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 capability. We believe you are pleased with its nice shape and excellent performance. This manual is suitable for using the model of RT1.
Welcome to use **Retevis** two-way radio

**Main Functions**

- **Frequency band:**
  - VHF: 134-174MHz or
  - UHF: 400-520MHz
- **16 channels**
- **Non-standard CTCSS/DCS code**
- **PC Programming protection**
- **VOX**
- **CTCSS/DCS**
- **Chinese and English voice prompt**
- **Battery saving function**
- **Hi/low power selective**
- **Scan**
- **Scrambler**
- **COMP**
- **Wide/Narrow bandwidth selective**
- **End-tone elimination**
- **Emergency alert**

**Power protection**

- High/low voltage TX prohition
- Low battery prompt
- 1750Hz tone
- Side-key assignment
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Using tips
Unpacking and checking equipments
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 areas.
- 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 radio 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 equipments
Carefully unpack the radio. We recommend you check the items listed in the following table before discarding the package. If any item is missing or has been damaged during shipment, please contact us immediately.

Supplied accessories:

- Antenna (1)
- Li-ion battery (1)
- Belt Clip (1)
- Charger (1)
- Charger Adapter (1)
- Verification (1)
- User’s Manual (1)

Note: The antenna frequency range please refers to the annular label at the bottom of antenna.
Battery

Please use Retevis designated battery; other batteries can cause explosion and hurt people.

Notice:
1. Please do not short-circuit the battery terminals or expose of in fire. Do not disassemble the battery by yourself.
2. Charge the battery between temperature 0°C and 45°C. The battery can not be fully charged beyond this temperature range.
3. Please turn off the power when you charge the radio with battery. Transmit with the radio in charge will affect its correct charge.
4. Do not unplug the power or battery when it is charged.
5. The operating time becomes short even the battery is fully charged, the battery is exhausted, please replace battery.
6. Please do not charge when the battery or the radio is wet. Please dry it with a cloth before charging to avoid any danger.

Warning: When the conductive metals such as jewelry, key or decorative chains touch the battery terminals, all the batteries are likely to cause damage to the items or personal injury. These conductive metals may form a short circuit and generates much heat. Do deal with any battery carefully, especially when put it into pocket, wallet or other metallic containers.

Antenna

Installing and Uninstalling of supplied accessories
Charging operations:
Charge the battery as follows:
1) Power off
2) Insert the DC adaptor plug in the DC jack on the back of charger
3) Insert the AC adaptor plug in the AC power output socket
4) Insert the battery or radio with battery vertically in a charger, to check whether the battery and charger terminal is in normal contact.
5) Make sure the battery and charger terminal is in good contact, when the charging indicator light turns red, it starts charging.

Note: 1. Before inserting the battery, it is abnormal if the charging indicator blinks
   2. To change the battery for charging, please wait until the indicator is stable.
   3. When the battery is well inserted, the indicator turns red and the charging is on the process, if the indicator blinks, then the battery is damaged or the temperature is too high or too low.

Self-testing
When the charger powers up, if the orange indicator lights for one second and then goes out, entering the standby mode, the charger passes the self-testing and can charge the battery. If the orange indicator blinks constantly, the charger fails to pass the self-testing, and can not charge the battery.

Normal charging indicator
When charging the battery, if the indicator light turns red, the battery is on the normal charge; if the red indicator light blinks constantly, the battery capacity is too low, and is on the trickling charge, and after the battery capacity reaches a certain level, it will switch to the normal charge.

Note: Trickling charge does not exceed 30 minutes, if the red indicator light blinks after 30 minutes, it means the charger can not charge battery, please check whether the battery or the charger has been damaged.

Charging precautions:
1) The battery is not fully charged in factory, please charge before using it.
2) Charge and discharge the battery for two or three times, the battery capacity will reach the best condition. When the battery capacity is low, please charge or change the battery.
3) The battery lasts shortly even if it is fully charged, the battery is exhausted, please contact your local dealer to buy a new authentic Retevis battery.
Antenna

- Short thick antenna is suitable for short-distance communication, while long thin antenna will offer you a better communication effect. Wearing the radio in your waist will not make you feel uncomfortable.
- The communication range will be shortened in bad weather or among the trees, please prepare in advance to avoid any inconvenience of your communication and security.

Installing and uninstalling of the accessories

Installing/Removing the battery
1) Align the two grooves of battery and the guide rail on the back of aluminum shell, ensuring full contact and in parallel, then push the battery up to the radio base along the rail on the back of aluminum shell, until the battery latch locks up. (picture 1)
2) To remove the battery, please make sure the radio is closed, push the battery latch down, and make sure the radio and battery is on the releasing state, and then push the battery out from the radio. (picture 2)
Installing and removing the antenna
1) Align the threaded end of antenna and the threaded hole at the top of radio, rotate the antenna clockwise until it is tight. (picture 3)
2) To remove the antenna, rotate it counter-clockwise until the antenna spirals out. (picture 4)

Installing/removing the belt clip
1) Align the two holes of belt clip and the two holes of the radio, fix them with the supplied M2.5x5 screw. (picture 5)
2) Loosen the screw set to remove the belt clip (picture 6)
Installing external headset
Reveal (do not remove) the mic/speaker jack cover (picture 7), insert the headset into the mic/speaker jack (picture 8).

Note: Using the external headset will affect the water-tightness performance of radio.
Getting familiar

Channel-selecting knob
Select the working channel, channel
annunciation when voice prompt is ON.

Antenna
with threaded head, for transmitting
and receiving

Power/volume knob
To power on/off and adjust the volume.
Rotate it clockwise, a "click" sound is
heard and a "Du" tone prompts the
radio power on, continue to rotate it to
adjust the volume. Rotate it counter-
clockwise until a "click" sound is heard,
it powers off.

LED indicator light
The indicator light turns red when
transmit, turns green when receive.
It blinks red when the battery
capacity is low, and blinks green
when scanning.

Speaker
sound output

Microphone
sound input

PTT switch
H/L key
Default setting
Short press: output power switch
Long press: temporary monitor

MONI
Short press: Voltage check
Long press: Alarm

Belt clip
You can clip the radio in the
belt and is easy to take.

Mic/speaker jack/
programming port
Used to connect headset or
external programming cable.
Programmable via PC
programming software.

Li-ion battery
For charging the radio.
Basic operations

Led indicator
It lights when transmitting and lights green when receiving.

Power on/off
Rotate the power/volume knob clockwise, a "click" sound is heard and a "Du" tone sounds, it powers on.
Rotate the power/volume knob counter-clockwise, a "click" tone sounds and it powers off.

Adjusting the volume
Rotate the power/volume knob clockwise, when it powers on, continue to rotate the knob to adjust the volume.

Note: You can monitor the background sound and adjust the volume.
Selecting channels
Rotate the channel-selecting knob directly to select your desired channel from 1 to 16.
Please refer to the channel numbers or symbols at the bottom of the knob to select the channel, or operate based on the voice annunciation.

Transmitting
To transmit, please press the [PTT] switch and speak to the microphone in a normal voice. Keep the mouth about 5cm away from microphone.

Notice: 1. Press [PTT] switch, the indicator lights red, it transmits.
2. If the red indicator blinks, it indicates low power, and the radio may not be able to transmit.

Multifunctional side-key assignment
User can define the functions of this key via RT1 programming software

Monitor
With this function, you can monitor the signals of current channel. It will sound some noise if there is not a signal.

Temporary monitor
When side-key is assigned as temporary monitor and press the key which is assigned as temporary monitor, press the key, background noise will be heard, release it to exit

H/L power switch
When side-key is assigned as High/Low power switch setting, press the key, you can enter High/Low power auto switch

Emergency alert (Alarm)
When side-key is assigned as emergency alert, press the key, the radio rings and press PTT, emergency alarm will be sent out to other radios in the same channel, they will emit emergency call. Press side-key again to turn it off.

Voltage check
When side-key is assigned as voltage check and press the key, the radio will announce current voltage: voltage high, voltage middle, voltage low and please charge it.

Ultra-high power
When side-key is assigned as ultra-high power and press the key, it lights red, it refers to transmit with Ultra-high power.
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 opening the radios speaker will be higher, and the corresponding communication range will be further, but the anti-interference capacity will be weaker.
The default setting of squelch level is 5, you can adjust it through the menu "Squelch Level" of the "Optional Features" in the software for RT1. Level 0 to 9 can be selected. 0 is the lowest level.

1750Hz tone TX
It needs this tone to connect with repeater in Europe

Time out timer (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". Release the PTT switch to stop the "Du" tone. Press the PTT switch again to resume transmission. The default setting of TOT is 180 seconds. You can edit the function through the menu "TX Time Out " of the "Optional Features" in the software, 5 minutes in maximum.

Scan
Rotate 13th channel, power off, then press PTT and H/L to turn on the radio to turn on or turn off the scan and when scan begins, indicators lights green, the radios will scan automatically from channel 1 to 16 which is defined as scan added. When there is signal in the scanning channel, it will stop in the channel for talk.
Note:
a. when there is signal in the scanning channel, it will stop in the channel for talk and after several seconds (this can be set within 3S-30S in the programming software)
b. please note that scan is only available when there are two or more than two memory channels and two or more than two scan added channels
c. rotate to 16th channel, and then turn off the radio. To press PTT and side-key to turn on the radio, scan will be turned off and repeat this operation to turn on the scan.
d. power off, rotate to 13th channel, then press PTT and H/L key to turn on the radio, if scan is "ON", rotate to the 16th channel, scan will begin while if scan is "OFF", radio won't scan
even you rotate to 16th channel.

Non-standard CTCSS/DCS code

You can input Non-standard CTCSS/DCS code via programming software and please note that the code should be set in the same frequency for TX and RX

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Voice prompt

Voice prompt will be selected “OFF/English/Chinese” through the menu “Voice” of the optional function in the programming software.

Rotate to 10th channel, and then turn off the radio. To press PTT and H/L key to turn on the radio, voice prompt will be turned off and repeat this operation to turn on the voice prompt.

Rotate to 15th channel, and then turn off the radio. To press PTT and H/L key to turn on the radio and repeat the operation, voice prompt will be switch between in Chinese and in English.

Battery save function

OFF: Battery save function is off
Level: 1:1, 1:2, 1:3, 1:4

The former one is the proportion for working time and latter one is the one for standby time, and higher proportions for standby, the longer will be battery use.

Tone

ON: when rotate the knob and it will beeps "DU"
OFF: when rotate the knob, there is no any tone

High/Low voltage TX prohibition

Low voltage hereby is lower than 6V while high voltage is higher than 9V
Both: the transmission will be prohibited if working voltage is beyond the normal supplying one
Off: you can transmit even working voltage is beyond the normal supplying one
Low inhibit: the transmission will be prohibited if working voltage is in low one
High inhibit: the transmission will be prohibited if working voltage is in high one

Emergency alert

On: the radio will emit the alarm call if there is emergency alert
Off: the radio won’t emit the alarm call if there is emergency alert
Battery voltage displaying
a. The transmission will be prohibited if the working voltage is beyond the normal supplying one, when you press PTT, indicator lights red and no transmission
b. When the working voltage is lower than the normal supplying one, indicator lights red, radio still can transmit
c. When the working voltage is lower than the normal supplying one, indicator lights red and radio beeps “DU”, it is low battery alert, indicator lights red, radio still can transmit
d. The transmission will be prohibited if the working voltage is too low, at this time, indicator lights red and radio beeps “DU”, when you press PTT, indicator lights red and no transmission

Busy channel lock
You can turn on/off this function via programming software
a: if current channel doesn’t have CTCSS/DCS, when there is signal, TX prohibited when you press PTT
b: if current channel doesn’t have CTCSS/DCS, when there is signal which doesn’t have CTCSS/DCS, TX prohibited when you press PTT
c: if current channel doesn’t have CTCSS/DCS, when there is signal which have CTCSS/DCS, the radio will transmit when you press PTT

Scrambler
When side-key is assigned as scrambler and press the key, TX voice will be sent out with scrambler, other radio only receive the signal when its scrambler also turns on

COMP
When side-key is assigned as COMP and press the key, it will greatly reduce the noise and make the communication smoothly. And please note that this function will be activated for radios have COMP

End tone elimination (STE)
You can select “ON/OFF” through the menu “Epilogue” in the programming software. It can eliminate nasty sound when transmission is finished. The benefit of this function is particularly evident for those using earphone.

High/low power adjustable
The factory default setting of this function is high power and you can select the desired high/low power of each channel through the programming software

Wide/narrow bandwidth setting
The default setting is wide band. You can select the wide band (25KHz) or narrow band (12.5KHz) through the menu "W/N" of the "Channel information" in the software.
Speak to the microphone in normal voice to transmit directly, no need to press PTT switch. Turn VOX on/off through RT1 programming software.

1) 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.

2) When a headset with a microphone is used.
   - When VOX is on, you should VOX gain for the radio to identify voice volume.
   - If microphone is too sensitive, the noise around radio will start transmitting.
   - If microphone is not sensitive, the radio can not collect your voice. Please adjust VOX level well to guarantee smooth communications.

VOX ending delay time (VOX D)
The radio resumes to receiving mode soon after transmitting, your TX voice may sometimes not be sent out successfully. To avoid this problem, you can adjust VOX delay time after transmission through RT1 programming software to select your desired delay time(0.5s, 1s, 2s, 3s).

VOX sensitivity (VOX S)
To make VOX more suitable for everyone to use, with different speaking volume and tone, please adjust and choose the most suitable level to use.

1). Power off, rotate to channel 1, at the same time, press PTT and H/L to power on, "DU" will be heard, VOX S level=1, repeat the operator, you will hear "DU, DU". VOX will be off.

2). Power off, rotate to channel 2, at the same time, press PTT and H/L to power on, "DU" will be heard, VOX S level=3, repeat the operator, you will hear iDU, DUI, VOX will be off.

3). Power off, rotate to channel 3, at the same time, press PTT and H/L to power on, "DU" will be heard, VOX S level=5, repeat the operator, you will hear "DU, DU", VOX will be off.

4). Power off, rotate to channel 4, at the same time, press PTT and H/L to power on, "DU" will be heard, VOX S level=7, repeat the operator, you will hear "DU, DU", VOX will be off.

5). Power off, rotate to channel 5, at the same time, press PTT and H/L to power on, "DU" will be heard, VOX S level=9, repeat the operator, you will hear "DU, DU", VOX will be off.

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.

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## The guide of Programming the radio

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</table>
Walkie talkie write frequency operation process

I. System Requirements
Hard Disk Space: At least 50MB of available.
The minimum memory: 64M

II. Install the write frequency line driver
1. Find the write line drive which your system corresponded to
2. Click to install, successfully installation is ok

III. Write frequency software installation
Programming cable readying
- USB Programming cable - need to install the driver before they write frequency
- Serial port Programming cable does not need to install the driver, it can directly write

Computer terminal preparations
- Open the computer, run the computer operating system.
- Install the write frequency software which has been downloaded well or Install it From the programming software CD
3. installed, and open the write frequency software programming interface

Walkie Talkie end preparations
- USB (or serial) Programming cable connect the computer end
- The USB Programming cable pin is connected with one end of the walkie talkie programming interface
- Ensure the walkie talkie under the condition of power, open it.

IV. Write frequency software operating process
1. Find the software settings, open communication port, to ensure the communication port Option and computer connection port consistent (inconsistent will not read frequency) to solve the related problem
2. In the menu to find reading frequency and click in the window that appears can reading frequency
3. This process needs waiting for a while, after the completion of reading the progress bar shows the walkie talkie channels and frequencies that have been read into the current software
4. Modify the walkie talkie channel and frequency data, and other functional parameter data
5. Find the write frequency in the menu, click the appeared window to confirm, complete the progress bar
6. if multiple walkie talkie needs the same frequency, frequency steps can be repeated to write
V: Related problem solving

When reading or writing frequency of walkie talkie long time no response or a communication error?

● check the write frequency line to find if it is damaged
● check whether the write frequency line with computer serial port or walkie talkie interface is bad or loose
● Check to find whether the walkie talkie battery is low or out of power, if this, please replace the battery or charging the battery
● Check whether the programming software is match with the current model
● Please check whether the write frequency software port settings are assigned to the computer USB port
● Please check whether the power is switched on the walkie talkie
● Whether to choose the corresponding drive system and the correct installation

When writing the frequency is completed, found two walkie talkie cannot normal call or receive

● Make sure whether the two walkie-talkie are in the same channel
● Determine the same channel at the receiving end CTCSS, CDS and the transmitter is not the same

3. make sure whether the two walkie talkie volume is too low, if it is too low, turn on the volume

4. Please check whether the two walkie-talkies are open, or at low/no power status

5. Check whether The walkie-talkie installed antenna

6. check and confirm whether the communication distance is too far
Optional Accessories

Trouble shooting guide

Specifications

More Optional Accessories of Retevis

- Speaker microphone
- 6 in 1 programming cable kit
- Acoustic Tube headset
- Antenna
- Throat mic
- Programming cable

For more information, please visit our website: www.retevis.com
Optional Accessories

- Vehicle Charger
- Speaker
- Antenna Adapter
- Earphone
- Clone Cable
- Program Cable
- Eliminator
- Software CD

Trouble shooting guide

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

## General

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Model Number</td>
<td>RT1</td>
</tr>
<tr>
<td>Frequency Range</td>
<td>VHF: 134.000-174.000MHz or UHF: 400.000-520.000MHz</td>
</tr>
<tr>
<td>Channel Number</td>
<td>16</td>
</tr>
<tr>
<td>Working Voltage</td>
<td>DC 8V</td>
</tr>
<tr>
<td>Working Temperature</td>
<td>-10℃ ~ +50℃</td>
</tr>
<tr>
<td>Antenna</td>
<td>High gain antenna</td>
</tr>
<tr>
<td>Antenna Impedance</td>
<td>50Ω</td>
</tr>
<tr>
<td>Working Mode</td>
<td>Simplex</td>
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<tr>
<td>Dimension</td>
<td>132<em>59</em>32mm</td>
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## Receiver

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Frequency range</td>
<td>VHF: 134.000-174.000MHz or UHF: 400.000-520.000MHz</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>&lt; 0.2uV</td>
</tr>
<tr>
<td>Occupied Bandwidth</td>
<td>&lt; 16KHz</td>
</tr>
<tr>
<td>Selectivity</td>
<td>&gt; 65dB</td>
</tr>
<tr>
<td>Intermediation</td>
<td>&gt; 55dB</td>
</tr>
<tr>
<td>Audio power</td>
<td>1W</td>
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</table>

## Transmitter

<table>
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<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range</td>
<td>VHF: 134.000-174.000MHz or UHF: 400.000-520.000MHz</td>
</tr>
<tr>
<td>Output power</td>
<td>H=9W ± 1W, L=5W ± 0.5W</td>
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<tr>
<td>Modulation Mode</td>
<td>16KF ± 3E</td>
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<tr>
<td>Spurious radiation</td>
<td>&lt; 7.5uW</td>
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<tr>
<td>Modulation noise</td>
<td>&lt; 40dB</td>
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<tr>
<td>Modulation distortion</td>
<td>&lt; 5%</td>
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<tr>
<td>Frequency Stability</td>
<td>5ppm</td>
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<tr>
<td>Maximum deviation</td>
<td>&lt; ± 5KHz</td>
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<tr>
<td>Current</td>
<td>&lt; 2300mA</td>
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<tr>
<td>Audio response</td>
<td>+6.5~14dB</td>
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<tr>
<td>Adjacent Ch. power</td>
<td>&gt; 65dB</td>
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<tr>
<td>Intermediation</td>
<td>8~12mv</td>
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</table>

**Note:** Specifications will be revised without notice due to technical improvement. Thank you.
Thank you for buying Retevis two-way radios, we will do our best to provide you with a stable, clear and efficient wireless communication services. In order for you to enjoy a better quality warranty service, please focus on the following information:

The products warranty period begins from the purchasing date, if product failure under normal use within warranty period occurs, according to the contents of this warranty, the radio is guaranteed for 12 months, accessories 6 months, please carry the warranty card originals and purchase invoice to Retevis designated authorized warranty repair station for warranty service.

The following situations occur during warranty period will be implemented in paid service:
1. Failure to produce the warranty card
2. The card has altered traces or inconsistent with the product
3. Defect or damage caused by abnormal or non-normal use
4. Defect or damage caused by misuse, accident, water or negligence
5. Defect or damage caused by improper testing, operation, maintenance, installation, disassembly or adjustment
6. Defect or damage caused by unauthorized repair or disassembly
7. Defect or damage caused by force majeure
8. Wear and tear under normal use

When you are in need of repair, please send the radio, warranty card and purchase invoice together by post or take directly to Retevis designated authorized service stations, shopping costs should be borne by the user.