

Two Way Radio



VZ-30-D0-5

User Guide

Frequency: 136-174MHz

THANK YOU!

We are grateful that you chose Vertex Standard for your land mobile radio applications. We believe this easy-to-use transceiver will provide dependable and reliable communication to personal operating at peak efficiency.

Vertex Standard transceivers incorporate the latest in advanced technology. As a result, we feel strongly that you will be pleased with the quality and features of this product!

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SAFETY AND GENERAL INFORMATION

Important Information on Safe and Efficient Operation

Read This Information Before Using Your Radio.

The information provided in this document supersedes the general safety information contained in user guides published before.

Transmit and Receive Procedure

Your two-way radio contains a transmitter and a receiver .To control your exposure and ensures compliance with the occupational/controlled environment exposure limits, always adhere to the following procedure:

- ◆Transmit no more than 50% of the time,
- ◆To transmit, press the Push to Talk (PTT) button.
- ◆To receive calls, release the PTT button.

Transmitting 50% of the time, or less, is important because the radio generates measurable RF energy exposure only when transmitting (in terms of measuring standards compliance) .

Portable Radio Operation and EME Exposure

Antenna Care

Use only the supplied or an approved replacement antenna.

DO NOT hold the antenna when the radio is “IN USE”.

Holding the antenna affects the effective range.

Two-Way Radio Operation

When using your radio as a traditional two way radio, **hold the radio in a vertical position with the microphone 1 to 2 inches (2.5 to 5 cm) away from the lips.**



Body-Worn Operation

If you wear a radio on your body when transmitting, always place the radio in a Vertex Standard supplied or approved clip, holder, holster, case, or body harness for this product.

If you do not use one of the Vertex Standard supplied or approved body-worn accessories, and are not using the radio held in the normal use position. **Ensure the radio and its antenna are at least 1 inch(2.5 cm)from your body when transmitting.**

Data Operation

If applicable, when using any data feature of the radio with or without an accessory cable, **position the radio and its antenna at least 1 inch (2.5cm) from the body.**

Electromagnetic interference/Compatibility

NOTE: Nearly every electronic device is susceptible to electromagnetic interference (EM) if inadequately shielded, designed, or otherwise configured for electromagnetic compatibility.

Facilities

To avoid electromagnetic interference and /or compatibility conflicts, turn off your radio in any facility where posted notices instruct you to do so. Hospitals or health care facilities may be using equipment that is sensitive to external RF energy.

Aircraft

When instructed to do so, turn off your radio when on board an aircraft .Any use of a radio must be in accordance with applicable regulations per airline crew instructions.

Medical Devices

Pacemakers

The Advanced Medical Technology Association recommends that a minimum separation of 6 inches (15 cm) be maintained between a handheld wireless radio and

pacemaker .These recommendations are consistent with the independent research by and recommendations of the U.S. Food and Drug Administration.

Persons with pacemakers should:

- ◆ALWAYS keep the radio more than six inches (15cm)from their pacemaker when the radio is turned ON.
- ◆Not carry the radio in the breast pocket.
- ◆Use the ear opposite the pacemaker to minimize the potential for interference.
- ◆Turn the radio OFF immediately if you have any reason to suspect that interference is taking place.

Hearing Aids

Some digital wireless radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from RF energy. Your physician may be able to assist you in obtaining this information.

Safety and General Use While Driving

Check the laws and regulations on the use of radios in the area where you drive .Always obey them. When using your radio while driving, please:

- ◆Give full attention to driving and to the road,
- ◆Use hands-free operation, if available.
- ◆Pull off the road and park before making or answering a call if driving conditions so require.

Operational Warnings



Warnings

◆ For Vehicles with an Air Bag

Do not place a portable radio in the area over an air bag or in the air bag deployment area. Air bags inflate with great forces. If a portable radio is placed in the air bag deployment area and the air bag inflates, the radio may be propelled with great force and cause serious injury to occupants of the vehicle.

◆ Potentially Explosive Atmospheres

Turn off your radio prior to entering any area with a potentially explosive atmosphere, unless it is a radio type especially qualified for use in such areas as “Intrinsically Safe”. Do not remove, install, or charge batteries in such areas. Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.

Note: The areas with potentially explosive atmosphere referred above include fueling areas such as below decks on boats, fuel or chemical transfer or storage facilities, areas where the air contains chemicals or particles, such as grain, dust or metal powders, and any other area where you would normally be advised to turn off your vehicle engine. Areas with potentially explosive atmosphere are often but not always posted.

◆ Blasting caps and Areas

To avoid possible interference with blasting operations, turn off your radio when you are near electrical blasting caps, in a blasting area, or in area posted;”Turn off two-way radio. Obey all signs and instructions.

Operational Cautions

Antenna

Do not use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn can result.

Batteries

All batteries can cause property damage and /or bodily injury such as burns if a conductive material such as jewelry, keys, or beaded chains touches exposed terminals. The conductive material may complete an electrical circle (short circuit) and become quite hot. Exercise care in handling any charge battery, particularly when placing it inside a pocket, purse, or other container with metal objects.

Battery Charger Safety Instructions

Save these instructions

1. Do not expose the charger to rain or snow.
2. Do not operate or disassemble the charger if it has received a sharp blow, or has been dropped or damaged in any way.
3. Never alter the AC cord or plug provided with the unit. If the plug will not fit the outlet, have the proper outlet installed by a qualified electrician. An improper condition can result in a risk of electric shock.
4. To reduce the risk of damage to the cord or plug, pull the plug rather than the cord when disconnecting the charger from the AC receptacle.
5. To reduce the risk of electric shock, unplug the charger from the outlet before attempting any maintenance or cleaning.
6. Use of an attachment not recommended or sold by Vertex Standard may result in a risk of fire, electric shock, or personal injury.
7. Make sure the cord is located so it will not be stepped on, tripped over, or subjected to damage or stress.
8. An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result

in 9 a risk of fire and /or electric shock. If an extension cord must be used, make sure that:

- ◆The pins on the plug of the extension cord are the same number, size, and shape as those on the plug of the charger.
- ◆The extension cord is properly wired and in good electrical condition.
- ◆The cord size is 18AWG for lengths up to 100feet, and 16AWG for lengths up to 150 feet.

9.The supply cord of this charger can not be replaced.

UNPACKING AND CHECKING EQUIPMENT

Carefully unpack the transceiver. We recommend that you identify the items listed in the following table before discarding the packing material. If any items are missing or have been damaged during shipment, file a claim with the carrier immediately.

Supplied Accessories

ITEM	QUANTITY
Radio	1
Antenna	1
Li-ion Battery	1
Power Adapter	1
Charger Base	1
Belt Clip	1
User Guide	1
Warranty Card	1

PREPARATION

Charging the Battery Pack

1. Using the Battery Pack.

The battery pack is not charged at the factory, please charge it before use. To extend the battery pack lifetime, please power off the transceiver and remove the battery pack when not in use and leave the battery in hot or cold place.

2. Battery Pack Characteristics.

The battery will slowly wear out even not in use. After charging and recharging, it's normal that the talk and standby times are noticeably shorter than normal times. If leaving the battery in very hot place or conditions, it will reduce the capacity and lifetime of the battery. Overcharging may also shorten its lifetime.

3. Charging the Battery Pack.

Please charge your battery only with approved Vertex Standard charger. Initially charging the battery pack after purchase or extended storage (greater than 2 months) will not bring the battery pack to its normal operating capacity. After repeating the charge/discharge cycle two or three times, the operating capacity will increase to normal level.

Please charge the battery pack as follows:

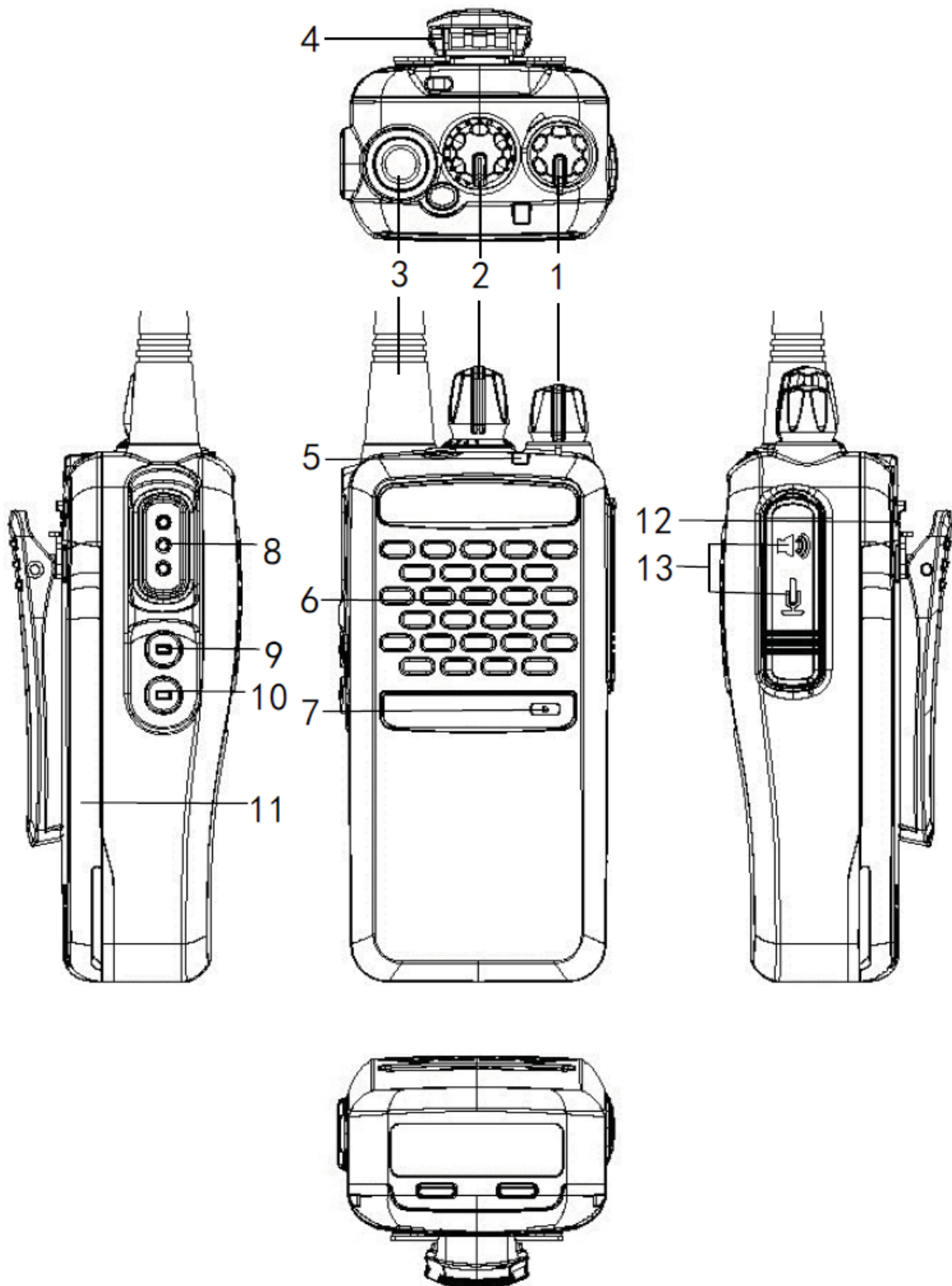
1. Make sure the battery pack contacts are in contact with the charging terminals.
2. Slide the battery pack or transceiver with a battery pack into the desktop charger.
3. The charging LED lights red and charging begins.
4. After charging about 4 hours, when the light turns to green, it means the battery pack is fully charged.
5. Then you can take off the battery pack or transceiver with the battery pack and use it.

Attaching/Removing the Antenna

1. Screw the antenna into the connector on the top of the transceiver by holding the antenna at its base and turning it clockwise until secure .
2. Turn the antenna counter clockwise until you can remove it .

GETTING ACQUAINTED

Orientation



1. Power/Volume Switch

Rotate clockwise to switch power On or to increase the audio output; Rotate counter-clockwise to switch power Off or to reduce the audio output level.

2. Tuning Control

To select an operating frequency, channel or others.

3. Antenna

Rubber antenna using for receiving or transmitting a signal.

4. Hand Strap Hook

The loop on the top of transceiver, it is facilitated to carrying the transceiver.

5. TX/RX Indicator

Light green while receiving a signal or when the squelch is open; Lights red while transmitting.

6. Speaker

Output the audio.

7. Internal Microphone

Input the audio signal while you talk.

8. PTT Switch

Push and hold to transmit; Release to receive.

9. Programming Key(P1)

The default setting of short key is ***TX Power Change***. Short press this key to change output power between high and low level.

10. Programming Key(P2)

The default setting of short key is ***Scan***. Short press this key to scan current channels or frequency.

11. Battery Pack

Supply the power to the transceiver.

12. Battery Lock Button

Use to lock/unlock the battery pack.

13. Earphone/Data Cable Jack

Connects an earphone or connects a data cable for PC software programming.

Programmable Auxiliary Functions

Your dealer may program the [P1], [P2] (long press or short press) with one of the following auxiliary functions respectively.

No.	Function
1	Scan
2	Squelch Off
3	Squelch Off Momentary
4	SQL Change
5	TX Power Change
6	Talk Around
7	VOX

Note:

- You can set the time of pressing long key from 1.5-5 seconds(default: **2.0 seconds**) with programming software, when

you press anyone of [P1],[P2]] keys, the time of pressing is over your setting time, then it's a long time key, otherwise, it's a short key

- *Squelch Off and Squelch Off Momentary feature only to be enabled for analog channels.*

Status Indication

LED Indicator

LED Indicator	Radio Status
The LED glows red.	Transmitting
The LED flashes red.	Low Battery
The LED glows green.	Receiving
The LED flashed green.	Scanning
The LED glows orange.	After voice communication ends, you can hold the [PTT] switch to talk while the LED glows orange.

BASIC OPERATION

Switch Power On/Off

Turn the Power switch/Volume control clockwise to switch the transceiver ON.

Turn the Power switch/Volume control counter clockwise to switch the transceiver OFF.

Adjusting the Volume

Rotate the Volume control to adjust the volume. Clockwise increases the volume and counter clockwise decreases it.

You may need to adjust the volume more precisely while communicating with other parties.

Selecting a Channel

Rotate the Tuning Control to choose your desired channel. Clockwise increases the number and counter clockwise decreases it. If none channel has been programmed, it cannot be used. When a non-programmed channel is selected, an alert tone sounds will be heard.

Transmitting

You can transmit on an analog channel or digital channel, but should be in the same format when communicate, an analog channel can't communicate with a digital channel.

1. On analog channel, press the **[PTT]** switch and speak into the microphone in your normal speaking voice. On digital channel, hold the **[PTT]** key to transmit a call to the private call contact preset for the current channel.

◆ For best sound quality at the receiving station, hold the microphone approximately 1.5 inches (3~6 cm) from your mouth.

2. Release the **[PTT]** switch to receive.

Receiving

On analog channels, your dealer may have programmed CTCSS/DCS, Scrambler signaling in your transceiver. If your selected channel is programmed with one of these features, you will hear calls only when another party in your system transmits.

All other calls will not be heard.

If your selected channel is not set up with a signaling type, you will hear calls made by any party (not just those in your system).

On digital channels, only the same tone or directly call the radio ID to be received.

ADVANCED OPERATIONS

(The following features should be programmed by your dealers).

Channel Number Annunciation

There are 3 kinds of the channel number annunciation: “**Chinese Male Voice, English Male Voice**(Default Setting), **None**”. When you turn the [**Tuning Control**], the transceiver sounds the current corresponding channel number.

Star-Up Tone

When you switch the transceiver ON, There will be a start-up tone. The default setting is **ON**.

Keypad Beeper

The transceiver beeps each time if you press a key on the keypad. The default setting is **ON**.

Battery Save

The battery save function decreases the amount of power used when signal is not being received and no operations are being performed (no keys are being

pressed and no switches are being turned); While the channel is not busy and no operation is performed for 5 seconds (5~60 seconds available), battery save function activates. When a signal is received or an operation is performed, battery save is disabled. The default setting is **ON**.

Low Battery Alert

For extra convenience, if the battery level run low, when press PTT to transmit, the transceiver will sounds “**Please charge the battery**” at setting time(every 1~255 seconds, default: **OFF**), to alert the user to recharge the battery.

SQL Change

The purpose of the squelch level is to mute the speaker when no signals are present. With the squelch level correctly set, you will hear sound only while actually receiving signals. You can select from level 1~3 cycles. The default setting is “2”.

Squelch Off

Press the Squelch Off key to open noise squelch, press it again to close.

Squelch Off Momentary

Press the Squelch Off Momentary key to open noise squelch. Release it to close.

Busy Channel Lock Out (BCLO)

When receiving a signal, if BCLO feature is enabled, you are prevented from transmitting on a channel that is already in use. Press the PTT on a channel that is already in use, the transceiver will sound alert tone and turn back to the receive mode.

Time-Out Timer (TOT)

The Time-Out Timer is used to prevent any caller from using a channel for an extended period of time(OFF,1~255 seconds). If you continuously transmit for a period of time that exceeds the programmed time (default: **OFF**), the transceiver will stop transmitting and an alert tone will sound. To stop the tone, release the PTT switch. If programmed by your dealer, a pre-alert tone will sound before the timer expires.

Squelch Tail Elimination (STE)

When finish communication, there is a tail squelch,

you can use this feature to eliminate. The default setting is **OFF**. This feature is only for analog channel.

Talk Around

This feature is only enabled when there are different frequency between TX and RX. Press the programmed function key to activate the Talk Around feature. When activated, the RX frequency is used in place of the TX frequency when transmitting. The default setting is **OFF**.

Scramble

When scramble feature is activated, any other party listening on your channel is prevented from eavesdropping your conversation. The default setting is **OFF**.

Calling Back

This feature is only enabled for digital channels. When communication ends, but within the preset time period(The LED glows orange). Press and hold [**PTT**] switch to call back and continue to communicate. If over the preset time period(The LED light is off), press

and hold [**PTT**] switch to call contact preset for the current digital channels.

Only Receiving

When this feature to be active, the transmission is prohibited, but can still receive the signals. The default setting is **OFF**.

VOX

Press the programmed VOX key to transmit hands-free with the transceiver or thru a headset. Re-press the programmed key to exit this feature. The default setting is **OFF**.

Scan

Press the programmed Scan key to initiate transceiver scanning from the current channel, and ascends through the channel numbers in scan list. The green LED solidly glows when a signal is re-received with signaling match on a channel. Press the Scan key again to exit transceiver scanning. There must be two memory channels at least.

Table 1 - Standard CTCSS Tones Table

1 – 63.0	14 - 100.0	27 - 156.7	40 - 196.6
2 - 67.0	15 - 103.5	28 - 159.8	41 - 199.5
3 - 69.3	16 - 107.2	29 - 162.2	42 - 203.5
4 - 71.9	17 - 110.9	30 - 165.5	43 - 206.5
5 - 74.4	18 - 114.8	31 - 167.9	44 - 210.7
6 - 77.0	19 - 118.8	32 - 171.3	45 - 218.1
7 - 79.7	20 - 123.0	33 - 173.8	46 - 225.7
8 - 82.5	21 - 127.3	34 - 177.3	47 - 229.1
9 - 85.4	22 - 131.8	35 - 179.9	48 - 233.6
10 - 88.5	23 - 136.5	36 - 183.5	49 - 241.8
11 - 91.5	24 - 141.3	37 - 186.2	50 - 250.3
12 - 94.8	25 - 146.2	38 - 189.9	51 - 254.1
13 - 97.4	26 - 151.4	39 - 192.8	

Table 2 - Standard DCS Codes Table

017	054	132	212	263	346	445	523	654
023	065	134	223	265	351	446	526	662
025	071	143	225	266	356	452	532	664
026	072	145	226	271	364	454	546	703
031	073	152	243	274	365	455	565	712
032	074	155	244	306	371	462	606	723
036	114	156	245	311	411	464	612	731
043	115	162	246	315	412	465	624	732
047	116	165	251	325	413	466	627	734
050	122	172	252	331	423	503	631	743
051	125	174	255	332	431	506	632	754
053	131	205	261	343	432	516	645	

TROUBLESHOOTING GUIDE

Problem	Solution
No power.	<ul style="list-style-type: none"> ●The battery pack may be dead. Recharge or replace the battery pack. ●The battery pack may not be installed correctly. Remove the battery pack and install it again.
Battery power dies shortly after charging.	<ul style="list-style-type: none"> ●The battery pack life is finished. Replace the battery pack with a new one.
Cannot talk to or hear other members in your group.	<ul style="list-style-type: none"> ●Make sure you are using the same frequency and CTCSS/DCS as the other members in your group. ●Other group members may be too far away. Make sure you are within range of the other transceivers.
Other voices (besides group members) are present on the channel.	<ul style="list-style-type: none"> ●Change the CTCSS/DCS setting. Be sure to change the tone on all transceiver in your group.

SAFETY TRAINING INFORMATION



Your Vertex Standard LMR, Inc. radio generates RF electromagnetic energy during transmit mode. This radio is designed for and classified as “Occupational Use Only”, meaning it must be used only during the course of employment by individuals aware of the hazards, and the ways to minimize such hazards. This radio is NOT intended for use by the “General Population” in an uncontrolled environment.

This radio has been tested and complies with the FCC RF exposure limits for “Occupational Use Only”. In addition, your Vertex Standard LMR, Inc. radio complies with the following Standards and Guidelines with regard to RF energy and electromagnetic energy levels and evaluation of such levels for exposure to humans:

- ▮ FCC OET Bulletin 65 Edition 97-01 Supplement C, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
- ▮ American National Standards Institute (C95.1-1992), IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.
- ▮ American National Standards Institute (C95.3-1992), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields— RF and Microwave.



The information listed above provides the user with the information needed to make him or her aware of RF exposure, and what to do to assure that this radio operates with the FCC RF exposure limits of this radio.

Electromagnetic Interference/Compatibility

During transmissions, your Vertex Standard LMR, Inc. radio generates RF energy that can possibly cause interference with other devices or systems. To avoid such interference, turn off the radio in areas where signs are posted to do so. **DO NOT** operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, aircraft, and blasting sites.

Occupational/Controlled Use

The radio transmitter is used in situations in which persons are exposed as consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

Attention:

This radio complies with IEEE and ICNIRP exposure limits for occupational/controlled RF exposure environment at operating duty factors of up to 50% and is authorized by the FCC for occupational use only. An appropriate warning label is affixed to all units. In order to comply with RF exposure requirements, a minimum distance of 2.5cm must be maintained when held-to-face, and body-worn operations are restricted to the approved original accessories (belt clip).

Do not use this device when antenna shows obvious damages