underground car park, in a mountainous area, including large metal structures, etc.</td>
</tr>
<tr>
<td>Once these checks, if you still have problems with the transceiver, check with your distributor, dealer or service center.</td>
<td></td>
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</tbody>
</table>