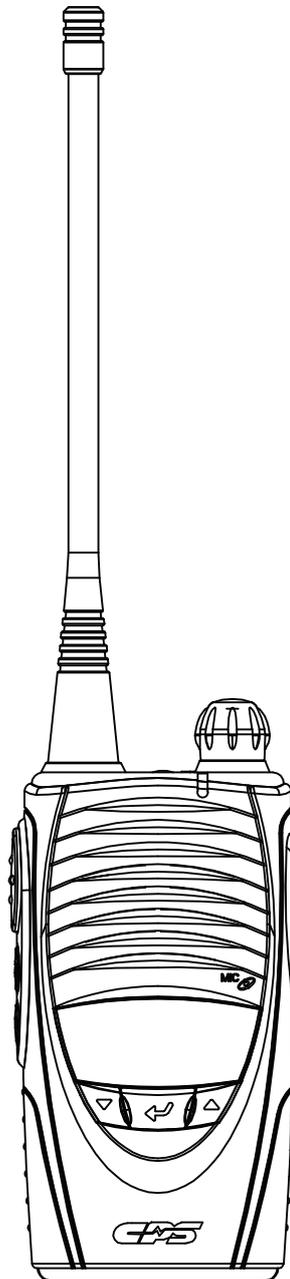




# CP330

VHF/UHF FM  
Handheld Transceiver  
Service Manual

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After CP/U Series PC Program1.00.EXE is acted, install with the basic value on screen.

This Program can be used in Windows2000 version or in higher version than Windows2000, and don't use this program in Windows98 version or in lower version than Windows98.

In case of installing the Program in the Windows98 version, a new format on PC may be required.

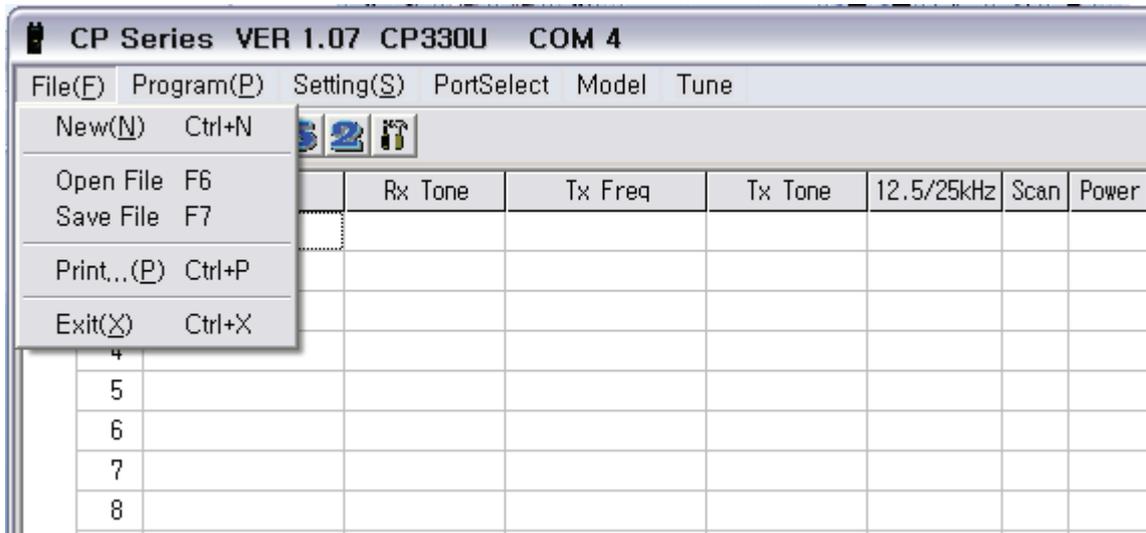
## 8.2 Frequency Input Window

G	CH	RX Freq	Rx Tone	Tx Freq	Tx Tone	12.5/25kHz	Scan	Power	5T/2T	Emer	Birdie	Scr.	Comp.	TX Inhibit
	1	420.025000 MHz	OFF	420.025000 MHz	OFF	12.5kHz	YES	HIGH	OFF	NO	NO	NO	NO	NO
	2	430.025000 MHz	OFF	430.025000 MHz	OFF	12.5kHz	YES	HIGH	OFF	NO	NO	NO	NO	NO
	3	440.025000 MHz	OFF	440.025000 MHz	OFF	12.5kHz	YES	HIGH	OFF	NO	NO	NO	NO	NO
	4	450.025000 MHz	OFF	450.025000 MHz	OFF	12.5kHz	YES	HIGH	OFF	NO	NO	NO	NO	NO
	5	460.025000 MHz	OFF	460.025000 MHz	OFF	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	6	469.975000 MHz	OFF	469.975000 MHz	OFF	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	7	420.025000 MHz	C 1:67.0	420.025000 MHz	C 1:67.0	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	8	430.025000 MHz	C 1:67.0	430.025000 MHz	C 1:67.0	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	9	440.025000 MHz	C 1:67.0	440.025000 MHz	C 1:67.0	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	10	450.025000 MHz	C 1:67.0	450.025000 MHz	C 1:67.0	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	11	460.025000 MHz	C 1:67.0	460.025000 MHz	C 1:67.0	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	12	469.975000 MHz	C 1:67.0	469.975000 MHz	C 1:67.0	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
1	13	420.025000 MHz	C 38:250.3	420.025000 MHz	C 38:250.3	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	14	430.025000 MHz	C 38:250.3	430.025000 MHz	C 38:250.3	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	15	440.025000 MHz	C 38:250.3	440.025000 MHz	C 38:250.3	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	16	450.025000 MHz	C 38:250.3	450.025000 MHz	C 38:250.3	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	17	460.025000 MHz	C 38:250.3	460.025000 MHz	C 38:250.3	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	18	469.975000 MHz	C 38:250.3	469.975000 MHz	C 38:250.3	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	19	420.025000 MHz	D 1:023	420.025000 MHz	D 1:023	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	20	430.025000 MHz	D 1:023	430.025000 MHz	D 1:023	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	21	440.025000 MHz	D 1:023	440.025000 MHz	D 1:023	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	22	450.025000 MHz	D 1:023	450.025000 MHz	D 1:023	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	23	460.025000 MHz	D 1:023	460.025000 MHz	D 1:023	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	24	469.975000 MHz	D 1:023	69.975000 MHz	OFF	25kHz	YES	HIGH	OFF	Yes	NO	NO	NO	NO
	25													

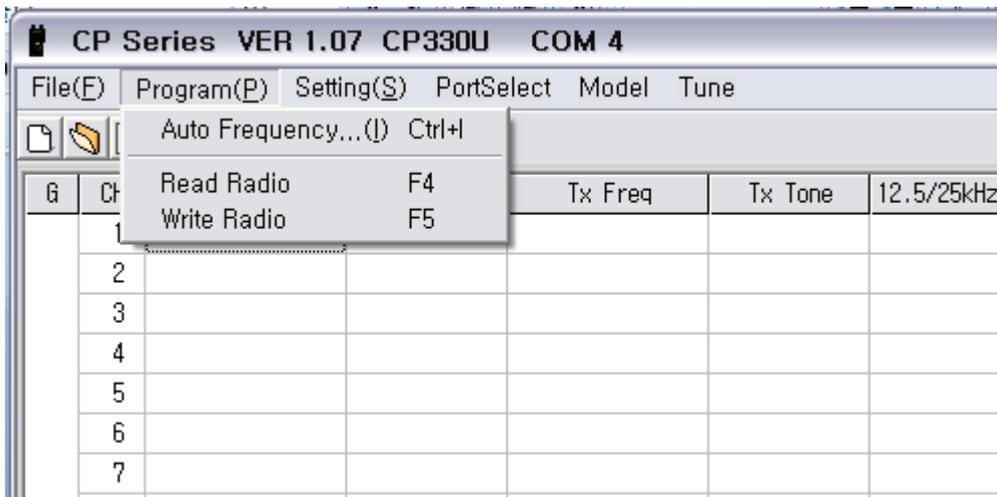
The user should input RX/TX frequency within the range displayed on the status bar.

The sequence of frequency input screen is as follows : **RX Tone**, **TX Tone**, **12.5/25KHz**(Narrow/Wide), **Scan**, **Power**, **5T/2T**, **Emer**(Emergency), **Birdie**, **Scr** (Scrambler), **Comp**(Companer), **TX Inhibit** and the user can choose his desired function.

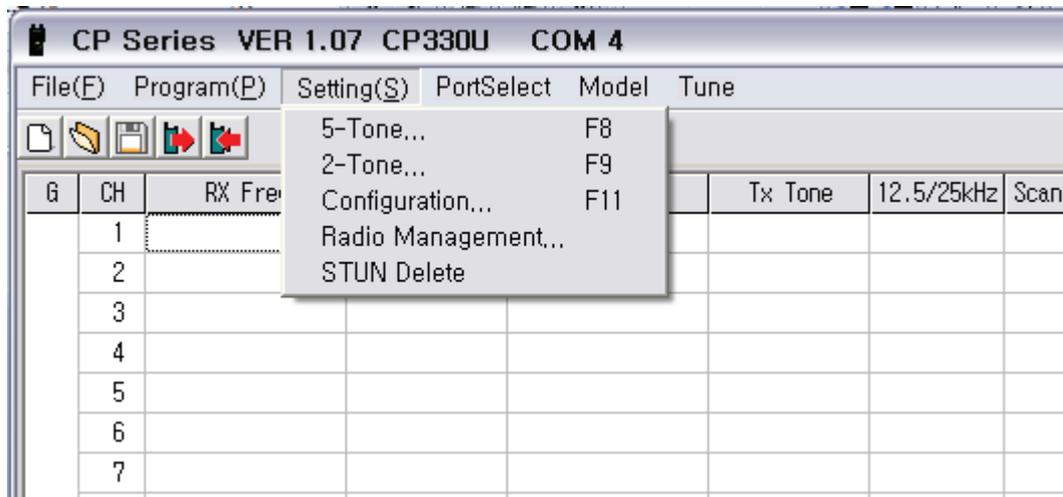
If the data already exists, the data is not changed automatically.



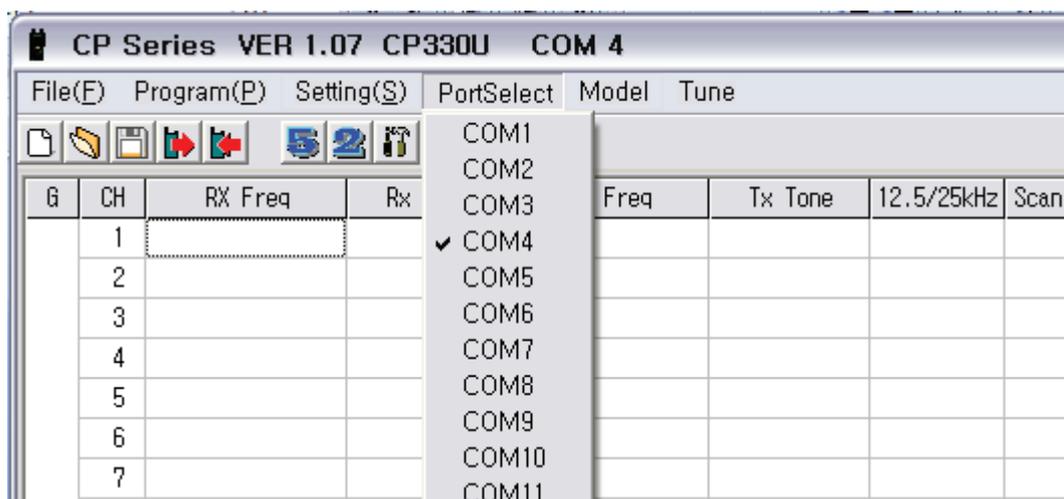
- **New** : Erase the stored data and return to the initial stage.
- **Open File** : Read the data of group and channel, etc stored in \*. xpfre file.
- **Save File** : Store the data in \*. xpfre file.
- **Print** : Print the value of data displayed on the screen.



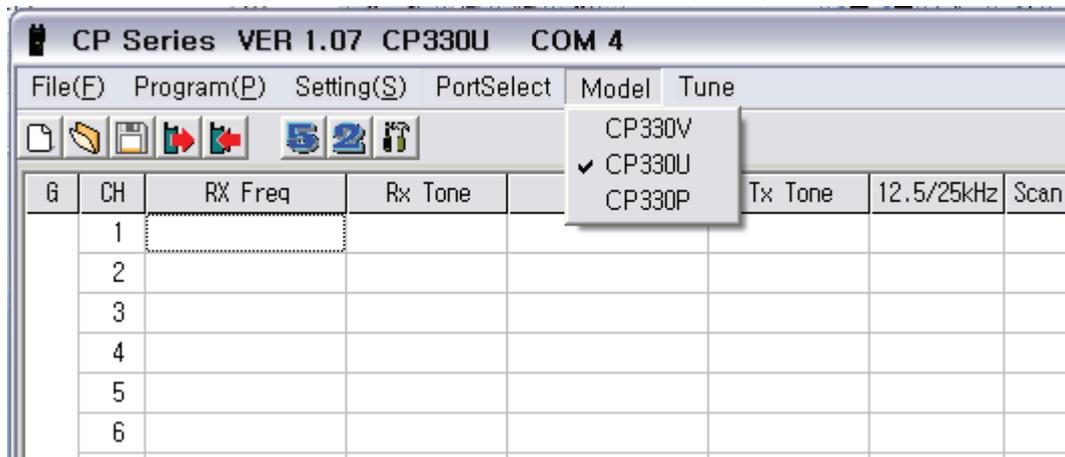
- **Auto Frequency** : Use in case of making consecutive frequency input.
- **Read Radio** : Read the data stored in Radio.
- **Write Radio** : Write in Radio the data displayed on the screen.



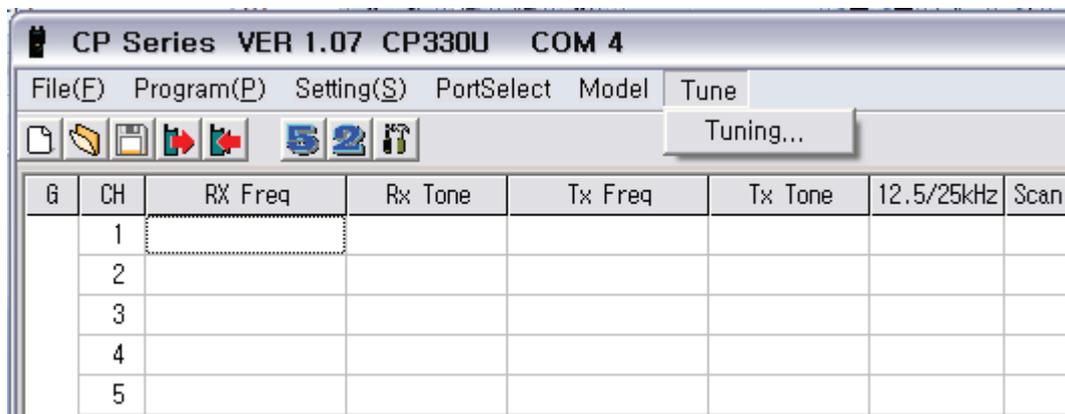
- **5Tone** : Set up the ID and the others related with 5Tone.
- **2Tone** : Set up the ID and the others related with 2Tone.
- **Configuration** : Set up the contents related with the operation of Radio.
- **STUN Delete** : Return to the normal mode after UNSTUN of STUN Radio.



**PortSelect** : Make Comport setting and the Comport supports up to max.24numbers.



- **Model** : Select a Model, CP-330V, CP-330U and CP-330P. The frequency range is 136~174MHz for CP-330V, 405~470MHz for CP-330U and 350~390MHz for CP-330P.



- **Tuning** : End-Users can not use this Tune Mode and this is for manufacturer & A/S center.

## 8.3 Auto Frequency

**Auto Frequency**

Auto Frequency

Group

Start Channel

End Channel

Start Frequency  MHz

Frequency Interval  KHz

OK

This screen is for the convenience of user and the user can use this screen in convenience when he want to input in a regular frequency spacing after group setting.

- **Group** : Designate the group to make frequency input.
- **Start Channel** : Designate the channel# 1 on the frequency screen.
- **End Channel** : Designate the channel to be stored at the end on the frequency screen.
- **Start Frequency** : Designate the frequency to be stored at the first.
- **Frequency Interval** : Designate the spacing between frequencies to be stored consecutively.

## 8.4 5 Tone

**5 TONE Setting**

Format | Type | Response | Option | STUN

**5Tone Kind** CCIR

Lead In Delay Time 300 msec(10~1000)

First Tone Time 100 msec(10~3000)

Next Tone Time 100 msec(10~1000)

Lead Out Delay Time 300 msec(10~1000)

**5Tone ID**

NO	ID
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

RADIO ID  OK

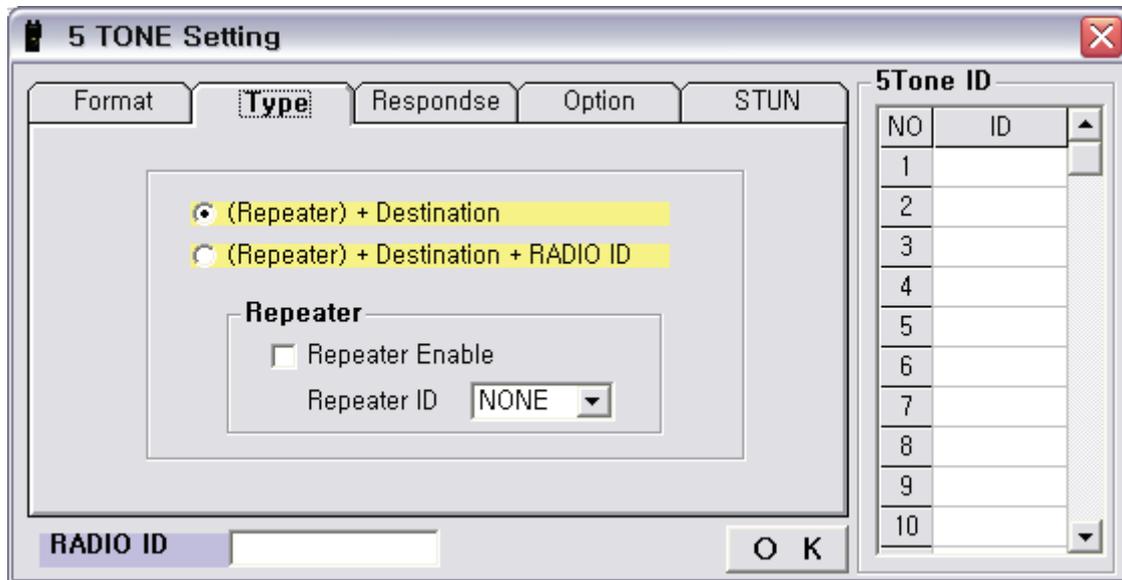
# 8

# PROGRAM INSTALLATION

- It is possible to input the 5Tone IDs up to max. 30 numbers.
- It is possible to input ID in 2~7 digits.
- It is possible to use the ID of 'A' which has the meaning of all.

Among the 30 IDs in My Radio ID, you can choose the ID number you want to use and please make sure to designate your own ID to operate the 5 Tone with no problem.

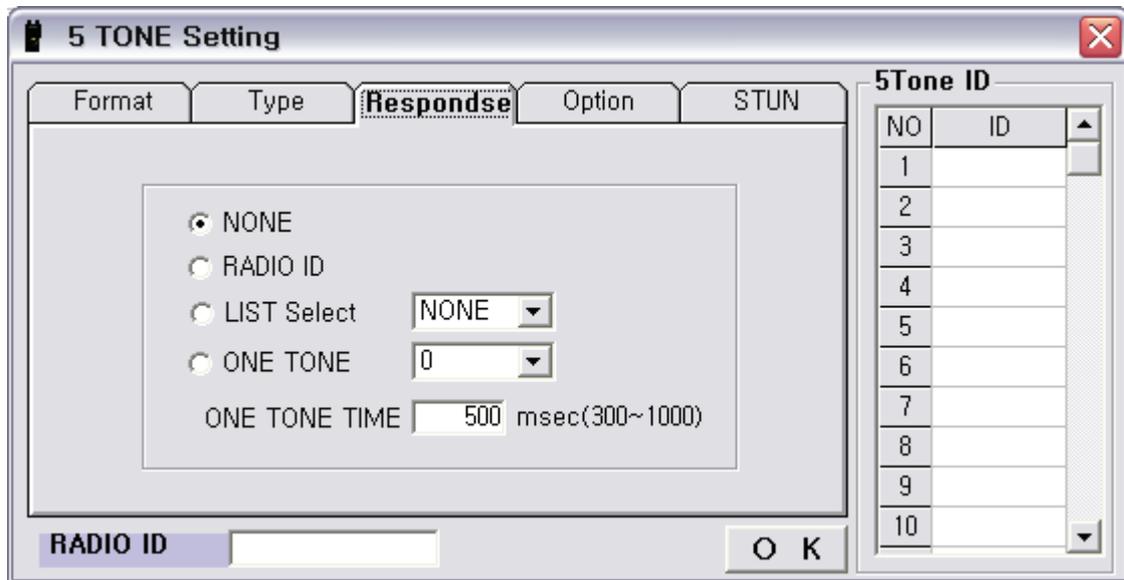
- **5TONE Kind** : Select 5TONE standard set.
- **Lead In Delay Time** : This is the delay time from when the TX of 5TONE ANI or 5TONE CALL is requested to when the first signal is generated.
- **First Tone Length** : This means the time when the first tone out of 5 tone signals is generated.
- **Next Tone Length** : This means the tone generation time each of the remaining 4 tones.
- **Lead Out Delay Time** : This is the delay time between the transmission of 5TONE ANI or 5TONE CALL and the following operation.



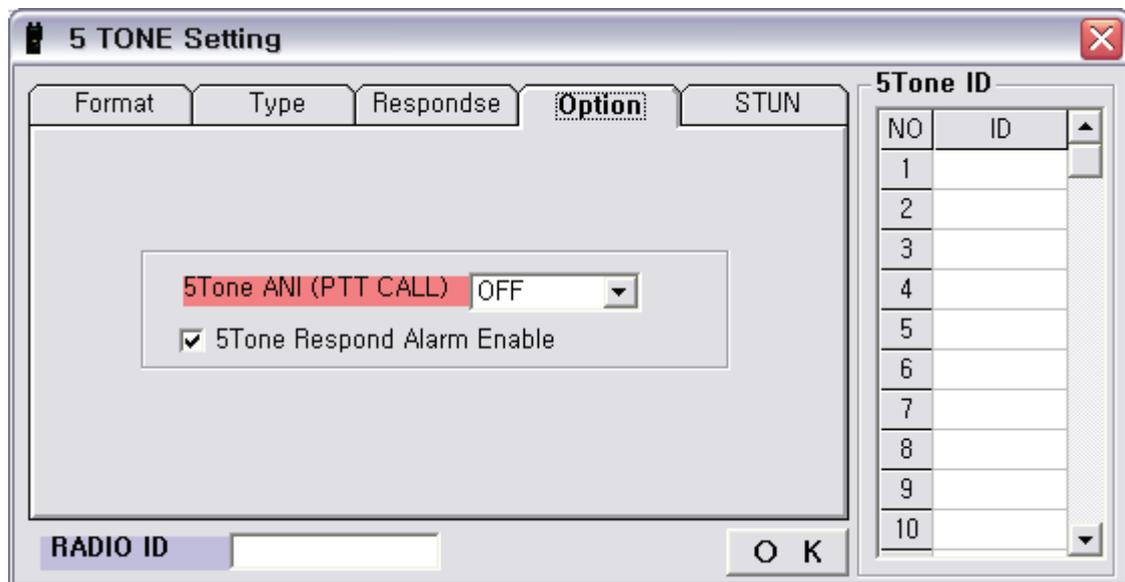
**Type** is screen for selection of transmission method.

Either TX of your party's ID only or your party's ID + Radio ID(your ID), you can select.

Also, it is possible to transmit by selecting Repeater ID(select from LIST by using Combo box).

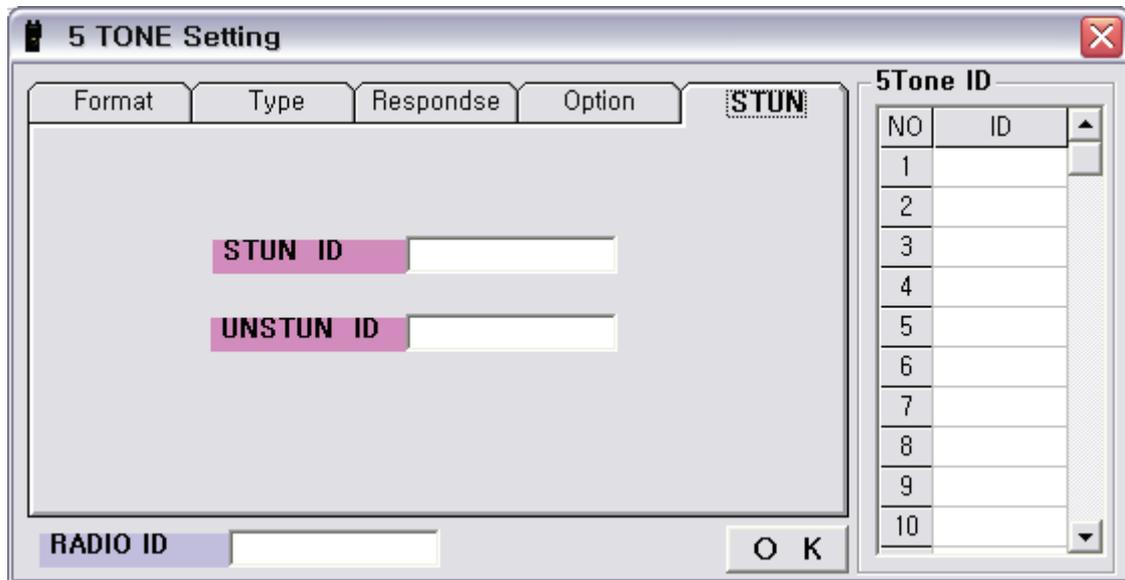


**Response** is the function for setting of the response signal when receiving 5Tone CALL from your party, and after selection from the various IDs, you can make a response.



**Option** is the function for setting of transmitting the designated RADIO ID(your ID) when pressing the PTT button at the general RX mode. There are the 3 setting methods of Before TX / After TX / OFF.

5Tone Respond Alarm Enable is the function for setting of Alarm ON or Alarm OFF when Radio receives a CALL signal.



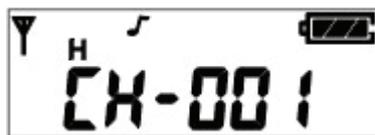
**STUN** function is used when using STUN / UNSTUN ID.

STUN / UNSTUN ID is made in 2~7 digits.

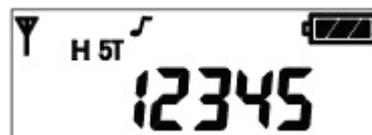
After setting of the above menu, select CALL mode. Then, it is possible to make a personal call and a group call by using 5TONE and each CALL memory has the CALL IDs up to 30 numbers.

The setting of CALL memory and 5TONE is made by PC Programming.

If pressing the “Enter” button for 2 seconds at the general mode, the mode is converted to CALL mode. If you press the channel button(▲,▼) at the CALL mode, the display shows the CALL number of the current available CALL channel.



(Figure 8-1) General Mode



(Figure 8-2) Call Mode

#### 8.4.1 1:1 Call at call mode

Press the “Enter” button for a long period (about 2 seconds) at the general mode in order to enter into the call mode.

- 1) Select your party to call by using the channel buttons(▲,▼). If you (ID : 12345) want to call your party(ID : 54321), select him(ID : 54321) by using the channel buttons(▲,▼) at the call mode.



Figure11-3) Set-up of your party's ID 54321

- 2) You can call the party(ID : 54321) by pressing the “P” button and the Radio(ID : 54321) which received the call signal is operated by 2 methods as follows.

If the TX Radio is set up with (Repeater) + Destination + RADIO ID, the RX Radio shows the party's ID(12345) on the LCD.

But if the TX Radio is set up with (Repeater) + Destination, the RX Radio shows your own ID(54321) on the LCD.

Even though your party's Radio is in general mode, the Radio will be converted to the call mode automatically after receiving a call.



(Figure 8-4) Display shown on the RX Radio when transmitting with (Repeater) + Destination + RADIO ID

- 3) After the call is completed, the Transmission and the Reception can be made by PTT at the same method as normal call.
- 4) If pressing the “Enter” button for a long period (about 2 seconds), the release is made with a Beep sound.
- 5) Also, if pressing and depressing the “M” button at the side within 2 seconds, the release signal of **5Tone** is transmitted.

#### 8.4.2 Group(1:N) Call at call mode

- 1) In order to make the Group call at the call mode, the following should be set up at the PC Programming.
- 2) If the 1<sup>st</sup> party(ID:13579) and the 2<sup>nd</sup> party(ID:12468) are in one group, the “1AAAA” which is a call number / call name is allocated. (“A” means that all the numbers are applied.)
- 3) If the caller makes a call to the 1<sup>st</sup> party & the 2<sup>nd</sup> party at the same time, the caller's Radio selects the parties with ID “1AAAA” and by pressing the “P” button on the Radio, the 1<sup>st</sup> & 2<sup>nd</sup> party's Radios display ID:1AAAA. After the call is completed, the Transmission and the Reception have no restriction, which means that the RX/TX will be free.



(Figure 8-5) Group Call of Radio (after receiving a call)

### 8.4.3 RESET

If you want to finish the call after completing the call mode, please use the following methods.

- 1) At the Call mode, press and depress the Monitor button **(M)**. (The call signal will be transmitted to the party's Radio with the "C" tone at the end of the party's ID number.)

	Radio 1	Radio 2	Radio 3
RADIO ID	12345	12349	67890
LIST	<b>12345</b> 12349 1234A 67890	<b>12349</b> 1234A	<b>67890</b> 12345

#### Example of Personal Call

If **Radio 1** makes a call to Radio 2 with Radio ID of **12349** in the LIST, **Radio 2** recognizes the ID and responds to the call. But **Radio 3** doesn't respond to the ID because it is not his ID.

If **Radio 3** makes a call to Radio 1 with Radio ID of **12345**, **Radio 1** recognizes the ID and responds to the call.

At the **Radio 2**, there is not the same ID in the LIST but since the group ID of 1234A exists in the LIST, the screen displays the ID.- **Group Call Concept**

#### Example of Group Call

If **Radio 1** makes a call to Radio 2 with Radio ID of **1234A** in the LIST, **Radio 2** recognizes the ID and responds to the call. But **Radio 3** doesn't respond to the ID of **1234A** because it is not included in the Group.

## 8.5. 2Tone

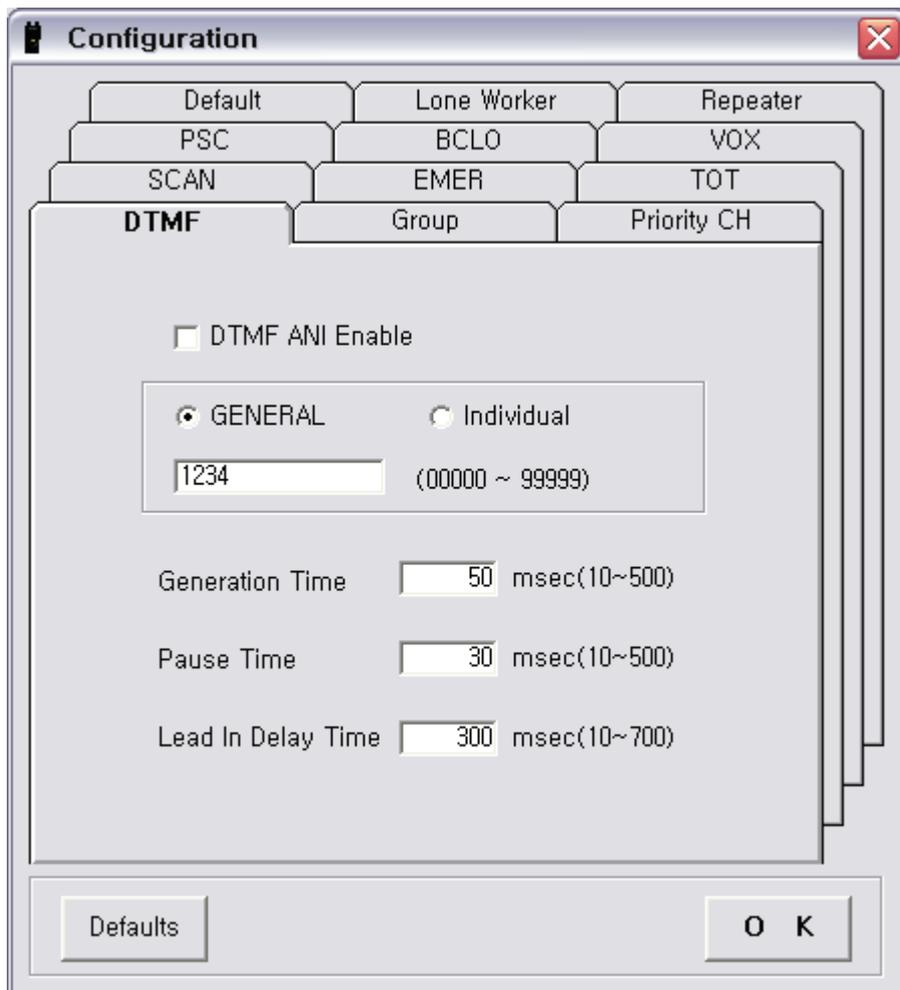
The screenshot shows a dialog box titled "2 Tone Setting" with three main sections: "Super Group Tone" (red border), "Group Tone" (yellow border), and "Individual Group Tone" (green border). Each section contains two tone settings (Tone 1 and Tone 2). For each tone, there are fields for Frequency (Hz), Margin (%), and Duration (msec). The "Super Group Tone" section has a red border and contains Tone 1 (Frequency: 500 Hz, Margin: 1.0%, Duration: 1000 msec) and Tone 2 (Frequency: 1000 Hz, Margin: 1.0%, Duration: 3000 msec). The "Group Tone" section has a yellow border and contains Tone 1 (Frequency: 500 Hz, Margin: 1.0%, Duration: 1000 msec) and Tone 2 (Frequency: 1000 Hz, Margin: 1.0%, Duration: 3000 msec). The "Individual Group Tone" section has a green border and contains Tone 1 (Frequency: 500 Hz, Margin: 1.0%, Duration: 1000 msec) and Tone 2 (Frequency: 1000 Hz, Margin: 1.0%, Duration: 3000 msec). Each tone section also includes an "Enable" radio button (selected) and a "Disable" radio button. An "OK" button is located at the bottom center of the dialog.

The 2 Tone consists of Super Group Tone/ Group Tone / Individual Group Tone.

- Each Group Tone consists of Tone1 and Tone2.
- Tone2 can do Enable/ Disable.
- Frequency input is between 280~3000Hz.
- Margin can be selected between 0.5 ~ 10.0.
- Duration means Tone generation time and it is possible to input the duration directly.

## 8.6 Configuration

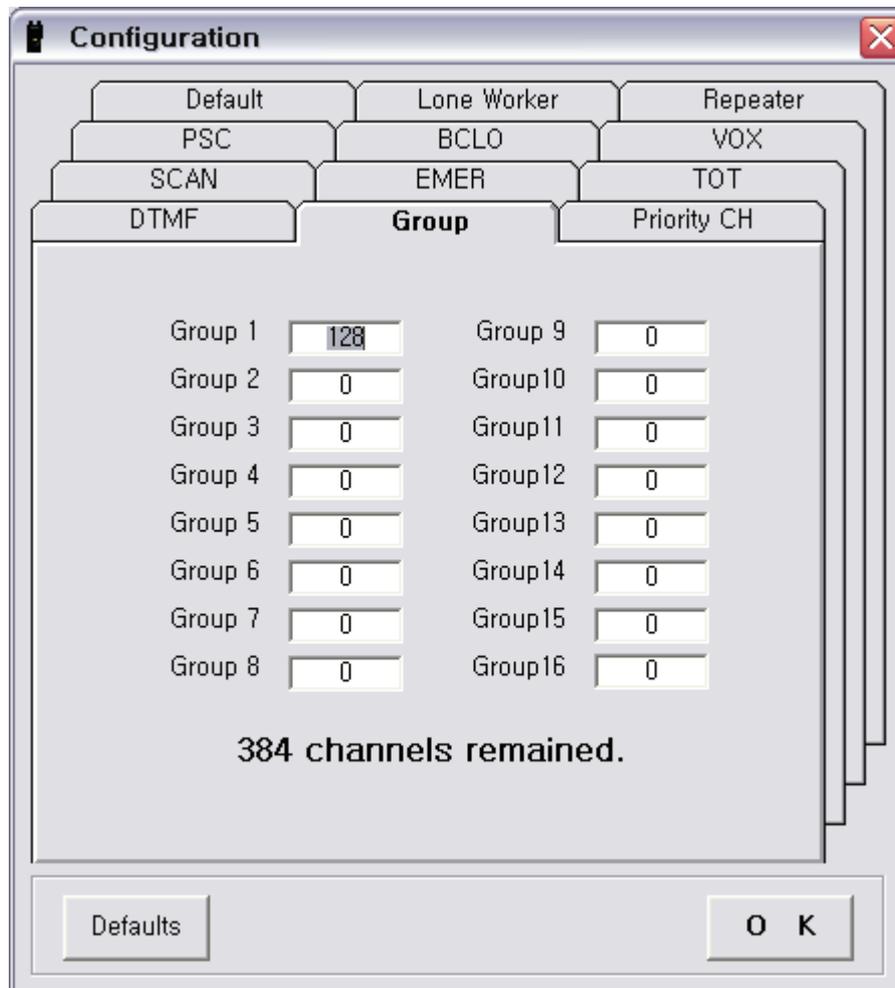
## 8.6.1 DTMF



If end-user presses the PTT switch, the TX is started and at that time, introduce the setting method of DTMF ANI.

- **DTMF ANI Enable** : When starting the TX of DTMF ID, decide yes or no of transmission.  
Make input of DTMF ID.
- **Generation Time** : It is the time for generation of DTMF ID signal of one digit.
- **Pause Time** : It is the time to make no signal between DTMF ID and ID.
- **Lead In Delay Time** : It is the delay time from when DTMF ID is requested to be generated to when the first signal is generated.

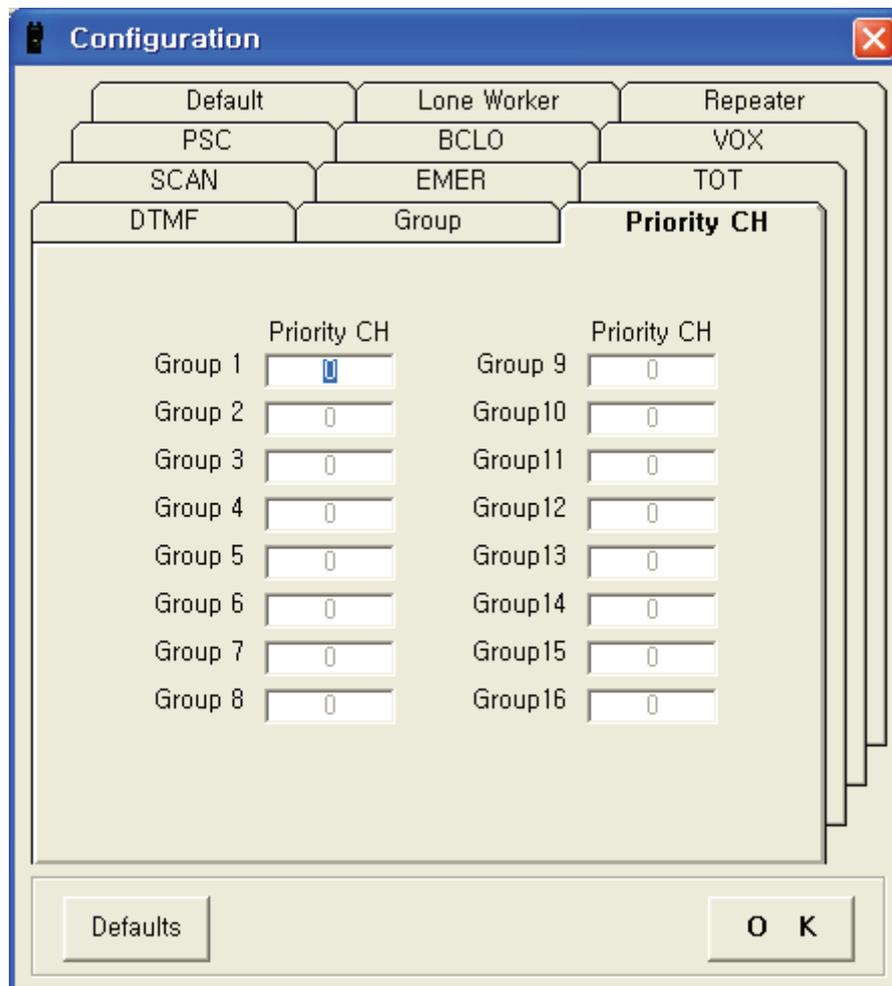
## 8.6.2 Group



This Radio is designed to use 16 Groups and 512 Channels.

It means that one Group can use up to max.512 Channels and if the 512 Channels are divided by 16 Groups, each Group can use 32 Channels.

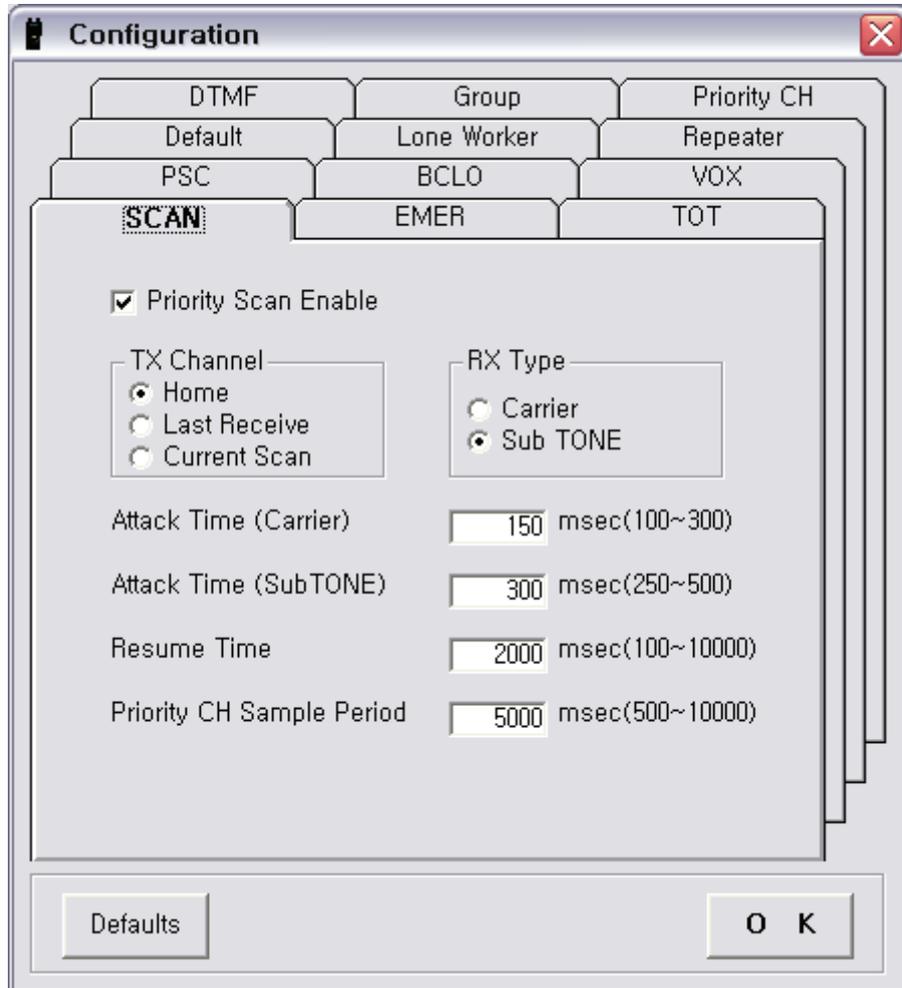
## 8.6.3 Priority CH



The above window is for setting the Priority Scan Channel of each Group.

Only the Group with the allocated channel is activated and editable, and when channel setting, only the channel which is set up as scan channel can be Priority Scan Channel.

## 8.6.4 SCAN



The above window is related to the setting of Scan operation.

The Scan List of Scan Channel is registered by setting the SCAN to “Yes” at the frequency input window.

- **Priority Scan Enable** : Decide whether to use the Priority Channel scanning method or not when operating scanning.
- **TX Channel** : In case of making transmission during scanning, set the TX Channel.
- **Home** : The channel before starting scanning is Home channel.
- **Last Receive** : During scanning, transmit the last channel which is received.
- **Current Scan** : Transmit the channel being scanned at present.
- **RX Type** : During scanning, set the condition to stop scanning.
- **Carrier** : If the frequency is matched, the reception is made after the stop of scanning.

- **Sub TONE** : The matching of both frequency and sub-audio makes it possible to receive after the stop of scanning.
- **Attack Time(Carrier)** : It is the time for checking whether a suitable carrier exists or not.
- **Attack Time(Sub TONE)** : It is the time for checking whether Sub-audio is matched or not.
- **Resume Time** : It is the time for checking whether after Carrier or Sub-Tone is matched, or RX is completed, the following signal exists or not without moving to the next channel.
- **Priority CH Sample Period** : It is the interval for regular checking of priority channel when during priority scanning, the scanning stops in a normal channel and when user wants to check the call status during conversation.

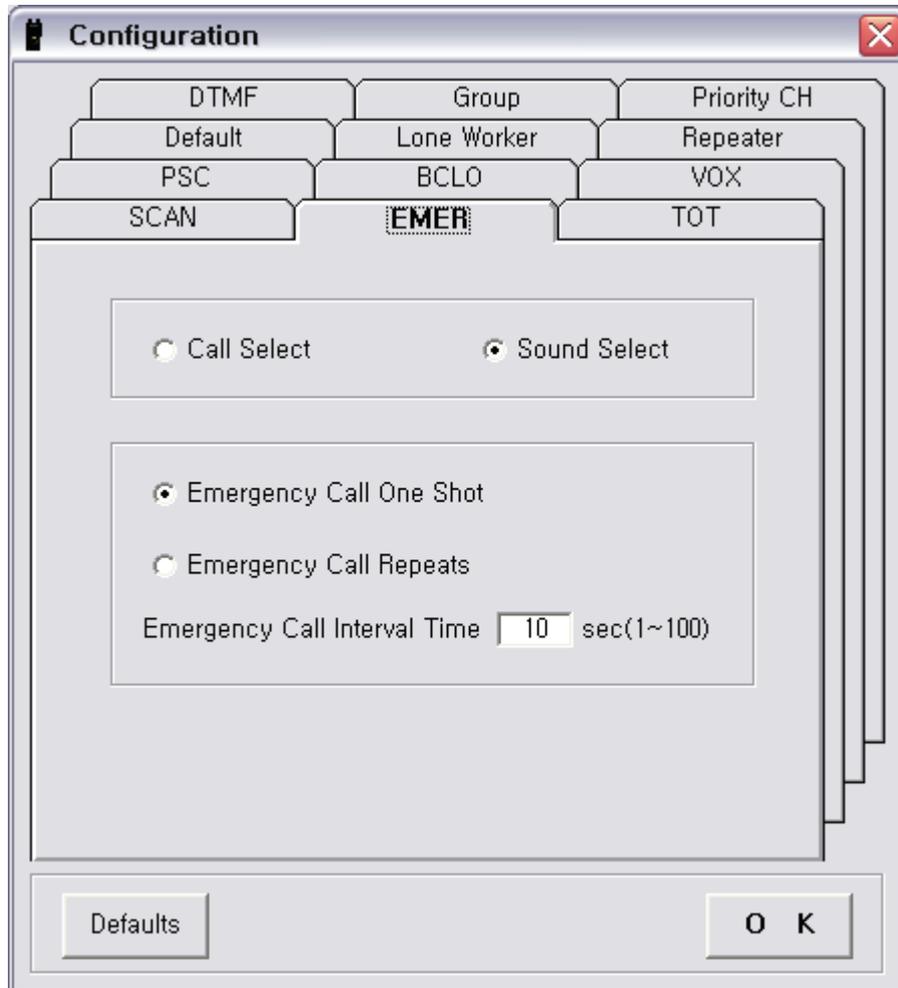
👁 1) During scanning, if the Radio which is set up in Carrier Type receives No Tone(matched) Carrier, the Audio is not opened and the status indication LED blinks in green color during the Resume Time, which means the scanning will be started.

👁 2) If the Radio registered in scan list channels 1, 2, 3, 5, 7 receives an unwanted signal at channel#3 during scanning, press "ENTER"key. Then, the channel#3 will be deleted from the scan list.

If you want to return to the channel#3 in scan list,

- ① turn  $\Gamma$  turn on again after the power off.
- ② turn on again after the scanning off.

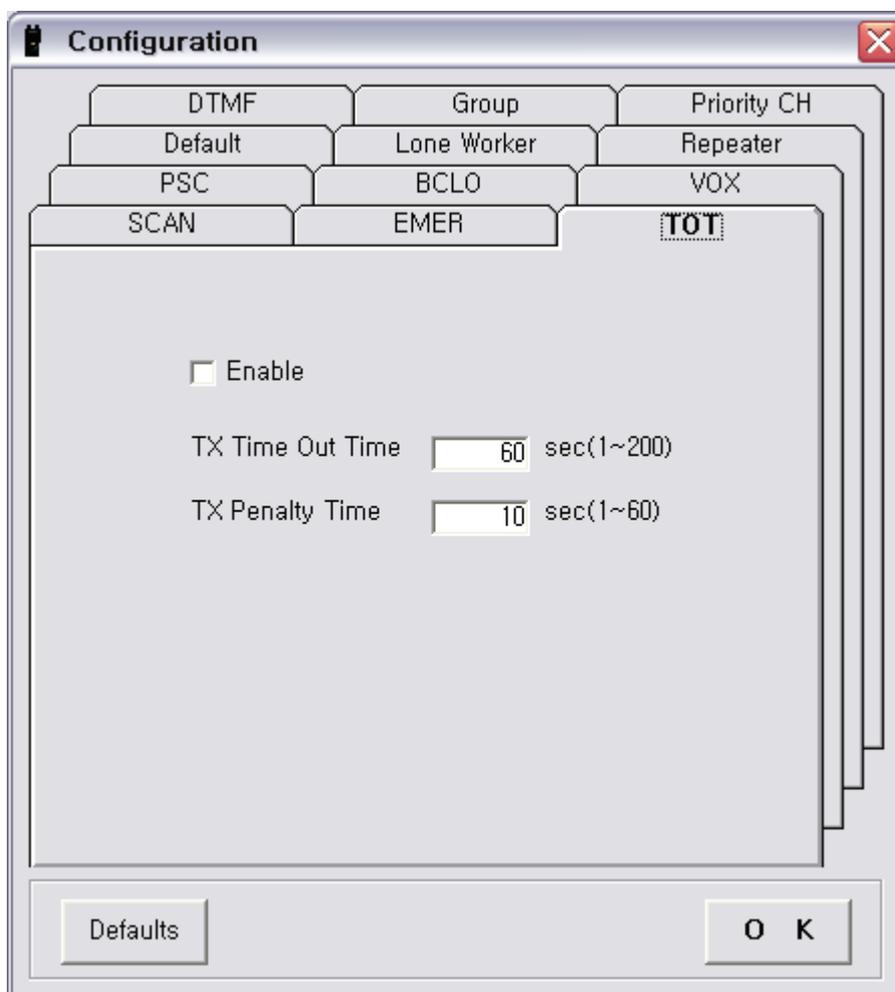
## 8.6.5 EMER(Emergency)



This is related to the setting of Emergency Call.

- **Call Select** : Transmit an emergency call signal to the party by using 5Tone.
- **Sound Select** : Generate emergency call sound through the speaker in the Radio.
- **Emergency Call One Shot** : Transmit a signal in one time when making emergency call.
- **Emergency Call Repeats** : Transmit emergency call signal repeatedly per a fixed time when making emergency call.

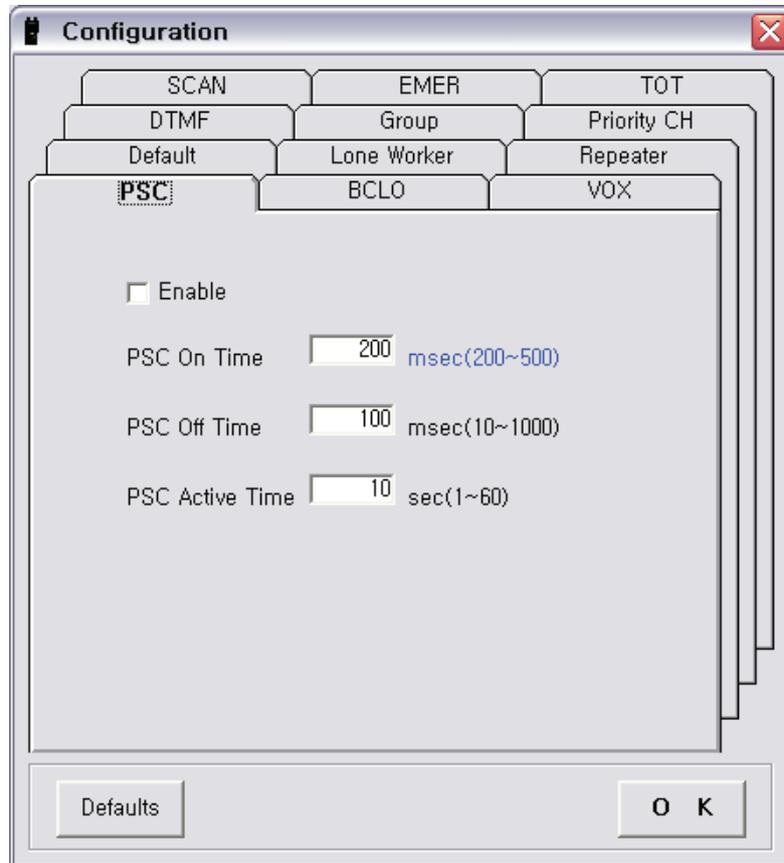
## 8.6.6 TOT (Time Out Time)



This is related to **TOT(Time Out Time)** for prevention against one user's continuous transmission. If a Radio exceeds the TOT time, **Tx Penalty Time** will be applied and the transmission will be automatically stopped.

- **Enable** : Decide whether the TOT will be used or not.
- **TX Time Out Time** : This is the available maximum transmission time when the TOT is applied.
- **TX Penalty Time** : This is the penalty time for transmission prohibition when the TOT time is exceeded.

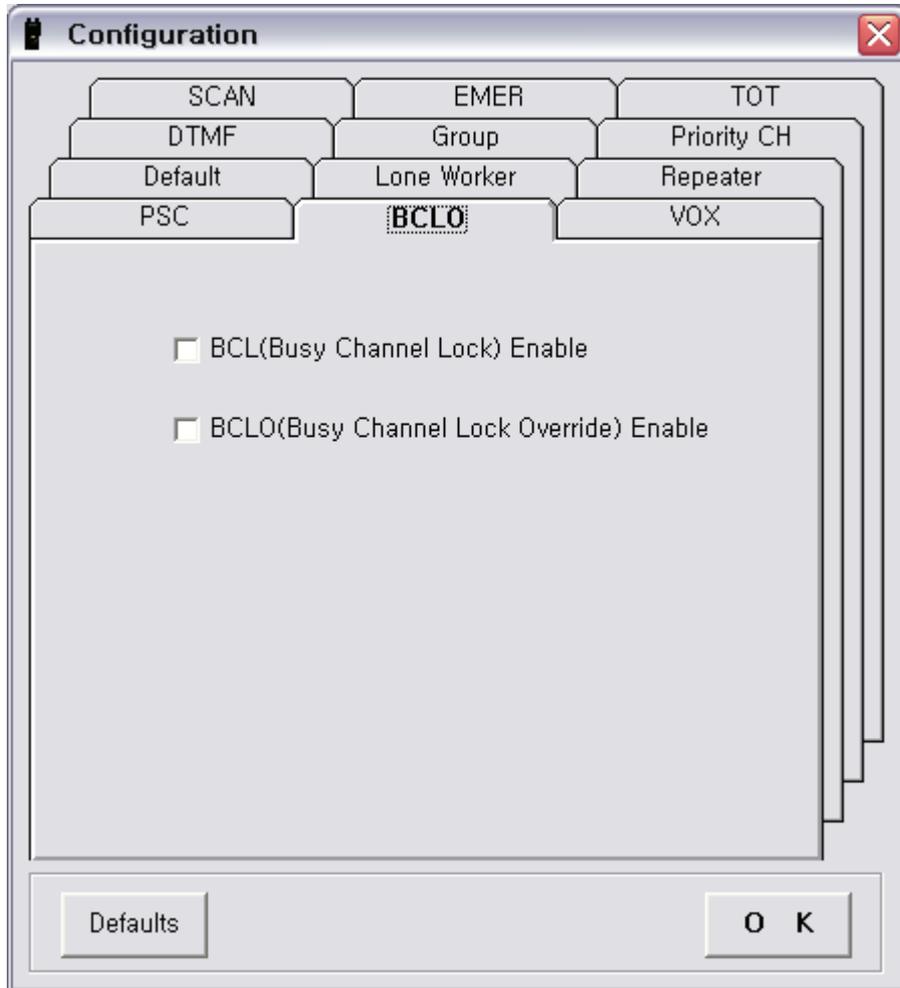
## 8.6.7 PSC (Power Save Control)



This is the setting method for reduction of battery consumption current in order to use the battery of Radio for longer period.

- **Enable** : Decide whether the PSC will be used or not.
- **PSC On Time** : This is the time when the reception terminal is turned on during the operation of PSC.
- **PSC Off Time** : This is the time when the reception terminal is turned off during the operation of PSC.
- **PSC Active Time** : This is the time when the PSC operation is started after completion of the below operations.
  - After transmission is finished
  - After reception is finished
  - After the channel is changed
  - After the other operations are completed

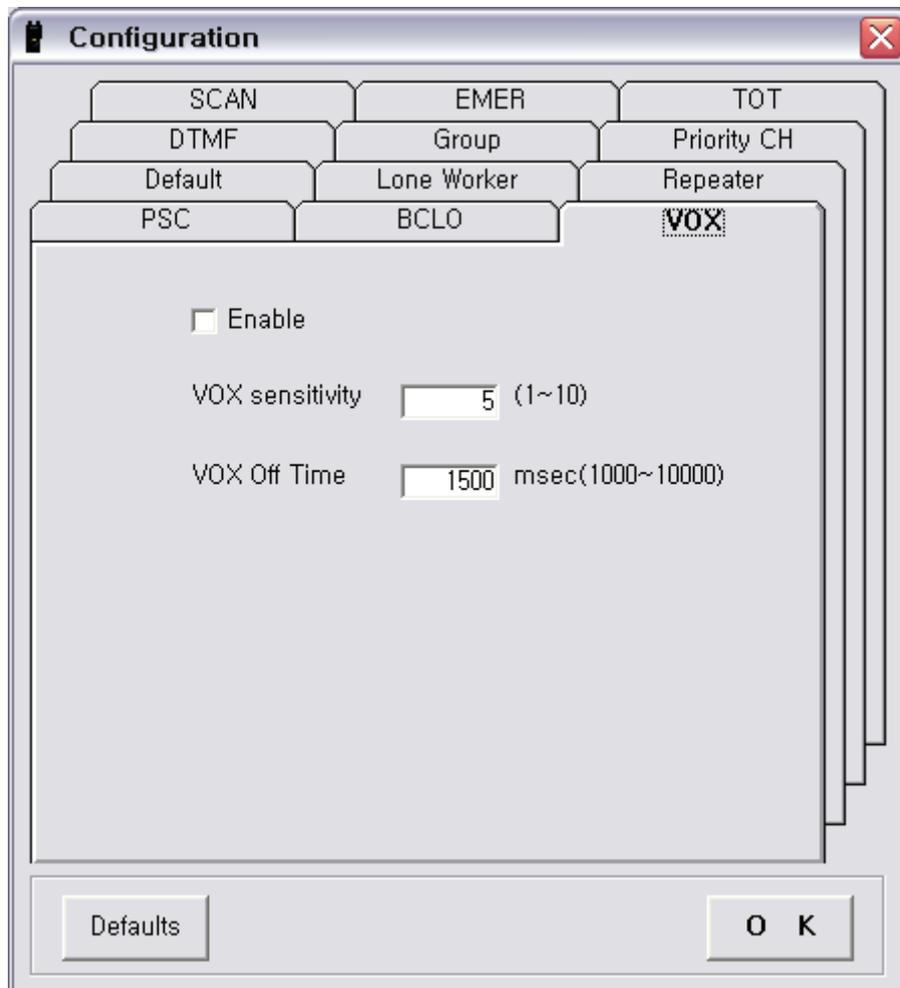
## 8.6.8 BCLO (Busy Channel Lock Override)



Not to interrupt other users using the same frequency, the user can change the BCL (Busy Channel Lock)/BCLO(Busy Channel Lock Override) which limit transmission.

Carrier	Receive	CH-set	Tone Match	BCL	BCLO	TX
ON	-	No Tone	-	ON	OFF	×
					ON	
					OFF	×
	Tone	Tone	Match		ON	
					OFF	×
					ON	×
				OFF	-	
OFF	-	-	-	-	-	

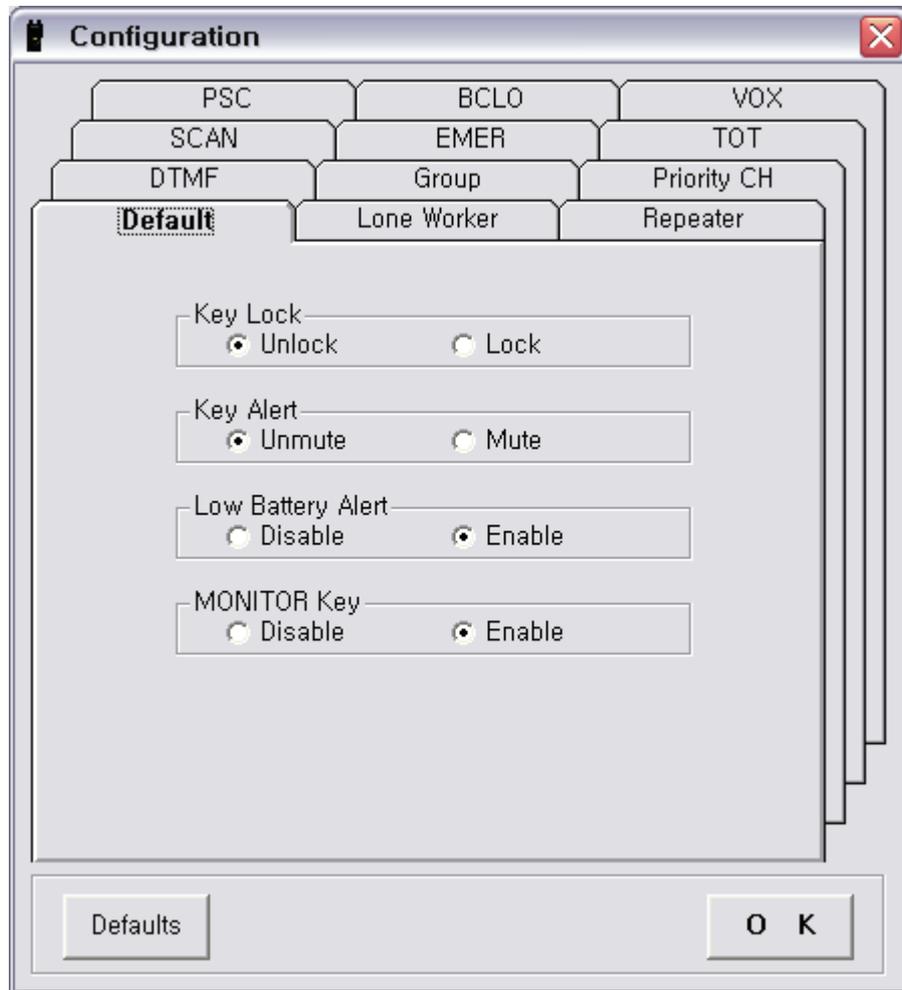
## 8.6.9 VOX (Voice Operation Transmit)



This is related to VOX which recognizes and transmits the audio signal inputted through microphone.

- **Enable** : Decide whether the VOX will be used or not.
- **VOX Sensitivity** : Decide the sensitivity of VOX transmission on input signal.
- **VOX Off Time** : In order to improve the cut-off problem when VOX transmission, the Radio is designed to stop the transmission in case of no constant audio signal during the VOX Off Time after PTT is pressed.

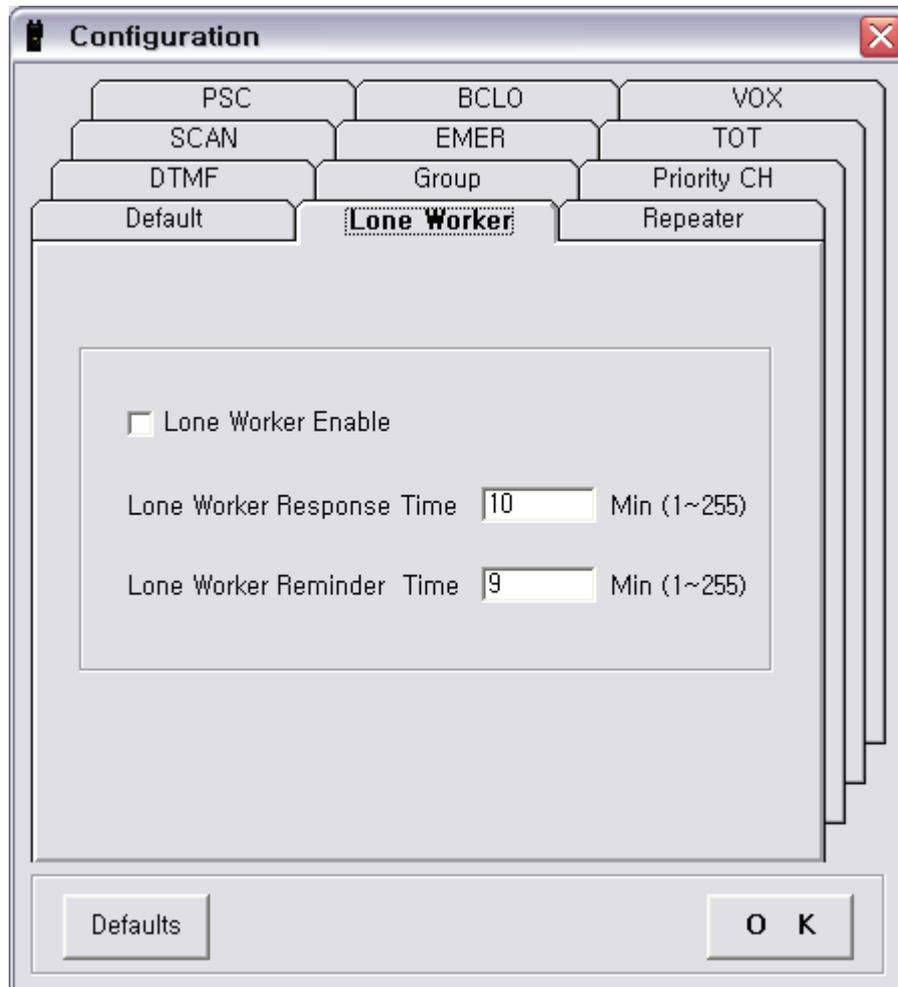
## 8.6.10 Default



The user can change the selected data of each Flag related to the Radio operation.

- **Key Lock** : Decide whether the Key operation needs to be prohibited or not.
- **Key Alert** : Decide whether the Key alert is needed or not.
- **Low Battery Alert** : Decide whether when the battery voltage is low, the Low Battery Alert is needed or not.

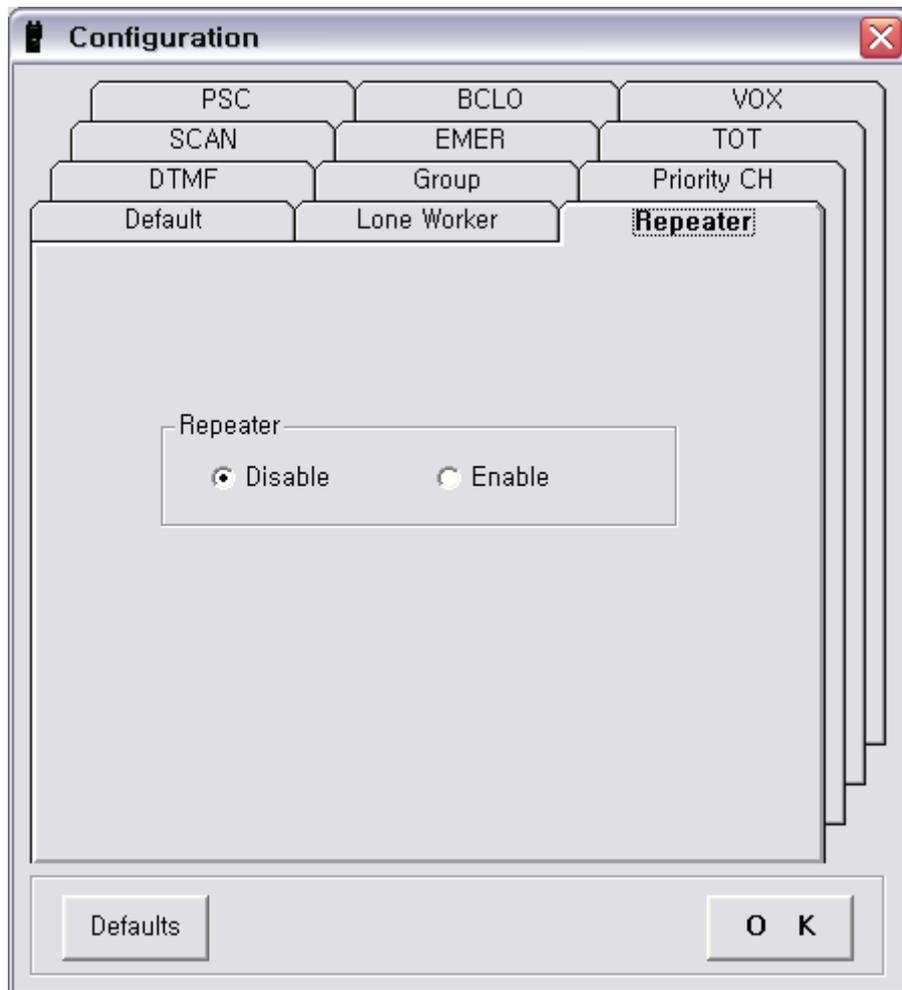
## 8.6.11 Lone Worker



If not pressing the designated button within a period of time(Lone Worker Response Time) when night patrol or guarding, the Radio recognizes as an emergency situation and makes the emergency call automatically.

- **Lone Worker Enable** : Decide the Enable or the Disable of this function.
- **Lone Worker Response Time** : This is the time for recognition of emergency situation.
- **Lone Worker Reminder Time** : This is the interval time of alert for reminding the status of Lone Worker.

## 8.6.12 Repeater

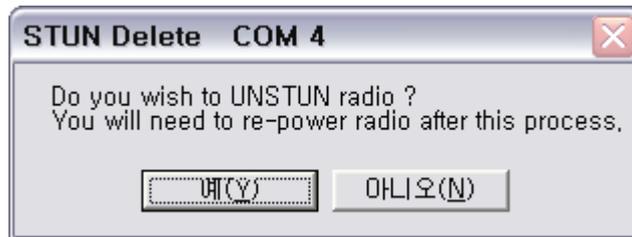


This is the function for using the Radio as a Repeater.

The Enabled Repeater activates the Repeater function at the Menu of Radio.

### 8.7 STUN Delete

If making deletion of the STUN designated in the Radio without moving to a separate screen, the Radio is converted to the normal mode.

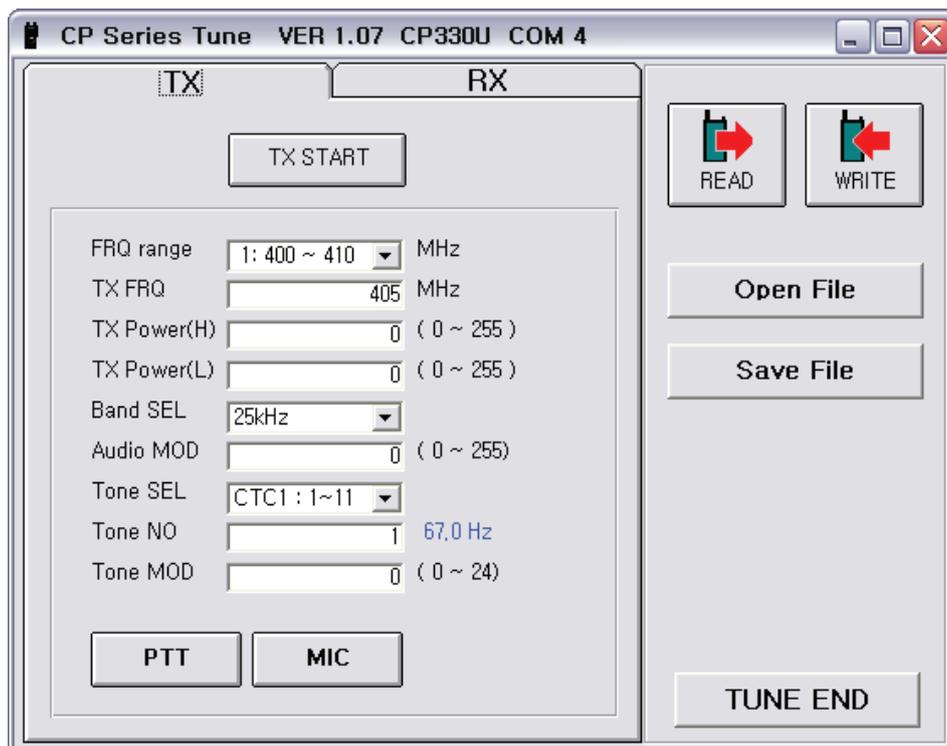


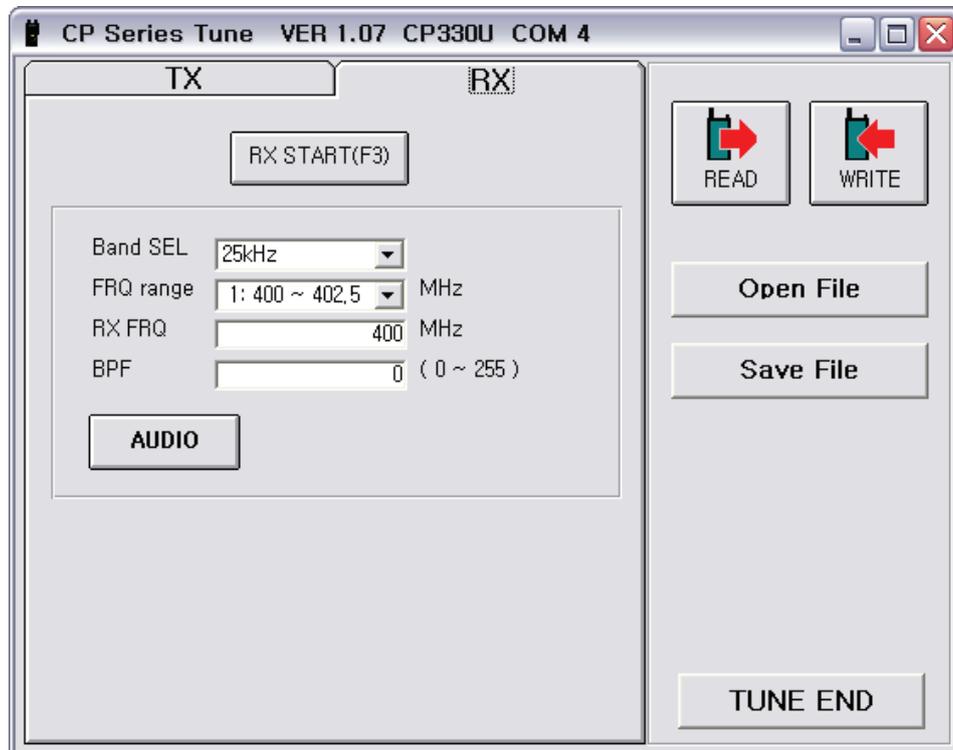
### 8.8 Tune Mode

Tune mode is for adjustment of Radio performance and it adjusts the TX output power, the Audio modulation, the Sub-tone modulation and the BPF of RX Front-end, etc. The TX characteristics are divided into 8 levels as per each frequency range and in case of CTCSS, the TX characteristics are divided & adjusted by 3 levels within one frequency range.

If the equipment is used in 12.5/25KHz, the Audio modulation, the Sub-tone modulation, CTCSS, and DCS should be adjusted each in narrow band(12.5KHz) and wide band(25KHz).

The RX BPF is divided into 32 levels as per the frequency range and the BPFs should be adjusted in one band out of the narrow band and the wide band.





- **Read** : Read the data saved in Radio.
- **Write** : Write the data displayed on the window to the Radio.
- **Read File** : Read the data saved in the \*. xptun file.
- **Write File** : Save the data in the \*. xptun file.
- **TX START** : Test the performance related to transmission.
- **PTT** : Turn on and off the TX power output.
- **MIC** : Open or close the route of microphone input signal.
- **RX START** : Test the performance related to reception.
- **Audio** : Turn on and off the RX audio signal output.

### 8.8.1 Tuning Process

1) First, read the Tuning data saved in Radio.

Press the 'TX START' button for tuning of TX performance and press the 'RX START' button for tuning of RX performance.

Move to the next step by using the mouse or the 'SPACE' key.

After the above, make sure to press the 'ENTER' key. If the 'ENTER' key is pressed, the current items will be activated to be able to adjust and then, make adjustment.

The change of Tuning value can be made by Up arrow key / Down arrow key or by direct input.

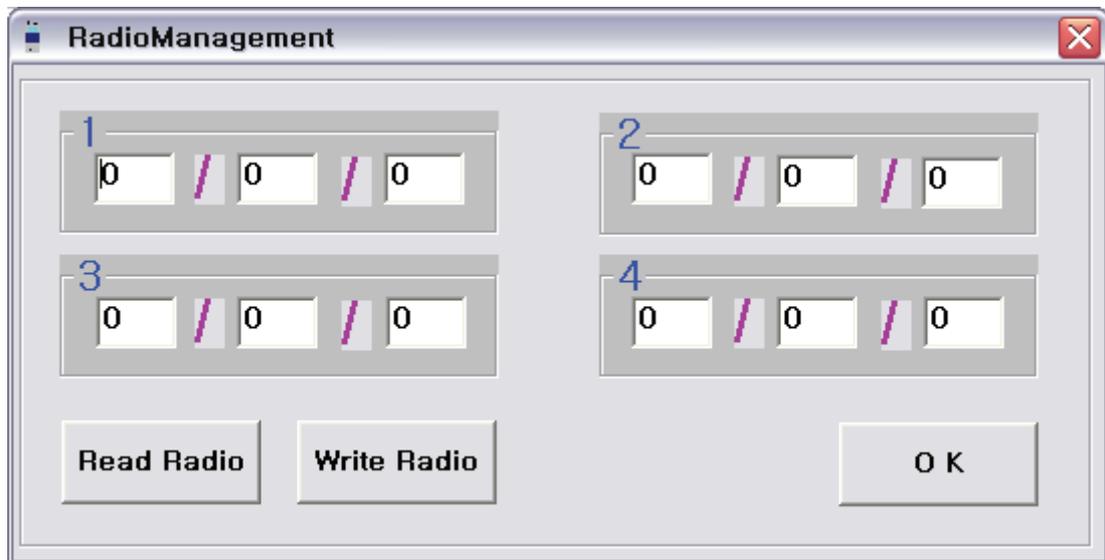
The Tuning procedure should be proceeded in the above sequences but if pressing the 'ENTER' key even at any step, the Tuning can be made at the present step.

After completing the Tuning, the changed values can be saved in the Radio.

Note : After pressing the 'ENTER' key, the Packet transmission is made in several times between PC and Radio and the next step is proceeded after a little waiting time.

**Caution : The Tuning is related directly to the performance of Radio and so, the execution should be proceeded very carefully.**

## 8.9 Radio Management Window



The above window shows the information and records for management of each Radio.

It is possible to save the information for total 4 kinds of year/month/date.

- **Radio Write** : This function is for saving only the contents on this window separately to the Radio. Of course, you may execute the 'Radio Write' at the frequency window.
- **OK** : Move to the frequency window.





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