BFDX

www.bfdx.com

BF-7110

Professional FM Transceiver

Notice

Government law prohibits the operation of unlicensed radio transmitters inside the govern territories. Illegal operation may cause the punishment of penalty, imprisonment or both.

Acknowledgement

We are grateful for your choosing BeiFeng series professional radio communications products!

Since1989, BeiFeng have been engaging in research and exploration of radio communications technologies to lead intelligent technologies in the industry. We still make every effort to research and design products according to modern complicated communications environment. We offer complete and customized communication solutions to clients. Our product is your ideal options because of its excellent performance and outstanding communications strength. No matter what field you are in, you will be satisfied with the radio.

This manual is applicable to:

VHF/UHF：BF-7110（VHF/UHF FM transceiver model: BF-7110）

Warning！

Please turn off the radio in explosive environment (eg. Fuel station, gas station or any place where full of inflammable gas or dust.)

Precautions

The following precautions shall be observed so as to prevent radio from being damage, or person from being injury. To avoid any danger, please carefully read and follow the manual.

- The reasonable usage rate for radio is 1min for TX and 4min for RX.Continuously TX may cause rear cover over heating. Please do not let rear of radio touch to any objects with low meting point/low ignition.
- Don’ t leave the transceiver under direct sunlight for long time. Don’ t place the transceiver on extremely heat、damp、dusty area, and don’ t put it onunstable surfaces.
- Turn off your radio in any place where may generate electromagnetic interference or danger.)
- Please do not trying to operate the radio when driving, otherwise may cause accident.
- If you notice any problems on the radio, please turn off at first. Then contact with local vender. Do not modify this radio unless instructed by this manual or refer service to a qualified licensed or certified technician only.
- If you want to use the machine for secondary development, please contact 2 with BFDX or BeiFeng venders
- Please keep the surface of radio clean and dry. If you want to clean the radio,please using a cloth moistened with clean water and a mild dishwashing liquid.
- Switch the radio power off before installing optional accessories.

Contents

Supplied accessories 4
Unpack and Inspection..... 4
Accessory..... 4
Installation of accessories 5
Attaching/Removing the Antenna..... 5
Attaching/Removing the belt clip 5
Attaching the strap..... 6
Attaching/Removing the Battery 6
Li-ion battery features.....7
Charging the battery.....7
Charging steps.....7
Attaching the Speaker/Microphone 8
Getting acquainted.....8
Basic operations.....9
Switching the power on/off.....9
Adjusting the volume.....9
Channel selection.....9
Transmitting.....10
Receiving 10
Computer Programming 10
Introduction to Functions and Operations..... 11
Optional Features.....11
Squelch Level 11
VOX Level 11
Voice Prompts.....12
TOT.....12
TX Tone.....12
Scan 13
TX Power.....14
Bandwidth setting 14
Busy Channel Lockout.....14
CTCSS/CDCSS 15
QT/DQT Decode.....15
QT/DQT Encode.....15
Voltage check.....16
Monitor 16
QT standard frequency table..... 17
DQT standard code table 18
Specifications..... 19
Declaration.....20

Supplied accessories

Notes: The accessories listed below are covered by BeiFeng dealer、authorized BeiFeng agents or BFDX.

After carefully unpacking the transceiver, identify the items listed in the table below. While you find anything lost or damaged, Please contact with dealer immediately.

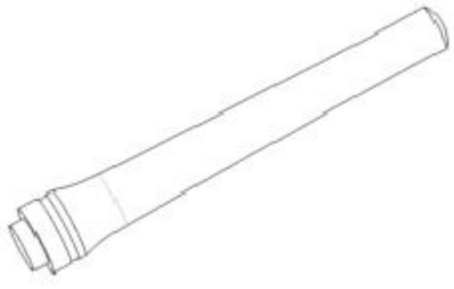
Unpack and Inspection

Note: Following unpacking notes are only for local BEIFENG vendors, authorized BEIFENG agents or factories. Please take the two-way radio out of the package carefully. It is recommended to check accessories according to the following checklist before discarding its package. If any item is missed or damaged, please immediately contact your local BEIFENG vendor.

Accessory

items	Reference no.	QTY
antenna	BF-RA702	1
strap	BF-RL501	1
Li-ion battery	BF-A26	1
Charger	BF-B26	1
Belt Clip	BF-BS703	1
Screws		1
Manual		1
Warranty card		1
Certification		1

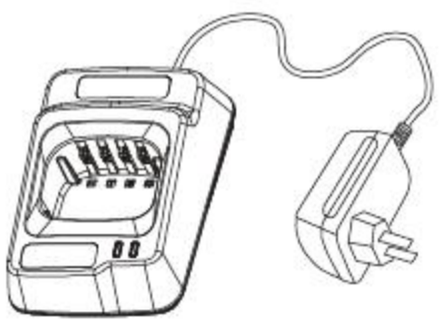
Antenna



Strap

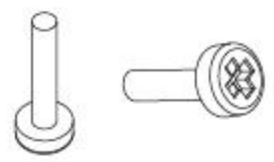
Li-ion battery

Charger



Belt clip

Screws



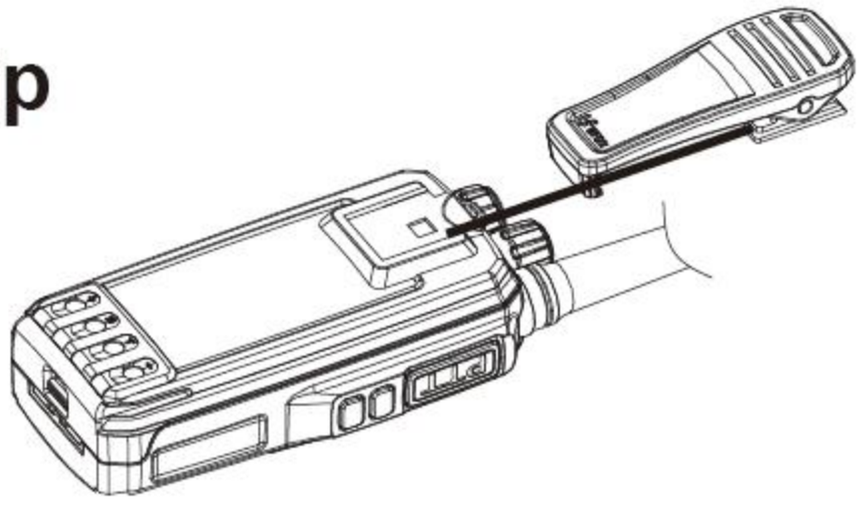
Installation of Accessories

Attaching/Removing the Antenna

Hold the supplied antenna by its base, then clockwise screw it into the connector on the top panel of the transceiver until secure.
Turn the antenna anti-clockwise to remove it.

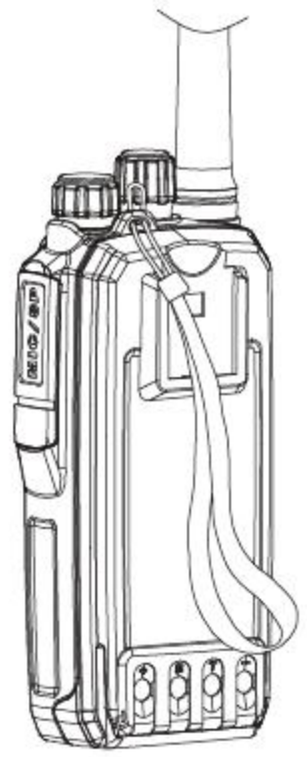
Attaching/Removing the belt clip

Install the belt clip along the groove till a "click" sounds and the belt clip is locked into the groove.



Attaching the strap

Thread the hand strap to the loop on the right and back of your two-way radio.

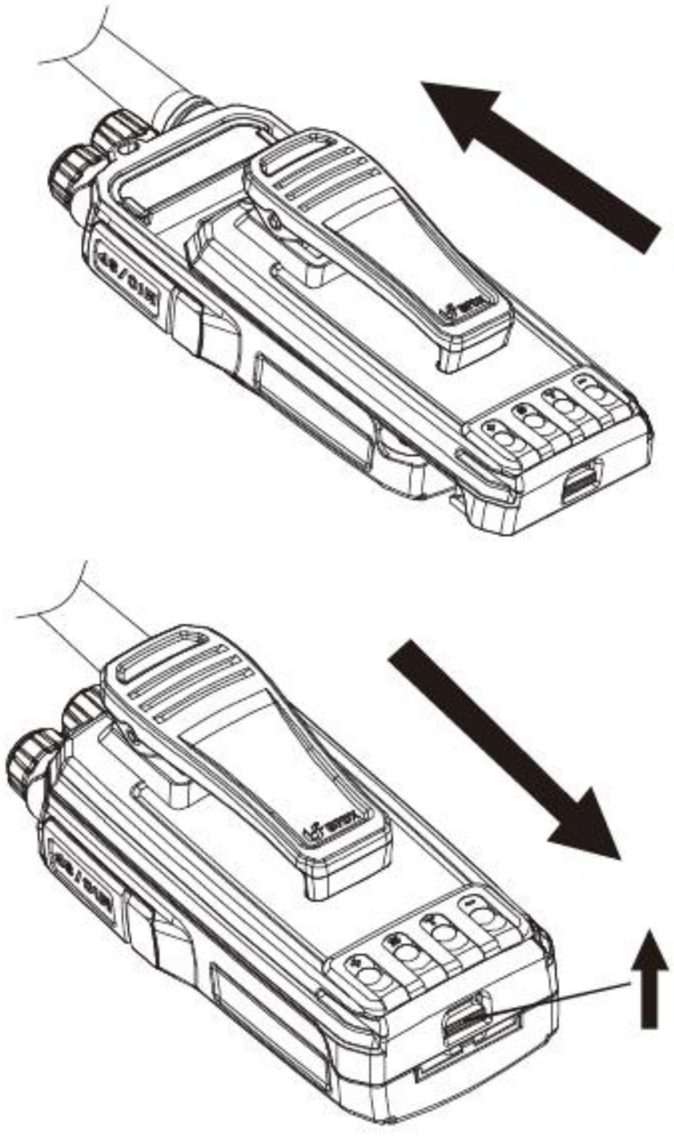


Attaching/Removing the Battery

Warning!

- ◆Don’t short-circuit the battery, it may cause the battery damaged or burst into flame.
- ◆Never attempt to disassemble the battery chassis, to avoid short-circuit the battery
- ◆Battery is flammable object, don’t throw it into fire or don’t use it on dangerous

To remove the battery, Please turn the power off, then press the release latch to unlock the battery. Lift the battery away from the transceiver.



Note: Don’t attach / remove the Battery if the radio turned on.

Li-ion battery features

- New batteries are activated from factory. Please charge your battery before using it. The maximum battery capacity and performance is achieved after three full charge/ discharge cycles.)
- The life span of battery refers to charging cycle times. Please try to avoid charging if battery still remains some electricity or operating before full charging, otherwise this may shorten the life span.
- To reduce self-discharge, Please remove the battery before you store it for a long time. And store the battery in a cool &dry place.
- Charge your battery about 50% before you store it for a long time, So that can prevent to decreased the battery performance.
- The Battery's capacity will be reduced Gradually after using or not using it for a long time. Store battery in a high temperature will shorten its lifecycle.

Charging the battery

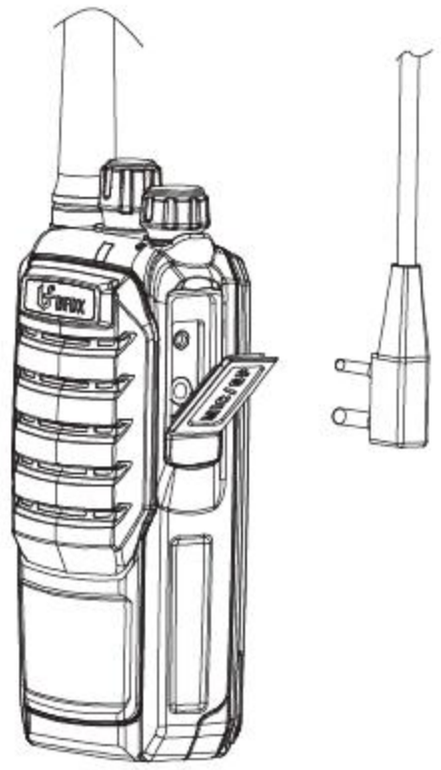
- When the battery power runs low, the radio will send alert Sounds, please recharge the battery.
- Please only use the battery and charger specified by BeiFeng.
- When charging a battery attached to a radio, Please turn the radio off.
- Please don't remove the battery from the charger before fully charge, orthe battery could suffer damage.
- Please remove the battery timely when the battery is fully charged.

Note: When charging your battery, keep it about 20℃,at the same time keep it at a temperature among 4℃-40℃, otherwise it may reduce life span or Charging efficiency.

Charging steps

- Place the battery or the radio attached with a battery in the charger.
- Plug the AC connector of the switching power into the outlet socket.
- Make sure the battery is connected well with charger. The charging process initiates when the charger indicator glows red.
- The charger indicator glows green if the battery is fully charged.

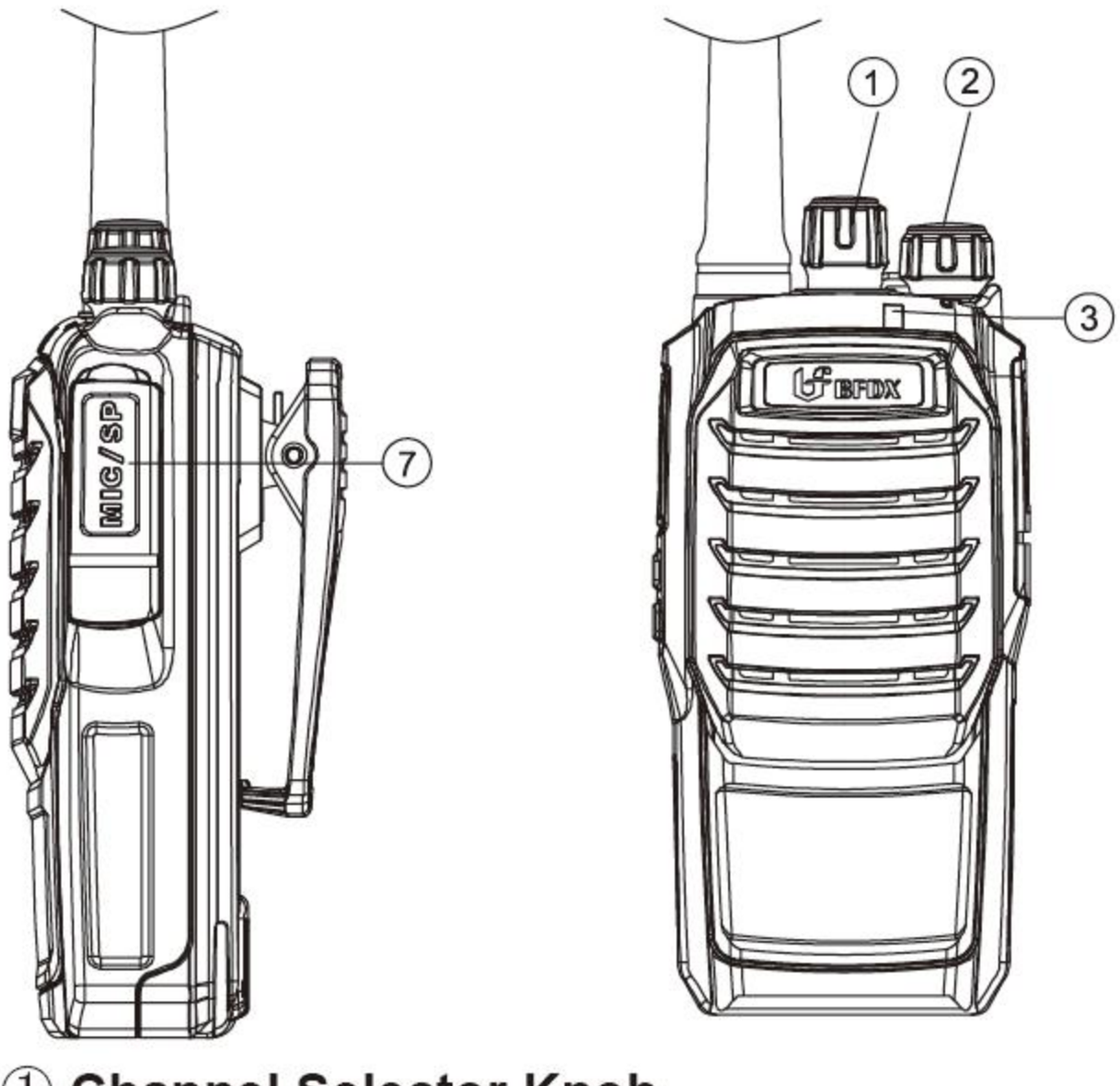
Note: If the charger indicator do not glow after connecting to the power, this may indicate that the battery /charger has damaged or temperature is not reasonable.



Attaching the Speaker/Microphone

Open the accessory cover, and plug the speaker/microphone firmly into the accessory jack.

Getting acquainted



① Channel Selector Knob

Turn the knob to select channel 1-16. Channel announce is available.

② Power switch/volume adjust keys

Rotate to turn the radio power on and off. When the radio is turned on, Clockwise rotation is to increase volume, anticlockwise is to decrease the volume.

③ **LED Indicator**

Status indicator glows red when transmitting, Status indicator glows green when receiving.

④ **PTT key**

Press and hold down the PTT key then speak into the microphone to transmit.

⑤ **Monitor Key**

Long press the key to monitor selected channel.

⑥ **Scan key**

Press the key to switch scan on/off.

⑦ **Mic-sp jack**

Connect to optional speaker/Mic or programming cable.

Basic operations

Switching the power on/off

Rotate the power switch/volume adjusting keys clockwise to turn the radio on.

Rotate the power switch/volume adjusting keys anti-clockwise to turn the radio off

Adjusting the volume

After the radio is power on, you can rotate the Power switch/volume adjust keys to adjust the volume level, Rotate the knob clockwise to increase the volume ,or Rotate the knob anti-clockwise to decrease the volume.

Note: While you want to adjust the volume, you can press the MONI key then according the background noise to adjust the volume to a comfortable audio out level.

Channel selection

Turn the Channel Selector Knob to select channel 1to 16, Make sure the white line on the knob points at the desired channel number.

Note:

- **Voice prompt : While you rotate the Channel Selector Knob to select the channel, the radio will report the channel number.**
- **Voice prompt including English and Chinese, You can set it at programming software.**

Transmitting

- Firstly, long press the Moni key to monitor for a moment, make sure the channel you use is not occupied by other radio.
  Press and hold down the PTT key, than speak into the microphone.
- Please keep the radio about 3~4cm away from your mouth at normal tone of your voice.
- Press and hold down the PTT key, LED indicator glows red to transmit.
  3.Release the PTT key for receiving.

Receiving

When the LED indicator glows green that the channel you are using is called, you can receive single.
While received weak signals and the radio sets high SQL, the receiving party will fail to receive incoming calls.
The vender may set QT/DQT for your radio. When the chosen channel is set QT/DQT, the user can only receive the calls on the same channel with same QT/DQT.

Computer Programming

Connecting the radio with PC by pointed BF-7110F programming cable then open the software（BFP-AH7110F）, this allows you freely to read and modify the date for radio setting.

Note: Only after the radio is power on that you can operate Computer programming.

Introduction to Functions and Operations

Optional Features

Squelch Level

SQL makes the speaker silent when audio no signals. If SQL open, no background noise will be heard, and if SQL closed, background noise will be heard from loudspeaker.)

You can set SQL from 0 to 9. Level 0 will close squelch function. Level 3 is original setting. While this function is disabled, you will hear noise. Please select squelch levels according to the operating environment. If SQL is too high, then you can't receive weak signals. And if SQL is too low, you can receive signal but at the same time you will hear noise. So the noise environment needs higher squelch level. And in a quiet environment, please set the squelch level lower.

VOX Level

(The VOX function shall work together with a dedicated earpiece)

While this function is enabled, you can enjoy hands-free communication. The radio will automatically begin transmitting when you speaking. And terminate transmitting when you stop talking with no need of PTT press. You can set VOX level (1~9) or disable (close) the VOX feature through

the programming software.

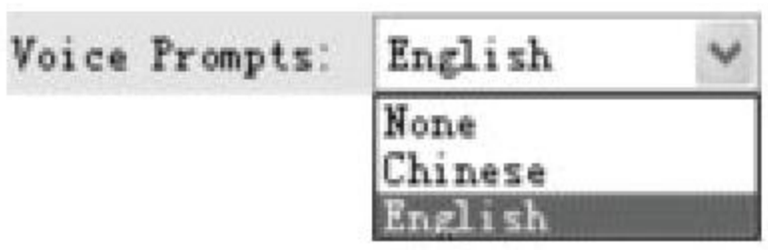
Press and hold MONI key and turn radio on, LED indicator flashes red and green. Then press MONI key to increase VOX level, otherwise, press SCAN key to decrease VOX level. You may select VOX levels according to the operating environment. When the environment is too much noise, VOX level needs to be higher. And in the quiet environment, please set VOX level lower. Selecting suitable level and restart the radio to activate the VOX feature.

Press the PTT to close the VOX function during operation.

Note: When adjusting VOX level and speaking, LED indicator glows red,but your voice can't be transmitted.

Voice Prompts

Users can switch the voice prompts between Chinese and English by the programming software, or you can set none to close voice prompts function.



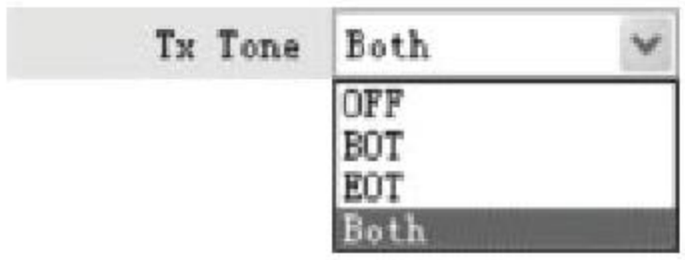
TOT

The TOT function is to prohibit the user continuously transmit on a channel. You can set it from 10 to 300 seconds. If the user press PTT key longer than the preprogrammed time period, the radio will automatically stop transmitting and generate a warning tone. Release the PTT key to stop the warning tone, and the radio will resume after 5 seconds. If you want to disable this function, you can set it OFF.

TX Tone

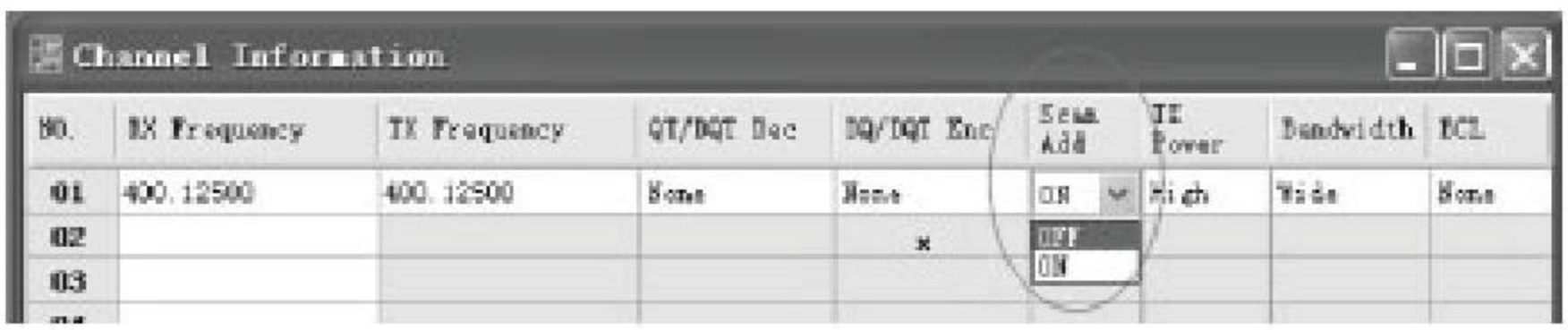
This option defines whether users can inform receiver whenever the radio beginning or stop to transmit. Enable this function, you can choose beginning of transmission (BOT), end of transmission or both (beginning and

end of transmission) to prompt receiver. Set OFF to close TX Tone function.



Scan

The scan feature enables the radio to continuously scan each channel for activity. Enter scan mode, the radio will scan each channel as they appear in scan list and radio will pause on the active channel for you to receive activity. Using the software you can add scan list:



If received signal, radio will pause on the active channel until signal disappear over 5 second and radio continue to scan.To start scanning, Please press and hold down SCAN key about 3 seconds, the LED indicator glows green and with a voice prompt tone. The radio will automatically detect those channels which you have been programmed as scan items. Scan starts from the current channel number and ascends up the channel numbers. Once activity is detected on a channel, scanning will pause on the active channel for you to receive activity.

While scanning, if you press PTT key scan temporarily pauses, the radio will return to the channel as you finally received signal to transmit. If you always receive signals during scanning and then press PTT key, radio will return to the channel where you start to scan for transmitting.

To stop scanning, press SCAN key about 3 second again to exit, the radio return to the channel where you start scanning.

Note:

●Not programmed or not added to scan list channel not available for scan.

●In order for scan to operate, there must be at least 2 Channels added to the scanning sequence. If there are less than 2, scan can not operate.

TX Power

To change the transmission output power, you can set Tx Power as High (8W) or Low (1W). Setting the Tx power as following:

Bandwidth setting

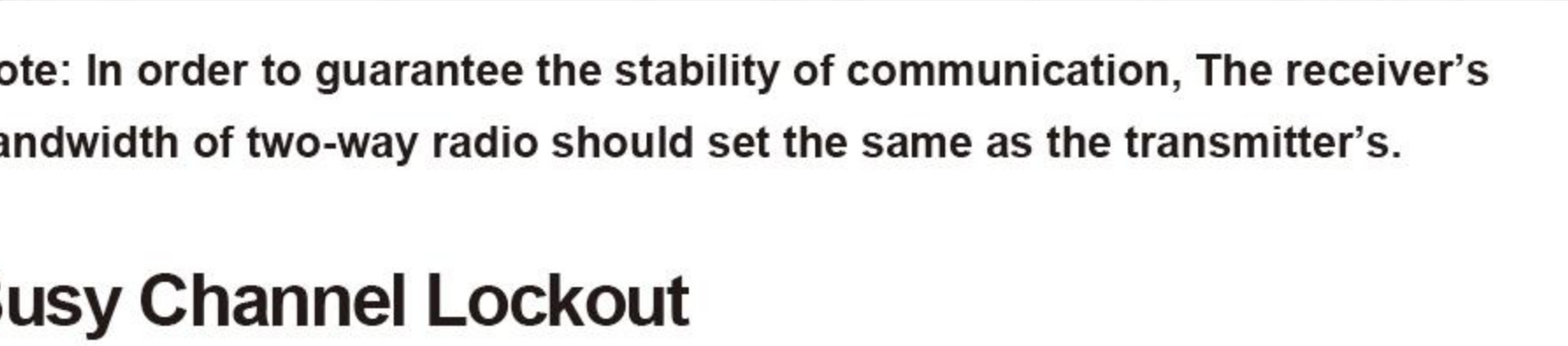
In this mode, you can choose bandwidth as wide (25KHz) or narrow (12.5kHz), through the programming software (BFP-AH7110F), you can set it:

Note: In order to guarantee the stability of communication, The receiver's bandwidth of two-way radio should set the same as the transmitter's.

Busy Channel Lockout

This function can avoid interference between radio operating on the same channel, keep the channel clean and bother from others.

On the software ,you can set BCL as carrier、 QT/DQT or none :



If the channel you choose is busy and the radio open BCL function, Press PTT, the radio generates a warning tone and will not transmit the signal, Release PTT will stop the warning tone, radio return to receive mode.

CTCSS/CDCSS

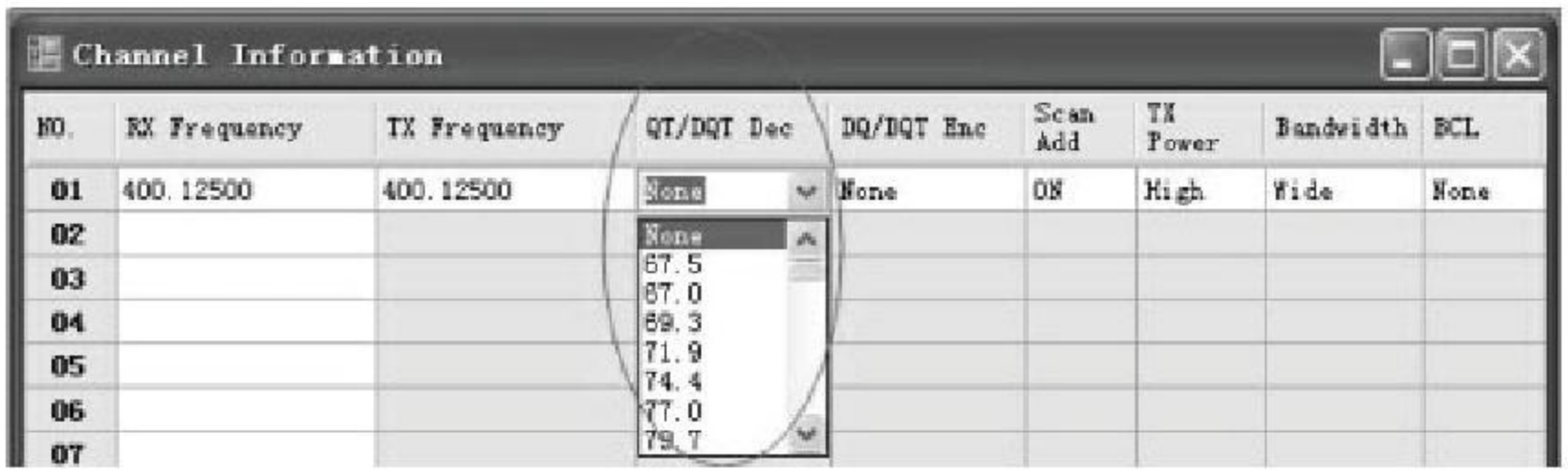
A CTCSS frequency/ CDCSS code is a sub-audible frequency/code which allows you to not hear calls from other parties who are using the same channel. The user can only receive the calls on the same channel with same CTCSS/CDCSS.

QT/DQT allows you to ignore unwanted calls from other parties using the same channel. Although it may seem like you have your own private channel while using CTCSS/ CDCSS, other parties can still hear your calls if they set up their radio with the same frequency or code.

Note: The radio approve of non-standard code , you can input non-standard code as you need.

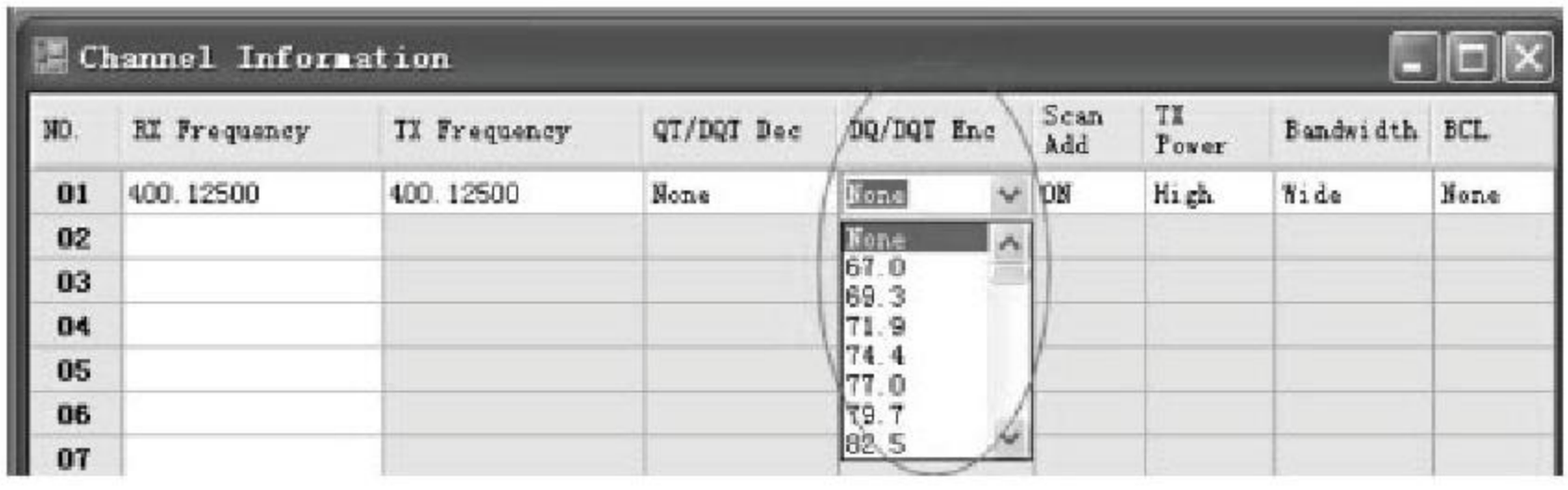
QT/DQT Decode

Open the programming software BFP-AH7110F, then input the RX and TX frequency, and you can select standard decode as you need ,or you can input QT: 60~260Hz -,DQT:D000N~D777N directly. The radio can receive Specific calls from user operating on the same frequency and QT/DQT



QT/DQT Encode

Open the programming software BFP-AH7110F, you must input the RX and TX frequency firstly, and you can set encode as you need ,or you can input QT :60~260Hz,DQT:D000N~D777N directly. The radio can receive Specific calls from user operating on the same frequency and QT/DQT.



Voltage check

When you turn on the radio, it automatically detect battery voltage. If battery voltage less than6.5V, LED indicator glows red and with a warning tone, then the warning tone will sound at intervals of 10 seconds to remind users to replace the battery, At the moment, the radio will be prohibited to transmit.

If battery voltage descent to 6.2V, radio will be turn off automatically. You should replace the battery or charge the battery.

Monitor

Press and hold down MONI key to monitor weak signals on the current channel while you are receiving. In this mode, you can receive weak signals or adjust volume level.

Press the Monitor key to activate monitor function, and release it to return to normal operation.

QT standard frequency table

QT No.	[Hz]	QT No.	[Hz]	QT No.	[Hz]	QT No.	[Hz]
1	67.0	11	94.8	21	131.8	31	186.2
2	69.3	12	97.4	22	136.5	32	192.8
3	71.9	13	100.0	23	141.3	33	203.5
4	74.4	14	103.5	24	146.2	34	210.7
5	77.0	15	107.2	25	151.4	35	218.1
6	79.7	16	110.9	26	156.7	36	225.7
7	82.5	17	114.8	27	162.2	37	233.6
8	85.4	18	118.8	28	167.9	38	241.8
9	88.5	19	123.0	29	173.8	39	250.3
10	91.5	20	127.3	30	179.9		

DQT standard code table

D023N	D071N	D134N	D223N	D306N	D411N	D503N	D631N	D734N
D025N	D072N	D143N	D226N	D311N	D412N	D506N	D632N	D743N
D026N	D073N	D152N	D243N	D315N	D413N	D516N	D654N	D754N
D031N	D074N	D155N	D244N	D331N	D423N	D532N	D662N	
D032N	D114N	D156N	D245N	D343N	D431N	D546N	D664N	
D043N	D115N	D162N	D251N	D346N	D432N	D565N	D703N	
D047N	D116N	D165N	D261N	D351N	D445N	D606N	D712N	
D051N	D125N	D172N	D263N	D364N	D464N	D612N	D723N	
D054N	D131N	D174N	D265N	D365N	D465N	D624N	D731N	
D065N	D132N	D205N	D271N	D371N	D466N	D627N	D732N	
D023I	D071I	D134I	D223I	D306I	D411I	D503I	D631I	D734I
D025I	D072I	D143I	D226I	D311I	D412I	D506I	D632I	D743I
D026I	D073I	D152I	D243I	D315I	D413I	D516I	D654I	D754I
D031I	D074I	D155I	D244I	D331I	D423I	D532I	D662I	
D032I	D114I	D156I	D245I	D343I	D431I	D546I	D664I	
D043I	D115I	D162I	D251I	D346I	D432I	D565I	D703I	
D047I	D116I	D165I	D261I	D351I	D445I	D606I	D712I	
D051I	D125I	D172I	D263I	D364I	D464I	D612I	D723I	
D054I	D131I	D174I	D265I	D365I	D465I	D624I	D731I	
D065I	D132I	D205I	D271I	D371I	D466N	D627I	D732I	

Specifications

General	
Frequency range	UHF:400-470MHz
Channel Capacity	16
Channel Spacing	25 KHz /12.5 KHz
Operating Temperature	-20℃ ~ +60℃
Antenna Impedance	50Ω
Operating Voltage	DC 7.5V (±20%)
Battery capacity	2500mAh
Frequency Stability	≤±2.5 ppm
Dimensions (L×W×H)	61 (L) *37 (W) *132 (H) mm
Weight	242g (with battery)
Transmitter	
RF Output Power	8W
Modulation	11KφF3E/16KφF3E
Maximum frequency deviation	≤±2.5KHz /±5.0KHz
Audio Distortion	< 5%
Adjacent Channel Power	60dB
Receiver	
Sensitivity	≤-123dB (12dB SINAD)
Adjacent channel Selectivity	≥60dB(W)/ 55dB (N)
Inter modulation	≥60dB(W)/ 55dB (N)
Spurious Response Rejection	≥60dB(W)/ 55dB (N)
Rated Audio Power Output	0.5W
Audio Distortion	≤5%

Declaration

This manual is deemed to be compiled, to be accurate and complete. For any doubt, please contact us. We will give you professional answers. As radio communication technologies develop rapidly, BEIFENG reserves the right to change product design and specification without prior notice.

BFDX

FUJIAN BELFONE COMMUNICATIONS TECHNOLOGY CO.,LTD.

Add: A-15 Huaqiao Economic Development Zone,
Shuangyang,Luojiang,Quanzhou,Fujian,China
Tel: +86 595 28396717
Fax: +86 595 22771635
Email: overseas@bfdx.com
Website: www.belfone.com
www.bftx.com

RECYCLABLE PACKAGING