

# DX- 100/400 Series

## User Manual



VHF Transceiver  
**DX-100**  
UHF Transceiver  
**DX-400**



Yeon Hwa M Tech Co.,Ltd.

36, Jeonpa-ro 44beon-gil, Manan-gu, Anyang-si, Gyeonggi-do, 14086, Korea

Tel : 82-70-7436-3296 / E-mail : [saleshan@xradio.co.kr](mailto:saleshan@xradio.co.kr) / Web : [www.xradio.co.kr](http://www.xradio.co.kr)

## **DX-100/400 Series Main Features**

The DX-100/400 Digital Radio was developed by Yeonhwa M Tech Co., Ltd. to be user-friendly and compact design, to have various features and to use at the construction / industrial / commercial / public areas for the safety & convenience of users.

It provides better communication distance, audio quality and volume, duration of use through digitalization than Analog radio.

The followings are the main features of the DX-100/400 Series Radio.

- 16 Zones and 32 Channels are selectable. (1zone = Max 32 Channels)
- 512 CH can be set.
- Dual-mode(Analog & DMR) Operation
- English and Korean setting function.
- RF Power setting function.
- Short (up to 40 characters) message sending and reception functions.
- Encryption mode ( AES 128, 192, 256 )
- Transmit Interrupt (Option)
- Lone Worker mode
- Normal scan
- 5-step VOX (Voice Operated Transmit) can be set
- Time-Out Timer (TOT) / BCL function
- Emergency / Siren function
- Built in Flash Lamp
- Etiquette (Vibration) function
- Voice recording and playback
- VOX (Voice Operated Transmit)
- 5-step S.Q can be set (Analog support).
- Remote Radio Stun / Kill / Revive
- Speaker volume of 1 Watt
- Use of Motorola accessories and a shared
- 3Lines Mono LCD Display
- Aluminum metal Frame Body
- Adopt DC+3.8V 2,200mAH high capacity Battery
- Micro USB charge through Desk Top Charger or Direct through Radio

## 2. Specification

### 2.1 DX-100/400

#### General

Frequency Range	DX-100 : 140~174MHz DX-400 : 440 ~ 470 MHz
Frequency Stability	±1.5ppm (-30 to +60°C)
Programmable Channels	16 Zones / 32 Channels
Channel Spacing	12.5KHz
Digital Vocoder	AMBE++
Dimensions	99mm(H) x 51mm(W) x 21mm(D)
Weight	160g
Power Source	DC +3.8V Li-ion 2200mAh Battery
Current Drain (maximum)	Receive mode, rated audio out – 320 (Audio Max) Transmit mode – 1,700mA Standby mode – 120mA

#### Receiver

Sensitivity	0.22uV 12 dB SINAD
Squelch Sensitivity	0.20uV 10dB SINAD
Selectivity	65dB (12.5KHz) 75dB
Spurious and Harmonic Rejection	40dB (12.5KHz)
FM Hum and Noise	1 Watt across an 16-ohm load
Audio Output Power	Less than 3% at rated output
Audio Distortion	+1, -3 dB from 6dB per octave de-emphasis Characteristic
Audio Response	from 300 ~ 3000Hz 50 ohms

#### Input Impedance

#### Transmitter

RF Power Output	3/1Watt
Spurious and Harmonic	70dB
FM Hum and Noise	40dB (12.5KHz)
Audio Distortion	3% maximum with 1KHz modulation
Audio Frequency Response	+1, -3dB from 6dB per octave pre-emphasis Characteristic from 300 ~ 3000Hz
Output Impedance	50ohms

### 3. Checking items in the package

- Components could be changed by buyer request.



Radio unit



Battery



2 slot charger



Antenna



Belt clip



Hand strap

User Manual



User manual

Figure 3-1) DX-100/400 series main items

Battery (XB-2000) : 2200mAH Li-ion battery pack

### 3.1 Appearance of DX-100/400 Series Radio

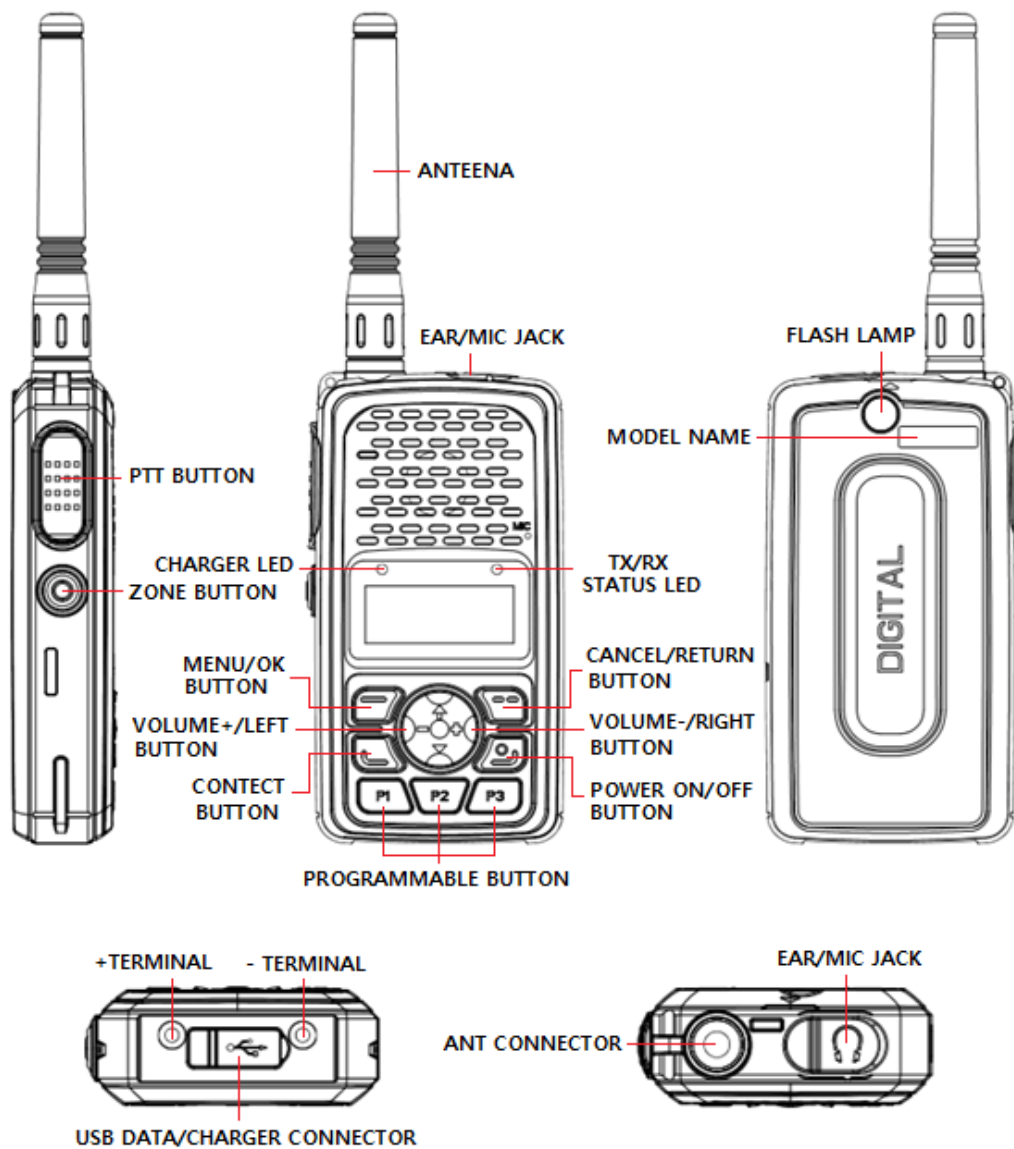


Figure 3-2) Appearance of DX-100/400 Series Radio

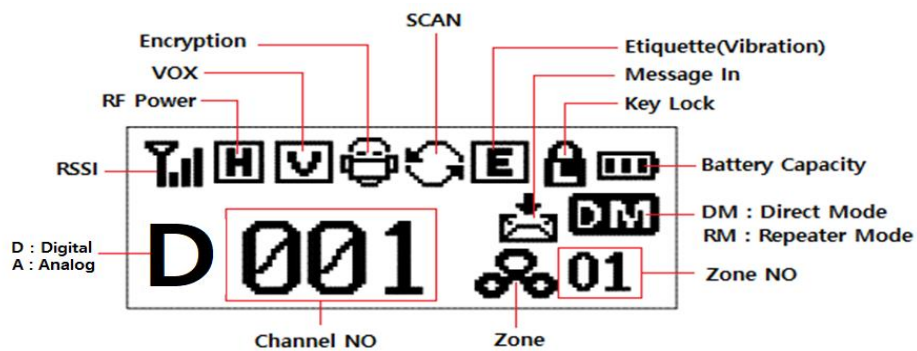
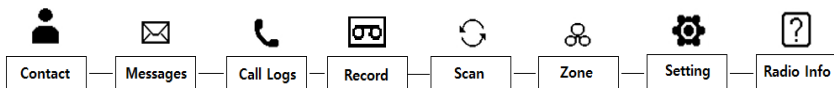


Figure 3-3) LCD Indication of DX-100/400 Series Radio

## 4.1 Basic Button Operations

Button & Jack	Operation Description														
Power ON/OFF	Press and hold the power button for 2 seconds, the device power is turned ON. When you press the power button for 2 seconds during use, the power is OFF..														
PTT Button	The radio transmits messages when pressing PTT button. It receives messages when releasing the PTT button.  In order to have clear sound when transmitting, it is recommended to speak around 5~10cm away from the MIC.														
Volume/Menus +/- Button	+/- Button can adjust the call sound by using, and if you press the [+] button, the sound will be increases if you press the [-] button, the sound will be smaller. In the menu, you can move to the menu item.														
Channel Menu UP / Down Button	Regularly UP / DOWN buttons are for the channel selection. In the menu screen, it moves through different functions (UP&DOWN).														
Zone Button	When pressing Zone button, zone registered in the program will be selected in order. You can choose channel by using UP/DOWN button in selected zone.														
Menu Button	When pressing the menu button one more time while in the menu, it moves to detailed menu section of the selected one. <div></div>														
Cancel/Return Button	Press the button to return to previous item in menu. In the menu setting screen, it functions as cancel button.														
P1, P2, P3 Button	Short press is Programmable Key. Long Press of button more than 2 seconds is as follows: <table><tr><th>P Button</th><th>Short Key</th><th>Long Key</th></tr><tr><td>P1</td><td>Programmable</td><td>Key Lock ON / OFF(Temporarily)</td></tr><tr><td>P2</td><td>Programmable</td><td>Flash Light ON / OFF</td></tr><tr><td>P3</td><td>Programmable</td><td>Vibration ON / OFF</td></tr></table>			P Button	Short Key	Long Key	P1	Programmable	Key Lock ON / OFF(Temporarily)	P2	Programmable	Flash Light ON / OFF	P3	Programmable	Vibration ON / OFF
P Button	Short Key	Long Key													
P1	Programmable	Key Lock ON / OFF(Temporarily)													
P2	Programmable	Flash Light ON / OFF													
P3	Programmable	Vibration ON / OFF													
Contact Button	Press the button to enter the contact list programmed into the radio such as Private, Group and All Call.														
EAR/MIC Jack	This jack is used to connect external speaker Mic, and headset, etc														
LED indication	This LED displays the operating status of the device ① TX : Red Lamp.                      ② RX : Green Lamp. ③ Green blinks: when the frequency is the same but the color code does not match. ④ Low Battery: Red Lamp blinks with “beep” sound														

## 5. Installation and Removal

### 5.1 Antenna installation and removal

To install the antenna, insert the antenna into antenna connector and screw the antenna clockwise. To remove the antenna, screw the antenna counter clockwise.

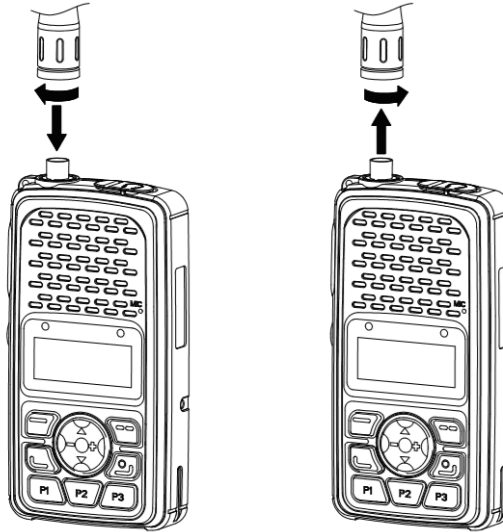


Figure 4-1) Antenna installation and removal



Caution

When installation of the antenna, giving a strong pressure to the Radio or pulling the antenna with a strong power from the Radio can make damage on the antenna connector, which may cause the Radio to have a critical problem.

### 5.2 Battery installation and removal

Removal of the battery is shown in Figure 4-2.

Slide the rear cover in the direction of the top and open the cover. And then remove the battery. Slide and hold down, the battery is inserted. Insert the back cover to the below hole and press the cover as shown in Figure 4-3. Then the cover will be equipped.

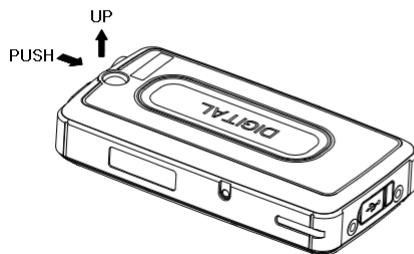


Figure 4-2) Battery installation and removal

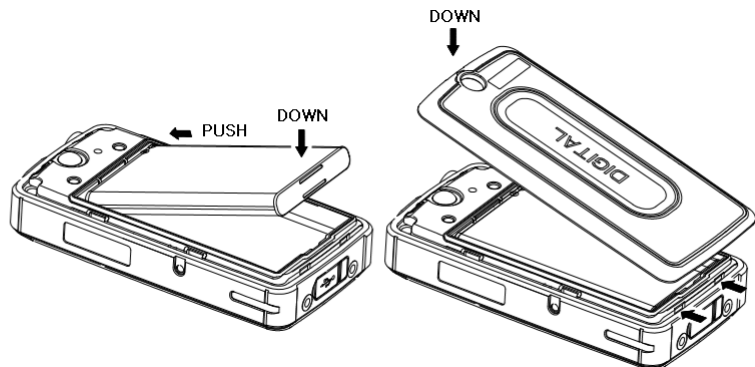


Figure 4-3) Rear cover mounting

### 5.3 Cradle installation and removal

To install and remove the cradle, push the cradle latch in direction 1 and pull the body in direction 2, and the installation method is reserved.

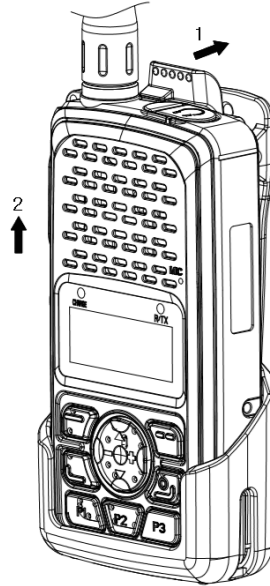


Figure 4-4) Cradle(Belt clip) installation and removal

### 5.4 External accessory connection

Align the body with accessory hole and push and tighten the screws as shown figure 4-5.  
To remove the accessory, loosen the screw and pull out.

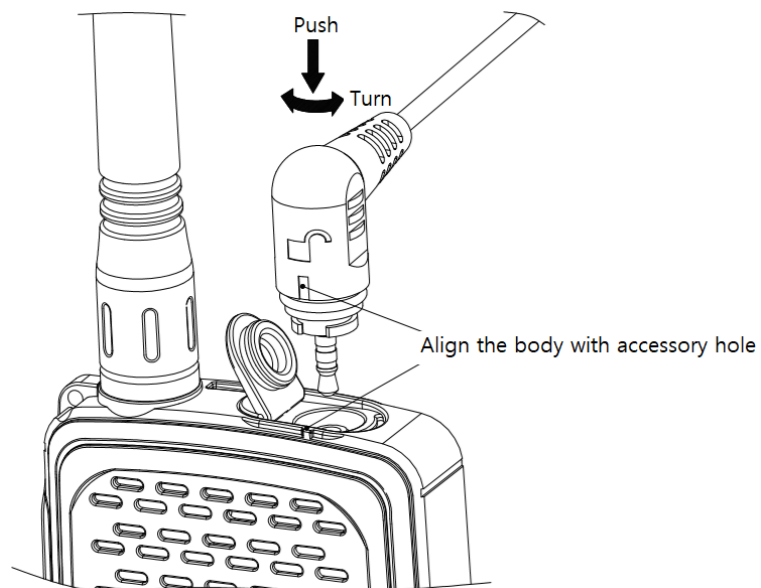


Figure 4-5) External accessory connection



## 5.5 Charging USB

Open the USB cover and connect the micro USB charging adaptor. And the LED will turn on the red color. When charging is completed, the charging LED will turn green.

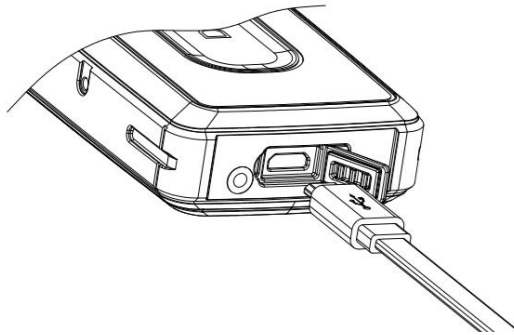



Figure 4-6) Charging USB

## 6. Charging the Battery

### 6.1 Safety Notes


1) The radio of DX-100/400 series receives power from high-performance Li-ion battery (XB-2000).

XB-2000 Battery is safe of high performance and highly reliable, and could be charged very fast.

 Caution	The charging of the enclosed Radio on the other maker's charger will cause damage on the battery and also, will cause a trouble on the Radio.
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2) Please charge the battery before using the radio for best performance and safety.

3) When you charge the battery that is installed in the Radio, please turn off the radio first to charge the battery.

 Caution	The continuous rapid discharge (for example, when making a short circuit on the '+' terminal of battery by a metal substance) may make a fatal defect and the battery can be exploded. Also, it can cause a fire.
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## 6.2 Charging time

Low battery voltage maybe cause to reduce communication coverage and also make the performance worse. Please charge the battery in case of following:

- 1) When you think that the performance of the radio has degradation.
- 2) The red lamp on RX/TX LED blinks. (every 0.5 second), during transmission or reception.
- 3) When the battery icon is blinks
- 4) While the radio is in use, "beep" sounds.


## 6.3 How to charge

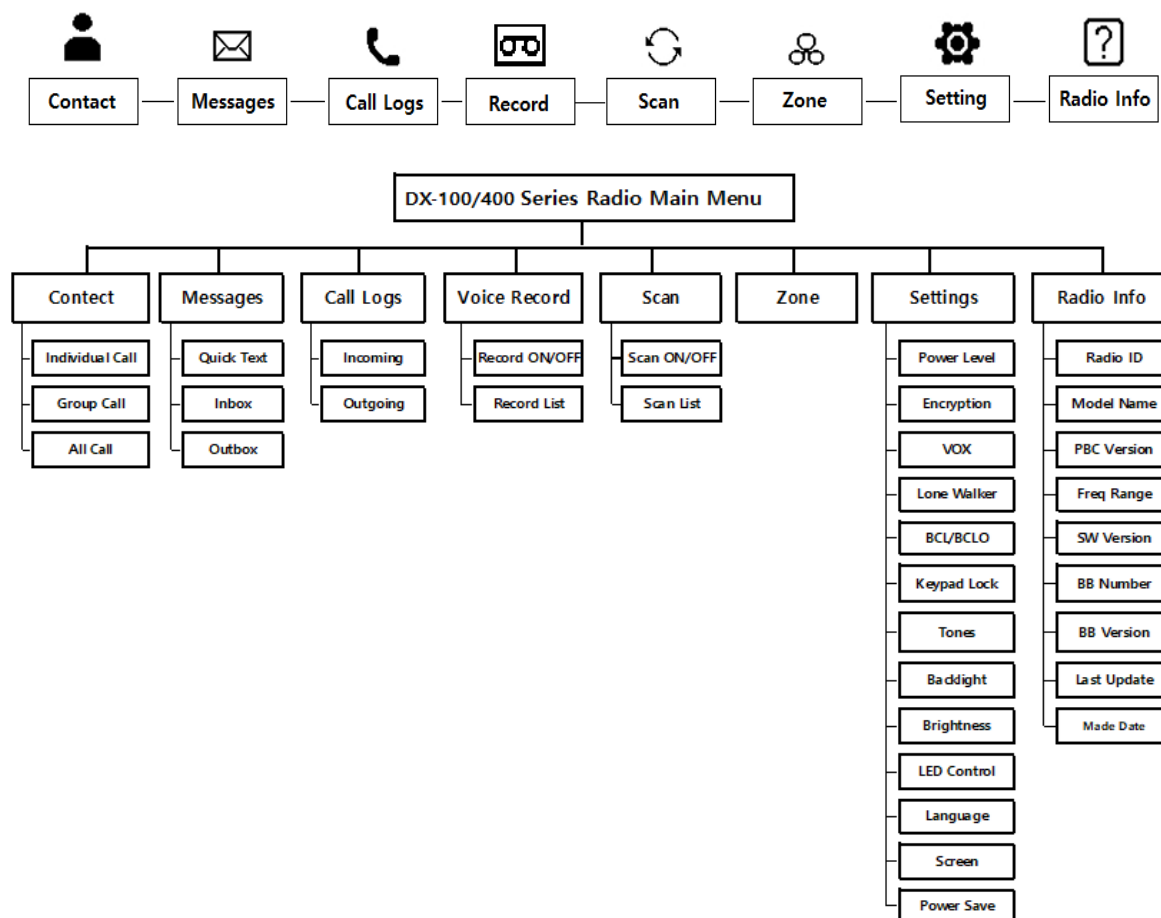
- 1) Plug the adapter of the XC-300 charger in general power AC220V power outlet.
- 2) When charging the battery that is equipped with radio, please turn off the power of the Radio and plug the Radio in the charger.
- 3) Even if charging is completed (green lamp lights), please charge more for about 30 minutes for a full charge.

Status	LED indication	Status	LED indication
Charging	Red LED lights	Detecting error	Red LED is flicker
Complete charging	Green LED lights	Keep charging	Green LED lights

## 7. Using the DX-100/400 Series

### 7.1 Menu description

Press the  button on the front to enter the menu mode. In the menu mode, there are eight of the main menus, and set and used according to the application and the environment, it can be more convenient to use.



**Figure 7 DX-100/400 Series Menu Tree**




Note) If the menu is not operated for at least 25 seconds after launch, the menu mode is automatically end and it is switch to receive mode.

#### 7.1.1 Contact List (Digital Mode Only)

The Contact List Provides a list of individuals, groups or all calls of which you can make a direct call. The lists of contact are set within the radio by the PS. To initiate a call, select the Contact section from the menu (or press the contact button for direct access, Press the menu/enter button to see the list of contact, press the ▲▼ keys to the desired contact and

press the PTT button to initiate the call. The radio will revert to the original contact/channel after a preset time as set by the PS. When you enter in the contact menu, the applicable icon will be shown indicating the type of call.

#### ICON.

- : Individual Contact List
- : Group Contact List
- : All Contact List (Can be used the terminals with the same channel and color code)

### 7.1.2 Message (Digital Mode Only)

The message section offers the ability to perform one of the three functions.

**Quick Text** – The ability to send from a choice of 10 preset messages with up to 40 characters per message. The preset messages are set by the PS.

**Inbox** - Stores up to 10 received text messages; when the received messages 10, the oldest message is cleared and the newest incoming message is registered. When a new message arrives, the contents will be displayed on the LCD. When you choose messages stored in the list, you can view the sent messages and the caller ID that initiated the call.

**Outbox** - stores up to 10 outgoing text messages; when the outgoing messages exceed 10, the oldest message is cleared and the newest sent message is registered. When you choose messages stored in the list, you can view the sent messages and the caller ID to whom they were sent.

To obtain access, select the Messages section from the menu, press the menu/enter button to enter into Messages and use the ▲▼ keys to highlight one of the three choices:

#### a) Quick Text

Select Quick Text from the message menu by pressing the menu/enter button to view the registered message(s) using the ▲▼ keys, select the message you want to send, and press the menu/enter button to see the contents of the message. Press the menu/enter button again to view the list of contacts, and using the ▲▼ keys, select the contact for the message to be sent. Press the menu/enter button and the message will be sent to the contact(s). An acknowledgement will be shown on the display of either "Sent Success" or "Sent Fail". If the message is failed, check to make sure that the user receiving the message has their unit powered on.

#### b) Inbox


Text messages are shown initially on the screen. If you are in another mode or miss the message, the message icon will be displayed indicating a new message(s) has arrived. Select inbox from the message menu by pressing the menu/enter button to view the registered message(s). Using the ▲▼ keys, select the message you want to view, and press the menu/enter button to see the contents of the messages. Messages that have yet to be viewed will be indicated with a downward arrow inside the envelope; after a message is viewed the arrow will no longer be shown.

If you want to delete messages from the Inbox, select #2 Delete All from within the Inbox menu by pressing the menu/enter button, the question to Delete All will appear with the word "Yes?" Press the menu/enter button to delete all messages. If you choose not to delete the messages, press the return button to exit out.

#### c) Outbox

Select Outbox from the message menu by pressing the menu/enter button to view the outgoing message(s). Using the ▲▼ keys, select the message you want to view. At this point, you can resend the message. Press the menu/enter button to view the contents of the message. Using the ▲▼ keys, select the message you want to send, and press the menu/enter button to see the contents of the message. Press the menu/enter button again to view the list of contacts, and using the ▲▼ keys, select the contact for the message to be sent. Press the menu/enter button and the message will be sent to the contact(s). An acknowledgement will be shown on the display of either "Sent Success" or "Sent Fail". If the message is failed, check to make sure that the user receiving the message has their unit powered on.

To delete messages from the outbox, select #2 Delete All from within the Outbox menu by pressing the menu/enter button, the question to Delete All will appear with the word "Yes?" Press the menu/enter button to delete all messages. If you choose not to delete the messages, press the return button to exit out.

 Note - When sending and receiving text messages, turn off the power saving mode

### 7.1.3 Call Logs (Digital Mode Only)

This is the menu to save only individual call log.

Group and All call logs do not save. The message content is managed in the in/outbox messages.

#### 1) Inbox

It is possible to store up to 10 inbox record and it can see the opponent ID.

When the inbox is more than 10, the earliest inbox record is cleared first and it is registered.

If you want to delete inbox record it can be deleted by selecting delete all menu.

## 2) Outbox

It is possible to store up to 10 outbox record and it can see the opponent ID.

When outbox is more than 10, the earliest outbox record is cleared first and it is registered.

If you want to delete outbox record it can be deleted by selecting delete all menu.

## 7.1.4 Call Recording (Digital Mode Only)

This function is used to record the content of outgoing and incoming calls in digital mode only. There are 3 choices of Settings, Lists, and Delete All. Up to 63 conversations/recordings can be stored with each recording limited to 150 seconds. When the recordings exceed 63, the oldest message is cleared and the newest incoming message is registered,

**Settings** - This section allows the capability to turn the recording capability on off.

**Lists** – This section allows the viewing of the recorded messages and to play back each message. To play back a message, use the ▲▼ key to the desired message and press the menu/enter button to play the recording.

**Delete all** – This function provides the capability to delete stored recordings. To delete recordings, select Delete All from within the Voice Recording menu by pressing the menu/enter button, the question to delete All will appear with the word “Yes” Press the menu/enter button to delete all messages. If you choose not to delete the messages, press the return button to exit out.

## 7.1.5 Scan

This function provides the ability to turn scan on/off and review the scan list as programmed into the radio via the PS. The ability to scan digital and analog channels are available. Contact your Authorized Dealer for further information.

### 1) Scan ON/OFF

Select the scan settings or scan release at the scan of menu and go to receive mode..

### 2) Scan list

Scan list can be set using the CPS program.

## 7.1.6 ZONE

Up to 16 zones (with up to 32 channels per zone) can be programmed into the radio via the PS. To select the desired zone, press the ▲▼ keys and press the menu/enter button to accept the zone. Contact your Authorized Dealer for further information.

## 7.1.7 Setting

This is the menu to set various functions of the radio.

This function allows the change to the settings of Power Level, Voice encryption, Voice Operated Transmit (VOX), Lone Worker, BCL / BCLO, Keypad lock, Tones, Backlight, Brightness, LED Control, Language, Screen and Power Save.

### 1. Power Level

This function sets the power transmitting level at high or low. The setting of low power improves battery life, but diminished talk range.

### 2. Voice Encryption (Digital Mode Only)

This is a feature to encrypt the incoming and outgoing voice. Voice Encryption function can be set for each channel from all of the digital channels.

The setting of voice encryption code is using the CPS program, the total number of encryption can be set from 1 to 10 with AES 128,192,256.

### 3 VOX

VOX function is transmitted by detecting a voice level without using the PTT button. VOX sensitivity level is 1 - 5 steps, you can set using the CPS program.

### 4. Lone walker (Digital Mode Only)

It is function to inform others about your safety within the time set in the menu. Setting time supports up to 1-100 minutes..

### 5. BCL/BCLO

If the another user on the currently used channel, it is the ability to limit the transmission so as not to interfere..

BCL: If the current channel is busy, the transmission prohibition

BCLO: The ability to send regardless of the user of the current channel

## 6. Keypad Lock

With the exception of the minimum of buttons necessary for the user to prevent unwanted terminal operation, it is the ability to limit the operation.

When the button lock is on, all buttons are locked except the PTT button, the emergency button and power ON / OFF button.

When press the **PT** key (button lock temporary release key) for 2 seconds, you can use a button. After 25 seconds from you pressing the last button, to return to the button again locked.

## 7. Tones

This function allows the sound of the Radio to be turned ON/OFF. The kind of the tones is set via the PS. Contact your Authorized Dealer for further information.

## 8. Backlight

This function allows you to adjust the time for turning on and off the LCD backlight. The duration of the timed section is set via PS. More information, contact your authorized dealer.

## 9. Brightness

This function is to adjust the contrast/brightness of the LCD from low to high

## 10. LED Control

This function is to set the enable or disable the radio status LED. The LED status can be set via the PS.

## 11. Language

The feature is to select the language for the menus.

## 12. Screen

The feature allows the ability to change between Screen 1, Screen 3 for Numeric or Screen 2 for Alphanumeric. The Information displayed is set via user selected.

## 13. Power Saving Mode

This function allows the radio to enter a power saving mode to extend battery usage time.

Off is full power, 1/1 is 50% on / 50% off; 1/2 is 33 % on/67% off; 1/4 is 25 % on/75% off.

Note : When sending and receiving text messages, turn off the power saving mode








### 7.1.8 Radio Information

A menu that shows the information in this device..




## 8. Precautions

### 8.1 Matters affecting the performance of the equipment.

 WARNING	Don't remove the antenna from the Radio or don't transform the antenna or don't make any change on the antenna. The strong electronic wave to be emitted from the Radio can have an effect on the performance of the Radio and can cause the Radio to have a defect.
 Caution	Don't use the accessories (such as rechargeable battery, adaptor, external speaker microphone and earphone, etc.) from the other makers, which can cause to make a defect on battery and a malfunction or a defect on the Radio.
 WARNING	Don't disassemble or reorganize the Radio. The disassembly or reorganization will be causes of defect or malfunction and it will be impossible to make repair afterward. Also, a punishment can be made by law.
 WARNING	Don't use the other frequency except for the permitted frequency in order not to be punished by law.
 Caution	<ul style="list-style-type: none"><li>• Don't give an excessive shock to the Radio.</li><li>• Don't place the Radio where the direct sunlight and/or the high temperature occurs.</li><li>• If the Radio is placed for a long time in car in summer, the hot temperature in the car may cause an explosion of battery.</li><li>• Don't make a damage to the battery by a sharp substance and/or an excessive shock.</li></ul>


## 9.2 Influences to the operations of Radio or other Equipments.

The Radio emits a strong electronic wave, which may have an effect on the operation of other equipments and also, can be influenced by the other devices.

 WARNING	<p>Please turn off the Radio before boarding on airplane.</p> <p>When you want to use the Radio in the airplane, please follow the rules in the airplane or the instructions by crew.</p>
 WARNING	<p>In case of the area that medical equipments are being used, please use the Radio after discussion with the equipment maker or the related doctor.</p>
 Caution	<p>Please don't use the Radio at the place where computer or the other electric/electronic devices are being used, because the strong electronic wave from the Radio can have an effect on the equipments.</p>

## 10. Safety Notes

Please make sure to read the followings for safe and effective use of the Radio.

 WARNING	<ul style="list-style-type: none"><li>• Please keep the Radio away at least 1inch from the body.</li><li>• If the outside surface of antenna gets stripped out, it can make a burn on the skin.</li><li>• If you contact a conductive metal to battery terminal, a heat can be made and it may cause fire, explosion and burn. Especially, please be careful when putting the battery in a pocket or a bag.</li><li>• When using an earphone, please don't listen to the sound at a high level. The high sound may have a bad effect on your ear.</li><li>• After setting the volume of the Radio at a low level, please adjust the volume step by step to the level you want. A sudden high sound may give a bad damage to the ear or the heart.</li><li>• Please don't remove or replace or charge or discharge the battery at a dangerous area, since it may cause an explosion or a fire by an electrical spark.</li><li>• At the area where an electromagnetic force can be made, please make sure to turn off the power of the Radio.</li></ul>
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## Warranty Card

Thank you for purchasing DX-100D/400D Series.

1. This product has passed strict quality control and testing process.
2. Warranty is one year from the day the factory.
  - Failure of the product under normal operating conditions, during the warranty period may be repaired by YeonHwa M Tech Co.,Ltd or our authorized service organization free of charge.
3. For the following cases, some service fees will be charged.
  - It occurs after the warranty period has passed, performance failure, malfunction or damage.
  - When the product is damaged due to user's mishandling, abuse or improper operation.
  - When the product is damaged due to user's modification, attempted repair or otherwise access to sealed/non-user serviceable items.
  - When the product is damaged due to fires, pollution, earthquakes and any other natural or unnatural conditions, accidents, etc.
4. Product check list

Model No.		DX-100D/400D Series
Serial No.		
Purchase date		
Purchaser	Name	
	Address	

※ When you purchasing, please fill out this check list.

**YeonHwa M Tech Co.,Ltd**

36 Jeonpa-Ro, 44Beon-Gil, Manan-Gu, Anyang-City, Gyeongg-Do, Korea

Tel : 031)444-7270, 070-4827-3200

FAX : 031)444-7271

## Cautions

1 The device complies with RF specifications when it is used at 25mm distance from your body.

2 Risk of explosion if battery is replaced by an incorrect type, dispose of used batteries according to the instructions.

3 Adapter shall be installed near the equipment and shall be easily accessible.

4 EUT Temperature:-10°C ~ +40°C, The charging temperature of battery is - 5°C ~ +50°C,do not charging when temperature is below -5°C.

5 Adapter information:

Model name: RT-TA520EW

Input: AC 100 ~ 240V 50/60Hz 0.35A

Output: DC 5.0V,2.0A

Hereby, YeonHwa M Tech Co.,Ltd.

Declares that this Digital 3W Portable Radio is in compliance with the essential requirements and other relevant provisions of directive 2014/53/EU and without limitation of use in Europe .

The declaration of conformity may be consult at:

Manufacturer:

YeonHwa M Tech Co.,Ltd.

36, Jeonpa-ro 44beon-gil, Manan-gu, Anyang-si, Gyeonggi-do 14086

Korea

## **Cautions**

1 The device complies with RF specifications when it is used at 25mm distance from your body.

2 Risk of explosion if battery is replaced by an incorrect type, dispose of used batteries according to the instructions.

3 Adapter shall be installed near the equipment and shall be easily accessible.

4 EUT Temperature: -10°C ~ +40°C, The charging temperature of battery is -5°C ~ +55°C, do not charging when temperature is below -5°C.

5 Adapter information:

Model name: RT-TA520EW

Input: AC 100 ~ 240V 50/60Hz 0.35A

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YeonHwa M Tech Co., Ltd.

36, Jeonpa-ro 44beon-gil, Manan-gu, Anyang-si, Gyeonggi-do 14086

Korea

SAR statement (DX-400)

The max head SAR is 1.029 W/Kg and The max body SAR is 2.210 W/Kg which compliance with Specific Absorption Rate (SAR) for Occupational/controlled exposure (Localized 10-gram SAR for head and trunk, limit: 10.0W/kg) specified in Council Recommendation 1999/519/EC

SAR statement (DX-100)

The max head SAR is 0.497 W/Kg and The max body SAR is 0.491 W/Kg which compliance with Specific Absorption Rate (SAR) for Occupational/controlled exposure (Localized 10-gram SAR for head and trunk, limit: 10.0W/kg) specified in Council Recommendation 1999/519/EC

## **FCC statement**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

Hold the transmitter approximately 2 inches (25mm) from your face and speak in a normal voice, with the antenna pointed up and away.

## **RF Energy Exposure Awareness and Control Information and Operational Instructions for Occupational Use**

Notice: this radio is intended for use in occupational/controlled conditions where users have full knowledge of their exposure and can exercise control over their exposure to meet the occupational limits in FCC and International standards. This radio device is NOT authorized for general population consumer use.

### **Federal Communication Commission (FCC) Regulations**

When Digital 3W Portable Radio is used as a consequence of employment, the FCC requires users to be fully aware of and able to control their exposure to meet occupational requirement. Exposure awareness can be facilitated by the use of a product label directing users to specific user awareness information. Your Digital 3W Portable Radio has a RF Exposure Product Label. Also, your Digital 3W Portable Radio user manual includes information and operating instructions required to control your RF exposure and satisfy compliance requirements.

### **Compliance with RF Exposure Standards**

Your Digital 3W Portable Radio is designed and tested to compliance with a number of national and international standards and guidelines for human exposure to radio frequency electromagnetic energy. This radio compliance with the IEEE (FCC) and ICNIRP exposure limits for occupational/controlled RF exposure environments at operating duty factors of up to 50% talk – 50% listen and is approved for occupational use only. In terms of measuring RF energy for compliance with these exposure guidelines, your radio generates measureable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode.

Your Digital 3W Portable Radio complies with the following RF energy exposure standards and guidelines:

- United States Federal Communications Commission (FCC), Code of Federal Regulations;
- Institute of Electrical and Electronic Engineers (IEEE) C95.1
- International Commission on Non-ionizing Radiation Protection (ICNIRP)

### **RF Exposure Compliance and Control Guidelines and Operating Instructions for Two-Way Radio Operations**

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits, always adhere to the following procedures;

- DO NOT remove the RF Exposure Label from the device
- User awareness instructions should accompany device when transferred to other users.

### **Operational Instructions and Training Guidelines**

To ensure optimal performance and compliance with the occupational/controlled environment RF energy exposure limits in the above standards and guidelines, users should transmit no more than 50% of the time and always adhere to the following procedures;

- In front of the face, hold the radio in a vertical position with microphone (and other parts of the radio including the antenna) at least one inch (2.5 centimeters) away from the nose or lips. Keep the radio at a proper distance is important to ensure compliance.



Note: RF exposure decrease with increasing distance from the antenna.

- Body Worn Operation; when worn the body, always place the radio in an approved clip, holder, or body harness for this product.

Using approved body-worn accessories is important because the use of non-approved accessories may results in exposure levels, which exceed the occupational/controlled environment RF exposure limits

Using only approved supplied or replacement antennas, batteries, and audio accessories, use of non-approved antennas, batteries, and wired or wireless accessories may exceed the applicable RF exposure guidelines (IEEE, ICNIRP or FCC).

## **ISED statement**

### English Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: 1, This device may not cause interference. 2, This device must accept any interference, including interference that may cause undesired operation of the device.

### Safety Information

This equipment complies with IC radiation exposure limits set forth for an controlled exposure environment. When the talk button is pushed, it sends out radio frequency (RF) signals. The device is authorized to operate at a duty not to exceed 50%.

For body-worn operation, this radio has been tested and meets the IC RF exposure guidelines when used with manufacturer accessories supplied or designated for this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines. Use only the supplied antenna. Unauthorized antennas, modifications, or attachments could damage the transmitter and may violate FCC regulations.

Hold the transmitter approximately 2 inches (25mm) from your face and speak in a normal voice, with the antenna pointed up and away.

### Canada Déclaration

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement." L'information sur la sécurité de cet appareil est conforme aux limites de dose d'exposition aux rayonnements énoncées pour contrôler l'exposition environnementale. Quand le bouton de parler est poussé, il envoie des signaux radiofréquence (RF). Le dispositif est autorisé à exploiter, à une obligation de ne pas dépasser 50%. L'opération portée sur le corps, la radio a été testée et respecte les directives d'exposition aux IC RF utilisées avec le fabricant d'accessoires fournis ou désignés pour ce produit. L'utilisation d'autres accessoires ne peut s'assurer de la conformité avec les lignes directrices sur l'exposition aux radiofréquences. Utiliser uniquement l'antenne fournie. Les modifications ou les antennes non autorisées, pourraient nuire à l'émetteur et peuvent violer les règlements de la IC.

L'émetteur à environ 2 inches (25 mm) de votre visage et parlez normalement, avec l'antenne à signalé et loin.

## **RF Energy Exposure Awareness and Control Information and Operational Instructions for Occupational Use**

### **Informations sur la sensibilisation et le contrôle de l'exposition à l'énergie RF et instructions de mise en service en vue de l'utilisation professionnelle**

Notice: this radio is intended for use in occupational/controlled conditions where users have full knowledge of their exposure and can exercise control over their exposure to meet the occupational limits in ISED and International standards. This radio device is NOT authorized for general population consumer use.

Avis: cette radio est destinée à être utilisée dans des conditions professionnelles / contrôlées où les utilisateurs ont une connaissance complète de leur exposition et peuvent contrôler leur exposition afin de respecter les limites professionnelles définies par la ISED et les normes internationales. Cet appareil radio N'EST PAS autorisé pour un usage grand public.

#### **Innovation, Science and Economic Development Canada (ISED) Regulations**

When Digital 3W Portable Radio is used as a consequence of employment, the ISED requires users to be fully aware of and able to control their exposure to meet occupational requirement. Exposure awareness can be facilitated by the use of a product label directing users to specific user awareness information. Your Digital 3W Portable Radio has a RF Exposure Product Label. Also, your Digital 3W Portable Radio user manual includes information and operating instructions required to control your RF exposure and satisfy compliance requirements.

#### **Règlement sur l'innovation, les sciences et le développement économique Canada (ISDE)**

Lorsque la radio portative numérique 3W est utilisée à la suite d'un emploi, la ISED exige que les utilisateurs soient pleinement conscients de leur exposition et en mesure de contrôler leur exposition pour répondre aux exigences professionnelles. La sensibilisation à l'exposition peut être facilitée par l'utilisation d'une étiquette de produit orientant les utilisateurs vers des informations de sensibilisation spécifiques. Votre radio portative Digital 3W a une étiquette de produit d'exposition aux RF. De plus, le manuel d'utilisation de votre radio portative Digital 3W comprend les informations et les instructions d'utilisation nécessaires pour contrôler votre exposition aux RF et satisfaire aux exigences de conformité.

#### **Compliance with RF Exposure Standards**

Your Digital 3W Portable Radio is designed and tested to compliance with a number of national and international standards and guidelines for human exposure to radio frequency electromagnetic energy. This radio complies with the IEEE (ISED) and ICNIRP exposure limits for occupational/controlled RF exposure environments at operating duty factors of up to 50% talk – 50% listen and is approved for occupational use only. In terms of measuring RF energy for compliance with these exposure guidelines, your radio generates measurable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode.

Your Digital 3W Portable Radio complies with the following RF energy exposure standards and guidelines:

Innovation, Science and Economic Development Canada (ISED), Code of Canada Regulations;

### **Conformité aux normes d'exposition aux RF**Votre radio portative numérique

Votre radio portative numérique 3W est conçue et testée pour être conforme à un certain nombre de normes et directives nationales et internationales relatives à l'exposition des personnes à l'énergie électromagnétique par radiofréquences. Cette radio respecte les limites d'exposition IEEE (ISED) et ICNIRP pour les environnements d'exposition professionnels / contrôlés aux fréquences de service pouvant atteindre 50% de conversation - 50% d'écoute et est approuvé pour une utilisation professionnelle uniquement. Pour ce qui est de mesurer l'énergie RF afin de respecter ces consignes d'exposition, votre radio ne génère une énergie RF mesurable qu'en cours de transmission (en conversation), pas en réception (écoute) ou en mode veille. Votre radio portative Digital 3W est conforme aux normes et directives relatives à l'exposition aux énergies RF suivantes: Innovation, Sciences et Développement économique Canada (ISDE), Règlement sur le Code du Canada; Institut des ingénieurs électriciens et électroniciens (IEEE) C95.1 Commission internationale de protection contre les radiations non ionisantes (ICNIRP)

### **RF Exposure Compliance and Control Guidelines and Operating Instructions for Two-Way Radio Operations**

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits, always adhere to the following procedures;

- DO NOT remove the RF Exposure Label from the device

- User awareness instructions should accompany device when transferred to other users.

### **Directives de conformité et de contrôle de l'exposition aux RF et instructions d'utilisation pour les opérations radio bidirectionnelles**

Pour contrôler votre exposition et garantir le respect des limites d'exposition professionnelle / en environnement contrôlé, respectez toujours les procédures suivantes. NE PAS retirer l'étiquette d'exposition aux RF de l'appareil. Les instructions de sensibilisation des utilisateurs doivent accompagner l'appareil lors de son transfert à d'autres utilisateurs.

### **Operational Instructions and Training Guidelines**

To ensure optimal performance and compliance with the occupational/controlled environment RF energy exposure limits in the above standards and guidelines, users should transmit no more than 50% of the time and always adhere to the following procedures;

- In front of the face, hold the radio in a vertical position with microphone (and other parts of the radio including the antenna) at least one inch (2.5 centimeters) away from the nose or lips. Keep the radio at a proper distance is important to ensure compliance.

- Note: RF exposure decrease with increasing distance from the antenna.

- Body Worn Operation; when worn the body, always place the radio in an approved clip, holder, or body harness for this product.

- Using approved body-worn accessories is important because the use of non-approved accessories may results in exposure levels, which exceed the occupational/controlled environment RF exposure limits

Using only approved supplied or replacement antennas, batteries, and audio accessories, use of non-approved antennas, batteries, and wired or wireless accessories may exceed the applicable RF exposure guidelines (IEEE, ICNIRP or ISED).

#### **Instructions opérationnelles et directives de formation**

Pour garantir des performances optimales et le respect des limites d'exposition aux énergies RF définies dans les normes et directives susmentionnées, les utilisateurs ne doivent pas transmettre plus de 50% du temps et se conformer systématiquement aux procédures suivantes. En face du visage, tenez la radio en position verticale avec le microphone (et les autres éléments de la radio, y compris l'antenne) à au moins 2,5 cm du nez ou des lèvres. Maintenir la radio à une distance appropriée est important pour assurer la conformité. Remarque: l'exposition aux RF diminue avec l'augmentation de la distance par rapport à l'antenne. Opération portée sur le corps; Lorsque vous portez la carrosserie, placez toujours la radio dans un clip, un support ou un harnais approuvé pour ce produit. L'utilisation d'accessoires approuvés pour le port du corps est importante car l'utilisation d'accessoires non approuvés peut entraîner des niveaux d'exposition supérieurs aux limites d'exposition RF des environnements professionnels / contrôlés. Si vous utilisez uniquement des antennes, des batteries et des accessoires audio approuvés ou de remplacement fournis, l'utilisation d'antennes, de batteries et d'accessoires câblés ou sans fil non approuvés peut dépasser les consignes d'exposition RF applicables (IEEE, ICNIRP ou ISED). Instructions opérationnelles et directives de formation