PROFESSIONAL WIRELESS COMMUNICATION EQUIPMENT MANUFACTORY

USER'S MANUAL

FOR USER

Do not charge the radio or battery in an explosive environment, such as gas, dust,smoke area etc.Please turn off the radio when nearby gas station. Do not disassemble or modify the radio.do not leave the reaio under dusty or wet environment.It's very important for users to understand all instruction knowledge before using the radio,please obey the local legal rules.

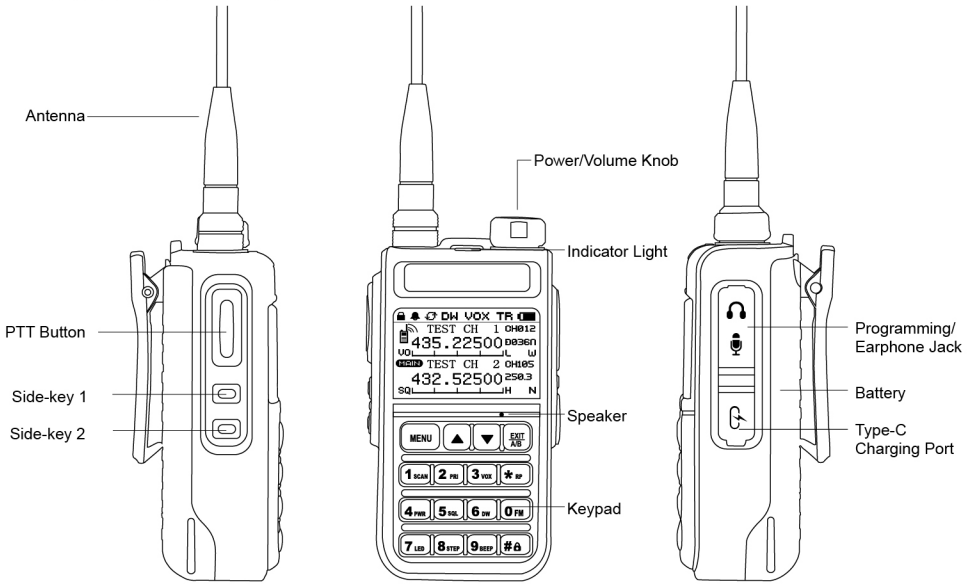
PRODUCT CHECKING

Thanks for choosing our radio.please unbox and check whether the following accessories are included and well-packed.If there's anything missing or damaging after unboxed,please contact your local distributor.

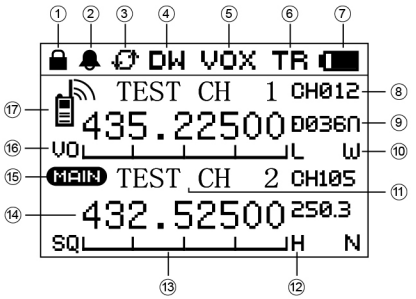
NO.	Item	QTY
1	Device	1
2	Antenna	1
3	Li-ion Battery	1
4	Charger	1
5	Belt Clip	1
6	User Manual	1
7	Guarantee Card	1

FAMILIAR WITH RADIO

3.1 MACHINE SCHEMATIC



3.2 LCD ICON DISPLAY



① Lock key:icon shows up,keypads are not allowed to operate
② Keypad Beep
③ Scan
④ Dual Standby
⑤ VOX
⑥ Talk around/Reverse Frequency:TR-reverse frequency;RR-talk around
⑦ Battery Level
⑧ Channel Number:Frequency mode shows up VFO,channel mode shows up CHXXX
⑨ CTCSS/DCS:MUTE means non-standard sub-tones,ENC means sub-tone is encrypted
⑩ Channel Bandwidth:W means Wide Band,N means Narrow Band
⑪ Channel Name
⑫ TX Power:H means high power,L means low power
⑬ Voice Strength:the strength varies with the TX/RX voice strength
⑭ Working Mode
⑮ Main Working Area
⑯ FM/AM VO-MIC:Voice Prompt SQ-RX Squelch
⑰ TX/RX Icon:Color blue means under RX status,color red means under TX status.

FUNCTION AND OPERATION

4.1 Transmitting Signal

Press [PTT] key, the device will transmit signal at main standby channel,and the signal icon ⑰ shows up in red, and indicator light turns red.

4.2 Receiving Signal

When the device receives same frequency signal with current working channel and the CTCSS matches with each other's, the indicator light turns green, signal icon ⑰ shows up in blue.

4.3 Working Mode Switching

Short press # button to change the working mode to VFO frequency mode or Channel MODE. When it is changed to VFO frequency mode, the icon ⑧ will show up as VHF; When it is changed to channel mode,the icon ⑧ will show up as CHXXX.

4.4 Frequency Changing and Repeater Frequency Setting

While under VFO mode, input frequencies manually via keypads, input 6 digits, the inputting is done.After this ,the input frequencies will be set to receiving and transmitting frequencies.

If need to use repeater to relay the signals, set the TX frequencies according to the repeater frequency table.Operation: Under VFO mode, long press 【*】 button,icon ⑭ turns red,the input function actives, and input 6 digits, so the inputting is done automatically.The input frequencies will set to TX frequencies. At this time the screen will shift to

receiving status. If need to change transmitting frequencies, long press【*】button again.
Short press**[▲]/[▼]**can switch preset working frequencies.Long press**[▲]/[▼]**is fast switching function.

4.5 Channel Switching

Under channel mode status, input channel number via keypads to switch to appointed channel.Short press **[▲]/[▼]**to switch to working channels one by one. Long press **[▲]/[▼]**is fast switching function.

4.6 Air Band Receiving

When the working frequency is set within the range of 108-136MHz, the icon ⑯shows up AM, which means the device is under air band receiving status. The device is not allowed to transmit signals under air band status.

4.7 Frequency Detecting and Decoding

Side-key is set to Frequency Detect ,and press side-key button while it is under standby status. Then the device begins to detecting and decoding. This function cannot detect CTCSS of anti-decoded radios. Press 【PTT】 button to exit detecting mode.
Frequencies change while radio doesn't start scanning, which means there is complicated electromagnetic nearby. And users should avoid using scanning under strong interference. Once the scanning is done, press 【MENU】 button to save the scanned frequency and CTCSS on current channel,press 【PTT】or【EXIT】to exit. After scanning,if there is standard CTCS,it will show up in standard way. If there is non-standard CTCSS, it will show up as "23b"or "24b" plus a series of numbers. After saving,if you want to check the result, please check Menu->CH Settings->Mute Code.

4.8 FM Function

Long press 【0】to come into FM radio mode. Long press **[▲]/[▼]**to searching for signals, or input frequencies manually via keypads. And short press**[▲]/[▼]**to stop scanning.
If you want to receive signals while under FM radio mode, please operate the following steps accordingly: Menu->Settings->FM Standby.

4.9 NOAA

Side-key is set to Weather CH and press the side-key to NOAA weather report channels under standby status. Press **[▲]/[▼]**to switch NOAA channels. If not to operate for 2 seconds,the device will scan NOAA channels automatically. NOAA function is available in countries and areas that are supported only. The followings are 11 NOAA working frequencies.

1	162.55000M	2	162.40000M	3	162.47500M
4	162.42500M	5	162.45000M	6	162.50000M
7	162.52500M	8	161.65000M	9	161.77500M
10	161.75000M	11	162.00000M		

4.10 Inputting Method

You can change relative characters via inputting method both in Menu->Setting->Personal ID and Menu->Setting->Personal ID

4.10.1 Delete Character

when in Person ID, the display content will be added blank characters automatically to 16 bytes(2 bytes per Chinese character,1 byte per Digit/English letter/symbol). while in Channel Name, the display content will be added blank characters automatically to 10 bytes. You can move the cursor via **[▲]** or **[▼]** to certain place, then press 【*】to delete the characters before it.

4.10.2 Inputting of Digit/Symbol/English Letter

When in Personal ID or CH Name status, input numeric keys directly to finish the numeric inputting.
Press **[#]**button to input English letter, press relative keys to complete the inputting.
Steps to input characters
1.press **[#]**key to start inputting
2.Press **[1]**key,open ASCII code table(the table consists of digits/symbols/English letters , and the initial character is blank character)
3.press **[▲]** or **[▼]** key to find the needed characters.
4.press the digit key which holds the characters to complete the inputting.
The match-up relationship of digit keys and letters

[1 Characters]	[2 ABC]	[3 DEF]
[4 GHI]	[5 JKL]	[6 MNO]
[7 PQRS]	[8 TUV]	[9 WXYZ]

FUNCTIONS OF SHORTCUTS

5.1 Keys' Functions of short-press

[0]-[9]: to input the digits.
[*]: to switch the sub-tone modes.
[#]: shift working mode from VFO frequency mode to channel mode. Or to input character while in character inputting status.
[▲]: to shift to upward frequencies or channel numbers.
[▼]: to shift to downward frequencies or channel numbers.
[MENU] to come into menu and confirm.
[EXIT]: to exit or cancel setting, to switch main frequency band while in standby status.

5.2 Keys' Functions of long-press

[1]: long press to turn on /off scanning function. Under channel mode,turn on scan function to scan signals one by one. Under frequency mode,turn on scan function to change working frequency according to upward step space direction and scan the signals.
[2]: switch TX Priority to Busy or Edit.
[3]: to turn on/off VOX function.
[4]: to switch TX power.
[5]: to shift to Menu->Settings->SQ Level.
[6]: to turn on/off dual-standby function.
[7]: to turn on/off backlight.
[8]: to shift to Menu->Settings->Freq Step.
[9]: to turn on/off key Beep.
[*]: to enter/exit TX/RX inputting status the keypads.
[0]: to enter/Exit FM .
[#]: to lock/unlock the keypads.
[▲]: fast increasing of frequency or channels when press upward button.
[▼]: fast decreasing of frequency or channels when press upward button.

5.3 Side-key functions

To define the long-press and short-press function of side-keys in the Menu->Side Key list, as following:
1.Off: press side-key, and nothing happen.
2.Monit: to monitor the signal of working frequency ,and ignore the TX/RX sub-tone setting, force to turn on squelch.
3.Local Alarm: the device gives out alarm sound to report to the surrounding.
4.Remote Alarm: the device gives out alarm sound and transmits the alarm sound at main working frequencies.
5.Freq Detect: to detect nearby radios' frequencies and sub-tones.
6.Repeat Mode: while radio is under repeater working mode , press this button to exit repeater mode, and Transmitting/receiving at the same frequency.
7.Freq Inverse: to reverse the TX/RX frequencies.
8.Weather CH: to enter NOAA weather report mode.

INSTRUCTION OF MENU

6.1 Startup

[1.Startup Logo] to open /close the startup picture.
[2.Voltage]o open/close the battery level.
[3.Ringtone] to turn on/off the startup tone.
[4.Prompt Text] to turn on/off the welcome words.

6.2 Prompt

[1.Voice Prompt] to turn on/off menu and channel voice prompt.
[2. Key Beep] to turn on/off keypads voice prompt.
[3.Rogger Beep] to turn on/off voice prompt when transmitting ends.

6.3 Settings

[1.TX Priority] When choose Edit,transmitting via main frequencies. When choose Busy, receive signals, and main frequency will switch to frequency of received signal.
[2.Save Mode] to turn on/off power saving mode.
[3.Freq Step] to set the number of frequency switching and scanning.
[4.SQ Level] to set squelch threshold level when receiving.
[5.LED Timer] to set shutdown time of backlight.
[6.Lock Timer] to set auto lock time of the keypads.
[7.TOT] to set the maximum time of continuous transmitting.
[8.VOX Level] to set voice threshold level of turning on VOX.
[9.VOX Delay] to set delay time when VOX transmitting ends.
[10.NOAA Monitor] to turn on/of NOAA monitor.
[11.FM Standby] to turn on/off main frequency receiving function while in FM status.
[12.Dual Display] to turn on/off dual-band display.
[13.Tail Tone] to turn off/on tail tone while transmitting ends.
[14.Scanning] to set scanning upward or downward.
[15.Personal ID] to set this ID, and can be set to Chinese .
[16.Send ID] to turn on/off local ID function when transmitting ends.
[17.Initialize] to restore factory setting.

6.4 CH Settings

[1.CTCSS/DCS] to set the sub-tones of TX/RX frequency, switching sub-tone mode via **[*]** key,press**[▲]** or **[▼]** to switch sub-tones.
[2.RX CTCSS/DCS] to set RX CTCSS/DCS of main frequency.
[3.TX CTCSS/DCS] to set TX CTCSS/DCS of main frequency.
[4.TX Power] To set High/Low power of transmitting.
[5.Band Width] To set Narrow/Wide band .
[6.Busy Lock] To forbid transmitting while receiving. Carrier wave matches, which means the device is forbidden to transmitting, no matter the CTCSS/DCS matches or not.CTCSS/DCS matches means when main frequencies receive signals, only sub-tone matches successfully , the transmitting is forbidden.
[7.Scrambler] To set voice scrambler number on main frequencies, if the number is 0, the scrambler is turned off.
[8.DCS Encrypt]When there is digital sub-tones on main frequencies,turn on encryption function will re-encrypt to digital sub-tones. Only supported to digital sub-tones.
[9.Mute Code]This is non-standard DCS, can be defined to 23 or 24 digits. Press the **[▲]** or **[▼]** to choose CTCSS mode, input digits to become non-standard DCS code. The saved non-standard DCS code can be checked in this list.
[10.AM Receive]To switch receive mode from AM to FM, the initial setting is AM mode. Turn on this list to receive air band signals.
[11.CH Name] to set channel name of main frequency
[12.Save CH] Copy and save information of current channel to appointed channels. The CH-XXX N/Y shows up when enter the list. N means empty channel. Y means not empty channel.
[13.Delete CH] To delete information of appointed channels.

6.5 Define Side-keys

To set the function of long-press and short-press, the functions are as followings: Monit、Local Alarm、Remote Alarm、Freq Detect、Repeat Mode、Freq Inverse、Weather CH etc.

6.6 Version Information

To check the version number and date of local firmware.

SPECIFICATION

General	
Frequency Range	RX : 64-108MHz (FM Band) 108-136MHz(Aviation frequency Band) 136-520MHz TX : 136-520MHz
Channel Capacity	999
Channel Space（W/N）	25kHz/12.5kHz
Working Voltage	7.4V DC
Working Mode	Same frequency simple/different frequency simplex
Antenna	Removable Antenna
Frequency Stability	±2.5ppm
Working Temperature	- 20 ~ + 60°C
Dimension(without antenna & belt clip)	108 * 59 * 38 about 189g
Transmitting Part	
Modulation Mode	F3E
Max frequency deviation（W/N）	≤5KHz/≤2.5KHz
SNR（W/N）	-45dB/-40dB
TX Current	≤1500mA
Receiving Part	
Sensitivity（W/N）	0.22μV/0.25μV 12dB SINAD
Inter-Modulation（W/N）	65dB/ 60dB
Audio distortion	＜5%
Audio output power	≤1W (16 Ω)
RX current	≤350mA
Standby current	≤70mA

Note: The above parameters are subject to change without prior notice!