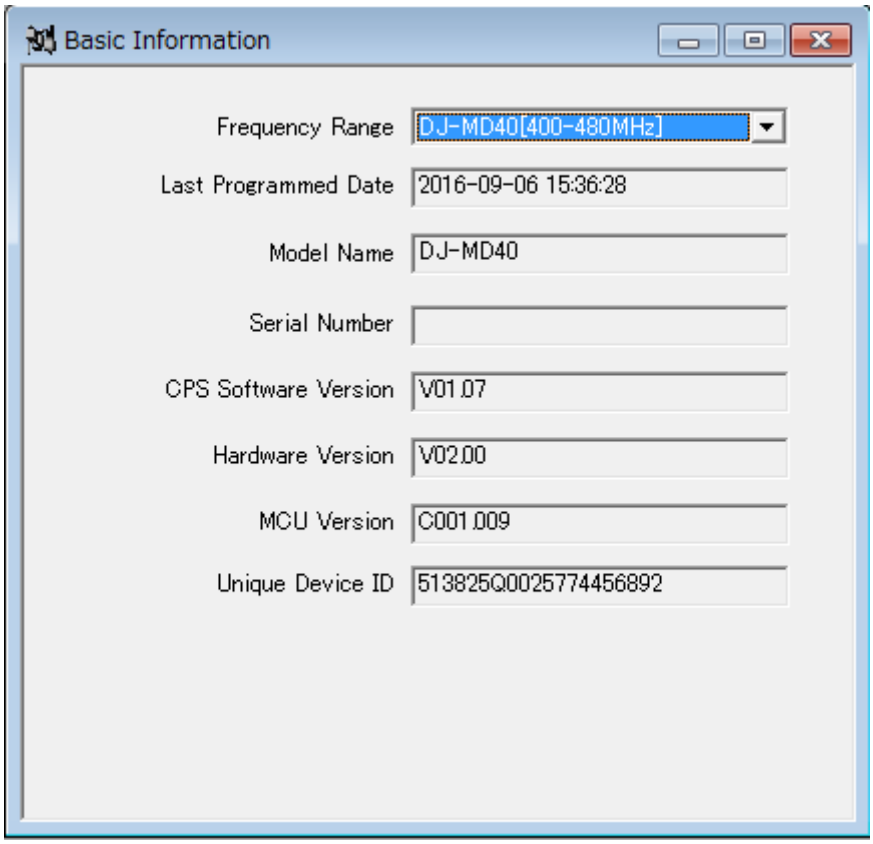
DJ-MD40

Help

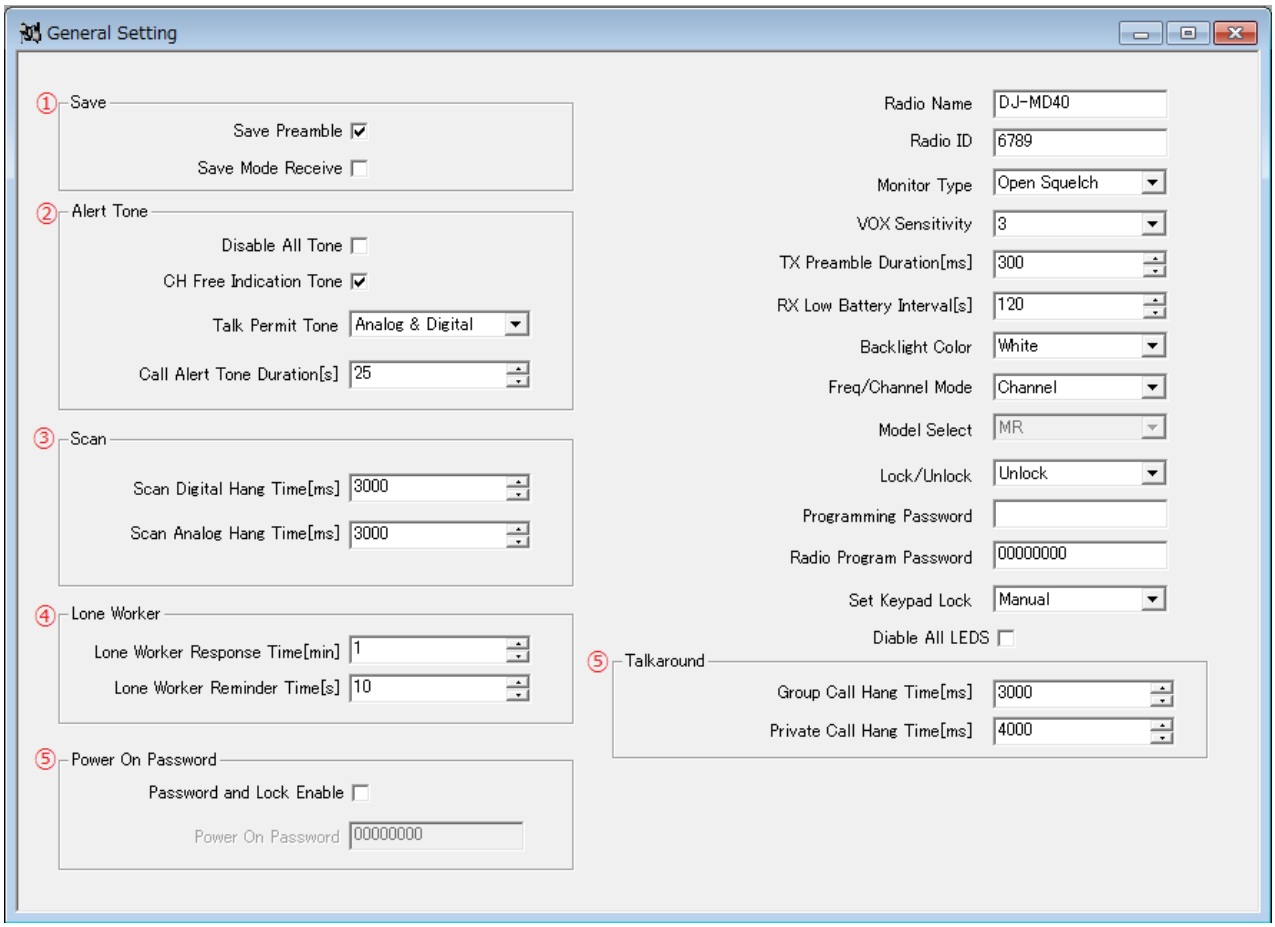
Ver, 1.00 2016/09/07

I. Basic Information



Frequency Range This option indicates the radio's frequency range. The range is defined as being between, or equal to, the minimum and maximum frequencies, at which the radio is allowed to operate.
Last Programmed Date This option indicates the last date on which the radio was programmed.
Model Name This option displays a string of alphanumeric characters and numbers to represent the model information of the radio.
Serial Number This option displays a serial number that identifies the radio. Via the Serial Number, other radio information is available such as model, production data, etc.
CPS Software Version This option displays this CPS Software version
Hardware Version This option displays the Hardware version programmed in the radio.
MCU Version This option displays the firmware version programmed in the radio.

II. General Setting



Radio Name The radio name can be viewed and set via menu by users. The maximum length is 16 characters (digits, symbols, English letters) Default: DJ-MD40 Note: This feature is available for radios with display only.
Radio ID Sets an individual ID that uniquely identifies the radio. This ID is used by other calling radios when addressing the radio, for instance, when making a private call or sending a text message. Range : 1-16776415 Default: 1 Note: This feature is available for radios with display only.
Monitor Type Sets the Monitor mode to either Open Squelch or Silent. The user can access the Monitor feature by assigning a short or long programmable button press to its active level. This is a radio-wide feature.

Option Description

- Open Squelch: Radio unmutes regardless of whether there is any channel activity. If no activity is present, noise is heard through the speaker.
- Silent: Radio unmutes only if there is channel activity.

Default: Open Squelch

VOX Sensitivity

This option allows users to set the receiving voice gain level for the digital channel. A large gain level may cause voice distortion on the digital channel.

Range: 1-10

Step: 1

Default: 3

TX Preamble Duration

Preamble is a string of bits added in front of a data message or control message (Text Messaging, Location Messaging, Registration, Radio Check, Private Call, etc.) before transmission. This preamble prolongs the message in order to reduce the chances of the message being missed by the receiving radio.

Range: 0-8640ms

Step: 60ms

Default: 300ms

Note:

- The TX Preamble feature is disabled if the duration is set to 0.
- This feature is supported in Digital mode only.

RX Low Battery Interval

This option allows users to Configures the Low Battery tone sound duration for the radio when the radio's low battery threshold is reached while a call is being received, or while the radio is in idle mode

Range: 0-635s

Step: 5s

Default: 120s

Backlight Color

Setting the radio backlight to Orange, White, SAKURA or Turn Off.

Default: Orange

Freq/Channel Mode

The radio display mode is frequency mode or channel mode

Default: Freq

Model Select

If the radio display mode is frequency mode, you can select MR mode or VFO mode.

- VFO mode is to vary the frequency continuously so as to match the frequency on

the radio dial. • MR (memory radio) is the mode in which the channels have been stored. • In standby mode, press **[FUNC]** key, the LCD display "**F**" icon, and press **[DOWN]** key again to switch, MR mode or VFO mode.
Lock/Unlock If the radio display mode is channel mode: Lock: In the Program Radio (Utilities), **Mode** is not appear and you can't change display mode to frequency mode. Unlock: In the Program Radio (Utilities), **Mode** is appear and you can change display mode to frequency mode.
Programming Password This option allows users to configure the password to manage CPS read and write admission. This password is required every time when users read and write data to the radio. This password must be 8 digits. Default: None
Radio Program Password This option allows users to configure the password to manage Radio when editing Radio Program. This password is required every time open the Program Radio (in the Utilities). This password must be 8 digits. Default: 00000000
Set Keypad Lock This option allows users to select manually lock the keypad or lock the keyboard automatically. Default: Manual
Disable All LEDS This option allows users to enable/disable all LED indications. Default: Unchecked

① Save (Battery Save)

Save Preamble This feature enables or disables the battery saver preamble. The radio sends a preamble before each transmission to enhance the ability of receiving radios in battery saver mode to synchronize in preparation for transmissions; reducing the occurrence of late-entry. To avoid interoperability issues, it is recommended that all radios in a system share the same setting for this field. The value of this field does not affect Capacity Plus channels. This is a radio-wide feature.

Default: Checked
Save Mode Receive Enabling this feature causes an idle radio to automatically enter battery saver mode where it places certain radio functions on standby. After a certain duration or when there is any user button action, the radio returns to normal operation and checks the channel for incoming calls. If no calls are detected, it returns to the battery saver mode. While results vary across battery chemistry and user conditions, battery saver can deliver about a 10% improvement in battery life, but also causes a delay in response time. When this feature is enabled, it is important to note that for the transmitting radios, there will be a slight delay in call setup (in the range of milliseconds) when pressing the Push-to-Talk (PTT) button. For the receiving radios, there may be an increase in late entry due to radios in battery saver mode having less opportunity to properly synchronize. This may cause the radios to miss the initial second of some audio transmissions in poor radio frequency (RF) conditions. This, however, will not be experienced in good RF coverage. Although they are important to note, these delays are considered minor versus the 10% improved battery life, therefore it is recommended to enable battery saver mode for all radios. This is a radio-wide feature. Default: Unchecked

② **Alert Tone**

Disable All Tone This option allows users to decide whether the radio shall operate in silent/non-silent mode. If user checks, the radio will remain silent with no alert tones throughout radio operation. Default: Unchecked
CH Free Indication Tone This feature sounds an alert tone when a voice call ends. It also sounds when the voice call is interrupted on the current channel, for example, by interruptions caused by a third radio making an impolite call or sending an emergency alarm. However, this tone does not sound if the interruption is caused by a corrupted radio signal. Voice calls include Group Call, Private Call, All Call, and Emergency Call. A voice call ends when the user of the calling radio releases the Push-To-Talk (PTT) button, regardless of hang time. This feature alerts the receiving radio that the channel is available for him/her to respond producing a smoother flow of conversation. This alert tone does not sound at the end of a Remote Monitor transmission, or during Priority Scan when the voice call ends while the radio is sampling the priority channel(s). This is a radio-wide feature.

Default: Unchecked
Talk Permit Tone This option allows users to configure whether to emit an alert tone upon a PTT press on current channel. Option description • None: There will be no tone alert when PTT is pressed. • Digital: There will be a tone alert when PTT is pressed on digital channel. • Analog: There will be a tone alert when PTT is pressed on analog channel. • Digital & Analog: There will be a tone alert when PTT is pressed on both analog and digital channel. Default: Digital
Call Alert Tone Duration This option allows users to Configures the call alert tone sound duration for the radio decoding of the digital/MDC selective call alert. Continue: the call alert tone will continuously sound until the user cancels the call alert indication. Range: 5-1200s Step: 5s Default: 1200s Note: This option can be configured only if the Radio Silent option is selected to Silent Off.

③ Scan

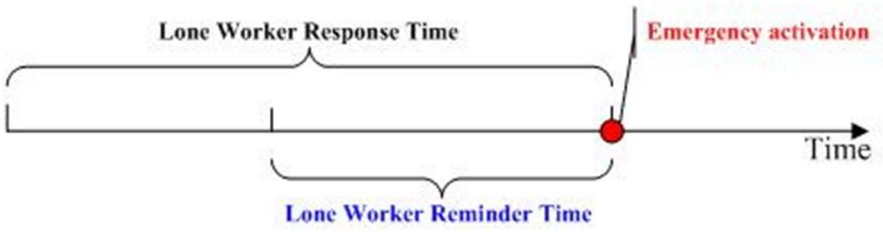
Scan Digital Hang Time Sets the time the radio will remain on a digital scan list member following the end of the channel activity. The hang time prevents the radio from resuming scanning until the conclusion of the response to the initial call. The timer starts at the end of a transmission and resets whenever a valid activity is detected on the digital channel during the hang time. Range: 500-10000ms Step: 500ms Default: 3000ms
Scan Analog Hang Time Sets the time the radio will remain on an analog scan list member following the end of the channel activity. The hang time prevents the radio from resuming scanning until the conclusion of the response to the initial call. The timer starts at the end of a

transmission and resets whenever a valid activity is detected on the analog channel during the hang time. Range: 500-10000ms Step: 500ms Default: 3000ms

④ **Lone Worker**

The Lone Worker feature, when enabled, causes the radio to automatically transmit an alarm if the radio user/operator does not react to reminder beeps which the radio periodically generates. Before this feature will function, it must be programmed by your radio dealer and it must be enabled. Radio user/operator reaction is accomplished by simply pressing any radio key or by rotating a radio knob before a programmed reminder timer expires. Either reaction will reset the programmed reminder and response timers, thus starting a new response period of time. The response timer is typically programmed for many minutes or hours (255 minutes maximum), and the reminder timer is typically programmed for several seconds to a minute (255 seconds maximum).

If no reaction is taken when the radio begins beeping and the response timer is allowed to expire, the radio automatically enters the programmed emergency mode and if the selected channel is programmed for Alarm or Alarm with Call emergency mode operations, it immediately begins alarm transmissions on the selected channel, or on a channel pre-assign for emergency communications. However, the radio does not transmit if the selected channel is not programmed for Alarm or Alarm with Call emergency mode operations. This option is only available for radios with displays.



Lone Worker Response Time This timer is part of the Lone Worker feature. It determines how long the radio waits since the Response Time has expired before raising the emergency. User activity is defined as activation of any radio button, or activation of the channel selector. This is a radio-wide feature. Range: 1-255min Step 1 Default: 1min
Lone Worker Reminder Time This timer is part of the Lone Worker feature. It determines how long the radio waits

since the last user activity before it begins sending reminders. User activity is defined as activation of any radio button, or activation of the channel selector. This is a radio-wide feature.
Range 1-255s
Step 1
Default: 10s

⑤ Power On Password

When this option is enabled, users have to input the correct Power On Password to operate the radio normally. This password must be 8 digits.
Default: Unchecked
Password Default: 00000000
Note: User can change Power On Password

⑥ Talkaround

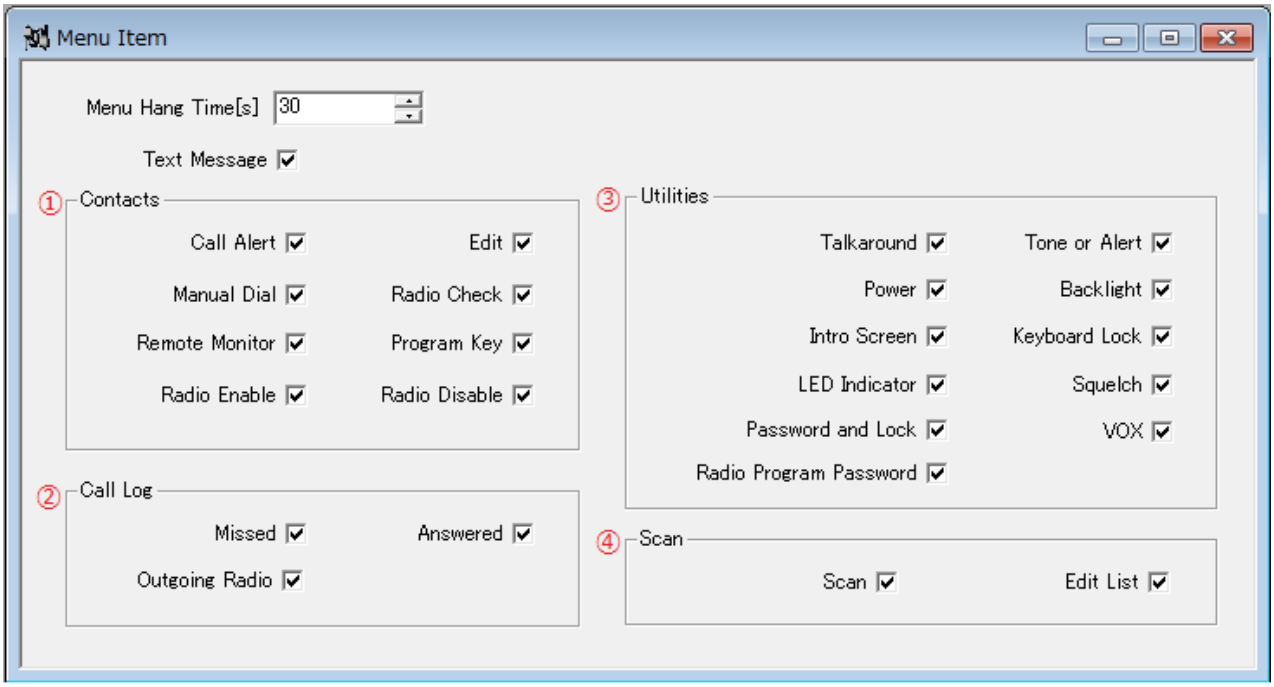
This option allows radio to communicate when there is no repeater available when the repeater is out of range or when the repeater is down. When this is selected either via the programmable button or the radio menu, the radio uses a receive frequency to transmit but it still allow radio in repeater mode to receive signal from the Talk Around operated radio.

Group Call Hang Time
Sets the duration during which a radio will talk back to a received call or continue a transmitted Talkaround Group Call using the previously received or previously transmitted digital group ID. After expiration of the Talkaround Group Call hang timer, the radio will transmit using the TX Contact Name (digital group) specified for this channel in CPS.
Range 0-7000ms
Step 500ms
Default 3000ms

Private Call Hang Time
Sets the duration the radio keeps the Talkaround Private Call setup after the user releases the Push-to-Talk (PTT) button. This is to avoid setting up the call again each time the user presses the PTT to transmit. During this time, other radios can still transmit since the channel is essentially idle. After the hang timer expires, the radio transmits using the TX Contact Name specified for this channel in CPS.
Range: 0-7000ms
Step: 500ms
Default: 4000ms

III. Menu Item

Menu is the tool used to sort the functions available in the terminal. Users can use it to operate and manage their desired functions.



Menu Hang Time : This parameter allows users to define the amount of time that the radio remains in the menu mode. The counter will be activated after the radio enters the menu. In the **event of no operation (e.g. key press) within the presetting time, the radio will exit the menu** automatically.

Range: 1 - 30 s

Step: 1 s

Default: 10 s

Text Message

- Checked: This option allows users to create (sent, reply, forward, draft…) message using the radio's menu.
- Unchecked: only "Inbox" allowed using the menu.

① Contacts

Call Alert

This option allows users to send an Alert Call to a **private contact** using the menu.

Option Description

- Checked: Alert Call is allowed using the menu
- Unchecked: Alert Call is disallowed using the menu.

Default: Checked

Note:

- This option is only available for radios with displays.
- This feature is available when the radio operates in digital mode.
- This feature can communicate with Moto.

Manual Dial

Allows the user to enable or disable manual dial of the radio menu.

Option Description

- Checked: The private or group call can be made using the manual dialing.
- Unchecked: The private or group call cannot be made using the manual dialing.

Default: Checked

Note: This feature is available for radios with display only.

Remote Monitor

This option allows users to remotely monitor a **private contact** using the menu.

Open Description

- Checked: Remote Monitor is allowed using the menu.
- Unchecked: Remote Monitor is disallowed using the menu.

Default: Unchecked

Note

- This option is only available for radios with displays.
- This feature is available when the radio operates in digital mode.
- This feature can communicate with Moto.

Edit

Allows the user to enable or disable phone manual dial of the radio menu. User can edit the Name and Number of contact.

Default: Unchecked

Note: This feature is available for radios with display only.

Program Key

Allows the user to enable or disable the Program Key menu in the radio. The Program Key feature allows the user to associate a call to the number buttons on the radio keypad (1-9 and 0). When the user long presses these buttons in the home screen, the associated call entry will be prompted. The supported call types are Group, Private, or All Call calls in Digital or Capacity Plus mode. This is a radio-wide feature.

Default: Checked

Note: This feature is available for radios with display only.

Radio Check

This option allows users to check a radio by menu operations, enter the corresponding menu and send out a **private contact**.

Option description

Checked: Radio Check is allowed using the menu.

Unchecked: Radio Check is not allowed using the menu.

Default :Unchecked

Note

- This option is only available for radios with displays.
- This feature is available when the radio operates in digital mode.
- This feature can communicate with Moto.

Radio Enable

This option allows users to check a radio by menu operations, enter the corresponding menu and send out a **private contact**.

Option description

- Checked: Radio Enable is allowed using the menu.
- Unchecked: Radio Enable is not allowed using the menu.

Default : Unchecked

Note

- This option is only available for radios with displays.
- This feature is available when the radio operates in digital mode.
- This feature can communicate with Moto.

Radio Disable

This option allows users to check a radio by menu operations, enter the corresponding menu and send out a **private contact**.

Option description

- Checked: Radio Enable is allowed using the menu.
- Unchecked: Radio Enable is not allowed using the menu.

Default :Unchecked

Note

- This option is only available for radios with displays.
- This feature is available when the radio operates in digital mode.
- This feature can communicate with Moto.

② Call Log

Missed

Allows the user to track the last ten incoming private calls that the user missed or failed to respond. The user accesses the call log via the menu. This log also provides a quick way for the user to initiate a private call.

- Checked: Allow the user to track call numbers that the user missed or failed to respond to and provides easy redial access using the menu.
- Unchecked: The user cannot track call numbers that the user missed or failed to

respond to from the menu. Default: Checked Note: This option is only available for radios with displays.
Answered Allows the user to track the last ten incoming private calls that the user answered. The user accesses the call log via the menu. This log also provides a quick way for user to initiate a private call. Default: Checked Note: This option is only available for radios with displays.
Outgoing Radio Allows the user to track the last ten phone call numbers that the user initiated and provides easy redial access. The user accesses the call log via the menu. This log also provides a quick way for the user to initiate a phone call. Default: Checked Note: This option is only available for radios with displays.

③ **Utilities**

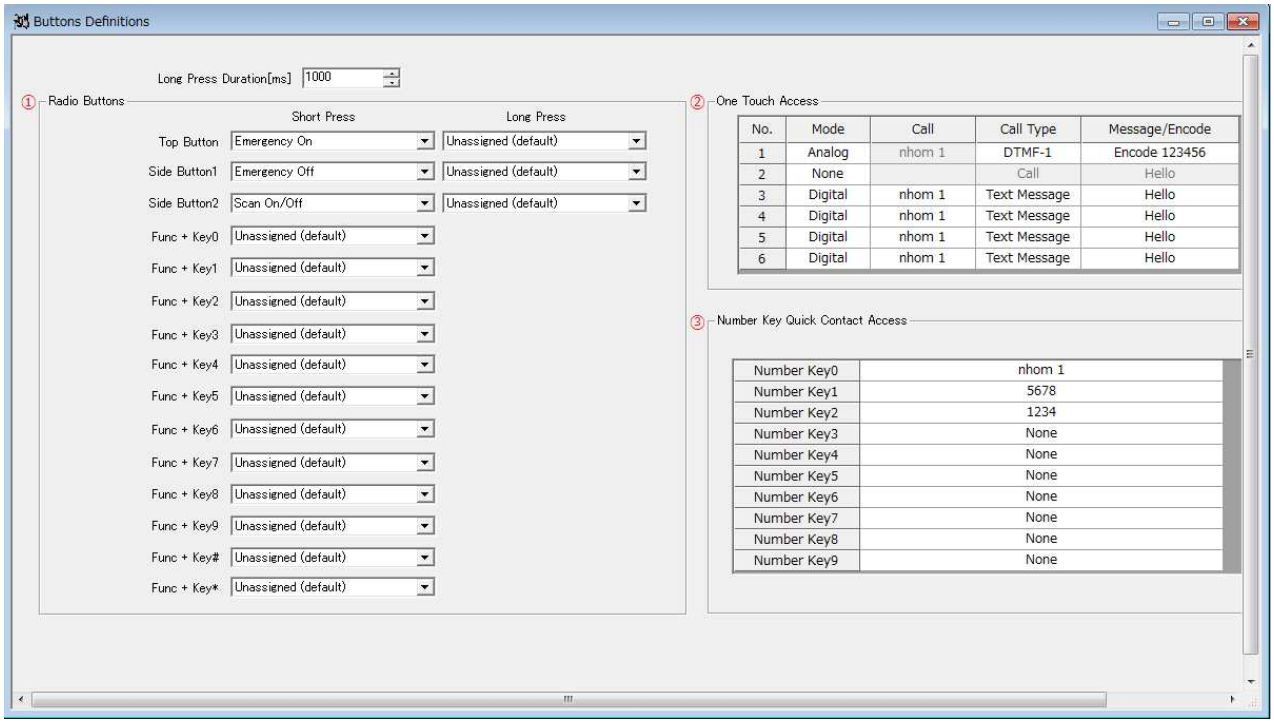
Talkaround Allows the user to set the radio in Talkaround mode via the menu. Talkaround mode is required in the absence of a repeater. Default: Checked Note: This option is only available for radios with displays.
Power This option allows users to toggle the transmit power between High and Low from the radio's menu. Default: Checked Note: This option is only available for radios with displays.
Intro Screen Allows the user to enable or disable the Introduction Screen upon radio power up via the menu. When enabled via the menu, the Radio Name shows as the welcome text when the radio powers up. Default: Checked Note: This option is only available for radios with displays.
Led Indicator This parameter decides whether to include LED on the menu. The radio user can control LED via the menu.

Default: Checked Note: This option is only available for radios with displays.
Password And Lock To set whether to allow the users to configure the power-up password via the menu. Default: Checked Note: This option is only available for radios with displays.
Radio Program Password This option allows users can program the channel frequency, name, CTCSS / DCS encoding and decoding, TOT and Others. Default: Checked Note: This option is only available for radios with displays.
Tone Or Alert Allows the user to toggle all the tones and alerts on or off via the menu. Default: Checked Note: This option is only available for radios with displays.
Backlight This option allows users to control the backlight using the menu.
Keyboard Lock Allows the user to toggle the keypad lock on or off via the menu. Default: Checked Note: This option is only available for radios with displays.
Squelch Allows the user to access the Squelch feature to select Squelch level (0 to 9) via the menu. Default: Checked Note: This option is only available for radios with displays.
VOX Allows the user to toggle the VOX (Voice Activated Transmit) feature between on and off for the current channel via the menu. VOX enables the radio to automatically transmit whenever its microphone on the VOX-capable accessory detects voice. This is a channel-wide feature. Default: Checked Note: This option is only available for radios with displays.

④ **Scan**

Scan This option allows users to turn on / turn off scan
Edit List This option allows users to view the current channel where the scan list channel, set the scan priority.

IV. Button Definitions



Long press Duration: Sets the duration a button is required to be pressed (and held down), for it to be interpreted as a long press. This duration also controls the long press operation of the button assigned to the Emergency feature. This is a radio-wide feature.

Range: 1000 - 3750ms

Step: 250ms

Default: 1000ms

① Radio Buttons

This part allows users to assign your desired features as shortcut to some keys of the radio. The programmable buttons vary with different radios. Every key corresponds to two kinds of operations: long press or short press. They can be associated to different features or the same feature.

Option	Description	Note
Unassigned		
All Alert Tones On/Off	Allows the user to enable or disable all the alert tones simultaneously.	
Emergency On	To initiate an emergency call.	
Emergency Off	To end an emergency call.	
Power Select	Allows the user to toggle between high, middle, low and super low power.	

Monitor	Allows the user to toggle the Monitor feature between on or off. The Monitor feature allows the user to monitor a channel.	
One Touch Access 1	Allows the user to make a digital Group Call, digital Private Call, Call Alert or send a Quick Text via a One Touch Access (applicable to Digital mode only).	This feature is applicable to Digital mode only.
One Touch Access 2	Refer to One Touch Access 1 functionality.	
One Touch Access 3	Refer to One Touch Access 1 functionality.	
One Touch Access 4	Refer to One Touch Access 1 functionality.	
One Touch Access 5	Refer to One Touch Access 1 functionality.	
One Touch Access 6	Refer to One Touch Access 1 functionality.	
Repeater/Talkaround	Allows the user to toggle between Repeater and Talkaround mode.	
Scan On/Off	Allows the user to toggle the Scan feature between on or off.	
Privacy On/Off	Allows the user to toggle the Privacy feature between on and off for the channel.	This feature is applicable to Digital mode only.
VOX On/Off	Allows the user to toggle the VOX feature between on and off for the channel.	
Manual Dial For Private	Provides the user with the flexibility to dial any private number that is unavailable in Contacts.	This feature is applicable to Digital mode, Display model only.
Lone Worker	Allows the user to toggle the Lone Worker feature between on and off.	
Record On/Off(firmware)	Allows the user to enable / disable recording function.	
Record Play Back(firmware)	Allows the user to play recording, play a parts when you press each time.	
Delete All Record(firmware)	Allows the user to delete all recordings.	

The "Note" column described the supported radios. When no description is given, it means all

portables and mobiles are supported.

② **One Touch Access**

This is a shortcut way for the radio user to make calls or send messages. By pressing a programed One Touch Call key, the radio user can make a call or send a message to the predefined contact.

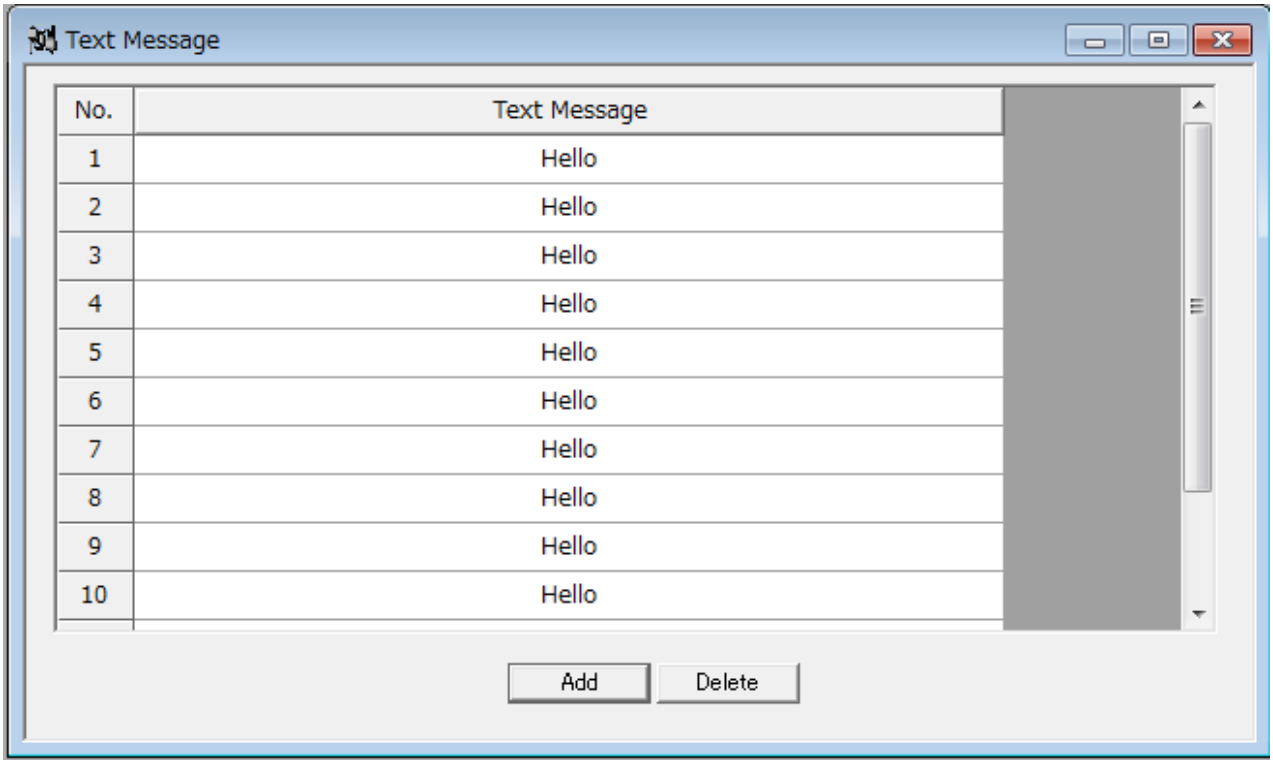
Mode Allows the user to select the operation mode for the call member selected in the Call column. • Digital: Enables the One Touch Call function in digital mode. • Analog: Enables the One Touch Call function in analog mode. • None: Disables the One Touch Call function. Default: None
Call Allows the user to select the operation mode for the call member selected in the Call column Default: None
Call Type This feature allows the user to select a call type for the call member that was selected in the Call column. Default: Text Message
Message/Encode Allows the user to select a Quick Text (Digital channel) or select a Encode (Analog channel) The selection for these messages comes from Text Messages and for encodes comes from DTMF signaling. Default: Hello

③ **Number Key Quick Contact Access**

This column represents the keys from "0" to "9" on the numeric keypad. This is a shortcut way for the radio user to access to Contact List, can make quickly a Call Alert or View Number, Edit Name, Edit Number, Detection, Remote monitoring, Radio Check, Radio Disable, Radio Enable in the Radio menu when the user presses and holds down the numeric keypad.

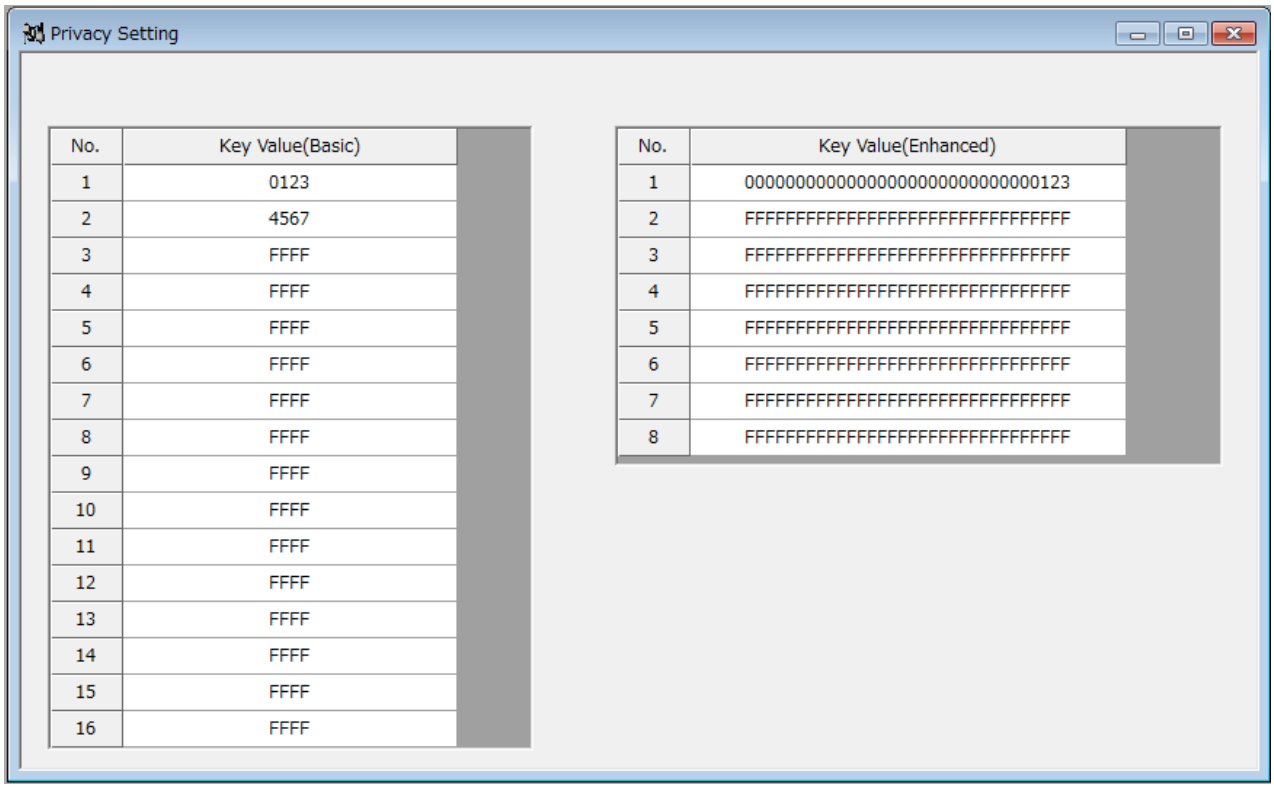
Note: This feature is supported digital channel only.

V. Text message



The user can send the text message by assigning a short or long programmable button press (This setting is in **Buttons Definitions** feature) or access the **Quick Text** feature via the **Messages** Menu feature. This option allows user to save 50 text messages. Valid characters are alpha numeric, spaces and special characters (maximum 123 characters).

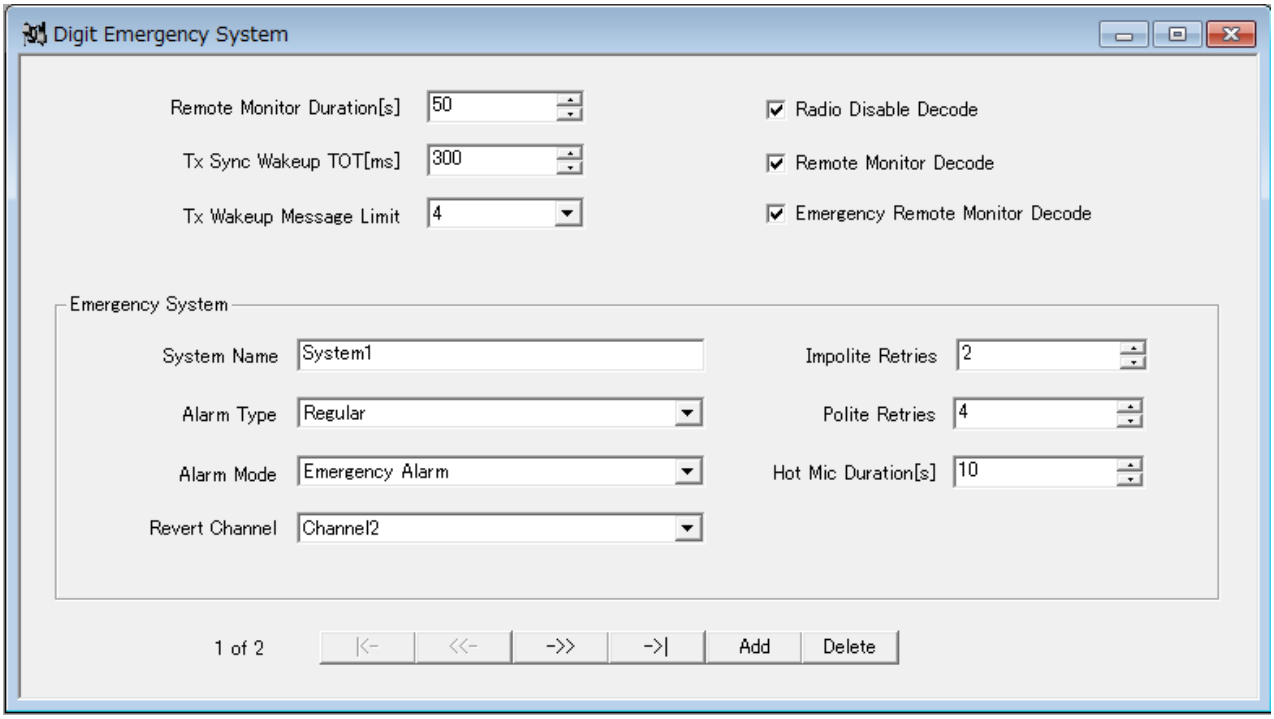
VI. Privacy Setting



In the digital channel setting of **Channel Information**, user can enable the Privacy feature. This technology can facilitate secret communication using a key to make the audio signal or data inaccessible to anyone except those possessing the same key, so as to achieve communication privacy. This option decides the exact value of key. Its length is subject to the Key length.

VII.Digit Emergency System

Digital Emergency System is used to summon help in emergency situations. When an Emergency system is associated to a channel (Channel->Emergency System), the radio user can activate emergency through the programmed key.



① Setting

Remote Monitor Duration: Sets the duration that the target radio can be remotely monitored. This is a radio-wide feature. Range: 10 - 120s Step: 10s Default: 10s
TX Sync Wakeup TOT This feature adjusts the value of the timer that begins immediately after a message is sent to wake up the repeater. The timer is stopped when the radio receives a repeater sync signal. If the timer expires before receiving a repeater sync signal, the radio sends another message to wake up the repeater. The number of messages is determined by the TX Wakeup Message Limit, after which the repeater is assumed to be out of range. This is a radio-wide feature. Range:125 - 375s Step : 25s Default: 150s
TX Wakeup Message Limit

This feature sets the number of messages sent to wake up the repeater. Setting a higher number improves the success rate of waking up the repeater. This is a radio-wide feature.

Range : 1 – 4

Default : 2

Radio Disable Decode

Allows the radio to receive and process a Radio Disable command sent from another radio to remotely disable it. This feature helps to block usage of stolen or lost radios. This is a radio-wide feature

- Checked: The radio can decode the command.
- Unchecked: The radio cannot decode the command.

Default: Checked

Remote Monitor Decode

Allows the radio to receive and process Remote Monitor command sent from another radio. This command instructs the receiving radio to activate its microphone and transmitter for the duration specified in Remote Monitor Duration. A call is silently set up on this radio and its transmission controlled remotely without any indication given to the receiving radio user. This is a radio-wide feature

- Checked: The radio can decode the command.
- Unchecked: The radio cannot decode the command.

Default: Unchecked

Emergency Remote Monitor decode

After an emergency alarm is initiated, this feature allows the radio to receive and process Remote Monitor commands sent from another radio for the duration specified in Remote Monitor Duration. This is an exceptional case of Remote Monitor Decode whereby the radio is able to decode Remote Monitor command even if the Remote Monitor Decode feature is disabled but only for the duration as specified in Remote Monitor Duration. This is a radio-wide feature.

- Checked: The radio can decode the command in Emergency mode.
- Unchecked: The radio cannot decode the command in Emergency mode.

Default: Checked

② Emergency System

System Name:

Users can set alias for each emergency system. The maximum length is 16 characters (digits, symbols, English letters).

Default: System1

Alarm Type:

An alarm is a non-voice signal that triggers an alert indication on another radio. This feature specifies the behavior of the initiating radio's alarm when the emergency button is pressed.

Option Description

- Disabled: The radio is unable to transmit an alarm signal.
- Regular: The radio transmits an alarm signal and provides audio and visual indication that it is in Emergency mode.
- Silent: The radio transmits an alarm signal but gives no audio or visual indication that it is in Emergency mode. In addition, it will not unmute to any received audio.
- Silent w/ Voice: The radio transmits an alarm signal but gives no audio or visual indication that it is in Emergency mode. The radio then unmutes to qualified channel activity.

Default: Regular

Alarm Mode

Defines the radio's behavior when the radio's emergency button is pressed.

- Emergency Alarm: The radio sends an emergency alarm and exits the emergency mode. This alarm is a non-voice signal that triggers an alert indication on another radio.
- Emergency Alarm w/ Call: An emergency alarm is sent, after which an emergency call can be transmitted by pressing the Push-To-Talk (PTT) button.
- Emergency Alarm w/ Voice to Follow: This option allowing for the programming of the Hot Mic Duration. An emergency alarm is sent and the microphone is activated for an emergency call. Voice is transmitted without the need to press the Push-To-Talk (PTT) button.

Revert Channel

This is the channel used for digital emergency alarm or voice. Any single site digital channel may be set as the Revert Channel, including the channel indicated by the radio's channel selector.

Option Description

- None: No channel can match its requirement and emergency system setting will not available.
- Selected: The current channel where the emergency is activated.
- Available channel: All channels in the Digital Channel list (RX Only channels are excluded for revert channel selection.) User can choose a channel as Revert Channel from a maximum of 1000 available channels.

Default: None

Impolite Retries

An impolite transmission is a transmission that occurs even when there is activity on the current channel. The radio tries a number of impolite transmissions to get an acknowledgement and then goes on to try a number of polite transmissions. This feature sets the number of attempts to transmit an emergency alarm impolitely.

Range: 1-15

Step: 1

Default:15

Polite Retries

A polite transmission is a transmission that occurs only when the current channel is free of activity. The radio tries a number of impolite transmissions to get an acknowledgement before trying a number of polite transmissions. This feature sets the number of attempts to transmit an emergency alarm politely.

Range: 0-14

Step: 1

Default: 5

Hot Mic Duration

This option defines the length of time for each emergency call transmission during emergency process (hands free transmission).

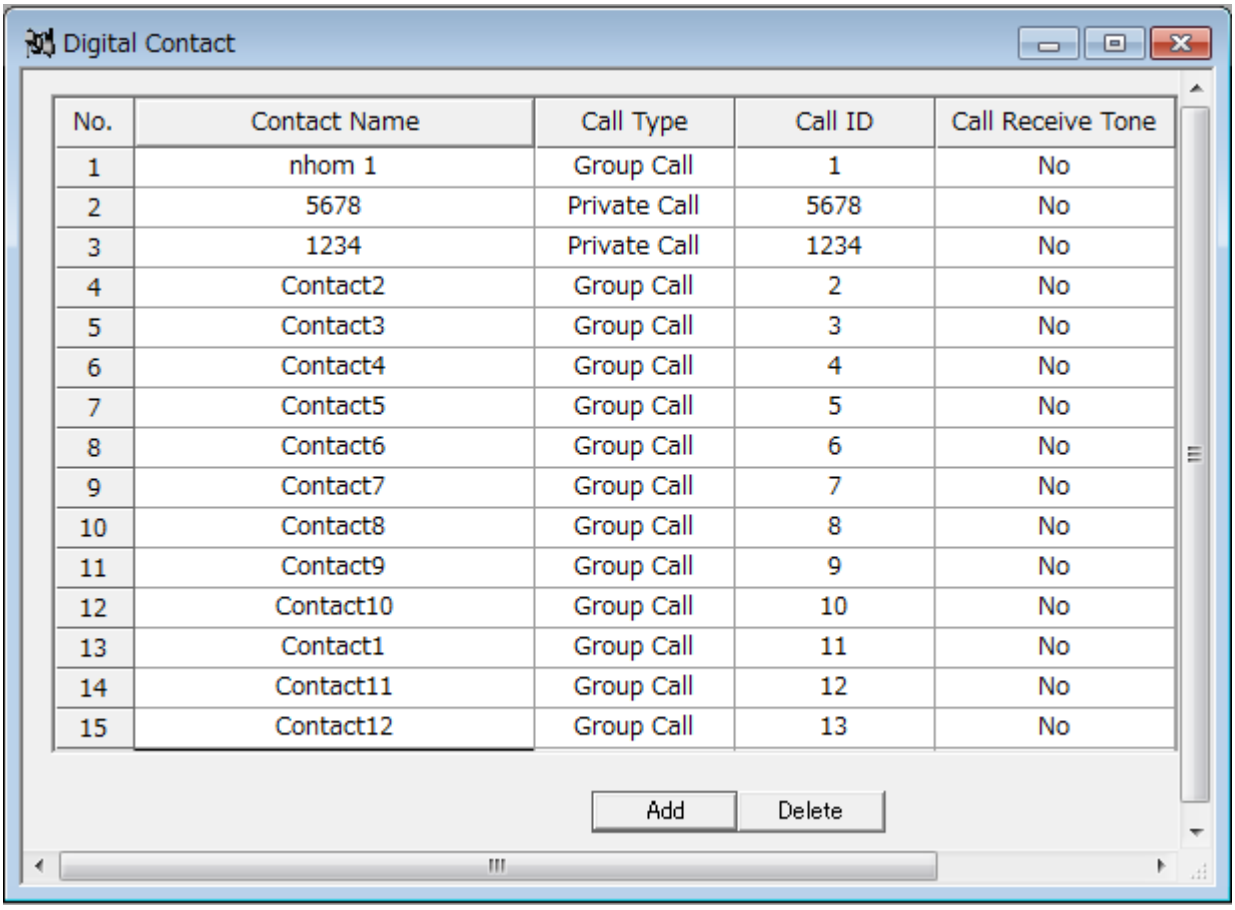
Range: 10 – 120s

Step: 10s

Default: 10s

VIII.Digital Contact

Contact list shows contact information saved in the radio, users can select target radio or a group of radios depending on the call type and call ID. The user may access this list via a short or long programmable key press or via the Contacts Menu. From the list, the user can make a call or other functions if supported. Users can add or delete contact members from the list. The list may include up to 1000 contacts, and must include at least one contact. Users can add or delete contact members from the list. The list may include up to 1000 contacts, and must include at least one contact. Deleting a contact already associated to a digital channel will cause TX Contacts Name of the channel to be “None”.



Contact Name

Users can set alias for each contact. Users may enter up to 16 numbers or English letters at maximum.

Default: Contact 1 - N

Call Type

- All Call: A call from an individual radio to all radios in the system. All Calls do not communicate through special timeslots or channels within the system. All Call will only be authorized to the users who play supervisory roles. This feature is very useful when a supervisor needs to communicate with all the users on a logical channel, rather than just a particular group or individual.
- Private Call: A call between two individual radios.
- Group Call: A call from an individual radio to a group of radios.

Default: Group Call

Note: Only 1 All Call is allowed.

Call ID

This allows users to set an ID for each digital call member. This ID is used to identify and communicate with a target radio or group of radios depending on the call type. There are three call types (Group Call, Private Call, All Call). The meaning of the call type's ID is explained as follows:

- Group Call ID-This ID is used to identify a particular group.
- Private Call ID-This ID is the Radio ID of the target radio [portable and mobile radios only].
- All Call ID-This has a fixed ID of 16777215 (value is not editable).

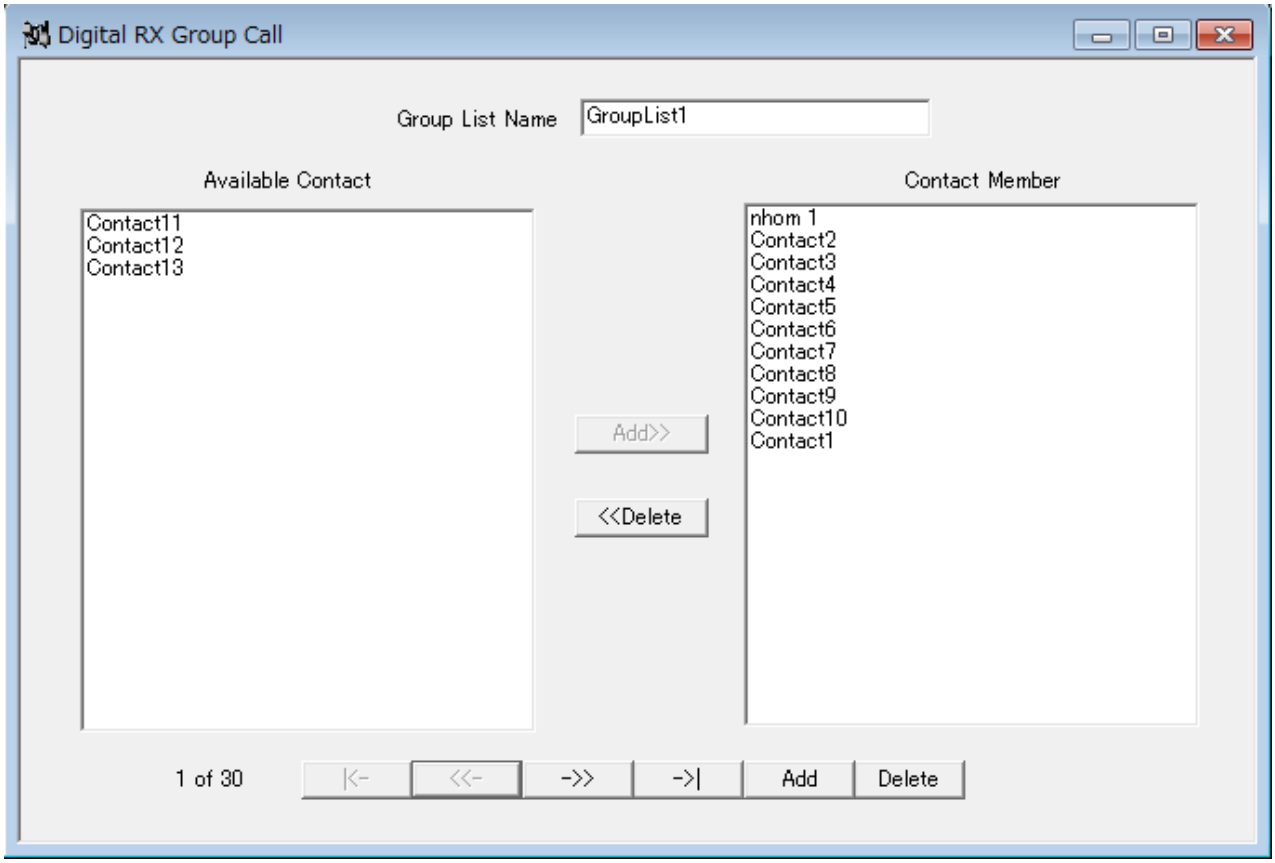
Option Description: 1 – 16776415

Call Receive Tone

This alert tone sounds on the receiving radio prior to unmuting during a Private Call, Group Call, or All Call. This is to notify the user that the radio is unmuting. This feature is set on a per call basis.

Default: No

IX. Digital RX Group Call

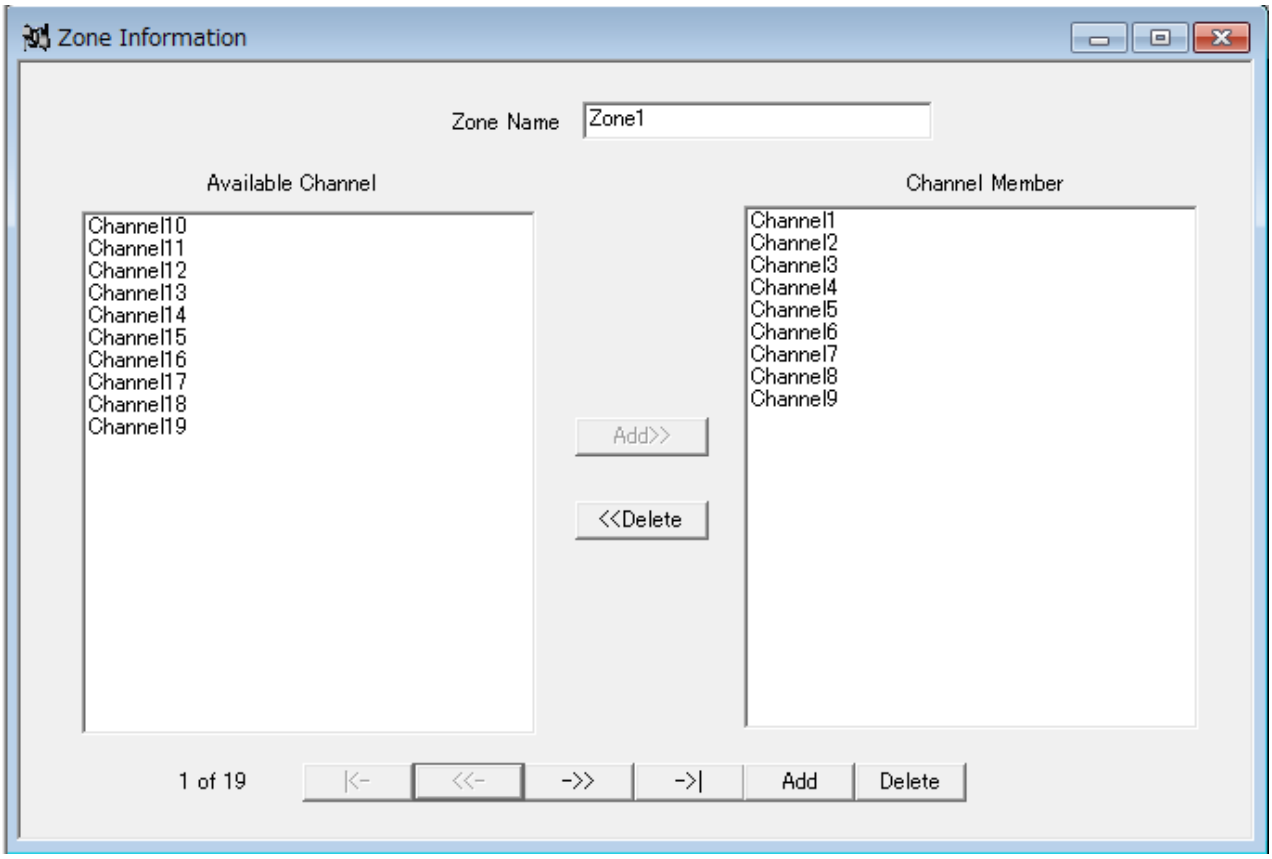


Digital RX Group List is helpful to receive more than one group call on a digital channel. Users may create up to 250 group lists, each with up to 32 contacts. Users can also delete these Digital Rx Group Lists, but keep 1 group list at least. The Digital RX Group List can be associated to a digital channel (in the Channel Information Digital Data).

Group List Name Users can set alias for each Digital RX Group List. Users may enter up to 16 English characters at maximum. Default: Group List 1 - N
Available Contact The Available Contact list shows all the call type **Group Call** that are set in the Digital Contact. Users can add any members in the Available Contact list to the Digital Rx Group List on the right with the Add button.
Contact Member The Contact Member list shows all members of the current Digital RX Group List. If this Digital RX Group List is associated with a channel, the radio can receive any call that is included in the Contact Member list. Users can add a maximum of 32 contacts to the Contact Member list.

X. Zone Information

This option allows users to organize channels conveniently. Users can add a maximum of 250 Zone List. Each zone support up to 64 channels.



Zone Name

The Zone Name allows the user to define a unique name for each Zone. The maximum length is 16 characters.

Default: Zone 1 - N

Available Channel

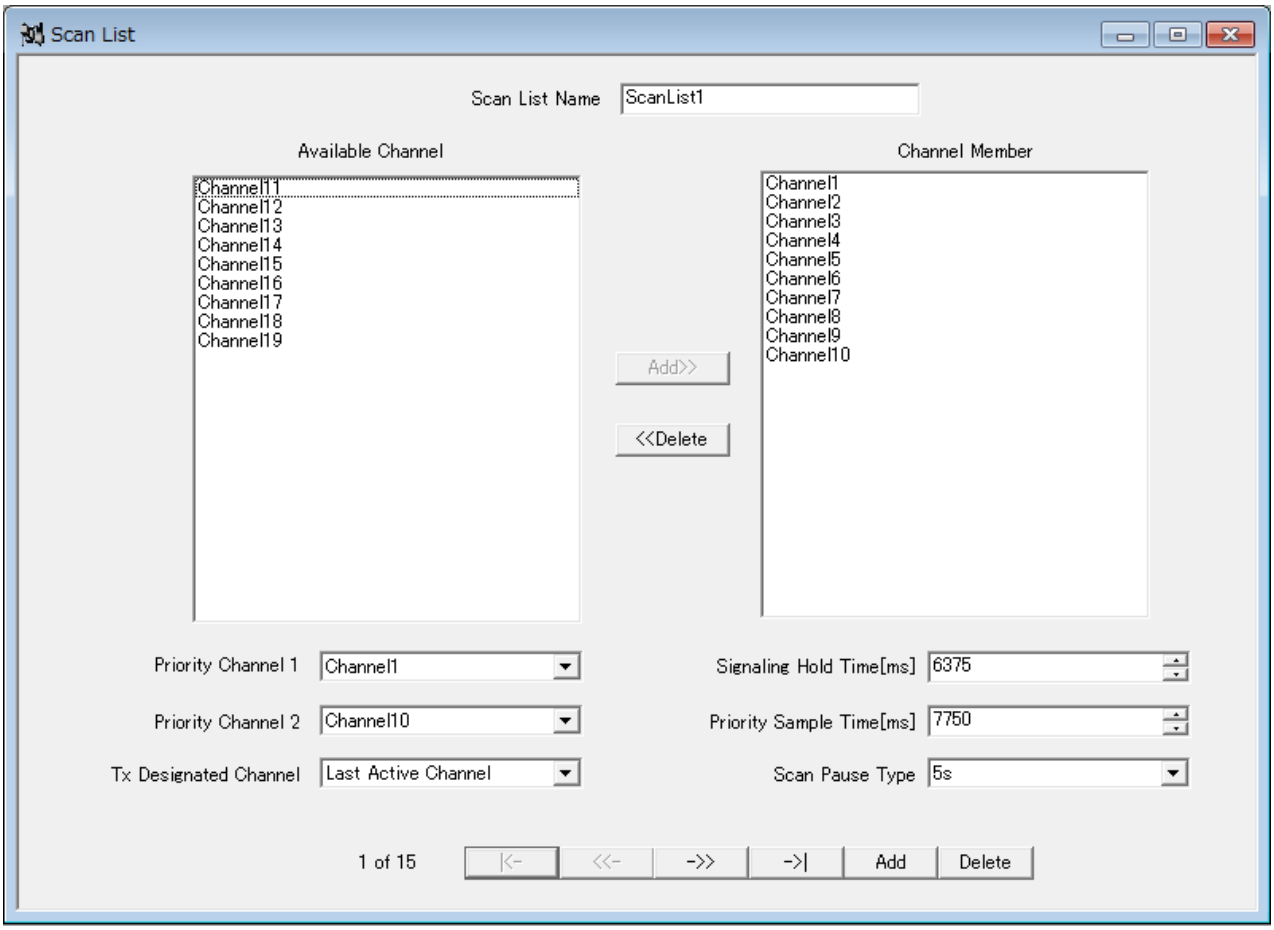
The Available Channel list shows all the Channel that are set in the Channel Information. Users can add any members in the Available Channel list to the Zone List on the right with the Add button.

Channel Member

The Channel Member list shows all members of the current Zone List. Users can add a maximum of 64 channels to the Channel Member list.

XI. Scan List

The Scan feature allows the radio user to listen to the communication activities on other channels. Scan List is a group of channels under monitoring. Users can add or delete the list according to your actual requirements. A maximum of 250 scan lists can be created and there must be at least one list. Each scan list can contain a maximum of 31 members. Note that



Scan List Name

This option allows users to set the name for the scan list. User may enter up to a maximum of 16 English letters and digits.

Default: ScanList1 - 250

Priority Channel 1

This option allows users to select a channel in the scan list as Priority Channel 1. If only Priority Channel 1 is set, 50% of a radio's scans are on Priority Channel 1 during scanning. If Priority Channel 2 is set to None, scans for Priority Channel 1 are reduced from 50% to 25%.

- None: No channel is set as Priority Channel 1. If Priority Channel 2 is available, scans for Priority Channel 2 increased to 50%.
- Selected: Select the channel on which the radio enters Scan mode as Priority Channel 1.

- Available channel: Select a channel in the scan list as Priority Channel 1.

Default: None

Note: Priority Channel 1 and Priority Channel 2 cannot be set to the same channel.

Priority Channel 2

This option allows users to select a channel as Priority Channel 2. During scanning, 25% of a radio's scans are on Priority Channel 2 if user has defined also a Priority Channel 1. But if Priority Channel 1 is set to None, scans for Priority Channel 2 will be increased to 50%.

- None: No channel is set as Priority Channel 2.
- Selected: Select the channel on which the radio enters Scan mode as Priority Channel 2.
- Available channel: Select a channel as Priority Channel 2.

Default: None

Note: Priority Channel 1 and Priority Channel 2 cannot be set to the same channel.

TX Designated Channel

This option allows users to select a channel as the scan Designated TX Channel. The radio transmits on this channel if user presses the PTT key during scanning, with the scan talkback options disabled. However, if the scan talkback is enabled, radio will talk back during scan landed, and transmit on scan Designated TX Channel when in idle scan (not landed).

Default: The last of active channel.

Note: The Designated TX Channel is an Analog or a Digital channel.

Signaling Hold Time

Sets the amount of time that the radio waits on an analog scan list channel when a carrier signal of sufficient amplitude is detected on the channel. This pause allows the radio time to decode the analog system signaling data. If the decoded information is incorrect, the radio reverts to scan.

Range: 50-6375ms

Step :500ms

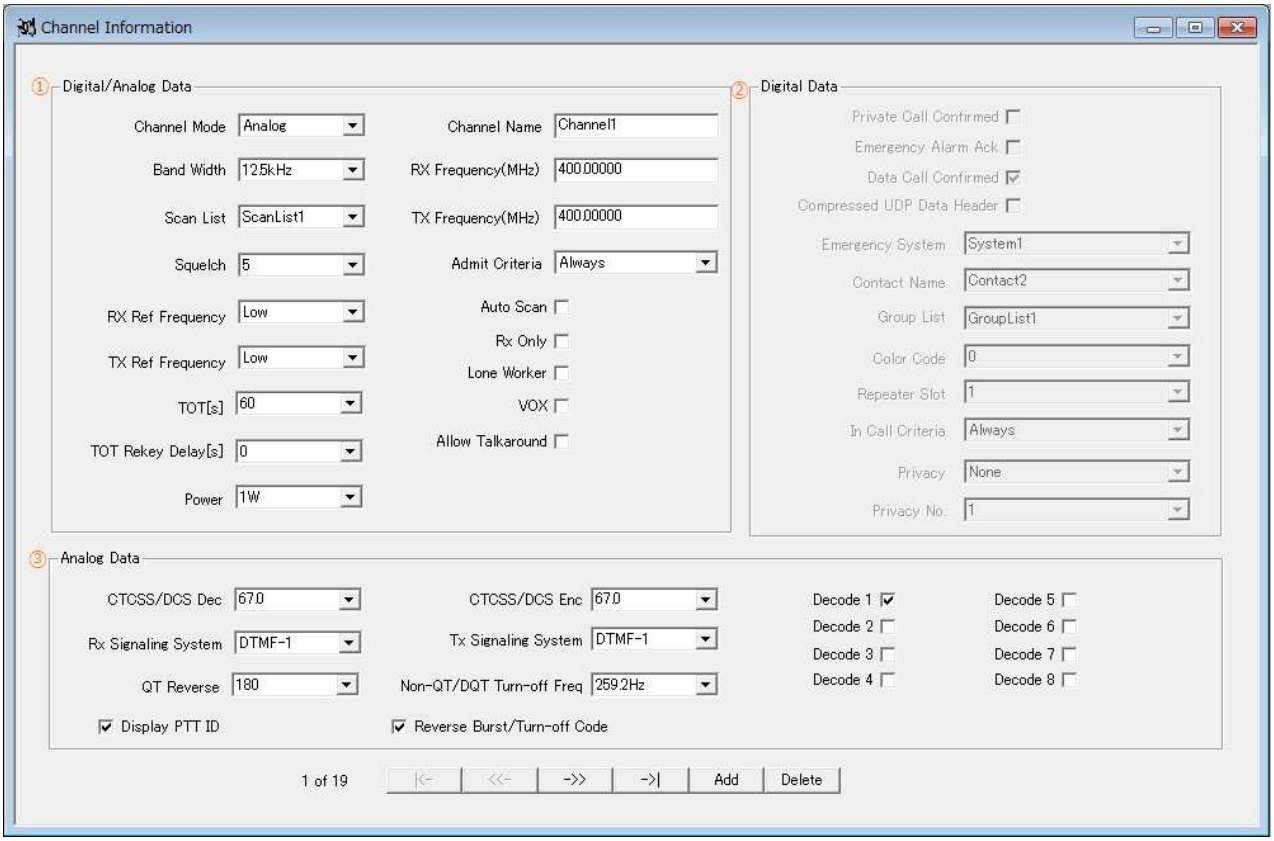
Default: 500ms

Priority Sample Time

When scanning, if some activity of interest is found, the radio stops and switches to that channel. If the activity of interest is incoming data addressed to the scanning radio, an individual voice call, or it is on a Priority-1 scan member, scanning completely stops for the duration of the call. But if the activity is a voice Group Call on a Priority-2 or a Non-Priority scan member, the radio continues to periodically scan higher priority scan members.

XII.Channel Information

Users can either add or delete digital or analog channels. For portable and mobile radios, a maximum of 1000 channels are supported.



① Digital/Analog Data

Channel Mode This option allows users to select digital or analog channels. • Analog: A analog channel can serve users with communication by analog signaling • Digital: A digital channel can serve users with digital communication by applying DMR signaling. Default: Analog
Channel Name The channel name allows the user to define a unique name for each channel. The maximum length is 16 characters (digits, symbols, English letters…).
Band Width Sets the channel bandwidth for the Transmit and Receive frequencies to either 12.5 kHz, 20 kHz, 25 kHz. This is a channel-wide feature. • Analog: 12.5 kHz, 20 kHz, 25 kHz. • Digital: 12.5 kHz. Default: 12.5 kHz

Scan List

Associates a Scan List to this conventional channel. All the members on this list will be scanned during a scan operation. Any available Scan List can be selected. Selecting the None option disables scanning (including Auto Scan) on this channel. This is a channel-wide feature.

- None: No list is associated. The scan and roam function are unavailable with the current channel.
- Scan List 1-250 [for portable/mobile radio with display model]

Default: None

Squelch

Filters incoming signals that are not strong enough to produce a clear transmission, thereby eliminating unwanted noise. This feature adjusts the squelch threshold of an incoming transmission

Range :0-9

Default : 1

RX Ref Frequency

Selects the Reference Frequency used when receiving on the current channel. The reference frequency can be shifted to allow the radio to operate on channel frequencies that would otherwise be blocked by internally generated spurious signals. Internally generated spurious signals would appear as silent carriers on certain channel frequencies. Shifting the reference frequency allows these permanent signal carrier to be shifted to unused frequencies so that the desired channel frequencies can still be used. This is a channel-wide feature.

Default: Low

TX Ref Frequency

Selects the Reference Frequency used when transmitting on the current channel. The reference frequency can be shifted to allow the radio to operate on channel frequencies that would otherwise be blocked by internally generated spurious signals. Internally generated spurious signals would appear as silent carriers on certain channel frequencies. Shifting the reference frequency allows these permanent signal carrier to be shifted to unused frequencies so that the desired channel frequencies can still be used. This is a channel-wide feature.

Default: Low

Note: The RX Only option must be unchecked.

TOT

The Time-Out Timer (TOT) is the duration that the radio can continuously transmit before a transmission is automatically terminated. This feature is used to ensure the channel is not monopolized by any one radio. The user may set smaller time-outs for

busier channels. This is a channel-wide feature.

Range:

- Infinite: the function is disabled.
- 15 – 555s.

Step: 15

Default: 60s

Note:

- The RX Only option must be unchecked.
- The Time-Out Timer (TOT) for current channel will be disabled if the Infinity option is selected.
- This feature is available for portable and mobile radios.

TOT Rekey Delay

This option defines the amount of time that the radio waits on a channel after the Time-Out Timer (TOT) expires (which stops the radio transmission) and before the user is allowed to transmit again.

Range

0 – 255s

Step

1s

Default

0s

Note

- The RX Only option must be unchecked.
- This feature is unavailable when the **TOT** option is set to Infinite.

Power

This option allows users to set the TX power level for current channel. User can toggle between high and low, via a short or long programmable key press or menu (if checked in menu).

- 0.2 W
- 1 W
- 2.5 W
- 5 W

Default : 1 W

Note: The RX Only option must be unchecked.

RX Frequency(MHz)

Sets a frequency (in MHz) on which the signal is received for the current channel. This is a channel-wide feature.

Note: This parameter must be set within the Frequency Range. The RX frequency

range of the terminal are The TX frequency range of the terminal is U1 (400 - 480MHz)

TX Frequency(MHz)

Sets a frequency (in MHz) on which a signal is transmitted for the current channel. This is a channel-wide feature.

Note:

- The RX Only option must be unchecked.
- This parameter must be set within the Frequency Range . The TX frequency range of the terminal is U1 (400-480MHz)

Amit Criteria

This option defines the response from the transmitter upon PTT press on the current channel, in order to prevent the user transmitting on channels that are already in use.

Digital Channel:

- Always: The user can transmit all the time.
- Channel Free: The radio can transmit only if the channel is free.
- Color Code: The radio can transmit only when the channel is free or the color code is not matched.

Analog Channel:

- Always: The user can transmit all the time.
- Channel Free: The radio can transmit only if the channel is free.
- Correct CTCSS/CDCSS: The radio allows transmission upon CTCSS/CDCSS match.

Default: Always

Note: The RX Only option must be unchecked.

Auto Scan

This option allows the radio to begin scanning automatically when user switches to current channel.

Default: Unchecked

RX Only

Configures the channel to receive only without any transmission capability. All Transmit features for the channel will also be disabled. This is a channel-wide feature.

Default: Unchecked

Lone Work

This feature enables Lone Worker on the radio. The Lone Worker feature prompts an emergency to be raised if there has been no user activity for a predefined time. The Response Time resets with user activity. The Reminder Time begins when the Response Time expires. The Reminder Time determines how long it takes the radio waits before raising the emergency. User activity is defined as activation of any radio button or of the channel selector. This is a channel-wide feature.

Default: Unchecked
VOX This option allows users to set whether to enable the VOX function on the current channel. When enabled, this function allows users to speak into the radio directly without pressing PTT key. Default: Unchecked
Allow Talkaround This option allows radio to communicate when there is no repeater available when the repeater is out of range or when the repeater is down. When this is selected either via the programmable button or the radio menu, the radio uses a receive frequency to transmit but it still allow radio in repeater mode to receive signal from the Talk Around operated radio. Default: Unchecked Note: • This option is available for portable and mobile radios. • To activate this function, the RX frequency must be different from the TX frequency on digital channels.

② **Digital Data**

Private Call Confirmed This option configures whether the radio sends a confirmed private call request when user is trying to initiate a private call. • Checked: The radio sends confirmed private call request upon private call initiation. • Unchecked: The radio sends unconfirmed private call request upon private call initiation. Default: Unchecked Note • The RX Only option must be unchecked. • This feature is available for digital channel only.
Emergency Alarm ACK This option determines whether to acknowledge an emergency alarm automatically when an emergency alarm request is decoded. Default: Unchecked Note: It is recommended that only a single radio in the group be programmed to acknowledge emergency alarms to avoid reply collision.
Data Call Confirmed

This feature enables individual packets in data calls (Text Message) on the current digital channel to be confirmed on the Data Link level. This feature also enables personality to be confirmed (acknowledged) on the current digital channel to be confirmed on the Data Link Level.

- Checked: The radio sends confirmed data call request upon private call initiation.
- Unchecked: The radio sends unconfirmed data call request upon private call initiation.

Default: Unchecked

Note:

- The RX Only option must be unchecked.
- This feature is available for digital channel only.

Compressed UDP Data Header

This radio can configured to perform UDP header compression, which reduces the 28 byte UDP/IPv4 headers to four or eight bytes, but requires an extra link layer header. If sending short data messages in great RF conditions, and if optimizing for throughput, one should consider utilizing UDP header compression.

Default: Unchecked

Emergency System

This option associates a defined digital emergency system to the current channel.

- A list of emergency systems available in the Digital Emergency System.
- None: The Emergency feature is prohibited on the current channel.

Default: None

Note: Users must configure the DMR Emergency system before setting this option; otherwise, the default option will be applied.

Contact Name

Selects the Reference Frequency used when transmitting on the current channel. The reference frequency can be shifted to allow the radio to operate on channel frequencies that would otherwise be blocked by internally generated spurious signals. Internally generated spurious signals would appear as silent carriers on certain channel frequencies. Shifting the reference frequency allows these permanent signal carrier to be shifted to unused frequencies so that the desired channel frequencies can still be used. This is a channel-wide feature.

- Private Call contact
- Group Call contact
- All Call
- None: The user is prevented from initiating a call with PTT in standby mode on the channel.

Default: None

Note:

- Users must add contacts to the Digital Contact before setting this option.
- The RX Only option must be unchecked.
- This feature is available for digital channel only.

Group List

This option associates an available Digital RX Group Call list to the current channel. In presence of any activity that match the talk group ID in the Digital RX Group Call list. The radio unmutes and allows radio user to respond and talkback within the defined Group Call Hang Time.

- None: The radio will only decode the talk group ID if it is as identical to what is set in the Contact Name. The radio cannot be able to decode any group call when the Contact Name is set to "None".
- Group Lists 1 – 250

Default: None

Note:

- This feature is available for digital channel only.
- Users must add contacts to the Digital RX Group Call before setting this option.

Color Code

Color code is used to identify a system. User who wish to communicate with each other are assigned with the same color code. A radio ignores the channel activity which does not match the preset color code in this field, as it is assuming the activity belongs to other system. In a case where there are multiple systems (with different color codes set between the multiple digital channels), the user can turn on the Scan operation, that allows the radio to listen to activities across multiple systems.

Range: 0-15

Step: 1

Default: 1

Note: This feature is applicable to Conventional radios in Digital mode only.

Repeater Slot

TDMA scheme is applied to divide the 12.5KHz channel into two consecutive slots. Either slot can be used for communication or data transfer.

- Slot 1: Slot 1 is used for transmitting and receiving in Repeater mode and for receiving signals from repeater in Direct mode. If the local PTT is enabled. Slot 1 will be used for transmitting (repeater only).
- Slot 2: Slot 2 is used for transmitting and receiving in Repeater mode and for receiving signals from repeater in Direct mode. If the local PTT is enabled. Slot 2 will be used for transmitting (repeater only).

Default: 1

Note:

- This configuration is available for digital channel only.
- It is recommended that both parties (the transmitting party and receiving party) use Pseudo Trunk.
- Pseudo Trunk is not recommended on revert channels.

In Call Criteria

This option defines the response from the transmitter upon PTT press on the current channel, in order to prevent the user transmitting on channels that are already in use.

Digital Channel:

- Always: The user can transmit all the time.
- Follow Admit Criteria: If user chose this, setting will follow Admit Criteria feature.

Default: Always

Privacy

This option encrypts audio signals and data to be transmitted on the current channel. This option allows the user to enable the Encrypt feature. This technology can facilitate secret communication using a key to make the audio signal or data inaccessible to anyone except those possessing the same key, so as to achieve communication privacy.

- None: Privacy No is not available.
- Basic: Privacy No 1 - 16
- Enhanced: Privacy No 1 - 8

Default: None

Note: This option is available for digital channel only.

Privacy No.

This option allows users to associate an available key to the current channel. This is the encrypting key for transmission. This is also the key that will be used in receive mode. The caller and receiver can communicate only with same key.

Default: 1

Note: This option is available for digital channel only.

③ Analog Data

CTCSS/DCS Dec

This option allows users to configure the current channel with a specific receives CTCSS/CDCSS type. When the radio receives the signal, it will distinguish whether the received signal is CTCSS or CDCSS, and check out whether it matches the predefined CTCSS/CDCSS for the current channel before processing.

- None: The radio will not check the CTCSS/CDCSS when receiving a signal on the current channel.
- CTCSS:.67.0Hz - 254.1Hz
- CDCSS:D023N – D754N
- CDCSS Invert: D023I – D754I

Default: None

Note: This feature is applicable to Conventional radios in Analog mode.

CTCSS/DCS Enc

This option allows users to configure the current channel with a specific transmit CTCSS/CDCSS type. The selected CTCSS/CDCSS will serve as encoding criterion for the current channel.

- None: The radio will not check the CTCSS/CDCSS when receiving a signal on the current channel.
- CTCSS:.67.0Hz - 254.1Hz
- CDCSS:D023N - D754N
- CDCSS Invert: D023I – D754I

Default: None

Note: This feature is applicable to Conventional radios in Analog mode.

RX Signaling System

TX Signaling System

The DTMF (Dual-Tone Multi-Frequency) encoding technology uses two specific tones (high and low) to represent a number, so as to realize some features. After accessing the phone system, the radio can send or receive phone calls, which are based on the DTMF signaling. For portable and mobile radios, a maximum of 4 systems are supported.

QT Reverser

This option eliminates squelch tail noise when the transmitting party ends the communications. It mutes the output audio when it receives the QT Reverse Burst.

Default: 180

Non-QT/DQT Turn-off Freq

This option eliminates squelch tail noise when the transmitting party ends the communications. DQT Turn-off Frequency is transmitted at the end of communications.

Default: None

Display PTT ID

This option allows the user to show the PTT ID of another radio when the transmitting party ends the communications.

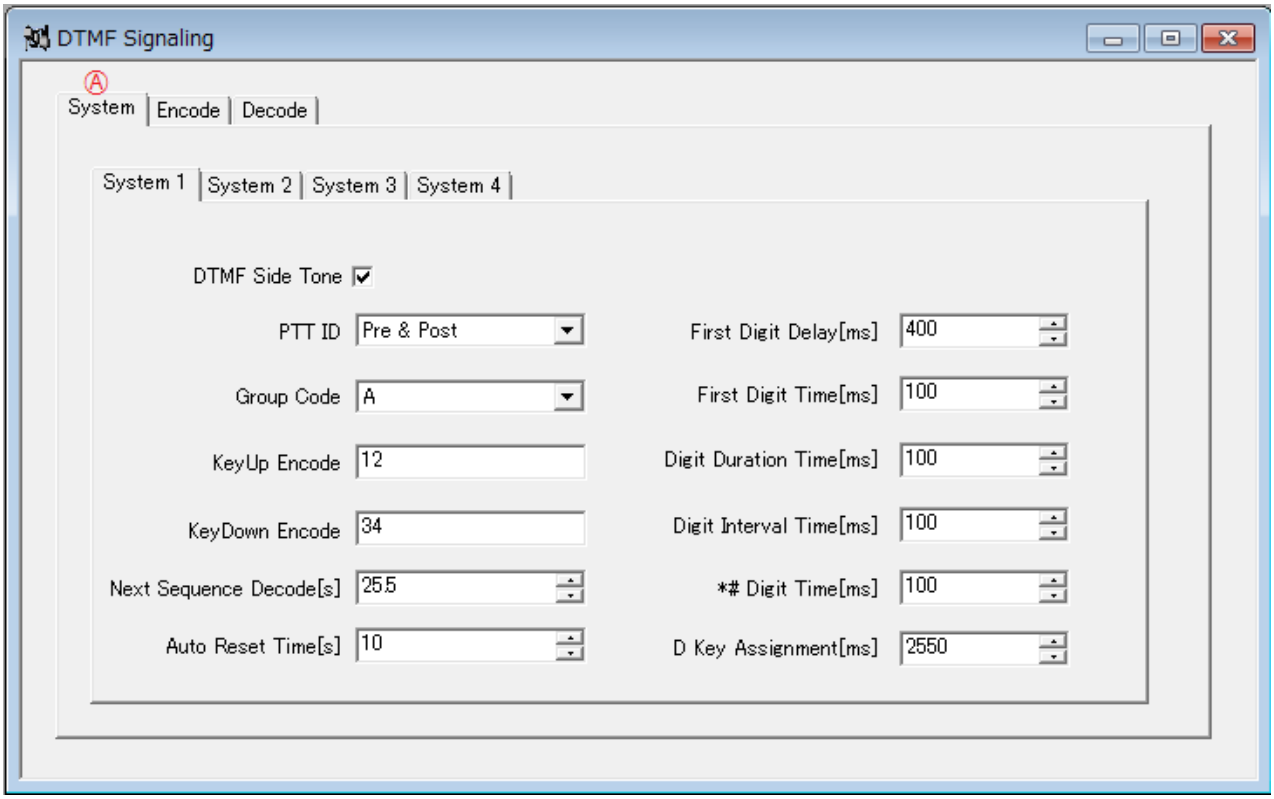
Default: Unchecked

Reverser Burst/Turn-off Code Default: Unchecked

XIII.DTMF Signaling

The DTMF (Dual-Tone Multi-Frequency) encoding technology uses two specific tones (high and low) to represent a number, so as to realize some features. After accessing the phone system, the radio can send or receive phone calls, which are based on the DTMF signaling. For portable and mobile radios, a maximum of 4 systems are supported.

A. **System**



DTMF side Tone This option allows users to enable or disable the tone alert during the DTMF data packet transmitted. Default: Checked
PTT ID This option allows the user to select when the PTT ID is sent during a transmission for the current DTMF signaling system.

- None: PTT ID is not transmitted. If this option is selected, then KeyUp Encode and KeyDown Encode is disabled.
- Pre Only: PTT ID is transmitted upon press of the PTT button.
- Post Only: PTT ID is transmitted upon release of the PTT button.
- Pre & Post: PTT ID is transmitted upon both press and release of the PTT button.

Default: None

Group Code

A Group Code can be programmed with DTMF codes A, B, C, D,* or #. If the transceiver receive a valid ID code with one to all of its digits substituted with this Group Code wild card, it will decode.

Default: None

KeyUp Encode

It is used to define DTMF encode used for Pre PTT ID. 0-9, A-D,* and # can be used.

Default: None

KeyDown Encode

It is used to define DTMF encode used for Post PTT ID. 0-9, A-D,* and # can be used.

Default: None

Next Sequence Decode

This option allows users to select the amount of time between PTT pressed and first digit of signaling system data packet transmission. This time allows the receiving radio to stabilize before receiving data.

Range: 0.2 – 25.5 s

Default: 0.2 s

Auto Reset Time

Range: 0 – 255 s

Default: 10 s

First Digit Delay

This option allows users to select the amount of time between PTT pressed and first digit of signaling system data packet transmission. This time allows the receiving radio to stabilize before receiving data.

Range: 100 – 2550ms

Default: 400ms

First Digit Time

This option allows the user to extend the sending time of first digit DTMF tone.

0, 100, 500, 1000ms

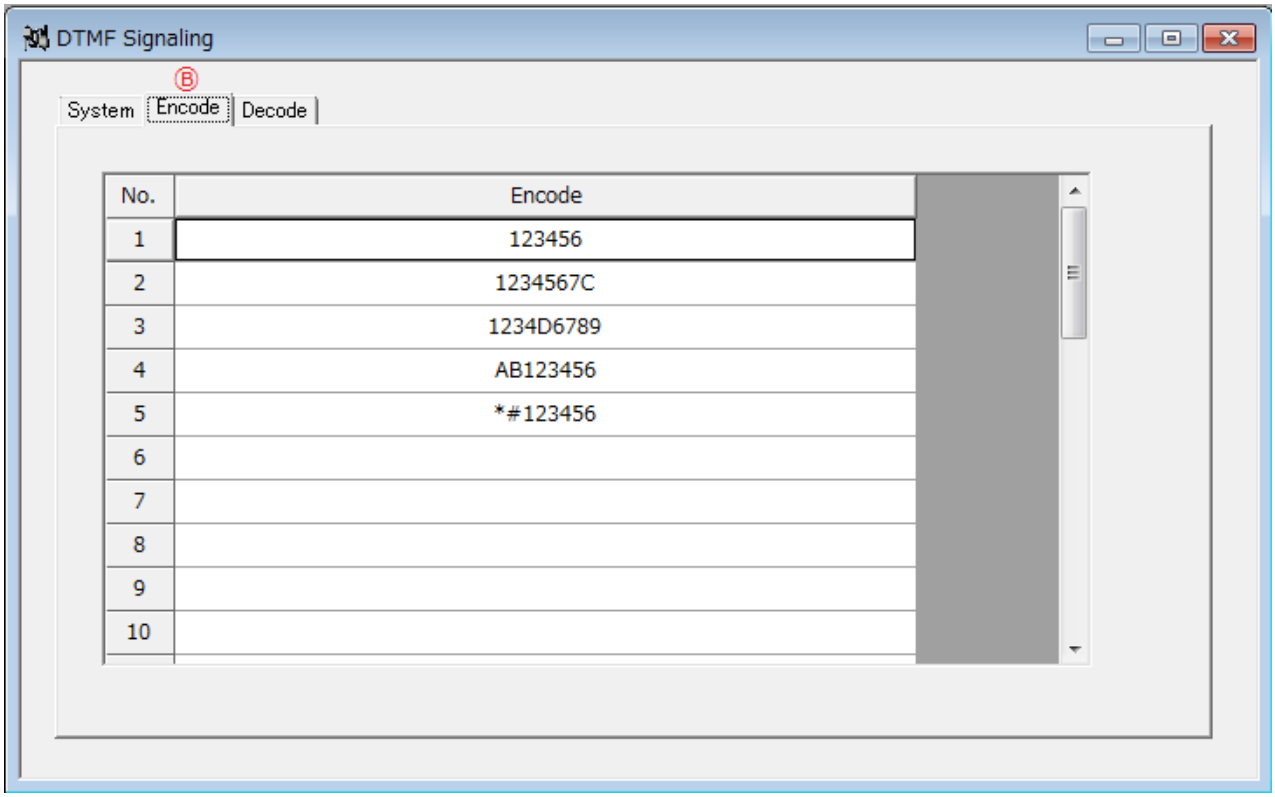
Default: 100ms

Digit Duration Time

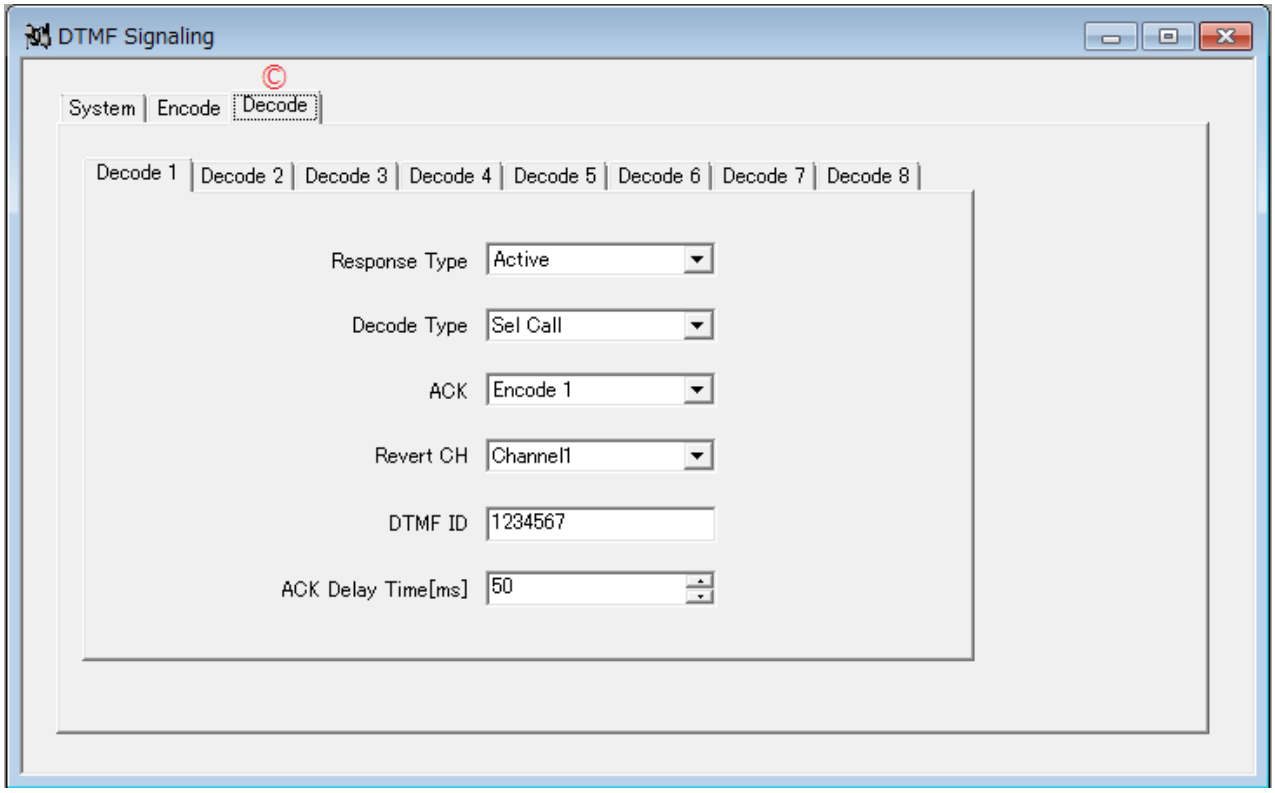
This option allows users to selects the amount of time that a DTMF tone is transmitted

for a single digit. Range: 30-2550ms Step: 10ms Default: 100ms
Digit Interval Time This option allows users to selects the amount of time that the radio waits between DTMF digits. Range: 30-2550ms Step: 10ms Default: 100ms
***# Digit time** This option allows the user to extends the sending time of * and # digit DTMF tone. Range: 0-2550ms Step: 10ms Default: 100ms
D Key Assignment The transceiver inserts pauses between codes when transmitting DTMF by D Key. “D” Key assignment means it is a DTMF “D”. Range: D Key 1-2550ms Step: 10ms Default: 100ms

B. Encode



C. Decode



Response Style

Determines the type of action taken by the radio on receiving a valid telegram. They are used to enable features of the radio, from lifting the squelch and opening the radios audio circuits for an individual call sequence, to instigating an emergency and they can also be used to display information if the radio has a display.

- Active: If a stunned radio has a decoder programmed for active, then on reception of this tone sequence the radio will revert to normal operation. The radio may also be active by reprogramming the radio.
- Kill: If a radio has a decoder set up for kill then on decoding the sequence the radio will be 'killed'. All attempts at user activity, except powering on/off, will be ignored. The only received signal action by the radio will be revive decode sequence.

Default: Active

Decode Type

The features allows the radio to respond different status when receiving the DTMF decode. When the radio user is leave, the call alert led will persist until reset by the user.

- None: Neither of the listed options can be performed on the current system.
- Sel Call: The Selective Call reduces the number of calls not of interest from being heard. Typically, the Selective Call is used when the majority of transmissions are between a dispatcher with either a single radio or a group of radio users, where other users would not be interested in the call.

Default: None

ACK (acknowledgement)

This option will cause the radio to transmit the reply when the acknowledge delay timer expires, regardless of the state of carrier detect on the channel.

Default: None

Revert CH

This is used to select the analog channel used for the current Decode.

- All the available analog or digital channels.
- Selected: current channel.

Default: Selected

DTMF ID

It is used to define decode ID for current decode template. The maximum length is 30 characters (digits or English letters).

Default: None

ACK Delay Time

This option will cause the radio to transmit the reply when the acknowledge delay timer

expires, regardless of the state of carrier detect on the channel.

Range:

- Off: the radio will reply to the call as fast as possible but obviously not instantly.
- 50-12750ms

Step: 50ms

Default: Off