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RoHS Compliant

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MADE IN CHINA

RETEVIS

Two Way Radio
RT47

User's Manual

(EN)

TO CUSTOMERS

Thank you very much for using our two way radio. This radio of modern design is reasonable structure with stable functions.It is designed to meet different customers' need for high quality with easy operation and perfect capablity. We believe you are pleased with its nice shape and excellent performance.

This manual is suitable for using the model of RT47.

Product safety and RF Exposure for Two Way Radio:	
 WARNING	Before using this Two way radio, please read the manual which contains important operating instructions for safe usage, RF Energy Awareness, control information and operational instructions for compliance with RF Energy Exposure limits in applicablenational and international standards, and also read the operational instructions for safe use.

Contents

Using tips

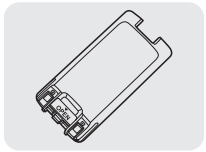
Please read the following brief instructions,non-compliance with these rules may cause danger or violate the law.

- Obey the local government regulation before using this radio, improper use may violate the law and be punished.
- Turn off the radio before entering flammable or explosive areas.
- Do not charge or change the battery in flammable or explosive areas.
- Turn off the radio before getting close to the blasting zone or detonator aress.
- Do not use radio whose antenna is damaged, touching of damaged antenna will cause heat injury.
- Do not attempt to open the radio, the maintenance work should be done by technical expert only.
- To avoid troubles caused by electromagnetic interference or electromagnetic compatibility, please turn off the radio in places where have the banner “ Do not use wireless equipment ”, such as hospital and other healthcare places.
- In the car with an airbag, do not put the radio within the scope of the airbag deployment.
- Do not store the radio under the direct sunshine or in hot areas.
- When you transmit with the radio,do keep away from its antenna for 5cm at least.
- If the raio appears smelly or smoke, please shut off its power immediately and contact with your local dealer.
- Do not transmit too long, for the radio may heat and hurt the user.

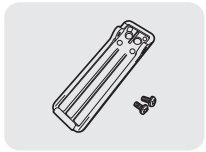
Unpacking and checking equipment

Welcome to use two-way radio. Carefully unpack the radio. We recommend you check the items listed in the following table before discarding the package If any item is missing please contact local dealer immediately

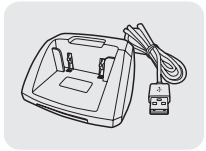
Supplied accessories



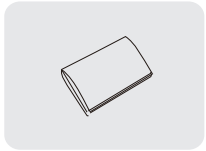
Li-on battery (1)



Belt Clip (1)

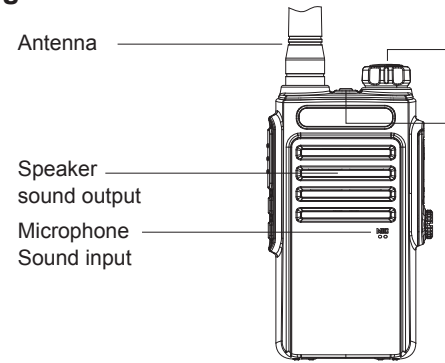


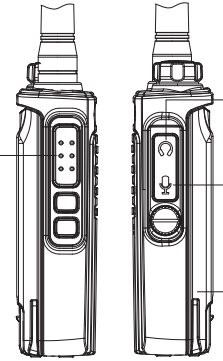
Charger (1)



User's Manual (1)

Getting familiar





Side- key function

RT47 support the side-key assignment, it has following function for choose:

Monitor

Channel lock

Scan

VOX

The default function is: Side-key 1 short press for channel +, long press for Monitor

Side-key 2 short press for channel -, long press for lock

Basic Operation

1. Scan function

On the 16th channel, when the radio is allowed to be scanned, which can be set by the software, the radio will scan automatically from 1th to 16th which is defined as scan added. When there is signal in the scanning channel, it will stop in the channel for talk.

Note:

When there is signal in the scanning channel, it will stop in the channels for a talk and after 5 seconds it will continue to scan the next channel.

Please note that scan is only available when there are two or more than two memory channels and two or more scan added channels.

2. Battery save function

This function can be set by the software.Turn on this this function can make the standby time more longer

3. Scrambler

This function can be set via the RT47 software.

Scramble is an way to encrypt the voice.When one radio is set the scrambler, TX voice will be set out with scrambler, other radio will received the signal only set the correct scrambler. Every channel can set individual scrambler.

4. VOX

Speak to the microphone in normal voice to transmit, no need to press PTT switch, turn VOX on/off though the software.

A: When VOX is on in your working channel.

Speak to the microphone directly, it will transmit automatically.

The radio stops transmitting when there is no voice, and waits for receiving.

B: When a headset with a microphone is used.

When VOX is on, you should VOX again for the radio to identify voice volume.

If the microphone is too sensitive, the noise around radio will start transmitting.

If the microphone is not sensitive, the radio can not collect your voice, Please Adjust VOX level well to guarantee smooth communications.

5. Busy channel lock

You can turn on/off this function via software.

A: If the current channel does not have CTCSS/DCS, When there is signal, TX prohibited when you press PTT.

B: If the current channel does not have CTCSS/DCS, when there is signal which does not have CTCSS/DCS, TX prohibited when you press PTT.

C: If the current channels does not have CTCSS/DCS, when there is signal which have CTCSS/DCS, the radio will transmit when you press PTT.

6. TOT

The purpose of TOT is to prevent any radio from talking in one channel for a long time, and to prevent the transceiver from being damaged because of continuous transmission. If the transmitting time exceeds the TOT pre-set time, the radio will sound : Du, released PTT, the radio will back received mode.

7. Voice prompt

The default setting is English voice prompt, and you will know the working condition of the radio with voice prompt

1) The voice prompt can be selected "Chinese/English/Tone/OFF" through the menu "Voice/Beep Tone" of the "Optional Features" in the software for. When choosing "OFF", voice prompt turns off.

2) Channel annunciation: You will get to know the working conditions of current channel which is being operated.

3) Low battery alert: The radio will alert you when the battery capacity reaches the minimum operating voltage.

8. Squelch function

The squelch level will determine the signal strength to open the speaker of the radio. If the squelch level is lower, the background noise of the opening the radios speaker will be higher, and the corresponding communication range will be further, the the anti-interference capacity will be weaker.

The default level if level 5, can set via the RT47 software, from 0-9.level0 is lowest

The level is higher, the squelch is more easy to be on.

9. CTCSS/DCS

CTCSS and DCS is the sub-audio signaling, to prevent the radio from receiving unwanted signal in the same channel.

When the CTCSS/DCS is set, then within the communication range, you can only receive signals from the same channel with the same CTCSS/DCS setting. When the CTCSS/DCS is not set, you will get all the signal from the same channel within the communication range.

You can set the CTCSS/DCS through the menu "QT/DQT ENC" or "QT/DQT DEC" of the "Channel information" in the software.

Trouble shooting guide

Troubles	*Solution*
No Electrical Source	● The battery has been exhausted. Replace or recharge the battery. ● The battery is installed incorrectly. Remove it and install again.
The operating time becomes short, even the battery is fully charged.	● Replace the battery.
Not able to communicate with the transceivers of the same group.	● Confirm the QT/DQT is the same. The distance is outside of range.
The voice of another group can be heard.	● Change all QT/DQT of the group.
Other radios can not receive the TX signals or receive signals in a low volume.	● Switch the volume knob to the highest level ● The microphone may be damaged, send it to the local dealer for check.
Noise is always heard.	● The distance is outside of range. Turn on the radio in nearer range and try again.

Specifications

Model number	Operating Frequency Range (MHz)	Output Power	Channel Spacing (KHz)	Channel Protocol
RT47	462.5500-462.7250	<2 W	12.5KHz	CTCSS/DCS

● Channels

CH.No	CH.Freq.(MHz)	CTCSS/DCS	CH.No	CH.Freq.(MHz)	CTCSS/DCS
1	462.6250	114.8	9	462.7125	D026N
2	462.7250	114.8	10	462.5500	D026N
3	462.5625	114.8	11	462.5750	D026N
4	462.5875	114.8	12	462.6000	D026N
5	462.6125	114.8	13	462.6500	D026N
6	462.6375	114.8	14	462.6750	D026N
7	462.6625	114.8	15	462.7000	D026N
8	462.6875	114.8			

Note: Above channels are license free channels.

QT:

67.0	69.3	71.9	74.4	77.0	79.7	82.5	85.4	88.5	91.5
94.8	97.4	100.0	103.5	107.2	110.9	114.8	118.8	123.0	127.3
131.8	136.5	141.3	146.2	151.4	156.7	162.2	167.9	173.8	179.9
186.2	192.8	203.5	210.7	218.1	225.7	233.6	241.8	250.3	254.1

DQT:

D023N	D025N	D026N	D031N	D032N	D043N	D047N	D051N	D054N	D065N
D071N	D072N	D073N	D074N	D114N	D115N	D116N	D125N	D131N	D132N
D134N	D143N	D152N	D155N	D156N	D162N	D165N	D172N	D174N	D205N
D223N	D226N	D243N	D244N	D245N	D251N	D261N	D263N	D265N	D271N
D306N	D311N	D315N	D331N	D343N	D346N	D351N	D364N	D365N	D371N
D411N	D412N	D413N	D423N	D431N	D432N	D445N	D464N	D465N	D466N
D503N	D506N	D516N	D532N	D546N	D565N	D606N	D612N	D624N	D627N
D631N	D632N	D654N	D662N	D664N	D703N	D712N	D723N	D731N	D732N
D734N	D743N	D754N	D765N						

D023I	D025I	D026I	D031I	D032I	D043I	D047I	D051I	D054I	D065I
D071I	D072I	D073I	D074I	D114I	D115I	D116I	D125I	D131I	D132I
D134I	D143I	D152I	D155I	D156I	D162I	D165I	D172I	D174I	D205I
D223I	D226I	D243I	D244I	D245I	D251I	D261I	D263I	D265I	D271I
D306I	D311I	D315I	D331I	D343I	D346I	D351I	D364I	D365I	D371I
D411I	D412I	D413I	D423I	D431I	D432I	D445I	D464I	D465I	D466I
D503I	D506I	D516I	D532I	D546I	D565I	D606I	D612I	D624I	D627I
D631I	D632I	D654I	D662I	D664I	D703I	D712I	D723I	D731I	D732I
D734I	D743I	D754I	D765I						

Specificatios

General

Model Number	RT47
Frequency Range	462.55-462.7250 MHz
Channel Number	15
Working Voltage	DC 3.7V
Working Temperature	-10℃~+50℃
Antenna Impendence	50Ω
Working Mode	Simplex

Receiver

Sensitivity	≤ 0.2uV
Occupied Bandwidth	≤ 12.5 kHz
Selectivity	≥ 65dB
Intermediation	≥ 55dB
Audio power	> 500m W
Audio distortion	≤5%
Frequency Stability	2.5ppm
Current	55mA (when standby) 150mA (when working)
Audio response	+7~-12.5dB

Transmitter

Output power	<2W
Modulation mode	11K¢F3E
Spurious radiation	≤ 7.5uW
Modulation noise	< -40dB
Modulation distortion	< 5%
Frequency Stability	2.5ppm
Maximum deviation	≤ ±2.5KHz
Current	≤ 1000mA
Audio response (300-3000Hz)	+6.5~-14dB
Adjacent Ch. power	≥ 65dB
Intermediation sensitivity	8~12mv

Note: Specifications will be revised without notice due to technical improvement. Thank you.

Warnings

RF ENERGY EXPOSURE AND PRODUCT SAFETY GUIDE FOR PORTABLE TWO-WAY RADIOS

Before using this radio, read this guide which contains important operating instructions for safe usage and RF energy awareness and control for compliance with applicable standards and regulations.

This two-way radio uses electromagnetic energy in the radio frequency (RF) spectrum to provide communications between two or more users over a distance. RF energy, which when used improperly, can cause biological damage.

All Retevis two-way radios are designed, manufactured, and tested to ensure they meet government-established RF exposure levels. In addition, manufacturers also recommend specific operating instructions to users of two-way radios. These instructions are important because they inform users about RF energy exposure and provide simple procedures on how to control it.

Please refer to the following websites for more information on what RF energy exposure is and how to control your exposure to assure compliance with established RF exposure limits:
http://www.who.int/en/

Local Government Regulations

When two-way radios are used as a consequence of employment, the Local Government Regulations requires users to be fully aware of and able to control their exposure to meet requirements. Exposure awareness can be facilitated by the use of a product label directing users to specific user awareness information. Your Retevis two-way radio has a RF Exposure Product Label. Also, your Retevis user manual, or separate safety booklet includes

information and operating instructions required to control your RF exposure and to satisfy compliance requirements.

Unauthorized modification and adjustment

Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority granted by the local government radio management departments to operate this radio and should not be made. To comply with the corresponding requirements, transmitter adjustments should be made only by or under the supervision of a person certified as technically qualified to perform transmitter maintenance and repairs in the private land mobile and fixed services as certified by an organization representative of the user of those services. Replacement of any transmitter component (crystal, semiconductor, etc.) not authorized by the local government radio management departments equipment authorization for this radio could violate the rules.

FCC Requirements:

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

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.

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.

Disposal

The crossed-out wheeled-bin symbol on your product, literature, or packaging reminds you that in the European Union, all electrical and electronic products, batteries, and accumulators (rechargeable batteries) must be taken to designated collection locations at the end of their working life. Do not dispose of these products as unsorted municipal waste. Dispose of them according to the laws in your area.

IC Requirements:

Licence-exempt radio apparatus

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.

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;

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF Exposure Information

- DO NOT operate the radio without a proper antenna attached, as this may damage the radio and may also cause you to exceed RF exposure limits. A proper antenna is the antenna supplied with this radio by the manufacturer or an antenna specifically authorized by the manufacturer for use with this radio, and the antenna gain shall not exceed the specified gain by the manufacturer declared.
- DO NOT transmit for more than 50% of total radio use time, more than 50% of the time can cause RF exposure compliance requirements to be exceeded.
- During transmissions, your 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.
- Portable Device, this transmitter may operate with the antenna(s) documented in this filing in Push-to-Talk and body-worn configurations. RF exposure compliance is limited to the specific belt-clip and accessory configurations as documented in this filing and the separation distance between user's face and the device's antenna shall be at least 2.5 cm.
- Mobile Device, during operation, the separation distance between user and the antenna subjects to actual regulations, this separation distance will ensure that there is sufficient distance from a properly installed externally-mounted antenna to satisfy the RF exposure requirements.
- General population/uncontrolled Radio, this radio is designed for and classified as "General population/uncontrolled Use".

RF Exposure Compliance and Control Guidelines and Operating Instructions

To control your exposure and ensure compliance with the exposure limits, always adhere to the following procedures.

Guidelines:

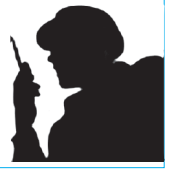
- User awareness instructions should accompany the device when transferred to other users.
- Do not use this device if the operational requirements described herein are not met.

Operating Instructions:

- Transmit no more than the rated duty factor of 50% of the time. To Transmit (Talk), push the Push to Talk (PTT) button. To receive calls (listen), 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 for standards compliance.
- Transmit only when people outside the vehicle are at least the recommended minimum lateral distance away from a properly installed according to installation instructions, externally mounted antenna.
- When operating in front of the face, worn on the body, always place the radio in a Retevis approved clip, holder, holster, case, or body harness for this product. Using approved body-worn accessories is important because the use of Non-Retevis approved accessories may result in exposure levels, which exceed the IEEE/ICNIRP RF exposure limits.

Hand-held Mode

- Hold the radio in a vertical position with the microphone (and other parts of the radio including the antenna) at least 2.5 cm (one inch) away from the nose or lips. The antenna should be kept away from the eyes. Keeping the



radio at a proper distance is important as RF exposure decreases with increasing distance from the antenna.

Phone Mode

- When placing or receiving a phone call, hold your radio product as you would a wireless telephone. Speak directly into the microphone.

Electromagnetic Interference/Compatibility

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

Avoid Choking Hazard

	Small Parts. Not for children under 3 years.

Turn off your radio power in the following conditions:

 WARNING	• Turn off your radio before removing (installing) a battery or accessory or when charging battery. • Turn off your radio when you are in a potentially hazardous environments: Near electrical blasting caps, in a blasting area, in explosive atmospheres (inflammable gas, dust particles, metallic powders, grain powders, etc.). • Turn off your radio while taking on fuel or while parked at gasoline service stations.

WARNING

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 (Pacemakers, Hearing Aids and Other Medical Devices) may be using equipment that is sensitive to external RF energy.
- 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.

Protect your hearing:

WARNING

- Use the lowest volume necessary to do your job.
- Turn up the volume only if you are in noisy surroundings.
- Turn down the volume before adding headset or earpiece.
- Limit the amount of time you use headsets or earpieces at high volume.
- When using the radio without a headset or earpiece, do not place the radio's speaker directly against your ear.
- Use careful with the earphone maybe possible excessive sound pressure from earphones and headphones can cause hearing loss.

Note: Exposure to loud noises from any source for extended periods of time may temporarily or permanently affect your hearing. The louder the radio's volume, the less time is required before your hearing could be affected. Hearing damage from loud noise is sometimes undetectable at first and can have a cumulative effect.

Avoid Burns

WARNING

Antennas

- Do not use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with the skin when the radio is in use, a minor burn can result.

Batteries (If appropriate)

- When the conductive material such as jewelry, keys or chains touch exposed terminals of the batteries, may complete an electrical circuit (short circuit the battery) and become hot to cause bodily injury such as burns. Exercise care in handling any battery, particularly when placing it inside a pocket, purse or other container with metal objects.

Long transmission

- When the transceiver is used for long transmissions, the radiator and chassis will become hot.

Safety Operation

WARNING

Forbid

- Do not use charger outdoors or in moist environments, use only in dry locations/conditions.
- Do not disassemble the charger, that may result in risk of electrical shock or fire.
- Do not operate the charger if it has been broken or damaged in any way.
- Do not place a portable radio in the area over an air bag or in the air bag deployment area. The radio may be propelled with great force and cause serious injury to occupants of the vehicle when the air bag inflates.

WARNING	To reduce risk • Pull by the plug rather than the cord when disconnecting the charger. • Unplug the charger from the AC outlet before attempting any maintenance or cleaning. • Contact Retevis for assistance regarding repairs and service. • The adapter shall be installed near the equipment and shall be easily accessible.

Approved Accessories

WARNING	• This radio meets the RF exposure guidelines when used with the Retevis accessories supplied or designated for the product. Use of other accessories may not ensure compliance with the RF exposure guidelines and may violate regulations. • For a list of Retevis-approved accessories for your radio model, visit the following website: http://www.Retevis.com

WARRANTY CARD

Product model: _____ Date of purchase: _____

Serial Number: _____

Seller: _____ contact number: _____

Username: _____ contact number: _____

Address: _____ Zip code: _____

Warranty description:

1. The warranty card is saved by the customer as the warranty certificate, and the loss is not compensated.
2. This card must be stamped and dated for sale to take effect.
3. This card must not be altered. Please confirm that the warranty card serial number matches the purchase machine number, otherwise it will be invalid.
4. The warranty period is one year. Chargers, batteries, headphones, antennas and feeders are consumables, not covered by warranty.
5. Users can choose the following ways to get repair service:
   a. At the original purchase office.
   b. Our company is in the local special maintenance point.